

1. Introduction

- 1.1 Martin Dobson Associates Ltd was instructed by Lesley Severs on 07 September 2016 to carry out a safety inspection of one oak tree at the rear of 36 Gladys Avenue, Cowplain, PO8 8HS.

2. Tree inspection

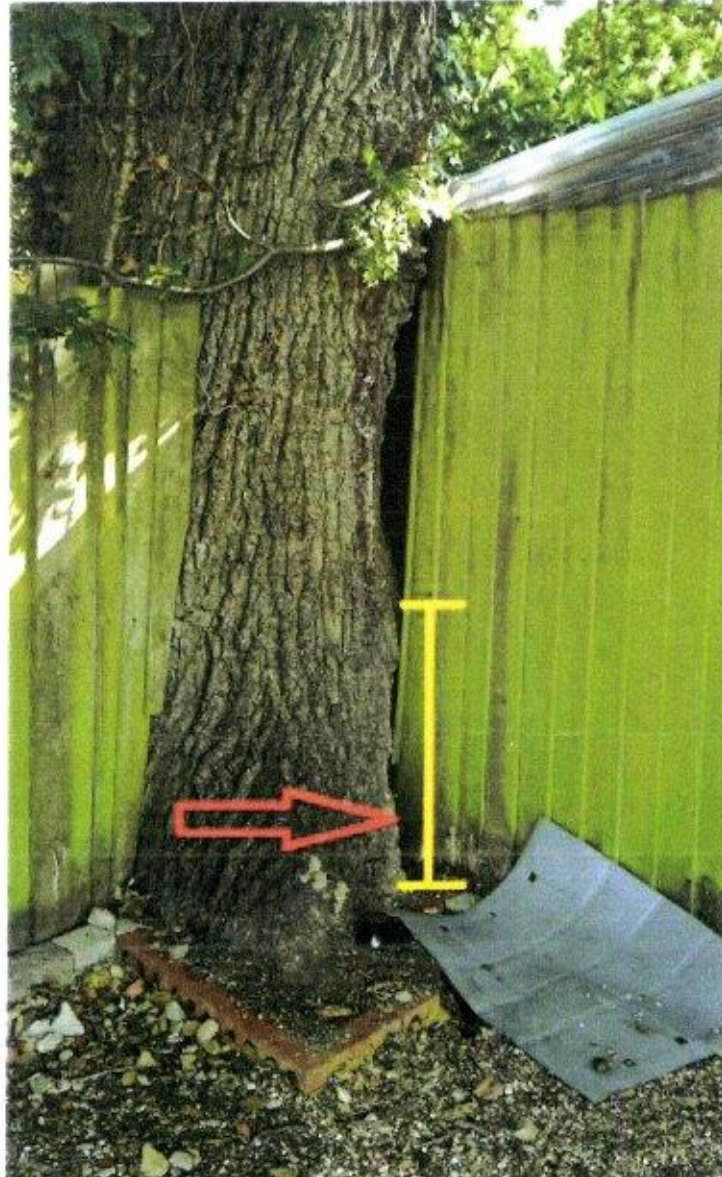
- 2.1 Iain Waddell inspected the tree from ground level unaccompanied on 13th September 2016 and the details of the survey are appended at **MD2**. The site plan showing the tree's location is appended at **MD3**.
- 2.2 Tree diameter was measured using a diameter tape. Tree height was measured using a TruPulse 200L laser measure. Where appropriate, a nylon mallet was used to 'sound' the tree stem for the presence of significant decay or patches of bark death. Similarly, binoculars were used where necessary to inspect features high in the tree crown and a probe was used to investigate the depth of any cracks. An increment borer was used to assess the structural integrity of the woody tissue of the tree's stem accurately.
- 2.3 One mature oak tree has been surveyed which is situated just inside Mrs Severs' property. Part of the base of the stem is located within the neighbouring two properties. Its location is plotted on the site plan at **MD3**.
- 2.4 The oak is a 19m tall mature tree with a diameter crown spread of approximately 16m. The crown is in a good condition with normal leaf size and density. There is a moderate amount of deadwood throughout tree but this is not uncharacteristic of a tree of this size and maturity.
- 2.5 Initially the tree was surveyed from the garden of 36 Gladys Avenue where no major hazards were identified. Two areas of slight concern were the stem compressing against a wall and an old pruning wound which has developed into a small cavity. The cavity at 2.5m was probed and found to extend in to a maximum depth of only 100mm before sound wood was encountered.
- 2.6 The boundary wall running to the east from the stem is hard up against the stem (Figure 1). This wall is constructed from breeze blocks to a height of 1800mm and the stem is compressed against it at 550mm and at the top. According to Mrs Severs the wall is over 30 years old.

Figure 1. Eastern aspect of the stem compressed against the wall.



- 2.7 Access was arranged for me to enter number 34 Gladys Avenue to inspect the tree from there (Figure 2) where a number of boards of the fence were removed to allow me to obtain a view of the trunk and its base as, unfortunately, I was not able to access the third plot of land.

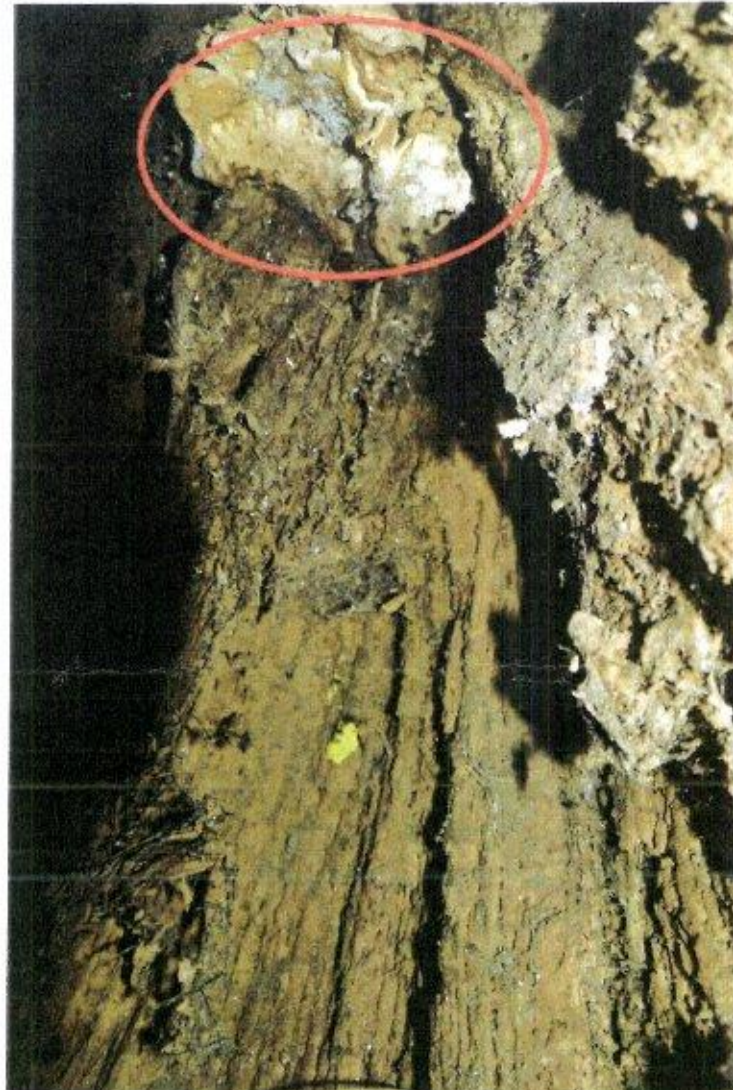
Figure 2. View of the stem from number 34 Gladys Avenue. The red arrow shows the start of the entrance to the cavity which opens into the next property. The yellow line shows the height of the cavity opening.



- 2.8 From this garden a large cavity is visible which extends from the south to the east into the inaccessible land. The opening to the cavity is 200mm wide at ground level tapering up to a height of 600mm. The depth of the open cavity extends horizontally into the trunk for 650mm in a northerly direction. Inside the cavity a measurement of 800mm was taken from the soil level inside to the top of the open void in the stem.
- 2.9 The wood inside the cavity was dry.

- 2.10 Desiccated remains of fungal fruiting bodies were located at the top of the internal wall of the cavity at 800mm (Figure 3). Identification of the fungus was made difficult due to its location and the dilapidated state of the fruiting body. In order to establish the species of fungus a sample would need to be sent to a specialist for identification. Fungal infection causes rot within the woody tissues of trees and this is likely to be contributing to the development and expansion of the cavity.

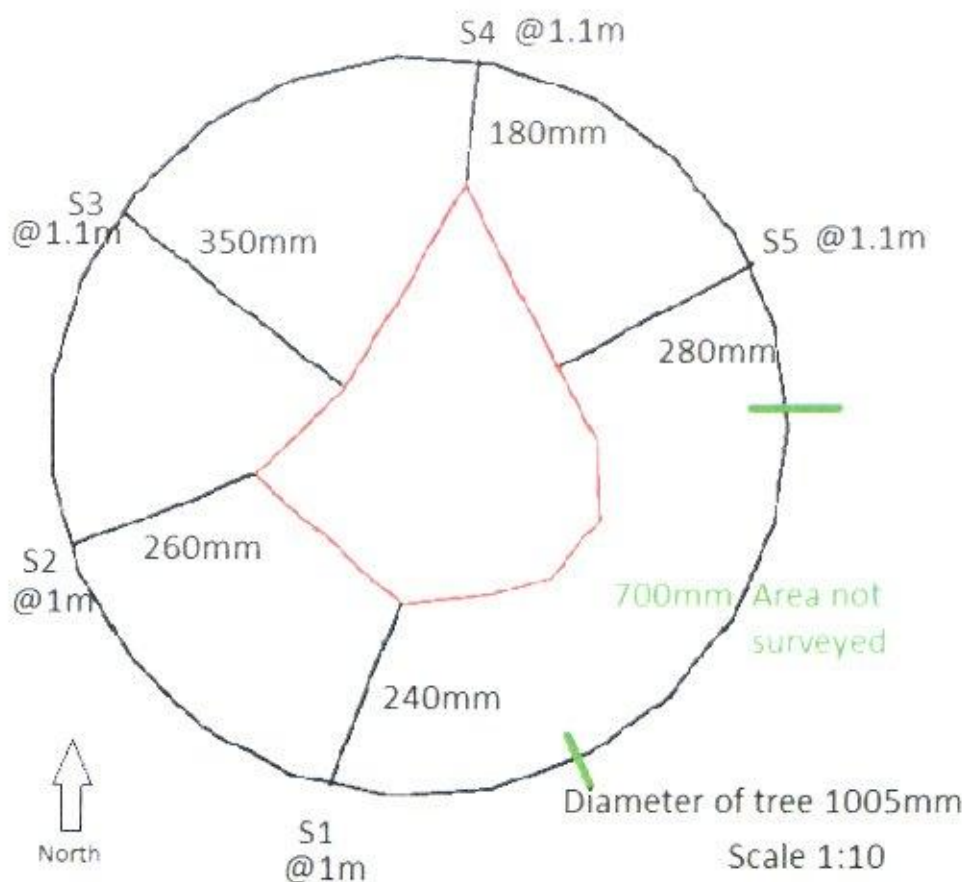
Figure 3. Looking up into the cavity showing the desiccated remains of a fungi at the top of the 800mm high cavity.



- 2.11 Two core samples were taken from the tree's stem in the garden of 34 Gladys Avenue at a height of 1m from the ground. The stem diameter at this point was 1005mm. A further three core samples were taken at 1.1m from ground level from the garden of 36 Gladys avenue.
- 2.12 The reason for the difference in height from ground level of these measurements is the 100mm difference of ground level between the two gardens. It therefore achieved a level cross-sectional reading of the sound woody tissues within the tree's stem.

- 2.13 At the time of inspection it was not possible to measure the diameter of the stem at the standard 1.5 m from ground level as the wall prevented the tape from being passed around the stem.
- 2.14 Core samples from the remaining segment of the stem were not taken as I was unable to gain access to the garden in which it is situated.
- 2.15 Three core samples were taken from a height of 500mm. The one sample from the garden of number 34 was taken above the large buttress root in the only area where a reasonable sample could be taken, this was found to have 350mm of sound wood before decay was encountered. The two further samples taken at 500mm in the garden of number 36 and returned results of 340mm and 330mm of sound wood.

Figure 4. A scale diagram of a cross section of the tree stem at 1 – 1.1m from ground level showing the depth of sound wood remaining as constructed from core samples taken S1 – S5. The red line indicates where the sound wood finishes and decayed wood starts.



- 2.16 No stem diameter could be accurately taken at this height to compare the results to because of the block wall against the tree to the east.
- 2.17 Sounding of the stem from the garden of 36 Gladys Avenue did not indicate any defects within the woody tissue.

- 2.18 Sounding of the stem from the garden of 34 Gladys Avenue indicated that a cavity is present between ground level and 1400mm from the ground at which point sound wood was encountered.
- 2.19 Sounding of the section of stem in the region which I was unable to access fully due to garden boundary fencing revealed wood to be of poor quality. This matched the observations of the bark quality as made through a gap in the fence (Figure 5). Evidence of old building damage to the buttress roots in this area (pre dating the recent structure shown in the picture) was also observed.

Figure 5. Looking down at the section of stem in the third property which could only be sounded with a mallet.



- 2.20 The above observations provide an understanding of the extent of the decay at the level at which the core samples were taken and where the open cavity is located. Sounding provides an assessment of the integrity of only the woody tissue which makes up the external portion of the stem.
- 2.21 The implications of the above assessment are that there is significant decay affecting the stem of this tree both at the cavity site and extending upwards into the stem. This decay significantly reduces the structural integrity of the wood and the cavity creates an area of weakness in the stem of the tree which will be a point of failure if the tree is left unmanaged.
- 2.22 Although there is sufficient sound wood at the level where the core samples were taken to maintain the tree in its current state, there is the unexplored factor of the quality of the woody tissue at the inaccessible segment of the stem, which I believe to be the area of greatest significance at this level of the stem due to the poor quality of the wood on sounding. In my opinion it is likely that the decay in the centre of the stem extends outwards towards the bark in this sector.
- 2.23 The open cavity extends approximately two thirds of the way into the stem and is 800mm in height. Combined with the extent of the known and suspected decay affecting the woody

tissues above it this reduction in structural integrity is believed to create a high risk of tree failure should the tree remain in its current state.

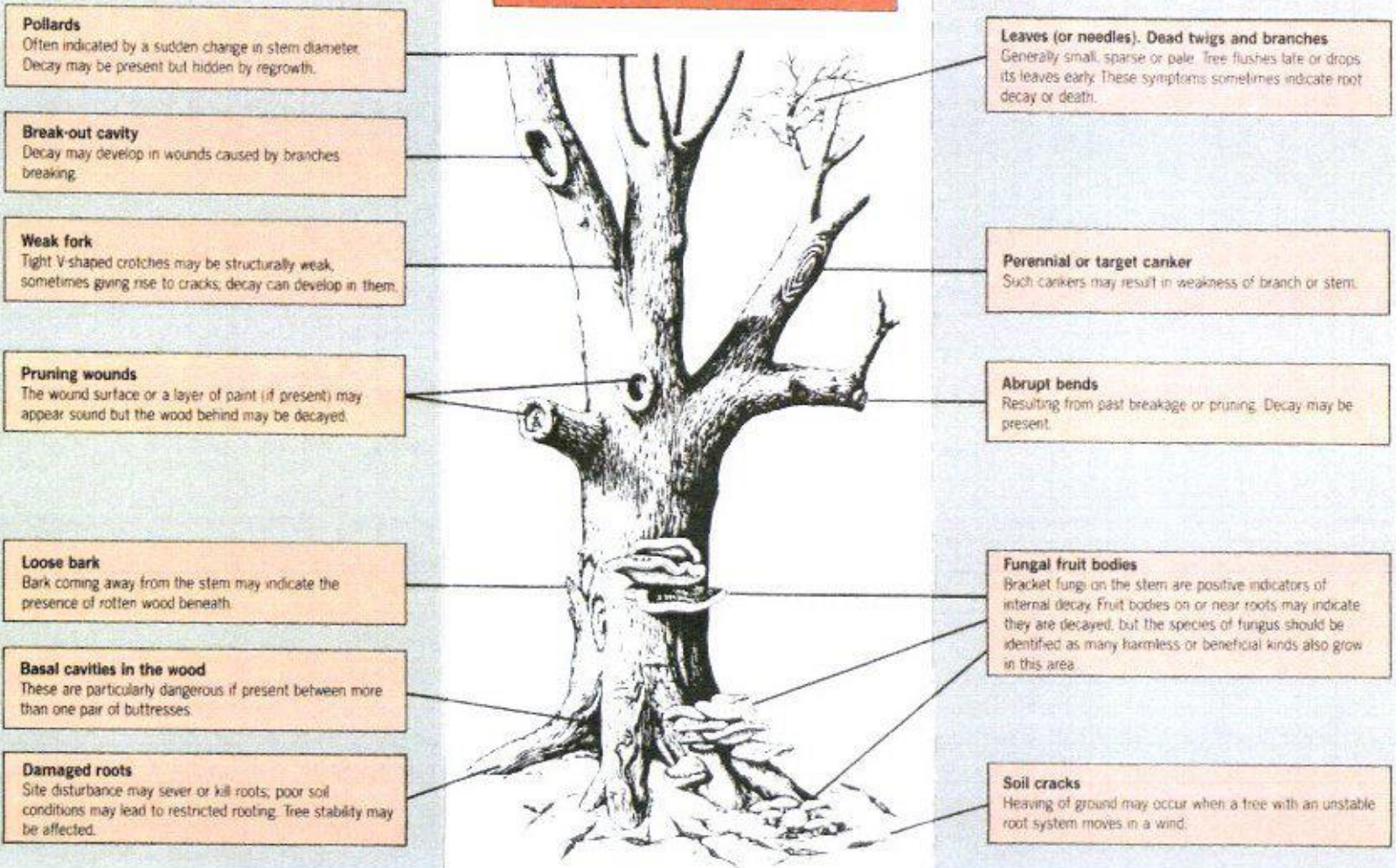
- 2.24 The target area, should the tree fail, contains gardens and residential property, making the consequences of tree failure extremely serious.
- 2.25 It would be possible to reduce the risk of failure and relieve the mechanical stresses caused by the weight, size and wind loading of the crown by carrying out a crown reduction on the tree. However, the extent of the reduction which would be required is so large that the tree would be likely to suffer health detriments as a result. Its aesthetics would be so significantly altered that it is my belief that this would not be desirable.
- 2.26 Unfortunately, it is therefore recommended that the tree should be felled and removed from the site to remove the risk of harm occurring to people or property.



3. Conclusions and recommendations

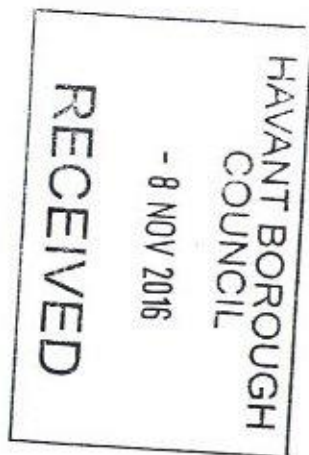
- 3.1 An inspection of one tree at 36 Gladys Avenue has been carried out and its position has been plotted on the plan at **MD3**
- 3.2 The tree in the corner of the garden was found to have a crown with no major defects and is in a healthy condition. The stem of this tree has a large open cavity which contains evidence of fungal infection.
- 3.3 The cavity will continue to increase in size over time. The decay extends upwards into the stem above the area of the visible decay at the open cavity. If the tree is left unmanaged the mechanical stresses from the crown of the tree will ultimately cause this area of weakness to fail resulting in the loss of the tree and highly likely damage to nearby property and people.
- 3.4 It is deemed that there is insufficient sound wood remaining to sustain the tree.
- 3.5 A crown reduction severe enough to reduce the risk of failure to acceptable levels would be detrimental the tree's health and would ruin its aesthetic appeal. This is therefore not recommended.
- 3.6 The tree should be felled and removed from the site to remove the risk of harm occurring to people of property as a result of its failure.
- 3.7 An application for works should be submitted to Havant Borough Council prior to any works being carried out together with a proposal for a replacement tree.

The Recognition of Hazardous Trees

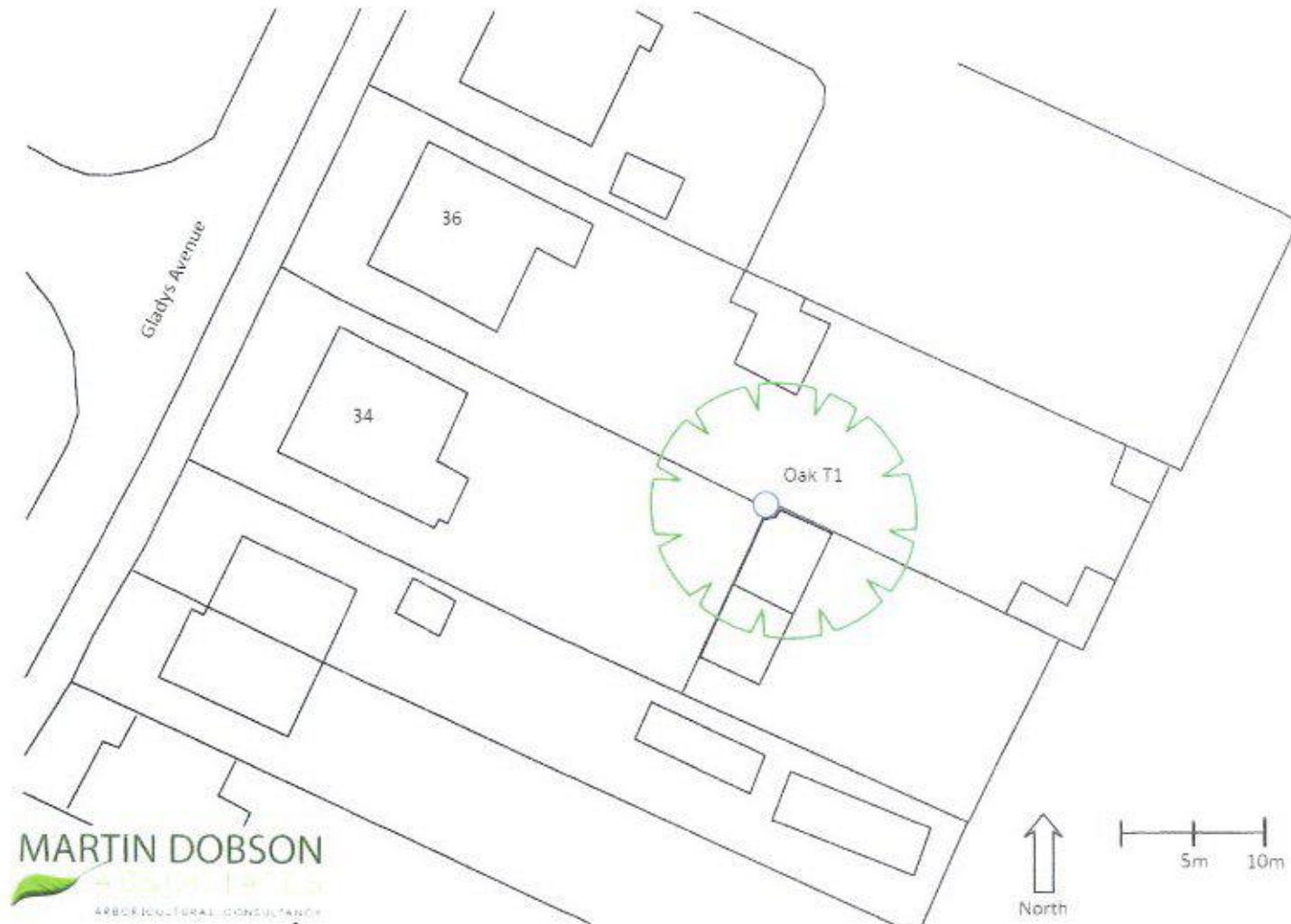


APPENDIX MD2
Schedule of trees inspected

Tree No.	Species	Height (m)	Trunk diameter (mm)	Crown Spread (m)	Age class	Physiological condition	Structural condition	Target Area	Potential for Failure	Comments	Tree works	Priority
T1	Oak	19	1005	N, 7.8 S, 8 E, 9 W, 7.8	M	Good	Poor	Rear gardens, 2x properties, Garages, Lawn, Sitting areas / play areas	Moderate	Old pruning wounds, Deadwood in crown, Large cavity at the base on the eastern aspect	Fell tree	Immediate



APPENDIX MD3
Site plan showing tree location.



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APPENDIX MD4

Qualifications and Experience

Dr Martin Dobson has been engaged in research and advisory work on trees since graduating in 1986 with a BSc (Hons) Degree in Biology. Subsequent postgraduate research led to the award of a Doctor of Philosophy (DPhil) Degree in Tree Physiology in 1990.

Postgraduate studies began in 1986 at the University of Ulster and continued in 1987 at the Forestry Commission's Research Station in Hampshire and focussed on the influence of air pollution on trees. Upon completion of this research in 1989 Dr Dobson was employed by the Forestry Commission and worked in both the Tree Pathology and Environmental Research Branches. During the next six years he was responsible for Department of Environment research contracts focussing on air pollution, climate change, de-icing salt damage to trees, woodland establishment on landfills and tree root research. He has authored two books: *De-icing Salt Damage to Trees and Shrubs* and *The Potential for Woodland Establishment on Landfill Sites*. He concluded his time at the Forestry Commission as Project Manager for research into the interaction between trees, roots and clay soils which included laboratory investigations, testing of root barriers and a three-year field-scale monitoring programme investigating the influence of woodland and grassland on the moisture status of clay soils.

In 1995 Martin joined the Arboricultural Advisory and Information Service as a senior Arboricultural Advisor. The AAIS advised the (then) Department of the Environment on matters concerning amenity trees and was the principal source of technical advice and information to the arboricultural profession as well as landscape architects, engineers, the horticultural industry and private individuals. A large proportion of advisory work focussed on issues relating to tree diseases and interactions between trees and buildings.

In 1997 Martin started an arboricultural consultancy practice specialising in subsidence and tree root claims, planning and development, tree safety and disease diagnosis. He was a local authority retained consultant providing expertise on tree protection practice and legislation from 1999 - 2006 and has dealt with several thousand Tree Preservation Order and Conservation Area applications.

He has extensive experience as an Expert Witness in the High Court, County Court and Magistrates Court. Notable recent cases he has been involved in include *Robbins v London Borough of Bexley* and *Khan v London Borough of Harrow* and *Kane*.

From 1995 to 2011 he was an examiner for the Professional Diploma in Arboriculture for the Royal Forestry Society/ABC Awards and he is currently an assessor for the Arboricultural Association Registered Consultant scheme. He has been a guest lecturer for the Middlesex University Countryside Management MSc course and for Portsmouth University. Together with Dr Giles Biddle he has devised and teaches introductory and advanced courses on trees and subsidence and co-presents seminars on trees and climate change with Professor Andy Moffat for the Arboricultural Association.

In addition to over 30 publications in scientific and technical journals he is the author of *Arboriculture Research and Information Note 130/95/ARB Tree Root Systems*, and leading author of:

Driveways Close to Trees. Arboricultural Practice Note 1. AAIS, Farnham.

Trees in Dispute. Arboricultural Practice Note 3. AAIS, Farnham.

Root Barriers and Building Subsidence. Arboricultural Practice Note 4. AAIS, Farnham.

He is a Fellow and Registered Consultant of the Arboricultural Association and is a Member by examination of the Expert Witness Institute.



Qualifications and Experience

Iain Waddell

Iain Waddell has been working with trees since 2010 when he retired from a career of professional Ski Coaching in Canada and New Zealand.

He began his studies at Sparsholt College in Winchester where he gained a Level Three extended Diploma in Arboriculture. During his studies he worked for a Petersfield based firm – Sequoia Tree Services, starting as a groundsman but rapidly developing his skills to become a lead climber. After 4 years Iain became a Company Director and began to expand the business.

Whilst carrying out tree works at Sequoia Iain developed not only his skills with a chainsaw but also his interest in the legal side of tree management. This prompted him to attend an Arboricultural Consultancy course through Tree Life Training AC Ltd based at Westonbirt Arboretum which resulted in the attainment of a Level 6 Diploma in Arboriculture. His choice of subject of specialist research was the management of veteran trees.

Iain is a member of the Arboricultural Association and is enjoying working as a member of Martin Dobson Associates.

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