

Tree Survey and Arboricultural Method Statement

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ABSTRACT

The primary purpose of this document is to make an appraisal of certain trees that stand within the curtilage and adjacent to 87 Chapel Road, Whaley Bridge. Generally, this document evaluates the condition and amenity value of the trees and assesses any constraints they may impose on a proposal to erect a single detached dwelling on the site. The document also provides information on the trees that can be retained, how they should be protected for the duration of the development work and rudimentary management advice.

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1 INTRODUCTION

- 1.1 **Brief:** I am instructed by Michael Bromley to undertake a predevelopment appraisal (an arboricultural implication study') of certain trees that stand within the curtilage of 87 Chapel Rd, Whaley Bridge, High Peak, Derbyshire, SK23 7EP. Generally, this report assesses any constraints the trees may impose on a proposal to erect a single detached dwelling on the site.
- 1.2 Specifically, this document will:
- evaluate the condition and amenity value of the trees,
 - advise how the proposed development work may impact upon the trees,
 - advise how the retained trees may impact on the proposed development,
 - provide information on how the trees should be protected during the development work and,
 - provide basic management advice.
- 1.3 **Qualifications and experience:** I have based this document on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and list the details in Appendix 1.
- 1.4 **Documents and information provided:** I was provided with copies of the following documents:
- existing topographical site plan @ 1:100 - A2,
 - proposed site layout plan @ 1:200 - A2,
 - elevations plan @ 1:100 - A3,
 - floor plans @ 1:100 - A3,
 - sectional lines @ 1:200 – A2 and,
 - a copy of the High Peak Tree Preservation Order No. 228 – 87 Chapel Road/1 The Dell - 2006
- 1.5 **Relevant background information:** Because there are protected trees on the site the local planning authority (High Peak Borough Council) will require a tree survey to ensure that proper consideration is given to the trees in the context of the proposal. The trees are protected by High Peak Tree Preservation Order No. 228 – 87 Chapel Road/1 The Dell – 2006.
- 1.6 **Limitations of use and copyright:** All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of the addressee in dealing with this site. It may not be sold, lent, hired out or divulged to any third party not directly involved in this site without the written consent of White Peak Tree Consultancy Ltd.

- 2.1 **Site visit:** I carried out an accompanied site visit on Thursday September 3, 2015. All my observations were from ground level without detailed investigations. I estimated the tree height and canopy height and used a tape measure for all other dimensions. The weather at the time of my visit was cool and generally overcast with a light breeze winds. Visibility was reasonable.
- 2.2 **Brief site description:** Whaley Bridge is a small town located in the administrative district of High Peak Borough Council and the county of Derbyshire. It stands on the old A6 road 18 miles southeast of Manchester, 9 miles east of Macclesfield and 28 miles east of Sheffield. 87 Chapel Road is located to the southeast of the town centre. It is the last property on the southern side of Chapel Road before it passes under the Stockport to Buxton railway line. The narrow irregular site is served by an access track that leads up from Chapel Road close to the railway bridge. It contains several temporary buildings set on and adjacent to an elevated concrete base with the land falling away steeply to the south. The general nature of the immediate locality is best described as rural fringe (photograph 1).
- 2.3 **Identification and location of the trees:** I have illustrated the locations of the trees on the tree constraints plan included as Appendix 4 and the tree protection plan included as Appendix 5. These plans are for illustrative purposes only and they should not be used for directly scaling measurements. Only the full-sized (A2) scale plans accompanying the document should be for scaling measurements. All the relevant information on it is contained within this document and the provided plans.
- 2.4 **Tree observations:** I visually inspected the tree and recorded the information in the tree information schedule included as Appendix 2. The details of the document should be self-explanatory, however, abbreviations and certain technical terms that may be used in the tree information schedule are explained below and in the Glossary included as Appendix 6.
- 2.5 **British Standard BS: 5857:** Information relating to the subject tree is recorded in the tree data table in Appendix 3. The data collected complies that recommended in section 4 of British Standard BS 5837:2012 'Trees in Relation to Construction - Recommendations' (BS 5837).
- 2.6 Tree species has been recorded by both common and botanical name.
- 2.7 Height has been recorded in metres.
- 2.8 Stem diameter at 1.5 metres is recorded in millimetres.
- 2.9 Branch spread has been recorded in metres as a radius at four cardinal points as recommended in BS 5837.
- 2.10 Height of ground clearance has been recorded in metres.

2.11 'Age Class' has been recorded thus:

Yng - Young trees

Mid - Middle age trees

Mat - Mature trees

Om - Over-mature trees

Vet - Veteran trees

Sen - Senescent trees

2.12 'Physiological condition' has been recorded (e.g. good, fair, poor, dead).

2.13 'Structural condition' has been recorded (e.g. collapsing, the presence of any decay and physical defect).

2.14 'Preliminary management recommendations' have been provided.

2.15 'Remaining contribution' has been estimated (e.g. less than 10, 10-20, 20-40).

2.16 Category grading (BS 5837 Class) has been recorded as U, A, B or C in accordance with Table 1 of BS 5837. This gives an indication as to the trees importance in relation to the characteristics of the site and its suitability for retention in the context of the proposed development on the site:

U - trees which should be removed irrespective of any development proposal
fell category - (dark red),

A - trees of high quality whose retention is most desirable
high category - (light green),

B - trees of moderate quality whose retention is desirable
moderate category - (mid blue),

C - trees low quality, which could be retained:
low category - (grey).

2.17 The subcategories 1, 2 and 3 used with the main categories are also based on those defined in table 1 of BS 5837:

3 APPRAISAL

3.1 **Relevant references:** Details of references are listed in section 6.

3.2 **General observations:** British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' (BS 5837) give recommendations and guidance of the principals that should be applied during the development process to achieve a satisfactory juxtaposition of trees with structures. With regard to the design issues and the assessment of trees on development sites BS 5837 recognizes section 5.1.1 that:

"The constraints imposed by trees, both above and below ground (see Note to 5.2.1) should inform the site layout design, although it is recognized that the competing needs of development mean that trees are only one factor requiring consideration. Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification. However, care should be taken to avoid misplaced tree retention; attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal."

3.3 BS 5837 adds in 5.1.2 that:

"As trees can affect and be affected by many aspects of site operations, during the conception and design process the project arboriculturist should be involved in ongoing review of layout, architectural, engineering and landscape drawings. All members of the design team should be made aware of the requirements for the successful retention of the retained trees and should make provision for these throughout the development process."

3.4 Clearly, BS 5837: advises that the physical size of trees can: dominate new development and give rise to concern about safety, cause obstruction of light and views, and incite objections about falling leaves and debris. These factors are most important when taking into consideration the juxtaposition of trees and new development, and usually this can only be resolved by allowing sufficient space for the trees or by removing the trees.

3.5 **The trees:** For the purposes of this report the trees are described as seven individual trees and two groups of trees. To avoid any ambiguity, all the trees on the site have been assessed, irrespective of their proximity to the proposed development.

3.6 **Group 1 - ash, sycamore, hawthorn and spruce:** All the trees in is large group stand on the steeply falling ground to the south of the log cabin and concrete slab. Following my meeting with Monica Gillespie on the afternoon of Monday July 11, 2011, I understand that the trees described as T8, T9 and G2 in the High Peak Tree Preservation Order No. 228 – 87 Chapel Road/1 The Dell – 2006 correspond with the large mature ash and sycamore that stand at the bottom of the banking adjacent to the canal feeder channel.

- 3.7 It appears that T9 is incorrectly described as a sycamore in the Tree Preservation Order. This tree is an ash. During my visit on July 11, 2011, I noted a young fruiting body (bracket) of the decay fungi 'shaggy polypore' (*Inonotus hispidus*) fresh fruiting body on the stem of this tree. Unfortunately, on this occasion I was not able to access the bottom of the bank because the area has become considerably overgrown since that time. However, this is not especially problematic because the current proposal does not impact directly on any of the trees lower down the bank within Group 1.
- 3.8 None of the smaller trees and scrub that stands at the top of the banking will need to be removed to accommodate the current layout. Generally, these trees constitute a mix of self-seeded ash, sycamore and hawthorn that have emerged as an understory around the larger protected trees. The most visible trees in this part of Group 6 are the ash and sycamore that stand on the top of the banking adjacent to concrete slab (photograph 1).



Photograph 1

- 3.9 The crowns of these pollarded trees are swamped by heavy ivy growth severely limiting their potential. Notwithstanding this, the crowns of these trees do not impinge into the development to any great extent, and only limited crown lifting and reducing back will be necessary to accommodate the new dwelling.
- 3.10 **Methodology - protective barriers:** Barriers for the protection of trees on development sites should be fit for the purpose of excluding construction activity and appropriate to the type and proximity of the work. In particular attention should be paid to ensure that such barriers remain rigid and complete during all phases of development. In most instances barriers should consist of rigid framework comprising of vertical post and horizontal rails well braced to resist impacts. An appropriate fence type should then be securely fixed to this framework with clamps or wire (figure 1).

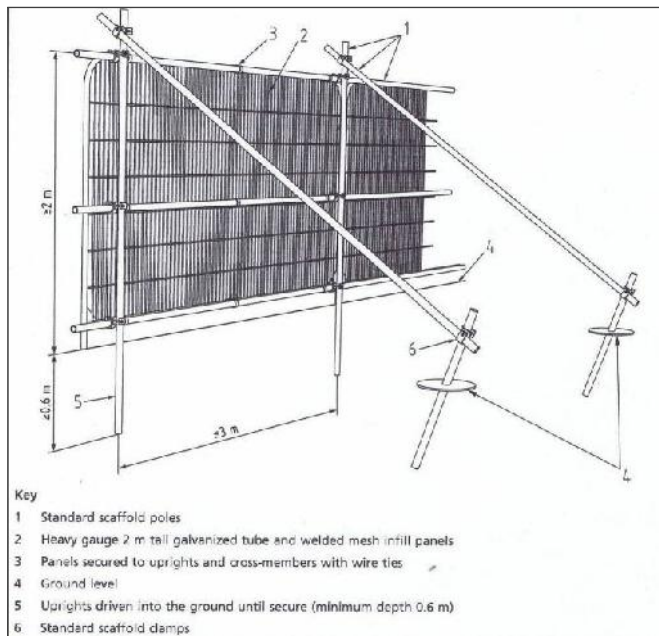


Figure 1

3.11 It is expected that the erection of tree protection barriers will be conditional on the approval of a planning application that calls for their use. Optimal locations for the tree protection barriers are indicated on the tree protection plan in Appendix 4. However, I would advocate that to avoid any ambiguity, the precise location of the tree protective barriers be agreed on site with the local authority arboricultural officer and then marked out clearly on the ground.

3.12 **Location of protective barriers:** British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' (BS 5837) advocates the use of "root protection areas" (RPAs) formed by calculating a circle 12 times the stem diameter for single stem trees and 10 the combined diameter for multiple stemmed trees. The appropriate stem diameters, RPA radiuses, RPA areas and equivalent square RPA side dimensions for the trees on the site are indicated in table 1 below.

Table 1 - RPA information for the retained trees:

Tree No.	Stem dia. at 1.5m	RPA equates to a circle with a radius of:	RPA equates to an approximate area of:
G1.	<1000mm	12.0m	452m ²

3.13 **Specification for the tree protection barriers:** The default specification for tree protection barriers should normally consist of a vertical and horizontal scaffold framework, well braced to resist vehicle impacts. However, in this case the relatively light nature of the construction work and lack of vehicular movement in the vicinity of the tree may not necessitate the default level of protection. Because there is a negligible risk of damaging incursions into the RPAs it should be possible to agree an alternative specification with the local planning authority.

3.14 For example 2 metre tall 'heras' panels on rubber or concrete feet would provide an adequate level of protection from pedestrians and manually operated plant. The fence panels could be joined together using anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins (figure 2a).

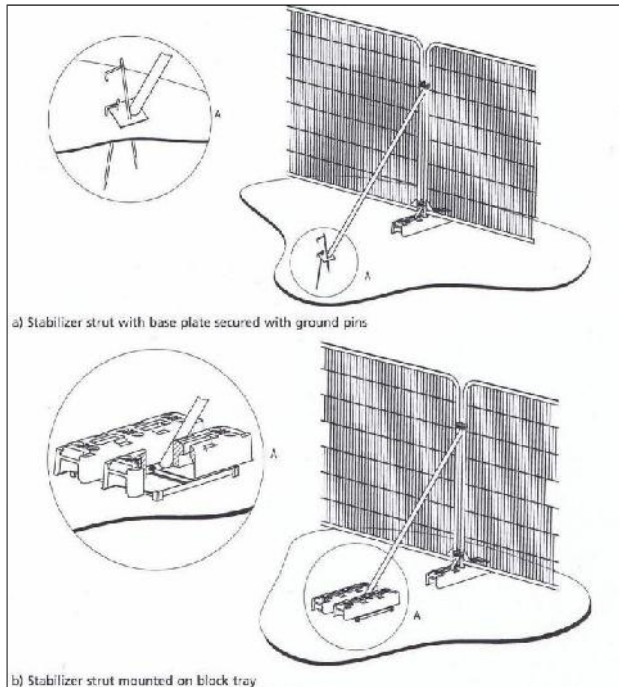


Figure 2a and 2b

3.15 Whatever the level of protection utilised, no storage of materials or any construction operations should occur within any of the fenced off areas. Ideally a notice similar to that shown below should be attached to the barriers (figure 3).



Figure 3

3.16 The following activities shall not be carried out under any circumstances:

- (a) no fires to be lit on site within 10 metres of the nearest point of the canopy of any retained tree on or adjacent to the proposal site,
- (b) no equipment, signage, fencing etc. shall be attached to or be supported by any retained tree on or adjacent to the application site,
- (c) no temporary access within designated RPA without the prior written approval of the LPA,
- (d) no mixing of cement, dispensing of fuels or chemicals within 10 metres of the tree stem of any retained tree on or adjacent to the application site,
- (e) no soakaways to be routed within the RPA of any retained tree on or adjacent to the application site,
- (e) no stripping of topsoil, excavations or changing of levels to occur within the RPA of any retained tree on or adjacent to the application site,
- (f) no topsoil, building materials or other to be stored within the RPA of any retained tree on or adjacent to the application site and;
- (h) no alterations or variations of the approved works or tree protection schemes shall be carried out without the prior written approval of the district planning authority.

3.17 **Methodology - soil levels within RPA:** To avoid injury to roots the existing ground levels should be retained within the RPAs of trees in Group 1. The ground within the RPAs of these trees should not be disturbed, and the topsoil should remain.

3.18 **Methodology - excavation within RPA:** There is no construction necessary within the RPA of any retained trees.

3.19 **Methodology - existing hard surfaces:** There may be no need to disturb the existing concrete slab. However, if it is to be replaced, tree roots may be found beneath it and in order to mitigate any possible root injury the use of 'special surfaces' described below should be utilised. To avoid any root injury being caused the following precautions should be taken:

- 1) Breaking out should be undertaken by hand, preferably using hand tools rather than pneumatic plant.
- 2) No machinery should pass over the surface after it has been broken out.
- 3) If roots are attached to arisings they should be pruned using a saw or secateurs.
- 4) The exposed surface should be covered immediately with light topsoil or sharp sand.
- 5) The tree protective fencing should be realigned to surround the newly exposed surface until the area is resurfaced.
- 6) Displaced material from the excavation will be moved outside of the root protection areas.
- 7) Care will be taken not to damage the canopy of the surrounding trees during excavation and the movement of materials.
- 8) During breaking-out, any small roots exposed or damaged will be pruned back

(ideally to a lateral root branch) using bypass secateurs or handsaw.

- 9) Roots larger than 25mm should not be removed without prior consultation with the appointed Arboricultural Consultant or Local Authority Arboriculturalist.

3.20 **Methodology - position of the service underground utility services:** Mechanical trenching for the installation of underground services will sever any roots present and may cause changes to ground conditions in a way which adversely affects tree health. Underground services should, where possible, be routed outside of the prescribed RPAs of retained tree.

3.21 **Methodology – Landscaping:** This will probably necessitate some work within the RPAs of the retained trees

3.22 This should be completed when all construction has been completed.

3.23 It is possible that roots will be encountered when landscaping. As a general rule tree roots with a diameter of 25 mm or less can be severed cleanly (by use of a saw) without any detrimental effect on the health and stability to the tree. However, if roots of a diameter greater than 25mm are encountered, the local authority Arboricultural Officer and/or Arboricultural Consultant should be consulted as to implications their severance would present to the health and stability of the tree. If this method is employed it would be prudent to prepare a simple method statement based on the enclosed guidance taken from National Joint Utilities Group (NJUG) Publication Volume 4 : 2007 'Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'.

3.24 **Methodology - scaffolding:** The erection of any scaffolding within the RPA of any tree must be verified with the architect after agreement with the local planning authority. The weight and downward pressure during use, of any scaffolding, within the RPA of any tree must be supported on bearers of a sufficient size such as scaffolding boards. The aim of the bearers is to spread the working load across the RPA. The access point for the scaffolding should be outside the RPA.

3.25 **Methodology - structural damage:** The potential risk for any direct or indirect structural damage to the proposed development being associated with the trees on and adjacent to the site is dependent on diverse factors, such as: tree species and age, soil type, foundation depth, climate, etc. This complex interaction of tree, soil, building and other influencing factors is so inherently unpredictable, that any accurate prediction of such incidence is impractical without detailed investigation and is outside the remit of this report and it is recommended that a structural engineer be consulted on this matter. Further information on this can be found in the following papers:

- (i) *National House Building Council (NHBC) Standards Chapter 4.2 Building near trees,*
- (ii) *Building Research Establishment (BRE) Digest 63 Soils and foundations: 1,*
- (iii) *Building Research Establishment (BRE) Digest 64 Soils and foundations: 2,*
- (iv) *Building Research Establishment (BRE) Digest 67 Soils and foundations: 3,*
- (v) *Building Research Establishment (BRE) Digest 240 Low-rise buildings on shrinkable clay soils: Part 1,*
- (vi) *Building Research Establishment (BRE) Digest 241 Low-rise buildings on shrinkable clay soils: Part 2,*
- (vii) *Building Research Establishment (BRE) Digest 242, Low-rise buildings on shrinkable clay soils: Part 3 and;*
- (viii) *Building Research Establishment (BRE) Digest 298 Low-rise building foundations; the influence of trees in clay soils.*

3.26 Methodology - Sequence of Works

Stage	Event	Comment
1	Pruning	
2	Confirm CEZ with LPA	Request LPA Tree Officer visit
3	Erect Protective Fencing	
4	Briefing with all construction staff on AMS requirements	
5	Complete Construction	
6	Remove Protective Fencing	
7	Complete Soft Landscaping	Contact Arboriculturist if roots disturbed as 3.23

4 SUMMARY

- 4.1 The current proposal to erect a single detached dwelling with associated parking and a new access point (already implemented) at 87 Chapel Road, Whaley Bridge should not necessitate the loss of any trees.
- 4.2 The significant mature trees in Group 6 that stand along the canal feeder channel at the bottom of the banking can be retained and protected. These trees are also protected by the High Peak Tree Preservation Order No. 228 – 87 Chapel Road/1 The Dell – 2006.
- 4.3 Whilst certain special measures may be necessary where the RPAs of certain trees in Group 1 may interface with the southern amenity area of the new dwelling no other noteworthy arboricultural constraints are evident.
- 4.4 Therefore, if all necessary tree protection measures and construction methodologies advocated in this report are implemented and adhered to the current proposal should be feasible within the constraints the retained tree imposes on the site
- 4.5 Details of the arboricultural works recommended for the subject trees are listed in the ‘tree data table’ in Appendix 2.
- 4.6 **Recommendations - prior to development:**
- (i) consider general design requirements in respect of trees, soil type, etc.,
 - (ii) implement recommended tree works in tree data table and,
 - (iii) erect tree protective barriers to BS 5837:2012.
- 4.7 **Recommendations - during development:**
- (i) undertake hand digging with RPAs of Group 1 if required,
 - (ii) monitor condition of the retained trees and tree protection barriers.
- 4.8 **Recommendations - on completion of development:**
- (i) remove tree protective barriers,
 - (ii) undertake any appropriate remedial tree works (if applicable).
 - (iii) undertake soft landscaping

5 OTHER CONSIDERATIONS

- 5.1 **Trees Subject to statutory controls:** The subject trees are protected by a Tree Preservation Order and it will be necessary to consult the local planning authority before any works to trees other than certain exemptions can be carried out. The works specified above are necessary for reasonable management and should be acceptable to the local authority. However, tree owners/managers should appreciate that they may take an alternative point of view and have the option to refuse consent.
- 5.2 **Implementation of tree work:** When appointing a tree contractor, only suitably qualified and experienced companies should be used. Always ensure that the contractor carries adequate Public and Products Liability Insurance, along with appropriate Employer's Liability Insurance. Ideally, the contractor should be approved by the Arboricultural Association. Their Register of Contractors is available free from them at The Malt House, Stroud Green, Standish, Stonehouse, Gloucestershire, GL10 3DL (Tel: 01242 522152, Email: admin@tree.org Web: www.trees.org.uk). The contractor should carry out all tree works to BS 3998 *Recommendations for Tree Work* (2010) as modified by research that is more recent. Where possible all works will be carried out between November and March (see 5.6).
- 5.3 **Trees outside the property:** If any of the trees included in this report are found to be outside the ownership of the applicant and it will not be possible to easily carry out the recommended works without the full co-operation of the tree owners. The implications of non-cooperation requires legal interpretation and are beyond the scope of this report. By common law, branches from trees on adjacent properties extending over boundaries can be pruned back to the boundary line without the permission of the owners. However, the material belongs to the tree owner and the same guidance on statutory controls apply as discussed in section 5.1.
- 5.4 **Wildlife:** All operations should take account of wildlife needs and be planned to take advantage of weather conditions for minimum damage and disturbance.
- 5.5 **Bats:** Specific consideration should be given to the possible presence of roosting bats, which are protected under British law by the Wildlife and Countryside Act (WCA) 1981 (as amended), and bats are classified as European Protected Species under The Conservation (Natural Habitats, &c.) Regulations 2010. This makes it an offence to kill, injure or disturb a bat and to destroy any place used for rest or shelter by a bat. The Countryside and Rights of Way Act (CROW) 2000 strengthens protection given by the WCA and covers 'reckless' damage or disturbance to a bat roost. Although no obvious features potentially suitable for roosting bats (such as hollows, cracks and cavities within trunks and branches) were apparent during the present survey; a thorough inspection was not undertaken by an appropriately qualified bat worker.
- 5.6 **Nesting Birds:** Any proposed tree removal should be carried out outside the bird breeding season (which runs from March to September inclusive) to avoid adverse impacts to any nests present. If it is necessary to carry out the work during the breeding season, then a nesting bird survey should be carried out prior to felling/removal works commencing. This is to ensure that no active nests will be

affected and to ensure legal compliance. If active nests were found then working restrictions would be put in place until all chicks had fledged. All wild birds and their nests, whilst in use, are protected under the WCA 1981 (as amended) from harm or destruction during the breeding season.

- 5.7 **Future considerations:** The remaining trees should be inspected on a regular basis by a qualified arboriculturalist. Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations of this report are valid only for a period of one year. This period of validity maybe reduced in the case of any change in conditions to, or in proximity to, the trees.

6 BIBLIOGRAPHICAL REFERENCES

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ISSN 1358-8249
- 6.8 British Standard BS 3998 : (2010) *Tree Work-Recommendations*.
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- 6.9 National Tree Safety Group (2011) *Common sense risk management of trees*. The
Forestry Commission, Edinburgh.
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- 6.10 Watson, G. and Green T. (2011) *Fungi on trees*. Arboricultural Association,
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- 6.11 British Standard BS 5837: (2012) *Trees in Relation to Construction*.
ISBN 978 0 580 69917 7
- 6.12 Planning Practice Guidance – *Tree Preservation Order and trees in conservation areas -*
2014

Qualifications and experience

- 1. Qualifications:** I am Neil Richard Edmondson. I am a director and principal practice consultant of White Peak Tree Consultancy Ltd., which is an arboricultural consultancy practice based at: The Loft Room, Lyndale, Main Road, Taddington nr. Bakewell, Derbyshire. The practice specialises in arboriculture, forestry and project management throughout the midlands and the north of England. I hold a Higher National Diploma in Arboriculture awarded by the University of Central Lancashire and also hold the 'Dick Leigh Cup' awarded to the best practical student.
- 2. Practical experience:** I have 33 years' experience of studying and working in the field of arboriculture. From 1996 to 1998 I was an Arboricultural Officer at Bolton Metropolitan Borough Council where my duties included management of council owned trees and administration of the tree works contracts under compulsory competitive tendering. More recently from 1998 to 2002 I was the Senior Arboricultural Officer at Chester City Council. During time I was primarily responsible for the administration of Tree Preservation Orders, development control advice and the implementation of tree management policies. In 1994 I was member of the United Kingdom/Ireland tree climbing team that competed at the European Tree Climbing Championship at 'Parc Du Chateau De Boiseron' in the South of France.
- 3. Continuing professional development:** I am a Fellow of the Arboricultural Association. In pursuance of continuing professional development I regularly communicate with other professionals on both public and private sector. In April 2004 I attended an Arboricultural Association workshop (Writing Professional Reports - Jeremy Barrell). I have attended almost every association conference since Lancaster in 1995 including the recent event at Exeter University.
- 4. Relevant experience:** I have acted for many clients both public and private, notably, Astra Zeneca, Amber Valley District Council, Cheshire West and Chester Council, Cheshire East Council, High Peak District Council, North Shropshire District Council, Cass Associates, Strutt and Parker International, Manchester International Airport Authority, Gillespie's Landscape Architects, Charles Topham and Sons Limited, Roland Bardsley Limited, and Taylor Woodrow Limited providing advice on all aspects of tree management. Primarily, I undertake: tree surveys and inspections, pre-development site assessments, arboricultural implication studies, prepare method statements and carry out site supervision inspections.

APPENDIX 2

Tree information schedule and explanatory notes

No	Species	Height m	Stem Dia. mm	Branch Spread m	Branch Height m	Canopy Height m	Life Stage	General Observations and Preliminary Recommendations	Estimated Remaining Years	5837 Grade
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n s e w

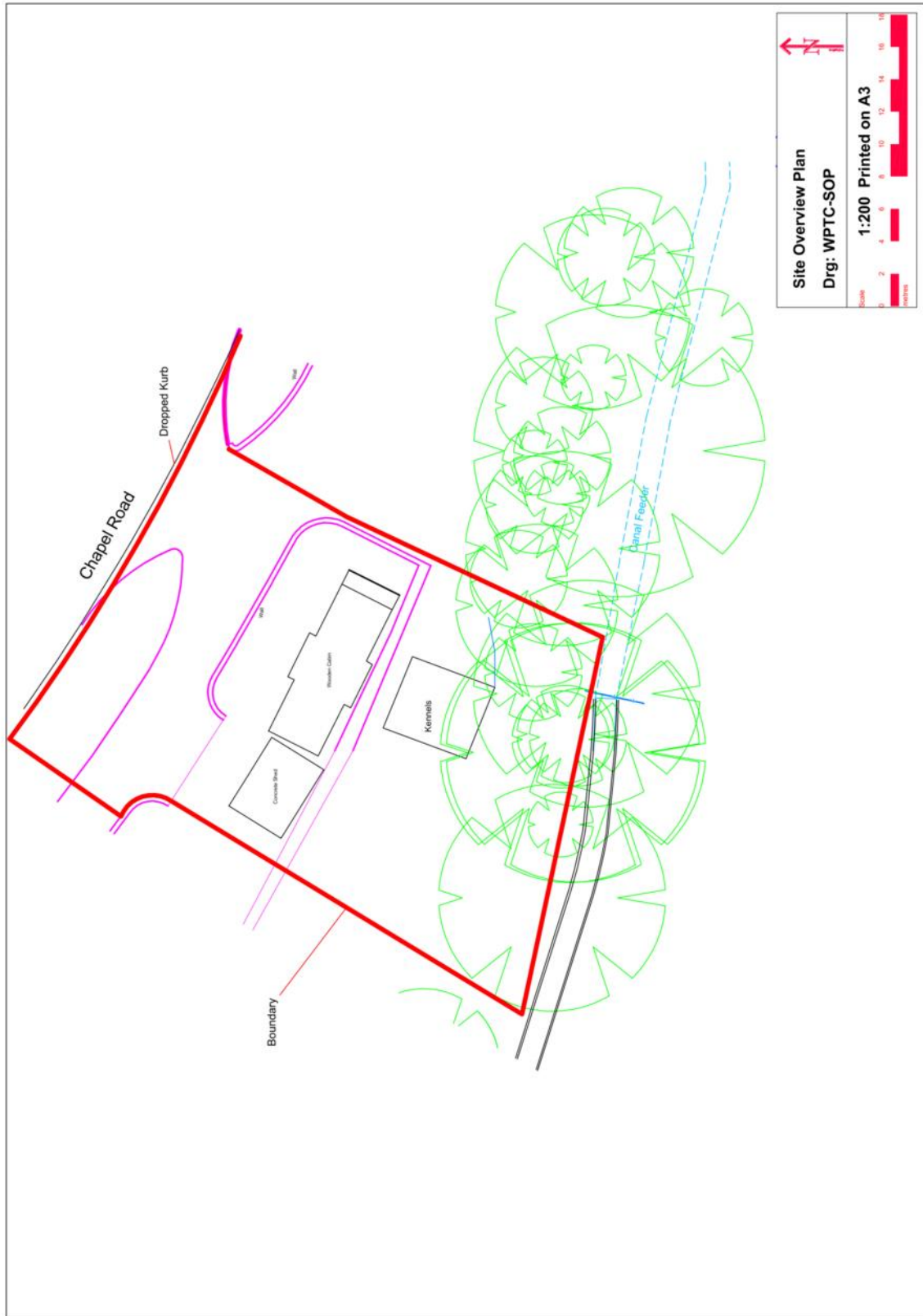
87 Chapel Road – sheet 1

G1.	Various species including: Common Ash (<i>Fraxinus excelsior</i>), Sycamore (<i>Acer pseudoplatanus</i>), Hawthorn (<i>Crataegus monogyna</i>) and Spruce? (<i>Picea sp.</i>) (Ref: G2 on TPO)	8 - 20	100 - 1000	2 - 7	1-6	2-8	Mid - Mat	Neglected area on steep bank Heavy Ivy growth affecting majority of trees Deadwood Mature trees at bottom of bank adjacent to brook likely to be within Group 2 (G2) on TPO Group designation difficult to apply in situation Retain and protect mature trees at bottom of bank with a barrier complying with BS 5837 : 2005 or better	>10	C2
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Tree information schedule and explanatory notes

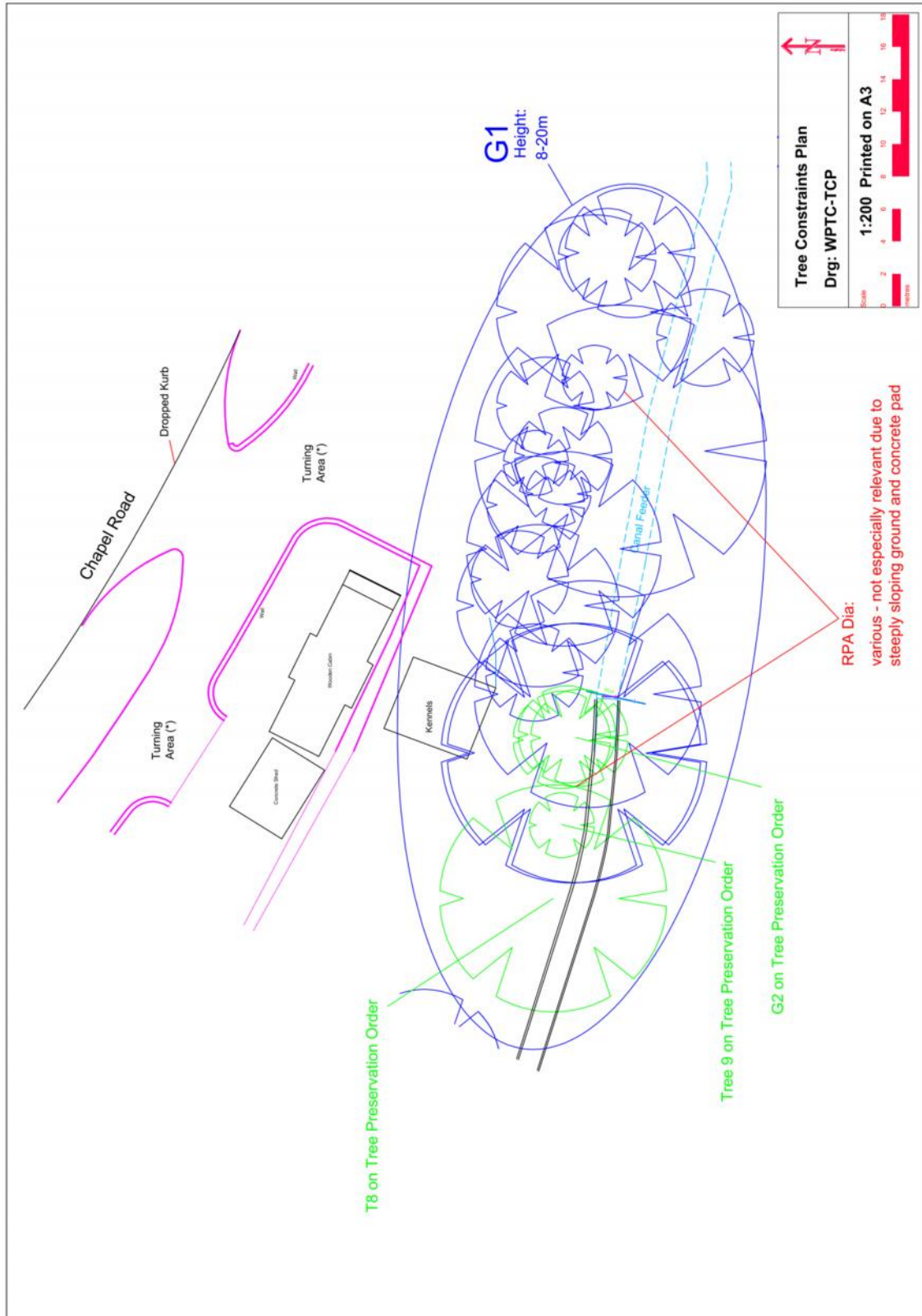
- **Mathematical abbreviations:** >: Greater than; <: Less than; m: metre; cm: centimetre; mm; millimetre; h; hectare.
- **Measurements/estimates:** All dimensions are estimates unless otherwise indicated. Measurements taken with a tape, by simple triangulation or clinometer are indicated with a '*'. Less reliable estimated dimensions are indicated with a '?'. The distance to any structures is estimated to the nearest metre and is intended as an indication rather than a precise measurement.
- **Tree No:** The trees are indicated on the plans (see appendix 5) as 'T' individual trees, 'G' groups of trees, 'A' areas of trees, 'W' woodlands
- **Species:** The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicate it with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation *sp.* if only the genus is known. The species listed for groups and hedges represent the main component and there may be others that are not listed.

Site overview plan



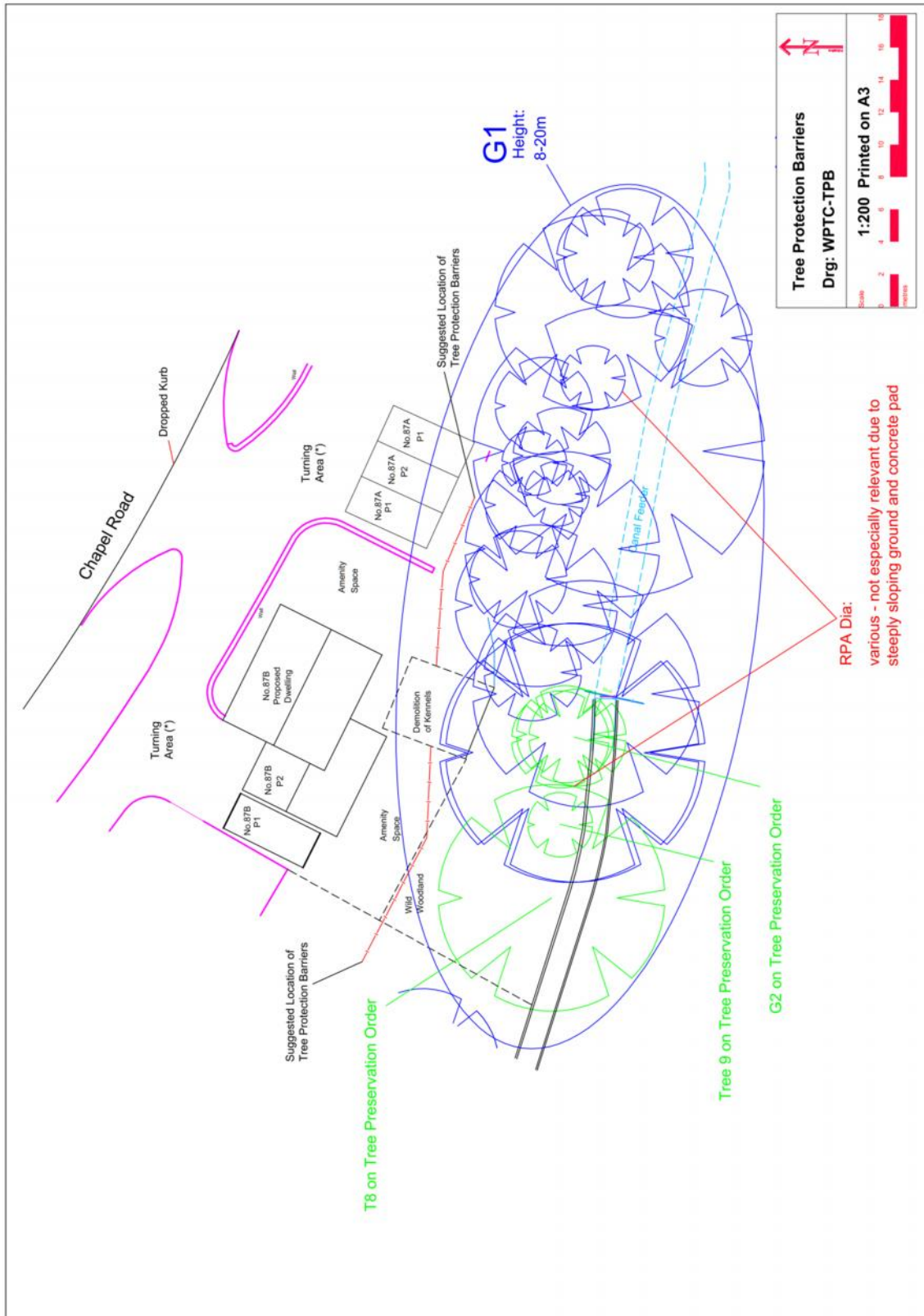
Not to scale

Tree constraints plan



Not to scale

Tree protection plan



Not to scale

Glossary of terms

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

Adventitious shoots. Shoots that develop other than from 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

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

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

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

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

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

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

Glossary of terms

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. Branch or stem wood bearing no live tissues.

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

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

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

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

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

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

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

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

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

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

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

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

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

Glossary of terms

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

Pollarding. The removal of the tree canopy, back to the stem or primary branches. 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.

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 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)

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

Sapwood. Living xylem tissues

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

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

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

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

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

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

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.

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

Windthrow. The blowing over of a tree at its roots

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