cheshire woodlands
arboricultural consultancy

ARBORICULTURAL STATEMENT

ON

PROPOSED RE-DEVELOPMENT OF

THE FORMER TALBOT HOTEL

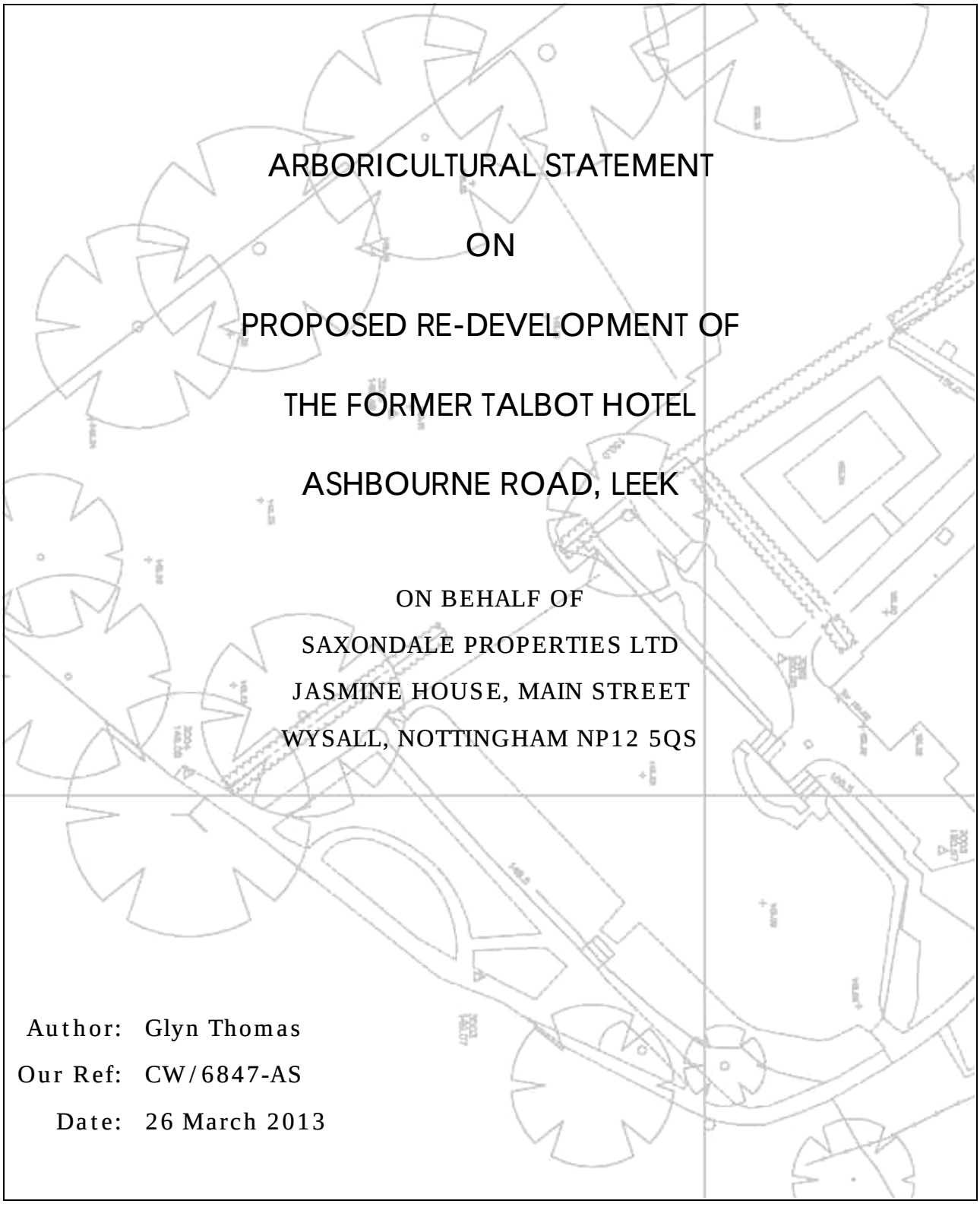
ASHBOURNE ROAD, LEEK

ON BEHALF OF

SAXONDALE PROPERTIES LTD

JASMINE HOUSE, MAIN STREET

WYSALL, NOTTINGHAM NP12 5QS



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Our Ref: CW/6847-AS

Date: 26 March 2013

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1.1 Alterations and extensions to the former Talbot Hotel are proposed and will require the removal of several low quality trees.

1.2 Some development is proposed within the root protection area of a declining off-site boundary tree, but due to the probable influence of pre-existing site conditions on root growth, the impact on the tree is likely to be of a minor and insignificant nature.

1.3 Overall, the application proposal will have a minor impact on the wider amenity, which can easily be mitigated by the provision of new trees and landscaping.

2. TERMS OF REFERENCE

2.1 Instruction

2.1.1 Cheshire Woodlands is instructed by Saxondale Properties Ltd to:

- Survey and prepare a schedule of trees to comply with the general requirements of British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations (the Standard)
- Annotate a topographical land survey drawing and produce a Tree Constraints Plan
- Appraise a development proposal in relation to trees and produce an arboricultural statement

2.1.2 The following documents have been considered in our evaluation:

- Land survey drawing ref. 3085-01
- Ground Floor plan and Site drawing ref. P1363-AP11

2.2 Limitations

2.2.1 Assessing the potential effects of trees upon load-bearing soils beneath existing and proposed structures is not considered in this report.

2.2.2 The tree survey is carried out in sufficient detail to gather data for and inform the current project. Our appraisal of the mechanical integrity of trees on the site is of a preliminary nature and sufficient only to inform the project. The assessment of trees is carried out from ground level without invasive investigation and the disclosure of hidden defects cannot therefore be expected.

2.2.3 Our assessment was restricted where trees were ivy clad, located wholly or partially on neighbouring land or where basal growth or other vegetation obscured lower stems and root collars.

2.2.4 This report and associated documents remain the copyright of Cheshire Woodlands and there should be no transfer of rights to any third party without our express written consent.

3. INTRODUCTION

3.1 This assessment evaluates the effects of the application proposal upon trees. The comparative values of trees are considered broadly in line with the guidance of the Standard and retention, protection and management of trees are informed by this evaluation.

3.2 Glyn Thomas, Partner with Cheshire Woodlands Arboricultural Consultancy assessed the trees and the development proposal. The tree survey was carried out on 20 March 2013.

3.3 Refurbishment of, and alterations/extensions to the former Talbot Hotel and erection of a three-storey, 63-bed rear extension with undercroft parking and associated access and hardstanding is proposed as set out on the application layout drawing.

4. THE SITE

4.1 The application site comprises the former Talbot Hotel at the western end, with the remainder covered by disused ground and car-park hardstanding, is bounded by Ashbourne Road (A523) to the south, Memorial Gardens and Cattle Market Cottage to the west and car-park hardstanding associated with Social Services offices and a health centre to the north and east.

4.2 The British Geological Survey - Geology of Britain Viewer identifies the underlying geology as 'Morridge Formation – Mudstone, Siltstone and Sandstone'. The superficial drift deposits are not recorded.

5. STATUTORY TREE PROTECTION

5.1 A telephone enquiry to Staffordshire Moorlands Council confirmed that the western part of the site, including the Hotel building, is in the Leek Conservation Area. Trees on and immediately adjacent to the site are not currently the subjects of a tree preservation order (see appendix 4 for further guidance).

6. SURVEY METHODOLOGY

6.1 The land survey overlaid with the site layout proposal drawing is the base for our tree constraints plan at appendix 2.

6.2 The trees were identified, measured and recorded in the tree survey schedule at appendix 1. Tree stem diameters and canopy spreads were mostly measured using a tape, tree heights using a tape and clinometer.

6.3 All surveyed trees were assessed for 'Visual Prominence' and were categorised as set out in Table 1 below (see appendix 3 for further guidance).

6.4 A brief assessment for obvious signs of wildlife habitat in trees and hedges on the site was carried out during our survey. No potential habitats of note were identified and details were not recorded.

7. EVALUATION OF THE TREES

7.1 The Standard recommends that trees be evaluated and categorised as set out in Table 1, which provides a summary of the impact of the application proposal on trees.

	To be retained and protected or located off-site	To be removed for development	To be removed for other reasons
Category A High quality with life expectancy of at least 40 years	None	None	None
Category B Moderate quality with life expectancy of at least 20 years	None	None	None
Category C Low quality with life expectancy of at least 10 years, or small young trees	Tree T3 and group G1	Trees T1, T4, T5 and T6 and group G2	None
Category U Cannot be retained in context of current land-use for longer than 10 years	None	Tree T2	None

Table 1

7.2 Tree cover on and adjacent to the site is of rather poor quality and comprises mainly natural colonisation on previously unmanaged ground. Trees T4 and T5 are 'low value' C-category highway plantings within a grass verge. Neither tree is considered to have any particular long-term merit. Tree T3 and group G1 stand off-site within the grounds of Cattle Market Cottage and, other than those parts that extend across the boundary into the site, lie outside the applicant's control. Tree T3 is post-mature and shows signs of physiological decline in the crown. This tree is unlikely to be viable in the medium to long-term.

7.3 Removal of 'low value' C-category trees T1, T4 to T6 and group G2 together with 'unsuitable' U-category tree T2 to accommodate the development will have only a minor impact on amenity, that in our opinion can easily be mitigated by the provision of new trees and landscaping.

7.4 Proposed construction works to accommodate single-storey extensions in the north west corner of the site, encroach beneath the canopy of and into the initial 'root protection area' (RPA) of the declining off-site hawthorn tree T3. However, the tree stands on slightly raised ground, abutting a low stone retaining wall and in addition much of the affected ground in this area is currently covered by the existing building footprint, hardstanding and disturbed ground. These pre-existing site conditions indicate that rooting will most probably have occurred asymmetrically and that root activity within the application site will be significantly reduced. In our opinion the impact of the proposed construction works on the tree is likely to be of a minor and insignificant nature.

7.5 With the benefit of a full planning permission, any severance of encroaching roots or pruning of overhanging branches required to accommodate the development can be carried out under the applicant's normal rights in common law. We recommend in this regard that all such works should be carried out under the supervision of and evaluated by a competent arboriculturist.

7.6 Off-site 'low value' group G1 remains substantially unaffected by the development.

8. CONCLUSIONS

8.1 Implementing the development proposal requires the removal of several low quality trees, the loss of which will have only a minor impact on amenity that can easily be mitigated by the provision of new trees and landscaping.

8.2 Some development is proposed within the root protection area of a declining 'low value' off-site boundary tree, but due to both the existing site levels and the long-standing presence of buildings, hardstanding and disturbed ground beneath the tree, the impact on the tree is likely to be of a minor and insignificant nature.

8.3 Any minor pruning of encroaching roots and overhanging branches back to the boundary that may be required to accommodate the building works can be carried out under the applicant's normal rights in common law, and should be supervised and evaluated by a competent arboriculturist.

9. RECOMMENDATIONS

9.1 No tree pruning or removal works should commence on site until necessary consents have been obtained from the local planning authority, either in respect of the conservation area or as part of a detailed planning permission.

9.2 All tree removal works should be implemented in accordance with the tree survey schedule at appendix 1, prior to commencement of any construction activity.

9.3 Statutory protection of wildlife should be taken into account in the planning and execution of tree pruning and removal. See appendix 4 for further guidance.

9.4 Any excavation of ground within the initial RPA of off-site tree T3 and any severance of encroaching roots or pruning of overhanging branches back to the boundary that may be required to accommodate the development, should be carried out under the supervision of and evaluated by a competent arboriculturist.

9.5 Foundation design should take into consideration the juxtaposition of existing and proposed trees and the nature of the load-bearing soils.

9.6 Landscaping of the site, including the provision of new trees, should be implemented in accordance with a scheme of works to be agreed with the local planning authority.

10. REFERENCES.

Anon. Retrieved 2010-12-31. Geology of Britain Viewer. British Geological Survey, Nottingham. http://maps.bgs.ac.uk (accessed 25 March 2013)

BS5837:2012. Trees in relation to design, demolition and construction - Recommendations. British Standards Institute, London.

APPENDIX 1

TREE SURVEY SCHEDULE

PROJECT: TALBOT HOTEL, ASHBOURNE ROAD, LEEK
CLIENT: SAXONDALE PROPERTIES LTD
REF: CW/6847-SS1
DATE: 20 MARCH 2013

SURVEYED BY: G THOMAS
CHESHIRE WOODLANDS
PAGE: 1

No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual prominence	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
T1	Elder *(Sambucus nigra)*	M	7	6.5	3x150 1x160 1x180	G	• Multi-stemmed from just above ground level • General ground clearance of between 1.5 and 2.5 metres	• Fell for development • Grub out stump	2	C	U	4.2
T2	Elder	PM	5	4	200 (EST)	M	• Colonised by dense ivy • Partially collapsed	• Fell to ground level • Grub out stump	0	U	U	-
T3	Hawthorn *(Crataegus monogyna)*	PM	11	10	1x450 1x500	M/P	• Located off-site on slightly raised ground, retained on the south east side by a 1.2 metre high stone wall, which is partially colonised by ivy and shows signs of displacement adjacent to the base of the stem • Main stem bifurcates at just above ground level, at which point there is an acute included-bark union of co-dominant stems with no obvious signs of failure • General ground clearance of approximately 6.0 metres • Dense ivy colonising stems and crown to a height of 7.0 metres • Growing close to adjacent buildings with crown on the north west side overhanging roof by up to 3.0 metres and on the south side overhanging the roof of a single storey outrigger and extending to within 1.0 metre of the side elevation • Signs of reduced vitality with thinning of foliage and peripheral dieback of shoots and twigs	• Clear ivy from wall and monitor for signs of further displacement • Monitor crown for signs of deterioration	3	C	C	8.1

Inspection was restricted where trees were ivy clad or located on neighbouring land or where basal growth or other vegetation obscured lower stems and root collars
All trees should be re-assessed at appropriate intervals to assess their mechanical integrity unless otherwise stated in the schedule

HEADINGS & ABBREVIATIONS

Age Range: Y = Young, SM = Semi mature, EM = Early mature, M = Mature, PM = Post Mature.
Stem Dia. Stem diameter (measured at a height of approximately 1.5 metres) MS = multi-stemmed EST = Estimated
Crown Spread: Maximum crown diameter
Vitality: D = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
Visual prominence: Broad indication of contribution to the landscape. 0 = none, 1=very low up to 5 =very high, G= contribution to a wider group. Values take into consideration the potential contribution to the landscape. Our assessment of public visibility is influenced by safe life expectancy of the tree or group
Retention Value Existing: Broadly in line with BS5837 (2012) Table 1. Our valuation considers the merits of the tree or group in the context of the existing land-use
Retention Value Proposed: Broadly in line with BS5837 (2012) chapter Table 1. Our valuation considers the merits of the tree or group in the context of a development proposal. U = Unsuitable for retention
BS5837 RPA Radius: Radius from the centre of the stem to the line of tree protection as set out in BS5837:2012

TREE SURVEY SCHEDULE

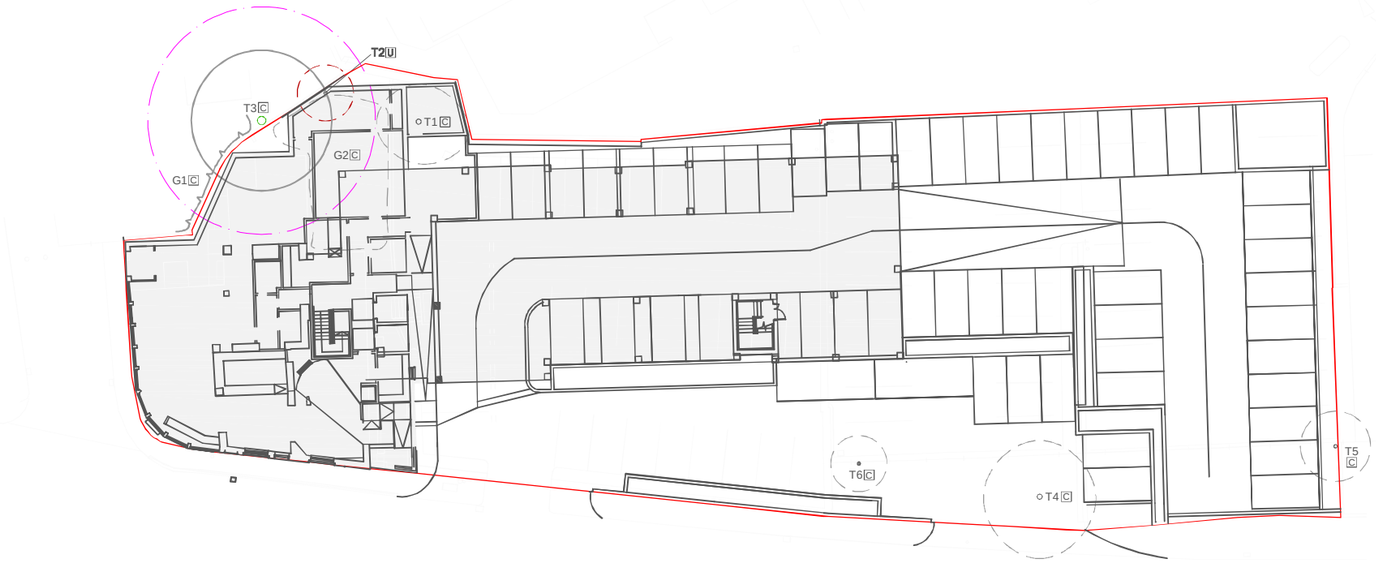
PROJECT: TALBOT HOTEL, ASHBOURNE ROAD, LEEK
CLIENT: SAXONDALE PROPERTIES LTD
REF: CW/6847-SS1
DATE: 20 MARCH 2013

SURVEYED BY: G THOMAS
CHESHIRE WOODLANDS
PAGE: 2

No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual prominence	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
T4	London plane *(Platanus x hispanica)*	Y	9	8	250	G	• Growing within a grass verge to the rear edge of the highway footway • Redundant stake to the base of stem • Main stem trifurcates at a height of 1.8 metres, at which point there is an acute included-bark union of co-dominant branches with no signs of failure • General ground clearance of 1.8 metres • Could be replaced	• Fell for development • Grub out stump	3	C	U	3.0
T5	Ornamental cherry *(Prunus sp.)*	EM	6	5	210	M	• Growing abutting a low ornamental brick wall, which is slightly ingrown to the base of the stem • Exposed surface roots within adjacent grassed area • Topped several years ago at a height of 3.5 metres • Growing close to the corner of an adjacent building with low branches touching roof and gutters	• Fell for development • Grind stump to a depth of 0.2 metres	2	C	U	2.4
T6	Ash *(Fraxinus excelsior)*	Y	4	4	180 (AT GROUND LEVEL)	G	• Recent natural colonisation • Easily replaced	• Fell for development • Grub out stump	2	C	U	2.1
G1	Mixed ornamental conifers Holly *(Ilex aquifolium)* Elder	Y	<3.5	-	-	G	• Closely spaced linear group located off-site on raised ground, retained on the south east side by a 1.5 metre high stone wall • Comprises a line of clipped ornamental conifers and recent natural colonisation of elder and holly to the north eastern end		1	C	C	-
G2	Elder Goat willow *(Salix caprea)* Cherry	Y	<4	<3	<120	G	• A mix of recent young natural colonisation, dense ivy and collapsed elder stems	• Remove for development • Grub out stumps	1	C	U	<1.5

APPENDIX 2

TREE CONSTRAINTS PLAN



SCALE: 1:200
UNITS: METRES
0 5 10

TREE CONSTRAINTS PLAN

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CLIENT	SAXONDALE PROPERTIES LTD
PROJECT	THE TALBOT HOTEL ASHBOURNE ROAD LEEK
JOB REF	CW/6847-P-TC-1
DATE	22 MARCH 2013
SCALE	1:200 at A1

- APPLICATION SITE BOUNDARY
- PROPOSED DEVELOPMENT
- PROPOSED BUILDING FOOTPRINT
- SURVEYED OFF-SITE GROUP OF TREES
- SURVEYED OFF-SITE TREE
- TREE OR GROUP OF TREES TO BE REMOVED
- STEM POSITION APPROXIMATED
- BS 5837 RETENTION VALUE
- BS5837 ROOT PROTECTION AREA RADIUS
- BS5837 CATEGORY 'C' TREES
- BS5837 CATEGORY 'U' TREES

APPENDIX 3

Guidance Note - Assessment of Visual Prominence and Assessment of Retention Values

Visual Prominence Values

Determined by assessment of current and potential visual prominence and taking account of location, tree size, growth potential and useful life expectancy. Visual prominence values are classified as follows:

(0) none, (1) very low up to (5) very high

Retention Values

Trees or groups of trees are evaluated twice in order to facilitate consideration of their relative merits. Firstly, the trees are assessed and categorised in the context of the pre-development situation to provide a broad valuation of all of their attributes and the contribution to their environs. Secondly, the trees are similarly assessed and categorised in the context of a development proposal. The evaluations consider current or projected:

- life expectancy (broad categorisation)
- visual prominence (current and potential)
- landscape function
- numbers of other trees and their maturity (continuity for landscape, amenity, habitat)
- wildlife habitats (incl. continuity)
- safety
- conflicts with the built environment or other land-use
- cultural, historical or other special value

Groups of trees are assessed and categorised as a single unit.

Pre-Development Retention Value

Each surveyed tree or group of trees is valued and placed into one of the following categories (A, B, C or U). The valuation considers the benefits and disbenefits of retaining the tree or group of trees in the pre-development context; any specific issues are noted in the tree survey schedule.

(A) Trees the retention of which in the pre-development context is most desirable and that have an estimated remaining life expectancy of at least 40 years (high value category)

Wholly appropriate to the pre-development situation and without significant conflict

(B) Trees the retention of which in the pre-development context is desirable and that have an estimated remaining life expectancy of at least 20 years (moderate value category)

Appropriate to the pre-development situation but not of highest value

(C) Trees that could be retained in the pre-development context and have an estimated remaining life expectancy of at least 10 years (low value category)

Ill-suited to the pre-development situation but could be retained with moderate conflicts

Trees of no particular merit in the pre-development context

(U) Trees unsuitable for retention in the pre-development context

Cannot reasonably be retained within the pre-development situation for longer than 10 years

Post-Development Retention Value

With reference to a development proposal, each of the trees or groups of trees is placed in one of the following categories (A, B, C or U). The valuation considers the benefits and disbenefits of retaining the tree or group of trees in the context of the development proposal; any specific issues are noted in the tree survey schedule.

(A) Trees the retention of which is most desirable (high value category)

Retention wholly appropriate to the proposed situation and without significant conflict

(B) Trees the retention of which is desirable (moderate category)

Retention appropriate to the proposed situation but not of highest value and/or having only minor conflicts

(C) Trees which could be retained (low value category)

Retention ill-suited to the proposed situation but could be retained with moderate conflicts

Trees of no particular merit in the proposed situation

(U) Trees for removal

Cannot reasonably be retained within the proposed situation

APPENDIX 4

GUIDANCE NOTE- STATUTORY CONTROLS

TREES AND HEDGES:

Subject to certain specified exemptions, the Town and Country Planning Act 1990, requires that an application must be made to the local planning authority (LPA), to carry out works upon or remove trees that are subject to a tree preservation order (TPO).

Six weeks' notice must be given to the LPA of intention to carry out works upon or remove trees within a conservation area and not protected by a TPO.

Local planning authority consent may be required to carry out works upon or remove trees, shrubs and hedges that are the subjects of planning conditions.

LPA consent may be required for the removal of hedgerows under the Hedgerow Regulations 1997.

Your Council's planning department will advise whether or not any of the above controls apply to your trees, shrubs and hedges.

Subject to certain exemptions, the Forestry Act (1967 specified) requires that a licence must be obtained for the felling of growing trees

Your nearest Forestry Commission office will advise whether you require a felling licence.

WILDLIFE

The Wildlife and Countryside Act 1981 (together with the amendments of 1985 & 1991, the subsequent variations to the schedule orders, and strengthening amendments made within the Countryside and Rights of Way Act 2000) forms the basis for legislation protecting Britain's flora and fauna.

Nesting birds and all species of bat are afforded statutory protection. It is an offence to:

- disturb a nesting bird
- disturb a roosting bat or damage, destroy or block access to a bat roost
- intentionally kill, injure or take a bat
- sell, hire, barter or exchange a bat, dead or alive
- be in possession or control of a bat or anything derived from a bat

Your local Wildlife Trust or your Council's Ecologist will provide guidance on statutory controls relating to wildlife.

APPENDIX 5

GLOSSARY OF ARBORICULTURAL TERMS

Abscission. The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a corky layer across its base; in some tree species twigs can be shed in this way

Abiotic. Pertaining to non-living agents; e.g. environmental factors

Absorptive roots. Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients

Adaptive growth. In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress

Adaptive roots. The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading

Adventitious shoots. Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'

Anchorage. The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree

Architecture. In a tree, a term describing the pattern of branching of the crown or root system

Axil. The place where a bud is borne between a leaf and its parent shoot

Bacteria. Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms

Bark. A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem

Basidiomycotina (Basidiomycetes). One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools. Most of the principal decay fungi in standing trees are basidiomycetes

Bolling. A term sometimes used to describe pollard heads

Bottle-butt. A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification

Bracing. The use of rods or cables to restrain the movement between parts of a tree

Branch:

- Primary. A first order branch arising from a stem
- Lateral. A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches
- Sub-lateral. A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs

Branch bark ridge. The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem

Branch collar. A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base

Brown-rot. A type of wood decay in which cellulose is degraded, while lignin is only modified

Buckling. An irreversible deformation of a structure subjected to a bending load

Buttress zone. The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions

Cambium. Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally

Canker. A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria

Canopy species. Tree species that mature to form a closed woodland canopy

Cleaning out. The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree

Compartmentalization. The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and / or active defences operating at the boundaries of the affected region

Compression fork. An acute angled fork that is mechanically optimised for the growth pressure that two or more adjacent stems exert on each other.

Compression strength. The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices

Compressive loading. Mechanical loading which exerts a positive pressure; the opposite to tensile loading

Condition. An indication of the physiological vitality of the tree. Where the term ‘condition’ is used in a report, it should not be taken as an indication of the stability of the tree

Construction exclusion zone. Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and / or ground protection

Crown/Canopy. The main foliage bearing section of the tree

Crown lifting. The removal of limbs and small branches to a specified height above ground level

Crown thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure

Crown reduction/shaping. A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape

Crown reduction/thinning. Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

Deadwood. Dead branch wood

Decurrent. In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent). In fungi with toadstools as fruit bodies, the description of gills which run some distance down the stem, rather than terminating abruptly

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

Delamination. The separation of wood layers along their length, visible as longitudinal splitting

Dieback. The death of parts of a woody plant, starting at shoot-tips or root-tips

Disease. A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms

Distal. In the direction away from the main body of a tree or subject organism (cf. proximal)

Dominance. In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also the tendency of a tree to maintain a taller crown than its neighbours

Dormant bud. An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so

Dysfunction. In woody tissues, the loss of physiological function, especially water conduction, in sapwood

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

DBH (Diameter at Breast Height). Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified

Deadwood. Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard

Endophytes. Micro-organisms which live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture

Epicormic shoot. A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot

Excrescence. Any abnormal outgrowth on the surface of tree or other organism

Excurrent. In trees, a system of branching in which there is a well defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)

Fastigiate. Having upright, often clustered branches

Felling licence. In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber

Flush-cut. A pruning cut which removes part of the branch bark ridge and or branch-collar

Girdling root. A root which circles and constricts the stem or roots possibly causing death of phloem and / or cambial tissue

Guying. A form of artificial support with cables for trees with a temporarily inadequate anchorage

Habit. The overall growth characteristics, shape of the tree and branch structure

Hazard beam. An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting

Heartwood/false-heartwood/ripewood. Sapwood that has become dysfunctional as part of the natural aging processes

Heave. A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also the lifting of pavements and other structures by root diameter expansion; also the lifting of one side of a wind-rocked root-plate

High canopy tree species. Tree species having potential to contribute to the closed canopy of a mature woodland or forest

Incipient failure. In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part

Included bark (ingrown bark). Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact

Increment borer. A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood

Infection. The establishment of a parasitic micro-organism in the tissues of a tree or other organism

Internode. The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches

Lever arm. A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch

Lignin. The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification

Lions tailing. A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end-loading

Loading. A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure

Longitudinal. Along the length (of a stem, root or branch)

Lopping. A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting

Mature Heights (approximate):

- Low maturing – less than 8 metres high
- Moderately high maturing – 8 – 12 metres high
- High maturing – greater than 12 metres high

Microdrill. An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density

Minor deadwood. Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree

Mulch. Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material

Mycelium. The body of a fungus, consisting of branched filaments (hyphae)

Occluding tissues. A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. woundwood)

Occlusion. The process whereby a wound is progressively closed by the formation of new wood and bark around it

Pathogen. A micro-organism which causes disease in another organism

Photosynthesis. The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products

Phytotoxic. Toxic to plants

Pollarding. The removal of the tree canopy, back to the stem or primary branches, usually to a point just outside that of the previous cutting. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species

Primary branch. A major branch, generally having a basal diameter greater than 0.25 x stem diameter

Primary root zone. The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2005) Guide for Trees in Relation to Construction.

Priority. Works may be prioritised, 1. = high, 5. = low

Probability. A statistical measure of the likelihood that a particular event might occur

Proximal. In the direction towards from the main body of a tree or other living organism (cf. distal)

Pruning. The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs

Radial. In the plane or direction of the radius of a circular object such as a tree stem

Rams-horn. In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section

Rays. Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood

Reactive Growth/Reaction Wood. Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)

Removal of dead wood. Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branchwood and broken snags

Removal of major dead wood. The removal of, dead, dying and diseased branchwood above a specified size

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

Respacing. Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees.

Residual wall. The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues

Ring-barking (girdling). The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates below the area of damage. Almost inevitably results in the eventual death of the affected stem or branch above the damage.

Root-collar. The transitional area between the stem / s and roots

Root-collar examination. Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and / or stem

Root protection area. An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival. Calculated with reference to Table 2 of BS5837 (2005) and shown in plan form in square metres

Root zone. Area of soils containing absorptive roots of the tree / s described. The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree

Sapwood. Living xylem tissues

Secondary branch. A branch, generally having a basal diameter of less than 0.25 x stem diameter

Selective delignification. A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

Shedding. In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales

Silviculture. The practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values.

Silvicultural thinning. Removal of selected trees to favour the development of retained specimens to achieve a management objective

Simultaneous white-rot. A kind of wood decay in which lignin and cellulose are degraded at about the same rate

Snag. In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point

Soft-rot. A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole

Spores. Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water

Shrub species. Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees

Sporophore. The spore bearing structure of fungi

Sprouts. Adventitious shoot growth erupting from beneath the bark

Stem/s. The main supporting structure / s, from ground level up to the first major division into branches

Stress. In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature

Stress. In mechanics, the application of a force to an object

Stringy white-rot. The kind of wood decay produced by selective delignification

Storm. A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes

Structural roots. Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree

Subsidence. In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots

Subsidence. In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight

Taper. In stems and branches, the degree of change in girth along a given length

Target canker. A kind of perennial canker, containing concentric rings of dead occluding tissues

Targets. In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it

Topping. In arboriculture, the removal of the crown of a tree, or of a major proportion of it

Torsional stress. Mechanical stress applied by a twisting force

Translocation. In plant physiology, the movement of water and dissolved materials through the body of the plant

Transpiration. The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells

Understorey. A layer of vegetation beneath the main canopy of woodland or forest or plants forming this

Understorey tree species. Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland

Vascular wilt. A type of plant disease in which water-conducting cells become dysfunctional

Vessels. Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally not present in coniferous trees

Veteran tree. A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned

Vigour. The expression of carbohydrate expenditure to growth (in trees).

Vitality. A measure of physiological condition expressed through the health and growth of foliage, shoots and adaptive woody tissues.

White-rot. A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded

Wind exposure. The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity

Wind pressure. The force exerted by a wind on a particular object

Windthrow. The blowing over of a tree at its roots

Wound dressing. A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites

Woundwood. Wood with atypical anatomical features, formed in the vicinity of a wound

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London