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ARBORICULTURAL IMPACT ASSESSMENT

STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)
GRIFFITH BASE HOSPITAL REDEVELOPMENT

Noorebar Avenue, Griffith NSW 2680

Prepared for: NSW Government | Health Infrastructure
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APPENDICIES

1 EXECUTIVE SUMMARY

This Arboricultural Impact Assessment was commissioned by NSW Health Infrastructure on the 27th of October 2020. The report relates to one-hundred and eighty-six (186) trees located on and adjoining the subject site at Noorebar Avenue, Griffith also known as Griffith Base Hospital within the Griffith City Council local government area (LGA).

The report provides an evaluation of the likely impact to existing trees as a result of the proposed State Significant Development Application (SSDA) for the Griffith Base Hospital Redevelopment which includes extensive works to construct a new multi-storey hospital inclusive of associated driveways, car parking, paved access areas, stormwater infrastructure and landscaping. It is understood that this report is required to satisfy Part 4 of the NSW Planning Secretary's Environmental Assessment Requirements (SEARs) relevant to Application No. SSD-9838218.

Should the SSDA works proceed in its current form, the following is recommended:

Removal of twenty-six (26) trees, including;

- Five (5) trees of '***Medium***' retention value and seven (7) trees of '***Low***' retention value due to falling directly within the footprint of proposed buildings, car parks, driveways, footpaths or hard stand areas;

- One (1) tree of '***High***' retention value, eight (8) trees of '***Medium***' retention value and four (4) trees of '***Low***' retention value due to suffering unsustainable levels of incursion to the TPZ/SRZ as a result of the proposed works; and

- One (1) tree which observed as dead which has a retention value of '***Consider Removal***'.

Retention and protection of one-hundred (100) trees, including;

- Eleven (11) trees of '***Low***', '***Medium***' and '***High***' retention value which are subject to minor (<10%) and sustainable levels of incursion to the TPZ – subject to implementation of detailed protection measures, the long-term health and viability of these trees will not be affected, and;

- Eighty-nine (89) trees of '***Low***', '***Medium***', '***High***' and '***Consider Removal***' retention value which are located away from the proposed works and are unlikely to be to subject any additional incursion to the TPZ.

Note: Of the one-hundred and eighty-six (186) trees assessed, sixty (60) have already been approved for removal under a separate planning approval process. Accordingly, these trees have been shown/noted as *'removal approved – separate planning approval'* within the following Report, however not counted in the total trees to be removed under the subject SSDA.

2 INTRODUCTION

2.1 Background

This Arboricultural Impact Assessment was commissioned by NSW Health Infrastructure on the 27th of October 2020 to evaluate the potential impacts that proposed development works will have on existing trees located on and adjacent to the subject site at Noorebar Avenue, Griffith (refer to ***Figure 1***).

Accordingly, the purpose of this report is to assess the potential impact of the proposed development on the subject trees, as well as provide recommendations for further amendments to the design or construction methodology where necessary to minimise any adverse impact. The report also provides recommended tree protection measures to ensure the long-term preservation of the trees to be retained where appropriate as well as replacement planting to compensate for any tree removals.

2.2 Objectives

This report has been prepared to assess the level of impact development works are likely to cause to existing trees and make a determination as to whether trees will be adversely affected. The report will aim to provide guidance as to those trees requiring removal, retention or protection in accordance with the provisions of *AS4970-2009 Protection of trees on development sites*. Where necessary, it will also provide recommendations for design modifications and any replacement planting. As such, the objectives of this report are as follows:

- Assess the current site and growing conditions of trees;
- Assess the current health, condition, lifespan & significance of the trees within the site;
- Identify relative retention values of trees within the site;
- Calculate anticipated encroachment levels resulting from proposed works;
- Determine the likely impact as a result of the calculated encroachments;
- Assess potential for retention and protection of trees where possible;
- Advise any design modifications necessary to retain important trees;
- Recommend tree and root sensitive design and construction methodologies to mitigate impacts to trees to be retained;
- Inform of any tree removal necessary due to unsustainable impacts;
- Provide guidance and recommendations for any replacement planting necessary.

2.3 Legislation & Regulating Documents

The Arboricultural Assessment Report has considered the following regulatory documents:

- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*
- *Griffith Local Environmental Plan 2014 (GLEP 2014)*
- *Griffith Council Tree Preservation Order (PG-CP-401)*
- *Griffith Council Tree Policy (PG-CP-402)*

2.4 Documentation Received

The following documents were received and have been relied upon for this Assessment:

Table 2 - Documentation received and reviewed as part of Arboricultural Impact Assessment:

Document Description	Author	Revision No. / Date
Ground Floor Masterplan	DJRD Architects	- / 21.01.2021
Landscape SSDA Report	Site Image Landscape Architects	J / 15.01.2021
Stormwater Plans	Bonacci Group	F / 07.12.2020
Topographical Survey	Land Data Surveys (Veris)	E / 20.09.2018
Arboricultural Impact Assessment	Allied Tree Consultancy	D3929 / May 2020

Note: care has been taken to obtain all information from reliable sources; however, the author makes no representations, guarantees or warranties as to the accuracy of information provided by others. No other information has been reviewed, should this become available impacts may be subject to change.

2.5 The Site

The site is a single allotment known as Griffith Base Hospital (Lot 2 DP 1043580) and is located approximately 750m to the north of the Griffith town centre. The site is an irregular shape bordered by Noorebar Avenue to the south, Animoo Street to the west, Warrambool Street to the east and St Vincent's Private Hospital to the north. The site generally has a minor and consistent cross fall from the northern portion of the site (RL141.00) to the south (RL132.00). The site currently contains number of buildings of varying scale associated with the hospital and administration with vegetation scattered across the site within the curtilage open spaces (Refer to ***Figure1*** below).

Figure 1 *- Aerial image indicating subject site outlined in blue and the area of tree assessment outlined in red.*

2.6 Proposed Development

The proposed development is for a State Significant Development Application (SSDA) for the construction of a new multi-storey Hospital to consolidate the services offered by the hospital. This includes reconfiguration of internal driveways, car parking and vehicular access, installation of new stormwater and services infrastructure, new landscape and open space arrangements with associated circulation spaces. Specifically, those works considered likely to impact the existing trees on site include the new building footprints, modified ground levels, retaining walls, hard paving and new stormwater infrastructure.

2.7 Limitations

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are valid for twelve (12) months only from the date of the report. Any changes to the site as it stands at present, for example building extensions, excavation works, importing of soils, extreme weather events etc. will invalidate this report. Any reproduction of this report must be in full colour using the report in its entirety.

No aerial inspection, root mapping or internal diagnostic testing has been carried out as part of this report. Additionally, no cation exchange capacity testing or plant tissue analysis has been undertaken.

3 METHODOLOGY

3.1 Methodology

3.1.1 Site Inspection

A site inspection was carried out by the author with the subject trees and the general growing environment evaluated on the 5th and 6th November 2020. The weather at the time of inspection was sunny and dry with good visibility.

The subject trees were inspected visually from ground level with the following information recorded and provided in tabulated form at ***Appendix 1***:

- Tree Species (Botanical & Common Name);
- Approximate height;
- Approximate canopy spread;
- Trunk Diameter (measured at 1.4 metres from ground level);
- Trunk Diameter at base (above root crown);
- Age class;
- Health & vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators;
- Condition; using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators;
- Suitability of the tree to the site and its existing location;
- Safe Useful Life Expectancy (SULE).

3.1.2 Visual Tree Assessment (VTA)

The modified Level 1 limited Visual Tree Assessment (VTA) was undertaken for all trees during the site inspection. The VTA consists of a detailed inspection of the subject tree from ground level to the upper canopy. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture (ISA), Arboriculture Australia and The Institute Australian of Consulting Arborists (IACA). No aerial inspections or major root excavations were undertaken.

3.1.3 Safe Useful Life Expectancy (SULE)

The remaining Safe Useful Life Expectancy of a tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of each tree has been further modified where necessary in consideration of its current health, vigour, condition and suitability to the site. The estimated SULE of each tree is shown in ***Appendix 1***.

The following ranges have been allocated to each tree:

- Long SULE: Trees that appear to be retainable with an acceptable level of risk for > 40 years.
- Medium SULE: Trees that appear to be retainable with an acceptable level of risk for 15 to 40 years.
- Short SULE: Trees that appear to be retainable with an acceptable level of risk for 5–15 years.
- Remove: Trees with a high level of risk that would need removing within the next 5 years.
- Small, Young or Regularly Pruned.

3.1.4 Landscape Significance

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. Several factors contribute towards the assessment of a tree's significance including but not limited to condition and vigour, form, visual prominence, heritage status, indigeneity, legislative protection, cultural sentiment and future growth potential.

For the purposes of this report the Australian Institute of Consulting Arborists (IACA) Significance of a Tree, Assessment Rating System (STARS)© has been utilised. The system uses a scale of High, Medium and Low significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Appendix 3 provides a full outline of assessment criteria for each significance rating as per IACA STARS (2010).

3.1.5 Retention Value

Retention values have been determined for each tree on site to establish a hierarchy for tree retention. Retention values are based on estimated life spans and their associated landscape significance rating in accordance with the Tree Retention Value Priority Matrix. This matrix established the following retention values and can be found at ***Appendix 3*** with attributed retention values found within ***Appendix 1***:

- Priority for Retention (High)
- Consider for Retention (Medium)
- Consider for Removal (Low)
- Priority for Removal

3.1.6 Tree Protection Zones

The assessed trees have been allocated Tree Protection Zones (TPZ). The Australian Standard, *AS4970-2009-'Protection of trees on development sites'*, has been used as a guide in the allocation of TPZs for the assessed trees. The TPZ is calculated based on trunk (stem) diameter at breast height (DBH), measured at 1.4 metres above ground level. The radius of the TPZ is calculated by multiplying the trees DBH by 12. The method provides a TPZ that addresses health and growing requirements of a tree as well as the trees stability. TPZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The maximum TPZ should be no more than 15m radius and the minimum TPZ should be no less than 2m radius.

An extract of the *AS4970-2009* for calculating TPZ has been provided at ***Appendix 4*** for reference.

3.1.7 Structural Root Zone

The assessed trees have been allocated Structural Root Zones (SRZ). The Australian Standard, *AS4970-2009-'Protection of trees on development sites'*, has been used as a guide in the allocation of SRZ's for the assessed trees. The SRZ is a radial area extending outwards from the centre of the trunk and is calculated as follows:

SRZ (Radius) = (D x 50)0.42 x 0.64

4 OBSERVATIONS

4.1 General

The site area subject to this assessment was observed as highly disturbed with no understorey present. Trees assessed were located both within the subject site boundaries and within street verge areas adjoining the site. Trees were identified as mixture of locally endemic, native and exotic species some of which are likely to be remnant species and others which are considered likely to have been planted as part of previous amenity landscaping. Trees were observed as generally growing within restricted and unrestricted deep soil zones.

4.2 Tree Preservation Order

The site is located within the Griffith City Council LGA and therefore Griffith Local Environmental Plan (LEP) 2014 Tree Preservation Order (TPO) 2014 apply to the site to preserve existing vegetation.

As defined within the above referenced documents, a protected or prescribed tree includes:

A 'tree' means a perennial plant more than one metre in height, having a permanent woody self-supporting main stem or trunk. For the purposes of this plan those trees requiring approval will have attained:

- *height of 3.5 m, or*
- *canopy diameter of 1 m, or*
- *trunk diameter of 200 mm.*

In accordance with the above provisions, only those trees meeting the above definition of a tree have been included within the Assessment.

4.3 Heritage Status

The entire subject allotment is listed as a Heritage Item (I2) under the *Griffith Local Environmental Plan 2014* being noted the 'Former Matron's House and Nurses Quarters at Base Hospital'. The heritage listing makes no reference to any vegetation on site, however it is understood that the buildings referenced above have been previously demolished. The heritage status of the site and any implications to vegetation removal is outside the scope of this Report.

4.4 The Trees

A total of one-hundred and eighty-six (186) trees were observed within and adjoining the subject site which have been surveyed as part of this assessment. All tree data recorded on site has been tabulated and is contained **Appendix 1**. Each tree has been provided with an identification number for reference purposes and is denoted on the attached Tree Location Plan held at **Appendix 2**.

Note: Of the one-hundred and eighty-six (186) trees assessed, sixty (60) have already been approved for removal under a separate planning approval process. Accordingly, these trees have been shown/noted as *'removal approved – separate planning approval'* within the following Report, however not counted in the total trees to be removed under the subject SSDA.

5 DISCUSSION

5.1 Impact Assessment

The impact assessment is to estimate the incursions to the root zones as a result of the proposed demolition and construction works and evaluate the likely impact of the proposed works on the subject trees. A summary of the impacts anticipated are contained within the Tree Schedule at ***Appendix 1***. Additionally, plans indicating those trees to be removed and retained as part of the proposal can be found at ***Appendix 2***. As part of the assessment the following criteria have been considered:

- Existing Relative Levels (R.L.);
- Proposed Relative Levels;
- Tree Protection Zones (TPZ);
- Footprint of the proposed development (incl. stormwater and services) and temporary structures (scaffolding, hoardings etc.);
- Incursions to the TPZ, including estimated cut & fill;
- Species tolerance to disturbance; and
- Assessment of the likely impact of the works on existing trees.
-

5.2 Trees Recommended for Removal

Based on the plans supplied, should the proposed works proceed in their current form it is recommended that eighty-six (86) trees be removed. Of these, sixty (60) have already been approved for removal under a previous planning approval for the site (shown in blue in Table 2 below). Accordingly, the SSDA works will necessitate the removal of twenty-six (26) trees.

Removals have been recommended based upon locations within the footprint of the proposed building, driveway, car park or footpaths as well as unsustainable levels of incursion to the TPZ from ground level modifications as detailed below in **Table 2**.

Refer to ***Appendix 2*** for a plan indicating the location of trees that will require removal (marked red).

***Table 2** – Trees nominated for removal including description of development impacts and retention values:*

Development Impact	Trees Recommended for Removal				
	High Retention Value	**Medium Retention Value**	**Low Retention Value**	**Consider Removal**	**Number of Trees**
Within footprint of proposed building, car park, driveway, footpath or hard stand	**-**	37, 38, 92, 146, 147 **(5 Trees)**	58, 84, 91, 145, 148, 149, 150 **(7 Trees)**	-	**12**
Major TPZ/SRZ incursion from construction works	40 **(1 Tree)**	16, 17, 39, 59, 93, 96, 98, 99 **(8 Trees)**	22, 94, 95, 97 **(4 Trees)**	-	**13**
No additional TPZ incursion (dead tree)	-	-	-	114 **(1 Tree)**	**1**
N/A – Removal approved under separate planning approval	1, 2, 47, 151 **(4 Trees)**	3, 4, 5, 6, 7, 33, 34, 35, 36, 46, 48, 79, 156 **(13 Trees)**	8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 26, 27, 28, 29, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 171, 172, 173, 174, 175, 175, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186 **(43 Trees)**	-	**60**
			Total Trees Already Approved for Removal		**60**
			Total Trees Removed Under SSDA		**26**

5.2.1 Trees Recommended for Removal - Retention Values

The proposed SSDA works will necessitate the removal of one (1) tree of '***High***' retention value, thirteen (13) trees of '***Medium***' retention value, eleven (11) trees of '***Low***' retention value and one (1) tree marked as '***Consider Removal***'. The removal of these trees is expected to result in a moderate impact to the amenity of the surrounding landscape setting however this is considered capable of being offset pending implementation of the replacement planting as part of future site redevelopment works and as per the recommendations provided within ***Section 7***.

5.3 Trees Recommended for Retention & Protection

Should the proposed works proceed in their current form, it is recommended that one-hundred (100) trees be retained and protected given the proposed works are unlikely to result in any significant impact to their long-term health and viability as detailed below in **Table 3**.

Retention of those trees, identified as being subject to minor (<10%) levels of incursion to the TPZ, is considered achievable subject implementation Project Arborist supervision, root sensitive construction techniques & installation of protection measures as outlined within ***Appendix 5***.

Vehicles, machinery and equipment requiring access to the site have potential to result in inadvertent impacts to those trees being retained including compaction of the root zone, soil disturbance, physical damage to roots, trunk damage etc. and as such will require management. Furthermore, storage and stockpiling of material may result in similar impacts and will require management and supervision as part of the construction process.

Refer to ***Appendix 2*** for a plan indicating the location of trees that are to be retained and protected (marked green).

Table 2 *– Trees nominated for removal including description of development impacts and retention values:*

Development Impact	**Trees Recommended for Retention**				
	High Retention Value	**Medium Retention Value**	**Low Retention Value**	**Consider Removal**	**Number of Trees**
Minor TPZ/SRZ incursion from construction works unlikely to affect long term health/viability	30, 31, 104 **(3 Trees)**	54, 55, 60, 85, 89, 90, 138 **(7 Trees)**	170 **(1 Trees)**	-	**11**
No additional TPZ incursion	41, 42, 50, 51, 52, 53, 73, 74, 75, 77, 80, 102, 105, 109, 118, 122, 132, 134, 136 **(19 Trees)**	32, 43, 44, 45, 56, 57, 61, 72, 78, 106, 107, 108, 110, 111, 112, 115, 121, 126, 127, 142, 168, 169 **(22 Trees)**	23, 24, 25, 49, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 81, 82, 83, 86, 87, 88, 100, 101, 103 113, 116, 117, 119, 120, 123, 124, 125, 128, 129, 130, 131, 133, 135, 137, 139, 140, 141, 143, 144, 152, 153, 154, 155 **(47 Trees)**	76 **(1 Tree)**	**89**
			Total Trees Retained		**100**

6 CONCLUSION

6.1 Proposed Development Impact

Based on the plans and information supplied, should the SSDA development proceed in its current form the proposal would result in the following impacts to existing trees on site:

Removal of twenty-six (26) trees, including;

- Five (5) trees of '***Medium***' retention value and seven (7) trees of '***Low***' retention value due to falling directly within the footprint of proposed buildings, car parks, driveways, footpaths or hard stand areas;

- One (1) tree of '***High***' retention value, eight (8) trees of '***Medium***' retention value and four (4) trees of '***Low***' retention value due to suffering unsustainable levels of incursion to the TPZ/SRZ as a result of the proposed works; and

- One (1) tree which observed as dead which has a retention value of '***Consider Removal***'.

The removal of these trees is expected to result in a moderate impact to the amenity of the surrounding landscape setting however this is considered capable of being offset pending implementation of the replacement planting as part of future site redevelopment works and as per the recommendations provided within ***Section 7***.

Retention and protection of one-hundred (100) trees, including;

- Eleven (11) trees of '***Low***', '***Medium***' and '***High***' retention value which are subject to minor (<10%) and sustainable levels of incursion to the TPZ – subject to implementation of detailed protection measures, the long-term health and viability of these trees will not be affected, and;

- Eighty-nine (89) trees of '***Low***', '***Medium***', '***High***' and '***Consider Removal***' retention value which are located away from the proposed works and are unlikely to be to subject any additional incursion to the TPZ.

Tree protection measures in accordance with ***Appendix 5*** will be required for those trees outside of the development area which are to be retained to ensure no inadvertent impacts are sustained from construction related activities.

Replacement planting as per ***Section 7.3*** should be considered to compensate for any loss of amenity or impact to landscape character resulting from the proposed tree removal.

7 RECOMMENDATIONS

7.1 Tree Removals

Remove **Trees 16, 17, 22, 37, 38, 39, 40, 58, 59, 84, 91, 92, 93, 94, 95, 96, 97, 98, 99, 114, 145, 146, 147, 148, 149 & 150** (26 trees) to facilitate the proposed development works.

Development consent and relevant approvals must be obtained from the relevant consent authority prior to the removal or pruning of any tree protected under Griffith City Council's Tree Preservation Order 2014.

All tree removal work is to be carried out by an experienced Arborist with minimum AQF Level 3 qualifications in accordance with AS4373-2007 Pruning of Amenity Trees, Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation.

7.2 Tree Retention & Protection

Retain and protect **Trees 23, 24, 25, 30, 31, 32, 41, 42, 43, 44, 45, 49, 50, 51, 52, 53, 54, 55, 56, 57, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 80, 81, 82, 83, 85, 86, 87, 88, 89, 90, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 152, 153, 154, 155, 168, 169 & 170** (100 Trees) in accordance with the Tree Location Plan & Tree Protection Specification held at ***Appendix 2 & 5***, *AS497-2009 Protection of trees on development sites* and the specific recommendations below:

7.2.1 Project Arborist Engagement

A Project Arborist experienced in tree protection on construction sites should be engaged prior to the commencement of any demolition or construction on site. The Project Arborist shall monitor and report regularly to the Principal Certifying Authority (PCA) and the Applicant on the condition and protection of the retained tree during construction works. The Project Arborist is to supervise and monitor any excavation, machine trenching or compacted fill placement within the TPZ of throughout construction.

7.3 Replacement Planting

In order to compensate for loss of amenity resulting from the removal of trees, replacement planting should be provided at a ratio of 1:1. This will ensure there is no incremental loss of canopy cover within the developed area and the value of the landscaped setting is maintained in the long term.

Accordingly, twenty-six (26) locally endemic compensatory canopy tree plantings should be provided within the open space areas associated with the development. The following species should be considered for replacement planting:

- *Brachychiton populneus* (Kurrajong)

- *Callitris glaucophylla* (White Cypress Pine)

- *Eucalyptus melliodora* (Yellow Box)

- *Eucalyptus microcarpa* (Western Grey Box)

- *Eucalyptus populnea* (Poplar Box)

Should you have any queries in relation to the information presented in this Assessment, please do not hesitate to contact me.

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8 REFERENCES

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APPENDIX 1: TREE ASSESSMENT DATA - Griffith Base Hospital

Tree No.	Genus & species Common Name	Height (m)	Crown Spread (m)	DBH (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
1	***Callitris glaucophylla*** White Cypress Pine	13	8	700	600	8.40	2.67	M	Good	Good	Long 40yrs +	High	High	N/A	Removal approved - separate planning approval	Minor levels of deadwood throughout canopy
2	***Bauhinia variegata*** Orchid Tree	7	8	3 x 200	400	4.20	2.25	M	Average	Good	Long 40yrs +	Medium	High	N/A	Removal approved - separate planning approval	Multi-stemmed habit from 1m
3	***Eucalyptus nicholii*** Narrow-leaved Peppermint	9	6	350	350	4.20	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	N/A	Removal approved - separate planning approval	Some leaf discolouration and reduced crown density
4	***Hymenosporum flavum*** Native Frangipani	5	4	150, 150, 150	300	3.12	2.00	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	N/A	Removal approved - separate planning approval	Trifurcated from 0.5m. High level of dieback
5	***Callistemon salignus*** Willow Bottlebrush	6	4	100, 100, 150, 150, 150	300	3.60	2.00	M	Average	Fair	Medium 15-40yrs	Medium	Medium	N/A	Removal approved - separate planning approval	Multi-stemmed habit from 1m
6	***Callistemon salignus*** Willow Bottlebrush	5	4	6 x 100	300	3.36	2.00	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	N/A	Removal approved - separate planning approval	Multi-stemmed habit from 1m
7	***Callistemon salignus*** Willow Bottlebrush	7	5	200, 150	300	3.00	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	N/A	Removal approved - separate planning approval	Multi-stemmed habit from 1m
8	***Pyrus calleryana*** Callery Pear	4	2	100	120	2.00	1.50	SM	Good	Average	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
9	***Pyrus calleryana*** Callery Pear	4	2	80	100	2.00	1.50	SM	Good	Average	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
10	***Pyrus calleryana*** Callery Pear	2	1	30	40	2.00	1.50	J	Fair	Poor	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
11	***Pyrus calleryana*** Callery Pear	2	1	50	60	2.00	1.50	J	Average	Average	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
12	***Pyrus calleryana*** Callery Pear	4	2	100	100	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
13	***Pyrus calleryana*** Callery Pear	5	3	120	150	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
14	***Pyrus calleryana*** Callery Pear	4	3	120	120	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
15	***Pyrus calleryana*** Callery Pear	3	1	100	100	2.00	1.50	J	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
16	***Acer palmatum*** Japanese Maple	4	4	150, 100, 100	250	2.52	1.85	M	Average	Average	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Multi-stemmed from ground level
17	***Sapium sebiferum*** Chinese Tallow Tree	7	6	350	400	4.20	2.25	M	Average	Average	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Minor dieback in outer crown
18	***Pyrus calleryana*** Callery Pear	3	2	100	100	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Nil.
19	***Pyrus calleryana*** Callery Pear	2	1	100	100	2.00	1.50	J	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Nil.
20	***Pyrus calleryana*** Callery Pear	4	2	100	100	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Nil.

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
21	***Pyrus calleryana*** Callery Pear	4	2	100	100	2.00	1.50	J	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
22	***Lagerstroemia indica*** Crepe Myrtle	3	2	100	100	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	Major TPZ/SRZ incursion	Remove	Multi-stemmed habit from 1m
23	***Lagerstroemia indica*** Crepe Myrtle	3	2	100	100	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Multi-stemmed habit from 1m
24	***Lagerstroemia indica*** Crepe Myrtle	3	2	100	100	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Multi-stemmed habit from 1m
25	***Lagerstroemia indica*** Crepe Myrtle	3	2	100	100	2.00	1.50	SM	Good	Good	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Multi-stemmed habit from 1m
26	***Pyrus calleryana*** Callery Pear	3	1	100	100	2.00	1.50	J	Good	Good	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
27	***Pyrus calleryana*** Callery Pear	2	1	100	100	2.00	1.50	J	Average	Fair	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
28	***Pyrus calleryana*** Callery Pear	3	1	50	60	2.00	1.50	J	Good	Average	Long 40yrs +	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting
29	***Pyrus calleryana*** Callery Pear	2	1	50	60	2.00	1.50	J	Poor	Poor	Short 5-15yrs	Low	Low	N/A	Removal approved - separate planning approval	Recent street tree planting. Poor development
30	***Corymbia citriodora*** Lemon-scented Gum	20	10	550	750	6.60	2.93	M	Average	Good	Long 40yrs +	High	High	Minor TPZ/SRZ incursion	Retain & Protect	Growing within raised brick planter
31	***Corymbia citriodora*** Lemon-scented Gum	16	8	500	650	6.00	2.76	M	Good	Good	Long 40yrs +	High	High	Minor TPZ/SRZ incursion	Retain & Protect	Crown bias to north
32	***Callistemon viminalis*** Weeping Bottlebrush	4	6	200, 150, 120	350	3.36	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Multi-stemmed habit from 0.5m. Crossing branches
33	***Corymbia citriodora*** Lemon-scented Gum	12	10	400	450	4.80	2.37	M	Fair	Average	Long 40yrs +	Medium	Medium	N/A	Removal approved - separate planning approval	Reduced crown density. Medium level of small diameter deadwood
34	***Callitris glaucophylla*** White Cypress Pine	10	4	300	380	3.60	2.20	M	Average	Fair	Long 40yrs +	Medium	Medium	N/A	Removal approved - separate planning approval	Crown bias to east. Western portion of crown suppressed by T35 & T36
35	***Brachychiton populneus*** Kurrajong	10	3	300	400	3.60	2.25	M	Good	Fair	Long 40yrs +	Medium	Medium	N/A	Removal approved - separate planning approval	Bifurcated stems from 4m. Northern portion of crown suppressed
36	***Callitris glaucophylla*** White Cypress Pine	8	3	200	220	2.40	1.75	M	Average	Fair	Long 40yrs +	Medium	Medium	N/A	Removal approved - separate planning approval	Crown bias to north. Southern portion of crown suppressed by T35
37	***Jacaranda mimosifolia*** Jacaranda	8	9	600	600	7.20	2.67	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed carpark	Remove	Crown bias to north. Southern scaffold branches pruned for building clearance. Medium level of epicormic growth
38	***Callitris glaucophylla*** White Cypress Pine	14	5	350	400	4.20	2.25	OM	Fair	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed carpark	Remove	Crown bias to east. Moderate level of small-medium diameter deadwood
39	***Corymbia citriodora*** Lemon-scented Gum	14	8	500	550	6.00	2.57	M	Fair	Average	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Tall slender form. Heavily weighted 2nd order branch @ 6m
40	***Corymbia citriodora*** Lemon-scented Gum	15	10	550	650	6.60	2.76	M	Average	Average	Long 40yrs +	High	High	Major TPZ/SRZ incursion	Remove	Crown bias to north. Bifurcated @ 6m
41	***Corymbia citriodora*** Lemon-scented Gum	16	12	500	600	6.00	2.67	M	Average	Good	Medium 15-40yrs	High	High	No additional TPZ incursion	Retain & Protect	Form typical for species

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42	***Eucalyptus populnea*** Poplar Box	16	12	650	750	7.80	2.93	M	Good	Fair	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Basal wound south side with inactive borer holes evident
43	***Callistemon viminalis*** Weeping Bottlebrush	4	3	150	180	2.00	1.61	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Multi-stemmed habit from ground level
44	***Fraxinus griffithii*** Evergreen Ash	4	4	150	170	2.00	1.57	SM	Good	Average	Long 40yrs +	Medium	Medium	No additional TPZ incursion	Retain & Protect	Trifurcated from 1m
45	***Fraxinus griffithii*** Evergreen Ash	4	4	150	170	2.00	1.57	SM	Good	Average	Long 40yrs +	Medium	Medium	No additional TPZ incursion	Retain & Protect	Bifurcated from 0.3m
46	***Brachychiton populneus*** Kurrajong	10	8	650	700	7.80	2.85	M	Average	Poor	Long 40yrs +	Medium	Medium	N/A	Removal approved - separate planning approval	Heavily pruned east side for overhead powerline clearance
47	***Corymbia citriodora*** Lemon-scented Gum	15	12	400	500	4.80	2.47	M	Average	Average	Long 40yrs +	High	High	N/A	Removal approved - separate planning approval	Crown skewed to west
48	***Brachychiton populneus*** Kurrajong	9	5	450	500	5.40	2.47	M	Average	Poor	Long 40yrs +	Medium	Medium	N/A	Removal approved - separate planning approval	Heavily pruned east side for powerline clearance. Trifurcated from 2m
49	***Corymbia citriodora*** Lemon-scented Gum	6	5	150	180	2.00	1.61	SM	Average	Average	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Central leader impacted by T50
50	***Corymbia citriodora*** Lemon-scented Gum	17	10	400	500	4.80	2.47	M	Fair	Good	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Reduced crown density
51	***Callitris glaucophylla*** White Cypress Pine	11	9	450	500	5.40	2.47	OM	Fair	Fair	Medium 15-40yrs	High	High	No additional TPZ incursion	Retain & Protect	High level of small-medium diameter deadwood
52	***Callitris glaucophylla*** White Cypress Pine	12	9	500	550	6.00	2.57	OM	Fair	Fair	Medium 15-40yrs	High	High	No additional TPZ incursion	Retain & Protect	High level of small-medium diameter deadwood
53	***Callitris glaucophylla*** White Cypress Pine	10	5	380	400	4.56	2.25	M	Fair	Good	Long 40yrs +	Medium	High	No additional TPZ incursion	Retain & Protect	High level of small-medium diameter deadwood
54	***Melia azedarach*** White Cedar	6	9	450	450	5.40	2.37	M	Good	Poor	Long 40yrs +	Medium	Medium	Minor TPZ/SRZ incursion	Retain & Protect	Previously lopped @ 2m. Trifurcated epicormic regrowth
55	***Callitris glaucophylla*** White Cypress Pine	10	6	350	400	4.20	2.25	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Minor TPZ/SRZ incursion	Retain & Protect	Previously lopped @ 2m. Trifurcated epicormic regrowth
56	***Callitris glaucophylla*** White Cypress Pine	12	5	400	450	4.80	2.37	OM	Fair	Poor	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Crown bias to north. Multiple branch failures
57	***Callitris glaucophylla*** White Cypress Pine	12	4	400	450	4.80	2.37	OM	Fair	Average	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Moderate level of small-medium diameter deadwood
58	***Jacaranda mimosifolia*** Jacaranda	9	9	250, 350	500	5.16	2.47	M	Good	Average	Long 40yrs +	High	Low	Within footprint of proposed carpark	Remove	Bifurcated from 0.3m
59	***Fraxinus angustifolia 'Raywood'*** Claret Ash	10	7	600	600	7.20	2.67	M	Good	Average	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Crown bias to west with some crown dieback. Medium level of small diameter deadwood
60	***Fraxinus angustifolia 'Raywood'*** Claret Ash	7	6	300	320	3.60	2.05	M	Good	Good	Long 40yrs +	Medium	Medium	Minor TPZ/SRZ incursion	Retain & Protect	Minor level of small diamter deadwood
61	***Fraxinus angustifolia 'Raywood'*** Claret Ash	6	5	300	320	3.60	2.05	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Outer crown dieback. High level of medium diamter deadwood. Heavily compacted root zone
62	***Fraxinus angustifolia 'Raywood'*** Claret Ash	5	4	150, 150	200	2.52	1.68	M	Fair	Poor	Medium 15-40yrs	Medium	Low	No additional TPZ incursion	Retain & Protect	High level of crown dieback. Included, bifurcated stems from 1m

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63	***Allocasuarina sp.*** She Oak	9	5	250, 250, 250	350	5.16	2.13	M	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Previously lopped @ 2m. Entire crown consists of epicormic regrowth
64	***Allocasuarina sp.*** She Oak	7	3	250, 250	350	4.20	2.13	M	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Previously lopped @ 2m. Entire crown consists of epicormic regrowth
65	***Allocasuarina sp.*** She Oak	9	6	300, 300, 300, 300	500	7.20	2.47	M	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Previously lopped @ 2m. Entire crown consists of epicormic regrowth. Partial tree failure
66	***Allocasuarina sp.*** She Oak	6	2	200	220	2.40	1.75	M	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Suppressed by adjoining trees
67	***Brachychiton populneus*** Kurrajong	6	3	250, 250	400	4.20	2.25	SM	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Suppressed by adjoining trees. Included twin trunks from ground level
68	***Allocasuarina sp.*** She Oak	9	7	300, 300, 300, 300	500	7.20	2.47	M	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Multiple stems with shared root plate
69	***Brachychiton populneus*** Kurrajong	6	4	300	350	3.60	2.13	M	Good	Fair	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Crown impacted by T72
70	***Brachychiton populneus*** Kurrajong	5	3	250	300	3.00	2.00	SM	Good	Fair	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Bifurcated stems from 3m. Crown bias to east
71	***Eucalyptus populnea*** Poplar Box	5	3	100	120	2.00	1.50	J	Average	Poor	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. Self sown. Poor development
72	***Eucalyptus populnea*** Poplar Box	12	12	550	650	6.60	2.76	M	Fair	Fair	Long 40yrs +	Medium	Medium	No additional TPZ incursion	Retain & Protect	Council street tree. Poorly balanced crown. Multiple past branch failures, epicormic growth and high levels of deadwood
73	***Cupressus macrocarpa*** Monterey Cypress	15	10	600, 400, 350, 250	1200	10.08	3.57	M	Fair	Fair	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Multi-stemmed habit from 1m. Multiple branch failures and hangers
74	***Eucalyptus populnea*** Poplar Box	18	20	450, 450, 350, 350, 350, 350	1400	13.68	3.81	M	Fair	Fair	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Multi-stemmed habit from ground level. Reduced crown density
75	***Eucalyptus populnea*** Poplar Box	12	10	350, 350, 350, 300, 300, 300	350, 400, 400	11.28	2.80	M	Average	Fair	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Multi-stemmed habit from ground level. Shared root plate. Crown bias to north
76	***Dead tree***	-	-	-	-	-	-	-	-	-	-	-	Consider Removal	No additional TPZ incursion	Retain & Protect	Council street tree - dead. Future removal to be managed by Council
77	***Eucalyptus populnea*** Poplar Box	13	12	400, 350, 350, 150	600, 400, 150	7.68	2.92	M	Average	Fair	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Crown and stems skewed to west. High levels of deadwood
78	***Eucalyptus populnea*** Poplar Box	15	15	650	700	7.80	2.85	M	Fair	Fair	Medium 15-40yrs	High	Medium	No additional TPZ incursion	Retain & Protect	Reduced crown density. High level of medium diameter deadwood
79	***Callistemon salignus*** Willow Bottlebrush	8	6	300, 300, 200, 200	400	6.12	2.25	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	N/A	Removal approved - separate planning approval	Multi-stemmed habit from 1m. High level of small diameter deadwood. Reduced crown density
80	***Quercus palustris*** Pin Oak	12	8	300	400	3.60	2.25	M	Good	Average	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Parasitic mistletoe throughout canopy
81	***Callistemon salignus*** Willow Bottlebrush	7	4	250	280	3.00	1.94	M	Fair	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	High levels of deadwood and epicormic growth at branch failures
82	***Pittosporum undulatum*** Sweet Pittosporum	3	1	100, 100	150	2.00	1.50	OM	Poor	Poor	Short 5-15yrs	Low	Low	No additional TPZ incursion	Retain & Protect	High level of crown dieback
83	***Callistemon viminalis*** Weeping Bottlebrush	2	2	150, 150	200	2.52	1.68	M	Fair	Fair	Short 5-15yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Heavily pruned with high levels of small diameter deadwood

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84	***Callistemon viminalis*** Weeping Bottlebrush	2	4	150, 150, 150	200	3.12	1.68	M	Fair	Fair	Short 5-15yrs	Low	Low	Within footprint of proposed footpath	Remove	Heavily pruned with high levels of small diameter deadwood
85	***Fraxinus angustifolia 'Raywood'*** Claret Ash	8	6	300	350	3.60	2.13	M	Good	Average	Long 40yrs +	Medium	Medium	Minor TPZ/SRZ incursion	Retain & Protect	Multi-stemmed habit from 2m
86	***Fraxinus angustifolia 'Raywood'*** Claret Ash	4	4	260	320	3.12	2.05	SM	Average	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. Previously lopped @ 2m. High level of epicormic regrowth
87	***Fraxinus angustifolia 'Raywood'*** Claret Ash	6	6	190	230	2.28	1.79	M	Average	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. Moderate level of small diameter deadwood
88	***Fraxinus angustifolia 'Raywood'*** Claret Ash	5	6	280	350	3.36	2.13	M	Average	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Moderate level of small diameter deadwood
89	***Eucalyptus scoparia*** Wallangarra White Gum	14	9	520	650	6.24	2.76	M	Average	Fair	Short 5-15yrs	Medium	Medium	Minor TPZ/SRZ incursion	Retain & Protect	Multiple past branch failures in upper canopy. Tear out wounds poorly occluded with evidence of swelling/decay in main stem. Possible hollow @ 6m
90	***Corymbia citriodora*** Lemon-scented Gum	12	8	300	320	3.60	2.05	SM	Good	Good	Long 40yrs +	Medium	Medium	Minor TPZ/SRZ incursion	Retain & Protect	Co-dominant crown
91	***Acacia podalyriifolia*** Queensland Silver Wattle	4	5	160, 100	200	2.28	1.68	M	Good	Average	Short 5-15yrs	Low	Low	Within footprint of proposed roadway	Remove	Canopy lifted for footpath clearance
92	***Corymbia maculata*** Spotted Gum	14	9	350	400	4.20	2.25	M	Good	Good	Long 40yrs +	Medium	Medium	Within footprint of proposed roadway	Remove	Co-dominant crown
93	***Eucalyptus melliodora*** Yellow Box	12	9	300, 280, 180	700	5.40	2.85	M	Good	Average	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Multiple dominant stems from 0.5m
94	***Ulmus parvifolia*** Chinese Elm	5	5	100, 80, 60	180	2.00	1.61	SM	Good	Good	Medium 15-40yrs	Low	Low	Major TPZ/SRZ incursion	Remove	Nil
95	***Acacia podalyriifolia*** Queensland Silver Wattle	4	3	100, 70	200	2.00	1.68	M	Fair	Poor	Very Short <5yrs	Low	Low	Major TPZ/SRZ incursion	Remove	Significant lean to west. Included, co-dominant stems @ 1m with shear cracking observed at union
96	***Angophora costata*** Sydney Red Gum	8	6	260	300	3.12	2.00	SM	Good	Good	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Nil
97	***Ulmus parvifolia*** Chinese Elm	4	6	120, 120	180	2.04	1.61	SM	Average	Fair	Medium 15-40yrs	Low	Low	Major TPZ/SRZ incursion	Remove	Growing at base of T98. Assumed self seeded. Supressed
98	***Angophora costata*** Sydney Red Gum	7	6	180	220	2.16	1.75	SM	Good	Fair	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Crown impacted by T97
99	***Angophora costata*** Sydney Red Gum	8	7	220	250	2.64	1.85	SM	Good	Average	Long 40yrs +	Medium	Medium	Major TPZ/SRZ incursion	Remove	Low level small of small diameter deadwood. Growth splits in main stem
100	***Pistacia chinensis*** Chinese Pistachio	6	6	150	180	2.00	1.61	M	Good	Average	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Failed central leader. Suckering at base
101	***Brachychiton populneus*** Kurrajong	4	2	60, 60, 40, 20	80, 80, 80, 60	2.64	1.50	J	Good	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Juvenile. Multi-stemmed from base
102	***Eucalyptus scoparia*** Wallangarra White Gum	14	12	650	680	7.80	2.81	M	Average	Average	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Moderate level of small diameter deadwood
103	***Eucalyptus scoparia*** Wallangarra White Gum	6	5	180	200	2.16	1.68	SM	Fair	Poor	Short 5-15yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Sparse canopy. High level of deadwood and past branch failures
104	***Corymbia citriodora*** Lemon-scented Gum	15	15	690	710	8.28	2.87	M	Average	Average	Long 40yrs +	High	High	Minor TPZ/SRZ incursion	Retain & Protect	Moderate level of medium diameter deadwood in upper canopy. Co-dominant crown

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105	***Corymbia citriodora*** Lemon-scented Gum	17	15	720	780	8.64	2.98	M	Good	Average	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Moderate level of medium diameter deadwood in upper canopy. Minor lean to west. Co-dominant crown
106	***Eucalyptus populnea*** Poplar Box	18	12	800	830	9.60	3.06	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Sparse canopy. Moderate level of deadwood and epicormic growth. Small hollow @ 6m north side. Co-dominant crown
107	***Corymbia citriodora*** Lemon-scented Gum	10	7	220	250	2.64	1.85	SM	Average	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Council street tree. Slender form. Low level of small diameter deadwood
108	***Eucalyptus populnea*** Poplar Box	10	8	700, 250	910	8.88	3.18	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Council street tree. Failed stem @ base north side. Crossing, included stems @ 2m
109	***Corymbia citriodora*** Lemon-scented Gum	16	14	550	620	6.60	2.71	M	Good	Good	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Crown bias to north
110	***Eucalyptus populnea*** Poplar Box	10	8	250, 250	450	4.20	2.37	SM	Average	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Council street tree. Included, co-dominant stems from base. Moderate level of deadwood
111	***Eucalyptus populnea*** Poplar Box	16	10	500, 420	1100	7.80	3.44	M	Poor	Fair	Short 5-15yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Council street tree. Multiple past pruning events with heartwood decay/hollows evident at pruning points. Lorikeets observed to be utilising hollows. Wounds from pruning generally poorly occluded. Sparse canopy with high level epicormic growth and deadwood. In decline
112	***Cedrus deodara*** Himalayan Cedar	14	8	240	260	2.88	1.88	SM	Good	Good	Long 40yrs +	Medium	Medium	No additional TPZ incursion	Retain & Protect	Canopy lifted to 3m
113	***Cupressus sempervirens*** Mediterranean Cypress	8	4	230	250	2.76	1.85	SM	Good	Poor	Short 5-15yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Moderate lean to west. Heavily suppressed by vine
114	***Cupressus torulosa*** Bhutan Cypress	-	-	-	-	-	-	Dead	-	-	-	-	Consider Removal	No additional TPZ incursion	Remove	Dead
115	***Pyrus ussuriensis*** Manchurian Pear	7	6	150, 150	200	2.52	1.68	M	Good	Good	Medium 15-40yrs	Low	Medium	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 1 Animoo Ave)
116	***Hymenosporum flavum*** Native Frangipani	7	3	100	120	2.00	1.50	SM	Good	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 1 Animoo Ave)
117	***Hymenosporum flavum*** Native Frangipani	4	3	100	110	2.00	1.50	SM	Fair	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree
118	***Eucalyptus populnea*** Poplar Box	12	16	320, 460, 440	1250	8.52	3.63	M	Average	Average	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Multi-stemmed from base
119	***Hymenosporum flavum*** Native Frangipani	8	4	150, 150	350	2.52	2.13	SM	Good	Poor	Very Short <5yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. High level of decay and shear cracks in main stem
120	***Cupressus sempervirens*** Mediterranean Cypress	8	3	Multi 80 - 150	Multi 100 - 200	3.00	2.16	M	Good	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. Multi-stemmed from base
121	***Eucalyptus populnea*** Poplar Box	12	10	470, 450	1100	7.80	3.44	M	Average	Poor	Medium 15-40yrs	High	Medium	No additional TPZ incursion	Retain & Protect	Council street tree. Bifurcated from 0.4m. Shear cracking in main stem overhanging footpath
122	***Eucalyptus populnea*** Poplar Box	14	15	460	510	5.52	2.49	M	Average	Fair	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Multiple branch tear outs in mid canopy. Borer activity in main stem @ 1.5m
123	***Callistemon viminalis*** Weeping Bottlebrush	6	7	200, 100, 150	370	3.24	2.18	M	Good	Average	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. Canopy bias to north
124	***Ulmus parvifolia*** Chinese Elm	7	7	100, 100, 240	300	3.36	2.00	M	Good	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 1 Animoo Ave)

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
125	***Pyrus ussuriensis*** Manchurian Pear	7	9	Multi 60-100	320	2.16	2.05	M	Good	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 1 Animoo Ave)
126	***Ulmus parvifolia*** Chinese Elm	9	10	200, 200, 100, 100	450	3.84	2.37	M	Good	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave). Multiple crossing stems from base
127	***Ulmus parvifolia*** Chinese Elm	12	16	200, 200, 250, 300	770	5.76	2.97	M	Good	Good	Long 40yrs +	Medium	Medium	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave). Multi-stemmed from 0.5m
128	***Melaleuca bracteata 'Rev. Gold'*** Honey Myrtle	4	2	60, 60, 60	80	2.00	1.50	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave)
129	***Callistemon viminalis*** Weeping Bottlebrush	5	3	40, 60, 70	120	2.00	1.50	M	Good	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave)
130	***Callistemon viminalis*** Weeping Bottlebrush	5	5	Multi 50-100	250	2.04	1.85	M	Good	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave)
131	***Callistemon viminalis*** Weeping Bottlebrush	4	4	130	150	2.00	1.50	M	Good	Good	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave)
132	***Eucalyptus populnea*** Poplar Box	12	14	650, 500, 500, 400	1300	12.48	3.69	M	Average	Average	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave). Multi-stemmed from 1.5m. Previous large leaders removed - wounds occluding well
133	***Schinus molle var. areira*** Pepper Tree	6	8	350, 400	1700	6.36	4.14	M	Fair	Fair	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Within neighbouring allotment (No. 3 Animoo Ave). Supressed. High level epicormic growth
134	***Eucalyptus populnea*** Poplar Box	12	12	650	700	7.80	2.85	M	Good	Average	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Large diameter branch tear outs @ 2m south side and 3m west side. Wounds occluding well
135	***Ficus sp.*** Fig	5	4	Multi 20-60	170	2.00	1.57	SM	Good	Good	Long 40yrs +	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree
136	***Eucalyptus populnea*** Poplar Box	12	12	400, 400	760	6.84	2.95	M	Average	Average	Long 40yrs +	High	High	No additional TPZ incursion	Retain & Protect	Council street tree. Bifurcated from 0.5m. Moderate level of epicormic growth and small diameter deadwood
137	***Melaleuca armillaris*** Bracelet Honey-myrtle	4	7	270, 250	480	4.44	2.43	M	Fair	Poor	Short 5-15yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. Included, co-dominant stems from base with shear cracking at union
138	***Eucalyptus nicholii*** Narrow-leaved Peppermint	12	8	820	850	9.84	3.09	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Minor TPZ/SRZ incursion	Retain & Protect	Co-dominant stem previously lopped @ 4m. Past borer activity in main stem. Moderate level of small diameter deadwood and epicormic growth
139	***Callistemon viminalis*** Weeping Bottlebrush	5	6	100, 100, 80, 90	350	2.28	2.13	M	Fair	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Bifurcated from base. High level of small diameter deadwood
140	***Melaleuca armillaris*** Bracelet Honey-myrtle	4	2	50, 50	90	2.00	1.50	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Bifurcated from 0.5m. Supressed
141	***Melaleuca armillaris*** Bracelet Honey-myrtle	4	3	50, 60, 80	110	2.00	1.50	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Bifurcated from 0.5m. Supressed
142	***Melaleuca armillaris*** Bracelet Honey-myrtle	7	8	510	550	6.12	2.57	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Multiple past pruning events and branch tearouts with evidence of past decay
143	***Callistemon viminalis*** Weeping Bottlebrush	7	5	130, 130	310	2.16	2.02	M	Average	Average	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Bifurcated from 0.5m
144	***Agonis flexuosa*** Willow Myrtle	5	7	90, 190, 60, 100	300	2.88	2.00	SM	Good	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Included, co-dominant stems @ 1m. Mower damage to surface roots at base on west side
145	***Eucalyptus sp.*** Eucalyptus	4	4	240	260	2.88	1.88	M	Fair	Poor	Short 5-15yrs	Low	Low	Within footprint of proposed carpark	Remove	Significant kink in main stem. Multiple past pruning events

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
146	***Quercus palustris*** Pin Oak	14	8	300	320	3.60	2.05	M	Good	Good	Long 40yrs +	Medium	Medium	Within footprint of proposed carpark	Remove	Mistletoe @ 3m east side (main stem)
147	***Eucalyptus populnea*** Poplar Box	16	12	440	500	5.28	2.47	M	Average	Good	Long 40yrs +	Medium	Medium	Within footprint of proposed carpark	Remove	Moderate level of epicormic growth and small diameter deadwood. Cambial damage at base west side
148	***Eucalyptus sp.*** Eucalyptus	5	6	150, 90	240	2.04	1.82	M	Good	Good	Long 40yrs +	Low	Low	Within footprint of proposed carpark	Remove	Mallee habit
149	***Schinus molle var. areira*** Pepper Tree	12	10	1250	1400	15.00	3.81	M	Good	Fair	Long 40yrs +	Medium	Low	Within footprint of proposed carpark	Remove	Multiple past pruning events. Multiple cankers on main stem to 1.5m. High level epicormic growth. Active bee hive within large hollow on western side at 2m.
150	***Eucalyptus sp.*** Eucalyptus	4	5	Multi 60-100	210	2.16	1.72	M	Good	Poor	Medium 15-40yrs	Low	Low	Within footprint of proposed carpark	Remove	Spiral cracks in main stem
151	***Eucalyptus mannifera*** Brittle Gum	12	15	380, 460	820	7.20	3.04	M	Good	Fair	Long 40yrs +	High	High	N/A	Removal approved - separate planning approval	Included, co-dominant stems @ 1.5m
152	***Callistemon viminalis*** Weeping Bottlebrush	3	4	Multi 20-100	Multi 50-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Council street tree. Multi-stemmed from base
153	***Schinus molle var. areira*** Pepper Tree	8	7	400, 370, 510	1200	9.00	3.57	M	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Previously lopped @ 3m. High level epicormic growth
154	***Schinus molle var. areira*** Pepper Tree	8	7	450, 200	1050	5.88	3.38	M	Fair	Poor	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	High level of decay in main stem
155	***Eucalyptus populnea*** Poplar Box	8	4	210	230	2.52	1.79	SM	Average	Fair	Medium 15-40yrs	Low	Low	No additional TPZ incursion	Retain & Protect	Included, co-dominant stems @ 2m. Moderate lean to north-west
156	***Ulmus parvifolia*** Chinese Elm	7	5	150, 120	230	2.28	1.79	SM	Good	Fair	Medium 15-40yrs	Medium	Medium	N/A	Removal approved - separate planning approval	Previously lopped @ 2m. Co-dominant leader
157	***Pyrus calleryana*** Callery Pear	4	2	Multi 20-100	100	2.00	1.50	M	Good	Good	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Avenue planting. Canopy lifted to 1m
158	***Pyrus calleryana*** Callery Pear	4	2	Multi 20-100	100	2.00	1.50	M	Good	Good	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Avenue planting. Canopy lifted to 1m
159	***Pyrus calleryana*** Callery Pear	3	2	Multi-20-60	80	2.00	1.50	SM	Good	Good	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Avenue planting. Canopy lifted to 1m
160	***Pyrus calleryana*** Callery Pear	5	2	Multi 20-100	120	2.00	1.50	M	Good	Good	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Avenue planting. Canopy lifted to 1m
161	***Populus simonii*** Simons Poplar	5	2	Multi 20-80	100	2.00	1.50	SM	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Missing bark on north-western side of stem (assumed sunburn). Moderate level of epicormic growth
162	***Populus simonii*** Simons Poplar	5	2	Multi 20-80	100	2.00	1.50	SM	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Missing bark on north-western side of stem (assumed sunburn). Moderate level of epicormic growth
163	***Populus simonii*** Simons Poplar	5	2	Multi 20-80	100	2.00	1.50	SM	Fair	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Missing bark on north-western side of stem (assumed sunburn). Moderate level of epicormic growth
164	***Populus simonii*** Simons Poplar	5	1	Multi 20-80	100	2.00	1.50	SM	Fair	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Missing bark on north-western side of stem (assumed sunburn). Moderate level of epicormic growth
165	***Populus simonii*** Simons Poplar	5	2	Multi 20-80	100	2.00	1.50	SM	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Missing bark on north-western side of stem (assumed sunburn). Moderate level of epicormic growth
166	***Populus simonii*** Simons Poplar	5	3	Multi 20-80	100	2.00	1.50	SM	Good	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Missing bark on north-western side of stem (assumed sunburn). Moderate level of epicormic growth

Tree No.	Genus & species Common Name	Height (m)	Crown Spread (m)	DBH (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	SULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
167	***Populus simonii*** Simons Poplar	5	3	Multi 20-80	100	2.00	1.50	SM	Good	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Missing bark on north-western side of stem (assumed sunburn). Moderate level of epicormic growth
168	***Corymbia maculata*** Spotted Gum	10	7	380	420	4.56	2.30	SM	Good	Fair	Medium 15-40yrs	Medium	Medium	No additional TPZ incursion	Retain & Protect	Included, co-dominant stems @ 1.5m
169	***Corymbia maculata*** Spotted Gum	11	6	240	270	2.88	1.91	SM	Average	Good	Long 40yrs +	Medium	Medium	No additional TPZ incursion	Retain & Protect	Slender form
170	***Eucalyptus sp.*** Eucalyptus	7	7	200, 250	460	3.84	2.39	SM	Fair	Poor	Short 5-15yrs	Low	Low	Minor TPZ/SRZ incursion	Retain & Protect	Multiple past pruning events & failed stems
171	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
172	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
173	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
174	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
175	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
176	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
177	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
178	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
179	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
180	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
181	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
182	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
183	***Callistemon viminalis*** Weeping Bottlebrush	4	3	Multi 20-100	Multi 40-150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Group planting. Multi-stemmed from ground level
184	***Pyrus calleryana*** Callery Pear	3	2	Multi 20-80	100	2.00	1.50	SM	Good	Good	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Avenue planting. Canopy lifted to 1m
185	***Pyrus calleryana*** Callery Pear	4	2	70	100	2.00	1.50	SM	Good	Good	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Avenue planting. Canopy lifted to 1m
186	***Pyrus calleryana*** Callery Pear	4	2	Multi 20-80	100	2.00	1.50	SM	Good	Good	Medium 15-40yrs	Low	Low	N/A	Removal approved - separate planning approval	Avenue planting. Canopy lifted to 1m

Tree Inspection Data Notes & Terminology

Tree No. (Tree Number)

The tree number associated to each tree located on or adjacent to the subject site. Relates to the Tree Location Plan held at Appendix 2.

Botanical Name and Common Name

The botanical and common name of each tree is identified and recorded. Occasionally the exact species name is unknown; sp. is recorded to indicate this.

Height, Crown Width and DBH

- The trees height and crown spread is recorded in metres (m);
- The tree DBH is recorded in millimetres (mm). DBH is an abbreviation of Diameter (of the trunk) measured at Breast Height (or 1.4m from the base of the trunk). If more than one trunk is present the DBH is calculated in accordance with AS4970-2009 Protection of Trees on Development Sites

Age Class

The age class of each tree is estimated as either:

IM – Immature refers to well established but juvenile tree

SM – Semi Mature, a tree that has not grown to mature size

M – Mature, a tree that has reached mature size and will slowly increase in size over time

OM – Over Mature, a tree that has been mature for a long period and is beginning to display signs of decline, e.g. large dead branches

S – Senescent, an over mature tree that is now in decline

Health & Condition

The trees health and vigour is recorded as a measurement of:

Good - the tree does not appear to appear stressed with no excessive dieback, insect infestation, decay, deadwood or epicormic shoots

Average - the tree appears stressed and has some crown dieback, and /or a few epicormic shoots, and/or some deadwood in the crown and some new growth at branch tips. These trees may benefit from remediation of the growing environment to reduce stress and return it to good health

Fair - the tree may have areas of crown dieback, and/or epicormic shoots, and/or areas of decay, and/or reduced new growth at branch tips. These trees have been stressed for a short period of time, remediation of the growing environment may improve trees health

Poor - the tree may have large areas of crown dieback, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed for a long period of time, remediation of the growing environment would not return the tree to good health.

SRZ (Structural Root Zone)

The SRZ is a radial area extending outwards from the centre of the trunk. This area contains the majority of the structural woody roots. This area is responsible primarily for stability. Root damage or root loss within this zone greatly increases the opportunity for decay fungi to ingress into the heartwood, causing internal decay in addition to destabilising the trees structural integrity. The SRZ is calculated as follows (This calculation is taken from the Australian Standard 4970 – 2009 Protection of Trees on Development Sites): (D x 50)0.42 x 0.64

TPZ (Tree Protection Zone)

The TPZ is a radial area measured by multiplying the DBH by twelve (12) or a circular area the size of the trees drip line, whichever is greater. This area contains the majority of the structural and feeder roots responsible for stability, gaseous exchange and water and nutrient uptake. Excavation, back filling, compaction or other disturbance should not occur in this area. The TPZ is used to identify the minimum area required for the safe retention of a given tree. This calculation is derived from the Australian Standard 4970-2009 Protection of Trees in Development Sites. An incursion up to 10% within the TPZ is potentially acceptable if no other option is available. A major encroachment (in excess of 10%) is required to be clearly justified by the Project Arborist and compensated for elsewhere. Justification methodology may vary depending on site or individual tree's health, vigour and ability to withstand disturbance and may require root investigation.

Landscape Significance

The landscape significance of a tree or group of trees is determined using a combination of health/vigour/condition, amenity, heritage and ecological values in accordance with IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©.

1. High Significance in Landscape

2. Medium Significance in Landscape

3. Low Significance in Landscape

Retention Value (RV)

Determined by [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce SULE, [3] trees which should not restrict development applications containing faults that are likely to become problematic in the short term, [4] trees to be considered for removal due to average condition.

High Retention - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 Protection of trees on development sites. Tree sensitive construction measures must be implemented e.g. pier and beam etc. if works are to proceed within the Tree Protection Zone.

Medium Retention - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.

Low Retention - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.

Consider Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

S.U.L.E. Categories

Safe Useful Life Expectancy (after *Barrell* 1996, modified by the author). A trees S.U.L.E. category is the life expectancy of the tree modified first by its age, health, condition, safety and location. S.U.L.E. assessments may be modified as dictated by changes in trees health and environment.

Long - Appear retainable at the time of assessment for over 40 years with an acceptable degree of risk assuming reasonable maintenance.

Medium - Appear to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk assuming reasonable maintenance.

Short - Trees appear to be retainable at the time of assessment for 5 to15 years with an acceptable degree of risk assuming reasonable maintenance.

Very Short - Removal - Trees which should be scheduled for removal within the very short term or as specified within this report.

Small, Young or Regularly Pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

Development Impact

Brief outline of the impact of the proposed development works or ancillary construction related activities likely to impact the tree.

Retain/Remove

The proposed removal or retention recommendation in light of the proposed development related impacts.

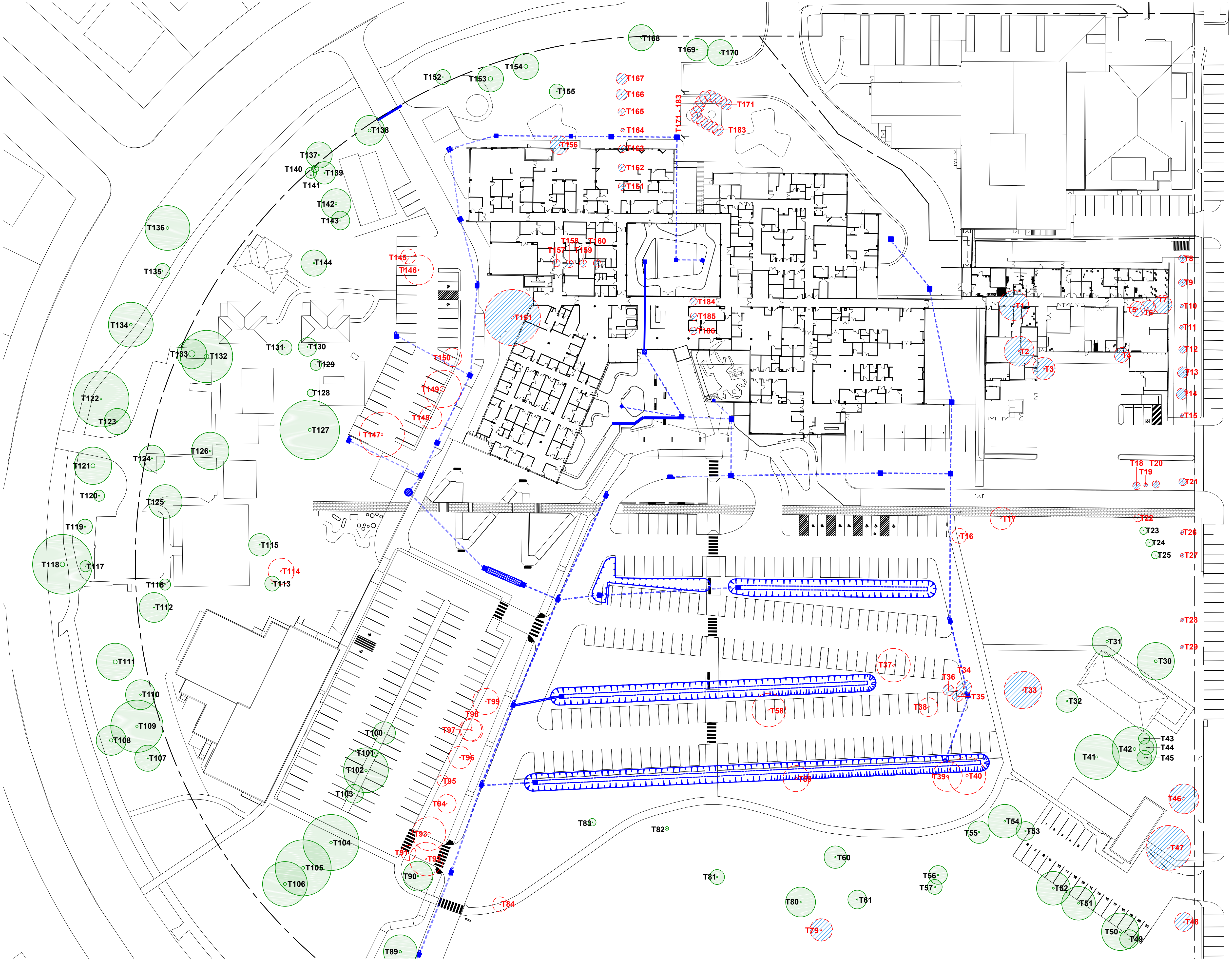
NOTES: This report acknowledges the current Australian Standards 'Protection of Trees on Development Sites' AS 4970 – 2009 with reference to the Tree Protection Zone (TPZ): being a combination of the root and crown area requiring protection. The TPZ takes into consideration the Structural Root Zone (SRZ): The

area required for tree stability. Determined by AS4970 - 2009 Figure 1,Table of determining the SRZ, section 3.3.5 of the standards. The standard states where a greater than 10% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s. 3.3.4. Encroachments are referred to within this report as major or minor encroachments (AS4970 s. 3.3.2 & 3.3.3). Below is the terminology used for estimated percentage of development incursion used within this report. To retain specific trees and ensure their viability, development must take into consideration protection of the TPZ radius. The extent of inclusion within the TPZ radius has been categorised within this report as follows:

<10% - negligible incursion
>10 - <15% - low to moderate level of incursion
>15 - <20% - moderate level of incursion
>20 - <25% - moderate to high level of incursion
>25 - <35% - high level of incursion
>35% - significant incursion within the TPZ

APPENDIX 2 - TREE LOCATION PLANS

NOTE: MUST BE READ IN CONJUNCTION WITH ARBORICULTURAL IMPACT ASSESSMENT



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DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
Refer to specialist and consultant's drawings for all information contained within these documents relating to and nominated as specialist and consultant work. Specialist and consultant drawing information contained in the landscape documents are indicative only and not for construction or certification purposes.

LEGEND

- T23 — EXISTING TREE TO BE RETAINED
- T8 — EXISTING TREE TO BE REMOVED (SSD)
- T1 — EXISTING TREE APPROVED FOR REMOVAL UNDER A SEPARATE PLANNING APPROVAL PROCESS

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR APPROVAL	TP	GT	28.01.21

PRE - Preliminary CA - Council Approval T - Tender CON - Construction

PROJECT

GRIFFITH BASE HOSPITAL

NOOREBAR AVENUE
GRIFFITH NSW

DRAWING TITLE

TREE LOCATION PLAN
(1 OF 2)

CLIENT

NSW GOVERNMENT Health Infrastructure

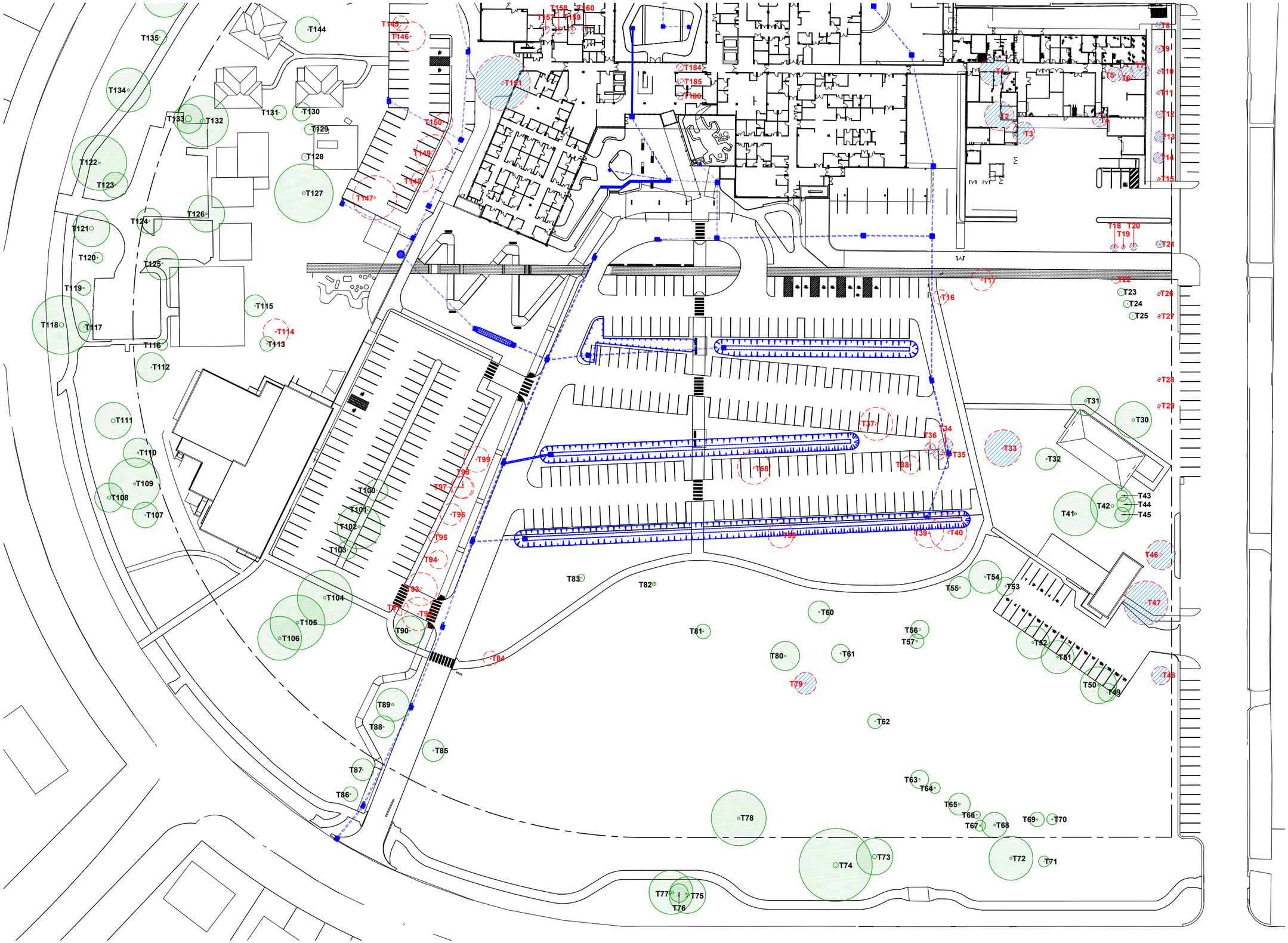
Drawn : TP
Designed : GT
Project No. : D895
Bar Scale

0 5 10 15 20 25 metres

1:1000 @ A3

SHEET NUMBER D895_TLP_01

REVISION A



CPS

CREATIVEPLANNINGSOLUTIONS

LEVEL 3
397 RILEY STREET
SURRY HILLS NSW 2010
PO BOX 1074 BROADWAY NSW 2007
TEL: + (61) 2 8039 7461
INFO@CPSPLANNING.COM.AU
CPSPLANNING.COM.AU

DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
Refer to specialist and consultant's drawings for all information contained within these documents relating to and nominated as specialist and consultant work. Specialist and consultant drawing information contained in the landscape documents are indicative only and not for construction or certification purposes.

LEGEND

T23 EXISTING TREE TO BE RETAINED

T8 EXISTING TREE TO BE REMOVED (SSD)

T1 EXISTING TREE APPROVED FOR REMOVAL UNDER A SEPARATE PLANNING APPROVAL PROCESS

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR APPROVAL	TP	GT	28.01.21

PRE - Preliminary CA - Council Approval T - Tender CON - Construction

PROJECT

GRIFFITH BASE HOSPITAL

NOOREBAR AVENUE
GRIFFITH NSW

DRAWING TITLE

TREE LOCATION PLAN (2 OF 2)

CLIENT

NSW GOVERNMENT Health Infrastructure

Drawn : TP
Designed : GT
Project No. : D895
Bar Scale

0 5 10 15 20 25 metres

1:1000 @ A3

SHEET NUMBER D895_TLP_02

REVISION A

APPENDIX 3

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

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

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

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

Tree Significance - Assessment Criteria

1. High Significance in landscape

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

2. Medium Significance in landscape

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

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

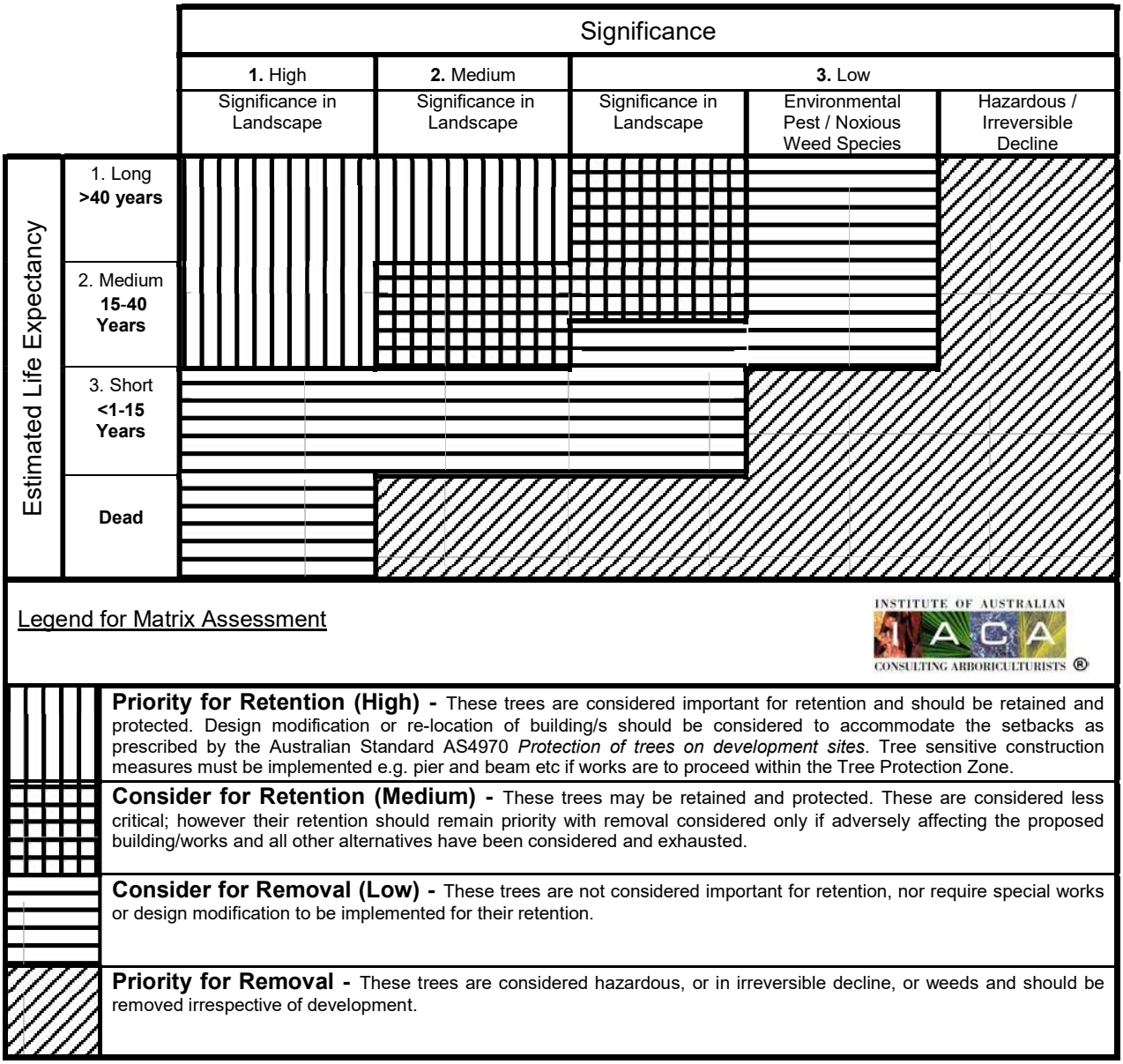
Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

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

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

Table 1.0 Tree Retention Value - Priority Matrix.



USE OF THIS DOCUMENT AND REFERENCING

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

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

REFERENCES

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

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

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

The following example shows the IACA **Significance** of a **Tree, Assessment Rating System** (STARS) used in an Arboricultural report.

Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good from and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

Significance Scale

1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Retention Value

High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

* Trees located within the neighbouring property and should be retained and protected.

APPENDIX 4 - EXTRACT FROM AS4970 2009 PROTECTION OF TREES ON DEVELOPMENT SITES

Section 3, Determining the tree protection zones of the selected trees

3.1 Tree protection zone (TPZ)

"The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

The TPZ incorporates the structural root zone (SRZ) (refer to Clause 3.3.5)."

3.2 Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

TPZ = DBH x 12

where

DBH = trunk diameter measured at 1.4 m above ground

Radius is measured from the centre of the stem at ground level.

3.3.5 Structural root zone (SRZ)

"The SRZ is the area required for street stability. A larger area is required to maintain a viable tree. The SRZ only needs to be calculated when a major encroachment into a TPZ is proposed. Root investigation may provide more information on the extent of these roots."

Determining the SRZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

SRZ radius = $(D \times 50)^{0.42} \times 0.64$

where

D = trunk diameter, in metres, measured above the root buttress.

Note: The SRZ for trees less than 0.15 m will be 1.5 m (see Figure 1).

The curve can be expressed by the following formula:

$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

NOTES:

1 R_{SRZ} is the structural root zone radius.

2 D is the stem diameter measured immediately above root buttress.

3 The SRZ for trees less than 0.15 m diameter is 1.5 m.

4 The SRZ formula and graph do not apply to palms, other monocots, cycads and tree ferns.

5 This does not apply to trees with an asymmetrical root plate.

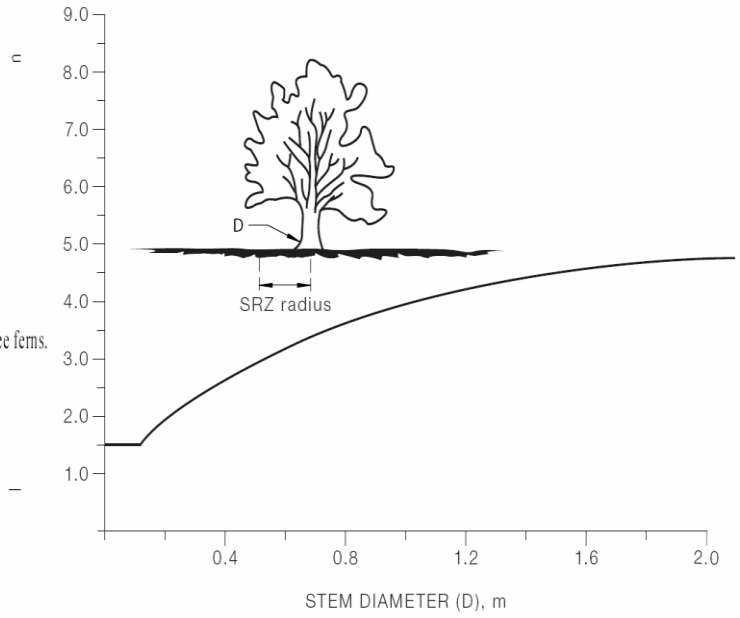


FIGURE 1 STRUCTURAL ROOT ZONE

APPENDIX 5 – GENERAL TREE PROTECTION SPECIFICATION

1.0 Appointment of Project Arborist

A Project Arborist shall be engaged prior the commencement of work on-site and monitor compliance with the protection measures. The Project Arborist shall inspect the tree protection measures and Compliance Certification shall be prepared by the Project Arborist for review by the Principal Certifying Authority prior to the release of the Compliance Certificate.

The Project Arborist shall have a minimum qualification equivalent (using the Australian Qualifications Framework) of Level 5 or above in Arboriculture.

2.0 Compliance

Contractors and site workers shall receive a copy of these specifications a minimum of 3 working days prior to commencing work on-site. Contractors and site workers undertaking works within the Tree Protection Zone shall sign the site log confirming they have read and understand these specifications, prior to undertaking works on-site.

The Project Arborist shall undertake regular site inspections and certify that the works are being undertaken in accordance with this specification.

Compliance Documentation shall be prepared by the Project Arborist following each site inspection. The Compliance Documentation shall include documentary evidence of compliance with the tree protection measures and methods as outlined within this Specification. Upon the completion of the works, a final assessment of the trees shall be undertaken by the Project Arborist and future recommended management strategies implemented as required.

3.0 Tree Removal

The trees to be removed shall be removed prior to the establishment of the tree protection measures. Tree removal works shall be undertaken in accordance with the *Workcover Code of Practice for the Amenity Tree Industry (1998)*. Tree and vegetation removal shall not damage the trees to be retained.

4.0 Tree Protection Zone

The trees to be retained shall be protected prior and during construction from activities that may result in an adverse effect on their health or structural condition. The area within the Tree Protection Zone (TPZ} shall exclude the following activities, unless otherwise stated:-

- Modification of existing soil levels, excavations and trenching
- Mechanical removal of vegetation
- Movement of natural rock
- Storage of materials, plant or equipment or erection of site sheds
- Affixing of signage or hoarding to the trees
- Preparation of building materials, refueling or disposal of waste materials and chemicals
- Lighting fires
- Movement of pedestrian or vehicular traffic
- Temporary or permanent location of services, or the works required for their installation
- Any other activities that may cause damage to the tree

5.0 Tree Protection Fencing

TPZ fencing shall be located at the perimeter of the TPZ. Where TPZ areas overlap, TPZ fencing may be combined to form a single larger TPZ area. The exact location of the fencing shall be confirmed through consultation between the Head Contractor/Project Manager and the Project Arborist prior to the commencement of works. Fencing may be setback to allow for demolition/construction access and for the installation of pavements only where appropriate ground protection is installed and approved by the Project Arborist.

As a minimum, the Tree Protection Fence shall consist of 1.8m high wire mesh panels supported by concrete feet. Panels shall be fastened together and supported to prevent sideways movement. The tree shall not be damaged during the installation of the Tree Protection Fencing. Refer to Typical Tree Protection Details (***Appendix 3***).

6.0 Site Management

Materials, waste storage, and temporary services shall not be located within the TPZ.

7.0 Scaffolding

Where possible, scaffolding shall not be located within the TPZ. Scaffolding shall not be in contact with the tree. As necessary, this shall be achieved by erecting scaffolding around branches. Branches shall be tied back and protected as deemed necessary by the Project Arborist. Refer to Typical Tree Protection Details (***Appendix 3***).

8.0 Works within the Tree Protection Zones

In some cases works within the TPZ may be authorized by the determining authority. These works shall be supervised by the Project Arborist. When undertaking works within the TPZ, care should be taken to avoid damage to the tree's root system, trunks and lower branches.

If roots (>25mmȼ) are encountered during the demolition, excavation and construction works, these roots must be retained in an undamaged condition and advice sought from the Project Arborist. Adjustment of final levels and design shall remain flexible to enable the retention of roots (>25mmȼ) where deemed necessary by the Project Arborist.

Drilling/piling machinery shall be of a suitable size to not damage the tree's roots, trunk, branches and crown. No clearance pruning is permitted to allow for machinery access. Machinery shall work in conjunction with an observer to ensure that adequate clearance from trees is maintained at all times.

9.0 Ground Protection

Where deemed necessary by the Project Arborist, machinery movements shall be restricted to areas of existing pavement or from areas of temporary ground protection such as ground mats or steel road plates. Refer to Typical Tree Protection Details (***Appendix 3***)

10.0 Trunk Protection

Where required by the Project Arborist, trunk protection shall be installed. Trunk protection shall be installed by wrapping padding (either carpet underlay or 10mm thick jute geotextile mat) around the trunk and first order branches to a minimum height of 2m. Timber battens (90 x 45mm) spaced at 150mm centres shall be strapped together and placed over the padding. Timber battens must not be fixed to the trees. Refer to Typical Tree Protection Details (***Appendix 3***).

11.0 Structure & Pavement Demolition

Demolition of existing structures/pavement within the TPZ shall be supervised by the Project Arborist. Machinery is to be excluded from the TPZ unless operating from the existing slabs, pavements or areas of ground protection (refer to Section 9.0). Machinery should not contact the tree's roots, trunk, branches and crown.

The existing pavement shall be carefully lifted to minimise damage to the underlying soil profile (or sub-base materials) and to prevent damage to tree roots. Wherever possible, existing sub-base materials shall remain in-situ.

When removing slab sections within TPZ, machinery shall work backwards out of the TPZ to ensure machinery remains on un- demolished sections of slab at all times. Wherever possible, footings or elements below grade shall be retained to minimise disturbance to the tree's roots.

Where deemed necessary by the Project Arborist, the structures shall be shattered prior to removal with a hand-operated pneumatic/electric breaker.

If roots (>25mmØ) are encountered during the demolition works, these roots must be retained in an undamaged condition and advice sought from the Project Arborist. Where the Project Arborist determines that the tree is using underground elements (i.e footings, pipes, rocks etc.) for support, these elements shall be left in-situ.

12.0 Underground Services

Underground service installation within the TPZ shall be supervised by the Project Arborist.

The installation of underground services shall be located outside of the TPZ. Where this is not possible, they shall be installed using either hydrovac or hand excavation methods with the services installed around/below roots (>25mm¢, or as determined by the Project Arborist).

Alternatively, boring methods may be used for underground service installation where the installation depth is greater than 800mm below existing grade. Excavations for starting and receiving pits for boring equipment shall be located outside of the TPZ or located to avoid roots (>25mm¢, or as determined by the Project Arborist).

13.0 Excavations, Root Protection & Root Pruning

Excavations and root pruning within the TPZ shall be supervised by the Project Arborist. Excavations within the TPZ shall be avoided wherever possible.

Excavations within the TPZ shall be undertaken by hand or using hydro vacuum excavation methods (or similar approved device) to protect tree roots. If there is any delay between excavation works and backfilling, exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with a 10mm thick jute mat. The mat shall be kept in a damp condition at all times.

Hand excavation and root pruning shall be undertaken along the excavation line prior to the commencement of mechanical excavation to prevent tearing and shattering damage to the roots from excavation equipment. Roots (>25mm¢) shall be pruned by the Project Arborist only. Roots (<25mm¢) may be pruned by the Principal Contractor. Root pruning shall be undertaken with clean, sharp secateurs or a pruning saw to ensure a smooth wound face, free from tears.

No over-excavation, battering or benching shall be undertaken beyond the footprint of any structure unless approved by the Project Arborist.

Damaged roots shall be pruned behind the damaged tissues with the final cut made to an undamaged part of the root.

APPENDIX 6 - TYPICAL TREE PROTECTION DETAILS

Note:
No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

Option 1 - Fencing
1.8m high chain wire mesh panels with shade cloth attached (if required), held in place with concrete feet.

Tree Protection Zone (TPZ) sign

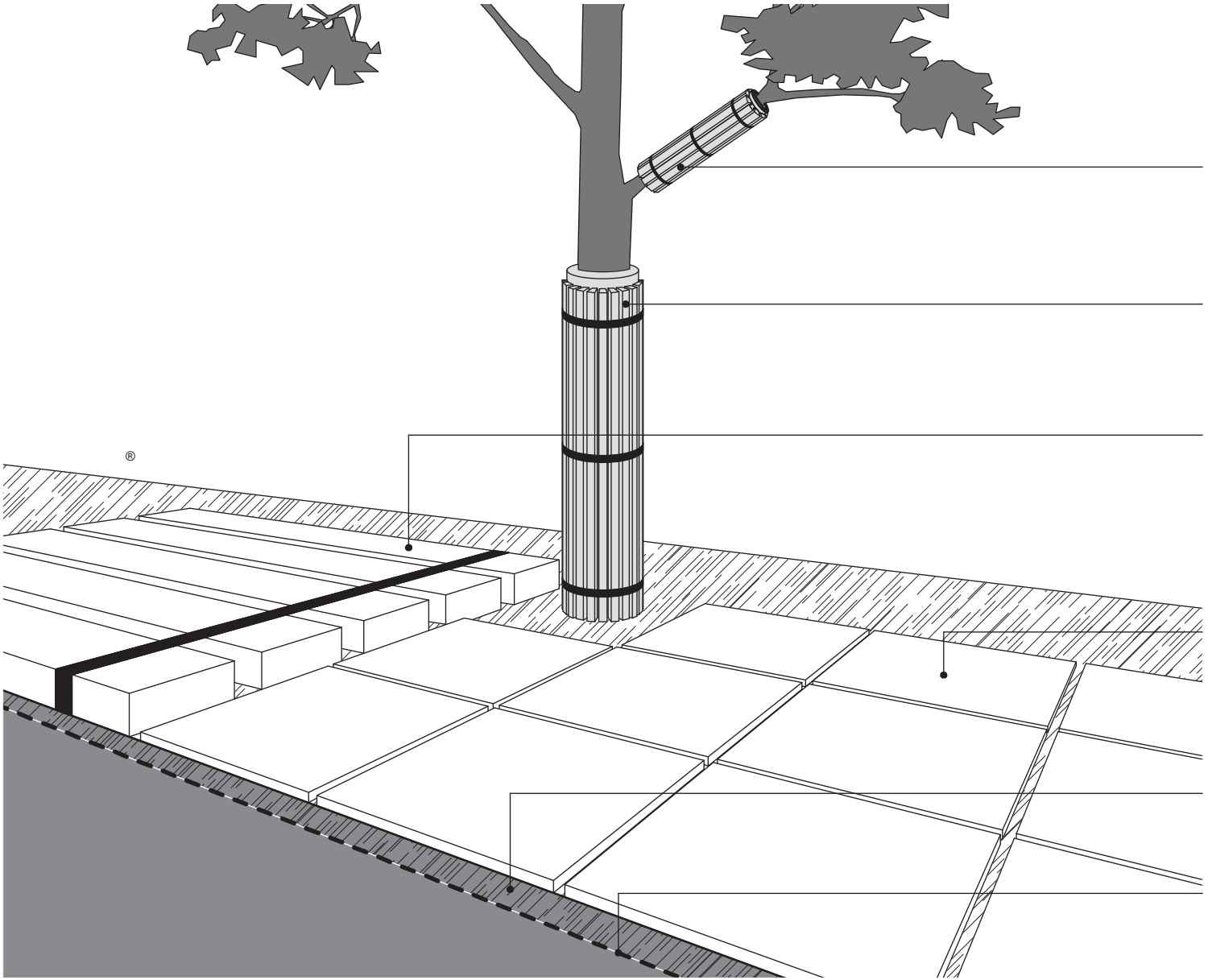
Option 2 - Fencing
Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer installed across surface of TPZ.

01 Tree Protection Fencing



Branch Protection - use boards and padding to prevent damage to bark on branch. Boards are to be strapped, not screwed or nailed to the branch.

Trunk Protection - use boards and padding to prevent damage to bark (minimum 2m). Boards are to be strapped, not screwed or nailed to the trunk.

Ground Protection - use device strapped over mulch or aggregate layer. Ground protection device should be of a suitable thickness to prevent soil compaction and root damage.

Steel plates (or approved equivalent) with or without mulch or aggregate layer below.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer.

Geotextile fabric underneath mulch or aggregate layer.

02 Examples of Branch, Trunk and Ground Protection

Branches may require pruning to erect scaffolding. Pruning may be subject to local regulations. Flexible branches should be tied back in preference to pruning.

Minimum 1.8m high hoarding. Temporary fencing may be incorporated into scaffolding as either containment screening or as hoarding.

Note:
If excavation is required for installation of support post for fencing, the Project Arborist should assess any pruning of roots greater than 20mm diameter.

Scaffold planks

Boards or plywood to be installed over mulch or aggregate layer for any areas requiring access within the TPZ.

Soleplate over geotextile. No excavation for soleplate within TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer within TPZ.

Geotextile fabric

03 Indicative Scaffolding within a Tree Protection Zone (TPZ)