CPS

CREATIVEPLANNINGSOLUTIONS

ARBORICULTURAL IMPACT ASSESSMENT

New Dwelling House Development

39 Jeanette Avenue, Mona Vale 2103

Prepared for: Metricon Homes Pty Ltd
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Arboriculture Australia™ Member · 2021 Registered Consulting Arborist ·

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APPENDICES

1 EXECUTIVE SUMMARY

This Arboricultural Impact Assessment (AIA) was commissioned by Metricon Homes on the 2nd of December 2021. The report relates to nineteen (19) trees located on and adjacent to the subject site at 39 Jeanette Avenue, Mona Vale within the Northern Beaches Council Local Government Area.

The report provides an evaluation of the likely impact to existing trees as a result of a proposed dwelling house development to be constructed on site. A summary of those trees identified has been provided in ***Table 1*** below along with a description of their location, retention values and nominated retention/removal status under the proposal.

Table 1 *– Tree assessment summary*

Tree No.	*Genus & species* Common Name	Location	Retention Value	Retain / Remove
1	***Melaleuca leucadendra*** Weeping Paperbark	No. 37 Jeanette Avenue	Medium	Retain & Protect
2	***Syagrus romanzoffiana*** Cocos Palm	Subject site	Low	Retain & Protect
3	***Archontophoenix cunninghamiana*** Bangalow Palm	Subject site	Low	Retain & Protect
4	***Archontophoenix cunninghamiana*** Bangalow Palm	Subject site	Low	Retain & Protect
5	***Eucalyptus robusta*** Swamp Mahogany	Council street verge	Medium	Retain & Protect
6	***Melaleuca bracteata*** Black Tea-tree	Subject site	Medium	Retain & Protect
7	***Syzygium luehmannii*** Small-leaved Lilly Pilly	No. 41 Jeanette Avenue	Low	Retain & Protect
8	***Syzygium luehmannii*** Small-leaved Lilly Pilly	No. 41 Jeanette Avenue	Low	Retain & Protect
9	***Syzygium luehmannii*** Small-leaved Lilly Pilly	No. 41 Jeanette Avenue	Low	Retain & Protect
10	***Syzygium luehmannii*** Small-leaved Lilly Pilly	No. 41 Jeanette Avenue	Low	Retain & Protect
11	***Syzygium luehmannii*** Small-leaved Lilly Pilly	No. 41 Jeanette Avenue	Low	Retain & Protect

Tree No.	*Genus & species* Common Name	Location	Retention Value	Retain / Remove
12	***Callistemon viminalis*** Weeping Bottlebrush	No. 41 Jeanette Avenue	Medium	Retain & Protect
13	***Callistemon viminalis*** Weeping Bottlebrush	No. 41 Jeanette Avenue	Medium	Retain & Protect
14	***Eucalyptus haemastoma*** Broad-leaved Scribbly Gum	No. 41 Jeanette Avenue	High	Retain & Protect
15	***Eucalyptus robusta*** Swamp Mahogany	Council street verge	Medium	Retain & Protect
16	***Elaeocarpus reticulatus*** Blueberry Ash	No. 41 Jeanette Avenue	Low	Retain & Protect
17	***Elaeocarpus reticulatus*** Blueberry Ash	No. 41 Jeanette Avenue	Low	Retain & Protect
18	***Elaeocarpus reticulatus*** Blueberry Ash	No. 41 Jeanette Avenue	Low	Retain & Protect
19	***Murraya paniculata*** Orange Jessamine	Subject site	Low	Retain & Protect

Based on the plans supplied and should the proposed works proceed in their current form, it is recommended that all nineteen (19) trees be retained and protected given they are unlikely to be significantly impacted by the proposed construction works subject to suitable tree protection measures being carried out.

Specific recommendations as per ***Section 6*** will need to be adopted to ensure root sensitive construction techniques and methodology are employed which mitigate any potential negative impacts to retained trees.

2 INTRODUCTION

2.1 Background

This Arboricultural Impact Assessment (AIA) was commissioned by Metricon Homes on the 2nd of December 2021 to evaluate the potential impacts that proposed development works will have on existing trees located on and adjacent to the subject site at 39 Jeanette Avenue, Mona Vale.

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.

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.

No aerial inspection, root mapping, plant tissue analysis or internal diagnostic testing has been carried out as part of this report.

2.3 Legislation & Regulating Documents

This Arboricultural Impact Assessment has considered the following regulatory documents:

- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*
- *Pittwater Local Environmental Plan 2014 (PLEP 2014)*
- *Pittwater Development Control Plan 2021 (PDCP 2021)*
- *Greater Sydney Regional Strategic Weed Management Plan 2017-2022 (GSRSWMP)*

2.4 Tree Preservation Order

Section B, Part 4.22 – *Preservation of Trees & Bushland Vegetation* of the Pittwater Development Control Plan 2021 applies to all land within the former Pittwater Council Local Government Area. The provisions included within the DCP generally protect any tree or vegetation that corresponds with the following criteria:

a) Any tree over five (5) metres in height, and;
b) Vegetation on land classified as "Bushland"

2.5 Documentation Received

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

Table 2 *– Documentation received and reviewed as part of the Arboricultural Impact Assessment*

Document Description	Author	Date
Preliminary Architectural Plans	Metricon	21.12.2021
Site Survey	Intrax	08.09.2021

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.

2.6 The Site

The site is known as 39 Jeanette Avenue, Mona Vale and is legally described as Lot 24 in DP 242678 (the site). The site is located on the north-eastern side of Jeanette Avenue and currently contains a single storey dwelling with detached granny flat and shed within the rear open garden area.

2.7 Proposed Development

The proposed development is for the construction of a new two-storey dwelling inclusive of a new driveway. Specifically, those works considered likely to impact the existing trees on and adjoining the subject site include new building footprint, ground level modifications, hard paving, and stormwater works. It is noted however that no stormwater or landscape plans have been reviewed as part of this assessment.

2.8 Limitations

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are valid for one (1) year only from the date of the report, unless otherwise stated. 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. Impacts have been calculated only from that information made available at the time of writing this report.

3 METHOD

3.1 Method

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 18th of January 2022. The weather at the time of inspection was overcast with light rain, and average visibility.

The subject trees were inspected visually from ground level with the following information recorded and provided in tabulated form at ***Section 4***:

- 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 Measurement

The following measurements methodologies were utilised on site and in the creation of this Report:

- Tree locations have been based upon on the client supplied survey plans or triangulated on site using a measuring tape from known points for approximate locations.
- Diameter at Breast Height (DBH) and Diameter Above Root Buttress (DAB) are measured using a diameter tape and expressed in millimetres.
- Heights have relied upon from the client supplied survey plans or estimated where the tree was not surveyed.
- Canopy width is estimated using a measured stride paced out on site and expressed in metres.
- Structural Root Zone (SRZ) and Tree Protection Zone (TPZ) are measured (in accordance with AS 4970-2009) radially from the centre of the trunk.
- Development impacts and setbacks are measured from the centre of the trunk to the face of the structure in Auto CAD using the perpendicular distance function to ensure a high level of accuracy.

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 ***Section 4.***

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 5 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 5*** with attributed retention values found within ***Section 4***:

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

3.1.6 AS4970-2009 Protection of Trees on Development Sites

The Australian Standard, *AS4970-2009-'Protection of trees on development sites'*, has been used as a guide to provide recommendations for the assessed trees. The Standard provides guidance on the principles for protecting trees on land subject to development as well as principles for determining viability of tree retention. Terminology and recommended methods are consistent with *AS4970-2009*.

3.1.7 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.

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

4 OBSERVATIONS

4.1 Tree Assessment Data

Tree No.	*Genus & species* Common Name	Height (m)	Crown Spread (m)	DBH #1 (mm)	DBH #2 (mm)	DBH #3 (mm)	DBH #4 (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	***Melaleuca leucadendra*** Weeping Paperbark	9	5	400				450	4.80	2.37	M	Good	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Neighbouring tree
2	***Syagrus romanzoffiana*** Cocos Palm	9	4	300				350	3.00	N/A	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Minor stem lean to east
3	***Archontophoenix cunninghamiana*** Bangalow Palm	10	4	200				250	3.00	N/A	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Single stem
4	***Archontophoenix cunninghamiana*** Bangalow Palm	10	4	200				250	3.00	N/A	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Single stem
5	***Eucalyptus robusta*** Swamp Mahogany	7	10	400				400	4.80	2.25	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Planted under powerlines. Excessive past pruning. Branch dieback. No central leader, atypical form. Epis from pruning points. Gall observed in branches.
6	***Melaleuca bracteata*** Black Tea-Tree	10	6	350				400	4.20	2.25	M	Good	Average	Medium 15-40yrs	Medium	Medium	Works within TPZ - no additonal incrusion	Retain & Protect	Co-dominant stem from 2m
7	***Syzygium luehmannii*** Small-leaved Lilly Pilly	5	1	100	50	50		200	2.00	1.68	M	Average	Fair	Medium 15-40yrs	Low	Low	Works within TPZ - no additonal incrusion	Retain & Protect	Formed into hedge
8	***Syzygium luehmannii*** Small-leaved Lilly Pilly	5	1	100	50	50		200	2.00	1.68	M	Average	Fair	Medium 15-40yrs	Low	Low	Works within TPZ - no additonal incrusion	Retain & Protect	Formed into hedge
9	***Syzygium luehmannii*** Small-leaved Lilly Pilly	5	1	100	50	50		200	2.00	1.68	M	Average	Fair	Medium 15-40yrs	Low	Low	Works within TPZ - no additonal incrusion	Retain & Protect	Formed into hedge
10	***Syzygium luehmannii*** Small-leaved Lilly Pilly	5	1	100	50	50		200	2.00	1.68	M	Average	Fair	Medium 15-40yrs	Low	Low	Works within TPZ - no additonal incrusion	Retain & Protect	Formed into hedge
11	***Syzygium luehmannii*** Small-leaved Lilly Pilly	5	1	100	50	50		200	2.00	1.68	M	Average	Fair	Medium 15-40yrs	Low	Low	Works within TPZ - no additonal incrusion	Retain & Protect	Formed into hedge
12	***Callistemon viminalis*** Weeping Bottlebrush	8	6	350	250	150	150	500	5.75	2.47	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Neighbouring tree. Past pruning/topping.
13	***Callistemon viminalis*** Weeping Bottlebrush	8	4	250	250			450	4.24	2.37	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Neighbouring tree
14	***Eucalyptus haemastoma*** Broad-leaved Scribbly Gum	6	6	300				350	3.60	2.13	M	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Neighbouring tree
15	***Eucalyptus robusta*** Swamp Mahogany	9	13	350	300	200	200	600	6.49	2.67	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Neighbouring tree. Planted under powerlines. Excessive past pruning. Central leader failed. Surface roots extend 2m south. Epis from pruning points.
16	***Elaeocarpus reticulatus*** Blueberry Ash	5	1	50				100	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Low	Low	Minor (2%) TPZ incursion	Retain & Protect	Neighbouring tree. Past pruning/boundry clearance
17	***Elaeocarpus reticulatus*** Blueberry Ash	4	1	50				100	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Low	Low	Minor (5%) TPZ incursion + Minor (2%) SRZ incursion	Retain & Protect	Neighbouring tree. Past pruning/boundry clearance
18	***Elaeocarpus reticulatus*** Blueberry Ash	5	1	50				100	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Low	Low	Minor (3%) TPZ incursion + Minor (1%) SRZ incursion	Retain & Protect	Neighbouring tree. Past pruning/boundry clearance
19	***Murraya paniculata*** Orange Jessamine	5	1	50	50	50		100	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	Minor (1%) TPZ incursion + Minor (<1%) SRZ incursion	Retain & Protect	Formed into hedge. 8x trees.

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.
Priority for 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.

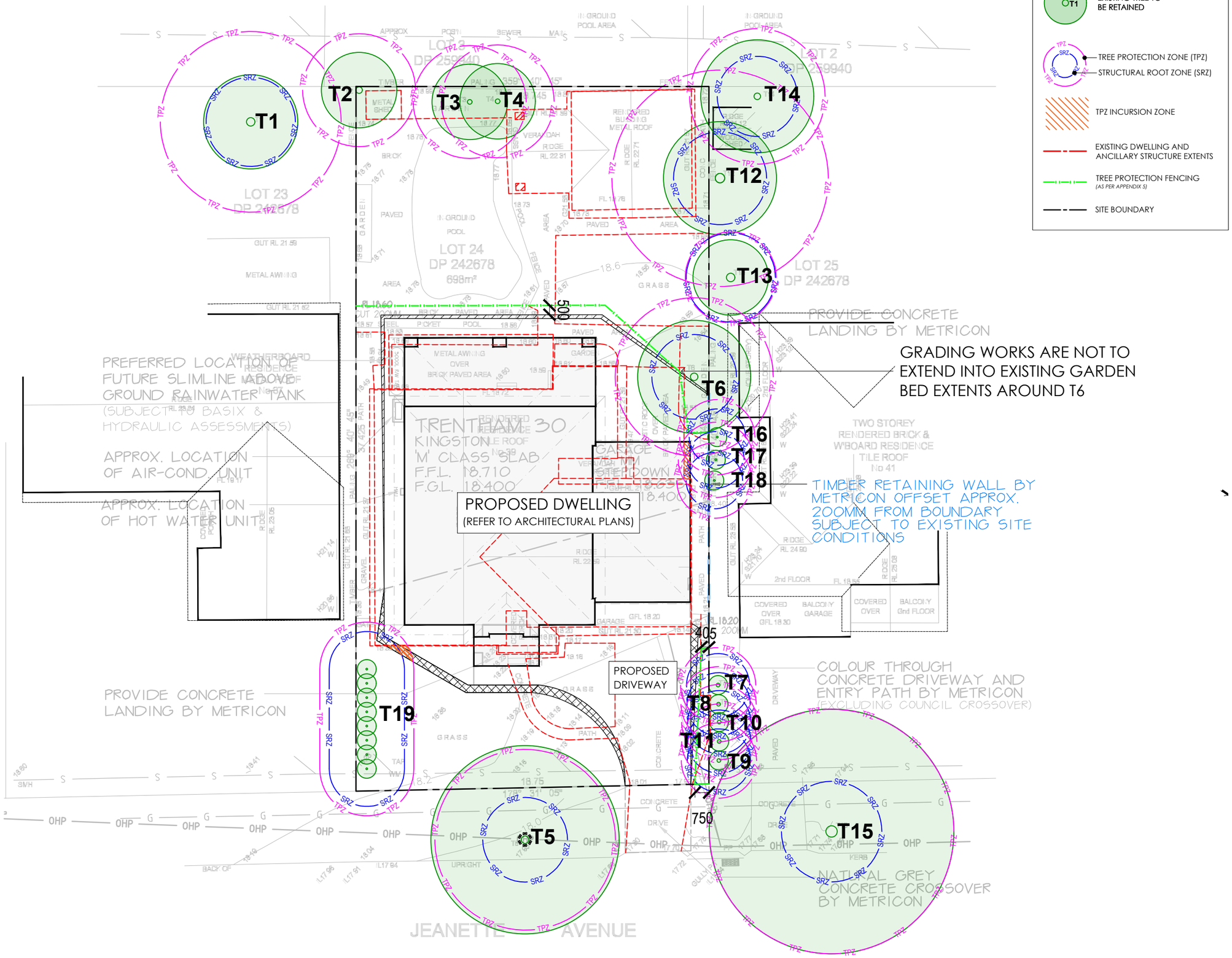
Development Impact
Brief outline of the impact of the proposed development works or ancillary construction related activities likely to impact the tree.

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

4.2 Tree Location Plan



LEGEND

- T1 — EXISTING TREE TO BE RETAINED
- TREE PROTECTION ZONE (TPZ)
- STRUCTURAL ROOT ZONE (SRZ)
- TPZ INCURSION ZONE
- EXISTING DWELLING AND ANCILLARY STRUCTURE EXTENTS
- TREE PROTECTION FENCING *(AS PER APPENDIX 5)*
- SITE BOUNDARY

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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.

Issue	Code	Issue Description	By	Chk	Date
A	-	FOR ADVICE	NZ	GT	21.01.22

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

PROJECT

PROPOSED DWELLING HOUSE

39 JEANETTE AVE, MONA VALE

DRAWING TITLE

TREE LOCATION PLAN

CLIENT

metricon

Drawn : NZ
Designed : GT
Project No. : E674
Bar Scale

1:200 @ A3

SHEET NUMBER E674_TLP_01

REVISION A

5 DISCUSSION

5.1 Impact Assessment

The impact assessment is to calculate the incursions to the root zones and canopies 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 below in ***Section 5.2***. Additionally, plans demonstrating the level of incursion and conflict to TPZ's and SRZ's can be found at ***Section 4***. As part of the assessment the following criteria have been considered:

- Existing Relative Levels (R.L.);
- Proposed Relative Levels;
- Tree Protection Zones (TPZ);
- Structural Root Zones (SRZ);
- Footprint of the proposed development (incl. stormwater and services) and temporary structures (scaffolding, hoardings etc.);
- Incursions to the TPZ & SRZ, including estimated cut & fill beyond the building footprint;
- Incursions to the tree canopy from the building envelope and temporary structures;
- Pruning necessary for building clearance;
- Remediation works for soil contaminants;
- Species tolerance to disturbance; and
- Assessment of the likely impact of the works on existing trees.

5.2 Trees Recommended for Retention & Protection

Should the proposed works proceed in their current form, it is recommended that all nineteen (19) trees be retained and protected given the proposed works are unlikely to result in any significant negative impacts to their long-term health and viability subject to suitable tree protection being carried out[1].

Refer to ***Section 4*** for a plan indicating the location of trees that are to be retained and protected (shaded green).

Table 3 *- Trees recommended for retention and protection*

Tree No.	*Genus & species* Common Name	Retention Value	Encroachment to TPZ/SRZ	Likely Impact	Recommendations
1	***Melaleuca leucadendra*** Weeping Paperbark	Medium	No works proposed within the TPZ	No impacts anticipated subject to protection	Retain & Protect - implement recommendations and tree protection measures as detailed within ***Section 6*** and ***Appendix 1*** below.
2	***Syagrus romanzoffiana*** Cocos Palm	Low	No works proposed within the TPZ	No impacts anticipated subject to protection	

[1] Whilst the retention of all trees is recommended, it is noted that **Tree 2** (*Syagrus romanzoffiana*) and **Trees 3** & **4** (*Archontophoenix cunninghamiana*) are exempt from protection under the provisions of PDCP 2021 due to species classification. If desired, these trees may be removed without Council consent.

Tree No.	*Genus & species* Common Name	Retention Value	Encroachment to TPZ/SRZ	Likely Impact	Recommendations
3	***Arch. cunninghamiana*** Bangalow Palm	Low	No works proposed within the TPZ	No impacts anticipated subject to protection	Retain & Protect - implement recommendations and tree protection measures as detailed within ***Section 6*** and ***Appendix 1*** below.
4	***Arch. cunninghamiana*** Bangalow Palm	Low	No works proposed within the TPZ	No impacts anticipated subject to protection	
5	***Eucalyptus robusta*** Swamp Mahogany	Medium	No works proposed within the TPZ	No impacts anticipated subject to protection	
6	***Melaleuca bracteata*** Black Tea-Tree	Medium	Works proposed within TPZ & SRZ – no additional incursion given restricted root development imposed by existing building footprint and hard paving areas within area of proposed works	No impacts anticipated subject to protection	
7	***Syzygium luehmannii*** Small-leaved Lilly Pilly	Low	Works proposed within TPZ & SRZ – no additional incursion given restricted root development imposed by existing driveway within area of proposed works	No impacts anticipated subject to protection	
8	***Syzygium luehmannii*** Small-leaved Lilly Pilly	Low	Works proposed within TPZ & SRZ – no additional incursion given restricted root development imposed by existing driveway within area of proposed works	No impacts anticipated subject to protection	
9	***Syzygium luehmannii*** Small-leaved Lilly Pilly	Low	Works proposed within TPZ & SRZ – no additional incursion given restricted root development imposed by existing driveway within area of proposed works	No impacts anticipated subject to protection	

Tree No.	*Genus & species* Common Name	Retention Value	Encroachment to TPZ/SRZ	Likely Impact	Recommendations
10	***Syzygium luehmannii*** Small-leaved Lilly Pilly	Low	Works proposed within TPZ & SRZ – no additional incursion given restricted root development imposed by existing driveway within area of proposed works	No impacts anticipated subject to protection	Retain & Protect - implement recommendations and tree protection measures as detailed within ***Section 6*** and ***Appendix 1*** below.
11	***Syzygium luehmannii*** Small-leaved Lilly Pilly	Low	Works proposed within TPZ & SRZ – no additional incursion given restricted root development imposed by existing driveway within area of proposed works	No impacts anticipated subject to protection	
12	***Callistemon viminalis*** Weeping Bottlebrush	Medium	No works proposed within the TPZ	No impacts anticipated subject to protection	
13	***Callistemon viminalis*** Weeping Bottlebrush	Medium	No works proposed within the TPZ	No impacts anticipated subject to protection	
14	***Eucalyptus haemastoma*** Broad-leaved Scribbly Gum	High	No works proposed within the TPZ	No impacts anticipated subject to protection	
15	***Eucalyptus robusta*** Swamp Mahogany	Medium	No works proposed within the TPZ	No impacts anticipated subject to protection	
16	***Elaeocarpus reticulatus*** Blueberry Ash	Low	Minor 2% TPZ incursion due to new building footprint	Minor loss of non-structural roots. Minimal impact likely to health, longevity and viability	
17	***Elaeocarpus reticulatus*** Blueberry Ash	Low	Minor 5% TPZ + 2% SRZ incursion due to new building footprint	Minor loss of non-structural roots. Minimal impact likely to health, longevity and viability	

Tree No.	*Genus & species* Common Name	Retention Value	Encroachment to TPZ/SRZ	Likely Impact	Recommendations
18	***Elaeocarpus reticulatus*** Blueberry Ash	Low	Minor 3% TPZ + 1% SRZ incursion due to new building footprint	Minor loss of non-structural roots. Minimal impact likely to health, longevity and viability	Retain & Protect - implement recommendations and tree protection measures as detailed within ***Section 6*** and ***Appendix 1*** below.
19	***Murraya paniculata*** Orange Jessamine	Low	Minor 1% TPZ + <1% SRZ incursion due to site grading works	Minor loss of non-structural roots. Minimal impact likely to health, longevity and viability	

5.3 Ancillary Construction Related Impacts

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. In this regard, protection for those trees to be retained is to be carried out in accordance with ***Appendix 1***.

6 RECOMMENDATIONS

6.1 Tree Retention & Protection

Retain and protect **Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18** & **19** (19 trees) in accordance with the Tree Location Plan & Tree Protection Specification held at ***Section 4, Appendix 1***, *AS4970-2009 Protection of trees on development sites* and the specific recommendations below.

6.1.1 Project Arborist Engagement

A Project Arborist experienced in tree protection on construction sites must be engaged prior to the commencement of any works 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 the works. The Project Arborist is to supervise and monitor any excavation, machine trenching or compacted fill placement within the TPZ of retained trees throughout construction.

6.1.2 Specific Tree Protection Measures

Tree Protection Fencing must be installed as shown on the Tree Location & Protection Plan held at ***Section 4*** and in accordance with Section 4.3 of AS4970-2009 and ***Appendix 1***. TPZ Signage (see ***Appendix 3***) shall be erected in accordance with Section 4.3 of AS4970-2009. Tree Protection Fencing must not be removed or altered without prior approval of the Project Arborist.

6.1.3 Site Grading Works and Retaining Wall Within TPZ / SRZ of Trees 6, 16 & 18

Retaining walls and site grading works are to be excluded from the existing open garden area located to the immediate east of **Tree 6** and immediate south-west of **Trees 16** & **18.** In this regard, the proposed retaining wall along the northern boundary is to be shortened so that it does not extend beyond the rear wall of the proposed garage, with relevant adjustments to site grading works at the rear of the garage to be made accordingly. Elsewhere, all site grading and other ancillary works are to be entirely contained within the footprint of the existing dwelling and external hard paving areas where possible.

Should you have any queries in relation to the information presented, please feel free to contact me.

Sincerely,

Greg Tesoriero
PRINCIPAL CONSULTING ARBORIST
Dip. Hort. (Arboriculture) AQF Level 5
Registered Consulting Arborist No. 3008
QTRA No. 6291

Arboriculture Australia Member · 2021 Registered Consulting Arborist ·

QTRA
Registered User

7 REFERENCES

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APPENDIX 1 – 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 Schedule of Works and Responsibilities

HOLD POINT	TASK	RESPONSIBILITY	CERTIFICATION	TIMING OF INSPECTION
1	Indicate clearly (with spray paint on trunks) trees approved for removal only	Principal Contractor	Project Arborist (AQF5)	Prior to demolition or site establishment
2	Install tree protection fencing, and additional root, trunk and/or branch protection	Principal Contractor	Project Arborist (AQF5)	Prior to demolition or site establishment
3	Supervise all excavation works proposed within the TPZ	Principal Contractor	Project Arborist (AQF5)	As required prior to works proceeding within TPZ
4	Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Monthly during construction
5	Final Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Following removal of tree protection measures prior to Occupation Certificate

3.0 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.

4.0 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.

5.0 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, refuelling 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

6.0 Tree Protection Fencing

TPZ fencing shall be located at the perimeter of the TPZ in accordance with the Tree Location & Protection Plan held at ***Section 4***. 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 2***).

7.0 Site Management

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

8.0 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 2***).

9.0 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 (>25mm¢) 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 (>25mm¢) 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.

10.0 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 2***)

11.0 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 2***).

12.0 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.

13.0 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).

14.0 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 2 - 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

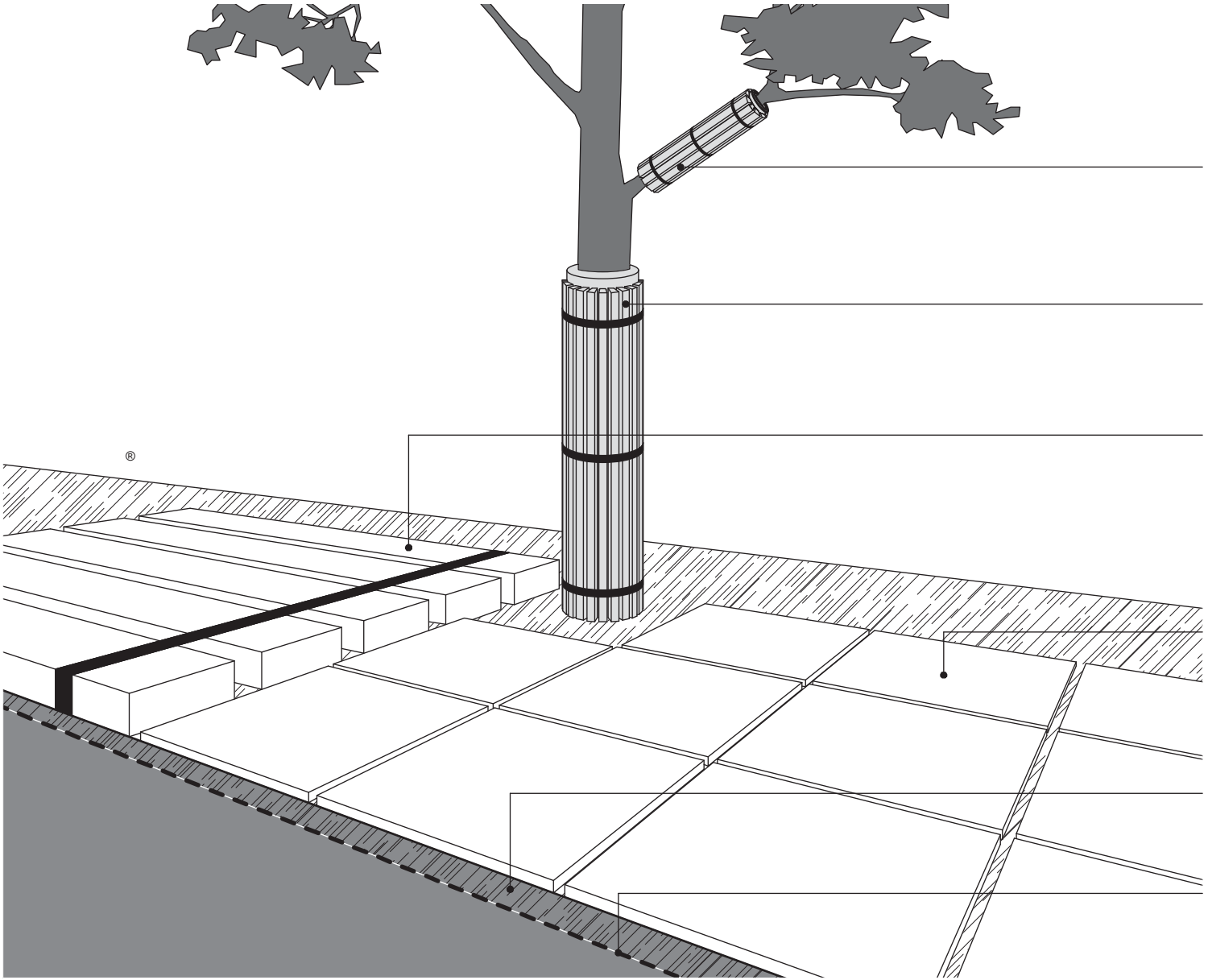
Option 2 - Fencing
Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

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)

APPENDIX 3 - TREE PROTECTION ZONE SIGNAGE

Tree Protection Zone

NO ACCESS

THIS FENCE HAS BEEN INSTALLED TO PREVENT DAMAGE TO TREES & THEIR GROWING ENVIRONMENT. BOTH ABOVE & BELOW ACCESS IS RESTRICTED.

Project Arborist Contact: Greg Tesoriero
Creative Planning Solutions
Level 3, 397 Riley St, Surry Hills
02 8039 7461

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.

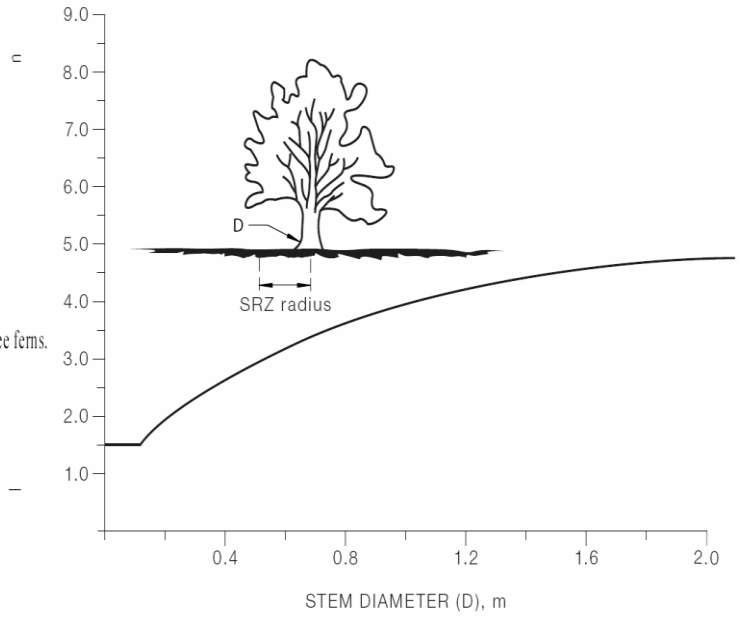


FIGURE 1 STRUCTURAL ROOT ZONE

APPENDIX 5

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.

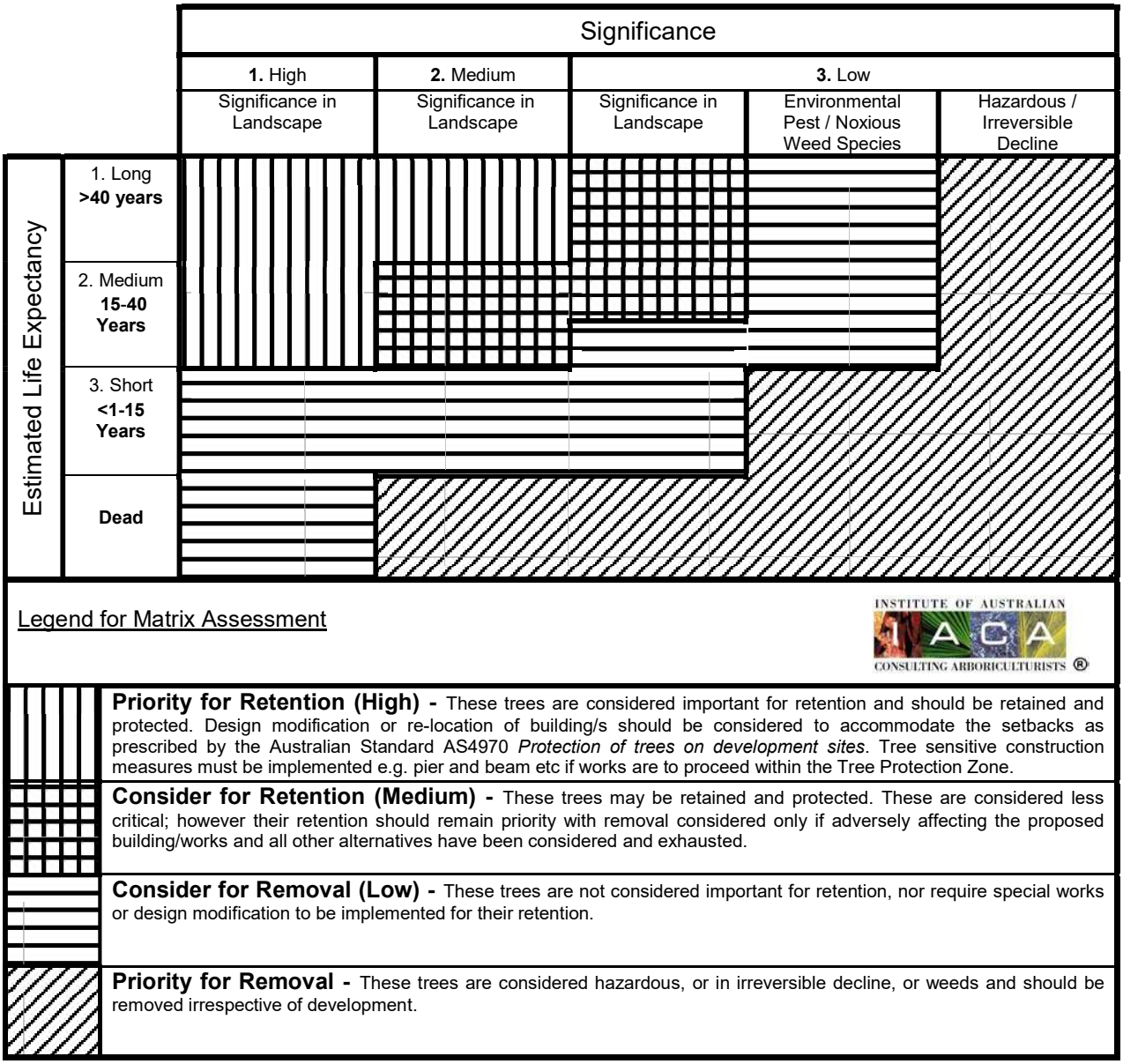
Hazardous/Irreversible Decline

- 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.