



REPORT: **Arboricultural Impact Assessment**

REPORT COMMISSIONED FOR:

Billbergia Group Pty Ltd

Lot 101, DP 791908
1 King Street
Concord West NSW 2138

22nd of January, 2024

PREPARED BY:

Jim McArdle
Consulting Arborist
B.Ed.Sc (ACU) DipArb AQF 5; QTRA.
TCAA President
ABN 87 145 760 461

12/19 Reliance Drive Tuggerah NSW 2259
(02) 4351 3322
info@mcardlearborist.com.au
www.mcardlearborist.com.au



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Document Tracking

Name	Contribution	Date
Michelle King Environmental Document Writer	Report Writer	22/01/2024 (V1)
Jim McArdle AQF Level 5 Arborist	Site Assessor Editor	22/01/2024 (V2)

1. EXECUTIVE SUMMARY

1.1 The client commissioned an Arboricultural Impact Assessment to evaluate the potential impacts on trees by a proposed development and, if viable, to make recommendations that reduce the impacts on trees at 1 King Street, Concord West NSW 2138.

1.2 The proposed development involves the demolition of existing structures and the construction of residential apartments with basement parking and street level commercial spaces.

1.3 The assessment was conducted on the 23rd of November, 2023 by An AQF level 5 senior industry arborist. Pre-assessment meeting on site was completed prior with the AQF level 5 arborist.

1.4 Approximately one hundred and twenty-nine (129) trees/tree groups on site and in the adjacent surrounding area were assessed and are summarised as follows:

Table 1: Retention Values.

High (11 trees)	Moderate (40 trees)	Low-Moderate (33 trees)	Low (34 trees/tree groups)	Very Low (16 trees/tree groups)
1, 33, 45, 46, 47, 58, 62, 67, 91, 93, 94.	3, 14, 16, 17, 18, 19, 20, 21, 23, 27, 28, 31, 32, 38, 39, 40, 42, 43, 44, 55, 56, 57, 59, 68, 69, 70, 74, 75, 76, 78, 85, 87, 89, 92, 95, 97, 98, 117, 122, 124.	2, 4, 5, 9, 10, 13, 24, 25, 26, 29, 35, 36, 37, 53, 54, 60, 63, 71, 72, 77, 88, 90, 96, 96a, 101, 108, 113, 115, 116, 123, 125, 126, 126a.	6, 7, 8, 15a, 15b, 51, 52, 61, 64, 65, 66, 67a, 79, 80, 81, 82, 83, 84, 100, 102, 103, 104, 105, 106, 107, 108a, 109, 110, 120, 121, 124a, 127, 128, 129.	11, 12, 22, 30, 34, 34a, 48, 50, 73, 86, 99a, 112, 114, 118, 119, 125a.

Table 2: Tree Works.

Retain (23 trees/tree groups)	Prune (7 trees)	Remove (111 trees/tree groups)
1, 2, 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 99a, 102, 104, 105, 108a, 115, 116, 128.	18, 45, 46, 47, 91, 92, 93.	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 125a, 126, 126a, 127, 129.

Table 3: Tree Management Plan.

Tree Management Measures	Tree No.
Mulch Ground Cover Protection	18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 115, 116, 128.
Tree Protection Fencing	62, 85, 87, 88, 99a, 102, 104, 105, 108a, 115, 116, 128.
Tree Trunk Protection	18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 115, 116, 128.
Tree-Sensitive Construction Measures	1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98, 115.
Root Mapping Investigations	1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98, 115.

1.5 **Retain** twenty-three (23) trees/tree groups numbered 1, 2, 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 99a, 102, 104, 105, 108a, 115, 116 and 128.

1.6 **Prune** seven (7) trees numbered 18, 45, 46, 47, 91, 92 and 93 to provide clearance around the proposed development and scaffolding required during construction.

1.7 **Remove** one hundred and eleven (111) trees/tree groups numbered 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 125a, 126, 126a, 127 and 129.

2. INTRODUCTION

2.1 AIMS

The aim of the report is to:

2.1.1 To assess the trees' health and retention value and to evaluate the potential impacts on trees by the proposed development.

2.1.2 To provide options, if viable, to reduce potential impacts on trees and make recommendations for tree management and protection during development.

2.2 SCOPE

2.2.1 Billbergia Group Pty Ltd commissioned an Arboricultural Impact Assessment for the site at 1 King Street, Concord West NSW 2138.

2.2.2 The assessment was conducted on the 23rd of November, 2023 by Jim McArdle B.Ed. Sci (ACU), Dip. Arb AQF L5 (Ryde), Tree Risk Assessment Qualified (TRA), Quantified Tree Risk Assessment (QTRA) & Tree Contractors Association of Australia (TCAA) Vice President.

2.2.3 Tree management measures are regulated by Canada Bay Development Control Plan (DCP) 2017 and Canada Bay Local Environmental Plan (LEP) 2013.

2.2.4 Approximately one hundred and twenty-nine (129) trees/tree groups on site and in the adjacent surrounding area were assessed.

2.2.5 The inspection does not include below ground root excavation, and no expert laboratory analyses – including internal diagnostics, inaccessible trunk and aerial inspections – were conducted. No pathology tests or soil analyses were conducted. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale.

2.2.6 The owner or manager of this site has not provided other documentation relating to the trees. Apart from post-site research and comparisons of similar sites, our observations are the only details analysed.

2.2.7 Photo capture was completed with utilising an App Solocator™ on Iphone 13.

2.2.8 GPS locations are also made with Garmin™ handheld device.

2.3 METHODOLOGY

2.3.1 The inspection was primarily conducted using ground-based collection of data to identify visible signs of tree health, structure and potential hazards. Collection data methods may include the use of a mallet for sound testing, the use of a trowel to test for soil compaction, and the use of a screwdriver to probe cavities for pathogens, pests and disease. The assessments do not involve laboratory analysis. Methods may include the following:

Visual Tree Assessment (VTA) (Mattheck and Breloer 1994), a method for assessing biological and lower-level mechanical functions and signs of decay, damage or defects (Appendix A).

Tree AZ Categories (Barrell 2010) classifies the importance of trees on development sites (Appendix B).

- **Category A** – suitable for retention.
- **Category Z** – not worthy of constraint.

Tree Useful Life Expectancy (TULE) (Barrell 2014) determines the time a tree can be expected to be usefully retained in normal circumstances (Appendix C).

- **Long** > 40 years.
- **Medium** 15 – 40 years.
- **Short** 5 – 15 years.
- **No retention potential** 0 – 5 years.

Landscape Significance Rating (Morton 1996), (Appendix D).

- **Significant** – based on heritage or ecological value.
- **Very High** – based on adjacent area surrounding the site.
- **High** – neighbourhood status but may have some conditions or health issues.
- **Moderate** – good and worthy of preservation, may have minor health issues.
- **Low** – worthy of preservation, may have major conditions or health issues.
- **Very Low** – retain if possible.
- **Insignificant** – exempt from retention.

Retention Value Rating (Morton 2011), determined by considering both TULE and the Landscape Significance (Appendix E).

- **High** retention value trees are a priority for retention.
- **Medium** retention value trees are retained where possible.
- **Low** retention value trees are generally not a constraint to development.
- **Very Low** retention value trees may have potential hazards.

Planting Specifications from NATSPEC (Clark 2003) and Australian Standard® AS 2303-2018 – Tree Stock for Landscape Use (Appendix F).

2.3.2 **Tree Contractors** must have a minimum AQF Level 3 Certificate in Arboriculture and work in accordance with Australian Standard® AS 4373-2007 – Pruning of Amenity Trees, the Work Health & Safety (WHS) Act 2011 and the WHS Regulations 2017, the SafeWork NSW – Guide to Managing Risks of Tree Trimming and Removal Work 2016, and the Code of Practice for The Amenity Tree Industry 1998. Work near powerlines should be carried out in accordance with the Code of Practice for Work Near Overhead Power Lines.

3. RESULTS

3.1 THE SITE

3.1.1 The site is 1 King Street, Concord West NSW 2138.

3.1.2 This landscape is relatively flat, and the soils¹ are classified generally as loam.



Figure 1: Aerial site map of 1 King Street, Concord West NSW 2138 (Nearmap 2023). The site perimeter is outlined in yellow.

¹ Espade.environment.nsw.gov.au

3.2 LEGISLATION AND SIGNIFICANCE IN THE ENVIRONMENT

Trees are subject to the following Commonwealth and State Legislation:

3.2.1 NSW and Commonwealth Legislation regulates the **Biosecurity Act 2015** (diseases and pests) and the **Environmental Protection & Biodiversity Conservation Act 1999 (EPBC Act)**, which manages nationally endangered ecological communities (EEC) and national heritage items. The EPBC Act delegates to the **NSW Biodiversity Conservation Act 2016 (BC Act)**² and allows state and local authorities to manage ecological and heritage matters of significance. The BC Act repealed (but still has some transitional arrangements) the NSW Threatened Species Conservation Act 1995. The BC Act may require a Species Impact Statement and Biodiversity Banking and Offset Scheme agreements determined by the Biodiversity Assessment Method (BAM).

3.2.2 NSW State Legislation³ is regulated under the **NSW Environmental Planning and Assessment Act 1979 (EP&A Act)**, which manages significant development and infrastructure in NSW. The EP&A Act utilises **Environmental Planning Instruments (EPI)**³. These instruments include **State Environment Planning Policies (SEPP)** that deal with matters of state or regional environmental planning significance and **Local Environmental Plans (LEP)** that provide local councils a framework for land usage. **SEPP (Vegetation in Non-Rural Areas) 2017** applies to this local government area (LGA) and prohibits clearing vegetation without council consent.

3.2.3 **NSW Rural Fire Act 1997**⁴ regulates a **10/50 Vegetation Clearing Code**, which may allow a designated area to clear trees within 10 metres of a home and clear underlying vegetation such as shrubs (but not trees), within 50 metres of a home to reduce risk from bushfires. The 10/50 Vegetation Clearing Code does not apply to this site.

3.2.4 An analysis of state and local legislation, development controls and planning instruments concludes the following:

- **Tree management measures**⁵ are regulated by Canada Bay DCP 2017 and Canada Bay LEP 2013.
- **Acid Sulfate Soils:** Class 5.
- **Land Zoning:** E4: General Industrial.
- **Local Aboriginal Land Council:** Metropolitan.
- **Local Provisions:** Affordable Housing Contribution Scheme.

² <https://www.environment.nsw.gov.au/>

³ <https://www.planningportal.nsw.gov.au/>

⁴ <https://www.rfs.nsw.gov.au/>

⁵ <https://www.canadabay.nsw.gov.au/>

3.3 LOCAL PLANNING AND ZONING CONTROLS

Site Address: 1 King Street, Concord West NSW 2138.

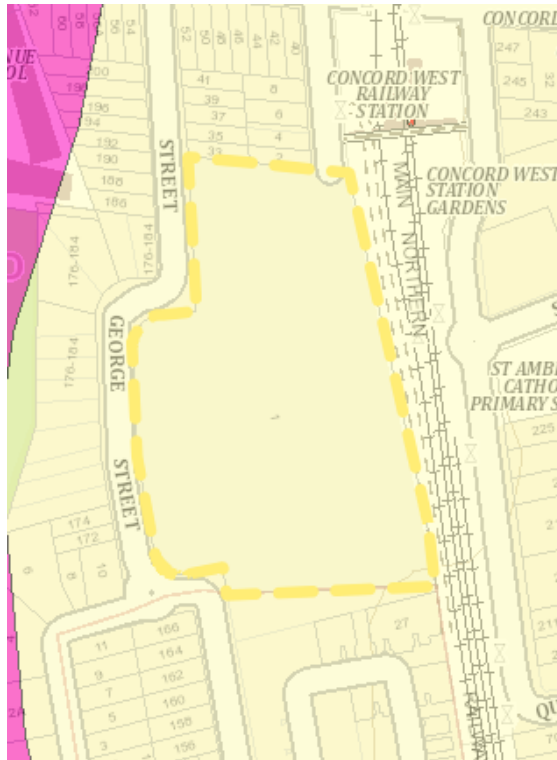


Figure 2: Acid Sulfate Soils.
Class 5 (yellow).



Figure 3: Land Zoning.
E4: General Industrial (purple).

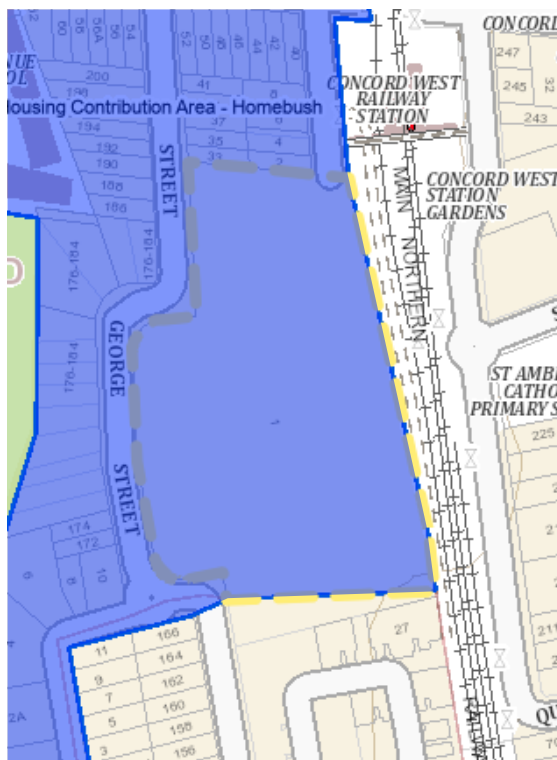


Figure 4: Local Provisions.
Affordable Housing Contribution Scheme (blue).

3.4 TREE SCHEDULE

Table 4: Tree Schedule – Health and Structural Condition of Trees.

(*DBH – Diameter Breast Height, *DRC – Diameter Root Collar, *TPZ – Tree Protection Zone, *SRZ – Structural Root Zone, *TULE – Tree Useful Life Expectancy).

Tree No.	Location	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Intended Works
1	King Street.	<i>Melaleuca quinquenervia</i> Broad-Leaved Paperbark	16	20	130 140	15.0 3.8	Mature, good condition, with damaged roots.	2a A2	High	Retain and protect.
2	King Street.	<i>Callistemon viminalis</i> Weeping Bottlebrush	5	5	15/15 22	2.5 1.8	Immature, good condition but poor development, previously pruned, with an inclusion, twin stems, and a spreading habit.	2a A1	Low-Moderate	Retain and protect.
3	Childcare access.	<i>Archontophoenix spp.</i> Phoenix Palm	8	9	50 50	6.0# 2.5	Immature, good condition.	2a Z10	Moderate	Remove and replenish.
4	George Street.	<i>Tristaniopsis laurina</i> Water Gum	5	6	10/16 20	2.3 1.7	Immature, good condition but poor development, heavily pruned.	2a Z10	Low-Moderate	Remove and replenish.
5	George Street.	<i>Tristaniopsis laurina</i> Water Gum	4	7	10/12 20	2.0 1.7	Immature, good condition but poor development, with 10% dehydration.	2a Z10	Low-Moderate	Remove and replenish.
6	George Street.	<i>Tristaniopsis laurina</i> Water Gum	5	5	10 (x 4) 30	2.4 2.0	Immature, with a lean to the north, multiple stems, and a suppressed canopy.	2d Z10	Low	Remove and replenish.
7	George Street.	<i>Tristaniopsis laurina</i> Water Gum	6	6	10/20 24	2.6 1.8	Immature, with a lean and an unbalanced canopy to the north-west, and minor decay.	2d Z10	Low	Remove and replenish.
8	George Street.	<i>Cupressocyparis leylandii</i> Leighton Green	8	7	20 22	2.4 1.8	Immature, good condition but poor development, with a suppressed canopy.	2d Z10	Low	Remove and replenish.
9	Western boundary.	<i>Cupressocyparis leylandii</i> Leighton Green	4	5	15 16	2.0 1.5	Immature, moderate condition, previously pruned, with a suppressed canopy.	2d Z10	Low-Moderate	Remove and replenish.
10	Western boundary.	<i>Eucalyptus robusta</i> Swamp Mahogany	7	16	10/18 25	2.4 1.9	Immature, previously pruned, with an unbalanced canopy to the east, and minor dehydration.	2d Z10	Low-Moderate	Remove and replenish.
11	Western boundary.	<i>Celtis spp.</i> Hackberry	7	10	22 24	2.6 1.8	Immature, good condition.	2a Z3	Very Low	Remove (Exempt plant species).
12	Western boundary.	<i>Celtis spp.</i> Hackberry	6	7	10 (x 7) 26	3.1 1.9	Immature, growing through the fence.	2a Z3	Very Low	Remove (Exempt plant species).
13	George Street.	<i>Tristaniopsis laurina</i> Water Gum	6	6	10 (x 4) 30	2.4 2.0	Immature, good condition but poor condition, with epicormics.	2d Z10	Low-Moderate	Remove and replenish.
14	George Street.	<i>Tristaniopsis laurina</i> Water Gum	8	8	20/22 32	3.6 2.1	Semi-mature, good condition but poor development, with epicormics at the base of the tree, and a spreading habit.	2a Z10	Moderate	Remove and replenish.
15a	George Street.	<i>Tristaniopsis laurina</i> Water Gum	3	7	5/5/10 18	2.0 1.6	Immature, poor condition, with 10% dehydration.	3d Z10	Low	Remove and replenish.
15b	George Street.	<i>Tristaniopsis laurina</i> Water Gum	5	6	8/10 14	2.0 1.5	Immature, good condition but poor development.	2a Z10	Low	Remove and replenish.
16	Western boundary.	<i>Jacaranda mimosifolia</i> Jacaranda	8	11	16/22 26	3.2 1.9	Immature, good condition, with a lean and an unbalanced canopy.	2a Z10	Moderate	Remove and replenish.
17	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	10	15	45 50	5.4 2.5	Immature, good condition but poor development, with minor exudation.	2a Z10	Moderate	Remove and replenish.

Tree No.	Location	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Intended Works
18	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	10	22	32 35	3.8 2.1	Immature, good condition but poor development, with twin leaders, and a parasitic vine.	2d A2	Moderate	Retain and protect.
19	Western boundary.	<i>Zelkova spp.</i> Zelkova	8	8	22 24	2.6 1.8	Immature, good condition but poor development.	2a Z10	Moderate	Remove and replenish.
20	Western boundary.	<i>Zelkova spp.</i> Zelkova	8	10	25 32	3.0 2.1	Immature, good condition but poor development.	2a Z10	Moderate	Remove and replenish.
21	Western boundary.	<i>Melaleuca quinquenervia</i> Broad-Leaved Paperbark	10	14	65 80	7.8 3.0	Semi-mature, good condition.	2a Z10	Moderate	Remove and replenish.
22	Western boundary.	<i>Celtis spp.</i> Hackberry	6	7	20 22	2.4 1.8	Immature, good condition but poor development.	2a Z3	Very Low	Remove (Exempt plant species).
23	Western boundary.	<i>Jacaranda mimosifolia</i> Jacaranda	8	10	26 28	3.1 1.9	Immature, good condition.	2a Z10	Moderate	Remove and replenish.
24	Western boundary.	<i>Eucalyptus robusta</i> Swamp Mahogany	5	10	16 18	2.0 1.6	Immature, with an unbalanced canopy to the south.	2a Z10	Low-Moderate	Remove and replenish.
25	Western boundary.	<i>Eucalyptus robusta</i> Swamp Mahogany	6	12	22 24	2.6 1.8	Immature, with a lean and an unbalanced canopy to the west.	2d Z10	Low-Moderate	Remove and replenish.
26	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	5	17	33 34	4.0 2.1	Immature, moderate condition, with 20% dehydration.	3a Z10	Low-Moderate	Remove and replenish.
27	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	8	22	55 73	6.6 2.9	Semi-mature, good condition.	2a Z10	Moderate	Remove and replenish.
28	Garden.	<i>Casuarina glauca</i> Swamp She-Oak	10	22	60 80	7.2 3.0	Mature, good condition but poor development, with a kinked stem to the east at 15m height.	2d Z10	Moderate	Remove and replenish.
29	Carpark.	<i>Melaleuca quinquenervia</i> Broad-Leaved Paperbark	6	9	22 24	2.6 1.8	Immature, good condition.	2a Z10	Low-Moderate	Remove and replenish.
30	George Street.	<i>Casuarina glauca</i> Swamp She-Oak	8	15	32 35	3.8 2.1	Immature, in decline, with 35-40% dehydration.	4a Z4	Very Low	Remove (Exempt, dead/dying).
31	George Street.	<i>Casuarina glauca</i> Swamp She-Oak	12	17	40 50	4.8 2.5	Mature, good condition but poor development, with an inclusion at 4m height, a minor branch failure, sparse foliage, and termite damage.	2d Z10	Moderate	Remove and replenish.
32	George Street.	<i>Casuarina glauca</i> Swamp She-Oak	12	17	40 50	4.8 2.5	Mature, good condition but poor development.	2a Z10	Moderate	Remove and replenish.
33	Western boundary.	<i>Eucalyptus microcorys</i> Tallowwood	14	23	64 80	7.7 3.0	Semi-mature, good condition but poor development, with twin leaders.	2d Z10	High	Remove and replenish.
34	Garden.	<i>Species unknown</i> (stag)	0	8	20 20	2.4 1.7	Dead, with no hollows.	4a Z4	Very Low	Remove (Exempt, dead/dying).
34a	Western boundary.	<i>Celtis spp.</i> Hackberry	6	7	12 14	2.0 1.5	Immature, good condition but poor development, with a lean to the north.	2d Z3	Very Low	Remove (Exempt plant species).
35	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	5	8	18 20	2.2 1.7	Immature, with a suppressed and unbalanced canopy.	2d Z10	Low-Moderate	Remove and replenish.
36	Western boundary.	<i>Zelkova spp.</i> Zelkova	5	6	20 22	2.4 1.8	Immature, good condition but poor development.	2a Z10	Low-Moderate	Remove and replenish.

Tree No.	Location	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Intended Works
37	Western boundary.	<u>Eucalyptus robusta</u> Swamp Mahogany	6	12	16 18	2.0 1.6	Immature, good condition but poor development, with a lean and an unbalanced canopy to the east. The tree passed a mallet test.	2a Z10	Low-Moderate	Remove and replenish.
38	Western boundary.	<u>Ficus microcarpa</u> var. 'hillii' Hill's Weeping Fig	16	15	80 90	9.6 3.2	Semi-mature, good condition but poor development, previously pruned, with a minor branch failure to the east at 5m height.	2d Z10	Moderate	Remove and replenish.
39	Western boundary.	<u>Cupressocyparis leylandii</u> Leighton Green	6	22	35 42	4.2 2.3	Semi-mature, moderate condition, with a suppressed and unbalanced canopy.	3a Z10	Moderate	Remove and replenish.
40	Western boundary.	<u>Cupressocyparis leylandii</u> Leighton Green	6	22	29 32	3.5 2.1	Semi-mature, moderate condition, with an unbalanced canopy to the west.	3a Z10	Moderate	Remove and replenish.
41	Tree removed prior to this report.									
42	Western boundary.	<u>Eucalyptus robusta</u> Swamp Mahogany	8	12	10/26 28	3.4 1.9	Immature, good condition but poor development, with fungal attack, an unbalanced canopy to the west, a rubbing branch at 40cm height, termite damage, and a hollow. The tree failed a mallet test.	4a Z5	Moderate	Remove and replenish. Install a nesting box.
43	Western boundary.	<u>Eucalyptus robusta</u> Swamp Mahogany	10	14	18/25/38 50	5.9 2.5	Semi-mature, with an unbalanced canopy to the west, damaged and lifting roots, termite damage, and decay to the west.	3d Z6	Moderate	Remove and replenish.
44	Western boundary.	<u>Eucalyptus robusta</u> Swamp Mahogany	12	18	43 45	5.2 2.4	Semi-mature, with a damaged girdling root, and an inclusion at 2m height.	2d Z5	Moderate	Remove and replenish.
45	Adjacent George Street.	<u>Eucalyptus saligna</u> Sydney Blue Gum	NS 23 EW 24	26	94 95	11.3 3.2	Semi-mature, moderate condition, with termite damage, and minor dehydration.	3a A2	High	Retain and protect.
46	Adjacent George Street.	<u>Ficus microcarpa</u> var. 'hillii' Hill's Weeping Fig	24	25	51 60	6.1 2.7	Mature, good condition, previously pruned at 30cm and 50cm height.	3a A2	High	Retain and protect.
47	Adjacent George Street.	<u>Podocarpus elatus</u> Plum Pine	NS 18 EW 15	18	86 85	10.3 3.1	Mature, good condition but poor development, with a lean and an unbalanced canopy to the north-east, and decay to the east at 50cm height.	3a A2	High	Retain and protect.
48	Western boundary.	<u>Celtis spp.</u> Hackberry	6	8	10/10/13 25	2.3 1.9	Immature, good condition but poor development, with damaged roots.	2a Z3	Very Low	Remove (Exempt plant species).
49	Tree removed prior to this report.									
50	Western boundary.	<u>Celtis spp.</u> Hackberry	6	7	10 (x 5)/13 25	3.1 1.9	Immature, good condition, with a lean to the north-west.	2a Z3	Very Low	Remove (Exempt plant species).
51	Western boundary.	<u>Cupressocyparis leylandii</u> Leighton Green	5	12	18 22	2.2 1.8	Semi-mature, moderate condition, with an unbalanced canopy to the west.	3d Z10	Low	Remove and replenish.
52	North of building.	<u>Jacaranda mimosifolia</u> Jacaranda	NS 19 EW 16	11	25/33 35	4.9 2.1	Immature, poor condition, with damaged and lifting roots.	4c Z6	Low	Remove and replenish.
53	North of building.	<u>Jacaranda mimosifolia</u> Jacaranda	6	8	22 27	2.6 1.9	Immature, good condition but poor development, previously pruned, with damaged roots, and swelling at the base of the tree.	2a Z10	Low-Moderate	Remove and replenish.
54	North of building.	<u>Jacaranda mimosifolia</u> Jacaranda	6	6	16/16/16 20	3.4 1.7	Immature, good condition but poor development, previously pruned, with damaged roots.	2d Z10	Low-Moderate	Remove and replenish.
55	North of building.	<u>Jacaranda mimosifolia</u> Jacaranda	8	10	12/22 32	3.0 2.1	Semi-mature, good condition, with a lean and an unbalanced canopy to the west.	2a Z10	Moderate	Remove and replenish.
56	North of building.	<u>Jacaranda mimosifolia</u> Jacaranda	12	12	44 46	5.3 2.4	Semi-mature, good condition, with a damaged roots.	2a Z10	Moderate	Remove and replenish.

Tree No.	Location	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Intended Works
57	North of building.	<i>Jacaranda mimosifolia</i> Jacaranda	8	12	35 40	4.2 2.3	Semi-mature, good condition but poor development, with a lean to the west, and damaged roots.	2a Z10	Moderate	Remove and replenish.
58	North of building.	<i>Jacaranda mimosifolia</i> Jacaranda	NS 8 EW 12	15	28/35 50	5.4 2.5	Semi-mature, with twin leaders, a parasitic vine, and a spreading habit.	2d Z10	High	Remove and replenish.
59	North of building.	<i>Fraxinus angustifolia</i> Claret Ash	8	8	12/14/14 25	2.8 1.9	Immature, good condition but poor development, triple-stemmed.	2a Z10	Moderate	Remove and replenish.
60	North of building.	<i>Fraxinus angustifolia</i> Claret Ash	9	9	22/24 35	4.0 2.1	Immature, good condition but poor development, with damaged roots, and 10% dehydration.	3a Z10	Low-Moderate	Remove and replenish.
61	North of building.	<i>Fraxinus angustifolia</i> Claret Ash	4	8	10 12	2.0 1.5	Immature, poor condition, heavily pruned, with 20% dehydration.	3d Z10	Low	Remove and replenish.
62	Northern boundary.	<i>Angophora floribunda</i> Rough-Barked Apple	16	20	55 60	6.6 2.7	Semi-mature, poor condition, with a slight lean to the south.	3a A2	High	Retain and protect.
63	Eastern boundary.	<i>Pyrus spp.</i> Pear	5	7	22 24	2.6 1.8	Immature, good condition but poor development, heavily pruned.	2a Z3	Low-Moderate	Remove (Exempt plant species).
64	Eastern boundary.	<i>Pyrus spp.</i> Pear	5	8	20 28	2.4 1.9	Immature, good condition but poor development, heavily pruned.	2d Z3	Low	Remove (Exempt plant species).
65	Eastern boundary.	<i>Pyrus spp.</i> Pear	5	6	15 20	2.0 1.7	Immature, good condition but poor development, heavily pruned.	2d Z3	Low	Remove (Exempt plant species).
66	Eastern boundary.	<i>Pyrus spp.</i> Pear	6	6	15 20	2.0 1.7	Immature, moderate condition.	2a Z3	Low	Remove (Exempt plant species).
67	Eastern boundary.	<i>Eucalyptus punctata</i> Grey Gum	NS 11 EW 16	20	47 50	5.6 2.5	Semi-mature, good condition but poor development.	2a Z10	High	Remove and replenish.
67a (x 8)	Eastern boundary.	<i>Banksia integrifolia</i> Coast Banksia	1-3	5-8	10-15 10-18	2.0 1.6	Juvenile, excellent condition, with kinked stems.	1a Z10	Low	Remove and replenish.
68	Eastern boundary.	<i>Eucalyptus robusta</i> Swamp Mahogany	8	13	24 32	2.9 2.1	Immature, with a lean to the north-west.	2d Z10	Moderate	Remove and replenish.
69	Eastern boundary.	<i>Eucalyptus robusta</i> Swamp Mahogany	14	25	42 55	5.0 2.6	Semi-mature, good condition but poor development, with damaged roots, and 50% hard-surface impacts.	2a Z10	Moderate	Remove and replenish.
70	Eastern boundary.	<i>Eucalyptus robusta</i> Swamp Mahogany	12	23	36 40	4.3 2.3	Semi-mature, good condition, with 50% hard-surface impacts.	2a Z10	Moderate	Remove and replenish.
71	East of building.	<i>Gleditsia triacanthos</i> Honey Locust	8	9	30 32	3.6 2.1	Semi-mature, good condition, previously pruned.	2d Z10	Low-Moderate	Remove and replenish.
72	East of building.	<i>Gleditsia triacanthos</i> Honey Locust	8	9	36 40	4.3 2.3	Semi-mature, previously pruned at 3m height, with a lean to the north-west.	3d Z10	Low-Moderate	Remove and replenish.
73	Eastern boundary.	<i>Celtis spp.</i> Hackberry	8	11	18 (x 5)/20 50	5.4 2.5	Semi-mature, good condition but poor development, with damaged roots, and physical damage from the fence.	2d Z3	Very Low	Remove (Exempt plant species).
74	Eastern boundary.	<i>Corymbia gummifera</i> Red Bloodwood	12	23	50 55	6.0 2.6	Semi-mature, good condition but poor development.	2a Z10	Moderate	Remove and replenish.
75	Eastern boundary.	<i>Corymbia gummifera</i> Red Bloodwood	9	22	24 26	2.9 1.9	Immature, previously pruned, with a suppressed and an unbalanced canopy to the south.	2a Z10	Moderate	Remove and replenish.

Tree No.	Location	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Intended Works
76	Adjacent King Street access.	<i>Acacia implexa</i> Hickory Wattle	NS 8 EW 13	11	30 35	3.6 2.1	Immature, with a lean to the west, and damaged roots.	3a Z10	Moderate	Remove and replenish.
77	Adjacent King Street access.	<i>Gleditsia triacanthos</i> Honey Locust	NS 8 EW 12	10	30 35	3.6 2.1	Semi-mature, moderate condition, with a lean to the east.	3a Z10	Low-Moderate	Remove and replenish.
78	Adjacent King Street access.	<i>Acacia implexa</i> Hickory Wattle	NS 11 EW 6	10	25/25 40	4.2 2.3	Semi-mature, good condition but poor development, with a lean to the west, and twin stems.	3a Z10	Moderate	Remove and replenish.
79	Northern boundary.	<i>Callistemon viminalis</i> Weeping Bottlebrush	6	7	10 (x 4) 34	2.4 2.1	Immature, good condition.	2a Z10	Low	Remove and replenish.
80	Northern boundary.	<i>Olea spp.</i> Olive	6	6	20 24	2.4 1.8	Immature, good condition but poor development, with four (4) main stems.	2d Z3	Low	Remove (Exempt plant species).
81	Northern boundary.	<i>Olea spp.</i> Olive	5	6	10/10 15	2.0 1.5	Immature, with an unbalanced canopy.	2a Z3	Low	Remove (Exempt plant species).
82	Northern boundary.	<i>Olea spp.</i> Olive	5	5	10 15	2.0 1.5	Immature, with an unbalanced canopy.	2a Z3	Low	Remove (Exempt plant species).
83	Northern boundary.	<i>Olea spp.</i> Olive	6	7	10/10/10 20	2.0 1.7	Immature, with an unbalanced canopy to the west.	2a Z3	Low	Remove (Exempt plant species).
84	Childcare.	<i>Syzygium spp.</i> Lilly Pilly	6	8	20 30	2.4 2.0	Immature, good condition.	2a Z10	Low	Remove and replenish.
85	Childcare.	<i>Harpephyllum caffrum</i> Kaffir Plum	10	16	25/25/25 50	5.2 2.5	Semi-mature, good condition, triple-stemmed.	2a A1	Moderate	Retain and protect.
86 (x 5)	Childcare.	<i>Harpephyllum caffrum</i> Kaffir Plum	3	6	10 10	2.0 1.5	Juvenile, good condition.	2d Z10	Very Low	Remove and replenish.
87	Childcare.	<i>Eucalyptus haemastoma</i> Scribbly Gum	12	18	45 55	5.4 2.6	Immature, good condition but poor development, previously pruned, with a cavity at the base of the tree.	2d A2	Moderate	Retain and protect.
88	Childcare.	<i>Callistemon viminalis</i> Weeping Bottlebrush	6	7	15 20	2.0 1.7	Immature, good condition but poor development, previously pruned.	2a A1	Low-Moderate	Retain and protect.
89	Adjacent King Street access.	<i>Melaleuca quinquenervia</i> Broad-Leaved Paperbark	8	12	40 45	4.8 2.4	Semi-mature, good condition but poor development, with a lean to the west.	2a Z10	Moderate	Remove and replenish.
90	Western boundary.	<i>Gleditsia triacanthos</i> Honey Locust	8	7	28 30	3.4 2.0	Semi-mature, with an unbalanced canopy to the west, decay at 1m height, and physical damage from concrete at the base of the tree.	3d Z10	Low-Moderate	Remove and replenish.
91	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	12	24	70 90	8.4 3.2	Mature, good condition but poor development.	2a A1	High	Retain and protect.
92	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	10	17	20/34 47	4.7 2.4	Semi-mature, good condition but poor development, with minor decay, and damaged roots.	2d A2	Moderate	Retain and protect.
93	Western boundary.	<i>Eucalyptus microcorys</i> Tallowwood	18	27	70 72	8.4 2.9	Semi-mature, good condition but poor development, previously pruned, with damaged roots, and 60% hard-surface impacts.	2d A2	High	Retain and protect.
94	Western boundary.	<i>Casuarina glauca</i> Swamp She-Oak	16	24	80 80	9.6 3.0	Mature, good condition but poor development, with 70% hard-surface impacts.	2a A2	High	Retain and protect.
95	Eastern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	6	13	33 35	4.0 2.1	Immature, good condition but poor development, with epicormics.	2d Z10	Moderate	Remove and replenish.

Tree No.	Location	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Intended Works
96	South-eastern corner.	<i>Casuarina glauca</i> Swamp She-Oak	7	16	26 30	3.1 2.0	Immature, with an unbalanced canopy to the east, and damaged roots.	2a Z10	Low-Moderate	Remove and replenish.
96a	South-eastern corner.	<i>Casuarina glauca</i> Swamp She-Oak	5	11	22 24	2.6 1.8	Immature, good condition but poor development.	2a Z10	Low-Moderate	Remove and replenish.
97	Eastern boundary.	<i>Corymbia gummifera</i> Red Bloodwood	12	18	47 50	5.6 2.5	Semi-mature, good condition but poor development, with a lean and an unbalanced canopy to the north-west, and tear-out at 5m height.	2d Z10	Moderate	Remove and replenish.
98	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	8	14	42 45	5.0 2.4	Mature, with a spreading habit, over 20% dieback, and a lean to the north.	2d A2	Moderate	Retain and protect.
99	Tree removed prior to this report.									
99a (x 22)	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	1	9	5-10 5-15	2.0 1.5	Juvenile, good condition.	2a A1	Very Low	Retain and protect.
100	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	5	10	14/15 20	2.5 1.7	Immature, with twin leaders, sparse foliage, an unbalanced canopy, and a parasitic vine.	2d Z10	Low	Remove and replenish.
101	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	8	15	12/15/25 50	3.8 2.5	Semi-mature, with an inclusion between leaders at 3m height.	2a Z10	Low-Moderate	Remove and replenish.
102	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	4	12	15 20	2.0 1.7	Immature, good condition but poor development, with a lean and an unbalanced canopy to the west, a suppressed canopy, and a parasitic vine.	2d A2	Low	Retain and protect.
103	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	3	9	12 14	2.0 1.5	Immature, moderate condition, with a lean to the north-west, and a suppressed canopy.	3a Z10	Low	Remove and replenish.
104	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	4	6	20 22	2.4 1.8	Immature, with an unbalanced canopy to the north.	2d A1	Low	Retain and protect.
105	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	6	18	10/20 30	2.6 2.0	Immature, growing through the fence.	2a A1	Low	Retain and protect.
106 (x 2)	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	6	22	10/20 22	2.6 1.8	Immature, good condition but poor development, with physical damage.	2a Z10	Low	Remove and replenish.
107	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	3	8	14/15 20	2.5 1.7	Immature, poor condition, with physical damage.	2d Z10	Low	Remove and replenish.
108	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	6	13	43 51	5.2 2.5	Semi-mature, moderate condition.	3d Z10	Low-Moderate	Remove and replenish.
108a	Southern boundary.	<i>Casuarina glauca</i> Swamp She-Oak	3	8	10-15 10-15	2.0 1.5	Juvenile, excellent condition.	1a A1	Low	Retain and protect.
109	Western boundary.	<i>Jacaranda mimosifolia</i> Jacaranda	8	8	45 50	5.4 2.5	Immature, heavily pruned, with a split and fracture to the south at 1.5m height.	3d Z5	Low	Remove and replenish.
110	Western boundary.	<i>Jacaranda mimosifolia</i> Jacaranda	6	6	10/10/10 20	2.0 1.7	Immature, good condition but poor development, triple-stemmed.	2d Z10	Low	Remove and replenish.
111	Tree removed prior to this report.									
112	Childcare carpark.	<i>Celtis spp.</i> Hackberry	6	8	20 30	2.4 2.0	Semi-mature, moderate condition, with a lean to the south, and a parasitic vine.	2d Z3	Very Low	Remove (Exempt plant species).
113	Childcare carpark.	<i>Jacaranda mimosifolia</i> Jacaranda	8	8	10/10/15/25/25 40	4.9 2.3	Immature, good condition but poor development, previously pruned, with a parasitic vine.	2d Z10	Low-Moderate	Remove and replenish.

Tree No.	Location	Botanical Name Common Name	Crown (m)	Height (m)	DBH* DRC* (cm)	TPZ* SRZ* (m)	Visual Tree Assessment (VTA) – Tree Health & Condition	TULE* A-Z	Retention Value	Intended Works
114	Childcare carpark.	<i>Harpephyllum caffrum</i> Kaffir Plum	14	12	30/40/40 100	7.7 3.3	Mature, with a split stem.	4c Z5	Very Low	Remove and replenish.
115	Childcare carpark.	<i>Pittosporum spp.</i> Pittosporum	8	7	25 28	3.0 1.9	Semi-mature, good condition but poor development.	2a A1	Low-Moderate	Retain and protect.
116	Childcare carpark.	<i>Stenocarpus sinuatus</i> Firewheel Tree	6	8	10 (x 5) 30	2.6 2.0	Immature, poor condition, with multiple stems.	2d A2	Low-Moderate	Retain and protect.
117	Western boundary.	<i>Agonis spp.</i> Myrtle	6	6	10/34 50	4.2 2.5	Semi-mature, good condition but poor development, previously pruned.	2d Z10	Moderate	Remove and replenish.
118	Adjacent carpark ramp.	<i>Corymbia gummifera</i> Red Bloodwood (stag)	0	10	14/20 30	2.9 2.0	Dead, with no hollows.	4a Z4	Very Low	Remove (Exempt, dead).
119 (x 4)	Adjacent carpark ramp.	<i>Species unknown</i> (stag)	5	6	12 14	2.0 1.5	Dead, with no hollows.	4a Z4	Very Low	Remove (Exempt, dead).
120	Adjacent carpark ramp.	<i>Eucalyptus robusta</i> Swamp Mahogany	8	9	22 26	2.6 1.9	Immature, previously pruned, with an unbalanced canopy.	3a Z10	Low	Remove and replenish.
121	Adjacent carpark ramp.	<i>Casuarina glauca</i> Swamp She-Oak	5	6	12 14	2.0 1.5	Immature, good condition but poor development, with a suppressed canopy.	2a Z10	Low	Remove and replenish.
122	Adjacent carpark ramp.	<i>Corymbia gummifera</i> Red Bloodwood	10	14	30 32	3.6 2.1	Immature, good condition but poor development.	2d Z10	Moderate	Remove and replenish.
123	Adjacent carpark ramp.	<i>Eucalyptus robusta</i> Swamp Mahogany	9	14	31 34	3.7 2.1	Immature, moderate condition.	2a Z10	Low-Moderate	Remove and replenish.
124	North of T74.	<i>Corymbia gummifera</i> Red Bloodwood	8	19	22 24	2.6 1.8	Immature, with a suppressed and an unbalanced canopy.	2d Z10	Moderate	Remove and replenish.
124a (x 19)	Garage.	<i>Syzygium spp.</i> Lilly Pilly (hedge)	2	3	10 10	2.0 1.5	Immature, moderate condition, heavily pruned.	2d Z10	Low	Remove and replenish.
125	11m north of T74.	<i>Corymbia gummifera</i> Red Bloodwood	7	10	22 24	2.6 1.8	Immature, good condition but poor development, with a suppressed and an unbalanced canopy to the west.	2d Z10	Low-Moderate	Remove and replenish.
125a	East of T116.	<i>Celtis spp.</i> Hackberry	6	8	10 (x 5) 20-30	2.6 2.0	Immature, multi-stemmed.	2d Z3	Very Low	Remove (Exempt plant species).
126	3.6m from building.	<i>Gleditsia triacanthos</i> Honey Locust	8	8	10/18 32	2.5 2.1	Immature, good condition but poor development, previously pruned, with an inclusion at 1.4m height, and an unbalanced canopy to the south-west.	3a Z10	Low-Moderate	Remove and replenish.
126a	Childcare carpark.	<i>Jacaranda mimosifolia</i> Jacaranda	6	8	10 (x 4) 22	2.4 1.8	Immature, good condition but poor development, previously pruned.	2d Z10	Low-Moderate	Remove and replenish.
127	Childcare.	<i>Callistemon viminalis</i> Weeping Bottlebrush	6	8	15 20	2.0 1.7	Immature, good condition but poor development, with an unbalanced canopy to the south.	2a Z10	Low	Remove and replenish.
128	Childcare.	<i>Syzygium spp.</i> Lilly Pilly	6	9	11/17 20	2.4 1.7	Immature, good condition but poor development.	2a A1	Low	Retain and protect.
129 (x 24)	20m from c-care access.	<i>Cupressocyparis leylandii</i> Leighton Green (hedge)	2	4	10 10	2.0 1.5	Immature, one (1) dead.	2a Z10	Low	Remove and replenish.

The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 metre outside the crown projection.

3.5 OBSERVATIONS

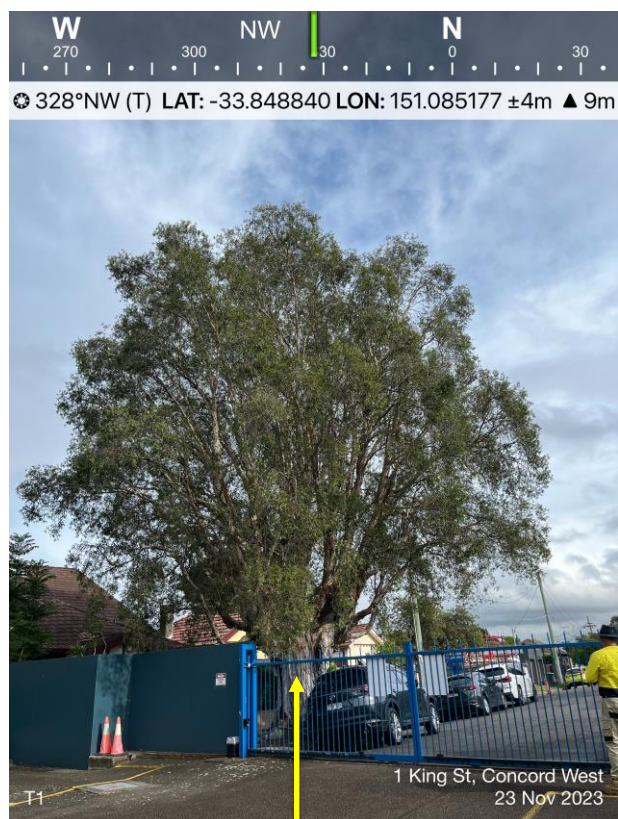


Plate 1: Tree 1, *Melaleuca quinquenervia* (Broad-Leaved Paperbark).

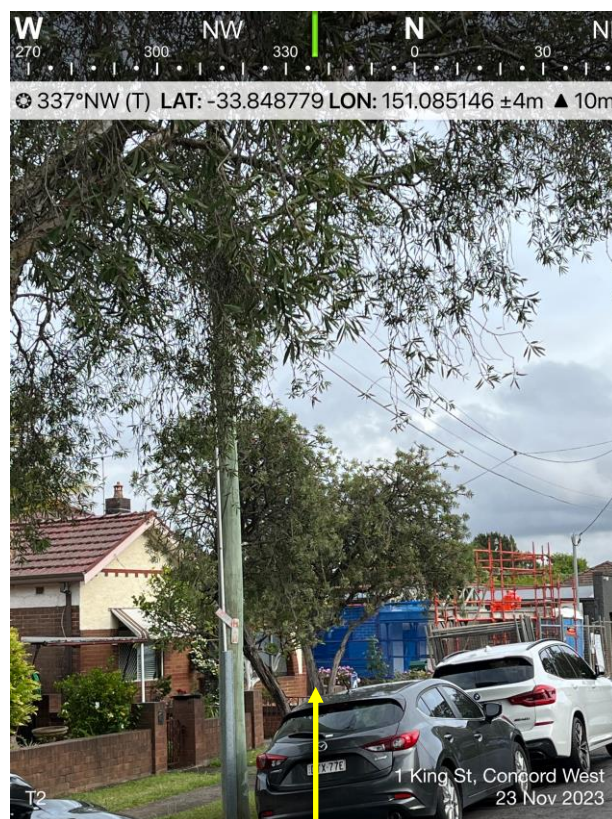


Plate 2: Tree 2, *Callistemon viminalis* (Weeping Bottlebrush).

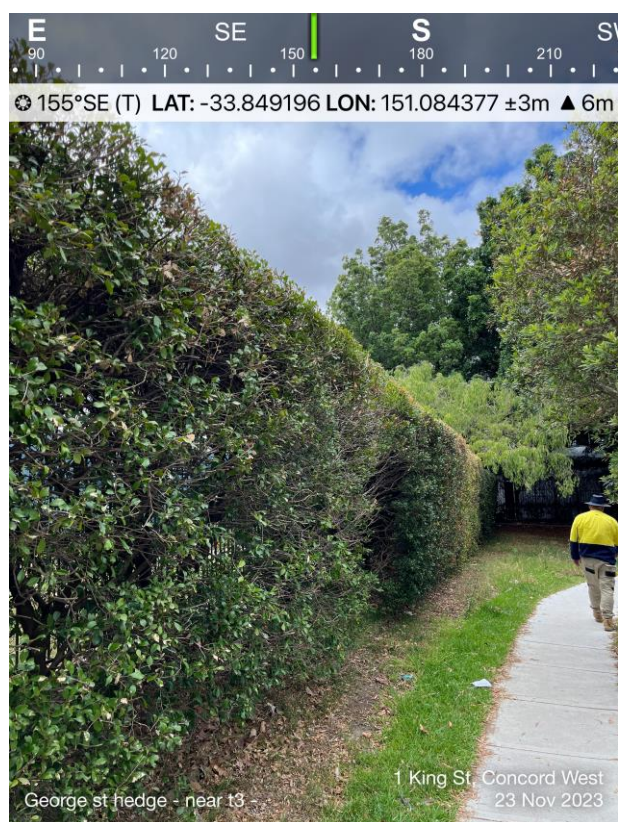


Plate 3: Hedge adjacent to Tree 3.

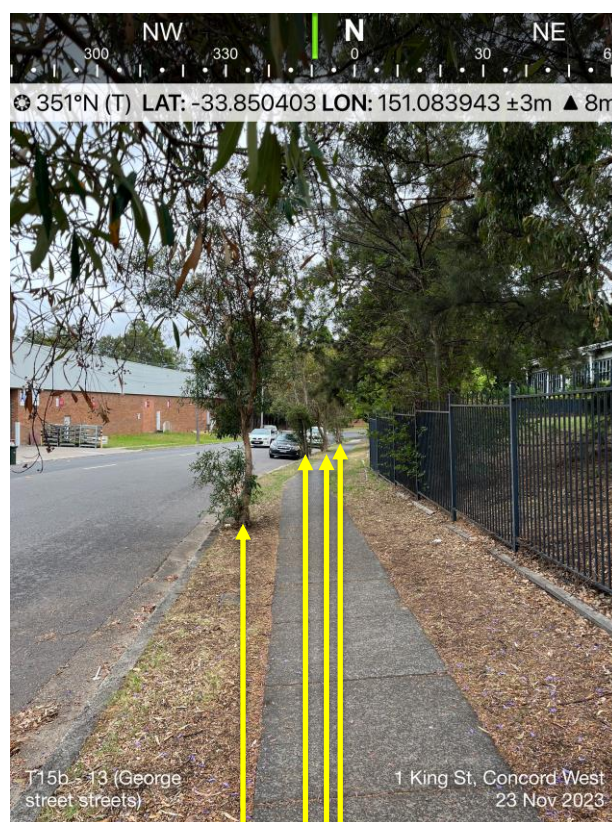


Plate 4: Trees 13 to 15b (from right to left).

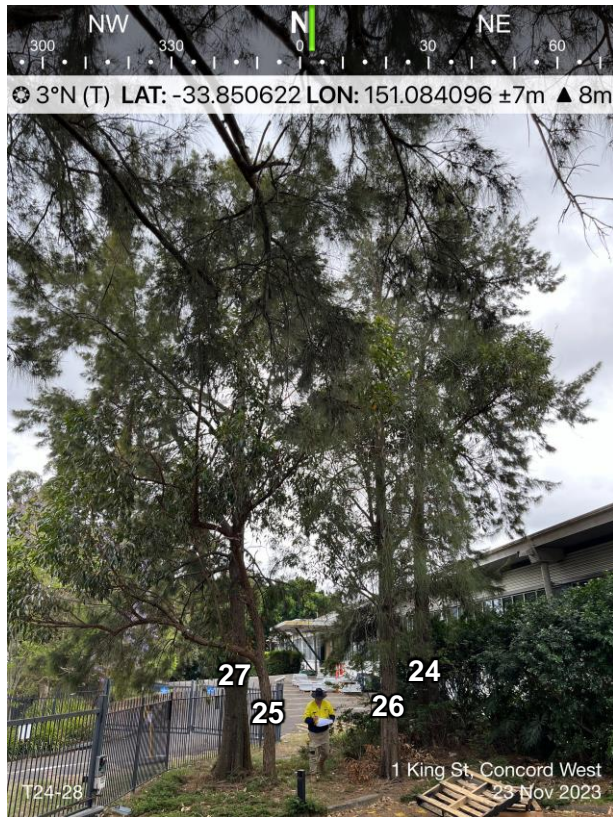


Plate 5: Trees 24, 25, 26 and 27.

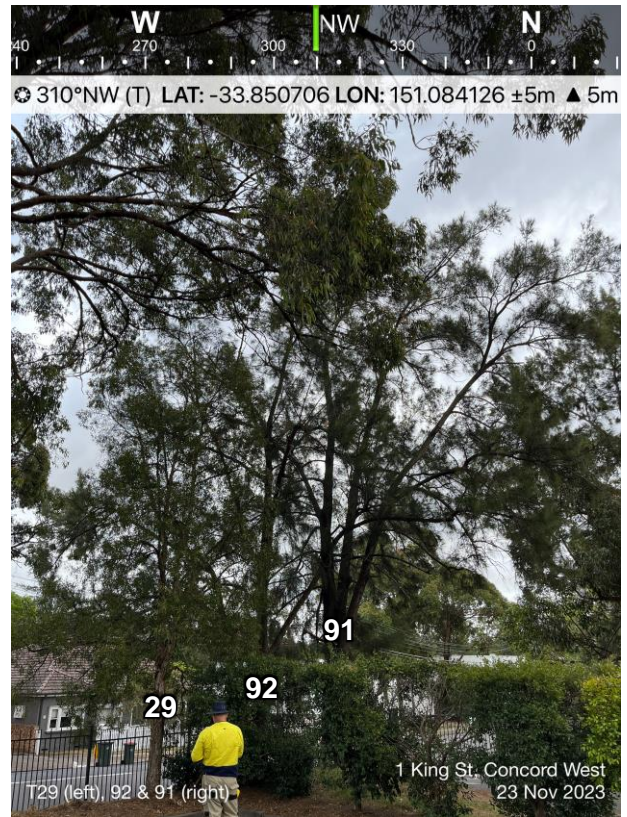


Plate 6: Trees 29, 91 and 92.

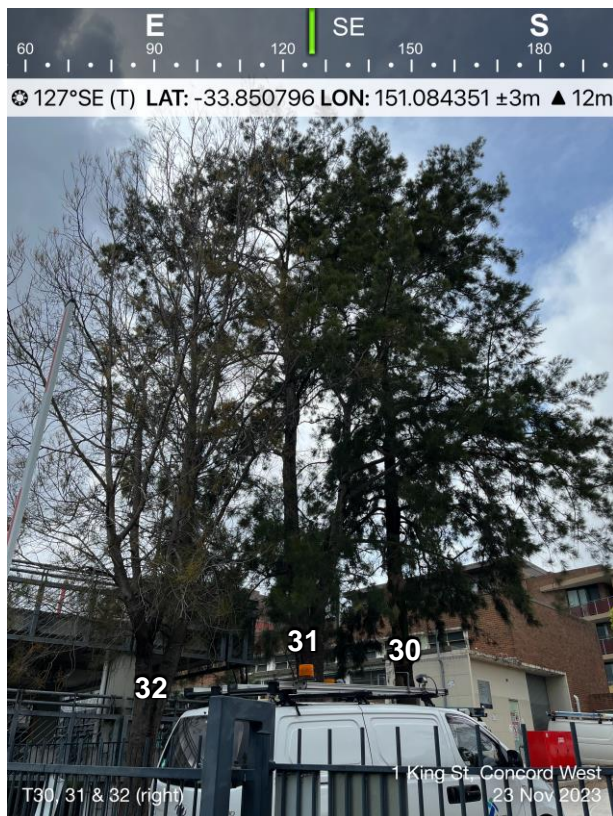


Plate 7: Trees 30, 31 and 32.

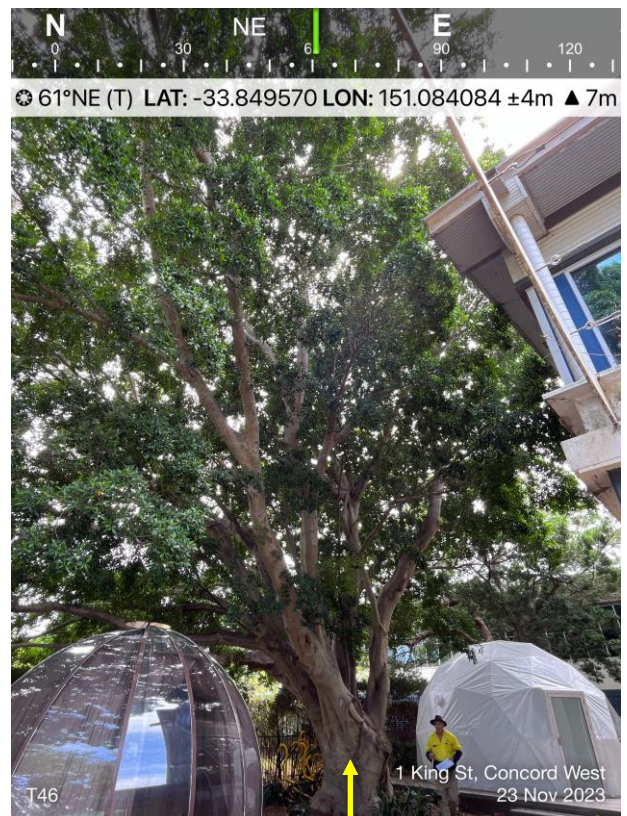


Plate 8: Tree 46.

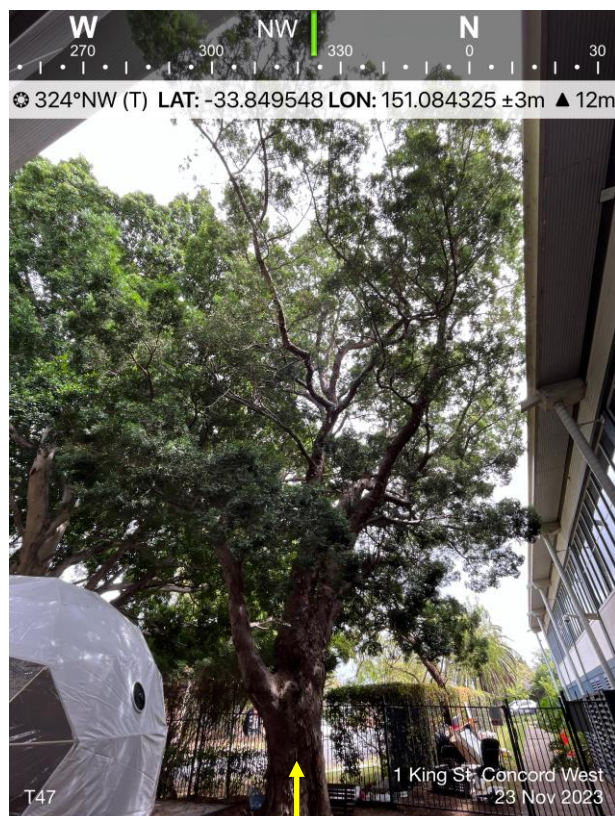


Plate 9: Tree 47.

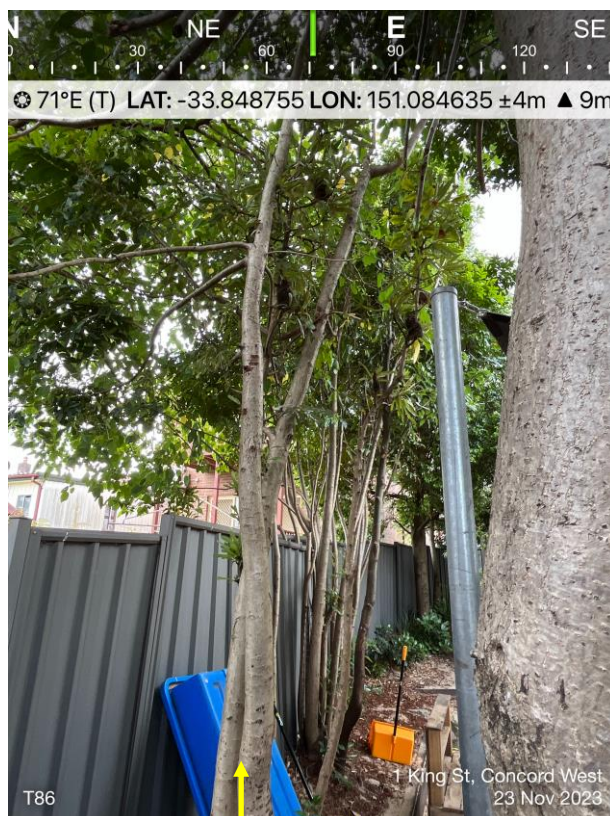


Plate 10: Tree 86.

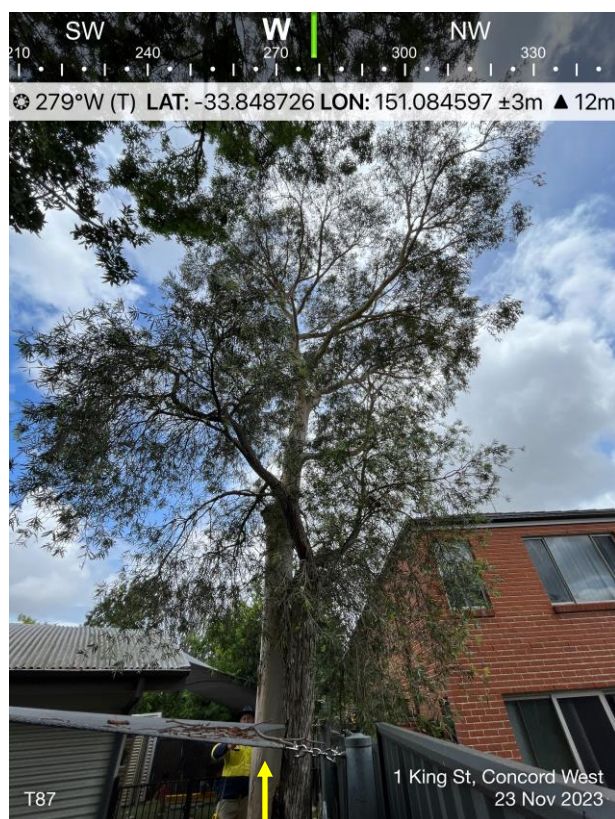


Plate 11: Tree 87.

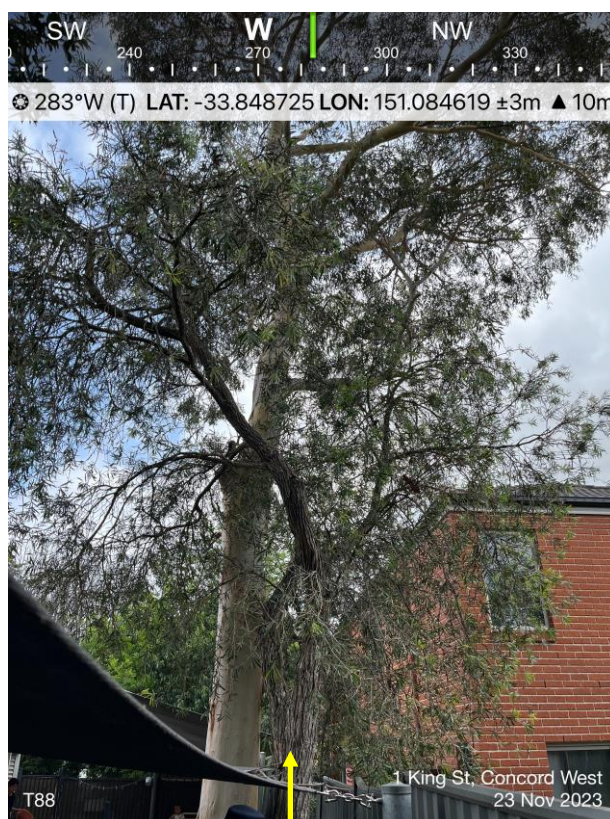


Plate 12: Tree 88.



Plate 13: Tree 93.



Plate 14: Tree 94.



Plate 15: Trees 104 to 108 (from right to left) area very inaccessible due to fence and structure on bank.

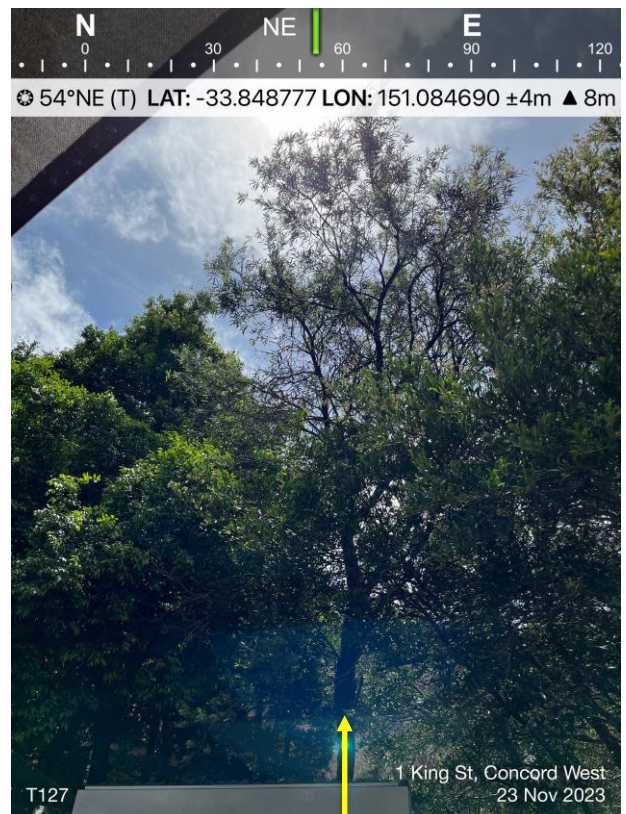


Plate 16: Tree 127.

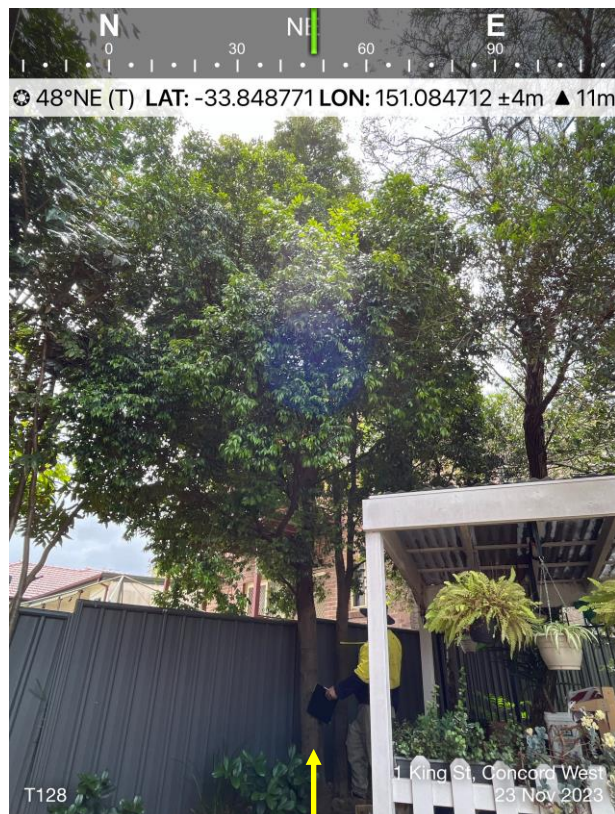


Plate 17: Tree 128.



Plate 18: Tree 95.



Plate 19: Trees 62 and 88.

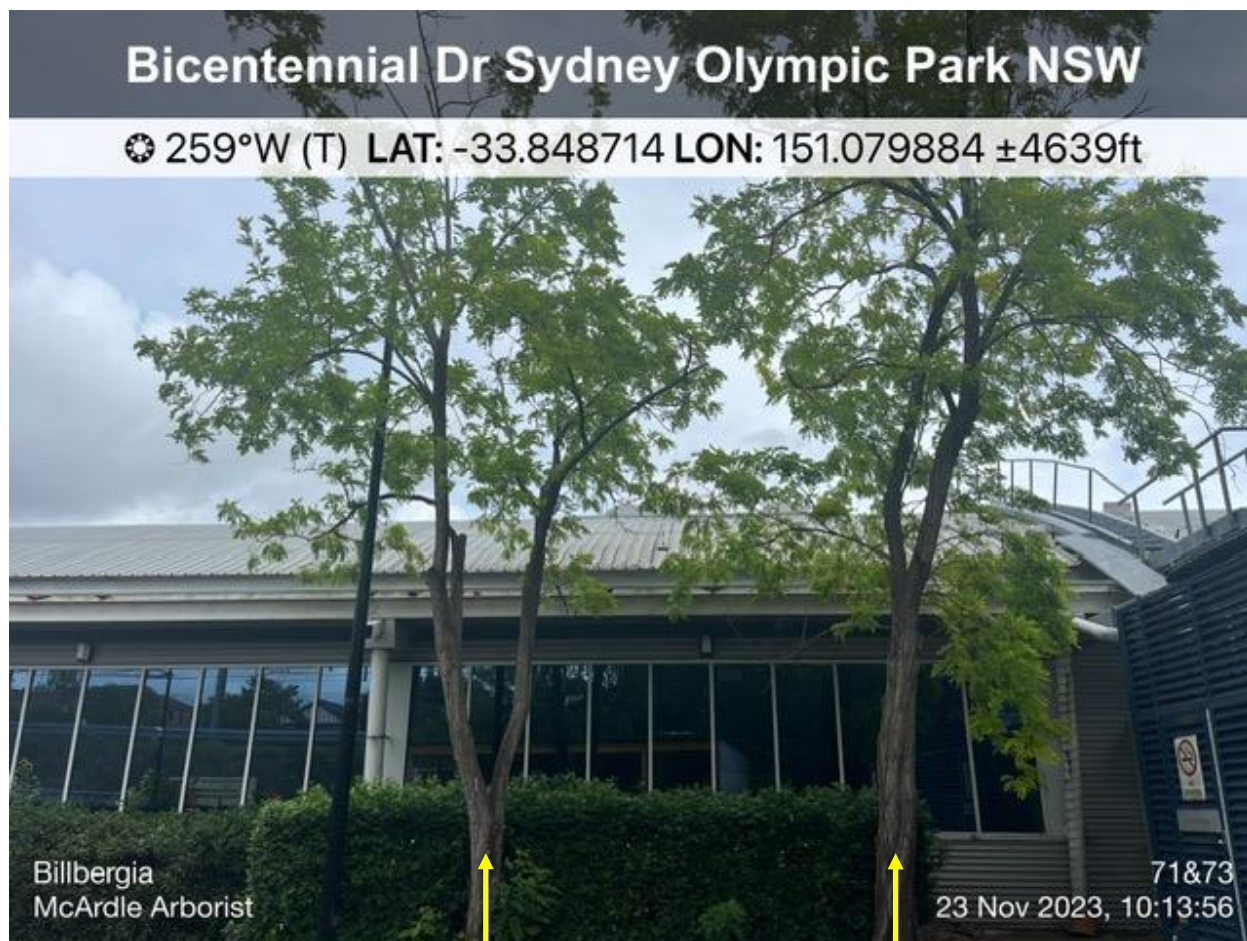


Plate 20: Trees 71 and 72 (from right to left).

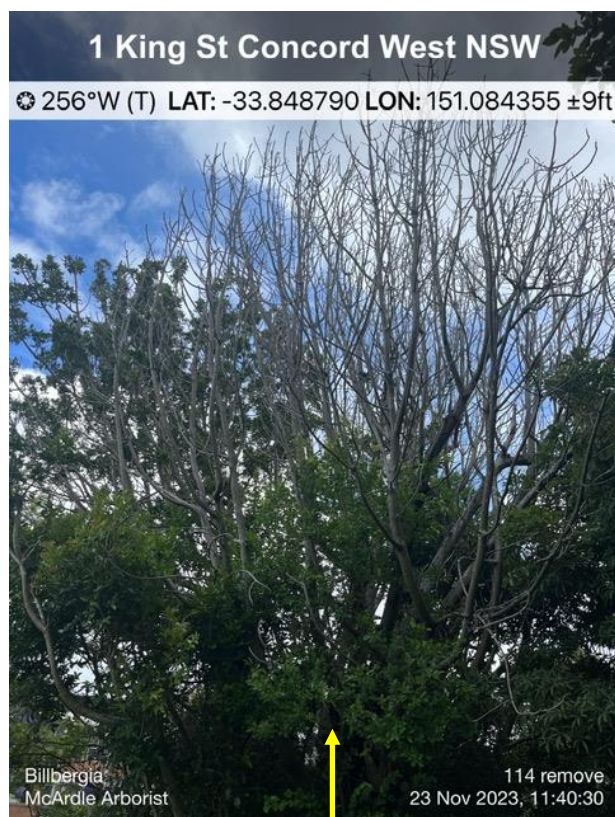


Plate 21: Tree 114.

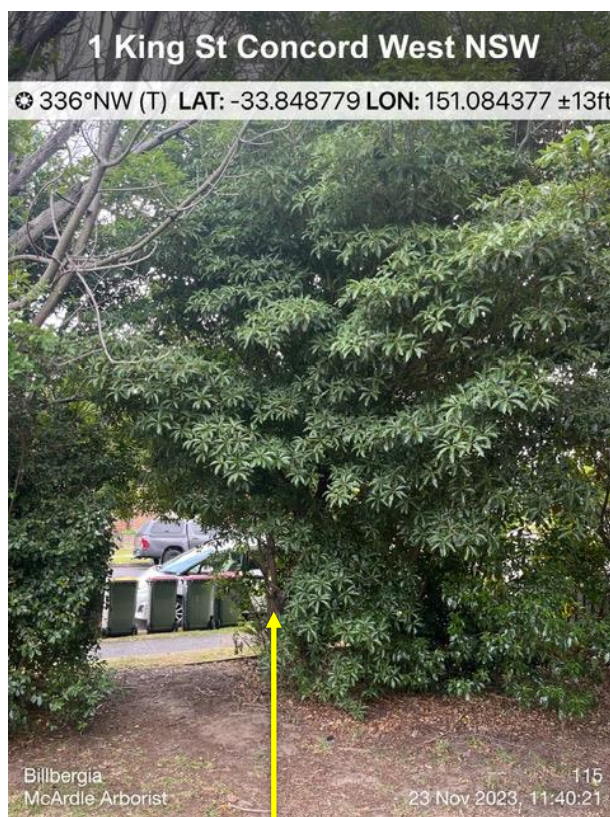


Plate 22: Tree 115.

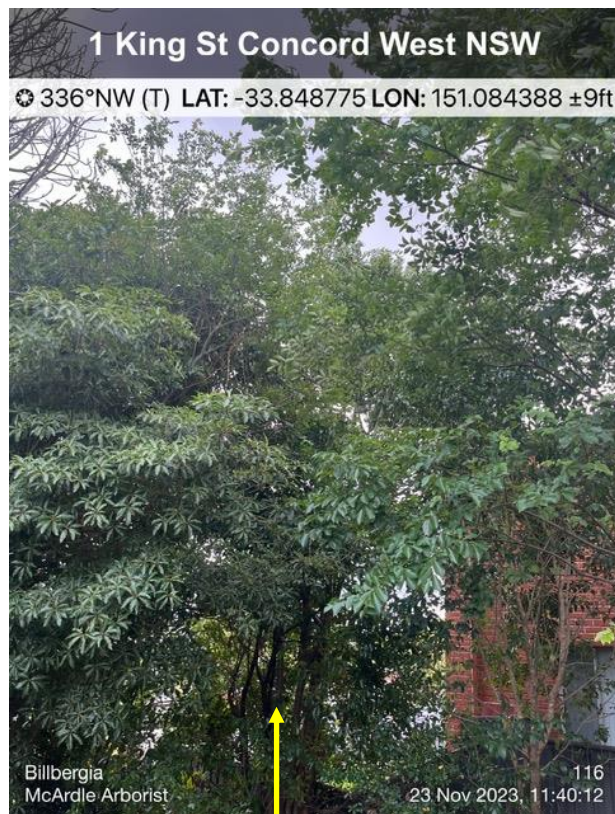


Plate 23: Tree 116.

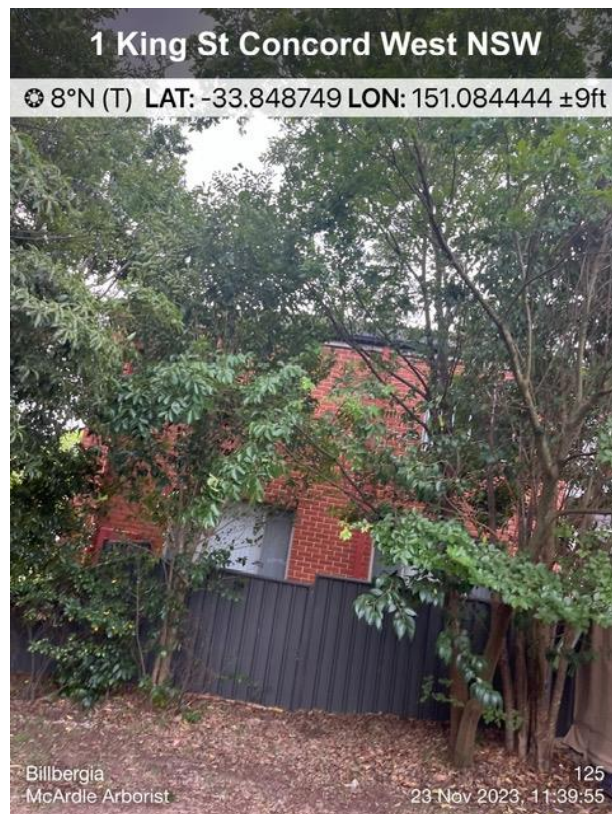


Plate 24: Tree 125a.



Plate 25: Trees 118 to 123.



Plate 26: Trees 125, 124, 74 and 75 adjacent the railway line on elevated garden bank.

4. DISCUSSION

4.0.1 Approximately one hundred and twenty-nine (129) trees/tree groups on site and in the adjacent surrounding area were assessed by the AQF level 5 arborist.

4.0.2 Twenty-three (23) trees/tree groups numbered 1, 2, 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 99a, 102, 104, 105, 108a, 115, 116 and 128 are proposed for **retention**; and one hundred and eleven (111) trees/tree groups numbered 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 125a, 126, 126a, 127 and 129 are proposed for **removal** to support the proposed works.

4.0.3 Seven (7) trees numbered 18, 45, 46, 47, 91, 92 and 93 require **pruning** to provide clearance around the proposed development site.

4.1 SIGNIFICANCE IN THE LANDSCAPE AND USEFUL LIFE EXPECTANCY

4.1.1 Trees 1, 33, 67, 91, 93 and 94 have **medium** useful life expectancy ratings (2a/2d) and estimated life durations of 15 to 40 years. As the trees are Australian species and have large live crown sizes exceeding 100m², the trees are considered to have **high** value in the landscape.

4.1.2 Trees 45, 46, 47 and 62 have **short** useful life expectancy ratings (3a) and estimated life durations of 5 to 15 years. As the trees are Australian species and have large live crown sizes exceeding 100m², the trees are considered to have **high** value in the landscape.

4.1.3 Tree 58, *Jacaranda mimosifolia* (Jacaranda), has a **medium** useful life expectancy rating (2d) and an estimated life duration of 15 to 40 years. As the tree is an exotic species and has a medium live crown size exceeding 40m², the tree is considered to have **moderate** value in the landscape.

4.2 RETENTION VALUES

4.2.1 Retention values are determined by considering both TULE and Significance in The Landscape (Appendix E). The retention values of the assessed trees are as follows:

Table 5: Retention Values.

High (11 trees)	Moderate (40 trees)	Low-Moderate (33 trees)	Low (34 trees/tree groups)	Very Low (16 trees/tree groups)
1, 33, 45, 46, 47, 58, 62, 67, 91, 93, 94.	3, 14, 16, 17, 18, 19, 20, 21, 23, 27, 28, 31, 32, 38, 39, 40, 42, 43, 44, 55, 56, 57, 59, 68, 69, 70, 74, 75, 76, 78, 85, 87, 89, 92, 95, 97, 98, 117, 122, 124.	2, 4, 5, 9, 10, 13, 24, 25, 26, 29, 35, 36, 37, 53, 54, 60, 63, 71, 72, 77, 88, 90, 96, 96a, 101, 108, 113, 115, 116, 123, 125, 126, 126a.	6, 7, 8, 15a, 15b, 51, 52, 61, 64, 65, 66, 67a, 79, 80, 81, 82, 83, 84, 100, 102, 103, 104, 105, 106, 107, 108a, 109, 110, 120, 121, 124a, 127, 128, 129.	11, 12, 22, 30, 34, 34a, 48, 50, 73, 86, 99a, 112, 114, 118, 119, 125a.

4.2.2 The trees of **high** retention value are numbered 1, 33, 45, 46, 47, 58, 62, 67, 91, 93 and 94. These trees are worthy of preservation and consideration should be given to their retention.

4.2.3 The trees of **moderate** retention value are numbered 3, 14, 16, 17, 18, 19, 20, 21, 23, 27, 28, 31, 32, 38, 39, 40, 42, 44, 55, 56, 57, 59, 68, 69, 70, 74, 75, 76, 78, 85, 87, 89, 92, 95, 97, 98, 117, 122 and 124. These trees are desirable for retention and should be retained if possible.

4.2.4 The trees of **low-moderate** retention value are numbered 2, 4, 5, 9, 10, 13, 24, 25, 26, 29, 35, 36, 37, 53, 54, 60, 63, 71, 72, 77, 88, 90, 96, 96a, 101, 108, 113, 115, 116, 123, 125, 126 and 126a. These trees require substantial remediation and are only suitable for retention in the short term.

4.2.5 The trees/tree groups of **low** retention value are numbered 6, 7, 8, 15a, 15b, 51, 52, 61, 64, 65, 66, 67a, 79, 80, 81, 82, 83, 84, 100, 102, 103, 104, 105, 106, 107, 108a, 109, 110, 120, 121, 124a, 127, 128 and 129. These trees do not have special ecological or amenity value and are not considered to be worthy of preservation.

4.2.6 The trees of **very low** retention value are numbered 11, 12, 22, 30, 34, 34a, 48, 50, 73, 86, 99a, 112, 114, 118, 119 and 125a. These trees are considered to be potentially hazardous, dead, or are undesirable plant species.

4.3 IMPACT ASSESSMENT

4.3.1 The assessment evaluates how the proposed development will impact the Tree Protection Zones (TPZ) and canopies of the assessed trees. The impacts are classified as minor or major TPZ encroachments.

Table 6: TPZ Encroachments.

Tree No.	<u>Botanical Name</u> (Common Name)	TPZ Encroachment	Category
1	<u>Melaleuca quinquenervia</u> (Broad-Leaved Paperbark)	24.6%	Major (more than 10%)
3	<u>Archontophoenix spp.</u> (Phoenix Palm)	51.1%	Major (more than 10%)
4	<u>Tristaniopsis laurina</u> (Water Gum)	70.2%	Major (more than 10%)
5	<u>Tristaniopsis laurina</u> (Water Gum)	100%	Major (more than 10%)
6	<u>Tristaniopsis laurina</u> (Water Gum)	63.5%	Major (more than 10%)
7	<u>Tristaniopsis laurina</u> (Water Gum)	69.4%	Major (more than 10%)
8	<u>Cupressocyparis leylandii</u> (Leighton Green)	9.1%	Major (SRZ encroachment)
9	<u>Cupressocyparis leylandii</u> (Leighton Green)	1.0%	Major (SRZ encroachment)
10	<u>Eucalyptus robusta</u> (Swamp Mahogany)	0.8%	Minor (less than 10%)
11	<u>Celtis spp.</u> (Hackberry)	2.0%	Minor (less than 10%)
12	<u>Celtis spp.</u> (Hackberry)	7.2%	Major (SRZ encroachment)
13	<u>Tristaniopsis laurina</u> (Water Gum)	71.7%	Major (more than 10%)
14	<u>Tristaniopsis laurina</u> (Water Gum)	70.1%	Major (more than 10%)
15a	<u>Tristaniopsis laurina</u> (Water Gum)	85.4%	Major (more than 10%)
15b	<u>Tristaniopsis laurina</u> (Water Gum)	77.9%	Major (more than 10%)
16	<u>Jacaranda mimosifolia</u> (Jacaranda)	33.6%	Major (more than 10%)
17	<u>Casuarina glauca</u> (Swamp She-Oak)	82.8%	Major (more than 10%)
18	<u>Casuarina glauca</u> (Swamp She-Oak)	13.2%	Major (more than 10%)
19	<u>Zelkova spp.</u> (Zelkova)	100%	Major (more than 10%)
20	<u>Zelkova spp.</u> (Zelkova)	67.3%	Major (more than 10%)
21	<u>Melaleuca quinquenervia</u> (Broad-Leaved Paperbark)	40.3%	Major (more than 10%)
22	<u>Celtis spp.</u> (Hackberry)	1.0%	Major (SRZ encroachment)
23	<u>Jacaranda mimosifolia</u> (Jacaranda)	1.0%	Major (SRZ encroachment)
24	<u>Eucalyptus robusta</u> (Swamp Mahogany)	100%	Major (more than 10%)
25	<u>Eucalyptus robusta</u> (Swamp Mahogany)	13.6%	Major (more than 10%)
26	<u>Casuarina glauca</u> (Swamp She-Oak)	100%	Major (more than 10%)

Tree No.	<u>Botanical Name</u> (Common Name)	TPZ Encroachment	Category
27	<u>Casuarina glauca</u> (Swamp She-Oak)	70.8%	Major (more than 10%)
28	<u>Casuarina glauca</u> (Swamp She-Oak)	97.7%	Major (more than 10%)
29	<u>Melaleuca quinquenervia</u> (Broad-Leaved Paperbark)	0.1%	Major (SRZ encroachment)
30	<u>Casuarina glauca</u> (Swamp She-Oak)	74.4%	Major (more than 10%)
31	<u>Casuarina glauca</u> (Swamp She-Oak)	66.3%	Major (more than 10%)
32	<u>Casuarina glauca</u> (Swamp She-Oak)	96.8%	Major (more than 10%)
33	<u>Eucalyptus microcorys</u> (Tallowwood)	14.6%	Major (more than 10%)
34	<i>Species unknown</i> (stag)	25.1%	Major (more than 10%)
34a	<u>Celtis spp.</u> (Hackberry)	1.0%	Major (SRZ encroachment)
35	<u>Casuarina glauca</u> (Swamp She-Oak)	1.0%	Major (SRZ encroachment)
36	<u>Zelkova spp.</u> (Zelkova)	13.3%	Major (more than 10%)
37	<u>Eucalyptus robusta</u> (Swamp Mahogany)	38.0%	Major (more than 10%)
38	<u>Ficus microcarpa</u> var. <i>'hillii'</i> (Hill's Weeping Fig)	52.2%	Major (more than 10%)
39	<u>Cupressocyparis leylandii</u> (Leighton Green)	2.1%	Major (SRZ encroachment)
40	<u>Cupressocyparis leylandii</u> (Leighton Green)	1.0%	Major (SRZ encroachment)
42	<u>Eucalyptus robusta</u> (Swamp Mahogany)	7.2%	Major (SRZ encroachment)
43	<u>Eucalyptus robusta</u> (Swamp Mahogany)	22.9%	Major (more than 10%)
44	<u>Eucalyptus robusta</u> (Swamp Mahogany)	17.3%	Major (more than 10%)
45	<u>Eucalyptus saligna</u> (Sydney Blue Gum)	25.5%	Major (more than 10%)
46	<u>Ficus microcarpa</u> var. <i>'hillii'</i> (Hill's Weeping Fig)	2.0%	Major (SRZ encroachment)
47	<u>Podocarpus elatus</u> (Plum Pine)	41.5%	Major (more than 10%)
48	<u>Celtis spp.</u> (Hackberry)	1.0%	Major (SRZ encroachment)
50	<u>Celtis spp.</u> (Hackberry)	1.0%	Major (SRZ encroachment)
51	<u>Cupressocyparis leylandii</u> (Leighton Green)	1.0%	Major (SRZ encroachment)
52	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
53	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
54	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
55	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
56	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
57	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
58	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
59	<u>Fraxinus angustifolia</u> (Claret Ash)	100%	Major (more than 10%)
60	<u>Fraxinus angustifolia</u> (Claret Ash)	100%	Major (more than 10%)
61	<u>Fraxinus angustifolia</u> (Claret Ash)	100%	Major (more than 10%)
62	<u>Angophora floribunda</u> (Rough-Barked Apple)	1.0%	Major (SRZ encroachment)
63	<u>Pyrus spp.</u> (Pear)	100%	Major (more than 10%)
64	<u>Pyrus spp.</u> (Pear)	100%	Major (more than 10%)
65	<u>Pyrus spp.</u> (Pear)	100%	Major (more than 10%)
66	<u>Pyrus spp.</u> (Pear)	100%	Major (more than 10%)
67	<u>Eucalyptus punctata</u> (Grey Gum)	80.2%	Major (more than 10%)
67a	<u>Banksia integrifolia</u> (Coast Banksia)	66.8%	Major (more than 10%)
68	<u>Eucalyptus robusta</u> (Swamp Mahogany)	97.5%	Major (more than 10%)
69	<u>Eucalyptus robusta</u> (Swamp Mahogany)	81.7%	Major (more than 10%)
70	<u>Eucalyptus robusta</u> (Swamp Mahogany)	86.4%	Major (more than 10%)
71	<u>Gleditsia triacanthos</u> (Honey Locust)	100%	Major (more than 10%)
72	<u>Gleditsia triacanthos</u> (Honey Locust)	100%	Major (more than 10%)
73	<u>Celtis spp.</u> (Hackberry)	50.6%	Major (more than 10%)
74	<u>Corymbia gummifera</u> (Red Bloodwood)	81.6%	Major (more than 10%)
75	<u>Corymbia gummifera</u> (Red Bloodwood)	97.9%	Major (more than 10%)
76	<u>Acacia implexa</u> (Hickory Wattle)	56.5%	Major (more than 10%)
77	<u>Gleditsia triacanthos</u> (Honey Locust)	78.4%	Major (more than 10%)
78	<u>Acacia implexa</u> (Hickory Wattle)	65.4%	Major (more than 10%)
79	<u>Callistemon viminalis</u> (Weeping Bottlebrush)	70.7%	Major (more than 10%)

Tree No.	<u>Botanical Name</u> (Common Name)	TPZ Encroachment	Category
80	<u>Olea spp.</u> (Olive)	3.2%	Minor (less than 10%)
81	<u>Olea spp.</u> (Olive)	2.5%	Major (SRZ encroachment)
82	<u>Olea spp.</u> (Olive)	2.1%	Major (SRZ encroachment)
83	<u>Olea spp.</u> (Olive)	1.4%	Minor (less than 10%)
85	<u>Harpephyllum caffrum</u> (Kaffir Plum)	1.1%	Minor (less than 10%)
89	<u>Melaleuca quinquenervia</u> (Broad-Leaved Paperbark)	69.0%	Major (more than 10%)
90	<u>Gleditsia triacanthos</u> (Honey Locust)	46.6%	Major (more than 10%)
91	<u>Casuarina glauca</u> (Swamp She-Oak)	35.5%	Major (more than 10%)
92	<u>Casuarina glauca</u> (Swamp She-Oak)	8.3%	Major (SRZ encroachment)
93	<u>Eucalyptus microcorys</u> (Tallowwood)	38.3%	Major (more than 10%)
94	<u>Casuarina glauca</u> (Swamp She-Oak)	38.8%	Major (more than 10%)
95	<u>Casuarina glauca</u> (Swamp She-Oak)	100%	Major (more than 10%)
96	<u>Casuarina glauca</u> (Swamp She-Oak)	100%	Major (more than 10%)
96a	<u>Casuarina glauca</u> (Swamp She-Oak)	89.7%	Major (more than 10%)
97	<u>Corymbia gummifera</u> (Red Bloodwood)	81.6%	Major (more than 10%)
98	<u>Casuarina glauca</u> (Swamp She-Oak)	26.0%	Major (more than 10%)
100	<u>Casuarina glauca</u> (Swamp She-Oak)	25.2%	Major (more than 10%)
101	<u>Casuarina glauca</u> (Swamp She-Oak)	48.1%	Major (more than 10%)
103	<u>Casuarina glauca</u> (Swamp She-Oak)	35.2%	Major (more than 10%)
106	<u>Casuarina glauca</u> (Swamp She-Oak)	32.0%	Major (more than 10%)
107	<u>Casuarina glauca</u> (Swamp She-Oak)	50.6%	Major (more than 10%)
108	<u>Casuarina glauca</u> (Swamp She-Oak)	43.5%	Major (more than 10%)
109	<u>Jacaranda mimosifolia</u> (Jacaranda)	44.5%	Major (more than 10%)
110	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
112	<u>Celtis spp.</u> (Hackberry)	20.3%	Major (more than 10%)
113	<u>Jacaranda mimosifolia</u> (Jacaranda)	26.7%	Major (more than 10%)
114	<u>Harpephyllum caffrum</u> (Kaffir Plum)	33.4%	Major (more than 10%)
115	<u>Pittosporum spp.</u> (Pittosporum)	2.2%	Major (SRZ encroachment)
117	<u>Aqonis spp.</u> (Myrtle)	81.9%	Major (more than 10%)
118	<u>Corymbia gummifera</u> (Red Bloodwood)	100%	Major (more than 10%)
119	<i>Species unknown</i> (stag)	100%	Major (more than 10%)
120	<u>Eucalyptus robusta</u> (Swamp Mahogany)	83.6%	Major (more than 10%)
121	<u>Casuarina glauca</u> (Swamp She-Oak)	100%	Major (more than 10%)
122	<u>Corymbia gummifera</u> (Red Bloodwood)	99.5%	Major (more than 10%)
123	<u>Eucalyptus robusta</u> (Swamp Mahogany)	100%	Major (more than 10%)
124	<u>Corymbia gummifera</u> (Red Bloodwood)	100%	Major (more than 10%)
124a	<u>Syzygium spp.</u> (Lilly Pilly)	17.3%	Major (more than 10%)
125	<u>Corymbia gummifera</u> (Red Bloodwood)	80.8%	Major (more than 10%)
126	<u>Gleditsia triacanthos</u> (Honey Locust)	100%	Major (more than 10%)
126a	<u>Jacaranda mimosifolia</u> (Jacaranda)	100%	Major (more than 10%)
127	<u>Callistemon viminalis</u> (Weeping Bottlebrush)	1.0%	Major (SRZ encroachment)
129	<u>Cupressocyparis leylandii</u> (Leighton Green)	100%	Major (more than 10%)

4.3.2 One hundred and seventeen (117) trees/tree groups will have major anticipated impacts from encroachments of greater than 10%. Twelve (12) trees numbered 1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98 and 115 are to be retained with tree-sensitive construction measures and root mapping investigations; and one hundred and five (105) trees/tree groups numbered 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 81, 82, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 126, 126a, 127 and 129 are proposed for removal to support the proposed works.

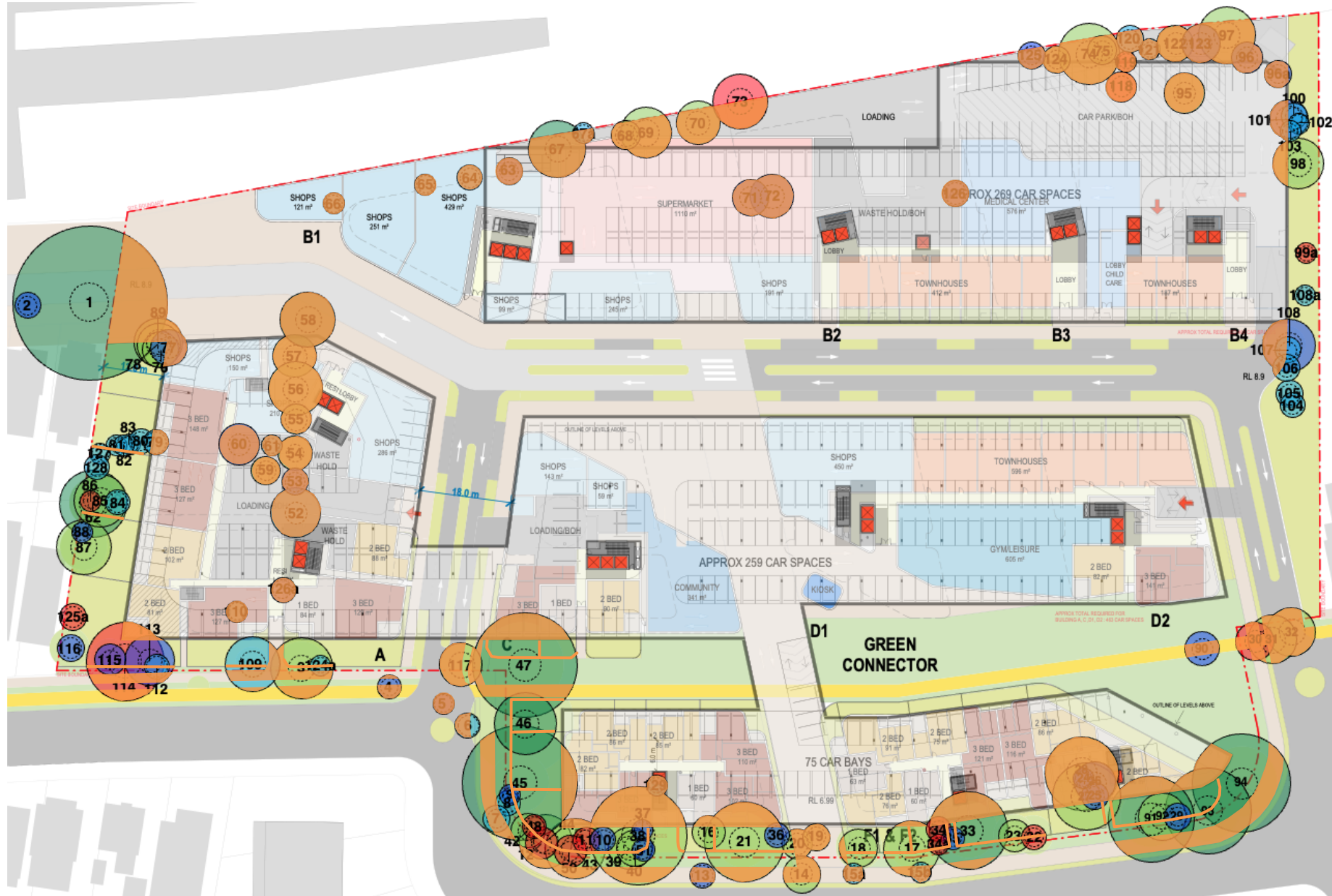


Figure 5: TPZ Encroachments. Encroachments are highlighted in orange.

5. RECOMMENDATIONS

5.1 TREE WORKS

Table 7: Tree Works.

Retain (23 trees/tree groups)	Prune (7 trees)	Remove (111 trees/tree groups)
1, 2, 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 99a, 102, 104, 105, 108a, 115, 116, 128.	18, 45, 46, 47, 91, 92, 93.	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 125a, 126, 126a, 127, 129.

5.1.1 Retain twenty-three (23) trees/tree groups numbered 1, 2, 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 99a, 102, 104, 105, 108a, 115, 116 and 128. Of these trees:

- Twelve (12) trees numbered 1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98 and 115 will have major anticipated impacts from TPZ encroachments of greater than 10%. Tree-sensitive construction measures and root mapping investigations are required to minimise these impacts.
- Eleven (11) trees/tree groups numbered 2, 85, 87, 88, 99a, 102, 104, 105, 108a, 116 and 128 will have minor to no anticipated impacts from the proposed development.

5.1.2 Prune seven (7) trees numbered 18, 45, 46, 47, 91, 92 and 93 to provide clearance around the proposed development and scaffolding required during construction.

5.1.3 Remove one hundred and eleven (111) trees/tree groups numbered 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 125a, 126, 126a, 127 and 129. Of these trees:

- One hundred and five (105) trees/tree groups numbered 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 81, 82, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 126, 126a, 127 and 129 will have major anticipated impacts from TPZ encroachments of greater than 10%. The removal of these trees is necessary to accommodate the proposed development, or the trees are of lower retention value and are not worthy of special measures to ensure their preservation.
- Six (6) trees/tree groups numbered 10, 80, 83, 84, 86 and 125a will have minor to no anticipated impacts from the proposed development; however, they are of lower retention value, or they may require removal to accommodate scaffolding.
- Twenty-one (21) trees/tree groups numbered 11, 12, 22, 30, 34, 34a, 48, 50, 63, 64, 65, 66, 73, 80, 81, 82, 83, 112, 118, 119 and 125a are exempt from preservation under Canada Bay DCP 2017⁶, as they are dead with no hollows of habitat value, or they are undesirable plant species.

⁶ <https://canadabay.t1cloud.com/T1Default/CiAnywhere/Web/CANADABAY/ECMCore/BulkAction/Get/239cbfb3-87f1-49b5-b7e4-085f5c03dbff>

5.1.4 Suitably Qualified Arborist: Most councils require written consent prior to tree pruning or removal. Tree contractors must have a minimum AQF Level 3 Certificate in Arboriculture and work in accordance with Australian Standard® AS 4373-2007 – Pruning of Amenity Trees, the Work Health & Safety (WHS) Act 2011 and the WHS Regulations 2017, the SafeWork NSW – Guide to Managing Risks of Tree Trimming and Removal Work 2016, and the Code of Practice for The Amenity Tree Industry 1998. Work near powerlines should be carried out in accordance with the Code of Practice for Work Near Overhead Power Lines. Tree contractors shall be members of Tree Contractors Association Australia (TCAA) or Arborists Australia (AA) and hold Workers Compensation and Public Liability Insurance. Tree contractors must liaise with the consulting arborist to ensure that tree pruning and removal works are completed according to specification.

5.1.5 Canopy Cover Loss: Replenish tree removals with new tree plants within the site to compensate for loss of amenity in accordance with council requirements. To compensate for the reduced canopy cover, planting of indigenous trees which are appropriate to the local environment and provide koala habitat should be considered using the canopy cover formula ($(\frac{1}{2} \times \text{canopy diameter})^2 \times \pi$). The removal of one hundred and eleven (111) trees/tree groups will result in a total canopy cover loss of approximately **5,631.30m²**. Twenty-one (21) trees/tree groups numbered 11, 12, 22, 30, 34, 34a, 48, 50, 63, 64, 65, 66, 73, 80, 81, 82, 83, 112, 118, 119 and 125a are exempt from preservation and do not require replenishment.

5.1.6 Replenishment Planting: Ninety (90) trees of 45L potted volumes are required. In accordance with Council requirements, new tree plantings should be a native species or from a vegetation community present on site to compensate for loss of amenity. Replenishment is to be completed in accordance with planting specifications from NATSPEC (Clark 2003) and Australian Standard® AS 2303-2018 – Tree Stock for Landscape Use (Appendix F).

5.1.7 A nesting box is to be installed in nearby vegetation to provide an ameliorative habitat for local fauna that may be displaced by the removal of one (1) hollow-bearing tree numbered 42. The tree is to be sounded and checked by an ecologist or a competent animal handler prior to the tree's removal to relocate any inhabitant fauna.

5.1.8 Mulch: Maintain aged *Eucalyptus spp.* mulch around all the retained and replenished trees in accordance with Australian Standard® AS 4454-2003 – Compost, Soil Conditioners and Mulches.

5.1.9 Watering Schedule: Maintain a watering schedule for replenished trees. A 45L potted volume requires approximately 35L of water daily (Trees Impact: 2021).

5.2 TREE PROTECTION MEASURES

5.2.1 Minor TPZ encroachments must be compensated for elsewhere and be contiguous with the TPZs of the assessed trees. All measures must be certified by an AQF Level 5 arborist in accordance with Council requirements and Australian Standard® AS 4970-2009 – Protection of Trees on Development Sites.

Table 8: Tree Management Plan.

Tree Management Measures	Tree No.
Mulch Ground Cover Protection	18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 115, 116, 128.
Tree Protection Fencing	62, 85, 87, 88, 99a, 102, 104, 105, 108a, 115, 116, 128.
Tree Trunk Protection	18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 115, 116, 128.
Tree-Sensitive Construction Measures	1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98, 115.
Root Mapping Investigations	1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98, 115.

5.2.2 **Mulch ground cover protection** is required over the TPZs (where viable) of sixteen (16) trees numbered 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 115, 116 and 128 to minimise soil compaction and root damage. This is to consist of 75mm depth layers of clean and certified *Eucalyptus spp.* mulch. Mulch should meet the standards outlined in the NSW EPA Mulch Order 2016.

5.2.3 **Tree protection fencing** is required around the TPZs (where viable) of twelve (12) trees/tree groups numbered 62, 85, 87, 88, 99a, 102, 104, 105, 108a, 115, 116 and 128 to preserve their root zones. This is to consist of 1.8-metre-high steel mesh fencing anchored with concrete blocks, or, red high-visibility plastic mesh fencing attached to star pickets. Tree protection fencing may be relocated with the project arborist's permission to access the work site. TPZ signage with the project arborist's contact details is to be attached to the tree protection fencing and read 'Tree Protection Zone: Do Not Enter' written in large font with waterproof ink, in accordance with Australian Standard® AS 1319-1994 – Safety Signage.

5.2.4 **Tree trunk protection** is required around the stems of sixteen (16) trees numbered 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 115, 116 and 128, as tree protection fencing would be impractical and block access to the work site. This is to consist of hessian, padding or geotextile fabric wrapped around the trees' trunk, with 1.8 metre lengths of timber spaced at small intervals and strapped over the top of the padding, not nailed or screwed into the trees.

5.3 TREE-SENSITIVE CONSTRUCTION MEASURES

5.3.1 **Tree-sensitive construction measures** are required to minimise major anticipated impacts to twelve (12) trees numbered 1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98 and 115.

5.3.2 Excavations for the basement carpark, fence/retaining wall footings and building footings within the trees' SRZs and TPZs are to be completed by hand under AQF Level 5 arborist supervision using **non-destructive digging (NDD)** methods (e.g. shovel and pickaxe, hydro vacuum, air spade).

5.3.3 Pavement for access paths and roads within the trees' SRZs and TPZs are to be constructed over geotextile fabric and a layer of crushed, inert gravel to minimise soil compaction and root damage. Minimal excavation is permitted to remove topsoil and debris.

5.4 FURTHER INVESTIGATION

5.4.1 **Root mapping investigations** are to be conducted by an AQF Level 5 arborist prior to construction to locate roots of twelve (12) trees numbered 1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98 and 115 that may be situated within the footprint of the proposed development.

5.5 SITE MONITORING

5.5.1 An AQF Level 5 arborist must monitor trees throughout the construction process. The site manager should notify the project arborist prior to works within the TPZs of the retained trees.

Table 9: Project Arborist Inspections.

SITE INSPECTIONS DURING CONSTRUCTION			
Stage	General Schedule of Work	Person Responsible	Certification by Project Arborist
Pre-Construction	Induction to site	Project engineer or Arborist	Protection of tree canopies, stems and root systems. Expectations of tree management.
	Root mapping investigations to locate roots within footprint of development.	Project Arborist	Root Mapping Report
	Prior to demolition, earthworks or site clearing, clearly mark trees for removal (spray paint on trunks).	Competent Person	n/a
	Tree Protection Systems (for retained trees) must be installed prior to demolition, include mulching in TPZ.	Competent Person	Pre-Construction Tree Protection Certificate
Construction	Scheduled inspection of trees during construction-usually monthly.	Project Arborist	Inspection and Certification
	Supervise and protect any excavations within the TPZ of retained trees.	Project Arborist	Supervision and Certification
Post-Construction	Final inspection after construction and prior to the removal of protection measures.	Project Arborist	Final Tree Protection Certificate

6. HOLDING POINTS

6.1 Tree protection measures are to be installed around the retained trees and certified by the project arborist prior to any demolition, development, or soil stripping. The protected area is an exclusion zone. Protection measures should not be removed or altered unless agreed by the supervising arborist. Ground protection should support all anticipated loading and prevent compaction in the TPZ.

6.2 All works carried out within the TPZs of the retained trees must be supervised by an AQF Level 5 arborist. Activities prohibited in TPZs are listed in [8. Tree Management Specifications](#).

6.3 Root mapping investigations are to be conducted by an AQF Level 5 arborist prior to construction to locate roots of twelve (12) trees numbered 1, 18, 45, 46, 47, 62, 91, 92, 93, 94, 98 and 115 that may be situated within the footprint of the proposed development.

6.4 Tree pruning and removal works are to be completed by qualified AQF Level 3 arborists in accordance with Australian Standard® AS 4373-2007 – Pruning of Amenity Trees and SafeWork NSW – Guide to Managing Risks of Tree Trimming and Removal Works. Tree contractors shall be members of Tree Contractors Association Australia (TCAA) or Arborists Australia (AA) and hold Workers Compensation and Public Liability Insurance. Tree contractors must liaise with the consulting arborist to ensure that pruning and removal works are completed in accordance with specification.

6.5 Ninety (90) replenishment trees of 45L potted volumes are to be planted in suitable locations at least 3-5 metres away from buildings and away from power lines, hard-surface infrastructure and underground services. The replenishment trees are to be certified by an AQF Level 5 arborist and planted in accordance with Australian Standard® AS 2303-2018 – Tree Stock for Landscape Use.

6.6 Inspections monthly or every second month are to be carried out by an AQF Level 5 arborist to ensure the retained trees are preserved in viable condition, and to certify that tree protection measures are compliant and being maintained around the trees.

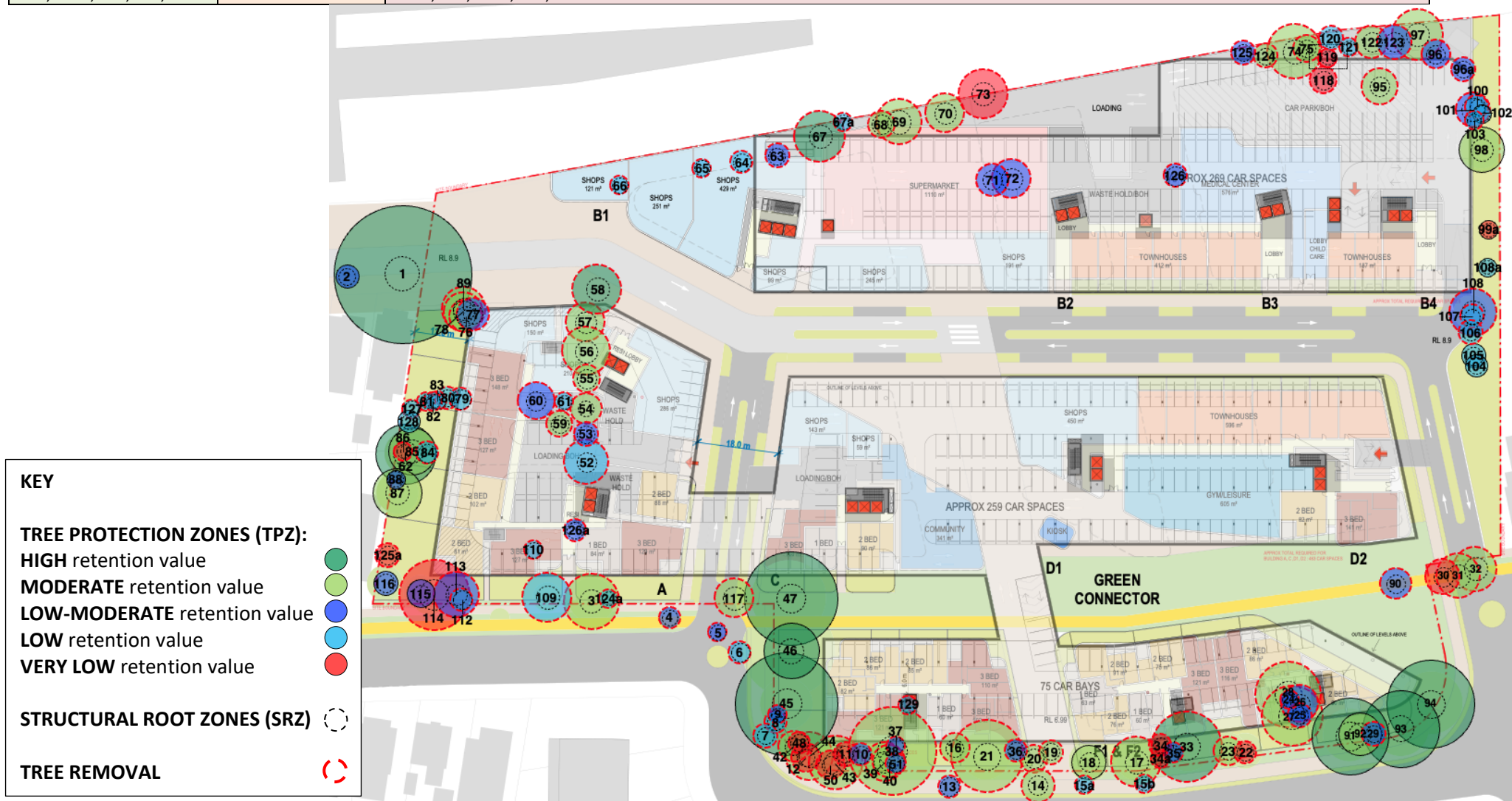
6.7 Hoarding, waste and amenities (HWA) should be stored outside the TPZs of the retained trees.

6.8 If any of the retained trees are damaged during the proposed development, then a remedial plan must be prepared by an AQF Level 5 arborist for each damaged tree.

7. MAPS




MAP A TREE RETENTION AND REMOVAL PLAN

Retain: 1, 2, 18, 45, 46, 47, 62, 85, 87, 88, 91, 92, 93, 94, 98, 99a, 102, 104, 105, 108a, 115, 116, 128.	Prune: 18, 45, 46, 47, 91, 92, 93.	Remove: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15a, 15b, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 34a, 35, 36, 37, 38, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 67a, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 89, 90, 95, 96, 96a, 97, 100, 101, 103, 106, 107, 108, 109, 110, 112, 113, 114, 117, 118, 119, 120, 121, 122, 123, 124, 124a, 125, 125a, 126, 126a, 127, 129.
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Basement 1 (Dwg. No. SK2001)	Group GSA	Scale on Plan: 1:500	Date on Plan: 04/11/2022
Masterplan Overall Ground Floor (Dwg. No. SK2002)	Group GSA	Scale on Plan: 1:500	Date on Plan: 04/11/2022

KEY

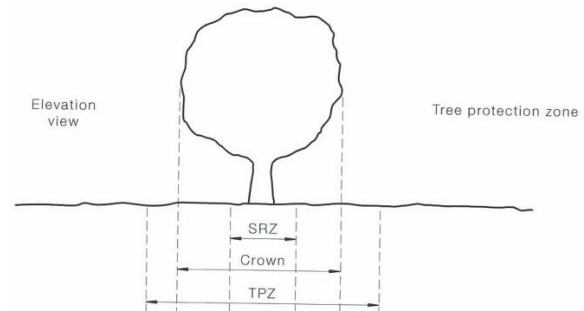
- Mulch Ground Cover Protection 
- Tree Protection Fencing 
- Tree Trunk Protection 

Basement 1 (Dwg. No. SK2001)	Group GSA	Scale on Plan: 1:500	Date on Plan: 04/11/2022
Masterplan Overall Ground Floor (Dwg. No. SK2002)	Group GSA	Scale on Plan: 1:500	Date on Plan: 04/11/2022

8. TREE MANAGEMENT SPECIFICATIONS

Tree Protection Zone (TPZ) Specifications

Tree protection fencing ensures construction does not encroach into a tree's TPZ. The Structural Root Zone (SRZ) of a tree is the area essential for tree stability. Works conducted within the SRZ may destabilise the tree and lead to potential failure.

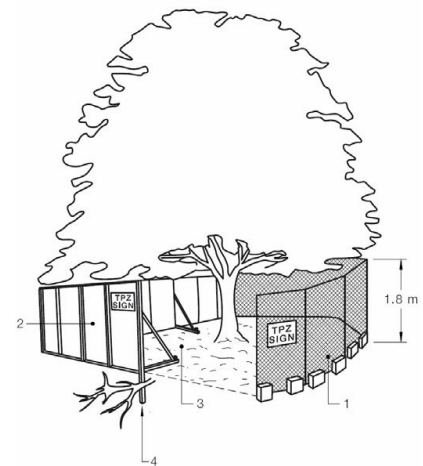


Tree Protection Fencing: Fencing must not be removed or altered. Specifications for tree protection fencing must be as follows:

- Installed prior to development and certified by a project arborist.
- Fully enclosed around a tree's TPZ.
- 1.8-metre-high temporary chain wire mesh cyclone fencing.
- Signposted with 300mm x 450mm signage that reads "No Entry. Tree Protection Zone".
- Add mulch across the surface of the TPZ and water regularly.

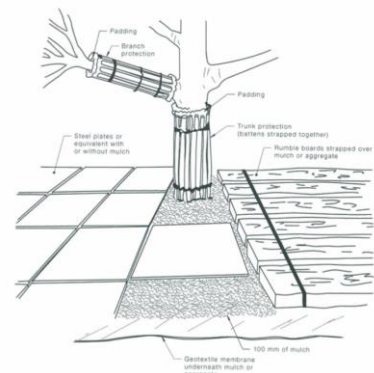
Specifications for tree protection fencing on slopes or uneven ground must be as follows:

- Star pickets spaced at 2 metre intervals with a minimum height of 1 metre.
- Connected by a continuous high-visibility barrier or hazard mesh.
- Alternative plywood or wooden paling fence panels.



Tree Trunk and Branch Protection: Specifications for tree trunk protection when fencing is impractical must be as follows:

- A layer of padding, geotextile fabric or similar wrapped around the trunk to a minimum height of 2 metres.
- 1.8 metre lengths of timbers aligned vertically and spaced at small gaps evenly around the trunk.
- Boards are to be strapped to trees, not nailed or screwed to the tree.



Prohibitions for Tree Protection Zones: The following activities shall **not** be carried out within any TPZ:

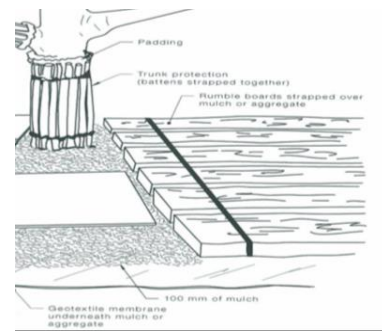
- Disposal of chemicals and liquids (including concrete and mortar slurry, solvents, paint, fuel or oil).
- Stockpiling, storage or mixing of materials.
- Refuelling, parking, storing, washing and repairing tools, equipment, machinery and vehicles.
- Disposal of building materials and waste.

The following activities shall **not** be carried out within any TPZ **unless** under the supervision of a project arborist:

- Increasing or decreasing soil levels (including cut and fill).
- Soil cultivation, excavation or trenching.
- Placing offices or sheds.
- Assembly of scaffolding or hoardings; and/or another act that may adversely affect the tree.

Root Protection Specifications: If temporary access for machinery is required within the TPZ, ground protection measures will be required to prevent root damage and soil compaction. Specifications for ground protection are as follows:

- Permeable membrane such as geotextile fabric.
- Layer of mulch or crushed rock (at minimum depth of 100mm).
- Or rumble boards strapped over mulch or aggregate.



Mulch Within TPZ: Maintain aged *Eucalyptus spp.* mulch around the retained trees for the duration of the development in accordance with Australian Standard® AS 4454-2003 – Compost, Soil Conditioners and Mulches.

Mulch should have at least 70% by mass of its particles, with a maximum size of greater than 16mm and spread 50-75mm deep to the extent of the dripline, (never exceed 100mm depth). Mulch should not have contact with a tree's trunk. Apply 200mm from the trunk, shaping a soil berm dish close to the root ball to facilitate establishment of watering.

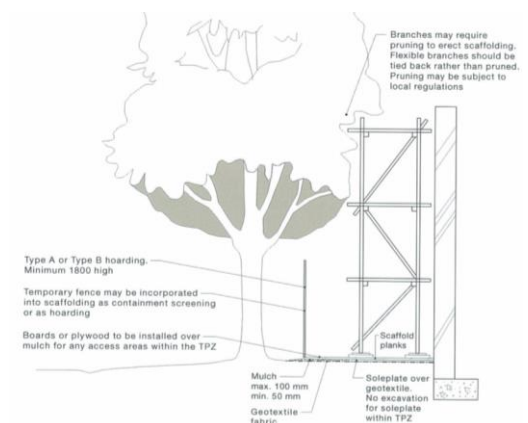
Watering Schedule: Maintain a watering schedule for retained trees at a rate of approximately 45 litres daily (Trees Impact: 2021).

Excavation Within TPZ's: Excavations shall be undertaken under the supervision of a project arborist, using tree-sensitive, non-destructive methods (e.g. manual excavation with hand tools, air-spade or hydro-vacuum machinery).

- No roots greater than 40mm in diameter are to be damaged, pruned or removed. All care shall be taken to preserve and avoid damaging roots. Excavations should not occur within a tree's SRZ.
- Exposed roots shall be protected from direct sunlight by covering with hessian or similar fabric and kept moist at all times.
- Hand excavation and root mapping shall be undertaken along excavation lines within the TPZ. Any conflicting roots greater than 40mm in diameter shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut that is free from tears.

Installing Underground Services Within TPZ: All services should be routed outside the TPZ.

- If underground services must be routed within the TPZ, they should be installed by directional drilling or in manually excavated trenches.
- The directional drilling boring methods, such as horizontal drilling (HDD) may be at least 600mm deep. The project arborist should assess the likely impacts of boring and bore pits on retained trees.
- Excavations for entry/exit pits must be located outside the TPZ.



9. GLOSSARY

Aerial inspection: Where a tree is climbed by an arborist to inspect the upper stem and crown for signs or symptoms of defects and disease.

Assets Protection Zone (APZ): A fuel-reduced area surrounding a built asset or structure.

Bracket fungus: The rigid fruiting body of some fungus species.

Branch collar: The ring of wood tissue, which forms around the base of a branch (near the branch attachment).

Cavity: A void, initiated by a wound within the trunk, branches or roots. These voids are referred to as hollows.

Canker: Fungal infections of the bark and cambium that can occur on all parts of the tree.

Co-dominant: Stems or branches equal in size and relative importance.

Crown: All the parts of a tree arising above the trunk where it terminates by its division forming branches e.g. the branches, leaves, flowers and fruit, or the total amount of foliage supported by branches.

Crown lifting: The removal of the lower branches of the tree.

Dead wood: Refers to any whole limb that no longer contains living tissues

Decay: Process of degradation of woody tissues by fungi or bacteria through decomposition of cellulose and lignin.

Deciduous: Describes trees and bushes that shed their leaves in the autumn (opposite to evergreen).

Dieback: Tree deterioration where the branches and leaves die.

Drip line: Where the canopy releases water shed from the foliage during precipitation.

DBH: Diameter at breast height, about 1.4 metres of trunk height.

Epicormic Shoots: These shoots often have a weak point of attachment. Epicormic growth/shoots are generally a survival mechanism, often indicating the presence of a current, or past stress event such as fire, pruning, drought, etc.

Flush cut: A cut that damages or removes the branch collar or removes the branch and stem tissue and is inconsistent with the branch attachment as indicated by the bark branch ridge.

Genus/species: Identified using its botanical name. Where the species name is not known, species (spp.) is used. The common name for trees may vary considerably in each area by geographical differences.

Height: Height has been estimated to +/- 2 metres.

Inclusion: The pattern of development at branch or stem junctions where bark is turned inward rather than pushed out. This fault is located at the point where the stems/branches meet.

Maturity: Tree age, assessed as over-mature (last 1/3 of life expectancy), mature (1/3 to 2/3 life expectancy) and semi-mature (less than 1/3 life expectancy).

Remedial (restorative) pruning: The removal of damaged or dead wood; or the trimming of diseased or infested branches. Trimming branches back to undamaged tissue in order to induce shoots, from which a new crown will be established.

Resistograph® testing: A resistograph® is a specialised machine that measures timber density by a drilling a 3mm diameter probe through the wood, simultaneously plotting the results on a graph at full scale.

Structural integrity: Describes the internal supporting timber (substantial to frail).

Structural Root Zone (SRZ): Refers to the radial distance in metres, measured from the centre of the tree stem, which defines the critical area required to maintain stability of the tree.

Targets: Are people, property, or activities that could be injured, damaged, or disrupted by a tree.

Tree Protection Zone (TPZ): Refers to the radius distance in metres, measured from the centre of the tree stem which defines the tree protection zone for a tree to be retained. This is generally the minimum distance from the centre of the tree trunk where protective fencing is to be installed to create an exclusion zone associated with construction works.

Vigour: Refers to the tree's health as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease/invasion, and the degree of dieback.

Windthrow: Tree failure when a force exerted by wind against the foliage crown and trunk overcomes resistance to that force in the root plate.

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APPENDICES

Appendix A Visual Tree Assessment (VTA)

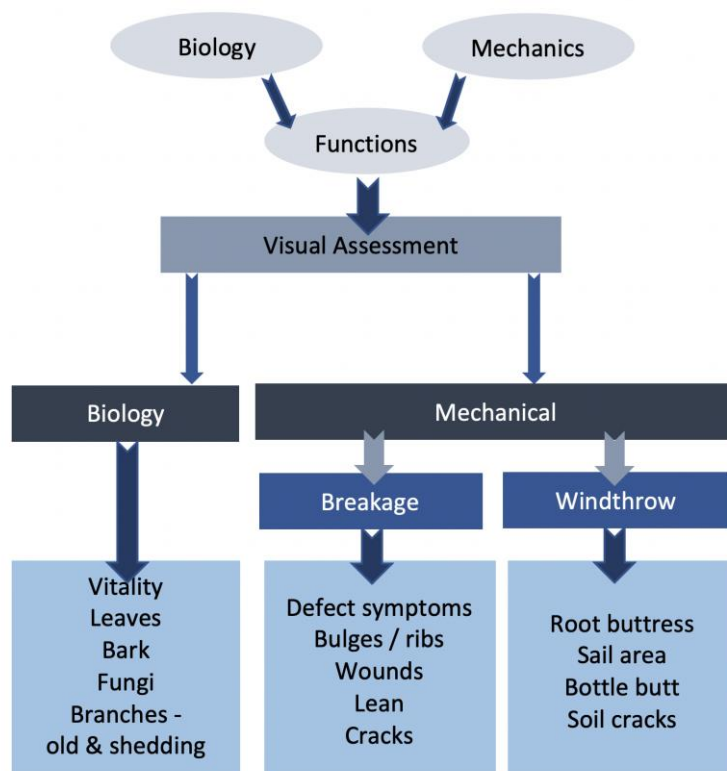


Diagram 1: VTA Chart by Claus Mattheck (1994) *The Body Language of Trees* adapted

Schedule 1: Categories for VTA.

Visual Tree Diagnostics	
1	Maturity: J - Juvenile; IM - Immature; SM - Semi-Mature; M - Mature
Health & Vigour	Condition of Tree
KEY	KEY
	2 Good condition
	3 Good condition but poor development
	3b Moderate condition
	3c Poor condition
4 Dieback is more than 20%.	
4b Epicormics	
5 Sparse foliage	5b Unbalanced Canopy
	6 Physical Damage
7 Insect damage – foliage	
7b Borers	
8 Fungal attack – pathogen	
	9 Cavity
10 Termite activity	10b Inclusions
	11 Lean
12b Dying	12 Heavily pruned
	13 Damaged roots
14 Parasitic vine present	13b Encroachment
15 Damage from a climbing plant	
	16 Inclusions
17 Habitat tree	
18 Endangered species	

Appendix B Tree A-Z Categories

Schedule 2: Tree A-Z Categories Field Sheet (version 10.04-U8C)

Barrell (2019) Criteria for Assessing the Importance of Trees on Development Sites.

TreeAZ Categories Field Sheet (Version 10.04-USC)

CAUTION: TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at www.TreeAZ.com.

Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure <u>cannot</u> be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

Z9	Severe damage and/or structural defects where a high risk of failure can be <u>temporarily</u> reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorization hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

A1	No significant defects and could be retained with minimal remedial care
A2	Minor defects that could be addressed by remedial care and/or work to adjacent trees
A3	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years
A4	Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)

NOTE: Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorization hierarchy and should be given the most weight in any selection process.

Appendix C Tree Useful Life Expectancy – (TULE)

Schedule 3: Adapted with permission Jeremy Barrell (SULE) 2014 for TCAA consulting arborists.

	1 LONG TULE	2 MEDIUM TULE	3 SHORT TULE	4 REMOVE	5 NO POTENTIAL FOR RETENTION	6 SMALL, YOUNG OR REGULARLY CLIPPED
	Trees that appear to be retainable for more than 40 years with a low level of risk.*	Trees that appear to be retainable for 15-40 years with a low to medium level of risk.*	Trees that appear to be retainable for 5-15 years with a medium to high level of risk.*	Trees that should be removed within the next 5 years with a high to very high level of risk.*	Trees that should be removed immediately with a very high to extreme level of risk.*	Trees than can be easily transplanted or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live for between 15 and 40 more years.	Trees that may only live for between 5 and 15 more years.	Dead, dying or declining trees through disease or inhospitable conditions.	Dead, dying or declining trees diseased or inhospitable conditions.	Small trees less than 5 metres in height.
B	Trees that could be made suitable for retention in the long term by intervention works.	Trees that may live for more than 40 years, but would need to be removed for safety or nuisance reasons.	Trees that may live for more than 15 years, but would need to be removed for safety or nuisance reasons.	Dangerous trees through instability or recent loss of adjacent trees.	Dangerous trees through instability or recent loss of adjacent trees.	Young trees less than 15 years old but over 5 metres in height.
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 should 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.	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by intervention works.	Trees that require substantial intervention works and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	Damaged trees that are clearly not safe to retain and must be removed immediately.	
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 planting.	High toxicity/allergen trees, asthmatic and poisonous trees that must be removed immediately.	
F				Trees that may cause damage to existing structures within 5 years.	OTHER, with legitimate explanation to be removed immediately.	
G				Trees that will become dangerous after removal of other trees for reasons given in 4A to 4F.		

INSPECTION FREQUENCY					
Every 1-5 years by a competent inspector, or event monitored.	Every 1-5 years by a competent inspector, or event monitored.	Every 1-3 years by a competent inspector, or event monitored.	Annually by a competent inspector, or event monitored.	Every 1-7 days by a competent inspector and event monitored.	Bi-annually by a competent inspector.

* For sites with higher occupation.

Appendix D Landscape Significance Rating

Schedule 4: Heritage, Ecological and Amenity Significance. Source: Morton, A (2006) Criteria for Assessment of Landscape Significance.

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state, or national level of significance or is listed on Council's Significant Tree Register.	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999.	The subject tree has a very large live crown size exceeding 300m ² with normal to dense foliage cover, is in a visually prominent position in the landscape, exhibits very good form and habit typical of the species.
	The subject tree forms part of the curtilage of a Heritage Item (building/structure/artefact as defined under the LEP) and has a known or documented association with that item.	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter, or nesting tree for endangered or threatened fauna species.	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity.
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event.	The subject tree is a remnant tree, being a tree in existence prior to development of the area.	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc..) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m ² , a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area.
HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence.	The tree is a locally indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link/Wildlife Corridor or has known wildlife habitat value.	The subject tree has a large live crown size exceeding 100m ² ; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area.
MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m ² ; The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc.) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item.	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance, or position relative to building or other structures.	The subject tree has a small live crown size of less than 40m ² and can be replaced within the short term (5-10 years) with new tree planting.
VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
INSIGNIFICANT	The tree is completely dead and has no visible habitat value.	The tree is a declared noxious weed under the Biosecurity Act 2015 (NSW) within the relevant Local Government Area.	The tree is completely dead and presents a potential hazard.

Appendix E Retention Value Rating

Schedule 5: Determining the Tree Retention Value Morton, A (2011).

Evaluating Sustainability and Landscape Significance to Determine Retention Value	
Retention Value	Criteria and Categories
HIGH	<p>These trees are worthy of preservation. As such, careful consideration should be given to their retention as a priority.</p> <p>Proposed site design and placement of buildings and infrastructure should consider the Tree Protection Zones (TPZ), as discussed in the following section, to minimise any adverse impact.</p> <p>In addition to TPZs, the extent of the canopy (canopy dripline) should also be considered, particularly in relation to a high-rise development. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.</p>
MODERATE	<p>The retention of these trees is desirable.</p> <p>These trees should be retained as part of any proposed development, if possible; however, these trees are less critical for retention.</p> <p>If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.</p>
LOW	<p>These trees are not considered to be worthy of any special measures to ensure their preservation, due to current health, condition, or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE.</p> <p>These trees should not be considered as a constraint to the future development of the site.</p>
VERY LOW	<p>These trees are potentially hazardous or very poor specimens, or may be environmental or noxious weeds.</p> <p>The removal of these trees is therefore recommended regardless of the implications of any proposed development.</p>

Appendix F Tree Planting Specifications

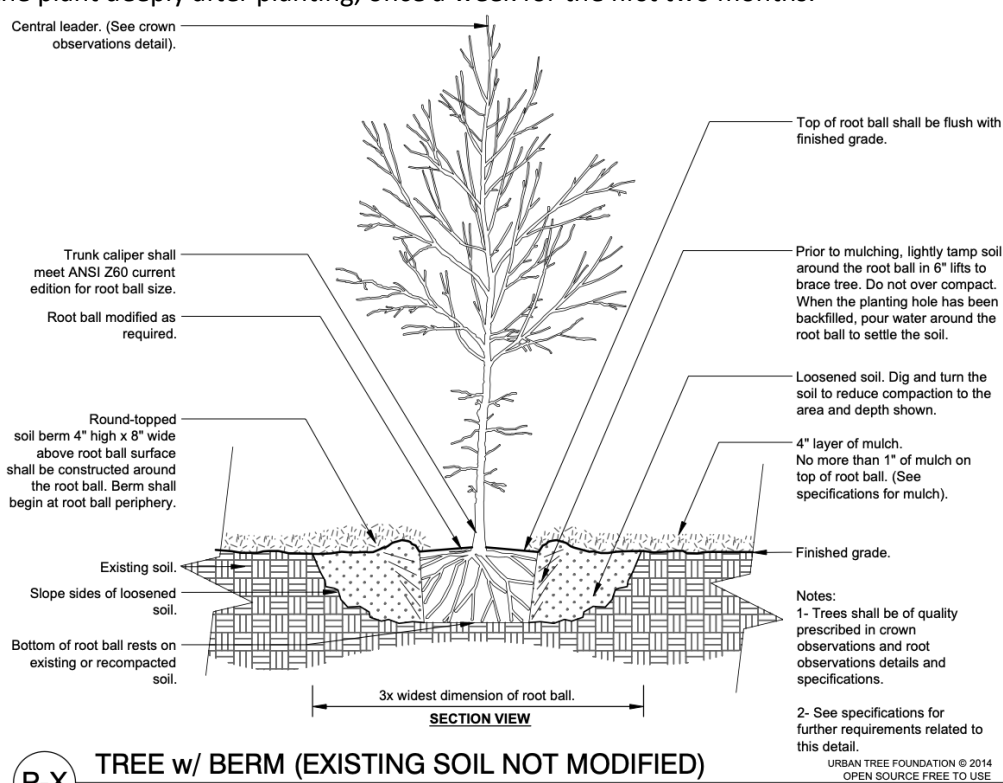
Tree planting specifications are in accordance with NATSPEC Specification for Trees, Ross Clark (2003) and Australian Standard® AS 2303-2018 – Tree Stock for Landscape Use.

BEFORE PLANTING

- Don't plant trees too close to buildings, in-ground pools, avoid planting under power lines and over drainage pipes or near other large trees.
- A consider the effect on neighbouring properties (i.e. shade, loss of views, impact on foundations, fences and services).
- Plant deciduous trees if you want in summer shade and winter sun. Consider shadows cast from evergreen trees.
- Use locally native to attract native fauna and to reduce watering required.

BASIC TREE PLANTING

1. Dig the hole at least twice as wide as the pot size.
2. Loosen the soil at the sides of the hole. Fill hole with water and allow to drain away.
3. Place the loosened root ball in the hole. Fill back soil. The top of the root ball should be level with the surrounding soil.
4. Water the plant deeply after planting, once a week for the first two months.



Schedule 6: Watering Frequency.

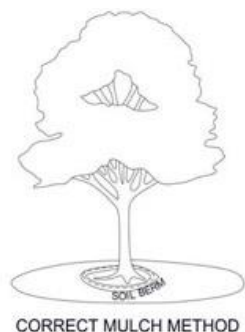
Watering frequency for 45L pot			
Time of year	1 st month	2 nd and 3 rd month	4 th to 6 th month
Sept-Feb.	4x week	3x week	2x week
Mar-May	3x week	2x week	1x week
Jun-Aug.	2x week	1x week	1x fortnight

Appendix G Replenishment of Native Trees Species

Schedule 7: Tree Species and Sizes. Tree species compatible with site conditions.

Botanical Name	Common Name	Height (m) at maturity	Crown Spread (m)
<u><i>Leptospermum petersonii</i></u>	Lemon-Scented Tea Tree	5	6
<u><i>Aconis flexuosa</i></u>	Willow Myrtle	7	6
<u><i>Elaeocarpus eumundi</i></u>	Quandong	8	4
<u><i>Corymbia ficifolia</i></u>	Red Flowering Gum	8	5
<u><i>Syzygium luehmannii</i></u>	Riberry	8	5
<u><i>Waterhousea floribunda</i></u>	Weeping Lilly Pilly	8	5
<u><i>Acacia implexa</i></u>	Hickory Wattle	8	6
<u><i>Hymenosporum flavum</i></u>	Native Frangipani	8	6
<u><i>Tristaniopsis laurina</i></u>	Water Gum	9	5
<u><i>Corymbia eximia</i></u>	Yellow Bloodwood	10	7
<u><i>Callistemon viminalis</i></u>	Weeping Bottlebrush	10	8
<u><i>Melaleuca linariifolia</i></u>	Narrow-Leaved Paperbark	10	8
<u><i>Cupaniopsis anacardioides</i></u>	Tuckeroo	10	10
<u><i>Callistemon salignus</i></u>	Willow Bottlebrush	12	6
<u><i>Eucalyptus cinerea</i></u>	Argyle Apple	12	7
<u><i>Elaeocarpus reticulatus</i></u>	Blueberry Ash	15	8
<u><i>Flindersia australis</i></u>	Australian Teak	15	10
<u><i>Brachychiton populneus</i></u>	Kurrajong Tree	15	12
<u><i>Backhousia citriodora</i></u>	Lemon Myrtle	18	6
<u><i>Angophora costata</i></u>	Sydney Red Gum	20	10
<u><i>Lophostemon confertus</i></u>	Brush Box	20	16

MULCH: Adding a layer of mulch to reach 75mm, encourages water retention and microbes, that will break down and incorporate organic matter into the soil. Organic mulch will reduce weeds and root development.



- Add at least 70% by mass of its particles with a maximum size of greater than 16 mm in accordance with Australian Standard® AS 4454-2003 – Compost, Soil Conditioners and Mulches. Apply 200mm from trunk and shaping a soil berm dish close to the root ball to facilitate establishment of watering.
- The TPZ of retained trees should be maintained with a 75mm depth of organic, certified, coarse Eucalyptus mulch.
- Mulch should be retained at 5075mm depth and never exceed 100mm in depth.
- Do not allowed mulch to contact the tree trunk. Retain a mulch free gap of not less than 75mm and preferably 200mm clear from the base of the tree trunk.

Disclaimer

McArdle Arboricultural Consultancy Pty Ltd does not assume responsibility for liability associated with the tree on/or adjacent to this project site, the future demise and/or any damage which may result therefrom. They take care to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

McArdle Arboricultural Consultancy Pty Ltd cannot be held responsible for any consequences as result of work carried out outside specifications, not in compliance with Australian Standard® or by inappropriately qualified staff. If further investigations such as, aerial, drill and root test are recommended, the report shall not be considered final until all investigations have been completed, as further defects may be found.

STATEMENT OF LIMITATIONS

McArdle Arboricultural Consultancy Pty Ltd makes every effort to accurately identify current tree health and hazards. Results may or may not correlate to actual tree structural integrity. There are many factors that may contribute to limb or total tree failure. Not all these symptoms are visible. There can be hidden defects that may result in a failure even though it would seem that other, more obvious defects would be the likely cause of failure. All standing trees have an element of unpredictable risk.

The inspection was limited to a visual ground examination of the tree, without aerial inspections and below ground excavations. The assessments are limited and do not include specialised analysis. No internal diagnostics, aerial inspection and pathology test were conducted. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale. No part of this report is to be reproduced without written permission from the author.



Consulting Arborist
Jim McArdle

B.Ed. Sci (ACU).
Dip of Arboriculture AQF Level 5.
Quantified Tree Risk Assessment (QTRA) Registered Member
Tree Contractors Association of Australia (TCAA) Vice President.