Trees and Construction

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

Site: Land north of Coxbridge Farm, West Street, Farnham, GU9 7AS

Ref: 18538.23/A2_AIA_Rev.C

Client: CALA Homes (South Home Counties) Ltd

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Revision	Description	Date
A	Updated sensitive ground works within RPA of T46	14/05/2024
B	Updated tree protection for T46	16/05/2024
C	Revised scheme update	09/07/2024

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1. INTRODUCTION

1.1 **Instruction:** This advice has been prepared for CALA Homes (South Home Counties) Ltd (hereafter; client) and is in respect of the tree related planning considerations at the Land north of Coxbridge Farm, West Street, Farnham, GU9 7AS (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 secondary to arboricultural guidance as a 'Tree Survey Assessment' ref: /A1 (hereafter; tree report). The tree report was provided to the client, intended to demonstrate the realistic arboricultural constraints and assist with the design process.

This advice is further to the tree report. Hence, the objective is to assess and provide recommendations regarding the proposal's potential impact on trees and vice versa.

1.4 Following instruction the consultant surveyed the site on the 13th September 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 use the supplied topographical survey to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP).

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

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2. SITE INFORMATION & TREE ASSESSMENT

2.1 The site currently comprises fields divided by fencing and hedge growth. The site is currently accessed via the commercial properties off West Street.

The site is bound by residential properties to the north-east, commercial properties and West Street to the south and a footpath then fields to the west.

2.2 **Proposal:** It is understood that a proposed scheme involves the construction of residential properties at site which will include a general scheme of landscape improvement, parking provision and access improvement onto and around the site. This is confirmed as per the client's proposed site plan as illustrated on the TCP.

2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site.

2.4 <u>The trees</u> -

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 those categorised as 'U' for those trees of curtailed life expectancy not to constrain development.

2.4.2 The site's trees are mainly situated around the boundaries with low quality individual trees inset to site in low to moderate quality field boundary groups.

2.4.3 The BS5837 tree survey is a means of objective assessment and reflects the trees' condition, quality contribution, remaining life expectancy and spatial considerations (stem, crown and roots). On this basis and in order to consider the trees' accurate constraints, the survey data is used to illustrate the trees as the TCP; this has the crown extents for north, east, south and west, the stem diameter measurement, and the calculated root protection areas (hereafter; RPAs). Hereafter, the trees are therefore reviewed and considered on their own merits and in line with the guidance of BS5837.

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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 (18538.23/TCP/01).

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 Based on the boundary line location/offsite site location of W1, T18, T31 - T47 and T49 - T53, their retention and protection is to be assumed as part of the scheme. The protection of said trees is best achieved by avoidance whereby their crowns are avoided and their root protection areas (hereafter; RPAs) are protected by design.

3.2.2 The proposed new access is in conflict with the 'U' category tree T7 and T8. However, as per s.3.2.2, these trees should not constrain development and should be removed as part of H&S tree risk management in conjunction with the proposed scheme.

3.2.3 There are smaller scale trees and field boundary groups 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 canopy cover.

3.2.4 The moderate quality 'B' category trees are noted as such due to their fair future potential and/or current amenity contribution. These should be retained and protected where possible as part of the site's development.

Whilst the retention and protection of 'B' category trees is recommended, the removal of some may also be mitigated. Subject to supplementary details for tree selection as part of a well delivered landscape scheme, proposals of this nature may then be accepted by the council. However, this will require higher grade larger nursery planting stock than that to mitigate the removal of 'C' category trees.

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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 protective barrier fencing (to protect RPAs).

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 are as follows).

Tree Works

The tree removals to facilitate the scheme are to be justifiable in the context of the site layout and are to be mitigated by way of a landscape scheme; new tree planting will be required to replace and enhance the site's canopy cover with a general scheme of landscaping in acknowledgement for the removal of poor quality trees.

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.

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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.

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Planting Species and Volume

New tree planting should incorporate a range of species, select mixed characteristics and take account of the availability of space, i.e. concentrate on selecting suitable scale species based on the ultimate growth extents.

Depending on the volume and quality of trees to be removed, new tree planting should directly proportionate. A 1:1 removal to replacement ratio is considered suitable for 'C' category tree removal and 2:1 for 'B' category trees.

Planting Specification

A detailed specification should be included within a landscape scheme (could form part of planning conditions). This should outline the proposed tree species, stock selection, location, planting process and ongoing maintenance (watering, mulch and pruning).

Planting Location

The new planting sites should take account of the future growth potential of the chosen species and should allow for the amenity space to be utilised, minimise the potential conflict with structures and facilitate the contribution to amenity from the site.

Based on the residential use of the site, good tree planting space is anticipated. It is necessary however to consider and avoid future canopy/shade conflicts.

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).

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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 The proposed new access is in conflict with the 'U' category tree T1 and T2. However, as per s.3.2.2, these trees should not constrain development and should be removed as part of H&S tree risk management in conjunction with the proposed scheme.

4.3 The proposed scheme is in conflict with the 'C' category tree groups G1, G2, part of G3, G4, part of G9, part of G10 and part of G11. The scheme has been designed to preserve as much of the internal hedgerow as possible, whilst allowing circulation through the site. However, as per s.3.2.3, these trees are low quality and should not significantly constrain nor guide the scheme. Therefore, said trees 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 scheme is in direct conflicts with parts of the 'B' category tree groups G12 and G16. G12 is field boundary hedge and G16 is a roadside hedge managed by flail, scrubby in parts with gaps and bramble and ivy. Although the retention of 'B' category trees is preferable, as per s.3.2.4, large sections of hedgerow are to be retained. Hence, the removal of said trees can be mitigated by a well delivered landscape scheme. Therefore, the conflicting parts of G12 and G16 should be removed to facilitate the scheme and replaced by considered new tree planting and sit landscaping; a 2:1 removal to replacement ratio as mitigation is recommended for 'B' category trees.

4.5 The proposed new hard surfaces are within the RPA of the 'B' category tree T46. In order to minimise the impact on the RPA's and ground, the new hard surfaces will need to utilise sensitive design and installation methods i.e., no dig installation, the existing soil level retained, use a load bearing cellular confinement system (Cellweb/Geoweb or similar), manual installations and preferably a permeable surface treatment.

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.

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TREE WORK SUMMARY

NUMBER	TREE REMOVALS / PRUNING WORKS	
T7, T8, G1, G2, part of G3, G4, part of G9, part of G10, part of G11, part of G12 and part of G16	Remove	Remove in order to facilitate and in conjunction the scheme: - to be replaced with new tree planting and site landscaping.
Retained trees		Protection by placement of fixed Heras panels around the crown/RPA extents, to have no access during construction.

4.8 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).

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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: additional tree works (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.

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;

(b) after PBF installation;

(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.

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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 Ground Protection

5.4.1 In this instance the ground within RPAs is to be protected by PBF and supplementary ground protection for exposed RPA sections outside of PBF.

5.4.2 For the RPA extents of T46 outside the PBF, it is necessary to install temporary ground protection, i.e. for exposed areas/soils within RPAs.

Specifically, the ground is to be protected from impact for pedestrian/vehicular access. The ground protection is to be appropriate for the intensity of the pedestrian or vehicular movements thus -

- For pedestrians, the ground protection is be *"a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile, or supported by scaffold"*; and
- For wheeled or tracked movements within an exposed RPA, the ground protection is to *"be designed by an engineer to accommodate the likely loading"*.

5.5 Underground utilities

5.5.1 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.

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5.6 Sensitive Ground Works within RPAs (new hard surfaces)

5.6.1 The proposed new hard surfaces within retained trees' RPAs will require sensitive installation methods to minimise ground and RPA impact.

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

- Only be undertaken when the construction works are completed; 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 and turf only, retain the existing soil levels, use a cellular confinement load bearing system (Cellweb/Geocell or similar), manual installations and preferably a permeable surface treatment.

5.7 Landscape Detail

5.7.1 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.

5.8 Report Handling

5.8.1 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.

5.8.2 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.

5.8.3 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'*.

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This concludes our advice.

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Caveat

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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 m^2. 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.

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Appendix III

Data Table:	As appended (BS5837 Tree Survey Key & Table)
Tree Constraints Plan:	As appended (18538.23/TCP/01)
Tree Protection Plan:	As appended (18538.23/TPP/01_Rev.C)

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

CLIENT: Cala Homes Ltd ***PROJECT REF:*** 18538.23 ***SITE:*** Land at Coxbridge Farm, West Street, Farnham, GU9 7AS

CONTACT: / ***SURVEY DATE:*** 8th November 2018 & 13th September 2023 ***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
G1	Cypress group	M	< 8	/	/	/	/	200	2.4	0	/	Normal	10 - 20	Planted line in yard, hard surfaces either side of line, closely sheared up to 4m.	C	2	
G2	Cypress group	M	< 8	/	/	/	/	200	2.4	0	/	Normal	10 - 20	Planted line in yard, hard surfaces either side of line, closely sheared up to 4m.	C	2	
G3	Cypress group	M	< 10	/	/	/	/	220	2.6	0	/	Normal	10 - 20	Planted line next to access, shared to 4m.	C	2	
G4	Cypress and Elm group	M	< 10	/	/	/	/	200	2.4	0	/	Normal	10 - 20	Planted line next to access, shared to 4m.	C	2	
T1	Elm; Ulmus, Ulmaceae	M	12	4.5	3	1	3	260	3.1	4	4	Normal	20 - 40	Part of collective canopy group in boundary group	B	2	
T2	Lime; Tilia, Tiliaceae	M	12	5	4	4	4	380	4.6	4	3.5	Normal	20 - 40	Part of collective canopy group in boundary group, multi-stem at 3.5m.	B	2	
T3	Lime; Tilia, Tiliaceae	M	12	5	4	4	3	430	5.2	3.5	2	Normal	20 - 40	Part of collective canopy group in boundary group, co-dominant at 2m, minor deadwood,	B	2	
T4	Lime; Tilia, Tiliaceae	M	12	5	4	3	3	370	4.4	3.5	3.5	Normal	20 - 40	Part of collective canopy group in boundary group, crown raised over access and building.	B	2	
T5	Lime; Tilia, Tiliaceae	M	12	4	4.5	5	3	370	4.4	4	3	Normal	20 - 40	Part of collective canopy group in boundary group, crown raised over access and building,	B	2	
G5	Spindle, Elder & Hawthorn group	M	< 4	/	/	/	/	120	1.4	0	/	Poor	10 - 20	Scrub boundary group as understorey to T1 - T5, ivy throughout.	C	2	
G6	Cypress group	M	< 8	/	/	/	/	200	2.4	0	/	Normal	10 - 20	Planted line next to access, shared to 4m.	C	2	
T6	Elm; Ulmus, Ulmaceae	EM	10	2.5	2.5	2.5	2.5	210	2.5	/	/	Poor	< 10	On end of Cypress group, possible in decline.	U		Monitor next year's leaf flush.
T7	Elm; Ulmus, Ulmaceae	EM	10	2	3.5	3.5	2	220	2.6	/	/	Normal	10 - 20	Next to access in small soft strip.	C	2	
T8	Elm; Ulmus, Ulmaceae	SM	6	2	2	1	2	150	1.8	/	/	Normal	10 - 20	Next to access in small soft strip, multi-stem base (possibly 3 saplings)	C	2	
T9	Lime; Tilia, Tiliaceae	M	12	4	4	4	4	350	4.2	4	/	Normal	20 - 40	Planted in boundary group next to access	B	2	
T10	Lime; Tilia, Tiliaceae	M	12	3	4	4	3	340	4.1	5	/	Normal	20 - 40	Planted in boundary group next to access	B	2	
T11	Lime; Tilia, Tiliaceae	EM	10	2.5	2.5	2.5	2.5	210	2.5	/	/	Normal	10 - 20	Planted in boundary group next to access, current small scale, fair future potential.	C	2	
G7	Spindle, Elder, Elm & Hawthorn group	M	< 6	/	/	/	/	120	1.4	0	/	Fair	10 - 20	Scrub boundary group as understorey to higher canopy trees, ivy throughout.	C	2	
T12	Elm; Ulmus, Ulmaceae	SM	8	2	2	1.5	2	130	1.6	3.5	/	Fair	10 - 20	In boundary group (G7), ivy.	C	2	
T13	Elm; Ulmus, Ulmaceae	SM	8	2	2	1	2	100	1.2	3.5	/	Fair	10 - 20	In boundary group (G7), ivy.	C	2	
T14	Elm; Ulmus, Ulmaceae	SM	8	2	2	2	1	120	1.4	3.5	/	Fair	10 - 20	In boundary group (G7), ivy.	C	2	
T15	Elm; Ulmus, Ulmaceae	SM	8	2	2.5	2	1	110	1.3	2.5	/	Fair	10 - 20	In boundary group (G7), ivy.	C	2	
T16	Elm; Ulmus, Ulmaceae	SM	8	2	2.5	2	2	130	1.6	3.5	/	Fair	10 - 20	In boundary group (G7), ivy.	C	2	
T17	Elm; Ulmus, Ulmaceae	SM	8	2	2	2	2	150	1.8	3.5	/	Fair	10 - 20	In boundary group (G7), ivy.	C	2	
G8	Hawthorn, Rose & Bramble growth	M	< 3	/	/	/	/	120	1.4	0	/	Fair	10 - 20	Field boundary hedge, scrubby.	C	2	
T18	Oak; Quercus, Fagaceae	M	14	5	7	8	6	880	10.6	3	/	Normal	20 - 40	Offsite, beyond boundary hedges opposite side of access road, hard surfaced access less than 1m from base, ivy deadwood, reaction growth in crown.	B	2	
G9	Hawthorn group	M	4	/	/	/	/	150	1.8	0	/	Fair	10 - 20	Field boundary group next to access, ivy, formally managed.	C	2	
G10	Hawthorn & Elm group	M	4	/	/	/	/	150	1.8	0	/	Fair	10 - 20	Field boundary group, scrubby and gaps in parts.	C	2	
T19	Elm; Ulmus, Ulmaceae	SM	5	1	2	1	1	160	1.9	1.5	/	Normal	10 - 20	Saplings in field boundary group.	C	2	
G11	Hawthorn, Blackthorn & Elder group	M	< 5	/	/	/	/	150	1.8	0	/	Normal	10 - 20	field boundary group.	C	2	

T20	Oak; Quercus, Fagaceae	SM	8	2	3	3	2	180	2.2	3.5	/	Normal	10 - 20	In field boundary group.	C	2	
T21	Ash; Fraxinus, Oleaceae	SM	8	2.5	2.5	2.5	2.5	220	2.6	3.5	/	Fair	10 - 20	In field boundary group, deadwood noted, impact damage lower stem.	C	2	
T22	Ash; Fraxinus, Oleaceae	SM	8	2.5	2.5	2.5	2.5	150	1.8	3.5	/	Fair	10 - 20	In field boundary group, deadwood noted, impact damage lower stem.	C	2	
T23	Ash; Fraxinus, Oleaceae	SM	7	2	2	2	2	210	2.5	3.5	/	Fair	10 - 20	In field boundary group, deadwood noted, impact damage lower stem.	C	2	
T24	Ash; Fraxinus, Oleaceae	SM	7	2.5	2.5	2.5	2.5	200	2.4	4	/	Fair	10 - 20	In field boundary group, deadwood noted, impact damage lower stem.	C	2	
T25	Ash; Fraxinus, Oleaceae	SM	7	2.5	2.5	2.5	2.5	230	2.8	4	/	Fair	10 - 20	In field boundary group, deadwood noted, impact damage lower stem.	C	2	
T26	Ash; Fraxinus, Oleaceae	SM	7	2.5	2.5	2.5	2.5	170	2.0	4	/	Fair	10 - 20	In field boundary group, deadwood noted, impact damage lower stem.	C	2	
T27	Ash; Fraxinus, Oleaceae	SM	7	2	3	3	3	190	2.3	4	/	Normal	10 - 20	In field boundary group.	C	2	
T28	Ash; Fraxinus, Oleaceae	SM	7	2	3	3	3	200	2.4	4	/	Normal	10 - 20	In field boundary group.	C	2	
T29	Ash; Fraxinus, Oleaceae	SM	7	3	4	3	3	210	2.5	4	/	Normal	10 - 20	In field boundary group.	C	2	
T30	Elm; Ulmus, Ulmaceae	M	8	2.5	2.5	2.5	2.5	200	2.4	/	/	Normal	10 - 20	In field boundary group.	C	2	
W1	Oak, Field Maple, Hawthorn, Elm	M	< 16	/	/	/	/	400	4.8	0	/	Normal	40 +	Offsite mixed woodland group.	A	2	
T31	Field Maple; Acer, Aceraceae	LM	12	2	4	3	3	330	4.0	3	/	Fair	20 - 40	At end of woodland, pruned for clearance over field, impact damage (possible flail damage).	B	2	
T32	Field Maple; Acer, Aceraceae	LM	12	2	3	3	3	310	3.7	2.5	/	Normal	20 - 40	At end of woodland, pruned for clearance over field, impact damage (possible flail damage).	B	2	
T33	Hawthorn; Crataegus, Rosaceae	EM	6	0	3	1	1	140	1.7	3.5		Normal	10 - 20	At edge of woodland, growth lean south due to location at edge of woodland, pruned for	C	2	
T34	Oak; Quercus, Fagaceae	M	15	2	6	3.5	5	430	5.2	2.5		Normal	20 - 40	At edge of woodland, part occluded strip wound on lower stem.	B	2	
T35	Field Maple; Acer, Aceraceae	LM	7	2.5	2.5	2.5	2.5	300	3.6	0		Normal	10 - 20	Inset to woodland, thick ivy limits visual assessment.	C	2	
T36	Oak; Quercus, Fagaceae	M	8	1	5	2.5	1	170	2.0	3		Normal	10 - 20	At edge of woodland, ivy, crown suppressed by neighbours.	C	2	
T37	Oak; Quercus, Fagaceae	M	15	3	7	4	4	400	4.8	2		Normal	20 - 40	At edge of woodland, set back from boundary, deadwood noted.	B	2	
T38	Field Maple; Acer, Aceraceae	LM	7	1.5	3	1.5	2	256	3.1	/	/	Fair	10 - 20	At edge of woodland, set back from boundary, thick ivy smothered crown, co-dominant base.	C	2	
G12	Alder, Hazel, Hawthorn & Willow group	M	< 8	/	/	/	/	200	2.4	0	/	Normal	20 - 40	At Field boundary, growing around brook/stream.	B	2	
T39	Alder; Carpinus, Betulaceae	M	14	4	4	4	4	470	5.6	/	/	Normal	20 - 40	In G12, on far side of brook, single stem, ivy.	B	2	
T40	Alder; Carpinus, Betulaceae	SM	12	3	3	3	3	248	3.0	2.5	/	Normal	10 - 20	In G12, on near side of brook, co-dominant base.	C	2	
T41	Willow; Salix, Salicaceae	M	15	5	5	5	5	400 *	4.8	/	/	Normal	20 - 40	Offsite residential garden, no access	B	2	
G13	Elm, Blackthorn and Viburnum	M	< 2	/	/	/	/	100	1.2	0	/	Fair	10 - 20	Field boundary group, managed in parts, bramble throughout,	C	2	
T42	Birch; Betula, Betulaceae	M	10	2.5	5	4.5	4	400 *	4.8	2	/	Normal	20 - 40	Offsite residential garden, no access	B	2	
T43	Holly; Ilex, Aquifoliaceae	M	8	2.5	2.5	2.5	2.5	250 *	3.0	2	/	Normal	10 - 20	Offsite residential garden, no access	C	2	
T44	Hawthorn; Crataegus, Rosaceae	SM	4	1	1	1	1	100	1.2	/	/	Fair	10 - 20	At boundary, old pruning wounds lower stem for field clearance.	C	3	
T45	Ash; Fraxinus, Oleaceae	Tree removed by owner since survey										Poor	< 10	Offsite/boundary tree, multi-stem base, large cavity in basal union, dieback in crown, old Inonotus fungus brackets in crown and previously noted on ground around tree - tree in decline.	U		TREE OWNER RECOMMENDATION: Fell tree for health and safety reasons.
T46	Field Maple; Acer, Aceraceae	LM	12	4	6	5	5	711	8.5	3.5	/	Normal	20 - 40	Offsite/boundary tree, co-dominant base and stem conflicting at 4m.	B	2	
T47	Field Maple; Acer, Aceraceae	LM	10	5	5	5	5	541	6.5	3.5	/	Normal	20 - 40	Offsite/boundary tree (possibly two trees)	B	2	

G14	Hawthorn & Blackthorn group	M	< 4	/	/	/	/	120	1.4	0	/	Normal	20 - 40	Field boundary group.	B	2
T48	Ash; Fraxinus, Oleaceae	SM	10	2	2	2	2	150	1.8	3	/	Normal	10 - 20	In field boundary group, current small scale.	C	2
T49	Ash; Fraxinus, Oleaceae	SM	12	2	2	2	2	230	2.8	3	/	Normal	10 - 20	Part of group of saplings at Field boundary.	C	2
T50	Ash; Fraxinus, Oleaceae	SM	12	2	2	2	2	180	2.2	3	/	Normal	10 - 20	Part of group of saplings at Field boundary.	C	2
G15	Ash group	SM	< 12	/	/	/	/	200	2.4	/	/	Normal	10 - 20	Group of saplings at boundary, small scale.	C	2
G16	Hawthorn, Hazel & Elder group	M	< 3	/	/	/	/		0.0	0	/	Normal	10 - 20	Offsite/outside fence line at boundary with road, formally managed.	B	2
T51	Beech; Fagus, Fagaceae	M	16	8	7	6	6	920	11.0	/	/	Normal	20 - 40	One of the larger street trees	B	2
T52	Lime; Tilia, Tiliaceae	M	16	4.5	4.5	4.5	4.5	850	10.2	/	/	Normal	20 - 40	One of the larger street trees	B	2
T53	Lime; Tilia, Tiliaceae	M	16	5	5	5	5	750	9.0	/	/	Normal	20 - 40	One of the larger street trees, epicormic growth at base.	B	2

KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Tree Condition Category

A

B

C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'

Indicative

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REV.	DESCRIPTION	DWN	CHK'D	DATE
/	Proposed scheme overlay for review	TB	AT	09/07/24
/	Proposed scheme overlay for review	TB	AT	23/02/24
.23	2023 survey update	TB	AT	22/09/23

CLIENT

CALA Homes
(South Home Counties) Ltd

PROJECT

18538.23
Land north of Coxbridge Farm
West Street, Farnham, GU9 7AS

TITLE

Tree Constraints Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	13/11/2018	TB	14/11/2018			1:500

Indigo Surveys Ltd
Unit8 Second Floor, 1 Hunter's Walk, Canal Street, Chester, CH1 4EB
Telephone: 0333 123 7080 www.indigosurveys.co.uk

Drawing Number

18538.23/TCP/01

AO

REV. /

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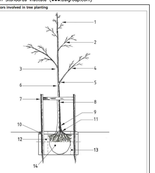
Tree Planting – Example Design
(c) British Standards Institute (www.bsigroup.com)

Figure 7.8 Factors involved in tree planting



Key
1 Straight leader
2 Formative pruning, as necessary
3 Size
4 Lateral branch subordination, as necessary
5 Branch union with no included bark
6 Height:stem diameter ratio
7 Stake(s)
8 Clear stem
9 Budding/fit union
10 Mulch
11 Root flare
12 Irrigation
13 Soil volume
14 Type and condition of root system

Sensitive Ground Works – only to be undertaken once construction is complete, then prepare grounds manually stripping the existing soil surface and turf only, retain soil levels, use load bearing system (Cellweb/Geocell or similar), manual installations and preferably a permeable surface treatment.

Ground Protection – supplementary ground protection is to be installed for exposed soft surfaces within RPAs outside of PBF, to remain in place for the duration of construction.

KEY
- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.

Tree Condition Category
- A
- B
- C
- U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'

TREE PROTECTION LEGEND –
- Tree Removal(s)
- Protective Barrier Fencing (PBF)

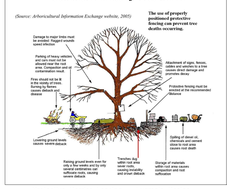
Indicative

Tree Removal(s) – G1, G2, part of G3, G4, part of G9, part of G10, part of G11, part of G12 and part of G16 to be removed to facilitate the scheme, and T7 and T8 to be removed as part of H&S tree risk management; replacement tree detail to be included within the landscape scheme.

Protective Barrier Fencing (PBF):
Heras panels to be installed (as per the illustration on this plan) with tree protection signs, to be fixed in place for the duration of site works for tree protection and to remain until construction completion.

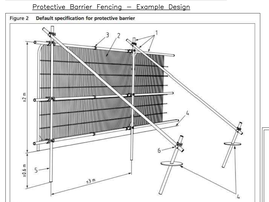
Common causes of Tree Death

(Source: Arboricultural Information Exchange website, 2005)



Protective Barrier Fencing – Example Design

Figure 2 Default specification for protective barrier



Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps



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REV.	DESCRIPTION	DWN	CHK'D	DATE
B	Revised scheme	TB	AT	09/07/24
B	Updated Tree Protection for T46	TB	AT	16/05/24
A	Updated sensitive ground works for T46	TB	AT	14/05/24
/	Uses TCP as base	TB	AT	23/02/24

CLIENT
CALA Homes
(South Home Counties) Ltd

PROJECT
18538.23
Land north of Coxbridge Farm
West Street, Farnham, GU9 7AS

TITLE
Tree Protection Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	12/11/2018	TB	16/11/2018			1:500

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Drawing Number
18538.23/TPP/01
A0
REV. C

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