

# North Colchester Sites A, B & C

## Tree Survey Report

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## Table of Contents

<b>Executive Summary .....</b>	<b>.....</b>
<b>1. Introduction.....</b>	<b>1</b>
1.1 Background .....	1
1.2 Trees and the Planning Process: National Policy .....	1
1.3 Local Policy Context.....	2
1.4 Methodology.....	2
<b>2. Field Work Observations .....</b>	<b>4</b>
2.1 The Site .....	4
2.2 The Trees .....	4
2.3 Statutory and Non-Statutory Designations.....	6
<b>3. Tree Related Constraints and Opportunities .....</b>	<b>8</b>
3.2 Tree Categorisations as per BS5837:2012 .....	8
3.3 Tree Retention.....	9
3.4 Third Party Trees.....	9
3.5 Partial Group Removals .....	9
3.6 Root Protection Areas (RPAs) and the Site .....	9
3.7 Ancient and Veteran Trees.....	10
3.8 New Hard Surfacing within RPAs.....	12
3.9 Structure Foundations within RPAs .....	12
3.10 New Services within RPAs.....	13
3.11 Fencing within RPAs .....	13
3.12 Soft Landscaping within RPAs .....	14
3.13 Tree Protection .....	14
3.14 Tree Planting.....	14
<b>4. The Future Impact of Trees .....</b>	<b>16</b>
4.1 Background .....	16
4.2 Tree Growth .....	16
4.3 Shade.....	16
4.4 Detritus/Litter and Honeydew.....	16
4.5 Future Land Use and Tree Management .....	16
<b>5. Summary and Conclusion .....</b>	<b>18</b>
<b>References .....</b>	<b>19</b>
<b>Appendix A Tree Constraints Plan .....</b>	<b>20</b>
<b>Appendix B Tree Survey Schedule.....</b>	<b>21</b>
<b>Key to Abbreviations &amp; Terms Used in the Survey .....</b>	<b>38</b>
<b>Appendix C Site Photography .....</b>	<b>40</b>
<b>Appendix D General Arboricultural Principles.....</b>	<b>41</b>
D.1 General Principles.....	41
D.2 Below Ground Constraints .....	41
D.3 Soils.....	41
D.4 Above Ground Constraints.....	42
D.5 Trees and Risk in the Context of Development .....	42
D.6 Trees and Wildlife.....	42
D.7 Tree Works .....	42

## Figures

Figure 1. Approximate tree feature age range distribution on Site. ....	5
Figure 2. Species distribution of individual trees forming >5% of the surveyed population on and immediately adjacent to the Site. ....	6
Figure 3. Mitigation hierarchy for tree related constraints and opportunities. ....	8
Figure 4. Mitigation hierarchy for ancient and veteran tree features. ....	8

## Tables

Table 1: BS5837:2012 Tree Categorisation process .....	3
Table 2. Summary of tree features in each quality category. ....	4
Table 3. Genera and species identified on and immediately adjacent to the Site. ....	5
Table 4. Likely veteran trees on the Site and the associated buffer zone (15x stem diameter or 5m+ the canopy spread, whichever is greater). ....	12

# Executive Summary

In total, 87 tree features were identified during the survey, formed of 74 individual trees, nine tree groups, three hedgerows, and one woodland. Of these identified tree features, 30 features are of high quality (category A); 21 of moderate quality (category B); 31 of low quality (category C); and 5 identified as unsuitable for retention as living trees for more than ten years in the context of the current land use (category U).

On and immediately adjacent to the Site, 18 veteran trees and have been identified. Development proposals will not be accepted where they result in detrimental impacts or loss of ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy exists, in accordance with the NPPF (2024). Two dead trees which are likely mature are also present on Site. These features are also likely to qualify as veteran in accordance with the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations (2023) definition (BNG falls outside the scope of this assessment).

The Site includes no recorded ancient semi natural woodland, replanted ancient woodland or priority habitat designations relating to trees.

No Tree Preservation Order (TPO), Conservation Areas or Sites of Special Scientific Interest have been identified which could influence trees within or adjacent to the Site.

The default position is generally that all new features and associated works be located outside of areas where trees are to be retained. Avoidance of trees is preferential, minimising the impact and using specialist mitigation is considered secondary, with no avoidance of trees and the use of standard construction techniques within influencing distance of trees (such as within RPAs) considered high risk. Veteran tree RPAs should be excluded from all development activities.

In accordance with Colchester City Council planning policies major planning applications are expected to deliver a 10% increase in tree canopy cover. Therefore, if the proposed development will qualify as a major application, reasonable space must be provided for new tree planting to both offset any tree removals and also to allow for the required increased canopy cover via planting (or alternative off site provision if agreed).

In the context of the Site it is understood that a new vehicular access and egress route is required to the east of the archery field. This area of the Site is intersected by an established line of mature trees (predominantly oak) and includes high quality and veteran trees as well as dead/dying mature trees which could be considered to also be veteran in relation to BNG definitions. There are no areas which are sufficiently clear of significant tree constraints, therefore consultation with the LPA Tree Officer is recommended to determine the optimal location for new access routes. The use of three dimensional cellular raft systems is likely to be required as a minimum.

# 1. Introduction

## 1.1 Background

- 1.1.1 AECOM has been instructed by Colchester City Council (the Client) to carry out a Tree Survey to BS5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS5837:2012); to include trees with the potential to be affected by development works within or immediately adjacent to the predetermined area of the site, located on land centred on grid reference TL995294 (hereafter referred to as ‘the Site’).
- 1.1.2 This report identifies preliminary information in relation to the nature and level of constraints posed by existing trees on the Site and is intended to inform the development of any design proposals and working methodologies to ensure that the potential impacts on significant trees are fully considered.

## 1.2 Trees and the Planning Process: National Policy

- 1.2.1 The National Planning Policy Framework (NPPF, 2024) as updated February 2025, seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees form an integral part. This encompasses a recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaptation. The NPPF also seeks to achieve the protection and enhancement of landscapes and a net gain in biodiversity. Finally, it specifically identifies veteran and ancient trees and woodland as a highly valuable and irreplaceable habitat.
- 1.2.2 The NPPF (2024) includes the following statements in relation to trees:
- “136. Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users”.*
- “193. 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 reasons and a suitable compensation strategy exists”.*
- 1.2.3 ‘BS5837:2012 Trees in relation to design demolition and construction – Recommendations (BS5837:2012)’ provides a framework which sets out how trees should be considered in this context and also explicitly applies to development where planning consent is not required.
- 1.2.4 BS5837:2012 recommends that a tree survey is undertaken to identify the quality and benefits of trees and the spatial constraints associated with them. This is then used to produce a Tree Constraints Plan showing the above and below ground constraints associated with trees. This drawing is used to inform the design process and to allow the retention of good quality trees where appropriate.
- 1.2.5 An Arboricultural Impact Assessment is then developed to identify the likely direct and indirect impacts of the Proposed Development, and a Tree Protection Plan is prepared to identify trees to be removed or retained and to illustrate how retained trees are to be protected. An Arboricultural Method Statement is often required as a condition of planning consent to detail how sensitive operations are to be achieved in proximity to retained trees. These elements are the minimum normally required for a planning

application and are intended to ensure both a sustainable and harmonious relationship between trees and new development.

## 1.3 Local Policy Context

1.3.1 Local Planning Authorities (LPA) in the UK have a statutory duty to consider both the protection and planting of trees when considering planning applications. The potential impact of development on all trees (including those not protected by a Tree Preservation Order or other statutory designation) is therefore a material consideration.

1.3.2 The Site is within the planning authority of Colchester City Council. A desktop review of Colchester City Council's planning policies relating to trees was undertaken on 21<sup>st</sup> of May 2025.

1.3.3 The following excerpts identify the importance of tree retention, protection and where this is not feasible, mitigation for tree loss in relation to any new development:

Colchester Borough Local Plan 2017 – 2033 Section 2,

1.3.4 Policy ENV1: Environment

*'Irreplaceable habitats Proposals that would result in the loss of irreplaceable habitats, such as ancient woodland, Important Hedgerows and veteran trees will not be permitted unless there are wholly exceptional reasons and a suitable compensation strategy, to the satisfaction of the local planning authority, exists.'*

1.3.5 Climate Change Policy

*'The tree canopy coverage for Colchester Borough is currently 18% varying between wards / locations there are some areas with larger and better canopy cover and others with significantly less. As per the recommendation above, the long-term aim should be to increase the canopy cover of the borough to 20% and then 25%. It is recognised that this is an aspirational target, but that new development should seek to contribute to increase tree canopy cover where appropriate. It is considered that 10% as a target on development sites where appropriate would help to mitigate the likely losses of trees over the plan period whilst steadily increasing the overall canopy cover of the borough.'*

*'A Canopy Cover Assessment will be required for all major applications. Development proposals should seek where appropriate to increase the level of canopy cover on site by a minimum of 10%. In circumstances, where this is not possible or desirable, compensatory provision should be identified and secured through a legal obligation. This will increase the overall canopy cover of the borough, enable sites to mitigate and adapt to climate change and deliver biodiversity net gain.'*

1.3.6 Colchester City Council Regulation 18 Local Plan Habitat Regulations Assessment (February 2025) states:

Policy GN4: Tree Canopy Cover

*'This policy sets out the requirement for a Tree Canopy Cover Assessment to be carried out for all major applications and for such developments to seek opportunity to increase the level of canopy cover on site by a minimum of 10%. New and existing trees must be incorporated into new developments and new streets should be tree lined.'*

Policy EN5: New and Existing Trees

*'This policy ensures that opportunities for new tree planting as part of major development are sought and the existing trees are incorporated within new development.'*

*'This policy relates to the protection of existing trees within new development and the requirement for new trees to be planted within major developments.'*

## 1.4 Methodology

1.4.1 No topographical plan has been provided showing trees; trees have been plotted indicatively with reference to site features and publicly available aerial photography. As such all positions for these trees must be considered to be indicative only and the relative distances of features must be measured out

on the Site as required. One tree (T62) has been positioned via on site measurements provided by the client and is therefore considered to be accurately positioned.

- 1.4.2 The survey was otherwise conducted in accordance with the requirements of BS5837:2012.
- 1.4.3 The fieldwork informing this report has comprised a preliminary, non-intrusive, visual walkover survey undertaken from ground level with the specific intention of evaluating the quality and benefits of trees on the Site. The initial fieldwork was undertaken in May 2025, during which dimensional data and observational information were collected. A diameter tape measure was used to measure stem diameters where feasible.
- 1.4.4 Where further inspection is deemed appropriate to ascertain the condition of the tree or other arboreal features, this has been identified within the preliminary management recommendations. Average dimensions or dimensional ranges have occasionally been used, where appropriate, to best describe features.
- 1.4.5 The Root Protection Area (RPA) is the notional extent of what is considered to be the key rooting area for tree health and function. This is generally depicted as a circle but can be amended to a polygon with an equivalent area in accordance with Section 4.6.2 of BS5837:2012 where the RPA is likely to have developed asymmetrically. The RPA of all surveyed trees is depicted as a circle and no RPAs have been amended, with exception to T3, T9, T11, T15, T17, T18, T21, T22, T28, T32, T33, T36, T62, T67, T68, T81, T83, and T84 all considered likely veteran trees. These trees subsequently have buffer zones (hereafter referred to as RPAs) as 15 times the stem diameter or five metres beyond the crown spread, whichever is greater. Further details may be found in Section 3.7.
- 1.4.6 A Tree Constraints Plan showing the position of trees and the spatial constraints associated with them is included as Appendix A of this report, which corresponds with the Tree Survey Schedule presented in Appendix B.
- 1.4.7 The tree categorisation process recommended by BS5837:2012 is summarised in the table below and corresponds with the tree canopy outline shown on the Tree Constraints Plan (Appendix A) and the information in the Tree Survey Schedule (Appendix B).

**Table 1: BS5837:2012 Tree Categorisation process**

Category	Definition
A	High quality, minimum of 40+ years remaining contribution
B	Moderate quality, minimum of 20+ years remaining contribution
C	Low quality, minimum of 10+ years remaining contribution
U	Unsuitable for retention, <10 years remaining contribution
1	Arboricultural value
2	Landscape value
3	Conservation or cultural value

## 2. Field Work Observations

### 2.1 The Site

- 2.1.1 The Site is shown on the Tree Constraints Plan included within Appendix A of this report.
- 2.1.2 The Site is located on a semi-urban edge of Colchester, Essex, situated immediately north of the A12 and adjacent to the Colchester Park and Ride. The area is characterised by recreational land use, specifically grassed playing fields associated with the Colchester & District Archery Club. To the north is a watercourse, Salary Brook. To the west, the Site is adjacent to the Park and Ride facility and associated access roads. The surrounding area features a mix of infrastructure, including sporting facilities, parking areas, and road links.
- 2.1.3 Following a review of the British Geological Survey's Geology of Britain Viewer<sup>1</sup> on 21<sup>st</sup> May 2025, Site bedrock is identified as Thames Group - Clay, silt and sand.
- 2.1.4 Following a review of LandIS's Soilsapes mapping<sup>2</sup> on 21<sup>st</sup> May 2025, soils are described for the Site as slightly acid loamy and clayey soils with impeded drainage.

### 2.2 The Trees

- 2.2.1 In total, 87 tree features were identified during the survey, formed of 74 individual trees, nine tree groups, three hedgerows, and one woodland.
- 2.2.2 Of these identified tree features, 30 features are of high quality (category A); 21 of moderate quality (category B); 31 of low quality (category C); and 5 identified as unsuitable for retention as living trees for more than ten years in the context of the current land use (category U).
- 2.2.3 Table 2 below summarises the number of trees in each quality category recorded within or adjacent to the Site.

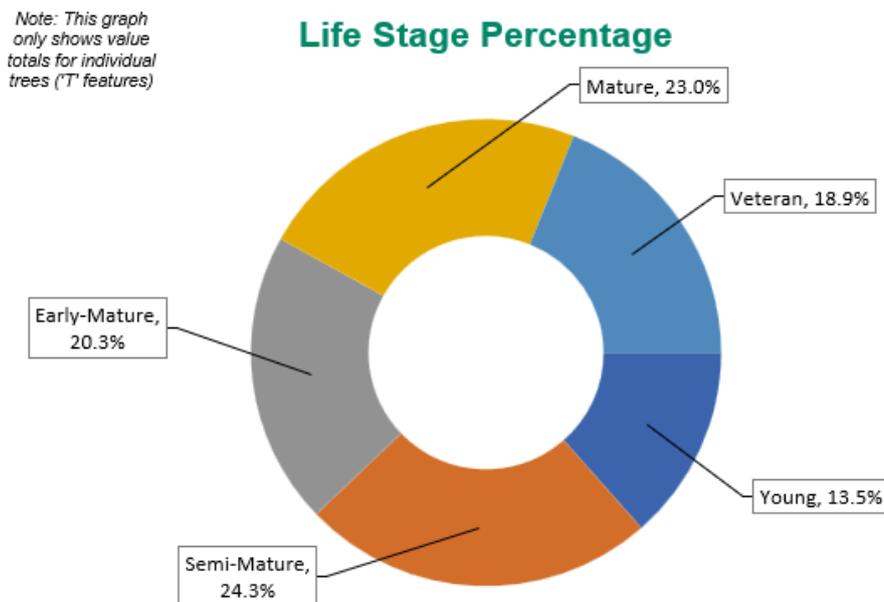
Quality Category	A	B	C	U
Number of tree features	30	21	31	5

**Table 2. Summary of tree features in each quality category.**

- 2.2.4 The trees on Site range between young and veteran life stages, showing a fairly even age distribution (with an approximate life stage distribution shown as Figure 1 below) although young trees are arguably under represented. Surveyed trees are generally in a good physiological and structural condition.

<sup>1</sup> [https://geologyviewer.bgs.ac.uk/?\\_ga=2.120388296.1314596318.1696506787-1350890113.1696506787](https://geologyviewer.bgs.ac.uk/?_ga=2.120388296.1314596318.1696506787-1350890113.1696506787)

<sup>2</sup> <https://www.landis.org.uk/soilsapes/>



**Figure 1. Approximate tree feature age range distribution on Site.**

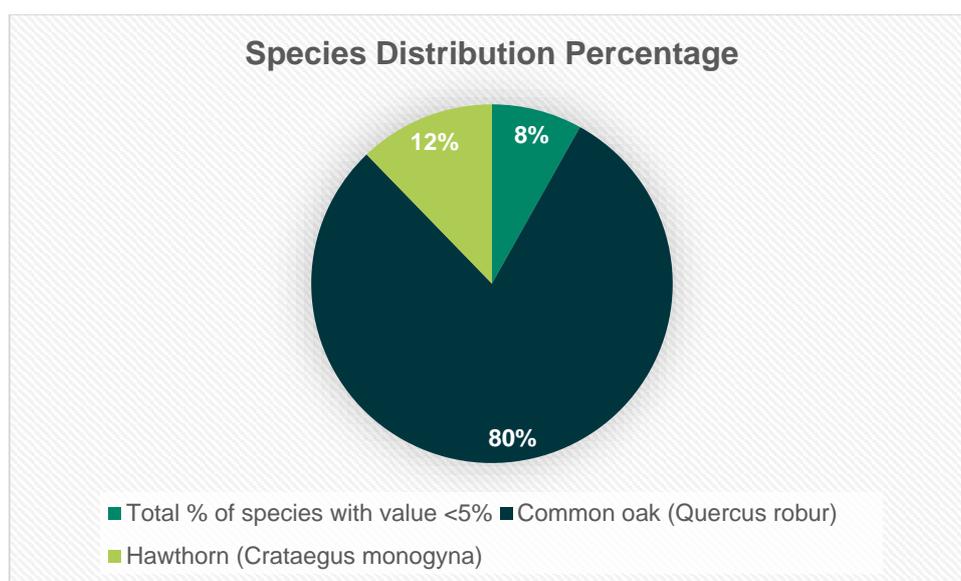
2.2.5 Tree species identified on and immediately adjacent to the Site are shown in Table 3.

Species Common Name ( <i>Scientific Name</i> )	Species Common Name ( <i>Scientific Name</i> )
Field Maple ( <i>Acer campestre</i> )	Blackthorn ( <i>Prunus spinosa</i> )
Sycamore ( <i>Acer pseudoplatanus</i> )	Common Oak ( <i>Quercus robur</i> )
Silver Birch ( <i>Betula pendula</i> )	Wild Rose ( <i>Rosa sp.</i> )
Dogwood ( <i>Cornus sp.</i> )	Goat Willow ( <i>Salix caprea</i> )
Hawthorn ( <i>Crataegus monogyna</i> )	Elder ( <i>Sambucus nigra</i> )
Broom ( <i>Cytisus scoparius</i> )	Gorse ( <i>Ulex sp.</i> )
Holly ( <i>Ilex aquifolium</i> )	

**Table 3. Genera and species identified on and immediately adjacent to the Site.**

2.2.6 The most significant trees identified during the survey are T3, T9, T11, T15, T17, T18, T21, T22, T28, T32, T33, T36, T62, T67, T68, T81, T83, and T84 all considered likely veteran trees. Veteran and ancient trees provide irreplaceable habitat and are afforded significant weight in the planning process (NPPF, 2024). Details on veteran and ancient trees can be found in Section 3.7. Two dead trees which are likely mature are also present on Site. These features may also qualify as veteran in accordance with the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations (2023) definition (BNG falls outside the scope of this assessment). A number of oak trees on Site feature bleeding lesions which may indicate *Phytophthora* sp. infection, acute oak decline or other pathogens. Further investigation is recommended to determine the cause of the bleeding and to inform future management.

2.2.7 Figure 2 below shows the distribution of individual surveyed tree species on and immediately adjacent to the Site. The species distribution highlights the dominance of common oak. Due to relatively poor species diversity (including the dominance of oak and the associated risks of species specific pests and diseases such as acute and chronic oak decline and oak processionary moth), the Site is therefore at risk from a loss of canopy cover. It is generally accepted that a single species should form no more than 10% of an urban forest population, due to the potential risk to canopy cover should that species be lost (due to climate change, pests and diseases etc). The development proposals therefore represent a significant opportunity to increase the tree species diversity on the Site through new and replacement planting.



**Figure 2. Species distribution of individual trees forming >5% of the surveyed population on and immediately adjacent to the Site.**

2.2.8 Where risks are acceptable the retention of dead and dying trees can provide important habitat for biodiversity. Where trees are to be removed, retaining arisings in situ as deadwood habitat is recommended where feasible. The UK Forest Standard (2023) recommends a target of 20-30m<sup>3</sup> of deadwood per hectare as a deadwood target for woodland management.

2.2.9 Site photography can be found at Appendix C.

## 2.3 Statutory and Non-Statutory Designations

### Statutory Designations

2.3.1 Colchester City Council's online statutory designation mapping<sup>3</sup> was accessed on 21<sup>st</sup> May 2025 to confirm the presence or absence of Tree Preservation Orders (TPOs) and Conservation Areas (CAs) which may affect trees on or immediately adjacent to the Site, and none were identified.

2.3.2 Magic map<sup>4</sup> was accessed on 21<sup>st</sup> May 2025 to identify the presence or absence of any Sites of Special Scientific Interest (SSSI) and Scheduled Monuments, and none were identified which could influence trees on or immediately adjacent to the Site.

2.3.3 The Hedgerow Regulations (1997) protect agricultural or countryside hedgerows which meet the requirements of an 'important hedgerow'. These include hedgerows which are a minimum age of 30 years or more and meet one of the other significance criteria listed in the regulations, which include a wide range of other ecological and archaeological/heritage features. Advice is therefore required from qualified ecologists and heritage specialists in respect of works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the Local Planning Authority. Full planning consent is an exemption to this requirement.

2.3.4 A felling licence may be required by the Forestry Commission to fell more than 5m<sup>3</sup> in any calendar quarter (subject to relevant exceptions such as 'necessary' works by statutory undertakers, works required to fulfil an act of parliament, works to trees in gardens, designated public open spaces or churchyards).

2.3.5 Section 115 of the Environment Act (2021) requires local highway authorities in England to consult with the public in relation to the proposed felling of 'street trees' (a tree on an urban road) unless the works are required to implement planning permission granted under section 70, 73, 76D, 77 or 79, or outline planning granted under section 92 of the Town and Country Planning Act (1990). Other exceptions also

<sup>3</sup> <https://property.colchester.gov.uk/NorthgateM3LP/ES/Presentation/Gis/Planning/Map>

<sup>4</sup> <https://magic.defra.gov.uk/MagicMap.html>

may apply and are detailed at <https://www.legislation.gov.uk/ukpga/2021/30/part/6/crossheading/tree-felling-and-planting>.

- 2.3.6 The Management of Hedgerows (England) Regulations 2024 prevents the cutting or trimming of (or the permitting of another person to cut or trim) an important agricultural hedgerow that is covered by the legislation from 1<sup>st</sup> March to 31<sup>st</sup> August, subject to the relevant exemptions. Any trees growing in a hedgerow are treated as part of the hedgerow.
- 2.3.7 Full planning consent is an exemption from the need to apply for consent for works to trees protected by a Tree Preservation Order where the works are necessary to achieve the development or where the works are explicitly included within the planning permission decision notice, the need to give notice of the intention to undertake works within a Conservation Area and the need to apply for a Felling Licence with the Forestry Commission.
- 2.3.8 A new TPO can be made by the LPA at any time. Prior to any tree works the status of trees to be removed or pruned must be verified with Colchester City Council and the Forestry Commission as appropriate.

### **Non-Statutory Designations**

- 2.3.9 Following a review of Magic Map<sup>5</sup> on 21<sup>st</sup> May 2025 the Site includes no ancient semi natural woodland, replanted ancient woodland or priority habitat designations relating to trees.
- 2.3.10 Following a review of the Woodland Trust's Ancient Tree Inventory<sup>6</sup> on 21<sup>st</sup> May 2025, no recorded veteran, ancient or notable trees were identified adjacent to the Site.
- 2.3.11 However, the Ancient Tree inventory is populated with volunteer entries (which are reviewed by the Woodland Trust's team of verifiers) and is therefore not considered a complete record. During the tree survey, 17 likely veteran trees (T3, T9, T11, T15, T17, T18, T21, T22, T28, T32, T36, T62, T67, T68, T81, T83, and T84) have been identified on Site. Further details may be found in section 3.7. Two dead trees which are likely mature are also present on Site. These features may also qualify as veteran in accordance with the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations (2023) definition (BNG falls outside the scope of this assessment).

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<sup>5</sup> <https://magic.defra.gov.uk/MagicMap.aspx>

<sup>6</sup> <https://ati.woodlandtrust.org.uk/tree-search/>

### 3. Tree Related Constraints and Opportunities

- 3.1.1 The Tree Constraints Plan (Appendix A) shows the area of constraints associated with the trees on the Site. As identified within the drawing key, the green shaded area shows the extent of tree canopies, the canopy outline colour indicates the quality category of the tree and the dashed black line is indicative of the RPA, which is the nominal area of tree roots which are generally considered essential to tree health and function. Roots are likely to extend outside of this point but beyond the RPA extent tree roots are not considered a significant constraint.
- 3.1.2 The default position is generally that all new features and associated works be located outside of areas where trees are to be retained. A mitigation hierarchy for tree related constraints and any proposed development is shown in Figure 4 and 5 below; avoidance of trees is preferential, minimising the impact and using specialist mitigation is considered secondary, with no avoidance of trees and the use of standard construction techniques within influencing distance of trees (such as within RPAs) considered high risk.

Figure 3. Mitigation hierarchy for tree related constraints and opportunities.

Impact to Trees: Design Mitigation	Risk Level		
	Low	Moderate	High
Avoid			
Minimise			
Specialist Arboricultural Mitigation			
Standard Construction Techniques			

Figure 4. Mitigation hierarchy for ancient and veteran tree features.

Impact to Ancient and Veteran Tree, and Ancient Woodland Features: Design Mitigation	Risk Level		
	Low	High	Very High
Avoid the Buffer Zones			
Minimise impact, utilise specialist arboricultural mitigation and produce suitable compensation strategy			
Standard Construction Techniques			

### 3.2 Tree Categorisations as per BS5837:2012

- 3.2.1 The trees on the Site have been assigned to a quality category as per BS5837:2012, which relates to their arboricultural, landscape and cultural/conservation value (as shown in Table 2 of this report).
- 3.2.2 Category A trees (green canopy outline) are classified as being of high quality and trees of this nature should be retained and incorporated into the design of the Proposed Development due to the high level of benefits they provide.
- 3.2.3 Category B trees (blue canopy outline) are described as being of moderate quality and it is generally desirable to retain trees of this standard and incorporate them within the Proposed Development wherever feasible.

- 3.2.4 Category C trees are shown by a grey canopy outline on the Tree Constraints Plan (Appendix A). This means they are of relatively low quality and would not normally be considered a significant constraint to future development. However, these trees may still provide some useful value and should be considered for retention where they do not pose a significant constraint to the Proposed Development.
- 3.2.5 Category U trees (red canopy outline) are trees with less than ten years of reasonable useful life expectancy or those in such poor condition that they should be removed, regardless of any development activity. Trees of this nature represent no constraint to development.

### 3.3 Tree Retention

- 3.3.1 In planning terms lower quality trees can often be straightforwardly removed to facilitate development where their loss can be mitigated with replacement tree planting or where no replacement planting is necessary. This is likely to apply to category C and category U trees and hedgerows where there are no other constraints in place (e.g., ecological or heritage).
- 3.3.2 The default position must be that higher quality trees (category A and B) be retained and protected however in some cases it may also be feasible to remove trees of this quality where there is no reasonable alternative and where the benefit of the development outweighs the impact of the loss of the trees. Should this be required pre application discussions with Colchester City Council are recommended to manage the risk of refused consent.
- 3.3.3 The loss of ancient or veteran trees is highly unlikely to be acceptable; as per the NPPF (2024), detrimental impacts to or loss of ancient or veteran trees will not be acceptable unless there are wholly exceptional reasons and a suitable compensation strategy exists.

### 3.4 Third Party Trees

- 3.4.1 A number of the trees identified during the tree survey are established on or immediately beyond the red line boundary. If any of the trees are owned by third parties, prior consent must be in place before any tree works outside those permitted under established rights in common law are carried out and it is recommended that this is secured prior to the submission of any planning application.

### 3.5 Partial Group Removals

- 3.5.1 The development of tree groups and woodlands facilitates shelter to individuals as the group collectively acts to reduce dynamic loading (e.g., wind) within. As such, partial removal of groups of trees and woodlands, notably at windward edges (south/southwest), increases exposure to trees which have been previously sheltered (companion shelter). Sudden increases in exposure by partial removals to tree groups, with trees otherwise un-adapted to the change may result in an increase in the likelihood for tree failure of the remaining trees. This likelihood is determined by numerous factors including the stand density, total tree height, soils, climate, aspect and topography, etc.
- 3.5.2 Where possible tree groups and especially windward edges should be retained intact. Where partial removal of tree groups and/or woodlands is to be undertaken, trees at the new edge should be assessed for retention suitability by a qualified arboriculturist to determine the final extent of tree loss (noting that this cannot generally be confirmed until initial site clearance works have been completed).

### 3.6 Root Protection Areas (RPAs) and the Site

- 3.6.1 Tree roots are considered to provide four principal functions to a tree, these being: for support; to absorb and conduct water; to absorb and conduct nutrients; and to act as a storage organ for energy (e.g., starch). Roots are opportunistic, growing only where conditions allow. As roots require aerobic conditions, they are likely to be limited in Britain to the first couple of metres of soil, distributed most densely near to the surface horizons, becoming significantly more sparse as the soil depth increases.
- 3.6.2 BS5837:2012 identifies that roots typically develop within the top 600mm of the soil horizon. Biddle (1998) describes the majority of roots to be within the top 500mm of the soil profile with few roots exceeding 1m in depth. By volume, this is likely to be identified as 90% of roots within the first metre of soil (Roberts, Jackson and Smith, 2006). This is considered to be where the majority of organic material, soil moisture, aeration and lower soil bulk densities (lower mechanical resistance) are present.

- 3.6.3 The depth of rooting on Site may be greater than 600mm where conditions allow; conditions may also be present which limit or prevent rooting to this depth. Limiting factors for root growth within soil are summarised by Crow (2005) as: mechanical resistance, aeration, fertility and moisture. These factors are likely to be affected not only by the innate properties of the soil, but also by human intervention (such as changes in soil conditions caused by ploughing). These limiting factors within soil are likely to be highly heterogenous, resulting in a similarly heterogenous distribution of roots, opportunistically establishing in subterranean areas preferential for root growth.
- 3.6.4 Root protection areas (RPAs) are defined by BS5837:2012 as “a design tool to indicate the minimum area around a tree deemed to contain sufficient rooting volume to maintain a tree’s viability, where the protection of roots and soil structure within the notional area are treated as a priority”. The Root Protection Area (RPA) is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. This area is deemed to be particularly important for tree stability, growth, function and health. RPAs are calculated as per BS5837:2012 Annexe C, D and Section 4.6 in the BS5837:2012 Document.
- 3.6.5 Roots can be damaged by physical severance or wounding (e.g., following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or structural instability. Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel and chemicals) can lead to root death and dysfunction. Soils can be compacted to levels inhospitable to tree growth with even a single pass of machinery, regular pedestrian traffic or the storage of plant and materials. Relieving compaction can be problematic and may require costly remedial works. Changes in drainage/water levels can also have significant long-term impacts for tree health.
- 3.6.6 The RPA also protects soil flora (e.g., fungi and bacteria) and fauna (e.g., earthworms, nematodes etc), which are crucial to the normal functioning and health of trees. Through the facilitation and action of key processes including nutrient acquisition (e.g., mutualistic symbionts such as mycorrhizal fungi) and through nutrient cycling processes which breakdown and release nutrients into the soil (e.g., saprotrophic organisms), soils contain keystone species which maintain normal biological conditions for plant and animal life. Soil flora and fauna may be disrupted, damaged or otherwise destroyed through the alteration of soil conditions from the ‘normal’ baseline, which includes but is not limited to compaction of soil aggregates; exposure and mixing of soil horizons; alterations to the water cycle (e.g., infiltration and transpiration) and soil water conditions (e.g., changes to the water table or soil water drainage); and to alterations of chemical and nutrient levels in the soil (e.g., acidification and nitrogen enrichment).
- 3.6.7 The effects of these incursions may take many years to manifest, with a resulting decline in amenity value and potentially the death or failure of the tree. It should be noted that older trees are particularly sensitive to damage and changes in rooting conditions.
- 3.6.8 The RPA of the existing tree stock is an important material consideration when considering the Site’s constraints and planning development activities. The default position must be that all development, including any associated services, will occur outside the RPAs of retained trees. Where this is unavoidable, it may be appropriate to use special measures to install structures, services or surfacing within RPAs which allow the protection of roots and soil structure which are essential for tree growth; all incursions should be minimised and it may be advisable to discuss the acceptability of significant incursions with the LPA to inform the design process. Incursions within the RPA of ancient or veteran trees are highly unlikely to be acceptable and should be avoided wherever possible.
- 3.6.9 Further steps to improve or increase the useable rooting area available to the tree may also be required to facilitate sufficient rooting volume to maintain a tree’s viability.

## 3.7 Ancient and Veteran Trees

- 3.7.1 Ancient and veteran trees provide irreplaceable habitat and are afforded a high priority in the planning process. Development proposals will not be accepted where the result in detrimental impacts or loss of ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy exists, in accordance with the NPPF (2024).
- 3.7.2 Ancient and veteran trees are defined within the NPPF (2024) as “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.”

- 3.7.3 To qualify as ancient a tree should be beyond the normal age for the species and this is considered with reference to draft tree girth charts provided by the Ancient Tree Forum along with other characteristics such as crown form.
- 3.7.4 There are multiple definitions for veteran trees and no universally recognised system of classification. Most approaches recognise that veteran trees are ‘survivors’ and are likely to share the habitat features typical of ancient trees without being chronologically ancient. AECOM has considered trees for potential veteran status where they are at least mature and exhibit extensive deadwood or decayed wood habitat features. Two dead or near dead trees (T14 and T29) which are likely mature are also present on Site. These features may also qualify as veteran in accordance with the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations (2023) definition (BNG falls outside the scope of this assessment).
- 3.7.5 Industry guidance such as Ancient and Other Veteran Trees – Further Guidance on Management<sup>7</sup> (Lonsdale, D. 2013) and Forestry Commission and Natural England Standing Advice (2022)<sup>8</sup> (England) identifies that veteran trees should have a greater buffer zone than non-veteran trees and that this should be uncapped and equivalent to 15 x stem diameter or canopy spread +5m (whichever is greater). The RPA of veteran trees has been adjusted accordingly on the Tree Constraints Plans (Appendix A) and development activity should avoid this area.
- 3.7.6 It is recommended that, as a minimum, this RPA is entirely excluded from all development activity and considered a construction exclusion zone, with additional offsets where possible. Where this is not feasible, it may be difficult to justify that any impact is not detrimental and specialist mitigation and compensation is likely to be required to minimise and compensate for any potential impacts to the veteran features (including consultation with relevant stakeholders which could include the LPA, Forestry Commission and/or Natural England).
- 3.7.7 A total of 18 likely veteran trees have been identified on the Site and these are shown within Table 4 below with their associated minimum buffer zone/RPA.

Tree ID	Species Common Name ( <i>Scientific Name</i> )	RPA radius/Buffer (m) as per Forestry Commission and Natural England (2022)
T3	Common Oak ( <i>Quercus robur</i> )	15.15m
T9	Common Oak ( <i>Quercus robur</i> )	11.55m
T11	Common Oak ( <i>Quercus robur</i> )	13.50m
T15	Common Oak ( <i>Quercus robur</i> )	12.54m
T17	Common Oak ( <i>Quercus robur</i> )	11.7m
T18	Common Oak ( <i>Quercus robur</i> )	12m
T21	Common Oak ( <i>Quercus robur</i> )	19.95m
T22	Common Oak ( <i>Quercus robur</i> )	12.15m
T28	Common Oak ( <i>Quercus robur</i> )	12m
T32	Common Oak ( <i>Quercus robur</i> )	17.62m
T33	Common Oak ( <i>Quercus robur</i> )	11.25m
T36	Common Oak ( <i>Quercus robur</i> )	14.47m
T62	Common Oak ( <i>Quercus robur</i> )	13.8m
T67	Common Oak ( <i>Quercus robur</i> )	11.1m
T68	Common Oak ( <i>Quercus robur</i> )	10.83m
T81	Common Oak ( <i>Quercus robur</i> )	10.79m
T83	Common Oak ( <i>Quercus robur</i> )	9.5m

<sup>7</sup> [https://www.ancienttreeforum.org.uk/wp-content/uploads/2015/02/ATF\\_book.pdf](https://www.ancienttreeforum.org.uk/wp-content/uploads/2015/02/ATF_book.pdf)

<sup>8</sup> <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

Tree ID	Species Common Name ( <i>Scientific Name</i> )	RPA radius/Buffer (m) as per Forestry Commission and Natural England (2022)
T84	Common Oak ( <i>Quercus robur</i> )	8.5m

**Table 4. Likely veteran trees on the Site and the associated buffer zone (15x stem diameter or 5m+ the canopy spread, whichever is greater).**

## 3.8 New Hard Surfacing within RPAs

- 3.8.1 Existing field access and egress points should be used for access routes where feasible. However, increased visibility or clearance requirements must be taken into account.
- 3.8.2 The default position is that new hard surfacing should avoid the RPA of retained trees. The installation of new hard surfacing utilising standard construction techniques is likely to require significant excavation. Where works are unavoidable within an RPA, this may lead to premature tree death through the severance of roots enabling colonisation of the inner wood substrate by wood decay fungi; a reduction in water uptake and energy storage; hydraulic dysfunction of sapwood and a potentially significant negative affect on tree stability.
- 3.8.3 Root death may occur where soil levels are increased within RPAs causing a reduction in the normal exchange of soil gases, soil water and a significant increase in mechanical resistance within the soil. Furthermore, the compaction of soil from construction access within RPAs is likely to lead to root death through the aforementioned impacts.
- 3.8.4 To mitigate these impacts where new hard surfacing cannot avoid the RPA of retained trees, new hard surfacing should be constructed utilising a proprietary three-dimensional cellular raft system (such as Cellweb) or equivalent. The raft should be filled with washed angular stone and installed on the existing ground level. The raft then acts as a subbase for any new hard surfacing, mitigating the requirement for excavation. This methodology is likely to increase the final level of the hard surfacing and this must be taken into consideration.
- 3.8.5 The application of any new hard surfacing within the RPA of a veteran or ancient tree is unlikely to be acceptable.
- 3.8.6 New areas of hard surfacing should not generally occupy more than 20% of the unsurfaced RPA of a retained tree, as set out in Section 7.4.2.3 of BS5837:2012.
- 3.8.7 Soil levels should not be increased within RPAs. Where level increases are unavoidable it may be possible to increase levels (where this would not result a change to drainage or aeration) within discrete sections of an RPA through the use of compaction resistant materials, such as sharp sand, three-dimensional cellular rafts or equivalent. Extensive level changes are less likely to be acceptable and any change in levels should avoid the area immediately surrounding the base of the tree and its buttressing.
- 3.8.8 These operations typically require a detailed arboricultural method statement to set out in detail how they can be successfully achieved. All works within RPAs must be supervised by an arboriculturist.
- 3.8.9 In the context of the Site it is understood that a new vehicular access and egress route is required to the east of the archery field. This area of the Site is intersected by an established line of mature trees (predominantly oak) and includes high quality and veteran trees as well as dead/dying mature trees which could be considered to also be veteran in relation to BNG definitions. It is therefore significantly constrained. There are no areas which are sufficiently clear of significant tree constraints, therefore consultation with the Colchester City Council Tree Officer is recommended to determine the optimal location for new access routes. The use of three dimensional cellular raft systems is likely to be required as a minimum.

## 3.9 Structure Foundations within RPAs

- 3.9.1 Standard construction techniques for the installation of structure foundations within RPAs are likely to cause a significant negative effect on structural stability and physiological health.
- 3.9.2 To mitigate against negative impacts, structure foundations are recommended to avoid all RPAs where feasible; Where this is not possible, utilise screw piles of the smallest diameter feasible. Trial holes

should be excavated by hand dig methodologies to a depth of circa 1m to facilitate sensitive positioning of piles. Roots at and over 25mm in diameter and significant bundles of roots should be retained and protected. The pile cap and beam should be located at or immediately above the existing ground level to prevent excavation within the RPA. Concrete poured wet within RPAs should be contained within impermeable sheeting to avoid leaching of toxic chemicals into the root zone. Access within RPAs should utilise appropriate ground protection, specified to dissipate the greatest expected loading. All works within RPAs should be supervised by an arboriculturist.

## 3.10 New Services within RPAs

- 3.10.1 Standard construction methodologies for the installation of new or diverted services within the RPAs of retained trees is likely to require significant excavation. This may lead to premature tree death or decline through the severance of roots enabling colonisation of the inner wood substrate (e.g., by wood decay fungi); a reduction of water uptake and energy storage; hydraulic dysfunction of sapwood and a potentially significant negative affect on tree stability.
- 3.10.2 The default position is that all new services be located outside of RPAs of retained trees. The installation of services is unlikely to be acceptable within the RPA of veteran or ancient trees.
- 3.10.3 Where this is not feasible, the use of two techniques are suggested. In order of priority, these are:
1. The use of trenchless techniques (such as impact moling) to cross underneath any RPA, with the top of the tunnel positioned at least 2m below ground level and entry and retrieval pits sited outside of the RPAs; or
  2. Hand dig excavation methodologies, utilising compressed air and a soil vacuum, or hand tools, to carefully excavate within an RPA, retaining and protecting any significant roots (>25mm in diameter) encountered. (Noting that this technique is less likely to be applicable for services that lack flexibility and cannot be installed around any significant roots encountered, e.g., precast concrete).
- 3.10.4 Where possible, consideration for the bundling of services should be made to avoid multiple excavations.
- 3.10.5 Existing services can be winched out from a manhole/chamber located outside of an RPA and redundant pipework can be decommissioned using pipe bursting techniques to avoid excavation which could damage roots.
- 3.10.6 These operations typically require a detailed arboricultural method statement to set out in detail how they can be successfully achieved. All works within RPAs must be supervised by an arboriculturist.
- 3.10.7 It is widely acknowledged that trees are unable to break into drains/services. Rather, trees exploit weaknesses already present, such as faulty or weak rubber seals on pipeline joints. Utilities should be designed and installed to resist entry by tree roots. Where a survey identifies roots within services, roots may typically be cut out with the identified fault ameliorated. Where significant roots are at risk of severance the advice of an arboriculturist must be obtained.
- 3.10.8 Infrastructure connected to services (e.g., lighting columns or security cameras), should be positioned at appropriate distances to retained or newly planted trees to avoid onerous and damaging tree works. Carefully located low diameter footings (such as driven posts, screw piles or equivalent, positioned following trial hole excavations) can help avoid impacts to roots.

## 3.11 Fencing within RPAs

- 3.11.1 Installation of fencing may sever roots and compact ground within RPAs leading to aforementioned negative impacts to physiological and structural health. Driven posts do not require a footing and should therefore have less of an impact where they can be located to avoid significant roots.
- 3.11.2 Where driven posts are not feasible, fence post excavations within the RPAs of retained trees should be undertaken by hand dig methodologies only (such as utilising hand tools or compressed air), with any significant roots (>25 mm in diameter) retained and worked around.
- 3.11.3 Where significant roots (>25 mm in diameter) or bundles of smaller roots are encountered, fence post excavations should be sensitively repositioned where feasible. Fence post excavations should be lined with robust impermeable sheeting to prevent the leaching of toxic chemicals into the surrounding soil, where applicable.

- 3.11.4 Appropriate ground protection will be required for all access and temporary materials storage within any RPA during installation works. All works within RPAs must be supervised by an arboriculturist.

## 3.12 Soft Landscaping within RPAs

- 3.12.1 Mechanical stripping and cultivation of soil is highly likely to sever roots creating a potential ingress for wood decay fungi, reduce physiological health and potentially significantly affect tree stability. Where impacts are significant, premature tree loss is likely.
- 3.12.2 No mechanical cultivation of soils should be undertaken within the RPAs of any retained trees. Access should be by pedestrian only. Where localised cultivation such as the excavation of tree planting pits is required, this should be undertaken by hand dig methodologies only and locations should be adjusted to avoid significant roots (>25mm diameter). Where any raising of topsoil is required, this should not exceed 100 mm in depth, must avoid the area immediately surrounding the stem base of retained trees and will be of good quality and freely draining.
- 3.12.3 All works within RPAs must be supervised by an arboriculturist.

## 3.13 Tree Protection

- 3.13.1 Trees to be retained in proximity to areas of development activity, including areas for new surfacing, services, work site compounds and storage will need to be protected to ensure they are not damaged. This is generally achieved with the use of robust, immovable temporary tree protection fencing, to prevent access within the RPA or canopy spread of trees. Where access is unavoidable, alternative protection arrangements such as ground protection (sufficient to protect the structure of the soil from compaction), and /or access facilitation pruning (to ensure a reasonable clearance for operations is provided) may be required. The advice of an arboriculturist should be sought to inform this assessment.

## 3.14 Tree Planting

- 3.14.1 Where trees are to be removed due to a conflict with the proposed design, mitigation planting is likely to be required to ensure a continuity of tree cover for the Site and to address any negative impact on local amenity and landscape character (this may also be a requirement in relation to Biodiversity Net Gain (BNG) in accordance with the statutory framework required under Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021). BNG falls outside of the scope of this report.
- 3.14.2 Colchester City Council planning policy requires development to achieve a 10% increase in tree canopy cover in relation to major applications.
- 3.14.3 Consideration should be given to the reasonable provision of space for new tree planting to off-set any necessary tree loss. This should be on site where possible and where this is not feasible offsite planting (as near to the site as possible) is likely to be required.
- 3.14.4 Soil structure in areas for new planting will need to be maintained and may require protection during operation of the Proposed Development to ensure reasonable conditions for future tree growth are available.
- 3.14.5 New planting should consider the existing species mix present on the Site in relation to both arboricultural and ecological considerations. New planting also offers an opportunity to increase the species and age class diversity for a given area which can boost the resilience of the local tree stock in relation to pests, disease and climate change as well as providing a greater range of amenity and other benefits.
- 3.14.6 New trees should be planted in accordance with the guidance set out in BS8545:2014 Trees: from nursery to independence in the landscape - Recommendations (BS8545:2014) and with the minimum distances from new structures, services and surfacing set out in Table A.1 of BS5837:2012. AECOM's arboriculturists can provide further advice in relation to this issue if required.
- 3.14.7 The UK Forest Standard (2023) recommends that no more than 65% of a forest management unit area is allocated to a single species, with a minimum of 5% native broadleaved trees or shrubs, 10% of other tree species and 10% open ground, or ground managed for biodiversity as the primary objective is utilised for new tree planting.

- 3.14.8 In urban areas it is typically recommended that no single species should form more than 10% of the total tree population, a genus more than 20% and a family more than 30%, to reduce the risk of canopy loss to an area, caused by stand level (a contiguous community of trees) mortality (such as due to causal factors such as climate change and novel pests and diseases). A summary of the existing individually surveyed tree population on Site is included in section 2.2.7 and this should inform any new planting proposals.

## 4. The Future Impact of Trees

### 4.1 Background

- 4.1.1 The future impact of trees on the Site must be considered in relation to any development proposals. The key issues between existing trees on Site and the proposed future Site use are considered below.

### 4.2 Tree Growth

- 4.2.1 Trees and groups to be retained have been afforded suitable space to ensure they remain viable in the long term. Trees which are currently not fully grown will increase in size and this has been considered in conjunction with the Proposed Development and future use of the Site. This is especially relevant for all young to semi mature trees, which form approximately 38% of the surveyed tree population.
- 4.2.2 Any trees which develop canopies which overhang structures in the future can be pruned back on an ad hoc basis as required, and this will not represent a substantial change from the current tree management requirements for this part of the Site.

### 4.3 Shade

- 4.3.1 Shading arcs equivalent to tree height and formed of a radius from northwest to due east have been plotted on the Tree Constraints Plan. Shading arcs show the typical extent of likely shading from trees throughout the day (as the sun moves from east to west in a southerly orientation) but do not illustrate areas subject to constant shade.
- 4.3.2 Current shading arc radii are based on detailed tree survey height estimates, and this is included on the Tree Constraints Plan.
- 4.3.3 Trees located to the south and west of structures are likely to cast the greatest degree of shade. Shading from deciduous trees will be reduced in winter following leaf fall when the sun is lowest in the sky and the extent of shade is greatest.

### 4.4 Detritus/Litter and Honeydew

- 4.4.0 Sycamore trees are often associated with aphids which secrete a sticky liquid called 'honeydew'. This can be a nuisance for parked cars and potentially areas of hard surfacing and structures as the deposits can lead to the development of sooty moulds and staining. This can be easily cleaned with warm soapy water or equivalent and is likely to be less visible on darker surfaces.
- 4.4.1 Deciduous trees will drop leaves each autumn; evergreen trees will deposit leaves/needles, seeds and other detritus throughout the year. This is likely to result in a maintenance requirement to manage leaves on hard surfaced footways and to clear gutters where tree canopies extend over or immediately adjacent to roofs. Leaf fall can be easily cleared as required from hard surfacing. Non-slip surfacing can reduce the frequency that this is required. Measures such as Gutter Guards or equivalent can be used to reduce the potential for leaves to block guttering and these should be employed where trees overhang or grow in close proximity to structures.

### 4.5 Future Land Use and Tree Management

- 4.5.1 Retained trees will require periodic inspection to assess their structural condition and safety. Occasional removal of dead wood or other remedial works to address significant defects may be required in areas of frequent access. This is unlikely to be overly onerous and will be the responsibility of the tree owner.
- 4.5.2 All tree works recommended in the Tree Survey Schedule (Annex B) as a result of the preliminary tree surveys considered trees in the context of the present use of the Site (i.e., prior to development proposals). Where these works are not superseded by proposed tree removal, they should be actioned.
- 4.5.3 Tree management is not considered to be a significant constraint to developing the Site however, the Site includes many large trees of varying condition and where the land use is subject to change, tree

condition and the requirement for remedial works or exclusion zones must be reviewed with further advice from an arboriculturist obtained as appropriate.

- 4.5.4 During the construction and operation of the Proposed Development, all staff operating on the Site are to be made aware of the need to look out for obvious signs of tree defects and to report them to the Site Manager who will seek further advice as necessary.

## 5. Summary and Conclusion

- 5.1.1 In total, 87 tree features were identified during the survey, formed of 74 individual trees, nine tree groups, three hedgerows, and one woodland. Of these identified tree features, 30 features are of high quality (category A); 21 of moderate quality (category B); 23 of low quality (category C); and 13 identified as unsuitable for retention as living trees for more than ten years in the context of the current land use (category U).
- 5.1.2 No Tree Preservation Order (TPO), Conservation Areas or Sites of Special Scientific Interest have been identified which could influence trees within or adjacent to the Site.
- 5.1.3 The most significant trees identified during the survey are T3, T9, T11, T15, T17, T18, T21, T22, T28, T32, T33, T36, T62, T67, T68, T81, T83, and T84 all considered likely veteran trees. Veteran and ancient trees provide irreplaceable habitat and are afforded significant weight in the planning process, and development proposals will not be accepted where the result in damage or loss of ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy exists, in accordance with NPPF (2024).
- 5.1.4 Two dead or near dead trees (T14 and T29) which are likely mature are also present on Site. These features may also qualify as veteran in accordance with the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations (2023) definition (BNG falls outside the scope of this assessment).
- 5.1.5 Industry guidance such as Ancient and Other Veteran Trees – Further Guidance on Management<sup>9</sup> (Lonsdale, D. 2013) and Forestry Commission and Natural England Standing Advice (2022)<sup>10</sup> (England) identifies that veteran trees should have a greater buffer zone than non-veteran trees and that this should be equivalent to 15 x stem diameter or canopy spread +5m (whichever is greater). The RPA of veteran trees has been adjusted accordingly on the Tree Constraints Plans (Appendix A) and development activity should avoid this area.
- 5.1.6 It is recommended that this minimum RPA/buffer zone is entirely excluded from all development activity and considered a construction exclusion zone. Where this is not feasible, it may be difficult to justify that any impact is not detrimental and specialist mitigation and compensation is likely to be required to minimise and compensate for any potential impacts to the veteran features.
- 5.1.7 A number of the trees identified during the tree survey are identified on or immediately beyond the Site boundary. If any of the trees are owned by third parties prior consent must be in place before any tree works outside those permitted under established rights in common law are carried out and it is recommended that this is secured prior to the submission of any planning application.
- 5.1.8 Where it is not possible to completely avoid the area of constraint associated with significant trees it may be possible to utilise special measures to facilitate the works. This is less likely to be acceptable for ancient or veteran trees.
- 5.1.9 A key consideration for any development activity will be the protection of the surrounding trees including the structure of the soil in which they grow, including from indirect damage via the storage or discharge of materials and the movement and use of plant and machinery. The default position is that all RPA and canopies of retained trees be fenced off as exclusion zones with no access. Where this is not feasible limited access may be acceptable using fit for purpose ground protection or other protective measures in accordance with BS5837:2012.
- 5.1.10 Outside of the canopy and RPA, development works are not likely to be significantly constrained by trees, however the design should incorporate additional offsets to account for future growth and management and it is important not to significantly impact on ground water levels in proximity to trees and where this could be a potential impact specific arboricultural advice must be obtained.
- 5.1.11 Lower quality trees (category C and U) are not likely to be significant constraint to development where they can be satisfactorily replaced with new tree planting (or where their loss will not have a significant impact - e.g. due to the retention of adjacent trees) and therefore some sections of lower quality tree cover may be feasible to remove from a planning perspective.
- 5.1.12 All moderate and high value trees should be afforded full protection where possible. If the potential removal of higher value trees (category A and B) is unavoidable this should be discussed in advance

<sup>9</sup> [https://www.ancienttreeforum.org.uk/wp-content/uploads/2015/02/ATF\\_book.pdf](https://www.ancienttreeforum.org.uk/wp-content/uploads/2015/02/ATF_book.pdf)

<sup>10</sup> <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

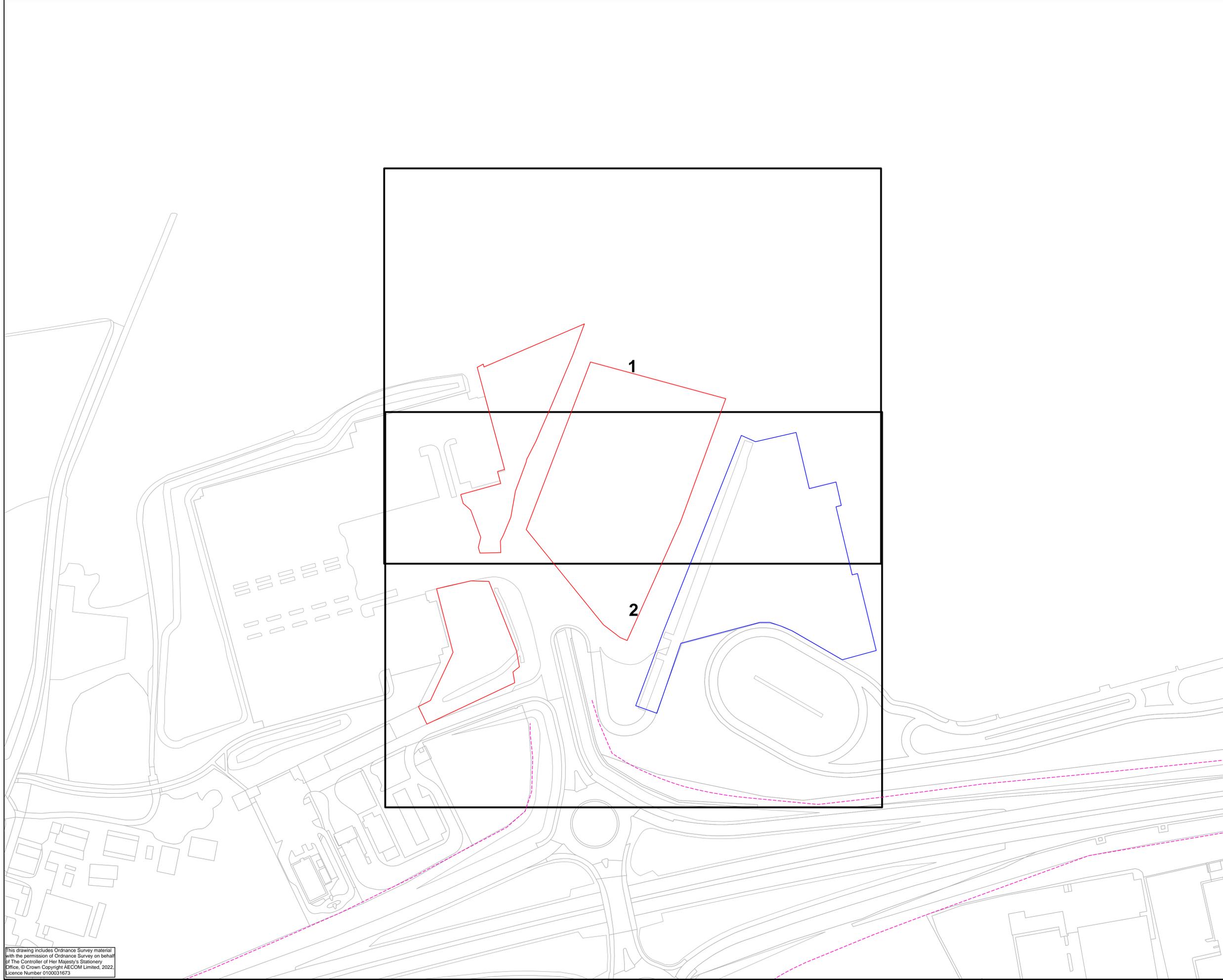
with local planning authority (Colchester City Council) however the default position must be that trees of this quality are to be retained and protected where possible.

- 5.1.13 In the context of the Site it is understood that a new vehicular access and egress route is required to the east of the archery field. This area of the Site is intersected by an established line of mature trees (predominantly oak) and includes high quality and veteran trees as well as dead/dying mature trees which could be considered to also be veteran in relation to BNG definitions. There are no areas which are sufficiently clear of significant tree constraints, therefore consultation with the Colchester City Council Tree Officer is recommended to determine the optimal location for new access routes. The use of three dimensional cellular raft systems is likely to be required as a minimum.
- 5.1.14 As the design progresses, it is recommended that the advice of an arboriculturist is sought to inform this process, particularly in relation to new features in proximity to trees.
- 5.1.15 Draft layouts should be overlaid onto the Tree Constraints Plan to allow an assessment of the impact of the Proposed Development, including the identification of any trees which are to be removed.
- 5.1.16 An Arboricultural Impact Assessment is typically required to support a planning application, and this allows the identification and assessment of the direct and indirect effects of the Proposed Development along with appropriate mitigation measures where necessary.

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# Appendix A Tree Constraints Plan



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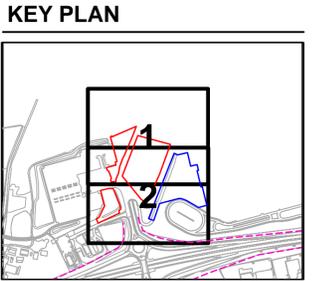


**PROJECT**  
North Colchester Sites A, B & C

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- GENERAL NOTES**
1. TREE CATEGORIES AS DEFINED BY BS 5837:2012
  2. TREE LOCATIONS ARE BASED ON AERIAL IMAGERY, AND GPS CO-ORDINATES FROM ON SITE WALKOVER.
  3. \* INDICATES A TREE / GROUP WHOSE POSITION IS APPROXIMATE AS BASED UPON AERIAL PHOTOGRAPHY AND ON SITE OBSERVATIONS.
  4. PLANS SHOULD BE READ IN CONJUNCTION WITH THE AECOM ARBOR/CULTURAL REPORT.
  5. THE ORIGINAL OF THIS DRAWING WAS PRODUCED IN COLOUR - A MONOCHROME COPY SHOULD NOT BE RELIED UPON.
  6. DRAWING REFERENCES:  
60689516-ACM-HGN-XX-M2-HW-0000002



- KEY**
- COLCHESTER RUGBY CLUB LAND BOUNDARY
  - LAND BOUNDARIES
  - HIGHWAY BOUNDARY

**ISSUE/REVISION**

NO	DATE	DESCRIPTION

**DRAWING STATUS**  
ISSUE  
**PROJECT NUMBER**  
60689516  
**SHEET TITLE**  
TREE CONSTRAINTS PLAN  
(SHEET 0)

**SHEET NUMBER**      **REV.**  
60689516-ACM-XX-AB-TCP-0      P01

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## Appendix B Tree Survey Schedule

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
H1*	Sycamore ( <i>Acer pseudoplatanus</i> ), Hawthorn ( <i>Crataegus monogyna</i> ), Wild Rose ( <i>Rosa sp.</i> ), Holly ( <i>Ilex aquifolium</i> ), Blackthorn ( <i>Prunus spinosa</i> ), Dogwood ( <i>Cornus sp.</i> )	4	<50#	1	1	1	1	n/a	0	Good	Y-SM	Good	Hawthorn dominant at height of circa 1.5m, rabbit guards at base.		10+	C2	0.6m
T2*	Common Oak ( <i>Quercus robur</i> )	12	210,380,360	2	3	6	6	1.5/W	0	Good	EM	Fair	Likely historically topped circa 1.7m, three secondary stems arising from bole. Cavity at base north, opening circa 600mmx200mm, 500mm deep, potential ground contact, no chimney, likely woodmould at base. Heartwood exposed. Columnar woundwood, potential to occlude.		20+	B1,2,3	6.77m
T3*	Common Oak ( <i>Quercus robur</i> )	16	1010	7	7	7	7	6.0/N	4	Good	V	Good	Basal cavity (east) 600mm deep, 600x400mm. Major deadwood. Buttressing. Rip wounds in canopy.		40+	A3	15.15m
T4*	Unknown	1	350#	0	0	0	0	n/a	0	Dead	EM	Stump			<10	U1	4.2m
G5*	Blackthorn ( <i>Prunus spinosa</i> ), Wild Cherry ( <i>Prunus avium</i> ), Hawthorn ( <i>Crataegus monogyna</i> ), Common Oak ( <i>Quercus robur</i> ), Elder ( <i>Sambucus nigra</i> ), Guelder Rose ( <i>Viburnum opulus</i> ), Field Maple ( <i>Acer</i>	5	<200#	2	2	2	2	n/a	0	Good - Fair	Y-SM	Good - Fair	Mixed species group. Understory. Young mixed planted hedging with perimeter of field.		20+	B2	2.4m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
	campestre),Holly (Ilex aquifolium)																
T6*	Common Oak (Quercus robur)	12	1250	10	7	8	8	2.0/N	0	Fair	M	Fair	Likely historically topped or similar. Stem measured at circa 1m agl east due to adaptive growth from secondary stem attachments. Wound to bole southeast at circa 1.5m, likely secondary limb attachment point, wound approx,, 600mmx200mm, limited depth, sapwood exposed. Good columnar peripheral woundwood. Not considered extensive. Few minor second order union attachment point wounds, sapwood exposed, small cavities, likely confined to branch collars. Moderate crown gaps, major deadwood with considered normal volume, minor deadwood with atypical volume and distribution, internal crown with dense epicormic flushing, crown outline normal.		40+	A1	15m
G7*	Sycamore (Acer pseudoplatanus)	4	<100#	3	3	3	3	n/a	0	Good	Y	Fair	Cluster of multistemmed sycamore, likely self-sown.		10+	C2	1.2m
T8*	Sycamore (Acer pseudoplatanus)	4	120,70,50,40,20,20,20#	4	3	0	4	n/a	0	Dead	Y	Fair - Poor			<10	U1	1.54m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
T9*	Common Oak (Quercus robur)	7	770	2	5	3.5	6	2.0/N	2	Good	V	Fair	Open cavity at circa 1.5m (east) 500mm deep, 300x200mm, stem hollowing. Crown retrenchment. Buttressing. Likely historic pollard from circa 2m. Tear wounds/stubs. Deadwood in crown. Asymmetrical crown, suppressed by adjacent Oak.		40+	A3	11.55m
T10*	Common Oak (Quercus robur)	7	210,460,130,330,190	5	2	5	5	1.0/N	2	Good	EM	Fair	Likely historically topped at circa 1.2m. Wound to bole south, circa 500mmx300mm, unknown depth, sapwood exposed, hammer test - cavity audible however residual wood with audibly high density.		20+	B1,2,3	7.75m
T11*	Common Oak (Quercus robur)	14	900#	8	8	8	8	3.0/N	5	Good	V	Good	No access due to dense blackthorn at base. Likely extensive basal cavity, buttressing. Major deadwood.		40+	A3	13.50m
T12*	Common Oak (Quercus robur)	10	600#	2	6	5	5	3.0/S	4	Good	EM	Good	No access due to dense blackthorn at base. Co-dominant stem, stem bifurcates at circa 2m.		20+	B2	7.2m
G13*	Sycamore (Acer pseudoplatanus), Elder (Sambucus nigra)	3	<100#	2	2	2	2	n/a	0	Good	Y	Fair	One dead elder, clusters of sycamore, likely self-sown, underwood to oak.		10+	C2	1.2m
T14*	Common Oak (Quercus robur)	5	740#	0	0	0	0	n/a	0	Dead	M	Poor	Dead standing. Habitat potential. Stem decay/hollowing. Cavities. Mature dead tree so could qualify as veteran for BNG.		<10	U1	8.88m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
T15*	Common Oak (Quercus robur)	10	460,620,150,240,150	0	6	7	7	1.0/S	1	Fair	V	Fair - Poor	Historically topped at circa 1m. Wound to bole west, approx., 700mmx500mm, detritus blocking probe descent likely at least 400mm. Good peripheral woundwood. Heartwood exposed. Wound below at ground level circa 400mmx550mm, sapwood exposed, former second order limb union, peripheral woundwood, extent of decay unknown.		40+	A3	12.54m
T16*	Common Oak (Quercus robur)	10	710	1.5	3	8	8	1.5/W	1	Fair - Poor	EM	Fair	Crown dieback, deviating branching pattern, bleeding patches to stem north visible to approx., 4m, potential acute oak decline. Dead second order limb west at approx., 4m, circa 3 units of deadwood. Secondary crown formation on lower stem.	Test for acute oak decline/ Phytophthora. (< 3 months)	20+	B2,3	8.52m
T17*	Common Oak (Quercus robur)	11	780	5	5	5	5	2.0/E	2	Good	V	Fair	Large open cavity to east from base to circa 1.5m, 300mm deep, 250mm wide, heartwood exposed. Historic pollard to circa 2m. Buttressing. Cavity at base with light visible. Minor deadwood.		40+	A3	11.7m
T18*	Common Oak (Quercus robur)	11	800#	5	5	5	5	2.0/W	2	Good	V	Fair	Historic pollard to circa 1.2m. Buttressing. Extensive decay to lower stem, heartwood exposed,		40+	A3	12m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
													good reaction wood. Deadwood in crown.				
T19*	Common Oak (Quercus robur)	12	580	2	5	5	6	2.0/S	2	Fair - Poor	EM	Fair	Wound to base west, circa 300mmx500mm, depth of circa 200mm, limited access. Sapwood exposed. High crown sparsity, poor epicormic development. Bleeding patches on stem to circa 5m, potential acute oak decline.	Test for acute oak decline/ Phytophthora. (< 3 months)	10+	C1,2	6.96m
T20*	Common Oak (Quercus robur)	11	1110	4	4	8	8	1.5/S	1	Good	M	Good	Historically topped at circa 2m, stem measured at approx., 500mm agl due to adaptive growth around secondary stem attachment points. Wound to base east, circa 1.3mx300mm, sapwood exposed with variable exposure, bark peeling peripheral woundwood, partially occluded. Not considered extensive. Moderate deadwood in crown, considered normal volume for species and age.		40+	A2	13.32m
T21*	Common Oak (Quercus robur)	15	1200,390,420	5	3	6	7	1.0/S	2	Good	V	Fair	Historic pollard to circa 2m. Extensive stem decay. Large open cavity at circa 1m extends horizontally through stem. North entrance 300x450mm, South entrance 250x370mm. Adjacent secondary stems are		40+	A3	19.95m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
													likely part of the same tree. Major deadwood.				
T22*	Common Oak (Quercus robur)	9	810	2	3	5	6	3.0/S	1	Good	V	Fair - Poor	Extensive open cavity, potentially two distinct cavities, north with ground contact and chimney, heartwood exposed. Woodmould likely visible at circa 1.5m agl. Columnar peripheral woundwood. Cavity circa 2mx 500mm. Small basal opening with daylight visible, depth at least 600mm. Significant open cavity from circa 1.5m, opening approx., 50% stem circumference, good peripheral woundwood.		40+	A3	12.15m
T23*	Common Oak (Quercus robur)	16	750#	8	8	8	8	3.0/E	4	Good	M	Fair	Basal swelling of stem, likely historic pollard. Buttressing, circa 600mm deep. Major deadwood. Rip wounds in upper canopy. At its widest (1m) stem diameter is circa 1000mm.		40+	A2	9m
T24*	Common Oak (Quercus robur)	8	350	4	0.5	7	4	2.5/N	5	Good	SM	Fair	Limited access to base due to blackthorn. Accessed from southwest only. Basal cavity north, likely previous second order stem union, approx., 700mmx200mm, likely exposed heartwood, adaptive swelling and columnar woundwood.		20+	B2,3	4.2m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
T25*	Sycamore (Acer pseudoplatanus)	8	70,130,160,160#	3	3	3	4	n/a	0	Good	SM	Fair	Multiple trees forming cluster in immediate proximity - underwood to oaks.		10+	C1	3.24m
T26*	Common Oak (Quercus robur)	9	350	2	5	4	4	0.5/N	2	Good	EM	Fair	Moderate lean to south, phototropic growth due to suppression by adjacent Oak. Root exposure due to soil erosion.		20+	B2	4.2m
T27*	Common Oak (Quercus robur)	9	420#	1	3	5	4	1.5/S	0	Good	SM	Fair	Co to sub dominant in canopy,		20+	B1,2	5.04m
T28*	Common Oak (Quercus robur)	10	90,310,400,220,220,320#	3	5	6	7	n/a	0	Good	V	Fair - Poor	High coppice, bole west with open cavity, circa 500mmx300mm, depth of circa 300mm. Below cavity around buttressing visually bark concavity. Likely heartwood exposed. Small cavity to bole south, approx., 200mmx100mm, sapwood exposed. Dense inner crown epicormic development.		40+	A3	12m
T29*	Common Oak (Quercus robur)	10	970	8	8	8	8	3.5/N	6	Poor	M	Fair	Moribund. Significant crown dieback throughout. Very few leaves at time of survey. Secondary lower crown development to circa 4m. Soil erosion and buttressing at base. Cavity at base (northeast) circa 250mm deep. Black exudate/bleeding to stem, potential acute oak decline. Mature dead tree so could	Test for acute oak decline/ Phytophthora (3 months).  Consider monolith to circa 4m to reduce risk of failure, leaving live lower crown. (< 3 months)	<10	U1	11.64m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
													qualify as veteran for BNG.				
T30*	Common Oak (Quercus robur)	10	520	5	2	5	4	2.0/E	2	Good	EM	Good	Co to sub dominant in canopy,		20+	B1,2	6.24m
T31*	Common Oak (Quercus robur)	6	810	0.5	4	4	4	1.5/N	0	Good	M	Fair	Stem measured at circa 500mm agl due to adaptive growth of second order limb unions. Likely historically topped at circa 1.5m. Likely former secondary stem now stub circa 1.3mx300mm with approx., 50%open cavity and extensive fire damage to exposed heartwood. To retained stem, limited sapwood exposed circa 600mmx500mm, fire damage. Significant columnar woundwood and adaptive swelling. Hammer test, cavity audible with stem showing high sounding density. Decay feature not considered extensive.		40+	A1	9.72m
T32*	Common Oak (Quercus robur)	11	1010,600#	7	7	7	7	2.0/S	1	Good	V	Good - Poor	Northernmost stem has previously been heavily reduced, significant stem decay, bark necrosis, desiccation fissures, peripheral wound wood. Southernmost stem appears in good structural condition.		40+	A3	17.62m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
													Deadwood habitat piles at base.				
T33*	Common Oak (Quercus robur)	10	180,490,340,250,330,240#	3	4	5	5	1.0/N	2	Good	V	Fair	High coppice. Central stem wound with likely heartwood exposed, predominantly exposed sapwood, chimney with ground contact. Wound approx., 900mmx900mm. Epicormic development in central crown.		40+	A3	11.25m
T34*	Common Oak (Quercus robur)	13	560	7	7	7	7	1.0/N	4	Good	EM	Good	Basal swelling. Minor deadwood. Wound to base from likely historic stem loss, 500x500mm.		20+	B2	6.72m
T35*	Common Oak (Quercus robur)	15	1410	9	9	9	9	1.5/N	2	Good	M	Good	Significant for species - high future potential. Multiple bark concavities around base. Dead second order limb in mid crown south, approx., 2 deadwood units.		40+	A1,2	15m
T36*	Common Oak (Quercus robur)	13	350,410,800	7.5	7.5	7.5	7.5	n/a	3	Good	V	Fair	Multistemmed. Cavity to stem at circa 0.5m (north) 200mm deep, 360x220. Decaying stub (north) 1m high. Basal decay to easternmost stem, 400mm deep, 750x100mm. Dead Ivy on stems. Nest at circa 8m. Major deadwood.		40+	A3	14.47m
H37*	Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Elder (Sambucus nigra), Guelder Rose (Viburnum)	2	<30#	0.5	0.5	0.5	0.5	n/a	0	Good	Y	Good	Likely newly planted, rabbit guards present, forming dense underwood boundary to linear oak feature.		10+	C2	0.36m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
	opulus),Field Maple (Acer campestre)																
T38*	Common Oak (Quercus robur)	12	470	7.5	7.5	7.5	7.5	3.0/S	3	Good	EM	Good	Suppressed by adjacent Oak, lean to southeast. Dead decaying stub at base. Buttressing.		20+	B2	5.64m
G39*	Hawthorn (Crataegus monogyna),Blackthorn (Prunus spinosa),Elder (Sambucus nigra),Holly (Ilex aquifolium),Field Maple (Acer campestre),Sycamore (Acer pseudoplatanus)	5	<100#	1	1	1	1	n/a	0	Good	Y-SM	Good	Variable density underwood.		10+	C2	1.2m
T40*	Blackthorn (Prunus spinosa)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m
T41*	Hawthorn (Crataegus monogyna)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m
T42*	Hawthorn (Crataegus monogyna)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m
T43*	Hawthorn (Crataegus monogyna)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m
T44*	Hawthorn (Crataegus monogyna)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m
T45*	Hawthorn (Crataegus monogyna)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m
T46*	Hawthorn (Crataegus monogyna)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
W47*	Silver Birch (Betula pendula), Common Oak (Quercus robur), Sycamore (Acer pseudoplatanus), Goat Willow (Salix caprea), Field Maple (Acer campestre), Hawthorn (Crataegus monogyna), Grey willow (Salix cinerea)	12	<200#	3	3	3	3	n/a	0	Good	Y-SM	Good - Fair	Regular structure thicket/early pole stage semi natural woodland.		20+	B2	2.4m
T48*	Field Maple (Acer campestre)	2	50#	0.5	0.5	0.5	0.5	n/a	1	Good	Y	Good	Newly planted tree in field, within tree guard.		10+	C1	0.6m
H49*	Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Elder (Sambucus nigra), Field Maple (Acer campestre)	2	<80	0.5	0.5	0.5	0.5	n/a	0	Good	SM	Good	Dense hedgerow, approx., 3m deep.		10+	C2	0.96m
G50*	Goat Willow (Salix caprea), Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna), Elder (Sambucus nigra), Broom (Cytisus scoparius), Gorse (Ulex sp.)	4	<100#	1	1	1	1	n/a	0	Good - Fair	Y-SM	Good - Fair	No access, dense brambles and nettles.		10+	C2	1.2m
T51*	Common Oak (Quercus robur)	12	500#	4	3	6	4	3.0/S	2	Good	EM	Good - Fair	No access to base, viewed from grassland east. Part of high quality avenue feature.		40+	A2	6m
T52*	Common Oak (Quercus robur)	10	250#	1	1	3	3	n/a	2	Good	SM	Fair	No access to base, viewed from grassland east. Part of high quality avenue feature.		10+	C1	3m
T53*	Common Oak (Quercus robur)	12	650#	7	5	7	7	3.0/S	2	Fair	EM	Good	No access to base, viewed from grassland east. Part of high quality avenue feature. Moderate upper crown sparsity with significant gaps visible, overall branching pattern normal.		20+	B1,2	7.8m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
G54*	Common Oak (Quercus robur), Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa), Elder (Sambucus nigra), Broom (Cytisus scoparius)	15	<800#	7	7	7	7	n/a	3	Good - Fair	Y-M	Good - Fair	Mixed species group. Outside RLB. Other side of track.		40+	A2	9.6m
T55*	Common Oak (Quercus robur)	12	600#	6	6	6	6	2.0/S	2	Good	EM	Good	No access to base, viewed from grassland east. Part of high quality avenue feature.		40+	A2	7.2m
T56*	Common Oak (Quercus robur)	8	150#	1	1	4	0	2.0/E	2	Good	SM	Fair - Poor	No access to base, viewed from grassland east. Part of high quality avenue feature. Significant structural suppression.		10+	C1	1.8m
T57*	Common Oak (Quercus robur)	10	200#	1	3	4	2	3.0/N	2	Good	SM	Fair	No access to base, viewed from grassland east. Part of high quality avenue feature. Structurally suppressed, likely becoming co from sub dominant.		10+	C1,2	2.4m
T58*	Common Oak (Quercus robur)	7	150#	3	3	3	3	2.0/N	2	Good	SM	Fair - Poor	No access to base, viewed from grassland east. Part of high quality avenue feature. Significant structural suppression.		10+	C1	1.8m
T59*	Common Oak (Quercus robur)	15	750#	8	8	8	8	3.0/N	2	Good - Fair	M	Good	No access to base, viewed from grassland east. Part of high quality avenue feature. Dominant in group. Apical dieback of upper crown north, unknown cause. Lower crown development north likely in former dysphotic zone.		40+	A1,2	9m
T60*	Common Oak (Quercus robur)	7	150#	3	3	3	3	2.0/N	2	Good	SM	Fair - Poor	No access to base, viewed from grassland east. Part of high		10+	C1	1.8m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
													quality avenue feature. Significant structural suppression.				
T61*	Common Oak (Quercus robur)	10	800#	7	7	7	7	3.0/N	2	Good	M	Good	No access to base, viewed from grassland east. Part of high quality avenue feature. Likely historically topped at circa 2.5m. Major deadwood in lower crown, considered normal volume for species and age.		40+	A1,2	9.6m
T62*	Common Oak (Quercus robur)	12	920	6	6	6	6	4.0/N	4	Good	V	Fair	Historically pollarded to circa 5m. Buttressing, and likely rabbit holes at base. Cavity at circa 4m (east) entrance 100x80mm. Tear out wounds from likely previous limb failures, good peripheral wound wood. Major deadwood. Cavity at base (north) 600mm deep, 400x200mm, heartwood exposed. FFB <i>Ganoderma sp</i> at circa 2.5m west, black exudate, bulge wood formation. Likely stem hollowing.		40+	A3	13.8m
T63*	Common Oak (Quercus robur)	10	800#	7	7	7	7	3.0/N	2	Good	M	Good	No access to base, viewed from grassland east. Part of high quality avenue feature. Likely historically topped at circa 2m.		40+	A2	9.6m
T64*	Common Oak (Quercus robur)	11	380,310,410	6.5	6.5	6.5	6.5	0.5/N	1	Good	M	Good	Multistemmed from circa 1m. Minor deadwood in crown. Bird box at 2m. Bat box at 3.5m.		20+	B3	7.67m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
T65*	Common Oak (Quercus robur)	7	130	1	1	3	3	n/a	2	Good	SM	Fair	Significant structural suppression.		10+	C1	1.56m
T66*	Common Oak (Quercus robur)	9	510#	2	2	4	4	2.0/S	2	Good	EM	Fair	No access to base, viewed from grassland east. Part of high quality avenue feature. Sub to co dominant in canopy.		20+	B1,2	6.12m
T67*	Common Oak (Quercus robur)	10	740#	1	4	5	5	2.0/S	1	Good	V	Fair	Part of high quality avenue feature. Small cavity at base north, approx., 200mmx350mm, frass and likely fire damage of exposed sapwood. Cavity west at circa 1m, approx., 400mmx300mm, chimney, depth circa 400mm, heartwood exposed, cavity full of detritus. Good peripheral woundwood.		40+	A3	11.1m
T68*	Common Oak (Quercus robur)	10	700,130,120#	5	4	4	4	1.0/W	1	Fair	V	Poor	Part of high quality avenue feature. Wound to base north circa 1.5mx600mm, approx., 300mm deep. Heartwood exposed, no chimney, ground contact unknown. Peripheral woundwood and initial aerial rooting.		40+	A3	10.83m
T69*	Common Oak (Quercus robur)	8	350	1	3	3	3	2.0/S	0	Good	SM	Fair	Limited access to base. Part of high quality avenue feature. Wound to base west, circa 500mmx250mm. Likely previous second order limb union, sapwood exposed.		20+	B1,2	4.2m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
T70*	Common Oak (Quercus robur)	8	500	4	4	4	4	n/a	2	Good	SM	Good	Part of high quality avenue feature.		20+	B1,2	6m
G71*	Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna), Field Maple (Acer campestre), Wild Rose (Rosa sp.), Gorse (Ulex sp.), Broom (Cytisus scoparius)	4	<100#	1	1	1	1	n/a	0	Good	Y-SM	Good	Area covered predominantly with brambles and nettles, limited access. Occasional self-set trees.		10+	C2	1.2m
T72*	Common Oak (Quercus robur)	14	870#	8	8	7	8	2.0/N	2	Fair	M	Good	Part of high quality avenue feature. Significant crown gaps in upper crown, apical branching pattern deviating, dense internal and lower crown formation. Moderate deadwood throughout crown.		40+	A1	10.44m
T73*	Common Oak (Quercus robur)	7	110,210,190,140#	2	1	3	3	0.5/N	0	Good	SM	Fair	Open cavity at base north, circa 1mx400mm, cavity full of detritus, columnar peripheral woundwood.		10+	C1	4.01m
T74*	Common Oak (Quercus robur)	5	180#	1	1	2	2	n/a	2	Good	Y	Poor	Significant structural suppression.		10+	C1	2.16m
T75*	Common Oak (Quercus robur)	8	370#	1	3	2	2	n/a	1	Good	SM	Good	No access to base, viewed from grassland east. Part of high quality avenue feature.		20+	B1,2	4.44m
T76*	Sycamore (Acer pseudoplatanus)	8	250,280#	3.5	3.5	3.5	3.5	n/a	1	Good	SM	Fair	Co-dominant stems with included union. Close proximity to car park.	Fell (< 3 months)	<10	U1	4.5m
T77*	Hawthorn (Crataegus monogyna)	4	150#	1	1	1	1	n/a	0	Good	SM	Good	Stem aggregate estimated.		10+	C1	1.8m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
T78*	Common Oak (Quercus robur)	4	100,100,130,80#	1	3	2	2	0.5/S	1	Good	SM	Poor	Short bole to circa 1m, decay with sapwood exposed, feature with heterogenous distribution.		10+	C1	2.5m
T79*	Common Oak (Quercus robur)	3	570#	2	2	2	2	0.5/S	0	Fair	EM	Fair	Cubical fissured bark. Suppressed by adjacent trees. Historically pollarded to circa 1.2m. Stem diameter estimated from circa 1m.		20+	B3	6.84m
T80*	Common Oak (Quercus robur)	3	80,70#	3	0.5	3	3	n/a	0	Good	SM	Fair	Extensive decay of short bole - sapwood exposed, bark peeling.		10+	C1	1.28m
T81*	Common Oak (Quercus robur)	8	390,380,470	4.5	4.5	4.5	4.5	3.0/N	2	Poor	V	Fair	Historically pollarded to circa 1.2m. Presenting symptoms of acute oak decline, bark necrosis, black exudate throughout. Bat box at circa 3m. Significant crown dieback throughout, major deadwood, bark necrosis. Basal decay, and buttressing. Bird box at 2.5m.	Test for acute oak decline / Phytophthora (3 months)	40+	A3	10.79m
T82*	Hawthorn (Crataegus monogyna)	5	80#	1	1	1	1		0	Good	SM	Good			10+	C1	0.96m
T83*	Common Oak (Quercus robur)	8	350,300,290	4.5	4.5	4.5	4.5	2.0/E	2	Poor	V	Fair	Historically pollarded to circa 1.3m. Presenting symptoms of acute oak decline, bark necrosis, black exudate. Significant crown dieback east, major deadwood. Basal decay 400mm deep, 800x400mm.	Test for acute oak decline / Phytophthora (3 months)	40+	A3	9.5m

Tree ID	Species	Est Height	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch	Canopy Clearance	Physiological Condition	Age	Structural Condition	Condition Comments	Preliminary Management Comments	Estimated Remaining Contribution in Years	Category	RPA Radius (m)
T84*	Common Oak (Quercus robur)	8	220,180,290,300,150#	3.5	3.5	3.5	3.5	1.0/E	1	Good	V	Fair	Historically pollarded to circa 1.2m. Basal decay and buttressing. Historic stem decay leaving 1m decaying stubs with regrowth (west).		40+	A3	8.5m
G85*	Common Oak (Quercus robur), Hawthorn (Crataegus monogyna)	8	<250#	4	4	4	4	n/a	0	Good	SM	Fair	Two oak and one hawthorn forming underwood.		20+	B2	3m
T86*	Hawthorn (Crataegus monogyna)	5	350#	2.5	2.5	2.5	2.5	n/a	0	Good	M	Good	Mass proliferation of stems from circa 0.5m. Cavities at base. Limited access to base. Likely past high coppice. Stem aggregate estimated.		20+	B3	4.2m
G87*	Hawthorn (Crataegus monogyna), Holly (Ilex aquifolium)	5	<130#	3	3	3	3	n/a	0	Good - Poor	SM	Good - Fair	Majority hawthorn, holly with poor leaf density.		10+	C2	1.56m

## Key to Abbreviations & Terms Used in the Survey

Ref No	Specific identification number given to each tree or group. T=Tree/H=Hedge/G=Group/W=Woodland.
Species	Common name followed by scientific name shown in <i>italics</i> .
RPA	Root Protection Area (As defined by BS5837:2012)
Stem diameter	Diameter of main stem, measured in millimetres at 1.5 m above ground level. (MS = Multi-stem tree measured in accordance with BS5837:2012 Annexe C).
Spread	The width and breadth of the crown. Estimated on the four compass points in metres.
Crown clearance	The estimated height (in metres) above ground level of the lowest significant branch attachments.
#	Estimated dimensions.
*	Indicates estimated position of tree (not indicated on topographical survey).
Av	Indicates an average representative measured dimension for the feature.
Category	Categorisation of the quality and benefits of trees on Site as per Table 1 and 2 of BS5837:2012. 1=Arboricultural quality/value 2=Landscape quality/value 3=Cultural quality/value (including conservation)  A=High quality/value 40yrs+ (light green). B=Moderate quality/value 20yrs+ (mid blue) C=Low quality/value min 10yrs/stem diameter less than 150mm (grey). U=Unsuitable for retention (dark red).
Life stage	<b>Young (Y):</b> Newly planted tree 0-10 years. <b>Semi-Mature (SM):</b> Tree in the first third of its normal life expectancy for the species (significant potential for future growth in size). <b>Early Mature (EM):</b> Tree in the second third of its normal life expectancy for the species (some potential for future growth in size) <b>Mature (M):</b> Tree in the final third of its normal life expectancy for the species (having typically reached its approximate ultimate size). <b>Over Mature (OM):</b> Tree beyond the normal life expectancy for the species. <b>Veteran (V):</b> Tree of maturity which is of exceptional biodiversity, cultural or heritage value due to its age, size and condition. <b>Ancient (A):</b> Tree which is beyond maturity and is of great age for the species (typically showing ancient crown and stem form/architecture).
Structural condition	<b>Good:</b> No significant structural defects <b>Fair:</b> Structural defects which can be resolved via remedial works. <b>Poor:</b> Structural defects which cannot be resolved via remedial works. <b>Dead:</b> Dead.
Physiological condition	<b>Good:</b> Normal vitality including leaf size, bud growth, density of crown and wound wood development. <b>Fair:</b> Lower than normal vitality, reduced bud development, reduced crown density, reduced response to wounds. <b>Poor:</b> Low vitality, low development and distribution of buds, discoloured leaves, low crown density, little extension growth for the species. <b>Dead:</b> Dead <b>Fair/Good =</b> Indicates an intermediate condition <b>Fair – Good =</b> Indicates a range of conditions (e.g. within a group)
Preliminary management recommendations	Works identified during the tree survey as part of sound arboricultural management, based on the current context of the Site (where relevant reference has been made to tree management based on the potential future context of the site).

FFB	Fungal fruiting body.
ADB	Ash dieback ( <i>Hymenoscyphus fraxineus</i> )
AGL	Above ground level

# Appendix C Site Photography

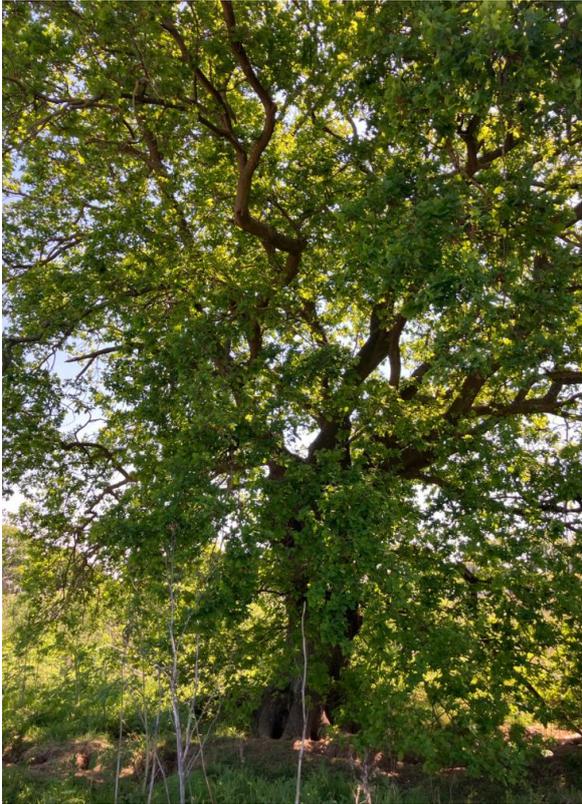


Photo 1. Veteran tree T62.

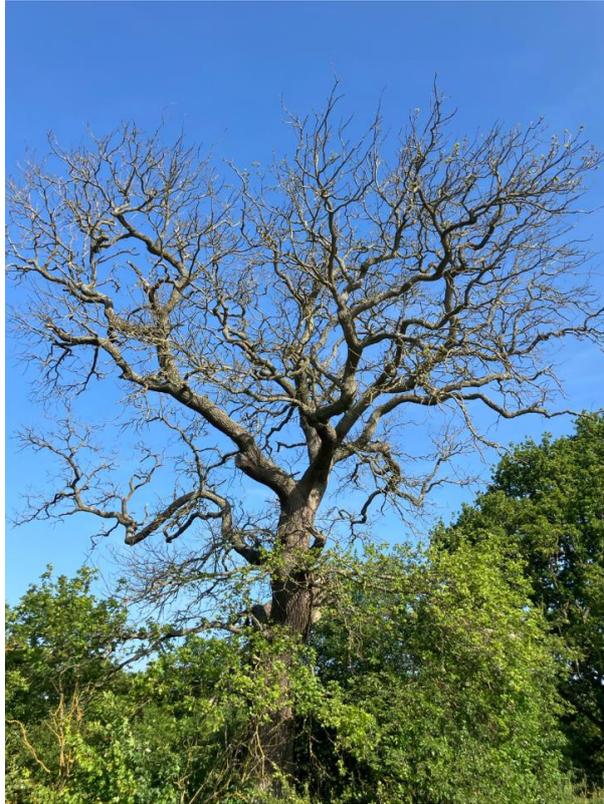


Photo 2. Tree T29.



Photo 3. Veteran tree T21, looking north.



Photo 4. Veteran tree T22.

# Appendix D General Arboricultural Principles

## D.1 General Principles

Trees are dynamic living organisms which provide essential benefits to society and the wider environment. Any Proposed Development with the potential to impact on trees must take into consideration the value of trees on the Site; the impact of any proposed activity along with any potential future conflicts on the Site. Suitable measures to safeguard retained trees or mitigate the loss of trees (to be removed) will need to be fully considered and may be subject to a condition of planning consent.

Tree branches and roots frequently grow across site boundaries and off-site trees can pose a significant constraint and should be carefully considered when assessing the developable space within a site.

## D.2 Below Ground Constraints

Below ground tree roots and the soil environment in which they grow need to be protected if the tree is to be retained. Trees grow in association with fungi and other soil organisms which are of key importance to tree health. Roots are essential for anchorage, the uptake of water and nutrients, and the storage of energy (carbohydrates) for the future growth and function of the tree.

Roots can be damaged by physical severance or wounding (e.g. following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability. Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel and chemicals) can lead to root death and dysfunction. Soils can be compacted to levels inhospitable to tree growth with even a single pass of machinery, regular pedestrian traffic or the storage of plant and materials. Relieving compaction can be problematic and may require costly remedial works. Changes in drainage/water levels can also have significant long-term impacts for tree health.

The effects of these incursions may take many years to manifest, with a resulting decline in amenity value and potentially the death or failure of the tree. It should be noted that older trees are particularly sensitive to damage and changes in conditions.

The RPA is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. This area is deemed to be particularly important for tree stability, growth, function and health. However, roots may extend far greater distances, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients). It is generally accepted that tree roots are predominantly located in the upper 1000mm of soil; however, roots may develop at deeper levels where conditions allow.

Root Protection Areas are calculated as per BS5837:2012 Annex C, D and Section 4.6.

The RPA of the existing tree stock is an important material consideration when considering site constraints and planning development activities. The RPA of significant trees on the Site are shown on the Tree Constraints Plan (Appendix A).

The default position must be that all development, including any associated services will occur outside the RPAs of retained trees. Where this is unavoidable, it may be appropriate to use special measures to install structures, services or surfacing within RPAs which allow the protection of roots and soil structure which are essential for tree growth and keep any incursion to a minimum.

Further steps to improve or increase the useable rooting area available to the tree may also be required.

## D.3 Soils

On shrinkable clay soil, tree growth can lead to the differential movement of structures as moisture is removed from the soil during the growing season. Soils must be carefully assessed, and any foundations must be installed following the recommendations of National House Building Council (NHBC) Standards Chapter 4.2: Building Near Trees (2024) to avoid potential future damage. Where trees which predate existing structures are to be removed, this can result in heave as the soils are re-wet.

The advice of a suitably qualified engineer must be obtained to inform any potential issue of heave. Specific advice in relation to this issue is beyond the scope of this report.

## D.4 Above Ground Constraints

Tree stems and branches can restrict available space on a site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay, with significant long term implications for tree health. The future impact of existing trees should be carefully considered, including individual species characteristics (such as potential future size, fruit fall, shade etc.) and how the tree will interact with any proposed development and future land use. Annual tree growth can lead to direct damage if stems/branches (or roots) come into physical contact with structures and this must also be taken into consideration.

## D.5 Trees and Risk in the Context of Development

Tree owners/managers have a legal duty to prevent foreseeable harm. It is generally accepted that this duty can be fulfilled by undertaking proactive inspections of significant trees to identify obvious defects and by taking appropriate remedial action or gaining further advice as appropriate.

Further guidance is available from the National Tree Safety Group<sup>11</sup>.

The tree survey carried out as the basis of this report is primarily for planning purposes, focusing on the quality and benefits of the trees and is not specifically designed to assess the safety of trees on the Site. However, when obvious issues have been identified, recommendations have been included in the Tree Survey Schedule.

The Construction (Design and Management) Regulations (2015) states that developers and contractors have responsibilities for health and safety as a result of their actions. Should trees be left in an unstable or hazardous condition the Health and Safety Executive (HSE) could seek to prosecute those responsible along with the potential for further Civil claims for damages.

## D.6 Trees and Wildlife

Full consideration must be given to the presence of species protected under the Wildlife and Countryside Act (1981 - as amended), the Countryside Rights of Way Act (2000) and the Conservation of Habitats and Species Regulations (2017), in particular the presence of bats and nesting birds. It is recommended that wherever possible, significant tree/hedge works take place outside of the typical bird nesting season of March to September. The advice of a suitably qualified Ecologist is recommended in relation to any potential impacts on protected species.

## D.7 Tree Works

Any tree surgery recommendations contained within this report are to be undertaken in accordance with BS3998:2010 Tree work – Recommendations (BS3998:2010) by suitably qualified and insured contractors. Significant pruning works are best undertaken when trees are dormant or outside periods of high functional activity to reduce the overall impact on energy available to the tree for growth and processes. In general, the optimum period for works is between November to February and July to August (subject to the presence of protected species) when the tree is less active and better placed to respond to wounding and a reduction in leaf area.

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<sup>11</sup> National Tree Safety Group (NTSG). (2024). Common sense risk management of trees. 2nd ed. Forest Research and the Arboricultural Association

