



Arborist Report

Project – Stage 10 The Outlook

Revision – A – 12-05-16





date: 12/05/2016
project no: 9496.5
site: Minmi Road, Fletcher
council: Newcastle City Council
proposal: Removal of trees in relation to a proposed residential subdivision

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1 introduction

Northwest Residential has engaged Terras Landscape Architects to undertake an inspection of trees located along the Minmi Road frontage in relation to proposed residential subdivision works.

2 assessing arborist

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Diploma of Horticulture (Arboriculture) AQF level 5

Certificate No. C0045006,

3 methodology

The site was visited on the afternoon of the 19th of April 2016. The following methods have been employed in preparing this report

- Visual Tree Inspection (VTA) (Mattheck & Breloer, 1994) was undertaken. Seventy six trees were inspected and assessed from the ground. The visual tree inspection included all visible above ground parts of the tree including exposed roots, trunk, branches and foliage.
- An assessment of Useful Life Expectancy (ULE) (Barrell 1993). ULE categories give an indication of the useful life expectancy of a tree. Several factors are taken into consideration in determining ULE ratings such as, location, species, age, health and structure of the tree. Refer to Appendix 3.
- Retention value of trees was determined using the steps outlined in the "Newcastle Urban Forest", Technical Manual April 2015. Refer to table "Retention Value of Trees" below on page 4.

No below ground inspections or analyses was undertaken in the root zone or on soil depths.

No internal inspections or tissue analyses was undertaken on the subject trees.

4 site

The site has frontage to Minmi Road, Fletcher and extends north to the southern edge of Hexham Swamp. The site has previously been used for grazing.

A residential subdivision is located to the south across Minmi Road of Stage 10 with the exception of a small area of bushland interface on the extreme western edge of Stage 10.

To the west of Stage 10 are previously constructed stages of The Outlook subdivision.

To the east is a pocket of bushland and the Sanctuary subdivision.

The majority of the sites vegetation consists of pasture with scattered trees.

5 assessment of retention values

Using Newcastle City Councils methodology for assessing the retention value of trees (NCC, 2015) the following results were determined.

Retention Value of Trees – Site 1				
Using Newcastle Urban Forest Technical Manual April 2015				
Tree No.	Species	Sustainability Period (Years)	Landscape Significance Rating	Retention Value
1	Eucalyptus crebra	>40	5 Low	Moderate
2	Eucalyptus crebra	15-40	4 Moderate	Moderate
3	Corymbia maculata	15-40	4 Moderate	Moderate
4	Corymbia maculata	5-15	5 Low	Low
5	Corymbia maculata	15-40	Moderate	Moderate
6	Corymbia maculata	15-40	5 Low	Low
7	Eucalyptus crebra	15-40	5 Low	Low
8	Eucalyptus crebra	<5	5 Low	Very Low
9	Eucalyptus crebra	<5	5 Low	Very Low
10	Dead Tree	Dead	6 Very Low	Very Low
11	Corymbia maculata	>40	5 Low	Moderate
12	Corymbia maculata	>40	3 High	High
13	Dead Tree	Dead	6 Very Low	Very Low
14	Corymbia maculata	15-40	4 Moderate	Moderate
15	Eucalyptus species	>40	5 Low	Moderate
16	Eucalyptus species	5-15	5 Low	Low
17	Corymbia maculata	>40	5 Low	Moderate
18	Corymbia maculata	>40	3 High	High
19	Eucalyptus species	5-15	5 Low	Low

20	Corymbia maculata	15-40	4 Moderate	Moderate
21	Corymbia maculata	>40	4 Moderate	Moderate
22	Eucalyptus crebra	15-40	5 Low	Low
23	Eucalyptus species	<5	5 Low	Very Low
24	Corymbia maculata	>40	4 Moderate	Moderate
25	Eucalyptus propinqua	<5	5 Low	Very Low
26	Corymbia maculata	>40	5 Low	Moderate
27	Dead Tree	Dead	6 Very Low	Very Low
28	Corymbia maculata	15-40	Moderate	Moderate
29	Corymbia maculata	5-15	5 Low	Low
30	Corymbia maculata	>40	5 Low	Moderate
31	Corymbia maculata	>40	5 Low	Moderate
32	Corymbia maculata	<5	5 Low	Very Low
33	Corymbia maculata	>40	4 Moderate	Moderate
34	Eucalyptus species	5-15	5 Low	Low
35	Eucalyptus species	15-40	4 Moderate	Moderate
36	Eucalyptus crebra	<5	5 Low	Very Low
37	Eucalyptus crebra	<5	5 Low	Very Low
38	Corymbia maculata	>40	5 Low	Moderate
39	Corymbia maculata	15-40	4 Moderate	Moderate
40	Corymbia maculata	>40	4 Moderate	Moderate
41	Corymbia maculata	>40	4 Moderate	Moderate
42	Corymbia maculata	>40	4 Moderate	Moderate
43	Corymbia maculata	>40	4 Moderate	Moderate
44	Corymbia maculata	>40	4 Moderate	Moderate
45	Corymbia maculata	>40	4 Moderate	Moderate
46	Eucalyptus crebra	>40	4 Moderate	Moderate
47	Corymbia maculata	5-15	5 Low	Low
48	Corymbia maculata	>40	4 Moderate	Moderate
49	Corymbia maculata	15-40	4 Moderate	Moderate
50	Corymbia maculata	>40	4 Moderate	Moderate
51	Corymbia maculata	>40	4 Moderate	Moderate
52	Corymbia maculata	>40	5 Low	Moderate
53	Corymbia maculata	>40	4 Moderate	Moderate
54	Corymbia maculata	>40	4 Moderate	Moderate
55	Eucalyptus species	<5	5 Low	Very Low
56	Corymbia maculata	>40	4 Moderate	Moderate
57	Corymbia maculata	>40	5 Low	Moderate
58	Eucalyptus crebra	15-40	4 Moderate	Moderate
59	Corymbia maculata	>40	Moderate	Moderate

60	Corymbia maculata	>40	5 Low	Moderate
61	Corymbia maculata	15-40	3 High	Moderate
62	Corymbia maculata	>40	4 Moderate	Moderate
63	Corymbia maculata	>40	Moderate	Moderate
64	Corymbia maculata	15-40	3 High	Moderate
65	Corymbia maculata	>40	4 Moderate	Moderate
66	Corymbia maculata	15-40	4 Moderate	Moderate
67	Corymbia maculata	15-40	4 Moderate	Moderate
68	Corymbia maculata	>40	5 Low	Moderate
69	Corymbia maculata	>40	5 Low	Moderate
70	Corymbia maculata	>40	5 Low	Moderate
71	Eucalyptus propinqua	<5	5 Low	Low
72	Corymbia maculata	>40	5 Low	Moderate
73	Corymbia maculata	>40	5 Low	Moderate
74	Corymbia maculata	5-15	4 High	Moderate
75	Eucalyptus propinqua	<5	5 Low	Low
76	Corymbia maculata	5-15	4 Moderate	Low

6 tree assessment

The subject trees are locally occurring native species and some would be considered remnant trees. A number of the trees have sustained damage during the April 2015 storm.

A number of the larger trees are over mature and have wounding, decay and canopy die-back. Several trees are dead.

Trees located within the eastern portion of the site are of much better health and structure probably due to the protection provided by surrounding vegetation. Trees located within the western portion are much more exposed and are generally of less quality.

The dominant species within the study area is *Corymbia maculata* (Spotted Gum). The spotted gums are generally of good health and structure. Other species within the study area include *Eucalyptus crebra* (Ironbark), *Eucalyptus propinqua* (Grey Gum) and an unidentified *Eucalyptus* species (Stringybark). These three species are not generally doing as well as the Spotted Gums.

Of the seventy six trees assessed, two trees have a high retention value, fifty one trees have a moderate retention value, twelve trees have a low retention value and 11 trees have a very low retention value.

16 of the moderate rated trees are semi mature trees with a trunk diameter of less than 200mm.



Figure 1. Looking east along Minmi Road.

7 impacts of development

It is anticipated that the majority of the subject trees will require removal due to proposed service locations, 2.5m wide shared path, parking lane, entry road and driveway locations servicing narrow frontages.

Due to the topography of the site, the proposed lots require benching and retaining. This will require the removal of trees located within lots.

Trees located along Minmi Road within the proposed open space can be retained. These include: Trees 40, 41, 42, 43, 44, 45 46, 47, 48 and 49.



Figure 2. There are many immature trees some of which could be retained.



Figure 3. There a number of dead and over mature trees located along Minmi Road.

8 recommendations

- Carry out supplementary street tree planting.
- Carry out supplementary planting to the front of lots with small to medium sized native trees to soften any visual impacts from tree removal.
- Protect trees that that are potentially retainable to AS 4970 Protection of Trees on Development Sites.
- Trees that require removal to be dismantled and mulched. Mulch can be utilised for future landscape works. If not practical mulch to be disposed of in a legal manner offsite.
- Ensure all tree removal work is carried out by or supervised by a qualified tree worker (AQF Level 3 or equivalent) in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry, 1998.



9 references

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Matheck, C. Breloer, H. *The Body Language of Trees: A Handbook for Failure Analysis*. TSO, London, England.
- Matheny, N. Clark, J.R. *Trees and Development (A Technical Guide to Preservation of Trees During Land Development)* ISA, Illinois, 1998
- Newcastle City Council *Newcastle Urban Forest Technical Manual*, (December 2010)
- Smiley,
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Matheny, M. ISA, Champaign, Illinois. (2011)
Lilly, Sharon.
- Standards Australia *Australian Standard AS 4970 Protection of Trees on Development Sites*. (September 2009)



10 appendix 1 retention values drawing –site plan

site details:
MINMKI ROAD, FLETCHER
client:
NORTHWEST RESIDENTIAL
date:
MAY 2016
job number:
9496.5
scale:
1-800 @ A3
drawn:
SGK
rev. number:
A

site plan





stage 10 outlook

01

may 2016



RETENTION VALUES CALCULATED
FROM CITY OF NEWCASTLES
URBAN FOREST TECHNICAL MANUAL.
TREES SHOWN AS INDICATIVE TREE
PROTECTION ZONE AS CALCULATED FROM
AS4970 PROTECTION OF TREES ON
DEVELOPMENT SITES.

-  HIGH RETENTION VALUE
-  MODERATE RETENTION VALUE
-  LOW RETENTION VALUE
-  VERY LOW RETENTION VALUE



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stage 10 outlook

02

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RETENTION VALUES CALCULATED
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TREES SHOWN AS INDICATIVE TREE
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DEVELOPMENT SITES.

-  HIGH RETENTION VALUE
-  MODERATE RETENTION VALUE
-  LOW RETENTION VALUE
-  VERY LOW RETENTION VALUE





11 appendix 2 tree assessment schedule

FIELD ASSESSMENT SHEET

PROJECT: Stage 10 Outlook

May 2016

No	BOTANICAL NAME	COMMON NAME	AGE CLASS	HEIGHT [M]	DBH [MM]	SPREAD [M]				ULE	TREE AZ	STRUCT URE	HEALTH	COMMENTS
						NORTH	EAST	SOUTH	WEST					
1	<i>Eucalyptus crebra</i>	Ironbark	SM	5	150	1	1	1	1	1A		F	F	
2	<i>Eucalyptus crebra</i>	Ironbark	M	19	900	7	6	8	9	2D		F	F	LARGE SIZED DEAD WOOD
3	<i>Corymbia maculata</i>	Spotted Gum	M	20	700	8	3	7	6	2D		F	AV	LARGE SIZED DEAD WOOD
4	<i>Corymbia maculata</i>	Spotted Gum	M	15	450	7	5	0	4	3D		P	AV	SUPPRESSED ASYMMETRIC TREE
5	<i>Corymbia maculata</i>	Spotted Gum	M	20	750	8	5	6	8	2D		F	AV	DEAD WOOD AND FAILED BRANCH STUBS
6	<i>Corymbia maculata</i>	Spotted Gum	M	15	360	7	6	5	0	2D		F	AV	ASYMMETRIC TREE
7	<i>Eucalyptus crebra</i>	Ironbark	M	15	430	7	3	2	4	2D		F	F	ASYMMETRIC TREE
8	<i>Eucalyptus crebra</i>	Ironbark	OM	18	520	5	5	3	4	4D		P	P	LARGE LATERAL WOUND APPROX 10M LONG FROM BASE. DEAD WOOD, TERMITE ACTIVITY AND DECAY PRESENT.
9	<i>Eucalyptus crebra</i>	Ironbark	M	20	810	8	7	4	3	4D		P	F	LARGE WOUND AT APPROX 8M WITHIN TRI-DOMINANT BRANCH JUNCTION.
10	<i>Dead tree</i>									4A				
11	<i>Corymbia maculata</i>	Spotted Gum	SM	7	290	3	3	3	3	1A		AV	AV	
12	<i>Corymbia maculata</i>	Spotted Gum	M	20	800	9	8	8	4	1A		AV	AV	MINOR DEAD WOOD
13	<i>Dead tree</i>									4A				
14	<i>Corymbia maculata</i>	Spotted Gum	M	20	300 720	8	4	6	4	2D		F	F	MODERATELY SIZED DEAD WOOD
15	<i>Eucalyptus species</i>	Stringy Bark	SM	4	100	1	1	1	1	4B		P	P	SMALL SUPPRESSED TREE WITH A LARGE WOUND ON THE LOWER TRUNK.
16	<i>Eucalyptus species</i>	Stringy Bark	M	17	310	2	2	2	2	3D		P	F	SUPPRESSED TREE WITH A LARGE AMOUNT OF DEAD WOOD.
17	<i>Corymbia maculata</i>	Spotted Gum	SM	7	120	1	1	1	1	1A		AV	AV	
18	<i>Corymbia maculata</i>	Spotted Gum	M	20	720	9	6	5	6	1A		AV	AV	MINOR DEAD WOOD
19	<i>Eucalyptus species</i>	Stringy Bark	M	17	700	7	3	5	3	3D		F	F	LARGE AMOUNT OF DEAD WOOD
20	<i>Corymbia maculata</i>	Spotted Gum	M	18	700 480	9	6	6	9	2D		F	AV	MODERATE AMOUNT OF DEAD WOOD
21	<i>Corymbia maculata</i>	Spotted Gum	M	18	510	7	6	5	4	1A		AV	AV	MINOR DEAD WOOD
22	<i>Eucalyptus crebra</i>	Ironbark	M	15	530	6	6	3	3	3D		P	F	POOR BRANCH UNION AT FIRST SCAFFOLD BRANCH JUNCTION
23	<i>Eucalyptus species</i>	Stringy Bark	OM	13	460	6	4	0	0	4B		P	P	ALMOST DEAD

* MULTI TRUNKED. BASAL DIAMETER MEASURED IMMEDIATELY ABOVE ROOT FLARE

LEGEND																	
AGE CLASS		Y	YOUNG			SM	SEMI-MATURE			M	MATURE			OM	OVER-MATURE/SENESCENT		
			SAPLING/HAS NOT REACHED 1 st ADULT FORM				DBH < 300mm/APPROACHING FULL HEIGHT				DBH BET. 300 -700/APPROACH. MAX HT & SPREAD				LGE DBH, LGE BRANCH FAILURES/STRUCT FAULTS		
STRUCTURE		P	POOR			F	FAIR			Av	AVERAGE			Ex	EXCELLENT		
			NUMEROUS STRUCTURAL FAULTS/HIGH RISK OF SEVERE FAILURE				STRUCTURAL FAULTS PRESENT /MODERATE RISK OF SEVERE FAILURE				SOME MINOR FAULTS /MODERATE RISK FOR MAJOR FAILURE				SOME MINOR FAULTS/LOW-MOD RISK OF MINOR FAILURES		
HEALTH		P	POOR			F	FAIR			Av	AVERAGE			Ex	EXCELLENT		
			SIG. SIGNS OF LOST VIGOUR EG DIEBACK, REDUCED CANOPY				SIGNS OF REDUCED VIGOUR EG LEAF UNDER STRESS, STUNTING				LOCALISED PATCHES OF LOST VIGOUR/NOT WIDESPREAD				NO EVIDENCE OF STRESS/SIGNS OF NEW GROWTH/WIDESPREAD		
TERRAS LANDSCAPE ARCHITECTS, 412 KING STREET, NEWCASTLE														1 Page			

FIELD ASSESSMENT SHEET

PROJECT: Stage 10 Outlook

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No	BOTANICAL NAME	COMMON NAME	AGE CLASS	HEIGHT [M]	DBH [MM]	SPREAD [M]				ULE	TREE AZ	STRUCT URE	HEALTH	COMMENTS
						NORTH	EAST	SOUTH	WEST					
24	<i>Corymbia maculata</i>	Spotted Gum	M	19	590	8	8	8	7	1A		AV	AV	MINOR DEAD WOOD
25	<i>Eucalyptus propinqua</i>	Grey Gum	M	17	600	9	7	3	5	4B		P	P	LARGE AMOUNT OF DIE-BACK AND DEAD WOOD THROUGHOUT CANOPY
26	<i>Corymbia maculata</i>	Spotted Gum	SM	10	200	0	2	4	4	1A		F	AV	
27	<i>Dead Tree</i>									4A				
28	<i>Corymbia maculata</i>	Spotted Gum	M	17	460	8	6	10	4	2D		F	F	MODERATE AMOUNT OF DEAD WOOD
29	<i>Corymbia maculata</i>	Spotted Gum												
30	<i>Corymbia maculata</i>	Spotted Gum	SM	8	120	2	2	2	2	1A		AV	AV	
31	<i>Corymbia maculata</i>	Spotted Gum	SM	12	150	2	2	2	2	1A		AV	AV	
32	<i>Corymbia maculata</i>	Spotted Gum	M	20	910	9	8	6	7	4D		P	F	HOLLOWS AND LARGE AREA OF DECAY. LARGE DEAD LIMB AND A LARGE AMOUNT OF DEAD WOOD.
33	<i>Corymbia maculata</i>	Spotted Gum	M	17	300	4	6	3	2	1A		AV	AV	
34	<i>Eucalyptus species</i>	Stringy Bark	M	18	720	10	8	6	5	3D		F	F	TERMITE ACTIVITY AND A LARGE AMOUNT OF DEAD WOOD.
35	<i>Eucalyptus species</i>	Stringy Bark	M	16	480	5	5	5	5	2D		F	F	MODERATE AMOUNT OF DEAD WOOD
36	<i>Eucalyptus crebra</i>	Ironbark	M	16	590	9	7	7	8	4B		P	F	TERMITE ACTIVITY AND LARGE DEAD LEADERS. BRANCH TEAR OUTS FROM STORM DAMAGE.
37	<i>Eucalyptus crebra</i>	Ironbark	OM	18	580	3	0	0	0	4B		P	P	ALMOST DEAD
38	<i>Corymbia maculata</i>	Spotted Gum	SM	10	200	1	1	1	1	1A		AV	AV	
39	<i>Corymbia maculata</i>	Spotted Gum	M	16	670	8	8	7	5	2D		F	F	LEAN TOWARDS ROAD AND A RELATIVELY SPARSE CANOPY
40	<i>Corymbia maculata</i>	Spotted Gum	M	15	320	4	4	3	3	1A		AV	AV	
41	<i>Corymbia maculata</i>	Spotted Gum	M	16	330	5	5	5	3	1A		AV	AV	
42	<i>Corymbia maculata</i>	Spotted Gum	M	17	350	7	7	6	7	1A		AV	AV	
43	<i>Corymbia maculata</i>	Spotted Gum	M	18	310	5	5	3	3	1A		AV	AV	
44	<i>Corymbia maculata</i>	Spotted Gum	M	17	280	3	3	3	3	1A		AV	AV	
45	<i>Corymbia maculata</i>	Spotted Gum	M	18	420	5	5	5	5	1A		AV	AV	
46	<i>Eucalyptus crebra</i>	Ironbark	M	16	320	3	5	5	4	1A		AV	AV	
47	<i>Corymbia maculata</i>	Spotted Gum	M	19	460	2	4	3	2	3D		F	F	SMALL CANOPY AND MODERATE SIZED DEAD WOOD

* MULTI TRUNKED. BASAL DIAMETER MEASURED IMMEDIATELY ABOVE ROOT FLARE

LEGEND																	
AGE CLASS		Y	YOUNG			SM	SEMI-MATURE			M	MATURE			OM	OVER-MATURE/SENESCENT		
			SAPLING/HAS NOT REACHED 1 st ADULT FORM				DBH < 300mm/APPROACHING FULL HEIGHT				DBH BET. 300 -700/APPROACH. MAX HT & SPREAD				LGE DBH, LGE BRANCH FAILURES/STRUCT FAULTS		
STRUCTURE		P	POOR			F	FAIR			Av	AVERAGE			Ex	EXCELLENT		
			NUMEROUS STRUCTURAL FAULTS/HIGH RISK OF SEVERE FAILURE				STRUCTURAL FAULTS PRESENT /MODERATE RISK OF SEVERE FAILURE				SOME MINOR FAULTS /MODERATE RISK FOR MAJOR FAILURE				SOME MINOR FAULTS/LOW-MOD RISK OF MINOR FAILURES		
HEALTH		P	POOR			F	FAIR			Av	AVERAGE			Ex	EXCELLENT		
			SIG. SIGNS OF LOST VIGOUR EG DIEBACK, REDUCED CANOPY				SIGNS OF REDUCED VIGOUR EG LEAF UNDER STRESS, STUNTING				LOCALISED PATCHES OF LOST VIGOUR/NOT WIDESPREAD				NO EVIDENCE OF STRESS/SIGNS OF NEW GROWTH/WIDESPREAD		
TERRAS LANDSCAPE ARCHITECTS, 412 KING STREET, NEWCASTLE																	

FIELD ASSESSMENT SHEET

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No	BOTANICAL NAME	COMMON NAME	AGE CLASS	HEIGHT [M]	DBH [MM]	SPREAD [M]				ULE	TREE AZ	STRUCT URE	HEALTH	COMMENTS
						NORTH	EAST	SOUTH	WEST					
48	Corymbia maculata	Spotted Gum	M	19	400	5	3	5	5	1A		AV	AV	
49	Corymbia maculata	Spotted Gum	M	19	430	3	5	3	2	2D		AV	AV	SOME STORM DAMAGE
50	Corymbia maculata	Spotted Gum	M	17	250 330	4	3	6	3	1A		AV	AV	
51	Corymbia maculata	Spotted Gum	M	17	290	4	4	4	3	1A		AV	AV	
52	Corymbia maculata	Spotted Gum	SM	12	180	4	1	4	3	1A		AV	AV	
53	Corymbia maculata	Spotted Gum	M	17	370	4	4	4	3	1A		AV	AV	
54	Corymbia maculata	Spotted Gum	M	14	280	3	4	5	5	1A		AV	AV	
55	Eucalyptus species	Stringy Bark	M	13	420	3	5	5	2	4B		P	P	LARGE AMOUNT OF DEAD WOOD. LARGE WOUND AND DECAY IN BASE OF TRUNK.
56	Corymbia maculata	Spotted Gum	SM	200 250	12	3	3	3	3	1A		AV	AV	
57	Corymbia maculata	Spotted Gum	SM	14	280	3	2	2	2	1A		AV	AV	
58	Eucalyptus crebra	Ironbark	M	15	410	8	7	7	6	2D		F	AV	BARK INCLUSION AT THE FIRST SCAFFOLD BRANCH UNION.
59	Corymbia maculata	Spotted Gum	M	15	310	4	4	4	4	1A		AV	AV	
60	Corymbia maculata	Spotted Gum	SM	12	190	1	1	1	1	1A		AV	AV	
61	Corymbia maculata	Spotted Gum	M	17	780	7	5	4	6	2D		AV	AV	MINOR DEAD WOOD
62	Corymbia maculata	Spotted Gum	M	15	280	4	4	4	4	1A		AV	AV	
63	Corymbia maculata	Spotted Gum	M	17	360	5	6	4	5	1A		AV	AV	
64	Corymbia maculata	Spotted Gum	M	17	700	6	8	7	6	2D		F	AV	MODERATE AMOUNT OF DEAD WOOD
65	Corymbia maculata	Spotted Gum	M	16	290	4	4	5	5	1A		AV	AV	
66	Corymbia maculata	Spotted Gum	M	20	650	7	7	6	8	2D		AV	AV	MODERATE AMOUNT OF DEAD WOOD
67	Corymbia maculata	Spotted Gum	M	18	380	4	4	5	5	1A		AV	AV	
68	Corymbia maculata	Spotted Gum	SM	12	140	1	1	1	1	1A		AV	AV	
69	Corymbia maculata	Spotted Gum	SM	13	140	1	1	2	1	3D		P	AV	LEAN TO THE NORTH AND MAY HAVE PARTIALLY FAILED DURING A STORM
70	Corymbia maculata	Spotted Gum	M	17	280	3	3	3	3	1A		AV	AV	
71	Eucalyptus propinqua	Grey Gum	M	16	360	0	0	5	5	4D		P	P	ASYMMETRIC TREE LARGE SIZED DEAD WOOD. LARGE WOUND AND DECAY IN BASE OF TRUNK.

* MULTI TRUNKED. BASAL DIAMETER MEASURED IMMEDIATELY ABOVE ROOT FLARE

LEGEND													
AGE CLASS		YOUNG			SEMI-MATURE			MATURE			OVER-MATURE/SENESCENT		
		Y	SAPLING/HAS NOT REACHED 1 st ADULT FORM			SM	DBH < 300mm/APPROACHING FULL HEIGHT			M	DBH BET. 300 -700/APPROACH. MAX HT & SPREAD		
STRUCTURE		P	POOR			F	FAIR			Av	AVERAGE		
			NUMEROUS STRUCTURAL FAULTS/HIGH RISK OF SEVERE FAILURE				STRUCTURAL FAULTS PRESENT /MODERATE RISK OF SEVERE FAILURE				SOME MINOR FAULTS /MODERATE RISK FOR MAJOR FAILURE		
HEALTH		P	POOR			F	FAIR			Av	AVERAGE		
			SIG. SIGNS OF LOST VIGOUR EG DIEBACK, REDUCED CANOPY				SIGNS OF REDUCED VIGOUR EG LEAF UNDER STRESS, STUNTING				LOCALISED PATCHES OF LOST VIGOUR/NOT WIDESPREAD		
											NO EVIDENCE OF STRESS/SIGNS OF NEW GROWTH/WIDESPREAD		

FIELD ASSESSMENT SHEET

PROJECT: Stage 10 Outlook

May 2016

No	BOTANICAL NAME	COMMON NAME	AGE CLASS	HEIGHT [M]	DBH [MM]	SPREAD [M]				ULE	TREE AZ	STRUCT URE	HEALTH	COMMENTS
						NORTH	EAST	SOUTH	WEST					
72	Corymbia maculata	Spotted Gum	SM	13	150	1	2	2	1	1A		AV	AV	
73	Corymbia maculata	Spotted Gum	SM	13	150	2	0	0	0	4B		P	P	MAIN TRUNK FAILURE
74	Corymbia maculata	Spotted Gum	M	20	720 380 400	9	8	8	5	3D		F	F	LARGE AMOUNT OF LARGE SIZED DEAD WOOD.
75	Eucalyptus propinqua	Grey Gum	OM	19	520	6	6	6	5	4D		P	P	LARGE DEAD LIMBS OVERHANG ROAD. LARGE WOUND TO THE BASE OF THE TRUNK AND POSSIBLE DECAY AT 8M.
76	Corymbia maculata	Spotted Gum	M	17	340	4	3	3	5	3D		F	F	DEAD WOOD AND STORM DAMAGED.

* MULTI TRUNKED. BASAL DIAMETER MEASURED IMMEDIATELY ABOVE ROOT FLARE

LEGEND														
AGE CLASS	Y	YOUNG SAPLING/HAS NOT REACHED 1 st ADULT FORM	SM	SEMI-MATURE DBH < 300mm/APPROACHING FULL HEIGHT	M	MATURE DBH BET. 300 -700/APPROACH. MAX HT & SPREAD	OM	OVER-MATURE/SENESCENT LGE DBH, LGE BRANCH FAILURES/STRUCT FAILTS						
STRUCTURE	P	POOR NUMEROUS STRUCTURAL FAULTS/HIGH RISK OF SEVERE FAILURE	F	FAIR STRUCTURAL FAULTS PRESENT /MODERATE RISK OF SEVERE FAILURE	Av	AVERAGE SOME MINOR FAULTS /MODERATE RISK FOR MAJOR FAILURE	Ex	EXCELLENT SOME MINOR FAULTS/LOW-MOD RISK OF MINOR FAILURES						
HEALTH	P	POOR SIG. SIGNS OF LOST VIGOUR EG DIEBACK, REDUCED CANOPY	F	FAIR SIGNS OF REDUCED VIGOUR EG LEAF UNDER STRESS, STUNTING	Av	AVERAGE LOCALISED PATCHES OF LOST VIGOUR/NOT WIDESPREAD	Ex	EXCELLENT NO EVIDENCE OF STRESS/SIGNS OF NEW GROWTH/WIDESPREAD						

TERRAS LANDSCAPE ARCHITECTS, 412 KING STREET, NEWCASTLE

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12 appendix 3 useful life expectancy (ule) categories

ULE CLASSIFICATIONS

1	LONG ULE : GREATER THAN 40 YEARS [>40] TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR MORE THAN 40 YEARS
A	Structurally sound trees located in positions that can accommodate future growth.
B	Storm damaged or defective trees that could be made suitable for retention by remedial tree surgery.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.
2	MEDIUM ULE : MORE THAN 15 YEARS, LESS THAN 40 YEARS [15 - 40] TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR 15 TO 40 YEARS
A	Trees that may only live between 15 and 40 more years
B	Trees that may live for more than 40 years but would be removed to allow the safe development of more suitable individuals
C	Trees that may live for more than 40 years but would be removed during the course of normal management for safety or nuisance reasons
D	Storm damaged or defective trees that can be made suitable for retention by remedial work
3	SHORT ULE : MORE THAN 5 YEARS, LESS THAN 15 YEARS [5 -15] TREES THAT APPEAR TO BE RETAINABLE WITH AN ACCEPTABLE LEVEL OF RISK FOR 5 TO 15 YEARS
A	Trees that may only live between 5 and 15 more years
B	Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals
C	Trees that may live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons
D	Storm damaged or defective trees that require substantial remedial work to make safe, and are only suitable for retention in the short term
4	REMOVE : LESS THAN 5 YEARS [<5] TREES WITH A HIGH LEVEL OF RISK THAT WOULD NEED REMOVING WITHIN THE NEXT 5 YEARS
A	Dead trees
B	Dying or suppressed and declining trees through disease or inhospitable conditions
C	Dangerous trees through instability or recent loss of adjacent trees
D	Dangerous trees through structural defects, including cavities, decay, included bark, wounds or poor form
E	Damaged trees that are considered unsafe to retain
F	Trees that will become dangerous after removal of others for the reasons given in A to E

REFERENCE: LINK TREE SYSTEM LTD. JEREMY BARRELL, ARBORICULTURAL JOURNAL 1993, VOL. 17PP. 33-46, 01/03/98



13 appendix 4 extract from AS 4970-2009

Extract from AS 4970:2009

3.1 Tree Protection Zone (TPZ)

The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

3.2 Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH x 12.

$TPZ = DBH \times 12$

DBH = trunk diameter measured at 1.4 metres above ground.

Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2m nor greater than 15m (except where crown protection is required).

The TPZ of palms and other monocots, cycads and tree ferns should not be less than 1 metre outside of the crown projection.

3.3 Variations to the TPZ

3.3.1 General

It may be possible to encroach into or make variations to the standard TPZ. Encroachment includes excavation, compacted fill and machine trenching.

3.3.2 Minor Encroachment

If the proposed encroachment is less than 10% of the area of the TPZ and is outside the SRZ, detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. Variations must be made by the project arborist considering relevant factors listed in clause 3.3.4.

3.3.2 Major Encroachment

If the proposed encroachment is greater than 10% of the TPZ or inside the SRZ, the project arborist must demonstrate that the tree would remain viable. The area lost to the encroachment should be compensated for elsewhere and contiguous with the TPZ. This may require root investigation by non destructive methods and consider relevant factors listed in clause 3.3.4.

3.3.5 Structural Root Zone

The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ only needs to be calculated when major encroachment into the TPZ is proposed.

There are many factors that affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks or footings. An indicative SRZ radius can be determined from the trunk



diameter measured immediately above the root buttress using the following formula.
Root investigation may provide more information on the extent of these roots

$$\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$$

where

D = trunk diameter, in metres, measured above the root buttress

The SRZ for trees with trunk diameters less than 0.15 will be 1.5 metres.