

Arbotom[®] Sonic Tomography Report

Client:	Blackcap Contracts
Tree Species:	Oak <i>Quercus sp.</i>
Location:	14 Hill House Close, Turners Hill
Tree number:	N/a
Test date:	21st July 2025
North at Measuring Point:	1
Tomography level at height (cm):	25

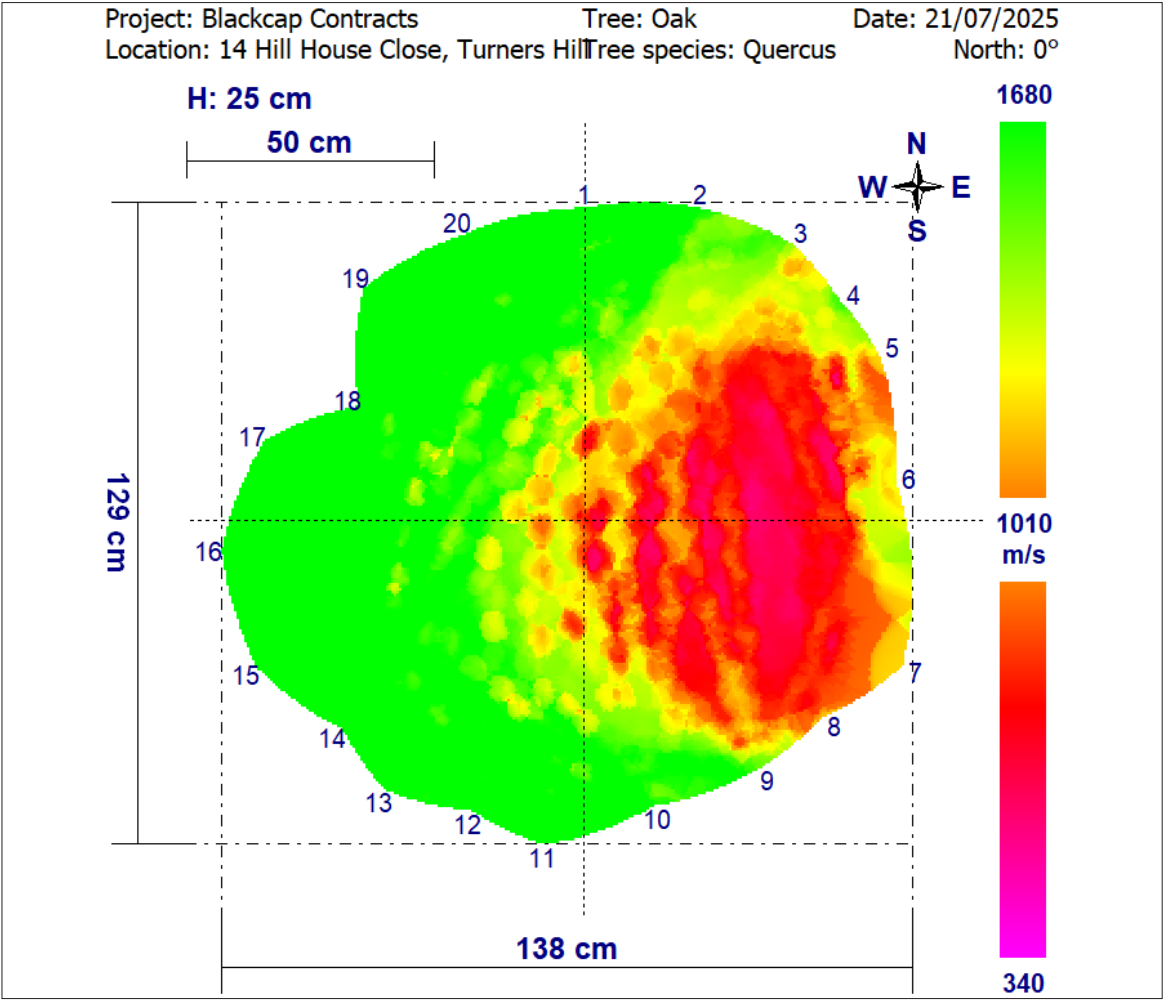


Figure 1. Tomogram - Figures around the circumference indicate each measuring point.



Figure 2. East side of trunk - sensors indicate height of test.



Figure 3. West side of trunk - sensors indicate height of test.

Comments

The tomogram (Figure 1) indicates that there is a eccentric column of advanced decay and/or hollowing (coloured purple and red) on the eastern side of the trunk at this height. The decay appears to extend out to the bark between sensor 5 and 9. Fruiting bodies, consistent with those of the fungus *Ganoderma sp.*, were observed at the base on the north-northeast, east and southeast. It is likely that this fungus is the primary causal agent of the decay.

There appear to be small, fragmentary zones of decay on the periphery of the main decay column, particularly towards the centre of the trunk. This is likely to indicate that the decay is not yet compartmentalised and has the potential to progress further.

A Resistograph drill was used to measure the integrity of the wood at sensors 6 & 16 (pages 5 & 6). These measurements corroborate the results of the tomography.

The software that accompanies the Arbotom equipment calculated the strength loss associated with the decay to be approximately 26% at this height (Figure 4 - Page 3).

The tree which forms the subject of this report currently demonstrates moderate vitality, indicating that its potential to compartmentalise decay and continue to develop compensatory growth may be reduced.

Specialist online software 'TreeCalc' was used to evaluate the fracture stability of the trunk. The estimated safety factor for stem fracture (based on the degree of strength loss computed in the Arbotom software) was calculated to be approximately 7.2 at this height. This exceeds the desired minimum threshold of 1.5. On this basis no remedial works are required at present to improve the fracture stability of the main stem at this height. However, significant decay was observed on the south-southeast, below the height of the test. The current investigation is not able to assess the stability of the trunk and root plate below the height that the test was undertaken. Therefore, it would be prudent to either reduce the height of the tree by approximately 1.5-2m or consider removing it.

It is recommended that, if the tree is retained, it should be inspected visually annually. Sonic tomography testing of the main trunk should be repeated within two years to check that the situation has not deteriorated.

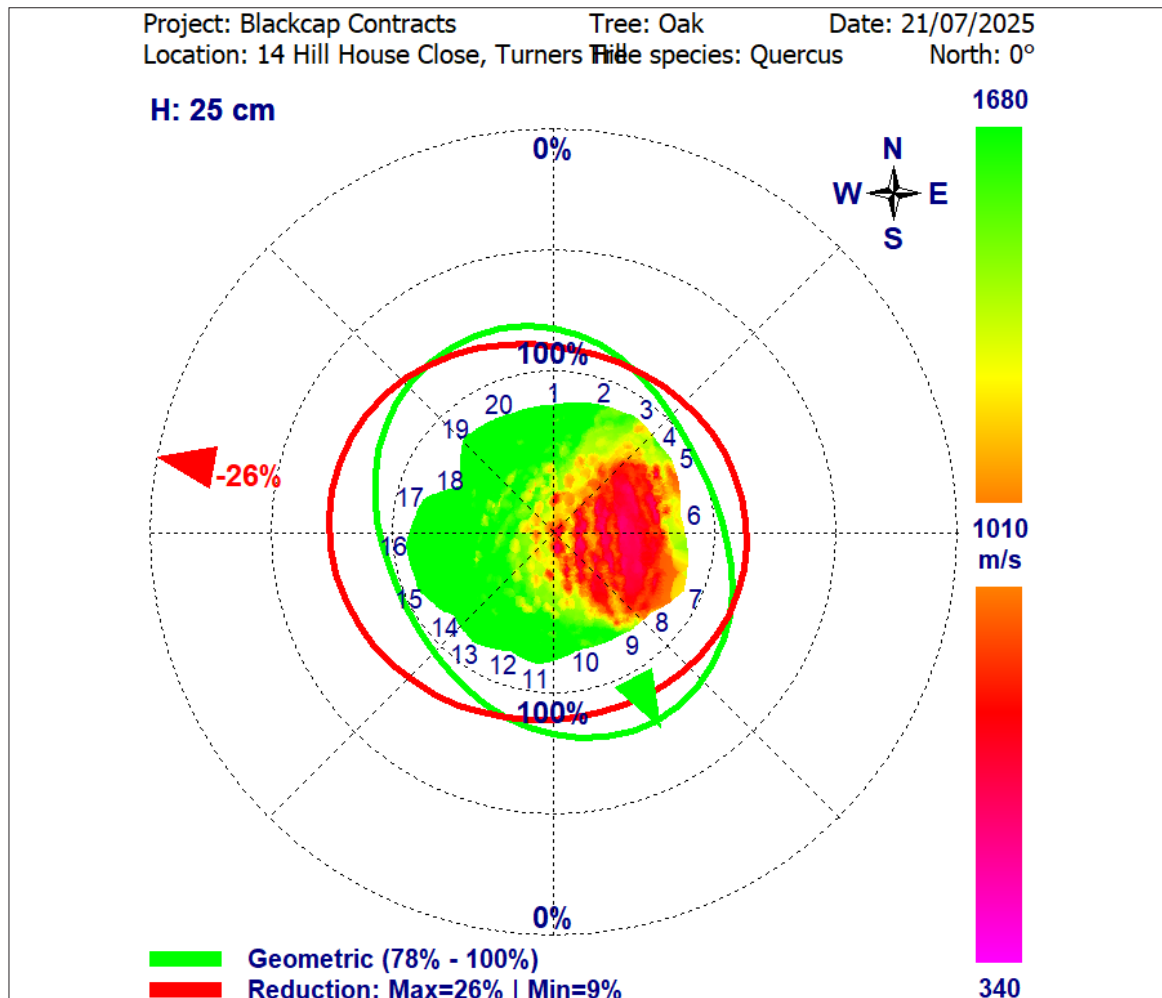


Figure 4. Mechanic graph - Showing the bending resistance of the trunk without consideration of internal decay (green) and with consideration of internal decay (red).

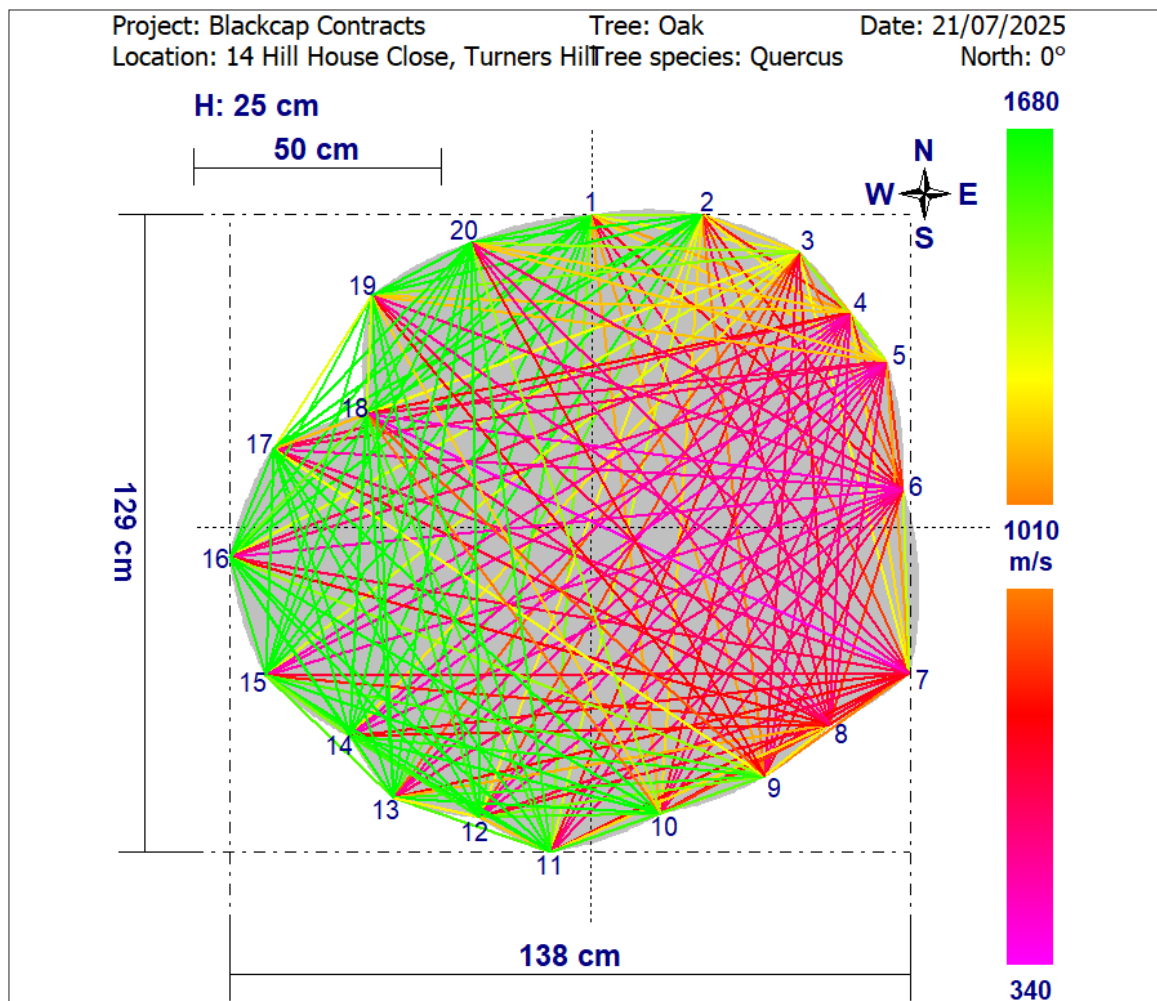
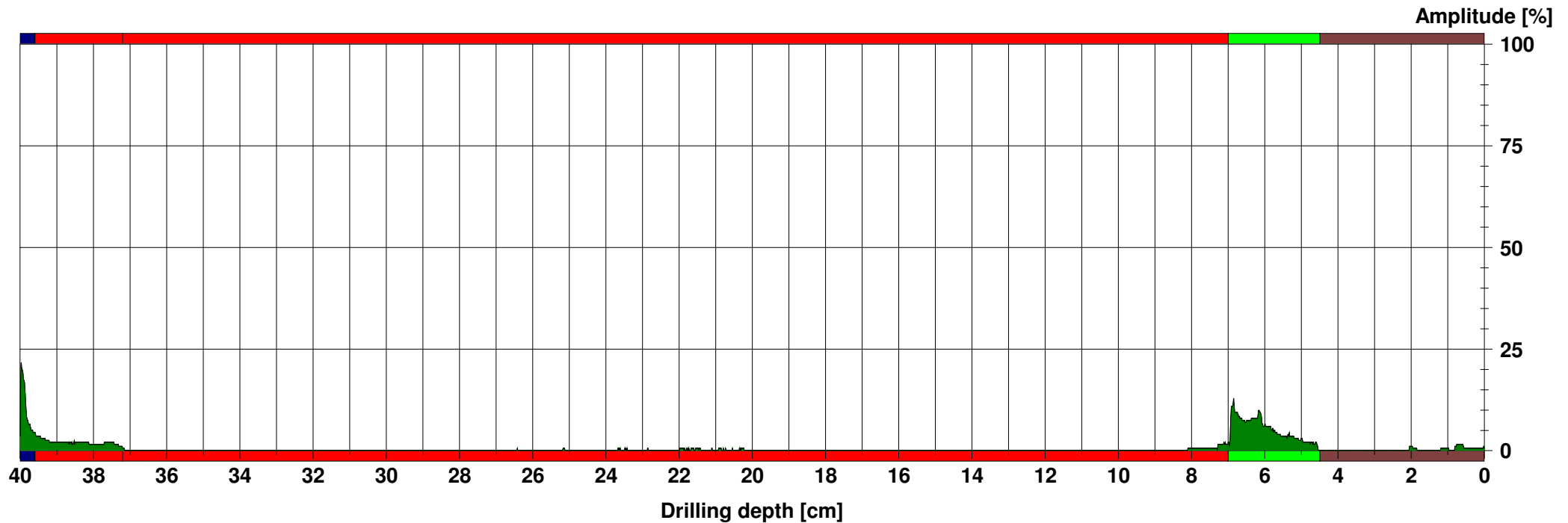


Figure 5. Line graph - Showing the velocities measured between each sensor.

Measuring / object data

Measurement no. :	1	Tilt :	---	Name :	Paul Melarange
Drilling depth :	40,36 cm	Avg. curve :	off		
Wood species :	Hard (2)	Diameter :	138,0 cm		
ID number :	290716 0A	Level :	25,0 cm		
Date :	21.07.2025	Direction :			
Time :	12:23:42	Object species :	Oak		
Advance :	94 cm/min	Location :	Turners Hill		



Assessment

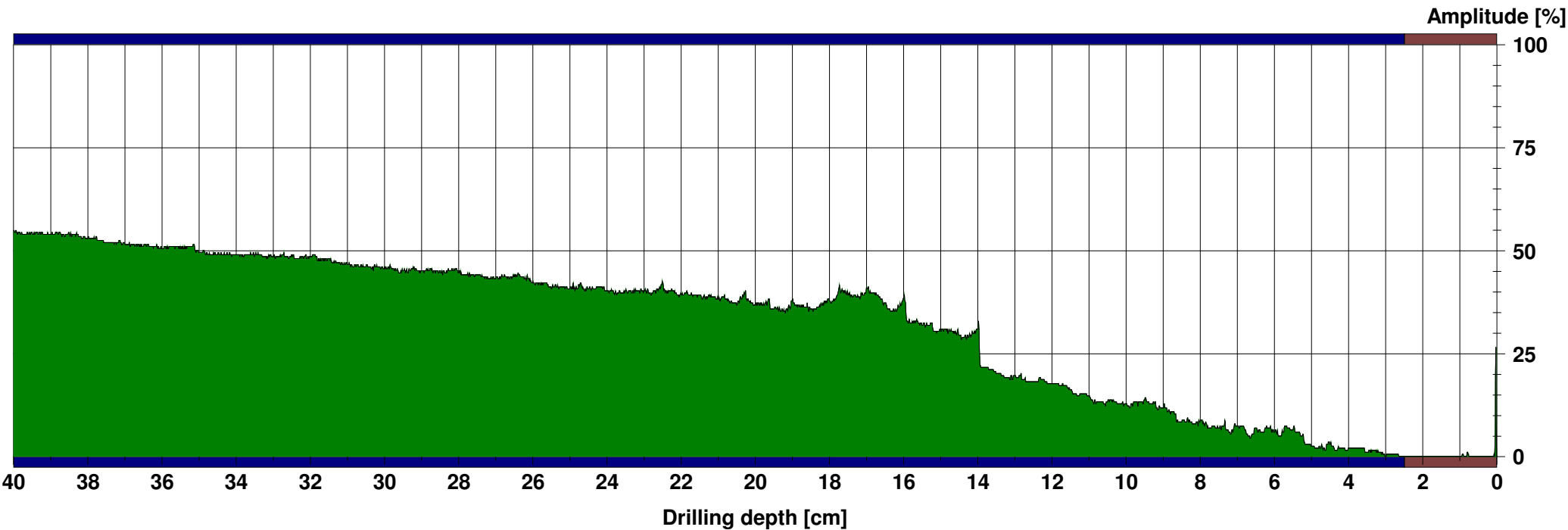
From	0,0 cm	to	4,5 cm	:	Bark
From	4,5 cm	to	7,0 cm	:	Residual wall
From	7,0 cm	to	37,2 cm	:	Cavity
From	37,2 cm	to	39,6 cm	:	Advanced decay
From	39,6 cm	to	40,0 cm	:	Sound wood
From	0,0 cm	to	0,0 cm	:	

Comment

Measurement taken at same position as sensor 6

Measuring / object data

Measurement no.	: 2	Tilt	: ---	Name	: Paul Melarange
Drilling depth	: 40,22 cm	Avg. curve	: off		
Wood species	: Hard (2)	Diameter	: 138,0 cm		
ID number	: 290716 0A	Level	: 25,0 cm		
Date	: 21.07.2025	Direction	:		
Time	: 12:26:50	Object species	: Oak		
Advance	: 91 cm/min	Location	: Turners Hill		



Assessment

From	0,0 cm	to	2,5 cm	:	Bark
From	2,5 cm	to	40,0 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

Measurement taken at same position as sensor 16

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07930 565163
<http://thinktrees.co.uk>

admin@thinktrees.co.uk



8.8.2025

Basic data

TreeNr.:
Inspector: Paul Melarange
Country: United Kingdom
City: Turners Hill
Street: 14 Hill House Close

GPS latitude:
51.108015

GPS longitude:
-0.084736

Input parameters

Tree species (bot.): Quercus robur
Tree species: Oak, European

Height [m]: 21
Stem Ø1 DBH (par.) [cm]: 120
Stem Ø2 DBH (perp.) [cm]: 103
Bark thickness DBH [cm]: 4
Crown width [m]: 18
Crown base [m]: 5

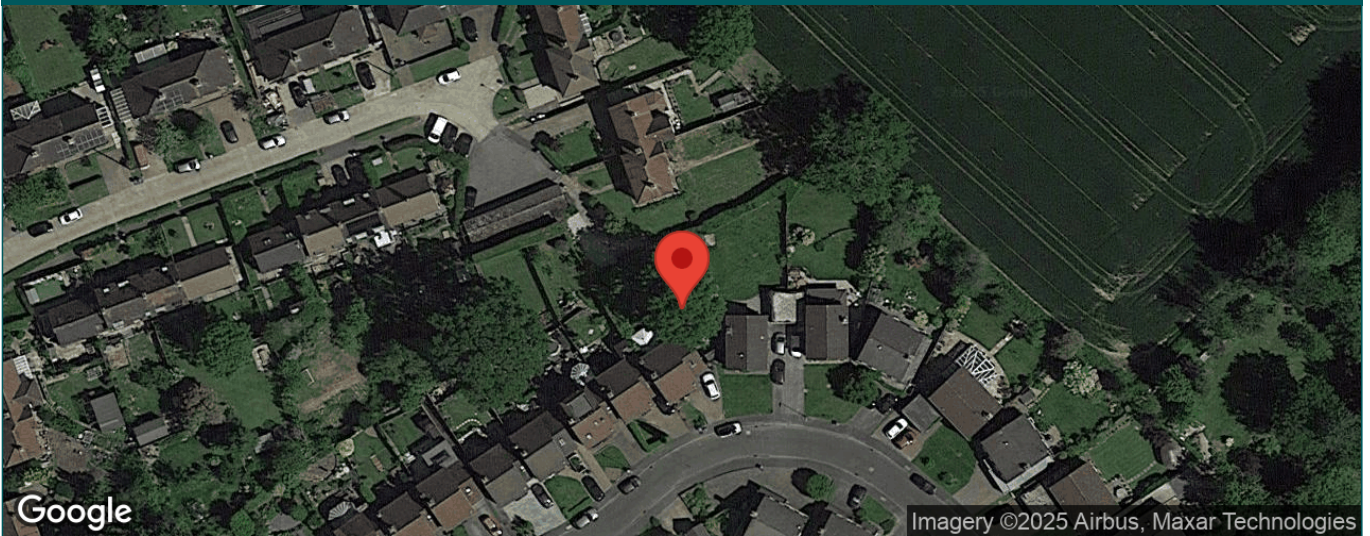
Aerodyn. drag factor: 0.25
Recommendation acc. to Wessolly & Erb 2016

Comp. strength [MPa]: 27.6
Recommendation acc. to Lavers 1983

Mean wind speed [m/s]: 22.5



Map



Terrain category

Suburb



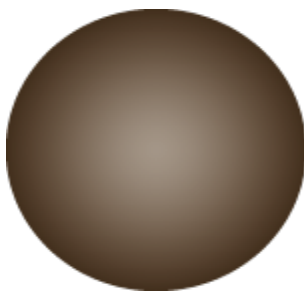
Results

Basic safety:	6.09
Desired factor of safety:	1.5
Req. res. wall thickn. [cm]:	4.5 for closed cross-sections

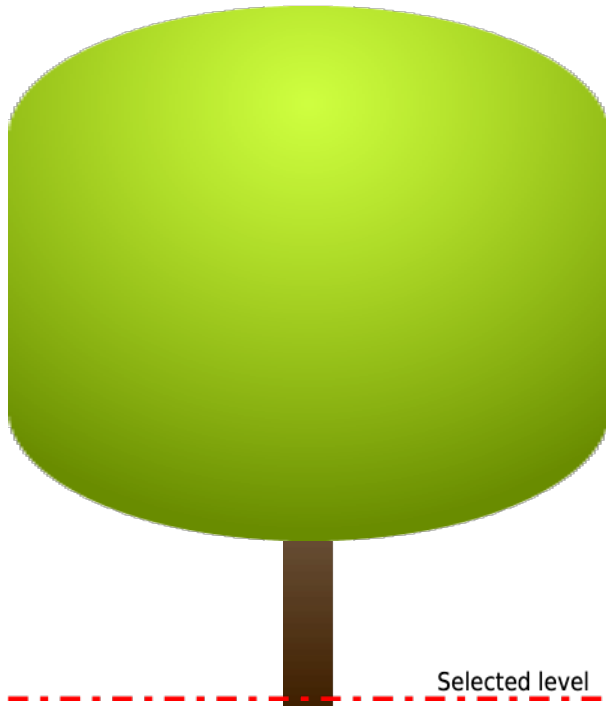
Influence of stem geometry

closed - 100%

wind



Level of cross-section



Level of cross-section [m]:	0.2
Stem Ø1 (par.) at this level [cm]:	138
Stem Ø2 (perp.) at this level [cm]:	129
Bark thickness at this level [cm]:	4
Stem safety factor at this level:	9.76
Req. res. wall thickn. at this level (for closed cross-sections) [cm]:	4

Summary

Basic safety:	6.09
Desired factor of safety:	1.5
Level of cross-section [m]:	0.2
Stem safety factor at this level:	9.76

Holme, 8.8.2025

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Mr. Paul Melarange