ARBORICULTURAL IMPACT ASSESSMENT

Land at Bilsham Road, Yapton

5304-RPS-XX-EX-RP-AR-9108
Land West of Bilsham Road
Arboricultural Impact
Assessment
V3
April 2025

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Approval for issue

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1 EXECUTIVE SUMMARY

Scope

1.1 RPS has been commissioned by Redrow Homes Ltd. to prepare an Arboricultural Impact Assessment (AIA) to accompany a planning application (the Application) for a proposed residential development (the Proposed Development). The Proposed Development is to be situated on agricultural land to the west of Bilsham Road, Yapton, West Sussex, BN18 (the Application Site), referred to in this document as the Proposed Development.

1.2 Trees were recorded, and information was gathered, to allow them to be considered using guidance contained within BS5837:2012 - *Trees in Relation to Design, Demolition and Construction – Recommendations*.

1.3 This assessment identifies any vegetation requiring removal, pruning and how retained trees are to be protected during the implementation of the proposals.

Findings & Recommendations

1.4 The principles in BS5837:2012 were used to fully assess the impacts of the proposed works on the trees and other vegetation.

1.5 A check with Arun District Council found that no individual trees or tree groups within the site are protected by any Tree Preservation Order (TPO) or Conservation Area. There is however a TPO (reference: TPO/Y/4/18) associated just offsite to the northwestern corner of the existing field parcel.

1.6 A total of 18 individual trees were surveyed during the visit in addition to 3 groups of trees, 1 hedgerow and 2 areas of scrub.

1.7 The distribution of tree features retention categories are as follows: 6 Category A; 7 Category B; 11 Category C.

1.8 In order to facilitate the development proposals, there will be a requirement to partially remove 1 section of group G1 and 1 section of scrub S1.

1.9 Due to the constraints led design process, all of the arboricultural features on site are to be retained, and most of them in their entirety. The partial loss of the 2 Category C tree features is not considered to be a significant constraint to the Proposed Development.

1.10 The Proposed Development will result in an incursion into the Root Protection Areas (RPA) of Category A individual tree T2 and a Category B individual tree T3, to construct a proposed footpath. To mitigate for any potential negative impacts to this high-quality specimen, a “No-dig” design principal should be adopted to construct the footpath. It is recommended details of the implementation of the cellular confinement system required to construct the footpath whilst not causing any foreseeable damage to trees T2 & T3, should be set out in an Arboricultural Method Statement (AMS) document.

2 INTRODUCTION

2.1 RPS were instructed on behalf of Redrow Homes Ltd. to provide an arboricultural survey and assessment in support of a full planning application to Arun District Council (as the 'Local Planning Authority') for the proposed residential development on agricultural land to the west of Bilsham Road, Yapton, West Sussex, BN18.

2.2 The arboricultural survey was undertaken in accordance with BS5837:2012, as described within the *Survey Methodology* guidance attached to this report at Appendix A.

2.3 The purpose of the survey was to gather data on the trees present within the site and to prepare a Tree Constraints Plan (see drawings 5304-RPS-XX-EX-DR-AR-9101-9102) that could be used to assess any potential impacts of the development.

2.4 The *Survey Methodology* guidance at Appendix A explains the process of interpreting the plan and how it is used during the design and impact assessment process.

2.5 This report has been prepared to support and expand upon the data presented on the Tree Constraints Plan, in addition to summarising the quality and condition of the tree stock present on the site.

2.6 This report should be read in conjunction with the supplied Tree Constraints Plan (see drawings 5304-RPS-XX-EX-DR-AR-9101-9102) and the Tree Removal and Protection Plan (see drawings 5304-RPS-XX-EX-DR-AR-9109-9110) and all other relevant Tables and Appendices as detailed within the table of contents.

2.7 During the site tree survey, tree positions were plotted using the Topographical Survey provided by the client, and Axiscape software. The data was then collated and presented using AutoCAD in the forms of the Tree Constraints Plan and Tree Removal and Protection Plan attached to this report.

2.8 The survey was carried out by RPS Landscape/Arboriculture Director David Cox, the report written by RPS Senior Arboriculturist Elva Preston and amended by RPS Arboriculturist Poppy Bowyer-Hogg.

Limitations

2.9 The survey undertaken on the site does **NOT** constitute an in-depth 'Tree Condition Survey', it has been undertaken to aid in the Application process and has been undertaken to the standards of BS5837:2012.

2.10 The findings of this survey are not valid following adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events.

3 SITE INFORMATION

3.1 The Application Site extends to approximately 10 hectares (Ha) in size and is located to the south of the village of Yapton, on the western side of Bilsham Road, and approximately 6 km to the southwest of Arundel, West Sussex. Access/egress to the site is to the east off Bilsham Road. The Application Site is situated within the District of Arun and the county of West Sussex. The site is centred roughly on the OS grid reference: **SU 97606 02425.**

3.2 The site can also be located using the 'What3Words' co-ordinates: **/// lawyer.workloads.slime.**

3.3 A check with Arun District Council found that no individual trees or tree groups within the site are protected by any Tree Preservation Order (TPO) or Conservation Area. There is however a TPO (reference: TPO/Y/4/18) associated just offsite to the northwestern corner of the existing field parcel. This has been shown on the Tree Constraints Plan (ref: 5304-RPS-XX-EX-DR-AR-9101-9102) at the end of this report.

3.4 In the main, the trees on site were found to be situated around the perimeter of the sections of field. The woody vegetation comprised of scrub and hedgerow sections, individual trees and tree groups. The site's highest quality specimens were situated along the southern and eastern boundaries with the northern and western boundaries largely devoid of tree cover.

3.5 The most commonly recorded tree species were the native trees oak (*Quercus robur*) and field maple (*Acer campestre*). With groups of trees and hedgerows providing a wide mix of native species.

4 TREE QUALITY ASSESSMENT

Retention Values

4.1 All trees inspected were categorised using BS5837:2012 and the attached Tree Constraints Plan (see drawings 5304-RPS-XX-EX-DR-AR-9101-9102) shows tree positions, numbers and retention categories. Trees were recorded as individuals and as groups.

4.2 Trees have been surveyed as groups where they can be considered as forming a group as they form cohesive features either aerodynamically (i.e. they form a discrete group feature providing companion), culturally (i.e. they are composed of trees of a similar size, age and species subject to the same management) or visually (i.e. where the value of the trees within the group is as a whole rather than individually).

4.3 Where trees have been surveyed as groups the details recorded with respect to condition and retention value intend to represent an average tree within the group; however, on occasion, it must be noted that there will be exceptions within any group that do not conform to the typical character of that group.

4.4 The initial stage of a tree survey in accordance with BS5837:2012 looks at the trees on the site in terms of life expectancy and condition. Trees are then categorised according to their retention value.

4.5 **Category A** trees are those that have been assessed as being of a high quality and value; significant amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Green on the Tree Constraints Plan.

4.6 **Category B** trees are those that have been assessed as being of a moderate quality and value; amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Blue on the Tree Constraints Plan.

4.7 **Category C** trees are those that have been assessed as being of a low quality and value; the loss of these specimens should not be considered as a constraint to development. These trees are shown in Grey on the Tree Constraints Plan.

4.8 **Category U** trees are those that have been assessed as being in poor condition and having no retention value; these trees should not be a material consideration in the planning process. These trees are shown in Red on the Tree Constraints Plan.

4.9 A total of 18 individual trees were surveyed during the visit in addition to 3 groups of trees, 1 hedgerow and 2 areas of scrub.

4.10 The distribution of tree features retention categories are as follows: 6 Category A; 7 Category B; 11 Category C.

4.11 All of the scrub and tree groups were recorded as Category C, meaning they are of low quality. This is predominantly due to their thick and unmanaged nature. However, although they provide

little arboricultural value to the site, they should be retained if feasible to do so as they provide valuable ecological habitat.

Physiological Condition

4.12 Trees considered to be in a good physiological condition are those with crown density and shoot extension growth levels within the expected ranges for their age and species. Generally, these trees, subject to being of a suitable structural condition, can be expected to make a lasting contribution to the site. Additionally, trees within the good condition class are likely to tolerate changes within their growing environment that occur as a result of development as such their successful retention will be easier to achieve.

4.13 Trees considered to be in a fair physiological condition are those specimens exhibiting lower shoot extension growth and reduced crown density than would typically be expected. These specimens have a lower life expectancy than those within the good condition class and will not tolerate significant changes as a result of development as well as those in the good condition class.

4.14 Trees considered to be in a poor physiological condition are those exhibiting crown and shoot dieback and significantly reduced crown density. Trees of a poor physiological condition are not likely to make a lasting contribution to the site and whilst their retention in the short term may be beneficial such retention will only be achievable if the trees are fully protected throughout development as they will not tolerate changes in their growing environment.

4.15 The distribution of physiological condition across the 18 individual trees was: **13 'good'**, **1 'fair' and 4 'good/fair'.**

Structural Condition

4.16 There were great variations in the structural condition of the trees surveyed; however, tree condition is often largely consistent with expectations for the age, management and species of a tree.

4.17 The majority of structural defects that were noted across most of the tree stock on the site, such as minor deadwood in tree crowns, were not considered significant and are unlikely to result in the premature failure of the tree.

4.18 The dieback and structural defects found in the ash trees surveyed (especially T18) is consistent with the state of many ash trees nationally. This is largely the result of an epidemic of the fungal pathogen *Hymenoscyphus fraxinus*, commonly known as 'Ash Dieback.'

4.19 The distribution of structural condition across the 18 individual trees was: **15 'good'**, **2 'fair' and 1 'poor'.**

Age Distribution

4.20 Trees assessed as being young (Y) in age are those considered to be less than 10 years old. These trees can generally be considered to have the potential for rapid and significant future growth. Whilst these specimens are not likely to make a substantial contribution to the landscape character

of the site at present they will, if retained, provide succession for the eventual removal of mature or over-mature trees as a result of declining physiological or structural condition.

4.21 Trees assessed as being semi-mature (SM) are those of more than 10 years old but having attained less than 40% of the maximum lifespan expected for the species. These trees will generally make some contribution to the current landscape character and appearance of the site and their retention will provide a more immediate succession of mature trees. As with young trees these specimens will have the potential for rapid and significant future growth.

4.22 Early-mature trees (EM) are those considered to have reached between 40% and 70% of their ultimate life expectancy. These trees are generally not considered to have a significant potential for future growth though they will increase in size at a slower rate than young and semi-mature trees.

4.23 Mature trees (M) are those considered to have reached between 70% and 100% of their species life expectancy. These trees will have little future growth potential, and they have generally reached their maximum expected size for the location. These trees will generally make the highest contribution to the landscape character of the site at this time; however, a tree stock over dominated by mature trees will require careful management to ensure that a continuation of canopy cover can be achieved.

4.24 Over-mature trees (OM) are those considered to have existed for longer than typical of their species. They do not have the potential to increase in size and may in fact reduce in size as their crowns begin to break up. These trees will often make a significant contribution to the landscape character of the site and are likely to have ecological value. However, the retention of these trees within new development must be carefully planned as they are approaching the end of their useful life expectancy, and they will often have structural defects. Where over-mature trees are to be retained in new development it is essential that access is available for their eventual removal.

4.25 Veteran trees (V) are those that show features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species. These trees have negligible potential to increase in size. Veteran trees are usually of a high ecological value, and they will require sensitive management where they are to be retained in new development. As such it is again essential that they are located in areas where access is available to undertake management operations and where there is a reduced risk of harm occurring from failure of the trees.

4.26 The distribution of age classes recorded in the 24 arboricultural features present is: **2 young**, **5 early-mature**, **16 mature and 1 over-mature**.

Species Distribution

4.27 The species recorded during the survey are listed below:

BOTANICAL NAME	COMMON NAME
Acer campestre	Field Maple
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Fraxinus excelsior	Ash
Prunus cerasifera	Myrobalan plum
Prunus spinosa	Blackthorn
Quercus robur	Oak
Salix caprea	Goat willow
Sambucus nigra	Elder
Ulmus procera	English elm

5 GENERAL ARBORICULTURAL GUIDANCE

Tree Retention / Removal

5.1 Trees can offer many benefits, including the provision of visual amenity, softening or complementing the effect of the built environment, adding maturity to new developments and by making places more comfortable in tangible ways e.g. contributing screening and shade, reducing wind speed and turbulence, intercepting snow and rainfall, and reducing glare.

5.2 The prioritisation for tree retention should be based upon the guidance contained within BS5837: 2012 - Trees in Relation to Design, Demolition and Construction- Recommendations. Category A trees should be seen as the highest priority for retention and Category C the lowest.

5.3 Category U trees have no retention value and in most circumstances such specimens will not be considered for retention within new development. Even if such specimens do not have to be removed for the Proposed Development, they should be considered for removal regardless under good arboricultural practice.

5.4 When considering the extent of tree retention on site with respect to Category C trees priority should be given to the trees that have been included within this category due to their having stem diameters of less than 150mm at 1.5m above ground level, as these specimens are relatively young trees with future potential.

Working Within or Near the RPA of Retained Trees

5.5 Where possible all construction shall be situated outside of retained trees designated RPA as the installation has the potential to cause soil compaction, root damage and to reduce nutrient and moisture availability to tree roots to the detriment of tree health and vitality.

5.6 However, where there is an overriding justification for working within the RPA of a retained tree, technical solutions might be available that prevent damage to the tree.

5.7 In this respect it can be noted that the use of traditional trenching methods within the RPA could result in extensive root loss and should be avoided.

5.8 In order to arrive at a suitable solution site specific advice should be sought from the project arboriculturist and an engineer.

5.9 Generally speaking, should new buildings be proposed within the RPA of an existing tree it will be necessary to take steps to minimise the potential impact to the tree to allow construction.

5.10 In this respect where it is intended to undertake construction operations within the RPA, precautions should be taken to maintain the condition and health of the root system and in particular to:

- Prevent physical damage to the roots during demolition or construction (such as by soil compaction or severing).
- Make provision for water and oxygen to reach the roots.

- Allow for the future growth of the root system; and
- Preserve the soil structure at a suitable bulk density for root growth and function (in particular for soils of a high fines content).

Service Installation

5.11 All service runs, utilities and similar infrastructure should take note of trees and allow for working methods that will minimise damage to trees by referring to documents such as NJUG Volume 4 - Guidelines for the planning, installation and maintenance of utility services in proximity to trees. (National Joint Utilities Group 2007).

New Tree Planting

5.12 Where tree planting is proposed, size and position should be considered, along with suitability of the species for the site. New tree planting should be measured and provide greater species diversity where possible so as to promote resilience and sustainability going forward. Consideration for initial maintenance through establishment should form part of the mitigation specification.

5.13 The new guidance provided in BS8545:2014 Trees: from nursery to independence in the landscape should also be considered and its recommendations followed.

6 ARBORICULTURAL IMPACT ASSESSMENT

Introduction

6.1 The construction process will need to be monitored during its progress and this Arboricultural Impact Assessment should be used as the document provided to guide the construction process.

6.2 Trees have finite energy reserves, developed each year throughout the growing season, which are utilised for biological processes such as growth and defence against pests or diseases throughout the following year.

6.3 Any development in proximity to trees has the potential to cause harm to those trees unless control measures are identified and acted upon; as such it is essential to consider the relationship between the Proposed Development and the retained trees to identify what precautions are necessary, proportionate and appropriate.

6.4 Development has the potential to impact upon the above ground and below ground parts of trees.

6.5 Whilst some damage that can occur, such as physical damage to the trees stems and branches from machinery movements, is clearly visible the impact from other aspects of work common on development sites which can have a significant effect upon the continued health of trees are not always immediately evident.

6.6 Damage that is not immediately evident, but which can cause long term harm to retained trees includes things such as damage to the soil structure by compaction causing root damage and levels changes altering the water table and affecting moisture availability.

6.7 To minimise the potential for harm to occur to retained trees all works should be carried out with regard to the tree protection measures detailed within this report.

6.8 In general, it can be seen that, by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided.

6.9 In particular the establishment of a Construction Exclusion Zone (CEZ) by erection of tree protection fencing (TPF) will minimise the potential for harm to occur to retained trees.

Brief Description of Proposed Development

6.10 This planning application seeks permission for the construction of a residential development on land West of Bilsham Road, Yapton. The development will comprise of residential units, public open space, on and off-street parking, roads, footpaths, street lighting, accompanying utilities, two local areas for play (LAP), a neighbourhood equipped area for play (NEAP), two attenuation basins and additional landscaping.

Tree Removal

6.11 In order to facilitate the development proposals, there will be no requirement to remove any trees from the site.

Tree Group/Scrub Removal

6.12 In order to facilitate the development proposals, there will be requirement to remove 2 sections of category C tree features, G1 and S1.

6.13 Due to the constraints led design process, all of the arboricultural features on site are to be retained, and most of them in their entirety. The partial loss of the 2 Category C group/scrub features is not considered to have a significant impact on the arboricultural value of the site and should not be regarded as a constraint to the Proposed Development.

6.14 The above removals can be seen in orange on the Tree Removal & Protection Plan (see drawings 5304-RPS-XX-EX-DR-AR-9109-9110).

Arboricultural Implications

6.15 To ensure that the trees can be successfully integrated within the Proposed Development the following factors have been considered or require consideration.

Root Protection Areas (RPA)

6.16 RPA for each tree surveyed have been determined in accordance with BS5837:2012 Section 4.6 Root Protection Area in the Standard and a schedule of RPA is attached to this report as Table 2.

6.17 Initial RPA for the trees were plotted onto the Tree Constraints Plan (see drawings 5304-RPS-XX-EX-DR-AR-9101-9102) and has been used to produce all relevant tree plans in this statement.

6.18 Areas where trees are located on site have been identified and the RPA information of these trees has been used in the design of the tree protection.

6.19 Following the removal of the specified trees and scrub, the vast majority of works will be undertaken outside of the RPA of all retained trees, groups and hedgerows.

6.20 The Proposed Development will result in an incursion into the Root Protection Area (RPA) of Category A individual tree T2 and a Category B individual tree T3 to construct a proposed footpath. To mitigate for any potential negative impacts to this high-quality specimen, a “No-dig” design principal should be adopted to construct the footpath. It is recommended details of the implementation of the cellular confinement system required to construct the footpath whilst not causing any foreseeable damage to tree T2 & T3, should be set out in an Arboricultural Method Statement (AMS) document.

6.21 A Construction Exclusion Zone (CEZ) will be installed to protect the RPA of trees adjacent works during construction. The location of the CEZ and Heras style tree protection fencing (TPF) can be

seen on the Tree Removal and Protection Plan (see drawings 5304-RPS-XX-EX-DR-AR-9109-9110).

Existing Canopy Spreads

6.22 Where the RPA for retained trees do not extend to the edge of existing canopy spreads, it is possible that those parts of the trees extending beyond the RPA fencing may sustain damage during construction.

6.23 A preliminary assessment has been carried out regarding the requirement to prune any retained trees on site. This has been done by cross referencing potential conflict between tree canopies and site works shown on the Tree Removal and Protection Plan with the recorded canopy heights for the trees. In the main, the development has been designed in a manner to include offsets from the field boundaries (where the majority of trees and hedgerows are located) and at present no pruning work will be needed for the development, these are discussed below.

6.24 All pruning requirements should, however, be checked prior to the implementation of the development to ensure that there remains suitable clearance from the erection of all site security (primary protective) fencing, the Heras-style fencing shown in the Tree Removal and Protection Plan as well as the proposed construction works.

Level Changes

6.25 Trees can be profoundly impacted by changes to ground levels within their RPA, both cutting and filling, and this is a factor that has been considered in this assessment and would be mitigated for through the retention of existing ground levels within this new proposed use of the land.

6.26 It is therefore a requirement that no earthworks be undertaken within the CEZ as indicated on the Tree Removal and Protection Plan (see drawings 5304-RPS-XX-EX-DR-AR-9109-9110). It is considered that this will be feasible given the nature of the development and the positioning of the majority of trees to the boundaries of the fields.

6.27 However, should development plans change, and this becomes unfeasible then it would require further assessment by the Arboricultural Consultant and / or Tree Officer as to the likely impacts this would have on retained trees.

Connections

6.28 Given the location of the majority of the retained trees to the boundaries of the fields, there should be no cause to excavate trenches for any infrastructure within the RPA of retained trees. However, if this is deemed to be necessary for any reason then this must be assessed further for potential impacts to tree roots.

6.29 In the event that it is unfeasible to avoid an RPA, this must be first assessed for impact by the Arboricultural Consultant and following this, if deemed tolerable by the tree, should allow for working methods that will minimise damage to trees. For example, reference to documents such as NJUG Volume 4 - Guidelines for the planning, installation and maintenance of drainage in proximity to trees. (National Joint Utilities Group 2007) may be suitable.

Planning of Site Operations

6.30 Planning of site operations will take sufficient account of trees to ensure that no access and movement of material into and around the site impact on trees. Consequently, any movement of plant or materials in proximity to trees will be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is always maintained.

6.31 All materials or fluids will not be stored within or near the RPA of retained trees, particularly those whose accidental spillage would cause contamination and damage to a tree. Fluids must be handled well away from the outer edge of the RPA of trees.

6.32 Correct planning of access routes and storage areas prior to start on site will ensure no impacts from these activities will occur. It is considered that there should be ample space away from trees for purposes of storage.

7 PRE-DEVELOPMENT WORKS

Standard of Work

6.33 All tree works should be carried out in accordance with BS3998:2010 Tree Work - Recommendations and latest arboricultural best practice.

6.34 All tree work should be carried out by suitably qualified, competent and insured arboricultural contractors.

6.35 All green and woody waste generated by the tree works shall be removed from site and disposed of in an environmentally sustainable manner. **Burning of green waste is not an applicable form of disposal.**

Timing of Works

6.36 All tree works shall be completed prior to commencement of any construction works on the site. All works shall be timed to have regard to the phenological cycles of protected species that are associated with trees, notably birds and bats.

Tree Protection Barriers

6.37 All primary tree protection fencing (Heras style) should be erected to the position shown on the Tree Removal & Protection Plan (see drawings 5304-RPS-XX-EX-DR-AR-9109-9110) during the pre-development periods also.

6.38 To ensure successful tree protection during this process, all operatives should be briefed on the need to pay full regard to existing trees and all operations adjacent to trees should be properly supervised. This will ensure the works will not adversely affect the trees.

6.39 The protective fencing barrier is to be constructed in accordance with the specification detailed at Appendix C. Once the protective barriers are in place they must remain in situ throughout the course of the development until the completion of all works associated with that section of the site.

6.40 Signs detailing the purpose of the protective fencing shall be attached to the fencing at 10m intervals. Such signs should be weatherproof and shall be substantially in the form of the specimen provided at Appendix D. Signs must be replaced as necessary should they be removed or become illegible.

6.41 Copies of the Tree Removal and Protection Plans (see drawings 5304-RPS-XX-EX-DR-AR-9109-9110) shall be placed in the site office for reference by all site staff.

6.42 Following erection of the protective fencing and prior to commencement of the development it is recommended that an inspection of the site, by either the Council's Tree Officer or the Arboricultural Consultant, is arranged to confirm fencing has been installed in accordance with the Tree Removal and Protection Plan and any relevant conditions that may be attached to a grant of planning consent for the development.

8 CONSTRUCTION WORKS

Construction Exclusion Zone

7.1 The Construction Exclusion Zone (CEZ) as defined by the protective fence line shall be regarded as sacrosanct, and the protective fencing shall not be moved or taken down at any time.

7.2 Within the CEZ there must be no mechanical digging or scraping, no alteration to existing ground levels including soil stripping, no earthworks, no handling or discharge of any chemical substance, concrete washings or of any fuels.

7.3 Furthermore, vehicular or pedestrian access and the storage of any equipment and materials is prohibited within the CEZ.

7.4 Additionally, no materials that may contaminate the soil such as concrete mixings, diesel oil and vehicle washings shall be discharged within 10m of the stem of any tree and no fires shall be lit within 10m of the maximum extent of a trees crown.

Site Compounds and Materials Stores

7.5 Activities related to the establishment of a temporary site compound have the potential to impact upon retained trees by various means. In particular the storage and mixing of chemicals and materials such as concrete can have a damaging effect on tree health if precautions are not taken.

7.6 To prevent harm occurring to trees provision for materials storage, site offices, deliveries and other related activities should be made available in areas away from retained trees.

7.7 The offices, parking of site and contractor vehicles, along with secure storage will be provided in an area away from retained trees and this area will be directly controlled by the Site Manager who will seek advice from the site Landscape Manager before allocating the area for these purposes.

Monitoring

7.8 Following erection of the protective fencing and prior to commencement of the construction phase, an inspection of the site by either the Council's Tree Officer or the Arboricultural Consultant should be arranged to confirm fencing has been installed in accordance with the Tree Removal & Protection Plan (see drawings 5304-RPS-XX-EX-DR-AR-9109-9110). It is also recommended that further monitoring visits be carried out following commencement of the works on site, ideally on at least a monthly basis to ensure ongoing functionality of the CEZ and to check on tree condition.

Reporting

7.9 During the construction phase of the development, the Site Manager will be responsible for liaising with the Council Tree Officer on all arboricultural issues. Should any arboricultural issues become apparent during the works the site manager should immediately contact the appointed Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

Tables

5304-RPS-XX-EX-SH-AR-9103 - TABLE 1: TREE DATA SCHEDULE

Key to Inspection Report Form

Species	Genus and variety
Height	Measured Clinometer Reading or Estimated Height in Metres
Girth (dbh @ 1.5m)	Diameter measured in cms, or estimated, where multi stemmed below 1.5m the diameter is taken as that just above the root flare
Spread (m)	Canopy height estimated in metres above ground level
Canopy height (m)	Crown Spread, radius estimated in metres
Physiological Condition	Good, Fair, Poor, Dead
Age Class	Y – Young MA – Maturing (Middle Aged) M – Mature OM - Over mature V – Veteran
Useful Life Expectancy (years)	10, 10-20, 20-40, 40+
BS Categorization	See Cascade Appendices 2

Tree Survey Schedule

Site Land West of Bilsham Road, Yapton
Project schedule ref: 5304-RPS-XX-EX-SH-AR-9103
Drawing reference: 5304-RPS-XX-EX-DR-AR-9101-9102
Survey date: 22/10/2024

Surveyor: D. Cox
Status: S3
Revision: P02
Ref: 5304-RPS-XX-EX-SH-AR-9103

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Ref. no.	Species	Height (m)	Crown spread (m) N	E	S	W	Stem dia. (m)	Stem no. at 1.5m	Height of crown clearance (m)	Dir/ height	Age class	Condition	Type	General observations Management recommendations	Estimated remaining contribution (years)	Tree Quality Category (BS5837)
T1	Acer campestre Field Maple	4.0	4.0	3.0	3.0	3.0	ave 0.1	+6	1.00	W	Y	Good	Good	Small, multi-stem Maple beside gate.	+ 20	C2
T2	Quercus robur Pedunculate Oak	10.0	12.6	9.0	10.4	10.2	1.02	1.00	2.2 1	W N/S	M	Good	Good	Fine, wide Oak. Set on shallow bank. Broad, primary frame. Ivy clad, concealing trunk. Some dead wood.	+ 40	A2/3
T3	Acer campestre Field Maple	6.0	8.0	4.0	4.0	4.0	0.55	1.00	3.00	W	M	Good	Good	Fine, low Maple, wide form. Some ivy.	+ 30	B2
T4	Acer campestre Field Maple	5.0	3.0	5.0	4.0	3.0	0.2 0.25	2.00	3.00	W	EM	Good	Good	Twin stem, dense epicormic.	+ 30	C2
T5	Quercus robur Pedunculate Oak	5.0	5.0	4.0	5.0	4.0	est 0.4	1.00	3.00	W	EM	Fine	Fine/Good	Low, overhead cable in canopy. Some dead wood.	+ 30	B2
T6	Acer campestre Field Maple	5.0	4.0	3.0	3.0	3.0	est 0.2	1.00	0.00	-	EM	Good	Good/Fair	Inaccessible, set in hedgerow.	+ 30	C3
T7	Corylus avellana Common Hazel	4.0	4.0	3.0	2.0	2.0	ave 0.02	+30	0.00	-	M	Good	Good	Hazel coppice.	+ 30	B3
T8	Corylus avellana Common Hazel	4.0	4.0	3.0	2.0	2.0	ave 0.02	+30	0.00	-	M	Good	Good	Hazel coppice.	+ 30	B3
T9	Quercus robur Pedunculate Oak	3.0	1.0	1.0	1.0	1.0	0.10	1.00	2.00	W	Y	Good	Good	Young sapling.	+ 20	C2
T10	Quercus robur Pedunculate Oak	16.0	10.0	9.0	10.0	8.0	0.85	1.00	2.50	W	M	Good	Good	Fine, maiden Oak. Even form. Some ivy. Prominent.	+ 40	A2
T11	Salix caprea Goat Willow	4.0	4.0	3.0	4.0	3.0	0.2 0.1 x4	5.00	0.50	W	M	Good	Good	Multi-stem Willow. Dense.	+ 20	C2
T12#	Quercus robur Pedunculate Oak	7.0	5.0	4.0	4.0	4.0	0.35	1.00	2.00	W	EM	Good	Good	Young with good potential. Fine form and vigour.	+ 40	A2
T13	Acer campestre Field Maple	6.0	7.0	5.0	5.0	6.0	0.55	1.00	1.00	W	M	Good	Good	Fine, low Maple. Maiden. Good vigour.	+ 40	A2

Note: This survey is based on a brief visual inspection from the ground.
It is not intended as a full arboricultural inspection.
- Indicates estimated tree. * - Indicates off site tree.

Tree Survey Schedule

Site Land West of Bilsham Road, Yapton
Project schedule ref: 5304-RPS-XX-EX-SH-AR-9103
Drawing reference: 5304-RPS-XX-EX-DR-AR-9101-9102
Survey date: 22/10/2024

Surveyor: D. Cox
Status: S3
Revision: P02
Ref: 5304-RPS-XX-EX-SH-AR-9103

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Ref. no.	Species	Height (m)	Crown spread (m) N	E	S	W	Stem dia. (m)	Stem no. at 1.5m	Height of crown clearance (m)	Dir/ height	Age class	Condition	Type	General observations Management recommendations	Estimated remaining contribution (years)	Tree Quality Category (BS5837)
T14	Salix caprea Goat Willow	7.0	4.0	3.0	2.0	3.0	0.35	1.00	2.00	W	M	Good	Good	Broad form, single stem below 2m.	+ 20	C2
T15*	Quercus robur Pedunculate Oak	16.0	8.0	9.0	9.0	8.0	0.75	1.00	2.00	S	M	Good	Good	Fine, off site Oak. South of ditch. Trifurcates at 1.6m.	+ 40	A2
T16	Quercus robur Pedunculate Oak	13.0	3.0	4.0	4.0	5.0	est 0.6	1.00	4.00	N	M	Fair	Fair	Southern side of ditch, lacks form and vigour.	+ 30	B2
T17	Fraxinus excelsior Common Ash	15.0	7.0	6.0	7.0	6.0	0.60	1.00	4.00	N	M	Good	Good/Fair	Southern side of ditch, lacks form and vigour.	+ 20	B2
T18	Fraxinus excelsior Common Ash	14.0	6.0	9.0	7.0	8.0	0.75	1.00	4.00	E	M	Poor	Good/Fair	Western side of stream. Bifurcates at 2.5m. Eastern bough lost and heavy decayed wound exposed. Exposed heartwood. Vigorous nonetheless. Inonotus fungi in main frame.	+ 20	A3
G1	Corylus avellana, Prunus spinosa, Prunus cerasifera, Sambucus nigra Common Hazel, Blackthorn, Myrobalan Plum, Elder	4.0	see plan				<0.15	var	0.00	-	M	Fair	Good	Mixed, boundary thicket or hedgerow relict. Hazel best specimens.	+ 20	C2/3
G2	Salix caprea, Crataegus monogyna, Ulmus procera Goat Willow, Common Hawthorn, English Elm	up to 8	see plan				ave 0.25	var	0.00	-	M/OM	F	Good/Fair	Mixed Willow group, some standing dead, few lapsed stems. Follows stream/ditch.	+ 20	C2/3
G3	Salix caprea Goat Willow	6.0	see plan				<0.15	var	0.00	-	M	Good	Good	Willow thicket following ditch.	+ 20	C2/3
H1	Corylus avellana, Prunus spinosa, Ulmus procera Common Hazel, Blackthorn, English Elm	3.0	see plan				<0.1	var	0.00	-	M	Fair	Fair/Good	Hedgerow/thicket. Sloe dominant. Few patches.	+ 30	B2/3
S1	Sambucus nigra, Rubus fruticosus, Rosa canina Elder, Bramble, Dog Rose	2.0	see plan				<0.05	var	-	-	EM	Fair	Fair	Scrub thicket, occasional Elder, Bramble dominant.	+ 10	C3
S2	Cornus sanguinea Common Dogwood	2.5	see plan				<0.1	var	0.00	-	M	Good	Good	Dogwood scrub.	+ 10	C3

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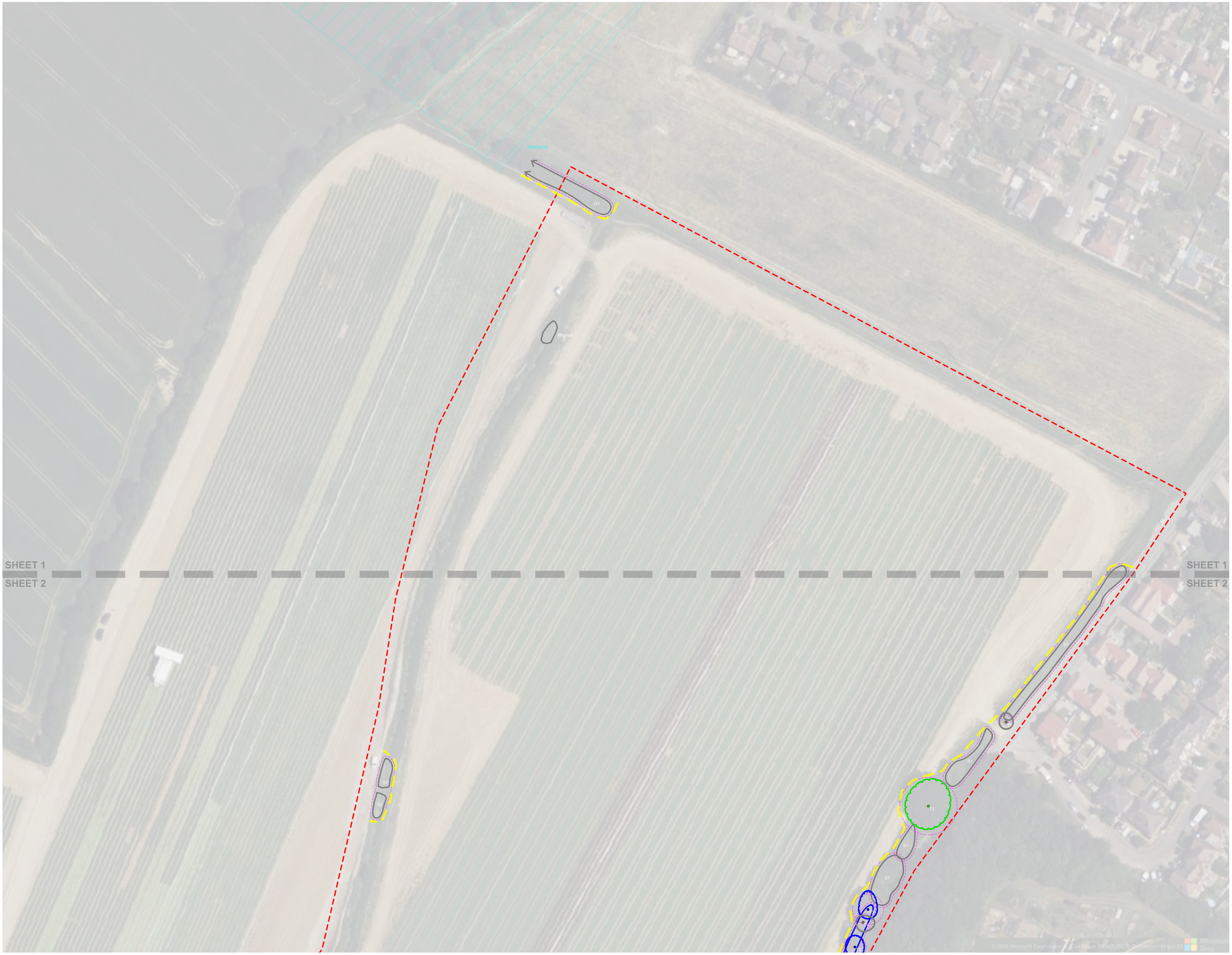
- Indicates estimated tree. * - Indicates off site tree.

Figures

5304-RPS-XX-EX-DR-AR-9101-9102 - TREE CONSTRAINTS PLAN

5304-RPS-XX-EX-DR-AR-9109-9110 - TREE PROTECTION & REMOVAL PLAN



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Key

Survey boundary.

Tree with numbered reference.
Canopy spread and coloured BS5837:2012 tree quality category as shown below.
= Tree details estimate (inaccessible tree)
* = Tree in off site location

Vegetation group with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below.

Hedge with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below.

Shrubs with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below.

BS 5837:2012 Tree Quality Categories - Table 1

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

Direction of first significant branch

Root protection area (RPA)
Calculated in accordance with Section 4.6 - BS5837:2012

Construction Exclusion Zone

Tree protected by Tree Preservation Order (Arun District Council). Bracketed number reference relates to the TPO Schedule.

NOTES:

- Refer to RPS Tree Survey Report & Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
- Survey based upon topographic survey produced by Survey Solutions in March, 2021

Scale Bar

0m 25m 50m

N

Rev	Description	By	CB	Date
B	T2 updated	DC	DC	Dec 24
A	Construction Exclusion Zone added	SH	DC	Oct 24

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Client: Redrow Homes

Project: Land West of Bilsham Road Yapton

Title: Tree Constraints Plan Sheet 1 of 2

Status	Drawn By	PM/Checked by
For Planning	SH	DC

Job Ref	Scale @ A0	Date Created
794-PLN-LAN-5304	1:500	Oct 2024

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0m 25m 50m

N

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Project: Land West of Bilsham Road Yapton

Title: Tree Constraints Plan Sheet 2 of 2

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For Planning	SH	DC

Job Ref	Scale @ A0	Date Created
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Key

Survey boundary.

T1 — Tree with numbered reference. Canopy spread and coloured BS5837:2012 tree quality category as shown below.
- # = Tree details estimate (inaccessible tree)
- * = Tree in off site location

G1 — Vegetation group with numbered reference. Canopy extents and coloured BS5837:2012 tree quality category as shown below.

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S1 — Shrubs with numbered reference. Canopy extents and coloured BS5837:2012 tree quality category as shown below.

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Direction of first significant branch

Root protection area (RPA) Calculated in accordance with Section 4.6 - BS5837:2012

Temporary protective fencing in accordance with Section 6.2 - BS5837:2012. See inset details for example details.

G1 — Vegetation group or hedge to be removed with numbered reference. Canopy spread and BS5837:2012 tree quality category.

T1 (TPO/Y/4/18) — Tree protected by Tree Preservation Order (Arun District Council). Bracketed number reference relates to the TPO Schedule.

Above ground construction requiring "No-dig" design principles in accordance with AA Guidance Note 12 Cellular Confinement Systems Near Trees. Works to be completed as part of landscape works after main construction works have been completed, using light/ hand tools only.

NOTES:
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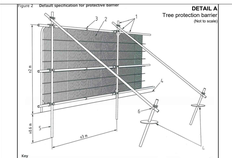
- Survey based upon topographic survey produced by Survey Solutions in March, 2021

Scale Bar

0m — 25m — 50m

Figure 2 Default specification for protective barrier

DETAIL A
Tree protection barrier
(Not to scale)

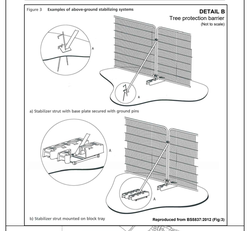


Key
1. Standard scaffold poles
2. Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3. Panels secured to uprights and cross-members with wire ties
4. Ground level
5. Uprights driven into the ground until secure (minimum depth 0.6 m)
6. Standard scaffold clamps

Reproduced from BS5837:2012 (Fig 2)

Figure 3 Examples of above-ground stabilising systems

DETAIL B
Tree protection barrier
(Not to scale)



a) Stabiliser strut with base plate secured with ground pins

b) Stabiliser strut mounted on block tray

Reproduced from BS5837:2012 (Fig 3)

P03	New alt southern pond layout added	PBH	TF	08.04.25
P02	New layout added	PBH	DC	01.04.25
P01	First issue	EP	DC	05.12.24
Rev	Description	By	CB	Date

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Project: Land West of Bilsham Road Yapton

Title: Tree Removal and Protection Plan Sheet 1 of 2

Status	Drawn By	PM/Checked by
For Planning	EP	DC

Job Ref	Scale @ A0	Date Created
794-PLN-LAN-5304	1:500	Dec 2024

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SHEET 2

N

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- S1 — Shrubs with numbered reference. Canopy extents and coloured BS5837:2012 tree quality category as shown below.

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- Direction of first significant branch
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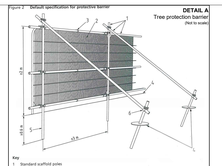
Scale Bar

0m 25m 50m

Figure 2 Default specification for protective barrier

DETAIL A
Tree protection barrier
(Not to scale)

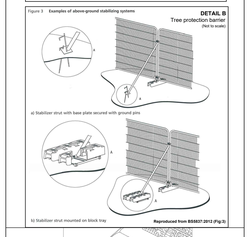


Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Reproduced from BS5837:2012 (Fig 2)

Figure 3 Examples of above-ground stabilizing systems

DETAIL B
Tree protection barrier
(Not to scale)



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Reproduced from BS5837:2012 (Fig 3)

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Project: Land West of Bilsham Road Yapton

Title: Tree Removal and Protection Plan Sheet 2 of 2

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794-PLN-LAN-5304	1:500	Dec 2024

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Appendix A

Survey Methodology

General

This report was authored by Elva Preston, Senior Arboriculturist, of RPS and amended by Poppy Bowyer-Hogg, Arboriculturist, of RPS.

The report and survey were carried out in general accordance with the requirements set out in BS 5837:2012 “Trees in Relation to Design, Demolition and Construction – Recommendations”.

Trees were inspected from ground level during a site visit. All data was recorded electronically within a the Axiscape software programme and then it was imported into an MS Access database. Individual tree numbers and locations were plotted by eye on to a drawing at the time of the survey. Tree positions were then related to a Topographical survey of the site provided, where not shown on the topographical survey tree positions have been plotted by eye only and require confirmation.

Trees were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimensions and characteristics.

The locations of the trees were based upon topographic survey of the site provided by the client.

The survey assesses individual trees and groups of trees for quality and benefits within the context of Proposed Development. The quality of each tree or group of trees has been recorded by allocating it to one of four categories as described the table below. These categories have been differentiated on the Tree Constraints Plan (5304-RPS-XX-EX-DR-AR-9101-9102).

The survey information was recorded on the attached Tree Survey Schedule (5304-RPS-XX-EX-DR-AR-9103 - Table 1) in general accordance with the guidance contained within Section 4 of BS5837:2012 “Trees in Relation to Design, Demolition and Construction - Recommendations".

Tree Constraints Plan

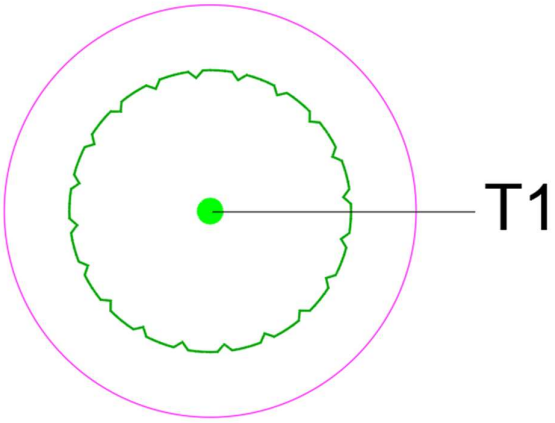
The Tree Constraints Plan (see drawings 5304-RPS-XX-EX-DR-AR-9101-9102) is designed to show the influence that the trees have upon the site by virtue of their size and position. The plan seeks to act as a design tool that shows both the above and below ground constraints presented by the trees.

The information provided within this section of the report is to assist in the interpretation of the Tree Constraints Plan and aims to ensure that those trees selected for retention can be successfully integrated within the Proposed Development.

It should be noted that some of the tree positions shown on the plan have been plotted using the provided topographical survey and others by eye to an Ordnance Survey base map and as such should be considered to be of a provisional nature.

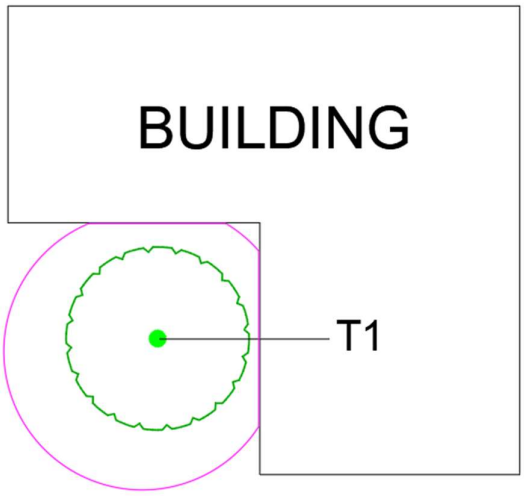
Root Protection Areas

Root Protection Areas for each tree and group of trees surveyed have been determined in accordance with BS5837:2012 and a schedule of Root Protection Areas is attached to this report as Table 2.



As shown to the right, Root Protection Areas (RPA's) for the trees, where no significant constraints to root development are considered to be present, have been plotted onto the Tree Constraints Plan as circles, with the tree located centrally, extending to encompass the area of ground, and thus the rootable soil volume, required for protection.

Where tree root spread is considered to have been influenced by site conditions the trees RPA's have been plotted to the Tree Constraints Plan as a polygon. The plotted polygon is of the **same area** as it would be as a circle and its shape reflects an arboricultural assessment of likely root distribution.

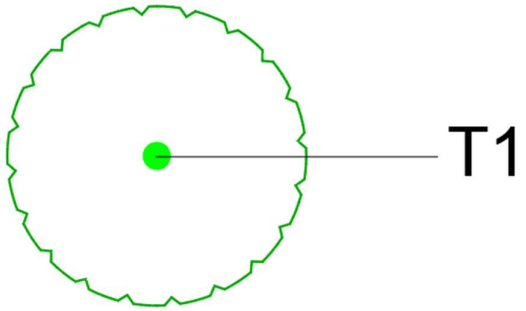


An example of a polygonal RPA, considered appropriate due to the presence of a building in close proximity to a tree, is shown to the right.

Where possible all development, including new hard landscaping, shall be situated outside of the retained trees designated Root Protection Areas.

Existing Canopy Spreads

The existing canopy spreads of the trees on site are shown on the Tree Constraints Plan as depicted here.



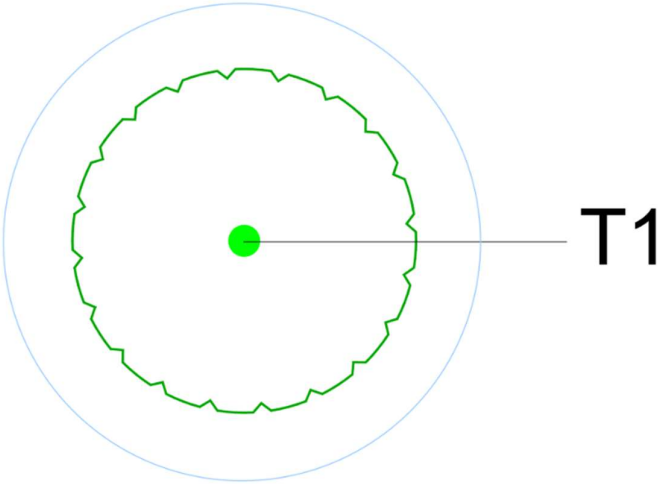
The current spread of the tree is a constraint due to its dominance, size and movement in strong winds.

It will typically be unacceptable to design any built development within the current spread of a tree.

Where built development is proposed in close proximity to existing trees consideration should be given to the amount of working space required to allow its construction.

Future Tree Growth

Some of the trees surveyed are not yet mature and they have the potential for future growth. Where these are to be retained consideration to their ultimate crown spread should be given as future branch growth may result in interference with Proposed Development, damage to branches and the need for a tree pruning regime.



To facilitate assessment of future tree growth maximum expected canopy spreads have been marked on the Tree Constraints Plan (see drawings 5304-RPS-XX-EX-DR-AR-9101-9102) as shown here.

The area of mature tree spread is estimated by the arboriculturist and is their best judgement of mature crown spread based on experience and with regard to the current tree growth observed on the site.

Within the area of maximum branch spread construction activities should be restricted for the long-term health and vigour of the trees.

In this respect it is considered that within the area of maximum branch the construction of utility buildings, such as single storey garages or sheds and the installation of hard surfaces would generally be an appropriate form of construction, however, should car parking be proposed beneath the ultimate spread of trees the likelihood of fruit fall, leaf litter or sap exudate causing a nuisance must be considered.

In addition, it is important to consider the likelihood of damage to trees or structures that may be caused by continuous whipping of branches in windy conditions. In such circumstance's branches may have to be repeatedly cut back which will introduce wounds in the tree and may spoil its form or shape. In general terms trees should not be retained upon the basis that their ultimate branch spread can be significantly controlled by periodic pruning.

Canopy Height / Clearance

The height and growth direction of the lowest branch of each tree is recorded in the Tree Data Schedule contained within this report as Table 1, the lowest branch height of a tree is shown on the Tree Constraints Plan. Additionally, the vertical clearance of the trees canopy above ground level is recorded within the Tree Data Schedule.

The two figures can be used to inform the extent to which a trees crown may be at risk of damage during development as a result of vehicular or plant movements within the site and to assess the need for additional protective measures to be implemented to protect low branches.

In particular it should also be noted that where the Root Protection Areas for retained trees do not extend to the edge of existing canopy spreads it is possible that those parts of the trees extending beyond the RPA fencing may sustain damage during construction. Where this occurs, there are two primary options available to manage and minimise the potential for damage to tree canopies to occur during development and these may be used singularly or in combination. The first option is to create a Construction Exclusion Zone (CEZ), by the erection of protective fencing, around the full extent of the trees. The second is to undertake pre-development pruning works to the trees to reduce the potential for branch damage to occur.

Appendix B

BS5837 Cascade Chart for Tree Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those 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 that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) □ Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline □ Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			Dark Red
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Light Green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	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	Trees with material conservation or other cultural value	Mid Blue
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey

Cascade chart for tree quality assessment

Appendix C

Tree Protection Barriers

Root Protection Area Barrier Details

Since trees are living organisms which interact with their immediate environment any changes made to their surroundings may have a bearing on that trees future. Developing a site will undoubtedly place any trees within close proximity under some level of stress, which could predispose them to infection. The aim of this method statement is to limit the amount of stress induced by introducing protection measures.

The most effective way of offering protection is by erecting protective barriers set at a distance from the tree stem using the methods given within BS 5837: 2012 Trees in Relation to Design, Demolition and Construction. Barriers should be braced and constructed to resist impacts; see Figures 1 & 2 below for barrier specifications. Barriers can be of an alternative specification to that within the BS5837:2012 provided it is approved by the Local Planning Authority Tree Officer.

Barriers should be erected before any works commence on site with the exception of recommended tree work. Areas of retained and future structure planting should be similarly protected.

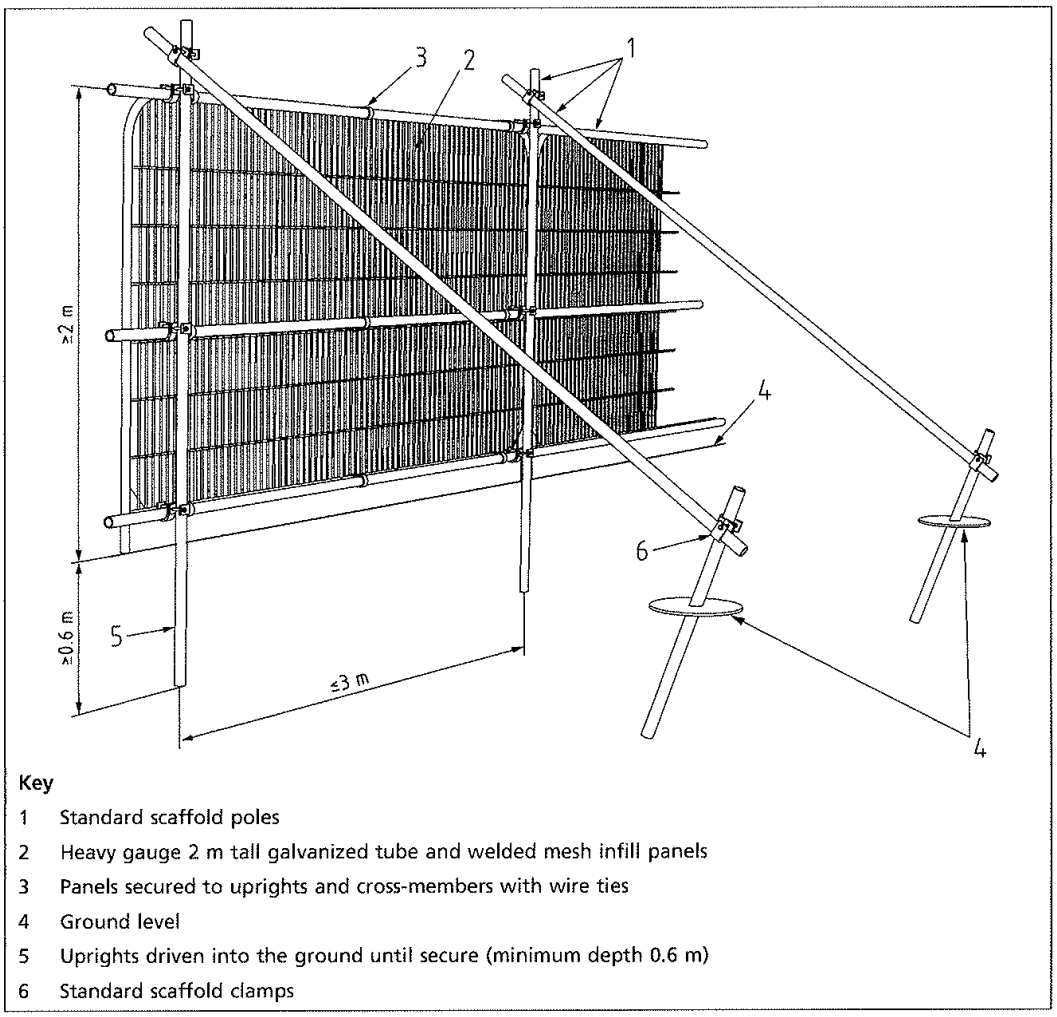
All personnel should be made aware of the protected areas and instructed to keep them free of materials, waste and excess soil. Soil disturbance should be prohibited and travel of any kind, including foot traffic should also be excluded within the root protection area (RPA) unless previously agreed and adequate ground protection has been installed.

Where foot traffic is agreed within the RPA, single thickness scaffold boards laid over a compressible material on a geotextile or supported by scaffold should suffice. Where vehicular access through the RPA is agreed an engineer should be consulted to design adequate ground protection methods.

Suggested Barrier Specification (as per BS5837: 2012)

Figure 1

Figure 2 **Default specification for protective barrier**

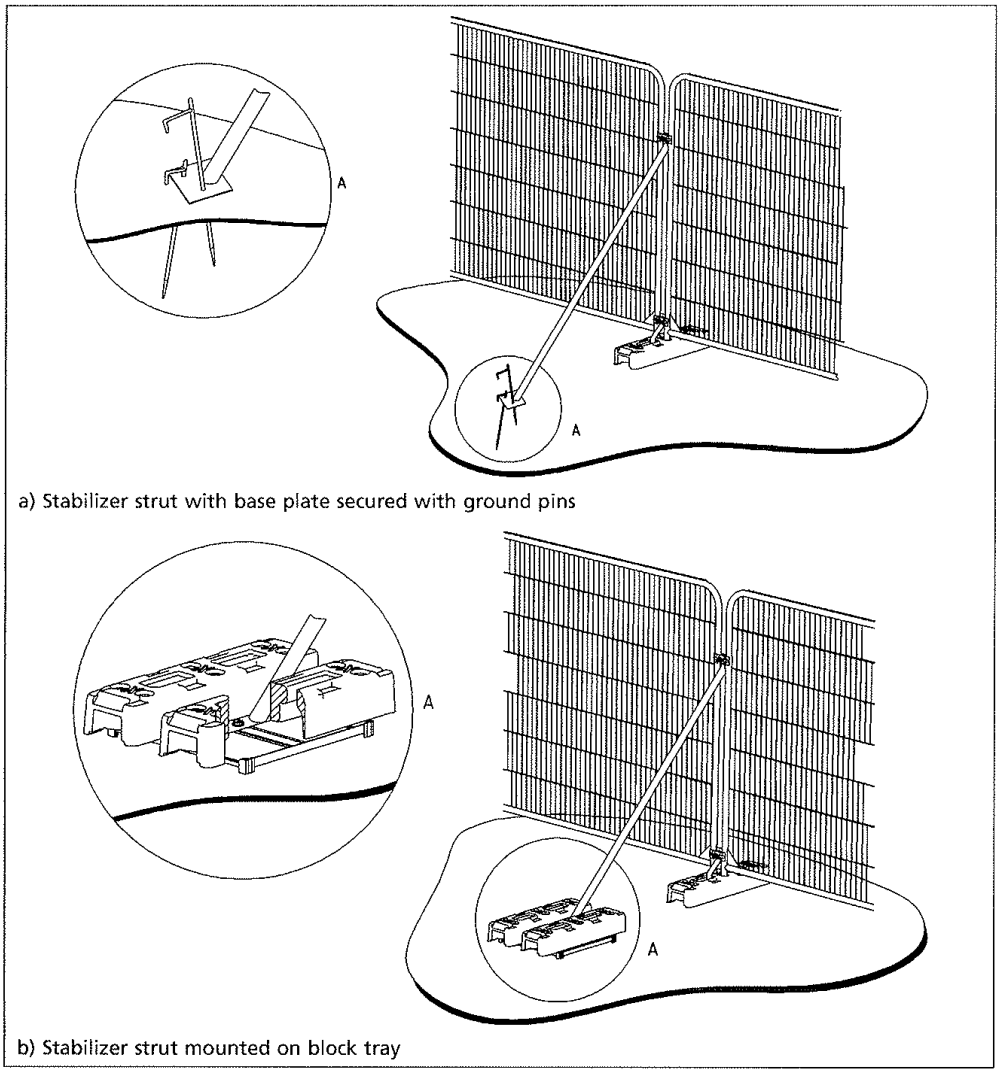


Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 2.

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Appendix D

Construction Exclusion Signage – Example

Appendix E

Arboricultural Glossary

Abiotic Factors - Non-living factors of the environment, including temperature & wind.

Age-class - A general classification of the tree into either - young, semi-mature/maturing, mature, over-mature, or senescent.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Arboreal - In connection with, or in relation to, trees.

Arboriculturist – Person who has, through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Arboricultural Impact Assessment (AIA) – Study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in the loss of or damage to a tree. Note The AMS is likely to include details of an on-site tree protection monitoring regime.

Biotic factors - Living factors. For example, animals and pathogens.

Bottle Butt – Term used to describe shape of stem base, usually associated with an internal defect – refer to 'Reaction Wood' below.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Cambium - A lateral meristem (see below) in vascular plants located just beneath the bark responsible for secondary growth, e.g. production of annual growth rings.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Chlorosis/Chlorotic – Abnormal yellow or yellow-green coloration of usually green leaves. Essentially a reduction of chlorophyll levels often as a result disease or nutrient deficiency.

Co-dominant stems - A growth characteristic, where two or more stems of similar size grow from the same point. Can create an inherent weakness.

Compaction - The compressing & hardening of soil around tree root systems, due to vehicular/pedestrian use etc. Loss of pore space between soil granules limits water movement and gaseous exchange, and inhibits root growth.

Competent person – Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached

Note 1 A competent person understands the hazards and the methods to be implemented to eliminate or reduce the risks that can arise. For example, when on site, a competent person is able to recognise at all times whether it is safe to proceed.

Note 2 A competent person is able to advise on the best means by which the recommendations of this British Standard may be implemented.

Condition – Assessment based on a visual and professional view giving consideration to many factors such as tree health, structural integrity and suitability of its position.

Construction Exclusion Zone – Area based on the RPA (in m²), identified by an arboriculturist, to be protected by development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a trees branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

D.B.H. - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic/adventitious growth - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Feathered Whip – Size of tree for planting, usually ranging from 1.25m to 2.5m in height.

Form - A general assessment of the shape and position of the tree within its' environment.

Frass – Debris such as bore dust left by wood boring insects.

Hanger – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Heavy Standard – Size of tree for planting, usually above 3.5m in height.

Included bark – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a structural weakness.

Meristem - The undifferentiated plant tissue from which new cells are formed, such as that at the tip of a stem or root.

Meristematic Disorder – A growth disorder caused by a disruption of the meristem (see above) from any of a number of biotic factors (see above). Manifests as growths such as 'Witches Brooms' & 'Galls'.

Necrosis/Necrotic – Death of tissues usually characterised by a blackening in colour.

Occlusion/Occluded – Normally used to describe the overgrowth of a wound. Also, immoveable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen - An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

Plasticity index - The table used to calibrate the shrinkability of a clay soil.

Pollard – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as cavities.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Saprophyte – An organism which exists on dead plant material.

Scaffold branches - The main structural branches within the crown.

Services – Any above ground and piped and/or ducted underground infrastructure including water main, electricity supply, gas supply, fibre optic utilities, telecommunications cabling, storm and foul water drainage, including temporary storage for run-off, pumping stations, interceptors and other allied buried structures.

Shrinkable clay – Clay soil which alters in volume depending on moisture content. Property sited on shrinkable clay can suffer subsidence damage due to soil desiccation; this can be due to the water uptake of nearby vegetation, including trees.

Special engineering – design of a structure with the physiological requirements of trees as the priority.

Standard – Size of tree for planting, usually ranging from 2m to 3.5m in height.

Structure – Man-made object, such as a building, carriageway, path, wall, services, and built and excavated earthworks.

Transplant – (1) size of tree for planting, usually ranges from 0.2m to 0.9m in height (2) the relocation of a tree or shrub including a given portion of the root system.

Tree Constraints Plan (TCP) – Plan prepared by an arboriculturist for the purposes of layout design showing the RPA and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Tree protection plan – scale drawing prepared by an arboriculturist showing the finalised layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

U.L.E – 'Useful Life Expectancy' is an estimate based on currently known factors of the possible remaining life of the tree as an asset.

Veteran tree – Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species