



Arboricultural Survey and Planning Integration Statement

at

**3-3A Sweetcroft Lane
Uxbridge
Ub10 9LD**

12 April 2018



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ARBORICULTURAL REPORT

LOCATION	3-3A Sweetcroft Lane Uxbridge UB10 9LD	REF: AR-3738bo
CLIENT	Castleoak Group	DATE OF REPORT 12/04/2018
REPORT PREPARED BY	Ben Oates	DATE OF SURVEY 11/04/2018
SURVEY INSPECTOR	Ben Oates	SHEET No. 1 of 7

LOCAL AUTHORITY	London Borough of Hillingdon
CONTACT	Arboricultural Officer – Trevor Heaps

INSTRUCTIONS

Issued by –

Kamal Panesar
Akaal Architecture
Moor House Farm
Lower Road
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Uxbridge UB9 5EN

TERMS OF REFERENCE - To survey the subject trees to assess their general condition and to provide a planning integration statement for the proposed development that safeguards the long-term wellbeing of the retained trees in a sustainable manner.

The content and format of this report as written are for the exclusive use of the client. It may not be sold, lent, hired out or divulged to any third party not directly involved in the subject matter without our written consent.

Summary

The proposal comprises the demolition of the existing front boundary fence and the erection of a front boundary wall with electric gates and soft landscaping.

The tree survey identified six individual trees, all of which are to be retained. None of the trees is to be pruned to facilitate the proposal.

The proposed front boundary wall is within the RPAs of trees to be retained, however, it will be constructed to a minimum dig specification incorporating piles and above ground beams to be designed by a structural engineer in consultation with the arboriculturist.

The trees to be retained will be protected during the demolition of the existing fence and construction of the proposed wall by the installation of ground protection and protective fencing to a specification that complies with BS5837:2012.

Consequently, no trees will be harmed to the extent that the proposal will have a negative impact on the arboricultural character and appearance of the area.

The proposal is, therefore, sustainable in arboricultural terms.

Documents supplied

- Akaal Architecture – Proposed boundary wall layout plan

1.0 Scope of survey

- 1.1 The survey is concerned with the arboricultural aspects of the site only.
- 1.2 Quaife Woodlands was not instructed to investigate the statutory protection status of trees on or adjacent to the subject site, but we are aware that there is a Group (G15) designation tree preservation order (reference TPO 32A) that protects only those tree species listed in the First Schedule of the Order that were growing at the time the Order was made.
- 1.3 I surveyed the trees on Wednesday 11th April 2018, on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (*The body language of trees*, DoE booklet *Research for Amenity Trees No. 4*, 1994).
- 1.4 The survey was undertaken in accordance with British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* (BS5837) with modification.
- 1.5 This report sets out the root protection area (RPA), described by the RPA radius derived from Section 4.6 of BS5837.
- 1.6 Reference is made to the Planning Practice Guidance – Tree Preservation Orders and Trees in Conservation Areas (2014) (PPG - TPO and CA).
- 1.7 This report does not set out the working specifications of tree protection measures and engineering and design features but provides enough detail in principle to demonstrate the feasibility of the scheme.

2.0 Survey method

- 2.1 The survey was conducted from ground level with the aid of binoculars.
- 2.2 No tissue samples were taken nor were any internal investigation of the subject trees undertaken.
- 2.3 No soil samples were taken.
- 2.4 The stem diameters (SD) were measured in millimeters at 1.5 metres above ground level and otherwise in accordance with Annex C of BS5837.
- 2.5 The height of each subject tree was estimated with a clinometer.
- 2.6 At least four crown spread radii were measured in the direction of the cardinal compass points, either with a laser rangefinder or estimated by pacing or visually where access was restricted.
- 2.7 The positions of the subject trees are plotted at Appendix B and C which were derived from the supplied plan. Please note that the attached plans are for indicative purposes only.

3.0 Ecology informative

- 3.1 Bats are protected under the Wildlife & Countryside Act 1981 and subsequent legislation and The Conservation of Habitats and Species Regulations 2010 and it is an offence to deliberately or recklessly disturb them or damage their roosts. Trees should be inspected before any works

commence and if the presence of bats is suspected advice will need to be sought from the Natural England Bat Line on 0845 1300228. Further advice on bats is available from The Bat Conservation Trust (020 7627 2629).

3.2 Tree work should as far as is possible avoid the bird nesting season, which officially (natural England) is from February until August, although the busiest time is from 1st March until 31st July.

3.3 Please also be aware that ecology is governed principally by;

- the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000),
- the Conservation of Habitats and Species Regulations 2010,
- the Wild Mammals (Protection) Act 1996, and
- the Natural Environment and Rural Communities (NERC) Act 2006.

4.0 The site

4.1 The site is situated approximately 600 metres south of Hillingdon Underground station, on the south side of Sweetcroft Lane.

4.2 The site comprises two detached dwelling with a shared access driveway, separate front gardens, and car parking areas.

4.3 At the front of the properties, the topography is flat with brick pavers forming the hard surfacing with an area of lawn to the west and a wood chip bed to the east.

4.4 There are pine and oak trees growing within the soft landscaped areas at the front of the properties.

4.5 The soil parent material is London Clay Formation comprising clay, silt, and sand. Generally, this soil type is a good medium for tree root growth and one would expect a normal root distribution where not impeded by the soil characteristics and subterranean obstructions. As the underlying soil is a shrinkable and susceptible to compaction, which is harmful to tree roots.

4.6 I am not an expert on soils and although I have some working knowledge of them, if accurate soil analysis is required then a soil specialist should be contacted.

5.0 The trees

5.1 The tree survey identified six individual trees growing within or immediately adjacent to the site, the details of which are listed in the table at Appendix A.

5.2 I have summarised the BS5837¹ categories of the subject individual trees in Table 1 overleaf.

¹ BS5837:2012 Tree Categories

U – Existing condition is such that any existing value would be lost within 10 years and should, therefore, be removed for reasons of sound arboricultural management.

A – High quality and value (40+ yrs).

1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values including conservation.

B – Of moderate quality and value (20+ years).

1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values including conservation.

C – Those of low quality and value (10+ years).

Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm could be considered for relocation.

Table 1. Individual trees – species and categories

Species	A	B	C	U	Totals
Corsican pine	1	2	0	0	3
English oak	0	2	0	0	2
Hornbeam	0	0	1	0	1
Total	1	4	1	0	6

6.0 The proposal

- 6.1 The proposal comprises the demolition of the existing front boundary fence and the erection of a front boundary wall with electric gates and soft landscaping.

7.0 Arboricultural landscape integration

- 7.1 No trees are to be removed to facilitate the proposal.
- 7.2 No trees are to be pruned to facilitate the proposal.
- 7.3. The proposed wall will be constructed to a minimum dig specification incorporating the use of piles and above ground beams, or beams set into the existing ground level no deeper than 50mm to minimise the potential for severing tree roots that are important for the health and stability of the trees to be retained.
- 7.4 The specification for the wall foundations will be designed by a structural engineer in consultation with the arboriculturist.

8.0 Tree protection measures

- 8.1 The BS5837 gives a Root Protection Area (RPA) for each retained tree by reference to Section 4.6 in the BS. The RPA is an estimation of the area of the root system that would need to be retained to sustain the condition of the tree if all the other roots outside it were to be severed. The RPA represents a smaller proportion, (on average only a third), of a tree's root system and consequently whilst the RPA is particularly important to ensure that there are no adverse effects upon stability, if an encroachment does not reduce the overall assimilative function of the root system significantly it is unlikely to cause harm. However, as with any factor relating to trees, each individual situation must be justified in site-specific terms.
- 8.2 The RPA is usually described as a circle with a radius (Root Protection Area Radius (RPR)) of the prescribed distance within which no unspecified activity should occur, though the shape and position of the RPA can be modified by an arboriculturist to meet individual site conditions according to the probable distribution of the tree roots. Intrusion into the RPA can take place only where the ground is adequately protected in accordance with the requirements of Section 6.2.3 of BS5837 or where work is carried out to an agreed design and working method.
- 8.3 Quaife Woodlands uses a tabular method to derive rounded-up RPA radii in half-metre graduations. I have drawn a peripheral line of what I regard as an all-encompassing RPA as shown on the Tree Protection Plan at Appendix C.
- 8.4 **Tree Protection Plan** The TPP at Appendix C shows the general and specific provisions to be taken during construction of the proposed development, to ensure that no unacceptable damage is caused to the root systems, trunks or crowns of the trees identified for retention. These measures are indicated by coloured notations in areas where construction activities are to occur either within, or in proximity to, retained trees, as described in the relevant panels on the drawing.

- 8.5 **Pre-commencement meeting** Prior to the demolition of the existing fence and the commencement of any construction works the builder will convene a pre-start site meeting. This shall be attended by the builder and the arboriculturist. The LPA tree officer will be invited to attend. At that meeting, contact numbers will be exchanged, and the methods of tree protection shall be fully discussed, so that all aspects of their implementation and sequencing are made clear to all parties. Any clarifications or modifications to the TPP required as a result of the meeting shall be circulated to all attendees.
- 8.6 **Tree protection fencing** Construction exclusion zones (CEZs) will be formed by erecting protective fencing around the RPAs of all on-site trees to the specification recommended in BS 5837, Section 6.2, prior to the commencement of construction. This will be at least 2.1m in height, comprising welded mesh panels; every other one braced with a 45° strut that is pinned to the ground; and seated in concrete or plastic bases pinned to the ground by road pins or similar sunk to a minimum depth of 600mm, as shown in Figure 3 of that document. Individual panels will be fixed to each other with at least two clamps, one of which will be a security clamp. "TREE PROTECTION ZONE - KEEP OUT" or similar notices will be attached with cable ties to every third panel.
- 8.7 The RPAs of the off-site trees will also be enforced by the erection of protective fencing to the same specification, prior to the commencement of construction, thereby safeguarding them from incursions by plant or machinery, storage, and mixing of materials, or other construction-related activities which could have a detrimental effect on their root systems.
- 8.8 The recommended positions of the protective fencing are shown by bold blue lines on the TPP. The precise positioning of the fencing around the trees will be considered in conjunction with any other protective hoarding/fencing which may be required around the site boundary.
- 8.9 Within the CEZs safeguarded by the protective fencing, there will be no changes in ground levels, no soil stripping, and no plant, equipment, or materials will be stored. Oil, bitumen, diesel, and cement will not be stored or discharged within 10m of any trees. Areas for the storage or mixing of such materials will be agreed in advance and be clearly marked. No notice boards, or power or telephone cables, will be attached to any of the trees. No fires will be lit within 10m of any part of any tree.
- 8.10 **Ground protection** To allow space for construction and protection from soil compaction where the construction of the wall is within RPAs of trees to be retained, the ground between the protective fencing and the footings of the wall will be covered by appropriate ground boarding, in accordance with the guidelines of Section 6.2.3.3 of BS 5837. The locations where these measures will be required are marked by pink hatching on the TPP.
- 8.11 For purely pedestrian traffic, heavy duty plywood or scaffold boards (or similar) will be used. Scaffold boards will comply with British Standard BS 2482: 2009 *Specification for timber scaffold boards* and be at least 225mm in width and 38mm thickness; they will be butted up and attached to each other with wooden battens or metal tie straps, and laid either on an above-ground scaffold framework, or secured to the ground with steel pins above a compressible material (a 75mm deep layer of wood chips may be appropriate) laid on top of a geotextile membrane of an appropriate specification.
- 8.12 For wheeled or tracked traffic, ground boarding will be designed by a structural engineer, to take account of the type of soil and the likely loadings. Temporary aluminium roadway ('Trakway' or similar), interlocking plastic tread boards ("Ground-Guards" or similar), or reinforced concrete slabs may be appropriate. These will also be laid on top of a compressible material above a geotextile membrane.
- 8.13 **Manual excavation within RPAs** The first 750mm depth of excavations required within the RPAs of the trees to be retained (as shown by bold yellow lines and hatching on the TPP) will be dug by hand, using a compressed air soil pick if appropriate, and under on-site arboricultural supervision,

in order to safeguard against the possibility of unacceptable root damage being caused to these specimens. Any roots encountered of over 25mm diameter will be cut back cleanly to the face of the dig nearest to the tree, using a sharp handsaw or secateurs, and their cut ends covered with hessian to prevent desiccation.

9.0 Conclusions

- 9.1 No trees are to be removed or pruned to facilitate the proposal.
- 9.2 The wall will be constructed to a minimum dig specification using piles and above ground beams to be designed by a structural engineer.
- 9.3 The trees to be retained will be protected by the installation of ground protection and protective fencing that complies with the recommendations of BS5837:2012.
- 9.4 Consequently, no trees will be harmed to the extent that the proposal will have a negative impact on the arboricultural character and appearance of the area.
- 9.5 The proposal is, therefore, sustainable in arboricultural terms.
- 9.6 I have taken account of the information provided and my own observations on site and I am satisfied that this scheme is arboriculturally sound and that the long-term wellbeing of the retained trees will be safeguarded in a sustainable manner.

10.0 Recommendations

- 10.1 The successful integration of the proposal with retained trees will need to take account of the following points:
 - i) Design of the minimum dig pile and above ground beam foundation of the proposed wall.
 - ii) Implementation of the tree protection measures and methods set out in this report.
 - iii) Site supervision – Following an induction meeting conducted by the project arboriculturist with all those involved in attendance, an individual, e.g. the site agent, will be nominated to be responsible for all arboricultural matters on site. This person must:
 - a) be present on site for the majority of the time,
 - b) be aware of the arboricultural responsibilities,
 - c) have the authority to stop any work that is causing, or has the potential to cause harm to any tree,
 - d) be responsible for ensuring that all site operatives are aware of their responsibilities toward trees on site and the consequences of any failure to observe those responsibilities,
 - e) make immediate contact with the local authority and/or the project arboriculturist in the event of any tree related problems occurring, whether actual or potential.
- 10.2 As a matter of course these points will be resolved in consultation with and subject to the approval of the planning authority through its arboricultural officer.
- 10.3 The sequence of works should be as follows:
 - i) installation of the tree protection measures,

- ii) site preparation,
- iii) installation of underground electricity cable,
- iv) construction of the front boundary wall,
- v) removal of the tree protection measures,
- vi) soft landscaping.

The statements made in this report do not take account of the effects of extremes of climate, vandalism or accident, whether physical, chemical or fire. Quaife Woodlands cannot, therefore, accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner in accordance with current good practice. The authority of this report ceases at any stated time limit within it, or if none stated after two years from the date of the survey or when any site conditions change, or pruning or other works unspecified in the report are carried out to, or affecting, the subject trees, whichever is the sooner.

TREE SURVEY SCHEDULE KEY

Tree No.	Tree reference number.				
Height	Tree Height in metres.				
Stem diameter	Stem diameter in millimetres at 1.5 metres above ground level or otherwise in accordance with Annex C of BS5837.				
Crown spread N-E-S-W	Branch spread in metres to the four compass points.				
Crown clearance	Height of lowest foliage above ground level.				
Crown break	Height in metres of lowest branch above adjacent ground level.				
Age class	Young.	Semi-mature.	Mature.	Over-mature.	Veteran.
Physiological condition	Good	Fair	Poor	Dead	
Structural condition	Good	Fair	Poor	Hazardous	
Arb. quality	High	Moderate	Low		
Landscape value	High	Moderate	Low		
BS5837:2012	Categories:				
	U – Existing condition is such that any existing value would be lost within 10 years and should therefore be removed for reasons of sound arboricultural management.				
	A – High quality and value (40 + yrs).				
	1) Mainly arboricultural values	2) Mainly landscape values	3) Mainly cultural values incl. conservation.		
	B - Moderate quality and value (20+ years).				
	1) Mainly arboricultural values	2) Mainly landscape values	3) Mainly cultural values incl. conservation.		
	C – Low quality and value (10+ years).				
	Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.				
RPA Radius	Root protection radius in metres.				

Tree No.	Species	Height	Stem diameter	Crown spread	Crown clearance	Crown break	Age class	Physio-logical condition	Structural condition	Arb. quality	Landscape value	BS cate gory	RPA Radius	RPA area	Observations
T1	Corsican pine (<i>Pinus nigra</i> var. <i>Maritima</i>)	20m	670mm	N5m E6.5m S4m W5.5m	7m	8m	Mature	Good	Good	High	High	A (12)	8.0m	203.1m ²	Front garden tree; readily visible from the road; makes a positive contribution to the character and appearance of the immediate area; significant disruption to the block pavers driveway; previously crown reduced back from the house; no obvious sign of any significant structural or physiological defects.
T2	Corsican pine (<i>Pinus nigra</i> var. <i>Maritima</i>)	19m	455mm	N2m E4m S4m W1.5m	SE 6m	SE 7.5m	Mature	Good	Fair	Moderate	Moderate	B (2)	5.5m	93.7m ²	Front garden tree; readily visible from the road; makes a positive contribution to the character and appearance of the immediate area; significant disruption to the block pavers driveway; no obvious sign of any significant structural or physiological defects; trunk sweeps to east from ground level to 8m and corrects to vertical.
T3	Corsican pine (<i>Pinus nigra</i> var. <i>Maritima</i>)	20m	600mm	N5m E6m S7m W5m	8m	W 8m	Mature	Fair	Good	Moderate	High	B (2)	7.2m	162.9m ²	Front garden tree; readily visible from the road; makes a positive contribution to the character and appearance of the immediate area; no obvious sign of any significant structural or physiological defects; slightly sparsely foliated.
T4	Hornbeam (<i>Carpinus betulus</i>)	7m	2 stems @ 250mm est	N5m E4m S3m W4m	E 2m	3m	Young	Poor	Poor	Low	Moderate	C (123)	4.2m	56.5m ²	Off-site tree; twin stemmed from base; tight compression fork with included bark; dieback at top of crown.
T5	English oak (<i>Quercus robur</i>)	16m	505mm	N2m E5m S5m W6m	3m	3m	Semi-mature	Good	Good	Moderate	High	B (12)	6.1m	115.4m ²	Front garden tree; readily visible from the road; makes a positive contribution to the character and appearance of the immediate area; no obvious sign of any significant structural or physiological defects; asymmetric crown as suppressed by adjacent off-site tree; significant disruption to the block pavers driveway.
T6	English oak (<i>Quercus robur</i>)	17m	610mm	N8m E4.5m S3m W10m	3m	NW 5m	Semi-mature	Good	Fair	Moderate	High	B (12)	7.3m	168.3m ²	Off-site tree; readily visible from the road; makes a positive contribution to the character and appearance of the immediate area; previously crown reduced back from the house; no obvious sign of any significant structural or physiological defects.

BS5837:2012 tree categories

Trees are categorised in accordance with the cascade chart in Table 1 of the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Category 'A' - Trees of high quality with an estimated remaining life expectancy of at least 40 years.



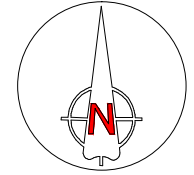
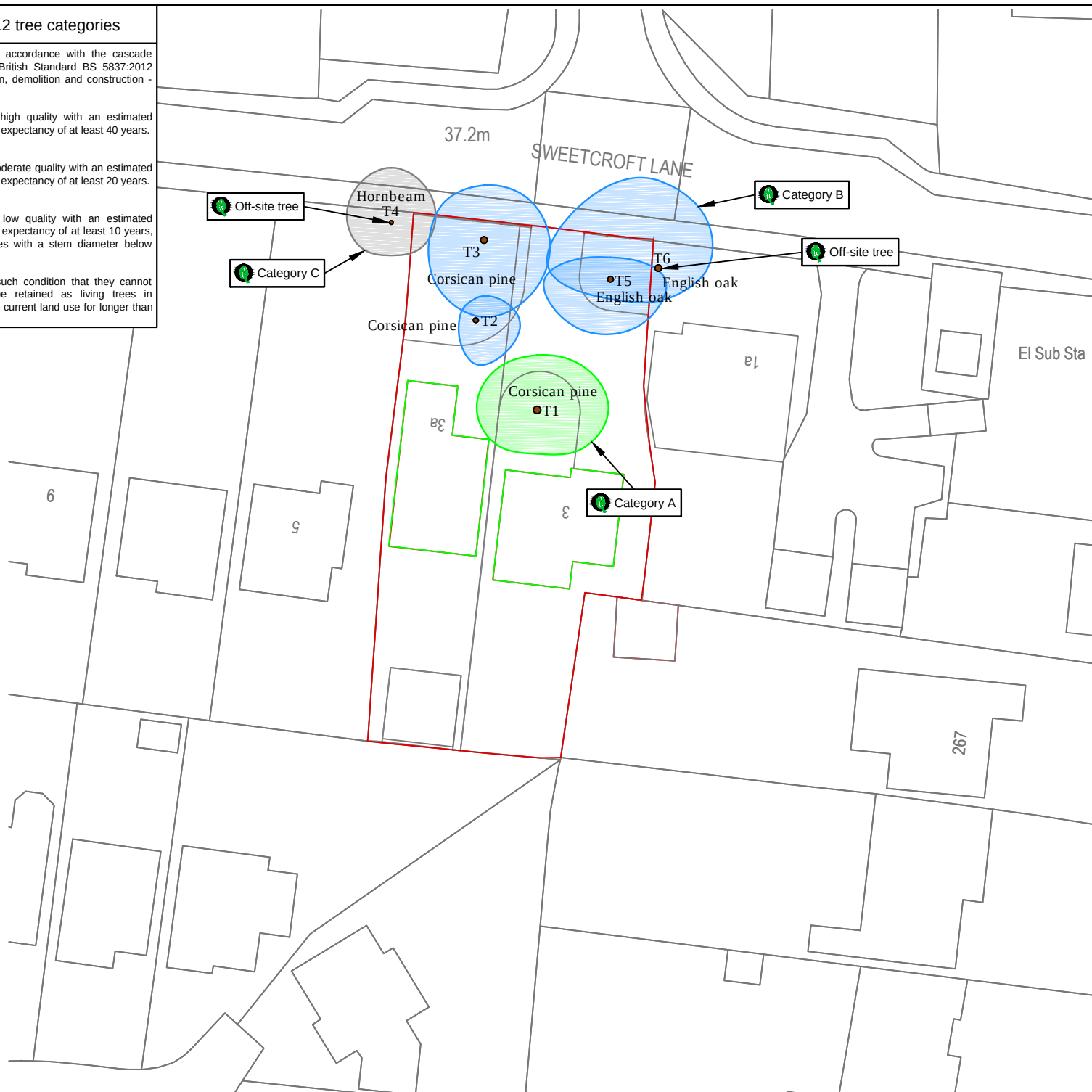
Category 'B' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.



Category 'C' - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

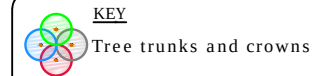


Category 'U' - Trees in such condition that they cannot realistically be retained as living trees in context of the current land use for longer than 10 years.



0m 4m 8m 12m 16m 20m

Appendix B



KEY

Tree trunks and crowns

BS5837 category colours

- A - highly desirable for retention
- B - desirable for retention
- C - of no merit, could be retained
- U - unviable beyond 10 years

DO NOT SCALE FROM DRAWING



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TITLE: Tree Survey Plan
with BS5837 tree categories

SITE:
3-3A Sweetcroft Lane
Uxbridge
UB10 9LD

DWG NO: AR-3738bo app B TSP-01
SCALE: 1:500
DATE: 12/04/2018
REV: PAPER: A4
DRAWN: BO

BS5837:2012 tree categories

Trees are categorised in accordance with the cascade chart in Table 1 of the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Category 'A' - Trees of high quality with an estimated remaining life expectancy of at least 40 years.



Category 'B' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.



Category 'C' - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.



Category 'U' - Trees in such condition that they cannot realistically be retained as living trees in context of the current land use for longer than 10 years.



Root protection areas

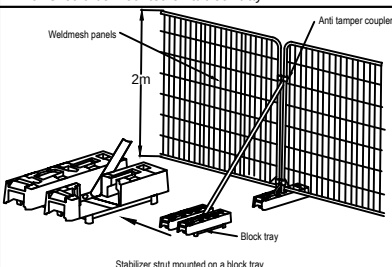
In order to avoid damage to the roots or rooting environment of retained trees, the root protection areas (RPAs) should be plotted around each of the category A, B, C and U trees. This is a minimum area in m² which should be left undisturbed around each retained tree.

The RPA is calculated using the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

The calculated RPA is capped to 707m², which is the equivalent to a circle with a radius of 15m. Where there appears to be restrictions to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

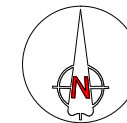
Tree protection fencing

To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabiliser struts, which should be mounted on a block tray.



Ground protection

To be installed prior to any demolition or construction works. If for pedestrian traffic then heavy-duty wooden boards or scaffold planks laid over a compressible layer such as 75mm of woodchip; the whole underlain by heavy-duty polythene sheets. If for vehicular traffic then a temporary roadway should be used which has been designed by a structural engineer to cope with anticipated loading. A proprietary system such as 'Trakway' or 'GroundMatz' may be appropriate. All should be laid above a compressible layer, such as woodchip, of sufficient depth to dissipate any loading.



Appendix C

0m 4m 8m 12m 16m 20m

KEY

- Tree trunks and crowns
- Root protection area (RPA)
- Tree protection fence
- Temporary ground protection
- Supervised excavation

BS5837 category colours

- A - highly desirable for retention
- B - desirable for retention
- C - of no merit, could be retained
- U - unviable beyond 10 years

DO NOT SCALE FROM DRAWING



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TITLE: Tree Protection Plan
BS5837:2012 compliant

SITE:
3-3A Sweetcroft Lane
Uxbridge
UB10 9LD

DWG NO: AR-3738bo app C TPP-01

SCALE: 1:500

DATE: 12/04/2018

REV:

PAPER:

A4

DRAWN:

BO