Arboricultural Impact Assessment BS5837:2012

16 Lyndhurst Gardens, London, NW3 5NR

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Contact details

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Architect	Company	KSR Architects
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Report History					
Version	Date	Author	Checked by	Reason	Status
0.1	09/06	RJH	RJH	Approval	Draft
A	11/06	RJH	RJH	Submission	FInal
B	05/01	RJH	RJH	Updating of details and information	Final
C	18/01	RJH	RJH	Amendments	Final

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1. Summary

1.1 Outline of proposal

External alterations to front boundary and garden area, including the replacement of iron entrance gate, addition of iron railings to boundary wall, new planters, installation of new bin storage units, and rearrangement and alteration to hard landscaping areas (following removal of 2 brick storage units) and installation of bike storage area.

1.2 Age Class of trees

Young	Semi Mature	Middle Aged	Early Mature	Mature	Over Mature	TOTAL
			2	1		3

1.3 Category of trees

A			B			C			U
1	2	3	1	2	3	1	2	3	
			1			2			

1.4 Works required

No tree works will be required for this development. It will be necessary to remove the established hedge at the front. This can be hand dug and heeled into some soil and retained. Once all works are completed the hedge can be located back.

2. Instructions

1.1 This report has been prepared to discharge the instruction of client, Mr Goldberg 'The Client' in respect of detailed planning permission at 16 Lyndhurst Gardens, London, NW3 5NR

1.2 The Client, has commissioned a Tree Survey in compliance with BS5837: 2012 to prepare a Tree Survey, Arboricultural Constraints Assessment, Arboricultural Impact Assessment, Tree Protection Plan and a Method Statement for the trees at the site

1.3 The site survey was carried out on the 12th December 2021. The relevant qualitative and quantitative tree data and information was recorded to assess the condition of the trees, their constraints upon the proposed development and a summary on any proposed protection and construction specification required.

1.4 **Qualifications and experience:** I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture, and include a summary in Appendix V

1.5 All information given is in accordance with British Standards 5837:2012 – Trees in relation to design, demolition and construction – Recommendations.

I. Identification of tree by number value (collates with the associated plans)
II. Common tree species
III. Height (m)
IV. Stem diameter (mm) at 1.5m above ground using a DBH tape (or as per BS5837 fig C.1)
V. Branch spread to the four cardinal points (m)
VI. Existing height above ground of first branch and direction (m)
VII. Existing height above ground of canopy (m)
VIII. Life Stage (Young, Semi Mature, Early Mature, Mature, Over Mature)
IX. Estimated Remaining contribution (yrs) <10, 10+, 20+, 40+
X. General observations; Condition and Preliminary management recommendations; Physical condition and structural defects
XI. Category as per BS5837 Table 1
XII. Root Protection Area (RPA) radius (m)
XIII. Root Protection Area (RPA) m^2

3. Caveat

This advice and all appendices are subject to caveat as follows:

3.1. This report is nullified if any remedial works are undertaken on any area of the site, on or after the date of study/survey.

3.2. The report is only valid on the date on inspection and any deletion, editing or alteration will void it in its entirety.

3.3. The responsibility for any works undertaken on the basis of the recommendations of this report does not form part of this contract. No responsibility is assumed by the Author of this report or by Reuben Hayes for any legal matters that may arise as a consequence.

3.4. The Author of the report, will be required to attend court or give testimony as part of this contract. The report is not valid in adverse or unpredictable weather conditions or for any failure due to *Force Majure*.

3.5. No liability is assumed by the Author of the report for any misuse, misinterpretation or misrepresentation of information contained herein.

3.6. This report has been compiled using only the information made available to the Author as at the above date of inspection.

3.7. The assessment, unless described as “detailed” was of a preliminary nature, conducted from ground only; the tree was not climbed or inspected below ground level (inc. roots). There was no use of decay detection equipment, and only basic surveying instruments were used.

3.8. The Author did not have at the time of writing any information as to the integrity of the main structure, its annexes or the drainage system.

3.9. Water supply/drainage systems, if damaged, can allow roots to penetrate, however, if the system is sound, or after repair, roots have little capacity to access/damage underground services.

3.10. Any doubt as to the structural condition of properties would require the advice of a structural engineer.

3.11. Apex Environmental Ltd are not responsible for any works other than those invoiced for.

3.12. The observations are visual in nature and are made from ground level only, no climbing inspections have been carried out nor was there the use of binoculars.

4. Scope of Report

4.1 The aim of the report is to give guidance under the British Standards BS5837:2012 Trees in relation to design, demolition and construction. This will help to produce a harmonious and sustainable situation and long term development.

4.2 The report will identify the value and quality of the woody vegetation on and within impacting distance from the site. All data gathered will be used to identify and address the impacts that vegetation will have on the proposed development and the impact the development will have on the vegetation.

5. Documents Supplied

511 rev B – Proposed front garden plan & elevation – PDF
511A rev B – Proposed lighting plan – PDF
DWG working file

6. Legal and Policy Information

6.1. Tree Protection Orders:

The land is protected by a Tree Preservation Order (TPO Ref: C216A). Any works outside of those listed within the report will require a separate application.

6.2. Wildlife protection:

It is a criminal offence under normal circumstances to disturb or destroy – whether intentional or unintentional - the nesting sites of wild birds or the roost sites of bats, under the 'Wildlife & Countryside Act 1981 and the 'Countryside and Rights of Way Act 2000'. Therefore, avoid carrying out significant tree works during the bird nesting season [mid- March to end of July] and ensure that trees are professionally surveyed for signs of bat roosts and/or bat activity before starting any tree work. Further advice on protected species can be obtained from the local office of 'Natural England'.

6.3. Felling Licence:

Tree felling can also be restricted under the Forestry Act 1967. Under this act, there is an exemption from the need for a felling licence for "Felling necessary for the prevention of danger or the prevention or abatement of a nuisance".

If full planning consent is granted for the current proposal, then any trees which require felling to implement the approved plans are exempt from this statutory protection. It should also be considered that any proposed tree works detailed in the tree schedule are also implemented as part of the planning decision consent.

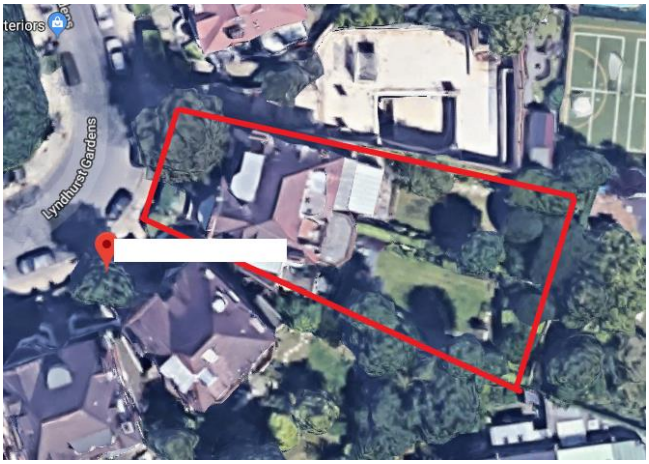
6.4. Conservation Area Protection:

The land is within a Conservation Area (Fitzjohns Netherhall). Any works outside of those listed within the report will require a separate application.

7. Site History and Application background

6.1 The Site is a large Victorian property with original front wall and pillars. The site is flat and mainly hardstanding to the front. There is a small raised planter with a Beech tree and a Privet hedge to the front.

6.2 Site location shown in red



Source: www.Google.com

6.3 There is a total of 1 tree and 2 hedges. This report has only listed the trees in connection to the main development on the site. There are other trees on the site which are not affected by the development and these have been excluded.

6.4 The proposal, to which this report pertains to, involves the: External alterations to front boundary and garden area, including the replacement of iron entrance gate, addition of iron railings to boundary wall, new planters, installation of new bin storage units, and rearrangement and alteration to hard landscaping areas (following removal of 2 brick storage units) to include a new bicycle storage area.

8. Tree and vegetation findings

8.1 The survey was carried out using the BS5837: 2012 methodology and is listed within the appendices attached.

8.2 A full appraisal of the site is listed as such

8.3 There is a Mature tree.

8.4 The tree can be retained during and after the development.

8.5 The tree is a category B.

8.6 Any works with regards to the overall application have been listed in this report.

8.7 Findings:

8.8 T.1 – Beech – This is a large mature tree in the front garden of 16. The tree is in good overall condition. The tree is growing within a raised planter which is showing signs of cracking. There are also some cracks to the front boundary wall in the same area. It is possible that this is due to pressure from tree roots. The nearby land is of hardstanding and there are some signs of cracking to the steps, which again could be from tree root damage (although no paving was lifted), and the hardstanding looked to established and it was seen that the tree had limited sources to moisture. The tree was free from fungus or defects in the lower stem. The tree looks to have been historically pollard at 4m. This has then been allowed to continue to grow to full height maturity. The has created a large dense canopy and there are signs of historical works to prune back the canopy (a separate search with London Borough of Camden, confirmed approval for the pruning back, thinning and crown lifting of this tree). This operation should be carried out again as the canopy is significantly shading the property (although this is not part of this application). This tree has been assessed as Category B1

8.9 H.1 and H.2 – Privet – This is a recently established hedge to the front of 16. The hedge is made up of small whips which have been established and starting to grow to the hedge.

9. Constraints posed by existing trees

9.1 It is necessary to assess the existing trees in relation to their potential constraints, these mainly being –

- The effect and extent of the proposed development will have on existing trees and their RPA.

10. Arboricultural Impact Assessment

10.1. Amenity value of the trees at the site

The Beech tree is a significant tree in the front garden of 16. It can clearly be seen along the street and full consideration must be given to this tree.

The Privet hedge is also noticeable and has some amenity value. However, it would be possible to recreate this hedge within a short time period.

10.2. Facilitation pruning works

The Beech tree is low over the road and pavement, however the proposal does not include heavy development works and will not require high sided vehicles to pass close to the tree.

10.3. Storage of materials, siting of welfare units and contractor parking

All storage of materials has been included on the Tree Protection Plan. This shows a small area on the other side of the driveway. It would also be possible to bring in materials only used for the day and offload to the front.

All parking will be on road and within controlled parking zones. Permits will be required for the works due to the heavy lifting. There are also nearby local transport links so it is possible for contractors to arrive on site without the use of vehicles (if not required).

All welfare can be housed within 16 and will not be required to locate any further offices or welfare units.

10.4. Incursions between layout (Drives, Parking areas, Paths, Landscaping) and the trees for retention

The application is to renovate the front area, this will include the removal of the existing concrete slabs, amendment to the raised planter and renew brickwork,

levelling of bin storage area and removal of step. Relay new floor with York stone slabs and new bin storage and bike parking area to front.

The existing paving has not moved or lifted, so it is unlikely that the works will have an impact on the tree roots, however it would be possible through a full Arboricultural Method Statement to carry out all works by hand and under the supervision of the Arboricultural Consultant.

The brickwork is to be removed and replaced to remove any cracks to the concrete. The area will also include the removal of the existing storage building and the installation of a new bike storage area. The wall of the storage will be pulled back slightly from the current damaged wall. This will allow for a new reinforced wall to be installed outside of the current damaged wall. This will also allow for a new more substantial foundation and wall to be included to stop future damage from occurring.

10.5. Tree works

No tree works will be required for this development. It will be necessary to remove the established hedge at the front. This can be hand dug and heeled into some soil and retained. Once all works are completed the hedge can be located back.

11. Concluding Statement

10.1 Having appraised the proposals and balanced the Standard's thinking against the will of our clients proposals; the author of the report can fully support this application as sound from the view of a competent, independent arboriculturist. (Reason): all reasonable concerns have been satisfied to the fullest standard.

10.2 The AMS will require details and methodology of works by hand close to tree roots (Reason): if accepted by the Local authority the AMS will bind the developer to the thinking of the Standard ensuring the retention of the good quality trees.

This concludes the report, if I can be of further assistance please do not hesitate to contact.

Signature:  Date: 5th January 2022

Managing Director for and on behalf of Apex Environmental Limited

Reuben Hayes M.Arbor.A; CMgr MCMI
Apex Environmental Ltd

12. Arboricultural terms

11.1 An "arboriculturist" is a person who has, through relevant education, training and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

11.2 A "Competent person" is someone who has had training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached. A competent person is expected to be able to advise on the best means by which the recommendations of the BS 5837: 2012 may be implemented.

11.3 A "tree survey" in the context of planning and development is taken to mean an assessment of the tree stock on site (or within area shown where appropriate), as individuals or groups. **(This is undertaken independent of and prior to any knowledge of a scheme being produced.)** Management recommendations in the tree survey schedule reflect the structural and physiological condition of the trees only. It is essential that the trees are assessed objectively and without reference to site layout proposals.

11.4 The "Construction" is a site-based operation with the potential to affect existing trees.

11.5 A "root protection area", or 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. The RPA area is worked out on a mathematical basis and listed in appendix III

11.6 "Construction Exclusion Zone" (CEZ) is based upon the RPA above and forms the exclusion zone to which access is prohibited during the project phase.

11.7 A "tree constraints plan", or TCP, is a scaled plan prepared by an arboriculturist showing the RPA and the accurate canopy spread of a tree, along with information to identify the tree by reference to a survey schedule, this will identify any under and above ground constraints. Author to produce this in AutoCAD.

11.8 An "arboricultural impact assessment", or AIA, is a study or report undertaken by the project arboriculturaist to include detailed information to evaluate the direct and indirect effects of the proposed design against the tree(s). As well as the potential future maintenance of the tree(s) against the proposed development, and where necessary recommends mitigation. The assessment should take account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees.

11.9 An "arboricultural method statement", or AMS, is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. NOTE The AMS is likely to include details of an on-site tree protection monitoring regime

11.10 A "tree protection plan", or TPP, is a scale plan and should be superimposed on a layout plan, based on the topographical survey, showing all hard surfacing and other existing structures within the RPA. The plan should clearly indicate the precise location of protective barriers to be erected to form a construction exclusion zone around the retained trees.

11.11 Other plans and documents may be referred to and annexed where appropriate.

11.12 Access facilitation pruning is a one-off tree pruning operation, the nature and effects of which are without significant adverse impact on the tree(s) physiology or amenity value, which is directly necessary to provide access for operation on site.

11.13 Services are any above- or below- ground structure or apparatus required for utility provision. Examples include drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.

11.14 Stem is the principal above-ground structural component(s) of a tree that supports its branches.

11.15 Structures are manufactured objects, such as a building, carriageway, path, wall, service run and built or excavated earthworks.

11.16 A 'Veteran tree' is recognized by a set criteria as set by British Standards 2998; 2010, Tree Work – Recommendations. This must show signs of biological, cultural or aesthetic value that are characteristic of, but not limited to, individuals surviving beyond the typical age range for the species concerned.

Appendix I – Tree Survey

TREE SURVEY TO THE BRITISH STANDARD 5837:2012 "TREES IN RELATION TO CONSTRUCTION - RECOMMENDATIONS"

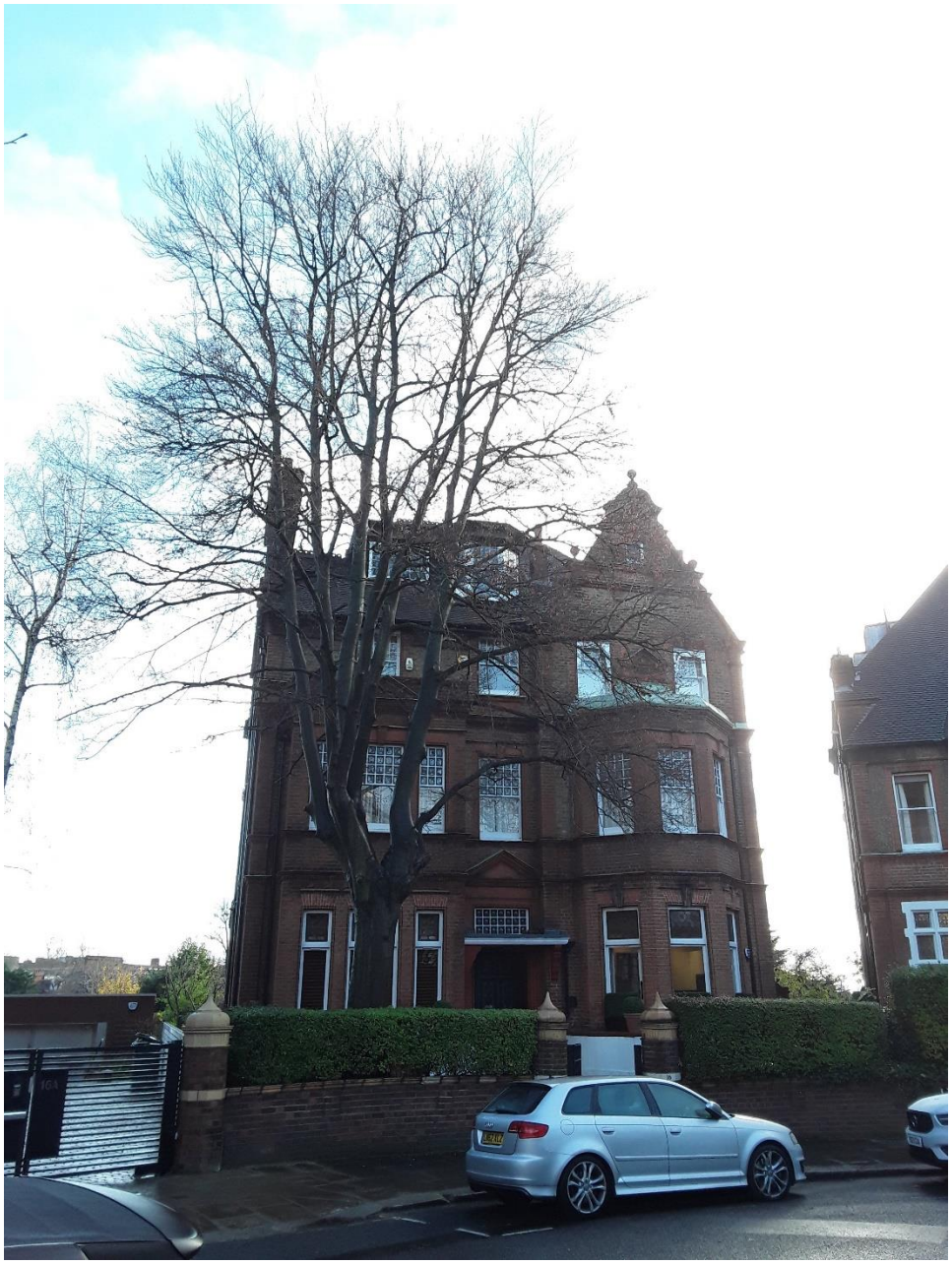
FIELD KEY:

- TREE No.	Tree identification method in sequential order – TXXX=Existing trees, GX=Group of trees, HX=Hedgerow
- SPECIES	Species and/or common name;
- HEIGHT in (m)	Approximate height of tree in metres;
- DBH in (mm)	Stem diameter in millimetres taken at 1.5 metres above ground level; AV=average diameter (see appendix III)
- Branch Spread in (m) N - E - S - W	Branch spread in metres reflecting the spread at the four principal compass points; N/A= Not Applicable in woodland settings
- Existing height above ground in (m)	Height in metres of crown clearance above existing ground level: To include first significant branch and direction of growth (e.g. 2.5 – N) Height of lower form of Canopy to inform current ground clearance, crown/stem ratio and shading
- Life Stage	Age classification (Y=young, SM=semi-mature, EM=early-mature, M=mature, LM=late-mature, OM=over-mature)
- Est. remain years	Approximate years remaining (+40=minimum of 40 years, +20=minimum of 20 years, +10=minimum of 10 years, <10 less than 10 years)
- General Observations	Condition of tree (good, fair, poor, dead); Structural and/or physiological condition, and/or preliminary management recommendations.
- Preliminary management recommendations	Works needed in order to retain tree in current setting or where works would be needed in order to facilitate development.
- Physical Condition and Structural Condition	Physiological condition (good, fair, poor, dead); to include and Structural defects such as the presence of any decay, fungal issues, pathogens, defects)
- RPA in (m^2)	Area directly calculated from the DBH measurement (single stem/multiple stem variant, as outlined within the Standard, see appendix III);
- TPO/CA	Presence of Tree Preservation Orders, catchment within a Conservation Area - when instructed/informed;
- Location	Either co-ordinates or visual markings to identify the tree in its current setting.
-	Structural condition (notes);
-	BS CATEGORY:

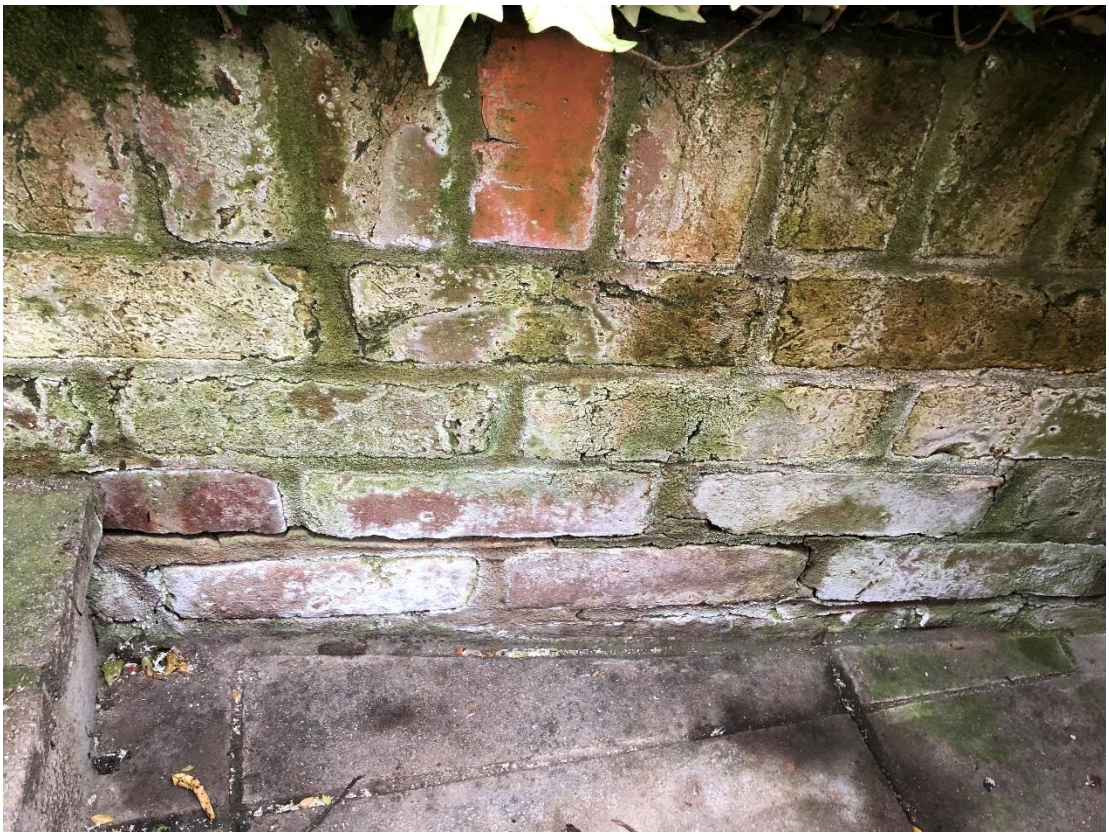
Ref.	Species	Measurements	General Observations	Retention Category	RPA	Condition
H2	Privet *(Ligustrum vulgare)*	Height (m): 1.5 Stem Diam (mm): 80 Spread (m): 0.5N, 0.5E, 0.5S, 0.5W Crown Clearance (m): 0 Lowest Branch (m): 0 Life Stage: Early Mature Rem. Contrib.: 40+ Years	Hedge to front, stems of small size and could be lifted	C1	Area: 2 sq m, plus a 1m buffer.	Other Reference: Distance1: Distance2: Custom Number 3: Physiological Cond: Fair Structural Cond: Good Bat Habitat: None
H3	Privet *(Ligustrum vulgare)*	Height (m): 1.5 Stem Diam (mm): 80 Spread (m): 0.5N, 0.5E, 0.5S, 0.5W Crown Clearance (m): 0 Lowest Branch (m): 0 Life Stage: Early Mature Rem. Contrib.: 40+ Years	Hedge to front, stems of small size and could be lifted	C1	Area: 3 sq m, plus a 1m buffer.	Other Reference: Distance1: Distance2: Custom Number 3: Physiological Cond: Fair Structural Cond: Good Bat Habitat: None

T1	Common Beech *(Fagus sylvatica)*	Height (m): 15 Stem Diam (mm): 670 Spread (m): 6N, 5E, 6.5S, 6W Crown Clearance (m): 3 Lowest Branch (m): 3(S) Life Stage: Mature Rem. Contrib.: 40+ Years	Causing damage to the walls, has been pollard at 4m in the past and allowed to form a new canopy. Fused branches at pollard so possible internal decay. Pruned back from building by 2.5m, no signs of fungus or decay, damage to retaining walls to the front by signs of step cracking. To the side there is a small dip with hard standing and a shed. There is a low retaining wall which has a large crack in it. This looks to be from direct damage from a root from the Beech tree. The damaged wall could be removed, and a new wall built just slightly off from the existing wall and reinforced to ensure future damage does not occur. Damage to wall is about 30mm open at the top and the crack is vertical showing that it cuts through the bricks and is in keeping with direct damage.	B1	Radius: 8.0m. Area: 201 sq m.	Other Reference: Distance1: 4.968 Distance2: 7.815 Custom Number 3: Physiological Cond: Fair Structural Cond: Fair Bat Habitat: None

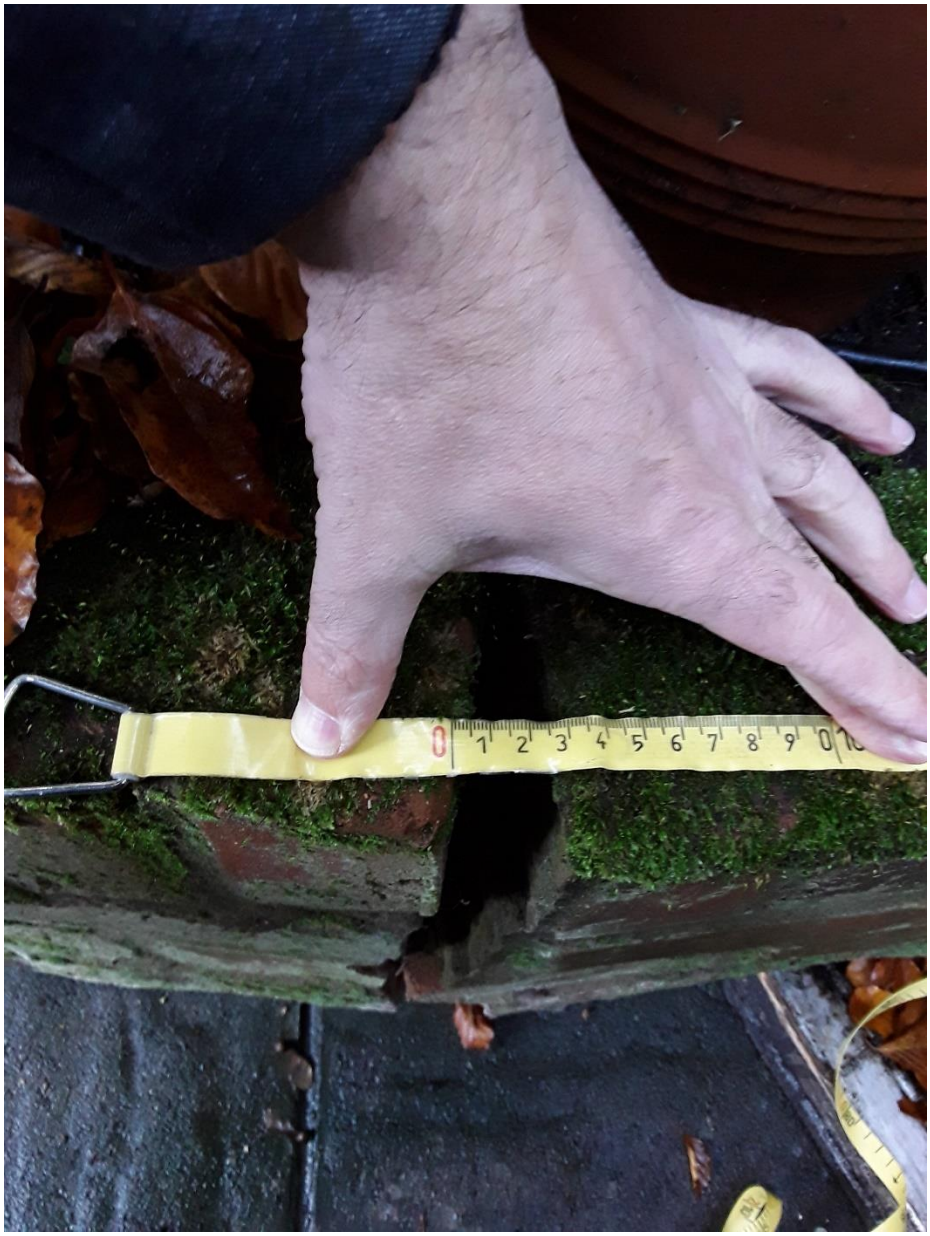
Appendix II – Photos



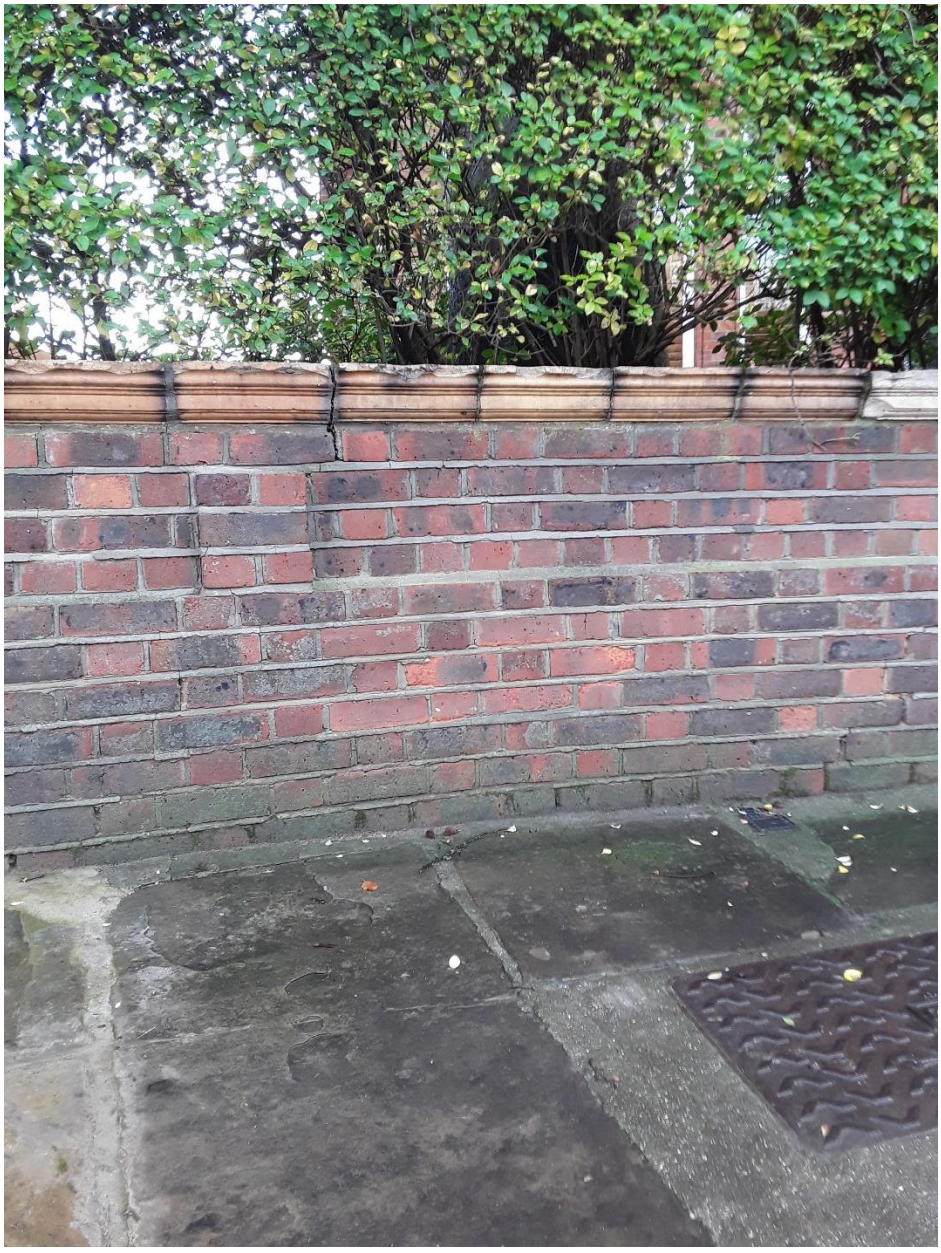
AEL-18129-PIC1 – Showing T.1 in front garden



AEL-18129-PIC2 – Showing small crack in wall close to T.1



AEL-18129-PIC3 – Showing more significant crack in wall that will require repairing.



AEL-18129-PIC4 – Showing front boundary wall with crack that will require repair.

Appendix III – Tree Categorisation Table (BS5837:2012)

Table 1 Cascade chart for tree quality assessment

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.*			See Table 2
	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)	See Table 2
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	See Table 2
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	See Table 2

Appendix IV – Bibliography

British Standards Institution (2010). BS3998 Tree Work - Recommendations, Stationery Office, London

British Standards Institution (2012). BS5837 Trees in relation to design, demolition and construction - Recommendations. Stationery Officer, London

Appendix V – About the author

Mr Reuben Hayes M.Arbor.A, MCMI

Qualifications

National Diploma (Tree Management and Arboriculture) (ND) (2000) – Warwickshire College
Higher National Diploma, Arboriculture (HND), July 2003 – Warwickshire College
CMI Management and Leadership (Level 5) – May 2015

Continued Professional Development

Professional Tree Inspection (PTI), July 2009 – Lantra Award
BS5837 – Trees in relation to Construction 2012 (refresher course) 2015
Mortgage report writing (refresher course) 2015

Membership of industry bodies

Professional Member of the Arboricultural Association - M.Arbor.A
Professional Member of Consulting Arborist Society (CAS)
Associate member of the Institute of Chartered Foresters
Chartered Management Institute – CMgr MCMI
Institute of Directors – (IoD)

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