

ARBORICULTURAL IMPACT ASSESSMENT

Prepared for:

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Site:

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This report should be read in conjunction with:

- *Sydney Arbor Trees 2021-Upper Australia Project Arboricultural Impact Assessment dated 18th June 2020,*
- *Sydney Arbor Trees SSDA Modification to South Link/Dingo Exhibit- dated 8th April 2021,*
- *Sydney Arbor Trees 2021-Upper Australia Project Arboricultural Impact Assessment (SSDA modification Addendum) Tree 2, 11, 116, 186 dated 9th June 2021, and*
- *The supplied plan 'Tree Protection & Removal Plan (Drawing A-DA-2-07 Rev 6) dated 26/10/21.*
- *This report was amended on the 6th of December by Greg Thallon from the report V3 issued on the 9th of November 2021. This relates specifically to the status of trees 159 & 160 and no other information was reviewed or altered.*

Document Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the scope between Sydney Arbor Trees Pty Ltd and Taronga Conservation Society (AUS) Taronga. Unauthorised use of this report in any form is prohibited.

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ABBREVIATIONS

| Abbreviation | Description |
|--------------|---|
| AIA | Arboricultural Impact Assessment. |
| AQF | Australian Qualification Framework. |
| AS | Australian Standards. |
| DAB | Diameter Above Buttress. |
| DBH | Diameter at Breast Height. |
| DIA | Diameter. |
| ELE | Estimated Life Expectancy. |
| m | Metre. |
| mm | Millimetre. |
| NDRE | Non-Destructive Root Exploration. |
| No. | Number. |
| NSW | New South Wales. |
| P-AIA | Preliminary Arboricultural Impact Assessment |
| QTRA | Quantified Tree Risk Assessment. |
| sp. | Species- <i>Is used when the actual species name cannot or need not or is not specified.</i> |
| spp. | Species- <i>Is used to indicate several species.</i> |
| SRZ | Structural Root Zone. |
| TPZ | Tree Protection Zone. |
| VTA | Visual Tree Assessment. |

PROJECT PLANS/DOCUMENTS RECIEVED

| Produced By | Plan/Drawing/Report Type | Plan/Drawing No./Name |
|-----------------------------|--|----------------------------------|
| Frank M Mason & Co. PTY Ltd | Plan showing trees survey and part of relative heights and features within new development site of "Upper Australia Exhibit" | Sheet 1-4 dated 29/09/2021 |
| | Tree Protection & Removal Plan | A-DA-2-07 Rev 6 dated 26/10/2021 |

2 SUMMARY OF ASSESSMENT

This Arboricultural Impact Assessment (AIA) was prepared for Matthew Spooner of Taronga Conservation Society (AUS), as a modification to the SSDA, and should be read in conjunction with:

- SSDA-Sydney Arbor Trees Arboricultural Impact Assessment report dated 18th June 2020,
- SSDA Modification to South Link/Dingo Exhibit-Sydney Arbor Trees report dated 8th April 2021, and
- SSDA Modification to Trees Clashing-Sydney Arbor Trees report dated 9th June 2021.

This report specifically discusses fifteen (15) tree species further identified to be impacted by the proposed development of Upper Australia Exhibit. A recent new survey was conducted due to discrepancies found on the ground with the initial survey and the development set-out.

The supplied plans show that **15** trees previously identified for retention will be adversely impacted by the development and or the status of the tree has greatly altered since the original SSDA was lodged:

- Tree **123** suffered whole tree failure on the 18th of February 2020 and was removed,
- Tree **20** has a significant defect within the base and will be removed as risk mitigation,
- Tree **45** has expired from irreversible decline and requires removal,
- Trees **67,87,92,156,157,162,179 & 185** will be adversely impacted by built structures within their SRZ, and
- Trees **129,130** have potential to be adversely impacted and may require removal due to encroachment into their SRZ & TPZ.
- Trees **159 & 160** are to be retained.

Due to the level of encroachments the proposed tree removals are supported to facilitate the development requiring approval from the consent authority.

The fifteen trees are mature locally endemic natives and introduced species that can be offset in accordance with the proposed landscaping plan and the recommendations section of this report.

Table 1 shows trees required to be removed to facilitate the development, and trees where removal may be required due to encroachment.

| <i>SSDA Arborist Reports</i> | <i>Trees Removed</i> |
|--|--|
| <i>SSDA-Sydney Arbor Trees Arboricultural Impact Assessment report dated 18th June 2020</i> | <i>29,59,63,101,103,118,119,120,175 & 1,3,9,26,27,30,64,78,78a,78b,79,80,89, 99,100,102,122,131,154,155,155a,166, 167,168,176,196,197,198.</i> |
| <i>SSDA Modification to South Link/Dingo Exhibit-Sydney Arbor Trees report dated 8th April 2021</i> | <i>90,91.</i> |
| <i>SSDA Modification to Trees Clashing-Sydney Arbor Trees report dated 9th June 2021</i> | <i>2,11,116,186.</i> |
| <i>This Report Proposed to be Removed</i> | <i>20,45,67,87,92,123,156,157,162, 179,185.</i> |
| <i>This Report Removal May be required</i> | <i>129,130.</i> |

Table 1

3 INTRODUCTION

Sydney Arbor Trees Pty Ltd have been engaged by Taronga Conservation Society (AUS) to provide a modification to the original AIA, in accordance with the technical requirements of the Secretary's Environmental Assessment Requirement (SEARs), and in support of the SSDA for the proposed development of the Upper Australia Exhibit within Taronga Zoo, Mosman. This AIA specifically investigates the impact the proposed development poses to these **15** trees.

3.1 Purpose

This Arborist report provides an assessment of the trees identified here within and the constraint they impose on the development of the site for the proposed works. The primary purpose of this report is to aid in the planning approval.

3.2 Scope

This report is concerned only with **15** trees within the proposed development location, where their estimated tree protection zone (TPZ) will be adversely impacted through the development works. It should be noted that Appendix 1 shows the original tree schedule from the initial Arboricultural Impact Assessment submission for SSDA dated 18th June 2020.

3.3 Objectives Considered

In preparing this report, the author has considered the objectives of:

- *The State environmental Planning Policy 'Vegetation in Non-Rural Areas 2017'*
- *AS 4970 Protection of Trees on Development Sites (2009)*
- *AS 4373 Pruning of Amenity Trees (2007), and*
- *Mosman Development Control plan, and*
- *Mosman Local Environmental Plan*

3.4 Definition of a Tree

Part 3 of the Vegetation SEPP applies to the following:

(a) All trees which:

- Are 5m or more in height; or
- Have a circumference of 450mm or more measured 300mm above ground level; or
- Are listed in Council's Urban Forest Management Policy; or
- Are 2m or more in height, only if located in a heritage conservation area, or if are a heritage item or form part of a heritage item.

(b) Tree ferns (*Cyathea australis* & *Cyathea cooperi*) which are 2m or more in height.

3.5 Brief Site Description

Taronga Zoo is located on Bradleys Head Road in the suburb of Mosman as shown in Figure 1. The site is to the west of the road, with National Park to the east of the road and residential development to the immediate north of the site. The site consists of Taronga Zoo Precinct largely vegetated with ornamental, indigenous, coniferous, and introduced sometimes rare tree species.

3.6 Taronga Zoo Precinct Map

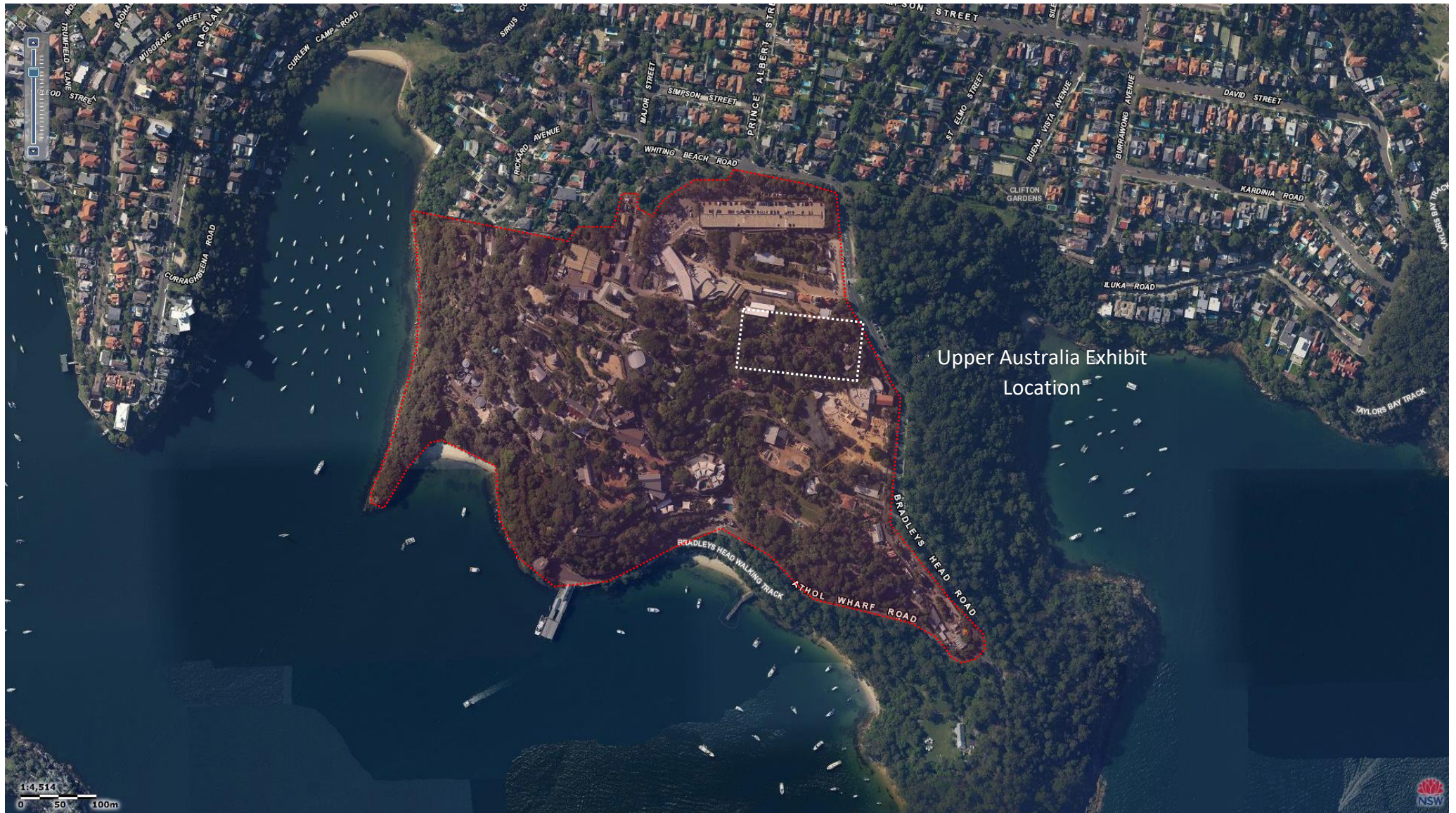


Figure 1 Shows the Taronga Zoo precinct courtesy of 6maps.

4 ASSESSMENT METHODOLOGY

Tree species of the study site were assessed using the Visual Tree Assessment criteria as described in The Body Language of Trees- A Handbook for Failure Analysis. (Mattheck & Breloer, 1997) and the principals of Quantified Tree Risk Assessment. This assessment was limited to a visual examination of the subject trees from ground level only. Internal diagnostic testing, tissue samples, or soil samples were not undertaken as part of this assessment.

4.1 Tree Locations, Numbers & Dimensions

Prescribed trees with TPZ's that encroach the subject site were assessed with tree tags installed for future identification.

Tree heights, canopy spreads and trunk diameters were estimated for all prescribed tree species.

4.2 Tree vigour

Ability of a tree to sustain its life processes. This is independent of the condition of a tree but may impact upon it. Vigour can appear to alter rapidly with change of seasons (seasonality) e.g., dormant, deciduous, or semi-deciduous trees. Vigour can be categorized as 'Good Vigour', 'High Vigour', 'Low Vigour' and 'Dormant Tree Vigour'.

4.2.1 Good vigour

Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

4.2.2 High vigour

Accelerated growth of a tree due to incidental or deliberate artificial changes to its growing environment that are seemingly beneficial, but may result in premature aging or failure if the favourable conditions cease, or promote prolonged senescence if the favourable conditions remain, e.g. water from a leaking pipe; water and nutrients from a leaking or disrupted sewer pipe; nutrients from animal waste, a tree growing next to a chicken coop, or a stock feed lot, or a regularly used stockyard; a tree subject to a stringent watering and fertilising program; or some trees may achieve an extended lifespan from continuous pollarding practices over the life of the tree.

4.2.3 Low vigour

Reduced ability of a tree to sustain its life processes. This may be evident by the atypical growth of leaves, reduced crown cover and reduced crown density, branches, roots and trunk, and a deterioration of their functions with reduced resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

4.2.4 Dormant tree vigour

Determined by existing turgidity in lowest order branches in the outer extremity of the crown, with good bud set and formation, and where the last extension growth is distinct from those most recently preceding it, evident by bud scale scars. Good vigour during dormancy is achieved when such growth is evident on most branches throughout the crown.

4.3 Tree health

The health of the subject tree(s) was rated as Good, Fair or Poor based on an assessment of the following factors: Foliage size and colour, presence of pest or disease, annual shoot growth, crown density, deadwood size and volume and presence of epicormic or sucker growth.

4.4 Age

Most trees have a stable biomass for the major proportion of their life. The estimation of the age of a tree is based on the knowledge of the expected lifespan of the taxa in situ divided into three distinct stages of measurable biomass, when the exact age of the tree from its date of cultivation or planting is unknown and can be categorized as Young, Mature and Over-mature. **Young** Tree aged less than <20% of life expectancy, in situ. **Mature** Tree aged 20-80% of life expectancy, in situ. **Over-mature** Tree aged greater than >80% of life expectancy, in situ, or senescent with or without reduced vigour, and declining gradually or rapidly but irreversibly to death.

4.5 Periods of Time

Periods of Time The life span of a tree in the urban environment may often be reduced by the influences of encroachment and the dynamics of the environment and can be categorized as Immediate, Short Term, Medium Term and Long Term. **Short Term** A period less than <1–15 years. **Medium Term** A period 15–40 years. **Long Term** A period greater than >40 years.

4.6 Estimated Life Expectancy (ELE)

The ELE is an estimate of the longevity of the subject tree(s) in its landscape context. The ELE is modified where necessary to take into consideration tree(s) health, structural condition, and site suitability. The tree(s) have been allocated one of the following ELE categories.

Long >40 years, Medium 15-40 years, Short <1-15 years and Dead.

ELE gives an estimation of how long a tree is likely to remain viable within that landscape based on species, stage of life cycle, health, contribution to the local environment, amenity values, conflicts with adjacent infrastructure and risk to the community. The ELE is also based on the site conditions not significantly being altered and any prescribed maintenance recommendations such as Crown maintenance and Deadwood removal. The age class of the assessed tree/s is dependent on known species characteristics and longevity in the urban environment and partially aids in the assessment of the Estimated life expectancy.

4.7 Tree Condition

A tree's crown form and growth habit, as modified by its environment (aspect, suppression by other trees, soils), the stability and viability of the root plate, trunk, and structural branches first (1st) and possibly second (2nd) order branches, including structural defects such as wounds, cavities or hollows, crooked trunk or weak trunk/branch junctions and the effects of predation by pests and diseases. These may not be directly connected with vigour, and it is possible for a tree to be of good vigour but in poor condition. Condition can be categorized as 'Good Condition', 'Fair Condition', 'Poor Condition' and 'Dead'.

4.7.1 Good Condition

Tree is of good habit, with crown form not severely restricted for space and light, physically free from the adverse effects of predation by pests and diseases, obvious instability, or structural weaknesses, fungal, bacterial or insect infestation and is expected to continue to live in much the same condition as at the time of inspection provided conditions around it for its basic survival do not alter greatly. This may be independent from or contributed to by vigour.

4.7.2 Fair Condition

Tree is of good habit or misshapen, a form not severely restricted for space and light, has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or is faltering due to the modification of the environment essential for its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from or contributed to by vigour.

4.7.3 Poor Condition

Tree is of good habit or misshapen, a form that may be severely restricted for space and light, exhibits symptoms of advanced and irreversible decline such as fungal, or bacterial infestation, major die-back in the branch and foliage crown, structural deterioration from insect damage e.g. termite infestation, or storm damage or lightning strike, ring barking from borer activity in the trunk, root damage or instability of the tree, or damage from physical wounding impacts or abrasion, or from altered local environmental conditions and has been unable to adapt to such changes and may decline further to death regardless of remedial works or other modifications to the local environment that would normally be sufficient to provide for its basic survival if in good to fair condition. Deterioration physically, often characterised by a gradual and continuous reduction in vigour but may be independent of a change in vigour, but characterised by a proportionate increase in susceptibility to, and predation by pests and diseases against which the tree cannot be sustained. Such conditions may also be evident in trees of advanced senescence due to normal phenological processes, without modifications to the growing environment or physical damage having been inflicted upon the tree. This may be independent from or contributed to by vigour.

4.8 Dead

Tree is no longer capable of performing any of the following processes or is exhibiting any of the following symptoms. Processes, Photosynthesis via its foliage crown (as indicated by the presence of moist, green, or other coloured leaves). Osmosis (the ability of the root system to take up water). Turgidity (the ability of the plant to sustain moisture pressure in its cells). Epicormic shoots or epicormic strands in Eucalypts (the production of new shoots as a response to stress, generated from latent or adventitious buds or from a lignotuber). Symptoms. Permanent leaf loss. Permanent wilting (the loss of turgidity which is marked by desiccation of stems leaves and roots). Abscission of the epidermis (bark desiccates and peels off to the beginning of the sapwood).

4.9 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.

4.10 The Structural Root Zone (SRZ)

The 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.

4.11 The Tree Protection Zone (TPZ)

As described within 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. TPZ's are calculated by multiplying the diameter at breast height by 12. This results in a setback distance radially from the trunk.

4.12 Tree Significance

Tree significance was determined using the Tree Significance- Assessment Criteria of the IACA Significance of a Tree Rating System (STARS)© (IACA, 2010), Appendix 3.

4.13 Tree Retention Value

Tree retention value was determined by using the Retention Value- Priority Matrix of the IACA Significance of a Tree Assessment Rating System (STARS)© (IACA 2010) Appendix 2. The tree retention value is formulated using the IACA Significance of a Tree, Assessment Rating System (STARS) scaled against the Estimated Life Expectancy (ELE or ULE). This rating relates to the tree significance and the tree estimated life expectancy, the result is a retention merit.

4.14 QTRA Methodology/Non-Technical Summary

Tree safety management is about limiting the risk of harm from tree failure while maintaining the benefits conferred by trees. Although it may seem counter-intuitive, the condition of trees should not necessarily be the first consideration. Instead, tree managers should first take account of the usage of the land on and around which the trees stand, and this in turn will inform the process of assessing the trees.

The Quantified Tree Risk Assessment (QTRA) method applies established and accepted risk management principles to tree safety management. Firstly, the targets (people and property) onto which trees could fail are assessed and quantified, thus enabling tree managers to determine whether they need to assess trees and to what degree of rigour an assessment or inspection of the trees is required. Where necessary, a tree or branch is then considered in terms of both its size (potential impact) and probability of failure. Values derived from the assessment of these three components (target, size, and probability of failure) are combined to calculate a risk of harm within the coming year.

The year is simply a convenient timeframe over which to measure the risk and does not in itself infer that the risk should be re-assessed annually; rather the frequency of re-assessment should be informed by the level of risk and the characteristics of the tree population and land-use.

The quantification of risk is not the only consideration when managing tree safety. The financial cost of reducing the risk and the potential loss of the many benefits from trees should be accounted for when making risk management decisions. By quantifying the risks, we can more readily assess this balance. The method moves the management of tree safety away from labelling trees as either 'safe' or 'unsafe' and requiring definitive statements of tree safety from either tree surveyors or tree managers. Instead, QTRA quantifies the risk of harm from tree failure in a way that enables tree managers to account for the various costs and benefits of risk reduction and operate to pre-determined risk thresholds.

Using a traffic light system of colour coding the risk from trees, we have simplified the decision-making process for tree owners and tree managers.

| QTRA Advisory Risk Thresholds | | |
|-------------------------------|--|---|
| Thresholds | Description | Action |
| 1/1,000 | Unacceptable Risks will not ordinarily be tolerated | Control the Risk |
| | Unacceptable (Where imposed on others) Risks will not ordinarily be tolerated | Control the risk Review the risk |
| | Tolerable (by agreement) Risks may be tolerated if those exposed to the risk accept it, or the tree has exceptional value | Control the risk unless there is broad stakeholder agreement to tolerate it, or the tree has exceptional value Review the risk |
| 1/10,000 | Tolerable (where imposed on others) Risks are tolerable if As Low As Reasonably Practical | Assess costs and benefits of risk control. Control the risk only where a significant benefit might be achieved at reasonable cost Review the risk |
| 1/1 000 000 | Broadly Acceptable Risk is already As Low As Reasonably Practical | No action currently required Review the risk |

Table 2

For more information on the QTRA method and the decision-making process, download the QTRA Practice Note here:
<https://www.qtra.co.uk/cms/index.php?action=download&id=249&module=downloadmodule&src=%40random52a559f0954e2>

4.15 Mitigation Measures

| Impact | Requirements under AS 4970-2009 | Mitigation (design phase) | Mitigation (construction phase) |
|---|--|---|--|
| Minor Encroachment Low impact (<10%) | <ul style="list-style-type: none"> *The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. *Detailed root investigations should not be required. | N/A | <ul style="list-style-type: none"> *The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. *Tree protection must be installed. |
| Major Encroachment Medium impact (<20%) | <ul style="list-style-type: none"> *The project arborist must demonstrate the tree(s) would remain viable. *Root investigation by non-destructive methods may be required. *Consideration of relevant factors including: Root location and distribution, tree species, condition, site constraints and design factors. *The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. | <ul style="list-style-type: none"> *The following design changes should be considered to retain trees where practicable, considering the retention value of the tree and the complexity and cost of the change. *Relocate services/pathways outside of tree protection zones *Design services to be installed at a minimum depth of 1200mm below ground to avoid impact to the root zones of trees. *Design pathways to be installed on or above grade, minimising/eliminating excavation within tree protection zones. *Design pathways using porous materials (eco-paving, porous asphalt, decomposed granite) to allow water and oxygen to reach the root zone. *Design pathways using tree sensitive techniques (pier and beam, suspended slabs). *The area lost to encroachment should be compensated for elsewhere, contiguous with the TPZ. | <ul style="list-style-type: none"> *The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. *The project arborist would be consulted for any works within the TPZ. *Tree protection must be installed. *Tree sensitive techniques can be used to install services within the TPZ. Horizontal directional drilling (HDD), boring, non destructive excavation (NDE). *Location and distribution of roots may be determined through non-destructive excavation (NDE) methods such as hydro-vacuum excavation (sucker truck), air spade and manual excavation. |
| Major Encroachment High impact (>20%) | <ul style="list-style-type: none"> *The project arborist must demonstrate the tree(s) would remain viable. *Root investigation by non-destructive methods may be required. *Consideration of relevant factors including: Root location and distribution, tree species, condition, site constraints and design factors. *The area lost to this encroachment should be compensated for elsewhere, contiguous with the TPZ. | <ul style="list-style-type: none"> *Relocate services/pathways outside of tree protection zones *Design services to be installed at a minimum depth of 1200mm below ground to avoid impact to the root zones of trees. *Design pathways to be installed on or above grade, minimising/eliminating excavation within tree protection zones. *Design pathways using porous materials (eco-paving, porous asphalt, decomposed granite) to allow water and oxygen to reach the root zone. *Design pathway using tree sensitive techniques (pier and beam, suspended slabs). *The area lost to encroachment can be compensated for elsewhere, contiguous with the TPZ. | <p>As above</p> <ul style="list-style-type: none"> *Removal of existing hard surfaces should be undertaken manually to avoid root damage. *Tree sensitive techniques can be used to install the services: Horizontal directional drilling (HDD), boring, non-destructive excavation (NDE). |

Table 3

5 IMPACT ASSESSMENT

5.1.1 Tree **20** *Eucalyptus robusta* (Swamp Mahogany)

Tree to be removed, no proposed works in the TPZ & SRZ, however results from the VTA found:

- Significant basal wound on the northern side of trunk extending from ground level to 4m in height.
- Significant basal wound on the southern side of trunk extending from ground level to 4m in height, opposing the adjacent defect.
- Internal vertical crack within heartwood.
- Internal white rot decay.

Results from the Quantified Tree Risk Assessment found:

The part assessed to fail at defect 1, basal wound with internal decay and vertical crack, over the development site and within fall distance to children's play area, resulted in a Risk of Harm (ROH) **1/400K**. This risk is Unacceptable, this risk will not ordinarily be tolerated with an action response to control the risk. A reasonable response to the risk is mitigation through whole tree removal. There are no Arboricultural practices to save this tree through other mitigation measures.

5.1.2 Tree **45** *Eucalyptus saligna* (Sydney Blue Gum)

Tree to be removed, no proposed works in the TPZ & SRZ, however results from the VTA found:

- The subject tree has expired due to the ropes course attachments. The installation of supports has reduced the subject trees basic function through the translocation of nutrients and water. The devices attached have girdled the cambium layer causing cambium disfunction and induced irreversible decline.

5.1.3 Tree **67** *Banksia integrifolia* (Coast Banksia)

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Excavation for the 'Nocturnal House'.
- Within the footprint for the proposed 'Nocturnal house'.

5.1.4 Tree **87** *Hymenosporum flavum* (Native Frangipani)

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Excavation for the 'Nocturnal House'.
- Within the footprint for the proposed 'Nocturnal house'.

5.1.5 Tree **92** *Eucalyptus robusta* (Swamp Mahogany)

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Demolition of existing retaining wall.
- Widening of the existing service road, and
- Installation of a new retaining wall.

5.1.6 Tree **123** *Eucalyptus botryiodes* (Bangalay)

The subject tree was removed due to failure on the 18th of February 2020 by Sydney Arbor Trees. The subject tree failed during an extreme weather event. Appendix 6 shows the subject tree failure and plan image showing tree location.

5.1.7 Tree **129** *Melaleuca quinquenervia* (Broad-leaved Paperbark) & Tree **130** *Casuarina cunninghamiana* (River She-oak).

Trees potentially to be removed through proposed works within the SRZ.

- The proposed path within the SRZ of tree 114 as shown in Figure 2 (Not the blue hashed line), is recommended to be shifted outside the SRZ of tree 114 given this tree is a high priority for retention. This has potential to adversely impact tree 130 and potentially tree 129.
- The blue hatched line is where the proposed path is recommended to be installed.
- This new proposed location will require a grade change and cut into the TPZ of tree 129 and 130 and may require significant root removal from both trees.
- Tree 130 has a substantial lean over the proposed path and may also require removal once excavation and levels have been confirmed through the installation of the path.

5.1.8 Tree **156** *Eucalyptus botryiodes* (Bangalay)

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Demolition of existing retaining wall.
- Construction of strip footings into the SRZ, and the proposed building wall is proposed in the SRZ.

5.1.9 Tree **157** *Eucalyptus botryiodes* (Bangalay)

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Demolition of existing retaining wall.
- Construction of strip footings into the SRZ, and the proposed building wall is proposed in the SRZ.

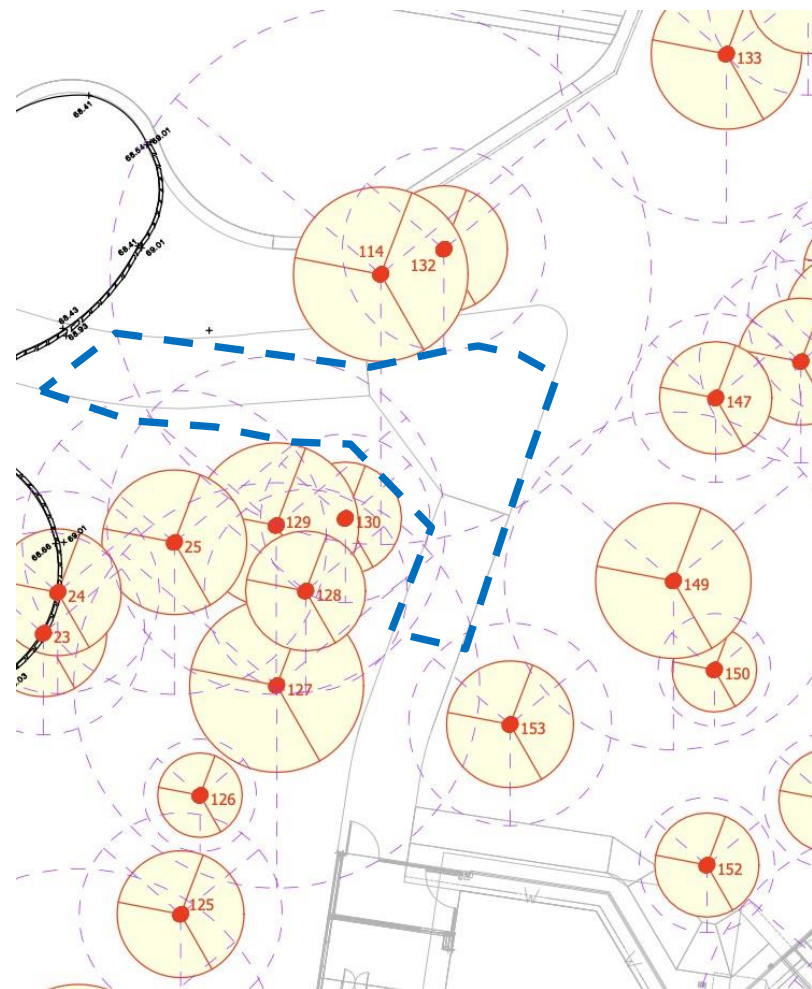


Figure 2

5.1.10 Tree **159** *Lophostemon confertus* (Brushbox)

Tree to be retained. Where non-destructive root exploration finds large diameter roots the design and location of the proposed footings will be required to be altered. All works within the TPZ and SRZ must be conducted under project arborist supervision. The supplied plans show proposed works within the TPZ and SRZ include:

- Proposed pier and piles to support above ground Koala walk.
- Proposed containment fencing and strip footings.
- Proposed service path accessing enclosures.

5.1.11 Tree **160** *Eucalyptus punctata* (Grey Gum)

Tree to be retained. Where non-destructive root exploration finds large diameter roots the design and location of the proposed footings will be required to be altered. All works within the TPZ and SRZ must be conducted under project arborist supervision. The supplied plans show proposed works within the TPZ and SRZ include:

- Proposed pier and piles to support above ground Koala walk.
- Proposed containment fencing and strip footings.
- Proposed service path accessing enclosures

5.1.12 Tree **162** *Casuarina cunninghamiana* (River She-oak).

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Demolition of existing fence.
- Construction of footings for staircase.
- Staircase from ground level to the upper koala walk.

5.1.13 Tree **179** *Lophostemon confertus* (Brushbox)

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Significant cut and 1:1 batter for sub-soil drainage with SRZ.
- Service road proposed within TPZ.

5.1.14 Tree **185** *Lophostemon confertus* (Brushbox)

Tree to be removed, the supplied plans show proposed works within the TPZ and SRZ include:

- Significant cut and 1:1 batter for sub-soil drainage with SRZ.
- Service road proposed within TPZ.

6 RECOMMENDATIONS

- 6.1 The removal of tree **20** is supported as risk mitigation to potential tree failure impacting targets within the development site working below the tree and guests to the zoo within fall distance of the tree.
- 6.2 The removal of tree **45** is supported as this tree has expired through the effects of predation to pests and disease brought on with the application of the course ropes structures restricting the trees basic functions.
- 6.3 The removal of trees **67,87,92,156,157,162,179 & 185** is supported to facilitate the proposed development.
- 6.4 The potential removal of Trees **129 & 130** is supported only where the project Arborist assesses that the trees will not remain viable due to major encroachment into the SRZ. Course of action should be to:
 - 6.4.1 Modify the design of the foot path outside the SRZ of trees **114, 129 & 130** to remove the proposed path from within the SRZ of these three trees.
 - 6.4.2 Conduct non-destructive root exploration in the proposed cut locations to assess for tree roots.
 - 6.4.3 Have flexibility within the placement of the path with possible path movement where structural roots are found.
- 6.5 The retention of trees **159 & 160**
 - Course of action should be to:
 - 6.5.1 Modify the design to remove or reduce the pier and piles within the SRZ of these two trees.
 - 6.5.2 Conduct non-destructive root exploration in the proposed pier and pile locations to assess for tree roots.
 - 6.5.3 Have flexibility within the placement of the pier and piles for movement where structural roots are found.
 - 6.6 Any works conducted within the Tree Protection Zone of the retained trees shall be supervised by the project Arborist, tree removals shall not adversely impact retained tree species, and all trees shall be inspected for fauna using the structure as habitat prior to removals being conducted.
 - 6.7 All tree species removed to facilitate the development shall be replaced at a ratio of 2 replacements per tree removed. Replacement trees shall be supplied at 100 litre pot size and planted within Taronga Zoo precinct.

7 STATEMENT OF LIMITATIONS

This Assessment report was undertaken by an Arborist with AQF level V (Diploma of Arboriculture) qualification. Mathew Phillips is a registered user of the Quantified Tree Risk Assessment® (QTRA) methodology. Only registered licence holders having received training and regular updates from Quantified Tree Risk Assessment Limited are permitted to use the QTRA system.

It is important to note that the QTRA risk assessment does Not evaluate risk exposure during unexpected, unusual, unpredictable, severe, or unseasonal weather, or weather at the extremes of the historical distribution. The risk assessment provided is valid for 12 months only.

This assessment was based on a comprehensive site inspection, observations made at the time of the inspection and information provided by the client and their employees. All conclusions reached, or tree works recommended, do not imply that the tree will withstand adverse natural conditions such as environmental influences, soil failure and erosion, severe storms, works carried out or near it, land development and mechanical impact, miss-management or maintenance or changes in the growing environment, may impact the validity of the conclusions.

Any written or verbal submission, statements taken from the results, discussions, conclusions, or recommendations made herein, may only be used where the whole of the original report is referenced in, and directly attached to that submission, report, or presentation.

All care has been taken to obtain all information from reliable sources. All data collected has been verified insofar as practically possible: however, the author can neither guarantee nor be responsible for the accuracy of information provided by others. Information contained herein, covers only those trees that were surveyed, examined, and scheduled and reflects the condition of those trees at the time of inspection.

This report is Not a warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future, but a professional opinion of the status and condition of the tree. Whilst all care has been taken to prepare this report, the author takes no responsibility for the continued vitality of the tree mentioned or for any damage that it may cause in the future.

If you have any questions regarding this report or require any further information, please contact me on the details below.

Regards,



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9 APPENDICES

9.1 APPENDIX 1 Original Tree Survey 8th April 2021

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|---------------------------------------|------------------------|--------|---------------|------|------|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|---|
| 1 | <i>Hymenosporum flavum</i> | Native Frangipani | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Fair | Fair | Semi-mature | Medium | Low | Low | This tree is within the footprint of the proposed bridge and will require removal. |
| 2 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 10-15 | 10-15 | 800 | 950 | 9.6 | 3.17 | Good | Fair | Mature | Medium | Medium | Medium | |
| 3 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 5-10 | 5-10 | 400 | 400 | 4.8 | 2.25 | Good | Fair | Semi-mature | Medium | Low | Low | This tree is within the footprint of the proposed bridge and will require removal. |
| 5 | <i>Ficus coronata</i> | Sandpaper Fig | 5-10 | 5-10 | 400 | 500 | 4.8 | 2.47 | Good | Fair | Mature | Medium | Medium | Medium | |
| 6 | <i>Ficus coronata</i> | Sandpaper Fig | 5-10 | 5-10 | 300 | 350 | 3.6 | 2.13 | Good | Fair | Mature | Medium | Medium | Medium | |
| 7 | <i>Tristaniopsis laurina</i> | Kanooka | 10-15 | 5-10 | 500 | 550 | 6 | 2.57 | Good | Good | Mature | Medium | Medium | Medium | |
| 8 | <i>Tristaniopsis laurina</i> | Kanooka | 5-10 | 5-10 | 350 | 500 | 4.2 | 2.47 | Fair | Fair | Mature | Short | Low | Low | |
| 9 | <i>Casuarina cunninghamiana</i> | River She-oak | 15-20 | 5-10 | 600 | 800 | 7.2 | 3.01 | Good | Poor | Mature | Short | Low | Low | This tree has major structural defects and is unsuitable for retention due to increased occupancy and alteration of under tree usage. |
| 11 | <i>Tristaniopsis laurina</i> | Kanooka | 10-15 | 5-10 | 350 | 450 | 4.2 | 2.37 | Fair | Fair | Mature | Short | Low | Low | |
| 12 | <i>Tristaniopsis laurina</i> | Kanooka | 5-10 | 5-10 | 300 | 350 | 3.6 | 2.13 | Fair | Fair | Mature | Short | Low | Low | |
| 13 | <i>Tristaniopsis laurina</i> | Kanooka | 5-10 | 5-10 | 300 | 350 | 3.6 | 2.13 | Fair | Fair | Mature | Short | Low | Low | |
| 14 | <i>Ficus obliqua</i> | Small-leaved Fig | 15-20 | 20-30 | 1500 | 1800 | 15 | 4.24 | Poor | Fair | Mature | Medium | High | High | Heritage tree |
| 15 | <i>Archontophoenix cunninghamiana</i> | Bangalow Palm | 10-15 | <5 | 250 | 350 | 3 | 2 | Good | Good | Mature | Medium | Medium | Medium | |
| 16 | <i>Cupaniopsis anacardioides</i> | Tuckeroo | 10-15 | 10-15 | 450 | 550 | 5.4 | 2.57 | Good | Fair | Mature | Medium | Medium | Medium | Tree may require minor crown lifting for pedestrian access |
| 17 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 5-10 | 5-10 | 300 | 300 | 3.6 | 2 | Good | Fair | Semi-mature | Short | Low | Low | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|---------------------------------------|------------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|--|
| 18 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 15-20 | 10-15 | 700 | 650 | 8.4 | 2.76 | Fair | Fair | Mature | Short | Medium | Low | |
| 19 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 15-20 | 10-15 | 750 | 950 | 9 | 3.24 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 20 | <i>Eucalyptus robusta</i> | Swamp Mahogany | 15-20 | 15-20 | 650 | 750 | 7.8 | 2.93 | Good | Poor | Mature | Short | Medium | short | |
| 21 | <i>Tristaniopsis laurina</i> | Kanooka | 5-10 | 5-10 | 200 | 400 | 2.4 | 2.25 | Fair | Fair | Semi-mature | Medium | Low | Low | |
| 22 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 5-10 | 5-10 | 250 | 300 | 3 | 2 | Good | Fair | Semi-mature | Medium | Low | Low | |
| 23 | <i>Casuarina glauca</i> | Swamp she-oak | 5-10 | 5-10 | 300 | 400 | 3.6 | 2.25 | Good | Poor | Semi-mature | Short | Low | Low | |
| 24 | <i>Casuarina glauca</i> | Swamp she-oak | 5-10 | 5-10 | 300 | 400 | 3.6 | 2.25 | Good | Poor | Semi-mature | Short | Low | Low | |
| 25 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 10-15 | 10-15 | 450 | 550 | 5.4 | 2.57 | Good | Fair | Mature | Short | Low | Low | |
| 26 | Dead Tree | Dead tree | 5-10 | <5 | 200 | 200 | 2.4 | 1.68 | Dead | Poor | Juvenile | Remove | Low | Low | Remove dead tree. |
| 27 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 10-15 | 10-15 | 400 | 500 | 4.8 | 2.47 | Poor | Poor | Senescent | Short | Low | Low | This tree is proposed for removal |
| 28 | <i>Glochidion ferdinandi</i> | Cheese Tree | 10-15 | 10-15 | 400 | 500 | 4.8 | 2.47 | Good | Poor | Mature | Short | Low | Low | |
| 29 | <i>Archontophoenix cunninghamiana</i> | Bangalow Palm | 10-15 | <5 | 300 | 350 | 3.6 | 2.13 | Good | Good | Mature | Medium | Medium | Medium | This tree is within the footprint of the proposed bridge and will require removal. |
| 30 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 5-10 | 5-10 | 250 | 300 | 3 | 2 | Good | Fair | Semi-mature | Medium | Low | Low | This tree is within the footprint of the proposed bridge and will require removal. |
| 31 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 15-20 | 10-15 | 650 | 800 | 7.8 | 3.01 | Good | Fair | Mature | Medium | Medium | Medium | |
| 32 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 10-15 | 5-10 | 250 | 400 | 3 | 2.25 | Good | Fair | Semi-mature | Medium | Medium | Medium | |
| 33 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 10-15 | 5-10 | 350 | 600 | 4.2 | 2.67 | Good | Fair | Mature | Medium | Low | Low | |
| 34 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 5-10 | <5 | 100 | 150 | 2 | 1.5 | Fair | Fair | Juvenile | Medium | Low | Low | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|--------------------------------|-------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|----------------|
| 35 | <i>Castanospermum australe</i> | Black bean | 10-15 | 5-10 | 400 | 550 | 4.8 | 2.57 | Poor | Poor | Mature | Remove | Low | Low | ArborSafe #357 |
| 36 | <i>Syzygium smithii</i> | Lilly Pilly | 5-10 | <5 | 150 | 150 | 2 | 1.5 | Poor | Fair | Semi-mature | Short | Low | Low | |
| 37 | <i>Polyscias elegans</i> | Celerywood | 10-15 | 5-10 | 300 | 400 | 3.6 | 2.25 | Good | Fair | Mature | Medium | Medium | Medium | ArborSafe #358 |
| 38 | <i>Polyscias elegans</i> | Celerywood | 15-20 | 10-15 | 350 | 450 | 4.2 | 2.37 | Good | Fair | Mature | Medium | Medium | Medium | ArborSafe #359 |
| 39 | <i>Polyscias elegans</i> | Celerywood | 15-20 | 10-15 | 500 | 600 | 6 | 2.67 | Fair | Poor | Mature | Short | Low | Low | ArborSafe #363 |
| 40 | <i>Syzygium smithii</i> | Lilly Pilly | 5-10 | 10-15 | 300 | 400 | 3.6 | 2.25 | Fair | Fair | Mature | Short | Low | Low | ArborSafe #360 |
| 41 | <i>Syzygium smithii</i> | Lilly Pilly | 10-15 | 10-15 | 350 | 450 | 4.2 | 2.37 | Good | Fair | Mature | Short | Low | Low | ArborSafe #362 |
| 42 | <i>Syzygium smithii</i> | Lilly Pilly | 5-10 | 5-10 | 200 | 250 | 2.4 | 1.85 | Good | Fair | Mature | Short | Low | Low | |
| 43 | <i>Syzygium smithii</i> | Lilly Pilly | 5-10 | 10-15 | 250 | 350 | 3 | 2 | Good | Fair | Mature | Medium | Low | Low | ArborSafe #361 |
| 44 | <i>Elaeocarpus reticulatus</i> | Blueberry Ash | 5-10 | 5-10 | 200 | 250 | 2.4 | 1.85 | Fair | Fair | Semi-mature | Short | Low | Low | |
| 45 | <i>Eucalyptus saligna</i> | Sydney Blue Gum | 20-30 | 15-20 | 650 | 850 | 7.8 | 3.09 | Fair | Fair | Mature | Short | Medium | Low | ArborSafe #366 |
| 46 | <i>Hymenosporum flavum</i> | Native Frangipani | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Poor | Poor | Senescent | Remove | Low | Low | |
| 47 | <i>Grevillea robusta</i> | Silky Oak | 10-15 | 5-10 | 250 | 350 | 3 | 2 | Good | Fair | Semi-mature | Short | Low | Low | ArborSafe #365 |
| 48 | <i>Polyscias elegans</i> | Celerywood | 10-15 | 10-15 | 300 | 350 | 3.6 | 2.13 | Good | Fair | Mature | Medium | Medium | Medium | |
| 49 | <i>Castanospermum australe</i> | Black bean | 15-20 | 15-20 | 600 | 650 | 7.2 | 2.76 | Good | Good | Mature | Medium | Medium | Medium | |
| 50 | <i>Polyscias elegans</i> | Celerywood | 15-20 | 10-15 | 500 | 650 | 6 | 2.76 | Good | Fair | Mature | Medium | Medium | Medium | |
| 51 | <i>Hymenosporum flavum</i> | Native Frangipani | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Dead | Poor | Semi-mature | Short | Low | Low | |
| 53 | <i>Elaeocarpus reticulatus</i> | Blueberry Ash | 5-10 | <5 | 200 | 350 | 2.4 | 2.13 | Dead | Poor | Semi-mature | Remove | Low | Low | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|---------------------------------------|----------------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|--|
| 54 | <i>Hymenosporum flavum</i> | Native Frangipani | 5-10 | <5 | 150 | 300 | 2 | 2 | Dead | Poor | Semi-mature | Remove | Low | Low | |
| 55 | <i>Hymenosporum flavum</i> | Native Frangipani | 10-15 | 5-10 | 250 | 350 | 3 | 2 | Fair | Poor | Mature | Short | Low | Low | |
| 57 | <i>Podocarpus elatus</i> | Brown Pine | 10-15 | 5-10 | 250 | 350 | 3 | 2 | Good | Good | Mature | Medium | Medium | Medium | |
| 58 | <i>Archontophoenix cunninghamiana</i> | Bangalow Palm | 5-10 | <5 | 200 | 300 | 2.4 | 2 | Good | Good | Mature | Medium | Medium | Medium | |
| 59 | <i>Brachychiton acerifolius</i> | Illawarra Flame Tree | 10-15 | 5-10 | 200 | 250 | 2.4 | 1.85 | Fair | Good | Semi-mature | Long | Low | Medium | Proposed for removal (nocturnal house) |
| 60 | <i>Laurus nobilis</i> | Bay Tree | 10-15 | 5-10 | 200 | 300 | 2.4 | 2 | Good | Good | Semi-mature | Long | Low | Medium | |
| 61 | <i>Banksia integrifolia</i> | Coast Banksia | 5-10 | 5-10 | 200 | 300 | 2.4 | 2 | Good | Good | Mature | Long | Low | Medium | |
| 62 | <i>Eucalyptus microcorys</i> | Tallowwood | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Good | Fair | Juvenile | Long | Low | Medium | |
| 63 | <i>Toona ciliata</i> | Red Cedar | 5-10 | 5-10 | 200 | 300 | 2.4 | 2 | Good | Good | Semi-mature | Long | Low | Medium | Proposed for removal (nocturnal house) |
| 64 | <i>Pittosporum undulatum</i> | Sweet Pittosporum | 5-10 | 5-10 | 300 | 450 | 3.6 | 2.37 | Good | Fair | Mature | Medium | Low | Low | Proposed for removal (nocturnal house) |
| 65 | <i>Melaleuca styphelioides</i> | Prickly-leaved Paperbark | 5-10 | 5-10 | 200 | 300 | 2.4 | 2 | Good | Fair | Semi-mature | Medium | Low | Low | |
| 66 | <i>Melaleuca styphelioides</i> | Prickly-leaved Paperbark | 5-10 | 5-10 | 200 | 300 | 2.4 | 2 | Good | Fair | Semi-mature | Medium | Low | Medium | |
| 67 | <i>Banksia integrifolia</i> | Coast Banksia | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Mature | Medium | Low | Medium | |
| 68 | <i>Pittosporum rhombifolium</i> | Queensland Laurel | 5-10 | 5-10 | 250 | 300 | 3 | 2 | Good | Fair | Semi-mature | Medium | Low | Medium | |
| 69 | <i>Angophora costata</i> | Smooth-barked Apple Myrtle | 5-10 | <5 | 100 | 150 | 2 | 1.5 | Dead | Poor | Juvenile | Remove | Low | Low | |
| 70 | <i>Ficus benjamina</i> | Weeping Fig | 10-15 | 10-15 | 700 | 900 | 8.4 | 3.17 | Good | Fair | Mature | Medium | Low | Low | |
| 71 | <i>Archontophoenix cunninghamiana</i> | Bangalow Palm | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Good | Good | Mature | Medium | Low | Low | |
| 72 | <i>Archontophoenix cunninghamiana</i> | Bangalow Palm | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Good | Good | Mature | Medium | Low | Low | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|---------------------------------------|-------------------|--------|---------------|-----|------|------|------|--------|-----------|-------------|--------|-------------------|-----------------|--|
| 73 | <i>Toona australis</i> | Red Cedar | 20-30 | 20-30 | 950 | 1300 | 11.4 | 3.69 | Good | Good | Mature | Long | High | High | |
| 74 | <i>Archontophoenix cunninghamiana</i> | Bangalow Palm | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Good | Good | Mature | Medium | Low | Low | |
| 75 | <i>Castanospermum australe</i> | Black bean | 10-15 | 15-20 | 250 | 350 | 3 | 2 | Good | Fair | Mature | Medium | Medium | Medium | |
| 76 | <i>Castanospermum australe</i> | Black bean | 10-15 | 15-20 | 250 | 350 | 3 | 2 | Good | Fair | Mature | Medium | Medium | Medium | |
| 77 | <i>Toona australis</i> | Red Cedar | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Good | Good | Semi-mature | Medium | Low | Medium | |
| 78 | <i>Archontophoenix cunninghamiana</i> | Bangalow Palm | 5-10 | 5-10 | 300 | 350 | 3.6 | 2.13 | Good | Good | Mature | Medium | Low | Low | Proposed for removal (nocturnal house) |
| 78a | <i>Pittosporum undulatum</i> | Sweet Pittosporum | 5-10 | 5-10 | 300 | 350 | 3.6 | 2.13 | Good | Good | Mature | Medium | Low | Low | Proposed for removal (nocturnal house) |
| 78b | <i>Glochidion ferdinandi</i> | Cheese Tree | 10-15 | 10-15 | 450 | 550 | 5.4 | 2.57 | Good | Good | Mature | Medium | Low | Low | Proposed for removal (nocturnal house) |
| 79 | <i>Elaeocarpus reticulatus</i> | Blueberry Ash | 5-10 | 5-10 | 200 | 300 | 2.4 | 2 | Good | Good | Mature | Medium | Low | Low | Proposed for removal (nocturnal house) |
| 80 | <i>Acacia fimbriata</i> | Fringed Wattle | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Mature | Short | Low | Low | Proposed for removal (nocturnal house) |
| 81 | <i>Elaeocarpus reticulatus</i> | Blueberry Ash | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Semi-mature | Medium | Low | Low | |
| 82 | <i>Eucalyptus maidenii</i> | Maiden's Gum | 10-15 | 5-10 | 450 | 550 | 5.4 | 2.57 | Fair | Fair | Mature | Short | Low | Low | |
| 83 | <i>Eucalyptus botryoides</i> | Southern Mahogany | 10-15 | 10-15 | 250 | 400 | 3 | 2.25 | Good | Fair | Mature | Medium | Medium | Medium | |
| 84 | <i>Hymenosporum flavum</i> | Native Frangipani | 10-15 | 5-10 | 150 | 200 | 2 | 1.68 | Good | Fair | Mature | Medium | Low | Low | |
| 85 | <i>Banksia integrifolia</i> | Coast Banksia | 15-20 | 10-15 | 500 | 600 | 6 | 2.67 | Good | Fair | Mature | Medium | Medium | Medium | |
| 86 | <i>Glochidion ferdinandi</i> | Cheese Tree | 10-15 | 5-10 | 450 | 500 | 5.4 | 2.47 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 86a | <i>Glochidion ferdinandi</i> | Cheese Tree | 10-15 | 5-10 | 400 | 500 | 4.8 | 2.47 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 87 | <i>Hymenosporum flavum</i> | Native Frangipani | 10-15 | <5 | 100 | 150 | 2 | 1.5 | Fair | Fair | Semi-mature | Medium | Low | Low | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|---------------------------------|----------------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|--|
| 88 | <i>Glochidion ferdinandi</i> | Cheese Tree | 10-15 | 10-15 | 600 | 700 | 7.2 | 2.85 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 89 | <i>Hibiscus sp</i> | Hibiscus | 5-10 | 5-10 | 200 | 300 | 2.4 | 2 | Fair | Fair | Mature | Medium | Low | Low | Proposed for removal (roadway) |
| 90 | <i>Eucalyptus robusta</i> | Swamp Mahogany | 15-20 | 10-15 | 450 | 550 | 5.4 | 2.57 | Good | Fair | Mature | Long | Medium | High | Proposed for removal (Southern Link-see appendix 5) |
| 91 | <i>Eucalyptus robusta</i> | Swamp Mahogany | 5-10 | <5 | 100 | 150 | 2 | 1.5 | Fair | Poor | Juvenile | Remove | Low | Low | Proposed for removal (Southern Link- see appendix 5) |
| 92 | <i>Eucalyptus robusta</i> | Swamp Mahogany | 10-15 | 5-10 | 250 | 300 | 3 | 2 | Poor | Poor | Mature | Short | Medium | Low | |
| 93 | <i>Lophostemon confertus</i> | Queensland Box | 10-15 | 5-10 | 300 | 400 | 3.6 | 2.25 | Good | Fair | Mature | Long | Low | Medium | |
| 94 | <i>Buckinghamia celsissima</i> | Ivory Curl Tree | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Fair | Semi-mature | Medium | Low | Low | |
| 95 | <i>Eucalyptus botryoides</i> | Bangalay | 15-20 | 10-15 | 500 | 700 | 6 | 2.85 | Fair | Fair | Mature | Long | Medium | High | |
| 96 | <i>Hymenosporum flavum</i> | Native Frangipani | 10-15 | <5 | 100 | 150 | 2 | 1.5 | Fair | Fair | Mature | Medium | Low | Low | |
| 97 | <i>Allocasuarina littoralis</i> | Black She-oak | 10-15 | 10-15 | 300 | 400 | 3.6 | 2.25 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 98 | <i>Syncarpia glomulifera</i> | Turpentine | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Fair | Fair | Semi-mature | Long | Low | Medium | |
| 99 | <i>Polyscias murrayi</i> | Pencil Cedar | 5-10 | 5-10 | 200 | 250 | 2.4 | 1.85 | Good | Fair | Semi-mature | Medium | Low | Low | Proposed for removal (Southern link) |
| 100 | <i>Eucalyptus punctata</i> | Grey Gum | 10-15 | 5-10 | 200 | 250 | 2.4 | 1.85 | Fair | Fair | Semi-mature | Medium | Low | Low | Proposed for removal (Southern link) |
| 101 | <i>Polyscias murrayi</i> | Pencil Cedar | 10-15 | 10-15 | 300 | 450 | 3.6 | 2.37 | Fair | Fair | Mature | Medium | Medium | Medium | Proposed for removal (Southern link) |
| 102 | <i>Acacia implexa</i> | Lightwood | 10-15 | 5-10 | 150 | 200 | 2 | 1.68 | Fair | Fair | Mature | Short | Low | Low | Proposed for removal (Southern link) |
| 103 | <i>Flindersia schottiana</i> | Bumpy Ash | 10-15 | 5-10 | 400 | 500 | 4.8 | 2.47 | Good | Good | Mature | Medium | Medium | Medium | Proposed for removal (Southern link) |
| 113 | <i>Angophora costata</i> | Smooth-barked Apple Myrtle | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Fair | Fair | Semi-mature | Short | Low | Low | |
| 114 | <i>Lophostemon confertus</i> | Queensland Box | 10-15 | 5-10 | 800 | 800 | 9.6 | 3.01 | Good | Fair | Mature | Long | Medium | High | Heavily encroached upon by Macropod trail |

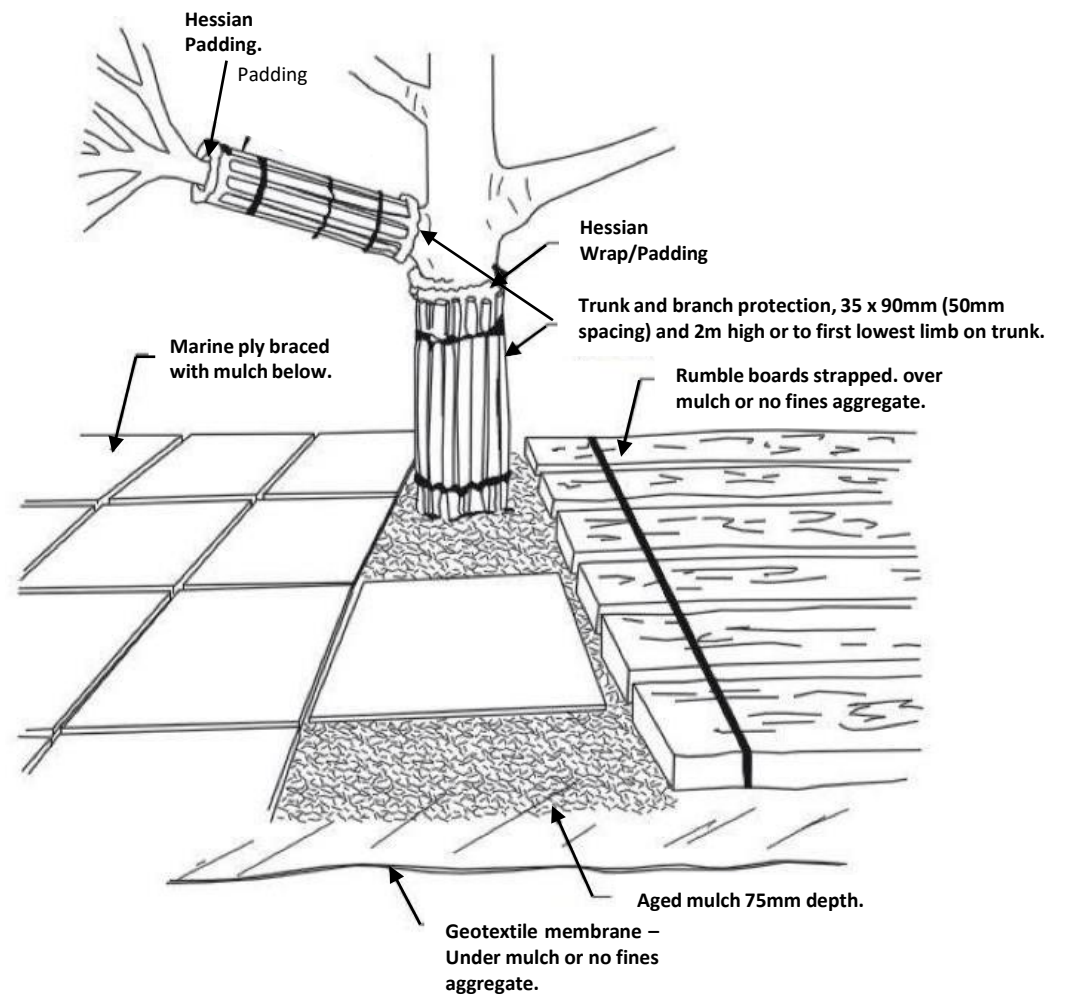
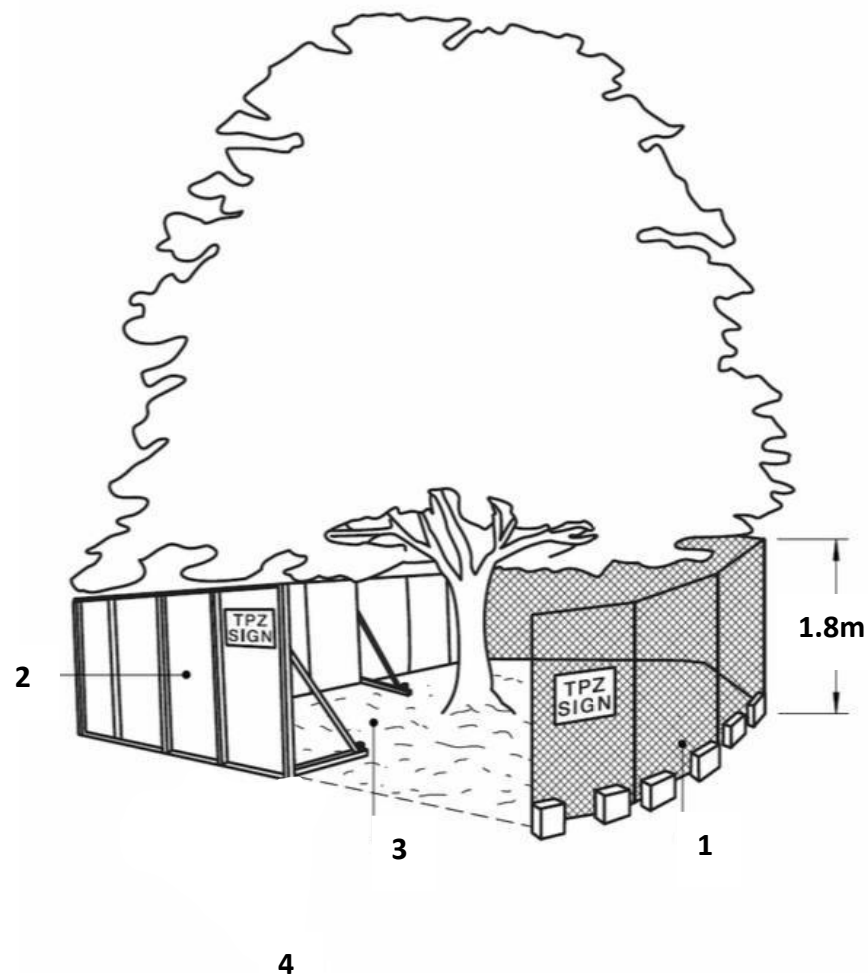
| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|---------------------------------|------------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|---|
| 116 | <i>Eucalyptus botryoides</i> | Southern Mahogany | 5-10 | 10-15 | 300 | 400 | 3.6 | 2.25 | Good | Fair | Mature | Medium | Low | Low | |
| 117 | <i>Eucalyptus botryoides</i> | Bangalay | 10-15 | 5-10 | 500 | 900 | 6 | 3.17 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 118 | <i>Eucalyptus saligna</i> | Sydney Blue Gum | 15-20 | 10-15 | 400 | 450 | 4.8 | 2.37 | Good | Fair | Semi-mature | Medium | Medium | Medium | Proposed for removal (Tree House) |
| 119 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 5-10 | 350 | 400 | 4.2 | 2.25 | Good | Fair | Mature | Medium | Medium | Medium | Proposed for removal (Tree House) |
| 120 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 5-10 | 400 | 450 | 4.8 | 2.37 | Good | Fair | Mature | Medium | Medium | Medium | Proposed for removal (Tree House) |
| 121 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 5-10 | 400 | 450 | 4.8 | 2.37 | Good | Fair | Mature | Medium | Medium | Medium | |
| 122 | <i>Stenocarpus sinuatus</i> | Fire Wheel Tree | 10-15 | 5-10 | 400 | 600 | 4.8 | 2.67 | Good | Poor | Mature | Short | Low | Low | Proposed for removal (Tree House) |
| 123 | <i>Eucalyptus botryoides</i> | Southern Mahogany | 20-30 | 10-15 | 600 | 800 | 7.2 | 3.01 | Fair | Poor | Mature | Short | Medium | Low | Subject tree removed due to failure on the 18 th of Feb 2020 |
| 125 | <i>Eucalyptus botryoides</i> | Bangalay | 10-15 | 5-10 | 300 | 400 | 3.6 | 2.25 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 126 | <i>Elaeocarpus reticulatus</i> | Blueberry Ash | 5-10 | <5 | 100 | 150 | 2 | 1.5 | Fair | Good | Semi-mature | Medium | Low | Low | |
| 127 | <i>Eucalyptus botryoides</i> | Bangalay | 15-20 | 10-15 | 600 | 850 | 7.2 | 3.09 | Fair | Fair | Mature | Medium | High | High | Heavily encroached upon by Macropod trail |
| 128 | <i>Eucalyptus microcorys</i> | Tallowwood | 10-15 | 5-10 | 300 | 350 | 3.6 | 2.13 | Good | Good | Mature | Medium | Medium | Medium | |
| 129 | <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark | 15-20 | 5-10 | 500 | 750 | 6 | 2.93 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 130 | <i>Casuarina cunninghamiana</i> | River She-oak | 5-10 | 5-10 | 250 | 350 | 3 | 2 | Fair | Fair | Semi-mature | Medium | Low | Low | |
| 131 | <i>Casuarina cunninghamiana</i> | River She-oak | 5-10 | 5-10 | 250 | 300 | 3 | 2 | Fair | Fair | Semi-mature | Medium | Low | Low | Proposed for removal (Macropod trail) |
| 132 | <i>Eucalyptus microcorys</i> | Tallowwood | 5-10 | 5-10 | 300 | 400 | 3.6 | 2.25 | Good | Fair | Mature | Long | Low | Medium | |
| 133 | <i>Corymbia maculata</i> | Spotted Gum | 15-20 | 10-15 | 500 | 600 | 6 | 2.67 | Good | Good | Mature | Long | Medium | Medium | |
| 134 | <i>Corymbia maculata</i> | Spotted Gum | 10-15 | 5-10 | 300 | 350 | 3.6 | 2.13 | Good | Good | Semi-mature | Medium | Medium | Medium | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|------------------------------|----------------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|----------|
| 135 | <i>Corymbia maculata</i> | Spotted Gum | 5-10 | 5-10 | 300 | 350 | 3.6 | 2.13 | Fair | Fair | Semi-mature | Medium | Low | Low | |
| 136 | <i>Corymbia maculata</i> | Spotted Gum | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Fair | Fair | Semi-mature | Medium | Low | Low | |
| 137 | <i>Casuarina glauca</i> | Swamp she-oak | 15-20 | 10-15 | 600 | 800 | 7.2 | 3.01 | Good | Fair | Mature | Medium | Medium | Medium | |
| 138 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 10-15 | 500 | 650 | 6 | 2.76 | Good | Fair | Mature | Long | Medium | High | |
| 139 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 10-15 | 400 | 500 | 4.8 | 2.47 | Fair | Fair | Mature | Short | Medium | Low | |
| 140 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 10-15 | 450 | 550 | 5.4 | 2.57 | Good | Fair | Mature | Short | Medium | Low | |
| 141 | <i>Eucalyptus microcorys</i> | Tallowwood | 10-15 | 5-10 | 150 | 300 | 2 | 2 | Fair | Fair | Semi-mature | Long | Low | Medium | |
| 142 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 5-10 | 300 | 450 | 3.6 | 2.37 | Good | Fair | Mature | Long | Low | Medium | |
| 143 | <i>Angophora costata</i> | Smooth-barked Apple Myrtle | 10-15 | 5-10 | 200 | 300 | 2.4 | 2 | Fair | Poor | Semi-mature | Remove | Medium | Low | |
| 144 | <i>Corymbia maculata</i> | Spotted Gum | 15-20 | 5-10 | 300 | 400 | 3.6 | 2.25 | Fair | Fair | Mature | Short | Medium | Low | |
| 145 | <i>Corymbia maculata</i> | Spotted Gum | 10-15 | 5-10 | 300 | 400 | 3.6 | 2.25 | Fair | Fair | Mature | Medium | Low | Low | |
| 146 | <i>Eucalyptus saligna</i> | Sydney Blue Gum | 15-20 | 5-10 | 250 | 300 | 3 | 2 | Fair | Fair | Semi-mature | Medium | Medium | Medium | |
| 147 | <i>Eucalyptus microcorys</i> | Tallowwood | 5-10 | 5-10 | 250 | 350 | 3 | 2 | Fair | Fair | Semi-mature | Long | Low | Medium | |
| 148 | <i>Eucalyptus microcorys</i> | Tallowwood | 20-30 | 15-20 | 600 | 750 | 7.2 | 2.93 | Fair | Fair | Mature | Medium | High | High | |
| 149 | <i>Eucalyptus microcorys</i> | Tallowwood | 15-20 | 10-15 | 500 | 650 | 6 | 2.76 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 150 | <i>Ficus sp.</i> | Fig | 5-10 | <5 | 100 | 150 | 2 | 1.5 | Good | Good | Semi-mature | Long | Low | Medium | |
| 151 | <i>Angophora costata</i> | Smooth-barked Apple Myrtle | 5-10 | 5-10 | 200 | 250 | 2.4 | 1.85 | Good | Fair | Semi-mature | Medium | Low | Low | |
| 152 | <i>Eucalyptus botryoides</i> | Southern Mahogany | 5-10 | 5-10 | 200 | 250 | 2.4 | 1.85 | Fair | Fair | Semi-mature | Short | Low | Low | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|---------------------------------|-------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|--------------------------------------|
| 153 | <i>Corymbia maculata</i> | Spotted Gum | 15-20 | 10-15 | 300 | 400 | 3.6 | 2.25 | Good | Fair | Mature | Medium | Medium | Medium | |
| 154 | <i>Banksia integrifolia</i> | Coast Banksia | 5-10 | 5-10 | 300 | 400 | 3.6 | 2.25 | Good | Fair | Mature | Medium | Low | Low | Proposed for removal (Tree House) |
| 155 | <i>Buckinghamia celsissima</i> | Ivory Curl Tree | 5-10 | 5-10 | 200 | 200 | 2.4 | 1.68 | Good | Good | Semi-mature | Medium | Low | Low | Proposed for removal (Tree House) |
| 155a | <i>Elaeocarpus reticulatus</i> | Blueberry Ash | 5-10 | 5-10 | 150 | 200 | 2 | 1.68 | Good | Good | Mature | Medium | Low | Low | Proposed for removal (Tree House) |
| 156 | <i>Eucalyptus botryoides</i> | Southern Mahogany | 20-30 | 15-20 | 650 | 750 | 7.8 | 2.93 | Good | Fair | Mature | Long | High | High | |
| 157 | <i>Eucalyptus botryoides</i> | Southern Mahogany | 15-20 | 10-15 | 450 | 550 | 5.4 | 2.57 | Good | Poor | Mature | Short | Medium | Low | |
| 158 | <i>Lophostemon confertus</i> | Queensland Box | 10-15 | 10-15 | 600 | 800 | 7.2 | 3.01 | Good | Fair | Mature | Long | Medium | High | |
| 159 | <i>Lophostemon confertus</i> | Queensland Box | 15-20 | 10-15 | 700 | 800 | 8.4 | 3.01 | Poor | Fair | Senescent | Short | High | Low | Heritage Tree |
| 160 | <i>Eucalyptus punctata</i> | Grey Gum | 15-20 | 15-20 | 700 | 850 | 8.4 | 3.09 | Fair | Fair | Mature | Medium | Medium | Medium | Heritage Tree |
| 161 | <i>Casuarina glauca</i> | Swamp she-oak | 15-20 | 10-15 | 550 | 700 | 6.6 | 2.85 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 162 | <i>Casuarina cunninghamiana</i> | River She-oak | 5-10 | <5 | 150 | 250 | 2 | 1.85 | Fair | Fair | Semi-mature | Medium | Low | Low | |
| 163 | <i>Casuarina glauca</i> | Swamp she-oak | 15-20 | 15-20 | 550 | 700 | 6.6 | 2.85 | Good | Fair | Mature | Medium | Medium | Medium | |
| 164 | <i>Casuarina glauca</i> | Swamp she-oak | 10-15 | 5-10 | 450 | 550 | 5.4 | 2.57 | Good | Good | Mature | Long | Medium | Medium | |
| 165 | <i>Casuarina glauca</i> | Swamp she-oak | 5-10 | 5-10 | 300 | 400 | 3.6 | 2.25 | Fair | Fair | Mature | Medium | Low | Low | |
| 166 | <i>Casuarina glauca</i> | Swamp she-oak | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Semi-mature | Medium | Low | Low | Proposed for removal (Back of House) |
| 167 | <i>Casuarina glauca</i> | Swamp she-oak | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Semi-mature | Medium | Low | Low | Proposed for removal (Back of House) |
| 168 | <i>Casuarina glauca</i> | Swamp she-oak | 5-10 | <5 | 100 | 100 | 2 | 1.5 | Good | Good | Semi-mature | Medium | Low | Low | Proposed for removal (Back of House) |
| 169 | <i>Casuarina glauca</i> | Swamp she-oak | 10-15 | 5-10 | 300 | 350 | 3.6 | 2.13 | Good | Good | Semi-mature | Medium | Low | Low | |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|--|-------------------|--------|---------------|-----|------|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|-----------------------------------|
| 170 | <i>Lophostemon confertus</i> | Queensland Box | 10-15 | 10-15 | 700 | 1000 | 8.4 | 3.31 | Fair | Fair | Mature | Medium | High | High | |
| 171 | <i>Glochidion ferdinandi</i> | Cheese Tree | 10-15 | 10-15 | 500 | 800 | 6 | 3.01 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 172 | <i>Lophostemon confertus</i> | Queensland Box | 10-15 | 10-15 | 700 | 1000 | 8.4 | 3.31 | Fair | Fair | Mature | Medium | High | High | |
| 173 | <i>Glochidion ferdinandi</i> | Cheese Tree | 5-10 | 5-10 | 200 | 450 | 2.4 | 2.37 | Good | Fair | Semi-mature | Long | Low | Medium | |
| 174 | <i>Acacia melanoxylon</i> | Blackwood | 10-15 | 5-10 | 400 | 550 | 5.4 | 2.57 | Fair | Fair | Mature | Short | Low | Low | |
| 175 | <i>Lophostemon confertus</i> | Queensland Box | 5-10 | <5 | 250 | 300 | 3 | 2 | Good | Good | Semi-mature | Long | Low | Medium | Proposed for removal (Escarpment) |
| 176 | <i>Banksia integrifolia</i> | Coast Banksia | 5-10 | <5 | 100 | 150 | 2 | 1.5 | Good | Good | Semi-mature | Medium | Low | Low | Proposed for removal (Escarpment) |
| 177 | <i>Casuarina cunninghamiana</i> | River She-oak | 15-20 | 10-15 | 700 | 900 | 8.4 | 3.17 | Good | Fair | Mature | Long | Medium | High | |
| 178 | <i>Casuarina cunninghamiana</i> | River She-oak | 15-20 | 10-15 | 450 | 600 | 5.4 | 2.67 | Good | Fair | Mature | Long | Medium | High | |
| 179 | <i>Lophostemon confertus</i> | Queensland Box | 10-15 | 5-10 | 400 | 500 | 4.8 | 2.47 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 180 | <i>Casuarina glauca</i> | Swamp she-oak | 15-20 | 10-15 | 600 | 800 | 7.2 | 3.01 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 181 | <i>Casuarina cunninghamiana</i> | River She-oak | 5-10 | 5-10 | 200 | 250 | 2.4 | 1.85 | Fair | Fair | Semi-mature | Long | Low | Medium | |
| 182 | <i>Pittosporum rhombifolium</i> | Queensland Laurel | 5-10 | 5-10 | 250 | 350 | 3 | 2 | Good | Good | Mature | Medium | Low | Low | |
| 183 | <i>Glochidion ferdinandi</i> | Cheese Tree | 5-10 | <5 | 300 | 350 | 3.6 | 2.13 | Fair | Fair | Semi-mature | Short | Low | Low | |
| 184 | <i>Glochidion ferdinandi</i> | Cheese Tree | 10-15 | 5-10 | 350 | 450 | 4.2 | 2.37 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 185 | <i>Lophostemon confertus</i> | Queensland Box | 15-20 | 5-10 | 300 | 350 | 3.6 | 2.13 | Fair | Fair | Mature | Short | Low | Low | |
| 186 | <i>Eucalyptus robusta</i> | Swamp Mahogany | 15-20 | 15-20 | 700 | 800 | 8.4 | 3.01 | Fair | Fair | Mature | Medium | Medium | Medium | |
| 187 | <i>Olea europaea</i> subsp. <i>cuspidata</i> | African Olive | 10-15 | 10-15 | 300 | 350 | 3.6 | 2.13 | Good | Fair | Mature | Long | Remove | Remove | Weed species |

| Tree No. | Scientific Name | Common Name | Height | Canopy Spread | DBH | DAB | TPZ | SRZ | Health | Structure | Age | E.L. E | Tree Significance | Retention value | Comments |
|----------|-------------------------|-------------------|--------|---------------|-----|-----|-----|------|--------|-----------|-------------|--------|-------------------|-----------------|--|
| 188 | Eucalyptus robusta | Swamp Mahogany | 15-20 | 10-15 | 350 | 400 | 4.2 | 2.25 | Good | Fair | Mature | Medium | Low | Low | |
| 189 | Lophostemon confertus | Queensland Box | 15-20 | 10-15 | 350 | 450 | 4.2 | 2.37 | Fair | Fair | Mature | Short | Low | Low | |
| 190 | Pittosporum undulatum | Sweet Pittosporum | 5-10 | 5-10 | 250 | 300 | 3 | 2 | Poor | Fair | Semi-mature | Remove | Low | Low | |
| 191 | Eucalyptus punctata | Grey Gum | 15-20 | 15-20 | 400 | 450 | 4.8 | 2.37 | Fair | Fair | Mature | Short | Low | Low | |
| 192 | Glochidion ferdinandi | Cheese Tree | 10-15 | 10-15 | 350 | 450 | 4.2 | 2.37 | Fair | Fair | Mature | Short | Low | Low | |
| 193 | Pittosporum undulatum | Sweet Pittosporum | 5-10 | 5-10 | 200 | 350 | 2.4 | 2.13 | Fair | Fair | Mature | Short | Low | Low | |
| 194 | Pittosporum undulatum | Sweet Pittosporum | 5-10 | 5-10 | 200 | 150 | 2.4 | 1.5 | Good | Fair | Mature | Long | Low | Low | |
| 195 | Eucalyptus punctata | Grey Gum | 15-20 | 15-20 | 700 | 750 | 8.4 | 2.93 | Fair | Fair | Mature | Short | Medium | Low | |
| 196 | Syzygium smithii | Lilly Pilly | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Juvenile | Medium | Low | Low | Proposed for removal (Koala Tree Walk) |
| 197 | Elaeocarpus reticulatus | Blueberry Ash | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Juvenile | Medium | Low | Low | Proposed for removal (Koala Tree Walk) |
| 198 | Elaeocarpus reticulatus | Blueberry Ash | 5-10 | <5 | 150 | 200 | 2 | 1.68 | Good | Good | Juvenile | Medium | Low | Low | Proposed for removal (Koala Tree Walk) |



1 = Chain mesh fencing, concrete feet (Shade cloth council dependent)

2 = Hoarding/timber fencing alternative (CBD)

3 = Aged quality mulch (75mm max depth) extent of TPZ (where practical) no construction unless supervised by AQF-5 Arborist. No grade changes, no surface changes, no storage of materials permitted and no excavation to occur as part of the site establishment related to tree protection.

9.3 APPENDIX 3: Significance of a Tree, Assessment Rating System

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

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

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

Tree Significance - Assessment Criteria



1. High Significance in landscape

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

2. Medium Significance in landscape

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

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour.
- The tree has form atypical of the species.
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.
- Environmental Pest / Noxious Weed Species
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.
- Hazardous/Irreversible Decline
- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

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

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

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

| | | Significance | | | | |
|---------------------------|-----------------------|---------------------------|---------------------------|---------------------------|---|----------------------------------|
| | | 1. High | 2. Medium | 3. Low | | |
| | | Significance in Landscape | Significance in Landscape | Significance in Landscape | Environmental Pest / Noxious Weed Species | Hazardous / Irreversible Decline |
| Estimated Life Expectancy | 1. Long >40 years | | | | | |
| | 2. Medium 15-40 Years | | | | | |
| | 3. Short <1-15 Years | | | | | |
| | Dead | | | | | |

Legend for Matrix Assessment

| | |
|--|--|
| | Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 <i>Protection of trees on development sites</i> . Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone. |
| | Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted. |
| | Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention. |
| | Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development. |

IACA 2010, Significance of a tree, Assessment rating System (STARS), Institute of Australian Consulting Arboriculturists, www.iaca.org.au

References

- Australia ICOMOS Inc. 1999, The Burra Charter- The Australian ICOMOS Charter for places of Cultural Significance, international Council of Monuments and Sites, www.icomos.org/australia
- Draper BD and Richards PA 2009, Dictionary for Managing Trees in Urban Environments, Institute of Australian Consulting Arboriculturists (IACA) CSIRO Publishing, Collingwood, Victoria, Australia.
- Footprint Green Pty Ltd 2001, Footprint Green Tree Significance & Retention Value Matrix, Avalon, NSW Australia www.footprintgreen.com.au

9.5 APPENDIX 5: Tree 20 Defect Images



Figure 3 Shows Tree 20.



Figure 4 Shows the basal defect.

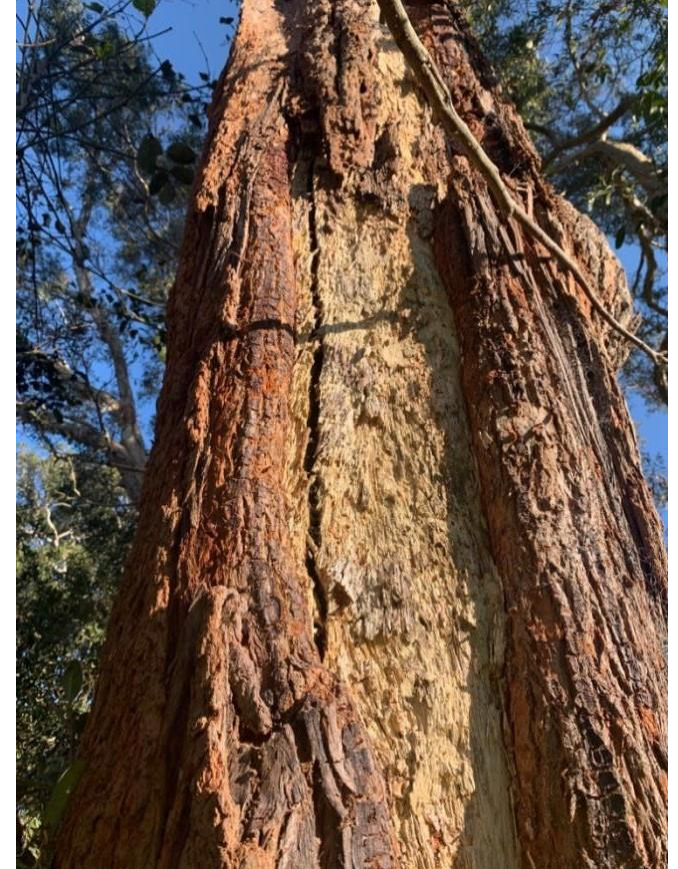


Figure 5 Shows the vertical crack within the defect and heartwood.

9.6 APPENDIX 6: Tree 123 Failure Images



Figure 6 Shows tree 123 root plate failure.



Figure 7 Shows tree 123 failure from above the ropes course building.

9.7 APPENDIX 7: Supplied Updated Plan

