Project No: BROKEN/HOSPITAL/23 Report No: BROKEN/HOSPITAL/AR/B

ARBORICULTURAL REPORT

Broken Hill Hospital
Acute Adult Mental Health Unit & Emergency Department
Thomas Street, Broken Hill
Review of Environmental Factors

Prepared for: NSW HEALTH INFRASTRUCTURE

10th October 2023
Revision B

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1.0 INTRODUCTION

1.1 Background

1.1.1 This Arboricultural Report was prepared for NSW Health Infrastructure in relation to the Review of Environmental Factors (REF) for the Broken Hill Hospital Development. The purpose of this Report is to undertake a Visual Tree Assessment[1] (VTA), determine the impact of the proposed works on the trees, and where appropriate, recommend the use of sensitive construction methods and tree protection measures to minimise adverse impacts. The ecological significance and heritage value of the trees has not been assessed and is beyond the scope of this Report.

1.1.2 Broken Hill Hospital forms part of the Far West Local Health District (FWLHD). FWLHD has recently received funding to upgrade both its Emergency Department (ED) and Acute Mental Health Inpatient Unit (MHIPU).

1.1.3 In preparing this Report, the authors are aware of and have considered the objectives of the following:

- *Broken Hill Local Environmental Plan (2013)*
- *Broken Hill Development Control Plan (2016)*
- *Australian Standard 4970 Protection of Trees on Development Sites (2009)*
- *Australian Standard 4373 Pruning of Amenity Trees (2007)*
- *Australian Standard 2303 Tree Stock for Landscape Use (2015)*
- *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)*

Refer to Methodology **(Appendix 1)**

1.1.4 This Report is based on an assessment of the following supplied documentation/plans only:

- Site Plan - prepared by STH (Dwg No. STH-DWG-REF-004/B, dated 05.10.23)
- Demolition Site Plan – prepared by STH (Dwg No. STH-DWG-REF-005/B, dated 05.10.23)
- General Arrangement Plan – prepared by STH (Dwg No. STH-DWG-REF-010/B, dated 05.10.23)
- General Arrangement Plan – prepared by STH (Dwg No. STH-DWG-REF-011/B, dated 05.10.23)
- General Arrangement Plan – prepared by STH (Dwg No. STH-DWG-REF-011/B, dated 05.10.23)
- Tree Retention & Removal Plan – prepared by Taylor Brammer (Dwg No. REF-LAN-00-002/E, dated 10.10.23)

Refer to Plans **(Appendix 2)**

1.2 The Project

1.2.1 In April 2022, the NSW Government announced the Broken Hill Health Service Redevelopment project. The project includes a $10 million upgrade to the hospital's ED, which will be reconfigured to better meet the critical health needs of the region and includes tailored treatment spaces for children and those requiring mental health services.

1.2.2 The redevelopment also includes an enhanced MHIPU, which is being delivered as part of the NSW Government's Statewide Mental Health Infrastructure Program (SWMHIP). Once complete, the upgraded mental health and inpatient unit facilities will provide a modern and contemporary therapeutic space with co-designed facilities for people with mental health needs, their families, carers and staff.

[1] Mattheck & Breloer (2003)

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2.0 RESULTS

2.1 The Site

2.1.1 Broken Hill Hospital is located at 176 Thomas Street, Broken Hill and is approximately 3.759 hectares in size. The hospital is bound by Broken Hill University to the north and west, Chloride Street to the east and Thomas Street to the south. For the purpose of this report the site is located in the south-western corner of the hospital to the north of the existing Sub Acute Building.

2.2 The Trees

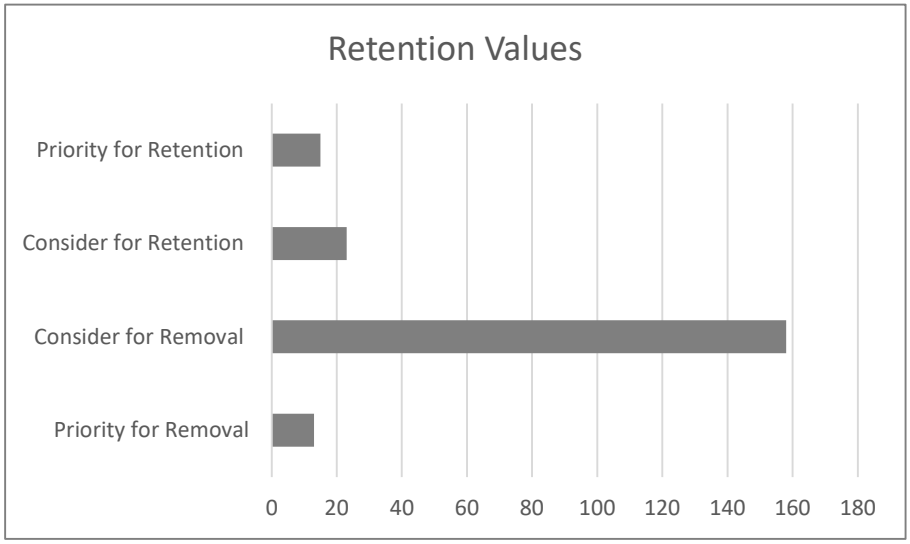
2.2.1 Two-hundred and fifteen (215) trees and tree groups were assessed using the VTA criteria and notes. The trees comprise a mix of locally indigenous, Australian native and exotic species. Trees 52, 169, 187, 191, 199 and 201 are dead.

2.2.2 The trees are not listed in Schedule 5 Environmental Heritage of the *Broken Hill Local Environmental Plan (2013).* The trees are not species are listed as *Priority Weeds for the Western Region* by the Department of Primary Industries.[2]

2.2.3 As required by Clause 2.3.2 of *Australian Standard 4970 Protection of Trees on Development Sites (2009)*, each of the trees assessed has been allocated a Retention Value. TreeiQ allocates one of four Retention Value categories based on a combination of Landscape Significance and Useful Life Expectancy (ULE). The assessment of Landscape Significance and ULE involves a degree of subjectivity and there will be a range of tree quality and value within each of the Retention Value categories. The Retention Values do not consider any proposed development works and are not a schedule for tree retention or removal. The trees have been allocated one of the following Retention Values:

- Priority for Retention
- Consider for Retention
- Consider for Removal
- Priority for Removal

Chart 1: Retention Values



[2] Department of Primary Industries (2017)

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2.2.4 The allocation of a Retention Value to each tree is a key step in the tree management process as it helps the architect, other project consultants and the consent authority identify which are the most valuable trees on site. It may not be possible to retain all existing trees on a development site. However, the proposal should demonstrate that the retention of the higher value trees has been prioritised within the design process.

3.0 ARBORICULTURAL IMPACT ASSESSMENT

3.1 Tree Removal

3.1.1 The supplied plans show that sixty-nine (69) trees and tree groups are to be removed as part of the proposed development. This includes two (2) trees with a Retention Value of *Priority for Retention*, ten (10) trees with a Retention Value of *Consider for Retention,* fifty (50) trees with a Retention Value of *Consider for Removal* and seven (7) trees with a Retention Value of *Priority for Removal*.

3.1.2 Table 1: Tree Removal

	Priority for Retention	Consider for Retention	Consider for Removal	Priority for Removal
Stage 1 = 38	172 & 194	164, 171, 188, 202, 213, 214 & 215	4, 5, 6, 36, 160, 163, 165, 166, 168, 173, 177, 178, 179, 180, 181, 183, 184, 185, 186, 189, 192, 195 & 200	7, 161, 167, 175, 176 & 196
Stage 2 = 31		110, 111 & 137	107, 108, 109, 112, 113, 114, 115, 116, 117, 118, 119, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 135, 136, 138 & 140	120
TOTAL = 69	**2**	**10**	**50**	**7**

3.1.3 In addition to the above, an additional six (6) trees which are dead are to be removed. These are Trees 52, 169, 187, 191, 199 and 201.

3.2 Tree Retention

3.2.1 The supplied plans show that one hundred and forty (140) trees and tree groups are to be retained as part of the proposed development. This includes thirteen (13) trees with a Retention Value of *Priority for Retention*, thirteen (13) trees with a Retention Value of *Consider for Retention,* one hundred and eight (108) trees with a Retention Value of *Consider for Removal* and six (6) trees with a Retention Value of *Priority for Removal.*

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3.2.2 Table 2: Tree Retention

	Priority for Retention	Consider for Retention	Consider for Removal	Priority for Removal
No works within TPZ = 112	40, 72, 100, 101, 105, 106, 158, 159 & 197	51, 54, 56, 58, 68, 69, 78, 80 & 209	8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 23, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 41, 42, 46, 47, 50, 53, 63, 64, 65, 66, 67, 70, 71, 74, 75, 76, 77, 79, 81, 82, 83, 84, 85, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 102, 103, 104, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 152, 153, 154, 155, 156, 157, 190, 198, 203, 204, 206, 207, 211 & 212	9, 55, 59, 73, 86 & 151
Minor Encroachment = 10		49 & 210	19, 22, 34, 43, 62, 133, 134 & 139	
Major Encroachment = 18	25, 45, 48 & 61	24 & 57	1, 2, 3, 44, 60, 162, 170, 174, 182, 193, 205 & 208	
TOTAL = 140	13	13	108	6

3.3 Minor Encroachment

3.3.1 The supplied plans show that works are proposed within the Tree Protection Zone (TPZ) areas of Trees 19, 22, 34, 43, 49, 62, 133, 134, 139 and 210. As the encroachment into the TPZ is less than 10% and outside of the Structural Root Zone (SRZ), the extent of work represents *Minor Encroachments* as defined by *Australian Standard 4970-2009 Protection of Trees on Development Sites* (AS-4970). A *Minor Encroachment* is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ. The encroachments into TPZ areas should be compensated for by extending the TPZ in areas not subject to encroachment.

3.4 Major Encroachment

3.4.1 The supplied plans show that works are proposed with TPZ areas of Trees 1, 2, 3, 24, 25, 44, 45, 48, 57, 60, 61, 162, 170, 174, 182, 193, 205 and 208. The extent of works represent *Major Encroachments* as defined by AS-4970 and are discussed in more detail below.

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3.4.2 Trees 1-3

Trees 1-3 will be subject to *Major Encroachments* from the proposed Emergency Department (ED) extension and refurbishment. The new Ambulance Bay pavement within the TPZ areas should be installed at or above existing grade and utilize elements of the existing subbase layers. The Ambulance Bay awning columns within the TPZ areas should be supported on isolated footings. Excavation for footings within the TPZ areas should be undertaken using tree sensitive methods (hand/hydrovac/airspade etc) and footing locations should be flexible and/or the footing design modified to enable the retention of roots (>50mmø). As an individual component of the work, the installation of the slab for the ED extension represents *Minor Encroachments* only and should not significantly impact Trees 2 and 3. No over-excavation should be undertaken when excavating for the slab.

3.4.3 Trees 24 & 25

Trees 24 and 25 will be subject to *Major Encroachments* from footpath and staff and visitor carparking modifications. New pavements should be designed and installed above existing grade (including any sub-base layers where required) with only minimal compaction of the sub-grade (i.e. pedestrian plate compactor only). Where existing pavements surfaces are to be replaced, the pavement can be installed at existing grade where the underlying subbase is retained and reused. Where roots are present within the existing subbase layer, the subbase and wearing surface should be locally modified as required to enable the retention of roots (>25mmø) as determined by the Project Arborist.

3.4.4 All excavation undertaken within the TPZ areas of these trees should be undertaken using tree sensitive methods (hand/hydrovac/airspade etc) with roots (>50mmø) retained and protected. New kerbs within the TPZ areas should be supported on isolated footings (with all other parts of the structures positioned above existing ground levels. Footings should be flexible and/or the footing design modified to enable the retention of roots (>50mmø). No over-excavation should be undertaken to the rear of kerbs.

3.4.5 Trees 44, 45, 48, 57, 60, 61, 182, 205 & 208

Trees 44, 45, 48, 57, 60, 61, 182, 205 and 208 will be subject to *Major Encroachments* from the carpark/access road modifications. New pavements should be installed as outlined within Sections 3.4.3 and 3.4.4.

3.4.6 Trees 162, 170 & 174

Trees 162, 170 & 174 will be subject to *Major Encroachments* from Mental Health Unit construction, courtyard wall and footpath installation. The trees are located in an existing, linear garden bed within the carpark and high levels of subbase/subgrade compaction below the existing carpark surface should have limited the spread of roots which is likely to reduce the impact of the proposed works. As an individual component of the works, the construction of the Mental Health Unit (MHU) represents a *Minor Encroachment* into the TPZ of Tree 170 and should not significantly impact the tree.

3.4.7 The installation of pavements a should be installed as outlined within Sections 3.4.3 and 3.4.4. Courtyard walls and new kerbs within the TPZ areas should be supported on isolated footings (with all other parts of the structures positioned above existing ground levels). Excavation for footings within the TPZ areas should be undertaken using tree sensitive methods (hand/hydrovac/airspade etc) and footing locations should be flexible and/or the footing design modified to enable the retention of roots (>50mmø). No over-excavation should be undertaken to the rear of kerbs.

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3.4.8 Trees 193

Tree 193 will be subject to a *Major Encroachment* from OSD tank and fencing installation. As an individual component of the works, the installation of the OSD tank represents a *Minor Encroachment* only and should not significantly impact the tree. However, over-excavation beyond the footprint of the tank should be limited to no greater than 500mm. Fencing installation should be undertaken as outlined within Section 3.4.7.

3.5 Other Works within TPZ Areas

3.5.1 Demolition Works

Demolition works within TPZ areas should be supervised by the Project Arborist and utilise tree sensitive methods. Structures should be demolished in small sections ensuring demolition machinery/equipment does not contact with any part of the tree. Structures (e.g. kerbs, strip footings, retaining walls) within an SRZ can contribute to tree stability by providing ballast to the rootplate or acting as a stop to the overturning of the rootplate. If possible, existing underground structures and sub-base materials should be left in situ and reused.

3.5.2 Mulch, Turf & Vegetation Removal

The removal of small areas of mulch, turf and vegetation within TPZ areas should be undertaken using hand tools. Larger woody shrubs and small trees which cannot be removed without significant ground disturbance should either be cut to ground level and treated with herbicide to prevent regrowth (where required) or stump ground. Stump grinding should not be undertaken in the SRZ of existing trees to be retained.

3.5.3 Preliminary Excavation & Root Mapping

Preliminary excavation and root pruning should be undertaken around the perimeter of any structure within/adjacent to a TPZ area prior to the commencement of the bulk excavation works to prevent tearing/shattering of roots. Trenches should be excavated in small increments to a minimum depth of 600mm under the guidance of a spotter. All woody roots exposed by excavation should be cleanly pruned with a sharp saw or secateurs. No over-excavation, battering or benching should be undertaken beyond the footprint of any structure.

3.5.4 Underground Services

Underground services should be located outside of the TPZ areas. Where this is not possible, services should be installed using tree sensitive excavation (hand/hydrovac etc) methods with the services located around/below roots (>50mmø) as required by the Project Arborist. Excavation using compact machinery (<2T) fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>50mmø).

3.5.5 Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1000mm below existing grade. Excavations for starting and receiving pits for boring equipment should be located outside of the TPZ areas or located to avoid roots (>50mmø) as required by the Project Arborist. OSD tanks (where required) should be located outside of the TPZ areas.

3.5.6 Landscaping

The installation of plants/turf within the TPZ areas should be undertaken using hand tools and roots (>50mmø) should be protected. No mechanical cultivation/ripping of soils should be undertaken within the TPZ areas. Excavation and installation of imported soil mixes should be excluded from the TPZ areas other than the installation of soil conditioners to a maximum depth of 50mm above the existing soil profile.

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3.7 New Tree Planting

3.7.1 Replacement trees should be installed within the hospital site to help off-set the loss of canopy cover from the tree removal. The Landscape Plan proposes seventy-nine (79) new trees as part of the Stage 1 and 2 works. New trees should be grown in accordance with *Australian Standard 2303 Tree Stock for Landscape Use (2015).*

3.8 Ongoing Tree Management

3.8.1 A number of the trees to be retained were identified as having structural defects. Refer to Tree Assessment Schedule **(Appendix 3).** Ongoing monitoring/inspection and maintenance (including deadwood removal) should be undertaken for trees which are situated in close proximity to 'high target' areas (i.e. areas of frequent use/vulnerable structures).

4.0 SUMMARY & CONCLUSION

4.1.1 Two-hundred and fifteen (215) trees and tree groups were addressed within this report and comprise a mix of locally indigenous, Australian native and exotic species. Trees 52, 169, 187, 191, 199 and 201 are dead. As a population, the trees provide significant amenity and canopy cover to the hospital site. However, many of the individual trees are semi-mature and early mature specimens and/or below 10m in height. In this regard, one hundred and fifty-nine (159) trees are of low Landscape Significance.

4.1.2 The supplied plan shows that sixty-nine (69) trees (Trees 4-7, 36, 107-132, 135-138, 140, 160, 161, 163-168, 171-173, 175-181, 183-186, 188, 189, 192, 194-196, 200, 202, 213, 214 & 215) will need to be removed to accommodate the proposed Stage 1 and 2 development works. Of these, fifty-seven (57) trees have been allocated either a Retention Value of *Priority for Removal* or *Consider for Removal*.

4.1.3 The supplied plans show that one hundred and forty (140) trees are to be retained as part of the proposed development works. Tree sensitive methods will be required for Trees 1-3, 24, 25, 44, 45, 48, 57, 60, 61, 162, 170, 174, 182, 193, 205 and 208 to minimise adverse impacts. The trees should be protected in accordance with Section 3.0 Arboricultural Impact Assessment, Tree Protection Specification **(Appendix 5)** and Typical Tree Protection Details **(Appendix 6)**.

4.1.4 Replacement trees should be installed within the hospital site to help off-set the loss of canopy cover from the tree removal. New trees should be grown in accordance with *Australian Standard 2303 Tree Stock for Landscape Use (2015)*.

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5.0 LIMITATIONS & DISCLAIMER

TreeiQ takes care to obtain information from reliable sources. However, TreeiQ can neither guarantee nor be responsible for the accuracy of information provided by others. Plans, diagrams, graphs and photographs in this Arboricultural Report are visual aids only and are not necessarily to scale. This Report provides recommendations relating to tree management only. Advice should be sought from appropriately qualified consultants regarding design/construction/ecological/heritage etc issues.

This Report has been prepared for exclusive use by the client. This Report shall not be used by others or for any other reason outside its intended target or without the prior written consent of TreeiQ. Unauthorised alteration or separate use of any section of the Report invalidates the Report.

Many factors may contribute to tree failure and cannot always be predicted. TreeiQ takes care to accurately assess tree health and structural condition. However, a tree's internal structural condition may not always correlate to visible external indicators. There is no warranty or guarantee, expressed or implied that problems or deficiencies regarding the trees or site may not arise in the future. Information contained in this report covers only the trees assessed and reflects the condition of the trees at the time of inspection. Additional information regarding the methodology used in the preparation of this Report is attached as Appendix 1. A comprehensive tree risk assessment and management plan for the trees is beyond the scope of this Report.

Reference should be made to any relevant legislation including Tree Management Controls. All recommendations contained within this Report are subject to approval from the relevant Consent Authority.

6.0 BIBLIOGRAPHY & REFERENCES

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7.0 APPENDICES

Appendix 1: Methodology

1.1 **Site Inspection**: This report was determined as a result of a comprehensive site inspection during February 2023.

1.2 **Visual Tree Assessment (VTA)**: The subject tree(s) was assessed using the Visual Tree Assessment criteria and notes as described in *The Body Language of Trees – A Handbook for Failure Analysis*.[3] The inspection was limited to a visual examination of the subject tree(s) from ground level only. The inspection was limited to a visual examination of the subject tree(s) from ground level only. No internal diagnostic or tissue testing was undertaken as part of this assessment. Trees outside the subject site were assessed from the property boundaries only.

1.3 **Tree Dimensions**: The dimensions of the subject tree(s) are approximate only.

1.4 **Tree Locations:** The location of the subject tree(s) was determined from the supplied plans. Trees not shown on the supplied plans have been plotted in their **approximate location only.**

1.5 **Trees & Development**: Tree Protection Zones, Tree Protection Measures and Sensitive Construction Methods for the subject tree were based on methods outlined in *Australian Standard 4970-2009 Protection of Trees on Development Sites*.

The *Tree Protection Zone* (TPZ) is described in AS-4970 as 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 *Structural Root Zone* (SRZ) is described in AS-4970 as the area around the base of a tree required for the tree's stability in the ground. Severance of structural roots within the SRZ is not recommended as it may lead to the destabilisation and/or demise of the tree.

In some cases it may be possible to encroach into or make variations to the theoretical TPZ. A *Minor Encroachment* is less than 10% of the area of the TPZ and is outside the SRZ. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. A *Major Encroachment* is greater than 10% of the TPZ or inside the SRZ. In this situation the Project Arborist must demonstrate that the tree would remain viable. This may require root investigation by non-destructive methods or the use of sensitive construction methods.

1.6 **Tree Health**: The health of the subject tree(s) was determined by assessing:

I. Foliage size and colour
II. Pest and disease infestation
III. Extension growth
IV. Crown density
V. Deadwood size and volume
VI. Presence of epicormic growth

1.7 **Tree Structural Condition**: The structural condition of the subject tree(s) was assessed by:

I. Assessment of branching structure
(i.e co-dominant/bark inclusions, crossing branches, branch taper, terminal loading, previous branch failures)
II. Visible evidence of structural defects or instability
(i.e root plate movement, wounds, decay, cavities, fungal brackets, adaptive growth)
III. Evidence of previous pruning or physical damage
(root severance/damage, lopping, flush-cutting, lions tailing, mechanical damage)

1.8 **Useful Life Expectancy (ULE)**: The ULE is an estimate of the longevity of the subject tree(s) in its growing environment. The ULE is modified where necessary to take in consideration tree(s) health, structural condition and site suitability. The tree(s) has been allocated one of the following ULE categories (Modified from Barrell, 2001):

I. 40 years +
II. 15-40 years
III. 5-15 years
IV. Less than 5 years

[3] Mattheck & Breloer (2003)

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1.9 **Landscape Significance**: Landscape Significance was determined by assessing the combination of the cultural, environmental and aesthetic values of the subject tree(s). Whilst these values are subjective, a rating of high, moderate, low or insignificant has been allocated to the tree(s). This provides a relative value of the tree's Landscape Significance which may aid in determining its Retention Value. If the tree(s) can be categorized into more than one value, the higher value has been allocated.

Landscape Significance	Description
Very High	The subject tree is listed as a Heritage Item under the *Local Environmental Plan* with a local or state level of significance.
	The subject tree is listed on Council's Significant Tree Register or meets the criteria for significance assessment of trees and/or landscapes by a suitably qualified professional. The criteria are based on general principles outlines in the Burra Charter and on criteria from the Register of the National Estate.
High	The subject tree creates a 'sense of place' or is considered 'landmark' tree.
	The subject tree is of cultural or historical importance or is widely known.
	The subject tree is a prominent specimen which forms part of the curtilage of a heritage item with a known or documented association with that item.
	The subject tree has been identified by a suitably qualified professional as a species scheduled as a Threatened or Vulnerable Species for the site defined under the provisions of the NSW *Biodiversity Conservation Act (2016)* or the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (1999).
	The subject tree is known to contain nesting hollows to a species scheduled as a Threatened or Vulnerable Species for the site as defined under the provisions of the NSW *Biodiversity Conservation Act (2016)* or the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (1999).
	The subject tree is an excellent representative of the species in terms of aesthetic value.
	The subject tree is of significant size, scale or makes a significant contribution to the canopy cover of the locality.
Moderate	The subject tree makes a positive contribution to the visual character or amenity of the area.
	The subject tree provides a specific function such as screening or minimising the scale of a building.
	The subject tree is a good representative of the species in terms of aesthetic value.
Low	The subject tree is a known environmental weed species or is exempt under the provisions of the local Council's Tree Management Controls
	The subject tree makes little or no contribution to the amenity of the locality.
	The subject tree is a poor representative of the species in terms of aesthetic value.

1.10 **Retention Value**: Retention Value was based on the subject tree's Useful Life Expectancy and Landscape Significance. The Retention Value was modified where necessary to take in consideration the subject tree's health, structural condition and site suitability. The subject tree(s) has been allocated one of the following Retention Values:

I. Priority for Retention
II. Consider for Retention
III. Consider for Removal
IV. Priority for Removal

<table>
<tr><th>ULE</th><th></th><th colspan="3">Landscape Significance</th></tr>
<tr><td></td><td>Very High</td><td>High</td><td>Moderate</td><td>Low</td></tr>
<tr><td>40 years +</td><td rowspan="3">Priority for Retention</td><td colspan="2">Priority for Retention</td><td rowspan="3">Consider for Removal</td></tr>
<tr><td>15-40 years</td><td>Priority for Retention</td><td>Consider for Retention</td></tr>
<tr><td>5-15 years</td><td colspan="2">Consider for Retention</td></tr>
<tr><td>Less than 5 years</td><td>Consider for Removal</td><td colspan="3">Priority for Removal</td></tr>
</table>

The above table has been modified from the Footprint Green Tree Significance and Retention Value Matrix.

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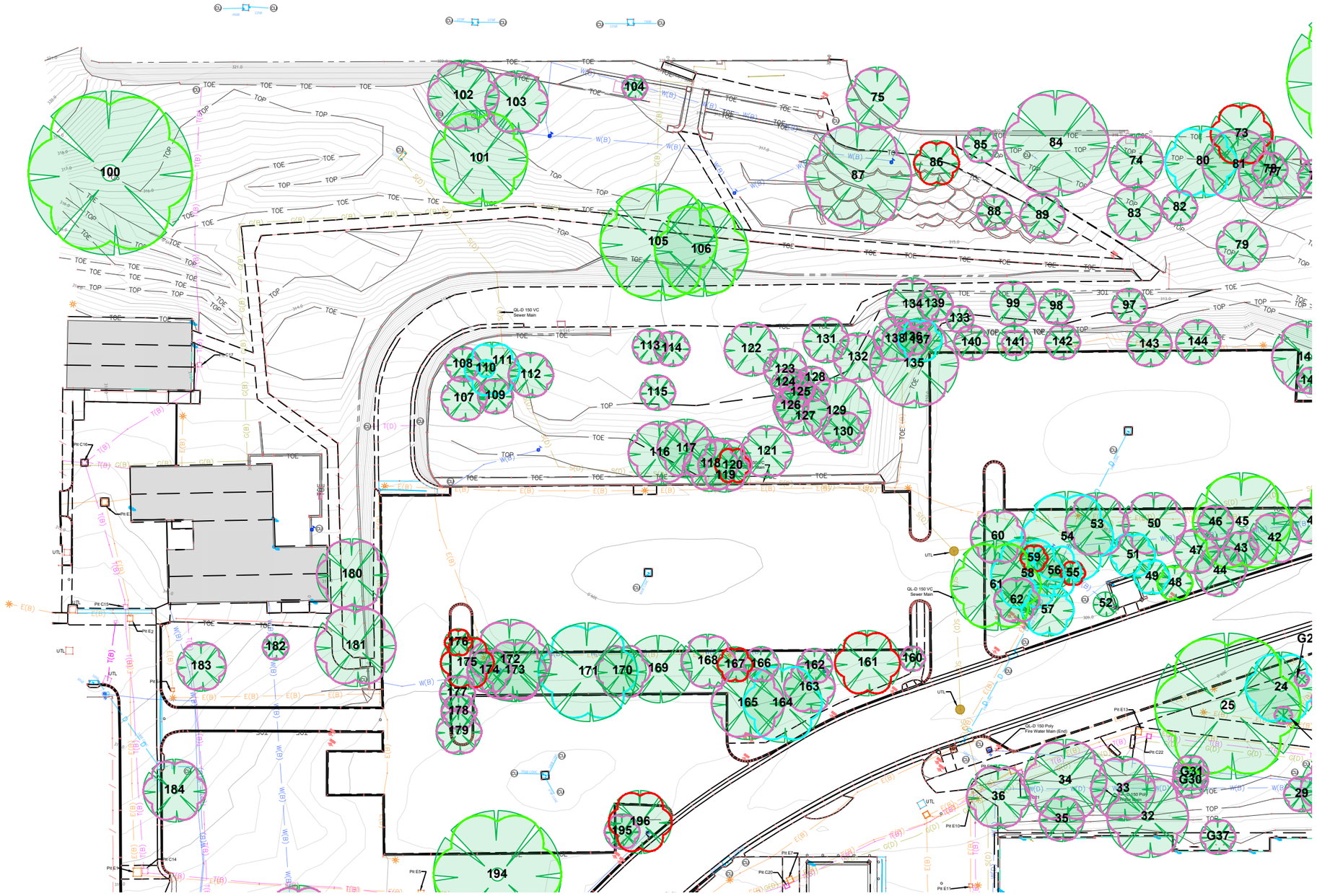
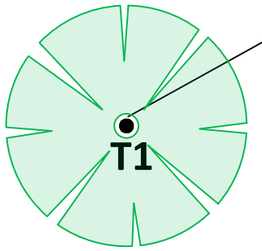
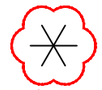


LEGEND



Numbered tree as shown on Site Survey, trunk diameter as measured on site.



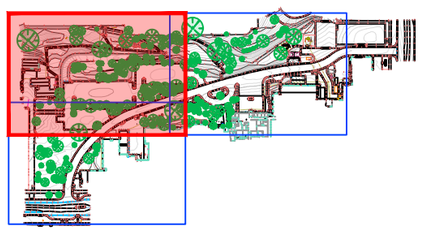
Priority for Removal

Priority for Retention

Consider for Retention

Consider for Removal

KEY PLAN



MUST BE READ IN CONJUNCTION WITH ARBORICULTURAL IMPACT ASSESSMENT REPORT
PRELIMINARY ADVICE ONLY - NOT FOR SUBMISSION

BASED ON SURVEY BY M&P Planning Surveyors REV.3_ DATED 22/11/22

REV	DESCRIPTION	DRAWN	REVIEW	DATE
A	TPZ/SRZ PLAN - FOR COORDINATION	MT	AH	12-02-23

treeiQ
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info@treeiQ.com.au
abn 62 139 088 832
www.treeiQ.com.au

ADDRESS: THOMAS STREET, BROKEN HILL
PROJECT: BROKEN HILL HOSPITAL
CLIENT: HEALTH INFRASTRUCTURE NSW

DRAWING: TREE RETENTION VALUE PLAN
SCALE: 1:500 @ A3 | ISSUE: DA | SHEET: T - 01
DRAWN: MT | REVIEW: AH | DATE: 12-02-23
Do not scale - use dimensions & callouts on drawings & schedules. Refer discrepancies to Landscape Architect for clarification.
SCALE 1:500
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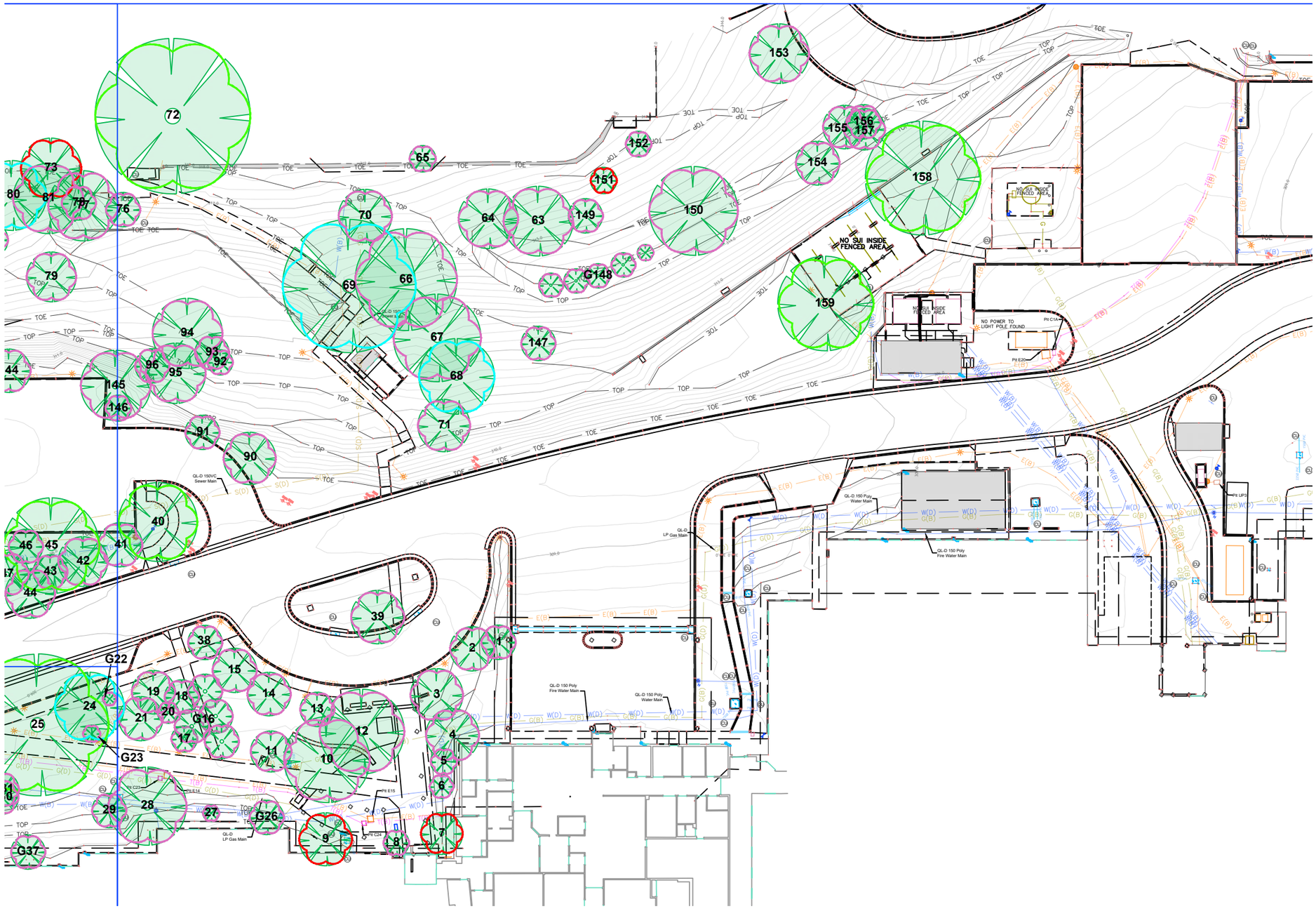
REVISION: A



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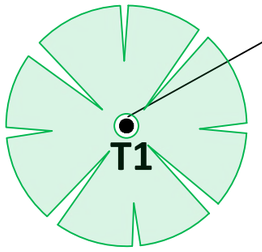


Numbered tree as shown on Site Survey, trunk diameter as measured on site.

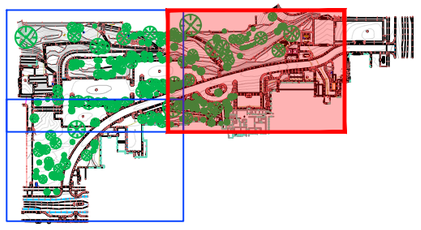
Priority for Removal

Priority for Retention

Consider for Retention

Consider for Removal

KEY PLAN



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DRAWING: TREE RETENTION VALUE PLAN
SCALE: 1:500 @ A3 | ISSUE: DA | SHEET: T - 02
DRAWN: MT | REVIEW: AH | DATE: 12-02-23
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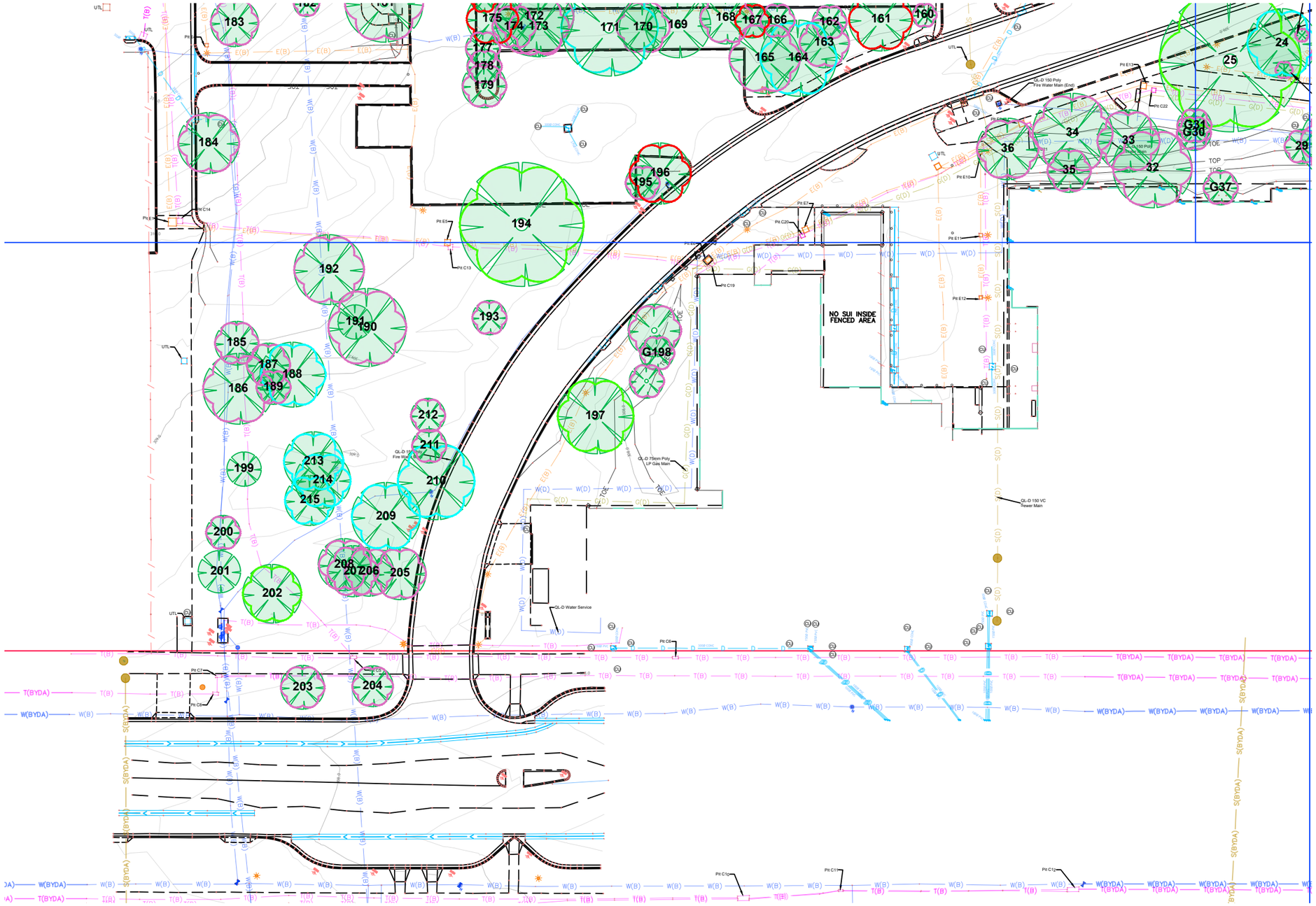
REVISION: A



LEGEND

T1

Numbered tree as shown on Site Survey, trunk diameter as measured on site.

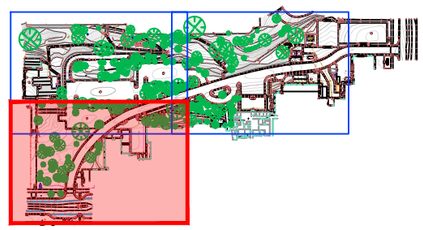
Priority for Removal

Priority for Retention

Consider for Retention

Consider for Removal

KEY PLAN



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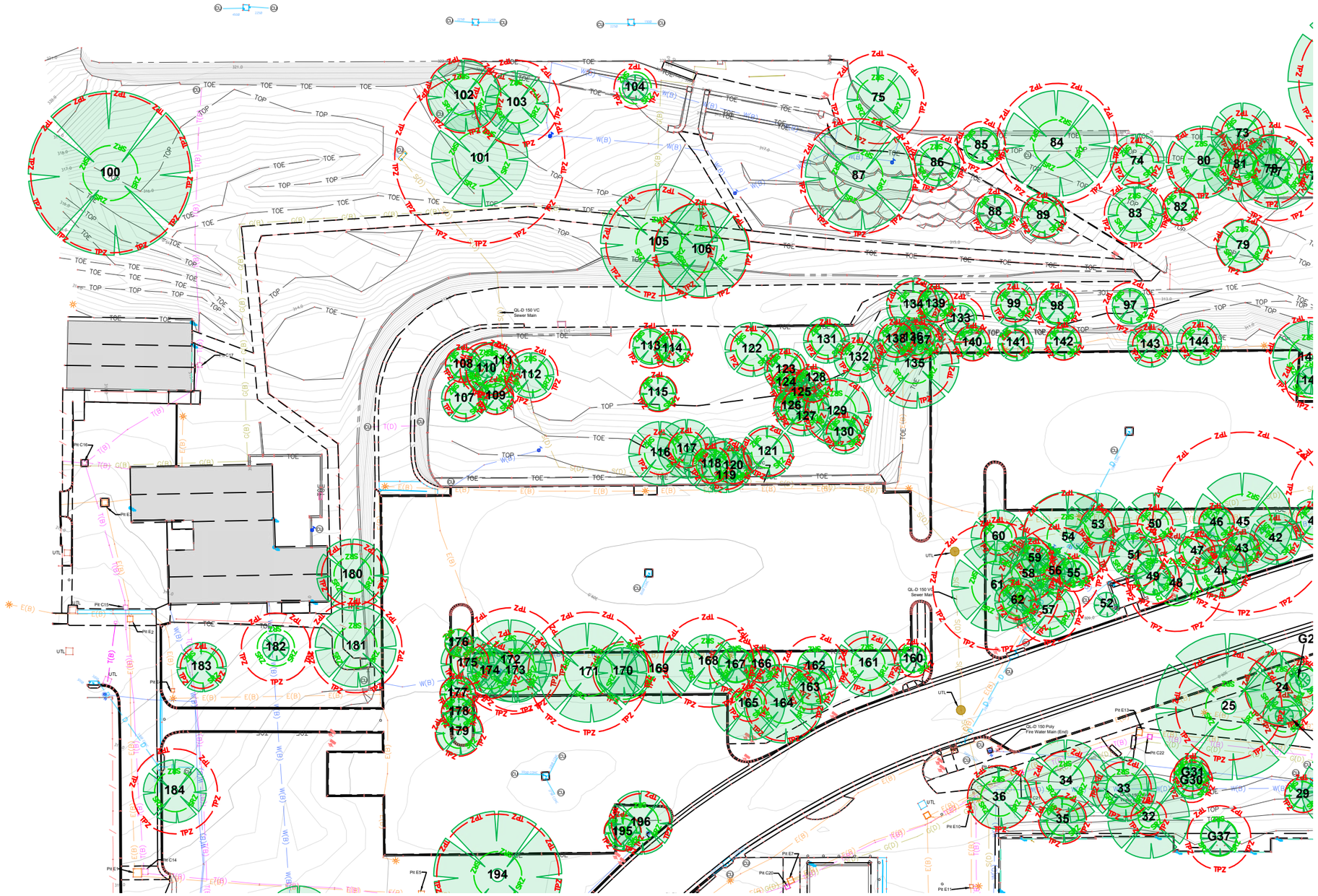
REVISION: A



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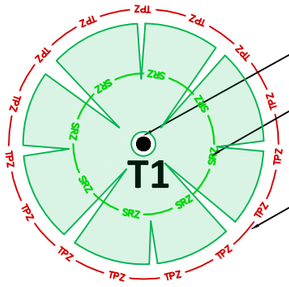


Numbered tree as shown on Site Survey, trunk diameter as measured on site.

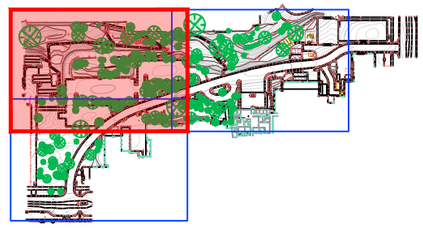
Structural Root Zone (SRZ)

Tree Protection Zone (TPZ)

Tree not shown on Site Survey, location approximate

SH — Shrubs

KEY PLAN



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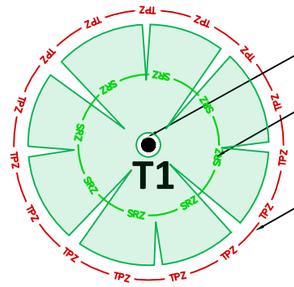
LEGEND



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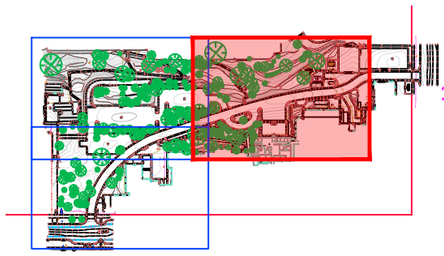
Structural Root Zone (SRZ)

Tree Protection Zone (TPZ)

Tree not shown on Site Survey, location approximate

SH — Shrubs

KEY PLAN



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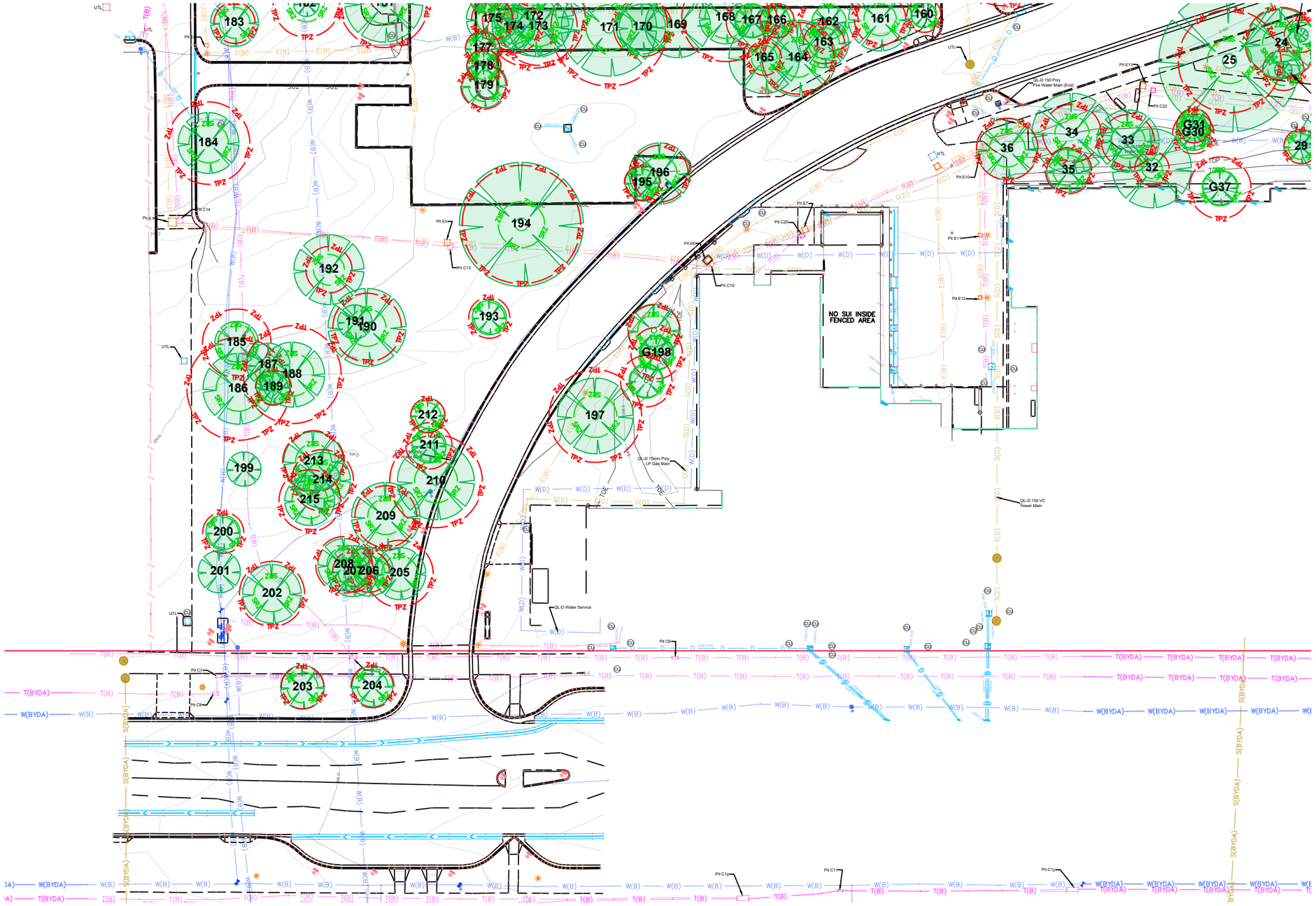

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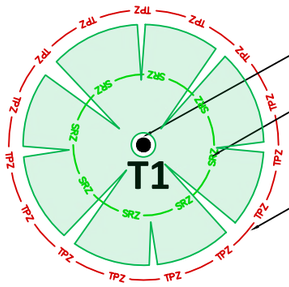

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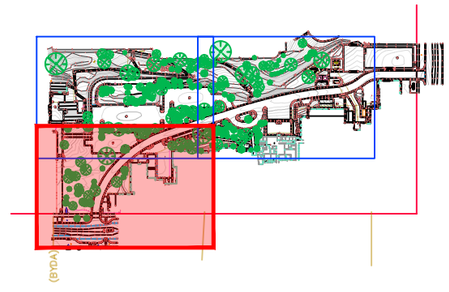
Structural Root Zone (SRZ)

Tree Protection Zone (TPZ)

Tree not shown on Site Survey, location approximate

SH — Shrubs

KEY PLAN



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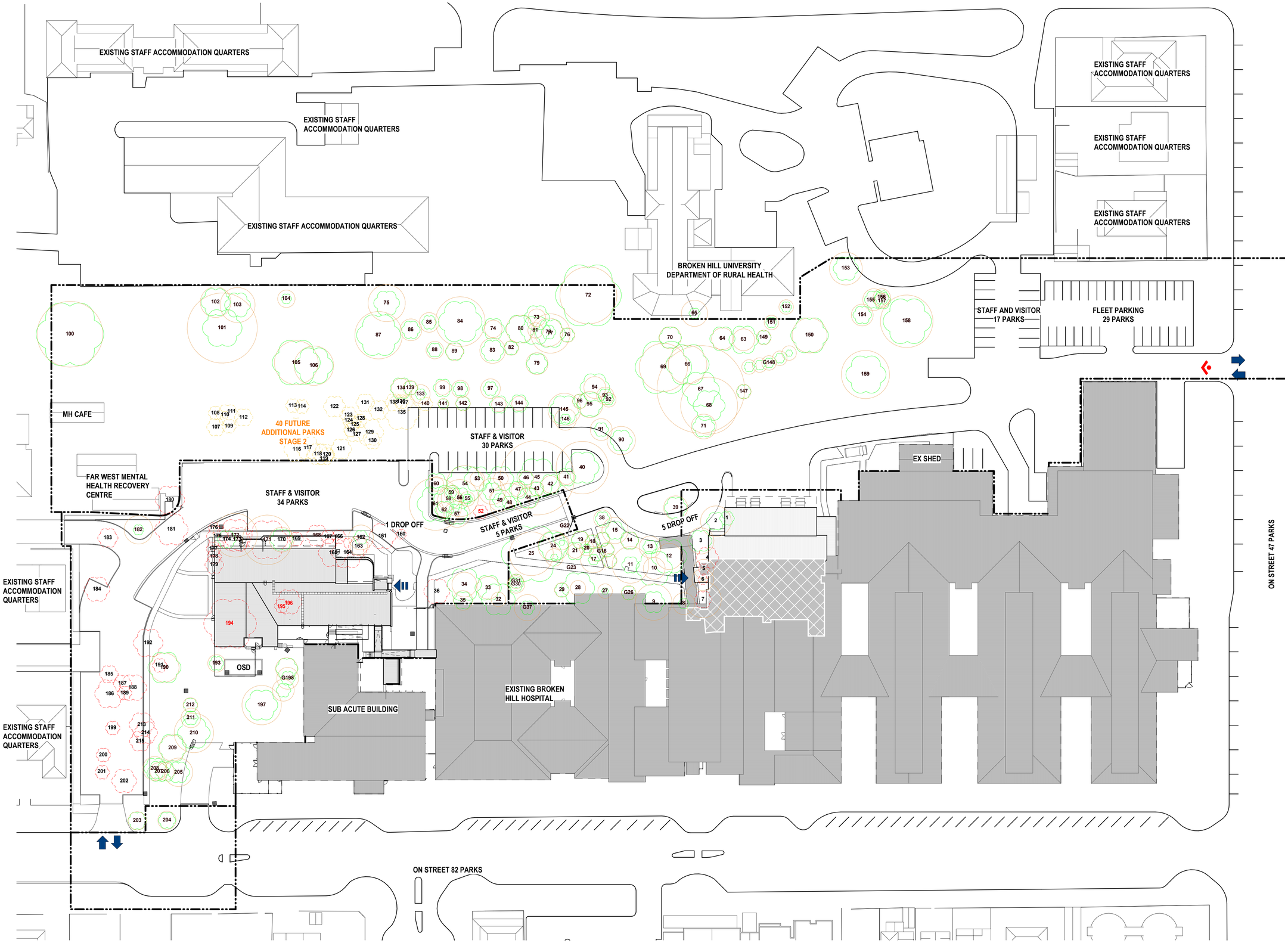
REVISION: A



1 201_TREE RETENTIONAND REMOVAL PLAN 1_500 - REF ISSUE

1 : 500

NOTES:

1. Figured dimensions shall be taken in preference to scaling.
2. The contractor shall check all dimensions on site before commencing work.

LEGEND

- 102 — Existing tree to be retained Quantity: 143
- 102 — Existing tree to be removed Stage 1 Quantity: 44
- 102 — Existing tree to be removed Stage 2 Quantity: 31
- TPZ

ISSUE	DESCRIPTION	DATE
E	REF ISSUE REVISED	09.10.2023
D	REF ISSUE	06.10.2023
A	REF ISSUE	03.08.2023
P5	REF ISSUE	19.06.2023

TaylorBrammer

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218 OXFORD STREET
WOOLLAHRA NSW 2025
T : +61 2 9387 8855
F : +61 2 9387 8155
E: SYDNEY@TAYLORBRAMMER.COM.AU

PROJECT:
Broken Hill MHU & ED

CLIENT:
STH Architects

DRAWING TITLE:
TREE RETENTION AND REMOVAL PLAN

0 2 4 1 3 5m

SCALE: As indicated
DATE: 30.06.2023
DRAWN:
CHECKED:
JOB NO.: 22-147s
DESIGNED:
DRAWING NUMBER: REF-LAN-L00-002
REVISION: E

ABN 61 098 724 988

Appendix 3: Tree Assessment Schedule

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
1	*Melaleuca nesophila* (Honey Myrtle)	200	5	4	Fair	Good	Crown density 50-75%.	Late Mature	5-15	Low	Consider for Removal	2.4	1.8	Retain, Major encroachment, ED.
2	*Angophora costata* (Sydney Red Gum)	350	8	4	Good	Good		Early mature	15-40	Low	Consider for Removal	4.2	2.2	Retain, Major encroachment, ED.
3	*Angophora costata* (Sydney Red Gum)	300	8	5	Fair	Good	Crown density 75-95%. Small (<25mmø) deadwood in low volumes.	Early mature	15-40	Low	Consider for Removal	3.6	2.1	Retain, Major encroachment, ED.
4	*Flindersia australis* (Crows Ash)	225	8	3	Fair	Good	Crown density 75-95%. Small (<25mmø) deadwood in low volumes.	Early mature	15-40	Low	Consider for Removal	2.7	1.8	Remove - stage 1. ED expansion.
5	*Flindersia australis* (Crows Ash)	225	8	3	Fair	Good	Crown density 75-95%. Small (<25mmø) deadwood in low volumes.	Early mature	15-40	Low	Consider for Removal	2.7	1.8	Remove - stage 1. ED expansion.
6	*Phoenix roebelenii* (Dwarf Date Palm)	200	5	2	Good	Good		Mature	15-40	Low	Consider for Removal	3.0	n/a	Remove - stage 1. ED expansion.
7	*Washingtonia robusta* (Mexican Fan Palm)	1000	18	4	Good	Good	Crown contact with building.	Mature	<5	High	Priority for Removal	5.0	n/a	Remove - stage 1. ED expansion.
8	*Trachycarpus* sp. (Fan Palm species)	200	5	2	Good	Good		Mature	15-40	Low	Consider for Removal	3.0	n/a	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
9	*Washingtonia robusta* (Mexican Fan Palm)	1000	18	4	Good	Good	Crown contact with building.	Mature	<5	High	Priority for Removal	5.0	n/a	Retain. No works within TPZ.
10	*Ulmus parvifolia* (Chinese Weeping Elm)	250	7	5	Good	Good	Crown density 75-95%. Lopped.	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
11	*Ficus microcarpa* var. *Hilli* (Hills Weeping Fig)	450	7	7	Fair	Fair	Crown density 50-75%. Small (<25mmø) & medium (25-75mmø) deadwood in moderate volumes. Bark inclusion(s), minor.	Semi-mature	5-15	Low	Consider for Removal	5.4	2.5	Retain. No works within TPZ.
12	*Ulmus parvifolia* (Chinese Weeping Elm)	300	7	5	Good	Good	Crown density 75-95%. Lopped. Limited clearance to pergola.	Early mature	15-40	Low	Consider for Removal	3.6	2.1	Retain. No works within TPZ.
13	*Angophora costata* (Sydney Red Gum)	250	8	4	Good	Good		Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
14	*Angophora costata* (Sydney Red Gum)	200	8	4	Good	Good		Early mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
15	*Angophora costata* (Sydney Red Gum)	300	8	4	Good	Good		Early mature	15-40	Low	Consider for Removal	3.6	2.1	Retain. No works within TPZ.
16	*Callistemon viminalis* (Weeping Bottlebrush)	100	5	2	Good	Good	Group of 5. Partially suppressed.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
17	*Banksia integrifolia* (Coastal Banksia)	300	8	5	Good	Good	Partially suppressed.	Early mature	15-40	Low	Consider for Removal	3.6	2.1	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
18	*Banksia integrifolia* (Coastal Banksia)	150	8	5	Good	Good	Heavily suppressed.	Early mature	15-40	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.
19	*Angophora costata* (Sydney Red Gum)	200	8	4	Good	Good		Early mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. Minor encroachment, pavement.
20	*Acacia* sp. (Wattle species)	150	9	7	Good	Fair	Partially suppressed. Phototrophic lean, moderate.	Late Mature	5-15	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.
21	*Acacia* sp. (Wattle species)	150	9	7	Good	Fair	Heavily suppressed. Phototrophic lean, severe.	Late Mature	5-15	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.
22	*Acacia* sp. (Wattle species)	100	7	2	Good	Good	Group of 3 Partially suppressed.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. Minor encroachment, pavement.
23	*Banksia integrifolia* (Coastal Banksia)	200	7	3	Good	Good	Group of 2. Partially suppressed.	Early mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
24	*Corymbia maculata* (Spotted Gum)	350	14	8	Fair	Good	Crown density 50-75%. Small (<25mmø) deadwood in moderate volumes.	Mature	5-15	Moderate	Consider for Retention	4.2	2.2	Retain. Major encroachment, pavement.
25	*Corymbia maculata* (Spotted Gum)	500	17	10	Good	Good	Small (<25mmø) deadwood in low volumes.	Mature	15-40	High	Priority for Retention	6.0	2.6	Retain. Major encroachment, pavement.
26	*Acacia* sp. (Wattle species)	100	7	2	Good	Good	Group of 3. Partially suppressed. Long leaf.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
27	*Hakea leucoptera* (Needlewood)	150	4	2	Good	Good		Mature	5-15	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.
28	*Eucalyptus gillii* (Curly Mallee)	173	5	10	Fair	Fair	Crown density 50-75%. Small (<25mmø) deadwood in moderate volumes. Wound(s), various stages of decay.	Mature	5-15	Low	Consider for Removal	2.1	1.6	Retain. No works within TPZ.
29	*Celtis australis* (Hackberry)	106	7	3	Good	Fair	Lopped. Lopped with resultant epicormics.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
30	*Grevillea stenobotrya* (Rattlepod Grevillea)	200	7	3	Good	Good	Fine leaf. Group of 2.	Early mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
31	*Eucalyptus gillii* (Curly Mallee)	141	8	8	Fair	Fair	Group of 2. Crown density 75-95%. Medium (25-75mmø) deadwood in moderate volumes. Partially suppressed. Lopped with resultant epicormics. Wound(s), no visible sign of decay.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
32	*Eucalyptus gillii* (Curly Mallee)	150	8	8	Fair	Fair	Crown density 75-95%. Medium (25-75mmø) deadwood in moderate volumes. Partially suppressed. Lopped with resultant epicormics. Wound(s), no visible sign of decay.	Mature	5-15	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.
33	*Eucalyptus gillii* (Curly Mallee)	260	8	8	Fair	Fair	Crown density 75-95%. Medium (25-75mmø) deadwood in moderate volumes. Partially suppressed. Lopped with resultant epicormics. Wound(s), no visible sign of decay.	Mature	5-15	Low	Consider for Removal	3.1	2.0	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
34	*Eucalyptus gillii* (Curly Mallee)	286	8	8	Fair	Fair	Crown density 75-95%. Medium (25-75mmø) deadwood in moderate volumes. Partially suppressed. Lopped with resultant epicormics. Wound(s), no visible sign of decay.	Mature	5-15	Low	Consider for Removal	3.4	2.0	Retain. Minor encroachment, pavement.
35	*Eucalyptus gillii* (Curly Mallee)	225	8	8	Fair	Fair	Crown density 75-95%. Medium (25-75mmø) deadwood in moderate volumes. Partially suppressed. Lopped with resultant epicormics. Wound(s), no visible sign of decay.	Mature	5-15	Low	Consider for Removal	2.7	1.8	Retain. No works within TPZ.
36	*Jacaranda mimosifolia (Jacaranda)*	300	6	3	Fair	Fair	Crown density 25-50%. Small (<25mmø) deadwood in high volumes. Wound(s), various stages of decay.	Mature	5-15	Low	Consider for Removal	3.6	2.1	Remove - stage 1. Pavement.
37	*Melaleuca* sp. (Teatree species)	300	4	4	Good	Fair	Large understorey group.	Mature	5-15	Low	Consider for Removal	3.6	2.1	Retain. No works within TPZ.
38	*Banksia integrifolia* (Coastal Banksia)	200	10	3	Good	Good	Limited clearance to lamp.	Early mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
39	*Eucalyptus* sp. (Eucalypt species)	275	6	6	Good	Fair	Wound(s), early signs of decay. Phototrophic lean, moderate. Long leaf.	Early mature	5-15	Low	Consider for Removal	3.3	2.0	Retain. No works within TPZ.
40	*Eucalyptus* sp. (Eucalypt species)	600	20	10	Good	Good	Crown density 75-95%.	Mature	15-40	High	Priority for Retention	7.2	2.8	Retain. No works within TPZ.
41	*Acacia cyperophylla* (Red Mulga)	141	8	4	Good	Fair	Bark inclusion(s), major.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
42	*Corymbia maculata* (Spotted Gum)	200	11	4	Fair	Good	Crown density 75-95%. Partially suppressed.	Early mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
43	*Acacia cyperophylla* (Red Mulga)	141	8	4	Good	Fair	Bark inclusion(s), major.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. Minor encroachment, pavement.
44	*Acacia cyperophylla* (Red Mulga)	250	12	5	Good	Fair	Bark inclusion(s), major.	Mature	5-15	Low	Consider for Removal	3.0	1.9	Retain. Major encroachment, pavement.
45	*Casuarina cunninghamiana* (River She Oak)	850	18	10	Good	Good	Small (<25mmø) & large (>75mmø) deadwood in low volumes. Co-dominant inclusions, minor.	Mature	15-40	High	Priority for Retention	10.2	3.2	Retain. Major encroachment, pavement.
46	*Acacia cyperophylla* (Red Mulga)	100	8	4	Good	Fair	Partially suppressed.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
47	*Callistemon viminalis* (Weeping Bottlebrush)	150	5	3	Good	Good	Partially suppressed.	Mature	5-15	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.
48	*Casuarina cunninghamiana* (River She Oak)	450	17	10	Good	Good	Partially suppressed.	Mature	15-40	High	Priority for Retention	5.4	2.5	Retain. Major encroachment, pavement.
49	*Corymbia maculata (Spotted Gum)*	250	16	10	Fair	Good	Crown density 75-95%.	Mature	15-40	Moderate	Consider for Retention	3.0	1.9	Retain. Minor encroachment, pavement.
50	*Acacia cyperophylla* (Red Mulga)	50	2	1	Good	Fair	Bark inclusion(s), major.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
51	*Casuarina cunninghamiana* (River She Oak)	300	14	13	Good	Fair	Trunk wound. Partially suppressed.	Mature	5-15	Moderate	Consider for Retention	3.6	2.1	Retain. No works within TPZ.
52	DEAD										DEAD			DEAD
53	*Acacia cyperophylla* (Red Mulga)	141	8	4	Good	Fair	Bark inclusion(s), major. Heavily suppressed.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
54	*Corymbia maculata* (Spotted Gum)	425	18	10	Fair	Good	Crown density 50-75%.	Mature	5-15	Moderate	Consider for Retention	5.1	2.4	Retain. No works within TPZ.
55	*Dodanea* sp. (Hop Bush)	100	6	3	Poor	Poor	Crown density 0-25%.	Late Mature	<5	Low	Priority for Removal	2.0	1.5	Retain. No works within TPZ.
56	*Corymbia maculata* (Spotted Gum)	200	18	10	Fair	Good	Crown density 50-75%.	Mature	5-15	Moderate	Consider for Retention	5.1	2.4	Retain. No works within TPZ.
57	*Corymbia maculata* (Spotted Gum)	300	15	8	Good	Good	Partially suppressed.	Mature	15-40	Moderate	Consider for Retention	3.6	2.1	Retain. Major encroachment, pavement.
58	*Corymbia maculata* (Spotted Gum)	250	18	10	Fair	Good	Crown density 50-75%.	Mature	5-15	Moderate	Consider for Retention	3.0	1.9	Retain. No works within TPZ.
59	*Corymbia maculata* (Spotted Gum)	100	18	10	Poor	Good	Crown density 0-25%.	Early mature	<5	Low	Priority for Removal	2.0	1.5	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
60	*Acacia cyperophylla* (Red Mulga)	141	8	4	Good	Fair	Bark inclusion(s), major.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. Major encroachment, pavement.
61	*Corymbia maculata* (Spotted Gum)	600	12	14	Good	Good		Mature	15-40	High	Priority for Retention	7.2	2.8	Retain. Major encroachment, pavement.
62	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	175	6	4	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.1	1.7	Retain. Minor encroachment, pavement.
63	*Eucalyptus sargentii* (Salt River Gum)	250	8	7	Good	Good	Red bark. Small leaves.	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
64	*Eucalyptus sargentii* (Salt River Gum)	250	8	7	Good	Good	Co-dominant inclusions, minor. Red bark. Small leaves.	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
65	*Olea europaea* (European Olive)	300	5	4	Good	Good	Growing out of retaining wall.	Semi-mature	5-15	Low	Consider for Removal	3.6	2.1	Retain. No works within TPZ.
66	*Eucalyptus* sp. (Eucalypt species)	442	10	10	Fair	Good	Crown density 25-50%. Small (<25mmø) & large (>75mmø) deadwood in moderate volumes. Stringy bark.	Early mature	5-15	Low	Consider for Removal	5.3	2.4	Retain. No works within TPZ.
67	*Eucalyptus sargentii* (Salt River Gum)	1000	5	7	Good	Fair	Regrowth from stump. Lopped with resultant epicormics. Red bark. Small leaves.	Early mature	5-15	Low	Consider for Removal	12.0	3.4	Retain. No works within TPZ.
68	*Eucalyptus* sp. (Eucalypt species)	652	15	10	Good	Good	Crown density 75-95%. Stringy bark.	Mature	15-40	Moderate	Consider for Retention	7.8	2.9	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
69	*Eucalyptus* sp. (Eucalypt species)	550	15	10	Good	Good	Crown density 75-95%. Stringy bark.	Mature	15-40	Moderate	Consider for Retention	6.6	2.7	Retain. No works within TPZ.
70	*Eucalyptus sargentii* (Salt River Gum)	250	8	7	Good	Good	Red bark. Small leaves	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
71	*Eucalyptus* gillii (Curly Mallee)	283	4	12	Good	Good	Malloy form	Early mature	15-40	Low	Consider for Removal	3.4	2.0	Retain. No works within TPZ.
72	*Populus deltoides* (Cottonwood)	650	13	10	Good	Good	Small (<25mmø), medium (25-75mmø) & large (>75mmø) deadwood in low volumes. Mechanical damage to exposed surface roots.	Mature	15-40	High	Priority for Retention	7.8	2.9	Retain. No works within TPZ.
73	*Pittosporum rhombifolium* (Queensland Pittosporum)	200	4	3	Poor	Poor	Crown density 50-75%. Wound(s), advanced stages of decay.	Late Mature	<5	Low	Priority for Removal	2.4	1.8	Retain. No works within TPZ.
74	*Acacia pendula* (Weeping Mallee)	200	8	7	Good	Good		Mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
75	*Cupressus funebris* (Chinese Weeping Cypresss)	424	7	8	Fair	Good	Overgrowing path at base. Small (<25mmø) & medium (25-75mmø) deadwood in high volumes.	Mature	5-15	Low	Consider for Removal	5.1	2.4	Retain. No works within TPZ.
76	*Populus deltoides* (Cottonwood)	125	8	4	Good	Good	Bark inclusion(s), minor.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
77	*Schinus molle* var. *areira* (Peppercorn Tree)	450	7	7	Fair	Fair	Regrowth from stump. Rubbing branches. Crown density 75-95%.	Early mature	5-15	Low	Consider for Removal	5.4	2.5	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
78	*Eucalyptus sargentii* (Salt River Gum)	325	15	7	Good	Good	Red bark. Small leaves.	Mature	15-40	Moderate	Consider for Retention	3.9	2.1	Retain. No works within TPZ.
79	*Eucalyptus sargentii* (Salt River Gum)	250	9	7	Good	Good	Red bark. Small leaves.	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
80	*Eucalyptus sargentii* (Salt River Gum)	320	12	7	Good	Good	Red bark. Small leaves.	Mature	15-40	Moderate	Consider for Retention	3.8	2.1	Retain. No works within TPZ.
81	*Acacia* sp. (Wattle species)	173	6	4	Good	Good	Small leaf form.	Late Mature	5-15	Low	Consider for Removal	2.1	1.6	Retain. No works within TPZ.
82	*Melaleuca nesophila* (Honey Myrtle)	100	5	4	Good	Good	Crown density 75-95%.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
83	*Melia azedarach* (White Cedar)	296	6	5	Good	Good		Early mature	5-15	Low	Consider for Removal	3.5	2.1	Retain. No works within TPZ.
84	*Ceratonia siliqua* (Carob Tree)	566	10	10	Fair	Fair	Small (<25mmø) & large (>75mmø) deadwood in moderate volumes. Bark inclusion(s), major. Wound(s), various stages of decay.	Late Mature	5-15	Low	Consider for Removal	6.8	2.7	Retain. No works within TPZ.
85	*Citharexylum spinosum* (Fiddlewood Tree)	224	8	7	Fair	Fair	Crown density 75-95%. Small (<25mmø) & large (>75mmø) deadwood in moderate volumes. Bark inclusion(s), minor.	Late Mature	5-15	Low	Consider for Removal	2.7	1.8	Retain. No works within TPZ.
86	*Melia azedarach* (White Cedar)	246	8	6	Poor	Fair	Crown density 25-50%. Small (<25mmø) & large (>75mmø) deadwood in high volumes.	Early mature	<5	Low	Priority for Removal	3.0	1.9	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
87	*Ceratonia siliqua* (Carob Tree)	541	8	10	Good	Good	Small (<25mmø) deadwood in moderate volumes. Co-dominant inclusions, minor.	Mature	15-40	Low	Consider for Removal	6.5	2.7	Retain. No works within TPZ.
88	*Schinus molle* var. *areira* (Peppercorn Tree)	200	6	3	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
89	*Schinus molle* var. *areira* (Peppercorn Tree)	200	6	3	Good	Fair	Co-dominant inclusions, minor.	Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
90	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	325	8	4	Good	Fair	Co-dominant inclusions, minor.	Semi-mature	15-40	Low	Consider for Removal	3.9	2.1	Retain. No works within TPZ.
91	*Eucalyptus sargentii* (Salt River Gum)	250	8	2	Good	Good	Crown density 75-95%. Red bark. Small leaves.	Semi-mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
92	*Eucalyptus* sp. (Eucalypt species)	100	4	2	Good	Good	Partially suppressed.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
93	*Eucalyptus* sp. (Eucalypt species)	200	8	5	Good	Good		Early mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
94	*Eucalyptus* sp. (Eucalypt species)	250	8	5	Good	Good	Wound(s), early signs of decay.			Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
95	*Eucalyptus* sp. (Eucalypt species)	300	8	5	Good	Good		Early mature	15-40	Low	Consider for Removal	3.6	2.1	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
96	*Eucalyptus* sp. (Eucalypt species)	75	5	2	Good	Good	Crown density 75-95%. Stringy bark.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
97	*Eucalyptus* sp. (Eucalypt species)	225	8	5	Good	Good		Early mature	15-40	Low	Consider for Removal	2.7	1.8	Retain. No works within TPZ.
98	*Eucalyptus* sp. (Eucalypt species)	200	8	5	Good	Good		Early mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
99	*Eucalyptus* sp. (Eucalypt species)	100	5	2	Good	Good		Early mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
100	*Eucalyptus* sp. (Eucalypt species)	750	17	12	Good	Good	Small (<25mmø) & large (>75mmø) deadwood in low volumes. Wound(s), various stages of decay.	Mature	15-40	High	Priority for Retention	9.0	3.1	Retain. No works within TPZ.
101	*Eucalyptus* sp. (Eucalypt species)	800	22	15	Good	Fair	Storm damage. Wound with kino on trunk. Crown density 75-95%. Small (<25mmø) & large (>75mmø) deadwood in moderate volumes. Wound(s), various stages of decay. Yellow spotted bark.	Late Mature	15-40	High	Priority for Retention	9.6	3.1	Retain. No works within TPZ.
102	*Melia azedarach* (White Cedar)	346	7	5	Good	Fair	Co-dominant inclusions, minor.	Early mature	15-40	Low	Consider for Removal	4.2	2.2	Retain. No works within TPZ.
103	*Melia azedarach* (White Cedar)	400	7	5	Good	Fair		Early mature	15-40	Low	Consider for Removal	4.8	2.3	Retain. No works within TPZ.
104	*Brachychiton populneus* (Kurrajong)	200	8	2	Good	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.

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105	*Eucalyptus* sp. (Eucalypt species)	500	17	10	Good	Good	Storm damage with wound. Crown density 75-95%.	Mature	15-40	High	Priority for Retention	6.0	2.6	Retain. No works within TPZ.
106	*Eucalyptus* sp. (Eucalypt species)	450	15	10	Good	Good		Mature	15-40	High	Priority for Retention	5.4	2.5	Retain. No works within TPZ.
107	*Eucalyptus* sp. (Eucalypt species)	180	7	3	Good	Good	Bark inclusion(s), minor.	Semi-mature	15-40	Low	Consider for Removal	2.2	1.7	Remove - stage 2. Carpark.
108	*Eucalyptus* sp. (Eucalypt species)	100			Good	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
109	*Eucalyptus sargentii* (Salt River Gum)	100	9	2	Good	Good	Red bark. Small leaves.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
110	*Eucalyptus* sp. (Eucalypt species)	250	14	3	Good	Good	Crown density 75-95%. Bark inclusion(s), minor.	Mature	15-40	Moderate	Consider for Retention	3.0	1.9	Remove - stage 2. Carpark.
111	*Eucalyptus* sp. (Eucalypt species)	250	13	3	Good	Good	Crown density 75-95%.	Mature	15-40	Moderate	Consider for Retention	3.0	1.9	Remove - stage 2. Carpark.
112	*Eucalyptus sargentii* (Salt River Gum)	250	9	5	Fair	Good	Crown density 50-75%. Small (<25mmø) & large (>75mmø) deadwood in low volumes. Red bark. Small leaves.	Early mature	5-15	Low	Consider for Removal	3.0	1.9	Remove - stage 2. Carpark.
113	*Angophora costata* (Sydney Red Gum)	200	10	4	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Remove - stage 2. Carpark.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
114	*Eucalyptus* sp. (Eucalypt species)	100	9	2	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in low volumes. Partially suppressed.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
115	*Eucalyptus sargentii* (Salt River Gum)	175	10	2	Good	Good	Red bark. Small leaves.	Semi-mature	15-40	Low	Consider for Removal	2.1	1.7	Remove - stage 2. Carpark.
116	*Eucalyptus* sp. (Eucalypt species)	200	10	3	Good	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Remove - stage 2. Carpark.
117	*Angophora costata* (Sydney Red Gum)	173	11	6	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.1	1.6	Remove - stage 2. Carpark.
118	*Eucalyptus* sp. (Eucalypt species)	175	9	4	Good	Good	Partially suppressed.	Semi-mature	15-40	Low	Consider for Removal	2.1	1.7	Remove - stage 2. Carpark.
119	*Eucalyptus* sp. (Eucalypt species)	225	11	5	Good	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.7	1.8	Remove - stage 2. Carpark.
120	*Eucalyptus sargentii* (Salt River Gum)	75	7	2	Fair	Fair	Leaf insect damage. Dead top. Crown density 25-50%. Red bark. Small leaves.	Semi-mature	<5	Low	Priority for Removal	2.0	1.5	Remove - stage 2. Carpark.
121	*Eucalyptus* sp. (Eucalypt species)	225	11	5	Good	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.7	1.8	Remove - stage 2. Carpark.
122	*Eucalyptus sargentii* (Salt River Gum)	200	10	3	Good	Good	Red bark. Small leaves.	Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Remove - stage 2. Carpark.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
123	*Corymbia maculata* (Spotted Gum)	175	12	2	Fair	Fair	Etiolated form.	Semi-mature	5-15	Low	Consider for Removal	2.1	1.7	Remove - stage 2. Carpark.
124	*Eucalyptus* sp. (Eucalypt species)	75	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
125	*Eucalyptus* sp. (Eucalypt species)	100	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
126	*Eucalyptus* sp. (Eucalypt species)	141	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
127	*Eucalyptus* sp. (Eucalypt species)	200	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Remove - stage 2. Carpark.
128	*Eucalyptus* sp. (Eucalypt species)	125	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
129	*Eucalyptus* sp. (Eucalypt species)	300	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	3.6	2.1	Remove - stage 2. Carpark.
130	*Eucalyptus* sp. (Eucalypt species)	100	7	2	Fair	Good	Crown density 75-95%. Heavily suppressed.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
131	*Angophora costata* (Sydney Red Gum)	177	8	6	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.1	1.7	Remove - stage 2. Carpark.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
132	*Eucalyptus* sp. (Eucalypt species)	141	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
133	*Eucalyptus* sp. (Eucalypt species)	214	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.6	1.8	Retain. Minor encroachment, stage 2 carpark.
134	*Eucalyptus* sp. (Eucalypt species)	225	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.7	1.8	Retain. Minor encroachment, stage 2 carpark.
135	*Eucalyptus* sp. (Eucalypt species)	354	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	4.2	2.2	Remove - stage 2. Carpark.
136	*Eucalyptus* sp. (Eucalypt species)	100	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
137	*Acacia pendula* (Weeping Mallee)	173			Good	Good		Mature	5-15	Moderate	Consider for Retention	2.1	1.6	Remove - stage 2. Carpark.
138	*Eucalyptus* sp. (Eucalypt species)	100	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.
139	*Eucalyptus* sp. (Eucalypt species)	100	7	2	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. Minor encroachment, stage 2 carpark.
140	*Melalueca stypheloides* (Prickly Leaf Paperbark)	100	5	2	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in moderate volumes.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 2. Carpark.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
141	*Melalueca stypheloides* (Prickly Leaf Paperbark)	150	7	3	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in moderate volumes.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.
142	*Melalueca stypheloides* (Prickly Leaf Paperbark)	106	5	2	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in moderate volumes.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
143	*Melalueca stypheloides* (Prickly Leaf Paperbark)	146	6	3	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in moderate volumes.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
144	*Melalueca stypheloides* (Prickly Leaf Paperbark)	125	4	2	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in moderate volumes.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
145	*Corymbia maculata* (Spotted Gum)	375	8	4	Good	Good		Early mature	15-40	Low	Consider for Removal	4.5	2.3	Retain. No works within TPZ.
146	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	250	5	3	Good	Fair	Heavily suppressed. Bark inclusion(s), minor.	Semi-mature	5-15	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
147	*Eucalyptus* sp. (Eucalypt species)	125	5	4	Good	Good	One dead stem.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
148	*Corymbia maculata* (Spotted Gum)	100	6	2	Good	Good	Group of 11.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
149	*Corymbia maculata* (Spotted Gum)	150	8	3	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.0	1.6	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
150	*Eucalyptus* sp. (Eucalypt species)	400	7	7	Good	Good	Basal wound. Wound(s), early signs of decay.	Early mature	15-40	Low	Consider for Removal	4.8	2.3	Retain. No works within TPZ.
151	*Eucalyptus* sp. (Eucalypt species)	100	7	2	Fair	Fair	Extensive wounds. Crown density 50-75%. Wound(s), early signs of decay.	Semi-mature	<5	Low	Priority for Removal	2.0	1.5	Retain. No works within TPZ.
152	*Eucalyptus* sp. (Eucalypt species)	100	7	2	Fair	Good	Crown density 75-95%. Wound(s), early signs of decay.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
153	*Eucalyptus* sp. (Eucalypt species)	375	8	5	Good	Good	Crown density 75-95%. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Yellow spotted bark.	Early mature	15-40	Low	Consider for Removal	4.5	2.3	Retain. No works within TPZ.
154	*Eucalyptus* sp. (Eucalypt species)	250	8	5	Good	Good	Crown density 75-95%. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Yellow spotted bark.	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
155	*Eucalyptus* sp. (Eucalypt species)	250	8	5	Good	Good	Crown density 75-95%. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Yellow spotted bark.	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
156	*Eucalyptus* sp. (Eucalypt species)	200	8	5	Good	Good	Partially suppressed. Crown density 75-95%. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Yellow spotted bark.	Early mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
157	*Eucalyptus* sp. (Eucalypt species)	75	8	5	Good	Good	Heavily suppressed. Crown density 75-95%. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Yellow spotted bark.	Early mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
158	*Eucalyptus* sp. (Eucalypt species)	600	10	10	Good	Good	Lopped. Yellow spotted bark.	Mature	15-40	High	Priority for Retention	7.2	2.8	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
159	*Eucalyptus* sp. (Eucalypt species)	550	10	10	Good	Good	Touching fence. Storm damage. Yellow spotted bark.	Mature	15-40	High	Priority for Retention	6.6	2.7	Retain. No works within TPZ.
160	*Corymbia citriodora* (Lemon Scented Gum)	100	9	2	Fair	Fair	Etiolated form. Crown density 25-50%.	Semi-mature	5-15	Low	Consider for Removal	2.0	1.5	Remove - stage 1. Pavement.
161	*Corymbia citriodora* (Lemon Scented Gum)	250	11	7	Poor	Good	Crown density 25-50%. Small (<25mmø) & medium (25-75mmø) deadwood in moderate volumes.	Semi-mature	<5	Low	Priority for Removal	3.0	1.9	Remove - stage 1. Pavement.
162	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	283	7	4	Good	Fair	Crown density 75-95%. Co-dominant inclusions, minor.	Semi-mature	15-40	Low	Consider for Removal	3.4	2.0	Retain, Major encroachment, pavement & wall.
163	*Corymbia maculata* (Spotted Gum)	200	10	4	Fair	Good	Crown density 75-95%.	Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Remove - stage 1. Pavement.
164	*Corymbia citriodora* (Lemon Scented Gum)	350	14	7	Fair	Good	Crown density 75-95%.	Mature	15-40	Moderate	Consider for Retention	4.2	2.2	Remove - stage 1. Pavement.
165	*Acacia cyperophylla* (Red Mulga)	141	8	4	Good	Fair	Bark inclusion(s), minor. Mistletoe.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Remove - stage 1. Pavement.
166	*Casuarina glauca* (Swamp She Oak)	100	6	3	Good	Good	Partially suppressed. Phototrophic lean, moderate.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 1. Pavement.
167	*Corymbia citriodora* (Lemon Scented Gum)	250	11	7	Poor	Good	Crown density 25-50%. Small (<25mmø) & medium (25-75mmø) deadwood in moderate volumes.	Semi-mature	<5	Low	Priority for Removal	3.0	1.9	Remove - stage 1. Pavement.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
168	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	425	9	5	Good	Fair	Co-dominant inclusions, minor. Bark inclusion(s), minor.	Semi-mature	15-40	Low	Consider for Removal	5.1	2.4	Remove - stage 1. Pavement.
169	DEAD										DEAD			DEAD
170	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	283	9	5	Good	Fair	Partially suppressed. Co-dominant inclusions, minor. Bark inclusion(s), minor.	Semi-mature	15-40	Low	Consider for Removal	3.4	2.0	Retain. Major encroachment, MDU, pavement & wall.
171	*Casuarina glauca* (Swamp She Oak)	566	15	8	Good	Fair	Hanger. Lopped. Co-dominant inclusions, minor.	Mature	15-40	Moderate	Consider for Retention	6.8	2.7	Remove - stage 1. Pavement.
172	*Eucalyptus* sp. (Eucalypt species)	500	16	9	Good	Good	Co-dominant inclusions, minor.	Mature	15-40	High	Priority for Retention	6.0	2.6	Remove - stage 1. Pavement.
173	*Casuarina glauca* (Swamp She Oak)	375	10	8	Good	Good	Partially suppressed.	Mature	15-40	Low	Consider for Removal	4.5	2.3	Remove - stage 1. Pavement.
174	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	261	9	5	Good	Fair	Co-dominant inclusions, minor. Bark inclusion(s), minor.	Semi-mature	15-40	Low	Consider for Removal	3.1	2.0	Retain. Major encroachment, pavement & wall.
175	*Corymbia maculata* (Spotted Gum)	200	8	6	Poor	Good	Crown density 25-50%. Small (<25mmø) & large (>75mmø) deadwood in moderate volumes.	Semi-mature	<5	Low	Priority for Removal	2.4	1.8	Remove - stage 1. Pavement.
176	*Eucalyptus* sp. (Eucalypt species)	100	6	4	Poor	Good	Bell fruit. Crown density 25-50%.	Semi-mature	<5	Low	Priority for Removal	2.0	1.5	Remove - stage 1. Pavement.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
177	*Eucalyptus* sp. (Eucalypt species)	141	7	3	Good	Good	Large fruit.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 1. MHU.
178	*Eucalyptus* sp. (Eucalypt species)	75	7	3	Good	Good	Large fruit.	Semi-mature	15-40	Low	Consider for Removal	2.0	1.5	Remove - stage 1. MHU.
179	*Eucalyptus* sp. (Eucalypt species)	225	7	3	Good	Good	Large fruit.	Semi-mature	15-40	Low	Consider for Removal	2.7	1.8	Remove - stage 1. MHU.
180	*Acacia sp.* (Wattle species)	292	6	6	Good	Good	Twisted fruit.	Mature	5-15	Low	Consider for Removal	3.5	2.1	Remove - stage 1. Pavement.
181	*Eucalyptus* sp. (Eucalypt species)	430	7	6	Good	Good	Crown density 75-95%. Lopped. Wound(s), no visible sign of decay. Ribbon bark.	Early mature	15-40	Low	Consider for Removal	5.2	2.4	Remove - stage 1. Pavement.
182	*Brachychiton rupestris* (Narrow Leaf Bottle Tree)	325	5	2	Good	Good		Semi-mature	15-40	Low	Consider for Removal	3.9	2.1	Retain. Major encroachment, pavement.
183	*Corymbia citriodora* (Lemon Scented Gum)	200	7	4	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Remove - stage 1. Pavement.
184	*Schinus molle* var. *areira* (Peppercorn Tree)	400	7	5	Good	Good	Crown density 75-95%. Wound(s), early signs of decay.	Semi-mature	15-40	Low	Consider for Removal	4.8	2.3	Remove - stage 1. Pavement.
185	*Schinus molle* var. *areira* (Peppercorn Tree)	335	9	5	Fair	Good	Crown density 75-95%. Large (>75mmø) deadwood in moderate volumes. Wound(s), early signs of decay.	Early mature	15-40	Low	Consider for Removal	4.0	2.2	Remove - stage 1. Pavement.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
186	*Schinus molle* var. *areira* (Peppercorn Tree)	500	9	5	Good	Good	Lopped. Wound(s), early signs of decay.	Early mature	15-40	Low	Consider for Removal	6.0	2.6	Remove - stage 1. Pavement.
187	DEAD										DEAD			DEAD
188	*Eucalyptus* sp. (Eucalypt species)	475	14	8	Good	Good	Yellow spotted bark.	Mature	15-40	Moderate	Consider for Retention	5.7	2.5	Remove - stage 1. Pavement.
189	*Casuarina cunninghamiana* (River She Oak)	175	7	3	Good	Fair	Heavily suppressed. Wound(s), early signs of decay.	Semi-mature	5-15	Low	Consider for Removal	2.1	1.7	Remove - stage 1. Pavement.
190	*Acacia pendula* (Weeping Mallee)	336	9	7	Good	Fair	Lopped. Wound(s), early signs of decay.	Mature	5-15	Low	Consider for Removal	4.0	2.2	Retain. No works within TPZ.
191	DEAD										DEAD			DEAD
192	*Eucalyptus sargentii* (Salt River Gum)	225	9	5	Fair	Good	Crown density 50-75%. Red bark. Small leaves.	Semi-mature	15-40	Low	Consider for Removal	2.7	1.8	Remove - stage 1. Pavement.
193	*Eucalyptus sargentii* (Salt River Gum)	200	4	3	Good	Good	Red bark. Small leaves.	Semi-mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. Major encroachment, fencing & OSD tank.
194	*Eucalyptus* sp. (Eucalypt species)	575	13	10	Good	Good	Previous branch failure. Stringy bark.	Mature	15-40	High	Priority for Retention	6.9	2.7	Remove - stage 1. MHU.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
195	*Melaleuca quinquenervia* (Broad Leaf Paperbark)	173	7	3	Good	Good	Small (<25mmø) deadwood in moderate volumes. Bark inclusion(s), minor.	Semi-mature	15-40	Low	Consider for Removal	2.1	1.6	Remove - stage 1. MHU.
196	*Corymbia citriodora* (Lemon Scented Gum)	275	14	7	Poor	Good	Crown density 25-50%. Small (<25mmø) & large (>75mmø) deadwood in low volumes.	Mature	<5	Moderate	Priority for Removal	3.3	2.0	Remove - stage 1. MHU.
197	*Eucalyptus* sp. (Eucalypt species)	450	15	10	Good	Good	Yellow spotted bark.	Mature	15-40	High	Priority for Retention	5.4	2.5	Retain. No works within TPZ.
198	*Corymbia ficifolia* cvs (Eucalyptus Summer Red')	250	4	5	Good	Good	Group of 3. Lopped.	Early mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
199	DEAD										DEAD			DEAD
200	*Acacia sp.* (Wattle species)	200	7	4	Fair	Fair	Mistletoe. Crown density 50-75%. Bark inclusion(s), minor.	Late Mature	5-15	Low	Consider for Removal	2.4	1.8	Remove - stage 1. Pavement.
201	DEAD										DEAD			DEAD
202	*Corymbia citriodora* (Lemon Scented Gum)	320	15	7	Fair	Fair	Dead co-dominant stem. Crown density 50-75%.	Mature	5-15	Moderate	Consider for Retention	3.8	2.1	Remove - stage 1. Pavement.
203	*Eucalyptus* sp. (Eucalypt species)	212	6	5	Good	Good	Small bell fruit. Ribbon bark.	Early mature	15-40	Low	Consider for Removal	2.5	1.8	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
204	*Eucalyptus* sp. (Eucalypt species)	212	6	5	Good	Good	Small bell fruit. Ribbon bark.	Early mature	15-40	Low	Consider for Removal	2.5	1.8	Retain. No works within TPZ.
205	*Acacia pendula* (Weeping Mallee)	325	9	7	Good	Good	Stem removed from base. Partially suppressed.	Mature	5-15	Low	Consider for Removal	3.9	2.1	Retain. Major encroachment, pavement.
206	*Acacia pendula* (Weeping Mallee)	200	9	7	Good	Good		Mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
207	*Acacia pendula* (Weeping Mallee)	200	9	7	Good	Good	Heavily suppressed.	Mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
208	*Acacia pendula* (Weeping Mallee)	275	9	7	Good	Good		Mature	5-15	Low	Consider for Removal	3.3	2.0	Retain. Major encroachment, pavement.
209	*Casuarina glauca* (Swamp She Oak)	300	15	7	Good	Good		Mature	15-40	Moderate	Consider for Retention	3.6	2.1	Retain. No works within TPZ.
210	*Eucalyptus* sp. (Eucalypt species)	450	15	10	Good	Good	Medium (25-75mmø) deadwood in low volumes. Lopped. Yellow spotted bark.	Mature	15-40	Moderate	Consider for Retention	5.4	2.5	Retain. Minor encroachment, pavement.
211	*Corymbia citriodora* (Lemon Scented Gum)	224	15	6	Fair	Good	Etiolated form. Crown density 50-75%.	Semi-mature	5-15	Low	Consider for Removal	2.7	1.8	Retain. No works within TPZ.
212	*Acacia pendula* (Weeping Mallee)	125	7	4	Fair	Fair		Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
213	*Casuarina glauca* (Swamp She Oak)	300	15	7	Fair	Fair	Storm damage. Crown density 50-75%.	Mature	5-15	Moderate	Consider for Retention	3.6	2.1	Remove - stage 1. Pavement.
214	*Casuarina glauca* (Swamp She Oak)	300	15	7	Good	Good		Mature	5-15	Moderate	Consider for Retention	3.6	2.1	Remove - stage 1. Pavement.
215	*Casuarina glauca* (Swamp She Oak)	300	15	7	Good	Fair	Co-dominant inclusions, major.	Mature	5-15	Moderate	Consider for Retention	3.6	2.1	Remove - stage 1. Pavement.

Appendix 4: Plates

Plate 1: Showing Trees 48-62

Plate 2: Showing Tree 184-186

Plate 3: Showing Trees 197 & Tree Group 198

Plate 4: Showing Trees 199-201

Appendix 5: 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 NSW TAFE Certificate Level 5 or above in Arboriculture.

1.1 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.

1.2 Tree & Vegetation Removal

Tree removal works shall be undertaken in accordance with the *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)* and other applicable codes and legislation.

Tree removal shall not damage the trees to be retained. Other vegetation to be removed within a TPZ shall be carefully lifted by hand/hand tools to avoid damaging roots (>25mmø) within the surrounding soil profile.

1.3 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

NOTE: If access, encroachment or incursion into the TPZ is deemed essential, prior authorisation is required by the Project Arborist.

1.4 Tree Protection Fencing

TPZ fencing shall be installed at the perimeter of the TPZ. Refer Tree Assessment Schedule **(Appendix 3).** 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 (3) **(Appendix 6)**.

1.5 Signage

Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site. The lettering on the sign should comply with *Australian Standard - 1319 (1994) Safety signs for the occupational environment*. The signage shall be installed prior to the commencement of works on-site and shall be maintained in good condition for the duration of the development period.

1.6 Site Management

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

1.7 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.

1.8 Ground Protection

Ground protection shall be installed to any unfenced areas of the TPZ as required by the Project Arborist. Vehicular and machinery access 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 (3) **(Appendix 4).**

1.9 Trunk Protection

Trunk protection shall be installed as required by the Project Arborist 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 (3) **(Appendix 4)**. Branch protection shall be installed as deemed necessary by the Project Arborist.

1.10 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 1.5). Machinery shall work in conjunction with a spotter to guide the machinery operator and ensure that the ground surface/tree roots beneath the structure/pavement are not disturbed/damaged by demolition works. Machinery should not contact any part of a tree. Wherever possible, footings or elements below grade shall be retained to minimise disturbance to roots. The Project Arborist shall assess any inground structures within the SRZ prior to their removal and determine if these structures may be contributing to the stability of the tree. Where required, inground structures should be retained in situ.

Small structures to be demolished within a TPZ shall be carefully broken up in small sections using a hand-operated pneumatic/electric breaker and waste material removed by hand/hand tools. Large structures to be demolished within the TPZ shall be undertaken within the footprint of the existing structure ('top down, pull back') and away from the trees.

When removing slab/pavement sections within TPZ, machinery shall work backwards out of the TPZ to ensure machinery remains on un-demolished sections of slab at all times. Existing sub-base materials within a TPZ shall remain in-situ and (and reused) where possible. If the existing sub-base is to be removed, these works shall be undertaken by hand/hand tools ensuring that tree roots are retained and protected.

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. Exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with a 10mm thick jute geotextile fabric. The geotextile fabric shall be kept in a damp condition at all times. 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.

1.11 Pavement/Kerb Installation

Installation of the pavements and sub-base within the TPZ shall be supervised by the Project Arborist. The new surfaces and sub-base materials shall be placed at (for areas of existing pavement only) or above grade to minimise excavations and retain roots (unless prior root mapping results show above sensitive construction to be unnecessary).

If roots (>25mmø) are encountered during the installation of the new sub-base and surfaces, 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 structural roots (>25mmø) where deemed necessary by the Project Arborist. Compaction of the sub-base shall be consolidated with a pedestrian-operated plate compactor only. If possible, the pavement material shall be permeable.

Where required, new kerbs within the TPZ should be modified to bridge tree roots (>25mmø) unless root pruning is approved and undertaken by the Project Arborist.

1.12 Footings Installation

Footing installation within TPZ areas shall be supervised by the Project Arborist. Other than for the isolated piers, all other parts of the structure shall be installed above grade.

Drilling/piling machinery shall be excluded from the TPZ unless operating from an area where ground protection has been installed (refer to Section 1.8) or from the existing slabs or pavements. Drilling/piling machinery shall be of a suitable size to not damage the trees' 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.

1.13 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 tree sensitive excavation methods (hand/hydrovac/airspade) with the services installed around/below roots (>25mmø, or as determined by the Project Arborist). Excavation using compact machinery fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mmø).

Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1200mm below existing grade. Excavations for starting and receiving pits for boring equipment shall be located outside of the TPZ areas or located to avoid roots (>25mmø) as deemed necessary by the Project Arborist. OSD tanks (where required) should be located outside of the TPZ areas.

1.14 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.

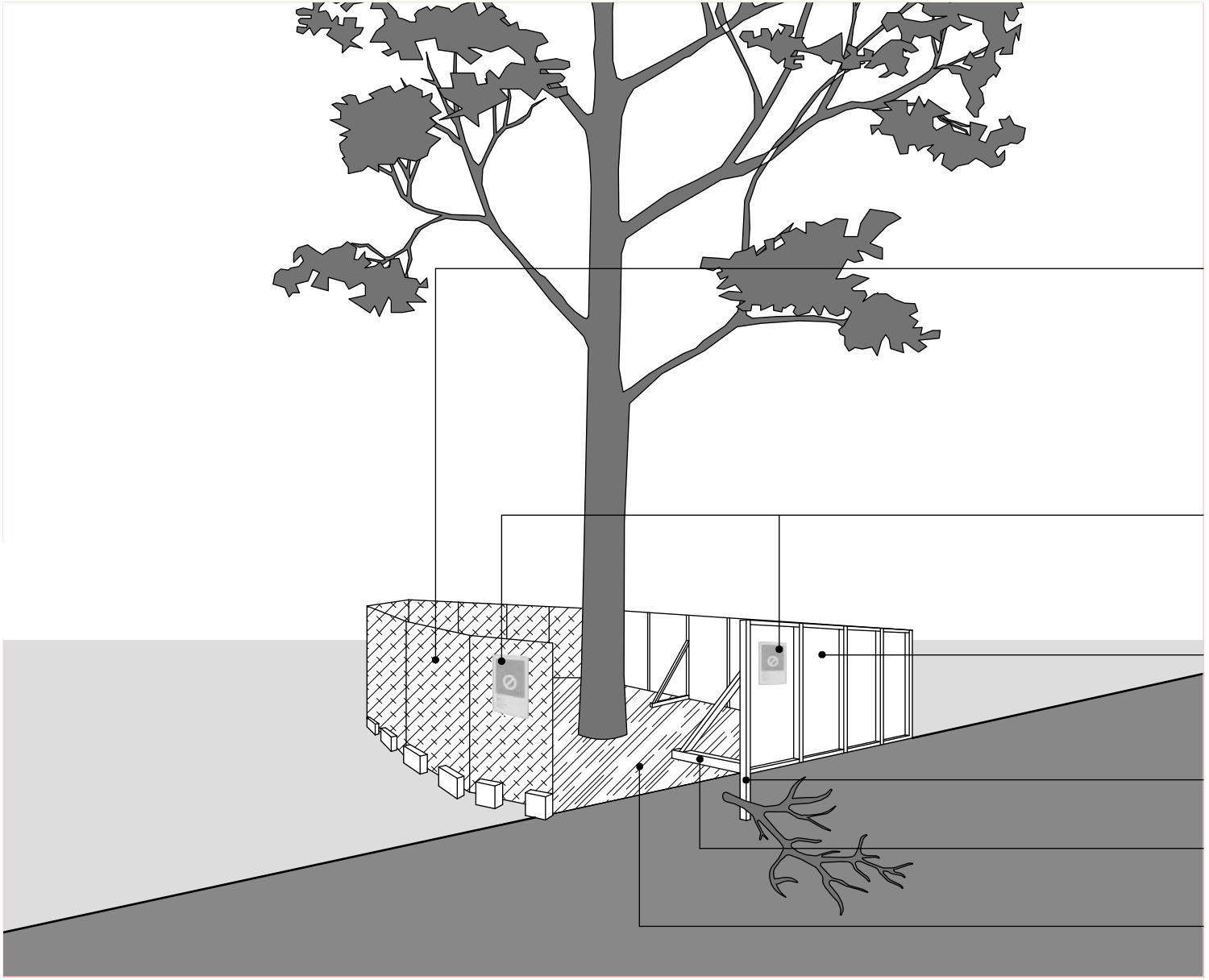
Excavations within the TPZ shall be undertaken by hand or using hydro vacuum excavation methods (or similar approved device) to protect tree roots. If there is any delay between excavation works and backfilling, exposed roots shall be protected from direct sunlight, drying out and extremes of temperature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

No over-excavation, battering or benching shall be undertaken beyond the footprint of any structure unless approved by the Project Arborist. 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 (>25mmø) shall be pruned by the Project Arborist only. Roots (<25mmø) 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.

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.

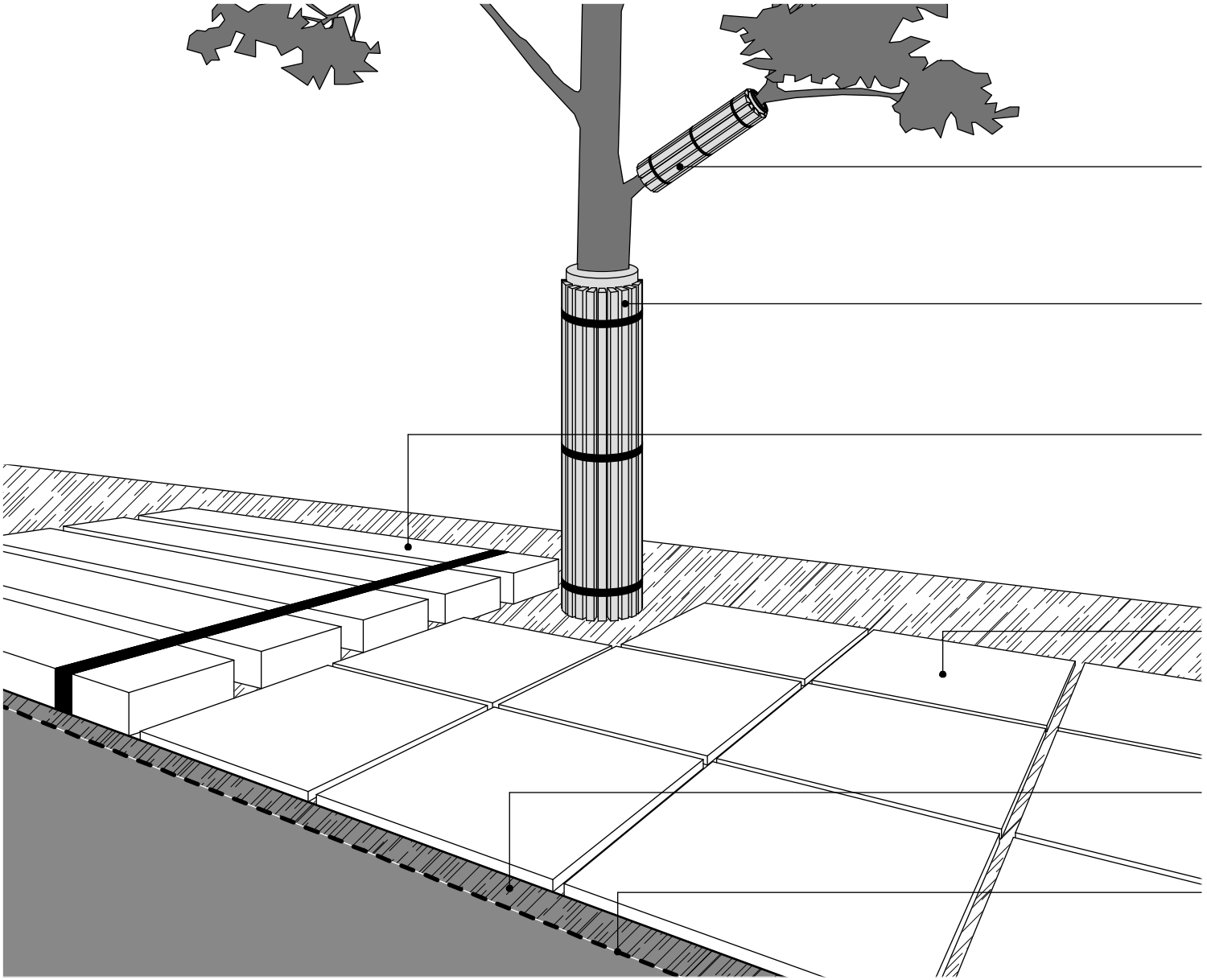
Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

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

03 Tree Protection Fencing

Not to Scale



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.

04 Examples of Branch, Trunk and Ground Protection

Not to Scale