

**ARBORICULTURAL REPORT WITH
TREE CONSTRAINTS PLAN
&
ARBORICULTURAL IMPACT ASSESSMENT
TO AID IN THE
SITE DESIGN / LAYOUT**



CONSULTING ARBORIST: Jonathan A Green MArborA

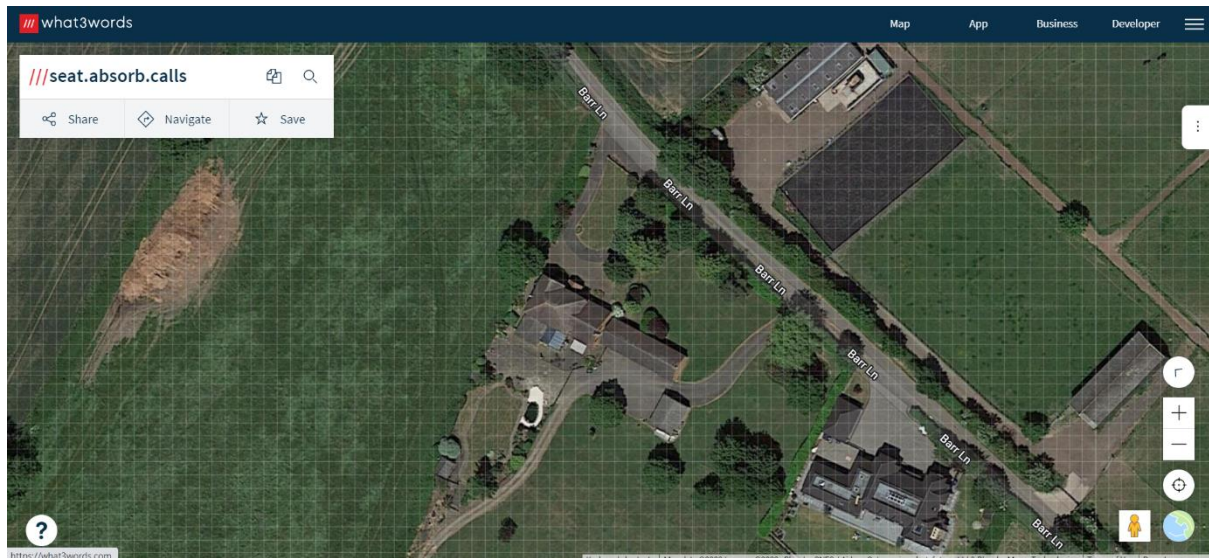
ARBORICULTURAL REPORT PREPARED FOR: Mr Bill Angus

SITE ADDRESS: Cottage Farm, Barr Lane, Higham on the Hill, CV13 6AN

1.0 Introduction

1.1 Instruction:

I am instructed by Mr Bill Angus and referred to as the 'client' from here on) to inspect any significant trees that could have an effect on the development at Cottage Farm, Barr Lane, Higham on the Hill, CV13 6AN and to provide the following information to aid in the design of the site:



A schedule of the relevant trees to include basic data and a condition assessment per section 4.4.2.5 of BS 5837:2012 Trees concerning design, demolition, and construction - Recommendations. A tree constraints map showing: root protection areas, above-ground constraints, crown spreads, retention categories, tree height plus ultimate tree height. From this data, I have also produced an Arboricultural Impact Assessment (AIA) based on the initial tree survey, and any designs of the site by the client.

1.2 Purpose of this report:

This report's primary purpose is to allow the client and architect to design relevant buildings/site layouts while taking into account any impact this will have on the retained trees on site. Within this planning process, this report will be available for inspection by people other than tree experts so the information is presented to be helpful to those without detailed knowledge of the subject.

1.3 Qualifications and experience:

The trees were inspected in March 2023 by Jonathan Alexander Green, who holds an HND in Arboriculture and is a Professional Member of the Arboricultural Association and a member of the Consulting Arborist Association. The report follows the guidelines given in BS5837: 2012.1.4 Documents and information provided:

1.4 Documents and information provided:

My client provided me with copies of the following documents or information:

- E-mail of instruction outlining the situation and (attached documents).

- DWG plan and PDF plans of the proposal.

1.5 Relevant background information:

Prior to the site survey, my client advised me:

- The intention is to convert the existing garages into a dwelling. The double garage will be extended in order to link with the single garage creating a single building. A new drive and footpath will also be created. The gap between the house and the garages will be increased by 4m to allow for vehicle access.
- The current garages are situated within a large property with expansive grounds. Around the property are many large trees (see appendix F photos). Some trees are close to the building. I have not recorded all the trees within the area, only those that are significant and or close to the building.



1.6 Scope of this report:

This report is only concerned with the prominent trees within or around the proximity of the site that could influence the development of this site. It does not account for any trees outside this remit or building structural issues. It includes a preliminary assessment based on the site visit and any documents provided, listed in 1.4 above. The survey is based on information that was available at the time of the inspection. Further inspections are necessary over time to give a fuller picture of the health of trees.

1.7 Mapping:

Site plans showing all the tree locations and any relevant details can be found in Appendix 'C.'

1.8 Justification of work:

Where management action, i.e. tree surgery works are recommended. This will be based on maximising the tree's safe, useful life expectancy (SULE), given its current situation or the safety of persons and surrounding targets.

2.0 Limitations

- 2.1** The inspection was carried out from ground level only and relates only to arboricultural aspects. All visual observations and recommendations, relate, to the condition of the trees on the day of the survey. The trees have been assessed with the aid of a Nylon mallet for the purpose of detecting changes in resonance which may indicate that further investigation is required. Any unusual weather conditions, changes in soil, soil levels, and changes to surroundings may result in a dramatic change in the health of the tree.
- 2.2** Due to the changing nature of trees and other site circumstances, this report and any recommendations made are limited to a 12-month period. Any alteration to the site and development proposals could change the current circumstances and invalidate this report and any recommendations made.
- 2.3** Trees are dynamic structures that can never be guaranteed 100% safe: even in good condition, they can suffer damage under average conditions. Regular inspections can help to identify potential problems before they become acute.
- 2.4** A lack of recommended work does not imply that a tree is safe; likewise, it should not be implied that a tree would be made safe after any recommended work is completed.
- 2.5** This report does not consider the structural condition of existing buildings, nor the impact of existing trees on the foundations. If there are concerns over such matters, the advice of a structural engineer should be sought.

3.0 Site visit and observations.

3.1 Site visit:

I carried out a site survey on 10th March 2023. All my observations were from ground level without detailed investigations and I measured all dimensions unless otherwise indicated.

The weather at the time of inspection was snowing and cold for the time of year, and visibility was poor.

3.2 Brief site description:

The site is situated on the grounds of Cottage Farm, Barr Lane, Higham on the Hill, CV13 6AN. The surrounding topography is relatively flat. The site is exposed to prevailing winds. No open drainage utility services were observed. No visual inspections of any services were made.

3.3 Identification and location of the trees:

I have illustrated the locations of the significant trees on the digital maps included in Appendix C'. These plans are for illustrative purposes only and should not be used for directly scaling measurements. This report and the provided documents contain all the relevant information on it.

3.4 Soil assessment & NHBC water demand classification for surveyed trees

An assessment of the underlying bedrock profile has been undertaken using the Landis Soil Type Viewer:

Soilscape 18: Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. <http://www.landis.org.uk/soilscapes/#>

From this data, it has been determined that the soil is shrinkable. If a more detailed analysis is required, then this must be undertaken by an expert in soil analysis with access to a specialist laboratory.

Tree Identification	Species	Current height – metres	NHBC classification water demand & mature height of trees
T1	Lawson Cypress	11	High – mature height 18m
T2	Ash	12	Moderate – mature height 23m
T3	Weeping Willow	15.5	High – mature height 16m
T4	Scots Pine	14	Moderate – mature height 20m
T5	Leyland Cypress	8	High – mature height 20m
T6	Leyland Cypress	14	High – mature height 20m
T7	Leyland Cypress	7.5	High – mature height 20m
T8	Leyland Cypress	10.5	High – mature height 20m
T9	Horse Chestnut	10.3	Moderate – mature height 20m
T10	Lime	10	Moderate – mature height 22m
T11	Lime	10	Moderate – mature height 22m
T12	Japanese Maple	10	Moderate – mature

			height 8m
T13	Lawson Cypress	15	High – mature height 18m
T14	Lawson Cypress	7	High – mature height 18m
T15	Hornbeam	11	Low – mature height 17m
T16	English Oak	15	High – mature height 20m
T17	Lime	12	Moderate – mature height 22m
T18	Lime	10	Moderate – mature height 22m
T19	Ash	14	Moderate – mature height 23m

3.5 Tree Preservation Orders (TPO)

A tree preservation order, referred to as a 'TPO', is made by a local planning authority ('LPA') regarding trees or woodlands. The principal effect of a TPO is to prohibit the: Cutting down, uprooting, topping, lopping, willful damage, or willful destruction of trees without the LPAs consent. The cutting of roots is potentially damaging and so, in the Secretary of State's view, requires the LPA's consent.

Anyone who, in contravention of a TPO, willfully damages a tree in a way that is likely to destroy it is guilty of an offence. Anyone found guilty of this offence is liable, if convicted in the Magistrates Court, to a fine of up to £20,000. In serious cases a person may be committed for trial in the Crown Court and, if convicted, is liable to an unlimited fine.

Conservation Areas (CA) are areas of special architectural or historical interest with a desirable character or appearance to preserve or enhance. Trees may often contribute to the special character of the area.

All trees in a Conservation Area are subject to controls that enable the LPA to protect the special character of the area created by the trees. If trees have a specific Tree Preservation Order (TPO) on them, then the normal Tree Preservation Order controls apply.

You must give the LPA 6 weeks' notice, in writing, of your intention to do any work on trees in a Conservation Area. You must not carry out any work during the six-week period, which starts from the date of receipt of your notification by the council unless you receive written permission to do so.

Work that is not exempt and carried out without formal notification or within the six-week period without the council's written consent is illegal. The LPA may prosecute offenders and fines of up to £20,000 for each tree may be imposed by the Magistrates Court in case offenders are convicted of an offence. If proceedings are instituted in the Crown Court fines are unlimited. There is a duty to replace any tree removed without permission.

Before undertaking work to tree[s], it is strongly advised that an up-to-date check is carried out to establish if a TPO / CA is in force on the tree[s].

(Legal protection under a TPO/Conservation area for the trees is not known)

The information in this report is correct at the time of writing but it is possible that conditions could have been applied to the tree/s after this report was written.

3.6 Collection of basic data:

I inspected each tree and have indicated the numbering on the site map enclosed in Appendix 'C'. I identified obvious hedges and groups where appropriate. For each individual tree, group or hedge, I collected information on species, height, diameter, maturity and potential for contribution to amenity in a development context. I have recorded this information in the tree schedule included as Appendix 'E'.

I stress that my inspection was of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. This data collection is fully compliant with the BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations set out in subsection 4.4.2.5 of the standard.

4.0 Tree Categorization

4.0 Guidance:

BS 5837:2012 is published by BSI Standards Limited, under license from The British Standards Institution, and came into effect on 30 April 2012 and supersedes BS 5837:2005, which has been withdrawn. BS 5837:2012 provides recommendations and guidance for arboriculturists, architects, builders, engineers, and landscape architects. It is also expected to be of interest to land managers, contractors, planners, statutory undertakers, surveyors, and all others interested in harmony between trees and development in its broadest sense. The category for the tree is ascertained by following the guidelines in the BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations "Cascade chart for tree quality assessment" included with the TCP tree schedule in Appendix 'E'. A brief summary of each category is outlined as follows:

4.1 Category 'A' trees:

This category signifies trees that are of high quality and value with an estimated remaining life expectancy of at least 40 years. Occasionally a veteran tree, although not in the best condition may warrant this category because of its wildlife and cultural value. It is essential to retain these trees. The design of the proposed development should take into account the retention of category 'A' trees. A design layout that suggests the removal of category 'A' trees has a highly increased risk of planning refusal.

4.2 Category 'B' trees:

This category signifies trees that are of moderate quality and value with an estimated remaining life expectancy of at least 20 years. It is important to retain these trees. The design of the proposed development, where feasibly possible, should take into account the retention of category 'B' trees. A design layout that suggests the removal of category 'B' trees has an increased risk of planning refusal.

4.3 Category 'C' trees:

This category signifies trees that are of low quality and value with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. They are generally trees that could remain and are expected to have a safe useful life expectancy of between 10 and 20 years if no development were to occur. However, because of their generally low quality, it would not be a great loss if they had to be removed if they were a significant constraint to the design or construction process of the proposed development. Particular attention is drawn to the phrase "significant constraint".

4.4 Category 'U' trees:

This category signifies trees that are in such a condition that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

5.0 Root Protection Areas (RPAs)

5.1 Why do we need root protection areas?

Approximately eighty per cent of a tree's roots are in the top 600 mm of soil. Therefore any changes in this vital environment including ground level, soil compaction, physical damage to roots, moisture, or levels of contaminants can have a dramatic effect on the health of a tree. At deeper strata alterations in the water table and routing of services can cause detrimental, long-term, effects.

5.2 Method of calculations:

The area of roots that need to be protected around a tree to try and ensure that it does not suffer damage during the construction process is called the Root Protection Area (RPA).

The RPA is calculated using a formula based on the diameter of the tree at 1.5 metres high for single-stem trees and near ground level for multi-stem trees. At this stage, it is generally represented by a circle centred on the tree's stem. A small percentage lost from outside the circle may be tolerated by the tree or offset in another direction.

However, where there are significant existing constraints additional root loss in close proximity near to a tree's stem is likely to have a detrimental effect on the tree's health or even complete failure of the root plate.

5.3 How to use RPAs:

The RPAs for the trees in question are indicated in Appendix B'. At this point, the RPA is only indicative and intended to assist in preparing the design layout.

5.4 Optimum RPA calculation:

If the site conditions prevail it is recommended to increase the size of the RPA to accommodate as much potential rooting area as possible; this will reduce any conflict with the tree and minimise the chance of rejection/conflict with the planning application / Local Planning Authority.

6.0 Pre-Development Appraisal

6.1 Category 'U' trees (Removal):

There are no category 'U' trees located on or bordering this site.

6.2 Category 'A' trees:

There is no category 'A' trees located on or bordering this site.

6.3 Category 'B' trees:

There are 5 category 'B' trees located on or bordering this site (T3, T15, T16, T17, and T18).

There is a category 'B' hedge bordering the site.

6.4 Category 'C' trees:

This site has 14 category 'C' trees (T1, T2, and T4, T5 – T14 and T19).

6.5 Groups/hedge:

- There is a category 'B' hedge bordering the site.

6.6 Conflict:

There is a potential for impact on the trees rooting system from the construction.

- T4 – T8 and T18 and T19.
- T9 – T14 trees are directly in the way of the proposed new drive and footpath.
- T20 – Hedge.

6.7 Tree works:

The management options noted in the survey data should be followed to keep a maintained tree stock on and around this development site, particularly giving clearance from properties and over any adopted roads or footpaths.

7.0 Arboricultural Implications Assessment

7.1 Summary of the impact on trees:

I have assessed the impact of the proposal on the trees and hedge by the extent of disturbance in and around the RPAs and the current and future canopy height and spread. All the trees that may be affected by the development proposal are listed in table 1.

Table 1:

This is a summary of the surveyed trees that may be affected by the development on this site if the current proposed plans are implemented:

IMPACT	REASON	Important Trees		Unimportant Trees	
		A	B	C	U
Disturbance to RPA's	Conversion of the existing garages into a dwelling The double garage will be extended in order to link with the single garage creating a single building. A new drive and footpath will also be created. The gap between the house and the garages will be increased by 4m to allow for vehicle access. Quality and/or, proximity. Removal of vegetation alteration to existing levels.	N/A	T17 and T18 Hedge.	T4 – T8 T9 – T14 T19	N/A

***note - Any trees/groups not mentioned above will be unaffected by this development proposal**

7.2 Category A and B trees to be removed:

No category 'A' trees are located on or immediately adjacent to the site.

There are 5 category 'B' trees are located on or immediately adjacent to the site (T3, T15 - T18).

A small section of the hedge will be lost.

7.3 Category A and B trees that may be adversely affected by RPA disturbance:

Two category 'A' & 'B' trees are located on or immediately adjacent to the site that may be adversely affected: T17 and T18.

A small section of the hedge may be adversely affected.

7.4 Category C trees to be lost: There are 6 category 'C' trees to be lost T9 – T14 located on or immediately adjacent to the site that are to be removed.

7.5 Retained category C trees that may be adversely affected by RPA disturbance:

There is 7 category 'C' trees, T4 – T8, and T19 located on or immediately adjacent to the site that may be adversely affected through RPA disturbance.

7.6 Presence of Tree Preservation Orders (TPO) or Conservation Area Designation:

- TPO Not known.
- NOT in a conservation area.

It is strongly advised that an up-to-date check is carried out to establish if a TPO / CA is in force on the tree.

7.7 Effects of new buildings on amenity value on or near the site:

The effect of the new construction on this site has been assessed and found not to have any significant effect on the amenity value of the remaining trees on site.

7.8 Below-ground constraints:

All details have yet to be made available regarding the location of new underground utilities.

7.9 Above-ground constraints:

There are conflicts with above-ground constraints.

The following trees will require removal:

- T9 – T14 - Cat C trees, RPA, and crown conflict with the proposal. The trees are directly in the way of the proposed new drive and footpath.
- A small section of the hedge will require removal to facilitate the construction of a new path.

7.10 Construction processes of the proposed development: Development processes that lead to soil compaction in tree rooting zones and physical damage to trees can adversely affect long-term tree health. This can lead to unnecessary tree loss if not controlled properly on-site during the demolition of a building and then the construction phases that follow.

The processes of construction are highly unlikely to have a detrimental effect on the health of the retained trees assuming recommendations made in this report and an Arboricultural method statement are adhered to at all times by the contractors e.g. the positioning of a stout fence and ground protection between the retained trees construction activities is placed prior to commencement of works and remains intact and in position throughout the duration of the construction activities.

7.11 Modifications proposed to accommodate trees:

The proposal dispenses with a need to modify building construction to accommodate retained trees, due to the (Landis Soil Classification).

Cat C trees T9 – T14 are recommended to be felled because they are directly in the way of the proposed new drive and footpath.

A small section of the hedge is recommended to be removed to facilitate the construction of a new footpath.

Light infiltration:

The retained trees T1 – T8 and T15 – T19 and the hedge will not impact light infiltration to the windows. This will negate the need for subsequent calls for tree pruning due to shading.

7.12 Infrastructure requirements – highway visibility, lighting, CCTV, services, etc:

The installation of services within the rooting zones of trees can have a large detrimental impact on the long-term survival of retained trees leading to their unnecessary loss or root failure in high winds. No services are to be installed within any tree RPA. The trees on site do not have any impact on highway visibility. Undisclosed sighting of above-ground services, CCTV cameras, electrical substations, refuse stores, lighting, and other infrastructure requirements can lead to unnecessary pruning of tree crowns or root loss during or post-development. No such developments are planned to occur adjacent to or within the RPA of any retained trees.

7.13 Mitigating tree loss/new planting:

Due to tree loss as a result of the development of the site (see 7.9 above-ground constraints), replanting on this site will be needed. The details of this should be provided in an arboricultural method statement and impact assessment.

7.14 Proximity of trees to structures:

With the impact of trees on buildings and vice versa, allowances for future growth have yet to be considered in the sighting of the new dwellings. Tree size, future growth, leaf and fruit nuisance, etc. This is why that in paragraph 7.9 trees are listed for removal. The proposal however does not conflict with light/shading and is not considered an issue.

8.0 Proposals to mitigate any impact

8.1 Protection of retained trees:

The successful retention of trees depends on the protection and the administrative procedures to ensure those protective measures remain in place whilst there is an unacceptable risk of damage. **An effective means of doing this is through an arboricultural method statement that can be specifically referred to in a planning condition.** An arboricultural method statement for this site can be written at an additional commission.

8.2 New planting:

Due to the conflict of the proposal with the trees mentioned in paragraph (7.9 Above ground constraints), there will be a requirement for replanting, which should be detailed in an arboricultural method statement.

8.3 Summary of the impact on local amenity:

This proposal will result in the loss of trees and a small section of the hedge. Not all the significant tree cover located or adjacent to the site will remain intact. The construction activity and proposed changes may adversely affect the retained trees if appropriate protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through an arboricultural method statement, then this development proposal will have no significant adverse impact on the contribution of trees to local amenity or character.

9.0 Other Considerations

9.1 Trees subject to statutory controls:

If any trees are covered by a tree preservation order or located in a conservation area, it will be necessary to consult the council before any pruning works other than certain exemptions can be carried out. The works specified above are necessary for reasonable management and should be acceptable to the council. However, tree owners should appreciate that they may take an alternative point of view and have the option to refuse consent.

9.2 Trees outside the property boundaries:

Any trees that are located in adjacent properties are effectively out of the control of the client/landowner. It will only be possible to easily carry out any recommended works with the full co-operation of the tree owners. The implications of non-cooperation require legal interpretation and are beyond the scope of this report. By common law, branches from trees on adjacent properties extending over boundaries can be pruned back to the boundary line without the permission of the owners. However, the material belongs to the tree owner, and the same guidance on statutory controls applies as discussed in 9.1 above.

- No trees are outside the property boundaries.

9.3 Development within the rooting area:

The zone of influence has been determined using the calculation outlined in Table 2, of section 5.2.2 of BS 5837:2012 Trees in relation to design, demolition, and construction - Recommendations. This calculation utilises the diameter of the trunk, at a height of 1.5m from the surrounding ground level; and calculates the root protection area (RPA) by multiplying the diameter by a value of 12; the result is then used to calculate the total area (m²) of the RPA. The calculations are illustrated in the tree survey data in Appendix E'.

9.4 Construction Exclusion Zone:

The values indicate the soil area around the base of the tree to be retained undisturbed. This area should be protected with vertical barriers and considered sacrosanct. Signs should be erected on the fencing to indicate that the area is a Construction Exclusion Zone (CEZ).

9.5 Arboricultural Method Statement:

A detailed Arboricultural Method Statement (AMS), outlining the different stages and progression of construction is available as a further commission. This process should be

undertaken once the final decision has been made on the proposed structure (if requested by the Local Planning Authority (LPA)).

9.6 Implementation of works:

All tree works should be carried out to BS 3998 Recommendations for Tree Work as modified by more recent research. It is advisable to select a contractor from the local authority list, preferably one approved by the Arboricultural Association. Their Register of Contractors is available free from:

Arboricultural Association

The Malthouse,

Stroud Green,

Standish,

Stonehouse,

Gloucestershire

GL10 3DL, UK

Tel: +44 (0)1242 522152

Email: admin@trees.org.uk

Website: www.trees.org.uk/contractors.htm

Fax: +44 (0)1242 577766

9.7 Local Arboricultural Contractors:

If requested, I can provide a list of reputable arboricultural contractors that have carried out work on previous projects.

9.8 Safety:

Tree work can be a hazardous profession, so it is important that all operatives have the necessary and relevant training, health and safety policy, and valid forms of insurance.

9.9 Statutory wildlife obligations:

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000, provides statutory protection to birds, bats, and other species that inhabit trees. All tree work operations are covered by these provisions, and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.

9.10 Future considerations:

Any remaining trees should be inspected on a regular basis by a qualified arboricultural consultant.

9.11 Replanting:

Any trees on this site protected by a preservation order and recommended for removal, the appropriate replanting of replacement trees will be needed as a condition of the council granting permission for these trees to be felled. This should be incorporated into the landscaping plans at the design stage and followed through after building work is completed.

10.0 Bibliography / References

BS 5837:2012 Trees in relation to design, demolition, and construction - Recommendations.
– BSI Publication

BS 3998: 2010 Tree work – Recommendations – BSI Publication

[N1] NATIONAL JOINT UTILITIES GROUP (NJUG). Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.

Volume 4, issue 2. London: NJUG, 2007.

Arboricultural Practice Note (APN) 12 – Through the trees to Development –

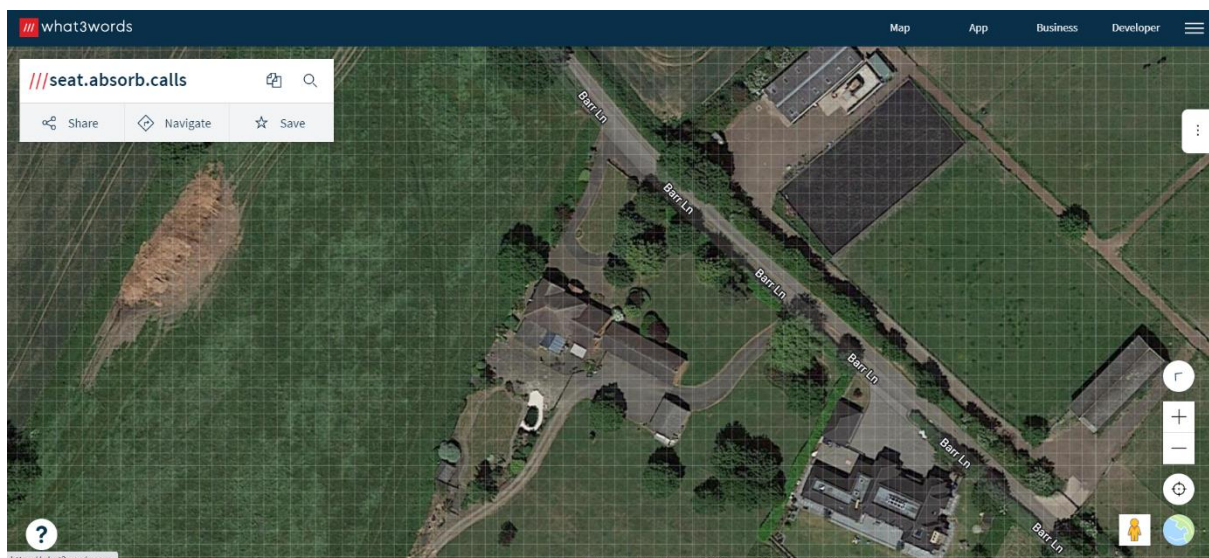
Derek Patch and Ben Holding – Arboricultural Advisory and Information Service

SULE: Its use and status into the New Millennium

Site Guidance Note 7: Excavation in root protection areas

APPENDIX 'A'

Site location aerial photo:



Tree survey Index**Tree Locations:**

This has been measured using a laser distancing device with a digital compass and plotted on the site plan using tree management software. The accuracy given for the tree stem location is +1m.

Tree Number:

Each surveyed feature is assigned an individual number:

e.g. – Tree A072014013 is made up of:

'A' –this represents the tablet pc that was used to record the data

'07' – this is the month that the inspection was recorded '20' – the day of the month when the tree was recorded

'14' – the hour in the day when the tree was recorded

'013' – the tree number recorded in that hour of the day (when the hour changes this resets to 001)

Alternatively; each surveyed feature is assigned a number prefixed by a 'T' for individual trees, 'G' for groups of trees, and 'H' for hedgerows. It is used to locate the tree in the data survey and the relevant position on the plan.

Species:

The species identification is based on visual observations and the common English name of the tree's appearance is listed first. In some instances, it may be easier to quickly and accurately identify a particular tree with further detailed investigations. The abbreviation sp follows the botanical name if only the genus is known.

Measured (M) or Estimated (#)

Trees that have been accurately measured are indicated with an 'm'. Trees that are off-site or otherwise inaccessible where the accurate date cannot be recovered; these trees are indicated with '#'.

Number of stems:

The number of main stems of each individual tree:

Stem Diameter:

These figures relate to stem diameter in millimetres at 1.5m above ground level. This is accurately measured using a girthing tape unless access is restricted.

Diameters of single-stem trees on level ground are measured in accordance with Figure C.1a). Diameters of other commonly encountered tree stems are measured in accordance with figures C.1b) to C.1f).

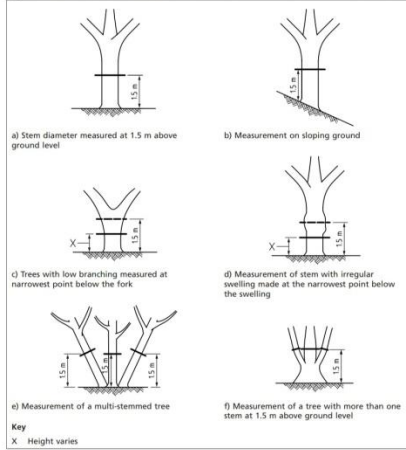
NOTE - The thick black line indicates where the measurement is taken

BRITISH STANDARD **BS 5837:2012**

Annex C
(normative)
Measurement of tree stems

Diameters of single stem trees on level ground should be measured in accordance with Figure C.1(a). Diameters of other commonly encountered tree stems should be measured in accordance with Figures C.1(b) to C.1(f).
NOTE The thick black line indicates where the measurement is taken.

Figure C.1 Measurement of tree stems



Key
X Height varies

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Root Protection Area:

This is the minimum area in m² that should be left undisturbed around each retained tree.

BS 5837:2012 **BRITISH STANDARD**

Annex D
(normative)
Root protection area

The RPAs given in Table D.1 should be used for single stem trees and the equivalent resultant combined stem diameter for multi-stemmed trees.

Table D.1 Root protection areas

Single stem diameter mm	Radius of nominal circle m	RPA m ²	Single stem diameter mm	Radius of nominal circle m	RPA m ²
75	0.90	3	675	8.10	206
100	1.20	5	700	8.40	222
125	1.50	7	725	8.70	238
150	1.80	10	750	9.00	255
175	2.10	14	775	9.30	272
200	2.40	18	800	9.60	290
225	2.70	23	825	9.90	308
250	3.00	28	850	10.20	327
275	3.30	34	875	10.50	346
300	3.60	41	900	10.80	366
325	3.90	48	925	11.10	387
350	4.20	55	950	11.40	408
375	4.50	64	975	11.70	430
400	4.80	72	1000	12.00	452
425	5.10	81	1025	12.30	475
450	5.40	92	1050	12.60	499
475	5.70	102	1075	12.90	519
500	6.00	113	1100	13.20	547
525	6.30	124	1125	13.50	573
550	6.60	137	1150	13.80	598
575	6.90	150	1175	14.10	625
600	7.20	163	1200	14.40	652
625	7.50	177	1225	14.70	679
650	7.80	191	1250+	15.00	707

NOTE These figures are derived from the calculations described in 4.6.

Height:

The overall height of the tree is recorded in meters. Height is recorded using a digital clinometer. Potential Height of species:

The expected mature height of the tree as a 'species.'

Potential Spread of species:

The expected mature spread of the tree as a 'species.'

Height of first branch and direction:

Existing height in metres of the first significant branch above ground level and the direction of growth in relation to the 4 cardinal points (NSEW)

Height of canopy above ground level:

Existing height in meters of the canopy above ground level.

Branch Spread:

This is measured in meters taken at the four cardinal points (NSEW) to derive an accurate representation of the crown.

Life stages:

Described as young, semi-mature, early mature, mature, over-mature / veteran.

Physiological Condition:

Described as good, fair, poor, dead, and notes as needed.

Structural Condition:

Described as good, fair, poor, dead, and notes as needed.

Preliminary management recommendations:

Practical arboricultural operations that are suggested and described as needed.

Remaining Contribution:

Estimated remaining contribution in years: e.g. <10, 10+, 20+, 30+, 40+. This is based upon Jeremy Barrels' system of SULE (Safe Useful Life Expectancy).

Tree Retention Category Grading:

U or A to C category grading as referenced from BS 5837:2012 Trees in relation to design, demolition, and construction - Recommendations. (see Table 1 in appendix 'F')

APPENDIX 'C'

Inserted site map showing tree locations and all other relevant details:

JAG Arboricultural Consultancy

32 Willington Street, Nuneaton, CV11 5EU
jag@jagconsultancy.co.uk
Tel: 07792096453

TREE CONSTRAINTS PLAN

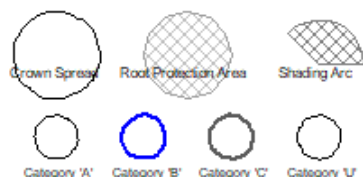
SCALE: 1:500 @ A4 DATE: 14/03/2023

MAP FILENAME: Cottage Farm, Barr Lane, CV13 6AN



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Key: BS5837 Cat



0 30m



JAG Arboricultural Consultancy

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Tel: 07792096453

TREE CONSTRAINTS PLAN

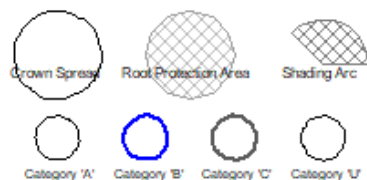
SCALE: 1:500 @ A4 DATE: 14/03/2023

MAP FILENAME: Cottage Farm, Barr Lane, CV13 6AN



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Key: BS5837 Cat



0 30m



Proposal

Barr Lane, Higham on the Hill

Mr & Mrs Angus



Rev A: Changes to internal layout after client meeting - 20/11/23

Rev B: Changes to internal layout after client meeting - 20/11/23

hayward
ARCHITECTS LTD

10 Station Road
Hendon
London
Ux8 1NR
Tel: 01453 555 555
Fax: 01453 555 571
www.haywardarchitects.co.uk

Client Mr & Mrs Angus			
Project Title Barr Lane Higham on the Hill			
Drawing Title Proposed Elevations			
Date 11/05/23	Scale 1:100	Drawn 22/12/22	Sheet A2
Author JBT	Checked A2		
22-05	SK102-B		
Notes Design Development			

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APPENDIX 'D'

Tree survey data inserted, including the calculations for the root protection zones:

Tree No	Species	Height	Stem Diameter	Canopy Spread – N E S W	Height of Crown Clearance	Age Class	Phys Con	Struct Con	Preliminary Management Recommendations to ensure SULE is at least 10 years	Est Remaining Con	Cat Grading
T1	Lawson cypress greenwood	11	300	N 2.5 E 2.5 S 2.5 W 2.5	2.5S	M	Good – no issues found	Good – no issues found	No work is needed	40+ yrs	C1
T2	Common Ash	12	310	N 3.5 E 4 S 4 W 4	2S	M	Good – no issues found	Good – no issues found	No work is needed	40+ yrs	C1
T3	Golden Weeping Willow	15.5	610	N 7 E 7 S 7 W 7	1S	M	Good – no issues found	Good – minor deadwood in the crown.	No work is needed	40+ yrs	B1
T4	Scots Pine	14	410	N 4 E 1 S 4 W 4.5	2S	M	Good – no issues found	Good – some-what unbalanced crown.	Will require tree protection fencing to be installed prior to starting construction, and it must stay in place until all construction is completed.	40+ yrs	C1
T5	Lawson cypress greenwood	8	550	N 3 E 2 S 2 W 2	2S	M	Good – no issues found	Good – no issues found	Will require tree protection fencing to be installed prior to starting construction, and it must stay in place until all construction is completed.	40+ yrs	C1
T6	Leyland Cypress	14	660	N 3 E 2 S 3, W 1	1.5S	M	Good – no issues found	Good – no issues found	Will require tree protection fencing to be installed prior to starting construction, and it must stay in place until all construction is completed.	40+ yrs	C1
T7	Lawson cypress greenwood	7.5	660	N 4, E 4, S 3, W 1	0.5S	M	Good – no issues found	Fair – west side has been	Monitor. Will require tree protection fencing to be installed prior to starting	40+ yrs	C1

								heavily reduced, with some decay at the stem base.	construction, and it must stay in place until all construction is completed.		
T8	Lawson cypress greenwood	10.5	660	N 4 E 3 S 4 W 3	1S	M	Good – no issues found	Good – no issues found	Will require tree protection fencing to be installed prior to starting construction, and it must stay in place until all construction is completed.	40+ yrs	C1
T9	Horse Chestnut	10.3	400	N 5 E 3 S 4 W 4.5	2E	SM	Fair– bleeding canker infection.	Fair– bleeding canker infection.	Fell – in the way of the new driveway.	20+ yrs	C1
T10	Common Lime	10	320	N 3 E 3 S 3 W 5	3E	Y	Good – no issues found	Good – no issues found	Fell – in the way of the new driveway.	40+ yrs	C1
T11	Common Lime	10	280	N 4 E 2 S 1 W 3	2E	Y	Good – no issues found	Fair – Severe lean.	Fell – in the way of the new driveway.	40+ yrs	C1
T12	Japanese Maple sp	10	320	N 2 E 3 S 3.5 W 4	2E	M	Good – no issues found	Good – no issues found	Fell – in the way of the new driveway.	40+ yrs	C1
T13	Lawson cypress	15	700	N 3 E 2.5 S 4.5 W 5	1.5S	M	Good – no issues found	Good – no issues found	Fell – in the way of the new footpath.	40+ yrs	C1
T14	Lawson	7	150	N 2	0.1S	Y	Good –	Good – no	Fell – in the way of the new footpath.	40+ yrs	C1

	cypress			E 2 S 2, W 2			no issues found	issues found			
T15	Hornbeam	11	300	N 3 E 3 S 3 W 3	3N	M	Good – no issues found	Good – no issues found	No Work is needed.	40+ yrs	B1
T16	English Oak	15	440	N 3.5 E 5 S 6.5 W 6	1.7E	Y	Good – no issues found	Good – deadwood in the crown	Remove deadwood only.	40+ yrs	B1
T17	Common Lime	12	360	N 4 E 4 S 5 W 5	1.7N	M	Good – no issues found	Good – no issues found	Will require tree protection fencing to be installed prior to starting construction, and it must stay in place until all construction is completed.	40+ yrs	B1
T18	Common Lime	10	350	N 5 E 4 S 5 W 5	2.5N	M	Good – no issues found	Good – no issues found	Will require tree protection fencing to be installed prior to starting construction, and it must stay in place until all construction is completed.	40+ yrs	B1
T19	Common Ash	14	440	N 3 E 6.5 S 5.5 W 5	4W	M	Good – no issues found	Poor – Inonoutus hispidus on north-facing scaffold limb at union point with the main stem.	Semi-pollard – work to be done within 3 months.	40+ yrs	C1
T20	Laurel Hedge	2	100	N 2 S 2	0.1S	M	Good – some localized hard pruning/p	Good – no issues found	Will require tree protection fencing to be installed prior to starting construction, and it must stay in place until all construction is completed.	40+ yrs	B1

							ossibly minor dieback on lateral branches.				
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BS5837:2012 Table 1 – Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012] 4.5.7.</i>			
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	

FLAC Note

The original contents of the column *Identification on plan* have been replaced by FLAC in the version above; spot colours to RGB codes given in BS5837:2012 Table 2

APPENDIX F

Photos

A – shows the garages. B – shows the front of the property. C – shows some of the surveyed trees.

D - shows some of the surveyed trees.

E – shows a surveyed tree near the garages. F – shows surveyed trees at the front of the property.

G – shows canker infection on T9. H – shows Inonotus hispidus bracket on T19.

I – shows T11 with a severe lean. J & K – shows the hedge, localized heavy pruning circled.

L – shows the gap to be widened for vehicle access.

A



B



C



D



E



F



G



H



I



J



K



L

