MOORE TREES

Consulting Arborist

Arboricultural Assessment Report

55 William Street
Hornsby NSW 2077

Prepared by
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November 2018

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Table of Contents

Arboricultural Assessment Report

Prepared for: Peter Harrigan, Tree Management Officer, Parks & Recreation,
Hornsby Shire Council, PO Box 37, Hornsby NSW 1630

Prepared by: Paul Vezgoff, Consulting Arborist
Moore Trees PO Box 3114 Austinmer NSW 2515

1. Introduction

1.1 This Arboricultural Assessment Report has been commissioned by Peter Harrigan, Tree Management Officer, Parks & Recreation, Hornsby Shire Council, PO Box 37, Hornsby NSW 1630. This report is a health and hazard assessment for one (1) mature Blackbutt (*Eucalyptus pilularis)* growing on the road verge.

1.2 The Blackbutt (*Eucalyptus pilularis)* is one of the most widespread *Eucalypts* species on the east coast of New South Wales. The Blackbutt can grow to a large tree, over twenty (20) metres tall. The bark of this tree will turn grey prior to shedding in January (Fuller, 1995).

1.3 A Visual Tree Assessment (VTA) was performed on this tree on 24th October 2018 by Paul Vezgoff. The VTA consists of a detailed inspection of the subject tree from ground level to the upper canopy. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture, Arboriculture Australia and The Institute Australian of Consulting Arborists (IACA). It is also known as a Level 1: Limited Visual Assessment Process as per the International Society of Arboriculture best management practices titled *'Tree Risk Assessment"*.

1.4 No aerial inspection or major root excavation was undertaken on this tree. This inspection was undertaken due to concerns that the tree is potentially unstable due to a large pocket of decay within the basal area.

1.5 The tree investigated is located on the nature strip in 55 William Street, Hornsby NSW 2077 (Diagram 1). The subject tree can be seen in Plate 1.

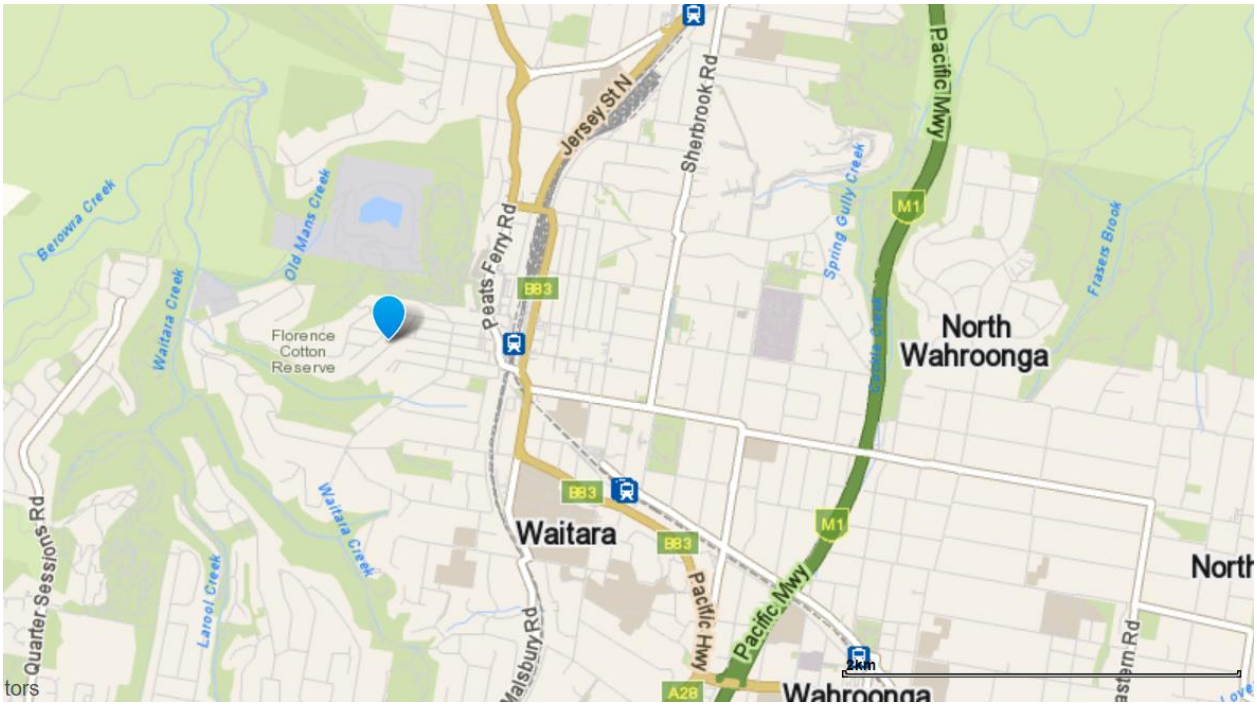

Diagram 1: The location of the subject tree. (Google earth 2018)

1.6 **Environmental Significance**: The Shire of Hornsby made the following Tree Preservation Order ('this Order'):- Pursuant to Part 5 Clause 5.9 of the Hornsby Local Environmental Plan 2013, Preservation of trees or vegetation, it is hereby ordered that the ring barking, cutting down, topping, lopping, removing, injuring and/or wilful destruction of any tree or trees to which this Order relates, is prohibited, except with the written consent of Council. For the purpose of this Order (TPO) the word 'tree' is defined as a long lived woody perennial plant, with one or relatively few main stems, with the potential to grow to a height greater than three (3) metres.

1.7 **Illegal tree removal:** Damaging or removing trees can result in heavy fines. Local Government does have the authority to issue on the spot fines known as penalty infringement notices (PINS) starting from $3,000 or can elect to have a potential tree damaging incident addressed in the Local Court. Recent cases include two mature trees removed for development (SSC v Palamara, 2008) costing $4,500 in fines and $5,000 in court costs. SSC v El-Hage concerning illegal tree removal of a single tree costing $31,500 in fines and $5,000 in costs. Poisoning trees can also incur substantial fines (SSC v Hill) single tree fine totaled $14,000 plus a $10,000 bond for a replacement tree. All of the above cases resulted in a criminal conviction for the guilty parties.

1.8 A hazard rating has been used to help determine recommendations for this tree (see 2. Observations). The location of infrastructure under the subject tree includes private garden area and residential dwelling. The location of this tree and the surrounding infrastructure would give this tree an *'Constant use'* target rating (Matheny & Clark, 1994). Industry standards would consider a *'Constant use'* rating an often frequented area, a busy area, e.g. a main thoroughfare of a street.

1.9 Recommendations are made in this report for the management of this tree.

2. Methodology

2.1 To record the health and condition of the subject tree, a Visual Tree Assessment (VTA) was undertaken on the subject tree on 24th October 2018. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture. All inspections were undertaken from the ground. No diagnostic devices were used on the subject tree.

2.2 **Height:** The heights and distances within this report have been measured with a Bosch DLE 50 laser measure.

2.3 **Risk Assessment:** The tree risk assessment matrix used by Moore Trees is based on the ISA (International Society of Arboriculture) risk/hazard assessment formula developed by Nelda P. Matheny & James R. Clark. To date there are more than 10 tree risk assessment methods available in Australia. The ISA hazard assessment formula is widely accepted across Australia.

2.4 **Safe Useful Life Expectancy (SULE)**: The subject trees were assessed for a Safe Useful Life Expectancy. A detailed explanation of SULE can be found in Appendix 1.

2.5 **Other documents referenced:** Not relevant.

3. Observations

3.1 The subject tree is a large mature Blackbutt, growing with an extreme asymmetrical lean to the south (Plate 1). The tree has a diameter at breast height (DBH) of approximately nine hundred (900) millimetres and extends for approximately 1.8 metres vertically, then grows horizontally for 3-4 metres before trying to self-correct (Plate 2).

The tree in total height is approximately seventeen (17) metres, with an asymmetrical bias of approximately eleven (11) metres.

The tree has an extensive cavity on the tension side that is within the basal area (Plate 3). It appears to be quite large and an internal void was noted (Plate 4). Wound wood is developing around the open cavity. There also appears to be termite damage occurring with some active termites found at the time of inspection. Termite damage this close to ground level could indicate that it is possible that the structural woody roots of this tree may be affected by termite damage. It would be very difficult to measure the amount of termite damage within the basal area and the root system of this tree due to the extent of fill that has occurred between the road and the tree.

Current building works are occurring around this tree by way of a new renovation to 55 William Street and it is likely that this driveway will be reconstructed, and levels are likely to change around this tree, impacting on its overall health and potential stability. I am not aware of the Development Consent conditions for this development, however the impacts of a new driveway should be taken into consideration.

3.2 A hazard rating (Matheny & Clark, 1994) has been calculated for failure of the main stem due to extended end weight of the entire tree. This hazard rating is calculated out of a score of 3-12, 12 being the highest rating for failure to occur. This rating system is used by the International Society of Arborists. The hazard rating is calculated as follows:

Failure potential: **1**-low, **2**-medium, **3**-high, **4**-severe

Size of part: **1**-<15cm, **2**-15-45cm, **3**-45-75cm, **4**->75cm

Target rating **1** Occasional use, **2** intermittent use, **3** frequent use, **4** constant use

Failure potential + Size of the part + Target rating = Hazard rating

Subject tree was rated as: 3 + 4 + 4 = 11

From the VTA this tree has scored a 11 out of a possible 12. Although there is no 'red line' as such with this method of risk calculation a score of 11 would be considered to be at the high range of the scale. Even with any form of restorative pruning, whilst taking into consideration the form and long term health of this tree, it would be difficult to reduce the rating to less than 9 due to the extreme lean.

I have allocated this tree a SULE rating of 4c; *Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.*

4. Recommendations

4.1 The tree is showing goods signs of health and vigor however it is the structure of the main stem that is of long term concern.

Although the tree has self-corrected, it is the cavity in the basal area along with the tension side of the stem being affected. In my experience, I would have to say I have not seen a tree grow like this in an urban situation. Combined with having a residential dwelling within the target area, I would find it very hard to say that this tree, with or without pruning, is safe to retain in the long term. Even with structural testing using Sonic Tomography I would still not recommend this tree is retained should the sound wood quantities pass the t/R formula.

Based on my assessment of the subject tree, I am recommending it is removed.

If you have any questions in relation to this report please contact me.

Your Sincerely,

Paul Vezgoff
Consulting Arborist
Dip Arb (Dist), Arb III, Hort cert, AA, ISA
14 November 2018

5. Images

Plate 1: *The subject tree. The red arrow marks the location of the basal area. P.Vezgoff.*

Plate 2: *Image showing the horizontal growth of the main stem. P.Vezgoff*

Plate 3:*The red line is the location of the open cavity on the tension side. P.Vezgoff.*

Plate 4:*Image showing the cavity. P.Vezgoff.*

Appendix 1

Moore Trees **Risk Assessment Matrix**				
Score	**Failure potential**	**Size of part**	**Target area**	**Hazard rating**
1 (Low)	Minor defects Die back of twigs Small wounds with good wound wood development. Small crossed branches	<100mm in diameter	Occasional use: Jogging, Cycling trail, no persons stationary in area.	
2 (Medium)	Cavity covering 10-25% of the circumference of the trunk. Codominant stems without included bark. Small fruiting bodies. Long horizontal branches Small epicormic growth (<6 metres in length).	100-450mm in diameter	Intermittent Use: Picnic area, day use parking, School playground area	
3 (High)	Cavity covering 30-50% of the circumference of the trunk. Codominant stems with included bark. Included bark. Large fruiting bodies. Long horizontal branches with large canopy. Dead canopy with leaves still attached. Structural woody roots pruned.	450-750mm in diameter	Frequent Use: Seasonal camping, storage facilities, Secondary structures. School building, School building entry area.	
4 (Severe)	Cavity covering >50% of the circumference of the trunk. Codominant stems with included bark and crack. Included bark with crack present. Large fruiting bodies with bulge around area. Long horizontal branches with large canopy bending down (Heavy reaction wood present). Dead canopy with wood soft to push. Structural woody roots pruned. Ground heaving or cracked around base of tree. Structural woody roots have evidence of decay.	>750mm in diameter	Constant Use: Year round use for a number of hours each day. Constant traffic through the day. Seating or playground below canopy. Residences.	
Total	**+2**	**+3**	**+3**	**=8**

Table 1: Moore Trees risk assessment matrix. The example shows that a calculated Hazard rating equates to 8 out of a potential 12.

The Moore Trees tree risk assessment matrix is based on the assessment formula developed by Nelda P. Matheny & James R. Clark

Appendix 2

SULE categories (after Barrell, 2001)[1]

SULE Category	Description
Long	*Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.*
1a	Structurally sound trees located in positions that can accommodate for future growth
1b	Trees that could be made suitable for retention in the long term by remedial tree care.
1c	Trees of special significance that would warrant extraordinary efforts to secure their long term retention.
Medium	*Trees that appeared to be retainable at the time of assessment for 15-40 years with an acceptable level of risk.*
2a	Trees that may only live for 15-40 years
2b	Trees that could live for more than 40 years but may be removed for safety or nuisance reasons
2c	Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide for new planting.
2d	Trees that could be made suitable for retention in the medium term by remedial tree care.
Short	*Trees that appeared to be retainable at the time of assessment for 5-15 years with an acceptable level of risk.*
3a	Trees that may only live for another 5-15 years
3b	Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
3c	Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
3d	Trees that require substantial remedial tree care and are only suitable for retention in the short term.
Remove	*Trees that should be removed within the next five years.*
4a	Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
4b	Dangerous trees because of instability or loss of adjacent trees
4c	Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
4d	Damaged trees that are clearly not safe to retain.
4e	Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
4f	Trees that are damaging or may cause damage to existing structures within 5 years.
4g	Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
4h	Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.
Small	*Small or young trees that can be reliably moved or replaced.*
5a	Small trees less than 5m in height.
5b	Young trees less than 15 years old but over 5m in height.
5c	Formal hedges and trees intended for regular pruning to artificially control growth.

updated 01/04/01)

1 (Barrell, J. (2001) "SULE: Its use and status into the new millennium" in *Management of mature trees*, Proceedings of the 4th NAAA Tree Management Seminar, NAAA, Sydney.

Appendix 3
Bibliography

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Matheny N.P & Clark J.R. (1994) *Evaluation of hazard trees in Urban areas*
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Appendix 4
Glossary

Branch attachment	The structural linkage between branch and stem.
Branch Collar	The area of raised tissue around a branch.
Decay	The process of degradation of woody tissues by fungi and bacteria through the decomposition of cellulose and lignin.
DBH	Diameter at Breast Height. This is a standard industry measurement term.
Epicormic shoot	A shoot that arises from latent or adventitious buds that occur on stems branches or the bases of trees
Hazard	A hazard is anything with the potential to harm health, life or property. (WorkCover NSW 1996)
Inclusion	Where the bark grows inward at a branch attachment and there is a high likelihood of decay or poor strength to hold the branch in place.
Infrastructure	Permanent manmade installations that could consist of footpaths, buildings, underground pipes or services.
Lean	Departure of trunk from the vertical or near vertical position.
Reaction wood	Specialized secondary xylem that develops in response to prolonged structural stresses.
Risk	Is the likelihood or probability that a hazard will cause damage to health , life or property. (WorkCover NSW 1996)
Target Area	The area below a tree, usually within the dripzone.
Vigor	Overall health; capacity to grow and resist physiological stress.
Visual Tree Assessment	(VTA) Where a qualified Arborist will complete a detailed assessment of the tree.
Windthrow	The forces of wind pushing a tree followed by upheaval of the root plate.

Curriculum Vitae

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EDUCATION and QUALIFICATIONS

- 2007 – Diploma of Arboriculture (AQF Cert V) Ryde TAFE. (Distinction)
- 1997 – Completed Certificate in Crane and Plant Electrical Safety
- 1996 – Attained Tree Surgeon Certificate (AQF Cert II) at Ryde TAFE
- 1990 – Completed two month intensive course on garden design at the Inchbald School of Design, London, United Kingdom
- 1990 – Completed patio, window box and balcony garden design course at Brighton College of Technology, United Kingdom
- 1989 – Awarded the Big Brother Movement Award for Horticulture (a grant by Lady Peggy Pagan to enable horticulture training in the United Kingdom)
- 1989 – Attained Certificate of Horticulture (AQF Cert IV) at Wollongong TAFE

INDUSTRY EXPERIENCE

Moore Trees Arboricultural Services **January 2006 to date**

Tree Consultancy and tree ultrasound. Tree hazard and risk assessment, Arborist development application reports
Tree management plans.

Woollahra Municipal Council **Oct 1995 to February 2008**

ARBORICULTURE TECHNICAL OFFICER
August 2005 – February 2008
ACTING COORDINATOR OF TREES MAINTENANCE
June – July 2005, 2006
TEAM LEADER
January 2003 – June 2005
September 2000 – January 2003
HORTICULTURALIST
October 1995 – September 2000

Northern Landscape Services **July to Oct 1995**

Tradesman for Landscape Construction business

Paul Vezgoff Garden Maintenance (London, UK) **Sept 1991 to April 1995**

CONFERENCES AND WORKSHOPS ATTENDED

- QTRA Conference, Sydney Australia (November 2016)
- TRAQ Conference, Auckland NZ (October 2013)
- International Society of Arboriculture Conference (Brisbane 2008)
- Tree related hazards: recognition and assessment by Dr David Londsdale (Brisbane 2008)
- Tree risk management: requirements for a defensible system by Dr David Londsdale (Brisbane 2008)
- Tree dynamics and wind forces by Ken James (Brisbane 2008)
- Wood decay and fungal strategies by Dr F.W.M.R. Schwarze (Brisbane 2008)
- Tree Disputes in the Land & Environment Court – The Law Society (Sydney 2007)
- Barrell Tree Care Workshop- Trees on construction sites (Sydney 2005).
- Tree Logic Seminar- Urban tree risk management (Sydney 2005)
- Tree Pathology and Wood Decay Seminar presented by Dr F.W.M.R. Schwarze (Sydney 2004)
- Inaugural National Arborist Association of Australia (NAAA) tree management workshop- Assessing hazardous trees and their Safe Useful Life Expectancy (SULE) (Sydney 1997).