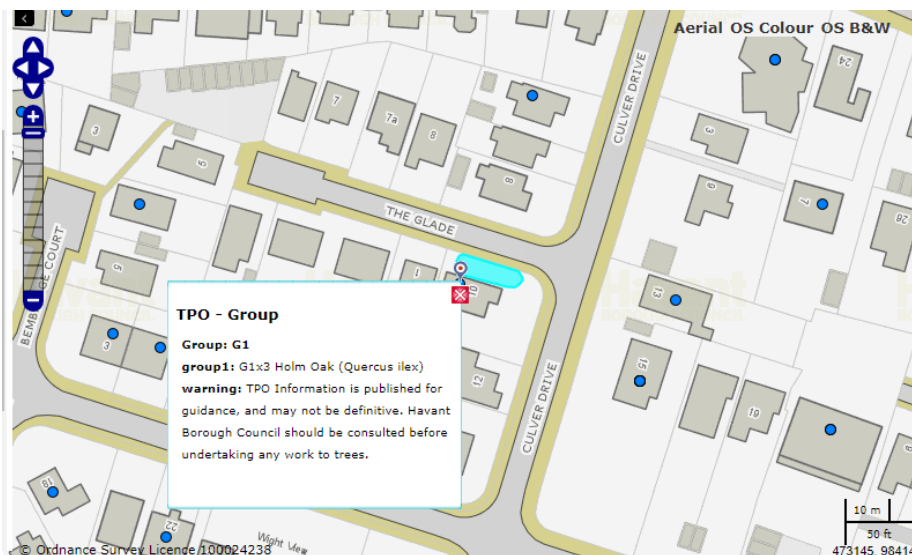




Visual Tree Assessment and Picus Tomograph Decay Investigation Test

10 Culver Drive Hayling Island PO11 9LX

Investigation by Kim Gifford



Date 3rd May 2018

1. **Instruction:** I Kim Gifford Arboricultural Consultant (Appendix 2 for profile) am instructed by 10 Culver Drive Hayling Island PO11 9LX. My brief is to carry out decay detection/assessment using the Picus Sonic Tomograph System on the **group of Holms Oaks (Quercus ilex)** in the garden by the fence and front area of 10 Culver Drive Hayling Island PO11 9LX. The test will involve taking 1 readings at appropriate level determined by the requirements of the specimen defect. I am to make recommendations on the immediate and future management of the subject tree based on the test findings.

2. **Background:** I understand that prior the owner had commissioned an inspection of the subject tree has flagged up concerns about safety of this specimen. As a result of this inspection it was felt that further investigation was required to determine the extent of decay so that he could make an informed decision on the future management of the subject tree.

3. Visual Tree Assessment:

T1- Holm Oak dbh=40cms ht=15m cs=south 1m north 4m west 3m east 2m

General description: Tall leggy extended lifted recently cut back on house side in a raised bed drop 25cms to roadside.

Root collar: Normal, some epicormic root area restricted 2m radius driveway adjacent, distorted paving root lifting area. Trunk condition: 4m to main union, occlusions on stem occluding and occluded poor pruning wounds from old cuts. Many old wound close together from regular cutting back and branch removal.

Upper Crown: occluding wounds evidence of spiral twisting and wind torsion wounds. Vitality: Normal

T2- Holm Oak dbh=50cms ht=14m cs=south 3m north 3m west 3m east 3m

General description: Previous pollard, stunted crown from frequent pollarding, in a raised bed drop 25cms to roadside.

Root collar: Normal, some epicormic root area restricted 2m radius driveway adjacent, distorted paving root lifting area. Trunk condition: 2.5m to main union, occlusions on stem occluding and occluded poor pruning wounds from old cuts. Many old wounds close together from regular cutting back and branch removal.

Upper Crown: occluding wounds evidence of spiral twisting and wind torsion wounds. Distance from the house 3.6m

T3- Holm Oak dbh=70cms ht=16m cs=south 3m north 3m west 3m east 3m

General description: Whole specimen wind blown leaning into T4 adjacent in a poor condition with extensive torsion cracks and developing hazard beam in the main stem, also in a raised bed drop 25cms to roadside.

Root collar: Abnormal stress, adjacent to the crack at 2m to 3m Trunk condition: Poor defective condition collapsing and failing. Crack and inclusions evident at 2m to 4m.

Upper Crown: Lodged in adjacent T4 occluding wounds evidence of spiral twisting and wind torsion wounds. Distance from the house 3.6m Vitality: Normal.

T4- Holm Oak dbh=70cms ht=14m cs=south 4m north 4m west 4m east 4m

General description: Previous pollard, stunted crown from frequent pollarding, in a raised bed drop 25cms to roadside. T3 pushing into the upper crown on the westside.

Root collar: Normal, some epicormic root area restricted adjacent to road and lawn area, surface rooting evident. Trunk condition: 1.5m to main unions, occlusions on stem occluding and occluded poor pruning wounds from old cuts. Many old wounds close together from regular cutting back and branch removal.

Upper Crown: occluding wounds evidence of spiral twisting and wind torsion wounds. Vitality: Normal

4. **Picus Test Methodology:** The method of decay detection is based on the fact that solid wood is a better sound wave conductor than wood that is decayed or structurally damaged. The Picus Sonic Tomograph consists of a set of sensors which are strategically placed around the area of the tree previously identified as potentially having decay or a structural fault. Each sensor is connected to a nail which is tapped through the bark into contact with the wood. This process is virtually non-invasive to the tree's system. The sensors are connected by data cable to a power supply and laptop computer. Each nail is tapped in turn and the sound wave flight paths are measured by each of the sensors. The test data is compiled by the Picus system software algorithm into a matrix of collected values. This results in a dense network of sound velocities through a cross section of the tree.

4.1 The velocity of sound through wood depends on the degree of elasticity and density of the material. Tree damage such as white rot, brown rot, soft rot, cavities and cracks reduce the elasticity and density of the wood.

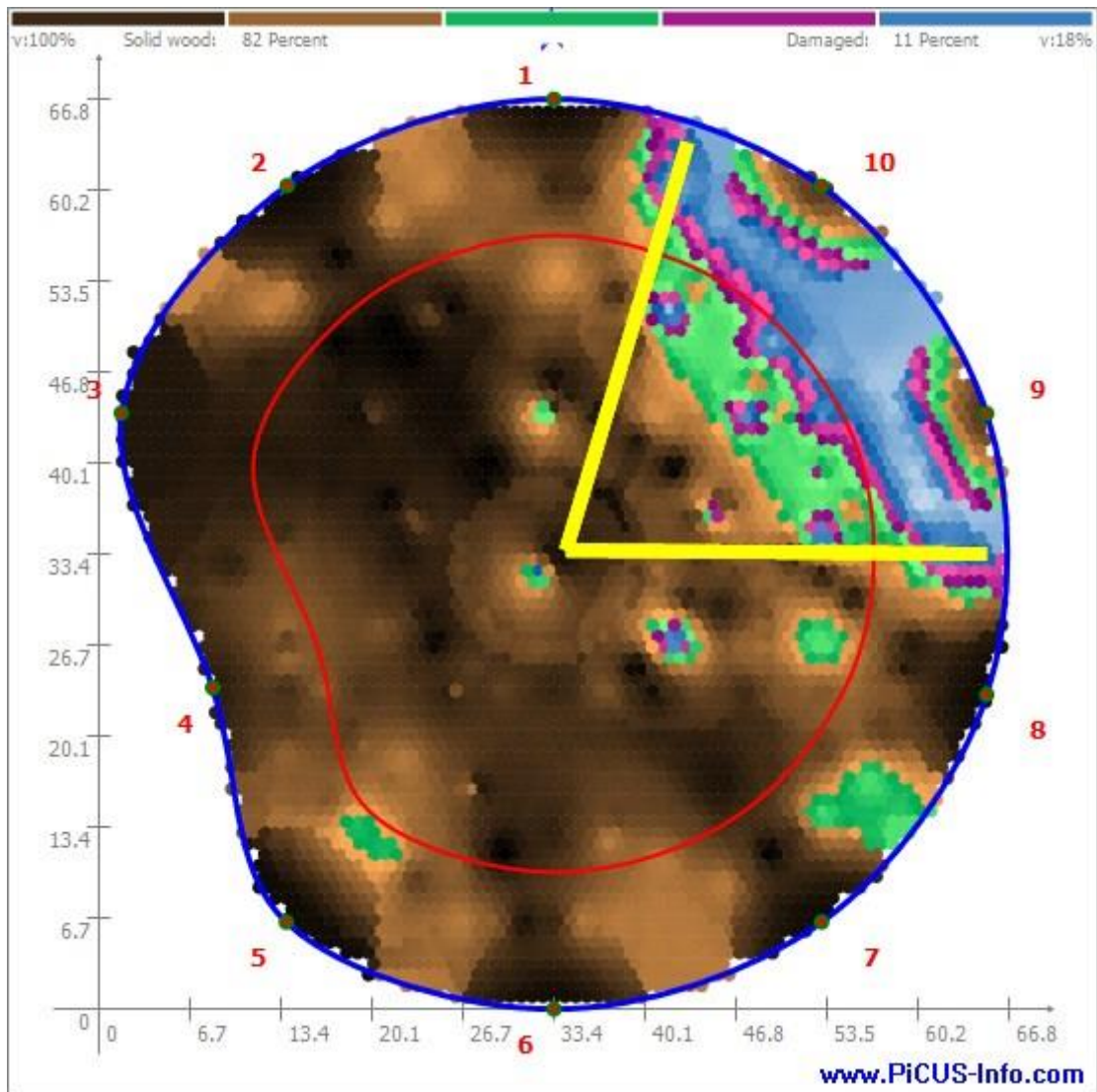
4.2 The data from the sensors is translated by the computer software into a representative colour tomographic image of the cross section of the tree. This tomogram gives information about the presence of decay, cavities and faults

in the tree. Features such as remaining wall thickness, opening angle of cavities and percentage of solid, decayed or altered wood can be measured by the computer.

4.3 Final analysis of the tomogram is undertaken by Kim Gifford an experienced Arboriculturist who has been trained in the interpretation of the computer-generated image. Once the tomogram has been analysed the Arboriculturist may then prescribe a course of action based on the test results and condition of the subjects. Undertaken on 3rd May 2018.

Picus Test 1 T3 Holm Oak leaning with spilt stem :

North



Test Level:80cms

Analysis: Low readings in the area of test. The Picus test collective data represents altered timber result at the time of inspection.

Recommendation: T3 Holm Oak shows altered timber in the area of test. This stem is leaning eastwards and at risk of breakage. It is recommended that it would be appropriate to remove this stem within the near future on the ground of health and safety. This action would leave the remaining group open and exposed with low amenity value.

Additionally, there are concerns that damage has occurred to the house and surrounding drive/paving from roots of the Holm Oak group. There is visual evidence of cracking and direct movement of surface roots within the root area. The VTA (Visual Tree Assessment) shows evidence of a declining group as a whole. The required removal of T3 Holm Oak would allow an opened up and exposed structure of the remaining trees. The future potential of these specimen would be unbalanced and low in amenity value.

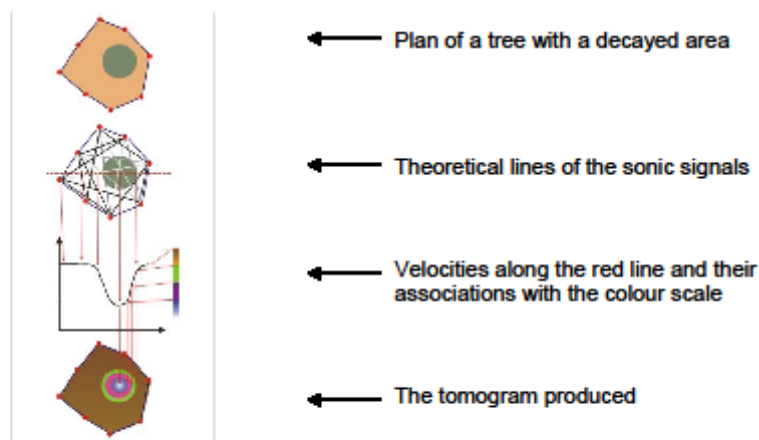
It is therefore recommended that the whole group of T1,T2, T3, T4 Holm Oak are removed completely and replanted with 4 no. new heavy standard English Oak (*Quercus robur*) transplants within the near future.

Appendix 1.

7.13.1. Tomogram colours

To display different acoustic conductivity of wood, the PiCUS program uses set colours, assigning one colour to each point of the tomograph. Areas of high velocity are represented in black or dark brown. Areas of low velocity appear in violet, white or blue, and these are the areas that indicate problems. Green areas mark those sections which could not be classified as being either fast or slow, and these areas must be interpreted together with the overall damage.

The colour scale (black, brown, green, violet, blue, white) ranges from 100% velocity (brown) to the slowest velocity (blue). Colours are switched at specific special trigger levels to show the differences, as shown in the following sketch (not drawn to scale):



There are three main colour groups to be considered:

- | | |
|---|--------------------------|
|  | 1. black / brown |
|  | 2. green |
|  | 3. violet / blue / white |

Decreasing velocity

The colours violet, blue, and white should be treated as a single class. There is a function to shut off the blue and white colours and present these areas in violet only.

Warning!

In order to read a tomogram correctly, you need sound knowledge of trees and their diseases, and you must be familiar with the working principles of measuring instruments. DO NOT fell a tree based solely on a tomogram reading. You must first analyse all possible reasons for slow acoustic conductivity, and you will have to apply different investigative methods as needed.

Unfortunately, the results of sonic measurements cannot give information about the exact type of structural loss in a tree. This means a tomogram does not tell us if the violet or blue areas are caused by a cavity, a crack, or by decay – it can only display the levels measured.

Appendix 2 – Kim Gifford: Arboricultural Consultancy

Picus Sonic Tree Testing

Tree Surgery Advice

Consultant Mr Kim Gifford: Profile

Prior to starting GTS Kim Gifford completed a 4-year apprenticeship in 1972 with the Royal Parks at Hampton Court Palace, acquired City and Guilds Horticulture and Arboriculture. In addition to these qualifications Kim Gifford continued his professional development by attending seminars, conferences, studying for the professional diploma and foundation degree in Arboriculture. Further work experience during pre-business period included sub-contracting for Arb. Companies. Work as a lead Arborist for London Borough of Ealing and Arborist in Berlin Germany.

Kim Gifford t/a Gifford Tree Service started trading as a sole trader in 1980 and in 1985 became a partnership. The company specialises in all aspects of Arboriculture. From 2007 Kim Gifford now again trades as a sole trader in his own right. In 1988 Kim Gifford became an approved contractor with Arboricultural Association after a comprehensive assessment and reassessments in 2002/2007

Kim Gifford served on committees of the Arboricultural Association for 10 years and became the National Chairman of the Arboricultural Association in 2001. Kim Gifford is now an honorary member of the Arboricultural Association.

Kim Gifford personally undertakes Picus sonic decay tests for local authorities and other Arboricultural contractors all over the Southern area of England. Kim Gifford owns the Picus equipment treetesting.com for 15 years and completed over 3000 tests, so he has considerable experience in the analysis of the tomographic images. He provides this service to compliment other consultant reports, this is combined with my 44 years' knowledge in Arboriculture. The whole system has been updated and maintained to the recent Picus manufactures improvements.

Kim Gifford has undertaken many Tree Surveys including Mortgage reports and BS5837 surveys to meet planning authorities' requirements during development proposals plus Tree Preservation applications and planning inspectorate appeals.

Kim Gifford was certificated by Lantra training awards with Professional Tree Inspection Certificate 30th November 2013 and Arboricultural Association Certificate BS5837 – Advanced Tree Assessment for Planning 4th May 2016.

Kim Gifford also provides quotations for recommended works, Risk Methods Statements, Health & Safety Policies, Site Specific procedures operation supervision and management services.

Kim Gifford

Gifford Tree Service www.giffordtreeservice.co.uk

www.treetesting.com

07831488456 kim@treetesting.com

Administration address Mr. Kim Gifford, 21b St Catherines Road
Hayling Island Hampshire PO11 0HF.