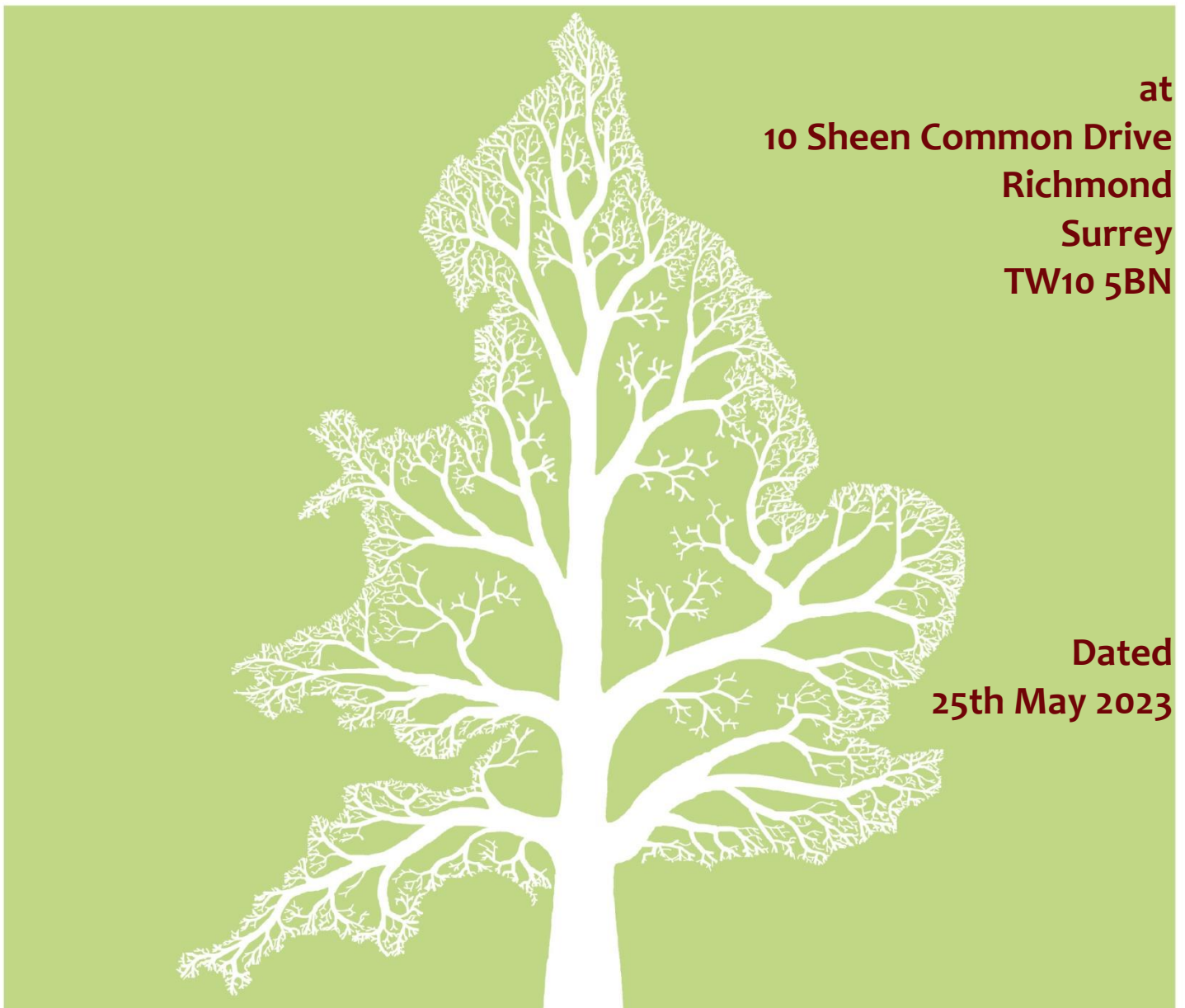


BS 5837 Arboricultural Report

(Pre-Planning)



at
10 Sheen Common Drive
Richmond
Surrey
TW10 5BN

Dated
25th May 2023



Branching out through England and Wales

Contents

1.	Introduction	3
1.1.	Instruction	3
1.2.	Purpose of this Report	3
1.3.	Survey Details	3
1.4.	Author	3
2.	Site Overview	4
2.1.	Brief Site Description	4
2.2.	Coordinates	4
2.3.	Survey Extent	4
3.	Vegetation Overview (independent of proposals)	5
3.1.	Preliminary Management Recommendations	5
3.2.	Work Priority and Future Inspections	5
3.3.	Species Present – Additional Information	6
4.	Local Geology and Soils	7
4.1.	Desktop Research	7
4.2.	Site Investigations	7
4.3.	Conclusion and Relevance	7
5.	Statutory Protection – TPOs and Conservation Area Status	8
5.1.	Desktop Research	8
5.2.	Felling Licences	8
6.	Planning Policy Context	9
6.1.	National Policy	9
6.2.	Regional Policy	10
6.3.	Richmond Local Policy	11
7.	Implications for Development	13
7.2.	Retention Categories	13
7.3.	Root Protection Areas	13
7.4.	Tree Canopies	14
7.5.	Arboricultural Impact Assessment	14
7.6.	Tree Protection During Construction	14
8.	Photographs	15
Appendix 1: BS 5837: 2012 – Guidance Notes		17
Appendix 2: Survey Methodology		18
Appendix 3: Tree Data Glossary		19
Appendix 4: Author’s Qualifications		20
Appendix 5: Further Information		21
Appendix 6: Tree Data Schedule and Drawings		22

1. Introduction

1.1. Instruction

1.1.1. We are instructed by Laura Tutty of Michael Jones Architects to:

- Undertake a Tree Survey to BS 5837 at 10 Sheen Common Drive and assess all trees potentially within influencing distance of proposed development within the site.
- Plot the trees on a Tree Constraints Plan and record the data in a Tree Data Schedule.
- Provide an overview of the site and any management recommendations.
- Determine if any trees are growing within a conservation area or are protected by a tree preservation order.

1.2. Purpose of this Report

1.2.1. This report is produced according to the guidance and recommendations within *BS 5837: 2012 - Trees in Relation to Design, Demolition, and Construction*. It is tailored to inform the reader of the trees and how they might constrain any potential development of the site. It does not consider specific design proposals, so will not validate a full planning application.

1.2.2. This document should not be used to inform management decisions relating to liability or risk management. Such decisions should be based on a more detailed inspection of the trees than was carried out for this report.

1.3. Survey Details

1.3.1. A visual ground-level assessment of all trees was undertaken on the 25th of April 2023 by Carl Lothian. No climbed inspections or specialist decay detection were undertaken. Details of how the survey was undertaken can be found in Appendix 1.

1.3.2. The tree locations shown on the accompanying drawings are based on a measured drawing of the site supplied to Crown Tree Consultancy. This drawing had the tree positions already plotted. Where applicable, additional trees have been plotted by us according to measurements taken on-site.

1.4. Author

1.4.1. This report was compiled by Carl Lothian BSc (Hons) Arboriculture. Details of the author's experience that qualify him to produce such a report are detailed in Appendix 4.

2. Site Overview

2.1. Brief Site Description

- 2.1.1. Number 10 Sheen Common Drive is a detached residential property with gardens to front and rear.
- 2.1.2. The front garden (see Photographs 6-7) contains one Retention Category C tree (T2) and one Retention Category B tree (T1). Surfaces consist predominantly of paving stones.
- 2.1.3. The rear garden (see Photographs 1-5) contains seven Retention Category C trees (T3, T4, T5, T6, T8, T10 and T12)) and three Retention Category U trees (T7, T9 and T11). These trees are mostly located towards the rear of the garden. Surfaces consist predominantly of grass, with a paved area adjacent the main property.
- 2.1.4. In adjacent gardens are two Retention Category C apple trees (T13 and T14). The Root Protection Areas of these trees extend into the site.
- 2.1.5. Along the woodland edge to the rear of the site are two Retention Category A oak trees. The canopies and Root Protection Areas of these trees extend within the sites.
- 2.1.6. The site is approximately flat, although there is a significant level change between the main property and rear garden, with steps between the two.
- 2.1.7. Boundaries consist predominantly of timber panel fencing, with brick walls to the front of the property.
- 2.1.8. The Tree Constraints Plan and Tree Data Schedule (see Appendix 6) should be referred to for descriptions and locations of all trees.

2.2. Coordinates

- 2.2.1. The site coordinates are 51°27'42.45"N 0°16'58.42"W, and the altitude is approximately 13m above sea level¹.

2.3. Survey Extent

- 2.3.1. The area indicated below² shows the extent of our survey. Our survey included all trees within the curtilage of the property and those adjacent to it.



¹ To access satellite imagery and street views of the site these co-ordinates may be entered into: <http://maps.google.co.uk/>

² Image taken from Google Earth and may not be current

3. Vegetation Overview (independent of proposals)

This section summarises all the recommendations within the Tree Data Schedule regardless of whether trees are to be retained, felled or pruned to facilitate the proposed development. It does not specify works that may be required to facilitate the development proposals..

3.1. Preliminary Management Recommendations

- 3.1.1. The following recommendations are made to maintain the trees in an acceptable condition:
- 3.1.2. Trees that are potentially hazardous and will require removal to prevent potentially significant damage due to tree or limb failure are T7, T9 and T11.
- 3.1.3. The removal of T7 and T9 is considered to be of low priority due to the size and location of these trees.
- 3.1.4. The removal of T11 is considered to be of a moderate priority, due to the extent of basal decay and proximity of the tree to the site boundary.
- 3.1.5. All other trees were deemed to be in satisfactory condition.

3.2. Work Priority and Future Inspections

- 3.2.1. The table below suggests a schedule for completing the works recommended in the Tree Data Schedule based on the perceived risk:

Work Priority	Definition	Tree Number
Urgent	As soon as possible	None
Very High	Within 1 Month	None
High	Within 3 Months	None
Moderate	Within 1 year	T11
Low	Within 3 years	T7 and T9

- 3.2.2. The table below suggests a schedule of future inspections based on the condition and location of each tree:

Inspection Frequency (years)	Tree Number
0.5	None
1	None
1.5	None
3	All trees surveyed

- 3.2.3. The trees should be inspected sooner if there is a noticeable decline in their condition or following extreme weather events.

3.3. Species Present – Additional Information

- 3.3.1. The table below contains general information about the tree *species* (rather than the actual tree *specimens*) included in the survey. Its purpose is to assist readers who are unfamiliar with the characteristics of the various species.

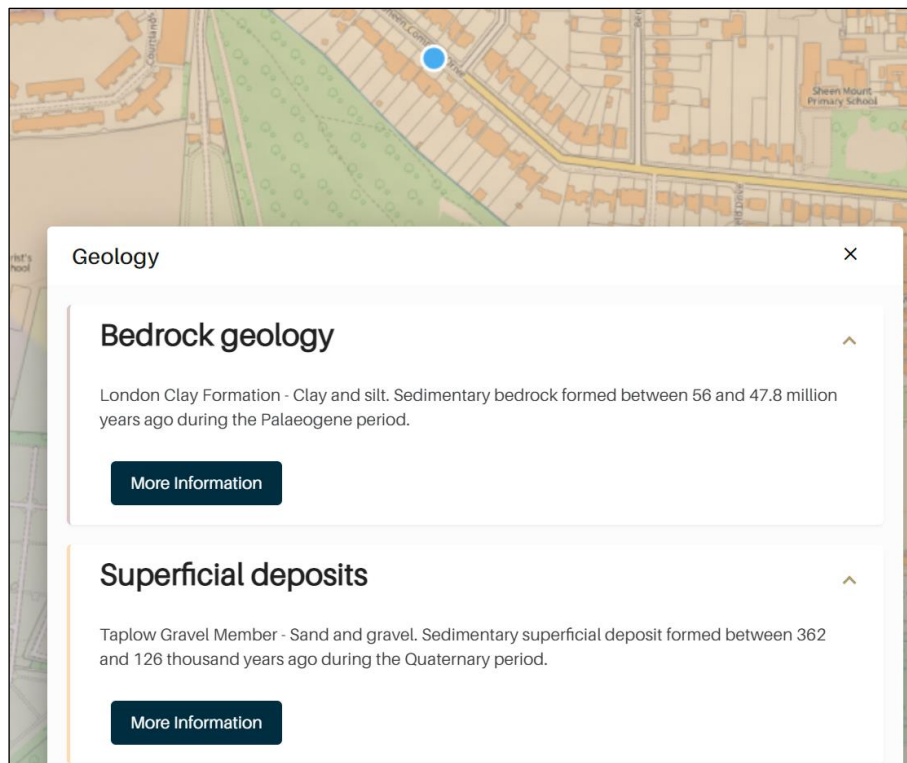
Species	Typical Height at Maturity (m)	Typical Canopy Spread at Maturity (m)	General Notes
Apple	6	8	Deciduous tree native across Europe and W. Asia. Hundreds of cultivars available due to its popular fruit. Flowers white, pink or red in spring. Some species will self pollinate. Most species have a relatively untidy habit. Older specimens are susceptible to a variety of rusts, moulds and cankers. Excellent habitat tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Malus+domestica for more info.
Beech	25	18	Deciduous tree native to W and S Europe. Does not have resilient heartwood, therefore typically lives for 100 - 150 years before decay may cause structural failure if unmanaged. Can be an extremely attractive tree at maturity due to its size and majesty. Young branches may retain their foliage through winter as is evidenced in beech hedges. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Fagus+sylvatica for more info.
Holly	16	12	Evergreen tree native across Western Europe. Many cultivars available, often with variegated leaves. Females produce bright red berries. Good wildlife value. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Ilex+aquifolium for more info.
Magnolia	7	8	Small tree or large shrub, favoured for its large, ornamental flowers. About 80 species and numerous cultivars are available, both deciduous and evergreen. Leaves always untoothed and sometimes very large. Large silky flower buds and berries dangling from unusual 'knobbly cucumber' fruits.
Oak	22	18	Deciduous, long lived tree native and common throughout Europe with very durable timber. Excellent habitat tree - provides food and shelter for thousands of native species. Can be very attractive as a mature open grown specimen though not particularly ornamental, having no autumn colour or showy flowers. Responds well to pruning. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Quercus+robur for more info.
Pear	8	8	Deciduous tree native across Europe and W Asia. Hundreds of cultivars available due to its popular fruit. White flowers in spring along with bright green foliage. More upright growth habit than most apples.
Silver Birch	16	10	Deciduous native tree. A pioneer species requiring good lighting levels that will readily colonise open ground. Relatively short lived and surpassed in woodland by dominant species such as oak and beech. Attractive white bark and graceful, delicate form make this a popular garden tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Betula+pendula for more info.
Yew	14	12	Evergreen species native throughout Europe. Commonly planted in churchyards. Once revered by ancient Britons and thought to be the inspiration for our Christmas tree. Capable of remarkable regeneration and extreme longevity. Poisonous foliage and seeds. Slow growing. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Taxus+baccata for more info.

The figures quoted regarding typical height and canopy spread should be treated as approximate. Actual heights and spreads vary according to several environmental factors such as soil conditions, climate, and the presence of competing vegetation. The figures quoted are not the maximum dimensions that the species may attain.

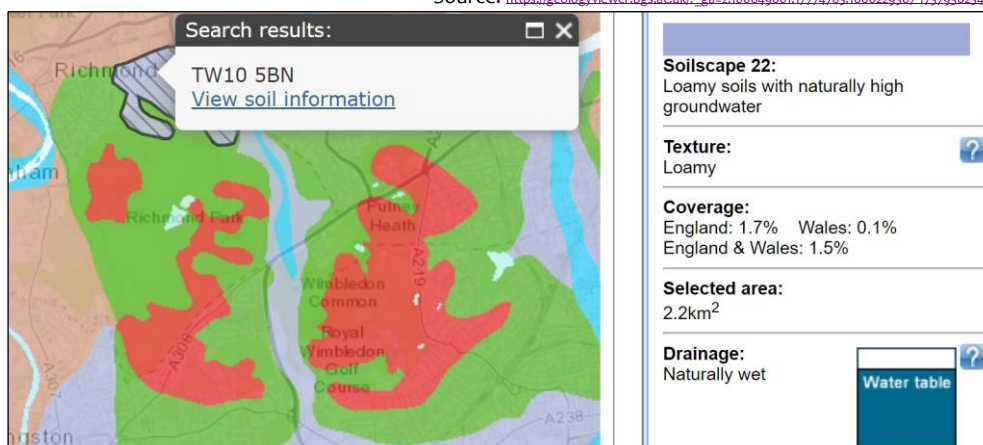
4. Local Geology and Soils

4.1. Desktop Research

4.1.1. Desktop research into local geology based on the postcode TW10 5BN obtained the following results:



Source: https://geologyviewer.bgs.ac.uk/?_ga=2.100849601.17774785.1660229567-1737936254.1660229567



Source <http://www.landis.org.uk/soilscales/>

4.2. Site Investigations

4.2.1. We are unaware of any specific investigations into soil properties at the site.

4.3. Conclusion and Relevance

4.3.1. Based on the information reproduced in Section 3.1, local soils are assumed to have a loamy texture.

4.3.2. Loamy soils contain a mixture of clay and sand. Soil compaction may occur due to vehicular activity on building sites, so ground protection is recommended wherever vehicles operate. Most tree species will grow well in loamy soils.

5. Statutory Protection – TPOs and Conservation Area Status

Before undertaking most works on trees protected by a tree preservation order³, consent needs to be formally obtained from the local authority. Where trees are in a conservation area (but not protected by a TPO), works are generally not permitted without first giving the local authority six weeks' notice of intention⁴. Unauthorised works to protected trees, or trees in a conservation area, may result in criminal prosecution and a fine. Where works are required to implement a fully approved development, no such consent or notice is required.

5.1. Desktop Research

5.1.1. On 24th April 2023, we accessed the local authority website. A screenshot is produced below:



5.1.2. This indicates that:

- The site is within the Sheen Common Drive Conservation area.
- There are no tree preservation orders affecting trees within the site.
- There are tree preservation orders affecting trees immediately adjacent to the site. T16 is believed to be affected (our numbering system).

5.2. Felling Licences

5.2.1. Felling licences issued by the Forestry Commission are sometimes required before removing trees. However, these licenses are aimed toward woodland and forestry management. Felling licences are NOT required for any of the following:

- Lopping, topping or pollarding.
- Removal of small trees (stem diameter less than 8cm) or fruit trees.
- Works to any trees growing within domestic gardens, orchards, or the Inner London boroughs.
- Operations involving less than five cubic meters of timber in any quarter year.
- Thinning and understorey clearing operations.
- Dangerous trees, nuisance trees, some diseased trees.
- Where removal is required to enable a fully approved development.

5.2.2. More detailed guidance can be found at <https://www.gov.uk/government/publications/tree-felling-getting-permission>

5.2.3. Hence a felling licence is **not** required relating to the trees surveyed within the property.

³ <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>

⁴ During this time, the local authority may elect to create a tree preservation order or to inform the applicant that they have no objection to the proposed works. If the local authority does not respond within six weeks, then the intended work may be undertaken. Note: the local authority cannot refuse consent for works to trees within a conservation area; they may only create a tree preservation order if they wish to have further control over what works are undertaken.

6. Planning Policy Context

6.1. National Policy

6.1.1. The National Planning Policy Framework 2021 Policy 12, Paragraph 131 is specifically aimed at urban trees:

131. Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined⁵⁰, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.

6.1.2. Policy 15, Paragraphs 174, 175, and especially 179 and 180 are aimed at conserving and enhancing the natural environment, habitat and biodiversity. All trees provide some habitat and increase the biodiversity of a site. Native trees such as oaks can support an abundance of algae, lichens, mosses, insects, birds, fungi, reptiles and even mammals.

15. Conserving and enhancing the natural environment

174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

175. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework⁵⁰; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Habitats and biodiversity

179. To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity⁵¹; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation⁶²; and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

180. When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶³ and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

181. The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation;
- b) listed or proposed Ramsar sites⁶⁴; and
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

6.2. Regional Policy

6.2.1. The London Plan 2021⁵ is the Spatial Development Strategy for Greater London. It sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for Good Growth.

6.2.2. The Plan is part of the statutory development plan for London, meaning that the policies in the Plan should inform decisions on planning applications across the capital. Borough's Local Plans must be in general conformity with the London Plan, ensuring that the planning system for London operates in a joined-up way and reflects the overall strategy for how London can develop sustainably, which the London Plan sets out⁶.

6.2.3. Chapter 8 relates to the natural environment. Within this chapter, Policies G1 and G2 promote green infrastructure and stress the importance of conserving London's Green Belt. Policies G3 and G4 relate to Metropolitan Open land and Open Space. Whilst trees are an intrinsic part of all of the above; they are not specifically mentioned in these policies.

6.2.4. Policy G5 is relevant to this report as it promotes the greening of London by including the planting of new trees and retaining existing trees where possible.

Policy G5 Urban greening

- A Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.
- B Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses).
- C Existing green cover retained on site should count towards developments meeting the interim target scores set out in (B) based on the factors set out in Table 8.2.

6.2.5. Further guidance on the UFG has been prepared by the Greater London Authority and can be found here: <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance/urban-greening-factor-ugf-guidance> A [UGF calculator](#) tool has also been prepared to help applicants calculate the score of a scheme and present the score as part of their application.

6.2.6. Policy G6 promotes biodiversity and access to nature, though trees are not specifically mentioned.

6.2.7. Policy G7 is of most relevance to this report as it specifically relates to trees and woodlands:

Policy G7 Trees and woodlands

- A London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.
- B In their Development Plans, boroughs should:
 - 1) Protect 'veteran' trees and ancient woodland where these are not already part of a protected site.
 - 2) Identify opportunities for tree planting in strategic locations.
- C Development proposals should ensure that, wherever possible, existing trees of value are retained⁷. If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

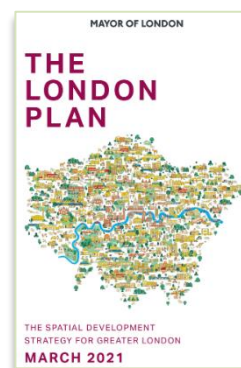


Table 8.2 - Urban Greening Factors

Surface Cover Type	Factor
Semi-natural vegetation (e.g. trees, woodland, species-rich grassland) maintained or established on site.	1
Wetland or open water (semi-natural; not chlorinated) maintained or established on site.	1
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm – see livingroofs.org for descriptions. ^A	0.8
Standard trees planted in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree – see Trees in Hard Landscapes for overview. ^B	0.8
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) – meets the requirements of GRO Code 2014. ^C	0.7
Flower-rich perennial planting – see RHS perennial plants for guidance. ^D	0.7
Rain gardens and other vegetated sustainable drainage elements – See CIRIA for case-studies. ^E	0.7
Hedges (line of mature shrubs one or two shrubs wide) – see RHS for guidance. ^F	0.6
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6
Green wall – modular system or climbers rooted in soil – see NBS Guide to Façade Greening for overview. ^G	0.6
Groundcover planting – see RHS Groundcover Plants for overview. ^H	0.5
Amenity grassland (species-poor, regularly mown lawn).	0.4
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014. ^I	0.3
Water features (chlorinated) or unplanted detention basins.	0.2
Permeable paving – see CIRIA for overview. ^J	0.1
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	0

⁵ https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf

⁶ <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021>

⁷ Category A, B and lesser category trees where these are considered by the local planning authority to be of importance to amenity and biodiversity, as defined by BS 5837:2012

6.3. Richmond Local Policy

- 6.3.1. The London Borough of Richmond and Thames Local Plan sets out policies and guidelines for development within the Borough from 2018 until 2033. It surpasses the previous *Core Strategy* and *Development Management Plan*.
- 6.3.2. The *Spatial Strategy* set out within the Local Plan includes twenty *core planning policies* on matters including climate change, housing, employment and retailing. Core policies from the Local Plan begin with the letters LP. More detailed policies for the management of development begin with the letters DM.
- 6.3.3. Within the Local Plan, the **core policies** of most relevance to this report are LP16 and LP15



Local Plan

Policy LP 15

Biodiversity

A. The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. This will be achieved by:

1. protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value;
2. supporting enhancements to biodiversity;
3. incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible;
4. ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats;
5. enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise; and
6. maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan.

B. Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:

1. firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts),
2. secondly be adequately mitigated; or
3. as a last resort, appropriately compensated for.

Policy LP 16

Trees, Woodlands and Landscape

A. The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits.

B. To ensure development protects, respects, contributes to and enhances trees and landscapes, the Council, when assessing development proposals, will:

Trees and Woodlands

1. resist the loss of trees, including aged or veteran trees, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value; or felling is for reasons of good arboricultural practice; resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;
2. resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees;
3. require, where practicable, an appropriate replacement for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT);
4. require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species is encouraged where appropriate;
5. require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations).

The Council may serve Tree Preservation Orders or attach planning conditions to protect trees considered to be of value to the townscape and amenity and which are threatened by development.

Landscape

1. require the retention of important existing landscape features where practicable;
2. require landscape design and materials to be of high quality and compatible with the surrounding landscape and character; and
3. encourage planting, including new trees, shrubs and other significant vegetation where appropriate.

6.3.4. Policy LP15 is aimed at conserving and enhancing the natural environment, habitat and biodiversity. All trees provide some habitat and increase the biodiversity of a site, so Policy LP15 is relevant to this report. Native trees such as oaks can support an abundance of algae, lichens, mosses, insects, birds, fungi, reptiles and even mammals.

6.3.5. On page 55 of the Local Plan, the guidance relating to Policy LP 16 states the following:

5.5.3 Development proposals are required to retain and protect existing trees, and minimise any impacts on trees, shrubs and other significant vegetation, including through the provision of sufficient space for the crowns and root systems of existing and proposed trees and their future growth. Developer contributions towards trees within the public realm may be required where appropriate (see the Council's Planning Obligations SPD).

5.5.4 It is important that species are chosen that are appropriate to the scale of their surroundings and public amenity, and guidance should be sought from relevant experts. The Council encourages the use of native species where appropriate. However, it is acknowledged that native species may not always be the most suitable choice, such as in certain historic landscapes, where there is an existing positive character of distinctive non-native trees. There may also be other particular situations where the use of non-native species may be beneficial. In addition, the Council encourages schemes that include large trees, where appropriate, as evidence suggests that the larger the tree, the greater the benefits to both amenity and ecosystems.

5.5.5 An appropriate replacement for any tree that is felled will be required on-site where practicable. Where this is not possible, the Council will require a financial contribution to provide an off-site street tree. The Council will use the methodology set out in 'Capital Asset Value for Amenity Trees' (CAVAT) for calculating the monetary value and/or compensation where a tree is felled or damaged.

6.3.6. Trees are also mentioned in the explanation of policies LP20 and LP21 in relation to the potential of trees to mitigate against urban heat islands and to form part of SUDs plans.

6.3.7. Policy LP 12 Green infrastructure and LP 13 Green Belt, Metropolitan Land and Local greenspace are not relevant to development proposals unless open spaces such as parks or Green belt are affected.

6.3.8. Within The Local Plan, the **detailed policies** of relevance to development near trees are set out below:

Policy DM DC 4

Trees and Landscape

The boroughs trees and landscape will be protected and enhanced by:

- The use of Tree Preservation Orders (TPOs) where appropriate;
- Planting and encouraging others to plant trees, clumps and thickets particularly in areas of deficiency as shown on the Proposals Map and of a type and species as set out in the Borough's Tree Strategy.
- continuing to maintain trees in streets and public open spaces and of selectively clearing and replanting trees;
- requiring landscape proposals in submissions for new development, which retain existing trees and other important landscape features where practicable and include new trees and other planting. Where trees are removed, appropriate replacement planting will normally be required. There will be a presumption against schemes that result in a significant loss of trees, unless replacements are proposed and there is good reason such as the health of the trees, public amenity, street scene or restoration of an historic garden. Landscaping schemes should take account of the Borough's Tree Strategy.

Policy DM OS 5

Biodiversity and new development

All new development will be expected to preserve and where possible enhance existing habitats including river corridors and biodiversity features, including trees.

All developments will be required to enhance existing and incorporate new biodiversity features and habitats into the design of buildings themselves as well as in appropriate design and landscaping schemes of new developments with the aim to attract wildlife and promote biodiversity, where possible.

When designing new habitats and biodiversity features, consideration should be given to the use of native species as well as the adaptability to the likely effects of climate change.

New habitats and biodiversity features should make a positive contribution to and should be integrated and linked to the wider green and blue infrastructure network, including de-culverting rivers, where possible.

6.3.9. To summarise, local policies of particular relevance to development near trees are LP 16, LP 16, DM DC 4 and DM OS 5. Policies LP 20 and LP 21 have less relevance to such developments.

Supplementary Planning Guidance (SPG) Documents

6.3.10. SPGs are additional material considerations when determining planning applications, and they provide guidance for developers and landowners. Documents of potential relevance are:

- **Trees: Landscape Design, Planting & Care.** This guide was published in 1999 and provides general advice on new planting. This is accessed here: https://www.richmond.gov.uk/media/7653/spgtree_ldpca.pdf
- **Trees: Legislation and Procedure.** This guide was also published in 1999 and provides guidance on legislation. However, it is now somewhat outdated and has little relevance to anyone wishing to develop near trees. It may be accessed here: https://www.richmond.gov.uk/media/7653/spgtree_ldpca.pdf
- **Planning information for Conservation Areas.** This guide was published in 1978, adopted in 2002 and reformatted with minor updates in 2018. It contains nothing of relevance concerning development near trees. It may be accessed here https://www.richmond.gov.uk/media/7644/conservation_areas_spd.pdf

6.3.11. The borough also has a tree policy outlined in a document entitled **London Borough of Richmond on Thames Tree Policy** which may be accessed here https://www.richmond.gov.uk/media/18699/tree_policy.pdf. This document is primarily concerned with trees owned by the Borough. The only sections potentially relevant to a developer are replicated below:

9. Utility Services and Cross overs

The Council will not remove or reposition trees to facilitate the implementation of non-essential underground or over-ground services and signs or the construction of drop kerbs or crossovers.

Where new essential services are proposed the Council's Arboriculturalists will provide advice during the design stage in order to minimise the impact upon trees.

12. Private trees and development

The Council will serve Tree Preservation Orders in accordance with the Department for Communities and Local Government Planning Practice Guidance (Tree Preservation Orders and trees in Conservation Areas).

Where tree loss occurs through development replacement trees will be sought either to be planted within the site or within the public realm through the Section 106 agreement and CIL process.

Regional Variations

6.3.12. The Borough also has several Village Planning Guidance documents which may be accessed here: https://www.richmond.gov.uk/supplementary_planning_documents_and_guidance

7. Implications for Development

7.1.1. This section of the report offers general advice on dealing with tree-related constraints. It is intended to assist designers working with the Tree Constraints Plan. Examples of mitigation strategies are included which may reduce potential impacts on trees. Persons familiar with BS 5837 Arboricultural Reports (e.g. tree officers) may wish to skip this section and go straight to the following Section.

7.2. Retention Categories

- 7.2.1. The Tree Constraints Plan indicates the BS 5837 Retention Categories for each tree. These should be taken into account during the design stage of any development proposals according to the following criteria:
- 7.2.2. Wherever possible, Category A trees should be retained. These are usually large trees with a relatively high amenity value. They are generally in good condition, well suited to their surroundings and with a significant life expectancy.
- 7.2.3. The retention of Category B trees is also desirable, though these trees are of lesser quality, or have a reduced life expectancy or are smaller than category A trees.
- 7.2.4. The retention of Category C trees should be seen as optional. These are usually small trees or trees of no particular merit and are not considered a material planning consideration.
- 7.2.5. Category U trees have been recommended for removal due to their poor condition and should be removed regardless of development proposals.

7.3. Root Protection Areas

- 7.3.1. The Tree Constraints Plan indicates the Root Protection Areas of each tree. This does not represent the maximum extent of rooting activity; instead, it defines the area within which the majority of roots are expected to be confined. Wherever possible, this should be left undisturbed for all trees to be retained. In which case, the trees shall be unharmed. Significant disturbances such as changes in ground level, soil compaction, excavation of trenches, or interference with oxygen and rainwater exchange may have a substantial impact on the health of the tree. (Soil compaction may be caused by vehicles, plant machinery, excessive pedestrian usage, storing of materials/spoil or by the installation of a new vehicular surface.)
- 7.3.2. Some disturbance of the Root Protection Area may be acceptable but must be kept to a minimum. Construction methods should be adopted that are sympathetic to root requirements. These are discussed below:
- 7.3.3. Concrete strip foundations should be avoided except at the very extremity of the Root Protection Area. Instead, pile/pier and beam foundations or raft foundations should be utilised. These will minimise root severance.
- 7.3.4. Hard surfaces should be installed with a minimum of excavation. The majority of roots lie within the upper soil horizons and are relatively fine. Roots do not need to be as thick as branches since they do not have to combat gravity and high winds etc. A root as thin as a finger is able to transport a lot of nutrients. Thus, excavation as shallow as 30cm can have a significant impact on the health of a tree even though large roots might not be severed. Cellular confinement systems help to reduce the amount of excavation required to give a driveway adequate strength.
- 7.3.5. Hard surfaces should ideally be porous to allow rainwater and oxygen to pass into the soil. Gravel is the ideal medium and can be retained in a cellular system to prevent rutting. Block paving and flagstones without mortar joints are good alternatives. Tarmac is not very porous; the use of a no-fines tarmac is preferable.
- 7.3.6. Trenches for underground services are commonly overlooked but can cause major damage to trees. Further arboricultural advice should be sought if underground services are to pass within Root Protection Areas. Trenchless techniques can sometimes be utilised but are not usually practical for installing drains.

- 7.3.7. If ground levels are raised, this should always be done with a loose granular material such as gravel or coarse sand. Ground levels must never be raised against the trunks of trees as this may cause them to rot.
- 7.3.8. It is sometimes possible to mitigate against root disturbance, by above-ground pruning or by improving rooting conditions for existing roots. The introduction of mycorrhizal fungi and earthworms significantly improves rooting conditions, as does the removal of competing vegetation such as grass.
- 7.3.9. Soil compaction occurs when vehicles repeatedly pass over rooting areas without some kind of structure to disperse their weight. Healthy soils will contain approximately 25% airspace. When soils become compacted, these air spaces disappear, and roots are unable to respire. It is possible to de-compact soils, but this is an expensive operation. It is preferable to avoid compaction by spreading the load of traffic passing over Root Protection Areas with the use of metal road plates or suitable boards.

7.4. Tree Canopies

- 7.4.1. Where trees are to be retained, adequate space should be allowed between buildings and tree canopies. A minimum distance of 3m is recommended. For high-quality trees (Category A or B) which have not yet reached maturity, a further allowance should be made to allow the canopies to mature without the need for extensive pruning.
- 7.4.2. For residential dwellings, the shade cast by trees should also be considered, especially where buildings are located north or northeast of sizeable trees. Some species, e.g. birch, have light, airy canopies, so shade is less of an issue. Commonly occurring trees that cast dense shade include beech, oak, ash, chestnut, sycamore, lime and most evergreen species. Shade constraints are less of an issue for garages and other non-residential buildings.
- 7.4.3. More sources of information regarding the above points can be found in Appendix 5. Crown Tree Consultancy will gladly offer any further advice, and you are invited to contact the author of this report on 01422 316660.

7.5. Arboricultural Impact Assessment

- 7.5.1. When development proposals are available, we recommend carrying an Impact Assessment before submission to the Local Planning Authority. This will identify any potential issues so that they may be resolved or mitigated.

7.6. Tree Protection During Construction

- 7.6.1. A site-specific Arboricultural Method Statement will be required to ensure that trees are protected during the construction phase. This should specify tree protection barriers, ground protection boards, foundations and hard-surface design, services installation, materials storage, and plant machinery use.

8. Photographs

Refer also to the Tree Constraints Plan for photo locations

Photo 1.



Photo 2.



Photo 3.



Photo 4.

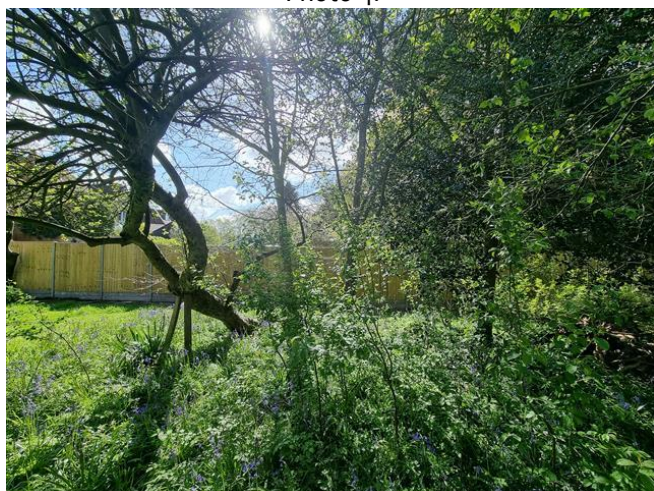


Photo 5.



Photo 6.



Photo 7.



Appendix 1: BS 5837: 2012 – Guidance Notes

This Standard prescribes the principles to be applied to achieve a satisfactory juxtaposition of trees and structures. It sets out to assist those concerned with trees in relation to design, demolition and construction to form balanced judgements.

It acknowledges the positive contribution trees may offer to a site, as well as the negative aspects of retaining inappropriate trees. It addresses the negative impacts that construction activity may have upon trees and offers mitigation strategies to minimise these impacts.

The Standard suggests a three stage approach to ensure best practice is followed when developing close to trees:

A1.1 Stage 1: Survey Details and Notes

A ground level visual survey was undertaken. No climbed inspections or specialist decay detection were undertaken. Only trees with a stem diameter over 75mm, which lie within the site boundary or relatively close to it, were included.

Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full *Safety Survey* or *Management Plan* which are specifically designed to minimise risk and liability associated with responsibility for trees.

Wherever practicable dimensions were obtained using diameter tapes, logger's tapes, distometers and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees on privately owned third party are surveyed from the best available vantage point and observations relating to the condition of these trees should be treated accordingly. All height measurements should be regarded as approximate.

Data is recorded for each tree and is presented in a Tree Data Schedule. Each tree is allocated a **Retention Category** according to its size, amenity value, condition and safe useful life expectancy. The categories are allocated independently of development proposals. Our interpretation of the Retention Categories is explained below:

A1.1.1 Retention Categories

A Category: Trees of high quality and amenity value. Usually, mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

B Category: Trees of moderate quality and amenity value. Usually these are maturing trees or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.

C Category: Trees of low quality or small specimens with a relatively low amenity value. These trees are not considered to be a material planning constraint and their removal will generally be seen as acceptable in order to facilitate development.

U Category: Trees of such low quality that their removal is recommended regardless of development proposals.

Occasionally trees are borderline and do not fall neatly into one of the categories A, B or C. In such cases we apply a superscript (+/-) such that:

C⁺ Indicates borderline C/B, though Category C is deemed to be most appropriate.

B⁻ Indicates borderline C/B, though Category B is deemed to be most appropriate.

The British Standard suggests that each of the A, B and C categories may be further subdivided (A1, A2, A3, B1, B2, B3 etc) such that subcategory 1 denotes mainly arboricultural values, subcategory 2 denotes mainly landscape values and subcategory 3 denotes mainly cultural values (including conservation). Multiple subcategories may be used.

Our experience suggests that these subdivisions lack clarity and can be confusing. Within this report subcategories are **not** denoted. Where appropriate, the use of phrases such as '*Part of a formal group*', or '*Has a high ecological value*', or '*Offers good screening to the site*' are incorporated into the observation section of the Tree Data Schedule. We believe this conveys all relevant landscape and cultural information without any confusion.

Tree Constraints Plan (TCP). This indicates the position, crown spread, Retention Category and Root Protection Area of each tree. It is used to inform where development may proceed without causing damage to trees.

Root Protection Area (RPA). This is the area around each tree likely to contain the majority of roots. It should ideally remain undisturbed to avoid a detrimental impact on tree health. For single stemmed trees It is calculated according to the formula “radius of RPA” = “12 x stem diameter”. Where a tree has more than one stem, the equivalent-single-stem diameter is usually recorded. This is calculated by adding the squares of the stems and then finding the square root of this total. The radius of the Root Protection Area is then calculated by multiplying the equivalent-stem-diameter by 12.

Shade Constraints. The previous Standard (BS 5837 2005) suggested that shade constraints should be indicated on the TCP. These are denoted as a circle-segment drawn northwest to due east with a radius equal to the height of the tree. These do not represent the actual shade pattern which varies through the seasons. Rather, they indicate the area most shaded by the tree throughout the course of the year. Ideally habitable room windows should be located outside of these shade constraints. Where we consider it appropriate, we will include shade constraints information on our Impact Assessment Plan or Proposed Layout Plan.

A1.2 Stage 2: Arboricultural Impact Assessment

After the initial survey and the production of the Tree Constraints Plan, arborists and designers are encouraged to work together to establish a design proposal with minimal impact on the high quality trees. An assessment should be made of all possible impacts including the impact that the trees may have upon the proposal. The arborist may recommend mitigation strategies to minimise these impacts and help achieve a more harmonious juxtaposition between buildings and trees.

A1.3 Stage 3: Arboricultural Method Statement

This type of report specifies the measures necessary to protect trees against damage from construction activity. The Method Statement should be written in a manner that it may be conditioned and enforced by the local authority upon granting of planning permission. The site manager should be familiar with all aspects of the Method Statement and should ensure that all persons working on the site are aware of those aspects which appertain to their work. This includes service installation engineers and operators of plant machinery.

Appendix 2: Survey Methodology

Ground level visual surveys are carried out using the *Visual Tree Assessment* technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).

Structural condition is assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention is paid to the stem-base. Cavities are explored using a metal probe in order to assess the extent of any decay. If this is not possible further inspection is recommended in the form of a climbed inspection or using specialist decay detection equipment.

The physiological condition is assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree is also taken into account.

Where significant defects are observed, recommendations are made according to a scale of priority in order to reduce the likelihood of structural failure. The position of the tree and its potential targets are taken into account.

Measurements are obtained using a diameter tape, clinometer, distometer and loggers tape. Where this is not practical measurements are estimated.

Some trees are surveyed as groups, though this is usually avoided close to areas likely to be developed.

Finally, a *Retention Category* is allocated as described in Appendix 1.1.1.

Appendix 3: Tree Data Glossary

This section explains the terms used in the **Tree Data Schedule** (see Section 3 and Appendix 6).

A2.1 General Observations

Numbering System:	Each item of vegetation has its own unique number prefixed by a letter such that T1=Tree 1, G2=Group 2, H3=Hedge 3 and W4=Woodland 4, S5=Shrub 5.
Age Categories:	
Young	Usually less than 10 years old.
Semi-Mature	Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy).
Early-Mature	Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy).
Mature	Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy).
Veteran	A level of maturity whereby significant management may be required in order to keep the tree in a safe condition.
Over Mature	As for veteran except management is not considered worthwhile.
Species:	Common names and Latin names are given.
Height:	Measured from ground level to the top of the crown.
Stem Diameter:	Taken at 1.5m above ground level where possible. On multi-stemmed trees this measurement may be taken at ground level, though usually an indication of the number of stems and average diameter is given, e.g. 3 x 30cm.
Crown Height:	Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.
Tree Diagram:	This scaled drawing is computer generated based on measurements taken for stem diameter, crown height and spread, and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.
Crown Spread:	Measured N, E, S & W, taken from the centre of the stem and usually rounded up to the nearest metre.
Observations:	If a tree's position is considered to be relevant it will be commented upon (e.g. overhanging a children's play area). Tree form and pruning history are also recorded along with an account of any significant defects. Defects and descriptive terms are dealt with in more detail at the end of this section.
Recommendations:	Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.
Priority Scale:	Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale:
Urgent	To be carried out as soon as possible.
Very High	To be carried out within 1 month.
High	To be carried out within 3 months.
Moderate	To be carried out within 1 year.
Low	To be carried out within 3 years.
Inspection Frequency:	An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.
Vigour:	An indication of growth rate and the tree's ability to cope with stresses:
High	Having above average vigour.
Moderate	Having average vigour.
Low	Having below average vigour.
Very Low	Tree is struggling to survive and may be dying.
Physiological Condition:	
Good	Healthy and with no symptoms of significant disease.
Fair	Disease present or vigour is impaired.
Poor	Significant disease present or vigour is extremely low.
Very Poor	Tree is dying.
Structural Condition:	
Good	Having no significant structural defects.
Fair	Some defects observed though no high priority works are required.
Poor	Significant defects found. Tree requires monitoring or remedial works.
Very Poor	Major defects which will usually require significant remedial works or tree removal.
Amenity Value:	
Very High	Exceptional specimen, observable by a large number of people.
High	Attractive specimen, observable by a significant number of people.
Moderate	One of the above factors is not applicable.
Low	Unattractive specimen or largely hidden from view.
Life Expectancy:	The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).
Retention Category:	These are explained in detail in Appendix 1.

A2.2 Evaluation of Defects

Cavities, wounds, deadwood etc are all evaluated as follows:

Major	Such that structural integrity is, or will become, compromised and the tree is, or will inevitably become, hazardous.
Significant	A defect that may over time become a major defect, though not necessarily so. This will depend on the vigour of the tree and its ability to deal with decay etc.
Minor	A defect that is unlikely to develop into a major defect.

Appendix 4: Author's Qualifications

Qualifications & Experience of Carl Lothian – BSc (Hons) (Arboriculture).

Carl began his career undertaking a Level 3 extended diploma in arboriculture and forestry at Merrist Wood College in 2015. Upon completion of his diploma, Carl worked with several tree surgery firms completing a range of arboricultural works. In 2018 Carl began his BSc (Hons) in arboriculture and urban forestry, graduating with a first-class degree and attaining the Institute of Chartered Foresters student of the year award.

After graduating, Carl worked as a TreeRadar technician where he carried out tree root and decay surveys with specialist ground-penetrating radar equipment. During this time Carl was fortunate enough to work at prestigious sites, such as the Palace of Westminster and the National Maritime Museum.

Whilst working at Crown, Carl has undertaken a range of tree surveys and written reports relating to development, safety, subsidence, and decay detection. Carl is a professional member of the Consulting Arborist Society and an associate member of the Institute of Chartered Foresters.

Appendix 5: Further Information

Building Near Trees – General

National Joint Utilities Group publication # 10 (1995), *Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees*. Downloadable at www.njug.demon.co.uk/pdf/NJUG%20Publication10.pdf

NHBC Standards Chapter 4.2., *Trees and Buildings*.

Horticulture LINK project 212. (University of Cambridge, 2004), *Controlling Water Use of Trees to Alleviate Subsidence Risk*.

Tree Planting and aftercare

See www.trees.org.uk/leaflets.php# for downloadable leaflets on selecting a garden tree, planting, aftercare and veteran tree management.

British Standards

BS 5837: 2012. Trees in Relation to Design, Demolition and Construction – Recommendations.

Bs 3998: 2010. Recommendations for Tree Work.

BS 3936: 1992. Nursery Stock. Part 1: Specification for Trees and Shrubs.

BS 3936: 1992. Nursery Stock. Part 10: Specification for Groundcover Plants.

BS 4043: 1989. Transplanting Root-balled Trees.

BS 8004: 1986. Foundations.

BS 8103: 1995. Structural design of Low-Rise Buildings.

BS 8206: 1992. Lighting for Buildings.

BS 8545:2014. Trees: From nursery to independence in the landscape – Recommendations

BS 3882: 2015. Topsoil.

BS 4428: 1989. General Landscaping Operations (excluding hard surfaces).

Permission to do Works to Protected Trees / Tree Law

Forestry Commission (Edinburgh, 2003), *Tree Felling – Getting Permission*. Country Services Division - Forestry Commission. Downloadable at [www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/\\$FILE/wgsfell.pdf](http://www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/$FILE/wgsfell.pdf)

Transport and the Regions (Department of the Environment, 2000), *Tree Preservation Orders, A Guide to the Law and Good Practice*. Downloadable at www.communities.gov.uk/publications/planningandbuilding/tposguide

C. Mynors, *The Law of Trees, Forests and Hedgerows* (Sweet and Maxwell, London, 2002)

Communities and Local Government website with numerous downloadable documents, from: <http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>

Lighting Levels

P.J. Littlefair, *B.R.E. 209: Site layout planning for daylight and sunlight A guide to good practice*. B.R.E. Bookshop, London.

British Standards Institution. Code of practice for day lighting. *British Standard BS 8206: Part 2 (1992)*.

Chartered Institution of Building Services Engineers. *Applications manual: Window Design* (London, 1987).

NBA Tectonics. A study of passive solar housing estate layout. *ETSU Report S-1126*. Harwell, Energy Technology Support Unit (1988).

I.P. Duncan; D. Hawkes, *Passive solar design in non-domestic buildings. ETSU Report S-1110*. Harwell, Energy Technology.

P. J. Littlefair, *Measuring Daylight, BRE Information Paper 23/93 f3.50*. (Advises on measuring daylight under the real sky or an artificial sky, allowing for the changing nature of sky light).

High Hedges

Communities and Local Government website with numerous downloadable documents, from: <http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>








Tree Specific Websites

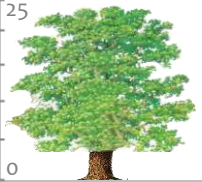
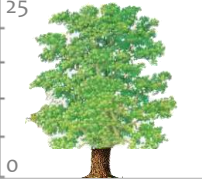
www.crowntrees.co.uk	Crown Consultants site containing useful information
www.trees.org.uk	Arboricultural Association
www.rfs.co.uk	Royal Forestry Society of England, Wales and N. Ireland
www.treehelp.info	The Tree Advice Trust
www.woodland-trust.org.uk	The Woodland Trust
www.treecouncil.org.uk	The Tree Council

Appendix 6: Tree Data Schedule and Drawings

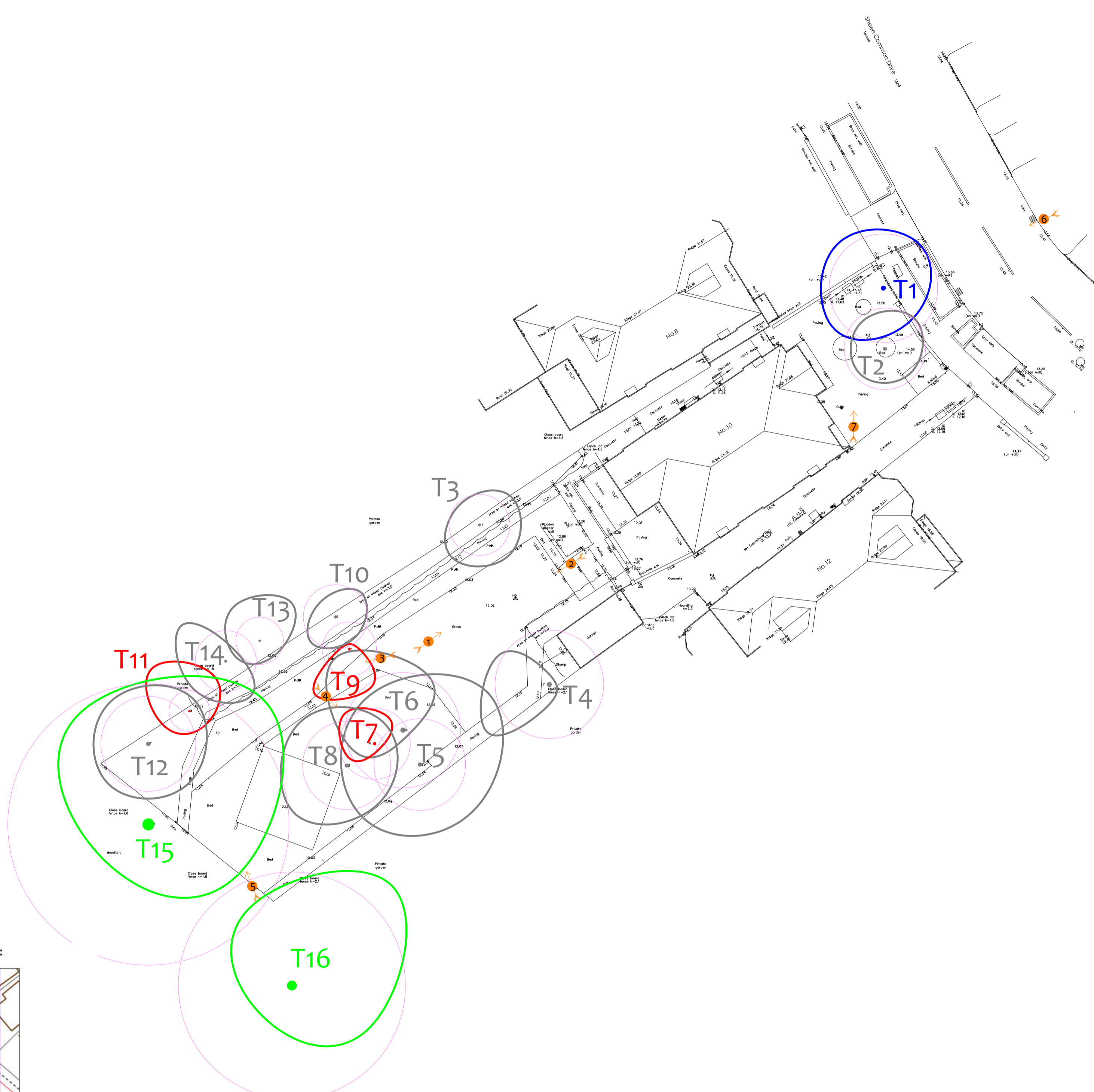
The Tree Data Schedule and any drawings accompanying this report follow this page. They are also provided as separate documents for ease of printing and screen viewing.

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m)			Scaled Tree Diagram (m)	Notes	Recommendations		Vigour		Amenity Value	
					W	N	E					Physiological Condition		Life Expectancy (yrs)	
										S	Priority	Inspect Freq (yrs)	Structural Condition	Retention Category	
T1	Early-Mature Silver Birch Betula pendula.	13	1.5	32	4.5	4.5	4		Position: Front garden. Form: Single stemmed and vertical with a weeping habit. History: No evidence of significant pruning. Defects: No significant defects. Other: Adjacent boundary wall previously removed.	No action required.		Moderate	Moderate		
					3					n/a	3	Good	40+	B	
T2	Semi-Mature Magnolia Magnolia sp.	5	1.5	24	2.5	2.5	3		Position: Front garden. Form: Twin-stemmed at 1m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate	Low		
					2.5					n/a	3	Good	40+	C	
T3	Semi-Mature Holly Ilex aquifolium.	4.5	1	18	2	3	3		Position: Rear garden. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate	Low		
					3					n/a	3	Good	40+	C	
T4	Early-Mature Apple Malus sp.	5	2	32	5.5	1	4		Position: Rear garden. Form: Single stemmed and leaning with an unbalanced crown. Defects: Significant decay to old pruning wounds.	No action required.		Moderate	Low		
					0.5					n/a	3	Fair	10-20	C	
T5	Semi-Mature Beech Fagus sylvatica.	14	0.5	27	6	5.5	7		Position: Rear garden. Form: Twin-stemmed at 4m with a balanced crown. History: No evidence of significant pruning. Defects: Multiple bark wounds to stem - acceptable condition at present.	No action required.		Moderate	Low		
					5					n/a	3	Good	40+	C +	
T6	Mature Apple Malus sp.	5	2	34	7	3.5	4		Position: Rear garden. Form: Twin-stemmed at 1m with an unbalanced crown & significant lean. History: Occasional pruning wounds due to crown lifting. Multiple pruning wounds due to crown reduction. Other: Tree stem propped on northern side. Recorded stem diameter is equivalent for two stems (21cm, 27cm).	No action required.		Moderate	Low		
					0.5					n/a	3	Good	20-40	C	
T7	Semi-Mature Pear Pyrus sp.	7.5	4.5	21	3	2	2		Position: Rear garden. Form: Multi-stemmed at 2m with a poorly formed crown. History: No evidence of significant pruning. Defects: Significant dead wood, poor vigour. Suppressed specimen.	Remove.		Low	Low		
					0.5					Low	N/A	Fair	<10	U	

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m)			Scaled Tree Diagram (m)	Notes	Recommendations		Vigour		Amenity Value	
					N	W	E					Physiological Condition		Life Expectancy (yrs)	
										Priority	Inspect Freq (yrs)	Structural Condition		Retention Category	
T8	Semi-Mature Holly Ilex aquifolium.	8.5	1	26	4.5	5	4		Position: Rear garden. Form: Multi-stemmed at 2m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate	Low	40+	C
					3.5		0			n/a	3	Good	Good		
T9	Young Apple Malus sp.	3.5	2	16	0.5	4	0.5		Position: Rear garden. Form: Twin-stemmed at 1m with an unbalanced crown. Significant lean. History: Occasional pruning wounds due to crown lifting with significant decay. Defects: Poor unions & dieback. Other: Suppressed specimen. Recorded stem diameter is equivalent for two stems (10cm, 12cm).	Remove.		Low	Low	<10	U
					3		0			Low	N/A	Poor	Poor		
T10	Semi-Mature Holly Ilex aquifolium.	4.5	1.5	19	1.5	2.5	2.5		Position: Rear garden. Form: Multi-stemmed at 3m with a compact crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate	Low	40+	C
					2		0			n/a	3	Good	Good		
T11	Semi-Mature Pear Pyrus sp.	10	6	12	4	2	3		Position: Rear garden. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Major decay to base.	Remove.		Low	Low	<10	U
					1.5		0			Moderate	N/A	Fair	Very Poor		
T12	Semi-Mature Yew Taxus baccata.	5.5	1.5	28	4	4	4.5		Position: Rear garden. Form: Twin-stemmed at 1m with a balanced crown. History: No evidence of significant pruning. Defects: Included bark to primary fork. Other: Acceptable condition at present. Recorded stem diameter is equivalent for three stems (18cm, 15cm, 15cm).	No action required.		Moderate	Low	40+	C
					4		0			n/a	3	Good	Fair		
T13	Early-Mature Apple Malus sp.	6	2	14	3	2	3.5		Position: Situated on third party land. Form: Single stemmed and vertical with an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.		Moderate	Low	40+	C
					1.5		0			n/a	3	Good	Good		
T14	Early-Mature Apple Malus sp.	6	2.5	18	4	3	1		Position: Situated on third party land. Form: Twin-stemmed at ground level with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Dieback to top of crown.	No action required.		Moderate	Low	20-40	C
					3		0			n/a	3	Fair	Fair		

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m)	Notes	Recommendations		Vigour	Amenity Value
								Priority	Inspect Freq (yrs)	Physiological Condition	Life Expectancy (yrs)
										Structural Condition	Retention Category
T15	Mature Oak Quercus robur.	24	3.5	83	4 9 12 7		Position: Situated on third party land. Adjacent stream on woodland edge. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Significant dead wood to lower crown (low target occupancy).	No action required.	3	Moderate	High
										n/a	3
T16	Early-Mature Oak Quercus robur.	24	4	67	3 6 10 6		Position: Situated on third party land. Adjacent stream on woodland edge. Form: Single stemmed with a slight lean and an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.	3	Moderate	High
										n/a	3

Photographs

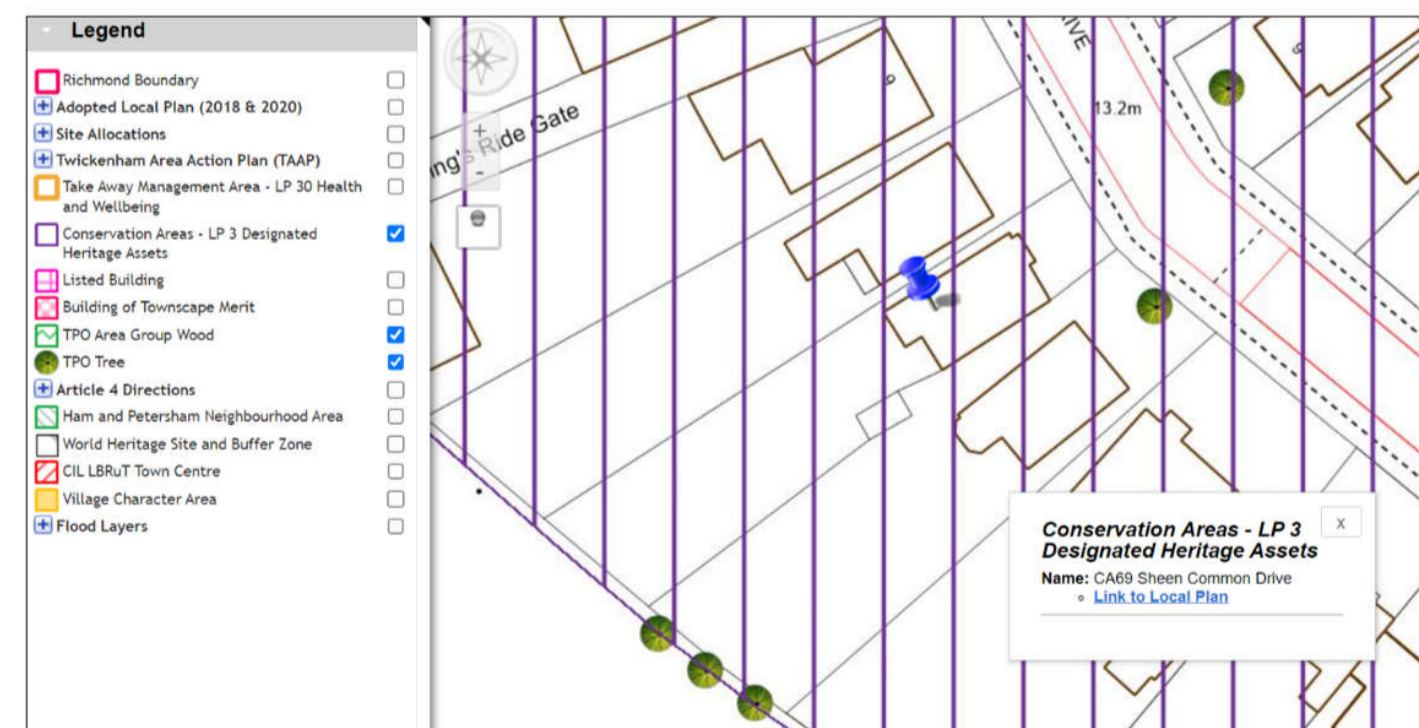


Tree Data Schedule

Reference	Age & Species	Height (m)	Crown Ht (m)		Crown Spread (m)	Scaled Tree Diagram (m)	Notes	Recommendations	Vigour	Anomaly	Life Expectancy (yrs)	Retention Category
			W	E								
T1	Early-Mature Silver Birch	13	1.5	3.2	4.5	4	Position: Front garden. Form: Single stemmed and vertical with a weeping habit. History: No evidence of significant pruning. Defects: No significant defects. Other: Adjoint boundary wall previously removed.	No action required.	Moderate	Good	40+	B
T2	Semi-Mature Magnolia	5	1.5	2.4	2.5	3	Position: Front garden. Form: Twin-stemmed at 4m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	40+	C
T3	Semi-Mature Holly	4.5	1	1.8	3	3	Position: Rear garden. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	40+	C
T4	Early-Mature Apple	5	2	3.1	5.5	4	Position: Rear garden. Form: Single stemmed and leaning with an unbalanced crown. History: No evidence of significant pruning. Defects: Significant decay to old pruning wounds.	No action required.	Fair	Poor	10-20	C
T5	Semi-Mature Beech	14	0.5	2.7	5.5	7	Position: Rear garden. Form: Twin-stemmed at 4m with a balanced crown. History: No evidence of significant pruning. Defects: Multiple bark wounds to stem - acceptable condition at present.	No action required.	Moderate	Good	40+	C+
T6	Mature Apple	5	2	3.4	3.5	4	Position: Rear garden. Form: Twin-stemmed at 5m with an unbalanced crown & significant lean. History: Occasional pruning wounds due to crown lifting. Multiple pruning wounds due to crown reduction. Other: Tree stem propped on northern side. Recorded stem diameter is equivalent for two stems (21cm, 22cm).	No action required.	Moderate	Good	20-40	C
T7	Semi-Mature Pear	7.5	4.5	2.1	2	2	Position: Rear garden. Form: Multi-stemmed at 2m with a poorly formed crown. History: No evidence of significant pruning. Defects: Significant dead wood, poor vigour. Suppressed specimen.	Remove.	Low	Poor	<10	U
T8	Semi-Mature Holly	8.5	1	1.6	5.5	4	Position: Rear garden. Form: Multi-stemmed at 2m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	40+	C
T9	Young Apple	3.5	2	1.6	0.5	0.5	Position: Rear garden. Form: Twin-stemmed at 5m with an unbalanced crown. Significant lean. History: Occasional pruning wounds due to crown lifting with significant decay. Defects: Poor unions & dieback. Suppressed specimen. Recorded stem diameter is equivalent for two stems (10cm, 12cm).	Remove.	Low	Poor	<10	U
T10	Semi-Mature Holly	4.5	1.5	1.9	2.5	2.5	Position: Rear garden. Form: Multi-stemmed at 3m with a compact crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	40+	C
T11	Semi-Mature Pear	10	6	1.2	3	3	Position: Rear garden. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Major decay to base.	Remove.	Low	Very Poor	<10	U
T12	Semi-Mature Yew	5.5	1.5	1.8	4	4	Position: Rear garden. Form: Twin-stemmed at 5m with a balanced crown. History: No evidence of significant pruning. Defects: Included bark to primary fork. Acceptable condition at present. Recorded stem diameter is equivalent for three stems (18cm, 15cm, 15cm).	No action required.	Moderate	Good	40+	C
T13	Early-Mature Apple	6	2	1.4	2	3.5	Position: Situated on third party land. Form: Single stemmed and vertical with an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.	Moderate	Good	40+	C
T14	Early-Mature Apple	6	2.5	1.8	3	1	Position: Situated on third party land. Form: Twin-stemmed at ground level with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Dieback to top of crown.	No action required.	Moderate	Fair	20-40	C
T15	Mature Oak	24	3.5	8.3	4	9	Position: Situated on third party land. Adjacent stream on woodland edge. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Significant dead wood to lower crown (low target occupancy).	No action required.	Moderate	Good	40+	A-
T16	Early-Mature Oak	24	4	6.7	3	10	Position: Situated on third party land. Adjacent stream on woodland edge. Form: Single stemmed with a slight lean and an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.	Moderate	Good	40+	A-

TPOs and Conservation Area Status

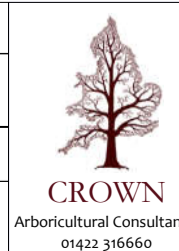
On 24th April 2023, we accessed the local authority website. A screenshot is produced below:



This indicates that:

- The site is within the Sheen Common Drive Conservation area.
- There are no tree preservation orders affecting trees within the site.
- There are tree preservation orders affecting trees immediately adjacent to the site. T16 is believed to be affected (our numbering system).

Drawing No: CCL 11468 / TCP Rev: 1
 Title: Tree Constraints Plan (Existing Layout)
 Site: to Sheen Common Drive T/Wo 58N
 Scale: 1:300 Paper Size: A1



Tree Retention Categories
 Stems & canopies shown

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

Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable.

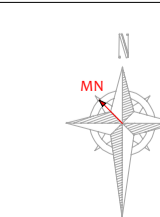
Trees of moderate quality with a life expectancy of 30+ years. Usually mature trees, or younger trees with good form. Retention of these trees is desirable though less than Category A trees.

Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.

Trees unsuitable for retention due to their very poor condition.

Tree Constraints Plan

Status: Final



BS 5837 Root Protection Area (radius = 1xstem diameter)
 Root Protection Area needing amendment due to site conditions, e.g. presence of existing road or building.
 Root Protection Area having been amended to account for site conditions

T1 = Tree No 1 G2 = Group No 2 H3 = Hedge No 3

Photo 1
 MN = Measured North
 Canopy spreads are sometimes measured to an approximate N defined by site features. Often more accurate, especially where rows of trees are not aligned N/S or E/W.

Tree Ref.	Species	Height (m)	Root Protection Area		
			Radius (m)	m ²	Square (m)
T1	Silver Birch	13	3.8	46	6.8
T2	Magnolia	5	2.9	26	5.1
T3	Holly	4.5	2.2	15	3.8
T4	Apple	5	3.8	46	6.8
T5	Beech	14	3.2	33	5.7
T6	Apple	5	4.1	52	7.2
T7	Pear	7.5	2.5	20	4.5
T8	Holly	8.5	3.1	31	5.5
T9	Apple	3.54	1.9	12	3.4
T10	Holly	4.5	2.3	16	4.0
T11	Pear	10	1.4	7	2.6
T12	Yew	5.5	3.4	35	6.0
T13	Apple	6	1.7	9	3.0
T14	Apple	6	2.2	15	3.8
T15	Oak	24	10.0	312	17.7
T16	Oak	24	8.0	203	14.3