



PEAKE ARBORICULTURE

ARBORICULTURAL IMPACT ASSESSMENT

Lot 1 / DP24404

7 Currie Rd

Forestville, NSW 2087

Prepared on: 05/02/2020

Prepared for:

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1 INTRODUCTION & AIMS

1.1 This Arboricultural Impact Assessment (AIA) was requested by Ben Farrar on the 22nd of January 2020. This AIA is to address the potential impacts upon surrounding trees from the proposed development of Lot 1/DP24404 7 Currie Rd Forestville, NSW 2087 (the subject site). The subject site can be seen in figure 1 below.



Figure 1: The subject site, site boundary shown in red. (Nearmap, 2020)

1.2 The aim of this report is to:

- Examine Councils policies in regards to application requirements needed for the preparation of an Arboricultural Impact Assessment.
- Visually assess and identify the subject trees & the environment in which they grow.
- Assess construction impacts for each subject tree through the revision of plans for the proposed development.

1.3 This report will recommend tree protection measures that will aim to minimise the impacts from the proposed construction on subject trees to be retained.

2 DEVELOPMENT CONTROLS & RELEVANT LEGISLATION

- 2.1 of Lot 1/DP24404 7 Currie Rd Forestville, NSW 2087 is zoned R2 – Low Density Residential and is located within the Local Government Area of Northern Beaches Council (NSW Government, n.d.)
- 2.2 Warringah Development Control Plan 2011 Amendment 14, specifically part E1 Preservation of Trees or Bushland Vegetation (Northern Beaches Council, 2011 (amendment 14 - 20/10/2018)) has been considered in the preparation of this report.
- 2.3 Part H Appendices, of the Warringah Development Control Plan 2011 (Northern Beaches Council, 2011 (amendment 14 - 20/10/2018)) contains information required for the preparation of an Arboricultural Impact Assessment. This includes
- Appendix 8 - Removal of Tree Tests
 - Appendix 9 - Tree Retention Assessment
 - Appendix 11 - Class 2-9 Buildings
 - Appendix 12 - Tree Protection Plan
- 2.4 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (NSW Government, 2017) has been considered in the preparation of this report. The aims of the policy are to;
- *“(a) to protect the biodiversity values of trees and other vegetation in non-rural areas of the State, and*
 - *(b) to preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation.”*



3 METHOD

- 3.1 The tree and site were visually assessed from ground level, using methods developed by the Visual Tree Assessment (VTA) process (Claus Mattheck, 2006). No detailed inspections as described in the VTA process have been undertaken. The genus and species of the trees were recorded as well as the dimensions for diameter at breast height (DBH), diameter above buttress (DAB) and canopy width (when the measurement of a DBH and DAB has not been practical, such as in the case of low branching or mallee trees, a DBH and DAB measurement has been allocated based on tree size). Height and age of the trees were estimated as well as the percentage of deadwood, the tree was given a Health / Vigour rating and signs and symptoms of pests and diseases were looked for. Structural defects and comments were recorded.
- 3.2 Calculations have been made using guidelines supplied in AS4970-2009 Protection of Trees on Development Sites (Standards Australia, 2009) for the;
- Tree Protection Zone (TPZ),
 - Structural Root Zone (SRZ),
 - Live Crown Ratio (LCR),
 - Live Crown Size (LCS),
- 3.3 The tree has been allocated a landscape significance rating of Low, Medium or High using the *IACA Significance of a Tree, Assessment Rating System (STARS)©* (IACA, 2010). Stars assessment criteria includes:
- Condition and Vigour
 - Form, species specific
 - Provenance, age and botanical significance
 - Heritage and Ecological significance
 - Size, shape, and local amenity value
 - Restrictions to tree growth
- Appendix A contains the assessment criteria in full.
- 3.4 The tree has been given a Useful Life Expectancy (ULE) rating, categorised as either;
- Long – 40+ years
 - Medium – 15-40 years
 - Short – 5-15 years
 - Consider for removal - <5 years

4 OBSERVATIONS

4.1 Listed in Table 1 below are observations from the subject tree relating to;

- Health and vigour. Rated between 0 and 5. 0 = Dead, 5 = Excellent.
- Deadwood. An overall % has been estimated.
- Structural defects and comments.
- Any signs/symptoms of pest and disease attack.
- Previous pruning or wounds.

Tree No.	Genus/Species & Common Names	Health Vigour	Dead wood %	Structural Defects/ Comments	Pests/ Disease	Pruning/ Wounds
1	<i>Melaleuca stypheliodes</i> Prickly-leaved paperbark	2.5	5-10%	None visible	None visible	Canopy lifted

Table 1: Tree Observations

4.2 Listed in Table 2 below are measurements from the subject tree relating to;

- Diameter at breast height (DBH).
- Diameter above buttress (DAB).
- Canopy spread – measured to the North, East, South and West (N, E, S, W).
- Tree height.
- Lowest scaffold branch.

#The subject tree is located on a neighbouring property and dimensions have been estimated as accurately as possible. Access was not available at the time of inspection.

Tree No.	Species	Maturity	Height (m)	Lowest Scaffold (m)	Spread (m)				DBH / Multi (cm)	DAB (cm)
					N	E	S	W		
1	<i>Melaleuca stypheliodes</i>	Mature	6	0.5	3	3	2.2	3	25	31

Table 2: Tree Measurements

4.3 Listed in Table 3 Below are calculations from the subject trees relating to:

- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)
- Live Crown Ratio (LCR)
- Live Crown Size (LCS)

Tree Number	Species	TPZ (m)	SRZ (m)	Live Crown Size (m ²)	Live Crown Ratio (%)
1	<i>Melaleuca styphelioides</i>	3	2	31	92%

Table 3: Calculations from the subject trees

5 TREE RETENTION VALUES

5.1 Trees have been allocated a retention value using the priority Matrix in the *IACA Significance of a Tree, Assessment Rating System (STARS)©* (IACA, 2010). The Matrix uses the Landscape Significance rating combined with the Useful Life Expectancy (ULE) to determine a retention value of either;

- Priority for Retention (High) – All measures must be taken to retain and protect these trees. If the guidelines set out in AS4970-2009 Protection of trees on development sites cannot be used to protect the trees, design modification or re-location of the proposed development should be considered.
- Consider for Retention (Medium) – Retention of these trees should remain a priority. If the trees are adversely affecting the proposed development and all protection measures have been considered but are not viable, removal can be considered.
- Consider for Removal (Low) – Retention of these trees is not important. No modification to design should be considered for their retention.
- Priority for Removal – Trees in an irreversible decline, weed species or hazardous trees. These trees should be removed.

Tree Number	Species	Landscape Significance Rating	Useful Life Expectancy	Retention Value
1	<i>Melaleuca styphelioides</i>	Medium	Medium (15-40)	Medium

Table 4: Tree Retention Values



6 CONSTRUCTION IMPACTS

There is a major encroachment to the TPZ and SRZ of T1 from the proposed development. A retaining wall and associated fill are proposed within the SRZ. This is likely to result in the severance of structural roots and the loss of air and water transfer to the root zone.

Additionally, there are recent grade changes and construction of a storm water system within the TPZ that are likely to have caused detrimental impacts to the longevity of T1.

The removal of T1 (subject to approval from NBC) will be required to facilitate the proposed development. A 45L *Tristaniopsis laurina* (Water Gum) is proposed as a replacement tree.

Trees within the rear yard are exempt species within Northern Beaches Council, works proposed within the rear yard include re-surfacing of existing hard surfaces and a timber deck. A concrete side access and low masonry wall is proposed along the eastern boundary at existing levels. No detrimental impacts upon surrounding trees are expected from these works.

7 DOCUMENTS USED IN THE PREPARATION OF THIS REPORT

7.1 Listed in table 6 below are documents used in the preparation of this report.

Document type	Source/ Author	Title	Date	Summary
Plan	Serenescapes	Zone A Landscape Plan	4/11/2019	Plan showing proposed landscaping at 7 Currie Rd Forestville, NSW 2087.
Plan	Serenescapes	Zone A Planting Plan	4/11/2019	Plan showing proposed planting at 7 Currie Rd Forestville, NSW 2087.
Plan	Serenescapes	Zone B Landscape Plan	4/11/2019	Plan showing proposed landscaping at 7 Currie Rd Forestville, NSW 2087.
Plan	Serenescapes	Sectional Elevation AA + BB	4/11/2019	Plan showing section view of proposed landscaping at 7 Currie Rd Forestville, NSW 2087.
Plan Overlay	Peake Arboriculture	Tree Location, TPZ & SRZ Plan.	05/02/2020	Plan showing tree location, tree protection zone and structural root zone at 7 Currie Rd Forestville, NSW 2087.

Table 5: Documents used in the preparation of this report.



8 RECOMMENDATIONS

- 8.1 The Removal of tree 1 will be required to facilitate the proposed development. It is recommended that in the process of removal (subject to approval from Northern Beaches Council);
- All work is carried out by a person who is trained in AQF Level 3 in Arboriculture.
 - All work is carried out in accordance with the Work Cover, Amenity Tree Industry Code of Practice 1998 and Safe work Australia's "Guide to managing risks of tree trimming and removal work" (July 2016).
 - All tree waste is to be removed from site, including timber, mulch and stump grindings.
- 8.2 It is recommended that the size of the *Tristaniaopsis laurina* (Water Gum) proposed as a replacement is changed from 45L to 75L.

9 REFERENCES

Claus Mattheck, H. B., 2006. *The Body Language of Trees: A handbook for failure analysis*. London: The Stationary office.

IACA, 2010. *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia. [Online]

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Nearmap, 2020. [Online]

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<https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/pages/plan/Book.aspx?exhibit=D&CP&hid=192>

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Northern Beaches Council, 2017. *Manly Development Control Plan 2013 - Amendment 11*.

[Online]

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https://www.northernbeaches.nsw.gov.au/sites/default/files/Manly_Development_Control_Plan_2013_Amendment_11.pdf

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NSW Government, 2017. *State Environmental Planning Policy (Vegetation in Non-Rural Areas)*.

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Available at: <https://www.legislation.nsw.gov.au/#/view/EPI/2017/454/part1/cl3>

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NSW Government, n.d. *Planning & Environment - Find a property*. [Online]

Available at: <https://www.planningportal.nsw.gov.au/propertyreports/ec9babf7-3371-459a-8583-6da012610c7f.pdf>

[Accessed 5th February 2020].

Standards Australia, 2009. *AS 4970-2009 Protection of trees on development sites*. Sydney: Standards Australia.



10 GLOSSARY OF TERMS

Age class:

Young – planted recently.

Semi Mature – Reached less than 20% of expected life span.

Mature – Between 20-80% of expected life span.

Over Mature – Past 80% of expected life span.

Health and Vigour:

0 – Dead tree.

1 – Advanced state of decline. Significant deadwood visible. <20% live foliage cover.

2 – Declining. Dieback and deadwood visible. 20-60% live foliage cover.

3 – Low to average vigour. Dieback or visible. 60-90% live foliage cover.

4 – Good vigour. Small amount of dieback visible. 90-100% live foliage cover.

5 – Excellent vigour. No dieback or deadwood visible. 100% live foliage cover.

Crown:

Measured from the top of the tree to the lowest branch, comprising of leaves and branches.

Deadwood:

Dead branches found in a trees crown. An entirely dead branch or stem.

Dieback:

The death of portions of the crown. The death of branches or shoots from the tips inward.

Defect:

A feature of a tree that affects the health or structure in an adverse manner.

Decay:

The process of micro-organisms breaking down woody tissue.

Cavity:

A void in a woody stem, usually created by decay. This can be open or closed.

Soil Texture:

The amounts of sand, silt and clay in a soil.

Soil pH:

A figure expressing the acidity or alkalinity of a soil.

DBH:

Diameter at Breast Height refers to the tree trunk diameter measured at breast height or 1.4 metres above ground level.

DAB:

Diameter Above the Buttress refers to the tree trunk diameter measured above the root buttress and is used to calculate the radius of the SRZ.

TPZ:

Tree Protection Zone The radius of the TPZ is calculated for each tree by multiplying the DBH x 12. To establish the TPZ this radius is measured from the centre of the stem at ground level and it is an area that is to be isolated from construction disturbance. Any encroachment into the TPZ of more than 10% is considered to be a major encroachment.

SRZ:

Structural Root Zone The radius of the SRZ is calculated using the following formula:

$r \text{ (SRZ)} = (D \times 50)^{0.42} \times 0.64$ where D is the DAB measured in metres. It is the area around a tree that is required for tree stability and is usually applied on construction sites after there has been a major encroachment of the TPZ.

LCR:

Live Crown Ratio. The height of a trees crown, relative to the total height of the tree. Often used as an indicator of overall stability.

LCS:

Live Crown Size. The area of the crown as viewed from one aspect.

H/D:

Height over Diameter ratio. An indicator of failure due to slenderness. 30 is the optimum ratio. Greater than 50 is considered hazardous



11 RELEVANT APPENDICES

11.1 APPENDIX 1 – S.T.A.R.S.© (IACA 2010)

Significance of a Tree, Assessment Rating System* (IACA 2010) – S.T.A.R.S. ©

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



High Significance in landscape

- The tree is in *Good condition* and *Good vigor*;
- 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.

Medium Significance in landscape

- The tree is in *Fair-Good condition* and *Good or Low vigor*;
- 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*.

Low Significance in landscape

- The tree is in fair-poor condition and good or low vigor;
- 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.

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

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					

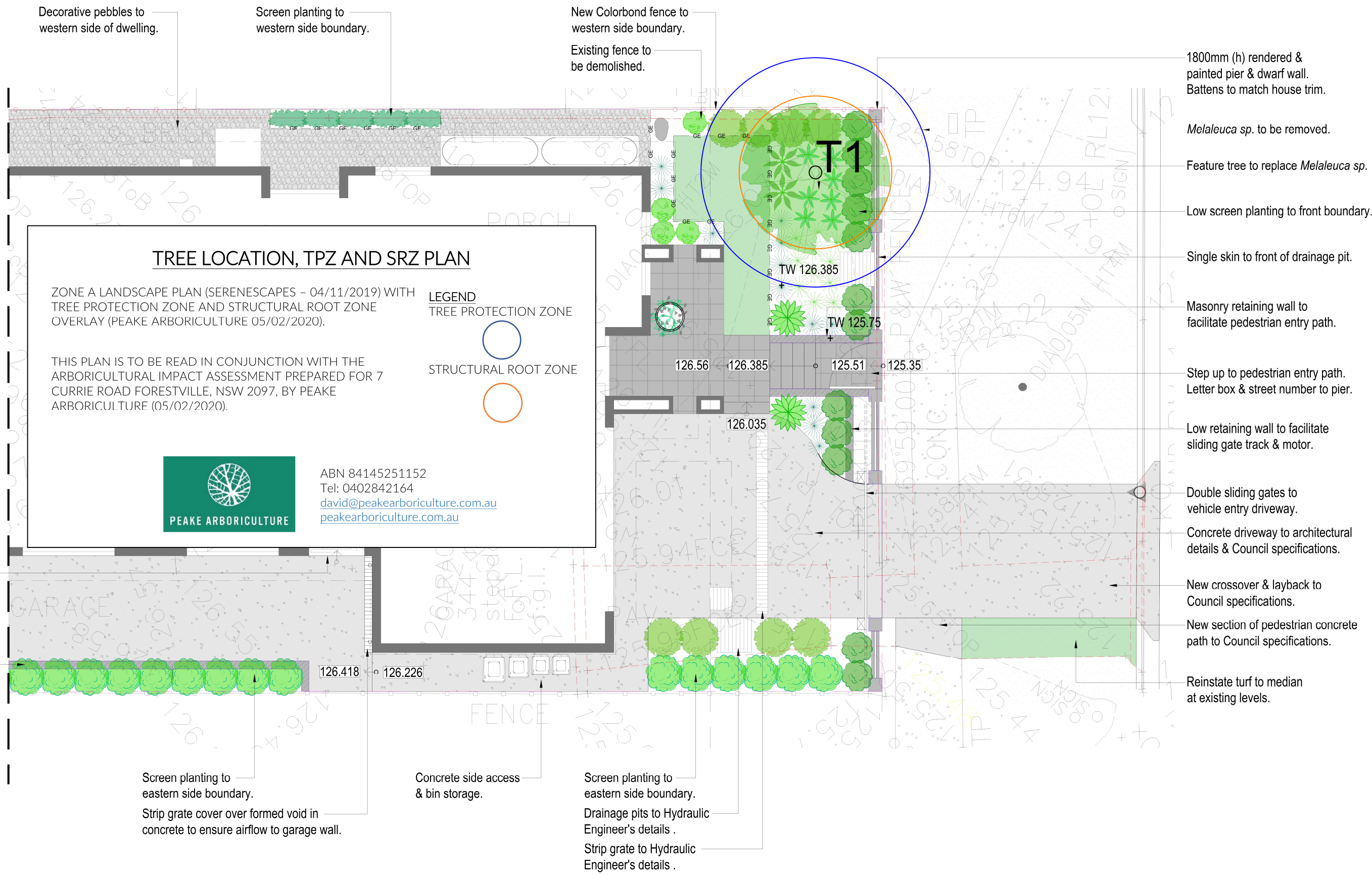
Legend for Matrix Assessment		INSTITUTE OF AUSTRALIAN IACA CONSULTING ARBORICULTURISTS
	Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks 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



Note:
 - Contractors to check and verify all dimensions and all levels on site prior to any works.
 - Any discrepancies should be immediately referred to Serenescapes Landscape Designs.
 - All work to comply with B.C.A. Statutory Authorities and relevant Australian Standards.
 - Dimensions recognised over scaling. All measurements are in millimetres.
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Client:	Ed & Natalie Emirzian	Drawing Title:	Zone A Landscape Plan			Rev:	Date:	Issue:	Checked:
Site Address:	7 Currie Road Forestville	Drawn by:	Project Number:	Scale:	Sheet Number:	A	24/10/19	Preliminary Issue	EC
		Ben Farrar TLA Member	19586	1:100 @ A3	L-02 of 8	B	04/11/19	DA Issue	EC

