



Wain Estates Land Limited

Wilderness Park, Land North of Wilderness Lane, Great Bar,

Birmingham

Arboricultural Assessment

October 2023

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 Wain Estates Land Limited to present the findings of an Arboricultural Assessment and survey of trees located at Wilderness Park, Land north of Wilderness Lane, Great Barr, Birmingham (hereafter referred to as the site), OS Grid Ref SP039954.
- 1.2 The survey was carried out on 4th August 2023.

Scope of Assessment

- 1.3 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.
- 1.4 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.
- 1.5 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.
- 1.6 This report has been produced to accompany a planning application and has included an assessment of any impact to the tree cover. The 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

- 1.7 The site consists of low grade agricultural land to the north of the M6 in Sandwell. The A34, Birmingham Road runs adjacent to the northern boundary of the site, with Wilderness lane to the south. The tree stock on site was restricted to its field boundaries with some outgrown areas present to the north east around disused farm buildings.

2.0 PLANNING POLICY

National Planning Policy Framework September 2023

- 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 September 2023.
- 2.2 Paragraphs 10 and 11 of the NPPF state 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:
- *131 'Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined (footnote 50), that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users' (footnote 50: unless, in specific cases, there are clear, justifiable and compelling reasons why this would be inappropriate)*
 - *180 (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 (footnote 63) and a suitable compensation strategy exists';*
and provides specific guidance that:
 - *180 (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 With reference to paragraph 180 (c), examples of what is deemed to be '*wholly exceptional*' are included within Footnote 63 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*'.

Statutory Considerations

- 2.5 Local authorities have a Duty under the Town and Country Planning Act to create Tree Preservation Orders (TPO) in order 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 wilfully 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. Anyone

found guilty of such an offence is liable and in serious cases, may result in prosecution and incur an unlimited fine.

- 2.6 The presence of any Tree Preservation Orders or Conservation Area designations that may affect the site has yet to be confirmed by Sandwell Metropolitan Borough Council. This information has been received, the report will be updated accordingly. Before any tree works are undertaken confirmation of the presence of the statutory constraints should be sought from the Local Authority.

3.0 SURVEY METHODOLOGY

BS5837 Categories

- 3.1 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).
- 3.2 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.
- 3.3 **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.
- 3.4 **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:
- Sub category (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.
 - Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
 - Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.
- 3.5 **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:
- Sub category (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.
 - Sub category (iii) trees with material conservation or other cultural value.
- 3.6 **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:
- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
 - Sub category (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.
 - Sub category (iii) trees with no material conservation or other cultural value.

Site Plans

- 3.7 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.
- 3.8 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.

Tree Constraints and Root Protection Areas

- 3.9 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.
- 3.10 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.
- 3.11 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.

- 3.12 Whilst it is generally accepted that a tree's 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.
- 3.13 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

- 3.14 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.
- 3.15 The statements made in this report regarding the 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 behaviours, 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.
- 3.16 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.
- 3.17 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.
- 3.18 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.
- 3.19 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.

- 3.20 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’¹. 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’².
- 3.21 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

- 3.22 Veteran trees and Ancient Woodland are important components of the landscape, their importance can be for a number of reasons including that of their ecological, social, cultural and historic value.
- 3.23 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) 2021, 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.’³*
- 3.24 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. 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.

¹ http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm

² http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm

³ Ministry of Housing, Communities and Local Government. (2021). *National Planning Policy Framework*. London: Ministry of Housing, Communities and Local Government.

Ancient Tree

- 3.25 The definition of an ancient tree has been based on Ancient Tree Guide No. 4 (ATF, 2008) which suggest ancient should be used for a tree that:

'has passed beyond maturity and is old, or aged, in comparison with other trees of the same species.

- 3.26 Perhaps most notably, the tree concerned should be very old, relative to others of the same species.

- 3.27 Further to this, in accordance with guidance for use in the Ancient Tree Hunt (Owen & Alderman, 2008), as cited within Lonsdale (2013)⁴ an ancient tree is one that has all or most of the following characteristics:

- a) biological, aesthetic or cultural interest, because of its great age;
- b) a growth stage that is described as ancient or post-mature; or
- c) a chronological age that is old relative to others of the same species.

Guided by Lonsdale (2013)⁶ characteristics a) and b) are mainly based on developmental and morphological criteria whilst characteristic c) relates specifically to chronological age. Developmental characteristics (represented by characteristic b) above) tend to develop with the increasing age of a tree and include:

- A large girth by comparison with other trees of the same species⁵
- Aging and associated decay (leading to hollowing) of the central wood
- Changes in crown architecture (Raimbault, 2006)⁶
- A progressive or episodic reduction in post-mature crown size - 'retrenchment' (Lonsdale 2004; Rust & Roloff, 2002)

In practice calculating the average age / lifespan of a tree is difficult and not always entirely reliable due to a lack of available demographic information. As such, in order to inform the assessment of chronological age, the assessment has made use of stem girth as a guide using the chart provided within Lonsdale (2013) (shown below in figure 1), as well as available historical evidence (mapping etc).

^{4,6} Lonsdale, D. (Ed.). 2013). Ancient and other veteran trees: further guidance on management. London: The Tree Council.

⁵ Woodland Trust, Ancient Tree Forum (2008). Ancient Tree Guide no.4: What are ancient, veteran and other trees of special interest?. Grantham: Unknown. 7.

⁶ Raimbault, P.F. (2006). A basis for morpho-physiological tree assessment. Pro. Seminar, Arboricultural Association/Treework Environmental Practice, Ashton Court, Bristol, UK, 23rd & 24th March 2006.

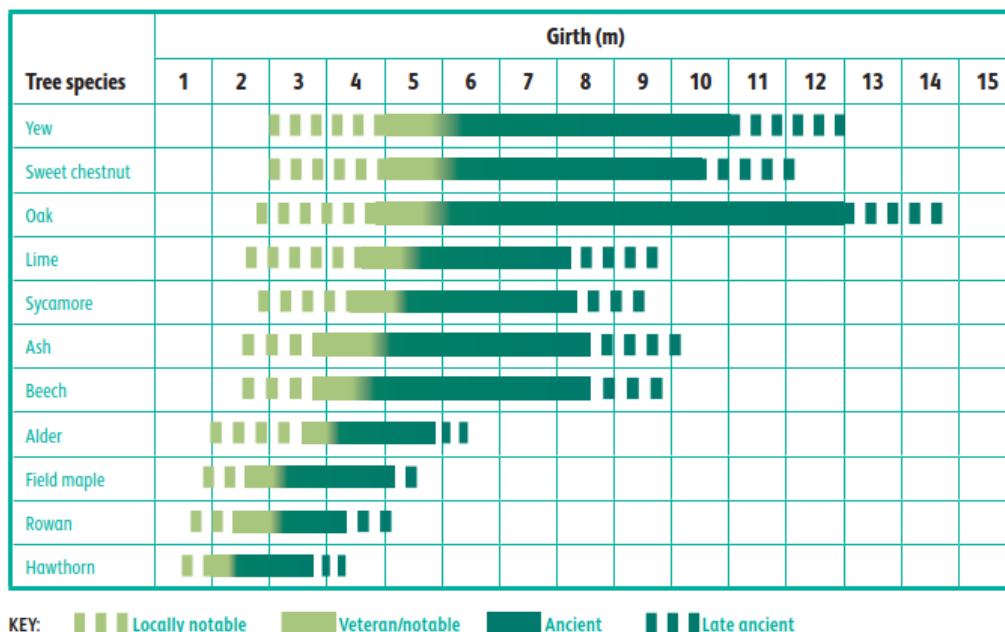


Figure 1: The chart of girth in relation to age and development classification of trees, as shown in Lonsdale (2013)⁷.

Veteran Trees

- 3.28 The definition of a veteran tree has been based on within Lonsdale (2013) as a tree: *‘which has survived various rigours of life and thereby shows signs of ancientness, irrespective of its age’.*
- 3.29 However, for the purpose of the BS5837:2012 assessment, to qualify as a veteran tree, the tree concerned requires a stem girth which is considered large for its species (within the range set out in Fig. 1 above) and shows signs of crown retrenchment and evidence of decay processes in stem, branches or roots such as dead and decaying wood or fungal fruiting bodies of heart-rot (wood decay) species. These trees should also possess significant amounts of dead wood in the crown or fallen about the ground beneath the trees crown.
- 3.30 In principle, reference has been made to Owen & Alderman (2008) and Reed, H. (2000). *Veteran Trees: A Guide to Good Management. English Nature* and more recently Lonsdale, D (ed.) (2013) *Ancient and other Veteran Trees: Further Guidance on Management, The Tree Council & Ancient Tree Forum* for guidance on the recognition of both ancient and veteran trees.
- 3.31 Level 3 of the Specialist Survey Method (SSM) of de Berker & Fay (2004)⁸ has also been utilised for gathering survey information as this provides a standardised framework for recording characteristic ancient/veteran features.

⁷ Lonsdale, D. (Ed.). 2013). Ancient and other veteran trees: further guidance on management. London: The Tree Council.
⁸ de Berker, N., & Fay, N. (2004). English Nature Research Report Number 529 – Evaluation of the Specialist Survey Method for Veteran Tree Recording. Bristol: Treework Environmental Practice.

4.0 RESULTS

4.1 A total of thirty-eight individual trees, thirty-three groups of trees and one hedgerow were surveyed 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. 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.

Tree Schedule

4.2 Appendix A presents details of any individual trees, groups, hedgerows and woodlands found during the assessment including heights, diameters at 1.5m from ground level, 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 and the root protection area.

4.3 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 appropriate.

Results Summary

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T5	1		0
Category A (High Quality / Value)	T6, T14, T25, T26, T28, T30	6	G21	1
Category B (Moderate Quality / Value)	T1, T3, T4, T7, T8, T10, T11, T12, T13, T15, T18, T19, T20, T23, T27, T31, T32, T34, T37,	20	G1, G2, G3, G5, G13, G28, G29, G30	8
Category C (Low Quality / Value)	T2, T9, T16, T17, T21, T22, T24, T29, T33, T35, T36	11	G4, G6, G7, G8, G9, G10, G11, G12, G14, G15, G16, G17, G18, G19, G20, G22, G23, G24, G25, G26, G27, G31, G32, G33, H1	25

4.4 Of the surveyed trees six individual trees and one group were recorded as category A, of high arboricultural and landscape value. The individual trees were all mature specimens of English oak *Quercus robur* that were in a fair physical condition. G21 formed a large woodland belt on the northern boundary of the site. Multiple mature oaks were present within this group and it formed a high quality feature on the local landscape.

4.5 Twenty individual trees and eight groups were graded as category B, of moderate arboricultural and landscape value. The majority of these were further specimens of oak along with ash

Fraxinus excelsior copper beech *Fagus sylvatica*, field maple *Acer campestre*, cherry *Prunus avium* and holly *Ilex aquifolium*.

- 4.6 T5 was the only tree on site considered as a category U specimen. This young oak tree had suffered vandalism with multiple wounds on its lower branches and stem. Limited live growth was present at the time of the survey and it would be unlikely that this tree survives for over ten further years.
- 4.7 The remainder of trees, groups and hedgerows were considered to be of limited arboricultural merit due to their location, size and physical conditions. They would be expected to survive on site in its current context for at least ten years.

Ancient and Veteran Trees

- 4.8 T6 was considered as a veteran tree. This large oak held a stem diameter of 1490mm and displayed features such as major stem cavities, decay holes, physical damage to its stem, bark loss, epicormic growth within its crown, dead wood within its crown, crevasses sheltered from rainfall and an old look. Details have been recorded within Appendix C: Veteran Tree Schedule.



Photograph 1: T6

- 4.9 For the purpose of affording these trees greater protection the RPA calculation has been calculated in accordance with the guidelines detailed within Ancient and other Veteran Trees: Further Guidance on Management (Lonsdale, D (ed.) (2013). The Tree Council & Ancient Tree Forum. The RPA is defined as a distance equal to 15 times the trees stem diameter, or five metres beyond the canopy, whichever is the greater (Read, 2000).

- 4.10 Where this assessment has identified veteran trees, further survey work of those trees and their communities will be required. From an ecological perspective veteran trees provide a rare and specialist niche habitat and therefore preservation of this habitat is considered highly important. Veteran trees and many of their associated specialised species are becoming increasingly rare within the landscape and therefore some veteran tree landscapes and their associated species are now protected, both nationally and Europe wide through the Natura 2000 Directive.

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 Illustrative Masterplan and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The drawing shows the proposals for Residential development to the east of the site. An overlay of the layout 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.
- 5.3 To facilitate the proposed development as per the above plan no significant tree loss will be required. The proposed build element of the development is to be positioned centrally to the individual field parcels which are generally devoid of tree cover. The existing trees on site which are situated around the field boundaries are to be retained.
- 5.4 To facilitate access into the site, a small portion of H1 would require removal. This was a typical managed hedgerow that was formed by specimens of hawthorn *Crataegus monogyna*, with occasional specimens of ash, elder *Sambucus nigra* and oak.
- 5.5 Internal access for the site would require tree T8 to be removed. This was a specimen of oak to the southeast of the site. Although it would be unfortunate to lose this tree, the remainder of the boundary could be retained and provide a high-quality arboricultural buffer for this part of the site.
- 5.6 The outgrown boundary groups G6, G7, G8, G12, G19 and G20 would be impacted upon by the proposals. These were all considered to be of limited arboricultural value and the loss of these sections should not be the cause of objection on these grounds.
- 5.7 Pedestrian access/cycle routes to the north of the site are shown to impact upon group G14. Again, this was of limited arboricultural value and minor removals should not be the cause of objection on arboricultural grounds.
- 5.8 Trees T24 and T25 are shown to be retained within the developable area of the site. It would be necessary during the sites detailed design to ensure T25 is retained within areas of public open space. T24 was a mature ash tree that should be removed to provide clearance for development within this area. As this tree was considered to be a category C specimen, its loss should not be the cause of objection on arboricultural grounds.
- 5.9 T6 was considered to be a veteran specimen of oak and can be retained without any detrimental impact to its extended Root Protection Area. During the detailed design stage, it would be necessary to ensure no underground services should pass within this area to ensure the tree can continue to survive and contribute to the local environment.

Tree Management

- 5.10 The layout of the development is currently reserved for subsequent approval. In the course of 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.

- 5.11 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.
- 5.12 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.
- 5.13 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.

General Design Principles in Relation to Retained Trees

- 5.14 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.
- 5.15 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.
- 5.16 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.
- 5.17 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.

6.0 NEW TREE AND HEDGEROW PLANTING

Trees

- 6.1 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 on the basis of 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).
- 6.2 In line with the NPPF all schemes should aim to 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.
- 6.3 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.
- 6.4 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.
- 6.5 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

- 6.6 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. 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.
- 6.7 Recommended species for native hedgerow planting are as follows:
- *Crataegus monogyna*
 - *Prunus spinosa*
 - *Cornus sanguinea*
 - *Corylus avellana*
 - *Acer campestre*

- *Euonymus europaeus*

Rooting Environment and Soil Volumes

- 6.8 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.
- 6.9 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).
- 6.10 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

- 6.11 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.
- 6.12 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.

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 Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times until safe enough to leave.
- 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

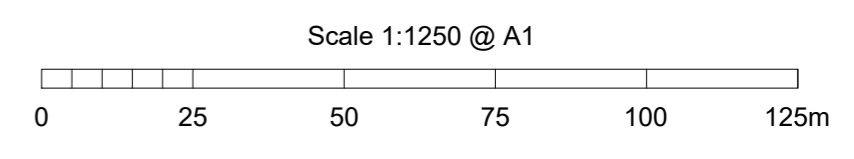
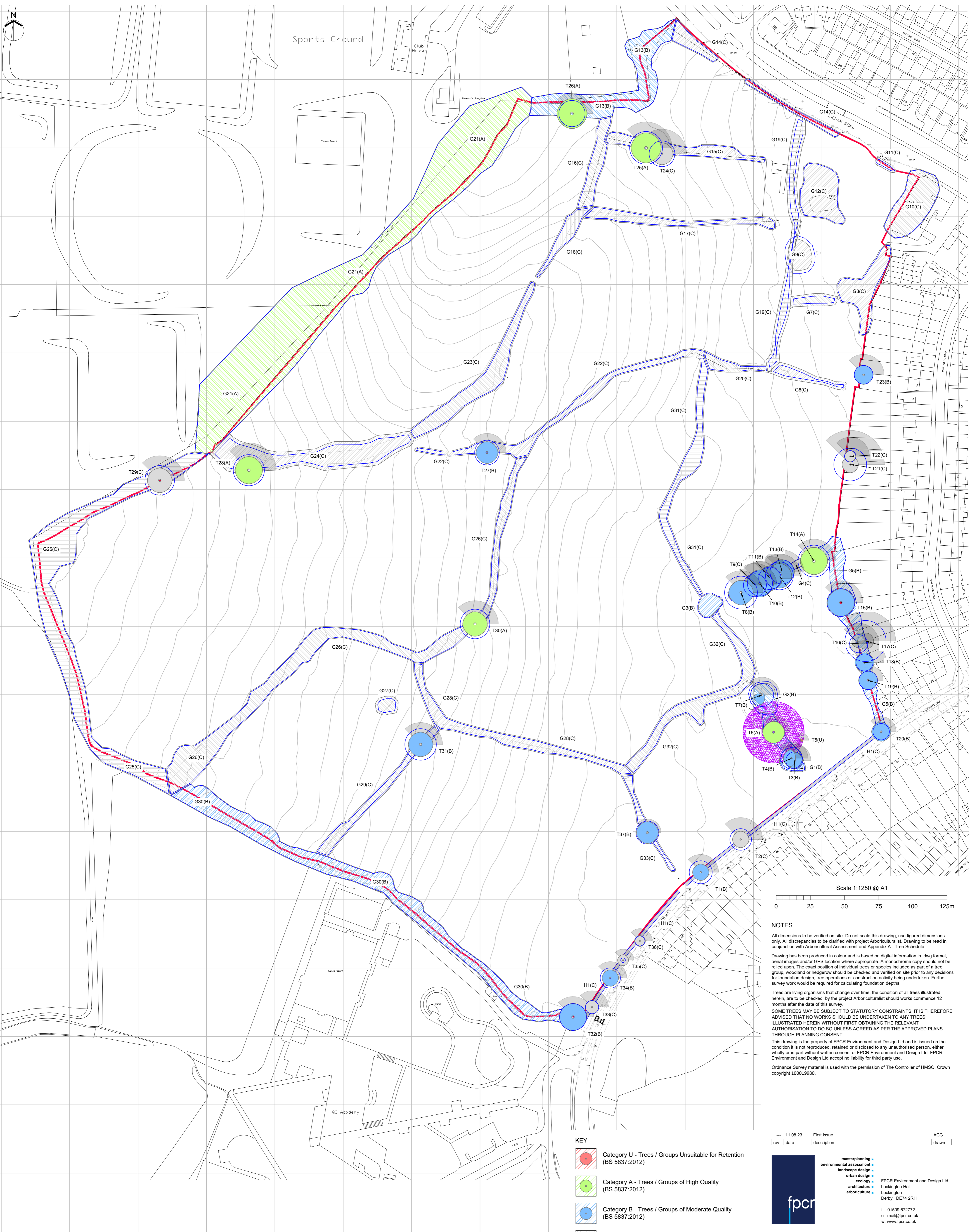
- 7.18 A number of trees were located on the boundaries of the site and therefore the root protection area and crown spread of these trees will need to be protected in the same way as all the retained trees within the site. All trees located outside the boundaries of the assessment site yet within close 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.



NOTES

All dimensions to be verified on site. Do not scale this drawing; use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow 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.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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- 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 Hatching (Colour Indicates BS5837:2012 Category)
 - Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
 - T1 (A)
G1 (A) Individual / Group Number and BS5837:2012 Category
 - Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

rev	date	description	drawn
11.08.23		First Issue	ACG

client
Wain Estates

project
Land west of Birmingham Road
Great Barr, Sandwell

drawing title
TREE SURVEY PLAN

scale
1:1250@A1

drawn/checked
ACG / HR

date
August 2023

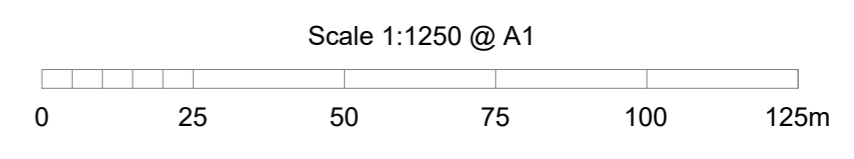
drawing number
9364-T-01

CAD file: K:\300\3364\ARB\A\Plans\Tree Survey Plan.dwg

services: masterplanning, environmental assessment, landscape design, ecology, architecture, arboriculture

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rev	date	description	drawn
16.08.23		First Issue	ACG
A	04.09.23	Updated layout	RG
B	30.10.23	Updated layout	ACG

fpcr

client: **Wain Estates**

project: **Land north of Wilderness Lane Great Barr, Birmingham**

drawing title: **TREE RETENTION PLAN**

scale: 1:1250 @ A1

drawn/checked: ACG / HR

date: October 2023

drawing number: **9364-T-02**

rev: **B**

CAD file: K:\3300\3364\ARB\IA\Plans\Tree Retention Plan.dwg

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- KEY**
- Tree Group to be Retained
 - Tree/Group proposed to be removed subject to relevant permissions
 - Category U - Unsuitable for retention on arboricultural grounds
 - Hedgerow Proposed to be Retained and Incorporated into the New Development
 - Hedgerow proposed to be removed subject to relevant permissions
 - Root Protection Area (Shown for retained trees only)
 - Individual / Group Number and BS Category
 - Individual / Group Number to be Removed and BS 5837:2012 Category

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		
	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.	Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value	
		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 	

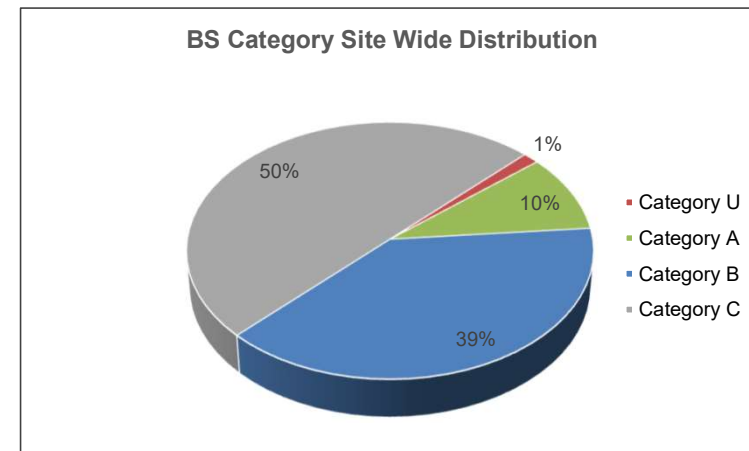
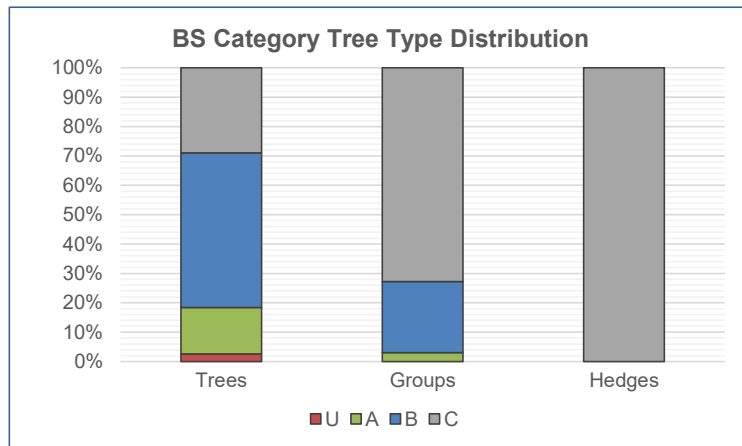
Structural Condition	Physiological Condition	Root Protection Area (RPA)
Good - No significant structural defects	Good - No significant health problems	<ul style="list-style-type: none"> • The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated 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.
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	

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U	T5	1		0
Category A	T6, T14, T25, T26, T28, T30	6	G21	1
Category B	T1, T3, T4, T7, T8, T10, T11, T12, T13, T15, T18, T19, T20, T23, T27, T31, T32, T34, T37,	20	G1, G2, G3, G5, G13, G28, G29, G30	8
Category C	T2, T9, T16, T17, T21, T22, T24, T29, T33, T35, T36	11	G4, G6, G7, G8, G9, G10, G11, G12, G14, G15, G16, G17, G18, G19, G20, G22, G23, G24, G25, G26, G27, G31, G32, G33, H1	25
	Total	38	Total	34

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	English Oak Quercus robur	13	700	6	M	G	Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted	222	8.4	B (i)
T2	Ash Fraxinus excelsior	16	660	6	M	F	Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	197	7.9	C (i)
T3	English Oak Quercus robur	12	520	6	M	G	Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted	122	6.2	B (i)
T4	English Oak Quercus robur	12	420 500	N - 6 S - 6 E - 3 W - 6	M	F	Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted Suppressed crown form	193	7.8	B (i)
T5	English Oak Quercus robur	5	100	1	Yng	P	Multiple bark wounds. Vandalism	N/A	N/A	U
T6	English Oak Quercus robur	12	1490	8	V	F	Bark wounds noted Basal cavity observed Basal suckers present Branch socket cavities observed Branch stubs evident Broken branches evident Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Large cavity to the west. Adjacent to pond	1569	22.4	A (iii)
T7	English Oak Quercus robur	12	est 600	N - 1 S - 7 E - 2 W - 6	M	F	Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted Suppressed crown form	163	7.2	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T8	English Oak Quercus robur	16	1000	9	M	P	Bark wounds noted Basal cavity observed Branch socket cavities observed Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	452	12.0	B (i)
T9	English Oak Quercus robur	16	700	8	M	P	Bark wounds noted Basal cavity observed Branch stubs evident Broken branches evident Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	222	8.4	C (i)
T10	English Oak Quercus robur	16	770	10	M	P / F	Branch socket cavities observed Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	268	9.2	B (i)
T11	English Oak Quercus robur	16	680	9	M	P / F	Branch socket cavities observed Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	209	8.2	B (i)
T12	English Oak Quercus robur	16	850	9	M	P / F	Branch socket cavities observed Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	327	10.2	B (i)
T13	English Oak Quercus robur	16	730	9	M	P / F	Branch socket cavities observed Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	241	8.8	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T14	English Oak Quercus robur	16	970	10	M	F	Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	426	11.6	A (i),B (ii)
T15	English Oak Quercus robur	16	est 850	10	M	F	Crossing and rubbing branches Dense undergrowth at the base Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown Unable to gain access	327	10.2	B (ii)
T16	English Oak Quercus robur	15	550	N - 8 S - 3 E - 8 W - 5	M	P	Recent pruning has removed much of southern crown	137	6.6	C (i)
T17	Lombardy Poplar Populus nigra 'Italica'	22	est 1250	6	M	P	Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Situated offsite Typical crown form	707	15.0	C (i)
T18	English Oak Quercus robur	16	520	7	M	P / F	Branch socket cavities observed Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	122	6.2	B (i)
T19	English Oak Quercus robur	11	560	7	M	P / F	Branch socket cavities observed Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	142	6.7	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T20	English Oak <i>Quercus robur</i>	11	500	7	M	P / F	Branch socket cavities observed Crossing and rubbing branches Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse / thinning crown	113	6.0	B (i)
T21	Lawson Cypress <i>Chamaecyparis lawsoniana</i>	25	est 1000	6	M	F	Base obscured Situated offsite Unable to gain access	452	12.0	C (i)
T22	Norway Spruce <i>Picea abies</i>	14	est 350	4	EM	F	Characteristic for species No major defects were noted	55	4.2	C (i)
T23	Copper Beech <i>Fagus sylvatica purpurea</i>	15	400 400	7	EM	F	Basal cavity observed Characteristic for species Situated offsite Unable to gain access	145	6.8	B (i)
T24	Ash <i>Fraxinus excelsior</i>	18	600 500	8	M	P	Bark wounds noted Basal suckers present Base obscured Branch socket cavities observed Branch stubs evident Broken branches evident Eastern stem showing die back	276	9.4	C (i)
T25	English Oak <i>Quercus robur</i>	19	est 1000	11	M	F	Characteristic for species Even crown form Minor dead wood evident in the crown (<75mm) No major defects were noted	452	12.0	A (i)
T26	English Oak <i>Quercus robur</i>	15	est 800	11	M	F	Base obscured Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Unable to gain access	290	9.6	A (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T27	English Oak Quercus robur	14	est 750	8	EM	F	Basal cavity observed Branch stubs evident Minor dead wood evident in the crown (<75mm)	254	9.0	B (i)
T28	English Oak Quercus robur	20	est 550 550 550	10	M	F	Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi stemmed from base	411	11.4	A (i)
T29	Ash Fraxinus excelsior	18	est 900	9	OM	P	Bark wounds noted Basal cavity observed Branch stubs evident Broken branches evident Characteristic for species Dense ivy cover on main stem Heartwood exposed Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Bee hive in stem	366	10.8	C (i)
T30	English Oak Quercus robur	17	850	9	M	F	Bark wounds noted Branch socket cavities observed Branch stubs evident Broken branches evident Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Storm damage present	327	10.2	A (i)
T31	English Oak Quercus robur	16	est 750 550	9	M	F	Base obscured Branch stubs evident Broken branches evident Dense undergrowth at the base Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Twin stemmed from base	391	11.2	B (i)
T32	English Oak Quercus robur	15	820	10	OM	P	Dense ivy cover on main stem Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	304	9.8	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T33	Ash Fraxinus excelsior	12	est 400	5	EM	F	Sparse / thinning crown	72	4.8	C (i)
T34	English Oak Quercus robur	12	est 620	6	EM	F	Characteristic for species Even crown form Minor dead wood evident in the crown (<75mm)	174	7.4	B (i)
T35	Ash Fraxinus excelsior	8	est 100 100	4	EM	F	Minor dead wood evident in the crown (<75mm) Sparse / thinning crown Twin stemmed from base	9	1.7	C (i)
T36	Ash Fraxinus excelsior	9	est 300	4	EM	F	Sparse / thinning crown	41	3.6	C (i)
T37	English Oak Quercus robur	10	600	8	EM	F	Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Pruning wounds noted	163	7.2	B (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Beech Fagus sylvatica Blackthorn Prunus spinosa English Oak Quercus robur Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus	7	upto 180	3	Yng / SM	F	Branch stubs evident Characteristic for species Crossing and rubbing branches Dense boundary group	15	2.2	B (ii)
G2	English Oak Quercus robur	12	upto 700	7	EM / M	F	Characteristic for species Crossing and rubbing branches Interlocking crowns Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	222	8.4	B (ii)
G3	Ash Fraxinus excelsior	16	upto 550	6	EM / M	F	Characteristic for species Interlocking crowns Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	137	6.6	B (ii)
G4	Elder Sambucus nigra English Oak Quercus robur Hawthorn Crataegus monogyna Wild Cherry Prunus avium Hazel Corylus avellana Holly Ilex aquifolium	4	avg 100	1	SM	F	Outgrown boundary hedgerow with gaps	5	1.2	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G5	Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Wild Cherry Prunus avium Hazel Corylus avellana Holly Ilex aquifolium	6	avg 250	3	SM	F	Base obscured Dense undergrowth at the base Interlocking crowns Outgrown boundary group to neighbouring properties	28	3.0	B (ii)
G6	Field Maple Acer campestre Hazel Corylus avellana	7	100 100 100	4	EM	F	Outgrown hedgerow	14	2.1	C (ii)
G7	Hawthorn Crataegus monogyna Hazel Corylus avellana	7	100 100 100	4	EM	F	Outgrown hedgerow	14	2.1	C (ii)
G8	Blackthorn Prunus spinosa Goat Willow Salix caprea Hawthorn Crataegus monogyna Wild Cherry Prunus avium Hazel Corylus avellana	6	est 50 50 50 50	2	EM	F	Outgrown hedgerow	5	1.2	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G9	Ash Fraxinus excelsior Elder Sambucus nigra Goat Willow Salix caprea Hawthorn Crataegus monogyna Silver Birch Betula pendula	12	upto 600	5	EM	F	Bark wounds noted Basal cavity observed Broken branches evident Characteristic for species Coppiced form Crossing and rubbing branches Dense outgrown group	163	7.2	C (ii)
G10	Ash Fraxinus excelsior Elder Sambucus nigra Hawthorn Crataegus monogyna Silver Birch Betula pendula	15	est 300	4	SM / EM	F	Bark wounds noted Dense undergrowth at the base Minor dead wood evident in the crown (<75mm) Dense group around farm buildings	41	3.6	C (ii)
G11	Ash Fraxinus excelsior	8	est 150	3	SM	F	Sporadic self-seeded group of trees	10	1.8	C (ii)
G12	Ash Fraxinus excelsior Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Silver Birch Betula pendula	10	est 280	4	SM / EM	F	Bark wounds noted Dense undergrowth at the base Minor dead wood evident in the crown (<75mm) Dense group around farm buildings	35	3.4	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G13	Ash Fraxinus excelsior English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Crab Apple Malus sylvestris	16	est 400	5	EM	F	Bark wounds noted Chlorotic leaves evident Dense undergrowth at the base Epicormic growth evident within the crown Minor dead wood evident in the crown (<75mm)	72	4.8	B (ii)
G14	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	6	est 120	2	SM	F	Dense outgrown hedgerow	7	1.4	C (ii)
G15	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	6	est 120	2	SM	F	Dense outgrown hedgerow	7	1.4	C (ii)
G16	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G17	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)
G18	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)
G19	Field Maple Acer campestre Hazel Corylus avellana	7	100 100 100	4	EM	F	Outgrown hedgerow	14	2.1	C (ii)
G20	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)

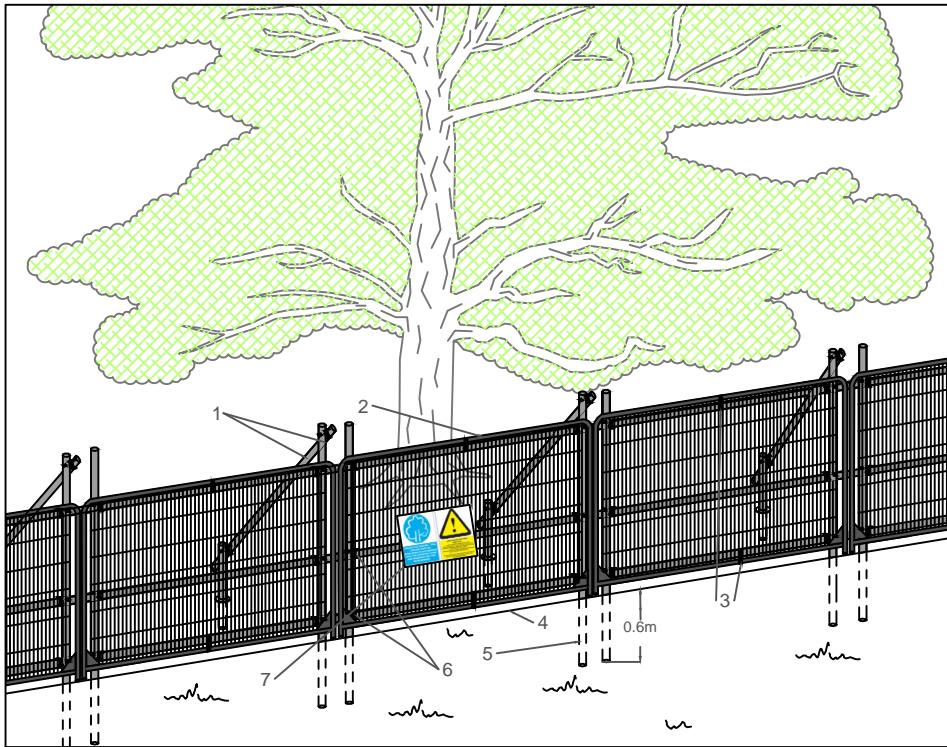
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G21	Blackthorn Prunus spinosa Elder Sambucus nigra Hawthorn Crataegus monogyna Wild Cherry Prunus avium	16	est 650	8	M	F	Base obscured Dense undergrowth at the base Interlocking crowns Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	191	7.8	A (ii)
G22	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)
G23	Ash Fraxinus excelsior Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	9	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)
G24	Ash Fraxinus excelsior Crack Willow Salix fragilis Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana	17	est 300	6	SM	F	Dense outgrown hedgerow	41	3.6	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G25	Ash Fraxinus excelsior Crack Willow Salix fragilis Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana	9	est 200	3	SM	F	Dense outgrown hedgerow	18	2.4	C (ii)
G26	Ash Fraxinus excelsior Crack Willow Salix fragilis Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana	9	est 200	3	SM	F	Dense outgrown hedgerow	18	2.4	C (ii)
G27	Hawthorn Crataegus monogyna Hazel Corylus avellana	6	est 100	3	SM	F	Characteristic for species Coppiced form Dense undergrowth at the base Minor dead wood evident in the crown (<75mm) Multi stemmed from base	5	1.2	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G28	Beech Fagus sylvatica Blackthorn Prunus spinosa English Oak Quercus robur Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus	6	upto 180	3	Yng / SM	F	Branch stubs evident Characteristic for species Crossing and rubbing branches Dense boundary group	15	2.2	B (ii)
G29	Field Maple Acer campestre Hazel Corylus avellana	6	upto 180	3	Yng / SM	F	Branch stubs evident Characteristic for species Crossing and rubbing branches Dense boundary group	15	2.2	B (ii)
G30	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus	18	upto 550	7	SM / EM	F	Bark wounds noted Branch stubs evident Broken branches evident Coppiced form Crossing and rubbing branches Dense undergrowth at the base Epicormic growth evident within the crown Interlocking crowns Footpath within group	137	6.6	B (ii)
G31	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G32	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (ii)
G33	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	5	est 100	2	SM	F	Dense outgrown hedgerow	5	1.2	C (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 Elder Sambucus nigra English Oak Quercus robur Hawthorn Crataegus monogyna	2.5	est 50 50 50	1	EM	F	Maintained hedgerow	3	1.0	C (ii)



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

Appendix C - Veteran Tree Schedule

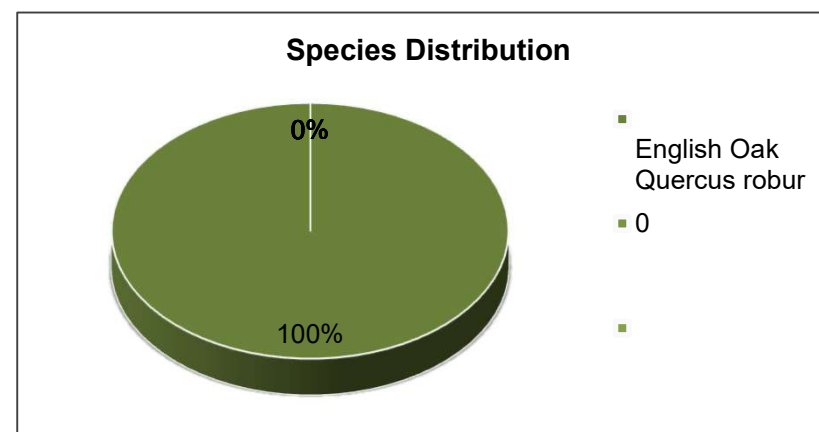
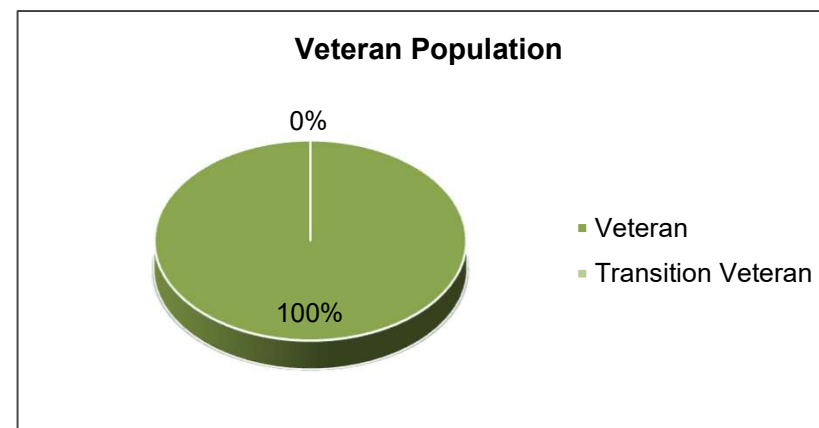
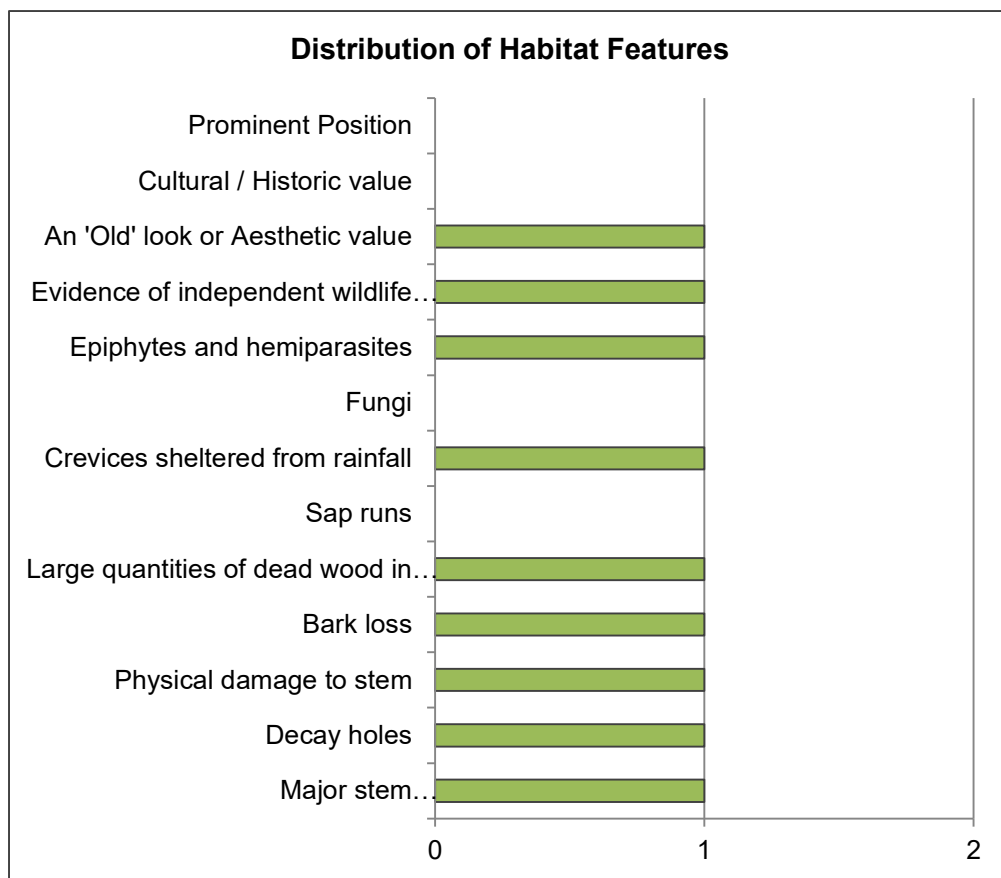
Key	Dimensions and Habitat Features		Associated Wildlife	Aesthetics
Tree considered Veteran	DBH (mm) - Stem diameter measured at 1.5m above ground level in mm	Major trunk cavities - Cavity to exceed 30% of stem diameter or to be progressively developing	Crevices sheltered from rainfall - Dry, potential invertebrate habitat	An old look or Aesthetic value - Striking form or particularly gnarled
Tree considered Future Veteran	Large girth for species - as described by the Veteran Tree Initiative	Large quantities of dead wood in canopy - More than 50% of crown dead or dying back	Evidence of independent wildlife species - Droppings, nests, pellets	Cultural/historic value - Parkland tree, field or road marker
	M - Maiden	Physical damage to trunk - Often as a result of storm damage	Fungi - Polypores or Basidiomycetes on or around tree	Prominent Position - Visually prominent in its landscape
		Decay Holes - Branch socket cavities on limbs or main stem	Epiphytes or Hemiparasites - lichen, liverworts, ivy, mistletoe	
		Epicormic Growth - Strong vigorous epicormic growth present about the tree		
		Bark Loss - Bark missing from main stem in large quantities		
		Sap Runs - Either from cracks in bark or cavities		

This document should be read in conjunction with the Arboricultural Assessment. The National Planning Policy Framework, a key government policy document, stresses the importance of Ancient and Veteran trees. From an ecological perspective veteran trees provide a rare and very specialist niche habitat and therefore preservation of this habitat is considered highly important. It would therefore be recommended that a detailed assesment be undertaken of the veteran habitat and this schedule should only be used as a guide to the presence of veteran trees on the site.

Distribution of Habitat Features - Displays the total of each habitat feature present in the surveyed tree cover. The proportion of trees with these features can be used to determine the condition and risks to the veteran tree stock.

Veteran Population - Provides the mix of Veteran/Future Veteran and non-veteran specimens across the surveyed tree stock.

Species Distribution - Shows the proportion of Veteran and Future Veterans for each species found during the assessment.



Identification		Dimensions				Habitat Features							Associated Wildlife				Aesthetics		
Tree No	Species	Large girth for species	Girth (cm)	Measurement height (m)	Form	Major stem cavities / hollowing	Decay holes	Physical damage to stem	Bark loss	Epicormic Growth	Large quantities of dead wood in canopy	Sap runs	Crevices sheltered from rainfall	Fungi	Epiphytes and hemiparasites	Evidence of independent wildlife species	An 'Old' look or Aesthetic value	Cultural / Historic value	Prominent Position
T6	English Oak Quercus robur	Yes	468.1	1.5m	M	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓		