



Barratt Homes

Ernleye Meadows, Pearl Lane, Stourport-on-Severn

Arboricultural Assessment

December 2020

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH

Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

This report is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without the written consent of FPCR Environment and Design Ltd. Ordnance Survey material is used with permission of The Controller of HMSO, Crown copyright 100018896.

Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft	EKP / 30.08.19	HCK / 19.12.19
A	Draft	EC / 22.10.20	HCK / 26.10.20
B	Final	EC / 14.12.20	HCK / 14.12.20

CONTENTS

1.0	INTRODUCTION	2
2.0	PLANNING POLICY	3
3.0	SURVEY METHODOLOGY	5
4.0	RESULTS.....	11
5.0	ARBORICULTURAL IMPACT ASSESSMENT	13
6.0	NEW TREE AND HEDGEROW PLANTING.....	16
7.0	TREE PROTECTION MEASURES	18

TABLES

Table 1: Summary of Trees by Retention Category

FIGURES

Figure 1: The chart of girth in relation to age and development classification of trees

PLANS

Tree Survey Plan (9166-T-01)

Tree Retention Plan (9166-T-02)

Tree Protection Plan (9166-T-03)

APPENDICES

Appendix A: Tree Schedule

Appendix B: Protective Fencing Specifications

Appendix C: Veteran Tree Schedule

1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Barratt Homes to present the findings of an Arboricultural Assessment and survey of trees located at Ernley Meadows, Pearl Lane, Stourport-on-Severn (hereafter referred to as the site), OS Grid Ref SO796699.
- 1.2 The survey was carried out by on 22nd August 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 a planning application for a 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 is in Astley Cross, a village in Worcestershire located on the outskirts of Stourport-on-Severn. It is characterised as two agricultural, arable field parcels, largely surrounded by farmland, with the eastern side abutting an existing residential development.
- 1.8 Given the current land use of the site, the central areas are largely devoid of tree cover except for five individual English oak *Quercus robur* specimens, three of which stand along the border separating the two field parcels. The northern, southern and eastern boundaries of the site are comprised of a linear plantation with a varied tree species composition. The site's western boundary is partially covered by hedgerows with occasional outgrown individual trees.

2.0 PLANNING POLICY

National Planning Policy Framework 2019

- 2.1 National Planning Policy is defined by the National Planning Policy Framework (NPPF). This sets out the Government's most current and up to date planning policies for England and how these should be applied. The current NPPF is dated February 2019.
- 2.2 Paragraph 11 of the NPPF states that there is a presumption in favour of sustainable development and states that for decision making, the LPA should be '*c) approving development proposals that accord with an up-to-date development plan without delay*'. In the absence of a development plan or the development plan is out of date, the acting LPA should grant planning consent so far as the development proposals do not breach the policies and guidance outlined in the NPPF.
- 2.3 In relation to arboriculture, the NPPF also states that:
- 175(c) '*development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists*';
- and provides specific guidance that:
- 175(d) '*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*'.
- 2.4 Examples of what is deemed to be '*wholly exceptional*' are included within Footnote 58 and provides the examples of '*infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat*'.

Local Planning Policy

- 2.5 Local planning decisions regarding all future developments are assessed against a framework to ensure that the district or county in question is developed in a well-informed and coherently systematic manner, this may include decisions to ensure that the right number and types of houses are built and incorporating the correct type of shopping and recreation facilities, whilst protecting the local ecological resources, landscape context and intrinsic heritage value of an area.
- 2.6 Within the context of Wyre Forest District Council, the new Local Plan will replace the current Adopted Core Strategy, Site Allocations and Policies Local Plan and Kidderminster Central Area Action Plan in order to produce a single Local Plan for the district. The pre-submission publication 2018 document has been prepared and is currently yet to be formally adopted. This document provides the most up to date information with regards to the local plan.
- 2.7 In relation to arboriculture and the natural environment, following a review of the Local Plan, the following policies are considered the most relevant:

- **Policy 11D- Protecting and Enhancing Biodiversity:**

ii. Development likely to have an adverse effect on nationally important sites including a Site of Special Scientific Interest (SSSI) and irreplaceable features including (but not limited to) ancient woodland, and ancient or veteran trees will not be permitted, except where the public benefits of the development at that site clearly outweigh the loss or deterioration of habitat and a suitable compensation strategy exists.

- **Policy 20C - Provision for Open Space, Sports Pitches and Outdoor Community Uses in Housing Development:**

The Council will require any major development, subject to viability requirements designated by the NPPF, to make provision in accordance with the following principles:

vii. Street trees (where appropriate and subject to long-term maintenance arrangements).

- **Policy 27A Quality Design and Local Distinctiveness:**

xi. Development should provide high quality hard and soft landscaping. The importance of soft landscaping, using appropriate species and incorporating arrangements for long-term management is emphasised. Existing trees should be incorporated into development or replacements provided where a tree survey demonstrates retention is not possible.

Statutory Considerations

- 2.8 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. Anyone found guilty of such an offence is liable and in serious cases, may result in prosecution and incur an unlimited fine.
- 2.9 No direct consultation with the Local Planning Authority has taken place, however, it is understood having used the online search facility on the website for the Local Planning Authority, Wyre Forest District Council and Malvern Hills District Council that there are no Tree Preservation Orders and Conservation Areas that would apply to any trees present on, or in 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 arboriculturist and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.
- 3.2 Trees have been assessed as groups 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.
 - 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.
- 3.3 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

- 3.4 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.
- 3.5 Veteran Trees and Ancient Woodlands are material considerations within the planning process and their importance is specifically recognised within the National Planning Policy Framework (NPPF) 2019, which defines the terms ancient or veteran tree as:
- ‘A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.’³*
- 3.6 Various published methodologies are currently available which, due to the complexity and subjectivity of the process of defining and assessing these trees, often have conflicting definitions. 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.html

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

³ Ministry of Housing, Communities and Local Government. (2019). *National Planning Policy Framework*. London: Ministry of Housing, Communities and Local Government.

Ancient Tree

- 3.7 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.

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

- 3.9 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, 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.

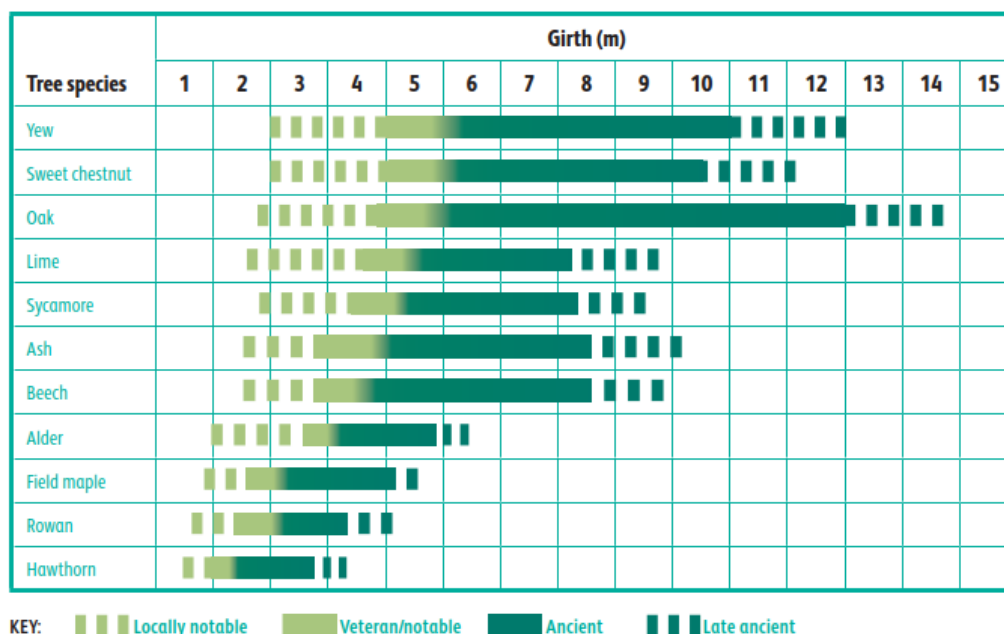


Figure 1: The chart of girth in relation to age and development classification of trees, as shown in Lonsdale (2013)⁷.

Veteran Trees

- 3.10 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’*.
- 3.11 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.
- 3.12 In principal, 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.
- 3.13 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.

BS5837 Categories

- 3.14 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).
- 3.15 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.
- 3.16 **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.
- 3.17 **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.
- 3.18 **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.

3.19 **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

- 3.20 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.
- 3.21 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

- 3.22 The individual positions of trees, groups and hedgerows 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.
- 3.23 As part of this assessment, a Tree Retention Plan has been prepared to show the proposed layout in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies which trees would be required to be removed or retained as part of the proposed development.
- 3.24 As part of this assessment a preliminary Tree Protection Plan has also been provided showing the position of tree protection fencing around those trees being retained.

Tree Constraints and Root Protection Areas

- 3.25 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.
- 3.26 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.
- 3.27 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.
- 3.28 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

- 3.29 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.
- 3.30 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.
- 3.31 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.
- 3.32 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.
- 3.33 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.

- 3.34 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 fourteen individual trees, four groups of trees, and five hedgerows 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.
- 4.2 The table below summarises the trees assessed. Several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T3, T5, T7	3		0
Category A (High Quality / Value)	T10, T11, T14	3		0
Category B (Moderate Quality / Value)	T4, T12, T13	3	G1, G2, G3, G4 H4, H5	4 2
Category C (Low Quality / Value)	T1, T2, T6, T8, T9	5	H1, H2, H3	3

Ancient and Veteran Trees

- 4.3 Two individual trees T10 and T14, were identified as veteran trees as part of this initial assessment. Both trees supported sufficient amounts and quality of characteristic features pertaining to veteran trees. Both trees were English oak and possessed significant amounts of dead wood either within their crown or on the ground where some limbs have been shed in the past. T14 especially had undergone significant crown retrenchment which contributed to its old aesthetic look. Both specimens had large stem diameters for their species and stood in a prominent position within the landscape. It should be noted though that both trees still had a good overall structural and physiological condition.
- 4.4 Where this assessment has identified veteran trees, further survey work of those trees and their communities will be required to inform management and future treatment. 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.

- 4.5 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).

Category A Tree Cover

- 4.6 Along with the two veteran specimens, there was a further tree on site which possessed high arboricultural quality, namely T11. This specimen was also an English oak but was only early mature of age. It displayed good overall physiological and structural condition with no major defects noted except some minor deadwood, some broken branches and branch stubs typically expected in trees of this life stage and growing environment.

Category B Tree Cover

- 4.7 Three individual trees displayed moderate arboricultural quality, namely T4 a Norway maple crimson king *Acer platanoides* 'Crimson King', T12 and T13, two English oak specimens. T4 stood amongst the hedgerow H2 and was early mature of age. Although no major defects were noted, there was dense ivy cover on the main stem and dense undergrowth at the base from the hedgerow, meaning a detail inspection was prevented. There were also broken branches and epicormic growth noted within the crown.
- 4.8 T12 and T13 were similar to T11 in stature and age, however they had a number of minor defects which slightly detracted from their arboricultural quality. T12 had a slightly sparse crown with discolouration of some of the outer crown leaves noted. It also had an iron fence occluded into the base of the stem. T13 displayed a sizable bark wound on the southern face of the stem approximately 30cm in height which had been partially occluded by the tree however, heartwood was still visible. It also showed an included bark union at 2m at the point of the crown break.
- 4.9 The four large tree group plantations around the boundaries of the site, namely G1-G4 all provided moderate arboricultural quality. They were uniform in age structure and supported a broad species composition including blackthorn *Prunus spinosa*, common lime *Tilia x europaea*, English oak *Quercus robur*, field maple *Acer campestre*, goat willow *Salix caprea*, Norway maple *Acer platanoides*, silver birch *Betula pendula*, wild cherry *Prunus avium*, hazel *Corylus avellane*, sweet chestnut *Castanea sativa*, Turkey oak *Quercus cerris*, Scots pine, *Pinus Sylvestris* and many more. The trees were generally in fair overall condition however the groups would benefit from some management to remove any dead and failed trees, which would serve to thin the density of the group to allow occasional specimens to gain space to mature.
- 4.10 These large groups provide excellent screening value to the site given their height, mixed species composition, good density and continuity around three of the site's four boundaries.

Category C Tree Cover

- 4.11 Five of the individual trees on the site were of low arboricultural quality. These trees all stood as outgrown hedgerow specimens along the western boundary and were all damson *Prunus insititia*. These specimens were largely swamped by ivy and exhibited a poor overall form. The trees had been damaged by flail mowers and displayed numerous broken branches and branch socket cavities.

Category U Tree Cover

- 4.12 Finally, three of the trees on site were deemed unsuitable for retention, regardless of development. Once again all of these specimens were damson and stood along the western boundary as outgrown hedgerow specimens. These trees had a very small proportions of their crowns remaining and large quantities of deadwood within their crowns and stems as they had been suppressed by adjacent outgrown trees. These specimens were in extensive states of decline and therefore have limited future potential.

Hedgerows

Five hedgerows were present, all of which were comprised of native species including blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, holly *Ilex aquifolium* and elm *Ulmus procera*. Two of the hedgerows, H4 and H5 formed the external boundary with the main arterial roads around the northern and eastern edges, set to the back of the wide grass verge. They formed an understory to the plantation groups, G3 and G4. These were of overall good quality thus regarded as retention Category B from an arboricultural perspective.

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 Framework Plan (Layout - 111220 - Revision J) and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The drawing shows the proposals for a residential development with associated landscaping, means of flood attenuation and open space provision. Access will be taken off Pearl Lane (eastern boundary) and the A451 (northern boundary).
- 5.3 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.
- 5.4 The proposed development has been constraints led and retains all fourteen of the individual trees identified on site.

- 5.5 The site contains two veteran oak trees, T10 and T14. Both trees have been retained by the proposed development in new areas of public open space. There are many examples of veteran trees being successfully incorporated into new areas of public open space within new developments. They can provide high aesthetics to a site and therefore be of benefit visually, culturally and ecologically.
- 5.6 T10 and T14 have extended RPA's shown on both the Tree Survey Plan and the Tree Retention Plan and no development is shown within these extended RPA's. This should ensure that these trees are not damaged during the construction phase and will allow for these trees to be successfully integrated within the proposed development.
- 5.7 Future management of these trees should be informed by further, more detailed survey work of the habitats, and subject to a Veteran Tree Assessment and Management Plan, most suitably conditioned to any planning approval. As part of the above, it will also be necessary to undertake a detailed and suitably applied risk assessment of both T10 and T14 and for any risk mitigation measures considered necessary to be implemented to ensure that neither the public nor the trees are put at risk. These measures may include; limited and sensitively applied tree works, in agreement with the Local Planning Authority and installing suitable fencing around the tree and appropriate signage to inform the public of the importance such trees have for nature conservation.
- 5.8 To facilitate the two vehicular accesses, one on Pearl Lane and the other on the A451, it will be necessary to remove a small number of trees from the large boundary tree groups G2 and G4 along with a short length of associated hedgerows H4 and H5. Both G2 and G4 are recently planted roadside groups of semi/early-mature trees of moderate quality. The access off Pearl Lane will utilise an existing gap within the tree cover to ensure that any losses to trees will be kept to a minimum. As such the removal of these small numbers of losses should not raise any objection from an arboricultural perspective.
- 5.9 There are two separate cycle route access points proposed onto the site from Pearl Lane. One is at the point of the existing footpath and the other at an existing farm machinery access point, to ensure that any loss of hedgerow will be kept to a minimum to provide these links.
- 5.10 Though T3, T5 and T7 were assessed to be Category 'U' under BS5837, due to their poor condition. Their positions within the proposed development, adjacent to an area of open space, would not require that these trees be removed in the interest of safety and all three could be retained for their potential ecological and habitat value.
- 5.11 The proposed development has significant areas of new open space which would support the planting and sustainable growth of large trees and hedgerows. This new tree and hedgerow planting should more than mitigate, in arboricultural terms, for the small number of losses detailed above.
- 5.12 The proposals have shown properties adjacent to G1 on the site's southern boundary and the shading influence and future management of these trees will need to be considered as part of future development. The proposals have orientated properties to minimise shading within key living areas, and with G1 comprising of ash and birch, both of which open crowned species which allow dappled light to pass through their crown, it should be considered that this tree group will not excessively shade the properties in question. It was however noted at the time of the assessment that some trees within G1 had suffered windthrow and had partially collapsed.

- 5.13 It would be advised that a detailed assessment of G1 be undertaken by a qualified arboriculturist to assess the existing tree cover and prepare a schedule of tree works. All works identified should be undertaken prior to works commencing on site, in the interest of safety.
- 5.14 As such from an arboricultural perspective there should be no objection to the proposals.

Policy Compliance

- **Policy 11D- Protecting and Enhancing Biodiversity:**

The development meets the requirements of this policy in respect of arboriculture as it will be retaining the two veteran trees. Their management will form part of site wide Arboricultural Management following a detailed veteran tree assessment to inform any management measures needing to be applied to the buffer zones and to ensure structural health of the trees and the habitats they support. It is recommended that a Veteran Tree Assessment and Future Management Plan forms part of a suitably worded planning condition to any approval.

- **Policy 20C - Provision for Open Space, Sports Pitches and Outdoor Community Uses in Housing Development:**

The layout of the development meets the requirements of this policy in respect of arboriculture with areas of new open space able to support the planting, and sustainable growth of large trees and hedgerows. Full details of all tree planting and future maintenance will be provided within a Landscape Management Plan and is beyond the scope of this assessment.

- **Policy 27A Quality Design and Local Distinctiveness:**

The development meets the requirements of this policy in respect of arboriculture as it is capable of providing much needed higher quality tree planting that will contribute to the local canopy cover and will be an improvement to the existing moderate level of tree cover. The open spaces will accommodate new trees planting as will road side verges and plots.

Tree Management

- 5.15 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.
- 5.16 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.
- 5.17 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 As part of the development proposals an adequate quantity of structured tree planting should be provided within area of open space as well as close to hard landscaped areas of car parking or alongside the primary access roads within the roadside verges. The purpose and function of this new tree planting should be understood from the start of any design stages so that key objectives from a landscape perspective can also be achieved.

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 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).
- 6.3 In line with the NPPF all schemes should aim achieve a net gain in biodiversity value. Nationally recognised biodiversity metrics allow for the inclusion of, not limited to, newly planted scattered trees, woodlands and hedgerows as a means of compensating for loss of habitat as part of the development. Tree and shrub planting can therefore be used to contribute to this biodiversity gain.
- 6.4 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.
- 6.5 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.
- 6.6 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

- 6.7 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.

6.8 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

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

6.10 The planting of trees within confined urban environments should consider the use of appropriately designed planting pits specifically engineered to promote tree health and longevity. Crucially the aim will be to provide an adequate volume of quality soil for roots to suitably develop by calculating the amount of available soil volumes needed and selecting species whose mature size is compatible with the site. This is an integral component of the planning stage (Lindsey & Bassuk, 1991).

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.

General Design Principles in Relation to Retained Trees

6.13 As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the Root Protection Areas of retained trees. If below-ground services are proposed within a Root Protection Area, modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree health.

- 6.14 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

7.0 TREE PROTECTION MEASURES

- 7.1 Retained trees will be adequately protected during works ensuring that the calculated root protection area for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout.
- 7.2 The position of the required tree protection fencing is shown on the Tree Protection Plan (TPP) (FPCR 9166-T-03) and tree protection measures have been broadly summarised below.

General Information and Recommendations

- 7.3 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.
- 7.4 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.
- 7.5 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.
- 7.6 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.
- 7.7 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

- 7.8 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.

- 7.9 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.
- 7.10 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.
- 7.11 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

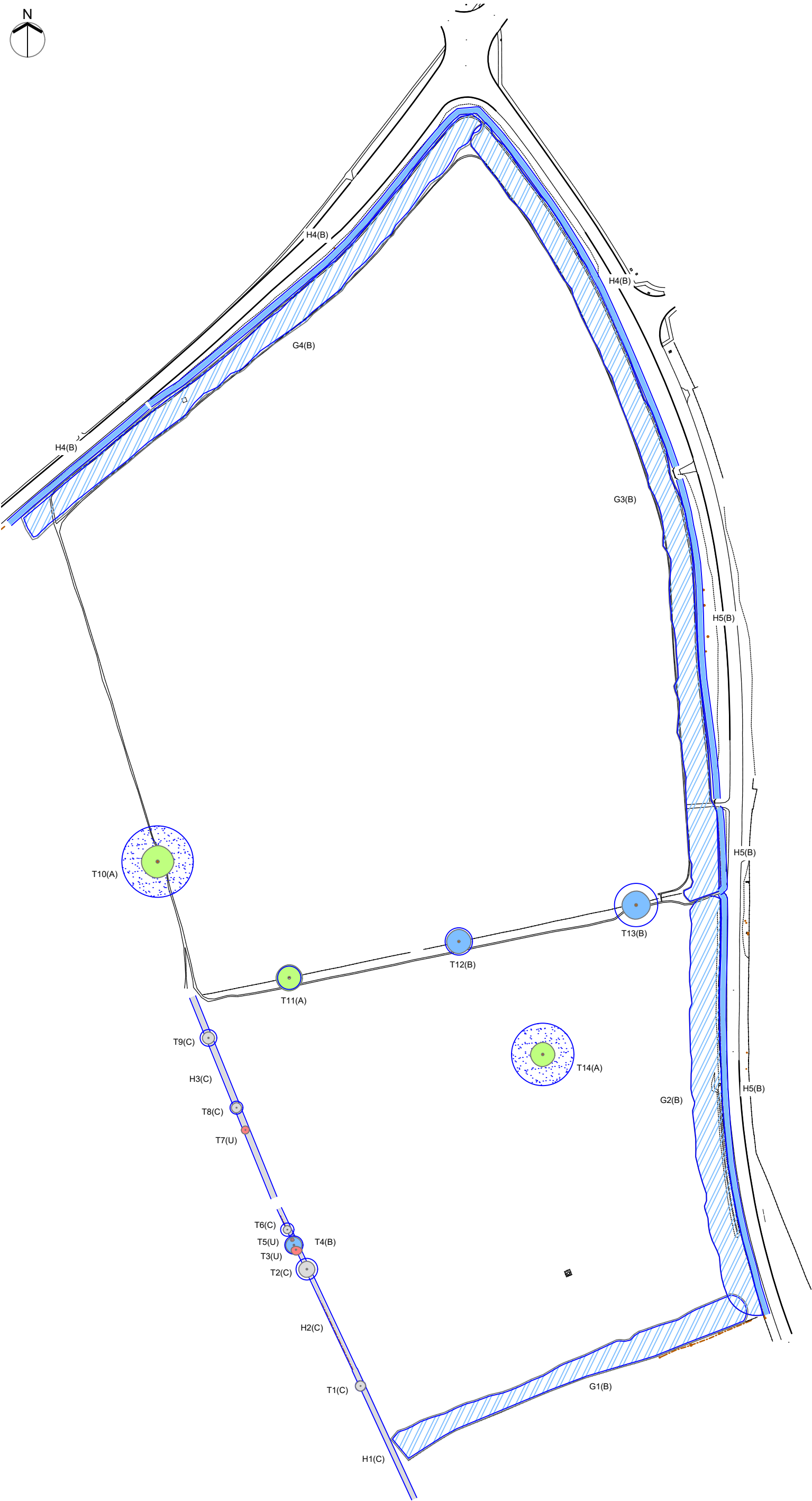
- 7.12 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.
- 7.13 All weather notices should be attached to the protective fencing to indicate that construction activities are not 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.
- 7.14 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.
- 7.15 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.
- 7.16 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.
- 7.17 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- 7.18 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

- 7.19 Where it is deemed necessary to operate wide or tall plant within 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.

- 7.20 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 proximity to retained trees to avoid any contact.
- 7.21 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)

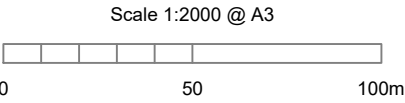
Hedgerow
(Colour indicates BS5837:2012 Category)

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

Veteran Tree Root Protection Area (in accordance with
Ancient and Other Veteran Trees: Further Guidance on
Management)

Individual / Group Number and BS5837:2012 Category

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



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.

This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd. FPCR Environment and Design Ltd accept no liability for third party use.

Ordnance Survey material is used with the permission of The Controller of HMSO, Crown copyright 100018896.

-	27.08.19	First Issue	EKP
A	19.12.19	Revision	EC
B	19.10.20	Revision	EC

rev	date	description	by
-----	------	-------------	----

masterplanning

environmental assessment

landscape design

urban design

ecology

architecture

arboriculture

FPCR Environment and Design Ltd

Lockington Hall

Lockington

Derby DE74 2RH

t: 01509 672772

f: 01509 674565

e: mail@fpcr.co.uk

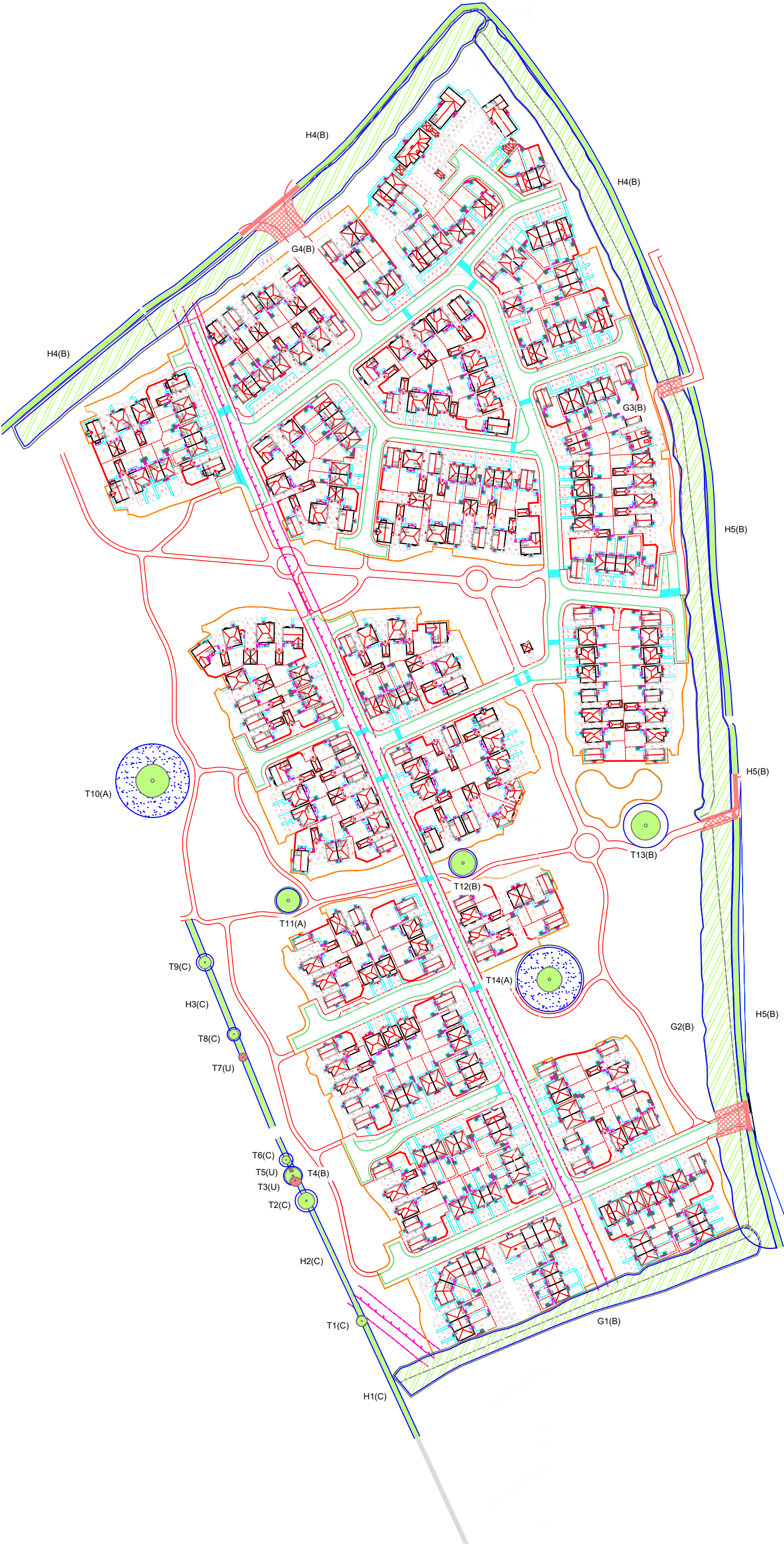
w: www.fpcr.co.uk

client
Barrat Homes

project
**Ernleye Meadows, Pearl Lane
Stourport-on-Severn**

drawing title
TREE SURVEY PLAN

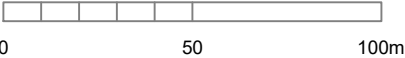
scale 1:2000 @ A3	drawn/checked EKP / EC	date October 2020
drawing number 9166-T-01	rev B	



KEY

- Tree/Group to be Retained
- Tree/Group to be removed to facilitate the proposals
- Category U - Unsuitable for retention on arboricultural grounds
- Hedgerow Proposed to be Retained and Incorporated into the New Development
- Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
- Root Protection Area (Shown for retained trees only)
- Veteran Tree Root Protection Area (in accordance with Ancient and Other Veteran Trees: Further Guidance on Management)
- Individual / Group Number and BS Category

Scale 1:2000 @ A3



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.

This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without written consent of FPCR Environment and Design Ltd. FPCR Environment and Design Ltd accept no liability for third party use.

Ordnance Survey material is used with the permission of The Controller of HMSO, Crown copyright 100018896.		
-	30.08.19	DRAFT First Issue
A	09.12.19	Updated Layout
B	19.12.19	Revision
C	19.10.20	Revision
D	14.12.20	Final Layout

rev	date	description	by
-----	------	-------------	----



- masterplanning ■
 - environmental assessment ■
 - landscape design ■
 - urban design ■
 - ecology ■
 - architecture ■
 - arboriculture ■
- FPCR Environment and Design Ltd
Lockington Hall
Lockington
Derby DE74 2RH

t: 01509 672772
f: 01509 674565
e: mail@fpcr.co.uk
w: www.fpcr.co.uk

client
Barrat Homes

project
**Ernleye Meadows, Pearl Lane
Stourport-on-Severn**

drawing title
TREE RETENTION PLAN

scale
1:2000 @ A3

drawn/checked
EKP / EC

date
December 2020

drawing number
9166-T-02

rev
D

CAD file: K:\9100\9166\ARB\Plans\Tree Retention Plan.dwg



Line of Protective Barriers
(and distance from tree or retained structure)

-	09.12.19	First Issue	HR
A	19.12.19	Revision	EC
B	19.10.20	Revision	EC
C	14.12.20	Final Issue	EC

rev	date	description	by
-----	------	-------------	----



t: 01509 672772
f: 01509 674565
e: mail@fpcr.co.uk
w: www.fpcr.co.uk

drawing number
9166-T-03 rev
C

CAD file: K:\9100\9166\ARB\Plans\Tree Protection Plan.dwg

Appendix A - Tree Schedule

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

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

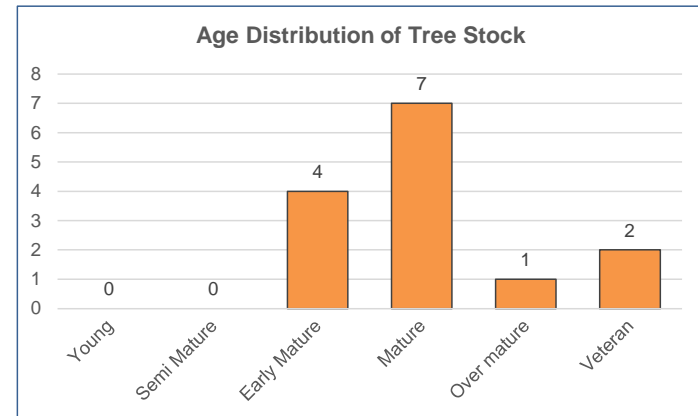
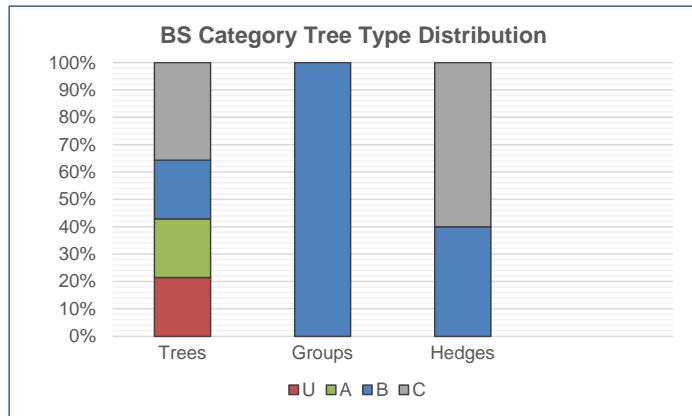
Root Protection Area (RPA)
<ul style="list-style-type: none"> • The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area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

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U	T3, T5, T7	3		0
Category A	T10, T11, T14	3		0
Category B	T4, T12, T13	3	G1, G2, G3, G4, H4, H5	6
Category C	T1, T2, T6, T8, T9	5	H1, H2, H3	3
	Total	14	Total	9

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	Damson Prunus insititia	6	150 100 70 80 60	2.5	M	P / F	Base obscured Branch socket cavities observed Broken branches evident Dense ivy cover on main stem Dense undergrowth at the base Epicormic growth evident within the crown Flail damage evident Outgrown hedgerow specimen	21	2.6	C (i)
T2	Damson Prunus insititia	6	250 270 240 100	4	M	F	Base obscured Branch socket cavities observed Broken branches evident Dense ivy cover on main stem Dense undergrowth at the base Epicormic growth evident within the crown Flail damage evident Heartwood exposed Outgrown hedgerow specimen Central stem dying back and is only 2m in height	92	5.4	C (i)
T3	Damson Prunus insititia	5	280	N - 1 S - 2.5 E - 3 W - 2	M	P	Base obscured Branch socket cavities observed Broken branches evident Dense ivy cover on main stem Dense undergrowth at the base Epicormic growth evident within the crown Flail damage evident Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Woodpecker holes observed Outgrown hedgerow specimen Suppressed by T4 Failures of major branches observed	N/A	N/A	U

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T4	Norway Maple Crimson King Acer platanoides 'Crimson King'	8	Over ivy 380	4	EM	F	Broken branches evident Dense ivy cover on main stem Epicormic growth evident within the crown No major defects were noted Situating within hedgerow	65	4.6	B (i)
T5	Damson Prunus insititia	5	290	N - 1 S - 0.5 E - 1 W - 0.5	OM	P	Branch socket cavities observed Broken branches evident Dense undergrowth at the base Epicormic growth evident within the crown Light ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Specimen in extensive decline Woodpecker holes observed Outgrown hedgerow specimen Suppressed by T4 <10% crown remains	N/A	N/A	U
T6	Damson Prunus insititia	4.5	est 230 120 100	2	M	P / F	Base obscured Broken branches evident Dense undergrowth at the base Flail damage evident Light ivy cover Limited future potential Minor dead wood evident in the crown (<75mm) Outgrown hedgerow specimen	35	3.3	C (i)
T7	Damson Prunus insititia	5	est 200 120 60	2	M	P	Bark wounds noted Base obscured Broken branches evident Dense undergrowth at the base Flail damage evident Heartwood exposed Light ivy cover Limited future potential Minor dead wood evident in the crown (<75mm) Specimen in extensive decline Outgrown hedgerow specimen	N/A	N/A	U

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T8	Damson Prunus insititia	4	est 200 150 100	2.5	M	P	Bark wounds noted Base obscured Broken branches evident Dense ivy cover on main stem Dense undergrowth at the base Flail damage evident Limited future potential Minor dead wood evident in the crown (<75mm) Outgrown hedgerow specimen Crown almost exclusively ivy	33	3.2	C (i)
T9	Damson Prunus insititia	5	est 200 220 180	3	M	F	Base obscured Broken branches evident Dense ivy cover on main stem Dense undergrowth at the base Flail damage evident Minor dead wood evident in the crown (<75mm) Outgrown hedgerow specimen Crown almost exclusively ivy	55	4.2	C (i)
T10	English Oak Quercus robur	15	1190	8	V	G	Base obscured Branch socket cavities observed Branch stubs evident Broken branches evident Characteristic for species Close cultivation of the soil Compacted ground at the base Epicormic growth evident within the crown Heartwood exposed Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Evidence of branch failure leaving tear out wounds in the crown and fallen deadwood at the base No signs of retrenchment yet Some hung up deadwood approximately 7m above ground level in the centre of the crown	1001	17.9	A (iii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T11	English Oak Quercus robur	12	485	6.5	EM	G	Branch stubs evident Broken branches evident Characteristic for species Close cultivation of the soil Compacted ground at the base Low crown form Minor dead wood evident in the crown (<75mm)	106	5.8	A (i)
T12	English Oak Quercus robur	11.5	570	6	EM	F	Branch stubs evident Broken branches evident Characteristic for species Close cultivation of the soil Compacted ground at the base Low crown form Minor dead wood evident in the crown (<75mm) Crown slightly sparse for the species Outer leaves showing discolouration and browning Iron fence being occluded into stem	147	6.8	B (i)
T13	English Oak Quercus robur	15	900	7	EM	F	Branch stubs evident Broken branches evident Characteristic for species Close cultivation of the soil Compacted ground at the base Heartwood exposed Included bark union Low crown form Minor dead wood evident in the crown (<75mm) Large bark wound on the south eastern face of the stem at 30cm to 1m above ground level trying to occlude Nail in exposed heartwood Open spreading crown Multileadered from 2m with some included bark unions	366	10.8	B (i)

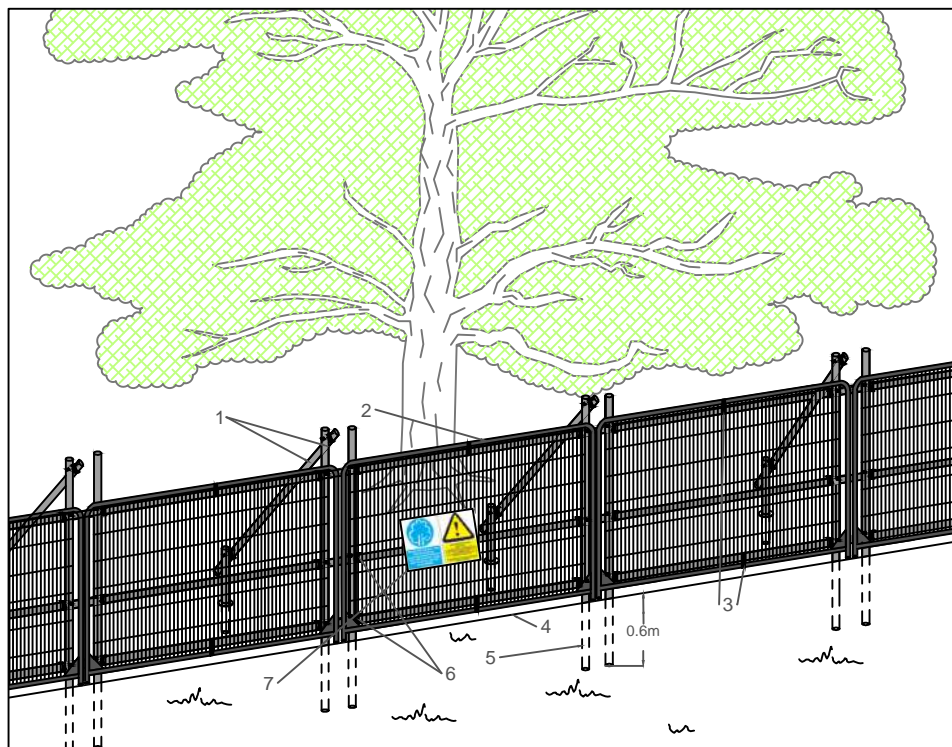
Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T14	English Oak Quercus robur	14	1040	6	V	G	Basal cavity observed Branch socket cavities observed Branch stubs evident Broken branches evident Characteristic for species Close cultivation of the soil Compacted ground at the base Dieback of the crown observed Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Pruning wounds noted Crown has begun to significantly retrench Animal burrow at base	765	15.6	A (iii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Ash Fraxinus excelsior Silver Birch Betula pendula	13	avg 190	3	SM / EM	F	Branch stubs evident Broken branches evident Etiolated form Uniform age structure Planted trees along site boundary Some windthrown / collapsed specimens Some included bark unions noted Primarily single stemmed but some twin stemmed specimens Good screening value	16	2.3	B (ii)
G2	Ash Fraxinus excelsior Field Maple Acer campestre Silver Birch Betula pendula Wild Cherry Prunus avium Scots Pine Pinus sylvestris White Poplar Populus alba	10	avg 200	2.5	SM / EM	F	Branch stubs evident Broken branches evident Dead trees noted Etiolated form Flail damage evident Uniform age structure Planted trees along site boundary Some windthrown / collapsed specimens Some included bark unions noted Primarily single stemmed but some twin stemmed specimens Good screening value Gap present within the group	18	2.4	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G3	Blackthorn Prunus spinosa Common Lime Tilia x europaea English Oak Quercus robur Field Maple Acer campestre Goat Willow Salix caprea Norway Maple Acer platanoides Silver Birch Betula pendula Wild Cherry Prunus avium Hazel Corylus avellana Sweet Chestnut Castanea sativa Turkey Oak Quercus cerris Scots Pine Pinus sylvestris	12	avg 220	3	SM / EM	F	Bark wounds noted Branch stubs evident Broken branches evident Dead trees noted Etiolated form Flail damage evident Uniform age structure Planted trees along site boundary Some windthrown / collapsed specimens Some included bark unions noted Primarily single stemmed but some multistemmed specimens Good screening value 2 Gaps present within the group Epicormic regrowth at base	22	2.6	B (ii)
G4	Common Lime Tilia x europaea Field Maple Acer campestre Goat Willow Salix caprea Silver Birch Betula pendula Wild Cherry Prunus avium Norway Spruce Picea abies Scots Pine Pinus sylvestris	12	avg 120 100	3	SM / EM	F	Bark wounds noted Branch stubs evident Broken branches evident Dead trees noted Etiolated form Flail damage evident Uniform age structure Planted trees along site boundary Some windthrown / collapsed specimens Some included bark unions noted Good screening value Epicormic regrowth at base	11	1.9	B (ii)

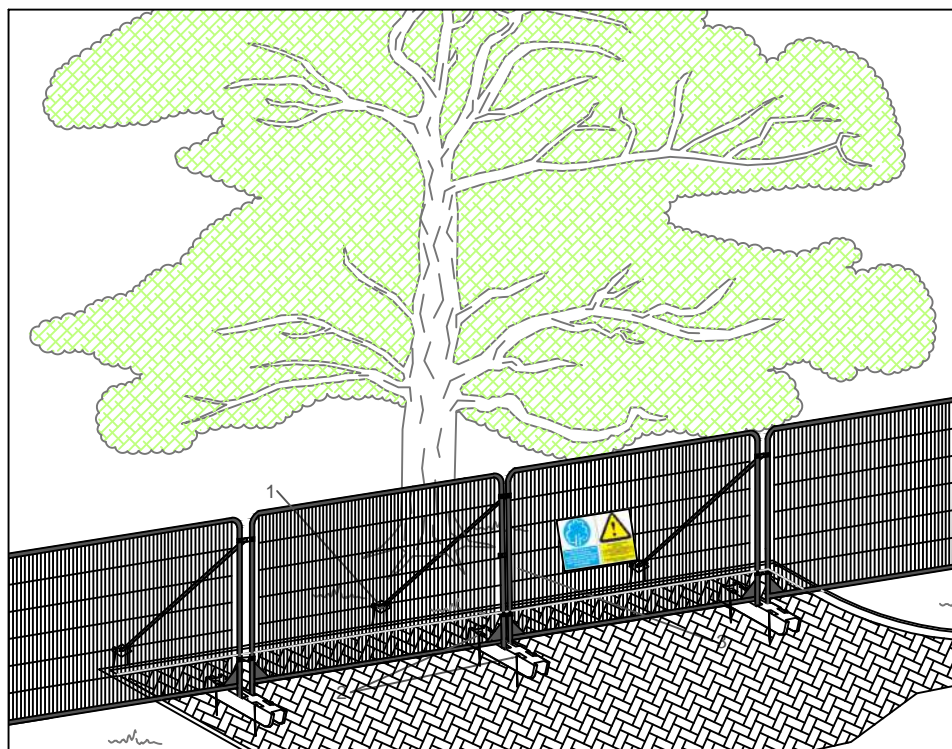
Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna English Elm Ulmus procera Holly Ilex aquifolium	2	avg 60 60 60 60	1	EM	F	Maintained hedgerow Smaller and more sparse to the south Occasional outgrown section	7	1.4	C (ii)
H2	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna English Elm Ulmus procera Holly Ilex aquifolium Dogwood Cornus sanguinea	2	avg 60 60 60	0.5	EM	P / F	Maintained hedgerow Over run with brambles	5	1.2	C (ii)
H3	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna English Elm Ulmus procera Dogwood Cornus sanguinea	2.5	avg 60 60 60 60	1	EM	P / F	Maintained hedgerow Over run with brambles in places	8	1.6	C (ii)
H4	Hawthorn Crataegus monogyna Blackthorn Prunus spinosa	2	avg 60 60 60 60	1	M	G	Maintained hedgerow Positioned roadside to buffer planting of G4	8	1.6	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
H5	Hawthorn Crataegus monogyna Blackthorn Prunus spinosa	2	avg 60 60 60 60 60	1	M	G	Maintained hedgerow Positioned roadside to buffer planting of G3	8	1.6	B (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

This drawing is the property of FPCR Environment and Design Ltd and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part with written consent of FPCR Environment and Design Ltd.



masterplanning ■
 environmental assessment ■
 landscape design ■
 urban design ■ FPCR Environment and Design Ltd
 ecology ■ Lockington Hall
 architecture ■ Lockington
 arboriculture ■ Derby DE74 2RH

t: 01509 672772
 f: 01509 674565
 e: mail@fpcr.co.uk
 w: www.fpcr.co.uk

drawing title

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 M - Maiden	Physical damage to trunk - Often as a result of storm damage	Fungi - Polypores or Basidio-mycetes 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		

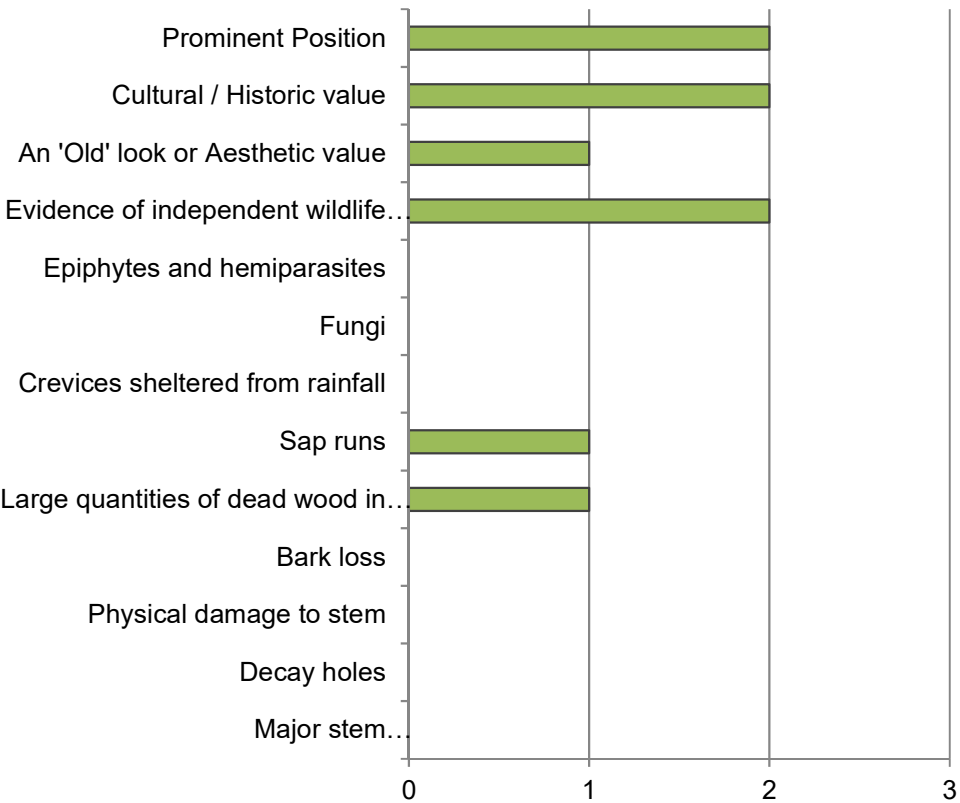
This document should be read in conjunction with the Arboricultural Assessment. The National Planning Policy Framework, a key government policy document, stresses the importance of Ancient and Veteran trees. From an ecological perspective veteran trees provide a rare and very specialist niche habitat 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.

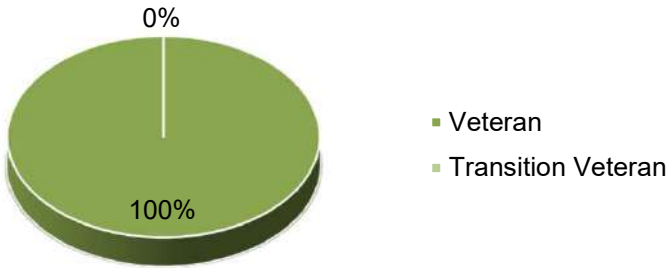
Veteran Population - Provides the mix of Veteran/Future Veteran and non-veteran specimens across the surveyed tree stock.

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

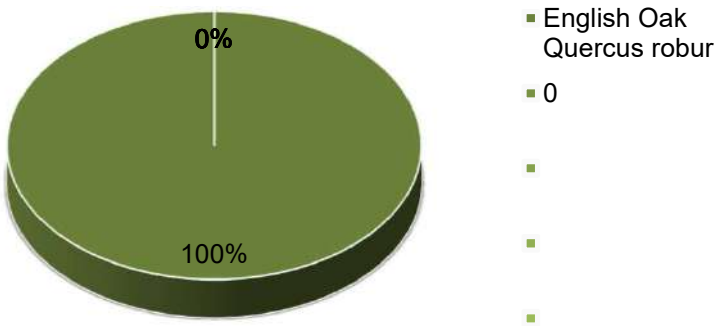
Distribution of Habitat Features



Veteran Population



Species Distribution



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
T10	English Oak Quercus robur	Yes	373.8	1.5m	M					✓		✓				✓		✓	✓
T14	English Oak Quercus robur	Yes	326.7	1.5m	M					✓	✓					✓	✓	✓	✓