Arboricultural impact analysis

Trees

at

The Lodge,
North End Avenue,
Hampstead
London
NW3 7HP

for

Mr A Chaumet & Ms A Kultys

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1. Introduction

1.1 This report contains a detailed appraisal of 18 individual or groups of trees standing within and adjacent to the property boundary of The Lodge, North End Avenue, Hampstead, London NW3 7HP, in relation to proposed residential development works.

1.2 The report considers the health and safety of the trees under their current growing conditions and assesses the likely impact of the proposed development measured against the advice and guidance set out in *BS5837 2012 Trees in relation to design, demolition and construction – Recommendations.*

1.3 The site investigation on which this report is based took place on the morning of Tuesday 17 October 2017 in dry, sunny conditions.

1.4 The report was commissioned verbally by Hayatsu Architects on behalf of the client.

1.5 I have been provided with the following drawings and documents in digital format (pdf or dwg):

- *Hayatsu Architects*
- Drawing No. 007-0000 - Location Plan
- Drawing No. 007-0001 - Existing Site Plan
- Drawing No. 007-0100A - Existing Ground Floor Plan
- Drawing No. 007-0101A - Existing First Floor Plan
- Drawing No. 007-0102A - Existing Roof Plan
- Drawing No. 007-0300 - Existing N & E Elevations
- Drawing No. 007-0301 - Existing S & W Elevations
- Drawing No. 007-1100A - Proposed Ground Floor Plan
- Drawing No. 007-1101A - Proposed First Floor Plan
- Drawing No. 007-1102A - Proposed Roof Plan
- Drawing No. 007-1200A - Proposed Sections AA & BB
- Drawing No. 007-1300A - Proposed North Elevation
- Drawing No. 007-1302A - Proposed South Elevation
- Revised Design and Access Statement

CADPLAN

- Drawing Nos. 9666-01& 02 – Existing Ground Floor and Rear Garden Plans
- Drawing Nos. 9666-03, 04, 05, 06, 07 & 08 – Existing Floor Plans, Elevations and Sections

1.6 The **Tree survey plan** in **Appendix a** is based on CADPLAN Drawing Nos. 9666-01 & 02 overlaid onto Hayatsu Architects Drawing No. 07-0001 – Existing Site Plan. Tree locations outside the scope of the CADPLAN survey are derived from on-site measurements. The **Tree constraints plan** in the same appendix is based on the **Tree survey plan** with the footprint of the proposed development taken from Hayatsu Architects Drawing No. 07-1100A – Proposed Ground Floor Plan, overlaid.

2. Background information

2.1 Layout, boundaries and topography

2.1.1 The Lodge is a detached, 2-storey, Victorian, Arts & Crafts dwelling standing in a roughly rectangular plot, the longer axis of which runs north to south.

2.1.2 Vehicular access is to the north of the existing dwelling along part of a shared access drive that also serves adjacent properties to the east of The Lodge.

2.1.3 The access drive defines the northern and part of the eastern boundary of the plot.

2.1.4 Approximately 1500mm high close boarded fencing in decrepit condition runs along the remaining plot boundaries.

2.1.5 Travelling west to east across the plot, there is a moderate-to-steep upwards slope. Ground floor level within the existing dwelling is 400 to 900mm below the level of an adjacent public footpath that runs southwards from the end of North End Avenue, parallel to the western boundary of the plot.

2.1.6 A large level lawn to the south of the dwelling is about 2500mm above internal ground floor level and about 1500mm below the eastern boundary, at its highest point.

2.1.7 A hard surfaced courtyard immediately to the north of the dwelling is about 300mm below internal ground floor level

2.1.8 The **Tree survey plan** in **Appendix a** shows the existing site layout and the locations of the trees referred to in this analysis.

2.2 Geology and soils

2.2.1 According to British Geological Survey (BGS) data, the site is located on the Bagshot Formation, sedimentary sands of Palaeogene age

2.2.2 No soil sampling was carried out on site.

2.3 Planning constraints

2.3.1 The dwelling is within the London Borough of Camden Hampstead Conservation Area Sub-Area 8 (Outlying Areas): North End.

2.3.2 Some of the trees referred to in this analysis are covered by London Borough of Camden Tree Preservation Order (TPO) C11 1969.

2.4 The trees

2.4.1 The trees referred to in this analysis are described in detail in the **Tree survey schedule** in **Appendix a.** Their locations are shown on the **Tree survey plan** in the same appendix.

2.5 The proposed development

2.5.1 The development works referred to in this analysis are a revision of an earlier proposal and comprise:

- Refurbishment of the dwelling within its existing footprint
- Remodelling of the existing contours to create a level rectangular courtyard at ground floor level, abutting the south elevation of the dwelling
- Repair and refurbishment of existing external hard surfaces

3. Analysis

3.1 General

3.1.1 The **Tree constraints plan** in **Appendix a** shows the recommended Root Protection Area (RPA) for each tree arranged symmetrically around its main stem except where partial or complete barriers to the lateral spread of roost necessitate a reconfiguration.

3.1.2 In this respect, I have reconfigured the RPA of Leyland Cypress 012 in response to the barrier effect of the roughly 1000mm high masonry plinth in which it is located

3.1.3 Each RPA highlights the primary potential area of conflict between proposed development and retention of existing trees, namely conflicting demands for space at and below ground level.

3.1.4 Where appropriate, I have considered above-ground conflicts in the analysis which follows, particularly headroom, lateral and overhead shading and perceived risk in extreme weather conditions.

3.2 Trees to be removed

3.2.1 No trees or shrubs are to be removed for development purposes.

3.3 Trees to be retained

3.3.1 The proposals do not overlap the RPA of any retained tree to any greater extent than at present, except in the case of Leyland Cypress 012, where there will be an overlap of just under $20m^2$ (17% of total) with the proposed ground-level courtyard.

3.3.2 It is likely in my view that the degree of overlap shown is overstated, because a section of retaining wall running east-to-west immediately to the south of the main stem will present a partial obstacle to direct root spread into the overlap area.

3.3.3 However, there is no continuous root barrier running along the property boundary, so it is probable that part of the root system of Tree 012 has simply grown round the western end of the retaining wall.

3.3.4 There is a considerable area of undeveloped open ground contiguous with the RPA of T012, to the west and north.

3.3.5 Taking these factors into account, I do not consider that the degree of overlap between the proposed courtyard footprint and this tree's root system, will have a significant adverse impact.

3.3.6 Retained trees will cast no more shade upon the dwelling than they do upon the existing.

3.3.7 The removal of spoil will require careful consideration but there is no technical reason why this cannot be achieved without adverse impacts upon retained trees.

3.3.8 To the north and west of the dwelling, replacement of existing hard surfacing can be achieved without disruption to tree roots as long as the depth of preparatory excavation to reduced levels does not exceed the depth of the existing hard surface and its associated sub-base.

4. Conclusions

4.1 As long as unnecessary disruption is avoided, the proposed development considered in this analysis can be achieved without adverse impacts upon retained trees.

4.2 After the development is completeted. overhead and lateral shading and the perception of risk in extreme weather conditions will be unchanged.

4.3 Care will be needed to ensure that surplus material is removed from and that materials and equipment are brought to the site without damage to retained trees.

4.4 These are matters that should be addressed in an **Arboricultural Method Statement (AMS).** The draft AMS (to be finalised after consent has been granted, to coincide with the main contractor's construction method statement and programme) accompanying this analysis sets out tree protection measures and appropriate working practices to ensure successful tree retention.

Appendix a

Tree survey schedule
Tree survey plan
Tree constraints plan

Explanatory notes

For general information on any entry in the detailed survey text, refer to the notes below which are organised on a column by column basis.

Tree number

All trees have been numbered in the survey text to correspond to the location numbers shown on the accompanying Tree survey plan. No trees have been marked on site.

Species

Common English names have been used wherever possible and Latin names are listed (in brackets in *italics*) in all cases.

Dimensions

Height - are recorded in m.

Stem diameter – recorded in mm at breast height (1.5m) wherever possible. Where measurement at 1.5m is not possible, one of the alternative methods set out in *Annex C of BS5837:2012* has been used.
If the diameter has been measured at a different height, this has been recorded, e.g. 60 @ 1m = 60mm diameter at 1m height.
Other abbreviations used:

av - average	est/e - estimated	
ms - multi-stemmed	max – maximum	gl - ground level

Crown spread - radial crown spreads in metres have been recorded at four points on the circumference of the crown (north, east, south and west). The accompanying Tree survey plan shows approximate crown shapes based on these measurements

Crown height - the height of the first major branch and the height of the lowest point of the crown are recorded in metres eg 3/3

Explanatory notes

Age

Y	Young	SM	Semi-mature
EM	Early mature	M	Mature
OM	Over-mature		

Where the precise age of a tree is known, it has been recorded in brackets adjacent to the general classification i.e. M(7).

Condition

Physiological condition

Gives a measure of biological vigour and of the presence or absence of disease, insect attack or other debilitating factors.

G	Good
F	Fair
P	Poor

Structural condition

Gives a measure of each tree's physical form and mechanical stability.

G	Good
F	Fair
P	Poor

Comments

Descriptive notes on the tree's shape, local environment and condition.

Recommendations

Management recommendations under existing conditions.

Separation distance (existing and proposed)

The distance between centre stem and the nearest point of existing or proposed built structures

Explanatory notes

RPA radius

The radius of each tree's Root Protection Area (RPA) as defined in *BS5837:2012 – Trees in relation to design, demolition and construction - Recommendations*

Life expectancy

An approximate estimate for each tree's anticipated future safe life in the following ranges:

- <10 years
- 10-20 years
- 20-40 years
- 40+ years

Retention category

This grading is based on the recommendations set out in BS 5837:2012 *Trees in relation to design, demolition and construction - Recommendations.* The categories are summarised in the standard as follows:

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

In addition the British Standard requires one or more subcategories to be applied to the main Retention Category. In summary these are as follows:

1. Mainly arboricultural qualities (that is individual aesthetic characteristics)
2. Mainly landscape qualities
3. Mainly cultural values, including conservation

Tree survey schedule

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Tree No.	Species	Height (m)	Diam (mm)	Crown Spread (m)				Crown Height (m)	Age	Physiological Condition	Structural Condition	Comments	Separation distance (m)		RPA Radius (m)	Recommendations	Life Expectancy	Retention Category	Retention Sub-category
				N	E	S	W						Existing	Proposed					
001	Horse Chestnut (*Aesculus hippocastanum*)	21	720	6	8	7	7	3/3	M	G	F	Single slightly leaning stem: narrow cavity at 3m (E side): main branch fork (first whorl of branches) at 3m: well balanced spreading crown: stands off-site in North End Avenue	>10.0	>10.0	8.64	Lift crown to 4m above existing adjacent carriageway	20-40	B	1/2
002	Horse Chestnut (*Aesculus hippocastanum*)	21	680	4	7	7	8	2/2	M	G	G	Single upright stem: forks at 2m (possible previous pollarding point): well balanced spreading crown: stands off-site in North End Avenue	>10.0	>10.0	8.16	Lift crown to 4m above existing adjacent carriageway	20-40	B	1/2
003	Silver Birch (*Betula pendula*)	22	210	4	7.5	7	6	3/6	M	G	G	Single slightly leaning stem forks at 3m into 2: high ascending, quite well proportioned crown: ivy to 12m+: stands off-site alongside a public footpath	3.80	3.80	2.52	Cut ivy	40+	B	2
004	Silver Birch (*Betula pendula*)	22	510	3	2	0	2	6/6	M	F	P	Single leaning stem: crown one-sided and suppressed: dense ivy to top of crown: stands off-site alongside a public footpath	4.80	4.80	6.12	Cut ivy	10-20	C	2
005	Yew (*Taxus baccata*)	15	220/ 550	4.5	5	5	5.5	1/3	M	G	G	Single upright principal stem plus one smaller subsidiary forks into a 4 stemmed clump with a well-balanced, broadly pyramidal crown: basal growths	4.20	4.20	7.11	Lift crown to 4m above surrounding ground level Remove basal growths	40+	B	1/2
006	Crab Apple (*Malus species*)	6	180	3	4.5	3	4.5	2/1	M	G	F	Single upright stem: distorted spreading crown: stands off-site in the northern verge of the access drive	12.00	12.00	2.16	No immediate action necessary	20-40	C	2
007	Western Red Cedar (*Thuja plicata*)	19	520	4	3	3.5	2	2/2	M	G	G	Single leaning stem: well balanced narrowly conical crown: forms a group with 008 and 009: stands off-site in the northern verge of the access drive	12.50	12.50	6.24	No immediate action necessary	40+	B (Group)	1/2
008	Western Red Cedar (*Thuja plicata*)	18	490	3	3	3	2	2/2	M	G	G	Single upright stem: quite well balanced narrowly conical crown: see 007: stands off-site in the northern verge of the access drive	11.00	11.00	5.88	No immediate action necessary	40+	B (Group)	1/2
009	Ash (*Fraxinus excelsior*)	16	420	8	8	8	4	5/3	EM	G	F	Single leaning stem: main branch fork at 5m: one-sided crown (to S and E): stands off-site in northern verge of the access drive: see 007	10.50	10.50	5.04	No immediate action necessary	40+	B (Group)	1/2
010	Yew (*Taxus baccata*)	13	500 @ 0.3m	4	4	4	4	2/2	M	G	G	Single upright stem forks near ground level in to 5+ stems: well balanced broadly conical crown	3.50	3.50	6.00	No immediate action necessary	40+	B	1/2
011	Lawson Cypress (*Chamaecyparis lawsoniana*)	15	350	2.5	2.5	2.5	2.5	3/2	M	G	G	Single upright stem: compact conical crown: glaucous (blue tinged) foliage	2.00	2.00	4.20	No immediate action necessary	20-40	U	1/2

Client: Ms A Kultys
Location: The Lodge, End Avenue,London NW3 7HP
Date: 17.10.17
Job No.: 597

Tree No.	Species	Height (m)	Diam (mm)	Crown Spread (m)				Crown Height (m)	Age	Physiological Condition	Structural Condition	Comments	Separation distance (m)		RPA Radius (m)	Recommendations	Life Expectancy	Retention Category	Retention Sub-category
				N	E	S	W						Existing	Proposed					
012	Leyland Cypress (*X Cupressocyparis leylandii*)	16	510	2.5	2.5	2.5	2.5	2/2	M	G	F	Single leaning stem: well balanced narrow conical crown: glaucous (blue tinged) foliage: stands in the centre of the top step of a flight of access steps	2.50	2.50	6.12	No immediate action necessary	10-20	C	1/2
013	3 x Lawson Cypress (*Chamaecyparis lawsoniana*)	21	360/ 500 est/ 600 est	2.5	2.5	2.5	2.5	1/1	M	G	G	Closely spaced boundary group, probably a grown-out section of boundary hedge: tightly columnar crowns with foliage of normal density, size and colour	>10.0	>10.0	10.32	No immediate action necessary	20-40	C	2
014	Silver Birch (*Betula pendula*)	17	430 @ 1m	8	6e	2	4	2/4	M	G	F	Single leaning stem forks at 1.5m into 2: very one-sided (to N and E)	>10.0	>10.0	5.16	No immediate action necessary	20-40	C	1/2
015	Western Red Cedar (*Thuja plicata*)/ Lawson Cypress (*Chamaecyparis lawsoniana*)	20	440/ 550	3	3	3	4	2/2	M	G	G	Two quite closely spaced boundary trees: the Lawson Cypress has glaucous (blue tinged) foliage	>10.0	>10.0	8.45	No immediate action necessary	40+	B (Group)	1/2
016	Western Red Cedar (*Thuja plicata*)	22	600	4.5	4	4	4	1/1	M	G	G	Single slightly leaning stem: quite well balanced narrowly conical crown	>10.0	>10.0	7.20	No immediate action necessary	20-40	B	1/2
017	Lime (*Tilia x europaea)*	24	200 est	6	7	3	5	5/1	M	G	F	Single upright stem: quite well balanced spreading crown: slime weep at base but no visible major decay: basal growths: stands off-site by a public footpath	>10.0	>10.0	2.40	Review (general condition)	20-40	B	2
018	Lime (*Tilia x europaea)*	24	800e	4	6	7	5	6/2	M	G	G	Single upright stem: forks at 6m into 2: quite well balanced spreading crown: basal growths: stands off-site by a public footpath	>10.0	>10.0	9.60	No immediate action necessary	40+	B	2

Client: Ms A Kultys
Location: The Lodge, End Avenue,London NW3 7HP
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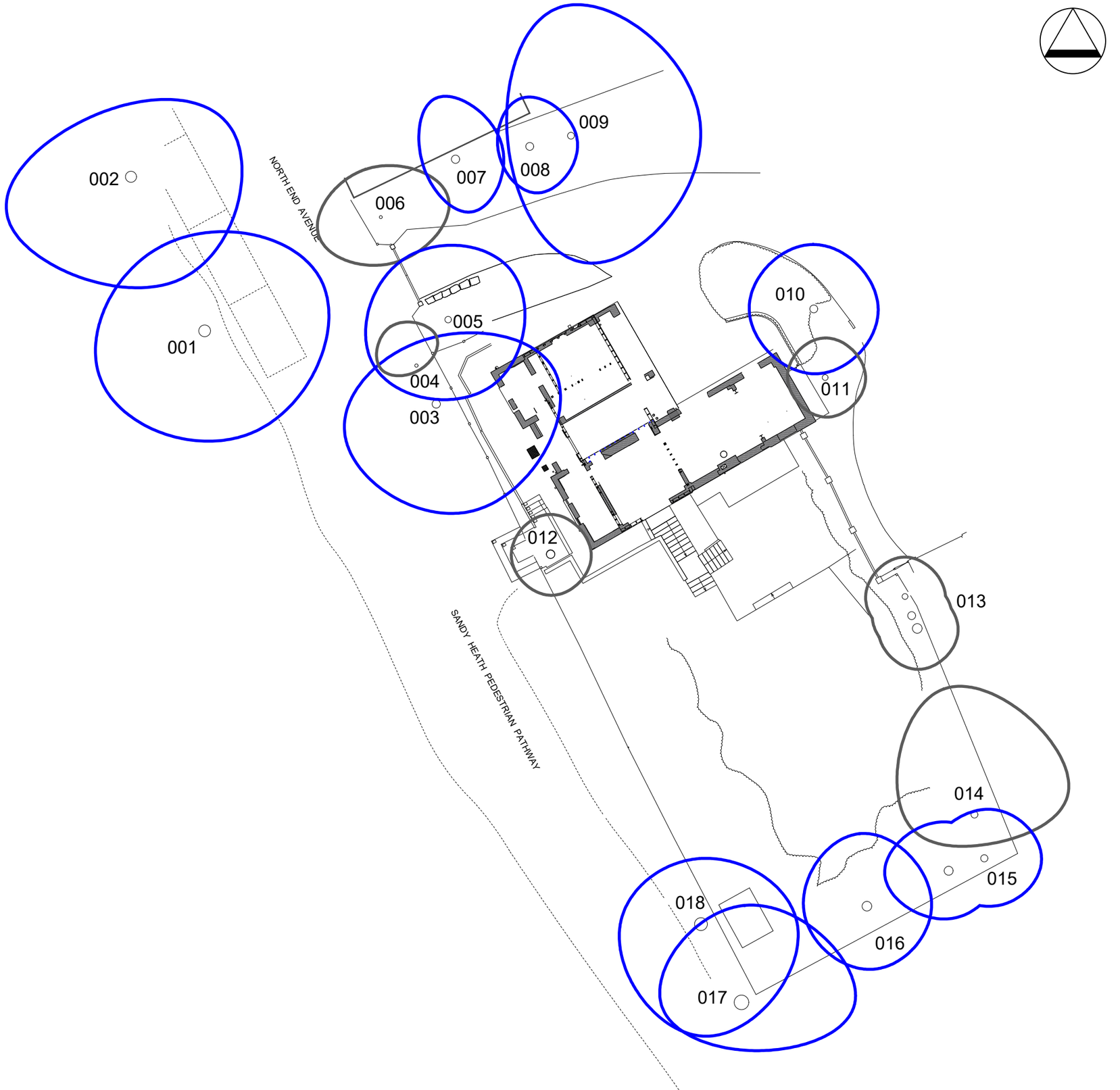

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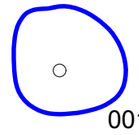

EXISTING TREE

Trees are coloured on plan to correspond with the Retention Categories specified in BS5837:2012 Trees in relation to design, demoltion and construction - Recommendations as follows:

Category A - GREEN
Category B - BLUE
Category C - GREY
Category U - RED

REVISION		CHCK'D	APP'D	DATE

Client:

Ms A KULTYS

Job Title:

THE LODGE
NORTH END AVENUE
LONDON
NW3 7HP

Drawing Title:

TREE SURVEY PLAN

Drawing Number:	Scale:
597.01.00	1:250 (A3)
Date: 17.10.17	Drawn by: RS

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arboricultural advice

33 GREENWOOD PLACE, LONDON NW5 1LB
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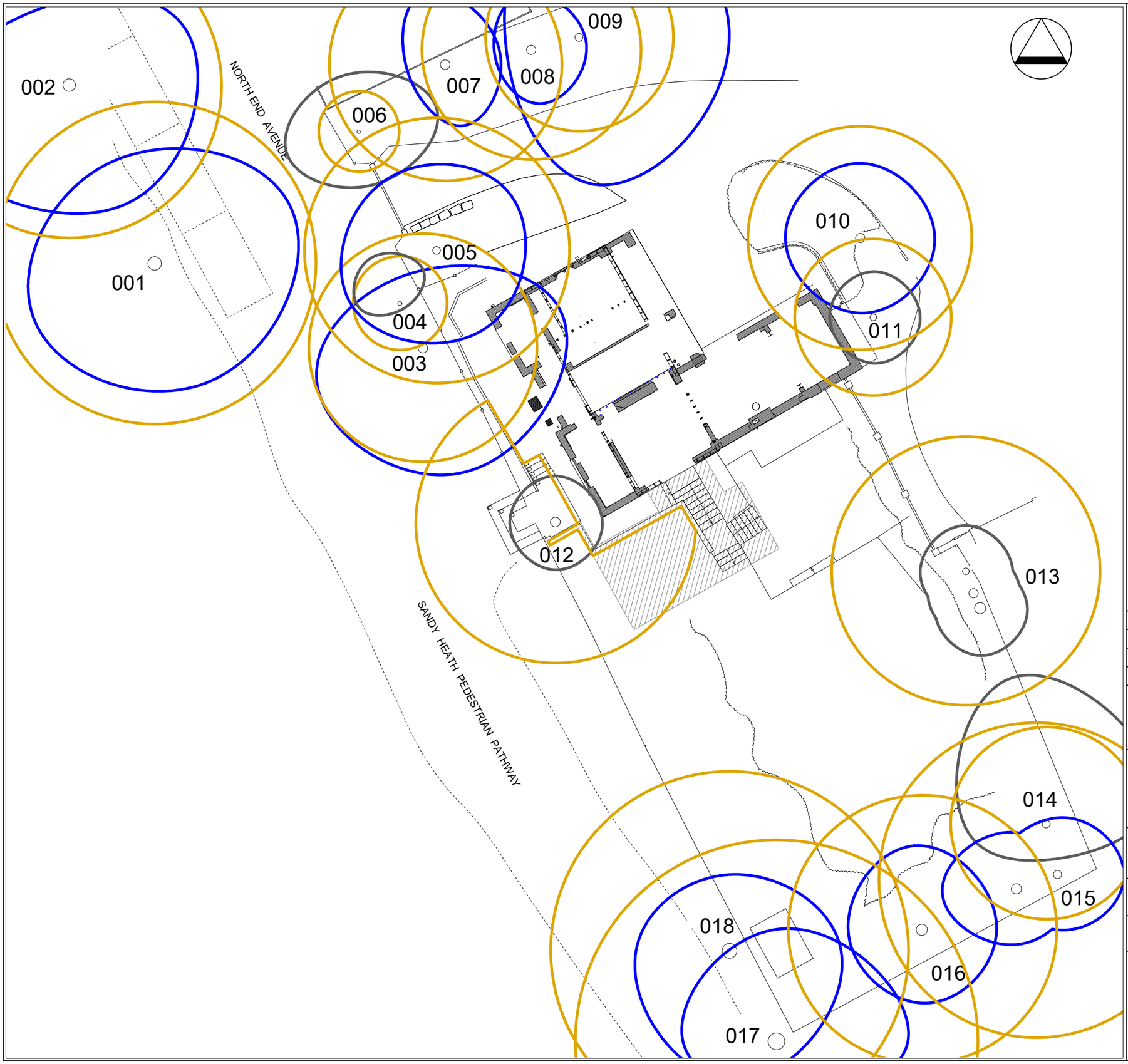

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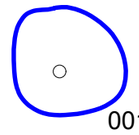

EXISTING TREE

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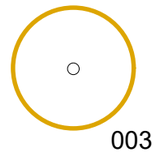
Category A - GREEN
Category B - BLUE
Category C - GREY
Category U - RED



ROOT PROTECTION AREA as defined in *BS5837:2012 Trees in relation to design, demolition and construction - Recommendations*

FOOTPRINT OF PROPOSED EXTERNAL WORKS

REVISION		CHCK'D	APP'D	DATE

Client:

Mr A CHAUMET & Ms A KULTYS

Job Title:

THE LODGE
NORTH END AVENUE
LONDON
NW3 7HP

Drawing Title:

TREE CONSTRAINTS PLAN

Drawing Number:	Scale:
597.02.02	1:200 (A3)
Date: 26.01.18	Drawn by: RS

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