



Bellway Homes

Ashland Road, Sutton in Ashfield

Arboricultural Assessment

February 2020

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1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Bellway Homes to present the findings of an Arboricultural Assessment and survey of trees located at Ashland Road West, Sutton in Ashfield (hereafter referred to as the site), OS Grid Ref SK 477 595.
- 1.2 The survey was carried out on 24th May 2019.

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 an outline planning application for residential development 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 comprises of two arable field parcels to the north east of the town of Sutton-in-Ashfield. The site meets Ashland Road West on its southern boundary, residential dwellings back onto the southern and western boundaries and the Brierley Forest Park lies to the north of the site. Tree cover is restricted to the site boundaries except for a single maintained hedgerow which runs north to south separating the two field parcels.

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 local planning policy 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 Ashfield District Council adopted a Local Plan in November 2002 and in relation to arboriculture the following policies continue to apply to the consideration of planning applications within the district:
- Policy EV8 – Development which adversely affects trees worthy of retention, including woodland and individual trees, will not be permitted. Where trees are lost as a result of development, replacement or mitigating planting will be required.*

Statutory Considerations

- 2.7 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 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.
- 2.8 No direct consultation with the Local Planning Authority, Ashfield District Council, has taken place however, it is understood having used the online search facility on the website that there are no Tree Preservation Orders and Conservation Areas that would apply to 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 Local Authority.

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 arboriculturalist 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 or hedgerows 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.
- 3.3 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. A tree survey 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.
- 3.4 An assessment of individual trees within groups or hedgerows 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

- 3.5 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.
- 3.6 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.

- 3.7 The NPPF 2019 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.’¹

- 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 Based on the above definitions and a range of currently published guidance and resources **no trees on site were considered ancient or veteran and no ancient woodland was identified on, or within influencing distance of the site.**

BS5837 Categories

- 3.10 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).
- 3.11 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.
- 3.12 **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.

¹ Ministry of Housing, Communities and Local Government. (2019). *National Planning Policy Framework*. London: Ministry of Housing, Communities and Local Government.

- 3.13 **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.
- 3.14 **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.
- 3.15 **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.

Tree Schedule

- 3.16 Appendix A presents details of any individual trees, groups and hedgerows found during the assessment including 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 and the root protection area.
- 3.17 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.

Site Plans

- 3.18 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.
- 3.19 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

- 3.20 Below ground constraints to future development are represented by the area surrounding the tree containing sufficient rooting volume for the specimen to have the best chance of survival in the long term which is identified as the root protection area (RPA). The RPA has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme.
- 3.21 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.
- 3.22 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 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

- 3.24 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.
- 3.25 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.

- 3.26 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.
- 3.27 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. 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.
- 3.28 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 eleven individual trees, eleven groups of trees and two hedgerows were surveyed as part of the Arboricultural Assessment. Refer to the Tree Survey Plan and Appendix A – Tree Schedule for full details of the trees included in this assessment.

Results Summary

- 4.2 Tree cover across the site is exclusive to the peripheries, except for a single maintained hedgerow (H1) which runs north to south and separates the two field parcels. There was a varied species composition across the site, with individual specimens of English oak *Quercus robur*, ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*, Norway spruce *Picea abies* and horse chestnut *Aesculus hippocastanum*. Groups and hedgerows were made up of species such as blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, hazel *Corylus avellana* and goat willow *Salix caprea* to name a few.
- 4.3 No tree cover on the site was of high arboricultural quality or considered ancient or veteran.

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable		0		0
Category A (High Quality / Value)		0		0
Category B (Moderate Quality / Value)	T1, T3, T4, T5, T6, T9, T11	7	G1, G5, G6, G9, G10, G11	6
Category C (Low Quality / Value)	T2, T7, T8, T10	4	G2, G3, G4, G7, G8, H1, H2	7

- 4.4 Most individual trees assessed on the site were found to be of moderate arboricultural quality and retention category B, as a result of possessing some minor defects which detracted from them being high quality trees, but with life expectancies in excess of 20 years.

- 4.5 T4 situated on the site's southern boundary with Ashland Road had suffered more significant storm damage resulting in partial stem failure which had exposed heartwood and subsequently resulted in the main stem hollowing. The estimate life expectancy of T4 may not exceed 20 years but T4 did however possess moderate material conservation value. This is down to its enhanced habitat features created by its hollowing stem, animal burrowing at base and nesting material recorded within the stem hollow, so was also assessed as being of retention category B.
- 4.6 Boundary tree groups G1, G5, G6, G9, G10 and G11 all provided moderate screening to the site, from adjacent properties or Brierley Forest Park, and were assessed as retention category B for their collective landscape value from an arboricultural perspective. The remaining tree groups were all considered of low-quality with most of these groups comprising of outgrown or unmaintained hedgerows, which had become dense and scrub like in nature and contribute very little to the site in terms of arboricultural quality. It may however be possible to increase the value and quality of these groups through some management regimes.
- 4.7 Where individual trees were recorded as low quality and retention category C, this was either as a result of more significant structural or pathological defects, which affected their life expectancies and future contribution to the site. Or where trees currently contributed little arboricultural value to the site due to their relatively young ages and small dimensions, having yet to establish within the site to make any significant contributions.

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 Masterplan and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The drawing shows the proposals for a residential development of up to 300 dwellings. 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.

Table 2: Summary of Impact on Tree Stock

	Trees to be Retained	Total	Trees to be Removed in full or part	Total
Category U - Unsuitable		0		0
Category A (High Quality / Value)		0		0
Category B (Moderate Quality / Value)	T1, T3, T4, T5, T6, T9, T11, G1, G5, G6, G9, G10, G11	13		0
Category C (Low Quality / Value)	T2, T7, T8, T10, G3, G4, G7, G8, H2	9	G2, H1	2

- 5.3 By virtue of the trees cover being almost exclusive to the peripheries of the site, development of the site would result in very little tree or hedgerow removal. The outline Masterplan shows only sections of tree group G2 and H1 being removed to facilitate development of the site.
- 5.4 G2, an outgrown hedgerow recorded as a tree group as part the survey methodology, not being managed under a regular pruning regime, stood within the verge adjacent to Ashland Road. The proposals have shown two sections, each approximately 20m in length, be removed to provide two vehicular access points.
- 5.5 The position of these two vehicular access points has been informed by a Highways Assessment and require the removal of these two sections of G2. The two access points have however avoided the three mature trees, T1, T2 and T3, recorded within G2 and allowed for these three trees to be retained. Considered to be of low quality from an arboricultural perspective, the removal of two sections of G2, should not raise an objection from an arboricultural perspective and could be mitigated for through new tree and hedgerow planting.
- 5.6 To provide a vehicular link between the two existing field parcels, currently separated by hedgerow H1, would require an approximately 15m section of this hedgerow be removed. The position of this gap would be informed by the internal road layout. The Masterplan has shown the remainder of this internal hedgerow be incorporated within the development, to provide separation between development parcels.
- 5.7 The proposed layout has been informed by the existing tree cover, and “*does not adversely affect trees worthy of retention, including woodland and individual trees,*” so should be considered in accordance with Local Policy EV8.

Arboricultural Recommendations

- 5.8 The internal layout, as shown, is indicative and subject to further amendments. Currently there are areas where the internal layout conflicts with retained trees and at the detailed design stage the layout should be informed by the retained tree cover.
- 5.9 T1 in the south east corner of the site as shown in the Masterplan has a private driveway within its Root Protection Area (RPA). The RPA has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection for the tree to be successfully incorporated into any future scheme. The detailed layout should amend this driveway to take into consideration the RPA of this tree.
- 5.10 Tree cover on the site’s southern boundary will cast shade across the site and this should be considered, in relation to both dwellings and rear gardens. The Masterplan has shown dwellings would be positioned outside of the illustrative shade pattern, calculated in accordance with BS5837. However, this is not a true representation of shading influence, which varies from season to season depending on the sun’s position in the sky and does not consider existing ground level changes.
- 5.11 It is not considered that the level of shade cast by trees along the southern boundary would be a significant constraint to the development, however the future management of tree cover along this boundary should be considered as part of a detailed application.

- 5.12 The proposals have shown that pedestrian links would be provided from the development to Brierley Forest Park to the North. The rough position of these links will be determined by the internal layout and with tree cover being continuous along the site's northern boundary, will inevitably require some tree removal. The exact position and design of these pedestrian links should aim to minimise tree removal and avoid any mature trees along this boundary.

Tree Management

- 5.13 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 arboriculturalist to assess the existing tree cover and prepare a schedule of tree works.
- 5.14 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 arboriculturalist or arborist to identify any potential public safety risks and to agree remedial works as required.
- 5.15 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.

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 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 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.

Trees

- 6.2 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.

- 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 designing 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.

Hedgerows

- 6.5 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.

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 Arboriculturalist.
- 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 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

- 7.6 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.

- 7.7 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.
- 7.8 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. An appropriate fencing specification for this site have been illustrated in Appendix B.
- 7.9 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

- 7.10 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.
- 7.11 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.
- 7.12 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.
- 7.13 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.
- 7.14 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.
- 7.15 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- 7.16 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 for Aerial Parts of Retained Trees

- 7.17 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 arboriculturalist.
- 7.18 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.
- 7.19 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.



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)

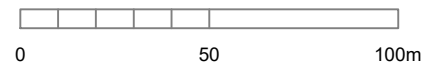
Root Protection Area (The RPA has been altered
where appropriate to reflect underground constraints)

T1 (A)
G1 (A)

Individual / Group Number and BS5837:2012 Category

Indicative Shade Pattern (in accordance with
BS5837:2012 where appropriate)

Scale 1:2000 @ A3



NOTES

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TREE SURVEY PLAN
EAST

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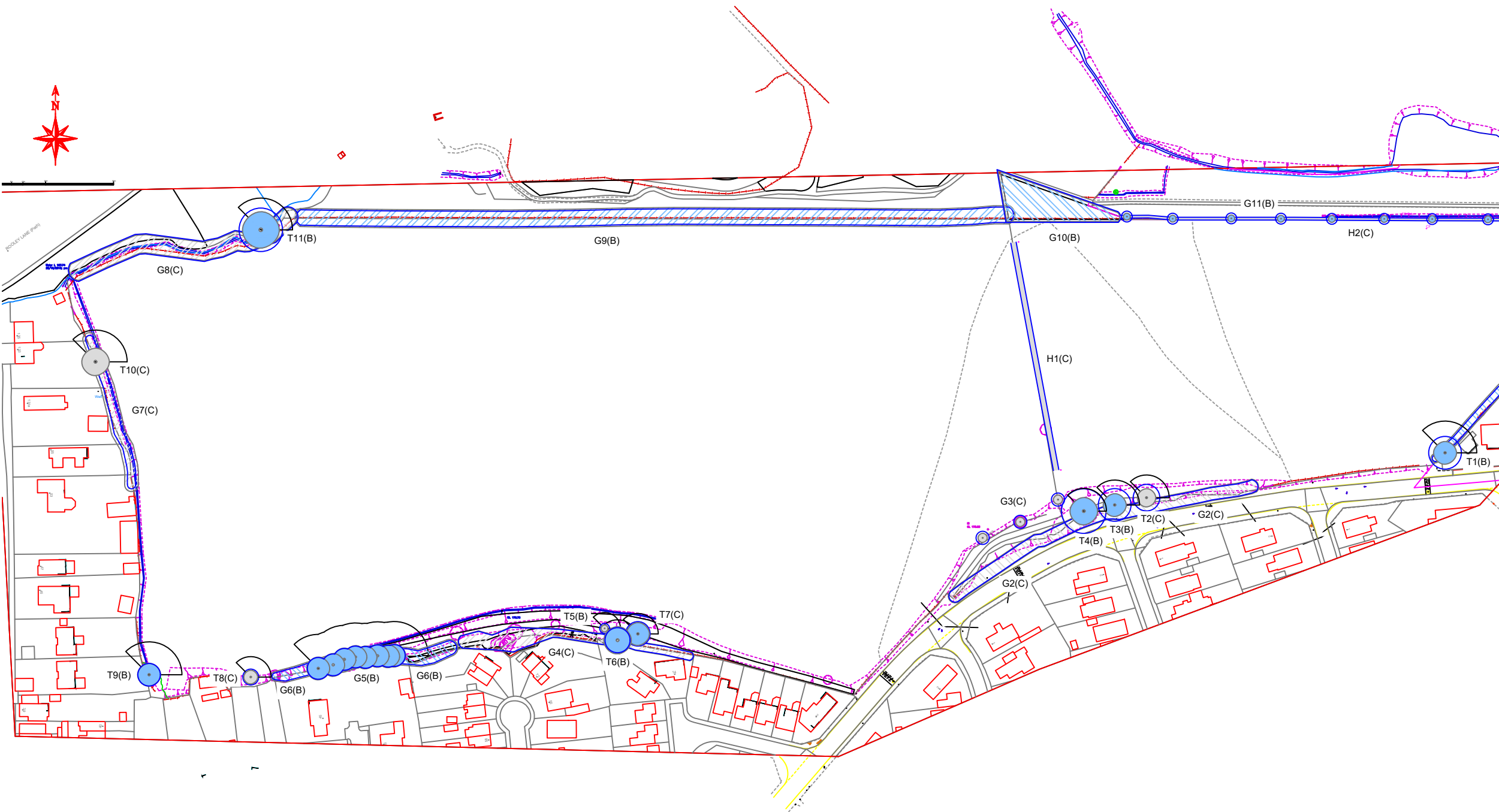
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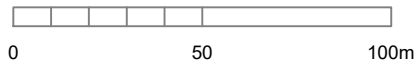
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KEY

- 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 (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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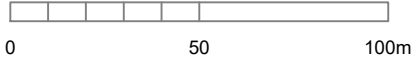
KEY

Tree/Group to be Retained

Tree/Group to be removed to facilitate the proposals

T1 (A)
G1 (A)

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KEY

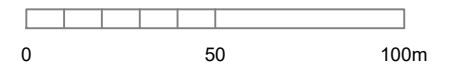
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Tree/Group to be removed to facilitate the proposals

T1 (A)
G1 (A)

Individual / Group Number and BS Category

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Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - Measured using a digital laser clinometer (m)	YNG: Young trees up to ten years of age	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention	“ 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.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	SM: Semi-mature trees less than 1/3 life expectancy	F - Fair: Trees with minor rectifiable defects or in the early stages of stress from which it may recover	
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	EM: Early mature trees 1/3 . 2/3 life expectancy	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term	
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	M: Mature trees over 2/3 life expectancy	D - Dead: This could also apply to trees in an advanced state of decline and unlikely to recover	
	OM: Over mature declining or moribund trees of low vigour	The BS category particular consideration has been given to the following “ The health, vigour and condition of each tree “ 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	
	V: Veteran tree possessing certain attributes relating to veteran trees		

Structural Condition
<p>The following is an example of considerations when inspecting structural condition:</p> <ul style="list-style-type: none"> • The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay • Soil cracks and any heaving of the soil around the base • Any abrupt bends in branches and limbs resulting from past pruning • Tight or weak Δ/qshaped forks and co-dominant stems • Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994) • Cavities as a result of limb losses or past pruning • Broken branches or storm damage • Damage to roots • Basal, stem or branch / limb cavities • Crown die-back or abnormal foliage size and colour

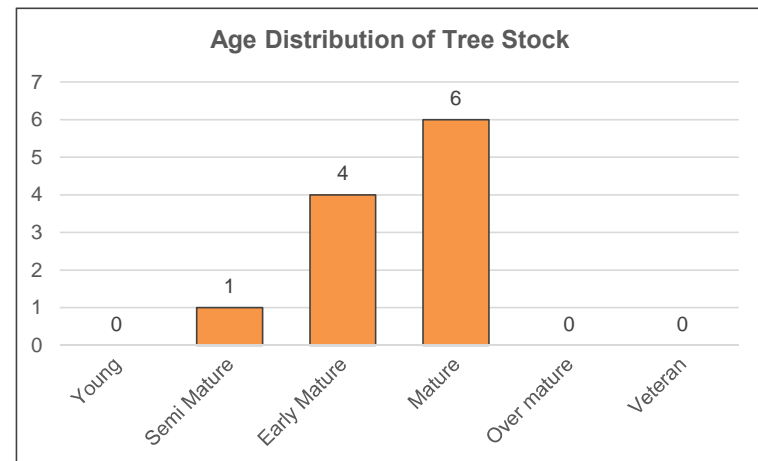
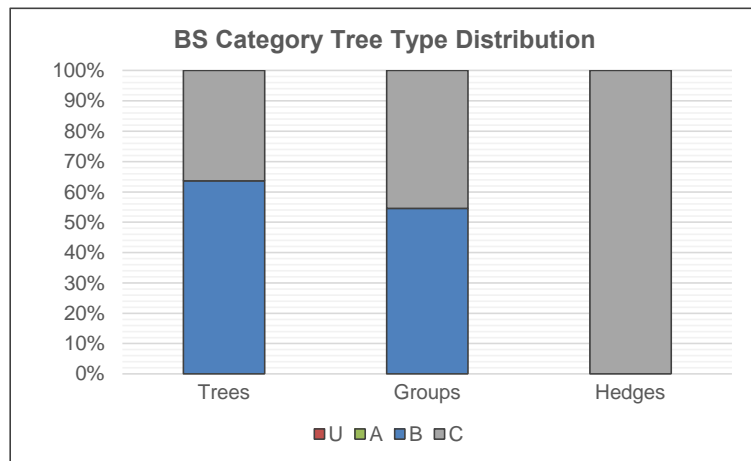
Quality Assessment of BS Category
Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
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.
Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U		0		0
Category A		0		0
Category B	T1, T3, T4, T5, T6, T9, T11	7	G1, G5, G6, G9, G10, G11	6
Category C	T2, T7, T8, T10	4	G2, G3, G4, G7, G8, H1, H2	7
Total		11	Total	13

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

Age Distribution of Tree Stock shows the number of trees in each age category across the tree stock allowing assessment of their longevity to be made.



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Ash Fraxinus excelsior	14	est 600	5	M	F	Situated on site boundary access to base restricted Basal cavity observed with animal burrowing at base Basal suckers present Minor dead wood evident in the crown (<75mm) Bacterial canker noted on branches	163	7.2	B (i)
T2	Sycamore Acer pseudoplatanus	10	est 6x 200	4	M	F	Tree is situated within dense tree group Multi stemmed from base with included bark unions Crossing and rubbing branches Limited arboricultural value	109	5.9	C (i)
T3	English Oak Quercus robur	11	600	5	M	F	Situated within dense tree group Dieback of the crown observed with major (>75mm) and minor (<75mm) dead wood Pruning wounds noted Elder growing through crown at base Low crown form	163	7.2	B (i)
T4	English Oak Quercus robur	10	820	6	M	P / F	Partial stem failure with exposed hearwood from ground level up to 2m Hollowing stem with cuboidal brown rot Full crown with only minor dead wood Emerging epicormic growth evident in crown Animal burrowing at base Nesting material within hollow of main stem	304	9.8	B (iii)
T5	English Oak Quercus robur	9	450	5	EM	F / G	Situated on steep embankment of made up ground Dense ivy cover on main stem Low crown form Minor dead wood evident in the crown (<75mm) No major defects were noted	92	5.4	B (i)
T6	English Oak Quercus robur	9	460	6	EM	F / G	Situated on steep embankment of made up ground Light ivy cover on main stem Low crown form Minor dead wood evident in the crown (<75mm) No major defects were noted	96	5.5	B (i)

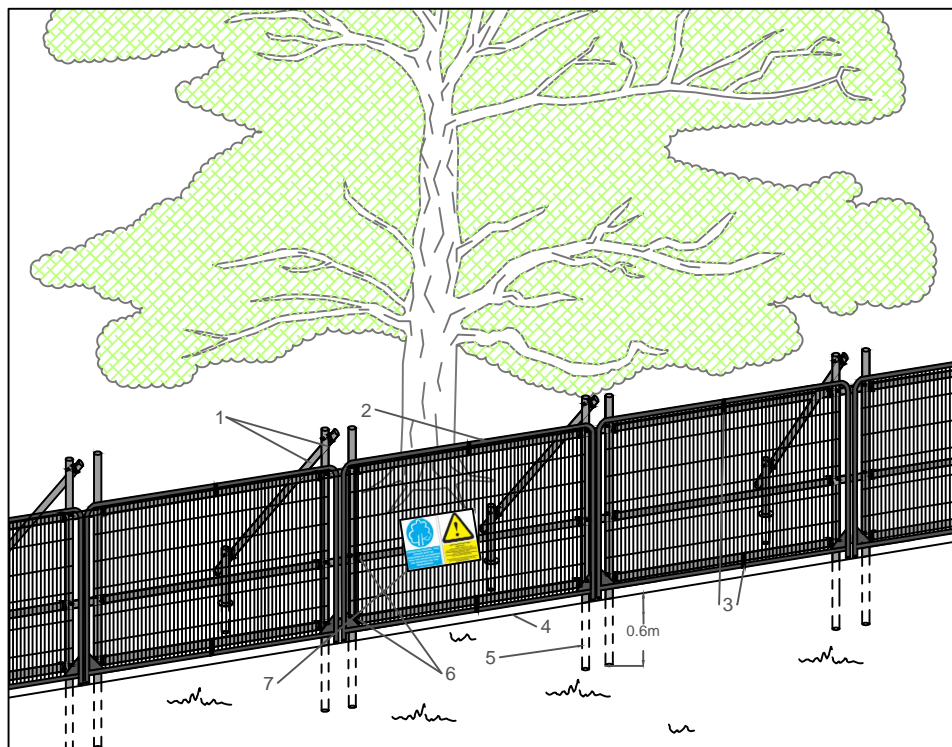
Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T7	Norway Spruce <i>Picea abies</i>	7	180	1.5	SM	F	Likely a Christmas tree planted after use Characteristic for species	15	2.2	C (i)
T8	Horse Chestnut <i>Aesculus hippocastanum</i>	9	290	3	EM	P / F	Basal suckers present Characteristic for species <i>Pseudomonas syringae</i> pv. <i>Aesculi</i> Bleeding canker noted on main stem	38	3.5	C (i)
T9	Sycamore <i>Acer pseudoplatanus</i>	14.5	415	5	EM	F / G	Basal suckers present Characteristic for species No major defects were noted Pruning wounds noted	78	5.0	B (i)
T10	Sycamore <i>Acer pseudoplatanus</i>	14	250 200 200 150	6	M	F	Multi stemmed from base with crossing and rubbing branches Dense ivy cover on main stem Dense undergrowth at the base Minor dead wood evident in the crown (<75mm)	75	4.9	C (i)
T11	Ash <i>Fraxinus excelsior</i>	14	est 800	8	M	F	Situated offsite by circa 5m unable to gain access to base Broken branches and branch stubs evident Dense undergrowth at the base Dieback of the crown observed with minor dead wood (<75mm)	290	9.6	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	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna	6	upto 120	2	EM	F	Outgrown hedgerow Flailed up to 3m Reduced in height to 4m adjacent to property	7	1.4	B (ii)
G2	Blackthorn Prunus spinosa Elder Sambucus nigra Hawthorn Crataegus monogyna Hazel Corylus avellana	5.5	upto 100 100	2	EM	P / F	Outgrown un-maintained hedgerow Areas of blackthorn thicket Dense undergrowth within group	9	1.7	C (ii)
G3	Hawthorn Crataegus monogyna	6.5	upto 6x 100	2	M	F	Escaped hedgerow trees Possibly formed part of a now defunct hedgeline or self seeded	27	2.9	C (ii)
G4	Ash Fraxinus excelsior Elder Sambucus nigra Goat Willow Salix caprea Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Hazel Corylus avellana Holly Ilex aquifolium Privet Ligustrum vulgare	5	avg 150	2	EM	F	Sporadic tree cover along bank forming site boundary Maintained as hedgerow in sections Contains multiple self seeded specimens Dense undergrowth within group Arboriculturally of low quality	10	1.8	C (ii)
G5	Sycamore Acer pseudoplatanus	15	upto 400	5	EM	F	Tree group situated along boundary Interlocking crowns with close spacing between trees Dense ivy cover on main stems Single failed tree within group	72	4.8	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G6	Crack Willow Salix fragilis Hawthorn Crataegus monogyna	8	upto 120	2	EM	F	Outgrown un-maintained hedgerow Provides moderate screening to site from adjacent dwellings	7	1.4	B (ii)
G7	Ash Fraxinus excelsior Blackthorn Prunus spinosa Field Maple Acer campestre Goat Willow Salix caprea Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Hazel Corylus avellana	6	avg 150	3	SM / EM	P / F	Sporadic self-seeded group of trees along boundary Sparse in sections and sections have been maintained as hedgerow Contains occasional outgrown specimens Limited screening value	10	1.8	C (ii)
G8	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra Goat Willow Salix caprea Hawthorn Crataegus monogyna	7	upto 200	2	EM / M	F	Outgrown tree group situated offsite Group has an untidy appearance Flail damage evident along site boundary	18	2.4	C (ii)

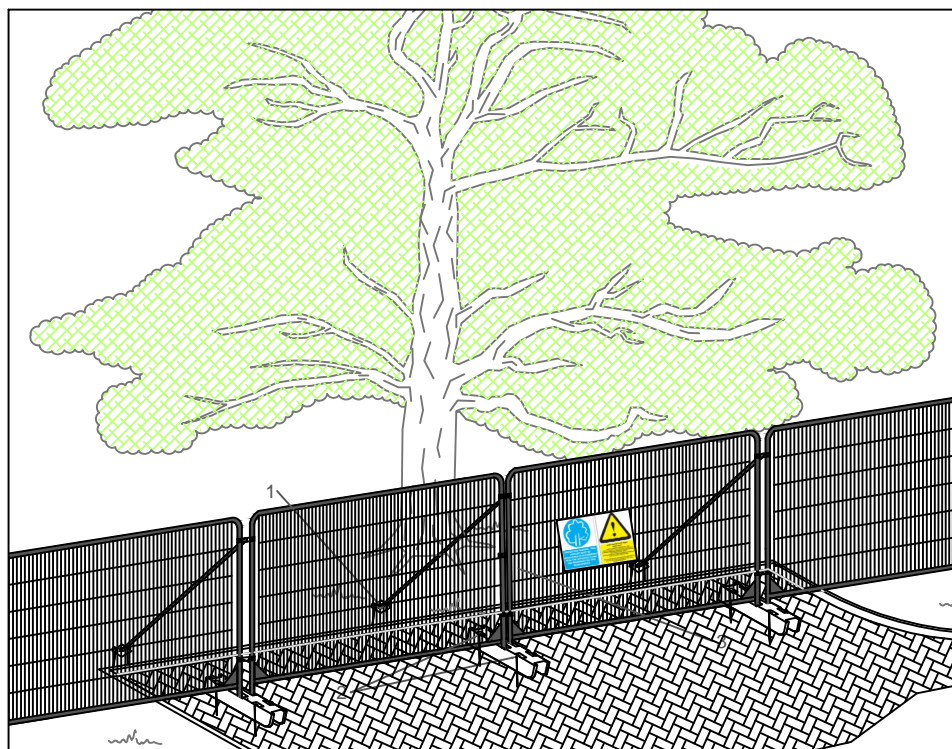
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G9	Blackthorn Prunus spinosa Crack Willow Salix fragilis English Oak Quercus robur Field Maple Acer campestre Goat Willow Salix caprea Hawthorn Crataegus monogyna Wild Cherry Prunus avium Hazel Corylus avellana White Willow Salix alba Dogwood Cornus sanguinea Guelder-rose Viburnum opulus	14	upto 200	3	SM	G	Planted group along application boundary Flailed up to 3m within the site Characteristic for species Interlocking crowns Provides good screening from the site to the adjacent nature park	18	2.4	B (ii)
G10	Ash Fraxinus excelsior English Oak Quercus robur Silver Birch Betula pendula	10	upto 200	2	SM	F	Small copse of trees planted off site Etiolated forms with interlocking crowns Flail damage with broken branches evident Some dieback observed with minor dead wood evident (<75mm) <i>Chalara fraxinea</i> ash dieback noted in group	18	2.4	B (ii)
G11	Horse Chestnut Aesculus hippocastanum	4	upto 200	1.5	Yng / SM	F / G	Recently planted trees evenly spaced along hedgerow Characteristic for species Situating offsite along boundary	18	2.4	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Blackthorn Prunus spinosa	2.5	avg 100	1	M	P / F	Maintained hedgerow Sparse / thinning in sections	5	1.2	C (ii)
H2	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna	1.5	avg 50	0.5	Yng / SM	F / G	Recently planted hedgerow Situating offsite along boundary	1	0.6	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

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APPENDIX B PROTECTIVE FENCING SPECIFICATIONS

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