Arboricultural Impact Assessment

Commercial Development at

15 Fisher Road, Dee Why

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1 Contents

2 Summary

This Arboricultural Impact Assessment (AIA) is based on one hundred and twenty-eight (128) trees located at 15 Fisher Road, Dee Why (subject site) and the adjoining bushland.

The tree population of the site consists of locally occurring natives, planted Australian natives and planted exotics. The proposed works include demolition of existing structures and construction of residential flat buildings and associated carparking and landscaping.

The Retention Values of the subject trees were rated as outlined in the following Table. Refer to the Tree Protection Plan (Attachment C) for tree locations.

Table A: Retention Values of the Subject Trees.

	High Retention Value (Tree Number)	**Medium Retention Value (Tree Number)**	**Low Retention Value (Tree Number)**
To be Retained	7, 9, 13, 16A, 21, 21A, 22, 23, 24, 25, 54, 56, 72, 75, 77, 78, 79, 80, 81, 82, 83, 85, 86, 87, 88, 89, 90, 94, 95, 95, 97, 98, 100, 101, 102, 103, 107	2, 3, 4, 12, 14, 16, 17, 18, 19, 20, 35, 36, 51, 53, 55A, 57, 58, 76, 91, 99, 118, 119, 119B, 119C, 119D, 119E	52, 84, 104, 104, 106
To be Removed	6A, 10, 38, 40, 41, 62, 64, 65, 69, 70, 71, 105, 109, 110, 111, 112, 113	1 (row of 9), 26, 27, 28, 29, 30, 31, 32, 37, 40A, 42, 43, 44, 45, 47, 47A, 48, 61A, 63, 67, 68, 73, 74, 108, 119A	15, 33, 34, 37A, 58A, 66, 114, 115, 116

Fifty nine (59) trees are proposed to be removed as part of this project. This includes seventeen (17) High Retention Value trees, thirty one (31) Medium Retention Value trees and seven (7) Low Retention Value trees.

All site trees that have a reasonable prospect of survival are proposed to be retained and protected. All trees located on the adjoining council land are able to be protected with no notable impact.

There are works proposed within the Tree Protection Zones (TPZ) of Trees 2, 7, 12, 16, 17, 18, 36, 41, 54, 56, 57, 64, 65, 72, 90, 105, 107. Recommendations have been made regarding tree protection measures and tree sensitive construction methods to limit the impact on retained trees.

3 Introduction

3.1 Background

This Arboricultural Impact Assessment (AIA) was prepared for Rosegroup Pty Ltd in relation to the existing trees and proposed commerical development at 15 Fisher Road, Dee Why (subject site).

The purpose of this AIA is to assess the likely impacts of the proposed works on the existing site trees and make recommendations regarding construction methods and tree protection measures to limit adverse impacts on trees recommended for retention.

No preliminary tree assessment was undertaken prior to or during the design process.

This AIA has been prepared with guidance from with the Australian Standard 4970-2009, *Protection of trees on development sites.*

3.2 Subject Site/Proposed Works

The subject site is currently occupied by the Salvation Army Pacific Homes site. The central building on the site is Heritage Listed and is to be retained. It is proposed to demolish the surrounding buildings and construct residential flat buildings with basement level parking and landscaping works.

3.3 Subject Trees

All trees located within the site and surveyed trees on the adjoining land were assessed. The tree population of the site is made up of locally occurring natives, planted Australian natives and planted exotics.

There was group of Monterey Pines (*Pinus radiata*) located at the south-eastern corner of the site. Most of these trees are likely to have self-sown and are listed as Exempt Trees and are not protected within the Northern Beaches Council Area.

The north-east corner of the site adjoins bushland and has a over-storey canopy dominated by Smooth-barked Apples (*Angophora costata*).

None of the assessed trees are protected under the Threatened Species Conservation Act (1995) or Biodiversity Conservation Act (1999).

Refer to the Tree Protection Plan (Attachment C) for tree locations and numbers. A detailed description of the subject trees is included in the Tree Assessment Table (Attachment A).

4 Methodology

4.1 Site Inspection

Site inspection and tree assessment was undertaken by Alexis Anderson on the 28th of March, 2018. The trees were assessed from ground level using a Tree Assessment Table, which is included as Attachment A. The definitions and explanations of terms used are outlined in the Tree Table Definitions page which is included at Attachment B.

4.2 Plan Review

The Section 4.55 Plans provided by Rose Architectural Services were reviewed as part of this assessment. There was no plan block or labels on the supplied plans. The proposed site layout had been finalised at the time that the plans were supplied. There was no arborist input into the site layout. No stormwater/hydraulics plans, landscape plans or engineering detail were available for review at the time of assessment.

4.3 Tree Protection Zones

Tree assessments in accordance with the Australian Standard 4970-2009, *Protection of trees on development sites*, require calculation of a Tree Protection Zone (TPZ) and Structural Root Zone (SRZ). The following is a brief explanation of these terms:

Tree Protection Zone -TPZ: This is the area that should be isolated from construction disturbance so that the tree remains viable. Some disturbance within the TPZ may be possible following arboricultural assessment.

Structural Root Zone -SRZ: This is the area or undisturbed soil and roots required to maintain tree stability. Excavation within the SRZ can lead to whole tree failure.

Refer to the Tree Assessment Table (Attachment A) for the Tree Protection Zones of the assessed trees.

4.4 Retention Values

Retention values are derived from a combination of Estimated Life Expectancy rating and Landscape and Environmental Significance ratings. Refer to Attachment B for an explanation of the methodology used.

- **HIGH Retention Value**: These trees are worthy of retention and design consideration should be made where possible to allow their retention.
- **MEDIUM Retention Value**: These trees are worthy of retention and minor design consideration should be made to retain these trees wherever possible (e.g. placement of ancillary structures, garden retaining walls, driveway levels).
- **LOW Retention Value**: These trees should not be considered to be a constraint to design layout. Some of these trees should be removed irrespective of any proposed development.

The method of determining and defining retention values used in this report has been derived from the ©Retention Index developed by Tree Wise Men® Australia Pty Ltd.

4.5 Consideration for Tree Retention and Removal

Tree removal recommendations have been based on tree Retention Values and construction offsets. Trees are generally proposed to be removed in the following circumstances:

- Trees located within construction footprints.
- Trees with construction proposed within SRZ where root loss cannot be avoided through sensitive design.
- Trees with a TPZ loss of more than 25%, may be recommended for removal providing tree sensitive design cannot be implemented to avoid significant root and canopy loss.
- Trees with low Retention Values may be recommended for removal irrespective of proposed development.

Where demolition of existing structures, excavation or fill is proposed within the Tree Protection Zone (TPZ), arboricultural consultation and sensitive construction methods will be required. Where works are proposed outside of the TPZ, no sensitive construction methods are required.

5 Potential Impacts of Proposed Works

5.1 Trees to be removed

Tree Number	Retention Value	Reason for Removal
1 (Row of 9 trees)	Medium	Bulk excavation is proposed within the Structural Root Zone. Major root loss is expected. The trees are unlikely to tolerate the impact.
6A, 38, 40, 62, 69, 70, 71, 109, 110	High	Within the area of proposed bulk excavation or construction footprint.
26, 27, 28, 29, 30, 31, 32, 37, 40A, 42, 43, 44, 45, 47, 47A, 48, 63, 67, 68, 74, 108	Medium	
15, 33, 37A, 116	Low	
10, 41, 64, 65, 105	High	Bulk excavation is proposed within the Structural Root Zone. Major root loss is expected. The trees are unlikely to tolerate the impact.
61A, 73, 119A	Medium	
58A, 66	Low	
111, 112, 113	Medium	Within area of proposed landscaping works.
114	Low	
34	Low	Poor health or structural structural condition. Short estimated remaining life expectancy. These trees are recommended for removal irrespective of the proposed works.
115	Low	Dead tree. Overhangs public footpath. Remove irrespective of proposed works.

5.2 Potential Impacts of Proposal on Retained Trees

Tree Number	Retention Value	Works proposed within the Tree Protection Zone (TPZ)
2, 16, 17, 18, 36	Medium	Excavation and construction is proposed within the TPZ. Less than 10% of the TPZ area will be affected. These trees are likely to tolerate the proposed works and remain viable in the long term.
107	High	
56, 90	High	Excavation and construction is proposed within the TPZ. Approximately 15% of the TPZ area will be affected. An impact on these trees is expected. These trees are likely to tolerate the proposed works and remain viable in the long term.
7, 105	High	Excavation and construction is proposed within the TPZ. Approximately 20-30% of the TPZ area will be affected. An impact on these trees is expected. Close monitoring of these trees will be required during the project. These trees have a reasonable prospect of tolerating the proposed works and remaining viable in the long term.
12	Medium	
54	High	Pathway construction is proposed within the TPZ and SRZ. Impacts can be avoided through careful path construction elevated above existing ground levels.
36	Medium	
72	High	A new concrete driveway is proposed within the TPZ. There is an existing driveway in this location. No ground level changes or root loss is expected.

Incidental Impacts: There is the potential for incidental/accidental damage to the trunk, canopy and shallow roots of all retained trees throughout the construction process. Trees are commonly impacted on construction sites in the following ways.

- Stripping of topsoil and removal of organic material form the soil surface.
- Compaction of the topsoil and damage to surface roots through use of heavy machinery and frequent foot traffic.
- Soil contamination through washing out barrows and disposal or spillage of chemical materials.
- Root loss due to unforeseen excavation for plumbing upgrades and landscape construction.
- Bark/trunk and branch injuries from accidental contact with machinery.

These impacts can be easily avoided through communication with building contractors and basic tree protection measures.

6 Recommendations

6.1 Design Consideration

Tree 7- Ground Level Construction: Ground level construction within the TPZ of Tree 7 (4.7m radius) must be fully elevated over existing ground level. The ground level structures within this radius should be supported on isolated pier footings.

Tree 36, 54- Pathway Construction: The proposed pathway is within the Tree Protection Zone of Tree 36, 54. The potential for impact can be avoided by constructing the pathway as a fully elevated structure either bridged or ramped over the TPZ.

Tree 72 and 90- Driveway Construction: The proposed new driveway is within the TPZ of Trees 72 and 90. The driveway levels should be above existing ground levels to ensure that no excavation is required for levelling or formwork.

Hydraulics/Underground Services Layout: No stormwater/hydraulics/underground services plans were available for review at the time of assessment. All underground services/trenching must be routed outside of the Tree Protection Zones of retained trees.

6.2 Site Establishment –Prior to Demolition/Construction

Appointment of a Project Arborist: An Arborist with an AQF Level 5 qualification in Arboriculture and experience in tree protection within construction sites should be engaged prior to the commencement of work on the site. The Project Arborist should be present at the following times:

- Following installation of tree protection fencing.
- During any earthworks, building, pathway or driveway construction within the TPZ of retained trees.
- At any time tree protection fencing is required to be altered.
- At project completion to verify tree protection and retention.

Tree Removal: Fifty nine (59) trees are proposed to be removed as part of the project. Tree removal contractors should be briefed on the need to protect retained trees during tree removal operations. Tree removal works should be undertaken in accordance with the WorkSafe Australia *Guide to Managing Risks of Tree Trimming & Removal Work.*

Tree Protection Fencing: Tree protection fencing is recommended for all retained trees as detailed in the Tree Protection Plan (Attachment C). Tree Protection Fencing should be installed prior to commencement of demolition works and remain in position throughout the entire project. Tree Protection Fencing should consist of 1.8 metre high chainlink panels on moveable concrete pads. Tree Protection Fencing must be clamped at each panel junction. Tree Protection Fencing should not be moved at any time without consultation with the Project Arborist. An example of appropriate Tree Protection Fencing is detailed in Figure A (following page).

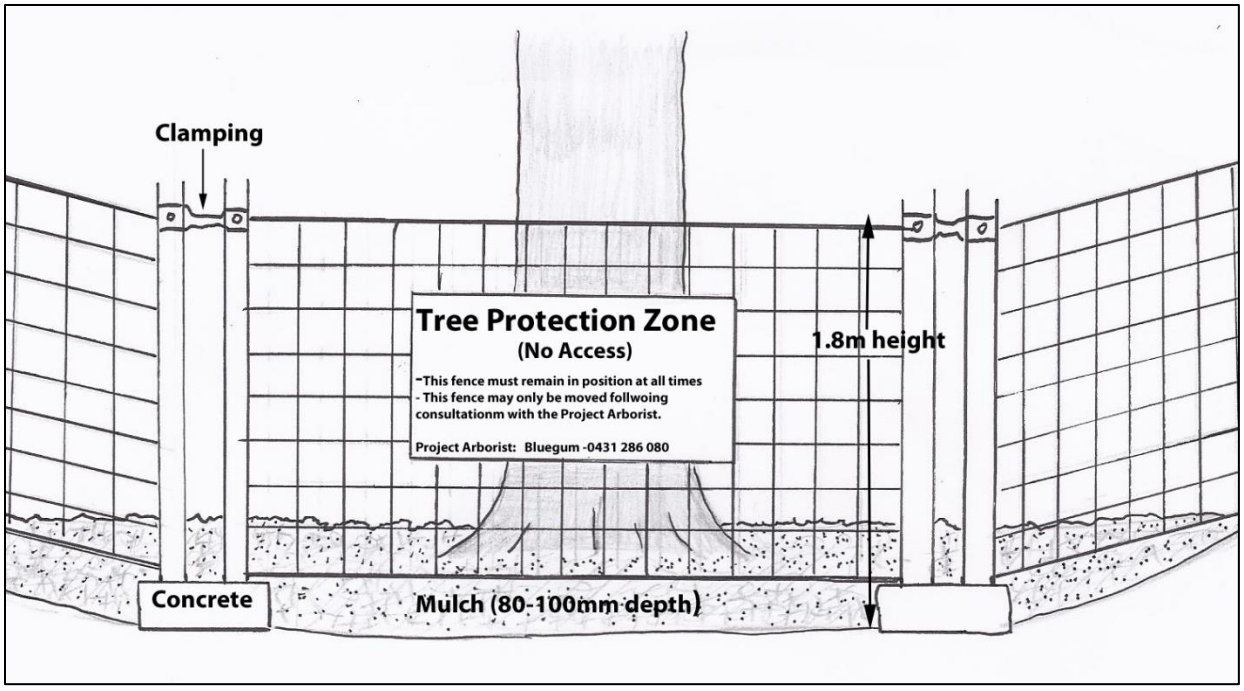

Figure A: Example of adequate tree protection fencing.

Trunk and Ground Protection: It may not be feasible or practical to install fencing within all of the TPZ's. Trunk and ground protection should be installed as an alternative where fencing is not possible. Trunk protection is aimed at preventing accidental bark wounds that often occur on construction sites. Ground protection is aimed at preventing soil compaction and contamination and injury to shallow roots.

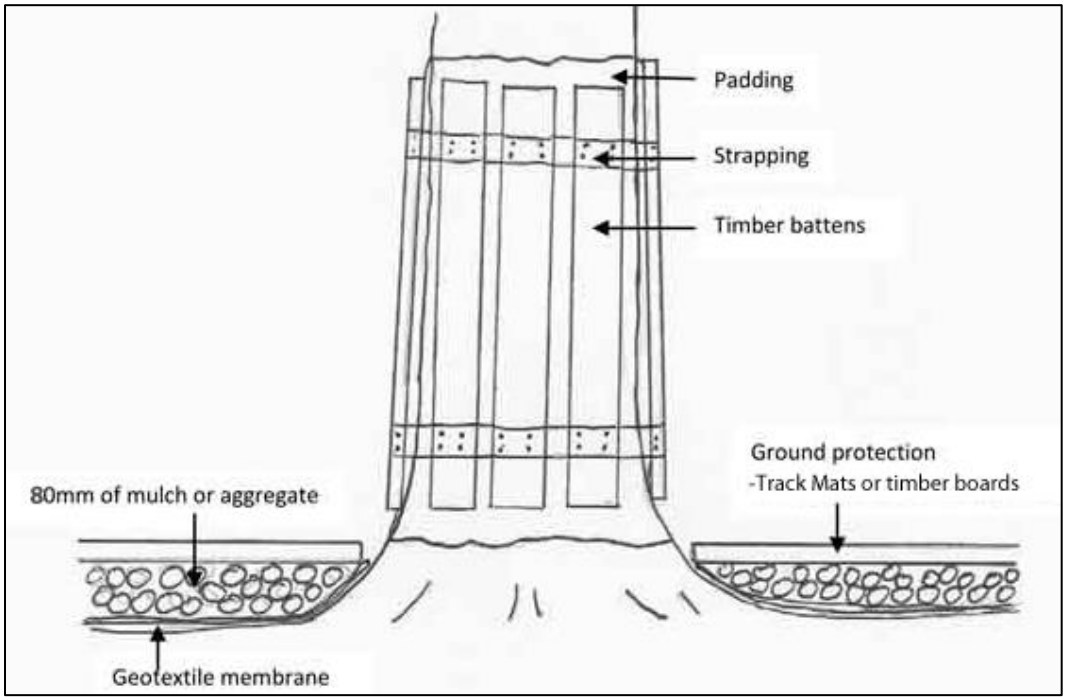

Figure B: Specification of appropriate trunk and ground protection.

6.3 During Demolition/Construction

Tree Protection Zones: Refer to the Tree Assessment Table (Attachment A) for the spread of TPZ's of trees nominated for retention. The following should be prohibited within the Tree Protection Zones:

- Stripping of topsoil or organic surface material outside of construction zones.
- Storage of material, vehicles and machinery.
- Disposal of solid, liquid or chemical waste.
- Any excavation, fill or other construction activity other than that discussed in this report.

Excavation/Bulk Earthworks (Trees 2, 12, 16, 17, 56, 107): Large scale excavation works are proposed within the TPZ of these trees creating the potential for root loss. Additional battering of edge slopes has the potential to greatly increase the extent of root loss. It is strongly recommended that contiguous piling is undertaken to avoid excavation batter within the TPZ's of these trees. The need to avoid over excavation within the TPZ's of these trees should be discussed as part of the induction of the earthworks contractor. There must be an observer present during all excavation within the TPZ's of these trees to guide and assist the machine operator. All tree roots encountered should be cleanly cut with a sharp saw or secateurs. The Project Arborist must be contacted if any roots greater than 40mm are damaged or if the Tree Protection Fencing needs to be temporarily moved.

Ground Level Construction (Tree 7): All ground level structures within a 4.7m radius of this tree should be fully elevated and supported on isolated pier footings. The positioning of piers should be finalised following an on-site meeting between the Project Arborist and Construction Manager. The purpose of this is identify options for pier positioning clear of major or structural tree roots.

Driveway Construction (Tree 72 and 91): Driveway levels were not specified on the provided Ground Floor Plan. The driveway levels should be above existing ground levels to ensure that no excavation is required for levelling or formwork. The levels/cross-section for the driveway should be reviewed by the Project Arborist prior to finalisation.

Pathway Construction (Tree 36, 54): The pathway proposed within the TPZ's of these trees must be constructed entirely above existing ground levels by either bridging or ramping over the TPZ. The finished levels must be sufficiently elevated to allow installation of any sub-base material above natural grade. The finished design and levels of the pathway in this location should be reviewed by the Project Arborist.

Sewer/Stormwater/Underground Services Connection: The existing underground services alignments and connection points should be continued with the new plumbing. The purpose of this is to avoid any new trenching within the Tree Protection Zones and associated root loss. All new underground services must be routed outside of the TPZ's of retained trees.

6.4 Post Construction Tree Care

At the completion of the project, the retained trees should be inspected by the Project Arborist. Depending on the health and vitality of retained trees, the Project Arborist may prescribe some remedial tree care. This may include installation of temporary or permanent irrigation, application of soil conditioners, compost application, fertiliser application and installation of mulch.

7 Statement of Impartiality

- This report prepared by Bluegum Tree Care & Consultancy (BTCC) reflects the impartial and expert opinion of Alexis Anderson.
- BTCC is acting independently of and not as the advocate for the owners of the subject trees.
- BTCC does not undertake tree pruning and removal works and will not have any involvement with pruning or removing trees which are the subject of this report.

8 Limitations

- The findings of this report are based upon and limited to visual examination of trees from ground level without any climbing, internal testing or exploratory excavation.
- The tree assessment was undertaken for the purpose of pre-development planning. Detailed tree risk assessment was not requested or included in the scope of works.
- This report reflects the health and structure of trees at the time of inspection. Bluegum cannot guarantee that a tree will be healthy and safe under all circumstances or for a specified period of time. There is no guarantee that problems or defects with assessed trees, will not arise in the future. Liability will not be accepted for damage to person or property as a result of failure of assessed trees.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
1	Weeping Bottlebrush, *Callistemon viminalis*	270, 150, 150	6	3	M	F	F	4.1	2.1	Medium (10-30 yrs)	3	Medium	Forms part of a row of 9 trees located along the Fisher Rd boundary.	Bulk excavation is proposed within the SRZ.	Remove.
2	Weeping Bottlebrush, *Callistemon viminalis*	220, 150, 150	6	3	M	F	F	4.0	2.1	Medium (10-30 yrs)	3	Medium	Forms part of a row of 9 trees located along the Fisher Rd boundary.	Bulk excavation is proposed within the TPZ. Less than 10% of the TPZ will be affected.	Retain.
3	Mediteranean Cypress, *Cupressus sempervirens*	350	12	2	M	G	G	4.2	2.2	Long (30+ yrs)	3	Medium		Nil.	Retain.
4	Mediteranean Cypress, *Cupressus sempervirens*	350	12	2	M	G	G	4.2	2.2	Long (30+ yrs)	3	Medium		Nil.	Retain.
5	Smooth-barked Apple, *Angophora costata*	50, 50, 50	3	1	M	G	P	2.0	1.5	Medium (10-30 yrs)	4	Low	Consists of suckering shoots from the stump of a previously removed tree.	Nil.	Retain.
6	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6A	Smooth-barked Apple, *Angophora costata*	470	10	7	M	G	G	5.6	2.4	Long (30+ yrs)	2	High	Not on the survey.	Within the proposed ground level construction footprint.	Remove.
7	Smooth-barked Apple, *Angophora costata*	390	11	5	M	G	G	4.7	2.3	Long (30+ yrs)	2	High		Ground level construction is proposed within the TPZ. Approximately 20-25% of the TPZ area will be affected.	Retain.
8	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9	Smooth-barked Apple, *Angophora costata*	460@ 0.5m	11	5	M	G	G	5.5	2.4	Long (30+ yrs)	2	High		Nil.	Retain.
10	Smooth-barked Apple, *Angophora costata*	420, 330, 250	12	7	M	G	G	5.0	2.4	Long (30+ yrs)	2	High		Bulk excavation is proposed within the SRZ.	Remove.
11	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	Monterey Pine, *Pinus radiata*	550	14	5	M	F	G	6.6	2.6	Medium (10-30 yrs)	3	Medium		Basement level excavation is proposed within the TPZ. Approximately 20-25% of the TPZ area will be affected.	Retain.
13	Smooth-barked Apple, *Angophora costata*	400	10	5	M	G	G	4.8	2.3	Long (30+ yrs)	2	High	Root visible spreading down the embankment to the south.	Nil.	Retain.
14	Monterey Pine, *Pinus radiata*	500	16	5	M	F	F	6.0	2.5	Medium (10-30 yrs)	3	Medium		Nil.	Retain.
15	Camphor Laurel, *Cinnamomum camphora*	260	9	4	EM	F	G	3.1	2.0	Long (30+ yrs)	4	Low		Within the proposed area of bulk excavation.	Remove.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
16	Monterey Pine, *Pinus radiata*	750	12	8	M	F	G	9.0	3.0	Medium (10-30 yrs)	3	Medium		Bulk excavation proposed within the TPZ. Less than 10% of the TPZ area will be affected.	Retain.
16A	Smooth-barked Apple, *Angophora costata*	450, 260	16	8	M	F	F	6.2	2.5	Medium (10-30 yrs)	2	High	Fungal fruiting bodies visible at 2.5m height. Further assessment is recommended. Not on the survey.	Nil.	Retain.
17	Smooth-barked Apple, *Angophora costata*	190	7	4	EM	F	G	2.3	1.7	Long (30+ yrs)	3	Medium		Bulk excavation proposed within the TPZ. Less than 10% of the TPZ area will be affected.	Retain.
18	Monterey Pine, *Pinus radiata*	1200	24	9	M	F	G	15.0	3.6	Medium (10-30 yrs)	3	Medium		Construction of footpath ramp/steps is proposed within the TPZ. Less than 10% of the TPZ area will be affected.	Retain.
19	Monterey Pine, *Pinus radiata*	750	24	9	M	G	G	9.0	3.0	Medium (10-30 yrs)	3	Medium		Nil.	Retain.
20	Monterey Pine, *Pinus radiata*	960	24	9	M	G	G	11.5	3.3	Medium (10-30 yrs)	3	Medium		Nil.	Retain.
21	Norfolk Island Pine, *Araucaria heterophylla*	940	27	5	M	G	G	11.2	3.3	Long (30+ yrs)	2	High	Within the curtilage of the heritage listed building.	Nil.	Retain.
21A	Port Jackson Fig, *Ficus rubiginosa*	270, 190	7	6	M	G	G	6.0	2.0	Long (30+ yrs)	2	High	Self sown.	Nil.	Retain.
22	Swamp Mahogany, *Eucalyptus robusta*	600	15	7	M	G	G	7.2	2.7	Long (30+ yrs)	2	High		Nil.	Retain.
23	Smooth-barked Apple, *Angophora costata*	270	11	3	M	G	G	3.2	2.0	Long (30+ yrs)	2	High		Nil.	Retain.
24	Smooth-barked Apple, *Angophora costata*	270	12	3	M	G	G	3.2	2.0	Long (30+ yrs)	2	High		Nil.	Retain.
25	Smooth-barked Apple, *Angophora costata*	250	13	3	M	G	G	3.0	1.9	Long (30+ yrs)	2	High		Nil.	Retain.
26	Monterey Pine, *Pinus radiata*	550	27	5	M	G	G	6.6	2.6	Long (30+ yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
27	Monterey Pine, *Pinus radiata*	240	7	2	M	G	G	2.9	1.9	Medium (10-30 yrs)	3	Medium		Within the proposed construction footprint.	Remove.
28	Monterey Pine, *Pinus radiata*	450	20	3	M	F	F	5.4	2.4	Medium (10-30 yrs)	3	Medium		Within the proposed construction footprint.	Remove.
29	Monterey Pine, *Pinus radiata*	600	24	6	M	F	F	7.2	2.7	Medium (10-30 yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
30	Monterey Pine, *Pinus radiata*	390	20	3	M	F	F	4.7	2.3	Medium (10-30 yrs)	3	Medium		Within the proposed construction footprint.	Remove.
31	Monterey Pine, *Pinus radiata*	550	23	4	M	G	F	6.6	2.6	Medium (10-30 yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
32	Monterey Pine, *Pinus radiata*	450	18	4	M	F	F	5.4	2.4	Medium (10-30 yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
33	Camphor Laurel, *Cinnamomum camphora*	350, 250	10	5	M	G	G	5.0	2.5	Long (30+ yrs)	4	Low		Within the proposed area of bulk excavation.	Remove.
34	Monterey Pine, *Pinus radiata*	1040	23	7	LM	P	F	12.4	3.4	Short (0-10 yrs)	3	Low	Decline of health and dieback of the upper canopy. Dead branch removal is recommended in the short term if this tree is retained.	Bulk excavation is proposed within the TPZ. Less than 10% of the TPZ will be affected.	Remove.
35	Grey Ironbark, *Eucalyptus paniculata*	250	15	3	EM	G	G	3.0	1.9	Long (30+ yrs)	3	Medium		Nil.	Retain.
36	Monterey Pine, *Pinus radiata*	930@ 0.5m	20	7	M	G	F	11.2	3.2	Medium (10-30 yrs)	3	Medium		Construction is proposed within the TPZ. Approximately 10% of the TPZ area will be affected.	Retain.
37	Blueberry Ash, *Elaeocarpus reticulatis*	220	8	4	M	G	G	2.6	1.9	Medium (10-30 yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
37A	Canary Island Date Palm, *Phoenix canariensis*	450	7	4	M	G	G	5.4	2.4	Long (30+ yrs)	4	Low	Self-sown weed.	Within the proposed area of bulk excavation.	Remove.
38	Smooth-barked Apple, *Angophora costata*	230	9	4	M	G	G	2.8	1.9	Long (30+ yrs)	2	High		Within the proposed area of bulk excavation.	Remove.
39	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	Smooth-barked Apple, *Angophora costata*	300	10	5	M	G	G	3.6	2.1	Long (30+ yrs)	2	High		Within the proposed area of bulk excavation.	Remove.
40A	Smooth-barked Apple, *Angophora costata*	160	8	3	EM	F	G	2.0	1.6	Medium (10-30 yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
41	Smooth-barked Apple, *Angophora costata*	450	11	7	M	G	F	5.4	2.4	Long (30+ yrs)	2	High		Basement level excavation is proposed within the SRZ. Major root loss is expected.	Remove.
42	Swamp She Oak, *Casuarina glauca*	350	13	3	M	G	G	4.2	2.2	Long (30+ yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
43	Swamp She Oak, *Casuarina glauca*	300	13	2	M	G	G	3.6	2.1	Long (30+ yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
44	Swamp She Oak, *Casuarina glauca*	260	12	2	M	G	G	3.1	2.0	Long (30+ yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
45	Swamp She Oak, *Casuarina glauca*	260	10	2	M	G	G	3.1	2.0	Long (30+ yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
46	Previously Removed	NA	NA	NA	M	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
47	Nettle Tree, *Celtis australis*	300, 250, 250	10	4	M	G	G	5.6	2.4	Long (30+ yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
47A	Leighton Green Cypress, *Cupressocyparis x leylandii*	100	7	2	M	G	G	2.0	1.5	Long (30+ yrs)	3	Medium	Row of 4 trees. Not on the survey.	Within the proposed area of bulk excavation.	Remove.
48	Native Frangipani, *Hymenosporum flavum*	200	8	3	M	F	G	2.4	1.7	Medium (10-30 yrs)	3	Medium		Within area of proposed earthworks and retaining walls.	Remove.
49	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
50	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
51	Weeping Bottlebrush, *Callistemon viminalis*	200	7	3	M	F	F	2.4	1.7	Medium (10-30 yrs)	3	Medium		Nil.	Retain.
52	Weeping Bottlebrush, *Callistemon viminalis*	100, 100	4	2	M	F	F	2.0	1.5	Short (0-10 yrs)	3	Low	Previously lopped. Consists of epicormic shoots.	Nil.	Retain.
53	Weeping Bottlebrush, *Callistemon viminalis*	100, 100, 100, 100	7	3	M	F	F	2.0	1.5	Medium (10-30 yrs)	3	Medium		Nil.	Retain.
54	Tallowwood, *Eucalyptus microcorys*	830	24	8	M	G	G	10.0	3.2	Long (30+ yrs)	2	High		Pathway construction is proposed within the TPZ/SRZ.	Retain.
55	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
55A	Frangipani, *Plumeria acutifolia*	210	5	3	M	G	G	2.5	1.8	Long (30+ yrs)	3	Medium	Not on the survey.	Nil.	Retain.
56	Yellow Bloodwood, *Corymbia eximea*	310	14	4	M	G	G	3.7	2.1	Long (30+ yrs)	2	High		Bulk excavation is proposed within the TPZ. Appox. 15% of the TPZ area will be affected.	Retain.
57	Argyle Apple, *Eucalyptus cinerea*	170	8	3	EM	F	F	2.0	1.6	Medium (10-30 yrs)	3	Medium	Supressed.	Boundary wall construction proposed at same alignment as existing wall.	Retain.
58	Tallowwood, *Eucalyptus microcorys*	590	18	8	M	G	G	7.1	2.7	Long (30+ yrs)	3	Medium		Entry path to be at the same alignment as the existing path.	Retain.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
58A	Scribbly Gum, *Eucalyptus haemastoma*	200	7	3	M	F	P	2.4	1.8	Short (0-10 yrs)	3	Low	Previous failure of the central stem. Not on the survey.	Basement level excavation proposed within the SRZ. Entry path to be at the same alignment as the existing path.	Remove.
59	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
60	Previously Removed	NA	NA	NA	M	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
61	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
61A	Broad-leaved Paperbark, *Melaleuca quinquenervia*	100, 100, 100	5	2	EM	G	G	2.0	1.5	Long (30+ yrs)	3	Medium	Not on the survey.	Basement level excavation is proposed within the SRZ. Entry path to be at the same alignment as the existing path. New pathway is proposed within the SRZ and TPZ.	Remove.
62	Swamp She Oak, *Casuarina glauca*	620	14	6	M	G	G	7.4	2.7	Medium (10-30 yrs)	2	High		Within the proposed area of bulk excavation.	Remove.
63	Jacaranda, *Jacaranda mimosifolia*	160	8	3	M	F	G	2.0	1.6	Medium (10-30 yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
64	Red Cedar, *Toona australis*	400	13	5	M	F	G	4.8	2.3	Long (30+ yrs)	2	High		Removal of the existing wall and excavation is proposed within the SRZ.	Remove.
65	Red Cedar, *Toona australis*	260	12	5	M	F	G	3.1	2.0	Long (30+ yrs)	2	High		Removal of the existing wall and excavation is proposed within the SRZ.	Remove.
66	Ash, *Ulmus sp.*	100, 90	6	2	M	F	F	2.0	1.5	Medium (10-30 yrs)	4	Low		Bulk excavation proposed witin the SRZ.	Remove.
67	Bracelet Honey Myrtle, *Melaleuca armillaris*	180	8	3	M	G	G	2.2	1.7	Medium (10-30 yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
68	Jacaranda, *Jacaranda mimosifolia*	350, 370	9	6	M	G	G	6.5	2.6	Long (30+ yrs)	3	Medium		Within the proposed area of bulk excavation.	Remove.
69	Scribbly Gum, *Eucalyptus haemastoma*	330	8	5	M	F	F	4.0	2.1	Medium (10-30 yrs)	2	High		Within the proposed area of bulk excavation.	Remove.
70	Scribbly Gum, *Eucalyptus haemastoma*	360	8	5	M	G	G	4.3	2.2	Long (30+ yrs)	2	High		Within the proposed driveway footprint.	Remove.
71	Scribbly Gum, *Eucalyptus haemastoma*	240	8	4	M	F	F	2.9	1.9	Medium (10-30 yrs)	2	High		Within the proposed driveway footprint.	Remove.
72	Lemon-scented Gum, *Corymbia citriodora*	870	29	10	M	G	G	10.4	3.2	Long (30+ yrs)	1	High		New concrete driveway within the TPZ. There is an existing driveway in this location. No ground level changes are expected.	Retain.
73	Monterey Pine, *Pinus radiata*	710	18	7	M	G	G	8.5	2.9	Long (30+ yrs)	3	Medium		Bulk excavation is proposed within the SRZ.	Remove.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
74	Liquidambar, *Liquidambar styraciflua*	740	18	7	M	G	F	8.9	2.9	Long (30+ yrs)	3	Medium	Included bark at the co-dominant stem junction.	Within the proposed area of bulk excavation.	Remove.
75	Smooth-barked Apple, *Angophora costata*	470	20	7	M	G	G	5.6	2.5	Long (30+ yrs)	1	High		Nil.	Retain.
76	Smooth-barked Apple, *Angophora costata*	130	10	2	IM	F	F	2.0	1.5	Medium (10-30 yrs)	3	Medium	Supressed.	Nil.	Retain.
77	Bangalay, *Eucalyptus bortyoides*	500	26	7	M	G	G	6.0	2.5	Long (30+ yrs)	1	High		Nil.	Retain.
78	Bangalay, *Eucalyptus bortyoides*	500	26	7	M	G	G	6.0	2.5	Long (30+ yrs)	1	High		Nil.	Retain.
79	Smooth-barked Apple, *Angophora costata*	470	21	6	M	F	F	5.6	2.5	Long (30+ yrs)	2	High	Wounding and borer damage at the base.	Nil.	Retain.
80	Smooth-barked Apple, *Angophora costata*	320	17	5	M	G	G	3.8	2.1	Long (30+ yrs)	1	High		Nil.	Retain.
81	Bangalay, *Eucalyptus bortyoides*	190	18	4	EM	G	G	2.3	1.7	Long (30+ yrs)	2	High		Nil.	Retain.
82	Bangalay, *Eucalyptus bortyoides*	420	24	6	M	G	G	5.0	2.4	Long (30+ yrs)	1	High		Nil.	Retain.
83	Bangalay, *Eucalyptus bortyoides*	410	18	6	M	G	G	4.9	2.3	Long (30+ yrs)	2	High		Nil.	Retain.
84	Camphor Laurel, *Cinnamomum camphora*	300, 300, 250, 250	13	6	M	P	F	6.0	2.5	Short (0-10 yrs)	4	Low	Upper canopy dieback.	Nil.	Retain.
85	Broad-leaved White Mahogany, *Eucalyptus umbra*	400, 400, 250	14	6	M	G	G	7.4	2.7	Long (30+ yrs)	1	High		Nil.	Retain.
86	Smooth-barked Apple, *Angophora costata*	400, 260	12	6	M	G	G	5.7	2.5	Long (30+ yrs)	1	High		Nil.	Retain.
87	Smooth-barked Apple, *Angophora costata*	350, 350, 290, 280	12	6	M	G	G	6.0	2.5	Long (30+ yrs)	1	High		Nil.	Retain.
88	Smooth-barked Apple, *Angophora costata*	230	8	3	M	P	G	2.8	1.8	Long (30+ yrs)	2	High	Supressed.	Nil.	Retain.
89	Bangalay, *Eucalyptus bortyoides*	320	16	4	M	G	G	3.8	2.1	Long (30+ yrs)	2	High		Nil.	Retain.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
90	Flooded Gum, *Eucalyptus grandis*	800	29	9	M	G	G	9.6	3.1	Long (30+ yrs)	2	High		Driveway construction is proposed within the TPZ. Aproximately 15% of the TPZ area will be affected.	Retain.
91	Forest She Oak, *Allocasuarina torulosa*	100, 90	7	2	M	G	G	2.0	1.6	Medium (10-30 yrs)	3	Medium		Nil.	Retain.
92	Previously Removed	NA	NA	NA	NA	NA	G	NA	NA	NA	NA	NA	NA	NA	NA
93	Previously Removed	NA	NA	NA	NA	NA	G	NA	NA	NA	NA	NA	NA	NA	NA
94	Smooth-barked Apple, *Angophora costata*	350, 350, 300	11	8	M	G	G	6.9	2.7	Long (30+ yrs)	1	High		Nil.	Retain.
95	Smooth-barked Apple, *Angophora costata*	650	13	7	M	G	G	7.8	2.8	Long (30+ yrs)	1	High		Nil.	Retain.
96	Smooth-barked Apple, *Angophora costata*	250	11	2	M	F	F	3.0	1.9	Long (30+ yrs)	2	High	Supressed.	Nil.	Retain.
97	Smooth-barked Apple, *Angophora costata*	120, 120	7	3	M	F	F	2.0	1.5	Medium (10-30 yrs)	2	High		Nil.	Retain.
98	Smooth-barked Apple, *Angophora costata*	490	15	6	M	G	G	5.9	2.5	Long (30+ yrs)	1	High		Nil.	Retain.
99	Smooth-barked Apple, *Angophora costata*	120	7	1	EM	P	F	2.0	1.5	Medium (10-30 yrs)	3	Medium	Supressed. Heavy lean and skew to the north.	Nil.	Retain.
100	Smooth-barked Apple, *Angophora costata*	320	15	5	M	G	G	3.9	2.1	Long (30+ yrs)	2	High		Nil.	Retain.
101	Smooth-barked Apple, *Angophora costata*	300	16	3	M	G	G	3.6	2.1	Long (30+ yrs)	2	High		Nil.	Retain.
102	Smooth-barked Apple, *Angophora costata*	350, 320	18	5	M	G	G	5.7	2.4	Long (30+ yrs)	1	High		Nil.	Retain.
103	Smooth-barked Apple, *Angophora costata*	400	18	4	M	G	G	4.8	2.3	Long (30+ yrs)	2	High		Nil.	Retain.
104	Giant Bird of Paradise, *Strelitzia nicholii*	200	6	2	M	G	G	2.4	1.7	Long (30+ yrs)	4	Low		Nil.	Retain.
105	Smooth-barked Apple, *Angophora costata*	480, 350	15	6	M	G	G	7.1	2.0	Long (30+ yrs)	1	High		Within the area of proposed bulk excavation.	Remove.
106	Smooth-barked Apple, *Angophora costata*	100	7	1	EM	P	P	2.0	1.5	Short (0-10 yrs)	3	Low		Nil.	Retain.
107	Smooth-barked Apple, *Angophora costata*	400, 350, 200	18	6	M	G	G	7.1	2.7	Long (30+ yrs)	2	High		Bulk excavation is proposed within the TPZ. Less than 10% of the TPZ will be affected.	Retain.

Tree No.	Common Name/ Genus Species	Trunk Diameter (mm)	Height (m)	Canopy Spread Radius (m)	Age Class	Health / Vitality	Structural Condition	Tree Protection Zone (m)	Structural Root Zone (m)	Estimated Life Expectancy (ELE)	Landscape and Environmental Significance	Retention Value	Comments	Likely Construction Impacts	Proposed Action.
108	Jacaranda, *Jacaranda mimosifolia*	400	11	6	M	G	G	4.8	2.3	Long (30+ yrs)	3	Medium		Within the area of proposed bulk excavation.	Remove.
109	Smooth-barked Apple, *Angophora costata*	500	14	7	M	G	G	6.0	2.5	Long (30+ yrs)	2	High		Within the area of proposed bulk excavation.	Remove.
110	Broad-leaved White Mahogany, *Eucalyptus umbra*	310	11	5	M	G	G	3.7	2.0	Long (30+ yrs)	2	High		Within the area of proposed bulk excavation.	Remove.
111	White Cedar, *Melia azederach*	200, 200	5	3	M	F	F	3.4	2.0	Medium (10-30 yrs)	3	Medium		Within the area of proposed landscaping works.	Remove.
112	White Cedar, *Melia azederach*	200, 200, 180	6	3	M	F	F	3.5	2.0	Medium (10-30 yrs)	3	Medium		Within the area of proposed landscaping works.	Remove.
113	White Cedar, *Melia azederach*	200, 200	5	3	M	F	F	3.4	2.0	Medium (10-30 yrs)	3	Medium		Within the area of proposed landscaping works.	Remove.
114	White Cedar, *Melia azederach*	200, 200	7	3	M	P	P	3.4	2.0	Short (0-10 yrs)	3	Low		Within the area of proposed landscaping works.	Remove.
115	Dead Tree	90, 90, 90, 90	5	2	_	_	_	_	_	_	5	Low	Remove as a high priority. Overhangs the footpath.	Nil.	Remove.
116	Cotoneaster, *Cotoneaster sp.*	150, 150	5	3	M	G	G	2.7	1.5	Long (30+ yrs)	4	Low	Weed species.	Within the proposed area of bulk excavation.	Remove.
117	Previously Removed	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
118	Coast Banksia, *Banksia integrifolia*	200	10	1	M	G	G	2.4	1.7	Long (30+ yrs)	3	Medium		Nil.	Retain.
119	Swamp Mahogany, *Eucalyptus robusta*	260	11	3	M	G	G	3.1	1.9	Long (30+ yrs)	3	Medium		Nil.	Retain.
119A	Swamp Mahogany, *Eucalyptus robusta*	290	11	4	M	G	G	3.5	2.0	Long (30+ yrs)	3	Medium	Not on the survey.	Bulk excavation is proposed within the SRZ.	Remove.
119B	Bangalay, *Eucalyptus bortyoides*	200	9	4	EM	F	G	2.4	1.7	Long (30+ yrs)	3	Medium	Not on the survey.	Nil.	Retain.
119C	Swamp Mahogany, *Eucalyptus robusta*	160	10	1	EM	G	G	2.0	1.6	Long (30+ yrs)	3	Medium	Not on the survey.	Nil.	Retain.
119D	Swamp Mahogany, *Eucalyptus robusta*	220	10	2	EM	G	G	2.6	1.8	Long (30+ yrs)	3	Medium	Not on the survey.	Nil.	Retain.
119E	Tallowwood, *Eucalyptus microcorys*	250	10	2	EM	G	G	3.0	1.9	Long (30+ yrs)	3	Medium	Not on the survey.	Nil.	Retain.

Attachment B: TREE ASSESSMENT DEFINITIONS

Height. Tree height is estimated from ground level. This assessment is made independently of data plotted on survey plan. These measurements have not been confirmed with clinometer or other surveying instrument.

Diameter at Breast Height (DBH). Trunk diameter is measured at 1.4 metres above ground level. A diameter tape is used which calculates the diameter from a measurement of the circumfrence. DBH is primarily used for the calculation of the TPZ. The trunk diameter above the root buttress is measured to calculate the Structural Root Zone. If a tree has more than 4 trunks, the diameter of the four largest trunks is recorded. For irregular trunk formations the DBH is calculated as outlined in Appendix A of AS4970-2009 -*Protection of Trees on Development Sites*.

Canopy Spread Radius. Average canopy spread radius is estimated from the centre of trunk to the outer edge of canopy. Refer to Comments column for detail of heavily skewed canopy spread.

Age Class - This is an estimation of the tree's current age class based on size, growth habit, local environmental conditions and comparison with surrounding trees.

- **Immature (IM)**: This is a juvenile specimen that is likely to have germinated within the previous 5 years.
- **Early Mature (EM)**: This is a tree that is established within its growing environment, though has not reached an age of reproductive maturity or the natural growth habit of a mature individual.
- **Mature (M)**: This is a tree has reached both reproductive maturity and a physical form and shape typical for the species. Trees can have a Mature Age Class for the majority of their life span.
- **Late-Mature (LM)**: There trees show early signs of senescence with symptoms such as reduced canopy density and an accumulation of dead branches.
- **Over-mature (OM)**: These trees show symptoms of irreversible decline such as canopy dieback with dead branches concentrated in the upper canopy.

Health/Vitality - Good (G), Fair (F) or Poor (P). This is primarily based on the extent of vigorous new foliage growth at branch tips and the colour, size and density of foliage generally. The percentage of live branches to dead branches is considered. The location of any dead branches is also considered. The presence of any pest or disease is considered as part of this assessment. Health can vary with climatic conditions.

Structural Condition - **Good (G), Fair (F) or Poor (P).** This is an assessment of tree structure and stability. Root anchorage, trunk lean, structural defects, canopy skew and any hazardous features are considered. Dead branches can be considered as part of Structural Condition if they are of a size and location that could cause injury or property damage.

Tree Protection Zone (TPZ). This is a radial distance of (12X) the DBH measured from centre of trunk. TPZ is rounded to the nearest 0.1 metre. A TPZ should not be less than 2m or greater than 15m. The TPZ for palms and other monocots should not be less than 1m outside of the crown projection. Existing constraints to root spread can vary the TPZ. For a tree to remain viable, construction activity should be excluded or undertaken with care within the TPZ. Disturbance within up to 10% of the TPZ area is considered to be a minor encroachment. Disturbance to more than 10% of the TPZ area is considered a major encroachment. Major encroachment into the TPZ is possible depending on the type of disturbance, and species tolerance to disturbance. Exploratory excavation may be required to quantify the presence of roots at the alignment of proposed ground disturbance.
This is based upon the Australian Standard AS 4970, 2009, *Protection of trees on development sites* and the Matheney & Clarke "*Guidelines for adequate tree preservation zones for healthy, structurally stable trees*".

Structural Root Zone (SRZ). This is a radial distance based on the following formula- **SRZ =(D x 50) $^{0.42}$ x 0.64** (for trees less than 150mm Diameter, a minimum SRZ of 1.5 metres). The **D** in the formula is the trunk diameter measured above the root buttress. This wass recorded in the field notes. SRZ measurements are rounded to the nearest 0.1m. The Structural Root Zone is the area of soil and roots required to maintain tree stability. Excavation within the SRZ can result in whole tree failure. Fully elevated construction is possible within SRZ with specific rootzone assessment. Existing constraints to root spread can vary the SRZ. This method of determining SRZ is outlined at Section **3.3.5** of Australian Standard AS 4970, 2009, *Protection of trees on development sites.*

Estimated Remaining Life Expectancy: This gives a length of time that the Arborist believes a particular tree can be retained from the time of assessment with an acceptable level of risk based on the information available at the time of the inspection. This system of rating does not take into consideration the likely impacts of any proposed development. Ratings are **Long** (retainable for 30 years or more with an acceptable level of risk), **Medium** (retainable for 10-30 years), **Short** (retainable for 0-10 years) and **Removal** (tree requiring removal due to risk/hazard or absolute unsuitability).

Landscape & Environmental Significance*. This is an assessment of the impact of the tree on the surrounding landscape amenity and natural environment. Rarity, habitat value, physical prominence, historical and cultural significance of the tree are considered in this rating system. The Landscape & Environmental Value ratings used in this report are:

1. Very High Value: This is an outstanding specimen that holds irreplaceable environmental, landscape or cultural value.

2. High Value: An excellent specimen that holds environmental, landscape or cultural value that is present in other site trees or that could be replaced.

3. Moderate Value: Can be a good to fair specimen with environmental, landscape or cultural value that is common within other trees in the locality.

4. Low Value: Removal would not result in any loss of site amenity or environmental value. Can include undesirable or weed species or trees growing in unsuitable locations.

5. Very Low Value: Dead or hazardous with no other environmental or cultural value. Could also include weed species. These trees should be removed or pruned in a way to make safe irrespective of any development.

***Note**: The concept of using a five (5) point scale to assess tree significance was derived from the Tree Wise Men® Australia Pty Ltd ©Significance Rating Scale.

Retention Value*. Retention values are derived from a combination of Estimated Life Expectancy rating and Landscape and Environmental Significance ratings.

<table>
<tr><td rowspan="6">Landscape & Environmental Significance</td><td></td><td colspan="4">Estimated Life Expectancy</td></tr>
<tr><td></td><td>Long</td><td>Medium</td><td>Short</td><td>Removal</td></tr>
<tr><td>Very High (1)</td><td colspan="2" rowspan="2">HIGH</td><td rowspan="2">MEDIUM</td><td rowspan="2"></td></tr>
<tr><td>High (2)</td></tr>
<tr><td>Medium (3)</td><td colspan="2">MEDIUM</td><td rowspan="3" colspan="2">LOW</td></tr>
<tr><td>Low (4)</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>Very Low (5)</td></tr>
</table>

HIGH Retention Value: These trees are worthy of retention and major design consideration should be made where feasible to allow this.

MEDIUM Retention Value: These trees are worthy of retention and minor design consideration should be made to retain these trees wherever possible (e.g. placement of ancillary structures, garden retaining walls, driveway levels).

LOW Retention Value: These trees should not be considered to be a constraint to design layout. Some of these trees should be removed irrespective of any proposed development.

***Note:** The method of determining and defining retention values used in this report has been derived from the ©Retention Index developed by Tree Wise Men® Australia Pty Ltd.

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Bluegum
Tree Care and Consultancy®

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AQF Level 5 -Consulting Arborist

Tree Protection Plan

15 Fisher Road, Dee Why

LEGEND			
Retained Tree	48	Tree to be Removed	
Unsurveyed tree (to be retained)		Tree Protection Fencing	A 3.02

-This Tree Protection Plan was prepared with the Level 1 Plan, Rose Architectural Services as a base.

-This plan is to be read in conjunction with the Arboricultural Impact Assessment (AIA) report prepared for this site, December 2020

-Tree protection fencing is indicative only. Final positions should be determined with co-ordination between the Site Foreman and Project Arborist to allow adequate site access during construction. Refer to the report for detail of adequate fencing type.

-In areas where tree protection fencing is not feasible or inhibiting safe site access, trunk battening and ground protection (as detailed in the report) will be required as an alternative.

Ground level construction must be fully elevated within a 4.7m radius of Tree 7

Project Arborist supervision is recommended during excavation within the TPZ of Tree 12

Pathway construction must be fully elevated/bridged within a 10m radius of Tree 54

Pathway construction must be fully elevated/bridged within the TPZ of T36

Driveway levels must be entirely above existing ground levels to ensure that no excavation is undertaken for levelling or formwork. Applicable within a 10.5m radius of Tree 72.

Driveway levels must be entirely above existing ground levels to ensure that no excavations undertaken for levelling or formwork. Applicable within a 9.6m radius of Tree 90.

BUILDING B3 LEVEL 4 RL 35.30

BUILDING C LEVEL 1 RL 34.60 RL 35.50

BUILDING A LEVEL 1 RL 35.50 RL 38.50

EXISTING DWELLING PACIFIC LODGE RL 37.900

PRELIMINARY

Status: SECTION 4.55
Job No: 20098

Scale: 1 : 200
Sheet Size: A1
Date: 04/30/18
Drawn: Author
Reviewed
Checked