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Arboricultural Survey (BS5837:2012) & Impact Assessment Report

Site details:

15 Bromwich Avenue
London
N6 6QH

Client details:

Alex & Kanika Linden
15 Bromwich Avenue
London
N6 6QH

Date of Report:

30th July 2014

Report Prepared by:

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1. Introduction

1.1 This report has been commissioned by Alex and Kanika Linden to survey, assess and provide an arboricultural impact assessment with recommendations for the trees within close proximity to the land to the rear of 15 Bromwich Avenue, London, N6 6QH in relation to the proposed development.

1.2 A site visit was conducted on 28th July 2014 to survey and assess the trees. The weather at the time of inspection was dry and overcast with warm temperatures.

1.3 A tree survey, report and recommendations have been compiled for 3 trees surveyed within the rear garden of 15 Bromwich Avenue, London, N6 6QH. There are no trees within neighbouring properties which will be affected by the proposed development.

1.4 The details of the subject trees are set out in the tree survey table in *Appendix A*. The trees were surveyed on the date and time shown above and the tree survey assessment information for the trees describing size, condition and surroundings are found within this appendix.

1.5 The trees located within the rear garden are shown in site plan, *Appendix B.1, B.2 & B.3*, and these correspond to the tree survey results table, *Appendix A*.

1.6 Photographs of the trees can also be found in *Appendix C*.

1.7 This report and the opinions within it have been produced by Marcus Foster, a qualified Arboriculturist holding a National Diploma in Arboriculture, and the Arboricultural Association's Technicians Certificate as well as a degree in History and Society. Work experience within the industry includes work as a Contracts Manager for an Arboricultural Association Approved Company, a Local Authority Tree Preservation Officer and an independent Arboricultural Consultant.

1.8 No additional documentation has been referred to relating to the tree or the building at this property for the compilation of this report.

2. Survey Details and Scope

2.1 The site survey included the 3 trees as shown in the survey, *Appendix A,* and also highlighted on the site plans*, Appendix B.1, B.2 and B.3.*

2.2 The trees were surveyed from ground level from within the rear garden of 15 Bromwich Avenue, London, N6. The diameter of the trunks have been measured using a DBH tape. The height of the tree has been estimated due to the limited access and difficult topography for the use of a clinometer.

2.3 The following information was recorded for each tree and is shown in the Tree Schedule included in *Appendix A*:

- Number: an identity number which cross-references locations shown on the plan in Appendix A with the schedule in Appendix B.
- Species: listed by common names
- Tree Height: height in metres (m)
- Tree Spread: spread in metres (m)
- Stem diameter: measured in millimetres (mm) and taken at 1.5m above ground level
- Age Class: Y (young); EM (early-mature); M (mature); OM (over-mature)
- Vigour: G (good); F (fair); P (poor); D (dead)
- Physiological Condition: G (good); F (fair); P (poor); D (dead)
- Structural conditions: Specific comments relating to each tree
- Preliminary Management Recommendations
- Estimated Remaining Contribution (years)
- BS5837 Category Grading
- Protection Distance (if applicable – BS5827: 2012)

2.4 The information contained within the report reflects the condition of the specimens examined at the time of the inspection. As the inspection was only visual no guarantee can be given concerning the condition of the wood at present in any of the trees inspected and furthermore that no future problems or deficiencies may arise.

2.5 Information recorded in the tree survey, *Appendix A* is expanded in the report findings and recommendations have been made in *Section 5*.

2.6 The status of the trees within this site has been checked for protected status and the they are not protected by either Conservation Area or Tree Preservation Order status.

3. Survey Limitations

3.1 No soil excavations have been carried out.

3.2 This report only considers the trees and conditions at the time of inspection.

3.3 No invasive tools were used during this site survey.

3.4 This report is preliminary and further investigations may be required in order to reach firm conclusions and/or further recommendations for action.

4. Findings and Discussion

Site Overview

4.1 There are 3 trees located within close proximity of the proposed development at the rear of 15 Bromwich Avenue, London, N6. Tree T1 is located on the rear northern boundary of the rear garden with trees T2 and T3 located on the rear eastern boundary.

4.2 The 3 trees surveyed are located within the London Borough of Camden and are not protected by Conservation Area or Tree Preservation Order status.

4.3 The proposed development has the potential to affect the trees in the following ways:

- **Potential excavations required for foundations of the proposed garden room in close proximity to the tree that can cause damage**
- **Compaction of the ground surrounding the tree during development.**
- **The long-term impact of the proposed garden room on the trees**
- **Fire damage from site fires**
- **The use of and storage of materials and chemicals on site during the construction process**

4.4 The trees have been surveyed taking into account the condition, general health and form. In addition they have been surveyed taking into account the amenity value that is offered in relation to both the landscape and surrounding buildings. This report outlines the impact that the proposed development will have on the treescape and landscape; it provides recommendations to ensure that long-term amenity value for the area is both retained and enhanced.

4.5 The report has been written with close reference to the British Standard Guidance, British Standard 5837: 2012 ‘Recommendations for trees in relation to construction’ (BS5837: 2012), which addresses the juxtaposition between trees and structures.

Tree T1

4.6 Tree T1 is a mature and structurally sound Sycamore tree (*Acer pseudoplatanus*) at the rear of the property on the northern boundary. The tree is 14 metres in height and has good vigour in the mid and upper crown, with relatively balanced crown shape. Tree T1 is in good condition at the base with exposed buttress roots close to the main stem, particularly to the east and west. The main stem is in good condition and continues to form a dominant single stem to crown break. The tree has been previously crown reduced approximately 3-4 years ago and has also been crown lifted in the past to give clearance from the existing garden buildings and rear lawn area.

4.7 With its location within the rear garden, age and form, the tree offers some amenity value and is rated as C.1 (BS5837: 2012). Therefore the tree is to be retained and should be protected during the proposed development to the greatest extent possible. The recommended root protection distance for the tree is 4.7 metres (*BS5837: 2005)*. The root protection distance is achievable for the majority of the root plate due to the complete protection on the northern root plate by virtue of the tree growing on the boundary with the neighbouring property where no works will be taking place. In addition, the location of existing concrete bases to the east and west of the main stem within the rear garden will offer some protection as adventitious root development beneath these in the past will offer protection for the tree in addition to these existing footprints being used within the development.

4.8 Construction works directly to the south, east and west of the main stem require encroachment within the root protection area in order for the proposal to be implemented. The construction of the garden building is proposed 1.0 metre from the trunk of tree T1 to the south, 0.95 metre to the west and 1.2 metre to the east. However, the nature of the existing site, comprehensive protection for the remainder of the root plate, and the implementation of full tree protection means that the tree's long-term retention can be ensured, by taking into account the various existing site factors and the construction method / implementation as outlined below.

4.9 The existing site includes 2 garden buildings which have been previously constructed on concrete foundations directly to the east (1.2m distance) and west (0.95m distance) of tree T1. The proposed development is based on retaining the footprint of these foundations, whilst linking them in front of tree T1, directly to the south of the main stem. This implementation of the foundations for this 1.55m section of foundations, and any other areas where significant excavations are required and tree roots encountered, is required to be carried out as outlined below with hand dug excavations and the implementation of mini / screw piles in the sensitive areas surrounding the main stem of tree T1 to avoid damage to main anchorage roots which could be encountered.

4.10 All excavations in this area to the south of the main stem of tree T1, as proposed in *Appendix B.2* are to be hand dug to expose any major roots when constructing the foundations, meaning that extra attention will be made ensuring the preservation of tree roots. This is entirely achievable due to the

limited area within which this is required (1.55m length) and the light nature of foundations which will be required to be implemented. Guidelines regarding this are outlined in *Section 4.17* and *4.18* below.

4.11 It should be noted that protective fencing (as specified in BS5837:2012) has not been implemented as the building is being constructed within 1 metre of the stem and therefore, the construction process would not be possible with this fencing in place. It is recommended that the site notice as prepared in *Appendix D* is printed in large format, laminated and attached to the tree at all times.

Tree T2

4.12 Tree T2 is an early mature to mature, Plum tree (*Prunus spp)*, which has columnar and suppressed form. The tree is a structurally sound specimen located on the eastern boundary of the rear garden With some minor pruning of low epicormic growth and some light pruning / thinning as specified in *Section 5* the tree will be an improved specimen which can continue to provide light screening from the neighbouring garden.

4.13 Tree T2 is classified as C.1 (BS5837:2012) and is proposed for retention within the development. The recommended tree protection distance for this tree is 2.1 metres and therefore protection is required in order to prevent damage to the western root plate within the garden of 15 Bromwich Avenue. Although the full 2.1 metres may not be entirely achievable on the western section of the root plate this is not deemed problematic as the tree is relatively young with good vigour. Any excavations that do occur within close proximity of this tree on its western side should be undertaken with close adherence to the specifications as outlined in *Section 4.17*.

4.14 As with tree T1, It has not been recommended that protective fencing (as specified in BS5837:2012) is implemented as the building is being constructed within 1 metre of the stem and therefore, the construction process would not be possible with this fencing in place. It is recommended that a site notice is attached to the tree at all times.

Tree T3

4.15 Tree T3 is a young to early mature Oak tree (*Quercus robur*), located within the rear garden on the eastern boundary; this tree is sited furthest from the proposed development and closest to the main property. The tree is in good condition and as a developing specimen with a relatively low and broad domed crown offers average amenity value, therefore being rated C.1 (BS5837:2012).

4.16 The tree is located over 6 metres from the closest point of the proposed development and will not be affected by the proposed development - the recommended root protection area is 3.5 metres (BS5837:2012). It is very unlikely that construction activities would encroach within the vicinity of tree T3, but to ensure that full protection of the root plate and canopy are provided, the following is recommended:

- Tree works are recommended to be carried out as specified in *Section 5* in order to avoid any damage to the lower canopy.

- Tree Protection Specifications as outlined below, particularly with reference to excluding the storage of chemicals beneath the canopy of this tree must be adhered to at all times.

- The site notice as prepared in *Appendix D* is attached to the tree at all times.

Excavations / Root Severance Guidance

4.17 When implementing the construction of foundations, It should be noted that in the case of major roots being encountered within the southern root plate area of T1 (Sycamore), within the rear garden of 15 Bromwich Avenue, the following points should be closely adhered to:

- **All excavations within the rear garden area as outlined on the *Tree Root Protection Outline* (Appendix B.3) must be hand dug to a depth of 1.0 metre from ground level with close adherence to the specifications as highlighted below.**

- **The severance of any tree roots encountered larger than 25mm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.**

- **If at any point it is deemed not possible to continue with excavations without having to damage very significant tree roots, the Local Authority Tree Officer and / or the appointed Arboricultural Consultant must be contacted**.

Tree Protection Specifications

4.18 With the light nature of the development and the enclosure of the main stem of tree T1 that will occur, no protective fencing has as recommended. However, this does not negate the requirement for comprehensive tree protection measures and awareness as outlined below.

4.19 The implementation of the proposed development can be achieved whilst retaining trees **T1 - T3** for the long term by taking into account all the above points and in addition to the following which must be adhered to AT ALL TIMES:

- All construction activities must adhere to the tree protection guidelines as explained in the guidance below. – these should remain for the entire construction process in order to provide a comprehensive barrier from the tree.

- No heavy plant / site machinery / scaffolding should come into contact with any part of the canopy of trees T1-T3.

- No building materials or chemicals are stored within 6 metres of the stem of trees T1-T3.

- There should be no fires within the rear garden of 15 Bromwich Avenue in order to avoid any damage to the canopy of the trees.

4.20 The site notice as included in *Appendix D* summarising the above information should be visible at all times for employees working within the site.

Foundation Construction

4.21 In order to minimise any damage to tree roots on the southern section of the root plate of T1, it is recommended that foundations are to be constructed on mini screw piles or similar for the strip linking the existing garden building foundations. This has the potential to damage the tree by damage to the tree roots from the piling implementation. However, this can be avoided by undertaken the necessary precautionary measures as outlined below:

4.22 For the construction of foundations, trial holes will be required to be hand dug to ascertain locations where damage to structural roots can be avoided. All excavations should be undertaken as outlined in *Section 4.17*. Any void arising from the construction process should be filled with a no-fines granular fill in order to aid future root development.

Long Term Management of the tree

4.23 As an additional detail in relation to the long term maintenance of the tree which is in relative close proximity to the proposed garden building, it is recommended that in order to avoid the excessive build up of leaf and flower / fruiting debris within the gutters, gutter guards are installed on all gutters on the property. Helping to provide a harmonious relationship between tree and building is important, and this measure will remove future problems with drainage and associated issues, therefore preventing the need for excessive tree pruning for example. By installing such a system, the tree's cyclical management can be continued, as previous and in line with good arboricultural practice - recommended every 3-4 years (BS3998:2010).

Summary

4.24 With close adherence to the above points and to the following:

- **Excavations / Root Severance Guidance**
- **Tree Protection Specification**
- **Comprehensive use of the Tree Protection Notice**

all of which are provided within the report, trees T1 - T3, proposed for retention, will remain protected from the construction process and can continue to provide amenity value in this rear garden area for the long term.

5. Recommended Tree Management Plan

Any tree work should be carried out to *BS 3998; 2010 'Tree Work – Recommendations*' and to standards set within the Arboricultural Association's 'Standard Form of Contract and Specifications for Tree Work' by a qualified arboriculturist.

T1: Sycamore	Crown thin 20% and remove all deadwood Crown lift to 4-5m
T2: Plum	Crown thin 20% and remove all deadwood Crown lift to 3m
T3: Oak	Crown lift lightly to 3 - 3.5m

6. Appendices

Appendix A

Tree survey (BS5837:2012)

15 Bromwich Avenue
London
N6 6QH

15 Bromwich Avenue, London, N6 6QH - BS 5837: 2012 Tree Schedule – July 2014												
Tree No	Species	Ht (m)	Stem Diam. (mm)	Sprd (m)	Age	Visual Cond.	Phys. Cond.	Comments / Structural condition	Preliminary Management Recomm.	Estimated Remaining (years)	BS 5837 Rating	RPA Distance (m)
T1	Sycamore	14	390	N: 4 E: 4 S: 3 W:4	M	G	G	Structurally sound tree at base with good root flare; particularly to north west and south west. Main stem in good condition - slightly unbalanced mid and upper canopy with limited crown to south.	Crown thin 20% and remove all deadwood. Crown lift to 4-5m	10 years +	C.1	4.7
T1	Plum	8	180	N: 1 E: 1 S: 3 W:2	M	F	G	Reasonable specimen located on eastern boundary. Generally structurally sound with some minor deadwood throughout.	Crown thin 20%, remove all deadwood. Crown lift to 3m	10 years +	C.1	2.1
T1	Oak	9	290	N: 4 E: 3 S: 3 W:2	Y	G	G	Good specimen, structurally sound and with average form, slightly over-extended to north and east.	Crown lift lightly to 3-3.5m	40 years +	C.1	3.5

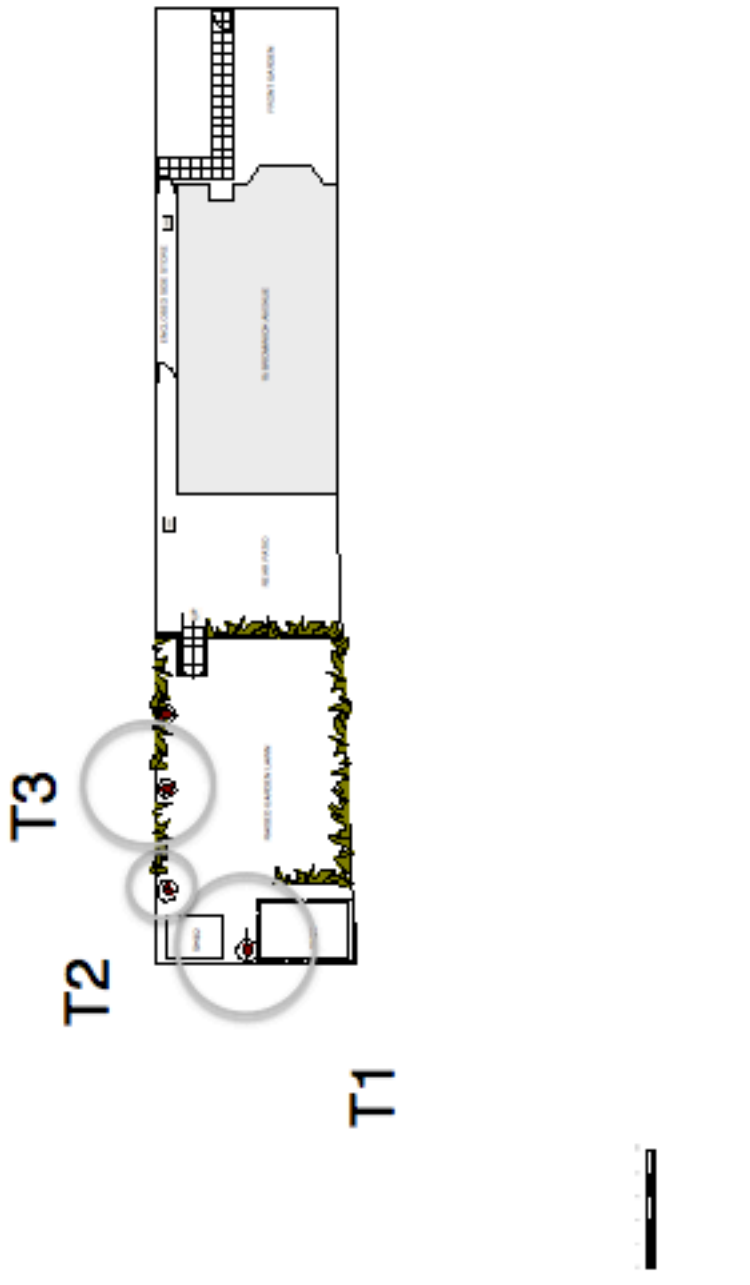
Appendix B.1

Existing Site Plan

16 Bromwich Avenue
London
N6 6QH

Plan supplied by:

D Gilbey Consulting Ltd
Drawing No: AKL - BA - P02
Date: 10/07/14
Drawing Title: Proposed Garden Room Details



Do not scale from this drawing

Site Plan Notes / Key:

1. Grey tree canopy outline denotes B.1 Category Rating (BS5837:2012)

Appendix B.2

Proposed Site Plan

16 Bromwich Avenue
London
N6 6QH

Plan supplied by:

D Gilbey Consulting Ltd
Drawing No: AKL - BA - E02
Date: 10/07/14
Drawing Title: Proposed Garden Room Details

Do not scale from this drawing

Site Plan Notes / Key:

1. Grey tree canopy outline denotes B.1 Category Rating (BS5837:2012)

Appendix B.3

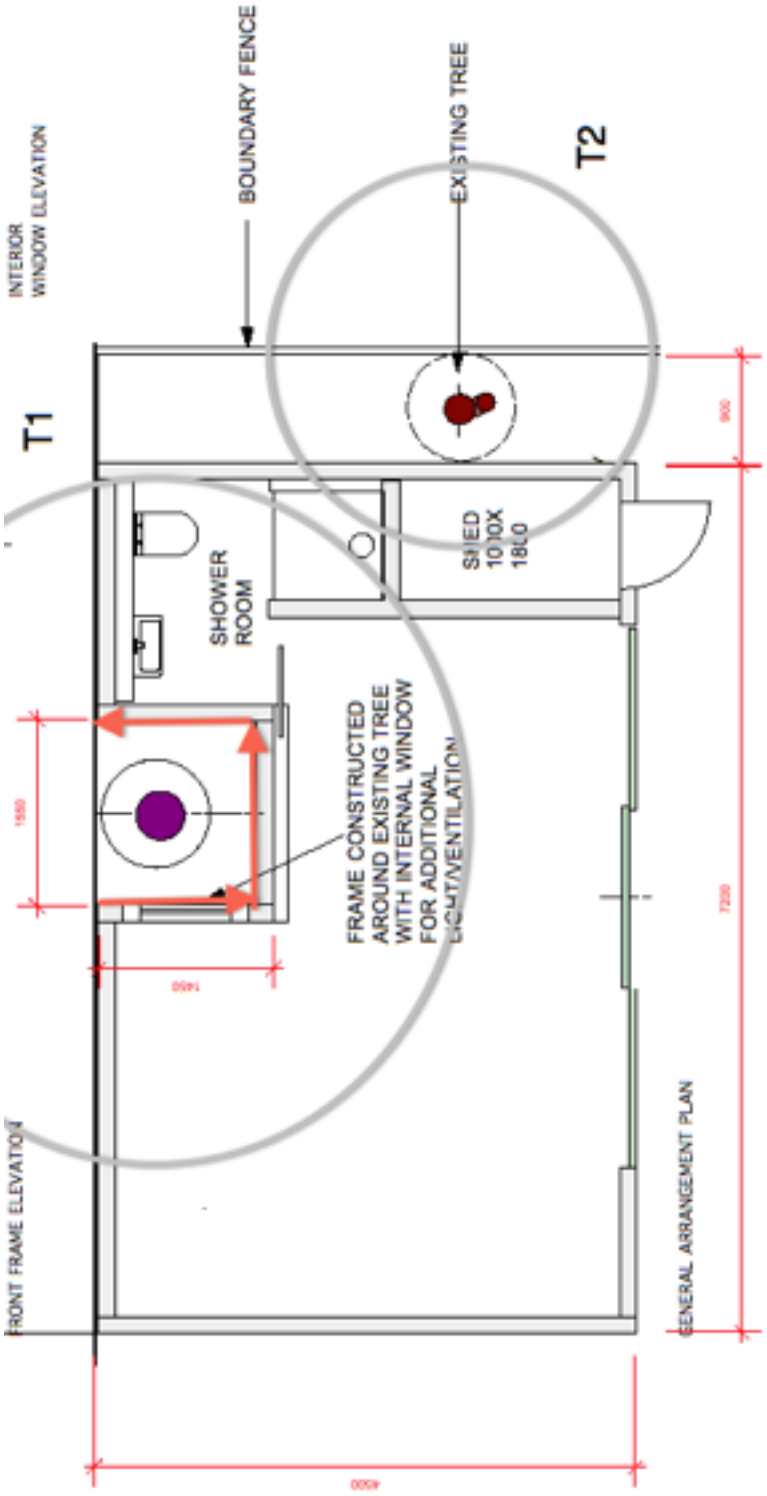
Proposed Garden Room Details

16 Bromwich Avenue
London
N6 6QH

Plan supplied by:

D Gilbey Consulting Ltd
Drawing No: AKL - BA - P02
Date: 10/07/14
Drawing Title: Proposed Garden Room Details

General Arrangement Plan



Do not scale from drawing

Tree Protection Site Plan Notes / Key:

1. Grey tree canopy outline denotes C.1 Category Rating (BS5837:2012)

2. Red arrow outline denotes area for ground works in upper 1.0m of soil / hard landscape surface to be HAND DUG only. Close adherence to the tree root excavations guidelines is required when undertaking excavations in this area.

Appendix C

Site Photographs for:

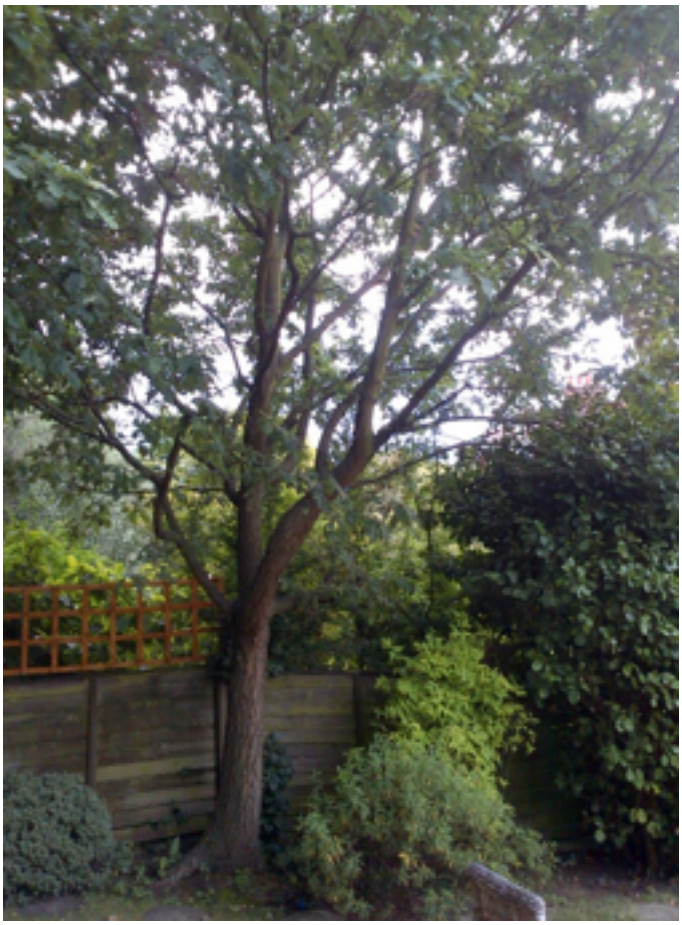
16 Bromwich Avenue
London
N6 6QH

* Taken 28th July 2014

C.1 Photograph of tree T1 located within rear garden of 15 Bromwich Avenue, London, N6 - as viewed from south to north

C.2 Photograph of tree T2 located within rear garden of 15 Bromwich Avenue, London, N6 - as viewed from west to east

C.4 Photograph of tree T3 located within rear garden of 15 Bromwich Avenue, London, N6 - as viewed from west to east



Appendix D:
Tree Protection Notice

Tree Protection Notice (BS5837: 2012):

15 Bromwich Avenue
London
N6 6QH

Notice to be clearly shown on site
AT ALL TIMES

TREE PROTECTION/ CONSTRUCTION SITE NOTICE

Guidance for ALL EMPLOYEES working on site in relation to the tree protection required at all times

Site: 15 Bromwich Avenue London, N6 6QH

- **There should be no storage of fuels, chemicals or cement based products within 6.0m of the main stem of trees T1 - T3. There should be no fires within 10 metres of the foliage, branches or trunk of any of the trees. Notice boards, telephone cables etc should not be attached to any part of any of the trees.**

- **The severance of any tree roots encountered larger than 2.5 cm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.**

- **If excavations do occur within the specified Root Protection Area where hand dug excavations are being undertaken, ANY tree roots encountered over 2.5cm in diameter should be retained where possible. Hand digging is to continue around any such tree roots.**

- **If at any point it is deemed not possible to continue with excavations without having to damage significant tree roots, the Local Authority Tree Officer and / or the appointed Arboricultural Consultant must be contacted.**

Appendix E: References

1. *BS5837: British Standard: Trees in relation to construction - Recommendations*, British Standard (2012)

2. *Principles of Tree Hazard Assessment and Management,* Lonsdale, D. (Department for Transport, Local Government and the Regions, 1999)

3. *The Body Language of Trees*, Mattheck, C. and Breloer, H. (HMSO, 1994)

4. *Trees in Britain,* Philips, R. (Pan Books, 1978).

5. *Diagnosis of Ill Health in Trees,* Strouts, R. and Winter, (TSO, 1994)

6. *NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2),* (November 2007)