



Gladman Developments Ltd

**Land off Fryatts Way, Bexhill-on-Sea**

**Arboricultural Assessment**

June 2021

**FPCR Environment and Design Ltd**

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## 1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Gladman Developments Ltd to present the findings of an Arboricultural Assessment and survey of trees located at land situated west of Fryatts Way, Bexhill-on-Sea (hereafter referred to as the site), OS Grid Ref TQ 725 087.
- 1.2 The survey was carried out on 12<sup>th</sup> December 2019.

### Scope of Assessment

- 1.3 The tree survey and assessment of existing trees has been carried out in accordance with guidance contained within British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter referred to as BS5837). The guidelines set out a structured assessment methodology to assist in determining which trees would be deemed either as being suitable or unsuitable for retention.
- 1.4 The guidance also provides recommendations for considering the relationship between existing trees and how those trees may integrate into designs for development; demolition operations and future construction processes so that a harmonious and sustainable relationship between any retained trees and built structures can be achieved.
- 1.5 The purpose of the report is therefore to firstly, present the results of an assessment of the existing trees' arboricultural value, based on their current condition and quality and to secondly, provide an assessment of impact arising from the proposed development of the site.
- 1.6 This report has been produced to accompany an outline planning application for a residential development of c.210 dwellings and has included an assessment of any impact to the tree cover. The survey has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.

### Site description

- 1.7 The site was formed by three field compartments given to horse grazing. At the time of survey the horses were contained to the western half of the northern field compartment. Tree cover was present on all boundaries of the site, both internal and external.
- 1.8 The internal boundaries were formed by native species, outgrown hedgerow trees with mostly only remnant sections of hedgerow canopy remaining. Most of the component trees were now mature. The external boundaries were formed predominantly by offsite groups of trees, again, the majority of which were native species. The offsite groups were of mixed age and characteristic of groups of trees which displayed an absence of any targeted management.

## 2.0 PLANNING POLICY

### National Planning Policy Framework 2019

- 2.1 National Planning Policy is defined by the National Planning Policy Framework (NPPF). This sets out the Government's most current and up to date planning policies for England and how these should be applied. The current NPPF is dated February 2019.

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

### **Local Planning Policy**

- 2.5 Local planning decisions regarding all future developments are assessed against a framework to ensure that the district or county in question is developed in a well-informed and coherently systematic manner, this may include decisions to ensure that the right number and types of houses are built and incorporating the correct type of shopping and recreation facilities, whilst protecting the local ecological resources, landscape context and intrinsic heritage value of an area.
- 2.6 Within the context of Rother District Council, the Local Plan was adopted by full council on 10<sup>th</sup> July 2006.
- 2.7 In relation to arboriculture and the natural environment, following a review of the Local Plan, the following policies are considered the most relevant:
- Section 5 – General Development Considerations
- 2.8 Paragraph 5.11 - "*A large amount of tree and woodland cover, estimated to be 19% of the District, is a defining landscape characteristic and one that makes an important contribution to local amenities in both urban and rural contexts. Landscaping proposals will often form an important component of development schemes, enabling them to blend in with their setting. They should generally retain existing trees and utilise indigenous species. A detailed tree survey will normally be required with a planning application.*"

## Policy HG2

- 2.9 *“In exceptional circumstances, planning permission may be granted for residential development outside development boundaries in order to meet a local housing need among those people unable to compete in the normal housing market.*
- 2.10 *Proposals for development will be considered in the context of the following...*
- 2.11 *6. The proposed development should meet normal local planning and highway authority criteria for access, parking, retention of trees, landscaping and impact on neighbouring properties...”*

**Statutory Considerations**

- 2.12 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.
- 2.13 No direct consultation with the Local Planning Authority has taken place, however, it is understood having used the online search facility on the website for the Local Planning Authority, Rother District Council that there are no Tree Preservation Orders and Conservation Areas that would apply to any trees present on, or in close proximity to the assessment site and therefore no statutory constraints would apply to the development in respect of trees. Before any tree works are undertaken confirmation of the online information should be sought from the Local Authority.
- 2.14 Information provided on Tree Preservation Orders and Conservation Areas is accurate to the date of this assessment and cannot be assumed to remain unchanged. The last check was carried out on the 17<sup>th</sup> June 2021.

**Non-Statutory Considerations**

- 2.15 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)<sup>1</sup> website highlighted tree cover within the site as or included within the following:
- The Priority Habitat Inventory, Deciduous Woodland
  - The National Forestry Inventory
- 2.16 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.<sup>2</sup>
- 2.17 The deciduous woodland inventory is a rolling programme designed to provide accurate information about the size, distribution, composition and condition of forests and woodlands.<sup>3</sup>

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<sup>1</sup> <http://magic.defra.gov.uk/>

<sup>2</sup> Contains public sector information licensed under the Open Government Licence v3.0.

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

- 2.18 Priority habitat designation and inclusion within the National Forestry Inventory does not provide any statutory protection.

### 3.0 SURVEY METHODOLOGY

- 3.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturist and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.
- 3.2 Trees have been assessed as groups or hedgerows where it has been determined appropriate.
- The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
  - For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.
- 3.3 An assessment of individual trees within groups or hedgerows has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

### Ancient and Veteran Trees

- 3.4 Veteran trees and Ancient Woodland are important components of the landscape, their importance can be for a number of reasons including that of their ecological, social, cultural and historic value.
- 3.5 Veteran Trees and Ancient Woodlands are material considerations within the planning process and their importance is specifically recognised within the National Planning Policy Framework (NPPF) 2019, which defines the terms ancient or veteran tree as:
- 'A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'*<sup>4</sup>
- 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.

### Ancient Tree

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

<sup>4</sup> Ministry of Housing, Communities and Local Government. (2019). *National Planning Policy Framework*. London: Ministry of Housing, Communities and Local Government.

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

- 3.8 Perhaps most notably, the tree concerned should be very old, relative to others of the same species.
- 3.9 Further to this, in accordance with guidance for use in the Ancient Tree Hunt (Owen & Alderman, 2008), as cited within Lonsdale (2013)<sup>5</sup> an ancient tree is one that has all or most of the following characteristics:
- a) biological, aesthetic or cultural interest, because of its great age;
  - b) a growth stage that is described as ancient or post-mature; or
  - c) a chronological age that is old relative to others of the same species.
- 3.10 Guided by Lonsdale (2013)<sup>6</sup> characteristics a) and b) are mainly based on developmental and morphological criteria whilst characteristic c) relates specifically to chronological age. Developmental characteristics (represented by characteristic b) above) tend to develop with the increasing age of a tree and include:
- A large girth by comparison with other trees of the same species<sup>6</sup>
  - Aging and associated decay (leading to hollowing) of the central wood
  - Changes in crown architecture (Raimbault, 2006)<sup>7</sup>
  - A progressive or episodic reduction in post-mature crown size - 'retrenchment' (Lonsdale 2004; Rust & Roloff, 2002)
- 3.11 In practice calculating the average age / lifespan of a tree is difficult and not always entirely reliable due to a lack of available demographic information. As such, in order to inform the assessment of chronological age, the assessment has made use of stem girth as a guide using the chart provided within Lonsdale (2013) (shown below in figure 1), as well as available historical evidence (mapping etc).

<sup>5</sup> <sup>6</sup> Lonsdale, D. (Ed.). 2013). Ancient and other veteran trees: further guidance on management. London: The Tree Council.

<sup>6</sup> Woodland Trust, Ancient Tree Forum (2008). Ancient Tree Guide no.4: What are ancient, veteran and other trees of special interest?. Grantham: Unknown. 7.

<sup>7</sup> Raimbault, P.F. (2006). A basis for morpho-physiological tree assessment. Pro. Seminar, Arboricultural Association/Treework Environmental Practice, Ashton Court, Bristol, UK, 23<sup>rd</sup> & 24<sup>th</sup> March 2006.



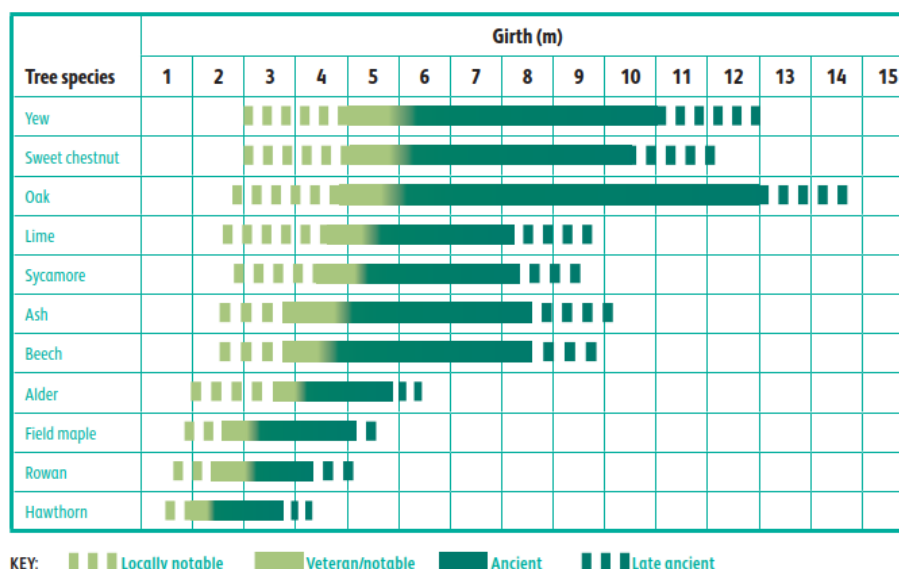


Figure 1: The chart of girth in relation to age and development classification of trees, as shown in Lonsdale (2013)<sup>8</sup>.

### Veteran Trees

- 3.12 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’.*
- 3.13 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.
- 3.14 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.
- 3.15 Level 3 of the Specialist Survey Method (SSM) of de Berker & Fay (2004)<sup>9</sup> has also been utilised for gathering survey information as this provides a standardised framework for recording characteristic ancient/veteran features.

### BS5837 Categories

- 3.16 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).

<sup>8</sup> Lonsdale, D. (Ed.). 2013). Ancient and other veteran trees: further guidance on management. London: The Tree Council.

<sup>9</sup> 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.

- 3.17 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.
- 3.18 **Category (U) – (Red):** Trees which are unsuitable for retention and are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Trees within this category are:
- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
  - Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
  - Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.
  - Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.
- 3.19 **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.
- 3.20 **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.

- 3.21 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:
- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
  - Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
  - Sub category (iii) trees with no material conservation or other cultural value.

### **Site Plans**

- 3.22 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.
- 3.23 As part of this assessment, a Tree Retention Plan has been prepared to show the proposed layout in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies which trees would be required to be removed or retained as part of the proposed development.

### **Tree Constraints and Root Protection Areas**

- 3.24 Below ground constraints to future development are represented by tree roots and the soil environment in which they grow which needs to be protected if the tree is to be retained. Tree rooting systems are essential for the uptake of water and nutrients, serving the storage of carbohydrates for the future growth and function of the tree, and form structural anchorage and support for the stem and crown. The perceived rooting area of the tree; referred to as the root protection area (RPA) needs to be protected if the tree is to be retained.
- 3.25 The RPA is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. The RPA has been calculated in accordance with Annex C, D and Section 4.6 of BS5837:2012 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme. As such, the RPA of existing trees is an important material consideration when considering site constraints and planning development activities.
- 3.26 Where applicable the shape of the Root Protection Area has been modified to consider the presence of any nearby obstacles (existing or past) which may have restricted root growth and the likely root distribution i.e. the presence of hard standing, structures and underground apparatus. 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.

- 3.27 Whilst it is generally accepted that a trees roots may extend far greater distances than the notional RPA, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients), with roots predominantly located in the upper 1,000 mm of the soil horizon; the RPA offers an accepted protective buffer from development.
- 3.28 Above ground constraints such as the current crown spread of the trees and an illustration of the shade pattern (where appropriate) have been considered and identified within the Tree Survey Plan and Tree Retention Plan indicates their potential area of shading influence.

### **Considerations and Limitations of the Tree Survey**

- 3.29 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.
- 3.30 The statements made in this report regarding defects in assessed trees does not take into account the effects of extreme / adverse weather conditions, changes in land use prior to the site's development, unforeseen accidents or anti-social behaviors, such as vandalism, which occur since the date of the survey. As such, the assessment of tree condition given within applies to the date of survey and cannot be assumed to remain unchanged.
- 3.31 It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.
- 3.32 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The tree survey conducted, in accordance with BS5837, does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.
- 3.33 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups and hedgerows to assist structural calculations for foundation design of structures in accordance with current building regulations. The exact position of individual trees or species included as part of a tree group should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths in accordance with NHBC Chapter 4.2 Building near Trees.
- 3.34 Access to survey the western extent of of the northern field compartment was not possible due to the presence of livestock. Consequently, a small section of G1 and G2 respectively was not surveyed at close quarters. Given that the majority of both groups were surveyed at close quarters, it is considered that the overall character and condition of each group has been assessed appropriately.

## 4.0 RESULTS

- 4.1 A total of 15 individual trees, 14 groups of trees and 3 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.

### Tree Schedule

- 4.2 Appendix A presents details of any individual trees, groups and hedgerows found during the assessment including heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.
- 4.3 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

### Tree Survey Plans

- 4.4 The individual positions of trees and groups have been shown on the Tree Survey Plan (drwg.no. 9309-T-01). 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.

### Results Summary

- 4.5 The survey recorded a relatively high number of high and moderate (Categories A and B respectively) quality and value trees across the site. These were all restricted to the internal and external field boundaries. The central areas of each field compartment were devoid of tree cover. A summary of the results is provided below in Table 1.
- 4.6 Following Table 1 several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

**Table 1: Summary of Trees by Retention Category**

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T12	1	G7, G8	2
Category A (High Quality / Value)	T2, T3, T4, T6, T9	5	G1, G11, G13	3
Category B (Moderate Quality / Value)	T1, T7, T8, T10, T13, T14, T15	7	G2, G3, G5, G6, G9, G10, G12, G14, H1	9
Category C (Low Quality / Value)	T5, T11	2	G4, H2, H3	3

### Individual Trees

- 4.7 Four English oak *Quercus robur*, T2, T3, T6 and T9, were deemed to merit a high value Category A classification. All four were classified as mature specimens. Stem diameters ranged from 1100mm to an estimated 1300mm, when measured at breast height. Contained within each individual tree, a number of minor defects were noted:
- 4.8 T3 – A bark wound (c.150mm x 200mm in area) was recorded on the north face of the stem at approximately 1.5m in height and the heartwood had become exposed. Minor decay was noted here, but the decay extended less than 20mm radially.
- 4.9 T6 – Both minor and major deadwood was recorded throughout the canopy. This included broken branches that were present throughout the canopy.
- 4.10 T9 – A failed hazard beam and resultant suspended branch (c.150mm at point of attachment) was recorded in the eastern extent of the canopy.
- 4.11 Such defects would be expected in trees of such maturity (there was no evidence of having received any targeted management) and of this species and as such are not considered to be a detriment to their quality and future life expectancy. Consequently, each tree was deemed to merit a Category A classification owing to their prominence on site, their respective life stages/expectancies by virtue of the species and good overall physical condition.
- 4.12 The girth of T4 was measured to be c.4.8m at breast height (measured over ivy stems), which falls short of the criteria provided in Figure 1 to qualify as an Ancient specimen but would meet the qualifying size criteria to be considered a veteran specimen. In addition to the large stem, T4 had further qualifying features in sufficient numbers and nature to qualify as a Veteran, these included: large amounts of deadwood; large perennial fruiting bodies of *Ganoderma australe* present at the base of the stem; significant rotting of a major structural root adjacent to the fungal brackets; and a branch tear out of a large north east trending branch and subsequent significant hollowing of this branch. T4 was therefore deemed to merit a Veteran (Category A) classification and should be afforded the required minimum protection and managed as such.

### Groups

- 4.13 Three high value groups were recorded during the survey, G1, G11 and G13.
- 4.14 G1, formed the northern boundary of the site. The majority of the group was situated offsite. The canopy was dominated by English oak, with occasional ash *Fraxinus excelsior*, silver birch *Betula pendula* and downy birch *Betula pubescens*. The understory was dominated by dense stands of holly *Ilex aquifolium*. There was no evidence of any targeted management to many of the canopy specimens, which is typical of such a rural setting. Broken branches were recorded throughout, as suspended deadwood and there was presence of dense ivy cover which had congested many of the crowns of the canopy specimens. Despite these defects G1 was deemed to merit a high value Category A classification both for its landscape contribution and the habitat value, which it provided.
- 4.15 G11 and G13 were two groups that were similar in character and formed internal field boundaries. Each group was linear in nature, formed from standard English oaks that have been allowed to grow out of former hedgerow lines. The hedgerow understory is now largely absent. Both groups were prominent in their location, being highly visible to the neighbouring settlement.

The conditions of the trees were typical and broadly fair, though aerial deadwood was noted – this is typical of early mature/mature English oak. Two individual trees were noted in G13 to have structural defects. The second and third trees from the west were both twin stemmed from their bases. Observed in these specimens was a significant vertical bark ridge present at both unions, which indicates the likely presence of included bark and resultant increased potential future instability at the primary union of both trees due to weak fusion. G11 and G13 were however collectively deemed to merit a high value Category A classification despite the structural fault noted on two trees within G13. This is due to the general fair condition of both groups at the time of survey and their landscape value. Monitoring and any subsequent remedial treatment / management of the two trees would form part of a site wide management plan of any future approval of the development in the interests of public safety and good practice.

- 4.16 Two groups, G7 and G8, were deemed to merit a Category U – unsuitable on arboricultural grounds – classification. Both groups contained over mature hybrid black poplar displaying varied condition, though arboriculturally none were in anything but poor condition. Of note was a single tree in G8 with a significant amount of decay and hollowing at the base. See Photograph 1 below.



**Photograph 1: Image showing evidence of a significant cavity and hollowing at base of c.35m tall hybrid black poplar recorded within G8.**

- 4.17 The wood of this cultivar is relatively soft, and therefore not particularly durable. This is caused by the fast-growing nature of the species, which is achieved at the deficit of strength. Given the dimensions of these trees (c.35m high/stem diameters up to 1100mm) the forces acting upon the

wood are likely to be high. There would therefore be an increased risk of failure associated with these trees.

- 4.18 It was observed during the survey that the offsite area adjacent to these trees is used by the public for dog walking. With this in mind, and with a view to a potential increase in footfall from the proposed development, under the landowner's duty of care it would be recommended that the removal of both G7 and G8 is prioritised. It would be recommended that replacement planting is provided (a longer lived, more durable native species would be recommended), to compensate for the loss of these groups and to retain the screening value along the boundaries in the area of the site.

#### **Ancient and Veteran Trees**

- 4.19 For the purpose of affording T4 greater protection, the RPA calculation for this specimen 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).
- 4.20 Where this assessment has identified veteran trees, further survey work of those trees and their communities will be required. From an ecological perspective veteran trees provide a rare and specialist niche habitat and therefore preservation of this habitat is considered highly important. Veteran trees and many of their associated specialised species are becoming increasingly rare within the landscape and therefore some veteran tree landscapes and their associated species are now protected, both nationally and Europe wide through the Natura 2000 Directive.

### **5.0 ARBORICULTURAL IMPACT ASSESSMENT**

- 5.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.
- 5.2 The AIA has been based upon the Development Framework Plan and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The drawing shows the proposals for a residential development incorporating green infrastructure, attenuation features and play areas. An overlay of the layout has been incorporated in the Tree Retention Plan to assist in identifying the relationship and any potential conflicts between the proposals and the existing trees and hedgerows. For the reasons discussed below it is considered that the proposed scheme approach adheres with Local Planning Policy as outlined in Section 2 above.
- 5.3 Table 3 provides a summary of the expected impacts upon existing tree cover as a result of the proposals.



**Table 3: Summary of Impact on Tree Stock**

	Trees to be Retained	Total	Trees to be Removed in full or part	Total
Category U - Unsuitable	T12	1	G7, G8	2
Category A (High Quality / Value)	T2, T3, T4, T6, T9, G1, G11	7	G13	1
Category B (Moderate Quality / Value)	T1, T7, T8, T10, T13, T14, T15, G2, G3, G5, G6, G9, G10, G12, G14, H1	16		
Category C (Low Quality / Value)	T5, T11, G4, H3	4	H2	1

### Tree Removal

- 5.4 The proposed scheme has incorporated the vast majority of existing tree and hedgerow cover.
- 5.5 The exception is a small amount of tree and hedgerow removal, which is considered necessary to instate the internal vehicular loop road.
- 5.6 To this end, two trees within G13 are proposed for removal. It is recognised that G13 was collectively regarded as a high value, Category A group. Taking the trees in to consideration in the design and layout of the proposals, the road alignment has therefore been specifically positioned such that it would remove the two lowest quality trees present within the group, which are situated at the western end. Both trees shown to be removed within G13 possessed structural defects which would account for their lower quality. Both were twin stemmed from the base. Furthermore, fork unions observed in each tree were tightly formed. Pronounced bark ridges were also present associated with the unions for both sets of twin stems indicating the likely presence of included bark within these unions. Such formations can significantly increase the likelihood of failure at the union as a result of the absence of wood fusion and compression loading forming as the diameter of each stem increases over time.
- 5.7 The removal of two trees only from G13 will not have a detrimental impact on the value of the group due to their peripheral location thus maintaining the overall landscape value of the group, such that the current amenity function will continue. Consequently, with these defects noted, and the continued amenity value of the group within the local landscape, it is considered that the removal of the two trees from G13 should not be a significant constraint to the proposals.
- 5.8 The poor state of G7 and G8 have been discussed in detail above. The removal of both groups is therefore recommended in line with sound arboricultural practice and under the Land Owner's Duty of Care. As such, their removal should be considered separate to the development and not be considered a constraint to the proposals.
- 5.9 A short section of hedgerow H2 is proposed for removal to accommodate internal vehicular access. In relation to the vast majority of tree and hedgerow cover on the site H2 was deemed to be low value from an arboricultural perspective. H2 was a species-poor unmaintained section of outgrown hedgerow and as such was deemed to merit a Category C classification. The removal

of H2 should not be considered a constraint to the proposals due to the expected volume of new hedgerow to be included as part of the proposed scheme.

- 5.10 The removal of H2 should be conducted following methods prescribed in an Arboricultural Method Statement (as per section for G11 below) given that it would entail works within the RPA of two retained trees (as part of G11).

### **Tree Retentions**

- 5.11 The vast majority of trees on site will be retained and appropriately protected/buffered from all construction activities and future development.

#### T1

- 5.12 An indicative potential pedestrian connection has been shown within the RPA of T1. This section of the connection must be instated without any excavation. Ideally this would be instated in the form of an informal mowed path which is a low impact specification to safeguard roots of the tree. If the footway is to be “formalised” then the section within the RPA must be constructed following a “minimal-dig” specification, through an Arboricultural Method Statement. A typical “no-dig” specification from a reputable provider has been provided in Appendix C as an example.

#### T4

- 5.13 An existing ditch (c.0.5-1m deep) was noted to the north east of the tree, which it was assumed will have inhibited root spread in this area. Nevertheless, the entire notional RPA of the Veteran ash T4 will be maintained and subject to suitable management in the future as part of the proposals.
- 5.14 A swale has been shown adjacent to the north eastern edge of the RPA of T4. It is imperative that any excavation to instate this swale is conducted outside of the RPA. No excavation within the RPA is acceptable due to the veteran status of the tree. The buffer zone around the tree should remain undisturbed.
- 5.15 An indicative potential pedestrian connection has been shown within the RPA of T4. As with the footpath adjacent to T1 this section of the connection must be instated without any excavation. Ideally this too would need to be instated in the form of an informal mowed path. If the footway is to be “formalised” then the section within the RPA must be constructed following a “minimal-dig” specification, through an Arboricultural Method Statement.

#### T10, T11, T13 and T14

- 5.16 The developable area as per the latest Development Framework Plan extends within the RPA of T10, T11, T13 and T14. It is expected that at the detailed design stage these RPAs can be incorporated into soft landscaped areas associated with the new dwellings i.e. garden spaces. As such any trenching or large excavations within the RPAs of these trees will be avoidable.
- 5.17 In the short term, there is the potential that construction activities could damage these groups through tracking of machinery, foot traffic and temporary storage of materials. Such impacts must be controlled through the provision of suitable protection barriers, installed at the extent of the canopy or RPA (whichever is outermost), as outlined in a future Tree Protection Plan. In the

longer term, post construction factors such as boundary fences, walls and hardstanding within residential gardens have the potential to damage the rooting environment of these trees. All such issues should be addressed in an Arboricultural Method Statement which it is recommended should be conditioned as part of the present application.

#### G1

- 5.18 G1 will be retained and separated from the proposed developable area by a strip of public open space. A number of trees in G1 were noted to have sections of suspended deadwood. Dead specimens were noted, as were large failed branches lying on the ground. Features such as these would be expected in a group of G1's maturity and do not detract from the overall value of the group.
- 5.19 Nevertheless, considering future public access it would be recommended that the group be re-assessed in the lead up to any future occupation of the site. This assessment must identify any potentially dangerous deadwood and make provisions for such material to be removed. Deadwood has high habitat value. Accordingly, any such pruning should be limited only to that which is considered absolutely necessary from a public safety perspective.

#### G11

- 5.20 The internal vehicular access (for which the proposed removal of H2 is owed) has been shown between the two halves of G11. A gap of c.3.5m is present between the RPA of the two trees north and south of the gap respectively. It is therefore considered that at the detailed design stage it will be possible to instate an internal road without undue long-term harm to the two trees north and south of the proposed road. The reasoning for this is as follows:
- The width of the carriageway will be minimised in this location;
  - The road would be aligned between the two RPAs shown for the group and would only infringe upon them minorly;
  - The vast majority of the RPAs would remain intact and would be suitably protected;
  - Any associated footway should be restricted to one side of the carriageway only and should be constructed following a "minimal-dig" construction method;
  - All of the above works would be conducted following methods prescribed in an Arboricultural Method Statement; and
  - All of the above works would be conducted under supervision of an appropriately experienced arboriculturist with any rooting material that may be encountered dealt with under their supervision.
- 5.21 It is considered that the two G11 trees north and south of the proposed road will not unduly be harmed, as the vast majority of each RPA will be retained and protected into the operation phase of the scheme.

### **Tree Management**

- 5.22 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.

- 5.23 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.
- 5.24 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.
- 5.25 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 must provide appropriate mitigation planting as means of replacement for those which are to be lost as a result of the proposals. T

### **Trees**

- 6.2 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.

### Rooting Environment and Soil Volumes

- 6.7 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.
- 6.8 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).
- 6.9 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 <sup>3</sup>

### General Planting Recommendations

- 6.10 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.
- 6.11 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**

- 6.12 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.
- 6.13 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.
- 6.14 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

### **7.0 TREE PROTECTION MEASURES**

- 7.1 Retained trees will be adequately protected during works ensuring that the calculated root protection area for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. 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 A tree survey in accordance with BS5837:2012 has been conducted at land off Fryatts Lane, Bexhill-on-Sea. The survey sought to understand the baseline conditions of trees present on site and potential impacts from a proposed residential development.
- 8.2 At the time of survey the site was formed by field compartments used for grazing horses. Tree cover was restricted to the internal and external boundaries of the site.
- 8.3 A total of 15 individual trees, 14 groups of trees and 3 hedgerows were recorded. The majority were considered to be either moderate or high value from an arboricultural perspective.
- 8.4 Of note, five individual trees and three groups of trees were considered high value, Category A from an arboricultural perspective. The majority of these were formed by mature English oaks, either growing as individual standards or as groups that were typical of outgrown remnant hedgerows. The exception was T4, which was classified as a Veteran ash and qualified as such due to its large stem diameter (c.1530mm) and sufficient "Qualifying" veteran features.
- 8.5 Two groups of trees were notable in terms of their condition. Their condition being such that they should be removed on arboricultural ground and thus were deemed to merit a Category U



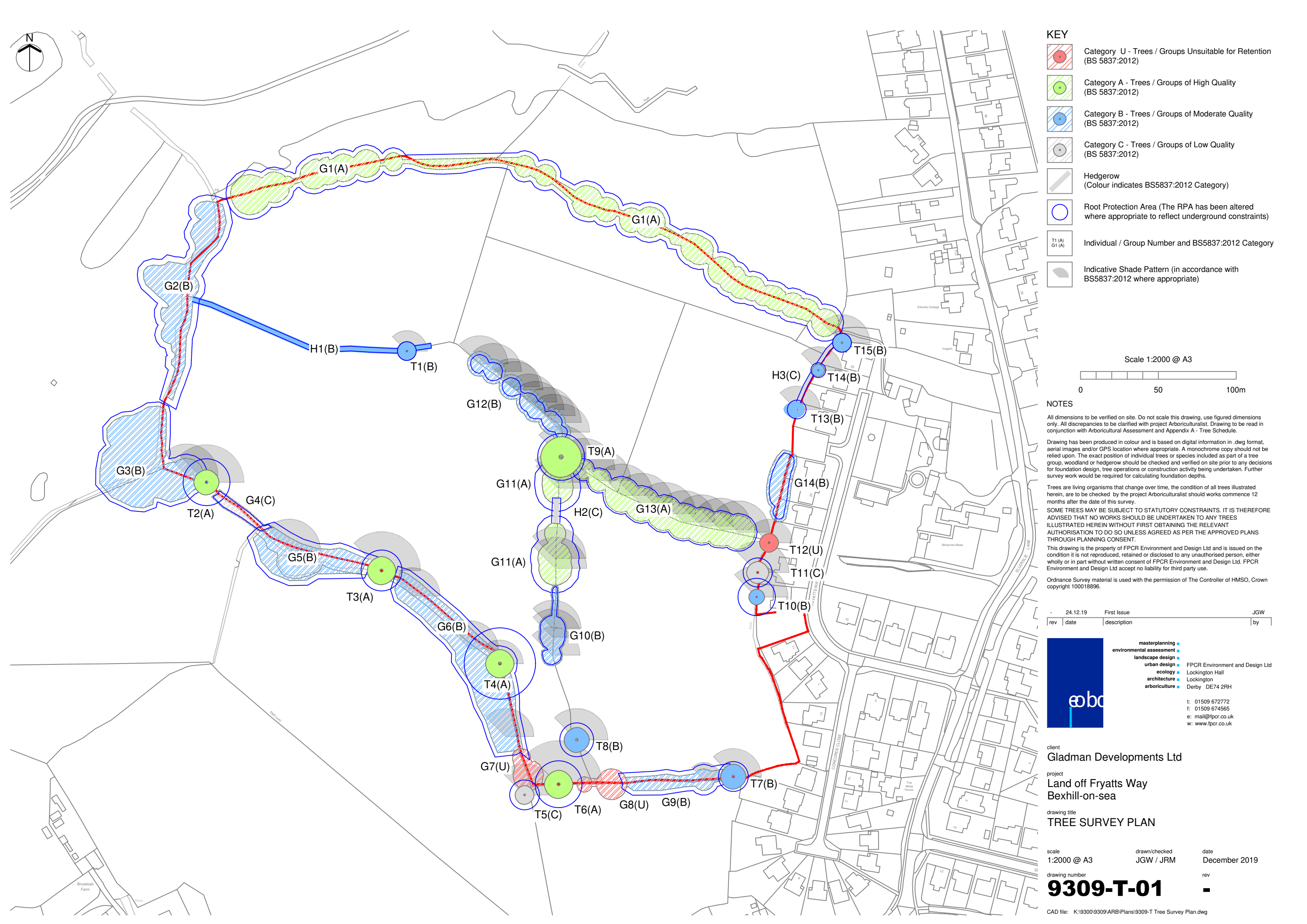
classification – unsuitable for retention. Both G7 and G8 were formed from over mature hybrid black poplar which stood to a height of up to 35m. Given the poor condition of these trees, their large size, and the characteristics of the wood for this species the removal of both G7 and G8 should be prioritised.

- 8.6 The design of the proposed scheme has allowed the vast majority of existing tree and hedgerow cover to be retained. This is with the exception of two trees, which have been shown for removal from G13 to instate internal vehicular access. Furthermore, a short section of unmanaged outgrown hedgerow H2 is also proposed for removal.
- 8.7 The two trees to be removed from G13 both exhibited structural defects in the form of an included union at the base of their respective twin stems. This presents a potential future point of collapse as a result of a compression failure. The removal of two trees only from G13 will maintain the amenity value of the group and should therefore not be considered a significant constraint to the proposals.
- 8.8 H2 was considered to be of relative low value in comparison to the vast majority of tree and hedgerow cover on site. With a view to the extent of proposed new hedgerow planting as part of the scheme the removal of H2 should not be considered a significant constraint to the proposals.
- 8.9 The remainder of trees on site will be retained and appropriately protected. This protection should include sympathetic footpath installation with regards T1 and T4. The protection should also factor in a road design that accommodates a carriageway between the retained halves of G11, both north and south of the proposed internal vehicular access route.
- 8.10 Finally, retained trees (to include those within G1) should be managed in a way which promotes their longevity, and also seeks to reduce risks to the public associated with aerial deadwood and dead specimens.
- 8.11 The proposals for the scheme incorporate extensive areas of new tree and hedgerow planting. Thought should be given to the specification of such planting, with native species that are characteristic of the locality prioritised.
- 8.12 With the provision of new planting and the retention of the vast majority of existing tree and hedgerow cover (and therefore the existing function of such features), it is considered that the proposals present an opportunity to increase the overall arboricultural value of the site.

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## FIGURES

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KEY

Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)

Category A - Trees / Groups of High Quality (BS 5837:2012)

Category B - Trees / Groups of Moderate Quality (BS 5837:2012)

Category C - Trees / Groups of Low Quality (BS 5837:2012)

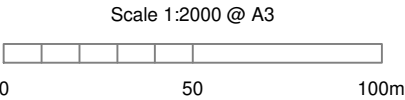
Hedgerow (Colour indicates BS5837:2012 Category)

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

T1 (A)  
G1 (A)

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.

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environmental assessment

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urban design

ecology

architecture

arboriculture

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client

Gladman Developments Ltd

project

Land off Fryatts Way  
Bexhill-on-sea

drawing title

TREE SURVEY PLAN

scale  
1:2000 @ A3

drawn/checked  
JGW / JRM

date  
December 2019

drawing number

9309-T-01

rev

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CAD file: K:\9300\9309\ARB\Plans\9309-T Tree Survey Plan.dwg

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Open Space Type	Policy (if applicable)	Required (ha)	Provision (ha)
Open Space for play	0.1ha per 50 dwellings*	0.42ha	0.42ha (0.04ha equipped)
Open Space for amenity	-	-	1.78ha
Open Space for natural	-	-	1.43ha
Open Space for sports	-	-	0.63ha
Open Space for all	2.43ha per 1000 people**	1.22ha	4.39ha
Policy CF4 Rother Local Plan 2006			
Policy CF3 Rother Local Plan 2006			

KEY

Tree/Group to be Retained

Tree/Group to be removed to facilitate the proposals

Category U - Unsuitable for retention on arboricultural grounds

T1 (A)  
G1 (A)

Scale 1:2000 @ A3

0

50

100m

**NOTES**

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

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

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

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

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project  
Land off Fryatts Way  
Bexhill-on-sea

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TREE RETENTION PLAN

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## **APPENDICES**

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## Appendix A - Tree Schedule

Measurements	Age Classes	Quality Assessment of BS Category	ULE (relates to BS Category)
<b>Height</b> - Measured using a digital laser clinometer (m)	<b>YNG:</b> Establishing, typically with good vigour and fast growth rates and strong apical dominance; c. less than 1/3 life expectancy	<b>Category U</b> - 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
<b>Stem Dia.</b> - Diameter measured (mm) in accordance with Annex C of the BS5837	<b>SM:</b> Semi-mature trees less than 1/3 life expectancy	<b>Category A</b> - Trees of high quality with an estimated remaining life expectancy of at least 40 years.	40+ years
<b>Crown Radius</b> - Measured using a digital laser clinometer radially from the main stem (m)	<b>EM:</b> Established, typically vigorous and increasing in apical height and lateral spread; 1/3 - 2/3 life expectancy. Offers landscape significance	<b>Category B</b> - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	20-40 years
<b>Abbreviations</b>  est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	<b>M:</b> Fully established over 2/3 life expectancy, generally good vigour and achieving full height potential with crown still spreading	<b>Category C</b> - 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
	<b>OM:</b> 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	
	<b>V:</b> 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.	<b>The BS category particular consideration has been given to the following:</b> <ul style="list-style-type: none"> <li>• The presence of any structural defects in each tree/group and its future life expectancy</li> <li>• The size and form of each tree/group and its suitability within the context of a proposed development</li> <li>• The location of each tree relative to existing site features e.g. its screening value or landscape features</li> <li>• Age class and life expectancy</li> </ul>	

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

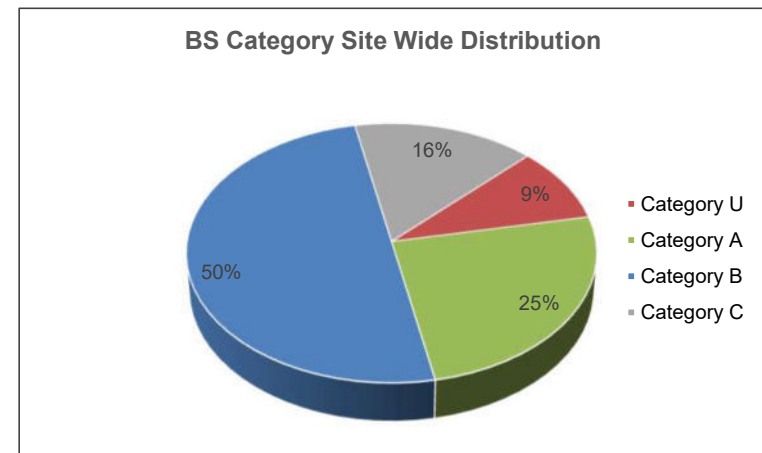
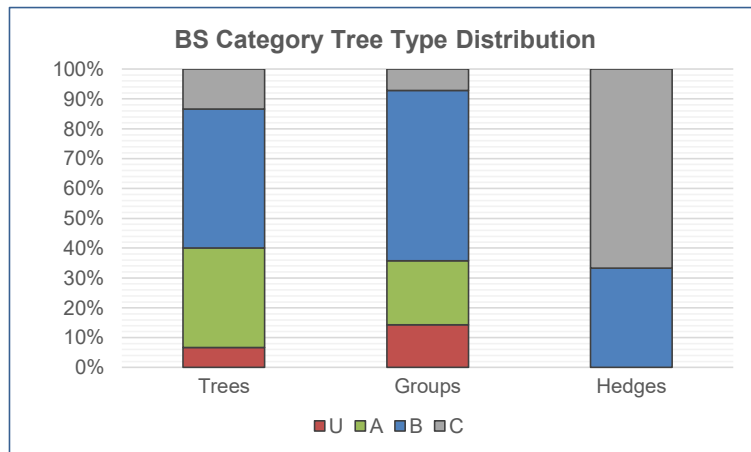
Root Protection Area (RPA)
<ul style="list-style-type: none"> <li>• The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m).</li> <li>• The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the 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.</li> <li>• Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.</li> </ul>

### Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U	T12	1	G7, G8	2
Category A	T2, T3, T4, T6, T9	5	G1, G11, G13	3
Category B	T1, T7, T8, T10, T13, T14, T15	7	G2, G3, G5, G6, G9, G10, G12, G14, H1	9
Category C	T5, T11	2	G4, H2, H3	3
	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>17</b>

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

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



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
<b>INDIVIDUAL TREES</b>										
T1	English Oak Quercus robur	13	est 500	6	EM	F	Hedgerow standard. Stem bifurcates at c.4m agl. Minor dead wood is present but tree appears in fair condition. Canopy is well budded and fairly open in character.	113	6.0	B (ii)
T2	English Oak Quercus robur	24	est 1320	8	M	F	Large single stemmed specimen with good stem taper. Burr were noted on lower stem but no outward evidence of instability was evident. A large historic pruning wound was noted on north aspect of stem. This wound appears fully occluded. Tree is of a relatively good form it is prominent in the location and warrants a Category A.	707	Capped at 15m	A (ii)
T3	English Oak Quercus robur	25	est 1100	9	M	F	Crown is suppressed very slightly to the west by neighbouring trees. Stem bifurcates at approximately 4m with two co-dominant leaders trending north and south respectively. Ivy coverage is dense from c.4m and extends in to canopy. A bark wound (150mm x 200mm) is present on north face of stem. Heartwood is exposed and minor lateral decay was noted. Wound attributable to machinery damage. Category A for prominence and condition.	547	13.2	A (ii)
T4	Ash Fraxinus excelsior	15	Over ivy 1530	9	V	P / F	Woodpecker holes noted throughout canopy. Burrowing present at base of stem. Where burrow is present it appears a major root has rotted out. Perennial fruiting bodies noted adjacent to rotted root and burrow. Significant branch tear out and internal hollowing present on north east trending branch. Branch is attached at c.4m agl. Tree is contained within a group with an understorey of birch and blackthorn. Girth over ivy c.4.8m at breast height. Tree is separated from field by wet ditch. Daldinia concentrica King Alfreds Cakes Ganoderma australe (adspersum) Southern bracket  "Qualifying" veteran features recorded: Major stem cavities / hollowing, Decay holes, Epicormic growth, Large quantities of major dead wood, Crevices sheltered from rainfall, Fungi, Evidence of independent wildlife species, An old look or Aesthetic value	1655	23.0	A (iii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T5	English Oak Quercus robur	20	est 800	6	OM	P	Significant bark wound is present on stem extending from ground level up to c.8m agl. Tree is in decline but valuable from a habitat perspective. Canopy is sparse and buds/leaves mainly restricted to upper reaches likely due to shading from poplars. Ideally retain in greenspace for habitat value but monitor for condition and any hazardous dead wood removed.	290	9.6	C (iii)
T6	English Oak Quercus robur	28	est 1300	9	M	F	Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Large mature specimen with dead and broken branches noted throughout canopy. Dead wood wound expected of a tree of this stature. Tree is present on a bank with a ditch at the north base of the stem. Burring present on west face of stem.	707	Capped at 15m	A (ii)
T7	Sycamore Acer pseudoplatanus	18	est 800	8	M	F	Stem bifuricates at c.5m agl. Canopy appears full and in good vigour. Densely populated with buds. The canopy is quite congested and numerous tight forks are present. No work is recommended at present but condition of tree must be monitored and pruning considered if failure is deemed likely in the future.	290	9.6	B (ii)
T8	English Oak Quercus robur	20	est 900	8	EM	F	Broken branches evident Epicormic growth evident within the crown No major defects were noted Pruning wounds noted Lacks stature and maturity of neighbouring Category A. Retention should still be prioritised.	366	10.8	B (ii)
T9	English Oak Quercus robur	20	est 1250	13	M	F	Broken branches evident Tree is large in stature and prominent. Stem bifuricates at c.5m agl. Failed hazard beam and large (c.150mm diameter at point of failure) suspended branch present on eastern aspect of canopy.	707	15.0	A (ii)
T10	English Oak Quercus robur	20	est 1000	5	M	F	Stem has been pruned to a height of c.8m to achieve views from property on to site. Canopy has also been heavily pruned in the past presumably for the same reason. Unremarkable specimen.	452	12.0	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T11	English Oak Quercus robur	20	est 500 600	7	M	P	Pruning wounds noted Crown has been heavily pruned. So too has stem. Large dead stub end branches are present in canopy. Relatively poor specimen in comparison to much of the oak stock on site.	276	9.4	C (ii)
T12	English Oak Quercus robur	15	est 400	6	EM	P	Stem bifuricates at c.5m. The union here is especially tight and a bark ridge indicating included bark is present. Surrounding the union both above and below is lifted bark indicating dysfunction here. Remove tree due to public location and likely weakness of primary fork.	N/A	N/A	U
T13	English Oak Quercus robur	15	est 500	N - 5 S - 5 E - 5 W - 8	EM	F	Base obscured Unable to gain access Stem bifuricates at c.4m. Western leaders extends over site by c.8m	113	6.0	B (ii)
T14	English Oak Quercus robur	15	est 400	4	M	F	Stem has been pruned to a height of c.10m to achieve views from property on to site. Canopy has also been tightly pruned in the past presumably for the same reason. Unremarkable specimen.	72	4.8	B (ii)
T15	English Oak Quercus robur	18	est 500	6	M	F	Stem has been pruned to a height of c.10m to achieve views from property on to site. Canopy has also been tightly pruned in the past presumably for the same reason. Unremarkable specimen. Stem bifuricates at c.11m. Epicormic growth present along the entirety of the stem likely induced by pruning.	113	6.0	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
<b>GROUPS OF TREES</b>										
G1	Ash Fraxinus excelsior Elder Sambucus nigra English Oak Quercus robur Goat Willow Salix caprea Silver Birch Betula pendula Downy Birch Betula pubescens Holly Ilex aquifolium	18	est 1000	9	EM / M / OM	D / P / F	Broken branches evident Dense ivy cover on main stem Dense undergrowth at the base Hazard beam present Tall linear group forming a prominent feature on northern boundary. Many of the trees are heavily congested with ivy. Understorey is dominated by holly which obscures much of the bases. Dead specimens were noted. As was large failed branches. Suspended deadwood is present throughout. Group is situated on a bank. Design must consider falling distance a suspended dead wood. Management of dangerous features should be considered dependent upon future public access. Category A for landscape value and habitat value. Access to the stem bases was not possible for the western field compartment.	452	12.0	A (ii)
G2	Elder Sambucus nigra English Oak Quercus robur Goat Willow Salix caprea Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Alder Alnus glutinosa Hazel Corylus avellana	16	est 9x 330	8	EM / M	F	Group follows boundary and stream. Less densely vegetated than G1 crowns do not coalesce to the same extent. G2 still forms a prominent landscape feature but with less visual impact than G1. Access to the stem bases was not possible for those trees in the north of the group in the north western field.	443	11.9	B (ii)
G3	English Oak Quercus robur Alder Alnus glutinosa Holly Ilex aquifolium Prunus sp.	20	est 800	7	EM / M / OM	D / P / F	Group growing offsite on western corner of site. Includes a standing oak monolith and a historically failed oak that is now leaning over the site but still maintains some live growth. A large oak in the east of the group leans over the site. Stem is c.10 degrees from vertical leaning to the north east. The condition of this tree and extent of lean should be regularly monitored. Group lacks the stature and prominence of G1. Pleurotus ostreatus Oyster mushroom	290	9.6	B (ii)

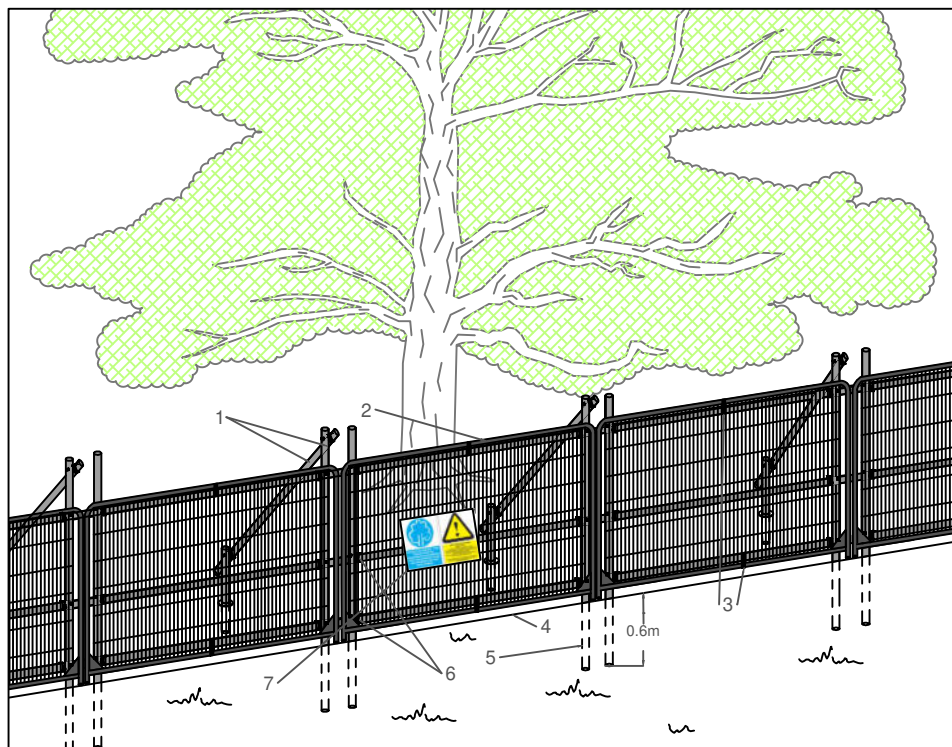


Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G4	Sycamore Acer pseudoplatanus Hazel Corylus avellana Holly Ilex aquifolium	8	est 200	3	EM	F	Short section of outgrown hedgerow boundary trees. Unremarkable in quality.	18	2.4	C (iii)
G5	English Oak Quercus robur Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Hazel Corylus avellana Holly Ilex aquifolium Populus sp.	20	est 400 400	10	EM / M	F	Mixed group containing a greater proportion of sycamore. Broken branches and suspended dead wood was noted. Group lacked the physical presence of G1. Nevertheless still a valuable landscape and habitat feature.	145	6.8	B (ii)
G6	Ash Fraxinus excelsior Elder Sambucus nigra English Oak Quercus robur Goat Willow Salix caprea Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Alder Alnus glutinosa Downy Birch Betula pubescens Hazel Corylus avellana	18	est 800	7	EM / M / OM	F	Consisting many etiolated trees following flowing ditch. Trees are unremarkable in terms of quality but value is attributed to screening value rather than any particular arboricultural merit. Standing stumps and failed trees were noted. A number were heavily congested with ivy from base through to the canopy. Good candidate for regeneration via new planting and pruning/removal of poorer specimens.	290	9.6	B (ii)
G7	Hybrid Black Poplar Populus x canadensis	35	est 1100 1000	10	OM	P	Tall over mature group of three trees. One is twin stemmed from base. Historic failures of significant branches were noted throughout the canopies. Similarly the central tree has sheered off completely at a point of bifurcation. Heart wood is exposed. Trees are at maturity and should be removed on safety grounds in light of potential future public access.	N/A	N/A	U

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G8	Hybrid Black Poplar Populus x canadensis	35	est 1100	8	OM	P	Two trees. Significant rot hole and hollowing at the base of the western tree. Extensive decay and fruiting bodies noted. Trees should be removed on public safety grounds. Armillaria mellea Honey fungus	N/A	N/A	U
G9	Blackthorn Prunus spinosa English Oak Quercus robur Hazel Corylus avellana Holly Ilex aquifolium	11	est 150 200 300 300	4	EM / M	F	Outgrown hedgerow of mainly hazel featuring one outgrown multi stemmed holly. Category B for habitat and landscape value.	150	6.9	B (ii)
G10	English Oak Quercus robur Hawthorn Crataegus monogyna Holly Ilex aquifolium	18	est 600	8	EM	F	Outgrown section of remnant hedgerow containing three standard oaks. Dysfunction branch tear out wounds and broken branches were noted throughout the canopy of the northern most oak. Category B for landscape value.	163	7.2	B (ii)
G11	English Oak Quercus robur	20	est 1150	9	M	F	Broken branches evident Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) No major defects were noted Linear group of five mature oaks. Very visible from neighbouring properties. Outgrown standards of remnant hedgerow. Suspended aerial dead wood. Category A for condition and landscape value.	598	13.8	A (ii)
G12	English Oak Quercus robur	18	est 500	8	EM	F	Ten trees. A linear group no understorey and evidence of livestock resting underneath due to bare ground. Lacks stature and maturity to warrant a Category A	113	6.0	B (ii)

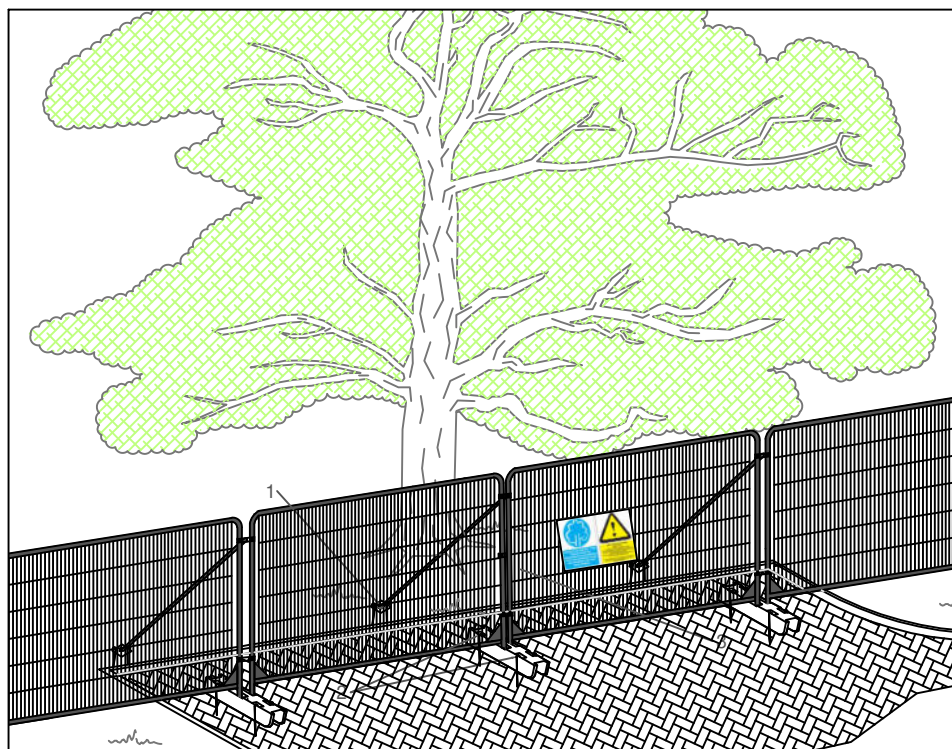
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G13	English Oak Quercus robur Holly Ilex aquifolium	20	est 600 600	9	EM / M	F	Linear group of nine early mature/mature oak with a sporadic understorey of hawthorn and holly. Likely that the understorey is a remnant hedgerow. Two of the oaks were twin stemmed from base (2nd and third trees from west). The forks were relatively tight and pronounced bark ridges were noted. This indicates included unions. The group is highly visible from neighbouring properties and despite the two twin stemmed trees is deemed to merit Category A on landscape basis.	326	10.2	A (ii)
G14	English Oak Quercus robur	18	est 600	9	EM / M	F	Base obscured Dense ivy cover on main stem Unable to gain access Five trees present on boundary. Group overhangs site by c.9m. View of stems obscured almost entirely by ivy. Dead and fallen branches were noted.	163	7.2	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
<b>HEDGEROWS</b>										
H1	Blackthorn Prunus spinosa English Oak Quercus robur Goat Willow Salix caprea Hawthorn Crataegus monogyna Downy Birch Betula pubescens	5	est 100 50 50	2	EM	F	Canopy is blackthorn dominated in east shifting to goat willow dominant in west. Western extent has been left to grow out for a number of seasons and is broad and tall. Eastern extent is narrower and more recently cut. The majority of the hedge is stock proof. Category B for landscape value.	7	1.5	B (ii)
H2	Elder Sambucus nigra Hawthorn Crataegus monogyna Holly Ilex aquifolium	6	est 8x 80	1.5	EM	P	Un-maintained hedgerow Remnant section of hedgerow	23	2.7	C (iii)
H3	Hawthorn Crataegus monogyna Holly Ilex aquifolium	1.5	est 30 30 100	1	EM	P / F	Maintained hedgerow Square form hedgerow forming rear garden boundaries	5	1.3	C (ii)



### Standard specification for protective barrier

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



### Above ground stabilising systems

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

### NOTES

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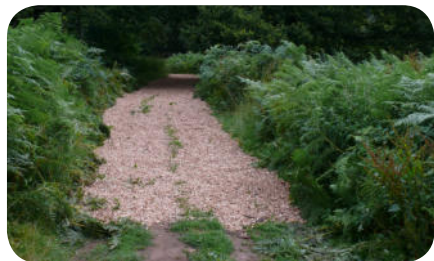
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## APPENDIX B PROTECTIVE FENCING SPECIFICATIONS

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# Cellweb® TRP Installation Guide



*Step 1: Prepare Surface*



*Step 2: Lay out Treetex™*



*Step 3: Lay out Cellweb® TRP*

- Cellweb® TRP is a NO DIG tree root protection measure and it is recommended that no excavation be performed without prior approval and guidance from the Local Authority Arboricultural Officer.
- Soil compaction from vehicles, machinery and materials is to be strictly prohibited during construction within Root Protection Areas (RPAs).
- Approval must be obtained from the Local Authority that the design and the method of construction is acceptable.
- Further information is available from the following two documents;
  - British Standard BS5837: 'Trees in Relation to Design, Demolition and Construction' (2012).
  - Arboricultural Advisory and Information Service: Practice note 12 – 'Through the Trees to Development' (APN12).

## Installation Method

### 1. Prepare the Surface

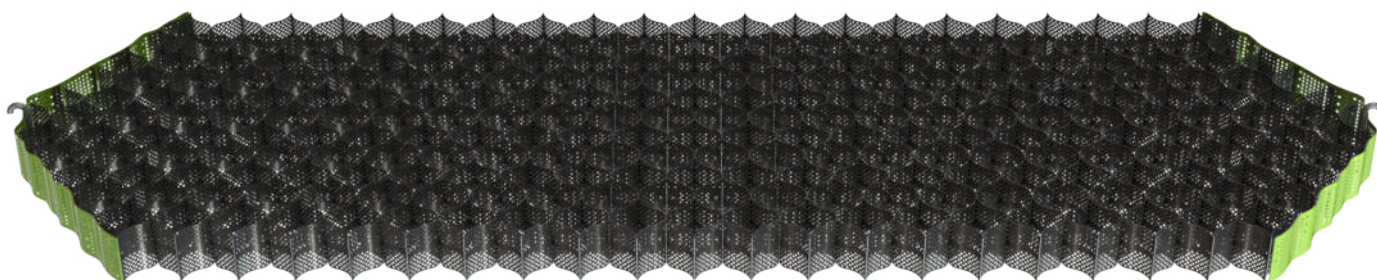
- Remove the surface vegetation using appropriate hand held tools or herbicide (see Note 1).
- Remove any surface rocks, debris and organic material.
- Create a level surface by filling any hollows with clean angular stone or sharp sand.
- Do not level off high spots or compact the soil through rolling.

### 2. Lay out the Treetex™ Non-Woven Geotextile

- Lay out the Treetex™ over the prepared area, overlaying the edges of the required area by 300mm.
- Overlap any joins by 300mm minimum or more, depending on soil structure (see Note 2).

### 3. Lay out the Cellweb® TRP Cellular Confinement System

- Lay out the collapsed Cellweb® TRP on-top of the Treetex™.
- Place one of the supplied J pins into the centre cell at the end of the panel and secure into the ground.





# Cellweb® TRP - Installation Guide

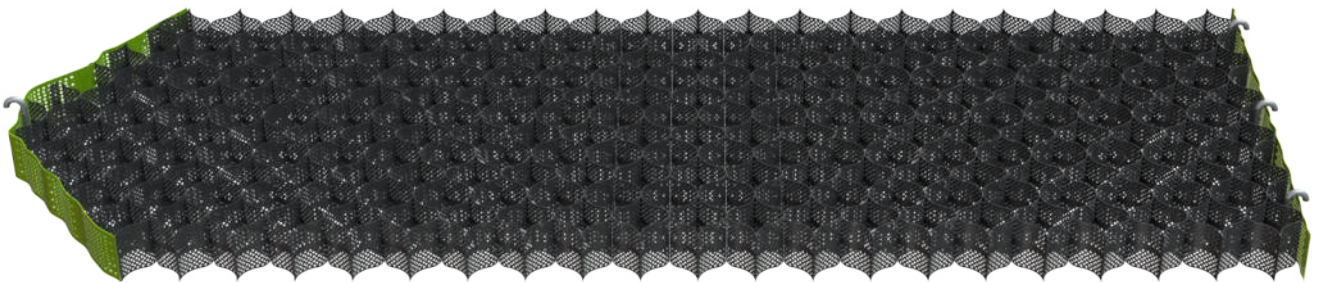


*Step 3: Pinning Cellweb® TRP*

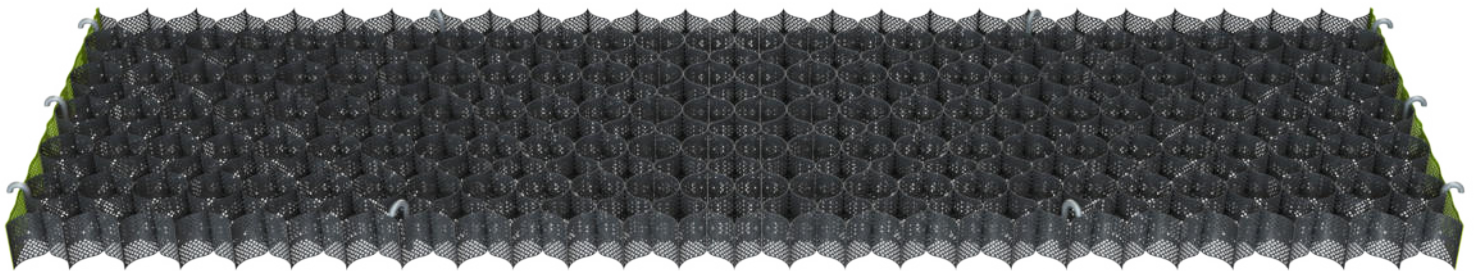


*Step 3: Stapling Cellweb® TRP*

- Pull out the Cellweb® TRP to its full 8.1m length and secure its length with another J pin.



- Now measure its width to 2.56m and secure in each of the corners with the J pins.
- Use 10 pins per panel to create a panel measuring 8.1m x 2.56m.



- This will produce a cell size of 259mm x 224mm which is the required cell aperture. Each cell must be fully extended and under tension.
- Staple adjacent panels together at each cell (see Note 3).
- If a curved path or shape is required, this should be cut when the Cellweb® TRP panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. Do not try to curve or bend the Cellweb® TRP panels into place.
- When cutting Cellweb® TRP, please bear in mind that you will lose two internal cells per cut. Across a 8.1m long panel, this equates to a loss of 0.224m x 2 along the length or 0.259m x 2 across the width.



# Cellweb® TRP - Installation Guide



*Step 4: Clean Angular Stone*



*Step 5: Edge Restraints*



*Step 6: Surface Options*

## 4. Infill the Clean Angular Stone

- The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm (see Note 4).
- Do not use M.O.T type 1 or crushed stone with fines for tree root protection.
- Infill the Cellweb® TRP cells with the clean angular stone, working towards the tree and using the infilled panels as a platform.
- Minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface.
- No compaction is required of the infill. Do not use a whacker plate or other means of compaction.
- Encourage settlement of the stone with the use of a light roller or with 2-3 passes of the construction plant used for installation.
- If the clean angular stone is being used as the final surface; regular maintenance will be required to ensure a minimum overfill of 50mm.

## 5. Edge restraints

- Excavations for kerbs and edgings should be avoided within the RPAs.
- Where edging is required for footpath and light structures, a peg and treated timber board edging is acceptable
- Other options include wooden sleepers, kerb edging constructed on-top of the Cellweb® TRP system, plastic and metal edging etc.

## 6. Surface options

- All surfaces in Root Protection Areas must be porous. Surfaces can include porous block paving, porous asphalt, loose gravel, grass and gravel retention systems (e.g Golpla), resin bound gravel, concrete and astro turf.

## NOTES

- 1. Herbicide:** According to BS5837:2012 "The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from the manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained, species to be introduced, and existing sensitive habitats, particularly those associated with aquatic or drainage features."
- 2. Geotextile:** We recommend the installation of a Treetex™ under the Cellweb® TRP, or under the sub-base, if installed. The overlapping between adjacent rolls of Geotextile should be: CBR > 3%: 300mm minimum, CBR between 1% and 3%: 500mm minimum. CBR ≤ 1%: 750mm minimum.
- 3. Staples:** Number of staples per join: 200mm: 5 staples. 150mm: 4 staples. 100mm: 3 staples. 75mm: 3 staples.
- 4. Granular Fill:** Open graded sub-base, clean angular stone Type 4/20 or Type 20/40. Please refer to BS7533-13:2009 and to the Design Manual for Roads and Bridges (DMRB), Volume 4 Geotechnics and Drainage, Section 1 Earthworks, HA44/91, Volume 7 – IAN 73/06 Design Guidance for road pavement foundations and Manual of Contract Documents for Highway Works (MCHW), Volume 1 Specification for Highway Works for the construction and maintenance of the fill material.

