



Landmark Trees

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**ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:**

52-54 Avenue Road  
London  
NW8 6HS

**INSTRUCTING PARTY:**

Private Client c/o Domvs London  
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**DOCUMENT HISTORY**

<b>Revision</b>	<b>Status</b>	<b>Comments</b>	<b>Date</b>
Rev 0	DRAFT	For Internal Review (Client / Design Team)	
Rev 01c	External	For Planning Application	12/10/21
Rev 01d	APPROVED	For External Issue (Planning)	05/5/2022

## 1. SUMMARY

- 1.1 The existing site is a dilapidated residential property with substantive long term unmaintained gardens containing a number of trees potentially constraining development. The proposal includes replacement of the existing dwelling with 3 residential buildings.
- 1.2 There are 31 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 T5 and T27 as standout specimens. All trees are material constraints on development, but these latter require particular consideration. At the other end of the spectrum, T11 requires prompt attention regardless of development as a poor-quality specimen.
- 1.3 The report has assessed the impacts of the development proposals and concludes there could be a moderate level impact on the resource: whilst a number of trees will be removed or pruned to facilitate construction, there will be a significant net gain in numbers as per the landscaping plan. Though pruning here is to serve development, if undertaken to best practice, the scale envisaged should not be altogether untoward in an occupied site.
- 1.4 Whilst the default position is that structures be located outside the Root Protection Area\* (RPA) of trees to be retained, there are some encroachments that could not be avoided in the design of the scheme. The report has demonstrated that the 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, cognisant of the landscaping plan which can be secured by planning condition will require the removal of a number of trees but the overall site and especially tree'd and screened boundaries will be significantly enhanced.

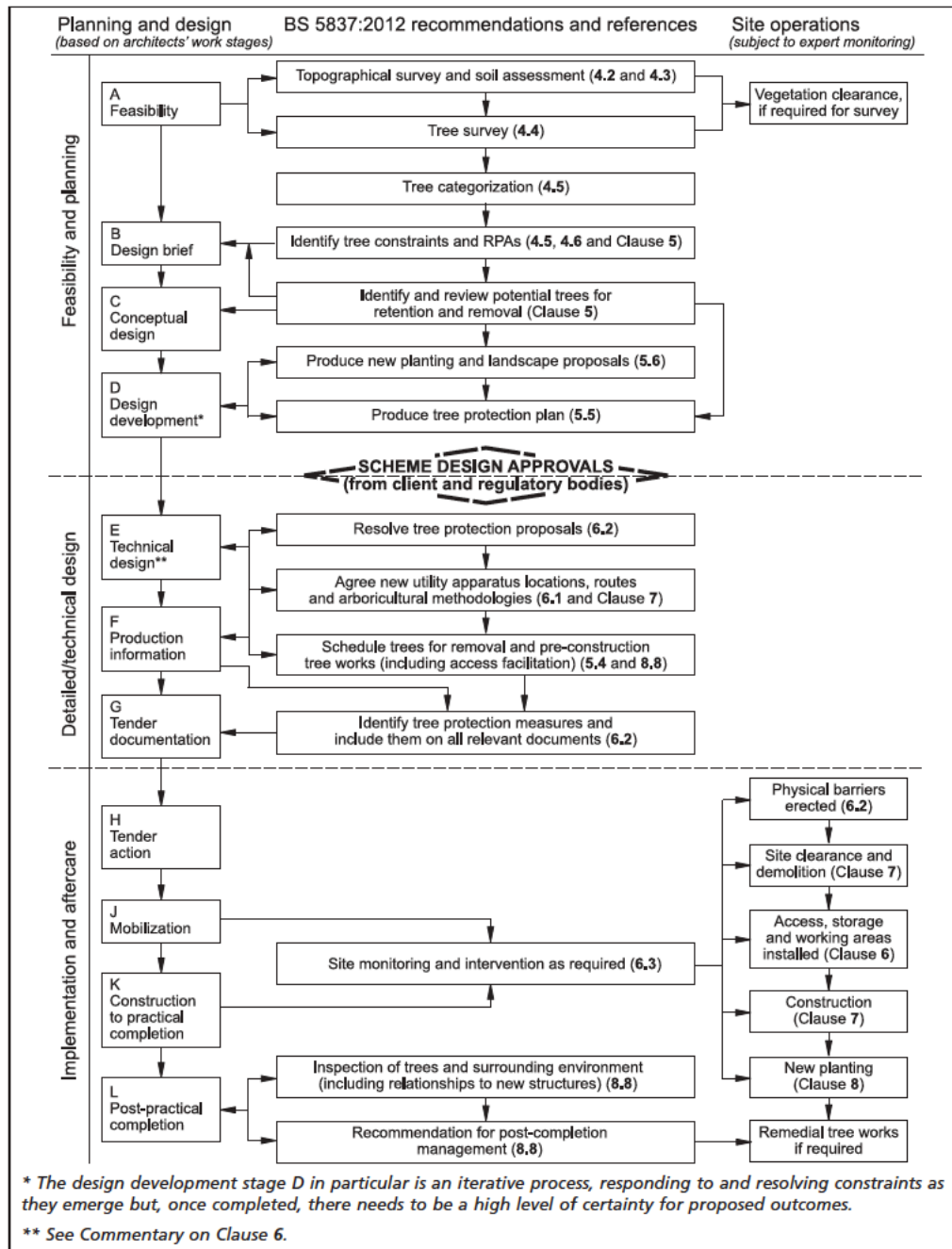
\* British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London

## 2. INTRODUCTION

### 2.1 Terms of Reference

- 2.1.1 Domvs London instructed Landmark Trees (LT) to prepare this Arboricultural Impact Assessment on behalf of their client, to support a pre-application submission to the London Borough of Camden ('LBC').
- 2.1.2 The application relates to the replacement of the existing dwelling with 3 residential buildings which include basement and LGF levels.
- 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



## 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: TS21-451-1-2D

Proposals: PROPOSED BASEMENT PLAN, PROPOSED LOWER GROUND FLOOR PLAN & PROPOSED GROUND FLOOR PLAN

## 2.3 Scope & Limitations of Survey

2.3.1 As Landmark Trees' (LT) arboricultural consultant, Ross Gamblin surveyed the trees on site on 17<sup>th</sup> August 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 site occupies a corner position on Avenue Road, at its junction with Elsworthy Road. The site comprises two plots with a double frontage on Avenue Road and separate access off Elsworthy Road. The site previously contained 2 villas to the south-west of the existing building and a garage (see Plan Extracts 1 & 2 over leaf). The rubble from the two original 1840s villas that were demolished was spread across the top layer of the site.
- 3.1.2 The site is relatively level throughout.
- 3.1.3 We are not aware of the existence of any Tree Preservation Orders\*, but understand the site stands within the Elsworthy 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 (basements only), D1, D2 (only in CAs) 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.





Plan Extract 1: Showing the site with garage



Plan Extract 2: Showing the site with pre-existing villas

### 3.2 Soil Description

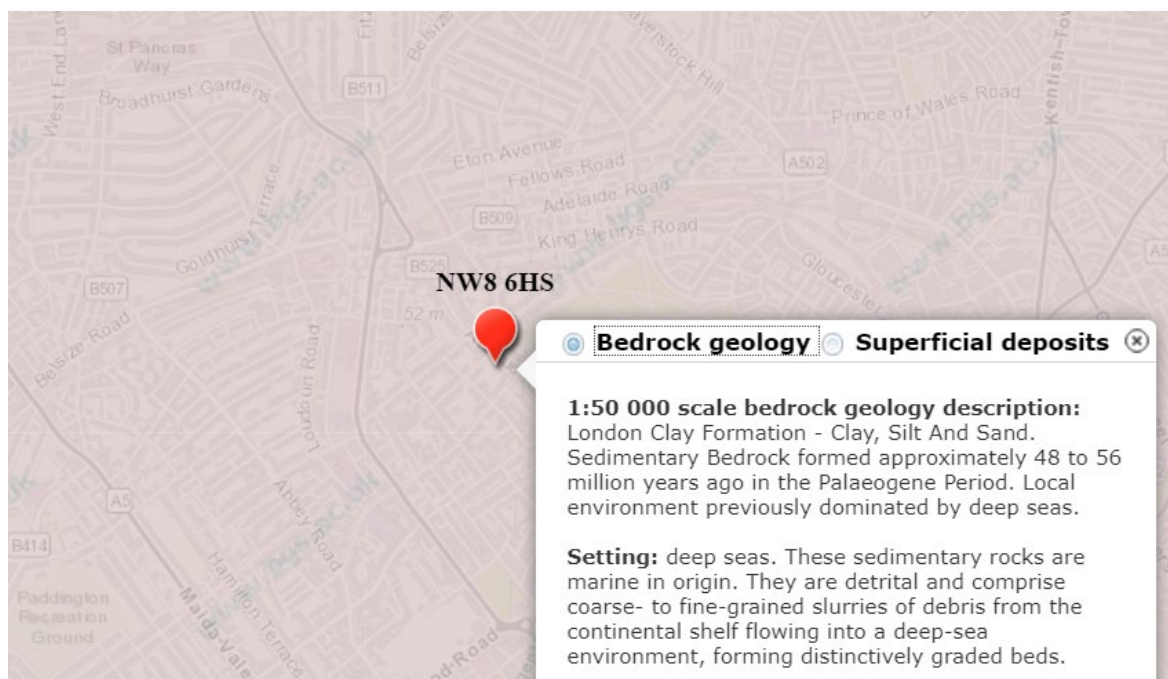


Figure 2: Extract from the BGS Geology of Britain Viewer

- 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.
- 3.2.3 We note from the trial pit record that the footings of the boundary wall (built in 1959) has its footings down to the compacted clay layer, evidently restricting rooting in and out of the site.

### 3.3 Subject Trees

- 3.3.1 Of the 31 surveyed trees, 2 are category\* A (High Quality) 11 are category B (Moderate Quality), 15 are category C (Low Quality), 1 is category C/U (Low / Poor Quality) and 1 is category U (Poor Quality).
- 3.3.2 The tree species found on the site comprise bay, silver birch, common lime, London plane, silver maple, tree of heaven, Portuguese laurel, Leyland cypress, cherry plum and Austrian pine.
- 3.3.3 In terms of age demographics there is a broadly even mix of semi-mature, early mature and mature specimens present.

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

- 3.3.4 Full details of the surveyed trees can be found in Appendix 1 of this report.
- 3.3.5 There are recommended works for 20 trees. These are listed in Appendix 2.





Photograph 2: The site's frontage along Elsworthy Road





Photograph 3: Decay at pollarding point of T7



Photograph 4: Fruiting bodies at base of T12

## 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.

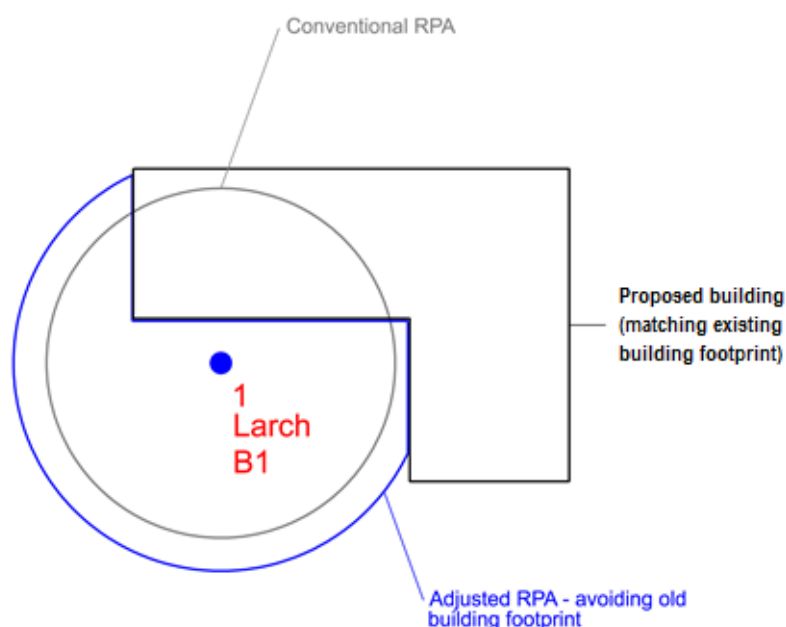


Figure 2 – Generic BS 5837 RPA Adjustments

- 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 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. **In this instance, a priori RPA modifications have been made in order to reflect the likely effect of the boundary wall of the site on rooting into it from trees beyond. The demolished footprints of previous buildings (as per p.9, Plan Extract 1 & 2) on site are also likely to have played their part in limiting root colonisation of the site; they have been and will continue to be the subject of ongoing site investigations to better understand their influences.**
- 4.1.5 The quality of trees will also be a consideration: U Category trees are discounted from the planning process in view of their limited useful life expectancy. Again, Category-C trees would not normally constrain development individually, unless they provide some external screening function.
- 4.1.6 At paragraph 5.1.1. BS5837: 2012 notes that "Care should be exercised over misplaced tree preservation; attempts to retain too many or unsuitable trees on a site are liable to result in excessive pressure on the trees during demolition or construction work, or post-completion demands on their removal."

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

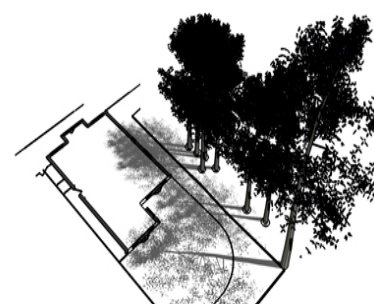


Figure 3 –  
Generic Shading Constraints

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.

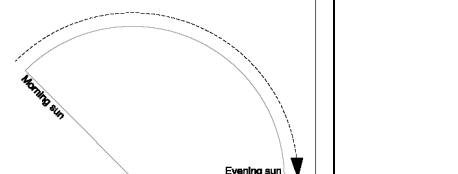


Figure 4 – Shading Arc

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
C1	T1	Bay	Felled to Facilitate Development	N/a	M		N/a	N/a	Low	New planting / landscaping
C2	T2	Silver Birch	Felled to Facilitate Development	N/a	SM		N/a	N/a	Low	New planting / landscaping
B2	T3	Common Lime	Felled to Facilitate Development	N/a	EM		N/a	N/a	Medium	New planting / landscaping
B1	T4	Common Lime	Felled to Facilitate Development	N/a	M		N/a	N/a	Medium	New planting / landscaping
A1	T5	London Plane	LGF Construction within RPA & Building Construction adjacent to Canopy	4.5sqm / 0.8%	M		Good	Very low	Very low	Hand dig top 750mm of foundation line through RPA & remedial tree surgery works (see App 3)
C2/U	T6	Silver Maple	Felled to Facilitate Development	N/a	M		N/a	N/a	Low	New planting / landscaping
B1	T14	Common Lime	Felled to Facilitate Development	N/a	M		N/a	N/a	Medium	New planting / landscaping
B2	T15	Tree of Heaven	Felled to Facilitate Development	N/a	M		N/a	N/a	Medium	New planting / landscaping
C2	T17	Unknown	Felled to Facilitate Development	N/a	EM		N/a	N/a	Low	New planting / landscaping
C1	T18	Tree of Heaven	Felled to Facilitate Development	N/a	M		N/a	N/a	Low	New planting / landscaping
C2	T19	Portugal Laurel	Felled to Facilitate Development	N/a	EM		N/a	N/a	Low	New planting / landscaping
B1	T20	Common Lime	Felled to Facilitate Development	N/a	M		N/a	N/a	Medium	New planting / landscaping
B2	T21	Common Lime	Felled to Facilitate Development	N/a	M		N/a	N/a	Medium	New planting / landscaping
C2	T22	Leyland Cypress	Felled to Facilitate Development	N/a	EM		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
B2	T23	Leyland Cypress	Felled to Facilitate Development	N/a	EM		N/a	N/a	Medium	New planting / landscaping
C1	T24	Leyland Cypress	Felled to Facilitate Development	N/a	M		N/a	N/a	Low	New planting / landscaping
C2	T25	Cherry Plum	Felled to Facilitate Development	N/a	EM		N/a	N/a	Low	New planting / landscaping
A1	T27	London Plane	LGF Construction within RPA	4.5sqm / 0.6%	M		Good	Low	Low	Hand dig top 750mm of foundation line through RPA
C2	T30	Cypress, Leyland	Building Construction within Canopy	N/a	EM	Normal	Moderate	Low	Low	Remedial tree surgery (see App 3)
B/C2	T31	Pine, Austrian	Felled to Facilitate Development	N/a	EM	Normal	N/a	N/a	Medium / low	New planting / landscaping

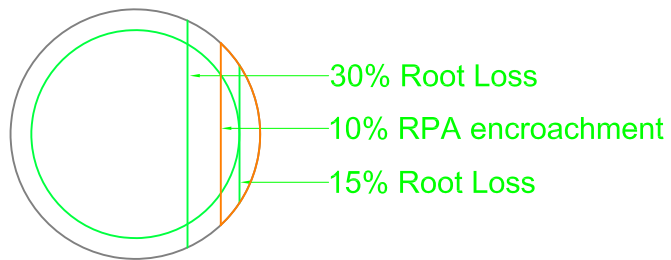
## 6.0 ARBORICULTURAL IMPLICATIONS

### 6.1 Rating of Primary Impacts

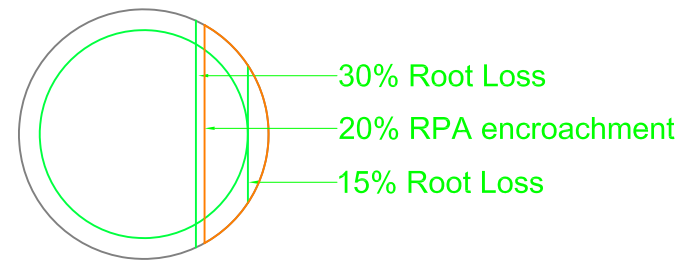
- 6.1.1 The principal impacts in the current proposals are the removal of the 16 trees listed in Table 1 above. In terms of resource management, these comprise a relatively small portion of the whole, particularly in terms of canopy cover. Those removed generally have more collective (Category C) than individual specimen value (Category A & B), exceptions being T's 3, 4, 14, 15, 20, 21 and 23. 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. Similarly, though pruning of 4 trees is required here to serve development, undertaken to best practice, the scale envisaged should not be altogether untoward in a more managed and occupied site. The immediate reduction in canopy cover through felling and / or pruning is therefore is rated as a medium level impact unlikely to harm either the resource or the wider conservation area over the long term.
- 6.1.2 Further impacts to retained trees comprise the encroachments of the RPAs of T's 5 and 27 by the proposed lower ground floor level. These encroachments comprise less than 1% of the respective total areas.
- 6.1.3 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.

6.1.4 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



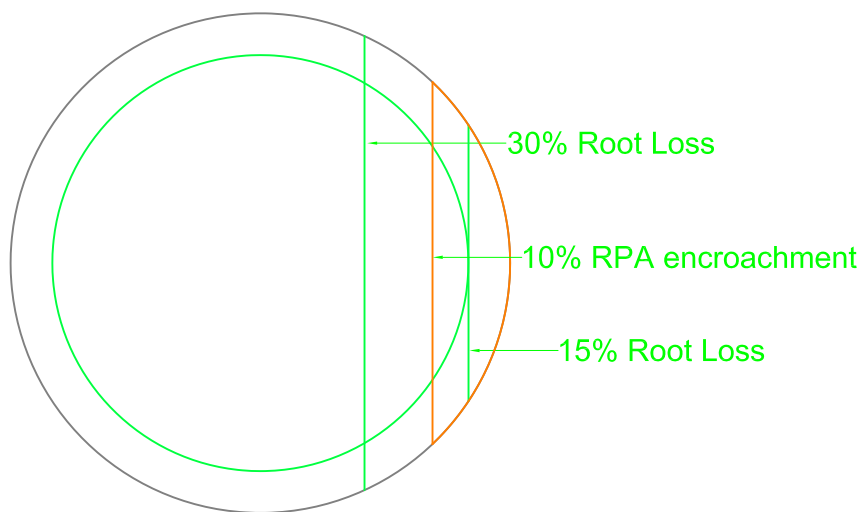
Area 7.98 sq.m. (10.0%)



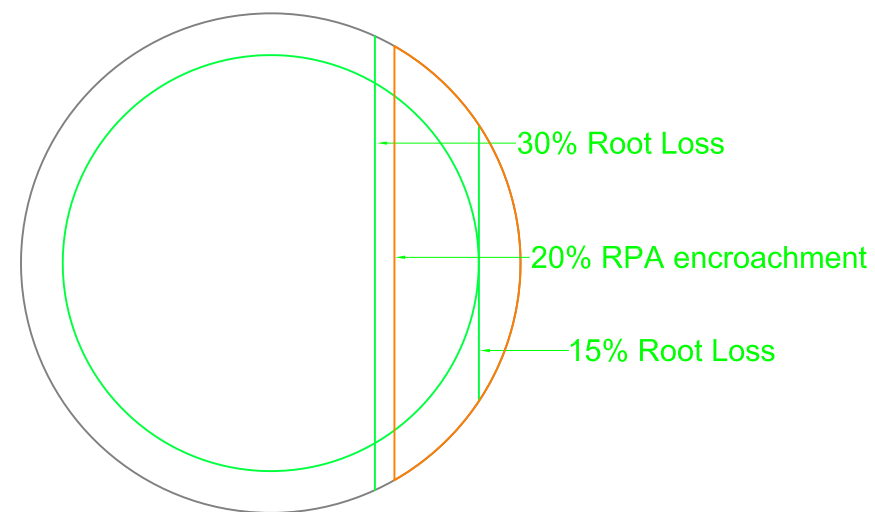
Area 15.96 sq.m. (20.0%)

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

RPA: 10m



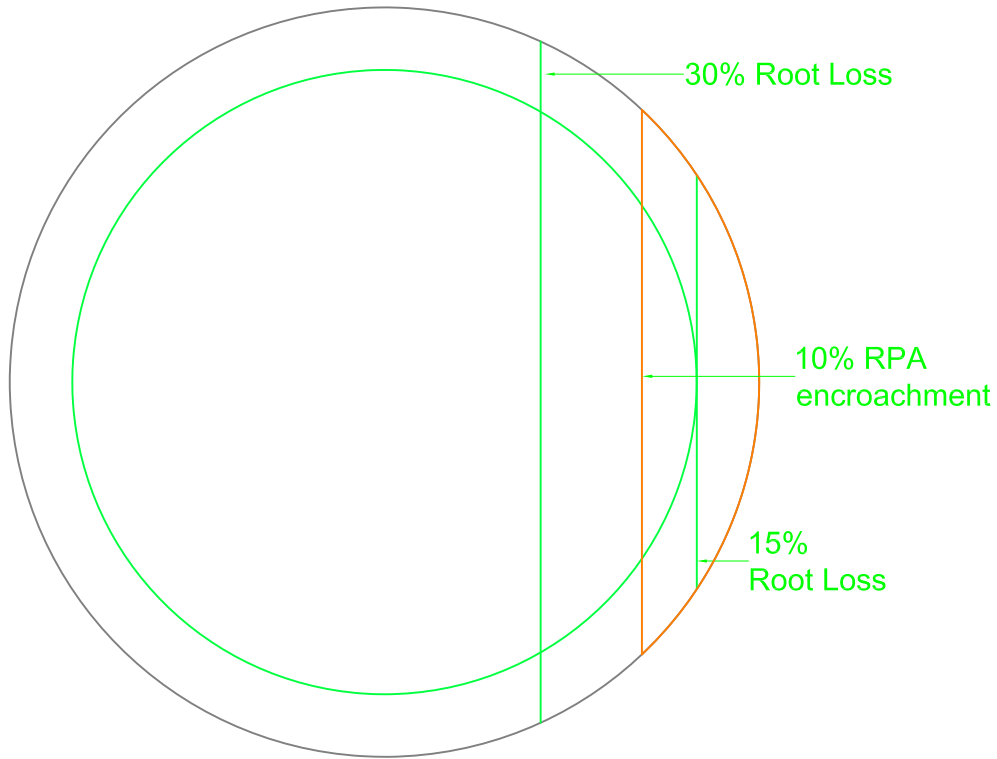
Area 31.17 sq.m. (10.0%)



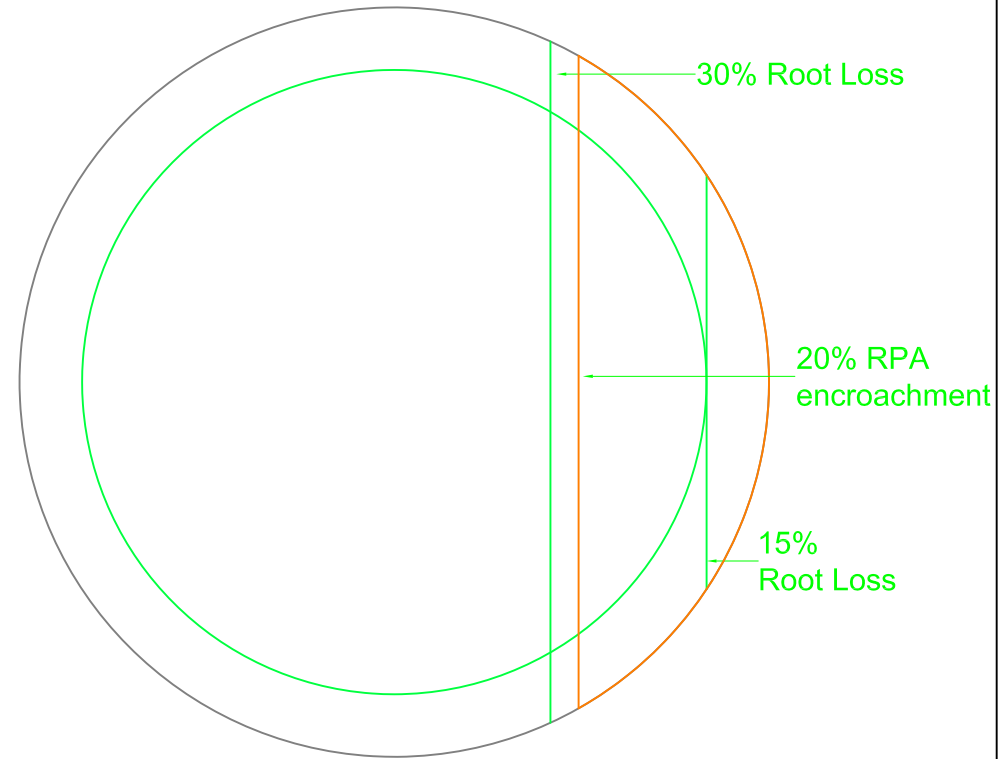
Area 62.33 sq.m. (20%)

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

RPA: 15m



Area 70.7 sq.m. (10.0%)



Area 141.4 sq.m. (20.0%)

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

- 6.1.5 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.
- 6.1.6 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.
- 6.1.7 As per BS5837 recommendations (at 5.3.a), the above assessment demonstrates that the tree(s) can remain viable and as per the equivalent hatching in Plan 2 of the Appendices that the area(s) lost to encroachment can be compensated for elsewhere. The guide also recommends (at 5.3.b) the arboriculturalist propose a series of mitigation measures (to improve the soil environment that is used by the tree for growth). These are provided at 6.3 below.



## 6.2 Rating of Secondary Impacts

6.2.1 Following the tree removals detailed above, the principal secondary impacts will arise from the trees along the Avenue Road boundary which will cast shade on the nearest building elevations as well as require ongoing pruning to maintain canopy clearance. It will though be noted that the trees closest to the building are already cyclically pruned and are of species well tolerant of repeated pruning. The secondary impacts of development are therefore assessed as being low: the requirement to prune the trees affecting the development most exists regardless of its implementation and as such the proposals cannot be said to introduce an otherwise absent pressure for pruning.

## 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. Design can provide for a diverse range of native and ornamental species that will compliment rather than conflict with the proposals, so providing a more sustainable long-term resource for the future. A selection of tree species and cultivars for open and constricted sites is provided in Appendix 4.

6.3.2 RPA encroachments are shown in Plan 2 compensated for elsewhere on contiguous land. Soft ground within the affected 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 All plant and vehicles engaged in demolition works should either operate outside the RPA, or should run on a temporary surface designed to protect the underlying soil structure. The demolition of the building should proceed inwards in a "pull down" fashion. Hard surfacing can be lifted with caution by a skilled machine operator again working away from the trees.

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

- 6.3.6 The immediate canopy encroachment can be avoided with a crown reduction, affecting a 2m lateral clearance.
- 6.3.7 Nuisance deposition can be further mitigated with routine maintenance, light pruning / deadwooding and the fitting of filtration traps on guttering (see Figure 5 below).
- 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.

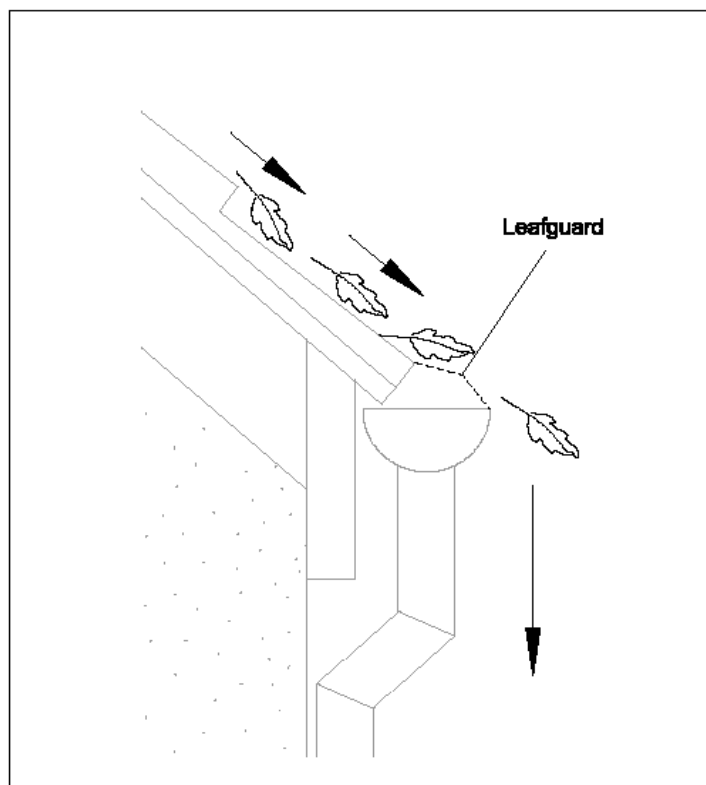


Figure 5: Filtration traps, as shown above, could be fitted on the gutters which can easily be maintained at 2-3m above ground.

## 7.0 CONCLUSION

- 7.1 The potential impacts of development are of a medium level in terms of quality of trees removed and generally low in terms of RPA encroachments of trees retained. In the latter case, the report has demonstrated as per BS5837 paragraph 5.3.1 (a) that the remaining 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 trees 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 Following Camden Tree Officers Nick Bell's informal site visit where he suggested he would be considering the loss of all the existing boundary trees fronting Avenue Road subject to a suitable agreed replacement strategy, the development plan is further mitigated and indeed enhanced from that that exists with the significant net gain suggested per the landscaping plan
- 7.5 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 over the long-term.
- 7.6 The ambition of our client and that of the LPA for a multi unit development on the existing dilapidated site can be facilitated per the landscaping plan with a significant net gain in mature and semi mature indigenous tree species principally benefitting and enhancing the existing screen'd boundary treatment on both the Avenue and Elsworthy Roads.
- 7.7 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 (basements only), D1, D2 (only in CAs) 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 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 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

- Barlow JF & Harrison G. 1999. Shade By Trees, Arboricultural Practice Note 5, AAIS, Farnham, Surrey.
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- Centre for Ecology & Hydrology. 2006. Tree Roots in the Built Environment, HMSO, London.
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- Lonsdale D 1999. Research for Amenity Trees No.7: Principles of Tree Hazard Assessment and Management, HMSO, London.
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- Thomas P, 2000 & 2014. Trees: Their Natural History, Cambridge University Press, Cambridge.
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### 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.



## PART 2 – APPENDICES

## APPENDIX 1

### TREE SCHEDULE

#### Botanical Tree Names

Bay, Laurel	: Laurus nobilis	Maple, Silver	: Acer saccharinum
Birch, Silver	: Betula pendula	Pine, Austrian	: Pinus nigra
Blackthorn/Sloe	: Prunus spinosa	Plane, London	: Platanus acerifolia
Cypress, Leyland	: Cupressus × leylandii	Plum, Cherry	: Prunus cerasifera
Heaven, Tree of	: Ailanthus altissima	Sycamore	: Acer pseudoplatanus
Laurel, Portuguese	: Prunus lusitanica		
Lime, Common	: Tilia x europea		

#### 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	Useful Life	Comments
T1	Bay	6	3	4	4	3.5	1.5	260, 220	M	4.1		C1	40+	Bifurcated from 0.2m, compression union.	
T2	Silver Birch	13	3	2	4	2	3	220	SM	2.6		C2	40+	Crown offset from base. Poor form.	
T3	Common Lime	19	5	8	5	1.5	2	380	EM	4.6		B2	40+	Major deadwood in crown. Crown distorted due to group pressure. Ivy clad stem, dense basal growth. Historically pollarded and subsequently reduced.	
T4	Common Lime	22	6	8	5	4	4	830	M	10		B1	40+	Ivy on stem. Minor deadwood, epicormic growth	
T5	London Plane	21	11	7	8	13	5.5	1140	M	13.7		A1	20+	Historically reduced.	
T6	Silver Maple	20	10	10	10	4	1.5	990	M	11.9		B1	40+	Ivy on stem. Epicormics on stem. Historical limb failure point at 10m, north side, minor localised dieback. Crown bias to east. Bifurcated from 2.5m.	
T7	Sycamore	15	4	1	2	3	4	220	SM	2.6		C2	40+	Crown distorted due to group pressure. Self set.	
T8	London Plane	19	8	5	4	7	6	850	M	10.2		B1	40+	Dead structural limbs on south and west sides. Symptoms of massaria. Offsite.	
T9	Common Lime	18	5	1	4	2	2	480	M	5.8		C1	40+	Ivy on stem. Major deadwood in crown. Historically pollarded with extensive and advanced decay set in at old topping point. Minimal holding wood remaining after a stem failure.	
T10	Common Lime	19	2	5	5	5	2	490	M	5.9		B2	40+	Ivy on stem. Epicormics on stem. Major deadwood in crown. Of unremarkable form. Historically pollarded. Drawn up.	
T11	Unknown	2.5	0	0	0	0	0	200	EM	2.4		U	<10	Dead.	
T12	London Plane	19	7	7	3	8	2	880	M	10.6		B1	10+	Large cavity at 4.5m east side. Multiple mature and immature gannoderma brackets at north side of base.	
T13	Common Lime	14	3	1	3	3	1	310	SM	3.7		C2	<10	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded, codominant but has lost leader and is decaying out at failure point, leaving remaining stem susceptible to further failure.	
T14	Common Lime	21	4	6	4	4	1	610	M	7.3		B1	40+	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded. Minor lean in main stem to south.	
T15	Tree of Heaven	19	6	1	9	5	4	810	M	9.7		B2	40+	Ivy on stem. Poorly formed tree with crown offset from base. Bias to north and east.	

Tree No.	English Name	Height	Crown Spread				Ground Clearance	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Useful Life	Comments	
T16	London Plane	6	3	3	3	3.5	1.5	140	SM	1.7				C1	40+	Offsite. A tree with good future potential.
T17	Unknown	3	3	1	3	3	2	160, 150	EM	2.6				C2	10+	Ivy on stem. Dieback in crown.
T18	Tree of Heaven	18	3	1	7	6.5	4	830	M	10				C1	10+	Ivy on stem. Dieback in crown. Low bud/leaf density. Major deadwood in crown. Uniformly thin crown with reduced leaf size and density. Tree in physiological decline.
T19	Portugal Laurel	8	1	3	3	3	2	170, 150, 160	EM	3.3				C2	40+	Ivy on stem. Crown distorted due to group pressure. Trifurcated from 0.5m, suppressed.
T20	Common Lime	19	4	6	6	6	2	400	M	4.8				B1	40+	Epicormics on stem. Historically pollarded and subsequently reduced, ivy clad.
T21	Common Lime	20	6	4	4	5	1.5	400, 450	M	7.2				B2	40+	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded and subsequently reduced. Heavy bias to north. Lifted and cut back on south side. Codominant from c 1.5m. Poor resulting form.
T22	Leyland Cypress	17	0	3	2	2	5	350	EM	4.2				C2	20+	Ivy on stem. Forming joint crown with adj group. Over lifted.
T23	Leyland Cypress	17	6	1	4	3	5	350	EM	4.2				B2	20+	Ivy on stem. Forming joint crown with adj group. Bifurcated from 1.2m, arf DBH .
T24	Leyland Cypress	17	1	6	3	3	6	500	M	6				C1	20+	Ivy on stem. Overlifted on south side, poor resulting form. Forming joint crown with adjacent trees.
T25	Cherry Plum	7	5	3	2	2	1	290	EM	3.5				C2	10+	Ivy on stem. Dieback in crown. Crown distorted due to group pressure. Suppressed form.
T26	Silver Birch	17	5	5	5	1	4	370	M	4.4				B2	20+	Remote survey only. Dbh estimated .
T27	London Plane	21	8	9	9	10	3.5	1250	M	15				A1	40+	Well formed tree. Part reduced on north and east side of crown.
G28	Cypress, Leyland x 4	13	2	2	2	2	2	200	SM	2.4	Normal	Good		C2	20+	
T29	Cypress, Leyland	9	2	2	2	2	2.5	230	SM	2.76	Moderate	Good		C2	20+	Suppressed by nearby tree
T30	Cypress, Leyland	11	4	4	4	4	2.5	360	EM	4.32	Normal	Good		C2	20+	Co-dominant stems, included bark in main stem unions, consented for felling, not removed yet
T31	Pine, Austrian	10	3	4	4	3	2.5	400	EM	4.8	Normal	Good		B/C2	20+	Remote survey only, Redband needle blight (marked increase since 2014)

## 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	Comments	Preliminary Recommendations	Priority
T3	Common Lime	19	4.5	7.5	5	1.5	2	B2	Major deadwood in crown. Crown distorted due to group pressure. Ivy clad stem, dense basal growth. Historically pollarded and subsequently reduced. Historically pollarded and subsequently reduced.	Sever Ivy. Remove epicormics. Remove major deadwood.	RH2
T4	Common Lime	22	6	7.5	5	4	4	B1	Ivy on stem. Minor deadwood , epicormic growth	Sever Ivy. Remove epicormics. Remove major deadwood.	RH2
T6	Silver Maple	20	9.5	9.5	10	4	1.5	B1	Ivy on stem. Epicormics on stem. Historical limb failure point at 10m, north side, minor localised dieback. Crown bias to east. Bifurcated from 2.5m.	Sever Ivy. Remove epicormics. Remove major deadwood.	RH2
T8	London Plane	19	7.5	5	4	7	6	B1	Dead structural limbs on south and west sides. Symptoms of massaria. Offsite.	Remove major deadwood.	RH2
T9	Common Lime	18	4.5	1	4	2	2	C1	Ivy on stem. Major deadwood in crown. Historically pollarded with extensive and advanced decay set in at old topping point. Minimal holding wood remaining after a stem failure.	Sever Ivy. Remove epicormics. Repollard or fell.	RH2
T10	Common Lime	19	2	5	5	5	2	B2	Ivy on stem. Epicormics on stem. Major deadwood in crown. Of unremarkable form. Historically pollarded . Drawn up.	Sever Ivy. Remove epicormics. Remove major deadwood.	RH2
T11	Unknown	2.5	0	0	0	0	0	U	Dead.	Remove tree and roots.	RH2
T13	Common Lime	14	3	1	3	3	1	C2	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded, codominant but has lost leader and is decaying out at failure point, leaving remaining stem susceptible to further failure .	Repollard or fell.	RH2
T14	Common Lime	21	4	5.5	4	4	1	B1	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded. Minor lean in main stem to south.	Sever Ivy. Remove epicormics. Remove major deadwood.	RH2
T15	Tree of Heaven	19	6	1	9	5	4	B2	Ivy on stem. Poorly formed tree with crown offset from base. Bias to north and east.	Sever Ivy.	RH2
T17	Unknown	3	3	0.5	3	3	2	C2	Ivy on stem. Dieback in crown.	Sever Ivy.	RH2

Tree No.	English Name	Height	Crown Spread				Ground Clearance	B.S. Cat	Comments	Preliminary Recommendations	Priority
T18	Tree of Heaven	18	3	1	6.5	6.5	4	C1	Ivy on stem. Dieback in crown. Low bud/leaf density. Major deadwood in crown. Uniformly thin crown with reduced leaf size and density. Tree in physiological decline.	Sever Ivy. Remove major deadwood. Monitor condition.	RH2
T19	Portugal Laurel	8	1	3	3	3	2	C2	Ivy on stem. Crown distorted due to group pressure. Trifurcated from 0.5m, suppressed.	Sever Ivy.	RH2
T20	Common Lime	19	4	6	6	6	2	B1	Epicormics on stem. Historically pollarded and subsequently reduced, ivy clad.	Sever Ivy. Remove epicormics.	RH2
T21	Common Lime	20	6	4	3.5	5	1.5	B2	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded and subsequently reduced. Heavy bias to north. Lifted and cut back on south side. Codominant from c 1.5m. Poor resulting form.	Sever Ivy. Remove epicormics. Remove major deadwood.	RH2
T22	Leyland Cypress	17	0	3	2	2	5	C2	Ivy on stem. Forming joint crown with adj group. Over lifted.	Sever Ivy.	RH2
T23	Leyland Cypress	17	6	1	4	3	5	B2	Ivy on stem. Forming joint crown with adj group. Bifurcated from 1.2m, arf DBH .	Sever Ivy.	RH2
T24	Leyland Cypress	17	1	6	3	3	6	C1	Ivy on stem. Overlifted on south side, poor resulting form. Forming joint crown with adjacent trees.	Sever Ivy.	RH2
T25	Cherry Plum	7	4.5	3	2	2	1	C2	Ivy on stem. Dieback in crown. Crown distorted due to group pressure. Suppressed form.	Sever Ivy. Remove major deadwood.	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	Comments	Works Recommended to Facilitate Development
T1	Bay	6	3	4	4	3.5	1.5	C1	Bifurcated from 0.2m, compression union.	Fell
T2	Silver Birch	13	3	2	4	2	3	C2	Crown offset from base. Poor form.	Fell
T3	Common Lime	19	5	8	5	1.5	2	B2	Major deadwood in crown. Crown distorted due to group pressure. Ivy clad stem, dense basal growth. Historically pollarded and subsequently reduced. Historically pollarded and subsequently reduced.	Fell
T4	Common Lime	22	6	8	5	4	4	B1	Ivy on stem. Minor deadwood , epicormic growth	Fell
T5	London Plane	21	11	7	8	13	5.5	A1	Historically reduced.	CB / CL to provide constructional clearance
T6	Silver Maple	20	10	10	10	4	1.5	B1	Ivy on stem. Epicormics on stem. Historical limb failure point at 10m, north side, minor localised dieback. Crown bias to east. Bifurcated from 2.5m.	Fell
T14	Common Lime	21	4	6	4	4	1	B1	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded. Minor lean in main stem to south.	Fell
T15	Tree of Heaven	19	6	1	9	5	4	B2	Ivy on stem. Poorly formed tree with crown offset from base. Bias to north and east.	Fell
T17	Unknown	3	3	1	3	3	2	C2	Ivy on stem. Dieback in crown.	Fell
T18	Tree of Heaven	18	3	1	7	6.5	4	C1	Ivy on stem. Dieback in crown. Low bud/leaf density. Major deadwood in crown. Uniformly thin crown with reduced leaf size and density. Tree in physiological decline.	Fell
T19	Portugal Laurel	8	1	3	3	3	2	C2	Ivy on stem. Crown distorted due to group pressure. Trifurcated from 0.5m, suppressed.	Fell

Tree No.	English Name	Height	Crown Spread				Ground Clearance	B.S. Cat	Comments	Works Recommended to Facilitate Development
T20	Common Lime	19	4	6	6	6	2	B1	Epicormics on stem. Historically pollarded and subsequently reduced, ivy clad.	CB 2m
T21	Common Lime	20	6	4	4	5	1.5	B2	Ivy on stem. Epicormics on stem. Major deadwood in crown. Historically pollarded and subsequently reduced. Heavy bias to north. Lifted and cut back on south side. Codominant from c 1.5m. Poor resulting form.	Fell
T22	Leyland Cypress	17	0	3	2	2	5	C2	Ivy on stem. Forming joint crown with adj group. Over lifted.	Fell
T23	Leyland Cypress	17	6	1	4	3	5	B2	Ivy on stem. Forming joint crown with adj group. Bifurcated from 1.2m, arf DBH .	Fell
T24	Leyland Cypress	17	1	6	3	3	6	C1	Ivy on stem. Overlifted on south side, poor resulting form. Forming joint crown with adjacent trees.	Fell
T25	Cherry Plum	7	5	3	2	2	1	C2	Ivy on stem. Dieback in crown. Crown distorted due to group pressure. Suppressed form.	Fell
T27	London Plane	21	8	9	9	10	3.5	A1	Well formed tree. Part reduced on north and east side of crown.	CB 2-3m
T30	Cypress, Leyland	11	4	4	4	4	2.5	C2	Co-dominant stems, included bark in main stem unions, consented for felling, not removed yet	CB 2.5m
T31	Pine, Austrian	10	3	4	4	3	2.5	B/C2	Remote survey only, Redband needle blight (marked increase since 2014)	Fell

## APPENDIX 4: TREE SELECTION FOR URBAN LOCATIONS

Table A4.1: Small Ornamental Tree Species

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

Table A4.2: Medium Specimen Tree Species

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

Table A4.3: Larger Specimen Tree Species

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



Landmark Trees

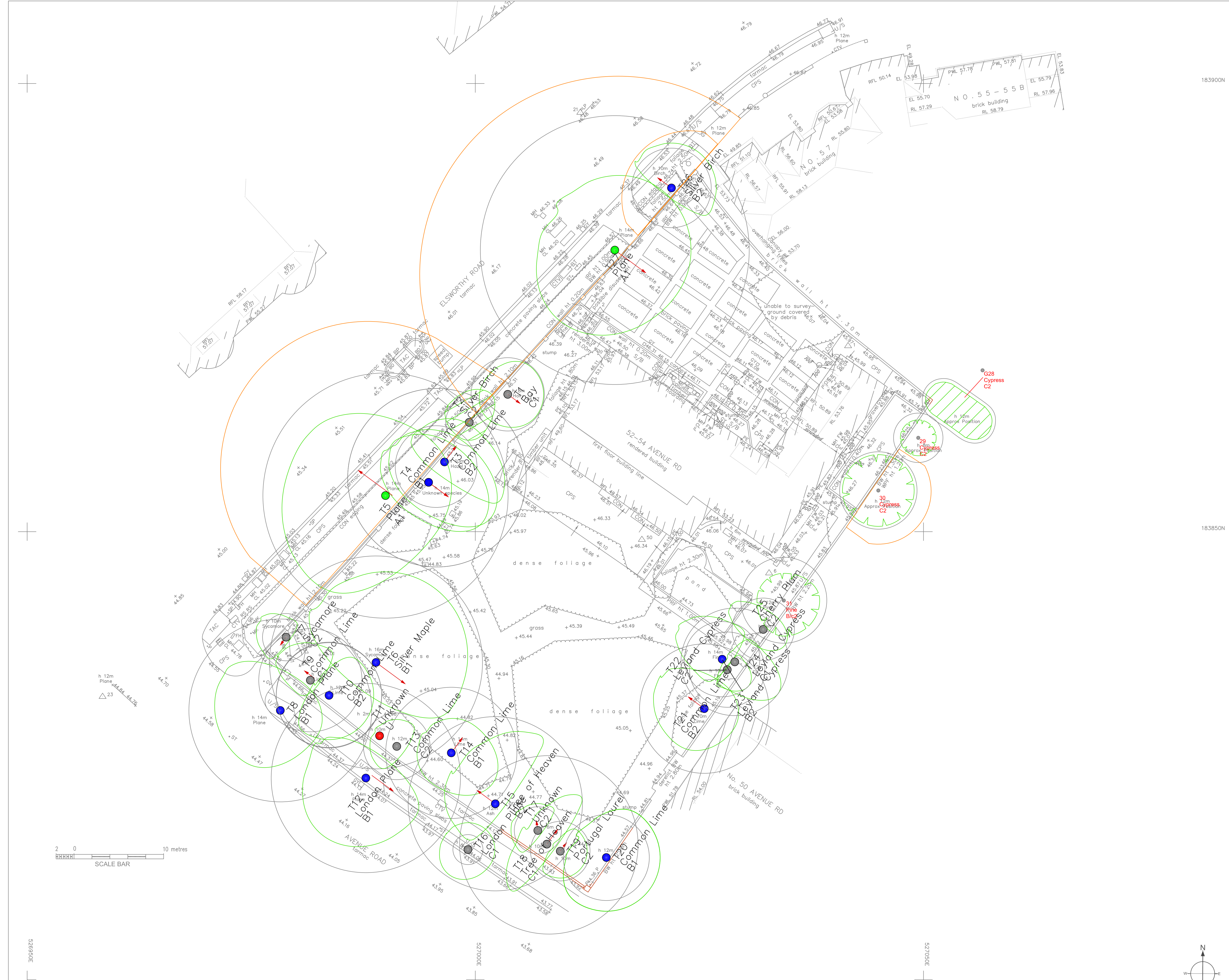
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## PART 3 – PLANS

**PLAN 1**

**TREE CONSTRAINTS PLAN**





183900N

183850N

**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).

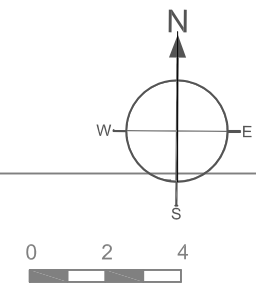
**Landmark Trees**  
 Holden House, 4th Floor, 57 Rathbone Place, London W1T 4JU  
 Tel: 0207 851 4544 Mobile: 07812 989928  
 e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 52-54 Avenue Road		1:200@A1
Drawing Title: Tree Constraints Plan		September 2021
<b>Key:</b> <ul style="list-style-type: none"> <li>● Category A High Quality</li> <li>● Category B Moderate Quality</li> <li>● Category C Low Quality</li> <li>● Category U Trees Unsuitable for Retention</li> </ul>	<ul style="list-style-type: none"> <li>○ Crown Spread</li> <li>○ Alternate RPA</li> <li>○ Tree Number</li> <li>○ Species</li> <li>○ Category</li> <li>○ Root Protection Area</li> <li>○ Tree Position Approximate (not shown on original survey)</li> </ul>	

526950E

527000E

527050E

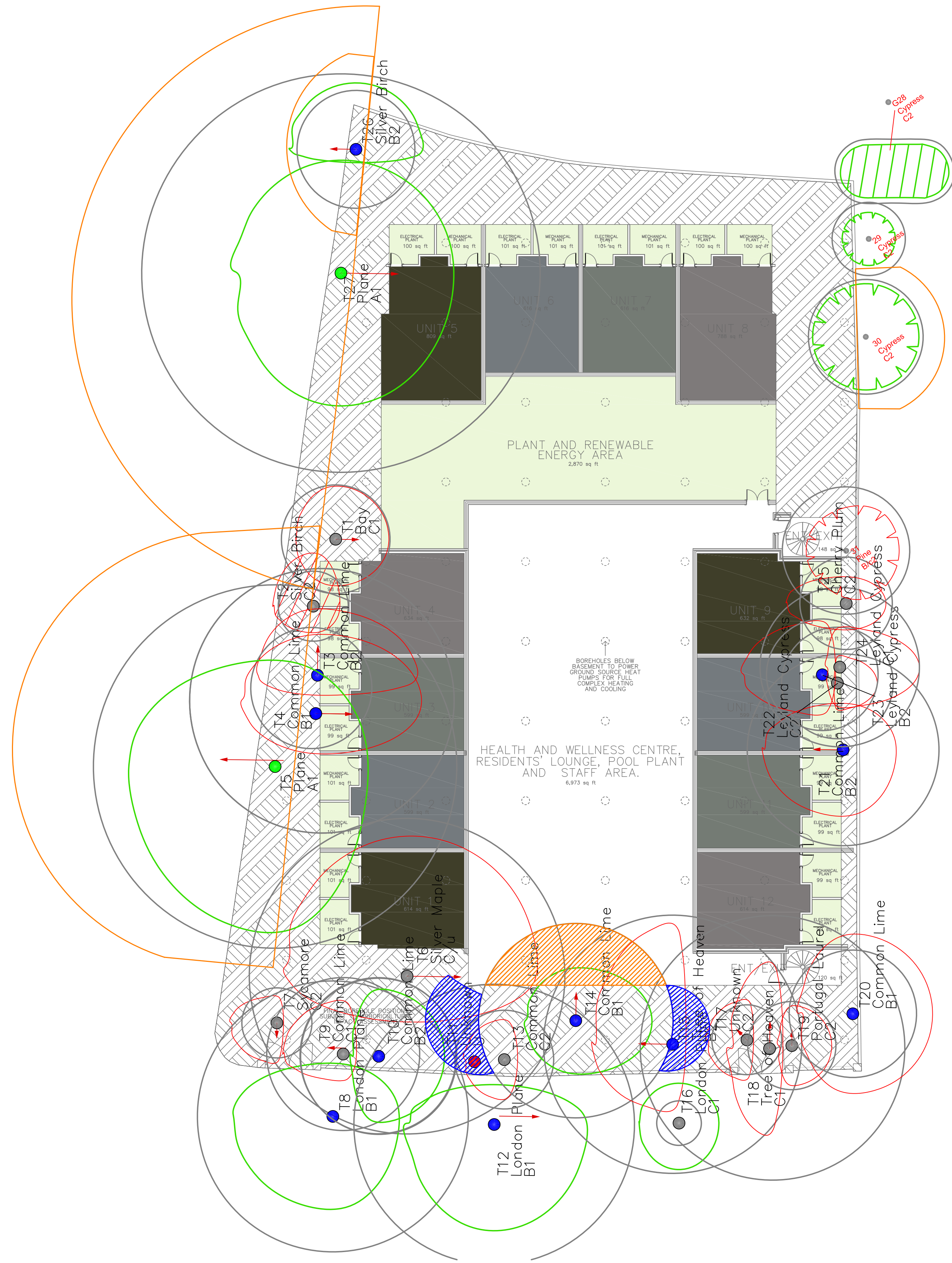




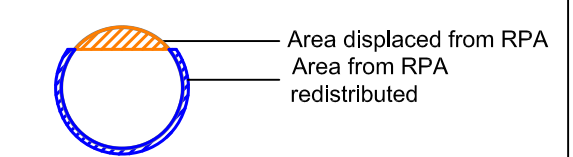
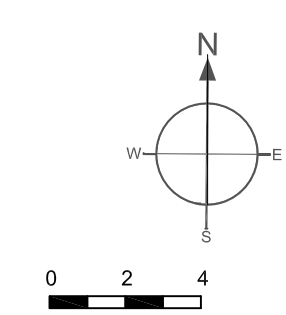
**PLAN 2****ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)**

- i. Basement
- ii. Lower Ground Floor
- iii. Ground Floor





Proposed Basement Plan



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 Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.  
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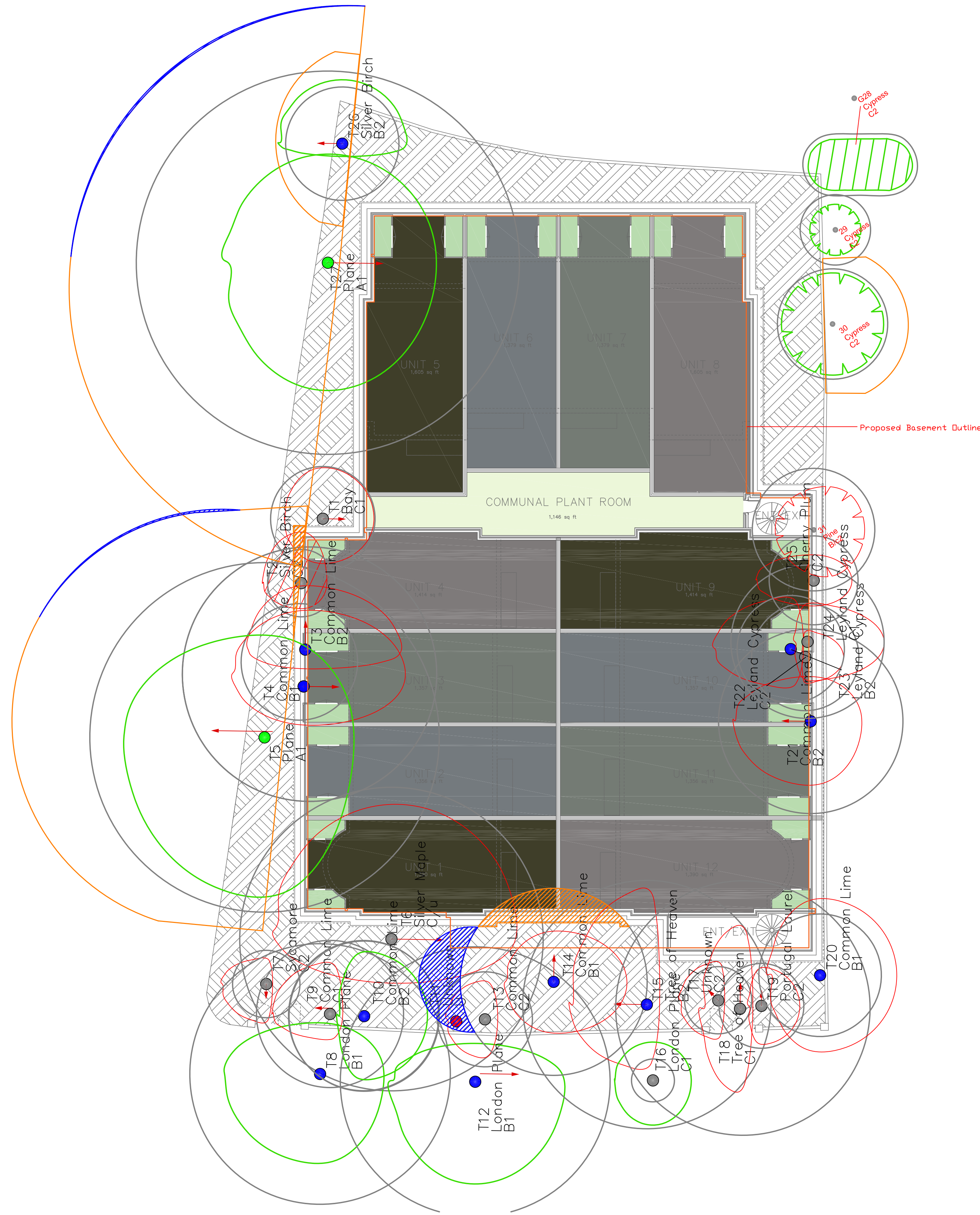
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 Holden House, 4th Floor, 57 Rathbone Place, London W1T 4JU  
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 e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 52-54 Avenue Road	1:200@ A1
Drawing Title: Arboricultural Impacts Assessment	May 2022

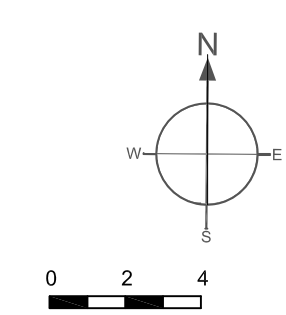
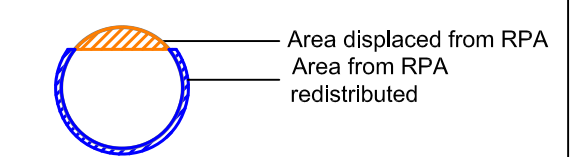
**Key:**

● Category A High Quality	○ Crown Spread
● Category B Moderate Quality	○ Alternate RPA
● Category C Low Quality	○ Tree Number
● Category U Trees Unsuitable for Retention	○ Species
	○ Category
	○ Tree Position Approximate (not shown on original survey)
	○ Tree Felled To Facilitate Development





Proposed Ground Floor Plan

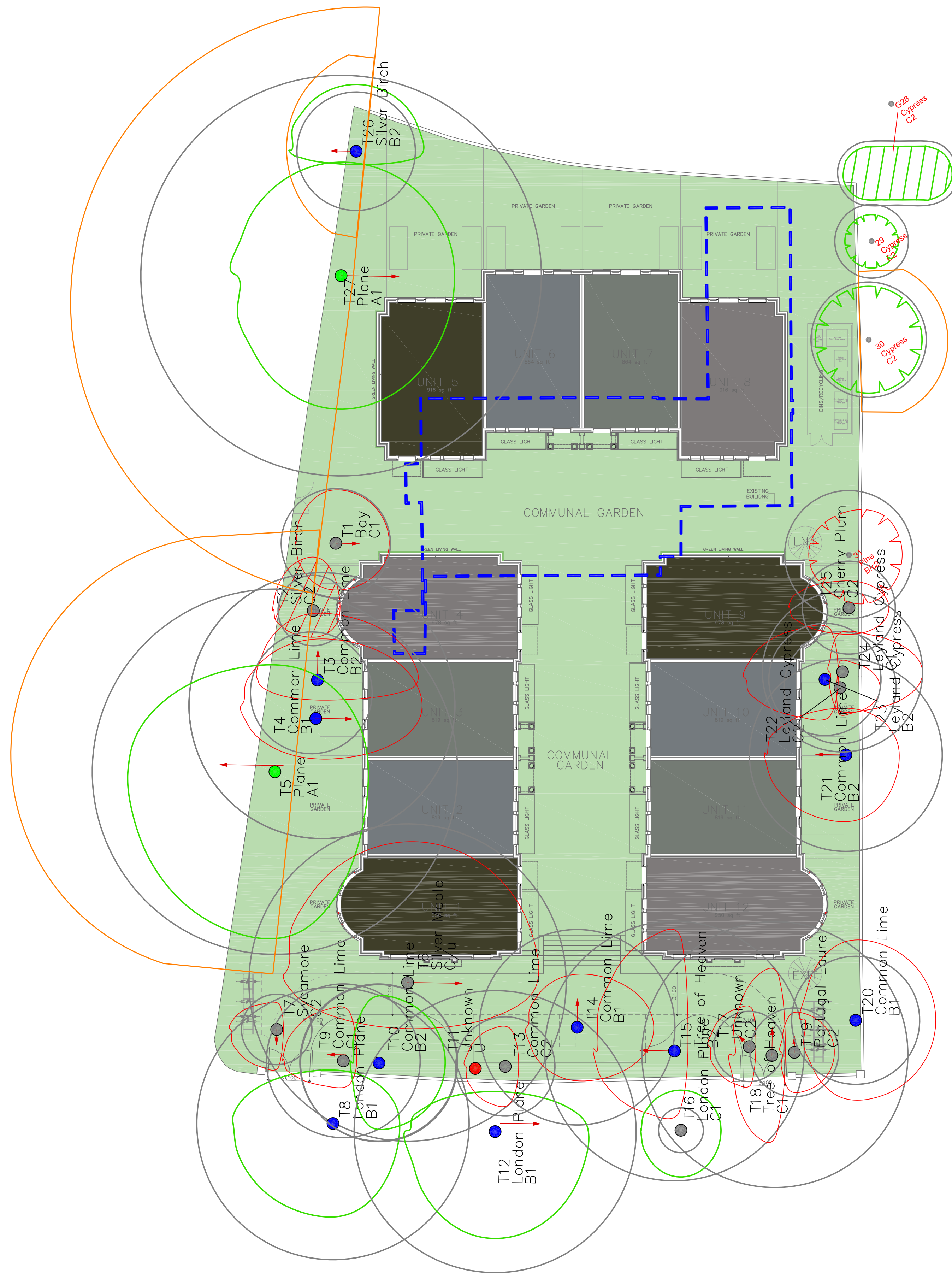


**NOTE:**  
 This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.  
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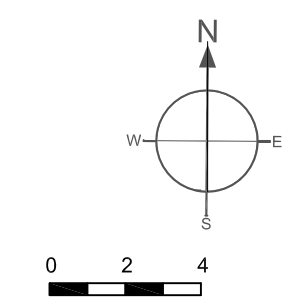
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 e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 52-54 Avenue Road		1:200@A1	
Drawing Title: Arboricultural Impacts Assessment		May 2022	
<b>Key:</b>			
● Category A High Quality	○ Crown Spread	○ Alternate RPA	○ Tree Number
● Category B Moderate Quality	○ Root Protection Area	○ Species	○ Category
● Category C Low Quality	○ Tree Position Approximate (not shown on original survey)		
● Category U Trees Unsuitable for Retention	○ Tree Felled To Facilitate Development		





Proposed Ground Floor Plan



**NOTE:**  
 This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.  
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Site: 52-54 Avenue Road  
 Drawing Title: Arboricultural Impacts Assessment  
 1:200@A1  
 May 2022

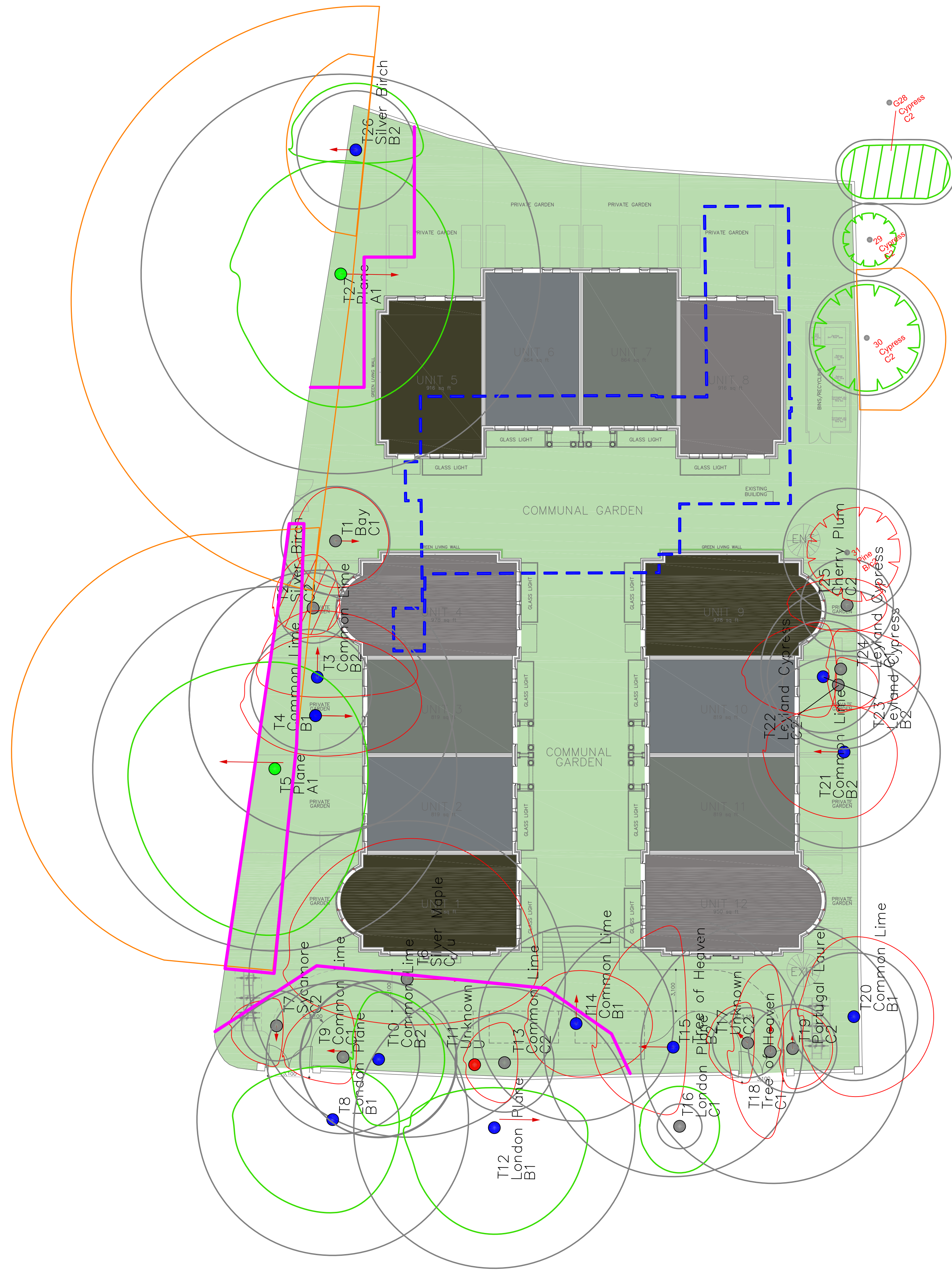
**Key:**

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- Category B Moderate Quality (Blue dot)
- Category C Low Quality (Grey dot)
- Category U Trees Unsuitable for Retention (Red dot)
- Crown Spread (Green circle)
- Alternate RPA (Red dashed circle)
- Tree Number (Number in circle)
- Species (Text label)
- Category (Text label)
- Tree Position Approximate (not shown on original survey) (Green hatched circle)
- Tree Felled To Facilitate Development (Red hatched circle)

**PLAN 3**

**OUTLINE TREE PROTECTION PLAN**





Proposed Ground Floor Plan

**NOTE:**  
 This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.  
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Site: 52-54 Avenue Road  
 Drawing Title: Tree Protection Plan  
 1:200@A1  
 May 2022

**Key:**

● Category A High Quality	○ Crown Spread
● Category B Moderate Quality	○ Alternate RPA
● Category C Low Quality	○ Tree Number
● Category U Trees Unsuitable for Retention	○ Specles
■ Ground Protection	○ Tree Position Approximate (not shown on original survey)
○ Tree Felled To Facilitate Development	○ Tree Protection Area
○ Tree Protection Fencing	○ Root Protection Area

