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Arboricultural Survey (BS5837:2012) & Impact Assessment Report

Site details:

The Lodge
University College School
Frognaal
London
NW3 6XH

Client details:

University College School
Frognaal
London
NW3 XH

Date of Report:

9th January 2017

Report Prepared by:

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1. Introduction

1.1 This report has been commissioned by University College School to survey, assess and provide arboricultural recommendations and an impact assessment for the trees within and in close proximity to the proposed development at The Lodge, UCS, Frognal, Hampstead, London, NW3 6XH.

1.2 A site visit was conducted on Thursday 15th December 2016 to survey and assess the trees. The weather at the time of inspection was dry and overcast with mild temperatures.

1.3 A tree survey, report and recommendations have been compiled for 5 trees (T1-T5) and 1 shrub (S1) surveyed within close proximity of The Lodge, UCS Senior School Branch, Frognal, Hampstead, London, NW3 6XH.

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 site and included in the survey are shown in site plans, *Appendix B.1 - 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 Reference has been made to the following document as prepared by Katy Staton Landscape Architecture: *UCS Senior School Lodge Landscape Masterplan* (Reference 077_L01C).

2. Survey Details and Scope

2.1 The site survey included the 5 trees (T1-T5) and 1 shrub (S1) as shown in the survey, *Appendix A*, and also highlighted on the site plans, *Appendix B.1-B.4*.

2.2 The trees were surveyed from ground level from within the grounds of University College School and the adjacent public highway, Froggnal, also. The diameter of the trunks have been measured using a Diameter at Breast Height tape. The height of the trees have been estimated due to the topography of the site.

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*.

Tree Survey Summary

2.6 All trees have been survey 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.

N/A

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.

T1, T2

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.

T3, T4, T5 & S1

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.

N/A

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 5 trees and 1 shrub (T1-T5 & G1) located within the grounds of the school which are within close proximity of the proposed works which incorporate development works to The Lodge on the northern boundary of the school site. Trees T1-T5 & G1 have been surveyed and numbered as is depicted within the site plan (*Appendix B.1 - B.3* - also within the Tree Protection Plan *Appendix B.4*).

4.2 The trees surveyed are located within the London Borough of Camden; they are also located within the Redington / Frognal Conservation Area and are therefore protected by this status.

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

- **Potential excavations required for development / landscape works in close proximity to the trees have the potential to cause damage**
- **Associated construction site activities which have the potential to cause long term damage to the trees**
- **Compaction of the ground surrounding the trees during construction works**
- **The use of and storage of materials and chemicals on site during the construction process**
- **The potential detrimental impact on the long term health of the trees**

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.

Development proposal in relation to trees within close proximity

4.6 The proposed development works are to incorporate the retention of trees T1 & T2 trees; this report will outline the condition of the trees and necessary requirements during the construction process in order to ensure where retained that their health is maintained, and the retention of the amenity value provided is protected for the long term. The proposal means that trees T3-T5 & S1 which will also be outlined within this report.

4.7 The proposed construction works are to incorporate the re-development of The Lodge and landscape works to improve the grounds within which this property is located within the wider UCS site. The main works which have the potential to affect the tree

- The improvement / re-surfacing of the main pedestrian access route which is within close proximity of trees T1-T2
- Associated construction site activities including site access and storage of materials, chemicals and plant machinery within close proximity of retained trees T1-T2
- General landscaping works close to trees

The development is achievable without causing damage to the trees being retained providing precautionary and protection measures are adhered to within this report, particularly as recommended tree protection distances (BS5837:2012) can be largely adhered to at all times.

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 trees.

Tree Survey Notes - Trees T1 - T5 & S1 in relation to proposed development works

Trees T1 & T2

4.9 Tree T1 is a mature ornamental Cherry (*Prunus spp*) located within the land between the boundary line with Froggal and The Lodge. The tree is a reasonable specimen, single stem with a relatively balanced, although unruly, crown shape; it is currently heavily ivy clad but is offering high amenity value. The tree is therefore classified as a 'B.1' category tree (BS5837: 2012) as the location means that it is highly visible from both within the school grounds and the public highway also. Due to the extent of ivy it was not possible to fully inspect the base of the tree but appears in reasonable health. The tree is not directly affected by the proposed works being sited 5.0m from the closest works which incorporate hard landscape works surrounding The Lodge which is 7.2m distance at the closest point.

4.10 Tree T2 is a mature Silver Maple tree (*Acer saccharinum*) which is located within the soft landscape verge between the exit access driveway and the historic boundary wall which defines the boundary with the grounds of The Lodge. The tree is generally structurally sound and in good condition. As a species characteristics there is a tight union within the main fork but this is not a significant structural defect. The tree offers balanced form with greater extended spread to the east and west by virtue of its aspect. The tree is rated as 'B.1' category trees (BS5837: 2012) offering excellent amenity value and is therefore proposed for retention. The re-landscaping works are at the closest 1.5m distance to the north and 7.2m to the east.

4.11 The proposed development works in this area include the implementation of amendment to the hard landscape layout. Obviously this has the potential to impact on the root systems of the trees which have the following recommended Root Protection Area (RPA) radius' as calculated from BS5837:2012 and as highlighted within *Appendix B.3*.

- Tree T1 - 4.5 metre RPA radius
- Tree T2 - 5.0 metre RPA radius

4.12 The works are not considered to impact detrimentally on trees T1 and T2 for the following reasons:

- The implementation of hard landscaping where within the RPA of trees T1 and T2 is within the existing footprint of hard landscape features; therefore no further encroachment is required
- Full tree protection fencing can be implemented (with the exception of the existing access pathway) as should be outlined within an Arboricultural Method Statement (AMS)
- Site storage for all materials / chemicals / plant machinery can be implemented a significant distance from trees T1 and T2

Trees T3-T5 and G1

4.13 Trees T3-T5 and G1 comprise specimens which are proposed for removal in order to implement the re-development and landscape scheme. These are as follows and are shown in photographs shown in *Appendix C*:

- Tree T3 is an insignificant Cypress located close to the property on the western side of the property which offers limited amenity value. In addition, tree T5 is a dwarf stock apple tree to the north of the property which offers no amenity value.
- Shrub S1 is a formalised / tightly clipped Osmanthus which is sited to the east of The Lodge and is an ornamental specimen only offering limited amenity value only.
- Tree T4 is a mature Cypress tree which does offer some amenity value but this is limited by the location to the rear of the property on the northern boundary of the site. The loss of amenity value for this C.1 category tree (BS5837:2012) will be accounted for with the replacement planting scheme as proposed within the overall landscape scheme; this will incorporate planting to the south east of The Lodge in particular.

4.14 The removal of these trees (T3-T5) and shrub (G1) will not be detrimental to the landscape surrounding The Lodge. All trees are classified as C.1 category trees (BS5837:2012) and therefore should not curtail development. Importantly, amenity value offered is limited and will be enhanced by the replacement planting scheme to the south of The Lodge, which can be viewed from the public highway in addition to from within the school site.

Tree Protection Specifications

4.15 With the nature of development and landscaping works and associated construction site activities potentially encroaching within the root protection areas of trees T1 & T2 it is important that guidelines regarding the working method are adhered to in order to afford the full protection for these trees. The implementation of the proposed works can be achieved whilst retaining all trees within the area for the long term by taking into account of the following :

- Preparation of Arboricultural Method Statement (AMS) outlining a Tree Protection Plan (TPP) and working method where deemed appropriate by the Local Authority
- Full Implementation of Arboricultural Method Statement

4.16 As guidance the tree protection will recommend tree protection broadly as follows:

- **The tree protection fencing / root protection area to be constructed as outlined with an *Arboricultural Method Statement (AMS)***
- **All construction activities must adhere to the tree protection guidelines as explained throughout AMS – these should remain for the entire construction process in order to provide comprehensive protection from the trees.**
- **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**

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

Summary

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

- **Preparation of Arboricultural Method Statement detailing full construction / working method and tree protection where deemed appropriate**
- **Full implementation of Tree Protection Specifications**
- **Full adherence to Tree Protection Area**
- **Comprehensive use of the Tree Protection Notice**

all trees surveyed and proposed for retention, can remain protected from the construction process and can continue to provide amenity value in this area for the long term.

5. Recommended Tree Management Plan

5.1 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.

5.2 In addition, any permissions for tree work which are required (as specified during the construction process) should be sought prior to the commencement of works from the Local Authority, London Borough of Camden.

5.3 Tree Works Specification

T1 Cherry

Remove ivy from entire tree to further inspect base of tree and main stem

Remove deadwood

T2 Maple

No action required at present

T3 Cypress

Fell to ground level and grind out stump

S1 Osmanthus

Fell to ground level and grind out stump

T4 Cypress

Fell to ground level and grind out stump

T5 Apple

Fell to ground level and grub / grind out stump

6. Appendices

Appendix A

Tree survey (BS5837:2012)

**The Lodge
University College School
Frognaal
Hampstead
London
NW3 6XH**

Colour Key: BS5837: 2012 (see Section 2.6)

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

The Lodge, University College School, NW3 6XH BS 5837:2012 Tree Schedule – 15th December 2016												
Tree No	Species	Ht (m)	DBH (mm)	Sprd (m)	Age	Visual Cond	Vigour	BS5837 Cat. Rating (2012)	Remaining (years)	Comments / Structural Condition	Managem. Recomm	RPA (m)
T1	Cherry	7	380 (e)	N: 3 E: 2 S: 3 W:3	M	F	F	B.1	10-15 years	Tree is heavily ivy clad so difficult to fully assess base and main stem - minor deadwood and lower crown to west overhangs Frognal	Remove ivy to ground level and inspect base / main stem further	4.5
T2	Maple	15	410	N: 4 E: 5 S: 4 W:4	M	F	G	C.1	20 years +	Good root flare at base but does have damage at the base on the western side to a height of approximately 1.6m from ground level - has occluded well. Main union at 2m is tight but appears structurally sound. Minor deadwood	No action required at present	5.0
T3	Cypress	4	t/s 80	N: 1 E: 1 S: 1 W:1	EM	G	G	C.1	15-20 years	Small ornamental / dwarf specimen. Generally structurally sound with limited amenity value provided	Fell to ground level to implement development	N/A
S1	Osmanthus	3	m/s 160	N: 1 E: 1 S: 1 W:1	M	G	G	C.1	10-15 years	Ornamental topiary specimen - small tree / large shrub with limited amenity value provided	Fell to ground level to implement development	N/A
T4	Cypress	7	270	N: 1 E: 2 S: 1 W:2	M	G	G	C.1	20 years +	Tree has conical habit - generally structurally sound and growing close to boundary wall with neighbouring property to the north.	Fell to ground level to implement development	N/A
T5	Apple	2	m/s 100	N: 1 E: 2 S: 2 W:1	M	G	G	C.1	20 years +	Dwarf stock - generally structurally sound; very limited amenity value.	Fell to ground level to implement development	N/A

Appendix B

Existing & Proposed Site Plan including Tree Protection Area / Plan:

**The Lodge
University College School
Frognaal
Hampstead
London
NW3 6XH**

Plans supplied:

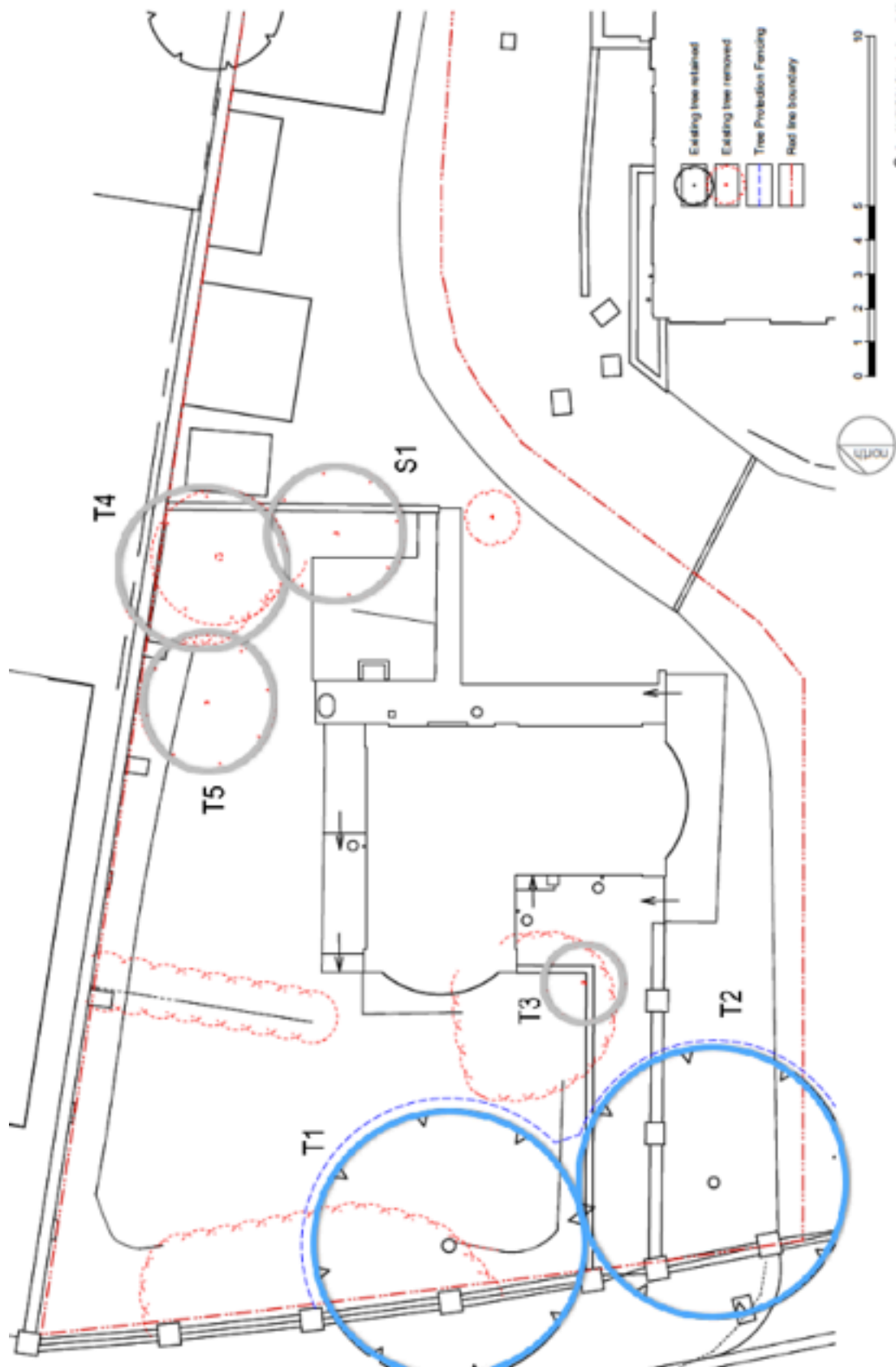
**Drawing No:
*Katy Staton Landscape Architecture***

**Date:
*May 2015***

Tree Canopy Colour Key: BS5837: 2012 (see Section 2.6)

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

Appendix B.1: Existing Tree Survey Site Plan: The Lodge, UCS



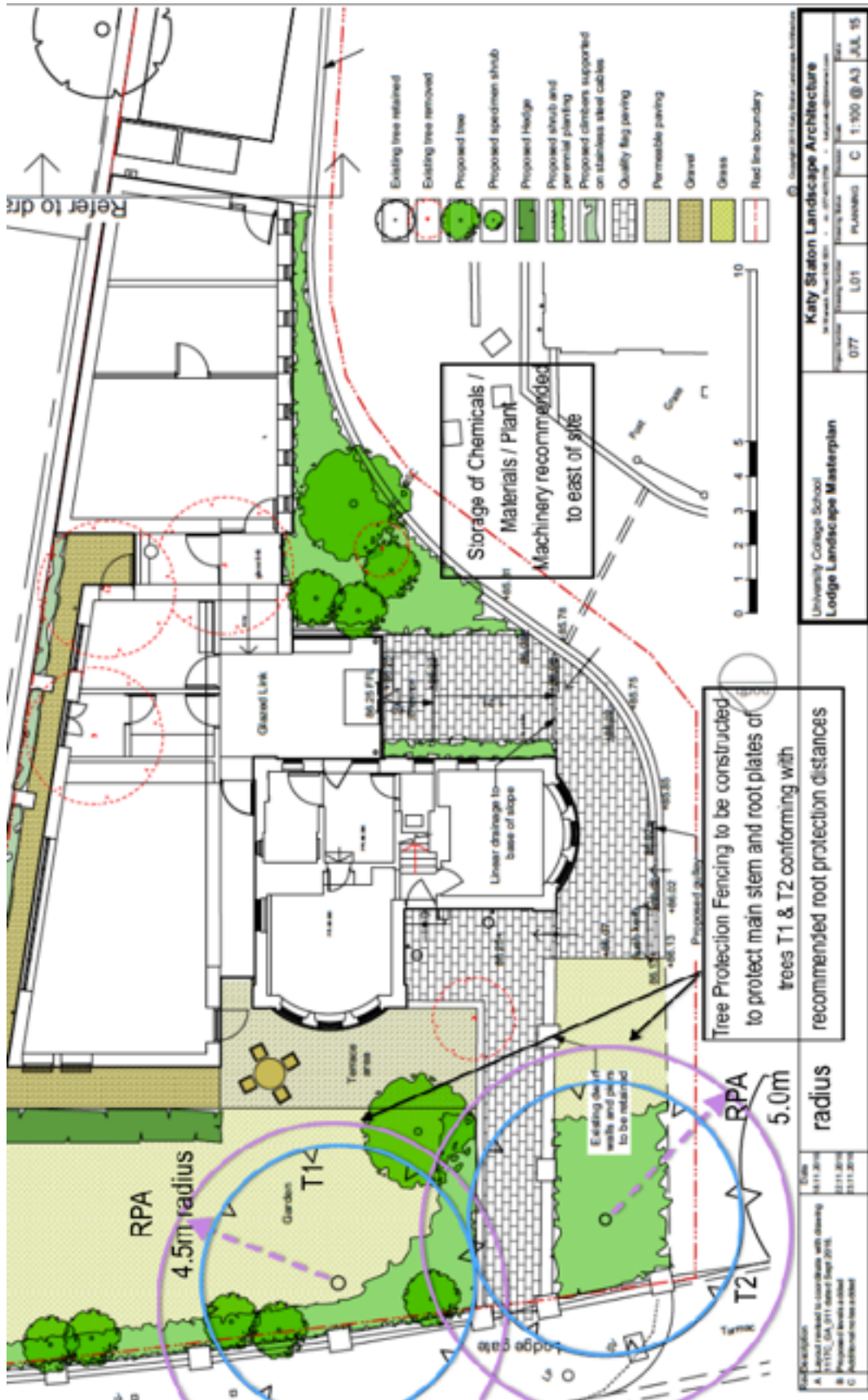
Map not to scale

Appendix B.2: Proposed Tree Survey Site Plan:
The Lodge, UCS



Map not to scale

Appendix B.3 Tree Constraints Site Plan.
The Lodge, UCS



Appendix C

Site Photographs for:

**The Lodge
University College School
Frognaal
Hampstead
London
NW3 6XH**

**** Taken 15th December 2016***

C.1 Photograph of The Lodge, University College School, with associated trees and landscape as viewed in a northerly direction



C.2 Photograph of tree T1, The Lodge, University College School, as viewed in a north westerly direction



C.3 Photograph of base of tree T2, located on the boundary with The Lodge, University College School, as viewed in a westerly direction



C.4 Photograph of tree T3 located to the west of The Lodge, University College School, as viewed in a north easterly direction



C.4 Photograph of trees T4 & T5 and S1 located to the east of The Lodge, University College School, as viewed in a north easterly direction



Appendix D:
Site Tree Protection Notice

Tree Protection Notice
(BS5837: 2012):

The Lodge
University College School
Frognaal
Hampstead
London
NW3 6XH

Notice to be clearly shown on site
AT ALL TIMES ON PROTECTIVE FENCING



**TREE PROTECTION AREA
KEEP OUT !**

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION

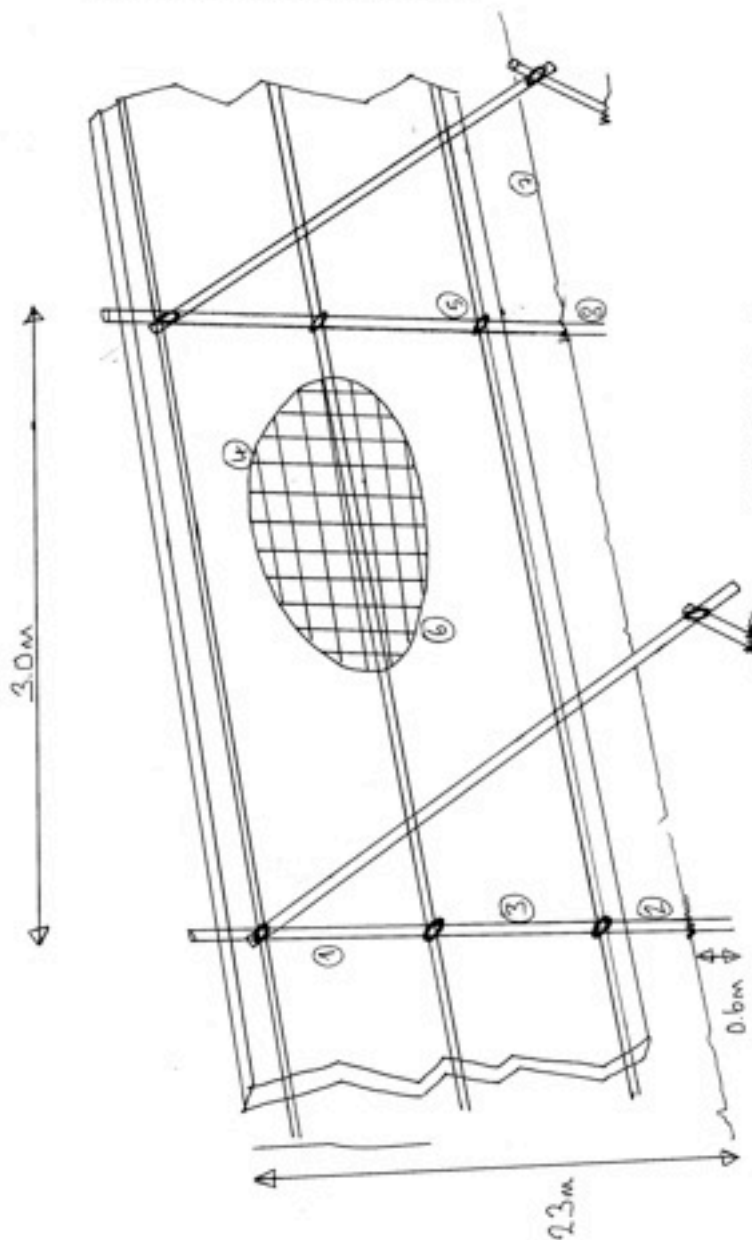
ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**

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 Alex
 2. Upright driven into ground
 3. Posts secured to uprights
 4. Hollowware secured to fence
 5. Standard clasp
 6. Wire secured to fence
 7. Ground level
 8. Drive 0.6m to ground

Appendix F: 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)