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Arboricultural Impact Assessment

Tree/s Location: 81 Orchard Cres Mont Albert North, 3129

Completed for: Mr. Damian Coad

Inspection date: 6th January 2019

Date of report: 10th January 2019

Prepared by: Ryan Roche, Director, Future Tree Health

Post Graduate Certificate of Arboriculture, The University of Melbourne

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To Whom It May Concern.

On the 06th of January 2019 the services of *Future Tree Health* were provided in assessing trees currently located within the property 81 Orchard Cres Mont Albert North, 3129. This report, as understood by the author is to be submitted to relevant parties regarding planned development of the property and the relationship to the trees present. The QTRA Risk Assessment Method was used where relevant. Inspection was undertaken by myself, Ryan Roche on the 06th of January 2019 under calm, sunny weather conditions.

As agreed, this tree report will provide the following information regarding tree assessed:

- Onsite inspection of tree using QTRA methods where relevant
- Tree Identification
- Measurements and photographs (DBH tape, height meter, iPad photographs)
- Observations of tree health and condition
- Expected impact on tree from proposed works (including TPZ/SRZ details)
- Professional recommendations for works (if any), and/or mitigation or changes to construction techniques to allow any significant trees to be retained in accordance with AS4970-2009 *Protection of trees on Development Sites*.
- Specifics, details or recommendations as required by the determining authority.

Please note:

1. Prior to reading this report and subsequently following any advice, opinions, recommendations or findings provided, you must hereby understand and agree to our *Terms of Advice and Service* as provided at the end of the report.
2. Report inclusions and exclusions, assessment methodology (QTRA) and specifics pertaining to Australian Standards referenced may also be found at the end of the document

Please find the tree report included below.

Kind Regards,

Ryan Roche

1.0. Executive Summary

On the 06th of January 2019 we inspected trees located within the property 81 Orchard Cres Mont Albert North, 3129 and the immediate surrounds. Works relevant to the trees as understood by the author will comprise of:

1. Construction of an additional residence to the rear of the existing residence.

General findings:

1. Trees were found to be within the Broadly Acceptable QTRA risk category.
2. Majority of trees on the site are generally away from planned construction.
3. Council tree should remain unaffected should additional crossovers not be required.
4. Trees within the site and associated areas will experience some minor (acceptable) encroachment to root zone areas and are expected by the arborist to remain viable into the future.

1.1. Purpose of this report

The purpose of this report is to provide the findings of an independent assessment of the trees occupying the aforementioned area and to provide an arboricultural impact assessment and impact mitigation advice where relevant based on the planned development for the site. This report has been prepared in accordance with *AS4970-2009 – Protection of Trees on Development Sites* and *AS4373 – Pruning of Amenity Trees*

2.0. Documents relevant to this report

- Australian Standard: Protection of Trees on Development Sites AS4970-2009
- Significant Landscape Overlay (SLO9)
- Vegetation Protection Overlay (VPO2)

3.0. Site Observations & Trees Present

3.1. Site details

81 Orchard Cres Mont Albert North, 3129 is a standard residential house and land corner block intended for further residential development in the form of an additional residence constructed within the rear of the property. Few trees are present within the site or immediate surrounds. The property backs onto a native reserve managed by the council. No trees within this aspect are close enough to the property to be worthy of assessment.

3.2. Trees assessed

Tree assessed are included within the below table

RETENTION KEY:

RETAIN TREE	REMOVE TREE
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IMPACT KEY:

NONE	MINOR	MAJOR
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#	Botanical name	Common name	TPZ	SRZ	Owner	Impact
1	<i>Melaleuca stypheliodes</i>	Prickly-Leaved Paperbark	5.76m	2.49m	Council	None
2	<i>Lagerstroemia indicia</i>	Crepe Myrtle	6.12m	2.51m	79 Orchard	None
3	<i>Prunus domestica</i>	Plum	3.72m	1.85m	79 Orchard	None
4	<i>Eucalyptus melliodora</i>	Yellow Box	7.44m	2.76m	81 Orchard	Minor
5	<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	4.08m	2.2m	81 Orchard	Minor
6	<i>Ligustrum japonica</i>	Japanese Privet	8.64m	2.67m	79 Orchard	Minor

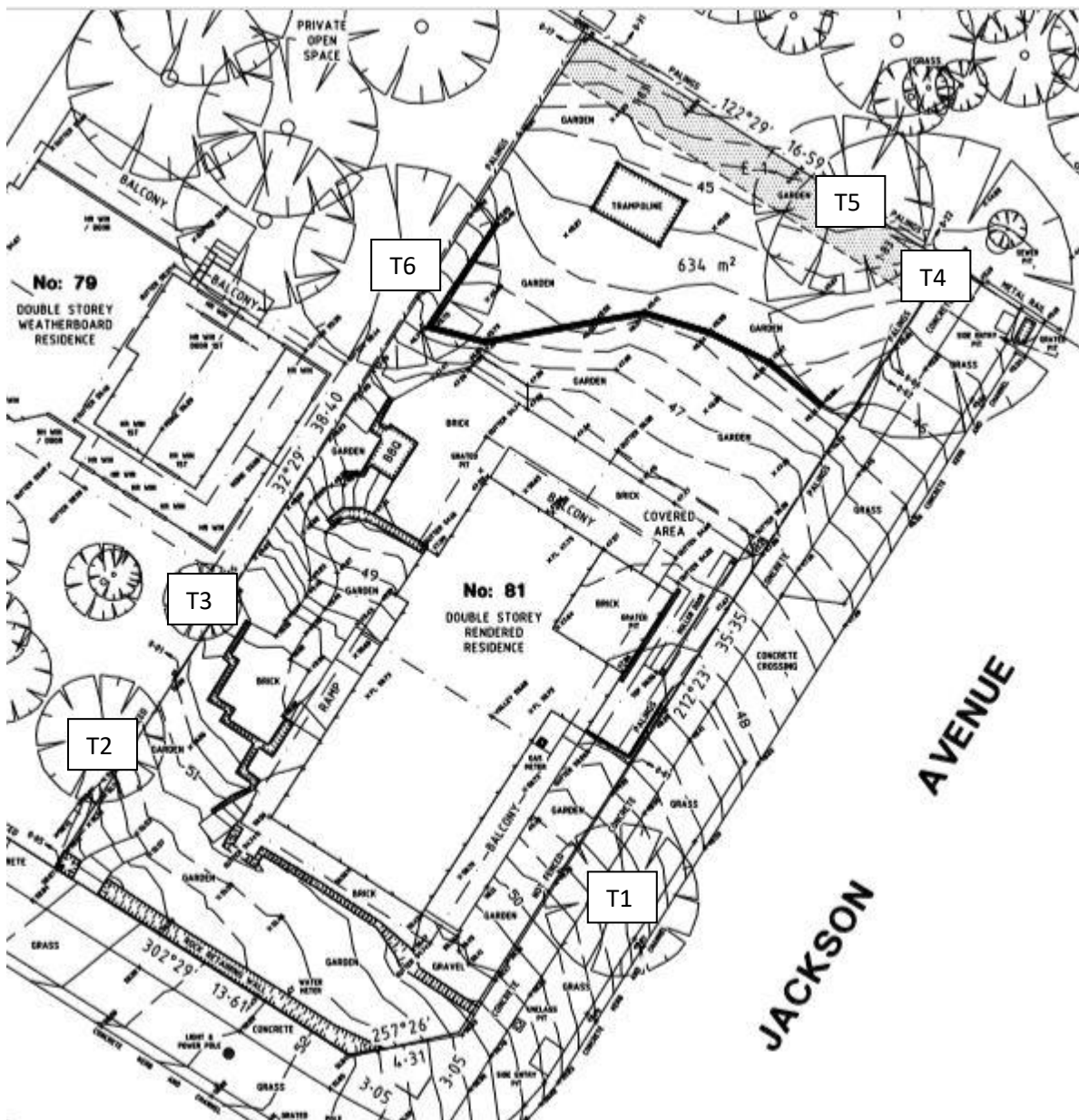


Plate 1 – 81 Orchard Crescent Mont Albert North, looking toward front aspect of property

4.0. Estimated Impact of Proposed Concept

Proposed construction will impact some trees on this site in a minor (acceptable) manner.

1. Council Melaleuca will not be impacted unless additional crossovers are planned. Any additional crossovers are estimated to breach the Structural Root Zone. This tree should be protected by a TPZ fence to avoid any inadvertent access-related damage.
2. Neighbouring trees 2 & 3 will not be impacted.
3. Trees 4 & 5 will experience minor root zone encroachment.
4. Neighbouring tree 6 will experience minor root zone encroachment (acceptable).



4.1. Tree details

TREE 1 *Melaleuca stypheliodes* Prickly-Leaved Paperbark

Native	South-eastern Australia	Evergreen
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B. Name	ULE	DBH	TPZ	DAB	SRZ
<i>M. stypheliodes</i>	20-30	0.48m	5.76m	0.51m	2.49m
Height	Spread	Health/condition	Age	Arb Value	Impact
15m	8m	Good, Good	Maturing	High	None





TREE 2 *Largerstroemia indicia* Crepe Myrtle

Exotic	USA	Deciduous
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B. Name	ULE	DBH	TPZ	DAB	SRZ
<i>L. indicia</i>	15-20	0.51m	6.12m	0.52m	2.51m
Height	Spread	Health/condition	Age	Arb Value	Impact
3m	3m	Good, Good	Semi-mature	Low	None



TREE 3 *Prunus domestica* Common Plum

Exotic	Europe	Deciduous
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B. Name	ULE	DBH	TPZ	DAB	SRZ
<i>P. domestica</i>	5-10	0.31m	3.72m	0.25m	1.85m
Height	Spread	Health/condition	Age	Arb Value	Impact
3m	2m	Poor, Poor	Semi-mature	Low	None





TREE 4 *Eucalyptus melliodora* Yellow Box

Native	South-eastern Australia	Evergreen
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B. Name	ULE	DBH	TPZ	DAB	SRZ
<i>E. melliodora</i>	50+	0.62m	7.44m	0.65m	2.76m
Height	Spread	Health/condition	Age	Arb Value	Impact
22m	18m	Good, Good	Maturing	High	Minor





TREE 5 *Brachychiton acerifolius* Illawarra Flame Tree

Native	Eastern NSW	Deciduous
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B. Name	ULE	DBH	TPZ	DAB	SRZ
<i>B. acerifolius</i>	20-30	0.34m	4.08m	0.38m	2.2m
Height	Spread	Health/condition	Age	Arb Value	Impact
17m	6m	Good, Good	Semi-mature	Medium	Minor





TREE 6 *Ligustrum japonica* Japanese Privet

Exotic	Eastern Asia	Evergreen
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B. Name	ULE	DBH	TPZ	DAB	SRZ
<i>L. japonica</i>	20+	0.45m, 0.27m	8.64m	0.50m	2.67m
Height	Spread	Health/condition	Age	Arb Value	Impact
11m	9m	Average, Ave	Maturing	Low	Minor



5.0. General retention notes

Regarding trees intended for retention, the following information is essential for consideration.

1. Works must not enter the SRZ under any circumstances. Doing so may destabilise the tree, leading to potential total tree failure. **Any tree removal is to be undertaken only with prior-approved written consent from the determining authority or under appropriate licence and undertaken by the determining authority.**
2. Tree protection fences should be installed around all trees for retention to ensure ongoing health and vitality where relevant.
3. Works may encroach no closer to the centre of the trunk than 10% of the total TPZ area in order to maintain tree health and viability (this is minor, acceptable encroachment).
4. Should works or access be required within or close to critical root zones the presence of a project arborist is required in conjunction with an approved TPMP.

A TPMP is included for this project. Please see below 6.0.

Tree Protection Management Plan

6.0. Pre-construction period

Following the approval of relevant planning permits, this TPMP should be implemented. A pre-construction meeting including relevant parties should be held to discuss the priorities regarding information within the TPMP, including protection methods, installation, and construction procedures/protocols for the pre, during and post-construction periods.

6.0.1. Tree pruning

Clearance pruning is a likely necessity to prevent damaging branch-breakage during the construction period.

Please note - The tying back of branches in place of pruning is recommended. Any pruning requests must be submitted to the determining authority, subsequently authorized and only conducted by a qualified arborist (AQF5 min) in accordance with AS4373-2007, Pruning of Amenity Trees.

- The tying back of branches for clearance purposes is preferred to pruning
- Any tying back of branches is to be approved by council and the method of tying back also approved and undertaken by a qualified arborist (minimum AQF Level 3)
- Any tree pruning should be undertaken to Australian Standard AS4373-2007 - Pruning of Amenity Trees
- Where pruning is required for clearance purposes, only the minimum amount required is to be pruned
- Any pruning/pruning requests must be submitted/undertaken prior to machinery entering site or the commencement of construction
- Damage to roots and/or root pruning of roots greater than 30mm must not occur/be undertaken

6.0.3. TPZ isolation fencing

While most likely not required for this project, this information has been included for reference. The tree protection zone indicates the minimum area required by the tree to remain healthy and vital. TPZ area is measured as a radius from the centre of the trunk and encompasses both below and above ground aspects. The TPZ isolation fence should be installed around all trees in question on all sides. Ideally this fencing follows TPZ distances, however, where footpaths and roads are within these, adjacent to these is suitable.

Fencing must be 1.8m high with post size a minimum of 20mm, installed clear of roots. Shade cloth or similar is to be installed over the fencing to prevent dust, particles or other materials from entering the exclusion zone. The TPZ fencing is to be secured to restrict access. Signs are to be erected on all sides of each TPZ fence. Signs are to read: *Tree Protection Zone. Strictly no entry without prior consultation with project arborist- contact 0409xxxxxx*, or similar. See the below section 6.1.2. of the report for further prohibitions within the TPZ.

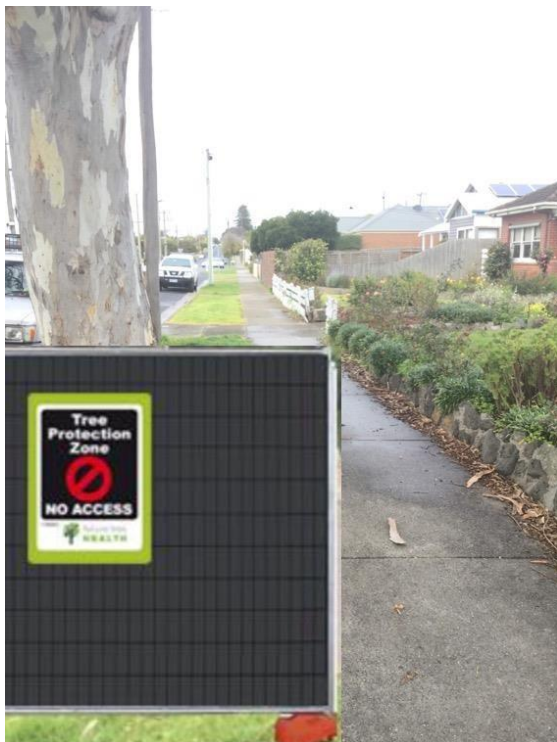


Plate 4 - Tree Protection Zone, illustrative example

**Although only one side of tree is shown, all sides of trees must be protected.*

TPZ Fencing – illustrative example

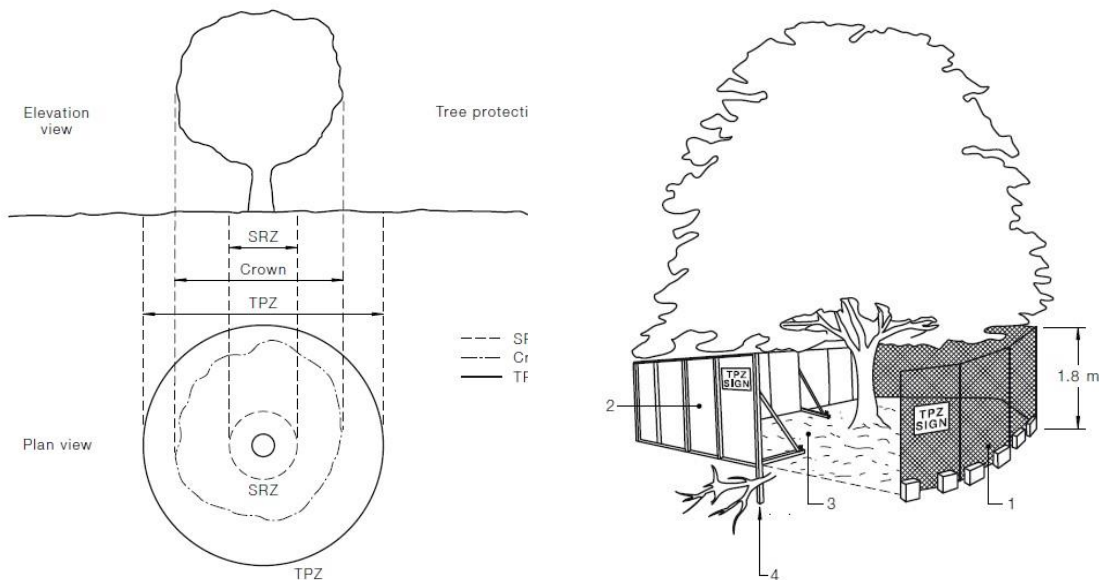


Plate 5 - AS4970-2009: Protection of trees on development sites

6.0.4. Compaction mitigation and fine root damage prevention

As the trees are close to construction access areas, compaction mitigation and root damage prevention measures are recommended where access through the TPZ is required. This encompasses the laying of mulch (150mm deep) and placement of rumble boards over the mulch within the TPZ and beyond where possible in areas where access is likely. This prevents machinery from further compacting the soil and/or damaging roots while the TPZ is entered into and/or crossed for access purposes. Should works be conducted into the warmer months, tree watering in accordance with the council watering guidelines/program is recommended.

1. Watering program and mulch application (150mm deep) should be implemented
2. Rumble boards are to be placed only where site access within TPZ's is required.

6.0.5. Protection of trees on development sites: AS4970-2009

This TPMP has been prepared in accordance with Australian Standard 4970-2009: Protection of Trees on Development Sites. Where proposed works are within the vicinity of trees, this standard is used to determine acceptable distances of works from trees via the calculation of Tree Protection Zones (TPZ) and the Structural Root Zone (SRZ).

A tree protection zone is calculated ($DBH \times 12$) to establish the acceptable proximity of works, equipment and construction practices/procedures from an existing tree. Following this, the erection of isolation fencing, the tying of branches, tree protection measures or instalment of tree protection zone signage may be required. This ensures the tree is protected for the duration of the works. The proposed works must not encroach within the tree protection zone unless this encroachment is less than 10% of the TPZ, is previously agreed upon and compensation of additional TPZ area (% of encroachment) is added to the TPZ.

Structural Root Zone (SRZ) refers to the structural roots within closer vicinity to the trunk which are required by the tree to remain upright. Encroachment into the SRZ of an existing tree is not permitted.

Works conducted within the SRZ may destabilise the tree, requiring removal to avoid subsequent tree failure.

6.0.6. Pre-construction approval inspection

Following the installation of the TPZ exclusion zone as indicated, a pre-construction inspection by the determining authority on the appropriateness of the installation may be required.

6.1. During construction

6.1.1. Drains and service installations

Any drains and/or services to be installed which require encroachment into the SRZ/TPZ should be done so using non-invasive excavation methods to avoid root damage. These must be prior approved by the determining authority and must be undertaken under the supervision of the project arborist. Examples of these methods include low pressure hydro-excavation or horizontal boring at a depth below 1100mm. Where roots are in conflicting locations they are not to be cut unless prior approval from the determining authority is sought, and execution is to be by an independent professional Arborist. Determining authority diameter allowance for root cuts must be ascertained prior to small root cuts on site undertaken by any non-council professional.

6.1.2. Tree Protection Zone procedures

This section outlines the non-negotiable prohibitions beyond allowable encroachment into the TPZ.

- Machine excavations including trenching
- Excavation for silt fencing
- Cultivation
- Storage
- Preparation of chemicals including cement products
- Parking of vehicles and plant
- Refuelling
- Dumping of waste
- Wash down and cleaning of equipment
- Placement of fill
- Lighting of fires
- Soil level changes
- Temporary placement of utilities and/or signs
- Physical damage to the tree

6.1.3. Inspections

During construction inspections are required at two-month intervals by the nominated project arborist. These inspections are to ascertain whether procedures and installations as approved by the determining authority are currently as approved. A checklist is signed by the project arborist and submitted to the determining authority regarding the compliance of the site to the TPMP. Any damage is to be documented and subsequently reported to the determining authority within 24 hours. Items for the checklist are, in general:

- Tree condition including any damage
- Adherence to TPMP procedures
- Unauthorized deviations from the TPMP
- New requests due to unforeseen events and requirements for amendments to the TPMP

6.2. Post-construction

6.2.1. Inspection

Post-construction, the project arborist must visit the site and prepare a post-construction report for submission to the determining authority.

6.2.2. Removal of tree protection

All tree protection installation items are to remain in place until the post-construction report is completed and approved by the determining authority.



7.0 References

1. Bardgett, R, 2005, *The Biology of Soil : A Community and Ecosystem Approach*, Oxford University Press, New York
2. Costello, L, Perry, E, Matheny, N, Henry, J, Geisel, P, 2003, *Abiotic disorders of landscape plants : a diagnostic guide*, Oakland, Calif. : University of California, Agriculture and Natural Resources
3. Draper, D, Richards, P, 2009, *Dictionary for Managing Trees in Urban Environments*, CSIRO Publishing, Collingwood
4. James et al, 2014, *Tree Biomechanics Literature Review: Dynamics*, Arboriculture & Urban Forestry 2014. 40(1): 1–15, International Society of Arboriculture
5. Harris, R, 1992, *Arboriculture : Integrated Management of Landscape Trees, Shrubs, and Vines*, 2nd edn, Prentice Hall Career & Technology, New Jersey
6. Mathney & Clark, 1994, A photographic guide to the evaluation of hazard trees in urban areas, International Society of Arboriculture, Champaign, Il.
7. Moore, G.M., 2003, Crown Thinning and Weight Reduction, Proceedings, ISAA Conference, Annual
8. Standards Australia, 4970-2009 – *Protection of Trees on Development Sites*.
9. Standards Australia 4373-2007 – *Pruning of Amenity Trees*
10. Urban, J, 2008, *Up By The Roots : Healthy Soils and Trees in the Built Environment*, International Society of Arboriculture.

8.0. Report exclusions

This assessment/report did not include the following:

1. Below ground inspection (includes: location, condition and/or integrity of roots; condition of inaccessible parts of trunk; property or asset conflicts and/or damage due to roots).
2. Soil profile test (includes levels of compaction if any)
3. Detailed aerial tree inspection observations/findings (Visual Tree Inspection was conducted from the ground)
4. Abiotic disorder certainty (resulting from groundwater analysis, gas leak investigations, etc.).
5. Certainty of presence/identity of biotic agents (pests, pathogens). Where present, biotic agents must be sampled and sent for lab analysis, a process not included in this commission.
6. Certainty of decay present (if any) within the tree (tree was inspected from the outside only, meaning the condition and integrity of the xylem - wood - within the tree cannot be ascertained).

9.0. Australian Standard 4970-2009: Protection of Trees on Development Sites

This report has been prepared in accordance with Australian Standard 4970-2009: Protection of Trees on Development Sites. Where proposed works are within the vicinity of trees, this standard is used to determine acceptable distances of works from trees via the calculation of Tree Protection Zones (TPZ) and the Structural Root Zone (SRZ).

A tree protection zone is calculated ($DBH \times 12$) to establish the acceptable proximity of works, equipment and construction practices/procedures from an existing tree. Following this, the erection of isolation fencing, the tying of branches, tree protection measures or instalment of tree protection zone signage may be required. This ensures the tree is protected for the duration of the works. The proposed works must not encroach within the tree protection zone unless this encroachment is less than 10% of the TPZ, is previously agreed upon and compensation of additional TPZ area (% of encroachment) is added to the TPZ.

Structural Root Zone (SRZ) refers to the structural roots within closer vicinity to the trunk which are required by the tree to remain upright. Encroachment into the SRZ of an existing tree is not permitted. Works conducted within the SRZ may destabilise the tree, requiring removal to avoid subsequent tree failure.



10.0. Approach to acceptable risk within QTRA (Quantified Tree Risk Assessment)

QTRA is a risk assessment method which aims to limit the risk of harm or damage from trees while also maintaining and promoting the benefits of trees. All trees were assessed using this method.

Assessment method

1. Tree defects, size health, condition, form, vitality, structure, past works, abiotic & biotic influences.
2. Target. Where no target (people or property) is present, a risk assessment is not required.
3. Occupancy of people/property within the target area. This is calculated using averages of occupancy over a one-year period.
4. Probability of failure is calculated using all information from point 1 above
5. A quantified risk assessment probability (Risk of Harm) for a period of 12 months is reached.

Risk of harm

Levels of risk are ranked within QTRA in four categories based on increases/decreases in probability

1. High risk/Unacceptable risk = 1/1 – 1/1K. **RED**
2. Medium risk/Unacceptable to impose on others without discussion – 1/1K-1/10K **ORANGE**
3. Low risk/Generally acceptable – 1/10K-1/1M **YELLOW**
4. Broadly acceptable – <1/M **GREEN**

Acceptable risk

Acceptable risk is not zero risk. Trees and tree populations come with benefits and inherent risks. As shedding organisms, trees do drop branches. Trees also have thresholds of tolerance to levels of extreme force such as wind (similar to buildings and man-made structures). When these levels are exceeded due to environmental factors or changed circumstances, trees or tree parts can fail. QTRA aims at assessing identifiable risk and its probability of failure leading to the risk of harm, based on presented aspects combined with target and occupancy. In this way, the benefits of trees can be promoted and maintained, and the risks managed and/or removed where necessary.

11.0. Terms of advice and service

Prior to reading this report and subsequently following any advice, opinions, recommendations or findings provided, you must hereby understand and agree to the following:

- This assessment and subsequent report findings are the culmination of research combined with the professional opinion of a qualified consulting arborist. Our consultants pride themselves on independent reports. This report has not been produced to support a particular motive, produce a desired value, or predict a desired occurrence. All findings are reported without bias towards certain parties or results.
- To the authors knowledge, all facts, assessment techniques and material presented is current and accurately researched. Opinions expressed within this report are supported by current research.
- This report contains sketches, photographs, plans, and/or diagrams. These are for illustrative use only and should not be considered to scale unless stipulated otherwise.
- *Future Tree Health* and its representatives will assume that all information divulged to them regarding legal matters, ownership of property or titles is correct. Any properties or projects will be considered to be compliant to relevant codes, legislation and/or appropriate regulations.
- *Future Tree Health* has gone to every professional length to ensure data and information provided is correct, reliable and accurate. Data or information provided by third parties is considered outside the control of our consultants and neither they, nor *Future Tree Health* will be held responsible for discrepancies or inaccuracies.
- Representatives of *Future Tree Health* are not required to give testimony or appear in court as a result of this tree report. An expert opinion may be presented by *Future Tree Health* where further arrangements are made, however, this is not a requirement or contractual obligation of this report.
- *Future Tree Health* and its representatives will not be held responsible for occurrences outside the consultants' control.
- This report is the product of a tree assessment, undertaken at the specific time and date listed on the Cover Page, within specific weather and environmental conditions. Thus, all information expressed within is relevant to this time, and date only. As a result, *Future Tree Health* will be in no way held responsible for damages, matters, occurrences, or other issues occurring after this inspection was completed. Following the inspection, all aspects pertaining to the tree/s and site/s in question are considered out of the control of *Future Tree Health*.
- Alterations or loss of this report will result in the entire report being deemed invalid.
- Publication and ownership rights of this report remain with *Future Tree Health*, and no file sharing, hard copy sharing, unauthorised publication or other unintended use will be undertaken without gaining prior consent from *Future Tree Health*.
- This report will not include or pertain to matters other than those aforementioned within the introductory letter and will not include any items listed within the 'Report exclusions' section.
- *Future Tree Health* cannot guarantee that any opinions expressed will come to fruition, and will not be held responsible should matters discussed either eventuate or fail to do so.

12.0. Disclaimer

- *Future Tree Health* and its representatives are qualified professionals and we take great care to provide information that is accurate, knowledgeable and reliable. You hereby agree to the extent of the law that we will not be held responsible (regardless of liability theory) for occurrences or advice, due to direct, indirect or negligent actions (using professional opinions, experience, or information – including information from third parties) which lead to or are perceived to lead to: any loss or damage (monetary, or otherwise), perceived loss, perceived damage; injury; revenue changes; aesthetic changes; and/or lifestyle impacts. We do not provide warranties or guarantees.

This disclaimer is governed by the law in force in the State of Victoria, Australia.