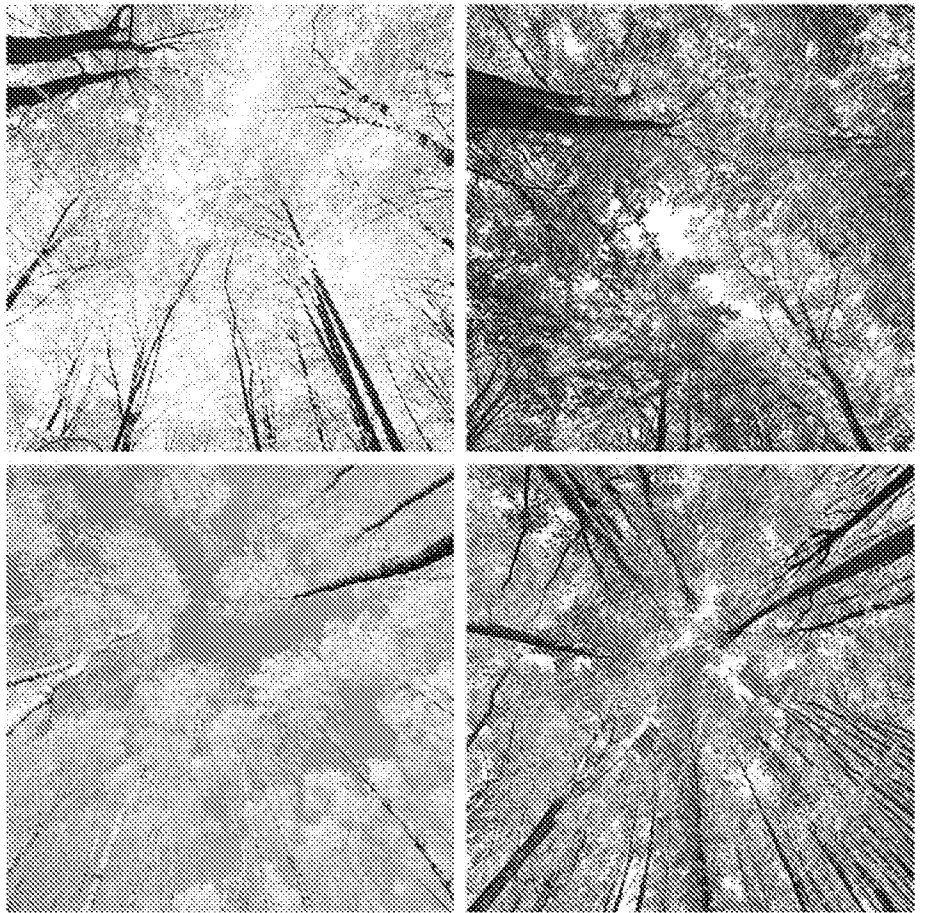




Gale Tree Consultancy

Tree Condition Report

35 Colts Bay, Aldwick

February 2022

Ref: TCR/322/22

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Summary

- The inspection and detailed decay evaluation of three mature trees in a domestic garden
- Two trees require no further action
- The third tree requires pruning to mitigate against the effects of decay found within a primary stem section

1.0 Introduction

1.1 Client and Address

- Mr Fry, 35 Colts Bay, ALDWICK, PO21 4EH

1.2 Site Address if Different from the Above

- As above

1.3 Date of Inspection

- 17th February 2022

1.4 Name of Inspector

- Andrew Gale *Dip Arb L6 (ABC) M.Arbor.A*

1.5 Our Reference

- TCR/322/22

1.6 Instructions Received

- I have been instructed by the client to undertake a ground level decay evaluation on three trees in the garden of the above property
- I am to provide my findings in the form of a report detailing any remedial work that may be necessary

1.7 General Description

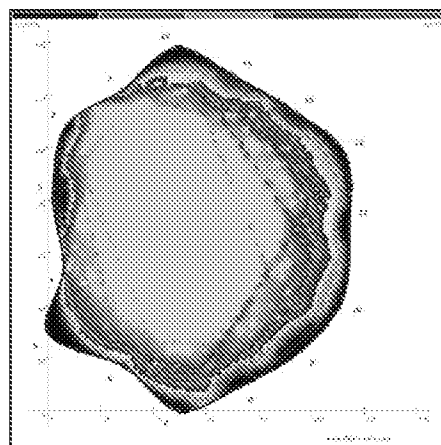
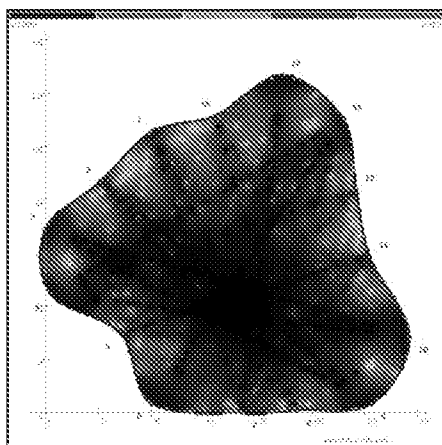
- 35 Colts Bay is located off Barrack Lane and is at the west end of a private estate
- To the immediate south is a property located within Colts Bay and to the west a further property in Heston Grove. The western boundary is a heavily treed strip of land bordering a ditch line
- The garden is established with mature shrubs and trees dotted along the southern boundary line, in the middle of the lawn is a mature tree
- A further tree located along the southern fence line recently failed in a northerly direction. The tree has been cleared with only the below ground stump remaining

2.0 Scope of the Report

- This tree condition report relates to the ground level assessment of the tree, it does not consider any below ground issues unless stated otherwise
- The report addresses issues apparent on the tree at the time of the inspection, therefore the likelihood of failure is considered for three years from the reports date based on the information gained on the day of the report and on the assumption that any recommended work has been undertaken in the time frame specified
- The site has not been checked for any statutory constraints
- The trees were not assessed for wildlife which would include birds or bats

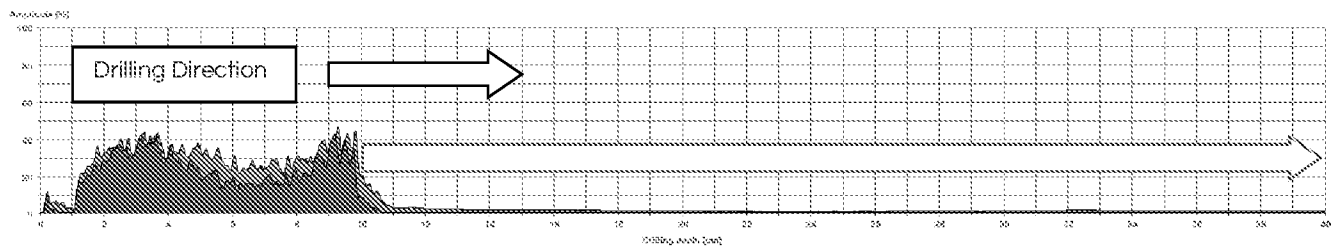
3.0 Method of Inspection

- A plastic headed mallet was used to sound the stem as an initial indication of the presence of decay
- A thin steel rod was used, where necessary, to assess the depth of any decay in cavities and concavities between buttress roots
- Sonic tomography uses the relative velocity of sound waves induced across the stem to produce a colour shift image where dark browns represent wood with higher velocities and as such sound wood
- Lower sound speeds caused by decay or hollowing are represented by lighter colours with blue/white indicating significant decay/hollowing
- On the examples overleaf, the tomogram on the left indicates a sound tree and the tomogram on the right, a trees with significant decay or hollowing:

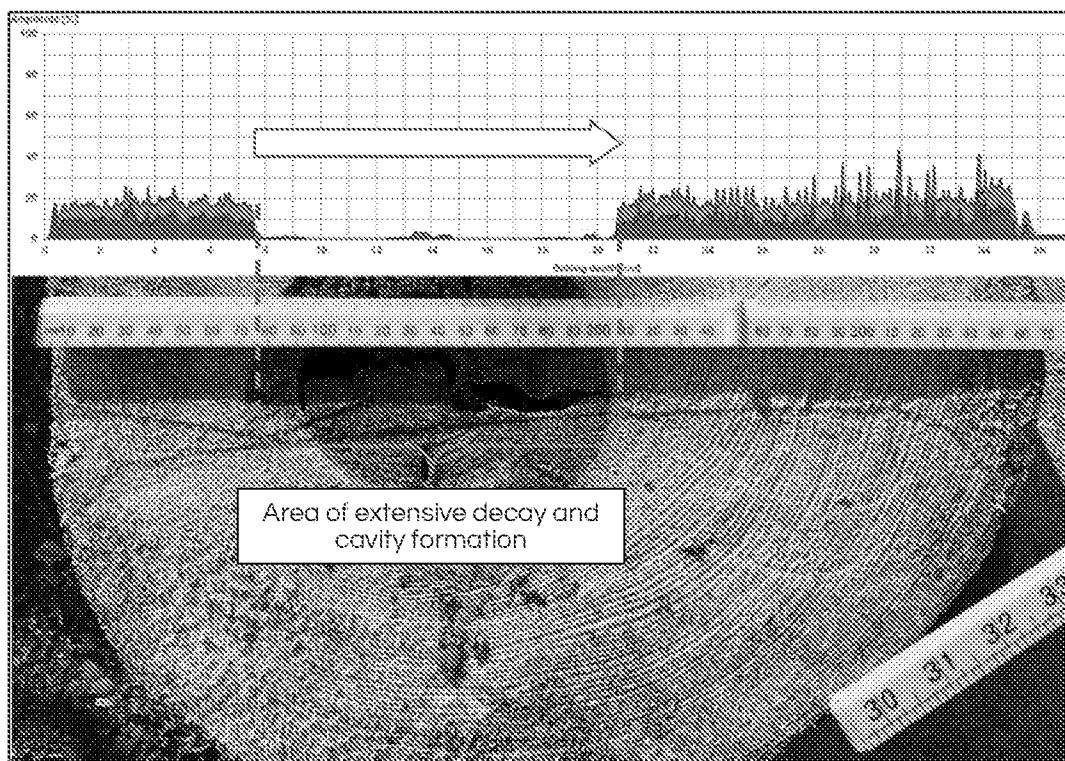


- To further assess areas of a concern, an IML Resi PD400 microdrill, which measures the resistance of a very fine drill bit to a depth of 400mm, was used for further confirmation. Significant drops in drilling resistance are indicative of decay or hollowing

- On the example below, extensive decay is indicated from a depth of 10cm through to the end of the assessment



- (Please note, historically Resi drill traces have read from right-to-left due to the configuration of the original machine. However, by using the software available, I have flipped the drill traces to read left-to-right, the more conventional way to read a graph)
- On the image below, you can see where the drill entered the area of extensive decay and cavity at c.7.5cm and re-entered the sound wood at c.20.8cm; the drill exited the stem at c.35.4cm



4.0 Results of Inspection

4.1 Tree Species and Dimensions

No.	Species	Scientific Name	Height (m)	Crown Spread (m)				Age	Phys. Condition
				N	E	S	W		
T1	Field maple	<i>Acer campestre</i>	3.0	1.0	1.0	1.0	1.0	M	POOR

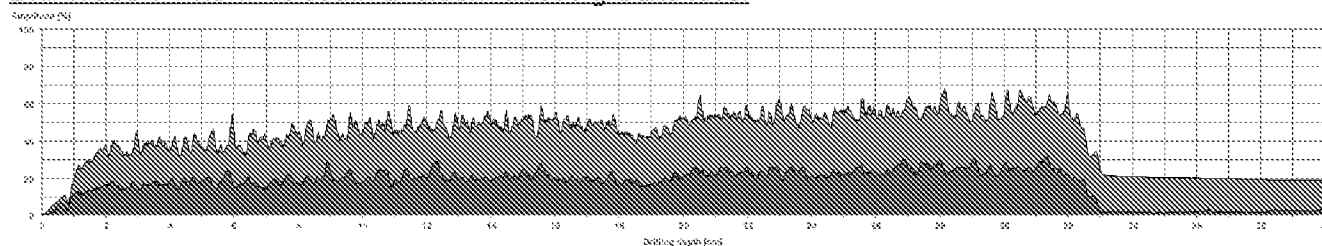
4.2 Tree Description

- The tree has been topped at c.3.0m and has minimal growth forming at this point
- Loose and moribund bark was noted on the east and south side of the stem at ground level up to a height of c.50cm. The tree lacks any discernible buttress roots
- The tree that recently failed was located to its immediate east

4.3 Decay assessment

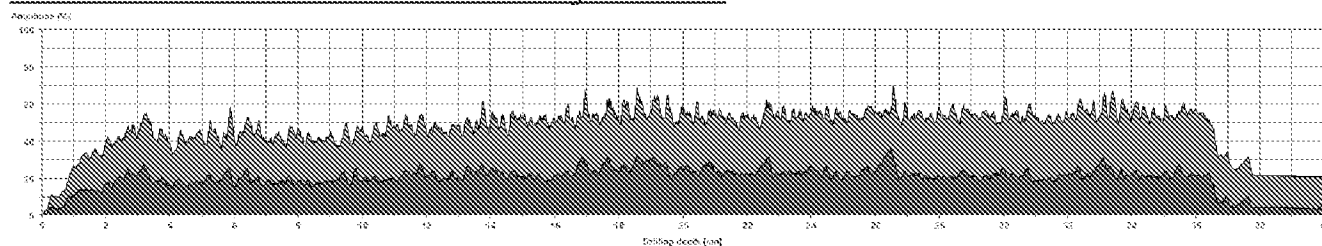
- The Resi PD400 was used in two locations at c.5cm above ground level where the stem diameter measured c.37cm – please see the drill traces below:

Drill Trace 1 – north to south at c.5cm above ground level



- The drill trace indicates a steady resistance to the drill through to c.33cm where it exits the stem

Drill Trace 2 – east to west at c.5cm above ground level



- The drill trace indicates a steady resistance to the drill through to c.38cm where it exits the stem

4.4 Tree Species and Dimensions

No.	Species	Scientific Name	Height (m)	Crown Spread (m)				Age	Phys. Condition
				N	E	S	W		
T2	Field maple	<i>Acer campestre</i>	7.5	1.5	2.0	4.0	3.0	M	FAIR

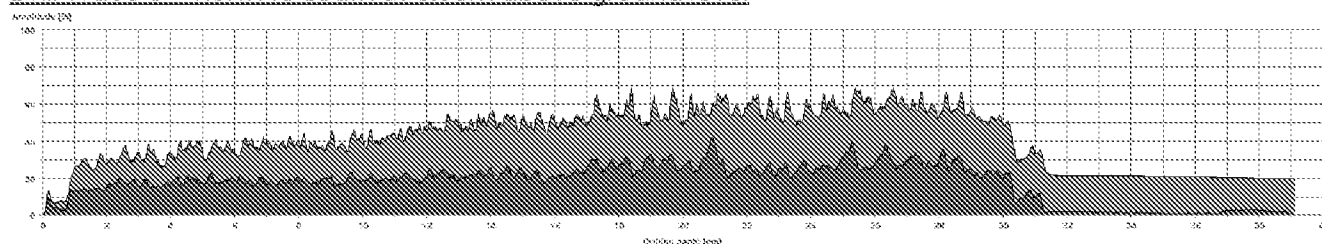
4.5 Tree Description

- The tree has been topped at c.5.0m where the new growth forms the crown
- No significant changes in tone was heard during the assessment with the plastic headed mallet
- The tree that failed was located to its immediate east

4.6 Decay assessment

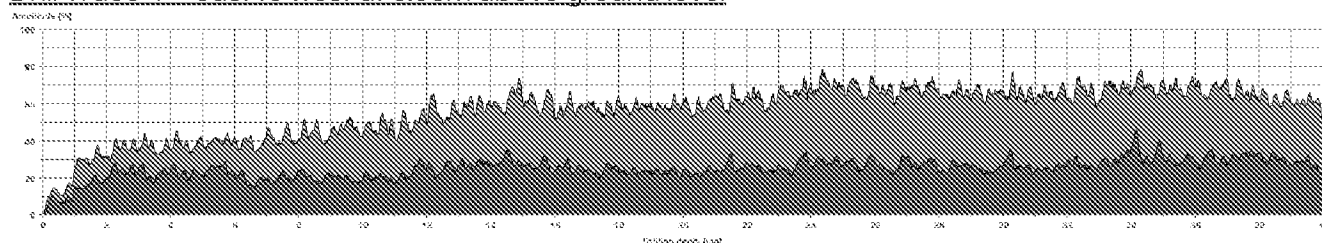
- The Resi PD400 was used in two locations at c.5cm above ground level where the stem diameter measured c.38cm – please see the drill traces below:

Drill Trace 3 – north to south at c.5cm above ground level



- The drill trace indicates a steady resistance to the drill through to c.31 cm where it exits the stem

Drill Trace 4 – east to west at c.5cm above ground level



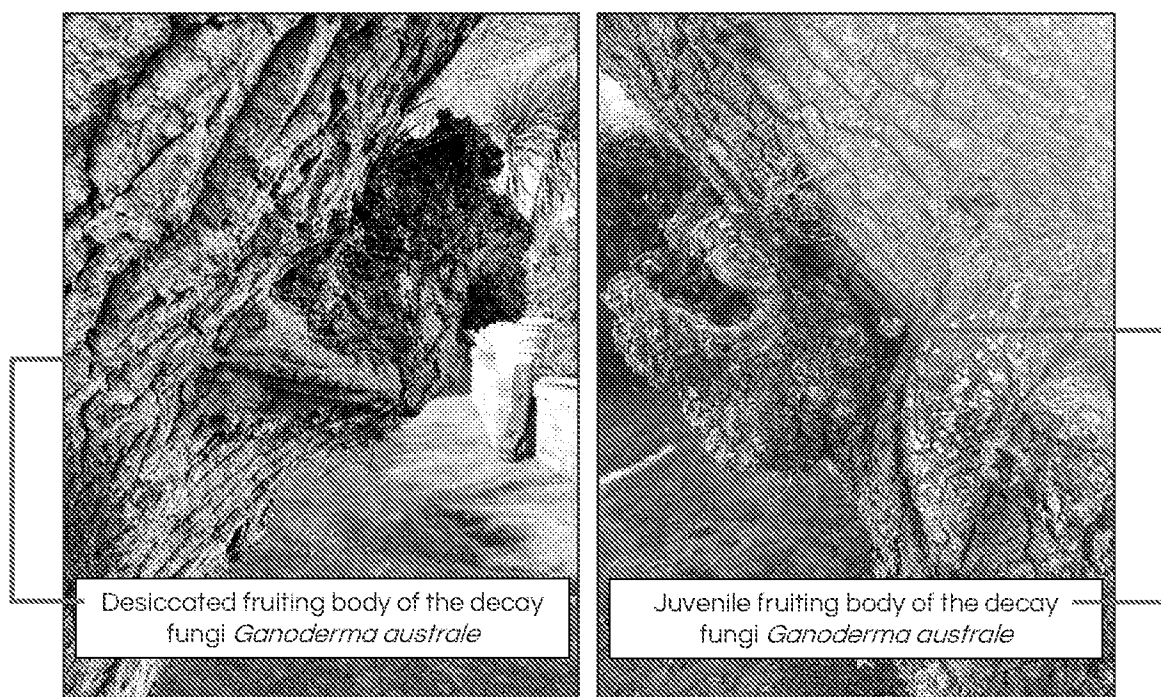
- The drill trace indicates a steady resistance to the drill through to the end of the assessment; the drill did not exit the stem

4.7 Tree Species and Dimensions

No.	Species	Scientific Name	Height (m)	Crown Spread (m)				Age	Phys. Condition
				N	E	S	W		
T3	Pedunculate oak	<i>Quercus robur</i>	11	4.5	5.0	5.0	4.0	LM	FAIR

4.8 Tree Description

- The main stem bifurcates at c.1.7m into 1 x PSS on the north (N) side of the tree and 1 x SSS on the south (S) side; the N PSS has a bias to the east
- On the east side of the main stem is a large wound c.35cm off the ground. The wound measures 60x35cm (HxW) and wound wood is being formed¹
- The N PSS has a wound at c.2.5m, the result of a SSS being removed; the wound is occluding with the formation of wound wood
- At c.1.5m on the east side of the N PSS is a desiccated fruiting body of the decay fungi *Ganoderma australe* with a further, juvenile fructification within a burr on the north side of the stem – see below:

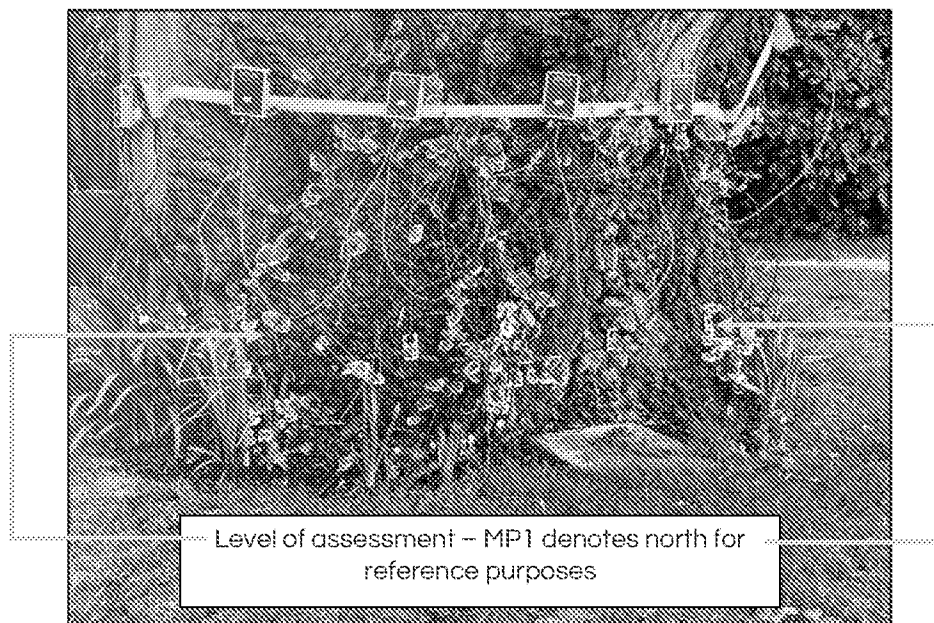


- Between c.1.2m and c.1.7m on the west/north west side of the N PSS, an audible change in tone was heard when assessed with the plastic headed mallet; no further changes in tone were heard from the lower stem area
- The tree has been topped at c.8.5m with the new growth establishing the remaining crown form

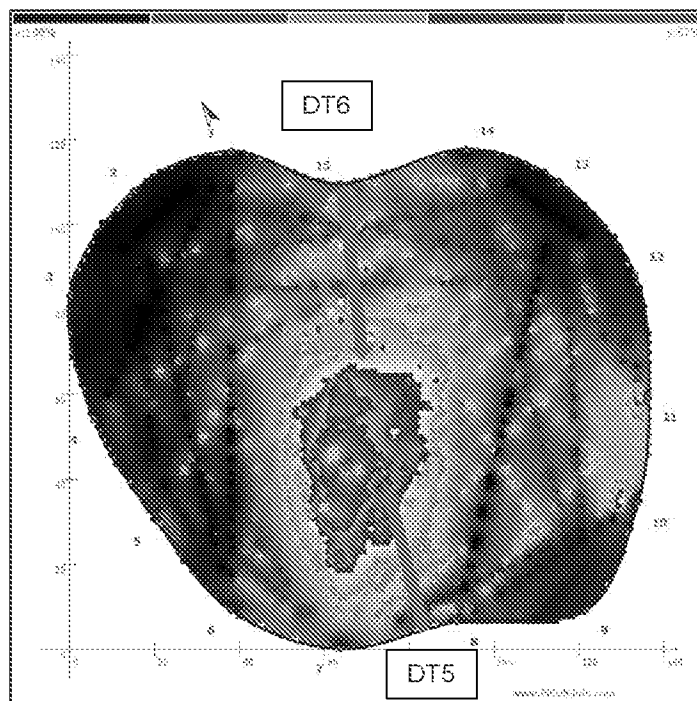
¹ Wound wood – occluding tissues forming around a wound (in preference to the ambiguous term ‘callus’)

4.9 Decay assessment

- The Picus 2 sonic tomography unit was used c.20cm above ground level with 15 measuring points (MP). MP 1 was placed at north for reference purposes – please see below:

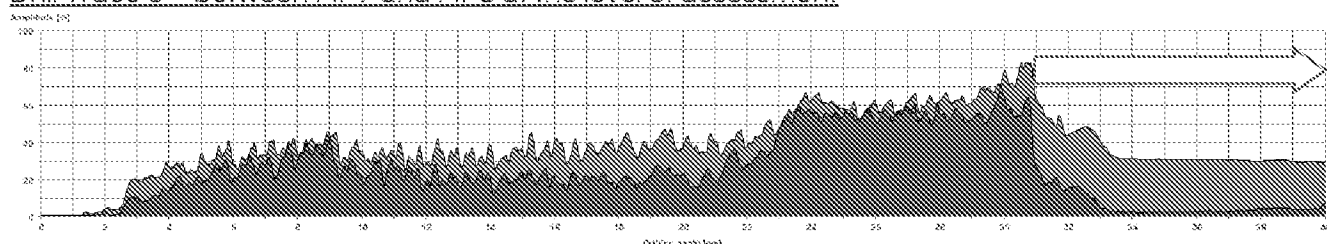


- The tomogram below indicates an area of low sonic velocity within the central area of the stem at level of assessment as indicated by the colour shift from brown to blue – see below:



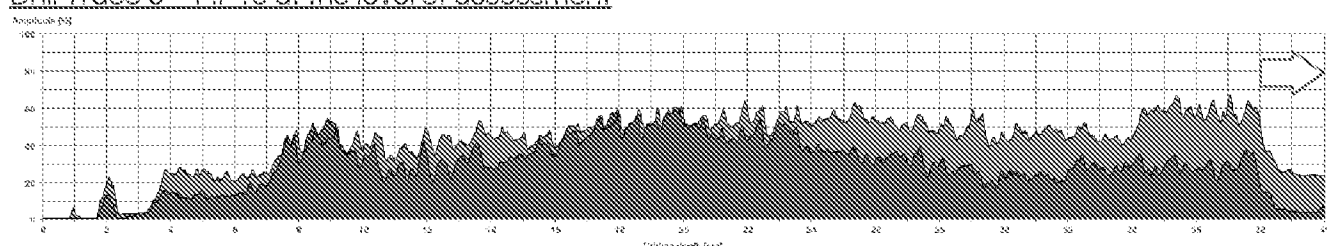
- To confirm the tomogram, the Resi PD400 was used in two locations at the level of assessment – the red arrows on the tomogram above reference their location, please see the drill traces overleaf:

Drill Trace 5 – between MP7 and MP8 at the level of assessment

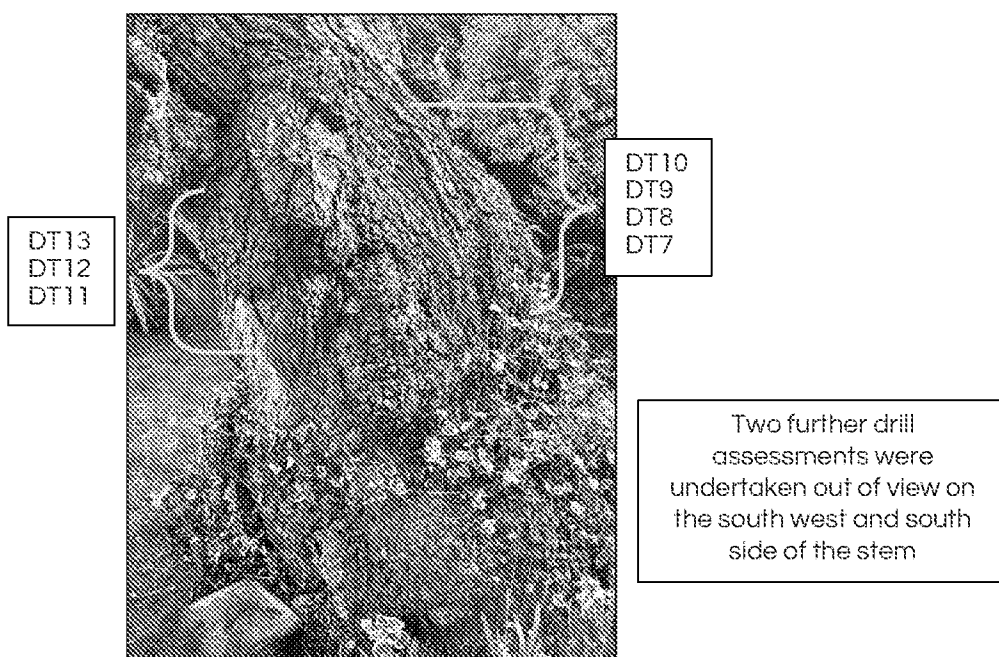


- The drill trace indicates a gradual resistance to the drill to a depth of c.22cm after which it increases significantly through to c.31 cm
- From c.31cm, the drill enters an area of extensive low drilling resistance through to the end of the assessment

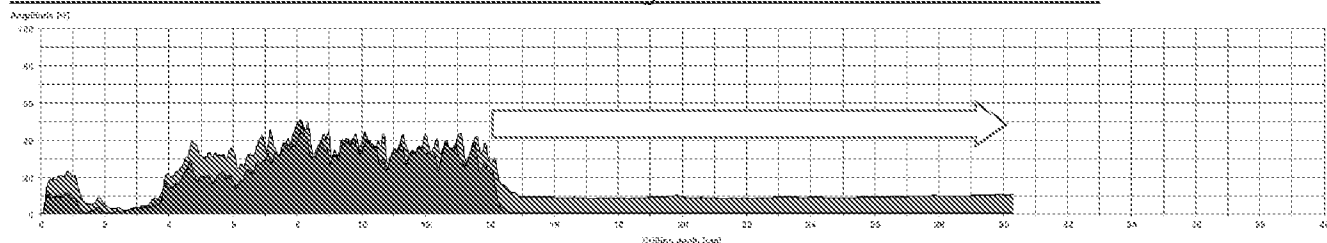
Drill Trace 6 – MP15 at the level of assessment



- The drill trace indicates a steady increase in resistance through to c.23cm after which it begins to drop slightly
- From c.38cm, the drill enters an area of low drilling resistance through to the end of the assessment
- To assess the condition of the N PSS between c.1.2m and c.1.7m, the Resi was used a further seven times – please see the annotated photo below and the drill traces on the following page:

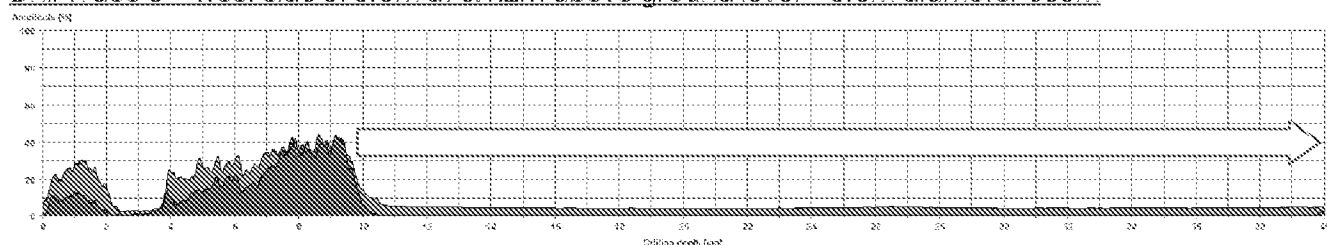


Drill Trace 7 – west side of stem at c.1.0m above ground level – stem diameter 63cm



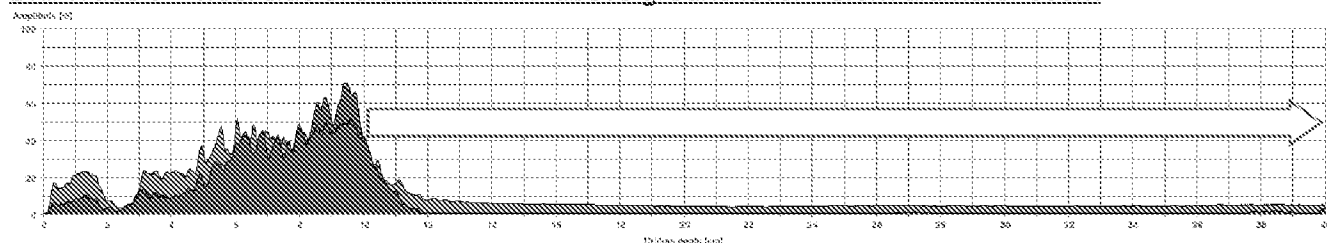
- The drill trace indicates an initial area of resistance to the drill to a depth of c.14cm
- At c.14cm, the drill breaches the trees reaction zone², as indicated by the sudden and sharp drop, and enters an area of extensive decay/hollowing
- The automatic needle retraction feature was triggered at c.30.4cm to remove the risk of damage/breakage of the drill bit

Drill Trace 8 – west side of stem at c.1.2m above ground level – stem diameter 58cm



- The drill trace indicates an initial area of resistance to the drill to a depth of c.9.5cm after which it drops away suggesting incipient decay is beginning to form to a depth of c.10.4cm
- From c.10.4cm, the drill enters an area of extensive decay/hollowing through to the end of the assessment

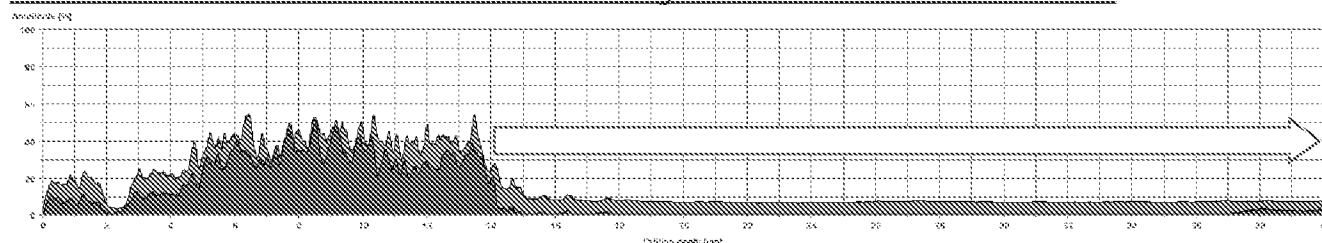
Drill Trace 9 – west side of stem at c.1.4m above ground level – stem diameter 56cm



- The drill trace indicates an initial area of resistance to the drill to a depth of c.9.8cm after which it drops away suggesting incipient decay is beginning to form to a depth of c.11.8cm
- From c.11.8cm, the drill enters an area of extensive decay/hollowing through to the end of the assessment

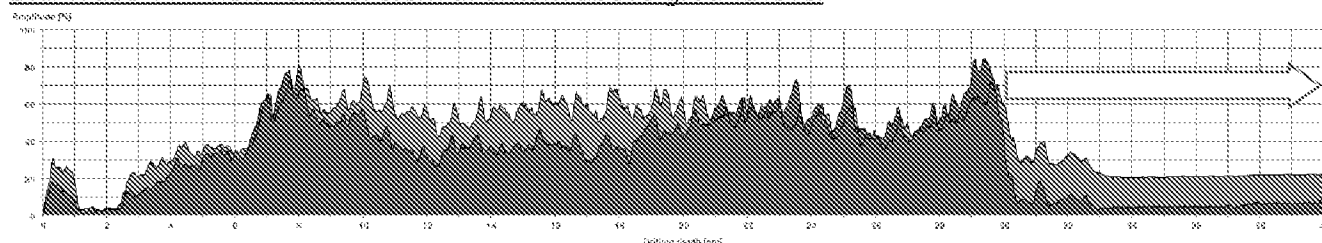
² Reaction Zone – an active response to injury or infection, often effective in containing decay; forming a boundary between fully decayed wood on the inside and healthy wood on the outside

Drill Trace 10 – west side of stem at c.1.6m above ground level – stem diameter 58cm



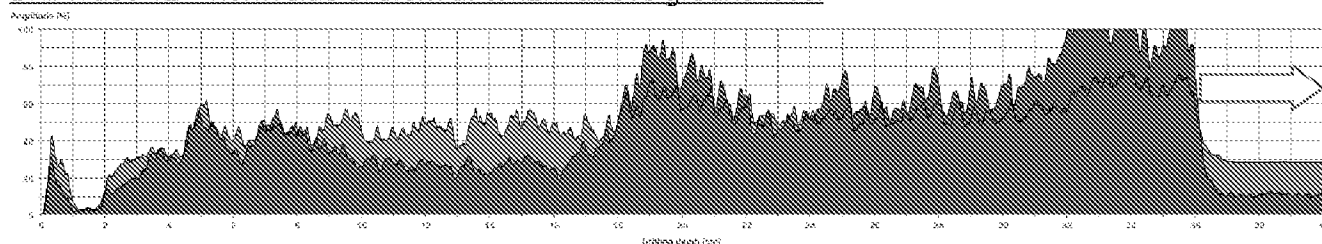
- The drill trace indicates an initial area of resistance to the drill to a depth of c.13.8cm after which it drops away suggesting incipient decay is beginning to form to a depth of c.14.2cm
- From c.14.2cm, the drill enters an area of extensive decay/hollowing through to the end of the assessment

Drill Trace 11 – north side of stem at c.1.0m above ground level



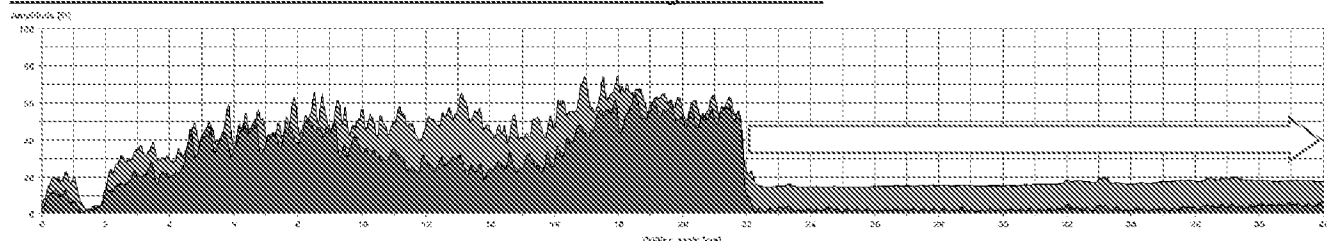
- The drill trace indicates a steady increase in resistance to the drill to a depth of c.29.8cm after which it drops away suggesting incipient decay is beginning to form to a depth of c.30.3cm
- From c.30.3cm, the drill enters an area of extensive decay/hollowing through to the end of the assessment

Drill Trace 12 – north side of stem at c.1.2m above ground level



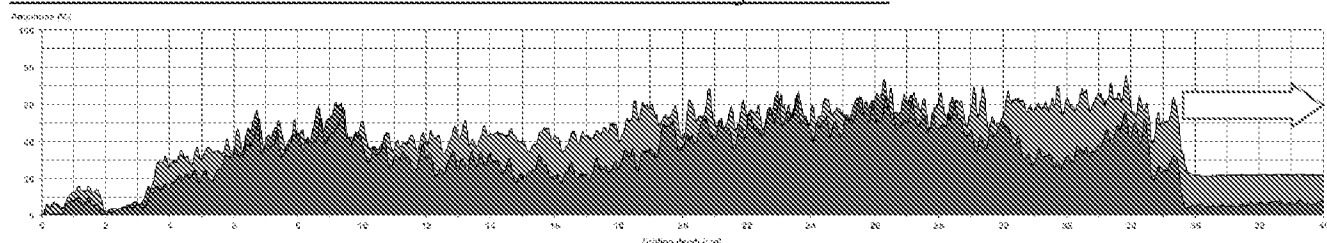
- The drill trace indicates an area of resistance to a depth of c.16cm consistent with sound wood
- From c.16cm the resistance increases markedly through to c.36cm where it drops sharply, the nature of which would suggest the drill breached a reaction zone

Drill Trace 13 – north side of stem at c.1.4m above ground level



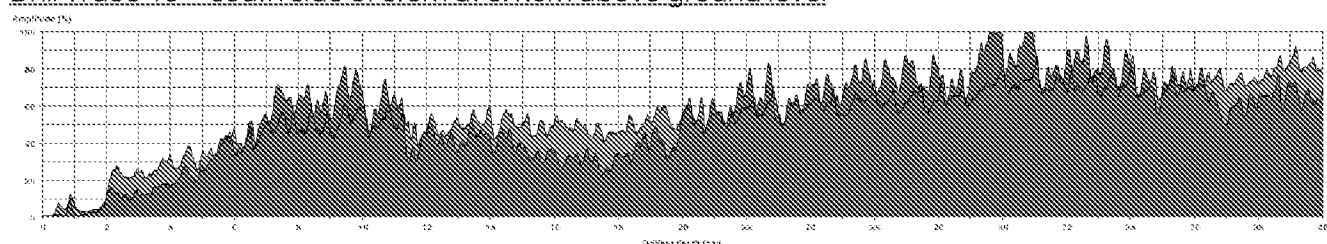
- The drill trace indicates a steady increase in resistance to the drill to a depth of c.22cm after which it drops sharply suggesting the drill breached a reaction zone
- From c.22cm, the drill enters an area of extensive decay/hollowing through to the end of the assessment

Drill Trace 14 – southwest side of stem at c.1.0m above ground level



- The drill trace indicates a steady increase in resistance to the drill to a depth of c.34.5cm after which it drops sharply suggesting incipient decay is beginning to form to a depth of c.35.8cm
- From c.35.8cm, the drill enters an area of extensive decay/hollowing through to the end of the assessment

Drill Trace 15 – south side of stem at c.1.0m above ground level



- The drill indicates a steady increase in resistance through to the end of the assessment suggesting sound wood is present

5.0 Summary of Results

T1 Field maple

- The tree is located next to a further tree which failed recently. Although no visible cause of the failure was present, *Armillaria mellea* (Honey fungus) should not be discounted due to the tree species and the method of colonisation of the fungus
- *Armillaria mellea*, a pathogenic form of the fungus attributed mainly to broadleaved trees, will colonise healthy trees via damaged roots and root-to-root contact with an early symptom being a stain/exudation. As the decay advances and cambium tissue is lost, rhizomorphs may become visible with toad stools forming during the latter stages of summer and into autumn
- When the decay is extensive, the risk of windthrow increases. In such cases, the death of the roots will usually manifest itself in the crown of the tree in the form of reduced vitality
- Although no rhizomorphs were visible at the time of the assessment and the reduced crown volume did not allow for an assessment of the tree's vitality, the loose and moribund bark could indicate the early stages of colonisation of the fungus
- The two drill traces indicate that the tree is free from any defect or dysfunction at the level of assessment
- The tree should be monitored throughout the growing season/s and the basal area checked for toad stools during the later summer/early autumn months. Any deterioration in the crown or presence of toad stools would warrant the trees removal

T2 Field maple

- The two drill traces indicate that the tree is free from any defect or dysfunction at the level of assessment
- As mentioned in T1, Field maple is a host for *Armillaria mellea* and due to the method of colonisation, the tree should be monitored throughout the growing season/s
- The basal area should be checked for toad stools during the later summer/early autumn months, any deterioration in the crown or presence of toad stools

T3 Pedunculate oak

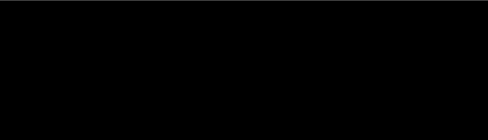
- The tomogram indicates a small area of low sonic velocity is forming within the central area of the stem, as indicated by the colour shift from brown to blue
- The two drill assessments undertaken at the level of assessment both confirm the tomogram and suggest that the current extent of decay in the base is not likely to be structurally significant
- The drill traces undertaken on the N PSS between c.1.2m and c.1.7m indicate extensive decay/hollowing is occurring

- Drill Traces 7-10 undertaken on the west side of the stem indicate that the average thickness of sound wood is c.11.5cm before the drill enters the area of decay/hollowing
- Drill Trace 11-13 indicate the thickness of the sound wood on the north side of the stem is c.29cm before the drill enters the area of decay/hollowing
- Drill Trace 14 indicates sound wood to a depth of c.34.5cm before an area of decay/hollowing is reached; Drill Trace 15 indicates sound wood is present throughout the drill depth
- Generally, the *Ganoderma* spp. of decay fungi causes a localised white rot to form. As the decay advances, the lignin is degraded fully leaving the cellulose behind; in extreme cases, the decay can result in windthrow and failure of the stem or root plate
- With the data collected, I am of the opinion that a column of decay is forming on the west side of the stem that extends up and into the north primary stem section. However, the tomogram does not suggest this extends down to the level of the assessment
- The tree has been topped previously with the new growth forming the upper crown structure. It is my recommendation that, to mitigate against the risk of the north primary stem section failing, that the tree is reduced back to the previous topping points
- The tree should then be managed as a pollard with a regular cycle of pruning being established
- I would also recommend that all three trees are reinspected in three years from the reports date
- If the tree is located within a conservation area or subject to a tree preservation order, a formal application to the local planning authority will be required and written consent obtained prior to any work is carried out

6.0 Recommendations

- Implement the recommendations in the time period specified
- Reinspect all three trees in three years' time from the reports date
- This time frame should be advanced if the trees local environment changes significantly

Signed:



Andrew Gale *Dip.Arb L6 (ABC) M.Arbor.A*

Date: 4th March 2022



7.0 Appendix 1

Survey Key

Tree No.	Relating the tree being assessed	
Species	Common name in English	
Scientific name	The current scientific name will be used	
Height	Measured using a TruPulse digital clinometer and shown in metres (m)	
Crown Spread	Measured using a TruPulse digital clinometer and shown in metres (m)	
Age Class	Young [Y]	recently planted or established within the last 5 years
	Semi Mature [SM]	a well-established youngish tree but far from full maturity
	Early Mature [EM]	long established nearing its full size but not fully mature
	Mature [M]	fully mature tree that has met its full size
	Late Mature [LM]	a fully mature tree that has passed its peak; may exhibit areas of decline
	Veteran [V]	a tree with the physical characteristics of an Ancient tree but is not ancient in years compared to other trees of the same species
	Ancient [A]	a tree that has past full maturity and is old or aged in comparison to other trees of the same species
Physiological Condition	GOOD	no significant health problems
	FAIR	some symptoms of ill health
	POOR	significant symptoms of ill health
	MORIBUND	in a serious and irreversible decline
	DEAD	not alive
Tree Structure	Main Stem	The stem, from ground level up to the point at which it bifurcates
	Primary Stem Section (PSS)	The larger stem sections that emanate from the main stem after bifurcation; form the main crown structure
	Secondary Stem Section (SSS)	The stem sections that emanate from the primary stem sections that contribute to the inner crown structure
	Tertiary Stem Section (TSS)	The stem sections that emanate from the secondary stem sections that contribute to the inner and outer crown structure
	Subordinate Branch Structure (SBS)	The smaller diameter branches that help form the inner and outer branch structure; leaf bearing twigs emanate from these to form the crown