Simon Pryce Arboriculture

Report

Client:	**Mr Tony Herbert**
Site:	**9 North End, London, NW3 7HH**
Subject:	**Safety inspection of copper beech**
Inspection dates:	**6 September 2017**
Report date:	**15 September 107**
Reference:	**17/069**
Author:	**Simon Pryce, BSc, FArborA, RCArborA, CBiol, MICFor**

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1 Introduction

1.1 This report has been prepared for Mr Tony Herbert of 129 North End, London, NW3 7HH.

1.2 I have been asked to inspect a mature copper beech growing in the rear garden, to assess its condition and to recommend any necessary or appropriate work. This was prompted by the appearance of a large bracket fungus on the trunk, shown in photo 1.

1.3 This report is based on a site visit on 5 September 2017, when the tree was inspected visually and the lower trunk test drilled for evidence of decay. That was followed on 6 September by climbing it to make a closer inspection of the bracket fungus growing on the trunk and to probe and test drill that area.

1.4 The tree was test drilled with an IML Resistograph, a purpose built instrument that measures and plots the resistance of the timber to a 50cm long, fine diameter drilling needle, which enables an accurate picture of the tree's internal condition can be gained. The charts are attached and are discussed below.

2 The tree

2.1 The tree is a mature copper beech growing in the north west corner of the rear garden (far left as seen from the house). This is next to the boundary with no.3 Parfitt Close to the rear while on the far side of the narrow road into the close is the car park of the Old Bull and Bush pub on North End.

2.2 The tree is approximately 24m high and has a single vertical trunk about 1.08m in diameter. It has a clear trunk with the first branches starting at about 8m. The crown is a broad dome, typical of mature beeches, with radial spread of 8 - 10m.

Crown condition

2.3 The foliage is unevenly distributed, very sparse in places and the branch ends are dying back, particularly on the north and west sides where it overhangs the pub car park. Some of the large branches have died completely, probably some time ago, as they are losing bark. At a rough estimate the tree has less than 30% of the foliage cover that would be expected in a fully healthy tree. (photo 2)

2.4 The tree has produced a fairly heavy crop of seed pods this year.

Previous work

2.5 There is a large old wound between about 1.5 and 2.5m on the west side of the trunk. It must have been larger when it was made, but is being occluded by younger growth, mainly from the sides.

2.6 There are old wounds higher on the trunk where lower branches have been removed in the past. A set of small pruning cuts at about 3m have been sealed completely by callus growth round the edges and the expansion of the trunk. However there is a second cluster at about 6m, which are not particularly large but some are still open. Above that where the main branches start there are several larger cuts where branches up to about 200mm diameter have been removed more recently and have no appreciable callus growth round the edges.

2.7 The tree's crown has been thinned in the past, which has retained a natural shape and avoided making large cuts, but removed much of the inner foliage.

3 Observations

Climbed inspection

3.1 The bracket fungus that caused the initial concern is growing on the north east side of the trunk on an old pruning cut at about 6m and is *Ganoderma applanatum*, a widespread species that causes decay in beech and various other broadleaved trees. The bracket is about 300mm across and woody, with the typical semi circular shape of this species, and has a pale margin indicating that it is growing actively. *Ganoderma* brackets are perennial and this one is growing beneath the remains of other smaller ones, which date back at least five years.

3.2 Just above the bracket is an open horizontal wound that has partly callused, but has visible decay and white fungal tissue within it. This looks like marshmallow and it was possible to push a blunt steel probe 400mm long into it for the full depth with little effort. (photo 2)

3.3 There is also an immature *Ganoderma* bracket starting to appear in a small cut 2m - 2.5m higher up the trunk on the same side and it was possible to insert the probe about 250mm into the decayed material with little effort.

Test drilling

3.4 The individual reading charts are attached with notes and are discussed below. The instrument takes separate readings of the resistance of the timber to the rotation of the drill (drilling curve) shown as a single black line, and of the linear resistance to penetration (feed curve), shown as a filled blue line. Of these the solid blue feed curve is the more important as it measures any decay directly. The drill is flexible and, if it encounters a large cavity it can be damaged or can change direction when it gets to sound wood at the far side of the cavity, leading to misleading results. In order to avoid that it stops and retracts automatically once it reaches sound wood on the far side.

Readings 1 & 2

3.5 Test drilling the large wound on the west side of the lower trunk confirmed that the decay there is localised and structurally significant, although it is at the base where the leverage from the tree's weight and wind pressure on it are highest.

Readings 3 - 5

3.6 The tree was test drilled in three locations at about 6m, once each side of the bracket and slightly higher, and once just below it. The decay below the bracket was not quite as severe as at each side, but in all three locations there was a thin shell of sound wood 40 - 120mm thick over decay that extended for the full 500mm depth of the drill, i.e. well past the centre of the trunk.

4 Discussion

Physiological health

4.1 The tree has very sparse foliage and is dying back extensively. The heavy seed production can also be a sign that trees are declining. Unlike many other species beeches have a limited ability to recover from this kind of setback, especially when mature, and this one is beyond any of the remedial options that might benefit other, younger trees, such as soil aeration or fertilising. Even without the decay it would be unlikely to survive more than another growing season before either dying completely or becoming too disfigured to be worth retaining.

Structural condition

4.2 The wound at the base of the trunk is large and has been present for some time, but is being occluded and test drilling found that the decay is localised and not enough to weaken it significantly.

4.3 However the decay higher in the trunk is a far more serious problem. Brackets are the fruiting bodies of the fungus and not usually produced until it has been decaying the timber for a long time, sometimes many years. *Ganoderma* brackets are perennial, they last from year to year, and the large one on this tree has been growing progressively for at least five years. The probing and test drilling confirm that the decay at this level is severe and advanced.

4.4 The weakest point is at about 6m, level with the *Ganoderma* bracket, where there is a sizeable horizontal wound as well as the internal decay extending well beyond the centre of the trunk, which has been weakened considerably.

Tree work

4.5 Given the tree's size and location any structural failure or shedding of any of the larger dead branches would cause considerable harm. In some cases crown reduction can reduce the mechanical load on the decayed area, but beeches do not tolerate reduction even when healthy, so that would not be viable here and the only viable option is to fell the tree without undue delay.

4.6 Camden Council's web site shows that the garden is in Hampstead Conservation Area and I gather that the tree is also protected by a tree preservation order (TPO), so any work would normally need consent from Camden Council. However this one's condition is such that it can be removed under the exemption in Regulation 14 of the 2012 TPO regulations, which allows any work necessary to remove an immediate risk of major harm. In such cases the council should be given five days notice unless it is an emergency.

5 Conclusions

5.1 The tree has sparse foliage and extensive die back in the crown indicating decline, which is irreversible and beyond any remedial measures.

5.2 The large wound on the lower trunk is in reasonable condition, but there is extensive severe decay in the upper trunk, which has been weakened considerably.

5.3 Shedding any dead branches or a major failure due to the decay would inevitably cause major damage and the only viable option is to fell the tree.

5.4 The tree is protected but its condition and potential for damage exempt it from the usual need to obtain consent.

Simon Pryce

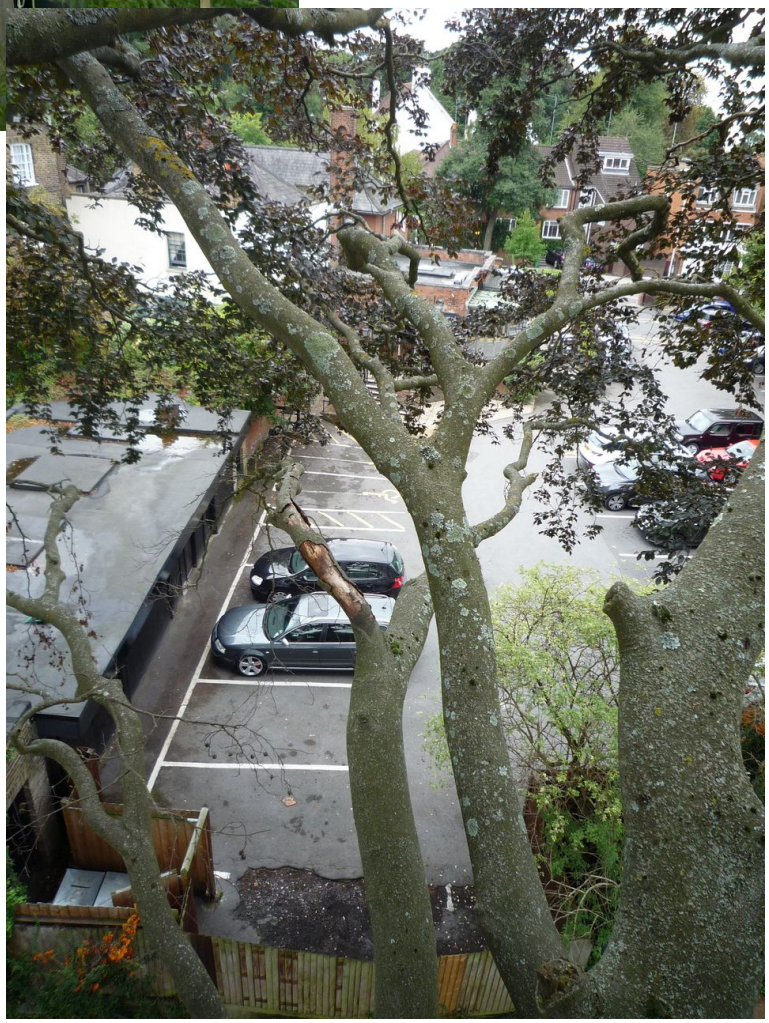
Simon Pryce, BSc, FArborA, RCArborA, CBiol, MICFor

Reference

1) HMSO (2012) Statutory Instrument 2012 no.605. The Town and Country Planning (Tree Preservation)(England) Regulations 2012

Photographs

1) Tree from the garden showing the white fungal bracket at 6m, with the red arrow showing the cavity where the other bracket is growing. Sparse and dying foliage is also apparent.



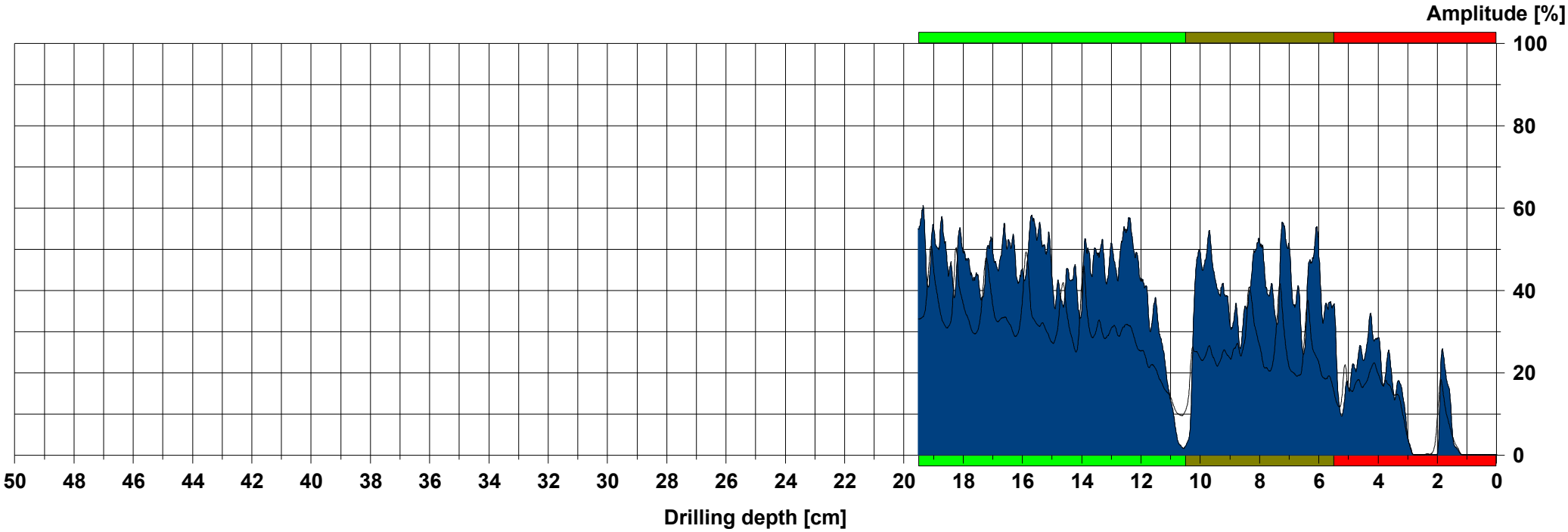
2) View in the crown showing sparse foliage and major dead branches.

3) Ganoderma bracket at 6m, below smaller, older brackets. Note large open wound and the end of a 400mm long probe with orange loop.

View down the trunk, red arrow shows smaller bracket about 2.5m above the larger one visible below.

Measuring / object data

Measurement no.	1	**Needle speed**	2500 r/min	**Diameter**	108,0 cm
ID number	17/069	**Needle state**	---	**Level**	180,0 cm
Drilling depth	19,51 cm	**Tilt**	---	**Direction**	SW
Date	05.09.2017	**Offset**	63/261	**Species**	Copper beech
Time	12:21:21	**Avg. curve**	off	**Location**	9 North End
Feed speed	50 cm/min			**Name**	Herbert



Assessment

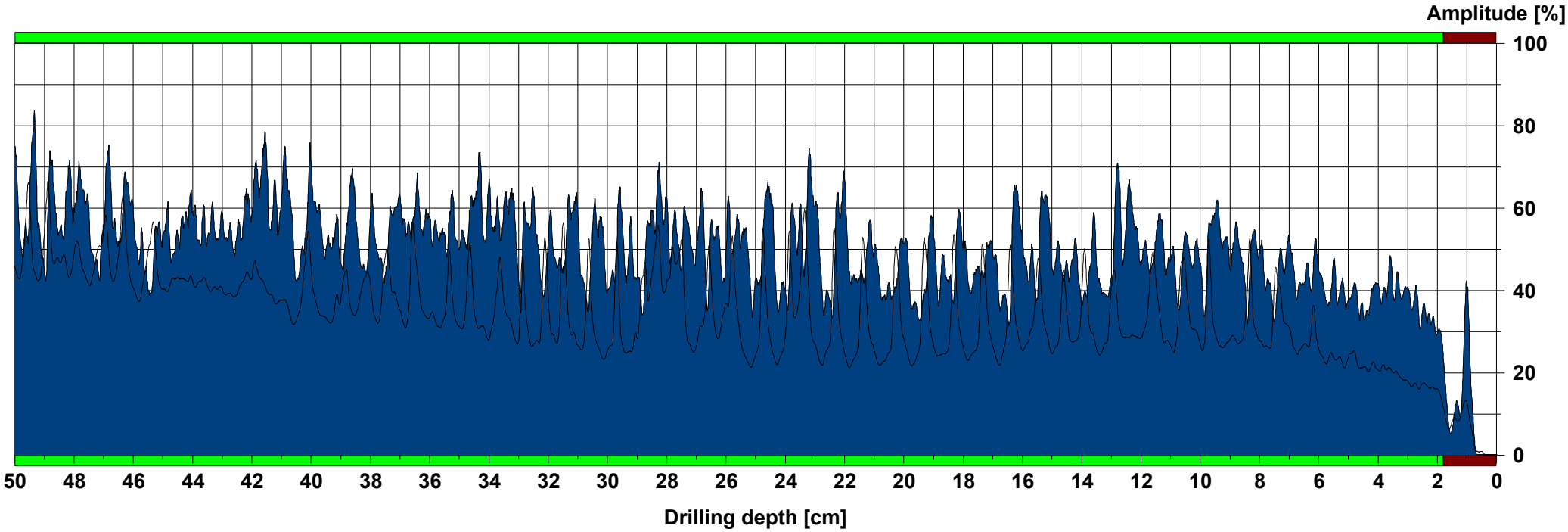
From	0,0 cm	**to**	5,5 cm	:	Decay
From	5,5 cm	**to**	10,5 cm	:	Suspected decay
From	10,5 cm	**to**	19,5 cm	:	Sound wood
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	

Comment

From SW into cavity. Some decay but is localised with sound wood beyond. Drill stopped at 19.5 due to high resistance. Serrated pattern is due to the grain texture and indicates sound wood

Measuring / object data

Measurement no.	2	**Needle speed**	2500 r/min	**Diameter**	108,0 cm
ID number	17/069	**Needle state**	---	**Level**	180,0 cm
Drilling depth	50,00 cm	**Tilt**	---	**Direction**	From NE
Date	05.09.2017	**Offset**	66/267	**Species**	Copper beech
Time	12:16:44	**Avg. curve**	off	**Location**	9 North End
Feed speed	50 cm/min			**Name**	Herbert



Assessment

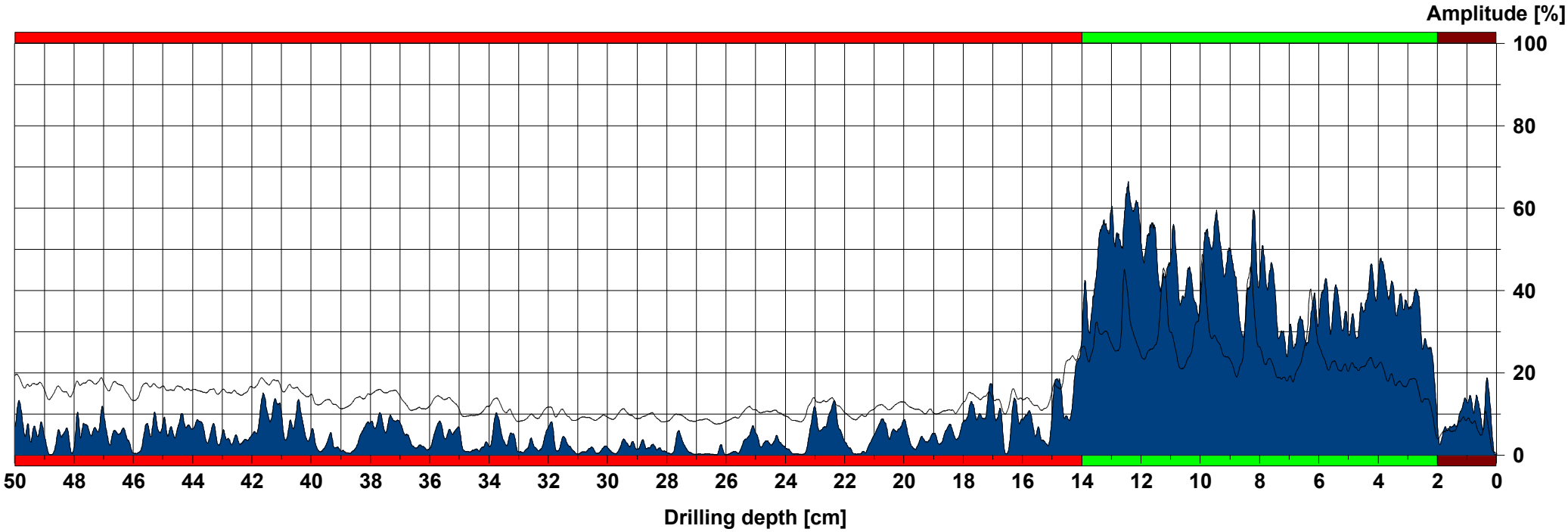
From	0,0 cm	**to**	1,8 cm	:	Bark
From	1,8 cm	**to**	50,0 cm	:	Sound wood
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	

Comment

From NW across the rear of the wound. No internal decay detected

Measuring / object data

Measurement no.	3	**Needle speed**	2500 r/min	**Diameter**	80,0 cm
ID number	17/069	**Needle state**	---	**Level**	640,0 cm
Drilling depth	50,00 cm	**Tilt**	---	**Direction**	NE
Date	06.09.2017	**Offset**	72/290	**Species**	Copper beech
Time	12:23:30	**Avg. curve**	off	**Location**	9 North End
Feed speed	50 cm/min			**Name**	Herbert



Assessment

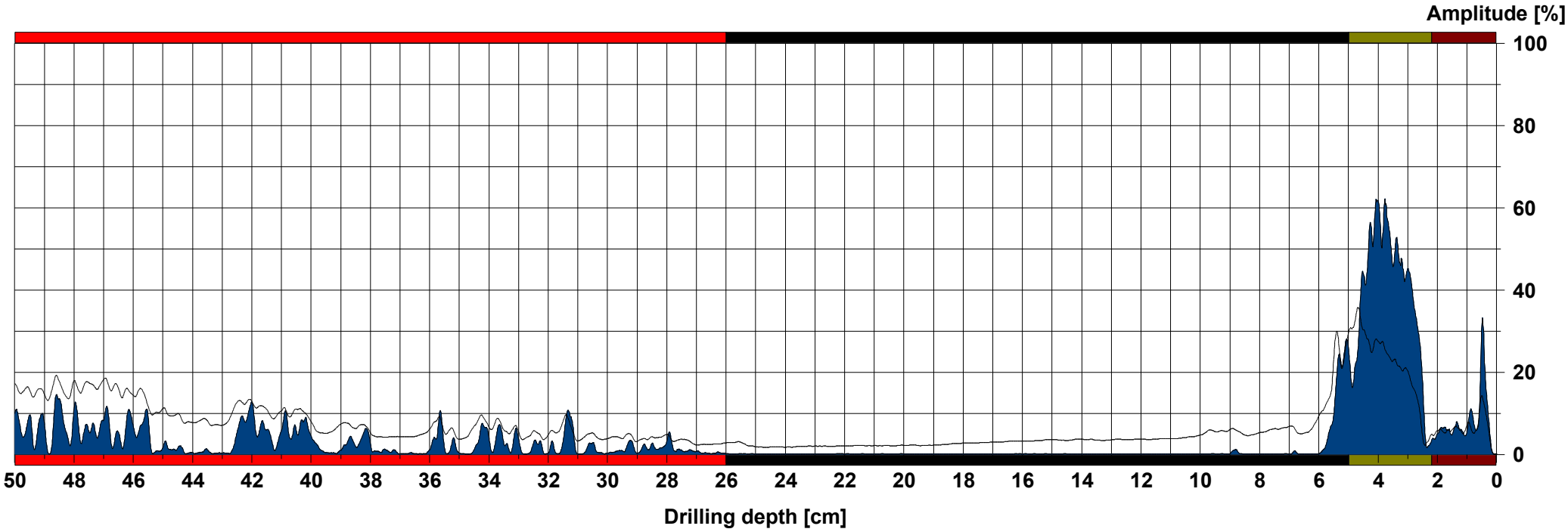
From	0,0 cm	**to**	2,0 cm	:	Bark
From	2,0 cm	**to**	14,0 cm	:	Sound wood
From	14,0 cm	**to**	50,0 cm	:	Decay
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	

Comment

From NE above and left of bracket. Thin shell of sound wood over very severe decay extending well beyond the centre of the tree

Measuring / object data

Measurement no.	: 4	**Needle speed**	: 2500 r/min	**Diameter**	: 80,0 cm
ID number	: 17/069	**Needle state**	: ---	**Level**	: 640,0 cm
Drilling depth	: 50,00 cm	**Tilt**	: ---	**Direction**	:
Date	: 06.09.2017	**Offset**	: 68/269	**Species**	: Copper beech
Time	: 12:25:50	**Avg. curve**	: off	**Location**	: 9 North End
Feed speed	: 50 cm/min			**Name**	: Herbert



Assessment

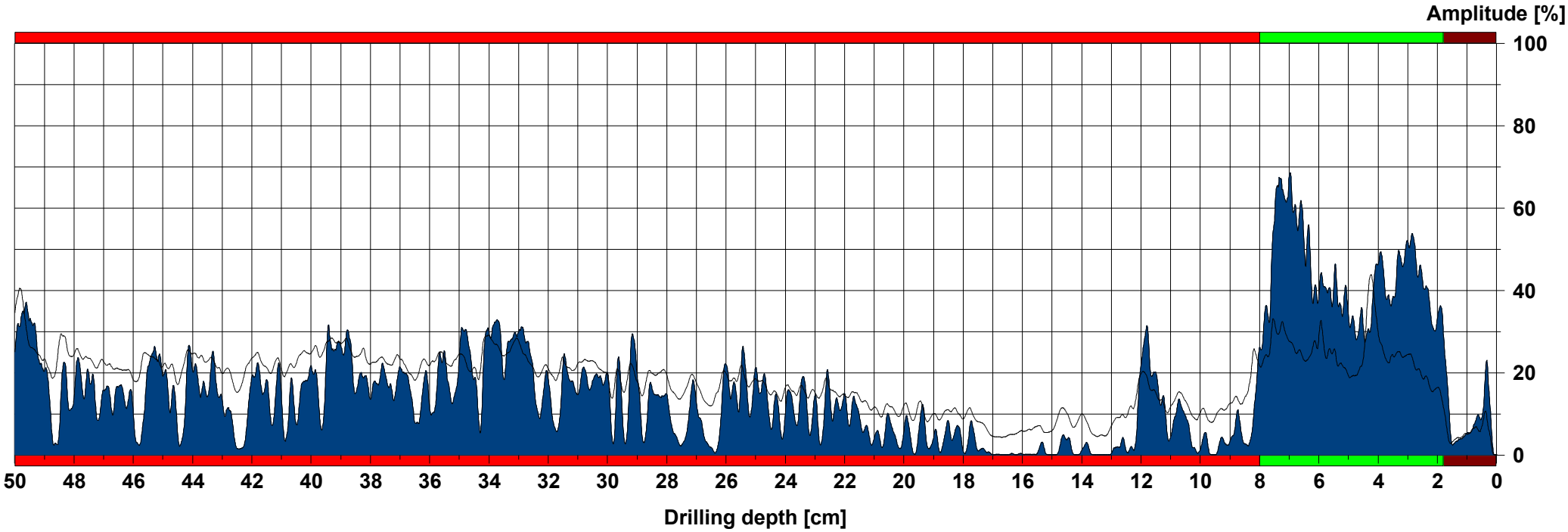
From	0,0 cm	**to**	2,2 cm	:	Bark
From	2,2 cm	**to**	5,0 cm	:	Suspected decay
From	5,0 cm	**to**	26,0 cm	:	Cavity
From	26,0 cm	**to**	50,0 cm	:	Decay
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	

Comment

NE above and right of bracket. Thin shell of wood over cavity or very advanced decay

Measuring / object data

Measurement no.	5	**Needle speed**	2500 r/min	**Diameter**	80,0 cm
ID number	17/069	**Needle state**	---	**Level**	560,0 cm
Drilling depth	50,00 cm	**Tilt**	---	**Direction**	NE
Date	06.09.2017	**Offset**	64/263	**Species**	Copper beech
Time	12:29:13	**Avg. curve**	off	**Location**	9 North End
Feed speed	50 cm/min			**Name**	Herbert



Assessment

From	0,0 cm	**to**	1,8 cm	:	Bark
From	1,8 cm	**to**	8,0 cm	:	Sound wood
From	8,0 cm	**to**	50,0 cm	:	Decay
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	
From	0,0 cm	**to**	0,0 cm	:	

Comment

From NE below the bracket. Decay not quite as severe as level with the bracket, but still extends beyond the centre of the trunk and there is no significant strength left in the affected timber