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ARBORICULTURAL IMPACT ASSESSMENT

Bonnyrigg Living Communities Project: Subdivision Stages 12 & 13

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APPENDICIES

1 EXECUTIVE SUMMARY

This Arboricultural Impact Assessment (AIA) was commissioned by Paul Parfenow of the NSW Land & Housing Corporation on the 2nd of May 2022. The report relates to three-hundred and seventy-four (374) trees located on and adjacent to land associated with subdivision Stages 12 & 13 of the Bonnyrigg Living Communities Project.

The report provides an evaluation of the likely impact to existing trees as a result of the subdivision works which are to include a series of new roadways and open space areas as well as associated site grading works and stormwater infrastructure.

A summary of those trees identified has been provided in ***Table 1*** below along with a description of their retention values and nominated retention/removal status under the proposal.

Table 1 *– Tree assessment summary*

Retain / Remove	**Identified Retention Values**				**Total Number of Trees**
	High	**Medium**	**Low**	**Priority for Removal**	
Remove	**32 trees** *(Trees 18, 34-36, 59-62, 64, 69, 76-78, 89-97, 103, 110-113, 127, 159, 160, 267 & 351)*	**55 trees** *(Trees 20, 58, 63, 66, 67, 70-74, 99, 100, 156-158, 187, 216, 217, 224, 226, 228-233, 236-244, 246-253, 259, 260, 262-264, 266, 268, 269, 341, 344, 347 & 348)*	**25 trees** *(Trees 19, 75, 101, 102, 104-109, 170, 171, 208-210, 218, 225, 227, 235, 245, 261, 265, 345, 346 & 349)*	**3 trees** *(Trees 141, 275 & 350)*	**115 trees**
Retain & Protect	**104 trees** *(Trees 1-4, 6-8, 13, 14, 16, 33, 37-39, 41-43, 48, 49, 53, 65, 80-82, 84, 85, 87, 88, 98, 114-121, 124, 125, 128-131, 134-136, 138-140, 145-150, 153, 154, 162, 167, 172-178, 188-191, 197-200, 203, 205, 256, 257, 273, 274, 279, 280, 282, 283, 314, 320, 322, 323, 339, 340, 342, 352-355, 357, 358, 361, 364, 365, 368 & 369-371)*	**94 trees** *(Trees 9, 12, 21-28, 32, 40, 44-46, 50, 57, 68, 132, 133, 142, 144, 151, 155, 161, 163-166, 168, 169, 182-184, 194-196, 201, 207, 211, 213, 214, 219, 221-223, 234, 254, 255, 258, 272, 278, 284-289, 291, 292, 294-296, 298, 300-305, 308-312, 315, 317-319, 321, 325, 326, 329, 332, 334-336, 338, 343, 356, 360, 366, 372 & 374)*	**20 trees** *(Trees 5, 10, 11, 15, 17, 29-31, 47, 51, 52, 54-56, 79, 83, 86, 122, 123, 126, 137, 143, 152, 179-181, 185, 186, 192, 193, 202, 204, 206, 215, 220, 270, 271, 276, 277, 281, 290, 293, 297, 299, 306, 307, 313, 316, 324, 327, 328, 330, 331, 337, 359, 362, 363, 367 & 373)*	**2 trees** *(Trees 212 & 333)*	**259 trees**
				Total	**374 trees**

Based on the plans supplied, and should the proposed works proceed in their current form, it is recommended that one-hundred and fifteen (115) trees be removed in order to facilitate the proposed works. This includes **Trees 18-20, 34-36, 58-64, 66, 67, 69-78, 89-97, 99-113, 127, 141, 156-160, 170, 171, 187, 208-210, 216-218, 224-233, 235-253, 259-269, 275, 341** & **344-351**.

The remaining two-hundred and fifty-nine (259) trees assessed as part of this report are recommended to be retained and protected. This includes **Trees 1-17, 21-33, 37-57, 65, 68, 79-88, 98, 114-140, 142-155, 161-169, 172-186, 188-207, 211-215, 219-223, 234, 254-258, 270-274, 276-340, 342, 343** & **352-374**.

Specific recommendations as per ***Section 7*** 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 Paul Parfenow of the NSW Land & Housing Corporation on the 2nd of May 2022 to evaluate potential impacts that proposed development works will have on existing trees located on and adjacent to land associated with subdivision Stages 12 & 13 of the Bonnyrigg Living Communities Project (refer to ***Figure 1***).

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

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

2.3 Legislation & Regulating Documents

This Arboricultural Impact Assessment has considered the following regulatory documents:

- *State Environmental Planning Policy (Biodiversity and Conservation) 2021*
- *Fairfield Local Environmental Plan 2013 (FLEP 2013)*
- *Fairfield Development Control Plan 2013 (FDCP 2013)*
- *Greater Sydney Regional Strategic Weed Management Plan 2017-2022 (GSRSWMP)*

2.4 Documentation Received

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

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

Document Description	Author	Revision No. / Date
Civil Engineering Plans	J. Wyndham Prince	C / 13 October 2022
Landscape Plans	Distinctive Living Design	C / 14 October 2022
Detail Survey	Premise	No date

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

2.5 The Site

Legally described as Lot 13 in DP1143255 and Lots 453 & 454 in DP839627, the site area subject to this assessment currently contains a large number of residential dwellings which form part of an existing public housing estate. The site is approximately 6.81 hectares in size and is defined by Bonnyrigg Avenue to the north, Tarlington Parade to the south, Tarlington Reserve to the east and Bonnyrigg Plaza / Bonnyrigg Public School to the west (Refer to ***Figure1*** below).

The site features a generally even and consistent grade, with a moderate fall from the western to eastern boundaries.

2.6 Proposed Development

The proposed development is for the establishment of a new subdivision representing Stages 12 & 13 of the Bonnyrigg Living Communities Project. Primarily, the proposal is to include a series of new roadways and public open space areas as well as associated site grading works, landscaping and stormwater infrastructure (Refer to ***Figure 2*** below).

Specifically, those works considered likely to impact the existing trees on site include the new roadways, stormwater infrastructure and modification of ground levels including excavation and fill.

2.7 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.

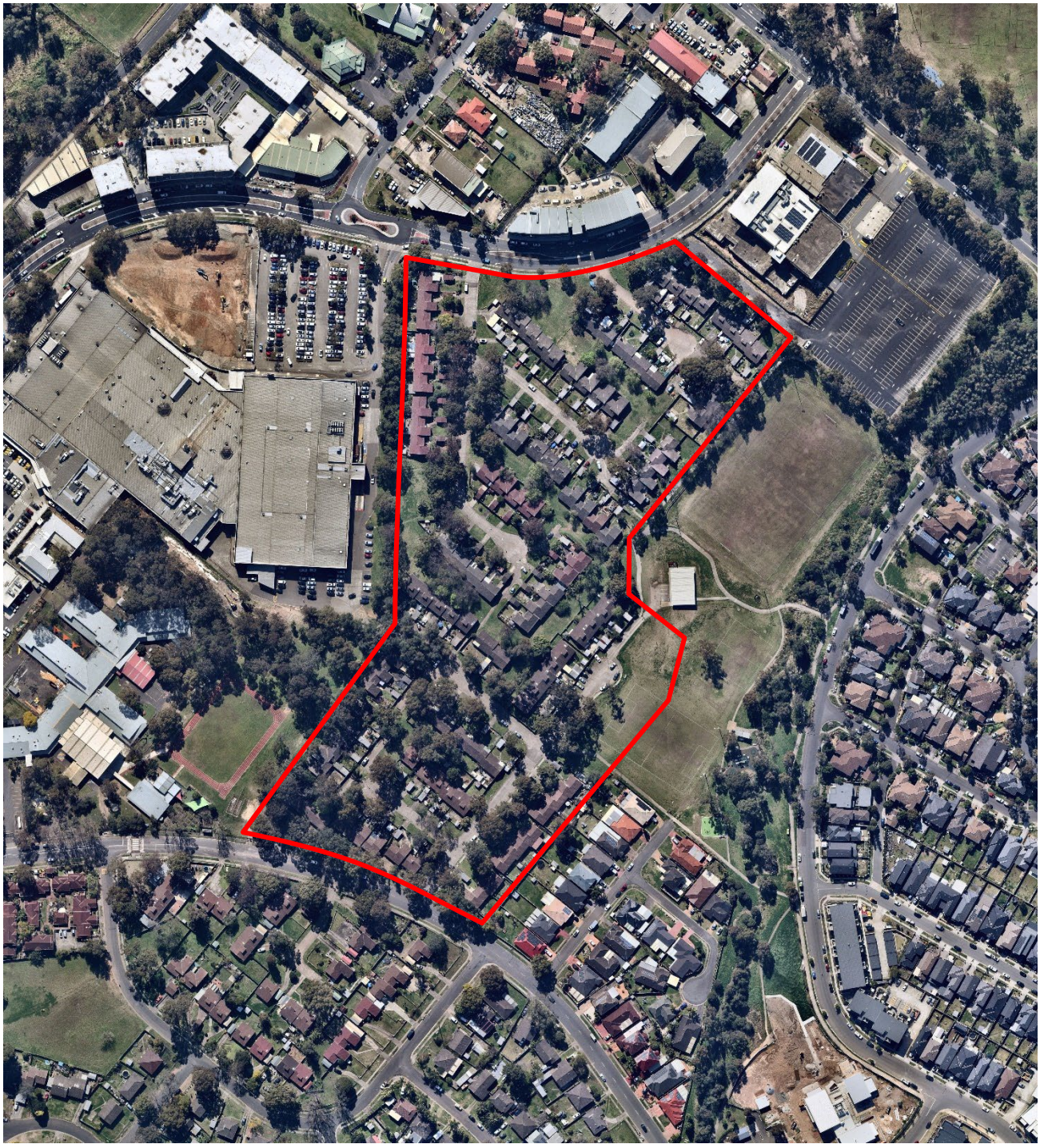

Figure 1 *- Aerial image indicating subject site (outlined red).*

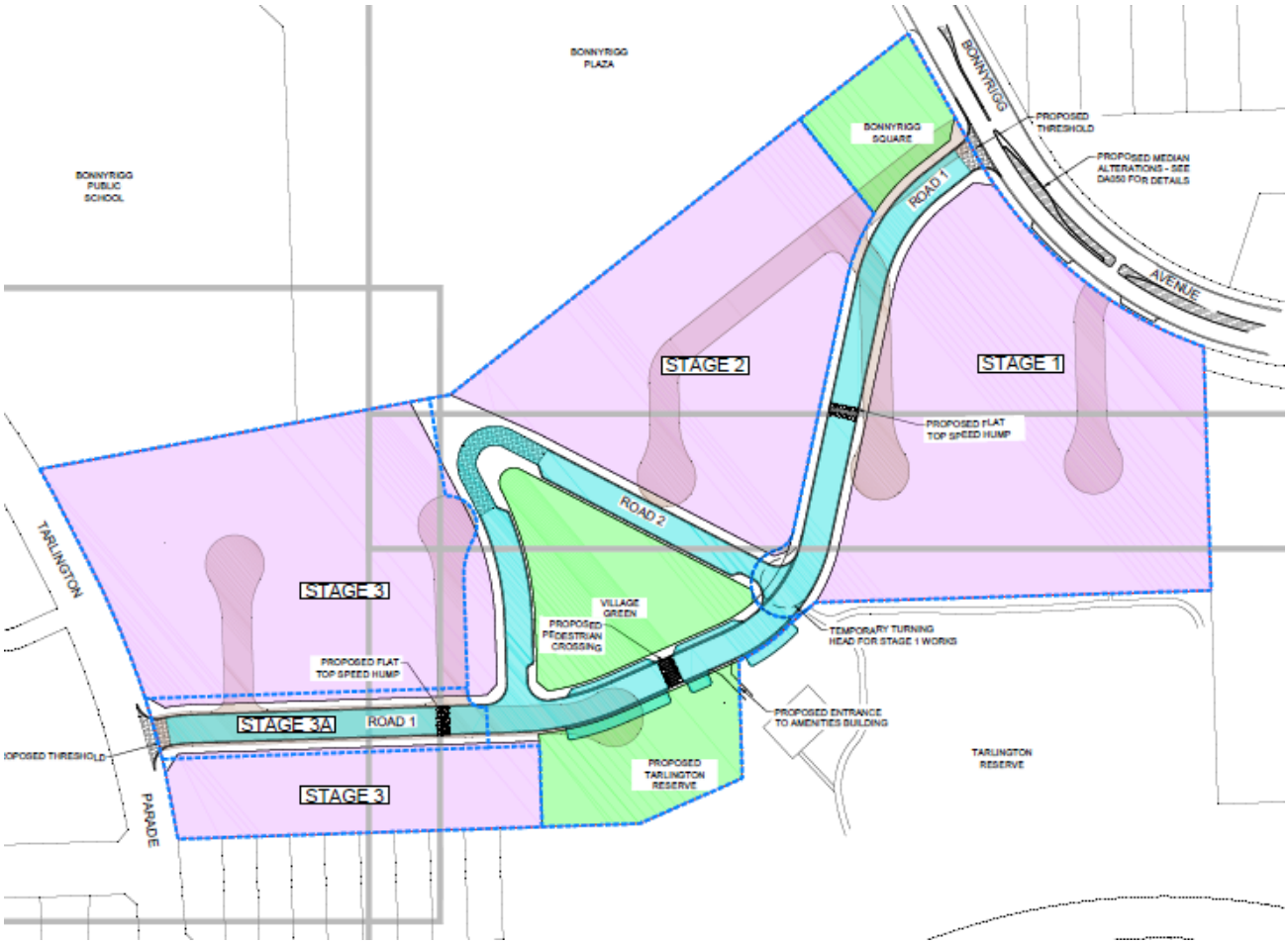

Figure 2 – *Site Plan extract showing the proposed layout of the development.*

3 METHODOLOGY

3.1 Methodology

3.1.1 Site Inspection

A site inspection was carried out by Toby Piper and Greg Tesoriero (CPS AQF5 Arborists) with the subject trees and the general growing environment evaluated on the 6th of May 2022. The weather at the time of inspection was sunny and dry with clear visibility.

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

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

3.1.2 Visual Tree Assessment (VTA)

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

3.1.3 Safe Useful Life Expectancy (SULE)

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

The following ranges have been allocated to each tree:

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

3.1.4 Landscape Significance

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

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

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

3.1.5 Retention Value

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

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

3.1.6 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 x 50)$^{0.42}$ x 0.64

4 OBSERVATIONS

4.1 General

The site area subject to this assessment was observed as highly disturbed with no understorey present. Species observed varied including exotic, Australian native and locally indigenous species. Health, vigour and condition was varied across the trees forming part of the assessment. Root zones of assessed trees were generally observed as modified groundcover within restricted deep soil areas.

4.2 Tree Preservation Order

Chapter 3.2 – *Preservation of Trees or Vegetation* of the Fairfield Development Control Plan (DCP) 2013 applies to all land within the Fairfield City Council Local Government Area. The provisions included within the DCP generally protect any tree or that corresponds with the following criteria:

A perennial plant with a self-supporting stem, which:

i. has a height of more than 4 metres if located on land other than land shown on the Fairfield LEP 2013 Riparian land and Waterways Map or 1 metre if located on such land; or
ii. has a spread of more than 3 metres if located on land other than land shown on the Fairfield LEP 2013 Riparian land and Waterways Map or 0.5 metres if located on such land; or
iii. has a trunk diameter of more than 75mm measured 1 metre above ground level if located on land other than land shown on the Fairfield LEP 2013 Riparian land and Waterways Map or 20mm if located on such land, and is also of a species which has a mature height of more than 4m; or
iv. is listed in Council's Significant Tree Register but excludes any tree declared under the *Biosecurity Act* 2015.

4.3 The Trees

A total of three-hundred and seventy-four (374) trees were observed on and adjoining the subject site which have been surveyed as part of this assessment. A breakdown of the species identified has been provided within ***Figure 3*** whilst Table ***Figure 4*** provides a visual representation of the proportion of Retention Values of those tress assessed.

All tree data recorded on site has been tabulated and is contained at ***Appendix 1***. Each tree has been provided with an identification number for reference purposes and is denoted on the attached Tree Location Plans at ***Appendix 2***.

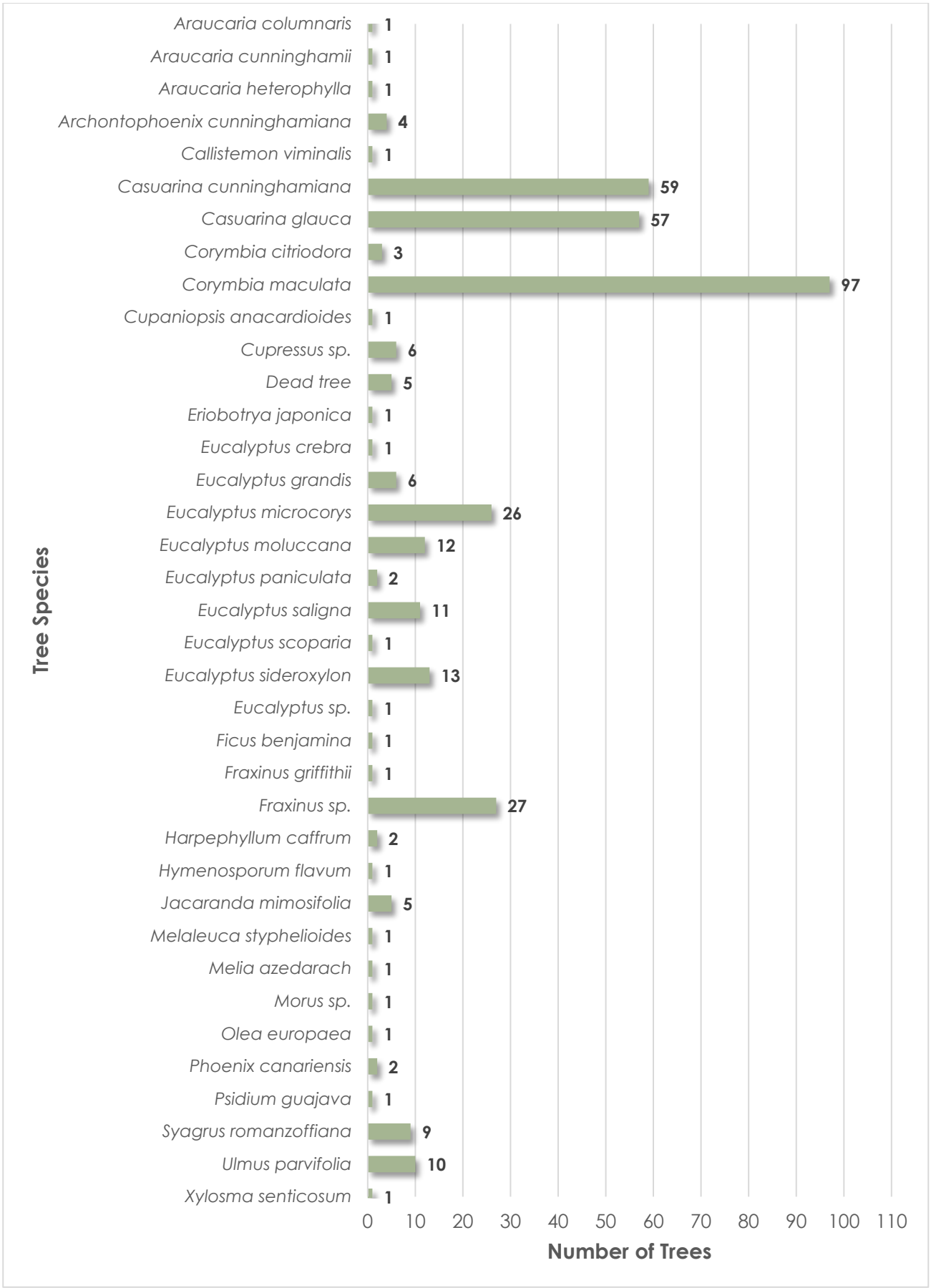

Figure 3 *– Tree species and number identified.*

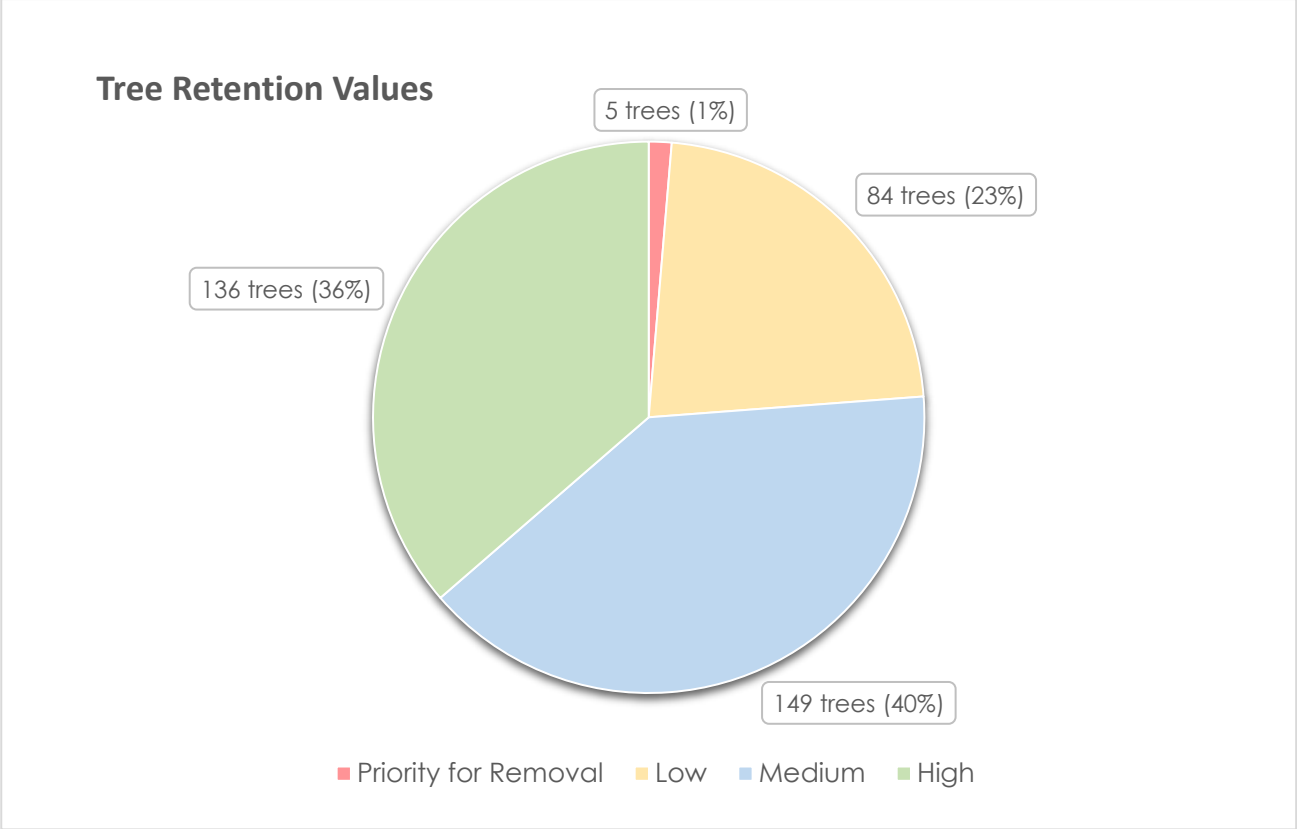

***Figure 4** – Tree Retention Value breakdown.*

4.4 Critically Endangered Ecological Communities

It is noted that a number of those trees assessed are of a species consistent with two (2) locally occurring Critically Endangered Ecological Communities, being:

1. *River-Flat Eucalypt Forest on Coastal Floodplains of the Sydney Basin Bioregion*, and;
2. *Cumberland Plain Woodland in the Sydney Basin Bioregion*.

The preservation these communities is outlined under the provisions of the NSW *Biodiversity Conservation (BC) Act 2016* and the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*.

Of relevance to the subject site, it is noted that these communities are represented by Plant Community Type (PCT) Nos. 835 (*River-Flat Eucalypt Forest*) and 849 (*Cumberland Plain Woodland*) under the Sydney Metropolitan Vegetation Map 2016. An excerpt from this mapping is provided within ***Figure 5*** below which shows the extent of these PCTs within proximity to the proposed development area. It is noted that mapped PCT areas do not occur within the subject site.

Whilst acknowledging that CPS are not qualified in the field of Ecology, it is estimated that the majority of the trees assessed as part of this survey are planted specimens and are unlikely to form part of any remnant vegetation. This estimation has been based upon the regularity of tree locations adjacent to established roadways and property boundaries as well as the generally reduced size of tree specimens observed. Any further ecological interpretation is outside the scope of this report.

***Figure 5** - Sydney Metropolitan Vegetation Map extract showing the extent of PCT No. 835 (highlighted purple) and PCT No. 849 (highlighted yellow) within proximity to the subject site (outlined red).*

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 within the Tree Schedule at ***Appendix 1***. Additionally, plans demonstrating the level of incursion and conflict to TPZ's and SRZ's can be found at ***Appendix 2***. As part of the assessment the following criteria have been considered:

- Existing Relative Levels (R.L.);
- Proposed Relative Levels;
- Tree Protection Zones (TPZ);
- 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 Removal

Should the proposed works proceed in their current form, it is recommended that one-hundred and fifteen (115) trees be removed. This includes **Trees 18-20, 34-36, 58-64, 66, 67, 69-78, 89-97, 99-113, 127, 141, 156-160, 170, 171, 187, 208-210, 216-218, 224-233, 235-253, 259-269, 275, 341** & **344-351**. Removals have been recommended based upon; tree locations being in direct conflict with proposed roadways, footpaths, retaining walls and site re-grading works, major and unsustainable incursions to the TPZ as a result of such works or due to being classified as dead. Refer to ***Appendix 2*** for a plan indicating the location of the tree that will require removal (dashed red).

Table 3 *– Trees recommended for removal*

Reason for Removal	**Trees Recommended for Removal**				
	High Retention Value	**Medium Retention Value**	**Low Retention Value**	**Priority for Removal**	**Total**
Full encroachment - within the footprint of a proposed roadway, footpath or retaining wall	Twelve (12) trees: **Trees 34, 59, 61, 62, 64, 77, 89, 90, 92, 103, 111** & **160**	Fourteen (14) trees: **Trees 20, 63, 66, 70, 71, 73, 187, 224, 236, 238, 239, 251, 260** & **268**	Seven (7) trees: **Trees 19, 101, 102, 104, 170, 171** & **208**	-	**Thirty-three (33) trees**

Reason for Removal	Trees Recommended for Removal				
	High Retention Value	**Medium Retention Value**	**Low Retention Value**	**Priority for Removal**	**Total**
Full encroachment - within the footprint of proposed site re-grading works	Twelve (12) trees: **Trees 18, 35, 60, 76, 78, 91, 93, 94, 110, 112, 267** & **351**	Thirty-one (31) trees: **Trees 67, 72, 74, 99, 100, 216, 217, 226, 228, 229, 230, 231, 232, 240, 241, 242, 243, 244, 246, 247, 248, 249, 259, 262, 263, 264, 266, 269, 344, 347** & **348**	Sixteen (16) trees: **Trees 105, 106, 107, 108, 109, 209, 210, 225, 227, 235, 245, 261, 265, 345, 346** & **349**	-	**Fifty-nine (59) trees**
Major incursions to the TPZ (>10%) as per *AS4970-2009* as a result of works associated with roadways, footpaths, retaining walls and site re-grading works	Eight (8) trees: **Trees 36, 69, 95, 96, 97, 113, 127** & **159**	Ten (10) trees: **Trees 58, 156, 157, 158, 233, 237, 250, 252, 253** & **341**	Two (2) trees: **Trees 75** & **218**	-	**Twenty (20) trees**
Dead tree	-	-	-	Three (3) trees: **Trees 141, 275** & **350**	**Three (3) trees**
				Total	**One-hundred & fifteen (115) trees**

5.2.1 Trees Recommended for Removal - Retention Values

The proposed development works will necessitate the removal of thirty-two (32) trees of '***High***' retention value, fifty-five (55) trees of '***Medium***' retention value, twenty-five (25) trees of '***Low***' retention value and three (3) trees considered to be a '***Priority for Removal***' due to being classified as dead. The removal of these trees is expected to result in a moderate impact to the amenity of the surrounding landscape setting, however this is considered capable of being offset pending implementation of the replacement planting as part of future site redevelopment works and as per the recommendations provided within ***Section 7***.

5.3 Trees Recommended for Retention & Protection

Should the proposed works proceed in their current form, it is recommended that two-hundred and fifty-nine (259) trees be retained and protected. Generally, the proposed works are unlikely to result in any significant negative impacts to the long-term health and viability of these trees pending implementation of required tree protection measures. This includes **Trees 1-17, 21-33, 37-57, 65, 68, 79-88, 98, 114-140, 142-155, 161-169, 172-186, 188-207, 211-215, 219-223, 234, 254-258, 270-274, 276-340, 342, 343** & **352-374**.

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

Table 4 *– Trees recommended for retention & protection*

Works Within the Tree Protection Zone (TPZ)	**Trees Recommended for Retention & Protection**				
	High Retention Value	**Medium Retention Value**	**Low Retention Value**	**Priority for Removal**	**Total**
Minor incursions to the TPZ (<10%) as per *AS4970-2009* as a result of proposed retaining walls or site re-grading works	Nine (9) trees: **Trees 33, 65, 172, 176, 322, 323, 339, 340** & **342**	Ten (10) trees: **Trees 24, 161, 211, 234, 258, 319, 332, 334, 335** & **336**	Three (3) trees: **Trees 79, 206** & **215**	-	**Twenty-two (22) trees**
No works proposed within the TPZ	Ninety-five (95) trees: **Trees 1, 2, 3, 4, 6, 7, 8, 13, 14, 16, 37, 38, 39, 41, 42, 43, 48, 49, 53, 80, 81, 82, 84, 85, 87, 88, 98, 114, 115, 116, 117, 118, 119, 120, 121, 124, 125, 128, 129, 130, 131, 134, 135, 136, 138, 139, 140, 145, 146, 147, 148, 149, 150, 153, 154, 162, 167, 173, 174, 175, 177, 178, 188, 189, 190, 191, 197, 198, 199, 200, 203, 205, 256, 257, 273, 274, 279, 280, 282, 283, 314, 320, 352, 353, 354, 355, 357, 358, 361, 364, 365, 368, 369, 370** & **371**	Eighty-four (84) trees: **Trees 9, 12, 21, 22, 23, 25, 26, 27, 28, 32, 40, 44, 45, 46, 50, 57, 68, 132, 133, 142, 144, 151, 155, 163, 164, 165, 166, 168, 169, 182, 183, 184, 194, 195, 196, 201, 207, 213, 214, 219, 221, 222, 223, 254, 255, 272, 278, 284, 285, 286, 287, 288, 289, 291, 292, 294, 295, 296, 298, 300, 301, 302, 303, 304, 305, 308, 309, 310, 311, 312, 315, 317, 318, 321, 325, 326, 329, 338, 343, 356, 360, 366, 372** & **374**	Fifty-six (56) trees: **Trees 5, 10, 11, 15, 17, 29, 30, 31, 47, 51, 52, 54, 55, 56, 83, 86, 122, 123, 126, 137, 142, 152, 179, 180, 181, 185, 186, 192, 193, 202, 204, 220, 270, 271, 276, 277, 281, 290, 293, 297, 299, 306, 307, 313, 316, 324, 327, 328, 330, 331, 337, 359, 362, 363, 367** & **373**	Two (2) trees: **Trees 212** & **333**	**Two-hundred & thirty-seven (237) trees**
				Total	**Two-hundred & fifty-nine (259) trees**

5.4 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 5***.

6 CONCLUSION

6.1 Proposed Development Impact

Based on the plans and information supplied, the proposal would result in the following impacts to existing trees on site:

Removal of one-hundred and fifteen (115) trees, including:

- Ninety-two (92) trees (**Trees 18-20, 34, 35, 59-64, 66, 67, 70-74, 76-78, 89-94, 99-112, 160, 170, 171, 187, 208-210, 216, 217, 224-232, 235, 236, 238-249, 251, 259-269, 344-349** & **351**) due to falling directly within the footprint of proposed roadways, footpaths, retaining walls and site re-grading works;

- Twenty (20) trees (**Trees 36, 58, 69, 75, 95-97, 113, 127, 156-159, 218, 233, 237, 250, 252, 253** & **341**) due to 'Major' (>10%) and unsustainable incursions to their respective Tree Protection Zones (TPZs) and Structural Root Zones (SRZs) as a result of works associated with proposed roadways, footpaths, retaining walls and site re-grading, and;

- Three (3) trees (**Trees 141, 275** & **350**) which are classified as dead.

Retention and protection of two-hundred and fifty-nine (259) trees, including:

- Twenty-two (22) trees (**Trees 24, 33, 65, 79, 161, 172, 176, 206, 211, 215, 234, 258, 319, 322, 323, 332, 334-336, 339, 340** & **342**) which are to be subject to 'Minor' (<10%) but sustainable incursions to their respective Tree Protection Zones (TPZs) as a result of proposed retaining walls and site re-grading works.

- Two-hundred and thirty-seven (237) trees (**Trees 1-17, 21-23, 25-32, 37-57, 68, 80-88, 98, 114-140, 142-155, 162-169, 173-175, 177-186, 188-205, 207, 212-214, 219-223, 254-257, 270-274, 276-318, 320, 321, 324-331, 333, 337, 338, 343** & **352-374**) which are generally located away from the proposed works and are to have nil or otherwise sustainable incursions to their respective Tree Protection Zones (TPZs).

Specific recommendations as per ***Section 7*** will need to be adopted to ensure root sensitive construction techniques and methodology are employed which mitigate the potential negative impacts to trees nominated for retention.

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

7 RECOMMENDATIONS

7.1 Tree Removal

Remove **Trees 18-20, 34-36, 58-64, 66, 67, 69-78, 89-97, 99-113, 127, 141, 156-160, 170, 171, 187, 208-210, 216-218, 224-233, 235-253, 259-269, 275, 341** & **344-351** (115 trees) to facilitate the proposed development works.

Development consent and relevant approvals must be obtained from Fairfield City Council prior to the removal or pruning of any tree protected under Chapter 3.2 – *Preservation of Trees or Vegetation* of the Fairfield Development Control Plan 2013.

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

7.1.1 Mitigation of Potential Ecological Impacts

Prior to the commencement of any works, a suitably qualified Project Ecologist is to be engaged to undertake a detailed pre-clearance survey to determine if any fauna species are likely to be impacted by the removal of trees as specified within this report. Should habitat trees be identified as part of this survey, the Project Ecologist is to prepare a Tree Removal Method Statement which outlines how trees can be removed without adversely affecting fauna species. At a minimum, this statement is to provide recommendations for; marking and clear identification of habitat trees, appropriate staging of vegetation removal, notification of WIREs or local veterinary practice prior to clearing, supervision of clearing works and a strategy for the relocation of fauna or other salvageable habitat features.

7.2 Tree Retention & Protection

Retain and protect **Trees 1-17, 21-33, 37-57, 65, 68, 79-88, 98, 114-140, 142-155, 161-169, 172-186, 188-207, 211-215, 219-223, 234, 254-258, 270-274, 276-340, 342, 343** & **352-374**. (259 trees) in accordance with the Tree Location Plan & Tree Protection Specification held at ***Appendix 2 & 5***, *AS497-2009 Protection of trees on development sites* and the specific recommendations below:

7.2.1 Project Arborist Engagement

A Project Arborist experienced in tree protection on construction sites should be engaged prior to the commencement of any 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 trees 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.

7.2.2 Tree Protection and Management Plan

Following design development and prior to any construction works taking place on site, a dedicated Tree Protection and Management Plan is to be prepared by a suitably qualified AQF Level 5 Arborist. The purpose of this document is to provide a suitable framework for tree protection to ensure all trees nominated for retention are not adversely impacted by the proposed works.

7.3 Replacement Planting

In order to compensate for the loss of amenity resulting from the proposed tree removal, replacement planting should be provided should be provided at a ratio of 1:1. This will ensure there is no incremental loss of canopy cover over time and that the integrity of the surrounding landscape setting is maintained in the long-term.

Accordingly, one-hundred and fifteen (115) large growing, native compensatory tree plantings should be provided within the open space and street verge areas associated with the development. Tree specimens chosen for planting should be provided at a minimum 45L pot size and are to align with the requirements for stock selection as stipulated by *AS2303-2015 – Tree stock for landscape use*. The following species should be considered for replacement planting:

- *Angophora floribunda (Rough-barked Apple)*
- *Casuarina glauca (Swamp Oak)*
- *Corymbia maculata (Spotted Gum)*
- *Eucalyptus eugenioides (Thin-leaved Stringybark)*
- *Eucalyptus crebra (Narrow-leaved Ironbark)*
- *Eucalyptus fibrosa (Red Ironbark)*
- *Eucalyptus moluccana (Grey Box)*
- *Eucalyptus tereticornis (Forest Red Gum)*

Sincerely,

Toby Piper
SENIOR ARBORIST
Dip. Arboriculture – AQF Level 5
Registered Consulting Arborist No. 12352
B.LArch

8 REFERENCES

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APPENDIX 1: TREE ASSESSMENT DATA - Bonnyrigg Living Communities Project: Stages 12 & 13

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	***Corymbia citriodora*** Lemon-scented Gum	10	9	300				400	3.60	2.25	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Wound @ 0.5m west side
2	***Corymbia citriodora*** Lemon-scented Gum	11	8	300				350	3.60	2.13	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown bias to south
3	***Corymbia citriodora*** Lemon-scented Gum	15	12	450				550	5.40	2.57	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Form typical of species
4	***Corymbia maculata*** Spotted Gum	10	7	300				400	3.60	2.25	SM	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Form typical of species
5	***Eucalyptus grandis*** Flooded Gum	16	8	350				450	4.20	2.37	M	Good	Poor	Short 5-15yrs	Medium	Low	No works proposed within TPZ	Retain & Protect	Wound @ 0.5m. Active decay and fruiting bodies
6	***Casuarina cunninghamiana*** River Sheoak	12	7	300				350	3.60	2.13	M	Good	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown bias to north
7	***Eucalyptus grandis*** Flooded Gum	14	8	300				400	3.60	2.25	SM	Good	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Poor stem taper
8	***Eucalyptus grandis*** Flooded Gum	14	8	300				400	3.60	2.25	SM	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown bias to north
9	***Corymbia maculata*** Spotted Gum	10	7	300				350	3.60	2.13	SM	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Moderate level of deadwood
10	***Corymbia maculata*** Spotted Gum	6	5	200				250	2.40	1.85	SM	Fair	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Failed central leader
11	***Cupressus sp.*** Cypress	6	2	100				150	2.00	1.50	M	Good	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
12	***Corymbia maculata*** Spotted Gum	12	5	250				300	3.00	2.00	SM	Fair	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	High level of deadwood
13	***Corymbia maculata*** Spotted Gum	18	14	600				750	7.20	2.93	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 5m
14	***Corymbia maculata*** Spotted Gum	15	4	250				300	3.00	2.00	SM	Fair	Poor	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Failed central leader
15	***Cupressus sp.*** Cypress	6	2	100				150	2.00	1.50	M	Good	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
16	***Corymbia maculata*** Spotted Gum	15	7	350				400	4.20	2.25	SM	Fair	Poor	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Heavy crown bias to north
17	***Eucalyptus sp.*** Eucalyptus	9	2	400				450	4.80	2.37	M	Poor	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Lopped @ 4m with epicormic regrowth
18	***Corymbia maculata*** Spotted Gum	15	15	400				450	4.80	2.37	M	Good	Good	Long 40yrs +	High	High	Within footprint of proposed site re-grading works	Remove	Trunk lean to south, self corrected
19	***Corymbia maculata*** Spotted Gum	10	5	250				300	3.00	2.00	M	Poor	Fair	Short 5-15yrs	Low	Low	Within footprint of proposed footpath	Remove	High levels of crown dieback and deadwood

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
20	***Eucalyptus saligna*** Sydney Blue Gum	12	8	600				500	7.20	2.47	M	Fair	Poor	Medium 15-40yrs	Medium	Medium	Within footprint of proposed footpath	Remove	Failed central leader
21	***Casuarina glauca*** Swamp Oak	11	3	150				200	2.00	1.68	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Slender form
22	***Casuarina glauca*** Swamp Oak	12	2	200				300	2.40	2.00	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Slender form
23	***Corymbia maculata*** Spotted Gum	13	8	350				400	4.20	2.25	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 3m
24	***Corymbia maculata*** Spotted Gum	11	6	300				400	3.60	2.25	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Crown dominance to south
25	***Casuarina glauca*** Swamp Oak	11	4	200				250	2.40	1.85	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Slender form
26	***Casuarina glauca*** Swamp Oak	11	4	300				350	3.60	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Slender form
27	***Casuarina glauca*** Swamp Oak	11	4	250				300	3.00	2.00	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 2m
28	***Eucalyptus microcorys*** Tallowwood	15	9	1000				550	12.00	2.57	M	Good	Poor	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Included, birfucated stems from ground level, moderate level of deadwood
29	***Jacaranda mimosifolia*** Jacaranda	7	5	250				300	3.00	2.00	M	Average	Poor	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Heavily pruned with epicormic regrowth
30	***Melia azedarach*** White Cedar	7	5	250				300	3.00	2.00	M	Average	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Multi-stemmed from ground level
31	***Jacaranda mimosifolia*** Jacaranda	5	4	200				250	2.40	1.85	SM	Average	Poor	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Heavily pruned with epicormic regrowth
32	***Corymbia maculata*** Spotted Gum	15	5	300				350	3.60	2.13	M	Fair	Poor	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Heavy crown bias to east
33	***Corymbia maculata*** Spotted Gum	14	4	300				350	3.60	2.13	M	Good	Fair	Long 40yrs +	Medium	High	Minor (<10%) TPZ incursion	Retain & Protect	Slender form
34	***Eucalyptus grandis*** Flooded Gum	13	8	400				450	4.80	2.37	M	Good	Good	Long 40yrs +	Medium	High	Within footprint of proposed footpath	Remove	Form typical of species
35	***Casuarina glauca*** Swamp Oak	15	6	250				350	3.00	2.13	M	Good	Average	Long 40yrs +	Medium	High	Within footprint of proposed site re-grading works	Remove	Lean to west
36	***Casuarina glauca*** Swamp Oak	15	6	350				400	4.20	2.25	M	Good	Average	Long 40yrs +	Medium	High	Major (>10%) TPZ incursion	Remove	Crown dominance to north
37	***Casuarina glauca*** Swamp Oak	15	6	350				400	4.20	2.25	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Included stems from ground level
38	***Corymbia maculata*** Spotted Gum	11	10	400				450	4.80	2.37	M	Good	Good	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Form typical of species
39	***Casuarina glauca*** Swamp Oak	12	8	350				400	4.20	2.25	M	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Secondary stem from ground level

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
40	***Casuarina glauca*** Swamp Oak	11	5	200				250	2.40	1.85	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Crown bias to north
41	***Corymbia maculata*** Spotted Gum	12	9	400				500	4.80	2.47	M	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 3m
42	***Eucalyptus moluccana*** Grey Box	18	15	800				900	9.60	3.17	M	Good	Good	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 7m
43	***Eucalyptus moluccana*** Grey Box	13	8	350				500	4.20	2.47	M	Average	Poor	Medium 15-40yrs	High	High	No works proposed within TPZ	Retain & Protect	Crown skew to south
44	***Fraxinus griffithii*** Evergreen Ash	8	7	400				450	4.80	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Timber deck surrounds
45	***Harpephyllum caffrum*** Kaffir Plum	9	5	300				350	3.60	2.13	M	Good	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Multi-stemmed from 2m
46	***Harpephyllum caffrum*** Kaffir Plum	10	5	300				350	3.60	2.13	M	Good	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Multi-stemmed from 2m, heavily pruned north side
47	***Syagrus romanzoffiana*** Cocos Palm	6	4	200				200	2.40	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
48	***Corymbia maculata*** Spotted Gum	15	10	500				650	6.00	2.76	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Form typical of species, minor sooty mould to leaf
49	***Casuarina glauca*** Swamp Oak	12	7	350				500	4.20	2.47	M	Good	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 4m
50	***Eucalyptus microcorys*** Tallowwood	12	8	450				500	5.40	2.47	M	Average	Poor	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Included crossing stems from 1m
51	***Cupressus sp.*** Cypress	7	3	200				250	2.40	1.85	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Lean to north
52	***Archontophoenix cunninghamiana*** Bangalow Palm	10	2	200				200	2.40	1.68	M	Fair	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Mechanical damage lower trunk
53	***Fraxinus sp.*** Flowering Ash	8	6	300				350	3.60	2.13	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 1.5m
54	***Archontophoenix cunninghamiana*** Bangalow Palm	11	2	200				200	2.40	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
55	***Archontophoenix cunninghamiana*** Bangalow Palm	11	2	200				200	2.40	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
56	***Archontophoenix cunninghamiana*** Bangalow Palm	11	2	200				200	2.40	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
57	***Fraxinus sp.*** Flowering Ash	8	7	350				400	4.20	2.25	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 2m
58	***Fraxinus sp.*** Flowering Ash	6	5	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Bifurcated stems from 1m
59	***Eucalyptus saligna*** Sydney Blue Gum	16	15	850				950	10.20	3.24	M	Good	Average	Long 40yrs +	High	High	Within footprint of proposed footpath	Remove	Exposed heartwood, minor canker

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
60	***Corymbia maculata*** Spotted Gum	16	8	350				450	4.20	2.37	M	Good	Fair	Long 40yrs +	Medium	High	Within footprint of proposed site re-grading works	Remove	Bifurcated stems @ 2m
61	***Casuarina glauca*** Swamp Oak	14	7	350				450	4.20	2.37	M	Good	Average	Long 40yrs +	Medium	High	Within footprint of proposed footpath	Remove	Multi-stemmed from 3m
62	***Casuarina glauca*** Swamp Oak	14	6	300				350	3.60	2.13	M	Good	Average	Long 40yrs +	Medium	High	Within footprint of proposed footpath	Remove	Nil
63	***Casuarina glauca*** Swamp Oak	12	7	300				350	3.60	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed footpath	Remove	Bifurcated stems from 1.5m
64	***Eucalyptus microcorys*** Tallowwood	12	8	300				400	3.60	2.25	M	Good	Average	Long 40yrs +	Medium	High	Within footprint of proposed footpath	Remove	Nil
65	***Eucalyptus microcorys*** Tallowwood	10	7	300				400	3.60	2.25	M	Good	Poor	Long 40yrs +	Medium	High	Minor (<10%) TPZ incursion	Retain & Protect	Skewed trunk to north, crown dominance to south
66	***Corymbia maculata*** Spotted Gum	12	5	200				300	2.40	2.00	SM	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed footpath	Remove	Slender form
67	***Eucalyptus microcorys*** Tallowwood	10	7	400				400	4.80	2.25	M	Average	Poor	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Failed central leader
68	***Fraxinus sp.*** Flowering Ash	8	6	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 2m
69	***Casuarina glauca*** Swamp Oak	10	6	300				450	3.60	2.37	M	Average	Average	Long 40yrs +	Medium	High	Major (>10%) TPZ incursion	Remove	Within park
70	***Eucalyptus saligna*** Sydney Blue Gum	12	5	300				350	3.60	2.13	SM	Good	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed footpath	Remove	Crown bias to south, slender form
71	***Eucalyptus saligna*** Sydney Blue Gum	14	5	300				300	3.60	2.00	SM	Good	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed footpath	Remove	Slender form, canker/wound @1m southside
72	***Eucalyptus saligna*** Sydney Blue Gum	12	4	300				350	3.60	2.13	SM	Average	Poor	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Slender form, canker/wound @1m northside
73	***Eucalyptus saligna*** Sydney Blue Gum	14	6	350				450	4.20	2.37	SM	Fair	Poor	Medium 15-40yrs	Medium	Medium	Within footprint of proposed footpath	Remove	Poor crown development
74	***Eucalyptus microcorys*** Tallowwood	9	7	350				450	4.20	2.37	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Apical dieback
75	***Eucalyptus saligna*** Sydney Blue Gum	10	7	500				600	6.00	2.67	M	Poor	Fair	Short 5-15yrs	Medium	Low	Major (>10%) TPZ incursion	Remove	Crown dieback, canker with exposed heartwood
76	***Eucalyptus saligna*** Sydney Blue Gum	18	16	1100				1200	13.20	3.57	M	Good	Good	Long 40yrs +	High	High	Within footprint of proposed site re-grading works	Remove	Form typical of species
77	***Eucalyptus microcorys*** Tallowwood	15	10	450				550	5.40	2.57	M	Average	Average	Long 40yrs +	High	High	Within footprint of proposed roadway	Remove	Crown bias to north
78	***Eucalyptus microcorys*** Tallowwood	14	8	400				450	4.80	2.37	M	Average	Average	Long 40yrs +	High	High	Within footprint of proposed site re-grading works	Remove	Crown bias to south
79	***Corymbia maculata*** Spotted Gum	15	9	450				550	5.40	2.57	M	Poor	Fair	Short 5-15yrs	Low	Low	Minor (<10%) TPZ incursion	Retain & Protect	Sparse crown density and dieback

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
80	***Corymbia maculata*** Spotted Gum	15	9	450				550	5.40	2.57	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Form typical of species
81	***Corymbia maculata*** Spotted Gum	15	8	450				550	5.40	2.57	M	Fair	Fair	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Crown bias to west
82	***Corymbia maculata*** Spotted Gum	16	10	950				550	11.40	2.57	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Form typical of species
83	***Corymbia maculata*** Spotted Gum	9	6	200				250	2.40	1.85	M	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Trunk lean and crown skew to south
84	***Corymbia maculata*** Spotted Gum	15	8	300				350	3.60	2.13	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown bias south
85	***Corymbia maculata*** Spotted Gum	16	10	350				450	4.20	2.37	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Form typical of species
86	***Corymbia maculata*** Spotted Gum	8	4	150				200	2.00	1.68	SM	Average	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Poor crown development
87	***Corymbia maculata*** Spotted Gum	15	7	300				350	3.60	2.13	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 2m
88	***Corymbia maculata*** Spotted Gum	16	10	450				500	5.40	2.47	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Skewed trunk, crown bias to south
89	***Casuarina glauca*** Swamp Oak	12	7	300				350	3.60	2.13	M	Good	Average	Long 40yrs +	Medium	High	Within footprint of proposed footpath	Remove	Crown shy to east
90	***Casuarina glauca*** Swamp Oak	10	4	250				300	3.00	2.00	M	Average	Average	Long 40yrs +	Medium	High	Within footprint of proposed footpath	Remove	Suppressed by adjacent trees
91	***Casuarina glauca*** Swamp Oak	12	6	300				350	3.60	2.13	M	Good	Average	Long 40yrs +	Medium	High	Within footprint of proposed site re-grading works	Remove	Lean to south
92	***Casuarina glauca*** Swamp Oak	14	5	500				600	6.00	2.67	M	Average	Fair	Long 40yrs +	Medium	High	Within footprint of proposed footpath	Remove	Trifurcated stems from ground level
93	***Casuarina glauca*** Swamp Oak	4	14	300				350	3.60	2.13	M	Average	Average	Long 40yrs +	Medium	High	Within footprint of proposed site re-grading works	Remove	Nil
94	***Casuarina glauca*** Swamp Oak	10	14	500				600	6.00	2.67	M	Average	Poor	Long 40yrs +	Medium	High	Within footprint of proposed site re-grading works	Remove	Twin trunks from ground level, significant lean to east trunk
95	***Casuarina glauca*** Swamp Oak	4	10	350				400	4.20	2.25	M	Average	Fair	Long 40yrs +	Medium	High	Major (>10%) TPZ incursion	Remove	Included stems from 1m
96	***Casuarina glauca*** Swamp Oak	2	9	250				300	3.00	2.00	M	Average	Fair	Long 40yrs +	Medium	High	Major (>10%) TPZ incursion	Remove	Crown skew to east
97	***Casuarina glauca*** Swamp Oak	14	5	500				600	6.00	2.67	M	Average	Poor	Long 40yrs +	Medium	High	Major (>10%) TPZ incursion	Remove	Included stems from 0.5m
98	***Casuarina glauca*** Swamp Oak	11	5	250				300	3.00	2.00	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown shy to north
99	***Corymbia maculata*** Spotted Gum	18	6	300				350	3.60	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Crown shy to north

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
100	***Eucalyptus saligna*** Sydney Blue Gum	15	12	650				750	7.80	2.93	M	Fair	Poor	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Failed central leader, poor crown development
101	***Fraxinus sp.*** Flowering Ash	6	4	200				250	2.40	1.85	M	Fair	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed roadway	Remove	Multi-stemmed from 1.5m
102	***Corymbia maculata*** Spotted Gum	9	9	150				200	2.00	1.68	SM	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed roadway	Remove	Crown shy to west
103	***Eucalyptus microcorys*** Tallowwood	14	14	600				700	7.20	2.85	M	Fair	Average	Long 40yrs +	High	High	Within footprint of proposed roadway	Remove	Moderate level of deadwood
104	***Corymbia maculata*** Spotted Gum	7	3	100				150	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Low	Low	Within footprint of proposed roadway	Remove	Crown conflict
105	***Fraxinus sp.*** Flowering Ash	6	4	200				250	2.40	1.85	M	Fair	Fair	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Multi-stemmed @2m
106	***Fraxinus sp.*** Flowering Ash	8	6	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Multi-stemmed @2m
107	***Syagrus romanzoffiana*** Cocos Palm	12	4	250				250	3.00	1.85	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Nil
108	***Syagrus romanzoffiana*** Cocos Palm	12	4	250				250	3.00	1.85	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Nil
109	***Fraxinus sp.*** Flowering Ash	9	6	250				300	3.00	2.00	M	Fair	Poor	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Crown heavily infested with vine
110	***Corymbia maculata*** Spotted Gum	10	4	200				250	2.40	1.85	SM	Average	Average	Long 40yrs +	Medium	High	Within footprint of proposed site re-grading works	Remove	Nil
111	***Corymbia maculata*** Spotted Gum	11	5	250				300	3.00	2.00	SM	Good	Average	Long 40yrs +	Medium	High	Within footprint of proposed roadway	Remove	Bifurcated stems from 5m
112	***Corymbia maculata*** Spotted Gum	9	5	250				300	3.00	2.00	SM	Fair	Average	Long 40yrs +	Medium	High	Within footprint of proposed site re-grading works	Remove	Nil
113	***Corymbia maculata*** Spotted Gum	9	4	200				250	2.40	1.85	SM	Fair	Fair	Long 40yrs +	Medium	High	Major (>10%) TPZ incursion	Remove	Nil
114	***Corymbia maculata*** Spotted Gum	10	6	300				350	3.60	2.13	SM	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
115	***Corymbia maculata*** Spotted Gum	10	6	300				350	3.60	2.13	SM	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
116	***Fraxinus sp.*** Flowering Ash	9	8	350				400	4.20	2.25	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Multi-stemmed from 2m
117	***Corymbia maculata*** Spotted Gum	10	4	200				250	2.40	1.85	SM	Fair	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
118	***Corymbia maculata*** Spotted Gum	12	5	250				300	3.00	2.00	SM	Good	Good	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
119	***Corymbia maculata*** Spotted Gum	11	4	200				250	2.40	1.85	SM	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems from 2.5m

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
120	***Corymbia maculata*** Spotted Gum	8	5	200				250	2.40	1.85	SM	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
121	***Ulmus parvifolia*** Chinese Elm	11	12	400				500	4.80	2.47	M	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Large branch failure east side
122	***Ulmus parvifolia*** Chinese Elm	8	5	300				350	3.60	2.13	M	Average	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Crown skewed to north-east
123	***Jacaranda mimosifolia*** Jacaranda	6	5	300				350	3.60	2.13	SM	Fair	Poor	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Mulitple stems from 0.5m
124	***Corymbia maculata*** Spotted Gum	15	4	200				250	2.40	1.85	SM	Fair	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
125	***Corymbia maculata*** Spotted Gum	11	4	150				200	2.00	1.68	SM	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
126	***Corymbia maculata*** Spotted Gum	8	4	150				200	2.00	1.68	SM	Average	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Impacting crown adjacent tree
127	***Corymbia maculata*** Spotted Gum	15	13	800				900	9.60	3.17	M	Average	Fair	Long 40yrs +	High	High	Major (>10%) TPZ incursion	Remove	Multiple leaders from 2m & 3m
128	***Corymbia maculata*** Spotted Gum	9	5	200				250	2.40	1.85	SM	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown skewed to north
129	***Corymbia maculata*** Spotted Gum	8	5	200				250	2.40	1.85	SM	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Multi-stemmed from 3pm
130	***Corymbia maculata*** Spotted Gum	11	4	250				300	3.00	2.00	SM	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
131	***Corymbia maculata*** Spotted Gum	9	5	200				250	2.40	1.85	SM	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
132	***Corymbia maculata*** Spotted Gum	8	3	100				150	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Crown skewed to south
133	***Corymbia maculata*** Spotted Gum	8	3	100				150	2.00	1.50	SM	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Crown impacting adjacent tree
134	***Corymbia maculata*** Spotted Gum	15	9	400				500	4.80	2.47	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated trunk @ 4m with suspect union, possible poor attachment
135	***Corymbia maculata*** Spotted Gum	17	12	550				650	6.60	2.76	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Medium diameter deadwood throughout crown
136	***Corymbia maculata*** Spotted Gum	17	10	400				450	4.80	2.37	M	Fair	Fair	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Crown shy to west due to adjacent tree
137	***Corymbia maculata*** Spotted Gum	15	10	450				500	5.40	2.47	M	Poor	Fair	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Crown thinning and dieback
138	***Corymbia maculata*** Spotted Gum	16	15	800				950	9.60	3.24	M	Average	Good	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Form typical of species
139	***Eucalyptus moluccana*** Grey Box	16	13	1200				1400	14.40	3.81	M	Average	Fair	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Included stems from ground level/partial tear out of secondary stem, large diameter deadwood

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
140	***Eucalyptus microcorys*** Tallowwood	14	11	450				600	5.40	2.67	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Small diameter deadwood
141	***Dead tree*** -	-	-	-	-	-	-	-	-	-	-	-	-	Dead	Low	Priority for Removal	-	Remove	Dead
142	***Corymbia maculata*** Spotted Gum	12	9	350				450	4.20	2.37	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Sparse crown density, moderate levels of deadwood
143	***Corymbia maculata*** Spotted Gum	10	5	300				400	3.60	2.25	SM	Average	Poor	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Multi-stemmed from ground level, poor crown development
144	***Corymbia maculata*** Spotted Gum	10	3	150				150	2.00	1.50	SM	Average	Average	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Street tree
145	***Eucalyptus moluccana*** Grey Box	17	11	500				600	6.00	2.67	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Crown bias to north
146	***Eucalyptus moluccana*** Grey Box	17	7	300				400	3.60	2.25	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Neighbouring tree on boundary
147	***Eucalyptus moluccana*** Grey Box	18	15	1200				1400	14.40	3.81	M	Good	Good	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Neighbouring tree on boundary
148	***Eucalyptus moluccana*** Grey Box	15	10	400				500	4.80	2.47	M	Good	Fair	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Neighbouring tree on boundary, lean to north
149	***Eucalyptus moluccana*** Grey Box	15	12	1000				1100	12.00	3.44	M	Good	Poor	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Included twin trunks from 0.5m, multiple included stems failures @ 5m
150	***Corymbia maculata*** Spotted Gum	14	8	300				350	3.60	2.13	M	Good	Good	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
151	***Corymbia maculata*** Spotted Gum	12	5	250				300	3.00	2.00	SM	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Twin trunks from ground level, crown bias to south
152	***Corymbia maculata*** Spotted Gum	9	4	200				250	2.40	1.85	SM	Fair	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 4m
153	***Corymbia maculata*** Spotted Gum	7	4	200				250	2.40	1.85	SM	Average	Good	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Street tree
154	***Corymbia maculata*** Spotted Gum	8	3	150				200	2.00	1.68	SM	Average	Good	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Street tree
155	***Ulmus parvifolia*** Chinese Elm	9	10	300				350	3.60	2.13	M	Good	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Low-spreading habit, over-extended branches
156	***Corymbia maculata*** Spotted Gum	11	8	400				450	4.80	2.37	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Sparse crown density, moderate deadwood
157	***Corymbia maculata*** Spotted Gum	11	6	300				350	3.60	2.13	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Sparse crown density, moderate deadwood
158	***Corymbia maculata*** Spotted Gum	9	5	300				350	3.60	2.13	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Sparse crown density, moderate deadwood
159	***Corymbia maculata*** Spotted Gum	9	5	200				250	2.40	1.85	SM	Average	Good	Long 40yrs +	Medium	High	Major (>10%) TPZ incursion	Remove	Street tree

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
160	***Corymbia maculata*** Spotted Gum	10	8	350				400	4.20	2.25	M	Average	Average	Long 40yrs +	Medium	High	Within footprint of proposed roadway	Remove	Nil
161	***Jacaranda mimosifolia*** Jacaranda	6	6	300				300	3.60	2.00	SM	Good	Fair	Long 40yrs +	Low	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Included stems from 0.3m
162	***Corymbia maculata*** Spotted Gum	18	14	450	400	400		600	8.67	2.67	M	Average	Fair	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Triple trunked from ground level
163	***Fraxinus sp.*** Flowering Ash	7	7	400				450	4.80	2.37	M	Average	Fair	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Twin trunks from ground level
164	***Fraxinus sp.*** Flowering Ash	8	7	300				350	3.60	2.13	M	Average	Average	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Twin trunks from ground level
165	***Fraxinus sp.*** Flowering Ash	8	7	300				350	3.60	2.13	M	Average	Average	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Epicormic growth from trunk
166	***Morus sp.*** Mulberry	7	7	300				350	3.60	2.13	M	Average	Average	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Nil
167	***Ulmus parvifolia*** Chinese Elm	9	8	400				450	4.80	2.37	M	Good	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown bias to north
168	***Corymbia maculata*** Spotted Gum	12	9	400				450	4.80	2.37	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Sparse crown density, minor levels of dieback
169	***Corymbia maculata*** Spotted Gum	12	8	350				400	4.20	2.25	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Nil
170	***Syagrus romanzoffiana*** Cocos Palm	7	4	200				200	2.40	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed roadway	Remove	Nil
171	***Syagrus romanzoffiana*** Cocos Palm	9	4	200				200	2.40	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed roadway	Remove	Nil
172	***Corymbia maculata*** Spotted Gum	13	5	400				500	4.80	2.47	M	Fair	Poor	Long 40yrs +	Medium	High	Minor (<10%) TPZ incursion	Retain & Protect	Poor crown development, skewed to north-east
173	***Corymbia maculata*** Spotted Gum	13	5	200				300	2.40	2.00	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Suppressed crown
174	***Corymbia maculata*** Spotted Gum	13	6	250				300	3.00	2.00	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Suppressed crown, bias to south
175	***Corymbia maculata*** Spotted Gum	13	7	300				400	3.60	2.25	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Crown skewed to west
176	***Eucalyptus moluccana*** Grey Box	15	10	500				550	6.00	2.57	M	Fair	Average	Long 40yrs +	High	High	Minor (<10%) TPZ incursion	Retain & Protect	Suffering from grey box dieback
177	***Corymbia maculata*** Spotted Gum	15	10	450				500	5.40	2.47	M	Average	Good	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Nil
178	***Corymbia maculata*** Spotted Gum	15	10	350				400	4.20	2.25	M	Good	Good	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Nil
179	***Fraxinus sp.*** Flowering Ash	5	4	150				200	2.00	1.68	SM	Poor	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Suppressed crown

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
180	***Syagrus romanzoffiana*** Cocos Palm	5	4	200				200	2.40	1.68	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
181	***Syagrus romanzoffiana*** Cocos Palm	7	4	200				200	2.40	1.68	M	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
182	***Fraxinus sp.*** Flowering Ash	10	8	350				400	4.20	2.25	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 2m
183	***Fraxinus sp.*** Flowering Ash	10	8	350				400	4.20	2.25	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 1.5m
184	***Fraxinus sp.*** Flowering Ash	9	7	300				350	3.60	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 1.5m
185	***Fraxinus sp.*** Flowering Ash	6	5	300				350	3.60	2.13	M	Fair	Poor	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 0.5m
186	***Fraxinus sp.*** Flowering Ash	7	5	350				350	4.20	2.13	M	Fair	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Lopped at 2m
187	***Fraxinus sp.*** Flowering Ash	9	8	350				400	4.20	2.25	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed roadway	Remove	Bifurcated stems from ground level
188	***Eucalyptus sideroxylon*** Mugga Ironbark	15	11	500				600	6.00	2.67	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Tear-out of central leader @ 7m
189	***Araucaria cunninghamii*** Hoop Pine	12	4	200				250	2.40	1.85	SM	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Nil
190	***Fraxinus sp.*** Flowering Ash	9	8	350				400	4.20	2.25	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated @ 1.5m
191	***Eucalyptus sideroxylon*** Mugga Ironbark	17	10	900				1000	10.80	3.31	M	Good	Fair	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Bifurcated stems @ 2m
192	***Eucalyptus sideroxylon*** Mugga Ironbark	16	6	350				400	4.20	2.25	M	Poor	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	High levels of dieback
193	***Eucalyptus sideroxylon*** Mugga Ironbark	16	5	300				300	3.60	2.00	M	Poor	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	High levels of dieback
194	***Eucalyptus sideroxylon*** Mugga Ironbark	16	6	350				450	4.20	2.37	M	Fair	Poor	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Trunk lean with poor crown development
195	***Eucalyptus moluccana*** Grey Box	11	7	250				300	3.00	2.00	SM	Average	Average	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	School tree
196	***Xylosma senticosum*** Shiny Xylosma	8	8	150	150	150		250	3.12	1.85	M	Good	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Multi-stemmed from ground level, crown lifted
197	***Eucalyptus paniculata*** Grey Ironbark	19	10	700				850	8.40	3.09	M	Fair	Fair	Medium 15-40yrs	High	High	No works proposed within TPZ	Retain & Protect	Reduced foilage density, pest attack, basal wound to east
198	***Eucalyptus moluccana*** Grey Box	21	14	850				1000	10.20	3.31	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Co-dominant crown
199	***Eucalyptus moluccana*** Grey Box	18	12	850				950	10.20	3.24	M	Fair	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Co-dominant crown

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
200	***Melaleuca styphelioides*** Prickly-leaved Paperbark	10	9	650				750	7.80	2.93	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Failed central leader, crown bias to north
201	***Corymbia maculata*** Spotted Gum	10	6	250				300	3.00	2.00	SM	Average	Average	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Nil
202	***Eucalyptus grandis*** Flooded Gum	9	7	200	200			350	3.39	2.13	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Bifurcated from 1m
203	***Eucalyptus grandis*** Flooded Gum	16	12	400				500	4.80	2.47	M	Fair	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Moderate level of epicormic growth
204	***Olea europaea*** European Olive	6	2	100				150	2.00	1.50	OM	Fair	Poor	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Mutliple past pruning events
205	***Corymbia maculata*** Spotted Gum	15	12	400				450	4.80	2.37	M	Average	Good	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Minor deadwood
206	***Fraxinus sp.*** Flowering Ash	8	6	200				250	2.40	1.85	M	Fair	Poor	Medium 15-40yrs	Low	Low	Minor (<10%) TPZ incursion	Retain & Protect	Poor form, previously topped
207	***Casuarina cunninghamiana*** River Sheoak	14	6	350				450	4.20	2.37	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Slender form
208	***Callistemon viminalis*** Weeping Bottlebrush	6	5	150				200	2.00	1.68	OM	Fair	Poor	Medium 15-40yrs	Low	Low	Within footprint of proposed retaining wall	Remove	Multiple past pruning events, high level of epicormic growth
209	***Cupressus sp.*** Cypress	10	7	200	200			250	3.39	1.85	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Twin trunk
210	***Fraxinus sp.*** Flowering Ash	8	7	150	150			250	2.55	1.85	M	Fair	Fair	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Included co-dominant stems from 1m
211	***Corymbia maculata*** Spotted Gum	13	6	250				300	3.00	2.00	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Slender form, moderate deadwood
212	***Dead tree*** -	-	-	-	-	-	-	-	-	-	-	-	-	Dead	Low	Priority for Removal	-	Retain & Protect	Dead
213	***Casuarina cunninghamiana*** River Sheoak	13	7	250	150			400	3.50	2.25	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated from 1.5m
214	***Corymbia maculata*** Spotted Gum	11	6	150	150			300	2.55	2.00	SM	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated from 0.5m
215	***Casuarina glauca*** Swamp Oak	14	6	200	200			350	3.39	2.13	OM	Poor	Fair	Short 5-15yrs	Medium	Low	Minor (<10%) TPZ incursion	Retain & Protect	Significantly reduced foilage density
216	***Casuarina cunninghamiana*** River Sheoak	12	5	300				350	3.60	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Slender form
217	***Casuarina cunninghamiana*** River Sheoak	12	4	250				300	3.00	2.00	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Slender form
218	***Eucalyptus microcorys*** Tallowwood	11	7	250				300	3.00	2.00	OM	Poor	Fair	Short 5-15yrs	Low	Low	Major (>10%) TPZ incursion	Remove	Tip dieback, high level of epicormic growth
219	***Casuarina cunninghamiana*** River Sheoak	14	8	400				450	4.80	2.37	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated from 2m

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
220	***Casuarina glauca*** Swamp Oak	9	5	100	100			250	2.00	1.85	OM	Fair	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Reduced foilage density
221	***Casuarina cunninghamiana*** River Sheoak	12	5	250				300	3.00	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Co-dominant crown
222	***Casuarina cunninghamiana*** River Sheoak	12	4	200				250	2.40	1.85	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Co-dominant crown
223	***Casuarina cunninghamiana*** River Sheoak	12	7	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Co-dominant crown
224	***Casuarina glauca*** Swamp Oak	13	8	250				300	3.00	2.00	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed retaining wall	Remove	Reduced foilage density
225	***Casuarina glauca*** Swamp Oak	12	2	150				200	2.00	1.68	M	Fair	Fair	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Slender form
226	***Corymbia maculata*** Spotted Gum	12	6	200				300	2.40	2.00	M	Average	Average	Long 40yrs +	Low	Medium	Within footprint of proposed site re-grading works	Remove	Slender form
227	***Casuarina glauca*** Swamp Oak	10	7	300				350	3.60	2.13	M	Fair	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Bifurcated from 2m
228	***Casuarina glauca*** Swamp Oak	12	4	200				250	2.40	1.85	M	Fair	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Crown lifted, co-dominant
229	***Casuarina glauca*** Swamp Oak	12	5	200				250	2.40	1.85	M	Fair	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Crown lifted, co-dominant
230	***Casuarina glauca*** Swamp Oak	12	8	200				250	2.40	1.85	M	Average	Poor	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Topped @ 4m, epicormic leaders
231	***Casuarina glauca*** Swamp Oak	13	7	250	250			400	4.24	2.25	M	Average	Poor	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Included, co-ominant stems from base
232	***Casuarina glauca*** Swamp Oak	14	5	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Nil
233	***Casuarina glauca*** Swamp Oak	14	5	250				300	3.00	2.00	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Failed central leader
234	***Casuarina glauca*** Swamp Oak	13	7	200	200			350	3.39	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Bifurcated from ground level, moderate lean to east
235	***Casuarina glauca*** Swamp Oak	16	9	400	400			450	6.79	2.37	OM	Fair	Fair	Short 5-15yrs	Medium	Low	Within footprint of proposed site re-grading works	Remove	Twin trunks from base, reduced foilage density
236	***Casuarina glauca*** Swamp Oak	10	7	350				400	4.20	2.25	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed roadway	Remove	Crown bias to north
237	***Casuarina glauca*** Swamp Oak	13	9	450				550	5.40	2.57	M	Good	Average	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Crown lifted
238	***Casuarina glauca*** Swamp Oak	12	7	350				450	4.20	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed roadway	Remove	Corwn lifted
239	***Casuarina glauca*** Swamp Oak	12	5	200	100			250	2.68	1.85	M	Fair	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed roadway	Remove	Reduced foilage density

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
240	***Casuarina glauca*** Swamp Oak	11	4	200				250	2.40	1.85	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Slender form
241	***Casuarina glauca*** Swamp Oak	10	3	150				250	2.00	1.85	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Slender form
242	***Casuarina glauca*** Swamp Oak	13	7	300				350	3.60	2.13	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Nil
243	***Casuarina glauca*** Swamp Oak	11	6	250				350	3.00	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Multiple inclusions, co-dominant stems from 3m
244	***Casuarina glauca*** Swamp Oak	13	7	250	250			400	4.24	2.25	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Bifurcated from 1m
245	***Casuarina glauca*** Swamp Oak	13	7	350				400	4.20	2.25	OM	Fair	Fair	Short 5-15yrs	Medium	Low	Within footprint of proposed site re-grading works	Remove	Included co-dominant stems from 4m, reduced foilage density
246	***Casuarina glauca*** Swamp Oak	11	6	150				250	2.00	1.85	M	Fair	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Former co-dominant stem pruned @ 0.3m
247	***Casuarina glauca*** Swamp Oak	11	7	200	100			250	2.68	1.85	M	Fair	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Included, co-dominant stems from 0.5m
248	***Casuarina glauca*** Swamp Oak	12	5	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Included, co-dominant stems from 2m
249	***Casuarina glauca*** Swamp Oak	9	4	150				200	2.00	1.68	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Slender form
250	***Casuarina glauca*** Swamp Oak	11	5	150				200	2.00	1.68	M	Fair	Average	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Nil
251	***Casuarina glauca*** Swamp Oak	10	7	200				250	2.40	1.85	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed retaining wall	Remove	Reduced foilage density, moderate deadwood
252	***Casuarina glauca*** Swamp Oak	10	5	200				250	2.40	1.85	M	Fair	Average	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Nil
253	***Casuarina glauca*** Swamp Oak	12	6	300				350	3.60	2.13	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Previously lopped @ 4m
254	***Casuarina cunninghamiana*** River Sheoak	9	8	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Crown bias to west
255	***Casuarina cunninghamiana*** River Sheoak	11	9	350	300			500	5.53	2.47	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated from 1m
256	***Eucalyptus microcorys*** Tallowwood	14	13	400	400			750	6.79	2.93	M	Good	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Included, co-dominant stems from base
257	***Eucalyptus saligna*** Sydney Blue Gum	16	12	400	400			800	6.79	3.01	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Bifurcated from 1m
258	***Fraxinus sp.*** Flowering Ash	9	7	300				350	3.60	2.13	M	Good	Average	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Minor deadwood
259	***Fraxinus sp.*** Flowering Ash	9	7	250				300	3.00	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Bifurcated from 3m

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
260	***Fraxinus sp.*** Flowering Ash	8	8	350				400	4.20	2.25	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed roadway	Remove	Bifurcated from 2m, ibis nest
261	***Fraxinus sp.*** Flowering Ash	6	4	50	50	50	50	400	2.00	2.25	OM	Fair	Poor	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Coppiced growth from stump
262	***Casuarina glauca*** Swamp Oak	12	8	300	300			450	5.09	2.37	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Bifurcated from 1m
263	***Corymbia maculata*** Spotted Gum	10	7	250				300	3.00	2.00	M	Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Moderate lean to north
264	***Araucaria columnaris*** Cook Pine	10	4	200				300	2.40	2.00	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Stem kink @ 4m
265	***Syagrus romanzoffiana*** Cocos Palm	9	4	250				250	3.00	1.85	M	Good	Good	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Supressed
266	***Ficus benjamina*** Weeping Fig	9	11	250	250			450	4.24	2.37	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Crown bias to north-west
267	***Eucalyptus sideroxylon*** Mugga Ironbark	17	12	500				600	6.00	2.67	OM	Fair	Fair	Medium 15-40yrs	High	High	Within footprint of proposed site re-grading works	Remove	Reduced foliage density, moderate epicormic growth
268	***Ulmus parvifolia*** Chinese Elm	10	14	400	300			550	6.00	2.57	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed roadway	Remove	Bifurcated from 1m, broad dome habit
269	***Ulmus parvifolia*** Chinese Elm	11	15	400				500	4.80	2.47	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Broad dome habit
270	***Ulmus parvifolia*** Chinese Elm	7	12	200	100			300	2.68	2.00	M	Average	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Supressed, ibis nest
271	***Ulmus parvifolia*** Chinese Elm	11	14	350	200	200		450	5.40	2.37	M	Good	Poor	Short 5-15yrs	Medium	Low	No works proposed within TPZ	Retain & Protect	Column of decay within central leader, 3 x ibis nests
272	***Ulmus parvifolia*** Chinese Elm	9	9	250				300	3.00	2.00	M	Good	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated from 2m
273	***Eucalyptus microcorys*** Tallowwood	14	9	350				400	4.20	2.25	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Minor tip dieback
274	***Eucalyptus microcorys*** Tallowwood	14	9	350				400	4.20	2.25	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Minor tip dieback
275	***Dead tree*** -	-	-	-	-	-	-	-	-	-	-	-	-	Dead	Low	Priority for Removal	-	Remove	Dead
276	***Eucalyptus saligna*** Sydney Blue Gum	15	10	400				550	4.80	2.57	OM	Fair	Poor	Short 5-15yrs	Medium	Low	No works proposed within TPZ	Retain & Protect	Significant basal wound w/ borer and swelling of trunk
277	***Eucalyptus microcorys*** Tallowwood	7	5	200				200	2.40	1.68	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
278	***Casuarina cunninghamiana*** River Sheoak	8	6	100	100	100	100	350	2.40	2.13	M	Good	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Multi-stemmed from 0.5m
279	***Eucalyptus sideroxylon*** Mugga Ironbark	17	12	500				600	6.00	2.67	OM	Fair	Average	Medium 15-40yrs	High	High	No works proposed within TPZ	Retain & Protect	Reduced foilage density

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
280	***Corymbia maculata*** Spotted Gum	11	11	500	150	100		650	6.38	2.76	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Multi-stemmed from 0.5m
281	***Hymenosporum flavum*** Native Frangipani	9	3	150				200	2.00	1.68	M	Fair	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Chlorosis
282	***Corymbia maculata*** Spotted Gum	14	14	500				600	6.00	2.67	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Crown bias to south-east
283	***Corymbia maculata*** Spotted Gum	13	8	350				350	4.20	2.13	M	Good	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Bifurcated from 2m
284	***Casuarina cunninghamiana*** River Sheoak	12	5	300				350	3.60	2.13	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
285	***Casuarina cunninghamiana*** River Sheoak	12	5	350				350	4.20	2.13	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
286	***Casuarina cunninghamiana*** River Sheoak	12	7	400				450	4.80	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
287	***Casuarina cunninghamiana*** River Sheoak	10	6	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
288	***Casuarina cunninghamiana*** River Sheoak	14	8	350				400	4.20	2.25	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
289	***Casuarina cunninghamiana*** River Sheoak	9	7	200	100	100	100	350	3.17	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
290	***Casuarina cunninghamiana*** River Sheoak	11	3	200				250	2.40	1.85	M	Fair	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
291	***Casuarina cunninghamiana*** River Sheoak	13	6	400				450	4.80	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
292	***Casuarina cunninghamiana*** River Sheoak	12	7	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
293	***Casuarina cunninghamiana*** River Sheoak	8	4	100				150	2.00	1.50	M	Fair	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
294	***Casuarina cunninghamiana*** River Sheoak	13	7	400				500	4.80	2.47	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
295	***Casuarina cunninghamiana*** River Sheoak	14	6	350				450	4.20	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
296	***Casuarina cunninghamiana*** River Sheoak	9	5	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
297	***Psidium guajava*** Guava	5	5	100	100	100	100	400	2.40	2.25	M	Good	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Multi-stemmed from base
298	***Casuarina cunninghamiana*** River Sheoak	12	7	350	200			450	4.84	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
299	***Casuarina cunninghamiana*** River Sheoak	7	3	150				200	2.00	1.68	M	Fair	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant

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
300	***Casuarina cunninghamiana*** River Sheoak	13	4	200				300	2.40	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
301	***Casuarina cunninghamiana*** River Sheoak	14	7	400				450	4.80	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
302	***Casuarina cunninghamiana*** River Sheoak	12	5	400				500	4.80	2.47	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
303	***Casuarina cunninghamiana*** River Sheoak	13	5	450				400	5.40	2.25	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
304	***Casuarina cunninghamiana*** River Sheoak	12	5	350				450	4.20	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
305	***Casuarina cunninghamiana*** River Sheoak	14	7	300				400	3.60	2.25	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
306	***Casuarina cunninghamiana*** River Sheoak	10	4	150				200	2.00	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
307	***Casuarina cunninghamiana*** River Sheoak	10	2	100				150	2.00	1.50	M	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
308	***Casuarina cunninghamiana*** River Sheoak	10	3	250				350	3.00	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
309	***Casuarina cunninghamiana*** River Sheoak	12	4	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
310	***Corymbia maculata*** Spotted Gum	9	6	200				250	2.40	1.85	SM	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Minor crown dieback
311	***Casuarina cunninghamiana*** River Sheoak	13	6	350				450	4.20	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
312	***Casuarina cunninghamiana*** River Sheoak	11	5	200				250	2.40	1.85	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
313	***Casuarina cunninghamiana*** River Sheoak	7	2	100				150	2.00	1.50	SM	Fair	Fair	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
314	***Corymbia maculata*** Spotted Gum	12	10	450				550	5.40	2.57	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Multiple past pruning events, minor deadwood
315	***Casuarina cunninghamiana*** River Sheoak	12	6	250				300	3.00	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
316	***Casuarina cunninghamiana*** River Sheoak	7	4	100				200	2.00	1.68	SM	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
317	***Casuarina cunninghamiana*** River Sheoak	9	4	150	150			300	2.55	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
318	***Casuarina cunninghamiana*** River Sheoak	9	4	100				200	2.00	1.68	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
319	***Casuarina cunninghamiana*** River Sheoak	11	5	250				300	3.00	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Landscape buffer to shopping centre. Co-dominant

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
320	***Corymbia maculata*** Spotted Gum	13	8	300				400	3.60	2.25	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Co-dominnant crown, minor deadwood
321	***Corymbia maculata*** Spotted Gum	9	4	200				250	2.40	1.85	SM	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Co-dominnant crown, minor deadwood
322	***Corymbia maculata*** Spotted Gum	12	9	350				450	4.20	2.37	M	Average	Average	Long 40yrs +	High	High	Minor (<10%) TPZ incursion	Retain & Protect	Co-dominnant crown, minor deadwood
323	***Corymbia maculata*** Spotted Gum	14	10	400				500	4.80	2.47	M	Average	Average	Long 40yrs +	High	High	Minor (<10%) TPZ incursion	Retain & Protect	Co-dominnant crown, minor deadwood
324	***Casuarina cunninghamiana*** River Sheoak	6	4	100				150	2.00	1.50	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
325	***Casuarina cunninghamiana*** River Sheoak	10	4	150				200	2.00	1.68	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
326	***Casuarina cunninghamiana*** River Sheoak	10	4	200				250	2.40	1.85	M	Fair	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
327	***Casuarina cunninghamiana*** River Sheoak	6	1	150				200	2.00	1.68	OM	Poor	Fair	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
328	***Casuarina cunninghamiana*** River Sheoak	6	1	100				150	2.00	1.50	SM	Poor	Fair	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
329	***Casuarina cunninghamiana*** River Sheoak	8	5	250				300	3.00	2.00	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
330	***Casuarina cunninghamiana*** River Sheoak	5	2	100				150	2.00	1.50	SM	Fair	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
331	***Casuarina cunninghamiana*** River Sheoak	7	3	100				150	2.00	1.50	SM	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
332	***Casuarina cunninghamiana*** River Sheoak	11	8	400	150			450	5.13	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
333	***Dead tree*** -	-	-	-	-	-	-	-	-	-	-	-	-	Dead	Low	Priority for Removal	-	Retain & Protect	Dead
334	***Casuarina cunninghamiana*** River Sheoak	12	9	400				500	4.80	2.47	M	Average	Average	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
335	***Casuarina cunninghamiana*** River Sheoak	12	6	300				350	3.60	2.13	M	Average	Average	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
336	***Casuarina cunninghamiana*** River Sheoak	12	7	400				450	4.80	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	Minor (<10%) TPZ incursion	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
337	***Casuarina cunninghamiana*** River Sheoak	8	2	100				150	2.00	1.50	SM	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
338	***Casuarina cunninghamiana*** River Sheoak	11	6	400				450	4.80	2.37	M	Average	Average	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Landscape buffer to shopping centre. Co-dominant
339	***Corymbia maculata*** Spotted Gum	14	10	400				500	4.80	2.47	M	Average	Good	Long 40yrs +	High	High	Minor (<10%) TPZ incursion	Retain & Protect	Sooty mould

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
340	***Corymbia maculata*** Spotted Gum	13	10	300				350	3.60	2.13	M	Average	Good	Long 40yrs +	High	High	Minor (<10%) TPZ incursion	Retain & Protect	Crown bias to north
341	***Eucalyptus sideroxylon*** Mugga Ironbark	9	8	300				400	3.60	2.25	M	Fair	Fair	Medium 15-40yrs	Medium	Medium	Major (>10%) TPZ incursion	Remove	Crown dieback, mistletoe
342	***Eucalyptus microcorys*** Tallowwood	14	12	550				500	6.60	2.47	M	Good	Fair	Long 40yrs +	High	High	Minor (<10%) TPZ incursion	Retain & Protect	Included, co-dominant stems from 2m
343	***Corymbia maculata*** Spotted Gum	7	4	100	100	100		250	2.08	1.85	SM	Fair	Fair	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Sooty mould
344	***Cupaniopsis anacardioides*** Tuckeroo	7	6	200				250	2.40	1.85	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Included, co-dominant stems from 2m
345	***Cupressus sp.*** Cypress	5	4	150				200	2.00	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Crown lifted to 2m
346	***Cupressus sp.*** Cypress	4	3	100	50			200	2.00	1.68	M	Average	Average	Medium 15-40yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	Crown lifted to 2m
347	***Jacaranda mimosifolia*** Jacaranda	10	10	300				350	3.60	2.13	M	Good	Average	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Nil
348	***Ulmus parvifolia*** Chinese Elm	9	8	250				300	3.00	2.00		Average	Fair	Medium 15-40yrs	Medium	Medium	Within footprint of proposed site re-grading works	Remove	Crown bias to west
349	***Eucalyptus crebra*** Narrow-leaved Ironbark	11	7	200	200			350	3.39	2.13	SM	Poor	Poor	Very Short <5yrs	Low	Low	Within footprint of proposed site re-grading works	Remove	In severe decline
350	***Dead tree*** -	-	-	-	-	-	-	-	-	-	-	-	-	Dead	Low	Priority for Removal	-	Remove	Dead
351	***Eucalyptus microcorys*** Tallowwood	13	14	400				450	4.80	2.37	M	Average	Average	Long 40yrs +	High	High	Within footprint of proposed site re-grading works	Remove	Bifurcated from 2m
352	***Eucalyptus microcorys*** Tallowwood	15	15	450				550	5.40	2.57	M	Average	Good	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Crown lifted
353	***Eucalyptus sideroxylon*** Mugga Ironbark	17	10	500				600	6.00	2.67	OM	Fair	Fair	Medium 15-40yrs	High	High	No works proposed within TPZ	Retain & Protect	Reduced foliage density, birds nest
354	***Eucalyptus sideroxylon*** Mugga Ironbark	12	7	300				400	3.60	2.25	OM	Fair	Fair	Medium 15-40yrs	High	High	No works proposed within TPZ	Retain & Protect	Reduced foliage density
355	***Eucalyptus sideroxylon*** Mugga Ironbark	12	10	350	350			400	5.94	2.25	OM	Fair	Fair	Medium 15-40yrs	High	High	No works proposed within TPZ	Retain & Protect	Reduced foliage density
356	***Araucaria heterophylla*** Norfolk Island Pine	8	5	150				200	2.00	1.68	SM	Good	Good	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Nil
357	***Eucalyptus paniculata*** Grey Ironbark	11	9	400				400	4.80	2.25	M	Average	Fair	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Co-dominant
358	***Eucalyptus microcorys*** Tallowwood	11	9	300				350	3.60	2.13	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Included, co-dominant stems from 4m
359	***Corymbia maculata*** Spotted Gum	7	3	100				150	2.00	1.50	SM	Fair	Poor	Short 5-15yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Slender form, reduced foliage density

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
360	***Eriobotrya japonica*** Loquat	8	8	100	100			250	2.00	1.85	M	Good	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated from base
361	***Eucalyptus microcorys*** Tallowwood	12	10	500				600	6.00	2.67	M	Good	Fair	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Included, co-dominant stems from 2m
362	***Eucalyptus scoparia*** Wallangarra White Gum	9	8	400				450	4.80	2.37	OM	Fair	Fair	Short 5-15yrs	Medium	Low	No works proposed within TPZ	Retain & Protect	Reduced foliage density
363	***Fraxinus sp.*** Flowering Ash	9	6	250				300	3.00	2.00	M	Fair	Fair	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
364	***Eucalyptus sideroxylon*** Mugga Ironbark	17	10	400				500	4.80	2.47	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Crown bias to north
365	***Eucalyptus sideroxylon*** Mugga Ironbark	14	12	450				550	5.40	2.57	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Bark delaminating on trunk
366	***Eucalyptus microcorys*** Tallowwood	14	8	200	150			350	3.00	2.13	M	Average	Fair	Medium 15-40yrs	Medium	Medium	No works proposed within TPZ	Retain & Protect	Bifurcated from 1m
367	***Eucalyptus microcorys*** Tallowwood	14	6	200				300	2.40	2.00	OM	Fair	Poor	Short 5-15yrs	Medium	Low	No works proposed within TPZ	Retain & Protect	Significnt dieback
368	***Eucalyptus microcorys*** Tallowwood	16	12	400				500	4.80	2.47	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Crown bias to east
369	***Eucalyptus microcorys*** Tallowwood	15	10	400				450	4.80	2.37	M	Average	Average	Long 40yrs +	Medium	High	No works proposed within TPZ	Retain & Protect	Co-dominant crown
370	***Eucalyptus microcorys*** Tallowwood	15	14	450				550	5.40	2.57	M	Good	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Co-dominant crown
371	***Eucalyptus microcorys*** Tallowwood	16	12	400				500	4.80	2.47	M	Average	Average	Long 40yrs +	High	High	No works proposed within TPZ	Retain & Protect	Minor tip dieback
372	***Phoenix canariensis*** Canary Island Date Palm	7	6	450				600	5.40	2.67	SM	Good	Good	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Nil
373	***Syagrus romanzoffiana*** Cocos Palm	8	5	200				250	2.40	1.85	SM	Average	Average	Medium 15-40yrs	Low	Low	No works proposed within TPZ	Retain & Protect	Nil
374	***Phoenix canariensis*** Canary Island Date Palm	5	5	400				500	4.80	2.47	SM	Average	Average	Long 40yrs +	Low	Medium	No works proposed within TPZ	Retain & Protect	Nil

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

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

Verify all dimensions on site prior to construction.

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

LEGEND

- EXISTING TREE RETAINED
- EXISTING TREE REMOVED
- DEAD TREE OBSERVED ON SITE
- PROPOSED STORMWATER INFRASTRUCTURE - REFER ENGINEERS PLANS
- PROPOSED EARTHWORK EXTENTS - REFER ENGINEERS PLANS
- PROPOSED ROADWAY EXTENTS - REFER ENGINEERS PLANS
- PROPOSED RETAINING WALL - REFER ENGINEERS PLANS

Issue	Code	Issue Description	By	Chk	Date
B	-	UPDATED FOR REVIEW	NZ	GT	17.10.22
A	-	FOR REVIEW	NZ	GT	04.10.22

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

PROJECT

PROPOSED DEVELOPMENT

BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

COVER SHEET

CLIENT

NSW GOVERNMENT Land & Housing Corporation

Drawn : NZ
Designed : GT
Project No. : E938

1:1750 @ A3

SHEET NUMBER E938_TLP_00

REVISION B

NOTE:
NO CURRENT IMPACTS WITHIN DASHED AREA (FUTURE STAGE WORKS)

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LEGEND

- T195 — EXISTING TREE RETAINED
- T11 — EXISTING TREE REMOVED
- T181 — DEAD TREE OBSERVED ON SITE
- TREE PROTECTION ZONE (TPZ)
- STRUCTURAL ROOT ZONE (SRZ)
- PROPOSED STORMWATER INFRASTRUCTURE - REFER ENGINEERS PLANS
- PROPOSED GRADING BATTER EXTENTS - REFER ENGINEERS PLANS
- PROPOSED ROADWAY EXTENTS - REFER ENGINEERS PLANS
- PROPOSED RETAINING WALL - REFER ENGINEERS PLANS

Issue	Code	Issue Description	By	Chk	Date
B	-	UPDATED FOR REVIEW	NZ	GT	17.10.22
A	-	FOR REVIEW	NZ	GT	04.10.22

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PROJECT

PROPOSED DEVELOPMENT

BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

TREE LOCATION PLAN
01 of 07

CLIENT

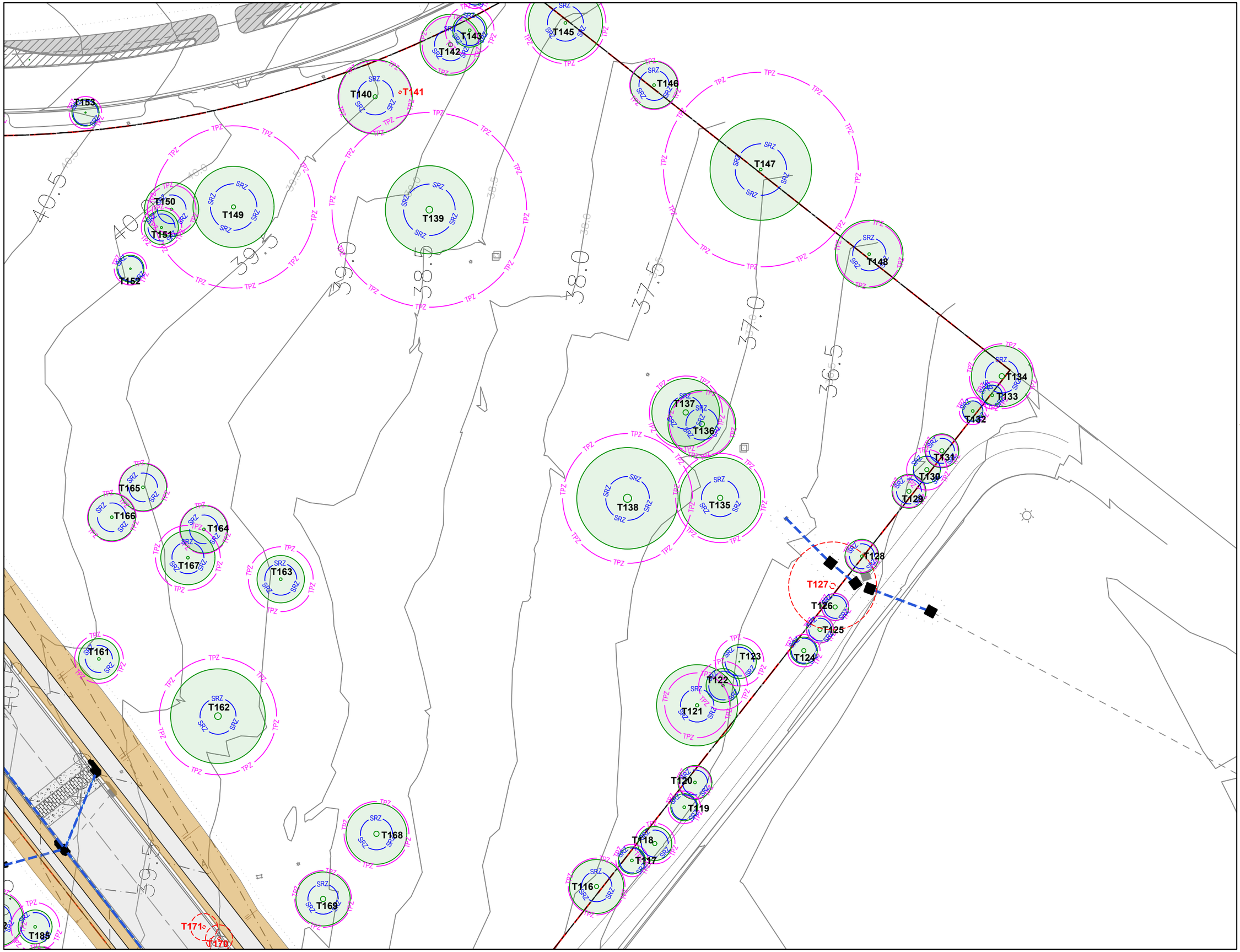
NSW GOVERNMENT Land & Housing Corporation

Drawn : NZ
Designed : GT
Project No. : E938

1:1500 @ A3

SHEET NUMBER E938_TLP_01

REVISION B



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PROJECT

PROPOSED DEVELOPMENT
BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

TREE LOCATION PLAN
02 of 07

CLIENT

NSW GOVERNMENT Land & Housing Corporation

Drawn : NZ
Designed : GT
Project No. : E938

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SHEET NUMBER E938_TLP_02
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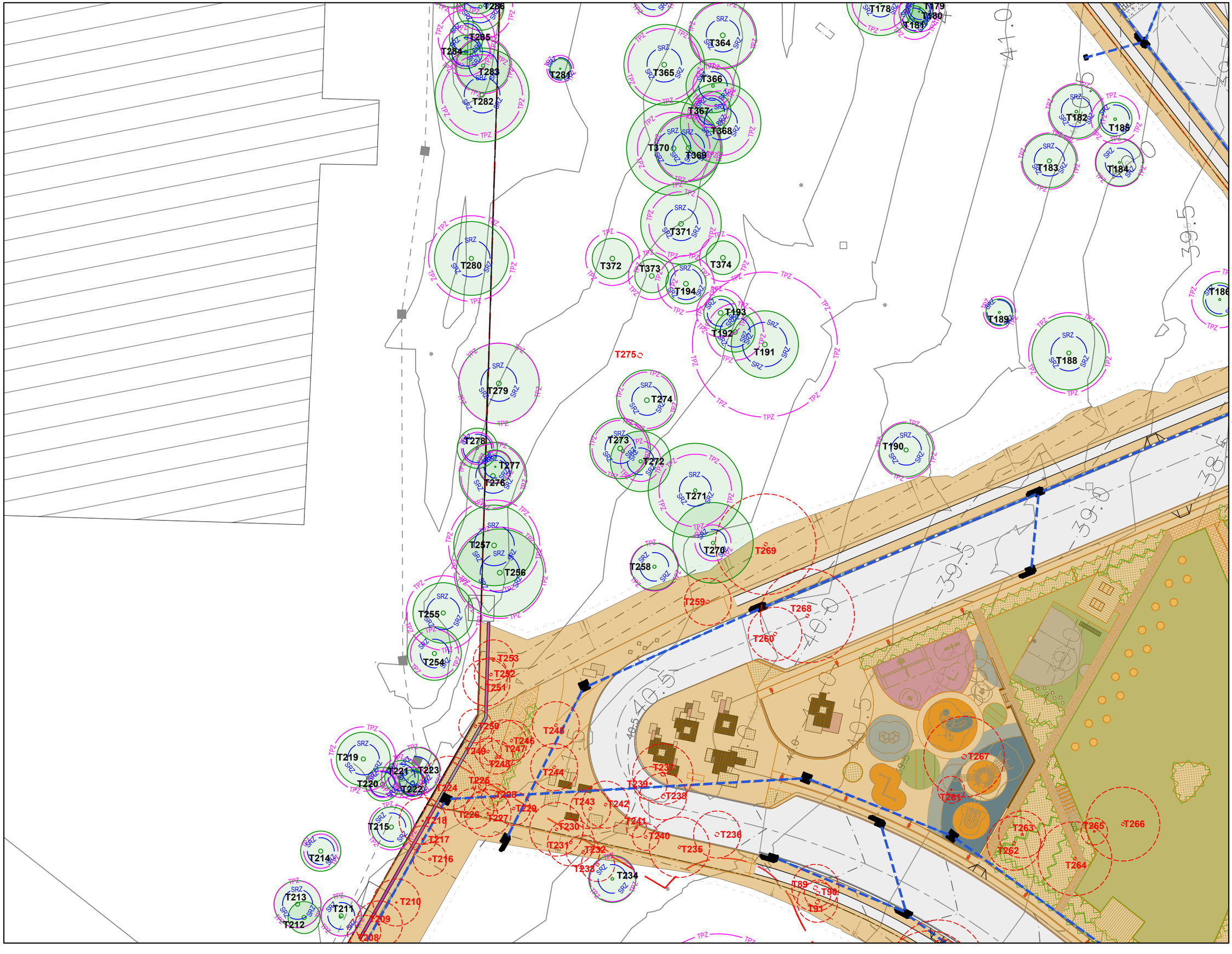

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- TREE PROTECTION ZONE (TPZ)
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PROJECT

PROPOSED DEVELOPMENT

BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

TREE LOCATION PLAN
03 of 07

CLIENT

NSW GOVERNMENT | Land & Housing Corporation

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Designed : GT
Project No. : E938

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SHEET NUMBER E938_TLP_03

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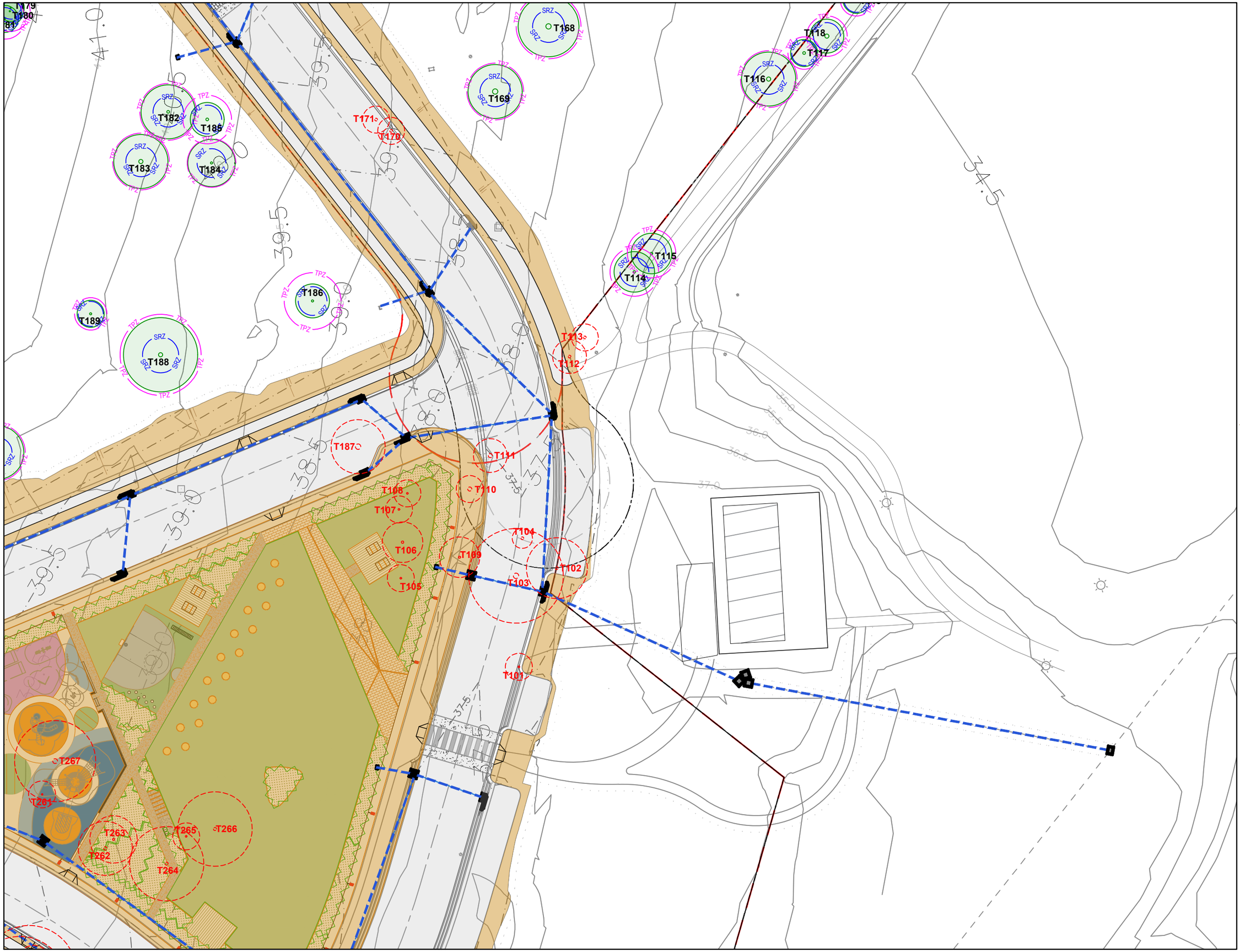

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PROPOSED DEVELOPMENT

BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

TREE LOCATION PLAN
04 of 07

CLIENT

NSW GOVERNMENT Land & Housing Corporation

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Designed : GT
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E938_TLP_04

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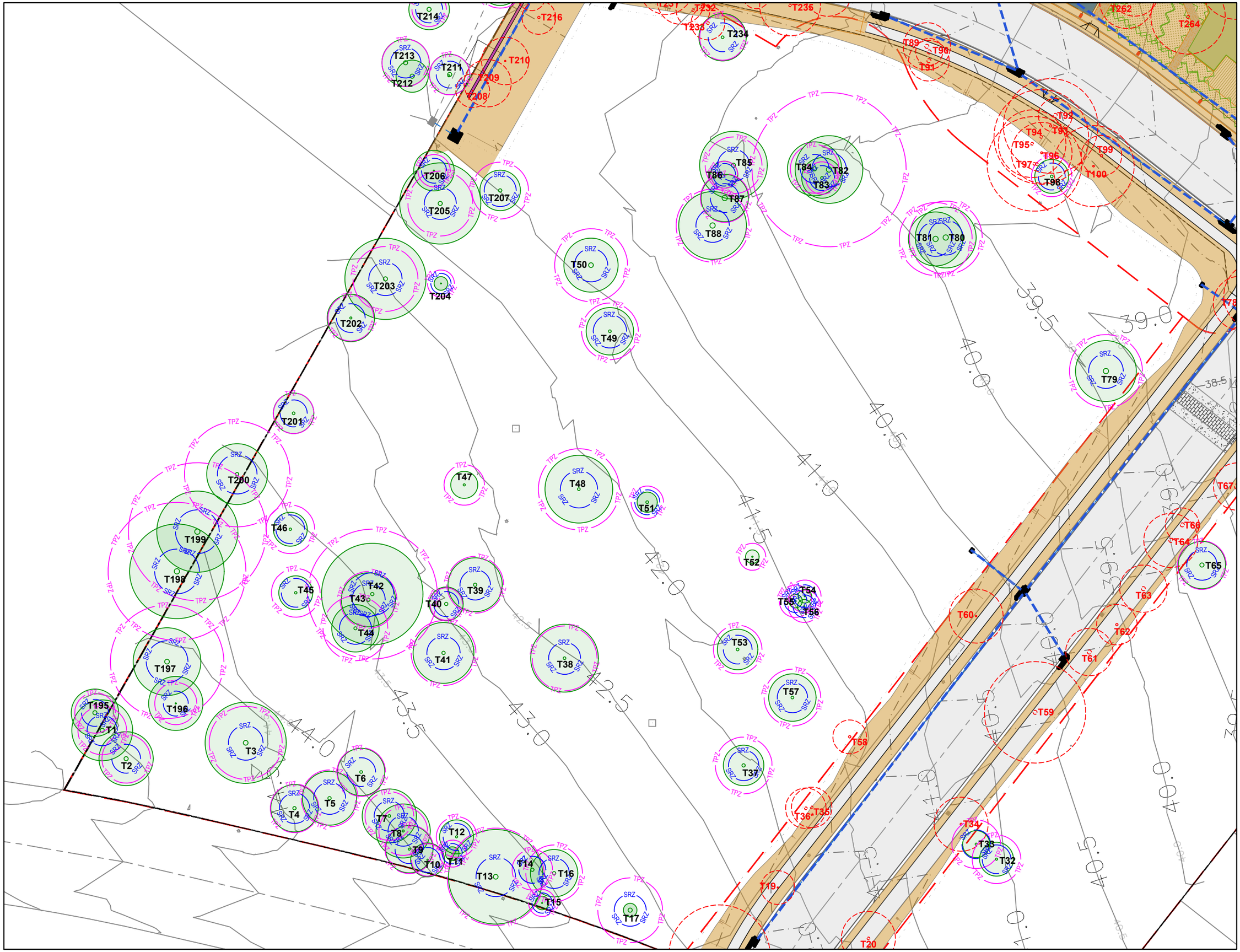

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PROJECT

PROPOSED DEVELOPMENT
BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

TREE LOCATION PLAN
05 of 07

CLIENT

NSW GOVERNMENT Land & Housing Corporation

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Designed : GT
Project No. : E938

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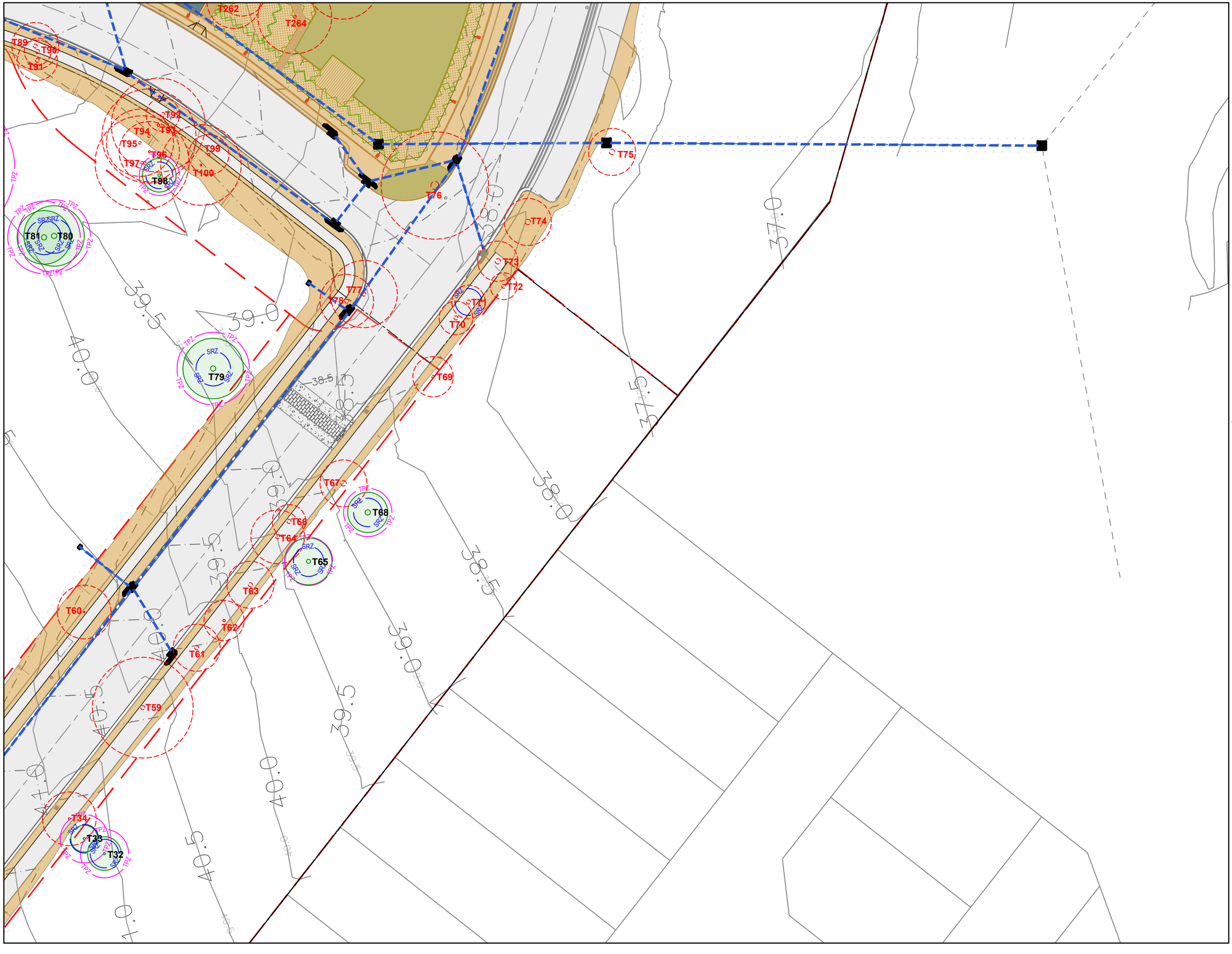

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PROJECT

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BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

TREE LOCATION PLAN
06 of 07

CLIENT

NSW GOVERNMENT Land & Housing Corporation

Drawn : NZ
Designed : GT
Project No. : E938

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SHEET NUMBER E938_TLP_06

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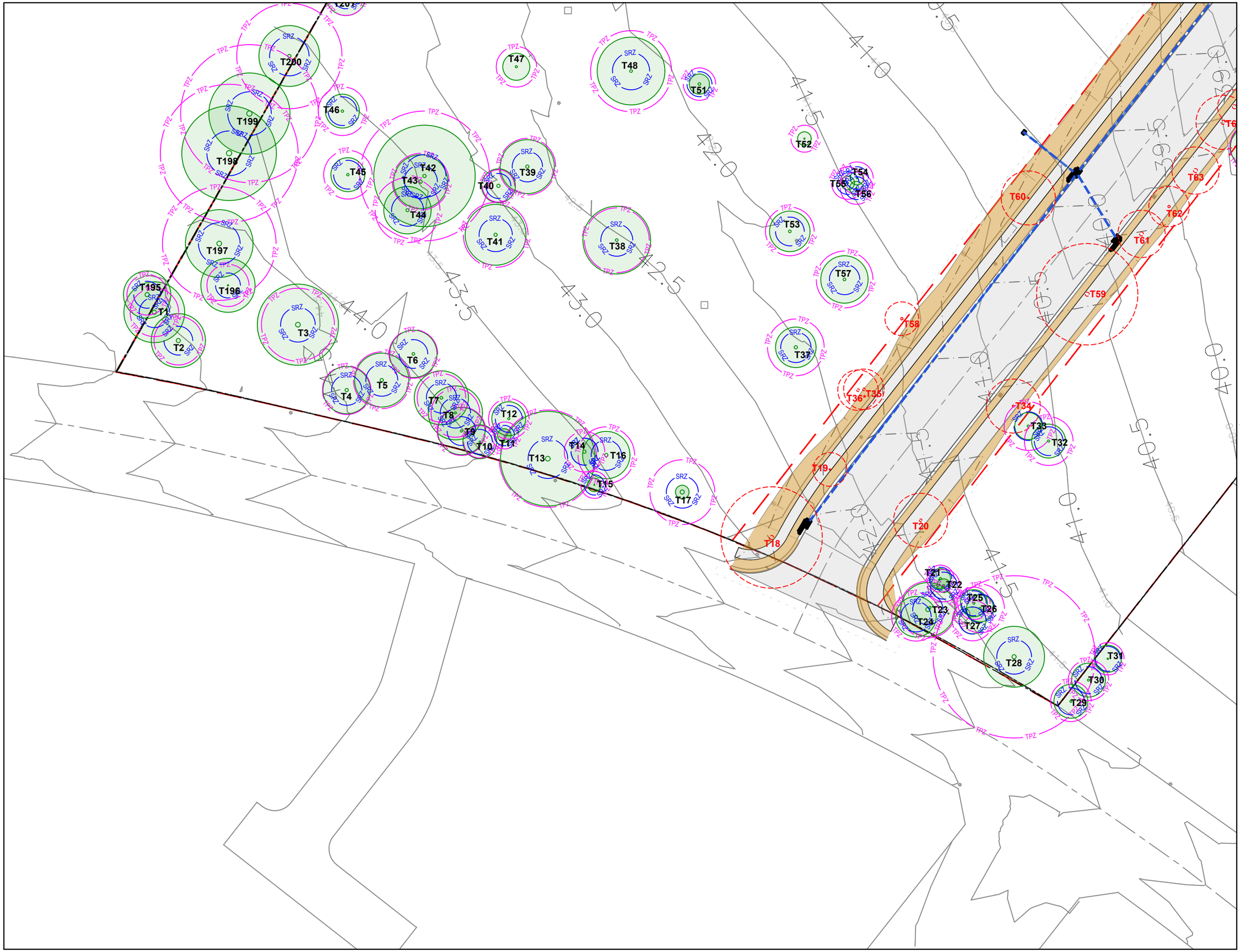

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PROJECT

PROPOSED DEVELOPMENT
BONNYRIGG SUBDIVISION: STAGES 12 & 13

DRAWING TITLE

TREE LOCATION PLAN
07 of 07

CLIENT

NSW GOVERNMENT Land & Housing Corporation

Drawn : NZ
Designed : GT
Project No. : E938

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SHEET NUMBER E938_TLP_07

REVISION B

APPENDIX 3

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

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

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

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

Tree Significance - Assessment Criteria

1. High Significance in landscape

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

2. Medium Significance in landscape

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

3. Low Significance in landscape

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

Environmental Pest / Noxious Weed Species

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

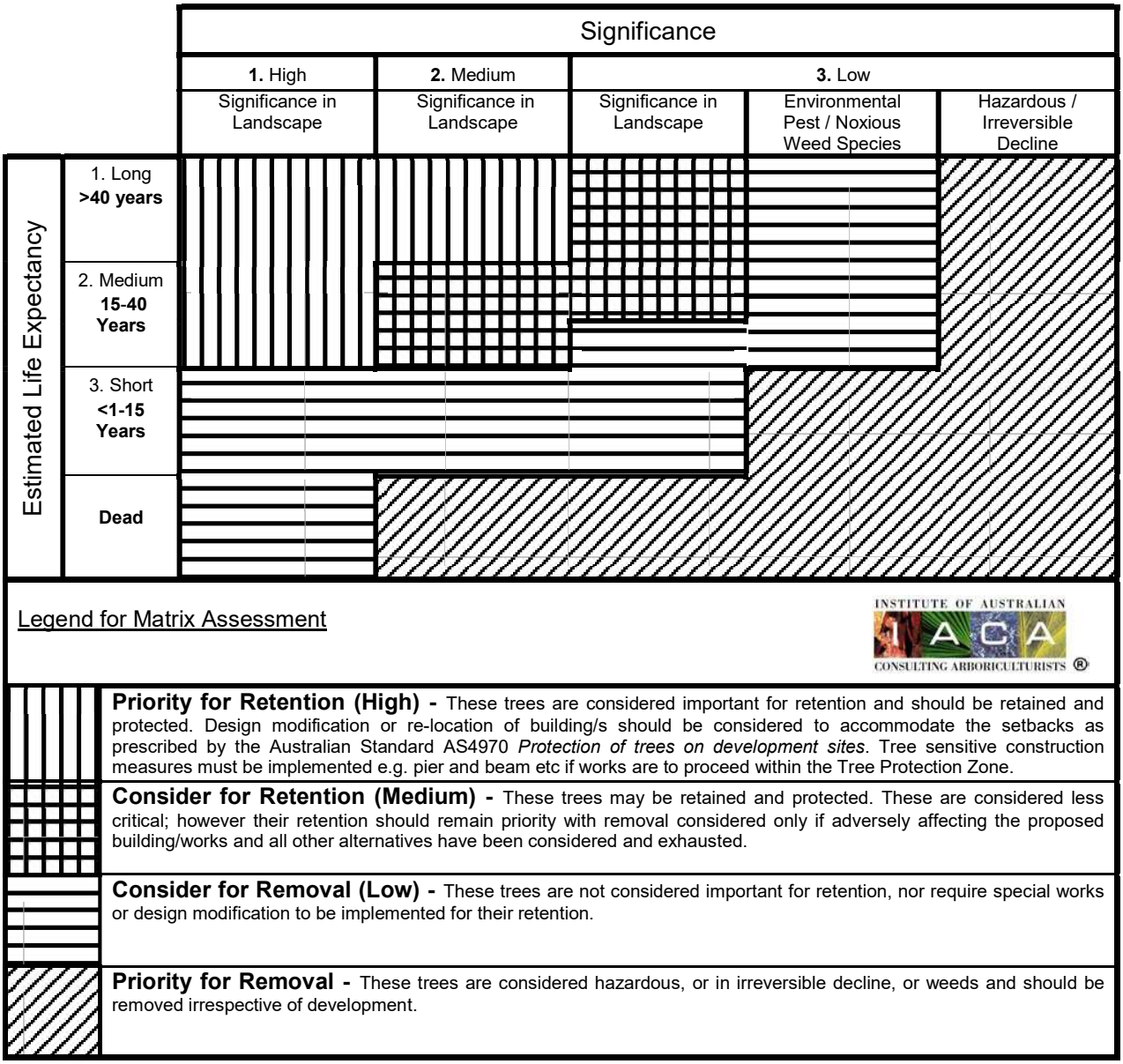
Hazardous/Irreversible Decline

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

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

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

Table 1.0 Tree Retention Value - Priority Matrix.



USE OF THIS DOCUMENT AND REFERENCING

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

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

REFERENCES

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

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

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

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

Tree Significance

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

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

Significance Scale

1 – High
2 – Medium
3 – Low

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

Tree Retention Value

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

Retention Value

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

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

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

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

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

3.1 Tree protection zone (TPZ)

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

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

3.2 Determining the TPZ

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

TPZ = DBH x 12

where

DBH = trunk diameter measured at 1.4 m above ground

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

3.3.5 Structural root zone (SRZ)

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

Determining the SRZ

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

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

where

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

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

The curve can be expressed by the following formula:

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

NOTES:

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

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

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

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

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

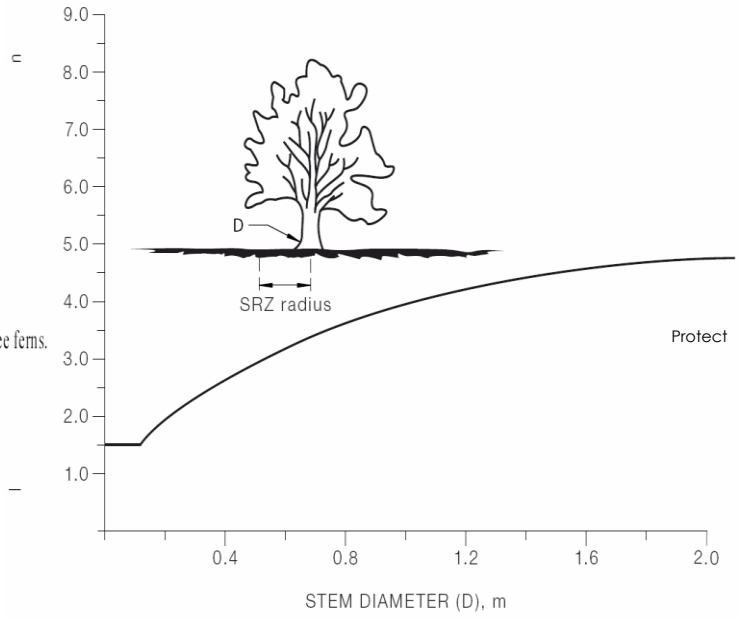


FIGURE 1 STRUCTURAL ROOT ZONE

APPENDIX 5 – GENERAL TREE PROTECTION SPECIFICATION

1.0 Appointment of Project Arborist

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

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

2.0 Compliance

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

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

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

3.0 Tree Removal

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

4.0 Tree Protection Zone

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

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

5.0 Tree Protection Fencing

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

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

6.0 Site Management

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

7.0 Scaffolding

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

8.0 Works within the Tree Protection Zones

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

If roots (>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.

9.0 Ground Protection

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

10.0 Trunk Protection

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

11.0 Structure & Pavement Demolition

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

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

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

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

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

12.0 Underground Services

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

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

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

13.0 Excavations, Root Protection & Root Pruning

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

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

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

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

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

APPENDIX 6 - TYPICAL TREE PROTECTION DETAILS

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

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

Tree Protection Zone (TPZ) sign

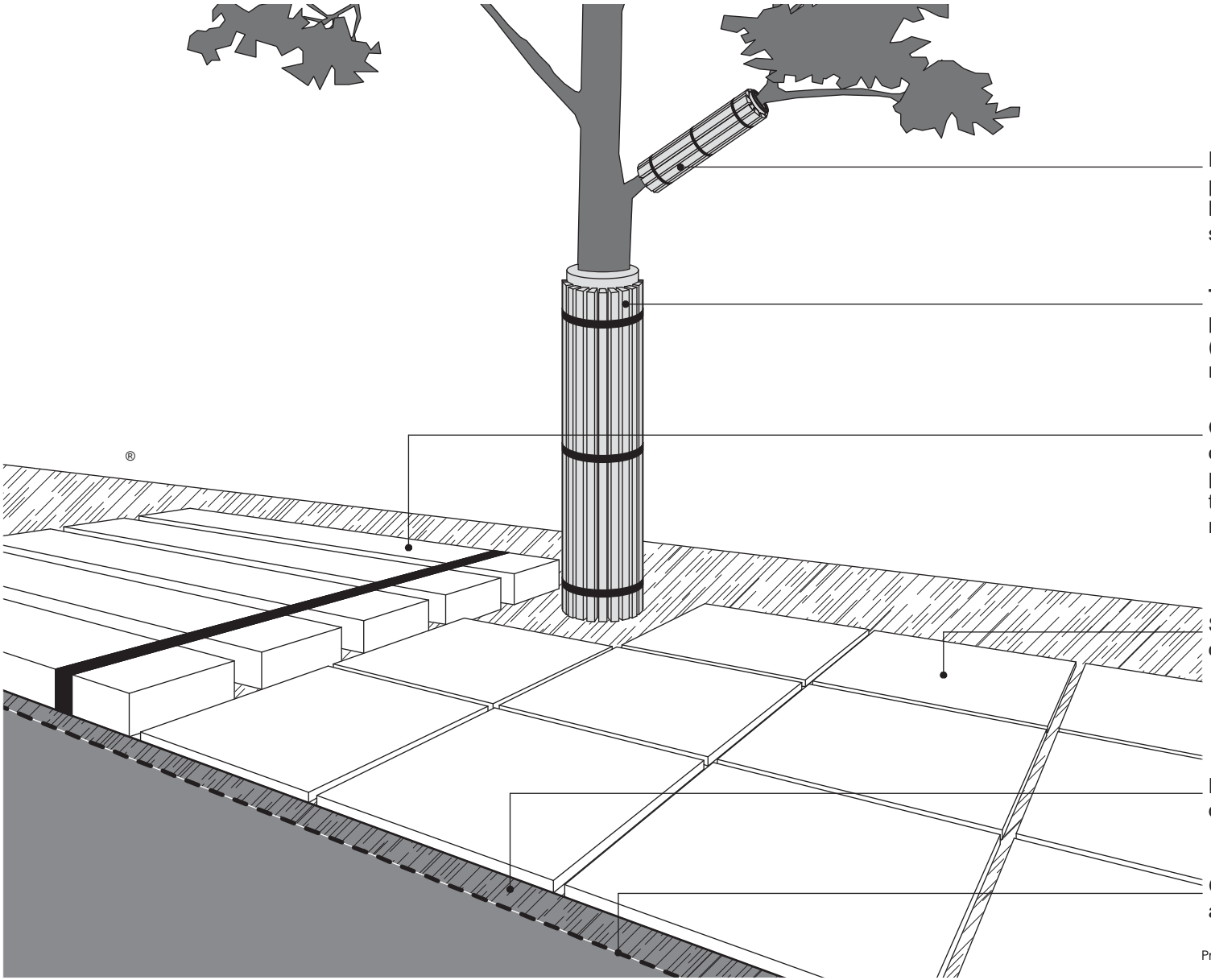
Option 2 - Fencing
Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

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

01 Tree Protection Fencing



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

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

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

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

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

Geotextile fabric underneath mulch or aggregate layer.

Protect

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.

Protect

Geotextile fabric

03 Indicative Scaffolding within a Tree Protection Zone (TPZ)