TREE SURVEY SCHEDULE

PROJECT: BERSE ROAD, WREXHAM
CLIENT: CAULMERT
REF: CW/11569-SS
REVISIONS:

SURVEYED BY: M J ELLISON & A WHITTINGHAM
DATE: 20 DECEMBER 2024
PAGE: 1

No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
G1	Hawthorn Elm Sycamore Ash	SM, M	≤16	SEE PLAN	≤500	N	• Off-site remnants of a field boundary hedge of mostly hawthorn, flailed up to a height of approx. 5m where adjacent to the site, with trees on the disused railway embankment to the east • Occasional standing dead trees • Limited overhang to site boundary by up to 1.5-2m • No trees within influencing distance of the site save for hawthorns in the hedgerow of up to 200mm dia. • Located to the northeast of the site with very limited potential for shading of the proposal • Extensive ivy colonising remnants of the hedge	• Fell dead tree at the northern end of the group adjacent to the road bridge • Remove of ivy from approx. 30-50% of affected trees	3	B	B	≤6

The sole purpose of the survey was to collect data to inform the design of the current project in relation to trees. Whilst this is not a tree safety inspection record, the surveyor may record obvious defects when they are observed and considered to be significant to safety. Trees may be subject to legal controls, which should be investigated prior to any felling, pruning, or wilful damage. Unless otherwise agreed, data in this schedule are time limited to one year, after which they should be reviewed.

HEADINGS & ABBREVIATIONS

Age Range Y = young SM = semi-mature EM = early-mature M = mature PM = post-mature V = veteran
Stem Dia Stem diameter (measured in accordance with Figure C.1 of BS5837: 2012) (MS = multi-stemmed EST = estimated)
Crown Spread Maximum crown spread (EST = estimated)
Vitality A measure of physiological condition. N = normal range for the species and age R = reduced, P = poor, MD = moribund, D = dead
Visual (Visual Prominence) Broad indication of prominence in the landscape (1 = low up to 4 = very high) (G = contributes to a wider group)
Retention Category Existing Broadly in accordance with Table 1 of BS5837: 2012 (considers the merits of the tree or group in the context of the existing land-use)
Retention Category Proposed Broadly in accordance with Table 1 of BS5837: 2012 (considers the merits of the tree or group in the context of a development proposal)
BS5837 RPA Radius Calculated in accordance with Table D.1 of BS5837: 2012
Common Plant names Only common names are used in this schedule. For scientific names refer to Mitchell, A. 2001. *Collins Field Guide – Trees of Britain & Northern Europe*. Harper Collins, London. pp. 420.

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No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
G2	Hawthorn Ash Sycamore	SM, M	18	SEE PLAN	≤400	N	• Off-site trees located on former railway embankment. Predominantly regrowth from stumps of felled trees • Most trees have extensive ivy to their stems and crowns • Dead tree fallen at southern end of group	• Remove of ivy from approx. 30-50% of affected trees	3	A	A	≤4.8
G3	Elm Sycamore Hawthorn Elder Ash Oak Silver birch	SM, EM	≤19	SEE PLAN	≤5 STEMS AVG. 50 ()	N	• Mostly off-site, located on a former railway embankment • Occasional standing dead trees with one dead tree at the southern end of the group fallen into the site • Ash dieback 25-50% (stages 1-2) • Predominantly off site with small area and some trees extending into the site at the southern end of the group • Most land affected by the proposal has been cultivated by deep ploughing	• Would benefit from ongoing management	3	A	A	≤13.4
G4	Hawthorn	M	≤9	SEE PLAN	≤350	N & D	• Remnants of what appears to be a former boundary hedgerow, one stem of which is located on the site side of the perimeter fence • Dead tree at southern end of the group, with an adjacent recently failed stem	• Fell dead tree and remove fallen tree	2	B	B	≤4.2
G5	Silver birch Alder Portuguese laurel	Y-SM	≤8	SEE PLAN	≤150	N	• Located in neighbouring private garden • No significant overhang to site	•	1	B	B	≤1.8
H1	Alder		1.4	1		N	• Regularly maintained hedgerow	•				
H2	Alder Hazel Holly Blackthorn Elder		2.5-3.5	2.5		N	• Extensively shrouded in ivy • Regularly maintained hedgerow with substantial gaps	•				

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H3	Hawthorn Beech Berberis Rosa sp. Blackthorn		≤3	≤1.5	≤150	N	• Managed by flailing although indications are that the height has not been reduced or 2-3 years or mire	•				
H4	Hawthorn		≤4	≤2		N	• Short section of field boundary hedge • Partially maintained by flailing, but the height has not been managed for 4-5 years	• Bring back into regular management				
H5	Leyland Cypress		≤3	≤1.5		N	• Recently planted hedge that has received no regular maintenance to date • Minor overhang of boundary by up to 0.6m	•				

ARBORICULTURAL METHOD STATEMENT

From commencement of the development, the following methodology shall be implemented in the manner and sequence described below

SEQUENCE OF WORKS

1. Pre-commencement site meeting
2. Hedge removal
3. Erection of 'tree protection barriers'
4. Main construction phase
5. Removal of 'tree protection barriers'
6. Landscaping works

1. PRE-COMMENCEMENT SITE MEETING

To outline working methods in relation to trees, a site meeting of the following shall take place prior to commencement of any demolition or construction activity:

- Client
- Structural engineer
- Main contractor
- Site agent
- Project arboriculturist

Before the site meeting, existing incoming services and drainage shall be accurately located both on site and on a copy of this drawing

2. HEDGE REMOVAL

a. All hedge removal and pruning work shall be implemented in accordance with Tree Survey Schedule CW/11569-SS and this drawing
b. All reasonable care shall be taken to avoid damage to retained trees and hedges
c. All tree stumps within any area designated as a 'tree protection area' or otherwise protected on this drawing shall be removed by mechanical stump grinder and shall not be excavated in their entirety by mechanical excavator

3. ERECTION OF TREE PROTECTION BARRIERS

a. The main contractor shall erect 'tree protection barriers' as detailed on this drawing
b. The 'project arboriculturist' shall inspect installation of the 'tree protection barriers' prior to commencement of any construction works, site preparation, excavation or delivery of plant and materials

4. MAIN CONSTRUCTION PHASE

a. There shall be no storage of construction equipment, plant or materials within any area designated as a 'tree protection area' or 'root protection area' on this drawing
b. No fires shall be lit within 20m of any retained tree or hedge
c. The site agent shall supervise all deliveries by self-loading crane, with vehicles positioned in such a manner that retained trees and hedges are not at undue risk of damage
d. There shall be no excavation within 300mm of a 'tree protection barrier'
e. There shall be no new excavation for the installation, renewal or repair of underground services within any area designated as a 'tree protection areas' or 'root protection areas' on this drawing
f. The integrity of the 'tree protection barriers' shall be maintained for the duration of the main construction phase
g. Any damage occurring to 'tree protection barriers' during the main construction phase shall be reported to the project arboriculturist and immediately made good by the main contractor
h. Site drainage and washings from concrete and mortar mixings shall be directed away from all 'tree protection areas'
i. The 'project arboriculturist' shall visit the site monthly to assess the integrity of the tree protection
j. The 'project arboriculturist' shall complete a report to be sent to the site owner and main contractor following each visit. In this regard, the site owner will instruct the 'project arboriculturist' prior to any works commencing on site

5. REMOVAL OF TREE PROTECTION BARRIERS

'Tree protection barriers' shall be removed only on completion of construction works and in compliance with all relevant planning conditions

6. LANDSCAPING WORKS

a. Landscaping works shall be implemented in accordance with a scheme approved by the Local Planning Authority
b. There shall be no rotovation of ground within any area designated as a 'tree protection area' or 'root protection area' on this drawing
c. Sandy topsoil may be spread within the 'tree protection areas' and 'root protection areas'to a depth of not more than 150mm to facilitate the establishment of new vegetation. No other addition of soil or other material shall be carried out within any area designated as a 'tree protection area' or otherwise protected on this drawing without prior consultation with the Local Planning Authority
d. No hard landscaping works or excavation for cables or any other service shall be carried out within any 'tree protection area' or 'root protection area' without the prior written consent of the LPA. All such excavations shall be carried out in accordance with the guidance set out in National Joint Utilities Group Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Volume 4 2007)

TREE PROTECTION SPECIFICATION

Tree Protection Areas shall: -

1. Be secured prior to commencement of any construction works, delivery of site accommodation or materials and shall remain intact for the duration of the construction works
2. Preclude all construction activity with the exception of specified arboricultural works and such works as have been agreed by all parties and to be carried out under supervision
3. Be protected by 'tree protection barriers' and other measures as specified on this drawing
4. Preclude the storage or tipping of all materials and substances. Toxic substances such as fuels, oils, additives and cement shall not be stored within 5m of any area designated as a 'tree protection area' or otherwise protected on this drawing
5. Any incursion into 'tree protection areas' must be by prior arrangement, following consultation with the Local Planning Authority

Tree Protection Barriers

1. The 'tree protection barriers' shall comprise 2m high weldmesh 'Heras' type fencing
2. The fencing panels shall butt together and be securely fixed to a timber framework comprising 2.7m x 100mm x 100mm timber posts, set or concreted into 600mm deep, 150mm diameter augured holes at 3.5m centres
3. No fixing shall be made to any tree and all reasonable care shall be taken to avoid damage to tree roots when locating posts
4. An A3 warning sign reading as per figure 1 shall be fixed to every 10m of 'tree protection barrier'
5. The 'project arboriculturist' shall direct erection of the 'tree protection barriers'



Note - Root Protection Areas are based on the largest tree within each group

SCALE:	1:1000
UNITS:	METRES

0 — 50

Fig.1

TREE PROTECTION AREA
KEEP OUT!

ALL TREES ENCLOSED BY THIS FENCE ARE PROTECTED
BY PLANNING CONDITIONS (TOWN AND COUNTRY PLANNING ACT 1990)
AND ARE IN A CONSERVATION AREA AND ARE PROTECTED BY A
TREE PRESERVATION ORDER
CONTRAVENTION OF TREE PRESERVATION ORDER/CONSERVATION AREA
CONTROLS MAY LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

• THE TREE PROTECTION BARRIERS MUST NOT BE MOVED •
• NO PERSON SHALL ENTER THE TREE PROTECTION AREA •
• NO MACHINE OR PLANT SHALL ENTER THE TREE PROTECTION AREA •
• NO MATERIAL SHALL BE STORED IN THE TREE PROTECTION AREA •
• NO SPOIL SHALL BE DEPOSITED IN THE TREE PROTECTION AREA •
• NO EXCAVATION SHALL OCCUR IN THE TREE PROTECTION AREA •

ANY INCURSION INTO THE TREE PROTECTION AREA MUST BE
WITH THE PRIOR WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

TREE PROTECTION PLAN

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CLIENT	CAULMERT
PROJECT	BERSE ROAD WREXHAM
JOB REF	CW/11569-P-TP
DATE	3 JANURARY 2025
SCALE	1:1000 At A1

- INDIVIDUAL TREE TO BE RETAINED
- GROUP OF TREES TO BE RETAINED
- HEDGE TO BE RETAINED
- HEDGE TO BE REMOVED
- STEM POSITION APPROXIMATED
- BS5837 RETENTION VALUE
- BS5837 ROOT PROTECTION AREA RADIUS
- BS5837 CATEGORY 'A' TREES
- BS5837 CATEGORY 'B' TREES
- TREE PROTECTION BARRIER
- TREE PROTECTION AREA
- PROPOSED BUILDINGS
- PROPOSED HARD SURFACES
- PROPOSED SOFT LANDSCAPING

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Guidance Note - Visual Prominence and Tree Categorisation

Visual Prominence

A broad indication of visual contribution to the landscape. The evaluation considers:

- location
- public views
- landscape function
- tree size
- growth potential
- useful life expectancy

Visual prominence values are classified as follows:

(1) Low - visual contribution restricted to the site

(2) Moderate - visual contribution to the site and immediate surroundings

(3) High - visual contribution to the site, immediate surroundings and neighbourhood, estate or locale

(4) Very high - visual contribution to a conurbation, or trees of exceptional landscape value

Groups of trees are assessed as a single unit.

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Tree Categorisation

Broadly in accordance with section 4.5 and Table 1 of British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

Trees or groups of trees are evaluated twice. Firstly, they are assessed and categorised in the pre-development context to provide a broad valuation of all of their attributes and their contribution to the amenity of the area. Secondly, they are similarly assessed and categorised in the context of a development proposal. The evaluations consider:

- useful life expectancy
- visual prominence (see above)
- landscape function
- numbers of other trees and their maturity (continuity for landscape, amenity, habitat)
- wildlife habitats (including continuity)
- safety
- conflicts with the built environment or other land-use
- cultural, historical or other value

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

Pre-Development assessment

The tree or group of trees is assessed 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) High quality - Trees the retention of which is most desirable and that have an estimated useful life expectancy of at least 40 years

Wholly appropriate and without significant conflict

(B) Moderate quality - Trees the retention of which is desirable and that have an estimated useful life expectancy of at least 20 years

Appropriate but not of highest value

(C) Low quality - Trees that could be retained and have an estimated useful life expectancy of at least 10 years

Ill-suited but could be retained with moderate conflicts

Trees of no particular merit

(U) Trees unsuitable for retention

Could not reasonably be retained for longer than 10 years

Post-Development assessment

The tree or group of trees is assessed and 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 a development proposal

Any specific issues are noted in the tree survey schedule.

(A) High quality - Trees the retention of which is most desirable and that have an estimated useful life expectancy of at least 40 years

Wholly appropriate and without significant conflict

(B) Moderate quality - Trees the retention of which is desirable and that have an estimated useful life expectancy of at least 20 years

Appropriate but not of highest value and/or having only minor conflicts

(C) Low quality - Trees which could be retained and have an estimated useful life expectancy of at least 10 years

Ill-suited but could be retained with moderate conflicts

Trees of no particular merit

(U) Trees for removal

Would need to be removed to accommodate the development proposal, or could not reasonably be retained for longer than 10 years

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Guidance note - Statutory Controls

Trees and Hedges

Subject to specified exceptions, an application must be made to the local planning authority [LPA] to carry out work on or remove trees that are protected by a tree preservation order [TPO][1]

Six weeks' notice must be given to the LPA of intention to carry out work on or remove trees within a conservation area and not protected by a TPO[1]

LPA consent may be required to carry out work on or remove trees, shrubs and hedges that are affected by planning conditions

LPA consent may be required for the removal of hedgerows[2]

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

Subject to specified exemptions, a licence may be required for the felling of growing trees[3]

Your nearest Forestry Commission or Natural Resources Wales office will advise whether you require a felling licence

[1] https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas
[2] https://www.gov.uk/guidance/countryside-hedgerows-regulation-and-management
[3] https://www.gov.uk/guidance/tree-felling-licence-when-you-need-to-apply

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Wildlife

Nesting birds and all species of bat are afforded statutory protection.[4] 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.

[4] https://www.gov.uk/topic/planning-development/protected-sites-species

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

Access facilitation pruning. One off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site

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

Ancient tree. A tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species. An ancient tree is one that has all or most of the following characteristics: a) biological, aesthetic or cultural interest, because of its great age; b) a growth stage that is described as ancient or post-mature; c) a chronological age that is old relative to others of the same species

Arboricultural Method Statement. Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained

Arboriculturist. Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction

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

Axial. Aligned along the axis of the stem, branch or root

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

Bark expansion crack. The pattern of axial strips of bark on smooth-barked trees that have grown faster than the adjacent bark. A growth response to stretching of the bark by expansion of the underlying xylem

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

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

Cellulose. A carbohydrate consisting of glucose molecules joined end-to-end, so as to form long filaments; a principal constituent of plant cell walls

Chlorosis. The loss of green pigment from plant tissues, caused by mineral deficiency. Chlorotic (adj.)

Compartmentalisation. 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

Competent person. A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the task being approached.

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 condition 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. Site based operations with the potential to affect existing trees

Construction exclusion zone. Area based on the Root Protection Area from which access is prohibited for the duration of the project

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

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

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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

Decay. (of organic tissue) decomposition by fungi or bacteria

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

Desire-line footpath. A footpath that has been created by regular use rather than by design and construction

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

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

Early-wood. The wood laid down around the time of the main flush of shoot growth in the early part of the growing season

Endophytes. Micro-organisms that 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

Engineer-designed hard surfacing. Hard surfacing constructed within the 'Root protection area' of a tree, which will be designed by a structural or geotechnical; engineer in collaboration with an arboriculturist as set out in clause 7.4 of British Standard BS5837:2012. The purpose being to minimise the effects of the construction on the health of the tree.

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

Fibre-buckling. The kinking if wood fibres and failure of other xylem elements when exposed to compressive loading

Field layer. Herbs, ferns, grasses and sedges

First-order branch. A high order branch, usually arising from a stem

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

Ground layer. Mosses, ivy, lichens and fungi

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

Haloing. Removing or pruning trees from around the crown of another (usually mature or post-mature) tree to prevent it becoming supressed

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. The dead central wood that has become dysfunctional as part of the aging processes and being distinct from the sapwood

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

Laser Rangefinder. A device that uses a laser beam to measure distance, angle, and height.

Lateral branch: A side branch

Late-wood. The wood laid down after the time of the first main flush of shoot growth. Usually denser than the early-wood

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

Lesion. Death or abnormal change in tissues, usually associated with disease or trauma

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

Loam. A soil with roughly equal proportions of sand, silt, and clay

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

Marginal browning of leaves. Death of a tissues to the margin or edge of the leaf

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

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

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)

Obvious defects. Defects that are so apparent that most people, whether specialist or not, would recognise them on taking a general, but not necessarily close view of the tree

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

Phloem. Vascular tissue that distributes the products of photosynthesis (sugars) around the plant

Photosynthesis. The process whereby plants use light energy to split hydrogen from water molecules and combine it with carbon dioxide to form carbohydrates that are be basic building block for plant growth. Photosynthetic capacity is the plants ability to produce carbohydrates

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 (2012) Trees in Relation to design, demolition and 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 deadwood. Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branchwood and broken snags

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

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

Rhizomorph. A root-like aggregation of fungal hyphae

Rib. A ridge of wood that has usually developed because of locally increased mechanical loading. Often associated with internal cracking in the wood of the stem, branch, or root.

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

Ripewood. The older central wood of those tree species in which sapwood gradually ages without being converted to heartwood

Root-buttresses. A buttress-like formation at the transition between roots and stems

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 (RPA). Layout design tool indicating a national minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability and where the protection of the roots and soil structure is treated as a priority

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

Saprophytic fungi. Fungi that live on dead or decomposing matter (in the tree) as opposed to functional, living tissues

Sapwood. Living xylem tissues

Safety factor. The ratio of the maximum stress that a structural part of a tree can withstand to the maximum stress experienced under normal conditions

Screef. To clear surface vegetation (commonly up to a depth of around 20mm)

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

Senescence. The condition or process of deterioration with age.

Service. Any above- or below-ground structure or apparatus required for utility provision e.g. drainage, gas supplies, ground source heat pumps, CCTV and satellite communications

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

Shoot. The elongating region of a stem or branch

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

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

Single-up. Removal of stems from a multi-stemmed tree with the aim of developing a tree with a single stem.

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

Soil auger. A hand-held steel auger 60mm diameter auger used for extracting soil samples.

Soil horizons. A layer parallel to the soil surface, whose physical characteristics differ from the layers above and beneath:

- O) Organic matter - Litter layer of plant residues
- A) Surface soil - Layer of mineral soil with accumulation of organic matter
- B) Subsoil - This layer accumulates mineral and organic compounds.
- C) Parent rock - Layer of large unbroken rocks
- R) Bedrock - Partially weathered bedrock at the base of the soil profile

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Soil sample. A sample of soil extracted for the purpose of either field or laboratory testing to determine mineral, chemical or structural composition, and or moisture content and shrinkability.

Sounding hammer. A small plastic or nylon hammer used for assessing the audible signs of decay, cracks and other features in trees

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

Sporophore. The spore bearing structure of fungi

Sprouts. Adventitious shoot growth erupting from beneath the bark

Squirrel damage. Stripping of the bark from stems or branches by squirrels. This can result in the death of branches or even entire trees

Stem/s. Principle above-ground structural component(s) of a tree that supports its branches

Stem taper. The downward tapering of a tree stem out into the flare of the root buttresses

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

Strain. In mechanics, the distortion of an object caused by a stress

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

Structure. Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork

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

Terminal xylem. The last layers of xylem cells produced at the end of the growing season

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

Tree Protection Plan. Scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures

Tree Risk Assessment. An assessment and description of the risks and where appropriate the values associated with a tree or trees. The primary risk being considered is that from falling trees. Other risks, such as damage to infrastructure, interruption of service and building subsidence may also be considered

- Walkover – A general view of the tree population considered in the context of the adjacent land-use to identify trees that present significantly elevated risks
- Drive-by - A general view of the tree population from a moving vehicle and considered in the context of the adjacent land-use to identify trees that present significantly elevated risks
- Individual – the assessment of risks from a single tree considered in the context of the adjacent land-use to identify trees that present significantly elevated risks

Understorey. This layer consists of younger individuals of the dominant trees, together with smaller trees and shrubs which are adapted to grow under lower light conditions

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 cambium. Sometimes described simply as ‘cambium’. Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally

Vascular dysfunction. Dysfunction of water conducting cells

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 tree that has the physical characteristics of an ancient tree but is not ancient in years, compared with others of the same species

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

Vitality. A measure of physiological condition. N = within normal range for species and age, R = reduced from the normal range for the species and age, P = poor

Volunteer trees. Trees arising from natural colonisation rather than having been planted

Weeping lesion. Exudations from a lesion in plant tissue

Wet flush. Where water from underground flows out onto the surface to create an area of saturated ground, rather than a well-defined channel

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

Xylem. Secondary xylem; the main structurally supporting and water-conducting element of trees (refined definition specific to this case)

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