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Proposed Development at Land to the rear of
Bulrushes, Coombe Hill Road, E. Grinstead, W.
Sussex, RH19 4LZ

BS5837 (2012) Survey and Report

Pursuant to British Standard 5837:2012 Trees in relation to design,
demolition & construction

May 2026

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1.0. Introduction

Arborweald Limited (AL) has been commissioned by Mr Harrison Wood (landowner), to provide details pursuant to the British Standard 5837: Trees in relation to design, demolition and construction – Recommendations (BS5837:2012) with regard to the proposed development at Land to the rear of Bulrushes, Coombe Hill Road, E. Grinstead, W. Sussex, RH19 4LZ. This report is the conclusion of a fully collaborative approach between the landowner, Peter J. Gardner (Architectural Design Consultant), and AEPC. The existing land to tree relationship was considered, taking into account tree crown and root morphology and structural and physiological condition.

This report acknowledges a number of documents (section 1.2).

AEPC is a multidisciplinary environmental planning consultancy qualified to provide a professional service in the fields of arboriculture, ecology and the natural landscape. Jamie Foster (report author/CAD) is a trained Arboriculturist with over 18 years of experience within the contractor and consultancy industry; both domestic and commercial. Data was collected alongside colleagues from an arboricultural and ecological background with collective experience exceeding 45 years.

Assessment is based upon professional qualifications and knowledge and published professional guidance/recommendations and legislation. The BS5837:2012 tree survey was carried out on 28/04/2026 when weather conditions were dry and bright. As such, the survey was not adversely affected, and all required data was collected to fully inform recommendations made in this report.

Trees were assessed by way of visual tree assessment (VTA) from ground level with the aid of binoculars, high powered torch, probe, acoustic hammer, Tru-Pulse laser rangefinder, compass, drag tape and diameter tape.

1.0.1 Executive Summary

The proposed development is considered acceptable in arboricultural terms and can be implemented without unacceptable impact on retained trees, subject to adherence with measures detailed within this report and shown on the Tree Protection Plan.

All trees on and adjoining the site, including the higher off-site boundary trees, are to be retained and protected throughout development.

There is no proposed development-related tree loss/removal (Table 2/5.01).

The main arboricultural impact is the proposed RPA incursion of the eastern extent of the proposed dwelling, and associated driveway/access. This equates to a combined incursion of 16.5% into the RPA of T4. This can be mitigated (under

arboricultural oversight) with Special Engineering Solutions (7.01a/b) via the use of a no-dig methodology (e.g. screw piles (a) and cellular confinement system (b)), with temporary ground protection (7.03) for site access as required.

Facilitation pruning (7.04) is limited to T4 and will not bring about a lasting impact, with some degree of pruning likely required irrespective of proposals due to its position overhanging the PRow. Pruning will improve its relationship with the proposals, and allow for more sustainable, long-term retention.

Compensation and enhancement includes;

- Enhancement planting of trees (5.02/7.2),
- Extensive new species-rich native hedgerow planting (5.02/7.2)
- Ground amelioration to improve retained trees' rhizospheres (5.02/7.05)

Overall, the proposals involve minimal arboricultural impacts with proportionate mitigation, compensation and enhancement measures to ensure a net positive long-term arboricultural outcome.

Subject to adherence to recommendations made within this report, the proposed scheme is acceptable from an arboricultural perspective.

1.1. Legal Considerations/Risk Assessment

Although the potential risk to someone passing beneath a tree when the tree or part of it fails is relatively remote, the risk is present. This increases significantly in areas of consistent and regular usage on a year-round basis, such as pedestrian and vehicular highways and amenity areas. Where static structures exist, the risks become constant and an assessment is made as to whether complete or partial failure of a tree could cause damage to such structures. Utilities in the proximity of tree roots should be carefully planned to avoid damaging tree structural integrity (installation and maintenance of utilities) and to avoid structural root pressure on utilities. Maintenance of utilities within rhizospheres of trees which are the subject of statutory legislation (TPOs and Conservation Areas), may require local planning authority consent and breaches of the law may occur without such consent.

Within the scope of any tree survey, it is a fact that not all risks of stem or crown failure can be covered, particularly in relation to freak occurrences of weather when even trees of a sound condition can be the subject of structural failure. Trees also have the rare propensity to drop limbs that appear to be in an acceptable condition. These rare occurrences have been known to take place in spring and summer on calm days. Although rare, trees shedding limbs should be acknowledged as a risk that cannot be entirely mitigated. The law requires that properties are retained safely for residents, visitors and neighbours (Occupiers Liability Act, 1957/84, Defective Premises Act, 1972 and as Common Law Duty of Care) this includes the reasonable

care of trees. Trees by highways also have to be retained safely and managed to not interfere with the safe passage of highway users (Highways Act, 1980).

The trees within influence of the surveyed site currently pose minimal risk overall, however the proposed development and following significant increase in occupancy levels (within the surveyed area) places greater impetus on the need for periodic VTA in order to take appropriate action should greater hazard/risk develop in trees retained on the site. Any noted structural or physiological limitations in surveyed trees have been recorded in Table 2, however the level of detail involved in a BS5837 Survey does not match that of a Visual Tree Assessment (VTA) or Individual Tree Inspection (ITI).

The proposed site is not within any existing Conservation Area, and does not have any existing Tree Preservation Orders (as of 04/05/2026).

1.2. Relevant Documents

Foresite Geomatics; Client: Harrison Wood; Site: Land at Streatfield Place, E. Grinstead, RH19 4RQ; Title: Topographical Survey; Drawing Number: 26032_01; Date: April 2026.

Peter J. Gardner; Job Title: Land to the rear of Bulrushes,, Coombe Hill Road, East Grinstead; Drawing Title: Block Plan; Client: H.W; Date: 16/01/2026.

2.0. Rationale

Provide sustainable solutions for trees and the development which takes appropriate account of the area's character (amenity, arboricultural, ecological).

3.0. Site Character Assessment

Assessment of the character of the site and surrounding area consisted of a walkover assessment of both. The general character of the area was assessed through viewing maps and assessing views into and from the site from all possible cardinal points.

3.1. Land to the rear of Bulrushes and the surrounding area

Land to the rear of Bulrushes is located at the southern extent of East Grinstead (mid Sussex).

It is bounded by dense residential (and associated land use) to the north-east and east, with more sporadic residential use to the south and west.

Agricultural land use exists predominantly more widely to the south and west, with some woodland, commercial, and smaller residential settlements.

The site itself is limited in tree stock internally, with all on site trees (of BS5837 size) located to the northern end of the plot.

A Public Right of Way (PRoW) runs along the eastern edge of the site.

Two mature, and visually prominent English oak exist off-site (east and west), which have been fully acknowledged within this report.

4.0. Tree Survey

Trees were assessed individually and as groups, in relation to the surrounding landscape setting and development proposal. Trees were assessed for general condition, amenity, age and size. Table 1 lists the trees and tree measurements, and Table 2 sets out life stage, condition, categorisation and estimated remaining contribution / estimated minimum life expectancy (EML). In accordance with BS5837:2012 trees were assessed as individuals and groups based on their amenity contribution and functional proximity. Trees within groups are, however, subject to an individual visual tree assessment and tree root protection areas (RPAs) are based upon the largest recorded diameter measurements within the groups (unless significant differences exist, in which case a range of relevant diameter measurements are taken into account). Crown spreads are measured from group edge trees at cardinal points.

- Appendix 1 - Binomial and scientific species name identification.
- Appendix 2 - Existing Tree Constraints Plan.
- Appendix 3 - Tree Protection Plan.
- Appendix 4 – Supervisory Arboricultural Watching Brief Audit Form

Trees surveyed are those within the influence of the proposed development and associated development activities.

All recommended tree works within Table 2 when implemented should adhere to British Standard 3998: Tree Work Recommendations (2010). All trees surveyed should be subject to regular visual tree inspections with the survey interval dictated by the occupancy level of each area.

Table 1: Trees and Tree Measurements

First significant branch (cardinal direction) = FB(N, E, S, W); Crown starts= CS; At ground level = AGL;
 Diameter at breast height = DBH; Estimated = Est.; Root protection area= RPA; millimetres= (mm);
 metres = (m); Hedgerow = H; Scrub = S; Codominant = codom.; Multiple stems = multi. (≥3 stems)

Tree no.	Species	Height (m)	DBH (mm)	First Branch (m)(direction), Canopy Start (m)	Crown spread @ cardinal points; N,E,S,W (m)	RPA (m ²)
G1	Maple, Norway; Hawthorn, common; Ash c; Alder, c.	15	617 (multi)	1, S, 3	4, 3.5, 8, 3	172
G2	Willow, goat	15	548 (multi)	2.5, 2.5	4.7, 6.2, 9.5, 6.7	136
H1	Cypress, leyland	4	156 (multi)	1.8, 1.8	0.7, 0.7, 0.7, 0.7	11
H2	Cypress, Monterey 'Goldcrest'	2.5	138 (multi)	0, 0	0.5, 0.5, 0.5, 0.5	9
T1	Alder, common	19	696 (multi)	3, S, 4.5	6, 5, 8, 4	219
T2	Willow, goat	12	382 (multi)	1.6, 1.6	6, 5, 5, 4	66
T3	Oak, English	7	195	1.6, 1.6	4, 4, 4.5, 1.5	17.2
T4	Oak, English	22	1000 (est.)	3.5, SW, 9	10, 12, 8, 8.5	452
T5	Oak, English	22	1250 (est.)	2.5, SW, 8.5	11.5, 12.5, 14, 12	707

Table 2: Tree Condition and Amenity Contribution

Structural condition = SC; Physiological condition = PC; Estimated minimum life expectancy = Eml;

Category A = High amenity, B = Moderate amenity, C = Low amenity & U = Hazard to targets

Tree no.	Life stage	Sc	Pc	Eml	BS5837 Category	Comments
G1	Mature	average	average	20+	B2	Group of various native/naturalised species located along stream edge at northern extent of site. Trees form continuous canopy cover with varying degrees of structural and physiological condition. Eastern extent are within strike distance of neighbouring built form and should therefore be inspected periodically to ensure they are being retained in a safe condition. Proposals do not seek to incur within canopy spreads or RPAs and all trees can be retained and protected with temporary fencing. Area south of G1 has good potential for enhancement planting, with scope to tie in with recommendations made within the associated PEA report. Trees can be Protected throughout Development (TPD) with Protective Fencing (PF) and adj. area enhanced with planting (EwP).
G2	Mature	average	average-good	20+	B2	Group of two trees (same species) located within the northern extent of the site, set in from the northern boundary. Trees form single canopy, and provide good arb provision for the, otherwise, limited site. Larger tree in group (south) has a tight, codominant union which has the potential to grow into failure - some sensitive crown management is likely to be required to retain this tree sustainably and mitigate risk of failure at weak union. TPD w/ PF and adj. area EwP.
H1	Mature	average	average	10+	C2	Off-site, non-native species hedge located on the western boundary with minimal overhang (DBH is estimate). Proposals do not incur RPA, and hedge can be protected with temporary fencing. TPD w/ PF.
H2	Mature	average	average-poor	10+	C2	Hedge which bounds the NW boundary of site. Incongruous species which falls out of direct influence of proposals. Dependent on ownership, this hedge could be removed and replaced with species rich native hedgerow to provide significant arb and eco enhancement to the site and surrounding area. TPD w/ PF, with scope for enhancement with removal and replanting (subject to requirement).

Tree no.	Life stage	Sc	Pc	Eml	BS5837 Category	Comments
T1	Mature	average	average	20+	B1	Large, overstood coppice stool located on the north side of the stream bank (northern boundary of proposed plot site). Tree is in reasonable physiological condition. Structural condition is limited by its overstood form, and typical tight unions at multi stem base. Despite this, and due to minimal targets, the tree can be retained sustainably throughout proposals with protective fencing and adherence to CEZs. Some woodpecker holes are present, which increases need to protect and sustainably manage this tree (due to ecological value). Additional common alder should be planted along stream edge due to its value as a riparian species. TPD w/ PF.
T2	Early-mature	average	average-good	20+	B1	Multi stem tree located within NE of plot, adj. to PRoW. Tight union between southern two stems - this is currently not a significant risk, however as the tree matures, increased hazard will develop. Sensitive periodic crown management will mitigate this risk, with periodic inspection recommended due to proximity to public footpath. TPD w/ PF and Sustainably Retained with Management (SRM).
T3	Early-mature	average	average	20+	B1	Early mature tree located immediately adj. to PRoW within NE corner of site. Tree is somewhat outcompeted by T2, with bias (but correcting) crown east. Tight union at initial crown break (3m) which could be pruned to improve long-term condition. Multi stem form in upper crown can also be improved with sensitive/formative pruning. Proposals do not incur RPA or crown spread and tree can be protected throughout proposals. TPD w/ PF and SRM (with pruning spec. subject to requirement).

Tree no.	Life stage	Sc	Pc	Eml	BS5837 Category	Comments
T4	Mature	average	average-poor	20+	B1	Large, off-site tree located to the east of proposed site and PRoW within amenity garden of neighbouring property. DBH measurement is estimate due to no access available. Some signs of crown stress, which may in some part be due to late flushing, however some tip dieback is present. Some previous management has left moderate sized wounds with early indications of dysfunctional wood developing beneath cut points. Sensitive crown reduction (Facilitation Pruning; FP) of overhanging canopy would likely be required to allow proposals to exist sustainably alongside T4 (7.04). 16.5% RPA incursion (garage/link + driveway) dictates requirement for proportionate use of Special Engineering Solutions (SES) and Special Protection Measures (SPM). Temporary Ground Protection (TGP) to be installed to facilitate sufficient Construction Operations Area (COA) without detrimental impact on T4 RPA. TPD w/ PF, TGP (7.03), SES (7.01a/b) and SPM (7.02). Facilitation Pruning should follow specification in 7.04. Ground Amelioration (GA) should be carried out to compensate for incursion; 7.05.
T5	Mature	average-good	average-good	40+	A1	Large, off-site tree located to the SE of the proposed site with crown spreading significantly into the southern portion. Full inspection and DBH measurement not possible due to no access - Max. DBH has been assigned to ensure best protection for this impressive tree which is prominent in the landscape. Proposals do not seek to incur into RPA and therefore tree can be protected throughout with adherence to Construction Exclusion Zone (CEZ). And on-site rhizosphere enhanced with Ground Amelioration (GA). TPD w/ PF. GA (7.05) to act as enhancement for this A category tree.

5.0. Arboricultural Impact Assessment

Based on the above findings and taking into consideration the site character assessment and that of the local area, it is suggested that the **development proposals** can have a **positive (long-term) arboricultural impact** on the area proposed for development if **recommendations** within this report are **followed**.

It should be noted that thoughtful planting must be carried out within the site, with effective aftercare and holistic management to ensure that this arboricultural gain is achieved.

In collaboration with the associated PEA, there is ample potential to positively impact on the area adjacent to the proposed development (with well selected species, and appropriate planting positions).

5.01 Impacts;

Development related impacts are discussed below.

Tree/Group/Hedge Removal;

No tree, group or hedge removal is required to facilitate the proposals.

Moderate incursion into the RPA of T4;

- T4 is positioned (off-site) to the NE of the proposed dwelling.
- A moderate RPA incursion of 9.5% is anticipated (garage/link) and 7% (garage access/driveway) which should be mitigated with Special Engineering Solutions (SES) alongside Special Protection Measures (SPM) via a Supervisory Arboricultural Watching Brief (SAWB); 7.02/Appendix 4).
- Ground amelioration of the on-site RPA will encourage healthy root development (see 5.02/7.05). This can be carried out within the proposed area of incursion prior to installation of SES.

For the appropriate Special Engineering Solutions Methodologies, see;

- 7.01a - Garage/Link foundations (*the use of screw piles will significantly reduce the effective root impact*).
- 7.01b - No-Dig driveway/access surfacing

Where site access during the development phase will utilise the same proposed access, temporary ground protection (7.03) should be installed (if incurring RPA) to protect T4 if new surfacing is not installed prior to commencement of build.

Minor facilitation pruning

T4 can be effectively protected as above, however does require some minor facilitation pruning in order for it to be retained sustainably within the proposed context.

The proposed pruning will not have a significant long-term impact on the structural or physiological condition of the tree, and some degree of pruning would likely be required for its safe retention overhanging the PRow.

See 7.04 for an appropriate basic methodology/specification.

5.02 Enhancements;

Enhancement Planting;

The following enhancements should be implemented to ensure a significant and long-term arboricultural net gain.

Due to the (overall) poorly-stocked nature of the site, with all on site trees located to the north of the proposed dwelling, it will be necessary to design and implement a considerate planting scheme to ensure an arb net gain is achieved, despite the fact that no trees (excluding a small number of undersize trees) are being removed to facilitate the proposals.

A full planting scheme should be secured by Condition where required, however the following recommendations (if implemented) would constitute a meaningful arboricultural improvement to the site and surroundings.

- Orchard style planting (4-5 individuals) between/amongst G2 and T2 (ideal south facing aspect) with species of local provenance;
 - *Malus domestica* - *Falstaff*, *Fiesta*, *Saturn*, *Scrumptious*, *Early Worcester* and *Tydemans Late Orange*.
 - *Pyrus communis* - 'Beth' and 'Concorde'

OR / A combination of;

- 4-5, Small, fruiting/flowering species (max. 6-8m), in same position;
 - *Malus sylvestris*
 - *Sorbus aucuparia*
 - *Viburnum opulus*
 - *Euonymus europaeus*
 - *Viburnum lantana*
 - *Amelanchier lamarckii*
- Medium (max. 15x 6metre/moderate spread) species (with good amenity value to be planted within the property frontage (outside T5 RPA);

- *Acer campestre* ('Fastigiatum' or 'William Caldwell')
 - *Alnus incana* 'Aurea'
 - *Liriodendron tulipifera* 'Fastigiatum'
 - Liquidambar styraciflua 'Worplesdon'
 - *Corylus colurna*
 - *Sorbus aria*/*Sorbus intermedia*
 - *Acer platanooides* 'Columnare'/'Crimson Sentry'
 - *Prunus avium* 'Plena'
 - *Pyrus calleryana* 'Chanticleer' / 'Capital' / 'Redspire'
 - *Pyrus communis* 'Concorde'
- Planting of common alder (*Alnus glutinosa*) along stream edge to mirror T1 and improve provision for riparian environment.
 - New hedgerows (species rich/native) should be planted along the East, South, and West boundaries (excluding areas with limited space adj. to the proposed dwelling) - hedges should broadly consist of the following;
 - At least 6 bare root whips/metre (double staggered rows)
 - 5+ native species - (including climbers) - *Prunus spinosa*, *Cornus sanguinea*, *Crataegus monogyna/laevigata*, *Ilex aquifolium*, *Carpinus betulus*, *Ulmus procera*, *Acer campestre*, *Viburnum opulus*, *Euonymus europaeus*, *Viburnum lantana*, *Rosa canina*, *Lonicera periclymenum*, *Clematis vitalba*.

Species recommendations are not exhaustive. See 7.2 for more detail.

Where additional planting is desired/space permits in closer proximity to the proposed, an informed choice of species for each individual location is essential for the long term, safe, retention of tree/group. The **correct choice of species** can also ensure that regular cyclical management of the tree/group is not required (excluding practices such as coppicing or pollarding), and high cost of long-term retention is not an influence on whether they should be removed in the future. See 7.2/TPP for detail on species selection and positioning.

Aftercare of planted stock - To ensure that replacement and enhancement planting provides considerable impact (aesthetically, arboriculturally, and ecologically), regular aftercare should be carried to improve the survival rate of new planting and ensure restocking takes place where new planting fails.

This should include provision for; weeding, mulching, watering, and formative pruning (to encourage good structural condition in trees) and should be carried out (annually>biennially) for no less than five years from the planting date.

See 7.2 for further details on species, planting approach, and aftercare.

Ground Amelioration (retained AND newly planted stock) - Ground amelioration of the available rhizosphere of proposed and retained trees and groups will enhance the RPAs and improve their rooting environment.

Ground amelioration loosens the soil to better facilitate gaseous diffusion and tree related nutrient and moisture uptake. This should be carried out in all the RPAs of (development related) retained trees/groups. Putatively, likely impacts include greater; bud density, extension growth, resilience to biotic impacts (pathogens, drought stress, etc). See Appendix 3 (TPP) for tree positions, and 7.05 for appropriate methodology. This approach should be implemented site wide if safe, long-term retention of trees is a goal. Compaction occurs even following light (repeat) exposure to footfall, mowing, etc – therefore it is recommended even if the ground appears acceptable.

6.0. Arboricultural Protection

In accordance with BS5837 (2012), effective tree protection would be achieved through the provision of Construction Exclusion Zones (CEZs) protected by the erection of appropriate barriers (Fig. 1) and limiting construction activities to specified Construction Operations Areas (COAs). The CEZs are sacrosanct areas that should not (unless specific methodologies exist) be the subject of any disturbance, including the stacking and storage of materials. The site foreman or arboriculturist should ensure that the barriers are not breached and that the CEZ remains a sacrosanct tree protection area. Trees would be the subject of protection through the erection of appropriately signed barriers '**Construction Exclusion Zone – Keep Clear**'. Utility services should be laid outside of the CEZs where possible or if they impinge into the RPA of existing trees should be implemented under special engineering solutions (SES) and or special protection measures (SPM).

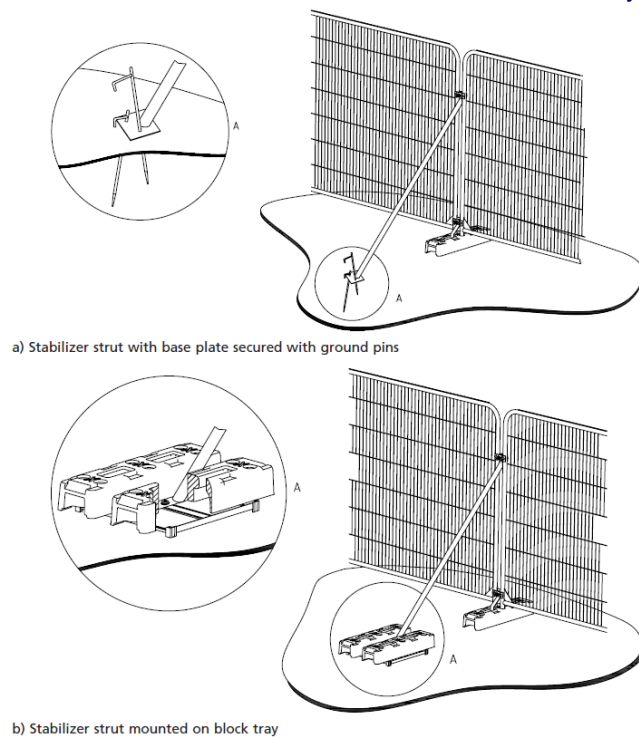


Fig 1: BS5837 Recommended Barrier Specification

6.1. Construction Operations Area (COA)

The COA is an area or areas where all construction activities are carried out including logistics/material storage, construction worker facilities, mixing of construction materials and fuels etc. without detrimentally impacting on retained trees on and adjacent to the site. It should be the responsibility of the site foreman to plan COAs for each phase of development appropriately taking trees into account and to ensure that all development associated activities remain within COAs and building footprints.

7.0. Arboricultural Method Statement (AMS)

Where applicable, all trees can be effectively protected/enhanced under BS5837 (2012) recommendations with Protective Fencing (6.0), Special Engineering Solutions (SES); 7.01a/b, Special Protection Measures (SPM); 7.02, Temporary Ground Protection (TGP); 7.03, Facilitation Pruning (FP); 7.04, and Ground Amelioration (GA); 7.05.

Planting and Aftercare recommendations are detailed in section 7.2, with indicative positions included on the Tree Protection Plan (TPP).

Through development design and layout taking appropriate account of trees, both from direct and indirect impacts affecting long-term sustainable relationship e.g. installation of new hard surfaces, tree over dominance, etc, it is possible for the

proposed development to enhance the long-term local sylvan and ecological character.

Removal of any trees on site to facilitate development should be limited to recommendations contained within Table 2. Site layout and design options should be exhausted prior to any decision being made to permanently remove trees not deemed suitable for such action.

Where ground levels are being adjusted within the site, it is essential that neither the lowering nor raising of levels occur within the Root Protection Areas of trees unless detailed within this report (Section 7 / TPP).

7.01a Special Engineering Solutions - Screw Pile Foundations

The proposals involve a 9.5% incursion of the new dwelling into the RPA of T4 only. This impact should be minimised with the inclusion of screw pile foundations (as indicated on the TPP, red hatch – Appendix 4). **The use of screw piles will significantly reduce the effective root impact.**

Screw piles should be installed adhering to the following guidelines;

- *Ground amelioration (see 7.05) should be carried out prior to development start;*
- *Where possible, the drilling rig should be positioned outside of retained trees RPAs during installation of screw piles. Where this is not viable;*
- *Temporary Ground Protection (7.03) should be installed prior to any screw pile plant/machinery gains access within T4 RPA;*
- *Neither raising nor lowering of ground levels should take place within T4 (or any retained trees) RPA – all new structures should remain above the existing ground level;*
- *Screw piles should be installed under a supervisory arboricultural watching brief (see 7.02) to ensure recommendations are followed;*
- *Once screw piles are installed, ground protection should be retained where continued access (machinery or pedestrian) is required within T4 RPA in order to complete the development.*

7.01b Special Engineering Solutions - No Dig Surfacing

Proposals for new surfacing to access the garage involve a 7% incursion into the RPA of T4 (see Table 2/TPP). This work (area shown in purple hatch) should be carried out utilising a No-Dig approach. The following details an approved methodology for the use of cellular confinement systems. Additional approaches are available, e.g. raised grid/screw pile systems (Green Grid Systems, UK).

7.01b.1; No-Dig Surface Methodology and Minimal Specification

Access construction shall all be above ground level including, any retaining kerb construction (Fig 2.).

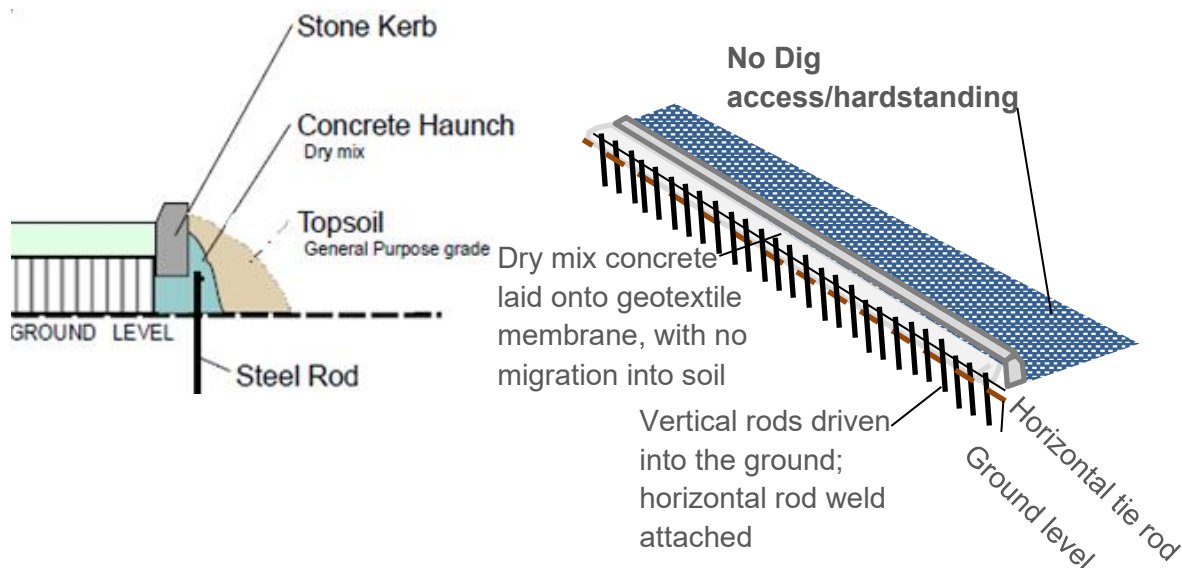


Fig 2: No-Dig Kerbing Diagram

7.01b.2 Ground preparation (Stage 1)

Remove any existing surface vegetation to avoid potential build-up of anaerobic conditions (which can occur once new surface is installed). Plants to be hand weeded, and turf stripped by spade where possible. Where an excavator is utilised, the main body of the machine must be outside any CEZs and retained trees RPAs. Where this is not practicable, suitably rated (for specific machine weight) Temporary Ground Protection (7.03) should be positioned such that direct pressure from tracks/wheels is not placed on the ground within retained trees RPAs.

Where the work is carried out by machine, a toothed bucket **MUST** be used, and depths (not exceeding 50mm) should be lifted until surface vegetation/sward layer is removed (see 7.02).

Level ground where necessary by the raising of dips and hollows using sharp sand and not by further excavation (which will cause damage to roots). Where there is a risk of sharp sand being washed out, No Fines 4/40 mm angular stone can be used. Ground high spots must not be graded off. Remove all major protrusions such as rocks and stones.

The ground layer must not be excavated OR compacted.

7.01b.3 Laying of Permeable Geotextile Membrane (Stage 2)

Permeable geotextile membrane to be laid on to prepared ground. The membrane will help prevent stone migration from the 3-dimensional cellular grid and help prevent ground rutting. The membrane(s) must be kept clean and free of site materials particularly pollutants, mud and stones. Lay permeable geotextile membrane across access route/hardstanding areas. Where more than one membrane is laid, ensure adjacent membranes are overlapped by a minimum of 150mm and stapled together. Pin the membrane(s) in place.

7.01b.4 Laying 3D Cellular Grid (appropriate spec for proposed site usage) & Edging Boards Installation (Stage 3)

Grid to be pinned to the ground and pinned to the edging boards, to ensure that the cells remain open to retain tension for the infill of no-fines angular 4/40mm stone. Also, pinning the grid edge cells to the edging boards will create tension as future loads spread out to the kerb; helping in the effective spreading of loads. Where the laying of utilities is required the timing of operations must ensure that the 'no dig' construction is not undermined and that new utilities are not damaged. The cellular grid(s) must be kept clean and free of site materials particularly pollutants, mud and stones (apart from specified infill).

Lay the grid across the access route/hardstanding areas on top of the geotextile membrane. Pin sufficient cells to keep them open and prevent cell collapse ensuring that any underlying utilities are not damaged; pinning cells @ 1 – 2m centres with steel j pins is recommended in areas where cells have little tension and are collapsing in. Where grid cells are located adjacent to the kerb, secure @ 1 to 2m centres. Where two cellular grids need to be joined; secure with j pins in at least every other cell along the join. Where there is an excess of cells they are to be folded and secured to the edging boards.

Where more than one membrane is laid, ensure adjacent membranes are overlapped by a minimum of 150mm and stapled together.

7.01b.5 Clean No Fines Cell Infill (Stage 4)

Cell infill of 4/40mm no fines angular stone. MOT/DOT Type bases **must not** be used. Cells to be filled by hand; wheelbarrowed and then raked in. The cellular grid(s) and stone infill must be kept clean and free of site materials particularly pollutants, mud, non-specified stone and other debris. Fill the cells from one direction only ensuring that only infilled cells are walked over. Aggregate should not be tipped straight on to the cellular grid but pushed carefully from a clean surface such as robust matting onto the grid and then progressively filling and moving across the grid cells. Overfill cells by up-to 25mm depth and then lightly compact with a hand operated light whacker plate to ensure binding of stone and grid cells. The surface

must not be compacted by rolling. Putatively, No Fines angular stone does not require compaction of any sort as it will self-bind when raked into place.

7.01b.6 Permeable Geotextile Layer for Wearing Course (Stage 5)

This membrane is laid on top of the cellular grid to prevent migration of the wearing course and other detritus from migrating into the no fines 4/40mm angular stone sub-base. The membrane(s) must be kept clean and free of site materials particularly pollutants, mud and stones.

Lay permeable geotextile membrane across the cellular grid sub-base. Where more than one membrane is laid, ensure adjacent membranes are overlapped by a minimum of 150mm and stapled together. Pin the membrane(s) to the timber edging to secure in place.

7.01b.7 Lay Wearing Course and Install Kerb (Stage 6)

Lay a semi-breathable wearing course, secured by kerbing (Fig 2). **During construction works, a temporary wearing course may be utilised to prevent damage to the final wearing course upon development completion.**

7.02 Special Protection Measures - Arboricultural Oversight

In addition to the Special Engineering methodologies detailed above, Arboricultural Supervision/Oversight should be included up to and including 7.01b.6 and until all screw piles (within T4 RPA) are installed to ensure each methodology is followed correctly. The Audit Form can be found in Appendix 4.

Completed audit forms shall be returned to the LPA to ensure all works have been carried out in accordance with approved methodologies.

7.03 Temporary Ground Protection

Where access is required within the RPA of retained trees during the development, the use of proprietary temporary ground protection (TGP) should be implemented to limit any compaction on the tree's/group's rhizosphere. Temporary Ground Protection (TuffTrak, E-Mat, etc) of a sufficient load rating (based on the plant and machinery being used – see Fig. 3) should be installed prior to the commencement of the project and remain in-situ until project completion.

New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

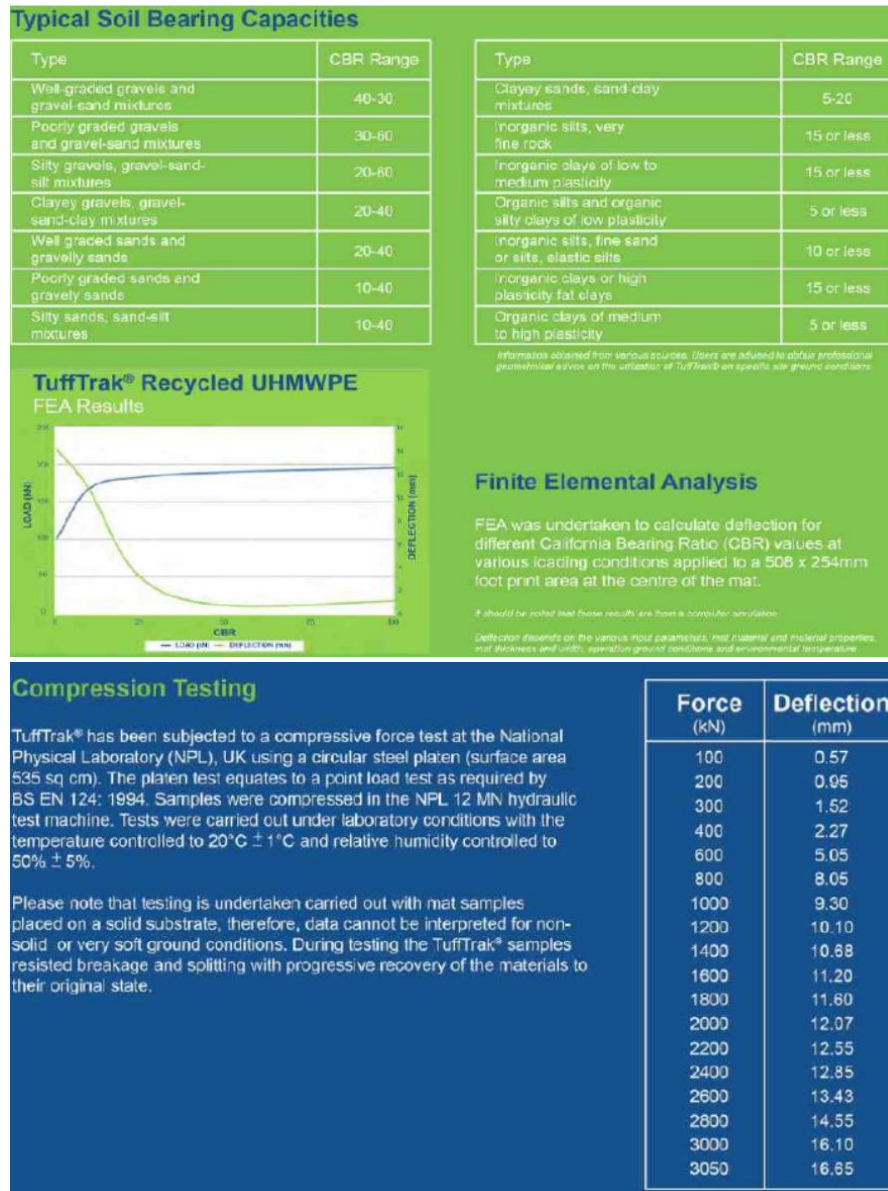
Securing pins and joining brackets must also be installed to ensure the TGP does not move, rendering their use ineffective.

Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA, in spite of any ground protection being in place.

Alternative (lesser) specifications can be found below (BS:5837 (2012) 6.2.3.3;

- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*
- b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*
- c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*

Figure 3: Ground Protection Mat Load Rating/Typical soil bearing capacities (TuffTrak® example)



7.04 Facilitation Pruning

The following constitutes a basic methodology for the facilitation pruning of T4 to allow for its sustainable long-term retention within the proposed context - due to the position of the T4 overhanging the PRow, some degree of pruning would likely have been required, irrespective of development proposals.

- *Pruning is only required to West>South-West crown.*
- *Pruning should be limited to tertiary and secondary unions only.*
- *Cut size should be limited to ≤120mm (diameter).*

- *Pruning should not, in any circumstance, aim to reduce the lateral crown spread back to the boundary line, and should only reduce any individual branch by up to 2m (max.) - the extent of pruning should be dictated by the presence of a suitable branch union.*
- *To further inform the above, pruning should be carried out to (minimum) BS3998 (2010) Tree Work - Recommendations (with section 7.2.4 and 7.2.5 in mind).*

7.05 Ground Amelioration

The potential positive role of ground amelioration on retained trees is detailed in 5.02. Retained trees throughout the entire site will benefit from the following methodology, however where ground amelioration is carried out to retained trees shown on the ETC and TPP, it should be considered a development related enhancement. To encourage good physiological health (due largely to a healthy rhizosphere), and to increase the chance of longer-term retention without the need for repeat remedial intervention, etc. The following methodology should be employed;

- *Insert a garden fork to half depth every 0.5m².*
- *Lever the fork back and forth to loosen the soil (no digging/turning soil should take place). Forking should avoid visible surface roots and the trees' structural root plate (2.5 x DBH).*
- *Well composted mulch/wood chip can be added as a shallow ($\leq 120\text{mm}$) layer in order to further enhance the available rooting medium, where this is not suitable (i.e. where the tree has grass surrounding), top soil (conforming to BS3882, 2015) may be used as a top dress instead (this is often the case when surface roots are visible and have been subject to mechanical damage by mowers, garden tractors, etc).*
- *Where possible, an area (as large as possible) surrounding the tree should be set aside for mulching, with the sward layer, if present, being carefully removed (using hand tools).*

7.1 Responsible stewardship of retained trees

The site (if developed) will be in continuous use with occupancy levels likely medium>high at certain times, with new static targets positioned within strike distance of retained trees (none of which are a current cause for concern). As such, a regular inspection regime for 'occupancy area' trees should be carried out.

Regular assessment of existing trees will help to ensure a sustainable relationship between trees and the development by highlighting any remedial (proactive) tree works that would help to safeguard the future of these trees alongside the safety of site users and structures.

7.2. Tree Stock and Boundary Improvements

The following section details planting recommendations and minimum requirements for aftercare of planted stock.

An informed choice of species for each individual location is essential for the long term, safe, retention of tree/group. The **correct choice of species** can also ensure that regular cyclical management of the tree/group is not required (excluding practices such as coppicing or pollarding), and high costs of long-term retention is not an influence on whether they should be removed in the future.

As stated in section 5.0, the development proposal can have a net positive impact on the sylvan and arboricultural character of the area, should the recommendations (detailed in Section 7) and appropriate planting/aftercare and management be implemented.

Any planting and aftercare should be developed and carried out in accordance with British Standard 8545 (2014) - Trees: from nursery to independence in the landscape – Recommendations.

The following considerations constitute a basic overview which should be accorded with to help ensure trees/groups attain “independence in the landscape”, as per BS8545 (2014);

- *Planting position – allow sufficient space for the maturing of newly planted trees to avoid future conflict with structures and associated access requirements. This should include space for the development of root morphology.*
- *Ultimate size – appropriate species should be chosen so that they can reach maturity without the need for cyclical management to maintain canopy spread.*
- *New planting close to structures should be chosen with a smaller ultimate size and spread in mind. Species could include Sorbus sp., Prunus sp., Malus sp., Pyrus sp., Crataegus sp., Acer sp., **Tilia sp. and Carpinus sp. (with appropriate cyclical crown management)**. This list is not exhaustive.*
- *Ecological value – trees providing food source or habitat opportunities should be chosen in order to enhance the ecological value of the area.*

Aftercare should ideally be carried out for a minimum of 5 years post planting, and may include the following;

- *Staking/support systems (for rootballed/container grown trees) with periodic adjustments to ensure systems are effective and not causing damage (i.e. becoming too tight, etc)*
- *Irrigation (as necessary)*
- *Weeding/mulching*
- *Formative pruning (to ensure a structurally sound scaffold system of branches for greater chance of long-term, sustainable, retention)*

- *Annual inspection of new tree stock to inform management*
- *Beating up (replacement of failed trees)*

The following species recommendations are not exhaustive, however will provide some direction in terms of considered choices for enhancement planting as referred to in Section 5.02.

- Orchard style planting (**4-5 individuals**) between/amongst G2 and T2 (ideal south facing aspect) with species of local provenance;
 - *Malus domestica* - *Falstaff*, *Fiesta*, *Saturn*, *Scrumptious*, *Early Worcester* and *Tydemans Late Orange*.
 - *Pyrus communis* - *'Beth'* and *'Concorde'*
 - **Bare root stock (feathered maiden)**
 - **Local provenance.**

OR / A combination of;

- **4-5**, Small, fruiting/flowering species (max. 6-8m), in same position;
 - *Malus sylvestris*
 - *Sorbus aucuparia*
 - *Viburnum opulus*
 - *Euonymus europaeus*
 - *Viburnum lantana*
 - *Amelanchier lamarckii*
 - **Bare root stock (feathered maiden)**
 - **Local provenance.**
- Medium (max. 15x 6metre/moderate spread) species (with good amenity value to be planted within the property frontage (outside T5 RPA);
 - *Acer campestre* (*'Fastigiatum'* or *'William Caldwell'*)
 - *Alnus incana* *'Aurea'*
 - *Liriodendron tulipifera* *'Fastigiatum'*
 - Liquidambar styraciflua *'Worplesdon'*
 - *Corylus colurna*
 - *Sorbus aria*/*Sorbus intermedia*
 - *Acer platanoides* *'Columnare'*/*'Crimson Sentry'*
 - *Prunus avium* *'Plena'*
 - *Pyrus calleryana* *'Chanticleer'* / *'Capital'* / *'Redspire'*
 - *Pyrus communis* *'Concorde'*
 - **3-5 individuals (indicative locations shown on TPP)**
 - **Select or Heavy Standard stock with appropriate support system installed.**
- Planting of common alder (*Alnus glutinosa*) along stream edge to mirror T1 and improve provision for riparian environment.

- **Bare root stock (feathered maiden)**
- **Local provenance.**

- New hedgerows (species rich/native) should be planted along the East, South, and West boundaries (excluding areas with limited space adj. to the proposed dwelling) - hedges should broadly consist of the following;
 - **At least 6 bare root whips/metre (double staggered rows)**
 - 5+ native species - (including climbers) - *Prunus spinosa*, *Cornus sanguinea*, *Crataegus monogyna/laevigata*, *Ilex aquifolium*, *Carpinus betulus*, *Ulmus procera*, *Acer campestre*, *Viburnum opulus*, *Euonymus europaeus*, *Viburnum lantana*, *Rosa canina*, *Lonicera periclymenum*, *Clematis vitalba*.

Small species (ultimate height 5-10m) – should be selected where planting adjacent to built form is required;

- *Malus sylvestris* (*Malus* sp.)
- *Euonymus europaeus*
- *Viburnum opulus*
- *Crataegus* sp.
- *Amelanchier lamarckii*

7.3. Utilities

Any utility services into the proposed development which are required to be laid, should be located outside of tree RPAs or specialist engineering solutions (SEs) should be utilised such as; impact moleing and pipe ramming. Services laid by SES should optimally pass under tree RPAs at a depth of 1m however, 700mm may also be acceptable. Method statements and specifications can be provided as a requirement of a planning condition attached to a planning consent. Where there is no alternative to utility services being directed through RPAs and SESs are not possible an alternative arboricultural method statement specific to the situation would be required.

7.4. Implementation Timetable

In order to ensure effective protection of trees and woody plants, protection measures must be integrated into the development timetable (table 3).

Table 3: Tree and Woody Plant Protection Phased Timetable

Phase	Activity
1	Carry out tree work operations necessary to make trees safe and to facilitate development.
2	Set out construction operations areas.
3	Implementation of protection barriers.
4	Commencement of development with SPM/SES & arboricultural input where required.
5	Completion of development including landscape planting schemes where appropriate.
6	Dismantling of protection measures where not required for landscape operations.

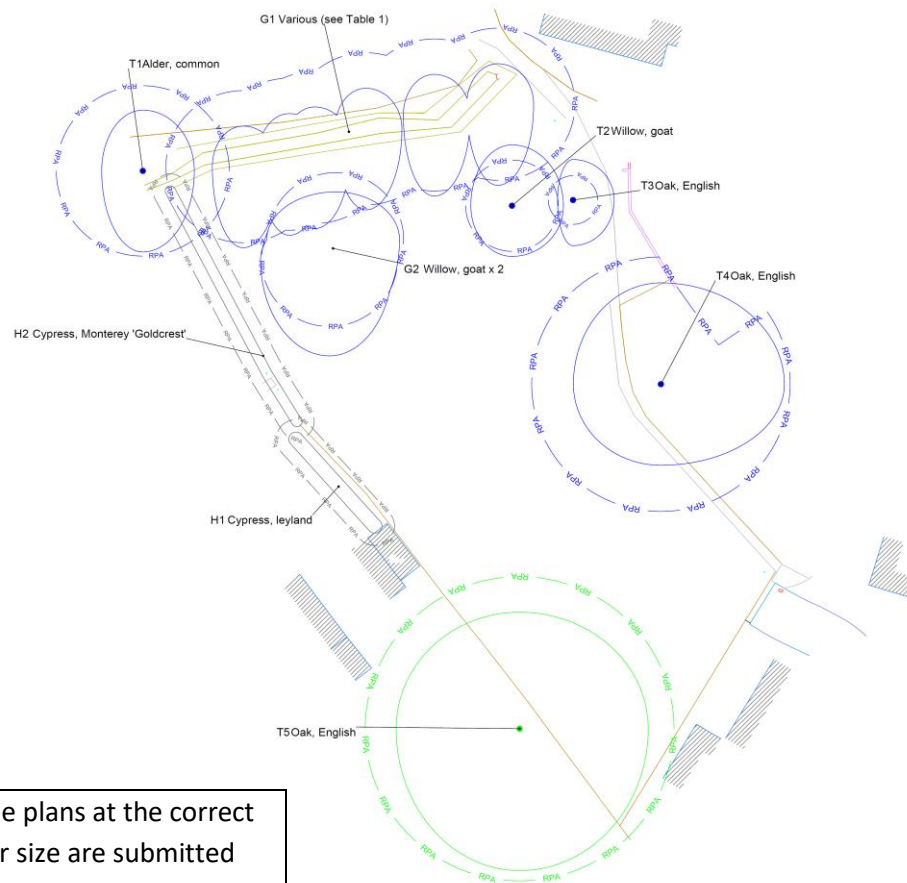
8.0. Conclusion

This report provides information which, if adhered to, will help ensure the effective protection of retained trees, their appropriate management/regular assessment, and help inform a landscape scheme appropriate to the local area's character. With the appropriate design, planning and implementation, the proposed development has the potential to positively contribute to the long term arboricultural and ecological value of the site and local area.

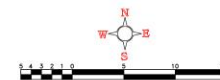
Appendix 1. Binomial Common and Scientific Names

Common Name	Latin Name
Alder, common	<i>Alnus glutinosa</i>
Ash, common	<i>Fraxinus excelsior</i>
Cypress, leyland	<i>X Cuprocyparis leylandii</i>
Cypress, Monterey 'Goldcrest'	<i>Cupressus macrocarpa</i> 'Goldcrest'
Hawthorn, common	<i>Crataegus monogyna</i>
Maple, Norway	<i>Acer platanoides</i>
Oak, English	<i>Quercus robur</i>
Willow, goat	<i>Salix capraea</i>

Appendix 2: Existing Tree Constraints



To scale plans at the correct paper size are submitted separately with this report in both DWG and PDF formats.



Notes:
 This plan has been produced by Arborweald using original plans by Foresite Geomatics (Dwg No: 26032_01). Tree positions are subject to topographical survey accuracy. KeyTree elements have been added to plot tree positions and canopy spreads in relation to buildings and ground surfacing, as well as Root Protection Areas (RPAs).

Project:

BS:5837 (2012) survey at; LTR Bulrushes, Coombe Hill Road, E. Grinstead W. Sussex, RH19 4LZ

Drawing title:

Existing arboricultural constraints plan

Drawing number: DKS/1802.3
 Version: ETC001

Key:
 Identification of tree categories BS:5837

Category U Dark Red

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

Category A Light Green

Trees of high quality with an estimated remaining life expectancy of at least 40 years

Category B Mid Blue

Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

Category C Grey

Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter of <150mm measured at breast height

Root protection areas (RPAs)

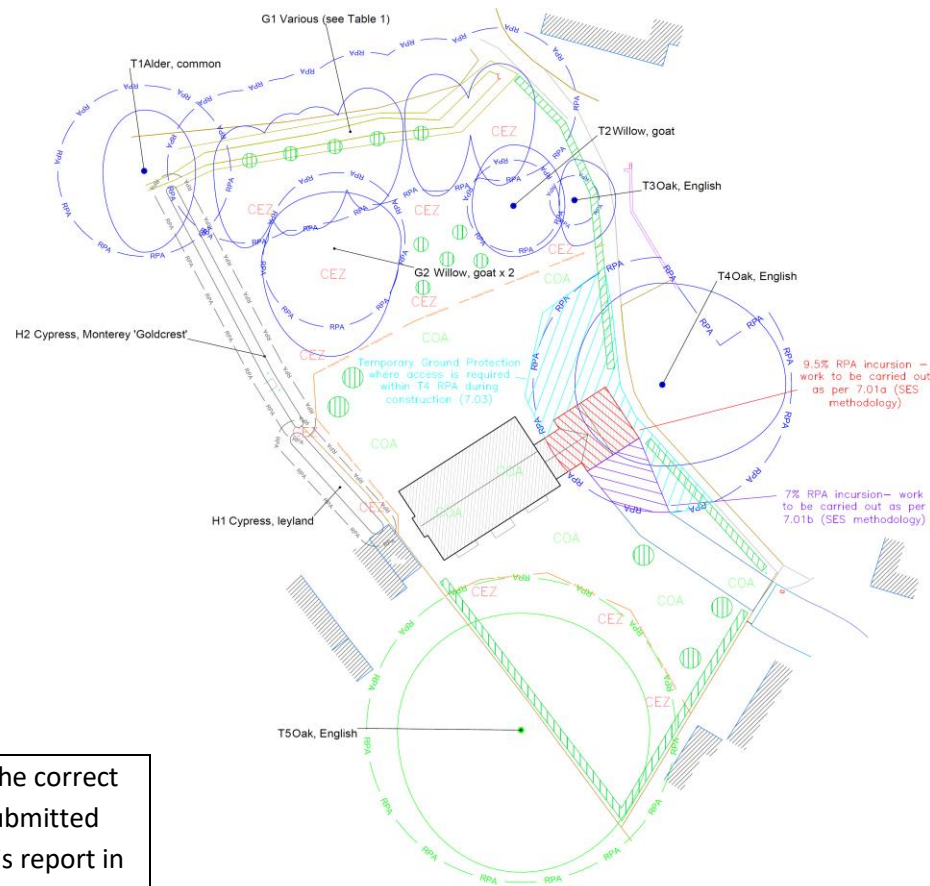
Category A RPA
 Category B RPA
 Category C RPA
 Category U RPA

Date: 29/04/2026
 Drawn by: JF
 Scale: 1:200 @ A1
 Checked by: AL

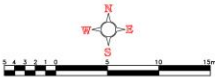
Client: Harrison Wood

www.arborweald.co.uk

Appendix 3: Tree Protection Plan



To scale plans at the correct paper size are submitted separately with this report in both DWG and PDF formats.



ARBORWEALD

ENVIRONMENTAL PLANNING
CONSULTANCY

Notes:
This plan has been produced by Arborweald using original plans by Foresite Geomatics (Dwg No: 26032_01). Tree positions are subject to topographical survey accuracy. KeyTree elements have been added to plot tree positions and canopy spreads in relation to buildings and ground surfacing, as well as Root Protection Areas (RPAs).

Project:
BS:5837 (2012) survey at; LTR Bulrushes, Coombe Hill Road, E. Grinstead W. Sussex, RH19 4LZ

Drawing title:
Tree Protection Plan
Drawing number: DKS/1802.3
Version: TPP001

Key:
Root protection areas (RPAs)
Category A RPA
Category B RPA
Category C RPA
Category U RPA
Protective fencing: Protective Fencing
Construction Operations Area: COA
Construction Exclusion Zone: CEZ
Special Engineering Solutions:
Temp. Ground Protection:
Indicative Planting:

Date: 04/04/2026
Drawn by: JF
Scale: 1:200 @ A1
Checked by: AL

Client: Harrison Wood
www.arborweald.co.uk

Appendix 4: Arboricultural Supervision and Audit Form

Company:

Inspector:

Site:

Reference Number:

Inspection Date:

Scrub, Tree, Group, Woodland Edge Number:

Development Status

Pre-development ☐

Development phase ☐

Development paused ☐

Status of Protection Measures

Where required previous remedial measures implemented ☐

All protection measures in place in full compliance with the Arboricultural Protection Method Statement (APMS) ☐

All protection measures not in full compliance with the APMS ☐

Remedial measures required due to the following within the Construction Exclusion Zone:

Ground contamination ☐ Changed soil levels ☐ Excavations ☐ Vehicle movements ☐

Cement washings ☐ Material storage ☐ Water run off ☐ Ground compaction ☐

Unauthorised tree works ☐

Remedial measures required due to the following barrier condition:

Barrier erection does not accord with the APMS ☐ Barrier not in place ☐

Barrier not intact ☐ Ground protection not in place ☐

Any other faults/breaches ☐

Details

Where remedial measures required:

Details

Where alternate tree protection measures are proposed:

General Comments

Date of next inspection:

Copied to client ☐ Copied to Site Manager ☐ Copied to Local Planning Authority ☐

References

British Standards Institute. (2012). British Standard 5837 - Trees in relation to design, demolition and construction; Recommendations.

British Standards Institute. (2010). British Standard 3998 - Tree Work – Recommendations.

British Standards Institute. (2014). British Standard 8545 - Trees: from nursery to independence in the landscape – Recommendations.

Mattheck C. and Breloer H. (1994). Body Language of Trees, Her Majesty's Stationary Office.