

AtkinsRéalis



Arboricultural Impact
Assessment

Ministry of
Justice

July 2025

HMCTS READING TRIBUNAL COURT

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1. Introduction

1.1 Terms of reference

AtkinsRéalis was commissioned by the Ministry of Justice to undertake a tree survey in accordance with the British Standard BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations* to support the design of the HMCTS Reading Tribunal Court (hereafter referred to as the Scheme) at Vastern Road, Reading (hereafter referred to as the Site).

The survey data captured follows BS5837:2012 guidance as set out in Appendix A of this report. The survey data is presented in a schedule in Appendix B. A glossary of relevant terms is included in Appendix C.

This report is an Arboricultural Impact Assessment (AIA), focusing on the trees within the extents of the Scheme. It reports on the impacts on the recorded trees from the proposals and is supplemented by the production of a Tree Protection Plan (TPP), which is included within Appendix D of this report.

It also confirms whether any of the recorded trees could be classified as veteran specimens. The veteran classification includes trees which might also be classified as ancient.

1.2 Site location

The site is located on the north side of Vastern Road, in the centre of Reading, opposite the junction with Trooper Potts Way.

The Ordnance Survey national grid reference for a point at the centre of Sovereign House is SU 71608 74052.

1.3 The Scheme

The Scheme proposes the conversion of Sovereign House from an office building to Tribunal Courts. Proposed physical changes include the installation of an additional lift to the rear of the building, additional rooftop plant equipment, security bollards along the Vastern Road and Norman Place frontages, with associated parking, access and landscape works.

The layout of the proposals has been overlaid on to the TPP to determine the impacts of the works on the existing tree stock.

1.4 Scope of works

This report presents arboricultural information captured on 23 January 2025 by Atkins' Principal Arboricultural and Landscape Consultant Adam Atkins, BA (Hons), CMLI, TechCert (ArborA).

The scope of works includes:



- The preparation of a tree survey plan showing all trees surveyed within the Scheme extents including root protection areas;
- The preparation of a tree schedule of all trees surveyed;
- The preparation of an AIA which incorporates the survey schedule and associated TPP;
- The preparation of a TPP drawing which displays in graphic form the trees surveyed, the impact of the proposed works, and the provision of preliminary protection measures for trees to be retained.



2. Methodology

2.1 General

This tree survey has been undertaken in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*. The Standard gives recommendations and guidance on the relationship between trees and the design, demolition and construction process, setting out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

BS5837:2012 does not set explicit parameters for measuring the sensitivity of an arboricultural resource; nor does it assess the magnitude of impact of a proposed development on trees (other than by providing a record of the number of trees that would need to be removed to facilitate the development). Rather, the British Standard provides parameters which enable the arboriculturist to assess the quality of all the trees and other arboricultural features that may be affected by the development that is proposed.

Whilst the BS categories are open to varied interpretation, the guidelines in the cascade chart of BS5837:2012 (see insert A. 1 in Appendix A of this report) provide details on how to determine tree qualities and can be used to inform the design process to retain those trees of higher quality where possible.

2.2 Planning policy and definition of veteran trees

The definition of veteran trees for the purposes of this assessment follows the core standing advice and planning policy.

The ‘Standing Advice’¹ on ancient woodland, ancient trees and veteran trees provides guiding principles for the classification of ancient and veteran trees. These principles are also covered within the Forestry Commission and Natural England (NE) guidance.

The standing advice clearly defines veteran trees as:

“All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value”.

There is a degree of ambiguity in its definition but it does provide clear guiding principles, namely that veteran trees have:

- Decay features, such as branch death and hollowing; and
- These features contribute to its biodiversity, cultural and heritage value.

The definition of ancient trees supplements this by focusing the definition of veteran trees arguably (but not definitively) on:

¹ <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

- Great age;
- Size;
- Condition;
- Biodiversity value as a result of significant wood decay and the habitat created from the ageing process; and
- Cultural and heritage value.

Very few trees of any species become ancient.

As such this assessment has proceeded on the basis that the classification of veteran trees should take account of the specific features of trees (size and condition) alongside their biodiversity, cultural and heritage value.

The relevant planning policy is detailed within the National Planning Policy Framework (NPPF) 2018 (and subsequently updated so the latest published version is July 2023). The NPPF provides a joint definition of an ancient or veteran tree:

Ancient or veteran tree: ‘a tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage’.

This definition extends that within the standing advice to include additional criteria:

- Exceptional biodiversity, cultural or heritage value;
- Old relative to other trees of the same species.

Therefore, in line with this policy veteran trees have been classified in accordance with:

- Size.
- Condition (decay features, such as branch death and hollowing, plus associated species).
- Exceptional biodiversity value as a result of significant wood decay and the habit created from the ageing process.
- Exceptional cultural and heritage value.
- Old relative to other trees of the same species.

Further guidance to assist in classifying trees as old for their species based on stem size criteria was obtained from Figure 1.3 ‘Chart of girth in relation to age and developmental classification of trees’ from the *Ancient and other veteran trees: further guidance on management* (Lonsdale, 2013). This lists tree species against ascending girth measurements to help define whether a tree is locally notable; veteran/notable; ancient or late ancient.

This chart is not definitive and further criteria as detailed previously is also used in the classification of the trees as veteran or locally notable.

Locally notable trees for the purposes of this assessment include those that can be defined as mature and standing out locally because of large size in comparison to other trees in locality or given the presence of veteran habitat features, but do not meet the criteria to be deemed a veteran tree in line with the approach adopted.



The Woodland Trust's Ancient Tree Inventory was also accessed to identify if any trees with the Site extents have been registered on the Trust's inventory as veterans or ancient specimens. This is a material consideration as part of this assessment. However, it does not imply the Arboriculturist agrees with their classification, as the approach may have differed to that applied by the Arboriculturist and author of this report.

The NPPF was updated in July 2018 to provide greater protection for veteran trees (and subsequently updated so the latest published version is 2023). The pertinent section is paragraph 186 c), which states: *'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 reasons and a suitable compensation strategy exists'*.

2.3 Spatial scope

The survey works focused on trees within the Scheme extents.

This AIA is targeted at the impacts on the trees. It does not cover the subsequent impacts such tree removal would have on ecological or landscape receptors which are outlined in specialist documentation provided by these professional disciplines.

The TPP (see Appendix D) illustrates the trees that have been surveyed.

2.4 Survey

The approach to the survey involved a ground-level walked assessment where access permitted.

The locations of individual trees and the start and end points of groups were, where possible, plotted using proprietary GIS data capture software on Trimble hand-held mobile mappers. These locations were verified using available aerial imagery and topographical survey data showing tree locations.

The extents of groups not surveyed as part of ground level walked assessments were plotted using available aerial imagery.

The arboricultural features were numbered sequentially from 001: individual trees recorded were prefixed with a 'T' (e.g. T001) and groups of trees with a 'G' (e.g. G002).

No numbered tree tags were used for the survey, but where already fixed to trees these were noted within the survey schedule.

2.5 Data gathering

Data were collected following the guidance of BS5837:2012, as outlined in Appendix A of this report. The purpose of the tree categorisation method applied by the Arboriculturist was to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained if development is to occur.



For a tree to qualify under any given category, it should fall within the scope of that category's definition as defined in Appendix A of this report (categories U, A, B, C) and, for trees in categories A to C, it should qualify under one or more of the three subcategories (1, 2, 3). Subcategories 1, 2 and 3 are intended to reflect arboricultural and landscape qualities, and cultural values, respectively.

Trees were recorded as individual specimens or as groups, woodlands, or hedgerows. Where trees were not recorded as an individual specimen, the tree survey data within the schedule is based on what is a reasonable average measurement of the trees/shrubs within the group extents or it's taken from one of the largest specimens within the group.

This level of survey meets the requirements of BS5837:2012, which states that '*trees growing as groups or woodland should be identified and assessed as such*'. The standard defines the term group as '*trees that form cohesive arboricultural features either aerodynamically (e.g., trees that provide companion shelter), visually (e.g. avenues or screens) or culturally including for biodiversity (e.g. parkland or wood pasture)*'.

Crown spreads of the surveyed trees were given as an average measurement where the tree's crowns were balanced or where recorded as a group, woodland or hedgerow. If there was a notable difference in crown spread to a cardinal point, these were recorded. The average measurement was taken from the cardinal point relevant to the direction of the Scheme.

This level of survey is deemed sufficient by the Arboriculturist to establish the extent of the crown spread in the direction of the Scheme. All crown spread measurements should be taken from the tree survey schedules (see Appendix B). The method of measuring diameters is defined in Appendix A of this report and has been applied where access permitted.

2.6 Limitations to survey

Where access permitted, trees were identified and inspected from ground level only and were not climbed. No invasive examination techniques (such as increment boring, or internal decay detection) were carried out and as such no assessment of the internal condition of the wood of these trees can be given.

The tree survey undertaken is not intended to be a tree risk management survey targeting safety-related issues. However, where specific hazards have been identified these have been recorded and management recommendations provided. These are detailed within the tree survey schedules (see Appendix B).

The accuracy of the tree locations will relate directly to the accuracy of the supplied topographical survey data, available aerial imagery and the GIS data capture software used by AtkinsRéalis. As such, the accuracy of the tree locations is potentially open to discrepancies and their locations should be checked via measured survey prior to construction.

Where tree groups have been illustrated as an outline this covers the extents of the tree group. It does not always illustrate individual trees within the groups. Where individual trees were identified they were plotted separately.

The report does not comment on possible effects of trees on neighbouring properties, including in relation to subsidence or heave, or with regard to possible hazards presented by trees surveyed.



Trees are living organisms subject to changes outside human control. Trees and their environment alter with the seasons, and it is as well to inspect trees whilst in full leaf and when out of leaf. Following harsh or unexpected weather conditions, or heavy storms it is also prudent to inspect trees. Changes to ground water conditions will affect the root growth of a tree. Such changes are not always the result of human influence and other factors may be involved.



3. Existing site conditions

3.1 Existing land use

The site is an office building, but was not in use at the time of the survey.

3.2 Existing trees

Eight trees were recorded at the Site. All are ornamental trees, of which 6no. were classified as Category B trees (75% of total) and 2no as Category C trees (25% of total).

The trees categorised under BS5837:2012 criteria as being 'Category B' are trees "of moderate quality with an estimated remaining life expectancy of at least 20 years". The most significant tree is the London Plane T001, a mature pollard located on the pavement on Vastern Road, at the front of the building. The other trees are a trio of Norway maples G002 and two limes T003/4, located in shrub beds adjacent to Sovereign House or in the car park to the rear. The maples were planted a little too close to the building to the north, necessitating the cutting back of their crowns. Exposed surface roots are radiating from the stem bases in all cases.

Trees categorised under BS criteria as being 'Category C' are trees "of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm". The two Category C trees are a multi-stemmed goat willow and a whitebeam, that have become entangled in a corner shrub bed to the rear of the building.

The survey schedule provided in Appendix B provides full information on the recorded trees and includes preliminary management recommendations. These recommendations relate to tree risk management operations, for example if the scheme were to proceed with the consequence that it would bring people or property in closer proximity to the trees.

3.3 Site topography

Topographic survey data indicate that the Site is broadly level, at a typical height of 38.5 metres above mean sea level – slightly higher than the Vastern Road pavement surface.

3.4 Soil assessment

No soil assessment was carried out on site by the Arboriculturist, although baseline data on the British Geological Survey website (<http://www.bgs.ac.uk>) indicate that the site has a sedimentary bedrock geology of "Seaford Chalk Formation and Newhaven Chalk Formation - Chalk", with sedimentary superficial deposits of "Langley Silt Member - Clay and Silt".

Where clay-based soils are present, the ground may be susceptible to volumetric changes resulting from the uptake and release of moisture by tree roots, which may influence any potential foundation development.



3.5 Ancient woodland

A review of the MAGIC mapping facility (April 2025) provided by DEFRA ([MAGIC](#)) indicates that no areas of registered Ancient and Semi-Natural Woodland have been identified adjacent to the Scheme extents, as shown at Figure 3.1.

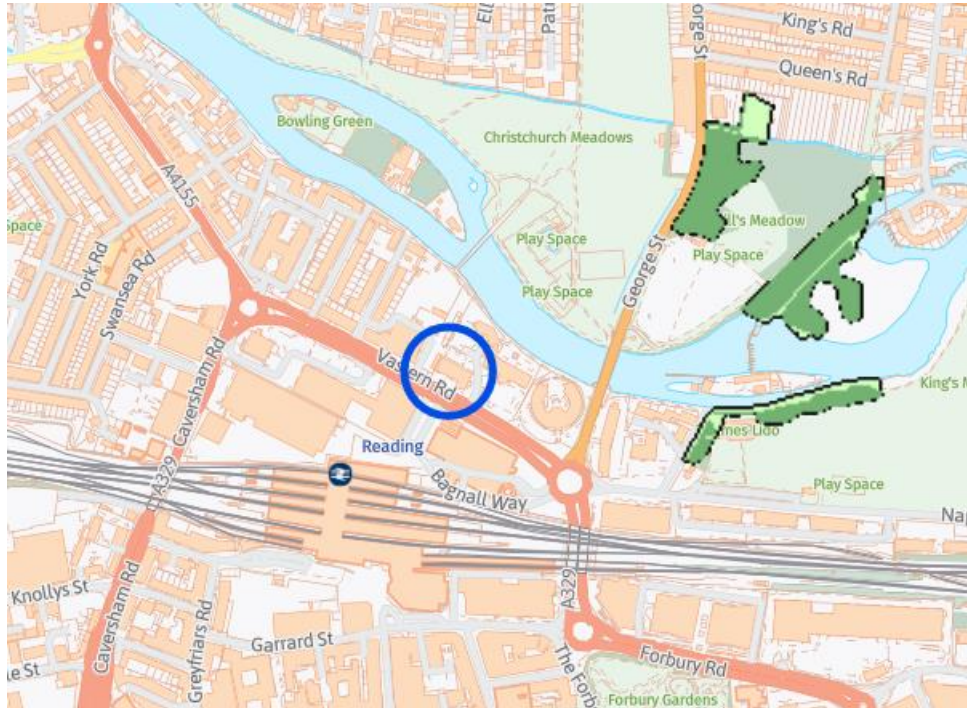


Figure 3.1: showing the Site location (outlined in blue) with areas of adjacent woodland

3.6 Veteran trees

No veteran trees were recorded by AtkinsRéalis as part of this survey.

The Ancient Tree Inventory [Tree Search - Ancient Tree Inventory \(woodlandtrust.org.uk\)](#) has been reviewed (April 2025) to check for ancient and veteran trees adjacent to the Scheme – see the extract from the online mapping in Figure 3.2 below.



Figure 3.2: showing ancient, veteran and other notable trees adjacent to the Site, as classified on the Woodland Trust Ancient Tree Inventory (the Site outlined in yellow)

3.7 Statutory protection

Trees may be protected through a Tree Preservation Order (TPO). The law on TPOs is in Part VIII of the Town and Country Planning Act 1990 as amended and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012.

A TPO is made by a local planning authority in respect of a tree(s) as the tree is considered to bring amenity value to the surrounding area. A TPO makes it an offence to cut down, uproot, lop, top, wilfully damage or wilfully destroy a protected tree without authorisation.

Trees in a conservation area that are not protected by a TPO are protected under the provisions in section 211 of the Town and Country Planning Act 1990. There is a requirement to notify the local planning authority six weeks before carrying out certain work on such trees, unless an exception applies.

The Natural Environment Officer at Reading Borough Council's Planning, Development & Regulatory Services Department has confirmed in an e-mail dated 01 April 2025 that no trees at the Site are subject of a TPO, and also that the Site is not located within a conservation area (see Figure 3.3, below). However, the Officer states that *the Site is "within an Air Quality Management Area and on a 'treed corridor' (as defined in our adopted Tree Strategy), hence is a priority site for tree retention and planting"*.

RE: TPO / Conservation Area enquiry - Vastern Road



Planning Natural Environment <Planning.Natur
To Atkins, Adam



Tue 01/04/2025 18:00

This sender Planning.NaturalEnvironment@reading.gov.uk is from outside your organization.

Thank you for your email.

Your outlined area appears to be for Sovereign House, 57-59 Vastern Road.
I can confirm that there is no TPO or CA applicable to this address.

Please note, for information, that the site is within an Air Quality Management Area and on a 'treed corridor' (as defined in our adopted Tree Strategy), hence is a priority site for tree retention and planting.

Regards,

Sarah Hanson, FArborA
Natural Environment Officer
Planning, Development & Regulatory Services
Directorate of Economic Growth and Neighbourhood Services
Reading Borough Council
Floor 2 South Front Civic Offices
Bridge Street
Reading
RG1 2LU
Direct: 0118 937 2440
Mobile: 07855 125975



Figure 3.3: e-mail from Reading Borough Council's Planning, Development & Regulatory Services Department in response to a TPO / conservation area enquiry

While it is outside of the scope of this tree survey to comment on the confirmed or likely presence of protected animal species, it is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations (2010). Likewise, nesting birds are protected by the Wildlife and Countryside Act (1981) (as amended). If protected species are discovered, then works should cease immediately and Natural England should be contacted for advice.



4. Arboricultural impacts

4.1 General

This report considers the trees adjacent to the proposed works and assesses their condition and suitability for retention.

The report is supplemented by the TPP (Appendix D of this report), which presents in graphic form the trees recorded as part of the survey, their specific reference numbers and the impacts of the works. The TPP is drawing number 100099718-ATK-ARB-TPP.

The tree survey schedules within Appendix B of this report cover all the trees recorded as part of this assessment in line with the *BS 5837:2012* guidance.

The impacts have been based on review of the recorded tree data and how the proposals would encroach into areas around the trees, or between the trees and the Scheme. In some cases, a reasonable judgement has been made by the Arboriculturist in establishing removals based on existing site conditions that may influence root morphology / spread and how the Scheme would encroach into previously undisturbed soft surfaces adjacent to trees.

Confirmation on tree removals will be undertaken prior to construction and detailed within a final Arboricultural Method Statement (AMS), that will also confirm protection measures for the retained trees. Section 5 contains an Outline AMS.

The tree survey schedules within Appendix B of this AIA cover all the trees recorded as part of this assessment in line with the *BS5837:2012* guidance.

4.2 Root protection areas

The Root Protection Area (RPA), as defined in the *BS5837:2012*, is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. This area should be protected from disturbance "in order to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system."

The recommended minimum area (m²) to avoid potentially harmful disturbance has been calculated and entered into the tree schedules (see Appendix B) for all trees. The RPA for each individual tree has been illustrated on the TPP as a circle centred on the tree's stem, while the RPAs of the tree groups and woodlands have been illustrated as an offset from the canopy extents, unless trees have specifically been recorded within the groups.

This representation of the RPA does not take into account pre-existing site conditions or other factors that can influence or modify the shape and disposition of tree roots. Accordingly, the Arboriculturist may make modifications or judgements on the likely extents of RPAs, where through professional judgement it is deemed likely that the root zones have been restricted in a certain direction because of limiting factors such as topography, drainage or the presence of existing built infrastructure. The RPAs of trees T001, T003 and T004 have been modified in this manner.



4.3 Arboricultural impacts and mitigation

The table below outlines the impacts of the proposals on the tree stock on site and likely mitigation measures required to facilitate the works. Table 4.1 below summarises the impacts on the trees.

Table 4. 1 – Arboricultural impact table

Group / Tree No.	Species	Cat.	Removal due to		Mitigation required for		Details of how proposed build layout affects trees and mitigation
			Cons.	Cond.	Canopy	RPA	
T001	London Plane	B3	n/a	n/a	X	X	Significant public realm tree closely adjacent to proposed ramp installation; Excavation for ramp and associated drainage installation required within RPA, at distance of c.5.8m from stem of tree: approximately 17.6% of total RPA to be lost (85.48m² out of total <i>modified</i> RPA of 486.03m²). Excavation to be <i>by hand or vacuum excavator only</i>, under supervision of Arboriculturist; All works within the RPA to be halted if the supervising arboriculturist has concerns that the proposed works may cause significant or irreversible tree damage, and the construction methodology re-evaluated; HERAS-type protective fencing to be installed prior to start of all works to protect tree throughout construction; Works to be carried out from footprint of ramp area only (i.e. no works in soft ground to east of protective fencing).
G002-A	Norway Maple	B2	n/a	n/a	X	X	Western tree of trio adjacent to proposed ramp installation; HERAS-type protective fencing to be installed prior to start of all works to protect tree throughout construction.



Group / Tree No.	Species	Cat.	Removal due to		Mitigation required for		Details of how proposed build layout affects trees and mitigation
			Cons.	Cond.	Canopy	RPA	
G002-B	Norway Maple	B2	n/a	n/a	X	X	As G002-A
G002-C	Norway Maple	B2	n/a	n/a	X	X	As G002-A
T003	Lime	B2	n/a	n/a	X	X	Tree closely adjacent to proposed ramp installation; Excavation for ramp and associated drainage installation required within RPA, at distance of c.3.4m from stem of tree; Soft ground where drainage pipework to be installed will remain soft ground after construction, so no loss of rooting volume to drainage works; Excavation to be <i>by hand or vacuum excavator only</i>, under supervision of Arboriculturist; All works within the RPA to be halted if the supervising arboriculturist has concerns that the proposed works may cause significant or irreversible tree damage, and the construction methodology re-evaluated; HERAS-type protective fencing to be installed prior to start of all works to protect tree throughout construction; Works to be carried out from footprint of ramp area only (i.e. no works in soft ground to east of protective fencing).
T004	Lime	B2	n/a	n/a	X	X	Tree closely adjacent to proposed wall / gate installation; HERAS-type protective fencing to be installed prior to start of all works to protect tree and soft ground within RPA throughout construction.

Group / Tree No.	Species	Cat.	Removal due to		Mitigation required for		Details of how proposed build layout affects trees and mitigation
			Cons.	Cond.	Canopy	RPA	
T005	Whitebeam	C2	n/a	n/a	n/a	n/a	Tree not adjacent to Scheme proposals
T006	Goat Willow	C2	n/a	n/a	n/a	n/a	Tree not adjacent to Scheme proposals

The impacts of the proposals have been quantified as accurately as possible given the information available at this time. At present the proposed works would require the removal of **no trees**.

The designers have striven to minimise the impact of the Scheme proposals on the existing trees at the site, to the extent that there is encroachment into the RPAs of only three of the trees. Where such encroachment has been unavoidable, the Arboriculturist has used the percentage of RPA encroachment to determine whether a tree could be retained, also based on existing site conditions that could have inhibited root development. In all cases the encroachment is less than the 20% figure shown at section 7.4.2.3 of the BS5837:2012 for what is deemed potentially acceptable in terms of RPA infringement.

4.4 Preliminary management recommendations

The tree survey schedules (see Appendix B) show management recommendations for those trees which at the time of the survey were identified as requiring management intervention. These works being in response to hazards recorded during the tree survey.

The works are recommendations and tree owners and managers are advised to seek further guidance should a tree on their land require management outside of the Scheme.



5. Outline Arboricultural Method Statement

5.1 General

The purpose of this Outline Arboricultural Method Statement (Outline AMS) section is to describe the tree protection measures likely to be required during the implementation of the proposed Scheme in line with guidance from the British Standard BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

The appointed contractor or designers are to make this Outline AMS into a final version during the detailed design and construction stages of the Scheme.

This section describes the tree protection measures likely to be required during the detailed design and construction stages. It sets out the following information:

- Requirements and information for pre-commencement briefings;
- The roles and responsibilities associated with the delivery of the protection measures, control and communication;
- Mitigation measures to be recorded and implemented;
- Review and monitoring mechanisms.

The appointed Principal Contractor or designer as part of the continued progression of the Scheme will update the final AMS to support the construction of the Scheme.

The production of the final AMS is to be undertaken by an experienced Arboriculturist with a minimum of a level 4 qualification in arboriculture and who is a professional member of the Arboricultural Association, to ensure appropriate mitigation measures are implemented during the construction works and to confirm protection measures and trees for retention.

5.2 Pre-commencement operations and site briefings

The appointed Principal Contractor is to appoint an Environmental Clerk of Works (ECoW) and a suitably qualified arboricultural specialist to support the construction stages of the proposed scheme. The Arboriculturist is to produce the final AMS and consult with the relevant stakeholders during its production, notably the Local Authority Tree Officer.

The appointed Principal Contractor is to review the trees impacted upon by the proposed scheme as part of the detailed design stages for the development of the final AMS to support the construction phase.



Where trees previously identified for retention are required to be removed as part of detailed design stages, then this information shall form part of the consultation process with the relevant stakeholders. The appointed Principal Contractor shall ensure that such changes do not give rise to any materially new or materially different environmental effects in comparison with those reported in this AIA.

5.3 Work package plans and task briefing sheets

The requirements for tree protection measures shall be included within Work Package Plans (WPPs) and Task Briefing Sheets (TBSs) produced by the appointed Principal Contractor as part of the planning of construction activities. All pre-commencement briefings shall make sure all members of staff working or visiting the area of site being worked upon are aware of the individual responsibilities regarding trees and the tree protection measures required to be in place to continue construction.

In the approval of WPPs and TBSs the reviewer shall make sure any protection of trees has been considered within the area and seek confirmation with either the supervising Arboriculturist or ECoW if further clarification is required.

The pre-commencement site briefings shall be attended by the construction manager or suitable delegate. They shall raise awareness with the relevant parties of the trees within the working extents and confirm the requirements for tree-related information to be included within induction material and daily briefings to members of staff working or visiting that area of the Scheme.

The briefings shall also confirm the following:

- The location of tree protective barriers;
- Tree works to facilitate that phase of the Scheme;
- Site specific mitigation measures;
- Where/when arboricultural supervision will be required.

5.4 Site supervision

The supervisory role shall be performed by a suitably qualified Arboriculturist. The frequency of these visits should align with key milestones identified in Table 5-1 below and shall be undertaken as required during the progression of the Scheme to enable an auditable succession of monitoring events for a review of the protection measures implemented for the trees.

Table 5-1 – Programme of site supervision

Programme	Arboriculturist or delegate	Supervision
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Pre-commencement site meeting	Arboriculturist	a) Confirm location and specification of tree protective barriers b) Confirm tree works to be undertaken c) Confirm requirements for tree protection information to be included in induction details for the site d) Confirm requirements for reporting any tree related incidents e) Confirm ongoing arboricultural monitoring and contact details.
Setting out of protective barriers	Arboriculturist	a) Review location and specification of tree protective barriers b) Confirm any additional tree protection measure requirements c) Submit site monitoring pro forma
During operation as minimum every 8 weeks.	Arboriculturist	a) Review location and specification of tree protective barriers b) Assess condition of retained trees, specifically for any construction related damage c) Confirm any additional tree protection measure requirements d) Submit site monitoring pro forma
Post-construction	Arboriculturist	a) Inspect all retained trees to make sure they have not been damaged during the construction operations b) To instruct any remedial works that may be required should a tree defect be identified as a result of the construction operations.

On completion of each site visit a report or site note should be completed by the arboricultural specialist.

Where emergency matters arise regarding trees, e.g. unexpected access required within construction exclusion zones or damage to retained trees, then an Arboriculturist is to co-ordinate a visit to the site in person or delegate their powers to a suitably qualified person.

Any variations or incidents related to trees shall be reported in writing to the Project Manager. Details of the variation(s) or incident(s) shall incorporate photographic evidence and site note(s) as appropriate. Suitable remedial measures, including potentially the provision of new planting where deemed appropriate.



5.5 Tree Protection Plan (TPP)

The Tree Protection Plan (TPP) (Appendix D) includes the locations of protective fencing likely to be required during the construction stage. Confirmation on the positioning shall be confirmed by the appointed Principal Contractor as part of the final AMS.

The protected areas once installed shall not be moved or altered without approval by the Arboriculturist and, where necessary following consultation with the local planning authority.

5.6 Construction Exclusion Zone (CEZ)

The CEZs can be defined as all the soft surfaces within the RPAs of retained trees outside of the works areas and the areas behind the tree protection fencing or site hoarding.

Site operations not permitted in the CEZs without consultation with an Arboriculturist include storage of plant, equipment or materials, vehicular or plant access, washing down of vehicles or machinery, handling, discharge or spillage of any substances, including cement washings, and actions likely to cause localised waterlogging. No mechanical digging, scraping or excavation shall be permitted in the CEZs, nor earthworks or changes in the finished ground levels other than those agreed by an Arboriculturist.

5.7 Hand excavations within RPAs

Hand excavations within the RPAs of trees shall be specified as a last resort and following a review of the works in the location to make certain there are no other design solutions to avoid the RPA of retained trees.

All excavations within the RPA shall be halted if the supervising arboriculturist has concerns that the works may cause significant or irreversible tree damage, and the construction methodology re-evaluated;

Where hand excavations are specified, then this would broadly adhere to the following:

- a. The area to receive excavations is to be clearly marked out on site and agreed with the Arboriculturist.
- b. Hand tools are to be used, with all spoil to be positioned outside of the RPA of the tree.
- c. Small plant may be permitted in consultation with the Arboriculturist, or the use of a vacuum excavator positioned outside of the RPA of the trees to be retained.
- d. The use of an air-spade rig to loosen the sub-base material can be instructed by supervising Arboriculturist if required to loosen clay based material or similar.
- e. Once excavated if tree roots are located these are to be moved if sufficiently pliable or pruned only as a last resort on the advice of the Arboriculturist.
- f. Tree roots to be retained where feasible through packing around with sharp sand.



5.8 Root pruning

Where tree roots must, as a last resort, be severed, the pruning points shall be agreed with the supervising Arboriculturist and pruning undertaken using a sharp pair of secateurs or a hand saw, or if pliable moved out of the construction profile and re-covered within topsoil.

5.9 *In situ* concrete

It should be noted that due to the highly alkaline and toxic leachate produced during the curing of wet concrete, concrete should not be poured within trees' RPAs unless an impermeable liner has been installed to contain the concrete (for example, where new fence posts or kerbs are to be installed).

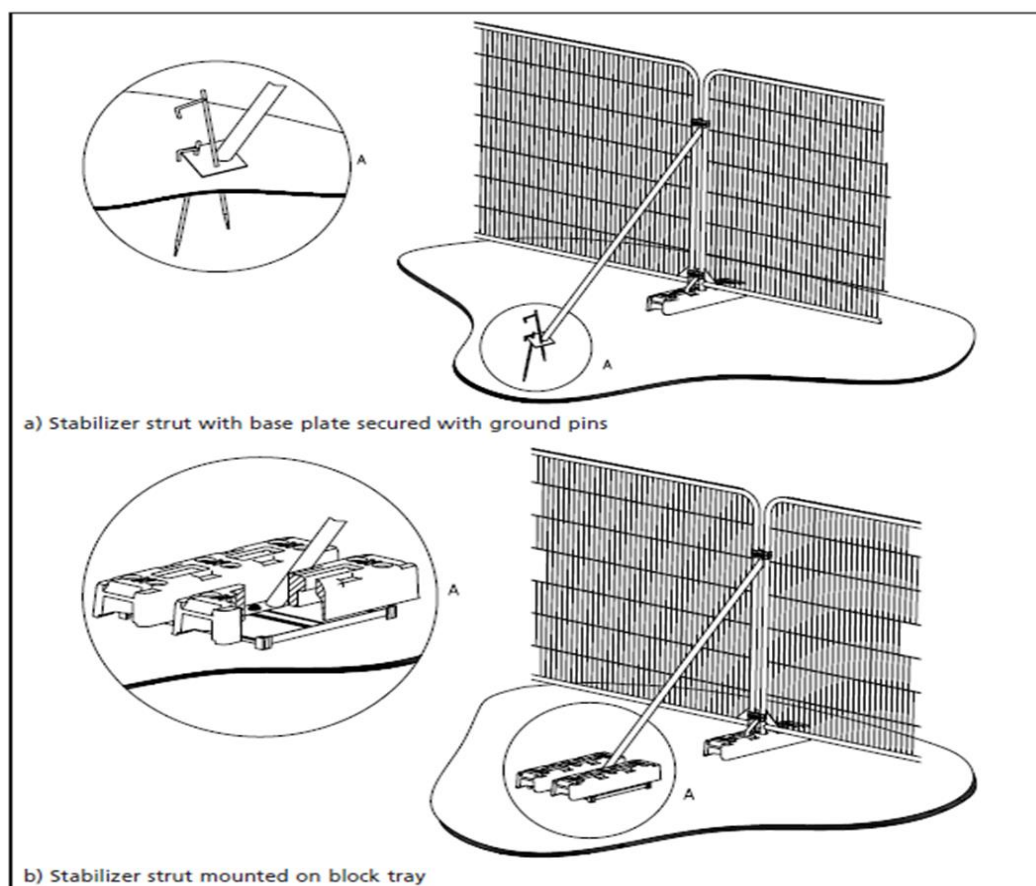
5.10 Tree protective barriers

The locations of any protective fencing shall be agreed prior to construction. The fencing should be erected before the commencement of works and kept in place throughout the duration of the works.

The protective barriers could comprise 2m tall welded mesh panels on rubber or concrete feet. The panels are to be joined together using a minimum of two anti-tamper couplers, installed so they can only be removed from inside the fence. The distance between the fence couplers is to be at least 1m and is to be uniform throughout the fence; the panels are to be supported by inner side stabiliser struts attached to a base plate secured on a block tray. See Figure 5-1 below.



Figure 5-1 - Tree protection fencing



The protected areas shall be seen as sacrosanct and once installed shall not be moved or altered without recommendation by an Arboriculturist.

5.11 Ground protection matting

The locations for ground protection matting have not been illustrated on the TPP, as it is not currently known if / where this would be required. The locations shall be agreed prior to the commencement of construction in coordination with a contractor.

Where ground protection matting is specified to protect tree roots and to minimise ground compaction within RPAs, then an example of a proprietary matting product is Ground-Guards (<http://www.ground-guards.co.uk/solutions/tree-root-protection/>). A double layer of Ground-Guards panels with a 150mm layer of wood chips sandwiched in-between will create a suitably cushioned base to facilitate access within RPAs where absolutely necessary.

5.12 Compound areas

The locations of site accommodation, temporary buildings and areas used for storage of materials are to be located outside of the CEZ of retained trees as defined within the TPP.

5.13 Tree works

Any tree works that may be required are to be undertaken in line with current recommendations in accordance with BS3998:2010 *Tree Work – Recommendations* and comply with the current Arboriculture and Forestry Advisory Group (AFAG) or applicable Forestry Industry Safety Accord (FISA) advice published by the Health and Safety Executive (HSE) or FISA.

Tree works are to be planned to ensure protection of people, property and wildlife.

The trees to be worked upon for facilitation, such as pruning, shall be clearly marked by the supervising Arboriculturist prior to any tree works commencing on site. These works are to be agreed with the supervising Arboriculturist. and ECoW where required.

The tree works contractor shall provide access routes and loading bay locations for approval by the main contractor. The tree works contractor shall submit a risk assessment and method statement for review by the Appointed Principal Contractor or Arboriculturist prior to commencing works on Site.



APPENDICES

Appendix A. Key & British Standard 5837:2012 Survey Table

A.1 Survey key

Tree No: Sequential reference number given to the tree or group of trees as shown on the tree survey drawings.

Species: This is the common name given to the tree.

Height (Ht.): tree height from the base of the tree to its full stem height, measured in metres (m). Measurements are taken to the nearest half metre.

Stem diameter (mm): measured in accordance with Figure A2 below. Measurements are rounded to the nearest 10mm in some cases.

Branch spread (m): measurement of crown spread to the four cardinal points; if the crown is balanced a single measurement is given. Crown spread plotted on the tree survey drawings. Measurements are taken to the nearest half metre.

1st significant branch and direction of growth (m): measurement of the height of the first significant branch above ground level, given in metres and direction of growth e. g. 2. 4-N

Canopy height (m): height of the canopy above ground level. Measurements are taken to the nearest half metre.

Life stage: The following abbreviations are used:

Y = Young trees <1/5 life expectancy.

SM = Semi-Mature trees 1/5 – 2/5 life expectancy.

EM = Early Mature trees 2/5 – 3/5 life expectancy.

M = Mature trees 3/5 – 4/5 life expectancy

OM= Over-Mature trees >4/5 life expectancy

VET = veteran tree

Vitality: Good, fair, poor or dead

Good – a tree with little or no obvious physiological defects; leaf density and colour are typical for the species, bud, flower and fruit production are good and there are no signs of dieback at any point throughout the crown.

Fair – a tree with moderate physiological defects; leaf density is less than typical for the species, leaf cover is chlorotic, bud, flower or fruit production are deficient, there are signs of minor dieback within the crown, there is a moderate degree of deadwood within the crown.

Poor – a tree with major or multiple physiological defects; evidence of extensive crown thinning, bud, flower or fruit production is poor or missing, there are signs of advanced dieback throughout the crown, there is extensive or major deadwood throughout the crown.

Dead – a tree that has died due to either old age, drought, disease, pest infestation, physical damage to the main stem or rooting system, or a combination of these factors.

General observations, particularly of structural and/or physiological condition: e. g. observations of any decay and physical defect.

Preliminary management recommendations: any identified preliminary management to rectify defects recorded in general observations. These may include the need for further detailed inspection, or works to address immediate hazard to life or property.

Estimated remaining contribution, in years:

<10

10+

20+

40+

Category grading: As per BS 5837:2012 chart in accordance with Figure A3 below.

A – Illustrated as light green (RGB code 000-255-000)

B – Illustrated as mid blue (RGB code 000-000-255)

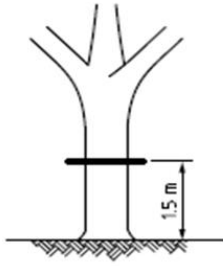
C – Illustrated as grey (RGB code 091-091-091)

U – Illustrated as dark red (RGB code 127-000-000)

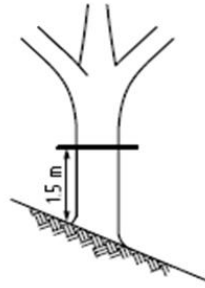
Root Protection Area (m): plotted around each tree on relevant drawings, illustrating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability. The protection of the roots and soil structure is treated as of paramount importance.

A.2 Measuring table

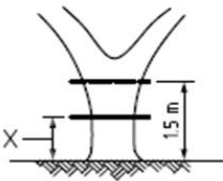
Measurement of tree stems dependant on tree form.



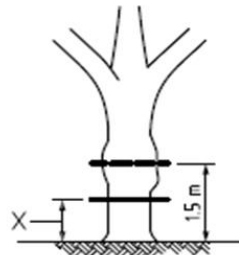
a) Stem diameter measured at 1.5 m above ground level



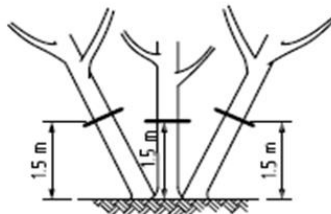
b) Measurement on sloping ground



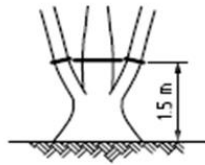
c) Trees with low branching measured at narrowest point below the fork



d) Measurement of stem with irregular swelling made at the narrowest point below the swelling



e) Measurement of a multi-stemmed tree



f) Measurement of a tree with more than one stem at 1.5 m above ground level

Key

X Height varies

A.3 BS 5837:2012 cascade chart

Cascade chart for tree quality assessment from BS 5837:2012

Table 1 Cascade chart for tree quality assessment			
Category and definition	Criteria (including subcategories where appropriate)		Identification on plan
Trees unsuitable for retention (see Note)			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>		See Table 2
Trees to be considered for retention			
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	1 Mainly arboricultural qualities Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	2 Mainly landscape qualities Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	3 Mainly cultural values, including conservation Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation		See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories		See Table 2

Appendix B. Tree survey schedule



Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)
T001	London Plane	9.5	1050	2	2	2	2	7.5	7	M	Good	Pollarded at 7.5m; slight lean to north correcting; in 3m square pit with tarmac surfacing and granite sett surround - minor displacement of tarmac and setts due to root growth	No works required at time of survey	20+	B3	12.6
G002-A	Norway Maple	9	340 #	2.5	2	4	4	2.5	3	EM	Good	Uniform trio in plant bed; A amid dense laurel - diameter estimated; crowns reduced and cut back from building to north; mutual crown suppression; exposed surface roots radiating from stem bases; planting stakes still in place; bird boxes affixed to B and C	No works required at time of survey	20+	B2	4.1
G002-B	Norway Maple	9	320	3	3	4	3	2.5	3	EM	Good	See G002-A	No works required at time of survey	20+	B2	3.8
G002-C	Norway Maple	9	330	2	3.5	4	3	2.5	3	EM	Good	See G002-A	No works required at time of survey	20+	B2	4.0
T003	Lime	10	330	4	4.5	4	4	2	2	EM	Good	Cultivar in shrub bed, planting stakes remaining in place; crown-lifted; stem/branch occlusion in densely branched lower crown; frequent tight or co-dominant forks; exposed girdling root extending to east	No works required at time of survey	20+	B2	4.0
T004	Lime	10	410	5	4.5	5	5	1.5-N	1.5	EM	Good	Cultivar in shrub bed; lighting column in eastern crown; crown lifted and also reduced; bird box affixed; minor exposed surface roots; pockets of decay at crown-lifting wounds and at slit wound on upper side of lowest branch to north; repeated pronounced branch bark ridges	No works required at time of survey	20+	B2	4.9
T005	Whitebeam	8	210	4.5	4.5	2	0	1.5	1.5	SM	Good	With T006, a tangled pair in corner shrub bed; stem lean to north-east, crown partly correcting; exposed surface root extending to south; insect hotel affixed	No works required at time of survey	10+	C2	2.5
T006	Goat Willow	8	160 x 4	5	6	6	6	0.5	1	EM	Good	Spreading multistem, base hard by boundary concrete block wall; branches tangling with T005 and also with third-party SM ash behind wall in north crown; some occlusion of branches around wall top	No works required at time of survey	10+	C2	3.8

Appendix C. Glossary of terms

Term	Description
Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Adaptive Growth	The process whereby wood formation is influenced both in quantity and in quality by the action of gravitational force and mechanical stresses on the cambial zone
Amenity Value	The environmental and landscape benefits of trees as opposed to their commercial value for timber
Ancient Woodland	Sites which have been wooded since at least 1600, as defined by English Nature and recognised as being of high nature conservation value, whether managed or not. They may be semi-natural or replanted.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculture	The study and care of trees and other woody vegetation
Arboriculturist	A person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Cavity	An open wound, characterised by the presence of decay and resulting in a hollow
Co-dominant stems	Where a tree's main stem splits into two leaders, can also be called twin-stemmed.
Competent person	A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	The area based on the root protection area to which access is prohibited for the duration of a project.
Coppice	A traditional method of woodland management in which young tree stems are repeatedly cut down to near ground level. In subsequent growth years, many new shoots will emerge, and, after a number of years the coppiced tree, or stool, is ready to be harvested, and the cycle begins again
Crown clearance	This is the removal of all dead, dying and diseased branches; in addition branches that are cleared away from a specific hazard e. g. live railway line.
Crown lifting	The removal of lower branches to provide a desired amount of clearance above ground level. This can be achieved either by the complete removal of a branch or only parts of which extend below the desired height
Crown reduction	The overall reduction of both the height and spread of the crown.
Decay	Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.

Deadwood	Deadwood is often present within the crown or on the stems of trees. In some instances it may be an indication of ill health; however, it may also indicate natural growth processes. If a target is present beneath the tree, and falling deadwood may cause injury or damage it should be removed; if no target is present the deadwood may be retained intact for conservation purposes (insects, fungi, birds etc.).
Epicormic growth	A secondary growth from dormant adventitious buds on the stem or main branches.
Failure	In connection with tree hazards, a partial or total fracture within woody tissue or loss of cohesion between roots and soil.
Hazard beam	A branch that has over-extended in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).
Hung-up limb	Dead or fallen branch from within the crown or from another tree's crown that has failed and been caught up by, and resting on, branches of a tree
Included Bark Junction	Pattern of development at branch junctions where bark is turned inward rather than pushed out. Potential weakness due to a lack of a woody union.
Ivy Growth	Ivy growth may ascend into the tree's crown, increasing wind resistance, concealing potential defects and reducing the tree's photosynthetic capacity. Ivy growth is often acceptable in woodland areas as a conservation benefit.
Monolith	A large bulk of standing dead wood. Usually the trunk of the tree or the trunk with the base of the branch frame work. These should be retained for wildlife habitat when the risk is appropriate for the location.
Pollarding	This involves the removal of whole branches to leave only the main trunk. In species such as willows and poplars such significant pruning is acceptable with new branches developing from the pollard heads. Secondary pruning of the new wood can help form a new canopy to the tree several years after the initial pollard
Reaction Wood	Specialised secondary xylem, which develops in response to a lean or similar mechanical stress, attempting to restore the stem to the vertical.
Root Protection Area (RPA)	The layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Service	Any above or below ground structure or apparatus required for utility provision.
Stem	The principal above-ground structural component(s) of a tree that supports its branches.
Structure	A manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Structural Defect	Internal or external points of weakness, which reduce the stability of the tree
Sub-dominant stem	A branch within the crown that is not the dominant leader
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.

TPO	A Tree Preservation Order is an order made by a Local Planning Authority which in general makes it an offence to cut down, lop, top, uproot, wilfully damage or wilfully destroy a tree without first getting permission. Tree Preservation Orders are usually made to protect trees that make a significant contribution to the amenity of an area. They may particularly be made when it is felt that a tree may be under threat.
Tree Constraints Plan	Abbreviated to TCP. Plans showing specific tree constraints including Root Protection Areas and Crown spread.
Tree Protection Plan	Abbreviated to TPP. Scaled drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Visual Tree Assessment	A non-invasive method of examining the health and structural condition of trees. Developed by Claus Mattheck and David Breloer 1994
Wound	Any injury, which induces a compartmentalisation response
Wound Wood	Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound as opposed to the ambiguous term "callus. "

Table C-1 – Glossary Table

Appendix D. Tree protection plan

Drawing provided separately.



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