



the tree bureau

Arboricultural consultancy, design and management

Arboricultural Impact Assessment
16 Provost Road
London NW3 4ST

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by

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Pages 10 and 11 are in landscape format, which may need to be specified when printing.

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1 Introduction

- 1.1 This impact assessment, commissioned by Samantha Kirkwood, deals with a proposed garden room for use as a gym in the rear garden of 16 Provost Road, London NW3 4ST. The report 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 Please read this report in conjunction with the *Tree Constraints Plan* (drawing TCP 7812), the architectural drawings by 100A Architects and the *Structural Engineering Report* by Stephenson Davenport Structural Associates, which are provided separately from this report.
- 1.3 The framework for this impact assessment 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.
- 1.4 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 the *Tree Inspection Schedule* in Appendix A. Section 4 considers the impact of the proposed development and Section 5 summarises my conclusions. The scope of the report is provided in Appendix B.

Background

- 1.5 I visited the application site on 01 April 2025 when I assessed the site and inspected the trees from ground level.

2 The site in context

The site

- 2.1 The site has pedestrian and vehicle access from Provost Road, a public highway, and side access for pedestrians.

Soil

- 2.2 The 1:50,000 map of the British Geological Survey's on-line *BGS Geology Viewer* indicates the local bedrock geology to be London Clay Formation (clay, silt and sand) without recorded superfcials (what was once known as 'drift'). The on-line *Soilscape Viewer* by LandIS (The National Soil Resources Institute at Cranfield University) identifies topsoil as slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils.

Raised ground levels

- 2.3 Ground levels have been raised in several parts of the garden to create raised beds. The rear section rises by some 0.5m to 0.8m above the rest of the garden, above the land at the rear of 15 Provost Road and the land at the back of the site (which appears to be a car park). Soil around the horse chestnut's trunk base may be 0.5m deeper than originally.



Trial pits

- 2.4 Two trial pits were opened on the site of the proposed garden room before my appointment to the project. The *Structural Engineering Report* states that concrete structures about 0.5m deep were uncovered and that only one tree root was found down to 1m deep.

Visual amenity

- 2.5 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. Part of the horse chestnut T1 may just be visible from one part of the public footway in Adelaide Road.

Statutory designations

- 2.6 Trees on the site with a stem diameter of 75mm or greater at 1.5m high are legally protected by virtue of growing within the Eton Conservation Area. Council approval must be obtained before carrying out work to trees, other than the removal of dead wood. Damage to protected trees, including their roots, is a criminal offence with steep penalties on conviction.

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 B). 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* (drawing TCP 7812).
- 3.3 The inspection schedule includes preliminary recommendations for the management of the trees regardless of the future use of the site. (These recommendations do not bind a tree owner.) Any additional or alternative management options needed because of the proposed development would be discussed in Section 4 of this report.

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 (shown in dark red) for retention beyond ten years, and possibly less, in relation to the current land use, irrespective of the planning application
 - **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 development proposal, and are anticipated to live in a safe condition for only up to ten years.

My grading

- 3.7 I graded the trees:
- Category U – none.
 - Category A – G4.
 - Category B – T1, T3.
 - Category C – G2, G5, T6.

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 Impact of the proposed development

Tree removal

- 4.1 No material tree would need to be removed to enable the proposed development to take place. (Some small trees below BS5837 size criteria would be removed.)

Tree work

- 4.2 No pruning work is needed to facilitate construction so there would be no harmful wounding resulting from the proposed development.

Future pruning

- 4.3 The horse chestnut T1 adjacent to the proposed development is already under cyclical management, with pruning to the last reduction points. No new or additional future tree pruning is foreseen as a result of the planning proposal so there would be no long-term impact on the tree canopy as a result of the development.

Below-ground impact

- 4.4 In normal circumstances, the proposed garden room would be inappropriate because of the risk of harm to part of an essential and protected rooting area. The proposed structure would intrude on about 19.8m² of the circular root protection area (RPA) of the horse chestnut T1, equivalent to about 3.75 per cent of the total root protection area. In itself, this is a relatively small intrusion, but the proposed garden room is positioned both close to the trunk of T1 – about 1.2m away from the trunk centre – and within part of the central section of the root protection area where a profusion of significant roots can normally be expected.
- 4.5 However, two preliminary trial pits found only one root, suggesting that roots of 25mm diameter and greater are either elsewhere or at a deeper level than the 1m depth excavated: the historic lowering of ground levels to the north of the tree, including retaining walls and steps within the RPA, might have encouraged deeper rooting, as might also the ‘made ground’ and concrete blocks reported in the *Structural Engineering Report*.
- 4.6 The absence of roots in these preliminary pits shaped the proposed structural design and construction method of using about 13 hand-augured galvanised screw piles, with diameters of 30mm, to an anticipated depth of 2.5m at most (and providing for an ‘air’ gap and irrigation under the structure).
- 4.7 Further trial pits would need to be specified and opened by hand-digging with hand-held tools, under arboricultural monitoring. The clients and project team are aware that if roots of 25mm diameter or greater or clumps of finer roots were discovered, the position of the piles would need to be adjusted, or the project might need to be abandoned all together.
- 4.8 The local authority could secure the trial pits and caveats through a planning condition.
- 4.9 To protect the horse chestnut T1 in the longer term, the proposed lightweight building would have a gap below its raft to the soil, with water diverted from the roof through a perforated hose under the building, to allow for the essential continued diffusion of water and gases through the soil to the tree roots.
- 4.10 The proposal would involve the removal of some 0.5m of soil from around the western side of the tree to accommodate the southern part of the garden room. In most circumstances this would be harmful to a tree’s roots, but in this instance it is possible that it could benefit the tree by removing a soil build up, provided that roots have not already grown in to it, which they appear from preliminary trial pits not to have done.

- 4.11 Other than for the screw piles and partial soil regrading around the horse chestnut T1, there would be no other below-ground intrusion for structural, landscaping or service provision.
- 4.12 Electricity to the garden room would need to be surface mounted to avoid intrusion into the root protection area of the horse chestnut T1.

General tree protection

- 4.13 Standard precautionary, preventive and protective measures would need to be specified and employed to prevent direct and indirect damage to trees and their rootable soil during development. Some arboricultural overseeing could be beneficial. Temporary ground protection would be needed adjacent to the tree T1 and across the garden because all materials, equipment, personnel and work activities would be within the RPA of the horse chestnut T1. Some fencing might also be required to protect retained trees.

5 Conclusions

- 5.1 The proposed lightweight garden room would be near a horse chestnut but preliminary trial pits uncovered only one root.
- 5.2 Further trial pit excavation would be needed to plot the presence or otherwise of roots and to determine the position of the proposed hand-augured screw piles.
- 5.3 If roots of 25mm diameter or greater or clumps of finer roots were discovered, the initially proposed positions of the screw piles would need to be adjusted, or the project might need to be abandoned all together.
- 5.4 The council could secure the below-ground investigation and the criteria for allowing or prohibiting the structure through a planning condition.
- 5.5 A gap is proposed under the building to allow water from its roof and gases to continue to move through the soil to the roots of the horse chestnut.
- 5.6 Proposed soil regrading near the horse chestnut could restore some soil levels around the tree to their original levels, potentially to the benefit of the tree.
- 5.7 No further soil regrading would be carried out and there would be no new trenches through root protection areas for development, services or landscaping.
- 5.8 No material tree would need to be removed to permit development. No tree work would be needed to facilitate construction and there would be no foreseeable increase in the extent or frequency of pruning as a result of the new building.
- 5.9 Standard precautionary, preventive and protective measures would be needed during construction, including the installation of protective fencing and temporary ground protection, and the adequate management of excavated soil and waste materials.

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: producing seed, but not necessarily at full height or spread.
- Mat – Mature: at or approaching full size and in the second or final third of typical life expectancy for the species and conditions. Annual growth gradually reducing.
- OM – Old-mature: old for the species and/or conditions and probably showing very low annual growth and possible decline. Might also be described as a veteran tree, and may have special biological and ecological conservation value.
- Vet – Veteran: a tree of special biological and ecological conservation value, 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 and 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 – Negligible annual growth.
- Moribund – In serious and irreversible decline.
- Dead – No physiological function.

BS 5837:2012 Category of quality/retention

- U – Tree unsuitable for retention irrespective of the planning proposal.
- 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 a 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.
- hcv – high conservation value
- oi – measurement taken over ivy or other climber, or over basal shoots.
- rf – root flare (base of the tree).
- ms – multi-stemmed.
- prov – provisional.
- N – north.
- E – east.
- S – south.
- W – west.

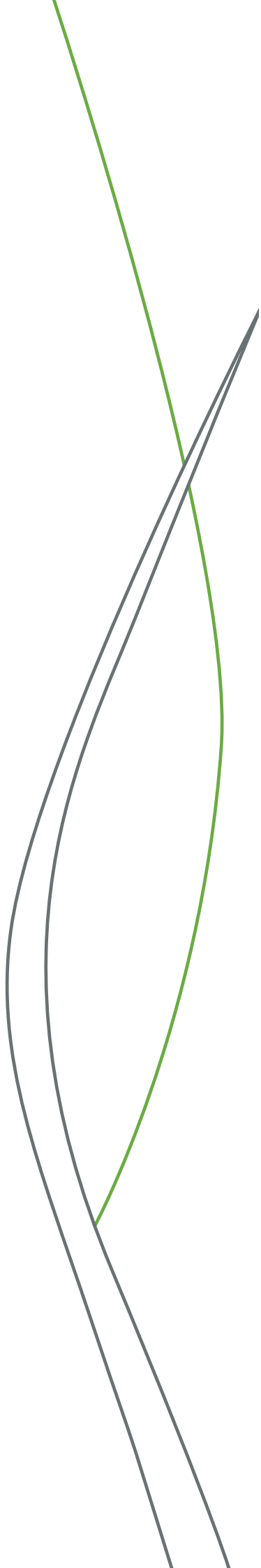
Inspection schedule

Tree ident on plan	Species	Approx height in m	Stem diam- eter or calc- ulated equiv- alent in mm	Approx branch radius in m				Canopy height above ground level in m	First signif- icant branch height in m & direct- ion	Life stage	Physio- logical condition	Structural condition	Observations and preliminary recommendations	Est. remain- ing contrib- ution in years	Cat- egory grading	Min circ- ular RPA radius in m
				N	E	S	W									
T1	<i>Aesculus hippocastanum</i> horse chestnut	10.9	1,080	3.3	3.4	4.5	4	4	4 E	OM	Fair: sparse crown. Leaf miner infestatio ns reported.	Lapsed pollard with cyclical late-onset pollarding of upper crown. Trunk basal decay pockets N and NNE from ground level to about 1m high. One cavity filled with cement. Tapping trunk with a nylon mallet does not suggest any additional area of decay. Decay in several low old branch wounds, such as E at the about 1.8m above ground level. Some branches over- sailing rear fence and adjoining land: fence cut around branches. Soil level probably raised around trunk base within past two decades.	If feasible, remove aggregate etc. build-up around trunk base. Delay proposed until winter for proposed imminent tree pruning because the tree may not have the resources to replace its determinate leaves at this time of year.	20-40	B1, downgrad- ed from A because of frequent heavy pruning to manage the scale of the tree in its setting.	13.0

Tree ident on plan	Species	Approx height in m	Stem diameter or calculated equivalent in mm	Approx branch radius in m				Canopy height above ground level in m	First significant branch height in m & direction	Life stage	Physiological condition	Structural condition	Observations and preliminary recommendations	Est. remaining contribution in years	Category grading	Min circular RPA radius in m
				N	E	S	W									
G2	2no. <i>Photinia x fraseri</i> 'Red Robin' Christmas berry and 2no. trained fruit trees	1.8-2.2	90	0.6	0.25	0.6	0.25	0.3 e	0.3 e	Y	Normal.	Fair-good.	None.	10-20	C3	1.1
T3	<i>Laurus nobilis</i> sweet bay	1.8	120	0.95	0.95	0.95	0.95	1.6	1.6	EM	Normal.	Good.	None.	20-40	B1	1.4
G4	2no. <i>Olea europaea</i> olive	3	100 @ 0.9	0.3	0.6	0.7	0.6	1.5 e	1.5 e	EM	Normal.	Good.	None.	>40	A1	1.2
G5	2no. <i>Olea europaea</i> olive	2.7	95	0.25	0.25	0.25	0.25	1.5 e	1.5 e	Y	Fair: slightly sparse crowns.	Fair-good: container grown.	None.	10-20	C3	Container grown
T6	<i>Magnolia grandiflora</i> southern magnolia	3.2	90 e	0.6	0.4	0.6	0.2	1	1	EM	Normal.	Good: container grown.	None.	10-20	C3	Container grown

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 potential development scheme. There was no invasive investigation of trees, such as by boring, and no branch, leaf, fruit or root samples were collected for laboratory analysis. No survey was made of water bodies, drains or drainage systems.
3. 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.
4. 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 schedule in Appendix A deals with the tree's condition observed on the day the inspection. comments on the rooting of the tree T1 are provisional, based on information available at the time of writing.
5. Any legally permitted tree work undertaken 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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