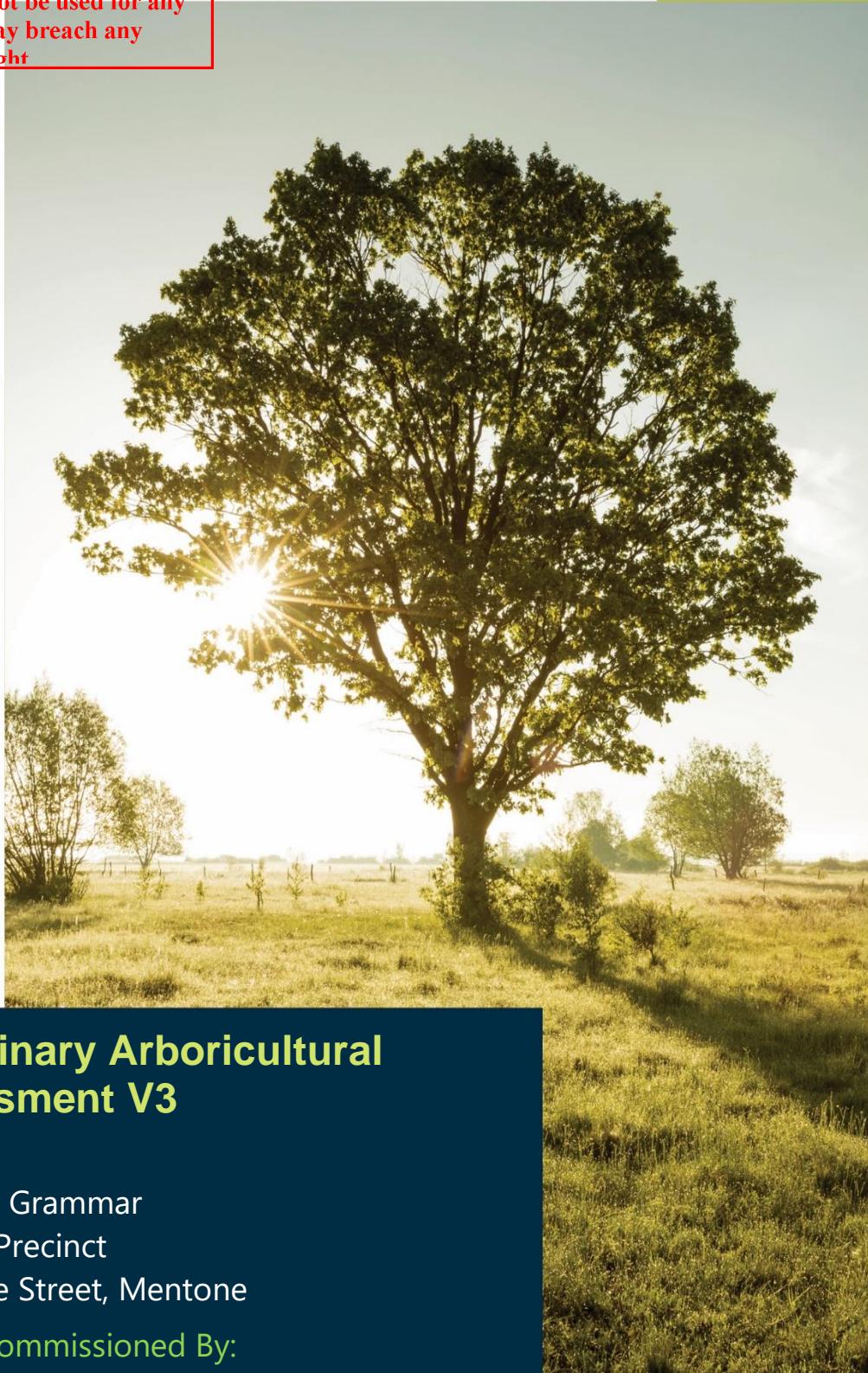


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## Preliminary Arboricultural Assessment V3

### Address:

Mentone Grammar  
Bayview Precinct  
63 Venice Street, Mentone

### Report Commissioned By:

GHD

### Prepared By:

Mr. Joel Hinck (Dip. Arboriculture)

Thursday 17<sup>th</sup> June 2021



**McLEOD  
TREES**

For a greener future,  
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## INTRODUCTION

This report is undertaken at the request of Samantha Williamson – Senior Project Manager of GHD, the Proposed Developer. The report contents should not be made available to any other parties unless by the express permission of McLeod Trees Pty Ltd.

This is a Preliminary Arboricultural Assessment, which is provided for the purpose of potential development and is an analysis of a number of nominated trees which are located on the site of Mentone Grammar – Bayview Precinct, 63 Venice Street, Mentone.

The Preliminary Arboricultural Assessment identifies the health, condition and worthiness of retention of the trees, with a view to comment on, and make recommendations as to, the future management of the same in regard to proposed redevelopment of the Bayview Precinct.

The report assesses all trees deemed to be significant and determines their status in regard to Local Law or Planning Overlays which may affect vegetation management on the site, with a view to maximising usage of the land for redevelopment purposes.

The data has been collected on site and details provided in a spreadsheet format, in light of an absence of proposed development plans, approximate tree locations have been plotted within the attached satellite image. This report is for the purpose of future design and is not suitable for Council Submission.

It is proposed that upon creation of a proposed development plan, the trees will be further assessed as to their potential impact and subsequently this report updated to an Arboricultural Impact and Resolution Plan, to be used to accompany any Town Planning submission.

The results and recommendations of this assessment are provided within Appendix 2, Tree Details Database of this report.

Those trees designated for retention must be protected as outlined in AS 4970 – 2009 Protection of Trees on Development Sites.

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## 1. KEY OBJECTIVES

- 1.1. To inspect and assess the nominated trees located within the subject site at Mentone Grammar – Bayview Precinct, 63 Venice Street, Mentone and provide information on the species, dimensions, health, structure, condition, useful life expectancy (ULE) and worthiness of retention of the trees and identify any potential conflicts between trees and potential for development
- 1.2. To provide recommendations for tree retention, incorporation within future design and any necessary permit requirements if removal is deemed necessary for the development of the proposed development

## 2. METHODOLOGY

- 2.1. A site inspection was undertaken on the 26<sup>th</sup> May 2021 and a subsequent site visit on the 11<sup>th</sup> June 2021. The nominated trees were inspected from the ground only and observations made of the growing environment and surrounding area. The trees were not climbed, and no samples of the trees or site soil were taken.
- 2.2. Observations were made of the trees to determine their health and condition, with measurements taken to establish canopy and trunk dimensions.
- 2.3. Tree Protection Zones were calculated using the Australian Standard – Protection of Trees on Development Sites (AS 4970 – 2009).
- 2.4. Each tree has been appointed an individual Tree Id. No. and marked accordingly on the attached site plan (Appendix 1).
- 2.5. The trees were classified with a Useful Life Expectancy and Retention Value based on structural integrity, condition and environmental and landscape character.
- 2.6. The data was recorded on the 26<sup>th</sup> May 2021 and a subsequent site visit on the 11<sup>th</sup> June 2021. All details were accurate and correct at this time. All data was collected on site by Mr. Joel Hinck (Dip. Arb).

## 3. REPORT LIMITATIONS

- 3.1. The survey undertaken in the vicinity of the subject site trees was of a preliminary nature, with a visual inspection being made from ground level only. None of the subject trees were climbed and no samples (soil, fungal etc.) were taken for analysis. Tree defects, not apparent from the ground-based visual inspection, are expressly excluded from the scope of this report.
- 3.2. In collecting the data, measurements such as Trunk Diameter (DBH) were obtained using a specialist diameter measuring tape, designed for the purpose, or estimated where access was limited. Tree heights and canopy spread were estimated using the assessors' experience, education and knowledge. Tree Protection Zone calculations were made using the formula as per Australian Standard 4970 – 2009.



## 4. SUPPLEMENTARY INFORMATION

- 4.1. The following information was used in preparation of this report:
- Australian Standard – Protection of Trees on Development Sites (AS 4970 – 2009)
  - Plan of Features and Levels – Reeds Consulting - 26/03/2018
  - Plan of Relocation Features and Levels – Reeds Consulting – 24/05/2021 - 22918/RFL
  - Kingston City Council Planning Scheme

## 5. OBSERVATIONS

- 5.1. The property is located within City of Kingston Council where it is classified as a General Residential Zones – Schedule 2 and Schedule 3 (GRZ2 & GRZ3).
- 5.2. City of Kingston Local Law requires an approved permit for the removal or destruction of any tree with a trunk circumference over 110cm measured at ground level. There are no known State Planning Overlays affecting vegetation within the site.
- 5.3. As the site exceeds 4000sq/m, Clause 52.17 – Native Vegetation applies to the site and subsequently permission and likely offsets will be required for the removal of Native vegetation, unless specified within the schedule to the Clause. All vegetation assessed within this report represent ‘planted’ vegetation, and therefore no permit is required pursuant to 52.17.
- 5.4. There are fifty-two (53) trees or tree groups, located within the subject site, which have been nominated to be assessed. These trees will require consideration throughout the proposed design discussions.
- 5.5. There are ten (10) trees located within the council owned road reserve adjacent to the subject site, these trees will require consideration throughout the proposed design discussions.
- 5.6. There are a number of smaller trees and shrubs within the subject site which are considered insignificant by way of size, species selection or retention value and do not require inclusion in this assessment.

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## 6. DISCUSSION

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### 6.1 Retention Values

A tree's worthiness of retention is based upon a number of criteria, taking into consideration such factors as health, condition and structure, as well as age, species, location and other factors which may affect the long-term tenure of the tree. The retention value does not take into consideration the future use of the land, rather that of the current situation and conditions, whereas worthiness of retention considers the tree's tenure in the future use of the landscape.

Trees designated as high retention value are those of good health, site significance and semi-mature trees with potential for good growth and development within the completed landscape.

Trees designated as moderate retention value are those of fair health and structure which are considered to have potential within the future landscape, provided they do not impact upon the necessary development works. If these trees can be retained with minimal changes, they should be. However, they are not considered valuable enough to necessitate changes and adaptations to any development plans. By default, all trees on adjoining properties are classified with a moderate retention value, regardless of health or structural condition.

Low retention values have been attributed to trees within the subject site that are either displaying poor health and/or structural integrity, are of inappropriate species selection, are inappropriate for the site or have reached their useful life expectancy.

### 6.2 Tree Retention

The existing trees on the site could be considered an opportunity or a constraint within the context of future management of the property; however, this would depend on many factors. The condition of the trees, the types of trees present and their location on the site are a few of the issues that may be considered when assessing which trees should be retained.

The possible retention and management of trees in the landscape relies on more substantial criteria than simply perceived visual benefits, although this is certainly considered. Issues such as tree health, structure and stability are fundamental and primary considerations in the process of identifying trees that could be potentially retained in the long term. These attributes are assessed using risk management concepts as a platform and they assist with determining the retention value of individual trees.

Importantly, tree removal should not always be considered a negative issue. Retention for retention's sake is a pointless activity if there is not a high possibility that the tree will not only survive but will be viable in the longer term (Hitchmough, 1994).

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### 6.3 Tree Protection Zones

The Tree Protection Zone (TPZ) measurements provided are based on the Australian Standard for Protection of Trees on Development Sites (AS 4970 – 2009). These calculations are based on the formula of 12 X the Trunk Diameter (DBH).

Where it is deemed necessary that the development encroach upon the calculated Tree Protection Zone measurements of any tree to be retained, the Australian Standard allows for a 10% encroachment on one side of the TPZ, provided allowances are made to the remaining area and the Structural Root Zone (SRZ) is not compromised.

If during the preliminary design period it is determined that the area will require encroachment within the TPZ of greater than 10%, then exploratory root excavation may need to be undertaken in accordance with specifications as outlined in the Australian Standard.

### 6.4 Exploratory Root Excavation

Where it is proposed that development or excavation occur within the TPZ, exploratory root excavation may be required to be undertaken prior to the final design of any proposed works.

Wherever possible, any exploratory root excavation recommended must be undertaken in the form of hydro-excavation, or air spade technology which is able to remove the soil and leave an undamaged, skeletonised root system which can then be inspected by an arborist and root data collated accordingly.

By undertaking such exploration, the exact extent of roots within the area can be determined and installation methods and future design plans can be amended if necessary, utilising the knowledge of exact root development and locations. At which time an exact Structural Root Zone measurement can be calculated, and Root Location Graph be compiled to assist in design methods.

### 6.5 Overview of Site

All trees of value or significance within the close proximity to the proposed work area, that warrant further discussion in terms of retention and protection recommendations have been assessed and are addressed within this report.

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## 7. CONCLUSION AND RECOMMENDATIONS

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### 7.1 Overview

All vegetation in the front and rear yard not discussed within this report represent small ornamental trees or shrubs and are recommended to be removed to allow for unhindered development and provide an opportunity to develop a uniform landscape plan upon potential project completion.

**All vegetation assessed within this report represent 'planted' vegetation, and therefore no permit is required pursuant to 52.17.**

**Tree 52, 53, 54, 55, 56, 57, 58, 59, 60 and 62** – Are council owned nature strip trees, located within the Naples Road reserve to the South of the subject site. These trees **MUST** be protected throughout any development process, including the implementation all tree protection measures as per AS4790 – 2009 Protection of Trees on Development Sites and Appendix 4 of this report.

**Trees 31, 32, 33, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 61 and 63** - Are trees located within the subject site and are considered worthy of retention. Where possible these trees should be retained and incorporated in the future landscaping. If during the preliminary design period it is determined that the proposed development will require encroachment within the TPZ of these trees further discussion may be necessary. These trees, where retained, **MUST** be protected throughout any future re-development process including the implementation all tree protection measures as per AS 4970 – 2009 (Protection of Trees on Development Sites) and Appendix 4 of this report.

**Trees 12, 14, 25, 28 and 29** – Are trees located within the subject site and are not considered worthy of retention or protection or are likely to conflict with potential development. These trees are recommended to be removed. These trees meet the criteria to be considered significant under City of Kingston Council Local Law, subsequently permission will be required for removal of these trees.

**Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 30, 34, 35, 36 and 48** – Are trees and tree groups located within the subject site and are not considered worthy of retention or protection in the event of future development within the subject site or inclusion within any proposed landscaping plan. These trees are recommended to be removed, to allow for an unhindered development process. These trees can be removed without further permission.

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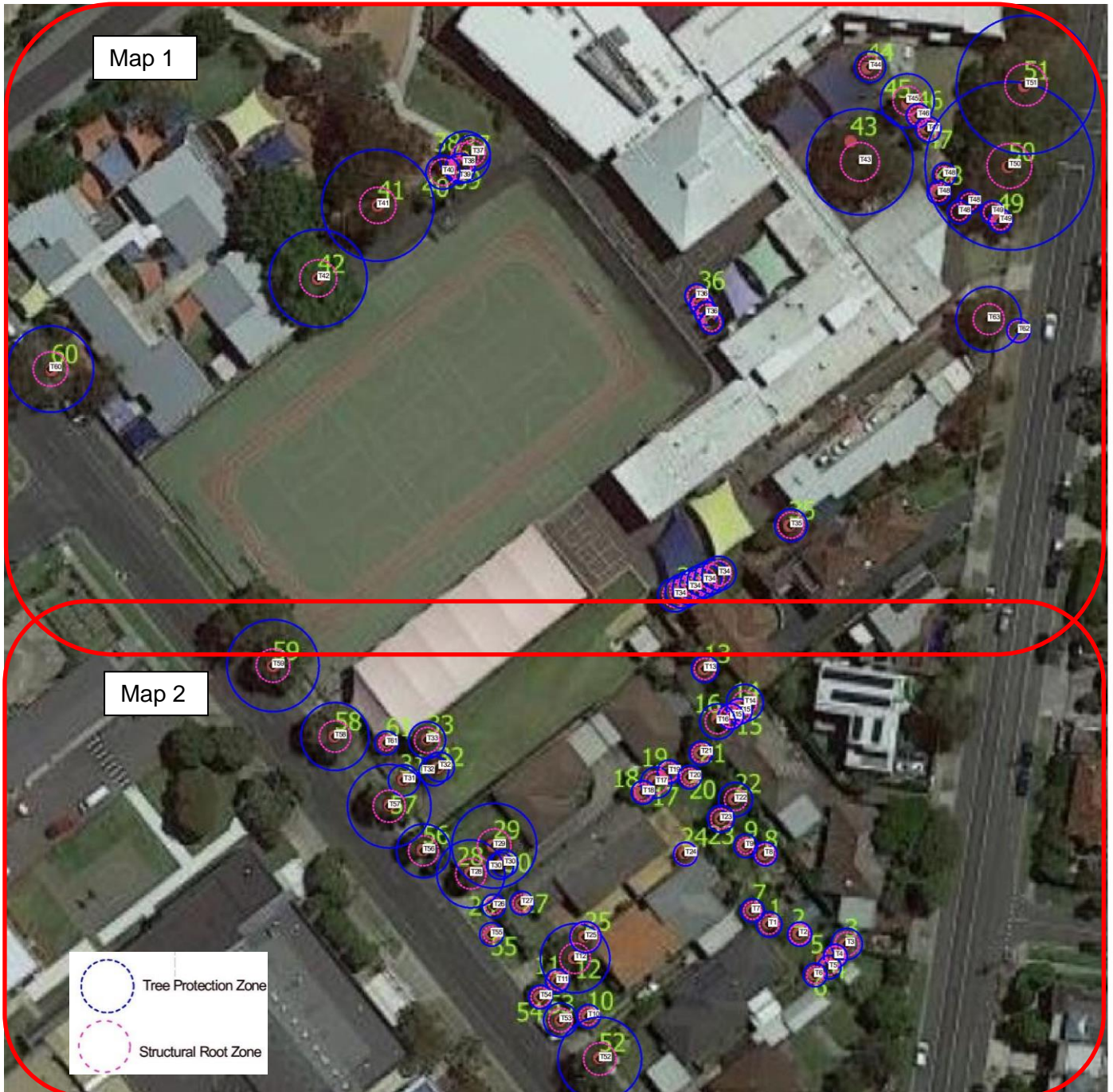




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## APPENDIX 1: Site Survey (Tree location or size not to scale)

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APPENDIX 1a: Site Survey Map 1 (Tree location or size not to scale)





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APPENDIX 1b: Site Survey Map 2 (Tree location or size not to scale)



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## APPENDIX 2: Tree Data Details

Tree No	Genus	Species	Common Name	Origin	DBH (mm)	Basal diameter (mm)	TPZ (m)	SRZ (m)	Height (m)	Canopy Spread (m)	Health	Structure	Condition	Retention value	Site significance	Age	ULE (years)	Permit required	Observations	Recommendations
1	<i>Prunus</i>	<i>sp.</i>	Prunus	Exotic	180	190	2.2	1.6	5.0	6.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Co dominant stems	Remove - Permission not required
2	<i>Jacaranda</i>	<i>mimosifolia</i>	Jacaranda	Exotic	170	210	2.0	1.7	5.0	5.0	Fair	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Previously lopped	Remove - Permission not required
3	<i>Pittosporum</i>	<i>eugenioides 'Variegatum'</i>	Variegated Pittosporum	Exotic	220	310	2.6	2.0	5.0	4.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Multiple stems, typical ornamental	Remove - Permission not required
4	<i>Citrus</i>	<i>limon</i>	Lemon Tree	Exotic	160	200	2.0	1.7	5.0	5.0	Good	Fair	Fair	Low	Low	Mature	5 - 20	No	Typical fruit tree	Remove - Permission not required
5	<i>Hymenosporum</i>	<i>flavum</i>	Native Frangipani	Aus Native	100	120	2.0	1.5	3.0	4.0	Poor	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Extensive decay present within stem and branches	Remove - Permission not required
6	<i>Pittosporum</i>	<i>tenuifolium</i>	James Stirling Pittosporum	Exotic	120	140	2.0	1.5	4.0	3.0	Good	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Represents multiple screen trees, hedge row	Remove - Permission not required
7	<i>Acacia</i>	<i>cognata</i>	River Wattle	Aus Native	120	150	2.0	1.5	4.0	6.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Multiple stems, minor canopy decline	Remove - Permission not required
8	<i>Syzygium</i>	<i>smithii</i>	Lilly Pilly	Vic Native	110	210	2.0	1.7	4.0	4.0	Fair	Poor	Fair	Low	Low	Mature	5 - 20	No	Bifurcated form, previously lopped	Remove - Permission not required
9	<i>Jacaranda</i>	<i>mimosifolia</i>	Jacaranda	Exotic	100	120	2.0	1.5	4.0	3.0	Fair	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Minor deadwood, minor canopy decline	Remove - Permission not required
10	<i>Citrus</i>	<i>limon</i>	Lemon Tree	Exotic	120	150	2.0	1.5	5.0	5.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Typical fruit tree, multiple stems	Remove - Permission not required
11	<i>Pittosporum</i>	<i>eugenioides 'Variegatum'</i>	Variegated Pittosporum	Exotic	130	160	2.0	1.5	5.0	4.0	Good	Fair	Fair	Low	Moderate	Mature	5 - 20	No	Multiple stems	Remove - Permission not required
12	<i>Melaleuca</i>	<i>bracteata</i>	Black Tea Tree	Aus Native	490	550	5.9	2.6	8.0	7.0	Fair	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes (Local Law)	Co dominant stems, canopy decline, asymmetrical canopy bias	Remove - Permission from relevant authority required
13	<i>Syzygium</i>	<i>smithii</i>	Lilly Pilly	Vic Native	190	230	2.3	1.8	4.0	4.0	Poor	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Canopy decline, heavily possum grazed	Remove - Permission not required

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Tree No	Genus	Species	Common Name	Origin	DBH (mm)	Basal diameter (mm)	TPZ (m)	SRZ (m)	Height (m)	Canopy Spread (m)	Health	Structure	Condition	Retention value	Site significance	Age	ULE (y.c.s)	Permit required	Observations	Recommendations
14	<i>Betula</i>	<i>pendula</i>	Silver Birch	Exotic	260	310	3.1	2.0	8.0	5.0	Fair	Fair	Fair	Low	Moderate	Mature	5 - 20	No	Asymmetrical canopy bias, minor deadwood	Remove - Permission from relevant authority required
15	<i>Betula</i>	<i>pendula</i>	Silver Birch	Exotic	180	250	2.2	1.8	8.0	4.0	Fair	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Represents two individual trees, unfavourable attachments, minor deadwood	Remove - Permission not required
16	<i>Olea</i>	<i>europaea</i>	Olive Trees	Exotic	250	330	3.0	2.1	8.0	6.0	Good	Fair	Fair	Low	Low	Mature	5 - 20	No	Asymmetrical canopy bias, leaning habit	Remove - Permission not required
17	<i>Cotoneaster</i>	<i>sp.</i>	Cotoneaster	Exotic	220	260	2.6	1.9	5.0	7.0	Fair	Poor	Fair	Low	Low	Mature	5 - 20	No	Bifurcated form, co dominant stems, widely recognised weed species	Remove - Permission not required
18	<i>Ligustrum</i>	<i>lucidum</i>	Broad Leaved Privet	Exotic	110	150	2.0	1.5	5.0	2.0	Fair	Poor	Fair	Low	Low	Semi mature	5 - 20	No	Likely self sown, widely recognised weed species	Remove - Permission not required
19	<i>Pittosporum</i>	<i>undulatum</i>	Sweet Pittosporum	Vic Native	140	160	2.0	1.5	5.0	4.0	Fair	Poor	Fair	Low	Low	Semi mature	5 - 20	No	Likely self sown, widely recognised weed species	Remove - Permission not required
20	<i>Citrus</i>	<i>limon</i>	Lemon Tree	Exotic	100	150	2.0	1.5	3.0	3.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Typical fruit tree	Remove - Permission not required
21	<i>Ligustrum</i>	<i>sinense</i>	Small Leaved Privet	Exotic	110	160	2.0	1.5	5.0	4.0	Fair	Poor	Fair	Low	Low	Mature	5 - 20	No	Inappropriate location, leaning habit	Remove - Permission not required
22	<i>Pittosporum</i>	<i>undulatum</i>	Sweet Pittosporum	Vic Native	240	260	2.9	1.9	8.0	5.0	Fair	Fair	Fair	Low	Moderate	Mature	5 - 20	No	Widely recognised weed species	Remove - Permission not required
23	<i>Pittosporum</i>	<i>undulatum</i>	Sweet Pittosporum	Vic Native	190	210	2.3	1.7	8.0	6.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Widely recognised weed species, inappropriate location	Remove - Permission not required
24	<i>Feijoa</i>	<i>sellowiana</i>	Feijoa	Exotic	150	250	2.0	1.8	3.0	3.0	Good	Fair	Fair	Low	Low	Mature	5 - 20	No	Basal wound, decay present within stem	Remove - Permission not required
25	<i>Schefflera</i>	<i>actinophylla</i>	Umbrella Tree	Aus Native	220	490	2.6	2.5	6.0	5.0	Fair	Poor	Fair	Low	Moderate	Mature	5 - 20	No	Multiple stems, previously lopped, decay present within stem	Remove - Permission from relevant authority required
26	<i>Pittosporum</i>	<i>undulatum</i>	Sweet Pittosporum	Vic Native	100	130	2.0	1.5	4.0	3.0	Poor	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Likely self sown, widely recognised weed species	Remove - Permission not required
27	<i>Magnolia</i>	<i>x soulangeana</i>	Saucer Magnolia	Exotic	110	150	2.0	1.5	3.0	4.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Multiple stems, decay present within stem, previously lopped	Remove - Permission not required



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Tree No	Genus	Species	Common Name	Origin	DBH (mm)	Basal diameter (mm)	TPZ (m)	SRZ (m)	Height (m)	Canopy Spread (m)	Health	Structure	Condition	Retention value	Site significance	Age	VLE (years)	Permit required	Observations	Recommendations
28	<i>Cupressus</i>	<i>sp.</i>	Cypress	Exotic	480	550	5.8	2.6	8.0	8.0	Poor	Fair	Fair	Low	Moderate	Mature	5 - 20	Yes (Local Law)	Canopy decline, tip die back, multiple stems	Remove - Permission from relevant authority required
29	<i>Agonis</i>	<i>flexuosa</i>	Willow Myrtle	Aus Native	600	700	7.2	2.8	8.0	8.0	Poor	Poor	Poor	Low	Moderate	Mature	5 - 20	Yes (Local Law)	Co dominant stems, extensive canopy decline	Remove - Permission from relevant authority required
30	<i>Syragrus</i>	<i>romanzoffiana</i>	Cocas Palm	Exotic	190	220	2.3	1.8	7.0	3.0	Fair	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Represents two Palm trees, minor dead fronds	Remove - Permission from relevant authority required
31	<i>Archontopoenix</i>	<i>cunninghamiana</i>	Bangalow Palm	Aus Native	220	350	2.6	2.1	6.0	3.0	Good	Fair	Good	Medium	Moderate	Mature	5 - 20	Yes (Local Law)	Typical Palm	Retain - Implement Tree Protection Measures
32	<i>Archontopoenix</i>	<i>cunninghamiana</i>	Bangalow Palm	Aus Native	280	370	3.4	2.2	7.0	3.0	Good	Fair	Good	Medium	Moderate	Mature	5 - 20	Yes (Local Law)	Represents two individual Palm trees, co dominant stems	Retain - Implement Tree Protection Measures
33	<i>Syzygium</i>	<i>smithii</i>	Lilly Pilly	Vic Native	260	360	3.1	2.2	7.0	6.0	Good	Fair	Fair	Medium	Moderate	Mature	5 - 20	No	Previously lopped, unfavourable attachments	Retain - Implement Tree Protection Measures
34	<i>Cupressus</i>	<i>leylandii</i>	Leyland Cypress	Exotic	240	340	2.9	2.1	7.0	4.0	Fair	Fair	Fair	Low	Moderate	Mature	5 - 20	No	Represents seven individual trees, hedge row, previously heavily pruned	Remove - Permission not required
35	<i>Melaleuca</i>	<i>armillaris</i>	Bracelet Honey Myrtle	Vic Native	230	380	2.8	2.2	5.0	5.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Multiple stems, suppressed canopy	Remove - Permission not required
36	<i>Cupressus</i>	<i>sempervirens</i>	Pencil Pine	Exotic	120	160	2.0	1.5	7.0	1.0	Good	Fair	Fair	Low	Low	Mature	5 - 20	No	Represents four individual trees, typical	Remove - Permission not required
37	<i>Acacia</i>	<i>longifolia</i>	Coastal Wattle	Aus Native	250	360	3.0	2.2	5.0	6.0	Fair	Poor	Fair	Low	Moderate	Mature	5 - 20	Yes (Local Law)	Leaning habit, decay present within stem	Retain - Implement Tree Protection Measures
38	<i>Banksia</i>	<i>serrata</i>	Saw Tooth Banksia	Aus Native	360	440	4.3	2.3	7.0	8.0	Good	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes (Local Law)	Co dominant stems, asymmetrical canopy bias	Retain - Implement Tree Protection Measures
39	<i>Callistemon</i>	<i>viminalis</i>	Weeping Bottlebrush	Aus Native	210	250	2.5	1.8	6.0	5.0	Fair	Fair	Fair	Low	Low	Mature	5 - 20	No	Leaning habit, suppressed canopy	Retain - Implement Tree Protection Measures
40	<i>Melaleuca</i>	<i>linariifolia</i>	Narrow Leaved Paperbark	Aus Native	240	390	2.9	2.2	7.0	6.0	Fair	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes (Local Law)	Multiple stems, asymmetrical canopy bias	Retain - Implement Tree Protection Measures
41	<i>Angophora</i>	<i>costata</i>	Smooth Barked Angophora	Aus Native	790	840	9.5	3.1	13.0	15.0	Good	Fair	Good	High	Moderate	Mature	5 - 20	Yes (Local Law)	Bifurcated form, co dominant stems, minor deadwood	Retain - Implement Tree Protection Measures
42	<i>Platanus</i>	<i>X acerifolia</i>	London Plane	Exotic	690	880	8.3	3.1	12.0	18.0	Good	Fair	Good	High	Moderate	Mature	5 - 20	Yes (Local Law)	Extended lateral limbs, minor deadwood, surface roots	Retain - Implement Tree Protection Measures
43	<i>Angophora</i>	<i>costata</i>	Smooth Barked Angophora	Aus Native	750	980	9.0	3.3	11.0	16.0	Poor	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes (Local Law)	Significant specimen, extensive canopy decline, extended lateral limbs	Retain - Implement Tree Protection Measures

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Tree No	Genus	Species	Common Name	Origin	DBH (mm)	Basal diameter (mm)	TPZ (m)	SRZ (m)	Height (m)	Canopy Spread (m)	Health	Structure	Condition	Relative value	Significance	Age (years)	Permit required	Observations	Recommendations	
44	<i>Pyrus</i>	<i>calleryana</i>	Callery Pear	Exotic	220	260	2.6	1.9	8.0	6.0	Good	Fair	Fair	Medium	Low	Immature	No	Single stem, unfavourable attachments, typical	Retain - Implement Tree Protection Measures	
45	<i>Eucalyptus</i>	<i>mannifera</i>	Red Spotted Gum	Vic Native	380	490	4.6	2.5	9.0	8.0	Good	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes (Local Law)	Bifurcated co dominant stems, minor deadwood	Retain - Implement Tree Protection Measures
46	<i>Acacia</i>	<i>implexa</i>	Lightwood	Vic Native	160	180	2.0	1.6	6.0	4.0	Fair	Fair	Fair	Medium	Low	Semi mature	5 - 20	No	Co dominant stems, minor canopy decline, borer damage	Retain - Implement Tree Protection Measures
47	<i>Acacia</i>	<i>implexa</i>	Lightwood	Vic Native	180	200	2.2	1.7	5.0	4.0	Good	Fair	Fair	Medium	Low	Semi mature	5 - 20	No	Unfavourable attachments	Retain - Implement Tree Protection Measures
48	<i>Cupressus</i>	<i>sempervirens</i>	Pencil Pine	Exotic	110	130	2.0	1.5	5.0	1.0	Good	Fair	Fair	Low	Low	Semi mature	5 - 20	No	Represents four individual trees, typical	Remove - Permission not required
49	<i>Banksia</i>	<i>integrifolia</i>	Coastal Banksia	Vic Native	130	160	2.0	1.5	6.0	3.0	Good	Fair	Good	Medium	Low	Semi mature	5 - 20	No	Represents two individual trees, form could be improved	Retain - Implement Tree Protection Measures
50	<i>Corymbia</i>	<i>maculata</i>	Spotted Gum	Aus Native	1190	1380	14.3	3.8	15.0	20.0	Good	Fair	Good	High	High	Mature	>20	Yes (Local Law)	Significant specimen, prominently located at the school entrance, extended lateral limbs	Retain - Implement Tree Protection Measures
51	<i>Corymbia</i>	<i>maculata</i>	Spotted Gum	Aus Native	980	1190	11.8	3.6	15.0	20.0	Fair	Fair	Fair	High	High	Mature	5 - 20	Yes (Local Law)	Significant specimen, prominently located at front of school, canopy decline, large limbs declining on eastern canopy	Retain - Implement Tree Protection Measures
52	<i>Banksia</i>	<i>integrifolia</i>	Coastal Banksia	Vic Native	590	640	7.1	2.7	11.0	10.0	Good	Fair	Fair	High	Moderate	Mature	5 - 20	Yes	Council owned street tree, bifurcated co dominant stems	Retain - Implement Tree Protection Measures
53	<i>Melaleuca</i>	<i>linariifolia</i>	Narrow Leaved Paperbark	Vic Native	240	310	2.9	2.0	4.0	4.0	Fair	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes	Council owned street tree, multiple stems	Retain - Implement Tree Protection Measures
54	<i>Pittosporum</i>	<i>undulatum</i>	Sweet Pittosporum	Vic Native	120	180	2.0	1.6	4.0	3.0	Fair	Fair	Fair	Medium	Moderate	Semi mature	5 - 20	Yes	Council owned street tree	Retain - Implement Tree Protection Measures
55	<i>Ligustrum</i>	<i>lucidum</i>	Broad Leaved Privet	Exotic	70	120	2.0	1.5	2.0	1.0	Fair	Fair	Fair	Medium	Low	Semi mature	5 - 20	Yes	Council owned street tree, basal wound	Retain - Implement Tree Protection Measures
56	<i>Melaleuca</i>	<i>bracteata</i>	Black Tea Tree	Aus Native	380	530	4.6	2.5	7.0	8.0	Fair	Poor	Fair	Medium	Moderate	Mature	5 - 20	Yes	Council owned street tree, co dominant stems	Retain - Implement Tree Protection Measures
57	<i>Melaleuca</i>	<i>styphelioides</i>	Prickly Leaved Paperbark	Aus Native	590	630	7.1	2.7	8.0	8.0	Fair	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes	Council owned street tree, unfavourable attachments, asymmetrical canopy bias	Retain - Implement Tree Protection Measures

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Tree No	Genus	Species	Common Name	Origin	DBH (mm)	Basal diameter (mm)	TPZ (m)	SRZ (m)	Height (m)	Canopy Spread (m)	Health	Structure	Condition	Retention value	Site significance	Age	ULE (years)	Permit required	Observations	Recommendations
58	<i>Melaleuca</i>	<i>styphelioides</i>	Prickly Leaved Paperbark	Aus Native	480	590	5.8	2.7	9.0	8.0	Fair	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes	Council owned street tree, unfavourable attachments, extended lateral limbs	Retain - Implement Tree Protection Measures
59	<i>Melaleuca</i>	<i>styphelioides</i>	Prickly Leaved Paperbark	Aus Native	650	690	7.8	2.8	9.0	11.0	Fair	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes	Council owned street tree, congested primary union. Unfavourable attachments	Retain - Implement Tree Protection Measures
60	<i>Eucalyptus</i>	<i>leucoxyton</i>	Yellow Gum	Vic Native	610	740	7.3	2.9	13.0	11.0	Fair	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes	Council owned street tree, bifurcated form, unfavourable attachments	Retain - Implement Tree Protection Measures
61	<i>Zelkova</i>	<i>serrata</i>	Japanese Zelkova	Exotic	80	110	2.0	1.5	6.0	3.0	Good	Fair	Fair	Medium	Low	Semi mature	5 - 20	No	Co dominant stems, form could be improved	Retain - Implement Tree Protection Measures
62	<i>Agonis</i>	<i>flexuosa</i>	Willow Myrtle	Aus Native	150	230	2.0	1.7	5.0	3.0	Good	Fair	Fair	Medium	Moderate	Semi mature	5 - 20	Yes	Council owned street tree, exposed surface roots, suppressed canopy	Retain - Implement Tree Protection Measures
63	<i>Eucalyptus</i>	<i>gomphocephala</i>	Tuart	Aus Native	460	570	5.5	2.6	10.0	9.0	Good	Fair	Fair	Medium	Moderate	Mature	5 - 20	Yes	Leaning habit, unfavourable attachments, bifurcation with swelling and included bark	Retain - Implement Tree Protection Measures

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## APPENDIX 3: Definition of Terms

The following is a definition of terms used for arboricultural assessments.

**Tree #** - Identification number provided and tagged for individual trees.

**Genus/Species** - Botanical name of tree to Genus and species level.

**Common Name** - Common name of tree.

**Diameter at Breast Height (DBH)** - DBH is measured at 1400mm above ground level. In cases where the tree has multiple stems, the measurement is taken at the narrowest point below the stems, or ground level on multi-stemmed specimens.

**Height** - Average height in metres measured from ground only using specialised equipment where possible or estimated from ground level.

**Canopy Spread** - The average distance in meters of the spread of the canopy. For simplification, the distance measured North – South and East - West is averaged out to provide an overall canopy spread measurement.

**Health** - Health pertains to the tree vigour, performance and ability to withstand pathogenic entry. Health is measured as a rating of Good, Fair to Poor.

**Structure** - Pertains to the physical structure of the tree, including the main scaffold branches and roots. Structure includes those attributes that may influence the probability of major trunk, root or limb failure. Structure is measured as a rating of Good, Fair to Poor

**Condition** - Condition is a combination of health and structure and provides an overall rating for each tree. As such a tree with a good health rating and a poor structure rating would be classified with a rating of Fair. Condition is measured as a rating of Good, Fair to Poor.

**Retention Value** - Retention Value of a tree pertains to the worthiness for retention. Based on a combination of factors, including species, location, condition, and future growth potential. The retention value is classified as a rating of High, Moderate and Low.

**Useful Life Expectancy (ULE)** - ULE quantifies the span of time the tree might reasonably be expected to provide useful amenity value, with an acceptable level of safety with acceptable standards of maintenance.

ULE classifications are measured over the following time spans.

- 0
- < 5 years
- 5 – 20 years
- > 20 years

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**Tree Protection Zone (TPZ)** - The Tree Protection Zone is a specified area above and below ground and at a given distance from the trunk set aside for the protection of the trees' roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

The 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 is calculated using the formula as outlined in the Australian Standard (AS 4970 – 2009).

**Structural Root Zone (SRZ)** – The Structural Root Zone is the area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres. This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area.

The SRZ is calculated using the formula as outlined in the Australian Standard (AS 4970 – 2009).

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## APPENDIX 4: Tree Protection Guidelines

### 1. General

- 1.1. Tree Protection measures include a range of activities and structures. Structures are used to identify and isolate the Tree Protection Zone (TPZ) (refer to section 3).
- 1.2. The TPZ is a restricted area usually delineated by protective fencing (or use of an existing structure such as an existing fence or wall). It is installed prior to site establishment and remain intact until completion of the works.
- 1.3. Some works and activities within the TPZ may be authorized by the determining authority. These must be supervised by the project arborist. Any additional encroachment that becomes necessary as the site works progress must be reviewed by the project arborist and be acceptable to the determining authority before being carried out.

### 2. Activities restricted within the TPZ

- Activities generally excluded from the TPZ include but are not limited to:
- machine excavation including trenching;
- excavation for fencing;
- cultivation;
- storage;
- preparation of chemicals, including preparation of cement products;
- parking of vehicles and plant;
- refuelling;
- dumping of waste;
- wash down and cleaning of equipment;
- placement of fill;
- lighting of fires;
- soil level changes;
- temporary or permanent installation of utilities and signs, and
- physical damage to the tree.

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### 3. Protective fencing

- 3.1. Fencing should be erected before any machinery or materials are brought onto the site and before the commencement of works, including demolition. Once erected, protective fencing must not be removed or altered without approval by the project arborist. The TPZ should be secured to restrict access.
- 3.2. AS 4687 specifies applicable fencing requirements. Shade cloth or similar should be attached to reduce the transport of dust, other particulate matter and liquids into the protected area.
- 3.3. Fence posts and supports should have a diameter greater than 20mm and be located clear of roots.
- 3.4. Existing perimeter fencing and other structures may be suitable as part of the protective fencing.

#### 4. Signs

4.1. Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site. The lettering on the sign should comply with AS 1319. A warning sign shall prominently be displayed on each fence. The sign shall be a minimum of 300mm X 200mm and clearly state: **“WARNING – Tree Protection Zone – This fence must not be removed without authorisation or consent”**.

#### 5. Other Tree Protection Measures

##### 5.1. General

When tree protection fencing cannot be installed or requires temporary removal, other tree protection measures should be used, including those set out below.

##### 5.2. Trunk and branch protection

Where necessary, install protection to the trunk and branches of trees as required. The materials and positioning of protection are to be specified by the project arborist.

Do not attach temporary power lines, stays, guys etc. to the tree. Do not drive nails into the trunks or branches.

##### 5.3. Ground protection

If temporary access for machinery is required within the TPZ ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Measures may include a permeable membrane such as geotextile fabric beneath a layer of mulch or crushed rock below rumble boards.

These measures may be applied to root zones beyond the TPZ.

##### 5.4. Root protection during works within the TPZ

Some approved works within the TPZ, such as regrading, installation of piers or landscaping may have the potential to damage roots.

If the grade is to be raised the material should be coarser or more porous than the underlying material. Depth and compaction should be minimized.

Manual excavation should be carried out under the supervision of the project arborist to identify roots critical to tree stability. Relocation or redesign of works may be required.

Where the project arborist identifies roots to be pruned within or at the outer edge of the TPZ, they should be pruned with a final cut to undamaged wood. Pruning cuts should be made with sharp tools such as secateurs, pruners, handsaws or chainsaws. Pruning wounds should not be treated with dressings or paints. It is not acceptable for roots within the TPZ to be ‘pruned’ with machinery such as backhoes or excavators.

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Where roots within the TPZ are exposed by excavation, temporary root protection should be installed to prevent them drying out. This may include jute mesh or hessian sheeting as multiple layers over exposed roots and excavated soil profile, extending to the full depth of the root zone. Root protection sheeting should be pegged in place and kept moist during the period that the root zone is exposed.

Other excavation works in proximity to trees, including landscape works such as paving, irrigation, and planting can adversely affect root systems. Seek advice from the project arborist.

### 5.5. Installing underground services within the TPZ

All services should be routed outside the TPZ. If underground services must be routed within the TPZ, they should be installed by directional drilling or in manually excavated trenches.

The directional drilling bore should be at least 800mm deep. The project arborist should assess the likely impacts of boring and bore pits on retained trees.

For manual excavation of trenches the project arborist should advise on roots to be retained and should monitor the works. Manual excavation may include the use of pneumatic and hydraulic tools.

### 5.6. Scaffolding

Where scaffolding is required it should be erected outside the TPZ. Where it is essential for scaffolding to be erected within the TPZ, branch removal should be minimized. This can be achieved by designing scaffolding to avoid branches or tying back branches. Where pruning is unavoidable it must be specified by the project arborist in accordance with AS 4373.

NOTE: Pruning works may require approval by determining authority.

Ground below the scaffolding should be protected by boarding (e.g. scaffold board or plywood sheeting). Where access is required, a board walk, or other surface material should be installed to minimize soil compaction. Boarding should be placed over a layer of mulch and impervious sheeting to prevent soil contamination. The boarding should be left in place until the scaffolding is removed.

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### 5.7. Maintaining the TPZ

- **Mulching**

The area within the TPZ should be mulched. The mulch must be maintained to a depth of 50 - 100 mm using material that complies with AS 4454. Where the existing landscape within the TPZ is to remain unaltered (e.g. garden beds or turf) mulch may not be required.

- **Watering**

Soil moisture levels should be regularly monitored by the project arborist. Temporary irrigation or watering may be required within the TPZ. An above-ground irrigation system should be installed and maintained by a competent individual.

- **Weed removal**

All weeds should be removed by hand without soil disturbance or should be controlled with appropriate use of herbicide.

## APPENDIX 5: Assumptions and Limiting Conditions

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