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Arboricultural Survey (BS5837:2012) & Impact Assessment Report

Site details:

44 Dartmouth Park Road
London
NW5

Client details:

Peter Stern
33 Denman Drive North
London
NW11 6RD

Date of Report:

8th July 2015

Report Prepared by:

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1. Introduction

1.1 This report has been commissioned by Peter Stern to survey, assess and provide arboricultural recommendations and an impact assessment for the trees within and in close proximity to the proposed development at 44 Dartmouth Park Road, London, NW5 1SN.

1.2 A site visit was conducted on Thursday 2nd July 2015 to survey and assess the tree close to the proposed development. The weather at the time of inspection was dry and sunny with warm temperatures.

1.3 A tree survey, report and recommendations have been compiled for 1 tree (T1) which is sited within the adjacent public highway, to the north west - York Rise, London, NW5.

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

1.5 The tree included in the survey is shown in site plan, *Appendix B.1 - B.2*, and these correspond to the tree survey results table, *Appendix A*.

1.6 Photographs of the tree 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 trees or the buildings at this property for the compilation of this report.

2. Survey Details and Scope

2.1 The site survey included the 1 public highway tree (tree T1) as shown in the survey, *Appendix A,* and also highlighted on the site plans*, Appendix B.1 and B.2.* There are no trees located within the site or neighbouring properties within close proximity.

2.2 The tree was surveyed from ground level from the public highway. The diameter of the trunk has been measured using a Diameter at Breast Height (DBH) tape. The height of the tree has been measured using a clinometer.

2.3 The following information was recorded for the 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 specimen 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 the tree 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*.

Tree Survey Summary

2.6 Tree T1 has been surveyed in accordance with BS5837: 2012 'Recommendations for trees in relation to construction' (BS5837: 2012) and have been rated as follows:

Category 'A' trees

Trees of high quality with an estimated remaining life expectancy of at least 40 years. Trees have been categorised as 'A' trees for one of the following reasons:

- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'A' category trees have a green outline as denoted within the site plan key.

Category 'B' trees
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Trees have been categorised as 'B' trees for one of the following reasons

- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'B' category trees have a blue outline as denoted within the site plan key.

Category 'C' trees
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Trees have been categorised as 'C' trees for one of the following reasons

- Arboricultural qualities - unremarkable trees of very limited merit
- Mainly landscape qualities
- Trees with no material conservation or cultural value

Within the Site Plan (Appendix B) those trees rated as 'C' category trees have a grey outline as denoted within the site plan key.

Category 'U' trees
Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Within the Site Plan (Appendix B) those trees rated as 'U' category trees have a red outline as denoted within the site plan key.

3. Survey Limitations

3.1 No soil excavations have been carried out.

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

3.3 No invasive tools were used during this site survey.

3.4 It should be noted that shrubs within this property have not been included in the survey and report.

3.5 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 is 1 tree (T1) located within close proximity of the proposed development and associated construction site activities which incorporate development works within the existing property / site. Tree T1 has been surveyed and numbered as is depicted within the site plans (*Appendix B.1 - B.2*).

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

- **Potential excavations required for development works in close proximity to the tree sited on the adjacent public highway has the potential to cause damage**

- **Associated construction site activities which have the potential to cause long term damage to the tree and the amenity value which it offers**

- **Compaction of the ground surrounding the tree during construction works**

- **The use of and storage of materials and chemicals on site during the construction process**

4.3 The tree has been surveyed taking into account the condition, general health and form. In addition it has 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 overall landscape as well as the individual tree; it provides recommendations to ensure that long-term amenity value for the area is protected.

4.4 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.

Development proposal in relation to trees within close proximity

4.5 The proposed development works are to incorporate the retention of the 1 tree which has been surveyed, and has been rated as a category B.1 specimen within the BS5837: Survey Schedule due to the high visual amenity offered. This report will outline the condition of the tree and necessary requirements during the construction process in order to ensure its long term health, and the retention of the amenity value provided for the long term.

4.6 The proposed construction works will require for the development of an extension to the rear of the property in the site.extending to the north west of the property. It should be noted that although development works are not required within the Root Protection Area (RPA) site access will be required within the RPA during the development process. For tree T1, obviously proposed for retention, the development is achievable without causing long term damage to the tree based upon comprehensive precautionary and protection measures are adhered to as specified initially within this report and also a method statement where required.

4.7 Therefore as the major construction works will encroach within the RPA of the retained tree, the comprehensive protection will be required from the following activities:

4.7.1 Potential damage to tree roots during final landscaping works where they have become exposed from removing hard and/or soft landscaping that is currently *in situ*.

4.7.2 Potential damage to the root plate of tree T1 within close proximity of construction site activities where excavations are required, potentially causing damage to the health and/or structural integrity of the trees.

4.7.3 Potential damage from compaction of the root plates of the tree where construction activities will require working methods with heavy machinery and storage of materials.

4.8 The aim of this report is to address these issues and highlight the solutions required in order for the implementation of the development to be carried out without detrimentally affecting the structural integrity of the tree.

Tree Survey Notes - Tree T1 in relation to construction method

4.9 Tree T1 is a mature Horse Chestnut (*Aesculus hippocastanum*) located within the public highway adjacent to the proposed development site. The tree is a generally structurally sound specimen which had good buttress roots at the base and a straight main stem. The tree is sited within a thin soft landscape planting pit within the pavement and is surrounded by relatively recent hard landscaping (within the past 10 years). The planting pit is dressed with hoggin / breedon gravel or similar to ensure water penetration in this initial root plate area.

4.10 The main stem has some significant decay on the south side from approximately 2.0m - 3.5m which has reasonable compensatory growth but the heavily reduced state of the tree compensates for this. The decay does extend within the main union at approximately 3.0 metres and this structural defect requires for the management of the tree to be continued for the long term. Overall there is a good branch framework which has been cyclically crown reduced, lifted and thinned to manage its proximity to the road and adjacent buildings; works were likely last carried out within the past dormant season as there is significant fresh epicormic growth which is showing excellent vigour. Taking account of the prominent location within the streetscape and overall form, this tree is rated as a 'B.1' category specimen (BS5837: 2012) as when in leaf the tree offers a balanced and compact canopy with high amenity value in this urban area.

4.11 The tree canopy is relatively compact in relation to the outline of the recommended RPA that does infringe within the proposed development area where associated construction activities will be required to take place. It should be noted that no development works however will be required within the RPA. The recommended RPA radius distances is 5.2m from the main stem. By virtue of the location of the tree's location within the public highway the majority of the root plate will therefore remain largely unaffected by the proposed development. However, encroachment into a section of the RPA for the working construction site activities will be required as described below.

4.12 The tree is sited 1.2 metres from the boundary wall between the pavement and the rear garden area to the north west of the property 44 Dartmouth Park Road. This wall has a significant vertical crack from ground level to the top of the wall which suggests that the tree's root system is both retained by the wall and may also have adventitiously encroached beyond within the rear garden area. Regardless, the barrier that this structural hard landscape feature presents, means that a significant amount of fibrous root growth will have developed on the eastern root plate of this tree where the root development will have at least initially have been retained; it is clear that the tree and the wall have existed harmoniously for a significant number of years.

4.13 The development works ensure that no excavations are required within the recommended root protection area for this tree which extends 5.2 metres from the main stem of the tree. The RPA does extend within the property, but significant protection for the majority of the root plate can be provided; where not possible the hard standing surface will remain until final landscaping

works meaning that the root plate will essentially be fully protected - see *Appendix 4.2*

4.14 Therefore, it is the construction site activities only (notably site access to within the rear garden from where the development will likely be implemented) which will be required within the RPA for tree T1 to the south and south east of the root plate area where protection is not afforded. For the remainder full protection is achievable; to the east tree protection fencing has been specified, and to the north west, west and south west, the hard standing public highway road and pavement surfaces will provide comprehensive protection throughout.

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4.15 The following tree protection will therefore be required in order to ensure that damage to the tree does not occur during the development process:

4.15.1 Basal shuttering tree protection for the main stem of trees T1 due to proximity to site access / driveway area - see *Appendix F*.

4.15.2Tree Protection measures in the form of a Construction Exclusion Zone (CEZ) during the construction process protecting the tree's root plate within the RPA for tree T1 as depicted within Tree Protection Plan - *Appendix B.2* from potential compactiin & damage / storage of materials and chemicals

4.15.3Tree Protection measures throughout the construction process to ensure full protection is afforded for the canopy of the tree from machinery including cranes, piling rigs and other associated heavy machinery that access site.

Tree Protection Specifications

4.16 The implementation of the proposed development can be achieved without causing a detrimental impact on the public highway tree, T1 by taking into account all the above points and the following also which must be adhered to AT ALL TIMES:

- All construction activities must adhere to the tree protection guidelines as explained throughout the report and as outlined below. – these should remain for the entire construction process

- No building materials or chemicals are stored within the Root Protection Areas - the boundaries of which will be clearly marked with the TREE PROTECTION NOTICES

- There should be no mixing of concrete or chemicals within the tree protection areas during the construction process.

- There should be no fires within the site

- The construction of Tree Protection Fencing should be undertaken to the specifications outlined in *Appendix B.2* and in accordance with recommendations as illustrated iwithin this report

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

Excavations & Root Severance Guidance

4.18 When implementing the dismantling of hard and soft landscapes within the rear garden area and the construction of the proposed development, it should be noted that in the case of major roots being encountered the following points should be closely adhered to:

- **Any excavations which are required within the recommended ROOT PROTECTION AREA must be firstly agreed in writing with the Local Authority Tree Officer and then be hand dug for the first 1m 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**.

Hard Landscaping Removal / Re-landscaping on completion of development

4.19 As previously noted it is imperative that the hard landscaping that currently exists remains *in situ* in the main access area and all areas of the RPA throughout the development process. For the removal of this hard landscaping within the root protection area, which is inevitable in order to implement this proposed landscaping works at the final stages of the development the following guidelines should be closely adhered to **for all works within the RPA of tree T1** as outlined within *Appendix B.1 & B.2*:

4.20 In order to implement final landscaping works the 'breaking up' of the existing concrete surface may be carried out by low impact pneumatic tools only or by hand where possible – not breakers attached to diggers or JCB's, unless required due to the nature of the surface and if so, only when agreed with the consulting arboriculturist.

4.21 Where practical, subsequent removal of debris should be carried out by hand. Should a mechanical means of removal be required due to the size of debris the stipulation is that a maximum 1.5 tonne digger may be used provided that when picking up the debris, no tines / teeth from the bucket will cause damage to the underlying soil surface. Once manageable sized debris has been achieved hand removal should be undertaken. It is important to note that where the digger is used for such a process within the specified Tree Protection Area, it should only travel / work from the undisturbed hard surface, clearing debris as it progresses outwards from the Tree Protection Area.

4.22 No reduction in levels of the underlying soil surface will occur. The underlying soil may be levelled where required, assuming the natural soil level is not affected, by the addition of up to 100mm of fresh topsoil to BS3882:1984 standard. Hand tools only will be used for any levelling works as this will ensure no direct damage is caused to exposed roots.

4.23 For any of the above works, should roots over 25mm diameter have grown above the final soil level and become a hindrance to final surface installation their removal can only be carried out under supervision / as specified within root severance guidance – *Section 4.27*.

Arboricultural Supervision

4.24 It is recommended that an Arboricultural Supervision Scheme is implemented to ensure that significant tree root damage or compaction of tree roots does not occur. The following is recommended:

Before & During Land Preparation:
- Approval of any utility service routes approved that infringe within the RPA
- Approval of Site Storage Area
- Approval of Root Protection Areas (where fencing not implemented)
- Approval of Tree Protection Fencing positioning

Ongoing throughout development process:
- Monitoring of tree protection / condition
- Monitoring of land use
- Monitoring construction methods and storage areas in relation to trees

5. Recommended Tree Management Plan

5.1 Tree Works 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.

In addition, any permissions as relevant for tree work should be sought prior to the commencement of works from the Local Authority, London Borough of Camden.

T1 Horse Chestnut
*No action required at present**

** Note: Any future tree works will be carried out by the Local Authority on a cyclical basis on a management plan / cycle as determined by the LA.*

6. Appendices

Appendix A

Tree survey (BS5837:2012)

44 Dartmouth Park Road
London
NW5 1SN

Colour Key: BS5837: 2012 (see *Section 2.6*)

- **Category A**
- **Category B**
- **Category C**
- **Category U**

44 Dartmouth Park Road - BS 5837:2012 Tree Schedule – July 2015

Tree No	Species	Ht (m)	DBH (mm)	Sprd (m)	Age	Visual Cond	Vigour	BS5837 Cat. Rating (2012)	Remaining (years)	Comments / Structural Condition	Managem. Recomms	RPA (m)
T1	Horse Chestnut	12	440	N: 4 E: 3 S: 4 W:4	M	G	G	B.1	20 years +	Tree is a good specimen. Structurally sound at base with good root flare and initial root plate set within porous soft landscaping. Decay on main stem on south side to 2m which extends within main union possibly. Tree has been heavily pollarded on a cyclical basis at 8-10m to give a balanced but compact structural branch framework. Works last carried out approximately 6 months ago within dormant season; epicormic regenerative growth has excellent vigour.	No action required at present	5.2

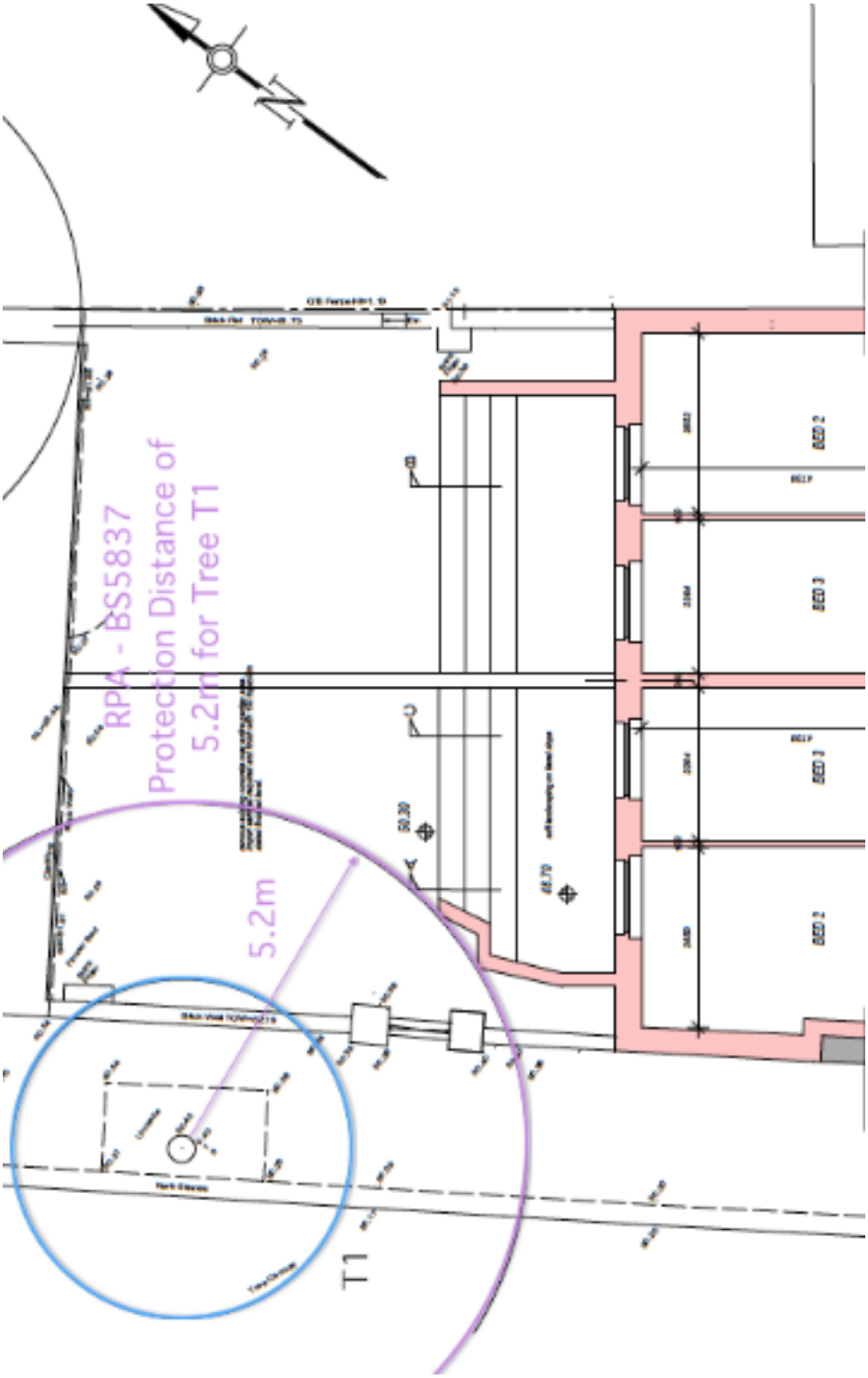
Appendix B

Proposed Site Plans:

44 Dartmouth Park Road
London
NW5 1SN

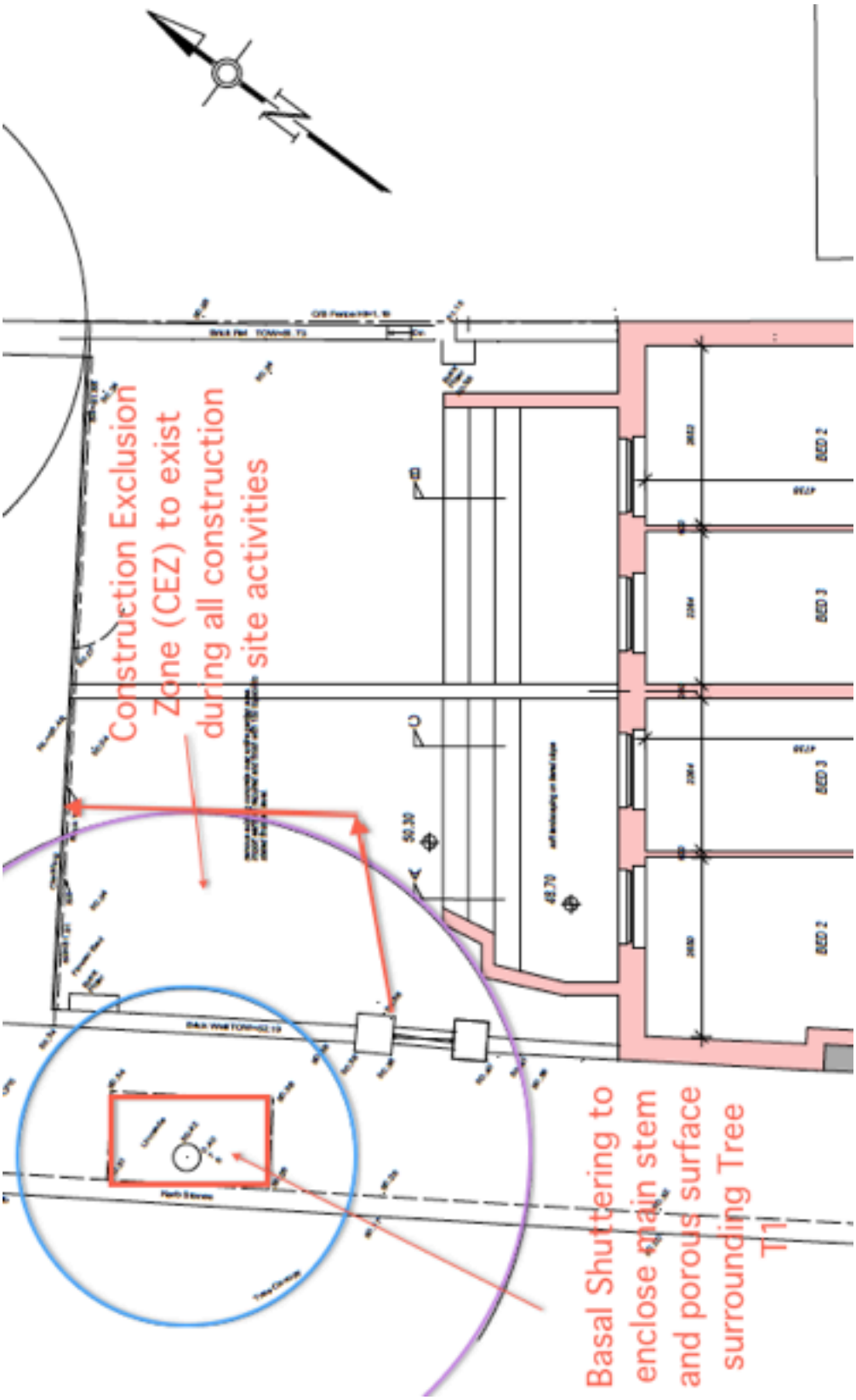
Plan supplied by:
Peter Stern - Architect & Designer
Plan Reference:
370/02E pl
Date:
January 2015

Appendix B.1
Proposed Site Plan with Root Protection Area (BS5837:2012)



Do not scale from this drawing

Appendix B.2
Proposed Site Plan with
Construction Exclusion Zone (BS5837:2012)



Do not scale from this drawing

Appendix C

Site Photographs for:

44 Dartmouth Park Road
London
NW5 1SN

**** Taken 2nd July 2015***

C.1 Photograph of tree T1, 44 Dartmouth Park Road, London, NW5 as viewed in a northerly direction from the public highway

C.2 Photograph of tree T1, 44 Dartmouth Park Road, London, NW5 as viewed in a easterly direction from the public highway

C.3 Photograph of tree T1, 44 Dartmouth Park Road, London, NW5 as viewed in a south easterly direction from the public highway

Appendix D:
Tree Protection Notice

Tree Protection Notice
(BS5837: 2012):

44 Dartmouth Park Road
London
NW5 1SN

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: 44 Dartmouth Park Road, London NW5 1SN

- There should be no storage of fuels, chemicals or cement based products within 10 metres of Tree T1 within the neighbouring public highway

- There should be no storage of materials or mixing of chemicals / concrete within this area at any time. There should also be no fires within the site

- . 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.

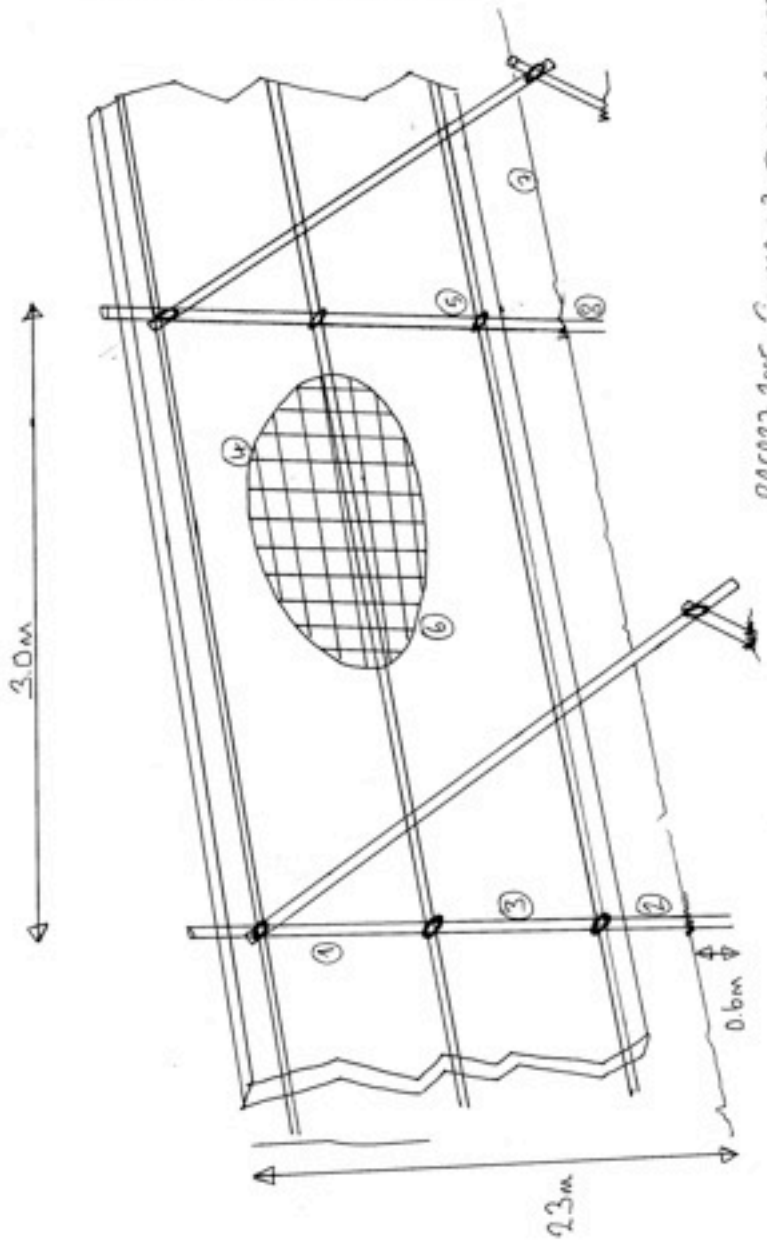
- If excavations do occur within the specified Root Protection Area where hand dug excavations are being undertaken, ANY tree roots encountered over 2.5cm in diameter should be retained where possible. Hand digging is to continue around any such tree roots.
-

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 Arboricultural Consultant must be contacted.

Marcus Foster (Arboricultural Consultant): 0781 202 4070
Local Authority Tree Officer (London Borough Camden): 020 7364 5009

Appendix E: Tree Protection Fencing as outlined in BS5837 (2012) Specifications

Appendix D: Diagram of Figure 2, Specification for protective fencing, as illustrated in BS5837: 2005



BS5837: 2005 : Figure 2 : Protective barrier

1. Scaffold pole
2. Uprights driven into ground
3. Bracing secured to uprights
4. Weldmesh secured to rails
5. Standard clamp
6. Wire secured to fence
7. Ground level
8. Driven 0.6m to ground

Appendix F: Example of Basal Shuttering

Basal shuttering offers immediate protection for the lower main stem and initial root plate of a tree where exposed with a porous surface. This method of tree protection does not offer protection to the root plate of a tree where surfaces are exposed / development works are being undertaken within the Root Protection Area of a tree. however, it does offer immediate protection to the main stem and provides vital clearance between the tree and construction site activities such as storage of materials, ad hoc toilet usage and compaction of exposed soft landscaped ground (in addition to many other additional construction site activities.

Photograph taken by Marcus Foster within City of Westminster, 2015

Appendix G: 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)