

# **Trevor Heaps**

## **Arboricultural Consultancy Ltd.**

12 Plover Drive, Milford-on-Sea, Hampshire, SO41 0XF - Tel: 07957 763 533

Email: [trevor@trevorheaps.co.uk](mailto:trevor@trevorheaps.co.uk) • [www.trevorheaps.co.uk](http://www.trevorheaps.co.uk)



### **Resistograph Test Analysis Report**

**for**

**Frithwood Primary School, Carew Road**  
**Northwood, HA6 3NJ**

Prepared for Heritage Trees Limited

Prepared by Trevor Heaps BSc, MICFor, RC. Arbor.A.

Date: 23<sup>rd</sup> February 2023

Ref: TH 3862



 Institute of  
Chartered Foresters  
Registered Consultant

## Summary

Further to a recent visual tree assessment (VTA) of the trees at Frithwood Primary School, an Oak was found to have a large wound at its base. The Oak has been tested with a resistograph to determine the extent and significance of any decay present.

This report provides the analysis and conclusions of the tests.

To summarise, there is very little decay behind the wound and no works are required at present.

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## 1.0 Introduction

1.1 I am Trevor Heaps, Director of Trevor Heaps Arboricultural Consultancy Ltd. I hold a First-Class Honours Degree in Arboriculture; I am a Chartered Arboriculturist and a professional member of the Institute of Chartered Foresters; and I am also a Registered Consultant with the Arboricultural Association. Further information about my qualifications and experience is provided in Appendix 1.

1.2 The basic principle in Law is that a tree owner has a duty to take reasonable care to protect those reasonably likely to be affected by their trees.

1.3 Subsequently, a tree owner, or those responsible for the tree(s), must take steps to ensure they are aware of foreseeable risks that may cause harm; and they should take appropriate remedial action to protect those who are reasonably likely to be affected.

1.4 Guidance issued by the Government, the Forestry Commission and the Arboricultural Association advises that a regular tree survey is undertaken by a suitably qualified tree expert. Failure to do so may leave those responsible liable to prosecution.

1.5 Contact details:

Who	Name	Organisation	Details
Arboricultural Consultant	Trevor Heaps	THAC Ltd. 12 Plover Drive, Milford-on-Sea, Hampshire, SO41 0XF	Tel: 07957 763 533 E-mail: <a href="mailto:trevor@trevorheaps.co.uk">trevor@trevorheaps.co.uk</a>
Client		Heritage Trees Limited	
London Borough of Hillingdon - LPA	Tree Officer	Civic Centre, High Street, Uxbridge, UB8 1UW	Tel: 01895 556000 E-mail: <a href="mailto:trees@hillingdon.gov.uk">trees@hillingdon.gov.uk</a>

## 2.0 Instruction

2.1 We are instructed to carry out a resistograph test on an Oak tree.

2.2 Based on the results of the resistograph test, we are instructed to provide a report to make recommendations to manage the tree's safety.

### **3.0 Statutory tree protection**

3.1 According to the Council's website some trees within and adjacent to this site are covered by a Tree Preservation Order (TPO 150); which means that if any tree works are required (to the protected trees), an application must be made to the Council..

### **4.0 Ecological constraints**

4.1 The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) provides statutory protection to birds, bats and other species that inhabit trees. These animals could impose significant constraints on the timing of any recommended tree works. You are therefore advised to seek advice from a suitably qualified ecologist prior to the start of any tree works.

### **5.0 Site visit**

5.1 I visited the site to inspect and test the tree on the 21<sup>st</sup> February 2023. It was dry and visibility was good.

5.2 My general assessment of the tree is based on a technique called Visual Tree Assessment (VTA) in which growth features on trees (body language) are used to interpret internal defects and to assist the assessment of the likelihood of failure.

5.3 In addition to a VTA, I used an IML Resistograph (PD400) on the stem at 500 mm above ground level in the four cardinal locations around the tree to determine if there was any decay present within the lower stem. A control test was also carried out to get a base reading (at 2m above ground level on the southern side).

5.4 The drill graph readings for these assessments are provided at Appendix 2.

## 6.0 Observations

### 6.1 Tree Details (Oak T1)

- Species: English Oak (*Quercus robur*)
- Height: (estimated) 16 metres
- Crown spread radius:(estimated) 8m.
- Diameter of stem at 1.5m (measured): 1070 mm.
- Age class: Mature
- Physiological condition: Normal
- Structural condition: Fair
- Target (land use within fall radius of tree): Adjacent to a playground
- Target value: High

Photo 1. Looking west at Oak T1



#### 6.4 General observations

6.5 The Oak is growing at the northern end of the school, at the northern end of the playground. The tree has been pruned before and has a large wound on the western side of its base.

6.6 It appears to me, from the shape and location of the wound, that it was caused by historic bonfire damage.

6.7 The edges of the wound are sealing well. The exposed heartwood sounded reasonably solid when tapped.

#### 7.0 Appraisal

7.1 The resistograph test for Oak T1 revealed very little degradation within the stem. The only decay was noted to either side of the wound, behind the reaction wood.

The amount of sound wood was measured as follows:

Northern side – 400 mm

North-eastern side – 400 mm

Eastern side – 400 mm

South-eastern side – 400 mm

Southern side – 400 mm

South-western side – 150 mm

Western side – 400 mm

North-western side – 150 mm

7.2 Research by Mattheck & Broeler (1995) suggests that where the thickness of any residual sound wall (t) falls below 1/3rd of the stem radius (R) then there exists a strong likelihood of breakage and collapse.

- $t = 400$
- $D = 1070$ , so  $R = 535$ .
- One third of  $R = 178\text{mm}$

7.3 The tree therefore has enough sound wood around the column of decay to support it

## **8.0 Recommendations**

8.1 Oaks have a very strong heartwood and there is very little (if any) decay present.

8.2 I am satisfied that, as long as the tree is re-inspected on a cyclical basis (every 2-3 years), it can be retained without any further intervention.

8.3 It may be prudent to re-prune the tree's crown in the future, but this is not considered necessary at present.

8.4 It may also be prudent to re-test the tree again in 5-10 years' time to check for any progression in the decay.

## **9.0 Signature**

9.1 This report represents a true and factual account of a Resistograph Test carried out at Frithwood Primary School.

**Signed**

A handwritten signature in black ink, appearing to be 'TH', with a large loop at the end.

**Trevor Heaps**

Chartered Arboriculturist

**BSc (Hons), MArborA, MICFor.**

**Dated** 23<sup>rd</sup> February 2023



## **Appendix 1 - Professional résumé**

I am Trevor Heaps, director of Trevor Heaps Arboricultural Consultancy Ltd. I am a Chartered Arboriculturist, a Professional Member of the Arboricultural Association (AA) and hold a First-Class Honours Degree in Arboriculture.

### **Professional training**

- Arboriculture and Bats: Scoping Surveys for Arborists (BCT & AA) – October 2017
- Tree Science (AA) – June 2016
- OPM (Oak Processionary Moth) Training (FC) – May 2016
- Visual Tree Assessment (Arboricultural Association) - October 2015
- Trees and the Law (Dr Charles Mynors) - June 2015
- Mortgage (Home Buyers) Report Writing (LANTRA / CAS) - February 2015
- Tree Preservation Orders - effective application (LANTRA / CAS) - November 2014
- Professional Tree Inspection 3-day course (LANTRA / AA) - July 2014
- Arboricultural Consultancy Course (AA) - May 2014
- Further down the subsidence trail 1-day course (AA) - April 2013
- Getting to grips with subsidence 1-day course (AA) - November 2012

AA – Arboricultural Association

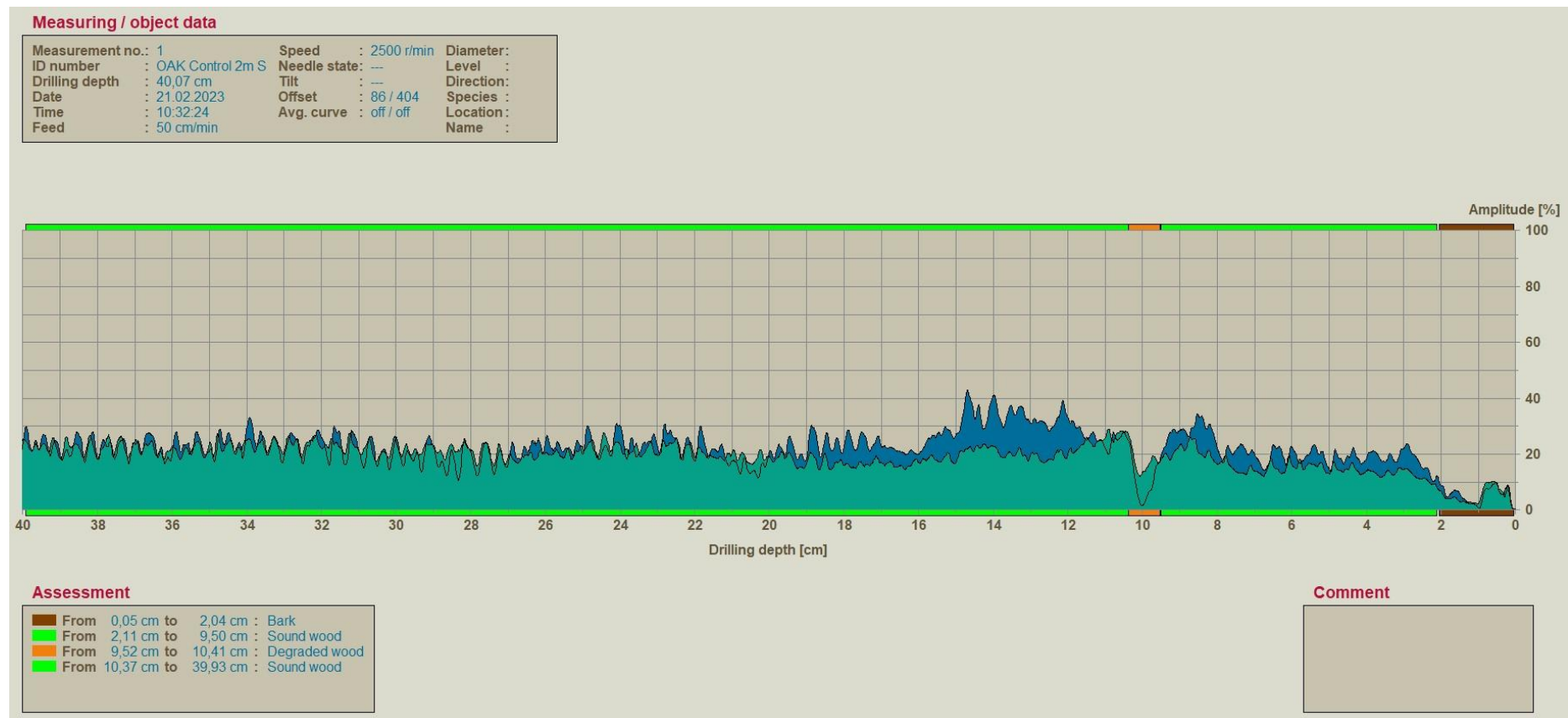
BCT – Bat Conservation Trust

CAS – Consulting Arborist Society

FC – Forestry Commission

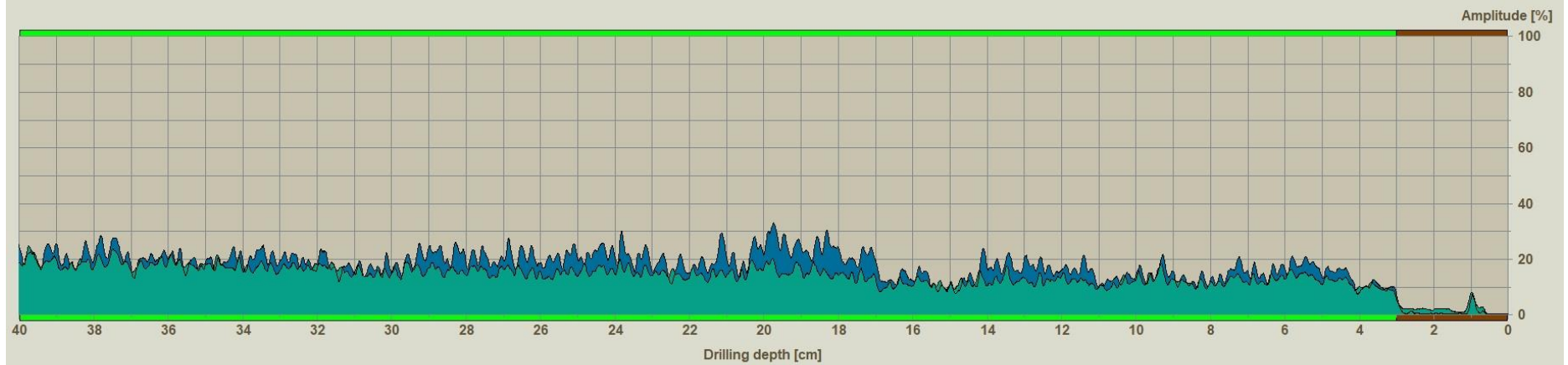
## Appendix 2 – Resistograph readings

**1ML Resi PD400 drill test results** (Note – with ALL tests the outer edge of the tree is on the right hand side of the graph)  
The direction and height of each drilling is shown on the table (upper left of diagram)



### Measuring / object data

Measurement no.:	2	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 500mm N	Needle state:	---	Level	:
Drilling depth	: 40,06 cm	Tilt	: ---	Direction:	
Date	: 21.02.2023	Offset	: 84 / 310	Species	:
Time	: 10:34:46	Avg. curve	: off / off	Location:	
Feed	: 50 cm/min			Name	:



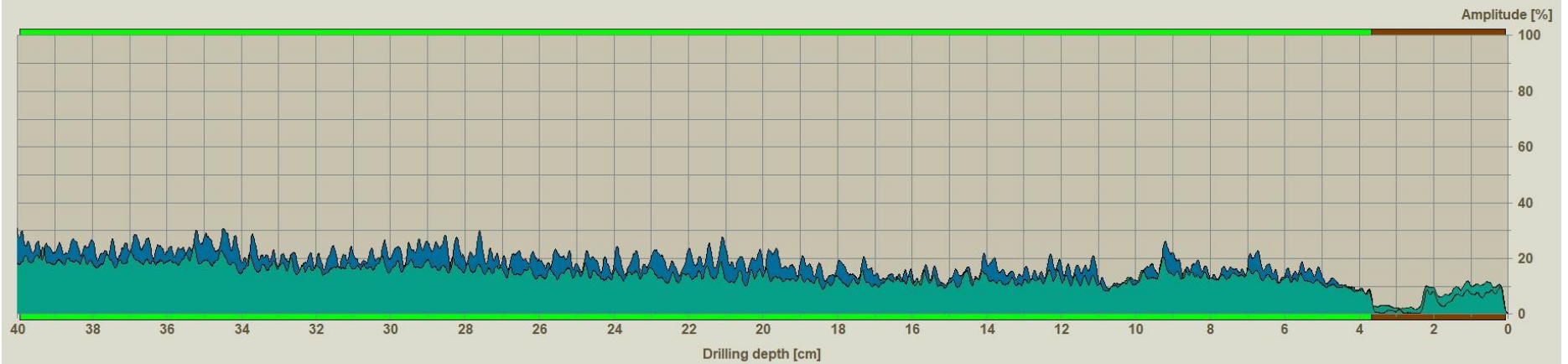
### Assessment

From 0,02 cm to 3,00 cm	: Bark
From 3,00 cm to 39,98 cm	: Sound wood

### Comment

### Measuring / object data

Measurement no.:	3	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 50mm NE	Needle state:	---	Level	:
Drilling depth	: 40,04 cm	Tilt	: ---	Direction:	
Date	: 21.02.2023	Offset	: 79 / 288	Species	:
Time	: 10:36:13	Avg. curve	: off / off	Location	:
Feed	: 50 cm/min	Name	:		



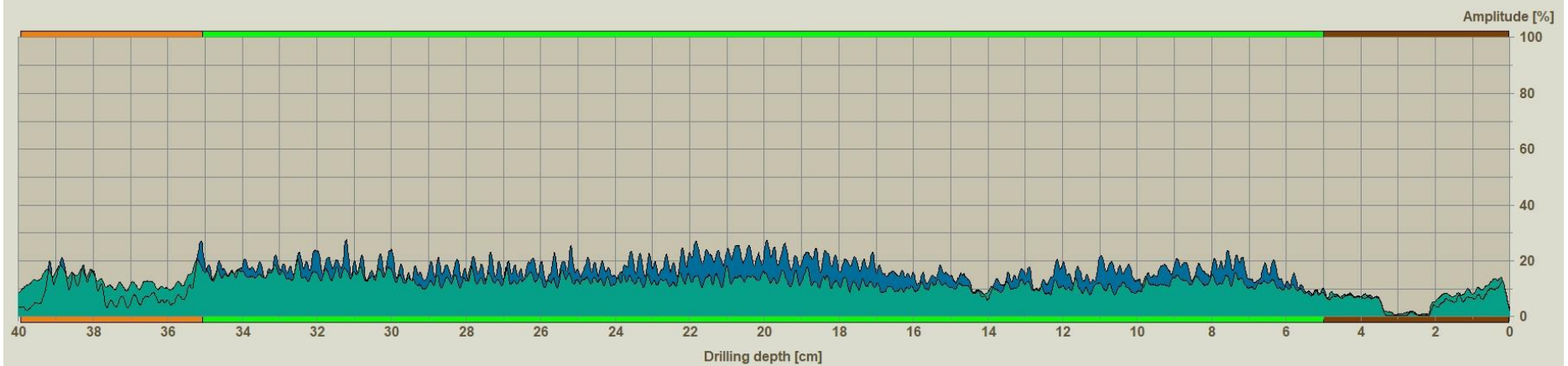
### Assessment

From 0,07 cm to	3,68 cm	: Bark
From 3,68 cm to	39,95 cm	: Sound wood

### Comment

### Measuring / object data

Measurement no.:	4	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 500mm E	Needle state:	---	Level	:
Drilling depth	: 40,02 cm	Tilt	: ---	Direction:	
Date	: 21.02.2023	Offset	: 79 / 361	Species	:
Time	: 10:37:30	Avg. curve	: off / off	Location:	
Feed	: 50 cm/min	Name	:		



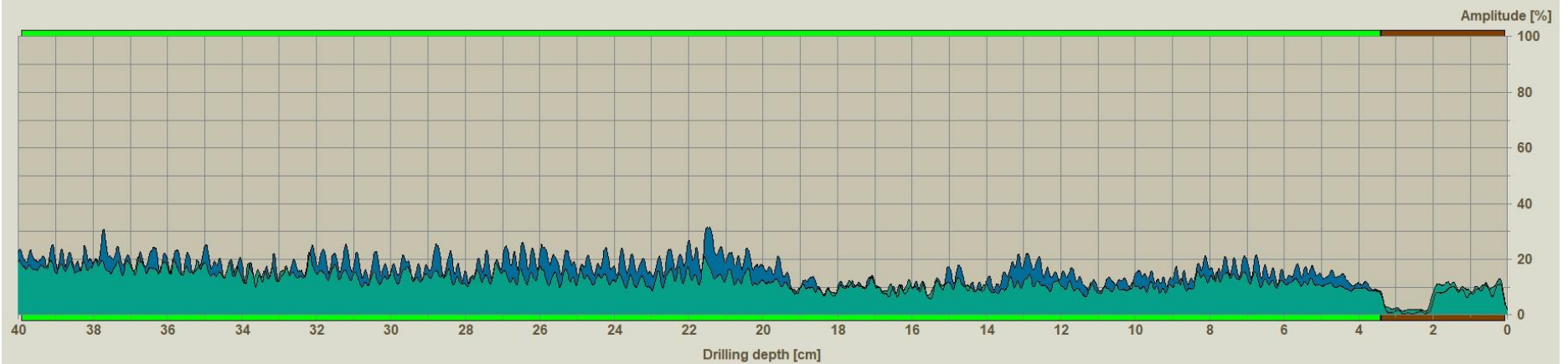
### Assessment

From	0,02 cm to	4,99 cm	: Bark
From	4,99 cm to	35,10 cm	: Sound wood
From	35,08 cm to	39,95 cm	: Degraded wood

### Comment

### Measuring / object data

Measurement no.:	5	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 500mm SE	Needle state:	---	Level	:
Drilling depth	: 40.03 cm	Tilt	:	Direction	:
Date	: 21.02.2023	Offset	: 77 / 344	Species	:
Time	: 10:38:54	Avg. curve	: off / off	Location	:
Feed	: 50 cm/min	Name	:		



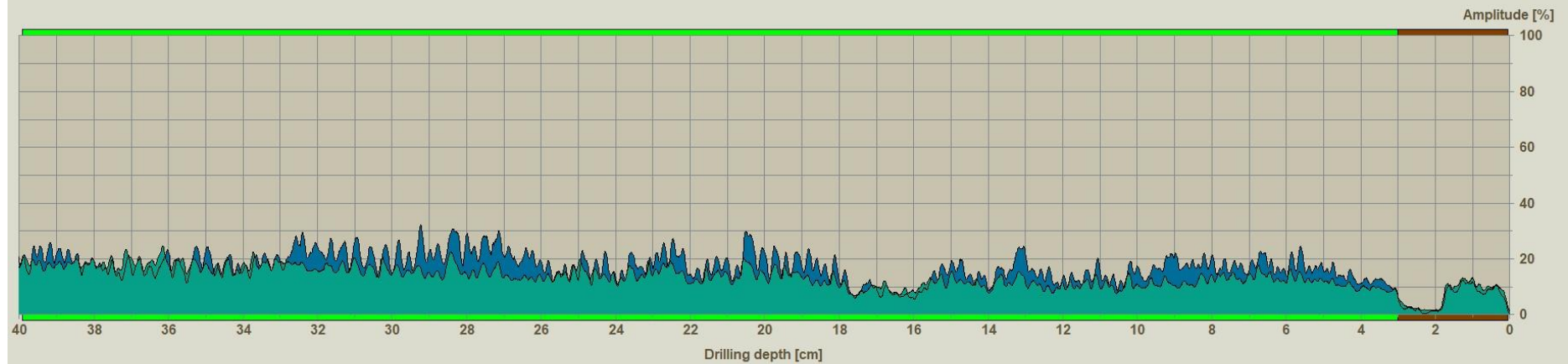
### Assessment

From 0,09 cm to 3,39 cm :	Bark
From 3,41 cm to 39,93 cm :	Sound wood

### Comment

### Measuring / object data

Measurement no.:	6	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 500mm S	Needle state:	---	Level	:
Drilling depth	: 40,06 cm	Tilt	: ---	Direction:	
Date	: 21.02.2023	Offset	: 78 / 345	Species	:
Time	: 10:40:13	Avg. curve	: off / off	Location:	
Feed	: 50 cm/min			Name	:



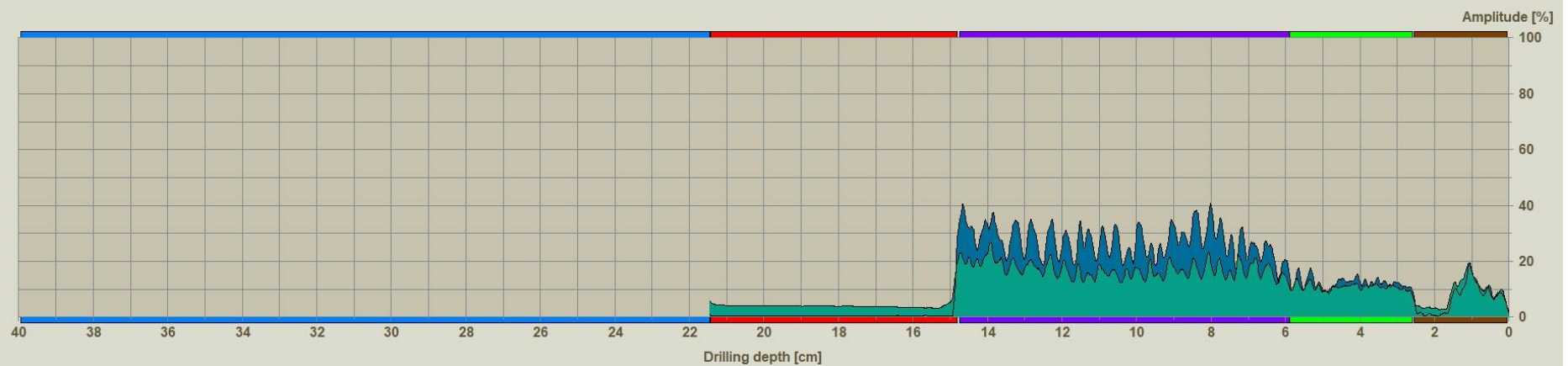
### Assessment

From 0,05 cm to 3,00 cm	: Bark
From 3,02 cm to 39,91 cm	: Sound wood

### Comment

### Measuring / object data

Measurement no.:	7	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 500mm SW	Needle state:	---	Level	:
Drilling depth	: 21,46 cm	Tilt	---	Direction:	
Date	: 21.02.2023	Offset	: 76 / 351	Species	:
Time	: 10:41:35	Avg. curve	: off / off	Location:	
Feed	: 50 cm/min	Name	:		



### Assessment

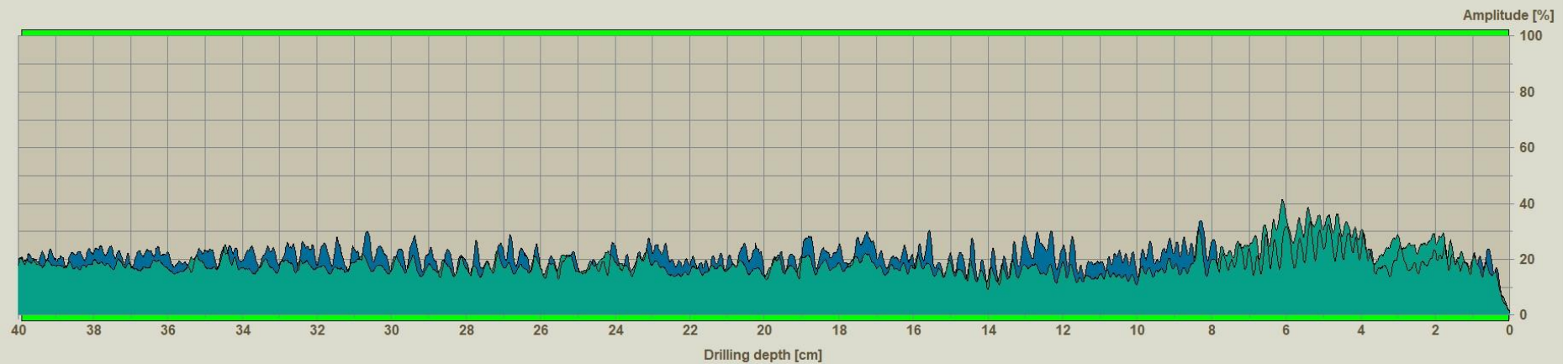
From 0,05 cm to 2,56 cm	: Bark
From 2,59 cm to 5,93 cm	: Sound wood
From 5,90 cm to 14,74 cm	: Reaction wood
From 14,81 cm to 21,42 cm	: Cavity
From 21,46 cm to 39,95 cm	: Needle exit

### Comment



### Measuring / object data

Measurement no.:	8	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 500mm W	Needle state:	---	Level	:
Drilling depth	: 40,04 cm	Tilt	: ---	Direction:	
Date	: 21.02.2023	Offset	: 79 / 371	Species	:
Time	: 10:42:50	Avg. curve	: off / off	Location:	
Feed	: 50 cm/min	Name	:		



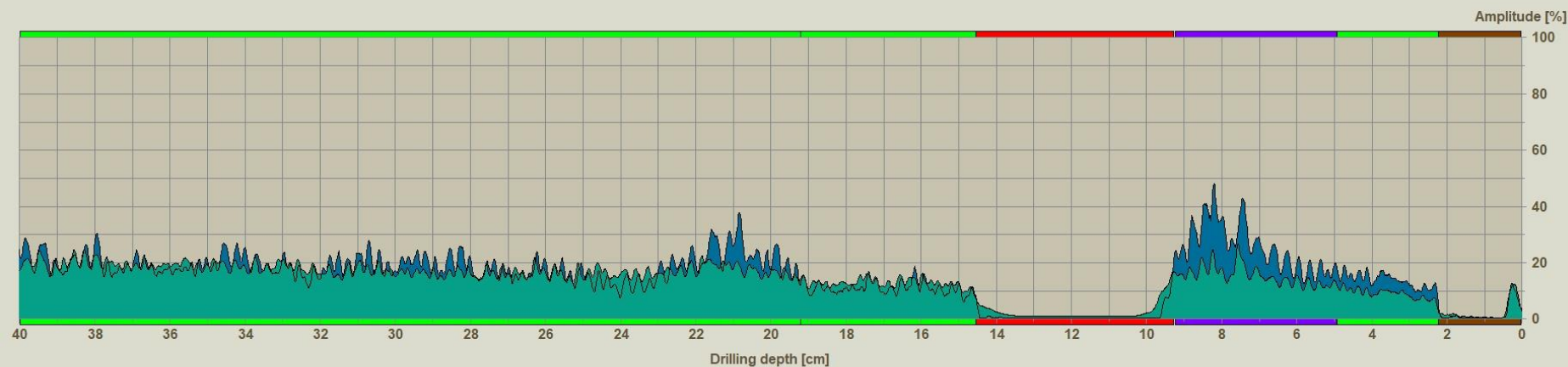
### Assessment

From 0,02 cm to 39,93 cm : Sound wood

### Comment

### Measuring / object data

Measurement no.:	9	Speed	: 2500 r/min	Diameter:	
ID number	: OAK 500mm NW	Needle state:	---	Level	:
Drilling depth	: 40.04 cm	Tilt	---	Direction:	
Date	: 21.02.2023	Offset	: 80 / 474	Species	:
Time	: 10.44:16	Avg. curve	: off / off	Location:	
Feed	: 50 cm/min	Name	:		



### Assessment

From	0,02 cm	to	2,22 cm	:	Bark
From	2,24 cm	to	4,94 cm	:	Sound wood
From	4,92 cm	to	9,24 cm	:	Reaction wood
From	9,27 cm	to	14,55 cm	:	Cavity
From	14,55 cm	to	19,20 cm	:	Sound wood
From	19,20 cm	to	40,00 cm	:	Sound wood

### Comment