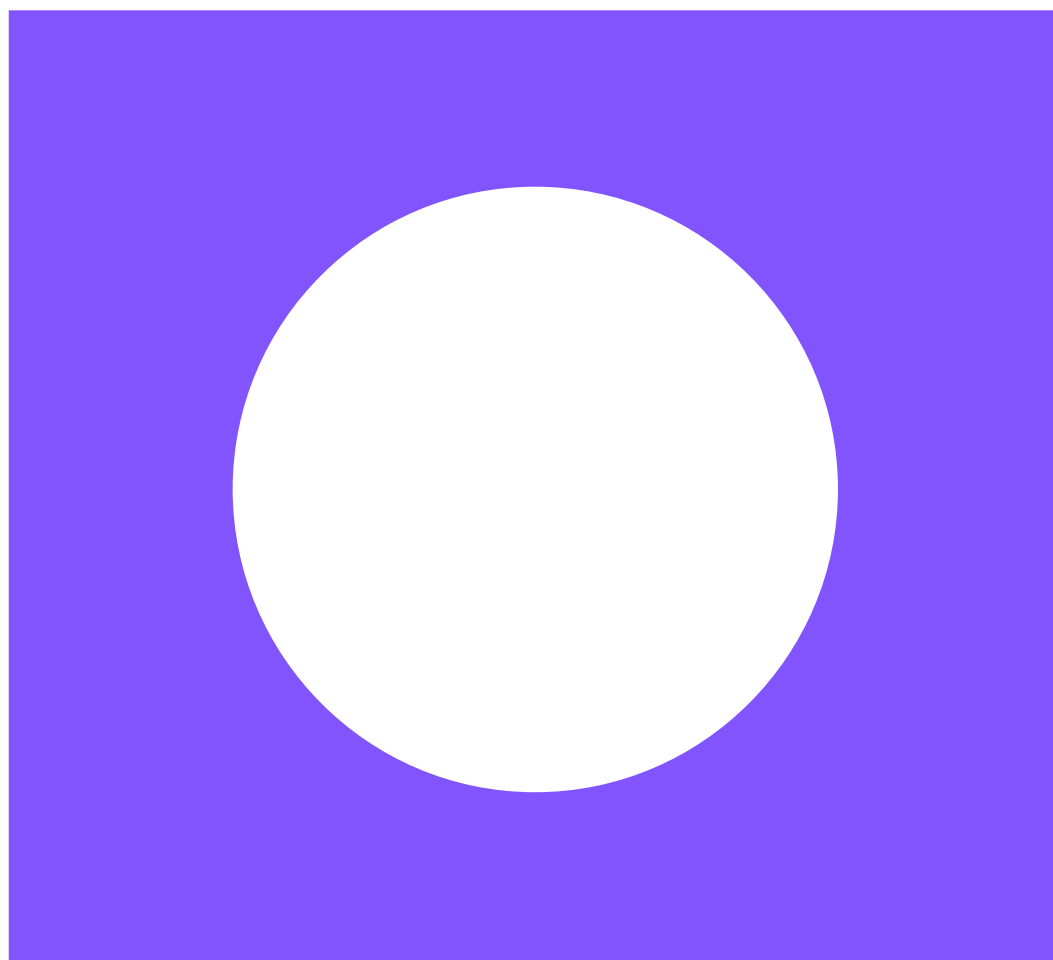




M100.01 Arborfield STW Growth & WINEP

Arboricultural Constraints Report

November 2025

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Mott MacDonald
100 Victoria Street
Bristol BS1 6HZ
United Kingdom

T +44 (0)117 906 9500
mottmac.com

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Arboricultural Constraints Report

November 2025

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P01	27/11/25	J Collett	J Sothcott	N Hull	First issue for Client comment

Document reference: M100.01-DN-ARBOS1ZZ-100-AS-EN-0002

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1 Introduction

1.1 Background

- 1.1.1 Mott MacDonald has been appointed by Thames Water Utilities Limited (hereafter 'Thames Water') to undertake a Tree Survey and Arboricultural Constraints Report utilising the principles of *BS5837:2012 Trees in relation to Design, Demolition and Construction*¹ to support the Stage Gate 1 Review of Thames Water's Capital Delivery Stage Gate Process (Solution Option and Definition).
- 1.1.2 Asset Management Period 8 (AMP8) upgrade works are proposed at Arborfield Sewage Treatment Works (STW) to account for the growth in the catchment and meet the 2036 design horizon (hereafter, the 'Project'). The Project aims to ensure the treatment of effluents meets the new consent levels for cypermethrin, low phosphorus, ammonia, and Biochemical Oxygen Demand (BOD)².
- 1.1.3 No detailed scope, phasing or Project briefs are available at this time. Further details will be produced at a later stage of the Project to inform further assessments, as required. The planning requirements are unknown, however it is considered that planning permission may be required under the Town and Country Planning Act 1990.

1.2 Site location

- 1.2.1 The Project is located in a rural setting within the administrative boundaries of Wokingham Borough Council (WBC), at Wood Lane, Arborfield, Wokingham, RG41 4TS and indicative on OS Grid Reference SU 76900 67400.
- 1.2.2 The Site boundary for the Project includes the operational Arborfield STW and a 1.45 hectares (ha) expansion area immediately southeast, consisting of agricultural land. Arborfield STW and the expansion are together referred to as the 'Site'. Access to the Site is from Wood Lane, a small rural lane providing access to the Site and agricultural and commercial properties only.
- 1.2.3 **Figure 1.1** shows the Site boundary. The extent of the Site measures approximately 4.1 ha and is expected to include the area of construction, as well as any temporary works and access required.

¹ British Standard BS 5837:2012 Trees in Relation to design, demolition, and construction – Recommendations; April 2012; ISBN 978 0 580 69917 7

² Environment Act 2021 sets out a new target for actions to reduce phosphorus loading from treated wastewater from the water industry by 80% by 2037 against a 2020 baseline.

Figure 1.1: Site location plan



Source: Mott MacDonald, 2025

1.3 Purpose of this document

1.3.1

This Arboricultural Constraints Report contains the findings of the tree survey (arboricultural constraints utilising the principals of *BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations*³) and desk study. The objective of the survey is to provide a balanced assessment of the quality of the trees on the Site to better inform the design process, and in doing so:

- set out the constraints to development posed by existing tree stock.
- identify trees or areas of arboricultural significance.
- support the detailed design and construction stages of this Project in relation to minimising or avoiding impact on trees.

³ British Standard BS 5837:2012 Trees in Relation to design, demolition, and construction – Recommendations; April 2012; ISBN 978 0 580 69917 7

2 Methodology

2.1 Tree Assessment Methodology

- 2.1.1 The tree survey was carried out by a qualified Mott MacDonald Arboriculturist on the 14 October 2025 to assess the quality and value of the principal trees within or adjacent to the Project footprint.
- 2.1.2 The survey was undertaken utilising the principles set out in *BS 5837:2012 Trees in relation to design, demolition, and construction - Recommendations*. The tree data contained within the Tree Survey Schedule (**Appendix A**) was recorded by visual survey from ground level and no invasive tree inspection measures were employed.
- 2.1.3 The survey process categorises the trees on Site, selects those appropriate for retention and reviews the options for incorporating these trees within the developed landscape.
- 2.1.4 The full Tree Survey Schedule, categorisation of the trees in their existing context and Root Protection Areas are stated in **Appendix A** (to be read in conjunction with the Key to Tree Survey Schedule, **Appendix B**).
- 2.1.5 In accordance with *BS 5837:2012*, the following information was recorded for each tree:
- Sequential reference number (recorded on the tree constraints plan, **Appendix C**).
 - Species listed by common name and scientific name.
 - Life stage recorded as:
 - Height (metres);
 - Crown spread (metres), taken as a minimum at the four cardinal points, to derive an accurate representation of the crown (plotted on the tree constraints plans, **Appendix C**).
 - Existing height (metres) above ground level of:
 - First significant branch; and
 - Canopy
 - Stem diameter (millimetres) in accordance with Annex C of *BS 5837:2012*. The stem diameters of single stemmed trees were measured at 1.5 metres above ground level and multi-stemmed trees measured in accordance with Annex C.
 - The Root Protection Area (RPA) calculated in accordance with Section 4.6 of *BS 5837:2012*. The two measurements provided are a 'Root Protection Radius (m)' (circle centred on the base of the stem) and an overall 'root protection area (m²)'.
 - General observations, particularly of structural and/or physiological condition (e.g., the presence of any decay and physical defect), and/or preliminary management recommendations.
 - Estimated remaining contribution, in years (<10, 10 +, 20+, 40+).
 - Retention category recorded as A, B, C or U in accordance with *BS 5837:2012* (see **Table 1.2** below) to be recorded on the tree survey plan (**Appendix A**). This gives an indication as to each tree's arboricultural, landscape and cultural value and significance as well as its suitability for retention in the context of the proposed redevelopment of the Site. These sub-categories [1 - Arboricultural values; 2 - Landscape values and 3 - Cultural values, including conservation] are included where considered necessary to clarify why a tree has been assigned to a particular retention category. The categorisation criteria are summarised in **Table 2.1** and **Table 2.2**.

Table 2.1: Life Stage Categories

Abbreviation	Life Stage	Description
Y	Young	Trees aged less than 1st quarter of their life expectancy
SM	Semi-mature	Trees within 2nd quarter of their life expectancy
EM	Early mature	Trees within 3rd quarter of their life expectancy
M	Mature	Trees aged within final quarter of their life expectancy
OM	Over Mature	Over-mature - declining or moribund trees of low vigour
V	Veteran	Specimens exhibiting features of biological, cultural, or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned

Table 2.2: BS5837:2012 Retention Categories

Category	Description
Category A	Trees of high quality and value whose retention is most desirable (suggested minimum contribution 40 years)
Category B	Trees of moderate quality and value whose retention is desirable if practicable (suggested minimum contribution 20 years)
Category C	Trees of low quality and value or limited long-term potential, which could be retained if not in conflict with development proposals or young trees with a stem diameter of less than 150mm (suggested minimum contribution 10 years)
Category U	Trees requiring removal irrespective of any development proposals due to significant structural defects, irreversible decline or with a very short-term life expectancy of less than 10 years

2.2 Limitations of the survey

- 2.2.1 This report provides comment on the general quality of the trees on the Site but is not, nor should be taken to be, a full or thorough assessment of the health and safety of trees on or adjacent to the Site. It is recommended that a full tree survey should be undertaken on a regular basis to satisfy health and safety requirements.
- 2.2.2 Previous management and/or surveys in relation to the health and safety of trees on this Site have not been taken into account as part of this report.
- 2.2.3 Trees are living organisms whose health, condition and structure can change over time. The contents of this report are valid for a period of one year from the date of issue.
- 2.2.4 Distances were recorded using a standard metric tape measure where appropriate, and stem diameter was recorded using a diameter tape. Tree height was estimated to the nearest metre.
- 2.2.5 A topographical layer depicting the accurate locations of the trees associated with the Project was not available for arboricultural features, therefore the estimated locations of the trees have been plotted onto aerial imagery with their approximate positions determined by GPS (not guaranteed to less than 5m accuracy) and/or existing site features.

3 Arboricultural Constraints

3.1 Desk study

3.1.1 Tree Preservation Orders (TPOs) and Conservation Areas (CAs)

3.1.1.1 The primary measures which provide statutory protection to trees are Tree Preservation Orders (TPOs) and Conservation Area (CA) status. Where present, these measures determine that either notification to local authority for CA designations or consent from the local authority for TPO designations is required for any works that may affect trees or tree groups.

3.1.1.2 The Project falls within the administrative boundaries of WBC. A check of the local authority online map⁴ on 14 November 2025 confirmed that none of the trees within the survey area are covered by TPO and that the Site is not located within a CA (**Appendix F**). There is a TPO (1864 / 2019) located immediately adjacent to the northeast of the survey area (**Appendix F**). As the RPA of trees covered by this TPO may encroach into the survey area, this would need to be considered in the design for the Site.

3.1.2 Ancient Woodland

3.1.2.1 Ancient woodland is defined as land that is currently wooded and has been continually wooded, at least since 1600 (England and Wales), and is an irreplaceable resource of high nature conservation and landscape value.

3.1.2.2 A review of the MAGIC website Magic Map Application⁶ on 14 November 2025 has confirmed that the Site is not covered by any ancient woodland designations.

3.1.3 Ancient, Veteran and Notable Trees

3.1.3.1 A check has been also undertaken using the Woodland Trust's Ancient Tree Inventory (ATI)⁷ and has confirmed that there is one veteran tree (Tree 9) within the survey area, one veteran tree within woodland W1 and one notable tree within woodland W1 (**Appendix F**).

3.1.3.2 Ancient Semi Natural Woodland (ASNW), Planted Ancient Woodland Sites (PAWS) and veteran trees are afforded the same protection by means of the planning system, in particular paragraph 193 (c) of the National Planning Policy Framework⁸ which states:

When determining planning applications, local planning authorities should apply the following principles: 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 reasons⁷⁰ and a suitable compensation strategy exists;

⁴ Planning Policies and Constraints Map

⁶ Magic Map Online Application Available at: <https://magic.defra.gov.uk>

⁷ Woodland Trust Ancient Tree Inventory. Available at: <https://ati.woodlandtrust.org.uk/tree-search>

⁸ National Planning Policy Framework, paragraph 193(c); ⁷⁰ For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

3.1.4 Local Planning Policy

3.1.5 Wokingham District Council's local planning policy⁹ was adopted in 2014. The WDC overview states:

Our development plan for Wokingham Borough is made up of a collection of local plan and neighbourhood development plan documents. Together these set out a strategy for how growth and development will be managed which forms the starting point for deciding planning applications. This includes where new homes, jobs and infrastructure will be directed.

3.1.6 National legislation requires that decisions are made in line with the development plan, unless material considerations indicate otherwise.

3.1.7 It is recommended that the WBC Local Plan is taken into consideration by the Project when planning and designing the layout of The Site and proposed temporary works.

3.2 Tree survey

Existing Tree Quality and Coverage

3.2.1 A total of twelve individual trees, five tree groups, one woodland and two hedgerows were surveyed for this Project – refer to **Table 3.1** for a summary of the assigned *BS5837:2012* categories.

3.2.2 The main species present included common ash (*Fraxinus excelsior*), goat willow (*Salix caprea*), crack willow (*Salix fragilis*), dogwood (*Cornus sanguinea*), grey poplar (*Populus x canescens*), horse chestnut (*Aesculus hippocastanum*), common hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), hazel (*Corylus avellana*), silver birch (*Betula pendula*) and pedunculate oak (*Quercus robur*).

3.2.3 The trees are located around the perimeter of the Site boundary and the intended expansion area to the southeast of the existing Site, the trees have been assessed as a range of Category B and C i.e., of moderate and low arboricultural quality (**Table 3.1**).

3.2.4 Trees 9, 10 G4 and W1 are the most significant arboricultural constraints surveyed. All of these are outside the existing Site boundary however W1 overhangs the Site by up to 5m and has started to spread into the site encompassing the boundary fence itself.

3.2.5 The condition of the trees onsite is generally 'good'. Overall, the Site has high ecological and amenity value as a habitat especially as there is connectivity between the trees surveyed and wider rural area.

3.2.6 **Appendix G** contains site photographs taken during the arboricultural survey.

⁹ [Planning policy | Wokingham](#)

Table 3.1: Summary of assigned BS5837 categories

Tree Category	Description	Total Number surveyed
Category A	Trees or groups of high quality	2 trees, one tree group and one woodland.
Category B	Trees or groups of moderate quality	One hedgerow.
Category C	Trees or groups of low quality	Nine trees, four tree groups and one hedgerow.
Category U	Trees recommended for removal irrespective of the proposed Project	1 tree.
Source: Mott MacDonald, 2025.		

Root Protection Areas (RPAs)

- 3.2.7 Working anywhere in the vicinity of trees is likely to cause some root damage because in the order of 80% of the roots of any tree will occur within the upper 600mm of the soil. Roots will spread out for a considerable distance from a tree and may be encountered at a distance beyond the canopy spread of a tree.
- 3.2.8 Where construction activities are proposed within the rooting zone of trees, the potential for significant damage exists. Table 2 of *BS 5837:2012* prescribes a methodology for the calculation of an RPA.
- 3.2.9 The RPA represents the minimum area that should be retained undisturbed around a tree or trees for the avoidance of an unacceptable degree of root disturbance. The required RPA of a tree is calculated and typically plotted as a circle (or where appropriate as a square of equivalent area) to determine constraints or the location of protective fencing. In certain circumstances the actual shape of this area may then be adjusted to take account of local topography or any existing Site features that may serve as restrictions to 'normal' root development.
- 3.2.10 Where trees have been assessed as veteran, the RPA is increased to afford the tree the required protection.
- 3.2.11 The RPA dimensions are stated in **Appendix A**.

Category A Trees

- 3.2.12 Two trees (Trees 9 and 10) have been assessed as Category A i.e. high quality. Both of these trees are outside the existing Site boundary within adjacent farmland.
- 3.2.13 Tree 9 is recorded on the Woodland Trust Ancient Tree Inventory as a veteran tree and has been recorded as such within this report.

Category B Trees

- 3.2.14 One hedgerow (H2) has been assessed as Category B i.e., moderate arboricultural value. This hedgerow has high amenity value as part of the wider landscape and high ecological value as it has remained unpruned being allowed to grow to full height forming a very dense hedgerow.
- 3.2.15 **It is recommended that all works remain outside of the RPAs of both Category A and B trees and hedgerows, and that they are retained as valuable landscape features within the Site.**

Category C Trees

- 3.2.16 Trees 1, 3 to 8, 11 and 12 have been assessed as Category C. These trees are primarily semi mature, generally in good condition, and are located around the perimeter of the Site.

- 3.2.17 One hedgerow (H1) has been assessed as Category C i.e. low arboricultural value. This hedgerow is outside the site perimeter fence line and has been pruned back to the fence line. It is sparse and scrubby being made up in parts of bramble.
- 3.2.18 **It is recommended that removals are avoided unless it is integral to facilitate construction, and that any screening functions or amenity value that is lost is reinstated with mitigation planting.**

Category U Trees

- 3.2.19 One tree (Tree 2) has been identified as Category U i.e., recommended for removal for arboricultural reasons, in this case the tree is dead.

4 General Tree Protection Measures

The final design for this Project must be undertaken in accordance with the following guidance.

4.1 Risk to trees from construction activities

4.1.1 Trees can be easily damaged by construction processes, with both the tree roots and the main structure of a tree susceptible to a range of impacts. Root damage can affect the anchorage and stability of the tree, as well as preventing or inhibiting the absorption of water and nutrients. Damage to the trunk and branches leaves the tree more exposed to disease and decay.

4.1.2 Activities that can cause damage to tree roots include:

- Trenches and excavations.
- Alterations in soil level.
- Non-porous surfaces.
- Compaction of soil.
- Changes in soil hydrology.
- Root exposure.
- Soil pollution (i.e. oil spill, incorrect application of herbicide and/or other chemicals); and,
- Fires.

4.1.3 Activities that can cause damage to tree trunks and branches include:

- Pressure from materials stored against trunks.
- Physical impact from plant and equipment.
- Incorrect pruning.
- Exposure of bark or leaves to chemicals.
- Damage to bark from mowers and strimmers.

4.1.4 Any works associated with this Project that could affect the existing trees as described above must be discussed and approved by a qualified Arboriculturist prior to commencement.

4.2 Tree protection measures

4.2.1 Tree protection measures e.g. temporary protective barriers and ground protection are likely to be required to protect retained trees during the construction phase of this project. The *BS5837:2012* default specification for temporary protective barriers and ground protection are contained in **Appendix E** for information.

4.3 Trees and wildlife

4.3.1 The Wildlife and Countryside Act 1981 (as amended), the Countryside Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2010 provide statutory protection for birds, bats, dormice, reptiles, and other species that could be affected by tree works. Careful consideration should be given to the design of this project, and the timing of any associated tree works to avoid impacting protected species.

4.4 Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS)

- 4.4.1 Should direct and/or indirect impacts on existing trees as identified in Section 3: Arboricultural constraints be likely as a result of the Project, it will be necessary as part of the detail design for a qualified Arboriculturist to undertake an:
- Arboricultural Impact Assessment (AIA)
 - To identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees. This will include identifying the requirements for tree works (either felling or pruning) to facilitate construction of the Project and temporary protective fencing to protect all trees to be retained during the construction works.
 - Arboricultural Method Statement (AMS)
 - To provide a methodology for implementation of any Site layout that has the potential to result in loss or damage to a tree.
- 4.4.2 Should planning permission be required it is likely that a BS 5837-compliant tree survey, AIA, and AMS would be required by the local authority as part of planning application where trees are present within or near the Site. Notwithstanding, BS 5837:2012 is considered a best practice standard, and its application is recommended if the Project is progress under Thames Water's permitted development rights, especially where significant or protected trees are involved.

5 Conclusion and recommendations

- 5.1.1 The Project falls within the administrative boundaries of WDC. A check of the local authority online map confirmed that there are no trees covered by a TPO or CA, however there is a group of trees directly adjacent to the survey area which is covered by a TPO, as the RPAs of these trees may encroach into the survey area this would need to be taken into account in any proposed designs for the Site.
- 5.1.2 The survey was undertaken utilising the principles set out in *BS 5837:2012*. There were 12 individual trees, five tree groups, one woodland and two hedgerows surveyed in relation to this Project. The following tree retention categories were assigned:
- Category A i.e. trees of high quality; 2 trees and one woodland.
 - Category B i.e. trees of moderate quality, one hedgerow.
 - Category C i.e. trees of low quality, Ten trees four tree groups and one hedgerow.
 - Category U i.e. trees recommended for removal for arboricultural reasons: One tree.
- 5.1.3 Section 4 details guidance for general tree protection measures that the final design for this Project must be undertaken in accordance with.
- 5.1.4 Site specific recommendations include:
- Tree 2 should be removed regardless of any future works as it is dead and poses a risk to operatives on site.
 - All works MUST remain outside the RPA of tree 9 as this tree is recorded as a veteran tree. As a veteran tree this is considered irreplaceable habitat and as such there must be no loss or deterioration which may result from indirect works, *for example, the effect of air pollution from development that results in a significant increase in traffic.*
 - All works should remain outside the RPA of all trees recorded as part of this survey except where existing infrastructure has acted as a root barrier, this should be confirmed with the Project arboriculturist.
 - Temporary protective barriers should be installed for the duration of the project to protect all trees recorded within this report.
- 5.1.5 As part of the detail design for this Project, should direct and/or indirect impacts on existing trees it will be necessary for a qualified Arboriculturist to undertake a BS 5837 compliant AIA and AMS.

Appendices

- A. Tree Survey Schedule
- B. Key to Tree Survey Schedule
- C. Drawings
- D. BS5837:2012 Cascade Chart of Tree Quality
- E. Tree Protection Measures
- F. Designations
- G. Site Photographs.

A Tree Survey Schedule

Table D.1: Tree Survey Schedule

est = estimated

av = average

Tree ref	Tree Type	Life Stage	Height (m)	Av Crown Spread (m)				Av Crown Height (m)					No of Stems or trees	Stem Diameter (mm)	Root Protection Area (RPA)		Condition				BS5837 Category and subcategory		Estimated remaining contribution (years)	Comment
				N	E	S	W	1st branch	N	E	S	W			RPA Radius (m)	RPA (m²)	Crown	Stem	Basal Area	General Physical	Category	Sub-category		
1	Silver Birch	Semi Mature	9	4	4	4	4	1N	1	1	1	1	3	250 / 250 / 250	5.2	85	Good	Good	Good	Good	C	2	40+	This tree is located directly on boundary fence, good vitality.
2	Silver Birch	Dead	8	1	1	1	1	2E	2	2	2	2	1	350	4.2	55	Poor	Poor	Poor	Poor	U	2	N/A	This tree is dead. There are lots of birch polypore brackets on the stem and the larger limbs have started to break off.
3	Silver Birch	Semi Mature	6	2	2	2	2	2E	2	2	2	2	1	300	3.6	41	Good	Fair	Fair	Fair	C	2	<10	This tree has a <i>Ganoderma</i> bracket at the base, sparse crown and low vitality.
4	Common ash	Semi Mature	10	4	4	4	4	2S	2	2	2	2	1	420	5	80	Good	Good	Good	Good	C	2	20+	This tree is located directly on boundary fence, early ash dieback noted, sparse crown with moderate deadwood.
5	Common ash	Semi Mature	9	3	3	3	3	3W	3	3	3	3	1	465	5.6	98	Good	Good	Good	Good	C	2	20+	Located directly on boundary fence, early ash dieback, sparse crown with moderate deadwood.
6	Silver Birch	Semi Mature	6	2	2	2	2	2E	2	2	2	2	1	300	3.6	41	Good	Fair	Fair	Fair	C	2	10+	This tree has a <i>Ganoderma</i> bracket at the base, sparse crown and low vitality.
7	Norway Spruce	Semi Mature	8	3	3	3	3	2N	2	2	2	2	1	300	3.6	41	Good	Good	Good	Good	C	2	40+	This tree is located within a dense understory of brambles, good form and vitality.
8	Field Maple	Semi Mature	5	2	2	2	2	1N	1	1	1	1	10+	80av	3	29	Good	Good	Good	Good	C	2	40+	This tree is a self-set tree within the site.
9	Pedunculate Oak	Veteran	15	6	6	6	6	2N	2	2	2	2	1	1380	16.6	862	Good	Good	Good	Good	A	2	40+	This tree has excellent form and vitality with veteran features including decay, large limbs, and cavities. This tree is the most prominent tree within the locality and is recorded as a veteran tree on the veteran tree register.
10	Pedunculate Oak	Mature	18	5	6	6	6	3N	3	3	3	3	1	880	10.6	350	Fair	Fair	Fair	Fair	A	2	40+	Located within farmland, minor basal damage likely due to livestock, slightly sparse crown and low vitality.
11	Pedunculate Oak	Mature	10	2	2	2	2	3N	3	3	3	3	1	320	3.8	46	Good	Good	Good	Good	C	2	40+	Barbed wire attached to and growing into the main stem.
12	Pedunculate Oak	Mature	10	2	2	2	2	3N	3	3	3	3	1	410	4.9	76	Good	Good	Good	Good	C	2	40+	Barbed wire attached to and growing into the main stem.
G1	Common ash	Semi Mature	10av	3	3	3	3	2N	2	2	2	2	2	250av	3av	28av	Good	Good	Good	Good	C	1/2	40+	Two semi mature common ash with a dense understorey of bramble, located inside the boundary fence line.
G2	Mixed species	Young	8av	2	2	2	2	2N	2	2	2	2	15	200av	2.4av	18av	Good	Good	Good	Good	C	1/2	40+	15 newly planted trees along the boundary fence line. Species include field maple, common cherry and common alder.
G3	Mixed species	Semi Mature	12av	3	3	3	3	2N	2	2	2	2	10	200av	2.4av	18av	Good	Good	Good	Good	C	1/2	40+	Ten trees planted within the site boundary for amenity purposes; species include common oak and field maple.

Tree ref	Tree Type	Life Stage	Height (m)	Av Crown Spread (m)				Av Crown Height (m)					No of Stems or trees	Stem Diameter (mm)	Root Protection Area (RPA)		Condition				BS5837 Category and subcategory		Estimated remaining contribution (years)	Comment
				N	E	S	W	1st branch	N	E	S	W			RPA Radius (m)	RPA (m²)	Crown	Stem	Basal Area	General Physical	Category	Sub-category		
G4	Mixed species	Mature	12av	5	5	5	5	2N	2	2	2	2	8+	600av	7.2av	163 av	Good	Good	Good	Good	A	1/2	40+	A mature well-established group between an agriculture field to the northwest and a public bridleway to the southeast. This group includes mature trees and a dense understorey of bramble and self-set young trees.
G5	Mixed species	Semi Mature	4av	2	2	2	2	1	1	1	1	1	25+	250av	3av	28av	Good	Good	Good	Good	C	1/2	40+	This group is an outgrown hedgerow predominantly common hawthorn with common blackthorn and a scrub understorey being made up of predominantly bramble.
W1	Mixed species	Mature	16av	5	5	5	5	3	3	3	3	3	100+	750av	9av	255 av	Good	Good	Good	Good	A	2/3	40+	Species include common oak, turkey oak, silver birch, common ash, field maple, common hazel, common hawthorn, common blackthorn and common holly. This is a very well-established woodland with distinct canopy layers and life stage range. The woodland edge has encroached into the site, including bramble and self-set saplings.
H1	Mixed species	Semi mature	4av	4	4	4	4	1	1	1	1	1	100+	100av	1.2av	5av	Fair	Fair	Fair	Fair	C	1/2	40+	This is a scrubby hedgerow including common hawthorn and common blackthorn. This hedgerow has been trimmed back to the fence line but is largely unmaintained.
H2	Mixed species	Mature	6av	6	6	6	6	1	1	1	1	1	100+	100av	1.2av	5av	Good	Good	Good	Good	B	1/2	40+	Species include common hawthorn, common blackthorn, field maple and common ash. This hedgerow is unmaintained, very well established and dense.

Source: Mott MacDonald, 2025

B Key to Tree Survey Schedule

Tree Referencing	Individual Trees: Number Grouped Trees: G (+number) Hedgerows: H (+number) Woodlands: W (+number)
Life stage	Young Usually <15 years Semi-Mature Significant growth expected, approximately one third of life expectancy complete Early-Mature Full height achieved with further significant growth possible, up to two thirds of life expectancy complete Mature Full height has been achieved with possible spreading of the canopy, usually past two thirds of overall life expectancy Veteran Usually a tree of significant age with characteristics that give additional cultural, landscape and conservation benefits, Over-mature A tree declining due to age as indicated by deterioration in the health and condition of its crown and trunk.
Species	Botanical Name: conforming to the <u>International Code of Nomenclature for algae, fungi, and plants</u> (ICN). For universal plant recognition. Common Name: commonly used names usually on a local and national scale.
Tree Height	The vertical distance between the base of the tree (where soil and buttress meet) and the tip of the highest branch on the tree.
Crown Height	Measured from ground level to the height at which the main crown begins.
Stem Diameter	Stem diameter is measured in mm at 1.5m above ground level, in accordance with Annex C of BS 5837:2012.
Crown spread	Measurements taken from all four cardinal points in metres.
Crow, Stem and Basal Condition	Good Usually healthy with no symptoms of poor health or disease. Fair Exhibiting signs of poor health or minor disease infections that are not considered to be hazardous. Poor Disease present in considerable quantities or with very poor physiological vigour. Very Poor Tree is in a moribund state in extremely poor condition, usually with little chance of recovery.
General Physical Condition	Good A tree with no significant structural defects. Fair Minor defects may have been observed but are not considered to be immediately hazardous. Poor Significant defects found. Tree requires monitoring or remedial works. Very Poor Major defects that require immediate remedial work or the removal of the tree.
Life Expectancy	The estimated number of years before the tree may require removal should no unexpected mechanical or environmental impacts occur to the tree.
Retention Category	Please refer to Cascade Chart for tree quality assessment table in Appendix D.
Comments	Notes are made to inform of any possible defects, peculiarities or points of interest that may relate to the trees position, physiology, safety and possible effects on developments.

C Drawings

C.1 Tree constraints plan

- M100.01-DN-ARBOS1ZZ-004-DR-EN-0016

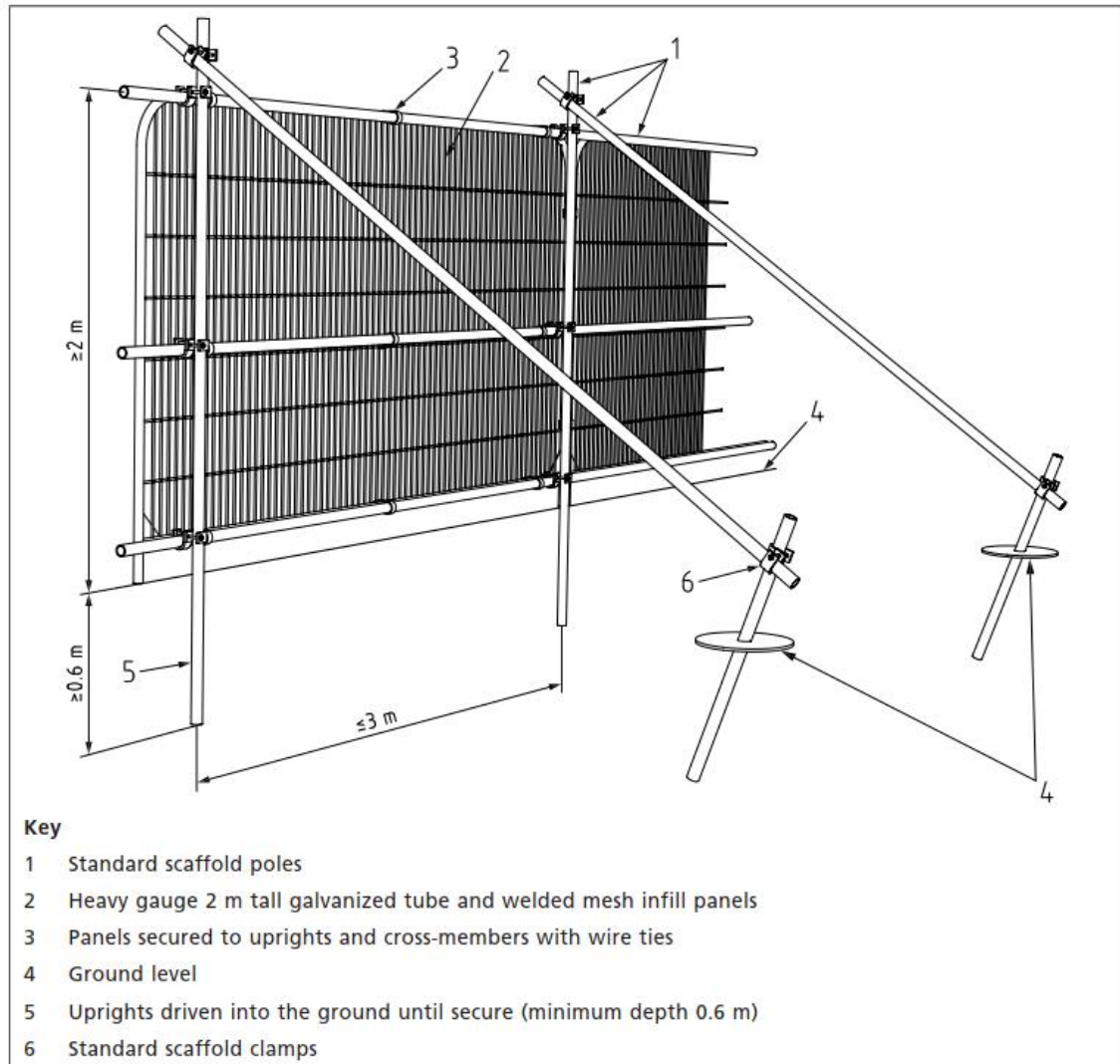


D BS5837:2012 Cascade Chart of Tree Quality

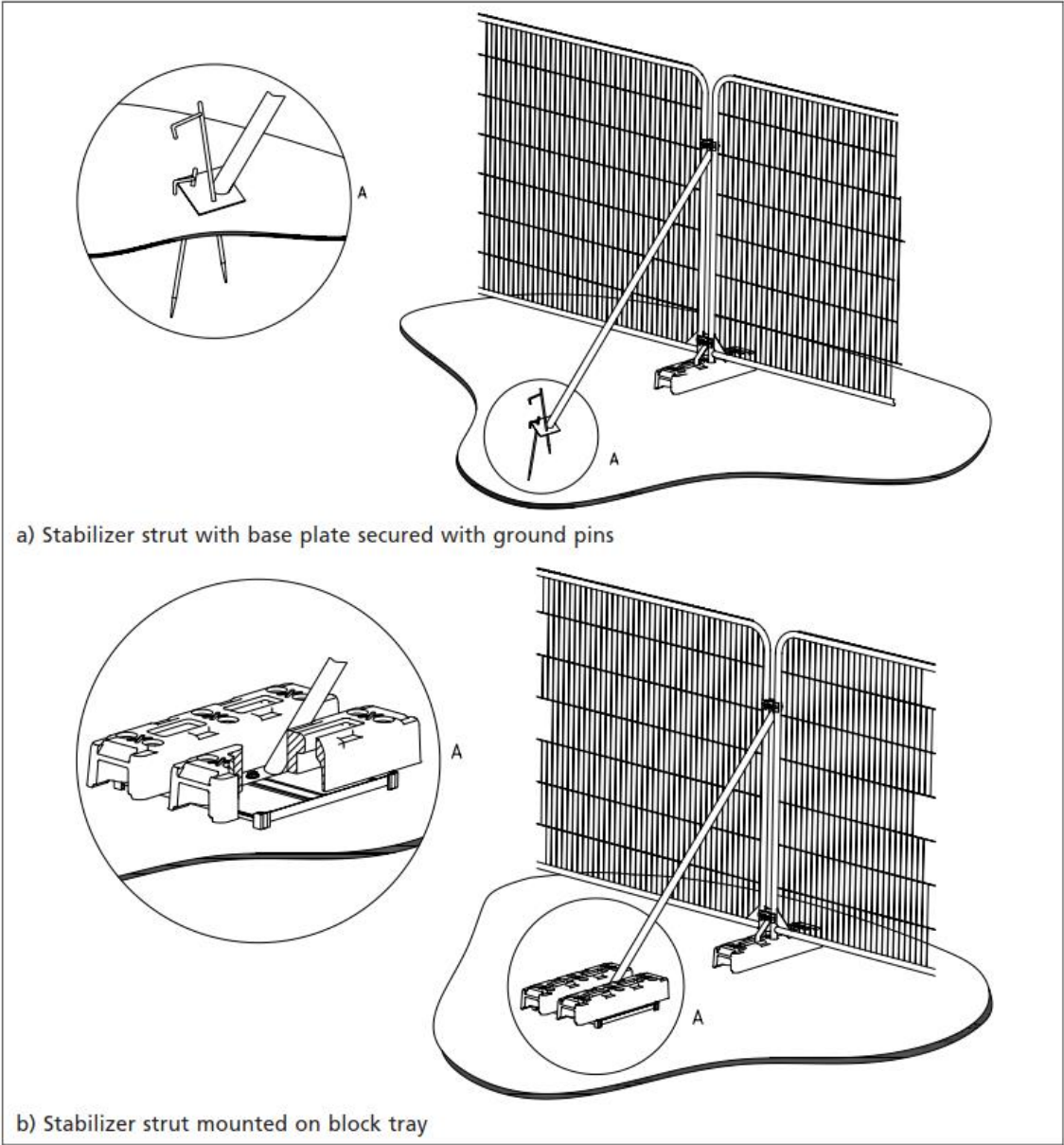
Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see note)			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	• Trees that have 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. • Note: Where trees would otherwise be categorized as U, but have identifiable conservation, heritage or landscape value, even though only for the short term, they may be upgraded, although they might be suitable for retention only where issues concerning their safety can be appropriately managed.		
	1. Mainly arboricultural reason.	2. Mainly landscape qualities	3. Mainly cultural values, Including conservation
Trees to be considered for retention:			
Category A Trees of a high quality, with an estimated life of expectancy of at least 40 years	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)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	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	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.
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	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.

E Tree Protection Measures

E.1 Extract from BS5837:2012 Default specification for protection barrier



E.2 Extract from BS5837:2012 Examples of Ground Stabilising systems



E.3 Extract from BS 5837:2012 Ground Protection during Demolition and Construction

6.2.3.2 Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

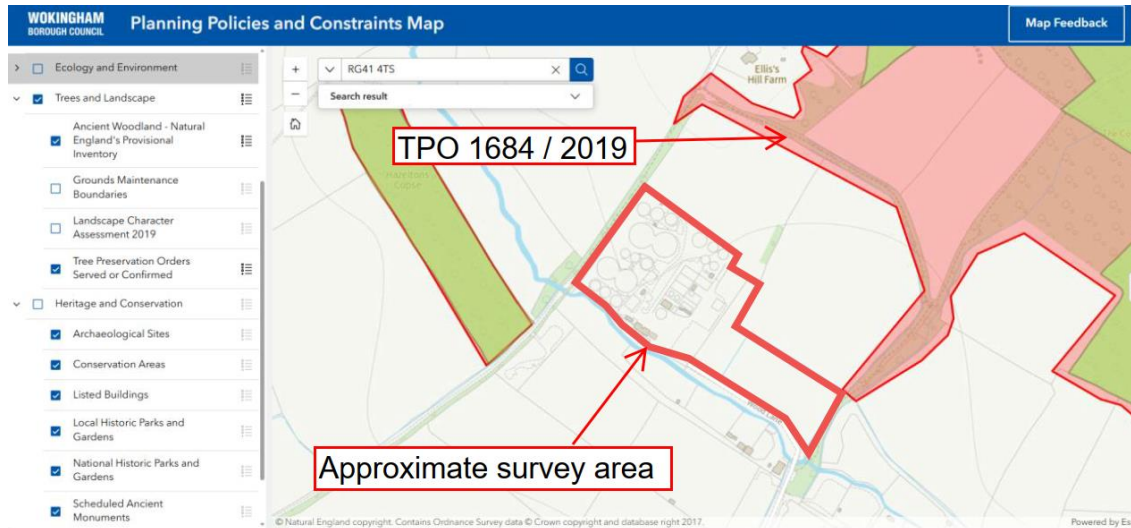
- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*
- b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*
- c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*

6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see 6.1).

6.2.3.5 In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

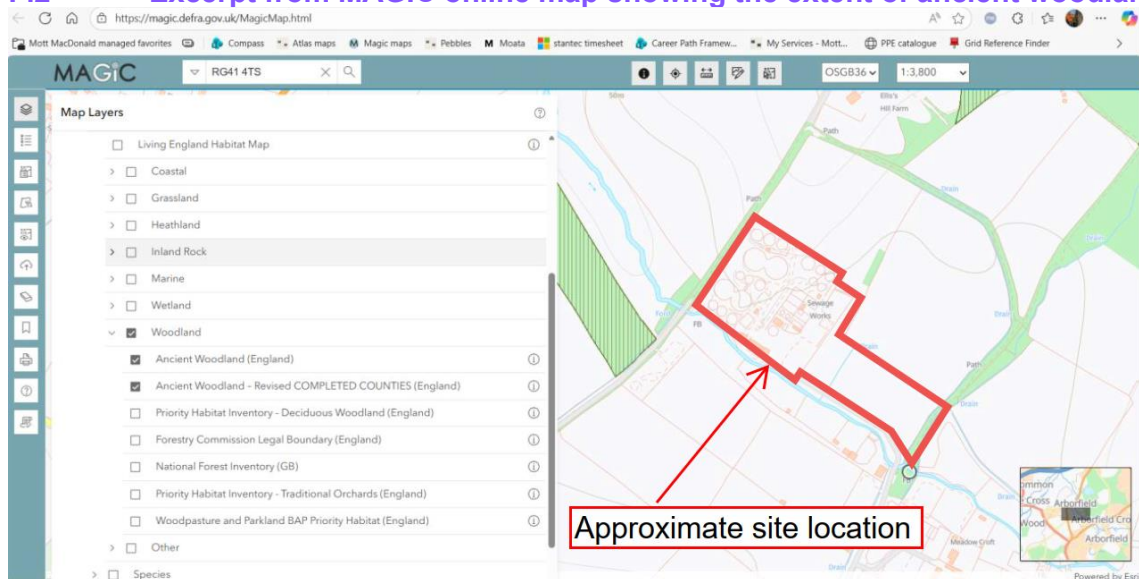
F Statutory Designations

F.1 Screenshot of local authorities online mapping for TPOs or CAs



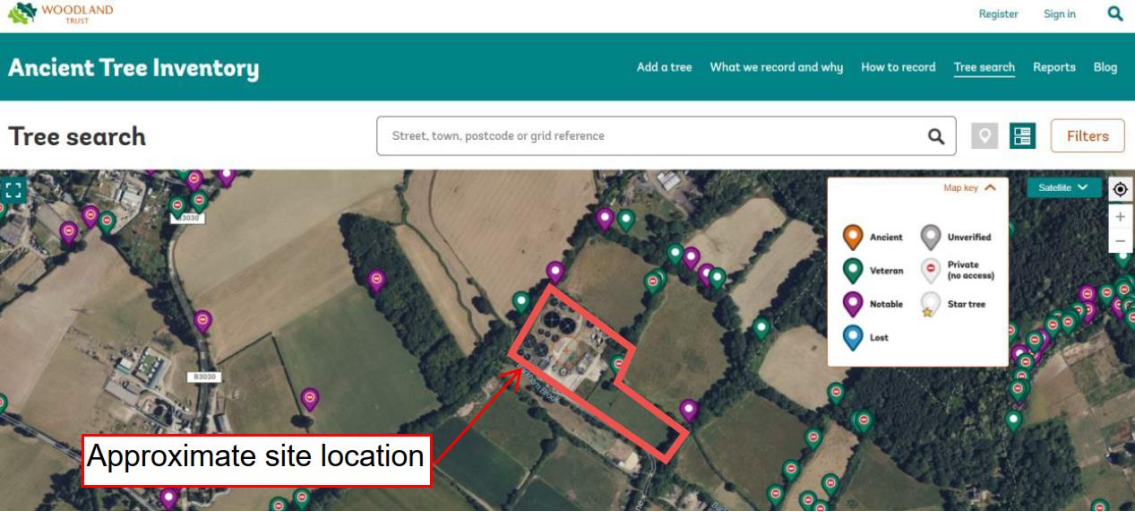
Source: Protected Tree Map

F.2 Excerpt from MAGIC online map showing the extent of ancient woodland



Source: Magic Map Application

F.3 Excerpt from the Woodland Trust’s Ancient Tree Inventory showing two veteran trees and one notable tree within or adjacent to the site.



Source: Tree Search - Ancient Tree Inventory

G Site Photographs

Figure G.1: Tree 1, taken facing east.



Source: Mott MacDonald, 2025

Figure G.2 Tree 2, taken facing west.



Source: Mott MacDonald, 2025

Figure G.3: Trees 5 and 6, taken facing south west.



Source: Mott MacDonald, 2025

Figure G.4: Tree 7, taken facing west.



Source: Mott MacDonald, 2025

Figure G.5: Tree 8, taken facing north.



Source: Mott MacDonald, 2025

Figure G.6: Tree 9 taken facing north.



Source: Mott MacDonald, 2025

Figure G.7: Tree 10 taken facing north.



Source: Mott MacDonald, 2025

Figure G.8: G1 taken facing east.



Source: Mott MacDonald, 2025

Figure G.5: G3, taken facing south.



Source: Mott MacDonald, 2025

Figure G.6: G4, taken facing east.



Source: Mott MacDonald, 2025

Figure G.7: H1 taken facing north.



Source: Mott MacDonald, 2025

Figure G.8: H2 taken facing north.



Source: Mott MacDonald, 2025

