

ARBORICULTURAL IMPACT ASSESSMENT

(INC. TREE SURVEY TO BS 5837:2012)

CLIENT - Martin Robeson & Partners Ltd
PROJECT - Silver Birches, Heronsgate
DOC. REF - P3237-AIA01 V3
PLANNING REF - n/a
CREATION DATE - 04/01/2024

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PURPOSE OF DOCUMENT

This document assesses the anticipated impact that the proposed scheme will have on the surrounding tree population, and outlines possible technical design considerations and mitigation measures that should be implemented in order to minimise the overall arboricultural impact.

ARBORICULTURAL DOCUMENT REGISTER

Planning Documents		Version Issued	
Document	Ref.	Current Version	Document Date
Arb. Impact Assessment	P3237-AIA01	V3	04/01/2024
Arb. Site Plan (Existing)	P3237-ASP01	V2	20/12/2023
Arb. Site Plan (Proposed)	P3237-ASP02	V3	04/01/2024

1. SUMMARY

1.1 PROPOSED DEVELOPMENT

1.1.1 Demolition of existing building and erection of a replacement dwelling.

1.2 TREE SURVEY

1.2.1 The following woody vegetation was considered to be of note in relation to any development of the site: 33 individual trees, 8 groups of trees, 11 hedges, 2 shrubs/groups of shrubs.

1.3 PROTECTION MEASURES

1.3.1 The implementation of tree protection measures will be required to ensure that the site’s retained trees remain undamaged. Information as to the requirements of such can be found in *Section 3.7*.

1.4 TECHNICAL DESIGN CONSIDERATIONS

1.4.1 The design team must consider and implement the design advice provided in *Section 3.8* of this document.

1.5 PROVISION OF NEW TREE PLANTINGS

1.5.1 New tree plantings are not considered to be necessary as part of the proposed scheme.

1.6 CONCLUSION

1.6.1 The table below summarizes the trees which will be lost, pruned, or protected by special measures during the development project.

	Tree Category			
	A	B	C	U
Trees/groups to be removed (* groups to have sections removed)	-	-	-	-
Hedges/shrubs to be removed (* hedges to have sections removed)	-	-	S2	-
Trees/groups/hedges to be pruned	-	-	-	-
Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	-	T11, T12	-

Trees to be protected through arboricultural measures / supervision (other than barriers and ground protection)	-	G2	-
Trees requiring specialist design considerations (for purposes of minimising arboricultural impact)	-	-	-

1.6.2 Considering the anticipated arboricultural impact from the construction and demolition activities associated with the development of the site, and the implementation of the proposed mitigation measures outlined in this document, the proposed development’s arboricultural impact is considered to be **low**.

2 GENERAL INFORMATION

2.1 BRIEF

- 2.1.1 Ligna Consultancy Ltd were instructed by the client, Martin Robeson & Partners Ltd, to undertake a tree survey in accordance with BS 5837:2012 and to prepare an arboricultural impact assessment for the proposed scheme at Silver Birches, Heronsgate.

2.2 PROPOSED DEVELOPMENT

- 2.2.1 Demolition of existing building and erection of a replacement dwelling.

2.3 SITE

- 2.3.1 The site discussed within this report is located at:

Silver Birches, Heronsgate
 Rickmansworth,
 WD3 5DN,
 UK

2.4 PROJECT CONTACT

Role	Name	Telephone	Email
Arboricultural Surveyor	Alistair Godfrey	01284 598008	alistair@lignaconsultancy.co.uk

2.5 SCOPE OF REPORT

- 2.5.1 This report consists of the following:

- Appraisal of arboricultural impact
- Outline of tree protection & mitigation measures

- 2.5.2 Appendices included with this report are:

- Tree Survey
- Site Photos
- Arboricultural Site Plan (Existing) (P3237-ASP01 V2)
- Arboricultural Site Plan (Proposed) (P3237-ASP02 V3)

2.6 DOCUMENTS PROVIDED

- 2.6.1 The following documents were submitted to Ligna Consultancy Ltd for consideration:

- Topographical Survey (TS23-140-1-2D)
- Proposed Site Plan (625 12 A)

2.7 AUTHOR

- 2.7.1 Alistair Godfrey is a tree surveyor. He has worked in arboriculture for 6 years, initially working with tree surgery firms to carry out domestic tree work operations. He has worked at Cambridge University Botanic Gardens for 3 years on the Tree and Shrub team and has recently worked on a large-scale tree planting plan with the National Trust. He has a level 4 Certificate in arboriculture and LANTRA Professional Tree Inspection.
- 2.7.2 This report has been checked and edited by Benjamin Hallinan MArborA.

2.8 LIMITATIONS

- 2.8.1 Detailed inspections and recommendations relating to tree condition and health are not included within this report.
- 2.8.2 Any engineering solutions presented within this document are recommendations for their suitability from an arboricultural viewpoint. The architect and structural engineers should make the final decision on the suitability of the methods advised.
- 2.8.3 Information provided by third parties, considered in the creation of this report, is assumed to be correct.

2.9 PROTECTED TREES

- 2.9.1 Details of trees (if any) that are protected by Tree Preservation Orders (TPOs) or are situated within Conservation Area are available upon request.
- 2.9.2 It is the standard approach of Ligna Consultancy not to obtain this information from the LPA prior to an application, as the LPA will provide details of nearby protected trees as part of the consultation.
- 2.9.3 It should also be noted that granted planning permission that includes tree work specifications overrides Tree Preservation Orders and Conservation Area protections (approved works only).

2.10 NESTING BIRDS / BATS

- 2.10.1 Officially, the 'Bird Nesting Season' is between February and August (Natural England). During this time, it is recommended that vegetation works (tree or hedge cutting) or site clearance is avoided if there is a reasonable potential for the disruption of nesting birds.
- 2.10.2 All parties involved in the management and/or development of a site must actively avoid causing disturbance and disruption to nesting birds. Failure to do this may result in an infringement of the *Wildlife and Countryside Act 1981* and the *European Habitats Directive 1992 / Nesting Birds Directive*.
- 2.10.3 When tree or vegetation clearance work has to be undertaken during the nesting season, a pre works survey needs to be carried out by a suitably competent person.
- 2.10.4 Generally, it should be assumed that birds will be nesting in trees, and it is down to the site/project manager that any activities that have the potential to disturb nesting birds are assessed for their suitability and potential impact,

and records are kept that show that any works carried out in the management of trees and other vegetation have not disturbed nesting birds.

2.11 SUMMARY OF TERMS

Term	Definition
Species	The type of tree.
Stem	The main woody upright portion of a tree that is supported by the roots and supports the crown.
Branch Spread	The length of a tree's branches from stem to tip measured from the north, east, south and western sides of the crown.
BS 5837	The commonly used name for the official guidance document relating to trees and development (<i>BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations</i>)
Canopy / Crown	The branches, leaves, and reproductive structures extending from the trunk or main stems of a tree/trees.
DBH	Diameter of a tree's stem, measured as per BS 5837:2012
RPA	The root protection area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Facilitation Tree Works	Tree pruning/felling required in order to facilitate the implementation of the proposed development.
Tolerance	The relative tolerance the species can show to construction related activities such as root-loss, soil compaction and other development pressures.
Category (Cat.)	Categorisation of the tree's value based on the methodology shown in Appendix 1, A1.4. This rating takes into account the size, quality, condition, estimated remaining life expectancy and legal status of each tree.

2.12 COPYRIGHT

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3 ARBORICULTURAL IMPACT ASSESSMENT

ASSESSMENT & APPRAISAL OF IMPACTS

The following section lists and discusses any aspects of the proposed design and its implementation that has the potential to harm nearby trees, and outlines possible mitigation measures:

3.1 TREES TO BE REMOVED TO FACILITATE THE PROPOSED SCHEME

Affected Trees Cat. C: S2 (Mixed group)

Impact Appraisal & Mitigation	S2, a shrub group, is to be removed to facilitate the proposed scheme. Due to its negligible arboricultural significance and value, its removal does not require offsetting.
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Significance (with mitigation)	Negligible
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3.2 TREES TO BE PRUNED AS PART OF THE PROPOSED SCHEME

Affected Trees n/a

Pruning works	No trees or groups require pruning as part of the proposed scheme.
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Significance (with mitigation)	n/a
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3.3 IMPLEMENTATION OF PROPOSED SCHEME

Affected Trees Cat. B: G2 (*Fagus sylvatica*)

Impact Appraisal & Mitigation	<p>Whilst the demolition of the garage will not directly impact any retained tree, it has the potential to cause damage to nearby trees if done incorrectly. Damage can be prevented through the use of the following arboriculturally sensitive methods:</p> <ul style="list-style-type: none"> - Any plant and vehicles engaged in demolition works must either operate from outside the RPA of all trees or from atop existing surfacing or temporary ground protection. - Where within 3m of the crown of any trees branches, the demolition should be undertaken inwards, within the footprint of the existing building (often referred to as "top down, pull back" demolition). - If possible, when within an RPA, existing building foundations should be left in-situ, to avoid unnecessary rooting area disruption. Should the retention of the existing foundations be unfeasible, their removal must be accomplished via excavation on the internal edge of the
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foundations. Excavations on the outer edge of the foundations should be avoided.

- The removal of the existing foundations from within an RPA must be done under the supervision of the Arboricultural Clerk of Works.

Significance
(with mitigation) Negligible

3.4 INSTALLATION OF NEW TERRACE

Affected Trees Cat. C: T11 (Betula pendula), T12 (Malus domestica)

Impact Appraisal & Mitigation The installation of the new terrace will result in negligible RPA incursions of ~1% to T11 and T12.

Owing to the small size of the incursions, any lasting impact on the overall health and condition of the trees is believed to be well within tolerable limits. In addition to this, the lost rooting area can be compensated for elsewhere, contiguous with their RPAs.

No direct mitigation is considered necessary during the excavation of the foundations.

Significance
(with mitigation) Negligible

3.5 IMPLEMENTATION OF PROPOSED SCHEME

Affected Trees All retained trees

Impact Appraisal & Mitigation During the construction process, all retained trees are susceptible to damage from general construction related activities.

In order to reduce the risk of construction damage to the site's retained trees, tree protection barriers and temporary ground protection must be installed before the commencement of any site works.

Significance
(with mitigation) Negligible

TREE RELATED SHADING AND NUISANCES

3.6 LONG-TERM IMPACT OF RETAINED TREES ON PROPOSED SCHEME

3.6.1 Shading

3.6.1.1 None of the trees observed are considered to possess a significant potential for a negative shading impact on the proposed dwelling; any tree-related shading of property is expected to be minimal, transient and well within the recommended levels outlined in BRE

209 guidance.

Note - Shading arcs, as discussed in BS 5837, have not been included on the Arb. Site Plans owing to their poor accuracy, and the extreme unlikelihood that the shading will not be within tolerable levels. Ligna Consultancy Ltd have undertaken many detailed shading assessments, and in all situations, light levels have been shown to be well within acceptable levels (BRE 209). Situations where lighting levels may not be suitable are most likely to involve rows of large dense conifers near to dwellings.

3.6.2 Canopy Growth

3.6.2.1 The layout of the scheme has been designed with consideration of the location and growth potential of nearby trees. Owing to such, no noteworthy contention between tree canopies and property are anticipated.

3.6.3 Nuisances

3.6.3.1 Owing to the tree species present within and around the site, and the layout of the proposed scheme, additional unreasonable tree-related nuisances, such as leaf and fruit-fall, are not thought to exist beyond what might generally be considered as acceptable limits.

MITIGATION PROPOSAL

The following proposals, if approved, should be detailed within an arboricultural method statement and tree protection plan prior to the commencement of any development associated works:

3.7 PROTECTIVE MEASURES

3.7.1 Tree Protection Barriers

3.7.1.1 Barriers shall be erected, and a construction exclusion zone established, to protect all retained trees during the construction of the proposed scheme.

3.7.2 Temporary Ground Protection

3.7.2.1 Ground protection boards shall be installed within parts of the RPAs of G2 and T11 to protect them from soil compaction damage during the construction of the proposed scheme.

3.7.3 Arboriculturally Sensitive Demolition

3.7.3.1 Whilst the demolition of the garage will not directly impact any

retained tree, it has the potential to cause damage to nearby trees if done incorrectly.

- 3.7.3.2 Damage can be prevented through the use of the following arboriculturally sensitive methods:
- 3.7.3.3 Any plant and vehicles engaged in demolition works must either operate from outside the RPA of all trees or from atop existing surfacing or temporary ground protection.
- 3.7.3.4 Where within 3m of the crown of any trees branches, the demolition should be undertaken inwards, within the footprint of the existing building (often referred to as "top down, pull back" demolition).
- 3.7.3.5 If possible, when within an RPA, existing building foundations should be left in-situ, to avoid unnecessary rooting area disruption. Should the retention of the existing foundations be unfeasible, their removal must be accomplished via excavation on the internal edge of the foundations. Excavations on the outer edge of the foundations should be avoided.
- 3.7.3.6 The removal of the existing foundations from within an RPA must be done under the supervision of the Arboricultural Clerk of Works.

3.8 TECHNICAL DESIGN CONSIDERATIONS

3.8.1 Routing and Installation of Utility Apparatus

- 3.8.1.1 Wherever possible, utility apparatus should be routed outside of any RPAs. Failing this, services should be routed together in common ducts, with any inspection chambers being located outside of the RPA.
- 3.8.1.2 Where it is necessary for underground services to intersect an RPA, specialist excavation methods should be used.
- 3.8.1.3 In such situations, the design team should consult with Ligna Consultancy in order to establish a suitable services route, and specify the specialist excavation method most suitable.

3.8.2 Potential for Subsidence & Heave

- 3.8.2.1 Where shrinkable sub-soils may be present, the potential for tree related subsidence and/or ground heave (resultant from proposed tree removals) must be considered by a structural engineer prior to the final specification of foundation depth/type.

3.9 PROVISION OF NEW TREE PLANTINGS

- 3.9.1 New tree plantings are not considered to be necessary as part of the proposed scheme.

CONCLUSION

3.10 SUMMARY OF THE DEVELOPMENT'S OVERALL IMPACT

3.10.1 The table below summarises the trees which will be lost, pruned, or protected by special measures during the development project.

	Tree Category			
	A	B	C	U
Trees/groups to be removed (* groups to have sections removed)	-	-	-	-
Hedges/shrubs to be removed (* hedges to have sections removed)	-	-	S2	-
Trees/groups/hedges to be pruned	-	-	-	-
Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	-	T11, T12	-
Trees to be protected through arboricultural measures / supervision (other than barriers and ground protection)	-	G2	-	
Trees requiring specialist design considerations (for purposes of minimising arboricultural impact)	-	-	-	

3.8.2 Considering the anticipated arboricultural impact from the construction and demolition activities associated with the development of the site, and the implementation of the proposed mitigation measures outlined in this document, the proposed development’s arboricultural impact is considered to be **low**.

4 APPENDICES

4.1 APPENDICES

4.1.1 The following appendices are included within this document:

Appendix	Document
1	Tree Survey
2	Site Photos
3	Arboricultural Site Plan (Existing) (P3237-ASP01)
4	Arboricultural Site Plan (Proposed) (P3237-ASP02)

APPENDIX 1 TREE SURVEY

APPENDIX 1 – TREE SURVEY

A1.1 SITE VISIT

- i) A site visit was undertaken by Alistair Godfrey of Ligna Consultancy, on the 24/05/2023.

A1.2 METHOD OF DATA COLLECTION

- i) Data was collected using the recommendations laid out in British Standard 5837:2012 as a guide. All observations were from ground level without detailed or invasive investigations.
- ii) Measurements have been calculated using a laser measurer and diameter tape/calipers. Where this was not possible or reasonably practical, measurements have been estimated by eye.
- iii) The trees were surveyed and assessed impartially and irrespective of the proposed development. Management recommendations should be implemented regardless of any proposed development for reasons of sound arboricultural management or safety.
- iv) The method used for categorizing the trees can be seen in section A1.3. This is an improved variation of the method suggested in BS 5837:2012.
- v) BS 5837:2012 recommends that better quality (category A and B trees) are retained where possible. Planning permission overrides a Tree Preservation Order and Conservation Area. Furthermore, trees are a material consideration in the UK planning system irrespective of their legal status. Trees in land adjacent to the site are considered where they may be impacted by development; for example, when roots or branches encroach onto the site.
- vi) Trees may be recorded as group or woodland where:
 - The canopies touch.
 - The trees have more group value than individual merit.
 - They are part of a formal landscape feature like an avenue.
 - It is impractical to record them individually.
- vii) Trees within groups or woodlands etc. are recorded individually where it is necessary to distinguish them from others.

A1.3 SURVEY KEY & GLOSSARY OF TERMS

Term	Definition
Ref.	Tree reference number
Tag	Physical tag attached to some trees with unique identification number (not the same as Ref.)
Species	The trees' scientific and common name
Height	The measured/estimated height of the tree (measured in metres)
Branch Spread	The length of a tree's branches from stem to tip measured from the north, east, south and western sides of the crown.
Crown Clearance	Crown clearance is the measurement of height between the trees branches in the outer third of its crown and the floor. Crown clearance has only been recorded where it is considered to be of relevance to the proposed scheme. The height of the first significant branch is also generally recorded and is discussed where relevant.
DBH	Diameter of a trees' stem, measured as per BS 5837:2012
RPA	The root protection area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Life Stage	A quantification of a trees' state of physical maturity: <ul style="list-style-type: none"> • Young • Semi-mature • Early-Mature • Mature • Late-mature • Veteran • Dead
Structural	Summary statement relating to the structural condition of a tree: <ul style="list-style-type: none"> • Good (no apparent problems / normal optimal condition for a tree of its species.) • Fair (minor problems, no instabilities) • Poor (major problems, potential instabilities) • Unstable (extreme problems, likely to result in failure)
Vitality	Summary statement relating to the overall observed vitality of a tree: <ul style="list-style-type: none"> • Good (no apparent problems / normal optimal vitality for a tree of its species) • Fair (minor / temporary reduction in tree vitality) • Poor (major reduction in tree vitality, often with some branch dieback) • Dead / Dying (extreme / total reduction in tree vitality)
General Management Recommendations	Remedial tree works recommended regardless of whether the site is developed or not.
Facilitation Tree Works	Tree pruning/felling required in order to facilitate the implementation of the proposed development.
Development Related Tree Works	Tree works that are required as part of the proposed scheme.
Tolerance	The relative tolerance the species can show to construction related activities such as root-loss, soil compaction and other development pressures.
Cat.	Categorisation of the tree's value based on the methodology shown in A1.4. This rating takes into account the size, quality, condition, estimated remaining life expectancy and legal status of each tree.

A1.4 TREE CATEGORISATION METHODOLOGY

Category and definition	Criteria / Subcategories			Label on plan
	1 – Mainly arboricultural qualities	2 – Mainly landscape qualities	3 – Mainly cultural values/conservation	
Trees worthy of being a material constraint:				
<p>Category A</p> <p>Trees of high quality, capable of providing a significant contribution to local amenity (usually large in size) and that generally possess an estimated remaining life expectancy of 40+ years.</p>	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)	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Cat. A</div>
<p>Category B</p> <p>Trees of moderate quality and with an estimated remaining life expectancy of 20+ years, that are capable of providing a notable contribution to local amenity but are lacking the condition of category A trees (usually medium to large in size).</p>	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); 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	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Cat. B</div>
Trees worthy of material consideration:				
<p>Category C</p> <p>Trees of a low quality, small size, or incapability to be protected within the legal framework. These trees generally possess an estimated remaining life expectancy of 10+ years.</p>	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	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Cat. C</div>
Trees unsuitable for retention owing to condition:				
<p>Category U</p> <p>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.</p>	<ul style="list-style-type: none"> • 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 			<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Cat. U</div>

A1.5 SUMMARY OF DATA

- i) The following woody vegetation was considered to be of note in relation to any development of the site: 34 individual trees, 8 groups of trees, 11 hedges, 2 shrubs/groups of shrubs.
- ii) The following tables show the category distribution and life stage of the trees distributed within the site:

	Tree Category			
	A	B	C	U
Individual Trees	-	4	29	-
Groups	-	2	6	-
Woodland Groups	-	-	-	-
Hedges	-	-	11	-
Shrubs	-	-	2	-

Table 1 - Table showing category distribution within site.

	Life Stage						
	Young	Semi-Mature	Early-Mature	Mature	Late-Mature	Veteran	Dead
Individual Trees	3	2	2	25	1	-	-
Groups	-	1	5	2	-	-	-
Woodland Groups	-	-	-	-	-	-	-
Hedges	-	-	9	2	-	-	-
Shrubs	-	1	-	1	-	-	-

Table 2 - Table showing life stage distribution within the site.

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m ²)	Cat.
T1		Malus domestica (Apple)	2.5	2.3 / 2.3 / 2.3 / 2.3	1.75	184	Mature	Fair	Good					Good	2.2	15.3	C1
T2		Malus domestica (Apple)	2	2.3 / 2.3 / 2.3 / 2.3	1	175	Mature	Fair	Good					Good	2.1	13.9	C1
T3		Malus domestica (Apple)	2	2.3 / 2.3 / 2.3 / 2.3	1	140	Mature	Fair	Good	Historically collapsed - not of concern at this point in time.				Good	1.7	8.9	C1
T4		Malus domestica (Apple)	2.5	2.5 / 2.5 / 2.5 / 2.5	1.75	271	Mature	Fair	Good	Minor deadwood in crown - not of concern.				Good	3.3	33.2	C1
T5		Malus domestica (Apple)	2.5	2.5 / 2.5 / 2.5 / 2.5	1.75	163	Mature	Fair	Good	Minor deadwood in crown - not of concern.				Good	2.0	12.0	C1
T6		Malus domestica (Apple)	2	2.3 / 2.3 / 2.3 / 2.3	1	262	Mature	Fair	Good	Historically collapsed - not of concern at this point in time.				Good	3.1	31.1	C1
T7		Malus domestica (Apple)	2.5	2.5 / 2.5 / 2.5 / 2.5	1.75	149	Mature	Fair	Good	Minor deadwood in crown - not of concern.				Good	1.8	10.0	C1
T8		Prunus spp. (Cherry)	7.7	3.7 / 3.3 / 3.8 / 4.1	1.75	371	Mature	Fair	Good	Some decay in stem - not of concern at this point in time. Epicormic growth on stem of tree. Minor deadwood in crown - not of concern.				Moderate - Good	4.5	62.4	C1
T9		Acer palmatum (Japanese maple)	2	1 / 1 / 1 / 1		30	Young	Good	Good					-	0.4	0.4	C1
T10		Malus sylvestris (Crab apple)	2.5	2.3 / 2.3 / 2.3 / 2.3	1	108	Semi-Mature	Good	Good					Moderate - Good	1.3	5.3	C1
T11		Betula pendula (Silver birch)	15.3	3.5 / 4 / 4.5 / 3.5	1.5	300	Mature	Good	Good	Ilex aquifolium growing at the base of the tree.				Poor - Moderate	3.6	40.7	C1
T12		Malus domestica (Apple)	2.5	2.5 / 2.5 / 2.5 / 2.5	1.75	200	Mature	Fair	Good	Minor deadwood in crown - not of concern. Hollow stem with cavities. Low risk of harm. Fungal fruiting body present on stem of tree. (Inonotus hispidus)				Good	2.4	18.1	C1
T14		Betula pendula (Silver birch)	12.7	3.2 / 3.2 / 3.2 / 3.2	2	260	Mature	Good	Good	Crumbling concrete base to the base of the tree on the north western side.				Poor - Moderate	3.1	30.6	C1
T15		Taxus baccata (Yew)	8	2 / 2 / 2 / 2	2	150	Mature	Good	Good	Estimated dimensions used due to access restrictions. On neighbouring property.				Moderate - Good	1.8	10.2	C1
T16		Taxus baccata (Yew)	8	2 / 2 / 2 / 2	2	150	Mature	Good	Good	Estimated dimensions used due to access restrictions. On neighbouring property. Dense ivy on tree structure, obscuring full visual assessment. Phone line running through tree crown - no work needed.				Moderate - Good	1.8	10.2	C1
T17		Larix eurolepis (Hybrid Larch)	8	5.5 / 5.5 / 5.5 / 5.5	4	350	Mature	Fair	Fair	Estimated dimensions used due to access restrictions. On neighbouring property. Top of the tree has been reduced. Pegs left on stem. Phone line running through tree crown - no work needed.				-	4.2	55.4	B2
T18		Chamaecyparis Lawsoniana (Lawson cypress)	4.5	3 / 3 / 3 / 3		658	Late-Mature	Fair	Fair	Estimated dimensions used due to access restrictions. On the border of the property. Heavily reduced specimen, now cut and treated as a hedge growing as one with a Prunus laurocerasus.				Good	7.9	196.2	C3
T19		Cedrus deodara (Deodar cedar)	12.5	4.5 / 4.5 / 4.5 / 4.5		490	Early-Mature	Good	Good	Moderate ivy on the stem of the tree. Minor deadwood in crown - not of concern.				Good	5.9	108.6	B1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m ²)	Cat.
T20		Fraxinus excelsior (Ash)	16.5	9 / 9 / 9.1 / 8.2	1.3	686	Mature	Good	Good	Multi-stemmed tree. Historical Bark included union and natural braces - not of concern at this point in time. Stem bifurcates on one stem at 2.5 meters. Moderate size deadwood in crown.	Remove significant deadwood (>20mm diameter and 300mm in length).	Optional		Moderate	8.2	212.7	B1
T21		Cupressus spp.	2	0.25 / 0.25 / 0.25 / 0.25		36	Young	Good	Good					-	0.4	0.6	C1
T22		Ilex spp. (Holly)	5.5	1.5 / 1.5 / 1.5 / 1.5		100	Semi-Mature	Good	Good					Good	1.2	4.5	C1
T23		Salix spp. (Willow)	7	3.5 / 3.5 / 3.5 / 3.5		300	Mature	Good	Good	Estimated dimensions used due to access restrictions. On neighbouring property.				Good	3.6	40.7	C1
T24		Picea abies (Norway spruce)	8.2	3 / 3 / 3 / 3		300	Early-Mature	Good	Good	Estimated stem dimensions used due to access restrictions.				Poor - Moderate	3.6	40.7	C1
T25		Araucaria araucana (Monkey puzzle)	2	0.25 / 0.25 / 0.25 / 0.25		40	Young	Good	Good						0.5	0.7	C1
T26		Malus domestica (Apple)	5	3 / 3 / 3 / 5.5	1.9	350	Mature	Fair	Good	Minor deadwood in crown - not of concern. Cavities on the stem with decay. Low risk of harm. Tree has collapsed in the past - not of concern at this point in time.				Good	4.2	55.4	C1
T27		Malus domestica (Apple)	4.5	1.5 / 1.5 / 1.5 / 1.5	1.75	240	Mature	Fair	Good	Minor deadwood in crown - not of concern. Tree is in decline. Decay column in main stem.				Good	2.9	26.1	C1
T28		Thuja plicata (Western red cedar)	12	7 / 7 / 7 / 7		461	Mature	Fair	Good	Estimated dimensions used due to access restrictions.				Good	5.5	96.1	C1
T29		Malus domestica (Apple)	4.5	4 / 4 / 4 / 4	1.9	300	Mature	Fair	Good	Minor deadwood in crown - not of concern. Tree is in decline. Decay in main stem. Low risk of harm.				Good	3.6	40.7	C1
T30		Malus domestica (Apple)	2	1.5 / 1.5 / 1.5 / 1.5	2	135	Mature	Fair	Good					Good	1.6	8.2	C1
T31		Malus domestica (Apple)	2	1.5 / 1.5 / 1.5 / 1.5	1	110	Mature	Fair	Good					Good	1.3	5.5	C1
T32		Malus domestica (Apple)	2.5	3 / 3 / 3 / 3	1.5	220	Mature	Fair	Good					Good	2.6	21.9	C1
T33		Malus domestica (Apple)	2.5	2 / 2 / 2 / 2	1	227	Mature	Fair	Good					Good	2.7	23.3	C1
T34		Fraxinus excelsior (Ash)	18	7.3 / 7.3 / 7.3 / 7.3	2.4	911	Mature	Good	Good	Multi-stemmed tree. Moderate ivy on the stem of the tree. Moderate size deadwood in crown. Dieback in the canopy. Tight union.	Remove significant deadwood (>20mm diameter and 300mm in length).	Optional		Moderate	10.9	375.7	B1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m ²)	Cat.
G1		Mixed group	18	5 / 5 / 5 / 5		350	Mature	Fair	Fair	Client confirmed that this group was out of the scope of the survey. A woodland group of Betula pendula, Acer platanoides, over-mature Malus domestica, Castanea sativa with some small saplings of Quercus robur. There are large dead trees in the group. Betula pendula has Fungal fruiting body present on stem of tree. (Fomitopsis betulina). Major deadwood in crown. Dense vegetation to the base of the tree. Estimated dimensions used due to access restrictions. Fantastic habitat area.	Reduce dead stems to 5 meters and leave for habitat.	Optional		-	4.2	55.4	B1
G2		Fagus sylvatica (Beech)	16.5	7.5 / 7.5 / 7.5 / 7.5	2	450	Mature	Fair	Good	Estimated dimensions used due to access restrictions. A group of 4 Fagus sylvatica grown along the boundary. Pinus spp growing within the group. The largest stem is over 700mm the smallest is about 250mm in diameter. Bark included union - not of concern at this moment in time. Moderate size deadwood in crown. Epicormic growth at base of tree. Historic structural failure on largest specimen - not of concern.				Poor	5.4	91.6	B1
G3		Taxus baccata (Yew)	2	1 / 1 / 1 / 1		100	Early-Mature	Good	Good					Moderate - Good	1.2	4.5	C1
G4		Taxus baccata (Yew)	3.5	2 / 2 / 2 / 2		200	Early-Mature	Good	Good	Topiary. Estimated dimensions used due to access restrictions. On neighbouring property.				Moderate - Good	2.4	18.1	C1
G5		Mixed group	14	6 / 6 / 6 / 6	1.7	200	Early-Mature	Good	Good	A group consisting of Ilex aquifolium to the west side of the group, Acer platanoides and Acer pseudoplatanus in the centre, followed by Ilex aquifolium and Malus domestica to the east of the group.				-	2.4	18.1	C1
G6		Mixed group	7.5	4 / 4 / 4 / 4		200	Semi-Mature	Good	Good	A group consisting of Quercus robur X2, overgrown Ligustrum spp, Ilex aquifolium and Crataegus monogyna. They are growing as a shrubby group alongside the road.				-	2.4	18.1	C1
G7		Mixed group	9.5	3.5 / 3.5 / 3.5 / 3.5	2	220	Early-Mature	Fair	Fair	A group of Ilex aquifolium and Crataegus monogyna. Crataegus monogyna is in the early stage of decline. Minor deadwood in crown - not of concern. Dense vegetation to the base of the tree. Estimated dimensions used due to access restrictions. Smaller shrubs such as Syringa vulgaris within the group.				-	2.6	21.9	C1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m ²)	Cat.
G8		Prunus spp. (Cherry)	5	3 / 3 / 3 / 3		150	Early-Mature	Fair	Fair	Scrubby Prunus Spp growing on either side of T33. Dense ivy on tree structure, obscuring full visual assessment. Minor deadwood in crown - not of concern.				Moderate - Good	1.8	10.2	C3
H1		Mixed group	2	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	A native hedgerow of predominantly Ilex aquifolium, Prunus Spp.				-	0.6	1.1	C1
H2		Mixed group	2	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	A native hedgerow of predominantly Ilex aquifolium, Prunus Spp, Crataegus monogyna,				-	0.6	1.1	C1
H3		Mixed group	2	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	A native hedgerow of predominantly Ilex aquifolium, Prunus Spp, Prunus laurocerasus, Crataegus monogyna. Dense ivy on tree structure, obscuring full visual assessment - not of concern at this point in time.				-	0.6	1.1	C1
H4		Mixed group	8	2 / 2 / 2 / 2		150	Early-Mature	Good	Good	Hedge running along the driveway. A hedgerow of predominantly Prunus laurocerasus with some Chamaecyparis lawsoniana poking up within the hedge. Dead tree within the group.				-	1.8	10.2	C1
H5		Chamaecyparis Lawsoniana (Lawson cypress)	12	2 / 2 / 2 / 2		200	Mature	Good	Good	Hedge running along the driveway. A hedgerow of predominantly Chamaecyparis lawsoniana. Some trees lacks significant future potential.				Good	2.4	18.1	C3
H6		Mixed group	1.75	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	A native hedgerow of predominantly Ligustrum spp.				-	0.6	1.1	C1
H7		Mixed group	1.75	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	A native hedgerow of predominantly Prunus laurocerasus with some Ligustrum spp. Small semi mature trees growing on other side of hedge/ within the hedge.				-	0.6	1.1	C1
H8		Mixed group	2	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	Mixed species hedgerow. Species include: Chamaecyparis lawsoniana, Fagus sylvatica, Ilex aquifolium, Ligustrum spp, Betula spp. Phone line running through tree crown - no work needed. Height varies from 1.75-3 meters as you move north east along the hedge.				-	0.6	1.1	C1
H9		Fagus sylvatica (Beech)	2	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	Hedgerow consisting of predominantly Fagus sylvatica.				Poor	0.6	1.1	C1
H10		Mixed group	2	0.5 / 0.5 / 0.5 / 0.5		50	Early-Mature	Good	Good	A hedge comprising to start at the southern end with Thuja plicata, then Prunus Spp and Ilex aquifolium and finishing to the north end with Fagus sylvatica and Fagus sylvatica 'purpurea'.				-	0.6	1.1	C1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m ²)	Cat.
H11		Cupressus x leylandii (Leylandii)	12	7 / 7 / 7 / 7		300	Mature	Fair	Good	A large overgrown hedge. Hedge has been crown lifted to approximately 2 meters. There are 21+ trees within the hedge. Some branches are overextended. Moderate size deadwood in crown. Client is removing this hedge due to complaints from neighbours.				Good	3.6	40.7	C3
S1		Mixed group	2.5	1.5 / 1.5 / 1.5 / 1.5		70	Mature	Good	Good	A group of mixed shrubs. Species include: Viburnum spp, Syringa spp, Berberis spp.				-	0.8	2.2	C3
S2		Mixed group	1.5	1 / 1 / 1 / 1		50	Semi-Mature	Good	Good	A mixture of shrubs in beds around the house.			Remove	-	0.6	1.1	C3

APPENDIX 2

SITE PHOTOGRAPHS

APPENDIX 2 – SITE PHOTOGRAPHS

Note - Below is a selection of site photographs intended for general site context. Should you require supplementary site/tree photographs please contact info@lignaconsultancy.co.uk:



Figure 1 – Looking south west along the driveway.

APPENDIX 2 – SITE PHOTOGRAPHS



Figure 2 – Looking south east towards the existing dwelling.

APPENDIX 2 – SITE PHOTOGRAPHS



Figure 3 – Looking north east towards the existing dwelling.

APPENDIX 2 – SITE PHOTOGRAPHS



Figure 4 – Looking south east towards the site of the proposed dwelling.

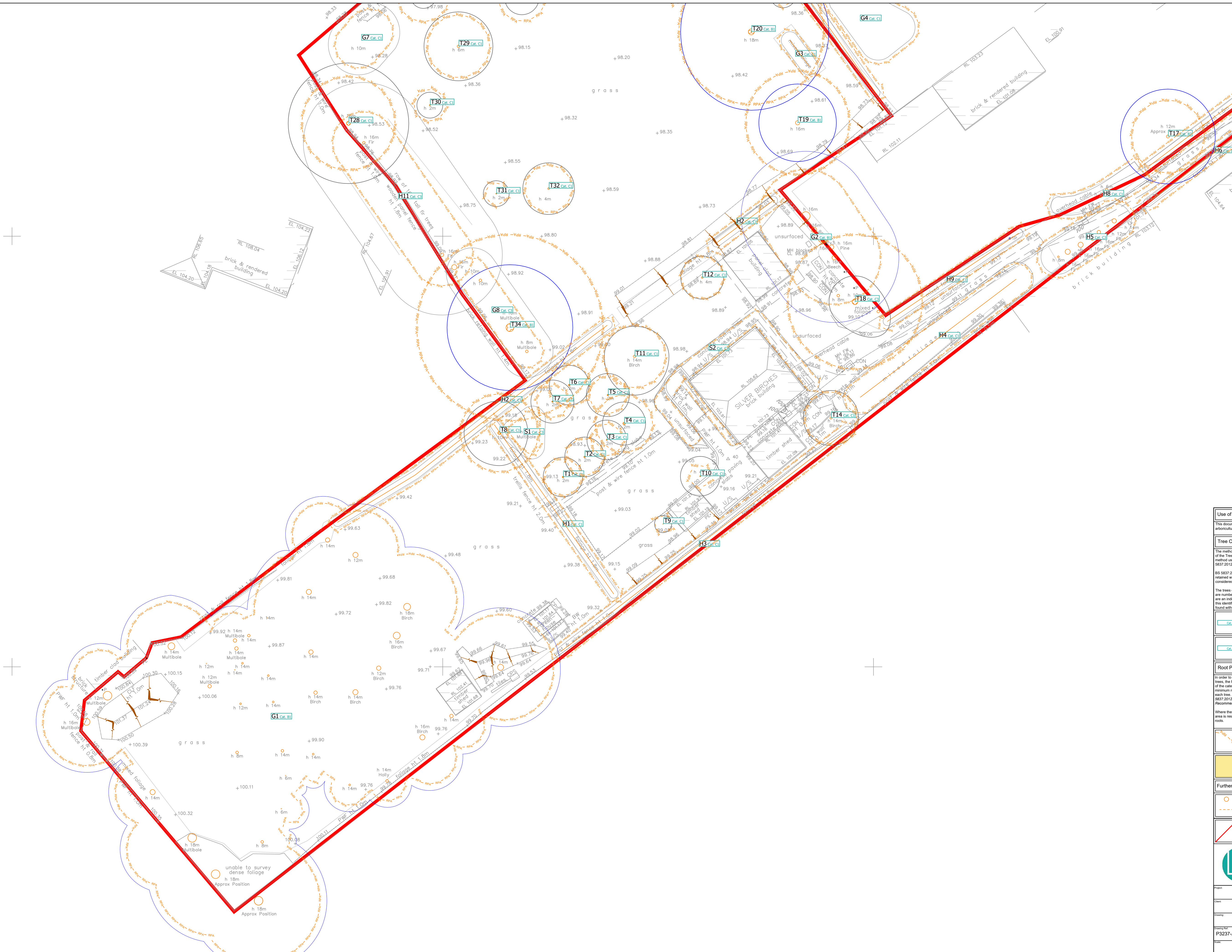
APPENDIX 2 – SITE PHOTOGRAPHS



Figure 5 – Looking south west at the existing property.

APPENDIX 3

ARB. SITE PLAN (EXISTING)



Use of This Document
 This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

Tree Categorisation & Numbering
 The method used for categorising the trees can be seen in Appendix 1 of the Trees Survey/Arboricultural Impact Assessment. The categorisation method used is an improved variation of the method suggested in BS 5837:2012.
 BS 5837:2012 recommends that better quality trees (Cat. A & B) are retained where possible. Trees in land adjacent to the site are considered where they may be impacted by development.
 The trees considered significant within the context of the development are numbered and assigned a prefix of 'T' or 'S' to describe whether they are an individual or a group, and 'H' or 'R' for a shrub or hedge. Using this identification number, further information for each tree/group can be found within the survey schedule.

Category A: High or numerous distinctive landscape or ecological value. (Highly valued material constant)	Category B: Moderate distinctive landscape or ecological value. (Highly valued material constant)
Category C: Low quality or small trees. (Not worthy of being a material constant)	Category U: Such poor quality or condition that it is not possible to estimate its value. (Not worthy of being a material constant)

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 and C trees. This is a notional depiction of the minimum rooting area in m² which should be left undisturbed around each tree. The RPA is calculated using the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations', unless otherwise stated within the survey schedule.
 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.

Root Protection Area (RPA): The notional area around each tree which should be left undisturbed during the development of the site.	RPA Incursion: An incursion into the root protection area of a retained tree which may result in root damage.
Arboriculturally Sensitive Development (ASD): A structure or surfacing to be removed using special methods to avoid damage to trees.	Specialist Foundations: Low impact foundations to be used to prevent underlying tree roots.

Further Object Key

Tree Stem: Stem line. Diameter of stem at 1.3m.	Tree Removal: Trees designated for removal will comprise of a steel filled canopy.
Site Boundary: Extent of site boundary (illustrative only).	Buildings/Structure to be Removed: Buildings or structures to be removed will generally be shown with a dashed red line.

Legend:
 Site Boundary: Extent of site boundary (illustrative only)
 Buildings/Structure to be Removed: Buildings or structures to be removed will generally be shown with a dashed red line

Logos:
 Ligna Consultancy

Project Information:
 Project: Silver Birches, Heronsgate
 Client: Richard Warman
 Drawing: Arboricultural Site Plan (Existing)
 Drawing No: P3237-ASP01.1 V2
 Date: 20/12/2023
 Scale: 1:200 - A1
 Drawn by: Alistair Godfrey

Topographical drawing (TS23-140-1-2D)

All dimensions should be checked on site. No dimensions to be used from this drawing. Please refer to the appropriate level. Ligna Consultancy Ltd. cannot be held responsible for any errors or omissions in this drawing or any other drawings. The drawing is designed to assist the process of the layout or design of the site and is not a substitute for a professional design. The drawing is not to be used for any other purpose without the written consent of Ligna Consultancy Ltd. This drawing was produced in colour - a monochrome copy should not be used.
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APPENDIX 4

ARB. SITE PLAN (PROPOSED)



LANDSCAPING NOTES.
 Grower driveway to be made good following construction works.
 Yorkstone paving to terrace areas, paths and front porch.
 Following removal of outbuildings and concrete bases, areas to be laid with best free topsoil and grass seedbed.

Client
ORCHARD ASSOCIATES
 29 AVES STREET
 HAYDON ON THE HILL
 MIDDLESEX
 MR R. WARMAN

Nov 2023
 1:200 of A1

Use of This Document
 This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

Tree Categorisation & Numbering
 The method used for categorising the trees can be seen in Appendix 1 of the Tree Survey/Arboricultural Impact Assessment. The categorisation method used is an improved variation of the method suggested in BS 5837:2012.

BS 5837:2012 recommends that better quality trees (Cat. A & B) are retained where possible. Trees in land adjacent to the site are considered where they may be impacted by development.

The trees considered significant within the context of the development are numbered and assigned a prefix of 'T' or 'G' to describe whether they are an individual or a group, and 'S' or 'H' for a shrub or hedge. Using this identification number, further information for each tree/group can be found within the survey schedule.

Category A: High or ancient trees of exceptional landscape or ecological value (diversity of tree material constant)	Category B: Medium or ancient trees of landscape or ecological value (diversity of tree material constant)
Category C: Low quality trees of little landscape or ecological value (diversity of tree material constant)	Category U: Such poor quality or small trees that they are not worthy of being a material constant

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 tree. The RPAs should be plotted around each tree which should be left undisturbed around each tree. The RPA is calculated using the method described in BS 5837:2012. Trees in relation to design, demolition and construction - Recommendations unless otherwise stated within the survey schedule.

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.

Root Protection Area: An area around each tree which should be left undisturbed during the development of the site.	RPA Incursion: An area around each tree which is within the root protection area but which may result in root damage to trees.
Arboriculturally Sensitive Demolition/Removal: A structure or surfacing to be removed using special methods to avoid damage to trees.	Specialist Foundations: Low impact foundations to be used to preserve underlying tree roots.

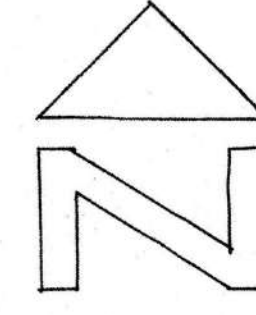
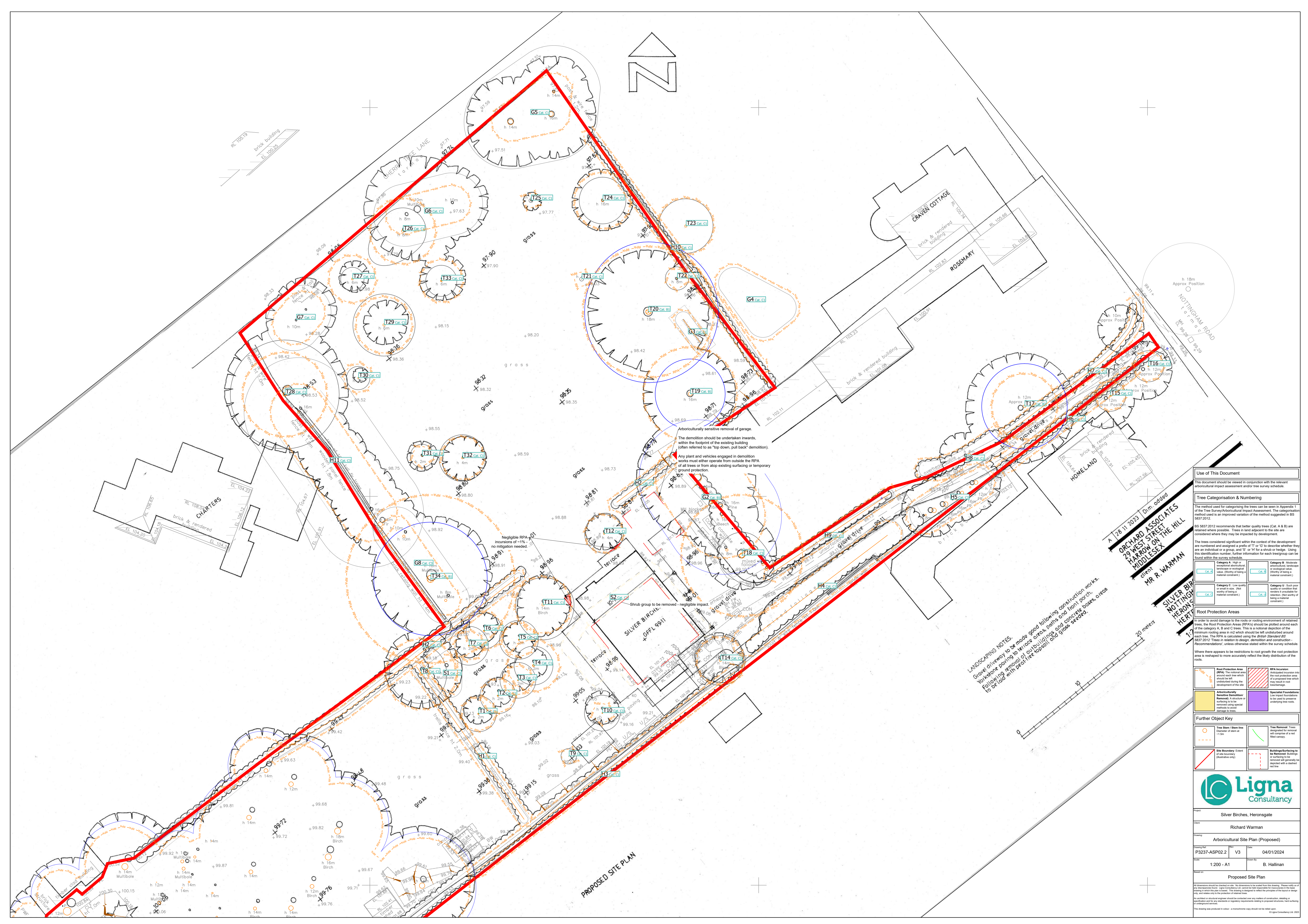
Further Object Key

Tree Stem / Stem Line: Diameter of stem at 1.3m	Tree Removal: Trees designated for removal with canopy of a well filled canopy
Site Boundary: Extent of site boundary (illustrative only)	Buildings/Surfacing to be Removed: Buildings or surfacing to be removed (not generally removed with a sealed red line)



Project: Silver Birches, Heronsgate
 Client: Richard Warman
 Drawing: Arboricultural Site Plan (Proposed)
 Drawing No: P3237-ASP02.1 V3
 Date: 04/01/2024
 Scale: 1:200 - A1
 Drawn by: B. Hallinan

Proposed Site Plan
 All dimensions should be checked on site. No dimensions shall be taken from this drawing. Please refer to the appropriate level. Ligna Consultancy Ltd cannot be held responsible for inaccuracies in the tree survey data which may be shown. This drawing is designed to assist the purposes of the report or design only, and is not intended to be used for any other purpose.
 An arboricultural site plan should be produced over one sheet of construction, detailing all significant trees and structures in relation to the proposed development. The arboricultural site plan should be produced in a landscape format and should be read from left to right.
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Arboriculturally sensitive removal of garage.
 The demolition should be undertaken inwards, within the footprint of the existing building (often referred to as "top down, pull back" demolition).
 Any plant and vehicles engaged in demolition works must either operate from outside the RPA of all trees or from atop existing surfacing or temporary ground protection.

Negligible RPA
 incursions of ~1%
 no mitigation needed.

Shrub group to be removed - negligible impact.

LANDSCAPING NOTES
 Grove driveway to be made good following construction works.
 Following removal of terrace areas, paths and iron postch. to be laid with peat-lite topsoil and grass sward.

PROPOSED SITE PLAN

Use of This Document

This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

Tree Categorisation & Numbering

The method used for categorising the trees can be seen in Appendix 1 of the Tree Survey/Arboricultural Impact Assessment. The categorisation method used is an improved variation of the method suggested in BS 5837:2012.

BS 5837:2012 recommends that better quality trees (Cat. A & B) are retained where possible. Trees in land adjacent to the site are considered where they may be impacted by development.

The trees considered significant within the context of the development are numbered and assigned a grade of '1' or '2' to describe whether they are an individual or a group, and 'S' or 'H' for a shrub or hedge. Using this identification number, further information for each tree/group can be found within the survey schedule.

Category A: High or ancient trees of exceptional landscape or ecological value (diversity of species, diversity of being a material constant)	Category B: Medium ancient trees of exceptional landscape or ecological value (diversity of species, diversity of being a material constant)
Category C: Low quality or mature trees of moderate landscape or ecological value (diversity of species, diversity of being a material constant)	Category U: Such poor quality or mature trees that renders it unsuitable for retention. Their removal is being a material constant.

Root Protection Areas

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPA) should be plotted around each tree of the category A, B and C trees. This is a notional depiction of the minimum rooting area in m² which should be left undisturbed around each tree. The RPA is calculated using the 'Standard 85' BS 5837:2012. Trees in relation to design, demolition and construction - Recommendations unless otherwise stated within the survey schedule.

Where there appears to be restriction to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

Root Protection Area (RPA) - Notional area around each tree which should be left undisturbed during the development of the site.	RPA Incursion - Any area within the RPA which is to be removed or disturbed.
Arboriculturally Sensitive Demolition/Removal - A structure or surfacing to be removed using special methods to avoid damage to trees.	Specialist Foundations - Low impact foundations to be used to preserve underlying tree roots.
Tree Stem / Stem Line - Diameter of stem at 1.3m.	Tree Removal - Trees designated for removal with canopy of a tree felled canopy.
Site Boundary - Extent of site boundary (illustrative only).	Buildings/Surfacing to be Retained - Building or surfacing to be retained. Building or surfacing to be removed will generally be shown with a dashed red line.



Silver Birches, Heronsgate

Client: Richard Warman

Drawing: Arboricultural Site Plan (Proposed)

Project No: P3237-ASP02.2 V3 Date: 04/01/2024

Scale: 1:200 - A1 Drawn by: B. Hallinan

Proposed Site Plan

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