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13 May 2024

Attention: To Whom It May Concern

RE: Job 436181v3 - Treeworks Visual Tree Assessment & Tree Management Plan dated 12/12/23

Treeworks was engaged to conduct the above Report to be submitted to Queanbeyan City Council in 2023.

As the Level 5 Arborist overseeing the assessment and Report, I, Steve Griffiths, performed a thorough evaluation of the trees in question and completed the Report in December 2023.

In this Report, at Section 1.3 Recommendations, I included my recommendations for the 13 trees assessed, as follows:

1. 2 trees, identified as C12 and C13 in this Report, are council trees and hold protected status. They must be safeguarded throughout all construction phases and are not permitted for removal.
2. 3 trees, identified as N9, N10, and N11 in this Report, are neighbouring trees and have protected status. They too, must be protected during all construction phases and are not eligible for removal.
3. Among the site trees, 2 trees identified as S1 and S5 in this Report, I recommend for retention and they will require protection throughout the entire construction process.
4. The remaining trees on the property, identified as S2, S3, S4, S6, S7 and two instances of S8 in this Report, plus various small shrubs under the canopy of tree S1 are recommended for removal:
    - as they are not suited to the location for future growth, and
    - to better accommodate the building footprint.

This results in a total of 7 trees and various small shrubs under the Canopy of S1 (see photo) that I advise for removal from this site once approval has been gained from the Queanbeyan City Council.

As at this time, Treeworks has not been contracted for the removal of these trees, so I can only re-iterate my recommendations of which trees and shrubs should be removed, however Treeworks can provide a quote for the removal of the trees on this site once approval has been gained from the Queanbeyan City Council.

Yours sincerely

Steve Griffiths
Level 5 Consulting Arborist
30 years' experience in Arboriculture

Revised
Visual Tree Assessment
and
Tree Management Plan
for
24 Thurralilly Street
Queanbeyan East NSW 2620

Report Author	Steve Griffiths Level 5 Arborist Treeworks (ACT/NSW) Pty Ltd
Phone	1800 873 343
Report Date	12/12/2023

Project Details

Job	436181
Site Address	24 Thurralilly Street Queanbeyan East NSW 2620
Client	Lydia Powrie Shanel Erzeybek
Contact	02 9557 6466

Figure 1. View of the site at 24 Thurralilly Street Queanbeyan East from the east on Pound Street. All pictures were taken by Steve Griffiths on 12 December 2023 unless otherwise stated.

Version History

Ver. No.	Ver. Date	Revised By	Description
V0.1	21/11/21	Steve Griffiths	Initial draft report
V0.2	23/11/21	Jan Bartlett	Proof and format content
V1.0	24/11/21	Steve Griffiths	Final Report for submission
V2.0	8/12/ 21	Steve Griffiths	Amended full report
V2.1	12/12/23	Steve Griffiths	Review and amendment of report
V2.2	14/12/23	Alleyne O'Neill	Proof and format content
V3.0	14/12/23	Steve Griffiths	Final amended Report for submission

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If there are any concerns, questions, or issues regarding this notice, please contact your Treeworks representative.

Table of Contents

1. Report Summary

1.1 Purpose of this Tree Report

Treeworks is providing this Visual Tree Assessment & Tree Management Report for the Queanbeyan City Council. Architectural drawings for the proposed new residential dwelling at 24 Thurralilly Street Queanbeyan East NSW 2620, have been given to me, however hydraulic plans were not.

The protection of the trees in and around this site including neighbouring trees is to be in accordance with *Australian Standards Protection of trees on Development Sites AS 4970-2009* and TCCS act.

A living tree is a dynamic organism that needs specific environmental conditions to continue healthy, stable growth. It is rarely possible to repair stressed and injured trees, so substantial injury needs to be avoided during all stages of development and construction. For trees to be retained and their requirements met, procedures must be in place to protect trees at every stage of the development process. This should be considered at the earliest planning stage of any outdoor event or design of a development project where trees are involved.

Trees and their root systems may occupy a substantial part of the development site and because of their potential size, can have a major influence on planning the use of the site.

AS 4970-2009, p. 4

1.2 Dilapidation Report

A dilapidation inspection was conducted on the **12/12/2023**, it was noted as shown in photos below that there was lifting and cracking of council footpath on Pound Place and Thurrallily Street. Cracking was also observed on the council curb. The council footpath appeared to be non-compacted with good lawn.

Figure 2. Cracked curb on Thurralilly Street (12/12/2023)

Figure 3. Cracked curb on Pound Street (12/12/2023)

Figure 4. Damage to council footpath near driveway (12/12/2023)

Figure 5. Roots lifting foot path on Pound Street (12/12/2023)

1.3 Recommendations

- The following trees must be protected during all phases of development with a 1.8-meter tree protection fencing:
  - Trees S1 and S5
  - Trees C12 and C13 are council verge trees
  - and all the neighbouring trees on other blocks (Trees N9, N10, N11).
- We recommend the removal of trees S2, S3, S4, S6, S7and S8 as they are low value to the area and will allow for a larger footprint for the proposed house. Approval for these must granted by Queanbeyan City Council prior to removal.
- There are other small trees and shrubs on this site which can all be removed as they are less than 3m in height and have no value. Some of the trees are sucker trees and growing through mesh fencing on the property. Removing these will make more room for the building footprint.
- We recommend the retainment of Tree S1 and Tree S5 through all stages of development. The deck that is closest to Tree S1 requires piers or screw foundation. If the foundation selected is pier foundations, the holes must be either hydrovacced at half pressure or hand dug. Trees S1 and Tree S5 require compaction mats or secondary paths and Tree Protection Fencing (TPF) around them for the protection of their root system.
- The incursion into Tree S1's root zone is major due to being just over 10%. However, this incursion appears acceptable if all the methodologies outlined in this report are strictly followed and by using pier or screw pier foundation for the deck and waffle pod for the house while within the 10.44m Tree Protection Zone (TPZ) radius from the central trunk.
- The incursion into Tree S5's root zone is very minor being less than 5%. The incursion into this tree's TPZ will only be the boundary wall and pedestrian pathway to dwelling A. We recommend lightweight material such as colorbond fencing for the boundary wall, placed on pier foundation bases (hand dug or hydrovacced at half pressure from the nozzle). This incursion appears to be acceptable, provided there is minimal disturbance within the TPZ radius of 4.56m from the central trunk.
- The council verge must be fenced off and signs posted during all phases of development for the protection of the verge.

- Trees N9, N10, and N11 are neighbour's trees that have their roots encroaching into this vacant site and must be protected during all phases of development.

1.4 Overall Specifications That Must Be Followed

NB. Local Council Tree Protection Unit to approve any works within the Tree Protection Zone (TPZ)

- Firstly, install Tree Protection Fencing (TPF) around two site trees (Tree S1 and S5) and around the perimeter of council verge land on Pound Street and Thurralilly Street. The TPF is to be a sturdy 1.8m in height with signs stating "Tree Protection Zone – No Access". Refer to the *Proposed New Residential Buildings and Tree Locations* on page 11 for positioning of TPF and compaction matt placement. Once the TPF is installed, they are not to be removed.
- Tree's S1 and S5 require secondary paths or compaction mats. The maximum weight on these mats can only be 1.6 tonne. The construction of these secondary paths as shown in *Proposed New Residential Buildings and Tree Locations* on page 11, requires the use of 5m^3 of coarse mulch.
- Only remove and stump grind trees that have been approved for removal by Council.
- If there is low hanging branches from retained trees on this site that are in the way of construction works, such as scaffolding, they must first be tied and lifted up rather than cut. If this still is not possible, contact the Site Arborist, Steve Griffiths from Treeworks on 1800 873 343.
- All scaffolding will require metal baseplates to spread the weight.
- All foundations are to be waffle pods or pier or screw pier foundations when within any TPZ area.
- There is to be no changes in natural soil level around retained trees greater than 50mm scraping when within TPZ areas. Refer to TPZ for individual trees in *Tree Survey Schedule 1* on page 9.
- Please note that the TPZ measurements listed in the *Tree Survey Schedule 1* on page 9, are from centre of trunk (radius).
- Refrainment of trenching within any TPZ of the two site trees Tree S1 and Tree S5 for utility lines is recommended, instead installing any utility lines within the waffle pod.
- If a trench is needed for utility lines within the trees' TPZ, a Hydrovac machine must be used at half pressure to uncover the roots and thus retain roots; roots once uncovered are not to be cut, rather utility lines carefully placed under the roots (90% of the roots will be in the first 200mm in depth). Any utility line is to be carefully placed in PVC pipes under the roots.
- Exposed visual roots are to keep moist and shaded from UV rays via hessian bags. Trenches must only be open for 48 Hours.
- Heavy machinery is to only enter and exit the site via the existing driveways. Vehicles must not drive/park on council verge areas.
- There must be a waterproof (non-leaking) wash bay or bin for concrete slurry, plaster, paint and rubble, as well as a wash up area within this site. Builder's waste must not seep into the ground as this is very toxic to the trees' root system and all waste must be taken off site. These bins must be in a designated area and contractors advised where they are.

- Percolated soil (large granule than the native soils) can be added to raise up the levels to a maximum rise of 150mm within TPZ areas. These raised soil levels must not be heavily compacted (use Wacker plate).

Thank you for the opportunity to provide this report. Should you have any questions, please feel free to call me on 1800 873 343.

Kind regards

Stephen Griffiths
Level 5 Consulting Arborist

2. Report Details

2.1 Important Notes

The majority of trees have defects that may or may not be detectable without invasive diagnostic tooling methods. These defects could be from environmental, human or genetic factors and may be hazardous to people and property.

This assessment does not provide the likelihoods of what will or will not happen, but an evaluation of the risks from any individual tree hazard.

QTRA user manual Version 5 UK

2.2 Tree Identification

When identifying species and cultivars, it is important to note that some macro botanical characteristics change over time. There may be small changes between cultivars and species and not all botanical signs are featured at the date of inspection. If an absolute identification is required, a further re-examination of micro characteristics will determine species or cultivar.

2.3 Purpose of this Tree Report

This Report is for the design team showing which trees are regulated, worthy of retention and of low value. It also provides details of TPZs, health, useful life expectancy and further recommendations.

2.4 Tree Survey Schedule

Tree #	Tree Name	Health	Value	Protected (NSW)	TPZ (m)	SRZ (m)	ROH	ULE (yrs)	Further Comments
S1	*Pinus radiata*	Good	High	Yes	10.44	3.40	Low	15	Possible recent root disturbance, 3m south of trunk
S2	*Prunus x bileriana*	Good	Medium	Yes	3.00	1.94	Low	25	2m from Colorbond fence
S3	*Prunus cerasifera nigra*	Fair	Medium	No	2.52	1.91	Low	25	2m from Colorbond fence
S4	*Prunus sp.*	Good	Low	No	2.00	1.5	Low	25	2m from Colorbond fence
S5	*Hesperocyparis macrocarpa*	Good	Low	Yes	4.56	2.65	Low	20	Compression union at base
S6	*Malus sp.*	Good	Low	No	2.40	1.95	Low	20	Multi-stemmed tree
S7	*Fraxinus angustifolia*	Good	Medium	Yes	2.64	1.91	Low	25	Mechanical scar on tree trunk
S8 (x2)	*Prunus sp.*	Fair	Low	No	2.00	1.59	Low	15	Low value trees, remove for more of a building footprint
N9	*Ficus carica*	Good	-	Yes	4.56	2.25	Low	20	1m from boundary fence
N10	*Ligustrum lucidum*	Poor	-	Yes	3.12	1.94	Low	5	Neighbour's tree in decline
N11	*Hesperocyparis macrocarpa*	Good	-	Yes	4.32	2.43	Low	20	Neighbour's tree, close to powerlines, 2m from fence
C12	*Pyrus ussuriensis*	Fair	High	Yes	-	-	Low		Tree in decline
C13	*Malus sp.*	Good	High	Yes	-	-	Low		Close to bus stop

Table 1. Tree Survey Schedule 1

Tree #	Common Name	DBH (mm)	Basal Trunk Flare (dia)	Visual Defects	Height (m)	Canopy (m)		Age Class	Structural Integrity	Live Foliage %
						N/S	E/W			
S1	Monterey Pine	870	1070	-	17	8/9	9/6	Mature	Good	90
S2	Broad Leaf Plum	250	282	-	7.5	2/2	2/2	Semi-Mature	Good	90
S3	Black Cherry Plum	210	270	Minor beetle infestation	6	3/2	2/2	Semi-Mature	Good	80
S4	Plum Tree	107	144	-	3.5	2/2	2/1	Young	Fair	90
S5	Monterey Cypress	260/ 280	590	Structural weakness	10	4/4	4/4	Semi Mature	Poor	90
S6	Apple Tree	200	285	Multi-stemmed	4.5	3/3	3/3	Young	Fair	95
S7	Narrow Leaf Ash	220	270	Trunk scarring	7	2/2	2/2	Young	Good	95
S8 (x2)	Stone Fruit	125	175	Mechanical damage	4.5	2/2	1/2	Young	Fair	70
N9	Common Fig	380	400	-	7.5	2/6	7/3	Semi-Mature	Good	85
N10	Privet	260	280	In decline	7	1/2	1/1	Semi-Mature	Fair	70
N11	Monterey Cypress	360	480	-	12.5	4/3	2/2	Semi-Mature	Fair	90
C12	Manchurian Pear	190	230	tree in decline	6.00	2/3	2/3	Semi Mature	Fair	85
C13	Apple Tree	160	440	Lots of epicormic growth	7.00	3/2	3/2	Semi Mature	Fair	85

Table 2. Tree Survey Schedule 2

Tree #	Common Name	Total Root Zone (m2)	Incursion % allowed TPZ	M.L.T.E. (from centre of trunk)	Root Zone Incursion (m2)
S1	Monterey Pine	342.41	9.97	7.18m	34.13
S2	Broad Leaf Plum	28.27	10.02	2.06m	2.83
S3	Black Cherry Plum	19.95	10.03	1.73m	2
S4	Plum Tree	12.57	9.86	1.38m	1.24
S5	Monterey Cypress	65.33	9.93	3.14m	6.49
S6	Apple Tree	18.10	9.98	1.65m	1.81
S7	Narrow Leaf Ash	21.90	9.89	1.82m	2.17
S8 (x2)	Stone Fruit	12.57	9.86	1.38m	1.24
N9	Common Fig	65.33	10.03	3.13m	6.55
N10	Common Privet	30.58	10.05	3.12m	3.07
N11	Monterey Cypress	58.63	9.98	2.97m	5.85
C12	Manchurian Pear	-	-	-	-
C13	Apple Tree	-	-	-	-

Table 3. Tree Survey Schedule 3

2.5 Proposed New Residential Buildings and Tree Locations

Figure 6. Proposed New Residential Buildings

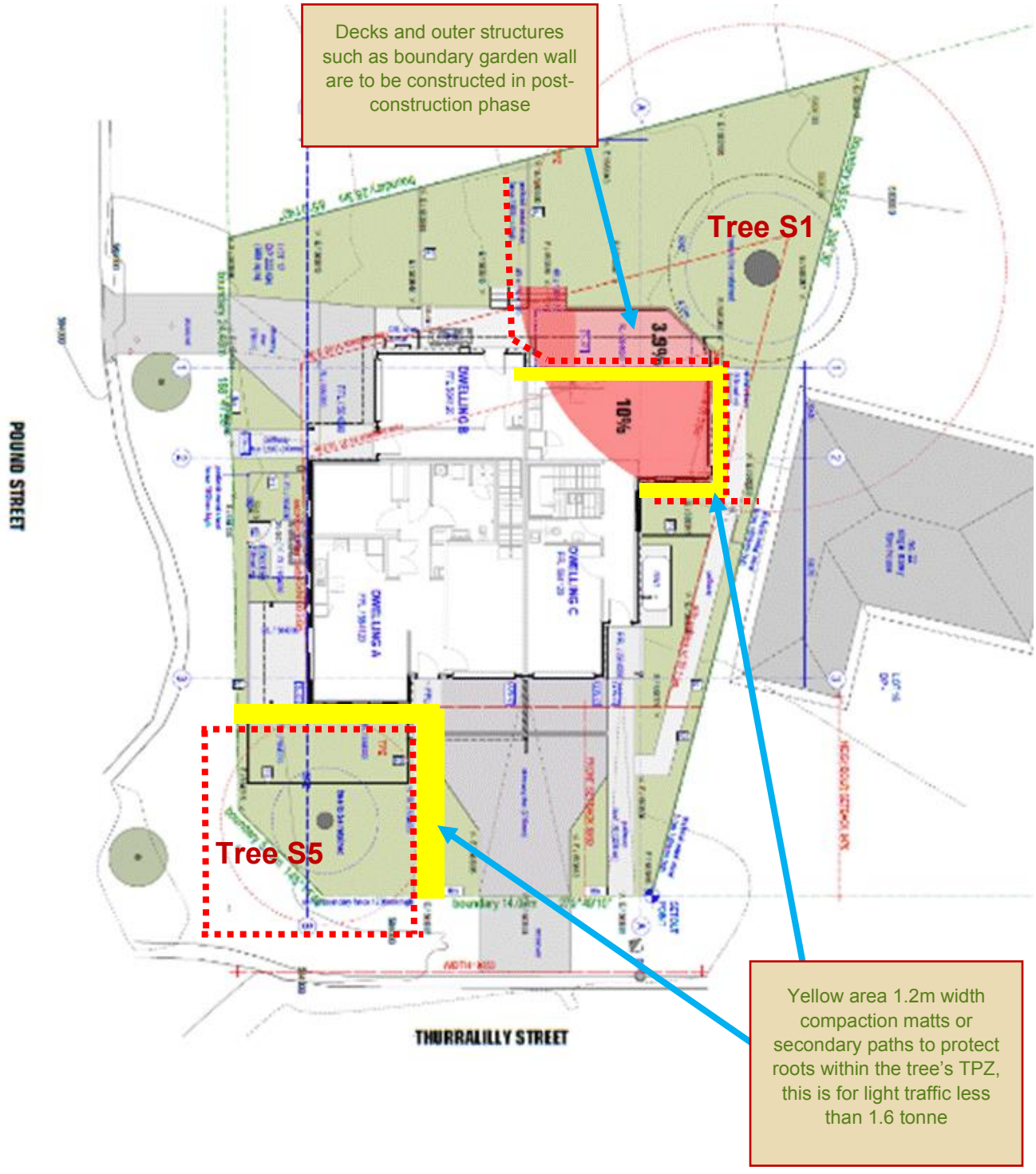

Figure 7. 24 Thurralilly Street Queanbeyan location- please note house is no longer on block

3. Legal

3.1 Legislation

The Australian Standards; Protection of trees on development sites 4970-2009, outlines the required procedures for the protection of significant trees. This report highlights the relevant standards you need to follow.

This report is submitted and acknowledged by the client as prepared by Steve Griffiths, Arborist of Treeworks, as instructed on a limited basis after visual inspection of the trees at ground level only.

Australian Standards; Protection of trees on development sites 4970-2009

3.2 Acknowledgements

3.2.1 The client acknowledges:

a) That Treeworks has not conducted any invasive procedure or ultrasound test on the trees, nor inspected it at crown level or below surface level;

b) This report does not and cannot make comment upon, determine or assess defects that may exist in the trees internally. Whether arising from decay, disease, effect of drought, insect infestation or any other inherent condition that may exist.

3.2.2 No Warranty for Non-Discernible Defects or Damage

Accordingly, this report cannot and does not warrant that defects or damage do not exist within the trees that may not be discernible to a competent Arborist inspecting at ground level.

3.2.3 Reliance Period

The client acknowledges that no reliance may be placed on this report after twelve months following the date of inspection.

3.2.4 Disclaimer of Liability to Third Parties

To the extent permissible by law, Steve Griffiths, Arborist of Treeworks, is not liable for any loss, damage, personal injury, costs or expenses suffered by any person or persons other than the recipient of this report.

Appendix 1 Pictures of Trees Assessed

Please note that pictures of Trees S1 – S8 and N9 – N11 were taken 19 November 2021, and Trees C12 and C13 were taken on 12 December 2023.

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Figure 8. Tree S1 *Pinus radiata*

Figure 9. Tree S2 *Pinus radiata* - showing recent digging within the tree's root zone

Figure 10. Tree S2 *Prunus x bileriana*

Figure 11. Tree S3 *Prunus cerasifera nigra*

Figure 12. Tree S4 *Prunus sp.*

Figure 13. Tree S5 *Hesperocyparis macrocarpa*

Figure 14. Tree S5 *Hesperocyparis macrocarpa* - with compression union

Figure 15.* Tree S6 *Malus sp.

Figure 16. Tree S7 *Fraxinus angustifolia*

Figure 17. Tree S8 – 2 x *Prunus sp.*

Figure 18. Tree S8 - showing mechanical damage

Figure 19. Tree N9 *Ficus carica* - neighbor's tree

Figure 20. Tree N10 *Ligustrum lucidum* - neighbor's tree

Figure 21. Tree N11 *Hesperocyparis macrocarpa* - neighbor's hedge

Figure 22. Tree C12 - Manchurian Pear

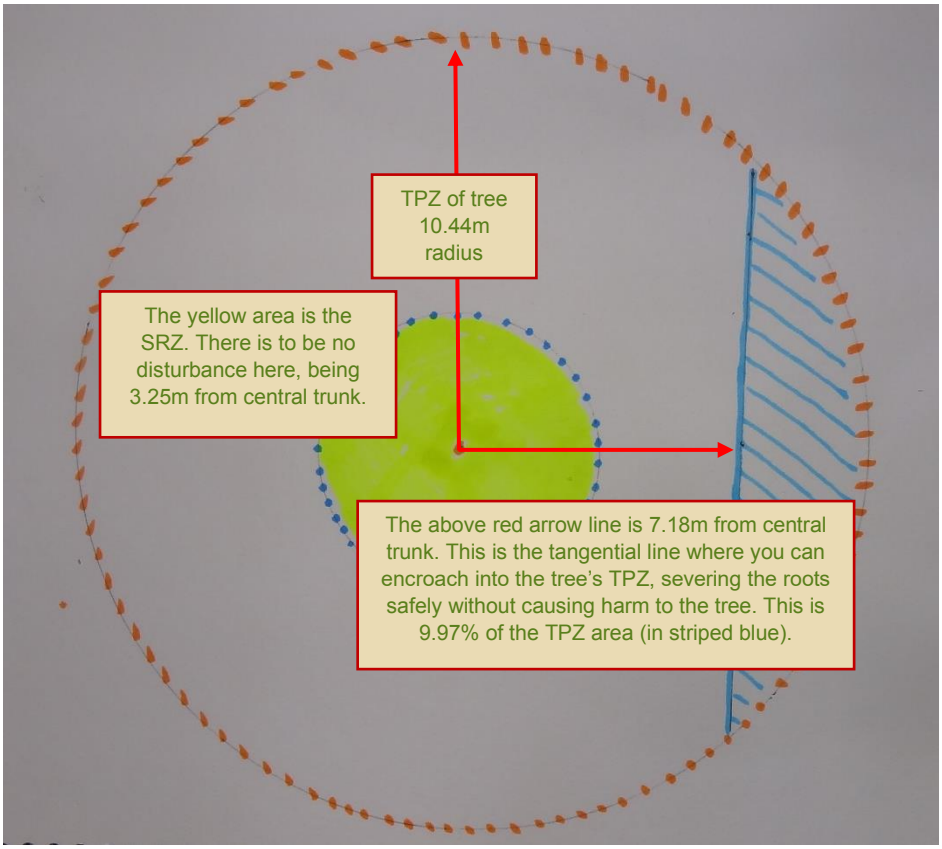
Figure 23. Tree C13 – Apple Tree

Appendix 2 Additional Information About TPZ Incursions

A2.1 Possible TPZ Incursion Illustration

Commonly allowed incursion – illustration below shows an allowed 10% incursions into TPZ of a tree's root zone using Tree S1 as the example.

Figure 24. Below is an illustration of Tree S1 *Pinus radiata* from this site



Where a trench or building foundation is aligned within the TPZ of any tree to be retained (as stated in this Report), Hydro-vacuum excavation or hand digging must be used to expose the tree roots along the side of the trench closest to the trunk. This will prevent roots being ripped during excavation. Once roots are expose through this process, cables and pipes can be carefully placed under the exposed roots. **The trench is to be filled in within two days.**

A2.2 No Modification to Ground Levels within a Tree's TPZ

Most absorbing roots are only 200mm under the soil surface, so any disruption by scraping away or adding soil, can greatly damage the tree's root system. There is to be no excavation of soil greater than 50mm in the TPZ for any of the following reasons:

- foundations and footings of any type
- installation of water, gas, phone, electricity, communication lines etc
- temporary services to site shed (these must be placed above ground)
- for any other reason, unless the site Arborist approves.

A2.3 Other Foundation Considerations

This Report should guide the development layout design in a way that ensures trees selected for retaining are provided with sufficient space to thrive. Tree sensitive measures within tree root areas should be considered at this stage. These include:

- screw pile footings
- suspended beams
- suspended slabs
- cantilevered building sections
- contiguous piling
- waffle pad foundations.

The points below are examples of different types of building foundations when even closer proximity to the tree is needed. It is important that the site design layouts are designed in a way that ensures trees selected for retaining are provided with sufficient root space to thrive. Tree sensitive measures within tree root areas should be considered at this stage. These include:

- screw pile footings
- suspended beams
- suspended slabs
- cantilevered building sections
- contiguous piling
- waffle pad foundations.

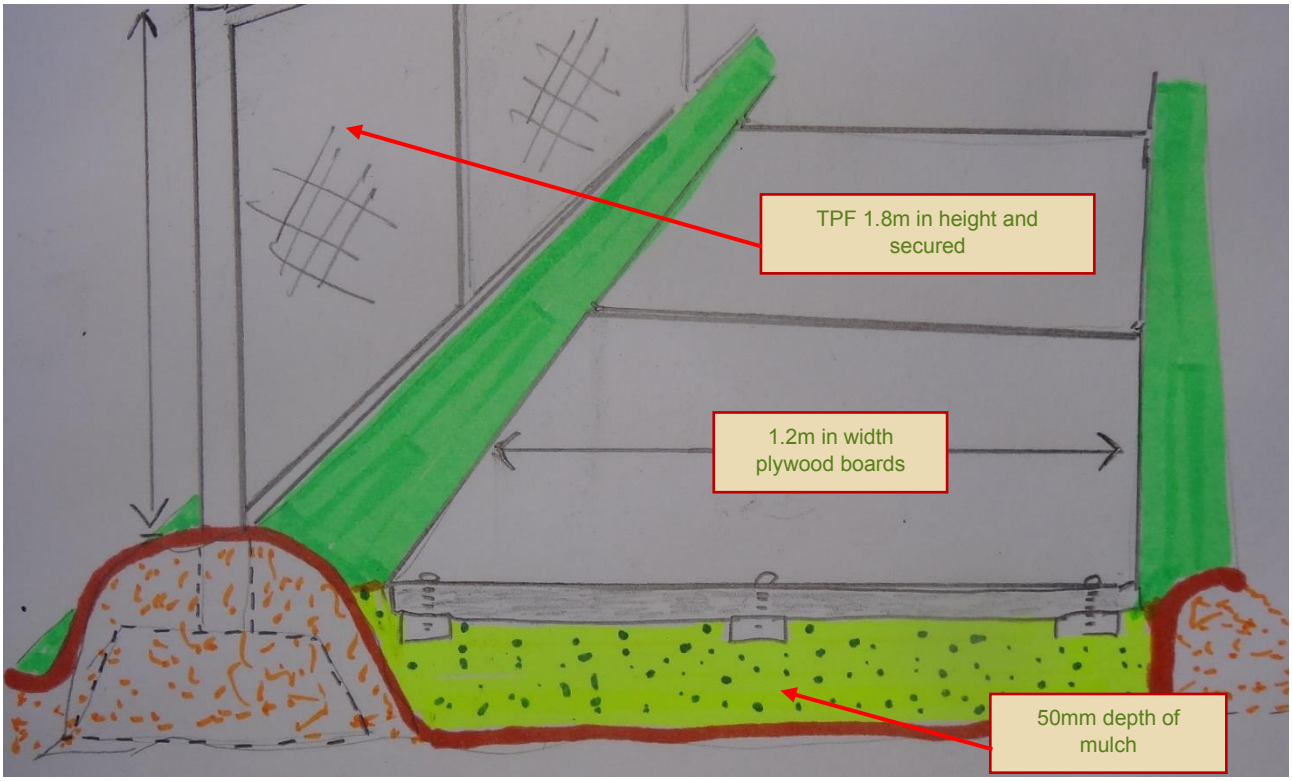
A2.4 Hydro Excavation and Tree Protection Methodology

- Only an experienced and competent Hydro excavation Operator (Operator) shall operate the Hydro vacuum excavation equipment.
- A qualified Arborist is to provide onsite assistance to the Operator, if 40mm root diameter is found which may include advice regarding supervision of root pruning, if required, and backfilling.
- It is recommended a 4-inch (100mm) vacuum suction hose be used within all TPZs. Due to suction pressure of a wider hose, a 6 inch (150mm) or greater diameter hose is not recommended within a TPZ.
- The Operator is required to use a 45-degree flat fan straight tip nozzle. A flat fan straight tip nozzle is of short length, single orifice fitting, that is inserted into the digging end of the wand and as such there is a single concentrated jet of water exiting from the tip of nozzle which sprays water evenly.
- The maximum water pressure to be used at any time with a flat fan straight tip nozzle during hydro excavation within a TPZ shall be 2,000 psi. All pressure measurements are to be monitored using a pressure gauge mounted on the Hydro vacuum machine.

- A distance of 50–150mm shall always be maintained between the end of the pressure wand nozzle and the subsoil. The nozzle shall never be inserted into the subsoil while excavating in a TPZ.

A2.5 Tree Protection Fencing and Secondary Paths Illustration

Figure 25. TPF and Secondary Paths



A2.6 Tree Protection Fencing (TPF)

As set down in *Australian Standard: Protection of trees on development sites*, fencing must be erected before any machinery or materials are brought onto the site and before the commencement of works, including demolition. Once erected, for the demolition stage, protective fencing must not be removed or altered without approval by the Site Arborist. Refer to the illustration above for TPF locations. The TPF must be secured to restrict access.

AS 4970-2009, p. 15

Signage is also required to be attached to the TPF declaring “Tree Protection Zone - No Access”. See AS 4970-2009, App. C, p. 28 for a suitable example.

AS 4970-2009, App. C, p. 28

A2.7 Soil Compaction

Soil compaction can reduce pore volume of soil and alter infiltration and water holding capacity, all of which can result in poor tree health. This is why it is important for heavy machinery to stay within routes provided. The magnitude of the contribution of soil compaction to issues resulting in a tree’s decline in the region is not known and requires research. It has been reported as a significant

concern for land managers. Building materials are to be place on bearers rather than directly on bare soil when within any trees TPZ.

A2.8 When Adding New Permeable Soil to the Site

In the effort to lessen the fee and the time of construction, introduced fill soil is frequently put on the top of compressed soil formed during construction without any preparation. A rough and compacted surface covered with a thin layer of fill, can lead to wetness and aeration difficulties. If the compressed surface is sloped, water movement above the compacted film will create a wet zone at the bottom of the gradient. Implanting in such an area will be irrigated unevenly and may therefore grow unevenly or poorly. If the fill is relatively deep there will be fewer problems because the soaked area will be above the root region of the tree.

Arboriculture: Integrated Management of Landscape Trees, Shrubs, and Vines, 4th Edition - Harris, Clark & Matheny 2004, p. 145

Appendix 3 References

A3.1 Glossary

Term	Description
Age Class	Grouped from young to old: sapling, young, mature, semi-mature and over mature.
Basal Trunk Flare	The lowest point of the trunk where it flares out.
Botanical Name	Botanical name is the formal scientific name which conforms to International Code of Nomenclature.
Canopy Spread	Diameter of the dripline of the tree's canopy - north, south, east & west from trunk.
DBH	Diameter of the trunk or trunks at breast height (1.4m).
Health	General health of the tree – very good, good, fair, poor
Height	The estimated height of the tree.
Live Foliage %	The percentage of noticeable live leaves in a tree's canopy.
M.T.L.E from (centre) trunk	Metres from Tangential Line Encroachment allowed, shows the safe distance from the central trunk to the severed roots. Refer *AS 4970-2009, App. D, p. 29.*
Retention Value	The value of retaining, preserving and continuing to hold on to the tree for the future. High, low or poor.
ROH	Risk of harm that is predicted from this tree after studying tree's structure, rated as Low, Medium and High priorities
SRZ (radius)	Structural Root Zone - radius from the central trunk. No interference is to occur in this area.
Structural Integrity	The ability of the tree to hold together under a load, in regard to weight, wind throw, weakened unions and diseases, without breaking excessively (measuring the tree's structural strength by means of visual bio-mechanics).
TPZ	Tree Protection Zone (DBH x12= TPZ radius).
Tree #	The tree's number, as shown on the diagrams and Site Plan.
ULE	Useful Life Expectancy measures the amount of years left in a tree before it becomes a possible mitigation problem or a tree in decline.
Vigour	The health and resilience of a tree; the overall condition on a qualitative scale from 'high' to 'low'.
VTA	Visual Tree Assessment. **VTA[1]** On-ground inspection - Identification of structural defects while on the ground using simple equipment such as acoustic mallets, probes and binoculars. **VTA[2]** Aerial inspection - Where a tree is climbed to get a better observation of the tree. **VTA[3]** Invasive testing - Where drilling or coring is required, often a very small drill is used.

A3.2 Figures

A3.3 Tables

A3.4 Report References

AS 4970-2009, p. 4 5
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Australian Standards; Protection of trees on development sites 4970-2009 13
AS 4970-2009, p. 15 20
AS 4970-2009, App. C, p. 28 20
Arboriculture: Integrated Management of Landscape Trees, Shrubs, and Vines, 4th Edition - Harris, Clark & Matheny 2004, p. 145 21
AS 4970-2009, App. D, p. 29. 22