



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction

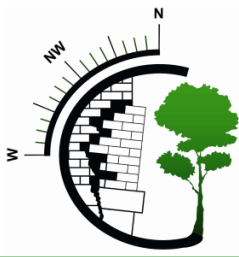
ARBORICULTURAL IMPACT ASSESSMENT FOR 63 HIGH STREET WARGRAVE



**Prepared on behalf of:
Mr N Towers
63 High Street
Wargrave
Berkshire
RG10 8BU**

Ref: PB/AIA-22/11.02

14 November 2022



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Bramley House
Newnham Bridge
Tenbury Wells
Worcestershire
WR15 8NX
Tel: 0118 976 2902

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1. Report details

1.1 Arboricultural Impact Assessment (AIA)

1.1.1 An arboricultural impact assessment (AIA) is a term used to describe a specific type of tree survey which examines the relationship between trees and adjacent features (existing & proposed) such as buildings, roads etc. The study describes how the trees and features will interact and influence each other and should consider both present and future interactions.

1.1.2 AIA studies are commonly used to determine whether a proposed development will adversely affect established trees and whether these trees will be the cause of nuisance to the proposed development.

1.2 Scope

1.2.1 This assessment is concerned with the arboricultural aspects of the site only.

1.2.2 This assessment was undertaken in accordance with British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (BS: 5837).

1.3 Limitations

1.3.1 The assessment contained within this document is based upon plans and other supporting information (verbal or documented) as supplied to us by Mark Wright of Shared Vision Ltd and the tree survey conducted by ourselves on the 18 January 2022.

1.4 Clients instructions

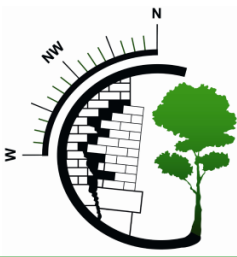
1.4.1 We are instructed by Mr N Towers with regard to the proposed development site to the rear of 63 High Street, Wargrave, RG10 8BU to prepare an arboricultural impact assessment to determine the effects of the proposed works on the trees identified in our survey of 18 January 2022 and visa-versa.

1.5 Supplied information

1.5.1 The documents listed in Table 1. below were supplied by Mr Mark Wright, Shared Vision Ltd., 21 Abbey Court, Glastonbury, BA6 9NP (SVL) and are used in the preparation of this report.

Table 1. Supplied information.

Drawing ref.	Prepared by
<i>Proposed New House, Backsideans, Wargrave - Design and Access Statement; Rev 2.7</i>	SVL
<i>Proposed New House, Backsideans, Wargrave - Floorplans; Revision 3.0</i>	SVL
<i>Site Plan DWG drawing - A.04.2 Site Plan V2</i>	SVL



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2. The site

2.1 Site description

- 2.1.1 The topography of the site is level or slightly sloping. The slope over the root protection area (RPA) of tree (T)3 has been surveyed and spot heights recorded. There are semi-mature sycamore trees along the north side of the garden, and smaller trees dotted along the southern and western boundaries.

2.2 Proposed development

- 2.2.1 The proposed development consists of the erection of 1 no. three bedroom detached dwelling with associated access, garage and parking area, following demolition of existing detached garage.
- 2.2.2 The tree survey report ref SN/5837-22/18.01v2 identified seven individual trees and one group that may be impacted by the scheme, the tree details have been assessed against the proposed scheme set out on the drawings listed in Table 1 above.

2.3 Tree survey

- 2.3.1 The trees were surveyed by Steve Noble on 18 January 2022. All tree identification numbers used within this report correspond with those contained within the tree survey schedule included at Appendix 2.

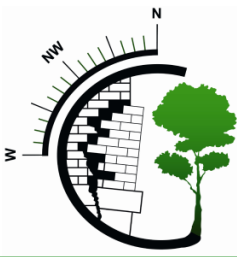
2.4 Statutory designations

- 2.4.1 A search of the Wokingham Borough Council's Protected Tree Map was undertaken on 18 January 2022. The search revealed that the site contains several trees that are subject to a Tree Preservation Order (TPOs) number TPO-1004-1999.
- 2.4.2 The site is also located within the Wargrave Conservation Area.

3. Introduction

3.1 AIA objectives

- 3.1.1 To assess the areas within this site where proposed works are to be carried out in close proximity to established trees.
- 3.1.2 To determine whether the proposed works can be carried out successfully without adversely affecting the trees both in the short and long term.
- 3.1.3 To determine whether the trees will have adverse effects on the proposed development both in the short and long term.
- 3.1.4 To suggest ways to mitigate any conflicts that may arise between the trees and the proposed development and to offer recommendations relating to the protection of the trees during redevelopment works.



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3.2 Items for consideration

3.2.1 Trees and development located within close proximity to each other can influence each other in a number of ways. The following items are normally considered during arboricultural impact studies:

- Root disturbance caused by demolition, excavation & construction e.g. buildings and roads Location of service runs, welfare/office buildings & materials storage.
- Changes in levels & surface types.
- Sunlight shading of exterior amenity areas (such as gardens, playgrounds etc).
- Physical encroachment by roots, tree stem & branches.
- Allowance for future tree growth.
- Health, safety and nuisance items e.g. leaves, fruit and residues.

3.3 Guidance used whilst assessing trees in relation to development includes:

- *BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations*. Published by the British Standards Institute.
- *Tree Preservation Orders: A Guide to the Law and Good Practice*. Published by the Department of the Environment, Transport and the Regions.
- *NJUG 10 - Guidelines for the planning, installation and maintenance of Utility Services in relation to trees*. Published by the National Joint Utilities Group (NJUG).

4. Analysis

4.1 Assessment methodology

4.1.1 The assessment is based on the guidance given in BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

4.2 Key issues

4.2.1 The key issues associated with the proposed items identified above in relation to trees are:

- Will there be direct impacts from tree losses on the landscape, both in terms of impacts on visual receptors and impacts on the landscape character of the area?
- Will the proposed development work require grade and ground level alterations that may have significant implications for root systems of retained trees?
- The tree constraints and tree protection measures.
- Services in close proximity to the retained trees.
- Leaf/fruit or sap fall and shade constraints leading to pressure to prune or fell trees.
- Damage to mature trees with low canopy heights growing in close proximity to machinery and contractors' plant operating areas.

4.2.2 These key issues and associated impacts are considered below along with possible tree protection measures and mitigation as necessary.



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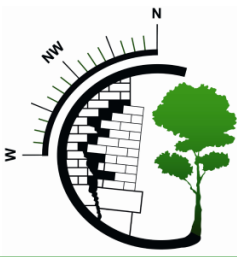
5. Impact on existing trees

5.1 Tree loss, tree damage and pruning works

- 5.1.1 We anticipate the proposed layout of the site development works will not require the removal of any trees to allow full implementation of the planning permission.
- 5.1.2 The proposed layout of the site development works will not require necessary facilitation pruning works to any retained trees for either site access or to allow the full implementation of site development works which will be approved in the planning permission.
- 5.1.3 Any further works to protected trees that are merely desirable, and are not necessary for the implementation of the full planning permission, should be made the subject of a separate Tree Works application to the local authority and consent must be granted by the local planning authority before any works to any protected trees are undertaken.
- 5.1.4 Any pruning works which may subsequently be identified must be carried out by a properly qualified and experienced tree contracting company in accordance with BS 3998:2010 *Tree work - Recommendations*; ensuring that cuts are performed correctly and positioned to avoid future structural defects or physiological issues, facilitate growth, and maintain aesthetic value.

5.2 Impacts on root protection areas (RPAs)

- 5.2.1 A very minor RPA incursion is anticipated by the excavation of the foundations for the new dwelling into the RPA of T3; being 1m², or less than 1% of the total RPA 228m². Following the guidelines within Section 5.3 of BS5837:2012, this small area lost by the incursion will be more than compensated by the fact that the tree rooting zone will in reality spread out further around its circumference, which will be contiguous with its theoretical, circular RPA area. The loss of less than 1% of the RPA by the incursion will not in our opinion significantly affect the future viability of these trees.
- 5.2.2 According to the guidelines within Section 5.3 of BS5837:2012, a small area lost by an RPA incursion will be more than compensated by the fact that the tree rooting zone will in reality spread out further around the circumference of the theoretical RPA.
- 5.2.3 The incursion is so small as not to warrant any specific foundation related mitigation and standard construction methods can be adopted. However, in order to protect roots in the RPA the following generic mitigation should be considered;
- tree protection barriers must be installed prior to any site activity as shown on the mitigation drawing and remain in situ for the duration of the scheme;
 - the RPAs of retained trees must be protected with temporary ground protection;
 - any surface vegetation requiring removal within the RPA of T3 must be agreed with the AC prior to removal and must only be removed with hand tools; all excavations within the RPA must be undertaken by hand prior to mechanical operations;
 - roots less than 25 millimetres in diameter must be cut cleanly with a suitable sharp tool;



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5.2.3 Continued . . .

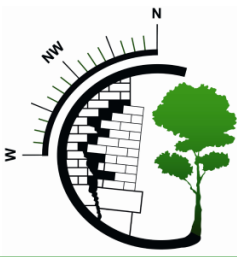
- roots occurring in clumps or of 25 millimetres diameter and over should be severed only following consultation with the AC as such roots might be essential to the tree's health and stability;
- all excavations within the RPA that are to be filled with concrete must be lined with impermeable 1000-gauge polythene sheeting before filling with concrete to avoid root damage caused by leachate.

5.2.4 There should be a topical application of potassium phosphite to the cut surfaces of the pruned roots immediately after pruning. Research and field experience have shown that there is an improvement of plant health after the application of potassium phosphite, related to an increase in resistance against a variety of plant pathogens, as well as increased tolerance of many environmental stress factors, including drought stress¹.

5.2.5 RPA incursions are anticipated for the construction of new areas of hard-surfaced driveway over part of the RPAs of retained trees T3, T4 and T5. Disturbance to tree roots can be significantly reduced by appropriate mitigation work; in this case by considering:

- within the RPAs of retained trees there must be no disturbance of the existing base layer or additional compaction during the construction works.
- all construction of driveways and car parking areas in the RPAs of T3, T4 and T5 must be undertaken using a "no dig" cellular confinement system such as Cellweb, or similar product; 100 millimetre depth for domestic traffic such as cars and vans up to a 6 ton (t) gross vehicle weight (GVW); over a permeable, non-woven geotextile membrane infilled with granular, 20-40 millimetre washed, angular stone infill; shown on PB/MIT-22/11.02 as "Ground protection - Cellweb", showing the minimum area. The finished surface must be a permeable surface or wearing course.
- There is an area of new driveway over part of the RPA of T3 where there is a drop in level from 42.41 metres at the existing hard surface path down to 41.57 metres on the lawn. The proposed new driveway here will need to be constructed with a reinforced concrete slab, cast on-site, set above ground level, supported on piles, to an engineer's design. This is shown on the mitigation plan ref PB/MIT-22/11.02 as "Ground protection – new hard surface", showing the minimum area.
- This foundation will maintain a void beneath the slab to allow movement of air and moisture beneath the slab.
- The piles are to be either;
 - steel helical screw piles, using the smallest practical pile diameter as this reduces the possibility of striking major tree roots, or;
 - bored piles formed with a continuous flight auger; lined with a plastic coated cardboard sleeve inserted to debond the pile shaft from volumetric ground movement and to avoid root damage caused by leaching of cementitious materials into the ground.
- The existing hard driveway over the RPA of retained tree T1 adjacent to Backsidean Lane is to be retained, and the surfaced top-dressed with gravel.

¹ D Zwart. (date unknown) Potassium Phosphite Plant Health Care Applications, Bartlett Tree Experts



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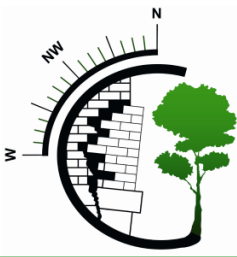
- 5.2.6 The existing garage will be demolished and removed. The potential RPA incursion on the retained trees during demolition and removal of material will have little impact on the tree providing tree protection fencing and temporary ground protection mitigation be installed and remain in situ until all works activity is completed. Demolition using a mechanical excavator should be carried out with the excavator positioned outside the RPA of any retained tree, using a toothless bucket, working in a direction away from the edge of the RPA.
- 5.2.7 The details of any hard landscaping work, including patio, walls and footways, and the excavation and erection of gate posts, were not available at the time of preparing this report. Specific mitigation measures must apply within, and adjacent to, the RPAs of retained trees, including; any excavations within RPA must be undertaken by hand and lined with impermeable 1000 gauge polythene sheeting before filling with concrete to avoid root damage caused by leachate; construction of any patios, footways, and sealed areas in the RPAs must be undertaken using a “no dig” cellular confinement system and the finished surface should be a permeable surface or wearing course.
- 5.2.8 There will be no major impacts on tree root protection areas as a result of this scheme provided that the tree protection barrier and ground protection mitigation is installed as per the mitigation plan ref PB/MIT-22/11.02 and maintained in situ until all construction works activity is completed.

5.3 Grade changes

- 5.3.1 No grade changes are proposed within the RPAs of retained trees to facilitate the new development and therefore there will be no impact on the retained tree RPAs providing the tree protection measures are followed.
- 5.3.2 Should grade changes be required within the RPA of retained trees, the contractor must prepare a method statement setting out how the work will be undertaken, and the machinery used in order to minimise disturbance and reduce compaction to the RPA of retained trees. The method statement must be submitted to and approved by the local authority prior to any alterations or changes.

5.4 Tree protection measures

- 5.4.1 To protect retained trees from construction activities the retained trees must be protected by suitable protection barriers and ground protection.
- 5.4.2 The accompanying mitigation plan ref PB/MIT-22/11.02 shows the specific tree protection locations required prior to and during the construction works.
- 5.4.3 The default tree protection barrier as specified and detailed in BS 5837:2012 (section 6.2, Fig 2), and included in Appendix 5 of the tree survey report ref SN/5837-22/18.01v2, is designed to provide construction exclusion zones around the RPAs of all trees to be retained.
- 5.4.4 The temporary ground protection must be installed prior to any site or construction activity as shown on mitigation plan ref PB/MIT-22/11.02, referenced as “Temporary ground protection”, and must remain in situ for the duration of the works. The existing hard surfaced drive will not require any further protection.



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- 5.4.5 We do not anticipate any long-term negative impacts upon the retained trees provided that the tree protection and mitigation measures are installed and maintained in situ until all construction works activity is completed.

5.5 Services in close proximity to retained trees

- 5.5.1 The services into the proposed new dwelling are expected to connect to existing services but the full details were not available at the time of preparing this report. The excavation and installation of new foul drains and rainwater soakaways are to be sited outside the RPA of retained trees as shown on Site Plan drawing ref. *A.04.2 Site Plan V2*.
- 5.5.2 If there is a need to replace, renew or install underground services close to retained trees the proposals must be considered by the AC prior to any amendments or work commencing on site and the AC allowed sufficient time to respond.

6. Visual impact on the landscape and tree character

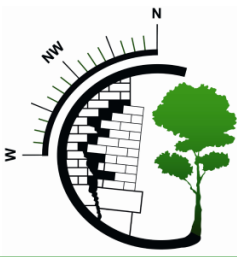
- 6.1 In this instance there will not be any direct tree loss as a result of the development, nor any necessary facilitation pruning works, and therefore it is anticipated that there will be no impact on local amenity, landscape or tree character.

7. Direct or indirect impacts of trees

- 7.1 The retained trees, particularly T1 and T4 adjacent to the new extension, will continue to increase in size as they reach full maturity, but we anticipate that only minor management intervention will be required in the future, in keeping with normal arboricultural practice. Minor canopy management will be required in the coming years in order to maintain a tenable relationship between the trees, built structures and occupants.
- 7.2 Any future pruning works should be made the subject of a tree works application and consent must be granted by the local planning authority before any works to any protected trees are undertaken.
- 7.3 The retained trees will not be affected by the development work providing the protection measures set out and included on the mitigation plan ref PB/MIT-22/11.02 are installed and maintained in situ until all construction works activity is completed.

8. Leaf, fruit or sap fall and shade

- 8.1 The retained trees will not provide excessive shade over the site.
- 8.2 Leaf fall is anticipated from the retained trees, but the provision of leaf guards or grilles on gutters and gullies will minimise the problem and this can be managed by leaf collection as currently practiced and therefore no adverse impact is anticipated as a result of the proposal.
- 8.3 There are no trees near the proposed extension which are prone to the production of excessive honeydew exudate, or fruit fall.



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9. Conclusions

- 9.1 There will not be any direct tree loss as a result of the development, nor any necessary facilitation pruning works, and therefore no impact on the landscape amenity, either internally or externally.
- 9.2 Providing the protection measures set out above and included on the mitigation plan ref PB/MIT-22/11.02 are installed, maintained, and remain in situ until all works activity is completed, there will be no significant impacts on the retained trees.
- 9.3 Site supervision is considered unnecessary and would be disproportionate to the risk associated with the work. A suitably qualified Arboriculturist must be engaged to provide technical advice should it be required.

10. Recommendations

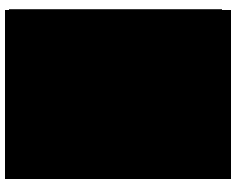
- 10.1 We recommend that tree protection measures as set out on the mitigation plan ref PB/MIT-22/11.02, and described above in sections 5.2 and 5.4, are installed and remain in situ until all works activity is completed.

11. Queries

Any queries regarding this report should be addressed, in the first instance, to Tree Surveys:

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Telephone: 0118 976 2902
Email: info@tree-surveys.com



Paul Billin BSc MICFor
Chartered Arboriculturist
Tree Surveys



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APPENDIX 1



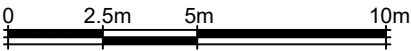
Existing fence as TPB

- NOTES
- All dimensions must be checked on site and not scaled from this drawing.
 - The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
 - Read drawings in conjunction with arboricultural report.
 - Topo based on OS data, Licence No. 100022432.

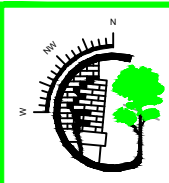


Key:

- Trees/Groups/Hedges retained
- refer to report for information
- Tree number
- refer to report for information
- Existing site features
- Root protection area (RPA)
- Proposed dwelling
- Tree protection barrier (TPB)
- refer to report for information
- Temporary ground protection
- refer to report for information
- Existing hard surface
- Proposed hard surface
- Ground Protection - New hard surface
- refer to report for information
- Ground protection - Cellweb
- refer to report for information
- Foundation - RPA incursion



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Client	Mr N Towers		
Job Title	63 High Street, Wargrave		
Drawing Title	MITIGATION PLAN		
Scale	1:200 @ A3		
Date	November 2022	Drawn: MJE	Checked: PB
Drg. No.	PB/MIT-22/11.02	Rev.	



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APPENDIX 2

BS5837:2012 Tree Survey

Tree Surveys

Client: Mr N Towers
 Project: 63 High Street, Wargrave
 Survey Date: 18/01/2022 - 24/01/2022
 Surveyor: Steve Noble



Bramley House
 Newnham Bridge
 Tenbury Wells
 Worcestershire
 WR15 8NX
 Phone: 0118 976 2902

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
1										Estimated Measurements	
Sycamore <i>Acer pseudoplatanus</i>	15	1	400	N E S W	4 4 4 4	M	A: 72.4 R: 4.8	Fair	C: Poor S: Ivy B: Poor	Low quality ivy clad tree	C 20 to 40 yrs
2											
Sycamore <i>Acer pseudoplatanus</i>	16	3	906 (Eq)	N E S W	8 8 8 6	M	A: 371.5 R: 10.87	Fair	C: Fair S: Ivy B: Poor	Multi stemmed at base	C 20 to 40 yrs
3											
Sycamore <i>Acer pseudoplatanus</i>	17	1	710	N E S W	6 9 9 5	M	A: 228.1 R: 8.52	Fair	C: Fair S: Ivy B: Poor	Ivy clad tree	C 20 to 40 yrs
4											
Sycamore <i>Acer pseudoplatanus</i>	16	1	470	N E S W	3 3 7 7	M	A: 99.9 R: 5.63	Fair	C: Fair S: Ivy B: Poor	Canopy weighted to west	C 20 to 40 yrs
Age Classifications: N Newly planted EM Early Mature Y Young M Mature SM Semi-mature OM Over Mature											
Condition: C Crown S Stem B Basal area											
Stems: Ø Diameter (Eq) Equivalent stem diameter using BS5837:2012 definition											
ERC: Estimated Remaining Contributio											

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
5											
Cherry Laurel <i>Prunus laurocerasus</i>	4	1	170	N E S W	1 1 1 1	1.5	SM A: 13.1 R: 2.04	Good	C: Good S: Good B: Good	Small ornamental tree	A 20 to 40 yrs
6											
Common Yew <i>Taxus baccata</i>	5	1	260	N E S W	2 2 1 2	1	SM A: 30.6 R: 3.12	Good	C: Good S: Good B: Good	South side of canopy cut into hedge	A >40 yrs
7											
Common Holly <i>Ilex aquifolium</i>	6	1	250	N E S W	2 2 2 2	1	SM A: 28.3 R: 3	Good	C: Good S: Good B: Good	No obvious defects	A >40 yrs
8											
Common Lime <i>Tilia europaea</i>	3	0					SM A: 0 R: 0	Good	C: Good S: Good B: Good	Pleached line if limes	A.2 >40 yrs
Age Classifications: N Newly planted EM Early Mature Y Young M Mature SM Semi-mature OM Over Mature Condition: C Crown S Stem B Basal area Stems: Ø Diameter (Eq) Equivalent stem diameter using BS5837:2012 definition ERC: Estimated Remaining Contributio											

Report selection criteria.

Projects.

63 High Street, Wargrave

Date Range.

Any Date

Work types.

----> -No Selection made-

Latest Survey.

All surveys for the selected trees.

---> Last survey for each selected tree.

Work Completed.

---> Work Completed

---> Work Not Completed

Number of trees in selected Project(s) **8**

Number of trees in Report selection **8**

Age Classifications:

N	Newly planted	EM	Early Mature
Y	Young	M	Mature
SM	Semi-mature	OM	Over Mature

Condition:

C	Crown
S	Stem
B	Basal area

Stems: Ø Diameter
(Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio