Landmark Trees

ARBORICULTURAL IMPACT ASSESSMENT REPORT:

4a Wadham Gardens

London

NW3 3DP

REPORT PREPARED FOR:

Sid Smith Project Management Ltd

39 Streathbourne Road

London

SW17 8QZ

REPORT PREPARED BY

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MSc ARB MICFor FArbor A MRICS C Env

Ref: SSA/4WDM/AIA/02a

Date: 18th Septmeber 2015

Appendices

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.

Tree Constraints & Protection Overview

Client:	Sid Smith Project Management Ltd	**Case Ref:**	SSA/4WDM/AIA/02a
Local Authority:	LB Camden	**Date:**	18th September 2015
Site Address: 4a Wadham Gardens, London NW3 3DP			
Proposal: car lift to the forecourt of 4a Wadham Gardens			

Report Checklist	**Y/N**		**Y/N**
Arboricultural constraints on site	Y	Trees removal proposed	N
Tree Survey	Y	Topographical Survey	Y
BS5837 Report	Y	Conservation Area	Y
Tree Preservation Orders	NK		
Tree Protection Plan:	N/a	(Include in future method statement)	
Tree Constraints Plan:	Y		
Arboricultural Impact Assessment:	Y		

Site Layout					
Site Visit	Y	Date: 29/06/14 & 3/9/15		Access Full/Partial/None	F
Trees on Site			Y	Off-site Trees	Y
Trees affected by development			Y	O/s trees affected by development	Y
Tree replacement proposed:			N/a	On or off-site trees indirectly affected by development	N

Trees with the potential to be affected

There are two off-site street trees, both London planes (T5 & 6) that, on paper, could be affected by the proposals. Trial pits confirm negligible impact.

Comments

Recommendations

1	Proposal will mean the loss of important trees (TPO/CA)	N
2	Proposal has sufficient amelioration for tree loss	N/a
3	Proposals provide adequate tree protection measures	Y
4	Proposal will mean retained trees are too close to buildings	N
5	Specialist demolition / construction techniques required	N
6	The Proposal will result in significant root damage to retained trees	N
7	Further investigation of tree condition recommended	N

RPA= Root Protection Area
TPP= Tree Protection Plan
AMS= Arboricultural Method Statement
AIA = Arboricultural Implication Assessment
BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'

1. SUMMARY

1.1 This report comprises an arboricultural impact assessment of the proposals for 4a Wadham Gardens, London NW3 3DP, reviewing any conflicts between the proposals and material tree constraints identified in our survey.

1.2 There are 8 trees surveyed on or around the site, of which 4 are B category *(Moderate Quality) and 4 are C category *(Low Quality). Moderate quality trees and above are significant material constraints on development. The low quality trees also comprise a constraint in aggregate, in terms of any collective loss / removal, where replacement planting would be appropriate. In this instance, no such collective impact is proposed here.

1.3 There are two off-site street trees, both London planes (T5 & 6) that, on paper, could be affected by the proposals. T5 would theoretically be impacted by a 10% encroachment of its RPA, and T6 by 2%. Encroachments of these magnitudes constitute fairly low impacts for healthy London plane trees: the species has a good resistance to root disturbance. It might reasonably be argued that the true impact should be greater, because the trees would be rooting preferentially on the application site, rather than below the road, though equally, the application site has been laid to hard standing also.

1.4 In this case, the latter argument prevails: the driveway section is more hostile to roots, as no significant ones were encountered on site. The trees may be rooting preferentially along service routes. Certainly T6 exhibits a shallow surface root running southwest along the pavement. Based on the trial pit evidence of scattered fibrous roots only, and the natural resilience of the species, I conclude that the impact to the trees will be negligible, subject to manual excavation of the outer footprint within T5 & 6's RPA.

1.5 There are negligible secondary impacts associated with this subterranean development proposal.

1.6 The site has potential for development without impacting significantly on the wider tree population or local landscape. Subject to further investigation and suitable precautionary measures, the scheme is recommended to planning.

* 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 LANDMARK TREES were asked by Sid Smith Project Management Ltd to provide a survey and an arboricultural impact assessment of proposals for the site: 4a Wadham Gardens, London NW3 3DP. The report is to accompany a planning application.

2.1.2 The proposals are for a new car lift to the forecourt of 4a Wadham Gardens. This report will assess the impact on the 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.

2.1.3 I am a Registered Consultant and Fellow of the Arboricultural Association and a Chartered Forester, with a Masters Degree in Arboriculture and 25 years experience of the landscape industry - including the Forestry Commission and Agricultural Development and Advisory Service. I am a UK Registered Expert Witness, trained in single joint expert witness duties. I am also Chairman of the UK & I Regional Plant Appraisal Committee, inaugurated to promote international standards of valuation in arboriculture.

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: Existing GF from 4a Wadham Gdns April 14 Small*

Proposals: Wadham Planning Application 03

*In the absence of a full topographical survey, tree positions may be approximate only.

2.3 Scope of survey

2.3.1 As Landmark Trees' (LT) arboricultural consultant, I surveyed the trees on site on 6/6/14 & 3/9/15, 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]. NB the street trees only were surveyed again on 3/9/15.

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 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 to this report.

2.4.2 A site plan identifying the surveyed trees, based on the client's drawings / topographical survey is provided in Appendix 3.

2.4.3 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 client's proposals to create an Arboricultural Impact Assessment Plan in Appendix 4. General observations and discussion follow, below.

3.0 OBSERVATIONS

3.1 Site description

Photograph 1: Street View of 4a Wadham Gardens and driveway entrance

3.1.1	4a Wadham Gardens consists of a one and a half storey former annexe addition adjoining number 4 Wadham Gardens. The property is under separate title to number 4 Wadham Gardens but is currently under the same ownership. Both properties are currently in residential use.
3.1.2	The site is relatively level, ramping slightly from the road. The drive is hard standing.
3.1.3	In terms of the British Geological Survey, the site overlies the London Clay Formation (see indicated location on Fig.1 plan extract below). 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.
3.1.4	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.

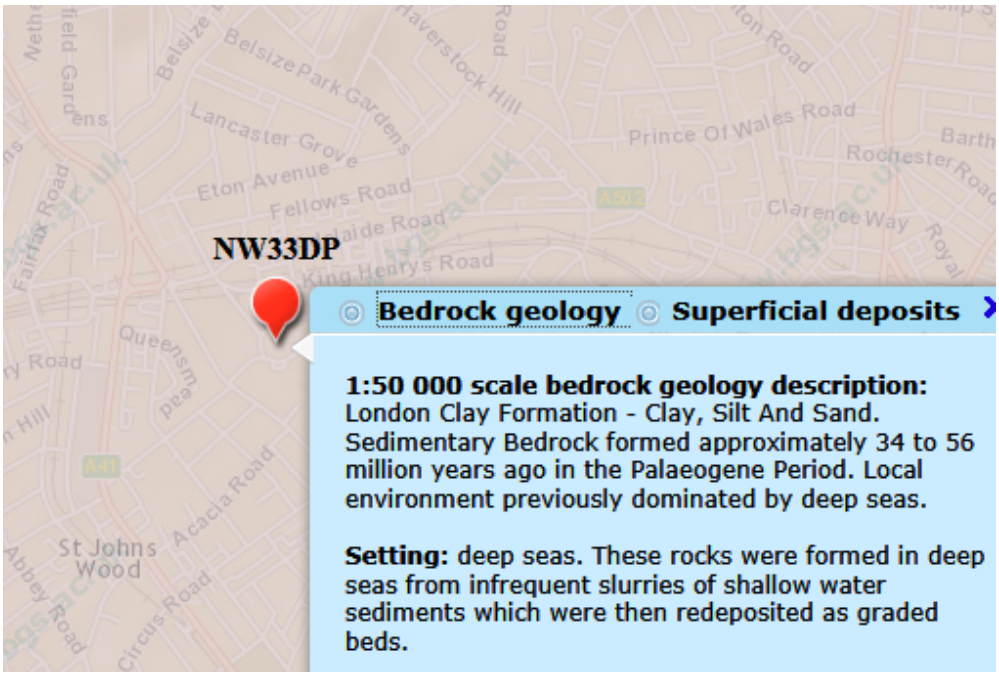


Figure 1: Extract from the BGS Geology of Britain Viewer

3.2 Subject trees

3.2.1	There are 8 trees surveyed on or around the site, of which 4 are B category *(Moderate Quality) and 4 are C category *(Low Quality). Moderate quality trees and above are significant material constraints on development. The low quality trees also comprise a constraint in aggregate, in terms of any collective loss / removal, where replacement planting would be appropriate. In this instance, no such collective impact is proposed here.

3.2.2	Full details of the surveyed tree can be found in Appendix 1 of this report.

3.3 Planning Status

3.3.1	There is no on-line information regarding Tree Preservation Orders in the borough; to find out if a tree is protected it is necessary to contact the tree preservation team by email on the website or Tel: 020 7974 4444. 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.

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. **No modifications have been made in this instance (please see overleaf), although further investigations were undertaken to determine the root distribution of T5 & 6 within the proposed development area: it would appear the trees are not rooting within the drive (see Extract 1 and Photographs 2 & 3 below.**

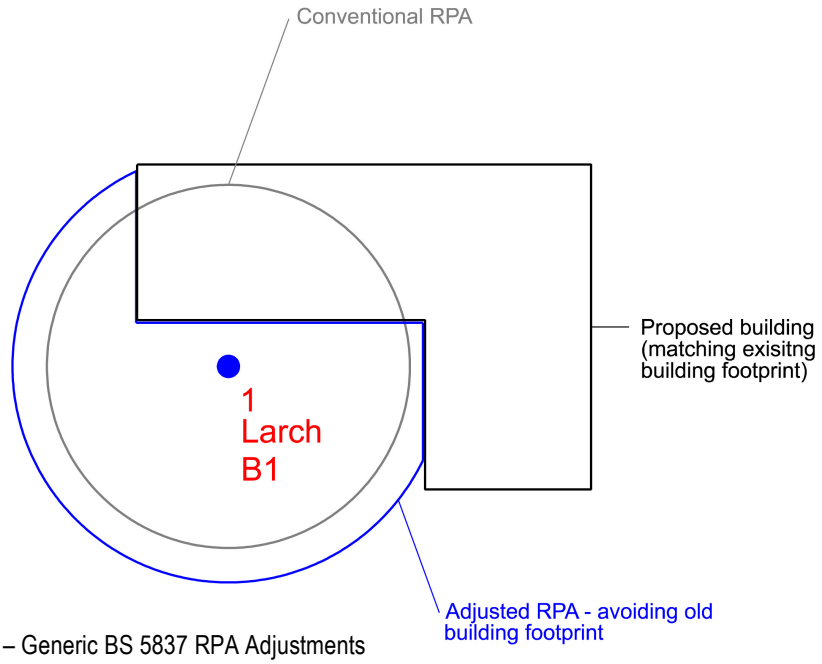


Figure 2 – Generic BS 5837 RPA Adjustments

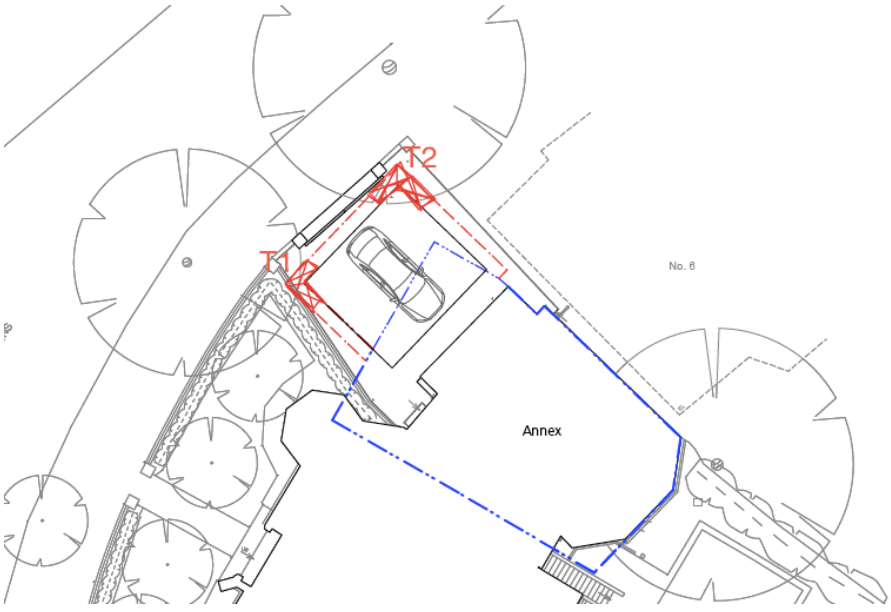
4.1.3 In BS5837, paragraph 4.6.2 states that RPA's should reflect the morphology and disposition of the roots; where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.

4.1.4 Such assumptions cannot be proved without prior site investigations / trial pits. Where it is not always possible to conduct site investigations (e.g. below busy roads), we can always look to the published science. There seems little support for the popular myth that roads and services will curb root growth: research for the International Society of Arboriculture by Kopinga J (ISA 1994), found that “a constant high moisture content of the soil directly underneath the pavement surface can be considered as a major soil factor in attracting the trees’ roots to develop there.” By contrast, grass in lawns may actively antagonise tree roots with natural pathogens. Similarly, Professor F Miller (ISA 1994) found that service trenches at > 3m distances from trees had minimal impact on growth or crown shape.

4.1.5 A key misunderstanding, even among professionals, is that we conflate the RPA with the actual root system: RPA's are *prima facie* a notion / convention / treaty and almost entirely theoretical, but readily calculable. Conversely roots are a "known unknown," spatial entity that we predict at our folly. Yet, many are quick to do so.

4.1.6 LT favour the neutrality of a circular RPA, because in a difference of opinion, the tree officer will always have the prerogative to dictate the final modification of shape. With the best will in the world, the free allowance of modifications will tend to lead to inequitable outcomes, prejudicing the applicant and the practice is in our view, best avoided. The neutral circle dispenses with this inequity.

4.1.7 Ultimately, the point of the circular RPA is to illustrate areas of concern. The purpose of this report is to consider areas of concern (not to modify them to suit our argument or findings). Therefore, no modifications are made here to the RPA’s, regardless of roads etc., but trial pits are recommended at the following locations in Extract 1 below:



Extract 1: Location of trial pits

Photograph 2: Trial Pit 1 with fibrous roots only. Pit dug to 900mm depth and logged by Capstone.

Photograph 3: Trial Pit 2 with fibrous roots only. Pit dug to 900mm depth and logged by Capstone.

4.1.10	Moderate quality trees and above are significant material constraints on development. However, those constraints will vary under site conditions and subject to site investigations: whilst the planes would potentially constrain the proposals, the evidence confirms that they do not.

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.

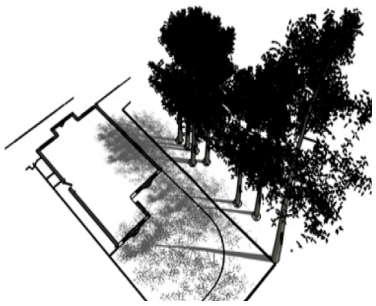


Figure 3 –
Generic Shading Constraints

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.

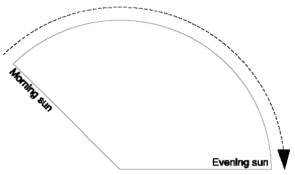


Figure 4 – Shading Arc

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 it will be retained, the off-site tree has the potential to provide a variety of secondary constraints, including shading and organic deposition. The significance of these constraints will vary depending on the location and proximity to the proposed re-development.

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

5.0

Hide irrelevant | Show All Trees

Table 1: Arboricultural Impact Assessment

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

Ref: SSA/4WDM/AIA

B.S. Cat.	Tree No.	Species	Impact	Tree / RPA Affected	Age	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
B	5	Plane, London	Car lift construction within theoretical RPA	21 m^2 10.04 %	Mature	Normal	Good	Low	N/A	Trial pits confirm no significant roots Pre-emptive root pruning of piling line
B	6	Plane, London	Car lift construction within theoretical RPA	2 m^2 2.39 %	Mature	Normal	Good	Very Low	N/A	Trial pits confirm no significant roots Pre-emptive root pruning of piling line

6.0 DISCUSSION

6.1 Rating of Primary Impacts

6.1.1 There are two off-site street trees, both London planes (T5 & 6) that, on paper, could be affected by the proposals. T5 would theoretically be impacted by a 10% encroachment of its RPA, and T6 by 2%. Encroachments of these magnitudes constitute fairly low impacts for healthy London plane trees: the species has a good resistance to root disturbance. It might reasonably be argued that the true impact should be greater, because the trees would be rooting preferentially on the application site, rather than below the road, though equally, the application site has been laid to hard standing also. In this case, the latter argument prevails: the driveway section is more hostile to roots, as no significant ones were encountered on site. The trees may be rooting preferentially along service routes. Certainly T6 exhibits a shallow surface root running southwest along the pavement. Based on the trial pit evidence of scattered fibrous roots only, and the natural resilience of the species, I conclude that the impact to the trees will be negligible.

6.1.2 The principal of RPA encroachment is established within BS5837:2012 and supported by the source document, National Joint Utilities Guidelines 10 / Vol. 4 1995 / 2010. NJUG introduced the x12 diameter *Precautionary Zone* for supervised working and *Prohibited Zone* at a universal 1m from the base of the tree. RPA's are frequently confused with the NJUG Prohibited Zone, when they clearly correlate with the NJUG Precautionary Zone.

6.1.3 An RPA encroachment of <20% of RPA may be considered as low impact, given the permissive references to 20% RPA relocation and impermeable paving within BS5837:2012 and other published references to healthy trees tolerating up to 30-50% root severance (Coder, Helliwell and Watson in CEH 2006). The trees in question are healthy specimens of species with a good resistance to development impacts, and quite capable of tolerating these low impacts.

6.1.4 "**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 2000). LT do not recommend annexing such high proportions of the root system; rather that within the context of the published science, planning should not be unduly concerned by impacts that are well below the subcritical threshold – *tree health is not at stake.*

6.2 Rating of Secondary impacts

6.2.1	There are also negligible secondary impacts associated with this subterranean proposal.

6.3 Mitigation of Impacts

6.3.1	The limits of excavation within RPAs will be undertaken manually for the foundations encroaching the RPA; the fibrous roots encountered will be cleanly pruned back with a sharp pruning saw or secateurs back to a junction.
6.3.2	Ground protection / retention of existing paving beyond the footprint will be required to protect the RPA during the construction works, and the stems of T5 & 6 may be best hoarded to avoid incidental damage.

7.0 CONCLUSION

7.1	Both the theoretical and sampled impacts of development are low in terms of both percentage RPA encroachments and sizes of roots encountered.
7.2	The full potential of the impacts can be largely mitigated through precautionary measures. These measures can be elaborated in Method Statements in the discharge of planning conditions as necessary.
7.3	The species affected are generally tolerant of root disturbance and the retained trees are generally in good health and capable of sustaining these reduced impacts.
7.4	Therefore, the proposals will not have any significant impact on either the retained trees or wider landscape. Thus, with suitable mitigation and supervision the scheme is recommended to planning.

8.0 RECOMMENDATIONS

8.1 General Recommendations

8.1.1 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 lay out 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 removed only upon full completion of works.

8.1.2 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.

8.1.3 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.

8.1.5 If 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]'.

8.1.6 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.

8.1.7 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.

8.1.8 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) Site supervision: the Site Agent must be nominated to be responsible for all 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 that is 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;
- make immediate contact with the local authority and/or a retained arboriculturalist 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) installation of TPB for demolition & construction;

ii) installation of underground services;

iii) installation of ground protection;

iv) main construction;

v) removal of TPB;

vi) soft landscaping.

9.0 REFERENCES

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APPENDIX 1

TREE SCHEDULE

Notes for Guidance:

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

Landmark Trees

Site: 4 Wadham Gardens

Date: 29/5/14 & 3/9/15

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Adam Hollis

Ref: SSA/4WDM/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
1	Beech, Copper	17	6	5.0	900	Mature	10.8	Normal	Fair	B	2	20+	Pollarded Decay in trunk Remote survey only *10m clearance to main crown
2	Sycamore	12	5	7.0	450	Early Mature	5.4	Normal	Fair	C	2	20+	Pollarded Decay in trunk Remote survey only
3	Lime, Common	16	3	5.0	500	Mature	6.0	Normal	Fair	C	2	20+	Pollarded w Decay in trunk Included bark in branch unions Remote survey only
4	Lime, Common	15	3133	3.0	400	Early Mature	4.8	Normal	Fair	C	2	20+	Pollarded w Decay in trunk Included bark in branch unions Remote survey only 67 r42 88
5	Plane, London	13	4	6.0	680	Mature	8.2	Normal	Fair	B	2	20+	Pollarded street tree
6	Plane, London	13	4	6.0	430	Mature	5.2	Normal	Fair	B	2	20+	Pollarded street tree Shallow root in pavement

Landmark Trees

Site: 4 Wadham Gardens

Date: 29/5/14 & 3/9/15

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

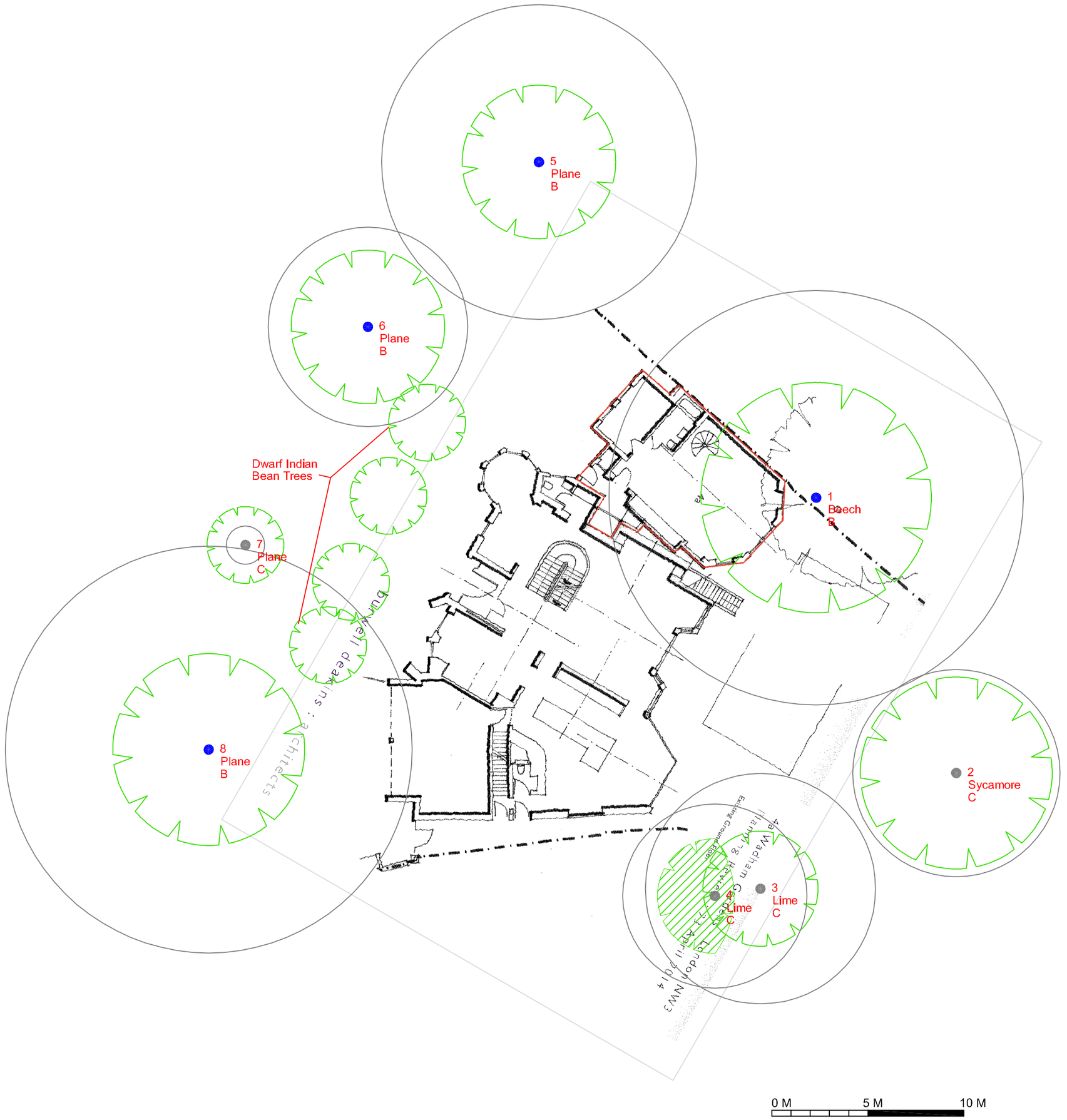
Surveyor(s): Adam Hollis

Ref: SSA/4WDM/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
8	Plane, London	16	5	6.0	880	Mature	10.6	Normal	Fair	B	2	20+	Pollarded street tree
7	Plane, London	6	2	2.0	80	Young	1.0	Normal	Good	C	2	>40	Newly planted street tree Broken twigs

APPENDIX 2

TREE CONSTRAINTS PLAN



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).

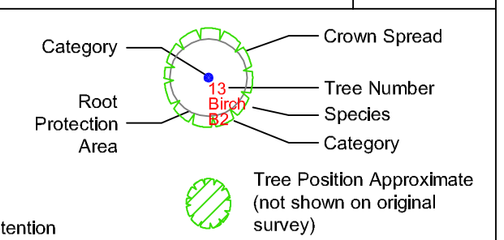
Landmark Trees

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: 4 Wadham Gardens	1:200@ A2
Drawing Title: Tree Constraints Plan	June 2014

Key:

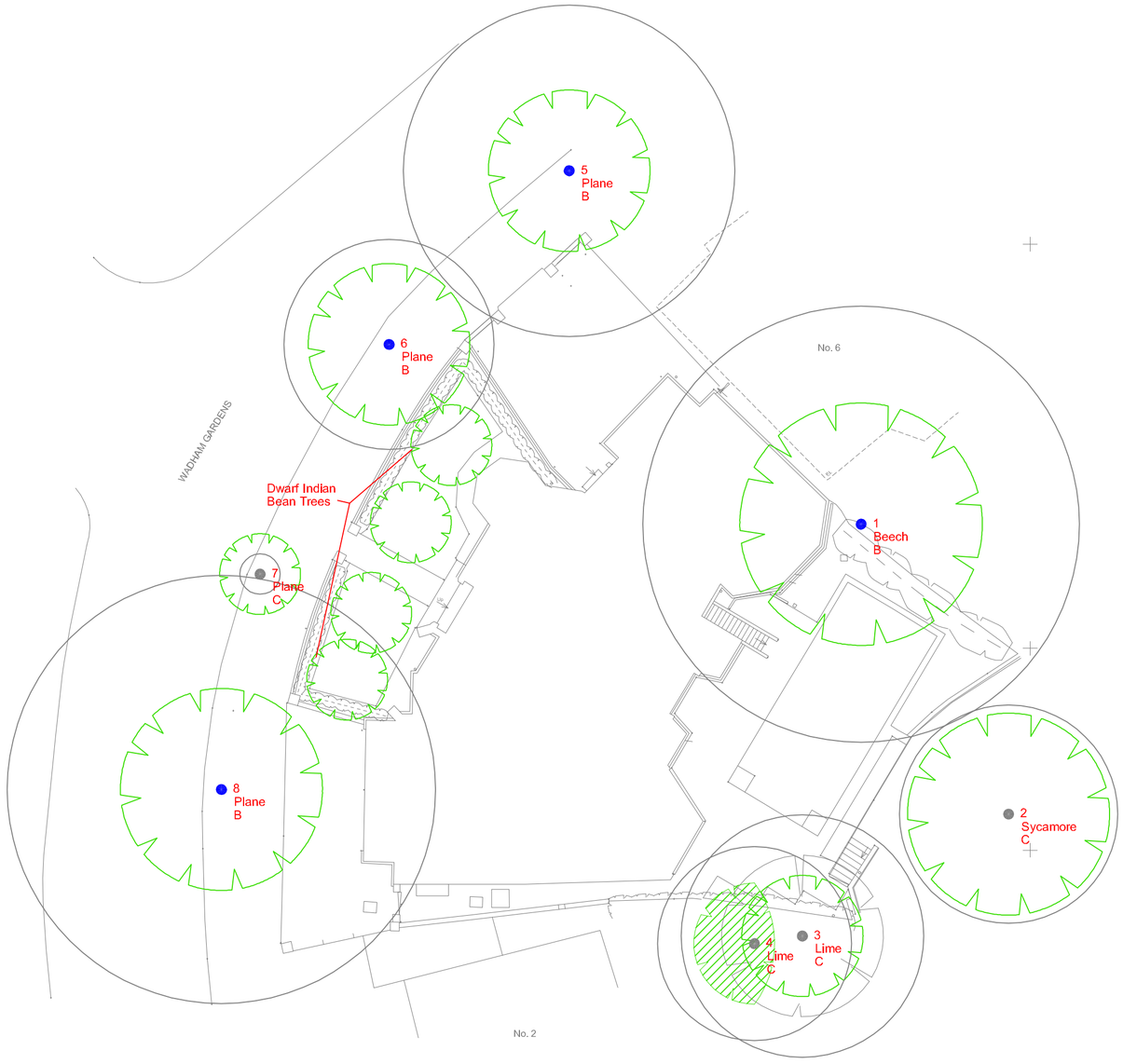
- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention



Tree Position Approximate (not shown on original survey)

APPENDIX 3

ARBORICULTURAL IMPACT ASSESSMENT PLAN



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).

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Site: 4 Wadham Gardens	1:200@ A2
Drawing Title: Arboricultural Impact Assessment Plan	September 2015

Key:

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

Category — Crown Spread
Root Protection Area — Tree Number
Species
Category
13 Birch B2

Tree Position Approximate (not shown on original survey)