

Trees and Construction

BS5837:2012 Tree Survey, Arboricultural Impact Assessment & Method Statement

Site: Abbotswood, Coombe Hill Road,
Kingston Upon Thames, KT2 7DU

Ref: 17294.23/ A2_AIA



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Revision	Description	Date
/	/	/



1. INTRODUCTION

- 1.1 Instruction: This advice has been prepared in respect of the tree related planning considerations at Abbotswood, Coombe Hill Road, Kingston Upon Thames, KT2 7DU (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 assessment is produced in accordance with BS5837 and is secondary to arboricultural constraints advice. The objective of this report is to systematically assess the proposed scheme and provide suitable recommendations regarding the potential impact on trees and vice versa with associated tree protection recommendations.

- 1.4 Following instruction the consultant initially surveyed the site on the 20th July 2017, followed by a survey on the 30th November 2023, 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.

- 1.6 The survey data and site observations used the supplied site plan to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP) which was supplied with the initial tree survey advice.

The TCP now has an overlay of the proposed scheme to enable review, to inform this assessment and is used as a base layer for a 'Tree Protection Plan' (hereafter; TPP); the TCP, tree survey data table and TPP are at Appendix III.



2. SITE INFORMATION & TREE ASSESSMENT

2.1 The site currently comprises a detached residential property with detached garage.

The site is accessed via the driveway off Coombe Hill Road, and leads onto the entrance driveway and open vehicle parking. The front grounds are lawn and planted borders with side walkways to the rear. The rear garden is part lawn, patio and planted shrub borders, and backs onto the Coombe Hill Golf Club tree belt.

2.2 Proposal: It is understood that a proposed scheme involves the extension of the existing property and existing garage. This is confirmed as per the client's proposed site plan, as per the TCP overlay.

2.3 The site requires arboricultural consideration due trees present on and around the site; these are on the supplied topographical plans and are on site and/ or deemed to be within impacting distance of the existing buildings and potential construction area.

2.4 The trees -

2.4.1 The tree survey and assessment resulted in the BS5837 quality/ retention categories of 'A - high', 'B - moderate' and 'C - low' being attributed to trees/ tree groups as well as G1 and T22 categorised as 'U' with a limited remaining life expectancy and which are recommended for removal.

2.4.2 The tree survey objectively assessed and categorised trees in accordance with BS5837. This is based on condition, contribution and useful remaining life expectancy. As such, the location within a Conservation Area (CA) or protection of trees by Tree Preservation Order (TPO) will not bias this advice, nor should it influence the consideration for tree retention vs removal, as trees are instead considered on their merits and contribution.

2.4.3 It has been verbally confirmed with Kingston Council's planning department and checked on the council's website that the site is contained within the Coombe Hill Conservation Area (CA) and that trees are protected by the 1956 'area' Tree Preservation Order (TPO) ref: MAC.06.56A.9; the presence of trees within the CA and protection of trees by TPO will need consideration for intended tree works outside of the planning process, i.e. prior notice / application required.



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 (17294.23/ TCP/ 01); this information is included here as an objective overview of the arboricultural constraints and considerations, and reflects the basis of the initial tree survey advice.

NOTE: This information as s.3 for the 'tree survey assessment' is included as an objective and general overview of the trees and consideration for retention and protection. It is included herein for reference and context and is supplemented with a review of the scheme as the AIA (section 4) and the AMS 'considerations' (section 5).

3.2 General Considerations for Tree Retention / Removal

3.2.1 Due to the suppressed nature and sparse canopy with low vigour, G1 and T22 are categorised as 'U'. In the context of a residential site with continued use as a garden, these trees could be simply removed and enhancement screen / tree planting incorporated on site.

3.2.2 Due to the offsite location of some trees and their third party ownership, they are to be retained by default. This includes T4 (although possibly compromised by the offsite ground works; safe retention unclear), T9 - T12, T17 and T19.

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

Whilst it is considered that these trees should not significantly constrain or impact the viability of a scheme, they are suitable for retention as tree maturity and canopy cover to site. 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.

3.2.4 Based on the the lack of significant defects, collective contribution and/ or good future potential of surveyed trees, these are categorised as 'B'. For which, the retention and protection of these trees should be an aim of the scheme (where possible), although removal may also be suitable where necessary in the context of a scheme's viability, and subject to considered and proportionate replacement tree planting.

3.2.5 The more notable trees, based on the individual prominence, lack of significant defects, current contribution and/ or future potential, are categorised as 'A - high'. It is recommended that these trees be retained, protected and be clear of the proposal. This



is best achieved by avoidance where their crowns and RPAs are accommodated in the design and layout.

- 3.4.3 Further to the above information, the proposed scheme (see; TCP) is reviewed hereafter at s.4 as an Arboricultural Implications Assessment (hereafter; AIA).



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; as per s.1.6 and s.2.2 herein, the TCP shows the 'proposed site plan' as an overlay for review.
- 4.2 As per s.3.2.1, the 'U' category tree/ tree group G1 and T22 should be removed as part of general tree management in conjunction with the proposed scheme.
- 4.3 The proposed scheme is in conflict with the 'C' category tree T13. However, as per s.3.2.3, this tree is low quality and should not significantly constrain nor guide the scheme. Therefore, T13 should be removed to facilitate the scheme and mitigated by new tree planting as part of a landscape scheme is recommended; a 1:1 removal to replacement ratio as mitigation is recommended for 'C' category trees.
- 4.4 The proposed driveway widening is within the RPAs of the 'A' category trees T5 and T6. The RPA percentage cover from the new hard surfaces is within the accepted 20%, although these will need to utilise sensitive design and installation methods to minimise the ground and RPA impact i.e., no dig installation, soil level retained, use cellular load bearing system (Cellweb or similar) and preferably a permeable surface treatment.
- 4.5 The new garage footprint incurs on the standard circular RPAs' outer extents for T10. The circular RPA incursion relates to less than 8% of the RPA, however, owing to the existing brick wall foundations and boundary separation between the site and T10, there may be no roots from this tree in the proposed garage footprint. However, sensitive excavation methods are recommended to minimise the ground and RPA impact i.e. manual excavations along the proposed footprint and root pruning to clear the proposed footprint.
- 4.6 Following the above considerations for trees, the trees are clear of the active construction area. However, the installation of temporary tree protection will be required to ensure no impact on trees from access, vehicles, material storage etc.
- 4.7 Further to the above, the following tree works are required prior to site works.



TREE WORK SUMMARY

NUMBER	TREE REMOVALS / PRUNING WORKS	
G1, T13, T22	Remove	Remove in order to facilitate and in conjunction the scheme: - to be replaced with new site landscaping.
Retained trees		Protection by placement of fixed Heras panels around the crown/ RPA extents, to have no access during construction.

- 4.7 Further to the above review and in consideration for the tree removals and need to protect retained trees, the following section contains said details as an Arboricultural Method Statement (Application Stage).



5. METHOD STATEMENT (Application Stage)

5.1 Arboricultural Construction Restrictions

5.1.1 The following restrictions are considered relevant for tree protection purposes which are illustrated on the appended Tree Protection Plan:

- a) Tree works; are to be completed prior to any and all site works: tree works not specified within the associated arboricultural method statement (or leaning against or attaching of objects to a tree) are not permitted unless agreed in writing by the council.
- b) Protective Barrier Fencing (hereafter; PBF); is to be installed around the retained trees immediately after the tree works and prior to the site works commencing.
- c) Construction Exclusion Zone (hereafter; CEZ); following the installation of PBF the fenced off section is to act as a CEZ and be supplemented with ground protection for RPA sections outside of fenced off areas as the CEZ.
- d) Material Handling; no chemicals/ materials are to be transported/ stored/ used/ mixed within exposed grounds on site; all chemical / cement storage, transport or use will be pre-prepared with impermeable liner and detail within a Construction Management Plan.
- e) Site Management; no fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy, within a RPA / CEZ, and the RPA/ CEZ may not be breached, i.e. no mechanical digging or scraping is permitted within a RPA/ CEZ.
- f) Sensitive Landscape; only following construction completion can the PBF be removed and any remaining soft landscape works be undertaken (ground levels to be retained within RPAs and works undertaken manually with non-mechanical hand tools).

5.2 Arboricultural Site Monitoring / Supervision

5.2.1 The site should be checked by a qualified arboriculturist throughout the construction processes to ensure the tree protection measures are adhered to, thus -

- (a) pre-commencement to confirm tree removals and PBF installation;
- (b) during garage foundation excavations;
- (c) during construction to ensure adherence to this AMS; and
- (d) prior to removal of site hoarding after construction completion to sign off the site for correct tree protection and planting.



5.3 Protective Barrier Fencing (PBF) Specification

5.3.1 Barrier fencing is to be installed (and signed off by way of arboricultural supervision) following the completion of the tree works. It is illustrated on the Tree Protection Plan and is to remain in situ for the entire duration of preparation/ construction processes unless otherwise agreed in writing by the council.

5.3.2 The barrier fencing is to consist of a series of Heras panels secured in place by driven scaffold posts or a scaffold frame to ensure that the fencing lines are well braced to resist impact, and site hoarding around the application boundary to prevent access to the RPA/ CEZ areas around the approved works.

5.4 Underground utilities

5.4.1 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.

5.5 Ground Protection

5.5.1 In this instance the ground within RPAs is to be protected by PBF and retained hard surfaces for T5 and T6 for the duration of construction then to be aligned for hard landscape works.

5.6 Ground Works within RPAs

5.6.1 The proposed garage extension is within the circular RPA of T10 and will require sensitive excavations methods to minimise ground and RPA impact.

5.6.2 Any excavations within a RPA or designated CEZ (the area enclosed by PBF) must:

- Be undertaken under arboricultural supervision; and
- Use sensitive excavation techniques to protect the tree roots and their existing growing conditions i.e., for the new foundation - manual excavations to identify and carefully prune roots back to clear the proposed footprint.



5.7 Sensitive Ground Works within RPAs

5.7.1 The proposed hard surfaces for the expanded driveway are within retained trees' RPAs, and will require sensitive installation methods to minimise ground and RPA impact.

5.7.2 Excavations within a RPA or designated CEZ (the area enclosed by PBF) must:

- Be undertaken prior to construction works with a temporary wear layer; and
- Use sensitive excavation techniques to protect the tree roots and their existing growing conditions i.e. prepare grounds manually stripping the existing soil surface/ hard surface and turf only, retain soil levels, use load bearing system (Cellweb or similar) and manual installations.

5.8 Landscape Detail

5.8.1 The finer details of the site landscaping proposals are to be illustrated on a landscape plan. This is to include the exact proposals for hard and soft landscaping together with the details for any new trees' planting locations, species and stock selection, installation and maintenance; this is to be undertaken by the appointed landscape architect who will have the full support of the arboricultural consultant where required.

5.9 Report Handling

5.9.1 This report is released to the client and architect to be distributed at their discretion and the consultant is available for queries relating to this report and/ or trees.

5.9.2 The proposed scheme is reviewed in respect of the arboricultural constraints and is considered to be achievable in line with the BS5837 guidance. The recommendations herein may be approved by the council as a means of authorised tree works and tree protection, for which the planning approval will be subject to a final and detailed Arboricultural Method Statement based on the approved information and other detail perhaps not available at the pre-planning approval stage, i.e. utility layout, final landscape plan, construction management plan (CMP) etc.

5.9.3 This AMS and the TPP may be approved by the council in support of the application, subject to a conditioned final AMS and TPP as a means of authorised tree protection measures; all site personnel will have access to a copy and the tree work and protection details are to be inspected as per s.5.2 for 'Arboricultural Monitoring / Supervision'.

This concludes our advice.



Appendix I

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 Constraints Plan: (TCP / Scheme Overlay)	As appended (17294.23/ TCP/ 01)
Tree Protection Plan:	As appended (17294.23/ TPP/ 01)

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

CLIENT: PROJECT REF: 17294.23/A1 SITE: Abbotswood, Coombe Hill Road, Kingston Upon Thames, KT2 7DU
 CONTACT: SURVEY DATE: 30th November 2023 ARB CONSULTANT: 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	Fir; Picea, Pinaceae	SM	8.5	2.5	2.5	2	3	262	3.1	2	3.5m - South	Fair	10 - 20	Co-dominant base union (180mm, 190mm), co-dominant leaders, sparse canopy in parts.	C 3	
T2	Cypress; Cupressus, Cupressaceae	M	11	1.5	1.5	1.5	1.5	332	4.0	2	/	Normal	20 - 40	Co-dominant < 1.5m (230mm, 1240mm), fair form.	C 1	
T3	Cypress; Cupressus, Cupressaceae	SM	10	1	1	1	1	180	2.2	4 +	/	Normal	20 - 40	In hedge, < 0.5m from fence, single stem.	C 3	
T4	Cypress; Cupressus, Cupressaceae	SM / M	12	1	1	1	1	300 *	3.6	1.5	/	Fair	10 - 20	Offsite, on bank, compromised roots, crown dieback noted.	C 3	
T5	Pine; Pinus, Pinaceae	M	15	4	4	1	5	540	6.5	4.5	8m - North	Normal	40 +	Growing as pair internal to the site within from amenity lawn, growth influence from T16, stem deviation at 8-9m.	A 2	
T6	Pine; Pinus, Pinaceae	M	16	4	4	5	2	510	6.1	3	8m - East	Normal	40 +	Growing as pair internal to the site within from amenity lawn.	A 2	
T7	Cypress; Cupressus, Cupressaceae	M	14	2	2	2.5	0.5	360	4.3	0.5	2m - all round	Fair	20 - 40	Growth as pair, subservient growth to T8.	B 2	
T8	Cypress; Cupressus, Cupressaceae	M / LM	14.5	1.5	2	2	2	416	5.0	0.5	3m - all round	Fair	10 - 20	Included co-dominant union at 0.25m (170mm, 38mm), growth as pair.	C 2	
T9	Cypress; Cupressus, Cupressaceae	SM / M	13	0.5	2	2	1.5	233	2.8	2	3.5m - South	Fair	20 - 40	2x stems (160mm, 170mm), offsite, close to boundary wall.	C 3	
T10	Cypress; Cupressus, Cupressaceae	M	16	4	5	3.5	4	450 *	5.4	5	7m - South	Fair	20 - 40	Offsite, close to boundary wall, large tear-out in crown, multi-stem upper crown.	C 3	
T11	Cypress; Cupressus, Cupressaceae	SM	8	1	2	0	2	198	2.4	n / a	/	Fair	10 - 20	2x stems (140mm, 140mm), close to boundary wall.	C 3	
T12	Cypress; Cupressus, Cupressaceae	SM / M												Offsite tree removed since previous survey in 2017.		
T13	Cypress; Cupressus, Cupressaceae	M	14	1	2	1.5	2	330	4.0	2	4.5m - West	Normal	20 - 40	Aside patio, displacing paving near bae, slightly thinning crown.	C 2	
T14	Beech; Fagus, Fagaceae	EM	15	2	1	2	2	190	2.3	0.5	4.5m - North	Normal	40 +	Young tree with upright form, good future potential.	B 1	
T15	Cypress; Cupressus, Cupressaceae	SM	12	1	0.5	0.5	0.5	220	2.6	2.5	3m - all round	Fair	10 - 20	Landscape planting.	C 3	
T16	Purple Norway Maple; Acer, Aceraceae	SM	8	0.5	2.5	2	2	200	2.4	3	1.5m - East	Fair	20 - 40	Grows close to boundary wall, fair form but limited future.	C 2	
T17	Oak; Quercus, Fagaceae	SM	16	4	6	7	6	480 *	5.8	3.5	7m - South	Normal	40 +	Offsite woodland group edge, deadwood in crown, some large pieces offsite.	A 2	
T18	Cypress; Cupressus, Cupressaceae	M	12	1	2.5	2.5	2	325	3.9	0.5	/	Normal	10 - 20	3x stems (210mm, 240mm, 250mm), at boundary, growth at edge of offsite woodland group, beneath crown of T17, crown dieback and browning in parts.	C 2	
T19	Sycamore; Acer, Aceraceae	SM / M	17	3	5	4.5	4	450 *	5.4	4	8.5m - West	Normal	10 - 20	Offsite woodland group edge, thick ivy in crown limits visual tree assessment.	C 2	
T20	Pine; Pinus, Pinaceae	SM / M	17	3	3	4	5	530	6.4	10 +	9m - West	Normal	40 +	Grown as pair at the site boundary, < 1.5m from the boundary wall, deadwood.	B 2	
T21	Pine; Pinus, Pinaceae	SM / M	17	2	5	5	4	450	5.4	1.5	5m - South	Normal	40 +	Grown as pair at the site boundary, < 1.5m from the boundary wall, deadwood.	B 2	
T22	Cypress; Cupressus, Cupressaceae	SM / M	12	1	1	1	1	220	2.6	1	2m - all round	Fair	< 10	Landscape planting, Ivy on stem, crown dieback, very sparse canopy cover.	U	Fell tree.

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G1	2x Cypress; Cupressus, Cupressaceae	SM	10 - 11	/	/	/	/	130 - 150	1.6 - 1.8	1	/	Fair / Poor	< 10	Screen planting with low vigour and canopy cover in parts, suppressed by T21.	U	Fell tree.

NOTE: Offsite trees and trees towards the Eastern boundary may have compromised root plants due to offsite clearance works, regrading, site excavations and tree felling etc.

