



Arboricultural Impact Assessment Report

For the site address

IRT Woonona,
No. 6-8 Popes Road
WOONONA NSW

Prepared for

IRT Pty Ltd

AUTHOR

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1.0 Introduction

1.1 *Allied Tree Consultancy* (ATC) has been commissioned by *IRT Pty Ltd* to prepare an Arboricultural Impact Assessment for the development proposal at IRT Woonona; No. 6-8 Popes Road, Woonona. This proposal includes the staged demolition of existing buildings (excluding Flametree Residential Aged Care Facility, Camelia Lodge and the Church), including some hardstand demolition and tree removal for the development of several new buildings. This report includes one hundred and twenty-three (123) trees located on, and adjacent to the lot, and discusses the viability of these trees based on the proposed works.

1.2 This report will address for these trees, the:

- species' identification, location, dimensions, and condition;
- SULE (Safe Useful Life Expectancy) and STARS (Significance of a Tree Assessment Rating System) rating;
- discussion and impact of the proposed works on each tree;
- tree protection zones and protection specifications for trees recommended for retention.

1.3 The subject site resides within Woonona; for this reason, Wollongong City Council is the consenting authority for any tree works recommended in this report.

2.0 Standards

2.1 Allied Tree Consultancy provides an ethical and unbiased approach to all assignments, possessing no association with private utility arboriculture or organisations that may reflect a conflict of interest.

2.2 This report must be made available to all contractors during the tendering process so that any cost associated with the required works for the protection of trees can be accommodated.

2.3 **It is the responsibility of the project manager to provide the requirements outlined in this report relative to the Protection Zones, Measures (Section 7.0) and Specifications (Section 8.0) to all contractors associated with the project before the initiation of work.**

2.4 All tree-related work outlined in this report is to be conducted in accordance with the:

- Australian Standard – AS4373; Pruning of Amenity Trees.
- Guide to Managing Risks of Tree Trimming and Removal Work¹.

¹ Safe Work Australia; July 2016; Guide to Managing Risks of Tree Trimming and Removal Work, Australia

- All tree works must be carried out at a tertiary level (minimum Certificate-level 3) qualified and experienced (minimum five years) arboriculturist.
- For any works in the vicinity of electrical lines, the arboriculturist must possess the ISSC26 endorsement (Interim guide for operating cranes and plant in proximity to overhead powerlines).

2.5 As a minimum requirement, all trees recommended for retention in this report must have removed all deadwood, hangers and branch stubs to be pruned to the branch collar. This work must comply with the local government tree policy (Wollongong City Council) and Section 2.4.

2.6 Any tree stock subject to conditions for works carried out in this report must be supplied by a registered Nursery that adheres to the AS 2303; 2015².

- All tree stock must be of at least 'Advanced' size (minimum 75lt) unless otherwise requested.
- All tree stock requested must be planted with adequate protection. This may include tree guards (protect stem and crown) and if planted in a lawn area, a suitable barrier (planter ring) of an area, at least, 1m² to prevent grass from growing within the area adjacent to the stem.

3.0 Disclosure Statement

Trees are living organisms and, for this reason, possess natural variability. This cannot be controlled. However, risks associated with trees can be managed. An arborist cannot guarantee that a tree will be safe under all circumstances, nor predict the time when a tree will fail. To live or work near a tree involves some degree of risk, and this evaluation does not preclude all the possibilities of failure.

4.0 Methodology

4.1 The following tree assessment was undertaken using criteria based on the guidelines issued by the International Society of Arboriculture.

4.2 The format of the report is summarised below;

4.2.1 Plan 1; Tree Location Relative to Site: This is an unscaled plan reproduced from the Survey Plan as referenced in Section 4.4.1, depicting the area of assessment.

4.2.2 Table 1; This table compiles the tree species, dimensions, brief assessment (history, structure, pest, disease or any other variables

² Australian Standard; 2015, AS2303, Tree stock for landscape use, Australia

subject to the tree), significance, allocation of the zones of protection, i.e., Nominal Root Zone³ (NRZ) and Structural Root Zone; (SRZ) for each tree illustrated in Plan 1, Section 5.0. All measurements are in metres.

4.2.3 Discussion relating to the site assessment and proposed works regarding the trees.

4.2.4 Protection Specification; Section 8.0 details the requirements for that area designated as the Nominal Root Zone, for those trees recommended for retention.

4.3 The opinions expressed in this report, and the material, upon which they are based, were obtained from the following process and data supplied:

4.3.1 Site assessment on the 3rd April 2024 using the method of the Visual Tree Assessment⁴. This has included a Level 2 risk assessment, being a Basic Assessment⁵. The assessment has been conducted by Greg Penkow⁶ on behalf of Allied Tree Consultancy. An updated assessment (for trees No. 71-93) was undertaken on the 28th November 2024, by Geoff Beisler⁶. An additional assessment was undertaken on the 26th May 2025, for trees No. 94-116, and the area identified as 'Area A', see Plan 1, Section 5.0, by Geoff Beisler.

4.3.2 The majority of trees (trees No. 1-59) included in this report are those that have been assigned a number by another Arboricultural Consultant⁷ initially contracted by IRT. This tree numbering has been requested to be retained by the project management at the time of the project's assignment. Consequently, several trees have been allocated the same number. To distinguish between these trees that have been assigned the same number, a decimal value e.g., 17.1, 17.2, etc, has been allocated.

4.3.3 All measurements, unless specified otherwise are taken from the centre of the root crown, that is, the part of the tree that enters the ground.

³ Australian Standard, 4970; 2025 – Protection of Trees on Development Sites, Australia.

⁴ Mattheck, C. Breloer, H., 1994, The Body Language of Trees – A handbook for failure analysis The Stationary Office, London.

⁵ Dunster J.A., 2013, Tree Risk Assessment Manual, International Society of Arboriculture, 2013, USA.

⁶ Consulting Arborist, Diploma of Arboriculture (level 5).

⁷ Matthew Reed, Arboricultural Impact Assessment Report, 10th November 2023, Reference AIA-23-739, Revision 2

4.3.4 Tagging of trees with scribed aluminium tags nailed to the trees at chest level and facing the centre of the site.

4.3.5 Raw data from the preliminary assessment, including the specimen's dimensions, were compiled using a diameter tape, height clinometer, angle finder, compass, steel probes, Teflon hammer, binoculars, and recording instruments.

4.4 Documentation provided

The following documentation has been provided to Allied Tree Consultancy and utilised within the report.

4.4.1 Surveyor

Drawn by *K.F Williams & Associates P/L*

Date: 22 October 2021

Reference: KF113780

Drawing No: Sheet 1 of 2

Note 1: See Section 4.5.4

4.4.2 Surveyor

Drawn by *Orion*

Date: 4 April 2025

Reference: 23-0173

Drawing No: SV-04, sheets 1 and 2 of 2, revision 01

Note 2: See Section 4.5.1 and 4.5.2

4.4.3 Design

Drawn by *Calderflower Architects P/L*

Date: 4 March 2026

Reference: NA230291

Drawing No: C04-001, issue <H

4.4.4 Civil (Bulk Earthworks Plan)

Drawn by *Innovis*

Date: 12 March 2026

Reference: J1406-CIV-DRG

Drawing No: J1406-CIV-DRG-C050, revision H

Pages; 18 pages

4.5 Limitations of the assessment/discussion process

4.5.1 Tree No. 73 appears to be located incorrectly on this drawing (and was also indicated twice), and the actual location, based on existing footprints of surrounding trees, has been estimated by this

office. The location has also been amended within Plan 2, Section 5.2. Trees No. 112-116 are not included in the drawing. *Allied Tree Consultancy* is not a registered surveyor and, however, the accuracy of the survey is attempted; the true position of the trees may marginally deviate. Any such deviation provides the potential for changing the actual impact (encroachment) provided to a tree.

- 4.5.2** Some discrepancy appears to exist with the location of the trees issued on the survey within Area A. This has been based on the tree location relative to the existing structures, other trees, and site boundaries.
- 4.5.3** Tree No. 54 is absent from the site plans as it has been removed from site and therefore no longer exists.
- 4.5.4** The area nominated as 'Area A' (see Plan 1, Section 5.0), is a drainage reserve/ area of dense vegetation, extensive weed stock and greatly limited movement; this area contains many trees less than 5m in height and not located on the survey supplied, and/or the survey does not match the footprint of the many trees present. Additionally, it has not been possible to establish the site boundaries in this area, due to the dense vegetation and inconsistency between past reports and multiple drawings. The trees within this area have not been assessed, and therefore the tree impacts by bulk earthworks in this area have not been established.
- 4.5.5** The assessment has considered only those target zones that are apparent to the author and the visually apparent tree conditions, during the time of assessment.
- 4.5.6** Any tree regardless of apparent defects would fail if the forces applied to exceed the strength of the tree or its parts, for example, extreme storm conditions.
- 4.5.7** The assessment has been limited to that part of the tree which is visible, existing from the ground level to the crown. Root decay can exist and in some circumstances provide no symptoms of the presence. This assessment responds to all the symptoms provided by a tree, however, cannot provide a conclusive recommendation regarding any tree that may have extensive root decay that leads to windthrow without the appropriate symptoms.

5.0 Plan 1; Area of assessment illustrating tree location

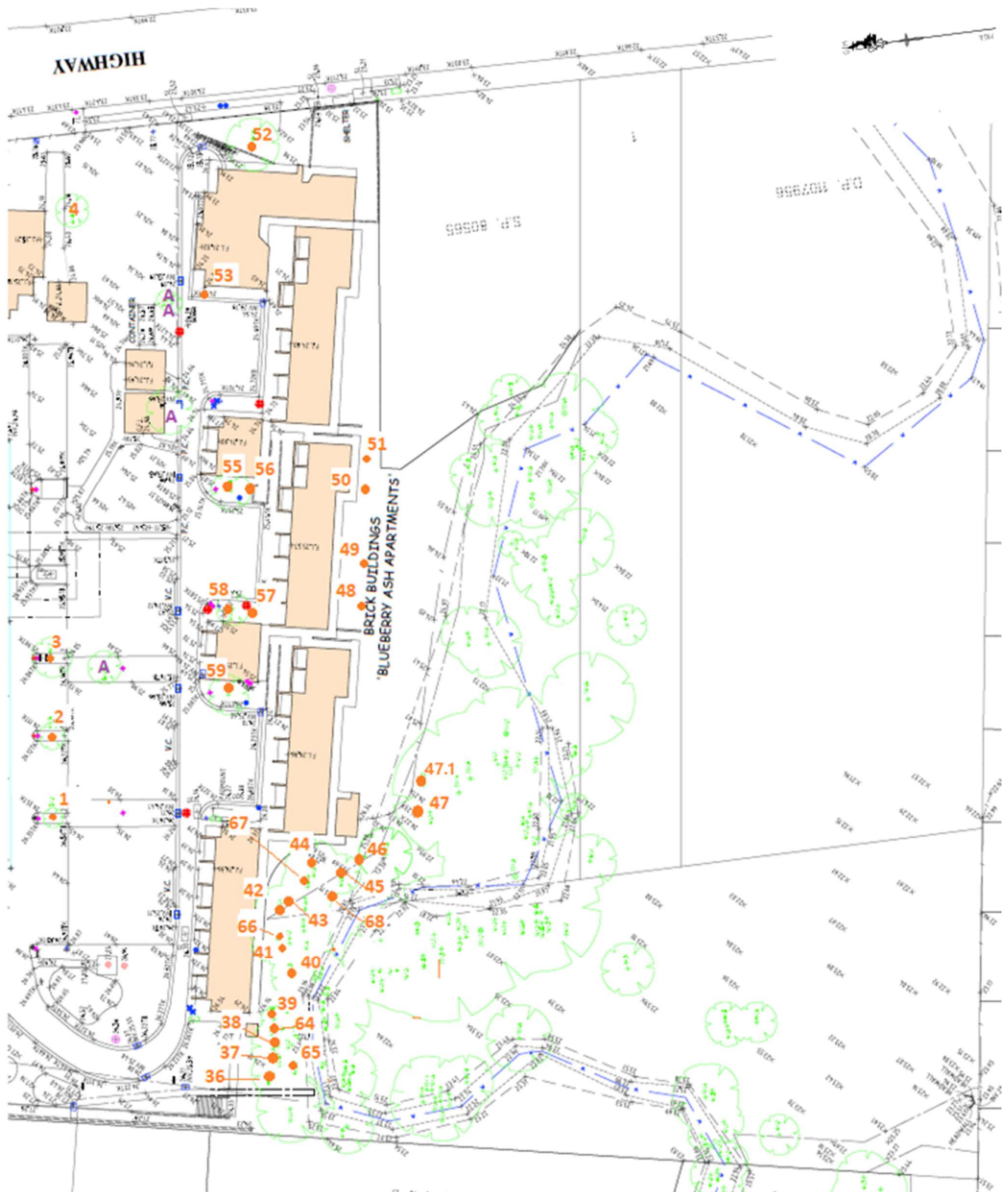


Not to scale.

Trees labelled A, are exempt species, see Section 7.0.

Source: Adapted from K.F Williams & Associates P/L, see Section 4.4.1.

5.1 Plan 2; Area of assessment illustrating tree location



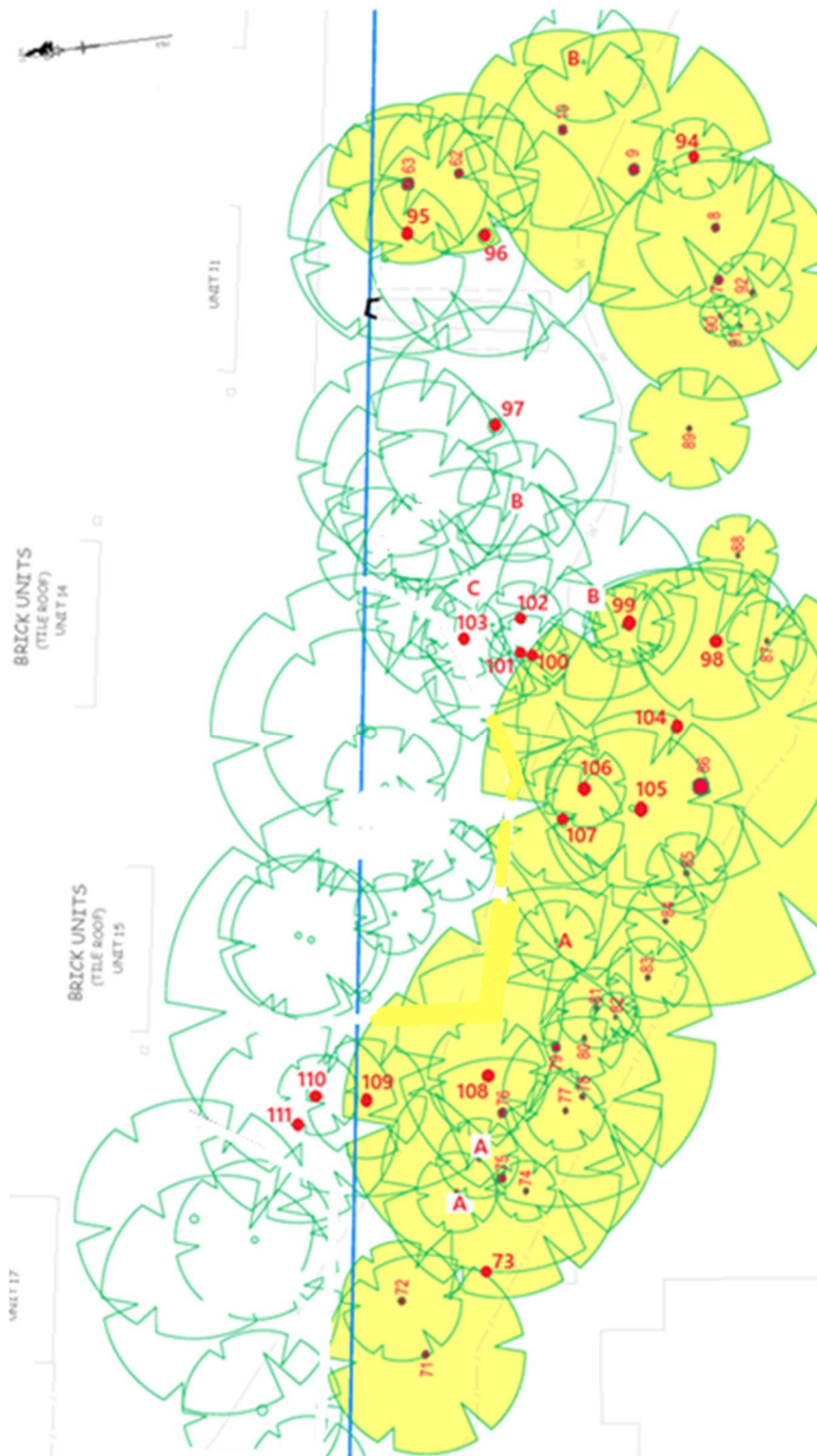
Not to scale.

Tree No. 54 has been removed from site, and therefore is absent within Plan 2.

Trees labelled A are exempt species, see Section 7.0.

Source: Adapted from K.F Williams & Associates P/L, see Section 4.4.1.

5.2 Plan 3; Area of assessment illustrating tree location



Not to scale.

For comments on trees not indicated, see Section 4.5.5 and Section 7.0.

Source: Adapted from Orion, see Section 4.4.2.

6.0 Table 1 – Tree Species Data

Terminology/references provided in Appendix A.

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
1	<i>Lagerstroemia indica</i> Crape Myrtle	3	0.20	3 x 3	M	D	Sym	A	2A	Medium	2.40	1.68
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
2	<i>Lagerstroemia indica</i> Crape Myrtle	3	0.14	2 x 2	M	D	Sym	A	2A	Medium	1.68	1.45
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
3	<i>Lagerstroemia indica</i> Crape Myrtle	4	0.21	4 x 4	M	D	Sym	A	2A	Medium	2.52	1.72
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
4	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	9	0.28	4 x 4	M	D	Sym	A	2A	High	3.00	0.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
5	<i>Magnolia grandiflora</i> Bull Bay	5	0.19	3 x 3	y	D	Sym	A	2A	Medium	2.28	1.65
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
6	<i>Ficus benjamina</i> 'Exotica' Weeping Fig	10	0.80 ^{C,B}	14 x 14	M	D	Sym	A	1B	High	9.60	3.01
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
7	<i>Eucalyptus saligna</i> Sydney Blue Gum	20	0.60	12 x 12	M	C	Sym	A	1B ^c	High	7.20	2.67

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment This tree presents as typical of its species. Wounding is visible at 10m on the eastern leader.											Development Impact See Section 7.1.2	
8	<i>Eucalyptus botryoides</i> Bangalay ^A	17	0.35	8 x 8	M	C	Sym	A	1B	High	4.20	2.13
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
9	<i>Eucalyptus botryoides</i> Bangalay	15	0.47	7 x 8	M	C	NE	A	1B	High	5.64	2.41
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
10	<i>Eucalyptus botryoides</i> Bangalay	16	0.40	10 x 9	M	C	E	A	1B	High	4.80	2.25
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
11	<i>Eucalyptus saligna</i> Sydney Blue Gum	22	0.60 ^C	11 x 10	M	C	N	A	1A	High	7.20	2.67
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
12	<i>Eucalyptus saligna</i> Sydney Blue Gum	21	0.63	11 x 11	M	C	Sym	A	1A	High	7.56	2.73
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
13	<i>Eucalyptus saligna</i> Sydney Blue Gum	20	0.59 ^C	10 x 11	M	C	Sym	A	1A	High	7.08	2.65
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
14	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	7	0.31	3 x 3	M	C	Sym	B	2A	Low	3.72	2.02

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment This tree presents as typical of its species. The foliage appears to be damaged by insects. This has caused leaf curl consistent with damage caused by the Illawarra flame tree mite.											Development Impact See Section 7.1.1	
15	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	7	0.42	5 x 5	M	C	Sym	B	2A	Medium	5.04	2.30
Assessment This tree presents as typical of its species. The foliage appears to be damaged by insects. This has caused leaf curl consistent with damage caused by the Illawarra flame tree mite.											Development Impact See Section 7.1.2	
16	<i>Syzygium paniculatum</i> Magenta Lilly Pilly	7	0.34 0.29	6 x 6	M	C	NW	A	2A	Medium	5.36	2.36
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.1	
17	<i>Livistona australis</i> Cabbage Palm	5	0.30	4 x 4	M	C	Sym	A	2A	Medium	2.00	1.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.1	
17.1	<i>Livistona australis</i> Cabbage Palm	5	0.30	4 x 4	M	C	Sym	A	2A	Medium	2.00	1.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.1	
18	<i>Callistemon viminalis</i> Weeping Red Bottlebrush	3	0.20 ^{A,B}	3 x 3	M	D	Sym	A	2A	Low	2.40	1.68
Assessment This tree was listed on the last Impact Assessment report however is an exempt tree as it is under 5m in height.											Development Impact See Section 7.1.1	
19	<i>Robinia pseudoacacia</i> ^A Black Locust	4	0.45	6 x 6	M	C	Sym	A	2A	Low	5.40	2.37
Assessment This tree presents as typical of its species. This tree was listed on the last Impact Assessment report however is an exempt tree as it is under 5m in height.											Development Impact See Section 7.1.1	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
20	<i>Robinia pseudoacacia</i> Black Locust	4	0.35	4 x 4	M	C	Sym	A	2A	Low	4.20	2.13
Assessment Pruned for power line clearance. This tree was listed on the last Impact Assessment report however is an exempt tree as it is under 5m in height.											Development Impact See Section 7.1.1	
21	<i>Harpephyllum caffrum</i> Kaffir Plum	10	0.66	9 x 10	M	C	Sym	A	2A	Medium	9.00	2.93
Assessment This tree presents as typical of its species. This tree was listed on the last Impact Assessment report however is listed on Wollongong City Council's exempt tree species list.											Development Impact See Section 7.1.3	
22	<i>Harpephyllum caffrum</i> Kaffir Plum	10	0.75 ^{B,C}	11 x 11	M	C	Sym	A	2A	Medium	7.92	2.78
Assessment This tree presents as typical of its species. Ramifies into four separate leaders at 1m. This tree was listed on the previous Impact Assessment report however is listed on Wollongong City Council exempt tree species list.											Development Impact See Section 7.1.4	
23	<i>Eucalyptus pilularis</i> Blackbutt	24	1.74 ^{B,C}	14 x 15	O	D	Sym	A ^E	2D ^E	High	15.00	4.18
Assessment This large and significant, apparently remanent tree presents as typical of its species. The tree divides into two separate leaders from a 1.5m stem. There is some wounding in the crotch areas throughout the crown of the tree. The wounds have most likely been inflicted by native parrots. This would require an aerial assessment to provide further comment on the tree in regard to the proposed development.											Development Impact See Section 7.1.3	
24	<i>Glochidion ferdinandi</i> Cheese Tree	7	0.8 ^{C,B}	12 x 10	M	C	Sym	A	2A	Medium	9.80	3.04
Assessment This tree comprises of four separate leaders. The secondary leaders have previously failed at 3m, centre of crown. The eastern leader has been reduced. Surrounding shrubs have limited the access to assess the base area of the tree. The shrubs will need to remove to allow for a closer assessment; and provide further comment on the tree in relation to the proposed the development											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
25	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7	0.20 ^{C,B}	3 x 3	M	D	Sym	A	2A	Medium	2.50	0.50
Assessment This is a grove of 5 trees of similar height and dimension. Each tree presents as typical of its species.											Development Impact See Section 7.1.2	
26	<i>Plumeria spp.</i> Frangipani	5	0.21 0.22	5 x 5	M	D	E	A	2A	Medium	3.65	2.01
Assessment This tree is divided into two leaders from a small stem that bows towards the building.											Development Impact See Section 7.1.2	
27	<i>Glochidion ferdinandi</i> Cheese Tree	7	0.75 ^{B,C}	8 x 8	M	C	Sym	A	2A	Medium	9.00	2.93
Assessment Presents as typical of its species and divides into 4 separate leaders from a 0.5m high stem. The structure consist of tightly acute included crotch areas.											Development Impact See Section 7.1.2	
28	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	10	0.49	6 x 7	M	C	S	A	2A	High	5.88	2.45
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
29.1	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7	0.28	3 x 3	M	C	Sym	A	2A	Medium	2.00	0.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
29.2	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7	0.28	3 x 3	M	C	Sym	A	2A	Medium	2.00	0.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
29.3	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7	0.28	3 x 3	M	C	Sym	A	2A	Medium	2.00	0.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
29.4	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7	0.28	3 x 3	M	C	Sym	A	2A	Medium	2.00	0.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
29.5	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7	0.28	3 x 3	M	C	Sym	A	2A	Medium	2.00	0.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
29.6	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	7	0.28	3 x 3	M	C	Sym	A	2A	Medium	2.00	0.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
30	<i>Olea europaea subsp. cuspidata</i> African Olive	8	0.43	6 x 7	M	D	W	A	3A	Low	5.16	2.32
Assessment Presents with a large tear out wound the on stem at 4m, southeast side. This is an Exempt. This tree was listed on the previous Impact Assessment report however is listed on Wollongong City Council exempt tree species list.											Development Impact See Section 7.1.2	
31	<i>Michelia figo</i> Portwine Magnolia	5	0.40	4 x 4	M	C	S	A	2A	Low	4.80	2.25
Assessment This tree is located flush with the building, typical of its species.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
31.1	<i>Michelia figo</i> Portwine Magnolia	5	0.40	4 x 4	M	C	S	A	2A	Low	4.80	2.25
Assessment This tree is located flush with the building, typical of its species.											Development Impact See Section 7.1.2	
32	<i>Cupressus sp.</i> Cupressus	5	0.27	5 x 5	M	C	E	A-B	2A	Low	3.24	1.91
Assessment This tree presents as typical of its species, however revealing minor dieback, top of crown.											Development Impact See Section 7.1.2	
33	<i>Cupressus sempervirens</i> Mediterranean Cypress	9	0.27 0.21	3 x 3	M	I	Sym	A	2A	Medium	4.10	2.11
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
34	<i>Chamaecyparis</i> <i>obtusa</i> Hinoki Cypress	7	0.70 ^{C,B}	6 x 6	M	C	Sym	A	2A	Medium	8.40	2.85
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
35	<i>Callistemon viminalis</i> Weeping Red Bottlebrush	5	0.50	5 x 5	M	C	Sym	A	2A	High	6.00	2.47
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
36	<i>Archontophoenix</i> <i>cunninghamiana</i> Bangalow Palm	11	0.18	3 x 3	M	D	Sym	A	2A	Medium	3.00	0.50
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
37	<i>Glochidion ferdinandi</i> Cheese Tree	10	0.26	4 x 4	M	C	Sym	A	2A	Medium	3.12	1.88
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
38	<i>Ficus coronata</i> Sandpaper Fig	14	0.37	6 x 6	M	I	Sym	A	1B	High	4.44	2.18
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
39	<i>Melaleuca citrinus</i> Crimson Bottlebrush	11	0.23 0.28	5 x 6	M	I	Sym	B	3A	Low	4.35	2.16
Assessment Presents with some crown decline. Branches have previously lopped on the north side of the crown.											Development Impact See Section 7.1.2	
40	<i>Livistona australis</i> Livingston Palm	5	0.30	3 x 3	M	C	Sym	A	2A	Medium	3.60	2.00
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
41	<i>Ficus coronata</i> Sandpaper Fig	4	0.20 ^{C,E}	3 x 3	M	I	Sym	A	2A	Medium	2.40	1.68
Assessment Grove of 3 trees of the same species and of similar height and dimension. The 3 trees were listed on the previous Impact Assessment report however are exempt due to their height.											Development Impact See Section 7.1.2	
42	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	11	0.25	4 x 4	M	I	Sym	A ^D	2A ^D	High	3.00	1.85
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
43	<i>Toona ciliata</i> Red Cedar	15	0.47	8 x 8	M	C	Sym	A	1A	High	5.64	2.41
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
44	<i>Alphitonia excelsa</i> Red Ash	14	0.42	7 x 6	M	C	Sym	A ^C	1A	High	5.04	2.30
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
45	<i>Toona ciliata</i> Red Cedar	20	0.45 ^C	6 x 7	M	C	NE	A	1A	High	5.40	2.37
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
46	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	13	0.42	5 x 5	M	C	Sym	A ^C	2A ^C	High	5.04	2.30
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
47	<i>Jacaranda mimosifolia</i> Jacaranda	15	0.64 ^C	13 x 14	M	C	Sym	A	1A	High	7.68	2.74
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
47.1	<i>Jacaranda mimosifolia</i> Jacaranda	15	0.64 ^C	13 x 14	M	C	Sym	A	1A	High	7.68	2.74
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
48	<i>Jacaranda mimosifolia</i> Jacaranda	11	1.00 ^{B,C}	14 x 14	M	D	Sym	A	1B	High	12.00	3.31
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
49	<i>Ceratopetalum gummifera</i> NSW Christmas Bush	8	0.62 ^{C,B}	6 x 3	O	F	Sym	A	2A	Low	7.44	2.71
Assessment This tree presents as typical of its species. This divides into 4 separate leaders from a small stem with narrow crown.											Development Impact See Section 7.1.5	
50	<i>Glochidion ferdinandi</i> Cheese Tree	12	0.92 ^{C,B}	12 x 12	M	C	Sym	A	2A	High	11.04	3.20
Assessment This tree presents as typical of its species. This divides into 4 separate leaders from a 1.5m stem.											Development Impact See Section 7.1.5	
51	<i>Glochidion ferdinandi</i> Cheese Tree	12	0.79 ^{B,C}	10 x 9	M	C	Sym	B	1C	High	9.48	3.00

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment The eastern leader has since been pruned back to the next point of attachment. An excessive amount of epicormic shoots have developed on the old pruning cut. The tree is experiencing excessive branch conflict with nearby trees.											Development Impact See Section 7.1.5	
52	<i>Thuja plicata</i> Western Red Cedar	5	0.50 ^{C,B}	6 x 6	M	D	Sym	A	2A	Medium	6.00	2.47
Assessment This tree presents as typical of its species. The tree divides into 9 leaders from the centre of the root crown.											Development Impact See Section 7.1.2	
53	<i>Grevillia sp.</i> Grevillia	3	0.20 ^B	4 x 3	M	D	Sym	A	3A	Low	2.40	1.68
Assessment This tree was listed on the previous Impact Assessment Report however is an exempt tree due to its height.											Development Impact See Section 7.1.2	
55	<i>Callistemon viminalis</i> Weeping Red Bottlebrush	4	0.28 ^{C,B}	4 x 4	M	C	NW	B	3A	Low	3.36	1.94
Assessment This tree was listed on the previous Impact Assessment Report however is an exempt tree due to its height.											Development Impact See Section 7.1.2	
56	<i>Glochidion ferdinandi</i> Cheese Tree	4	0.30 ^{C,B}	5 x 4	M	C	Sym	B	3A	Low	3.60	2.00
Assessment This tree has developed as a result of coppiced regrowth from the centre of the root crown. This tree was listed on the previous Impact Assessment Report, however, is an exempt tree due to its height.											Development Impact See Section 7.1.2	
57	<i>Camellia japonica</i> Camellia	3	0.15 ^{C,B}	3 x 3	M	C	Sym	A	3A	Low	1.80	1.49
Assessment This tree was listed on the previous Impact Assessment Report however is an exempt tree due to its height.											Development Impact See Section 7.1.2	
58	<i>Magnolia × soulangeana</i> Magnolia	4	0.20 ^B	4 x 3	M	C	Sym	A	2A	Low	2.40	1.68
Assessment This tree was listed on the previous Impact Assessment Report, however is an exempt tree due to its height.											Development Impact See Section 7.1.2	
59	<i>Camellia sasanqua</i> Camellia	4	0.20 ^C	3 x 3	M	C	Sym	B	3A	Low	2.40	1.68

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment This tree was listed on the previous Impact Assessment Report, however is an exempt tree due to its height.											Development Impact See Section 7.1.2	
60	<i>Elaeocarpus reticulatus</i> Blue-berry Ash	7	0.21	5 x 5	M	D	Sym	A	1B	High	2.52	1.72
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
61	<i>Tristaniaopsis laurina</i> Water Gum	6	0.20 ^{C,B}	4 x 4	M	D	Sym	A	2A	Medium	2.40	1.68
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
62	<i>Melia azedarach</i> White Cedar	13	0.60 ^{C,D}	13 x 11	M	C	Sym	A	2A	Medium	7.20	2.67
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
63	<i>Acacia maidenii</i> Maidens Wattle ^A	15	0.60 ^{C,D}	6 x 5	M	C	NE	A	2A	Medium	7.20	2.67
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
64	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	9	0.16	3 x 3	M	I	Sym	A	2A	M	1.92	1.53
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
65	<i>Archontophoenix alexandrae</i> Alexander Palm	7	0.20	3 x 3	M	C	Sym	A	2A	Medium	2.50	0.05
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
66	<i>Ficus coronata</i> Sandpaper Fig ^{A,C}	16	0.40	10 x 10	M	C	Sym	A	1B	High	4.80	2.25
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
67	<i>Ficus coronata</i> Sandpaper Fig ^A	14	0.37	7 x 6	M	I	Sym	A ^C	2A ^C	High	4.44	2.18
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
68	<i>Livistona australis</i> Cabbage Palm	11	0.37 ^{C,D}	5 x 5	M	D	C	A	1B	High	4.44	2.18
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
69	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	6-8	0.20	6 x 6	M	D	Sym	A	1A	High	3.00	0.05
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
70	<i>Livistona australis</i> Cabbage Palm	7	0.25	3 x 3	M	D	Sym	A	1A	Medium	2.50	0.50
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
71	<i>Eucalyptus botryoides</i> Bangalay	20	0.40 ^C	7 x 8	M	C	Sym	A	1B ^C	High	4.80	2.25
Assessment This tree presents as typical of its species. The assessment of trees 71-116 is greatly limited by restricted movements and dense vegetation.											Development Impact See Section 7.1.2	
72	<i>Livistona australis</i> Cabbage Palm	8	0.20	4 x 4	M	I	Sym	A	1B ^C	High	2.00	1.50
Assessment This palm presents as typical of its species.											Development Impact See Section 7.1.2	
73	<i>Pittosporum undulatum</i> Sweet Pittosporum	6	0.10 0.08	2 x 3	M	I	S	A	2A	Medium	2.00	1.50
Assessment This tree presents as typical of its species. Another specimen of the same size and species is located within the SRZ, northern side.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
74	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	8	0.21	3 x 3	M	S	S	A	1B	High	2.52	1.72
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
75	<i>Eucalyptus botryoides</i> Bangalay	20	0.58	10 x 12	M	C	Sym	A	1B ^c	High	6.96	2.63
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
76	<i>Eucalyptus saligna</i> Sydney Blue Gum	23	0.58	10 x 12	M	C	Sym	A	1B ^c	High	6.96	2.63
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
77	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	7	0.15	2 x 3	M	S	Sym	A	1B	Medium	2.00	1.50
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
78	<i>Triadica sebifera</i> Chinese Tallow	10	0.28	7 x 8	M	I	S	A	2A	Medium	3.36	1.94
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
79	<i>Eucalyptus botryoides</i> Bangalay	18	0.40 ^c	8 x 12	M	C	S	A	1B ^c	High	4.80	2.25
Assessment This tree presents as typical of its species. Vine is encroaching.											Development Impact See Section 7.1.2	
80	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	8	0.18	2 x 4	M	S	S	A	1B	Medium	2.16	1.61
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
81	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	8	0.16	2 x 2	M	S	S	A	1B		2.00	1.50

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
82	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	6	0.10	1 x 1	Y	S	S	A	1B		2.00	1.50
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
83	<i>Triadica sebifera</i> Chinese Tallow	8	0.14	4 x 6	M	I	S	B	2D		2.00	1.50
Assessment This tree presents decline.											Development Impact See Section 7.1.2	
84	<i>Triadica sebifera</i> Chinese Tallow	10	0.28	5 x 7	M	I	Sym	B	2D		3.36	1.94
Assessment This tree presents decline.											Development Impact See Section 7.1.2	
85	<i>Triadica sebifera</i> Chinese Tallow	8	0.17	4 x 6	M	S	Sym	C	4A		2.00	1.50
Assessment This tree presents excessive decline.											Development Impact See Section 7.1.2	
86	<i>Eucalyptus saligna</i> Sydney Blue Gum	24	0.65 ^c	14 x 14	M	D	Sym	A	1B ^c	High	7.80	2.76
Assessment This tree presents as typical of its species. Significant crown lift pruning has been undertaken, southern side.											Development Impact See Section 7.1.2	
87	<i>Ficus coronata</i> Sandpaper Fig	8	0.27	7 x 8	M	I	Sym	A	2B		3.24	1.91
Assessment This tree presents as typical of its species; conflict with the adjacent building is imminent. This tree appears poorly suited to the location, based on the potential mature size.											Development Impact See Section 7.1.2	
88	<i>Ficus coronata</i> Sandpaper Fig	10	0.10 0.25	8 x 8	M	S	Sym	A	2B		3.24	1.91

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment This tree presents as typical of its species; conflict with the adjacent building is imminent. This tree appears poorly suited to the location, based on the potential mature size.											Development Impact See Section 7.1.2	
89	<i>Eucalyptus botryoides</i> Bangalay	23	0.35 ^C	8 x 10	M	C	Sym	A	1B ^C	High	4.20	2.13
Assessment This tree presents as typical of its species. Conflict with the adjacent building is imminent.											Development Impact See Section 7.1.2	
90	<i>Eucalyptus botryoides</i> Bangalay	11	0.12	2 x 2	Y	I	Sym	A	2D	Medium	2.00	1.50
Assessment This tree presents as typical of its species. Ongoing conflicts with the adjacent building appear likely.											Development Impact See Section 7.1.2	
91	<i>Podocarpus grayae</i> ^A Brown Pine	7	0.06	1 x 1	M	S	Sym	A	2D	Medium	2.00	1.50
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
92	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	8	0.15	3 x 4	M	I	Sym	A	2A	High	2.00	1.50
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	
93	<i>Eucalyptus saligna</i> Sydney Blue Gum	11	0.20 ^C	4 x 4	M	I	Sym	A	1B ^C	High	2.40	1.68
Assessment This tree presents as typical of its species.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
94	<i>Eucalyptus botryoides</i> Bangalay	8	0.14	3 x 3	Y	S	SE	A	2A	Medium	1.68	1.45
Assessment This tree appears to be typical of the species.											Development Impact See Section 7.1.2	
95	<i>Acacia maidenii</i> Maidens Wattle ^A	11	0.27	6 x 5	M	C	Sym	A	2D ^C	Low	3.24	1.91
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation /drainage reserve.											Development Impact See Section 7.1.2	
96	<i>Acacia maidenii</i> Maidens Wattle	14	0.29	6 x 7	M	C	Sym	A	2D ^C	Low	3.48	1.97
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation /drainage reserve.											Development Impact See Section 7.1.2	
97	<i>Livistona australis</i> Cabbage Palm	6	0.40 ^C	4 x 4	Y	S	Sym	A	1A	Medium	2.00	1.50
Assessment This palm appears to be typical of the species.											Development Impact See Section 7.1.2	
98	<i>Homalanthus populifolius</i> ^A Native Bleeding Heart	11	0.29 0.27	8 x 7	M	I	N	C	4A	Low	4.75	2.24
Assessment This tree presents excessive decline.											Development Impact See Section 7.1.2	
99	<i>Guioa semiglauca</i> ^A Guioa	9	0.16 0.17	3 x 5	M	S	Sym	B	3D	Low	2.80	1.80
Assessment This tree presents decline. An acute union is present at the base, bark included, however the union appears sound.											Development Impact See Section 7.1.2	
100	<i>Cryptocarya microneural</i> ^A Murrogun	12	0.17	5 x 6	M	S	Sym	A	2A ^C	Medium	2.04	1.57

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation /drainage reserve.											Development Impact See Section 7.1.2	
101	<i>Melia azedarach</i> White Cedar	23	0.44 ^C	12 x 12	M	C	N	- ^D	2A ^{C,D}	Medium ^C	5.28	2.34
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation / drainage reserve.											Development Impact See Section 7.1.2	
102	<i>Alphitonia excelsa</i> Red Ash ^A	16	0.37 ^C	7 x 5	M	C	Sym	A	2A ^C	Medium	4.44	2.18
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation / drainage reserve..											Development Impact See Section 7.1.2	
103	<i>Ficus coronata</i> Sandpaper Fig	10	0.17	6 x 6	M	S	Sym	A	2A ^C	Medium	2.04	1.57
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation / drainage reserve..											Development Impact See Section 7.1.2	
104	<i>Eucalyptus grandis</i> Flooded Gum	33	0.58	16 x 16	M	D	Sym	A	1B ^C	High	6.96	2.63
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation / drainage reserve..											Development Impact See Section 7.1.2	
105	<i>Eucalyptus pilularis</i> Blackbutt ^A	17	0.31	10 x 8	M	C	N	A	2A ^C	Medium	3.72	2.02
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation / drainage reserve.. The tree data is estimated as the mid and upper portions of this tree could not be seen.											Development Impact See Section 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
106	<i>Syzygium australe</i> Brush Cherry ^A	8	0.04 0.16	4 x 4	M	S	S	B	2D ^C	Low	1.98	1.55
Assessment This tree presents decline; the assessment is greatly limited by the dense vegetation / drainage reserve.											Development Impact See Section 7.1.2	
107	<i>Livistona australis</i> Cabbage Palm	5	0.31	4 x 4	Y	S	Sym	A	1A	Medium	2.00	1.50
Assessment This palm appears to be typical of the species.											Development Impact See Section 7.1.2	
108	<i>Eucalyptus robusta</i> Swamp Mahogany	11	0.25 ^C	4 x 5	M	S	Sym	B	3D ^C	Low	3.00	1.85
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation / drainage reserve.											Development Impact See Section 7.1.2	
109	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	9	0.22	4 x 4	M	C	Sym	A	1A	Medium	2.00	1.50
Assessment This is a grove of three palms, sharing a common root mass. The data supplied is an average of the three palms. No tree tag has been installed due to the dense vegetation/ drainage reserve.											Development Impact See Section 7.1.2	
110	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	11	0.21	4 x 4	M	C	Sym	A	1A	Medium	2.00	1.50
Assessment This is two palms, sharing a common root mass. The data supplied is an average of both palms. No tree tag has been installed due to the dense vegetation/ drainage reserve.											Development Impact See Section 7.1.1	
111	<i>Acacia maidenii</i> Maidens Wattle	20	0.32 ^C	9 x 8	M	D	Sym	A	2A ^C	Medium	3.84	2.05

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
Assessment This tree appears to be typical of the species, however the assessment is greatly limited by the dense vegetation /drainage reserve. No tree tag has been installed due to the dense vegetation/ drainage reserve.											Development Impact See Section 7.1.1	
112	<i>Elaeocarpus reticulatus</i> Blueberry Ash	5	0.14 B,C	4 x 4	M	C	Sym	A	B1	Medium	2.00	1.50
Assessment The ownership of this tree is unknown. Greatly limited assessment due to the boundary fencing and lack of access.											Development Impact See Section 7.1.3	
113	<i>Elaeocarpus reticulatus</i> Blueberry Ash	6	0.20 B,C	5 x 6	M	C	Sym	A	B1	Medium	2.40	1.68
Assessment This tree appears to be located in the neighbouring lot. The tree appears to be typical of the species and forms part of an intended screen planting.											Development Impact See Section 7.1.3	
114	<i>Elaeocarpus reticulatus</i> Blueberry Ash	5	0.16 B,C	3 x 4	M	C	Sym	A	B1	Medium	2.00	1.50
Assessment This tree appears to be located in the neighbouring lot. The tree appears to be typical of the species and forms part of an intended screen planting.											Development Impact See Section 7.1.3	
115	<i>Elaeocarpus reticulatus</i> Blueberry Ash	6	0.16 ^C	4 x 4	M	C	Sym	A	B1	Medium	2.00	1.50
Assessment This tree appears to be located in the neighbouring lot. The tree appears to be typical of the species and forms part of an intended screen planting.											Development Impact See Section 7.1.3	

Tree No.	Botanical Name Common Name	Height (m)	DSH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	NRZ	SRZ
116	<i>Elaeocarpus reticulatus</i> Blueberry Ash	5	0.17 ^C	4 x 4	M	C	Sym	A	B1	Medium	2.00	1.50
Assessment This tree appears to be located in the neighbouring lot. The tree appears to be typical of the species and forms part of an intended screen planting.											Development Impact See Section 7.1.3	

^A. Incomplete identification of species due to insufficiently available plant material.

^B. Diameter taken below 1.4m due to low stem bifurcation.

^C. Estimate due to the overgrown area and/or limited access.

^D. Deciduous species, void of foliage at the time of assessment.

^E. Level 3 assessment required to determine the accurate rating.

7.0 Site Assessment

The area of assessment comprises an irregularly shaped lot. The lot has a consistent medium gradient with a southeastern aspect. The southeastern (lower) portion of the lot contains a densely vegetated riparian zone consisting of indigenous rainforest trees (both remnant and planted) and some common weed species. These trees are growing throughout Collins Creek.

An asphalt driveway serves two carpark areas from Pope's Road. This consists of a large carpark area to the west of the entrance and a large parking area to the south between the existing building blocks/ unit blocks. The existing buildings/unit blocks are two-storey brick structures located along the southern and western perimeter of the lot. A heritage-listed church⁸ is located on the southeastern portion of the lot. A modern, two-story brick building with a courtyard and garden bed area is located in the centre of the lot. A maintained lawn area is located on the eastern side of the lot and adjacent to the Princes Highway.

The majority of the trees on the subject site are a mix of planted species and remnant trees. The grounds of the complex contain multiple maintained, landscaped areas where the predominant plantings exist.

The area designated in Plan 3, (Section 6.3) is a drainage reserve located between the two-story brick building and the northern boundary line. This area consists of large native trees (predominantly indigenous) and common weed species. The area is densely planted, predominantly overgrown, and unmaintained. This area is nearly inaccessible, and the majority of the northern boundary line is non-identifiable on site. This area contained standing water (contained runoff) on the days of assessment, and has dense vegetation, including vines and weed stock, that provides limited access. This area is estimated to have been planted during the initial site construction. The dense planting also acts as a visual buffer between the neighbours and the complex, providing high visual amenity. The tree age and planting arrangement are consistent with a planted area and possibly associated with the function of the drainage reserve. This area contains many trees greater than 5m in height, not indicated on the survey supplied, and the dense vegetation combined with the footprint of trees included in the survey has resulted in multiple trees not being indicated within this area (see Plan 3, Section 5.2) and Section 4.5.4.

Areas within the site, particularly the riparian zone and drainage reserve, contain exempt species and also many specimens less than 5m in height, and therefore

⁸ The Wollongong Local Environment Plan 2009 (2010 EPI 76), lists this structure as heritage item No. 61007; <https://legislation.nsw.gov.au/view/whole/html/2023-12-08/epi-2010-0076#sch.5-pt.1>

are also exempt. Multiple trees within the site do not comply with Wollongong City Council's description of a tree. However, they have been mentioned in the previous report⁹ and have therefore included in the Table (Section 5.0) and the Site plans (Section 6.0).

The following trees have not been included in this report based on the following reasons.

Tree A: Trees that occur on the lot proposed for development and are exempt species.

Tree B: Trees less than 5m in height (and therefore exempt).

Tree C: Trees that are absent.

7.1 Proposed development

The proposed development consists of the demolition of existing site structures and the construction of a residential unit development and basement parking, drive access, and drainage infrastructure. No stormwater drawings have been included as part of the document set.

The bulk earthworks drawing offers the largest area where impacts will occur to site trees based on the excavation and fill over the zones of protection. For this reason, this drawing has been utilised as the primary component for tree impacts.

The landscape drawing has not been utilised for calculating tree impacts, although the remaining drawings illustrate pathways and related landscaping, none of these works have been included as an impact on site trees. Any pathway or related landscape feature that could have an impact on a tree must be modified to allow for long-term tree retention.

Neighbours trees: Trees No. 112-116 these trees appears (see Section 4.5.1) to be located in the adjacent lot, therefore constitute ownership by a second party. Any proposed works within the zones of protection for these trees must not adversely impact these zones, and the trees shall be retained and protected from any site works unless permission for removal is granted by the tree owner and Wollongong City Council.

The calculations included in the following discussion have not considered;

- subsurface utilities that have not been included in the design,
- Work methods related to subsurface utilities, for example concrete encasing or replacement of existing lines
- or work methods related to construction (stockpiling, site sheds, scaffolding) unless otherwise specified.

⁹ See Section 4.3.2

These may also increase the encroachment and tree impact, and therefore the opportunity for tree retention.

The following assumptions have been used for the calculations of encroachments onto the zones of protection.

Assumption 1, Retaining walls: The excavation required for the retaining walls will need to be further from the outside edge of the proposed wall to allow for construction of the wall, waterproofing and drainage, therefore, the actual cut has been assumed within this report to be up to 300mm from the line indicating the location of the retaining wall. All calculations for the encroachment of any zone of protection (TPZ, SRZ) has been based on this assumption.

Assumption 2, Basement: The excavation required for this basement will need to be outside of the basement wall footprint to allow for construction of the wall, waterproofing and drainage, therefore, the actual cut has been assumed within this report to be up to 600mm outside of the line indicating the location of the basement wall. All calculations for encroachment of any zone of protection (TPZ, SRZ) have been based on this assumption.

This report discusses the impact of the proposed design on the trees. one hundred and twenty-three (123) trees have been listed within this report based on the vicinity of the proposed works. This has included any tree where any part of the zones of protection, Tree Protection Zone (TPZ) and Structural Root Zone (SRZ), encroaches into the area proposed for work. Recommendations based on the tree's significance and condition, together with the impact on these trees regarding the proposed development (based on the documents contained in Section 4.4) and mitigation where available follow.

7.1.1 Trees and zones of protection (TPZ/SRZ) outside of the proposed design

Trees No. 16, 17-20, 110 and 111

None of the proposed works conflict with the location of these trees or respective zones of protection. These trees can be retained without impact by the proposed design.

7.1.2 Trees directly conflicting with the design

Trees No. 1-15, 24-49 and 52-109

These trees are located in the footprint of the proposed design and would require removal based on this premise alone. The conflict is summarised as the footprint of the proposed civil works, that is, bulk earth works.

7.1.3 Trees subject to a minor encroachment

Trees No. 21, 23 and 112-116

These trees are not directly located in the footprint of the proposed design, however, are subject to a *minor encroachment*. That is, the proportion

(<10%) of encroachment provided by design will not adversely impact on the tree. These trees could be retained relative to the design.

7.1.4 Trees subject to a moderate encroachment

Tree No. 22

These trees are not directly located in the footprint of the proposed design, however, are located close and adjacent to the design footprint and subject to a *moderate encroachment*, that is, in excess of 10% although less than or equal to 20% of the NRZ. The extent and type of encroachment for this tree are discussed and the relative implications.

Encroachment: approximately 16%; based on drawing J1406-CIV-DRG-C050, revision G. The encroachment consists of the footprint of the proposed civil works. This is six percentage points over a minor encroachment. The existing design can accommodate this tree.

7.1.5 Trees subject to a major encroachment

Trees No. 49-51

These trees are not directly located in the footprint of the proposed design, however, are located close and adjacent to the design footprint and subject to a *major encroachment*, that is, in excess of 10% of the NRZ. The extent and type of encroachment for each tree are discussed and the relative implications.

Encroachment: approximately 40%; based on drawing J1406-CIV-DRG-C050, issue G. The encroachment consists of minor cut (-0.1 – 0.0m) and minor fill (0.0 – 0.1m). Accounting for the tolerance of the species based on the area from where they are growing supports that these trees can be retained. However, the following conditions are required for the excavation and fill.

1. Any excavation and fill work that occurs in the NRZ for these trees must utilise a machine of limited mass. That is a machine with a rubber tracked skid steer loader with a tare weight no greater than 3 tonnes. The fill must not be clay-based and is limited to a depth of less than 150mm.

7.2 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities, other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

7.3 Protection measures

Tree protection measures will be required during the demolition and construction stage. However, the design of these will be pending the work methodology and final design. The project arborist shall be contracted after the completion/confirmation of design work for the instruction of the protection measures implementation, that is the Tree Management Plan. Examples of the protection measures are contained in Appendix B.

7.3.1 Conditions for compliance

The following conditions are required before any works proceed on site.

Site induction; All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work. This is required as part of the site induction process.

Project Arborist; A project arborist who conforms to the requirements of the AS 4970 is required to be nominated immediately after a *Notice of Determination* is issued, and they are to be provided with all related site documents.

7.4 Compliance Documentation

The following stages will require assessment and documentation (report, letter, certification) by the project arborist or person responsible for the specific work type, and the related documentation is to be issued to the principal certifying agent.

7.4.1 Table 2; Assessment/Certification stages

Hold Points	Work type	Document required
Pre- Construction	Review and confirmation of foundation/footing design.	Certificate ¹
Pre- Construction	Installation of the protection measures, Section 7.3	Certificate ¹
During construction	Pruning, Project arborist required on-site before pruning proceeds.	Certificate ²
During construction	Any <u>further works</u> required within the area of the TPZ, or decline related to the trees that have not been covered by this report.	Report Brief
During construction	Any crown modification including pruning or root disturbance.	Report Brief

1. Requirement for the issue of Construction Certificate

2. Requirement for the issue of Occupation Certificate

Construction refers to the time between the initiation of demolition and until an occupation certificate is issued.

Project Arborist person nominated as responsible for the provision of the tree assessment, arborist report, consultation with stakeholders, and certification for the development project. This person will be adequately experienced and qualified with a minimum of a level 5 (AQF); Diploma in Horticulture (Arboriculture)¹⁰.

8.0 Protection Specification

The retention and protection of these trees requires the Tree Protection Zone (TPZ) to conform to the conditions outlined below. These conditions outline the limitations on work permitted within the Tree Protection Zone (TPZ) and must be adhered to unless otherwise specified.

Any engineering drawings issued as part of the construction certificate must conform with these requirements.

1. Foundation/footing types should not be strip type, but utilise footing types that are sympathetic towards retaining root system that is, screw, pier, etc. Slab on the ground can be accommodated in some circumstances and will be nominated by the project arborist. The extent of encroachment will be dependent upon the tree species, soil type (texture and profile) and gradients.
2. Subsurface utilities can extend through the TPZ and Structural Root Zone (SRZ), however, are limited to the method of installation. That is under boring is permitted, however trenching is limited and depends on the proposed route within the TPZ. No trenching is permitted within the area of the TPZ unless stipulated by the project arborist.
3. Soil levels within the TPZ must remain the same. Any excavation within the TPZ must have been previously specified and allowed for by the project arborist:
 - a) So it does not alter the drainage to the tree.
 - b) Under specified circumstances,
 - Added fill soil does not exceed 100mm in depth over the natural grade. Construction methodologies exist that can allow grade increases in excess of 100mm, via the use of an impervious cover, an approved permeable material or permanent aeration system or other approved methods.

¹⁰ Based upon the definition of a 'consulting arborist' from the AS 4970; Protection of trees on development sites; 2009, Section 1.4.4, p 6.

- Excavation cannot exceed a depth of more than 50mm within the area of the TPZ, not including the SRZ. The grade within the SRZ cannot be reduced without the consent from a project arborist.
- 4. No form of material or structure, solid or liquid, is to be stored or disposed of within the TPZ.
- 5. No lighting of fires is permitted within the TPZ.
- 6. All drainage runoff, sediment, concrete, mortar slurry, paints, washings, toilet effluent, petroleum products, and any other toxic wastes must be prevented from entering the TPZ.
- 7. No activity that will cause excessive soil compaction is permitted within the TPZ. That is, machinery, excavators, etc. must refrain from entering the area of the TPZ unless measures have been taken, in consultation with the project arborist.
- 8. No site sheds, amenities or similar site structures are permitted to be located or extend into the area of the TPZ unless the project arborist provides prior consent.
- 9. No form of construction work or related activity such as the mixing of concrete, cutting, grinding, generator storage or cleaning of tools is permitted within the TPZ.
- 10. No part of any tree may be used as an anchorage point, nor should any noticeboard, telephone cable, rope, guy, framework, etc. be attached to any part of a tree.
- 11. (a) All excavation work within the TPZ will utilise methods to preserve root systems intact and undamaged. Examples of methods permitted are by hand tools, hydraulic, or pneumatic air excavation technology.
 - (b) Any root unearthed which is less than 50mm in diameter must be cleanly cut and dusted with a fungicide, and not allowed to dry out, with minimum exposure to the air as possible.
 - (c) Any root unearthed which is greater than 50mm in diameter must be located regarding their directional spread and potential impact. A project arborist will be required to assess the situation and determine future action regarding retaining the tree in a healthy state.

9.0 Summary of tree impact by design

Based on the design supplied and placing aside the imitations outlined in Section 4.5, the following summary provides the impacts imposed on the trees included in this report.

Of the one hundred and twenty-three (123) trees, currently on site, nineteen (19) trees can be retained, and the remaining one-hundred and four (104) trees will require removal based on design impact. This tally includes reference to Notes 1 and 2.

Note 1: Tree No. 54 has been removed from site and has not been included in this report.

Note 2: Trees No. 17.1, 29.2, 29.3, 29.4, 29.5, 29.6, 31.1 and 47.1 have been included as independent trees, see Section 4.3.2.

9.1 Trees that can be retained

Trees No. 16-23, and 110-116

These trees are not adversely impacted by the design, that is, they conform to an acceptable encroachment based on the nominated zones of protection (TPZ, SRZ) and the requirements of the Protection Specification, Section 8.0. The proposed design does not adversely affect these trees. These trees can be retained.

9.2 Trees that require removal based on design conflict

No. 1-15, 24-48, and 52, 53, 55-109

The proposed design will conflict with the location of these trees and they are unable to be retained based on the design. These trees will require removal.

9.3 Trees subject to a major encroachment

Trees No. 49-51

These trees are subject to a major encroachment, although could be retained pending the following conditions/design modification.

1. Any excavation and fill work that occurs in the NRZ for these trees must utilise a machine of limited mass. That is a machine with a rubber tracked skid steer loader with a tare weight no greater than 3 tonnes.

9.4 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

9.5 Protection measures

Protection measures (outlined in Section 7.3 and 7.4) are required to be implemented for the trees nominated for retention (referenced in Section 9.1) and installed before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified.

All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work.

A project arborist is required to be nominated, and the stages and related certification or similar documentation is to be issued to the principal certifying agent.

The opinions expressed in this report by the author have been provided within the capacity of a Consulting Arborist. Any further explanation or details can be provided by contacting the author.

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10.0 Appendix A- Terminology Defined

Height

Is a measure of the vertical distance from the average ground level around the root crown to the top surface of the crown, and on palms - to the apical growth point.

DSH

Diameter at Standard Height – being the stem diameter in meters, measured at 1.4m from ground level, including the thickness of the bark.; Mult. refers to multiple stems, that is in excess of 4 stems.

Crown Spread

A two-dimension linear measurement (in metres) of the crown plan. The first figure is the north-south span, the second being the east-west measurement.

Age

Is the estimate of the specimen's age based upon the expected lifespan of the species. This is divided into three stages.

Young (Y)	Trees less than 20% of life expectancy.
Mature (M)	Trees aged between 20% to 80% life expectancy.
Over-mature (O)	Trees aged over 80% of life expectancy with probable symptoms of senescence.

Crown Aspect

In relation to the root crown, this refers to the aspect the majority of the crown resides in. This will be either termed Symmetrical (Sym.) where the centre of the crown resides over the root crown or the cardinal direction the centre of the crown is biased towards, being either North (N), South (S), East (E) or West (W).

Health Rating

Is a rating of the health of the tree, irrespective and independent of the structural integrity, and defined by the 'ability for a tree to sustain its life processes' (Draper, Richards, 2009). This is divided between three variables, and based on the assessment of symptoms including, but not limited to; leaf size, colour, crown density, woundwood development, adaptive growth formation, and epicormic growth.

A: Normal vitality, typical for the species

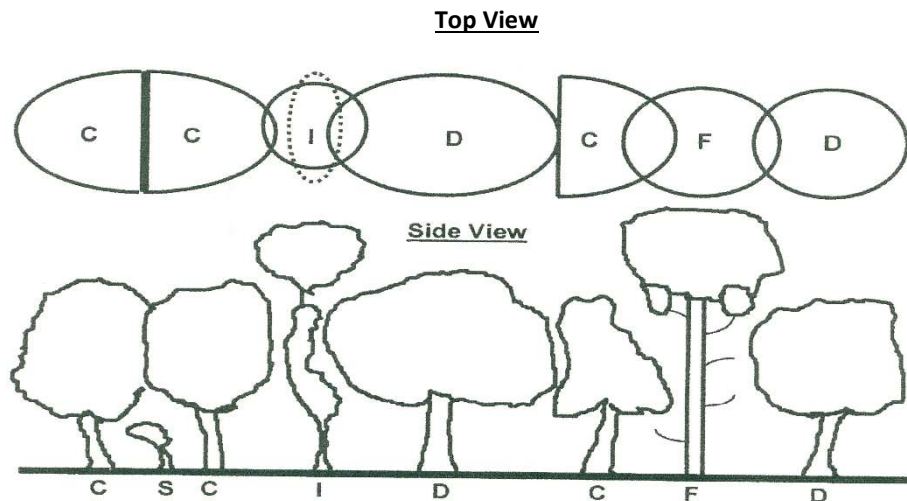
B: Below average vitality, possibly temporary loss of health, partial symptoms.

C: Poor vitality; obvious decline, potentially irreversible

Crown Class

Is the differing crown habits as influenced by the external variables within the surrounding environment. They are:

D – <i>Dominant</i>	Crown is receiving uninterrupted light from above and sides, also known as emergent.
C – <i>Codominant</i>	Crown is receiving light from above and one side of the crown.
I – <i>Intermediate</i>	Crown is receiving light from above but not the sides of the crown.
S – <i>Suppressed</i>	Crown has been shadowed by the surrounding elements and receives no light from above or sides.
F – <i>Forest</i>	Characterised by an erect, straight stem (usually excurrent) with little stem taper and virtually no branching over the majority of the stem except for the top of the tree which has a small concentrated branch structure making up the crown.



D C, I & S, and side view, after (Matheny, N. & Clark, J. R. 1998, Trees Development, Published by International Society of Arboriculture, P.O. Box 3129, Champaign IL 61826-3129 USA, p.20, adapted from the Hazard Tree Assessment Program, Recreation and Park Department, City of San Francisco, California).

Levels of assessment

Level 1: Limited visual: a visual tree assessment to manage large populations of trees within a limited period and in order to identify obvious faults which would be considered imminent.

Level 2: Basic assessment: a standard performed assessment providing for a detailed visual assessment including all parts of the tree and surrounding environment and via the use of simple tools.

Level 3: Advanced assessment: specific type assessments conducted by either arborist who specialise with specific areas of assessment or via the use of specialised equipment. For example, aerial assessment by use of an EWP or rope/harness, or decay detection equipment.

NRZ; Notional Root Zone

Is an area of protection required for maintaining the trees vitality and long-term viability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

The size of the Notional Root Zone (NRZ) has been calculated from the *Australian Standard, 4970; 2025 – Protection of Trees on Development Sites*

The NRZ does not provide the limit of root extension, however, offers an area of the root zone that requires predominate protection from development works. The allocated TPZ can be modified by some circumstances; however will require compensation equivalent to the area loss, elsewhere and adjacent to the NRZ.

SRZ; Structural Root Zone

Is the area around the tree containing the woody roots necessary for stability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

Protection Measures

These are required for the protection of trees during demolition/construction activities.

Protective barriers are required to be installed before the initiation of demolition and/or construction and are to be maintained up to the time of landscaping. Samples of the recommended protection measures are illustrated in Appendix B.

All other definitions are referenced from;

Draper D.B., Richards P.A., 2009, Dictionary for Managing Trees in Urban Environments CSIRO Pub., Australia

Significance Rating, Significance of a Tree Assessment Rating System (S.T.A.R.S), IACA, 2010¹¹

Tree Significance – Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vitality;
- 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 vitality;
- 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 vitality;
- 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,

¹¹ IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

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.

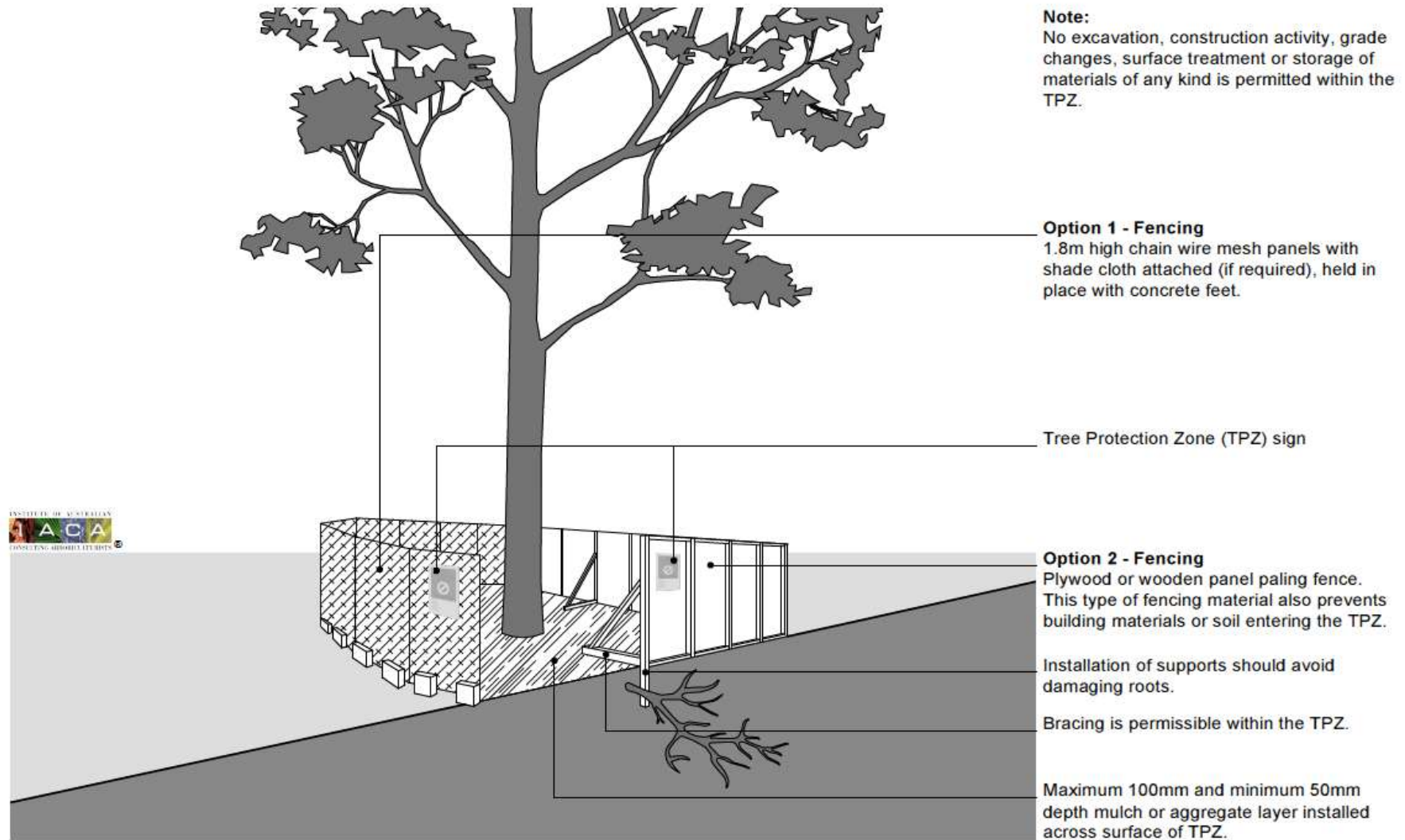
Table 3; Tree Retention Value – Priority Matrix.

		Significance				
		1. High	2. Medium	3. Low		
		Significance in Landscape	Significance in Landscape	Significance in Landscape	Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					
Legend for Matrix Assessment 						
		Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 <i>Protection of trees on development sites</i> . Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.				
		Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.				
		Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.				
		Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.				

Safe Useful Life Expectancy – S.U.L.E (Barell 1995)

	1. Long	2. Medium	3. Short	4. Removal	5. Moved or Replaced
	Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 15 – 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 5 – 15 years with an acceptable level of risk.	Trees that should be removed within the next 5 years.	Trees which can be reliably moved or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live between 15 and 40 years.	Trees that may only live between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5m in height.
B	Trees that could be made suitable for retention in the long term by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through instability on recent loss of adjacent trees.	Young trees less than 15 years old but over 5m in heights
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Damaged trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings.	
F				Trees that are damaging or may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other trees for reasons given in (A) to (F).	

Appendix B- Protection measures; Protective fence



Stem and Ground protection

