

**JOSEPH PIDUTTI
CONSULTING ARBORIST**

Diploma of Arboriculture (AQF Level 5)

Certificate No. AHC50510 December 2014

Certificate No. RUH50198 December 2004 -2014

ABN 19 590 337 549 BRN TO356519

3 Victoria Road Tingira Heights 2290 NSW

Ph 02 49 471219 Mobile 0412 996659

E-mail: jparborist@bigpond.com Web: www.josephpiduttiarborist.com.au

ARBORICULTURAL IMPACT ASSESSMENT REPORT

**303 WOLLOMBI ROAD
FARLEY**

Prepared for

FARLEY LIFESTYLE VILLAGE

16th AUGUST 2023

By
Joseph Pidutti
Diploma in Arboriculture

TABLE OF CONTENTS

1. Summary	1
2. Introduction	2
3. Methodology	3
4. SULE	3
5. Limitations	4
6. Tree Assessment – Table 1 Tree Evaluation Sheets	5-7
7. Protection Zones	8
7.1 Tree Protection Zones (TPZ)	8
7.2 Structural Root Zone (SRZ)	8
4.3 Table 2	9
Figure A	10
Figure B	11
8. Impact Assessment	12
9.1 Road Widening	12
9.1.1 Tree Nos. 1, 2, 3, 4, 6, 8, 9 & 11	12
9.1.2 Tree Nos. 5, 7 & 10	13 & 14
9.2 Bulk Earthworks Cut / Fill	15
9.2.1 Tree Nos. 1, 2, 3, 5 & 6	15-16
9.2.2 Tree No. 4	17
9.2.3 Tree Nos. 7, 8, 9, 10 & 11	18
9. Conclusion	19
10. Recommendations	20
11. References	21
Disclaimer	21
Appendix 1 Safe Useful Life Expectancy	
Appendix 2 Condition Ratings	
Appendix 3 Tree Protection Measures	
Appendix 5 Tree Protection Zone Specification	
Appendix 4 Civil Works Plan	
Appendix 5 Bulk Earthworks Cut / Fill Plan	

1. SUMMARY

The purpose of this report is to provide an Arboricultural Impact Assessment on 11 trees located on top of the bank of the north boundary in relation to viability of their retention.

Based on the Civil Works & Bulk Earthworks Cut / Fill Plans:

- Whilst the proposed road widening work will not encroach the TPZ of **Tree Nos. 1, 2, 3 & 6** the proposed soil cut will encroach into their TPZ & SRZ. Due to the close proximity of earthworks works in relation to the extent of encroachment into their TPZ /SRZ's it is considered that should excavation proceed as proposed without regard to roots that the trees are likely to be adversely impacted upon in a manner that could be detrimental to both stability and health & vigour and as such would be removed to facilitate the development as proposed.
- Whilst the proposed road widening work may slightly encroach into the TPZ of **Tree No. 5** it is not expected to have any significant impact however the proposed soil cut will encroach into its TPZ & SRZ and as such it is likely to be impacted upon in a manner that could be detrimental to both stability and health & vigour and as such would be removed to facilitate the development as proposed.
- Whilst the road widening works is not within the TPZ of **Tree No. 4** the proposed soil cut will slightly encroach into its TPZ. However, as encroachment is expected to be less than 10% of its total TPZ's and the area lost to encroachment is outside of its SRZ and can be compensated for elsewhere and contiguous within the TPZ it is not expected to be significantly impacted upon by the proposed development works and can be retained.
- Whilst the proposed soil cut is not within the TPZ's of **Tree Nos. 7 & 10** the proposed road widening work will slightly encroach into their TPZ's. However, as encroachment is expected to be less than 10% of their total TPZ's and the area lost to encroachment is outside of their SRZ's and can be compensated for elsewhere and contiguous within the TPZ they are not expected to be significantly impacted upon by the proposed development works and can be retained.
- As road widening or excavation works are not expected to encroach within the TPZ's of **Tree Nos. 8, 9 & 11** they should not be impacted upon by the proposed development and can be retained.
- With the implementation of Tree Protection Measures the owners / developer / building contractor with a guide so that the trees to be retained can be protected whilst construction is undertaken

2. INTRODUCTION

The purpose of this report is to provide an Arboricultural Impact Assessment on 11 trees located on top of the bank of the north boundary in relation to viability of their retention.

Impact Assessment will be in accordance with Australian Standards – AS 4970 – 2009, Protection of Tree on Development Sites

Tree Assessment will be in the form of a Level 2 ‘Basic’ Tree Assessment as described in the International Society of Arboriculture (ISA) Tree Risk Assessment Manual and conducted from the ground only.

Assessment and outcomes of this report will be based on the Civil Works Plan by Northrop Job No: NL230521:

- Bulk Earthworks Cut / Fill Plan – Drawing No: DA-C03.01 Revision 3 Dated 17.08.2023
- Civil Works Plan Sheet 2 – Drawing No: DA-C04.02 Revision 2 Dated 17.08.2023

The report will contain the following information:

- Tree Assessment
- Impact Assessment
- Tree Protection Measures
- Recommendations

The report should be read and considered in its entirety.

3. METHODOLOGY

A visual tree assessment was made on the 16th of August 2023 to evaluate the health and condition of the trees and the impacts of the proposed development.

Impact Assessment was undertaken in accordance with Australian Standards – AS 4970 – 2009, Protection of Tree on Development Sites

Assessment of the trees was undertaken by means of a Visual Tree Inspection (VTA) Level 2 – Basic Tree Assessment as described in the International Society of Arboriculture (ISA) Tree Risk Assessment Manual and conducted from the ground only.

A level 2 Basic Assessment consists of a detailed visual inspection of a tree and its surrounding site. It involves a complete walk around the tree looking at the site, buttress roots, trunk and branches. The tree is also looked at from a distance and close up to consider crown shape and surroundings. The use of simple tools to acquire more information about the tree or any potential defects may be used but is not mandatory

Trunk diameters were measured using a diameter tape and canopy spreads were estimated

In general tree heights were estimated however some taller trees were measured using a Haglof EC11 height measuring device to obtain their height and also used as a guide in estimating heights of the others

Photographs were taken using a digital camera; no enhancements were made to any photographs used in this report.

Assessment of all trees did not include soil testing, root inspection, aerial inspection or any other investigative inspection methods.

4. SULE – Safe Useful Life Expectancy

The SULE method (developed by Jeremy Barrell) of assessment involves classifying trees, after an inspection, into one of five categories that will give an indication of its safe useful life expectancy. The value system is a planning tool only and should be taken in context with other attributes, characteristics or site conditions. These values would change as a result of the proposed development.

SULE takes into consideration the species, age, location, health and condition in trying to determine the possible outcomes and future potential of a tree (Appendix 1)

5. LIMITATIONS

Tree health and environmental conditions can change at any time due to unforeseen circumstances and as such the contents contained in this assessment refer to the tree's condition on the day of inspection only.

Only those trees specified in the Introduction were assessed and assessments were performed within the limitation specified.

Assessment of trees was by visual inspection from the ground only however due to their height, canopy spreads and/ or interference of canopy spreads from surrounding trees visibility is often obscured and as such not all faults may have been detected or extent of defects able to be fully determined.

More advanced assessment techniques such as aerial inspections for evaluation of structural defects in trunks and branches, decay testing to determining the amount of sound and root inspections would need to be undertaken in further determining the structural integrity of the trees.

A visual assessment can only take into consideration the outward signs of a trees condition. There are many problems that can occur inside a tree that cannot be seen, such as fungal diseases and undetected structural faults such as decay and hollows. Problems can also occur within the root systems due to contaminated soils and root diseases.

These issues would require further investigative methods to be undertaken in further determining the health and condition of the tree.

Any tree whether it has visible weaknesses or not will fail if the force applied exceed the strength of the tree or its parts

No guarantee can be given nor can it be predicted that branch failure or uprooting (windthrow) would not occur as a result of extreme winds, storm activity, lightning strike and /or excessive rainfall.

No tree can be declared completely safe and total mitigation of risk can only be achieved by complete removal of trees. As such the risk that branch, trunk or root crown failure may occur is always present.

As root systems are neither symmetrical or entirely predictable in their depth and are affected by topography, characteristics of soil or substrate and underground obstructions their location and subsequent extent of potential damage is often unpredictable and assessing the impacts of construction can often be difficult to determine.

Whilst careful planning and thorough assessment of the potential impacts of construction, excavation procedures and adequate protection of the trees during construction it is possible that the changed surrounding conditions may inadvertently affect their condition in the future

6. TREE ASSESSMENT

6.1 Table 1 - Tree Evaluation

Legend DBH = Diameter at Breast Height (1.4m) DGL = Diameter Above Root Flare TPZ =Tree Protection Zone SRZ= Structural Root Zone

Tree No	Botanical Name Common Name	Age	HGT (m)	Canopy Spread(m) N S E W	DBH (mm)	Structure	Health	Cond ition	SULE	Comments
1	<i>Corymbia maculata</i> Spotted Gum	M	20	3551	360	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects (Photo 1)
2	<i>Eucalyptus paniculata</i> Iron Bark	M	18	7423	430 300	Good	Good	5	1b	No significant signs of dieback or decline Co-dominant trunks minor bark inclusion No cracking or splitting could be seen at the co-dominant union that would indicate failure was imminent or probable No other significant structural defects (Photo 1)
3	<i>Corymbia maculata</i> Spotted Gum	M	18	4513	300	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects (Photo 1)
4	<i>Corymbia maculata</i> Spotted Gum	M	15	4323	300	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects (Photo 1)
5	<i>Eucalyptus paniculata</i> Iron Bark	M	22	9553	780 780	Good	Good	5	1b	No significant signs of dieback or decline Co-dominant trunks minor bark inclusion Co-dominant north facing leaders with moderate bark inclusion & linear ribbing No cracking or splitting could be seen at the either co-dominant unions that would indicate failure was imminent or probable No other significant structural defects (Photo 2)

Tree No	Botanical Name Common Name	Age	HGT (m)	Canopy Spread(m) N S E W	DBH (mm)	Structure	Health	Cond ition	SULE	Comments
6	<i>Corymbia maculata</i> Spotted Gum	M	20	6525	410 410	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects Mistletoe noticeable on ends of some branches (Photo 2)
7	<i>Corymbia maculata</i> Spotted Gum	M	18	5253	480	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects Mistletoe noticeable on ends of some branches (Photo 3)
8	<i>Corymbia maculata</i> Spotted Gum	M	20	2322	360	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects Mistletoe noticeable on ends of some branches (Photo 3)
9	<i>Corymbia maculata</i> Spotted Gum	M	22	2331	330	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects Mistletoe noticeable on ends of some branches (Photo 3)
10	<i>Corymbia maculata</i> Spotted Gum	M	22	5524	530	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects Mistletoe noticeable on ends of some branches (Photo 3)
11	<i>Corymbia maculata</i> Spotted Gum	M	20	4424	400	Good	Good	5	1b	No significant signs of dieback or decline No significant structural defects Mistletoe noticeable on ends of some branches (Photo 3)



Photo 1



Photo 2



Photo 3

7. PROTECTION ZONES

Tree Protection Zones (TPZ) are the principle means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. The TPZ incorporates the Structural Root Zone (SRZ) (Figure A).

The method used to determine the TPZ and SRZ for these trees have been based on Australian Standard 4970 – 2009 Protection of Trees on Development Sites 3.3.5.

7.1 TPZ - Tree Protection Zones

Australian Standard 4970 – 2009 Protection of Trees on Development Sites requires that the Diameter at Breast Height (DBH) of the trunk measured 1.4m above ground be multiplied by 12 to obtain the radius of a Tree Protection Zones (TPZ).

It is possible that minor encroachments can be established for these trees provided that encroachment is less than 10% and outside their Structural Root Zone and that the area lost to encroachment can be compensated for elsewhere and contiguous with the TPZ (Figure B).

Note: A TPZ should not be less than 2 meters nor greater than 15 meters

7.2 SRZ – Structural Root Zones

Where major encroachment into the TPZ is expected the Structural Root Zone (SRZ) requires to be calculated. **The SRZ considers the trees structural stability only.** The woody root growth and soil cohesion in this area are necessary to hold the tree upright.

The method used to determine the SRZ for these trees have been based on Australian Standard 4970 – 2009 Protection of Trees on Development Sites 3.3.5.

Note: An SRZ should not be less than 1.5 meters

8.3 Table 2 - TPZ & SRZ

LEGEND

DBH = Diameter at Breast height DGL = Diameter above Root Flare

TPZ = Tree protection Zone SRZ = Structural Root Zone N/A = Not Applicable

Tree No	DBH (mm)	DGL (mm)	TPZ Radius (m)	SRZ Radius (m)	Impacts
1	360	430	4.3	2.32	Soil Cut Potential damage to roots within the TPZ & SRZ
2	430 300	730	6.2	2.89	Soil Cut Potential damage to roots within the TPZ & SRZ
3	300	360	3.6	2.15	Soil Cut Potential damage to roots within the TPZ & SRZ
4	300	370	3.6	2.17	Soil Cut Potential damage to roots within the TPZ
5	480 480	970	8.1	3.27	Soil Cut Potential damage to roots within the TPZ & SRZ
6	410 410	730	6.9	2.89	Soil Cut - Potential damage to roots within the TPZ & SRZ
7	480	570	5.7	2.61	Road Widening Potential damage to roots within the TPZ
8	360	450	4.3	2.36	Works outside of TPZ No direct impacts expected
9	330	400	3.9	2.25	Works outside of TPZ No direct impacts expected
10	530	630	6.3	2.72	Road Widening Potential damage to roots within the TPZ
11	400	510	4.8	2.49	Works outside of TPZ No direct impacts expected

Figure A – Indicative TPZ & SRZ

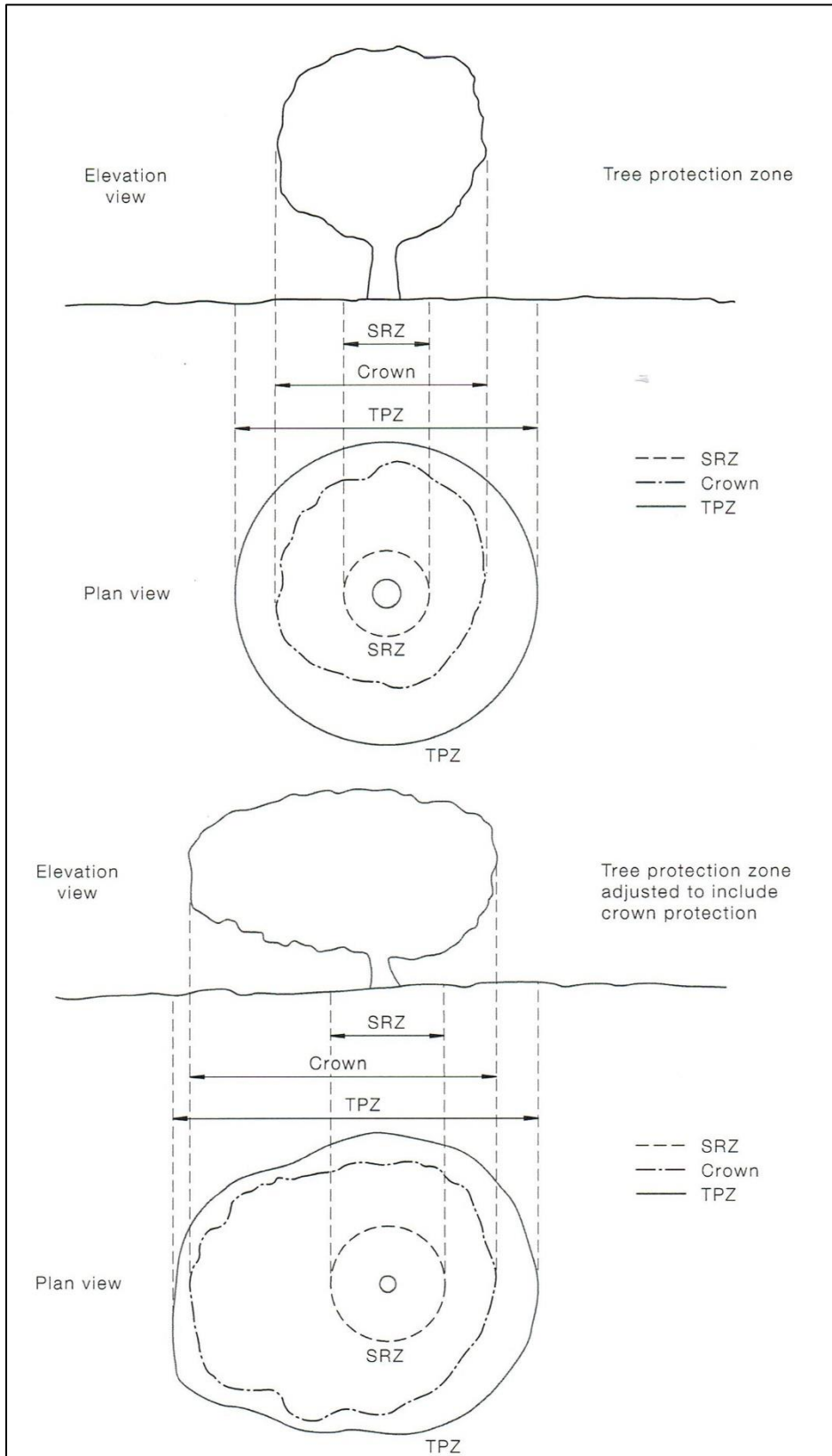


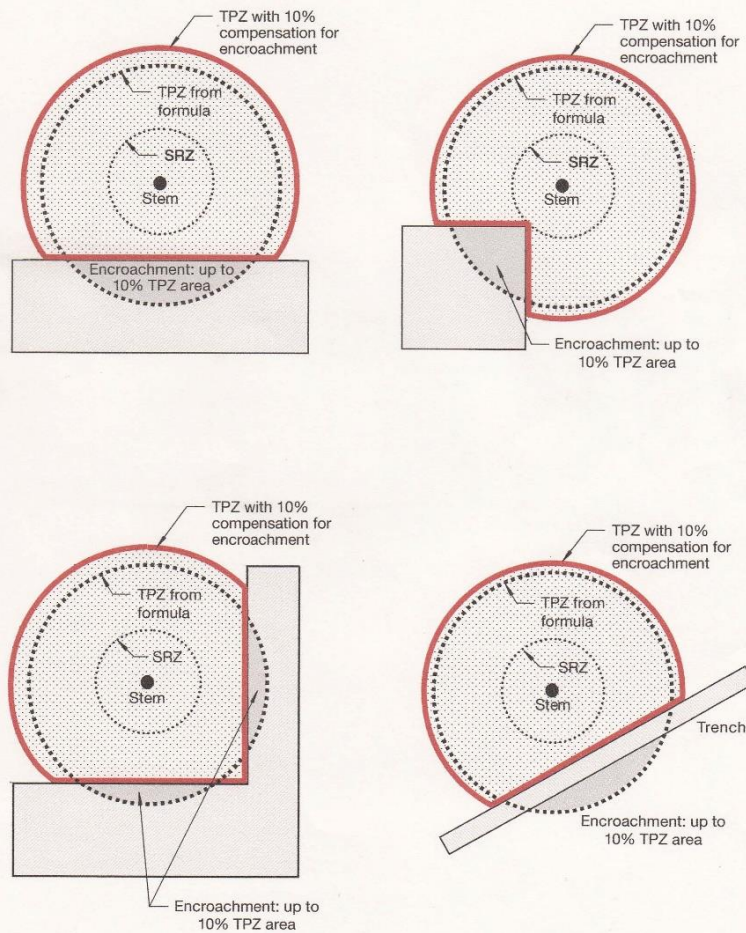
Figure B - Example of TPZ encroachment

AS 4970—2009

30

APPENDIX D ENCROACHMENT INTO TREE PROTECTION ZONE (Informative)

Encroachment into the tree protection zone (TPZ) is sometimes unavoidable. Figure D1 provides examples of TPZ encroachment by area, to assist in reducing the impact of such incursions.



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

FIGURE D1 EXAMPLES OF MINOR ENCROACHMENT INTO TPZ

Licensed to Mr. Joseph Silvio on 6 October 2009. 1 user personal licence only. Storage, distribution or use on network prohibited. (40059311).

8. IMPACTS OF DEVELOPMENT

8.1 Road Widening

8.1.1 Tree Nos. 1, 2, 3, 4, 6, 8, 9 & 11

Based on the Civil Works Plan the proposed road widening is not expected to encroach within the calculated TPZ's of Tree Nos. 1, 2, 3, 4, 6, 8, 9 & 11.

Provided no encroachment occurs and ground level within the TPZ's remains relatively unchanged combined with the implementation of Tree Protection Measures the trees can be retained and are not expected to be impacted upon by the proposed development.

(Photo's 1 & 2).



Photo 1 – Road widening not expected to encroach into TPZ



Photo 2 – Road widening not expected to encroach into TPZ

8.1.2 Tree Nos. 5, 7 & 10

Based on the Civil Works Plan, road the proposed road widening will slightly encroach into TPZ's of Tree Nos. 5, 7 & 10 but will remain outside of their SRZ's (Photo 3 & 4).

Although construction is expected within the TPZ of these trees encroachment is expected to be less than 10% of their total TPZ's and the area lost to encroachment is outside their SRZ's and can be compensated for elsewhere and contiguous with the TPZ.

It is considered that provided encroachment does not exceed more than 10% of their TPZ's and existing ground levels within the remaining TPZ's remain unchanged the trees should not be significantly impacted upon by the proposed development.

However this does not mean that construction activity (particularly excavation) within the TPZ can be carried out without regard to roots. Any excavation activity within the TPZ must still be carried out carefully to avoid excessive damage to roots.

Excessive damage to minor roots may initiate decline in their health and vigour. Removal of smaller absorbing roots can cause immediate water stress. The survival of the tree is linked to its tolerance of water stress and the ability of the tree to form new root rapidly.

In assessing the potential impacts, it is considered that provided encroachment does not exceed more than 10% of their TPZ's and existing ground levels within the remaining TPZ's remain unchanged the trees can be retained should not be significantly impacted upon by the proposed development.

Combined with careful excavation procedures and the implementation of Tree Protection Measures where construction activity is expected within the TPZ the tree will be provided with the best possible chance to survive the impacts of construction and be retained in its current condition.



Photo 3 – Road widening
Encroachment less than 10% of total



Photo 4 – Road widening
Encroachment less than 10% of total

8.2 Bulk Earthworks Cut / Fill

8.2.1 Tree Nos. 1, 2, 3, 5 & 6

Based on the Bulk Earthworks Cut / Fill Plan the proposed soil cut will encroach by approximately:

- 25% into the TPZ / SRZ of Tree No. 1
- 30% into the TPZ / SRZ of Tree No. 2
- 25% into the TPZ / SRZ of Tree No. 3
- 30% into the TPZ / SRZ of Tree No. 5
- 32% into the TPZ / SRZ of Tree No. 6

According to Australian Standards – AS 4970 – 2009, Protection of Tree on Development Sites encroachment is considered to be major where construction will encroach into the SRZ or encroach more than 10% into the calculated TPZ of a tree.

Typically, most roots are found within the top 900mm of soil, and most of the fine roots active in water and nutrient absorption are in the top 300mm of soil. Large roots can also be encountered close to the surface.

Damage or severance to roots within the SRZ will significantly increase the risk of failure, especially during high winds. Tree roots anchor the tree and their continued function is an important factor in a tree's survival during any construction. Decrease in structural stability will result regardless of species although to what degree depends on many factors such as how many and how close to the tree roots are cut.

Severing of roots on one side of a tree (such as may occur when excavation is past a tree trunk but still within the drip zone), may weaken the tree making it unstable and likely to collapse sometime in the future. Excessive removal of soil from around the root zone can significantly reduce roots anchorage capacity increasing the risk of root crown failure.

Excessive damage to secondary and minor roots within the TPZ is also likely to initiate a decline in tree health and vigour. Excessive removal of smaller absorbing roots can cause immediate water stress. The survival of the tree is linked to its tolerance of water stress and the ability of the tree to form new roots rapidly.

Root failure can occur when the force on the tree from wind or gravity exceeds the strength of the root wood. Key roots that have been cut or extremely compromised may cause failure even under calm conditions.

Due to the close proximity of earthworks works in relation to the extent of encroachment into their TPZ /SRZ's it is considered that should excavation proceed as proposed without regard to roots that the trees are likely to be adversely impacted upon in a manner that could be detrimental to both stability and health & vigour and as such would be removed to facilitate the development as proposed (Photo 's 5 & 6).



**Photo 5 – Soil cut
Encroachment into SRZ's**



**Photo 6 – Soil cut
Encroachment into SRZ's**

8.2.2 Tree No. 4

Based on the Bulk Earthworks Cut / Fill Plan the proposed soil cut will slightly encroach into TPZ of Tree No. 4 but will remain outside of its SRZ (Photo 7).

Although construction is expected within the TPZ of these trees encroachment is expected to be less than 10% of their total TPZ's and the area lost to encroachment is outside their SRZ's and can be compensated for elsewhere and contiguous with the TPZ.

It is considered that provided encroachment does not exceed more than 10% of its TPZ and existing ground level within the remaining TPZ remains unchanged the tree should not be significantly impacted upon by the proposed development.

However this does not mean that construction activity (particularly excavation) within the TPZ can be carried out without regard to roots. Any excavation activity within the TPZ must still be carried out carefully to avoid excessive damage to roots.

Excessive damage to minor roots may initiate decline in their health and vigour. Removal of smaller absorbing roots can cause immediate water stress. The survival of the tree is linked to its tolerance of water stress and the ability of the tree to form new root rapidly.

In assessing the potential impacts, it is considered that provided encroachment does not exceed more than 10% of their TPZ's and existing ground levels within the remaining TPZ's remain unchanged the trees can be retained should not be significantly impacted upon by the proposed development.

Combined with careful excavation procedures and the implementation of Tree Protection Measures where construction activity is expected within the TPZ the tree will be provided with the best possible chance to survive the impacts of construction and be retained in its current condition.



**Photo 7 – Soil cut
Encroachment less than 10% of total**

8.2.3 Tree Nos. 7, 8, 9, 10 & 11

Based on the Bulk Earthworks Cut / Fill Plan the proposed soil cut is not expected to encroach within the calculated TPZ's of Tree Nos. 7, 8, 9, 10 & 11.

Provided no encroachment occurs and ground level within the TPZ's remains relatively unchanged combined with the implementation of Tree Protection Measures the trees can be retained and are not expected to be impacted upon by the proposed development (Photo 8).



Photo 3 – Soil cut not within TRZ's

9. CONCLUSION

Based on the Civil Works Plan & Bulk Earthworks Cut / Fill Plan and after an assessment of the impacts of the proposed development it is concluded that:

- Whilst the proposed road widening work will not encroach the TPZ of **Tree Nos. 1, 2, 3 & 6** the proposed soil cut will encroach into their TPZ & SRZ and as such they are likely to be impacted upon in a manner that could be detrimental to both stability and health & vigour and as such would be removed to facilitate the development as proposed.
- Whilst the proposed road widening work may slightly encroach into the TPZ of **Tree No. 5** it is not expected to have any significant impact however the proposed soil cut will encroach into its TPZ & SRZ and as such it is likely to be impacted upon in a manner that could be detrimental to both stability and health & vigour and as such would be removed to facilitate the development as proposed.
- Whilst the road widening works is not within the TPZ of **Tree No. 4** the proposed soil cut will slightly encroach into its TPZ. However, as encroachment is expected to be less than 10% of its total TPZ's and the area lost to encroachment is outside of its SRZ and can be compensated for elsewhere and contiguous within the TPZ it is not expected to be significantly impacted upon by the proposed development works and can be retained.
- Whilst the proposed soil cut is not within the TPZ's of **Tree Nos. 7 & 10** the proposed road widening work will slightly encroach into their TPZ's. However, as encroachment is expected to be less than 10% of their total TPZ's and the area lost to encroachment is outside of their SRZ's and can be compensated for elsewhere and contiguous within the TPZ they are not expected to be significantly impacted upon by the proposed development works and can be retained
- As road widening or excavation works are not expected to encroach within the TPZ's of **Tree Nos. 8, 9 & 11** they should not be impacted upon by the proposed development and can be retained.

10. RECOMMENDATIONS

Based on the proposed Site Plans in relation to the impacts of the proposed development the following outcomes are recommended:

1. Removal of Tree Nos. 1, 2, 3, 5 & 6

Reason:

Due to the extent of encroachment into their TPZ's & SRZ's by the proposed soil cut the removal of these trees would be necessary as it is likely they be adversely impacted upon by excavation works in a manner that would be detrimental stability and/ or health & vigour.

2. Retention of Tree Nos. 4, 7 & 10

Reason:

Although works will occur within their TPZ's it is expected that encroachment will be less than 10% and that as the area lost to encroachment is outside their SRZ's and can be compensated for elsewhere and contiguous with the TPZ the trees should not be significantly impacted upon.

3. Retention of Tree Nos. 8, 9 & 11

Reason:

The proposed works are not expected to encroach within the calculated TPZ's of these trees and as such they are not expected to be impacted upon by construction.

4. Implementation of Tree Protection Measures

Reason:

To provide the owners/ building contractor with a guide so that the tree can be protected whilst construction is undertaken.

11. REFERENCES

Australian Standards AS 4970 – 2009 Protection of Tree on Development Sites
Standards Australia Sydney

Dunster, Julian A., E. Thomas Smiley, Nelda Matheny, and Sharon Lilly. 2017 Tree Risk Assessment Manual Second Edition. Champaign, Illinois: International Society of Arboriculture

Matheny, Nelda and Clark, James R. 1998, Trees and Development: A Technical Guide to Preservation of Trees During Land Development, International Society of Arboriculture Champaign, USA.

Bartlett Tree Research Laboratories E. Thomas Smiley, PhD. Assessing the Failure Potential of Tree Roots.

www.treetec.net.au/TPZ_SRZ_DBH_calculator.php

Report by



Diploma of Arboriculture

DISCLAIMER

The conclusions and recommendations contained in this report refer to the tree's condition on the day of inspection only. The report is to be read and considered in its entirety. All care has been taken using the most up to date arboricultural information in the preparation of this report.

The report is based on visual inspection only and as such not all defects may have been detected. No guarantee can be given nor can it be predicted that branch failure or uprooting (windthrow) would not occur as a result of high winds and /or excessive rainfall and other unpredictable events. Tree health and environmental conditions can change at any time

Copyright

Joseph Pidutti Consulting Arborist shall retain ownership of the copyright to all reports, drawings, designs, displays and other works produced by Joseph Pidutti consulting Arborist during the course of fulfilling a commission. The client shall have a license to use such documents and the materials for the purpose of the subject commission.

APPENDIX 1

SULE - Safe Useful Life Expectancy

1. Long SULE

- a. Structurally sound and can accommodate future growth
- b. Long term potential with minor remedial treatment
- c. Trees of special significance which warrant extra care

2. Medium SULE

- a. Will live between 15-40 years
- b. Will live for more than 40 years but would be removed for safety or nuisance reasons
- c. May live for more than 40 years but will interfere with more suitable specimens and need removal eventually
- d. More suitable for retention in the medium term with some remedial care

3. Short SULE

- a. Trees that may only live between 5-15 more years
- b. May live for more than 15 years but would need removal for safety or other reasons
- c. Will live for more than 15 years but will interfere with more suitable specimens or provide space for replacement plantings
- d. Require substantial remedial care but are only suitable for short term retention

4. Removals

- a. Dead, dying or seriously diseased
- b. Dangerous trees through instability or loss of adjacent trees
- c. Structural defects such as cavities
- d. Damaged that are clearly not safe to retain
- e. May or are causing damage to structures
- f. That will become dangerous

5. Moved or Replaced

Trees, which can be reliably moved or replaced

- a. Small trees less than 5 meters
- b. Young trees between 5-15 years
- c. Trees that have been regularly pruned to control growth

APPENDIX 2

CONDITION RATINGS

Each tree or group of trees has been placed into categories ranging from 1 to 6, with no.1 being in the worst condition through to no.6 in a health condition.

This is based on observations of their health and structure.

1. A dead tree.
2. A tree in severe decline. Major structural damage that cannot be repaired, dieback of trunk or scaffold branches and the majority of foliage consist of epicormic growth.
3. A tree in decline. Significant structural damage that cannot be repaired, dieback of medium to larger branches and epicormic growth.
4. A tree moderate vigor, dieback of smaller branches and twigs, thinning of crown, poor leaf colour and moderate structural defects that could be mitigated with regular care.
5. A tree in slight decline with only a small amount of twig dieback and minor structural damage that could be easily rectified.
6. A healthy vigorous tree that shows reasonably free signs of pest and diseases and good structural form.

APPENDIX 3 - TREE PROTECTION PLAN

Tree Protection Measures

The purpose of the Tree Protection Measures (TPM) is to provide the developers with a guide so that trees to be retained can be protected during the development process.

Based on the Site Plans it is likely that encroachment by machinery and other associated construction activity will occur within the TPZ of some trees and as such optimal TPZ's that would comply with Australian Standard 4970 – 2009 Protection of Trees on Development Sites may not be achievable for all trees.

Tree Protection Measures and works within nominated Tree Protection Zones must comply with Australian Standard 4970 – 2009 Protection of Trees on Development Sites

A Tree Protection Plan Specification has also been prepared to give trees the best possible chance to survive the impacts of construction so that they can be retained in their current condition during construction

Tree Protection Measures in conjunction with the Tree Protection Zone Specification must be adhered to before any construction activity occurs within the nominated TPZ of trees to be retained.

Table 1 - Trees to be Protected

Tree No.	Specific Protection Measures
4	The TPZ shall encompass an area of no less than 3m from excavation works then incorporate remaining TPZ radius
7	The TPZ shall encompass an area as close as possible to the roadside but no less than 3m from the closest point to road works then incorporate remaining TPZ radius
10	The TPZ shall encompass an area as close as possible to the roadside but no less than 4m from the closest point to road works then incorporate remaining TPZ radius
8, 9 & 11	Full extent of TPZ's to be encompassed.
General Protection Measures	
Tree Protection Zone Specification to be adhered to (Refer to Appendix 4)	

Tree Protection Zone Figures

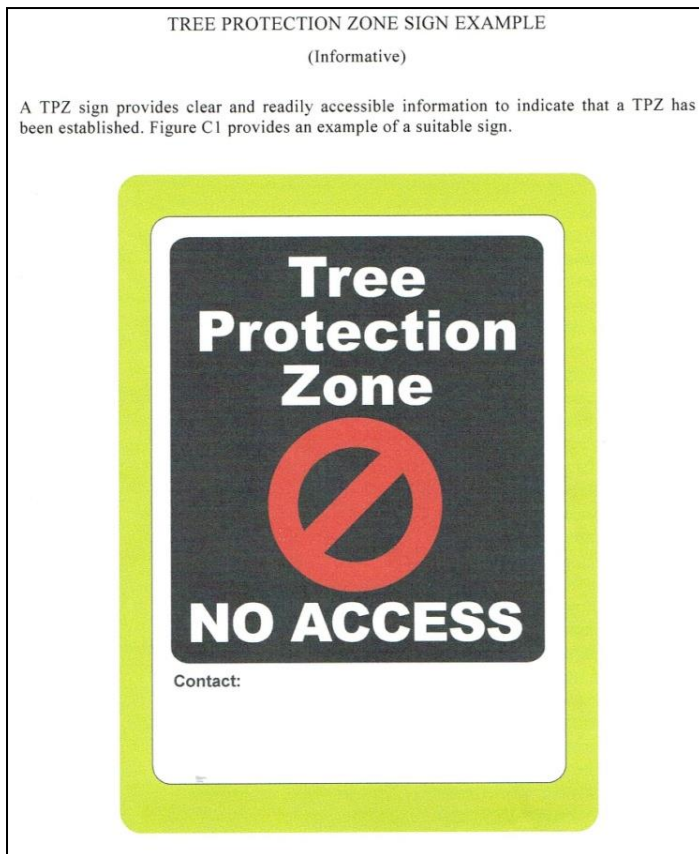


Figure 1 - Example of TPZ signage

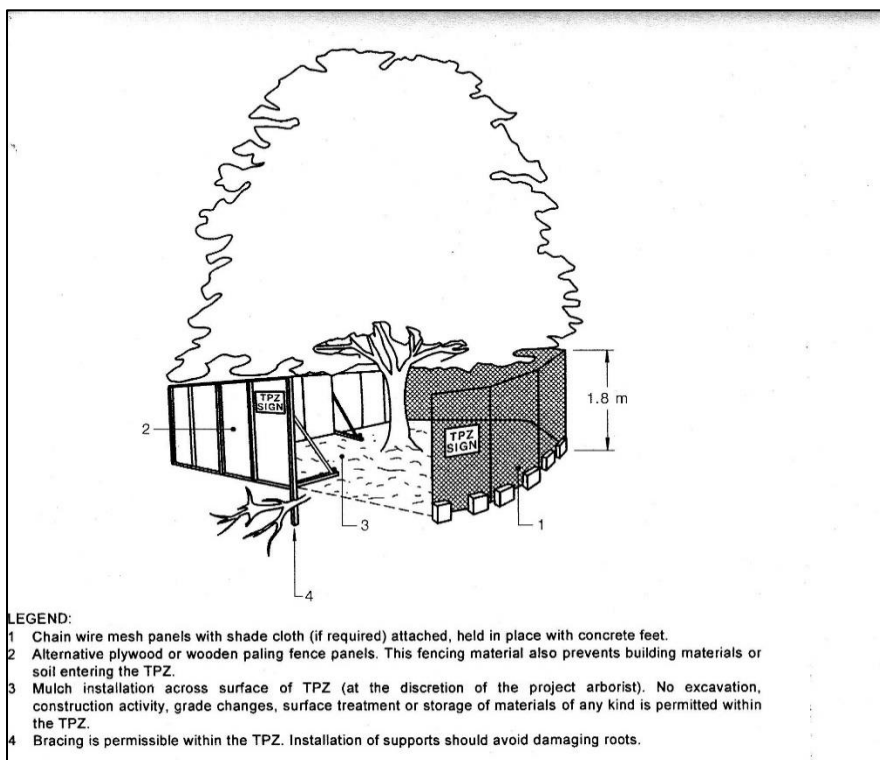


Figure 2 - Example of TPZ fencing around individual tree

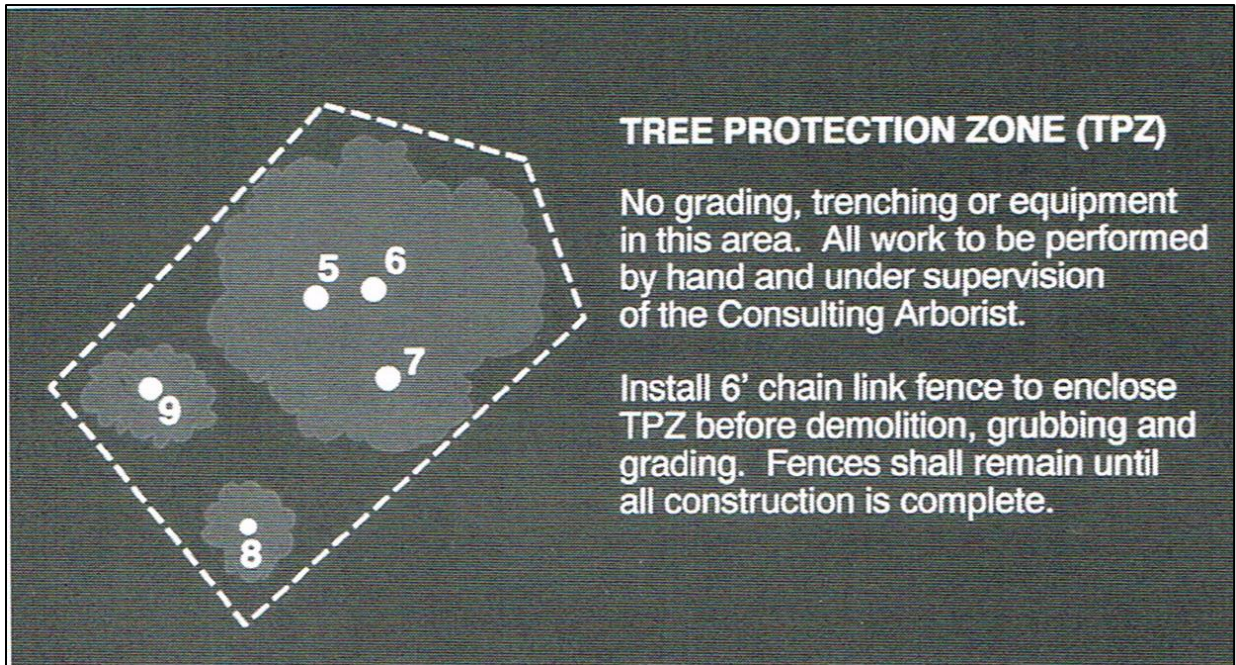


Figure 3 - Example of TPZ fencing around group of trees

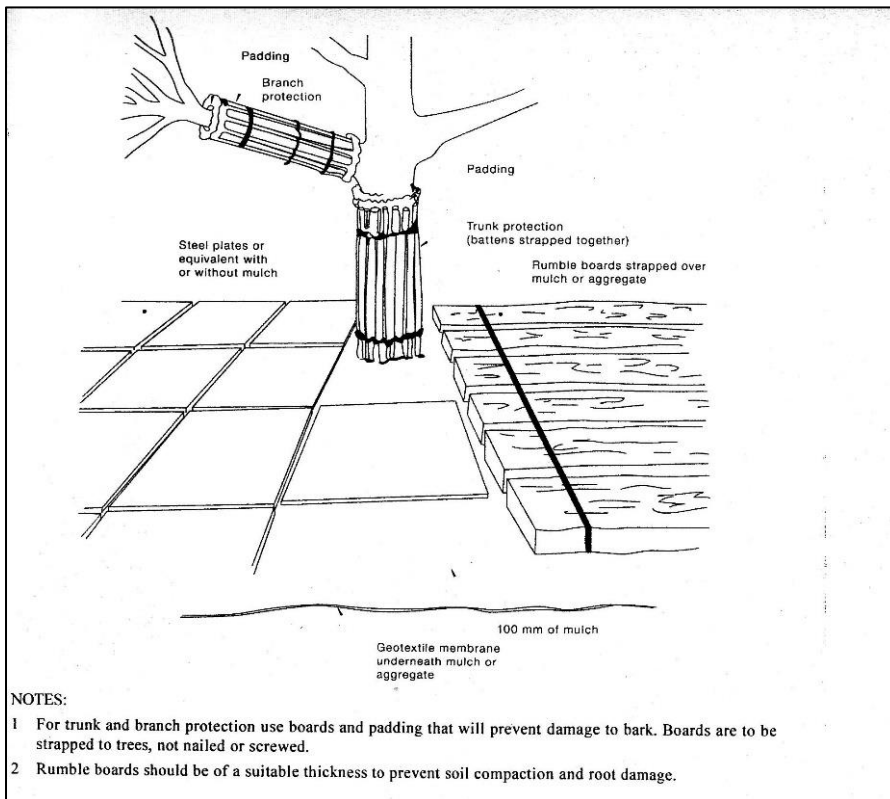


Figure 4 – Trunk & branch protection

APPENDIX 4

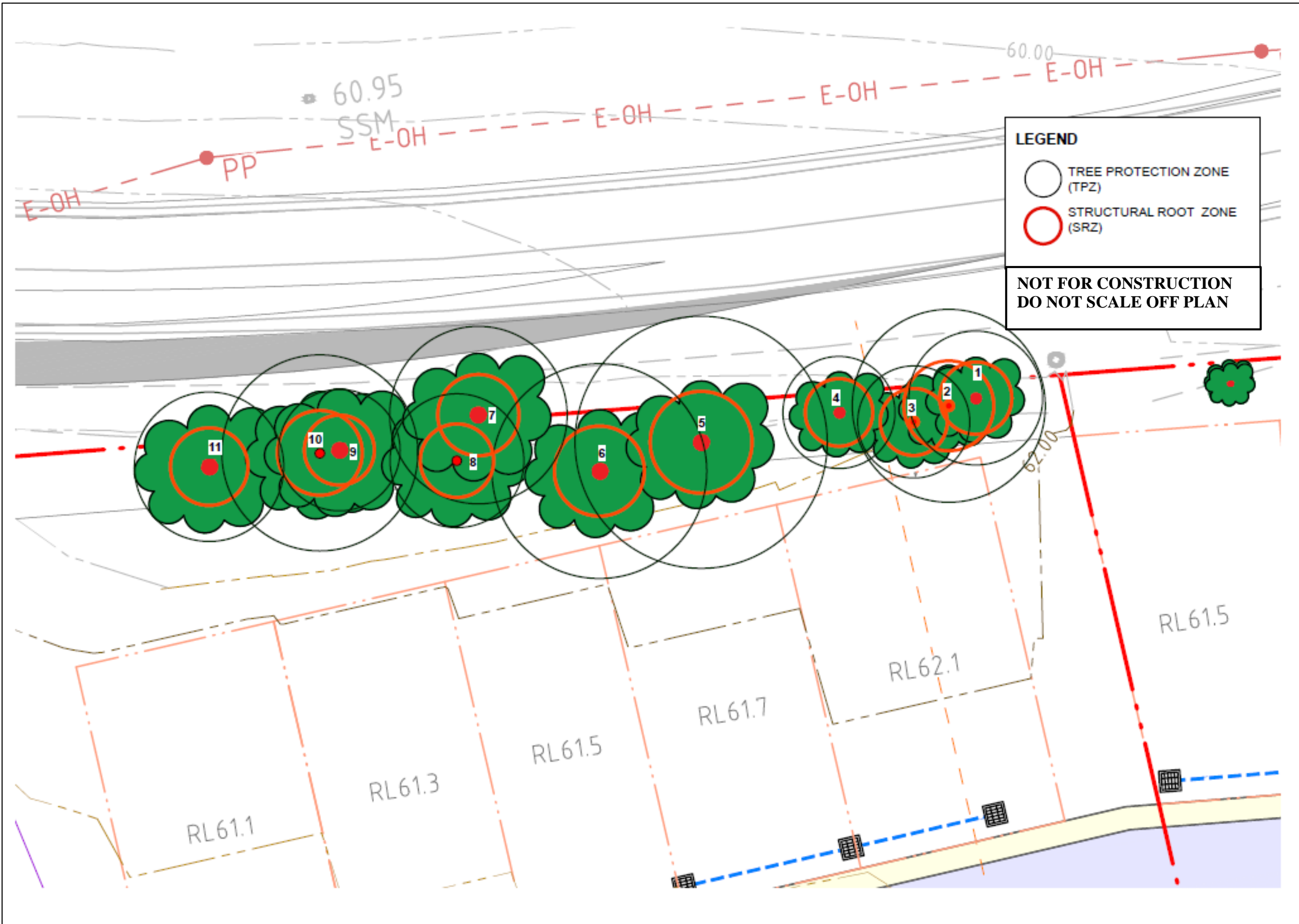
TREE PROTECTION ZONE SPECIFICATION

The following specification must be adhered to before any site activity occurs within established Protection Zones of trees to be retained.

1. All works within nominated Tree Protection Zones must comply with Australian Standard 4970 – 2009 Protection of Trees on Development Sites.
2. Tree Protection fencing to be established as outlined in Table 1 prior to the commencement of any construction works and must comply with Australian Standard 4970 – 2009 Protection of Trees on Development Sites, Section 4 - Tree Protection Measures.
3. Protection areas are to be clearly marked as Tree Protection Zone - NO GO AREA (figure 1)
4. The limits of Tree Protection Zones shall be staked and 1800mm high chain link temporary fencing installed (figure 2 & 3).
5. Excavation or other any construction activity must not encroach into an established TPZ of a tree without first consulting the project arborist.
6. No roots shall be cut within an established TPZ or SRZ of a tree unless confirmed by a suitably qualified arborist.
7. No materials, equipment, spoils, waste water or chemicals of any description may be disposed of or stored within the Tree Protection Zones.
8. No parking of vehicles, trailers or machinery is allowed within the Tree Protection Zones.
9. If temporary haul or access is required within the nominated TPZ of a tree to be retained a geotextile fabric beneath a layer of mulch approximately 150mm thick or crushed rock below rumble boards shall be created to protect the soil (Figure 4).
10. Any electrical cables, gas pipes, sewer pipes or other plumbing services to be routed outside the Tree Protection Zones.
11. Trees to be removed that have branches extending into trees of tree to remain must be removed by a qualified arborist and not by demolition or construction contractors. A qualified arborist shall remove the tree in a manner that causes no damage to the trees and understory to remain.
12. Trees to be removed from within the Tree Protection Zones shall be removed by a qualified arborist.
13. Trees removed within the TPZ of trees to be retained shall be cut near ground level and the stump ground out. Stumps must not be extracted by excavation.

14. A consulting arborist should be on site where any excavation works are to be carried out within an established Tree Protection Zone.
15. If injury to the tree should occur during construction it should be evaluated as soon as possible so that appropriate treatments can be applied.
16. Any roots damaged during construction shall be exposed to sound tissue and cut cleanly with a saw.
17. Erosion control devices such as silt fencing shall be installed to prevent siltation and erosion within the Tree Protection Zones.
18. Surface drainage is not to be altered so as to direct water into or out of the Tree Protection Zones.
19. Any herbicides placed under paving material must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree safe and not easily transported by water.
20. Any pruning work is to be carried out by a qualified arborist working to Australian Standard 4373 –2007 and in accordance with the Code of Practice Amenity Tree Industry August 1998.
21. Protection measures are to remain in place until all site work has been completed. Fencing may not be relocated or removed without written permission from the project manager or consulting arborist.

APPENDIX 5 – CIVIL WORKS PLAN



APPENDIX 6 – BULK EARTHWORKS CUT / FILL PLAN

