Arboricultural Assessment and Report

110 Wilson St, Moonee Ponds

ADVERTISED PLAN

Prepared for HAMTON

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Tree Logic Pty. Ltd.

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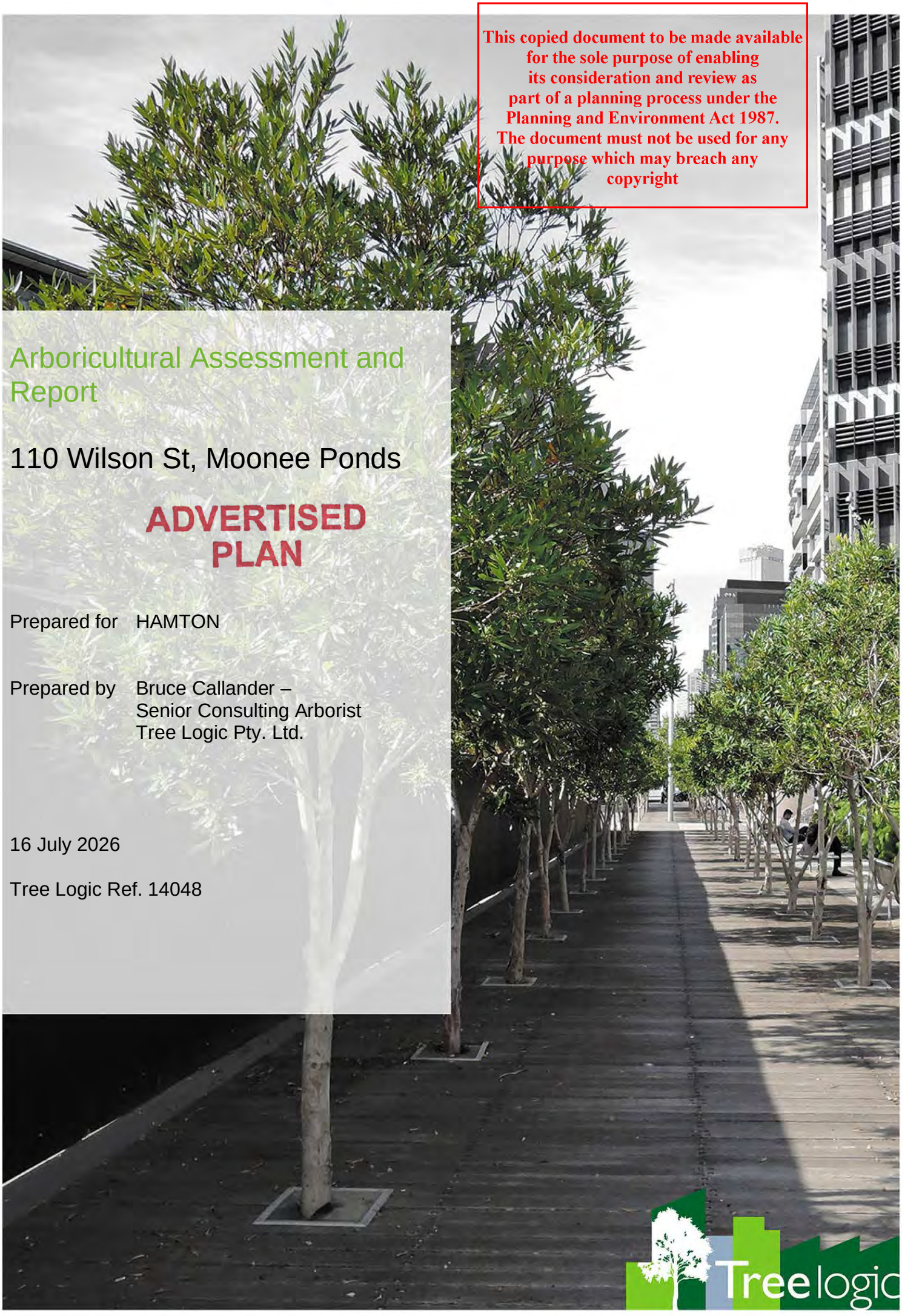
Tree Logic Ref. 14048



Contents

TL Tree report_110 Wilson St Moonee Ponds.

File No.	Version	Author	Issue date	Edits	Issued by.
14048	V1	Andy Rybalko	7/5/2025	Preliminary Arboricultural Report	BC
14048	V2	Andy Rybalko	23/1/2026	PAR updated to include reference to Clause 52.37 - Canopy Trees	BC
14048	V3	Andy Rybalko	4/3/2026	Arboricultural Impact Assessment of proposed plans	BC
14048	V4	Bruce Callander	20/3/2026	Arboricultural Impact Assessment (AIA) of proposed plans within reduced study area	BC
14048	V5	Bruce Callander	9/7/2026	AIA of proposed plans on Citylink trees to east	BC
14048	V6	Bruce Callander	16/07/2026	AIA & TPS for plans showing retention of Trees 1-8,13 & 14 and Citylink trees to east	BC

1 Executive Summary

1.1 Tree Logic was engaged by Hamton to undertake an arboricultural assessment and prepare a preliminary report for trees associated with proposed development within Moonee Valley Racecourse at 110 Wilson Street, Moonee Ponds (subject site). The primary objectives of the arboricultural report include;

- Assess trees on site and provide information on the species, origin, dimensions, health and structure of the trees and their arboricultural values
- Recommend appropriate arboricultural works if deemed necessary.
- Determine the Notional Root Zone (NRZ) for trees compliant with AS4970 'Protection of trees on development sites' for ongoing reference.

1.2 In May 2025, forty six (46) tree features were assessed in total within the study area associated with 110 Wilson Street, Moonee Ponds comprising 43 trees and 3 groups of small hedge plantings.

1.3 The trees were growing adjacent to the racetrack, access driveway and maintenance department sheds and facilities.

1.4 In June 2026, Monee Valley Council requested further information (RFI) on the potential impacts to trees within the City Link Project (CLP) area to the east of the site. Twenty one (21) additional trees and saplings were plotted in the CLP. Tree locations & dimensions are estimated, having been viewed from within the subject site because access to the CFP is restricted.

1.5 Twenty one (21) different tree species were recorded during the study.

1.6 The tree population comprised an assortment of planted Victorian and Australian native trees interspersed with exotic specimens, planted for garden and amenity purposes or growing as self-sown weed trees.

1.7 All trees were attributed an arboricultural rating which reflects the retention value of the trees.

- One (1) tree within the CLP was rated as Moderate A, displaying better than typical condition.
- Seven (7) trees were attributed an arboricultural rating of Moderate B, being middle of the range and typical of the species.
- Forty two (42) tree features were rated Moderate C, being either maturing trees that are developing health and structural deficiencies and tending towards being of Low arboricultural value or being of small size.
- Seventeen (17) tree features were rated Low, being either declining or defective trees or weed species.

1.8 An Arboricultural Impact Assessment has been undertaken on the design plans for residential development within the north-east corner of the site based on review of Lower Ground Plan_TP-SIT-099 Rev: A _Trackside Gardens - Site Series [A] 25/2/2026 prepared by DKO Architects. Under the current plan

- Eighteen (18) trees growing adjacent to the site can be retained without NRZ encroachment including 3 trees to the west of the site and 15 within the CLP.
  - These trees can be adequately protected by the boundary fence in which all construction impacts must be contained.
- Six (6) trees in the CLP have minor NRZ encroachment of less than 7%.
  - These trees can be adequately protected by the boundary fence in which all construction impacts must be contained.
  - A layer of ground protection must be applied over the portion of the NRZ that exists between the boundary and the construction footprint to protect the native soil from compaction or excavation.
- Tree 48 is at risk of health decline associated soil compaction with 10% NRZ encroachment comprising approximately 1% within the construction Lower ground level footprint and 9% being the area surrounding the construction footprint.
  - The tree and limbs can be adequately protected by the boundary fence.
  - A layer of ground protection must be applied over the portion of the NRZ that exists between the boundary and the construction footprint to protect the native soil from compaction or excavation.
  - Basement excavation within the part of the NRZ within the construction impact zone will not have any discernible impact on the trees.
- Ten (10) trees are indicated to have SRZ encroachment by the excavation for the basement footprint but are intended to be retained in conjunction with ongoing construction works.
  - These trees are located behind existing concrete kerb and channel that is generally in line with the basement footprint.
  - Tree Protection Fencing (TPF) must be established at the back of kerb and maintained during all stages of construction along with Ground Buffering (GB) with 100mm of matured wood chip mulch and supplementary irrigation during summer & autumn.
  - TPF & GB must not be moved or adjusted without consultation and approval by the Project Arborist.
- Four (4) Callery Pear trees will have SRZ encroachment but are identified for removal during the demolition phase.
- Twenty eight (28) trees are within the construction impact zone (CIZ) and must be removed.

1.9 Refer to Section 6 of this report for full details of impact assessment.

2 Method

2.1 A site inspection was carried out on Monday 5th May 2025 during mild conditions by Andy Rybalko, Consultant Arborist (Certificate 5 Arb. Melbourne Polytechnic & TRAQ trained and qualified). Additional trees in the CLP were inspected on 1/7/2026.

2.2 The trees were inspected from the ground and observations were made of the growing environment and surrounding area. Additional trees within the CLP were inspected from within the site boundary and all observations are estimated from the best available vantage point within the subject site.

2.3 Each tree feature was plotted on ruggedized mobile field tablet computers using a combination of aerial imagery, feature survey plan tree points in conjunction with an inbuilt GPS and measuring tool. The location of each tree is indicated in Appendix 2 using GIS mapping displayed on aerial imagery of the site and is colour coded based on arboricultural value.

2.4 Observations were made of the assessed trees to determine the species, origin, age class and condition with measurements taken to establish tree crown height (measured with a height meter) and crown width (paced) and trunk dimensions (measured 1.4 metres above ground level with a diameter tape unless otherwise stated).

2.5 Updated assessment details of individual trees are listed in Appendix 1 and a copy of the tree location plan can be seen in Appendix 2. Descriptors used in the assessment can be seen in Appendix 3.

2.6 Photographs of trees and the environs were taken for further reference when preparing the report.

2.7 Each of the assessed trees was attributed an 'Arboricultural Rating'. The arboricultural rating correlates the combination of tree condition factors (health and structure) with tree amenity value. Definitions of arboricultural ratings can be seen in Appendix 3.

2.8 The assessed trees have been allocated Notional Root Zone (NRZ). The Australian Standard, AS 4970-2025, has been used as a guide in the allocation of NRZs for the assessed trees. This method provides a NRZ that addresses both the stability and growing requirements of a tree. NRZ distances are measured as a radius, from the centre of the trunk at (or near) ground level. All NRZ measurements for are provided in Appendix 1 and displayed on the tree location plan in Appendix 2.

2.9 Documents reviewed:

- 250428_110 Wilson Street - Aerial Imagery
- Planning Property Report
- Activities and General Amenities Local Law 2018
- Tree and Canopy Protection Guidelines
- Schedule 12 to Clause 43.02 Design & Development Overlay
- Schedule to Clause 43.01 Heritage Overlay
- Schedule 2 to Clause 32.04 Mixed Use Zone
- 52.37 Canopy Tree Planning Provision
- Lower Ground Plan_TP-SIT-099 Rev: A _Trackside Gardens - Site Series [A] 25/2/2026 prepared by DKO Architects
- Demolition plan_TP-SIT-004 Rev: A _Trackside Gardens - Site Series [A]
- Upper ground_TP-SIT-100 Rev: A_Trackside Gardens - Site Series [A]-2

3 Observations

The subject tree study area comprises the northeastern corner of Moonee Valley Race Course located at 110 Wilson Street, Moonee Ponds. The trees are growing adjacent to the racetrack, access driveway and maintenance department sheds and facilities. Trees in the City Link Project area to the east are also shown.

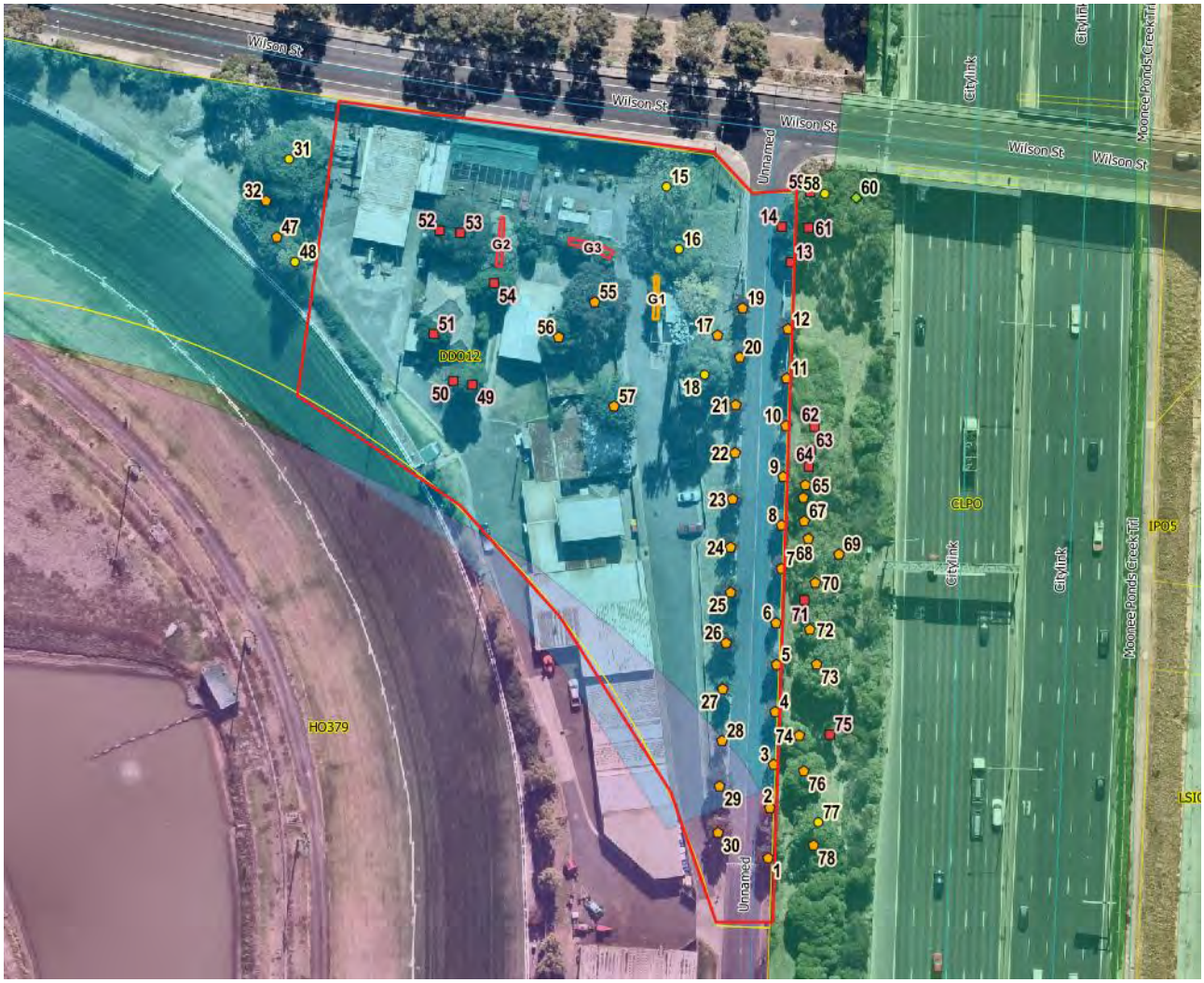


Plate 1: Aerial view of the tree study area at 110 Wilson St Moonee Ponds, indicated by red line. Associated overlays are indicated.

3.1 Tree population

3.2 Sixty seven (67) tree features were assessed within the study site comprising 64 individual trees and 3 groups of smaller linear groups of trees made up of 9-10 individual trees within each group. Twenty one (21) different tree species of of primarily exotic specimens interspersed with Victorian and Australian natives planted for garden and amenity purposes.

3.3 Refer to Table 2 for list of the species on site and their origins.

Table 2: All species recorded on site and their origins.

Botanical name	Common Name	Origin	No of trees
Pyrus calleryana 'Capital'	Capital Callery Pear	Exotic deciduous	24
Eucalyptus leucoxylon	Yellow Gum	Victorian native	9
Corymbia citriodora	Lemon-scented Gum	Australian native	5
Angophora costata	Smooth-barked Apple	Australian native	4
Melaleuca armillaris	Bracelet Honey-myrtle	Victorian native	3
Pittosporum undulatum	Sweet Pittosporum	Victorian native	3
Cinnamomum camphora	Camphor Laurel	Exotic evergreen	2
Corymbia maculata	Spotted Gum	Victorian native	2
Fraxinus angustifolia	Narrow-leaved Ash	Exotic deciduous	2
Photinia Xfraserii 'Robusta'	Christmas Berry	Exotic evergreen	2
Agonis flexuosa	Willow Myrtle	Australian native	1
Casuarina cunninghamiana	River She-oak	Australian native	1
Eucalyptus cornuta	Yate	Australian native	1
Eucalyptus nicholii	Narrow-leaved Black Peppermint	Australian native	1
Grevillea robusta	Silky Oak	Australian native	1
Melaleuca styphelioides	Prickly-leaved Paperbark	Australian native	1
Populus nigra 'Italica'	Lombardy Poplar	Exotic deciduous	1
Prunus cerasifera	Cherry-plum	Exotic deciduous	1
Callistemon viminalis	Weeping Bottlebrush	Australian native	1
Pittosporum tenuifolium	Kohuhu	Exotic evergreen	1
Callistemon viminalis, Pittosporum undulatum	Weeping Bottlebrush, Sweet Pittosporum	Australian native, Victorian native	1

3.4 **Tree health** was assessed based on foliage colour, size and density as well as shoot initiation and elongation where possible. The majority of trees displayed Fair health with typical foliage colour.

- Fifty nine (59) tree features displayed Fair or better health that is considered typical for the species growing in this locale.
- Seven (7) tree features were assessed as being in Fair to Poor health, displaying signs of below typical vigour, some die-back and canopy thinning.
- One (1) tree was assessed as being in poor health with trunk decay.

3.5 **Tree structure** was assessed for structural defects and deficiencies and likelihood of failures.

- Thirty one (31) trees displayed Fair and acceptable structure in terms of primary branching arrangement and architecture, weight distribution and sound wood.
- Thirty one (31) tree features were assessed as having Fair to Poor structure that includes structural deficiencies such as dieback, past limb or stem failure, basal wounds from whipper snipper damage, incipient decay, deadwood, co-dominant stems, leaning stems, asymmetric form, branch over extension or other evidence of previous failures.
- Five (5) trees were assessed as having Poor structure that included structural deficiencies such as decayed cavities or having acute branch attachments with included bark.

3.6 Arboricultural Rating

The assessed trees were attributed an arboricultural rating. This rating relates to the combination of tree condition factors, including health and structure (arboricultural merit), and also conveys an amenity value. It should be noted that the arboricultural rating is different to the conservation/ecological values placed on trees by other professions. Refer to Table 3:

Table 3: Tree numbers sorted by Arboricultural ratings.

Table 3: Arboricultural rating	Count of trees	Tree numbers
Moderate A	1	60
Moderate B	7	15, 16, 18, 31, 48, 58, 77
Moderate C	42	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 47, 55, 56, 57, 65, 66, 67, 68, 69, 70, 72, 73, 74, 76, 78, G1
Low	17	13, 14, 49, 50, 51, 52, 53, 54, 59, 61, 62, 63, 64, 71, 75, G2, G3
Total	67	

- Trees rated Moderate A display better than typical condition.
- Trees rated Moderate B are typical examples of the species growing in this setting under prevailing conditions.
- Trees attributed a rating of Moderate C are either small trees in Fair condition or maturing trees with health or structural deficiencies and that are trending towards becoming of Low arboricultural value.
- Trees of Low arboricultural value that are otherwise in reasonable condition (Fair-poor or better Health and /or Structure) represent an established tree resource, even if only as an interim measure. Trees attributed an arboricultural rating of Low are generally not considered worthy of being a constraint on reasonable design intent or excessive expenditure of resources to retain and manage the trees due to either health and / or structural deficiencies.

In summary, the trees represent a generally unremarkable group of trees dominated by exotic Callery Pear trees and self-sown Sweet Pittosporum, Narrow-leaved Ash and Cherry Plum trees.

The majority of the trees within the site were attributed an arboricultural rating of Moderate C being either small trees in Fair condition that may be replaced in a new landscape or maturing trees with health or structural deficiencies and that are trending towards becoming of Low arboricultural and retention value.

Trees within the CLP area are generally of moderate size and condition and located sufficiently far from the boundary to not be adversely affected by the proposed development footprint. NRZ encroachment of these trees does not exceed 9%. Refer to Section 6 – Arboricultural Impact Assessment (AIA)

Refer to Appendix 1 for individual tree data, Appendix 2 for Tree location plan and Appendix 3 for definitions of arboricultural ratings.

4 Permit requirements

4.1 The study site is within the City of Moonee Valley.

- The site is zoned as a Mixed Use Zone - Schedule 2 and covered by Development Contributions Plan Overlay – Schedule 1 (DCPO1), Heritage Overlay (HO379), Design & Development Overlay – Schedule 12
- No specific tree controls apply under the Development Contributions Plan Overlay – Schedule 1 or the Design & Development Overlay – Schedule 12
- Heritage Overlay (HO379) applies to the southern section of the site and includes Trees 1, 2, 28, 29 and 30.
  Under HO379, tree controls apply to a Cape Chestnut (*Calodendron capense*), the Peppercorn (*Schinus molle*) and the Elm (*Ulmus species*) in proximity to the horse stalls and the trees within the front and rear gardens of the Club Secretary's House. These controls do not apply to the assessed trees in the subject site (trees 1, 2, 28, 29 and 30) but it is advised to enquire with the City of Moonee Valley Planning Department to confirm.

4.2 The City of Moonee Valley has Tree and Canopy Protection guidelines which apply to trees on private property in conjunction with the Significant Tree Register.
Under Tree and Canopy Protection guidelines, a permit is required to:

- Remove, damage, kill or destroy, or direct, authorize or allow to be removed, damaged, killed or destroyed, a canopy tree.
- Carry out, or direct, authorize or allow to be carried out, any works within the structural root zone of a canopy tree.

A canopy tree is defined as having a circumference of 110cm or more measured at 1.5m above ground level (=/>35cm DBH) or having a trunk circumference of 150cm or more measured at ground level (>47cm DBH).

  - Canopy trees can be pruned without a permit but must be pruned to Australian Standard 4373-2007 Pruning of Amenity Trees.

- Based on a review of the subject trees in relation to the Moonee Valley Tree and Canopy Protection guidelines, there are 10 trees that meet the threshold for a canopy tree that would require local law permit and 36 are undersized.

4.3 Native Vegetation Clause 52.17 would apply to the combined site which is greater than 4,000 square metres in area. However, there is no naturally occurring indigenous vegetation within the tree study area and all trees are exempt from permit and offset requirement under Clause 52.17-7.

4.4 In September 2025, Clause 52.37 – Canopy Trees was introduced. A canopy tree is defined as a tree that has

- a height of 5 metres or more and,
- a trunk diameter of 16 centimetres or more (50cm circumference) measured at 1.4m above ground level and
- a canopy diameter of at least 4 metres.

Based on a review of the planning provision, 47 trees trigger permit requirements under 52.37. Certain exemptions may apply depending on where the tree is situated in relation to frontage and rear boundaries as well as what type of site redevelopment is proposed. It is recommended that further advice be obtained from a town planning expert.

4.5 Refer to Table 1 below for tree numbers sorted by Permit requirement.

Table 1: Tree numbers sorted by Permit requirement.

Local Law permit	Count	Tree Numbers
Permit required under Moonee Valley Tree and Canopy Protection Permit (MV-TCP permit)	10	15, 18, 31, 47, 48, 53, 54, 55, 56, 57
Schedule to Clause 43.01 Heritage Overlay	5	1, 2, 28, 29, 30
Permit required under 52.37 Canopy Tree Planning Provision	37	1, 2, 5, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 25, 26, 28, 29, 30, 31, 32, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, G1, G2, G3
No Permit (under size)	9	3, 4, 6, 9, 10, 11, 22, 24, 27

5 Tree Protection Zones

5.1 The Notional Root Zones (NRZs) provided for each tree in the Tree Assessment Table in Appendix 1 are calculated using the formula provided in the Australian Standard for Protection of Trees on Development Sites (AS4970 – 2025) where the Radial NRZ = Trunk diameter at Standard Height (DBH) measured in metres at 1.4m above grade is multiplied by twelve (12). NRZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The method for calculating, applying and managing the tree protection zone is described in Appendix 4.

5.2 The NRZ forms an area around a tree or group of trees that addresses both the stability and growing requirements of a tree. Within the NRZ the following activities are either excluded or controlled; excavating or raising existing soil levels, vehicle movements, installation of underground services and other construction activities.

5.3 Encroachment into the NRZ is permissible under certain circumstances though this is dependent on both site conditions and tree characteristics (See Figure 1 for examples of encroachment). Minor encroachment, up to 10% of the NRZ, is generally permissible provided encroachment is compensated for by recruitment of an equal area contiguous with the NRZ. Encroachment must also consider the crown of the tree and ensure that excessive pruning is not required that would cause the tree to become unbalanced or disfigured.

5.4 The 10% encroachment on one side equates to approximately a ⅓ reduction of the radial distance. Refer to Figure 1 for examples of acceptable NRZ encroachment.

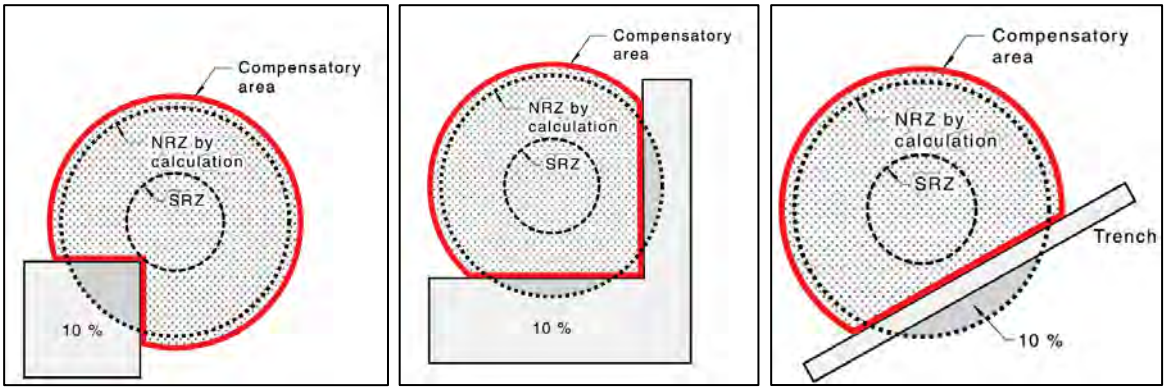


Figure 1: Examples of minor encroachment into the NRZ

5.5 Encroachment greater than 10%, less than 20% and outside of the SRZ is considered Moderate encroachment under AS4970-2025 and is only permissible if it can be demonstrated that after such encroachment the tree would remain viable.

5.6 A non-destructive root investigation (NDRI) may be required to investigate and identify the location of roots within the proposed area of encroachment and root sensitive construction methods may need to be utilized.

5.7 Encroachment greater than 20% or extending into the SRZ is considered to be Major and has the potential to cause unsustainable damage to the ongoing viability of the affected trees.

5.8 Such work is not likely to be supported by the arborist and the relevant authority unless specific tree sensitive design & construction methods are developed based of the results of non-destructive root investigation.

5.9 Tree root growth is opportunistic and occurs where the essentials to life (primarily air and water) are present. Heterogeneous soil conditions, existing barriers, hard surfaces, and buildings may have inhibited the development of a symmetrically radiating root system. Existing infrastructure around some trees may be within the NRZ or root plate radius. Where this has occurred, the roots of some trees may have grown in response to the site conditions and if existing hard surfaces and building alignments are utilised in new designs then impacts on the trees should be minimal.

5.10 All NRZ measurements are provided in the tree assessment data in Appendix 1.

5.11 Tree Protection Zones (TPZs) must be established around the NRZ of each retained tree that comprises tree protection fencing (TPF), ground buffering or other methods specified by the arborist to ensure trees are appropriate protected through the construction process.

5.12 Root sensitive construction methods may need to be adopted within the NRZ that are based on results of non-destructive root investigation (NDRI) in consultation with the consulting arborist or Responsible Authority.

6 Design review and Arboricultural Impact Assessment

The pre – development arboricultural inspection report provides planners and designers with information on whether trees are worthy or not of being a constraint on the proposed repurposing of the site.

It also provides a basis on which to identify when and where potential impacts to trees will occur from various design elements and evaluates the possible severity of the impact during the design phase of any site redevelopment.

Trees grow in a delicate balance with their environment and any changes to that balance must be minimised if a tree is to remain in a healthy state and fulfil its potential.
It is rarely possible to repair stressed and injured trees, so damage needs to be avoided during all stages of development and construction.
Tree protection cannot be achieved without a proactive approach. The planning and design stages of any construction project can be instrumental and determine the success of tree preservation.

The hierarchy of principles for tree protection are:

- Avoid damage to the subject trees
- Minimize damage to the subject trees
- Replace the subject trees and improve the landscape (as a last resort).

At the time of preparing the tree impact assessment report, plans for the new development were provided for review indicating 3 x 16 -22 storey high-rise buildings with open space. Refer to *Lower Ground Plan_TP-SIT-099 Rev: A _Trackside Gardens - Site Series [A] 25/2/2026 prepared by DKO Architects*. Under the current design the following impacts have been identified.

6.1 Eighteen (18) trees growing adjacent to the site can be retained without NRZ encroachment including 3 trees to the west of the site and 15 within the CLP.

6.2 These trees can be adequately protected by the boundary fence in which all construction impacts must be contained.

6.3 The NRZ of six (6) trees in the CLP extend into the subject site by less than 7%.

- These trees can be adequately protected by the boundary fence within which all construction impacts must be contained.
- A layer of ground protection must be applied over the portion of the NRZ that exists between the boundary and the basement footprint to protect the native soil from compaction or excavation.

6.4 Tree 48 is at risk of health decline associated soil compaction with 10% NRZ encroachment comprising approximately 1% within the construction Lower ground level footprint and 9% being the area surrounding the construction footprint.

- Basement excavation within the part of the NRZ within the construction impact zone will not have any discernible impact on the trees.
- The tree and limbs can be adequately protected by the boundary fence.

- A layer of ground protection must be applied over the portion of the NRZ that exists between the boundary and the construction footprint to protect the native soil from compaction or excavation.

6.5 Ten (10) trees along the eastern boundary are indicated to have SRZ encroachment by the excavation for the basement footprint but are intended to be retained in conjunction with ongoing construction works.

- These trees are located behind existing concrete kerb and channel that is generally in line with the basement footprint.
- Tree Protection Fencing (TPF) must be established at the back of kerb and maintained during all stages of construction along with Ground Buffering (GB) with 100mm of matured wood chip mulch and supplementary irrigation during summer & autumn. Irrigation to be applied at the rate specified in Appendix 4 - Construction Guidelines or approximately 5 litres of water applied to dailly to each square metre of NRZ.
- TPF & GB must not be moved or adjusted without consultation and approval by the Project Arborist.
- A project arborist must be present to guide and supervise the careful removal of the concrete kerb & channel and adjacent asphalt roadway that exist with the TPZ and SRZ to avoid any impact wounding or tearing of roots.
- The project arborist must then coordinate pruning of any exposed roots in conjunction with canopy reduction pruning in order to provide clearance during pier boring for basement excavation.
- Canopy reduction must be in ratio with root loss to minimise induced drought stress, reduce sail area and potential windthrow.
- If necessary the arborist must specify appropriate guying or staking of the trees to assist in stabilizing the tree against windthrow.
- The extent of TPZ fencing and ground buffering will be adequate to protect any trees in the CLP land that have NRZs extending into the subject site.

6.6 Four (4) Callery Pear trees will have SRZ encroachment but are identified for removal during the demolition phase.

6.7 Twenty eight (28) trees are within the construction impact zone (CIZ) and must be removed.

6.8 If there is any requirement to undertake any additional excavation works within the NRZ of Callery Pear trees 1-8, 13 and 14 or Tree 48 then the project arborist must be consulted as to whether the works are appropriate or if an alternative method of working is required such as non-destructive digging or boring.

6.9 Tree numbers sorted by perceived tree impacts are summarised below in Table 4.

Table 4: Tree numbers sorted by perceived NRZ impacts.

Impact	Count	Tree numbers	Tree Protection Specifications / Action
None	15	58, 59, 60, 62, 64, 68, 69, 70, 71, 72, 73, 75, 76, 77, 78	Maintain boundary fencing
	3	31, 32, 47	Tree Protection Fencing (TPF)
NRZ Minor (<10%)	6	48, 61, 63, 65, 66, 67, 74	Maintain boundary fencing , Install Ground Buffering (GB) on NRZ in site
SRZ impacted	10	1, 2, 3, 4, 5, 6, 7, 8, 13, 14	To be retained in CIZ. Apply TPF & GB to boundary. Arborist to supervise initial demo of kerb and basement excavation in NRZ
	4	9, 10, 11, 12	To be removed
Within CIZ	28	15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 49, 50, 51, 52, 53, 54, 55, 56, 57, G1, G2, G3	To be removed

7 Tree Protection Specifications

7.1 Any trees that are to be retained in the vicinity of any proposed works will require Tree Protection Zones to be established prior to commencing any works onsite including demolition, bulk earthworks, trenching, construction, landscaping activity, delivery and storage of materials or placement of site sheds.

7.2 Tree protection must be incorporated into the design and appropriate construction controls, fencing and management practices must be implemented prior to commencing any construction related activity, including demolition, bulk earthworks construction of gantries, etc.

7.3 The tree protection zones for all trees to be retained within the site must be clearly shown on all design drawings and plans with appropriate notations so that all staff and contractors are aware of the responsibility to protect trees throughout the design, development and delivery of the project.

7.4 The following activities must be excluded from or controlled within the Notional Root Zone (NRZ) unless otherwise approved by the relevant authority or the Project Arborist.

- Machine excavation (including trenching) for continuous strip footings or installation of underground services or road base.
- Alteration of soil levels including placement of fill unless specified by design & project arborist.
- Storage of wastes or materials (including fuels, oils or chemicals)
- Preparation of or cleaning of any cement products
- Storage and or parking of vehicles or any plant/machinery within TPZ
- Washing down of equipment
- Installation of utilities
- Physical damage of any kind to the tree (including direct attachment of anything into the tree)
- Soil cultivation unless specified by design & project arborist.

7.5 The TPZ fencing must be in the form of either temporary fencing panels with concrete block feet and locked together, water filled barriers with locking pins installed or 2 metre tall star pickets at 2 metre spacing with top wire supporting fluro para-webbing.
Whichever TPZ fencing is used, it must be sufficiently robust to withstand knocks and bumps from plant and machinery, delivery vehicles and effectively exclude or prevent any storage of materials dumping of spoil or waste products being disposed of in the Tree Protection Zone.

7.6 Appropriate signage stating 'Tree Protection Zone- No access' is to be fixed to the fencing to alert people as to importance of the tree protection zone. Refer to Figure 1 for fencing example.

Figure 1. Above left - Example of TPZ fencing above right -Example of TPZ signage.

7.7 Where TPZ fencing needs to be moved or reduced during construction, appropriate Ground Buffering must be installed over the remainder of the NRZ that exists within the site but outside of the construction footprint.

- Buffering must comprise a layer of Geo-textile laid over the native ground and covered cellular confinement system backfilled with 75 to 100mm of course aggregate with an average particle size of 20-30mm. Refer to Diagram 2 overpage.

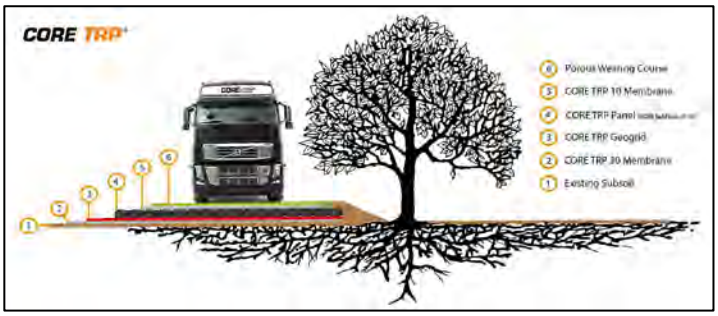


Figure 3: Example of cellular confinement system suitable for temporary ground buffering of TPZs where required

- Extents of Ground buffering are identified in the Appendix 2B.

7.8 TPZ exclusion fencing must be established and maintained at the edge of the proposed works footprint.

7.9 No form of excavation for trenching for installation of underground services is permitted within the nominated TPZ areas for any retained trees without prior consultation with the council and / or site arborist, to avoid severing roots that could be vital to the stability and continued sustainability of the retained trees.

- Trenching for the installation of any and all underground services must be designed to avoid encroaching the TPZ of any retained trees.
- If it is unavoidable that an underground service must pass through a defined TPZ, the service must be installed via directional boring at a minimum depth of 750mm to the top of the bore head.
  All entry and exit points for the boring must be located beyond the TPZ radius.
- Lubricants or waste water from the boring process must not be permitted to enter or contaminate the soils within the TPZ.

7.10 Temporary facilities and site sheds may be established on existing hard stand if already present within a TPZ providing there is no physical impacts to the trees and no requirement to penetrate the surface within the TPZ for installation of footings or underground services.
Access / egress to these facilities must not encroach or compact the native soil within the TPZ.

7.11 Design should ensure appropriate growing space is allocated for all trees that are to be retained. If infrastructure is constructed too close to any of the retained trees, there is potential for damage to occur resulting from incremental root growth.
Damage to paving from root activity is most likely to occur within 2 m of the trunk base of a tree where the large woody structural root zone may contributes to upheaval. It is recommended that a minimum 2 metre clearance is provided from any tree to any hard paved surface.

7.12 Refer to Appendix 1 for all tree data, Appendix 2 for Tree Location and NRZ maps and Appendix 3 for Tree Descriptors.

8 Arborist supervision schedule:

8.1 A Project Arborist (PA) must be appointed to supervise and guide the following key stages of construction to ensure the trees remain viable post-construction. The PA must be qualified with minimum AQF level 5 – Arboriculture or equivalent.

8.2 The arborist must attend site at time of site occupation to be inducted to site as project arborist and meet with site managers and supervisors to convey the importance of tree preservation to all relevant parties involved with the site works.

- Site managers must then ensure all contractors and site workers receive written and verbal instruction about the importance of tree protection within the site.

8.3 The project arborist must review any changes to the current design plans to approve or make appropriate recommendations that will avoid or minimise any perceived tree impacts.

8.4 The project arborist must attend site once the TPZ fencing is established around retained trees to inspect and sign-off on the compliance of the tree protection as specified.

8.5 The project arborist must be present to adjust the TPZ fencing and supervise initial basement excavation works where they extend into the NRZ or SRZ of any trees to be retained, i.e. Trees 1-8, 13, 14 & 48.

8.6 The project arborist must attend periodically at 6-8 week intervals, to inspect TPZ fencing and / or ground buffering are being maintained as required.

8.7 The project arborist must be contacted if any incident happens that wounds or damages a tree or may have impacted tree condition.

8.8 The project arborist must complete a final inspection at completion of works and removal of TPZ fencing to assess whether trees have been successfully retained, that they remain viable and to evaluate trees for any ongoing monitoring purposes.

The project arborist must supervise and guide the following key stages of construction.

Project Arborist Inspection Schedule		
Task	Timing	Liaison
Review any changes to the current design plans.	Design finalisation	Designers / Project Arborist
Site induction meeting to discuss TMP & implementation.	At site occupation	Site Manager / Project Arborist
Inspect and sign off on installation of TPZ fencing and ground buffering for retained trees 1-8, 13, 14 & 48 or recommend changes as required.	Site Occupation / Pre demolition	Site Manager / Project Arborist
Adjust TPZ fencing and supervise initial basement excavation works where they extend into the NRZ of any trees to be retained (Trees 1-8, 13, 14, 48 during initial basement excavation). Coordinate appropriate root & canopy pruning and if necessary guying or staking. Refer to Section 6	Commencement of construction	Site Manager / Project Arborist / Contractors
Periodic inspections at 8 week intervals to evaluate TPZ compliance, maintenance and tree condition	During Construction	Site Manager / Project arborist
At completion of works and during decommissioning of works compounds to ensure trees are not damaged during bump-out.	At completion of works	Site Manager / Project Arborist / Contractor
Final sign off to determine if trees are still viable to retain. Recommend any remediation works as required	Post construction	Site Manager / Project arborist

8.9 The Project Arborist must maintain written and photographic records of site inspections based on the Supervision Timetable and make note of any variations or non-compliances that could detrimentally impact on the healthy retention of protected trees.

8.10 More detailed Arboricultural Impact Assessment & Tree Protection Specifications (TPS) may be required if any design changes are made.

10 Conclusion

10.1 Tree Logic was engaged to undertake a tree assessment at 110 Wilson Street, Moonee Ponds

10.2 Sixty seven (67) tree features were assessed in total, comprising 64 trees and 3 groups of linear hedge trees made up of 9-10 individual trees within each group.
Twenty one (21) different tree species, primarily exotic specimens (Callery Pear varieties) interspersed with assorted native specimens planted for garden and amenity purposes or other species growing as self-sown weed trees.

10.3 The trees generally displayed health and structural condition considered to be typical and acceptable for the species growing in this location.

10.4 The preliminary tree assessment report provides information on the tree population associated with the site, its arboricultural (retention) value and the appropriate tree protection zones required to preserve trees in conjunction with the proposed site redevelopment.

10.5 Plans for proposed residential development were provided for review. Refer to Lower Ground Plan_TP-SIT-099 Rev: A _Trackside Gardens - Site Series [A] 25/2/2026 prepared by DKO Architects.

- Refer to Section 6 and 7 for detailed arboricultural impact assessment and tree protection specifications and establishment.
- The project Arborist must supervise the initial excavation to a depth of 1 metre where the basement footprint encroaches the NRZ of Trees 1 – 8, 13, 14 and 48 to report on results of the excavation and make appropriate recommendations or coordinate root and canopy pruning as needed or any further measures required to successfully sustain the trees that are required to be retained.

10.6 Permit requirements are identified and summarised in Table 3 in Section 4 of this report.
Given the complexity of Clause 52.37 and Heritage Overlays it is recommended that further advise is sought from a town planning expert before undertaking any tree removal or construction works within the NRZ of any trees within the subject site.

10.7 The tree assessment data is attached in Appendix 1 in tabular form.
The tree location and numbering plans are attached as Appendix 2 with separate colours sorted by Arboricultural rating.

- Plan showing proposed construction impact zone and NRZ encroachments is provided at Appendix 2B.

10.8 Any trees that are to be retained in the vicinity of any proposed works will require Tree Protection Zone measures to be implemented prior to commencing any works onsite including demolition, bulk earthworks, trenching, construction, landscaping activity, delivery and storage of materials or placement of site sheds. Further recommendations and guidelines on Tree Protection Zone (TPZ) establishment and management are provided in Section 6 and Appendix 4.

10.9 The tree protection zones for all trees to be retained within the site must be clearly shown on all design drawings and plans with appropriate notations so that all staff and contractors are aware of the responsibility to protect trees throughout the design, development and delivery of the project.

10.10 Tree condition can change rapidly because of environmental and other influences. It is recommended that regular inspections are undertaken to identify changes to tree condition on a 3-to-5-year cycle or following local severe or damaging weather events.

I am available to answer any questions arising from this report.
No part of this report is to be reproduced unless in full.

Signed

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Australian Standard (4970-2025) Protection of Trees on development sites. Standards Australia, Sydney NSW Australia

Harris, R.W, Clark, J.R. & Matheny, N.P. (2004), Arboriculture: Integrated Management of Landscape trees, shrubs and vines, Prentice Hall, New Jersey.

Clark, J.R. & Matheny, N.P (1998), Trees and Development: A technical guide to preservation of trees during land development. ISA, Champaign, Illinois.

Standards Australia (2007), Australian Standard (4373-2007) - Pruning of Amenity trees, Standards Australia, Homebush.

Appendix 1: Tree Assessment Data: 110 Wilson St Moonee Ponds

Refer to following 3 pages.

Key: DBH = Diameter at breast height (1.4m up trunk) unless otherwise indicated.

Arb. Rating = Arboricultural rating.

NRZ = Notional Root Zone in radial metres. SRZ = Structural Root Zone in radial metres.

Definition of the descriptor categories used in the assessment can be seen in Appendix 3.

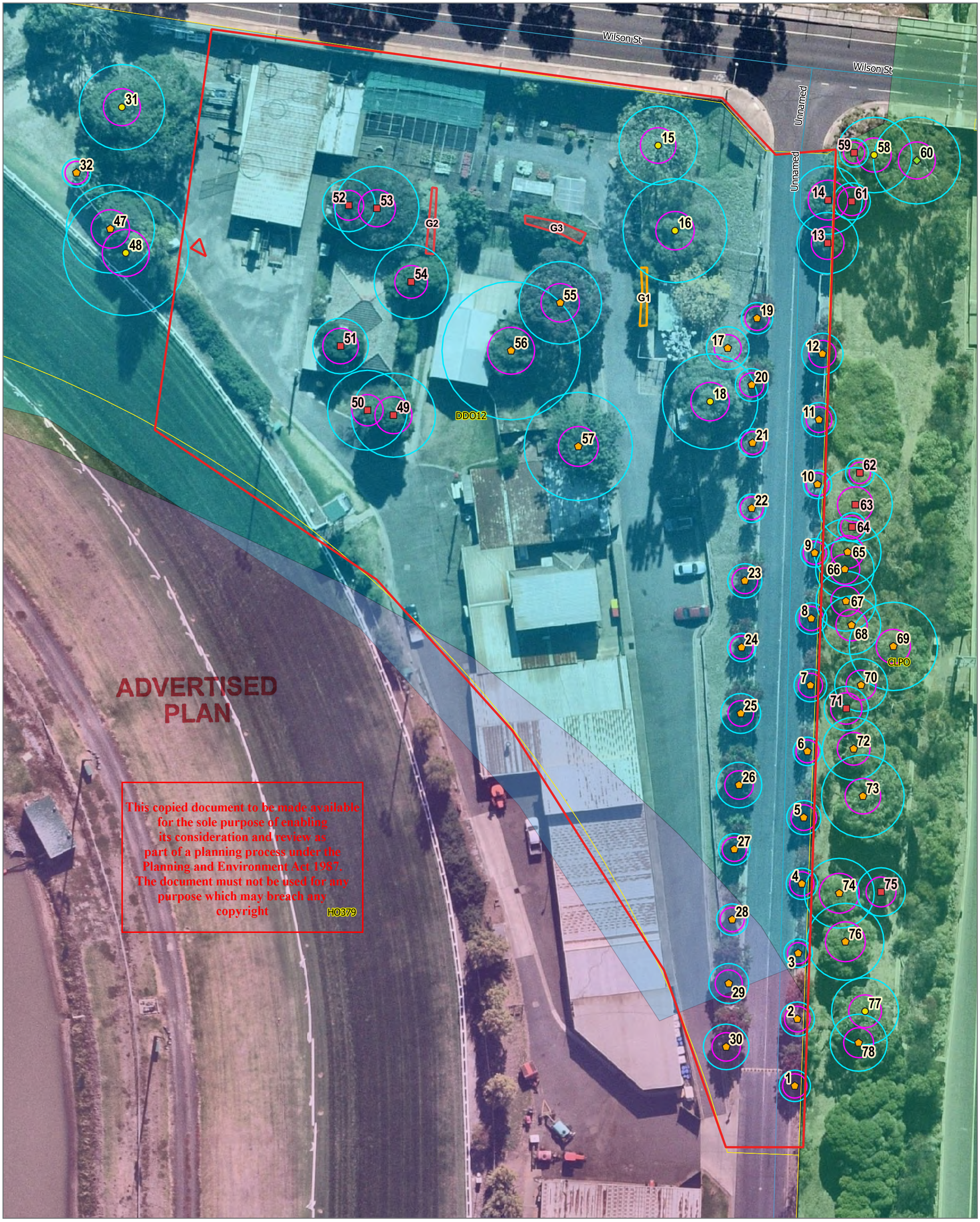
treeid	species	comm_name	age_class	origin_typ	dbh_cm	Height x width	health	structure	arb_rating	ule_yrs	comments	tpz rad_m	srz rad_m	Impact	%NRZ impacted	Action	overlays	Local law	Canopy tree_52.37
1	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	18	5 x 5	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.2	1.7	SRZ	77.45	To be retained in CIZ. TPF & GB to boundary	HO379	Undersize	52.37
2	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	20	6 x 4	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2.4	1.8	SRZ	75.96	To be retained in CIZ. TPF & GB to boundary	HO379	Undersize	52.37
3	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	14	4 x 2	Fair	Fair	Mod.C	11 to 20	Acute forks, multi-stemmed.	2	1.5	SRZ	69.18	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	Undersize
4	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	18	6 x 3	Fair	Fair	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.2	1.7	SRZ	69.73	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	Undersize
5	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	20	5 x 4	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.4	1.8	SRZ	70.33	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	52.37
6	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	16	5 x 3	Fair	Fair to Poor	Mod.C	11 to 20	Epicormic shoots, previous failures.	2	1.6	SRZ	85.39	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	Undersize
7	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	19	6 x 4	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.3	1.7	SRZ	64.87	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	52.37
8	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	18	6 x 5	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.2	1.7	SRZ	74.29	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	52.37
9	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	15	5 x 3	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2	1.6	SRZ	77.48	To be removed	DDO12	Undersize	Undersize
10	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	16	4 x 2	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2	1.6	SRZ	73.23	To be removed	DDO12	Undersize	Undersize
11	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	20	6 x 3	Fair	Fair	Mod.C	11 to 20		2.4	1.8	SRZ	74.93	To be removed	DDO12	Undersize	Undersize
12	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	24	7 x 4	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.9	1.9	SRZ	72.92	To be removed	DDO12	Undersize	52.37
13	*Photinia Xfraserii 'Robusta'*	Christmas Berry	Early-mature	Exotic evergreen	20,18,17,17	5 x 5	Fair	Fair	Low	11 to 20	Multi-stemmed.	4.3	2.3	SRZ	65.26	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	52.37
14	*Cinnamomum camphora*	Camphor Laurel	Early-mature	Exotic evergreen	19,16,15,15	7 x 5	Fair	Poor	Low	6 to 10	Acute forks, multi-stemmed, stump re-sprout.	4.8	2.8	SRZ	87.02	To be retained in CIZ. TPF & GB to boundary	DDO12	Undersize	52.37
15	*Corymbia citriodora*	Lemon-scented Gum	Early-mature	Australian native	46	15 x 14	Fair to Poor	Fair	Mod.B	11 to 20	Chlorotic foliage, deadwood >50mm, reduced foliage density.	5.5	2.5	Within CIZ	100	To be removed	DDO12	>35	52.37
16	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	Early-mature	Australian native	9,28,28,27,2	9 x 11	Fair	Fair to Poor	Mod.B	11 to 20	Acute forks, lopped, multi-stemmed.	7.3	2.7	Within CIZ	100	To be removed	DDO12	Undersize	52.37
17	*Corymbia maculata*	Spotted Gum	Semi-mature	Victorian native	25	9 x 6	Fair	Fair	Mod.C	11 to 20	Chlorotic foliage.	3	1.9	Within CIZ	100.01	To be removed	DDO12	Undersize	52.37
18	*Corymbia maculata*	Spotted Gum	Early-mature	Victorian native	56	18 x 8	Good	Fair	Mod.B	21 to 40	Multi-stemmed, past branch failure.	6.7	2.7	Within CIZ	100	To be removed	DDO12	>35	52.37
19	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	18	5 x 4	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2.2	1.7	Within CIZ	99.99	To be removed	DDO12	Undersize	52.37
20	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	19	7 x 5	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2.3	1.7	Within CIZ	100.01	To be removed	DDO12	Undersize	52.37
21	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	17	5 x 4	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2	1.6	Within CIZ	100.01	To be removed	DDO12	Undersize	52.37
22	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	16	4 x 2	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2	1.6	Within CIZ	100.01	To be removed	DDO12	Undersize	Undersize
23	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	20	6 x 5	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2.4	1.8	Within CIZ	99.99	To be removed	DDO12	Undersize	52.37
24	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	17	4 x 3	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2	1.6	Within CIZ	100.01	To be removed	DDO12	Undersize	Undersize

treeid	species	comm_name	age_class	origin_typ	dbh_cm	Height x width	health	structure	arb_rating	ule_yrs	comments	tpz rad_m	srz rad_m	Impact	% NRZ impacted	Action	overlays	Local law	Canopy tree_52.37
25	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	23	7 x 5	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.8	1.8	Within CIZ	100	To be removed	DDO12	Undersize	52.37
26	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	27	7 x 5	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	3.2	2	Within CIZ	99.99	To be removed	DDO12	Undersize	52.37
27	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	18	5 x 3	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	2.2	1.7	Within CIZ	99.99	To be removed	DDO12	Undersize	Undersize
28	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	18	5 x 4	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.2	1.7	Within CIZ	99.99	To be removed	DDO12,HO3	Undersize	52.37
29	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	23	7 x 5	Fair	Fair to Poor	Mod.C	11 to 20	Acute forks, multi-stemmed.	2.8	1.9	Within CIZ	100	To be removed	DDO12,HO3	Undersize	52.37
30	*Pyrus calleryana 'Capital'*	Capital Callery Pear	Early-mature	Exotic deciduous	27	8 x 5	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	3.2	2	Within CIZ	99.99	To be removed	HO379	Undersize	52.37
31	*Angophora costata*	Smooth-barked Apple	Maturing	Australian native	50	15 x 15	Fair	Fair	Mod.B	21 to 40	Over-extended limbs, crown bias n/e aspect.	6	2.6	None	0	Tree protection fencing	DDO12	>35	52.37
32	*Casuarina cunninghamiana*	River She-oak	Semi-mature	Australian native	16	6 x 4	Fair	Fair	Mod.C	11 to 20		2	1.6	None	0	Tree protection fencing	DDO12	Undersize	52.37
47	*Melaleuca styphelioides*	Prickly-leaved Paperbark	Maturing	Australian native	52	9 x 8	Fair	Fair	Mod.C	11 to 20	Multi-stemmed.	6.2	2.7	None	0	Tree protection fencing	DDO12	>35	52.37
48	*Populus nigra 'Italica'*	Lombardy Poplar	Maturing	Exotic deciduous	58,35,27	18 x 6	Fair	Fair to Poor	Mod.B	11 to 20	Acute forks, multi-stemmed.	8.8	3.3	NRZ Minor (<10%)	Basement - 1% Buffer NRZ extent to boundary	Ground buffering	DDO12	>35	52.37
49	*Pittosporum undulatum*	Sweet Pittosporum	Maturing	Victorian native	30,28,27	11 x 6	Good	Fair	Low	6 to 10	Multi-stemmed woody weed.	5.9	2.6	Within CIZ	100	To be removed	DDO12	Undersize	52.37
50	*Prunus cerasifera*	Cherry-plum	Maturing	Exotic deciduous	28,24,21,19	6 x 4	Poor	Fair to Poor	Low	1 to 5	Multi-stemmed, trunk decay.	5.6	2.2	Within CIZ	100	To be removed	DDO12	Undersize	52.37
51	*Photinia Xfraserii 'Robusta'*	Christmas Berry	Maturing	Exotic evergreen	27,12,10,10	6 x 5	Fair	Fair to Poor	Low	6 to 10	Multi-stemmed.	3.9	2.5	Within CIZ	100	To be removed	DDO12	Undersize	52.37
52	*Pittosporum undulatum*	Sweet Pittosporum	Early-mature	Victorian native	31	6 x 5	Fair	Fair to Poor	Low	6 to 10	Woody weed. partly suppressed - crown bias western aspect.	3.7	2.1	Within CIZ	100	To be removed	DDO12	Undersize	52.37
53	*Fraxinus angustifolia*	Narrow-leaved Ash	Maturing	Exotic deciduous	35,34	13 x 13	Fair to Poor	Fair	Low	6 to 10	Ivy on trunk, multi-stemmed.	5.9	2.6	Within CIZ	100	To be removed	DDO12	>35	52.37
54	*Pittosporum undulatum*	Sweet Pittosporum	Maturing	Victorian native	31,30	10 x 11	Fair	Fair	Low	6 to 10	Multi-stemmed woody weed.	5.2	2.3	Within CIZ	100	To be removed	DDO12	>35	52.37
55	*Fraxinus angustifolia*	Narrow-leaved Ash	Early-mature	Exotic deciduous	48	11 x 12	Fair	Fair	Mod.C	11 to 20	Deadwood >50mm.	5.8	2.7	Within CIZ	100	To be removed	DDO12	>35	52.37
56	*Agonis flexuosa*	Willow Myrtle	Maturing	Australian native	72,36	7 x 10	Fair	Poor	Mod.C	6 to 10	Multi-stemmed, trunk decay, trunk wounds.	9.7	3.3	Within CIZ	100	To be removed	DDO12	>35	52.37
57	*Grevillea robusta*	Silky Oak	Early-mature	Australian native	63	16 x 11	Fair	Fair to Poor	Mod.C	11 to 20	Lopped, past limb failure.	7.6	2.8	Within CIZ	100	To be removed	DDO12	>35	52.37
58	*Corymbia citriodora*	Lemon-scented Gum	Maturing	Australian native	44	14 x 8	Fair	Fair	Mod.B	>40	CITYLINK tree	5.3	2.4	None	0	Maintain boundary fencing	CLPO	<35cm	52.37
59	*Corymbia citriodora*	Lemon-scented Gum	Young	Australian native	12	6 x 2	Fair	Fair	Low	21 to 40	CITYLINK tree	2	1.5	None		Maintain boundary fencing	CLPO	Undersize	Undersize
60	*Corymbia citriodora*	Lemon-scented Gum	Maturing	Australian native	51	19 x 15	Fair	Fair	Mod.A	>40	CITYLINK tree	6.1	2.6	None		Maintain boundary fencing	CLPO	<35cm	52.37
61	*Cinnamomum camphora*	Camphor Laurel	Early-mature	Exotic evergreen	10,12,15	7 x 5	Fair	Poor	Low	11 to 20	CITYLINK tree	2.6	2	NRZ Minor (<10%)	4.85	Ground buffering	CLPO	Undersize	Undersize
62	*Eucalyptus leucoxylon*	Yellow Gum	Semi-mature	Victorian native	13	5 x 3	Fair to Poor	Fair to Poor	Low	6 to 10	CITYLINK tree	2	1.5	None		Maintain boundary fencing	CLPO	Undersize	Undersize
63	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Victorian native	29,32	10 x 9	Fair to Poor	Fair to Poor	Low	6 to 10	CITYLINK tree	5.2	2.5	NRZ Minor (<10%)	4.67	Ground buffering	CLPO	Undersize	52.37
64	*Eucalyptus leucoxylon*	Yellow Gum	Semi-mature	Victorian native	10,13	5 x 4	Fair to Poor	Fair to Poor	Low	6 to 10	CITYLINK tree	2	1.6	None		Maintain boundary fencing	CLPO	Undersize	Undersize
65	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Victorian native	39	11 x 9	Fair	Fair to Poor	Mod.C	21 to 40	CITYLINK tree	4.7	2.3	NRZ Minor (<10%)	8.3	Ground buffering	CLPO	<35cm	52.37
66	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Victorian native	25,23	8 x 8	Fair	Fair to Poor	Mod.C	11 to 20	CITYLINK tree	4.1	2.1	NRZ Minor (<10%)	6.78	Ground buffering	CLPO	Undersize	52.37

treeid	species	comm_name	age_class	origin_typ	dbh_cm	Height x width	health	structure	arb_rating	ule_yrs	comments	tpz rad_m	srz rad_m	Impact	% NRZ impacted	Action	overlays	Local law	Canopy tree_52.37
67	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Victorian native	25,24	7 x 8	Fair to Poor	Fair	Mod.C	11 to 20	CITYLINK tree	4.2	2.1	NRZ Minor (<10%)	4.39	Ground buffering	CLPO	Undersize	52.37
68	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Victorian native	34	11 x 7	Fair	Fair	Mod.C	21 to 40	CITYLINK tree	4.1	2.2	None		Maintain boundary fencing	CLPO	Undersize	52.37
69	*Angophora costata*	Smooth-barked Apple	Maturing	Australian native	32,30,28	8 x 9	Fair	Fair to Poor	Mod.C	11 to 20	CITYLINK tree	6.2	2.4	None		Maintain boundary fencing	CLPO	<35cm	52.37
70	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Victorian native	31	9 x 7	Fair	Fair	Mod.C	21 to 40	CITYLINK tree	3.7	2.1	None		Maintain boundary fencing	CLPO	Undersize	52.37
71	*Angophora costata*	Smooth-barked Apple	Early-mature	Australian native	14,13,12,12,9	8 x 7	Good	Poor	Low	11 to 20	CITYLINK tree	3.1	2.2	None		Maintain boundary fencing	CLPO	Undersize	Undersize
72	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Victorian native	37	9 x 6	Fair	Fair	Mod.C	21 to 40	CITYLINK tree	4.4	2.3	None		Maintain boundary fencing	CLPO	<35cm	52.37
73	*Corymbia citriodora*	Lemon-scented Gum	Maturing	Australian native	48	12 x 9	Fair	Fair to Poor	Mod.C	21 to 40	CITYLINK tree	5.8	2.5	None		Maintain boundary fencing	CLPO	<35cm	52.37
74	*Melaleuca armillaris*	Bracelet Honey-myrtle	Maturing	Victorian native	25,23,23	8 x 10	Fair	Poor	Mod.C	11 to 20	CITYLINK tree	4.9	2.8	NRZ Minor (<10%)	1.3	Ground buffering	CLPO	<35cm	52.37
75	*Melaleuca armillaris*	Bracelet Honey-myrtle	Early-mature	Victorian native	28	8 x 5	Fair	Fair to Poor	Low	11 to 20	CITYLINK tree	3.4	2.1	None		Maintain boundary fencing	CLPO	Undersize	52.37
76	*Melaleuca armillaris*	Bracelet Honey-myrtle	Maturing	Victorian native	28,26,24	8 x 10	Fair	Fair to Poor	Mod.C	11 to 20	CITYLINK tree	5.4	2.8	None		Maintain boundary fencing	CLPO	<35cm	52.37
77	*Angophora costata*	Smooth-barked Apple	Early-mature	Australian native	39	10 x 8	Fair	Fair	Mod.B	21 to 40	CITYLINK tree	4.7	2.3	None		Maintain boundary fencing	CLPO	<35cm	52.37
78	*Eucalyptus cornuta*	Yate	Maturing	Australian native	33	8 x 10	Fair	Fair to Poor	Mod.C	11 to 20	CITYLINK tree	4	2.1	None		Maintain boundary fencing	CLPO	Undersize	52.37
G1	*Callistemon viminalis*	Weeping Bottlebrush	Early-mature	Australian native	15 - 25	6 x 7	Fair	Fair to Poor	Mod.C	11 to 20	Group of 9 trees.	2.4	1.8	Within CIZ	100	**To be removed**	DDO12	Undersize	52.37
G2	*Pittosporum tenuifolium*	Kohuhu	Early-mature	Exotic evergreen	12-18	7 x 8	Fair to Poor	Fair to Poor	Low	6 to 10	Group of 10 trees. Multi-stemmed.	2	1.7	Within CIZ	100	**To be removed**	DDO12	Undersize	52.37
G3	*Callistemon viminalis, Pittosporum undulatum*	Weeping Bottlebrush, Sweet Pittosporum	Early-mature	Australian native, Victorian native	8-15	5 x 6	Fair	Fair to Poor	Low	11 to 20	Group of 12 trees. Multi-stemmed.	2	1.8	Within CIZ	100	**To be removed**	DDO12	Undersize	52.37

Appendix 2A: Tree Location & NRZ Plan: 110 Wilson St Moonee Ponds

Refer to following page



APPENDIX 2 — TREE LOCATIONS & NOTIONAL ROOT ZONES

PROJECT
110 WILSON STREET, MOONEE PONDS

TL REF. 14048
MAP NO. 1 / 1
DATE 2026-07-16
CLIENT HAMTON

LEGEND

Trees by Arb rating
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

Groups by Arb ratings
- Mod-C
- Low
- Very Low

overlays
- CLPO
- DDO12
- HO379 Tree Protection Zone
- Structural Root Zone

TREE LOCATION DISCLAIMER
Tree locations are approximate

DATA SOURCES
Lower Ground Plan. TP-SIT-099 Rev: A. 25/2/26. Prepared by DKO

NOTES
Additional Trees 58 to 78 within Citylink Freeway Reserve added July 2026

COORDINATE REFERENCE SYSTEM
EPSG:28355 | GDA 94 MGA Zone 55

0 7 14m

ABN: 95 080 021 610
TEL: 1300 656 926
TREELOGIC PTY LTD
4 / 21 Eugene Tce
Ringwood, VIC
Australia 3134

Treelogic
Plan, manage, protect

Appendix 2B: NRZ impact Plans: 110 Wilson St Moonee Ponds

Refer to following page

APPENDIX 2 B — DEMOLITION PLAN - NOTIONAL ROOT ZONE

PROJECT
110 WILSON STREET, MOONEE PONDS

TL REF. 14048
MAP NO. 1 / 1
DATE 2026-07-16
CLIENT HAMTON

LEGEND

tl_tree_STATUS
- NRZ Minor (<10%)
- NRZ Major (>20%)
- Within - To be removed
- No NRZ impacts

Groups by Arb ratings
- Mod-C
- Low
- Very Low

Tree Protection Zone
Structural Root Zone

TREE LOCATION DISCLAIMER
Tree locations are approximate

DATA SOURCES
Lower Ground Plan. TP-SIT-099 Rev: A. 25/2/26. Prepared by DKO

NOTES
Additional Trees 58 to 78 within Citylink Freeway Reserve added July 2026

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TREELOGIC PTY LTD
4 / 21 Eugene Tce
Ringwood, VIC
Australia 3134

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APPENDIX 2B — GROUND FLOOR PLAN - NOTIONAL ROOT

PROJECT
110 WILSON STREET, MOONEE PONDS

TL REF. 14048
MAP NO. 1 / 1
DATE 2026-07-16
CLIENT HAMTON

LEGEND

tl_tree_STATUS
- NRZ Minor (<10%)
- NRZ Major (>20%)
- Within - To be removed
- No NRZ impacts

Groups by Arb ratings
- Mod-C
- Low
- Very Low

Tree Protection Zone
Structural Root Zone

TREE LOCATION DISCLAIMER
Tree locations are approximate

DATA SOURCES
Lower Ground Plan. TP-SIT-099 Rev: A. 25/2/26. Prepared by DKO

NOTES
Additional Trees 58 to 78 within Citylink Freeway Reserve added July 2026

COORDINATE REFERENCE SYSTEM
EPSG:28355 | GDA 94 MGA Zone 55

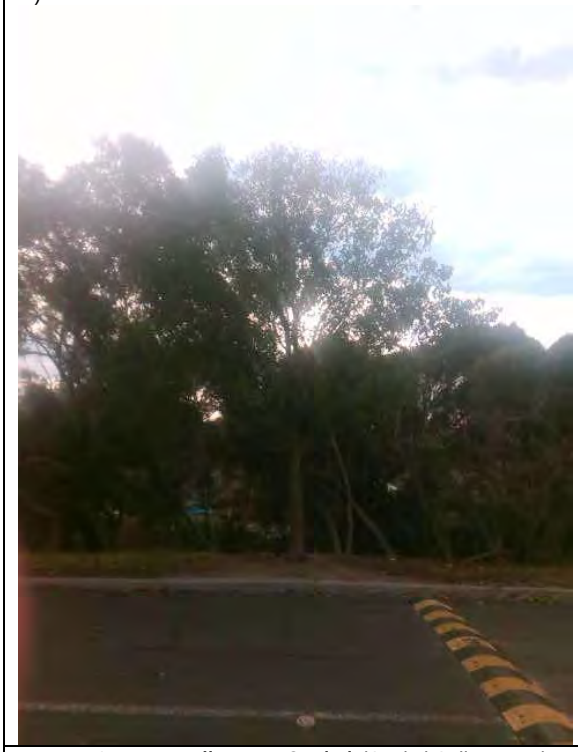
0 7 14m

ABN: 95 080 021 610
TEL: 1300 656 926
TREELOGIC PTY LTD
4 / 21 Eugene Tce
Ringwood, VIC
Australia 3134

Treelogic
Plan, manage, protect

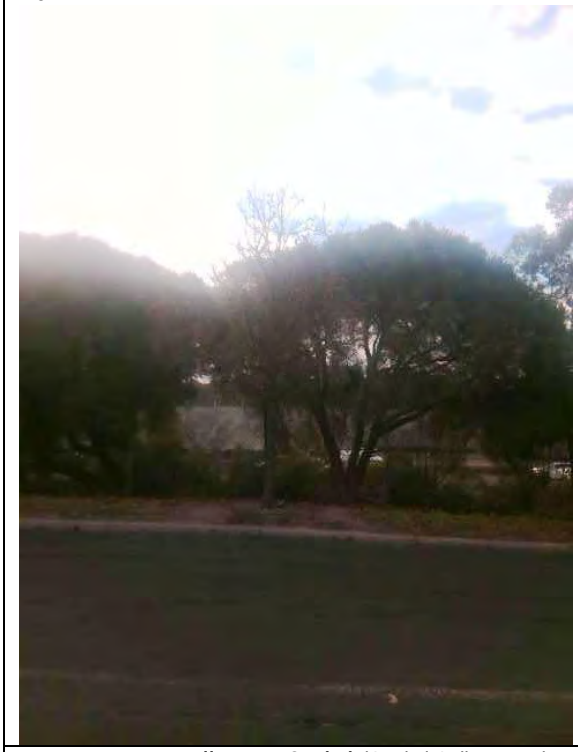
Tree Pictures

Tree ID: 1. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 18cm. Height x Width: 5 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.2. SRZ (rad. m): 1.7.

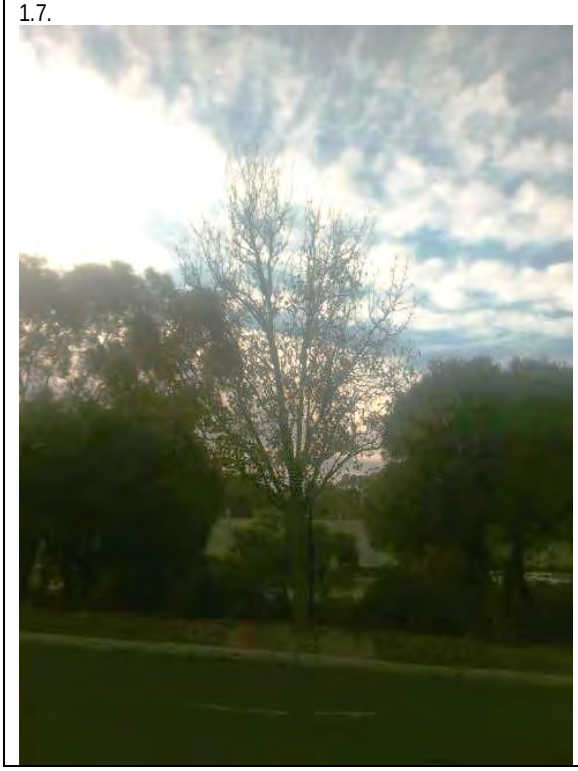


Tree ID: 2. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 20cm. Height x Width: 6 x 4m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2.4. SRZ (rad. m): 1.8.

Tree ID: 3. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 14cm. Height x Width: 4 x 2m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.5.



Tree ID: 4. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 18cm. Height x Width: 6 x 3m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.2. SRZ (rad. m): 1.7.



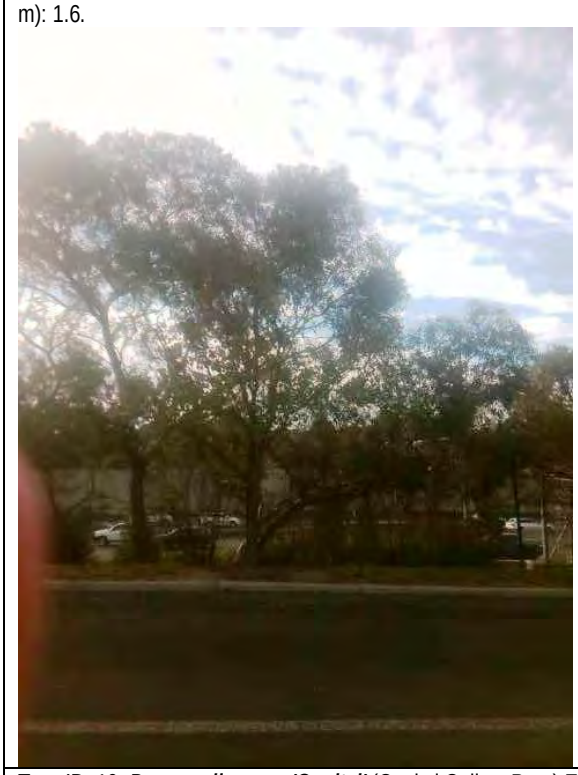
Tree ID: 5. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 20cm. Height x Width: 5 x 4m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.4. SRZ (rad. m): 1.8.

Tree ID: 7. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 19cm. Height x Width: 6 x 4m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.3. SRZ (rad. m): 1.7.

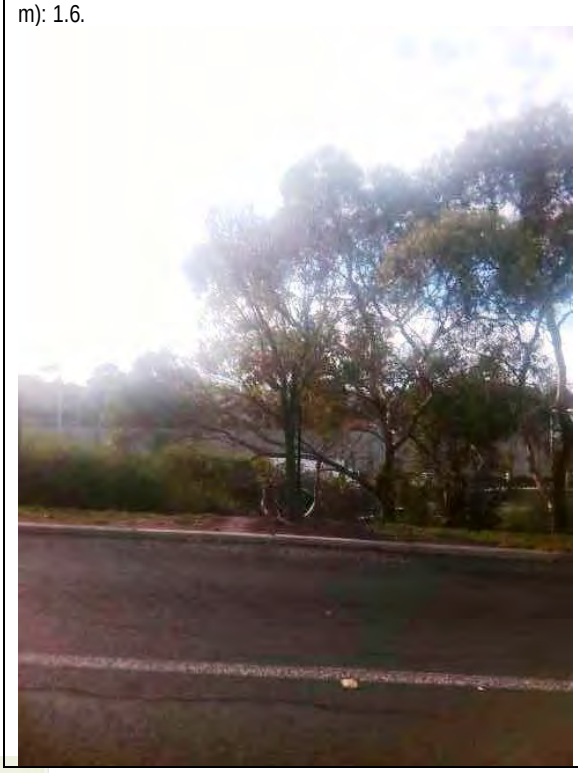
Tree ID: 6. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 16cm. Height x Width: 5 x 3m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Epicormic shoots, previous failures. NRZ (rad. m): 2. SRZ (rad. m): 1.6.

Tree ID: 8. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 18cm. Height x Width: 6 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.2. SRZ (rad. m): 1.7.

Tree ID: 9. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 15cm. Height x Width: 5 x 3m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.6.

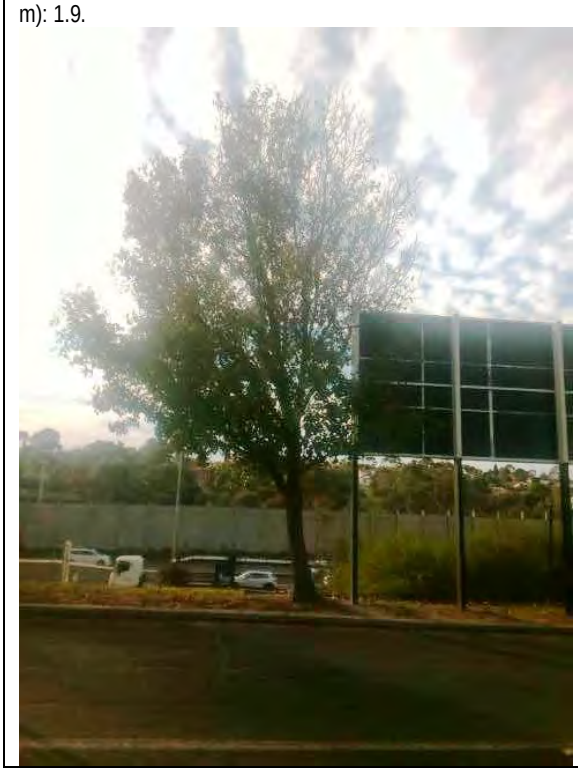


Tree ID: 10. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 16cm. Height x Width: 4 x 2m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.6.

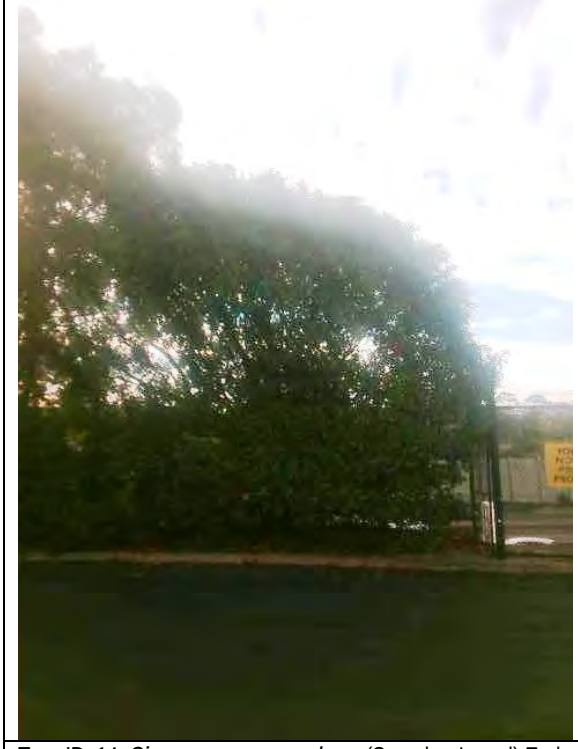


Tree ID: 11. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 20cm. Height x Width: 6 x 3m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. NRZ (rad. m): 2.4. SRZ (rad. m): 1.8.

Tree ID: 12. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 24cm. Height x Width: 7 x 4m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.9. SRZ (rad. m): 1.9.

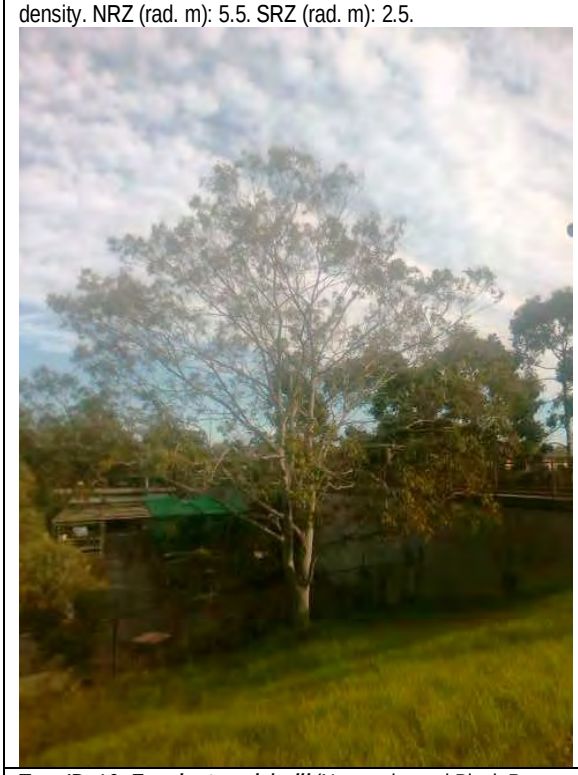


Tree ID: 13. *Photinia Xfraserii 'Robusta'* (Christmas Berry) Early-mature, Exotic evergreen.
DBH: 20,18,17,17cm. Height x Width: 5 x 5m. Health: Fair. Structure: Fair. Arb. Rating: Low. Multi-stemmed. NRZ (rad. m): 4.3. SRZ (rad. m): 2.3.



Tree ID: 14. *Cinnamomum camphora* (Camphor Laurel) Early-mature, Exotic evergreen.
DBH: 20,19,19,16,15,15,14,12cm. Height x Width: 7 x 5m. Health: Fair. Structure: Poor. Arb. Rating: Low. Acute forks, multi-stemmed, stump re-sprout. NRZ (rad. m): 4.8. SRZ (rad. m): 2.8.

Tree ID: 15. *Corymbia citriodora* (Lemon-scented Gum) Early-mature, Australian native.
DBH: 46cm. Height x Width: 15 x 14m. Health: Fair to Poor. Structure: Fair. Arb. Rating: Mod.B. Chlorotic foliage, deadwood >50mm, reduced foliage density. NRZ (rad. m): 5.5. SRZ (rad. m): 2.5.



Tree ID: 16. *Eucalyptus nicholii* (Narrow-leaved Black Peppermint) Early-mature, Australian native.
DBH: 29,28,28,27,23cm. Height x Width: 9 x 11m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.B. Acute forks, lopped, multi-stemmed. NRZ (rad. m): 7.3. SRZ (rad. m): 2.7.

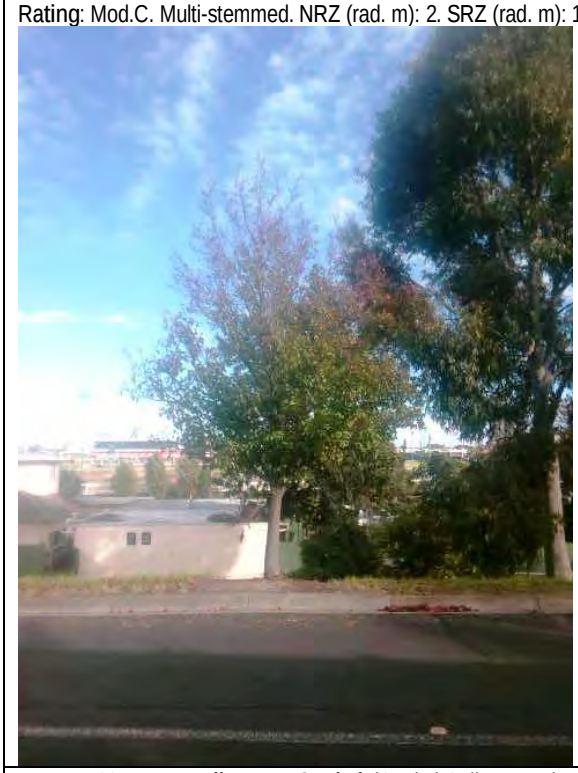
Tree ID: 17. *Corymbia maculata* (Spotted Gum) Semi-mature, Victorian native.
DBH: 25cm. Height x Width: 9 x 6m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Chlorotic foliage. NRZ (rad. m): 3. SRZ (rad. m): 1.9.

Tree ID: 18. *Corymbia maculata* (Spotted Gum) Early-mature, Victorian native.
DBH: 56cm. Height x Width: 18 x 8m. Health: Good. Structure: Fair. Arb. Rating: Mod.B. Multi-stemmed, past branch failure. NRZ (rad. m): 6.7. SRZ (rad. m): 2.7.

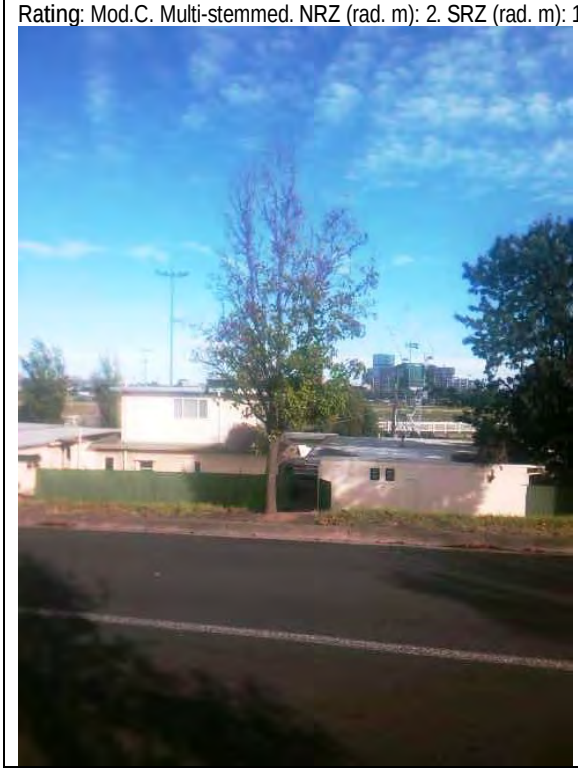
Tree ID: 19. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 18cm. Height x Width: 5 x 4m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2.2. SRZ (rad. m): 1.7.

Tree ID: 20. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 19cm. Height x Width: 7 x 5m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2.3. SRZ (rad. m): 1.7.

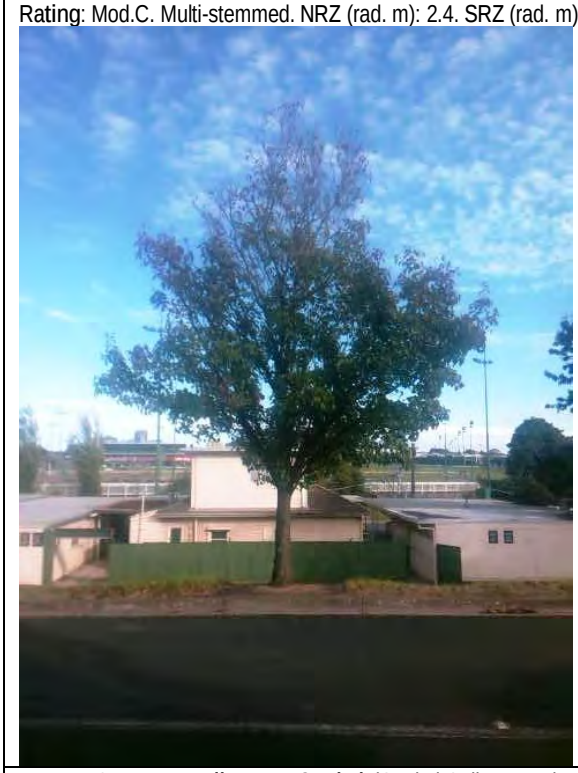
Tree ID: 21. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 17cm. Height x Width: 5 x 4m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.6.



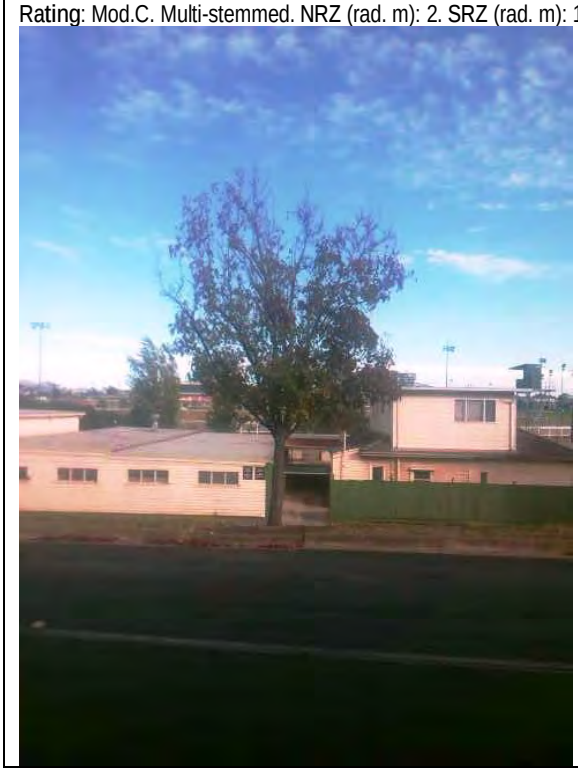
Tree ID: 22. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 16cm. Height x Width: 4 x 2m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.6.



Tree ID: 23. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 20cm. Height x Width: 6 x 5m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2.4. SRZ (rad. m): 1.8.



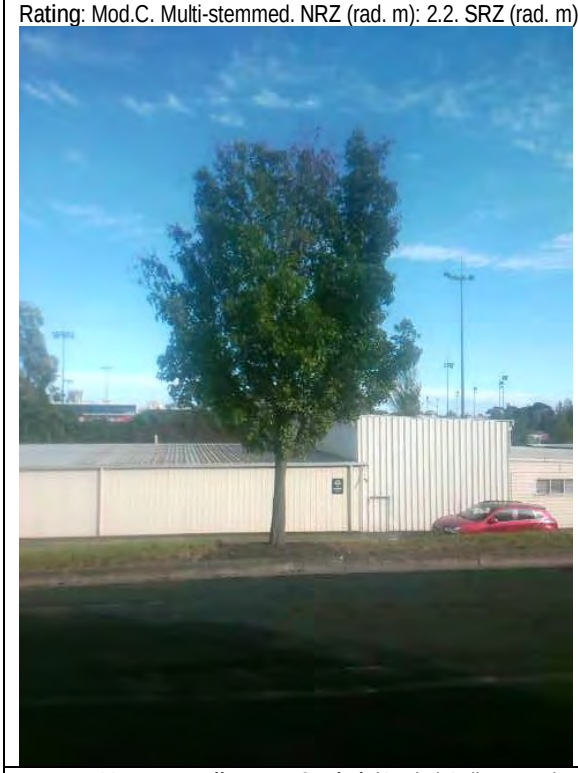
Tree ID: 24. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 17cm. Height x Width: 4 x 3m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.6.



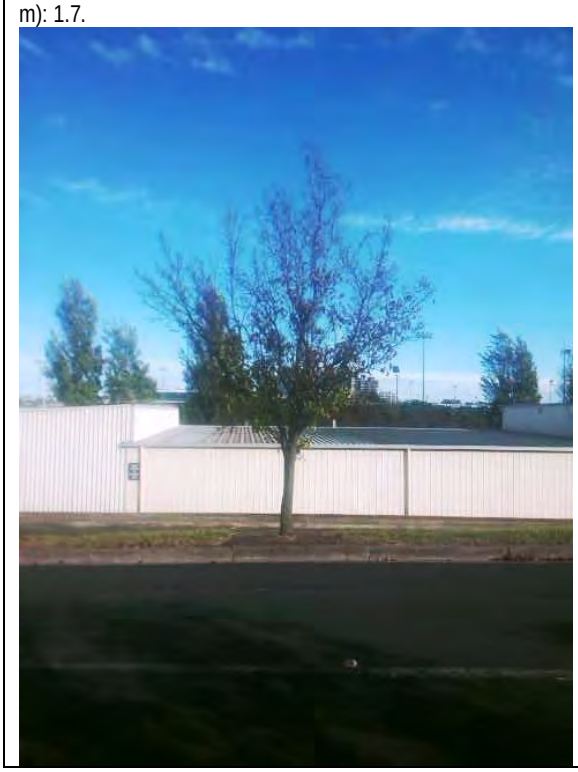
Tree ID: 25. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 23cm. Height x Width: 7 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.8. SRZ (rad. m): 1.8.

Tree ID: 26. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 27cm. Height x Width: 7 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 3.2. SRZ (rad. m): 2.

Tree ID: 27. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 18cm. Height x Width: 5 x 3m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 2.2. SRZ (rad. m): 1.7.



Tree ID: 28. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 18cm. Height x Width: 5 x 4m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.2. SRZ (rad. m): 1.7.

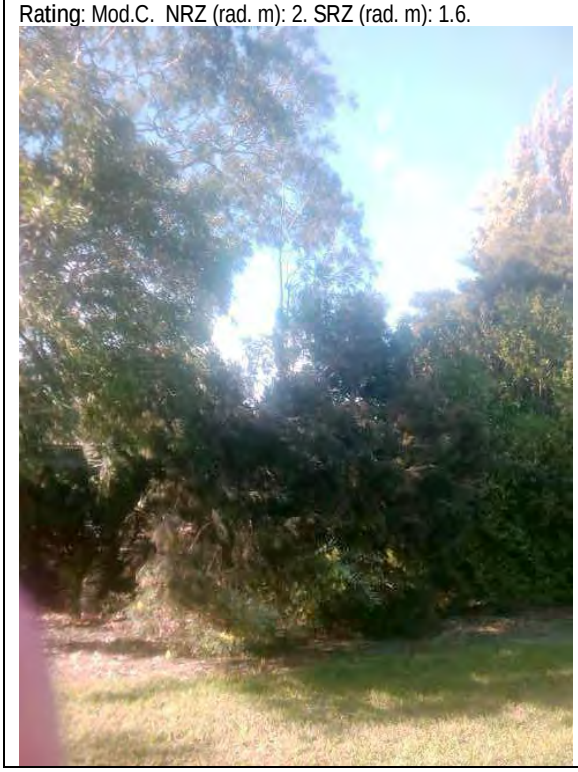


Tree ID: 29. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 23cm. Height x Width: 7 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Acute forks, multi-stemmed. NRZ (rad. m): 2.8. SRZ (rad. m): 1.9.

Tree ID: 30. *Pyrus calleryana 'Capital'* (Capital Callery Pear) Early-mature, Exotic deciduous.
DBH: 27cm. Height x Width: 8 x 5m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 3.2. SRZ (rad. m): 2.

Tree ID: 31. *Angophora costata* (Smooth-barked Apple) Maturing, Australian native.
DBH: 50cm. Height x Width: 15 x 15m. Health: Fair. Structure: Fair. Arb. Rating: Mod.B. Over-extended limbs, crown bias n/e aspect. NRZ (rad. m): 6. SRZ (rad. m): 2.6.

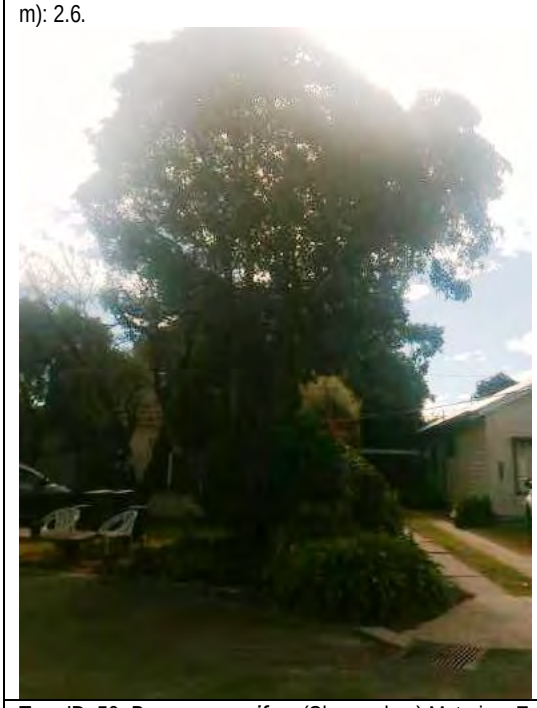
Tree ID: 32. *Casuarina cunninghamiana* (River She-oak) Semi-mature, Australian native.
DBH: 16cm. Height x Width: 6 x 4m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. NRZ (rad. m): 2. SRZ (rad. m): 1.6.



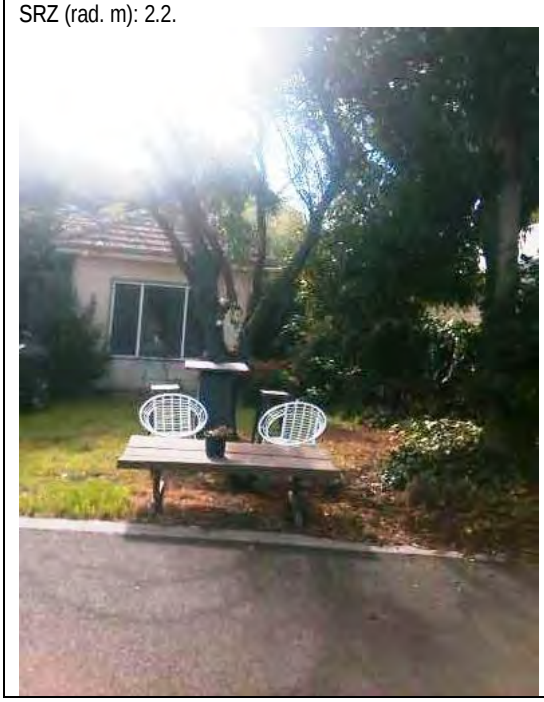
Tree ID: 47. *Melaleuca styphelioides* (Prickly-leaved Paperbark) Maturing, Australian native.
DBH: 52cm. Height x Width: 9 x 8m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Multi-stemmed. NRZ (rad. m): 6.2. SRZ (rad. m): 2.7.

Tree ID: 48. *Populus nigra 'Italica'* (Lombardy Poplar) Maturing, Exotic deciduous.
DBH: 58,35,27cm. Height x Width: 18 x 6m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.B. Acute forks, multi-stemmed. NRZ (rad. m): 8.8. SRZ (rad. m): 3.3.

Tree ID: 49. *Pittosporum undulatum* (Sweet Pittosporum) Maturing, Victorian native.
DBH: 30,28,27cm. Height x Width: 11 x 6m. Health: Good. Structure: Fair. Arb. Rating: Low. Multi-stemmed woody weed. NRZ (rad. m): 5.9. SRZ (rad. m): 2.6.



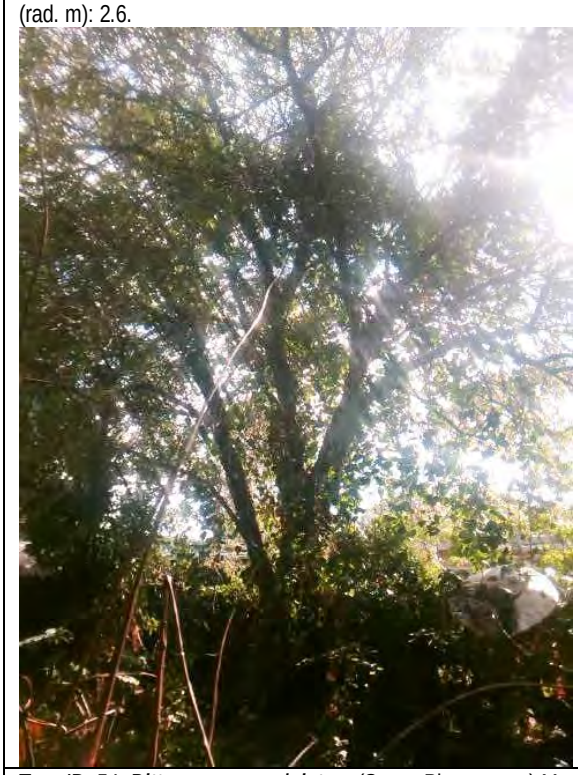
Tree ID: 50. *Prunus cerasifera* (Cherry-plum) Maturing, Exotic deciduous.
DBH: 28,24,21,19cm. Height x Width: 6 x 4m. Health: Poor. Structure: Fair to Poor. Arb. Rating: Low. Multi-stemmed, trunk decay. NRZ (rad. m): 5.6. SRZ (rad. m): 2.2.



Tree ID: 51. *Photinia Xfraserii 'Robusta'* (Christmas Berry) Maturing, Exotic evergreen.
DBH: 27,12,10,10cm. Height x Width: 6 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Low. Multi-stemmed. NRZ (rad. m): 3.9. SRZ (rad. m): 2.5.

Tree ID: 52. *Pittosporum undulatum* (Sweet Pittosporum) Early-mature, Victorian native.
DBH: 31cm. Height x Width: 6 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Low. Woody weed. partly suppressed - crown bias western aspect. NRZ (rad. m): 3.7. SRZ (rad. m): 2.1.

Tree ID: 53. *Fraxinus angustifolia* (Narrow-leaved Ash) Maturing, Exotic deciduous.
DBH: 35,34cm. Height x Width: 13 x 13m. Health: Fair to Poor. Structure: Fair. Arb. Rating: Low. Ivy on trunk, multi-stemmed. NRZ (rad. m): 5.9. SRZ (rad. m): 2.6.



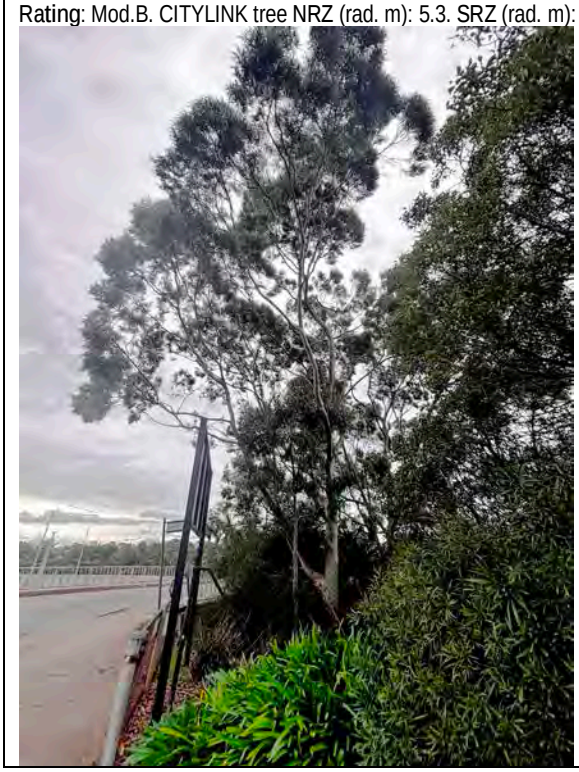
Tree ID: 54. *Pittosporum undulatum* (Sweet Pittosporum) Maturing, Victorian native.
DBH: 31,30cm. Height x Width: 10 x 11m. Health: Fair. Structure: Fair. Arb. Rating: Low. Multi-stemmed woody weed. NRZ (rad. m): 5.2. SRZ (rad. m): 2.3.

Tree ID: 55. *Fraxinus angustifolia* (Narrow-leaved Ash) Early-mature, Exotic deciduous.
DBH: 48cm. Height x Width: 11 x 12m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. Deadwood >50mm. NRZ (rad. m): 5.8. SRZ (rad. m): 2.7.

Tree ID: 56. *Agonis flexuosa* (Willow Myrtle) Maturing, Australian native.
DBH: 72,36cm. Height x Width: 7 x 10m. Health: Fair. Structure: Poor. Arb. Rating: Mod.C. Multi-stemmed, trunk decay, trunk wounds. NRZ (rad. m): 9.7. SRZ (rad. m): 3.3.

Tree ID: 57. *Grevillea robusta* (Silky Oak) Early-mature, Australian native.
DBH: 63cm. Height x Width: 16 x 11m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Lopped, past limb failure. NRZ (rad. m): 7.6. SRZ (rad. m): 2.8.

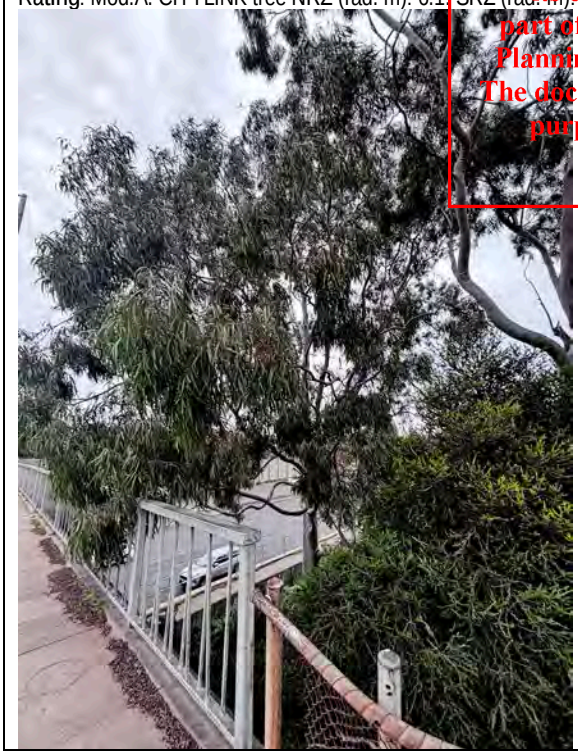
Tree ID: 58. *Corymbia citriodora* (Lemon-scented Gum) Maturing, Australian native.
DBH: 44cm. Height x Width: 14 x 8m. Health: Fair. Structure: Fair. Arb. Rating: Mod.B. CITYLINK tree NRZ (rad. m): 5.3. SRZ (rad. m): 2.4.



Tree ID: 59. *Corymbia citriodora* (Lemon-scented Gum) Young, Australian native.
DBH: 12cm. Height x Width: 6 x 2m. Health: Fair. Structure: Fair. Arb. Rating: Low. CITYLINK tree NRZ (rad. m): 2. SRZ (rad. m): 1.5.

Tree ID: 61. *Cinnamomum camphora* (Camphor Laurel) Early-mature, Exotic evergreen.
DBH: 10,12,15cm. Height x Width: 7 x 5m. Health: Fair. Structure: Poor. Arb. Rating: Low. CITYLINK tree NRZ (rad. m): 2.6. SRZ (rad. m): 2.

Tree ID: 60. *Corymbia citriodora* (Lemon-scented Gum) Maturing, Australian native.
DBH: 51cm. Height x Width: 19 x 15m. Health: Fair. Structure: Fair. Arb. Rating: Mod.A. CITYLINK tree NRZ (rad. m): 6.1. SRZ (rad. m): 2.6.



Tree ID: 62. *Eucalyptus leucoxylon* (Yellow Gum) Semi-mature, Victorian native.
DBH: 13cm. Height x Width: 5 x 3m. Health: Fair to Poor. Structure: Fair to Poor. Arb. Rating: Low. CITYLINK tree NRZ (rad. m): 2. SRZ (rad. m): 1.5.

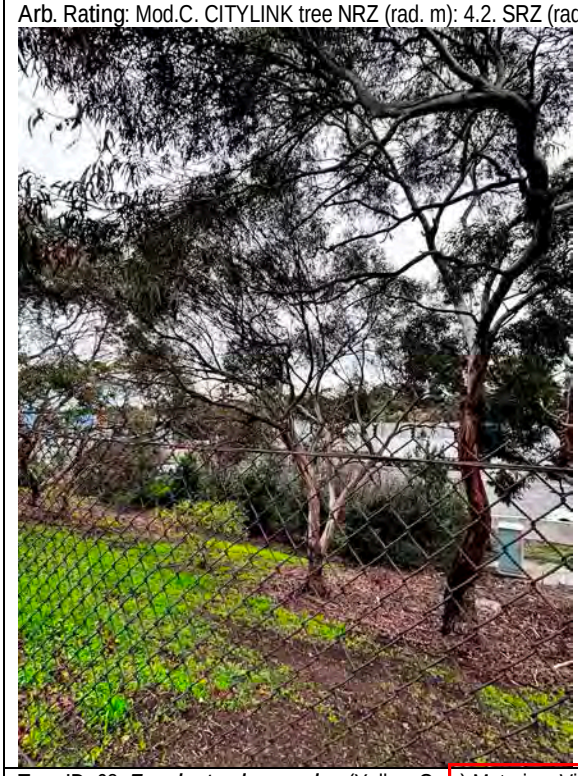
Tree ID: 63. *Eucalyptus leucoxylon* (Yellow Gum) Maturing, Victorian native. DBH: 29,32cm. Height x Width: 10 x 9m. Health: Fair to Poor. Structure: Fair to Poor. Arb. Rating: Low. CITYLINK tree NRZ (rad. m): 5.2. SRZ (rad. m): 2.5.

Tree ID: 64. *Eucalyptus leucoxylon* (Yellow Gum) Semi-mature, Victorian native.
DBH: 10,13cm. Height x Width: 5 x 4m. Health: Fair to Poor. Structure: Fair to Poor. Arb. Rating: Low. CITYLINK tree NRZ (rad. m): 2. SRZ (rad. m): 1.6.

Tree ID: 65. *Eucalyptus leucoxylon* (Yellow Gum) Maturing, Victorian native. DBH: 39cm. Height x Width: 11 x 9m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 4.7. SRZ (rad. m): 2.3.

Tree ID: 66. *Eucalyptus leucoxylon* (Yellow Gum) Maturing, Victorian native. DBH: 25,23cm. Height x Width: 8 x 8m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 4.1. SRZ (rad. m): 2.1.

Tree ID: 67. *Eucalyptus leucoxylon* (Yellow Gum) Maturing, Victorian native. DBH: 25,24cm. Height x Width: 7 x 8m. Health: Fair to Poor. Structure: Fair. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 4.2. SRZ (rad. m): 2.1.



Tree ID: 68. *Eucalyptus leucoxylon* (Yellow Gum) Maturing, Victorian native. DBH: 34cm. Height x Width: 11 x 7m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 4.1. SRZ (rad. m): 2.2.

Tree ID: 69. *Angophora costata* (Smooth-barked Apple) Maturing, Australian native. DBH: 32,30,28cm. Height x Width: 8 x 9m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 6.2. SRZ (rad. m): 2.4.

Tree ID: 70. *Eucalyptus leucoxylon* (Yellow Gum) Maturing, Victorian native. DBH: 31cm. Height x Width: 9 x 7m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 3.7. SRZ (rad. m): 2.1.

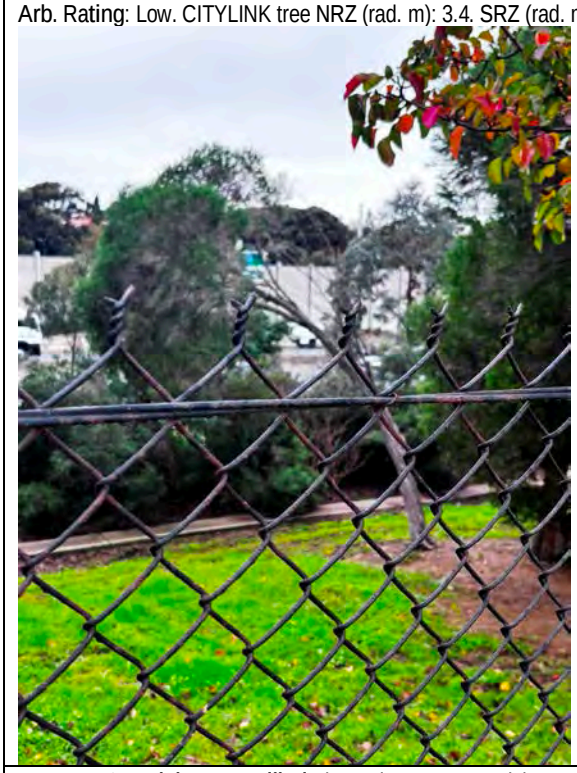
Tree ID: 71. *Angophora costata* (Smooth-barked Apple) Early-mature, Australian native.
DBH: 14,13,12,12,9cm. Height x Width: 8 x 7m. Health: Good. Structure: Poor. Arb. Rating: Low. CITYLINK tree NRZ (rad. m): 3.1. SRZ (rad. m): 2.2.

Tree ID: 72. *Eucalyptus leucoxylon* (Yellow Gum) Maturing, Victorian native.
DBH: 37cm. Height x Width: 9 x 6m. Health: Fair. Structure: Fair. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 4.4. SRZ (rad. m): 2.3.

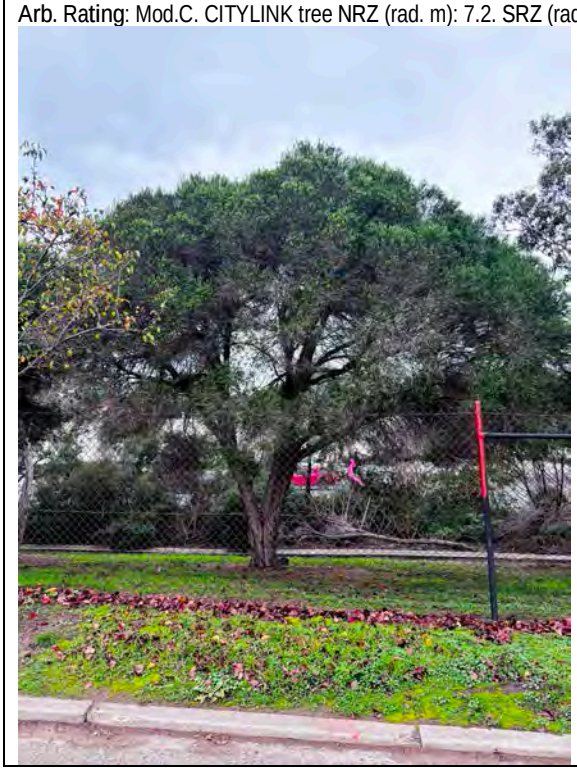
Tree ID: 73. *Corymbia citriodora* (Lemon-scented Gum) Maturing, Australian native.
DBH: 48cm. Height x Width: 12 x 9m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 5.8. SRZ (rad. m): 2.5.

Tree ID: 74. *Melaleuca armillaris* (Bracelet Honey-myrtle) Maturing, Victorian native.
DBH: 28,30,34cm. Height x Width: 8 x 10m. Health: Fair. Structure: Poor. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 6.4. SRZ (rad. m): 2.6.

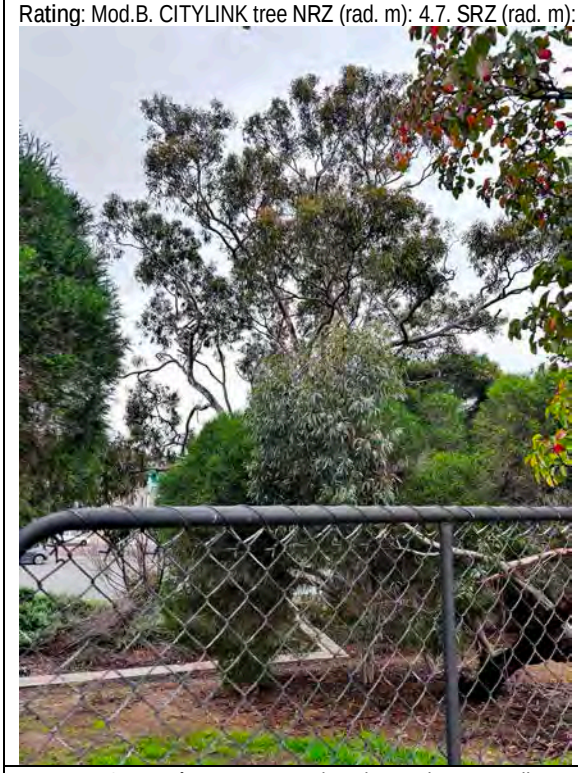
Tree ID: 75. *Melaleuca armillaris* (Bracelet Honey-myrtle) Early-mature, Victorian native.
DBH: 28cm. Height x Width: 8 x 5m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Low. CITYLINK tree NRZ (rad. m): 3.4. SRZ (rad. m): 2.1.



Tree ID: 76. *Melaleuca armillaris* (Bracelet Honey-myrtle) Maturing, Victorian native.
DBH: 60cm. Height x Width: 8 x 10m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 7.2. SRZ (rad. m): 2.7.

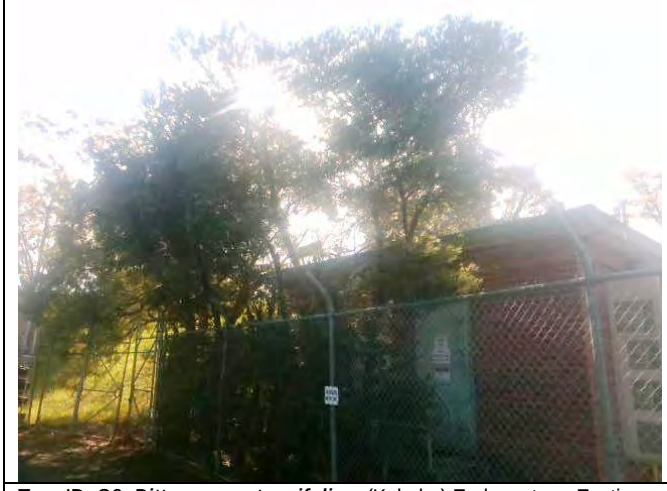


Tree ID: 77. *Angophora costata* (Smooth-barked Apple) Early-mature, Australian native.
DBH: 39cm. Height x Width: 10 x 8m. Health: Fair. Structure: Fair. Arb. Rating: Mod.B. CITYLINK tree NRZ (rad. m): 4.7. SRZ (rad. m): 2.3.



Tree ID: 78. *Eucalyptus cornuta* (Yate) Maturing, Australian native.
DBH: 33cm. Height x Width: 8 x 10m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. CITYLINK tree NRZ (rad. m): 4. SRZ (rad. m): 2.1.

Tree ID: G1. *Callistemon viminalis* (Weeping Bottlebrush) Early-mature, Australian native.
DBH: 15 - 25cm. Height x Width: 6 x 7m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Mod.C. Group of 9 trees. NRZ (rad. m): 2.4. SRZ (rad. m): 1.8.



Tree ID: G2. *Pittosporum tenuifolium* (Kohuhu) Early-mature, Exotic evergreen.
DBH: Dec-18cm. Height x Width: 7 x 8m. Health: Fair to Poor. Structure: Fair to Poor. Arb. Rating: Low. Group of 10 trees. Multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.7.

Tree ID: G3. *Callistemon viminalis, Pittosporum undulatum* (Weeping Bottlebrush, Sweet Pittosporum) Early-mature, Australian native, Victorian native.
DBH: Aug-15cm. Height x Width: 5 x 6m. Health: Fair. Structure: Fair to Poor. Arb. Rating: Low. Group of 12 trees. Multi-stemmed. NRZ (rad. m): 2. SRZ (rad. m): 1.8.

Appendix 3: Arboricultural Descriptors (June 2017)

Note that not all of the described tree descriptors may be used in a tree assessment and report. The assessment is undertaken with regard to contemporary arboricultural practices and consists of a visual inspection of external and above-ground tree parts.

1. Tree Condition

The assessment of tree condition evaluates factors of health and structure. The descriptors of health and structure attributed to a tree evaluate the individual specimen to what could be considered typical for that species growing in its location under current climatic conditions. For example, some species can display inherently poor branching architecture, such as multiple acute branch attachments with included bark. Whilst these structural defects may technically be considered arboriculturally poor, they are typical for the species and may not constitute an increased risk of failure. These trees may be assigned a structural rating of fair-poor (rather than poor) at the discretion of the assessor.

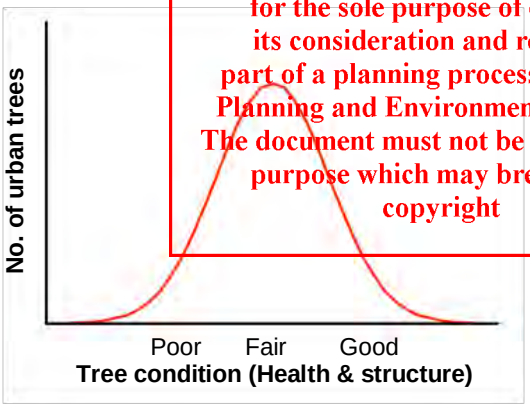


Diagram 1: Indicative normal distribution curve for tree condition

Diagram 1, provides an indicative distribution curve for tree condition to illustrate that within a normal tree population the majority of specimens are centrally located within the condition range (normal distribution curve). Furthermore, that those individual trees with an assessed condition approaching the outer ends of the spectrum occur less often.

2. Tree Name

Provides botanical name, (genus, species, variety and cultivar) according to accepted international code of taxonomic classification, and common name.

3. Tree Type

Describes the general geographic origin of the species and its type e.g. deciduous or evergreen.

Category	Description
Indigenous	Occurs naturally in the area or region of the subject site. Remnant.
Victorian native	Occurs naturally within some part of the State of Victoria (not exclusively) but is not indigenous (component of EVC benchmark). Could be planted indigenous trees.
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Native Palm	Occurs naturally within Australia. Woody monocotyledon
Exotic Palm	Occurs outside of Australia. Woody monocotyledon

4. Height and Width

Indicates height and width of the individual tree; dimensions are expressed in metres. Crown heights are measured with a height meter where possible. Due to the topography of some sites and/or the density of vegetation it may not be possible to do this for every tree. Tree heights may be estimated in line with previous height meter readings in conjunction with assessor's experience. Crown widths are generally paced (estimated) at the widest axis or can be measured on two axes and averaged. In some instances the crown width can be measured on the four cardinal direction points (North, South, East and West).

Crown height, crown spread are generally recorded to the nearest half metre (crown spread would be rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m. Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) shall be clearly identified in the assessment data.

5. Trunk diameters

The position where trunk diameters are captured may vary dependent on the requirements of the specific assessment and an individual trees specific characteristics. DBH is the typical trunk diameter captured as it relates to the allocation of tree protection distances. The basal trunk diameter assists in the allocation of a structural root zone. Some municipalities require trunk diameters be captured at different heights, with 1.0 m above grade being a common requirement. The specific planning schemes will be checked to ascertain requirements.

Stem diameters shall be recorded in centimetres, rounded to the nearest 1 cm (0.01 m).

Diameter at Breast Height (DBH)

Indicates the trunk diameter (expressed in centimetres) of an individual tree measured at 1.4m above the existing ground level or where otherwise indicated, multiple leaders are measured individually. Plants with multiple leader habit may be measured at the base. The range of methods to suit particular trunk shapes, configurations and site conditions can be seen in Appendix A of Australian Standard *AS 4970-2009 Protection of trees on development site*s. Measurements undertaken using foresters tape or builders tape.

Basal trunk diameter

The basal dimension is the trunk diameter measured at the base of the trunk or main stem(s) immediately above the root buttress. Used to ascertain the Structural Root Zone (SRZ) as outlined in AS4970.

6. Age class

Relates to the physiological stage of the tree's life cycle.

Category	Description
Young	Sapling tree and/or recently planted. Approximately 5 or less years in location.
Semi-mature	Tree increasing in size and yet to achieve expected size in situation. Primary developmental stage.
Early-mature	Tree established, generally growing vigorously. > 50% of attainable age/size.
Mature	Specimen approaching expected size in situation, with reduced incremental growth.
Over-mature	Mature full-size with a retrenching crown. Tree is senescent and in decline. Significant decay generally present.

7. Health

Assesses various attributes to describe the overall health and vigour of the tree.

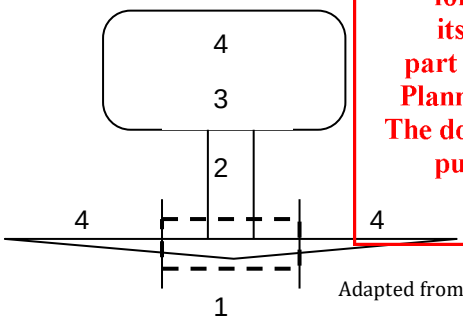
Health Category	Vigour, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Good	Above typical. Excellent. Full canopy density	Negligible	Better than typical	Negligible
Fair	Typical vigour. >80% canopy density	Minor or expected. Little or no dead wood	Typical. Minor deficiencies or defects could be present.	Minor, within damage thresholds
Fair to Poor	Below typical - low vigour	More than typical. Small sub-branch dieback	Exhibiting deficiencies. Could be thinning, or smaller	Exceeds damage thresholds
Poor	Minimal - declining	Excessive, large and/or prominent amount & size of dead wood	Exhibiting severe deficiencies. Thinning foliage, generally smaller or deformed	Extreme and contributing to decline
Dead	N/A	N/A	N/A	N/A

8. Structure

Assesses principal components of tree structure (Diagram 2).
Structure ratings will also take into account general branching architecture, stem taper, live crown ratio, crown symmetry (bias or lean) and crown position such as tree being suppressed amongst more dominant trees.

Diagram 2: Tree structure zones

1. Root plate & lower stem
2. Trunk
3. Primary branch support
4. Outer crown & roots



Adapted from Coder (1996)

The lowest or worst descriptor assigned to the tree in any column could generally be the overall rating assigned to the tree. The assessment for structure is limited to observations of external and above ground tree parts. It does not include any exploratory assessment of underground or internal tree parts unless this is requested as part of the investigation. Trees are assessed and then given a rating for a point in time. Generally, trees with a poor or very poor structure are beyond the benefit of practical arboricultural treatments.

The management of trees in the urban environment requires appropriate arboricultural input and consideration of risk. Risk potential will take into account the combination of likelihood of failure and impact, including the perceived importance of the target(s). See table over page.

Structure Category	Zone 1 - Root plate & lower stem	Zone 2 - Trunk	Zone 3 - Primary branch support	Zone 4 - Outer crown and roots
Good	No obvious damage, disease or decay; obvious basal flare / stable in ground	No obvious damage, disease or decay; well tapered	Well formed, attached, spaced and tapered. No history of failure.	No obvious damage, disease, decay or structural defect. No history of failure.
Fair	Minor damage or decay. Basal flare present.	Minor damage or decay	Generally well attached, spaced and tapered branches. Minor structural deficiencies may be present or developing. No history of branch failure.	Minor damage, disease or decay; minor branch end-weight or over-extension. No history of branch failure.
Fair to Poor	Moderate damage or decay; minimal basal flare.	Moderate damage or decay; approaching recognised thresholds	Weak, decayed or with acute branch attachments; previous branch failure evidence.	Moderate damage, disease or decay; moderate branch end-weight or over-extension. Minor branch failure evident.
Poor	Major damage, disease or decay; fungal fruiting bodies present. Excessive lean placing pressure on root plate	Major damage, disease or decay; exceeds recognised thresholds; fungal fruiting bodies present. Acute lean. Stump re-sprout	Decayed, cavities or has acute branch attachments with included bark; excessive compression flaring; failure likely. Evidence of major branch failure.	Major damage, disease or decay; fungal fruiting bodies present; major branch end-weight or over-extension. Branch failure evident.
Very Poor	Excessive damage, disease or decay; unstable / loose in ground; altered exposure; failure probable	Excessive damage, disease or decay; cavities. Excessive lean. Stump re-sprout	Decayed, cavities or branch attachments with active split; failure imminent. History of major branch failure.	Excessive damage, disease or decay; excessive branch end-weight or over-extension. History of branch failure.

Useful life expectancy

Assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community. It would enable tree managers to develop long-term plans for the eventual removal and replacement of existing trees in the public realm. It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the trees positive contribution to the urban landscape.

Within an urban landscape context, particularly in relation to street trees, it could be considered a point where the costs to maintain the asset (tree) outweigh the benefits the tree is returning.

The assessment is based on the site conditions not being significantly altered and that any prescribed maintenance works are carried out (site conditions are presumed to remain relatively constant and the tree would be maintained under scheduled maintenance programs). See table over page.

Useful Life Expectancy category	Typical characteristics
<1 year (No remaining ULE)	Tree may be dead or mostly dead. Tree may exhibit major structural faults. Tree may be an imminent failure hazard. Excessive infrastructure damage with high risk potential that cannot be remedied.
1-5 years (Transitory, Brief)	Tree is exhibiting severe chronic decline. Crown is likely to be less than 50% typical density. Crown may be mostly epicormic growth. Dieback of large limbs is common (large deadwood may have been pruned out). Tree may be over-mature and senescing. Infrastructure conflicts with heightened risk potential. Tree has outgrown site constraints.
6-10 years (Short)	Tree is exhibiting chronic decline. Crown density will be less than typical and epicormic growth is likely to present. The crown may still be mostly entire, but some dieback is likely to be evident. Dieback may include large limbs. Over-mature and senescing or early decline symptoms in short-lived species. Early infrastructure conflicts with potential to increase regardless of management inputs.
11-20 years (Moderate)	Tree not showing symptoms of chronic decline, but growth characteristics are likely to be reduced (bud development, extension growth etc.). Tree may be over-mature and beginning to senesce. Potential for infrastructure conflicts regardless of management inputs.
21-40 years (Moderately long)	Trees displaying normal growth characteristics but vigour is likely to be reduced (bud development, extension growth etc.). Tree may be growing in restricted environment (e.g. streetscapes) or may be in late maturity. Semi-mature and mature trees exhibiting normal growth characteristics. Juvenile trees in streetscapes.
>40 years (Long)	Generally juvenile and semi-mature trees exhibiting normal growth characteristics within adequate spaces to sustain growth, such as in parks or open space. Could also pertain to maturing, long-lived trees. Tree well suited to the site with negligible potential for infrastructure conflicts.

Note that ULE may change for a tree dependent on the prevailing climatic conditions, which can either increase or decrease, or sudden changes to a tree's growing environment creating an acute stress.

The ULE may not be applicable for trees that are manipulated, such as topiary, or grown for specific horticultural purposes, such as fruit trees.

There may be instances where remedial tree maintenance could be extend a tree's ULE.

9. Arboricultural Rating

Relates to the combination of tree condition factors, including health and structure (arboricultural merit), and also conveys an amenity value. Amenity relates to the trees biological, functional and aesthetic characteristics (Hitchmough 1994) within an urban landscape context. The presence of any serious disease or tree-related hazards that would impact risk potential are taken into account. See table over page.

Arboricultural rating Category	Description
High	Tree of high quality in good to fair condition; good vigour. Generally a prominent arboricultural/landscape feature. Particularly good example of the species; rare or uncommon. Tree may have significant conservation or other cultural value. These trees have the potential to be a medium- to long-term components of the landscape (moderately long to long ULE) if managed appropriately. Retention of these trees is highly desirable.
Moderate	*General* - Tree of moderate quality, in fair or better condition. Tree may have a condition, and or structural problem that will respond to arboricultural treatment. These trees have the potential to be a moderate- to long-term component of the landscape (moderate to long ULE) if managed appropriately. Retention of these trees is generally desirable. The following sub-categories relate predominately to age and size and amenity.
	A. Moderate to large, maturing tree. Contributes to the landscape character. Tree may have conservation or other cultural value.
	B. Moderate sized, established tree, > 50% of attainable age/size. Contributes to the landscape character. Maturing tree with amenity value but with identified deficiencies
	C. Small and/or semi-mature tree, established, >5 years in the location. May not be a dominant canopy. No special qualities. Maturing tree, accumulating deficiencies, trending towards being of Low arboricultural value.
Low	Unremarkable tree of low quality or little amenity value. Tree in either poor health or with poor structure or a combination. Short to transitory useful life expectancy. Tree is not significant because of either its size or age, such as young trees with a stem diameter below cm. Trees regularly pruned to restrict size. These trees are easily replaceable. Tree (species) is functionally inappropriate to specific location and would be expected to be problematic if retained. Retention of such trees may be considered if not requiring a disproportionate expenditure of resources for a tree in its condition and location.
None	Trees of low quality with an estimated remaining life expectancy of less than 5 years. Tree has either a severe structural defect or health problem or combination that cannot be sustained with practical arboricultural techniques and the loss of the tree would be expected in the short term. Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. Tree infected with pathogens of significance to either the health or safety of the tree or other adjacent trees. Tree whose retention would not be viable after the removal of adjacent trees (includes trees that have developed in close spaced groups and would not be expected to acclimatise to severe alterations to surrounding environment – removal of adjacent shelter trees). Tree has a detrimental effect on the environment, for example, the tree is a recognised environmental woody weed with potential to spread into waterways or natural areas. Unremarkable tree of no material landscape, conservation or other cultural value.

Trees have many values, not all of which are considered when an arboricultural assessment is undertaken. However, individual trees or tree group features may be considered important community resources because of unique or noteworthy characteristics or values other than their age, dimensions, health or structural condition. Recognition of one or more of the following criterion is designed to highlight other considerations that may influence the future management of such trees.

Significance	Description
Horticultural Value/ Rarity	Outstanding horticultural or genetic value; could be an important source of propagating stock, including specimens that are particularly resistant to disease or exposure. Any tree of a species or variety that is rare.
Historic, Aboriginal Cultural or Heritage Value	Tree could have value as a remnant of a particular important historical period or a remnant of a site or activity no longer in action. Tree has a recognised association with historic aboriginal activities, including scar trees. Tree commemorates a particular occasion, including plantings by notable people, or having associations with an important event in local history.
Ecological Value	Tree could have value as habitat for indigenous wildlife, including providing breeding, foraging or roosting habitat, or is a component of a wildlife reserve. Remnant Indigenous vegetation that contribute to biological diversity

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Appendix 4: Tree protection zones.

Introduction

In order to sustain trees on a development site consideration must be given to the establishment of tree protection zones.

The physical dimensions of tree protection zones can sometimes be difficult to define. The projection of a tree's crown can provide a guide but is by no means the definitive measure. The unpredictable nature of roots and their growth, differences between species and their tolerances, and observable and hidden changes to the trees growing environment, as a result of development, are variables that must be considered.

Most vigorous, broad canopied trees survive well if the area within the drip-line of the canopy is protected. Fine root density is usually greater beneath the canopy than beyond (Gilman, 1997). If few to no roots over 3cm in diameter are encountered and severed during excavation the tree will probably tolerate the impact and root loss. A healthy tree can sustain a loss of between 30% and 50% of absorbing roots (Harris, Clark, Matheny, 1999), however encroachment into the structural root system of a tree may be problematic.

The structural root system of a tree is responsible for ensuring the stability of the entire tree structure in the ground. A tree could not sustain loss of structural root system and be expected to survive let alone stand up to average annual wind loads upon the crown.

Allocation of tree protection zone (TPZ)

The method of allocating a TPZ to a particular tree will be influenced by site factors, the tree species, its age and developed form.

Once it has been established, through an arboricultural assessment, which trees and tree groups are to be retained, the next step will require careful management through the development process to minimise any impacts on the designated trees. The successful retention of trees on any particular site will require the commitment and understanding of all parties involved in the development process. The most important activity, after determining the trees that will be retained is the implementation of a TPZ.

The intention of tree protection zones is to:

- mitigate tree hazards;
- provide adequate root space to sustain the health and aesthetics of the tree into the future;
- minimise changes to the trees growing environment, which is particularly important for mature specimens;
- minimise physical damage to the root system, canopy and trunk; and
- define the physical alignment of the tree protection fencing

Tree protection

The most important consideration for the successful retention of trees is to allow appropriate above and below ground space for the trees to continue to grow. This requires the allocation of tree protection zones for retained trees.

The Australian Standard AS 4970-2009 Protection of trees on development sites has been used as a guide in the allocation of TPZs for the assessed trees.

The TPZ for individual trees is calculated based on trunk (stem) diameter (DBH), measured at 1.4 metres up from ground level. The radius of the TPZ is calculated by multiplying the trees DBH by 12. The method provides a TPZ that addresses both the stability and growing requirements of a tree. TPZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The minimum TPZ should be no less than 2m and the maximum no more than 15m radius. The TPZ of palms should be not less than 1.0m outside the crown projection.

Encroachment into the TPZ is permissible under certain circumstances though is dependent on both site conditions and tree characteristics. Minor encroachment, up to 10% of the TPZ, is generally permissible provided encroachment is compensated for by recruitment of an equal area contiguous with the TPZ. Examples are provided in Diagram 1. Encroachment greater than 10% is considered major encroachment under AS4970-2025 and is only permissible if it can be demonstrated that after such encroachment the tree would remain viable. Refer to Diagram 1 for examples of acceptable NRZ encroachment.

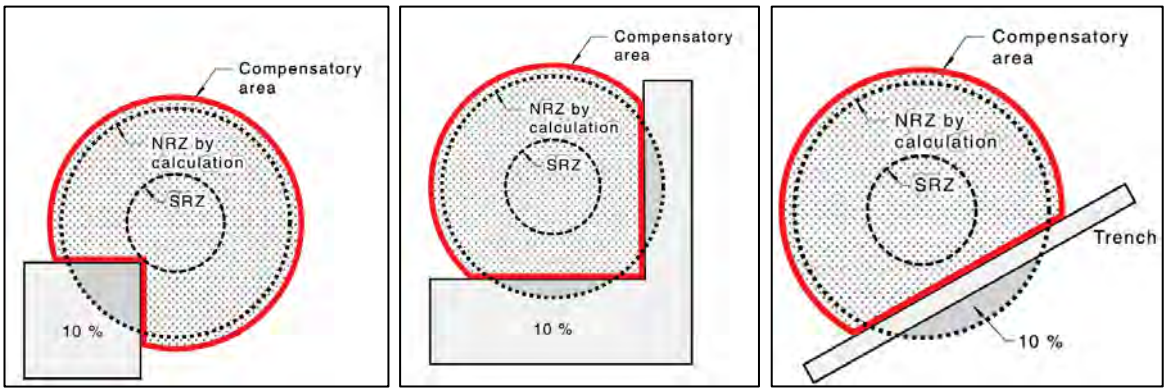


Diagram 2: Examples of minor encroachment into the NRZ

Diagram 1: Examples of minor encroachment into a TPZ.

(Extract from: AS4970-2009, Appendix D, p30 of 32)

The 10% encroachment on one side equates to approximately ⅓ radial distance. Tree root growth is opportunistic and occurs where the essentials to life (primarily air and water) are present. Heterogeneous soil conditions, existing barriers, hard surfaces and buildings may have inhibited the development of a symmetrically radiating root system.

Existing infrastructure around some trees may be within the TPZ or root plate radius. The roots of some trees may have grown in response to the site conditions and therefore if existing hard surfaces and building alignments are utilised in new designs the impacts on the trees should be minimal. The most reliable way to estimate root disturbance is to find out where the roots are in relation to the demolition, excavation or construction works that will take place (Matheny & Clark, 1998). Exploratory excavation prior to commencement of construction can help establish the extent of the root system and where it may be appropriate to excavate or build.

Diagram 1A Diagram 1B

The TPZ should also give consideration to the canopy and overall form of the tree. If the canopy requires severe pruning in order to accommodate a building and in the process the form of the tree is diminished it may be worthwhile considering altering the design or removing the tree.

General tree protection guidelines

The most important factors are:

- Prior to construction works the trees nominated for tree works should be pruned to remove larger dead wood. Pruning works may also identify other tree hazards that require remedial works.
- Installation of tree protection fencing. Once the tree protection zones have been determined the next step is to mulch the zone with woodchip and erect tree protection fencing. This must be completed prior to any materials being brought on-site, erection of temporary site facilities or demolition/earth works. The protection fencing must be sturdy and withstand winds and construction impacts. The protection fence should only be moved with approval of the site supervisor. Other root zone protection methods can be incorporated if the TPZ area needs to be traversed.
- Appropriate signage is to be fixed to the fencing to alert people as to importance of the tree protection zone.
- The importance of tree preservation must be communicated to all relevant parties involved with the site.
- Inspection of trees during excavation works.

Exploratory excavation

The most reliable way to estimate root disturbance is to find out where the roots are in relation to the demolition, excavation or construction works that will take place (Matheny & Clark, 1998).

Exploratory excavation prior to commencement of construction can help establish the extent of the root system and where it may be appropriate to excavate or build. This also allows management decisions to be made and allows time for redesign works if required.

Any exploratory excavation within the allocated TPZ is to be undertaken with due care of the roots. Minor exploration is possible with hand tools. More extensive exploration may require the use of high pressure water or air excavation techniques. Either hydraulic or pneumatic excavation techniques will safely expose tree roots; both have specific benefits dependent on the situation and soil type. An arborist is to be consulted on which system is best suited for the site conditions.

Substantial roots are to be exposed and left intact.

Once roots are exposed decisions can be made regarding the management of the tree. Decisions will be dependent on the tree species, its condition, its age, its relative tolerance to root loss, and the amount of root system exposed and requiring pruning.

Other alternative measures to encroaching the TPZ may include boring or tunnelling.

How to determine the diameter of a substantial root

The size of a substantial root will vary according to the distance of the exposed root to the trunk of the tree. The further away from the trunk of a tree that a root is, the less significant the root is likely to be to the tree's health and stability.

The determination of what is a substantial root is often difficult because the form, depth and spread of roots will vary between species and sites. However, because smaller roots are connected to larger roots in a framework, there can be no doubt that if larger roots are severed, the smaller roots attached to them will die. Therefore, the larger the root, the more significant it may be.

Gilman (1997) suggests that trees may contain 4-11 major lateral roots and that the five largest lateral roots account (act as a conduit) for 75% of the total root system.

These large lateral roots quickly taper within a distance to the tree, this distance is identified as the Structural Root Zone (SRZ). Within the SRZ distance, all roots and the soil surrounding the roots are deemed significant.

No root or soil disturbance is permitted within the SRZ.

In the area outside the SRZ the tree may tolerate the loss of one or a number of roots. The table below indicates the size of tree roots, outside the SRZ that would be deemed substantial for various tree heights. The assessment of combined root loss within the TPZ would need to be undertaken by an arborist on an individual basis because the location of the tree, its condition and environment would need to be assessed.

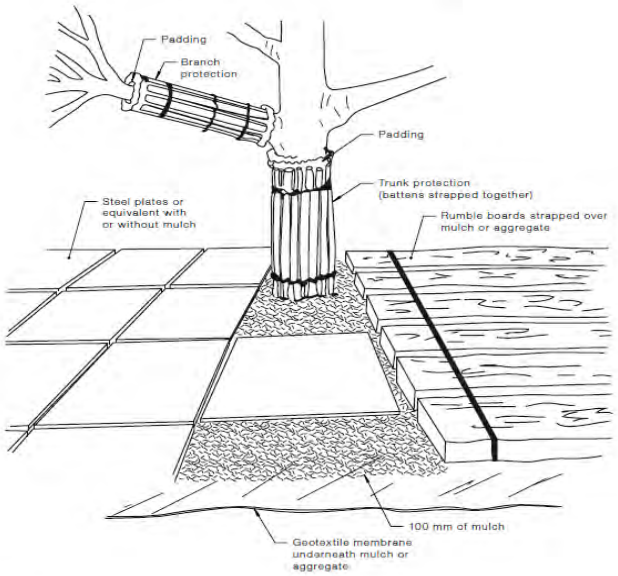
Table 1: Estimated significant root sizes outside SRZ

Height of tree	Diameter of root
Less than 5m	≥ 30mm
Between 5m - 15m	≥ 50mm
More than 15m	≥ 70mm

Ground buffering

Where works are required to be undertaken within the Tree root zone without penetration of the surface, ground buffering and trunk and limb protection must be provided to minimise the potential for soil to become compacted and avoid potential for impact wounds to occur to surface roots, trunk or limbs. Refer below.

Diagram 2: Examples of ground buffering and trunk and limb protection.



NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.

2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION

(Extract from: AS4970-2009, Appendix D, pg17)

Construction Guidelines

The following are guidelines that must be implemented to minimise the impact of the proposed construction works on the retained trees.

- The Tree Protection Zone (TPZ) is fenced and clearly marked at all times. The actual fence specifications should be a minimum of 1.2 - 1.5 metres of chain mesh or like fence with 1.8 meter posts (e.g. treated pine or star pickets) or like support every 3-4 metres and a top line of high visibility plastic hazard tape. The posts should be strong enough to sustain knocks from on site excavation equipment. This fence will deter the placement of building materials, entry of heavy equipment and vehicles and also the entry of workers and/or the public into the TPZ. Note: There are many different variations on the construction type and material used for TPZ fences, suffice to say that the fence should satisfy the responsible authority.
- Contractors and site workers should receive written and verbal instruction as to the importance of tree protection and preservation within the site. Successful tree preservation occurs when there is a commitment from all relevant parties involved in designing, constructing and managing a development project. Members of the project team need to interact with each other to minimise the impacts to the trees, either through design decisions or construction practices. The importance of tree preservation must be communicated to all relevant parties involved with the site.
- The consultant arborist is on-site to supervise excavation works around the existing trees where the TPZ will be encroached.
- A layer of organic mulch (woodchips) to a depth of no more than 100mm should be placed over the root systems within the TPZ of trees which are to be retained so as to assist with moisture retention and to reduce the impact of compaction.
- No persons, vehicles or machinery to enter the TPZ without the consent of the consulting arborist or site manager.
- Where machinery is required to operate inside the TPZ it must be a small skid drive machine (i.e Dingo or similar) operating only forwards and backwards in a radial direction facing the tree trunk and not altering direction whilst inside the TPZ to avoid damaging, compacting or scuffing the roots.
- Any underground service installations within the allocated TPZ should be bored and utility authorities should common trench where possible.
- No fuel, oil dumps or chemicals shall be allowed in or stored on the TPZ and the servicing and re-fuelling of equipment and vehicles should be carried out away from the root zones.
- No storage of material, equipment or temporary building should take place over the root zone of any tree.
- Nothing whatsoever should be attached to any tree including temporary services wires, nails, screws or any other fixing device.
- Supplementary watering should be provided to all trees through any dry periods during and after the construction process. Proper watering is the most important maintenance task in terms of successfully retaining the designated trees. The areas under the canopy drip lines should be mulched with woodchip to a depth of no more than 100mm. The mulch will help maintain soil moisture levels. Testing with a soil probe in a number of locations around the tree will help ascertain soil moisture levels and requirements to irrigate. Water needs to be applied slowly to avoid runoff. A daily watering with 5 litres of water for every 30 mm of trunk calliper may provide the most even soil moisture level for roots (Watson & Himelick, 1997), however light frequent irrigations should be avoided. Irrigation should wet the entire root zone and be allowed to dry out prior to another application. Watering should continue from October until April.

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