Arboricultural Report and Impact Assessment To BS 5837:2012

Report No: 180322

Client: J D Associates

Site Address: 61 Main Street, Saxby all Saints, Brigg, DN20 0PZ

Survey Date: 22nd March 2018

Lincolnshire Tree Services
Jim's Yard, Bully Hill Top, Tealby, Market Rasen, Lincolnshire LN8 6JA
[redacted]

Contents

Introduction

Purpose of the Report

This report is required at 61 Main Street, Saxby all Saints to provide detailed, independent, arboricultural advice on the trees present in the context of potential development.

The purpose of this report is to outline the condition of a single tree on the site and to define areas where development and tree protection have the potential to conflict. In addition, recommendations will be made based on the current context of the site.

Terms of Reference

Lincolnshire Tree Services Ltd has been instructed by J D Associates to survey the tree and prepare the findings in a report.

For this purpose, a Trimble Juno T41/5 has been used to capture northing and easting coordinates for each tree. Whilst not as accurate as a topographical survey, this method is considered to provide a fair representation of the positions of the trees surveyed. Tree positions should, however, be considered indicative only.

Scope of the Report

This report is compiled in accordance with *BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'* and is based on an objective assessment of the existing vegetation.

Preliminary recommendations are given with a view to the long-term management of a sustainable tree cover and to uphold the interests of health and safety.

Survey Details

The survey took place on the 22nd March 2018 and was conducted by Daniel Kendall of Lincolnshire Tree Services.

During this survey, all trees were inspected from ground level. Further investigation, such as climbed inspections or decay detection surveys, have not been undertaken but may be recommended where this is considered appropriate.

Measurements were obtained using clinometers, specialist tapes or electronic distometers. Where this was not possible, measurements were estimated to the best ability of the surveyor. Lincolnshire Tree Services endeavour to provide accurate information and will always take measurements unless inhibited by restricted access or other mitigating circumstances.

Site Description

Land Use

The tree identified for survey stands in a private garden of an unoccupied detached dwelling on a relatively quiet residential street. The tree stands at the font of the property close to the road and a neighbouring dwelling to the south east.

Topography and Geology

The tree stands one meter from the pavement on Main Street. The ground level of the pavement is one meter lower than that of the tree. The change in level is made up by a short steep bank. The remaining ground around the tree slopes notably from the north east down to the south west.

The site appears to be well drained. The site geology is superficially sand and silt over a mudstone bedrock.

Treescape

Along Main Street there are a significant number of mature and semi mature trees. The wider area is relatively heavily wooded.

Rooting Conditions

Within the front garden of the property tree rooting conditions are generally good, being free from soil compaction, subterranean structures and hard surfacing. Rooting conditions are however compromised at 1m to the south west by the hard surfacing on Main Street, at 4.5m to the south east by the foundations of a neighbouring property and at 10.5m to the north east by the foundations of the main dwelling. Given these constraints the tree's root protection area has been off-set by 20% to the north east to better reflect the likely rooting pattern of the tree.

Visual Amenity Value

The tree is a reasonably good specimen and is a highly prominent feature when viewed from Main Street. As such the tree conveys a high visual amenity value.

Status of the Trees

Tree Preservation Order (TPO) and Conservation Area conditions were checked for on North Lincolnshire County Council's online mapping service on 22nd March 2018.

The site was found to be within Saxby All Saints Conservations Area. A Tree Preservation Order (T.178 Horse Chestnut 04-Jun-1963) was found to apply to the tree. Prior to any works being carried out on the tree, permission must be sought from North Lincolnshire County Council.

Discussion

Tree Condition & Recommended Works

During the survey the details of a single mature Horse Chestnut were recorded. The tree was identified as retention category B. Overall the tree has been reasonably well maintained with only minor work recommended.

Removals Irrespective of Development

No trees have been identified as category 'U' and as such no trees are recommended for removal in the current context of the site.

Remedial Tree Works Irrespective of Development

Due to past crown reductions the tree has become asymmetrical to the south with a lateral limb extending high over Main Street. The limb is not only more exposed to wind loading but will become increasingly end weighted as it develops. Currently the limb is not a significant concern from a hazard prospective however a minor reduction in its length has been recommended to avoid future issues arising. The detail of this work can be found in Appendix 1.

Monitoring/Further Investigations Irrespective of Development

Given the location of the tree close to a highway and properties it should be re-inspected for structural defects every 5 years.

Arboricultural Implications Assessment (AIA)

Proposed Development

The proposal for the site includes the extension of the existing dwelling northward as well as the addition of a new driveway.

This Arboricultural Implications Assessment is based on drawing 142017-03 which accompanies this report.

Tree Removals for Development

No removals are required to facilitate the development.

Remedial Tree Works and Pruning for Development

No pruning or remedial tree works are required to facilitate the development.

Monitoring/Further Investigations to Accommodate Proposed Development

No monitoring or further investigations are required to facilitate the development.

Implications for Retained Trees

The Protective Barrier

In order to ensure the effective protection of retained trees during development, a protective barrier will be installed, in accordance with BS5837: 2012 and may comprise of protective fencing and/or ground protection. This will be the first job on site following the tree removal and pruning works. The fencing and ground protection should be positioned to protect the entire Root Protection Area (RPA) of the retained trees. The position of protective fencing and ground protection is detailed on the Tree Protection Plan that accompanies this report. Given the scale of this particular development chestnut paling fencing (secured to stakes at a maximum of 3m intervals) should prove adequate for a protective barrier.

Routes for pedestrian and site traffic should ideally be located outside and diverted away from, the RPAs of the retained trees. Where this is not possible, temporary protective surfaces (ground protection) must be laid over the exposed RPAs which will distribute the weight of site vehicles,

machinery or pedestrians whilst allowing moisture to reach the tree rooting area beneath. Such surfaces should be constructed in accordance with BS5837: 2012.

Access/Construction of Hard Surfacing

As the majority of the new driveway falls within the RPA of the tree thorough consideration for ground protection during and post construction must be given. Failure to do so is likely to cause physiological stress to the trees which may lead to compromised conditions or early loss. In addition, access to the south western and south eastern sides of the property will also need to be maintain during construction. Adequate ground protection in these areas will also need to be considered.

To allow access into the RPA during construction temporary ground protection must be laid. The position of this surfacing is highlighted as the Ground Protection Area on the Tree Protection Plan. This surfacing must be installed using a no dig 'roll-out' technique and must be able to adequately distribute the weight of site traffic.

To provide adequate ground protection post construction,n the driveway must be able to distribute the weight of normal domestic traffic. This surfacing too must be installed using a no dig 'roll-out' technique. It is likely some change in ground level will be required where the new driveway meets Main Street. Given the modest size of area effected and the distance from the tree, provided these excavations are kept to an absolute minimum, the tree is unlikely to suffer any notable or lasting ill effects.

In addition, as the driveway will cover approximately 20% of the currently unsurfaced RPA of T1 some of the finished driveway surface will need to be permeable in nature as detailed on drawing 142017-03.

Demolition

No demolition is required to facilitate development.

Construction/ Foundation Design

It is likely a small portion of the footprint of the proposed extension will fall within the RPA of the tree. Given the very limited size of the incursion the tree is unlikely to suffer any notable or lasting ill effects. As such no special foundation designs have been recommended.

Utilities

The routing of utilities is not available at present. Where possible these should be routed away from the tree and outside its RPA. If this is not possible advice should be sought on how to minimise the impact of service installation.

Landscaping

Any proposed fence lines may be constructed within the RPA if necessary, providing that appropriate considerations are made to the protection of the tree. This is providing that no

continual trenching is undertaken (e.g. for small walls onto which panel fencing is installed). Excavation must be kept to a minimum and therefore only fence designs requiring intermittent posts will be acceptable within the RPA of retained trees.

Any patios, garden paths or other hard surfaces within RPAs which may not be shown on the plans provided may be constructed using no-dig techniques, providing that they do not cover more than 20% of the RPA and are implemented in accordance with BS5837: 2012. If there is any concern of damaging retained trees, further advice should be sought from a qualified Arboriculturalist.

No ground level changes are to be undertaken within the RPA of retained trees, unless otherwise stated or agreed with the appointed Arboricultural consultant or the LPA. The requirement to raise/lower ground levels within RPAs should be communicated to these parties at the earliest practical convenience.

Arboricultural Method Statement – Areas for Consideration

Operations that may need to be addressed by way of an Arboricultural Method Statement include;

- The installation of temporary ground protection in the Ground Protection Area as highlighted on the Tree Protection Plan
- Installation of the proposed driveway.

Appendix 1: Survey Schedule

Tree ID	Tree Type	Maturity	Height (m)	Stem Diameter (mm)	RPA Radius (m)	Crown Spread				Structural Condition			Category	Life Expectancy	Phys Condition	Reinspection Interval	Comments	Recommendations
						N	E	S	W	Crown	Stem	Basal						
T1	Horse Chestnut	Mature	18	980	11.8	5	6.5	8.5	7.5	Good	Good	Good	B1	> 40 yrs	Good	5 Years	Standing 11m to SW of S corner of main dwelling, 4.5m to NW of wall of neighbouring dwelling and 1m from SW boundary. Growing level 1m lower at SW boundary. Minor heave cracks visible on pavement. Closed crack on N buttress root from ground level to 50cm. Basal area otherwise free from defects with good buttress development. Light epicormic growth on stem. Notable area of flux emission at 5.5m to W. All primary branch unions appear sound. Limb at 7m to NE with notable cavity 1m from main union some reactive growth present. Limb not unduly heavy, no targets present. Numerous old pruning wounds with light epicormic growth following significant past crown reduction. Crown asymmetrical to south with a lateral limb (8m long from parent stem) over road. Generally good dense twig structure with abundant sizable buds.	Reduce limb over road from 8m in length down to 6m to next appropriate growth point. Priority: Low (within 3 years)

Appendix 2: Glossary of Terms & Tree Descriptions

Tabular Headings

Tree ID: Unique reference number (tree tag number is when available)

Tree Type: Common name of tree

Height: Total height in meters either measure with a distometer or estimated

Maturity: Approximate age class of tree categorised to; Young (Y), Semi-mature (SM), Mature trees (M), Over mature trees (OM)

Physiological Condition: Health of tree taking into account vigour, presence of disease, and dieback. Categorised to; Good (G), Fair (F), Poor (P), Dead (D)

Next Survey: Timescale within which trees should be re-inspected. Frequency indicates the potential level risk posed by the trees. Categorised to; 6 months, 18 months, 36 months, 60 months

Comments: Explanation of significant defects present

Recommendations: Remedial work advised

Work Time Scale: Timescale within which tree work should be completed. Duration indicates level of work priority. Categorised to; 1 month (Urgent Priority), 3 months (High Priority), 1 year (Medium Priority), 3 years (Low Priority)

Retention Categories

Trees Unsuitable for Retention	
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality. *NOTE Category U trees can have existing or potential conservation value, which it might be desirable to preserve; see [BS5837: 2012]* ***4.5.7***

Tree to be Considered for retention	1 For Arboricultural Reasons	2 For Landscaping Qualities	3 For Cultural Values, Including Conservation
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).

Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.

General Terms

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

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

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 strucres (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

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 particular 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

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

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

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

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

Field layer. Herbs, ferns, grasses and sedges

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

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

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 (2012) Trees in Relation to design, demolition and construction

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

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

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 endloading

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

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)

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

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

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

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

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-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

Sapwood. Living xylem tissues

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

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

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. Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem

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

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

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

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

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

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

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

Appendix 3: Guidelines & Limitations

All work must be to BS 3998: 2010 - 'Recommendations for tree work'.

Staff carrying out the work must be qualified, experienced contractors, and should be covered by adequate public liability insurance.

This report is based upon a visual inspection. The consultant shall not be responsible for events which happen after this time due to factors which were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed in this report.

Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.

No liability can be accepted by the consultant in respect of the trees unless the recommendations of this report are carried out as outlined and within the stated timescales.

It is advisable to have trees inspected by an arboricultural consultant regularly. In this instance it is recommended that these inspections are made as per the recommended re-inspection timings in this report. Furthermore it is recommended that trees be re-inspected following certain events. These include; severe weather events, significant changes to site usage, changes that affect wind loading on the trees (e.g. Removal of neighbouring trees, erection/demolition of buildings).