

Ref: LAS_746_A
Date: 11.04.25

Site: Land adjacent to Warren Lodge Care Home, Finchampstead

Arboricultural Statement

1 INTRODUCTION

- 1.1 LandArb Solutions have been instructed to undertake a BS5837:2012 compliant tree survey at Land adjacent to Warren Lodge to accompany a planning application for 2x static caravan pitches and 2x touring van pitches.

2 TREE SURVEY

- 2.1 LandArb Solutions visited the site on 13.02.24 to carry out the tree survey.
- 2.2 The tree survey methodology is shown in Appendix 1. A copy of the tree survey schedule and tree survey and constraints plan is shown in Appendix 2 and 3. Selected Photographs are in Appendix 4.
- 2.3 The tree survey uses and updates the site topographical survey with tree details as per BS5837:2012 requirements.
- 2.4 The following provides a short description of tree cover at the site and should be read in conjunction with the tree survey schedule and tree constraints plan.

North-west area

- 2.5 To the north west of the site there is a gate off Warren Lane that provides access into the site.
- 2.6 To the west of the gate is a large lime tree (T1) which is TPO. To the south of the lime is a group of holly stems (G2) and an area that comprises false acacia and laurel (G3), yew, lime, acacia and Norway maple (T4, T5, T6, T8, T9, T10) and dead prunus (T11)

and multi stemmed yew (T12). To the south of these is a small pond with large lime (T14) on its west side and two yew (T15 and T16) to the south of the T14).

North and north-east

- 2.7 On the northern boundary of the site is a large multi-stemmed cypress (T35) which has had some branch failures. Next to T35 is a small oak (T36) which is in poor condition.
- 2.8 To the north east corner is a group of dead elm (G34) that need removing as they are by the highway. To the south east of G34 is a cypress tree (T33) that has previously failed/blown over and been pruned back to the site boundary from the highway. The branches of T33 have then grown upright from the failed stem to form the canopy/tree.

South of the site

- 2.9 On the western boundary of the site is a drainage ditch with mature oak trees on the west side (T22, T30 and T31) as well as a young oak (T24). T30 is very large and has a very large stem and is considered to be high quality. On the east side of the drainage ditch is a small hawthorn (T23) and collapsed goat willow (T25).
- 2.10 Within the centre and towards the eastern side are small hawthorn bushes (G27) and several semi to early mature oak trees (T19, T20, T21, T26, T28 and T29).

3 STATUTORY PROTECTION AND DESIGNATIONS

Conservation Area / Tree Preservation Orders

- 3.1 A review of Wokingham Borough Council's online TPO maps shows that the site is not within a Conservation Area. However it does show that three trees on the western boundary are subject to Tree Preservation Order (See Appendix 5, Figure 2 and 3.)
- 3.2 The three trees on the western boundary that are TPO are identified as Lime trees on the Council Map and these are believed to relate to T1, T6 and T14 on the tree survey. It is noted that T6 is very small compared to T1 and T14. It is recommended that the TPO status of all trees on or near the site are re-checked and confirmed with the LPA prior to any tree works.
- 3.3 Notwithstanding specific exemptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of trees without the prior consent of the local planning authority. Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine if the matter is determined by the Crown Court.

Felling License

- 3.4 On many non-residential sites (excluding specific exemptions) there is a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic terms, it is an offence to remove more than 5 cubic

metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

- 3.5 Prior to any tree felling, a felling license must be obtained from the Forestry Commission unless an exemption applies.

Statutory Wildlife Protection

- 3.6 Although preliminary visual checks from ground level of wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside the remit of the survey.
- 3.7 Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for bats in addition to birds and small mammals. It is recommended that in line with any accompanying specialist advice, any tree works should only be carried out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the project manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by a Statutory Nature Conservation organisation such as Natural England.
- 3.8 It is advised that tree works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. Ideally, operations should be avoided during this period. Any necessary work should only be carried out following a preliminary check of the vegetation. For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in Britain.

Other relevant designations

Ancient woodland and woodland designations

- 3.9 A review of the online DEFRA MAGIC maps and the Councils Proposals Maps shows that no ancient woodland, wood pasture, BAP woodland or any other woodland designation are within the site (See Appendix 5, Fig 1 and Fig 3).

Veteran Trees

- 3.10 A review of Wokingham Veteran Tree Association Maps, suggest that two lime trees (T1 and T14) and one sweet chestnut (T13) are veteran trees (See Appendix 5, Fig 4)
- 3.11 During the survey it was clear T13 (Sweet Chestnut) had veteran tree characteristic (i.e. splits, crack, hollows, past limb loss and crown retrenchment). However, the two lime trees (T1 and T14) appear to be large mature trees and lack the clear veteran characteristics that T13 has. In addition, the stem sizes of T1 and T14 in terms of girth are lower than what Wokingham Veteran Tree Association suggest veteran trees should have as a minimum.
- 3.12 During the survey a large oak tree was inspected (T30) at the south of the site. It has a very large stem size, above the minimum expected of a veteran tree. However, again lacks the clear veteran characteristics similar to T13. It is considered that T30 is a potential future veteran tree.
- 3.13 Although T1 and T14 are identified on Wokingham Veteran Tree Association Maps as being veteran, it is considered that only T13 is a true veteran tree that exhibits veteran tree characteristics. As such, T13 has been given a Veteran buffer on the tree survey.

4 DEVELOPMENT PROPOSALS

- 4.1 Development proposals are for 2x static caravan pitches with 2x touring van pitches with new access off the B3016.

- 4.2 A copy of the proposed site plan is shown in Appendix 6.

5 ARBORICULTURAL IMPACT ASSESSMENT

- 5.1 The proposed site plan has been overlaid with the tree survey to prepare a Tree Retention/Loss Plan (Appendix 7) and Tree Protection Plan (Appendix 8). This has been used to inform this assessment in terms of the proposed site plan and relationship with trees.

Tree Retention/Loss

- 5.2 Proposals will require the removal of twelve survey items, namely T17, T18, T19, T20, T21, T25, T26, G27, T32, T33, G34 and T35.
- 5.3 The majority of survey items to be removed are assessed as Category C or U, therefore should not be viewed as a constraint to development. T19, T20 and T21 are assessed as Category B with their value being as a group. However, all are on the young side of the age spectrum and could be replaced within the short to medium term.
- 5.4 Overall, from a tree retention/loss perspective proposals would retain all the larger mature trees of moderate and higher quality, including all TPO trees.

Landscaping

- 5.5 A proposed Landscaping Plan is shown in Appendix 9.
- 5.6 It is proposed to plant 24 new trees and mixed native hedgerows to compensate for tree removal and enhance the amenity of the site.
- 5.7 The proposed new planting has the potential to lead to an increase in species diversity at the site and allow new trees to grow with better form and structure, thus contributing greatly to the finished development. Planting of new hedgerows along the northern,

eastern and western boundaries will create new linear green corridors and contribute to connecting habitats.

Impacts to retained trees

Tree works

- 5.8 No major tree work will be required to enable proposals.
- 5.9 The location of the two proposed caravan pitches, touring van pitches and the new access off the B3016 are all located away from retained trees.
- 5.10 The lower canopies of G2, T5 and T6 may need some minor pruning to ensure clearance of the access where it has become overgrown. Where required, the canopies are to be lifted or reduced back to ensure at least 5.4m height clearance of the access and drive.

New pitches

- 5.11 The location of the two pitches each comprising a static and a tourer, all avoid RPAs of retained trees. In this context, these locations are acceptable. It is also important to know that construction proposals would avoid any excavation and avoid the need for actual building works. The two static caravans would be above ground structures and could be easily removed (i.e. they are lightweight moveable structures as opposed to being permanent with excavated foundations etc.). In terms of the touring vans, the touring vans are vehicles and again would not involve excavation or construction.

Access and surfacing pitches

- 5.12 It is proposed to upgrade the existing access off Warren lodge to install gravel surfacing to provide access to the northern caravan pitch. The other pitches would be accessed via a new gravel access off the B3016.

- 5.13 The existing access and gravel drive would be in the default RPA of T1. New gravel parking would partly encroach the RPA of T22 by a minor amount.
- 5.14 In these areas it is recommended that new gravel surfacing is installed using a no dig methodology utilising a load bearing geocellular confinement system.

Services

- 5.15 Given the nature of proposals, no large scale service connections would be required. Standpipes for water and electric points for electrical hook ups would be needed. However there is clearly space within the site for these to be installed without encroaching any RPAs.

Impact on veteran trees

- 5.16 As set out in section 3.10-3.13, only T13 is considered to be a true veteran tree, having clear veteran characteristics. Proposals clearly avoid T13 and its veteran buffer.
- 5.17 The two lime trees (T1 and T14) that are also identified on the Wokingham Veteran Tree Association Maps, appear to be large mature trees and lack the clear veteran characteristics that T13 have. In addition, the stem sizes of T1 and T14 in terms of girth are smaller than what Wokingham Veteran Tree Association suggest veteran trees should have as a minimum. As such, T1 and T14 are not considered to be veteran trees therefore no veteran buffers are applied. As can be seen on the TPP, the location of the caravan and touring van pitches avoid these trees. The existing site access and proposed drive using the existing access is within the RPA of T1, but this is unavoidable as this is where the existing access is located. If the access is upgraded to a gravel surface using a no dig methodology, no significant impacts are envisaged to T1.

- 5.18 Overall, proposals would not require the removal of any veteran trees nor would then result in impacts that could reasonably lead to the degradation and deterioration of any tree considered to be veteran.

Summary

- 5.19 Overall with regard to the proposals the following is noted:

- Proposals would not require the loss of any TPO or veteran trees nor any that are considered to be of high quality.
- Trees to be removed are either assessed as low or poor quality or are of a young age where they could be replaced in the short to medium term.
- No inappropriate tree works would be required to enable development.
- Retained trees can be adequately protected using fencing and considerate working methods.

6 TREE PROTECTION AND METHOD STATEMENT

- 6.1 Tree protection measures are shown on the TPP in Appendix 8. Protection measures will rely on fencing and considerate working.

Protection fencing

- 6.2 Prior to works beginning on site, it is recommended that temporary tree protection fencing is installed along the western boundary in areas shown on the TPP (Appendix 8) to prevent contact with retained tree stems or encroachments into RPAs.

General rules for tree protection

- 6.3 Areas within RPAs and covered by ground protection form a construction exclusion zone (CEZ). The following activities, are not permitted within a CEZ (or RPAs) unless detailed in this statement:
- No mixing of cement.
 - No soil/turf stripping, raising/lowering of ground levels, deposit or excavation of soil or rubble.
 - No storage of materials, waste materials, spoil, machinery fuel, chemicals or other materials of any other description (unless on ground protection).
 - No parking/use of tracked or wheeled machinery unless on ground protection/existing driveway).
 - No lighting of fires or disposal of liquids.
 - No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained trees.
- 6.4 All protection fencing must be installed prior to creating the gravel drives and pitches. Protection fencing once installed must remain in place for the duration of works on site.
- 6.5 All weather A2-sized notices reading, "CONSTRUCTION EXCLUSION ZONE – NO ACCESS" shall be attached to tree protection barriers.
- 6.6 All materials, equipment and contractor parking/compound must be located outside any retained tree RPA. There is clearly space within the site to avoid retained trees.

Considerate Working Methods

- 6.7 The final method of tree protection will be carrying out works considerately and being tree aware. All contractors must be made aware that trees are subject to a preservation order. Contractors must be made aware of tree protection requirements at the site and ensure works are carried out in accordance with this statement.

Installation of new hard surfacing

- 6.8 In relation to T1 and T22, new gravel surfacing is to be installed using the following method:

- Existing turf layer to be removed using hand tools.
- Ensure the existing ground beneath is not excavated and is retained. New surfacing is to be installed building up (i.e. no dig).
- Any hollows or depressions are to be filled using clean angular stone or sharp sand to ensure level surface.
- A geotextile is to be laid on the prepared ground and a load bearing geocellular confinement system installed (such as cellweb).
- The surface finish must be permeable, in this case will be gravel.
- In order to rationalise the level change between the carriageway and cellweb, a 1-1.5m strip between the edge of the carriageway and cellweb build up will be needed. This is where the access will need to grade up from the carriageway to the edge of the cellweb. An alternative would be to use a root bridge system.
- Edge support where in the RPA must avoid excavation and instead use edging set above ground and pinned in place (such as timber boards/sleepers pinned in place using timber or steel pegs).

- 6.9 A Cellweb detail/manufacturers method statement is included in Appendix 9.

New timber fences

6.10 When installing new timber fencing along the western boundary the following methods should be used:

- Mark out the location of potential new fence post holes and excavate potential post holes using handheld tools (hand digging or use of air-spade). The priority is to remove soil without damaging or severing significant roots or damaging roots in the immediate area of excavation. Preference should be made to using an air-spade to minimise damage to roots. However, if the ground is sufficiently compacted that air-spade excavation is not possible or not possible for another reason, excavation should be carried out using hand tools. Where digging by hand as opposed to air-spade, a fork should be used to loosen soil and help locate any significant roots. Loosened soil can then be lifted out using a spade.
- During post hole excavation, roots under 25mm (where they cannot realistically be retained) are to be pruned back to the edge/face of the excavation using a sharp cutting tool such as saw or secateurs. If smaller roots under 25mm are sufficiently flexible and can be permanently displaced, then the default should be to retain.
- Roots over 25mm or large fibrous masses are to be retained. Retained roots must not be served. Where large roots are encountered, the fence post hole should be adjusted to avoid.
- All new post holes are to be lined with an impermeable membrane prior to concrete pouring to prevent leaching into the surrounding soil.

Appendix 1: Survey Methodology

The tree survey was carried out with reference to the methodology set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Trees were not tagged.

Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups/woodlands were also surveyed as individuals

Tree survey findings are recorded in the tree survey schedule.

APPENDIX 2 – TREE SURVEY SCHEDULE

Within the tree survey schedule, each surveyed tree (T), hedgerow (H), group (G), woodland (W) on or adjacent to the site is given a reference number which refers to its position on the tree survey plan.

APPENDIX 3 – TREE SURVEY AND CONSTRAINT'S PLAN

Also shown on the tree survey plan are quality grading and preliminary tree constraints: root protection areas.

Tree species: listed by common name.

Heights: measured in metres. They are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.

Trunk diameters: measured in millimetres and are rounded to the nearest 10mm. Single stemmed tree diameters are measured at 1.5m above ground level or, where a fork or swelling makes this impractical, at the narrowest point beneath. Diameters of multi-stemmed trees are calculated as 'combined stem diameters' according to specific guidance set out within BS5837:2012 (p.10, para 4.6.1 a and b).

Crown spreads: taken at the four cardinal points to derive an accurate representation of the tree crown. They are recorded up to the nearest half metre for dimensions up to 10m and to

up the nearest whole metre for dimensions over 10m. For trees assessed as groups or woodland, an estimated mean radial crown spread in metres is taken for trees at the 80 percentile size.

Crown clearance: expressed both as existing height above ground level of first significant branch along with its direction of growth (e.g. 2.5m-N), and also in terms of the overall canopy. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.

Estimates: where any other measurement has had to be estimated, due to inaccessibility for example, this is indicated by a “#” suffix to the measurement as shown in the tree survey schedule.

Life stage:

- Y – young (stake dependent);
- SM - Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature);
- EM – Early Mature (not yet having reached 75% of expected mature size);
- M – Mature (anything else up to normal life expectancy for the species);
- OM – Over Mature (anything beyond mature and in natural decline); and
- V – Veteran (any tree displaying characteristics described by Natural England).

Management Recommendations: recorded in relation to a tree’s structural and/or physiological condition (e.g. the presence of any decay and physical defect) and /or any preliminary management recommendations that may be appropriate. This is NOT intended to comprise a specification for tree work; further advice should be sought prior to implementation. Trees

assessed as being in apparently immediately hazardous condition will be notified to the client separately as soon as practical.

Physiological condition:

- Good (Generally in healthy condition. No indications of impaired physiological function and in optimum condition for age and species);
- Fair (Condition satisfactory though below mean species performance, with indicators of reduced vitality. Some intervention may be required);
- Poor (Tree in decline/retrenching, with significantly impaired physiological function for age and species); and
- Dead (self-explanatory).

The above are informed by the following;

- Leaf size and colouration – unless otherwise state, leaf size and colouration is typical of the age and species; and
- Canopy density – unless otherwise stated, the canopy density of trees is typical of the age and species.

Structural Condition & Notes:

- Good (without any observable significant biomechanical structural weaknesses);
- Fair (with minor biomechanical structural flaws. Some remedial action may be required); and
- Poor (with significant biomechanical weaknesses requiring intervention particularly where risk management is required).

Notes on the apparent structural integrity of the tree are based upon visual tree assessment, including notes on form, taper, forking habit, storm damage, wood decaying fungi, pests and disease etc. plus other pertinent observations.

Anticipated useful life expectancy (ULE): the length of time a tree is estimated to be able to make a safe useful contribution to local amenity is expressed in years as: <10, 10+, 20+, 40+.

Category Grading: individual trees, hedgerows, groups of trees, and woodlands are assessed in terms of quality and benefit within the context of proposed development and graded into one of four categories (U, A, B, and C) which are differentiated on the tree survey plan by the colours indicated below:

Category U (Red)

Unsuitable for retention. Trees in such a poor condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Retention Implications to a site

Not a material consideration in the planning process but may have other benefits i.e. ecological benefits/importance.

Category A (Green)

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

Retention Implications to a site

Tree should be retained and amendments to a proposed scheme should be identified in preference to tree removal.

Category B (Blue)

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

Retention Implications to a site

Where possible amendments to a proposed scheme should be considered in preference to tree removal.

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 below 150mm.

Retention Implications to a site

The retention of trees may be advantageous in the short term, but they should not be seen as a constraint to development.

A, B and C trees have also been given a sub-category of 1, 2 or 3 which reflects their arboricultural, landscape or cultural and conservation values respectively. Each subcategory has an equal weight, for example an A1 tree has the same retention priority as an A3 tree.

Trees have been assigned 'U' or category grading A-C in accordance with the cascade chart given in BS: 5837:2012.

In addition to the category, the tree survey schedule also describes each tree's root protection area (RPA) in terms of radius (metres) and overall area (sq metres).

Limitations

This report has been undertaken in compliance with BS: 5837:2012 and is not intended to be a tree safety survey. This report is prepared for planning application purposes only and does not evaluate the degree of risk posed by trees. Any notes offered regarding structural integrity of trees are to be considered incidental. Our recommendations given for immediate intervention should be put in the hand of the owner/site manager as soon as reasonably practicable.

Trees are dynamic living organisms as well as self-supporting dynamic structures, capable of achieving considerable size and structural complexity. Their physiological and structural condition can change rapidly in response to a wide range of biotic/abiotic factors. They are exposed to and can become damaged by the elements and by human activity, and have co-evolved with decay causing organisms that can degrade and sometimes destroy their structural integrity. The laws and forces of nature dictate a natural failure rate even among trees that appear healthy and structurally sound. They therefore have the potential to fail structurally, without prior manifestation of any reasonably observable symptoms. By their very nature, therefore, it is not possible to categorically state that any tree is 'safe' or hazard free.

Tree surveys and/ or tree inspections are inherently a snap shot in time of the structural and physiological conditions of the trees concerned.

It is beyond the scope of this report to comment in relation to structural damage – direct or indirect, existing or potential – that might be associated with vegetation growth, or vegetation-related soil subsidence or heave.

Unless otherwise stated, all such surveys/inspections are undertaken from ground level and no internal inspections or tests have been undertaken.

Any management recommendations set out within this report are of an advisory and preliminary nature only and relate to trees within the context of current site use.

The findings and recommendations of this report should be considered time-limited for planning purposes to a maximum of 24 months from the date of this report (absent revisions of BS5837, which render pre - existing data obsolete).

Appendix 2:
Tree Survey Schedule

Ref no.	Species	Ht. (m)	Stem				Category Grading	Crown Spread (m)								Life stage	ULE	Physiological Condition	Structural Condition	General Observations and Notes
			Stem Count	Stem dia. (mm)	RPA radius	RPA area		N	E	S	W	Ht. 1st Br. (m)	Est.	1st Br. Direction	Ht. Can. (m)					
T1	Lime	18.5	1	1100	13.2	547	B1	8.0	8.0	10.0	8.0	N/A	-	N/A	5.0	M	20+	Fair	Fair	Large tree, tight union with rib at 7m, crown in the past,
G2	Holly	10.5	3	360	4.3	59	C2	5.0	6.0	4.5	3.0	N/A	-	N/A	0.0	EM	10+	Fair	Poor	Two holly, south holly has cavity on south side in stem. Tree leans east with ivy and poor form. North holly is multi stemmed, dense ivy and leans east. Both poor form.
G3	False acacia, laurel	12.0	5+	200	2.4	18	C2	As on plan				N/A	-	N/A	2.0	EM	10+	Fair	Poor	Six drawn up small, young to semi mature false acacia with poor form. Laurel Bush's to south of the group, large acacia by electric pole.
T4	Yew	10.0	1	350	4.2	55	C1	2.0	2.0	2.0	2.0	N/A	-	N/A	2.0	EM	10+	Fair	Poor	Supressed canopy, moderate interior deadwood, previous twin stem north side has lost a stem in past leaving area of deadwood.
T5	Yew	9.0	1	350	4.2	55	C1	4.5	2.5	3.0	0.5	N/A	-	N/A	1.5	SM	10+	Fair	Poor	Poor form, suppressed to west, lower canopy pruned east side in past low quality.
T6	Lime	14.0	1	420	5.0	80	C1	4.5	3.5	3.5	4.0	N/A	-	N/A	4.0	EM	10+	Fair	Fair	Kinked stem lower canopy lifted in past high canopy.
T7	Laurel	5.0	1	280	3.4	35	C1	0.5	2.0	2.5	2.5	N/A	-	N/A	0.0	EM	<10	Fair	Poor	Poor form, kinked stem, past branch loss evident and areas of deadwood and decaying branches. Bark cracking east side stem. Low quality.
T8	False acacia	14.0	1	390	4.7	69	C1	0.5	4.0	4.5	3.0	N/A	-	N/A	1.5	EM	10+	Fair	Poor	Stem leans east, moderate deadwood, poor form, north leader kinks west.
T9	Cypress	7.0	1	150	1.8	10	U	1.5	1.5	1.5	1.5	N/A	-	N/A	1.0	SM	<10	Dead	Dead	Dead.
T10	Norway Maple	12.0	1	240	2.9	26	B1	2.5	2.5	3.0	3.0	N/A	-	N/A	4.0	EM	10+	Fair	Fair	Drawn up, high canopy, suppressed east side by neighbour slightly
T11	Prunus	2.0	3	346	4.2	54	U	0.5	0.5	0.5	0.5	N/A	-	N/A	0.0	EM	<10	Dead	Dead	Stumps of felled prunus, smothered in ivy.
T12	Yew	10.0	2	509	6.1	117	B1	3.0	5.0	3.0	3.0	N/A	-	N/A	1.0	EM	20+	Fair	Fair	Reasonably dense needle coverage, canopy favours east side, twin stem from 0.5m,
T13	Sweet chestnut	11.0	1	1150	13.8	598	B3	4.0	2.0	5.5	7.0	N/A	-	N/A	1.0	V	10+	Fair	Poor	Northern limb large cavity on top side by union with decay, limb is hollow. North limb touches floor and appears to be left as deadwood. South limb kinks west and then upright forming canopy away from main stem. Main stem has limited remaining canopy with past branch loss and poor form. Woodpecker holes suggest stem is hollow. Has veteran characteristics,
T14	Lime	18.0	1	1120	13.4	568	B1	8.0	9.0	8.0	7.0	N/A	-	N/A	0.0	M	20+	Good	Fair	Large tree, epicormic girth at base, dense ivy on stem and into canopy, appears to have been reduced/ pruned in the past. Unable to access base to measure therefore estimated.
T15	Yew	9.0	1	480	5.8	104	B1	3.0	3.0	3.0	4.0	N/A	-	N/A	1.0	EM	20+	Good	Fair	Dense crown, some deadwood, set by pond.
T16	Yew	8.0	1	480	5.8	104	C1	2.5	2.5	3.5	4.0	N/A	-	N/A	1.5	EM	10+	Fair	Fair	Interior deadwood in crown, ivy on stem, pruned in the past,
T17	Oak	8.5	2	470	5.6	100	C1	6.0	4.0	3.5	4.5	N/A	-	N/A	2.0	EM	10+	Fair	Poor	Twin stem from base, further twining in wes5 stem at 1.5m, ivy on western stems.
T18	Oak	8.5	2	400	4.8	72	C1	2.5	5.0	5.0	2.5	N/A	-	N/A	1.5	EM	10+	Fair	Poor	Twin stem from base, suppressed north west side,
T19	Oak	10.0	1	360	4.3	59	B1	3.0	3.0	3.0	1.5	N/A	-	N/A	1.0	EM	20+	Fair	Fair	Part of a group of three oak, suppressed to west side. Canopy pruned back from road edge, some deadwood,
T20	Oak	9.0	1	300	3.6	41	B1	0.5	3.0	3.0	2.5	N/A	-	N/A	2.0	EM	20+	Fair	Fair	Supressed north side, canopy favouring south, part of group of three oak.
T21	Oak	9.0	1	340	4.1	52	B1	4.0	0.5	3.5	4.5	N/A	-	N/A	0.0	EM	20+	Fair	Fair	Supressed to east, part of group of three oak.
T22	Oak	16.0	1	940	11.3	400	B1	6.0	6.0	6.0	5.5	N/A	-	N/A	1.5	M	20+	Good	Fair	Calluses at base, dense crown adventitious growth on stem and branches, next to pond.
T23	Hawthorn	5.0	5+	198	2.4	18	C1	3.0	3.0	2.5	2.5	N/A	-	N/A	1.0	EM	10+	Fair	Fair	Hawthorn bush, small multi-stemmed,
T24	Oak	8.0	1	320	3.8	46	C1	3.0	3.0	3.0	3.0	N/A	-	N/A	2.5	EM	10+	Fair	Fair	Barbed wire through centra of stem, small, tree.
T25	Goat willow	7.0	1	250	3.0	28	U	3.0	3.0	2.0	3.0	N/A	-	N/A	1.5	EM	<10	Fair	Poor	Previous twin stem but south stem failed at base and fall to ground, remove.
T26	Oak	8.0	1	570	6.8	147	C1	4.5	4.5	4.5	4.5	N/A	-	N/A	1.0	EM	20+	Fair	Fair	Squat form, twin ,evaders from 2m, crowded stem with multiple branches,
G27	Hawthorn	4.0	5+	100	1.2	5	C2	2.0	2.0	2.0	2.0	N/A	-	N/A	0.5	EM	10+	Fair	Fair	Four small hawthorn bushes,
T28	Oak	10.0	1	520	6.2	122	B1	5.0	4.5	4.0	5.0	N/A	-	N/A	1.0	EM	20+	Fair	Fair	Squat shape, ivy on stem, dense crown structure. Small area f black staining on stem north side typical of canker.
T29	Oak	6.0	1	260	3.1	31	C1	4.0	3.0	0.5	4.0	N/A	-	N/A	1.0	SM	10+	Fair	Poor	Supressed by neighbour, poor form.
T30	Oak	19.0	1	1380	15.0	707	A3	9.0	10.0	9.0	6.0	N/A	-	N/A	2.0	M	40+	Good	Fair	Large oak, large dead limb north west side, large wound on stem north side with exposed heartwood with some decay partially occluded, minor moderate crown deadwood, ivy on stem. Potential future veteran.
T31	Oak	15.5	1	1020	12.2	471	B1	6.0	8.0	8.0	8.0	N/A	-	N/A	2.0	M	20+	Fair	Fair	West limb failed and fallen down into neighbouring field, some ivy on stem, moderate deadwood
T32	Oak	9.0	2	318	3.8	46	C1	3.0	1.5	3.5	3.5	N/A	-	N/A	1.5	EM	10+	Fair	Poor	Twin stem, suppressed to east, poor form.
T33	Cypress	11.0	5+	441	5.3	88	C1	2.5	3.0	3.0	3.0	N/A	-	N/A	1.0	EM	10+	Fair	Poor	Cypress that appears to have fallen over in past and new stems brown from side of stem to form multi stem tree. Low quality.
G34	Elm	7.0	4	180	2.2	15	U	As on plan				N/A	-	N/A	0.0	SM	<10	Dead	Dead	Dead elm, remove.
T35	Cypress	14.0	5+	600	7.2	163	C1	6.0	6.0	6.0	7.0	N/A	-	N/A	0.5	M	10+	Fair	Poor	Multiple, stems/ limbs drawn up, branches collapsed west and south side.
T36	Oak	5.0	1	100	1.2	5	U	2.0	0.5	0.5	1.0	N/A	-	N/A	0.0	Y	<10	Poor	Poor	Poor form, limited canopy structure.

Appendix 3:
Tree Survey and Constraints Plan









The map displays the Warren Lane area with various tree locations and their associated data. The map includes labels for trees such as T1-B1, T5-C1, T36-U, T35-C1, G34-U, T33-C1, T6-C1, T7-C1, T8-C1, T9-U, T11-U, T12-B1, T13-B3, T14-B1, T15-B1, T16-C1, T17-C1, and T18-C1. It also shows features like 'Dead elm', 'Bramble', and 'Goat willow'. The map is overlaid with various colored circles and lines, indicating different zones or boundaries. A legend at the bottom right shows a circle for 'Goat willow'.

area of dense brambles

willow
○

The map shows the distribution of 12 bird species in a study area. The species are represented by colored circles and labels: T22 -B1 (blue), T21 -B1 (blue), T19 -B1 (blue), T20 -B1 (blue), T26 -C1 (grey), T23 -C1 (pink), T25 -U (pink), T24 -C1 (pink), G27 -C2 (pink), T22 -B1 (blue), T21 -B1 (blue), T19 -B1 (blue), T20 -B1 (blue), T26 -C1 (grey), T23 -C1 (pink), T25 -U (pink), T24 -C1 (pink), G27 -C2 (pink). The map includes a road network, a railway line, and various habitats like grass and oak. The species are distributed across the area, with some species having multiple locations marked. The map also shows the distribution of 12 bird species in the study area. The species are represented by colored circles and labels: T22 -B1 (blue), T21 -B1 (blue), T19 -B1 (blue), T20 -B1 (blue), T26 -C1 (grey), T23 -C1 (pink), T25 -U (pink), T24 -C1 (pink), G27 -C2 (pink), T22 -B1 (blue), T21 -B1 (blue), T19 -B1 (blue), T20 -B1 (blue), T26 -C1 (grey), T23 -C1 (pink), T25 -U (pink), T24 -C1 (pink), G27 -C2 (pink). The map includes a road network, a railway line, and various habitats like grass and oak. The species are distributed across the area, with some species having multiple locations marked.

 $\bigcirc +$

T24 -C1

T24 -C1

G27 -C2

Diagram showing a cross-section of a road structure. The concrete slab is labeled "T29 -C1". The subgrade is labeled "73.02". The slab thickness is indicated as "73.28" and "73.36".

uk 8ht  T28 -B1

T30 -A3

T31 -B

Blackthorn hedge

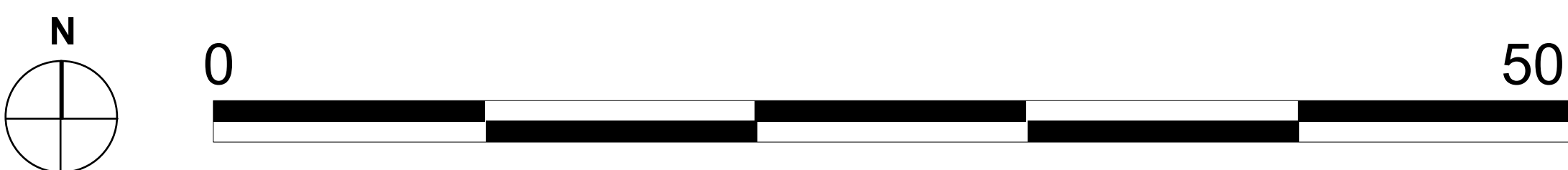
Revision	Description	Date
-	First issue	16/2/24
A	Second issue	25/3/25

Project:
**Land adjacent to warren lodge care home
Finchampstead**

Description:
Tree Survey and Constraints Plan

Scale: 1:200 @A1 Drawn | Checked: DP MP Date: 25/03/2025

Job Number: **LAS 746** Drawing Number: **01** Revision: **A**



Appendix 4: Site Photos



Photo 1: View looking west at the stem of T13 which has veteran characteristics.



Photo 2: View looking south at T30.



Photo 3: View looking north at T28.



Photo 4: View looking west at T24.



Photo 5: View looking north at T19-T21.



Photo 6: View looking north at G27.



Photo 7: View looking east at T27/T28.



Photo 8: View looking north at T33



Photo 9: View looking north at G34.



Photo 10: View looking south-east at T17/T18.



Photo 11: View looking north-west at G2-T10.



Photo 12: View looking north at T36.



Photo 13: View looking west at G3



Photo 14: View looking south at T1.



Photo 15: View looking south at T15 / T16.



Photo 16: View looking west at T14.

Appendix 5: Designations

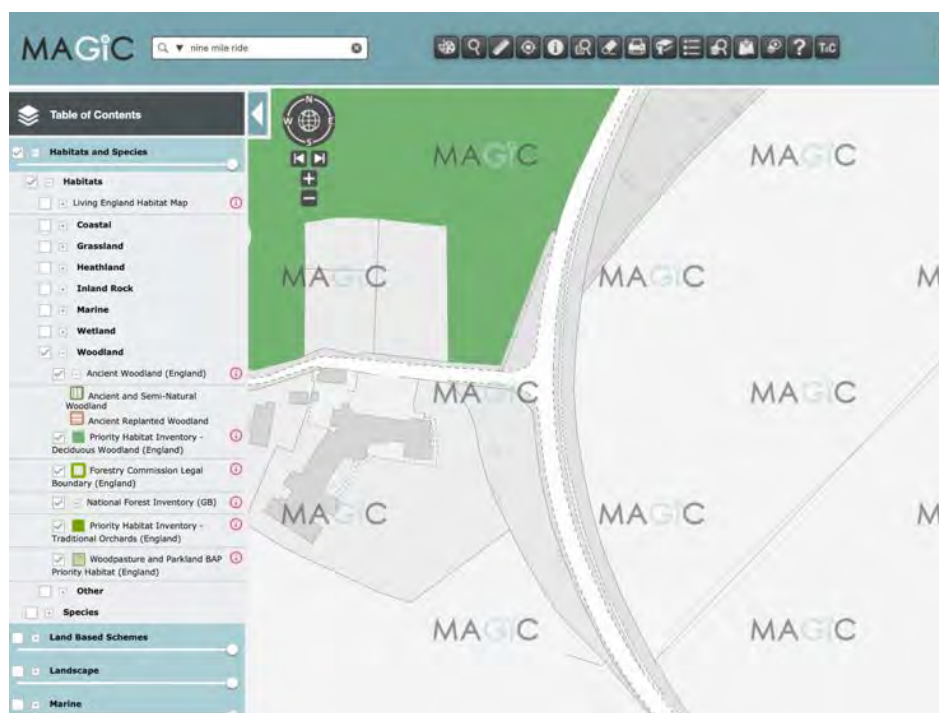


Fig 1: Extract of MAGIC maps showing location of any woodland designations. None shown covering the site.

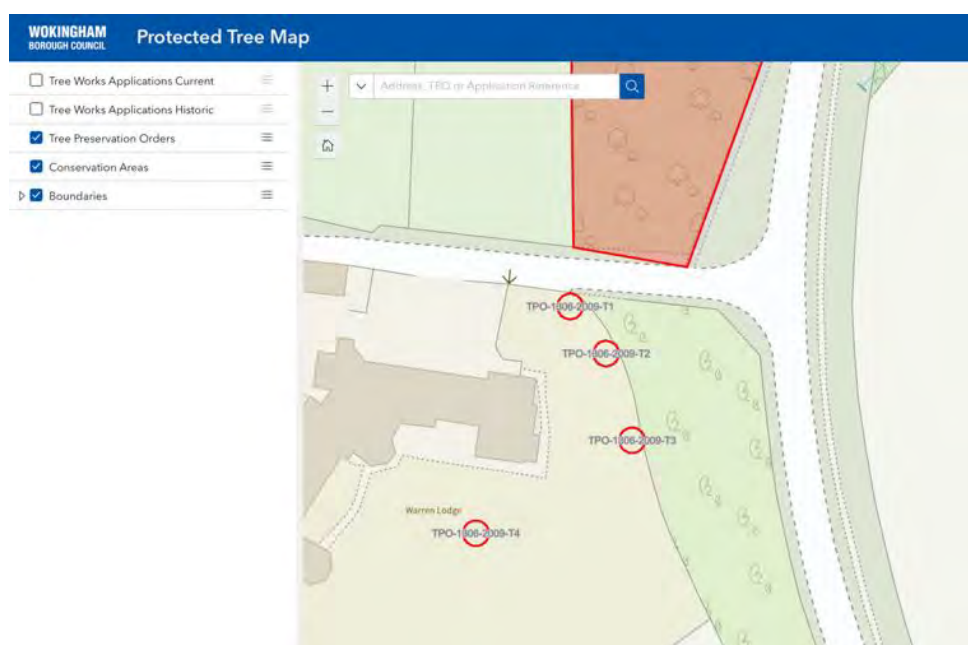


Figure 2: Extract of Wokingham Borough Council TPO maps. Conservation Area Constraints but three trees subject to a TPO.

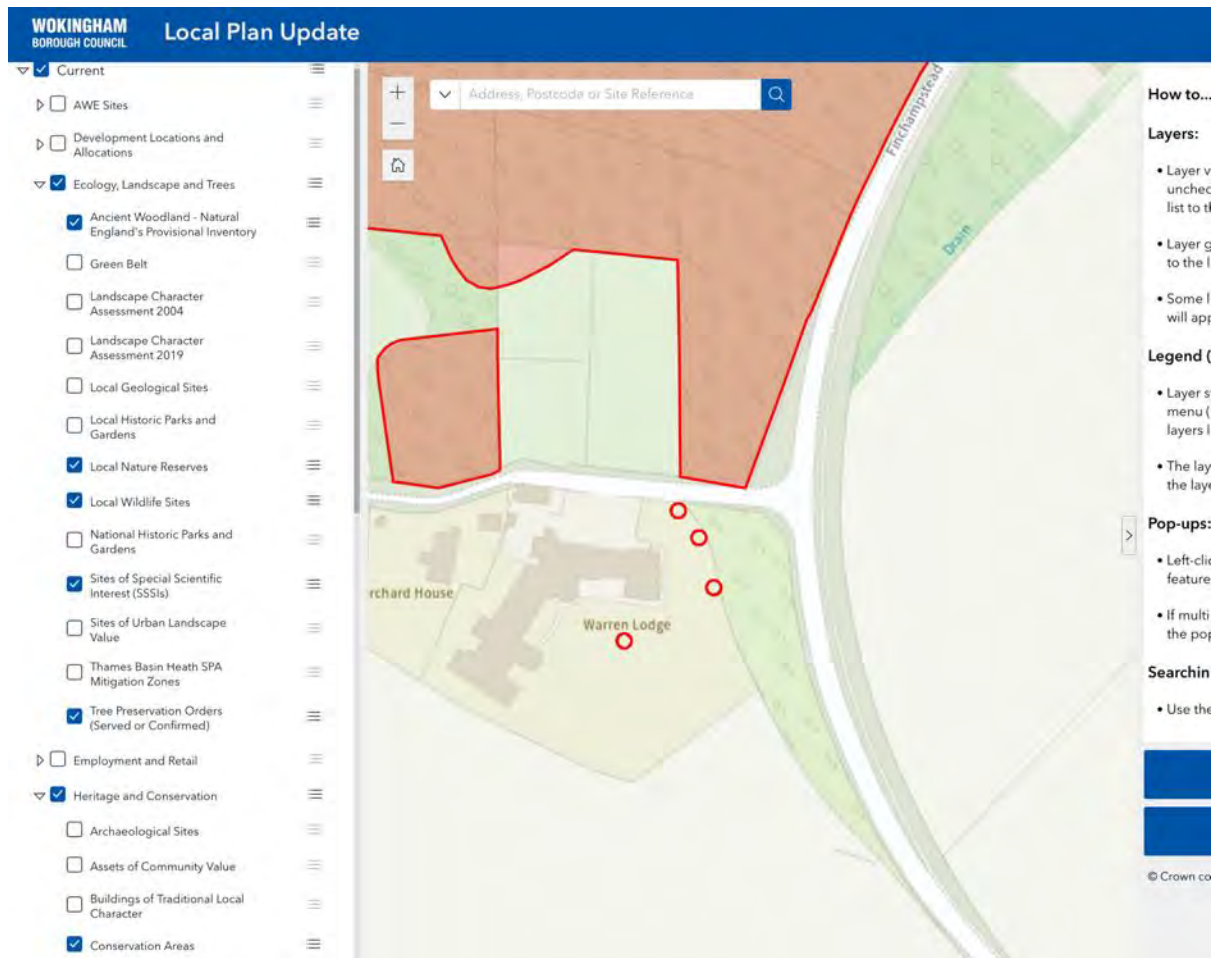


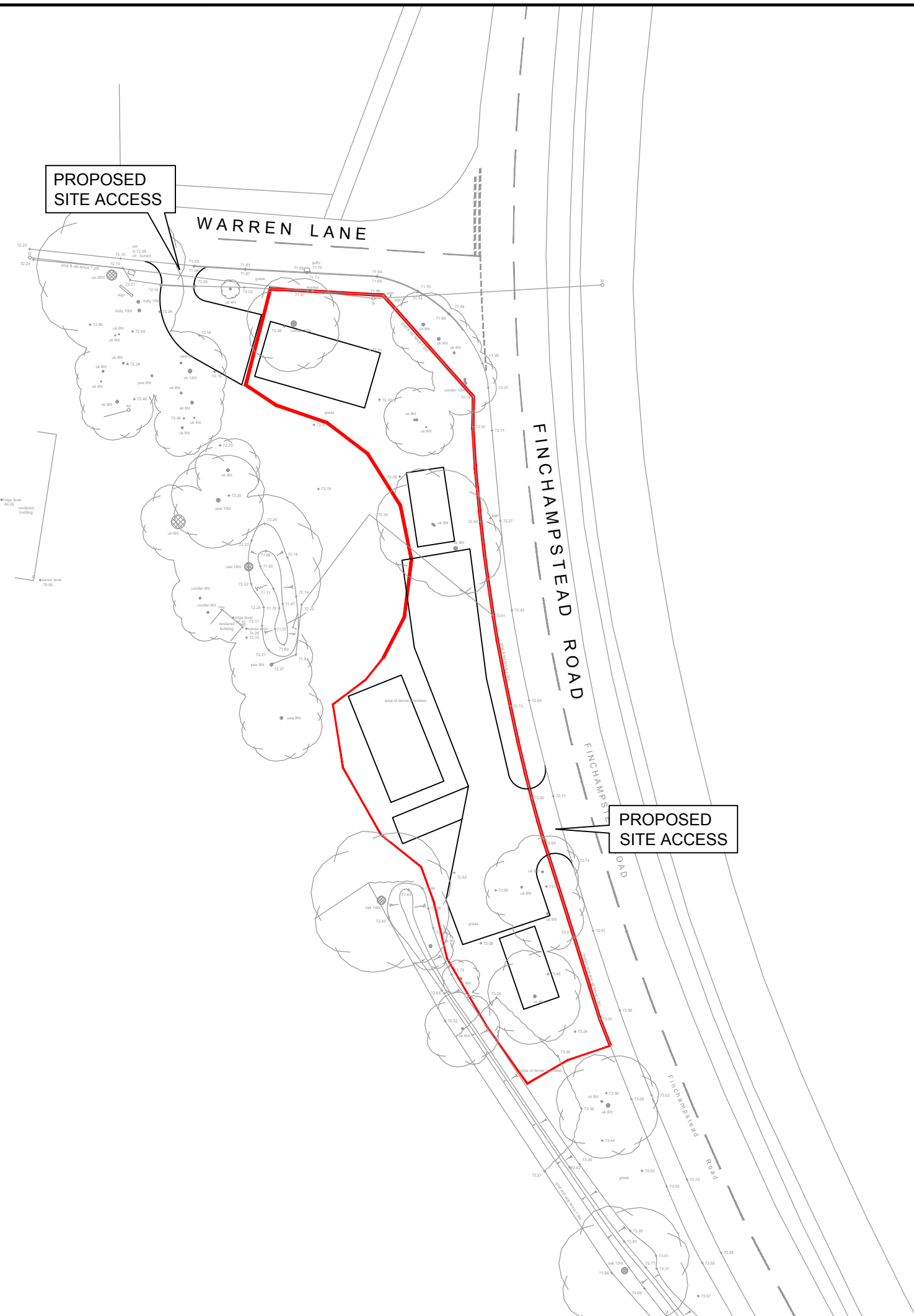
Figure 3: Extract of Wokingham Borough Council Proposals Map showing ecology and tree constraints.

Wokingham District Veteran Tree Association Survey Map

The screenshot displays the website's interface. At the top is a green navigation bar with links: Home, Map, Survey, Veteran Trees, Commemorative Trees, Tree Wardens, News & Events, FAQs, Publications & Links, and Contact us. Below this is a banner image of a green field with a line of trees. A light green bar contains a button labeled 'CLICK TO SHOW INSTRUCTIONS'. The main content area has a status message: 'As of 23-Nov-2023 we have 8651 trees with 13882 photographs'. Below this are several interactive elements: a 'Show All Trees' button, a 'Remove All Trees' button, a 'Select Parish' dropdown menu, a 'Show Parish Trees' button, a 'Show Parish Boundaries' checkbox, and a 'Go to...' search box. The search box has radio buttons for 'Grid reference', 'Address/Postcode', and 'Tree Number' (which is selected), followed by a text input field and a 'Go' button. At the bottom is a satellite map view showing a residential area with a building labeled 'Warren Lodge Care Centre'. Several red location pins are placed on the map, indicating recorded veteran trees. The map includes labels for 'Warren Ln' and 'B3016'.

Figure 4: Extract of Wokingham Veteran Tree Association Map of recorded veteran trees.

**Appendix 6:
Proposed Site Plan**



- NOTES :**
1. Do not scale from this drawing.
 2. This drawing to be read & printed in colour.
 3. This drawing is for illustrative purposes only, and not for construction.

KEY :

	SITE BOUNDARY
--	---------------

...	...	...	...	...
REV	DETAILS	DRAWN	CHECKED	DATE

Client

ET Planning

Project

Land East of Warren Lodge

Drawing Title

Site Plan

Scale

1:500

Size

A3

Drawn By

DW

Checked By

LS

Date

09.10.2024

Stunt Consulting Ltd, 'Front Offices', Perchance, Ryehurst Lane,
Binfield, Berkshire, RG42 5QY
Tel.: 01344 306294 Email: info@stuntconsulting.co.uk

Project Ref

B22007

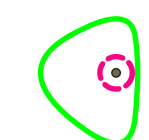
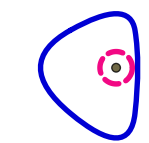
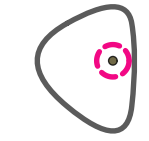
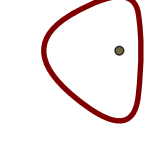
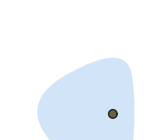
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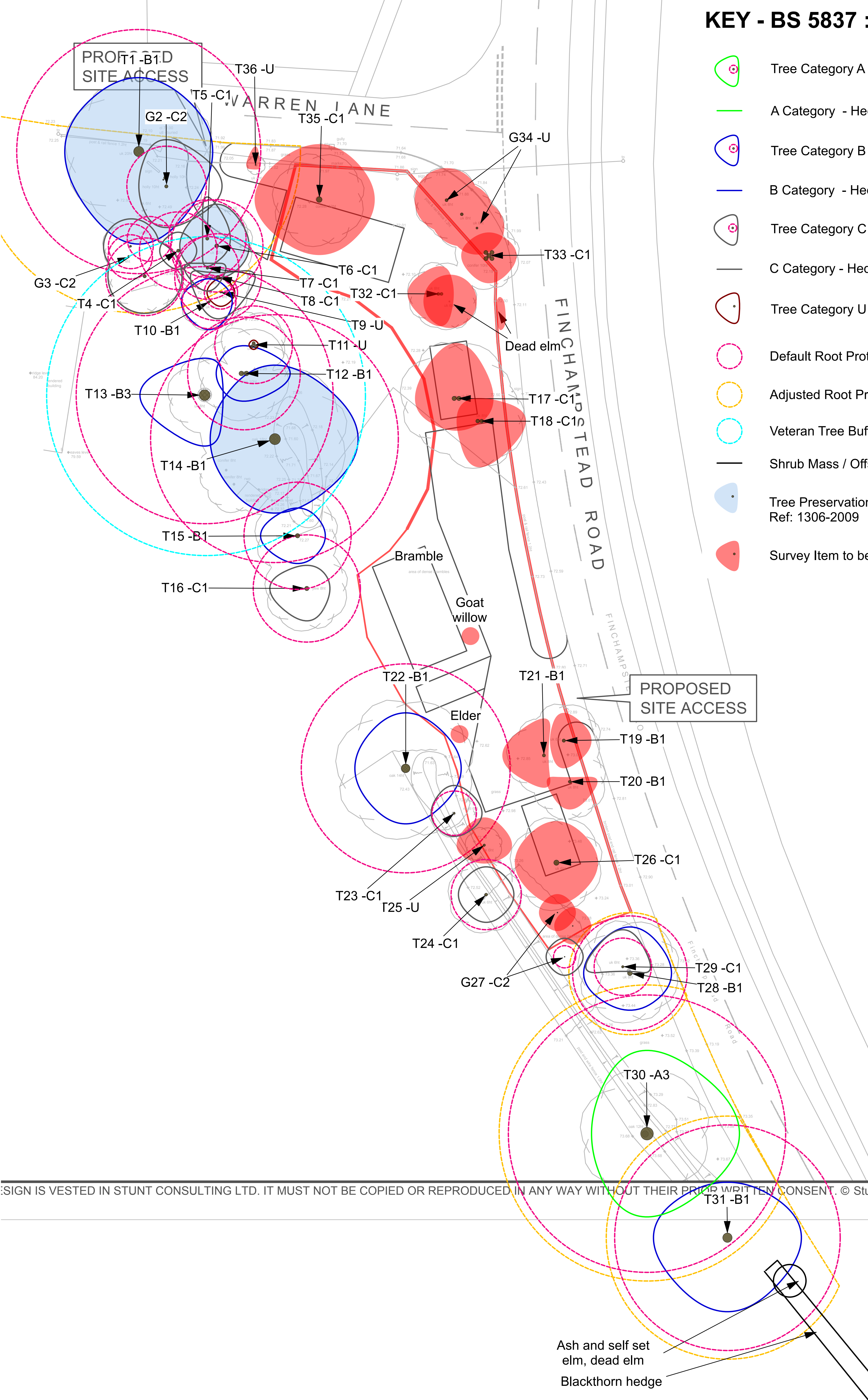
002

Rev

Appendix 7:
Tree Retention/Loss Plan

KEY - BS 5837 : 2012 Categories

-  Tree Category A - High Quality
-  A Category - Hedgerow, Group, Woodland
-  Tree Category B - Moderate Quality
-  B Category - Hedgerow, Group, Woodland
-  Tree Category C - Low Quality
-  C Category - Hedgerow, Group, Woodland
-  Tree Category U - Unsuitable for Retention
-  Default Root Protection Area to BS:5837:2012
-  Adjusted Root Protection Area to BS:5837:2012
-  Veteran Tree Buffer
-  Shrub Mass / Offsite Tree
-  Tree Preservation Order (TPO)
Ref: 1306-2009
-  Survey Item to be Removed



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Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Revision	Description	Date
-	First Issue	27/5/24
A	Second Issue	25/3/25
B	Third Issue	24/4/25

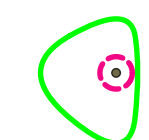
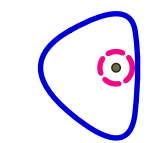
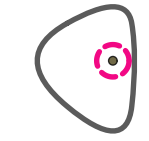
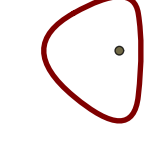
LANDARB SOLUTIONS

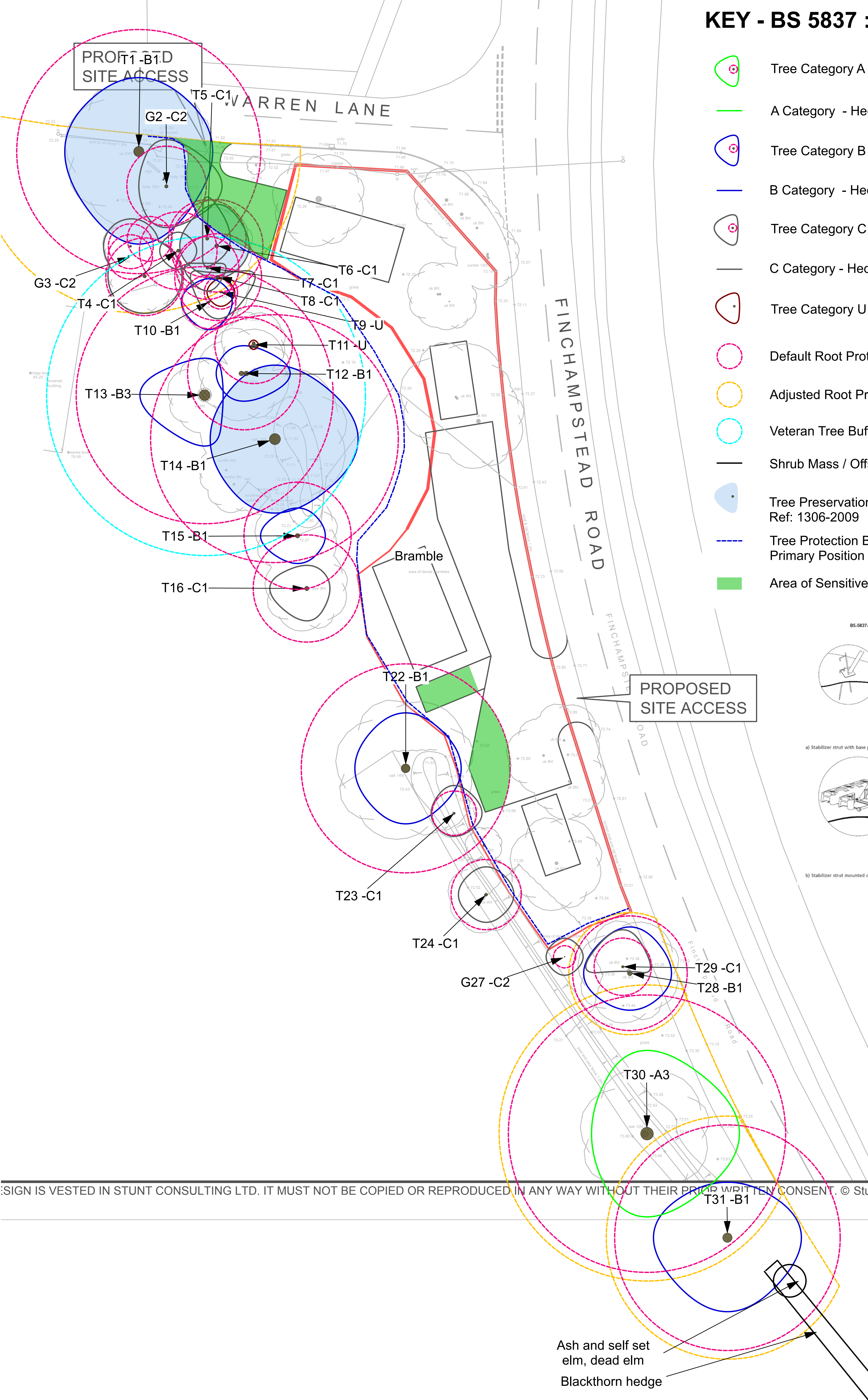
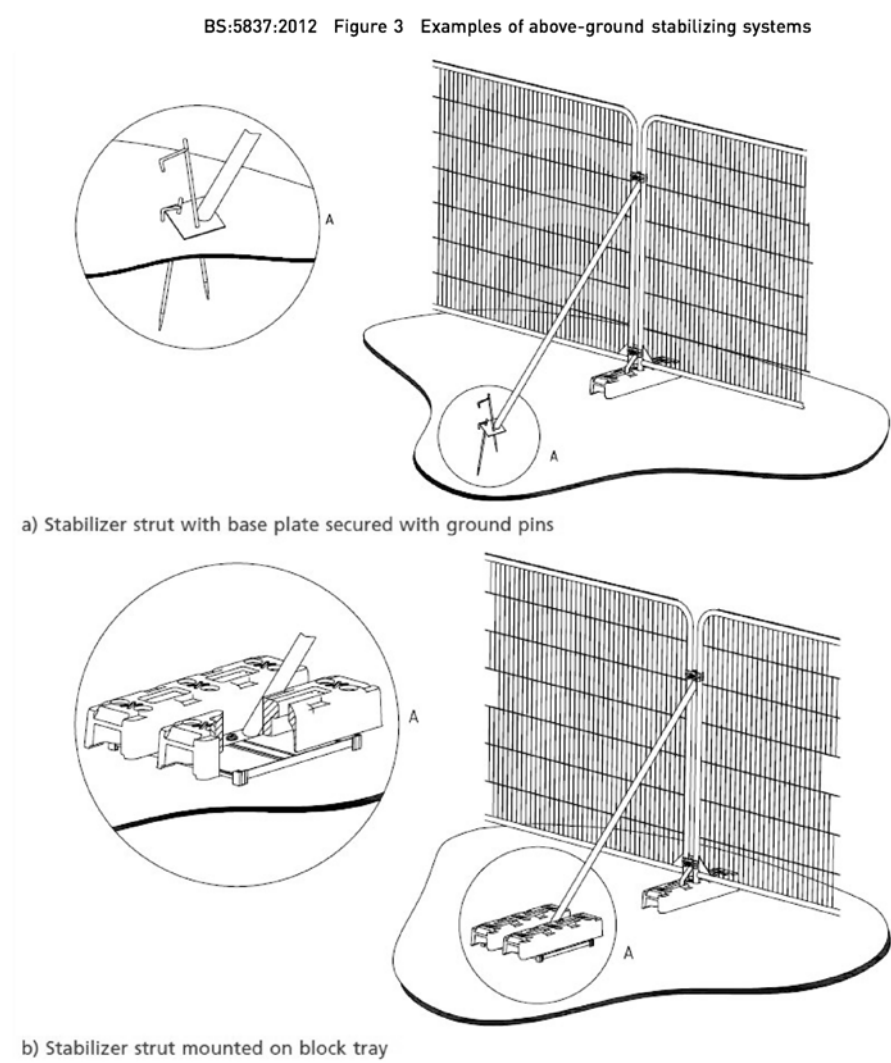
Project:
Land adjacent to warren lodge care home
Finchampstead
Description:
Tree Retention and Loss Plan

Status: For Planning	Scale: 1:200 @A1	Drawn I Checked DP MP	Date: 24/04/2025
Job Number: LAS 746	Drawing Number: 02	Revision: B	

Appendix 8:
Tree Protection Plan

KEY - BS 5837 : 2012 Categories

-  Tree Category A - High Quality
-  A Category - Hedgerow, Group, Woodland
-  Tree Category B - Moderate Quality
-  B Category - Hedgerow, Group, Woodland
-  Tree Category C - Low Quality
-  C Category - Hedgerow, Group, Woodland
-  Tree Category U - Unsuitable for Retention
-  Default Root Protection Area to BS:5837:2012
-  Adjusted Root Protection Area to BS:5837:2012
-  Veteran Tree Buffer
-  Shrub Mass / Offsite Tree
-  Tree Preservation Order (TPO)
Ref: 1306-2009
-  Tree Protection Barrier to BS:5837:2012
Primary Position
-  Area of Sensitive Working/No Dig



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Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Revision	Description	Date
-	First issue	27/5/24
A	Second issue	25/3/25
B	Third issue	24/4/25

LANDARB SOLUTIONS

Project:
Land adjacent to warren lodge care home
Finchampstead
Description:
Tree Protection Plan

Status:
For Planning

Scale: 1:200 @A1	Drawn I Checked DP MP	Date: 24/04/2025
Job Number: LAS 746	Drawing Number: 03	Revision: B

**Appendix 9:
Landscape Plan**



KEY

- Existing Retained
- Proposed Tree Planting
- Existing Soft Landscape Retained
- Proposed Grass - EL1 Flowering Lawn Mixture
- Proposed Mixed Native Hedge Planting
- Proposed Permeable Geocell with gravel surfacing
- Proposed Local Gravel
- Proposed 1.2m High Post and Rail Fencing

TREE PLANTING

Code	Species	Form	Girth cm	Height cm	Root condition	Quantity
AC	Acer campestre	EHS	14-16	425-600	65/85 L	11
AG	Alnus glutinosa	EHS	14-16	425-600	65/85 L	5
QR	Quercus robur	Std	8-10	250-300	45 L	8

NATIVE HEDGE TRANSPLANTS @ 5 per linear metre in double staggered row

Code	Species	Root Condition	Age + Times Transpl	Height cm	Quantity
AC	Acer campestre (10%)	Bagged	1+1	40-60	101
CA	Corylus avellana (10%)	Bagged	1+1	40-60	101
CM	Crataegus monogyna (10%)	Bagged	1+1	40-60	101
CS	Cornus sanguineum (10%)	Bagged	1+1	40-60	101
EE	Euonymus europaeus (10%)	Bagged	1+1	40-60	101
LV	Ligustrum vulgare (10%)	Bagged	1+1	40-60	101
IA	Ilex aquifolium (10%)	9cm pot	-	30-40	101
PS	Prunus spinosa (10%)	Bagged	1+1	40-60	101
VL	Viburnum lantana (10%)	Bagged	1+1	40-60	101
VO	Viburnum opulus (10%)	Bagged	1+1	40-60	101

Emorsgate EL1 Flowering Lawn Mix sown at 4gms/m2

Wild Flowers

%	Latin name	Common name
4	Galium verum	Lady's Bedstraw
0.5	Leontodon hispidus	Rough Hawkbit
1	Leucanthemum vulgare	Oxeye Daisy
3.7	Lotus corniculatus	Birdsfoot Trefoil
3	Primula veris	Cowslip
4	Prunella vulgaris	Selfheal
3.5	Ranunculus acris	Meadow Buttercup
0.3	Trifolium pratense	Wild Red Clover

Grasses

%	Latin name	Common name
8	Agrostis capillaris	Common Bent
40	Cynosurus cristatus	Crested Dogstail
28	Festuca rubra	Slender-creeping Red-fescue
4	Phleum bertolonii	Smaller Cat's-tail

Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

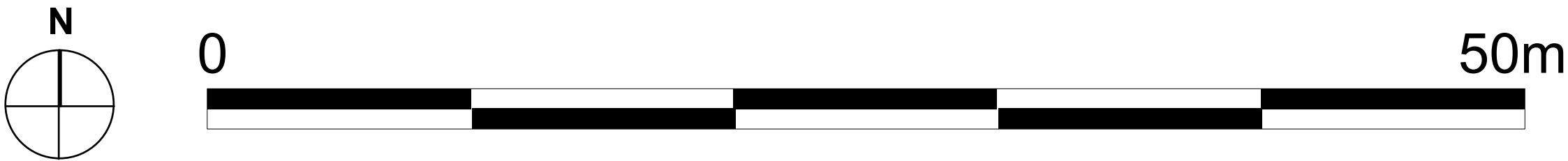
Revision	Description	Date
-	First Issue	27/5/24
A	Second Issue	24/3/25
B	Third Issue	24/4/25

LANDARB SOLUTIONS

Project: Land adjacent to warren lodge care home
Finchampstead
Description: Soft Landscape Proposals

Status: For Planning

Scale: 1:200 @A1	Drawn I Checked DP MP	Date: 24/04/2025
Job Number: LAS 746	Drawing Number: 04	Revision: B



Appendix 10:
Cellweb Installation Method/Guide

Cellweb® TRP

Tree Root Protection

Cellweb® TRP is a 3D cellular confinement tree root protection system. The system provides a 'no dig' solution for the construction of new hard surfaces within root protection areas (RPAs). Cellweb® TRP has been designed and independently tested to comply with recommendations made in Arboricultural Practice Note 12 and BS 5837 2012 – Trees in relation to design, demolition and construction.



Cellweb® TRP Key Functions

Cellweb® is a 'no dig' solution which is constructed directly on the existing ground surface. This eliminates the requirement for excavation, preventing root severance.

Cellweb® is a completely porous system allowing continued water permeation and gas exchange between the rooting environment and atmosphere.

Cellweb® spreads point loads, minimising increases in soil compaction within the rooting environment. This maintains an open graded soil structure allowing continued root growth, water, gas and nutrient migration.

The Cellweb® TRP system comprises the following three components

Treetex™ Geotextile. Following minimal ground preparation the Treetex™ is laid onto the existing ground and top soil. This acts as a separation layer, separating the system above from the soil and rooting environment below. Treetex™ performs as a hydrocarbon pollution control measure in accordance with BS5837, holding 1.7lt of oil per square meter.

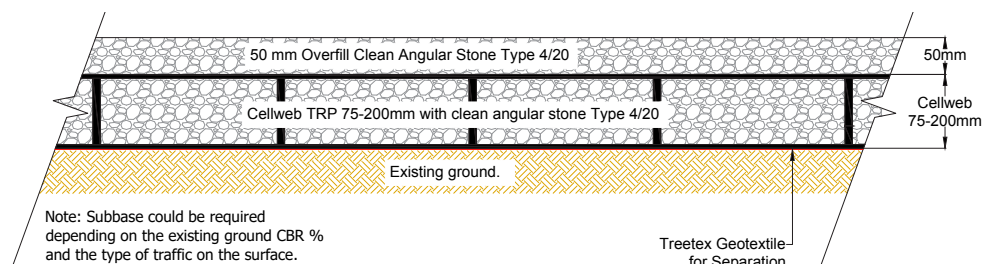
Cellweb® 3D Cellular Confinement. The Cellweb® is installed on top of the Treetex™ layer. This is fixed to the ground using ten steel J pins per panel. The panels can be cut to the required shape and adjoining panels can be connected using heavy duty staples or cell ties.

4-20mm Clean Angular Stone. The expanded Cellweb® is infilled with a 4-20mm clean angular stone. The confined angular stone locks together to produce a rigid stone mattress, while maintaining air pockets for continued water permeation and gas exchange. The low fines content of the stone prevents the Treetex™ layer from becoming blocked over time.

Which depth of Cellweb® TRP?

The Cellweb® System is provided in four different depths; 200mm, 150mm, 100mm and 75mm. The depth required is determined by the proposed traffic loadings and the site ground conditions. Geosynthetics in house engineering department can provide a free site specific technical recommendation. For free technical and engineering support please contact Geosynthetics Ltd 01455 617139 or the full installation guide can be found on our website www.geosyn.co.uk.

Indicative Cellweb with overfill



Cellweb® TRP Installation Guide



Step 1: Prepare Surface



Step 2: Lay out Treetex™



Step 3: Lay out Cellweb® TRP

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

Installation Method

1. Prepare the Surface

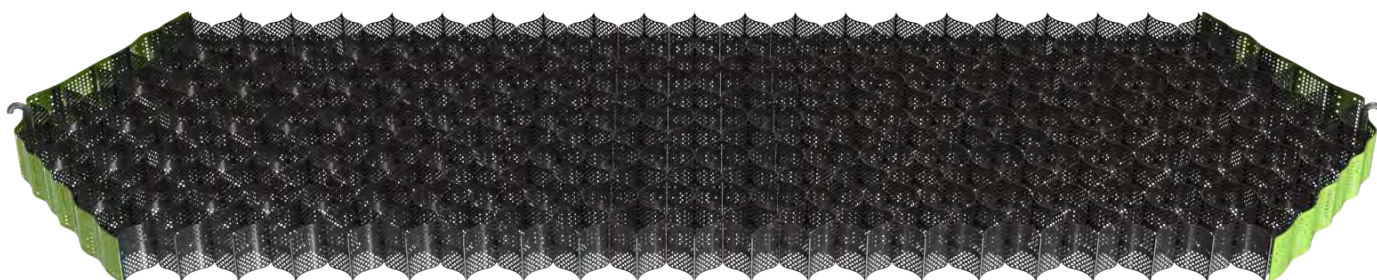
- Remove the surface vegetation using appropriate hand held tools or herbicide (see Note 1).
- Remove any surface rocks, debris and organic material.
- Create a level surface by filling any hollows with clean angular stone or sharp sand.
- Do not level off high spots or compact the soil through rolling.

2. Lay out the Treetex™ Non-Woven Geotextile

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

3. Lay out the Cellweb® TRP Cellular Confinement System

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



Cellweb® TRP - Installation Guide

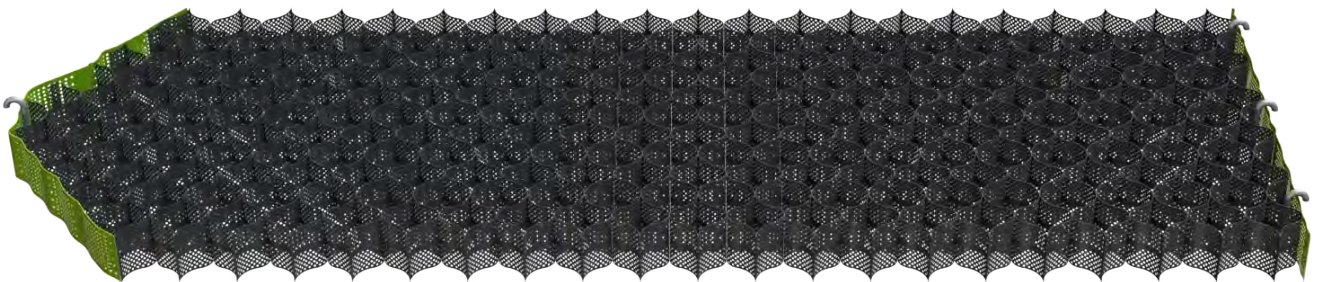


Step 3: Pinning Cellweb® TRP

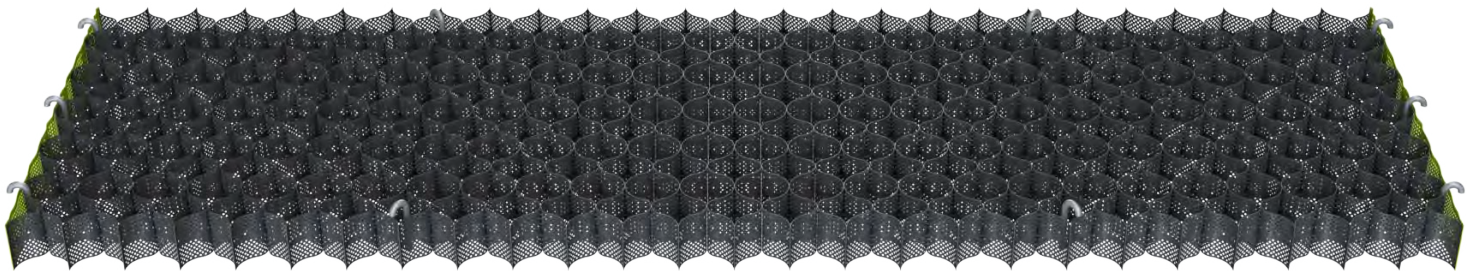


Step 3: Stapling Cellweb® TRP

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



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



- This will produce a cell size of 259mm x 224mm which is the required cell diameter. Each cell must be fully extended and under tension.
- Staple adjacent panels together at each cell (see Note 3).
- If a curved path or shape is required, this should be cut when the Cellweb® TRP panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. Do not try to curve or bend the Cellweb® TRP panels into place.
- All cells must be fully opened to the required diameter.

Cellweb® TRP - Installation Guide



Step 4: Clean Angular Stone



Step 5: Edge Restraints



Step 6: Surface Options

4. Infill the Clean Angular Stone

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

5. Edge restraints

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

6. Surface options

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

NOTES

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

