BS 5837:2012 Tree Survey, Arboricultural Impact Assessment, Method Statement & Tree Protection Plan

19 Church Road
Barnes
SW13 9RE

4th October 2024

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Appendices

1. Instruction

Usherwood Arboriculture have been instructed to provide a tree survey, updated arboricultural impact assessment, and updated arboricultural method statement and tree protection plan in support of an application to carry out the following construction works at 19 Church Road, Barnes, SW13 9HE: *Alterations to boundary enclosures, movement of 1no. masonry pier to vehicular access, replacement of metal gates*. The survey has been carried out in accordance with BS5837:2012, Trees in relation to design, demolition and construction-Recommendations.

Drawing No.	Title	Drawn/Written by
HA-1016-002-PP-GF-2	Existing Ground Floor Plan	HOEG Architects
HA-1016-200-PP-GF-G	Existing and Proposed Garden Plan	HOEG Architects
HA-1016-210-PE-FR	Existing and Proposed Front Elevation	HOEG Architects

Table 1. Key drawings and documents supplied for consideration within this report

2.Executive Summary

This document considers the impact of proposed development upon 2 individual trees located within the front garden of the application site. A single category C Cherry tree is to be removed and replaced as per the previous approved application 24/1225/HOT, whilst the remaining category C Olive will be adequately protected throughout development.

3.The Site

The application site comprises a 5 storey house located on on the north side of Church Road within the Barnes Green Conservation Area. Two trees located within brick planters bound the existing vehicular access with the remainder of the frontage consisting of gravel driveway. A Griselinia hedge divides the application site with the neighbouring property.

Soil conditions.
The British Geological Survey, Geology of Britain viewer describes the local bedrock geology as London Clay Formation-Clay, silt and silt and local superficial deposits as Kempton Park Gravel Member- Sand and gravel.

Legal Constraints
Trees can sometimes be the subject of a Tree Preservation Order (TPO) or a property may be situated within a designated conservation area. Both a TPO and conservation area designation require the owner/occupier or those wishing to work on trees to seek the Council's consent or provide written notice prior to carrying out any works. It is a criminal offence to carry out any works to protected trees without the Council's consent. The site is situated within the Barnes Green Conservation Area but not subject to a TPO.

Image above, courtesy of Google Maps with the application site outlined in red.

4. Tree Survey

Trees were assessed in accordance with recommendations and guidelines contained within British Standard 5837:2012 - 'Trees in relation to design, demolition and construction-Recommendations' henceforth referred to as BS5837. The survey was carried out in relation to the condition and quality of trees growing either within or near the boundary of the site. Where details have been omitted including the heights of crown break and the direction of the first major lateral branch, these details were not seen as being relevant to this application. Where access allowed, tree heights were measured with a Haglof electronic clinometer and trunk diameters with a diameter tape measure. Crown spreads were measured with a tape measure or paced out at the four cardinal points.

All trees were assessed from the ground utilizing the Visual Tree Assessment method as developed by Mattheck and Breloer (The Body Language of Trees, Research for Amenity Trees No 4 Department of the Environment).

This tree survey should not be treated as a hazard assessment, it has been carried out to inform the planning process with regards to the appropriate retention and protection of trees as visual and ecological assets within the landscape. However, where clear and obvious defects are observed, the relevant parties will been informed.

Tree Assessment and Categorization

Tree quality ratings have been assessed in accordance with BS5837's Table 1, Cascade chart for tree quality assessment.

U= Trees in such a condition that any existing value would be lost within 10 years and which should in the current context, be removed for reasons of sound arboricultural management. (Trees that have serious, irremediable structural defects, such that their early loss is expected due to collapse or ill health including trees that will become at risk due to the loss of other U category trees).

A = Trees of high amenity quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
1) Trees that are particularly good examples of their species if rare, unusual or essential components of groups or formal or semi-formal arboricultural features.
2) Trees, groups of trees or woodland which provide a definite screening or softening effect to the locality in relation to views in or out of the site, or those of particular visual importance.
3) Trees groups or woodlands of significant conservation, historical, Commemorative or other value (e.g. veteran tree or wood pasture).

B = Trees of moderate quality and amenity value: those in such a condition as to be able to make a significant contribution (a minimum of 20 years is suggested).
1) Trees that might be included in the high category but are down-graded because of impaired condition (e.g. remediable defects).
2) Trees, groups of trees or woodland that form distinct landscape features but do not form essential components of the landscape.
3) Trees with clearly identifiable conservation or other cultural benefits.

C = Trees of low quality and amenity value currently in adequate condition to remain until new planting is established (a minimum of 10 years is suggested) or trees under 150 mm stem diameter.
1) Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
2) Trees presenting groups or woodlands but not with a significantly higher landscape value and or offering low or temporary/transient screening benefit.
3) Trees with no conservation or other cultural benefits.
Note: Category C trees are the least suitable for retention, where they would impose a significant constraint on the development their removal for development purposes may be considered acceptable by the LPA.

5.Tree Survey Data & Appraisal

This survey concerns 2 individual trees, full details of the survey data can be found in the Tree Survey Schedule at **Appendix A**. An explanation of Tree Quality category ratings is set out on the previous page.

Category A individual trees and groups of trees.
No trees have been graded as category A (trees of high quality) as part of this survey.

Category B individual trees and groups of trees.
No trees have been graded as category B (trees of moderate quality) as part of this survey.

Category C individual trees and groups of trees.
2 trees have been graded as category C (trees of low quality) as part of this survey.

Category U individual trees and groups of trees.
No trees have been graded as category U (trees unsuitable for retention) as part of this survey.

2 tree species have been recorded as part of this survey, their common and botanical names are set out within the table below.

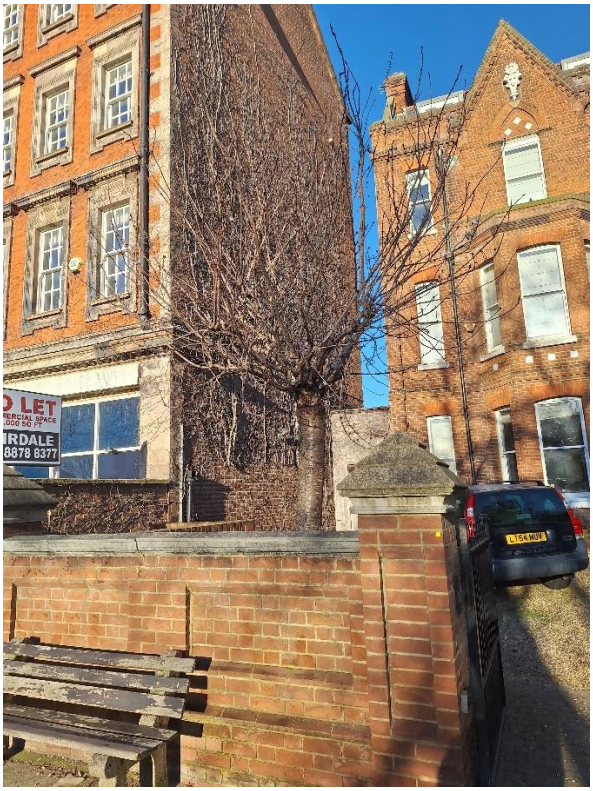
Common Name	Botanical Name
Cherry	Prunus sp.
Olive	Olea europaea

Table 2. Tree species recorded on site and their botanical names.

T8 Olive


Photos above of T8, category C Olive growing within the confines of a raised planter. The tree makes an attractive contribution to the site's frontage and will be retained within the proposed development.

T9 Cherry




Photos above of T9, a category C top and bottom grafted Cherry, the proposal requires the removal and replacement of T9 in order to widen the driveway entrance.

6.Arboricultural Impact Assessment

The Arboricultural Impact Assessment (AIA) sets out the potential risks and threats associated with proposed construction to trees both within and near to an application site and seeks to minimise those risks through the implementation of a sound and recognised methodology set out within an arboricultural method statement.

Construction and development in general can impact trees in a number of ways, the most notable being damage to the tree's root system leading to decline and potential structural instability. BS5837 recognises this and accordingly sets out recommendations to minimise damage associated with the effects of soil compaction and root severance.

The AIA also considers the effects of tree removal on the immediate and wider environment and seeks to mitigate removal with suitable replacement planting.

The proposal requires the removal of 1 category C tree.

T9 Cherry- Requires removal in order to remove the existing planter and widen driveway entrance. The planter will be reconstructed as part of the proposed works and a replacement tree planted with a mininimum stem girth of 10-12cm, Select-standard size and as approved on the previous planning application **24/1225/HOT**.

Existing retained trees

T8 Olive grows within a raised planter in the front garden. Below ground, the RPA of **T8** will be safely protected due to its containment within the existing and retained planter, however, the stem, branches and immediate soil area within the planter will be protected with carefully erected plywood hoarding to avoid inadvertent construction damage.

Root Protection Areas- General information
BS 5837 describes the root protection area (RPA) as a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

The **Root Protection Areas (RPA)** have been calculated in accordance with Table D1 of BS5837:2012. Notional RPA's are plotted on the arboricultural impact assessment plan at **appendix 3**. The RPA is defined by the formula in paragraph 4.6 from the British standard and may be refined by considering current on-site constraints to root activity such as buildings, walls, earthworks, hard paving and services.

Root Systems and compaction
Root systems can easily be damaged during construction works, leading to the sometimes-rapid decline of valuable trees. The biggest problem for trees on or close to construction sites is the compaction of soil caused by inappropriate vehicular movement and storage of materials especially where the site is founded on a compressible clay.

Numerous surveys have shown that a significant proportion of a tree's roots proliferate in the top 600-1000mm of soil. There will of course be roots that may go down to depths of 3 metres or more although these will be in the minority. Roots in the upper soil surface find it far easier to intercept moisture, acquire oxygen and perform gaseous exchange. You also find that as soil depth increases so does its strength or compaction, making it harder for roots to exploit.

Root morphology differs from species to species and is largely dependent on the soil type and ground conditions, however the fine roots responsible for moisture and nutrient uptake can last anything from 10 days to over a year (Eissenstat and Yanai, 1997), with the tree producing new fine roots on a regular basis. The larger and more structural roots are a permanent feature of the tree and convey moisture and nutrients from the soil via the fine roots, into the trunk and canopy. The larger roots are of course responsible for the tree's stability as well as being areas of carbohydrate storage. Younger trees are more able to adapt to change and have more potential energy to explore alternative rooting environments whereas more mature trees are slower to react to a changing soil environment and are adapted to expend their energy on other important functions.

The National Geology of Britain Viewer advises that the local soil comprises a bedrock geology of London clay and superficial layer of sand and gravel, therefore the risk of soil compaction is considered to be low-moderate. However, The risk of soil compaction will be mitigated with the correct installation of tree protective fencing and ground protection.

Root severance

As mentioned above, the roots are responsible for a number of functions including stability and the transport of water and nutrients. Studies have shown that trees can withstand and recover from the loss of a proportion of their root systems, especially where those roots have been removed in a single direction. We do not expect to expose any roots from retained trees as a consequence of this application.

7.Arboricultural Method Statement (AMS)

The arboricultural method statement sets out a precautionary approach towards tree protection. Any operations including access, proposed within the RPA (or crown spread where this is greater) will be described within an arboricultural method statement, to demonstrate that the operations can be undertaken with minimal risk of adverse impact to retained trees.

Phase 1-Access facilitation and pre-start tree works.

- Tree surgeon or contractor to remove **T9** Cherry**.**

Phase 2- Protection to T8 Olive.

- Plywood hoarding will be erected to avoid inadvertent damage to **T8** Olive as suggested below.

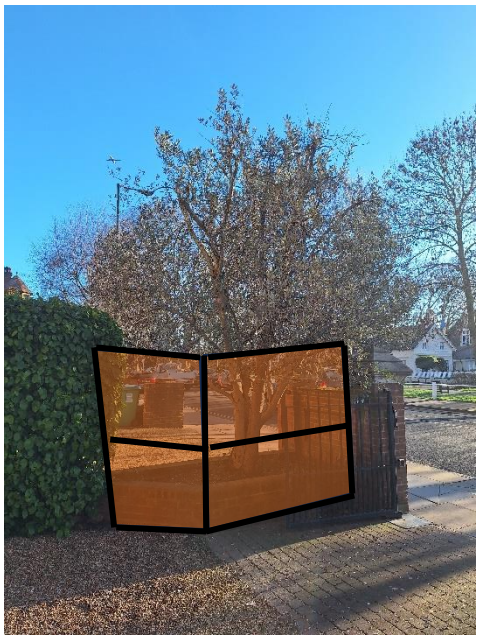


Image above showing braced plywood hoarding around T8 and associated planter.

Phase 3- Construction.

- Following the installation of tree protective fencing, construction may commence in the standard manner without requiring specific arboricultural measures.

Site supervision and pre-commencement meeting

- A pre-commencement meeting will be held via video call and the chosen contractor will be required to share photos to ensure that tree protection measures have been correctly installed prior to commencement of works.

- The planting of the replacement tree will be supervised by the project arboriculturalist. See replacement tree planting details at appendix C of this document.

General measures to be adopted in proximity to trees-

- All tree protection measures will be set in place prior to commencement of any works relating to the approved planning consent.
- No bonfires on site.
- No storage of products or mixing of materials within the RPA's of trees.
- No materials are to be stored within the confines of the protective fencing (CEZ).
- Storage of materials on soft ground in proximity to any other trees and hedges away from construction is to be avoided.
- No discharging of any products associated with construction near trees or hedges
- No refueling/topping up of hydraulic fluids etc. on plant machinery within or close to the RPA of trees.
- There will be no lowering or raising of soil levels within the root protection areas of retained trees except where specified and agreed by the LPA.
- There will be no excavation or trenching for the installation of services within the root protection areas of retained trees except where specified and agreed by the LPA.

8. Conclusion

The application proposes the removal and replacement of a single category C cherry tree as previously approved under application 24/1225/HOT. This document demonstrates that the proposed development can adequately protect the remaining Olive tree located within the front garden.

9. Qualifications & Experience

I have been involved in the horticultural and arboricultural industries for over 40 years, firstly as a contractor and for the last 20 years as a Local Authority tree officer and consultant. I hold the AA Tech cert arb, and ND Arb (RFS) as well as being a Lantra accredited Professional Tree Inspector. I am also a technical member of the Arboricultural Association and professional member of the Consulting Arborists Society.

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Appendix A: Tree Survey Schedule

Trees have been listed on the schedule with both their common and scientific names.

Tree height is normally measured and rounded up to the nearest metre for trees above 10 metres in height using a Haglof electronic clinometer.

Stem or trunk diameters were measured using a diameter tape in mm at 1.5 metres above ground where access allowed, otherwise diameters have been estimated.

Crown spread has been measured in metres from the trunk to the tips of the live lateral branches taken at the four-cardinal points N-E-S-W using a ground tape.

Age Class
Young - Trees in the first fifth of full life expectancy
Semi-mature - Trees in the second fifth of full life expectancy
Early-mature - Trees in the third fifth of full life expectancy
Mature - Trees in the fourth fifth of full life expectancy
Post-mature – Trees having reached full life expectancy and trees in natural decline
Veteran - Trees of interest biologically, culturally and aesthetically due to certain features and/or age.

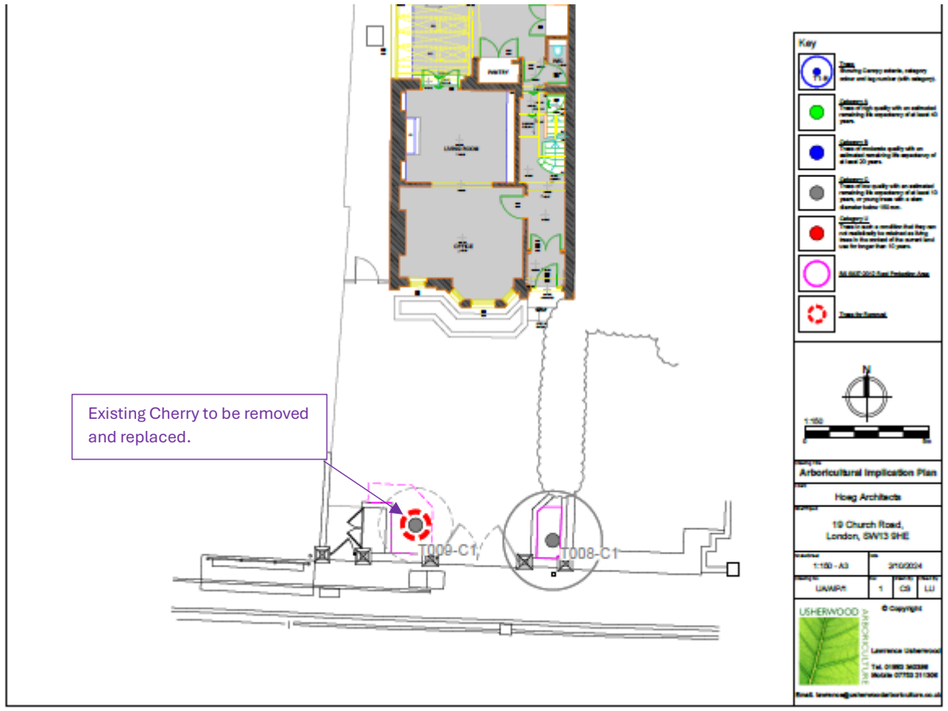
ERCY-The estimated remaining contribution in years calculated considering the tree's species, location, current age and physiological and structural condition at the time of the survey.

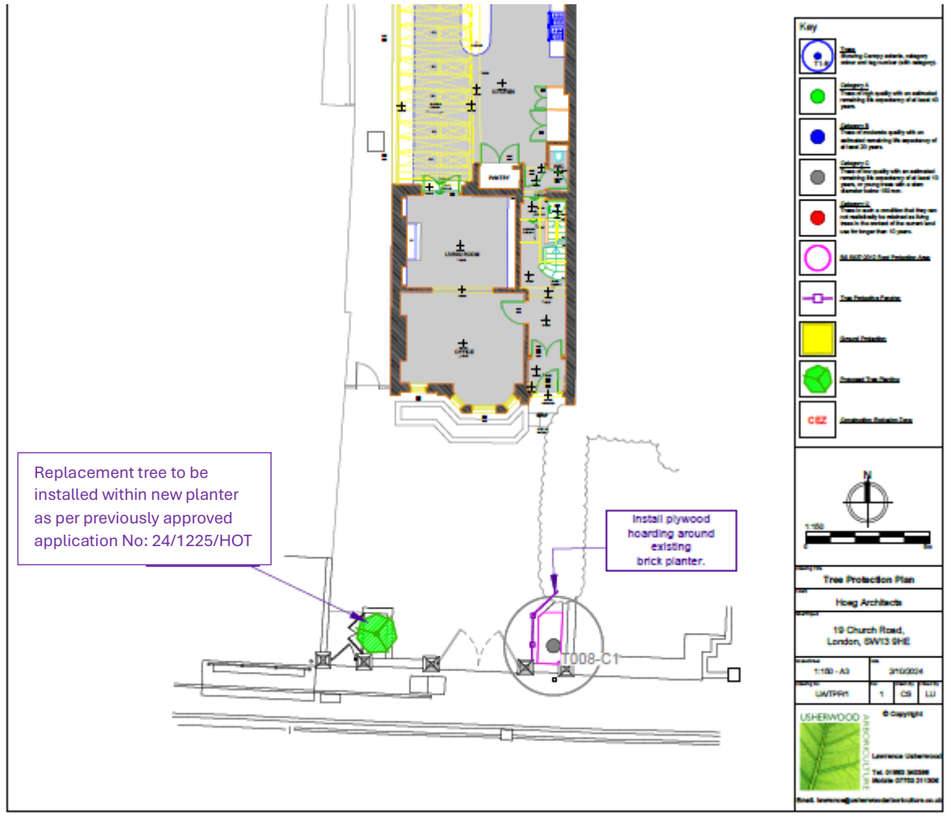
BS5837 Survey Data

Ref.	Species	Measurements	General Observations	Category	Recommendations
T008	Olive (Olea europaea)	Height (m): 3.5 4 stems (mm): 140,140,120,120 Spread (m): 2N, 2E, 2S, 2W Life Stage: Mature Rem. Contrib.: 20+ Years	Previously pruned attractive front garden tree growing within raised bed.	C1 RPA Radius: 3.1m. Area: 30 sq m.	Protect trunk, branches and immediate rootzone with plywood hoarding. See AMS & TPP
T009	Cherry (Prunus sp. 'Cherry')	Height (m): 3.5 Stem Diam(mm): 220 Spread (m): 1.5N, 1.5E, 1.5S, 1.5W Life Stage: Mature Rem. Contrib.: 10+ Years	Top grafted Cherry, grows within raised bed, many girdling surface roots.	C1 RPA Radius: 2.6m. Area: 21 sq m.	Remove to facilitate development.

Appendix B: Arboricultural Impact & Tree Protection Plan

19 Church Road Arboricultural Impact plan and Tree Protection Plan to accompany application 24/2305/HOT





Not to Scale

Appendix C: Replacement Tree Planting Details

Replacement Tree detail, 19 Church Road.

Replacement tree- 1 x Amelanchier arborea Robin Hill (Serviceberry)

Size at planting- 16-18cm girth Advanced nursery stock. Approximately 4.0-4.5m in height.

Root specification- to be planted as either Root-balled or Container grown stock.

To be planted immediately following completion of proposed construction, this will determine whether root balled (autumn/winter) or containerised (spring/summer) root specification is used.

A small tree such as Amelanchier requires approximately 10m^3 of soil to reach and sustain its mature potential. The tree will be installed within a 1200mm x 1200mm x 700mm tree pit providing an immediate 1.01m^3 of soil. Tree roots will then be able to grow unhindered into the sand and gravel soil profile immediately surrounding the tree pit and beneath the gravel driveway.

Tree pit backfill soil will comprise a sandy loam with addition of approximately 10% organic matter such as a suitable tree and shrub compost.

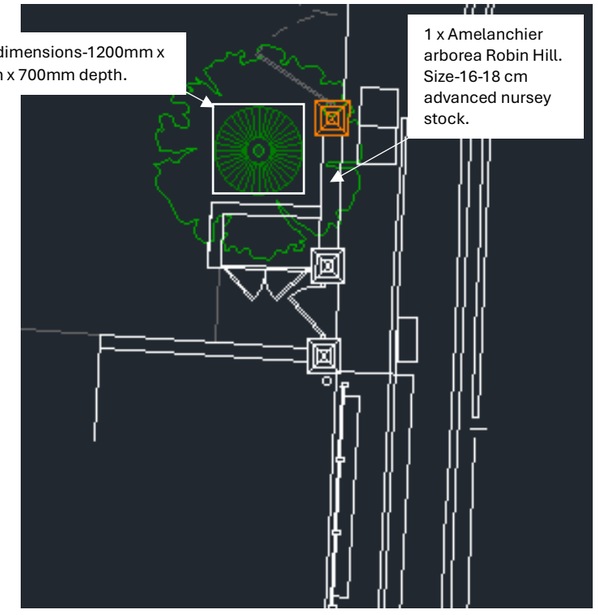
In order to avoid future distortion of the driveway, a GreenBlue urban RD510 Root Director will be installed directly around the root ball or container.

Securing the tree.

The tree will be secured with an underground ArborGuy Drive -In Anchor if planted as a root-balled tree or two stakes and rubber or hessian ties if planted as containerised stock.

Tree watering & maintenance.

Tree watering will be carried out between the end of April -October, administering approximately 45 litres of water per week for the first three years and fortnightly thereafter for a further two years or until successful establishment in the landscape. Further advice will be given to the applicant with regards watering during prolonged drought or periods of high and sustained precipitation.



Location, species and size of tree at time of planting.

GreenBlue Urban Root Deflector

RootRain Metro irrigation tube.