

ARBORICULTURAL IMPACT ASSESSMENT (AIA) REPORT

Prepared For: Mr Tony Gardner & Ms Carmel Thorn
Site Address: 7 Sturdee Lane, Elvina Bay
Inspection Dates: 21st April, 2020

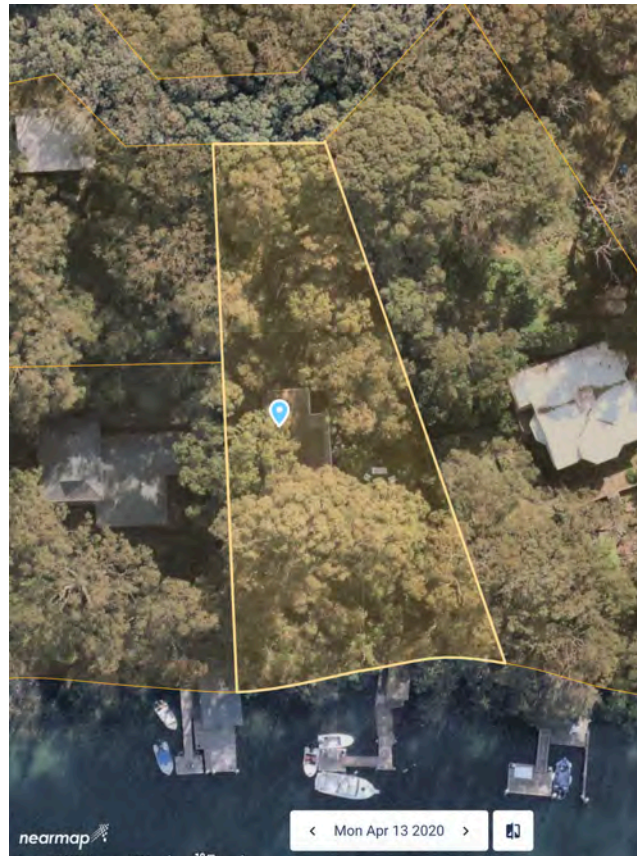


Figure 1: The site – Nearmap accessed 21/4/20.

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1 Executive Summary

- 1.1.1 Margot Blues Consulting Arborist has been engaged to inspect and report on trees in close proximity to proposed additions for DA Purposes. Council has requested the Arborist Report be updated for DA2020/149.
- 1.1.2 The report's aim was to determine tree health and condition; retention values and construction impact via methodologies VTA¹, STARS² & AS4970-2009.
- 1.1.3 The four (4) assessed trees were young mature native species of which 2 were Spotted Gums (T1 & T2).
- 1.1.4 The Survey depicts a third tree which had been removed.
- 1.1.5 Trees T3 & T4 have been plotted by the arborist to demonstrate their location. T3 was protected as it had attained a height greater than 5 metres.
- 1.1.6 Recommendations:

Option 1: Based on the proposal as supplied, none of the four (4) trees is retainable as:-

- Affecting Trees T1 & T2: Excavation and construction of a retaining wall north of the building. The wall is shown as having a continuous footing plus "heel" extending closer to the trees. All works is to occur within the structural root zone.
- Affecting Trees T3 & T4: Both trees fall within the footprint of the building. They are not retainable.

Option 2: Should the building move to the south by approximately 0.6m the following would be possible:-

- The elimination of the retaining wall and excavation thereby enabling
- Retain trees T1 & T2
- Plumbing would need to be fixed to the underside of flooring further protecting T1 & T2.

¹ VTA – Visual Tree Assessment – Mattheck and Breloer 1994

² STARS – Significance of a Tree Assessment Rating System – IACA 2010



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2 Introduction

2.1 Background

2.1.1 Margot Blues Consulting Arborist has been engaged by the owners Mr Gardner and Ms Thorn to inspect and report on trees in close proximity to the proposed development. This report only addresses trees impacted by the proposed addition to be constructed east of the main existing dwelling. Council has requested the arborist report be updated for DA 2020/149.

2.1.2 The report's aim was to:

- Conduct a visual assessment of protected trees.
- Categorise the trees into retention priority (High/Medium/Low) with the aim to retain "High" and "Medium" trees.
- Determine the construction impact to trees based on AS4970-2009 guidelines and supplied plans for retention/removal purposes or design alteration options.

2.1.3 Information supplied and relied upon in the preparation of this report included:

- Architectural drawings dated December 2019 Revision A by Kerry McGrath
- Survey dated 13.11.2019 Issue B Hammond Smeallie & Co Pty Ltd

The use of these documents is acknowledged with thanks.

2.2 Desktop Research

2.2.1 The NSW Planning Portal - the property is referenced as:

- Zoning: E3 – Environmental Management
- Biodiversity

2.2.2 A prescribed tree in accordance with Council guidelines are:-

- a tree of five (5) metres or greater in height and not listed on the exempt species list or *Biosecurity Act 2015*.

2.2.3 RFS 10/50: The property is listed as bushfire prone but does not have clearing entitlement given its distance from the water.

2.3 Definition

2.3.1 AS4970:2009 – An abbreviation for Australian Standard 4970:2009 - *Protection of Trees on Development sites*.

- A Minor Encroachment is defined as encroachments less than 10% of the TPZ³ area and outside the SRZ⁴.
- A Major Encroachment is defined where encroachment more than 10% of the TPZ or inside the SRZ occurs. The project arborist must demonstrate that the tree would remain viable given the level of incursion.

³ TPZ – Tree Protection Zone

⁴ SRZ – Structural Root Zone



3 Methodology

- 3.1.1 Trees were visually inspected from ground level only in accordance with VTA (Visual Tree Assessment); a methodology derived by Mattheck and Breloer (1994).
- Assessment included foliage condition (volume and colour); the presence of pests and diseases, canopy dieback, deadwood and epicormic growth.
 - Tree condition included assessment of structural stability, previous pruning and any damage/disturbance which may have occurred.
- 3.1.2 No destructive or aerial investigations occurred to any trees. Tree data is displayed in Appendix 1 – Tree Data Summary.
- 3.1.3 Tree heights and canopy widths were estimated – See Appendix 1 – Tree data.
- 3.1.4 Trees T3 & T4 have been plotted on the plans – see appendix 2. Their positioning is approximate. T3 is protected as it has reached a height of 5 metres and T4 is exempt as it was less than 5 metres in height.
- 3.1.5 The architectural drawing was overlaid on the survey and scaled using AutoCad – Appendix 2. Given the quality of the architectural plans, the overlay may be slightly in error. However, this would not affect the final determination of construction impact on the trees.
- 3.1.6 No tree located on adjoining properties was assessed.
- 3.1.7 Appendix 2 – Plan Scale: Displays tree numbering for identification purposes (read in conjunction with Appendix 1); The tree protection zones (TPZ) represented by the blue outer circle and the structural root zone (SRZ) inner red circle. Both TPZ and SRZ are plotted to scale in accordance with AS4970-2009.
- 3.1.8 Appendix 3 – Photograph
- 3.1.9 Appendix 4 – STARS –Significance Tree Assessment Rating methodology (IACA).
- 3.1.10 This report is considered limited to what could reasonably be seen from ground level and expresses no commentary on changes which may have, or will, impact the trees or their environment outside the scope of works.



4 Results

4.1 The Site

- 4.1.1 The waterfront property has a North/South aspect. The terrain slopes downward to the south with the house positioned on levelled land. The property contains a number of tall spotted gums and other native vegetation

4.2 Construction

The proposal is a separate detached building complete with bedroom, bathroom and storage. The addition is to be built above ground and connected to the building. The roof angle mimics the main dwelling's.

No footing details have been provided which support the building therefore it is assumed they will be isolated given the anticipated light weight structure.

A continuous retaining wall approximately 750mm off the northern (rear) wall of the addition is proposed.

The buildings elevation above ground permits plumbing to be fixed to the floor's underside eliminating the need for trenching.

4.3 The Trees

Four (4) trees were in close proximity to the proposal.

- 4.3.1 The two Spotted gums (T1 & T2) were uphill from the proposed construction. Both appeared to be in good health and condition
- 4.3.2 Trees T3 & T4 both smaller trees and generally located on the level grassed area east of the dwelling. Both appeared in good health and condition and were considered young mature.



4.4 Construction Impact to Trees

The following table summarises incursion conflict.

Tree No	Species	Impact	Retain/ Remove
T1	<i>Corymbia maculata</i> Spotted gum	<p>Tree in good health and condition.</p> <p>Construction Impact: High in accordance with AS 49702-2009</p> <p>The retaining wall inclusive of excavation dissects the SRZ of the tree. No provision for additional excavation/incursion to accommodate the footing's "heel" has been calculated.</p> <p>Tree is non-retainable based on the proposal.</p>	<p>Remove</p> <p>Retention value: HIGH</p>
T2	<i>Corymbia maculata</i> Spotted gums.	<p>Tree in good health and condition</p> <p>Construction Impact: High in accordance with AS 49702-2009</p> <p>The retaining wall inclusive of excavation dissects the SRZ of the tree. No provision for additional excavation/incursion to accommodate the footing's "heel" has been calculated.</p> <p>Tree is non-retainable based on the proposal.</p>	<p>Remove</p> <p>Retention value: HIGH</p>
T3	<i>Harpulia pendula</i> Tulipwood	<p>Tree in fair health and condition.</p> <p>Construction Impact: High in accordance with AS 49702-2009 - Tree falls within the footprint of the development</p> <p>The tree is non-retainable.</p>	<p>Remove</p> <p>Retention value: Moderate</p>
T4	<i>Elaeocarpus reticulatus</i> Blueberry Ash	<p>Tree in good health and condition.</p> <p>Construction Impact: High in accordance with AS 49702-2009 - Tree falls within the footprint of the development</p> <p>The tree is non-retainable.</p>	<p>Remove</p> <p>Retention value: Low.</p>

Table 1: Construction impact to each tree based on the supplied plans.



5 Conclusion

- 5.1.1 The scope of works was the assessment of four trees in close proximity to the proposed development for DA purposes. Council has requested the Arborist Report to be updated.
- 5.1.2 Trees generally appeared to be in good health and condition.
- 5.1.3 Based on the proposal none of the four trees are retainable.

6 Recommendations

The proposal will necessitate:

6.1 Tree removal – Option 1:

The supplied plans will necessitate the removal of all four trees being:-

- 2 x Spotted gums located uphill of the proposal.
- 1 x Tulipwood which falls within the footprint of the proposal.
- 1 x Blueberry Ash which falls within the footprint of the proposal.

In the event all four trees are removed, trenching for inground services would not be an issue.

- 6.1.1 Accordingly: A Tree Protection and Management Plan is not required in this instance.

6.2 Tree Removal – Option 2:

If the proposal were to move to the south by approximately 0.6m would potentially eliminate the need for the retaining wall and the removal of the two spotted gums. The Harpulia and Blueberry Ash would still require removal.

Plumbing fixed to the underside of the floor would be required.

Isolated piers would support the building.

- 6.2.1 A tree Protection and Management Plan would not be required if this option was adopted.

Appendix 1: Tree Data Summary - 7 Sturdee Lane Elvina Bay - Assessed 21/4/2020

[illegible]



Appendix 3 – Photograph



Photo 1: The site of proposed development and trees. Red line approximate position of building.

Appendix 4

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria



1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street;
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

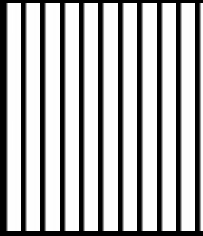
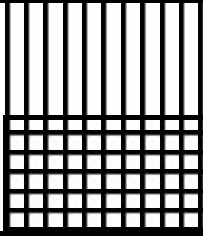
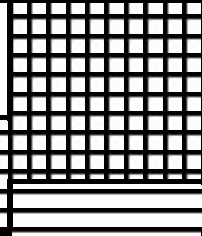
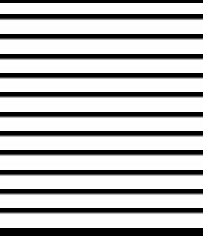


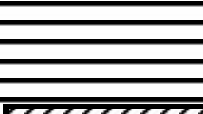
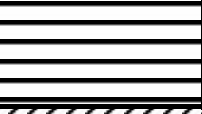

Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.


The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

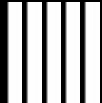
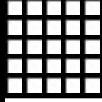


Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.

		Significance				
		1. High	2. Medium	3. Low		
		Significance in Landscape	Significance in Landscape	Significance in Landscape	Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					

Legend for Matrix Assessment



	Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 <i>Protection of trees on development sites</i> . Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.
	Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

REFERENCES

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

IACA 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, www.iaca.org.au

Appendix A

The following example shows the IACA **Significance** of a **Tree, Assessment Rating System** (STARS) used in an Arboricultural report.

Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good form and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

Significance Scale

1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Retention Value

High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

* Trees located within the neighbouring property and should be retained and protected.