

<b>B. J. UNWIN FORESTRY CONSULTANCY Ltd.</b> Jim Unwin BScFor, MICFor, FArborA, CEnv. <b>Chartered Forester.</b> <b>Fellow of the Arboricultural Association.</b> <b>Chartered Environmentalist.</b>	 Registered Consultant		Parsonage Farm, Longdon Tewkesbury, Glos. GL20 6BD UK T: 01684 833538 M: 07860 376527 E: <a href="mailto:Jim@bjunwin.co.uk">Jim@bjunwin.co.uk</a>
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Date: 24<sup>th</sup> May 2022- BJU/mmi

To: **Warwick Castle.**

Co: **T. MOUSLEY & SONS**

Tree Surgeons and Consultants

Dingle Barn, Station Road, Claverdon, Warwick, CV35 8PE

Tel: 01926 842234 / Mobile: 07775 515506 / Fax: 01926 843634

E: [mousleyandsonstreecare@btopenworld.com](mailto:mousleyandsonstreecare@btopenworld.com)

Ref: **Inspection of amenity trees at Warwick Castle, CV34 4QU.**

## **1. Instruction.**

- 1.1 The Mousleys assist Merlin Entertainments to manage Warwick Castle's diverse woodlands and amenity trees. Chris & Andrew Mousley have concerns about some trees in locations of high 'target' value (structures, roads, or places people gather).
- 1.2 Therefore, they have asked B.J. Unwin Forestry Consultancy to inspect three trees and advise, subject to quote. In the appendices we give guidance on owner's responsibility: **NTSG advice to tree owners, and Zones of Confluence From VALID.**

## **2. Inspection.**

- 2.1 We visited the site on 19<sup>th</sup> May, and made accompanied tree inspections with Andrew Mousley.
- 2.2 The survey was from ground level. It involved visual observation, measurement, and sounding with a hammer: and chisel and long steel rod if required (Visual Tree Assessment: Mattheck and Breloer 1994 and Lonsdale 1999). We made one ultrasound scan on two trees and two scans on T227 Douglas fir.
- 2.3 The survey was by Jim Unwin and Owen Hutchison, who together have >55 years' experience working with trees (professional CV attached).

### **Notes:**

**Copyright:** This report is copyright of BJUFC, and licensed only to the client, site and purpose(s) named above. It may not be assigned without the author's permission.

**GDPR:** no personal information can be used for cold-calling or marketing.

**Limitation of Report:**-The statements made in this Report do not take account of the effects of extremes of climate, vandalism or accident, whether physical, chemical or fire. BJUFC cannot therefore accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner in accordance with current good practice. The authority of this Report ceases at any stated time limit within it, or if none stated after two years from the date of the survey or when any site conditions change, or pruning or other works unspecified in the Report are carried out to, or affecting, the Subject Tree(s), whichever is the sooner.

Tree and Woodland Consultancy  
Woodland Valuation and Timber Sales  
Landscape Management

Visit our website  
[www.bjunwin.co.uk](http://www.bjunwin.co.uk)  
for more  
information.



Visual Tree  
Assessment

### **3. The Site.**

3.1 Oak T849 is located over a well-used footpath immediately east of a coach park.

Douglas fir T361 is located in mown woodland in the Knight's Village glamping hut area, and Douglas fir T361 is close to a building in the same area.

3.2 Geology from British Geological Survey website is:-

**Superficial deposits under the two Douglas firs:** River Terrace Deposits, 2 - Sand and gravel. Sedimentary superficial deposit formed between 2.588 million years ago and the present during the Quaternary period.

**Bedrock geology under all of the sites:** Helsby Sandstone Formation - Sandstone. Sedimentary bedrock formed between 247.1 and 241.5 million years ago during the Triassic period.

Subsoils seen on site were coarse-textured, well drained, and I assume: without volume-change potential (so: no subsidence or heave risk to buildings).

3.3 Google Earth, 2021, below, shows the site.



## 4. Trees.

4.1 Warwick Castle has thousands of trees, and those we saw on our visit were well-managed.

4.2 Set out below is description, ultrasound scan (tomograph), discussion and recommendation, for each of the three trees inspected.

### 4.3 Treework informatives

#### 4.3.1 Disturbance to wildlife.

It is essential to check for nesting birds, bat roosts, badgers and hibernating animals such as hedgehogs under trees, before pruning or removing trees, as negligent disturbance is an offence under various legislation, including EC Habitat Directive 1992 as amended and strengthened 2007 to protect European Protected Species (bats are most relevant concerning trees) and CROW Act 2000.

In general, autumn tree work: **September, October and November** is least disruptive to bats and birds. However, with appropriate risk assessment (ie visual assessment whilst climbing and stopping work if birds' nests or protected species suspected) work can proceed at any time. Work on very ivy-clad trees may need a formal pre-start bat assessment by a trained bat worker.

#### 4.3.2 Permission.

**W1 of TPO No.25 protects the two Douglas firs. The whole site is within Warwick Conservation Area. See map overleaf.**

So, a contractor must satisfy himself that all necessary permissions are in place before touching trees.

#### 4.3.3 Contractor.

All off-ground tree work should be done by insured tree surgeon with certificates in aerial chainsaw use (new designations:- NPTC 020-04, 0020-05, 0020-07, 0021-01, 0021-07; LANTRA 600/5703/8, 600/5717/8, 600/5715/5, 600/5704/X, 600/5714/2), and working to BS3998:2010, and "*Treework at Height*", the Arboricultural Association's ICoP. (Stumps can be left to shoot again, ground out, or grubbed out, or poisoned.)

## 4.4 Key:

**ID:** Tree has a discreet green paint number.

**DBH: Stem diameter at 1.5m height: cm.** dimensions given to aid identification.

**Height: m.** “

**Crown radii: m.** “

**Age class is described as:-**

Sap: Very young tree, or sapling, one-five years old.

Y: Young tree less than fifteen years old and <1/3 fully grown.

Sm: Semi-mature tree having attained 1/3 to 2/3 full stature and 1/3 to 1/2 estimated lifespan.

Em: Early mature: tree at 2/3 to virtually full size, and halfway through its safe life.

M: Mature: fully-grown tree with useful life expectancy.

Lm: Late-mature: fully grown, of declining vigour, but still healthy.

Om: Overmature tree: fully grown and starting to decline in health (but may still have many years of safe life).

Vet: Veteran: usually very old; of significant historic, habitat or cultural value.

**Health & Structural condition:** Good, Fair, Poor or Dead.

Overleaf: plan showing tree locations and TPO.

The whole site is within Warwick Conservation Area.

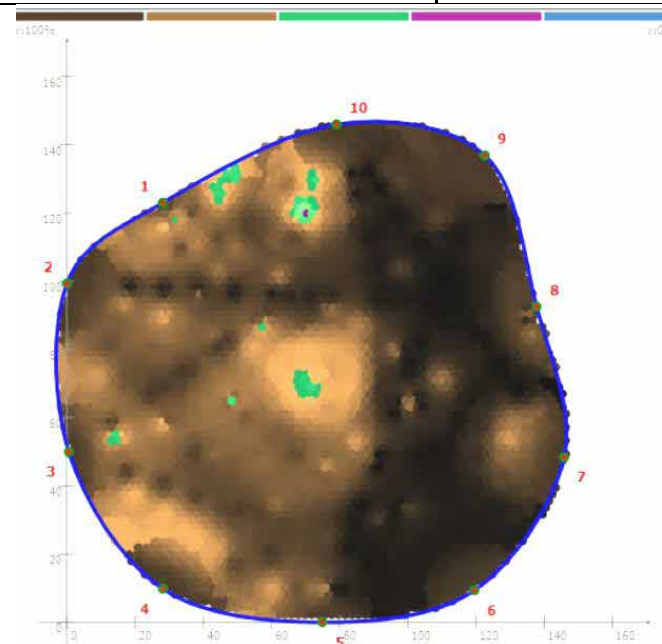


<b>Tree:</b>  <b>T849</b> <b>Oak.</b>	<b>DBH: 133cm</b> <b>Ht: 17m</b> <b>Crown radii:</b> <b>6m N</b> <b>7m W 6m E</b> <b>8m S</b>	<b>Age: Late-mature.</b> <b>Health: Good.</b> <b>Structural condition:</b> <b>Poor/Fair.</b>	<b>Comment:</b> <b>Whole tree weighted to west.</b> <b>It has been crown reduced at least twice previously,</b> <b>and growth response is good.</b> <b>Several spore bodies of <i>Fistulina hepatica</i> decay fungus</b> <b>around base.</b>	<b>Targets:</b> <b>Footpath</b> <b>underneath. Coach</b> <b>park 8m to west.</b>
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Base of T849 left.  
(photos from south.)

Tomograph of base showing generally sounder wood (dark) on eastern side, with less-dense wood (paler brown) to the west. Central decayed area (green). (Sensor 1 at north)

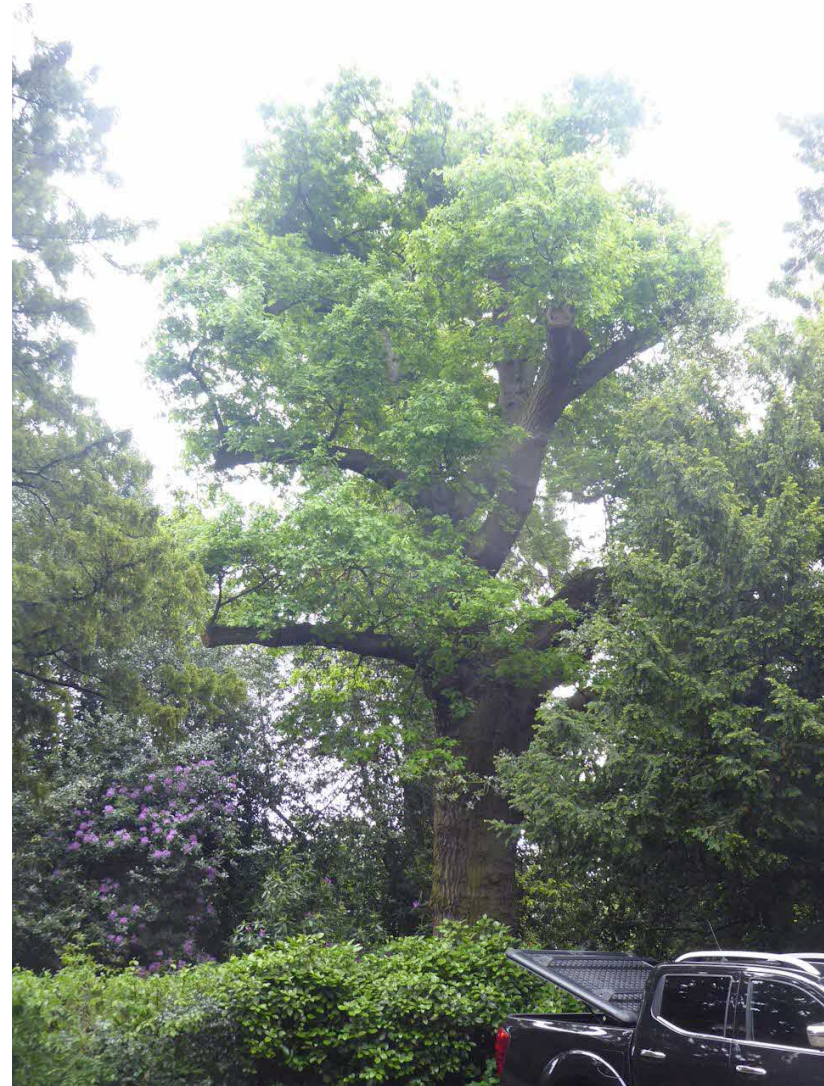


**Discussion:**

Healthy tree but with *Fistulina hepatica* (beefsteak fungus) spore bodies all around. Decay is well-established in roots and moving up into trunk (see central decay column in green). This is a brown rot initially causing 'brown oak' timber, then brittle wood as cellulose is digested. Typically trees fail just below ground level.

T849 recommendation:

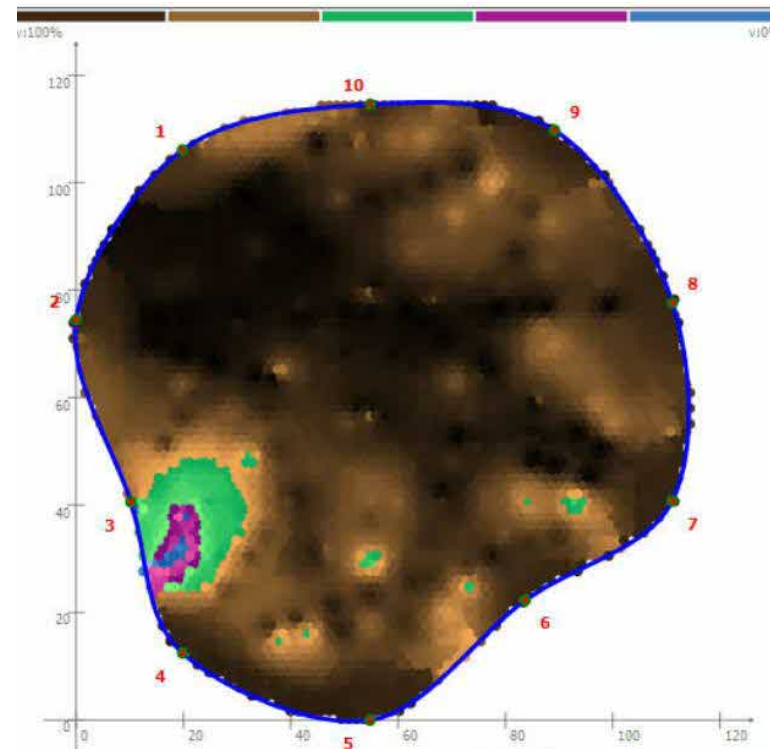
Continue retrenchment pruning.  
Three long limbs to SW reduce by approx. 2m.  
Diagonal limb W reduce to small side branch 1.5m out from stem.  
Approx 2.5m off upper W side.



<p><b>Tree:</b>  T361 Douglas fir</p>	<p><b>DBH: 108cm</b> <b>Ht: 30m</b> <b>Crown radii:</b> 5.0m N 7.0m W 6.0m E 6.3m S</p>	<p><b>Age: Mature / Late-mature.</b> <b>Health: Fair.</b> <b>Structural condition: Fair.</b></p>	<p><b>Comment: Big woodland tree, well-shaped with deep crown.</b> <b>Old scar and basal pocket on W side indicative of lightning strike, mostly occluded with new wood, so quite old (20 years?).</b> <b>Crown has been methodically cleaned to remove dead wood.</b></p>	<p><b>Targets:</b> <b>Glamping chalet to north.</b> <b>Informal guest access to mown woodland floor around tree.</b></p>
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Base of T361 left. Tomograph of base showing generally sound wood (dark) in centre. Green area is the pocket where lightning entered rootzone.



T361 Discussion:

Well-shaped and impressive tree, with good radial growth of roots all around (photo right).  
No suggestion of advanced root death sometimes associated with lightning strike.

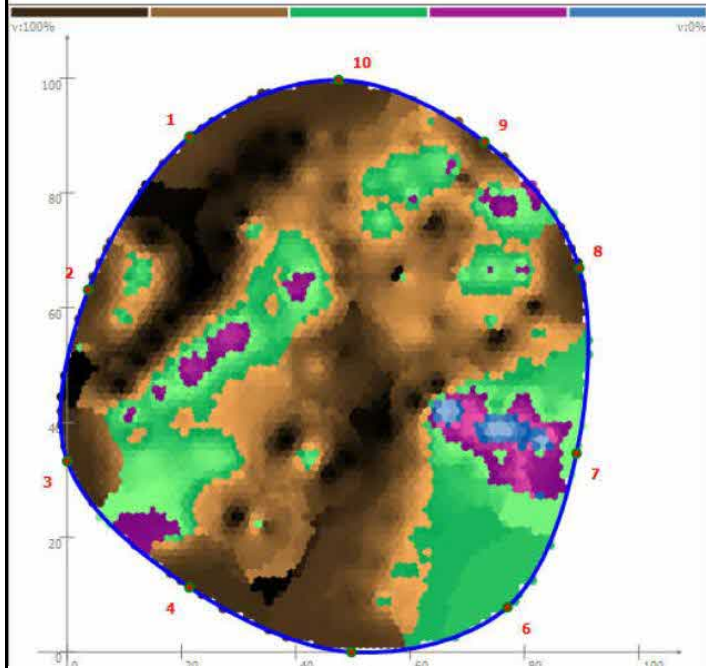


T361 recommendations:

No work.



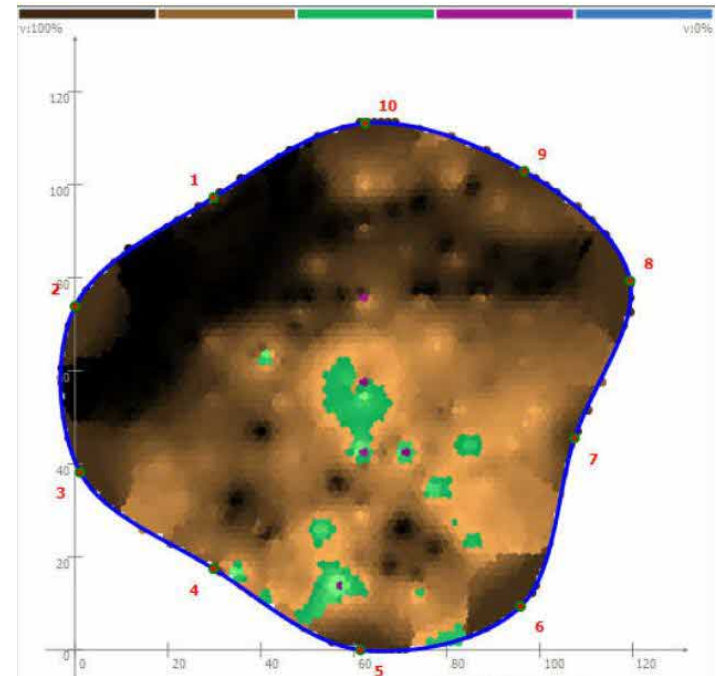
<p><b>Tree:</b>  T227 Douglas fir</p>	<p><b>DBH: 84cm</b> <b>Ht: 31m</b> <b>Crown radii:</b> 6.0m N 9.7m W 5.5m E 8.0m S</p>	<p><b>Age: Mature / Late-mature.</b> <b>Health: Fair.</b> <b>Structural condition: Poor/Fair.</b></p>	<p><b>Comment: Tall tree with very high crown</b> <b>on tall bare trunk.</b> <b>Bulge near base on north side may be</b> <b>occluded old pruning wound?</b></p>	<p><b>Targets:</b> <b>Building only 5.8m north,</b> <b>under canopy.</b> <b>Guest access to track to</b> <b>east and lawn under tree.</b></p>
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T227

Tomograph at 65cm height on left suggests large areas of low-density wood (green). I'm not fully understanding this result, as external examination and tapping did not suggest a problem on the SE side, as the scan suggests.

Tomograph at 35cm height on right suggests a central decay pocket.

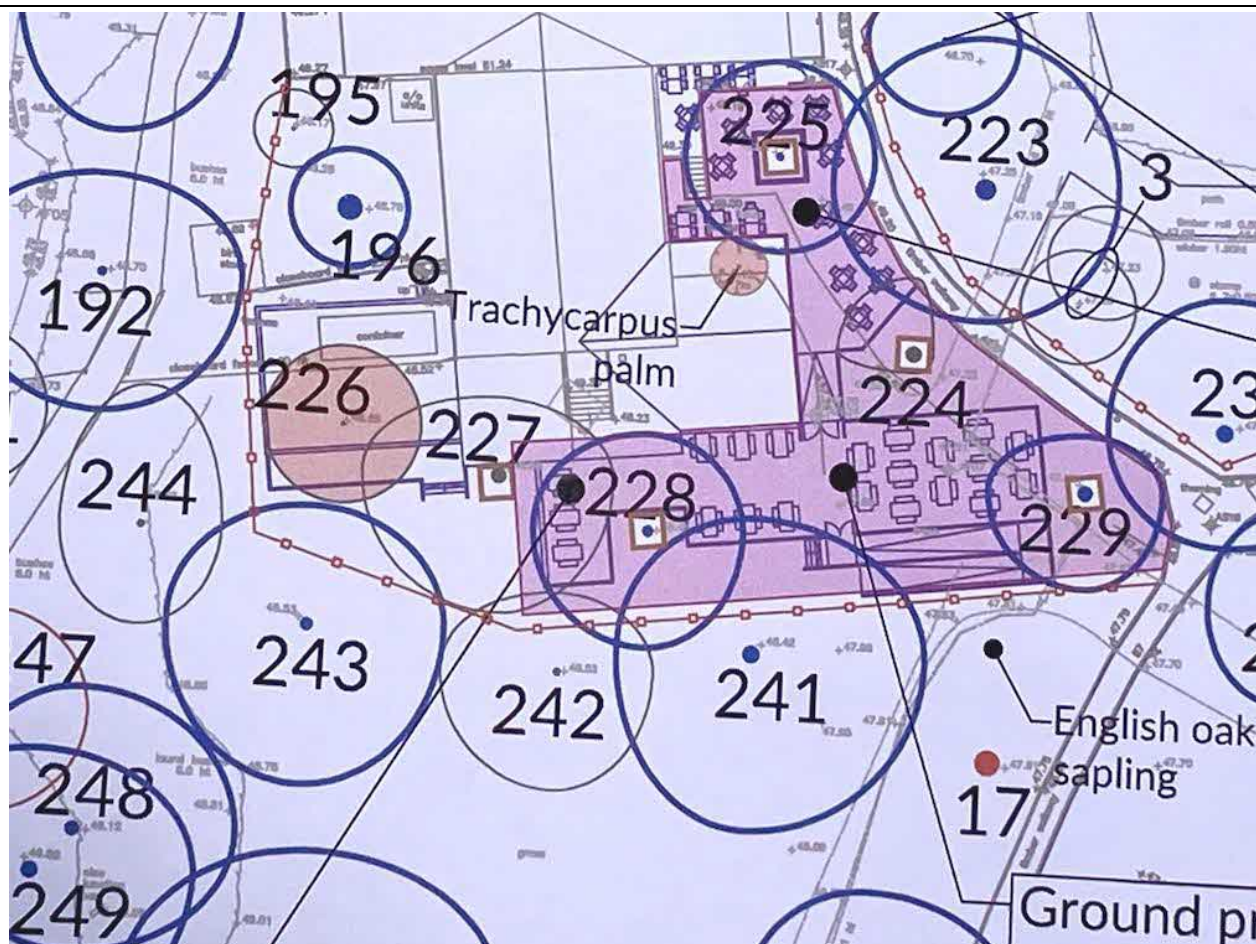


Discussion:

Douglas fir T227 is located only 5.8m south of a building which has permission for extensions west, and south east, with seating under the tree's crown. Extract from tree protection plan (by others), shows the tight proximity of the new development.

Given the large limbs on this Douglas fir, set at 20m above ground, and the known strategy of Douglas to shed brittle branches in strong winds, I am a little surprised this Douglas was considered fit for retention?

We now know the tree has started basal decay, so it cannot be left as it is, in a location with high-value 'targets' (persons) and high-frequency 'targets' (building) directly under the tree.





T227 recommendation:

I suggest two options:

My recommendation is to fell the Douglas fir T227.

Plant another Douglas fir a little further from the re-developed building.

An alternative is to top the tree at about 23m height as shown in photo left, and reduce all limbs / branches by about 1/3 off length to leave a shaped crown, with lower risk of falling branches.

This will leave a rather scraggy tree, appearing more like a camouflaged telecoms mast.

## **6.0 Re-inspection.**

We would recommend an \*\*annual drive-by or walk-by tree inspection by the retained arborists of trees in sensitive locations (roads, paths, buildings, gardens), to be recorded. (\*\*Better done at 15-month intervals so trees are seen at different times of the year.)

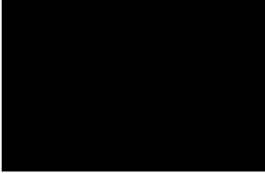
Followed by an arboriculturist inspection every five years, unless significant tree dieback occurs, then an earlier inspection may be required.

This report may be submitted to local authority for permission (required), and to a contractor for quote.

Please contact us if you have any queries, or require further assistance.

Yours sincerely,

Yours sincerely,



**B J Unwin Forestry Consultancy.**

### **References:**

#### **References:**

- "The Body Language of Trees"*. Claus Mattheck and Helge Breloer. HMSO 1994.  
*"Principles of Tree Hazard Assessment and Management"*. David Lonsdale. HMSO 1999.  
BS 3998: 2010 *"British Standard Recommendations for Treework"*.  
*"How much crown pruning is needed for specific wind load reduction?!"* Frank Rinn, Western arborist. 2014.

Attached:

- **NTSG advice to tree owners.**
- **Zones of confluence From VALID**
- **BJUFC Professional CV.**

## A1

The extract below from *Common Sense Management of Trees*, NTSG, details tree owner's responsibilities.

### *The legal framework:*

*Under both the civil law and criminal law, an owner of land on which a tree stands has responsibilities for the health and safety of those on or near the land and has potential liabilities arising from the falling of a tree or branch. The civil law gives rise to duties and potential liabilities to pay damages in the event of a breach of those duties. The criminal law gives rise to the risk of prosecution in the event of an infringement of the criminal law.*

### *The civil law:*

*The owner of the land on which a tree stands, together with any party who has control over the tree's management, owes a duty of care at common law to all people who might be injured by the tree. The duty of care is to take reasonable care to avoid acts or omissions that cause a reasonably foreseeable risk of injury to persons or property.*

### *The duty holder:*

*This is the person who has control of the tree's management whether as owner, lessee, licensee or occupier of the land on which the tree stands. The relevant highway authority is responsible for trees on land forming part of the highway.*

### *The person to whom the duty is owed:*

*This is any person who can be reasonably foreseen as coming within the tree's vicinity and being injured by a fall of the tree or a branch from the tree. Those using highways, footways, public footpaths, bridleways, railways and canals are likely to come within striking distance of trees on adjacent land. In public spaces, and semi-public spaces such as churchyards and school grounds, those working in or visiting them can be expected to come within the vicinity of trees. On private land, visitors and employees can also be expected to come within the reach of trees. Trespassers may also, in certain circumstances, be expected to come within the vicinity of trees on private land.*

### *The duty owed*

*This can be stated in general terms as being a duty to take reasonable care for the safety of those who may come within the vicinity of a tree. The courts have endeavoured to provide a definition of what amounts to reasonable care in the context of tree safety, and have stated that the standard of care is that of "the reasonable and prudent landowner". The tree owner is not, however, expected to guarantee that the tree is safe. They have to take only reasonable care such as could be expected of the reasonable and prudent landowner. The duty owed under the tort of nuisance is owed by a tree owner to the occupier of neighbouring land. The duty, however, is no different to the general duty owed under the tort of negligence. It is the duty holder's fundamental responsibility, in taking reasonable care as a reasonable and prudent landowner, to consider the risks posed by their trees. The level of knowledge and the standard of inspection that must be applied to the inspection of trees are of critical importance. It is at this point that the balance between the risk posed by trees in general terms, the amenity or other values of trees and the cost of different types of inspection and remedial measures becomes relevant.*

## A2

Zones of high confluence from VALID: example of an attempt to objectify tree risk assessment.  
[www.validtreerisk.com](http://www.validtreerisk.com)



What is a zone of high confluence?

**A typical zone of high confluence**

We're most likely to find any risks that are not Acceptable or Tolerable where we have a combination of high-use that's not affected by foul weather and large trees. We call these 'zones of high confluence' because in tree risk-benefit language they're where the highest categories of Likelihood of Occupancy and Consequences merge; Likelihood of Failure being the third risk component. A typical large tree, providing many benefits, may have a very low Likelihood of Failure in a high-use zone. For risk management zoning rather than assessment, the highest Consequences are trees that have a diameter at breast height of about 50cm or more. It's these trees that we'll carry out Active Assessment on.

**Zones of highest occupancy (high-use)**

**This is how we're measuring the zones of highest occupancy**

The highest Likelihood of Occupancy zones for roads are where traffic is on average 1400 or more vehicles per day. Generally, they're roads you'd think of as being busy. We zone train or tram lines as being the highest occupancy. For people, it's roughly someone passing about every minute or so between 7am–7pm, Monday to Friday, which is around 1200 per day. Typical combinations of traffic and people which are zones of highest occupancy are urban areas that are rich with offices, shops, bars, and restaurants. Shopping centres and markets make it into this category as well. In and immediately around schools, colleges, universities, hospitals, transport stations and stops, sports stadiums, and many pedestrian crossings, also qualify. Some footpaths through urban parks that are well-used to get to work or school are included. Last, locations where events are held, emergency routes, and campsites, are in the highest Likelihood of Occupancy categories.

**Zones of high confluence maps**

**Our zones of high confluence are marked on maps**

The following maps illustrate our zones of high confluence. We're managing the risk in all zones with Passive Assessment, day in day out. We'll carry out an Active Assessment in zones of high confluence every 5 years.

A3

**- B JUNWIN FORESTRY CONSULTANCY Ltd. -**

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Satellite Offices: - Haley Ridge, Highcliffe, Nr. Wadebridge, Cornwall, PL27 6TN.

-105 Charfield Court, 2 Shirland Road, London, W9 2JR.

Associate office: - 1 Market Place Mews, Henley-on-Thames, Oxfordshire, RG9 2AH.

Principal: **Jim Unwin** BScFor, MICFor, FArborA, CEnv.

Chartered Forester - ICF Registered Consultant - Fellow of the Arboricultural Association -  
Chartered Environmentalist.

<i>From:</i>	<b>Jim Unwin</b>	<i>To:</i>	<b>Prospective Client</b>
<i>Date:</i>	<b>Jan'22</b>	<i>No. of pages:</i>	<b>2</b>
<i>Subject:</i>	<b>Professional CV</b>		

Below are set out **B J Unwin Forestry Consultancy's** competences and experience.

**Insurance:-**

**£5m Public Liability & £2m Professional Indemnity (renewed June).**

**Personnel:-**

B J Unwin (born 1956) started his forestry career as a tree surgeon and landscape contractor in 1975. He studied forestry at Aberdeen University from 1977 to 1981, worked for Unilever as a Forestry Manager in the Solomon Islands from 1981 to 1983. Since then he has been based in Gloucestershire assisting clients to manage their woodland, trees and vegetation throughout Southern Britain, and occasionally in northern England, Scotland and Northern Ireland.

In the mid-1980s to mid-1990s for a period of about ten years he taught chainsaw, tree felling and tree surgery courses at Worcestershire Agricultural College on a part-time basis. He was assessed and passed as a LANTRA assessor in these skills, and held NPTC certificates of competence in chainsaw use on the ground and up trees.

He now works as a tree consultant / manager / contract manager to a range of clients listed below.

For tree decay testing we have a **PICUS II ULTRASOUND** tomograph with electronic callipers and **RESISTOGRAPH-R400** drill.

He works with two self-employed arboriculturalists of >30 years' combined experience:-

**Jasper Fulford-Dobson** Arboricultural Association Registered Consultant - Associate Member of the Institute of Chartered Foresters - Professional member of the International Society of Arboriculture - Technicians Certificate (ArborA) 2005, now regarded as NQF "level 4" - Professional Tree Inspection Certificate (LANTRA) 2013,

**Owen Hutchison** BSc(Hons) Agriculture & Estate Management, Level 4 Diploma Arboriculture, LANTRA Professional Tree Inspection & working with trees since 2007.

Plus a secretary/ plan technician; calling in extra help as required (eg ecologist or arboricultural assistant). On bigger projects he regularly works as a part of a multi-disciplinary team.

Current BJUFC qualifications are:-

BSc Forestry Hons 1<sup>st</sup> Class, Aberdeen 1981.

**Chartered Forester No. 0330064, 1986.**

**Fellow of the Arboricultural Association, 1995.**

Licensed Subsidence Risk Assessor, 1997-2001 (scheme closed in 2001).

Completed Training in September 2002 to Prepare Native Woodland Plans for CCW and FC in Wales.

**Arboricultural Association Registered Consultant No. 42, from 2004 to May 2021.**

LANTRA certificate for Arboriculture and Bats, BJU in 2005.

Examined and approved to submit Welsh WGS as Management Planner and PAWS Assessor, 2006.

Joined Utilities Vendor DataBase, Supplier No: 88101 in Feb 2006 (left 2010).

Training and Certification in basic CAD operation 2006.

**Chartered Environmentalist April 2008.**

Woodfuel Production and Supply : LANTRA Certificate of Training Dec 2008.

Training in CAVAT amenity tree asset valuation October 2010.

**Company Safety Policy**:- We were successfully assessed by Safety Management Advisory Services (SMAS) for many years as meeting CDM Regs 2015 Core Criteria Stage 1, as a **Worksafe Consultant No. 75950.** expired 09/2020. Not renewed.

CITB *Health, Safety & Environment Test for Managers & Professionals* passed 22/01/2015.

First-aid at work June 2013.

DBS Basic Certificate P0003GX9B7C dated 11 Dec 2021 Certificate 001048986050.

Some clients and typical work include:-

English Heritage	Tree safety inspection contract 2007-2013 for East Midlands, East Anglia, London and SE England. Tree safety inspection contract for West of England & Midlands 2013-2021.
Planning Inspectorate (PINS) & Dept for Communities and Local Government. 2000-2017.	<b>Arboricultural Inspecting Officer</b> in South-West England, South East England, West Midlands and East Midlands; advising the First Secretary of State on TPO appeals since 2000. Contract with DCLG expired April 2008 when transferred to PINS. Contract continued with PINS, as Non-Salaried <b>Arboricultural Inspector, determining TPO appeals and High Hedge appeals. All non-salaried inspectors released in 2017.</b>
Architects / Developers / Planning Appeals	Complete Tree Constraints, Impact Assessment & Tree Protection advice for planning, working with other professionals to input arboriculture into more complex development schemes. Recent assignments in Liverpool to Cornwall, Kent, Norfolk & London. All using BS5837:2012. FULL CAD CAPABILITY.
Amey Mouchel Ltd	Overseeing Amey Tree Officer on motorway and trunkroad tree inspections throughout Midlands and Marches to 2012. Amey Mouchel are agents for Highways Agency.
CRH Tarmac Ltd, + Midland Quarry Products + Quarryplan (in Northern Ireland).	Since 1990 working with Estates staff, quarry managers and Landscape / ecological consultancies organising and managing contracts for tree and woodland planting both pre- and post- quarrying. Also preparing landscape restoration schemes for straightforward sites plus landscape management on sites throughout southern England, East Anglia and south and south-west Wales. (Commendations for Land Restoration and Environmental improvements from Spelthorne Borough Council 2003.) Also in England & Northern Ireland ongoing tree consultancy for Quarryplan.
Land Agents	Assisting Bruton Knowles clients' with woodland management and other tree issues since 1984. We also assist clients of Fisher German and Savills on a regular basis.
Tarmac Central now CRH Tarmac Ltd.	1988-2018 woodland management of Hopwas Hays Wood, Tamworth.
Rural estates in Herefordshire, Worcestershire and Gloucestershire, plus private woodland owners in southern England and Wales.	Since 1983 woodland management, tree management, hedgerow management. Many are Ancient woodlands and SSSI's requiring detailed ecological management plans produced in consultation with ecologists. About forty Farm Woodland Premium Schemes and about twenty Native Woodland Plans prepared to date in England and Wales. On-going EWGS grant applications. Input into Tir Gofal (and its successor) and Stewardship schemes. Better Woods for Wales (BWW) applications.
British Waterways	Ten-year Tree and Vegetation Management Plans along canals and around reservoirs in London, Hertfordshire, Berkshire, Birmingham, Staffordshire, Worcestershire, Gloucestershire, Shropshire, Llangollen Canal, etc: plus help in dispute with riparian owners. This work ceased around 2011.
Stroud District Council	Management of 49Ha woodland since 1989 on FC schemes plus grassland on DEFRA Stewardship Schemes, including HLS. Retired Nov07.
One-off clients	Since 1983 assisting tree owners, developers, lawyers etc throughout southern or midland Britain, including Wales, on a wide range of tree-related issues including planning, planning appeals, subsidence, health & safety, disputes, vegetation control, expert witness, valuation of woodlands, standing and felled timber, Christmas trees etc, and tree and landscape planting schemes. Recently High Hedge issues and BS5837 are hot topics.
Malvern Hills District Council. South Oxfordshire District Council	BJU Stand-in part-time Consultant Tree Officer Summer 2003. JF-D stand in Consultant Tree Officer summer 2009 to spring 2010.
Golf course & leisure facilities	Assistance with development of Carden Park golf course in Cheshire. Management advice for trees on other golf courses: Eg Ross Golf Club, Swindon Golf Club.
Farm management	Management of own 95Ha farmland since 1985.

Please do not hesitate to ask for further information. B J Unwin END.