



Gladman Developments Ltd

Land off Henthorn Road, Clitheroe

Arboricultural Assessment

September 2019

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	HCK / 20.09.19	SMM / 20.10.19
	Final	HCK / 29.10.19	SMM / 29.10.19

CONTENTS

1.0	INTRODUCTION	3
2.0	PLANNING POLICY	4
3.0	SURVEY METHODOLOGY	7
4.0	RESULTS.....	12
5.0	ARBORICULTURAL IMPACT ASSESSMENT	21
6.0	NEW TREE AND HEDGEROW PLANTING.....	25
7.0	TREE PROTECTION MEASURES	27
8.0	CONCLUSION	30

TABLES

Table 1: Summary of Trees by Retention Category

Table 2: Summary of Impact on Tree Stock

Table 3: Example of calculating Soil Volume for New Tree Planting

FIGURES

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

PHOTOGRAPHS

Photograph 1: View of T5 looking north east

Photograph 2: View looking up in the crown from south east side of the stem at north trending primary lateral limb with visible crack (running centrally along the limb and terminating at the upright lead branch). Also showing cavity entrances in the main body of the stem potentially leading to localised area of hollowing around the bole

Photographs 3 and 4: Showing further views of visible crack location in north trending limb and entrances to stem cavity

Photograph 5 and 6: Views of open cavity and hollowing within stem of T7 looking south west and up into the upper part of the cavity showing area of 'brown cuboidal rot'

Photograph 7 and 8: Further view of stem cavity and additional cavity within primary lateral limb trending north from bole

Photographs 9 and 10: Views of further habitat features; bark loss exposing heartwood and creating crevices sheltered from rainfall, aerial cavities within limbs and crown dead wood

Photograph 11: View of T2 and T3 looking north

Photograph 12: View of G3 looking north with T2 and T3 visible

Photograph 13: View of G3 looking north

Photograph 14: View of G3 taken from close to entrance of Siddows Hall looking north east along the boundary

Photograph 15: View of eastern most corner of the site looking north east showing T11 to T15

Photograph 16: View of G6 looking south east

PLANS

Tree Survey Plan (9053-T-01)

Tree Retention Plan (9053-T-02)

APPENDICES

Appendix A: Tree Schedule

Appendix B: Protective Fencing Specifications

1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Gladman Developments Limited to present the findings of an Arboricultural Assessment and survey of trees located on land off Henthorn Road, Clitheroe (hereafter referred to as the site). The application site is centered on Ordnance Survey grid reference SD 729 406.
- 1.2 The survey was carried out on 16th September 2019.
- 1.3 The weather conditions on the day of the survey were clear and dry with good amounts of strong sunshine and only light winds.

Scope of Assessment

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

Development Proposals

- 1.7 This report has been produced to accompany an outline planning application for a residential development with supporting Green Infrastructure and an attenuation area 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

- 1.8 The site is situated on the western edge town of Clitheroe, Lancashire and approximately 6.9ha in area and comprises three grassland field compartments separated into two halves by Henthorn Road which runs in a north east to south west orientation. The smaller of the three fields lies to the north west of Henthorn Road and slopes from lower ground in the east to higher ground the west. The largest of the three fields lies to the south east of Henthorn Road and is formed of two combined fields separated by a shallow wet ditch which runs roughly parallel to Henthorn Road. Pendleton Brook lies beyond the site along the southern boundary.
- 1.9 Situated to the north west of the site is an offsite private residence, Siddows Hall.

- 1.10 The surrounding landscape beyond the site to the south and west is predominately agricultural with further areas of pastoral land use. The town of Clitheroe is beyond the site to the north, including new areas of residential development some of which is still being constructed at the time of the assessment.
- 1.11 Tree cover associated with the application site and recorded by the assessment largely comprises of trees situated around the boundaries of the field compartments, including mostly mature age native species such as English oak *Quercus robur* and common ash *Fraxinus excelsior*. These trees are integral parts of the field boundaries being present as either single specimens or forming small groups. Two free standing specimens of English oak are situated within the fields to the south east of Henthorn Road. Hawthorn *Crataegus monogyna* dominated hedgerows form the boundaries of the field compartments along with other native species and are a mixture of managed and unmanaged forms. A prominent group of mixed species mature trees are situated within the grounds of Siddows Hall and are directly adjacent to the site.

2.0 PLANNING POLICY

National Planning Policy Framework 2019

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

Local Planning Policy

- 2.5 Local planning decisions regarding all future developments are assessed against an agreed framework (a Local Development 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 Ribble Valley Borough Council, the framework upon which local planning is currently guided is the Adopted Core Strategy 2008-2028 – A Local Plan for Ribble Valley. The Core Strategy forms the central document of the Local Development Framework (LDF), establishing the vision, underlying objectives and key principles that will guide the development of the area to 2028. It was adopted by the Council on 16 December 2014 and forms part of the statutory Development Plan for the Borough. It sets out the strategic planning policy framework to guide development in the borough up to 2028. It also includes development management policies to assist in the determination of individual planning applications. The Local Development Framework is yet to be completed.
- 2.7 In relation to arboriculture and the natural environment, following a review of the above Core Strategy, the following policies below are considered the most relevant and discussion on compliance is provided within Section 5 of this report (Arboricultural Impact Assessment):

Environment – Policy DME1: Protecting Trees and Woodlands

The contribution that trees and woodlands make to the character of the area is recognised by the Council to be of significance. The Council in establishing this approach to their management and protection is seeking to conserve and enhance the quality of the local area whilst recognising the need for sustainable development to be achieved.

10.7 - *There will be a presumption against the clearance of broadleaved woodland for development purposes. The Council seeks to ensure that woodland management safeguards structural integrity visual amenity value of woodland, enhances biodiversity and provides environmental health benefits of the residents of the borough. The Council encourages succession tree planting to ensure tree cover is maintained in to future.*

Where applications are likely to have a substantial effect on tree cover, the Borough Council will require detailed arboricultural survey information and tree constraints plans including appropriate plans and particulars. These will include the position of every tree on site that could be influenced by the proposed development and any tree on neighbouring land that is also likely to be within influencing distance and could also include other relevant information such as stem diameter and crown spread.

The Borough Council will ensure that:

- 1. The visual, botanical and historical value, together with the useful and safe life expectancy of tree cover, are important factors in determining planning applications. This will include an assessment of the impact the density of development, layout of roads, access points and services any affected trees.*

2. *That a detailed tree protection plan is submitted with appropriate levels of detail.*
3. *Site specific tree protection planning considerations are attached planning permissions.*

10.8 – Tree Preservation Orders

The Borough Council will make tree preservation orders where report individual trees and groups of trees and woodland of visual, and / or botanical and / or historical value appears to be under threat. The Council will expect every tree work application for work to protected trees to be in accordance with arboricultural practices and current British Standards.

10.9 - Ancient Woodlands

Development proposals result in loss damage to ancient woodlands will be refused unless the need for, and the benefits of, the development in that location outweigh the loss of the woodland habitat. In addition, in circumstances where development would affect an ancient woodland, the Borough Council will seek to include appropriate woodland planting and management regimes through planning conditions and agreements.

10.10 – Veteran and Ancient Trees

The Borough Council will take measures through appropriate planning conditions, legislation and management regimes to ensure that any tree classified identified as veteran / ancient tree is afforded sufficient level of protection and appropriate management in order to ensure its long-term survivability.

10.11 – Hedgerows

The Borough Council will use the hedgerow regulations to protect hedgerows considered to be under threat and use planning conditions to protect and enhance hedgerows through the use of traditional management regimes and planting with appropriate hedgerow species mix.

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 The presence of any Tree Preservation Orders that may affect the site will need to be confirmed by Ribbles Valley Borough Council. Before any tree works are undertaken confirmation of the presence of the statutory constraints should be sought from the Local Authority.
- 2.10 The application site is not within a Conservation Area.

Non-Statutory Considerations

- 2.11 In order to compile existing baseline information on relevant arboricultural considerations information was requested from both statutory and non-statutory nature conservation organisations. The Multi Agency Geographic Information for the Countryside (MAGIC)¹ website highlighted tree cover within the site as or included within the following:
- The Priority Habitat Inventory, Deciduous Woodland
 - The National Forestry Inventory
- 2.12 The Priority Habitat Inventory is a spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.²
- 2.13 The deciduous woodland inventory is a rolling programme designed to provide accurate information about the size, distribution, composition and condition of forests and woodlands.³
- 2.14 Priority habitat designation and inclusion within the National Forestry Inventory does not provide any statutory protection.
- 2.15 There were no features within the site which were designated under the above Inventories.

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 individuals, groups, hedgerows or woodland where it has been determined appropriate.
- The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
 - For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.
 - For the purposes of this assessment woodland is described as a habitat where 'trees are the dominant plant form. The individual tree canopies generally overlap and interlink, often forming a more or less continuous canopy'⁴. Woodlands however, are not just formed of trees and generally include a great variety of other plants. These will include 'mosses, ferns and lichens, as well as small flowering herbs, grasses and shrubs'⁵.

¹ <http://magic.defra.gov.uk/>

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

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

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

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

- 3.3 An assessment of individual trees within groups, hedgerows or woodland has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

Ancient and Veteran Trees

- 3.4 Veteran trees and Ancient Woodland are important components of the landscape, their importance can be for 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.'*⁶

- 3.6 Various published methodologies are currently available which, due to the complexity and subjectivity of the process of defining and assessing these trees, often have conflicting definitions. 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.

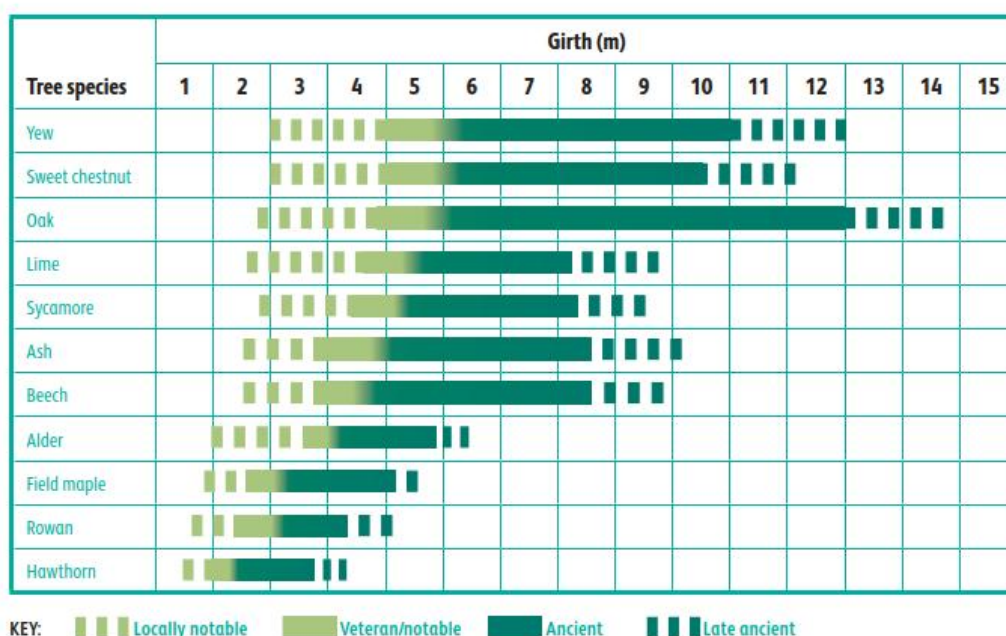


Figure 1: The chart of girth in relation to age and development classification of trees, as shown in Lonsdale (2013)⁷.

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

⁷ Lonsdale, D. (Ed.). (2013). *Ancient and other veteran trees: further guidance on management*. London: The Tree Council.

Veteran Trees

- 3.7 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’.
- 3.8 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.
- 3.9 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.
- 3.10 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.

BS5837 Categories

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

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.

- Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.
- 3.14 **Category (A) – (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:
- 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.
- 3.15 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:
- 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.
- 3.16 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:
- 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

- 3.17 Appendix A presents details of any individual trees, groups, hedgerows and woodlands 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.
- 3.18 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

- 3.19 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.
- 3.20 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

- 3.21 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.
- 3.22 Where applicable the shape of the Root Protection Area has been modified to consider the presence of any nearby obstacles (existing or past) which may have restricted root growth and the likely root distribution i.e. the presence of hard standing, structures and underground apparatus.
- 3.23 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.
- 3.24 Above ground constraints such as the current crown spread of the trees and an illustration of the shade pattern (where appropriate) have been considered and identified within the Tree Survey Plan and Tree Retention Plan indicates their potential area of shading influence.

Considerations and Limitations of the Tree Survey

- 3.25 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.
- 3.26 The statements made in this report regarding defects in assessed trees does not take into account the effects of extreme / adverse weather conditions, changes in land use prior to the site's development, unforeseen accidents or anti-social behaviors, such as vandalism, which occur since the date of the survey. As such, the assessment of tree condition given within applies to the date of survey and cannot be assumed to remain unchanged.

- 3.27 It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.
- 3.28 Hedgerows are identified as a Habitat of 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.
- 3.29 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups and hedgerows to assist structural calculations for foundation design of structures in accordance with current building regulations. The exact position of individual trees or species included as part of a tree group should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths in accordance with NHBC Chapter 4.2 Building near Trees.

4.0 RESULTS

- 4.1 A total of twenty-seven individual trees, nine groups of trees and nine 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. The table below summarises the trees assessed.

Results Summary

- 4.2 Individual trees of all quality (unsuitable, high, moderate and low) were found during the assessment. The moderate and low-quality trees were regarded as such due to impairments to both their physiological and structural condition.
- 4.3 Three trees were regarded as being unsuitable for retention due to being dead or in structurally compromised condition such that they would not be expected to survive beyond 10 years (T2, T3 and T8). Trees T2 and T3 were situated offsite within the grounds of Siddow Hall and T8 was positioned along the northern boundary of the eastern portion of the site.
- 4.4 The site housed two individual trees (T4 and T7) and a group of trees (G3) regarded as category A. The two individual trees were both English oak. T7 was assessed as having veteran status and further details are given in paragraphs 12 and 13. At the time of assessment these trees were considered to possess a remaining life expectancy and contribution to the arboricultural resource of at least 40 years to be a particularly good example of the respective species and for veteran status.
- 4.5 The vast majority of individual trees within the site were regarded as being retention category B.
- 4.6 Groups and hedgerows with the exception of G3 were all deemed to be of moderate to low quality due, in the most part, to either their small proportions as a result of their age, or as a result of comprising trees which exhibited fair to poor overall condition.

- 4.7 Tree stock was mostly mature in age, with the predominant species being English oak. Other species observed during the arboricultural assessment included horse chestnut *Aesculus hippocastanum*, common ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus* and hawthorn *Crataegus monogyna*. Hedgerows were predominantly hawthorn and blackthorn *Prunus spinosa*. The diversity found in the groups significantly contributed to the arboricultural makeup of the site.
- 4.8 Several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.
- 4.9 There were no ancient woodlands recorded by the survey nor within close proximity of the site.

Table 1: Summary of Trees by Retention Category

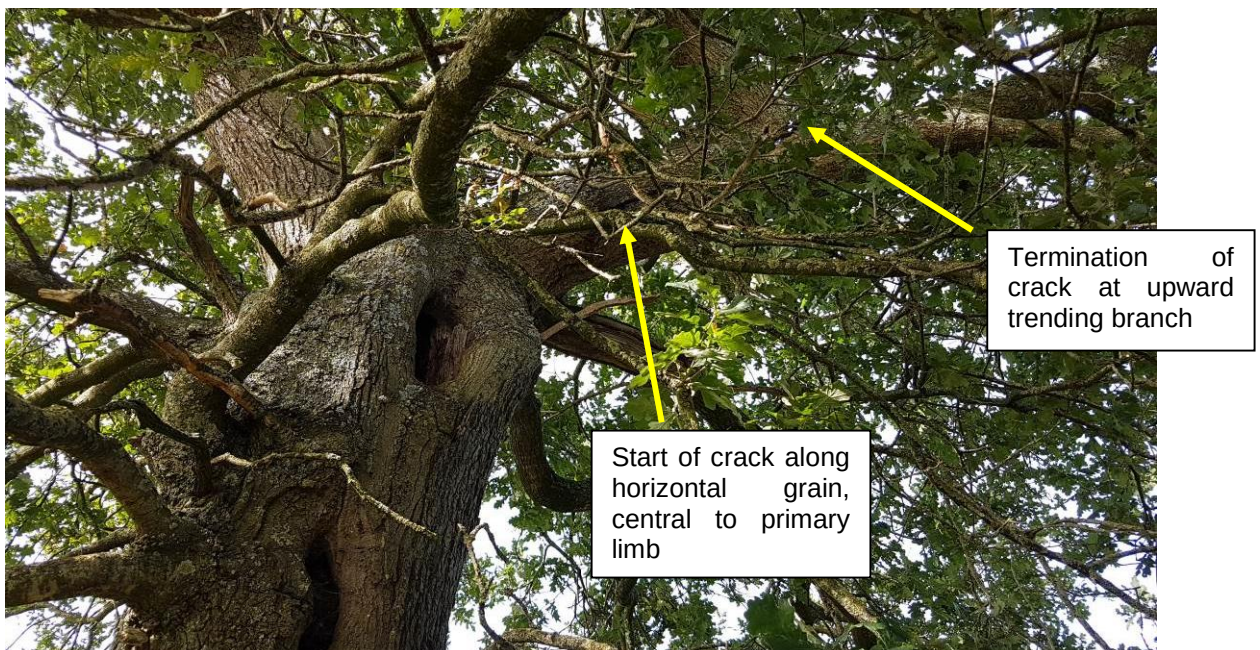
	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T2, T3, T8	3		0
Category A (High Quality / Value)	T4, T7	2	G2, G3	2
Category B (Moderate Quality / Value)	T5, T6, T9, T10, T12, T13, T15, T16, T18, T19, T20, T23, T24, T26, T27	15	G1, G5, G6, G8, H2, H4, H5, H6, H7, H8, H9	11
Category C (Low Quality / Value)	T1, T11, T14, T17, T21, T22, T25	7	G4, G7, G9, H1, H3	5

Trees

- 4.10 T5 and T7 were two free standing mature English oak within the field compartment to the east of Henthorn Road.
- 4.11 T5 was approximately 10.5m in height and growing within the south western portion of the field. On close inspection, visible within the crown was a relatively recent obvious lateral crack which had formed within a main primary lateral limb, highly likely to have been caused by wind loading on the upward trending branch extending from the lateral through a 'twisting action'. The crack ran laterally along the horizontal grain of the limb terminating at the fork with the upward trending branch (see photograph 2) and appeared to be full thickness. The nature of the damage has significantly weakened the structural integrity of the limb and could potentially lead to complete and catastrophic failure of a substantial portion of the crown unless treated through intervention with tree surgery. To remediate the damage, implementation of corrective crown reduction work to the damaged limb and overall balancing would need to be applied to the extent which ultimately would dramatically alter the visual amenity of the specimen resulting in a much-reduced quality and character. The specimen also housed other crown dead wood and several notable sized entrance holes in the main body of the stem at approximately 3-4m above ground level which appeared to lead to a potential area of hollowing or cavity around the bole and extending vertically downwards. Due to the use of the field for grazing by livestock, with the absence of any stock proof fencing around the tree, the ground within the dripline was heavily poached.



Photograph 1: View of T5 looking north east

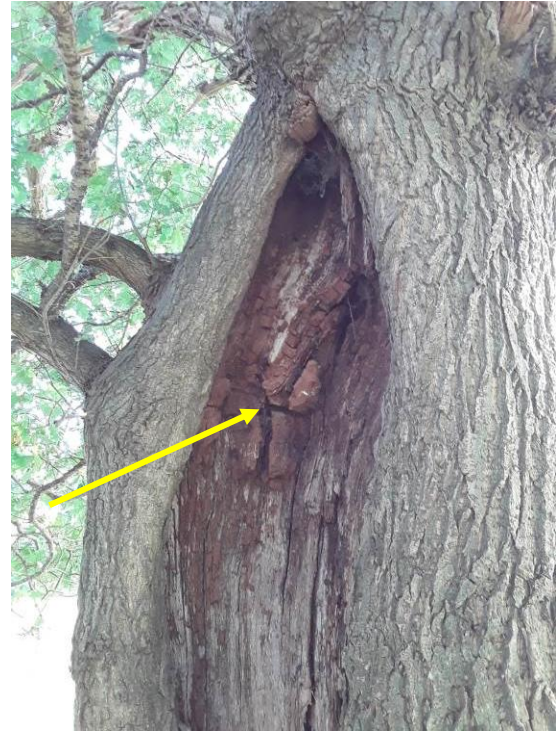


Photograph 2: View looking up in the crown from south east side of the stem at north trending primary lateral limb with visible crack (running centrally along the limb and terminating at the upright lead branch). Also showing cavity entrances in the main body of the stem potentially leading to localised area of hollowing around the bole



Photographs 3 and 4: Showing further views of visible crack location in north trending limb and entrances to stem cavity

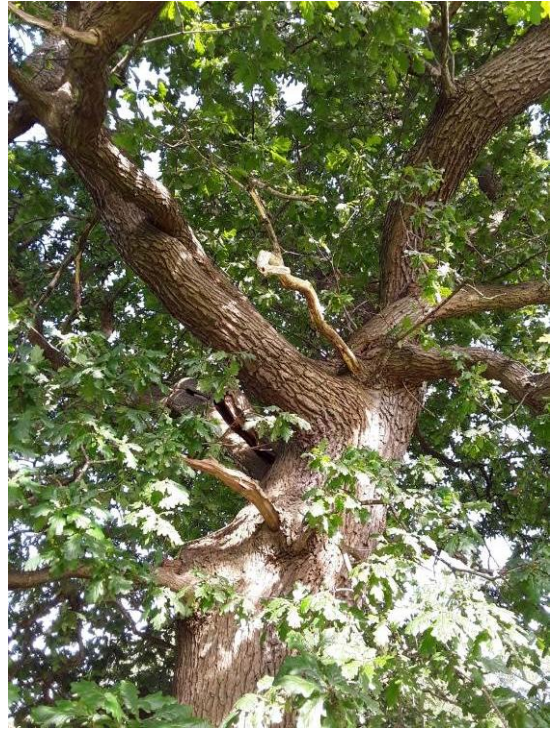
- 4.12 T7 was the second of the two free-standing specimens located within the field compartment to the east of Henthorn Road, also mature English oak. It was growing close to the north boundary of the field and approximately 13m in height.
- 4.13 The specimen exhibited a number of characteristic features and attributes pertaining to veteran trees which collectively it is concluded that T7 is considered to be of veteran status in accordance with accepted guidance. It possessed a stem diameter of 990mm (3.2m girth), which according to Figure 1 would be referred to as 'locally notable' and not 'veteran' however for the species this stem size would be considered as being 'interesting' and meeting a baseline for veteran status. Along with the large stem size it also supported a number of further key habitat features associated with veteran trees which included a significant amount of dead wood within the crown, extensive hollowing of the central stem, decay holes in the form of other cavities within limbs and branches, crevices sheltered from the rainfall, loss of bark, epicormic growth (lower crown density) and considered to be in a prominent position within the landscape. The stem hollowing of main stem with large open cavity extended from ground level to height of bole on north west side of the stem and visible within the cavity was evidence of brown rot although no fungal fruiting bodies were present at the time of inspection which also would be considered a feature associated with veteran trees.



Photograph 5 and 6: Views of open cavity and hollowing within stem of T7 looking south west and up into the upper part of the cavity showing area of 'brown cuboidal rot'



Photograph 7 and 8: Further view of stem cavity and additional cavity within primary lateral limb trending north from bole



Photographs 9 and 10: Views of further habitat features; bark loss exposing heartwood and creating crevices sheltered from rainfall, aerial cavities within limbs and crown dead wood

- 4.14 T2 and T3 were both dead trees situated within the grounds of Siddows Hall adjacent to the site and as such were recorded as category U.



Photograph 11: View of T2 and T3 looking north

Groups of Trees

G3 was a large and prominent group of mixed species situated within the grounds of Siddows Hall, the grounds of which adjoined the boundary of the site along the north western edge of the field compartment to the west of Henthorn Road. The group supported a mix of mainly broadleaved species including horse chestnut *Aesculus hippocastaenum*, common and large leaved lime *Tilia spp.*, sycamore *Acer pseudoplatanus* and common ash *Fraxinus excelsior*. For their visual contribution to the local landscape and good quality, G3 was considered to be retention category A.



Photograph 12: View of G3 looking north with T2 and T3 visible



Photograph 13: View of G3 looking north



Photograph 14: View of G3 taken from close to entrance of Siddows Hall looking north east along the boundary

- 4.15 The southern boundary where it extends from the eastern most corner westwards supports a collection of large and mature trees (T8-T23 and G6). These trees collectively form a prominent backdrop to the site. The conditions of trees varied as would typically be expected within a rural landscape where there has been a general absence of targeted tree management but generally trees were found to be in good health and condition. Retention categories were largely category B with a small number of category C. Should a development be approved, it would be necessary to undertake closer assessments to determine any tree work requirements to address defective parts such as dead wood and should any further remedial work need to be applied in the interests of public safety.



Photograph 15: View of eastern most corner of the site looking north east showing T11 to T15



Photograph 16: View of G6 looking south east

- 4.16 Along the banks of Pendleton Brook were a small number of scattered trees of generally small proportions, most of which were hawthorn.

Ancient and Veteran Trees

- 4.17 A single tree, T7 was considered to be of veteran status in accordance with accepted methodologies and guidance.
- 4.18 For the purpose of affording these trees greater protection the RPA calculation has been calculated in accordance with the guidelines detailed within Ancient and other Veteran Trees: Further Guidance on Management (Lonsdale, D (ed.) (2013) - The Tree Council & Ancient Tree Forum. The RPA is defined as a distance equal to 15 times the trees stem diameter, or five metres beyond the canopy, whichever is the greater (Read, 2000).
- 4.19 Where this assessment has identified a veteran tree, further survey work will be required to inform future management options as to what would be necessary to enhance and maintain veteran status. From an ecological perspective veteran trees provide a rare and specialist niche habitat and therefore preservation of this habitat is considered highly important. Veteran trees and many of their associated specialised species are becoming increasingly rare within the landscape and therefore some veteran tree landscapes and their associated species are now protected, both nationally and Europe wide through the Natura 2000 Directive.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

- 5.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.
- 5.2 The AIA has been based upon the Development Framework and seeks to outline the relationship between the proposals and the existing trees and hedgerows and vice versa.
- 5.3 The drawing shows the proposals for a residential development set amongst extensive supporting Green Infrastructure formed from the existing natural features of the site such as hedgerows and trees along with new tree and hedgerow planting.
- 5.4 Two vehicular access points will be provided, both from Henthorn Road. The first will take a route directly into the eastern portion of the site and the second linking through a consented development to the north of the western portion of the site. A pedestrian link is also proposed connecting the eastern portion of the proposed development to the residential development already under construction to the north.
- 5.5 The residential parcels will be housed within the existing field parcels retaining the natural features of the site's boundaries.
- 5.6 Other features of the proposals are a series of attenuation basins in the southern part of the eastern portion of the site alongside Pendleton Brook and a Local Area of Play (LAP) which has been indicatively proposed adjacent to the main vehicle access in to the eastern portion of the site.
- 5.7 There will be extensive new landscaping included as part of the Green Infrastructure and open spaces to complement the existing tree and hedgerow cover, increase biodiversity and habitat creation as well as forming future landscape features. A landscape buffer is being proposed along the southern boundary to provide screening from southerly views and accommodate the existing tree cover. Equally, a landscape buffer will be provided alongside the mature tree cover within Siddows Hall.
- 5.8 An overlay of the Framework 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.
- 5.9 The Framework layout is at this Outline stage indicative and illustrates the approximate position of the built element and open space provision of the proposed development. Through its design and by virtue of the existing trees being positioned around the extents of the site and around the field parcels, the proposed layout will allow for the retention of the vast majority of the existing mature tree cover.
- 5.10 Where possible existing trees and hedgerows will be retained within areas of public open space and proposed landscape buffer strips around the extents of the site. This will see these trees retained within a similar growing environment to which they have become accustomed to whilst also reducing any future pressure to prune which can arise when trees are retained within close proximity to residential dwellings.

- 5.11 This should help ensure the successful integration of the existing mature tree cover with the new development and provide a mature setting to the built element. Retaining the existing tree cover will serve to provide immediate screening from the site to the surrounding land and in the future, new landscaping would seek to enhance the screening effect as well as mitigating for loss of tree cover.
- 5.12 The arboricultural implications arising from the proposals to development the site have been outlined in more detail below.

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	T2, T3, T8	3 trees
Category A (High Quality / Value)	T4, T7 G2, G3	2 trees 2 groups		0
Category B (Moderate Quality / Value)	T5, T6, T9, T10, T12, T13, T15, T16, T18, T19, T20, T23, T24, T26, T27 G1, G5, G6, G8 H2, H4, H5, H6, H7, H8, H9	15 trees 4 groups 7 hedgerows	Section from H4 and H6 for access points	2 sections of 2 hedgerows
Category C (Low Quality / Value)	T1, T11, T14, T17, T21, T22, T25 G4, G7, G9, H1, H3	7 trees 3 groups 2 hedgerows		0

- 5.13 To facilitate the development only a small amount of hedgerow from two hedgerows will be required along with a single tree.
- 5.14 These hedgerow removals will be required if to gain access into the site to create the necessary openings for vehicle access points. The affected hedgerows are H4 within the western portion of the site and H6 which runs along the eastern side of Henthorn Road. For the most part, these hedgerows will remain and therefore continue to provide habitat and amenity. From an arboricultural perspective, the losses of these sections of hedgerows should not raise objection. The losses will be replaced through new planting of hedgerows within the supporting Green Infrastructure thus mitigation will be provided and is subject to detailed landscaping design at the Reserved Matters stage.
- 5.15 Due to the damage sustained as described in paragraph 11 and taking into account a much-reduced visual amenity which will result from implementation of corrective tree surgery that would need to be applied to prevent future crown failure, T5 will be removed. From an arboricultural perspective, this is considered to be the most appropriate course of action. The development provides opportunity to replace the specimen and thus replacement for its removal will be delivered through extensive new tree planting along the Pendleton Brook and southern boundary.

- 5.16 The veteran tree will be retained within an area of green space. The amount of green space to be provided has been designed to accommodate the full extent of the extended 'buffer zone' (increased RPA) and further connect with the boundary hedgerow. This amount of green space will allow for appropriate management of the veteran tree to be applied and will include measures such as fencing off of the buffer and erecting an interpretation board to inform the public of the status of the tree. In detailed design at the Reserved Matters stage, any footpaths will need to be located outside of the buffer zone and the future management of the tree subject to a dedicated Veteran Tree Management Plan.
- 5.17 The management plan should form a condition and applied to any approval alongside a site wide Arboricultural Management Plan for future management of all retained trees.

Policy Compliance - Discussion

- 5.18 The development of the site will unavoidably require the removal of a small amount of hedgerow to create openings to allow access into the land. The hedgerows will be replaced with new hedgerow as part of the landscaping proposals within the supporting Green Infrastructure to the development.
- 5.19 The only other loss of tree cover to the development is T5, justification for its removal has been provided within the Impact Assessment. T5 would be removed purely for reasons relating to its compromised structural condition resulting from wind loaded damage. The proposed extensive Green Infrastructure will provide ample opportunity in a future Reserved Matters application to see several replacement trees planting to mitigate for the loss of T5, using English oak as direct replacement in locations agreeable to the Local Planning Authority.
- 5.20 In terms of policy compliance, under clause 10.7 of Policy DME1 these losses would not be considered substantial as the Framework has been designed following a 'constraint led' process around the key features of the site seeing the remainder of all trees on site are being retained and integrated with the proposals to create an attractive, mature landscape to the housing development thereby seeing little change to the existing landscape character. The proposals have been informed by the tree survey information and arboricultural constraints so that the existing trees continue to contribute positively to the character and appearance of the landscape.
- 5.21 As such, all the high quality arboricultural features have been retained in accordance with local policy 10.7, including the veteran tree.
- 5.22 Furthermore, under clause 10.7 the application has been accompanied by a detailed arboricultural survey which provides information on existing trees and their constraints. The survey has gathered *'information on every tree on site that could be influenced by the proposed development and any tree on neighbouring land that is also likely to be within influencing distance. Stem diameters and crown spread details have been provided'*. As such, the application has been policy compliant in this regard.
- 5.23 The Framework will also be set to deliver the opportunity for *'succession tree planting'* through the extensive Green Infrastructure in line with the policy. New tree planting would meet the specifics of the policy in providing positive gains for arboriculture and mitigating for the loss of tree cover deemed necessary to deliver the development proposals.

- 5.24 There is a clear absence of young or successional tree cover within the site to replace the mature tree stock in the future thus the addition of new tree planting to the local area to be delivered as part of the development should be seen favourably and will secure future tree cover.
- 5.25 For clause 10.10, the single veteran tree within the site has been afforded the appropriate level of protection with the required 'buffer zone' extent at this Outline stage to allow the Council to impose suitable conditions to ensure the tree is managed accordingly and its long-term survivability secured.
- 5.26 To further comply with Policy DME1, at the outline stage of planning, existing trees are all retained within proposed new green space / landscape buffers and have been provided appropriate stand offs including their full root protection areas from developable parcels as to ensure continued contribution of the arboricultural assets in the future through safeguarding against damage and allowing the application of appropriately implemented 'sustainable' tree management.
- 5.27 At the detailed design stages, the retention of all the retained tree cover within managed green space will reduce commonly experienced conflicts where trees are in close proximity to residential properties.
- 5.28 Where tree losses have been identified such as those to access, new planting will be provided as part of the supporting landscaping proposals in the form of landscape buffer planting with woodland type and individual trees.
- 5.29 Well-designed new landscaping has the opportunity to provide 'local distinctiveness within the landscape', enable 'climate adaption resilience' as well as importantly 'supporting local bio-diversity'.

Tree Management

- 5.30 The layout of the development is currently reserved for subsequent approval. In the course of a reserved matters application pursuant to layout, a review of the relationship between the layout and the retained trees should be undertaken by a qualified arboriculturist to assess the existing tree cover and prepare a schedule of tree works.
- 5.31 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.
- 5.32 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.

- 5.33 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 tree and hedgerow planting has been indicatively shown as part of the supporting Green Infrastructure. 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).
- 6.11 In a natural environment free from constraints to growth, it has been proven through research that root systems can extend up to three times the radius of the tree crown and although in an urban environment there is often insufficient space to accommodate the extent of the full potential for root growth, all efforts should be made to at least provide as much soil volume as possible. One researched method of calculating the minimum required soil volume is as follows:

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

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

General Planting Recommendations

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

General Design Principles in Relation to Retained Trees

- 6.14 In a subsequent Reserved Matters application following the final layout of the scheme, assessment of the distance of proposed development in relation to the calculated root protection area of retained trees should be made which will inform the final layout.
- 6.15 The routing of below ground services should also be considered with regard to the retained trees as part of a subsequent reserved matters application pursuant to layout. As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the Root Protection Areas of retained trees. If below-ground services are proposed within a Root Protection Area, modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree health.
- 6.16 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

7.0 TREE PROTECTION MEASURES

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

General Information and Recommendations

- 7.2 All trees retained on site will be protected by suitable barriers or ground protection measures around the calculated RPA, crown spread of the tree or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.
- 7.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone. Fencing and barriers will not be removed or altered without prior consultation with the Project Arboriculturist.
- 7.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.
- 7.5 Where it has been agreed, construction access may take place within the root protection area if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto a geo-textile membrane for pedestrian movements. Vehicular movements over the root protection area will require the calculation of expected loading and the use of proprietary protection systems.
- 7.6 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

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

Protection outside the exclusion zone

- 7.11 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.

- 7.12 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development. Protection fencing signs can be provided upon request.
- 7.13 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.
- 7.14 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree stem. No concrete should be mixed within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- 7.15 No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
- 7.16 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- 7.17 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).

Protection of Trees Close to the Site

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

Protection for Aerial Parts of Retained Trees

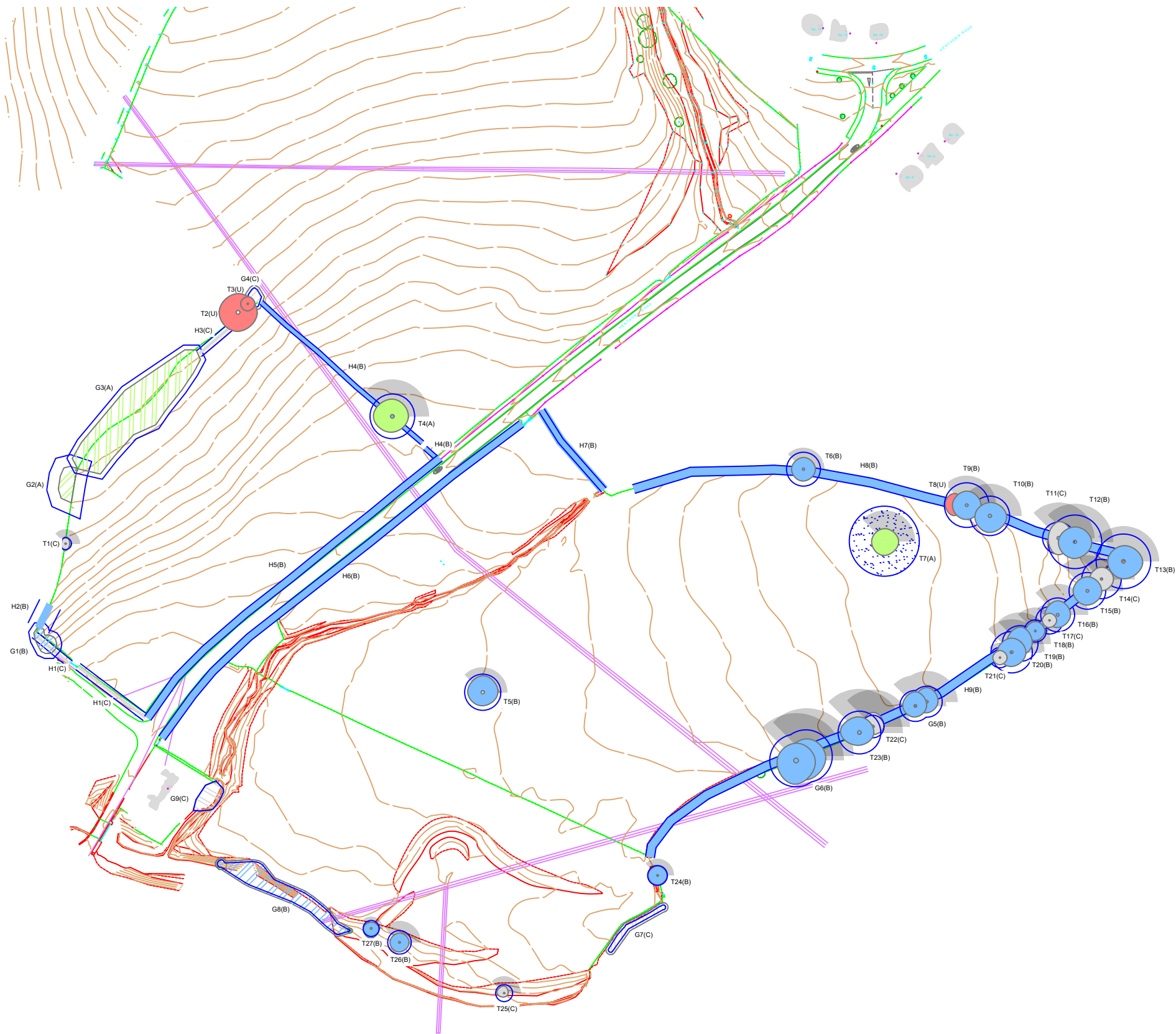
- 7.20 Where it is deemed necessary to operate wide or tall plant within close proximity to trees it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obstructive branches as any such equipment would have potential to cause damage to parts of the crown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

- 7.22 In the event of having caused any branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with British Standard 3998:2010 and in agreement with the Local Planning Authority prior to correcting the damage, upon completion of development.

8.0 CONCLUSION

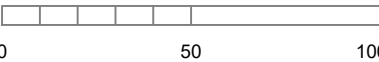
- 8.1 The site is situated on the western edge of Clitheroe and comprises three grassland field compartments separated into two halves by Henthorn Road. The smaller of the three fields lies to the north west and the largest to the south east formed of two combined fields separated by a shallow wet ditch which runs roughly parallel to Henthorn Road. Pendleton Brook lies beyond the site along the southern boundary. Situated to the north west of the site is an offsite private residence, Siddows Hall.
- 8.2 Beyond the site to the south and west the land use is predominately agricultural with further areas of pastoral land use. The town of Clitheroe is situated to the north, including new areas of residential development some of which is still being constructed at the time of the assessment.
- 8.3 Tree cover recorded by the assessment largely comprises of trees situated around the boundaries of the field compartments, including mostly mature age native species such as English oak and common ash. These trees are integral parts of the field boundaries being present as either single specimens or forming small groups. Two free standing specimens of English oak are situated within the fields to the south east of Henthorn Road. Hawthorn dominated hedgerows form the boundaries of the field compartments along with other native species and are a mixture of managed and unmanaged forms. A prominent group of mixed species mature trees are situated within the grounds of Siddows Hall and are directly adjacent to the site.
- 8.4 The planning application will be for Outline consent for a residential development with all matters reserved except for access. The principal vehicular access point will be taken off Henthorn Road entering the eastern portion of the site. Vehicle access into the western (smaller parcel of land) will enter through the existing consented development to the north.
- 8.5 To facilitate the development only a limited amount of the existing tree and hedgerow cover would need to be removed and these losses are restricted to only those required to gain access into the site. A small section from two hedgerows H4 and H6 will be required. The only other removal would be a single tree, T5.
- 8.6 The removal of hedgerow sections will be required if needing to gain access into the site to create the necessary openings for vehicle access points. The remainder of the hedgerows will be retained and continue to provide habitat and amenity. From an arboricultural perspective, the losses of these sections of hedgerows should not raise objection on arboricultural grounds. The losses will be replaced through new planting of hedgerows within the supporting Green Infrastructure thus mitigation will be provided and is subject to detailed landscaping design at the Reserved Matters stage.

- 8.7 From an arboricultural perspective due to the nature of the damage sustained T5 will be removed and replaced. To correct the damage, remedial tree surgery will need to be applied to reduce the risk of future crown failure and this will result in much-reduced visual amenity. As such, removing the tree is considered to be the most appropriate course of action should a development be approved. The development proposals provides significant opportunity to replace the specimen and within the extensive Green Infrastructure proposals with new tree planting along the Pendleton Brook and southern boundary.
- 8.8 The single veteran tree will be retained within a generous area of green space which shall accommodate the full extent of the extended 'buffer zone' (increased RPA) and further connect with the boundary hedgerow. This will allow for appropriate management of the veteran tree to be applied and will include measures such as fencing off of the buffer and erecting an interpretation board to inform the public of the status of the tree. In detailed design at the Reserved Matters stage, any footpaths will need to be located outside of the buffer zone and the future management of the tree subject to a dedicated Veteran Tree Management Plan.
- 8.9 The management plan should form a condition and applied to any approval alongside a site wide Arboricultural Management Plan for future management of all retained trees.
- 8.10 For overall enhancement of the local landscape in terms of future tree cover, the development proposals would deliver other landscape benefits through the provision of additional new tree, woodland and hedgerow planting within the open spaces and within the new landscape buffer to not only create visual amenity and provide screening to soften views but would create wildlife connections and serve to introduce younger trees to the area thus replacing the natural demise of the mature and aging population of trees that exist.
- 8.11 The Outline proposals are policy compliant as they retain the other existing tree cover associated with the site and incorporate into the design. This will allow many of the trees to continue to function as landscape features, maintaining amenity of a mature level, wildlife habitats, and green corridors. The majority of the tree cover will be retained within areas of public open space. This will see these trees retained within a similar growing environment to which they have become accustomed to whilst also reducing any future pressure to prune which can arise when trees are retained within close proximity to residential dwellings.
- 8.12 In any subsequent Reserved Matters application for the approval of a detailed layout, further assessment of the distance of proposed housing and associated internal minor roads / driveways in relation to the calculated root protection area and shadow patterns of retained trees would need to be made to inform the final layout and incorporated in full as far as practically possible.



T1 (A)
G1 (A)

Scale 1:2000 @ A3



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.

-	18.09.19	First Issue	EKP
rev	date	description	by



master planning ■
 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

client

Gladman Developments Ltd

project

Land off Henthorn Road
Clitheroe

drawing title

TREE SURVEY PLAN

scale
1:2000 @ A3

drawn/checked
EKP / HCK

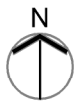
date
September 2019

drawing number

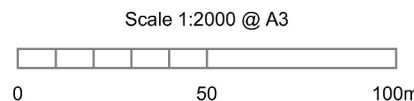
9053-T-01

rev

CAD file: K:\9000\9053\ARB\Plans\Tree Survey Plan.dwg



- KEY**
-  Tree/Group to be Retained
 -  Tree/Group to be removed to facilitate the proposals
 -  Category U - Unsuitable for retention on arboricultural grounds
 -  Hedgerow Proposed to be Retained and Incorporated into the New Development
 -  Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
 -  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
 -  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.

-	25310.19	First Issue	AW
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
Gladman Developments Ltd

project
**Land off Henthorn Road
Clitheroe**

drawing title
TREE RETENTION PLAN

scale 1:2000 @ A3	drawn/checked AW/TCB	date October 2019
drawing number 9053-T-02		rev -

CAD file: K:\9000\9053\ARB\Plans\Tree Retention 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: • 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

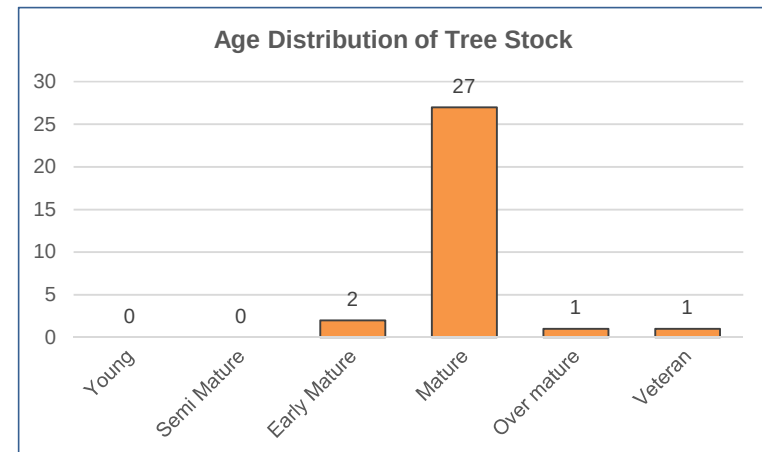
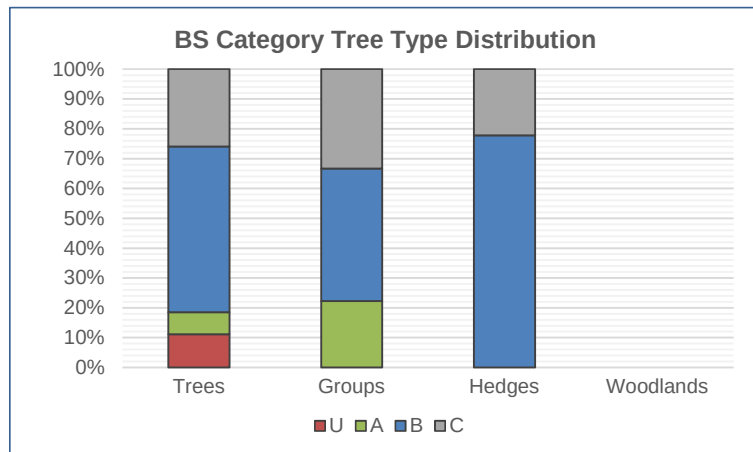
Root Protection Area (RPA)
• The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully 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	T2, T3, T8	3		0
Category A	T4, T7	2	G2, G3	2
Category B	T5, T6, T9, T10, T12, T13, T15, T16, T18, T19, T20, T23, T24, T26, T27	15	G1, G5, G6, G8, H2, H4, H5, H6, H7, H8, H9	11
Category C	T1, T11, T14, T17, T21, T22, T25	7	G4, G7, G9, H1, H3	5
	Total	27	Total	18

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	Hawthorn <i>Crataegus monogyna</i>	6	7x 80	N - 3 S - 3 E - 1 W - 1	M	G	Small stature specimen situated along the fenceline separating the field from the access track to off-site property, Siddows Hall Typically characteristic for the species Multiple stemmed from ground level No obvious defects	20	2.5	C (i)
T2	Beech <i>Fagus sylvatica</i>	12	est 500	8	OM	D	Situated offsite within adjoining garden of Siddows Hall to the north Specimen is mostly dead Remnant leaves on outer tips of a small number of branches in the south side of the crown; undersized No obvious cause of death but it was noted that within the garden this is the area where grass cuttings are stored	N/A	N/A	U
T3	Lawson Cypress <i>Chamaecyparis lawsoniana</i>	14	est 400 450	3	M	D	Situated offsite within adjoining garden of Siddows Hall to the north Specimen is dead No obvious cause of death but it was noted that within the garden this is the area where grass cuttings are stored	N/A	N/A	U
T4	English Oak <i>Quercus robur</i>	15.5	790	N - 7 S - 6 E - 6 W - 8	M	G	Branch stubs evident Broken branches evident Characteristic for species Even and typical crown form Minor dead wood evident in the crown (<75mm) Poached ground at the base which has exposed root buttresses; note localised ground erosion	282	9.5	A (ii)
T5	English Oak <i>Quercus robur</i>	10.5	640	N - 7 S - 5 E - 6 W - 6	M	F	Specimen has suffered damage to primary branch from wind loading; crack visible Other broken branches evident Major and minor dead wood evident in the crown (>75mm and <75mm) Poached ground at the base Potential Roost Features (PRF) - several notable sized entrance holes in main body of stem at approximately 3-4m above ground level which appear to lead to an area of hollowing around the bole Storm damaged crown material also present	185	7.7	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T6	Sycamore Acer pseudoplatanus	9	est 600	5	M	F	Characteristic for species Dense ivy cover on main stem Established ivy cover Minor dead wood evident in the crown (<75mm) Situating on south side of watercourse	163	7.2	B (ii)
T7	English Oak Quercus robur	13	990	N - 5 S - 6 E - 6 W - 5	V	F	Significant amounts of crown dead wood and exposed heartwood Extensive hollowing of main stem with large open cavity extending from ground level to height of bole on north west side of the stem Visible within the stem cavity is evidence of brown rot although no fungal fruiting bodies were present at the time of inspection Crevices sheltered from rainfall Decay pockets Poached ground at the base Potential Roost Features (PRF) Storm damage present	693	14.9	A (iii)
T8	Ash Fraxinus excelsior	8	est 600	N - 4 S - 5 E - 2 W - 4	M	P	Main stem damaged historically whereby eastern half has torn away which has resulted in extensive rot and hollowing; unstable form Only upper crown remains intact of live growth along with a single basal sucker	N/A	N/A	U
T9	English Oak Quercus robur	12.5	790	6	M	F	Basal cavity observed Characteristic for species Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF)	282	9.5	B (ii)
T10	English Oak Quercus robur	13.5	700	N - 5 S - 7 E - 7 W - 6	M	F	Broken branches evident Characteristic for species Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	222	8.4	B (ii)
T11	Ash Fraxinus excelsior	15	est 400 400	N - 7 S - 7 E - 5 W - 3	M	P	Light ivy cover Situating offsite Storm damage present Twin stemmed from base Eastern stem failure in past whereby a stump of approximately 4m in height remains Crown structure compromised as a result and is unevenly weighted Tight union between main two stems Would require remedial treatment through the application of tree surgery to restore balance to acceptable safety levels; ownership unknown	145	6.8	C (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T12	Ash Fraxinus excelsior	16	est 950	N - 6 S - 7 E - 7 W - 7	M	G	Branch stubs evident Broken branches evident Characteristic for species Light ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Situated offsite Storm damage present Woodpecker holes observed	408	11.4	B (ii)
T13	Ash Fraxinus excelsior	15	est 970	N - 6 S - 7 E - 8 W - 6	M	F	Branch stubs evident Broken branches evident Characteristic for species Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Storm damage present	426	11.6	B (ii)
T14	Ash Fraxinus excelsior	14	est 700	5	M	F	Branch socket cavities observed Delaminating bark on main stem Minor dead wood evident in the crown (<75mm) Storm damage present Signs of possible infection by Bacterial Canker of Ash	222	8.4	C (ii)
T15	Ash Fraxinus excelsior	15	est 650	6	M	G	Characteristic for species Dense undergrowth at the base Minor dead wood evident in the crown (<75mm) Unable to gain access to base of stem at the time of assessment	191	7.8	B (ii)
T16	Ash Fraxinus excelsior	13	est 600	N - 6 S - 5 E - 5 W - 5	M	G	Minor dead wood evident in the crown (<75mm) Storm damage present Visible failed upright in mid crown with new growth attached	163	7.2	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T17	Sycamore Acer pseudoplatanus	7	480	3	M	F	Delaminating bark on main stem Epicormic growth evident within the crown Storm damage present Main stem failed at 7m Visible deadwood associated with the upper section of approximately 2m in length Specimen has produced epicormic growth to compensate for loss	104	5.8	C (ii)
T18	Sycamore Acer pseudoplatanus	10	390	4	EM	G	Characteristic for species No major defects were noted Typical crown form	69	4.7	B (ii)
T19	Horse Chestnut Aesculus hippocastanum	13	630	N - 7 S - 4 E - 4 W - 5	M	G	Characteristic for species Minor dead wood evident in the crown (<75mm)	180	7.6	B (ii)
T20	Ash Fraxinus excelsior	14	730	6	M	G	Branch socket cavities observed Characteristic for species Minor dead wood evident in the crown (<75mm) Noted tree was positioned on other side of stock fence within the field to the south	241	8.8	B (ii)
T21	Sycamore Acer pseudoplatanus	6	360	3	EM	F	Epicormic growth evident within the crown Storm damage present Main stem failed at 4m Specimen has produced epicormic growth to compensate for loss and establish a new crown	59	4.3	C (ii)
T22	Sycamore Acer pseudoplatanus	15.5	400	N - 6 S - 2 E - 4 W - 4	M	F	Characteristic for species Minor dead wood evident in the crown (<75mm) Slight bias in weight to west and over the site Rhytisma acerinum (Tar spot of sycamore) present	72	4.8	C (ii)
T23	Ash Fraxinus excelsior	18.5	760	N - 6 S - 4 E - 5 W - 8	M	G	Branch stubs evident Characteristic for species Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm)	261	9.1	B (ii)

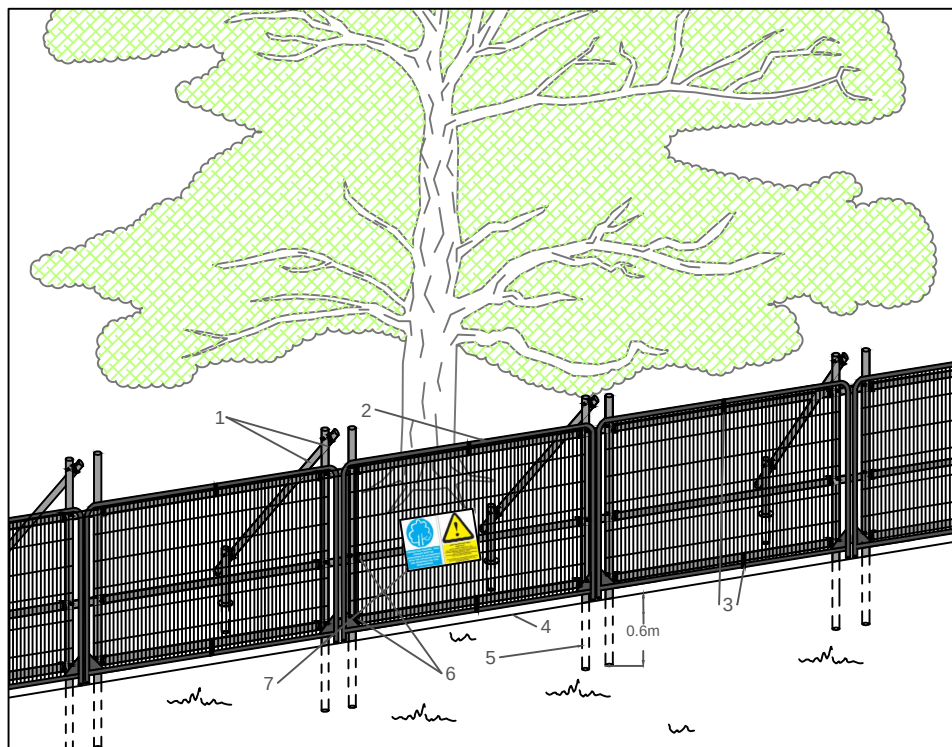
Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T24	Hawthorn Crataegus monogyna	7	350	4	M	G	Characteristic for species Even crown form No major defects were noted	55	4.2	B (ii)
T25	Hawthorn Crataegus monogyna	7	300	N - 3 S - 1 E - 1 W - 3	M	P	South eastern lead stem has failed and missing thus specimen has no crown Stem shows evidence of split Formed of two separate trees	41	3.6	C (ii)
T26	Hawthorn Crataegus monogyna	9	est 420	4	M	G	Characteristic for species No major defects were noted	80	5.0	B (ii)
T27	Hawthorn Crataegus monogyna	5	200 200	N - 2 S - 4 E - 3 W - 3	M	G	Characteristic for species	36	3.4	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Ash Fraxinus excelsior Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Hazel Corylus avellana	10	190 300 260 250	4	M	G	Characteristic for species Coppiced form Interlocking crowns Multi stemmed from base No major defects were noted Old laid forms Outgrown hedgerow	116	6.1	B (ii)
G2	Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Wild Cherry Prunus avium Holly Ilex aquifolium Lawson Cypress Chamaecyparis lawsoniana	15.5	est 900	6	M	G	Dense ivy cover on main stem Interlocking crowns Minor dead wood evident in the crown (<75mm) Situated 4m offsite on opposite site of driveway	366	10.8	A (ii)
G3	Ash Fraxinus excelsior Beech Fagus sylvatica Common Lime Tilia x europaea Elder Sambucus nigra Hawthorn Crataegus monogyna Horse Chestnut Aesculus hippocastanum Sycamore Acer pseudoplatanus Wild Cherry Prunus avium Laural Prunus Laurocerasus	26	est 1000	10	M	G	Significant offsite group of mature trees forming the boundary of the garden of Siddows Hall Dense ivy cover on main stems of several specimens Interlocking crowns due to close spacing between individual trees	452	12.0	A (i),A (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G4	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus	9	est 300 300	6	EM / M	F	Broken branches evident Characteristic for species Outgrown hedgerow Situating offsite Sporadic self-seeded group of trees	81	5.1	C (ii)
G5	Sycamore Acer pseudoplatanus	13	upto 550	N - 6 S - 4 E - 4 W - 5	M	G	Characteristic for species Interlocking crowns Minor dead wood evident in the crown (<75mm) No major defects were noted Typical crown forms	137	6.6	B (ii)
G6	Ash Fraxinus excelsior Sycamore Acer pseudoplatanus	20	upto 930	N - 6 S - 10 E - 7 W - 7	M	G	Characteristic for species Interlocking crowns Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Noted trees are positioned on other side of stock fence	391	11.2	B (ii)
G7	Hawthorn Crataegus monogyna	3	avg 80	2	SM	G	Growing out of river bank	3	1.0	C (ii)
G8	Ash Fraxinus excelsior Hawthorn Crataegus monogyna	8	upto 350	5	EM	F / G	Characteristic for species Interlocking crowns Sporadic self-seeded group of trees Group along bank of river	55	4.2	B (ii)
G9	English Elm Ulmus procera Leyland Cypress Cupressocyparis leylandii	8	est 250	3	M	G	Characteristic for species Situating on boundary of cottages Provides screening to properties offsite Potentially roots have been affected by any works to culvert/pipe the watercourse	28	3.0	C (ii)

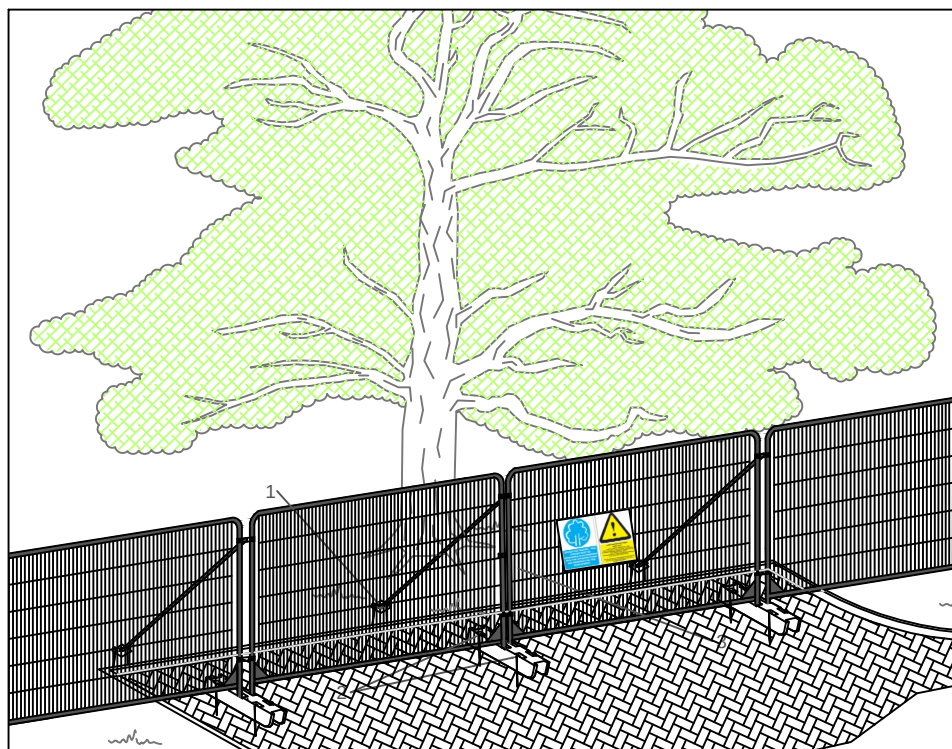
Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Ash Fraxinus excelsior Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Hazel Corylus avellana	2	avg 70 50 100	0.5	M	G	Coppiced form Maintained hedgerow Old laid forms Note dead tree next to services pole	8	1.6	C (ii)
H2	Ash Fraxinus excelsior Hawthorn Crataegus monogyna	6	avg 170 130 350	1.5	M	G	Outgrown hedgerow	76	4.9	B (ii)
H3	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Holly Ilex aquifolium Privet Ligustrum ovalifolium	2	avg 70 50 100	0.5	M	G	Coppiced form Maintained hedgerow	8	1.6	C (ii)
H4	Blackthorn Prunus spinosa Elder Sambucus nigra Hawthorn Crataegus monogyna Hazel Corylus avellana Holly Ilex aquifolium	2	avg 7x 30	1	M	G	Coppiced form Maintained hedgerow Old laid forms	3	1.0	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
H5	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra Hawthorn Crataegus monogyna Wild Cherry Prunus avium Hazel Corylus avellana	2	100 50 70	1.5	M	G	Coppiced form Maintained hedgerow	8	1.6	B (ii)
H6	Ash Fraxinus excelsior Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Hazel Corylus avellana	2	100 50 70	1.5	M	G	Coppiced form Maintained hedgerow Note where the watercourse crosses fields H6 becomes less main stained and more of an outgrown thicket	8	1.6	B (ii)
H7	Blackthorn Prunus spinosa Elder Sambucus nigra Hawthorn Crataegus monogyna	4	avg 7x 40	2	M	G	Characteristic for species Outgrown hedgerow	5	1.3	B (ii)
H8	Ash Fraxinus excelsior Elder Sambucus nigra Hawthorn Crataegus monogyna Hazel Corylus avellana Guelder Rose	7	upto 7x 60	2	M	G	Characteristic for species Coppiced form Outgrown hedgerow There are several standard ash trees present which are up to 7m Rest of hedgerow is generally between 3 and 6m Note hedgerow runs along the entire boundary and provides intermittent understory	11	1.9	B (ii)
H9	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna	4	upto 7x 60	2	M	G	Characteristic for species Coppiced forms Outgrown hedgerow and un-maintained hedgerow Note the hedgerow runs along the entire boundary and provides intermittent understory but is gappy in places	11	1.9	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