

ARBORICULTURAL IMPACT REPORT

5 BAREENA ROAD
AVALON BEACH NSW

PREPARED FOR ALWILL

6TH AUGUST 2019



Prepared by:
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1. BACKGROUND

Landscape Matrix Pty Ltd has been engaged by Alwill to prepare an Arboricultural Impact Report in respect to a tree at 5 Bareena Road Avalon Beach (the site). The tree is potentially impacted by proposed additions to the dwelling.

The tree is located in the rear garden of the site and adjacent to the existing deck at the rear of the existing dwelling. The location and street context of the site is illustrated in the photograph on the cover page of this report.

This report has been prepared by Guy Paroissien a Director of Landscape Matrix Pty Ltd.

The site was inspected on 9th April 2019. The assessment of the tree is based upon a visual inspection of the tree from ground level using elements of the Visual Tree Assessment (VTA) method described by Mattheck & Breloer (1994). The Useful Life Expectancy (ULE) category identified in the report follows Barrell (1996).

The visual inspection included examination of the tree's dimensions, foliage density and foliage health, form, structure, structural condition, overall health and vigour and landscape significance. The inspection was limited to visual inspection of the tree without dissection, probing or coring. No aerial inspection of the tree was carried out and the assessment did not include any woody tissue testing or subterranean root investigation.

The tree height and canopy spread were estimated and are expressed in metres and the tree diameters at breast height (DBH) were measured with a standard metal tape measure at approximately 1.4 metres above ground level and are expressed in millimetres.

Measurements from the tree referred to in this report are to be taken as if measured from the centre of the tree's trunk.

2. TREE ASSESSED FOR THIS REPORT

One Weeping Bottlebrush tree has been assessed in preparing this report. The tree is located in the rear garden of the site and adjacent to the existing deck at the rear of the existing dwelling.

2.1 Observations regarding the tree

The tree is a mature, multi trunked *Callistemon viminalis* (Weeping Bottlebrush) approx. 9 metres in height with a canopy spread of 12 metres and diameters at breast height (DBH) of up to 410mm (470 and 660mm above the root flare).

The tree has an upright trunk and the majority of its past canopy development has been balanced. Lower limbs have been pruned in the past to approx. 3 metres above ground level and selected upper branches have been pruned in the past.

At the time of inspection the tree was of good health and vigour low levels of internal dieback typical for a mature specimen of Bottlebrush at this stage of maturity. There was no visual evidence of significant pest or disease.

The tree displays fair branch attachment with codominant leaders from ground level and multiple leaders from near ground level with some evidence of poor attachment – while the junction is a weak point in the tree's structure with increased risk of failure it is not considered at risk of failure in the short term.

The tree is of moderate to high visual significance as viewed from within the site and is of moderate to high landscape significance. Taking into account the tree's age, species and good health and vigour it is concluded the tree has a medium Useful Life Expectancy (ULE), i.e. 15 to 40 years.

2.2 Observations regarding the site conditions in the vicinity of the tree

The tree is located in the rear garden of the site and adjacent to the existing deck at the rear of the existing dwelling. There is a combination of the following within the tree's identified tree protection zone (TPZ):

- The existing deck and dwelling at the site;
- The dwelling on the adjoining property;
- Landscape and lawn areas in the rear garden of the site.

Observations regarding the tree and site conditions are illustrated in photographs 1, 2, 3, 4, 5 and 6 in Appendix A.

3. IDENTIFICATION OF SETBACKS FOR THE TREE

A number of methods to determine the likely extent of root zones and appropriate setbacks for tree root protection zones for trees on development sites have been developed in the past.

The key criteria used in determining setbacks is the tree's trunk diameter at breast height (DBH) in conjunction with other factors including the sensitivity of the species in question to environmental disturbance/change, the age of the tree and the tree's health and vigour at the time.

Harris et al (2004) provide formulae for calculating tree protection zones based on the above criteria and modified from the 1991 British Standard for protection of trees on construction sites (BS 5837:1991). The 2005 version of the British Standard (BS 5837:2005) recommends a radius of 12 times the tree's DBH. For multi trunked trees BS 5837:2005 recommends a setback of 10 times the basal trunk diameter.

The Australian Standard *AS4970-2009 Protection of Trees on development Sites* also identifies a 'Tree Protection Zone' (TPZ) of 12 times the tree's DBH. AS4970-2009 also provides a formula for calculating the 'Structural Root Zone' of trees on development sites.

Using the formulae provided in *AS4970-2009* the tree protection zone for the tree is calculated as 9.7 metres and its structural root zone is calculated as 3 metres.

The tree protection zone identified above is the identified setback from the tree where disturbance (e.g. soil level changes, compaction, excavation etc.) should be minimised to reduce potential impacts on the long-term health of the tree.

Preferably, no more than 10% of the tree protection zone should be disturbed with compensation made by extension of other areas of the TPZ to compensate for the area(s) disturbed.

Where greater than 10% of the tree protection zone is potentially disturbed the tree's viability needs to be investigated and demonstrated by the project arborist. The structural root zone is the area required for stability and where disturbance of any sort should be avoided.

4. POTENTIAL IMPACTS TO THE TREE

The potential impacts of the proposal have been assessed using the following plans:

- Site Plan/Site Analysis Plan prepared by Alwill dated August 2019 and identified as Drawing Number DA-102; and
- Section C Plan prepared by Alwill dated August 2019 and identified as Drawing Number DA-402.

The proposed extension to the existing deck area is located 1.13 metres from the tree at the closest point and is calculated to encroach within 23.68m² or 7.98% of the tree's identified TPZ – this is a low level of impact and within an acceptable threshold. In addition, the actual impacts will be minimised as it is a lightweight, elevated structure supported by isolated piers.

As the deck is within the tree's identified SRZ it is recommended the pier locations be determined by hand excavation to ensure no roots of 35mm diameter or greater are removed or damaged during installation of the piers.

There is a second order branch of 190mm diameter at 1.7 metres on the north side of the crown that will need to be reduction pruned to accommodate the proposed pergola – this branch has been reduction pruned at the eastern boundary in the past and its pruning will impact less than 5% of the tree's live crown area and will not have any impact of substance on the tree's crown shape, form or landscape value.

The proposed swimming pool is located 8.79 metres from the tree at the closest point and is calculated to encroach within 3.41m² or 1.15% of the tree's identified TPZ – this is a low level of impact and within an acceptable threshold.

5. CONCLUSION

The tree assessed for this report is mature, multi trunked *Callistemon viminalis* (Weeping Bottlebrush) approx. 9 metres in height with a canopy spread of 12 metres and DBH of up to 410mm (470 and 660mm above the root flare). The tree is located in the rear garden of the site and adjacent to the existing deck at the rear of the existing dwelling.

At the time of inspection the tree was of good health and vigour with no visual evidence of significant pest or disease. The tree is moderate to high landscape significance with a medium Useful Life Expectancy (ULE), i.e. 15 to 40 years.

The proposed extension to the existing deck area is calculated to encroach within 23.68m² or 7.98% of the tree's identified TPZ – this is a low level of impact and within an acceptable threshold. In addition, the actual impacts will be minimised as it is a lightweight, elevated structure supported by isolated piers.

It is recommended the pier locations be determined by hand excavation to ensure no roots of 35mm diameter or greater are removed or damaged during installation of the piers.

There is a second order branch of 190mm diameter at 1.7 metres on the north side of the crown will need to be reduction pruned to accommodate the proposed pergola – the pruning of this branch will not have any impact of substance on the tree's crown shape, form or landscape value.

The proposed swimming pool is located 8.79 metres from the tree at the closest point and is calculated to encroach within a further 1.15% of the tree's identified TPZ – this is a low level of impact and within an acceptable threshold.



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6th August 2019

BIBLIOGRAPHY/REFERENCES

Alwill (2019) - Site Plan/Site Analysis Plan prepared by Alwill dated August 2019 and identified as Drawing Number DA-102.

Alwill (2019) - Section C Plan prepared by Alwill dated August 2019 and identified as Drawing Number DA-402.

Australian Standards Association (2007) AS 4373- 2007 - Australian Standard 4373-2007 'Pruning of Amenity Trees'.

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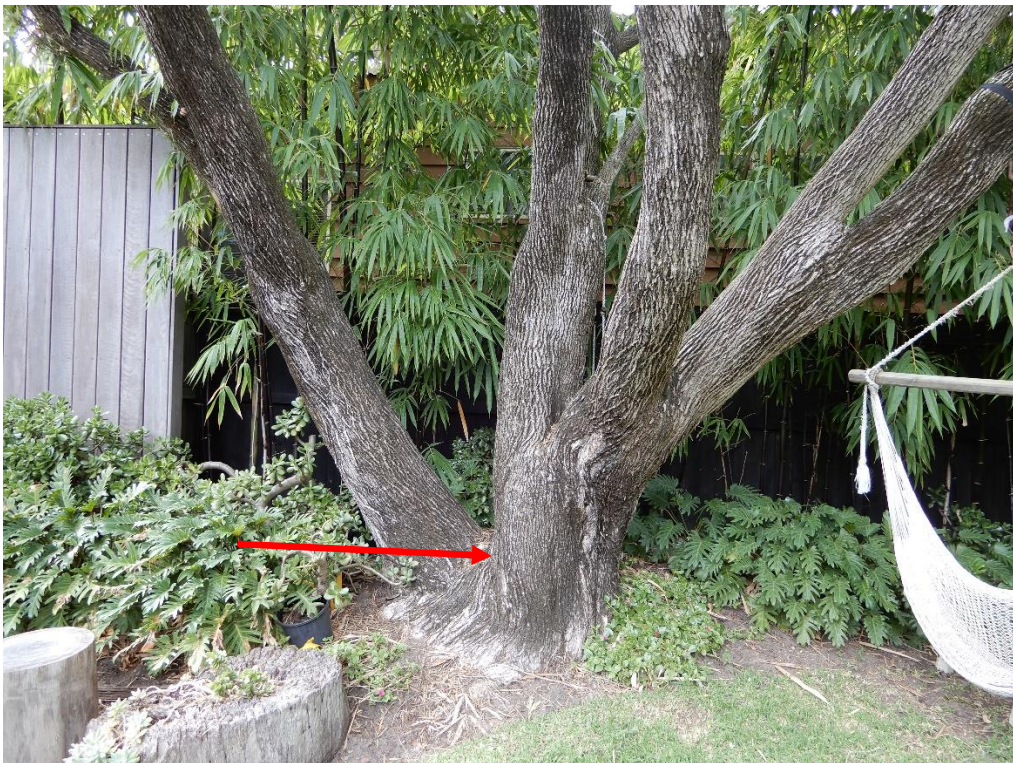
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APPENDIX A



Photograph 1: Illustrating the tree as viewed from within the rear garden.



Photograph 2: Illustrating multiple codominant leaders from near ground level.



Photograph 3: Illustrating existing conditions in the tree's TPZ area.



Photograph 4: Illustrating existing conditions in the tree's TPZ area.



Photograph 5: Illustrating the branch that will require pruning.



Photograph 6: Illustrating past reduction pruning of the branch at the eastern boundary.