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Chestnut Cottage, Vale-of-Health, London

Arboricultural Impact Assessment

and

Arboricultural Method Statement

For

Tate Harmer Architects

Project No.: MFEA101/001/001/002

March 2016

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002	Final	29/03/2016	Neil Francis	Linda Henderson	Paul Franklin

Contents

1. Summary

1.1.1 Tate Harmer Architects is proposing the construction of two small, single storey extensions and internal alterations to Chestnut Cottage, Vale-of-Health, London (see Figure 1). The proposals include the demolition of the existing bin store and the construction of a larger bin and garden store and a small extension to the main property to provide a cloakroom.

1.1.2 Featherstone Young Architects commissioned Thomson Ecology to undertake an arboricultural survey of up to 20 trees within and adjacent to the site, and to produce an Arboricultural Impact Assessment (AIA) which discusses the likely impact of the development proposals on the trees at the site, and to compile an Arboricultural Method Statement (AMS) detailing the protection of all the trees at the site. The arboricultural survey was carried out in accordance with BS5837:2012 '*Trees in Relation to Design, Demolition and Construction – Recommendations*' (BS5837, 2012). However Tate Harmer Architects have subsequently take over the project and have been given authorisation by Featherstone Young Architects for the submission of this AIA and AMS in support of the planning application to the Local Planning Authority (LPA).

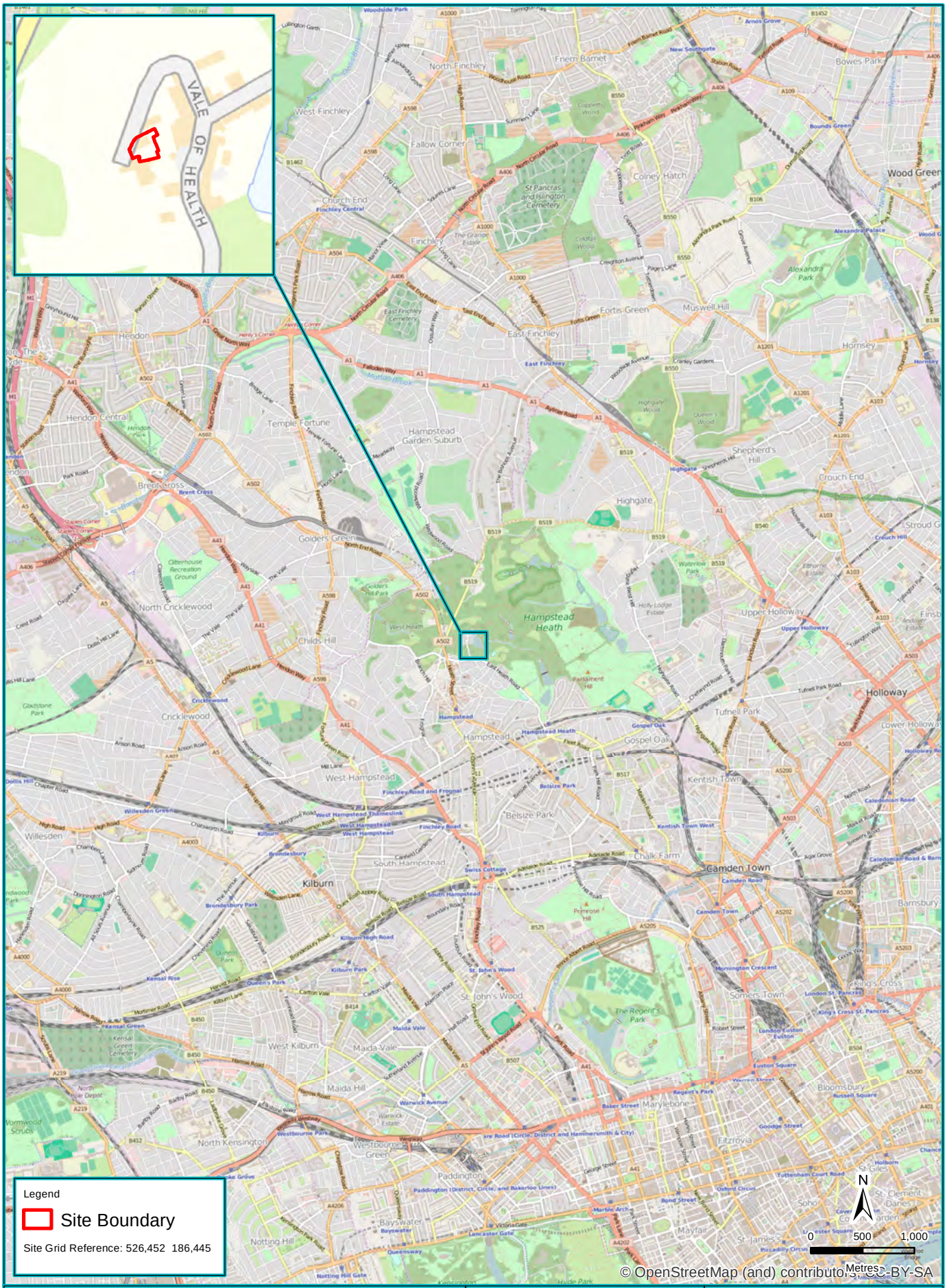
1.1.3 All trees were categorised in accordance with the cascade chart in BS5837:2012. Trees were given a ranking of A, B or C in descending order of value and assigned one or more subcategories qualifying the basis of that value as either arboricultural, landscape or cultural. Trees with only short-term remaining value or that require immediate removal for safety or management reasons are given a U rating.

1.1.4 A total of 17 individual trees and one group of trees were recorded during the survey and listed in the Tree Schedule (Appendix 1). The surveyor recorded six Category A trees, three Category B trees, six Category C trees, one Category C group of trees and two Category U trees located within or adjacent to the site. All of the trees and groups of trees were found to have arboricultural or landscape value, though none of the trees or groups of trees was deemed to hold cultural or conservation value.

1.1.5 Category A, B and C trees represent a material consideration to development. Concerted effort should be made to retain A and B category trees within the development. Whilst Category C trees should be retained where possible, they should not be retained where they would present a serious constraint to development.

1.1.6 Two Category U trees, T3 and T17, are to be removed due to their poor structural condition and for sound arboricultural reasons (see Figure 2). Furthermore, one Category C tree, T16, is to be removed to facilitate the proposed development.

1.1.7 The AIA concluded that the proposed development will have no significantly adverse impact on the retained tree stock, subject to the use of tree protection fencing, ground protection from existing hard surfaces and the use of 'hand-dig' excavation techniques (see Figure 3). Consequently, there are no arboricultural reasons why the development scheme should not proceed.



Client: Tate Harmer LLP		Drawing Ref: MFEA101/20029/1	
Figure Number: 1		Scale at A4: 1:50,000	
Figure Title: Site Location		Drawn: AS	Checked: NS
		Date: 17/11/2015	Date: 17/11/2015

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Legend

- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Root Protection Area of Category 'U' Tree
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

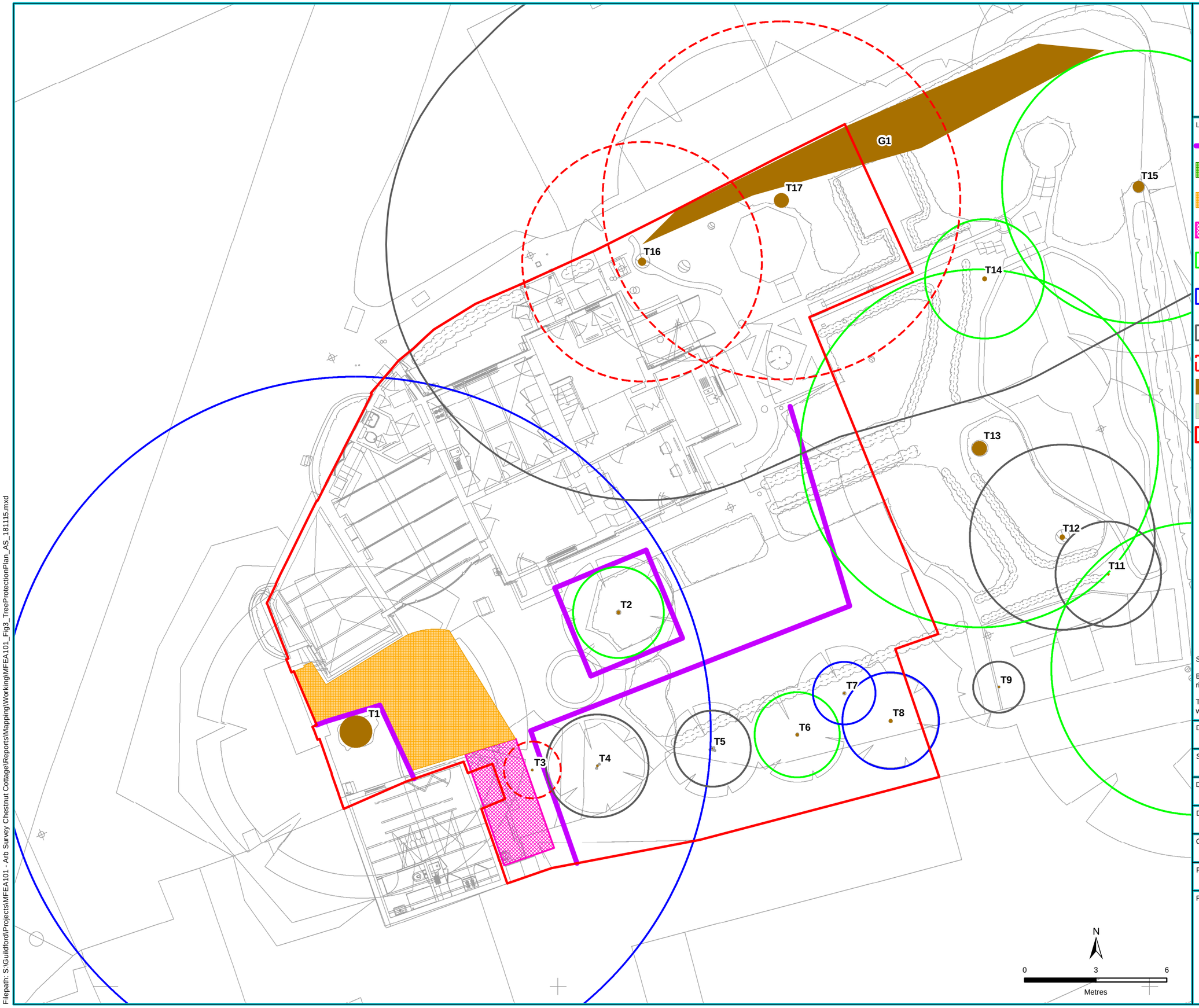
Site Grid Reference: 526,455 186,448

Drawing Ref	
MFEA101/20030/1	
Scale at A3	
1:250	
Drawn	Checked
AS	NS
Date	Date
17/11/2015	17/11/2015
Client	
Tate Harmer LLP	
Figure Number	
2	

Figure Title

Tree Constraints Plan (TCP01)

Filepath: S:\Guildford\Projects\MFEA101 - Arb Survey Chestnut Cottage\Reports\Mapping\Working\MFEA101_Fig2_TreeConstraintsPlan_AS_171115.mxd



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Legend

- Protective Fencing
- Ground Protection
- Ground Protection from Existing Hard Standing
- 'Hand-dig' Excavation
- Root Protection Area of Category 'A' Tree
- Root Protection Area of Category 'B' Tree
- Root Protection Area of Category 'C' Tree
- Trees to be Removed
- Tree Stem Location
- Tree Canopy Extents
- Site Boundary

Site Grid Reference: 526,452 186,445

Drawing Ref	MFEA101/20041/1
Scale at A3	1:150
Drawn: AS	Checked: NS
Date: 18/11/2015	Date: 18/11/2015
Client	Tate Harmer LLP
Figure Number	3

Figure Title

Tree Protection Plan (TPP01)

Filepath: S:\Guildford\Projects\MFEA101 - Arb Survey Chestnut Cottage\Reports\Mapping\Working\MFEA101_Fig3_TreeProtectionPlan_AS_181115.mxd

1.1.8 The AMS details how any aspect of the development that has the potential to result in loss or damage to a tree may be implemented, and provides an adequate level of protection for trees that are to be retained during the proposed works.

2. Introduction

2.1 Development Background

2.1.1 Tate Harmer Architects is proposing the construction of two small single storey extensions, one to provide a new winter garden room, and the second to provide a new log store and bike store off the separate garage/utility building where a smaller extension currently exists. Both extensions are located within the plot away from the street, with one on the eastern side of the cottage and the other on the eastern side of the separate garage/utility building. These proposals are hereafter referred to as 'the development'.

2.1.2 The development is located on an approximately 0.1ha area of land (grid reference TQ264864), shown on Figure 1. The area affected by the development is hereafter referred to as 'the site'. The site currently comprises a Grade II listed 19th Century cottage and external garage buildings set in mature gardens.

2.1.3 There are a number of trees within the site and adjacent to the site boundary that may be affected by development.

2.1.4 Detailed development plans are in the process of being drawn up and a planning application was will be submitted to the LPA at the beginning of April 2016.

2.2 Site Description

2.2.1 To the west of the site there is a boundary wall, integrated garage and separate garage building which are adjacent to the Vale of Health Road and public footpath. Mature gardens lie to the east of the site and residential properties lie to the south and north.

2.3 Brief and Objectives

2.3.1 Featherstone Young Architects commissioned Thomson Ecology on 3rd November 2015 to undertake an arboricultural survey of the site, including a Tree Schedule (see Appendix 1) and a Tree Constraints Plan (TCP) (see Figure 2), and to produce an Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS) with accompanying Tree Protection Plan (TPP) (see Figure 3).

2.3.2 The objective of the survey and report was to assess the condition of the existing trees on site and any off site trees that might be affected by the development, providing sufficient information to enable decisions to be made on potential design layout and tree retention for the proposed development. The brief was to complete:

- A site visit to survey up to 20 trees (grouped where appropriate) in accordance with BS5837:2012 based on the plan provided by email on 26/10/2015 by Featherstone Young Architects;
- A desk study to determine the presence of any Tree Preservation Order or Conservation Area restrictions affecting the site;

- A report of our methods and the results, including the Tree Schedule. This will include a Tree Constraints Plan (TCP). The information will be used to undertake an Arboricultural Impact Assessment, Tree Protection Plan (TPP) and Arboricultural Method Statement; and
- The report will be supported by appropriate digitised mapping.

2.4 Limitations

2.4.1 The information provided within this report and in the accompanying Tree Schedule covers only those trees that were inspected and their condition at the time of survey.

2.4.2 A full hazard assessment has not been made and therefore no guarantee is given as to the structural integrity of any of the trees onsite.

2.4.3 Measurements for off-site trees have been estimated and therefore may not fully represent the related constraints.

2.4.4 Whilst this report makes general observations on the long term potential of the trees surveyed, trees are dynamic organisms and subject to continual change, thus this report should not be relied upon for the purposes of development for more than 12 months from the date of survey.

3. Methodology

3.1 Desk Study

3.1.1 Records of Tree Preservation Orders (TPOs) existing at the site and Conservation Areas within or adjacent to the site were sought from Camden London Borough Council.

3.2 Tree Survey

3.2.1 All significant trees at the site were assessed for their potential to be affected by the development proposals. Significant trees are defined as those with a trunk diameter of greater than 75mm at 1.5m above ground level according to the survey methodology outlined in BS5837:2012. Off-site or third party trees have been included where it is likely they would influence the development. The trees surveyed were inspected from ground level only and no internal investigations were undertaken.

3.2.2 Trees were categorised as single trees or those that formed part of a distinct group such as a woodland or hedgerow. Groups can be defined as cohesive arboricultural features, either aerodynamically, visually or culturally (BS5837:2012). The information recorded for each tree can be seen in Table 1.

Table 1: Information recorded for each tree during survey.

Attribute	Description
Tree No.	Numerical reference given in sequential order starting at number '1', corresponding with the numbers as set out in Figure 2; trees are given the prefix 'T', groups 'G', woodlands 'W' and hedgerows 'H'.
Species	The common names are based upon on site identification and expressed according to "*Tree Guide*" (Johnson & More, 2004).
Height	Measured approximately from ground level with the aid of a clinometer and shown in metres (m).
Stem Diameter	Diameter measured at approximately 1.5m above ground level. In the case of multi-stemmed trees, measurement is taken of each stem at 1.5m, where there are two to five stems; or a mean stem diameter at 1.5m, where there are more than five stems. Given in millimetres (mm).
Canopy Spread	Maximum branch spread measured in metres from the centre of the trunk in the direction of the four cardinal points of the compass (or an average can be given if branches demonstrate an even spread).

Attribute	Description
Crown Clearance	Height above ground level of the first significant branch and direction of growth, and the height above ground level of the overall canopy.
Age Class	• Young – less than one-third natural life span spent; • Middle-aged – between one-third and two-thirds natural life span spent; • Mature – greater than two-thirds life span completed; • Over-mature – mature, and in an overall state of decline; • Veteran – surviving beyond the typical age range for the species with a high value in terms of conservation and amenity.
Physiological Condition	Overall health, condition and function of the tree in comparison to a 'normal' example of the species of a similar age; e.g. 'good', 'fair', 'poor' or 'dead'. If deemed necessary, these gradings may be elaborated upon in the 'Comments' section.
Structural Condition	The overall structural condition of the tree including the roots, butt, trunk, limbs and their unions, and the presence of any structural defects, decay or pathological defects. • Good - no significant visible structural defects with a form typical for the species; • Fair - a specimen with only minor defects that are easily remedied or of no long term significance; • Poor - significant and irremediable physiological or structural defects that may lead to early or premature decline; • Hazardous - significant structural defects of such a degree that there is a risk of imminent collapse or failure. If deemed necessary, these gradings may be elaborated upon in the 'Comments' section.
Comments	Comments have been made, where appropriate, relating to location, health and condition, structure and form, estimated life expectancy, conservation value and amenity value within the local landscape.
Preliminary Management Recommendations	Tree work that should be undertaken for good arboricultural management, regardless of the requirements of the development.

Attribute	Description
Estimated Remaining Contribution	The estimated time, in years, that the tree will provide a safe contribution to the site (i.e. <10, 10-20, 20-40 and >40).

Quality Assessment

3.2.3 During the survey, the trees were assessed qualitatively, categorising the quality and value of the trees based on arboricultural, landscape and cultural (including conservation) features. Each tree was then placed into one of four categories. The four categories can be seen in Table 2. Definitions for these categories can be found in Appendix 2.

Table 2: Quality assessment categories.

Category	Description
Category U	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.
Category A	Trees of high quality with an estimated life expectancy of at least 40 years.
Category B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
Category C	Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

3.2.4 Trees categorised as either A, B or C, were also allocated up to three subcategories. The subcategories chosen for each tree are dependent on the main reasons for selection of the particular category grading. The three subcategories are as follows:

- 1 – Category grading based on mainly arboricultural qualities;
- 2 – Category grading based on mainly landscape qualities; and
- 3 – Category grading based on mainly cultural values, including conservation.

Root Protection Areas (RPAs)

3.2.5 Trees that are selected for retention on the site could be at risk of damage during construction, such as root damage during the excavations for foundations or services or any ground-working for landscaping. Further impacts on the trees may potentially result from vehicle movements and

materials storage, including root severance, compaction of the soil and exclusion of air and water to the soil. The risk of tree damage is minimised if construction activities are planned to avoid the roots of trees.

3.2.6 The area of ground adjacent to each tree or group of trees that contains the majority of the roots can be calculated using the equation provided in the BS5837:2012. This Root Protection Area (RPA) is a radius around the tree of 12 times the stem diameter for a single stem. For multi-stemmed trees of two to five stems and greater than five stems, the cumulative stem diameters to be multiplied by 12, are calculated as per the equations in Table 3.

Table 3: Equations for the calculation of the RPA of multi-stemmed trees.

Number of stems	Equation
Two to five	√(stem diameter 1)² + (stem diameter 2)² … + (stem diameter 5)²
More than five	√(mean stem diameter)² x number of stems

3.2.7 The RPA for each tree in the Tree Schedule has been calculated and, where relevant, has been adjusted to take into account site conditions. For example, when a tree is growing in a confined root space adjacent to an existing building or other solid structure that would restrict root growth in that direction, the RPA has been adjusted accordingly (see Figure 2).

3.2.8 The RPA for tree groups is calculated using the stem of the largest tree within the group. The RPA radius is calculated as per Section 3.2.7 and then used to define the RPA by following the outline of the group's extent.

3.2.9 Where the calculated RPA exceeds 707m^2, it has been capped at this figure, as per BS5837:2012. This is equivalent to a circle with a radius of 15m or a square with approximately 26m sides.

Date of Survey

3.2.10 The site was visited and the survey undertaken on 11th November 2015 by Paul Sweetman Tech Cert (ArborA).

Weather Conditions

3.2.11 The weather conditions at the time of survey were cloudy. Deciduous trees were beginning to abscise their leaves.

4. Results

4.1 Desk Study

4.1.1 It was confirmed on the Camden London Borough Council Planning Portal website on 18th November 2015, that one tree, T1, a horse chestnut (*Aesculus hippocastanum*) within the site is covered by Tree Preservation Order T15-H-Ches and that the site is located within Hampstead Conservation Area.

4.1.2 Under the Town and Country Planning (Tree Preservation) (England) Regulations 2012 it is prohibited to cut down, top, lop, uproot, wilfully damage or wilfully destroy; or cause or permit the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of any tree, or group of trees, subject to a TPO or that is located within a Conservation Area except with the consent of the local authority.

4.2 Tree Survey

4.2.1 A total of 17 significant individual trees and one group of trees located within or immediately adjacent to the site boundary were recorded during the survey. A breakdown of categories can be found in Table 4. The locations of all trees, RPAs, retention categories and reference numbers are shown on Figure 2. A detailed description of each tree is given in the Tree Schedule in Appendix 1.

Table 4: Number of significant trees allocated to each retention category.

	Category 'A' Trees	Category 'B' Trees	Category 'C' Trees	Category 'U' Trees
Number of Trees and Groups of Trees in each Category	6	3	7	2
Tree and Tree Group Numbers	T2, T6, T10, T13, T14, T15	T1, T7, T8	T4, T5, T9, T11, T12, T16, G1	T3, T17

4.2.2 A list of the criteria used to determine the category and subcategories of the trees can be found in Appendix 2 - Table of Quality Assessment.

Root Protection Areas (RPAs)

4.2.3 The RPAs for the trees and groups surveyed can be seen in Figure 2. The actual RPAs, in m^2, for the individual trees surveyed are shown in Appendix 1.

5. Arboricultural Impact Assessment (AIA)

5.1 Introduction

5.1.1 The purpose of the AIA is to assess the likely impact of the proposed development on the existing trees on site and to determine which trees are to be removed or retained during the construction phase.

5.1.2 The protection of retained trees is paramount to their survival during the development process and their consequent long term contribution to the site. The Root Protection Areas (RPAs) identified in the arboricultural survey and Tree Constraints Plan (TCP) should remain protected throughout the development to avoid potential damage, such as:

- Soil compaction;
- Root severance due to excavation;
- Soil coverage with impermeable material;
- Alterations in ground level;
- Leaks and spillages from stored materials; and
- Vehicle and heavy plant collision.

5.2 Documents

5.2.1 The AIA has been based on documents produced by Featherstone Young Architects and the subsequent corresponding documents from Tate Harmer Architects depicting the same proposal as Featherstone Young Architects. The details of these documents can be seen in Table 5.

Table 5: Documents upon which this assessment has been based and those that will be submitted to the LPA

Originator	Reference No.	Title
Featherstone Young Architects	23495A-1(LAND SURVEY)	Land Survey
Featherstone Young Architects	PEP - Topographical Survey	Topographical Survey
Featherstone Young Architects	CHE 003 Existing GF Plan	Existing ground Floor Plan
Featherstone Young Architects	CHE 103 Proposed Ground Floor	Proposed Ground Floor
Tate Harmer Architects	CCH_THA_PR_AL_310.pdf	Proposed Elevations - South West and North East
Tate Harmer Architects	CCH_THA_PR_AL_300.pdf	Proposed Elevations - South East and North West

Tate Harmer Architects	CCH_THA_PR_AL_210.pdf	Proposed Section B-B
Tate Harmer Architects	CCH_THA_PR_AL_200.pdf	Proposed Section A-A
Tate Harmer Architects	CCH_THA_PR_AL_120.pdf	Proposed Roof Plan
Tate Harmer Architects	CCH_THA_PR_AL_110.pdf	Proposed First Floor Plan
Tate Harmer Architects	CCH_THA_PR_AL_100.pdf	Proposed Ground Floor Plan
Tate Harmer Architects	CCH_THA_PR_AL_010.pdf	Proposed Site Plan
Tate Harmer Architects	CCH_THA_EX_AL_310.pdf	Existing Elevation South West - North West
Tate Harmer Architects	CCH_THA_EX_AL_300.pdf	Existing Elevation South East - North East
Tate Harmer Architects	CCH_THA_EX_AL_200.pdf	Existing Section A-A
Tate Harmer Architects	CCH_THA_EX_AL_120.pdf	Existing Roof Plan
Tate Harmer Architects	CCH_THA_EX_AL_110.pdf	Existing First Floor Plan
Tate Harmer Architects	CCH_THA_EX_AL_100.pdf	Existing Ground Floor Plan
Tate Harmer Architects	CCH_THA_EX_AL_010.pdf	Existing Site Plan
Tate Harmer Architects	CCH_THA_DM_AL_310.pdf	Demolition Elevations South West and North East
Tate Harmer Architects	CCH_THA_DM_AL_300.pdf	Demolition Elevations South East and North West
Tate Harmer Architects	CCH_THA_DM_AL_200.pdf	Demolition Section A-A
Tate Harmer Architects	CCH_THA_DM_AL_120.pdf	Demolition Roof Plan

Tate Harmer Architects	CCH_THA_DM_AL_110.pdf	Demolition First Floor Plan
Tate Harmer Architects	CCH_THA_DM_AL_100.pdf	Demolition Ground Floor Plan
Tate Harmer Architects	CCH_THA_DM_AL_010.pdf	Demolition Site Plan

5.3 Tree Removals

5.3.1 Two trees require removal due to their poor structural condition and one tree is required to be removed to falicate the proposed development. A breakdown of the associated categories assigned to these specimens can be seen in Table 6 and the species of tree to be removed in Table 7.

Table 6: Number of trees to be removed within each retention category.

	Category 'A' Trees	Category 'B' Trees	Category 'C' Trees	Category 'U' Trees
Number of Trees	-	-	1	2

Table 7: Details of trees to be removed.

Tree Number	Species	Category	Reason
T3	*Olea europaea*; olive	U1	For sound arboricultural reasons
T16	*Prunus spinosa;* blackthorn	C2	To falicate the development
T17	*Betula pendula*; silver birch	U1;2	For sound arboricultural reasons

5.4 Trees to be Retained

5.4.1 Of the trees surveyed 15 individual trees and one group of trees are to be retained and protected throughout development.

5.4.2 The RPAs of the retained trees should be protected by fencing and ground protection to the specification laid out in BS5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations'*. The positioning of the fencing and ground protection can be seen on

Figure 3 and an illustrated example of the fencing specification in Appendix 3. The area protected by the fencing shall be known as the Construction Exclusion Zone (CEZ). Additional ground protection will also be afforded by existing hard standing where indicated on Figure 3.

Shading

5.4.3 Due to the planned, future usage of the proposed extensions, shading from the existing trees should not have a significant, detrimental effect on the proposed development works.

5.5 Construction Work within RPAs

New Buildings

5.5.1 The footprint of the proposed new garden store and bin store incurs into the RPA of T1 (see Figure 3). This encroachment, although small, should be mitigated against through the use of supervised 'hand-dig' excavation techniques.

5.6 Services and Utilities

5.6.1 Detailed drawings of underground services are not available at this time. Therefore it is not possible to identify any specific potential impacts associated with the site at this stage.

5.6.2 Where existing services situated within RPAs require upgrading, care must be taken to minimise any disturbance, and where feasible, trenchless techniques are to be employed, and only where necessary should manual excavation be considered.

5.6.3 If new services are to be introduced into the site they should be located outside of the RPAs where they will not interfere with tree roots. Final positions of any proposed services should be verified and approved by an arboricultural consultant and the Local Authority Tree Officer before implementation.

5.6.4 If service installation is required within RPAs then the guidelines within National Joint Utilities Group publication (NJUG 4, 2007) should be adhered to.

5.7 Post Development Management

5.7.1 As there will not be a significant change in the use of the site, the retained trees and any new trees planted as part of the final landscaping scheme should remain subject to the current form of tree management system. If no tree management system is in place, guidance on the level of tree management required can be found in the National Tree Safety Group publication, '*Common sense risk management of trees*' (NTSG, 2011).

5.8 Conclusion

5.8.1 The development will result in the removal of three trees from the site. However, two of these are Category U and the other is a Category C tree and their removals should not have a significant detrimental effect on the arboricultural value of the site.

5.8.2 There should be no harm caused to any trees planned for retention by these proposals subject to the erection of protective fencing and the creation of a Construction Exclusion Zone, the use of existing ground protection and 'hand-dig' excavation techniques.

5.8.3 Once detailed finalised drawings for the underground services have been produced, they should be reviewed by an arboricultural consultant prior to approval by the Local Planning Authority Tree Officer.

6. Arboricultural Method Statement (AMS)

6.1 Introduction

6.1.1 The purpose of this AMS is to demonstrate how work will be undertaken on the site to avoid an unacceptable impact on, and provide an adequate level of protection for, the retained trees.

6.1.2 This AMS sets out the tree protection required to facilitate the proposed development, and should not be read as a definitive engineering or construction statement for this site. Matters relating to construction or engineering detail should be referred to a qualified structural engineer for further information and specification.

6.1.3 This AMS is to be used in conjunction with the Tree Protection Plan (TPP01) in Figure 3.

6.2 Documents

6.2.1 This AMS has been based on documents produced by Featherstone Young Architects and the subsequent corresponding documents from Tate Harmer Architects depicting the same proposal as Featherstone Young Architects. The details of these documents can be seen in Table 8.

Table 8: Documents upon which this assessment has been based and those that will be submitted to the LPA

Originator	Reference No.	Title
Featherstone Young Architects	23495A-1(LAND SURVEY)	Land Survey
Featherstone Young Architects	PEP - Topographical Survey	Topographical Survey
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Tate Harmer Architects	CCH_THA_PR_AL_200.pdf	Proposed Section A-A

Tate Harmer Architects	CCH_THA_PR_AL_120.pdf	Proposed Roof Plan
Tate Harmer Architects	CCH_THA_PR_AL_110.pdf	Proposed First Floor Plan
Tate Harmer Architects	CCH_THA_PR_AL_100.pdf	Proposed Ground Floor Plan
Tate Harmer Architects	CCH_THA_PR_AL_010.pdf	Proposed Site Plan
Tate Harmer Architects	CCH_THA_EX_AL_310.pdf	Existing Elevation South West - North West
Tate Harmer Architects	CCH_THA_EX_AL_300.pdf	Existing Elevation South East - North East
Tate Harmer Architects	CCH_THA_EX_AL_200.pdf	Existing Section A-A
Tate Harmer Architects	CCH_THA_EX_AL_120.pdf	Existing Roof Plan
Tate Harmer Architects	CCH_THA_EX_AL_110.pdf	Existing First Floor Plan
Tate Harmer Architects	CCH_THA_EX_AL_100.pdf	Existing Ground Floor Plan
Tate Harmer Architects	CCH_THA_EX_AL_010.pdf	Existing Site Plan
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Tate Harmer Architects	CCH_THA_DM_AL_200.pdf	Demolition Section A-A
Tate Harmer Architects	CCH_THA_DM_AL_120.pdf	Demolition Roof Plan
Tate Harmer Architects	CCH_THA_DM_AL_110.pdf	Demolition First Floor Plan
Tate Harmer Architects	CCH_THA_DM_AL_100.pdf	Demolition Ground Floor Plan

Tate Harmer Architects	CCH_THA_DM_AL_010.pdf	Demolition Site Plan

6.2.2 The relationship between the trees and the proposed development are shown on the Tree Protection Plan (TPP), (see Figure 3) which is based on the Tree Constraints Plan (TCP01) and the drawings detailed in Table 8.

6.3 Supervision

6.3.1 Before construction commences, a suitably qualified and experienced arboriculturist shall be appointed to oversee key stages of the construction work that will affect the trees, as laid out in Table 10.

6.3.2 As there is a requirement to work within the RPA of the retained, tree T1 which is protected within a TPO, this part of the construction phase shall require arboricultural supervision.

6.4 List of Contacts

6.4.1 The list of contacts within Table 9 should be used as reference if any deviations from, or issues with, any part of this AMS arise.

Table 9: List of contact details for relevant parties.

Name	Job Title	Organisation	Contact Email	Contact Number
Linda Henderson	Senior Arboriculturlist	Thomson Ecology	Linda.henderson@thomsonecology.com	0148346 6082 07825 626053
TBC	Arboricultural Officer	Camden London Borough Council	-	0207 974 4444
TBC	Site Manager	-	-	-
Andrew Baker-Falkner	Architect	Tate Harmer Architect	afalkner@tateharmer.com	020 7241 7481

6.5 Tree Removals and Pruning

6.5.1 Three individual trees, T3, T16 and T17, shall be felled to ground level. The stumps of the felled trees shall be left in place or ground out to below ground level. Trees requiring pruning shall have the works carried out in accordance with BS3998:2010 *'Recommendations for Tree Work'*.

6.5.2 Care is to be taken of the ground around retained trees to make sure that it does not become compacted as a result of tree surgery operations. No equipment or vehicles such as timber lorries, tractors, excavators or cranes should be parked or driven beneath the crowns of any

retained trees, to prevent subsequent soil compaction and root death. All arisings are to be removed and the site is to be left in as tidy and orderly manner as possible.

6.6 Protective Fencing

6.6.1 Temporary fencing will be erected as indicated on the Tree Protection Plan (TPP01) in Figure 3. The specification for this fencing will be in accordance with the recommendations given in BS5837:2012 '*Trees in Relation to Design, Demolition and Construction – Recommendations*' (BSI, 2012). It will comprise 2.0m high mesh fencing (Heras type panels are a simple, readily available solution) attached to a scaffold framework. Support scaffolds will be attached to the scaffold framework as necessary at an angle of 45 degrees on the side of the trees and anchored by further scaffold poles carefully firmed into the ground. The vertical scaffold tubes will be spaced at a maximum interval of 3m. Clear signs will be attached at 6m intervals along the fencing stating 'Construction Exclusion Zone – No Access'.

6.6.2 A diagram illustrating an example of the protective fencing can be seen in Appendix 3.

6.6.3 The area protected by the fence shall be known as the Construction Exclusion Zone (CEZ).

6.6.4 The following principles must be maintained within the CEZ:

- Existing ground levels shall not be altered;
- No excavation shall occur to avoid root severance;
- No plant or vehicles shall enter the CEZ;
- Impermeable surfacing shall not be laid down over soil ('capping');
- No materials, fuels or chemicals shall be stored within any of these areas;
- No fires to be lit where flames may reach within 5m of the CEZ;
- No structures or fixtures of any kind shall be fastened in any way to the trunks of the retained trees;
- No drainage or irrigation pipes shall be installed within the RPAs of the retained trees; and
- Any unwanted vegetation shall be removed by hand.

6.6.5 The fencing shall remain in place until soft landscape operations require its full or partial removal. No other construction activity will take place within those areas formerly protected by the fence.

6.7 Ground Protection

6.7.1 The main site access route is proposed to pass through the RPA of T1. Ground protection will be afforded by existing hard standing in the areas indicated on Figure 3.

6.7.2 The additional ground protection shall take the form of a single thickness of scaffold boards, laid on top of a layer of a compressible substrate, such as woodchip; on top of a geotextile as specified in Section 6.2.3 of BS5837:2012. Timber scaffold boards shall be secured to each other to prevent them moving apart.

6.8 Removal of Hard Surfaces within the RPA

6.8.1 There is no requirement for the removal of hard surfaces within the RPAs of the retained trees.

6.9 Construction within RPAs

6.9.1 Where the building footprint overlaps the RPA of T1 a 'hand-dig' approach to excavation shall be used to prevent root damage. Exploratory bore holes shall be hand-dug to a depth of 600mm to ensure there are no major roots present. Roots occurring in clumps or that are over a diameter of 25mm shall only be severed following consultation with a suitably qualified arboricultural consultant as such roots might be vital for the tree's health and stability. Roots under a diameter of 25mm may be pruned under the supervision of an arboriculturist.

6.10 Services and Utilities

6.10.1 All underground services and drainage routes shall be located so that no excavations are required within the RPAs of the retained trees. In this instance, the best route onto the site is along the southern boundary or the north-west corner of the site.

6.10.2 In the event that an incursion into an RPA is unavoidable, the installation shall comply with the methods and guidelines detailed in "*Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees*" NJUG 4 (2007). If this does occur, then an arboricultural consultant shall be consulted before any works commence within the RPA to agree the methodology for the excavation.

6.11 Landscaping

6.11.1 The plans provided do not show any landscaping with the RPAs of the retained trees. However, if any is to be undertaken post-construction the principles of the CEZ (as detailed in Section 6.6.4) should still be adhered to with particular reference to level changes, root severance and 'capping' with impermeable materials. If impermeable surfaces are to be laid within the RPA of any of the retained trees then they should not cover greater than 20% of the area.

6.11.2 It is suggested that an area of mulch be added to the base of the trees should any soft landscaping take place. An area of 1m^2 and 5-10cm depth of shredded bark, bark chips or well-composted green waste to conform to PAS 100 (BSI, 2005b) is suggested. Mulch should not be spread so that it is piled against the base of the tree.

6.12 Sequence of Works

6.12.1 A logical sequence of events is to be observed as show in Table 10.

Table 10: Sequence of works.

Stage	Event	Arboricultural Supervision required
Stage 1	Carry out tree works specified in Table 7.	No
Stage 2	Install Protective Fencing and in the position shown on Figure 3, to the	No

Stage	Event	Arboricultural Supervision required
	specifications given in Section 6.6.	
Stage 3	Pre-commencement site meeting with the Tree Officer, Site Manager and Project Arboriculturist	Yes
Stage 4	Complete main construction phase of development within the RPA of T1.	Yes
Stage 5	Complete all landscaping.	No
Stage 6	Removal of all machinery from site.	No
Stage 7	Dismantle protective fencing by hand and remove from site.	No

7. References

7.1.1 British Standards Institution (2012) BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*. BSI, London.

7.1.2 British Standards Institution (2010) BS3998:2010 *Recommendations for tree work.* BSI, London.

7.1.3 British Standards Institution (2005b) *Publicly Available Specification 100 (PAS 100:2005).* BSI, London.

7.1.4 HM Government. The Town and Country Planning (Tree Preservation) (England) Regulations 2012. London: Office of Public Sector Information (OPSI).

7.1.5 Lonsdale, D. (1990) *Principles of Tree Hazard Assessment and Management*. The Stationery Office, London.

7.1.6 Matheny, N. & Clark, J.R. (1998) *Trees and Development.* ISA, Champaign, IL.

7.1.7 Mattheck, C. & Breloer, H. (1994) *The Body Language of Trees.* The Stationery Office, London.

7.1.8 Johnson, O. & More, D. (2004) *Collins Tree Guide*. London: HarperCollins

7.1.9 National Joint Utilities Group (NJUG) (2007) *Guidelines for the planning, installation and maintenance of utility services in proximity to trees*. NJUG, London.

7.1.10 Office of the Deputy Prime Minister (ODPM) 2006, *Tree Preservation Orders, A Guide to the Law and Good Practice.* Office of Public Sector Information (OPSI).

7.1.11 Patch, D. & Holding, B. (1996) Arboricultural Practice Note 12: *Through the Trees to Development*. Arboricultural Practices Notes.

7.1.12 Robertson, J, Jackson, N & Smith, M (2006) *Tree Roots in the Built Environment.* The Stationery Office, London.

8. Appendix 1 - Tree Schedule

Tree/ Group No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T1	*Aesculus hippocastanum*; horse chestnut	16	1380	7	7	7	7	3.5N	4	Mature	20-40	Good	Fair	Pollarded tree with cavities in pruning wounds on scaffold limbs. Main stem reduced to approx 7.5m from ground level. Hard standing over entire root area	-	B1	707
T2	*Magnolia* sp.; magnolia	6	160	3	3	3	3	1E	1.5	Mature	20-40	Good	Good	-	-	A1	12
T3	*Olea europaea*; Olive	3	100	2	2	2	2	0.5SW	1.5	Middle-aged	10-20	Good	Poor	Bark wound and decay on the base of one branch	Fell to ground level	U1	5
T4	*Stewartia pseudocamellia* Camillia	4.5	100, 90, 90, 80	2	2	2	2	1N	1	Mature	10-20	Good	Good	Large shrub	-	C2	15
T5	*Amelanchier lamarckii*; snowy mespil	3.5	60, 60, 60, 60, 60	1.5	1.5	1.5	1.5	1.5N	1.5	Mature	10	Fair	Fair	Small topped tree with three stems removed at base	-	C2	8

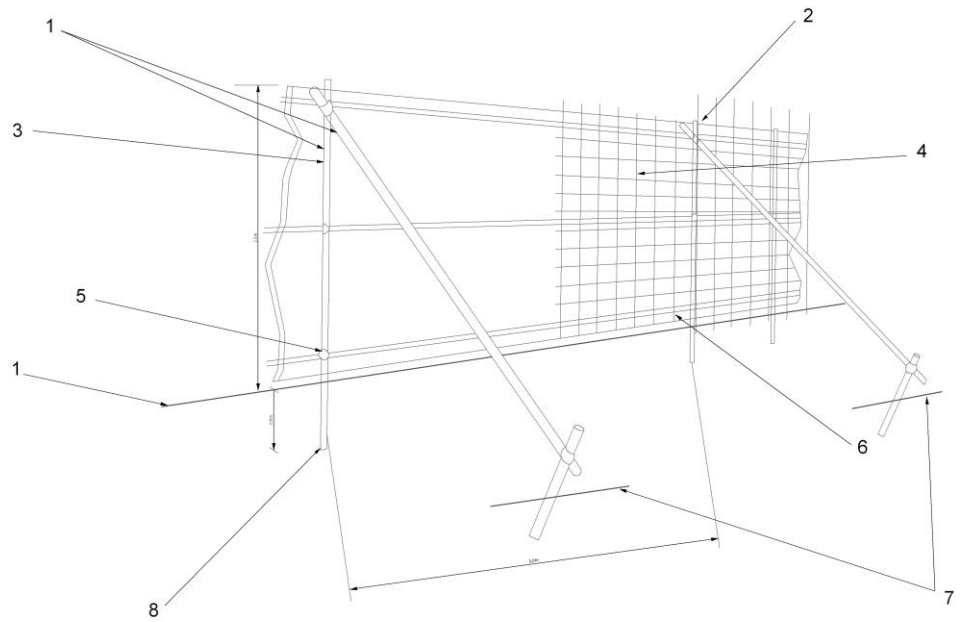
Tree/ Group No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T6	*Malus* sp.	4	150	1.5	1.5	1.5	1.5	1N	1.5	Mature	20-40	Good	Good	-	-	A2	10
T7	*Malus* sp.	4	110	2	2	2	2	1NW	2	Mature	10-20	Good	Good	Topped tree	-	B2	5
T8	*Malus prunifolia*; plum-leaved crab	4	170	1	1	1	1	1E	2	Mature	10-20	Good	Good	Limbs rubbing on fence.	-	B2	13
T9	*Prunus* sp.	5	90	1	1	1	2	1.5NE	3	Mature	10	Fair	Fair	Suppressed by nearby trees	-	C2	4
T10	*Fraxinus excelsior*; ash	17	450, 250	9	9	9	9	2.5SW	6	Mature	10-20	Good	Good	Off-site tree; data estimated	-	A2	120
T11	*Malus* sp.	8	120, 100, 100	4	4	1	1	1NE	2	Mature	10	Fair	Fair	Suppressed tree with one sided canopy	-	C2	16
T12	*Prunus* sp.	7.5	220, 240	5	9	0	10	2NW	2	Mature	10	Good	Poor	Suppressed twin stemmed tree with a compression fork at base just above graft.	-	C2	48
T13	*Ilex aquifolium*; holly	16	630	5	5	5	5	2.5N	1.5	Mature	>40	Good	Good	Rubbing branches in lower canopy	-	A1;2	180
T14	*Magnolia* sp.; magnolia	9	210	5	5	4	4	0.5N	2	Mature	20-40	Good	Good	-	-	A1;2	20

Tree/ Group No.	Species	Height (m)	Stem Diameter (mm)	Canopy Spread (m) N	E	S	W	Height of Lowest Limb and Direction (m)	Crown Clearance (m)	Age Class	Estimated Remaining Contribution (years)	Condition Physiology	Structure	Comments	Preliminary Management Recommendations	BS Category	RPA (m^2)
T15	*Acer palmatum*; Japanese maple	16	480	8	6	8	9	2.5S	3	Mature	>40	Good	Good	-	-	A1;2	104
T16	*Prunus spinosa*; blackthorn	9	350, 190, 140	3	6	8	3	2S	2	Mature	10-20	Good	Good	Included union at base of tree	-	C2	81
T17	*Betula* pendula; Silver Birch	17	630	5	5	4	4	0	0	Mature	10	Fair	Poor	Decay column and large cavity at stem base up to 1.5m	Fell to ground level	U1;2	180
G1	*Ilex aquifolium*; holly	7	250	0	1.5	0	0	1.5	0.5	Mature	20-40	Good	Good	Hedge including yew and privet in canopy	-	C2	-

9. Appendix 2 – Table of Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have serious, irremediable, structural defects, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which might be desirable to preserve			DARK RED
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principle trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	MID BLUE
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	GREY

10. Appendix 3 – Example of Protective Fencing



1. Standard scaffold poles.
2. Uprights to be driven into the ground.
3. Heras panels secured to uprights with ties and where necessary standard scaffold clamps.
4. Weldmesh wired to the uprights and horizontals.
5. Standard clamps.
6. Wire twisted and secured on inside face of fencing to avoid easy dismantling.
7. Ground level.
8. Approx. 0.6m driven into the ground

Tree Protection Fencing