

Trees and Construction

BS5837 Tree Survey Assessment

Site: Land at Hillside, Walford, Ross-on-Wye,
Herefordshire, HR9 5QS

Ref: 17311 / A1

Client: Procuero Planning Services



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Revision	Description	Date
/	/	/

1. INTRODUCTION

- 1.1 **Instruction:** This advice has been prepared for Procu Planning Services (hereafter; client) and is in respect of the tree related planning considerations at the Land at Hillside, Walford, Ross-on-Wye, Herefordshire, HR9 5QS (hereafter; site).

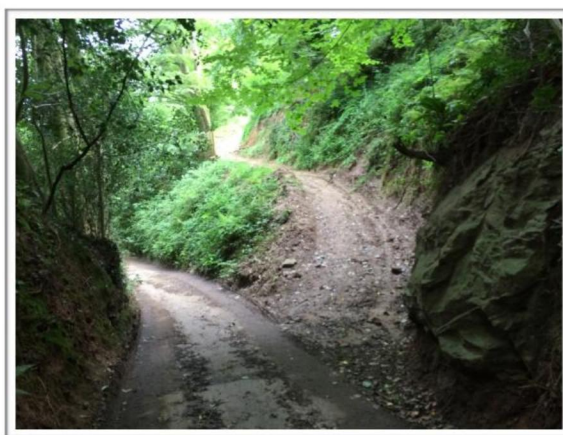
As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).

- 1.2 **BS5837:** The scope of BS5837 is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.
- 1.3 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is intended to demonstrate the site's realistic arboricultural constraints and assist with the design process. The objective is to systematically assess the site and provide suitable recommendations regarding the proposal's potential impact on trees and vice versa.
- 1.4 Following instruction the consultant surveyed the site on the 16th August 2017 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group.
- 1.5 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.

2. SITE INFORMATION & TREE ASSESSMENT

- 2.1 The site currently comprises a detached residential property with associated access and tree cover as part of the wider woodland surrounding site.

The surveyed site section concentrates on the area surrounding the existing access off Whittings Lane. This consists of the existing dirt track access with tree and shrub growth on the existing banks and overhead utility lines criss-crossing over the existing access.



- 2.2 **Proposal:** It is understood that a proposed scheme involves improvements to the existing access (resurfacing) and construction of a new battered bank.
- 2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the existing property and potential construction area.
- 2.4 The trees -
- 2.4.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'B - moderate' and 'C - low' being attributed to trees/tree groups.
- 2.4.2 The site's trees are growing on banks either side of the exiting access and are part of the wider woodland area. The larger and more prominent trees are those of moderate quality 'B' category, thereafter, much of the growth is small scale and of limited quality.

3. FINDINGS & RECOMMENDATIONS

3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (17311/TCP/01). This serves as an objective overview of the arboricultural considerations for the site.

3.2 General Considerations for Tree Retention / Removal

3.2.1 There are smaller scale trees, those with defects or limitations on the current amenity contribution or useful remaining life expectancy, these are categorised as 'C - low'.

These 'C' category trees should not constrain nor significantly guide a scheme, although protection may be preferable to retain landscape maturity. For any proposed tree removals, mitigation tree planting is recommended as part of a landscape scheme and can suitably replace and enhance the initial loss of copy cover.

3.2.2 The moderate quality 'B' category trees (T1, T2 & T7) are noted as such due to either their fair future potential and/or fair current amenity contribution, although, T1 and T2 have been managed for utility clearance to overhead lines. These should be retained and protected where possible. However, consideration will depend on an individual tree, the current purpose and long term growth potential and contribution.

3.2.3 The removal of the trees or vegetation may have an impact on the green cover in the first instance, however, said removals would have little impact on the long term amenity of the site and will allow for the selection of native species to enhance amenity and biodiversity.

3.3 Tree Protection

3.3.1 The design and layout of the site is to incorporate the essential components of retained trees (crown and rooting area) and provide a suitable level of clearance to allow for their long term safe retention, i.e. RPA protection and crown clearance as well as for any new tree(s) being planted.

3.3.2 Depending on the level of tree retention/removal, the protection methods for the retained trees is likely to vary. However, it is likely that a combination of construction restrictions be used with sensitive ground works.

The process of site operations will be an important aspect to confirm by way of a construction layout plan, i.e. showing storage areas, parking, delivery area, access routes etc., all outside of RPAs or with a provision for ground protection. As a basis for tree protection the following points will need to be considered:



- Removal of all agreed trees and any agreed pruning works prior to works commencing by a suitably qualified arboricultural contractor;
- Induction of construction personnel regarding the exclusion of works (including access and storage) from the retained trees' RPAs;
- Secure temporary barrier fencing around the site to exclude the retained tree's crowns and RPAs from the working site;
- The storage of materials clear of all retained trees and conditions to ensure no contamination/run-off into soils in proximity to trees or on higher ground; and
- For the removal of existing structures and/or hard surfaces from RPAs the works to be undertaken separate to construction, manually and sensitively.

3.4 General Overview

- 3.4.1 The considerations for trees which are to be retained as part of the proposal need to be addressed in order to ensure their protection. This is to account for the potential impact on retained trees and their growing environment from the proposed development and vice versa (these follow).

Tree Works

Any trees which are to be removed should be well indicated to ensure that the retained trees are suitably protected. Hence, all trees which are to be removed are to be marked by a suitably qualified person [spraying the stems with a cross] prior to tree works.

Tree Crowns

Consideration is required for both existing and newly planted trees whereby the proposed construction should take account of trees reaching their full growth potential. It is always prudent to provide adequate clearance from a tree's current crown for future growth, i.e. to allow a tree adequate space to reach maturity without conflicts with new structures.

Root Protection Areas (RPA)

As a minimum it would be suitable to consider the outer extents of retained trees' RPAs as construction exclusion zones and be protected.

As above, it is *sometimes* possible to undertake construction activities within the rooting areas of retained trees which requires greater attention to tree protection, foundation designs, phasing of works etc. If it is proposed to undertake works within these areas, more specific advice should be sought from a qualified arboriculturalist with a view to assessing the feasibility of said proposal and forming a suitable method statement.

Demolition/Excavation Works

Any removal of existing built structures (including stairways, small outbuildings, retaining walls etc.) or hard surfacing will need to be undertaken with great care where this occurs within or near to the anticipated rooting areas of retained trees.

Said works should adhere to the RPA restrictions, be undertaken manually with hand held non mechanical tools and ensure that existing ground levels are retained.

Hard Landscape Works

As with previously mentioned arboricultural restrictions to demolition/construction, the proposed works should avoid retained trees' RPAs. However, where ground works are proposed within RPAs, construction methods [for hard surfacing, walls etc.] should retain the existing ground levels, be undertaken sensitively and using a no dig design.

Conversion of soft surfaced areas within RPAs to hard surfaced walkways, parking areas etc., will need to utilise a no-dig product to ensure no negative impact on the tree roots and/or growing conditions.

- 3.4.2 For any proportion of tree removal, new tree planting is to be integrated into a landscape scheme. The new trees should be of a suitable volume, species, scale, in suitably prepared planting locations with adequate space for future growth and development and enhance the site's long term amenity contribution.

NOTE: Further to the above overview of arboricultural constraints and considerations, the client has provided a proposed scheme for site. The above details are therefore used to inform the following scheme review at section 4.

4. SCHEME / IMPLICATIONS ASSESSMENT

- 4.1 For the purpose of this assessment, the proposed site plan is used as a basis for consideration. This takes account of anticipated tree removals, tree protection options and potential alterations to account for arboricultural features.
- 4.2 The proposed resurfacing encroaches the root protection area (RPA) of T2, T5 and T6. However, as this incursion is from the proposed resurfacing only and no widening of the existing access is proposed, therefore, the existing access encroachment is replicated by the proposals. However, sensitive ground works will be required to minimise the ground and RPA impact i.e. soil levels retained, manual works, use Cellweb and permeable surface.
- 4.3 The ground preparation works for the proposed battered banking in proximity to T1 have already been undertaken prior to this application. These works have included scrapping the bank and this has exposed small fine roots from T1 (or other removed vegetation) in the exposed soil horizons. These fine roots are not considered to effect the safe retention of T1 and should be pruned back.
- Thereafter, as T1 is growing at a raised level (approx 5.0m) to the proposed battered bank works, the proposed works at the base of the bank will not impact further on the RPA of T1; subject to engineer detail for proposed battered bank.
- 4.4 The proposed entrance widening of the access at the Whittings Lane entrance will require excavations in the bank. These excavations are at the base of the bank to allow the proposed new vehicle turning and access. Although there are trees atop of this bank (T3 & T4 situated approx. 6.0m above the existing access level), the proposed excavations at the base of the bank will not encroach the root protection area of said trees or effect their safe retention; engineer detail for the proposed battered banking will be required.
- 4.5 The proposed new vehicle turning at the bend in the existing access will require excavations in the bank near T7. However, T7 is approx. 10m off the existing access and providing the new vehicle turning excavations do not exceed 4.0m into the bank, there will be no impact on T7. Where the proposed excavations exceed 4.0m, the impact on the RPA of T7 will need to be reassessed; client to supply the excavation detail.
- 4.6 Following the above considerations for trees, the trees are clear of the active construction area.
- 4.7 Further to the above review and in consideration for retained trees, the following section contains tree protection details as an Arboricultural Method Statement 'Considerations'.



5. METHOD STATEMENT 'CONSIDERATIONS'

5.1 Arboricultural Construction Restrictions

5.1.1 The following restrictions are considered relevant for tree protection purposes:

- a) No chemicals / materials are to be transported / stored / used / mixed within retained trees' RPA.
- b) No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of the tree's canopy or in a RPA; and
- c) No mechanical digging or scraping is permitted within a CEZ or RPA.

5.2 Underground utilities

5.2.1 Underground utilities are to be installed as per a dedicated plan and be clear of RPA by design. Otherwise, and if RPAs cannot be avoided, the following restrictions are recommended for underground utilities within RPAs:

- Any necessary excavations to be undertaken sensitively using either a no-dig method (e.g. Air-Spade) and / or under arboricultural supervision;
- Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them;
- Small roots which are identified (those less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw; and
- Larger roots which are identified (those greater than 25mm in diameter) are to be retained and protected as they may be necessary for a tree's health and stability.

5.3 Ground Works within RPAs

5.3.1 The installation of the new drive surfacing is to be undertaken sensitively and manually. This will retain soil levels and use Cellweb with a permeable surface installation (to be detailed on a proposed levels plan).

5.3.2 The *ground preparations for new hard surfaces within RPAs will:*

- Prepare the grounds for Cellweb installation but retain the existing soil level;
- Use sensitive excavation techniques to protect the tree roots and their existing growing conditions, i.e. use of hand tools for manual surface strip; and
- Be undertaken manually.

5.3.3 The preparation areas are to be marked out on the grounds and undertaken by hand with the use of manually operated (hand held) tools.

5.3.4 Cellweb is to be installed as per a supplied specification and method statement from Geosynthetics. It will be based on the frequency of use and load atop, i.e. Cellweb system depth (to be supplied by the client / contractor based on vehicular use).

5.4 Additional Recommendations

5.4.1 This report is released to the client for them to distribute at their discretion. The consultant is available via telecom and/or email (via the methods on the title page) for any queries relating to this report and/or any other matter relating to arboriculture.

5.4.2 This AMS may be approved by the council as a means of authorised tree protection measures. This would be subject to an arboricultural review of the approved scheme alongside details otherwise unavailable at the planning stages (construction site layout, contractor's site management plan etc.) whereby the AMS is to be available on site.

This concludes our advice.

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. | This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

Appendix II

Terms and Definitions

“Arboriculturist” - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

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

“Topographical survey” - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification Surveys of land buildings and utility services at scales of 1:500 and larger.*

“BS5837 Tree survey” - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

“Tree categorisation method” - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

“Root protection area (RPA)” - layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority, shown as an arboricultural constraint in m². The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

“Arboricultural implications assessment” - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

“Arboricultural method statement” - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

“Tree protection plan” - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table:

As appended (BS5837 Tree Survey Key & Table)

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

FIELD KEY:

TPO/CA	-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;
TREE REF. #	-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);
SPECIES	-	Genus, species and/or common name;
AGE	-	Age classification (NP - new planting, Y - young, SM - semi mature, EM - early mature, M - mature, LM - late mature, OM - over mature);
HEIGHT (in m)	-	Approximate height of tree in metres;
CANOPY (in m) N - S - E - W	-	Approximate branch spread in metres of the four principal compass points;
STEM (in mm)	-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;
RPA (in m)	-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);
CLEARANCE (in m)	-	Crown clearance in metres above the adjacent ground level;
IST BRANCH (in m)	-	Clearance in metres to first significant branch and direction of growth (where relevant);
VITALITY	-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);
ESTIMATED REMAINING CONTRIBUTION	-	Approximate number of years the tree will continue to make a contribution without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;
NOTES	-	Structural and physiological condition observations;
BS CAT.	-	BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate Standard retention category U : in such a condition that any existing value would be lost within 10 years; Standard retention category A : high quality and value, in such a condition as to be able to make substantial contribution of 40+ years; Standard retention category B : moderate quality and value, in such a condition as to make a significant contribution of 20+ years; Standard retention category C : low quality and value, currently in adequate condition to remain until new planting could be established Standard retention sub-category, mainly due to: 1- Arboricultural values, 2- Landscape values, 3- Cultural values, including conservation;
MANAGEMENT	-	Preliminary management recommendations (as appropriate);
***	-	Within the survey schedule denotes an estimate

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

CLIENT: Procu Planning Services

PROJECT REF: 17311

SITE: Land at Hillside, Walford, Ross-on-Wye, Herefordshire

CONTACT: John Kendrick

SURVEY DATE: 16th August 2017

ARB CONSULTANT: Tony Banner *TechCert (ArborA) TechArborA*

TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T1	Beech; Fagus, Fagaceae	M	12	8	6	2.5	7	750	9.0	3	/	Normal	20 - 40	Growing at raised level to existing access with steep banking down to access, signs of excavations in bank with some exposed small fine roots noted, multi-stem < 2.0m, some laterals pruned for utterly clearance.	B 2	
T2	Oak; Quercus, Fagaceae	M	14	10	0	7.5	8	800	9.6	/	/	Normal	10 - 20	Growing adjacent to existing access, stem base less than 1.0m for access, impact damage on lower stem, pruned to clear utilities, one-sided crown as a result.	B 2	
T3	Holly; Ilex, Aquifoliaceae	EM	8	5	0	2	2	120	1.4	/	/	Normal	10 - 20	Growing atop of bank on rocky overhang, some exposed roots on bank.	C 3	
T4	Oak; Quercus, Fagaceae	EM	9	3	2	2.5	2.5	150	1.8	/	/	Normal	20 - 40	Growing atop of bank on rocky overhang, previously topped, some exposed roots on bank.	C 3	
T5	Oak; Quercus, Fagaceae	M	10	8	3.5	7	6	700	8.4	/	/	Normal	10 - 20	Situated downhill approx. 3.5m from existing access, pruned for utility clearance, deadwood in crown, co-dominant base.	C 2	
T6	Hazel; Corylus, Betulaceae	M	6	2	2	2	2	250	3.0	/	/	Normal	10 - 20	Multi-stem base, old coppice with deadwood throughout.	C 3	
T7	Oak; Quercus, Fagaceae	M	10	4	4	4	4	490	5.9	/	/	Normal	20 - 40	Situated uphill from existing access (approx. 10m).	B 2	