

ARBORICULTURAL IMPACT ASSESSMENT REPORT FARNELL ST, FORBES

14 December 2023

Version 3

Prepared for:

Land and Housing Corporation c/- ADW Johnson

Prepared by:

Mark Douglas Douglas Arbor

10 Tobruk Cres, Orange NSW 2800 **T** 0421 480 750 **E** mark@douglasarbor.com.au www.douglasarbor.com.au **ABN** 937 997 468 42

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INTRODUCTION

Background

This Arboricultural Impact Assessment was prepared for Mathew London of ADW Johnson concerning the subdivision proposed for Farnell and Dawson St, Forbes.

The site is located in the Forbes Shire Council area, which does not have a tree protection policy for trees on private land.

The report seeks to assess the impact of the proposed development on the trees and give recommendations and control measures to mitigate or reduce any negative impact on those trees.

In preparing this report, the author is aware of and considers the objectives of the:

- Forbes Development Control Plan 2013 (Forbes DCP)
- Australian Standard AS 4970-2009 Protection of trees on development sites (AS4970)
- AS4790 has been used as a benchmark in preparing this report.

The following plans have been provided and referenced:

Project/ Title	Author	Date	Reference on document
Constraints Plan	ADW Johnson	23/08/2022	Dwg ref.: QS0502-CONS-001[A] Ver.: A
Detail and Contour Survey Upon Crown Land Lots	ADW Johnson	18/05/2023	Dwg ref.: 240380(2)-DET-001-A Ver.: A Pages 1 - 14
Forbes Subdivision – Plan Package, 3 Sheets.	ADW Johnson	17/08/2023	Proj. No.: 240380(2)-CENG No.: 001-003 Rev.:A
Forbes Subdivision – Proposed Subdivision Plan Package, 23 Sheets.	ADW Johnson	12/12/2023	Proj. No.: 240380(2)-CENG No.: 001-003, 101-104, 111, 201- 206, 211, 401, 501-504, 801-805. Rev.:F

Methodology

A site visit was conducted on the 13th July 2023, to assess the relevant trees, collect data and make comments concerning the trees and the site.

The assessment is based upon a visual inspection from ground level using the Visual Tree Assessment (VTA) approach developed by Mattheck & Broeler (1994). The inspection was limited to a visual inspection of the trees without dissection, probing, aerial inspections (climbing) or tree root mapping. The assessment information relates to observations and data collected on the day of the inspection only and does not include changes after that.

Trunk diameter at breast height (DBH) was measured 1.4m above ground level (unless otherwise stated) using a Yamayo Diameter Tape. Tree heights were estimated. Tree Protection Zones (TPZ) were calculated using *AS4790* guidelines.

Aims

- Determine the impact of the proposed development on the subject trees.
- Identify the trees to be removed in relation to the proposed design.
- To give recommendations and control measures to mitigate or reduce any negative impact on the retained trees.
- Prepare tree protection measures for the retained trees.

OBSERVATIONS

The Site



Figure 1 The area marked Red shows the onsite area considered for this report.

The Plan



Figure 2 Servicing Plan, showing proposed stormwater (light Blue dash line) and sewer (Brown line).

Proposed Stormwater and Sewer

A proposed stormwater and sewer line will be installed along the western boundary, adjacent to Lot 369, and the south-eastern boundary north of Cedar Crescent.

The proposed stormwater trench will be offset from the property boundary by 1.7m.

The proposed sewer line trench will be installed beyond the adjacent stormwater trench and further away from the boundary.

The Trees

123 trees or tree groups are located onsite.

Only vegetation of tree species of significant size and landscape value have been included. This does not include large shrubs, hedge plants or woody weeds.

Refer to Appendix 1 for detailed tree data and Appendix 2 for the Tree Location Plan.

Onsite Trees

33 trees were found located onsite and may be removed without consent.

Protected Offsite Trees

90 trees were located close to the boundary line within adjacent properties or are street trees.

Under AS4970, these trees must be protected from development impact.

DISCUSSION

Tree Protection Zone (TPZ)

Australian Standard AS 4970-2009 Protection of trees on development sites (AS4970) defines the TPZ as 'A specified area above and below the ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability of a tree to be retained where it is potentially subjected to damage by development.'

AS4970 states, 'If the proposed encroachment is less than 10% of the TPZ or outside the SRZ, detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contagious with the TPZ.' And 'If the encroachment is greater than 10% of the TPZ or inside the SRZ, the project arborist must demonstrate that the tree(s) would remain viable.'

Structural Root Zone (SRZ)

AS4970 defines the SRZ as 'The area around the base of a tree required for the tree's stability in the ground.'

Onsite Trees

All 33 onsite trees will be removed.

Protected Off Site Trees Impacted by the Development

The following trees are to be retained and have their TPZ encroached by the proposed stormwater trench.

Tree No.	TPZ Encroachment
7, 12, 26, 75, 79, 82, 84 – 90, 94 – 97, 100 - 104	Minor <10%
24, 25, 92, 98, 105, 107, 108	Major >10%

Note: All other trees not listed above have no TPZ encroachment and no impact on tree health.

Trees 7, 12, 26, 75, 79, 82, 84 - 90, 94 - 97, 100 - 104

These trees have a TPZ encroachment of under 10%, which is deemed a 'Minor encroachment' according to *AS4970*.

The trenching works is not expected to impact the tree's health significantly.

This is because the trees and the more significant percentage of their TPZs are located offsite within the adjacent backyards, and the ground within is not expected to be altered.

The area of TPZ lost due to the proposed development can be compensated for within the backyards in accordance with *AS4970*.

Trees 24, 92, 98 and 105

These trees have a TPZ encroachment of 10%. Under AS 4970, this is deemed a 'major encroachment', and the project arborist must demonstrate that the tree is to remain viable.

These four trees are all in good condition, and the more significant percentage of their root zones are located offsite within the adjacent property and are growing within what appears to be unimpacted natural soil.

<u>Therefore, the trenching works are not expected to significantly impact the tree's health, and</u> <u>a detailed root investigation is not deemed necessary for these four trees</u>.

The area of TPZ lost due to the proposed development can be compensated for within the backyards in accordance with *AS4970*.

Trees 25, 107 and 108

These trees have a TPZ encroachment of over 10%. Under *AS 4970*, this is deemed a 'major encroachment', and the project arborist must demonstrate that the tree is to remain viable.

<u>The level of root loss caused by the excavation of the stormwater trench is potentially</u> <u>significant, with a possible and unacceptable moderate to high level of impact on the trees</u>.

To determine the potential impacts of the encroachment into the TPZs of Trees 25, 107 and 108, root mapping is required to identify the location, distribution, and size of the roots that would need to be removed for the proposed trench. The potential root mass loss can then be assessed to establish if the tree will remain viable post root severance and/or to implement measures to ensure that the tree remains healthy and viable.

Alternatively, the directional drilling method could be used to underbore beneath the root zones of Trees 25, 107 and 108 and install the stormwater pipe. This would need to be achieved outside of the TPZ of all trees and to a minimum depth of 0.9m.

RECOMMENDATIONS

• The following 33 onsite trees are within the footprint of the proposed development and will require removal:

Trees 1, 9, 19 - 23, 31 - 43, 62 - 74.

- Within the TPZ of Trees 7, 12, 24, 25, 75, 79, 82, 84 90, 92, 94 98, 100 105, 107, and 108, the stormwater trench setback will be no closer than 1.7m from the property boundary.
- **Trees 25, 107 and 108** A Root Mapping Report undertaken by an AQF 5 Arborist is recommended to assess the impact of the proposed stormwater trench. The root investigation will establish if the trees will remain viable under the current trenching plans and/or establish measures to be implemented to ensure that the trees remain healthy and viable.
- Alternatively, the stormwater pipe could be installed beneath the root zone of Trees 25, 107 and 108 using directional drilling equipment. This would need to be achieved outside of the TPZ of all surrounding trees and to a minimum depth of 0.9m.
- The Project Arborist is to supervise all works within the TPZ of Trees 25, 107 and 108.
- No works are to be undertaken within the TPZ of any retained trees without the approval of the Project Arborist.

Tree Protection Measures

- For **Trees 75 108**, located along the western boundary tree protection fencing shall be installed 1.7m from the boundary of Lot 369, running the entirety of the western fence line. No works are to be undertaken within the TPZ without the approval of the Project Arborist.
- For **Trees 10, 11 and 48**, tree protection zone fencing is to be installed at the extent of their TPZ area within the site. See Appendix 1 for individual tree's TPZ measurements.
- For **Trees 24 and 25**, tree protection zone fencing is to be installed at the extent of their TPZ area within the site and immediately adjacent to the proposed stormwater trench at 1.7m from the boundary. See Appendix 1 for individual tree's TPZ measurements.
- Refer to Appendix 3 for Standard Tree Protection Zone Measures.

Mark Douglas Diploma in Arboriculture (AQF Level 5) Registered QTRA Assessor Arboriculture Australia Member – Registered Consulting Arborist Institute of Australian Consulting Arborists (IACA) Associate Member



Disclaimer: The information in the report is true and accurate to the author's best knowledge. Best professional judgement was used to make recommendations. However, the author of this report is not responsible for any action taken or not taken in reliance on it. This report remains the property of the author and "the Client". It may not be used or reprinted without their express permission.

APPENDIX 1 – TREE SCHEDULE

Tree No.	Botanical Name	Common Name	Age	Height [m]	Canopy [m]	DBH [cm]	Health	Structure	TPZ [m]	ULE	Retention Value	Protection Status	TPZ Enc. %	Observations
1	Fraxinus excelsior 'Raywood'	Claret Ash	М	7	6	30	Good	Fair	3.6	М	М	No		Onsite tree. Asymmetrical crown
2	Callistemon viminalis	Weeping Bottlebrush	М	6	6	45	Good	Good	5.4	М	Н	Yes		Growing on boundary line. DBH measured at 0.5cm
3	Melaleuca sp.		М	3	2	15	Poor	Poor	2	S	L	Yes		
4	Fraxinus excelsior 'Raywood'	Claret Ash	М	4	5	29.21	Good	Fair	3.51	М	Н	Yes		Multi trunk
5	Fraxinus excelsior 'Raywood'	Claret Ash	М	4	4	20	Good	Fair	2.4	М	Н	Yes		
6	Fraxinus excelsior 'Raywood'	Claret Ash	М	4	5	26.68	Good	Fair	3.2	М	Н	Yes		Multi trunk
7	Fraxinus excelsior 'Raywood'	Claret Ash	М	4	5	30	Good	Fair	3.6	М	Н	Yes	6	
8	Acacia sp.	Wattle	М	7	6	30	Good	Good	3.6	L	Н	Yes		Approximately 2.5m from boundary.
9	Brachychiton populneus	Kurrajong	М	7	7	55	Good	Good	6.6	L	Н	No		Onsite tree.
10	Jacaranda mimosifolia	Jacaranda	М	7	5	30	Good	Good	3.6	М	М	Yes		Approximately 1m from boundary. Canopy over hangs site by 2m
11	Ceratonia siliqua	Carob	М	6	7	40	Good	Fair	4.8	L	М	Yes		DBH estimated. 1m from boundary. Canopy overhangs site by 4.5m
12	Fraxinus excelsior 'Raywood'	Claret Ash	М	6	5	35	Good	Fair	4.2	М	Н	Yes	2	
13	Fraxinus excelsior 'Raywood'	Claret Ash	М	6	5	30	Fair	Fair	3.6	S	М	Yes		
14	Fraxinus excelsior 'Raywood'	Claret Ash	М	7	6	35	Fair	Fair	4.2	М	Н	Yes		
15	Fraxinus excelsior 'Raywood'	Claret Ash	М	7	6	35	Fair	Fair	4.2	М	Н	Yes		
16	Fraxinus excelsior 'Raywood'	Claret Ash	М	7	5	30	Fair	Fair	3.6	S	М	Yes		
17	Fraxinus excelsior 'Raywood'	Claret Ash	М	6	5	30	Fair	Poor	3.6	S	М	Yes		
18	Fraxinus excelsior 'Raywood'	Claret Ash	М	5	5	30	Good	Fair	3.6	М	М	Yes		

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Tree No.	Botanical Name	Common Name	Age	Height [m]	Canopy [m]	DBH [cm]	Health	Structure	TPZ [m]	ULE	Retention Value	Protection Status	TPZ Enc. %	Observations
19	Melia azedarach	White Cedar	М	7	7	42.43	Fair	Poor	5.09	S	L	No		Onsite tree. Lopped, history of branch failure. Multi trunk
20	Melia azedarach	White Cedar	Μ	7	7	49.24	Fair	Poor	5.91	S	L	No		Onsite tree. Lopped, history of branch failure, decay in trunk. Multi trunk
21	Melia azedarach	White Cedar	М	3	3	15	Fair	Poor	2	S	L	No		Onsite tree.
22	Melia azedarach	White Cedar	М	3	3	12.17	Fair	Poor	2	S	L	No		Onsite tree. Stump regrowth. Multi trunk
23	Melia azedarach	White Cedar	М	3	3	20	Poor	Poor	2.4	S	L	No		Onsite tree. Dieback, decay in trunk.
24	Acacia sp.	Wattle	М	6	6	45	Good	Fair	5.4	L	Н	Yes	10	DBH estimated. Approximately 2m from boundary
25	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	40	Fair	Fair	4.8	М	М	Yes	16	DBH estimated. Approximately 1m from boundary
26	Grevillea robusta	Silky Oak	М	8	6	30	Good	Fair	3.6	L	Н	Yes	4	Approximately 3m from boundary
27	Ulmus parvifolia	Chinese Elm	М	8	8	42	Good	Fair	5.04	L	Н	Yes		Street tree
28	Ulmus parvifolia	Chinese Elm	М	7	7	43	Fair	Fair	5.16	L	Н	Yes		Street tree
29	Fraxinus griffithii	Evergreen Ash	S	3	2	1	Fair	Fair	2	S	L	Yes		Street trees. Group of 5 small trees
30	Fraxinus excelsior 'Raywood'	Claret Ash	S	4	3	20	Good	Good	2.4	М	Н	Yes		Street tree
31	Pistacia chinensis	Chinese Pistachio	М	3	4	25	Good	Good	3	L	М	No		Onsite tree. DBH measured at 0.5m
32	Pistacia chinensis	Chinese Pistachio	М	3	3	25	Fair	Poor	3	М	L	No		Onsite tree. Branch failure, poor structure
33	Eucalyptus polyanthemos	Red Box	М		5	35.36	Fair	Poor	4.24	S	L	No		Onsite tree. Major branch failure, broken head. Multi trunk
34	Eucalyptus polyanthemos	Red Box	М	7	4	30	Dead	Poor	3.6	D	L	No		Onsite tree. Dead
35	Eucalyptus polyanthemos	Red Box	М	7	5	15	Dead	Very Poor	2	D	R	No		Onsite tree. Dead
36	Eucalyptus polyanthemos	Red Box	М	7	5	15	Fair	Fair	2	М	М	No		Onsite tree.
37	Eucalyptus polyanthemos	Red Box	М	7	5	35.36	Dead	Very Poor	4.24	D	R	No		Onsite tree. Dead. Multi trunk
38	Sapium sebiferum	Chinese Tallow Tree	М	5	6	23	Good	Good	2.76	L	Н	No		Onsite tree.
39	Eucalyptus polyanthemos	Red Box	J	3	3	12.88	Fair	Poor	2	М	R	No		Onsite tree. Stump regrowth. Multi trunk
40	Eucalyptus polyanthemos	Red Box	S	4	2	12.21	Fair	Poor	2	М	R	No		Onsite tree. Dieback, stunted, poor structure. Multi trunk
41	Lagunaria patersonia	Norfolk Island Hibiscus	М	5	3	20	Good	Good	2.4	М	М	No		Onsite tree.
42	Pistacia chinensis	Chinese Pistachio	М	3	4	14.73	Fair	Fair	2	М	М	No		Onsite tree. Multi trunk
43	Unknown		М		3	15	Good	Fair	2	М	L	No		Onsite tree. DBH measured at base
44	Eucalyptus leucoxylon	Yellow Gum	М	7	7	30	Good	Fair	3.6	L	Н	Yes		Private tree approximately 1m from boundary. DBH estimated

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Tree No.	Botanical Name	Common Name	Age	Height [m]	Canopy [m]	DBH [cm]	Health	Structure	TPZ [m]	ULE	Retention Value	Protection Status	TPZ Enc. %	Observations
45	Eucalyptus leucoxylon	Yellow Gum	М	13		55	Good	Good	6.6	L	Н	Yes		Private tree approximately 1m from boundary. DBH estimated
46	Ulmus parvifolia	Chinese Elm	М	5	6	29	Good	Fair	3.48	М	Н	Yes		Street tree
47	Callistemon viminalis	Weeping Bottlebrush	М		6	28	Good	Fair	3.36	L	Н	Yes		Street tree. Growing on property boundary.
48	Fraxinus excelsior 'Raywood'	Claret Ash	S	3	4	13	Fair	Fair	2	S	М	Yes		Street tree
49	Pyrus calleryana 'Bradford'	Bradford Callery Pear	S	4	2	12	Good	Good	2	М	Η	Yes		Street tree
50	Pyrus calleryana 'Bradford'	Bradford Callery Pear	S	4	2	12	Good	Good	2	М	Н	Yes		Street tree
51	Pyrus calleryana 'Bradford'	Bradford Callery Pear	S	4	2	12	Good	Good	2	М	Н	Yes		Street tree
52	Pyrus calleryana 'Bradford'	Bradford Callery Pear	S	4	2	12	Good	Good	2	М	Н	Yes		Street tree
53	Pyrus calleryana 'Bradford'	Bradford Callery Pear	S	4	2	12	Good	Good	2	М	Н	Yes		Street tree
54	Pyrus calleryana 'Bradford'	Bradford Callery Pear	S	4	2	12	Good	Good	2	М	Н	Yes		Street tree
55	Sapium sebiferum	Chinese Tallow Tree	М	4	5	25	Good	Good	3	L	Н	Yes		Street tree
56	Sapium sebiferum	Chinese Tallow Tree	М	5	6	30	Good	Good	3.6	М	Н	Yes		
57	Robinia pseudoacacia	Black Locust	S	4	4	20	Fair	Fair	2.4	М	М	Yes		Street tree
58	Unknown	Conifer	S	4	4	15	Fair	Fair	2	М	М	Yes		Street tree
59	Fraxinus griffithii	Evergreen Ash	S	3	3	15	Good	Good	2	М	Н	Yes		
60	Fraxinus griffithii	Evergreen Ash	S	2	2	12	Good	Good	2	М	Н	Yes		
61	Sapium sebiferum	Chinese Tallow Tree	М	5	6		Good	Good		L	Н	Yes		
62	Acacia sp.	Wattle	М	4	4	25	Good	Fair	3	S	L	No		Onsite tree.
63	Callitris sp.	Cypress Pine	М	4	3	25	Good	Fair	3	L	М	No		Onsite tree.
64	Casuarina sp.	She-oak	М	6	3	25	Good	Fair	3	L	М	No		Onsite tree.
65	Callitris sp.	Cypress Pine	М	5	4	30	Good	Fair	3.6	L	М	No		Onsite tree.
66	Callitris sp.	Cypress Pine	М	6	4	25	Good	Good	3	L	М	No		Onsite tree.
67	Callitris sp.	Cypress Pine	М	7	4	28	Good	Good	3.36	L	М	No		Onsite tree.

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Tree No.	Botanical Name	Common Name	Age	Height [m]	Canopy [m]	DBH [cm]	Health	Structure	TPZ [m]	ULE	Retention Value	Protection Status	TPZ Enc. %	Observations
68	Callitris sp.	Cypress Pine	М	5	3	25	Good	Fair	3	L	М	No		Onsite tree.
69	Callitris sp.	Cypress Pine	М	5	2	25	Good	Good	3	L	М	No		Onsite tree.
70	Callitris sp.	Cypress Pine	М	5	3	35	Good	Fair	4.2	L	М	No		Onsite tree.
71	Callitris sp.	Cypress Pine	М	5	3	35	Good	Poor	4.2	М	М	No		Onsite tree.
72	Acacia sp.	Wattle	М	7	8	34.41	Good	Poor	4.13	М	М	No		Onsite tree. Multi trunk
73	Acacia sp.	Wattle	М	7	8	38.85	Good	Poor	4.66	М	М	No		Onsite tree. Multi trunk
74	Acacia sp.	Wattle	М	8	10	44.82	Fair	Fair	5.38	М	М	No		Onsite tree. Multi trunk
75	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	33	Good	Fair	3.96	L	Н	Yes	1	2m from boundary
76	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	30	Dead	Poor	3.6	D	R	Yes		Dead. 2m from boundary
77	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	30	Dead	Poor	3.6	D	R	Yes		Dead. 2m from boundary
78	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	30	Fair	Poor	3.6	М	М	Yes		2m from boundary
79	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	33	Good	Fair	3.96	L	Н	Yes	1	2m from boundary
80	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	30	Good	Fair	3.6	L	Н	Yes		2m from boundary
81	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	30	Dead	Poor	3.6	D	L	Yes		2m from boundary
82	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	36	Poor	Poor	4.32	S	L	Yes	3	2m from boundary
83	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	30	Poor	Poor	3.6	S	L	Yes		2m from boundary
84	Eucalyptus sideroxylon	Mugga Ironbark	М	11	5	38	Good	Fair	4.56	L	Н	Yes	5	2m from boundary
85	Eucalyptus sideroxylon	Mugga Ironbark	М	9	6	38	Good	Poor	4.56	М	М	Yes	5	2m from boundary
86	Eucalyptus sideroxylon	Mugga Ironbark	М	9	6	35	Good	Fair	4.2	М	М	Yes	2	2m from boundary
87	Eucalyptus sideroxylon	Mugga Ironbark	М	9	6	35	Dead	Poor	4.2	D	R	Yes	2	Dead. 2m from boundary
88	Eucalyptus sideroxylon	Mugga Ironbark	М	9	6	35	Fair	Poor	4.2	М	L	Yes	2	2m from boundary
89	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	35	Good	Fair	4.2	L	Н	Yes	2	2m from boundary
90	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	40	Good	Fair	4.8	L	Н	Yes	7	2m from boundary
91	Eucalyptus sideroxylon	Mugga Ironbark	М	7	6	25	Fair	Fair	3	L	Н	Yes		2m from boundary
92	Eucalyptus sideroxylon	Mugga Ironbark	М	12	6	45	Good	Fair	5.4	L	Н	Yes	10	2m from boundary
93	Eucalyptus sideroxylon	Mugga Ironbark	М	4	2	20	Fair	Poor	2.4	М	М	Yes		2m from boundary
94	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	40	Good	Fair	4.8	L	Н	Yes	6	2m from boundary
95	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	35	Good	Fair	4.2	L	Н	Yes	2	2m from boundary

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Tree No.	Botanical Name	Common Name	Age	Height [m]	Canopy [m]	DBH [cm]	Health	Structure	TPZ [m]	ULE	Retention Value	Protection Status	TPZ Enc. %	Observations
96	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	40	Good	Fair	4.8	L	Н	Yes	6	2m from boundary
97	Eucalyptus sideroxylon	Mugga Ironbark	М	8	5	40	Good	Fair	4.8	L	Н	Yes	6	2m from boundary
98	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	45	Good	Fair	5.4	L	Н	Yes	10	2m from boundary
99	Eucalyptus sideroxylon	Mugga Ironbark	М	10	5	30	Good	Fair	3.6	L	Н	Yes		2m from boundary
100	Eucalyptus sideroxylon	Mugga Ironbark	М	7	6	35	Good	Fair	4.2	L	Н	Yes	2	2m from boundary
101	Eucalyptus sideroxylon	Mugga Ironbark	М	7	6	35	Poor	Poor	4.2	L	Н	Yes	2	2m from boundary
102	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	40	Good	Fair	4.8	L	Н	Yes	7	2m from boundary
103	Eucalyptus sideroxylon	Mugga Ironbark	М	9	5	35	Good	Fair	4.2	L	Н	Yes	3	2m from boundary
104	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	35	Good	Fair	4.2	L	Н	Yes	2	2m from boundary
105	Eucalyptus cladocalyx	Sugar Gum	М	10	6	45	Good	Fair	5.4	L	Н	Yes	10	2m from boundary
106	Schinus molle	Peppercorn Tree	ОМ	5	5	25	Fair	Poor	3	S	L	Yes		2m from boundary
107	Brachychiton populneus	Kurrajong	М	7	8	55	Good	Good	6.6	L	Н	Yes	20	2m from boundary
108	Brachychiton populneus	Kurrajong	М	9	8	55	Good	Good	6.6	L	Н	Yes	31	2m from boundary
109	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	30	Good	Fair	3.6	L	Н	Yes		2m from boundary
110	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	30	Good	Poor	3.6	М	L	Yes		2m from boundary
111	Eucalyptus sideroxylon	Mugga Ironbark	М	7	3	30	Fair	Fair	3.6	М	Н	Yes		2m from boundary
112	Eucalyptus sideroxylon	Mugga Ironbark	М	12	6	47	Fair	Fair	5.64	L	Н	Yes		2m from boundary
113	Eucalyptus sideroxylon	Mugga Ironbark	М	8	6	30	Good	Fair	3.6	L	Н	Yes		2m from boundary
114	Eucalyptus sideroxylon	Mugga Ironbark	М	11	6	45	Good	Fair	5.4	L	Н	Yes		2m from boundary
115	Eucalyptus sideroxylon	Mugga Ironbark	М	11	6	45	Good	Fair	5.4	L	Н	Yes		2m from boundary
116	Eucalyptus sideroxylon	Mugga Ironbark	М	11	6	48	Good	Fair	5.76	L	Н	Yes		2m from boundary
117	Eucalyptus sideroxylon	Mugga Ironbark	М	6	3	30	Poor	Poor	3.6	S	L	Yes		2m from boundary
118	Eucalyptus sideroxylon	Mugga Ironbark	М	6	3	30	Good	Fair	3.6	S	L	Yes		2m from boundary
119	Eucalyptus sideroxylon	Mugga Ironbark	М	13	7	65	Good	Fair	7.8	L	Н	Yes		2m from boundary
120	Eucalyptus sideroxylon	Mugga Ironbark	М	7	5	35	Poor	Poor	4.2	S	L	Yes		2m from boundary
121	Eucalyptus sideroxylon	Mugga Ironbark	М	14	8	75	Good	Good	9	L	Н	Yes		2m from boundary
122	Eucalyptus sideroxylon	Mugga Ironbark	М	10	6	45	Good	Fair	5.4	L	Н	Yes		2m from boundary
123	Eucalyptus sideroxylon	Mugga Ironbark	М	12	8	45	Good	Good	5.4	L	Н	Yes		2m from boundary

Douglas Arbor ABN 937 997 468 42 Pl 0421 480 750 El mark@douglasarbor.com.au

Notes on Tree Schedule

Tree No.: Tree identification number used to identify each tree or tree group.

Species: Botanical name and common name of the tree species. Where the species is unknown, "sp." Is indicated after genus.

Age: J – Juvenile that is yet to establish. S – Semi-mature - established tree that has not reached its genetic potential of form and/or size. M – Mature – tree that has attained its genetic potential for form and size. OM – Over-mature – tree that shows symptoms of irreversible decline.

Height: Tree height in metres.

Canopy: Average estimated canopy spread in metres. Where the canopy is significantly asymmetrical all directions of canopy radius are estimated.

DBH: Diameter at Breast Height measured at 1.4m above ground unless otherwise noted. Multiple measurements indicate multiple trunks.

Health: G - Good – In good health with no significant health issues noted. F - Fair – Some health issues that could be addressed by intervention. P - Poor – Significant health issues that could be addressed by intervention.

Structure: G - Good - No defects noted within the tree. F - Fair - Minor defects noted within tree. P - Poor - Major defects noted within tree. VP - Very Poor - Significant defects have caused tree structure to fail.

ULE: Useful Life Expectancy – The estimated length of time the tree will live with an acceptable level of risk and provide a positive amenity value to the site. L - Long – 40 yrs. or more. M – Medium – 16 -39 yrs. S – Short – 5 -15 yrs. R – Remove – tree requires removal.

Retention Value: See STARS below. H - High, M - Medium, L - Low, R - Remove.

Protection Status: No - Onsite tree that maybe removed without approval. Yes - Offsite tree (private or street tree) requiring protection from development impact.

TPZ: Tree Protection Zone – A defined radial area around a tree within which certain activities are prohibited or restricted to prevent or minimise the potential negative impact on the tree. Calculated as per AS4970.

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the Tree Significance -Assessment Criteria and Tree Retention Value - Priority Matrix, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of High, Medium and Low significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria

1. High Significance in landscape



- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity; The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community
- group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms, The tree has a wound or defect that has potential to become structurally unsound.
- Environmental Pest / Noxious Weed Species
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.
- Hazardous/Irreversible Decline
- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.



USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

REFERENCES

Australia ICOMOS Inc. 1999, The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance, International Council of Monuments and Sites, www.icomos.org/australia

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Footprint Green Pty Ltd 2001, Footprint Green Tree Significance & Retention Value Matrix, Avalon, NSW Australia, www.footprintgreen.com.au

IACA 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, www.iaca.org.au

APPENDIX 2 - TREE LOCATION PLAN

























APPENDIX 4 – STANDARD TREE PROTECTION ZONE MEASURES

The following tree protection measures must be followed to ensure that the TPZ is isolated, the impact of the development on the tree's health is kept to a minimum, and that the site complies with AS4970-2009.

-The TPZ is a restricted area to be delineated by a protective fence installed prior to site establishment and must remain intact until completion of the works.

- The fence must not be altered or removed without the approval of the project arborist. If access is required or minor activities are to be undertaken within the TPZ, it must be approved by the project arborist.

- No routing of services, parking of vehicles, stacking of builder's materials/ equipment, or disposing of fuels, paints, chemicals or any other liquids is to occur within the TPZ.

- The protective fence should be constructed from ridged chain wire mess panels (or similar), 1.8m in height, and securely anchored without penetrating the ground. An example from AS4970-2009 is shown below.



- Signs identifying the TPZ should be placed on the fencing and be visible from within the development site from all angles. An example from AS4970-2009 is shown below.

