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Mr Ian Lorman
Argenta Tree Surveys Ltd
11 East Road
Isleham
Ely
Cambridgeshire
CB7 5SN

14th June 2024
Ref: 10918

Dear Mr Lorman,

Re: 10918 - Micro Drill Testing of 1x Beech (T001) at 56A High Street, Offord D'arcy, St Neots, PE19 5RH

T001 – Beech (*Fagus sylvatica*)

Description of tree and location – The tree is a large mature specimen that is situated opposite a residential dwelling, overhanging a driveway. The tree is formed of three codominant stems. A fourth stem has failed in the past and has left an open socket wound with occlusion growth around the margin. It is believed that T001 is located within the L/TPO/101 G1 tree preservation order.

Description of defects – The lower main stem features fungal fruiting bodies of *Kretzschmaria deusta* in almost all of the buttresses/crevices around the base. The extent of the fruiting bodies ranges from a small collective to an extensive accumulation on the bark. The open socket wound left by the failed fourth stem is blackened where there is exposed wood. The presence of fungal infection raised concerns of possible structural issues and it was advised that decay analysis is undertaken.

Height & location of Decay Analysis – A total of twenty-one micro drill tests were completed using the IML PD-500 Micro Drill. The tests were undertaken at cardinal points on the compass or in proximity with areas of obvious infection. Initial testing was at 100-450mm above ground level to create a level cross section while accounting for the slope in the ground. Further testing was carried out 1.5m above ground level to ascertain spread of decay vertically in the stem.

IML PD-500 Micro Drill Assessment: The IML PD500 Micro Drill is a calibrated micro drill which measures the resistance to the progress of a 500mm long, 2mm diameter drilling needle bit. The results are appended as a graph (one for each test performed) which displays two colours; blue represents the feed rate and green represents the penetration resistance. The graph is read from right to left and can be interpreted to evaluate relative wood strength, decay pockets, variations in ring growth, structural condition of cell walls and tree responses to environmental conditions.

The variation in resistance results in increases and decreases in the amount of torque applied to the drill shaft. By means of sophisticated mechanical and electronic sensors, variations in torque are translated into graphical output which depicts the internal conditions encountered by the drill at the specific point of drilling.

Please note: the length of the micro drill needle is only 500mm long. The stem diameter around the base is ~1400mm wide so it was not possible to test the centremost 400mm of the heartwood.

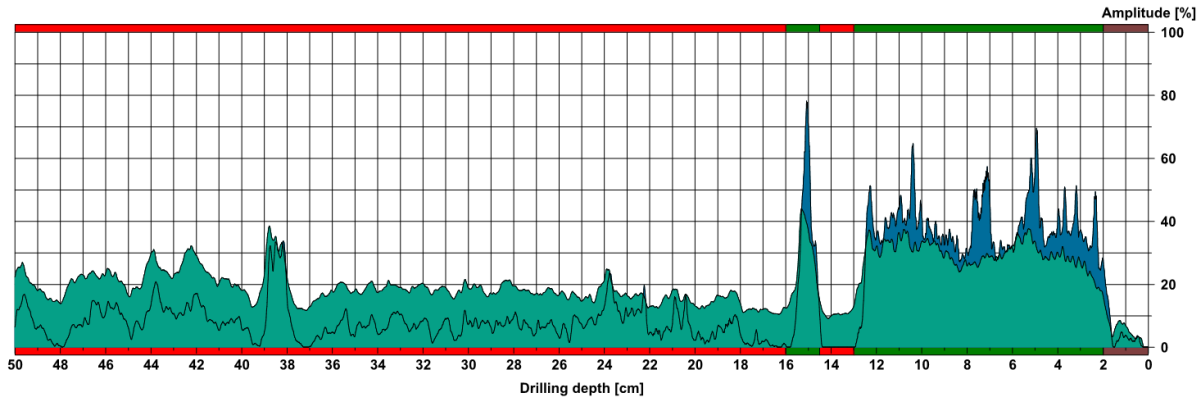
Micro Drill Testing Locations

Test No.	Location of test
1	Measurement 1 taken from the north of the stem.
2	Measurement 2 taken from the east of the stem.
3	Measurement 3 taken from the south of the stem.
4	Measurement 4 taken from the west of the stem.
5	Measurement 5 taken from the north-east of the stem on a buttress.
6	Measurement 6 taken from the east of the stem between buttresses.
7	Measurement 7 taken from the east of the stem between buttresses. The test was ended by the drill early due to an absence of solid wood
8	Measurement 8 taken from the east of the stem between buttresses slightly higher than measurement 7. The test was ended by the drill early due to an absence of solid wood
9	Measurement 9 taken from the south-south east of the stem on a buttress.
10	Measurement 10 taken from the south-south west of the stem on a buttress.
11	Measurement 11 taken from the south-west of the stem on a buttress.
12	Measurement 12 taken from the west of the stem between buttresses.
13	Measurement 13 taken from the north-west of the stem between buttresses. The test was ended by the drill early due to an absence of solid wood
14	Measurement 14 taken from the north of the stem.
15	Measurement 15 taken from the north-east of the stem.
16	Measurement 16 taken from the east of the stem.
17	Measurement 17 taken from the south-east of the stem. The test was ended by the drill early due to an absence of solid wood
18	Measurement 18 taken from the south of the stem.
19	Measurement 19 taken from the south-west of the stem.
20	Measurement 20 taken from the west of the stem.
21	Measurement 21 taken from the north-west of the stem.

Tests 1-13 were all measured level between 100-450mm above ground level to account for the sloping soil. Tests 14-21 were all measured at 1.5m above ground level.

Analysis of Micro Drill test results:

Test 1



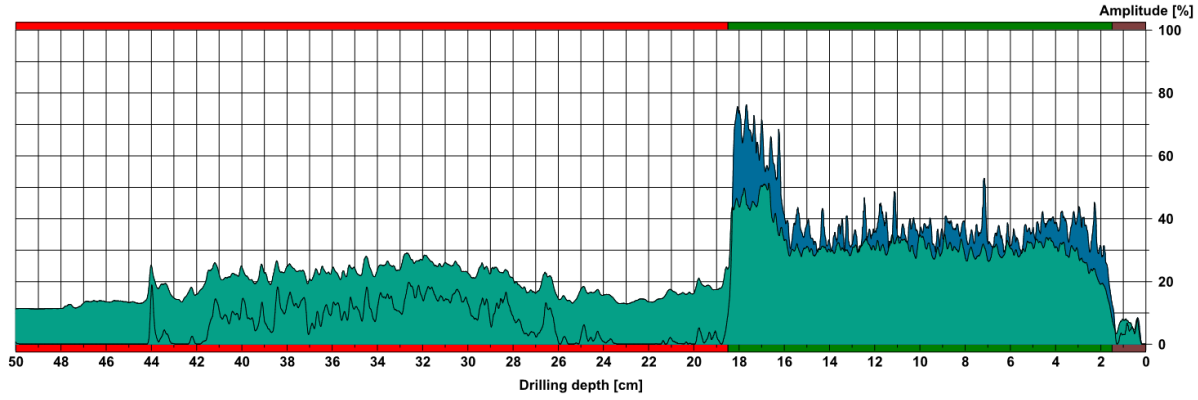
Assessment

From 0,00 cm to 2,00 cm : Bark
From 2,00 cm to 13,00 cm : Solid wood
From 13,00 cm to 14,50 cm : Decay
From 14,50 cm to 16,00 cm : Solid wood
From 16,00 cm to 50,00 cm : Decay

Comment

North

Test 2



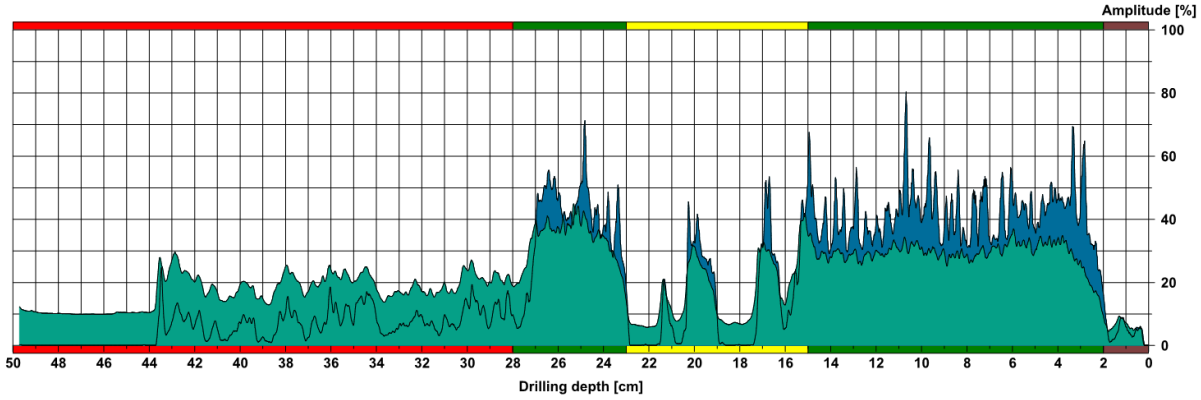
Assessment

From 0,00 cm to 1,50 cm : Bark
From 1,50 cm to 18,50 cm : Solid wood
From 18,50 cm to 50,00 cm : Decay

Comment

East

Test 3



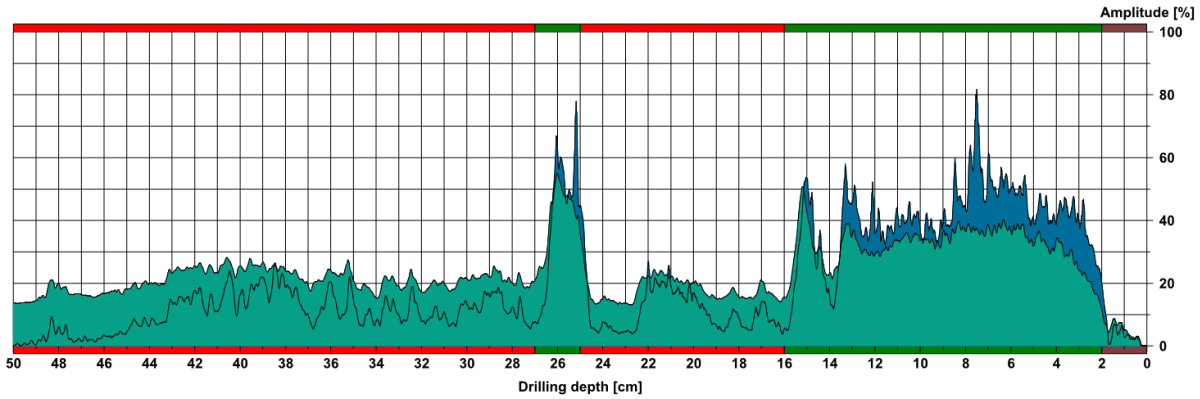
Assessment

From 0,00 cm to 2,00 cm : Bark
From 2,00 cm to 15,00 cm : Solid wood
From 15,00 cm to 23,00 cm : Incipient decay
From 23,00 cm to 28,00 cm : Solid wood
From 28,00 cm to 50,00 cm : Decay

Comment

South on buttress with obvious presence of Kretzschmaria deusta either side

Test 4



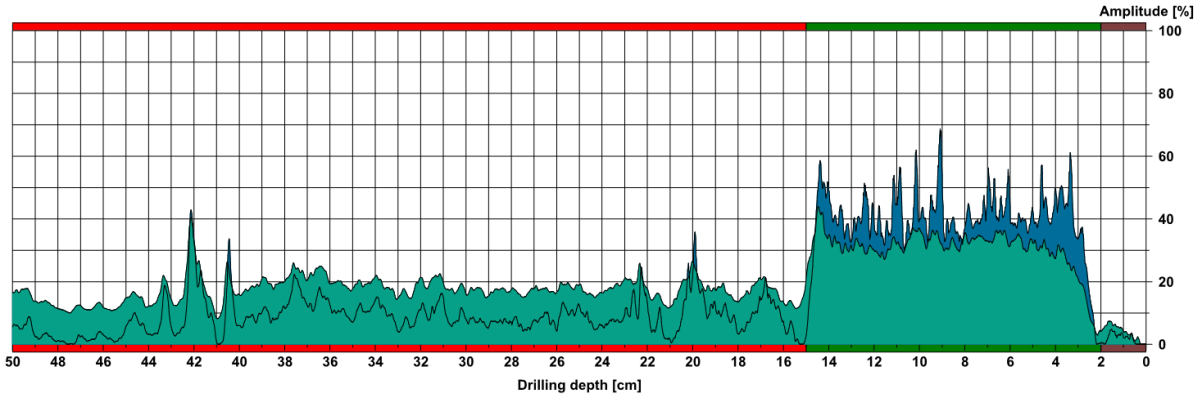
Assessment

From	0,00 cm	to	2,00 cm	: Bark
From	2,00 cm	to	16,00 cm	: Solid wood
From	16,00 cm	to	25,00 cm	: Decay
From	25,00 cm	to	27,00 cm	: Solid wood
From	27,00 cm	to	50,00 cm	: Decay

Comment

West on buttress

Test 5



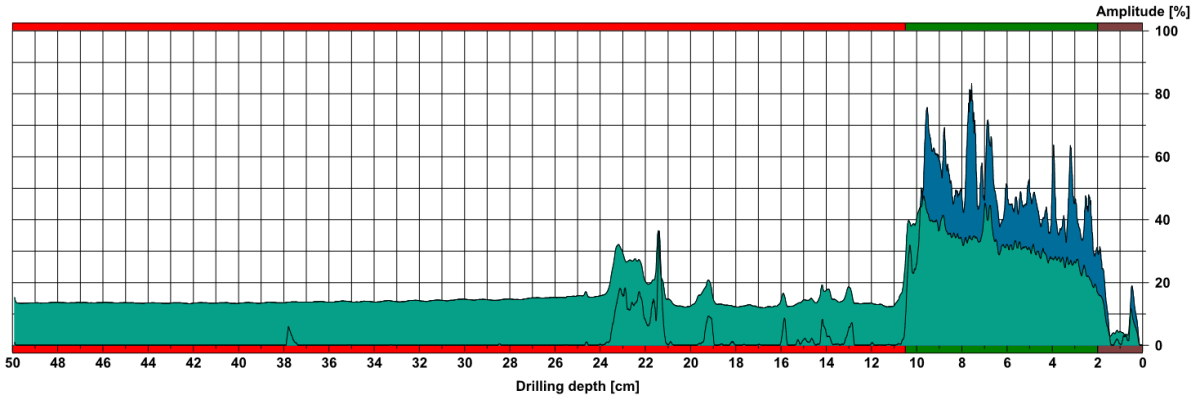
Assessment

From	0,00 cm	to	2,00 cm	: Bark
From	2,00 cm	to	15,00 cm	: Solid wood
From	15,00 cm	to	50,00 cm	: Decay

Comment

North East on buttress

Test 6



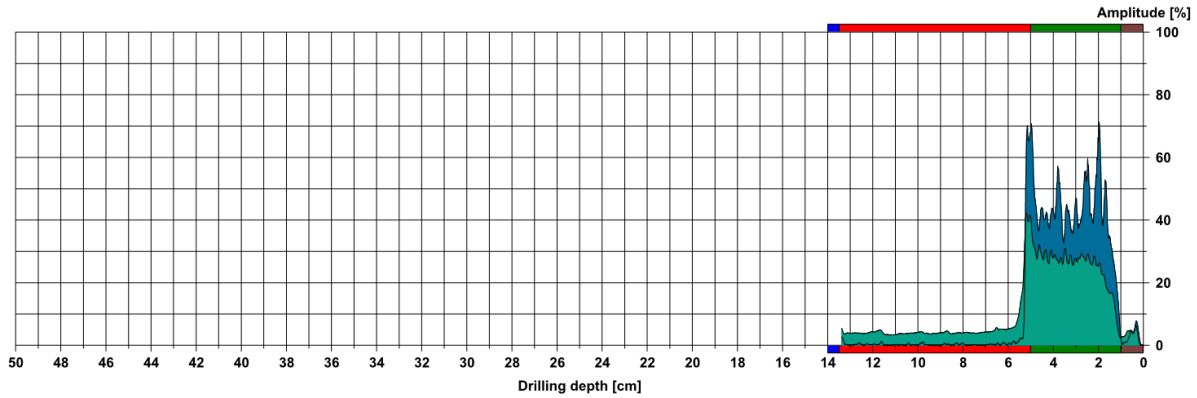
Assessment

From	0,00 cm	to	2,00 cm	: Bark
From	2,00 cm	to	10,50 cm	: Solid wood
From	10,50 cm	to	50,00 cm	: Decay

Comment

East between buttresses

Test 7



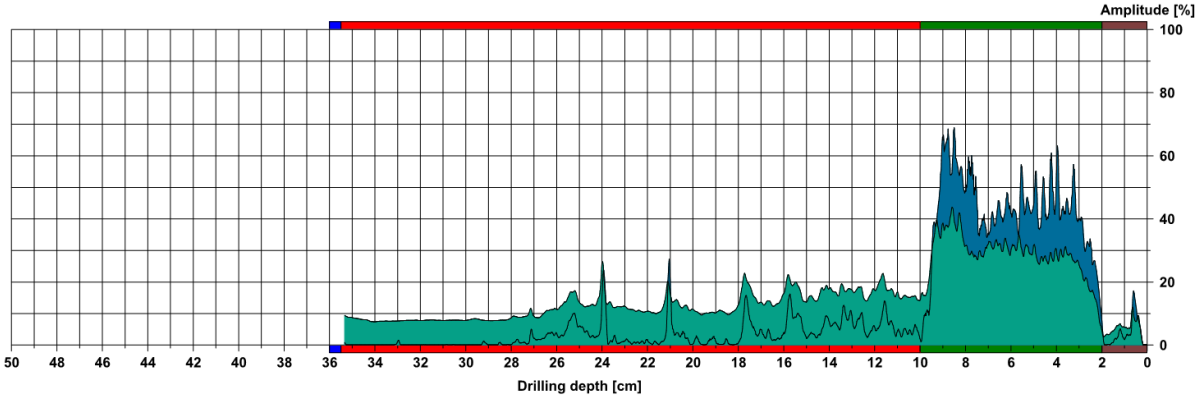
Assessment

From	0,00 cm	to	1,00 cm	: Bark
From	1,00 cm	to	5,00 cm	: Solid wood
From	5,00 cm	to	13,50 cm	: Decay
From	13,50 cm	to	14,00 cm	: End of test

Comment

South East between buttresses. Obvious presence of Kretzschmaria deusta

Test 8



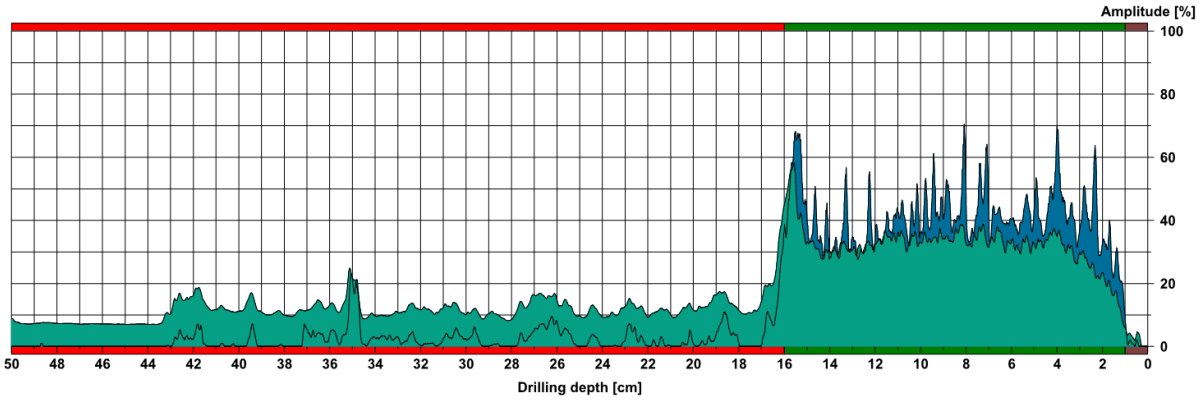
Assessment

From	0,00 cm	to	2,00 cm	: Bark
From	2,00 cm	to	10,00 cm	: Solid wood
From	10,00 cm	to	35,50 cm	: Decay
From	35,50 cm	to	36,00 cm	: End of test

Comment

South East between buttresses with obvious presence of Kretzschmaria deusta (higher on stem)

Test 9



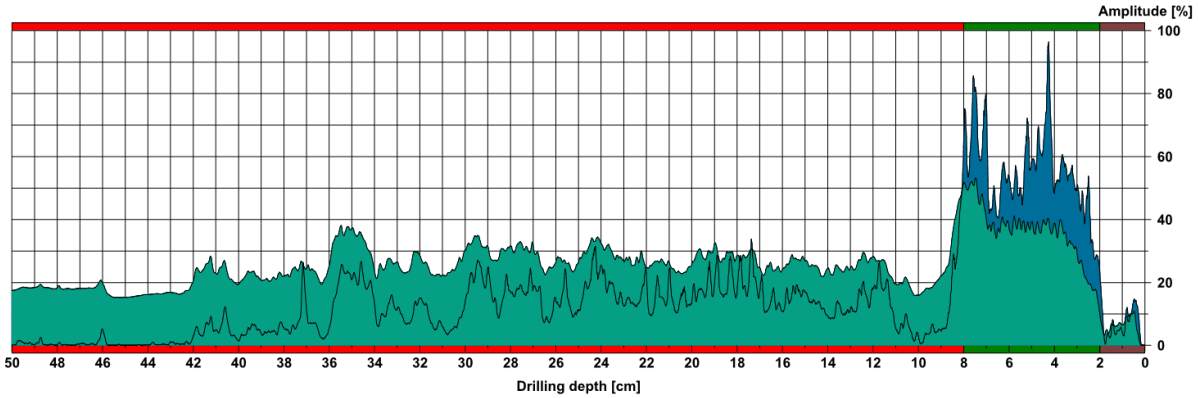
Assessment

From	0.00 cm	to	1.00 cm	: Bark
From	1.00 cm	to	16.00 cm	: Solid wood
From	16.00 cm	to	50.00 cm	: Decay

Comment

South-south east on buttress with obvious presence of Kretzschmaria deusta either side

Test 10



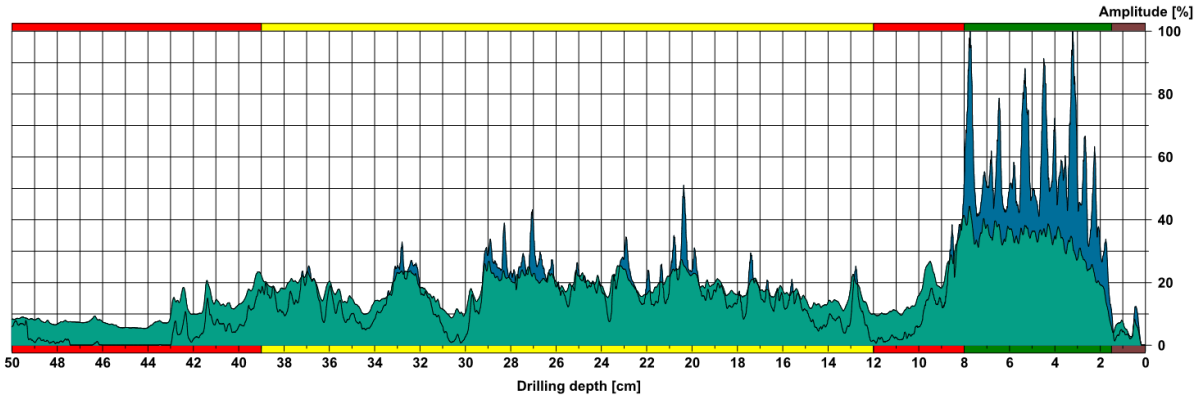
Assessment

From 0.00 cm to 2.00 cm : Bark
From 2.00 cm to 8.00 cm : Solid wood
From 8.00 cm to 50.00 cm : Decay

Comment

South-south west on buttress with obvious presence of Kretzschmaria deusta to the right

Test 11



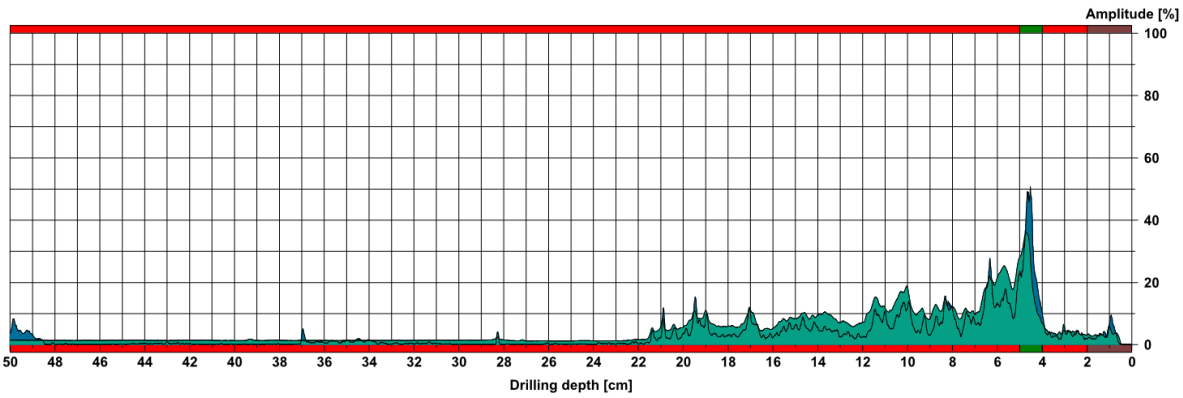
Assessment

From 0.00 cm to 1.50 cm : Bark
From 1.50 cm to 8.00 cm : Solid wood
From 8.00 cm to 12.00 cm : Decay
From 12.00 cm to 39.00 cm : Incipient decay
From 39.00 cm to 50.00 cm : Decay

Comment

South West on buttress with obvious presence of Kretzschmaria deusta to the left

Test 12



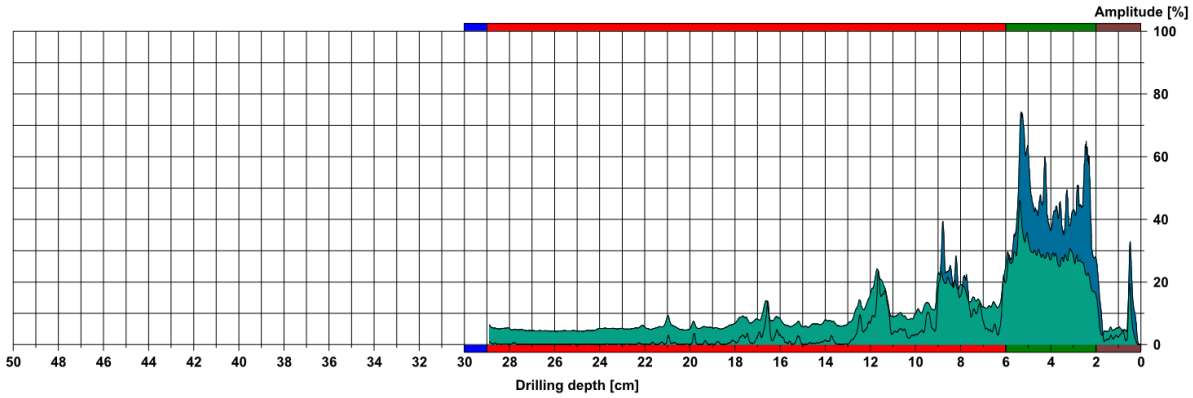
Assessment

From 0.00 cm to 2.00 cm : Bark
From 2.00 cm to 4.00 cm : Decay
From 4.00 cm to 5.00 cm : Solid wood
From 5.00 cm to 50.00 cm : Decay

Comment

West between buttresses with obvious presence of Kretzschmaria deusta

Test 13



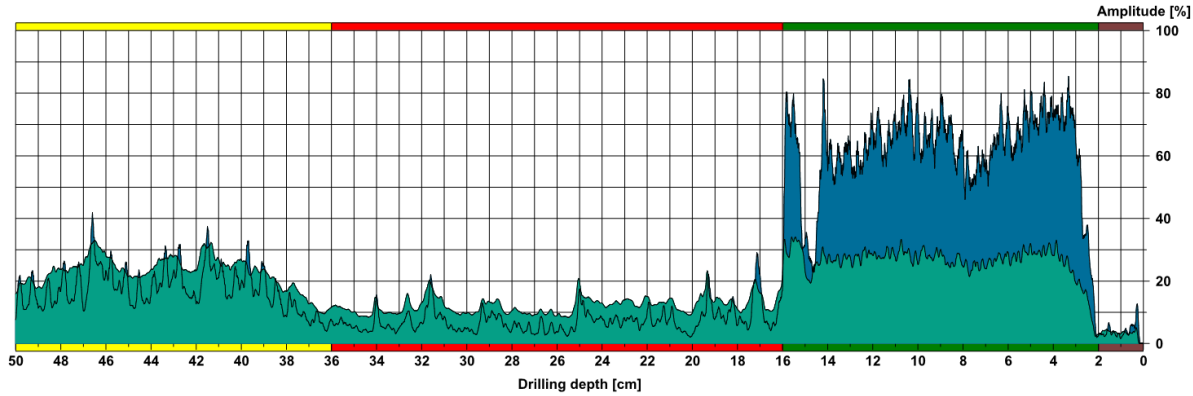
Assessment

From	0.00 cm	to	2.00 cm	: Bark
From	2.00 cm	to	6.00 cm	: Solid wood
From	6.00 cm	to	29.00 cm	: Decay
From	29.00 cm	to	30.00 cm	: End of test

Comment

North West between buttresses

Test 14



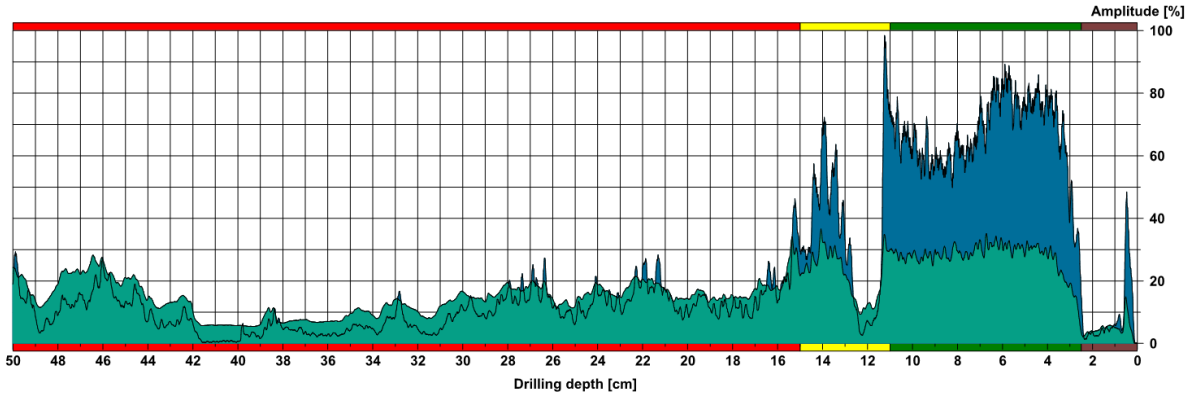
Assessment

From	0.00 cm	to	2.00 cm	: Bark
From	2.00 cm	to	16.00 cm	: Solid wood
From	16.00 cm	to	36.00 cm	: Decay
From	36.00 cm	to	50.00 cm	: Incipient decay

Comment

North at 1500mm agl

Test 15



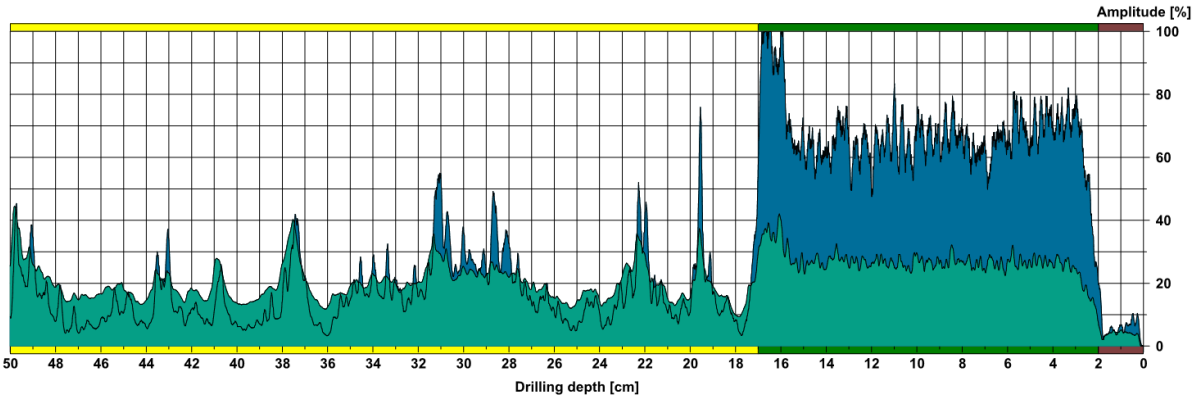
Assessment

From	0.00 cm	to	2.50 cm	: Bark
From	2.50 cm	to	11.00 cm	: Solid wood
From	11.00 cm	to	15.00 cm	: Incipient decay
From	15.00 cm	to	50.00 cm	: Decay

Comment

North East at 1500mm agl

Test 16



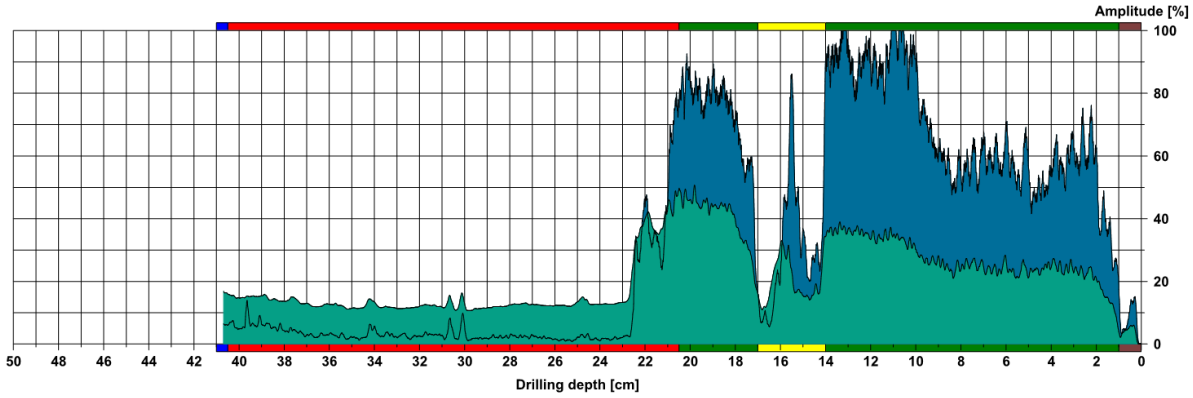
Assessment

From	0.00 cm	to	2.00 cm	: Bark
From	2.00 cm	to	17.00 cm	: Solid wood
From	17.00 cm	to	50.00 cm	: Incipient decay

Comment

East at 1500mm agl

Test 17



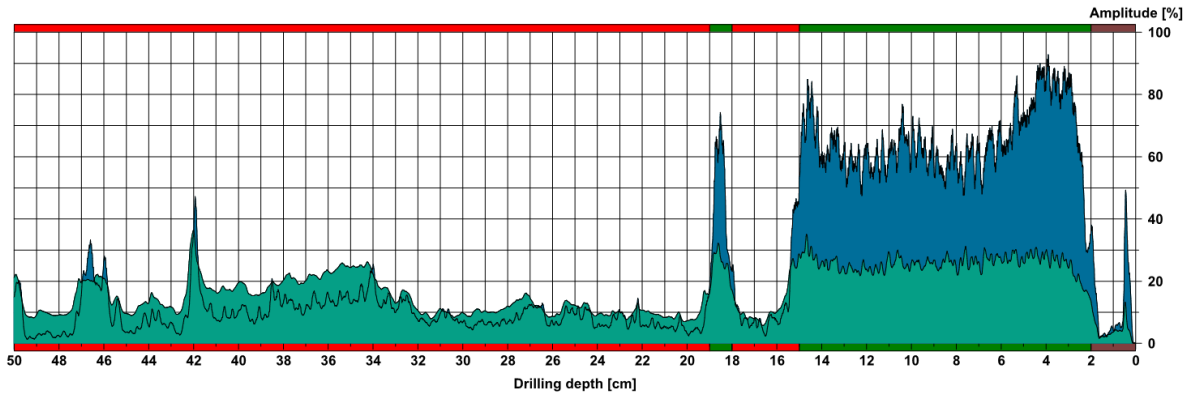
Assessment

From	0.00 cm	to	1.00 cm	: Bark
From	1.00 cm	to	14.00 cm	: Solid wood
From	14.00 cm	to	17.00 cm	: Incipient decay
From	17.00 cm	to	20.50 cm	: Solid wood
From	20.50 cm	to	40.50 cm	: Decay
From	40.50 cm	to	41.00 cm	: End of test

Comment

South East at 1500mm agl

Test 18



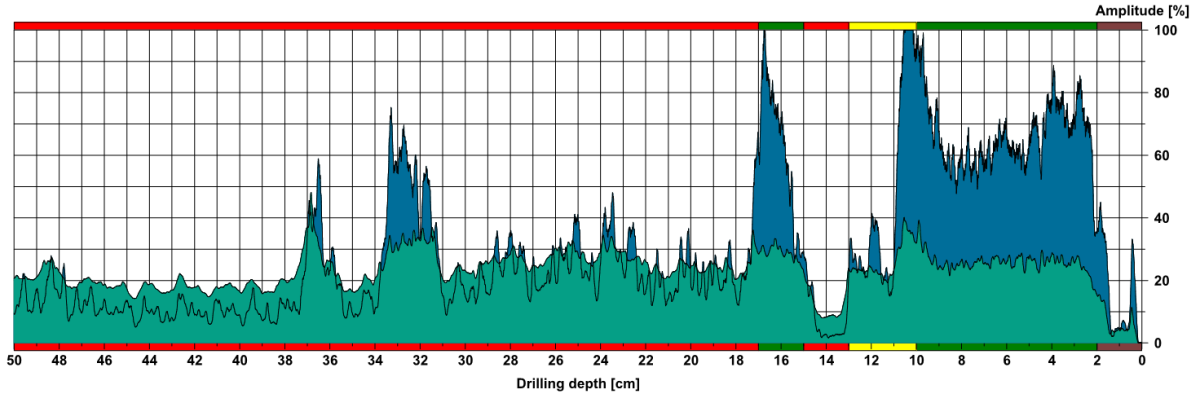
Assessment

From	0.00 cm	to	2.00 cm	: Bark
From	2.00 cm	to	15.00 cm	: Solid wood
From	15.00 cm	to	18.00 cm	: Decay
From	18.00 cm	to	19.00 cm	: Solid wood
From	19.00 cm	to	50.00 cm	: Decay

Comment

South at 1500mm agl

Test 19



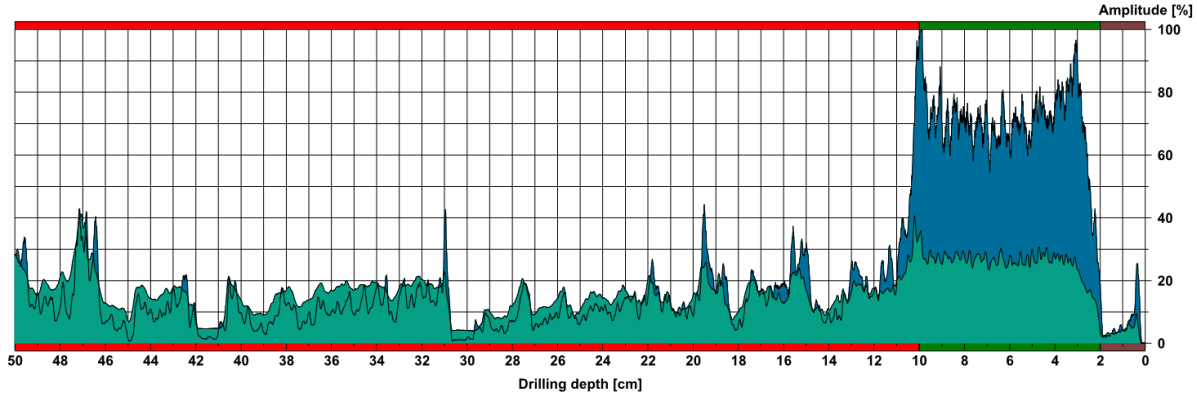
Assessment

From	0.00 cm	to	2.00 cm	: Bark
From	2.00 cm	to	10.00 cm	: Solid wood
From	10.00 cm	to	13.00 cm	: Incipient decay
From	13.00 cm	to	15.00 cm	: Decay
From	15.00 cm	to	17.00 cm	: Solid wood
From	17.00 cm	to	50.00 cm	: Decay

Comment

South West at 1500mm agl

Test 20



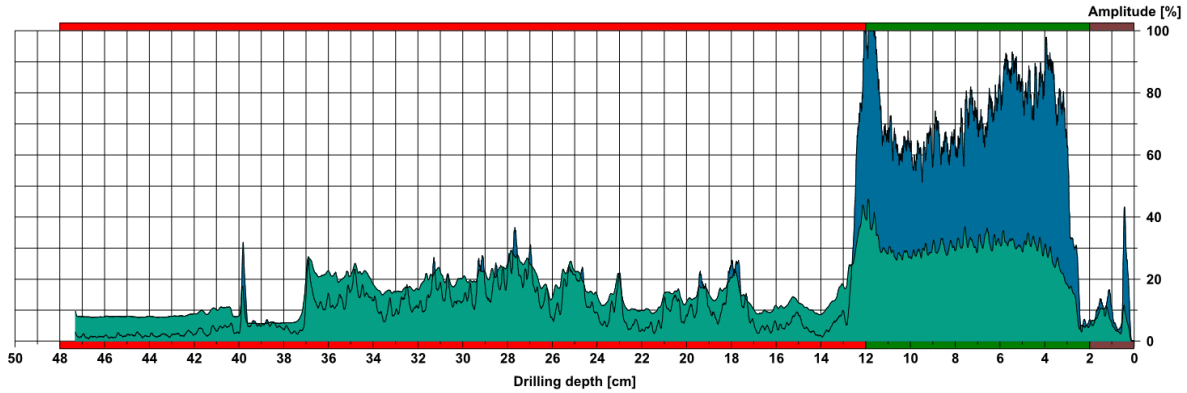
Assessment

From	0.00 cm	to	2.00 cm	: Bark
From	2.00 cm	to	10.00 cm	: Solid wood
From	10.00 cm	to	50.00 cm	: Decay

Comment

West at 1500mm agl

Test 21



Assessment

From	0.00 cm	to	2.00 cm	: Bark
From	2.00 cm	to	12.00 cm	: Solid wood
From	12.00 cm	to	48.00 cm	: Decay

Comment

North West at 1500mm agl

Conclusions and Work Recommendations for T001

The results show that there is significant internal decay in the main stem. This decay is considered to be serious at the present time and only a comparatively narrow band of good wood around the circumference of the stem is holding the tree up. It is therefore advised that T001 is felled to ground level. As T001 is subject to a tree preservation order, a tree works application to fell the tree will need to be submitted as soon as possible.

I trust the above provides you with the information that you require however if you have any questions or queries, then please do not hesitate to contact me.

Yours sincerely

Alexander Turner

Alex Turner
Arboricultural Consultant

Enclosed:

TPO/Conservation Area Online Mapping
Further Information Regarding *Ustulina deusta* / *Kretzschmaria deusta*

Tree Preservation Order / Conservation Area Online Mapping Extract

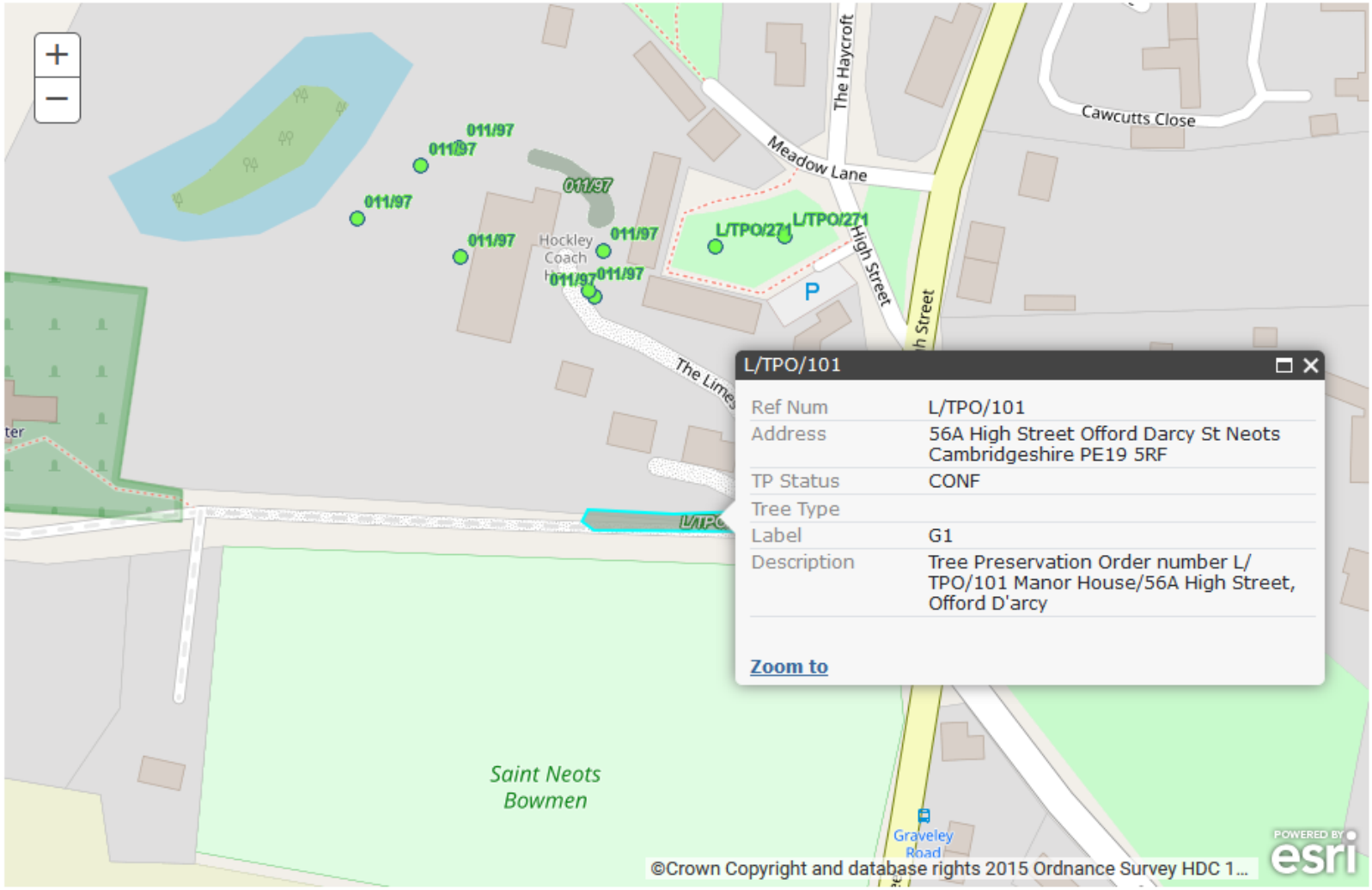
Tree Preservation Order Point Tree Preservation Order Areas

PE19 5RH



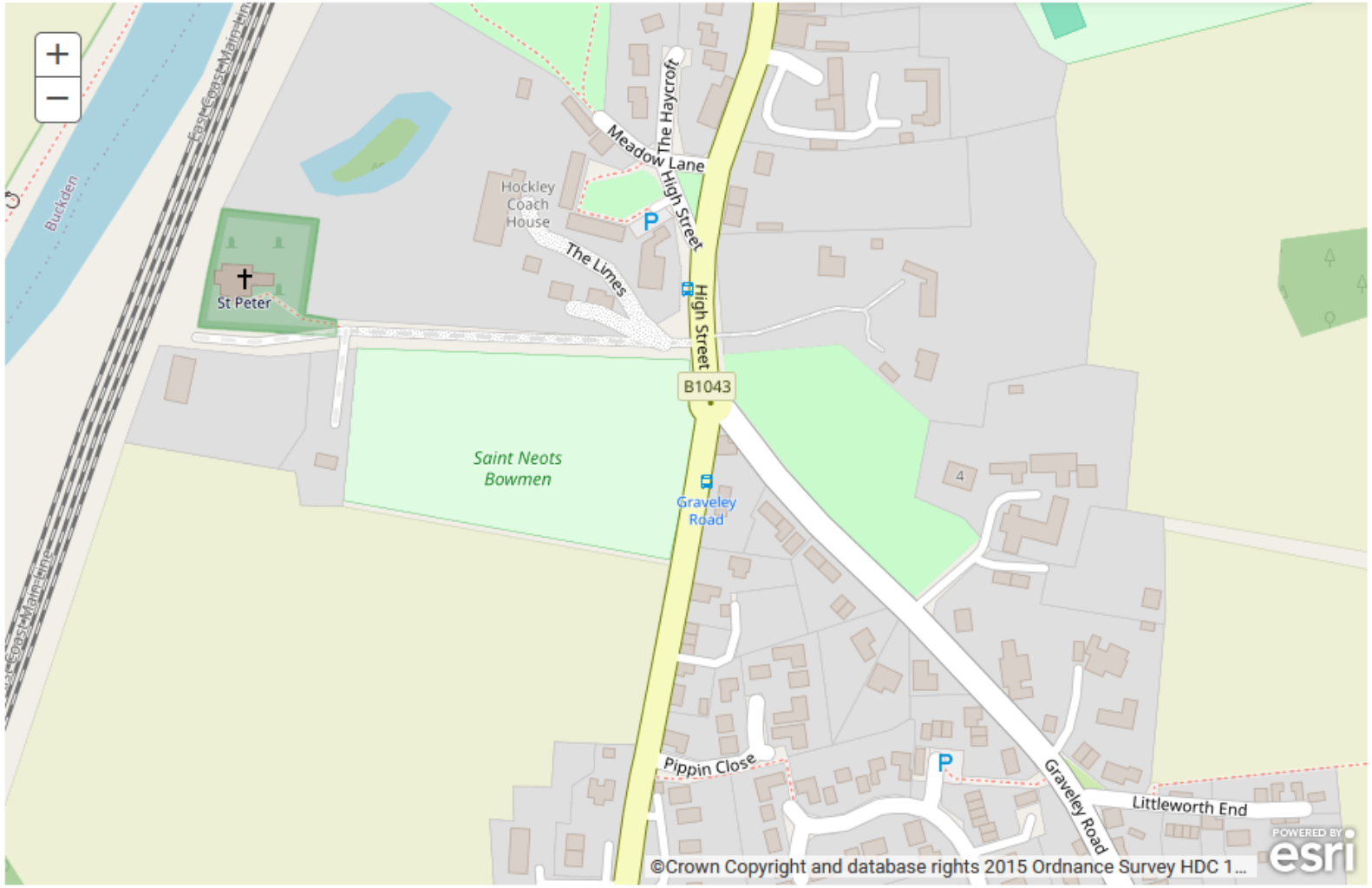
Tree Preservation Order Point Tree Preservation Order Areas

PE19 5RH



Conservation Area Listed Buildings

PE19 5RH



Name: *Ustulina deusta* **(Brittle Cinder) prev** *Kretzschmaria deusta*	
Symptoms/damage type and cause:	The fruiting bodies of this fungus are individually small, often together forming inconspicuous patches at the base of the tree covered by leaf litter. The fungus destroys the cellulose, not attacking the lignified parts of the wood cell walls until a late stage and induces ceramic-like fractures. This can occur in the main stem and root system. Fractures often occur before and after advance rot has developed. The seat of the decay is usually at the stem base, where in some cases the fungus appears to have entered through a wound. In such cases, it can extend 4m or more up the stem as well as into the roots. It can also enter via the roots, eventually causing windthrow. The fungus is often black and charcoal like, appearing individually quite small.
Consequence:	This is a particularly dangerous decay fungus principally because it is often overlooked and also because of the type decay. The brittle fracture associated with the decay often occurs with no warning of incipient failure, and without compensatory thickening of the stem that occurs with other fungi that cause selective delignification (e.g. *Ganoderma* spp).
Control:	None available. Felling of affected tree where there is risk of harm to persons or property in the event of tree failure.
Species affected:	Broadleaved species, including *Fagus, Tilia, Acer* and *Quercus* spp.
Images:	    