

Arboricultural Impact Assessment Report

For the site address Lots A and B; (DP411211) No. 128-134 Rickard Road, LEPPINGTON NSW

Prepared for School Infrastructure NSW Department of Education

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Arboricultural Impact Assessment Report

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EXECUTIVE SUMMARY

This Arboricultural Impact Assessment is to support the REF for the New High School in Leppington at No. 128-134 Rickard Road, Leppington. This proposal includes the demolition of existing structures and the construction of a new school, including bulk earthworks, buildings, roadways, and associated infrastructure. One hundred and thirty-five (135) trees are included and are located on and adjacent to the lot. The viability of these trees is based on the proposed works. The trees are a combination of remnant and planted where the majority of trees are remnant and classed as High significance based on the vegetation community to which they form. This community is classed as a Critically Endangered Environmental Community and is protected by commonwealth legislation and is biocertified land under the TSC Act.

In summary, the following trees (Trees No. 1, 4-7, 111-119, 123-127, and 134), twenty (22) in total, being approximately fifteen percent (16%) of all trees included, have the option to be retained based on conditions assigned to the work methodology. The remaining trees (Trees No. 2, 3, 8-23, 26-110, 120-122, 128-133, and 135), one hundred and thirteen (113), approximately eighty-five percent (84%) of all trees included will require removal to accommodate the design. Although trees No. 3 and 8-27 pose some options for retention pending owners' (Camden Council) consent. This tally has not included the non-assessed trees assigned to area E, or management of trees for bushfire protection. A project arborist and an Arboricultural Method Statement (Tree Management Plan) Report shall be assigned and completed to allow for protection of the trees during construction before works proceed.

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1.0 Introduction

1.1 This Arboricultural Impact Assessment Report (AIA) has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the new high school for Leppington and Denham Court (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37A of the T&I SEPP.

The proposed activity is for the construction and operation of a new high school located at 128-134 Rickard Road, Leppington, NSW, 2179 (the site).

- **1.2** The purpose of this report is to determine the viability of the site trees based on the proposed design. This report includes one hundred and thirty-five (135) trees located on and adjacent to the lot. As part of this, the report shall address the:
 - o species' identification, location, dimensions, and condition;
 - SULE (Safe Useful Life Expectancy) and STARS (Significance of a Tree Assessment Rating System) rating;
 - o discussion and impact of the proposed works on each tree;
 - \circ tree protection zones and protection specifications for trees recommended for retention.

2.0 Standards

- **2.1** Allied Tree Consultancy provides an ethical and unbiased approach to all assignments, possessing no association with private utility arboriculture or organisations that may reflect a conflict of interest.
- 2.2 It is the responsibility of the Construction Project Manager to provide the requirements outlined in this report relative to the Protection Zones, Measures (Section 7.0) and Specifications (Section 8.0) to all contractors associated with the project before the initiation of work.
- **2.3** All tree-related work outlined in this report is to be conducted in accordance with the:
 - Australian Standard AS4373; <u>Pruning of Amenity Trees</u>.
 - o <u>Guide to Managing Risks of Tree Trimming and Removal Work¹</u>.

¹ Safe Work Australia; July 2016; Guide to Managing Risks of Tree Trimming and Removal Work, Australia

- All tree works must be carried out at a tertiary level (minimum Certificate-level 3) qualified and experienced (minimum five years) arboriculturist.
- For any works in the vicinity of electrical lines, the arboriculturist must possess the ISSC26 endorsement (Interim guide for operating cranes and plant in proximity to overhead powerlines).

3.0 Disclosure Statement

Trees are living organisms and, for this reason, possess natural variability. This cannot be controlled. However, risks associated with trees can be managed. An arborist cannot guarantee that a tree will be safe under all circumstances, nor predict the time when a tree will fail. To live or work near a tree involves some degree of risk, and this evaluation does not preclude all the possibilities of failure.

4.0 Methodology

- **4.1** The following tree assessment was undertaken using criteria based on the guidelines laid down by the International Society of Arboriculture.
- **4.2** The format of the report is summarised below;
 - **4.2.1 Plan 1;** Tree Location Relative to Site: This is an unscaled plan reproduced from the Survey Plan as referenced in Section 4.4.1, depicting the area of assessment.
 - **4.2.2 Table 1;** This table compiles the tree species, dimensions, brief assessment (history, structure, pest, disease or any other variables subject to the tree), significance, allocation of the zones of protection (i.e., Tree Protection Zone² ;TPZ and Structural Root Zone; SRZ) for each tree illustrated in Plan 1, Section 5.0. All measurements are in metres.

4.2.3 Discussion relating to the site assessment and proposed works regarding the trees.

- **4.2.4 Protection Specification**; Section 8.0 details the requirements for that area designated as the Tree Protection Zone (TPZ), for those trees recommended for retention.
- **4.3** The opinions expressed in this report, and the material, upon which they are based, were obtained from the following process and data supplied:

² Australian Standard, 4970; 2009 – Protection of Trees on Development Sites, Australia.

- 4.3.1 Site assessment on the 11th and 12th January 2024 using the method of the Visual Tree Assessment³. This has included a Level 2 risk assessment, being a *Basic Assessment*⁴. The assessment has been conducted by Greg Penkow and⁵ Geoff Beisler⁶ on behalf of *Allied Tree Consultancy*.
- **4.3.2** Trees included in this report are those that conform to the description of a prescribed tree by the local government policy.
- **4.3.3** All measurements, unless specified otherwise are taken from the tree centre.
- **4.3.4** All trees included in this report have been tagged with round aluminium embossed tags. These are facing the centre of the site or where access is apparent at eye height.
- **4.3.5** Raw data from the preliminary assessment including the specimen's dimensions was compiled by the use of a diameter tape, height clinometer, angle finder, compass, steel probes, Teflon hammer, binoculars and recording instruments.

4.4 Documentation provided

The following documentation has been provided to Allied Tree Consultancy and utilised within the report.

4.4.1 Surveyor

Drawn by *Project Surveyors* Date: 28 November 2023 Reference: 5576 Drawing No: 5576-DET-1; 4 Sheets <u>Note 1</u>: See Section 4.5.1.

4.4.2 Design

Drawn by DJRD Architects Date: 15 January 2025 Reference: 24 408 Drawings: 19 Sheets; Revision 3

³ Mattheck, C. Breloer, H.,1994, <u>The Body Language of Trees</u> – A handbook for failure analysis The Stationary Office, London.

⁴ Dunster J.A., 2013, Tree Risk Assessment Manual, International Society of Arboriculture, 2013, USA

⁵ Consulting Arborist, Diploma of Arboriculture (level 5).

⁶ Consulting Arborist, Diploma of Arboriculture (level 5).

4.4.3 Design; Bulk Earthworks

Drawn by *TTW* Date: 14 January 2025 Reference: not referenced Drawings: 19 Sheets; Revision 3

4.5 Limitations of the assessment/discussion process

- 4.5.1 Trees No. 14, 26, 28–30, 32, 33, 37, 42, 43, 49, 51, 61, 92, 118 and 124–126 have been omitted from the survey provided. However, require inclusion because they conform to the definition of a prescribed tree within the local government tree policy. The tree location has been plotted onto Plan 1 by *Allied Tree Consultancy*. The tree location was established by measuring from known points and scaling onto the drawing. *Allied Tree Consultancy* is not a registered surveyor; however, the accuracy of the survey is attempted; the true position of the trees may marginally deviate. Any such deviation provides the potential for changing the actual impact (encroachment) provided to a tree.
- **4.5.2** <u>Area E has a limitation of the assessment exercise</u>: This area is a bog, on the verge of the wetland area; it has dense vegetation consisting of long grass, weed species, vines, and undulating grades. <u>This area has not been assessed</u>. It consists of approximately ten live trees and several dead trees. The species are Eucalyptus; therefore, they are potentially remnant and tentatively rated as 'High' significance, although they were limited in size with stem diameters of up to 0.4m. The trees in this area may warrant inclusion pending management decisions, although a means that can allow for access with reduced risk will be necessary.</u>
- **4.5.3** The assessment has considered only those target zones that are apparent to the author and the visually apparent tree conditions, during the time of assessment.
- **4.5.4** Any tree regardless of apparent defects would fail if the forces applied to exceed the strength of the tree or its parts, for example, extreme storm conditions.
- **4.5.5** The assessment has been limited to that part of the tree which is visible, existing from the ground level to the crown. Root decay can exist and, in some circumstances,

4.5.6 This assessment responds to all the symptoms provided by a tree, however, cannot provide a conclusive recommendation regarding any tree that may have extensive root decay that leads to windthrow without the appropriate symptoms.

January 2025

5.0 Plan 1; Area of assessment



1

Not to scale Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

5.1 Plan 2; Area of assessment including tree location

Not to scale Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

5.2 Plan 2.1; Area of assessment including tree location

5.3 Plan 3; Area of assessment including tree location

Not to scale Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

5.4 Plan 3.1; Area of assessment including tree location

Not to scale Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

5.5 Plan 4; Area of assessment including tree location

Not to scale Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

5.6 Plan 4.1; Area of assessment including tree location

5.7 Plan 4.2; Area of assessment including tree location

Not to scale Source: Adapted from *Project Surveyors P/L*, see Section 4.4.1

5.8 Plan 4.3; Area of assessment including tree location

5.9 Plan 5; Area of assessment including tree location

6.0 Table 1 – Tree Species Data

Terminology/references provided in Appendix A.

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
1	Eucalyptus moluccana Grev Box	18	0.76	13 x 13	Μ	D	Sym	A	1A	High	9.12	2.95
Asses This t	sment Trees ree presents as typical of it	s species.	The tree a	ppears to b	e located	on public	and owne	d by Liverp	ool City Co	puncil.	Activity See Sect	Impact ion 7.1.4
2	<i>Eucalyptus tereticornis</i> Forest Red Gum	20	0.68	12 x 12	Μ	D	Sym	A	1A	High	8.16	2.81
Assessment This tree presents as typical of its species. 3 Eucalyptus moluccana 9 0.24 5 x 5 M C Sym A 2A												
3	<i>Eucalyptus moluccana</i> Grey Box	9	0.24	5 x 5	Μ	C	Sym	A	2A	Medium	2.88	1.82
Assessment This tree presents as typical of its species however is codominant at 3m.												
4	<i>Eucalyptus moluccana</i> Grey Box	20	1.10 ^{C,B}	14 x 14	Μ	D	Sym	A	2A	High	13.20	3.44
Asses This t by Liv	sment ree presents as typical of it erpool City Council.	s species h	iowever is	codominar	nt at 3m. 1	The tree ap	opears to b	e located o	on public la	and owned	Activity See Secti	Impact on 7.1.4
5	<i>Eucalyptus moluccana</i> Grey Box	20	0.78	14 x 14	Μ	С	Sym	A	2A	High	9.36	2.98
Asses This t	sment ree presents as typical of it	s species.	The tree a	ppears to b	e located	on public	and owne	d by Liverp	ool City Co	buncil.	Activity See Secti	Impact on 7.1.4
6	<i>Eucalyptus tereticornis</i> Forest Red Gum	20	0.65	11 x 10	М	C	N	A	2A	High	7.80	2.76
Asses This t	sment ree presents as typical of it	s species.	The tree a	ppears to b	e located	on public	and owne	d by Liverp	ool City Co	buncil.	Activity Impact See Section 7.1.4	
7	<i>Eucalyptus tereticornis</i> Forest Red Gum	10	0.33	5 x 5	Μ	С	Sym	A	2A	Medium	3.96	2.08
Asses	sment			1							Activity	Impact

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
This t	ree presents as typical of it	s species.	The tree a	ppears to b	e located	on public	land owne	d by Liverp	ool City Co	ouncil.	See Secti	on 7.1.1	
8	<i>Eucalyptus moluccana</i> Grey Box	6	0.21	4 x 4	Μ	C	Sym	A	2A	Medium	2.52	1.72	
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species.	1			1	1	1	1		See Secti	on 7.1.2	
9	<i>Eucalyptus moluccana</i> Grey Box	5	0.12	3 x 3	Y	C	Sym	A	2A	Medium	1.44	1.36	
Asses	sment	1	1			1	1	1	1	1	Activity	Impact	
This t this tr	See Secti	on 7.1.2											
10	<i>Eucalyptus moluccana</i> Grey Box	7	0.13	2 x 2	Y	С	Sym	A	2A	Medium	1.56	1.40	
Assessment This tree presents as typical of its species.													
11	<i>Eucalyptus tereticornis</i> Forest Red Gum	7	0.18	2 x 2	Y	C	W	A	2A	Medium	2.16	1.61	
Asses This t	sment ree presents as typical of it	s species.	1						1	1	Activity See Secti	Impact on 7.1.2	
12	<i>Eucalyptus tereticornis</i> Forest Red Gum	12	0.55	7 x 7	М	C	Sym	A	2 D ^E	Medium ^E	6.60	2.57	
Asses This t	sment ree divides into multiple le	aders at 3r	n. The nor	thern lead	er 240mm	diameter	has died.	l	1	1	Activity See Secti	Impact on 7.1.2	
13	<i>Eucalyptus tereticornis</i> Forest Red Gum	6	0.15	2 x 2	Y	C	NE	В	2A	Medium	1.80	1.49	
Asses This t	sment ree has a small dead leade	r on the so	uth side of	f the stem.							Activity See Secti	Impact on 7.1.2	
14	<i>Eucalyptus tereticornis</i> Forest Red Gum	6	0.11	1 x 1	Y	I	NE	В	2A	Low	1.32	1.31	
Asses This t	sment ree is overcrowded by othe	er trees an	d has narro	ow stem ta	pper.					1	Activity Impact See Section 7.1.2		

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
15	<i>Eucalyptus moluccana</i> Grey Box	5	0.12	2 x 2	Y	S	Sym	A	2A	Medium	1.44	1.36	
Asses	sment										Activity	Impact	
This t	ree is overcrowded by othe	er trees.								1	See Secti	on 7.1.2	
16	<i>Eucalyptus moluccana</i> Grey Box	5	0.11	2 x 2	Y	S	Sym	A	2A	Medium	1.32	1.31	
Asses This t	sment	er trees		11		L	L	L		1	Activity See Secti	Impact on 7.1.2	
17	<i>Eucalyptus moluccana</i> Grey Box	9	0.18	3 x 3	М	С	W	A	2A	Medium	2.16	1.61	
Assessment This tree is overcrowded by other trees.													
18	<i>Eucalyptus tereticornis</i> Forest Red Gum	7	0.10	1 x 1	Y	I	Sym	В	4A	Low	1.20	1.26	
Asses Prese	Assessment Presents with excessive crown decline												
19	<i>Eucalyptus moluccana</i> Grey Box	12	0.22	4 x 4	М	I	Sym	A	2A	Medium	2.64	1.75	
Asses	sment			1 1						1	Activity	Impact	
This t	ree is overcrowded by othe	er trees and	d has narro	ow stem ta	pper.		-	-			See Secti	on 7.1.2	
20	<i>Eucalyptus tereticornis</i> Forest Red Gum	6	0.14	2 x 2	Y	I	N	A	2A	Medium	1.68	1.45	
Asses	sment										Activity	Impact	
This t	ree is overcrowded by othe	er trees.									See Secti	on 7.1.2	
21	<i>Eucalyptus tereticornis</i> Forest Red Gum	12	0.26	4 x 4	Μ	С	Sym	A	2A	Medium	3.12	1.88	
Asses	sment										Activity	Impact	
This t	ree is overcrowded by othe	er trees.									See Secti	on 7.1.2	
22	Eucalyptus tereticornis	10	0.40	3 x 3	М	C	Sym	A	2A	Medium	5.60	2.40	

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species.	1	, ,		1	1	1	T	1	See Secti	on 7.1.2	
23	<i>Eucalyptus tereticornis</i> Forest Red Gum	12	0.36 0.39 ^{B,C}	6 x 6	Μ	D	Sym	A	2A ^C	Medium	6.37	2.54	
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species h	nowever is	codominar	nt at 2m u	р.					See Secti	on 7.1.2	
24	Melaleuca styphelioides	6	0.50 ^{B,C}	7 x 7	М	D	Sym	A	2A	High	6.00	2.47	
	Prickly Leaved												
	Paperbark												
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species.									See Secti	on 7.1.4	
25	Melaleuca styphelioides	6	0.60 ^{B,C}	5 x 5	М	C	Sym	A	2A	Medium	7.20	2.67	
	Prickly Leaved												
Paperbark													
Asses	Assessment												
This t	ree presents as typical of it	s species.							-		See Section 7.1.4		
26	Melaleuca styphelioides	6	0.50 ^{B,C}	7 x 7	М	C	Sym	A	2A	Medium	6.00	2.47	
	Prickly Leaved												
	Paperbark												
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species.				-					See Secti	on 7.1.2	
27	Melaleuca styphelioides	8	0.60	7 x 7	М	C	Sym	A	2A	High	7.20	2.67	
	Prickly Leaved												
	Paperbark												
Asses	sment										Activity	Impact	
This tree presents as typical of its species.												on 7.1.2	
28	Eucalyptus moluccana	18	0.76	12 x 11	М	D	Sym	A	2 D ^E	Medium	9.12	2.95	
	Grey Box												
Asses	sment										Activity	Impact	
The e	astern leader of this tree h	as recently	/ failed. Th	e failure pa	attern sug	gest that t	he cause is	symptom	atic of a w	ind	See Secti	on 7.1.2	
gener	ated branch tear out. At 12	1m on the	western si	de of the c	rown a se	condary le	ader prese	nts with si	gnificant s	welling. An			

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
aerial	assessment is required to	allow for f	urther com	nment on t	he tree in	relation to	o the propo	osed activit	у.			
29	<i>Eucalyptus moluccana</i> Grey Box	9	0.27	5 x 5	М	C	Sym	A	2A	Medium	3.24	1.91
Asses	sment										Activity	Impact
This t	ree is overcrowded by othe	er trees.									See Section	on 7.1.2
30	Melaleuca styphelioides	5	0.40 ^{B,C}	5 x 5	М	D	Sym	A	2A	High	4.80	2.25
	Prickly Leaved											
	Paperbark											
Asses	sment										Activity	Impact
This tree presents as typical of its species.												
31	Eucalyptus moluccana	7	0.25	4 x 4	М	C	SW	A	2A	Medium	3.00	1.85
	Grey Box											
Assessment												
This t	ree presents as typical of it	s species a	nd has a n	atural grov	vth progre	ession to th	he southwo	est.			See Section	on 7.1.2
32	Eucalyptus moluccana	16	0.28	6 x 7	М	1	W	A	2B	High	4.84	2.26
	Grey Box		0.29									
Asses	sment									•	Activity Impact	
This t	ree presents as typical of it	s species.									See Section	on 7.1.2
33	Eucalyptus moluccana	16	0.40	8 x 8	М	C	NW	В	2A	Medium	4.80	2.25
	Grey Box											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	owever pr	esents wit	h significa	nt crown c	decline.				See Section	on 7.1.2
34	Eucalyptus moluccana	16	0.37	8 x 6	М	C	N	A	2A	High	4.44	2.18
	Grey Box											
Asses	sment					1	1			1	Activity	Impact
This t	ree presents as typical of it	s species.									See Section	on 7.1.2
35	Eucalyptus moluccana	18	0.32	5 x 5	М	I	Sym	A	2A	High	3.84	2.05
Grey Box												
Assessment												Impact
This t	ree presents as typical of it	s species h	owever is	codominai	nt at 8m.						See Section	on 7.1.2

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
36	Eucalyptus moluccana	18	0.34	6 x 6	М	I	S	A	2A	High	4.08	2.10	
A	Grey BOX										Activity	Impact	
Asses	sment roo procents as typical of it	s spasias h	owovor ic	codominar	at at Em						See Secti	on 7 1 2	
1111S L						<u> </u>	C)A/	•	24		2.70	1.70	
3/	Eucalyptus moluccana	9	0.23	3 X 3	IVI	Ľ	500	A	ZA	wealum	2.76	1.79	
Accor	Grey BUX										Activity	Imnact	
Asses	sment ree presents as typical of it	s snocios									See Secti	on 7.1.2	
70	Eucaluntus moluccana	o species.	0.25	1 v 2	N/L	C	c	Δ	24	Modium	2 00	1 95	
50	Grev Box	9	0.25	4 X 3	IVI		5		24	weatum	5.00	1.05	
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species.									See Secti	on 7.1.2	
39	Eucalyptus moluccana	12	0.26	7 x 5	M	С	S	Α	2A	High	3.12	1.88	
	Grev Box		0.20								•		
Asses	Assessment												
This t	ree presents as typical of it	s species.									See Section 7.1.2		
40	Eucalyptus moluccana	18	0.28	6 x 6	М	F	Sym	Α	2A	High	3.36	1.94	
	Grey Box												
Asses	sment					•	•	•	•		Activity	Impact	
This t	ree presents as typical of it	s species h	owever is	codominar	nt at 7m.						See Secti	on 7.1.2	
41	Eucalyptus moluccana	10	0.16	2 x 2	Y	I	Sym	В	2A	Medium	1.92	1.53	
	Grey Box												
Asses	sment										Activity	Impact	
This tree presents as typical of its species however the western leader has died.											See Secti	on 7.1.2	
42	Eucalyptus moluccana	20	0.49	12 x 10	М	C	Sym	A	1B	High	5.88	2.45	
	Grey Box												
Assessment												Impact	
This tree presents as typical of its species however is codominant at 6m. See											See Secti	on 7.1.2	
43	Eucalyptus moluccana	6	0.12 ^c	3 x 3	Y	C	SE	В	2D	Medium	1.44	1.36	
	Grey Box								<u> </u>				
Asses	sment										Activity	Impact	

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
This t	ree presents as typical of it	s species h	nowever pi	resents wit	h some tv	viggy declir	ne.				See Secti	on 7.1.2	
44	Eucalyptus moluccana Grey Box	8	0.13	1 x 1	Y	I	Sym	A	2A	Medium	1.56	1.40	
Asses	s ment ree presents as typical of it	s snecies h	nowever ni	resents wit	h some tw	viggy declin	ne				Activity See Secti	Impact on 7.1.2	
45	<i>Eucalyptus moluccana</i> Grey Box	5	0.10	2 x 2	M	C	Sym	A	2A	Medium	1.20	1.26	
Asses This t	sment ree presents as typical of it	s species.									Activity See Secti	Impact on 7.1.2	
46	Eucalyptus moluccana Grey Box	7	0.13	3 x 3	Y	C	NE	A	2A	Medium	1.56	1.40	
Assessment This tree presents as typical of its species.													
47	<i>Eucalyptus moluccana</i> Grey Box	20	0.60	12 x 12	Y	С	Sym	A	1 B ^E	High ^E	7.20	2.67	
Asses This t requi	sment ree presents as typical of it red to allow for further cor	s species h nment on t	nowever is the tree in	codominal relation to	nt with sig the prop	nificant sw osed activi	velling at 6 ty.	m. An aeri	al assessm	ent is	Activity Impact See Section 7.1.2		
48	Eucalyptus moluccana Grey Box	5	0.14 0.10	3 x 2	Y	С	S	A	2A	Medium	2.06	1.58	
Asses This c	s ment consist of two trees sharing	same root	: mass.	1	L	1	1	1	I	1	Activity See Secti	Impact on 7.1.2	
49	<i>Eucalyptus moluccana</i> Grey Box	9	0.16	3 x 3	М	C	SW	A	2A	Medium	1.92	1.53	
Asses This t	s ment ree presents as tall with a s	small crow	n mass.								Activity See Secti	Impact on 7.1.2	
50	<i>Eucalyptus moluccana</i> Grey Box	8	0.13	3 x 3	Y	C	Sym	A	2A	Medium	1.56	1.40	
Asses This t	sment ree presents as tall with a s	small crow	n mass.		1		1			1	Activity See Secti	Impact on 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
51	Eucalyptus moluccana	5	0.12	3 x 3	Y	C	NE	Α	2A	Medium	1.87	1.52
	Grey Box		0.10									
Asses	sment										Activity	Impact
This t	ree is experiencing branch	conflict wi	th other tr	ees.							See Secti	on 7.1.2
52	<i>Eucalyptus moluccana</i> Grey Box	20	0.40	7 x 7	М	F	Sym	A	1B	High	4.80	2.25
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	lowever is	codominar	nt at 15m.						See Secti	on 7.1.2
53	Eucalyptus moluccana	12	0.30	7 x 5	М	C	N	A	2A ^C	Medium ^c	3.60	2.00
	Grey Box											
Asses	sment			I I			1	1	1	I	Activity	Impact
The crown has a northern bias and is appears to be heavily covered in vine.												
54	Eucalyptus moluccana	12	0.20 ^c	3 x 3	М	I	NE	В	2A ^C	Medium ^c	2.40	1.68
	Grey Box											
Assessment												
The c	rown appears to be heavil	ly covered	in vine.								See Secti	on 7.1.2
55	Eucalyptus moluccana	10	0.20 ^c	3 x 3	М	С	NE	В	2D ^C	Medium ^c	2.40	1.68
	Grey Box											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	lowever th	nere is some	e decline (developing	througho	ut the crov	vn.		See Secti	on 7.1.2
56	Eucalyptus moluccana	10	0.25 ^c	6 x 5	М	С	E	A	2A ^C	High ^C	3.00	1.85
	Grey Box											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	owever.								See Secti	on 7.1.2
57	Eucalyptus moluccana	18	0.34 ^c	6 x 6	М	C	Sym	Α	2A	High	4.08	2.10
	Grey Box											
Assessment												
This t	ree presents as typical of it	s species h	lowever is	codominar	nt at 7m.						See Secti	on 7.1.2
58	Eucalyptus moluccana	17	0.44 ^E	8 x 8	М	C	Sym	A	2A ^E	High ^E	5.28	2.34
	Grey Box											
Asses	sment										Activity	Impact

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
This t	ree presents as typical of it	s species h	lowever is	codomina	nt with sw	elling in th	e stem at	4m. This w	ould requi	re an	See Secti	on 7.1.2	
interr	al diagnostic assessment t	o allow for	further co	pmment or	the tree i	n relation	to the pro	posed activ	vity.	1			
59	Eucalyptus moluccana	10	0.29	6 x 6	М	С	E	A	2A	High	3.48	1.97	
	Grey Box										A	lucuset	
Asses	sment tree presents as typical of i	ts snacias	howeverig	codomina	nt at Am						See Secti	on 7.1.2	
60		12				C	c	^	24	Lliah	2.24	1.01	
00	Grey Box	12	0.27	5 X 5	111	C	5	A	24	півіі	5.24	1.91	
Asses	sment				I	I	I	1	1	I	Activity	Impact	
This tree presents as typical of its species however is codominant at 4m.													
61	Eucalyptus moluccana	14	0.30	5 x 6	М	С	Sym	Α	2A	High	3.60	2.00	
	Grey Box												
Assessment													
This t	This tree presents as typical of its species.												
62	Eucalyptus moluccana	23	0.41 ^c	7 x 7	М	F	Sym	A	1B ^C	High ^C	4.92	2.28	
	Grey Box												
Asses	sment										Activity Impact		
This t	ree presents as typical of it	s species.									See Secti	on 7.1.2	
63	Eucalyptus moluccana	9	0.21	4 x 4	М	С	Sym	A	2A ^C	High ^C	2.52	1.72	
	Grey Box												
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species.									See Secti	on 7.1.2	
64	Eucalyptus moluccana	16	0.46 ^c	8 x 9	М	С	NW	В	2A ^C	High ^C	5.52	2.39	
	Grey Box												
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species h	lowever th	nere is som	e decline o	on the sout	th side of o	crown. A sł	nipping cor	ntainer has	See Secti	on 7.1.2	
been placed on the ground close to the tree.													
65	Eucalyptus moluccana	18	0.50	10 x 10	M	С	N	В	2D	Medium	6.00	2.47	
	Grey Box												
Asses	sment										Activity Impact		
This t	ree presents with excessive	e twiggy de	ecline. A sh	nipping con	itainer has	been plac	ed on the	ground clo	se to the t	ree. There	See Secti	on 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ		
is a pi	le of mixed debris and rubl	bish under	tree.				·	·						
66	Melaleuca styphelioides	8	0.60 ^{B,C}	8 x 8	М	D	Sym	A	2A	High	7.20	2.67		
	Prickly-leaved													
	Paperbark													
Asses	sment										Activity	Impact		
This t	ree presents with excessive	e twiggy de	ecline.	1		1	1	1	1	1	See Secti	on 7.1.2		
67	Eucalyptus tereticornis	20	0.84	15 x 15	Μ	D	Sym	A	2A	High	10.08	3.08		
	Forest Red Gum													
Asses	sment										Activity	Impact		
This tree presents as typical of its species however is codominant at 3m and some twiggy decline has exists within the crown.												on 7.1.2		
68	Eucalyptus moluccana	11	0.25	3 x 3	М	D	Sym	A	2A	High	3.00	1.85		
	Grey Box													
Asses	Assessment This tree presents as typical of its species													
This t	This tree presents as typical of its species.													
69	Eucalyptus moluccana	11	0.35	5 x 5	М	C	Sym	A	2A	High	4.20	2.13		
	Grey Box													
Asses	sment										Activity Impact			
This t	ree presents as typical of it	s species h	owever is	codomina	nt at 2m.		-	-	-		See Secti	on 7.1.2		
70	Eucalyptus moluccana	7	0.20 ^c	3 x 3	Μ		Sym	В	2D ^{E,C}	Medium ^c	2.40	1.68		
	Grey Box													
Asses	sment										Activity	Impact		
This t	ree presents as typical of it	s species h	lowever sc	ome twiggy	decline e	xists throu	ghout the	crown.			See Secti	on 7.1.2		
71	Eucalyptus tereticornis	7	0.26 ^c	2 x 2	М	C	SW	A	2A ^C	High ^c	3.12	1.88		
	Forest Red Gum													
Asses	sment										Activity	Impact		
This t	ree presents as typical of it	s species h	lowever is	codomina	nt at 2m.						See Secti	on 7.1.2		
72	Eucalyptus tereticornis	13	0.30 ^c	4 x 4	М	F	Sym	A	1B ^C	High ^C	3.60	2.00		
	Forest Red Gum													
Asses	sment										Activity	Impact		
This t	ree presents as typical of it	s species.									See Secti	on 7.1.2		
73	Eucalyptus tereticornis	10	0.30	4 x 3	М	C	Sym	В	2A	Medium	3.60	2.00		

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
	Forest Red Gum												
Asses	sment				1			1	1	I	Activity	Impact	
This t	ree presents as typical of it	s species h	owever th	nere is som	e twiggy o	decline exis	sts through	out the cro	own.		See Secti	on 7.1.2	
74	Eucalyptus moluccana	5	0.14	3 x 3	M	C	Sym	В	3A	Medium	1.68	1.45	
	Grey Box												
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species h	owever so	ome twiggy	decline e	exists throu	ghout the	crown.	-		See Secti	on 7.1.2	
75	Eucalyptus moluccana	13	0.30	5 x 5	M	С	Sym	В	2A ^C	Medium ^C	3.60	2.00	
	Grey Box												
Asses	sment										Activity	Impact	
This tree presents as typical of its species however some twiggy decline exists throughout the crown.												on 7.1.2	
76	Eucalyptus tereticornis	13	0.30	6 x 7	M	F	Sym	A	2A	High	5.09	2.31	
Forest Red Gum 0.30													
Assessment													
This is	This is two trees sharing the same root mass. The trees present as typical of the species.												
77	Eucalyptus moluccana	13	0.27 ^c	5 x 5	М	С	Sym	A	2A ^C	High ^C	3.24	1.91	
	Grey Box ^A												
Asses	sment										Activity Impact		
This t	ree presents as typical of it	s species.									See Secti	on 7.1.2	
78	Eucalyptus moluccana	13	0.32 ^c	6 x 6	М	С	Sym	A	2A ^C	High ^C	3.84	2.05	
	Grey Box ^A												
Asses	sment										Activity	Impact	
This t	ree presents as typical of it	s species.									See Secti	on 7.1.2	
79	Eucalyptus moluccana	11	0.24 ^c	3 x 3	М	F	Sym	-	4C	Low	2.88	1.82	
	Grey Box												
Asses	sment										Activity	Impact	
This t	ree is dead and therefore r	equires to	be remov	ed.							See Secti	on 7.1.2	
80	Eucalyptus moluccana	13	0.25 ^c	5 x 4	М	С	Sym	В	2A ^C	Medium	3.00	1.85	
	Grey Box												
Asses	Assessment												
This t	ree presents as typical of it	s species h	lowever ei	picormic gr	owth has	formed on	some bra	nches and	some twig	gy dieback	See Secti	on 7.1.2	

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
exists	throughout the crown.											
81	Eucalyptus moluccana	11	0.14 ^c	2 x 2	М	I	Sym	В	4A ^C	Medium ^C	1.68	1.45
	Grey Box											
Assessment										Activity	Impact	
The t	The tree has excessive amounts of epicormic growth on the stem and branches. The crown presents with some decline.										See Secti	on 7.1.2
82	Eucalyptus moluccana	12	0.34 ^c	5 x 6	М	C	SW	В	2A ^C	Medium ^C	4.08	2.10
	Grey Box											
Asses	ssment										Activity	Impact
This t	ree presents as typical of it	s species h	nowever so	ome twiggy	dieback e	xists throu	ighout the	crown.	-		See Secti	on 7.1.2
83	Eucalyptus moluccana	5	0.12 ^c	3 x 3	Y	C	W	-	4C	Low	1.44	1.36
	Grey Box											
Asses	sment										Activity Impact	
This t	ree is dead and therefore r	equires to	be remove	ed.							See Secti	on 7.1.2
84	Eucalyptus tereticornis	6	0.15 ^c	3 x 2	М	C	Sym	C	4A ^C	Low ^C	1.80	1.49
	Forest Red Gum											
Asses	sment										Activity	Impact
The t	ree appears to be in irrever	sible decli	ne.								See Secti	on 7.1.2
85	Eucalyptus tereticornis	13	0.35 ^c	5 x 5	М	С	Sym	C	2A ^C	Medium ^c	4.20	2.13
	Forest Red Gum											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species.									See Secti	on 7.1.2
86	Eucalyptus tereticornis	9	0.24 ^c	3 x 4	М	С	S	C	4A ^C	Low ^C	2.88	1.82
	Forest Red Gum											
Asses	sment										Activity	Impact
The t	ree appears to be in irrever	sible decli	ne.								See Secti	on 7.1.2
87	Eucalyptus moluccana	13	0.27 ^c	6 x 4	М	I	Sym	В	2A ^C	Medium ^c	3.24	1.91
	Grey Box											
Asses	sment										Activity	Impact
The s	tem of this tree has been c	harred and	l burnt. Th	e crown of	the tree p	oresents w	ith some d	ecline.			See Secti	on 7.1.2
88	Eucalyptus moluccana	7	0.30 ^{C,B}	5 x 5	М	С	Sym	-	4A ^C	Low ^C	3.60	2.00
	Grey Box											

TreeBotanical NameHeightDBHCrownCrownCrownVitalitySULESTNo.Common Name(m)(m)(m)AgeCrownClassAspectRatingRatingRatingRating	TARS ating	PZ	SRZ							
Assessment	A	Activity Im	npact							
This tree is dead and therefore requires to be removed.	See	Section	17.1.2							
89 Eucalyptus tereticornis 11 0.29 ^c 5 x 5 M C Sym B 3A ^c Me Forest Red Gum Image: Second Se	edium ^c 3.	.48	1.97							
Assessment										
This tree presents as typical of its species however some twiggy dieback exists throughout the crown										
90 Eucolyntus tereticornis 18 0.45° 11 x 12 M C N A 2 Λ° Modium ^c										
Forest Red Gum			,							
Assessment	4	Activity Im	npact							
This tree presents as typical of its species however the stem has been charred and burnt.	See	Section	n 7.1.2							
91 Eucalyptus tereticornis 18 0.40° 5 x 5 M C Sym C 3A ^{\circ} Me	dium ^c 4.	.80	2.25							
Forest Red Gum			2.23							
Assessment										
This tree presents as typical of its species however some twiggy dieback is developing throughout the crown.										
92 Eucalyptus tereticornis 6 0.15° 4 x 3 Y C Sym C 4A ^{\circ} L	ow ^c 1.	.80	1.49							
Forest Red Gum			-							
Assessment	A	Activity Im	tact							
This tree presents as typical of its species however some twiggy dieback developing throughout the crown	See	Section	7.1.2							
93 Eucalyntus tereticornis 18 0.70 ^{B,C} 10 x 10 M C Sym Δ 2Δ^C H	ligh ^C 8	40	2 85							
Forest Red Gum		.+0	2.05							
Accessment	A	Activity Im	npact							
This tree presents as typical of its species however is codominant at 2m. The lower portion of the stem has been charred	dand See	Section	7.1.2							
hurnt										
94 Eucolyptus tereticornis 17 0.50° 7 x 7 M C NE A 2 $\Delta^{C,E}$ Me	dium ^{C,E} 6	00	2 47							
Forest Red Gum		.00	2.47							
Assessment	A	Activity Im	npact							
This tree presents as typical of its species however part of the stem has been charred and hurnt										
95 Eucalyntus tereticornis 7 0.16 ^c 5 x 5 Y C Sym C $\Delta\Delta^c$ I	ow ^c 1	92	1.53							
Forest Red Gum			1.35							
Assessment	A	Activity Im	npact							
The tree is senescing and appears to be in irreversible decline	See	Section	n 7.1.2							

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
96	Eucalyptus tereticornis	12	0.23	5 x 6	М	С	Sym	В	3A ^C	Low ^C	3.90	2.06
	Forest Red Gum		0.23 ^c									
Asses	Assessment											Impact
This is two stems sharing the same root base. Much of the stem of this tree has been charred and burnt.											See Secti	on 7.1.2
97	Eucalyptus tereticornis	15	0.35	7 x 8	М	C	NE	В	3A ^C	Medium ^c	4.20	2.13
	Forest Red Gum											
Assessment										Activity	Impact	
An ex	cessive amount soil and ru	bbish has k	been built	up around	the base of	of the tree.	. The crow	n has form	ed excessi	ve amounts	See Secti	on 7.1.2
of epi	cormic growth on branche	s.					1		-	-		
98	Eucalyptus tereticornis	9	0.14 ^c	2 x 2	М	C	Sym	A	2A ^C	Medium ^c	1.68	1.45
	Forest Red Gum											
Asses	sment										Activity	Impact
This tree presents as typical of its species however part of the stem has been charred and burnt.											See Secti	on 7.1.2
99	Eucalyptus tereticornis	12	0.20	6 x 7	М	C	N	В	2A ^C	Medium ^c	4.84	2.26
Forest Red Gum 0.35 ^c												
Asses	sment										Activity	Impact
This t	ree presents with a signific	ant crown	decline. A	n excessive	e amount s	soil and rub	bbish has k	been built ι	up around	the base of	See Secti	on 7.1.2
the tr	ee.											
100	Eucalyptus tereticornis	8	0.22 ^C	3 x 3	М	C	W	A	2A ^C	Medium ^c	2.64	1.75
	Forest Red Gum											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species.	-			1	1	1			See Secti	on 7.1.2
101	Eucalyptus tereticornis	12	0.36 ^c	8 x 8	Y	C	Sym	A	2A ^C	Medium ^c	4.32	2.15
	Forest Red Gum											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	owever is	codomina	nt at 5m.				-		See Secti	on 7.1.2
102 Eucalyptus tereticornis 14 0.30° 7 x 6 M C Sym A 2A ^{\circ} High ^{\circ}											3.60	2.00
	Forest Red Gum											
Asses	sment										Activity	Impact
This tree presents as typical of its species.											See Secti	on 7.1.2
103	Eucalyptus tereticornis	14	0.50 ^{C,B}	6 x 6	М	C	Sym	В	2A	Medium	6.00	2.47

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
	Forest Red Gum											
Asses	sment										Activity	Impact
This tree presents as typical of its species however some twiggy dieback exist within the lower portion of the crown.											See Secti	on 7.1.2
104	Eucalyptus tereticornis	9	0.24 ^c	3 x 3	M	C	Sym	В	2A ^C	Medium ^c	2.88	1.82
	Forest Red Gum											
Assessment											Activity	Impact
This t	ree presents as typical of it	s species h	nowever so	ome twiggy	/ dieback e	exist withir	the lower	portion of	f the crowi	<u>ņ.</u>	See Secti	on 7.1.2
105	Eucalyptus tereticornis	12	0.30 ^c	7 x 7	M	C	N	A	2A ^C	Medium ^c	3.60	2.00
	Forest Red Gum											
Asses	sment										Activity	Impact
An ex	cessive amount soil and ru	bbish has l	been built	up around	the base	of the tree	•	1		1	See Secti	on 7.1.2
106	Eucalyptus tereticornis	14	0.30 ^c	7 x 7	M	C	N	В	2A ^C	Medium ^c	3.60	2.00
	Forest Red Gum											
Assessment										Activity	Impact	
An excessive amount soil and rubbish has been built up around the base of the tree.										See Secti	on 7.1.2	
107	Eucalyptus moluccana	16	0.30 ^c	7 x 7	M	C	N	A	2A ^C	High ^C	3.60	2.00
	Grey Box											
Asses	sment										Activity Impact	
This t	ree presents as typical of it	s species h	nowever pa	art of the s	tem has b	een charre	ed and buri	nt.		1	See Secti	on 7.1.2
108	Eucalyptus moluccana	13	0.25	3 x 3	M	C	Sym	-	4A	LOW	3.00	1.85
	Grey Box ^c											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	nowever th	ne stem ha	s been cha	arred and b	purnt.				See Secti	on 7.1.2
109	Eucalyptus tereticornis	12	0.29	6 x 7	M	C	Sym	В	3A ^C	Medium ^c	3.48	1.97
	Forest Red Gum											
Assessment										Activity	Impact	
An excessive amount soil and rubbish has been built up around the base of the tree. The crown area of this tree appears to be										pears to be	See Secti	on 7.1.2
declir	ning.					1						
110	Eucalyptus moluccana	15	0.40 ^c	7 x 7	M	D	Sym	A	2A ^C	High ^C	4.80	2.25
Grey Box												
Asses	sment										Activity	Impact

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
This t	ree presents as typical of it	s species h	lowever.								See Secti	on 7.1.2
111	Eucalyptus moluccana Grey Box	16	0.48 ^c	9 x 8	М	C	SW	A	1B	High	5.76	2.43
Assessment										Activity	Impact	
This tree presents as typical of its species however										See Secti	on 7.1.4	
112	112Eucalyptus tereticornis160.356 x 6MCSymA1BHigh											2.13
	Forest Red Gum									Ū		
Assessment										Activity	Impact	
This t	ree presents as typical of it	s species.									See Secti	on 7.1.4
113	Eucalyptus moluccana	16	0.48	12 x 11	М	С	Sym	Α	1B	High	8.32	2.84
	Grey Box		0.50							Ū		
Assessment											Activity	Impact
This tree presents as typical of its species.										See Secti	on 7.1.3	
114	Eucalyptus moluccana	11	1.10 ^C	12 x 11	М	C	NE	Α	18 ^E	High ^E	13.20	3.44
	Grey Box											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	lowever h	as develope	ed a woun	d on west	side of bol	le at 2m. Tl	nis would r	equire an	See Secti	on 7.1.4
Interr	nal diagnostic assessment t	o allow for	further co	omment on	the tree i	in relation	to the pro	posed activ	/ity.			
115	Eucalyptus moluccana	11	0.35	7 x 7	М	C	Sym	A	2A	High	4.20	2.13
	Grey Box											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	owever is	codominar	nt at 4m.		1	1			See Secti	on 7.1.1
116	Eucalyptus moluccana	16	0.50	10 x 11	М	C	N	A	2A	High	6.00	2.47
	Grey Box											
Assessment										Activity	Impact	
This tree presents as typical of its species.										See Secti	on 7.1.1	
117	Eucalyptus moluccana	7	0.17	4 x 3	Y	C	Sym	C	3A	Medium	2.04	1.57
	Grey Box											
Assessment										Activity	Impact	
This t	ree presents as typical of it	s species h	lowever se	eems to be	experienc	ing some l	branch con	flict with o	ther trees.		See Secti	on 7.1.1

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
118	Eucalyptus moluccana	7	0.20 ^{B,C}	4 x 4	М	S	Sym	A	3A	Medium	2.40	1.68
	Grey Box										A ativity	Increase
This tree presents as typical of its species however seems to be experiencing some branch conflict with other trees.										See Secti	on 7.1.1	
119	Eucalyntus moluccana	15	0.76 ^B	12 x 12	м		Sym			High ^E	9 1 2	2 95
115	Grey Box	15	0.70	12 / 12	141		Jynn		10	111611	5.12	2.55
Assessment										Activity	Impact	
There	is a vertical wound on the	west side	of the bole	e. The tree	is codomi	nant at 3m	n. This wou	Id require	an Interna	l diagnostic	See Secti	on 7.1.1
asses	sment to allow for further	comment	on the tree	e in relatior	n to the pr	oposed ac	tivity.			-		
120	Eucalyptus tereticornis	11	0.30 ^c	6 x 6	М	D	Sym	В	2A	Medium	3.60	2.00
	Forest Red Gum											
Assessment											Activity	Impact
This tree presents as typical of its species however there is some twiggy dieback is evident in the upper portion of the crown.										See Secti	on 7.1.2	
121 Eucalyptus paniculata 10 0.42° 7 x 7 M D Sym B 2A Medium										5.04	2.30	
	Grey Ironbark ^A											
Asses	sment										Activity	Impact
There	is some swelling in the ste	em surrour	nding a wo	und at 2m.	This wou	ld require a	an internal	diagnostic	assessme	nt to allow	See Secti	on 7.1.2
for fu	rther comment on the tree	in relatio	n to the pr	oposed act	ivity.	1	1					
122	Eucalyptus tereticornis	14	0.46 ^{B,C}	8 x 8	М	D	Sym	A	2A	High	5.52	2.39
	Forest Red Gum											
Asses	sment										Activity	Impact
This t	ree presents as typical of it	s species h	nowever is	codomina	nt at 6m.	1	1	1		I	See Secti	on 7.1.2
123	Eucalyptus microcorys	16	0.57	12 x 12	М	C	Sym	A	1B	High	6.84	2.61
	Tallowwood ^A											
Assessment										Activity	Impact	
This t	ree presents as typical of it	s species r	nowever ap	pears to b	e experie	ncing some	e branch co	onflict with	the adjace	ent tree.	See Secti	011 7.1.4
124	Corymbia maculata	10	0.28	7 x 6	M	C	Sym	A	2A	High	3.36	1.94
	Spotted Gum											
Assessment										Activity	Impact	
This t	ree presents as typical of it	s species h	nowever ap	opears to b	e experie	ncing some	e branch co	onflict with	other tree	es.	See Secti	0117.1.3

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ	
125	Corymbia maculata	16	0.52 ^c	12 x 12	М	C	Sym	A	1B	High	6.24	2.51	
Assessment This tree presents as typical of its species.											Activity See Secti	Impact on 7.1.4	
126	<i>Eucalyptus tereticornis</i> Forest Red Gum ^A	11	0.28 ^c	5 x 5	Μ	C	Sym	В	2A	Medium	3.36	1.94	
Assessment This tree presents as typical of its species however there is some twiggy dieback within the crown.										Activity See Secti	Impact on 7.1.3		
127	<i>Eucalyptus robusta</i> Swamp Mahogany ^a	10	0.47	9 x 8	Μ	D	Sym	A	2A	High	5.64	2.41	
Assessment This tree presents as typical of its species however is codominant at 3m.											Activity See Secti	Activity Impact See Section 7.1.1	
128	<i>Eucalyptus tereticornis</i> Forest Red Gum ^A	5	0.14	2 x 2	М	С	Sym	A	2A	Medium	1.68	1.45	
Asses This t	sment ree presents as typical of it	s species.	1			1	1	1		I	Activity See Secti	Impact on 7.1.2	
129	<i>Eucalyptus tereticornis</i> Forest Red Gum ^A	10	0.59	8 x 8	М	D	Sym	В	2A	Medium	7.08	2.65	
Asses This t	s ment ree presents as typical of it	s species h	nowever is	codominai	nt at 4m.	1	1	1	L	I	Activity See Secti	Impact on 7.1.2	
130	<i>Eucalyptus punctata</i> Grey Gum	10	0.30 ^{C,B}	5 x 5	Y	D	Sym	A	2A	Medium	3.60	2.00	
Asses This is	s ment s three stems sharing the s	ame root b	base.								Activity See Secti	Impact on 7.1.2	
131	<i>Eucalyptus punctata</i> Grey Gum	15	0.59	12 x 12	М	D	Sym	A	2 A ^E	High [⊧]	7.08	2.65	
Assessment This tree presents as typical of its species however is codominant at 3m. There is an open wound surrounded by swelling on the western side of the stem. This would require an internal diagnostic assessment to allow for further comment on the tree in relation to the proposed activity.									Activity See Secti	Impact on 7.1.2			

TI N	ree Io.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality Rating	SULE Rating	STARS Rating	TPZ	SRZ
1	32	<i>Eucalyptus punctata</i> Grey Gum	15	0.70	13 x 13	Μ	D	Sym	A	2 A ^E	High ^E	8.40	2.85
A Ti u	Assessment This tree has a large canker on the stem. The canker may be prone to infection. An active codominant crack is visible at 3m up. This would require an aerial assessment to allow for further comment on the tree in relation to the proposed activity.										Activity See Secti	Impact on 7.1.2	
1	33	<i>Acacia spp. ^A</i> Wattle	4	0.30 ^{B,C}	4 x 4	Μ	С	Sym	В	3A	Low	3.60	2.00
A TI sh	Assessment This is a grove of four <i>Acacia</i> . The trees within the grove present as typical of the species however are generally known to have short life expectancy.										own to have	Activity See Secti	Impact on 7.1.2
1	34	<i>Eucalyptus punctata</i> Grey Gum ^A	7	0.17	2 x 2	Y	I	Sym	A	2A	High	2.04	1.57
Act Assessment This tree presents as typical of its species. The tree appears to be located on public land owned by Liverpool City Council.										Activity See Secti	Impact on 7.1.1		
1	35	<i>Cupressus leylandii</i> Leyland Cypress ^A	5	0.20 ^{B,C}	3 x 3	Y	С	Sym	A	1B	High	2.40	1.68
A TI	Assessment This tree presents as typical of its species.									Activity See Secti	Impact on 7.1.2		
⁴ . Inco ³ . Dia	Incomplete identification of species due to insufficiently available plant material Diameter taken below 1.4m due to low stem bifurcation												

^c. Estimate due to the overgrown area and/or limited access

^D. Deciduous species, void of foliage at the time of assessment

^E. Level 3 assessment required to determine the accurate rating.

7.0 Site Assessment

The site is known as 128-134 Rickard Road, Leppington, NSW, 2179 and is legally described as Lots A and B in Deposited Plan 411211. The site is located on the eastern side of Rickard Road and is approximately 4.1ha in area. The site is located immediately south of the existing Leppington Public School at 144 Rickard Road and is approximately 700m south of Leppington Train Station. The northern portion of the site is currently used for residential purposes. The southern portion of the site is used for agricultural purposes, with multiple greenhouses and an existing pond on the property. Figure 1 below provides an aerial image of the site.

Figure 1: Aerial image of site Source: Nearmap

The trees are predominately remnant trees, with several deliberate plantings, being a combination of exotic and native species and predominately remnant trees. The site forms part of the South West Growth Area and is biodiversity certified. The planted trees are of similar age and likely related to the school construction.

Most of the trees are remnant and form part of the vegetation assembly of the Cumberlands Plain Woodland. This vegetation community is classed as a Critically Endangered Environmental Community (CEEC) and protected under Biosecurity Act, 2015 and under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act). None of the trees contained in this report are endangered species, and do not warrant legislative protection other than the vegetation community for which they belong. The significance

for this planting, relative to the vegetation community, is beyond the scope of an arborist and should be based on the recommendations of the Ecology report.

7.0.1 Exempt trees

The trees labeled as A and B, which have been included on the survey drawing (Plan 1), however, are excluded from this report because of the failure to conform to the description of a prescribed tree based on the Camden Council's Development Control Plan.

Tree A: Trees that occur and are exempt species.

Tree B: Dead trees

7.0.2 Areas of risk

Within the area of assessment, and as a duty of care, two areas of high risk regarding future site access are included. These areas are illustrated in the Plans, Section 5.0.

Area C: Electrical wires are routed between poles, which at the lowest point between the poles are approximately 2m above ground and within access of persons and vehicles. It is unknown if these wires are active. Caution is required within this area.

Area D: This area contains remnant trees and appears to be a natural wetland /drainage pond (possible dam). The area has been used as a dumping ground for chemical-based storage containers. These containers are a combination of empty and partially full. The chemical component is classed as toxic, where labels range up to Grade 6 chemicals exist. Many are leaching and carry deposits of dried chemicals. Allied staff experienced skin irritation where dust from one container came into contact with a staff member and fumes (likely acerbated by the hot day), which caused respiratory irritation and prompted masks to be worn to allow continued assessment of the surrounding trees. Fire has recently moved through this area, where some of the chemical containers appear to have been bundled and burnt.

7.0.3 Areas of not assessed

Area E: This area is a bog and on the verge of a wetland area. It has dense vegetation consisting of long grass, weed species, vines, and undulating grades. <u>This area has not been assessed</u>, see Section 4.5.2. It consists of approximately ten live trees and several dead trees. The species are Eucalyptus; therefore, they are potentially remnant and tentatively rated as 'High' significance, although they were limited in size with stem diameters of up to 0.4m.

7.1 Proposed Activity Description

The proposed activity is for a new high school for Leppington and Denham Court. The new high school will accommodate up to 1,000 students across 3

new buildings that will comprise 48 permanent teaching spaces (PTS), 3 support teaching spaces (STS), 9 specialist labs/workshops/kitchens and a hall. Buildings A, B and C will wrap the western and southern boundaries of the site, with the hall being located in south-east corner. The activity also includes the construction of a sports field in the centre of the site and 3 x multipurpose courts along the northern boundary. The proposed scope of works is illustrated in Figure 2 below.

Figure 2: New High School for Leppington and Denham Court Source: DJRD Architects

This report discusses the impact of the proposed design on the trees. One hundred and thirty-five (135) trees have been listed within this report based on the vicinity of the proposed works. Twenty-seven (27) trees are located within the road corridor, and the remaining one hundred and eight (108) trees occur within the lots proposed for the activity⁷. This includes any tree where any part of the zones of protection, such as the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ), encroach into the area proposed for work. Recommendations based on the tree significance and condition, together with the impact on these trees regarding the proposed activity (based on the documents contained in Section 4.4) and mitigation where available follow.

7.1.1 Trees and zones of protection (TPZ/SRZ) outside of the proposed design <u>Trees No. 7, 115-119, 127, and 134.</u>

None of the proposed work conflict with the location of these trees or respective zones of protection. These trees can be retained without impact by the proposed design.

⁷ This is an estimate because the survey does not delineate the two defined areas unlike other drawings that do not offer all trees.

7.1.2 Trees directly conflicting with the design

Trees No. 2, 3, 8-23, 26-110, 120-122, 128-133 and 135.

These trees are located in the footprint of the proposed design and would require removal based on this premise alone. The conflict is a combination of numerous design features, including buildings, roads, and stormwater infrastructure. However, the bulk earthworks form the primary impact where all trees occur within cut and fill areas. This is based on the drawing: LHS-TTW-01-00-DR-C-03101-3, see Section 4.4.3.

<u>Trees No. 2, 3, and 8-27</u> occur within the road reserve and are referred for removal based on future road widening works. In relation to the proposed design, the impact (other than tree No. 2) is based on increased grades to accommodate drainage patterns. However, accounting for the small proportion of increase to the grades adjacent to these trees, the impact can be negligible and can allow for tree retention. Allowing for a high significance rating to be applied to the majority of these trees, any opportunity to retain these trees should be considered. These trees will require confirmation and consent from Camden Council for removal.

7.1.3 Trees subject to a minor encroachment

Trees No. 113, 124, and 126.

These trees are not directly located in the footprint of the proposed design; however, they are subject to a *minor encroachment*. That is, the proportion (<10%) of encroachment provided by design will not adversely impact on the tree. These trees could be retained relative to the design.

7.1.4 Trees subject to a major encroachment

Trees No. 1, 4-6, 24, 25, 111, 112, 114, 123, 125 and Area E⁸.

These trees are not directly located in the footprint of the proposed design; however, they are located close and adjacent to the design footprint and subject to a *major encroachment*, that is, in excess of 10% of the TPZ. Table 2 discusses the proportion and type of encroachment for each tree implications and mitigation.

Tree	Encroachment	Encroachment Type	Comments
No.	(%)		
1	Approximately 40%	Crossover (36%)	Note 1
	Inside SRZ	Headwall (5%)	
4	33%	Minor fill (<0.5m)	Note 2
	Inside SRZ		
5	20%	Minor fill (<0.5m)	Note 2
	Outside SRZ		
6	16%	Minor fill (<0.5m)	Note 2

Table 2; Summary of major encroachments

⁸ See Section 7.0.3.

Tree	Encroachment	Encroachment Type	Comments
No.	(%)		
	Outside SRZ		
24	50%	Minor fill (<0.5m)	Note 4
	Inside SRZ		
25	50%	Minor fill (<0.5m)	Note 4
	Inside SRZ		
111	14%	Cut (<1.2m)	Note 3
	Outside SRZ		
112	12%	Cut (<1.2m)	Note 3
	Outside SRZ		
114	21%	Cut (<1.2m)	Note 3
	Outside SRZ		
123	28%	Minor fill (<0.5m)	Note 4
	Inside SRZ		
125	25%	Minor fill (<0.5m)	Note 4
	Inside SRZ		
Area	Estimated	Cut (<1.2m)	Note 5
E	<20%		

Notes

<u>Note 1</u>: Public tree; the encroachment consists of the cross-over where some expected cut would likely be required; however, the extent of this is unknown. In addition is the headwall, where a note on the civil drawings suggests amending the design for the tree. Further detail would be required for the cross-over to determine the impact. The tree caters to High significance. However, future road widening work may also impact or require the removal of this tree. This tree should be protected and retained based on the significance and mitigation measures in place to limit the impacts. Based on the design feature forming the impact, this could be catered for during construction. However will require feedback from Camden Council regarding intended future road works.

<u>Note 2</u>: Public tree; the encroachment consists of fill material to establish grades for drainage. The encroachment is on the edge of the fill, suggesting a battered fill, therefore, minimal depth that is minimal impact to the root system. Although the excavator compaction could offer increasing impact. These trees can be retained, and the proposed work will offer some, yet minor, impact. This can be limited more so via the restricted mass of the machine involved with this work and should be determined by the project arborist. The tree caters to High significance. However, future road widening work may also impact or require the removal of these trees. This tree should be protected and retained based on the significance and mitigation measures in place to limit the impacts. Based on the impact, this could be catered for during construction. However, will require feedback from Camden Council regarding intended future road works.

<u>Note 3</u>: these trees are subject to a cut, and a retaining wall is likely required to accommodate this, although has not been illustrated on the

drawing set. Therefore, any overcut required for drainage/foundations has not been allowed for in the calculations and could increase the encroachment calculation. Trees No. 111 and 112 are sustainable without impact; although tree No. 114 can be retained, some impact on health in the short term may occur.

<u>Note 4</u>: The encroachment consists of fill material to establish grades for drainage and the sports courts. The encroachment is on the edge of the fill, suggesting a battered fill, therefore, minimal depth that is minimal impact to the root system. However, the excavator compaction could offer increasing impact. These trees can be retained, and the proposed work will offer some, yet minor, impact. This can be limited more so via the restricted mass of the machine involved with this work and should be determined by the project arborist. This tree should be protected and retained based on the significance and mitigation measures in place to limit the impacts. Based on the impact, this could be catered for during construction.

<u>Note 5</u>: these trees have not been assessed⁹. Accounting for the tree size and respective estimated zones of protection (TPZ/SRZ), are subject to a cut, and a retaining wall is likely required to accommodate this. These trees could likely be retained; however, allowing for the environment and restricted area for work; additional encroachment may occur, which will limit the opportunity for tree retention. This area will require further consultation based on the results of an assessment to determine the viability of tree retention.

7.2 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities, other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

7.3 Mitigation Measures

The following measures are required to avoid, minimise and offer options for rectification to reduce or eliminate any adverse environmental impacts of a Division 5.1 activity. These are summarised in Section 7.3.1, Table 3; Environmental Mitigation.

⁹ See Section 4.5.2.

7.3.1 Table 3: Environmental Mitigation

Activity Type	Hold Point	Mitigation Measure	Reason for mitigation
Tree retention/removal	Before start of work	Consideration in association with the tree owner for	Clarify tree
Trees No. 3, and 8-27		retention of these trees based on high significance. Consent	retention/removal
		from tree owner	
Tree retention/removal	Before start of work	These trees will require confirmation and consent from	Consent from tree owner
Trees No. 2, 3, and 8-27		Camden Council for removal.	
Tree management	Before start of work	A project arborist (conforms to the AS 4970) is required to	Protection of trees
		be nominated before works start, and they are to be	
		provided with all related site documents.	
Demolition	Before start of work	As a minimum requirement, all trees recommended for	Reduce risk related to
		retention in this report must have removed all dead,	retained trees
		diseased, and crossing limbs and branch stubs to be pruned	
		Section 2.3.	
Demolition/Construction	Before start of work	A Tree Management Plan (Arboricultural Method	Protection of trees
		Statement) is prepared and issued to the entity responsible	
		for the demolition/construction.	
Tree protection	Before start of work	Installation of tree protection measures as per Tree	Protection of trees
		Management Plan (Arboricultural Method Statement)	
Retention of trees No. 1,	Before start of work	Pending feedback from Camden Council regarding the future	Reduce tree impact/Retain
and 4-6.		viability of these trees. Based on the outcome, mitigation at	trees
		the time of work is required. This requires feedback from	
		the project arborist.	
Retention of trees No.	Before start of work	Mitigation at the time of work is required. This requires	Reduce tree impact/Retain

Activity Type	Hold Point	Mitigation Measure	Reason for mitigation
111, 112, 114, 123, and		feedback from the project arborist.	trees
125.			
Retention/removal of	Before start of work	Area E requires access to assess trees and determine the	Reduce tree impact/Retain
trees; Area E		viability of retention during site works. This requires	trees
		feedback from the project arborist.	
Tree removal	Demolition	Trees are identified and marked for removal	Avoid incorrect tree
			removal.
Tree removal	Demolition	Native wildlife habitats are identified to avoid injury to	Protection of native fauna.
		animals. A licensed wildlife handler ¹⁰ supervises the tree	
		removal. Tree removal shall avoid nesting season. Refer to	
		the biodiversity report for additional guidance.	
Tree protection	Demolition/Construction	Site induction; All workers must be briefed about the	Protection of trees
	stages	conditions outlined in Tree Management Plan before the	
		initiation of work. This is required as part of the site	
		induction process.	
Subsurface utilities not	Construction stages	Trenching, shall avoid the TPZ's. Proposed routes shall be re-	Protection of trees
been included in the		routed outside of the TPZ. Underboring required if unable	intended for retention
design		reroute. Any excavation in the area of a TPZ must be	
		authorised and conditioned by the project arborist.	
Demolition/Construction	Demolition/Construction	Work-related to demolition/construction, e.g. stockpiling,	Protection of trees
Methods	stages	site sheds, and scaffolding, shall avoid the TPZs. Any activity	intended for retention
		within a TPZ must be authorised and conditioned by the	
		project arborist.	

¹⁰ NSW National Parks and Wildlife Act 1074

Activity Type	Hold Point	Mitigation Measure	Reason for mitigation
Demolition/Construction	Demolition/Construction	Measures/Conditions outlines in Section 8.0; Protection	Protection of trees
Methods	stages	Specification.	intended for retention
Environmental Impact	Project outcome	Planting of advanced specimens of the same species in	Compensation for the loss
Tree loss; ecological		groups.	of protected flora and
impact			related fauna habitats.
Environmental Impact	Project outcome	Planting of advanced specimens of the same species in areas	Compensation for the loss
Tree loss; amenity		that offer visual/noise screening.	of amenity value.
impact			

7.4 Protection measures

Tree protection measures will be required during the demolition and construction stage. However, the design of these will be pending the work methodology and final design. The project arborist¹¹ shall be contracted after the completion/confirmation of design work for the instruction of the protection measures implementation, that is the Arboricultural Method Statement. Examples of the protection measures are contained in Appendix B.

8.0 Protection Specification

The retention and protection of these trees requires the remaining Tree Protection Zone (TPZ) not subject to encroachment to conform to the conditions outlined below. These conditions provide the limitations of work permitted within the area of the Tree Protection Zone (TPZ) and must be adhered to unless otherwise stated.

Any engineering drawings issued as part of the construction certificate must conform with these requirements.

- 1. Foundation/footing types should not be strip type, but utilise footing types that are sympathetic towards retaining root system that is, screw, pier, etc. Slab on the ground can be accommodated in some circumstances and will be nominated by the project arborist. The extent of encroachment will be dependent upon the tree species, soil type (texture and profile) and gradients.
- 2. Subsurface utilities can extend through the TPZ and Structural Root Zone (SRZ), however, are limited to the method of installation. That is under boring is permitted, however trenching is limited and depends on the proposed route within the TPZ. No trenching is permitted within the area of the TPZ unless stipulated by the project arborist.
- 3. Soil levels within the TPZ must remain the same. Any excavation within the TPZ must have been previously specified and allowed for by the project arborist:
 - a) So it does not alter the drainage to the tree.
 - b) Under specified circumstances,
 - Added fill soil does not exceed 100mm in depth over the natural grade. Construction methodologies exist that can allow grade increases in excess of 100mm, via the use of an impervious cover, an approved

¹¹ Project Arborist: person nominated as responsible for the provision of the tree assessment, arborist report, consultation with stakeholders, and certification for the development project. This person will be adequately experienced and qualified with a minimum of a level 5 (AQF); Diploma in Horticulture (Arboriculture).

permeable material or permanent aeration system or other approved methods.

- Excavation cannot exceed a depth of more than 50mm within the area of the TPZ, not including the SRZ. The grade within the SRZ cannot be reduced without the consent from a project arborist.
- 4. No form of material or structure, solid or liquid, is to be stored or disposed of within the TPZ.
- 5. No lighting of fires is permitted within the TPZ.
- 6. All drainage runoff, sediment, concrete, mortar slurry, paints, washings, toilet effluent, petroleum products, and any other toxic wastes must be prevented from entering the TPZ.
- 7. No activity that will cause excessive soil compaction is permitted within the TPZ. That is, machinery, excavators, etc. must refrain from entering the area of the TPZ unless measures have been taken, in consultation with the project <u>arborist</u>.
- No site sheds, amenities or similar site structures are permitted to be located 8. or extend into the area of the TPZ unless the project arborist provides prior consent.
- No form of construction work or related activity such as the mixing of 9. concrete, cutting, grinding, generator storage or cleaning of tools is permitted within the TPZ.
- 10. No part of any tree may be used as an anchorage point, nor should any noticeboard, telephone cable, rope, guy, framework, etc. be attached to any part of a tree.
- 11. (a) All excavation work within the TPZ will utilise methods to preserve root systems intact and undamaged. Examples of methods permitted are by hand tools, hydraulic, or pneumatic air excavation technology.
 - (b) Any root unearthed which is less than 50mm in diameter must be cleanly cut and dusted with a fungicide, and not allowed to dry out, with minimum exposure to the air as possible.
 - (c) Any root unearthed which is greater than 50mm in diameter must be located regarding their directional spread and potential impact. A project arborist will be required to assess the situation and determine future action regarding retaining the tree in a healthy state.

9.0 Summary of tree impact by design

Based on the design supplied, the following summary provides the impacts imposed on the trees included in this report.

9.1 Trees to be retained

Trees No. 7, 24, 25, 113, 115-119, 124, 126, 127, and 134

These trees are not adversely impacted by the design, that is, they conform to an acceptable encroachment based on the nominated zones of protection (TPZ, SRZ) and the requirements of the Protection Specification, Section 8.0. The proposed design does not adversely affect these trees.

9.2 Trees nominated for removal based on conflict

Trees No. 2, 3, 8-23, 26-110, 120-122, 128-133 and 135.

The proposed design will impact adversely on these trees and are unable to be retained based on the design.

Trees No. 2, 3, and 8-27

These trees occur within the road reserve and are referred for removal based on future road widening works. However, the impact can be negligible and can allow for tree retention. Allowing for the high significance rating, any opportunity to retain these trees should be considered. These trees will require consent from Camden Council for removal.

9.3 Trees to be retained with design/work method mitigation Trees No. Trees No. 1, 4-6, 111, 112, 114, 123, and 125.

These trees are subject to a major encroachmnet, although design and work methodology can accommodate the tree and allow for retention.

Trees No. 1, and 4-6

These trees are public assets and the viability of future road works based on feedback from Camden Council shall determine the outcome and whether mitigation at the time of work is required to retain these trees or otherwise.

9.4 Area E

This area has not been assessed based on risk, and requires access to assess trees and determine the viability of retention during site works.

9.5 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities, other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is

restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

9.6 Protection measures

Tree Protection during the proposed activity

A project arborist (conforms to the AS 4970) is required to be nominated before works start, and they are to be provided with all related site documents.

A Tree Management Plan (Arboricultural Method Statement) is prepared and issued to the entity responsible for the demolition/construction.

Protection measures are required to be implemented for the trees nominated for retention (referenced in Section 9.1) and installed before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified.

All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work.

The opinions expressed in this report by the author have been provided within the capacity of a Consulting Arborist. Any further explanation or details can be provided by contacting the author.

> Assessed and Prepared by Geoff Beisler and Greg Penkow **Consulting Arborist** Level 5 Arborist ISA Tree Risk Assessment Qualification

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10.0 Appendix A- Terminology Defined

Height

Is a measure of the vertical distance from the average ground level around the root crown to the top surface of the crown, and on palms - to the apical growth point.

DBH

Diameter at Breast Height – being the stem diameter in meters, measured at 1.4m from ground level, including the thickness of the bark.; Mult. refers to multiple stems, that is in excess of 4 stems.

Crown Spread

A two-dimension linear measurement (in metres) of the crown plan. The first figure is the northsouth span, the second being the east-west measurement.

Age

Is the estimate of the specimen's age based upon the expected lifespan of the species. This is divided into three stages.

Young (Y)	Trees less than 20% of life expectancy.		
Mature (M)	Trees aged between 20% to 80% life expectancy.		
Over-mature (O)	Trees aged over 80% of life expectancy with probable symptoms of		
	senescence.		

Crown Aspect

In relation to the root crown, this refers to the aspect the majority of the crown resides in. This will be either termed Symmetrical (Sym.) where the centre of the crown resides over the root crown or the cardinal direction the centre of the crown is biased towards, being either North (N), South (S), East (E) or West (W).

Vitality Rating

Is a rating of the health of the tree, irrespective and independent of the structural integrity, and defined by the 'ability for a tree to sustain its life processes' ((Draper, Richards, 2009). This is divided between three variables, and based on the assessment of symptoms including, but not limited to; leaf size, colour, crown density, woundwood development, adaptive growth formation, and epicormic growth.

A: Normal vitality, typical for the species

B: Below average vitality, possibly temporary loss of health, partial symptoms.

C: Poor vitality; obvious decline, potentially irreversible

Crown Class

Is the differing crown habits as influenced by the external variables within the surrounding environment. They are:

- D Dominant
 Crown is receiving uninterrupted light from above and sides, also known as emergent.
- **C** *Codominant* Crown is receiving light from above and one side of the crown.
- I Intermediate Crown is receiving light from above but not the sides of the crown.
- **S** *Suppressed* Crown has been shadowed by the surrounding elements and receives no light from above or sides.
- F Forest
 Characterised by an erect, straight stem (usually excurrent) with little stem taper and virtually no branching over the majority of the stem except for the top of the tree which has a small concentrated branch structure making up the crown.

D C, I & S, and side view, after (Matheny, N. & Clark, J. R. 1998, Trees Development, Published by International Society of Arboriculture, P.O. Box 3129, Champaign IL 61826-3129 USA, p.20, adapted from the Hazard Tree Assessment Program, Recreation and Park Department, City of San Francisco, California).

Levels of assessment

- Level 1: Limited visual: a visual tree assessment to manage large populations of trees within a limited period and in order to identify obvious faults which would be considered imminent.
- <u>Level 2: Basic assessment</u>: a standard performed assessment providing for a detailed visual assessment including all parts of the tree and surrounding environment and via the use of simple tools.
- Level 3: Advanced assessment: specific type assessments conducted by either arborist who specialise with specific areas of assessment or via the use of specialised equipment. For example, aerial assessment by use of an EWP or rope/harness, or decay detection equipment.

TPZ; Tree Protection Zone

Is an area of protection required for maintaining the trees vitality and long-term viability. Measured in meters as a <u>radius</u> from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

The size of the Tree Protection Zone (TPZ) has been calculated from the *Australian Standard, 4970; 2009* – <u>Protection of Trees on Development Sites</u>

The TPZ does not provide the limit of root extension, however, offers an area of the root zone that requires predominate protection from development works. The allocated TPZ can be modified by some circumstances; however will require compensation equivalent to the area loss, elsewhere and adjacent to the TPZ.

SRZ; Structural Root Zone

Is the area around the tree containing the woody roots necessary for stability. Measured in meters as a <u>radius</u> from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

Protection Measures

These are required for the protection of trees during demolition/construction activities.

Protective barriers are required to be installed before the initiation of demolition and/or construction and are to be maintained up to the time of landscaping. Samples of the recommended protection measures are illustrated in Appendix C.

All other definitions are referenced from;

Draper D.B., Richards P.A., 2009, <u>Dictionary for Managing Trees in Urban Environments</u> CSIRO Pub., Australia Significance Rating, Significance of a Tree Assessment Rating System (S.T.A.R.S), IACA, 201012

<u>Tree Significance – Assessment Criteria</u>

1. High Significance in landscape

- The tree is in good condition and good vitality;
- 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 vitality;

- 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 vitality;

- 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,

¹² IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

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.

Table 3; Tree Retention Value – Priority Matrix.

Safe Useful Life Expectancy – S.U.L.E (Barell 1995)

	1. Long	2. Medium	3. Short	4. Removal	5. Moved or Replaced
	Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 15 – 40 years with an acceptable level of	Trees that appeared to be retainable at the time of assessment for 5 – 15 years with an acceptable level of	Trees that should be removed within the next 5 years.	Trees which can be reliably moved or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	risk. Trees that may only live between 15 and 40 years.	risk. Trees that may only live between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5m in height.
В	Trees that could be made suitable for retention in the long term by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through instability on recent loss of adjacent trees.	Young trees less than 15 years old but over 5m in heights
С	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Damaged trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings.	
F				Trees that are damaging or may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other trees for reasons given in (A) to (E).	

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Appendix B- Protection measures; Protective fence

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Stem and Ground protection

