



Hoarticulture
Arboricultural Consultancy



An Internal Investigations Report carried out at:

**20 Asford Grove
Old Bishopstoke
Eastleigh
SO50 6BG**

Prepared for [REDACTED]



Report prepared by Mr Sam Hoar,

ABC Level 4 Diploma in Arboriculture

Lantra PTI, Certificate No: 921795

Arboricultural Association Membership Number

TE8090 (Technician Membership)

Date 10/06/23

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1.0 Introduction

1.1 An instruction was received from [REDACTED] on 24/05/23, to conduct internal investigations on 1 trees across the entire site. The instructions were to conduct a tree condition survey including internal investigations on 1 tree using a digital resistograph drill and to provide a report of the findings with risk mitigating works recommendations in order to retain the tree.

1.2 No Previous survey data has been provided to Hoarticulture LTD provided.

1.3 The Inspector, Sam Hoar holds the ABC Level 4 Diploma in arboriculture and the LANTRA Professional Tree Inspection Certificate and has been conducting tree condition surveys since 04/10/19. Mr Hoar is currently employed as a Senior Arboricultural Survey Technician at Surrey County Council Highways department conducting risk-based inspections and remedial works recommendations on a day-to-day basis. Mr Hoar is also the director of Hoarticulture LTD, an arboricultural consultancy company which operates as its own entity not involved with Surrey County Council in any way.

1.4 The monitoring of their tree stock shows a commitment from the landowner to maintain their duty of care in line with the Occupiers Liabilities Act 1984. This also shows the landowner as caring for the trees on the property by having a professional survey conducted.

Report Limitations

1.5 This report identifies the internal investigations conducted as requested and recommendations of works to mitigate risk which includes a visual tree assessment from the ground. Timescales within which recommended works should be carried out from the results of the examinations are given within the report data. Timescales are given in accordance with the T.H.R.E.A.T.S risk matrix. The main body of the report is contained in the inspection data table shown in this report at **5.0** of this report. Photographic evidence is provided in (Appendix 1: 01-05)

1.6 Trees are dynamic, living organisms, and are as such susceptible to climatic conditions and changes to the environment surrounding them. Every property Owner/Manager has a duty of care to maintain their trees in a safe condition to protect their liabilities.

1.7 Sam Hoar has not confirmed with the local authority whether the trees are contained within a conservation area or whether any TPO trees are present on site including the tree that have been investigated within this report.

2.0 The Investigation

2.1 The investigation took place on Thursday 8/6/23 and the weather conditions were full sun on the day of the inspection/investigation taking place from 16:30hrs

2.2 A total of 1 tree was investigated and recorded. Consisting of 1 single tree and 0 group/s of trees. The inspection included internal investigations by use of a digital resistograph drill on 1 tree to gather further information to the structural integrity at the locations described on the tree/s tested.

2.3 The tree was inspected from the ground utilising the Visual Tree Assessment (VTA) method devised by Claus Mattheck, an internationally recognised system for identifying tree defects (Mattheck, Breloar 1994).

2.4 This investigation data is valid for one year from the date of inspection, after which time the trees should be reassessed. The trees should also be visually assessed if subjected to storm-force winds in between subsequent surveys. **Any tree/s recorded on this investigation should be re-inspected every 3 years as a minimum unless otherwise stated.**

2.5 All recommended works should be carried out following BS3998: 2010 Recommendations for Tree Work.

2.6 The following data was recorded for the tree/s:

Ref:	Individual tree identification numbers: T1 etc
Species:	Botanical and common names:
Structure:	Singletree, Multi-stem, Group
Num. Stems:	Measured in single units
Life Stage:	Newly planted, Young, Semi Mature, Early Mature, Mature, Over Mature, Veteran, Ancient.
General Observations:	Observations of defects/pathogens/biomechanical issues within the tree canopy and stem that could be a potential hazard
Recommended Works:	Works that are required to mitigate risks posed by identified defects
Timescale:	The timescale within which recommended works should be carried out to ensure mitigation of risks
Notes:	Detailed descriptions of trees, defects, site conditions etc.
Physiological Cond:	Good, Fair, Poor, Dead
Structural Cond:	Good, Collapsing, Decaying, Physical Defect, Fair, Poor

3.0 Glossary of Terms

Gate Posts:	Highly lignified reaction wood at the site of a wound (usually a hollow) forming a gate post like appearance
Branch Union:	Region formed where branches are attached to the main stem or other branches.

Co-dominant stems:	Two or more stems that emerge from the same point on a trunk, that is roughly the same size and grows equally as the tree matures, without one becoming dominant. They may form compression forks as they mature.
Crown:	The main foliage bearing part of the tree.
Decay:	The breakdown of lignin or cellulose (or both) within the wood, resulting in weaknesses or cavities. Predominantly caused by pathogenic fungi.
Deadwood:	Dead branches within the crown that pose an overhead falling risk.
Fell:	The controlled cutting of a tree to bring it safely down to ground level.
Occluding wound:	A wound on a tree that is healing normally and callusing over as expected.
Stem/trunk:	The major above ground woody structure of the tree that supports the crown.
Internal Investigation:	Further investigations to ascertain extent of decay using decay detection equipment.
Cavity:	A hole in a woody part of the tree caused by pathogenic decay, damage or boring birds and insects.



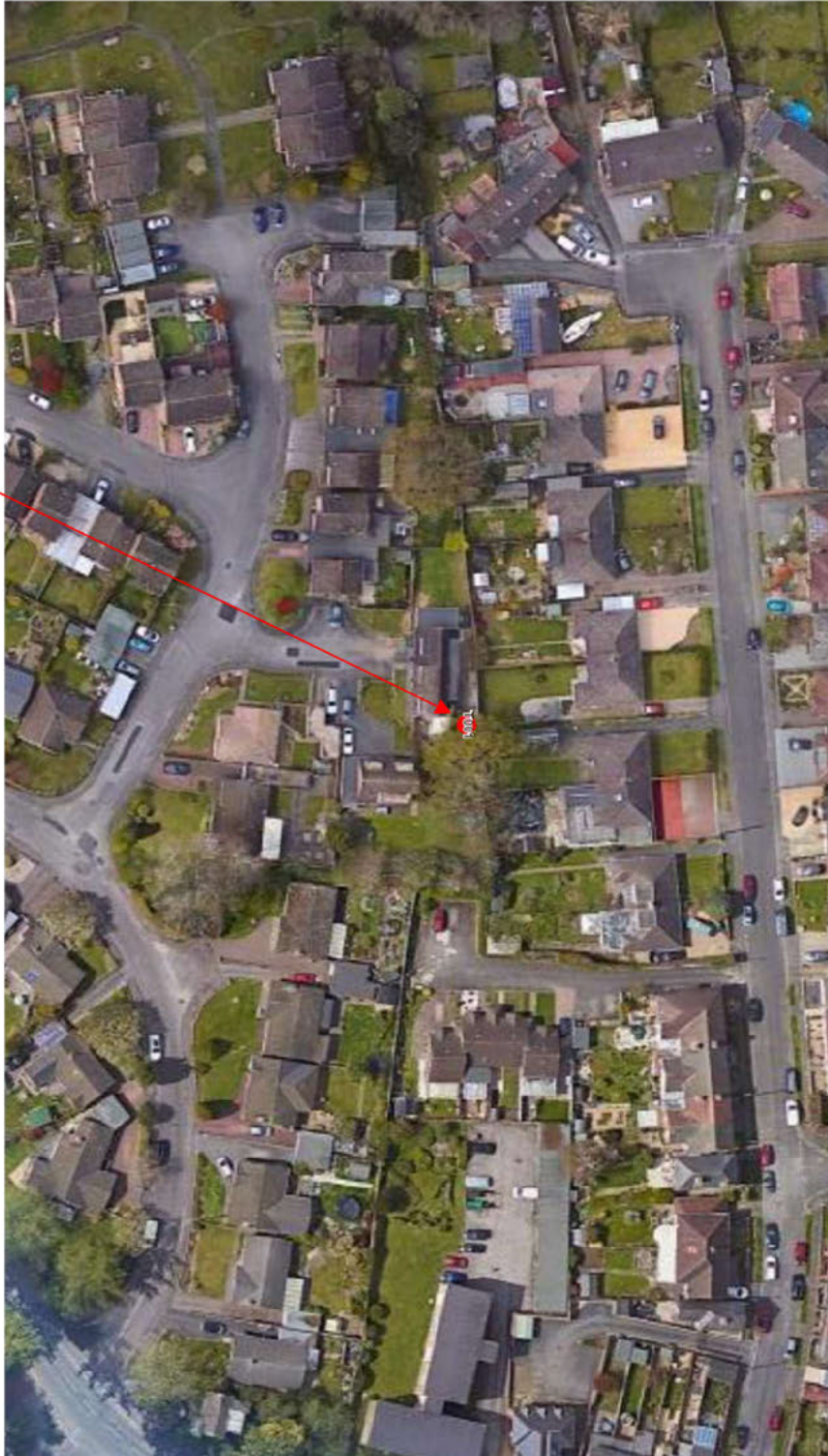
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4.0 Site Plan and Tree Location

What 3 Words Location: career.fault.froth

T001

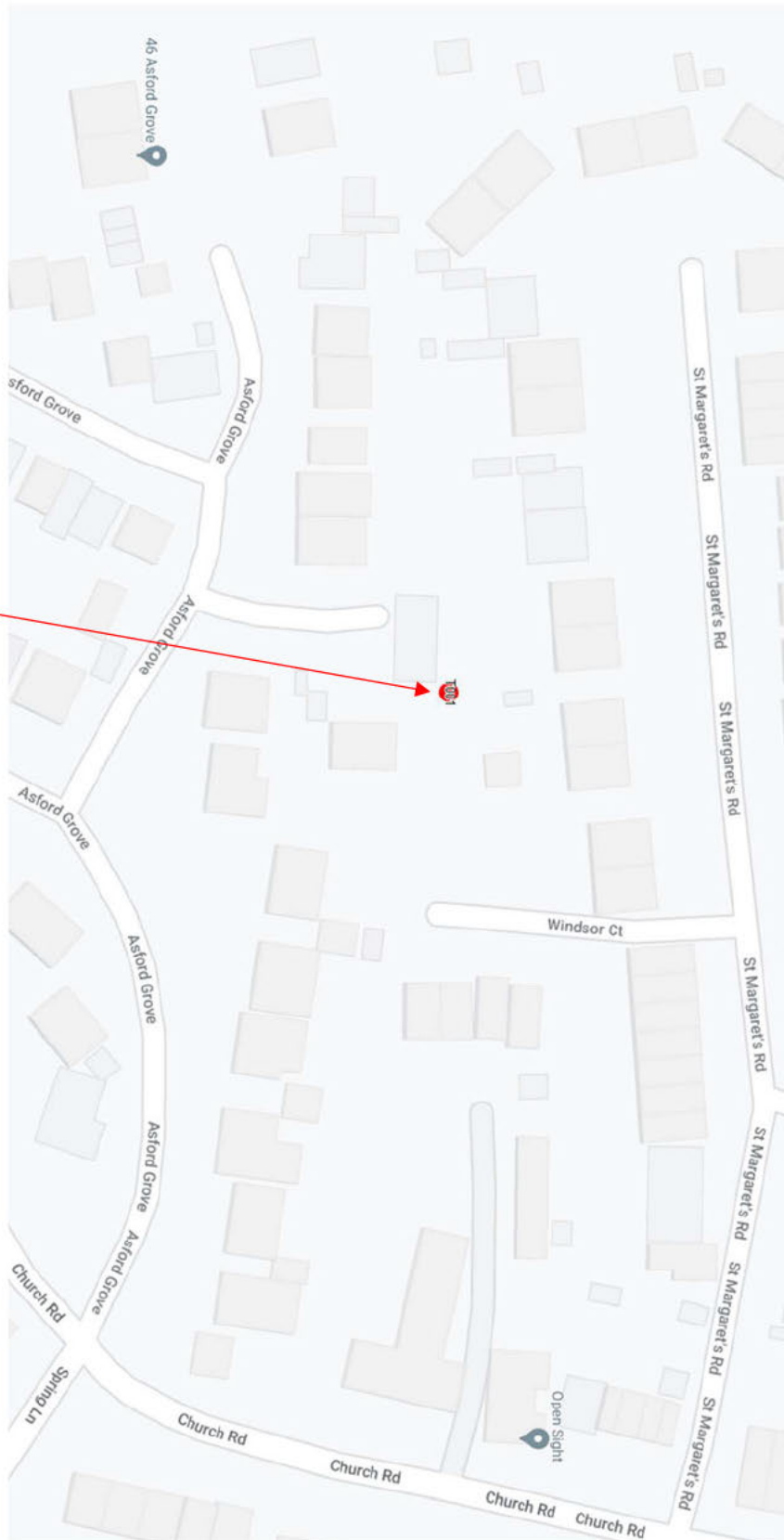




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T001



5.0 Tree Inspection Data

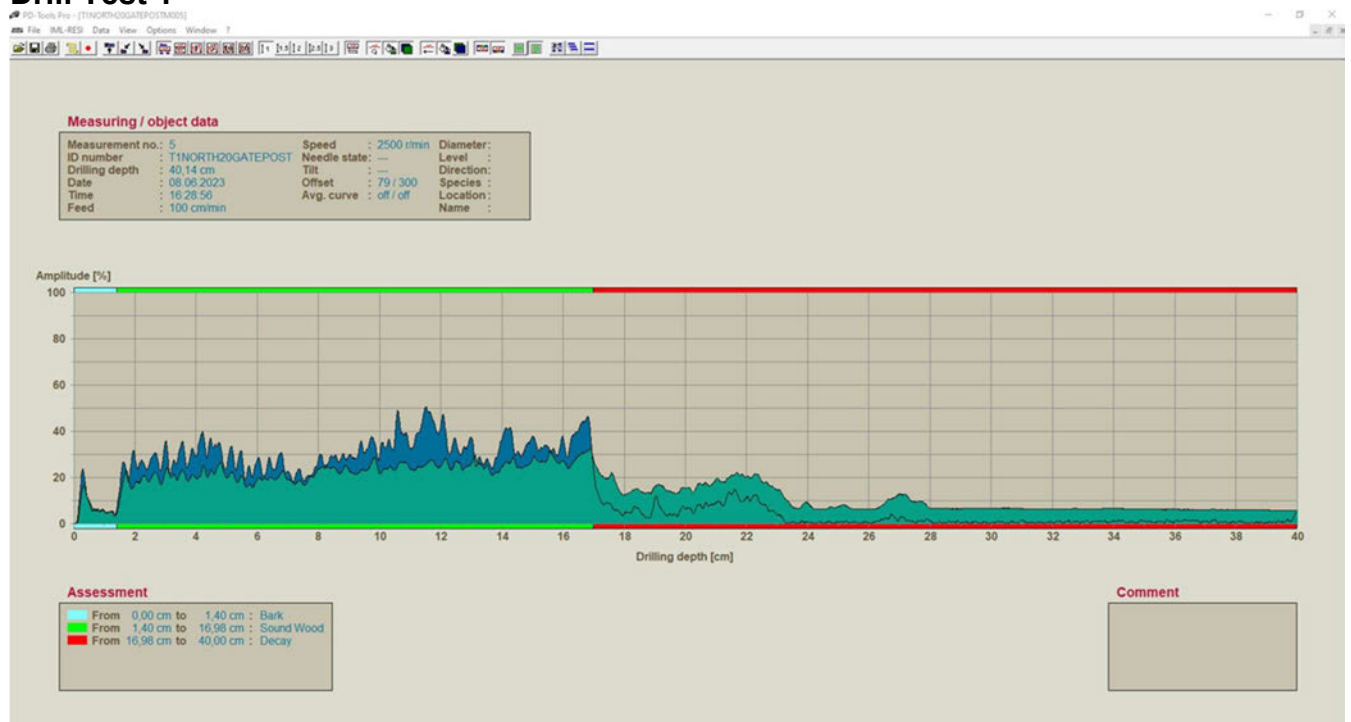
Tree Survey Report							
Client:							
Site:		20 Asford Grove					
Overall Condition		No. trees					
		1					
Total		1					
Ref.	Species	Description	Measurements	Survey Notes	Physiological Condition	Structural Condition	Recommendations
T001	Pedunculate Oak (<i>Quercus robur</i>)	Owned by the estate. Target #- building	Height (m): 18 Crown Radius (m): 12 DBH (cm): 120 Life Stage: Mature Life Exp.: 20+ Years	limb decay, Woodpecker holes Stem hollow, decayed, Cavity 1m tall from ground level 30cm wide 70cm deep. Ants nest in main stem. Resident reported fungal fruiting bodies but no fb found at inspection. Cubicle brown rot	Fair	Poor	Tree removal. Timescale: within 13 weeks

6.0 Results and Interpretations

Digital Resistograph Drill Test:

The Resistograph is a device used to identify and access the extent of decay and defects in trees. The instrument is essentially a battery-powered drill with an extremely fine bit (1.1mm diameter with a flat 3mm tip). The bit is driven into the tree up to a depth of up to 400mm. The energy required to drive the bit into the tree is measured and a digital graph is produced displaying the distance traveling into the wood on the x-axis (represented in turquoise) and the amplitude (the torque) on the Y-axis (represented in blue). By examining the changes in torque required to propel the bit into the wood, it is possible to detect wood weakened by decay, cavities, cracks, and other defects. 4 Measurements were taken at approximately 20cm from ground level on both sides of gate posts set back approximately 40cm, one at the south point and one at the east point. 1 measurement was taken at 1.5m from ground level directly above the gate posts. At the end of the interpretations is a drawn diagram showing a cross section of the stem with interpreted results and an estimate of good structural integrity versus dysfunctional wood with poor structural integrity.

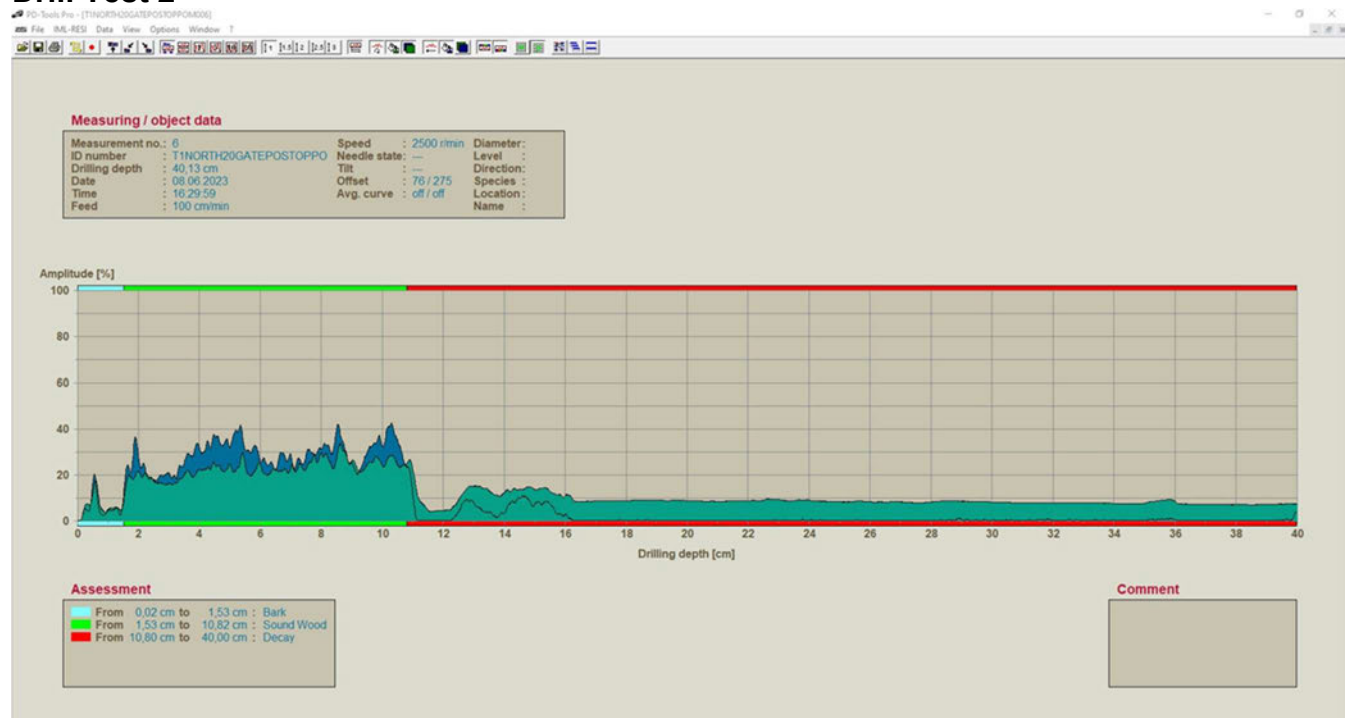
Drill Test 1



The test drill above was taken at the north side of the stem 40cm back from the gateposts. 20cm from ground level

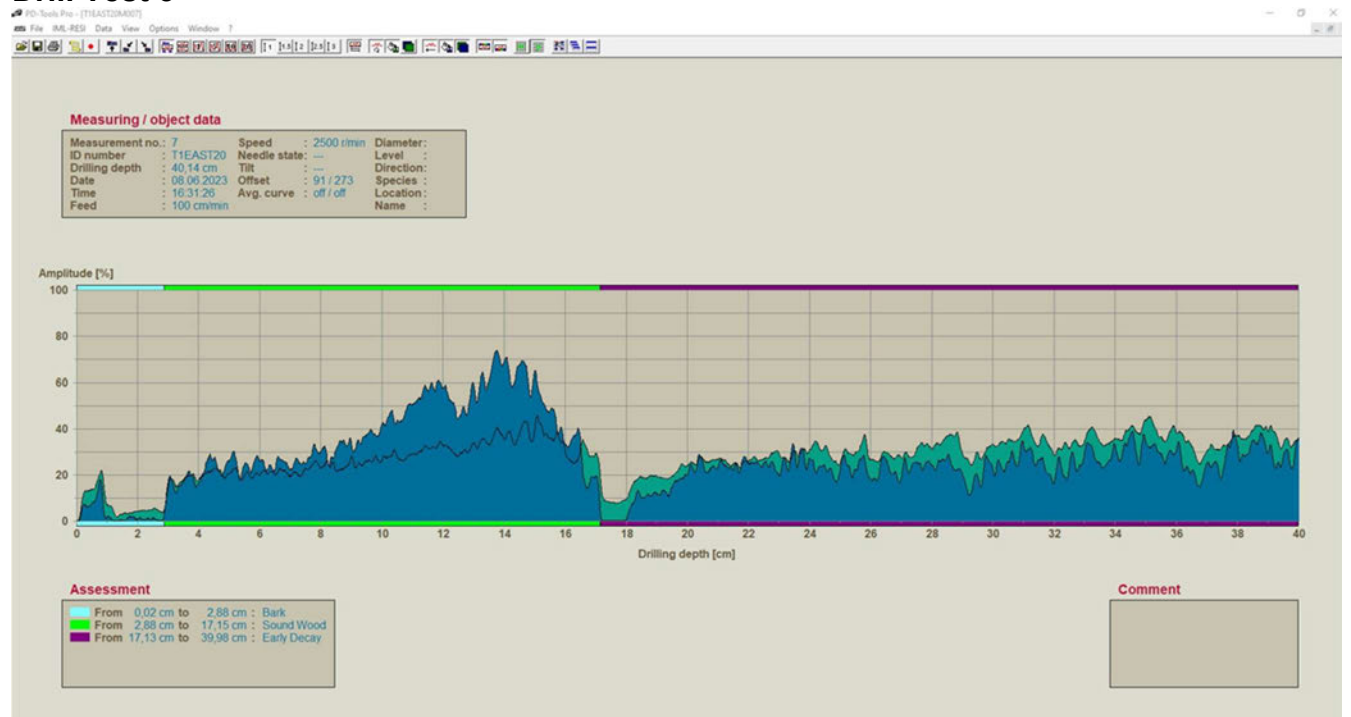


Drill Test 2



The test drill above was taken on the south side of the stem 40cm back from the gateposts. 20cm from ground level

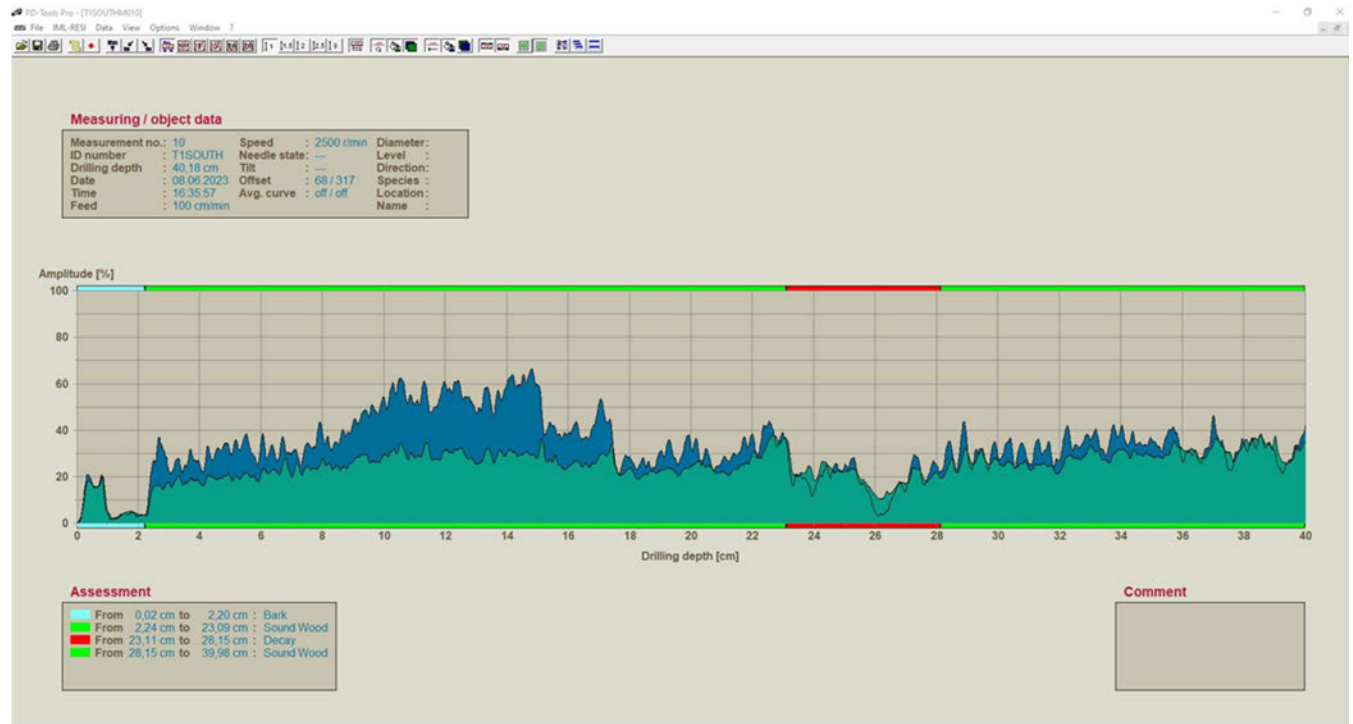
Drill Test 3



The test drill above was taken the east side of the stem. 20cm from ground level

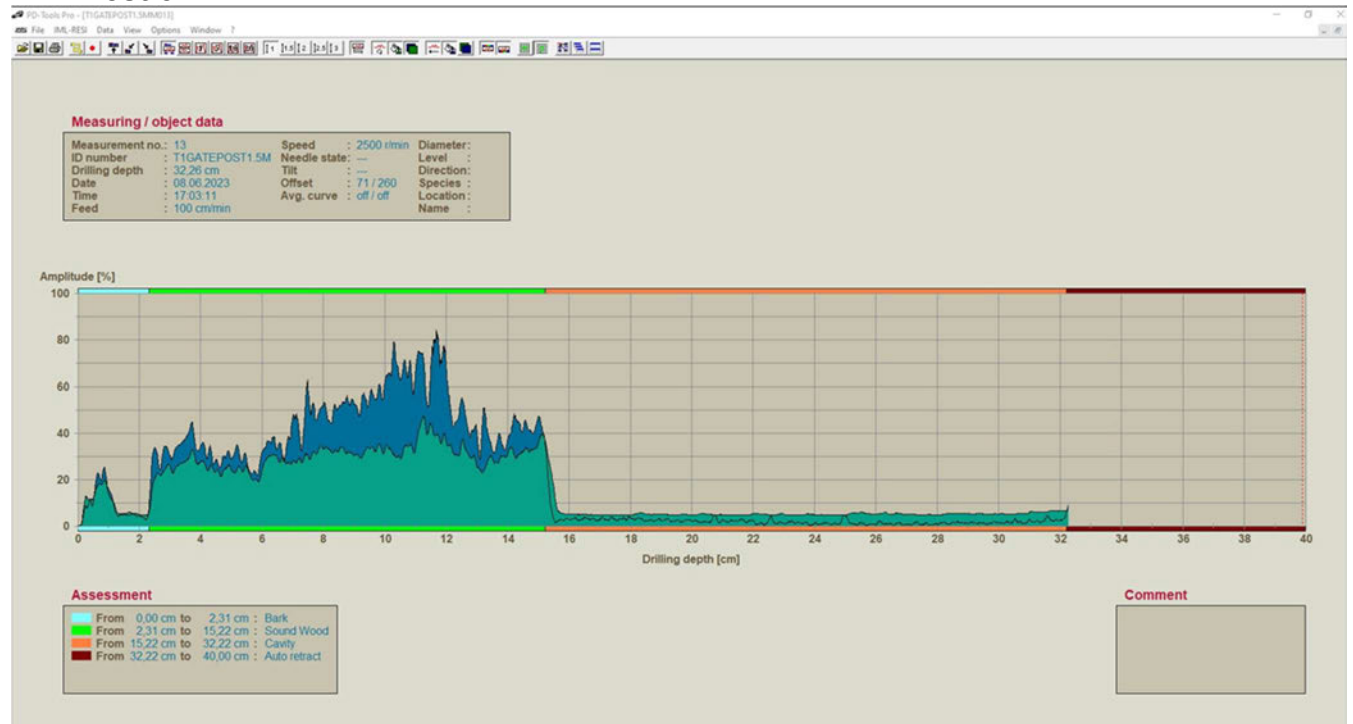


Drill Test 4



The test drill above was taken at the south side of the stem. 20cm from ground level.

Drill Test 5

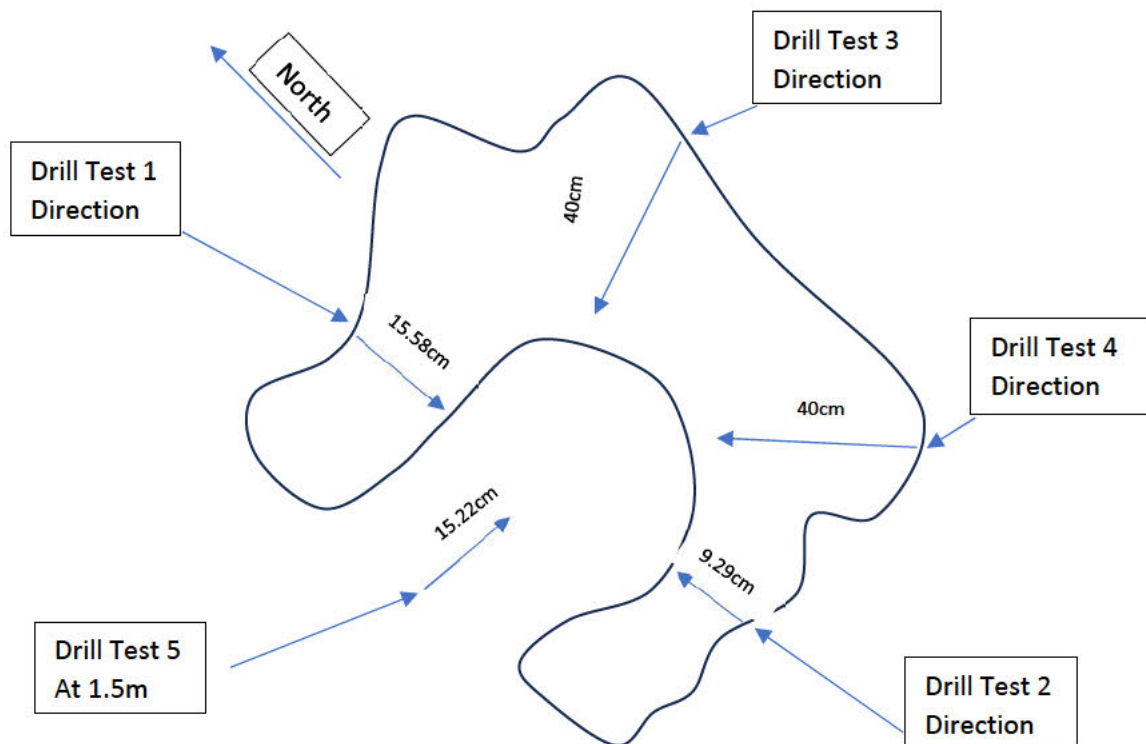


The drill test above was taken 1.5m from ground level directly above the gateposts

Diagram of interpretations

A rough estimation based on drill evidence. Not to scale

Diameter at breast height (approx) 120cm





7.0 Recommended Works

Fell to ground level

Time Scales

T.H.R.E.A.T.S. Score

PART II: HAZARD RATING CALCULATION

NB: Examples given in sections 4-6 are neither prescriptive nor exclusive

4] Failure Score (Consider identified defects in relation to species/clone history, established failure criteria & time of year):

Score	✓	Likelihood of failure	Example defects
50		Imminent/Immediate	Uprooting; Extreme root loss; Collapsing structure
8		Probable/Soon	Altered exposure; Primary decay fungus; Severe inclusive bark/root loss; Fragile dead wood
2	✓	Likely, foreseeable	Lapsed pollard; Overweight/subsiding limbs; Poor stem taper; Dieback
.8		Potentially with time	Early development of inclusive bark; Robust dead wood
0		Unlikely ever	Tree generally free of defects, or insignificant defects only

5] Target Score (Consider impact radius of identified defect against potential targets. Consider forward visibility available to drivers & whether vehicles are likely to be stationary, eg at junctions. If targets liable to include unsupervised children &/or elderly or infirm people, upgrade target value by one category):

Score	✓	Value	Static target examples	Target occupancy examples
40	✓	Very high	Building 24 hour use, railway	Constant vehicular traffic/busy playground
25		High	Building 12 hour use, ≥11Kv power lines	Frequent vehicular traffic/constant pedestrian use
20		Medium	Building/structure occasional use, <11Kv lines	Peak times traffic/intermittent use, eg commuter run
15		Low	Garage, Summer house, Listed wall	Occasional traffic/sporadic use, eg slow country road
7		Very low	Unlisted wall, paving, garden features	Infrequently used access/public right of way/bridleway
0		None	Grass	Hardly ever used, eg remote path

6] Impact Score (Consider height of fall/momentum & whether eg lower branches would impede agent's descent):

Score	✓	Degree of harm and consequences (examples)	Agent: trees, mm, or branches, kg (size/weight for guidance only)		
10	✓	Severe structural damage, vehicles crushed – passenger fatalities very probable	VL	> 750mm	> 500kg
6		Moderate structural/ severe vehicle damage – fatal/disabling injuries likely	L	350-750mm	50-500kg
4		Minor damage/probable disabling/hospitalising injury to pedestrians	M	100-350mm	10-50kg
1		Fragile objects destroyed, superficial/recoverable injury to pedestrians	S	< 100mm	< 10kg

7] Hazard Rating Calculation:

FAILURE SCORE 2 x TARGET SCORE 40 x IMPACT SCORE 10 =

800

PART III: IMPLEMENTATION OF CONTROL MEASURES

8] Appropriate Response

The use below of the word 'within' should not be taken to mean that delay is necessarily acceptable

Score range	✓	Threat Category	Recommended action & Completion deadline	Code
4000+		7- Extreme	Evacuate/prevent access to impact site, emergency call-out of contractors	E
2001-3999		6- Serious	Close site if practical; arrange for work to be completed within 7 days	7D
1000-2000		5- Significant	Arrange for work to be completed within four weeks maximum	4W
330-999	✓	4- Moderate	Remediate within 13 weeks, reinspect after SWE meantime (inc. gales to Force 7+)	13W
160-329		3- Slight	Reinspect annually /after storms (Force 10+), expect to schedule work within 2 yrs	A
50-159		2- Minimal	Reinspect within 3 yrs if public access, schedule work as required	3Y
0-49		1- Insignificant	Reinspect within 5 yrs if general public access or 3 yrs if child-specific access & TS ≥20	3/5Y

Fell within 13 weeks.

Justifications

Based on T.H.R.E.A.T.S. score of 800. This was scored due to the cubicle brown rot associated with only a few but aggressive fungi although no fungi was present at the time of inspection it was clear that decay was occurring and cubicle brown rot was evidence of fungal activity. This will only decay further over time making it a greater risk to manage in the future. The drill evidenced the extent of decay which in my opinion compromises the compression wood of the tree whilst the tension side is beginning to show signs of early decay.

8.0 Appendix 1 (Photos)

Image 01





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Image 02





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Technician Member

Image 03



9.0 References

Mattheck, Breloar (1994). *The Body Language of Trees: A Handbook for Failure Analysis*. London, HMSO.

David Lonsdale (Seventh Impression 2009) *Principles of Tree Hazard Assessment and Management*. London. HMSO.