OAKWOOD

TREE CONSULTANTS

ARBORICULTURAL IMPACT ASSESSMENT

in relation to proposed development at:

Land North of Lake Lane
Barnham
Bognor Regis
PO22 0AJ

Reference: 2409/67/AIA

14 November 2024

Prepared by:

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Please note that abbreviations introduced in [square brackets] are used throughout this report

INTRODUCTION

1.0 Instructions:

1.1 I am instructed by Mr Mark Folkes on behalf of Property Sphere Development Limited to undertake an arboricultural impact assessment in relation to the proposed development of an area of land located to the north of Lake Lane Barnham. This will involve:

- A survey of the significant trees on or adjacent to the site following the principles set out in British Standard 5837:2012 'Trees in relation design, demolition and construction - Recommendations'
- Assessing their suitability for retention in relation to the development of the site
- Where appropriate, making preliminary recommendations for tree management
- Identifying the constraints that those trees worthy of retention may present in relation to development
- Assessing the likely impact of the proposed development on trees

2.0 Plans and Documents Provided:

2.1 I have been provided with the following plans:

- Topographical Survey, drawing number 22071/2.01
- Proposed Site Plan, drawing number 22071/2.02 (rev C)

2.2 The tree positions shown on the Tree Survey and Constraints Plan are based on the Topographical Survey.

TREE SURVEY

3.0 Tree Survey

3.1 A survey of existing trees was carried out on 26 September 2024 by Nick Beardmore F.Arbor.A.

3.2 The survey identified twenty-two individual trees and five tree groups, either located within the site or within adjoining properties close to the site boundary.

3.3 Those trees included in the survey are listed in the schedule that can be found at Appendix 1 together with a survey key. Their positions are shown on the Tree Constraints Plan (ref 2409/67/TCP) that accompanies this report.

3.4 The tree survey follows the format recommended within BS5837 and includes an assessment of the retention value of each individual tree or tree group based on the criteria provided within Table 1 (Appendix 2). The following table provides an overview of the number of trees in each retention category.

BS5837 Cat.	Identifying Colour	Individual trees	Tree Groups	Total	Comments
A		1	0	1	
B		11	1	12	
C		10	4	14	
U		0	0	0	
Total		**22**	**5**	**27**	

3.5 The spread of Ash Dieback Disease throughout the UK is having a devastating impact on the species. Research suggests that as much as 80 to 90% of the ash population may be lost to the disease in coming years. In many cases it is however too early to predict with confidence which trees might show resistance and may perhaps survive. The categorisation of the ash trees is therefore based on their condition at the time of survey without attempting to predict their possible decline due to the disease.

3.6 Explanatory notes regarding the scope and limitations of the tree survey are also provided at Appendix 1.

4.0 Preliminary Management Recommendations

4.1 In accordance with guidance provided within BS5837 the tree survey schedule includes preliminary recommendations for works that should be considered in the interests of good arboricultural practice.

4.2 In this case, a willow, T9, located in the adjoining property to the east, has a split limb that has fallen into the site. It is recommended that the owner is advised of the tree's condition. At a minimum, the branch should be cut back to the boundary.

4.3 All tree works should be carried out in accordance with British Standard 3998: 2010 'Tree work - Recommendations' and by a suitably qualified and insured tree contractor.

4.4 Where trees are the subject of a Tree Preservation Order (TPO) or if the site lies within a Conservation Area (CA) it is usually necessary to seek consent from the local planning authority before works are carried out. Certain works, such as the removal of deadwood and the severance of ivy do not require formal consent.

4.5 It should be borne in mind that bats and many birds (including their nests) are designated as protected species under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under European Legislation by the Conservation of Habitats Regulations 2010. It is therefore essential that works are carefully timed to avoid disturbance to protected species. In particular, it may be necessary for an assessment of potential existing habitats to be carried out prior to tree works commencing.

5.0 Tree Constraints

5.1 The data collected during the tree survey provides the basis for identifying the above ground or below ground constraints that may be imposed on the site by those trees worthy of retention.

5.2 Below ground constraints are indicated by the root protection area [RPA] for each tree which is calculated following guidance provided within BS5837. The RPA is the minimum recommended area in square metres that ideally should be left undisturbed around each tree to be retained to ensure that damage or disturbance to its roots or the rooting environment is avoided.

5.3 In the case of open grown trees with an even, radial root distribution it would be normal for the boundaries of the RPA to be equidistant from the stem of the tree. BS5837 however acknowledges that actual root growth can be significantly influenced by specific tree and site factors. These factors are to be assessed by the Arboriculturist and appropriate adjustments to the disposition of the RPA should be made without reducing the area.

5.4 The RPA for each retained tree is detailed in Appendix 3 and shown on the Tree Survey and Constraints Plan as red dashed polygons. Where offsetting is considered appropriate it is specifically noted.

5.5 In this case, it is possible that the compacted access road will have caused trees T2 and G3 to be more dependent on the soils within the garden in which they are growing. It is unlikely however to be to a significant extent therefore no off-setting of their RPAs is shown.

5.6 Above ground constraints are indicated by:

- the tree canopy outline shown on the tree survey plan
- the crown clearance height recorded in the tree schedule

ARBORICULTURAL IMPACT ASSESSMENT

6.0 Proposed Development

6.1 The proposed development involves the demolition of the existing stables and any other structures on the site and the construction of seven detached dwellings with either attached garages or car ports.

6.2 The existing access off Lake Lane will be retained and improved.

6.3 An attenuation pond will be created in the north of the site as part of the post-construction landscaping.

6.4 No specific information regarding new underground services has been provided however it is anticipated that these will be routed via the existing vehicular access.

7.0 Principal Issues Relating to Trees

Tree Removals and Pruning to Facilitate the Development:

7.1 The development will require the removal of one tree, a small and insignificant goat willow, T22. All other trees will be retained.

7.2 To provide clearance for construction works adjacent to Plot 7 the east side of the canopies of trees T18, T19 and T20 shall be pruned back by approximately 2.5m. In addition, the very misshapen canopy of tree T21 shall be reduced on the east side by approximately 3.5 to 4m.

7.3 The pruning back of the split branch in the west side of the canopy of T9 is recommended for arboricultural reasons. These works will take the canopy back behind the east edge of the proposed access road. Minor pruning will also be required to the canopies of T10 and the hawthorn within G7 to provide a clearance from the access of around 1m.

7.4 None of the required tree works will have a measurable impact on the current level of landscape contribution made by trees either from within the site or from adjacent properties.

Works Within or Adjacent to RPAs:

7.5 The proposed dwellings have been positioned so that any direct impact on the root protection areas of retained trees is avoided.

7.6 There will be a minor incursion into the RPA of the willow tree, T9, to accommodate the access road. This incursion will amount to around 4.5% of the surface area of the RPA. Bearing in mind that access will be a relatively shallow construction, and can be laid largely above the existing surface, there should be negligible impact on the tree.

7.7 A similar incursion will be required into the southernmost tree in G4 for the car port that forms part of Plot 2. Again, as this is a lightweight structure with a shallow base, there will be no lasting impact on the tree.

7.8 The location of the car port attached to Plot 7 will necessitate an incursion into the RPA of and adjacent tree, in this case, T18. The car port will occupy less than 2% of the RPA and will again be a lightweight structure with minimal, if any, impact on the tree.

7.9 The installation of new services out to Lake Lane do have the potential to cause harm to trees T2 and G3 if not carefully planned and implemented. To minimise disturbance to their roots, services shall be laid as close to the west side of the access as possible. In addition, excavations within RPAs shall be carried out by hand under the supervision of a suitably qualified arboriculturist.

7.10 Any improvement or resurfacing of the existing driveway from the main part of the site to Lake Lane can be achieved by building above the existing, compacted surface thus minimising any change to the existing growing conditions to which the adjacent trees are accustomed.

7.11 As with all construction works where trees are present, there will be some risk of indirect harm to trees by ancillary works such as the delivery and movement of materials and the use of any toxic substances such as cement. Again, these risks can be significantly reduced by the strict adherence to specific tree protection measures.

Post-development Pressures:

7.12 With all the existing trees being located around the periphery of the site, there will be ample separation between them and all the proposed dwellings. In most cases, the buildings will enjoy uninterrupted daylight throughout the day.

7.13 Whilst there are established trees to the west of Plot 7, the building is orientated so that its principal outlooks are to the north and south, away from the canopies of the trees. It will be exposed to uninterrupted daylight from the east, south and south west. This relationship should not lead to any significant pressures for the removal or excessive pruning of trees.

8.0 Conclusions

8.1 Of the twenty-seven trees and tree groups surveyed, the proposed development will necessitate the removal of just one insignificant category C tree. Minor pruning will be required to the canopies of six trees.

8.2 The overall impact on the contribution made by trees to the wider landscape will be negligible. There is ample scope to supplement existing tree cover with additional planting as part of post-development landscaping.

8.3 The incursions into root protection areas to accommodate the driveway, the two car ports and new services are quite negligible and well within tolerable levels. Any harm to roots can be reduced by the use of specialist construction techniques and careful control of works.

8.4 All retained trees can be fully protected by appropriate tree protection measures that are detailed in the accompanying arboricultural method statement. The method statement addresses the following specific matters in relation to tree protection:

- details of a programme of arboricultural monitoring and supervision of site clearance and construction works including a pre-commencement meeting and process of reporting process.
- the nature and extent of all facilitation tree works
- details of the style and position of tree protection barriers
- the means by which materials will be delivered, transported and stored
- the construction and replacement of hard surfacing near trees
- the methodology for the installation of proposed services

Appendix 1 Tree Survey Explanatory Notes

1. The survey was carried out following guidance provided within in British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' [BS5837]. It is concerned with the arboricultural aspects of the site only and is restricted to trees within the site or those outside the site that may be affected by its re-development. No other trees were inspected.

2. Only trees of significant stature were surveyed. In general, trees with a stem diameter at 1.5m above ground level of less than 75mm have been excluded unless they have particular merit that warrants comment. In general, woody shrub species are not included. Tree positions and the positions of all existing or proposed site features, are based on the provided plans. Any other significant trees that are not shown on the land survey have been plotted as accurately as possible, usually to within one metre.

3. Where access to trees was obstructed or obscured, measurements and dimensions have been estimated. Dimensions of trees within groups are given as an averaged figure unless otherwise stated.

4. Tree condition is assessed from ground level by examination of external features only – described as the 'Visual Tree Assessment' method expounded by Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994).

5. Whilst the assessment of a tree's condition is a subjective process, Table 1 of BS5837 (see Appendix 2) gives clear guidance on the appropriate criteria for categorising trees and, in particular, the factors that would assist the arboriculturist in determining the suitability of a tree for retention. BS5837 makes a clear distinction between trees on development sites and trees in other situations where the factors that determine the retention and management of trees may be different.

6. It should be noted that trees are living organisms and their condition is subject to change over time. Assessments are based on their condition on the day of inspection and cannot cover unforeseen circumstances.

7. The survey does not include the specific investigation or assessment of:

   - Soil type, geology or existing ground conditions
   - The risk tree-related subsidence to structures
   - Wildlife habitats or general ecological matters

8. The statements in this report do not take account of the effects of extremes of climate, vandalism or accident, whether physical, chemical or fire. No liability can therefore be accepted 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 tree(s), whichever is the sooner.

Appendix 1 Key to Tree Schedule

1. **No:** Relates to individual tree numbers on a plan or, where used, tags on trees or groups of trees. Where used the prefix indicates whether the tree or trees are an individual, a group, a woodland or a hedge (T, G, W or H).

2. **Species:** The name given is the 'common name'. Where Latin names are given they are shown in *italics*

3. **SD:** Stem diameter used as basis for calculating root protection area. Measurements, in millimetres, will usually be taken at 1.5 metres above ground level unless stem form precludes this. In the case of multi-stemmed trees or those with irregular stem form measurements are taken following guidance within BS5837 Annex C. Estimated stem diameters, perhaps for offsite trees are indicated by an 'e'.

4. **No of Stems:** Number of stems used in calculation of root protection area. See BS5837 Annex C

5. **Hgt** (Height): The height measured in metres with the aid of a hypsometer.

6. **Crown radius:** The average crown spread taken from the centre of the trunk to the tips of the live lateral branches given in metres. May be given as separate measurements following the compass points N-E-S-W.

7. **CH:** Crown height – ground clearance of lowest part of canopy given in metres. Where trees are at the periphery of the site or in adjoining properties dimension shown relates to that part of canopy that may be affected by development.

8. **Age:**

Y	Young - recently planted, perhaps within the last 5 to 10 years
SM	Semi-mature - well established, youngish tree but far short of full maturity
EM	Early mature - long established specimen nearing full size but not yet fully mature
M	Mature - fully mature specimen at or close to full size given site conditions
LM	Late mature - fully mature specimen, past its peak and possibly displaying symptoms of decline
V	Veteran - of interest biologically, aesthetically or culturally because of significant age.

9. **PC:** Physiological Condition – An assessment of the health and vigour of the tree compared with that which would normally be expected of the species

10. **Comments:** Comments have been made in relation to the following:
    - Health or condition
    - Structural defects/safety
    - Aesthetics
    - Future potential
    - Relationship to other trees or features
    - Extent of ivy growth, if present
    - Any other relevant details

11. **Recommendations:** Preliminary management recommendations are made in the interests of good arboricultural management and irrespective of any development proposals. Works may include remedial tree works that are deemed necessary to improve the quality of the tree or for safety reasons. Recommended tree works will be required to be in accord with British Standard 3998:2010 Tree Work – Recommendations [BS3998].

12. **Life Expectancy**: an estimate of the future life expectancy of the tree(s) in the present setting given normal circumstances, given in years (< = less than > = greater than).

13. **BS5837 Category**: A qualitative assessment of the tree based on criteria detailed in BS5837:2012 Table 1 (See Appendix 2).

Appendix 1 - Schedule of Trees

No.	Species	No of Stems	Stem Dia. (mm)	Hgt	Crown radii N	E	S	W	CRH	Age	Condi-tion	Comments	Preliminary recommendations	Life Exp	BS Cat	Sub Cat
T1	Himalayan Birch	1	150	7	2.3	2.3	2.3	2.3	1.75	SM	Good	1.5m from fence overhangs access by 1m		40+	C	1
T2	Pittosporum	2	355	7	2.5	2.5	2.5	2.5	2.25	EM	Fair	Off-site. Two 250mm diameter stems. Sparse crown		20+	C	1
G3	Ash	1	400	7	3	3	3	3	5	EM	Fair	Off-site. Two trees of similar size. Previously topped at 2m. Southernmost tree has symptoms of Ash Dieback Disease		10+	C	1
G4	Hawthorn	3	435	6	3	3	3	3	1.5	M	Good	Irregualar row of six trees, mostly twin or triple stemmed, stems 250mm diameter. Of some habitat value		20+	B	1;2
T5	Alder	1	400	11	4	4.5	3.5	4.5	2	M	Good	Ownership unclear, boundary poorly defined.		40+	B	1;2
T6	Silver Birch	1	220	14	4	4	4	4	2.5	EM	Good	Good form		40+	B	1;2
G7	Hawthorn & Goat Willow	2	185	3.5	3.5	3.5	3.5	3.5	0	SM	Fair	Both twin stemmed, maximum diameter 130mm		10+	C	N/A
T8	Lombardy Poplar	1	580	20	4	2	3	3	4	M	Fair	Off-site. First of a row of similar trees that runs eastwards from boundary		20+	B	1;2
T9	Willow	1	750	18	8	6	6	9	0	M	Fair	Off-site, east of ditch. Overhangs site by 5m. 20cm diameter limb on west side has split over ditch and end is resting within site	Cut back split branch to boundary. Advise owner of condition	20+	B	2
T10	Willow	1	450	18	8	5	4	9	2.5	M	Fair	Off-site. East of ditch		40+	B	1;2
T11	Oak	1	300	9	5.5	2.5	2.5	5.5	0	SM	Fair	Off-site. Dominated by trees to east		40+	C	2
G12	Alder	1	430	14	4	5	4	5	2.5	M	Poor	Off-site. Two trees of similar size both have been topped previously at 4.5m resulting in poor form and decay in topping wounds		10+	C	2
G13	Mixed species	1	250	10	4	4	4	4	0	EM	Fair	Mix of cherry, hawthorn plum and one oak (with extensive squirrel damage). Maximum dimensions shown, most are below 8m high. Some screening value but individually trees quite mediocre		40+	C	1;2

Appendix 1 - Schedule of Trees

No.	Species	No of Stems	Stem Dia. (mm)	Hgt	Crown radii N	E	S	W	CRH	Age	Condi-tion	Comments	Preliminary recommendations	Life Exp	BS Cat	Sub Cat
T14	Horse Chestnut	1	450	15	6	7	2	6	2	M	Fair	Off-site. Previously topped at 3.5m. poor form due to topping and dominance of adjacent trees		40+	B	2
T15	Sycamore	1	520	20	6	8	3	8	4	M	Fair	Off-site. Previously topped at 4m		40+	B	1;2
T16	Lime	1	530	23	5	8	8	8	3	M	Fair	Off-site. Previously topped at 4.5m		40+	B	1;2
T17	Sycamore	1	200	14	1	4	1	4	3	SM	Fair	Off-site. Two small trees growing 1m apart		20+	C	2
T18	Horse Chestnut	1	720	17	6	8	6	8	2	M	Good	Off-site. Possibly topped previously at 4.5m. Heavy, 430mm diameter limb arises at 2m and extends over site		40+	B	1;2
T19	Sycamore	2	370	15	4	5.5	3	6	4	EM	Fair	Off-site. Twin stem tree of reasonable form, both stems 260mm diameter		40+	B	1;2
T20	Oak	1	520	14	6	8.5	7	8	4	EM	Good	Off-site		40+	A	1;2
T21	Hornbeam	1	350	8	4	9	7	2	1	EM	Poor	Suppressed due to dominance of adjacent oak		20+	C	2
T22	Goat Willow	2	150	8	2	2	1.5	1	0	SM	Fair	Previously coppiced. Stems 120 & 90mm diameter. Insignificant.		40+	C	1
T23	Ash	1	450	18	6	6	6	6	1	EM	Fair	Off-site. Slightly sparse crown, possibly due to Ash Dieback Disease		20+	B	1;2
T24	Leyland Cypress	3	175	6	1	2.5	2	1	1	EM	Poor	Off-site. Three 100mm diameter stems. End tree of row extending west from boundary. Others are in reasonable condition but this is half dead. Might survive 10 years.		10+	C	N/A
T25	Cherry	1	380	8	6	6	5	4	1.5	M	Fair	Off-site 2m boundary		20+	C	1
T26	Cherry	1	80	4	2	3	2.5	2	2	SM	Fair	On site dominated by last tree, insignificant		20+	C	N/A
T27	Cherry	3	130	5	2	2.5	2.5	1.5	2	SM	Fair	On fence line, possibly previously coppiced. Stems 80, 80 and 65mm diameter. Insignificant		20+	C	N/A

Appendix 2 Table 1 **Cascade chart for tree quality assessment** (from BS5837: 2012)

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current 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 after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated 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 better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	
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 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	

Appendix 3 - Root Protection Areas

No.	Species	No. of Stems	Stem Dia. * (mm)	BS Cat	RPA m2	RPA Rad (m)
T1	Himalayan Birch	1	150	C	10	1.8
T2	Pittosporum	2	355	C	57	4.3
G3	Ash	1	400	C	72	4.8
G4	Hawthorn	3	435	B	86	5.2
T5	Alder	1	400	B	72	4.8
T6	Silver Birch	1	220	B	22	2.6
G7	Hawthorn & Goat Willow	2	185	C	15	2.2
T8	Lombardy Poplar	1	580	B	152	7.0
T9	Willow	1	750	B	255	9.0
T10	Willow	1	450	B	92	5.4
T11	Oak	1	300	C	41	3.6
G12	Alder	1	430	C	84	5.2
G13	Mixed species	1	250	C	28	3.0
T14	Horse Chestnut	1	450	B	92	5.4
T15	Sycamore	1	520	B	122	6.2
T16	Lime	1	530	B	127	6.4
T17	Sycamore	1	200	C	18	2.4
T18	Horse Chestnut	1	720	B	235	8.6
T19	Sycamore	2	370	B	62	4.4
T20	Oak	1	520	A	122	6.2
T21	Hornbeam	1	350	C	55	4.2
T22	Goat Willow	2	150	C	10	1.8
T23	Ash	1	450	B	92	5.4
T24	Leyland Cypress	3	175	C	14	2.1
T25	Cherry	1	380	C	65	4.6
T26	Cherry	1	80	C	3	1.0
T27	Cherry	3	130	C	8	1.6

Notes:

1. Stem diameters are usually measured at or as near as possible to 1.5 metres above ground level.
2. RPAs are calculated following guidance set out in BS5837.
3. * Combined stem diameters of multi-stem trees are calculated in accordance with BS5837 guidance.
4. For plotting purposes RPA radii may be rounded upwards to the nearest 0.2m
5. The lateral extent of RPA for trees in hedges or rows may be shown as a group rather than individually.
6. Where groups of trees are identified the RPA is based on the largest stem diameter.
7. RPAs are normally capped at a maximum radius of 15m except in the case of veteran trees.
8. A minimum radius of 2m is recommended in the case of small diameter, established trees.