Arboricultural Report & Impact Assessment

For Development Purposes (BS 5837: 2005)

at

Site Address

Eastlogs
Mount Bovers Lane
Hockley

Produced by

Ivan Button N.C.H. (Arb), FDSc (Arb), BSc. (Hons), P.G.C.E. M. Arbor. A.

Of

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On Behalf of

Betterview Windows & Conservatories - Kent Ltd

Dated

13th July 2009

Arboricultural Consultants

Contents

1. Introduction

1.1. Instructions and References

1.1.1. I am instructed by Gregory Forgeaud of Betterview Windows & Conservatories to conduct an Arboricultural Survey to BS 5837: 2005 at Eastlogs, Mount Bovers Lane and produce my findings in a report. I have also been instructed to produce an Impact Assessment which is to be found at Section 5.

1.1.2. I have been supplied with a measured plan with the majority of trees plotted. I have plotted additional trees according to measurements taken on site.

1.1.3. I have studied a plan depicting the development proposals and have transposed the relevant details onto the plan at Appendix 6.

1.1.4. I have liaised with Mr Forgeaud throughout the writing of this report in order to attain an adequate understanding of the project to enable me to carry out an accurate assessment.

1.2. Scope and Purpose of the Report

1.2.1. This report is designed to accompany a planning application for development proposals at the above site. Its purpose is to assist and inform the planning process according to guidelines laid out in BS 5837 (2005).

1.2.2. This report is based on a survey carried out from ground level. No climbed inspections or specialist decay detection was undertaken. Only trees with a stem diameter over 75mm are included which lie within the site boundary or close enough to be affected by development.

1.2.3. Where appropriate, potentially hazardous trees are highlighted and appropriate recommendations are made. However, this report should not be seen as a substitute for a full *Safety Survey* or *Management Plan* which are specifically designed to minimise risk and liability associated with responsibility for trees.

1.3. Navigating Through the Report

1.3.1. Following this introduction is a general description of the site, followed by a record of all the tree data gathered during the survey. Section 4 deals with any safety issues and general tree maintenance and Section 5 discusses the impact of the development proposals. Photographs of the site are at Section 6.

1.3.2. People unfamiliar with BS 5837 surveys and reports or shall find detailed guidance within the Appendices:

- Appendix 1 describes our interpretation of the British Standard.
- Appendix 2 explains how the survey is carried out.
- Appendix 4 explains the terms used within the Tree Data Schedule and incorporates a glossary of all technical terms used throughout the report.

1.3.3. All persons should refer to the plan within Appendix 6.

2. Site Overview

2.1. Location

2.1.1. The site lies within the southern outskirts of Hockley. The co-ordinates are 51°35'32.62"N 0°39'45.72"E, the OS reference is: TQ 8453891530 and the altitude is 27m above sea level.

2.1.2. My survey was limited to the area shown in Figure 1. I understand that this is sufficient to consider the impact of the proposed development.

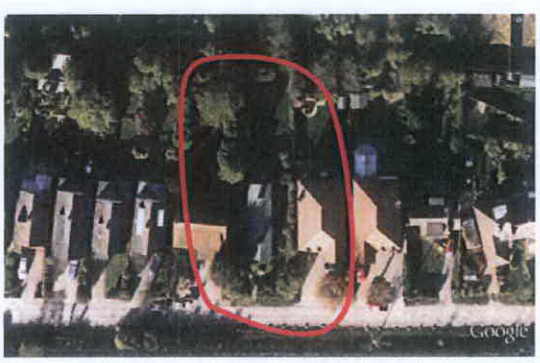


Figure 1 Extent of the survey.

2.2. Site Use

2.2.1. The site is currently a vacant plot. I understand that a former residential property has been demolished and that services into the site have already been installed.

2.3. Topography

2.3.1. The site is approximately flat with no abrupt level changes.

2.4. Amenity

2.4.1. There are no trees of high amenity within the site. Trees with the highest amenity are T1 and T4 which are located within the adjacent garden.

Photo 1. View into the rear of the site.

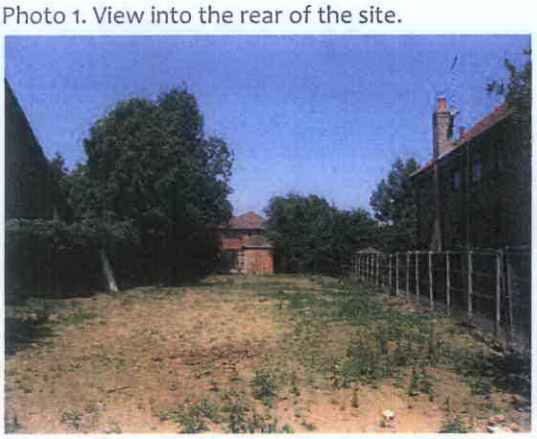
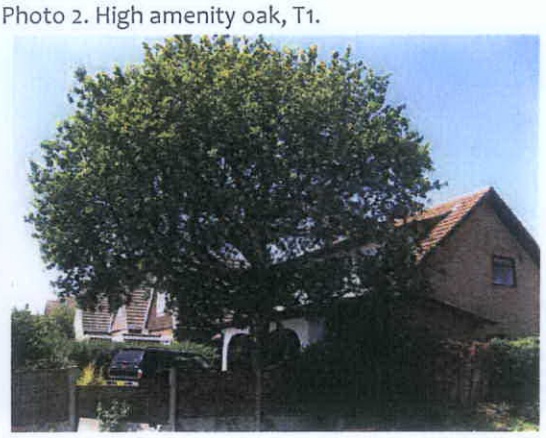


Photo 2. High amenity oak, T1.



Dashboard

Welcome to the Dashboard. This section offers an overview of the report.

The pie charts to the right present key statistics found within our survey. The bar charts below indicate the age distribution, species distribution and the works we have recommended. Other sections within the dashboard are self explanatory.

Please read the introductory notes within Section 1 which explain how to navigate through the report and locate all the required information.

Tree Protection Status

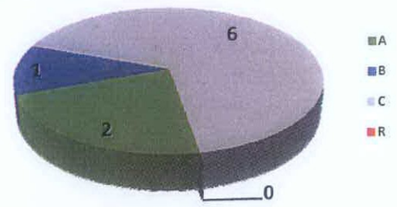
We are informed that:

- The site is not within a conservation area.
- There are no TPO's on, or immediately adjacent to, the site.

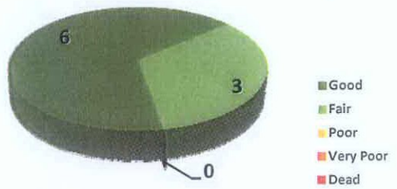
See Section 4 for further details.

Trees surveyed as individual specimens: 8
groups: 1
hedges: 0
shrubs: 0

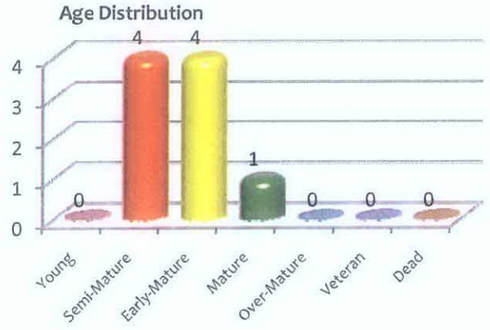
Retention Categories



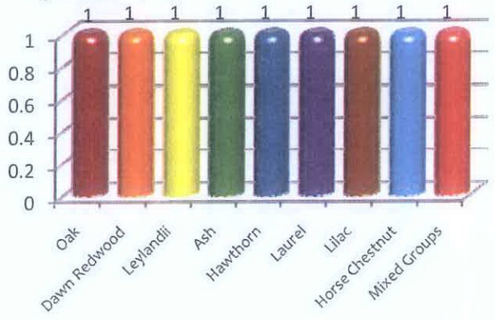
Structural Condition



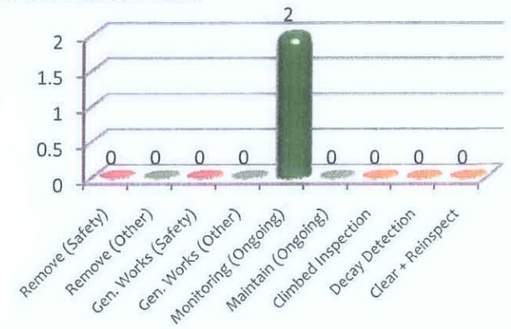
Age Distribution



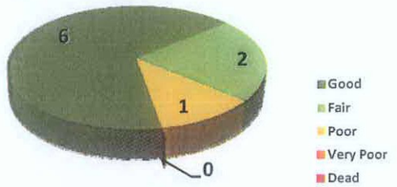
Species Diversity



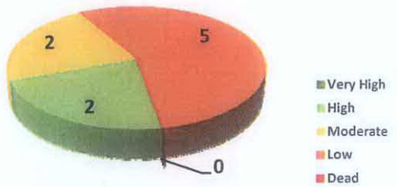
Recommended Works



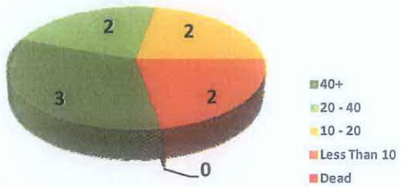
Physical Condition



Amenity Values



Life Expectancy



Summary.

- It is proposed to construct a detached two storey residential dwelling within a vacant plot.
- A survey was conducted to BS5837. The condition of all trees on site was assessed and a Retention Category was allocated. Tree positions and Root Protection Areas are plotted on a Tree Constraints Plan.
- An Arboricultural Impact Assessment has also been included.
- No trees are to be removed to facilitate the development.
- Some pruning works will be required to the oak tree (T1) located within the adjacent garden.
- Sympathetic construction techniques are to be used in order to minimise the impact on the roots of T1.
- It is recommended that an arboricultural method statement is agreed with the local authority and enforced throughout the construction phase in order to ensure that the retained trees are not damaged by construction activity.

These points are further discussed in sections 4 and 5.

Site Location: Eastlogs

Extent of the survey

Contact Details.

Local Authority:	Rochford District Council		
Tree Officer:	Eleanor - Administrator / Woodland Dept	Tel.	01702 546366
Arboricultural Consultant:	Ivan Button (Crown Consultants Ltd).	Tel.	01422 316660

3. Tree Data Table

The following pages contain information gathered for each tree during the survey conducted on 1st July 2009

The reader should refer to Appendix 3 in order to correctly interpret the tree data.

All images within the Tree Data Table are diagrammatical only. Their purpose is to indicate, at a glance, the relative dimensions of each tree. The images are computer generated based on measurements recorded for stem diameter, crown spread, crown height and overall height. Often the image will reflect the individual species type. However, the specific form of the tree is not represented.

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) W	N	E	S	Scaled Tree Diagram (m)	Notes	Recommendations Priority	Inspect Freq (yrs)	Vigour / Physiological Condition / Structural Condition	Amenity Value / Life Expectancy (yrs) / Retention Category
T1	Early-Mature **Oak** Quercus robur	8.5	2.5	40	4	4	4.5	5		Position: Situated on third party land. Crown overhangs the boundary by 3.8m. Form: Single stemmed and vertical with a well-developed crown, good branch junctions throughout. History: Previously crown reduced. **Defects: Significant tear wound @ 4m.**	Monitor. Moderate	1.5	High Good Good	High 40+ A
T2	Early-Mature **Dawn Redwood** Metasequoia glyptostroboides	9	2	Est 40	4	2	3.5	4		Position: Situated on third party land. Crown overhangs the boundary by 3m. Form: Single stemmed and vertical with a dense crown. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required. n/a	3	High Good Good	Moderate 40+ B+
T3	Semi-Mature **Leylandii** X Cupressocyparis leylandii	4	0	20	1.5	1.5	1.5	1.5		Position: Situated on third party land. Form: Hedge. History: Occaisionally maintained. **Defects: No significant defects.** Other: Good specimen.	No action required. n/a	3	High Good Good	Low 20-40 C
T4	Mature **Ash** Fraxinus excelsior	13	4	Est 55	8	7	7	7		Position: Situated on third party land. Crown overhangs the boundary by 3m. Form: Twin-stemmed at 2m with a well-developed crown, good branch junctions throughout. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required. n/a	3	High Good Good	High 40+ A
T5	Early-Mature **Hawthorn** Crataegus monogyna	7	4	Est 40	2	3	4	2		Position: Situated on third party land. Form: Twin-stemmed at 2.5m with a dense crown. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required. n/a	3	Moderate Fair Fair	Low 10-20 C
G6	Semi-Mature **Mixed, Mainly Hawthorn**	av 4	av 0	av 9	1.5	av 1.5	1.5	1.5 each		Position: North east corner of site. Form: Dense thitckett. History: Unmanaged. **Defects: No significant defects.**	No action required. n/a	3	High Good Good	Low 10-20 C
T7	Semi-Mature **Laurel** Laurus nobilis	4	0	25 @ Base	2	2.5	2	2		Position: Adjacent east boundary. Form: Multi-stemmed at ground level with a dense crown. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required. n/a	3	High Good Good	Low 20-40 C

Reference (G = Group, H = Hedge)	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) W	N	E	S	Scaled Tree Diagram (m)	Notes	Recommendations: Priority	Inspect Freq (yrs)	Vigour: Physiological Condition	Structural Condition	Amenity Value: Life Expectancy (yrs)	Retention Category
T8	Semi-Mature **Lilac** Syringa vulgaris	3	1	5	1	0 1	1			Position: Adjacent east boundary. Form: Single stemmed and leaning with a sparse crown. History: No evidence of significant pruning. **Defects: No significant defects.** Other: Insignificant specimen.	No action required. n/a	3	Low Fair	Fair	Low <10	C-
T9	Early-Mature **Horse Chestnut** Aesculus hippocastanum	8	3	55	4	5 4	4			Position: Situated on third party land. Form: Single stemmed and vertical with a dense crown. History: Previously crown reduced. **Defects: Infected with Bleeding Canker of Horse Chestnut.**	Monitor. Moderate	1	Low Poor	Fair	Moderate <10	C

4. Tree Condition and Recommendations

This section gives an overview of the trees surveyed and highlights any safety concerns. Recommendations are made for management purposes and are independent of development proposals. The tree data schedule within the previous section should also be consulted as this gives a detailed description of individual specimens.

4.1. Summary of our findings:

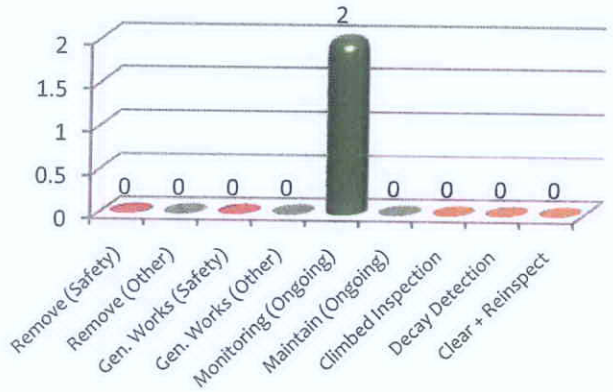
4.1.1. Trees which are considered to be in an acceptable condition at present but which have defects which require monitoring include T1 & T9. T1 has a significant bark wound to its lower stem. T9 is a horse chestnut which is exhibiting early symptoms of Bleeding Canker of Horse Chestnut. Both trees are located in adjacent gardens.

4.1.2. All other trees are deemed to be in an acceptable condition and no further works have been recommended.

4.2. Work priority and future management.

4.2.1. The Tree Data Schedule at Section 3 details what works are required to individual trees in order to ensure that they are in an acceptable condition. The chart below summarises these works.

Work Summary Table



Key:

Bars coloured red indicate hazardous trees.

Bars coloured orange indicate trees which may be hazardous and require further investigation.

Bars coloured green indicate trees which are not hazardous and the work is therefore of a lower priority.

4.2.2. The recommended works should be prioritised according to the table below:

Work Priority	Definition	Tree Number:
Urgent	As soon as possible	None
Very High	Within 1 Month	None
High	Within 3 Months	None
Moderate	Within 1 year	T1, T9
Low	Within 3 years	None

4.2.3. Upon completion of these works and any subsequent recommendations, the trees shall be in an acceptable condition from a safety perspective. However, they should be regularly inspected according to the following schedule:

Inspection Frequency (years)	Tree Number:
0.5	None
1	T9
1.5	T1
3	T2, T3, T4, T5, G6, T7, T8

4.3. Tree Protection Status

4.3.1. On 13th July 2009, we were informed, by Eleanor (administrator to the Woodland Dept) of Rochford District Council that:

- The site is not within a conservation area.
- There are no Tree Preservation Orders affecting trees within the site.
- There are no Tree Preservation Orders on trees immediately adjacent to the site.

4.3.2. Heavy fines exist for carrying out unauthorised works to protected trees so we advise that further checks are made in case new TPOs have been created since the time of writing this report or we have been misinformed.

5. Arboricultural Impact Assessment

5.1. Overview of the Development

5.1.1. It is proposed to construct a two storey detached residential building.

5.1.2. Vehicular access shall be from Mount Bovers lane on the right hand side of the property.

5.2. Impact of Tree Loss / Pruning

5.2.1. No trees are to be removed to facilitate the development.

5.2.2. T1 shall require some crown lifting and crown reduction in order to provide an adequate clearance distance from the front - left corner of the proposed building. So long as this is done in a sympathetic manner there shall be no long term detrimental impact on the physiology and form of this tree. Oak trees are tolerant of even quite heavy pruning. T1 is located close to the neighbouring property and will require ongoing maintenance work regardless of the development.

5.3. Mitigation Planting

5.3.1. No significant trees are to be removed so no mitigation planting is proposed as part of this development.

5.4. Impact of General Construction Activity

5.4.1. Adequate tree protection measures shall need to be established before any construction activity takes place. An agreed methodology should be established, detailing all necessary protection measures, to ensure that the impact from general construction activity is minimised. Particular care will need to be taken close to T1 as it will not be practicable to fence off the entire Root Protection Area of this tree. A combination of sympathetic foundations and stringent ground protection measures should ensure that the impact on this tree is relatively minor.

5.5. Impact of Demolition / Removal of Surfaces

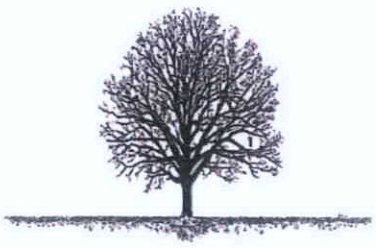
5.5.1. There are no structures that require demolition or surfaces that require removal.

5.6. Impact of Changes in Ground Levels

5.6.1. I understand that no changes in ground levels are proposed.

5.7. Impact of Changes in Ground Surfaces

5.7.1. The majority of tree roots lie within the upper soil horizons. This is because the availability of oxygen decreases with depth and roots need to breathe to stay alive. In addition, nutrients are more readily available in the form of organic matter close to the soil surface.



5.7.2. Healthy soils contain about 25% air space between solid particles. If vehicles are driven

repeatedly over soil, the air is squeezed out as the soil becomes compacted and roots are not be able to breathe.

5.7.3. It is proposed to create a car parking area to the front of the property which will extend over the Root Protection Area of T1. I understand that a paved surface shall be installed using the minimum excavation method, incorporating a cellular confinement system within the sub-base. This shall prevent unnecessary root severance and soil compaction but allow rainwater and oxygen to permeate to the roots of T1.

5.7.4. T7 and T8 are insignificant specimens (see photograph 6 within Section 6). The ownership of these trees was not clear to me at the time of the survey as the boundary was not clearly marked. If these trees are situated within the site, consideration should be given to their removal and replacement with better quality specimens. If the trees are on adjacent land, consideration will need to be given to protecting their roots from disturbance. This could be achieved by providing a narrow planting strip adjacent to the proposed driveway.

5.7.5. **Pedestrian Paving.** If pedestrian paving is to be installed within the Root Protection Area of T4, this will need to be done with minimum excavation to avoid root severance.

5.8. Impact of Underground Services and Drainage

5.8.1. I understand that it is proposed to connect to existing services within the site so no additional trenching is proposed through Root Protection Areas.

5.9. Impact of Overground Services

5.9.1. The installation of overground services is not likely to have a significant arboricultural impact due to the lack of trees within the site at the front of the property.

5.10. Impact of Foundations

5.10.1. I understand that it is proposed to utilise piled foundations where the property passes within the Root Protection Area of T1, and that excavation of no more than 300mm shall be required to install a load bearing beam (or raft) over the piles.

5.10.2. Approximately 6% of the Root Protection Area of T1 shall be affected and the original building foundations will have occupied approximately half of this affected area. Consequently, the impact of foundations shall be minimal. Some root severance is likely to occur though this is not likely to have a significant detrimental impact on T1. The effects of root severance shall be offset by the overhead pruning works which will create a reduced demand for water and nutrient uptake.

5.11. Hazardous Materials

5.11.1. All hazardous materials (including cement and petrochemical products) will need to be controlled according to COSHH regulations in order to ensure there is no detrimental impact on tree health. Provision shall need to be made to ensure that cement and cement run-off are contained outside of all Root Protection Areas.

5.12. Boundary Treatments

5.12.1. If fences or hedges are to be installed within the RPAs of retained trees this must be done in a manner that involves minimal excavation. Boundary walls will not be acceptable over any Root Protection Areas.

5.13. Effect of Retained Trees on the Development

5.13.1. T1 shall require occasional pruning in order to ensure an adequate clearance distance is maintained. This tree shall cast some shade over the property during the afternoon. However, the property shall benefit from full sunshine during the morning and partial sunshine during the afternoon. During the early evening, shade shall be cast predominantly by the adjacent property to the west, though I understand that no windows of habitable rooms will be facing in this direction.

5.13.2. The gutters will need occasional maintenance to avoid blockage. The dwelling would benefit from the installation of controlled overflow guttering to minimise the impact from leaf fall from T1.

5.13.3. The gardens will need clearing of leaves in autumn as is the case with all properties situated in the vicinity of trees.

5.13.4. The trees already currently impact on the existing dwelling so the development proposal shall not result in an increase in the perceived nuisance afforded by the trees.

5.13.5. These impacts will have been present with the original property so the development proposal shall not result in an increase in the perceived nuisance afforded by the trees.

6. Photographs

Photo 3. Showing the extent of overhang of T1.

Photo 4. View along the west boundary.

Photo 5. T2, H3, T4 and T5.

Photo 6. T7 and T8, with T9 in the background.

7. Signature

This report represents a true and factual account of the trees at

Eastlogs
Mount Bovers Lane
Hockley

Signed

.....

Ivan Button N.C.H. (Arb), FDSc (Arb), BSc (Hons), P.G.C.E., M. Arbor. A.

on behalf of

Crown Consultants Ltd

Dated

13th July 2009

Arboricultural Consultants

Appendix 1: Understanding BS 5837: 2005

Aimed predominantly at arboriculturalists, architects, developers and planners, this Standard offers a balanced approach to harmonising development with existing trees. It acknowledges the positive contribution trees may offer to a site, as well as the negative aspects of retaining inappropriate trees. The stresses that development may place on existing trees are recognised, and guidance is offered regarding solutions. The Standard suggests a three stage approach:

A1.1 Stage 1: Initial Survey and Report

This identifies the existing trees and allocates to each a ***Retention Category*** which takes into account amenity value, condition and realistic life expectancy. The categories are allocated independently of development proposals. Our interpretation of the retention categories is explained below:

A1.1.1 Retention Categories

A Category: Trees of high quality and amenity. Usually, mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

B Category: Trees of moderate quality and amenity. Usually mature trees, or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.

C Category: Trees of low quality and amenity. The removal of these trees should generally be seen as acceptable in order to facilitate development.

R Category: Trees whose structural condition is such that they should be removed if development is to proceed.

A1.1.2 Occasionally trees are borderline and do not fall neatly into one of the categories A, B or C. In such cases we apply a superscript ($^{+/-}$) such that:

C^{+} Indicates borderline C/B, though Category C is deemed to be the most appropriate.

B^{-} Indicates borderline C/B, though Category B is deemed to be the most appropriate.

A1.1.3 The British Standard suggests that each of the A, B and C categories should be further subdivided (A1, A2, A3, B1, B2, B3 etc) such that subcategory 1 denotes mainly arboricultural values, subcategory 2 denotes mainly landscape values and subcategory 3 denotes mainly cultural values (including conservation). Multiple subcategories may be used.

Our experience suggests that these subdivisions lack clarity and often confuse the reader. Within this report subcategories are **not** denoted. It can be assumed that all retention categories are dictated by the individual qualities of each specimen. Where appropriate, the use of phrases such as *'Part of a formal group'*, or *'Has a high ecological value'*, or *'Offers good screening to the site'* are incorporated into the observation section of the Tree Data Schedule at Appendix 5. We believe this conveys all relevant landscape and cultural information without unnecessary confusion. Any person wishing clarification regarding subcategories of any trees surveyed should contact the author.

A1.1.4 **Tree Constraints Plan (TCP).** This indicates the position, crown spread, retention category and root protection area (RPA) of each tree and is used to inform where development may proceed without causing damage to trees.

The RPA marked on the TCP is the area within which the majority of roots are expected to lie. No significant detrimental effects are expected if the RPA can be completely avoided. The Standard suggests a simple formula whereby "radius of RPA" = "12 x stem diameter". This is modified (according to the Standard) to take into account specific factors which influence rooting activity, e.g. underground structures. In exceptional circumstances it may be acceptable to make incursions into the RPA, though this should be discussed with an arboriculturalist and may ultimately lead to the refusal of planning consent.

The British Standard suggests that shading should be indicated on the TCP, denoted as a circle-segment drawn northwest to due-east with a radius equal to the height of the tree. We deem this to be misleading since it does not reflect true shading patterns which vary dramatically according to tree form, time of year and time of day. For these reasons we do not generally illustrate shade constraints according to this formula, though if requested we will provide them.

A1.2 Stage 2: Arboricultural Impact Assessment

This type of report identifies and evaluates the impact that development may have on existing trees and vice versa.

A1.3 Stage 3: Arboricultural Method Statement

This type of report indicates the necessary methodology required to protect trees from potential damage during the development process. Typical issues addressed are direct damage to trunk and branches, by cranes or other equipment, damage to roots caused by installation of underground services or foundations, and the use of chemicals which are hazardous to tree health, e.g. cement.

One of the primary concerns of this type of report is soil compaction caused by traffic passing over tree rooting areas. This is easily overlooked by developers, though it prevents roots from accessing oxygen and may lead to a significant deterioration in tree health.

A *Method Statement* is often requested by local authorities during the latter stages in the planning process and may be enforceable as part of the planning conditions. It is essential that a realistic proposal is put forward which balances tree protection requirements with the practicalities of construction.

Appendix 2: Survey Methodology

A2.1 A ground level visual survey was carried out using the *Visual Tree Assessment* technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).

A2.2 Structural condition is assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention is paid to the stem-base. Cavities are explored using a metal probe in order to assess the extent of any decay. If this is not possible further inspection is recommended in the form of a climbed inspection or using specialist decay detection equipment.

A2.3 The physiological condition is assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree is also taken into account.

A2.4 Where the condition of a tree is deemed to be unacceptable, recommendations are made according to a scale of priority in order to reduce the liability of the owner. The position of the tree and its potential targets are taken into account.

A2.5 Measurements are obtained using a diameter tape, clinometer, distometer and loggers tape. Where this is not practical measurements are estimated.

A2.6 Some trees are surveyed as groups, though this is avoided close to areas likely to be developed.

A2.7 Finally, a *Retention Category* was allocated as described in Appendix 1.1.1.

Appendix 3: Author's Qualifications

Qualifications & Experience of Ivan Button N.C.H. (Arb), FDSc (Arb), BSc (Hons), P.G.C.E., M. Arbor. A.

Construction

Between 1983 and 1990 Ivan worked within the construction industry and received training in a broad range of practical building skills and general construction principles. In 1989 Ivan obtained a BSc (Hons) at Leeds University followed by a P.G.C.E at The University of Wales in 1990. Ivan returned to work within the construction industry and expanded his understanding of construction principals.

Arboriculture

In 1996 Ivan obtained a NCH (Arboriculture) at the University of Lincoln and became a member of the Arboricultural Association. He then trained as an Arboricultural Consultant before establishing a tree surgery and landscaping business in 1998. In 2005 Ivan commenced full time employment with a leading Arboricultural Association approved consultancy and soon adopted a senior role responsible for five consultants.

Ivan is now the Director and Principal Consultant of Crown Consultants Ltd.

Ivan has produced numerous Arboricultural Reports for the purposes of Development, Safety, Management, Mortgage, Subsidence, Mitigation and Litigation.

He is accredited as a LANTRA *Professional Tree Inspector*. A qualification produced in association with the Arboricultural Association and generally recognised as appropriate for all levels of tree inspection.

He obtained a foundation degree in arboriculture at the University of Lancashire, which he passed with distinction.

He is a member of the Consulting Arborist Society and is listed within their areas of professional expertise for QTRA and as an expert witness.

Ivan is a professional member of the Arboricultural Association and the International Society of Arboriculture.

He is a licensed Quantified Tree Risk Assessment user.

Ivan has undertaken professional expert witness training accredited by the University of Cardiff and is registered as a Sweet and Maxwell Checked Expert Witness 2008.

Appendix 4: Explanation of Tree Data and Glossary

This section explains the terms used in the **Tree Data Schedule** within Section 3.

A4.1 General Observations

A4.1.1	Numbering System:	Each item of vegetation has its own unique number prefixed by a letter such that T1=Tree 1, G2=Group 2, H3=Hedge 3 and W4=Woodland 4, S5=Shrub 5.
A4.1.2	Age Categories:	
	Young	Usually less than 10 years old.
	Semi-Mature	Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy).
	Early-Mature	Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy).
	Mature	Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy).
	Veteran	A level of maturity whereby significant management may be required in order to keep the tree in a safe condition.
	Over Mature	As for veteran except management is not considered worthwhile.
A4.1.3	Species:	Common names and Latin names are given.
A4.1.4	Height:	Measured from ground level to the top of the crown.
A4.1.5	Stem Diameter:	Taken at 1.5m above ground level where possible. On multi-stemmed trees this measurement may be taken at ground level, though usually an indication of the number of stems and average diameter is given, e.g. 3 x 30cm.
A4.1.6	Crown Height:	Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.
A4.1.7	Tree Diagram:	This scaled drawing is computer generated based on measurements taken for stem diameter, crown height and spread, and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.
A4.1.8	Crown Spread:	Measured N, E, S & W, taken from the centre of the stem and usually rounded up to the nearest metre.
A4.1.9	Observations:	If a tree's position is considered to be relevant it will be commented upon (e.g. overhanging a children's play area). Tree form and pruning history are also recorded along with an account of any significant defects. Defects and descriptive terms are dealt with in more detail at the end of this section.
A4.1.10	Recommendations:	Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.
A4.1.11	Priority Scale:	Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale:
	Urgent	To be carried out as soon as possible.
	Very High	To be carried out within 1 month.
	High	To be carried out within 3 months.
	Moderate	To be carried out within 1 year.
	Low	To be carried out within 3 years.
A4.1.12	Inspection Frequency:	An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.
A4.1.13	Vigour:	An indication of growth rate and the tree's ability to cope with stresses:
	High	Having above average vigour.
	Moderate	Having average vigour.
	Low	Having below average vigour.
	Very Low	Tree is struggling to survive and may be dying.
A4.1.14	Physiological Condition:	
	Good	Healthy and with no symptoms of significant disease.
	Fair	Disease present or vigour is impaired.
	Poor	Significant disease present or vigour is extremely low.
	Very Poor	Tree is dying.
A4.1.15	Structural Condition:	
	Good	Having no significant structural defects.
	Fair	Some defects observed though no high priority works are required.
	Poor	Significant defects found. Tree requires monitoring or remedial works.
	Very Poor	Major defects which will usually require significant remedial works or tree removal.
A4.1.16	Amenity Value:	
	Very High	Exceptional specimen, observable by a large number of people.
	High	Attractive specimen, observable by a significant number of people.
	Moderate	One of the above factors is not applicable.
	Low	Unattractive specimen or largely hidden from view.
A4.1.17	Life Expectancy:	The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).
A4.1.18	Retention Category:	These are explained in detail in Appendix 1.

A4.2 Evaluation of Defects

A4.2.1 Cavities, wounds, deadwood etc are all evaluated as follows:

Major	Such that structural integrity is, or will become, compromised and the tree is, or will inevitably become, hazardous.
Significant	A defect that may over time become a major defect, though not necessarily so. This will depend on the vigour of the tree and its ability to deal with decay etc.
Minor	A defect that is not likely to compromise the tree's structural integrity.

General Glossary

Adaptive growth	In tree biomechanics, the process whereby wood formation is influenced both in quantity and quality by the action of gravitational forces and mechanical stresses on the cambial zone.
Aerobic	Conditions in which oxygen is freely available, or to biomechanical processes that depend on the presence of oxygen.
Anaerobic	A condition marked by the absence of oxygen; Generally such areas are unsuitable for normal life and growth of plant tissues. These sites tend to be populated by bacteria capable of surviving low oxygen conditions often associated with Slime Flux.
Arboriculture	The culture and management of trees as groups and individuals primarily for amenity and other non-forestry purposes.
Arborist	A person possessing the technical competence through experience and related training to provide management of trees or other woody plants in a landscape setting. Generally involved with the development or management of trees for visual amenity or land management rather than the growth of trees for product or profit.
Barrier zone	A layer within an annual increment of wood which contains abnormal xylem cells, laid down by the cambium in response to wounding or other trauma.
Body language	In trees, the outward display of growth responses and or deformation in response to mechanical stress.
Bole	Or Trunk, the main stem of a tree below its first major branch.
Bracket	A type of fruiting body produced by various fungal species, plate like to hoof like in shape and often a one sided attachment to the wood or bark.
Branch bark ridge	A ridged area located at the union of a branch to a trunk or stem.
Branch Collar	Trunk tissue that forms around the base of a branch between the main stem and the branch, or between a main branch and a lateral branch. As a branch decreases in vigour or begins to die, the collar usually becomes more pronounced and completely encircles the branch.
Brown Rot	Form of decay where cellulose is degraded, while lignin is only modified.
Buttress Root	Roots that emerge from the base of the tree stem, normally large and well developed that rapidly reduce in diameter to create the Root Plate this offers structural support for the tree. Buttress roots divide rapidly forming the connection between the stem and the transport roots.
Cabling Bracing	Installing cables within the crown of a tree to prevent collapse.
Callus	Undifferentiated cells often formed at the edges of recent injuries. This tissue quickly becomes differentiated, forming cells of the type characteristic of that position on the tree (e.g. forming wood, bark, roots, etc.) see wound response tissue.
Cambium	A thin layer of actively growing and dividing cells, located between the xylem (sapwood) and bark of a plant; the part responsible for radial growth of a tree stem or branch.
Canopy	The topmost layer of twigs and foliage in a woodland, tree or group of trees.
Canker	A localised area of dead bark and cambium on a stem or branch, caused by fungal or bacterial organisms, characterised by woundwood development on the periphery. This may be annual or perennial.
Cavity	An open and exposed area of wood, where the bark is missing and internal wood has been decayed and dissolved.
Chlorotic	Also Chlorosis. A condition of the plant marked by yellowing of normally green foliage, often indicating nutrient deficiency or plant dysfunction.
Clinometer	Devices that measures vertical angles, and provides direct height measurements of objects by triangulation.
Co-dominant stems/trunk	Are forked branches or trunks of nearly the same size in diameter and lacking a normal branch union.
Compacted soils	Soils in which the air-space (oxygen space) has been reduced or eliminated, reducing water infiltration and percolation, reducing root presence and inhibiting new root development.
Compartmentalisation	The physiological process that creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms.
Compression Failure	Localized buckling of fibres and other longitudinal elements produced by compression of wood along the grain; compression failures sometimes develop in standing trees.
Compression Strength	The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees using special drilling devices
Compression Wood	Abnormal wood formed on the lower side of branches and curved stems, with physical properties different from normal wood.
Conservation Area	In Great Britain, designated areas of architectural or historical interest, in which there are special procedures for planning applications. Additionally tree works cannot generally be undertaken without prior notification (Currently 6 weeks) to the relevant local planning authority. See also Tree Preservation Orders.
Core Sample	A sample of wood extracted from a trunk or branch, using an increment borer tool. The resulting core can be analysed for characteristics of growth, wood strength, structure, decay, and for species identification.
Crotch	The union of two or more branches; the auxiliary zone between branches.
Crown	The upper canopy of a tree, including upper trunk, scaffold branches, secondary branches, stems and leaves.
Crown lifting / raising	Crown Lift The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.
Crown reduction	The reduction of a tree's height or spread while preserving its natural shape.
Crown thinning	The removal of some of the density of a tree's crown, usually 5-25% allowing more light through its canopy and reducing wind resistance.
Deadwood (noun)	Deadwood is often present within the crown or on the stems of trees. It may be an indication of ill health, however, it may also indicate natural growth processes. If a target is present beneath the tree, deadwood may fall and cause injury or damage and should be removed, otherwise deadwood can remain intact for conservation purposes (insects, fungi, birds etc.).
Deadwood (verb)	The removal of dead branches from a tree's canopy, usually of a specified size (in diameter).
Decay	Progressive deterioration of organic tissues, usually caused by fungal or bacterial organisms, resulting in loss of cell structure, strength, and function. In wood, the loss of structural strength.
Decay Detection	The assessment of decay within a tree has been traditionally difficult, but recent advances have made it possible to achieve accurate representations of the internal section of a tree in both 2D and 3D, removing doubt over the condition of the tree and allowing accurate management decisions.
Decurrent	In trees a, system of branching in which the crown is borne on a number of major widely spreading limbs of similar size. In fungi relates to toadstools whose gills run down the stem and leaves and other plant organs, which extend down the stem.
Defect	In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which

	makes the tree mechanically unsuited to its environment.
Defoliation	The losing of plants foliage.
Dieback	Progressive death of buds, twigs and branch tissues, on individual limbs resulting in Deadwood, or throughout the canopy, extreme cases can result in Stag Heading.
Dripline	A projected line on the ground that corresponds to the spread of branches in the canopy; the farthest spread of branches.
Epicormic shoots	Fast growing, weakly attached shoots/branches that often grow as a response to stress factors upon a tree or branch removal.
Excurrent	In trees, a system of branching that a single leader remains dominant, through the control of lateral branches.
Failure	In connection with tree hazards, a partial or total fracture within the wood tissue or loss of cohesion between roots and soil. (In total failure affected parts will snap or tear away completely, Partial failure there is a crack or deformation, which results in an altered distribution of mechanical stress.
Feeder Roots	Fine fibrous Water and nutrient absorbing roots located in the outer root system.
Flush-Cut	In trees and shrubs, a pruning cut close to the parent stem, which removes the branch bark ridge.
Foliage	The live leaves or needles of the tree; the plant part primarily responsible for photosynthesis.
Formative pruning	The trimming of a tree to remove weaknesses and irregularities which may lead to problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown.
Gall	An abnormal, disorganized growth of plant tissues, caused by parasitic or infectious organisms such as insects, fungi, bacteria, or viruses.
Girdling	In woody plants, any form of damage that destroys the bark and / or the Cambium all the way around the stem, branch or root, normally resulting in death of the damaged section.
Girdling Root	In woody plants, a root that grows across the buttress, or across other roots, eventually causing constriction of the radial growth.
Growth Increment	The incremental growth added as new annual ring develops each season over existing wood. This is seen as (growth) rings in cross-sections of wood.
Hazard beam	An upwardly curved branch in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).
Heartwood	Inner non functioning tissues that provide structural support to trunk.
Heave	In relation to shrinkable clay soils, expansion due to rewetting of a volume of soil previously subjected to the removal or water by plant / trees following felling or root severance. Also in relation to root growth, the lifting of pavements and other structures by radial expansion. Also in relation to tree stability, the lifting of one side of a wind rocked root plate.
Herbicide	A chemical compound that causes the death of a plant.
Included Bark	Bark that becomes embedded in a crotch between branch and trunk or between co-dominant stems, usually found in narrow or tight crotches, and causes a weak structure.
Increment Borer	A tool that cuts and extracts a narrow cylinder of wood from a tree for analysis of the wood tissue and growth increments.
Leader	The primary terminal shoot or trunk of a tree.
Limb	A large lateral branch growing from the main trunk or from another larger branch.
Lion Tailing	Often the result of poor pruning practices; the main leader or branches are largely devoid of side branches, growth is restricted to the end of branches and is likely to suffer damage through end loading.
Lopping	In trees, a general term that related to the removal of branches from a tree.
Monitoring	Due to the relative life span of trees in relation to our own, long-term monitoring provides a valuable insight to the health of trees, identifying decline and or stabilisation and or improvement.
Mulch	A material laid over the root system of a tree to help conserve moisture within the soil. Additionally it may help control the development of weeds close to the tree.
Mycelium	A mass of growing filaments (hyphae) formed by fungi.
Mycorrhizae	The symbiotic relationship between roots and certain beneficial fungi. Mycorrhizae are the combined root / fungal growth.
Natural Pruning	The shedding of a branch or twig that has died back naturally and has become decayed at or near its base.
Necrosis	The failure and subsequent death of a branch, leader or tree.
Negligence	A failure to take reasonable action to deal with a hazard to prevent damage to property or person.
Nutrient	Substances that are absorbed by living organisms for the maintenance of internal processes.
Occluding tissue	The general tern of wood, cambium and bark that develop around the site of a wound on a woody plant
Pathogen	A microorganism that causes diseases within another organism.
Phloem	The principle conductive tissue that the products of Photosynthesis are transported around the plant
Photosynthesis	The process were light energy is used to create energy (Carbohydrate) for use within the plant.
Pollard	A term for a pollarded tree.
Pollard head	The swollen section of branch / stem that forms behind the pollarding cut.
Pollarding	The complete or partial removal of the crown of a young tree so as to encourage the development of numerous branches either for amenity or historically as fodder, repeated management is required cyclically to maintain the feature
Prune or Pruning	Selective removal of woody plant parts of any size, using saws, Loppers, Secateurs, or other pruning tools.
Reaction Wood	Wood with distinctive anatomical characteristics, formed in parts of leaning or crooked stems and in branches to provide additional strength / support. In hardwoods, tension wood usually forms. In conifers, compression wood is usually found.
Reaction Zone	A zone normally darker than surrounding wood that denoted the boundary often a defensive one between functional sapwood and dysfunctional or decaying wood.
Re-grading	The raising or lowering of a soil profile from its original grade.
Rejuvenation pruning	Where historically or environmentally important trees are to be retained, their life spans can be significantly extended through the adoption of particular pruning regimes.
Rejuvenation root treatment	Management of the root zone can have a significant positive effect upon the health of trees. Physical, mechanical and biological approaches are available and can be prescribed in accordance within the constraints of individual sites.
Remedial pruning	The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown.
Resistograph	Invasive decay detection technique whereby the resistance offered by the timber to a spinning probe is measured and plotted.
Rib	In tree body language, a long narrow, axial protuberance which often over lays a crack.
Ring Barking	Artificial Girdling of the stem, to result in the death of a tree. May be used in habitat creation were the retention of dead standing trees is required.

Rod Bracing / Bolting	Traditionally, this has relied upon the installation of steel rods or bolts through the stems or limbs, to reduce twisting or splitting of the wood. The installation of such features does require legal interpretation.
Root Barriers	Both Buildings and services can benefit from the installation of root barriers to protect a soil volume from the ingress of roots.
Root Collar	The basal area of the tree; transition zone from trunk to root. Also sometimes called trunk flare.
Root Plate	The primary support area for the tree; an area of the root system close to the base that structurally anchors the tree to the soil.
Root Rot	Either a general term for decay within the wood of the lower stem / buttress roots, or a disease in which the fine roots are killed.
Root System	The portion of the tree containing the root organs, including buttress roots, transport roots, and fine absorbing roots; all underground parts of the tree.
Root Zone	The area and volume of soil around the tree in which roots are expected. May extend to three or more times the branch spread of the tree, or several times the height of the tree.
Sail Area	That area or the tree subjected to wind load.
Sanitation	In plant disease control, the removal of material that could a source of infection by a pathogen. Removal of diseased plant parts, such as fallen leaves and twigs, and pruning of dead and diseased branches. Diseased parts should be burned or buried under soil or active compost.
Sapwood	Xylem wood tissue, usually light in colour, representing the outer growth rings of the wood. Usually living, reactive wood tissue, in a healthy tree. See heartwood
Scaffold limbs / scaffold Branches	The branches that from the main network framework of the crown of a tree.
Senescent	A decline in growth and vigour due to age or stress factors.
Shrub	A woody plat that branches at or close to the ground level and so does not have a single stem.
Slime Flux	Relating to a toxic condition from the spreading of bacteria or their products from a source of infection; characterized by malodorous gases, or salt deposits upon the bark. If these products enter the sap stream, localised vessel necrosis can result, usually associated with anaerobic conditions.
Soft Rot	A kind of wood decay, were a fungi degrades cellulose within the cell wall, without causing overall degradation.
Soil Compaction	The compression of soil, causing a reduction of pore space and an increase in the density of the soil. Air is squeezed out and nutrients become locked. Tree roots cannot grow in compacted soil.
Soil Profile	The characteristics of a soil as regards to relative depth; the changes in soil texture and composition that occur with depth.
Soil Texture	The classification of the constituent particles of soil; includes sand, silt and clay particles. Directly related to soil porosity, permeability, and aeration.
Sonic Decay Detection	Non invasive method whereby sound waves are passed through the tree and the speed is measured. Slow speeds indicate decay and a tomography picture representing the inner stem is produced.
Stag Heading	In a tree, a state of dieback were dead branches protrude beyond the current living crown.
Stress	In plant physiology, conditions were one or more physiological functions Are not working within normal parameters.
Stump Grinding	The removal of a tree stump using a specialist grinding machine.
Subsidence	In relation to vegetation, the removal of water by plant growth resulting in localised shrinkage in the soil volume.
Sucker	Same as sprout.
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.
Systemic	Affecting the whole plant or organism. A systemic compound is carried throughout the entire plant to all parts through the vascular system.
Target	Any person or object within reach of a falling tree or part of a tree that may be injured or damaged.
Target Pruning	The pruning of a branch were the wound affects only branch material, often result in a target shaped wound.
Tension Wood	Reaction wood typically formed on the upper side of limbs or curved stems; characterized by lack of cell wall lignifications (higher ratios of cellulose to lignin).
Tight Union / Tight Crotch	Also, narrow crotch. A crotch with a narrow angle between branches, often having included bark.
Tomography	The comparison of sound or stress waves through the tree allows the creation of a 2D or 3D representation of the internal structure of a stem or branch section and highlights areas of damage. Virtually non-injurious.
Topography	The configuration of surface features, including the vertical and horizontal relationships of the ground and other features.
Topping	Cutting large limbs back severely, without regard to form or habit of the tree. Cuts are usually made between lateral branch nodes. This practice is extremely injurious to trees, and promotes decay and structural weakness within the crown.
Tree	A woody plant that typically has a single stem, at maturity has a height of a least 4 metres and a stem diameter at breast height of at least 75mm.
Tree Preservation Order	In Great Britain, an order made by the local planning authority, were consent must be gained before undertaking all but exempt works to a tree.
Trunk Flare	The basal area of the trunk that flares or widens, and merges with the main roots. See root collar
Veteran Tree	Veteran trees are often found in large parks or estates and commonly affected by extensive decay or have been subject to extensive works. These trees are retained for historical importance and often pose greater risk than normal, which is generally justified. They need careful management and often propping or bracing to support them, some require fencing to limit access.
Vigour	Active, healthy growth of plants: ability to respond to stress factors.
Visual Tree Assessment (VTA)	An assessment of the mechanical condition of trees based upon their 'body language'. Trees are dynamic and respond to faults / decay / environmental factors in various ways, these responses can be indicative of structural integrity.
Wetwood	An infection caused by bacteria living inside the plant tissues. The bacteria ferment the plant fluids, resulting in death of nearby cells, and often causing exudations of fluid from the bark, often referred to as a Slime Flux.
White Rot	A kind if wood decay were a fungi attacks the lignin within the wood matrix
Wind loading	Forces placed upon tree canopy, branches, trunk and roots of a tree under windy conditions.
Wind Throw	The failure of a tree due to wind loading.
Witches Broom	A deformed or unusual growth of twigs from adventitious buds, caused by insects, disease, or dieback of twigs and buds.
Wood	Secondary Xylem; the main structural support and water conducting tissue of trees and shrubs.
Wound Response Tissue	Also Occluding Tissue, Wound Wood or Callus. Differentiated wood tissue that grows around the margins of a wound or injury.
Wound Wood	Wood with atypical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound
Xylem	Plant tissues with special function of translocation of water and dissolved nutrients.

BS 5837 Retention Categories

Category A:

Trees of high quality and amenity. Usually, mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

Category B:

Trees of moderate quality and amenity. Usually mature trees, or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.

Category C:

Trees of low quality and amenity. The removal of these trees should generally be seen as acceptable in order to facilitate development.

Category R:

Trees whose structural condition is such that they should be removed if development is to proceed.

Indicative north

Appendix 6
Tree Constraints Plan - Existing Trees

Site : Eastlogs, Mount Bovers Lane

Key

T1	Stem of Tree number 1
G2	Stems of Group number 2
	Root Protection Area

BS 5837 Retention Categories

	Canopy extent of Category A tree
	Canopy extent of Category B tree
	Canopy extent of Category C tree
	Canopy extent of Category R tree

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Scale 1: 200	Paper Size: A2	Dated: 13.07.2009

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T5
G6
T4
H3
T2
Eastlogs
Chestnut Lodge
Gables
Proposed dwelling
T1
T7
T9
T8
MOUNT BOVERS LANE

0 10 20 30m