Arborist Assessment Report

Prepared for

Department of Education NSW

PROJECT: SSD-21854025 Wee Waa High School

Site Address: 105-107 Mitchel Wee Waa NSW

Date of Inspection: 27th August 2021

Report Date: 11th September 2021

Version 0.2 DRAFT

PREPARED BY

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Tree Contractors Association Australia Inc
A National Tree Amenity Industry Body

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SUMMARY

Application Number: SSD-21854025 Wee Waa High School Development.

Department of Education's Infrastructure Planning Project Officer Ms Alana Hemens Alford has commissioned McArdle and Sons Arboricultural Services Pty Ltd to undertake a Tree Assessment of the following sites; LOT 1 in DP 577294; LOT 2 in DP 550633 and LOTS 124 & 125 in 757125 105-107 Mitchell St Wee Waa NSW.

Mr Dan McArdle holds the qualification of AQF level 5 Consulting Arborist, and on the 27th August 2021 attended the site to conduct this assessment.

All trees have been tagged and assigned a number and referenced on the Tree Location Map (Fig2) of its approximate location on the site and again referenced in the Tree Survey Table.

AIMS

The aim of this report is to:

- To undertake an Arboricultural Impact Assessment of the existing vegetation at 105-107 Mitchell St Wee Waa, specifically identification of the tree species, maturity, health vigour structural condition, and including tree protection zones measurements for the development site.
- Identify trees to be removed or retained, includes detailed justification for each tree to be removed and details the existing canopy coverage on-site.

HERITAGE

Heritage/ Aboriginal: Electronic search of Narrabri Shire Council's LEP 2012 was undertaken to establish Heritage Conservation area and heritage items (Fig 5). Research was also undertaken of the Aboriginal Heritage Information Management System (AHIMS) relating to the site 105-107 Mitchell St Wee Waa St, both returned a negative result.

HABITAT

2 x Dead Trees have been identified with Hollows in the canopy layer, activity and species requires an ecologist to identify.

TREE REMOVALS

The following 19 x trees impacted by the proposed construction area are Tree tag numbered: 9B, 10, 13, 26, 27, 28, 30, 31, 34, 35, 37C, 38, 39, 39A, 39C, 41, 42, 54 and 56.

TREE PROTECTION

Tree protection fencing is required to be installed for the following 76 x trees retained this is including trees in the adjacent properties (Council land): 2, 2A, 3, 4, 5, 6, 6A, 6B, 6C, 6D, 6E, 7, 7A, 7B, 7C, 7D, 8, 9, 10A, 11, 12, 14, 14A,14B, 14C, 14D, 14E, 14F, 14G, 15, 15A, 16, 17, 18, 19, 20, 21, 22, 22A, 23, 24, 25, 25A, 29, 32 32A, 32B, 33, 35A,36, 37, 37B, 39B, 40, 43, 44, 45, 46, (47x4), 48, 49, 49A, 50, 51, 51A, 52, 52A, 53, 53A, 55, 58, 59 and 60.

SPECIAL NOTES:

Trees that have been identified with structural faults and I have made comment in the Tree survey Table. This report does not include a risk assessment.

Further information regarding this report please contact our office on 02 6769 0372

Dan McArdle *Dip Arb, Dip Ag*
McArdle and Sons

PROJECT DESCRIPTION

SSD-21854025 Wee Waa High School Development

Students and staff were evacuated from the current Wee Waa High School site due to ongoing health issues in late 2020. Students are currently collocated within the town's primary school in an overcrowded site. A Ministerial announcement made on 3 June 2021 committed to the construction of a new High School at Wee Waa on existing Department of Education owned land and adjacent Crown land as an urgent priority. The site is located on Mitchell Street/Kamilaroi Highway and is legally described as Lot 1 DP577294, Lot 2 DP550633 and Lots 124-125 DP757125.

This report accompanies a State Significant Development Application which seeks consent for the construction of a new high school with a capacity of up to approximately 300 students in a two-storey building, an Indigenous learning centre, sporting fields and associated civil and utilities works. For a detailed project description refer to the EIS prepared by Ethos Urban.

SEARS REQUIREMENT

The Secretary's Environmental Assessment Requirements (SEARs) issued 6th July 2021 for Application SSD-21854025 requires a Arboricultural Impact Assessment of the proposed development , extracted below:

3.0

- *Where relevant, an Arboricultural Impact Assessment prepared by a Level 5 (Australian Qualifications Framework) Arborist, which details the number, location and condition of trees to be removed and retained, includes detailed justification for each tree to be removed and details the existing canopy coverage on-site.*
- *Provides evident that opportunities to retain significant trees have been explored and/ or informs the plans.*
- *Australian Standards 4970 Protection of trees on development sites.*

TABLE 1

REQUIREMENTS	SECTION
AQF 5 Arborist assessment completed ,Tree survey table identify each numbered trees for ,species, size, Health and structure, Tree Useful Life Expectancy, Tree Retention Value. Tree Protection measures. Canopy coverage on site	Section 2 and 3 Section 5 Section 5
Relevant Australian Standards AS 4980-2009	Section 5

DOCUMENT HISTORY

DRAFT Version 0.1	13th September 2021	*Dan McArdle*
DRAFT Version 0.2	13th October 2021	*Dan McArdle*

SECTION 1.0

INTRODUCTION

1.1 Department of Education's Infrastructure Planning Project Officer Ms Alana Hemens Alford has commissioned McArdle and Sons Arboricultural Services Pty Ltd to undertake a Impact Assessment and Report of the following sites; LOT 1 in DP 577294; LOT 2 in DP 550633 and LOTS 124 & 125 in 757125 105-107 Mitchell St Wee Waa NSW for a proposed new school complex.

Mr Dan McArdle holds the qualification of AQF level 5 Consulting Arborist conducted the evaluation using Visual Tree Assessment (VTA) level 3 inspection method and best industry practices. The systems are in accordance with industry best practice and guidelines set down by TCAA of Australia and referenced to the Australian Standards 4970 -2009 Protection of trees on development sites.

. AIMS

The aim of this report is to:

- To undertake an Arboricultural Impact Assessment of the existing vegetation at 105-107 Mitchell St Wee Waa, specifically identification of the tree species, maturity, health vigour structural condition, and including tree protection zones measurements for the development site.
- Identify trees to be removed or retained, includes detailed justification for each tree to be removed and details the existing canopy coverage on-site.

METHODOLOGY

1.2 The Visual Tree Assessment (VTA)is performed in the field by an AQF Level 5 arborist. The assessment summaries the species, height and diameter, the trees health and structural condition for each trees, hazards, Tree useful life expectancy and retention categories were assigned to each tree. Determine tree protection zones and structural root zones (R*ef* AS 4970-2009 *Protection of trees on development sites*) of trees that can be affected by construction.

1.3 Level 3 Assessment testing on site may include the following: Mallet sounding, non-invasive testing for hollows or decay by probing of cavities, white ant infestation and or other. Invasive tests will determine depth of decay around cavities.

All inspections and testing is ground based. It should be noted that this Tree Assessment Report cannot be considered final until all aerial inspections if noted in the tree survey have been completed, as these may reveal further defects.

This data is recorded in a Tree Survey Table and various assessment methods were used including:

- Tree Useful Life Expectancy (TULE) (Burrell Approved TCAA use 2014). The rating is of the expected life span of the tree and takes into account age, life span of the species, local environmental conditions, location, and tree safety.
- HEALTH & STRUCTURAL CONDITION OF TREE ASSESSMENT. This describes the vigour and vitality of the tree**.**
- TREE HAZARD & SITE ASSESSMENT. This assessment identifies structural defects that predispose a tree to failure located near a target. It is a useful WH&S requirement. (Only comments have been included in this report) NO Risk assessment was undertaken.

- Some trees have special restrictions including cultural, historical or threatened category and may be reviewed as part of this report or further reporting.

LIMITATIONS

1.4 In preparing this report, the information supplied to McArdle and Sons Arboricultural Services Pty Ltd for the purpose of this Arboricultural Impact Assessment Report is understood true to be correct and from a reliable source.

- Plans and associated building layout design and Tree survey Map.
- Shade coverage is based on the canopy diameter only with no relation to shade density to species. Canopy measurement has been estimated.
- Saplings and shrubs less than 6m in height x 150mm DBH are not included in the tree survey.
- Proposed soil levels and information is not explored in this report.

THE SITE

1.5 The collection of data was comprehensive and inspections were conducted on 27th August 2021. This includes all trees with in the sites identified as LOT 1 in DP 577294; LOT 2 in DP 550633 and LOTS 124 & 125 in 757125 105-107 Mitchell St Wee Waa NSW. Several trees on council land have been included.

1.6 The development proposed for the site is for an entirely new school complex to be built this also includes sports ovals/ facilities.

The site is approximately 6.1ha, and is undeveloped grassland area (remnant woodlands) with a monoculture of indigenous trees endemic to the flood plain area, the species of trees typical for black soil flood lands.

Frontage to three (3) street, these being to Mitchell St frontage on the South side, Charles Street on the West side and George Street on the East side.

The site has southerly aspect, the trees are scattered across the site with heavier populations on the boundary of George St and Charles St.

Water drainage channels are through the centre of site and it appears that water drains away to the west side of the block towards Charles St, in the northwest corner of the site appears to get water logged, however this area was dry at the time of the inspection.

The proposed site is inside the town flood mitigation Levey.

1.7 All trees have been tagged and assigned a number and referenced on the Tree Location Map (Fig2) of its location on the site and corresponding number in the Tree Survey Table.
Where noted in the Tree Survey Table, several trees have significant faults and or require remediation of the canopy for retention or removal, this report is not including a risk assessment and only attention is noted where a fault or structural damage / dead wood is present.

HERITAGE

1.8 Electronic search was undertaken for heritage items and Heritage Conservation area of the site. *(Fig5) (Narrabri Shire Council's LEP 2012)*

ABORIGINAL HERITAGE

1.8.1 Electronic search was undertaken of the Aboriginal Heritage Information Management System (AHIMS) Web Service search for the following area at Lot : 1,2 and 3 DP:DP574945 with a Buffer of 0 meters, conducted by Dan Mcardle on 31st August 2021.(See Appendix D)

HABITAT

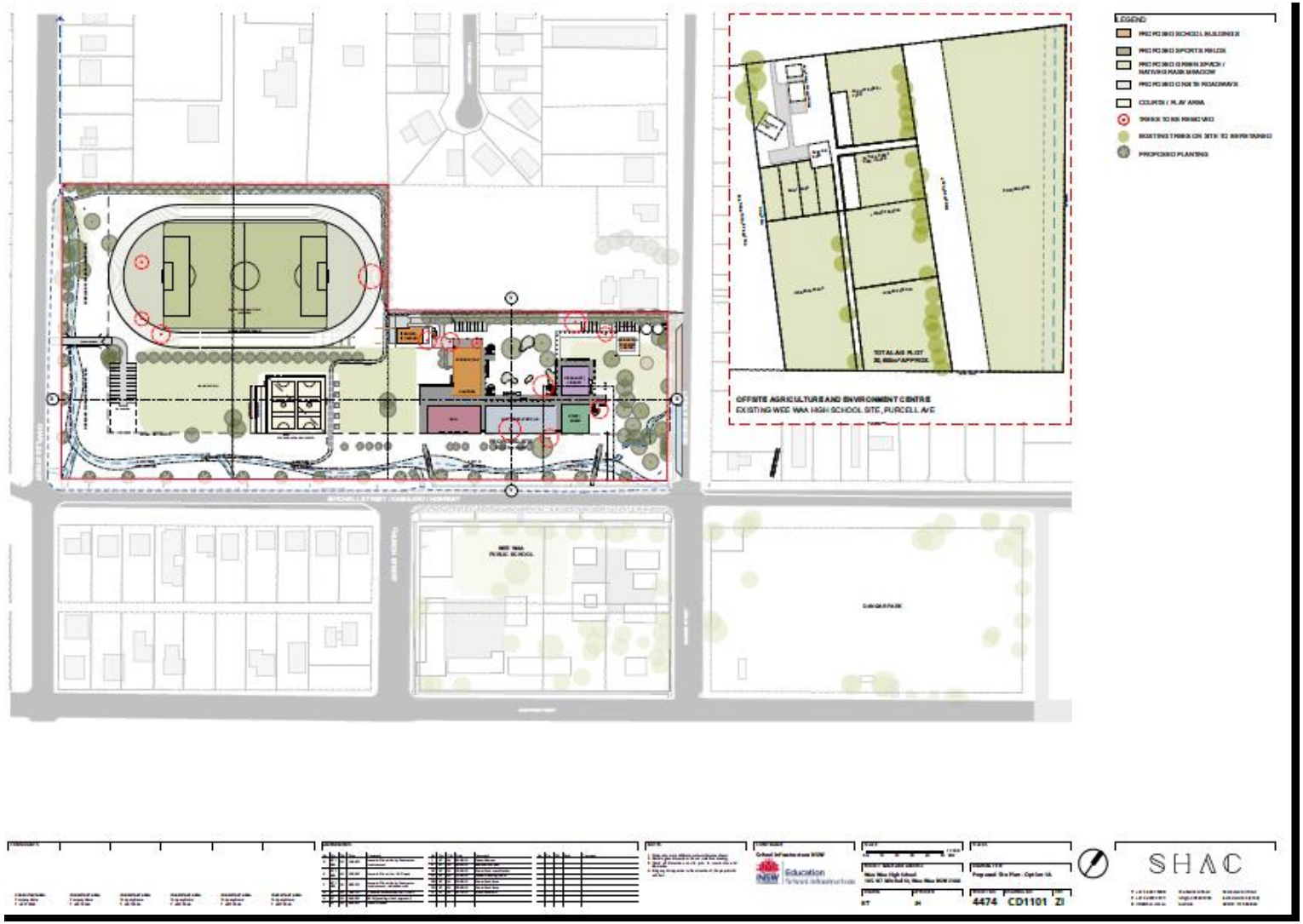
1.9 All trees referred in this report have been inspected for habitat hollows, specific tree's identification tag number has been listed in the tree survey with reference of habitat. Activity of the habitat would require an Ecologist to verify.

- Two (2) significant in sized dead trees (Tree 1 and 46) of indigenous species both contain hollows. *(Ecologist required for further information)*

(Fig 1) Site view from Eastern side

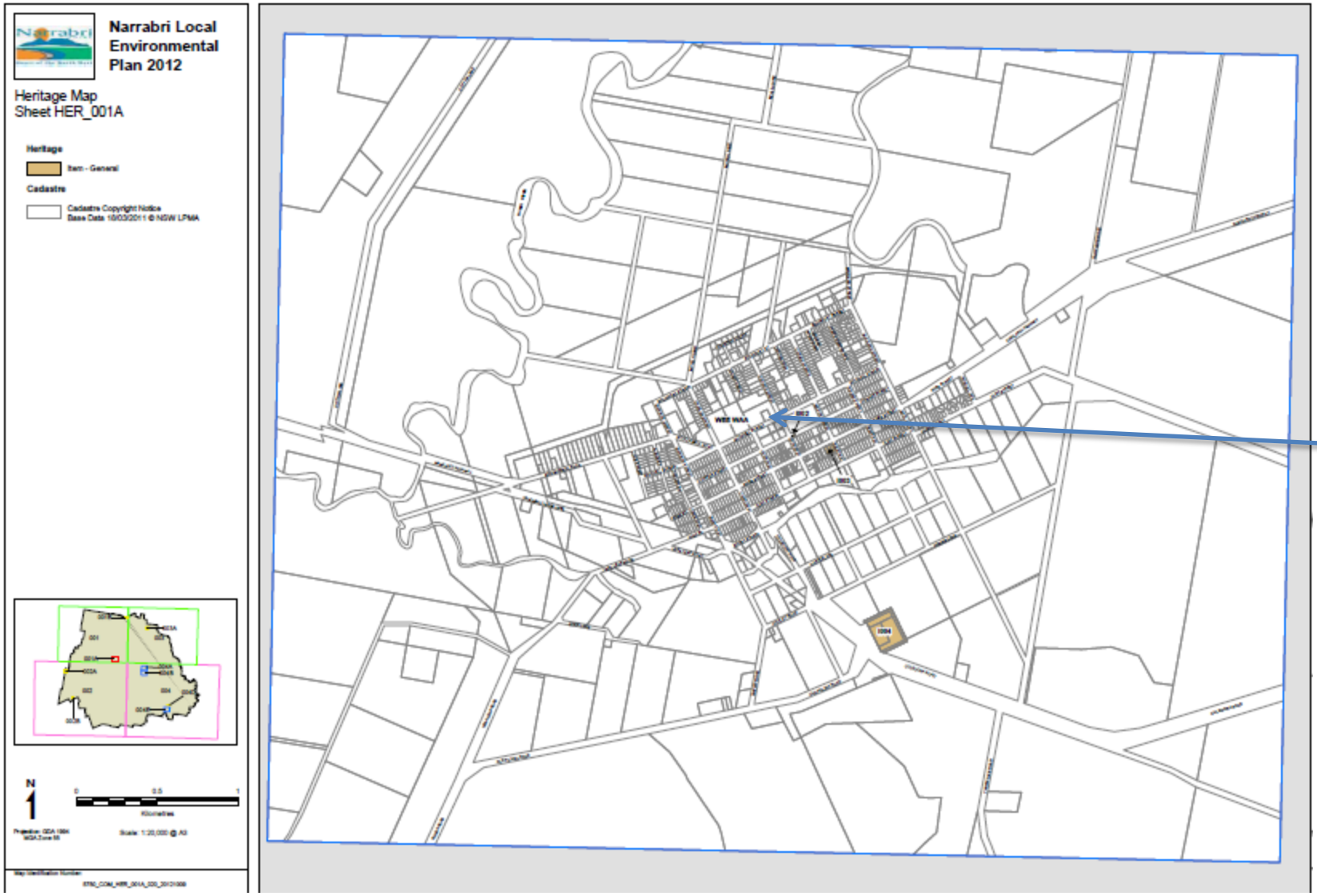
SECTION 2 SITE MAPS

Tree Location Map: Indicating tree numbers for removal in RED (Fig 2).



PLAN VIEW:

Proposed Project Plan view (Fig3) (4474 CD1101 ZI)



Heritage Map (Fig 4) : Narrabri Council (LEP 2012) Wee WAA Sheet HER_001A

SECTION 3 TREE SURVEY TABLE

Tree No.	Location	Scientific & Common Name	Height (m)	DBH (cm)	Crown spread (m)	Condition of Tree *(Health &Structure) (Defect & Measurements)*	Basal Flare (cm)	SRZ (m) Radius	TPZ (M) Radius	TULE& Retention Value	VTA OBSERVATIONS RECOMMENDATIONS
1	Not in Build Zone	Eucalyptus *microtheca* Coolibah	6	110	5	DEAD STAG active habitat tree active hollows	N/A	N/A	N/A	C4 HIGH	Retain if possible, if removed condition habitat boxes installed in adjacent trees
1A	Not in Build Zone	Geijera *parviflora* Wilga	10	30	6	Mature good condition, structure good , lean to south is natural no soil lifted.	40	2.2	3.6	A2 HIGH	RETAIN
2	On Council Lands	Eucalyptus *microtheca* Coolibah	12	40	6	Mature, good condition, structure good	55	2.5	4.8	A2 HIGH	RETAIN
2A	On Council Lands	Eucalyptus *microtheca* Coolibah	8	30	2	Mature good condition, structure good	35	2.1	3.6	A2 HIGH	RETAIN
3	On Council Lands	Eucalyptus *microtheca* Coolibah	8	20/25	5	Mature good condition, structure good	45	2.3	3.8	A2 HIGH	RETAIN
4	On Council Lands	Eucalyptus *microtheca* Coolibah	10	30/30	6	Mature good condition, structure good	60	2.6	5.0	A2 HIGH	RETAIN
5	On Council	Eucalyptus *microtheca*	7	15/15	4	Immature good condition, structure good	30	2.0	2.5	A2	RETAIN

	Lands	Coolibah								HIGH	
6	On Council Lands	Eucalyptus *microtheca* Coolibah	10	28	3	Semi mature good condition, structure good	40	2.2	3.2	A2 HIGH	RETAIN
6A	On Council Lands	Eucalyptus *microtheca* Coolibah	10	45	7	Mature good condition, unbalanced canopy fungi fruiting body at base, possible impacting root plate.	50	2.4	5.4	D3 Medium	RETAIN and review tree in 12 months for change in condition
6B	On Council Lands	Eucalyptus *microtheca* Coolibah	12	40	7	Mature good condition, structure good	55	2.5	4.2	A2 HIGH	RETAIN
6C	On Council Lands	Eucalyptus *microtheca* Coolibah	10	45/15	6	Immature good condition, structure good	55	2.5	5.6	A2 HIGH	RETAIN
6D	On Council Lands	Eucalyptus *microtheca* Coolibah	6	15	**3**	Mature good condition, structure good	**25**	**1.5**	**2.0**	A2 HIGH	RETAIN
6E	On Council Lands	Eucalyptus *microtheca* Coolibah	12	40	6	Mature moderate condition, structure good, damage at base, healthy tissue development at wound site	60	2.0	4.2	A2 HIGH	RETAIN
7	On Council Lands	Eucalyptus *microtheca* Coolibah	10	60/15	10	Mature good condition, structure good	70	2.8	7.4	A2 HIGH	RETAIN
7A	On Council Lands	Eucalyptus *microtheca* Coolibah	8	15	2	Immature good condition, structure good	25	1.8	2.0	A2 HIGH	RETAIN
7B	On Council Lands	Eucalyptus *microtheca* Coolibah	8	15	2	Immature good condition, structure good	25	1.8	2.0	A2 HIGH	RETAIN
7C	On Council	Eucalyptus *microtheca*	10	45	5	Mature moderate condition, Fungi fruiting body @ base East side	55	2.5	5.4	D3	RETAIN and review tree in 12 months for change in condition

	Lands	Coolibah				.Fruiting body small. Possible impact to root plate				Medium	
7D	On Council Lands	Eucalyptus *microtheca* Coolibah	10	35	5	Mature good condition, structure good	45	2.3	3.5	A2 HIGH	RETAIN
8	On Council Lands	Eucalyptus *microtheca* Coolibah	10	20x4	7	Mature good condition but poor form	70	2.8	4.8	A2 HIGH	RETAIN
9	On Council	Eucalyptus *microtheca* Coolibah	8	28	5	Semi mature good condition ,structure good	35	2.1	3.2	A2 HIGH	RETAIN
9B	On Council Lands In proposed Drive Access	Eucalyptus *microtheca* Coolibah	10	40/20	6	Mature good condition, structure good	60	N/A	N/A	A2 HIGH	IN build zone of access entrance REMOVE TREE
10	In proposed Drive Access	Eucalyptus *microtheca* Coolibah	12	30/30	6	Mature good condition, structure good	60	N/A	N/A	A2 HIGH	IN build zone of access entrance REMOVE TREE REPLANT
10A	Not affected	Eucalyptus *microtheca* Coolibah	7	20	3	Mature good condition but poor form	28	1.9	3.0	A2 HIGH	RETAIN
11	Not affected	Eucalyptus *microtheca* Coolibah	12	50/30	10	Mature good condition, structure good	80	3.0	6.9	A2 HIGH	RETAIN
12	Not affected	Eucalyptus *microtheca* Coolibah	10	30x3	7	Mature good condition but poor form inclusion @ base	80	3.0	6.2	A2 HIGH	RETAIN

13	Not affected	Eucalyptus *microtheca* Coolibah	10	40/30	7	Mature good condition but poor form Lowest branch section failed	70	2.8	6.0	D2 Medium	IN build zone REMOVE TREE
14	Not affected	Eucalyptus *microtheca* Coolibah	10	50/30/ 15	8	Mature good condition, structure good	80	3.0	7.0	A2 HIGH	RETAIN
14A-G	Not affected	Eucalyptus *microtheca* Coolibah	10	30	5	Mature good condition, structure good	45	2.3	3.6	A2 HIGH	RETAIN
15	Not affected	Eucalyptus *microtheca* Coolibah	12	35	5	Mature good condition, structure good	40	2.2	4.2	A2 HIGH	RETAIN
15A	Not affected	Eucalyptus *microtheca* Coolibah	10	40	6	Mature good condition, structure good	40	2.2	4.8	A2 HIGH	RETAIN
16	Not affected	Eucalyptus *microtheca* Coolibah	10	30/20	5	Mature good condition, structure good	45	2.3	3.6	A2 HIGH	RETAIN
17	Not affected	Eucalyptus *microtheca* Coolibah	14	70	8	Mature good condition, structure good	85	3.1	8.4	A2 HIGH	RETAIN
18	Not affected	Eucalyptus *microtheca* Coolibah	7	20x3	5	Mature good condition, structure good	40	2.2	4.2	A2 HIGH	RETAIN
19	Not affected	Eucalyptus *microtheca* Coolibah	10	40/15	5	Mature good condition damage @ base good tissue response	55	2.5	5.1	A2 HIGH	RETAIN
20	Not affected	Eucalyptus *microtheca* Coolibah	11	40/15	6	Mature moderate condition, inclusion @ base	50	2.4	5.1	A2 HIGH	RETAIN

21	Not affected	Eucalyptus *microtheca* Coolibah	9	15x4	4	Mature moderate condition, possible white ant nest @ base	50	2.4	3.6	D2 HIGH	RETAIN
22	Not affected	Eucalyptus *microtheca* Coolibah	9	30/30/ 20	6	Mature moderate condition poor form, decay in union @ base.	60	2.6	5.6	D2	RETAIN
22A	Not affected	Eucalyptus *microtheca* Coolibah	11	28	3	Semi mature good condition structure good	35	2.1	5.0	A2 HIGH	RETAIN
23	Not affected	Eucalyptus *microtheca* Coolibah	10	30/30	7	Mature good condition, structure good	50	2.4	4.2	A2 HIGH	RETAIN
24	Not affected	Eucalyptus *microtheca* Coolibah	7	15x3	6	Semi mature good condition, poor form damage @ base good tissue response	45	2.3	3.1	D2 HIGH	RETAIN
25	Not affected	Eucalyptus *microtheca* Coolibah	12	30/30/ 15	6	Mature good condition, structure good	50	2.4	5.4	A2 HIGH	RETAIN
25A	Not affected	Eucalyptus *microtheca* Coolibah	10	20	3	Semi mature good condition, structure good	30	2.0	2.4	A2 HIGH	RETAIN
26	In proposed Drive Access	Eucalyptus *microtheca* Coolibah	15	60	7	Mature good condition, structure good	80	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
27	Not affected	Eucalyptus *microtheca* Coolibah	12	50/15	8	Mature good condition, structure good	60	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
28	In Build Zone	Eucalyptus *microtheca* Coolibah	14	40/30/ 15	8	Mature good condition, poor form structure good	80	N/A	N/A	A2 HIGH	IN build zone Building REMOVE TREE

29	In Build Zone	Eucalyptus *microtheca* Coolibah	14	40/20	6	Mature good condition, structure good	50	2.4	5.4	A2 HIGH	RETAIN
30	In Build Zone	Eucalyptus *microtheca* Coolibah	12	40/40	8	Mature, crown damage loss of section, wound @6m good tissue response at wound	80	N/A	N/A	A2 HIGH	IN build zone Building REMOVE TREE
31	In Build Zone	Eucalyptus *microtheca* Coolibah	10	30/30/ 15	6	Mature moderate condition damage @ 1m	60	N/A	N/A	A2 HIGH	IN build zone Building REMOVE TREE
32	In Build Zone	Eucalyptus *microtheca* Coolibah	14	60	7	Mature good condition, structure good, minor dead wood	80	3.0	7.2	A2 HIGH	RETAIN
32A	Not affected	Eucalyptus *microtheca* Coolibah	12	55	8	Mature good condition, inclusion @ 2 m , swelling at site of union	70	2.8	6.6	D3 HIGH	RETAIN
32B	Not affected	Eucalyptus *microtheca* Coolibah	12	45	6	Mature moderate condition, damage@ 3m	70	2.8	5.4	D3 HIGH	RETAIN
33	Not affected	Eucalyptus *microtheca* Coolibah	10	30/15/ 15	5	Semi mature good condition poor form	50	2.4	4.4	A2 HIGH	RETAIN
34	Not affected	Eucalyptus *microtheca* Coolibah	12	60	8	Mature good condition, structure good minor dead wood	75	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
35	Not affected	Eucalyptus *microtheca* Coolibah	12	60	9	Mature good condition, structure good minor dead wood	80	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
35A	Not affected	Eucalyptus *microtheca* Coolibah	10	50	8	Mature good condition, structure fair 3 x branch failures	65	2.7	6.0	D2 HIGH	RETAIN
36	In Build Zone	Eucalyptus *microtheca*	8	30/30	6	Mature good condition, structure good tree suppressed by adjacent	50	2.4	5.0	A2	RETAIN

		Coolibah				tree				HIGH	
37	In Build Zone	Eucalyptus *microtheca* Coolibah	12	60/30	10	Mature good condition, structure good	80	3.0	8.0	A2 HIGH	RETAIN
37A	In Build Zone	Eucalyptus *microtheca* Coolibah	10	30	5	Mature good condition, structure good	40	2.2	3.6	A2 HIGH	RETAIN
37B	In Build Zone	Eucalyptus *microtheca* Coolibah	12	60	8	Mature good condition, structure good	75	2.9	7.2	A2 HIGH	RETAIN
37C	In Build Zone	Eucalyptus *microtheca* Coolibah	10	40	6	Mature good condition, structure good	55	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
38	Not affected	Eucalyptus *microtheca* Coolibah	10	40/40/30	8	Mature good condition poor form, structure good	80	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
39	Not affected	Eucalyptus *microtheca* Coolibah	16	60	8	Mature good condition, structure good	80	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
39A	Not affected	Melia *azedarach* White Cedar	9	30	5	Mature Moderate condition structural fair lower broken branch	40	N/A	N/A	D2 MEDIUM	IN build zone REMOVE TREE
39B	Not affected	Eucalyptus *microtheca* Coolibah	12	40	5	Mature moderate , structure fair 30% dead leans to south east	50	2.4	4.8	A2 HIGH	RETAIN
39C	Not affected	Tamarix *aphylla* Athel Pine	8	multi	10	Mature moderate , structure fair identified as an Invasive weed species	70	N/A	N/A	D3 LOW	Identified invasive weed species REMOVE TREE
40	Not affected	Eucalyptus *microtheca* Coolibah	12	60	8	Mature good condition, structure good leans to south east	80	3.0	7.2	D3 HIGH	Prune dead section RETAIN

41	Not affected Wilga	Geijera *parviflora*	8	multi	8	Mature moderate condition poor form borer attack	70	N/A	N/A	D3 MEDIUM	IN build zone REMOVE TREE
42	Not affected In Ag plot	Eucalyptus *microtheca* Coolibah	10	30x3	8	Mature moderate condition poor form	80	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
43	In Build Zone	Eucalyptus *microtheca* Coolibah	10	20x3	5	Mature moderate condition poor form	50	2.4	4.2	A2 N/A	RETAIN
44	In Build Zone	Eucalyptus *microtheca* Coolibah	10	40	6	Mature good condition, structure good	50	2.4	4.8	A2 N/A	RETAIN
45	Not affected	Eucalyptus *microtheca* Coolibah	10	30/30	7	Mature moderate condition, inclusion @ base OK	60	2.7	4.2	D3 HIGH	RETAIN
46	Not affected	Eucalyptus *microtheca* Coolibah	10	70	8	DEAD several small hollows observed. HABITAT TREE	N/A	6.0	N/A	C4 HIGH	RETAIN IF POSSIBLE, if removed condition habitat boxes installed in adjacent trees
47x4	Not affected	Eucalyptus *microtheca* Coolibah	10	30	6	Semi mature good condition, some damage at base and union	40	2.2	3.6	D3 HIGH	RETAIN
48	Not affected	Geijera *parviflora* Wilga	12	40/40	8	Mature moderate condition borer attack decay in trunk . Leans to south tree appears to be declining in health & vigour review in 6 months	60	2.6	6.8	D3 Medium	RETAIN review tree status in 6 months' May have implications on construction of security fence panels .
49	Not affected	Eucalyptus *microtheca* Coolibah	12	40	5	Mature poor condition borer attack , failed section	50	2.4	4.8	D3 HIGH	RETAIN tree is in low usage area
49A	Not	Geijera *parviflora*	9	30	7	Mature good condition, structure	40	2.2	3.6	D3	RETAIN

	affected	Wilga				good				HIGH	
50	Not affected	Eucalyptus *microtheca* Coolibah	12	30	6	Mature good condition, structure good	50	2.4	3.6	A2 HIGH	RETAIN
51	Not affected	Eucalyptus *microtheca* Coolibah	12	30	6	Mature good condition, structure good	50	2.4	6.0	A2 HIGH	RETAIN
51A	Not affected	Eucalyptus *microtheca* Coolibah	12	30	6	Mature good condition, structure good	50	2.4	6.0	A2 HIGH	RETAIN
52	Not affected	Eucalyptus *microtheca* Coolibah	12	40/15	6	Mature good condition, structure good	50	2.4	6.0	A2 HIGH	RETAIN
52A	Not affected	Eucalyptus *microtheca* Coolibah	12	40	8	Mature moderate condition, poor form structure good	50	2.4	4.2	D3 HIGH	RETAIN
53	Not affected	Eucalyptus *microtheca* Coolibah	12	60	7	Mature poor condition, structure moderate developing epicormics, tree declining	60	2.7	7.2	D3 HIGH	RETAIN
53A Group x5	Not affected	Melia *azedarach* White Cedar	10	multi	6	Mature moderate condition structure OK seasonal leaf cover not present, review in 3 months for vigour	40	2.2	4.8	D2 MEDIUM	RETAIN
54	Not affected	Eucalyptus *microtheca* Coolibah	12	60	9	Mature good condition, structure good	85	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
55	In Build Zone	Eucalyptus *microtheca* Coolibah	10	60	8	Mature good condition, structure poor, fracture in union West side	80	3.0	7.2	D3 Medium	RETAIN

56	Not affected In AG plot	Eucalyptus *microtheca* Coolibah	10	35	7	Mature good condition, structure good	50	N/A	N/A	A2 HIGH	IN build zone REMOVE TREE
57	NA										
58	Not affected	Eucalyptus *microtheca* Coolibah	10	20x4	6	Mature good condition, poor form structure good.	80	3.0	4.8	A2 HIGH	RETAIN
59	Not affected	Eucalyptus *microtheca* Coolibah	10	40	6	Mature good condition, structure good	50	2.4	4.2	A2 HIGH	RETAIN
60	Not affected	Eucalyptus *microtheca* Coolibah	12	40	6	Mature moderate condition, structure ok	50	2.4	4.2	D3 HIGH	RETAIN

SECTION 4. TREE PHOTOS

TREE 1 & 1A

TREES 2-6B TREE 2

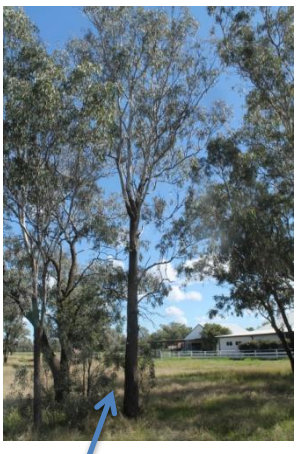
TREE 6C

TREE 6D

TREE 6E

TREE 7

TREES 7A-7B



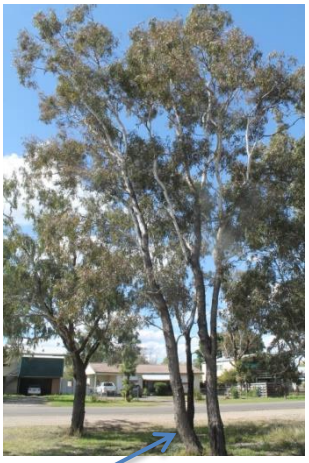
TREE 7C

TREE 7D

TREE 8

TREE 9

TREE 9B



TREE 10 & 10A small tree

TREE 11

TREE 12

TREE 13

TREE 14 and 14A-G

TREE 15

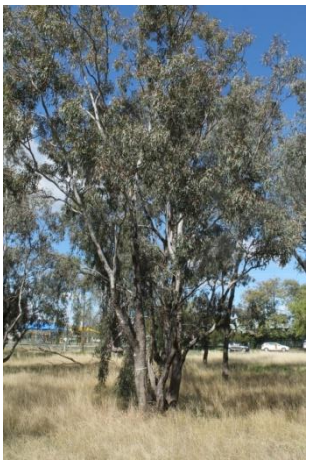
TREE 16

TREE 17

TREE 18

TREE 19

TREE 20



TREE 21

TREE 22

TREE 22A

TREE 23

TREE 24

TREE 25

TREE 26

TREE 27

TREE 28 and 29

TREE 30

TREE 31

TREE 32

TREE 32A swelling at union

TREE 32B

TREE 33

TREE 34

TREE 35

TREE 35A

TREES 36 and 37

TREES 37A and 37B

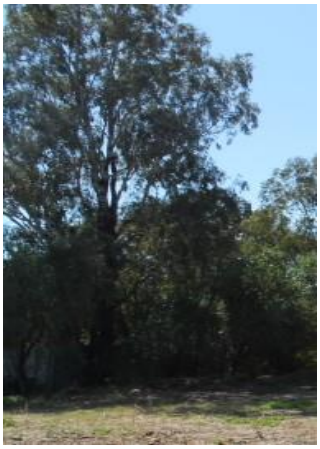
TREE 37C

TREE 38

TREES 39 and 39A

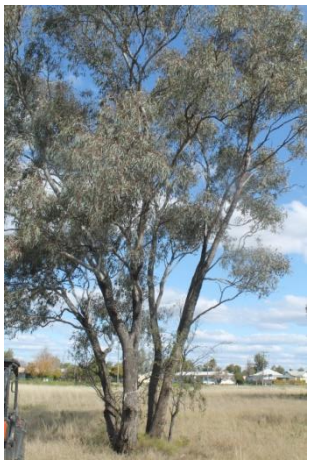
TREE 39B

TREE 30C



TREE 40

TREE 41



TREE 42

TREE 43

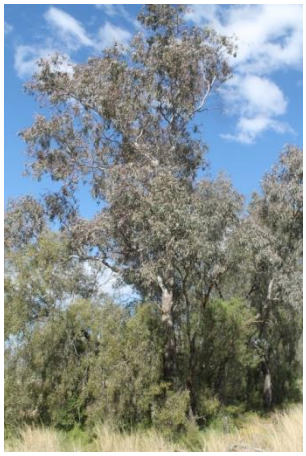
TREE 44

TREE 45

TREE 46

TREE 47 x 4

TREE 48



TREE 49

TREE 49A

TREE 50

TREES 51 and 51A

TREE 52

TREE 52A

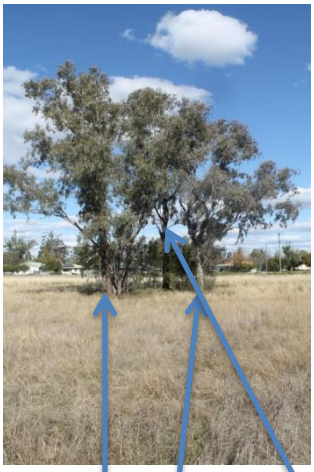
TREE 53

53A

TREE 54

TREE 55

TREE 56 Not Available



TREES 58 (T 59) and (T60)

SECTION 5 DISCUSSIONS

5.1 All trees on the site and adjoining fence lines including several trees on the Charles St footpath have been inspected and noted on the Tree map (Fig 2)

- Each tree has been documented in the Tree Survey Table for identification, health, vigour and structural condition.
- **Tree Retention Value** (also in the same column above) applied at High, Medium and Low excluding trees in the build zone indicated on the attached plans.
- **Tree protection zones (TPZ)/Structural root zones (SRZ)** are specified for trees that are being retained as they may be impacted by construction, all measurements are from the centre of the tree.(radius measure). *See Tree Survey Table.*

5.2 Several trees that have significant faults and or require remediation of the canopy or removal are noted in the Tree Survey Table, attention must be noted that this tree survey and assessment does not including a risk assessment and only attention is noted where a fault or structural damage / dead wood is present, general tree maintenance is not part of the aims of this report.

5.3 SITE: (Specific notes)

The Wee Waa district has been under the influence of a significant drought with extended dry periods, these conditions have changed considerable in the recent 12 months and the trees are still recovering.

- There are two (2) significant trees within the site both trees contain hollows and structural related problems.
- The monoculture of tree vegetation is remnant of the woody grass land endemic of the flood plains area of Wee Waa
- Tree numbers where possible have been traced , located and the tree tagged, I have included all the tree in the Tree Survey Table and photographed, the trees are indicated by A,B,C,D , adjacent the Tag Number.
- Tree 56 is absent of a photo due to poor quality.
- Retention values of trees in the construction zone foot pads identified for removal have all been allocated a Tree Retention Value.(*SEE Appendix C*)

HERITAGE / ABORIGINAL

5.4 Electronic search was undertaken of the Narrabri Shire Council's LEP 2012 for heritage item or Heritage Conservation area and have no related item found. *(Heritage Conservation area Map HER _001A LEP 2012)*. *(See Fig 4).*

Electronic search of the Aboriginal Heritage Information Management System (AHMIS) website was completed in relation to the Aboriginal site or location identified as 105-107 Mitchell St Wee Waa NSW this returned a negative result. (See Appendix E)

TREE PROTECTION

5.5 Relevant Australian Standards for Tree Protection.

- AS4979-2009 Protection of trees on development sites.
- AS4687-2007 temporary fencing and hoardings.

The standard AS4979-2009. (Protection of trees on development sites). Provides guidance principles for protecting trees on lands subject to development. It follows in sequence, the stages of development from planning to implementation.

TABLE 2 INDICITIVE STAGES IN DEVELOPMENT AND THE TREE MANAGEMENT (*Section 2-3 AS4970-2009*)

AS4979-2009	Protection of trees on development sites
Stages in the Development	Identify trees for retention through comprehensive Arboricultural Impact Assessment of proposed construction. Section 2 Clause 2 (planning 2-3) and 2.3.5 Determine tree protection measures. Section 3 and 4 Clauses (3.2 and 3.3.5) Determine Tree protection fencing Clause(4.1-4.3) Signage Clause (4.4) and Appendix C .

TABLE 3 Temporary Fencing (Section 2.1 AS 4687 -2007)

AS4678-2007	Temporary fencing and hoarding.
Installation Pre -Development	Installation of a temporary fence system is made up of a combination of components, these components include a fence panel, an infill, a counterweight /support system and a base and meet the requirements Clauses (2.1.2 to 2.1.9) of the standard. The Tree Protection Fencing is required to be 1500mm in height. Clause(1.3)

TREE PROTECTION ZONES AND STRUCTURAL ROOT ZONES (TPZ/ SRZ)

5.6 Trees that have been identified for retention must be protected from physical damage the following: general construction machinery, excavations, stockpiling, contaminants and compaction or damage of their root systems by compaction.

- TPZ have been calculated noted in the TREE SURVEY TABLE as a radius measurement from the centre of the tree.
- SRZ have also been calculated and noted in the TREE SURVEY TABLE.

The SRZ are smaller in area, and therefore Tree Protective Fencing is required to be installed on the TPZ measurement given in the Tree Survey Table.
Tree Protection Fencing must be installed prior to demolition and construction activity, this also includes all trees at access points and trees on council land.

5.7 Signage displayed on the Tree Protection Fencing with the wording “TREE PROTECTION ZONE NO ACCESS” with the Project Arborist Contact Number Displayed.
The installation of approved Tree Protection Fencing (*see AS 4687 Temporary fencing and hoarding Table 3*) as requires by Clause 4.3 of the *AS 4970 2009 Protection of Tree on Development Sites*.

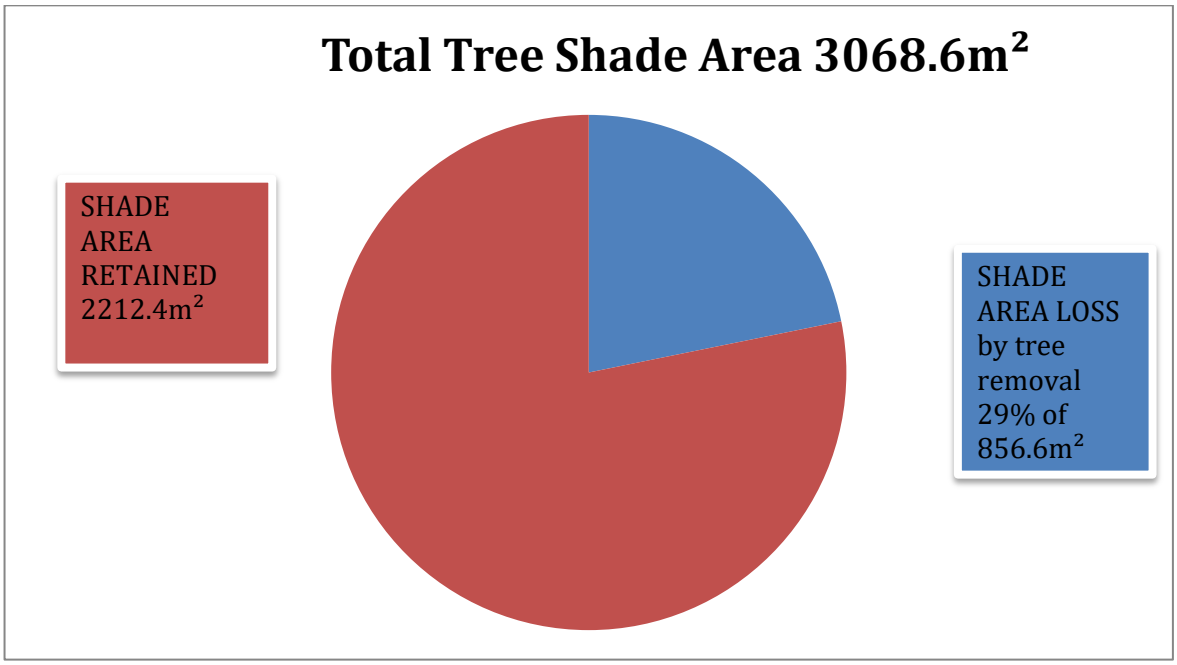
SHADE

5.8 Retained /Loss

The site has a size of approximately 6.1ha total area. The calculations are based on the a combined canopy spread of 93 x trees. This measurement for each tree's canopy can be found in the Tree Survey Table (Section 3) which also includes several groups of trees under the one identifying tag number.

TABLE 4
TREE SHADE GRAPH

- The area of total tree shade on site calculated is 3068.6m^2.
- Retained shade area following the removal of trees is: 2212.4m^2.
- Shade loss calculated is: 856.60m^2
- Total area of site 61165 m^2



VERSION 2.0 13/21

AMENITY REDUCED BY THE FOLLOWING

5.9 In terms of the trees numbered for removal they have little scientific historical, cultural or social value. This species has a contribution to the landscape. Replenishment of the same species is required in order to ensure biodiversity is kept within the local environment.

VALUATION

5.9.1 The value for each tree is based on size, Tree Useful Life Expectancy (TULE), importance of position in landscape, presence of other trees, also the relation of the species to the environmental setting, the form of the tree and in rare cases historical associations or botanical interest and biodiversity.

If these trees are reported as having historical, cultural, social or scientific value, in addition to any contribution for the landscape and scenic value of the land, then special consideration and further investigation is essential. The intrinsic value to public amenity and any contribution to the local ecosystem or to biodiversity must be noted.

5.9.2 Threatened species list has researched for the indigenous trees Eucalyptus *microtheca* that are on site are not listed as threatened. These trees are remnant of native vegetation endemic of the local flood plain area of Wee Waa.

5.9. Eucalyptus *microtheca* Coolibah is a primary source of fodder for the Koala. www.environment.nsw.gov.au

SECTION 6

CONCLUSIONS

TREE RETENTION VALUES

6.0 The amenity of the site is consistence with the surrounding area, all the trees on site that have been allocated a retention value (see also Tree Survey Table section 3).

The trees identified for removal (19) in total and their retention value has been assessed as follows:

- **HIGH RETENTION VALUE:** (14x Trees) 9B, 10, 26, 27, 28, 30, 31, 34, 35, 37C, 38, 39, 54 and 56.
- **MEDIUM RETENTION VALUE:** (4x Tree): 13, 39A, 41 and 42.
- **LOW RETENTION VALUE:** (1x Tree): 39C.

Because trees with High Retention Value are being removed, replanting will be required and of the same species as an offset in area to be determined and maintain the biodiversity of the species.

- There are 2 x trees (Tree 1 and 46) identified with habitat hollows, these trees are dead but not in the construction foot pad, removal of these trees would be for safety reasons only. (Ecologist to confirm activity)

6.2 Research of the Threatened Species List (Environment.gov.au) I can confirm that the trees on the site are not listed as a threatened species, however are a primary source of Koala fodder. .

TREE REMOVALS

6.3 The impacts of the development will result in the loss/removal of the following trees which are identified in the proposed construction footpad.

- Tag numbers are: 9B, 10, 13, 26, 27, 28, 30, 31, 34, 35, 37C, 38, 39, 39A, 39C, 41, 42, 54 and 56.

SHADE LOSS

6.4 The impact of shade loss from the removal of the specified trees has been -calculated at a 27.9% loss of shade.

TREE PROTECTION *(AS 4970 2009 Protection of Tree on Development Sites.)*.

6.5 Tree protection fencing is required to be installed for the following trees retained this is including trees in the adjacent properties.

- TREE Tag Numbers are: 2, 2A, 3, 4, 5, 6, 6A, 6B, 6C, 6D, 6E, 7, 7A, 7B, 7C, 7D, 8, 9, 10A, 11, 12, 14, 14A,14B, 14C, 14D, 14E, 14F, 14G, 15, 15A, 16, 17, 18, 19, 20, 21, 22, 22A, 23, 24, 25, 25A, 29, 32 32A, 32B, 33, 35A,36, 37, 37B, 39B, 40, 43, 44, 45, 46, (47x4), 48, 49, 49A, 50, 51, 51A, 52, 52A, 53, 53A, 55, 58, 59 and 60. Tree Protection Zones (TPZ) is measurements as a radius distance from the centre of the tree.

TREE PROTECTION FENCING *(AS4687-2007 temporary fencing and hoardings*)

- The tree protection fencing is to be installed at the specified distance of the (TPZ) for each tree or group (*See TPZ column in the Tree Survey Table for measurements*).

SECTION 7

RECOMMENDATIONS

1 Engage a Project Arborist to oversee the site prior to site activity and for the duration of the works.

2 The trees retained require tree protection fencing, to be installed at the TPZ measurement given in the Tree Survey Table (Section 3) prior to any construction activity. All fencing must comply with AS 4970 2009 (*Protection of Tree on Development Sites) and AS 4687 (Temporary fencing and hoarding*). Displayed on each assembly a sign with the wording "TREE PROTECTION ZONE NO ACCESS" and a contact number of the Project Arborist. The fencing must remain in place and maintained for the duration of the proposed works.

3 Remove only the trees specified in the Tree Survey Table (Section 3) that will be impacted by the development footpad.

4 A suitable qualified licenced AQF 3 Arborist contractor must be engaged to complete the works and all pruning work to the Australia Standards AS 4373 2007 Pruning of Amenity Trees. Also (see *Safe work NSW engaging a contractor*)

5 All tree waste can be mulched and stockpiled on site as per Environment Protection Authority (EPA) Raw mulch Order 2016. The generated mulch is to be used on site.

6 Excavations or entry within the tree protection must be undertaken with the AQF 5 Consulting Arborist on site and or consult with the AQF 5 Arborist prior to any attempt to enter the enclosed TPZ's.

7 The development approval must include a tree planting programme to replace the trees of the same species that are being removed being removed to maintain the biodiversity of the site. *(This excludes Tree 39C which is an invasive species).*

8 Habitat trees that are identified on site require an ecologist to verify activity and species of animal so relocation or intervention can be appropriate.

SECTION 8 GLOSSARY

Crown: The width of the foliage in the upper canopy of the assessed tree to the four cardinal points.

Crown lifting: means the removal of the lower branches of the tree.

Crown thinning means the portion of the tree consisting of branches and leaves and any part of the stem from which branches arise.

Drip line: Where the canopy releases water shed from the foliage during precipitation.

DBH/Diameter: Diameter of trunk at 1.4meters in height of assessed tree.

Dead wooding means the removal dead branches from a tree.

Dieback: Tree deterioration where the branches and leaves die.

Flush cut: A cut that damages or removes the branch collar or removes the branch and stem tissue and is inconsistent with the branch attachment as indicated by the bark branch ridge.

Genus/ Species: The Genus and species of each tree has been identified using its scientific name. Where the species name is not known the letters species is used. The common name for trees may vary considerably in each area of geographical differences and so will not be used in the field survey.

Height: Height has been estimated to + / - 2 metres.

ISA: International Society of Arboriculture.

Maturity: Tree maturity has been assessed as over mature (last one third of life expectancy), mature (one third to two thirds life expectancy) and semi mature (less than one third life expectancy).

Remedial (restorative) pruning: includes: Removing damaged, Dead wood; trimming diseased or infested branches. Trimming branches back to undamaged tissue in order to induce the production of shoots from latent or adventitious buds, from which a new crown will be established.

Retention Value: Rating as High Moderate or Low. Determining factors and not limited to; health vigour, age habitat environmental ,landscape heritage etc.

SRZ- Structural Root Zone: An area within the trees root zone in which roots stabilize the tree. Roots cut in this zone can cause instability and lead to anchorage loss.

Structural Integrity: Describes the internal supporting timber. (Substantial to frail)

TULE- Tree Useful Life Expectancy: An estimation of the trees useful life expectancy using appropriate industry methods.

TPZ- Tree Protective Zone: This zone should be considered as optimal for tree growth and sustainability however the size of the zone is subjective and should be reassessed when individual design and construction methods are being discussed.

Tree Age: Trees have either been assessed as mature, immature or semi-mature.

Tree Numbering: All trees listed in the tree survey have been numbered and plotted

Vigour: This is an indication of the tree health. Trees have either been assessed as Good Vigour, Moderate Vigour or Poor Vigour.

BIBLIOGRAPHY

Australian Standards AS 4970-2009. *Protection of Trees on Development Sites*. Sydney: Standards Australia.

Australia Standards 4373-2007 Pruning of Amenity Tree Pruning - Sydney

Barrell, J. *Sule: Its Use and Status into the New Millennium.* Paper presented to the NAAA Conference in Sydney: 2001.

Barrell J. *Pre-planning Tree Surveys: Safe Useful Life Expectancy SULE is the Natural Progression*: Journal of Arboricultural Volume 17 -1: February 1993.

Tree Useful Life Expectancy (TULE) (Burrell approved for TCAA 2014) Adapted.

CSIRO Boland et al. *Forest Trees of Australia*. Nelson, University Press. *Australia:* 1984

Hadlington P.W. & Johnston I A. *Australian Trees*. *Australia:* NSW University press: *1983.*

Hadlington P.W. & Johnston I A. *Australian Insects. Australia:* NSW University press: *1983.*

Hitchmough James & Ken Fieldhouse. Plant *User Handbook: A Guide to Effective Specifying.* Blackwell, 2003

Jones DL & Rodger Elliot. *Pests, Diseases and Ailments of Australian Plants, with Suggestions For Their Control***:** Melbourne: Lothian: *635.049 JON: 1986*

Matheny, N.P. & Clarke, J.R. *Trees and Development a Technical Guide to Preservation of Trees During Land Development.* Savoy, Illinois. ISA: 1998.

Mattheck, C. *Updated Field Guide for Visual Tree Assessment,* Karlsruhe Research Centre: 2007

Mattheck Dr; Claus R &Breloer Helge. *The Body Language of Trees - A Handbook for Failure Analysis 6th Edition:* London, England. The Stationery Office: 1995.

WEBSITE

www.standards.org.au
www.safeworkaustralia.gov.au
www.environment.gov.au
www.legislation .nsw.gov.au
www.treetech.net.au
www.lls.nsw.gov.au/northerntablelands
www.environment.nsw.gov.au/threatenedSpeciesApp/SpeciesByType.aspx
https://treenet.org
www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/

SECTION 9 APPENDIX A TULE – TREE USEFUL LIFE EXPECTANCY

McArdle and sons Categories	**1 Long TULE**	**2 Medium TULE**	**3 Short TULE**	**4 Remove**	**5 No Potential for Retention REMOVE IMMEDIATELY**	**6 Small, Young or regularly clipped:**
	Trees that appeared to be retainable at the time of assessment for more than 40 years with low level of risk	**Trees that appeared to be retainable at the time of assessment for 15 to 40 years with and with low to medium level risk**	**Trees that appeared to be retainable at the time of assessment for 5 to 15 years with medium to high level of risk**	**Trees that should be removed within the next 5 years High to Very high level of risk**	**Trees that must be removed immediately. Very high to Extreme level of risk**	**Trees that can be easily transplanted or replaced.**
A	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live for between 15 and 40more years	Trees that may only live for between 5 and 15more years	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Dead, dying or declining trees diseased or inhospitable conditions.	Small trees less than 5meters in height
B	Trees that could be made suitable for retention in the long term by Intervention Works.	Trees that may live for more than 40 years, but would need to be removed for safety or Nuisance reasons	Trees that may live for more than 15 years, but would need to be re moved for safety or nuisance reasons	Dangerous trees through instability or recent loss of adjacent trees	Dangerous trees through instability or recent loss of adjacent trees	Young trees less than 15years old but over 5meters in height
C	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 should 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	Dangerous trees through structural defects including cavities ,decay, included bark ,wounds or poor form	Dangerous trees through structural defects including cavities ,decay, included bark ,wounds or poor form	Trees that have been regularly pruned to artificially control growth
D		Trees that could be made suitable for retention in the medium term by Intervention Works.	Trees that require substantial Intervention Works, and are only suitable for retention in the short term	Damaged trees that are clearly not safe to retain	Damaged trees that are clearly not safe to retain and must be removed immediately	
E				Trees that may live for more than 5 years, bu t should be removed to prevent interference with more suitable individuals or to provides pace for new planting	High Toxicity Allegan trees, asthmatic and poisonous trees and must be removed immediately.	
F				Trees that may cause damage to existing structures within 5 years	OTHER with legitimate explanation to be removed immediately	
G				Trees that will become dangerous after removal of other trees for reasons given in 1A-1F		
INSPECTION FREQUENCY	Inspection frequency 1-5 Years by competent inspector unless event monitored.	Inspection frequency 1-5 Years by competent inspector unless event monitored.	Inspection frequency 1-3 years by competent inspector unless event monitored.	Inspection frequency to 1 year by competent inspector unless event monitored.	1-7 days by competent inspector and event monitored	Inspection frequency Biannually by competent inspector

TULE Adapted with permission Jeremy Burrel 2014 for TCAA licensed Climbing Arborist.

APPENDIX B HEALTH & STRUCTURAL CONDITION OF TREE - Visual

McArdle & Sons Arboricultural Services

Health & Structural Condition of Tree	
1. *J- Juvenile; Im- Immature; SM-Semi- Mature; M-Mature*	
2. Excellent Condition	
3. Good Condition but Poor Development / Habit	
4. Dieback is more than 20%.	4b Epicormics
5. Sparse Foliage Crown	5b Unbalanced Canopy
6. Physical Damage	
7. Cavity	
8. Lean	
9. Heavily Pruned	
10. Inclusions	
11. Damage to roots	
12. Insect Damage	12b Borers
13. Termite Damage	
14. Fungal Attack	
15. Parasitic Vine Present	
16. Damage by Climbing Plant	
17. Habitat Tree	

Developed by Claus Mattheck in: *The Body Language of Trees(*1994) which have adapted versions from Hornsby Shire Council.

APPENDIX C RETENTION TABLE

The retention value assigned to each tree is subjective, where trees are included in any proposal plan foot print it is understood that the tree still has a value in the amenity.

McArdle and Sons Arboricultural Services Pty Ltd uses the tree retention value methodology in conjunction with the relevant local LEP, the Tree Useful Life Expectancy*(Appendix A)* rating and the Heritage/Cultural classifications *(Narrabri Shire Council's LEP 2012 Fig 5 & AHMIS appendix E)* to determine the Tree Retention Value rating.

Factors considers in this site 105 107 Mitchell St Wee Waa NSW are relevant to the tables below.

RETENTION VALUE MATRIX.

Useful life expectancy (ULE) – ULE is measured as:

- long term (greater than 40 years),
- medium term (15 to 40 years),
- short term (5 to 15 years), and
- plan for removal (less than 5 years).

ULE is the period for which the tree can practically be retained. It is affected by the tree's health and vigour, its structural condition, risk it may present, conflict with infrastructure, suitability in its location and conflict with changing land use.

Landscape significance – A tree's significance in the landscape relates to the amenity it provides, it environmental value and its contribution to heritage. These are affected by the tree's species, its ecological importance, its size and form, its location and its visual prominence. Landscape significance is categorised on a seven-point scale of significant, very high, high, moderate, low, very low and insignificant. Heritage listed trees have the highest rating and weed species have the lowest rating.

Tree retention value – Tree Retention Value is based on a tree's ULE and the landscape significance of the tree. The matrix at table 1 below is used to determine the retention value, which is rated as high, moderate, low or very low.

Table 1 Methodology used to assess Tree Retention Values[1]

	Landscape Significance Rating						
Tree sustainability period	1 significant	2 very high	3 high	4 moderate	5 low	6 very low	7 insignificant
greater than 40 years	high						
15 to 40 years			moderate				
5 to 15 years					low		
less than 5 years						very low	

DETERMING THE RETENTION VALUE OF TREES ON DEVELOPMENT SITES.

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
1. SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999	The subject tree has a very large live crown size exceeding 300m² with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally-indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m²; a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Unit / Wildlife Corridor or has known wildlife habitat value	The subject tree has a large live crown size exceeding 100m²; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
4. MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m²;The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m² and can be replaced within the short term (5-10 years) with new tree planting
6. VERY LOW	The subject tree is causing significant damage to a heritage item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
7. INSIGNIFICANT	The tree is completely dead and has no visible habitat value	The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993 within the relevant Local Government Area.	The tree is completely dead and represents a potential hazard.

Ref:- Morton, A (2006) **Determining the Retention Value of Trees on Development Sites**
TreeNet - Proceedings of the 7th National Street Tree Symposium 2006 Government of South Australia Department for Transport, Energy and Infrastructure

APPENDIX D TREE MANAGEMENT NOTES

McArdle & Sons Arboricultural Services

It is important to **minimize compaction of the soil** around the drip line. We recommend no heavy machinery operate within the three metres area of the preserved trees. For smaller machines we recommend restricted access within the Tree Protection Zone and also limit movement in this area with smaller type machines.

Rooting hormone is recommended at the prescribed rate around the excavated area and inside the affected trees drip line to promote healthy recovery. Continue the use treatments associated with root growth and vigor. Apply hessian bagging over excavated areas inside the TPZ where roots are encountered.

Weed Removal To reduce competition with the tree the area within the *TPZ* is to be kept free of weeds. These are best removed by the application of foliar herbicide with Glyphosate as the active constituent. This is the preferred method rather than removal by cultivation of the soil within the drip-line, to minimise root disturbance to the tree. The removal of woody weeds such as Privet should use the cut and paint method of herbicide application. Weeds are to be controlled within the *TPZ* for the duration of the project.

Mulching inside the Tree Protection Zone at the applicable depth of 50-100 mm with organic material being 75%leaf litter and 25% wood, and this being composted material preferably from the same genus and species of tree as that to where the mulch is to be applied, i.e. species specific mulch. The depth and type of mulch is to be maintained for the duration of the project.

Watering In the event of prolonged dry periods, or where a tree has been transplanted, or where excavation nearby, especially up slope, leads to drying out of a soil profile, or modification to ground water flow, or flows across an existing ground surface to the tree and its growing environment; deep root watering thoroughly at least twice a week is to be undertaken to irrigate the tree. The need for such watering is determined readily by observing the dryness of the soil surface within the drip-line of the tree by scraping back some mulch. Mulch is to be reinstated afterwards. In the event of disrupted ground or surface water flows to the tree due to excavation, filling or construction, a reticulated irrigation system may be required to be installed within the *TPZ*. If an irrigation system is to be installed, consideration must be given to volume, frequency, and drainage of water delivered, and this should be in consultation with a qualified Consulting Arborist.

Pruning the tree; including Dead wood and crown thin to council regulations and in accordance with AS4373-2007 `Pruning Amenity of Trees'. Australian Standards

Fertilising A tree will not be fertilised during its protection within the *TPZ.* If a tree is to be fertilised this should be in consultation with a qualified Consulting Arborist.

Regular monitoring of tree protection in adherence with the approved tree protection plan throughout the development process must be undertaken in consultation with the Consulting Arborist for the project to ensure that tree protection measures are maintained. Inspections are to be carried out monthly reports until completion of construction. Any problems will be rectified that may occur. A Qualified Arborist with appropriate qualifications and experience will be on site if any excavation work within the Critical Root Zone is required and will provide notes in the final report. Maintenance will continue after three months of completion.

APPENDIX E

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 3182191
Client Service ID : 618329

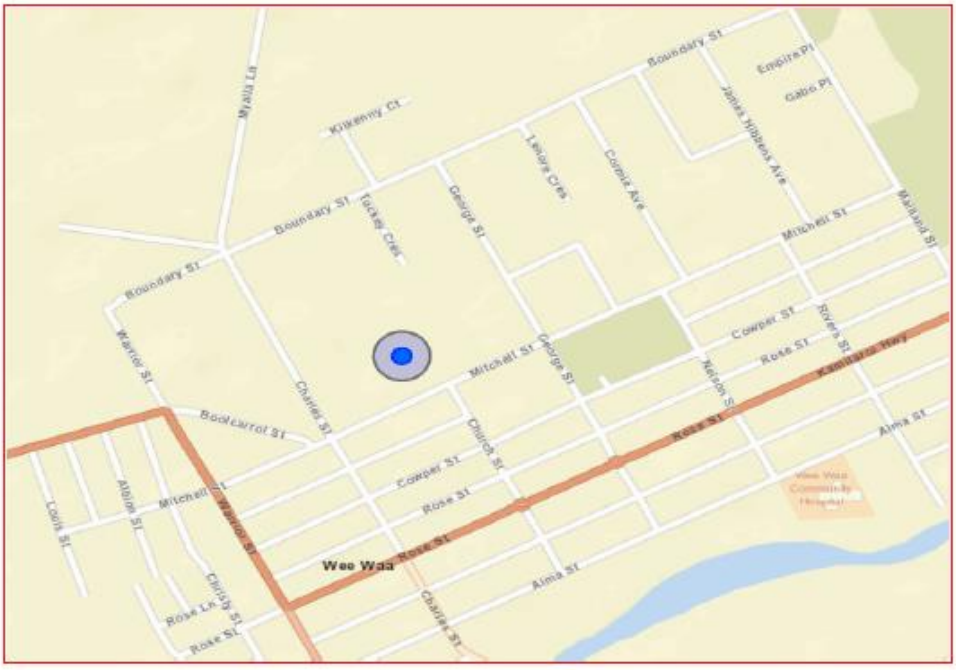
Dan Mcardle
1592 Ogunbil rd
Ogunbil New South Wales 2340
Attention: Dan Mcardle
Email: danmcardle@mcardleandsons.com.au

Date: 31 August 2021

Dear Sir or Madam:

AHIMS Web Service search for the following area at Address : 105-107 MITCHELL STREET WEE WAA 2388 with a Buffer of 50 meters, conducted by Dan Mcardle on 31 August 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

APPENDIX F DISCLAIMER

McArdle & Sons Arboricultural Services

McArdle & Sons Arboricultural Services does not assume responsibility for liability associated with the tree on or adjacent to this project site, their future demise and/or any damage, which may result therefrom.

Any legal description provided to McArdle & Sons Arboricultural Services is assumed to be correct. Any titles and ownerships to any property are assumed to be good and sound. McArdle & Sons Arboricultural Services takes care to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

McArdle & Sons Arboricultural Services reports and recommendations shall not be viewed by others or for any other reason outside its intended target, either partially or whole, without the prior written consent of the consultant. Unauthorised alteration or separate use of any section of the report invalidates the whole report. McArdle & Sons Arboricultural Services cannot be held responsible for any consequences as a result of work carried out outside specifications, not in compliance with Australian Standards or by inappropriately qualified staff.

Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale. All recommendations contained within this report represent the current industry best practice methods of inspection. McArdle & Sons Arboricultural Services shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

LIMITS OF OBSERVATION
McArdle & Sons Arboricultural Services makes every effort to accurately identify current tree health and safety issues. Results may or may not correlate to actual tree structural integrity. There are many factors that may contribute to limb or total tree failure. Not all these symptoms are visible. There can be hidden defects that may result in a failure even though it would seem that other, more obvious defects would be the likely cause of failure.

All standing trees have an element of unpredictable risk. McArdle & Sons Arboricultural Services endeavours to identify the risk that the tree represents; however a level of risk associated with every tree will remain. McArdle & Sons Arboricultural Services does not provide any warranty or guarantee that problems, deficiencies or failures with regard to the plant/s, property or building/s will not arise in the future.

Ongoing monitoring may foresee deterioration of a tree and allow remedial action to be taken to prevent injury or damage. The timing for re-inspection on individual trees is subjective and will vary however an annual inspection is advisable for trees in subsequent years.

FURTHER RESEARCH The report does not cover threatened, heritage or existing trees in relation to remnant forest. Further reporting may be considered as part of the relevant RISK ASSESSMENT.

LIMIT OF OBSERVATIONS BY RODNEY M. PAGE
“There are many factors that may contribute to limb or total tree failure. Factors include, decay (in the trunk, crown or branch junctions), external damage to branches leading to decay, poor branch taper, included bark, root rot/ decay. Not all these symptoms are visible i.e. internal decay; of these some external symptoms may indicate the presence of Dead wood but not the extent of decay. The most solid looking piece of timber may be riddled with breaks in continuity of growth caused by insect damage or poor pruning practices or other physical damage caused many years previous. Trees don’t heal; they simply box in the damaged area ((CODIT) Compartmentalization of Decay In Trees.) and continue to expand in girth, completely disguising the fact that the branch or trunk has a hollow or decayed section. Having said this, not all areas, of decay past or present suggest a point of failure.”
In addition to this information, other variables that can contribute to limb or total tree failure are tree species, wood densities, weight, age, location, exposure to the elements, soil types, disease and pests, birds using trees as habitat and food sources, termites causing structural problems and human influences such as, altered drainage, compaction or leaching of minerals.