

VERSION 2 UPDATED ARBORICULTURAL ASSESSMENT



Canton Limited

Land off Bullens Green Lane, Colney Heath

Arboricultural Assessment

July 2020

FPCR Environment and Design Ltd

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1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Canton Limited to present the findings of an Arboricultural Assessment and survey of trees located on an area of land off Fellows Lane, Colney Heath (hereafter referred to as the site).
- 1.2 The site is centered on Ordnance Survey grid reference TL 212 058.
- 1.3 The tree survey was carried out on Wednesday 17th June 2020.

Scope of Assessment

- 1.4 The tree survey and assessment of existing trees has been carried out in accordance with guidance contained within British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter referred to as BS5837). The guidelines set out a structured assessment methodology to assist in determining which trees would be deemed either as being suitable or unsuitable for retention.
- 1.5 The guidance also provides recommendations for considering the relationship between existing trees and how those trees may integrate into designs for development; demolition operations and future construction processes so that a harmonious and sustainable relationship between any retained trees and built structures can be achieved.
- 1.6 The purpose of the report is therefore to firstly, present the results of an assessment of the existing trees' arboricultural value, based on their current condition and quality and to secondly, provide an assessment of impact arising from the proposed development of the site.

Development Proposals

- 1.7 This report has been produced to accompany an outline planning application for a residential development of up to 100 dwellings, including 45% affordable and 10% self-build, together with all ancillary works on land off of Bullens Green Lane, with all matters reserved except for access.
- 1.8 The report has included an assessment of any impact to the tree cover and the baseline tree survey has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.

Site Description

- 1.9 The site is located within Roestock on its eastern edge and close to Colney Heath and consisted of a single agricultural field parcel bordered on its eastern side by Bullens Green Lane. At the time of the survey, there was a young crop of cereal across the entire area.
- 1.10 The northern boundary was formed by existing residential development of properties along Roestock Lane. The western boundary bordered Roestock Park and Roestock Lane Depot. The southern boundary generally bordered Fellows Lane although the western end of this southern boundary met with a small number of residential properties of Fellows Lane.

- 1.11 The recorded tree cover was entirely positioned on or adjacent to the site boundary and the site is defined by well stocked boundaries. A total of forty-four individual trees, nineteen tree groups and eight hedgerows were recorded on or within influencing distance of the site. The trees were mostly mature and thus provided strong visual features within the local landscape.
- 1.12 The dominant species present was English oak *Quercus robur* with common ash *Fraxinus* also found in good numbers. Other species present in small amounts associated with the adjoining gardens were silver birch *Betula pendula*, red horse chestnut *Aesculus x carnea*, sycamore *Acer pseudoplatanus*, cider gum *Eucalyptus gunni*, Lawson cypress *Chamaecyparis lawsoniana*, field maple *Acer campestre*, hornbeam *Carpinus betulus*, horse chestnut *Aesculus hippocastanum*, Monterey cypress *Cupressus macrocarpa*, Norway maple *Acer platanoides* and aspen *Populus tremula*.
- 1.13 Hedgerows were species rich and diverse in range dominated by blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna* but also present were English oak, field maple, English elm *Ulmus procera*, hazel *Corylus avellane* and dogwood *Cornus sanguinea*.
- 1.14 The boundary tree and hedgerows generally formed continuous cover along the site boundaries through specimens either being closely spaced or by their group formations although there were a few breaks in places along the southern boundary, on the northern section of the eastern boundary and on the short north-western boundary.
- 1.15 The presence of mature tree cover provided a high level of visual screening of views both into and out of the site.

2.0 PLANNING POLICY

National Planning Policy Framework 2019

- 2.1 National Planning Policy is defined by the National Planning Policy Framework (NPPF). This sets out the Government's most current and up to date planning policies for England and how these should be applied. The current NPPF is dated February 2019.
- 2.2 Paragraph 11 of the NPPF states that there is a presumption in favour of sustainable development and states that for decision making, the LPA should be '*c) approving development proposals that accord with an up-to-date development plan without delay*'. In the absence of a development plan or the development plan is out of date, the acting LPA should grant planning consent so far as the development proposals do not breach the policies and guidance outlined in the NPPF.
- 2.3 In relation to arboriculture, the NPPF also states that:
- *175(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';*
and provides specific guidance that:
 - *175(d) 'development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity'.*

- 2.4 Examples of what is deemed to be *'wholly exceptional'* are included within Footnote 58 and provides the examples of *'infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat'*.

Local Planning Policy

- 2.5 Local planning decisions regarding all future developments are assessed against a framework to ensure that the district or county in question is developed in a well-informed and coherently systematic manner, this may include decisions to ensure that the right number and types of houses are built and incorporating the correct type of shopping and recreation facilities, whilst protecting the local ecological resources, landscape context and intrinsic heritage value of an area.
- 2.6 Within the context of two Local Planning Authorities, St Albans City and District Council and Welwyn Hatfield Borough Council there are several plan documents which contain policies relating to trees within the city confines. The following lists the relevant documents for each of the two authorities.
- 2.7 Discussion relating to the various policies regarding trees has been provided in Section 5 of this assessment: Arboricultural Impact Assessment.

St Albans City and District Council

- 2.8 The St Albans City and District Council Local Plan 2020-2036 Draft Publication 2018 makes references to trees under the following Policies.

Current situation regarding the draft plan

- 2.9 The Inspector has written to the Council in April 2020 setting out significant concerns on Duty to Cooperate and Soundness matters over the draft plan. The former issue would not be overcome by changing the draft plan and as such it is likely the plan will be withdrawn. The suggestion from the Inspector is that a conclusion would not be reached until a response has been received from the Council. The Council have responded to the Inspector in July 2020 contesting the Duty to Cooperate suggesting that soundness matters could be addressed through the examination process and Main Modifications to the draft plan. In doing so, they have accepted that a new Green Belt Review would need to be undertaken. At the time of writing, a further response from the Inspector has not been received.
- 2.10 The main chapter of the draft Plan where policies relating to trees can be found is and due consideration has been given to these when assessing the proposals in respect of arboriculture:

Chapter 5 – Design, Conservation and Enhancement of the Natural, Built and Historic Environment.

- 2.11 It is also noted that stated for all the various Broad Locations for Development (S6) where development may be considered, policy aspiration where trees are concerned is consistent whereby 'development will be required to deliver: 'Retention of important trees and landscape features'.

It is noted however that the application site does not fall within the Broad Location areas and as such does not apply in this regard. Aspirations of the Council regarding trees are however covered in several other policies as set out below.

Policy L20 – New Development Parking Guidance and Standards

Under the list of General Requirements, the policy lists:

- *‘Proposals must comply with Policy L29 and be acceptable in terms of visual impact, landscaping and residential amenity. Existing trees should be retained, and landscaping and screening improvements are likely to be required. Parking surfaces should be permeable. Welwyn Hatfield Borough Council.’*

Policy L23 – Urban Design and Layout of New Development

The introduction to this policy states that:

‘New development should be well designed to an appropriate and human scale. Designs must respond positively to environmental context and be efficient in use of land. All proposals should be explained and justified on the basis of a thorough appraisal of site opportunities and constraints.’

Regarding trees, under the design principals, it states that development must:

viii) create high quality architecture (including contemporary styles) open spaces, trees and landscaping. Innovative and outstanding design will be encouraged.

Policy L29 - Green and Blue Infrastructure, Countryside, Landscape and Trees

The specific parts of L29 which sets out policy aspirations for trees is covered by two areas:

- Protection of existing woodland, trees and landscape features

‘Existing woodlands, trees and landscape features should be retained and protected as part of development schemes.’

Trees in Conservation Areas (Policy L29) are a particularly important consideration.

On sites with significant existing woodland and trees, or other landscape features, planning applications must be supported by a full landscape survey. Landscape and tree surveys must conform to the requirements within BS5837 (2012) and subsequent revisions (landscape features on the site and adjoining land, tree species, canopy spread, trunk diameter and levels at the base of each tree should be recorded).

Where appropriate, Tree Preservation Orders will be made and / or planning conditions attached to planning consents, to protect existing woodland and trees (specified in accordance with BS 5837 (2012), and subsequent revisions).

Woodland and trees to be retained on a development site shall not be endangered by construction works or underground services or proximity to development. Sufficient provision should be made for root protection. New development must not be sited where it is likely to lead to future requests for tree felling or surgery for reasons of safety, excessive shading, nuisance, or structural damage.

There will be a presumption against the removal or destruction of any hedgerow that is considered important (according to the Hedgerow Regulations).

Existing landscape character should be retained and enhanced where possible. Development which makes inadequate provision for the retention of, or compensation for loss of woodlands, trees and other landscape features will be refused.'

- New landscaping and tree planting

'Where proposals necessitate new landscaping and tree planting, dedicated conditions and obligations covering implementation of an approved landscape scheme (including on and off-site measures) will be required.

Where changes to the landscape are necessary, detailed landscaping schemes will be required. They must indicate existing trees and shrubs to be retained; trees to be felled; the planting of new trees, shrubs and grass; and level changes, enclosure, screening and paving. Preference should be given to the use of native trees and shrubs with all stock sourced and grown in UK to minimise biosecurity risk. Adequate space and depth of soil for landscaping and planting must be allowed within developments. In particular, space for screen planting including large trees will be required in major developments, particularly at the edge of settlements.

New woodland planting will be required as part of new green space provision for some of the Broad Locations (S6). New landscape works will be subject to detailed conditions or obligations referring to approved schemes. Conditions will require effective establishment and maintenance.'

Policy L30 - Historic Environment

Under this policy, a reference is made to veteran trees as part of g) Historic Landscapes:

'.....There are historic landscapes other than those on the national or local list of historic parks and gardens, and additional parks and gardens, to which this policy may apply. Historic landscapes also include ancient farming systems, unimproved grasslands, water meadows, old orchards, ancient woodlands, veteran trees, battlefields and former settlement sites.'

Welwyn Hatfield Borough Council

- 2.12 Under their current Draft Local Plan (Draft Local Plan Proposed Submission August 2016) Welwyn Hatfield Borough Council have several tree related policies. At the current time, the Plan has yet to be adopted as it is still going through examination at the time of writing. The previous, existing policy for Trees R17 Trees, Woodland and Hedgerows has been saved and currently covered by four replacement policies, the relevant sections of which are outlined below.
- 2.13 The part of the site which lies within the Borough Council boundary is located within the Watling Chase Community Forest thus us subject to aspirations of this designation.
- 2.14 The sections of the Draft Local Plan which houses the various policies relevant to trees are:

10 – Economy

Policy SP 9 - Place Making and High Quality Design

'Proposals will be required to deliver a high quality design that fosters a positive sense of place by responding to the following principles in an integrated and coherent way.

Respond to character and context

- *Proposals have been informed by an analysis of the site's character and context so that they relate well to their surroundings and local distinctiveness, including the wider townscape and landscape, and enhance the sense of place.....*

High quality public space and landscaping

- *Proposals provide an appropriate amount of public open space that is well sited and designed to help create and enhance a sense of place.*
- *Public open spaces are coherent, attractive, multi-functional, safe, inclusive and utilise high quality soft and hard landscaping.*
- *Public open spaces promote health and wellbeing, with play and leisure spaces well located and attractively designed to encourage their use.*
- *Continuity of frontages and appropriate definition of spaces is created or maintained through the siting, layout and design of routes, buildings, landscaping and boundary treatments.*

Space for nature

- *Proposals make space for nature, enable the movement of wildlife through the development, and protect and improve the connectivity of habitats at the wider landscape scale.*
- *Layout and design of development respects and guides people's interaction with spaces for nature, with strategies in place to manage and maintain the ecological integrity of those spaces.*

Policy SP 10 - Sustainable design and construction

'Proposals that adopt sustainable design and construction principles, as set out below, within an integrated design solution will be supported. This should be demonstrated via a Sustainable Design Statement and associated plans....

Landscape and biodiversity

- *New and existing habitat and landscaping are incorporated into the layout and design of proposals in line with sound ecological principles. Site and building-level landscaping and features promote biodiversity and help achieve other aims, such as climate change adaptation, flood risk and amenity. Newly created habitat and soft landscaping prioritise the use of native species. Non-native species are only used if they significantly help achieve other policy objectives, such as adapting to climate change. Proposals seek to create space for growing food, both at a building and wider community scale.*

12 – Environmental Assets**Policy SP11 – Protection and enhancement of critical environmental assets**

The relevant part of the policy is:

'The protection, enhancement and management of the environmental, ecological and historic assets within the borough, will be sought commensurate with their status, significance and international, national and/or local importance....'

In the supporting text, Table 8 under National Importance there is a reference to Ancient Woodlands.

At paragraph 12.4, the supporting text also states: *'Alongside these are a number of other natural and historic assets of importance, including landscape character areas; mapped ecological networks of various habitats; the water environment; woodland, orchards, trees and hedgerows; remnants of Roman settlement; and un-registered historic parks and gardens'*

At paragraph 12.6, the supporting text also states: *'Part of the borough is located within the boundary of the Watling Chase Community Forest area, where the aim is to achieve major environmental improvements in terms of the provision of green infrastructure such as planting trees, areas for nature, landscape enhancement and the provision of public open space around urban areas. The Council will support delivering the aims of the Watling Chase Community Forest through the appropriate retention and and protection of trees, or planting of new and replacement trees.'*

At paragraph 12.17, the supporting text also states: *'Proposals will as a minimum be expected to be in line with CIEEM guidelines on ecological impact assessments and the recommendations set out in the relevant British Standards (Footnote 63. Implementation of the principles within SP 11 and SADM 16 and the recommendations set out in the British Standards should be demonstrated via the Sustainable Design Statement or other ecology assessment where it is deemed appropriate according to the nature and scale of the proposal and site.'*

Footnote 63 makes specific reference to BS5837:2012 Trees in relation to design, demolition and construction, and BS 3998:2010 Tree work.

Policy SADM 16 – Ecology and Landscape

The relevant part of the policy is:

Ecological Assets

'i. Proposals will be expected to maintain, protect and wherever possible enhance biodiversity, the structure and function of ecological networks and the ecological status of water bodies.

....b. Ancient Woodland, veteran trees, chalk river habitats or habitats or species of national principal importance, will be refused unless: the mitigation hierarchy has been followed, to firstly avoid, reduce and remediate direct and indirect adverse impacts before considering compensation; and the need for, and benefits of, the development significantly outweigh the loss or harm.

c. Local Wildlife Sites, other habitats, species and ecological assets of local importance, including ecological networks, woodland, orchards, protected trees and hedgerows and allotments, will be refused unless: the mitigation hierarchy has been fully implemented to avoid, reduce and remediate and compensate direct and indirect adverse impacts; and the need for, and benefits of, the development outweigh the loss or harm.

Under site-specific considerations for Site Allocations set out in various Tables for Welwyn, reference is made consistently with regards trees as:

'Opportunity to retain and protect trees. Compensatory planting if trees are lost as a result of development.'

The site does not form part of any of the draft Site Allocations.

Statutory Considerations

- 2.15 Local authorities have a Duty under the Town and Country Planning Act to create Tree Preservation Orders (TPO) to protect and preserve specific trees and woodlands that bring significant amenity benefit to a particular site or location. Under a TPO it is a criminal offence to cut down, top, lop, uproot or willfully destroy a tree protected by that Order, or to cause or permit such actions, if carried out without the prior written consent of the acting LPA.
- 2.16 Anyone found guilty of such an offence is liable and in serious cases, may result in prosecution and incur an unlimited fine.
- 2.17 The site falls within the jurisdiction of two Local Planning Authorities.
- St Albans City and District Council
 - Welwyn Hatfield Borough Council
- 2.18 No direct consultation with the relevant Local Planning Authorities in this case have taken place, however, it is understood having used the online search facility for these authorities that there are no Tree Preservation Orders or Conservation Areas designation that would affect any trees present on, or in close proximity to the assessment site and therefore no statutory constraints would apply to the development in respect of trees. Before any tree works are undertaken confirmation of the online information should be sought from the relevant Local Authority.
- 2.19 Information provided on Tree Preservation Orders and Conservation Areas is accurate to the date of this assessment and cannot be assumed to remain unchanged. The last check was carried out on the 25th June 2020.

Non-Statutory Considerations

- 2.20 To compile existing baseline information on relevant arboricultural considerations information was requested from both statutory and non-statutory nature conservation organisations. The Multi Agency Geographic Information for the Countryside (MAGIC)¹ website highlighted tree cover within the site as or included within the following:
- The Priority Habitat Inventory, Deciduous Woodland
 - The National Forestry Inventory
- 2.21 The Priority Habitat Inventory is a spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.²
- 2.22 The deciduous woodland inventory is a rolling programme designed to provide accurate information about the size, distribution, composition and condition of forests and woodlands.³
- 2.23 Priority habitat designation and inclusion within the National Forestry Inventory does not provide any statutory protection.

¹ <http://magic.defra.gov.uk/>

² Contains public sector information licensed under the Open Government Licence v3.0.

³ <https://www.forestresearch.gov.uk/tools-and-resources/national-forest-inventory/>

3.0 SURVEY METHODOLOGY

- 3.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturist and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.
- 3.2 Trees have been assessed as groups, hedgerows or woodland where it has been determined appropriate.
- The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
 - For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.
 - For the purposes of this assessment woodland is described as a habitat where ‘trees are the dominant plant form. The individual tree canopies generally overlap and interlink, often forming a more or less continuous canopy’⁴. Woodlands however, are not just formed of trees and generally include a great variety of other plants. These will include ‘mosses, ferns and lichens, as well as small flowering herbs, grasses and shrubs’⁵.
- 3.3 An assessment of individual trees within groups, hedgerows or woodland has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

Ancient and Veteran Trees

- 3.4 Veteran trees and Ancient Woodland are important components of the landscape, their importance can be for several reasons including that of their ecological, social, cultural and historic value.
- 3.5 Veteran Trees and Ancient Woodlands are material considerations within the planning process and their importance is specifically recognised within the National Planning Policy Framework (NPPF) 2019, which defines the terms ancient or veteran tree 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.’⁶*
- 3.6 Various published methodologies are currently available which, due to the complexity and subjectivity of the process of defining and assessing these trees, often have conflicting definitions.

⁴ http://www.countrysideinfo.co.uk/woodland_manage/whatis.html

⁵ http://www.countrysideinfo.co.uk/woodland_manage/whatis.html

⁶ Ministry of Housing, Communities and Local Government. (2019). *National Planning Policy Framework*. London: Ministry of Housing, Communities and Local Government.

- 3.7 This assessment, and the criteria used for defining ancient/veteran trees and the identification of attributable ancient/veteran features, has been based on a range of currently published guidance and resources.

Ancient Woodland

- 3.8 Ancient woodland in England is defined as an area that has been continuously wooded since at least 1600 AD. 'Continuously wooded' does not require there to have been a continuous cover of trees and shrubs across the entire area. Habitats such as glades, deer lawns, rides, ponds and streams, as well as gaps created by natural occurrences, and forestry may all occur within woodland.
- 3.9 Ancient woodland includes both ancient semi-natural woodland and plantations on ancient woodland sites:
- Ancient semi-natural woodland (ASNW) is where the stands are composed predominantly of trees and shrubs native to the site that do not obviously originate from planting. However, woodlands with small planting of trees native to the site would still be included in this category. The stands may have been managed by coppicing or pollarding or the tree and shrub layer may have grown up by natural regeneration.
 - Plantations on ancient woodland sites (PAWS) these are areas of ancient woodland where the former native tree cover has been felled and replaced by planted trees, predominantly of species not native to the site. These sites often retain some of the ancient woodland features such as soils, ground flora, fungi and woodland archaeology.
- 3.10 Ancient woodland is a resource of great importance for its wildlife, soils, recreation, cultural value, history and the contribution to diverse landscapes.

BS5837 Categories

- 3.11 Trees have been divided into one of four categories based on Table 1 of BS5837, '*Cascade chart for tree quality assessment*'. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).
- 3.12 Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B and C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.
- 3.13 **Category (U) – (Red):** Trees which are unsuitable for retention and are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Trees within this category are:
- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.

- Trees that are dead or are showing signs of significant, immediate, or irreversible overall decline.
 - Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low-quality trees suppressing adjacent trees of better quality.
 - Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.
- 3.14 **Category (A) – (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:
- Subcategory (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
 - Subcategory (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
 - Subcategory (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.
- 3.15 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:
- Subcategory (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
 - Sub category (ii) trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
 - Subcategory (iii) trees with material conservation or other cultural value.
- 3.16 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:
- Subcategory (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
 - Subcategory (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
 - Subcategory (iii) trees with no material conservation or other cultural value.

Site Plans

- 3.17 The individual positions of trees and groups have been shown on the Tree Survey Plan. The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. Where topographical information has not identified the position of trees these have been plotted using a global positioning system and aerial photography to provide approximate locations. The crown spread, root protection area and shade pattern (where appropriate) are also indicated on this plan.
- 3.18 As part of this assessment, a Tree Retention Plan has been prepared to show the proposed layout in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies which trees would be required to be removed or retained as part of the proposed development.
- 3.19 A Detailed Access Arrangement Plan has been provided to demonstrate the location of the primary access position in relation to the surrounding tree cover allowing the identification of any potential conflicts through its implementation.

Tree Constraints and Root Protection Areas

- 3.20 Below ground constraints to future development are represented by tree roots and the soil environment in which they grow which needs to be protected if the tree is to be retained. Tree rooting systems are essential for the uptake of water and nutrients, serving the storage of carbohydrates for the future growth and function of the tree, and form structural anchorage and support for the stem and crown. The perceived rooting area of the tree; referred to as the root protection area (RPA) needs to be protected if the tree is to be retained.
- 3.21 The RPA is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. The RPA has been calculated in accordance with Annex C, D and Section 4.6 of BS5837:2012 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme. As such, the RPA of existing trees is an important material consideration when considering site constraints and planning development activities.
- 3.22 Where applicable the shape of the Root Protection Area has been modified to consider the presence of any nearby obstacles (existing or past) which may have restricted root growth and the likely root distribution i.e. the presence of hard standing, structures and underground apparatus. Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree in any one group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon the group.
- 3.23 Whilst it is generally accepted that a trees roots may extend far greater distances than the notional RPA, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients), with roots predominantly located in the upper 1,000 mm of the soil horizon; the RPA offers an accepted protective buffer from development.

- 3.24 Above ground constraints such as the current crown spread of the trees and an illustration of the shade pattern (where appropriate) have been considered and identified within the Tree Survey Plan and Tree Retention Plan indicates their potential area of shading influence.

Considerations and Limitations of the Tree Survey

- 3.25 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.
- 3.26 The statements made in this report regarding defects in assessed trees does not take into account the effects of extreme / adverse weather conditions, changes in land use prior to the site's development, unforeseen accidents or anti-social behaviors, such as vandalism, which occur since the date of the survey. As such, the assessment of tree condition given within applies to the date of survey and cannot be assumed to remain unchanged.
- 3.27 It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.
- 3.28 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The tree survey conducted, in accordance with BS5837, does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.
- 3.29 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups and hedgerows to assist structural calculations for foundation design of structures in accordance with current building regulations. The exact position of individual trees or species included as part of a tree group should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths in accordance with NHBC Chapter 4.2 Building near Trees.

4.0 RESULTS

- 4.1 A total of forty-four individual trees, nineteen groups of trees and eight hedgerows were recorded as part of the Arboricultural Assessment. Trees were surveyed as individual trees and groups of trees where examples are clearly present as per the description.
- 4.2 Refer to the Tree Survey Plan and Appendix A – Tree Schedule for full details of the trees included in this assessment. The table below summarises the trees assessed.
- 4.3 There were no woodlands recorded associated with the site.

Tree Schedule

- 4.4 Appendix A presents full details of individual trees, groups, hedgerows and woodlands recorded by the tree survey including information on heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention, indicative shadow patterns and the root protection area.
- 4.5 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where relevant and appropriate.
- 4.6 Several of the trees have been discussed in more detail following Table 1, owing to their physical condition or arboricultural significance.

Results Summary

- 4.7 The Table 1 below is a summary of the recorded trees and their respective BS5837 retention categories.

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T26, T30	2	G9	1
Category A (High Quality / Value)	T2, T7, T14, T18, T22, T24, T34, T35, T40	9	G18	1
Category B (Moderate Quality / Value)	T3, T4, T5, T6, T8, T9, T12, T15, T16, T19, T23, T25, T28, T29, T31, T32, T33, T36, T37, T38, T39, T41, T42, T43	25	G1, G2, G6, G7, G8, G10, G11, G12, G13, G14, G15, G16, G17, G19, H1, H3, H4, H5, H6	20
Category C (Low Quality / Value)	T1, T10, T11, T13, T17, T20, T21, T27	8	G3, G4, G5, H2, H7	5

Category A – High Quality Trees

- 4.8 There were nine trees and one tree group surveyed which were considered as retention category A (high arboricultural quality and value) namely T2, T7, T14, T18, T22, T24, T34, T35, T40 and G18. All these trees were large mature English oak except for T35 which was an early mature English oak. At the time of assessment these trees were found to be in good condition and considered to either possess a remaining life expectancy and contribution to the arboricultural resource of at least 40 years or be a particularly good example of their respective species.
- 4.9 Seven of these trees (T2, T7, T14, T22, T24, T34 and T35) were on or immediately adjacent to the site boundary and two were located offsite (T18 and T40). T18 was positioned within a private garden on the northern boundary and was estimated to be approximately 5m away from the site boundary. T40 was positioned on the south side of Fellows Lane within the field boundary hedgerow.
- 4.10 All these trees with the exception of T35 contribute significantly to the local landscape and should be retained by any proposed development. T35 also qualifies as retention category A and therefore should be retained where possible however since T35 is a younger and therefore a much smaller tree it would be easier to justify its removal and replacement than any of the large mature specimens.
- 4.11 To select several standout specimens and groups, G18 consisted of a group of five large mature English oak positioned along Bullens Green Lane. They formed a prominent feature within the local landscape by virtue of their size and interlocked canopies. See photograph 1. Several of the specimens displayed coppice forms with several large individual stems rising from a stool. Other than supporting dead wood of varying proportions within the crowns, the component trees did not exhibit any other obvious defects. Removal of any dead wood would be recommended where it overhangs the site and Bullens Green Lane through appropriately applied remedial management, in the interests of safety should the site be developed. Collectively for having a considerable life expectancy by virtue of the species and overall high quality, G18 was regarded as high value and category A.
- 4.12 T2 was approximately 16m in height and prominent along the northern boundary. The specimen housed a number of minor defects including branch stubs from past pruning work and wounds where lower order branches had been removed presumably to allow better access to the garden and to undertake cultivation of the crop, along with a natural accumulation of crown dead wood of small proportions. The position of the tree along the boundary means the crown overhangs the private garden to the north and the specimen could possibly be under third party ownership.
- 4.13 T40 was approximately 15m in height and a large, locally prominent specimen by virtue of its size and being clearly visible along Fellows Lane. It was free from any obvious structural defects displaying particularly good form. See photograph 2. The form was evenly balanced, and the specimen was considered characteristic for species. The stem supported light ivy cover and there was minor dead wood visible within the crown, which would be amounts typically associated with a specimen of this age. T40 is separated from the Lane by a verge and field ditch which is likely to have restricted development of significant rooting material towards the Lane. As for G18 and other oak specimens present, due to possessing considerable life expectancy by virtue of the species and high quality, T40 was regarded as high value and category A.



Photograph 1: View looking north east from within the site towards G18 with T39 to its south



Photograph 2: View of T40 looking due east from Fellows Lane situated within H6

Category B – Moderate Quality Trees

- 4.14 There were twenty-five individual trees, fifteen tree groups and five hedgerows surveyed which were classified as retention category B (moderate arboricultural quality and value). See Appendix A for details. Most of the individual trees and groups recorded which fell into this category were either English oak or common ash. Some of the category B groups of trees were formed of specimens which varied in condition thus although some of the component trees were in poor condition (either in terms of physiological or suspected structural configuration), collectively these groups formed prominent landscape features that provides high value screening from Roestock Park and the adjacent Depot, as well as private dwellings so play a valuable role in buffering views whilst helping to better integrate the proposed development into the local landscape.
- 4.15 The southern section of the western boundary supported several large, mature specimens of ash (G10, G11 and T29) and a collection of sycamore (G12) which formed a mature boundary adjacent to and associated with Roestock Park. See photograph 3.



Photograph 3: View looking due west across the site to the southern section of the western boundary to show G10, G11 and T29 with partial view of G12 on the far right

Category C – Low Quality Trees

- 4.16 There were just eight individual trees, three tree groups and two hedgerows surveyed that were considered retention category C (low arboricultural quality and value), which reflects the generally high quality of most trees associated with the site.

Category U – Trees Unsuitable for Retention

- 4.17 There were also two individual trees T26, T30 and one tree group G9 considered unsuitable for retention and in such a condition that they could not realistically be retained in the current context of the land use for more than 10 years.
- 4.18 G9 and T26 are large mature aspen which due to their physiological and structural condition are regarded as being at increased risk of failure and it is recommended that they are removed irrespective of the development on arboricultural grounds. The crowns contain a high burden of dead wood and have been high pruned resulting in top heavy structures which would be highly vulnerable to wind loaded damage. See photograph 4.



Photograph 4: View looking north west at high crown form of trees belonging to G9 and presence of crown dead wood

Hedgerows

- 4.19 From an arboricultural perspective, the recorded hedgerows were either considered as being retention category B or C according to quality and condition. There was a mixture of managed and unmanaged (outgrown) forms. Species present within hedgerows were highly diverse and mostly native.

Ancient and Veteran Trees

- 4.20 None of the assessed trees were considered as ancient or veteran trees in accordance with accepted methodologies and guidance.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

- 5.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.
- 5.2 The AIA has been based upon the Proposed Illustrative Layout (Woods Hardwick drawing no. 17981/1005D Rev F (02.11.20) dated July 2020) and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The drawing shows the proposals for a residential development with the means of access, internal road configuration, new open space provision and proposed area of play.
- 5.3 A single vehicular access point will be created off the eastern boundary, Bullens Green Lane, where it will enter the site before branching into the internal road layout. The existing Public Right of Way access points off Bullens Green Lane, Roestock Lane and Fellows Lane will be retained, and paths integrated into the development alongside a series of new footpath links.
- 5.4 An overlay of the above proposal has been incorporated in the Tree Retention Plan to assist in identifying the relationship and any potential conflicts between the proposals and the existing trees and hedgerows.
- 5.5 A Detailed Access Arrangement Plan has also been provided, based on the submitted access design (drawing reference: 2020-08-13 Engineering WIP no. 18770) to demonstrate the location of the primary access position in relation to the surrounding tree cover allowing the identification of any potential conflicts through implementation of the site access in this location.
- 5.6 The Illustrative Layout at this Outline stage is indicative but illustrates the approximate position of the built element, possible plot arrangements and open space provision of the proposed development. Through its design and by virtue of the existing trees being positioned around the extents of the site, the proposed layout will allow for the retention of much of the existing mature tree cover.
- 5.7 Where possible existing trees and hedgerows will be retained within areas of open space and / or proposed landscape buffer strips around the extents of the development. This will see these trees retained within a similar growing environment to which they have become accustomed to whilst also reducing future pressure to prune or remove trees which can arise when trees are retained within close proximity to residential dwellings.

- 5.8 This should help ensure the successful integration of the existing mature tree cover with the new development and provide an attractive, mature setting to the built element. Retaining the existing tree cover will also serve to provide immediate screening from the site to the surrounding land and in the future, new landscaping would seek to enhance the screening effect as well as mitigating for loss of tree cover.
- 5.9 The projected arboricultural implications arising from the proposals have been outlined in more detail below.
- 5.10 The high numbers of category A and B trees, in terms of the wider populous of tree cover associated with the site were those specimens of a higher arboricultural quality. The majority of these specimens were oak and ash which are particularly resilient and adaptable; within the context of any future change in land use, thus would be considered as particularly important arboricultural assets to retain as they have high potential to continue to contribute to the area for years to come. Their retention is therefore desirable, and the peripheral locations means the layout can retain these existing high-quality features more readily.
- 5.11 To facilitate the proposals only a small amount of the existing vegetation would need to be removed, the removal of which would be required to create the main point of vehicle access along the eastern boundary and a short section of hedgerow to create a gap for the footpath leading from the site on to Fellows Lane.
- 5.12 All other trees and hedgerows would be retained, their retention being secured within landscape buffers between and around the edges of the development as part of the supporting green infrastructure. The landscape buffers will serve to provide a mature setting to the new development and maintain wildlife corridors connecting to the surrounding habitats.
- 5.13 The existing vegetation that would need to be removed to create the main vehicle access point is a section of the field boundary hedgerow H5. This boundary hedgerow is comprised of mixed native species and from an arboricultural perspective was assessed as being of moderate arboricultural quality and value. The length of hedgerow that would need to be removed to facilitate the access and any associated visibility splay requirements is 43m (south of the access) and 26m (north of the access) totally approximately 70m.
- 5.14 There will be new landscaping delivered around the entrance apron to the new junction through planting of a new native species rich hedgerow with an appropriate number of standard trees. The new planting will not only mitigate the loss of this hedgerow but will serve to increase the amount of existing hedgerow and tree cover in this part of the site boundary and as such there should be no objection on arboricultural grounds. Consideration to whether it would be appropriate to translocate the existing hedgerow was given however, the hedgerow itself is relatively species poor thus from an ecological perspective, it would be considered more suitable to use the opportunity presented to replant with a more diverse species mix, to increase future ecological and bio-diversity value. Further details on the proposed replanted hedgerow is given within the Ecological Appraisal.
- 5.15 A new footpath link is proposed to connect the residential development to Fellows Lane. To facilitate the link, a short section of the hedgerow, H4 along the southern boundary will need to be removed. From an arboricultural perspective, the removal of a short section of this hedgerow should not raise objection.

- 5.16 New landscaping, including hedgerow planting would be provided within the proposed green space between the Lane and the development to mitigate for the loss of hedgerow. The route of the footpath will exit the site and cross to the opposite side of the road thus avoiding any impact to the group of retained trees located on the small grass verge area on the north side of the Lane (T31, T32, T33, G14 and T34). The route of the path has been designed sympathetically taking account of constraints from existing trees and will be positioned such that it does not encroach into the RPA of T40. The path will continue along the southern side of the Lane to link up with the existing path. Where the path crosses the RPA of T41, the construction will be undertaken using minimal dig methods, installing an engineered solution of raised construction (cellular confinement system) such as Cellweb. This would be required to minimise any impacts on roots and importantly reduce future compaction of the soil thus maintaining tree health.
- 5.17 No ground level changes should be proposed within the root protection areas of retained trees and hedgerows and further consideration should be given to this matter in a future Reserved Matters application. This would include avoiding any potentially negative impact upon trees and hedgerows as a result of changes in the site's hydrology. The proposed attenuation pond in the northern part of the site should be carefully designed to avoid negatively impacting on rooting areas extending into the site from trees around the boundaries.
- 5.18 The proposed drainage connections between the proposed attenuation features and Bullens Green Road would not impact on RPA's. The engineers drawing used for the Detailed Access Plan (FPCR 9569-T-05) also includes the locations of proposed drainage connections as well as the means of vehicle access. The drawing also shows the presence of the existing field ditch along the northern boundary and while this ditch feature is positioned within the RPA's of trees present along the boundary, there would be no proposals to alter the ditch meaning the existing situation for trees would remain.
- 5.19 Due to increased public access to retained trees adjacent to areas of open space, all retained trees should be subject to a site wide Arboricultural Management Plan to maintain trees in a safe and healthy condition in the interests of public safety.
- 5.20 Subsequently, to ensure that appropriate protection of the retained trees throughout the development is provided, specific details regarding the timing, procedures, working methods and protective measures to be used in relation to the proposed construction works within and in close proximity to root protection areas (to include details of the proposed cellular confinement system required for the footpath link past T41) should be included in a Tree Protection Plan (TPP) and Arboricultural Method Statement (AMS). Such details can be assured through the imposition of a suitably worded condition attached to a planning approval for a future Reserved Matters application. In turn, alongside the provision of such documents, adherence to an AMS can also be conditioned to a planning approval.

Discussion and Policy Context

- 5.21 For arboriculture, overall the proposals are considered to meet the aims and objectives of the various Local Plan policies of both Planning Authorities through careful consideration of the design and retention of all the existing tree cover. The retention of, coupled with targeted future management and enhancement of the existing and future tree cover will meet many of the individual aspirations set out in the various policies.

- 5.22 Development of the site will unavoidably require the removal of a small proportion of the existing vegetation to achieve access and create a footpath link as there are only a few natural gaps in the boundary vegetation adjacent to the surrounding roads. The hedgerow needing to be removed to facilitate access would be replanted with a new species rich hedge behind the visibility splays. An appropriate number of standard trees would also be planted within the hedgerow for ecological and landscape benefits.
- 5.23 To minimise loss of any significant trees and to meet highway requirements, the position of the access point and overall design of the layout has been a 'constraint led' process being informed by the findings of a comprehensive BS5837 compliant tree survey and identification of other key landscape and ecological constraints. The proposals have therefore been informed by the tree survey information and arboricultural constraints so as many of the existing trees and hedgerows are retained as possible and those trees and hedgerows can continue to contribute positively to the character and appearance of the landscape.
- 5.24 Specifically, the development proposals achieve the following and meet the aspirations of the various policies by:
- Except for a short section of boundary hedgerows (H4 and H5) to facilitate access and a footpath link, all other trees and hedgerows will be retained. The development proposes to mitigate for the loss of a section of H5 through delivery of a new species rich hedgerow along with standard trees planted behind the visibility splay of the new access junction thereby securing future ecological and landscape benefits. Mitigation for the loss of H4 will also be provided within the green space between Fellows Lane and the new development.
 - The design of the layout has fully considered the constraints belonging to existing arboricultural assets and therefore has created a sustainable relationship between existing trees and hedgerows.
 - As such, the projected arboricultural impacts arising from a proposed residential development as per the Illustrative Layout would be low.
 - The Green Infrastructure supporting the development will make provision for other new landscaping including carefully and appropriately designed tree planting thereby ensuring additional high-quality tree cover associated with the site in the future, as part of both open space and landscape buffers as well as integrating with the built form i.e. street trees and within private gardens. The new tree planting will complement the existing landscape and ensure a future generation of trees.
 - Well-designed new landscaping presents the opportunity to provide 'local distinctiveness within the landscape', enable 'climate adaption resilience' as well as importantly 'supporting local bio-diversity'.
 - At the outline stage of planning, existing trees and hedgerows are all retained within proposed new green space / landscape buffers, except for a short section of boundary hedgerow being removed for access and have been provided appropriate stand offs including their full root protection areas from developable parcels as to ensure continued contribution of the arboricultural assets in the future through safeguarding against damage and allowing the application of appropriately implemented 'sustainable' tree management.

- New tree planting would meet the specifics of the various policy in providing positive gains for arboriculture and mitigating for the loss of hedgerow deemed necessary to deliver the development proposals. There is a clear lack of young or successional tree cover within the site at present to replace the mature tree stock in the future thus the addition of new tree planting to the local area to be delivered as part of the development should be seen favourably and will secure future tree cover.
- 5.25 There are no ancient or veteran trees associated with the site thus policies relating to these trees are not engaged.

Tree Management

- 5.26 The layout of the development is currently reserved for subsequent approval. During a reserved matters application pursuant to layout, a review of the relationship between the layout and the retained trees should be undertaken by a qualified arboriculturist to assess the existing tree cover and prepare a schedule of tree works.
- 5.27 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 *Post Development Management of Existing Trees*, where there is a potential for public access in order to satisfy the landowner's duty of care. Additionally, inspections annually and following major storms should be carried out by an experienced arboriculturist or arborist to identify any potential public safety risks and to agree remedial works as required.
- 5.28 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.
- 5.29 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

6.0 NEW TREE AND HEDGEROW PLANTING

- 6.1 At this Outline stage, the development proposals have illustrated an adequate quantity of structured tree planting. The purpose and function of this new tree planting should be understood from the start of any design stages so that key objectives from a landscape perspective can also be achieved.
- 6.2 Consequently, specific details regarding new tree planting should be prepared as part of a landscaping scheme by a suitably qualified and experienced landscape architect in accordance with the relevant government guidance, specifically BS8545:2014 - Trees: From Nursery to Independence in the Landscape – Recommendations, and section 5.6 and Table A.1 of BS5837:2012. Accordingly, the provision of and adherence to a detailed landscape proposal plan can be assured through the imposition of a suitably worded condition attached to a planning approval.

- 6.3 The landscaping scheme should consider the use of both native tree species (for their low maintenance requirements and nature conservation value) and ornamental species (for their contribution to urban design and amenity value). Species choices should be selected based on their suitability for the final site use. Furthermore, during the design process consultation should be made with the Local Planning Authority to obtain information on their tree strategy and incorporate the planting proposals with any local policies and initiatives and/or Biodiversity Action Plans (BAP).
- 6.4 In line with the NPPF all schemes should aim achieve a net gain in biodiversity value. Nationally recognised biodiversity metrics allow for the inclusion of, not limited to, newly planted scattered trees, woodlands and hedgerows as a means of compensating for loss of habitat as part of the development. Tree and shrub planting can therefore be used to contribute to this biodiversity gain.
- 6.5 To maximise biodiversity value (and contribution to net gain) native species or varieties should be specified. Such provisions can be incorporated into both the hard and soft landscaping of the scheme. It is recommended that tree and hedgerow specifications are made following consultation with guidance published by the Local Planning Authority.
- 6.6 When deciding upon suitable tree species, careful consideration would need to be given to the following: ultimate height and canopy spread, form, habit, density of crown, potential shading effect, colour, water demand, soil type and maintenance requirements in relation to both the built form of the new development and existing properties.
- 6.7 Through careful species selection, the landscape scheme shall reduce the risk of trees being removed in the future on the grounds of nuisance. Nuisance can be perceived in a number of ways and vary from person to person however most commonly, within the context of trees, low overhanging branches, excessive shading, seasonal leaf fall and the misinformed perception that trees close to buildings cause damage.

Hedgerows

- 6.8 Hedgerows are identified as a Habitat of Principle Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Consequently, it is important that the proposed scheme delivers a net gain in terms of linear hedgerows through new planting to compensate for any losses. Species should be native, and characteristic of the locality.

Rooting Environment and Soil Volumes

- 6.9 The success of any landscaping scheme relies on an adequate provision of a high-quality rooting environment within which trees can thrive and reach their full potential. Planting trees with due care and consideration can, in the long term, provide a greater return on a schemes green investment and ensure trees remain healthy and grow to mature proportions. Healthy mature trees integrate well into the built environment; increase the maturity of the landscape; help provide a natural green and leafy urban environment in which people would want to reside whilst also benefiting local wildlife.

- 6.10 The planting of trees within confined urban environments should consider the use of appropriately designed planting pits specifically engineered to promote tree health and longevity. Crucially the aim will be to provide an adequate volume of quality soil for roots to suitably develop by calculating the amount of available soil volumes needed and selecting species whose mature size is compatible with the site. This is an integral component of the planning stage (Lindsey & Bassuk, 1991).
- 6.11 In a natural environment free from constraints to growth, it has been proven through research that root systems can extend up to three times the radius of the tree crown and although in an urban environment there is often insufficient space to accommodate the extent of the full potential for root growth, all efforts should be made to at least provide as much soil volume as possible. One researched method of calculating the minimum required soil volume is as follows:

Table 3: Example of calculating Soil Volume for New Tree Planting (Source: CIRIA C712 and Calculating Target Soil Volumes – Green Blue Urban)

Projected canopy area of mature tree (m) x depth 0.6m		
Calculation 1	Projected mature canopy diameter (metres)	= 3 (Diameter)
Calculation 2	Projected mature canopy area (square metres), (n x Radius ²)	= 7.1 (Area)
Calculation 3	Target soil volume (cubic metres), (Area x 0.6m)	= 4.24 (Volume)
	Target soil volume	= 4.24m ³

General Planting Recommendations

- 6.12 Wherever possible, following discussions with the developer and utility companies, common service trenches should be specified to minimise land take associated with underground service provision and facilitation access for future maintenance.
- 6.13 Tree planting should be avoided where they may obstruct overhead power lines or cables. Any underground apparatus should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts.

General Design Principles in Relation to Retained Trees

- 6.14 In a subsequent Reserved Matters application following the final layout of the scheme, assessment of the distance of proposed development in relation to the calculated root protection area of retained trees should be made which will inform the final layout.
- 6.15 Ground investigation using pneumatic excavation, such as an Air Spade and digging of trial pits, may be required should there be areas where it is not possible to modify the layout to avoid conflict with retained trees. Ground investigations would aim to determine the actual location of the physical roots without causing them damage in the process. Such an assessment would enable consideration of the practicality and suitability of certain 'tree friendly' construction methods and would better inform decision making for a design.

- 6.16 Further assessment of the impact to actual roots found during the ground investigations can then be made and solutions reached thus, greatly reducing any potential future impacts on retained trees whilst allowing the development to proceed and minimising risks to future tree health. Ultimately the aim would be to reduce conflicts between trees and buildings and achieve successful tree retention.
- 6.17 The use of “no-dig” construction methods should be considered prior to decisions being made as to the removal of each tree concerned, where conflicts between trees identified for retention and the layout arise. Such methods of construction and the use of industry led specialist engineering solutions i.e. three dimensional “load bearing” cellular confinement systems can be used particularly in the case of carriageways, footways and driveways in order to avoid unnecessary losses of trees.
- 6.18 The routing of below ground services should also be considered with regard to the retained trees as part of a subsequent reserved matters application pursuant to layout. As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the Root Protection Areas of retained trees. If below-ground services are proposed within a Root Protection Area, modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree health.
- 6.19 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

7.0 TREE PROTECTION MEASURES

- 7.1 Retained trees will be adequately protected during works ensuring that the calculated root protection area for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

General Information and Recommendations

- 7.2 All trees retained on site will be protected by suitable barriers or ground protection measures around the calculated RPA, crown spread of the tree or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.
- 7.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone. Fencing and barriers will not be removed or altered without prior consultation with the Project Arboriculturist.
- 7.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.

- 7.5 Where it has been agreed, construction access may take place within the root protection area if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto a geo-textile membrane for pedestrian movements. Vehicular movements over the root protection area will require the calculation of expected loading and the use of proprietary protection systems.
- 7.6 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

- 7.7 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.
- 7.8 In most situations, fencing should comprise typical construction fencing panels attached to scaffold poles driven vertically into the ground. For particular areas where construction activity is anticipated to be of a more intense nature, supporting struts, acting as a brace should be added and fixed into position through the application of metal pins driven into the ground to offer additional resistance against impacts.
- 7.9 Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified appropriate to the level / nature of anticipated construction activity. The recommended methods of fencing specifications for this site have been illustrated in Appendix B.
- 7.10 It may be appropriate on some sites to use temporary site offices, hoardings and lower level barrier protection as components of the tree protection barriers. Details of the specific protection barriers for the site can be provided should the application be approved, as part of a site specific Arboricultural Method Statement for a Reserved Matters application and in accordance with the guidance contained within BS5837.

Protection outside the exclusion zone

- 7.11 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.
- 7.12 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development. Protection fencing signs can be provided upon request.
- 7.13 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.
- 7.14 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree stem. No concrete should be mixed within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- 7.15 No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.

- 7.16 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- 7.17 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).

Protection of Trees Close to the Site

- 7.18 A number of trees were located on the boundaries of the site and therefore the root protection area and crown spread of these trees will need to be protected in the same way as all the retained trees within the site. All trees located outside the boundaries of the assessment site yet within close proximity to works should be adequately protected during the course of the development by barriers or ground protection around the calculated root protection area.
- 7.19 Any trees which are to be retained and whose Root Protection Areas may be affected by the development should be monitored, during and after construction, to identify any alterations in quality with time and to assess and undertake any remedial works required as a result.

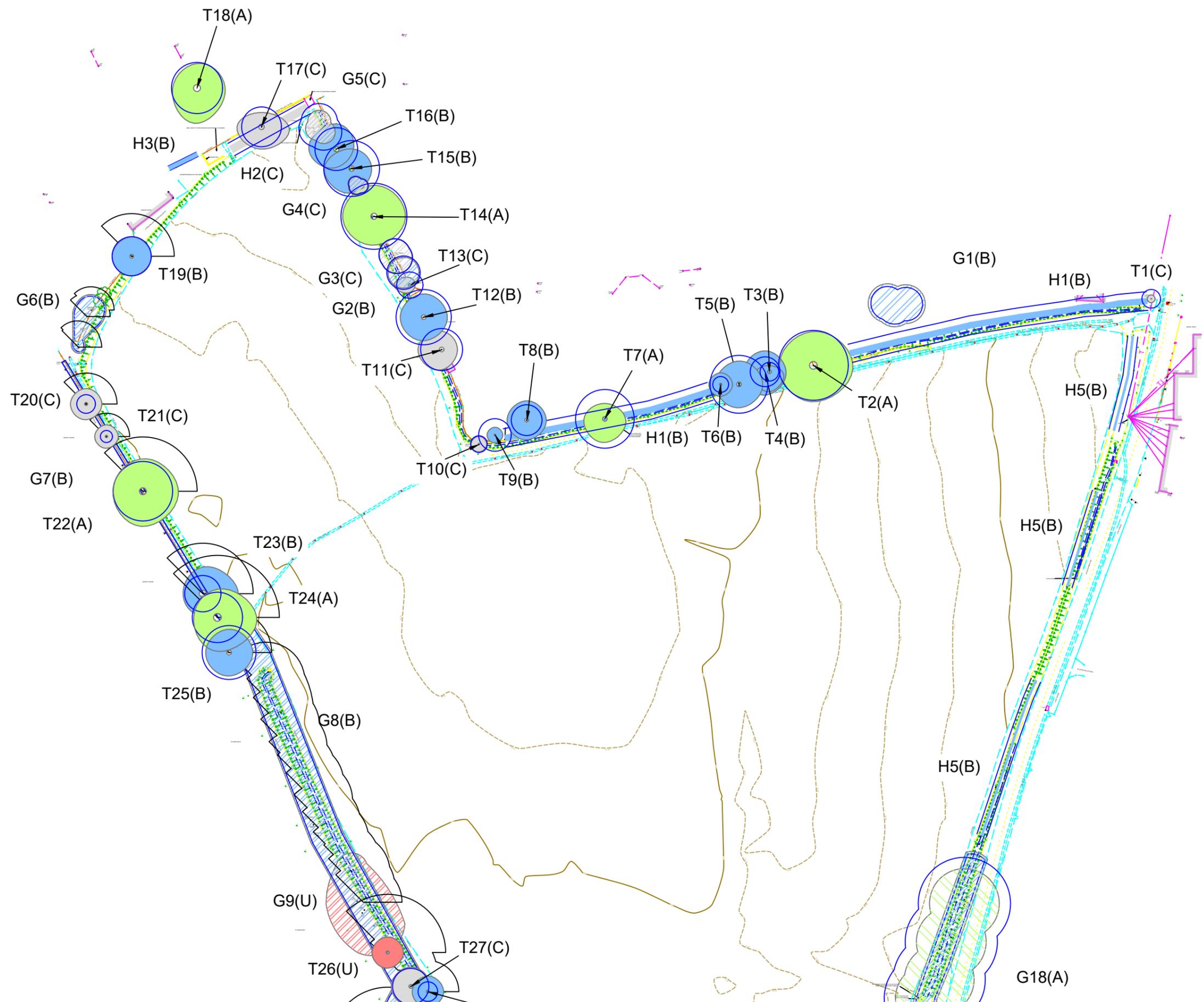
Protection for Aerial Parts of Retained Trees

- 7.20 Where it is deemed necessary to operate wide or tall plant within close proximity to trees it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obstructive branches as any such equipment would have potential to cause damage to parts of the crown material, i.e. low branches and limbs, of retained trees within the protective barriers. This is termed as 'access facilitation pruning' within BS5837. Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturist.
- 7.21 A pre-commencement site meeting with contractors who are responsible for operating machinery is advised to firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.
- 7.22 In the event of having caused any branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with British Standard 3998:2010 and in agreement with the Local Planning Authority prior to correcting the damage, upon completion of development.

8.0 CONCLUSION

- 8.1 The site is located within Roestock close to Colney Heath, St Albans and consisted of a single agricultural field parcel bordered on its eastern side by Bullens Green Lane.
- 8.2 The northern boundary was formed by existing residential development of properties along Roestock Lane. The western boundary bordered Roestock Park and Roestock Lane Depot. The southern boundary generally bordered Fellows Lane although the western end of this southern boundary met with a small number of residential properties of Fellows Lane.
- 8.3 The recorded tree cover was entirely positioned on or adjacent to the site boundary and the site is defined by well stocked boundaries. Tree cover recorded by the survey consisted mainly of mature specimens of English oak with well-established hedgerows around most of the boundaries comprised of a rich mix of native species. Trees were mostly mature, thus provided strong visual features within the local landscape and provided a high level of screening of views both into and out of the site.
- 8.4 Having reviewed the Council's online records there are no Tree Preservation Orders or Conservation Area designations affecting trees associated with the site thus no statutory constraints would apply to the development in respect of trees.
- 8.5 The planning application will be for Outline consent for a residential development with all matters reserved except for access. The principal access point will be taken off the eastern boundary, Bullens Green Lane.
- 8.1 To facilitate the proposed main access point short sections of a maintained hedgerow will need to be removed. The hedgerow was regarded as retention category B (moderate arboricultural quality and value). Mitigation will be provided to replace the section of hedgerow being removed hence there should be no objection on arboricultural grounds.
- 8.2 To facilitate the proposed footpath link joining Fellows Lane to the new development a short section of an outgrown hedgerow will need to be removed. The hedgerow was regarded as retention category B (moderate arboricultural quality and value). Mitigation will also be provided to replace the section of hedgerow being removed hence there should be no objection on arboricultural grounds.
- 8.3 All other trees recorded by this assessment will be retained and integrated into the proposals.
- 8.4 The development proposals would deliver other landscape enhancements through the provision of additional new tree and hedgerow planting within the open spaces and within the new landscape buffers to not only create future visual amenity and provide screening to soften views but would create wildlife connections and serve to introduce younger trees to the area thus replacing the natural demise of the mature and aging population of trees that exist.
- 8.5 The Outline proposals are policy compliant as they retain all the existing tree cover associated with the site except for a section of hedgerow to facilitate access and incorporate into the design. This will allow trees to continue to function as landscape features, maintaining amenity of a mature level, wildlife habitats, and green corridors.

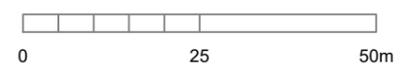
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- 8.6 The majority of the tree cover will be retained adjacent to areas of open space and or landscape buffers which will see trees retained within a similar growing environment to which they have become accustomed to whilst also reducing any future pressure to prune which can arise when trees are retained within close proximity to residential dwellings. Furthermore, the indicative layout has provided sufficient stand-offs from the developable areas to aid this. Proposed green space around the peripheries of the site would provide sufficient access to retained trees and hedges for ongoing management along with the capacity for new tree planting to supplement the boundaries trees.
- 8.7 In any subsequent Reserved Matters application for the approval of a detailed layout, further assessment of the distance of proposed housing and associated internal minor roads / driveways in relation to the calculated root protection area and shadow patterns of retained trees would need to be made to inform the final layout and incorporated in full as far as practically possible.
- 8.8 The outline development proposal should be considered acceptable on arboricultural grounds. The proposals have shown that all the existing trees could be successfully retained provided they are given due consideration within a future Reserved Matters application.



KEY

-  Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
-  Category A - Trees / Groups of High Quality (BS 5837:2012)
-  Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
-  Category C - Trees / Groups of Low Quality (BS 5837:2012)
-  Hedgerow (Colour indicates BS5837:2012 Category)
-  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
-  Individual / Group Number and BS5837:2012 Category
-  Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

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NOTES

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-	17.01.20	First Issue	TCB
A	18.08.20	Change of site name	SCC



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Woods Hardwick Planning

project
**Land off Bullens Green Lane
Colney Heath**

drawing title
TREE SURVEY PLAN

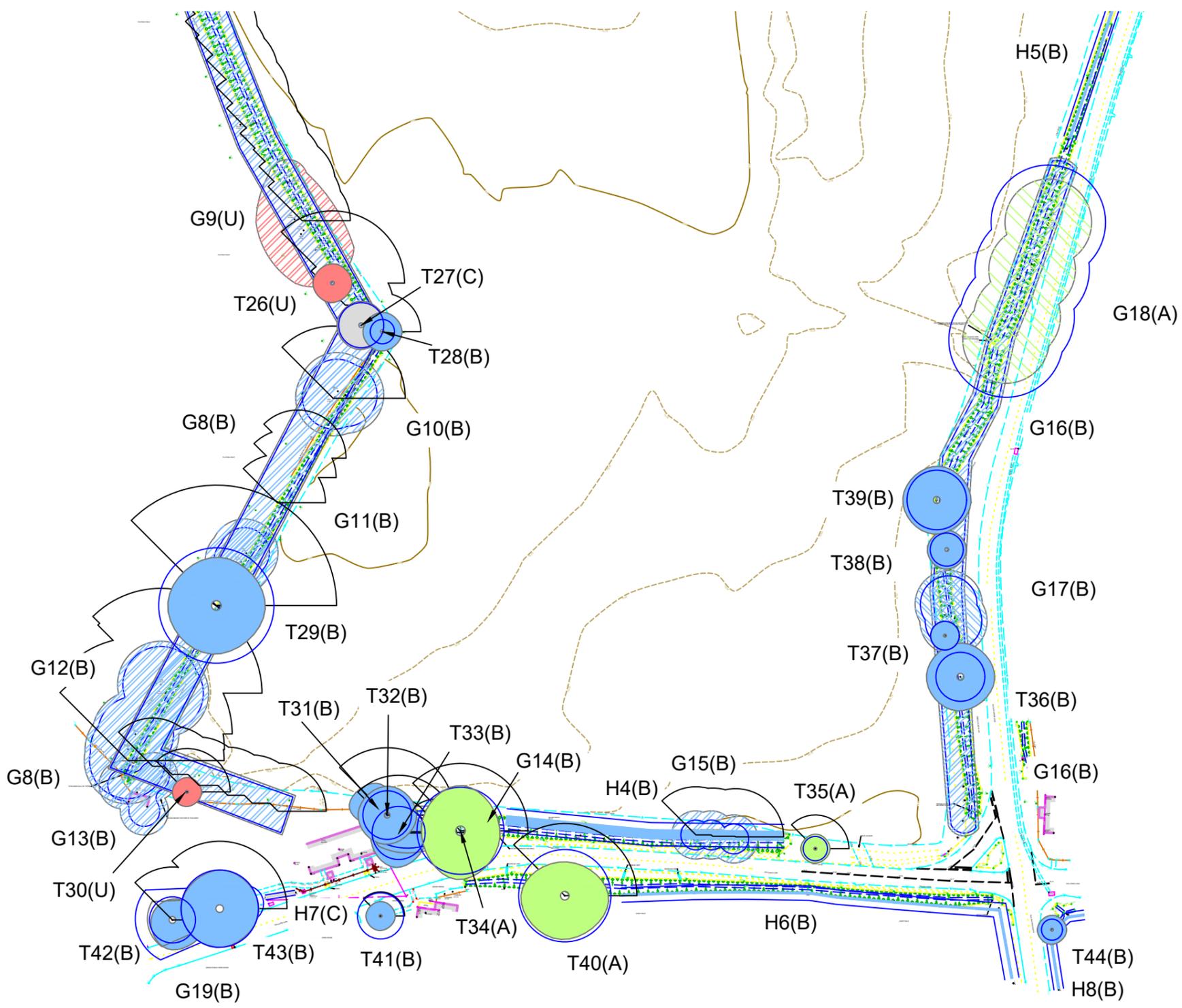
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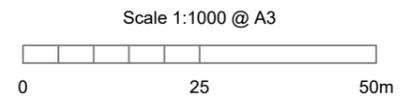
drawing number
9569-T-01

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A



KEY

-  Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
-  Category A - Trees / Groups of High Quality (BS 5837:2012)
-  Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
-  Category C - Trees / Groups of Low Quality (BS 5837:2012)
-  Hedgerow (Colour indicates BS5837:2012 Category)
-  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
-  Individual / Group Number and BS5837:2012 Category
-  Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)



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project
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 Colney Heath**

drawing title
TREE SURVEY PLAN

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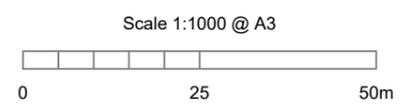
date
 August 2020

drawing number
9569-T-02

rev
A



- KEY**
-  Tree/Group to be Retained
 -  Tree/Group to be removed to facilitate the proposals
 -  Category U - Unsuitable for retention on arboricultural grounds
 -  Hedgerow Proposed to be Retained and Incorporated into the New Development
 -  Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
 -  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
 -  T1 (A)
G1 (A)
 -  T1 (A)
G1 (A)
 -  Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)



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-	17.07.20	First Issue	SCC
A	12.08.2020	updated plan (1005C)	SCC
B	13.08.20	updated plan (1005D), change of access	SCC
C	18.08.20	updated visibility splays	SCC
D	05.11.20	Updated Layout	HR



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project
**Land off Bullens Green Lane
Colney Heath**

drawing title
TREE RETENTION PLAN

scale
1:1000 @ A3

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SCC/TCB

date
November 2020

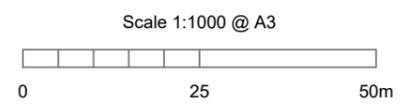
drawing number
9569-T-03

rev
D



KEY

- Tree/Group to be Retained
- Tree/Group to be removed to facilitate the proposals
- Category U - Unsuitable for retention on arboricultural grounds
- Hedgerow Proposed to be Retained and Incorporated into the New Development
- Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- Individual / Group Number and BS5837:2012 Category
- Individual / Group Number to be Removed and BS 5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)



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A	12.08.2020	updated plan (1005C)	SCC
B	13.08.20	updated plan (1005D), change of access	SCC
C	18.08.20	updated visibility splays	SCC
D	05.11.20	Updated Layout	HR

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project
**Land off Bullens Green Lane
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TREE RETENTION PLAN

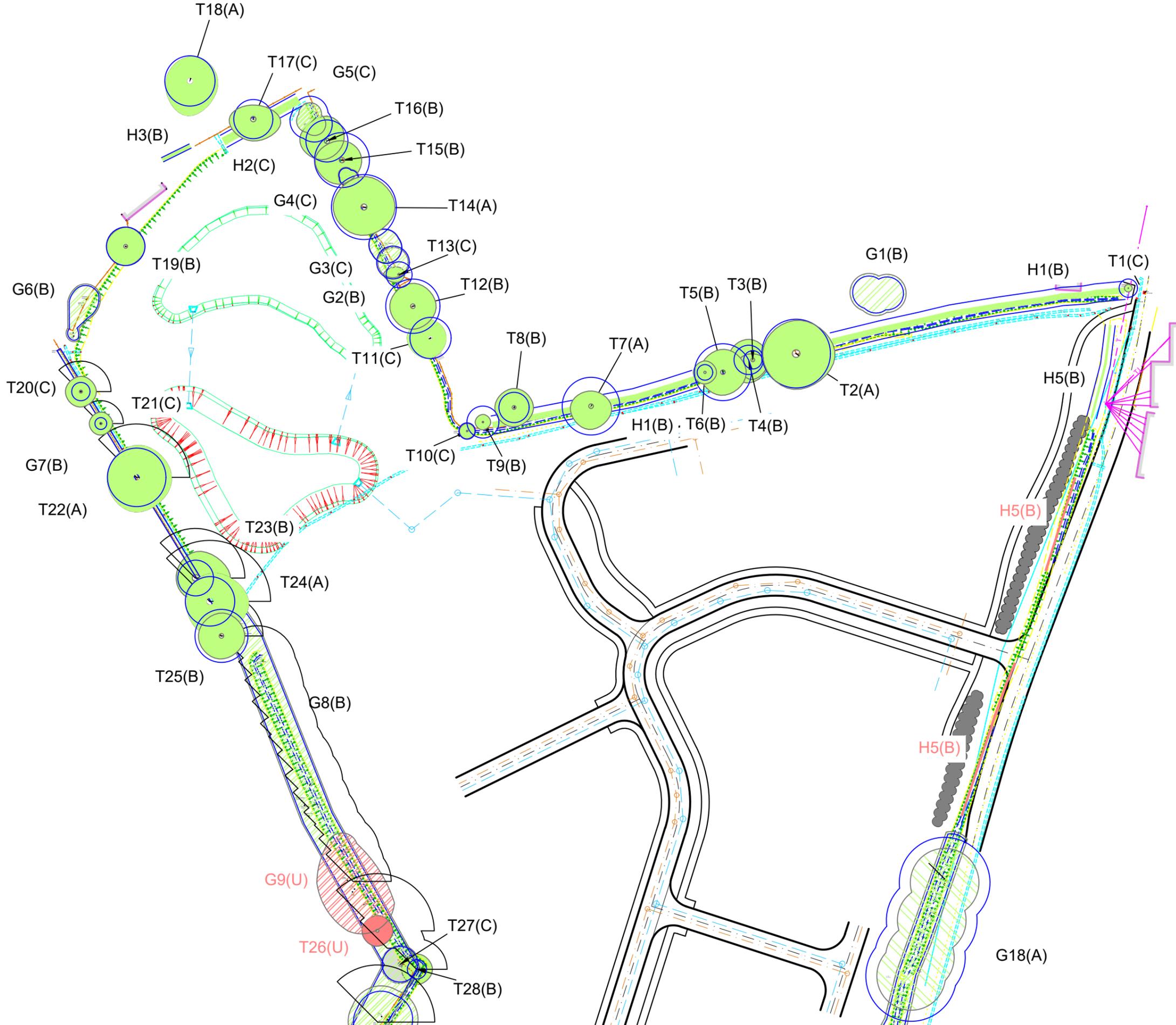
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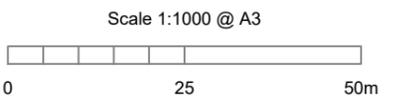
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D



KEY

-  Tree/Group to be Retained
-  Tree/Group to be removed to facilitate the proposals
-  Category U - Unsuitable for retention on arboricultural grounds
-  Hedgerow Proposed to be Retained and Incorporated into the New Development
-  Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
-  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
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-  Individual / Group Number to be Removed and BS 5837:2012 Category
-  Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)



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-	31.07.20	First Issue	SCC
A	17.08.20	Detailed Access plan (18770)	SCC
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August 2020

drawing number
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rev
A

Appendix A - Tree Schedule

Measurements	Age Classes	Quality Assessment of BS Category	ULE (relates to BS Category)
Height - Measured using a digital laser clinometer (m)	YNG: Establishing, typically with good vigour and fast growth rates and strong apical dominance; c. less than 1/3 life expectancy	Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	<10 years
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	SM: Semi-mature trees less than 1/3 life expectancy	Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.	40+ years
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	EM: Established, typically vigorous and increasing in apical height and lateral spread; 1/3 - 2/3 life expectancy. Offers landscape significance	Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	20-40 years
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	M: Fully established over 2/3 life expectancy, generally good vigour and achieving full height potential with crown still spreading	Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	10-20 years
	OM: Fully mature, at the extremes of expected life expectancy, vigour decreasing, declining or moribund	Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value	
	V: biological, cultural or aesthetic value comprising niche saproxylic habitat. Individuals of large proportions (stem girth) in comparison to trees of the same species/surviving beyond the typical age range for their species.	The BS category particular consideration has been given to the following: <ul style="list-style-type: none"> • The presence of any structural defects in each tree/group and its future life expectancy • The size and form of each tree/group and its suitability within the context of a proposed development • The location of each tree relative to existing site features e.g. its screening value or landscape features • Age class and life expectancy 	

Structural Condition	Physiological Condition
Good - No significant structural defects	Good - No significant health problems
Fair - Structural defects that can be remediated	Fair - Symptoms of ill-health that can be remediated
Poor - Significant defects beyond remediation, present a risk of failure in the foreseeable future	Poor - Significant ill-health. Unlikely the tree will recover in the long term
Dead - Dead tree with structural integrity of tree severely compromised	Advanced Decline / Dead - Advanced state of decline and unlikely to recover or Dead

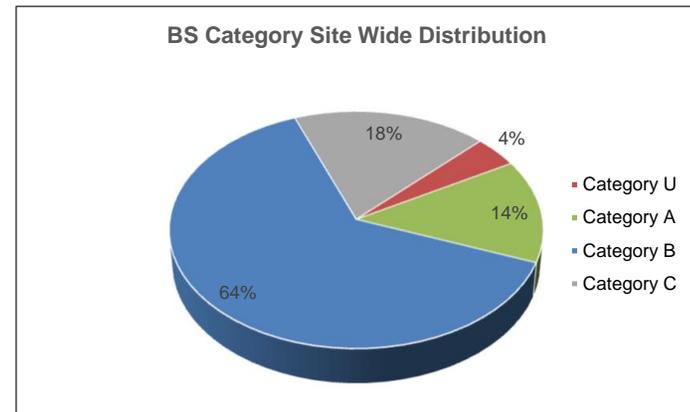
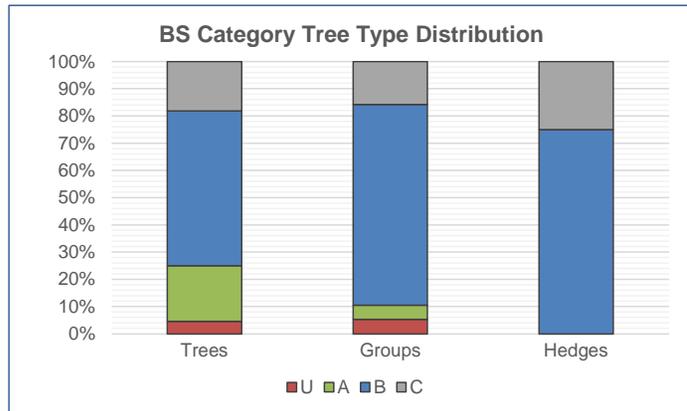
Root Protection Area (RPA)
<ul style="list-style-type: none"> • The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully retained. Tree roots extend beyond the calculated RPA in many cases and where possible a greater distance should be protected. • Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U	T26, T30	2	G9	1
Category A	T2, T7, T14, T18, T22, T24, T34, T35, T40	9	G18	1
Category B	T3, T4, T5, T6, T8, T9, T12, T15, T16, T19, T23, T25, T28, T29, T31, T32, T33, T36, T37, T38, T39, T41, T42, T43, T44	25	G1, G2, G6, G7, G8, G10, G11, G12, G13, G14, G15, G16, G17, G19, H1, H3, H4, H5, H6, H8	20
Category C	T1, T10, T11, T13, T17, T20, T21, T27	8	G3, G4, G5, H2, H7	5
	Total	44	Total	27

BS Category Tree Type Distribution displays the proportion of trees assessed in each type to enable a better understanding of the category distribution.

BS Category Site Wide Distribution shows the proportion of trees assessed in each category across the whole site which allows an interpretation of the site's overall quality.



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Hawthorn <i>Crataegus monogyna</i>	3	est 200	1	M	F	Crown had been topped Dense ivy cover on main stem Part of H1	18	2.4	C (ii)
T2	English Oak <i>Quercus robur</i>	16	750	N - 8 S - 9 E - 10 W - 8	M	G	Branch stubs evident Broken branches evident Characteristic for species Light ivy cover Minor dead wood evident in the crown (<75mm) No major defects were noted Overhangs garden to north and possibly under third party ownership	254	9.0	A (ii)
T3	Silver Birch <i>Betula pendula</i>	12	est 200	N - 0 S - 5 E - 3 W - 3	M	F	Situated offsite Suppressed crown form Unable to gain access Companion tree to T4 Set back approximately 2m from the boundary in private garden	18	2.4	B (ii)
T4	Red Horse Chestnut <i>Aesculus x carnea</i>	12	est 320	N - 5 S - 6 E - 5 W - 5	M	G	Characteristic for species Situated offsite Unable to gain access Companion to T3 Set back approximately 2m from the boundary	46	3.8	B (ii)
T5	Ash <i>Fraxinus excelsior</i>	16	est 440 440	6	M	G	Characteristic for species Pruning wounds noted Situated offsite Twin stemmed from base Unable to gain access Set back approximately 1.5m from the boundary in private garden	175	7.5	B (ii)
T6	Silver Birch <i>Betula pendula</i>	8	est 170	3	EM	G	Characteristic for species Situated offsite Unable to gain access Lower branches removed Set back approximately 1m from the boundary in private garden	13	2.0	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T7	English Oak Quercus robur	12	Over ivy 630	N - 3 S - 6 E - 5 W - 5	M	G	Characteristic for species Minor dead wood evident in the crown (<75mm) Ownership undetermined Pruning wounds noted Pruned back over garden to the north Has been crown reduced all over and has responded well	180	7.6	A (ii)
T8	Cider Gum Eucalyptus gunni	13	est 330	5	M	G	Characteristic for species Situated offsite Unable to gain access Set back approximately 3m from the boundary in private garden Pronounced lean in lower stem to north NB companion tree to west within crown influence suspected to be a variety of spruce	49	4.0	B (ii)
T9	Lawson Cypress Chamaecyparis lawsoniana	11	est 350	2	M	G	Characteristic for species Multi leaded form Situated offsite Unable to gain access Set back approximately 1m from the boundary in private garden Multi leaded from 1.5m	55	4.2	B (ii)
T10	Hawthorn Crataegus monogyna	4	140 110	2	EM	G	Characteristic for species Growing on the south side of the field ditch	14	2.1	C (ii)
T11	Field Maple Acer campestre	7	450	N - 4 S - 5 E - 3 W - 6	M	P	Dieback of the crown observed Minor dead wood evident in the crown (<75mm) Situated offsite Suspected root damage to be cause of decline in condition. Noted relatively new building to east which may have attributed to decline through damage to roots caused through construction	92	5.4	C (ii)
T12	Hornbeam Carpinus betulus	11	est 500 250 200	6	M	G	Characteristic for species Multi stemmed from base Situated offsite Unable to gain access Within private garden on fence line separated by a field ditch Crown appears to be thinning with presence of dead small diameter branchlets	159	7.1	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T13	Hawthorn <i>Crataegus monogyna</i>	5	est 200 200	N - 1 S - 1 E - 0 W - 4	M	F	Crown had been topped Light ivy cover Suppressed crown form On opposite side of the field ditch Leaning to west for light and space NB to south is smaller specimen sub 75mm DBH	36	3.4	C (ii)
T14	English Oak <i>Quercus robur</i>	13	710	N - 8 S - 7 E - 8 W - 8	M	G	Base obscured Branch stubs evident Characteristic for species Dense ivy cover on main stem Established ivy cover Minor dead wood evident in the crown (<75mm) Ownership undetermined Pruning wounds noted Unable to gain access On opposite side of the field ditch Has been raised Abundance of dead branchlets throughout the crown	228	8.5	A (ii)
T15	English Oak <i>Quercus robur</i>	10	600	N - 4 S - 6 E - 4 W - 7	M	F	Established ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Pruning wounds noted Needs further investigation Declining Ganoderma resinaceum - Lacquered bracket Ownership undetermined	163	7.2	B (ii)
T16	Horse Chestnut <i>Aesculus hippocastanum</i>	12	150 190 390	N - 6 S - 4 E - 3 W - 7	M	F	Multi stemmed from base Slightly asymmetrical form to west On field side of field ditch Within canopy to east of ditch is a small hazel c. 300dbh	95	5.5	B (ii)
T17	Damson <i>Prunus insititia</i>	8	est 260 240 240	N - 2 S - 5 E - 7 W - 6	OM	F	Base obscured Dense ivy cover on main stem Multi stemmed from base Regeneration growth in west of crown	83	5.1	C (ii)
T18	English Oak <i>Quercus robur</i>	12	est 550	N - 5 S - 9 E - 6 W - 5	M	G	Characteristic for species Situated offsite Unable to gain access Set back approximately 5m from the boundary in private garden	137	6.6	A (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T19	Monterey Cypress Cupressus macrocarpa	11	est 420	5	M	G	Characteristic for species NB garden supports several other cypress specimens near T18 which would be captured by RPA of T18	80	5.0	B (ii)
T20	Ash Fraxinus excelsior	8	est 200	4	EM	G	Characteristic for species Situated offsite	18	2.4	C (ii)
T21	Ash Fraxinus excelsior	6	est 130	3	EM	G	Characteristic for species Situated offsite	8	1.6	C (ii)
T22	English Oak Quercus robur	14	est 640	N - 8 S - 9 E - 9 W - 7	M	G	Characteristic for species Dense ivy cover on main stem Established ivy cover Minor dead wood evident in the crown (<75mm) Ownership undetermined Stem measured over ivy	185	7.7	A (ii)
T23	English Oak Quercus robur	13	390	N - 6 S - 4 E - 9 W - 3	EM	F	Characteristic for species Minor dead wood evident in the crown (<75mm) Sparse / thinning crown Wire of fence envelopes in stem High competition might explain sparseness	69	4.7	B (ii)
T24	English Oak Quercus robur	16	540	N - 6 S - 8 E - 10 W - 4	M	G	Characteristic for species Minor dead wood evident in the crown (<75mm) Situated offsite	132	6.5	A (ii)
T25	Sycamore Acer pseudoplatanus	11	580	6	M	G	Bark wounds noted Characteristic for species Situated offsite Dead ivy Within park	152	7.0	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T26	Aspen Populus tremula	15	est 350	4	M	F	See G9 description	N/A	N/A	U
T27	Aspen Populus tremula	15	est 390	5	M	F	This specimen presents a fuller crown unlike others nearby	69	4.7	C (ii)
T28	English Oak Quercus robur	8	210	4	EM	G	Characteristic for species	20	2.5	B (ii)
T29	Ash Fraxinus excelsior	25	Over ivy 1000	10	M	G	Characteristic for species Dense ivy cover on main stem Established ivy cover Low crown form Minor dead wood evident in the crown (<75mm) Situated on the opposite side of the field ditch Dense ivy has obscured views of crown scaffold Affected by cauliflower gall mite	452	12.0	B (ii)
T30	English Elm Ulmus procera	9	est 250	3	M	D	Dead	N/A	N/A	U
T31	Hazel Corylus avellana	7	200 170	N - 5 S - 2 E - 2 W - 6	M	G	Coppiced form Asymmetrical crown due to presence of T32	31	3.1	B (ii)
T32	Norway Maple Acer platanoides	14	420	6	M	G	Characteristic for species Light ivy cover Ownership undetermined Part of G14	80	5.0	B (ii)
T33	English Oak Quercus robur	12	460	N - 3 S - 7 E - 5 W - 5	M	G	Characteristic for species Dense ivy cover on main stem Established ivy cover	96	5.5	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T34	English Oak Quercus robur	14	430 620	N - 9 S - 10 E - 7 W - 7	M	G	Characteristic for species Light ivy cover Minor dead wood evident in the crown (<75mm) Multi stemmed from base	258	9.1	A (ii)
T35	English Oak Quercus robur	7	210	3	EM	G	Characteristic for species	20	2.5	A (ii)
T36	Ash Fraxinus excelsior	15	310 290	7	M	G	Characteristic for species Light ivy cover Minor dead wood evident in the crown (<75mm) Opposite side of the field ditch but growing from the sides of the field ditch	82	5.1	B (ii)
T37	English Oak Quercus robur	7	170 180	3	EM	G	Characteristic for species Light ivy cover Twin stemmed from base	28	3.0	B (ii)
T38	Ash Fraxinus excelsior	11	250 140	4	EM	F	Characteristic for species Dense ivy cover on main stem	37	3.4	B (ii)
T39	Ash Fraxinus excelsior	15	360 370	7	M	G	Characteristic for species Light ivy cover Minor dead wood evident in the crown (<75mm) Field side of the field ditch	121	6.2	B (ii)
T40	English Oak Quercus robur	15	800	N - 6 S - 9 E - 9 W - 9	M	G	Characteristic for species Even crown form Light ivy cover Minor dead wood evident in the crown (<75mm) On roadside separated by deep ditch Tree on opposite side of field ditch	290	9.6	A (ii)
T41	English Oak Quercus robur	5	400	3	M	G	Crown had been topped Topped at 4m stem height Located on small grass verge	72	4.8	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T42	False Acacia Robinia pseudoacacia	11	400	N - 3 S - 6 E - 7 W - 3	M	F	Minor dead wood evident in the crown (<75mm) Asymmetrical crown Part of group	72	4.8	B (ii)
T43	Sycamore Acer pseudoplatanus	14	670	8	M	G	Characteristic for species Dense ivy cover on main stem Established ivy cover Minor dead wood evident in the crown (<75mm) Located in group on road verge	203	8.0	B (ii)
T44	Silver Birch Betula pendula	9	180	3	EM	G	Characteristic for species Low hanging crown	15	2.2	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Leyland Cypress Cupressocyparis leylandii Scots Pine Pinus sylvestris	11	est 360	5	M	G	Characteristic for species Situated offsite Set back approximately 3m from boundary	59	4.3	B (ii)
G2	Ash Fraxinus excelsior	13	upto 360	4	M	F	Crown had been heavily reduced Crown had been topped Regeneration of crowns One stem is dead Situated to opposite side of the field ditch 3 steps possible part of same tree	59	4.3	B (ii)
G3	Field Maple Acer campestre	6	upto 330	4	M	F	Dense ivy cover on main stem Dieback of the crown observed Ownership undetermined Have been pruned on east side over garden On opposite side of the field ditch	49	4.0	C (ii)
G4	Ash Fraxinus excelsior Field Maple Acer campestre Hawthorn Crataegus monogyna Hornbeam Carpinus betulus	5	upto 150	2	EM	F	Under story and mostly self seeded material	10	1.8	C (ii)
G5	Hawthorn Crataegus monogyna	8	upto 390	3	M	F	Crown had been heavily reduced Dense ivy cover on main stem One tree on either side of field ditch Specimen on opposite side of field ditch appears dead and a standing stem	69	4.7	C (ii)
G6	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Damson Prunus insititia Leyland Cypress Cupressocyparis leylandii	6	upto 300	4	EM / M	F / G	Characteristic for species Interlocking crowns	41	3.6	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G7	Ash Fraxinus excelsior Hawthorn Crataegus monogyna Horse Chestnut Aesculus hippocastanum Sycamore Acer pseudoplatanus Holly Ilex aquifolium	4	upto 50	0.5	EM / M	F / G	Outgrown hedgerow Situated offsite Unable to gain access Vegetation along boundary and situated behind chain link perimeter fencing	1	0.6	B (ii)
G8	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Hawthorn Crataegus monogyna Aspen Populus tremula Black Walnut Juglans nigra English Elm Ulmus procera Hazel Corylus avellana	10	upto 300	4	EM / M	F / G	Dead trees noted Large boundary group around field edge Mixed qualities and conditions Forms under story to upper canopy Would benefit from management, especially removal of dead and failed elms Dutch elm disease prevalent	41	3.6	B (ii)
G9	Aspen Populus tremula	16	upto 400	9	M	P	High crown forms Potential for failure in strong winds is considered high Dead parts of crown	N/A	N/A	U
G10	Ash Fraxinus excelsior	15	upto 290 290 280 240	8	M	F	Characteristic for species Coppiced form Situated on opposite side of the field ditch Two main specimens	138	6.6	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G11	Ash Fraxinus excelsior	13	upto 250 250 250	7	M	G	Characteristic for species Coppiced form Interlocking crowns Light ivy cover Opposite side of the ditch One with three stems and the other with two stems	85	5.2	B (ii)
G12	Sycamore Acer pseudoplatanus	20	upto 430 500	9	M	F / G	Characteristic for species Dense ivy cover on main stem Established ivy cover Included bark union Interlocking crowns Minor dead wood evident in the crown (<75mm) Both single and twin stemmed from base forms present Typical crown form Included union would need future consideration	197	7.9	B (ii)
G13	Hazel Corylus avellana	8	est 9x 200	9	M	G	Coppiced form Adjacent to building Would recoppice	163	7.2	B (ii)
G14	Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana	7	upto 250	4	EM / M	F / G	Coppiced form Ownership undetermined Under story material	28	3.0	B (ii)
G15	Field Maple Acer campestre	10	upto 140 150 160	5	M	G	Characteristic for species Coppiced form Dense ivy cover on main stem Established ivy cover Interlocking crowns	31	3.1	B (ii)

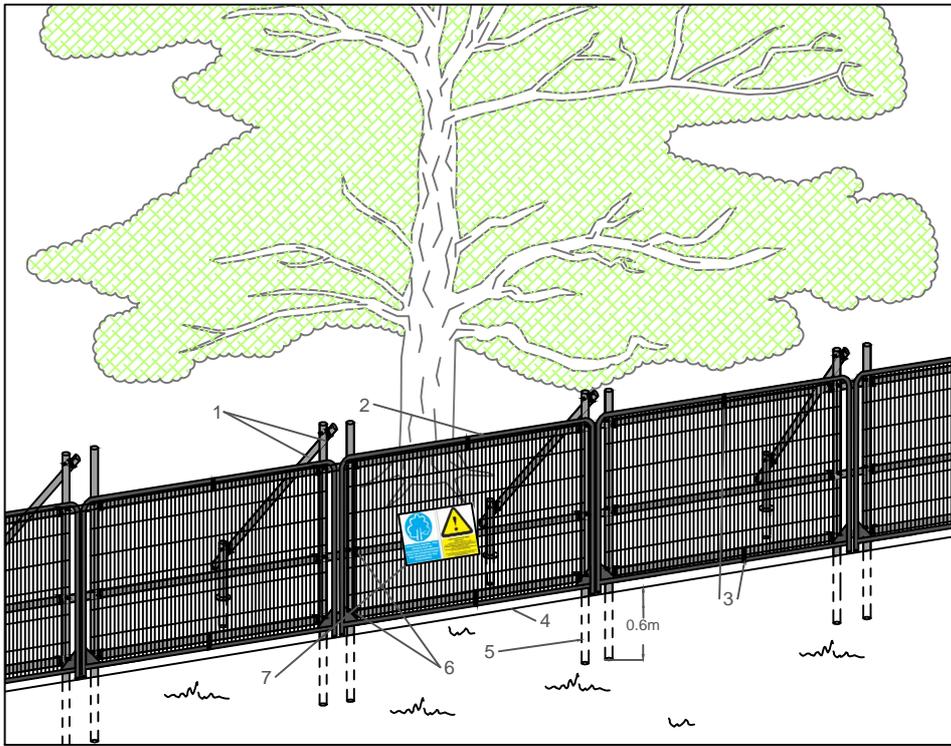
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G16	Ash Fraxinus excelsior Blackthorn Prunus spinosa English Oak Quercus robur Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana	8	upto 200	3	EM / M	D / F / G	Characteristic for species Outgrown hedgerow Large boundary group See G8 comments	18	2.4	B (ii)
G17	Ash Fraxinus excelsior	14	est 6x 200	7	M	F	Characteristic for species Coppiced form Interlocking crowns Minor dead wood evident in the crown (<75mm) Multi stemmed from base Sparse / thinning crown One has multiple stems No reason noted for sparseness	109	5.9	B (ii)
G18	English Oak Quercus robur	14	upto 490 420 520 480 260	9	M	G	Characteristic for species Coppiced form Interlocking crowns Light ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi stemmed from base and single stem forms present Typical crown form	446	11.9	A (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G19	Elder Sambucus nigra Sycamore Acer pseudoplatanus Wild Cherry Prunus avium English Elm Ulmus procera Hazel Corylus avellana Holly Ilex aquifolium Laural Prunus Laurocerasus Lawson Cypress Chamaecyparis lawsoniana Bird Cherry Prunus padus Portuguese laurel	12	upto 240 240 220 220 290	4	EM / M	F / G	Interlocking crowns Light ivy cover Low crown form Group on verge	134	6.5	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Ash Fraxinus excelsior Beech Fagus sylvatica Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Lawson Cypress Chamaecyparis lawsoniana Leyland Cypress Cupressocyparis leylandii Dogwood Cornus sanguinea	6	upto 200	1.5	M	G	Multi stemmed from base Outgrown hedgerow Ownership undetermined Single stem forms Separated from site for most of length by shallow field ditch Possible under third party ownership In parts it has been cut down to 1.5m in height Height ranges from 1.5m to 6m	18	2.4	B (ii)
H2	Ash Fraxinus excelsior Blackthorn Prunus spinosa English Oak Quercus robur Goat Willow Salix caprea	4	upto 150	2	EM / M	F / G	Outgrown hedgerow	10	1.8	C (ii)
H3	Beech Fagus sylvatica	2	est 50	1	M	G	Maintained hedgerow Ownership undetermined Short section on boundary fence line to property	1	0.6	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
H4	Blackthorn Prunus spinosa English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Aspen Populus tremula English Elm Ulmus procera Hazel Corylus avellana Dogwood Cornus sanguinea	9	upto 200	2	EM / M	F / G	Dead trees noted Outgrown hedgerow See G8 comments	18	2.4	B (ii)
H5	Blackthorn Prunus spinosa English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	2	50 70 70	0.5	M	G	Maintained hedgerow	6	1.3	B (ii)
H6	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana	1	70 80 60	0.5	M	G	Maintained hedgerow	7	1.5	B (ii)
H7	symphoricarpos	0.75	upto 30 20 20	0.5	M	G	NB two hawthorn standards c. 80 mm dbh present with hedgerow	1	0.5	C (ii)
H8	Hawthorn Crataegus monogyna Blackthorn Prunus spinosa	1	50 50 50	0.5	M	G	Maintained hedgerow	3	1.0	B (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
WOODLANDS										



Standard specification for protective barrier

1. Standard scaffold poles
2. Heavy gauge 2m tall galvanized tube and welded mesh infill panels
3. Panels secured to scaffold frame with wire ties
4. Ground level
5. Uprights driven into the ground until secure (min depth of 0.6m)
6. Standard scaffold clamps
7. Construction Exclusion Zone signs



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Feet blocks secured with ground pins
3. Construction Exclusion Zone signs

NOTES

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APPENDIX B PROTECTIVE FENCING SPECIFICATIONS

CAD file: S:\Arb resources\Basic Templates\Tree Protection\Appendix B - Protective Fencing A4.dwg