



Martin Peacock Tree Care
Arboricultural & Horticultural Consultancy

Arboricultural Impact Assessment Report

155 Pacific Road
Palm Beach
NSW

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Date: 30th November 2021

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Contents

	Page no.
1.0 Summary	page 2
2.0 Introduction	page 3
3.0 Scope of The Report	page 3
4.0 Caveats & Limitations	page 3
5.0 Methodology	page 4
6.0 Results	page 5
7.0 Observations	page 15
8.0 Discussion	page 16
9.0 Recommendations	page 17
References	page 18
Appendix A – Tree Location Plan	
Appendix B - Photographs	
Appendix C – Establishment of TPZ Areas	
Appendix D – Cascade Chart for Assessment of Tree Quality & Value	

1.0 Summary

- 1.1 This report provides an assessment of thirty-six (36) trees growing at 155 Pacific Road, Palm Beach, NSW (the site). An additional thirteen (13) trees located outside of the site are also included on this report however being located outside of the site these trees have not been fully assessed
- 1.2 The development proposal for the site includes alterations and additions to the existing dwelling and construction of a new studio.
- 1.3 As part of the proposal twenty-seven (27) trees growing within the site are proposed for retention and ten (10) trees are proposed for removal. Of the trees proposed for removal four (4) trees are listed as exempt species under Northern Beaches Tree Management Policy (TMP). Two (2) trees are not sufficiently large as to be covered by the TPM and four (4) trees are low value specimens that have been allocated a Retention Category of Consider for Removal.
- 1.4 The trees proposed for retention are to be protected from construction impacts through the establishment of Tree Protection Zone areas and the use of tree sensitive design and construction methods.
- 1.5 The landscape treatment for the site should include the installation of advanced size replacement trees to offset tree removals and maintain the canopy cover at the site over the long term.
- 1.6 The recommendations of this report are subject to approval by Northern Beaches Council.

2.0 Introduction

- 2.1 This Arboricultural Impact Assessment Report has been prepared on behalf of the owners of 155 Pacific Road, Palm Beach, NSW (the site) and forms part of the Development Application documentation for the site.
- 2.2 This report provides an assessment of thirty-six (36) trees growing at the site. An additional thirteen (13) trees located outside of the site are also included on this report however being located outside of the site these trees have not been fully assessed
- 2.3 The development proposal for the site includes alterations and additions to the existing dwelling and construction of a new studio. As part of the proposal twenty-seven (27) trees growing within the site are proposed for retention and ten (10) trees are proposed for removal.
- 2.4 Martin Peacock Tree Care undertook a site on the 5th of November 2021 and assessed the trees and their growing environment.

3.0 Scope of The Report

- 3.1 This report has been prepared to meet the following objectives:
- Conduct at ground level, a visual inspection of the subject tree(s) and their growing environment.
 - Assess the physiological and structural condition of the subject tree(s).
 - Determine the useful life expectancy, quality and value(s) of the subject tree(s).
 - Award a retention category for the subject tree(s).
 - Assess relevant plans and documentation to determine the potential impacts of the proposed development upon the subject tree(s).
 - Make recommendations for retention, removal or remedial works to the subject tree(s), and/or implementation of tree protection measures as appropriate.
- 3.2 The following plans/documentation were referenced in the preparation of this report:
- Detail & Level Survey, dated 09.07.21 – prepared by Rygate Surveyors
 - Architectural Plans DA000-DA601 (Issue 1), dated 22.11.21 - prepared by CM Studio

4.0 Caveats & Limitations

- 4.1 The subject trees were inspected from the ground only, using the methodology detailed in this report.
- 4.2 The findings of this report are based on the observations made at the time of inspection (05/11/21), and from the information contained within plans/documentation provided by the Architect.
- 4.3 The report reflects the subject trees as found on the day of inspection. There is no warranty or guarantee, expressed or implied, that problems or deficiencies with the site or the subject trees may not arise in the future. Any changes to development proposals or tree management works beyond those recommended in this report may alter the findings of the report.

5.0 Methodology

5.1 Data Collection:

The methodology used in this report follows the procedures detailed in *Australian Standard: AS 4970—2009. Protection of Trees on Development Sites*. This report also references the *British Standard BS: 5837 (2005) Trees in Relation to Construction – Recommendations*.

The methodology used in this report provides the following information:

1. Tree species - botanical and common name.
2. Age class - Juvenile, semi-mature, mature, senescent.
3. DBH – Diameter at breast height (mm)*
4. Height – estimated total height (m)
5. Crown spread – estimated, average radial crown spread in meters (m)
6. Physiological condition - good, fair, poor
7. Structural condition - good, fair, poor
8. Useful Life Expectancy - <5, 5–15, 15–40, >40 (years)**
9. Quality & Value – A, B, C, D ***
10. Retention Category - Priority for Retention, Consider for Retention, Consider for Removal, Priority for Removal****
11. SRZ – Structural Root Zone radius (m)
12. TPZ – Tree protection Zone radius (m)
13. Comments / Preliminary Management Recommendations

- 5.2 *DBH (Diameter at Breast Height) - Stem /trunk diameter measured at 1.4m above ground level. On sloping ground, measurements will be taken at the mid slope point at the base of the tree. Where a tree stem / trunk begins to branch at a point that is less than 1.4m above ground, a combined stem diameter is calculated using the formula:
$$\text{Total DBH} = \sqrt{\text{DBH}_1^2 + \text{DBH}_2^2 + \text{DBH}_3^2}$$

- 5.3 **Useful Life Expectancy – The estimated lifespan of the tree over which it will positively contribute to the amenity of the area and to the local environment, in a safe, healthy condition.

- 5.4 ***Quality & Value – The quality of the tree when compared to an idealised example of the species and the values which the tree provides to the site and local area (see Appendix D – Cascade Chart for Assessment of Tree Quality & Value).

- 5.5 ****Retention Category – The subject tree is allocated one of four categories based on a combination of its Quality and Value and Useful Life Expectancy. A certain amount of flexibility may be allowed when allocating a Retention Category, to take into account tree species, significance and site/environmental conditions.

- 5.6 An assessment of the trees condition is made using the Visual Tree Assessment (VTA) method (Mattheck & Breoler, 1994).

- 5.7 Tree assessment results are recorded in the Tree Assessment Schedule (see section 6.0 Results). Note: for trees outside of the site only the species and DBH is recorded for the purposes of calculating the SRZ/TPZ.

6.0 Results

6.1 Tree Assessment Schedule

Site: 155 Pacific Road, Palm Beach, NSW

Date of survey: 05.11.21

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
T1	<i>Phoenix canariensis</i> (Phoenix Palm)	Mature	600	10	4	Good	Good	15-40	C	Consider for Removal	5	n/a**
T2	<i>Corymbia maculata</i> (Spotted Gum)	Mature	600	15	3 East 14 West	Good	Fair	15-40	B	Consider for Retention	7.2	2.7
T3	<i>Pittosporum undulatum</i> (Native Daphne)	Mature	300	6	5	Fair	Poor	<5	D	Priority for Removal	3.6	2.0
T4	<i>Phoenix canariensis</i> (Phoenix Palm)	Mature	600	10	4	Fair	Good	15-40	C	Consider for Removal	5	n/a**
T5	<i>Phoenix canariensis</i> (Phoenix Palm)	Mature	600	10	4	Fair	Good	15-40	C	Consider for Removal	5	n/a**
Comments / Preliminary Management Recommendations												
T1	Mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											
T2	Mature specimen of moderate landscape and arboricultural value. Conflict with existing driveway paved to base of trunk. Moderate trunk lean, root plate appears stable. Asymmetrical crown due to coastal exposure. Proposed for retention. Major Encroachment from proposed building development.											
T3	Growing within base of existing carport. Proposed for removal. Exempt under Northern Beaches Council Exempt Species List.											
T4	Mature specimen of low landscape and arboricultural value. Crown conflict with existing structure. Exempt under Northern Beaches Council Exempt Species List. Proposed for removal.											
T5	Mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
T6	<i>Phoenix canariensis</i> (Phoenix Palm)	Mature	600	10	3	Fair	Good	15-40	C	Consider for Removal	4.0	n/a**
T7	<i>Phoenix canariensis</i> (Phoenix Palm)	Mature	550	8	3	Fair	Good	15-40	C	Consider for Removal	4.0	n/a**
T8	<i>Syagrus romanzoffiana</i> (Cocos Palm)	Mature	250	12	2	Fair	Good	15-40	C	Consider for Removal	3.0	n/a**
T9	<i>Golchidion ferdinandi</i> (Cheese Tree)	Mature	250	8	5 west 3 south	Fair	Fair	5-15	C	Consider for Removal	3.0	2.0
T10	<i>Golchidion ferdinandi</i> (Cheese Tree)	Late Mature	220 280 240	8	6	Fair	Poor	5-15	C	Consider for Removal	4.8	2.3
Comments / Preliminary Management Recommendations												
T6	Mature specimen of low landscape and arboricultural value. Crown conflict with existing structure. Exempt under Northern Beaches Council Exempt Species List. Proposed for removal.											
T7	Mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											
T8	Mature specimen with low landscape value and arboricultural value. Chlorotic crown. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											
T9	Mature specimen with low landscape value and arboricultural value. Asymmetrical crown, crown density range 50-75%, moderate dead wood <25mm, Proposed for retention.											
T10	Mature specimen with low landscape value and arboricultural value. Asymmetrical crown, crown density range 50-75%, moderate dead wood <25mm, wounds with various stages of decay on first order branch, Proposed for retention.											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
T11	<i>Plumeria acutifolia</i> (Frangipani)	Early Mature	200	4	4	Good	Good	5-15	C	Consider for Removal	2.4	1.7
T12	<i>Melaleuca linariifolia</i> (Narrow-leaved Paperbark)	Mature	200	6	5	Fair	Fair	5-15	C	Consider for Removal	2.4	1.7
T13	<i>Phoenix canariensis</i> (Phoenix Palm)	Juvenile	250	3	2	Good	Good	15-40	C	Consider for Removal	4	n/a**
T14	<i>Pittosporum undulatum</i> (Native Daphne)	Semi Mature	150	7	3	Poor	Poor	<5	D	Priority for Removal	2.0	1.5
T15	<i>Washingtonia robusta</i> (Washington Palm)	Semi Mature	300	8	3	Good	Good	15-40	C	Consider for Removal	4	n/a**
Comments / Preliminary Management Recommendations												
T11	Semi mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Tree policy due to small size. Proposed for removal.											
T12	Mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											
T13	Juvenile specimen with low landscape value and arboricultural value. Likely self seeded. Exempt under Northern Beaches Council Tree policy due to small size Proposed for retention.											
T14	Semi - mature specimen of low landscape and arboricultural value. Fully suppressed, wounds with advanced stages of decay. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											
T15	Semi - mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
G16	<i>Dypsis lutescens</i> (Golden Cane Palm)	Semi Mature	75 max	5m max	1.0	Good	Good	5-15	C	Consider for Removal	2.0	n/a**
G17	<i>Strelitzia nicolai</i> (Giant Bird of Paradise)	Mature	200 max	6 max	2	Good	Good	5-15	C	Consider for Removal	3.0	n/a**
T18	<i>Pittosporum undulatum</i> (Native Daphne)	Mature	300	6	3	Poor	Poor	<5	D	Priority for Removal	3.6	2.0
T19	<i>Syzygium australe</i> (Creek Lilly Pilly)	Semi Mature	100	4	2	Good	Good	5-15	C	Consider for Removal	2.0	1.5
T20	<i>Elaeocarpus reticulatus</i> (Blueberry Ash)	Semi Mature	100	6	2	Fair	Fair	5-15	C	Consider for Removal	2.0	1.5
Comments / Preliminary Management Recommendations												
G16	Mature specimen of low landscape and arboricultural value. Multi trunked palms. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											
G17	Mature specimen with low landscape value and arboricultural value. Multi stemmed herbaceous plant throughout garden bed. Proposed for retention.											
T18	Mature specimen of low landscape and arboricultural value. Fully suppressed, wounds with various stages of decay. Exempt under Northern Beaches Council Exempt Species List. Proposed for retention.											
T19	Semi mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Tree policy due to small size. Proposed for removal.											
T20	Semi mature specimen of low landscape and arboricultural value. Fully suppressed. Crown density range 50-75%. No works proposed within the TPZ. Proposed for retention.											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
T21	<i>Golchidion ferdinandi</i> (Cheese Tree)	Mature	200 90 150	8	8	Fair	Fair	5-15	C	Consider for Removal	3.0	1.8
T22	<i>Syncarpia glomulifera</i> (Turpentine)	Mature	350	12	6	Fair	Poor	5-15	C	Consider for Removal	4.2	2.1
T23	<i>Phoenix canariensis</i> (Phoenix Palm)	Mature	600	10	4	Good	Good	5-15	C	Consider for Removal	5.0	n/a**
T24	<i>Brachychiton acerifolius</i> (Illawarra Flame Tree)	Semi Mature	200	6	2	Fair	Good	5-15	C	Consider for Removal	2.4	1.7
T25	<i>Ficus rubiginosa</i> (Port Jackson Fig)	Mature	700 850	15	8	Fair	Good	15-40	B	Consider for Retention	13.2	3.4
Comments / Preliminary Management Recommendations												
T21	Mature specimen with low landscape value. Crown density range 50-75%. Moderate lean. Growth within existing stone wall. Crown contains moderate volumes of dead wood. Conflict with proposed cottage Proposed for removal.											
T22	Late mature specimen with low landscape value. Crown density range 50-75%. Moderate volumes of deadwood 25-75mm, 50 mm hangers present in canopy. Asymmetrical lean. Partially suppressed. Existing trunk is an epicormic attachment surrounding stump with advanced stages of decay. Major encroachment of TPZ and SRZ Proposed for removal.											
T23	Mature specimen of low landscape and arboricultural value. Potential crown conflict with proposed structure. Exempt under Northern Beaches Council Exempt Species List. Proposed for removal.											
T24	Semi mature specimen of low landscape and arboricultural value. Crown density range 75-95%. Major Encroachment from proposed studio. Proposed for removal.											
T25	Mature specimen of moderate landscape and arboricultural value. Partially suppressed. Crown density range 75-95%. No proposed works within the TPZ Proposed for retention.											

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** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
T26	<i>Species unable to be determined</i>	Late Mature	200	8	3	Poor	Poor	<5	D	Priority for Removal	2.4	1.7
T27	<i>Pittosporum undulatum</i> (Native Daphne)	Late Mature	300 150	10	4	Poor	Poor	<5	D	Priority for Removal	4.2	2.1
T28	<i>Cedrus atlantica</i> (Atlas Cedar)	Mature	550	18	8	Poor	Poor	5-15	C	Consider for Removal	6.6	2.6
T29	<i>Ligustrum sinense</i> (Small leaved Privet)	Semi Mature	100	5	3	Good	Fair	<5	D	Priority for Removal	2.0	1.5
T30	<i>Cedrus atlantica</i> (Atlas Cedar)	Mature	550	18	8	Good	Good	15-40	B	Consider for Retention	6.6	2.6
Comments / Preliminary Management Recommendations												
T26	Late mature specimen with low landscape value and arboriculture value. Unable to determine species. Heavily suppressed with ivy growing up trunk, phototrophic lean, minor epicormic shoots present. Appears to have self seeded Crown density range 50-75%. No works in TPZ area. Proposed for retention											
T27	Late mature specimen with low landscape value. Practically dead with Crown density range <20%. Wounds with advances stages of decay. Heavily suppressed, moderate deadwood 25-75 mm, No works in TPZ area. Proposed for retention											
T28	Mature specimen with low landscape value and arboricultural value. Minor co-dominant inclusion. Partially suppressed. Asymmetrical crown with dieback evident, crown density range 25-50%, moderate dead wood 25-50 mm, Proposed for retention .											
T29	Semi mature specimen with low landscape and arboricultural value. Heavily suppressed. Exempt under Northern Beaches Council Exempt Species List. No works in TPZ area. Proposed for retention .											
T30	Mature specimen with moderate landscape value and arboricultural value. Partially suppressed. Crown density range 75-95%, minor deadwood <25 mm, Proposed for retention .											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
T31	<i>Syzygium australe</i> (Creek Lilly Pilly)	Mature	150	6	4	Fair	Poor	5-15	C	Consider for Removal	2.0	1.5
T32	<i>Syzygium australe</i> (Creek Lilly Pilly)	Mature	250	10	6	Fair	Fair	5-15	C	Consider for Removal	3.0	1.8
T33	<i>Washingtonia robusta</i> (Washington Palm)	Mature	300	15	3	Good	Good	15-40	B	Consider for Retention	4	n/a**
T34	<i>Golchidion ferdinandi</i> (Cheese Tree)	Mature	350	6	6	Good	Good	15-40	B	Consider for Retention	4.2	2.1
T35	<i>Syzygium australe</i> (Creek Lilly Pilly)	Mature	100 150 120 120	6	6	Fair	Fair	5-15	C	Consider for Removal	3.0	1.8
Comments / Preliminary Management Recommendations												
T31	Mature specimen with low landscape and arboricultural value. Partially suppressed, Crown density range 50-75%. Minor wounds in various stages of decay. Poorly pruned branch 250 mm diameter, with epicormic shoots. Crown contains low volumes of dead wood. No works in TPZ area. Proposed for retention											
T32	Mature specimen with low landscape and arboricultural value. Partially suppressed, Crown density range 50-75%. Minor wounds in various stages of decay. Poor large diameter pruning within canopy evident, minor epicormic shoots. Crown contains low volumes of dead wood. No works in TPZ area. Proposed for retention											
T33	Mature specimen of low landscape and arboricultural value. Exempt under Northern Beaches Council Exempt Species List. No works in TPZ area. Proposed for retention											
T34	Mature specimen with moderate landscape and arboricultural value. Partially suppressed, Crown density range 75-95%. Crown contains low volumes of dead wood. No works in TPZ area. Proposed for retention											
T35	Mature specimen with low landscape and arboricultural value. Partially suppressed, Crown density range 75-95%. Crown contains low volumes of dead wood. No works in TPZ area. Proposed for retention											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
T36	<i>Lophostemon confertus</i> (Brush Box)	Mature	500	10	8	Poor	Fair	5-15	C	Consider for Removal	6.0	2.5
A	<i>Corymbia maculata</i> (Spotted Gum)	-	450	-	-	-	-	-	-	Retain – outside of site	5.4	n/a**
B	<i>Strelitzia nicolai</i> (Giant Bird of Paradise)	-	150 max	-	-	-	-	-	-	Retain – outside of site	2	n/a**
C	<i>Callistemon viminalis</i> (Weeping Bottlebrush)	-	200	-	-	-	-	-	-	Retain – outside of site	2.4	1.7
D	<i>Callistemon salignus</i> (Willow Bottlebrush)	-	250 270	-	-	-	-	-	-	Retain – outside of site	4.2	2.1
Comments / Preliminary Management Recommendations												
T36	Mature specimen with low landscape and arboricultural value. Partially suppressed, Crown density range 50-75%. Significant crown thinning on northern side. Crown contains moderate volumes of dead wood. Proposed for removal.											
A	Located in western easement garden bed. Outside of proposed development area.											
B	Located in western easement garden bed. Outside of proposed development area. Exempt under Northern Beaches Council Exempt Species List.											
C	Located in western easement garden bed. Outside of proposed development area. Heavily suppressed by surrounding vegetation.											
D	Located in western easement garden bed. Outside of proposed development area. Partially suppressed.											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category*	TPZ (m)	SRZ (m)
E	<i>Corymbia gummifera</i> (Red Bloodwood)	-	250	-	-	-	-	-	-	Retain – outside of site	3	1.8
F	<i>Corymbia maculata</i> (Spotted Gum)	-	550	-	-	-	-	-	-	Retain – outside of site	6.6	2.6
G	<i>Phoenix canariensis</i> (Phoenix Palm)	-	600	-	-	-	-	-	-	Retain – outside of site	5	n/a**
H	<i>Phoenix canariensis</i> (Phoenix Palm)	-	650	-	-	-	-	-	-	Retain – outside of site	4	n/a**
I	<i>Nerium oleander</i> (Oleander)	-	200 max	-	-	-	-	-	-	Retain – outside of site	n/a	n/a
Comments / Preliminary Management Recommendations												
E	Located in western easement garden bed. Outside of proposed development area.											
F	Located in western easement garden bed. Outside of proposed development area.											
G	Located in neighbouring property. Outside of proposed development area. Exempt under Northern Beaches Council Exempt Species List.											
H	Located in neighbouring property. Exempt under Northern Beaches Council Exempt Species List.											
I	Multi stemmed shrub. Located in neighbouring property. Outside of proposed development area. Exempt under Northern Beaches Council Exempt Species List.											

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Tree ref. no.	Species	Age Class	DBH (mm)	Height (m)	Crown Spread (m)	Physiological Condition	Structural Condition	Useful Life Expectancy (years)	Quality & Value	Retention Category	TPZ (m)	SRZ (m)
J	<i>Dyopsis lutescens</i> (Golden Cane Palm)	-	100 max	-	-	-	-	-	-	Retain – outside of site	3	n/a**
K	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	-	450	-	-	-	-	-	-	Retain – outside of site	5.4	2.4
L	<i>Washingtonia robusta</i> (Washington Palm)	-	500 max	-	-	-	-	-	-	Retain – outside of site	4	n/a**
M	<i>Livistona australis</i> (Cabbage Palm)	-	300	-	-	-	-	-	-	Retain – outside of site	4	n/a**
Comments / Preliminary Management Recommendations												
J	Multi stemmed palm. Located within western road easement. Outside of proposed development area. Exempt under Northern Beaches Council Exempt Species List.											
K	Mature specimen within neighbouring property. Outside of proposed development area.											
L	Group of 5 located in neighbouring property. Outside of proposed development area.											
M	Located in neighbouring property. Outside of proposed development area.											

Note: *The Retention Category is an indicator of tree quality and is not a schedule for tree retention/removal (refer point 7.2)

** as per AS4970 the TPZ of palms, cycads and tree ferns is defined as 1m beyond the crown projection and the SRZ does not apply

7.0 Observations

7.1 The trees have been assessed in accordance with *Australian Standard AS4970 (2009) Protection of trees on development sites* (AS4970) to determine their; condition, quality and value(s), Useful Life Expectancy and to allocate a Retention Category. Full details of the assessment of the trees are listed in 6.1 Tree Assessment Schedule.

7.2 The allocation of a Retention Category is a requirement of AS4970 and provides an overview of the quality and value of trees on site. Retention Categories are a guide only and do not take into account design considerations/constraints relating to the development proposal. **It should be noted that Retention Categories are not a schedule for tree removal or retention.**

7.3 Trees Impacted by Major Encroachment from Development:

Tree T2 (*Corymbia maculata* - Spotted Gum) is a mature specimen located to the front of the dwelling. The tree is in good physiological condition as indicated by its crown density and coloration of foliage. The structural condition is fair based on grade alterations within the tree's root zone, as indicated by the lack of basal flare at the base of the tree's trunk. Paving has been installed up to the base of the trunk on the northwestern side and the trunk is now beginning to overgrow the paving.

The tree has moderate arboricultural and landscape value and has been allocated a Retention Value of Consider for Retention.

The supplied plans indicate the tree will be subject to a Major Encroachment (as per AS4970) from the proposed addition to the front of the dwelling and deck. The existing 2m high (approx.) retaining wall to the east of the tree will have limited root spread and the existing walls in the lower ground floor level are to be retained. However, excavation within the Structural Root Zone (SRZ) of the tree will be required for installation of a small section of the suspended slab on the ground floor level. To determine the impact of the encroachment, root mapping investigations were undertaken as part of the preparation of this report (refer 8.0 Discussion).

In addition to the excavation detailed above, a small amount of excavation will be required for the installation of the proposed stairs at the perimeter of the Tree Protection Zone (TPZ) to the southeast of the tree. As an individual component of the encroachment the excavation for the stairs represent a Minor Encroachment (as per AS4970) only and should not significantly impact the tree.

Tree T2 has developed an asymmetric crown form with the crown weighted towards the street away from the dwelling. Minor Crown Lifting will be required to provide clearance for the proposed dwelling addition. The pruning works will not impact the health of the tree or significantly impact its crown form and amenity value (refer Appendix B - Photographs).

The supplied plans indicate Tree H *Phoenix canariensis* (Phoenix Palm) will be subject to a Major Encroachment from the proposed cottage. However, the works should not significantly impact the tree as palm species continually produce fibrous roots from the Root Initiation Zone (RIZ) at the base of the trunk and any root loss associated with the construction of the cottage will be rapidly replaced.

7.4 Trees Impacted by Minor Encroachment from Development:

The supplied plans indicate Trees T1 *Phoenix canariensis* (Phoenix Palm) and F (*Corymbia maculata* - Spotted Gum) will be subject to a Minor Encroachment (<10% of the TPZ area) from the proposed deck to the front of the dwelling. As per AS4970 a Minor Encroachment should not significantly impact the health of the trees and does not require the use of tree sensitive design and construction methods.

7.5 Tree Proposed for Removal:

Trees T3 *Pittosporum undulatum* (Native Daphne), T4, T6, 23 *Phoenix canariensis* (Phoenix Palm), T11 *Plumeria acutifolia* (Frangipani), T19 *Syzygium australe* (Creek Lilly Pilly), T21 *Golchidion ferdinandi* (Cheese Tree), T22 *Syncarpia glomulifera* (Turpentine), T24 *Brachychiton acerifolius* (Illawarra Flame Tree) and T36 *Lophostemon confertus* (Brush Box) are proposed for removal.

These trees have all been allocated a Retention Value of either Consider for Removal or Priority for Removal. These trees are either; of low landscape and arboricultural value, are exempt under Northern Beaches Tree Management Policy or, have reduced Useful Life Expectancies based on health and/or structural issues (refer 6.1 Tree Assessment Schedule).

8.0 Discussion

- 8.1 To determine the impact of the encroachment from the proposed excavation within the SRZ of Tree 2, root mapping investigations were undertaken to the rear of the retaining wall. The proposed slab footprint was measured out and the sandstone paving was removed to allow for excavation of a 300mm deep trench. No woody roots >10mm diameter were identified in the trench (refer Appendix B – Photographs).

Excavation indicates that within the area of proposed excavation the paving and sub base layer installed within the SRZ of the tree exceeds 300mm in depth. Small diameter roots have grown into the sub base layer following driveway installation, however the severance of these roots as part of suspended slab installation should not impact the health or structural condition of the tree.

The proposed deck which is to be installed around Tree T2 and the stairs immediately to the west of the tree should be installed above natural ground level to minimise excavation and root impacts in the Tree Protection Zone (TPZ). These structures should be supported on isolated piers/posts located as to allow for the retention of significant roots. As detailed above, driveway levels have been built up around the base of the tree therefore natural ground levels within the TPZ should be determined following demolition of the driveway. The deck and stairs should be installed above natural ground level to minimise excavation and root impacts. The deck should be designed to allow for modification of the structure to maintain clearance between the tree and the deck as the tree grows.

- 8.2 To protect the trees proposed for retention from development impacts the establishment of TPZ areas will be required. The topography of the site and construction access requirements may make the installation of TPZ fencing and ground protection difficult in some areas. Where ever possible, existing pavement surfaces should be left in situ to provide ground protection within TPZ areas. Specific TPZ requirements should be determined via a site meeting between the Project Arborist and the Project Manager prior to the establishment of the construction site.

- 8.3 Tree 29 *Ligustrum sinense* (Small leaved Privet) is listed as an environmental weed species due to its tendency to prolifically self seed. Therefore, this tree should be removed as part of the development of the site.
- 8.4 To offset tree removals and ensure the canopy cover at the site is maintained/enhanced over the long term, the installation of new, advanced size trees should be undertaken as part of the landscape treatment for the site. Locally indigenous tree species should be considered due to their suitability for the site conditions/growing environment at the site.

9.0 Recommendations

- 9.1 Trees T3, T4, T6, T23, T11, T19, T21, T22, T24 and T36 are proposed for removal, plus Tree 29 should be removed based on its weed status. In addition to tree removals, pruning (Crown Lifting) of Tree T2 is required to provide clearance for the proposed dwelling addition. Tree work shall be undertaken by a qualified Arborist (minimum AQF level 3) covered by adequate third party, public liability insurance. Arborists and ground staff shall comply with the *Work Cover Code of Practice for the Amenity Tree Industry*.

Refer Appendix B – Photographs

- 9.2 As part of the site establishment works install TPZ areas for the trees to be retained. Either fenced TPZ areas or trunk and ground protection shall be installed depending on development access requirements and topographical constraints. Specific, individual tree protection measures shall be determined at the time of site establishment via a meeting between the Project Arborist and the Project Manager. Fenced TPZ areas may be combined into a single larger TPZ. TPZ fencing shall be set back from each tree as per the TPZ radius listed in column 12 of the Tree Assessment Schedule. Fencing may be set back for development access only where ground protection is installed within the unfenced area of the TPZ. Where possible existing pavement surfaces within TPZ areas shall be left in situ as ground protection.

Refer Appendix C – Establishment of TPZ Areas

- 9.3 Other than for approved development works existing ground levels shall be maintained within TPZ areas.
- 9.4 The installation of temporary sediment control barriers shall avoid excavation within TPZ areas. Where required, geotextile slit fencing shall be pinned to the ground or held down with coir fibre logs or sand bags.
- 9.5 When undertaking excavation for approved structures in TPZ areas, no over excavation, benching or battering shall be permitted.
- 9.6 The existing paving and sub base within the TPZ of Tree T2 shall be removed using hand tools under the supervision of the Project Arborist and avoid disturbance of the underlying soil profile. The location of posts/piers of the proposed deck and stairs shall be excavated by hand and where roots >25mm diameter are encountered the post/pier hole shall be relocated and sleeved to prevent contact between roots and concrete.

- 9.7 The deck and sub frame surrounding Tree T2 shall be designed to allow for periodic widening of the opening to maintain a minimum clearance of 75mm between the deck and the trunk.
- 9.8 Excavation for underground services (where required) within TPZ areas shall be undertaken using hand tools only. All roots greater than 25mm in diameter shall be retained and pipework, conduits etc. installed below or around roots, unless root pruning is approved and undertaken by a qualified Arborist (minimum AQF level 3).
- 9.9 Replacement trees (as specified by Council) shall be grown and supplied in accordance with *AS:2303 2018 Tree stock for landscape use*. To promote successful establishment trees shall be and installed and maintained by a qualified horticulturalist (minimum AQF level 3).
- 9.10 The recommendations of this report are subject to approval by Northern Beaches Council.



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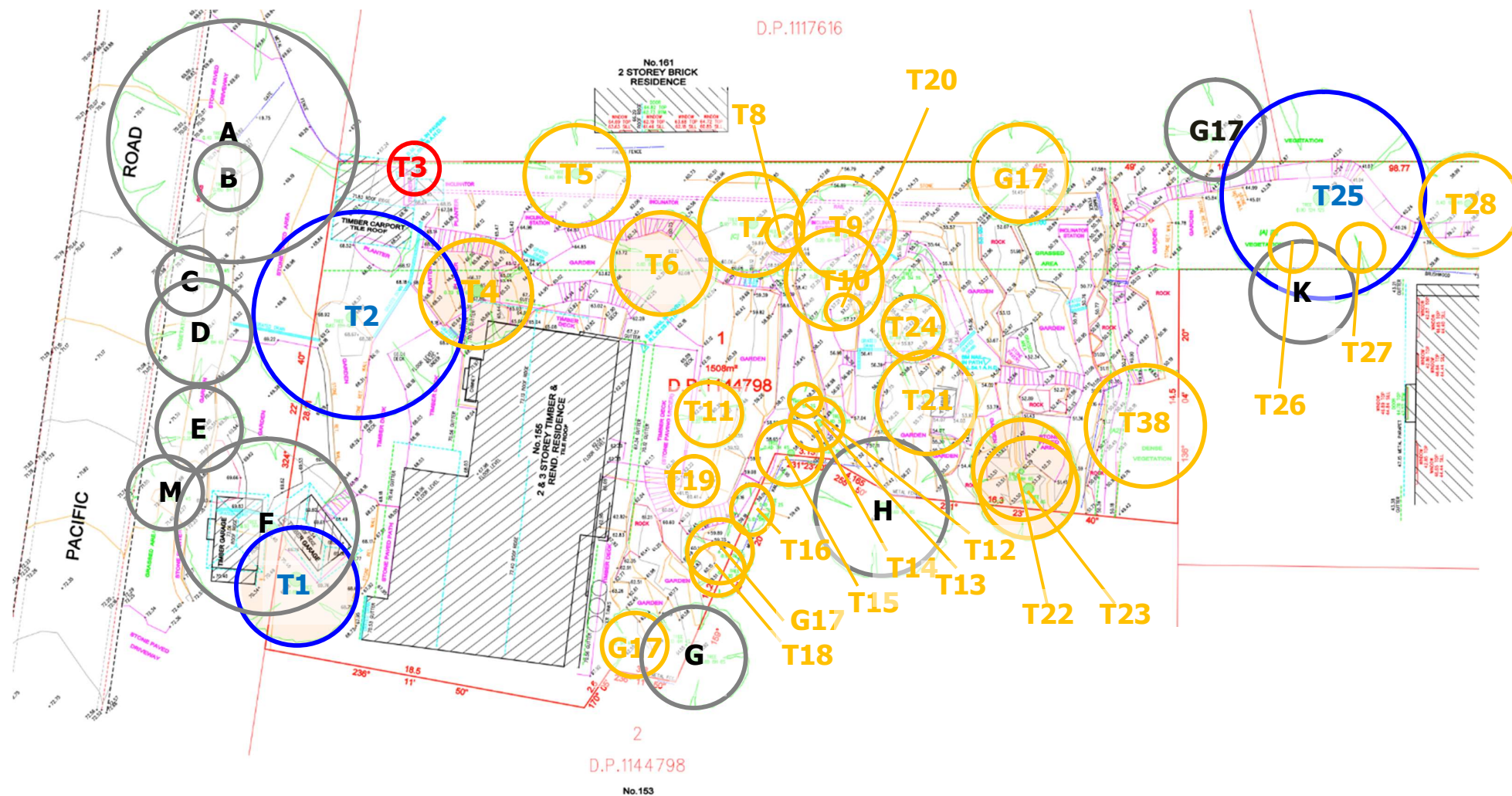
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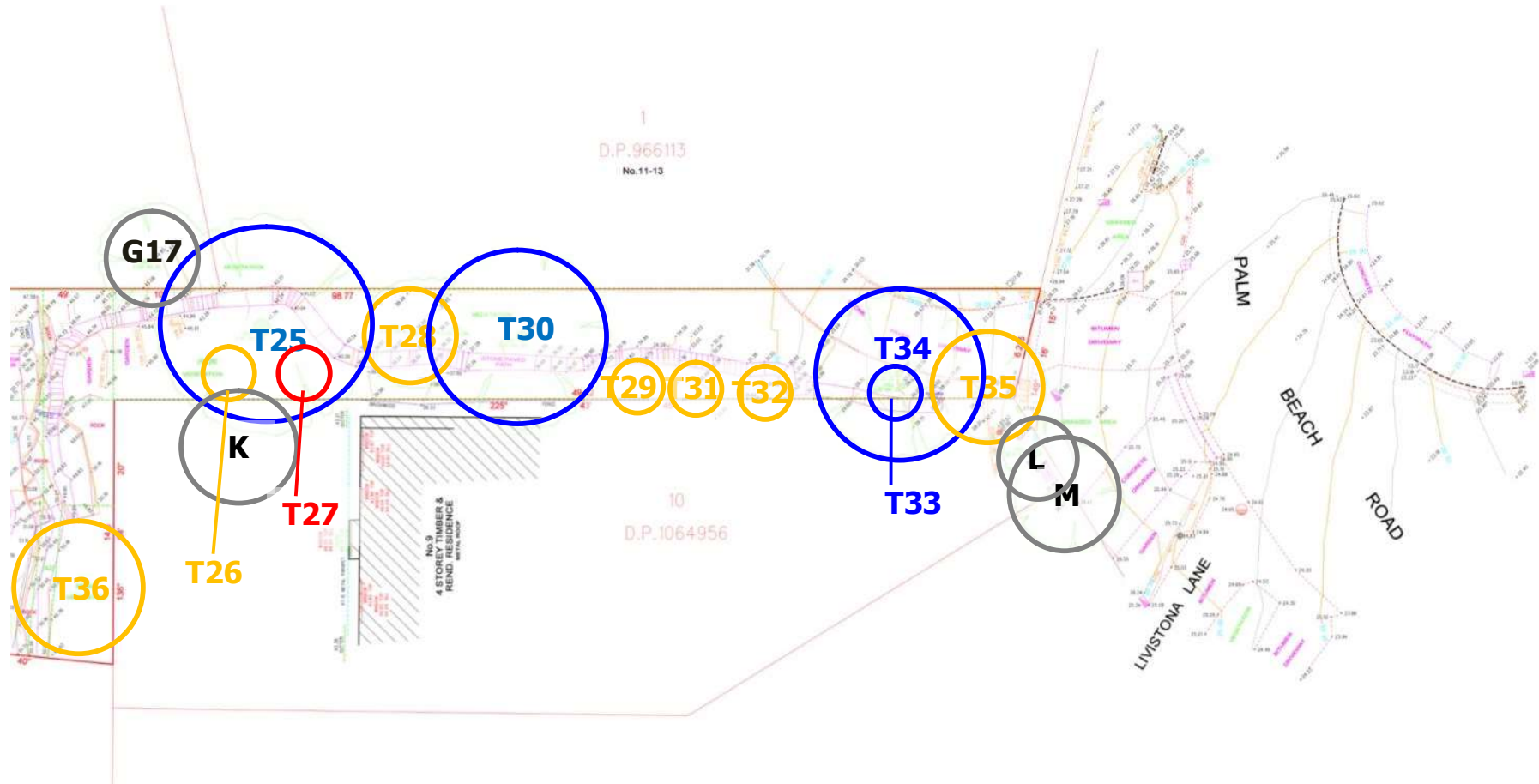
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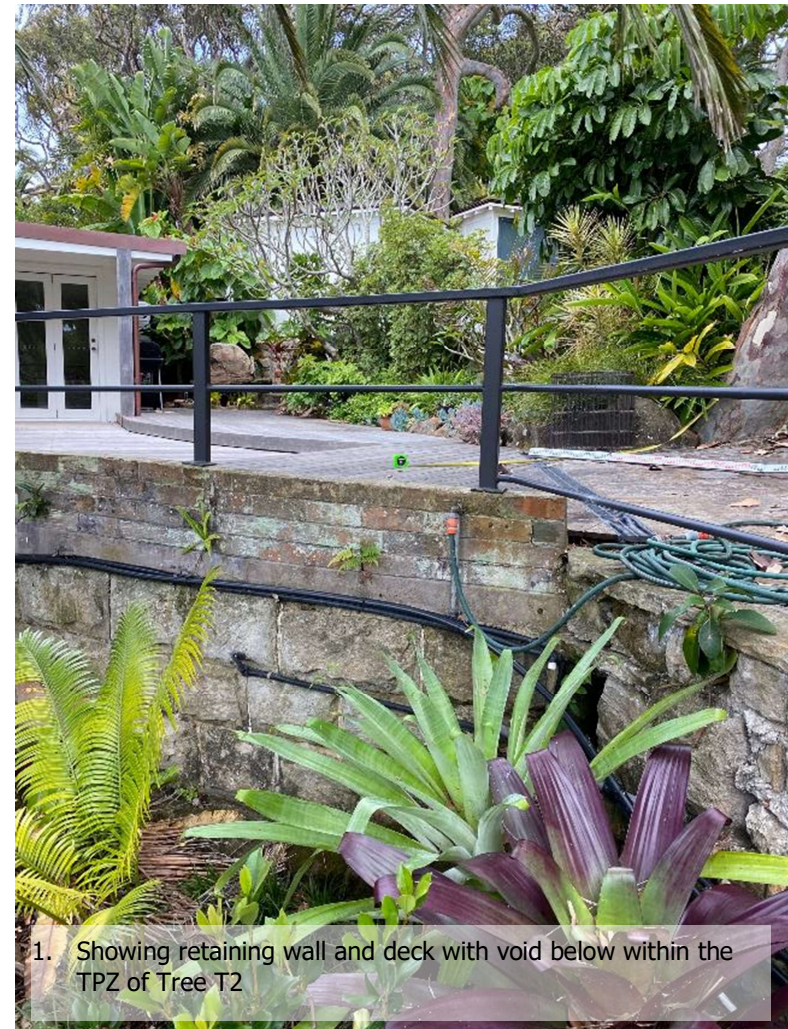
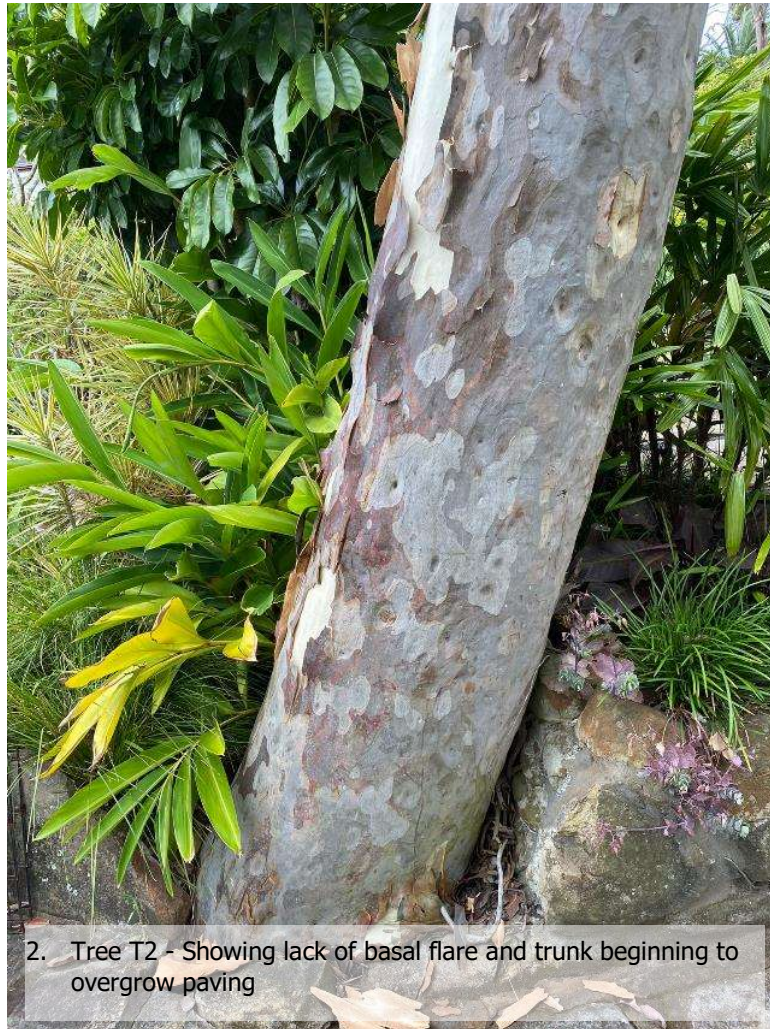
Appendix A - Tree Location Plan



Appendix A - Tree Location Plan



Appendix B – Photographs

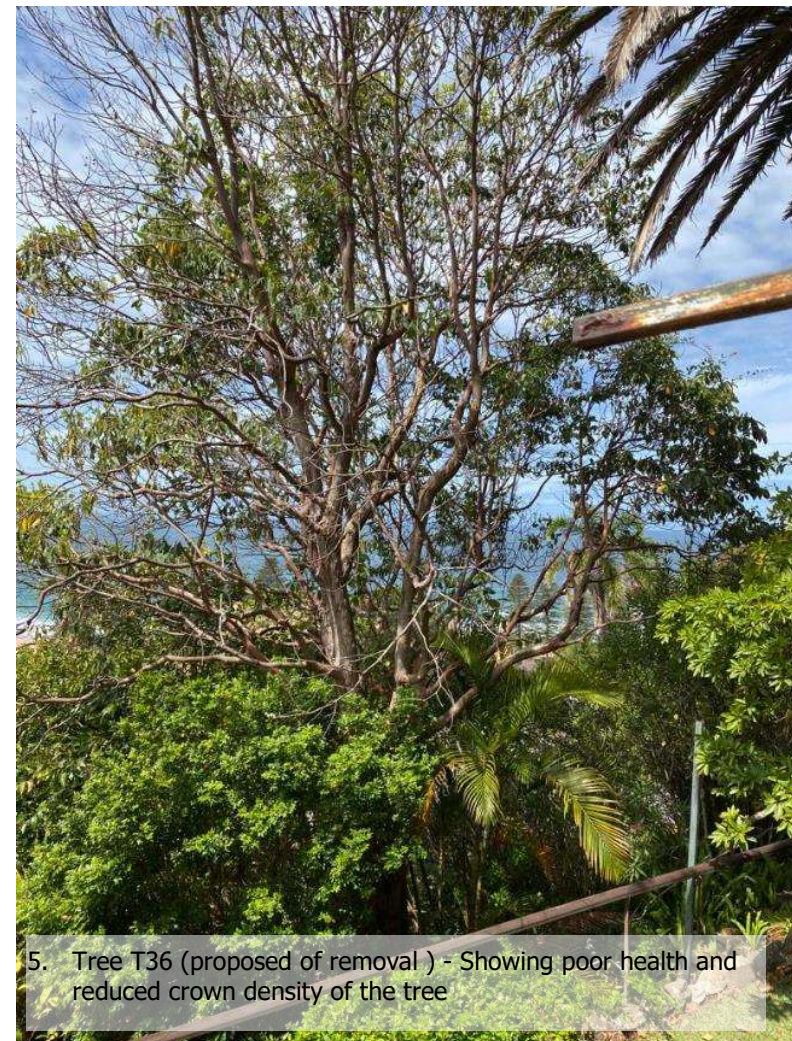
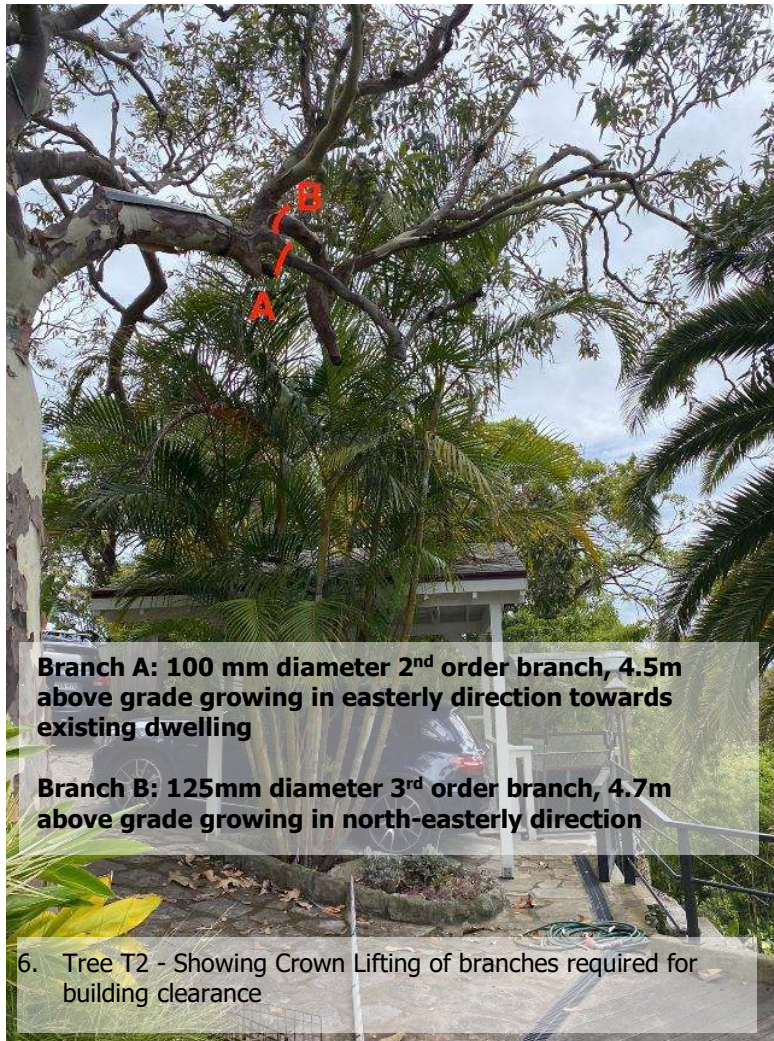


3. Showing root mapping investigations for the proposed kitchen/pantry slab within the SRZ of Tree T2. No woody roots were identified. The existing sub base layer has been installed above natural ground level and exceeds the depth required for slab installation

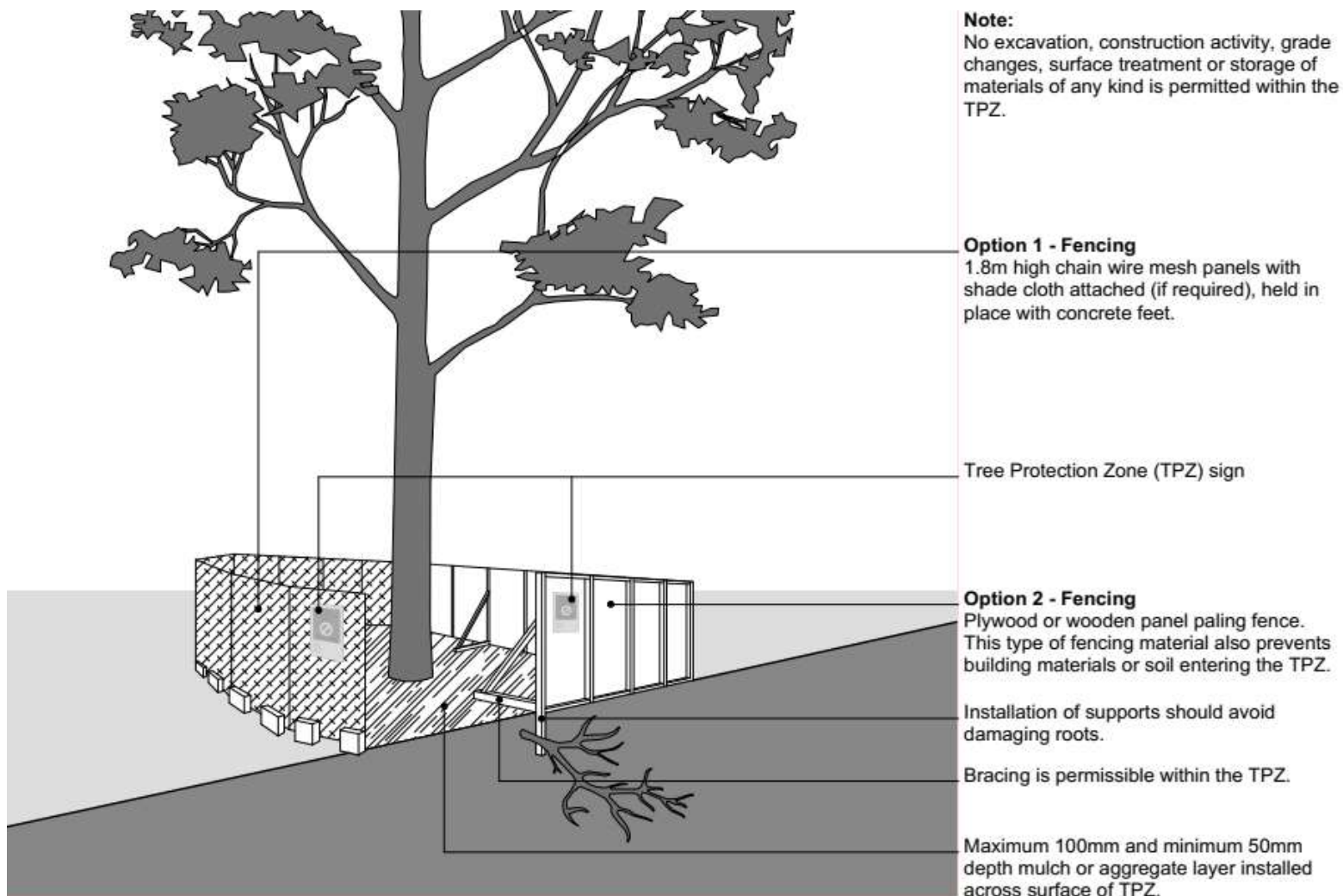


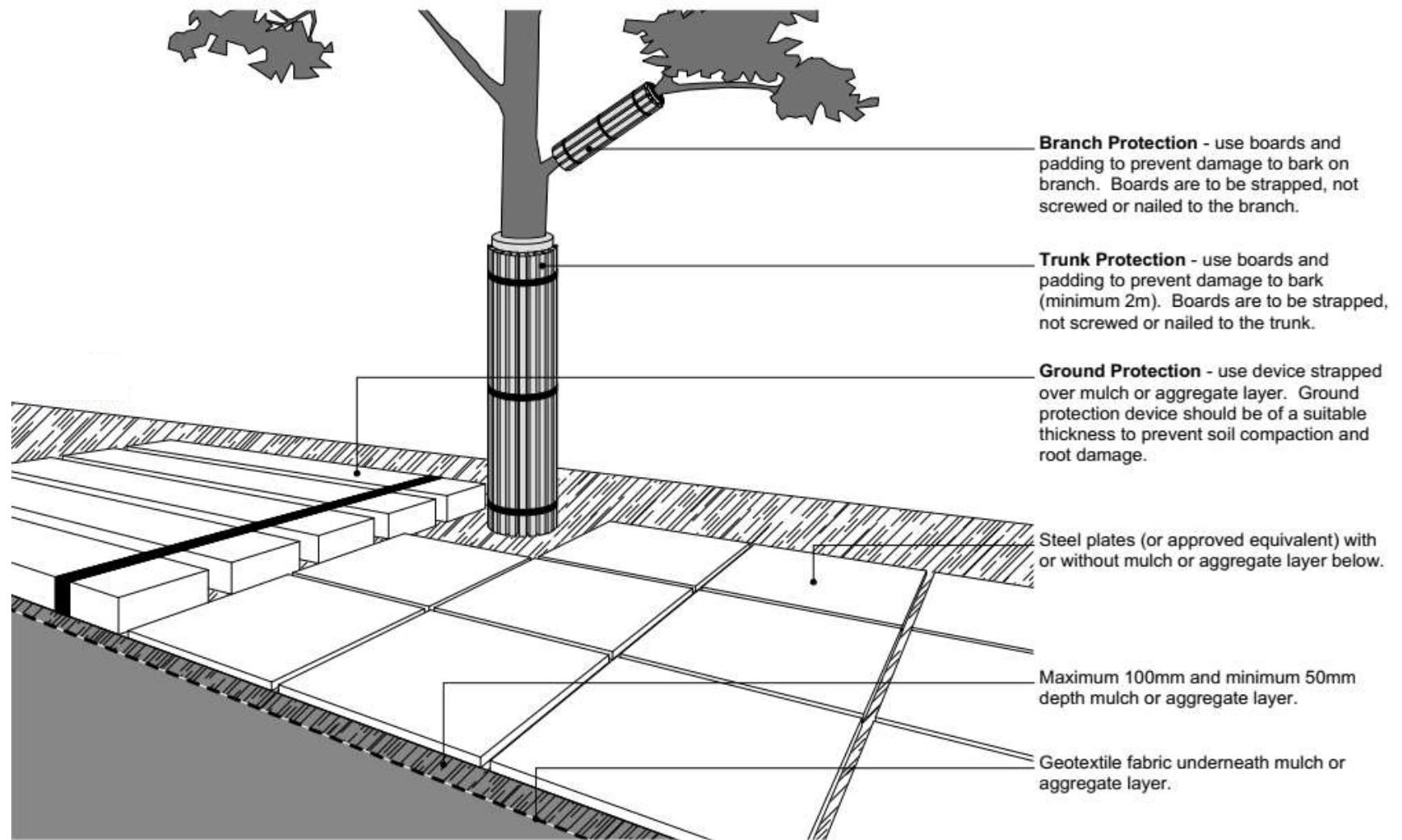
4. Showing root mapping trench depth of 300mm and crushed blue metal, sub base layer with fibrous roots which have grown up into the sub base layer





Appendix C – Establishment of TPZ Areas





Appendix D - Cascade Chart for Assessment of Tree Quality & Value

(Adapted from British Standard Institution (2005). Guide for Trees in Relation to Construction)

RETENTION CATEGORY & DEFINITION	CRITERIA - SUBCATEGORIES			IDENTIFICATION IF SHOWN ON A PLAN
	1. Mainly Arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation	
Category A High Quality & Value: Those in such a condition as to be able to make a substantial contribution for a minimum of 40 years. Highly significant trees or trees listed on a significant tree register regardless of life expectancy (excluding hazardous trees). Priority for retention.	Trees that are particularly good examples of their species, especially if rare or unusual or essential components of groups or of formal or semi-formal Arboricultural features (e.g. The dominant and / or principal trees within an avenue). Trees that provide a definite contribution to the amenity of the locality.	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. Avenues or other Arboricultural features assessed as groups).	Trees, groups, remnant bushland or forest of significant conservation, historical, Aboriginal, commemorative or other value. Note: independent ecological/aboriginal/heritage assessment may be required.	GREEN
Category B Moderate Quality & Value: Those in such a condition as to make a significant contribution for a minimum of 15 years. Consider for retention.	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage).	Trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality or, trees present in numbers, usually as groups or woodlands, such that they from distinct landscape features, thereby attracting higher collective rating than they might as individuals but which are not, individually essential components of formal or semi formal Arboricultural features (e.g. trees or moderate quality within an avenue that includes better A category specimens).	Trees with clearly identifiable conservation or other cultural benefits.	BLUE
Category C Low Quality & Value: Those in such a condition as to make a contribution for a minimum of 5 years. Consider for removal.	Trees not qualifying in higher categories. Juvenile, semi mature or small tree species which are considered easily replaceable.	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and / or trees offering low or only temporary screening benefit.	Trees with very limited conservation or other cultural benefits.	ORANGE
Category D Not worthy of retention: Those in such a condition that any existing value would be lost within 5 years and which should in current context, be removed for reasons of sound Arboricultural management. Priority for removal.	Trees that have a serious, irremediable structural defect, such that their early loss is expected due to failure, including those that will become unviable after removal of other trees (i.e. where, for whatever reason the loss of companion shelter cannot be mitigated by pruning). Trees that are dead or are showing signs of significant, immediate and irreversible overall decline Trees infected with a pathogen of significance to the health and/or safety of other trees nearby, or very low-quality trees suppressing adjacent trees of better quality. Trees causing significant damage to structures, where no viable alternatives exist for remedial tree management / modification of structures to enable tree retention. Trees considered a weed species or those listed as noxious weeds. NOTE: Dead or dying trees with hollows or cavities may be of ecological importance. These trees are to be identified and assessed independently of the criteria in this cascade chart. Where category D trees are removed habitat reinstatement may be appropriate.			RED