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Preliminary Tree Assessment

Site: Corner of Kensington Road and Portrush Road, Norwood

Date: Tuesday, 7 May 2019

ATS5467-KenRdPorRdPTA

Contents

Report Reference Number: ATS5467-KenRdPorRdPTA

Report prepared for

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Author

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Executive Summary

Arborman Tree Solutions undertook a Preliminary Tree Assessment of all the trees within the site that are Regulated or Significant under the *Development Act 1993.*

A total of four trees (Trees 1 - 4) were assessed and one was identified as a Significant Tree, and three as Regulated Trees under the *Development Act 1993*. Trees 2 - 4 have been identified as suitable for retention while Tree 1 does not warrant development constraint, alternative designs or tree-friendly construction methodologies due to its average condition.

Brief

The purpose of a Preliminary Tree Assessment is to evaluate tree retention suitability in a future development using a Tree Retention Rating system.

In accordance with section 2.2 of the Australian Standard 4970-2009 *Protection of trees on development sites* (AS4970-2009) the following information has been provided:

- Identification of the species of each tree and assessment of their health and structure.
- Identification of the Legislative Status of trees as defined within the *Development Act 1993* and the local development plan.
- Tree Retention Rating for each tree. The Tree Retention Rating has been applied to all trees regardless of legislative status.
- The identification of the Tree Protection Zone (TPZ) for each tree.

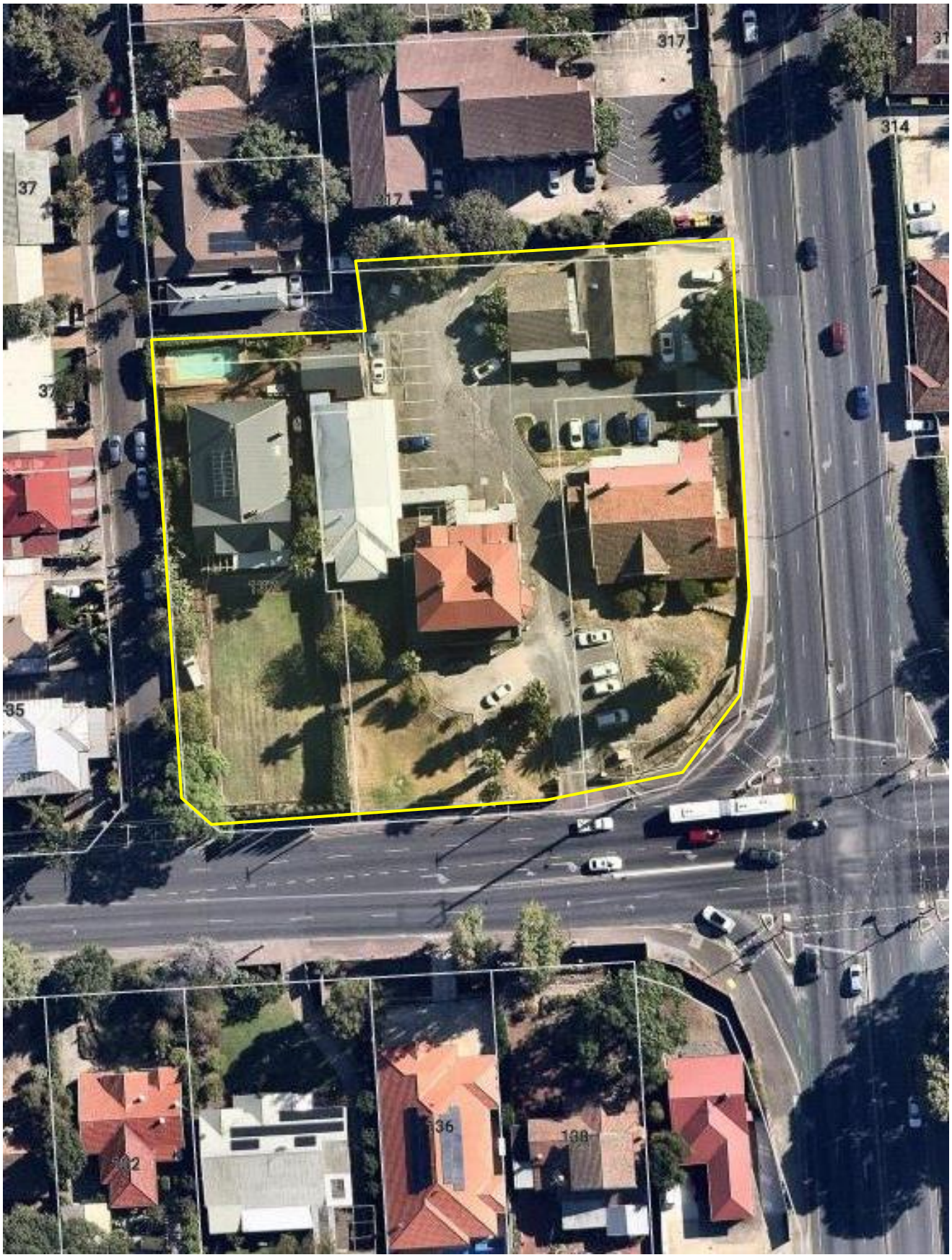
Documents and Information Provided

The following information was provided for the preparation of this assessment

- Aerial image

Site Location

Figure 1: Survey site location - Corner of Kensington Road and Portrush Road, Norwood



Methodology

A site inspection was undertaken on Wednesday, 1 May 2019. Trees were mapped using a Trimble Geo7X handheld and assigned a unique tree number. Individual tree findings were recorded using the Tree Assessment Form (TAF©). Tree Health Indicator (THI©), Tree Structure Assessment (TSA©) and Useful Life Expectancy (ULE), were assessed using the methodology described within Appendix A. Legislative Status was identified for all trees under the *Development Act 1993*; trees with a trunk circumference greater than two metres and exempt under local legislation were not included unless requested.

Each tree's suitability for retention was determined by reviewing principles under the local development plan or relevant authority and applying these findings in the Tree Retention Rating (TRR©) method, as described within Appendix A. Tree Protection Zones were calculated using the Australian Standard AS4970-2009 (Section 3.2). Mapping was performed using GIS, CAD and Civil 3D software.

Limitations: Tree management options such as pruning, soil amelioration, pathogen treatment are not part of this report and should be considered in relation to any proposed development.

Note: This report is intended to provide preliminary advice to assist with determining scope for development. Council may require further information to approve the removal of Significant or Regulated Trees.

Findings

Arborman Tree Solutions undertook a Preliminary Tree Assessment of all Regulated and Significant Trees within the site located at the Corner of Kensington and Portrush Road, Norwood.

1. Tree Population

The assessment identified four trees with all trees being exotic specimens. The four species within the site are reasonably well suited to the climate of the Adelaide plains.

Table 1 Tree Population

Botanic Name	Common Name	Number of Trees	Origin
Citharexylum spinosum	Fiddlewood	1	Exotic
Melia azedarach	White Cedar	1	Exotic
Phoenix canariensis	Canary Island Date Palm	1	Exotic
Washingtonia filifera	Californian Fan Palm	1	Exotic

Findings on individual tree health and structure are presented within Appendix B, Tree Assessment Findings.

2. Legislation

Of the four trees assessed, Tree 2 is a Significant Tree while Trees 1, 3 and 4 are Regulated Trees under the *Development Act 1993*. Significant and Regulated Trees should be protected if they meet the criteria under the local development plan.

Table 2 Legislative Tree Status

Legislative Status	Number of Trees
Significant	1
Regulated	3

Regulated Tree: a Regulated Tree is one which has a trunk circumference greater than two metres at one metre above ground level and is therefore subject to regulation under the *Development Act 1993* and needs to be assessed against the relevant amenity and environmental criteria to determine its suitability for protection.

Significant Tree: a Significant Tree is one which has a trunk circumference greater than three metres at one metre above ground level and is therefore subject to regulation under the *Development Act 1993* as a Significant Tree and needs to be assessed against the relevant amenity and environmental criteria to determine its suitability for protection. The protection of Significant Trees is generally considered to be of higher importance than Regulated Trees however this is not always the case.
Both Regulated and Significant Trees require a Development Application to be submitted to the local council for the approval of any tree damaging activity such as excavation in the root zone, tree removal and some forms of pruning.

3. Retention Rating

Trees that provide important environmental and/or aesthetic contribution to the area and are in good overall condition achieved an Important or High Retention Rating and their protection is encouraged. Trees that achieved a Moderate Retention Rating could be retained in a future development. Trees which achieved a Low Retention Rating indicate that development constraint, alternative designs or tree friendly construction methodologies are not warranted. Trees with a Low Retention Rating achieve one or more of the following attributes:-

a) provide limited environmental/aesthetic benefits to the area,

b) are a short lived species,

c) represent a material risk to people or property,

d) identified as causing or threatening to cause substantial damage to a structure of value,

e) have a short Useful Life Expectancy.

f) are young and easily replaced (less than five metres tall).

A total of three trees are suitable for retention as they achieved a Moderate Retention Rating. The Regulated and Significant Trees that scored such a rating, potentially meet criterion within the *Development Act 1993* that warrant their retention. If the removal of trees that scored such a rating is required, they will need to be assessed against the local Development Plan.

Table 3 Retention Rating

Retention Rating	Number of Trees
High	0
Moderate	3

Tree 1 achieved a Low Retention Rating indicating that development constraint, alternative designs or tree-friendly construction methodologies are not warranted. As such, tree removal could be considered to achieve a future development (this includes Regulated/Significant Trees).

4. Tree Protection

Australian Standard AS4970-2009 *Protection of trees on development sites* (AS4970-2009) prescribes the use of a Tree Protection Zone (TPZ) as the principle means of protecting trees throughout the development process. If encroachment is required within any TPZ, the Project Arborist should identify impacts and recommend mitigation measures. The Tree Protection Zones should be used to determine scope for development of the site by maintaining these areas as open space. The Tree Protection Zone radii are included within Appendix D Tree Assessment Summary.

Recommendation

The following recommendations are presented based on the Preliminary Tree Assessment:

1. Trees 2 - 4 achieved a Moderate Retention Rating and could be considered for retention within a future development. The removal of Regulated or Significant trees may be approved if it can be demonstrated that they are restricting a reasonable and expected development and alternative design solutions are not available to retain them.

2. Tree 1 achieved a Low Retention Rating and does not warrant development constraint, alternative designs or tree friendly construction methodologies. As such, tree removal could be considered to achieve the development (this includes Regulated and Significant Trees).

3. Regulated and Significant Trees require Development Approval prior to any tree damaging activity occurring. This includes development activities within the TPZ, tree removal and potentially pruning.

4. A Project Arborist should be appointed to assist in the design around trees to be retained; the development impacts and tree protection requirements are to be included in a Development Impact Report and a Tree Protection Plan as identified in Australian Standard AS4970-2009 *Protection of trees on development sites*.

Thank you for the opportunity to provide this report. Should you require further information, please contact me and I will be happy to be of assistance.

Yours sincerely

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VALID Tree Risk Assessment (VALID) – 2018

Glossary

Size:	approximate height and width of tree in metres.
Age:	identification of the maturity of the tree.
Useful Life Expectancy:	expected number of the years that the tree will remain alive and sound in its current location and/or continues to achieve the relevant Principles of Development Control.
Health:	visual assessment of tree health.
Structure:	visual assessment of tree structure.
Circumference:	trunk circumference measured at one metre above ground level. This measurement is used to determine the status of the tree in relation to the *Development Act 1993*.
Diameter at Breast Height (DBH):	trunk diameter measured at 1.4 metres above ground level used to determine the Tree Protection Zone as described in Australian Standard AS4970-2009 *Protection of trees on development sites*.
Diameter at Root Buttress (DRB):	trunk diameter measured immediately above the root buttress as described in Australian Standard AS4970-2009 *Protection of trees on development sites* and is used to determine the Structural Root Zone.
Tree Damaging Activity	Tree damaging activity includes those activities described within the *Development Act 1993* such as removal, killing, lopping, ringbarking or topping or any other substantial damage such as mechanical or chemical damage, filling or cutting of soil within the TPZ. Can also include forms of pruning above and below the ground.
Tree Protection Zone:	area of root zone that should be protected to prevent substantial damage to the root system.
Structural Root Zone:	calculated area within the tree's root zone that is considered essential to maintain tree stability.
Project Arborist	A person with the responsibility for carrying out a tree assessment, report preparation, consultation with designers, specifying tree protection measures, monitoring and certification. The Project Arborist must be competent in arboriculture, having acquired through training, minimum Australian Qualification Framework (AQTF) Level 5, Diploma of Horticulture (Arboriculture) and/or equivalent experience, the knowledge and skills enabling that person to perform the tasks required by this standard.

References

Australian Standard AS4970–2009 ***Protection of trees on development sites***: Standards Australia.

Matheny N. Clark J. 1998: ***Trees and Development a Technical Guide to Preservation of Trees During Land Development***: International Society of Arboriculture, Champaign, Illinois, USA.

Dunster J.A., Smiley E.T., Metheny N. and Lilly S. 2013. ***Tree Risk Assessment Manual***. International Society of Arboriculture, Champaign, Illinois USA.

Appendix A - Tree Assessment Methodology

Tree Assessment Form (TAF©)

Record	Description
Tree	A perennial woody plant with a mature height of greater than 5 metres and life expectancy of more than 10 years.
Genus and Species	Trees are identified using normal field plant taxonomy techniques. Due to hybridisation and plant conditions available on the day of observation it may not always be possible to identify the tree to species level; where species cannot be ascertained *sp.* is used.
Height	Tree height is observed and recorded in the following ranges; <5m, 5-10m, 10-15m and >20m.
Spread	Crown width (projection) diameter is recorded by the following fields <5m, 5-10m, 10-15m, 15-20m, >20m.
Tree Health	Tree health was assessed using the Arborman Tree Solutions - Tree Health Assessment Method that is based on international best practice.
Tree Structure	Tree structure was assessed using Arborman Tree Solutions - Tree Structure Assessment Method that is based on international best practice.
Tree Risk Assessment	Trees were assessed using the International Society of Arboriculture Level 1 Tree Assessment method. The person conducting the assessment has acquired the International Society of Arboriculture Tree Risk Assessment Qualification (TRAQ).
Legislative Status	Legislation status was identified through the interpretation of the *Development Act 1993*, and the *Natural Resource Management Act 2004* as well as other relevant legislation, therefore determining regulatory status of the subject tree.
Mitigation	Measures to reduce tree risk may be recommended in the form of pruning and this listed in the Tree Assessment Findings (Appendix C). Tree pruning is recommended in accordance with AS4373-2007 *Pruning amenity trees* where practicable. Where measures to mitigate risk is not possible and the risk is unacceptable, then tree removal or further investigation is recommended.

Useful Life Expectancy (ULE)

ULE Rating	Definition
Surpassed	The tree has surpassed its Useful Life Expectancy.
<10 years	The tree displays either or both Poor Health and/or Structure and is considered to have a short Useful Life Expectancy of less than ten years.
>10 years	The tree is displays Fair Health or Structure and Good Health and Structure and is considered to have a Useful Life Expectancy of more than ten years.
>20 years	The tree displays Good Health and Structure and is considered to have an extended Useful Life Expectancy of more than twenty years.

Maturity (Age)

Age Class	Definition
Senescent	The tree has surpassed its optimum growing period and is declining and/or reducing in size. May be considered as a veteran in relation to its ongoing management. Tree will have generally reached greater than 80% of its expected life expectancy.
Mature	A tree which has reached full maturity in terms of its predicted life expectancy and size, the tree is still active and experiencing cell division. Tree will have generally reached 20-80% of its expected life expectancy.
Semi Mature	A tree which has established, but has not yet reached maturity. Normally tree establishment practices such as watering will have ceased. Tree will generally not have reached 20% of its expected life expectancy.
Juvenile	A newly planted tree or one which is not yet established in the landscape. Tree establishment practices such as regular watering will still be in place. Tree will generally be a newly planted specimen up to five years old; this may be species dependant.

Tree Health Indication (THI©)

Category	Description
Good	Tree displays high vigour, uniform leaf colour, no or little dieback (<5%), crown density (>85%) and or healthy axillary buds and typical internode length. The tree has little to no pest and/or disease infestation.
Fair	Tree displays low vigour, dull leaf colour, little dieback (<15%), crown density (>70%) and/or reduced axillary buds and internode length. Minor pest and/or disease infestation potentially impacting on tree health.
Poor	Tree displays no vigour, chlorotic or dull leaf colour, moderate to high crown dieback (>15%), low crown density (<70%) and/or few or small axillary buds and shortened internode length. Pest and or disease infestation is evident and/or widespread.
Dead	The tree has died and has no opportunity for recovery.

Tree Structural Assessment (TSA©)

Category	Description
Good	Little to no branch failure observed within the crown, well-formed unions, no included bark, good branch and trunk taper present, root buttressing and root plate are typical.
Fair	History of minor branch failure observed in crown, well-formed unions, no included bark, acceptable branch and trunk taper present, root buttressing and root plate are typical.
Poor	History of significant branch failure observed in crown, poorly formed unions, included bark present, branch and trunk taper absent, root buttressing and root plate are atypical.
Failed	The structure of the tree has or is in the process of collapsing.

Priority

Category	Description
Low	Identified works within this priority should be carried out within 12 months.
Medium	Identified works within this priority should be carried out within 6 months.
High	Identified works within this priority should be carried out within 3 months.
Urgent	Identified works within this priority should be carried out immediately. Works within this priority rating will be brought to attention of the responsible person at the time of assessment.

Tree Retention Rating (TRR)

The Tree Retention Rating is based on a number of factors that are identified as part of the standard tree assessment criteria including Condition, Size, Environmental, Amenity and Special Values. These factors are combined in a number of matrices to provide a Preliminary Tree Retention Rating and a Tree Retention Rating Modifier which combine to provide a Tree Retention Rating that is measurable, consistent and repeatable

Preliminary Tree Retention Rating

The Preliminary Tree Retention Rating is conducted assessing Tree Health and Structure to give an overall Condition Rating and Height and Spread to give an overall Size Rating. The following matrices identify how these are derived.

Condition Matrix				
Structure	**Health**			
	Good	**Fair**	**Poor**	**Dead**
Good	C1	C2	C3	C4
Fair	C2	C2	C3	C4
Poor	C3	C3	C4	C4
Failed	C4	C4	C4	C4

Size Matrix					
Spread	**Height**				
	>20	**15-20**	**10-15**	**5-10**	**<5**
>20	S1	S1	S1	S2	S3
15-20	S1	S1	S2	S3	S3
10-15	S1	S2	S2	S3	S4
5-10	S2	S3	S3	S4	S5
<5	S3	S3	S4	S5	S5

The results from the Condition and Size Matrices are then placed in the Preliminary Tree Retention Rating Matrix.

Preliminary Tree Retention Rating				
Size	**Condition**			
	C1	**C2**	**C3**	**C4**
S1	High	Moderate	Low	Low
S2	Moderate	Moderate	Low	Low
S3	Moderate	Moderate	Low	Low
S4	Moderate	Moderate	Low	Low
S5	Low	Low	Low	Low

The Preliminary Tree Retention Rating gives a base rating for all trees regardless of other environmental and/or amenity factors and any Special Value considerations. The Preliminary Tree Retention Rating can only be modified if these factors are considered to be of high or low enough importance to warrant increasing or, in a few cases, lowering the original rating.

Tree Retention Rating Modifier

The Preliminary Tree Retention Rating is then qualified against the recognised Environmental and Amenity benefits that trees present to the community thereby providing a quantitative measure to determine the overall Tree Retention Rating. Data is collected in relation to Environmental and Amenity attributes which are compared through a set of matrices to produce a Tree Retention Rating Modifier.

Environmental Matrix				
Origin	**Habitat**			
	Active	**Inactive**	**Potential**	**No Habitat**
Indigenous	E1	E1	E2	E3
Native	E1	E2	E3	E3
Exotic	E2	E3	E3	E4
Weed	E3	E3	E4	E4

Amenity Matrix				
Character	**Aesthetics**			
	High	**Moderate**	**Low**	**None**
Important	P1	P1	P2	P3
Moderate	P1	P2	P3	P3
Low	P2	P3	P3	P4
None	P3	P3	P4	P4

Tree Retention Rating Modifier				
Amenity	**Environment**			
	E1	**E2**	**E3**	**E4**
P1	High	High	Moderate	Moderate
P2	High	Moderate	Moderate	Moderate
P3	Moderate	Moderate	Moderate	Moderate
P4	Moderate	Moderate	Moderate	Low

Tree Retention Rating

The results of the Preliminary Tree Retention Rating and the Tree Retention Rating Modifier matrices are combined in a final matrix to give the actual Tree Retention Rating.

Tree Retention Rating Matrix			
Tree Retention Rating Modifier	**Preliminary Tree Retention Rating**		
	High	**Moderate**	**Low**
High	Important	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

Special Value Trees

There are potentially trees that have Special Value for reasons outside of normal Arboricultural assessment protocols and therefore would not have been considered in the assessment to this point; to allow for this a Special Value characteristic that can override the Tree Retention Rating can be selected. Special Value characteristics that could override the Tree Retention Rating would include factors such as the following:

Cultural Values

Memorial Trees, Avenue of Honour Trees, Aboriginal Heritage Trees, Trees planted by Dignitaries and various other potential categories.

Environmental Values

Rare or Endangered species, Remnant Vegetation, Important Habitat for rare or endangered wildlife, substantial habitat value in an important biodiversity area and various other potential categories.

Where a tree achieves one or more Special Value characteristics the Tree Retention Rating will automatically be overridden and assigned the value of Important.

Tree Retention Rating Definitions

Important These trees are considered to be important and will in almost all instances be required to be retained within any future development/redevelopment. It is highly unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Protection of these trees should as a minimum be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites* however given the level of importance additional considerations may be required.

High These trees are considered to be important and will in most instances be required to be retained within any future development/redevelopment. It is unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Protection of these trees should be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites*.

Moderate These trees are considered to be suitable for retention however they achieve less positive attributes than the trees rated as Important or High and as such their removal or other tree damaging activity is more likely to be considered to be acceptable in an otherwise reasonable and expected development. The design process should where possible look to retain trees with a Moderate Retention Rating. Protection of these trees, where they are identified to be retained, should be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites*.

Low These trees are not considered to be suitable for retention in any future development/redevelopment; trees in this category do not warrant special works or design modifications to allow for their retention. Trees in this category are likely to be approved for removal and/or other tree damaging activity in an otherwise reasonable and expected development. Protection of these trees, where they are identified to be retained, should be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites*.

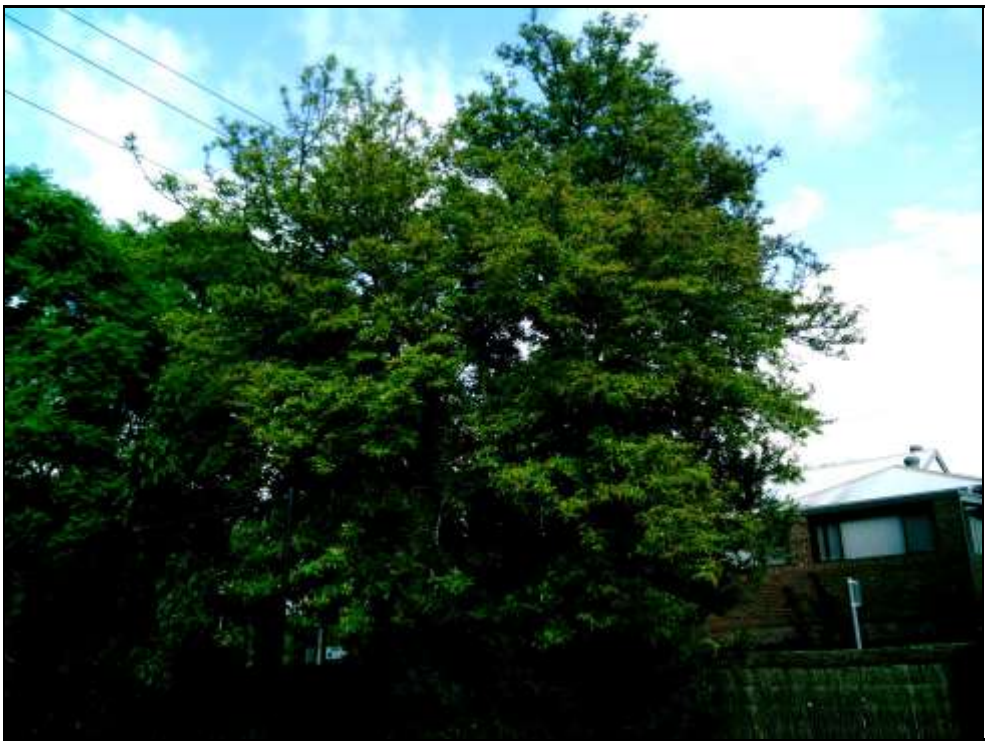
Appendix B - Tree Assessment Findings

Citharexylum spinosum

Tree No: 1

Fiddlewood

Inspected:	1 May 2019
Height:	>5 metres
Spread:	>10 metres
Health:	Fair
Structure:	Fair
Form:	Poor
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	5.56 metres



Legislative Status	Regulated

This tree is identified as a Regulated Tree as defined in the Development Act 1993. This tree has a trunk circumference greater than two metres and is not subject to any exemption from regulation.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Observations

There is minor dieback of branch ends throughout the crown and an unstable union in the primary structure.

Recommendation	Remove

Tree removal could be considered to achieve the proposal.

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Melia azedarach

Tree No: 2

White Cedar

Inspected:	1 May 2019
Height:	>5 metres
Spread:	>10 metres
Health:	Good
Structure:	Fair
Form:	Poor
Trunk Circumference:	>3 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	7.81 metres

Legislative Status	Significant

This tree is identified as a Significant Tree as defined in the Development Act 1993. This tree has a trunk circumference greater than three metres and is not subject to any exemption from regulation.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Observations

There are poorly formed unions within the primary structure.

Recommendation	Remove

Tree removal could be considered to achieve the proposal.

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Phoenix canariensis

Tree No: 3

Canary Island Date Palm

Inspected:	1 May 2019
Height:	>15 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	5.00 metres

Legislative Status	Regulated

This tree is identified as a Regulated Tree as defined in the Development Act 1993. This tree has a trunk circumference greater than two metres and is not subject to any exemption from regulation.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Observations

There are extensive dead fronds which should be removed for safety.

Recommendation	Remove

Tree removal could be considered to achieve the proposal.

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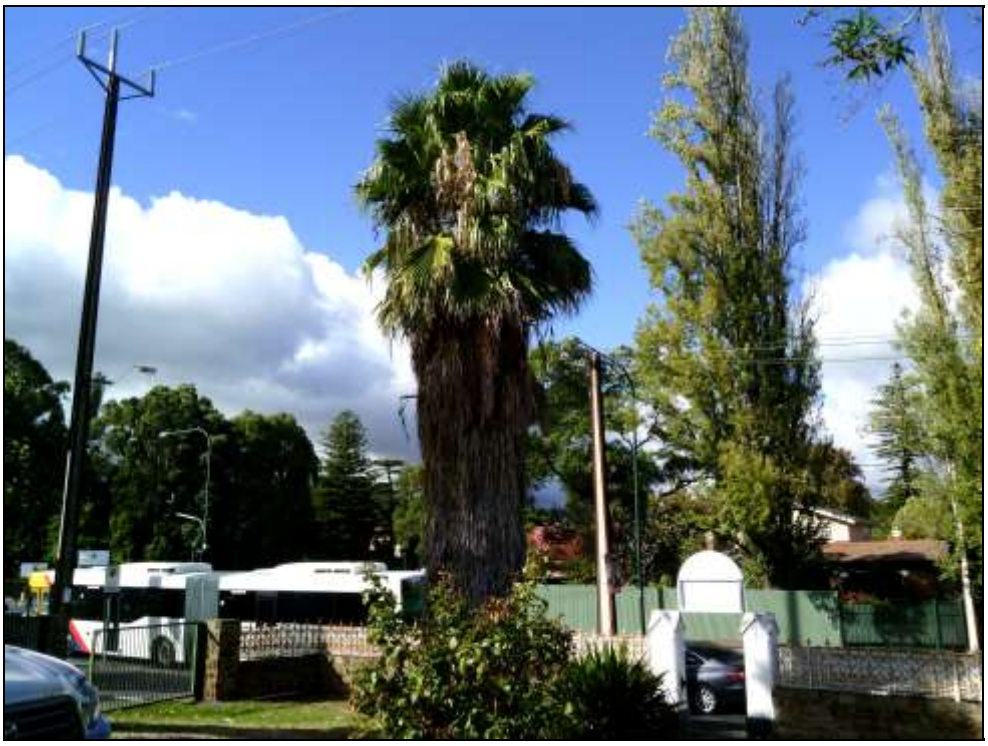
Washingtonia filifera

Tree No: 4

Petticoat Palm

Inspected:	1 May 2019
Height:	>10 metres
Spread:	<5 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	8.40 metres



Legislative Status	Regulated

This tree is identified as a Regulated Tree as defined in the Development Act 1993. This tree has a trunk circumference greater than two metres and is not subject to any exemption from regulation.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Observations

There are extensive dead fronds which should be removed for safety.

Recommendation	Remove

Tree removal could be considered to achieve the proposal.

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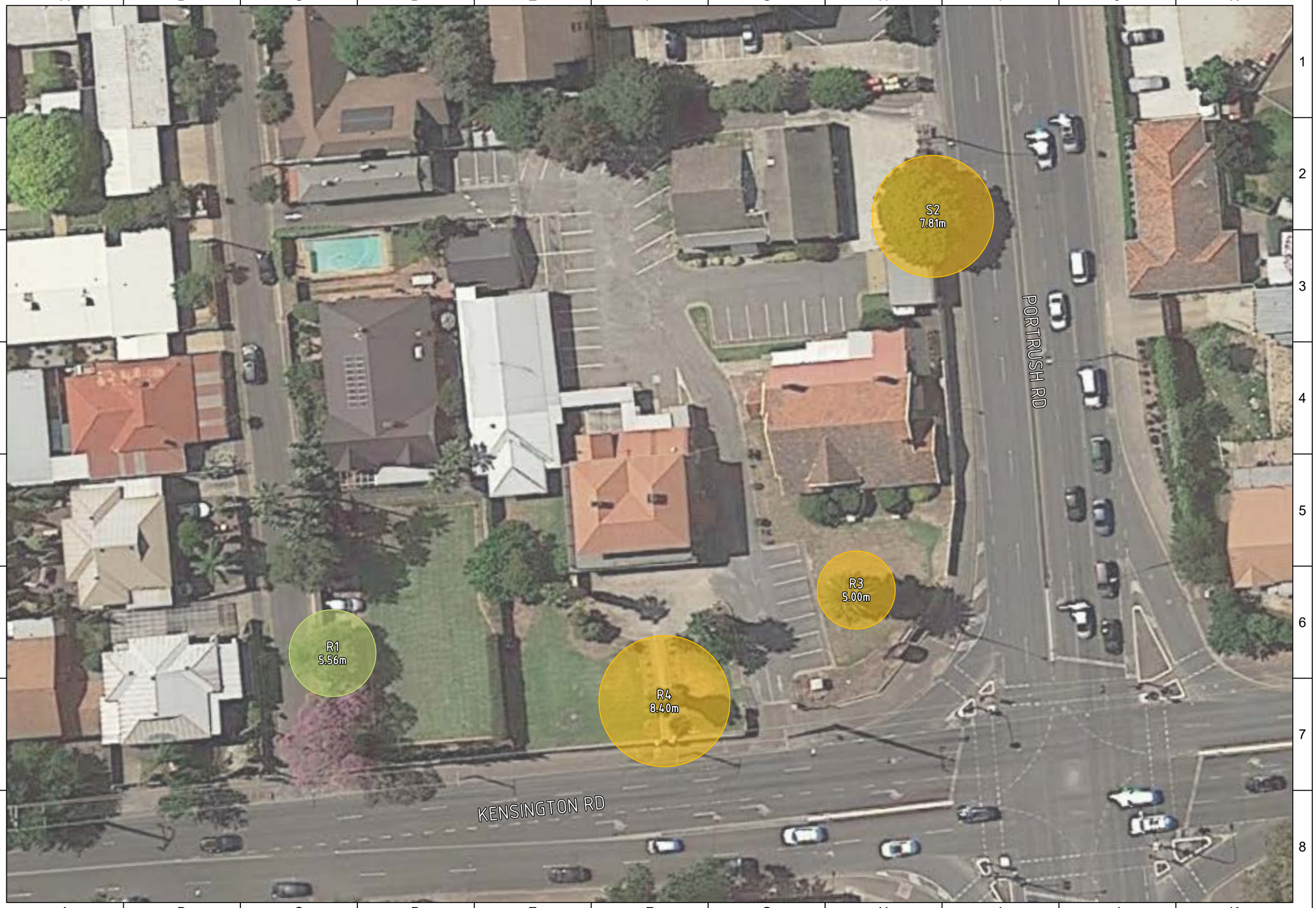
Appendix C - Mapping



Legislative Status

S	Significant
R	Regulated
U	Unregulated
E	Exempt
NV	Nat Veg Act

Retention Rating

- Important
- High
- Moderate
- Low

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Ref: ATS5467-KenRdPorRdPTA

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Preliminary Tree Assessment

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Appendix D – Tree Assessment Summary

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Tree Assessment Summary

Tree Number	Botanic Name	Legislative Status	Retention Rating	TPZ Radius	Observations	Recommendations
1	*Citharexylum spinosum*	Regulated	Low	5.56 metres	There is minor dieback of branch ends throughout the crown and an unstable union in the primary structure.	Tree removal could be considered to achieve the proposal.
2	*Melia azedarach*	Significant	Moderate	7.81 metres	There are poorly formed unions within the primary structure.	Tree removal could be considered to achieve the proposal.
3	*Phoenix canariensis*	Regulated	Moderate	5.00 metres	There are extensive dead fronds which should be removed for safety.	Tree removal could be considered to achieve the proposal.
4	*Washingtonia filifera*	Regulated	Moderate	8.40 metres	There are extensive dead fronds which should be removed for safety.	Tree removal could be considered to achieve the proposal.