LANDSCAPE MANAGEMENT PLAN July 2019 Revision C

ARMIDALE SECONDARY COLLEGE, Butler Street Armidale

Introduction

This document has been prepared on the basis of satisfying the SSDA condition in relation to the planting of new trees and monitoring and maintenance requirements to manage the revegetation, including street tree planting. In addition to new planting, this document confirms the requirement for management and mitigation measures associated with retained site trees.

Scope

The revegetation works are associated with the new Armidale Secondary College site, to be constructed at the old Armidale High School site in an area bounded by Kentucky street to the south, Butler Street to the east, Mann Street to the north and Barry and Stephen Streets to the west.

This document defines the requirements for revegetation and associated works that the building contractor is to undertake during the construction of the works and for the duration of the defects liability period..

This report should be read in conjunction with the landscape planting documentation as prepared by NBRSArchitecture, which details species locations and numbers.

Please refer to the following page for the landscape documentation drawing list, current as of 27 June 2019.

The development conditions specifically require the following items be addressed:

(a) Details of Species to be planted on site
(b) Monitoring and Maintenance Requirements
(c) Existing Tree Management and Mitigation Measures
(d) Planting of native trees
    a. 40 Trees intermediate size up to 12 m
    b. 50 Native Trees minimum mature size of 15 m
(e) Native tree container size to be 100 L (specimen 2.0 to 2.5 m)
(f) Planting of Street Trees

LANDSCAPE CONTRACT - DRAWING SCHEDULE

SHEET No.	SHEET No. AS PER TENDER ISSUE	TITLE	SCALE	REVISION NO.
NBRS-LS-DWG-L-000	NBRS-LS-DWG-L-000	COVER PAGE	As Shown @ A1	F
NBRS-LS-DWG-L-002	NBRS-LS-DWG-L-002	LANDSCAPE DEMOLITION PLAN	1:500 @ A1 | 1:1000 @ A3	D
NBRS-LS-DWG-L-003	NBRS-LS-DWG-L-003	LANDSCAPE SITE PLAN	1:1000 @ A1 | 1:2000 @ A3	D
NBRS-LS-DWG-L-004	NBRS-LS-DWG-L-004	LANDSCAPE DETAIL PLAN	1:500 @ A1 | 1:1000 @ A3	D
NBRS-LS-DWG-L-005	NBRS-LS-DWG-L-005	SITE FENCING PLAN	1:1000 @ A1 | 1:2000 @ A3	E
NBRS-LS-DWG-L-100	NBRS-LS-DWG-L-100	HARDSCAPE & MATERIALS PALETTE	N/A	D
NBRS-LS-DWG-L-101	NOT SHOWN	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 01	1:200 @ A1 | 1:400 @ A3	F
NBRS-LS-DWG-L-102	NBRS-LS-DWG-L-101	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 02	1:200 @ A1 | 1:400 @ A3	F
NBRS-LS-DWG-L-103	NOT SHOWN	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 03	1:200 @ A1 | 1:400 @ A3	F
NBRS-LS-DWG-L-104	NBRS-LS-DWG-L-101/103	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 04	1:200 @ A1 | 1:400 @ A3	F
NBRS-LS-DWG-L-105	NBRS-LS-DWG-L-104/105	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 05	1:200 @ A1 | 1:400 @ A3	F
NBRS-LS-DWG-L-106	NBRS-LS-DWG-L-102	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 06	1:100 @ A1 | 1:200 @ A3	F
NBRS-LS-DWG-L-107	NBRS-LS-DWG-L-102/103	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 07	1:100 @ A1 | 1:200 @ A3	F
NBRS-LS-DWG-L-107(B)	NBRS-LS-DWG-L-103/106	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 07(B)	1:100 @ A1 | 1:200 @ A3	C
NBRS-LS-DWG-L-108	NBRS-LS-DWG-L-103	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 08	1:100 @ A1 | 1:200 @ A3	F
NBRS-LS-DWG-L-109	NBRS-LS-DWG-L-105	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 09	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-110	NBRS-LS-DWG-L-105	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 10	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-111	NBRS-LS-DWG-L-106	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 11	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-112	NBRS-LS-DWG-L-106	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 12	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-113	NBRS-LS-DWG-L-105	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 13	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-114	NBRS-LS-DWG-L-105	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 14	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-115	NBRS-LS-DWG-L-105	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 15	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-116	NBRS-LS-DWG-L-106	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 16	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-117	NBRS-LS-DWG-L-106	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 17	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-118	NBRS-LS-DWG-L-107	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 18	1:200 @ A1 | 1:400 @ A3	D
NBRS-LS-DWG-L-119	NBRS-LS-DWG-L-108	LANDSCAPE HARDSCAPE & MATERIALS PLAN - 19	1:200 @ A1 | 1:400 @ A3	D
NBRS-LS-DWG-L-200	NBRS-LS-DWG-L-200	PLANTING SCHEDULE & PALETTE	N/A	D
NBRS-LS-DWG-L-201	NOT SHOWN	LANDSCAPE PLANTING PLAN - 01	1:200 @ A1 | 1:400 @ A3	D
NBRS-LS-DWG-L-202	NBRS-LS-DWG-L-101	LANDSCAPE PLANTING PLAN - 02	1:200 @ A1 | 1:400 @ A3	D
NBRS-LS-DWG-L-203	NOT SHOWN	LANDSCAPE PLANTING PLAN - 03	1:200 @ A1 | 1:400 @ A3	D
NBRS-LS-DWG-L-204	NBRS-LS-DWG-L-101/103	LANDSCAPE PLANTING PLAN - 04	1:200 @ A1 | 1:400 @ A3	D
NBRS-LS-DWG-L-205	NBRS-LS-DWG-L-104/105	LANDSCAPE PLANTING PLAN - 05	1:200 @ A1 | 1:400 @ A3	D
NBRS-LS-DWG-L-206	NBRS-LS-DWG-L-102	LANDSCAPE PLANTING PLAN - 06	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-207	NBRS-LS-DWG-L-102/103	LANDSCAPE PLANTING PLAN - 07	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-207(B)	NBRS-LS-DWG-L-103/106	LANDSCAPE PLANTING PLAN - 07(B)	1:100 @ A1 | 1:200 @ A3	C
NBRS-LS-DWG-L-208	NBRS-LS-DWG-L-103	LANDSCAPE PLANTING PLAN - 08	1:100 @ A1 | 1:200 @ A3	D
NBRS-LS-DWG-L-209	NBRS-LS-DWG-L-105	LANDSCAPE PLANTING PLAN - 09	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-210	NBRS-LS-DWG-L-105	LANDSCAPE PLANTING PLAN - 10	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-211	NBRS-LS-DWG-L-106	LANDSCAPE PLANTING PLAN - 11	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-212	NBRS-LS-DWG-L-106	LANDSCAPE PLANTING PLAN - 12	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-213	NBRS-LS-DWG-L-105	LANDSCAPE PLANTING PLAN - 13	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-214	NBRS-LS-DWG-L-105	LANDSCAPE PLANTING PLAN - 14	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-215	NBRS-LS-DWG-L-105	LANDSCAPE PLANTING PLAN - 15	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-216	NBRS-LS-DWG-L-106	LANDSCAPE PLANTING PLAN - 16	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-217	NBRS-LS-DWG-L-106	LANDSCAPE PLANTING PLAN - 17	1:100 @ A1 | 1:200 @ A3	B
NBRS-LS-DWG-L-218	NBRS-LS-DWG-L-107	LANDSCAPE PLANTING PLAN - 18	1:200 @ A1 | 1:400 @ A3	B
NBRS-LS-DWG-L-219	NBRS-LS-DWG-L-108	LANDSCAPE PLANTING PLAN - 19	1:200 @ A1 | 1:400 @ A3	B
NBRS-LS-DWG-L-300	NBRS-LS-DWG-L-300	LANDSCAPE SECTIONS - 01	1:50 @ A1 | 1:100 @ A3	D
NBRS-LS-DWG-L-400	NBRS-LS-DWG-L-400	LANDSCAPE DETAILS - 01	AS SHOWN	D
NBRS-LS-DWG-L-401	NBRS-LS-DWG-L-401	LANDSCAPE DETAILS - 02	AS SHOWN	D
NBRS-LS-DWG-L-402	NBRS-LS-DWG-L-402	LANDSCAPE DETAILS - 03	AS SHOWN	D
NBRS-LS-DWG-L-403	NOT SHOWN	LANDSCAPE DETAILS - 04	AS SHOWN	B
NBRS-LS-DWG-L-404	NOT SHOWN	LANDSCAPE DETAILS - 05	AS SHOWN	B
NBRS-LS-DWG-L-405	NOT SHOWN	LANDSCAPE DETAILS - 06	AS SHOWN	A
NBRS-LS-DWG-L-406	NOT SHOWN	LANDSCAPE DETAILS - 07	AS SHOWN	A
NBRS-LS-DWG-L-407	NOT SHOWN	LANDSCAPE DETAILS - 08	AS SHOWN	A
NBRS-LS-DWG-L-501	NOT SHOWN	LANDSCAPE SETOUT PLAN - 01	1:200 @ A1 | 1:400 @ A3	A
NBRS-LS-DWG-L-502	NOT SHOWN	LANDSCAPE SETOUT PLAN - 02	1:200 @ A1 | 1:400 @ A3	A
NBRS-LS-DWG-L-503	NOT SHOWN	LANDSCAPE SETOUT PLAN - 03	1:200 @ A1 | 1:400 @ A3	A
NBRS-LS-DWG-L-504	NOT SHOWN	LANDSCAPE SETOUT PLAN - 04	1:200 @ A1 | 1:400 @ A3	A
NBRS-LS-DWG-L-505	NOT SHOWN	LANDSCAPE SETOUT PLAN - 05	1:200 @ A1 | 1:400 @ A3	A
NBRS-LS-DWG-L-506	NOT SHOWN	LANDSCAPE SETOUT PLAN - 06	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-507	NOT SHOWN	LANDSCAPE SETOUT PLAN - 07	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-507(B)	NOT SHOWN	LANDSCAPE SETOUT PLAN - 07(B)	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-508	NOT SHOWN	LANDSCAPE SETOUT PLAN - 08	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-509	NOT SHOWN	LANDSCAPE SETOUT PLAN - 09	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-510	NOT SHOWN	LANDSCAPE SETOUT PLAN - 10	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-511	NOT SHOWN	LANDSCAPE SETOUT PLAN - 11	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-512	NOT SHOWN	LANDSCAPE SETOUT PLAN - 12	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-513	NOT SHOWN	LANDSCAPE SETOUT PLAN - 13	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-514	NOT SHOWN	LANDSCAPE SETOUT PLAN - 14	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-515	NOT SHOWN	LANDSCAPE SETOUT PLAN - 15	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-516	NOT SHOWN	LANDSCAPE SETOUT PLAN - 16	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-517	NOT SHOWN	LANDSCAPE SETOUT PLAN - 17	1:100 @ A1 | 1:200 @ A3	A
NBRS-LS-DWG-L-518	NOT SHOWN	LANDSCAPE SETOUT PLAN - 18	1:200 @ A1 | 1:400 @ A3	A
NBRS-LS-DWG-L-519	NOT SHOWN	LANDSCAPE SETOUT PLAN - 19	1:200 @ A1 | 1:400 @ A3	A
NBRS-LS-DWG-L-520	NOT SHOWN	DETAILED LANDSCAPE SETOUT PLAN - 01	AS SHOWN	A
NBRS-LS-DWG-L-521	NOT SHOWN	DETAILED LANDSCAPE SETOUT PLAN - 02	AS SHOWN	A
NBRS-LS-DWG-L-522	NOT SHOWN	DETAILED LANDSCAPE SETOUT PLAN - 03	AS SHOWN	A

A. PLANT SPECIES TO BE INSTALLED ON THE SITE

The following plants are to be installed on the site and are as described on the landscape planting plans. The species are a mix of native and local species that are known to thrive in the locality. The selection of native trees also considers species suitable for Koala habitat. The site tree species are as listed below and the approval condition requirement for native trees is highlighted in green. Please note that the required tree numbers on the site exceeds the approval conditions.

ID	Qty	Botanical Name	Common Name	Pot Size
Trees				
APS	14	Acer truncatum x platanoides warrenred 'Pacific Sunset'	Pacific Sunset Maple	200LT
CA	33	Cupaniopsis anacardioides	Tuckeroo	100LT
EA	18	Eucalyptus albens	White Box	100LT
ED	18	Eucalyptus dalrympleana	Mountain White Gum	100LT
EM	18	Eucalyptus melliodora	Yellow Box	100LT
ER	18	Eucalyptus rossii	Scribbly Gum	100LT
ES	18	Eucalyptus sideroxylon	Red Ironbark	100LT
FA	14	Fraxinus angustifolia 'Raywood'	Claret Ash	200LT
LI	12	Lagerstroemia indica x L. fauriei 'Natchez'	Crepe Myrtle 'White'	100LT
MLG	6	Magnolia grandiflora 'Little Gem'	Little Gem Magnolia	200LT
MGE	3	Magnolia grandiflora 'Exmouth'	Bull Bay Magnolia	200LT
PIC	51	Pistacia chinensis	Chinese Pistache	100LT
PMG	6	Populus x canadensis 'Manawatu Gold'	Golden Poplar	200LT
PB	16	Pyrus betulaefolia 'Southworth Dancer'	Southworth Dancer	200LT
PC	21	Pyrus calleryana 'Chanticleer'	Ornamental Pear	200LT
QR	9	Quercus robur	English Oak	200LT
TLL	36	Tristaniopsis laurina 'Luscious'	'Luscious' Water Gum	100LT
UP	6	Ulmus procera	Green English Elm	200LT
Total: 40 x trees of intermediate mature size up to 12m; 50 x larger native trees with a minimum mature size of 25m				
Total: 317 x locally endemic trees				

B. MONITORING AND MAINTENANCE REQUIREMENTS

The following specification describes the requirements the building contractor is to undertake and complete to ensure the planted works are monitored and maintained.

1.0 0256B LANDSCAPE – ESTABLISHMENT

1.1 GENERAL

1.1.1 RESPONSIBILITIES

GENERAL

Requirement: Provide plant establishment, as documented.

1.1.2 CROSS REFERENCES

GENERAL

Requirement: Conform to the following:
- *0171 General requirements*.

1.1.3 INTERPRETATION

DEFINITIONS

General: For the purpose of this worksection the following definitions apply:
- Plant establishment period: The period between the date of practical completion and the end of the defects liability period.

1.1.4 SUBMISSIONS

EXECUTION DETAILS

Notice: Provide two days notice of the following operations:
- Application of herbicide.
- Application of fertiliser.
- Watering.
- Each site maintenance visit.

LOG BOOK

Records: Log the following on a weekly basis:
- Description, time and method of application of toxic material.
- Maintenance work details.
- Inclement weather to verify inability to carry out work within the specified time frame.

Availability: Upon request.

MONITORING PROGRAM

General: Provide a monitoring program developed by a specialist monitoring consultant and incorporating the following:
- Photographic record including:

. Colour photographs.
. Documented monitoring locations and photograph angles.
- Reporting periods including photographic records at the following:

. Before commencement of the works.
. Date of practical completion.

- Three monthly intervals during the plant establishment period.
- Date of final completion.
- Benchmark definition based on remnant communities.
- Replicated measurements over time and comparative analysis with regard to the benchmark.

Specialist consultant: Submit the name, qualifications including research papers and scientific publication details, and contact details of the specialist monitoring consultant.

REPLACEMENT PLANTS

Species: Provide written certification that all plant material is true to the required species and type.

1.1.5 INSPECTION

NOTICE

Inspection: Give notice so that inspection of the contract area may be made at the following:
- Date of practical completion.
- Three monthly intervals during the plant establishment period.
- Date of final completion.

1.2 EXECUTION

1.2.1 PLANTING WORKS

PLANTING

Planting: Ensure the general appearance and presentation of the landscape and the quality of plant material at date of practical completion is maintained for the full planting establishment period.
Existing plant material: Maintain existing planting and grass within the landscape contract area as specified for the corresponding classifications of new grassland or planting.
Replacements: Replace failed, dead and/or damaged plants at maximum 3 week intervals as necessary throughout the full plant establishment period.

FERTILISING

Soil tests: Take samples from both planting beds and lawn areas and conduct tests.
Fertilising: Base the fertilisation program on the soil testing results. Fertilise trees once every two years. Generally apply an all purpose fertiliser of N:P:K (Nitrogen:Phosphorus:Potassium) 10:4:6 at recommended rates. Alternatively apply 12 month slow release fertiliser at the manufacturer's recommended rate. Apply all purpose fertiliser to shrubs annually in two bands and cultivated into the soil 100 mm deep.
Season: Fertilise shrubs and trees in September and March according to their seasonal growth requirement.

INSECT AND DISEASE CONTROL

Responsibility for insect and disease control: Contractor
Period for treatment: Until the problem has been eliminated.
Chemical spray: Apply outside of normal working hours.

STAKES AND TIES

Generally: If plants are unable to be self-supported or if stakes are damaged, stake or restake the plants as follows:
- Drive three hardwood stakes placed obliquely with the first stake on the opposite side to the prevailing winds.
- Do not single stake large plants.

Removal: If plants are robust with well developed systems and are strong enough to no longer require support, remove stakes and ties.

1.2.2 GRASS

MOWING AND TRIMMING

Litter: Remove litter and fallen branches before mowing.
Height: Consistent with the growth habit of the grass variety and maintained at 25 mm to 40 mm throughout the year.
Program: Weekly during the mowing season, November to March, and at bi-weekly intervals during April to October. Do not mow under wet conditions.
Raking: Once every month before mowing, during the mowing season, with a flexible rake. On alternate mowings, adopt a north-south and east-west pattern.
Edges: At the same time as mowing, trim lawn edges to plant beds, pathways, base of trees and other obstacles. Ensure trees and shrubs are not damaged.

TOPDRESSING

Topdressing material for established lawns: Weed free imported sandy topsoil to a depth of 5 mm.
Program: The spring following establishment.
Topdressing material for remediation of depressions or irregularities: Apply coarse or medium soil to AS 4419 suitable for application to turf or grass seeded areas.

FERTILISING

Fertilising: Apply lawn fertiliser at the completion of the first and last mowings of the plant establishment period, and at other times as required to maintain healthy grass cover.

1.2.3 GARDEN BEDS

WEEDING

Weeds: Unwanted plants and grasses considered invasive to the locality.
Program:

- Lawns: Quarterly, and as determined by the relationship of the general lawn condition and weed growth.
- Trees and shrubs: As required for planted, paved and mulched areas to be weed free when observed at bi-weekly intervals.

Method: Clear and keep clear vigorous ground covers 200 mm from the base of any shrub or tree:

- Small areas: By hand.
- Large areas: Proprietary herbicides.

Herbicide application: Avoid windy days or if rain is likely to follow within 12 hours. Apply:

- To the manufacturer's instructions and Safety Data Sheets.
- When the weather is humid with moderate temperatures and maximum sunlight.
- When the ground has recommended soil moisture.

RUBBISH REMOVAL

Rubbish: Remove loose rubbish such as bottles, papers, and cigarette butts from the site. Execute this work regularly so that all areas are free from rubbish when observed at bi-weekly intervals.
Leaf litter: Remove from all path and lawn areas.

MULCHED SURFACES

Inspection: Bi-weekly to determine mulch requirements.
Depth: Maintain a minimum depth of:

- 75 mm for organic mulch.
- 50 mm for gravel mulch.

Remulching: Maintain the original ground levels around the base of plants.

1.2.4 WATERING

ESTABLISHMENT

Water quality:

- pH between 5.5 and 7.5.
- Total soluble salts less than 1000 mg/litre.
- No substances that would be toxic to plant growth.

Watering program: Minimum three complete waterings, soaking to a depth of 150 mm at fortnightly intervals for the first 6 weeks of plant establishment irrespective of natural rainfall. Confirm soaked depth and record in the log book.
Water restrictions: Coordinate the water supply and confirm the watering regime against state and territory government legislation and restrictions at the time.

IRRIGATION

Hand watering: Manually water all lawn and planting areas until the proposed irrigation system is fully operational, soaking to a depth of 150 mm for lawn and 300 mm for planting. Avoid frequent dampening of the surface. Allow the surface of the soil to partially dry out between waterings.
Irrigation system program: To suit the following:

- The precipitation requirements of the individual zones/stations with regard to types of plants.
- The infiltration rate of the soil/medium and associated physical factors seasons, evaporation, exposure, topography, local authority restrictions.
- An allowance for adjustment or shut down during and after periods prolonged heavy rains.

Equipment maintenance:

- Check all components for proper operation.
- Repair or replace damaged components with equivalent parts.
- Flush any dirt or foreign matter from the system and clear all blockages.

Operation: Ensure by adjustment or replacement of components, that the overall operation of the system is efficient and operational for the entire planting establishment period.

HAND WATERING

General: Manually water all lawn and planting areas, soaking to a depth of 150 mm for lawn and 300 mm for planting. Avoid frequent dampening of the surface. Allow the surface of the soil to partially dry out between waterings.

1.2.5 COMPLIANCE

CRITERIA

Generally: Plant establishment shall be deemed complete, subject to the following:

- Repairs to planting media completed.
- Ground surfaces are covered with the specified treatment to the specified depths.
- Pests, disease, or nutrient deficiencies or toxicities are not evident.
- Organic and rock mulched surfaces have been maintained in a weed free and tidy condition and to the specified depth.
- Vegetation is established and well formed.
- Vegetation cover to cell, seeded and/or hydromulched areas.

- Plants have healthy root systems that have penetrated into the surrounding, undisturbed ground and not able to be lifted out of its planting hole.
- Vegetation is not restricting essential sight lines and signage.
- Only frangible species are growing within road side clear zones.
- Specified vegetation setbacks from services and road furniture are evident.
- All hard landscape works have been installed and are operating as specified.
- Collection and removal of litter.
- Removal of mulch from drainage and access areas.
- All non-conformance reports and defects notifications have been closed out.

PLANT ESTABLISHMENT COMPLIANCE TABLE

Plant material	Acceptable failure per area	Acceptable concentration of failure
Tube stock	< 10%	< 15% in any given location
140 mm	< 5%	< 15% in any given location
300 mm or larger	< Nil%	Nil %
Turf	< 5%	Nil %
Cells	< 5%	< 15% in any given location
Direct seeded native species and cover crop – including hydromulch, drilled and broadcasted areas	Not less than 3 [Nominate as appropriate] specified species per 1 m^2 grid (determined on a testing frequency of 20 grid areas per 500 m^2)	Nil grids with < three (3) [Nominate as appropriate] specified plant species
Direct seeded grass species and cover crop	< 15% (determined by a 1 m^2 grid on a testing frequency of 1 grid area per 500 m^2)	< 10%
Cover crop	< 5%	Nil %

C. TREE MANAGEMENT AND MITIGATION MEASURES

1.2.6 TREE PROTECTION

GENERAL

Warning signs: Display in a prominent position at each entrance to the site, warning that trees and plantings are to be protected during the contract. Remove on completion.
Protection measures: Provide before commencement of earthworks.

TREES TO BE RETAINED

Extent: All trees NOT marked for removal.

TREE PROTECTION

Tree protection zone (TPZ): To AS 4970 Section 3.
Tree protective measures: To AS 4970 Section 4.
Monitoring and certification: To AS 4970 Section 5.

1 Install tree protection fencing prior to any construction work, all fencing must comply with AS 4970 2009 Protection of Tree on Development Sites. Tree Protection Zone measurements are noted in the Tree Survey as Radius from the centre of the tree.

Tree Protection fencing is required to be installed for the following trees:
19, 23(9 x remaining trees)51,52,53,57,58,59,60,61,83,84,85.86,92,93,97,98,99,118,119 &120, Install tree protection fencing prior to any construction work, all fencing must comply with AS 4970 2009 Protection of Tree on Development Sites.
All measurements for required TPZ are noted in the Tree Survey.

Signs must be erected on the fences "NO ENTRY" with the Project Arborist phone number.

WORK NEAR TREES

Harmful materials: Conform to the following:

- Keep the area within the dripline free of sheds and paths, construction material and debris.
- Do not place bulk materials and harmful materials under or near trees.
- Do not place spoil from excavations against tree trunks.
- Prevent wind-blown materials such as cement from harming trees and plants.

Damage: Prevent damage to tree bark. Do not attach stays, guys and the like to trees.
Work under trees: Do not remove topsoil from, or add topsoil to, the area within the dripline of the trees.
Excavation: If excavation is required near trees to be retained, give notice. Minimise period of excavation under tree canopies.
Hand methods: Use hand methods to locate, expose and cleanly remove the roots on the line of excavation. If it is necessary to excavate within the drip line, use hand methods so that root systems are intact and undamaged.
Roots: Do not cut tree roots exceeding 50 mm diameter. Where it is necessary to cut tree roots, use cutting methods that do not excessively disturb the remaining root system. Immediately after cutting, water the tree and apply a liquid rooting hormone to stimulate the growth of new roots.
Backfilling: Backfill excavations around tree roots. Place the backfill in layers of 300 mm maximum depth and compacted to a dry density similar to that of the original or surrounding soil. Do not backfill around tree trunks to a height greater than 200 mm above the original

ground surface. Immediately after backfilling, thoroughly water the root zone surrounding the tree.
Backfill material:

- Mix proportions (topsoil:well-rotted composts) by volume: 3:1.
- Neutral pH value.
- Free from weed growth and harmful materials.

Compacted ground: Do not compact the ground or use skid-steel vehicles under the tree dripline. If compaction occurs, give notice.
Compaction protection: Protect areas adjacent the tree dripline. Submit proposals for an elevated platform to suit the proposed earthworks machinery.
Watering: Water trees as necessary, including where roots are exposed at ambient temperature more than 35°C.
Mulching: Spread 100 mm thick organic mulch to the whole of the area covered by the drip line of all protected trees.

1.2.7 TREE MAINTENANCE

GENERAL

Notice: Give notice before commencing tree maintenance.
Pruning: To AS 4373 using a fully qualified and experienced arborist. Carry out all required works in a safe manner.

EXECUTION

Repair: Undertake tree surgery and rectify any damage to existing trees to be retained.
Operations: Remove dead and decayed wood or limbs that have been broken. Make all cuts at branch collars. If trees show signs of deterioration after the work is completed, carry out a program of soil amelioration such as soil aeration, irrigation or incorporation of organic material. Continue this program until the end of the plant establishment period.
Root pruning: Do not excessively disturb the remaining root system. Cut off damaged roots cleanly inside the exposed or damaged area. Cover exposed root area with soil immediately after pruning, do not leave roots exposed.
Wetting and new root stimulation: Form a water collecting basin and apply a rooting hormone and wetting agent to the rootball.
Precautions: Avoid damage to trees being treated and to nearby trees and surroundings. Do not use trees as anchors for winching operations or bracing. Provide bracing as necessary before cutting to prevent uncontrolled breakages and damage to surroundings.
Failure: If repair work is impracticable, or is attempted and is rejected, remove the tree and root system and make good.
Restitution by replacement tree: Replace with tree of the same species and similar size.

TREE MAINTENANCE SCHEDULE

Refer Appendix 1 – and Appendix 2 advice from McArdle and Sons – Arborists

1.2.8 COMPLETION

TEMPORARY WORKS

Remove at completion: All temporary works.

CLEAN UP

Progressive cleaning: Keep the work included in the contract clean and tidy as it proceeds and regularly remove from the site waste and surplus material arising from execution of the work,

including any work performed during the defects liability period or the plant establishment period.
Removal of plant: Within 10 working days of the date of practical completion, remove temporary works, construction plant, buildings, workshops and equipment which does not form part of the works, except what is required for work during the defects liability period or the plant establishment period. Remove these on completion.

VERMIN MANAGEMENT

Requirement: Employ an approved firm of pest exterminators and provide a certificate from the firm stating that the completed works is free of vermin.

TREES APPROVED FOR REMOVAL

2 Removal (total of tag numbers 63) representing a total **(89)** tree removals, **45 of these tree removals are specified for EARLY WORKS** , retention value High Medium Low and listed as follows:

TREES SPECIFIED FO REMOVAL ARE AS FOLLOWS :(High Medium Low are retention values)

- HIGH: 1, 2, 3, 7, 8, 42, 121, 122*,127 (hedge) ,131 (9 x trees) and 138. **(11 Tag numbers representing 19 x Tree removals)=19 trees**
- Medium: 4, 5, 6(3 x trees), 10, 11, 12, 13, 22,23 (2 of 11 tree) 39 (2 x trees) ,47, 50(2xTrees) 55,89,94, 95, 96, 107, 123, 124, 125, 126 (11xTrees)129, 130, 132, 133, 134, 137 (2xtrees) 139, 140, 141 and 142. **(32 tag numbers representing (48 x Tree removals)=48 trees**
- Low: 9 (2xtrees) , 15 , 18 (1of 4) 26, 46 ,48 (2xtrees) 49 ,54, 56, 80, 87,88, 100, 101, 102, 110,117, 128, 135 and 136. **(20 tag numbers representing 22 x Tree removals)= 22 trees**

EARLY WORKS:
Tree to be removed as Early Works only; 42, 46, 47, 48 (2xtrees) 49, 50 (2xtrees) 54, 55, 56, 88, 89, 96, 121, 122, 123, 124, 125, 126 (11 x trees) 127, 128,129, 130, 131 (9 x trees) 132, & 133= **45 tree as specified.**

3 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)

4 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.

5 Excavations 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.

6 The development approval must include a tree planting programme to replace the trees of the same species being removed.

APPENDIX I TREE MANAGEMENT NOTES

McArdle & Sons Pro Tree Service

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.

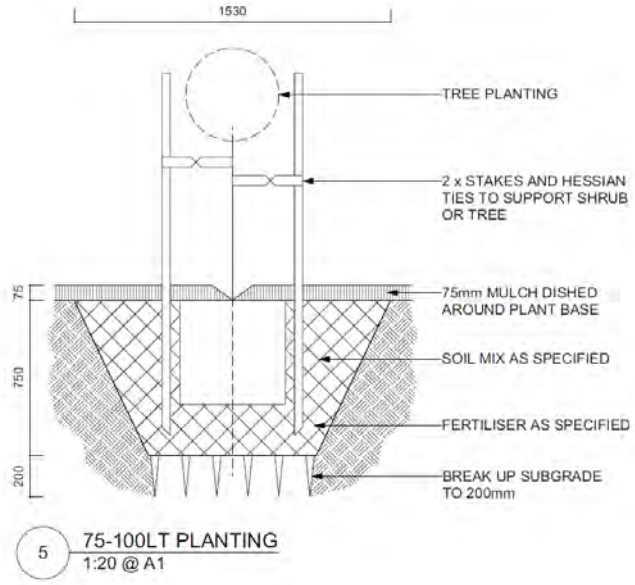
Regular monitoring of tree protection in adherence with the approved tree protection plan throughout the development process must be undertaken in consultation with the Consulting Arborist for the project to ensure that tree protection measures are maintained. Inspections are to be carried out monthly 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.

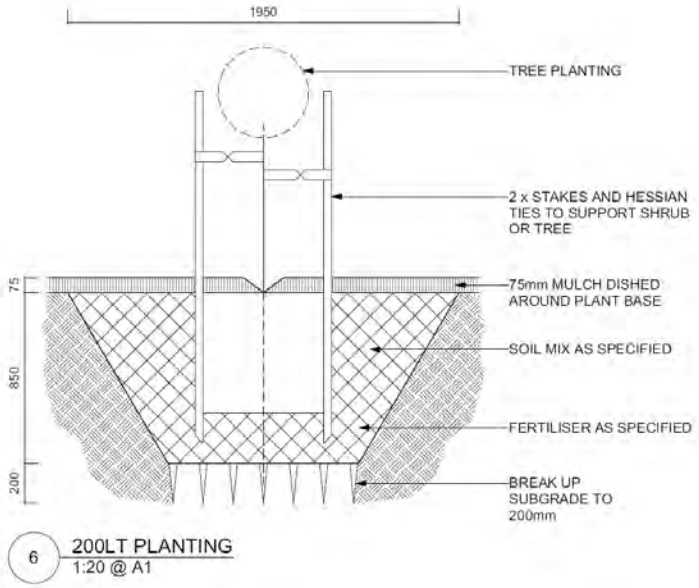
D. NATIVE TREE PLANTING SIZE

In accordance with the SSDA approval conditions all native trees are to be installed in 100 litre containers with plants to show a height of 2.0 to 2.5 metres when installed.

The planting details below illustrates the standard the building contractor is to meet when installing the trees, note some natives trees are to be installed in a larger 200 Litre size, in excess of the SSDA requirements. This detail is also illustrated below.

E. NATIVE TREE PLANTING INSTALLATION

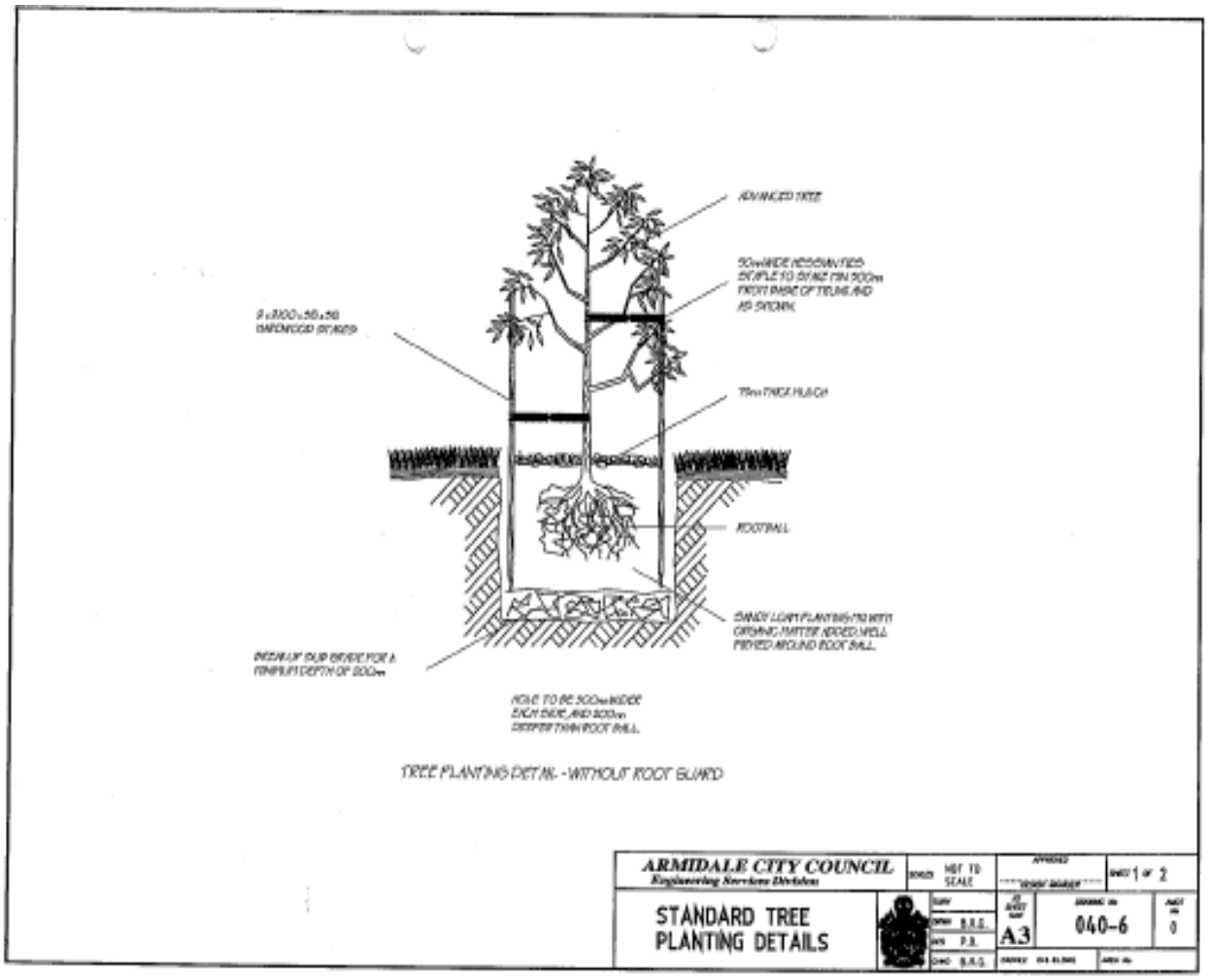




F. PLANTING OF STREET TREES

The following details have been extracted from Armidale Dumaresq Council's Urban Streetscape (Street Vegetation) Policy (POL120).

Species selection has been made in consultation with Mr Richard Single, Project Officer Parks and Gardens from Armidale Dumaresq Council, advising to match trees existing.



Street tree planting to the western side Butler Street is to feature *Pistacia chinensis – Chinese Pistachio* at 10.0 metre spacings, commencing 20.0 metres from intersections of Kentucky and Mann Streets. Container size to be 100 Litre.

Appendix A – McArdle and Sons Tree Report.

Tarranne Pty Ltd T/A

McArdle and Sons Pro Tree Service

Since 1956

ACN 094 297 408

ABN 51 094 297 408

www.mcardleandsons.com.au

Phone: 02 6769 0372 Mobile 0418 165 650

Po Box 4060 Tamworth NSW 2340

DATE: 5/2/2019

ARMIDALE SECONDARY COLLEGE

Butler St Armidale NSW.

ARBORIST STATEMENT: Tree protection Zones & Tree Removals

RICHARD CROOKES CONSTRUCTION: 788 Level 3, 4 Broadcast Way, Artarmon NSW 2064 www.richardcrookes.com.au

ATTENTION

Site Engineer: Mr Sam Lyons

Mobile: 0409 277 788

STATEMENT

McArdle and Sons Pro Tree Service is provide the following statement following 2 site visits to Armidale Secondary College Construction Site on the 19th and 28th of February 2019.

Tree Protection

Mr Dan McArdle Consulting Arborist has over 30 years industry experience and has on the 19th of February attended the site assisted by Mr Sam Lyons of Richard Crookes Construction to verify the implementation and of Tree Protection Fencing was completed within the calculated TPZ area provided to protect trees as follows: 19, 23 (9 remaining trees), 51, 52, 53, 57, 58, 59, 60, 61, 83, 84, 85, 86, 92, 93, 97, 98, 99, 118, 119 & 120.
This has been completed and conforms to the AS 4970 2009 Protection of Tree on Development Sites.

Note: Tree 97 has a Tree Protection Zone of 14.4m (TPZ) and this area will require the onsite AQF5 Arborist when pavement replacement or removal is being undertaken.

TREE REMOVAL (EARLY WORKS)

The visit to the site on 28th February has confirmed that the trees listed for **EARLY WORKS**: Tree Numbers: 42, 46, 47, 48 (2xtrees) 49, 50 (2xtrees) 54, 55, 56, 88, 89, 96, 121, 122, 123, 124, 125, 126 (11 x trees) 127, 128, 129, 130, 131 (9 x trees) 132, & 133 = **45** trees have been removed.

Further information please contact Consulting Arborist Dan McArdle on 0418165650 or danmcardle@mcardleandsons.com.au.

Regards

Consulting Arborist

Dan McArdle Dip Arb Dip AG

McArdle and Sons Pro Tree Service.

Tree Assessment Report

Prepared for

NBRS Architecture

Armidale Secondary College

Redevelopment SSD 9095

T: 02 90955677
E: macella.salzmann@nbrsarchitecture.com>

Site Address:

158-182 Butler St, Armidale

Date of Report 27th June 2018

Amended 16th OCT 2018

PREPARED BY

Tarranne Pty Ltd, Trading As

McArdle and Sons Pro Tree Services (since 1956)

ACN 094 297 408

PO Box 4060 Tamworth NSW Phone: 02 6769 0372

CONSULTING ARBORIST

Dan McArdle

Level 5 Arborist, Dip Arboriculture, Dip Agriculture

Licence No: TCAA:99/1003/14

Mobile 0418 165 650

E: danmcardle@mcardleandsons.com.au

TABLE OF CONTENTS

INTRODUCTION	3
AIMS	3
METHODOLOGY	3
THE SITE	4
SUMMARY	5
MAPS	7
TREE SURVEY	9
TREE ANALYSIS PHOTOS	25
DISCUSSIONS	26
CONCLUSION	29
RECOMMENDATIONS	30
GLOSSARY	31
BIBLIOGRAPHY	32
SECTION II APPENDIX A (TULE)	33
APPENDIX B HEALTH AND STRUCTURAL CONDITION	34
APPENDIX C HERITAGE ITEM L-11	35
APPENDIX D HERITAGE MAP ITEM 1049	36
APPENDIX E TREE LOCATION MAP(FIG 2)	37
APPENDIX F TREE PLANTING SPECIFICATIONS	38
APPENDIX G INDIGENOUS TREE SPECIES LIST	39
APPENDIX H Limited Evaluation	40
APPENDIX I Tree management Guidelines	41
APPENDIX J Disclaimer	42

INTRODUCTION

NBRS Architecture has commissioned McArdle and Sons to conduct a Tree Assessment and Report relating to 185 tree items within the development area of the Armidale Secondary College Redevelopment (AHSR) SSD 9095 located at 158-182 Butler St, Armidale NSW.

Mr Dan McArdle holds the qualification of AQF level 5 Consulting and Climbing Arborist, and conducted the evaluation using Visual Tree Assessment (VTA) method and best industry practices. The systems are in accordance with industry best practice and impact assessments are based upon the Australian Standards, Risk Management ISO 3100-2009 and guidelines set down by TCAA of Australia.

GENERAL SCOPE SSD 9095

The Project is for an up grade and expanson of Armidale Secondary College including the addition of new teaching spaces and upgrade to core facilities. The redevelopment of Armidale Secondary College will include 79 teaching spaces (an additional 30 teaching spaces) and will accommodate 1580 students (an increase of 1000)

AIMS

The aim of this report is to:

- To inspect and collect data on all trees in the proposed construction area of the development site.

METHODOLOGY

The collection of data 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.
Collect data to determine tree protection zones and structural root zones of trees that can be affected by construction.

Testing on site may include:
Mallet sounding, non-invasive testing for hollows by probing of cavities and 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 was recorded in a Tree Survey Table and various assessment methods were used including:

1. 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.

2. Health & Structural Condition of Tree Assessment. This describes the vigour and vitality of the tree**.**

3. 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)*

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

THE SITE

The collection of data was comprehensive and inspections were conducted on 15th May 2018. Only trees with in the specific site have been surveyed and referenced in this report. Following inspection was conducted on 26th June 2018.
At the time of the inspection the trees have been experiencing severe dry period of time due to the drought. Several trees contain hollows and possible habitat.

HERITAGE
Armidale High School is noted on map HER_002AAA LEP 2012 *(classification general)* Item I049. (Appendix D).

Schedule 5 Environmental heritage Part: 1 Heritage items of the Armidale Dumaresq LEPs 2012 relates to heritage conservation and identified Armidale High School 158-182 Butler St Armidale as Item I049 (Classification General).

Following up Inspection was completed on June 26th 2018.

Heritage : *Original Circa 1921 2 storey building and grounds*.
Armidale High School 158-182 Butler St Armidale Item 1049

Lot 1 ,DP 196298 ; Lot 704,DP 755808;Lots 1 and 2 ,Section 49,DP 758032;Lot 1 ,Section 161,DP758032: Lot 1151,DP 821627:Lot 7005 DP 1052246.

Applicable DCP 2012 Section 2 chapter 2.2

Development Control Plan 2012 Section 2 chapter 2.2 Tree Preservation Effective date 26th June 2013 Ref 1.4 Heritage items and Heritage conservation area.(*extract from DCP 2012- Tree Preservation 1.4)* and further information Clause 5.10 of LEP 2012.

It is also noted the 6m exemption is not applicable on heritage listed items or sites

MEMORIALS
Located on the site are 2 X trees (tree numbers 104 & 122) indicating memorial trees, at ground level Stone and Plaque exist.

MATURE TREES: Significant tree planting of Ulmus *procera*, Pinus *radiate* Cyprus *species*, Eucalyptus *species*, Populus l*ombardy*, Populus *alba*, Plantus x *acerifolia* Quercus *species* and Cedrus *deadara form significant heritage L-11(appendix C)*

SMALL TREES & SHRUBS: Pistacia c*hinensis*, Fraxinus *species* and Pyrus *species*.
These are all located on site and add to the amenity of the area.

ACCESS
All areas of the school are accessible to students and or staff /visitors, most of the trees are located in these assessable areas where people movements can be in numbers.

EXISTING TREE AND REMEDIATION'S

All trees have been tagged and assigned a number and referenced on the Tree Location Map Appendix E (fig2) of its approximate location on the site.
Where noted in the Tree Survey several trees have significant faults and or require remediation of the canopy for retention or removal, this tree survey is not including a risk assessment and only attention is noted where a fault or structural damage / dead wood is present.

SUMMARY

NBRS Architecture has commissioned McArdle and Sons to conduct a Tree Assessment and Report relating to 185 trees items within the development area of the Armidale Secondary College Redevelopment (AHSR) SSD 9095 located at 158-182 Butler St, Armidale NSW.

Inspections were conducted on 15th May 2018 and 26th June 2018Only trees with in the specific site have been surveyed and referenced in this report.

Mr Dan McArdle holds the qualification of AQF level 5 Consulting, conducted the evaluation using Visual Tree Assessment (VTA) method and best industry practices.
All trees have been tagged and assigned a number and referenced on the (Appendix E) Tree Location Map (fig2) of its approximate location on the site.
Where noted in the Tree Survey several trees have significant faults and or require remediation of the canopy for retention or removal, this tree survey is not including a risk assessment and only attention is noted where a fault or structural damage / dead wood is present.

SITE
Armidale Regional Council (ARC) was contacted on the 18th May 2018 regarding heritage clarification, information has been forth coming from ARC's Mr Richard Single Project Officer - Parks and Gardens information of item 1049 and Item L-11 was returned and included in this report.

Heritage Map Her_ 002 AAA attached (Appendix D)
Heritage : Clause 5.10 of LEP 2012 relates to heritage conservation and identifies when development requires approval and the matters that need to be considered and addressed.
Development Control Plan 2012; Section 2 chapter 2.2 Tree Preservation Effective date 26th June 2013 Ref 1.4 Heritage items and Heritage conservation area.

Heritage Items I049
Original Circa 1921 2 storey building and grounds.
Armidale Secondary College 158-182 Butler St Armidale, Item I049 (Appendix D) *Lot 1 ,DP 196298 ; Lot 704,DP 755808;Lots 1 and 2 ,Section 49,DP 758032;Lot 1 ,Section 161,DP758032: Lot 1151,DP 821627: Lot 7005 DP 1052246.*

All trees and shrubs and the grounds are subject to Armidale Dumaresq Local Environmental Plan 2012, Heritage item L-11/ *(not located on the Schedule 5 Environmental heritage, Part 1 Heritage items list)*
Data sheet of a heritage study commissioned by Armidale City Council 1990 that directly identifies trees considered to be significant to Armidale High School Attached (Appendix C).

CONCLUSIONS
The amenity of the site is consistence with the surrounding area, individual **tree tag numbers (63)** indicated from the Tree Removal / Retain Plan (fig 3) page 8,**representing a total of (89) tree removals , 45 of these trees are also specified in the Early Works.**

RETENTION VALUE OF TREES SPECIFIED FO REMOVAL ARE AS FOLLOWS:

- HIGH: 1, 2, 3, 7, 8, 42, 121, 122*,127 (hedge) ,131 (9 x trees) and 138. **(11 Tag numbers representing 19 x Tree removals)…….19 trees**
- Medium: 4, 5, 6(3 x trees), 10, 11, 12, 13, 22,23 (2 of 11 tree) 39 (2 x trees)47 , 50(2xTrees) 55,89,94, 95, 96, 107, 123, 124, 125, 126 (11xTrees)129, 130, 132, 133, 134, 137 (2xtrees) 139, 140, 141 and 142**. (32 tag numbers representing (48 x Tree removals)…… 48 trees**
- Low: 9 (2x trees) 15 , 18 (1of 4) 26, 46 ,48 (2xtrees), 49 ,54, 56, 80, 87,88, 100, 101, 102, 110,117, 128, 135 and 136**. (20 tag numbers representing 22 x Tree removals)……. 22 trees**

Removal of several High Retention trees has an impact on the tree amenity of the site, trees 7 & 8 form entrance and trees 127hedge & 131 group plantings in formation.
The medium and low retention are replaceable and replanting is an option.

EARLY WORKS:
Tree to be removed; 42, 46, 47, 48 (2xtrees) 49, 50 (2xtrees) 54, 55, 56, 88, 89, 96, 121, 122, 123, 124, 125, 126 (11 x trees) 127, 128,129, 130, 131 (9 x trees) 132, & 133= **45 trees (early works removals).**

HABITAT
Hollows were observed in some trees on the site, trees listed for removal appeared not to have habitat hollows or activity. Ecologist to confirm habitat activity.

TREE PROTECTION
Tree Protection is required for the following trees:
19,23 (9 remaining trees),51,52,53,57,58,59,60,61,83,84,85.86,92,93,97,98,99,118,119 &120, Install tree protection fencing prior to any construction work, all fencing must comply with AS 4970 2009 Protection of Tree on Development Sites.
All measurements for required TPZ are noted in the Tree Survey.

SPECIAL NOTES:
Several trees have been identified with structural faults or other and I have made comment in the Tree survey ie; Trees 46,105,118 and 122* (*Memorial Tree*). This report does not include a risk assessment, only comments have made been made as a point of reference to the trees condition and TULE rating applied. No Indigenous trees on site are listed as a threatened species.

Development Consent is required from Armidale Regional Council for trimming or removal of trees on the Armidale Secondary College site.

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

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

HERITAGE MAP: Fig 1(courtesy NBRS Architecture)

Tree Removal / Retain Map: Fig 3

TREE SURVEY

Tree No.	Location	Scientific & Common Name	Height (m)	Crown spread (m)	DBH (cm)	Condition of Tree *(Health &Structure)* *(Defect & Measurements)* Retention Value	Basal Flare (cm)	SRZ (m) Radius	TPZ (M) Radius	TULE& Retention Value	OBSERVATIONS RECOMMENDATIONS
1	In car access	Fraxinus excelsior	10	11	69	Mature, Good Condition, Heavily Pruned lower branch	80			A2 High	Tree Indicated for Removal Tree Removal / Retain Plan
2	Not affected	Cedrus deadara	6	10	30	Semi-Mature, Good Condition	38			A2 High	Tree Indicated for Removal Tree Removal / Retain Plan
3	Not affected	Cedrus deadara	5	9	28	Semi-Mature, Good Condition	35			A2 High	Tree Indicated for Removal Tree Removal / Retain Plan
4	Not affected	Eucalyptus crenulata Silver Gum	5	6	18	Mature, Good Condition	25			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
5	Not affected	Fraxinus excelsior	5	6	18	Semi-Mature, Good Condition	28			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
6 group 3	Not affected	Eucalyptus spp.	2	7	15	Immature, Good Condition	22			A2 Medium	3x Trees Indicated for Removal Tree Removal / Retain Plan
7	Not affected	Quercus robur, English Oak	12	12	50	Mature, Good Condition, Minor Dead Wood, Significant tree	60			A2 High	Tree Indicated for Removal Tree Removal / Retain Plan
8	Not affected	Quercus robur, English Oak	12	12	50	Mature, Good Condition, Minor Dead Wood, Significant Tree	62			A2 High	Tree Indicated for Removal Tree Removal / Retain Plan
9 group 2	Not affected	Pistacia chinensis	3	6	12	Semi-Mature, Good Condition but Poor Development/Habit	30			D2 Low	2x tree Indicated for Removal Tree Removal / Retain Plan

10	Not affected	Eucalyptus dalrympleana, Mountain White Gum	**3**	**9**	**15**	Juvenile, Good Condition, Union poor form	**25**			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
11	Not affected	Pistacia chinensis	4	6	20/20	Semi-Mature, Good Condition	45			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
12 group 2	Not affected	Quercus robur, English Oak	20	6	10	Juvenile, Good Condition	2			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
13	Not affected	Pistacia chinensis	4	6	25	Semi-Mature, Good Condition	28			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
14 group 2	Not affected	Pistacia chinensis	7	6	18/18	Mature, Good Condition but Poor Development/Habit	40			A2 Medium	Retain
15	Not affected	Liquidambar styraciflua	15	6	15	Semi-Mature, Good Condition	22			C4 Low	Unstable, Moving in ground REMOVE
16 group 2	Not affected	Fraxinus Claret Ash	4	6	15	Semi-Mature, Good Condition	19			A2 Medium	Retain
17	Not affected	Pistacia chinensis	6	6	26	Mature, Good Condition	35			A2 Medium	Retain
18 group 4	Not affected	Fraxinus Claret Ash	4	6	25	Mature, Good Condition but Poor Development/Habit	38			D3 Low	1 x Dead tree in group, Removal of dead tree only.
19	In car access, Other	Quercus robur, English Oak	14	12	30x3	Mature, Good Condition, Co-dominate Stem	90	3.17	6.24	A2 High	Retain TREE PROTECTION REQUIRED
20	Not affected	Eucalyptus globulus, Tasmanian Blue Gum	5	6	20	Immature, Good Condition, Lean to North	28			D2 Low	Roots Exposed
21	Not affected	Eucalyptus globulus,	9	12	35	Semi-Mature, Good Condition	51			A2	Retain

		Tasmanian Blue Gum								Medium	
22	Not affected	Liquidambar styraciflua	2	6	15	Immature, Good Condition	22			A2 Medium	Remove
23 group 11	Not affected	Casuarina	4	9	15	Immature, Good Condition	25			A2 Medium	(Retain 9 of the 11 trees) Removal 2 only closet to Building
24	Not affected	Eucalyptus saligna, Sydney Blue Gum	10	12	40	Mature, Good Condition	56			A2 High	Retain
25 group 15	Not affected	Casuarina	4	8	20	Immature, Good Condition	30			A2 Medium	Group Planting Retain
26	Not affected	Casuarina	5	8	25	Semi-Mature, Physical Damage at Union Split	35			C4 Low	Remove .Split at Union significant damage
27	Not affected	Eucalyptus spp	6	7	20	Immature, Good Condition	30			A2 Medium	Retain
28	Not affected	Eucalyptus dalrympleana, Mountain White Gum	3	7	20	Semi-Mature, Good Condition	30			A2 Medium	Retain
29	Not affected	Eucalyptus dalrympleana, Mountain White Gum	3	7	20	Semi-Mature, Good Condition but Poor Development/Habit	30			A2 Medium	Retain
30	Not affected	Eucalyptus globulus, Tasmanian Blue Gum	4	8	15/15	Semi-Mature, Good Condition but Poor Development/Habit	35			D2 Low	Retain
31	Not affected	Eucalyptus globulus, Tasmanian Blue Gum	7	10	40	Mature, Good Condition	55			A2 Medium	Retain
31 a	Not affected	Eucalyptus dalrympleana, Mountain White Gum	8	3	15	Immature, Good Condition	23			A2	Retain

32	Not affected	Cuspressus spp spp.									Small black fruit
33	Not affected	Eucalyptus dalrympleana, Mountain White Gum	3	8	25	Semi-Mature, Good Condition, Parasite Vine Present	32			A2 Medium	Retain, Prune mistletoe
34	Not affected	Angophora floribunda, Rough-barked Apple	3	9	15/15	Semi-Mature, Good Condition but Poor Development/Habit	30			A2 Medium	Retain
35	Not affected	Eucalyptus dalrympleana, Mountain White Gum	2	6	15	Immature, Good Condition	22			A2 Medium	Retain
36	Not affected	Eucalyptus dalrympleana, Mountain White Gum	5	9	25	Semi-Mature, Good Condition, Parasite Vine Present	30			A2 Medium	Retain, Prune eye stick
37	Not affected	Casuarina	3	8	20	Semi-Mature, Good Condition	35			A2 Medium	Retain
38	Not affected	Cuspressus spp	2	12	35	Mature, Good Condition	50			A2 Medium	Retain
39 group 2	Not affected	Eucalyptus spp.	2	10	25	Semi-Mature, Dead				C4 Low	Remove
40	Not affected	Fraxinus excelsior Golden ash Golden ash,	6	10	30	Mature, Good Condition	45			A2 Medium	Retain
41	In car access, Park	Fraxinus excelsior Golden ash	12	12	50	Mature, Good Condition	80			A2 High	Retain
42	Not affected	Fraxinus excelsior Golden ash,	22	15	140	Mature, Good Condition	130			A2 High	EARLY WORKS REMOVAL
43	Not affected	Salix Willow	12	15	80	Mature, Moderate Condition, Cavity at 3m	960			D2 Low	Canopy Reduction, Cavity Inspection

44	Not affected	Ulmus procera	6	8	Multi	Suckers				A2 Low	Small leaf
45	Not affected	Ulmus procera	12	14	Multi	Mature, Good Condition but Poor Development/Habit	110			D2 Medium	Retain
46	Not affected	Cuspressus spp spp.	7	8	30/20	Mature, Moderate Condition	60			D3 Low	EARLY WORKS REMOVAL
47	Not affected	Eucalyptus cinerea, Argyle Apple	14	16	90	Mature, Good Condition, Physical Damage at 12m. Significant Tree	110			D2 Medium	EARLY WORKS REMOVAL
48 group 2	Not affected	Allocasuarina torulosa, Rose She-oak	6	12	50	Mature, Good Condition but Poor Development/Habit, Poor Trunk Union	68			D3 Low	EARLY WORKS REMOVAL Removal 2 trees
49	Other – Path	Cuspressus spp spp.	10	14	30x3	Mature, Good Condition but Poor Development/Habit, Physical Damage at Union Base	75			D3 C4 Low	EARLY WORKS REMOVAL
50group 2	Other – Path	Eucalyptus spp.	4	9	20	Immature, Good Condition	28	1.94	2.4	A2 Medium	EARLY WORKS REMOVAL Removal 2 trees
51	In car access	Eucalyptus spp.	20	16	80	Mature, Physical Damage at 5 x Branch, History of Fail	95	3.24	8.4	D3 Low	History of failing, Removal optional TREE PROTECTION REQUIRED
52	Not affected	Eucalyptus spp.	4	9	35	Semi-Mature, Good Condition	45	2.37	4.2	A2 Medium	Retain TREE PROTECTION REQUIRED
53	Not affected	Eucalyptus nicholii, Narrow-leaved Black Peppermint	10	12	70	Mature, Parasite Vine Present	95	3.24	8.4	D2 Medium	Retain TREE PROTECTION REQUIRED
54	Not affected	Eucalyptus dalrympleana, Mountain White Gum	5	9	28	Mature, Good Condition but Poor Development/Habit, Re-growth off stump	40			D2 Low	EARLY WORKS REMOVAL
55	Not affected	Eucalyptus dalrympleana,	12	16	65	Mature, Good Condition	77			D2	EARLY WORKS REMOVAL

		Mountain White Gum								Medium	
56	Not affected	Eucalyptus dalrympleana, Mountain White Gum	12	14	50x3	Mature, Moderate Condition, Fungal Attack at 3m	120			A2 Low	EARLY WORKS REMOVAL
57	Not affected	Eucalyptus dalrympleana, Mountain White Gum	12	16	50x3	Mature, Moderate Condition	120	3.57	6.24	D2 High	Significant Dead Wood Prune TREE PROTECTION REQUIRED
58	Not affected	Cotoneaster	6	6	Multi	Mature, Good Condition but Poor Development/Habit	50	2.47	3.6	A2 Low	Retain TREE PROTECTION REQUIRED
59	Not affected	Quercus robur, English Oak	8	10	40	Mature, Good Condition	52	2.51	4.8	A2 High	Retain TREE PROTECTION REQUIRED
60	In car access	Cuspressus spp	14	16	110	Mature	160	4.03	13.2	D2 High	Retain TREE PROTECTION REQUIRED
61	Not affected	Lagunania Norfolk Island Hibiscus	3	6	15	Mature, Moderate Condition, Dead Wood Low	30	2	2	D2 Low	Prune Retain TREE PROTECTION REQUIRED
62	Not affected	Ulmus procera	4	8	25	Semi-Mature, Poor	50			D3 Low	Re-growth off stump
63	In car access	Ulmus procera	8	12	50	Mature, Good Condition	60			D2 High	Retain
64	In car access	Ulmus procera	8	12	50	Mature, Good Condition	60			D2 High	Retain
65	In car access	Ulmus procera	8	10	40	Mature, Moderate Condition	50			D2 High	Retain
66	In car access	Ulmus procera	10	12	50	Mature, Good Condition	70			D2 High	Retain
67	In car access	Ulmus procera	10	12	50	Mature, Good Condition	66			D2 High	Retain

68	In car access	Ulmus procera	10	10	40	Mature, Moderate Condition	60			D2 High	Retain
69	In car access	Ulmus procera	10	12	50	Mature, Moderate Condition, Physical Damage and Cavity at 1m	65			D3 High	Decayed Trunk, Reduce Crown. Retain
70	In car access	Ulmus procera	8	10	46	Mature, Moderate Condition, Physical Damage and Cavity at 1m, Habitat Tree	65			C4 High	Habitat, Reduce Crown. Retain 6 months inspection
71	In car access	Ulmus procera	8	10	45	Mature, Moderate Condition	60			D3 High	Retain
72	In car access	Ulmus procera	12	16	80	Mature, Good Condition	120			A2 High	Retain
73	In car access	Ulmus procera	8	10	45	Mature, Moderate Condition	60			D2 High	Retain
74	In car access	Ulmus procera	8	10	45	Mature, Moderate Condition	60			D2 High	Retain
75	In car access	Ulmus procera	8	10	40	Mature, Moderate Condition	58			D2 High	Retain
76	In car access	Ulmus procera	10	14	60	Mature, Moderate Condition	75			D2 High	Retain
77	In car access	Ulmus procera	12	12	70	Mature, Moderate Condition	83			D2 High	Retain
78	In car access	Ulmus procera	9	12	50	Mature, Moderate Condition	60			D2 High	Retain
79	In car access	Ulmus procera	10	14	60	Mature, Moderate Condition	80			D2 High	Retain
80	In car access	Ulmus procera	10	14	60	Dead	80			C4 Low	Removal not in construction

81	In car access	Ulmus procera	10	12	50	Mature, Moderate Condition	65			D2 High	Retain
82	In car access	Ulmus procera	10	12	50	Mature, Moderate Condition	65			D2 High	Retain
83	Not affected	Quercus palustris, Pin Oak	8	12	45	Mature, Good Condition	60	2.67	5.4	A2 High	Retain TREE PROTECTION REQUIRED
84	Not affected	Ulmus procera	10	12	55	Mature, Moderate Condition	70	2.85	6.6	D2 High	Retain TREE PROTECTION REQUIRED
85	Not affected	Eucalyptus spp.	12	12	60	Mature, Good Condition, Heavily Pruned, Unbalanced Canopy	130	3.96	7.2	D2 Medium	½ Tree has been removed TREE PROTECTION REQUIRED
86	Not affected	Pyrus	10	8	40	Mature, Good Condition	45	2.37	4.8	A2 High	Retain TREE PROTECTION REQUIRED
87	Not affected	Fraxinus claret ash	6	8	30	Mature, Moderate Condition	50			D3 Low	Tree Indicated for Removal Tree Removal / Retain Plan
88	Not affected	Eucalyptus scoparia, Wallangarra White Gum	6	8	28	Semi-Mature, Physical Damage at Base	38			D3 Low	EARLY WORKS REMOVAL
89	Not affected	Eucalyptus scoparia, Wallangarra White Gum	5	9	25	Semi-Mature, Good Condition	30			A2 Medium	EARLY WORKS REMOVAL
90	NIL										
91	NIL										
92	Not affected	Ulmus procera	12	14	40/30	Mature, Moderate Condition, Co-dominate Stem	80	3.01	6	A2 Medium	Poor form
93	Not affected	Liquidambar	7	8	30	Mature, Moderate Condition, Heavily Pruned	42	2.3	3.6	D3 Low	Retain TREE PROTECTION REQUIRED

94	Not affected	Ulmus procera	10	12	30/30	Mature, Good Condition but Poor Development/Habit, Co-dominate Stem	60			C3 Medium	REMOVE
95	Not affected	Ulmus procera	10	12	20/40/30	Mature, Good Condition but Poor Development/Habit, Co-dominate Stem	100			C3 Medium	REMOVE
96	Other – Path	Cuspressus spp	8	14	30/40	Mature, Good Condition, Co-dominate Stem	80			A2 Medium	EARLY WORKS REMOVAL
97	In car access	Cuspressus spp	16	14	120	Mature, Good Condition	170	4.14	14.4	A2 High	Significant Tree Retain TREE PROTECTION REQUIRED
98	In car access	Cedrus deadara	5	10	30	Semi-Mature, Good Condition	40	2.47	3.6	A2 Medium	Retain TREE PROTECTION REQUIRED
99	In car access	Platanus × acerifolia, London Plane	14	12	66	Mature, Good Condition	100	1.5	7.92	A2 Medium	Retain TREE PROTECTION REQUIRED
100	Not affected	Cuspressus spp	12	12	40/40 50/30	Mature, Physical Damage at Base	100			C4 Low	Tree Indicated for Removal Tree Removal / Retain Plan . Structural defect at base
101	Not affected	Cuspressus spp	10	12	40/40	Mature, Physical Damage at Base	90			D3 C4 Low	Tree Indicated for Removal Tree Removal / Retain Plan. Structural defect at base
102	In car access, Path	Cuspressus spp	160	13	50	Mature, Heavily Pruned	6			D3 Low	Structural defect, Cavity at base. Tree Indicated for Removal Tree Removal / Retain Plan
103	Not affected	Quercus robur, English Oak	6	9	25	Mature, Good Condition	30			A2 Medium	Retain
104	Not affected	Liquidambar	3	9	28	Mature, Good Condition	35			A2 High	NOTE: **Memorial Tree** Retain

105	Other – Path	Cuspressus spp	19	16	280	Mature, 3x main leader fracture at base east	306			D2 High	Fractured at base monitor @ 6 month intervals Retain
106	Path	Pinus radiata Montereu pine	14	14	90	Mature, Good Condition	110			D2 High	Significant tree Retain
107	Path	Cuspressus sempervirens	3	12	Multi	Mature, Good Condition	65			A2 Medium	Retain
108	Path	Cuspressus spp	10	12	40/10	Mature, Good Condition but Poor Development/Habit	100			D2 Medium	Poor structural form Retain & inspect annual
109	Path	Cuspressus sempervirens	5	12	60	Mature, Good Condition	80			A2 Medium	Retain
110	Path	Populus alba	10	10	50/50	Mature, Moderate Condition, Lean, Cavity at base	80			C4 Low	Removal for safety reasons
111	Path	Cuspressus spp	12	9	60	Mature, Good Condition	90			A2 Medium	Retain
112	Path	Pinus radiata Montereu pine	8	12	50	Mature, Poor Condition, Declining	60			D3 Low	Retain
113	Path	Cuspressus spp	8	12	80	Mature, Good Condition	90			A2 High	Retain
114	Path	Eucalyptus cinerea, Argyle Apple	10	10	60	Mature, Good Condition, Parasite Vine Present	90			A2 High	Retain
115	Path	Cupressus spp	8	12	50	Mature, Good Condition, Suppressed Adjacent Tree	80			A2 Medium	Retain
116	Path, High Target	Populus lombardy	3	15	35	Mature, Good Condition	60			D2 Medium	Retain
117	Path, High Target	Populus lombardy	10	15	70	Mature, Poor Condition, Dieback is more than 20%	85			C4 Low	Remove

118	Path, In car access	Pinus radiata Montereu pine	18	16	78	Mature	90	3.17	9.36	D2 High	Dead Wood Require Pruning Retain TREE PROTECTION REQUIRED
119	Not affected	Cedrus deadara	7	14	25x3	Mature, Good Condition but Poor Development/Habit	100	3.31	5.6	A2 High	Retain TREE PROTECTION REQUIRED
120	Not affected, In car access	Pinus radiata Montereu pine	12	16	70	Mature, Good Condition	95	3.24	8.4	A2 High	Dead Wood in Canopy Retain TREE PROTECTION REQUIRED
121	Not affected, In car access	Pinus radiata Montereu pine	12	16	70	Mature, Good Condition	110			A2 High	EARLY WORKS REMOVAL
122	Not affected	Fraxinus excelsior Golden ash, Claret Ash	10	10	30/30	Mature, Good Condition, Co-dominate Stem	90			A2 High	EARLY WORKS REMOVAL
123	Not affected	Cupressus sempervirens	3	14	60	Mature, Good Condition	95			A2 Medium	EARLY WORKS REMOVAL
124	Not affected	Cuspressus spp	6	10	45	Mature, Good Condition	80			A2 Medium	EARLY WORKS REMOVAL
125	Not affected	Cuspressus spp	3	8	15	Immature, Good Condition	30			A2 Medium	EARLY WORKS REMOVAL
126 group 11	Not affected	Betula pendula White Birch	3	7	15	Immature, Good Condition	30			A2 Medium	EARLY WORKS REMOVAL Remove 11 trees
127	Not affected	Photinia	5	5	Multi	Mature, Good Condition				A2 High	EARLY WORKS REMOVAL
128	Not affected	Acer negunda	5	6	15	Semi-Mature	30			D2 Low	EARLY WORKS REMOVAL
129	Not affected	Arbutus unedo, Strawberry Tree	7	6	Multi	Mature, Good Condition	100			A2 Medium	EARLY WORKS REMOVAL
130	Not affected	Pistacia chinensis	8	7	25/25	Mature, Good Condition, Co-	60			A2	EARLY WORKS REMOVAL

		Chinese Pistachio				dominate Stem				Medium	
131 group 9	Not affected	Pyrus spp	6	9	30	Mature, Good Condition, Dead ones, Poor form	35			A2 High	EARLY WORKS REMOVAL Remove 9 trees
132	Path	Pyrus spp	5	6	20	Mature, Good Condition	28			A2 Medium	EARLY WORKS REMOVAL
133	Path	Pistacia chinensis	6	6	Multi	Mature, Good Condition	30			A2 Medium	EARLY WORKS REMOVAL
134	Not affected	Quercus robur, English Oak	3	6	15	Mature, Good Condition	25			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
135	Not affected	Eculyptus crenulata	6	6	Multi	Mature, Moderate Condition	35			D2 Low	Tree Indicated for Removal Tree Removal / Retain Plan
136	Not affected	Eucalyptus crenulata Silver Gum	8	8	35	Mature, Poor Condition, Parasite Vine Present	45			D3 Low	Tree Indicated for Removal Tree Removal / Retain Plan
137 group 2	Not affected	Pistacia chinensis	5	6	15	Mature, Good Condition	30			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
138	Not affected	Quercus robur, English Oak	10	10	60	Mature, Good Condition	80			A2 High	Tree Indicated for Removal Tree Removal / Retain Plan
139	Not affected	Quercus robur, English Oak	5	6	15	Semi-Mature	25			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
140	Not affected	Cupressus	10	10	60	Mature, Good Condition	80			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
141	Not affected	Quercus palustris, Pin Oak	6	6	15	Semi-Mature, Good Condition	20			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan

142	Not affected	Eucalyptus melliodora, Yellow Box	8	12	30/30	Mature, Moderate Condition, Cavity at base, Co-dominate Stem	90			A2 Medium	Tree Indicated for Removal Tree Removal / Retain Plan
	Field and wetlands										
143	Not affected	Populus alba	10	10	45	Mature, Moderate Condition, Crown dead	65			D3 Medium	Dead Wood throughout canopy Prune Retain
144	Not affected	Salix Willow	10	12	70	Mature, Moderate Condition	90			D2 Medium	Dead Wood throughout canopy Prune Retain
145	Not affected	Salix Willow	10	12	60	Mature, Moderate Condition, Cavity at base	90			D2 Medium	Dead Wood throughout canopy Prune Retain
146	Not affected	Salix Willow	9	12	80	Mature, Moderate Condition, Co-dominate Stem	95			D2 Medium	Dead Wood throughout canopy Prune Retain
147	Not affected	Salix Willow	6	12	30/30	Semi-Mature, Good Condition, Co-dominate Stem	45			D2 Medium	Dead Wood throughout canopy Prune Retain
148	Not affected	Salix Willow	12	12	85	Mature, Moderate Condition	100			D2 Medium	Dead Wood throughout canopy Prune Retain
149	Not affected	Salix Willow	9	12	30/15 15 15	Mature, Good Condition but Poor Development/Habit, Physical Damage at base	90			D2 Medium	Dead Wood throughout canopy Prune Retain
150	Not affected	Salix Willow	10	12	50	Mature, Moderate Condition	70			D2 Medium	Dead Wood throughout canopy Prune Retain
151	Not affected	Salix Willow	10	12	60	Mature, Moderate Condition	65			D2 Medium	Retain
152	Not affected	Cupressus	9	10	70	Mature, Moderate Condition	95			A2 Medium	Retain
153	Not affected	Cupressus	3	8	30	Semi-Mature, Poor Condition	45			D3	Retain

										Low	
154	Not affected	Cupressus	9	12	70	Mature, Good Condition	95			A2 Medium	Retain
155	Not affected	Cupressus	9	12	60	Mature, Good Condition	75			A2 Medium	Retain
156	Not affected	Salix Willow	8	10	60	Mature, Moderate Condition	80			D2 Medium	Retain
157	Not affected	Salix Willow	4	10	65	Mature, Moderate Condition	80			D2 Medium	Retain
158	Not affected	Salix Willow	5	10	50	Mature, Moderate Condition	75			D2 Medium	Retain
159	Not affected	Salix Willow	8	10	Multi	Mature, Moderate Condition	100			D2 Medium	Retain
160	Not affected	Eucalyptus spp.	10	12	40/25	Mature, Good Condition	80			A2 Medium	Retain
161	Not affected	Eucalyptus spp.	10	12	45	Mature, Good Condition	80			A2 Medium	Retain
162	Not affected	Eucalyptus spp.	8	9	35	Mature, Good Condition, Suppressed	45			A2 Medium	Retain
163	Not affected	Cuspressus spp spp.	19	12	30/30/40	Mature, Good Condition	110			A2 Medium	Retain
164	Not affected	Cuspressus spp spp.	12	12	70	Mature, Good Condition	90			A2 Medium	Retain
165	Not affected	Eucalyptus nicholii, Narrow-leaved Black Peppermint	10	12	50	Mature, Moderate Condition, Physical Damage and Cavity at Base	80			C4 Low	Retain & inspect annual or remove

166	Not affected	Cuspressus spp spp.	12	12	70	Mature, Moderate Condition, Co-dominate Stem	90			A2 Medium	Retain
167	Not affected	Eucalyptus nicholii, Narrow-leaved Black Peppermint	12	12	70	Mature, Good Condition	100			D2 Medium	Retain
168	Not affected	Eucalyptus nicholii, Narrow-leaved Black Peppermint	3	6	20	Mature, Moderate Condition, Parasite Vine Present	30			D3 Low	Prune. Retain
169	Not affected	Acacia decurrens, Black Wattle	10	10	30	Mature, Good Condition	60			D3 Low	Retain
170 group	Not affected	Acacias	6	15	Multi	Mature, Good Condition	30			D3 Low	Retain
171	Not affected	Eucalyptus spp.	3	8	15	Immature, Good Condition	25			A2 Low	Retain
172	Wet lands	Salix Willow	14	14	40 50 20	Mature, Good Condition	100			A2 Medium	Retain
173	Wet lands	Salix Willow	16	14	60	Mature, Good Condition	80			D2 Medium	Retain
174	Wet lands	Salix Willow	10	11	30x3	Mature, Good Condition	90			A2 Medium	Retain
175	Wet lands	Salix Willow	16	14	90	Mature, Good Condition	100			A2 Medium	Retain
176 group	Wet lands	Casuarina	8	10	30	Mature, Good Condition	40			A2 Medium	Retain
177	Wet lands	Salix Willow	18	12	95	Mature, Good Condition	120			A2 Medium	Retain Prune crown damage

178	Wet lands	Casuarina	5	9	20	Mature, Good Condition, Suppressed	40			A2 Medium	Retain
179	Wet lands	Eucalyptus spp.	8	10	40	Mature, Good Condition, Co-dominate Stem at 3m	60			A2 Medium	Retain
180	Wet lands	Eucalyptus spp.	8	12	40	Mature, Good Condition	65			A2 Medium	Retain
181	Wet lands	Eucalyptus spp.	3	6	15	Semi-Mature, Moderate Condition	20			A2 Low	Retain
182	Wet lands	Casuarina	8	14	30	Mature, Good Condition	40			A2 Medium	Retain
183	Wet lands	Willow	16	12	80	Mature, Moderate Condition, Physical Damage at 1m, Hollow	100			C4 Low	Retain if possible & inspect annual significant damage in base.
184	Wet lands	Willow	10	10	60	Mature, Moderate Condition, Physical Damage Crown	75			D3 C4 Low	Retain
185	Wet lands	Willow	12	14	70	Mature, Moderate Condition	90			D2 Low	Retain

TREE ANALYSIS PHOTOS

TREE 7-8 Quercus robur,Semi Mature x 2

TREE 47 Significant Tree Several Fail sites

TREE 49 Split base

TREE 100 & 101 Union separation

TREE 127 Photina plantings

Tree 105 fracture at union

DISCUSSIONS

Armidale High School was established in 1920, is a comprehensive high school including agriculture facility and is situated in generous grounds on the south side of Armidale.

All trees inspected have been tagged and assigned a number and referenced on the (Appendix E) TREE LOCATION MAP (fig 2) of its approximate location on the site.

- **Tree Useful Life expectancy** has been applied and rated in TULE column of the Tree Survey.
- **Tree Retention Value** (also in the same column above) applied at High, Medium and Low.
- **Tree protection zones/Structural zones** are listed for trees to be protected, all measurements are from the centre of the tree.(radius measure)

Where noted in the Tree Survey several trees have significant faults and or require remediation of the canopy for retention or removal, this tree survey is 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.

Armidale Regional Council (ARC) was contacted on the 18th May 2018 regarding heritage clarification, information has been forth coming from ARC's Mr Richard Single Project Officer - Parks and Gardens information of item 1049 and Item L-11 was returned and included in this report.

The Armidale High School grounds are listed as (Classification General) heritage map Her_002AAA Appendix D.
Armidale Dumaresq Local Environmental Plan 2012
Current version for 20 April 2018 to date (accessed 22 May 2018 at 13:16)
Schedule 5 Environmental heritage. Part: 1 Heritage items.

ITEM I049

Heritage : Original Circa 1921 2 storey building and grounds.
Armidale High School 158-182 Butler St Armidale,

Lot 1 ,DP 196298 ; Lot 704,DP 755808;Lots 1 and 2 ,Section 49,DP 758032;Lot 1 ,Section 161,DP758032: Lot 1151,DP 821627: Lot 7005 DP 1052246.

OriginalCirca; 1921 2 storey building and grounds.

- Applicable Armidale Dumaresq Local Environmental Plan 2012 Part 5.10
- Applicable DCP 2012 Section 2 chapter 2.2

Development Control Plan 2012 Section 2 chapter 2.2 Tree Preservation Effective date 26th June 2013 Ref 1.4 Heritage items and Heritage conservation area.(*extract from DCP 2012- Tree Preservation)*

General objective of chapter 2.2 Tree preservation Development Control Plan 2012 are to conserve the environmental heritage of Armidale and its surrounds by retaining healthy trees of the environment and aesthetic value, minimise injury to, or destruction of trees and native vegetation and to ensure proper consideration is given to trees, native vegetation in designing, planning and constructing development.
Retaining viable samples of native vegetation and biodiversity values where ever practicable.

Facilitate the removal of undesirable exotics, noxious weeds, dangerous trees and any other inappropriate plantings, and replace these with suitable species.

Extract from DCP 2012- Tree Preservation Armidale Regional Council Section 2 chapter 2.2 Tree Preservation (23 June 2013)

1.4	Heritage items (trees, landscapes and grounds) and heritage conservation areas
Heritage items (including trees, landscapes and grounds) and heritage conservation areas are listed in Schedule 5 – Environmental Heritage of *LEP 2012*. For information on identifying Aboriginal objects or an Aboriginal place of heritage significance, please contact Council. Further information on heritage matters can be found in Clause 5.10 of LEP 2012, and elsewhere in this DCP.	

It is also noted the 6m exemption is not applicable on heritage listed items or sites.

All trees, shrubs and gardens are applicable to the Schedule 5 Environmental heritage Part 1 Heritage items I049.

SITE: (Specific tree notes)
Within the site there are 2 x memorial trees (104 & 122), further research regarding their significand's has been undertaken with the high school administration and awaiting further information if available.

Tree 46 is not shown on the maps supplied for this report and located in the building zone.

Trees identified for removal on TREE REMOVAL PLAN (fig 3), of these trees; Tree 47 E. c*inerea* is significant in size, Trees 49, 101 & 102 have Structural splits at the unions.

There are no trees in wet lands that will be required for removal for construction, several trees have failed branches, structural related problems, dead wood and some trees are dead. No Tree Protection Zones have been mentioned in the Tree Survey for trees 143-185.

TREE PROTECTION

Tree protection is important in preventing physical damage to trees and their root systems, implementing protection fencing to AS 4970 2009. Demolition and reconstruction of the site is complex, access points require protection from impacts of branch breakage from high loads and compaction of soils by equipment impacting on tree health.

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

Within the Tree Removal / Retain Plan(Fig 3) page 8 trees have been identified for removal, the remaining trees will require protection at the defined TPZ measurement and fencing installed prior to any demolition or earthworks. TPZ are noted in the Tree Survey as radius measurements from the centre of the tree trunk, specifically relating to trees located within the building area and access points that may be impacted by machinery or excavations.

AMENITY REDUCED BY THE FOLLOWING

In terms of the trees numbered for removal they have little scientific historical, cultural or social value. Several species have a contribution to the landscape which will be removed. Replenishment of desirable tree species is required in order to ensure biodiversity is kept within the local environment.

VALUATION

The value for each tree is based on size, useful life expectancy, importance of position in landscape, presence of other trees, relation of the species to the garden setting, the form of the tree and in rare cases historical associations or botanical interest.

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.
Threatened species list has researched for the indigenous trees that are on site, they and are not listed as threatened.

Tree 122* is noted in the tree is noted as a memorial tree planting.

Removal of several High Retention trees has an impact on the tree amenity of the site, trees 7 & 8 form entrance and trees 127 hedge & 131 group plantings in formation.
The medium and low retention are replaceable and replanting is an option.

CONCLUSIONS

General objective of chapter 2.2 Tree preservation Development Control Plan 2012 are to conserve the environmental heritage of Armidale and its surrounds by retaining healthy trees of the environment and aesthetic value, minimise injury to ,or destruction of trees and native vegetation and to ensure proper consideration is given to trees, native vegetation in designing ,planning and constructing development. Retaining viable samples of native vegetation and biodiversity values where ever practicable.
Facilitate the removal of undesirable exotics and noxious weeds, dangerous trees and any other inappropriate plantings, and replace these with suitable species.

.

.

The amenity of the site is consistence with the surrounding area, individual **tree tag numbers (63)** indicated from the Tree Removal / Retain Plan (fig 3) page 8,**representing a total of (89) tree removals , 45 of these trees are also specified in the Early Works.**

RETENTION VALUE OF TREES SPECIFIED FO REMOVAL ARE AS FOLLOWS:

- HIGH: 1, 2, 3, 7, 8, 42, 121, 122*,127 (hedge) ,131 (9 x trees) and 138. **(11 Tag numbers representing 19 x Tree removals) ……..19 trees**
- Medium: 4, 5, 6(3x trees), 10, 11, 12, 13, 22, 23 (2 of 11 tree) 39 (2 x trees),47, 50(2xTrees) 55,89,94, 95, 96, 107, 123, 124, 125, 126 (11xTrees)129, 130, 132, 133, 134, 137 (2xtrees) 139, 140, 141 and 142**. (32 tag numbers representing (48 x Tree removals)…….. 48 trees**
- Low: 9 (2x trees) , 15 , 18 (1of 4) 26, 46 ,48 (2xtrees) 49 ,54, 56, 80, 87,88, 100, 101, 102, 110,117, 128, 135 and 136**. (20 tag numbers representing 22 x Tree removals)……. 22 trees**

EARLY WORKS:
Tree to be removed; 42, 46, 47, 48 (2xtrees) 49, 50 (2xtrees) 54, 55, 56, 88, 89, 96, 121, 122, 123, 124, 125, 126 (11 x trees) 127, 128,129, 130, 131 (9 x trees) 132, & 133. **45 trees (early works removals).**

TREE PROTECTION
Tree Protection is required for the following trees:
19,23(9xremaining trees),51,52,53,57,58,59,60,61,83,84,85.86,92,93,97,98,99,118,119 &120, Install tree protection fencing prior to any construction work, all fencing must comply with AS 4970 2009 Protection of Tree on Development Sites.
All measurements for required TPZ are noted in the Tree Survey.

.

Development Consent is required from Armidale Regional Council as the site is classified as heritage (general) Schedule 5 Environmental Heritage, Part 1. Item 1049 and LEP 2012 (Clause 5.10).

RECOMMENDATIONS

Note: Development Consent is required from Armidale Regional Council for the pruning or removal of all trees and shrubs on the Armidale Secondary College site.

1 Install tree protection fencing prior to any construction work, all fencing must comply with AS 4970 2009 Protection of Tree on Development Sites. Tree Protection Zone measurements are noted in the Tree Survey as Radius from the centre of the tree.

Tree Protection fencing is required to be installed for the following trees:
19, 23(9 x remaining trees)51,52,53,57,58,59,60,61,83,84,85.86,92,93,97,98,99,118,119 &120, Install tree protection fencing prior to any construction work, all fencing must comply with AS 4970 2009 Protection of Tree on Development Sites.
All measurements for required TPZ are noted in the Tree Survey.

Signs must be erected on the fences "NO ENTRY" with the Project Arborist phone number.

2 Removal (total of tag numbers 63) representing a total **(89**) tree removals, **45 of these tree removals are specified for EARLY WORKS** , retention value High Medium Low and listed as follows:

TREES SPECIFIED FO REMOVAL ARE AS FOLLOWS :(High Medium Low are retention values)

- HIGH: 1, 2, 3, 7, 8, 42, 121, 122*,127 (hedge) ,131 (9 x trees) and 138. **(11 Tag numbers representing 19 x Tree removals)=19 trees**
- Medium: 4, 5, 6(3 x trees), 10, 11, 12, 13, 22,23 (2 of 11 tree) 39 (2 x trees) ,47, 50(2xTrees) 55,89,94, 95, 96, 107, 123, 124, 125, 126 (11xTrees)129, 130, 132, 133, 134, 137 (2xtrees) 139, 140, 141 and 142**. (32 tag numbers representing (48 x Tree removals)=48 trees**
- Low: 9 (2xtrees) , 15 , 18 (1of 4) 26, 46 ,48 (2xtrees) 49 ,54, 56, 80, 87,88, 100, 101, 102, 110,117, 128, 135 and 136**. (20 tag numbers representing 22 x Tree removals)= 22 trees**

EARLY WORKS:
Tree to be removed as Early Works only; 42, 46, 47, 48 (2xtrees) 49, 50 (2xtrees) 54, 55, 56, 88, 89, 96, 121, 122, 123, 124, 125, 126 (11 x trees) 127, 128,129, 130, 131 (9 x trees) 132, & 133= **45 tree as specified.**

3 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)

4 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.

5 Excavations 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.

6 The development approval must include a tree planting programme to replace the trees of the same species being removed.

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

MattheckDr; Claus R &BreloerHelge.*The Body Language of Trees - A Handbookfor Failure Analysis 6th Edition:* London, England. The Stationery Office: 1995.

WEBSITE

www.treesaregood.com/treecare/hazards.asp
www.standards.org.au
www.safeworkaustralia.gov.au
www.environment.gov.au
www.legislation.gov.au
www.legislation .nsw.gov.au
www.treetech.net.au
www.armidaleregional.nsw.gov.au

http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1010039

SECTION II 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 treeslocated in positions thatcan accommodate futuregrowth	Trees that may only livefor between 15 and 40more years	Trees that may only livefor between 5 and 15more years	Dead, dying, suppressedor declining treesthrough disease orinhospitable conditions.	Dead, dying or declining trees diseased orinhospitable conditions.	Small trees less than 5meters in height
B	Trees that could bemade suitable forretention in the longterm by Intervention Works.	Trees that may live formore than 40 years, butwould need to beremoved for safety or Nuisance reasons	Trees that may live formore than 15 years, butwould need to beremoved forsafety ornuisance reasons	Dangerous trees throughinstability or recent lossof adjacent trees	Dangerous trees throughinstability or recent lossof adjacent trees	Young trees less than 15years old but over 5meters in height
C	Trees of specialsignificance forhistorical,commemorative or rarityreasons that wouldwarrant extraordinaryefforts to secure theirlong term retention	Trees that may live formore than 40 years, butshould be removed toprevent interferencewith more suitable individuals or to providespace for new planting	Trees that may live formore than 15 years, butshould be removed toprevent interference with more suitableindividuals or to providespace for new planting	Dangerous trees through structural defectsincluding cavities,decay, included bark,wounds or poor form	Dangerous trees through structural defectsincluding cavities,decay, included bark,wounds or poor form	Trees that have been regularly pruned to artificially controlgrowth
D		Trees that could bemade suitable forretention in the mediumterm by Intervention Works.	Trees that requiresubstantial Intervention Works, and are only suitable forretention in the shortterm	Damaged trees that areclearly not safe to retain	Damaged trees that areclearly not safe to retain and must be removed immediately	
E				Trees that may live formore than 5 years, butshould be removed toprevent interference with more suitable individuals or to providespace for new planting	High Toxicity Allegan trees, asthmatic and poisonous trees and must be removed immediately.	
F				Trees that may causedamage to existingstructures within 5 years	OTHER with legitimate explanation to be removed immediately	
G				Trees that will becomedangerous after removalof other trees for reasonsgiven 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 Pro Tree Service

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 **Heritage item L-11** (*Trees inclusive of Schedule 5 Environmental heritage Part 1 Heritage items Item I049*)

Data sheet that directly identifies trees considered to be significant to Armidale Secondary College.

ARMIDALE HERITAGE STUDY

for Armidale City Council by Perumal Murphy Pty. Ltd.

1990

Item	Photograph
L 11	41-17 L6-2

Name ARMIDALE HIGH SCHOOL
Location BUTLER STREET
Title Reference

Precinct
Date 15.2.90
Survey By W.W.A.

SCHOOL ESTABLISHED IN 1930's.
MATURE TREES INCLUDE RADIATA PINES (TO 25M., 1M. DIAM), CYPRESS SPECIES & EUCALYPTS ABOUT FORTY YEARS OLD.

ALSO OF NOTE IS A DIAGONAL AVENUE OF SEMI-MATURE ELMS (Ulmus procera) POSSIBLY 60 YEARS OLD. RUNS BETWEEN PLAYING FIELDS ON DIFFERENT LEVELS. OTHER TREES INCLUDE LOMBARDY & SILVER POPLARS, FIR & PLANE TREES. ALSO WILLOWS. TREES PLANTED 1931

NEW SITE WORKS WILL REQUIRE ADEQUATE RESTORATION.

INSTITUTIONAL LANDSCAPING FROM ABOUT THE 1960's? POSSIBLY EARLIER, OF LOCAL SIGNIFICANCE.

Period:
- ☐ Pre-1890
- ☐ 1890-1915
- ☐ 1915-45
- ☑ 1945-

Date: Source:

Condition:
- ☐ Good
- ☑ Fair
- ☐ Poor

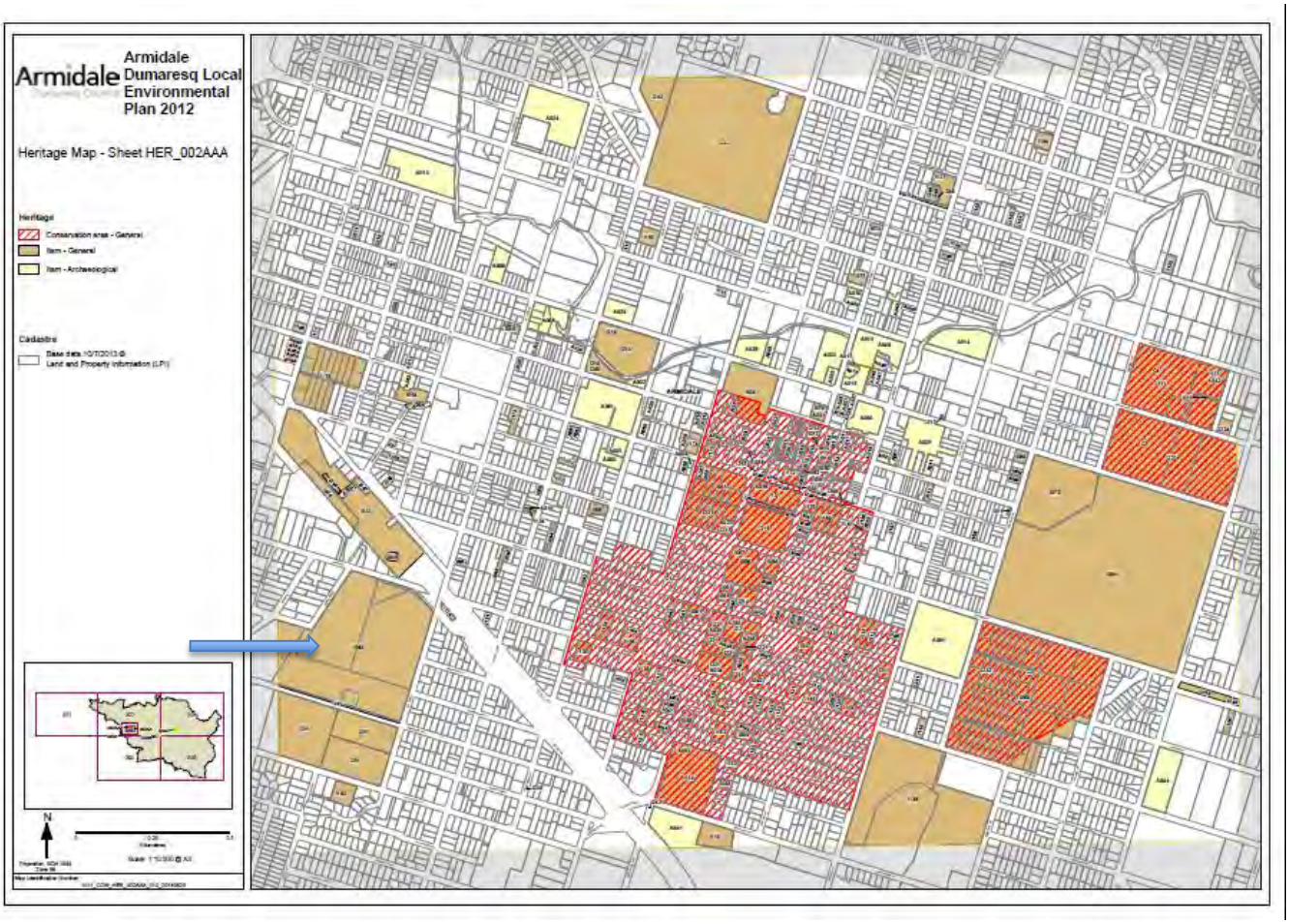
Current listings:
- ☐ AHC
- ☐ HC
- ☐ NT
- ☐ RAIA/Ot

Street context:
- ☑ Positive contribution
- ☐ Neutral
- ☐ Out of Character

PHOTO L6-2

APPENDIX D

Armidale Dumaresq Local Environmental Plan 2012 Heritage Map Her_002AAA



Arrow indicating Heritage Item 1049 (General) Armidale High School 158-182 Butler St Armidale.

Appendix E

Tree Location Map (Fig 2)

North

APPENDIX F TREE PLANTING SPECIFICATIONS AND MAINTENANCE

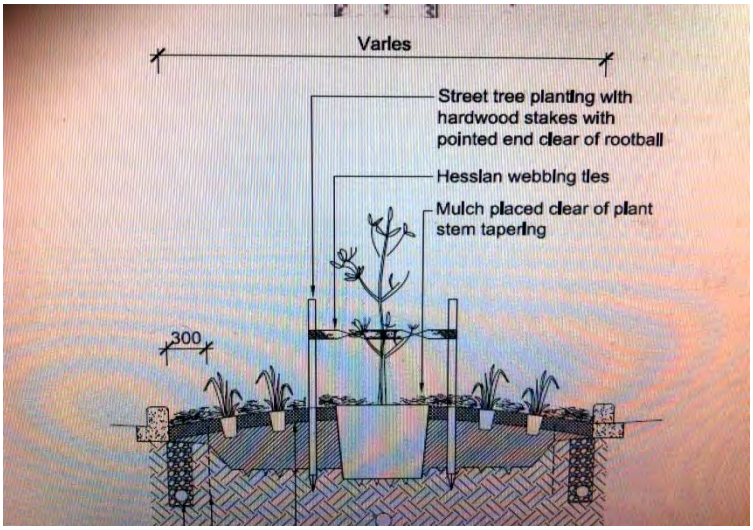
McArdle & Sons Pro Tree Service

Before planting, careful consideration should be given to the location of trees and shrubs to minimise future problems. A basic guide for planting follows:

1. Don't plant too close to buildings or in-ground pools or plant large trees too close together: Determine the height and canopy of trees when fully grown. Allow room for root growth (at least twice the height of the tree). Large trees should be planted at least three metres from buildings.
2. Check when planting under wires or over drainage lines: Determine the mature size of the tree and the size and nature of its root system.
3. Consider your neighbours when choosing plants: Consider the effect on neighbouring properties (i.e. shading, loss of views, impact on foundations, fences and services).
4. Use trees to provide your home with summer shade and/or winter sun: Plant deciduous trees (suitable to the climate and soils of this Shire). Consider the summer and winter shadows of evergreen trees.
5. Don't grow climbers on trees: Climbers can strangle trees, leading to the tree's eventual death.
6. Retain and protect as many trees as possible when building or extending your home. (This will be a Council requirement).
7. Use locally native and non-invasive species in your garden: Increase the success rate of your garden. Attract native fauna to your garden. Reduce the amount of watering required.
8. Don't excavate or alter the ground level around trees: Can cause root damage or starving of the roots. Can cause limb drop, instability or tree death. Substantially altering soil level within three metres of the trunk is in breach of the Tree Preservation Order.
9. When buying plants, check their characteristics: Check on mature size, shade characteristics, potential for roots to cause damage, flowers, fruits and pollen, to determine their suitability.

Mature trees do need maintenance: Remove or trim misshapen branches. Check for fungal rots or other diseases. If in doubt, contact Council for a tree inspection or contact an experienced Arborist. Indiscriminate lopping can be dangerous to your safety and the health of the tree.

Staking of trees should be carried out similar to the diagram opposite.



Indigenous trees.

Tree list Botanical Name	Common Name
Eucalyptus camaldulensis	River Redgum
Eucalyptus albens	White box
Eucalyptus dalrympleana	Mountian gum
Eucalyptus melliodora	Yellow box
Eucalyptus blakelyii	Blakely's red gum
Eucalyptus bridgesiana	Apple box
Eucalyptus dealbata	Forest red gum
Eucalyptus macarthurii	Paddys River Box
Eucalyptus macrorhyncha	Red stringybark
Eucalyptus pauciflora	Snow gum
Eucalyptus polyanthemos	Red box
Eucalyptus rossii	Scribbly gum
Eucalyptus sideroxylon	Red ironbark
Eucalyptus viminalis	Ribbon gum

Appendix H

LIMITED EVALUATION
EVALUATION SCHEDULE

SITE: Armidale Secondary College
Adapted from the ISA Tree Hazard Evaluation Form

<table>
<tr><td colspan="4">TREE CHARACTERISTICS</td></tr>
<tr><td colspan="2">Species: NOTED IN TREE SURVEY TABLE</td><td colspan="2"></td></tr>
<tr><td colspan="4">TREE HEALTH</td></tr>
<tr><td colspan="2">Foliage: NOTED IN TREE SURVEY TABLE</td><td colspan="2">Wound-wood: NOTED IN TREE SURVEY TABLE</td></tr>
<tr><td colspan="2">Vigour: NOTED IN TREE SURVEY TABLE</td><td colspan="2">Deadwood %: NOTED IN TREE SURVEY TABLE</td></tr>
<tr><td colspan="2">Form: NOTED IN TREE SURVEY TABLE</td><td colspan="2">In Decline: NOTED IN TREE SURVEY TABLE</td></tr>
<tr><td colspan="2">Dead Tree: NOTED IN TREE SURVEY TABLE</td><td colspan="2">Age Class: NOTED IN TREE SURVEY TABLE</td></tr>
<tr><td>ROOT ZONE</td><td>TRUNK DEFECT</td><td colspan="2">CROWN DEFECT</td></tr>
<tr><td>NOTED IN TREE SURVEY TABLE</td><td>NOTED IN TREE SURVEY TABLE</td><td colspan="2">NOTED IN TREE SURVEY TABLE</td></tr>
<tr><td colspan="4">TARGET RATING</td></tr>
<tr><td>Type: NOTED IN TREE SURVEY TABLE</td><td colspan="3">Location: NOTED IN TREE SURVEY TABLE
Target Rating: NOTED IN TREE SURVEY TABLE</td></tr>
<tr><td colspan="4">TREE CONDITIONS</td></tr>
<tr><td colspan="4">Tree Defects: NOTED IN TREE SURVEY TABLE Stem Lean: NOTED IN TREE SURVEY TABLE
Decay: NOTED IN TREE SURVEY TABLE</td></tr>
<tr><td>HAZARD ABATEMENT</td><td></td><td>CATEGORY</td><td></td></tr>
<tr><td>Remove Tree: Stated</td><td>Prune: Stated and specified</td><td rowspan="2">Needs further REMEDIATION
Inspection: Stated</td><td rowspan="2">By: Time frame specified in discussion.</td></tr>
<tr><td></td><td></td></tr>
</table>

APPENDIX I TREE MANAGEMENT NOTES

McArdle & Sons Pro Tree Service

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 J DISCLAIMER

McArdle & Sons Pro Tree Service

McArdle & Sons Pro Tree Service 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 Pro Tree Service is assumed to be correct. Any titles and ownerships to any property are assumed to be good and sound. McArdle & Sons Pro Tree Service 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 Pro Tree Service 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 Pro Tree Service 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 Pro Tree Service 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 Pro Tree Service 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 Pro Tree Service endeavors to identify the risk that the tree represents; however a level of risk associated with every tree will remain. McArdle & Sons Pro Tree Service 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.