MARK WELBY
CONSULTING ARBORISTS

Arboricultural Impact Assessment

Fernbank, Borden Lane, Borden, Milland, West Sussex, GU30 7JZ

Reference: MW.2402.FBW.AIA
Client: Mr A Bruce
Date: 29 February 2024

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Arboricultural ASSOCIATION Fellow Member

Executive Summary

Trees are a consideration in this planning application for a pool and a structures. Therefore, this report has been drafted to provide the information required enable the local planning authority to meet the duty placed upon them by section 197 the Town and Country Planning Act (as amended, 2021).

Included are a BS5837:2012 compliant tree survey, arboricultural impact assessment, and tree protection strategy that includes a method statement and tree protection plan.

Two trees and one group are to be removed to facilitate the proposals. All are c quality and value.

The new pool construction is situated outside the root protection areas of all reta trees.

Provided the protection strategy is implemented as outlined, I believe this applicatior of low arboricultural impact, and thus acceptable.

Table of Contents

1. Instructions and Terms of Reference

1.1. In February 2024, I was instructed by Peter Finch of Rathbone Miller, on behalf of Mr AL Bruce, to undertake a tree survey and to produce this report to accompany a pl application for a new swimming pool and associated structures at Fernbank, Borden Lar Borden, Milland, West Sussex, GU30 7JZ.

1.2. Following the recommendations of the British Standard[1], this report includes the necessar information to enable the local planning authority to meet the duty placed upon them by section 197 of the Town and Country Planning Act (as amended, 2021).

1.3. It demonstrates that the impact, both direct and indirect, of the proposal, has been assessec and where appropriate, mitigation, compensation and tree protection proposed.

1.4. Correct implementation of the tree protection specified within this report is critical for ensuring the retained trees are successfully protected throughout the construction process.

1.5. The assessment considers the impact of the proposal on the constraint presented by tre retained within the site, and those on adjacent land. Such impact can be caused dir through construction damage and indirectly from post-development resentment and pressure to detrimentally prune or remove the trees. The latter is often due to a poor juxtaposition between the proposal and the trees.

1.6. The root protection area (RPA) for each tree represents a minimum area in m² that shall be left undisturbed around each retained tree. This is initially represented by a cir fundamentally an area of rooting volume. This is often adjusted to account for constraints to root growth within the site (primarily highways and buildings). Recommendations are provided in the British Standard as to the protection of existing trees during the construction process. This is achieved by ensuring a tree protection strategy is implemented before any demoliti construction on site.

Documents Supplied

- Proposed: 22500 - 103 proposed elevtions PRELIM 23 01 24.pdf
- Site survey: 22500 topo.dwg

Statutory Legislation

1.7. According to Chichester District Council's online service[2], there are no tree preservation orders on the site (checked at the time of writing), nor is the site within a conservation area.

[1] BS5837:2012 Trees in relation to design, demolition and construction

[2] http://mydistrict.chichester.gov.uk/mycdc.aspx

2. Tree Survey Scope & Methodology

2.1. Tree survey data can be found on the appended plan.

2.2. The tree survey has been carried out following the recommendations of The British Standard and the trees are assessed objectively and without reference to any site layout proposa Categories are based on each tree's health and condition, together with an assessment of its life expectancy if its surroundings were to be unchanged.

2.3. The reference numbers of surveyed trees and groups of trees are shown on the tree reference plan, which is appended to this report and based on the supplied survey drawing. S locations within groups may be estimated, and indicative of canopy only.

2.4. The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment[3] (VTA) method.

2.5. Where trees are located on neighbouring land, an estimated appraisal of their quality a dimensions has been made.

2.6. Where stems or branches are obscured by ivy or other materials a full assessment of thos parts will not be possible.

2.7. Tree heights were measured with a clinometer or estimated in relation to those measured.

2.8. Trunk diameters are measured at 1.5m above ground level, where this is not possible, the Figure C.1 of the British Standard is followed.

2.9. Tree canopies were markedly asymmetrical, and were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. For the canopies of groups of trees, the maximum radius for each compass point is measured (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).

2.10. All estimated dimensions are noted in the data.

[3] Mattheck, C. & Breloer, H., 1998. The Body Language of Trees: A Handbook for Failure Analysis. London:H.M.S.O.

3. Arboricultural Impact Assessment

Proposal

3.1. The plan is to build a pool and associated pool house/plant room as shown on the appended plan.

Tree Removals

3.2. Two trees and one group of small plum trees are to be removed to facilitate this proposal.

3.3. They are listed on the appended plan and are all of low quality (category C).

Fig 1: Birch #01 to be removed

Fig 2: Apple #03 to be removed

Fig 3: Plum tree group #02 to be removed

Tree Surgery

3.4. There are no plans for any tree surgery work at this stage.

Construction Impact

3.5. It can be seen on the appended plan that all construction is situated outside the RPAs retained trees.

Barrier Type

3.6. As the proposed construction work is comparatively 'low impact', the default British Standard tree protection specification seems somewhat onerous. Therefore, it is my opinion that a adequate level of protection can be provided with a lesser specification.

3.7. Alternative specifications can be found in Appendix i. TPF 2 or TPF 3 are proposed.

Service & Utility Provisions

3.8. There is adequate space to service the site whilst avoiding all RPAs.

Summary

3.9. Provided the tree protection strategy is implemented as outlined in the following met statement, it is my opinion that this application is of **low** arboricultural impact, and thus acceptable.

3.10. Should the council wish to see more onerous tree protection methods, this can be ensured via an appropriately worded planning condition and should not be the basis for a reason for refusal.

4. Arboricultural Method Statement

4.1. The tree protection on this site is subject to implementation as detailed in the following sections.

4.2. The recommendations of the British Standard have been applied where viable. Where deviations from the preferred approach are required, the impact on any retained trees is minimised through a combination of supervision from an arboriculturist and adherence to the associated method statement.

4.3. The strategy must be followed to avoid not only impact upon the trees but to adhere to an planning conditions, once permission is granted.

4.4. The information within this section must be passed to the site foreman and cascaded to a relevant personnel involved in the project.

4.5. Any questions about the content or its implementation shall be directed to Mark Welby Consulting Arborists at 01730 239492 before action is taken.

4.6. A tree protection plan showing the types of tree protection and their locations is appended. It includes the tree survey data, existing site features and the approved construction. The plan must be read in conjunction with this method statement.

Phasing

4.7. It is essential that the following phasing is followed if trees are to be effectively protec throughout construction.

1	Tree removals
2	Installation of protection barriers (Appendix i: TPF 2 or 3)
3	Confirmation that tree protection barriers are installed to be sent to LPA
4	Construction phase
5	Removal of tree protection barriers upon completion of work

Table 1: Timing of operations in relation to trees

4.9. The above has been drafted at the planning stage. Shall any of the protection measures prove incompatible with elements of the build program, contact the project arboriculturist to discuss options.

Pre-start Confirmation

4.10. The most important step in the tree protection process: confirmation that the tree protection barriers are in place must be forwarded to the LPA before any external work starts. This may be a photographic record sent via email.

Construction Exclusion Zone (CEZ)

4.11. The CEZ is a root-sensitive area where construction activities are to be excluded. The default method of doing so is through the installation of tree protection barriers. If construction access is required in the CEZ then ground protection can be used to facilitate this.

4.12. It is the responsibility of everyone engaged in the construction process to respect the t protection measures and observe the necessary precautions within and adjacent to them.

4.13. Inside the exclusion zone, the following shall apply:

- No mechanical excavation whatsoever;
- No excavation by any other means without arboricultural site supervision;
- No hand digging without a written method statement having first been approved by the project arboriculturist;
- No lowering of levels for any purpose (except removal of grass sward using hand tools);
- No storage of plant or materials;
- No storage or handling of any chemical including cement washings;
- No vehicular access (unless ground protection is installed);
- No fire lighting.

4.14. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (includi cement washings), builder's sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees;
- No fire shall be lit such that flames come within 5m of tree foliage.

4.15. Variations from the above may be specified in the following sections of this method statement. This is only acceptable where detailed and will typically be subject to supervision b arboriculturist.

Protection Barriers

4.16. Barriers must be fit to exclude construction activity and appropriate to the degree and proximity of work around the retained tree(s). Barriers shall be maintained to ensure that they remain rigid and complete.

4.17. See Appendix for barrier specifications.

4.18. On this project, types TPF 2 or TPF 3 are to be used.

Ground Protection

4.19. If required to facilitate access within the CEZ (or as shown on the appended tree protectic plan), ground protection is to be installed. If not already included on the tree protection plan, it must be approved in writing by the local planning authority before implementation. The ground protection must be capable of supporting the expected loads and avoiding rutting, compaction and damage to the soil: as advised in section 6.2.3 of the British Standard.

GP1: Tree protection barriers and scaffolc ground protection

GP2: Tree protection barriers & trackmat ground protection

4.20. Stages of ground protection installation:

1. If required, dismantle barriers and re-erect them to protect any newly exposed CEZ not to be covered by ground protection;
2. Any shrubs, saplings or trees to be removed, are to be cut or ground out to just be ground level rather than grubbed or winched out, which can damage the roots of retainec trees;
3. Lay woven geotextile over the existing ground surface by hand;
4. Cover the area with a compressible layer (200mm of woodchip, for example), using hanc tools only;
5. Cover compressible layer with side butting scaffold boards, plywood boards of proprietary trackway/trackmats;
6. Confirm surface is acceptable for use with the project arboriculturist;
7. Area ready for construction access;
8. Any scaffolding required within the area will be erected with the uprights placed on spreader boards;

9. The boarding will be left in place until the construction works are finished.

4.21. A single thickness of boarding laid on the soil surface will provide sufficient protection for pedestrian loads. However, for wheeled or tracked construction traffic movements within the RPA, ground protection will involve the use of temporary geocell/cellular confinement systems, reinforced concrete slabs or track-board systems details of which are to be specified by the project engineer and approved for use by the project arboriculturist and local authority before construction commences.

4.22. Track-boards can be sourced from Trakmats Europe Ltd, 0845 6435388, www.trakmatseurope.com, or groundguards.com

4.23. There is to be no excavation within the ground protection area whatsoever. This includes the installation of services and associated utilities, without prior approval.

Site Induction

4.24. All site staff are to be briefed on the tree protection strategy for the site as part of the genera site induction procedure. This can be carried out by the site manager once he has been briefed by the project arboriculturist.

4.25. In general, this will include the following:

1. Explanation of the purpose of the tree protection barriers and any ground protection
2. Explanation of the demolition procedures near trees
3. Explanation of the sensitive/supervised excavation areas
4. What to do if access is needed within a protected area for any reason
5. What to do if damage occurs to any tree protection barriers and how to contac project arboriculturist if necessary.

Tree Surgery

4.26. Should any pruning work be required, the following must be adhered to once any requis permissions are obtained.

4.27. All work will be carried out under BS3998[4] industry best practice and in line with any works already agreed upon with the council.

4.28. The statutory protection[5] [6] will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other compe persons and recommendations adhered to.

[4] *BS3998:2010- Recommenda4ons for Tree Work.* London: British Standards Institute

[5] *Wildlife and Countryside Act.* (1981) London: HMSO.

[6] *Conserva4on of Habitats and Species Regula4ons (2017)* London: HMSO.

4.29. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.

4.30. All operations shall be carefully carried out to avoid damage to the trees being treate neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

Installation of Underground Services

4.31. Mechanical trenching for the installation of underground apparatus and drainage severs an roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care must be taken in the routeing and metho installation of all underground apparatus. Wherever possible, apparatus must be routed outside RPAs. Where this is not possible, it is preferable to keep the apparatus together in commo ducts. Inspection chambers shall be sited outside the RPA.

4.32. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing must be drawn up in conjunction with the project arboriculturist. In such c trenchless insertion methods shall be used: Microtunnelling, Surface-launched directic drilling, Pipe ramming or Impact moling (see BS5837:2012 Table 3), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavatic using hand-held tools might be acceptable for shallow service runs. If this is the case, following methodology must be followed:

4.33. Stages for installing services:

1. Contact project arboriculturist to hold pre-start site meeting and ‘toolbox’ talk before starting work.
2. Remove just enough tree protection fencing to allow access to the area and faci trenching.
3. Remove any surface vegetation or existing hard surfaces using hand tools.
4. Using an air-pick excavate the trench, keeping to the minimum dimensions required.
5. Roots occurring in clumps of 25 mm diameter and over are encountered they will be retained and kept damp by covering with hessian (re-wetted as required). If required, these shall be severed only following consultation with an arboriculturist; as such roots might be essential to the tree’s health and stability.
6. Feed in services.
7. Backfill the trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported topsoil to BS3882: 2015, firming down with heels.
8. Repeat step 7 until the trench is filled.

9. Re-erect tree protection fencing as per the approved plan.

4.34. The method of excavation above, for trenching within RPAs, is using air excavation. This tool utilises compressed air to remove soil from around tree roots causing minimal damage and can be run off a typical site compressor. I can provide details of contractors supplying air excavation services if required.

4.35. Alternatively, trenchless technology, such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoi almost all impact on the roots of the subject tree. As no access/thrust pits will be located within the RPAs of the subject trees, the need for arboricultural supervision is limited.

4.36. Reference can be made to NJUG Vol 4[7] for guidance, but any approach must be approved by the project arboriculturist and brought to the attention of the local authority tree officer.

5. Limitations of Use and Copyright.

7 National Joint Utilities Group. (2010). Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) –Operatives Handbook. NJUG.

Appendices

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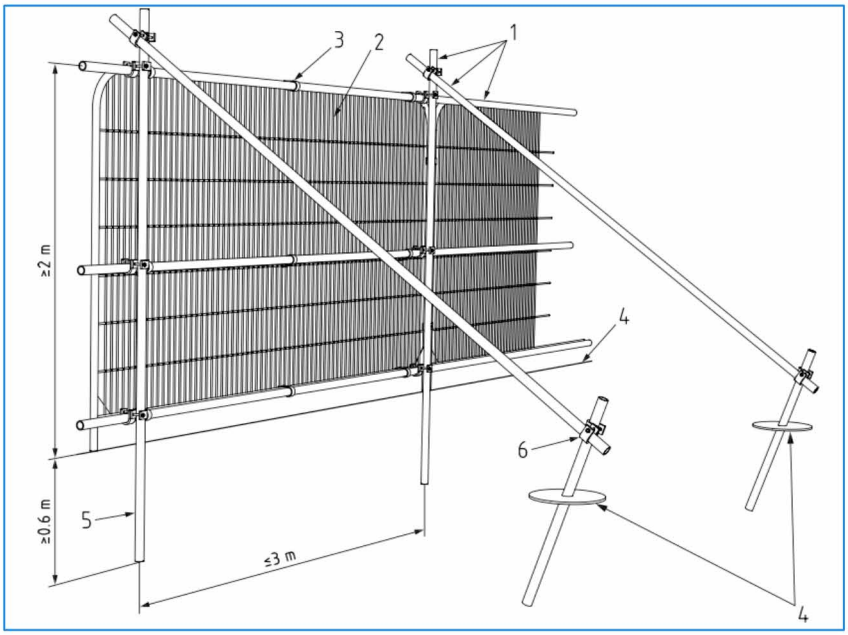
i. Tree Protection Barriers



1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanised tube and welded mesh infill panels
3 panels secured to up rights 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

TPF1: Default specification for protective barrier (Fig 2 from BS5837:2012)

TPF 2: Alternative fencing option: scaffold uprights with backstay

TPF 3:Alternative fencing option: oı
boots with backstay

TPF 4: Plastic barrier for low intensity areas of construction

TPF 5: Chain-link for low intensity areas on large projects

ii. Tree Categories Explained

BS5837:2012 Table 1 -**Cascade chart for tree quality assessment**			
Category and defini6on	**Criteria (including subcategories where appropriate)**		
Trees unsuitable for reten6on (see Note)			
Category U Those in such a condi>on that they cannot realis>cally be retained as living trees in the context of the currer 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 aJ er removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mi>gated 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 beQer quality *NOTE Category U trees can have exis4ng or poten4al conserva4on value which it might be desirable to preserve; see* ***4.5.7.***		
	1 Mainly arboricultural quali6es	**2 Mainly landscape quali6es**	**3 Mainly cultural values, including conserva6on**
Trees to be considered for reten6on			
Category A **Trees of high quality** with an es>mated remaining life expectancy of at least 40 years	Trees that are par>cularly good examples of their species, especially if rare or unusual; or those that are essen>al components of groups or formal or semi-formal arboricultural features (e.g. th dominant and/or principal trees within an avenue)	Trees, groups or woodlands of par>cular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conserva>on, historical, commemora>ve or other value (e.g. veteran trees or wood-pasture)
Category B **Trees of moderate quality** with an es>mated remaining life expectancy of at least 20 years	Trees that migh included in category A, but are downgraded because of impaired condi>on (e.g. presence of significant though remedial defects, includi unsympat he>c past management and storm damage), such that they are unlikely to be suitable for reten>on for beyond 40 years; or trees lacking the special quali necessary to merit th category A designa>on	Trees present in numbers, usually growing as groups or woodlands, such that they aQract a highe collec>ve ra>ng than they might as individuals; or trees occurring as collec>ves but situated so as make liQle visual contribu>on to the wider locality	Trees with material conserva>on or other cultural value
Category C **Trees of low quality** with an es>mated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condi>on that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collec>ve landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with nc material conserva>on or other cultura value

iii. Protection Plan

Plan on following page

BS5837 Tree Survey: Trees & Groups to be Retained

Retained Trees / Groups

Ref	Species	Common Name	Height	Stem Diameter	Canopy NESW	Crown Clearance	Age Class	Observations	Tree Surgery	Est. Remaining Contribution	Date Surveyed	No.	BS Cat
04	Mixed species	Mixed species	6m	150#mm			Mature	Mixed border comprising mostly evergreen: holly, cypress, rhododendron.		10 Years	28/2/2024	1	C2
05	Malus sp.	Apple	3.5m	170#mm	1.5 N 1.5 E 1.5 S 1.5 W	1m	Early-Mature	Unremarkable. Limited value. Ivy clad.		10 Years	28/2/2024	1	C1
06	Pinus sylvestris	Scots pine	15m	740mm	5 N 5 E 5 S 5 W	5m	Mature	Good overall physiological and structural condition.		40 Years	28/2/2024	1	A1
												Total :3	

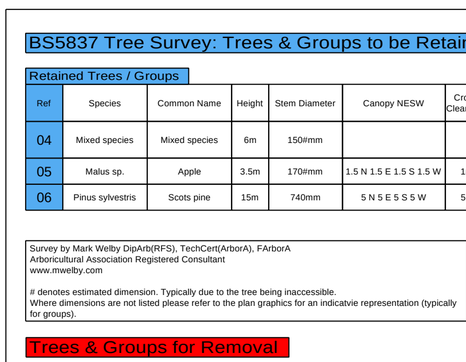
Survey by Mark Welby DipArb(RFS), TechCert(ArborA), FArborA
Arboricultural Association Registered Consultant
www.mwelby.com

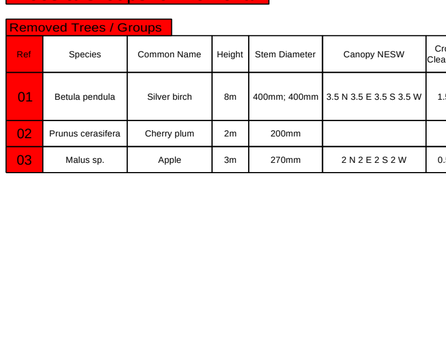
# denotes estimated dimension. Typically due to the tree being inaccessible.
Where dimensions are not listed please refer to the plan graphics for an indicatvie representation (typically for groups).

Trees & Groups for Removal

Removed Trees / Groups

Ref	Species	Common Name	Height	Stem Diameter	Canopy NESW	Crown Clearance	Age Class	Observations	Est. Remaining Contribution	Date Surveyed	No.	BS Cat
01	Betula pendula	Silver birch	8m	400mm; 400mm	3.5 N 3.5 E 3.5 S 3.5 W	1.5m	Mature	Mature specimen with two entwined stems. Heavily crown reduced. Cavities and decay in stems. Limited life expectancy.	10 Years	28/2/2024	1	C1
02	Prunus cerasifera	Cherry plum	2m	200mm			Semi-Mature	Cluster of shrubby stems maintained at 2 m	10 Years	28/2/2024	1	C1
03	Malus sp.	Apple	3m	270mm	2 N 2 E 2 S 2 W	0.5m	Early-Mature	Small fruit tree. Historically reduced now partially regrown.	10 Years	28/2/2024	1	C1
											Total :3	





Construction Exclusion Zone

It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

Inside the exclusion zone, the following shall apply:
- No mechanical excavation whatsoever;
- No excavation by any other means without arboricultural site supervision;
- No hand digging without a written method statement having first been approved by the project arboriculturist;
- No lowering of levels for any purpose (except removal of grass sward using hand tools);
- No storage of plant or materials;
- No storage or handling of any chemical including cement washings;
- No vehicular access;
- No fire lighting.

In addition to the above, further precautions are necessary adjacent to trees:
- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builder's sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees;
- No fire shall be lit such that flames come within 5m of tree foliage.

All weather signs shall be erected at reasonable intervals on the barriers. See example inset

NOTES

This Tree Survey has been undertaken within the recommendations of British Standards 5837:2012 and current arboricultural best practice.
- The reference numbers of surveyed trees and groups of trees are shown. Stem locations within groups may be estimated, and indicative of canopy only
- The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment (VTA) method.
- Where trees are located on neighbouring land an estimated appraisal has been made of their quality and dimensions.
- Where stems or branches are obscured by ivy or other materials a full assessment of those parts will not be possible.
- Height dimensions are estimated and are given in metres.
- Trunk/stem diameters are measured in mm at 1.5 metres above ground level, unless otherwise stated. Where this is not possible, then Figure C.1 of the British Standard is followed..
- Tree canopies, where markedly asymmetrical, were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. For the canopies of groups of trees, the maximum radius for each compass point is measured (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).

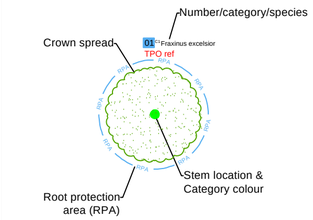
Base plan/site survey reference: 22500 - 103 proposed elevtions PRELIM 23 01 24.pdf

Statutory Tree Protection
Tree Protection Orders: none found with online LPA search

Conservation Area: NO

Felling licence: Garden areas are exempt.

Key



BS 5837:2012 Tree Quality Categories - Table 1

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

CEZ — Construction Exclusion Zone (CEZ)

CEZ extent. To be protected with temporary protective barriers or ground protection to allow construction access. See insets and method statement for details.

Tree to be removed

This plan has been drafted in colour. A monochrome version must not be relied upon

Date|Notes|Rev

N

Tree Protection

Fernbank, Borden Lane, Borden, Milland, West Sussex, GU30 7JZ

Date: 29/02/2024

Scale: 1:200 @A2

DWG Ref: MW.2402.FBW.TPP

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