



the tree bureau

Arboricultural consultancy, design and management

Arboricultural Impact Assessment

Willow Lodge

Vale of Health, London NW3 1AX

Report date: 23 10 20
Report reference: AIA 7593

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1 Introduction

- 1.1 This impact assessment, commissioned by Chelsea White, deals with proposed development at Willow Lodge, Vale of Health, Hampstead, London NW3 1AX. It assesses the trees that might influence or be influenced by the application development, outlines the key likely tree-related constraints and identifies issues that would need to be addressed if planning approval were granted.
- 1.2 The proposed development would involve converting the existing garage into accommodation and adding a single storey rear extension.
- 1.3 Please read the report in conjunction with the *Tree Constraints Plan* (drawing TC 7593) and the architect's drawings.
- 1.4 The framework for this report and its associated drawings is the British Standard BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations* because this is the Standard used by local planning authority officers when considering trees affected by development proposals.
- 1.5 Section 2 of the report deals with the site's current status. Section 3 deals with the tree condition and quality inspection, with the details of my findings shown in Appendix A. Section 4 considers the impact of the proposed development and Section 5 summarises my conclusions.

Background

- 1.6 I visited the application site on 16 September 2020 when I was also given permission to inspect the material trees, all of which are on neighbouring land. The proposed development was then designed in the light of the tree constraints.

2 The site in context

The site

- 2.1 The site is residential in a residential area. Pedestrian access to the house and vehicle access to the adjoining garage are from Vale of Health, a narrow minor public highway. Ground levels vary slightly across the site.
- 2.2 The back garden of Fig Tree Cottage wraps around the back garden of the application site.
- 2.3 There are no material trees on the application site. All trees mentioned in this report are to the east side of the back garden of Fig Tree Cottage.

Soil

- 2.4 Site-specific geotechnical information was not available at the time of writing, but the 1:50,000 map of the British Geological Survey on-line Geology of Britain viewer indicates the local bedrock geology to be Claygate Member – clay, silt and sand – without superficial deposits (what was once called 'drift').
- 2.5 A British Geological Survey Natural Subsidence Report (see Appendix C) identifies the soil's shrink and swell potential as category D of significant potential, on a scale from A to E.
- 2.6 The on-line soilscape viewer by LandIS (The National Soil Resources Institute at Cranfield University) identifies freely draining, slightly acid loamy soils of low fertility.

Visual amenity

- 2.7 Trees visible from a public place are considered to provide local 'public visual amenity' – effectively 'borrowed' or 'shared' landscape features that contribute to the particular character and pleasantness of the neighbourhood – and there is a preliminary presumption for retaining them, if they are in safe condition.
- 2.8 The sycamore T1 and lime T3 are visible from Vale of Heath.

Statutory protection

- 2.9 The site is within the Hampstead Conservation Area. This means that proposed work to the trees, other than the removal of dead branches, must first be notified to the local planning authority, either through a planning application or through a separate statutory notification procedure. Dead wood may be removed without council permission, provided that no live wood is cut.
- 2.10 No tree that is material to this application is covered by a tree preservation order.

3 Tree inspection and tree constraints plan

Tree inspection and site assessment

- 3.1 My inspection was a visual tree assessment (VTA) of the above-ground parts of trees from ground level, following industry-standard procedures (see Appendix C). It was independent and impartial, and was not influenced by consideration of any development.
- 3.2 The results of the inspection are presented in two ways – a:
 - schedule of my findings, shown in Appendix A of this report
 - *Tree Constraints Plan* – TCP 7593.
- 3.3 The inspection schedule includes preliminary recommendations for the management of the trees regardless of the future use of the site. Any additional or alternative management options needed because of the proposed development would be discussed in Section 4 of this report: none is needed for this site.

Quality/retention categories and their significance for the design

- 3.4 The inspection schedule and tree constraints plan shows 'quality/retention categories' based on criteria in the British Standard BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.
- 3.5 The categories (and their Standard colours) are:
 - **U** – unsuitable for retention in relation to the current land use (shown in dark red)
 - **A** – high quality (shown in light green), with an estimated typical remaining life expectancy of at least 40 years
 - **B** – moderate quality (shown in mid blue), with an estimated remaining life expectancy of at least 20 years
 - **C** – low quality (shown in grey), with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
 - 3.5.1 The British Standard also suggests numerical subcategories to explain the reasons behind the quality/retention grading. They are:
 - 1) mainly arboricultural qualities
 - 2) mainly landscape qualities
 - 3) mainly cultural/conservation values.
 - 3.5.2 In practice the subcategories often overlap and some trees might warrant all three, but I have noted only one subcategory for each tree to indicate the main reason for my category grading.
- 3.6 These categories provide rule-of-thumb guidance on a local planning authority's (LPA's) likely priorities when considering safe trees in relation to development proposals.
 - It is unlikely that the LPA would countenance the removal of a category A tree.
 - There is a presumption that category B trees will be retained wherever possible.
 - The retention or removal of category C trees is not usually considered to be a significant constraint on development. Trees with a small stem diameter – below 150mm – could be considered for relocation within a site, if desired.
 - Category U trees are graded as unsuitable because of safety considerations or other sound arboricultural reasons irrespective of any possible new development. They are considered to be in a condition that should permit them to be retained alive in their current environment/circumstances for only up to 10 years, and possibly for far less time.

My grading

3.7 I graded the trees:

- Category U – none.
- Category A – T2.
- Category B – T1, T3.
- Category C – none.

Tree constraints plan

3.8 The *Tree Constraints Plan* shows most of the information derived from the tree inspection, together with other relevant matters: .

- quality/retention category, given as a coloured circle representing the category grading in the position of the tree trunk
- indicative crown spread, shown in dark green
- minimum root protection area, shown in dark blue
- basic shading, based on BS5837:2012 criteria.

Crown spread

3.9 The crown spread is a general indication of the current length of the branches based on estimates in four cardinal directions. Trees often grow unevenly, so the actual position of branches should always be taken into account when designing structures. The vertical constraint of the lowest significant branch is shown in the inspection schedule in Appendix A.

Root protection areas

3.10 A circular root protection area (RPA), calculated from formulae in BS5837:2012, indicates the area around a tree containing theoretically sufficient roots and soil volume to keep the tree alive, healthy and upright: it is the area where the protection of roots and soil is treated as a priority.

3.11 Root protection areas shown on a tree constraints plan indicate the minimum area that should be left undisturbed and protected during demolition and construction. Even so, an RPA is a guideline and does not predict exactly where roots are growing. The actual pattern, depth and extent of root growth varies as a result of a wide range of factors, including the species and age of the tree, soil type, the presence of buildings and other structures and the surrounding environment. This means that a root protection area may be shown as a circle or polygon, depending on an arboricultural assessment of the circumstances.

4 Arboricultural impact of the proposed development

Tree and shrub removal

- 4.1 No tree or shrub would need to be removed to permit development, so there would be no local loss of canopy cover or landscape feature.

Crown spread and pruning

Crown spread

- 4.2 All proposed development is outside the crown spread of any tree.

Pruning for development

- 4.3 No pruning would be needed to facilitate construction, so there would be no tree wounding as a result of the proposed development.

Future pruning

- 4.4 The proposed development would not create any new or additional pressure to prune trees in the future.

Below-ground impact of the extension

Intrusion into minimum root protection areas

- 4.5 The proposed house extension would intrude on about 1.7m² of the minimum root protection area of the sycamore T1 – less than one per cent of the total – at the edge of its protected area where roots, if present at all, can be expected to be small.
- 4.6 Trial pits could be opened along the boundary of the proposed extension to a depth of about 1.5m by hand-digging to assess the presence, or otherwise, of roots, and to inform the decision about the most appropriate type of foundations.

Garage conversion

- 4.7 The garage conversion would have no direct impact on trees.

Services

- 4.8 At this stage it appears that all services would be installed from existing provision and that no new service trenches would be needed within root protection areas. If this were to change, the project arboriculturist would need to contact the tree officer in good time.

Use of a crane, scaffolding and skips

- 4.9 Any lifting equipment would be outside the crown spread of any tree, as would any scaffolding.
- 4.10 If a skip were used in the street, its manoeuvring would need to be controlled by a bankperson to prevent harm to the lime T3.

Tree- and soil-related foundation design

- 4.11 The design of foundations would need to take account of the soil type, the impact of trees on soil-moisture content and the findings from the trial excavations.

Shading by trees

- 4.12 Shading by neighbouring trees would have no impact on the proposed habitable spaces so would not constrain development.

General tree protection measures

- 4.13 Standard precautionary and protective measures would be needed during demolition and construction. Details could be specified in a protection methodology.

5 Conclusions

- 5.1 No tree would need to be removed to permit development, so there would be no loss of canopy cover or landscape feature.
- 5.2 All proposed development would be outside the crown spread of any tree. No pruning would be needed to facilitate construction and the proposed development would not create any new or additional pressure to prune trees in the future. This means that there would be no tree wounding as a result of the proposed development.
- 5.3 The rear house extension would intrude on about 1.7m² of the minimum root protection area of one neighbouring tree, representing less than one per cent of its total, at the edge of its protected area where roots, if present at all, can be expected to be small. Even so, as a precautionary measure trial pits could be opened to assess the presence, or otherwise, of roots, and to inform the decision about the most appropriate type of foundations.
- 5.4 No new service trenches are proposed within root protection areas.
- 5.5 Standard precautionary and protective measures would be needed during construction to protect neighbouring trees from harm.
- 5.6 Provided that appropriate protective measures were specified and followed, it should be possible to develop the proposed scheme without long-term damage to neighbouring trees.

APPENDIX A – TREE INSPECTION

Key to inspection schedule

Tree number on plan	
T1, T2 etc	individual tree
G1, G2 etc	group of trees
Stem	
The measurement is the stem diameter at 1.5m above ground level for single-stemmed trees, , unless stated otherwise, or the equivalent calculated stem diameter for multi-stemmed trees based on one of the two formulae for multi-stemmed trees in the British Standard BS5837:2012.	
First significant branch	
The height above ground level and direction of the first significant branch, which might be higher or lower than the mass of other leaves.	
Life stage	
New	Sapling or newly established tree, growing vigorously if healthy. Usually easy to transplant and re-establish.
Y	Young: still in the first third of typical life expectancy for the species and conditions. Growing vigorously, if healthy, but not necessarily yet producing seed. Possibly some scope for transplanting and re-establishing.
EM	Early-mature: in the second third of typical life expectancy for the species and conditions, producing seed, but not necessarily at full height or spread.
Mat	Mature: at full size and in the final third of typical life expectancy for the species and conditions. Annual growth slow and gradually reducing.
OM	Old-mature: old for the species and/or conditions and probably showing signs of senescence (very slow or no annual growth) and possible decline. Might also be described as a veteran tree, and may have special biological/ecological conservation value.
Vet	Veteran: a tree of special biological/ecological conservation, cultural or aesthetic value (or all three). Often, but not necessarily, older than the typical age range for the species. Younger trees might also qualify as a veteran because of features, such as a trunk cavity, that provide high wildlife/conservation value.
Anc	Ancient: an especially old tree with features of old mature and veteran trees, which is likely to be of high biological/ecological conservation, cultural and aesthetic value.
Remaining years, in age bands	
<10, 10-20, 20-40, or more than 40	
Physiological or structural condition	
Normal (physiological) or Good (structural)	no significant health problems or structural problems
Fair	some symptoms of ill health, or currently insignificant or remediable structural problems
Poor	significant symptoms of ill health, or significant structural problems
Senescent	growing very slowly or with no annual growth
Moribund	in serious and irreversible decline
Dead	no physiological function
BS 5837:2012 Category of quality/retention	
U	Tree unsuitable for retention
A	High quality and value, to be considered for retention
B	Moderate quality and value, to be considered for retention
C	Low quality and value, or young tree, which might be considered for retention

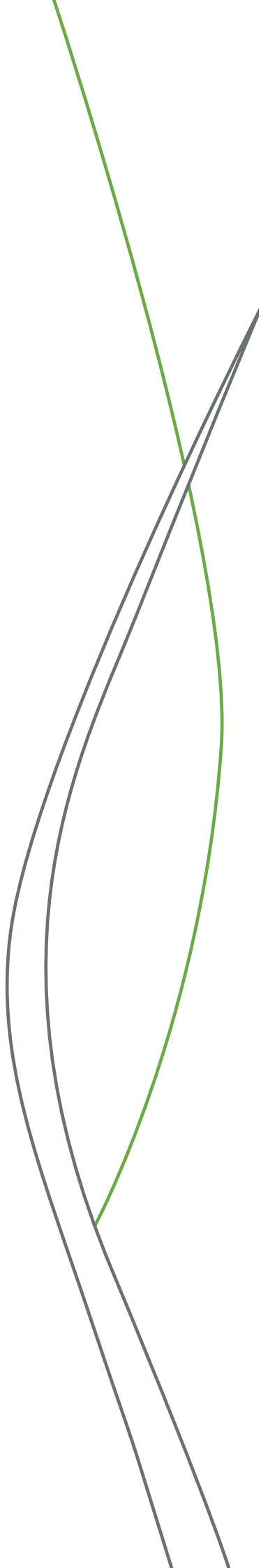
BS 5837:2012 Criteria for category of retention	
1.	Mainly arboricultural value
2.	Mainly landscape value
3.	Mainly cultural value, including conservation
Other abbreviations	
e	estimated
oi	measurement taken over ivy or other climber, or over basal shoots
rf	root flare (base of the tree)
ms	multi-stemmed
hcv	high conservation value
prov	provisional
N	north
E	east
S	south
W	west

Inspection schedule

Tree ident on plan	Species	Approx height in m	Stem diam- eter or equiv- alent in mm	Approx branch radius in m				Canopy height	First signif- icant branch height in m & direct- ion	Life stage	Physiological condition	Structural condition	Preliminary recommendations	Est. remain- ing contrib- ution in years	Category grading	Min RPA radius in m ²
				N	E	S	W									
T1 off site	<i>Acer pseudoplatanus</i> sycamore	16	725	4.2	4	3.9	4.2	5.5	3 E	Mat	Normal	Fair-good. Two-stem growth from about 1.8m above ground level. Leans N. Late- onest pollard with occluded old wounds.	None immediate.	20-40	B1	8.7
T2 off site	<i>Taxus baccata</i> yew	5.7	275	1.6	1.9	2.3	2	2.1	2.1 W	EM	Normal	Good.	None immediate.	>40	A1	3.3
T3 off site	<i>Tilia x europaea</i> common/european lime	16.8	690	2.6	2.6	2.6	2.6	2.2	2.2 N	Mat	Normal. Unable to access trunk base because of basal shoots. Good regrowth after crown reduction.	Fair-good but growing close to boundary wall.	Manage basal shoots to prevent damage to wall.	20-40	B2	8.3

APPENDIX B – SCOPE

- 1 This report and its associated *Tree Constraints Plan* are based on arboricultural criteria only. Comments and drawings relating to non-arboricultural matters must be viewed as provisional and referred to appropriate specialists for confirmation and specification.
- 2 The tree condition survey was a visual tree assessment (VTA) from ground level, following industry-standard procedures, based largely on the principles described in *The body language of trees – A handbook for failure analysis*, by Claus Mattheck and Helge Breloer, and *Principles of Tree Hazard Assessment and Management*, by David Lonsdale. This was an independent and impartial assessment of the condition of the trees and was not influenced by consideration of any proposed scheme.
- 3 There was no invasive investigation, such as test-boring of a tree, and no branch, leaf, fruit or root samples were collected for analysis. No survey was made of water bodies, drains or drainage systems.
- 4 The information from the British Geological Survey and LandIS provide a general indication of soils in the area, but no reliance should be placed on them for the application site, as actual soil composition can vary over short distances.
- 5 Trees are dynamic and sometimes unpredictable organisms. They change as they mature and decline, change in response to changing conditions around them (including weather), or change for reasons that research has not yet fully explained. The tree inspection deals with the tree condition observed on the day the inspection was carried out.
- 6 Any tree work mentioned is subject to planning permission. If approved, it must take full account of wildlife and habitat protection legislation and tree phenology (natural cycle). Tree work should be carried out to modern arboricultural standards, as recommended in British Standard BS3998:2010 *Tree Work – Recommendations*.



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