

Arboricultural Impact Assessment



Figure 1 Tree 2313

Site Address: University of Wollongong, Western Building

Client: The University of Wollongong

Date: October 2017

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1.0 Summary

This report was commissioned by The University of Wollongong (the client) to accompany their State Significant Development Application within the City of Wollongong LGA. The aim of this report is to provide an assessment of the impacts of the proposed development on 232 trees located within and adjoining the development site.

Conclusions

The removal of one hundred and thirteen (113) trees that will be subject to major TPZ encroachment will be required to allow the proposed development to proceed in its current format; there is adequate space to provide replacement planting on the subject property to offset the canopy loss that will be caused by the removals.

The retention of the remaining one hundred and sixteen (119) trees will assist in achieving the University's tree management goals by maintaining the character of the site and will provide ongoing landscape amenity on the subject property.

The retention of trees will require the implementation of tree protection measures in accordance with the Australian Standard AS4970-2009, Protection of Trees on Development Sites.

The appointment of a Project Arborist to oversee tree management on the site will ensure that retained trees are given the best opportunity to remain viable.

Recommendations

That the removal of one hundred and thirteen (113) trees that will be subject to major TPZ encroachment is approved to allow the development to proceed as proposed subject to the provision of replacement planting in suitable positions on the subject property.

That all tree work is undertaken by a suitably qualified and insured contracting arborist in accordance with the provisions of the Australian Standard AS4373-2007, *'Pruning of Amenity Trees'* and The Draft Code of Practice for Amenity Tree Work 2013.

That retained trees are protected in accordance with the provisions of AS4970-2009, *'Protection of Trees on Development Sites'*

That a Project Arborist is appointed to oversee tree management on the site during the works.

That the retained trees are monitored bi-annually or after severe weather events, to identify and manage any risks that may arise.

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2.0 Disclaimer

This report is to be read and considered in its entirety. The subject trees were inspected from the ground using Visual Tree Assessment methodology, no aerial investigations; underground or internal investigations were undertaken. It is the responsibility of the client to implement all recommendations contained in this report.

The assessment is made having regard for the prevailing site conditions; and does not account for the effects that extreme weather events may have on trees.

Photographs used in this report are originals taken at the time of inspection and are not altered in anyway.

Information contained in this report reflects the condition of the trees at the time of the inspection. As trees are living organisms their condition will change over time, there is no guarantee that problems or deficiencies of the subject trees may not arise in the future. It must be accepted that living in close proximity to trees involves some level of risk.

This report is for the use of the University of Wollongong as well as those companies contracted to prepare the State Significant Development Application submission for the current building project known as the Western Building within the university Campus at Northfields Avenue Wollongong. Distribution to other parties is not permitted except with the express permission of the author, Ian Hills.

3.0 Brief

This report was commissioned by The University of Wollongong (the client) to accompany their State Significant Development Application within the City of Wollongong LGA. The aim of this report is to provide an assessment of the impacts of the proposed development on 232 trees located within and adjoining the development site.

In accordance with the clients requirements this report will:

- Identify trees that will be affected by the proposed development

- Provide recommendations for removal or retention of trees based upon the level of encroachment that is expected in accordance with the provisions of AS4970-2009, '*Protection of Trees on Development Sites*'
- Provide recommendations for the protection of retained trees in accordance with the provisions of AS4970-2009, '*Protection of Trees on Development Sites*'.
- Identify opportunities for replacement planting where practical.

4.0 Methodology

An inspection of the subject trees was conducted from the ground on 6 and 13 June 2017. The assessment of the trees was made using a combination of the relevant elements of Visual Tree Assessment (VTA) procedure (Matheny & Clark, 1994), (Mattheck & Breloer, 2004) with the aid of a Visual tree assessment form developed by International Society of Arborists in accordance with industry best practice.

Tree height was determined using Silva Clinomaster™ clinometer. Tree canopy spread was determined using a 30 metre retractable tape. The DBH was determined using a Million™ 12 tree diameter tape.

Sounding of the trunks was carried out using a Thor® 710 soft faced hammer. The canopy structure was examined using binoculars from ground level.

Trees have been identified by the existing survey tags installed by Arborplan during the tree survey dated 31 October 2014, where tags were not installed trees have been identified by the addition of a decimal point to the nearest available survey number. In some cases where trees have similar characteristics or are planted in groups they have been assessed as a single item within the landscape.

4.1 Reference Documents

The following documents have been used as reference in the preparation of the report:

- Survey Plan prepared by Landteam Australia Pty Ltd, (ref 209936-TS01, sheet A1 issue B) dated 10 July 2017.
- Western Building Business Case, prepared by Root Projects Australia, dated 29 August 2016
- The Australian Standard AS4970-2009, '*Protection of Trees on Development Sites*'. (AS 4970-2009)
- Wollongong Development Control Plan 2009, Part E17, Preservation and Management of Trees and Vegetation
- National Parks and Wildlife Service 2002. Native vegetation of the Illawarra Escarpment and Coastal Plain

4.2 Council Tree Preservation Order

Wollongong City Tree Preservation Order applies to the whole of the Local Government Area (LGA) and prohibits ring barking, cutting down, lopping, removing, injuring or wilful destruction (except with the written consent of the Council) of any tree having:

- 4.2.1 a height greater than 3 metres;
- 4.2.2 a circumference greater than 200mm measured at a point greater than 1 metre above ground level.

Appendix 1 of WDCP Chapter E17 details a list of mainly exotic trees species that are not protected by Council's tree management policy, some of which are present on-site and could be removed prior to the issue of development consent if required.

4.3 Determining Tree Retention Value

Tree retention value can be a deciding factor when recommending retention or removal of trees. It is determined using the following criteria to evaluate the significance of the tree in the context of its place in the local landscape.

1. Tree sustainability measures the length of time that the tree will continue to provide a positive benefit in the locality and closely follows the ULE rating of the tree.
2. Landscape significance is measured by evaluating the comparative environmental, heritage and amenity value that the tree provides within the local forest landscape. Eg a mature indigenous species in sound structural condition and good health will achieve a higher ranking than a tree that is damaged, in poor form, small in stature or a pest species.
3. Sustainability and landscape significance; which are closely reliant on each other are carefully considered to determine a retention value using the table below. Retention value is expressed as High, Medium, Low or Very low.

Tree Sustainability	Landscape Significance Rating						
	1	2	3	4	5	6	7
Greater than 40 years	High Retention Value						
15 to 40 years			Moderate				
5 to 15 years			Low				
Less than 5 years			Very Low Retention Value				
Dead or Hazardous							

Source Couston and Howden (2001) Tree retention values table Footprint Green Pty Ltd Australia

4.4 Site Description

The development site is part of a larger complex of buildings and carparking that occupy the western end of the university campus and is approximately 15 000m² in area. The site is currently occupied by a number of demountable buildings with areas of lawn and bitumen paved carparking.

Vegetation is retained in raised mounds throughout the carpark, lawn areas surrounding the demountables and in the riparian zone in the South-west corner of the site

Remnant vegetation is described as Moist Bluegum- Blackbutt Forest which is dominated by *Eucalypts saligna*, *E.saligna x botryoides* and *E. pilularis* with understorey species such as *Acmena smithii* and *Pittosporum undulatum* all of which have been identified on the site. The remainder of site vegetation is made up of plantings of native and exotic species that form a moderately dense canopy cover providing a high level of landscape amenity and environmental value in what is otherwise highly developed landscape.

Wind Statistics

According to climate data from Port Kembla Signal Station which is 5.6 kilometres from the site the strongest winds prevail from the North-east to South during the Autumn and Spring with mean wind-speeds of 27.1 Km/h and regular occurrences of winds greater than 40 Km/h . The subject trees are exposed in these directions; single trees and those trees on the windward edge of groups are most likely to be adversely affected while those trees in the centre of groups will be protected by surrounding trees. (*Australian Bureau of Meteorology, 2016*)

Soil Landscape

The natural soil is from the Wollongong landscape and is described as disturbed terrain 9029xx (NSW Environment and Heritage, 2016). Site soil appears as a combination of the yellow earth of the lower Illawarra Escarpment and the organic soils of the coast sediments, and has a high organic matter content and reasonable drainage due to the local topography (Young, 1982).

The Soil profile of the site has been disturbed by the construction of the existing buildings and road works and features commercial soil mixes introduced during the landscaping of the site.

Trees and vegetation on-site are adapted to the local soil conditions with many specimens approaching their landscape potential, such as the large Sydney Blue Gums within the curtilage of the proposed Western Building.

5.0 Discussion

The redevelopment of the site will involve the demolition of existing structures as well as the removal of those trees that have been identified as having a major encroachment; that is encroachment greater than 10% of the TPZ as prescribed in AS4970-2009. A number of exotic species of trees have also been identified for removal in accordance with Wollongong University's landscape masterplan that has the following goals:

- Site landscaping is to include 100% Australian native species
- 50% of native plantings are to be species endemic to the Illawarra region
- Exotic species are generally not considered suitable for retention

A total of 113 trees are proposed for removal with the remaining 119 trees located in positions suitable for retention depending upon the requirements for access to the site and the encroachment levels caused by the proposed development. The attached spreadsheet details specific tree management options while the tree retention and removal plan Appendix 6.3 (Attachment E) provides a visual representation of tree removal and retention proposals.

One large Sydney Blue Gum, Tree 2313 is considered to be an exceptional example of the species and as specified in the site documentation will be retained as a matter of priority. The tree has a large Tree Protection Zone (TPZ) calculated at 15.0 metres radius from the centre of the trunk in accordance with the provisions of AS4970- 2009, "*Protection of Trees on Development Sites*", that places a considerable constraint on the design of the proposed Western Building. Tree protection measures are to be implemented for this and all trees proposed for retention prior to commencement of any works.

The removal of trees or any other tree work that may be required is to be carried out by a suitably qualified Contracting arborist in accordance with the Workcover Code of Practice for Amenity Tree Work, and AS7373-2007, 'Pruning of Amenity trees'

Trees that are proposed for retention will require the implementation of tree protection measures in accordance with the provisions of AS4970-2009, '*Protection of Trees on Development Sites*' as prescribed below. Setbacks meeting The Standard are listed in the tree schedule in the appendices to this report. (Appendix 6. 2)

Trees outside of the development site will be protected from adverse impacts of development by the site fencing which is mandatory for all construction sites in NSW. Although a number of these trees seem far removed from the development site, they have been included in the tree protection plan as they are valuable public assets and may at times be subject to potential mechanical damage from machinery entering or exiting the site.

It is likely that the Wollongong City Council will require the engagement of a project arborist to oversee the management of trees retained on-site. The Arborist will be required to hold a minimum Level AQF5 Arboriculture qualification and have experience in managing trees on construction sites.

Tree Management

Implementation of the following measures will ensure that retained trees are not damaged during construction.

Site establishment

- trees to be retained have been identified by tagging and/or numbering on the landscape plan.
- protective fencing is erected at the perimeter of the respective TPZ, the fenced areas are to be included on the landscape plan and marked as a “no go zone”
- where space does not permit fencing of the entire TPZ branch or trunk armoring can be used, the ground is to be protected from compaction by rumble boards or steel plates laid over a 100mm mulch layer
- staff are to be made aware of tree protection measures during induction to the site
- the area of the TPZ is to be mulched using 100mm depth of organic material, mulch must be kept clear of the base of tree trunks
- fencing is to include signage clearly denoting the TPZ as a “no go zone”
- tree protection is to be certified by an AQF5 qualified arborist

During construction

- tree protection measures are to be maintained in serviceable condition
- no storage of equipment or materials is permitted within the TPZ, no cement wasting or other pollutants must be allowed to enter the TPZ
- damage to any part of a protected tree is to be reported to the certifying arborist for assessment and remediation
- if services must pass through an established TPZ excavation is to be carried out by hand
- if required minor pruning of branches can be undertaken to avoid mechanical impacts that are likely to result in branch or bark tearing
- no roots are to be severed within an established TPZ, except under the supervision of the certifying arborist

Post construction

- protective fencing is to be removed from site
- at 12 months following completion retained trees are to be inspected by the certifying arborist for signs of decline.
- steps can be taken to improve growing conditions if required such as decompaction of soil, introduction of irrigation
- general maintenance pruning can be undertaken (in accordance with AS4373-2007) to remove deadwood or other defective branches up to 10% of the total canopy area of retained trees if required

Tree Management Schedule

Alterations to this schedule may be required due to necessity however this shall be through consultation with the Project Arborist only.

Stage	Task	Responsibility	Certification	Timing of Inspection
1	Complete foundation design so to avoid woody roots greater than 40mm	Principle Contractor	Project Arborist	Prior to construction certificate application
2	Indicate Clearly (with spray paint on trunks) trees approved for removal only	Principle Contractor	Project Arborist	Prior to demolition and site establishment
3	Install TPF and additional root, trunk and/or branch protection	Principle Contractor	Project Arborist	Prior to demolition and site establishment
4	Supervise all excavation works proposed within the TPZ	Principle Contractor	Project Arborist	As required prior to the works proceeding adjacent to tree
5	Inspection of Trees by Project Arborist	Principle Contractor	Project Arborist	Monthly during construction period
6	Inspection of Trees by Project Arborist	Principle Contractor	Project Arborist	Following the removal of tree protection measures
7	Final Inspection of trees by Project Arborist	Principle Contractor	Project Arborist	Prior to issue of occupation certificate

5.1 Conclusions

The removal of one hundred and thirteen (113) trees that will be subject to major TPZ encroachment will be required to allow the proposed development to proceed in its current format; there is adequate space to provide replacement planting on the subject property to offset the canopy loss that will be caused by the removals.

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5.2 Recommendations

That the removal of one hundred and thirteen (113) trees that will be subject to major TPZ encroachment is approved to allow the development to proceed as proposed subject to the provision of replacement planting in suitable positions on the subject property.

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That retained trees are protected in accordance with the provisions of AS4970-2009, *'Protection of Trees on Development Sites'*

That a Project Arborist is appointed to oversee tree management on the site during the works.

A handwritten signature in black ink, appearing to read 'Ian Hills', is centered on the page.

Ian Hills - Consulting Arborist

6.0 Appendices

6.1 Safe Useful Life Expectancy Categories

1: Long SULE: Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.

- (a) Structurally sound trees located in positions that can accommodate future growth.
- (b) Trees that could be made suitable for retention in the long term by remedial tree care.
- (c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.

2: Medium SULE: Trees that appeared to be retainable at the time of assessment for 15–40 years with an acceptable level of risk.

- (a) Trees that may only live between 15 and 40 more years.
- (b) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.
- (c) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (d) Trees that could be made suitable for retention in the medium term by remedial tree care.

3: Short SULE: Trees that appeared to be retainable at the time of assessment for 5–15 years with an acceptable level of risk.

- (a) Trees that may only live between 5 and 15 more years.
- (b) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
- (c) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (d) Trees that require substantial remedial tree care and are only suitable for retention in the short term.

4: Remove: Trees that should be removed within the next 5 years.

- (a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
- (b) Dangerous trees because of instability or recent loss of adjacent trees.
- (c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
- (d) Damaged trees that are clearly not safe to retain.
- (e) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (f) Trees that are damaging or may cause damage to existing structures within 5 years.
- (g) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f)
- (h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

5: Small, young or regularly pruned: Trees that can be reliably moved or replaced.

- (a) Small trees less than 5m in height.
- (b) Young trees less than 15 years old but over 5m in height.
- (c) Formal hedges and trees intended for regular pruning to artificially control growth.

6.2 Tree Schedule

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
1	2559	<i>Corymbia maculata</i> Spotted Gum	450	5.4	2.57	18	12	H	1A	Appears structurally sound	Nil	No action required
2	2558	<i>Corymbia maculata</i> Spotted Gum	300	3.6	2.25	15	9	H	1A	Appears structurally sound	Nil	No action required
3	2557	<i>Eucalyptus microcorys</i> Tallowwood	450	5.4	2.57	16	9	H	1B	Deadwood over path, appears structurally sound	Nil	Prune to remove deadwood
4	2553	<i>Eucalyptus microcorys</i> Tallowwood	380	4.56	2.43	16	8	H	1A	Appears structurally sound	Nil	No action required
5	2554	<i>Eucalyptus microcorys</i> Tallowwood	300	3.6	2.25	13	8	H	1A	Appears structurally sound	Nil	No action required
6	2554.1	<i>Callistemon salignus</i> Willow Bottlebrush	100- 200	2.0	2.0X10	10	10	H	1A	Group x 8, appears structurally sound	Nil	No action required
7	2548	<i>Pinus radiata</i> Monterey Pine	450	5.4	2.57	10	3	VL	4A	Tree in severe decline, consider removal	Nil	Remove within 5 years

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
8	2552	<i>Polyscias elegans</i> Celery Wood	170	2.04	2.0	6	4	H	1A	Appears structurally sound	Nil	No action required
9	2551	<i>Stenocarpus sinuatus</i> Qld Firewheel Tree	180	2.16	2.0	8	3	H	1A	Appears structurally sound	Nil	No action required
10	2577	<i>Melalueca quinquenervia</i> Broad Leaved Paperbark	600	7.2	2.85	10	8	H	1A	Appears structurally sound	Nil	No action required
11	2574	<i>Melalueca quinquenervia</i> Broad Leaved Paperbark	700	8.4	3.01	10	8	H	1A	Appears structurally sound	Nil	No action required
12	2575	<i>Melalueca quinquenervia</i> Broad Leaved Paperbark	340	4.08	2.34	10	4	H	1A	Appears structurally sound	Nil	No action required
13	2573	<i>Melalueca quinquenervia</i> Broad Leaved Paperbark	310	3.72	2.05	10	5	H	1A	Minor deadwood noted	Nil	No action required
14	2570	<i>Eucalyptus punctata</i> Grey Gum	350	4.2	2.15	12	8	H	2A	Excessive lean angle	Nil	Continue to monitor
15	2569	<i>Gevillea robusta</i> Silky Oak	450	4.4	2.57	12	8	H	1B	Included union at base.	Nil	Consider removal of sub-ordinate leader

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
16	2569.1	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	640	7.68	2.76	14	9	H	1A	Appears structurally sound	Nil	No action required
17	2572	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	400	4.8	2.47	12	9	H	1A	Appears structurally sound	Nil	No action required
18	2571	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	300	3.6	2.25	11	4	H	1A	Appears structurally sound	Nil	No action required
19	2568	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	400	4.8	2.47	11	5	H	2A	Small branch dieback	Nil	Continue to monitor
20	2568.1	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	250	3.0	2.13	10	4	H	1A	Appears structurally sound	Nil	No action required
21	2564	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	330	3.96	2.32	12	8	H	1A	Appears structurally sound	Nil	No action required
22	2565	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	350	4.2	2.37	12	5	H	1A	Appears structurally sound	Nil	No action required
23	2566	<i>Melalueuca quinquenervia</i> Broad Leaved Paperbark	550	6.6	2.76	15	6	H	1A	Appears structurally sound	Nil	No action required
24	2579	<i>Melalueuca quinquenervia</i> Broad-leaved Paperbark	450	5.4	2.57	10	5	H	1A	Appears structurally sound	Nil	No action required

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
25	2582	<i>Casuarina cunninghamiana</i> River She-oak	200- 500	2.4- 6.0	2.0- 2.67	16	8	H	1A	Group of 3 trees, appear structurally sound	Nil	No action required
26	1934	<i>Eucalyptus mollucana</i> Grey Box	350	4.2	2.37	16	8	H	1A	Appears structurally sound	Nil	No action required
27	1936	<i>Eucalyptus fibrosa</i> Red Ironbark	200	2.4	2.0	8	5	M	1A	Juvenile, appears structurally sound	Nil	No action required
28	1937	<i>Eucalyptus sideroxylon</i> Mugga Ironbark	300	3.6	2.25	10	8	H	1A	Appears structurally sound	Nil	No action required
29	1937.1	<i>Eucalyptus mollucana</i> Grey Box	150	2.0	2.0	8	4	M	1A	Juvenile, appears structurally sound	Nil	No action required
30	1938	<i>Eucalyptus mollucana</i> Grey Box	300	3.6	2.25	10	6	H	1A	Appears structurally sound	Nil	No action required
31	46	<i>Casuarina cunninghamiana</i> River She-oak	450	5.4	2.57	12	8	H	1A	Appears structurally sound	Nil	No action required

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
32	47	<i>Melaleuca linarifolia</i> Snow in Summer	570	6.84	2.8	10	12	H	1A	Appears structurally sound	Nil	No action required
33	48	<i>Casuarina cunninghamiana</i> River She-oak	300	3.6	2.25	10	6	H	1A	Appears structurally sound	Nil	No action required
34	49	<i>Melaleuca linarifolia</i> Snow in Summer	570	6.84	2.8	8	8	H	1A	Asymmetrical form	Nil	Continue to monitor
35	52	<i>Eucalyptus mollucana</i> Grey Box	450	5.4	2.57	15	12	H	1A	Appears structurally sound	Nil	No action required
36	2233	<i>Callistemon salignus</i> Willow Bottlebrush	250	3.0	2.0	6	5	M	1A	Appears structurally sound	Nil	No action required
37	2232	<i>Casuarina cunninghamiana</i> River She-oak	450	5.4	2.57	16	6	H	2A	Small branch dieback	Nil	Continue to monitor
38	2231	<i>Casuarina cunninghamiana</i> River She-oak	300	3.6	2.25	12	6	H	2A	Asymmetrical form	Nil	Continue to monitor
39	2227	<i>Casuarina cunninghamiana</i> River She-oak	300	3.6	2.25	14	8	H	1A	Appears structurally sound	Nil	No action required
40	2223	<i>Casuarina cunninghamiana</i> River She-oak	300	3.6	2.25	14	6	H	1A	Appears structurally sound	Nil	No action required

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
41	2228	<i>Castanospermum australe</i> Qld Blackbean	220	2.64	2.05	8	4	M	1A	Appears structurally sound	Nil	No action required
42	2229	<i>Callistemon salignus</i> Willow Bottlebrush	220	2.64	2.05	8	3	M	1A	Appears structurally sound	Nil	No action required
43	2230	<i>Casuarina cunninghamiana</i> River She-oak	350	4.2	2.37	14	8	H	1A	Appears structurally sound	Nil	No action required
44	2207	<i>Eucalyptus longifolia</i> Woollybutt	560	6.72	2.78	14	9	H	4A	Wounds on trunk, extensive epicormic growth	Nil	Consider removal < 5 years
45	2208	<i>Eucalyptus mirocorys</i> Tallowwood	520	6.24	2.71	16	10	H	1A	Appears structurally sound	Nil	No action required
46	2209	<i>Melaleuca bracteata</i> Black Tea Tree	200	2.4	2.0	6	5	M	2A	Asymmetrical form, suppressed	Nil	Continue to monitor
47	2210	<i>Triadica sebifera</i> Chinese Tallowwood	490	5.88	2.65	10	112	L	4A	Exotic species	Nil	Consider removal, policy
48	2941	<i>Corymbia maculata</i> Spotted Gum	300	3.6	2.25	15	8	H	1A	Appears structurally sound	Nil	No action required

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
49	2942	<i>Corymbia maculata</i> Spotted Gum	500	6.0	2.67	20	12	H	1A	Appears structurally sound	Nil	No action required
50	2943	<i>Corymbia maculata</i> Spotted Gum	450	5.4	2.67	17	6	H	2A	Slight suppression by 942	Nil	Continue to monitor
51	2944	<i>Corymbia maculata</i> Spotted Gum	120	2.0	2.0	9	3	M	5B	Juvenile	Nil	No action required
52	2945	<i>Corymbia maculata</i> Spotted Gum	100	2.0	2.0	5	3	M	5A	Juvenile, asymmetrical from, suppressed	Nil	Continue to monitor
53	2946	<i>Corymbia maculata</i> Spotted Gum	450	5.4	2.67	20	12	H	1C	Excellent	Nil	No action required
54	2414	<i>Eucalyptus sieberi</i> Silver Top Ash	480	5.76	2.63	18	10	H	2A	One sided canopy	Nil	Continue to monitor
55	2415	<i>Eucalyptus microcorys</i> Tallowwood	380	4.56	2.43	18	8	H	1A	Appears structurally sound	Nil	No action required
56	2416	<i>Eucalyptus saligna</i> Sydney Blue Gum	500	6.0	2.67	20	12	H	1A	Appears structurally sound	Nil	No action required
57	2417	<i>Eucalyptus microcorys</i> Tallowwood	400	4.8	2.47	17	8	H	1A	Appears structurally sound	Nil	No action required

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
58	2418	<i>Eucalyptus sieberi</i> Silver Top Ash	300	3.6	2.25	17	6	H	2A	Asymmetrical from , suppressed	Nil	Continue to monitor
59	2419	<i>Casuarina cunninghamiana</i> River She-oak	1000	12.0	3.44	10	10	H	2A	Multi-trunked	Nil	Continue to monitor
60	2420	<i>Casuarina cunninghamiana</i> River She-oak	400	4.8	2.47	10	5	VL	4A	Major asymmetry, declining, consider removal	Nil	Remove within 5 years
61	2425	<i>Eucalyptus sieberi</i> Silver Top Ash	120	2.0	2.0	5	4	M	5A	Juvenile	Nil	No action required
62	2426	<i>Eucalyptus sieberi</i> Silver Top Ash	400	4.8	2.47	19	10	H	2A	Minor deadwood noted	Nil	Continue to monitor
63	2424	<i>Eucalyptus saligna</i> Sydney Blue Gum	380	4.56	2.43	16	9	H	2A	Minor deadwood noted	Nil	Continue to monitor
64	2423	<i>Eucalyptus sieberi</i> Silver Top Ash	250	3.0	2.13	15	5	H	1A	Appears structurally sound	Nil	No action required
65	2422	<i>Eucalyptus microcorys</i> Tallowwood	400	4.8	2.47	18	8	H	1A	Appears structurally sound	Nil	No action required

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
66	2429	<i>Eucalyptus sieberi</i> Silver Top Ash	300	3.6	2.25	19	8	H	1A	Appears structurally sound	Nil	No action required
67	2428	<i>Eucalyptus saligna</i> Sydney Blue Gum	280	3.36	2.2	9	5	H	1A	Semi-mature, appears structurally sound	Nil	No action required
68	2431	<i>Eucalyptus saligna</i> Sydney Blue Gum	330	3.96	2.32	15	9	H	1A	Appears structurally sound	Nil	No action required
69	2432	<i>Eucalyptus saligna</i> Sydney Blue Gum	280	3.36	2.2	12	8	H	2A	Major asymmetry, excessive branch end-weight over carpark	Nil	Reduce branches over carpark
70	2434	<i>Eucalyptus sideroxylon</i> Mugga Ironbark	320	3.84	2.3	10	10	M	4A	Major asymmetry	Nil	Consider removal < 5 years
71	2437	<i>Eucalyptus saligna</i> Sydney Blue Gum	350	4.2	2.37	18	10	H	1A	Appears structurally sound	Nil	No action required
72	2441	<i>Eucalyptus sieberi</i> Silver Top Ash	220	2.64	2.05	8	4	H	2A	Small branch dieback	Nil	Continue to monitor
73	2440	<i>Ficus benjamina</i> Weeping Fig	400	4.8	2.47	12	10	VL	4E	Exotic species, consider removal	Nil	Consider removal, policy

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74	2439	<i>Eucalyptus microcorys</i> Tallowwood	500	6.0	2.67	15	7	H	1A	Appears structurally sound	Nil	No action required
75	2438	<i>Casuarina cunninghamiana</i> River She-oak	420	5.04	2.51	12	6	H	1A	Appears structurally sound	Nil	No action required
76	2433	<i>Eucalyptus fibrosa</i> Red Ironbark	600	7.2	2.85	18	20	H	1A	Appears structurally sound	Nil	No action required
77	2683	<i>Ficus benjamina</i> Weeping Fig	410	4.92	2.49	8	8	VL	4E	Exotic species, consider removal	Nil	Consider removal, policy
78	2405	<i>Eucalyptus fibrosa</i> Red Ironbark	400	4.8	2.47	14	8	H	2A	Sparse canopy, wound in central leader	Nil	Continue to monitor
79	2406	<i>Eucalyptus fibrosa</i> Red Ironbark	650	7.8	2.93	20	12	H	1A	Appears structurally sound	Nil	No action required
80	2407	<i>Eucalyptus fibrosa</i> Red Ironbark	550	6.6	2.76	20	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
81	2408	<i>Eucalyptus fibrosa</i> Red Ironbark	600	7.2	2.85	22	15	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
82	2409	<i>Acacia maidenii</i> Maiden's Wattle	400	4.8	2.47	14	9	H	2A	Girdling roots	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
83	2410	<i>Casuarina cunninghamiana</i> River She-oak	350	4.2	2.37	15	9	H	2A	Excessive lean angle , major asymmetry	Within proposed building footprint	Consider removal
84	2411	<i>Melaleuca linarifolia</i> Snow in Summer	400	4.8	2.47	6	6	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
85	2412	<i>Melaleuca linarifolia</i> Snow in Summer	400	4.8	2.47	6	6	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
86	2413	<i>Melaleuca linarifolia</i> Snow in Summer	400	4.8	2.47	6	6	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
87	2413.1	<i>Melaleuca linarifolia</i> Snow in Summer	400	4.8	2.47	6	6	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
88	2381	<i>Corymbia maculata</i> Spotted Gum	500	6.0	2.67	15	15	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
89	2381.1	<i>Corymbia maculata</i> Spotted Gum	620	7.44	2.88	20	20	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
90	2381.2	<i>Corymbia maculata</i> Spotted Gum	620	7.44	2.88	20	20	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal

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91	2388	<i>Araucaria cunninghamiana</i> Hoop Pine	690	8.28	3.0	25	12	H	1C	Appears structurally sound	Nil	No action required
92	4850	<i>Eucalyptus sp.</i> Gum	300	3.6	2.25	18	10	H	1A	Appears structurally sound	Nil	No action required
93	4848	<i>Alphitonia excelsa</i> Red Ash	300	3.6	2.25	20	12	H	1A	Appears structurally sound	Nil	No action required
94	4847	<i>Alphitonia excelsa</i> Red Ash	360	4.32	2.39	20	12	H	1A	Appears structurally sound	Nil	No action required
95	4846	<i>Ficus sp.</i> Fig	410	4.92	2.49	15	12	H	1A	Appears structurally sound	Nil	No action required
96	4845	<i>Eucalyptus sp.</i> Gum	550	6.6	2.76	24	15	H	1A	Appears structurally sound	Nil	No action required
97	4841	<i>Araucaria cunninghamiana</i> Hoop Pine	600	7.2	2.85	22	12	H	1A	Appears structurally sound	Nil	No action required
98	4842	<i>Eucalyptus sp.</i> Gum	280	3.36	2.2	18	9	H	1A	Appears structurally sound	Nil	No action required

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99	4840	<i>Eucalyptus sp.</i> Gum	350	4.2	2.37	20	10	H	1A	Appears structurally sound	Nil	No action required
100	4840.1	<i>Eucalyptus sp.</i> Gum	280	3.36	2.2	18	9	H	1A	Appears structurally sound	Nil	No action required
101	4849	<i>Eucalyptus sp.</i> Gum	500	6.0	2.67	24	12	H	2A	Sparse canopy	Nil	Continue to monitor
102	4851	<i>Eucalyptus sp.</i> Gum	300	3.6	2.25	18	5	H	2A	Sparse canopy	Nil	Continue to monitor
103	4858	<i>Pinus radiata</i> Monterey Pine	750	6.0	3.09	20	9	VL	4A	Severe decline, consider removal if not required for habitat	Nil	Remove within 5 years
104	4869	<i>Eucalyptus sp.</i> Gum	1000	12.0	3.44	20	15	H	1C	Large diameter deadwood, potential to form hollows	Nil	Remove deadwood, monitor
105	4860	<i>Brachychiton acerifolius</i> Illawarra Flame Tree	300	3.6	2.25	10	8	H	1A	Appears structurally sound	Nil	No action required

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106	4837	<i>Pinus radiata</i> Monterey Pine	800	9.6	3.17	20	15	VL	4A	Severe decline, consider removal if not required for habitat	Nil	Remove within 5 years
107	4867	<i>Eucalyptus botryoides</i> Southern Mahogany	850	10.2	3.24	20	14	H	2A	Co-dominant trunks from 2 metres	Nil	Continue to monitor
108	4862	<i>Corymbia maculata</i> Spotted Gum	280	3.36	2.2	14	5	H	5B	Semi-mature tree	Within building footprint	Consider removal
109	4863	<i>Pinus radiata</i> Monterey pine	600	7.2	2.85	10	1	VL	4A	Severe decline, consider removal if not required for habitat	Nil	Remove within 5 years
110	4865	<i>Eucalyptus sp.</i> Gum	350	4.2	2.2	12	8	VL	4A	Excessive lean angle	Nil	Consider removal < 5 years
111	4864	<i>Eucalyptus sp.</i> Gum	380	4.56	2.43	12	5	H	1A	Semi-mature tree	Nil	No action required
112	4832	<i>Toona ciliata</i> Red Cedar	300	3.6	2.25	12	8	H	1A	Appears structurally sound	Within building footprint	Consider removal

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113	4833	<i>Eucalyptus saligna</i> Sydney Blue Gum	600	7.2	2.85	24	18	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
114	4834	<i>Eucalyptus saligna</i> Sydney Blue Gum	480	5.76	2.63	22	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
115	3384	<i>Eucalyptus saligna</i> Sydney Blue Gum	350	4.2	2.2	16	8	H	2A	Co-dominant trunks from base	Nil	Continue to monitor
116	3385	<i>Eucalyptus saligna</i> Sydney Blue Gum	400	4.8	2.47	22	12	H	1A	Appears structurally sound	Nil	No action required
117	3395	<i>Eucalyptus elata</i> River Peppermint	1680	15	4.19	24	20	H	1A	Veteran Tree, appears structurally sound	Nil	No action required
118	3396	<i>Corymbia maculata</i> Spotted Gum	400	4.8	2.47	20	10	H	1A	Appears structurally sound	Nil	No action required
119	3399	<i>Jacaranda mimosifolia</i> Jacaranda	800	9.6	3.17	20	20	L	4E	Exotic species	Nil	Consider removal, policy
120	3400	<i>Callistemon salignus</i> Willow Bottlebrush	300	3.6	2.25	18	8	H	1A	Appears structurally sound	Nil	No action required
121	3401	<i>Brachychiton acerifolius</i> Illawarra Flame tree	350	4.2	2.37	20	10	H	1A	Appears structurally sound	Nil	No action required

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122	3401.1	<i>Corymbia maculata</i> Spotted Gum	750	9.0	3.09	24	18	H	1A	Appears structurally sound	Nil	No action required
123	3401.2	<i>Ficus rubiginosa</i> Port Jackson Fig	600	7.2	2.85	15	25	H	1C	Significant specimen, appears structurally sound	Nil	No action required
124	3401.3	<i>Corymbia maculata</i> Spotted Gum	950	11.4	3.38	24	15	H	1A	Appears structurally sound	Nil	No action required
125	3401.4	<i>Corymbia maculata</i> Spotted Gum	700	8.4	3.01	24	15	H	1A	Appears structurally sound	Nil	No action required
126	3418	<i>Corymbia maculata</i> Spotted Gum	600	7.2	2.85	24	15	H	2A	Heavily pruned	Nil	Continue to monitor
127	3418.1	<i>Corymbia maculata</i> Spotted Gum	600	7.2	2.85	24	15	H	2A	Suppressed	Nil	Continue to monitor
128	3419	<i>Corymbia maculata</i> Spotted Gum	670	8.04	2.97	25	20	H	1A	Appears structurally sound	Nil	No action required
129	3417	<i>Corymbia maculata</i> Spotted Gum	300	3.6	2.25	12	8	H	1A	Appears structurally sound	Nil	No action required

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130	3415	<i>Corymbia maculata</i> Spotted Gum	600	7.2	2.85	24	15	H	1A	Appears structurally sound, located at edge of riparian zone	Nil	No action required
131	3413	<i>Corymbia maculata</i> Spotted Gum	450	5.4	2.57	18	10	L	4A	Located at edge of riparian zone, major asymmetry, suppressed.	Nil	Consider removal < 5 years
132	3416	<i>Corymbia maculata</i> Spotted Gum	600	7.2	2.85	25	15	H	1A	Located at edge of riparian zone	Nil	No action required
133	3416.1	<i>Corymbia maculata</i> Spotted Gum	600	7.2	2.85	24	15	H	1A	Near seat	Nil	No action required
134	3422	<i>Corymbia maculata</i> Spotted Gum	650	7.8	2.93	20	12	H	2A	Major asymmetry due to branch failures	Nil	Continue to monitor
135	3422.1	<i>Corymbia maculata</i> Spotted Gum	860	10.32	3.25	28	20	H	2A	Basal swelling	Nil	Consider Picus test
136	2615	<i>Corymbia maculata</i> Spotted Gum	750	9.0	3.09	18	18	H	1A	Appears structurally sound	Nil	No action required

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137	2615.1	<i>Corymbia maculata</i> Spotted Gum	550	6.6	2.76	20	10	H	2A	Near table, suppressed	Nil	Continue to monitor
138	2615.2	<i>Corymbia maculata</i> Spotted Gum	600	7.2	2.85	22	10	H	2A	suppressed with canopy bias over lawn	Nil	Continue to monitor
139	2325	<i>Acer palmatum</i> Japanese maple	570	6.48	2.8	8	8	L	4E	Exotic species, consider removal	Nil	Consider removal, policy
140	3409	<i>Melaleuca bracteata</i> Black Tea Tree	200	2.4	2.0	8	5	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
141	3406	<i>Melia azederach</i> White Cedar	300	3.6	2.25	8	8	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
142	3407	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	250	3.0	2.13	10	4	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
143	2306	<i>Casuarina cunninghamiana</i> River She-oak	600	7.2	2.85	20	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
144	2307	<i>Casuarina cunninghamiana</i> River She-oak	500	6.0	2.67	20	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
145	2308	<i>Casuarina cunninghamiana</i> River She-oak	450	5.4	2.57	18	10	H	1A	Appears structurally sound, 2 metres from building	Within proposed building footprint	Consider removal

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146	2309	<i>Casuarina cunninghamiana</i> River She-oak	200	2.4	2.0	10	1	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
147	2310	<i>Casuarina cunninghamiana</i> River She-oak	450	5.4	2.57	18	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
148	2305	<i>Melaleuca bracteata</i> Black Tea Tree	140	2.0	2.0	8	4	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
149	2304	<i>Eucalyptus saligna</i> Sydney Blue Gum	400	4.8	2.47	20	12	H	1A	Appears structurally sound	During demolition	Fencing and/or armouring
150	2303	<i>Melaleuca bracteata</i> Black Tea Tree	150	2.0	2.0	8	3	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
151	2302	<i>Melaleuca bracteata</i> Black Tea Tree	150	2.0	2.0	5	3	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
152	2301	<i>Eucalyptus saligna</i> Sydney Blue Gum	750	9.0	3.09	25	15	H	1A	Appears structurally sound	During demolition	Fencing and/or armouring
153	2293	<i>Agonis flexuosa</i> Willow Myrtle	150	2.0	2.0	6	3	VL	4A	Tree in decline	Within proposed building footprint	Consider removal

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154	2292	<i>Corymbia citriodora</i> Lemon Scented Gum	500	6.0	2.67	20	18	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
155	2297	<i>Eucalyptus microcorys</i> Tallowwood	600	7.2	2.85	20	15	H	1A	Appears structurally sound	During demolition	Fencing and/or armouring
156	2298	<i>Eucalyptus sp.</i> Gum	300	3.6	2.25	16	9	H	2A	Suppressed	Within proposed building footprint	Consider removal
157	2299	<i>Corymbia eximea</i> Yellow Bloodwood	300	3.6	2.25	8	6	M	2A	Suppressed	Within proposed building footprint	Consider removal
158	2299.1	<i>Eucalyptus saligna</i> Sydney Blue Gum	350	4.2	2.37	16	9	H	1A	Appears structurally sound	During demolition	Fencing and/or armouring
159	2291	<i>Corymbia citriodora</i> Lemon Scented Gum	340	4.08	2.34	18	9	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
160	2290	<i>Corymbia citriodora</i> Lemon Scented Gum	340	4.08	2.34	18	9	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
161	2288	<i>Eucalyptus saligna</i> Sydney Blue Gum	280	3.36	2.2	10	6	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
162	2287	<i>Eucalyptus saligna</i> Sydney Blue Gum	500	6.0	2.67	20	15	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal

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163	2286	<i>Eucalyptus mollucana</i> Grey Box	280	3.36	2.2	12	5	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
164	2285	<i>Eucalyptus saligna</i> Sydney Blue Gum	600	7.2	2.85	25	20	H	2A	Minor deadwood noted	Within proposed building footprint	Consider removal
165	2289	<i>Eucalyptus microcorys</i> Tallowwood	350	4.2	2.37	20	8	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
166	2284	<i>Callistemon salignus</i> Willow Bottlebrush	450	5.4	2.57	8	8	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
167	2330	<i>Eucalyptus sideroxylon</i> Mugga Ironbark	500	6.0	2.67	20	12	H	2A	Wound at base of trunk	Within proposed building footprint	Consider removal
168	2332	<i>Corymbia maculata</i> Spotted Gum	125	2.0	2.0	10	2	H	5B	Semi-mature tree	Within proposed building footprint	Consider removal
169	2333	<i>Corymbia maculata</i> Spotted Gum	125	2.0	2.0	10	2	H	5B	Semi-mature tree	Within proposed building footprint	Consider removal
170	2335	<i>Corymbia maculata</i> Spotted Gum	125	2.0	2.0	10	2	H	5B	Semi-mature tree	Within proposed building footprint	Consider removal
171	2334	<i>Corymbia maculata</i> Spotted Gum	300	3.6	2.25	20	8	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
172	2336	<i>Corymbia maculata</i> Spotted Gum	100	2.0	2.0	10	2	H	5B	Semi-mature tree	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
173	2337	<i>Harpephyllum kaffrum</i> Kaffir Plum	450	5.4	2.57	10	8	L	4E	Exotic species, consider removal	Within proposed building footprint	Consider removal
174	2338	<i>Corymbia maculata</i> Spotted Gum	300	3.6	2.25	20	9	H	5B	Semi-mature tree	Within proposed building footprint	Consider removal
175	2339	<i>Corymbia maculata</i> Spotted Gum	100	2.0	2.0	8	3	M	5B	Juvenile tree	Within proposed building footprint	Consider removal
176	2340	<i>Corymbia maculata</i> Spotted Gum	550	6.6	2.76	25	15	H	2A	Minor deadwood noted	Within proposed building footprint	Consider removal
177	2341	<i>Corymbia maculata</i> Spotted Gum	400	4.8	2.47	24	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
178	2342	<i>Corymbia maculata</i> Spotted Gum	500	6.0	2.67	24	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
179	2343	<i>Corymbia maculata</i> Spotted Gum	150	2.0	2.0	10	1	M	5B	Juvenile tree	Within proposed building footprint	Consider removal
180	2344	<i>Corymbia maculata</i> Spotted Gum	450	5.4	2.57	20	12	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
181	2346	<i>Lophostmon confertus</i> Brush Box	140	2.0	2.0	8	5	M	5B	Juvenile tree	Within proposed building footprint	Consider removal
182	2385	<i>Corymbia maculata</i> Spotted Gum	500	6.0	2.67	24	15	H	1A	On edge of path	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
183	2348	<i>Lophostemon confertus</i> Brush Box	220	2.64	2.05	8	8	M	5B	Semi-mature tree	Within proposed building footprint	Consider removal
184	2347	<i>Lophostemon confertus</i> Brush Box	400	4.8	2.47	10	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
185	2349	<i>Lophostemon confertus</i> Brush Box	300	3.6	2.25	8	5	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
186	2342	<i>Corymbia maculata</i> Spotted Gum	550	7.8	2.76	20	12	H	2A	Minor asymmetry, branch end-weight over building	Within proposed building footprint	Consider removal
187	2350	<i>Polyscias elegans</i> Celery Wood	120	2.0	2.0	5	3	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
188	2351	<i>Polyscias elegans</i> Celery Wood	150ea	2.0	2.0	5	3	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
189	2352	<i>Melaleuca bracteata</i> Black Tea Tree	300	3.6	2.25	5	5	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
190	2355	<i>Melaleuca bracteata</i> Black Tea Tree	400	4.8	2.47	8	6	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
191	2354	<i>Melaleuca bracteata</i> Black Tea Tree	400	4.8	2.47	8	6	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
192	2353	<i>Acacia maidenii</i> Maiden's Wattle	200	2.4	2.0	6	4	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
193	2326	<i>Eucalyptus punctata</i> Grey Gum	500	6.0	2.67	20	10	L	4A	Phellinus fruiting body in trunk, extensive dieback and epicormic growth	Within proposed building footprint	Consider removal
194	2325	<i>Eucalyptus punctata</i> Grey Gum	400	4.8	2.47	22	8	VL	4A	In decline, extensive epicormic growth	Within proposed building footprint	Consider removal
195	2324	<i>Eucalyptus punctata</i> Grey Gum	400	4.8	2.47	20	8	VL	4A	In decline	Within proposed building footprint	Consider removal
196	2323	<i>Eucalyptus paniculata</i> Grey Ironbark	300	3.6	2.25	18	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
197	2322	<i>Eucalyptus paniculata</i> Grey Ironbark	450	5.4	2.57	18	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
198	2321	<i>Eucalyptus saligna</i> Sydney Blue Gum	500	6.0	2.67	20	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
199	2320	<i>Populus deltoides</i> Cottonwood Poplar	700	8.4	3.01	22	15	L	4E	Exotic species, excessive branch end-weight over building, consider removal	Within proposed building footprint	Consider removal
200	2319	<i>Platanus X hybrida</i> London Plane Tree	300	3.6	2.25	10	10	L	4E	Exotic species, consider removal	Major encroachment	Consider removal
201	2318	<i>Eucalyptus microcorys</i> Tallowwood	500	6.0	2.57	20	12	H	1A	Appears structurally sound	During demolition	Tree protection, armouring
202	2316	<i>Eucalyptus microcorys</i> Tallowwood	500	6.0	2.57	20	12	H	1A	Appears structurally sound	During demolition	Tree protection, armouring
203	2315	<i>Eucalyptus microcorys</i> Tallowwood	300	3.6	2.25	14	5	H	1A	1 metre from building	During demolition	Tree protection, armouring
204	2314	<i>Eucalyptus microcorys</i> Tallowwood	350	4.2	2.37	15	8	H	1A	Appears structurally sound	During demolition	Tree protection, armouring

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
205	2313	<i>Eucalyptus saligna</i> Sydney Blue Gum	1250	15	3.75	30	20	H	1C	Significant specimen, appears structurally sound	During demolition, and Construction	Tree protection, armouring
206	2312	<i>Eucalyptus punctata</i> Grey Gum	400	4.8	2.47	22	18	H	1A	Appears structurally sound	During demolition	Tree protection, armouring
207	2361	<i>Acmena smithii</i> Lilly Pilly	280	3.36	2.2	8	8	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
208	2362	<i>Banksia integrifolia</i> Coast Banksia	180	2.0	2.0	8	4	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
209	2362.1	<i>Syzigium paniculatum</i> Magenta Lilly Pilly	140	2.0	2.0	5	4	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
210	2362.2	<i>Syzigium paniculatum</i> Magenta Lilly Pilly	140	2.0	2.0	5	4	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal
211	2360	<i>Polyscias elegans</i> Celery Wood	200	2.4	2.0	10	3	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
212	2380	<i>Eucalyptus microcorys</i> Tallowwood	300	3.6	2.25	8	6	M	1A	Appears structurally sound	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
213	2379	<i>Corymbia maculata</i> Spotted Gum	350	4.2	2.37	18	9	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
214	2378	<i>Eucalyptus saligna</i> Sydney Blue Gum	300	3.6	2.25	20	10	H	2A	Sparse canopy	Within proposed building footprint	Consider removal
215	2377	<i>Eucalyptus saligna</i> Sydney Blue Gum	350	4.2	2.37	18	10	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
216	2376	<i>Eucalyptus saligna</i> Sydney Blue Gum	650	7.8	2.93	18	9	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
217	2364	<i>Corymbia maculata</i> Spotted Gum	650	7.8	2.93	20	14	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
218	2373	<i>Corymbia maculata</i> Spotted Gum	700	8.4	3.01	20	15	H	2A	Small branch dieback	Within proposed building footprint	Consider removal
219	2363	<i>Acacia maidenii</i> Maiden's Wattle	200	2.4	2.0	12	5	L	4A	Touching building, consider removal	Within proposed building footprint	Consider removal
220	2363.1	<i>Acacia maidenii</i> Maiden's Wattle	150	2.0	2.0	8	4	L	4A	Touching building, consider removal	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
221	2363.2	<i>Polyscias elegans</i> Celery Wood	170	2.04	2.0	8	3	L	4A	Touching building, consider removal	Within proposed building footprint	Consider removal
222	2365	<i>Lophostemon confertus</i> Brush Box	150	2.0	2.0	10	6	H	5B	Semi-mature tree	Within proposed building footprint	Consider removal
223	2371	<i>Lophostemon confertus</i> Brush Box	400	4.8	2.47	16	9	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
224	2370	<i>Lophostemon confertus</i> Brush Box	220	2.64	2.05	10	6	H	5B	Semi-mature tree	Within proposed building footprint	Consider removal
225	2366	<i>Lophostemon confertus</i> Brush Box	300	3.6	2.25	10	5	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
226	2367	<i>Corymbia maculata</i> Spotted Gum	500	6.0	2.57	16	8	H	2A	Wound @3 metres	Within proposed building footprint	Consider removal
227	2368	<i>Corymbia maculata</i> Spotted Gum	600	7.2	2.85	24	12	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
228	2369	<i>Lophostemon confertus</i> Brush Box	450	5.4	2.57	12	8	H	1A	Appears structurally sound	Within proposed building footprint	Consider removal
229	2372	<i>Eucalyptus saligna</i> Sydney Blue Gum	530	6.36	2.73	20	12	H	1A	Located in carpark	Minor encroachment	Tree protection, armouring
230	2837	<i>Eucalyptus saligna</i> Sydney Blue Gum	350	4.2	2.15	15	10	H	2A	Located in Lawn Area	Within proposed building footprint	Consider removal

No.	Survey No.	Species Common Name	DBH (mm)	TPZ (M)	SRZ (M)	Height (M)	Canopy Radius (Avg)	Retention Value	SULE	Comment	Likely Development Impacts	Proposed action(s)
231	4861	Toona ciliata Red Cedar	150	2.0	2.0	5	5	H	1A	Located in Lawn Area	Within proposed building footprint	Consider removal
232	4864	<i>Eucalyptus microcorys</i> Tallowwod	350	4.2	2.17	10	10	M	3A	Located in Lawn Area	Within proposed building footprint	Consider removal

DBH = Diameter at 1.4 metres above ground level

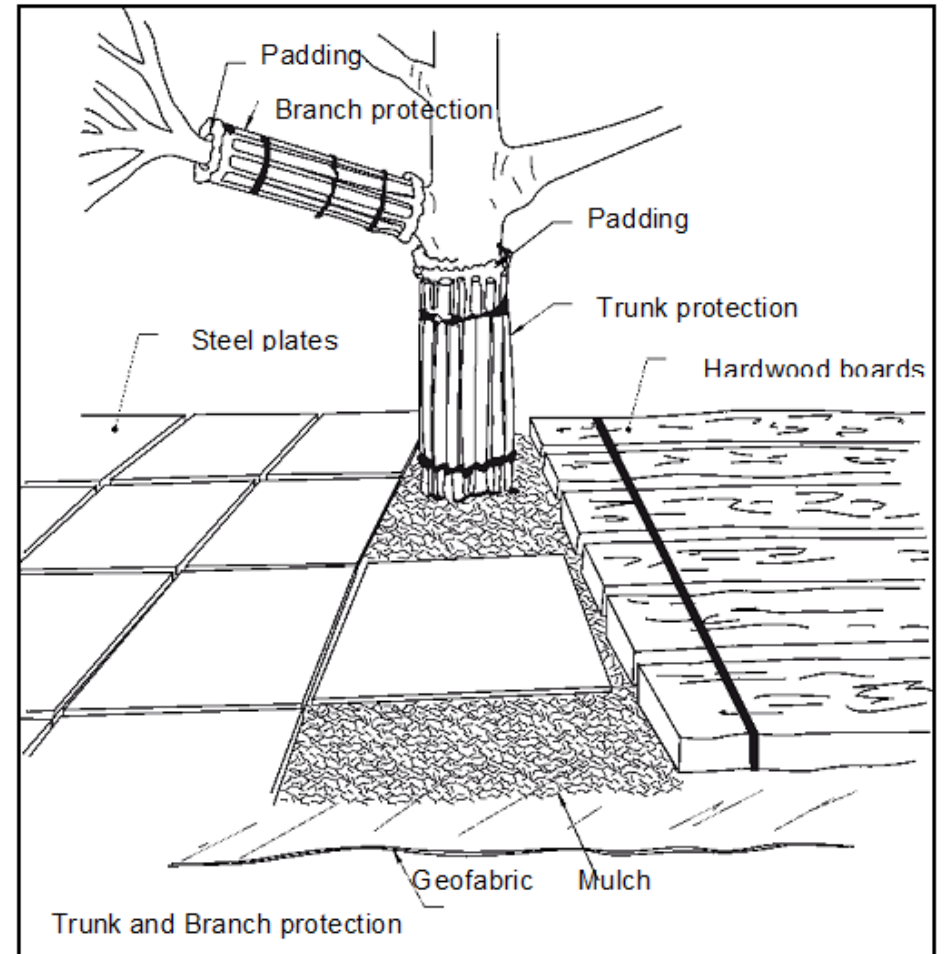
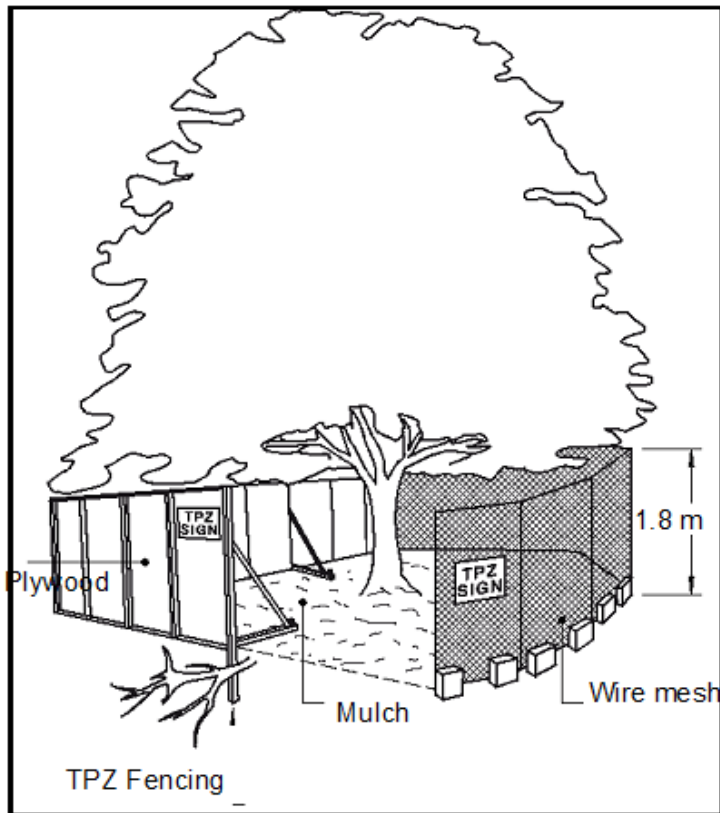
TPZ = Tree Protection Zone calculated in accordance with AS4970

SRZ = Structural Root Zone calculated in accordance with AS4970

SULE =Safe Useful Life Expectancy (Barrel, J -1993-95) see appendix 6.1

Retention Value = High Medium, Low, Very Low (Couston and Howden ,2001)

6.4 Tree, Trunk and Branch Protection Methods (Source AS4970-2009)



6.5 Site photographs



Figure 2 Trees at front of Service building 31B



Figure 3 Trees on Ring Rd front of Earlystart Facility



Figure 4 Trees within the proposed development site



Figure 5 Carpark Trees



Figure 6 Spotted Gum lawn and Art installation



Figure 7 Trees within the proposed North Wing

6.6 References

Clark R.J & Matheny N (1998) Trees & Development – A technical guide to Preservation of trees during land development: International Society of Arboriculture

Mattheck C., Breloer, (1999) The Body Language of Trees – a handbook for failure analysis 5th ed., London: The Stationery Office, U.K

Barrell, J. (1993-95) 'Pre-planning Tree Surveys Safe Useful Life Expectancy (SULE) is the Natural Progression' Arboricultural Journal Vol. 17, PP 33 - 46, Academic Publishers, Great Britain.

Shigo, A.L (1991) 'Modern Arboriculture- A Systems Approach to the Care of Trees and Their Associates'. Shigo and Trees, Associates 4 Denbow Road Durham NH 03824-3105, USA

Standards Australia. 2009 'Australian Standard 4970-2009 Protection of Trees on Development Sites' Standards Australia GPO Box 476 Sydney NSW 2001, Australia.

Google Maps 2017 [online] Available at: <http://maps.google.com.au/maps> [Accessed 20 June 2017]

NSW Office of Environment and Heritage, eSpade v2.0 2017 [Online] Available at: <http://www.environment.nsw.gov.au/eSpade2WebApp> [Accessed 21 June 2017]

Young, RW 1982 Soils of the Illawarra Region [online] Available at: <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1009&context=wollgeo> [Accessed 21 June 2017]

Australian Government, Bureau of Meteorology 2015 [Online] Available at: http://www.bom.gov.au/clim_data/cdio/tables/pdf/windrose/IDCJCM0021.068053.3pmSep.pdf [Accessed 20 June 2017]

Wollongong City Council, 2017 Development Control Plan 2009, part E17 Preservation and Management of Trees and Vegetation [online] available at: <http://www.wollongong.nsw.gov.au/development/regulations/Pages/dcp.aspx> [Accessed 20 June 2017]

National Parks and Wildlife Service 2002. Native vegetation of the Illawarra Escarpment and Coastal Plain [online] available at: <http://www.environment.nsw.gov.au/resources/nature/surveys/020107NatVegIll.pdf> [Accessed 20 June 2017]

6.7 Qualifications – Ian Hills

Associate Diploma Horticulture
AQF3 Horticulture (Arboriculture)
AQF5 Diploma Horticulture (Arboriculture)
QTRA Registered User 2083

Ryde TAFE 1984
Ourimbah TAFE 1998
Kurri Kurri TAFE 2009 (Dux) Cert No. 5934155
December 2013

CAUTION

www.dialbeforeyoudig.com.au

DIAL 1100
BEFORE YOU DIG

ONLY APPARENT SERVICES HAVE BEEN LOCATED BY SURVEY. NO SEARCH OF PUBLIC UTILITIES HAS BEEN CARRIED OUT TO DETERMINE THE LOCATION OF ANY UNDERGROUND SERVICES SUCH AS TELEPHONE, POWER, GAS, SEWER OR WATER. AS SUCH BEFORE CARRYING OUT ANY DESIGN OR CONSTRUCTION WORK YOU NEED TO DIAL 1100 BEFORE YOU PROCEED.

NOTE

THE 3D MODEL & MESH SURROUNDING THE SITE CONTAINED IN THE ELECTRONIC FILE HAS BEEN DERIVED FROM DATA CAPTURED BY OTHERS IN 2009 & 2011. THE 3D MESH & ASSOCIATED CONTOURS IN THE LAYERS "DTM-CONTOURS FROM COMPILED DETAIL BY OTHERS" & "DTM-TRIANGLES FROM COMPILED DETAIL BY OTHERS" ARE TO BE USED FOR DIAGRAMMATIC PURPOSES ONLY. SHOULD CRITICAL DESIGN BE REQUIRED WITHIN THIS AREA THEN FURTHER SURVEY & GROUND TRUTHING WILL BE REQUIRED TO ENSURE THAT THE 3D MODEL REPRESENTS THE ACTUAL GROUND SURFACE.

- (E1) EASEMENT FOR UNDERGROUND CABLES 1 WIDE (WIDE UNREGISTERED DP)
- (N) EASEMENT FOR UNDERGROUND CABLES 1 WIDE (WIDE DP 1171585)
- (P) EASEMENT FOR UNDERGROUND CABLES OVER EXISTING LINE OF CABLES (WIDE D.P. 1188267)

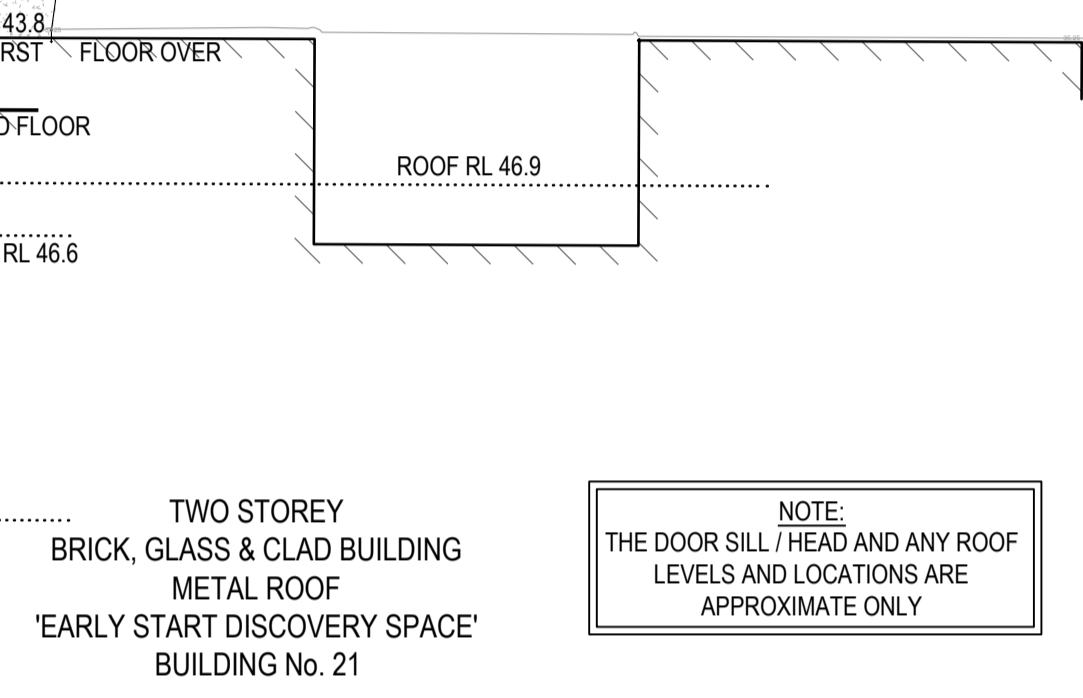
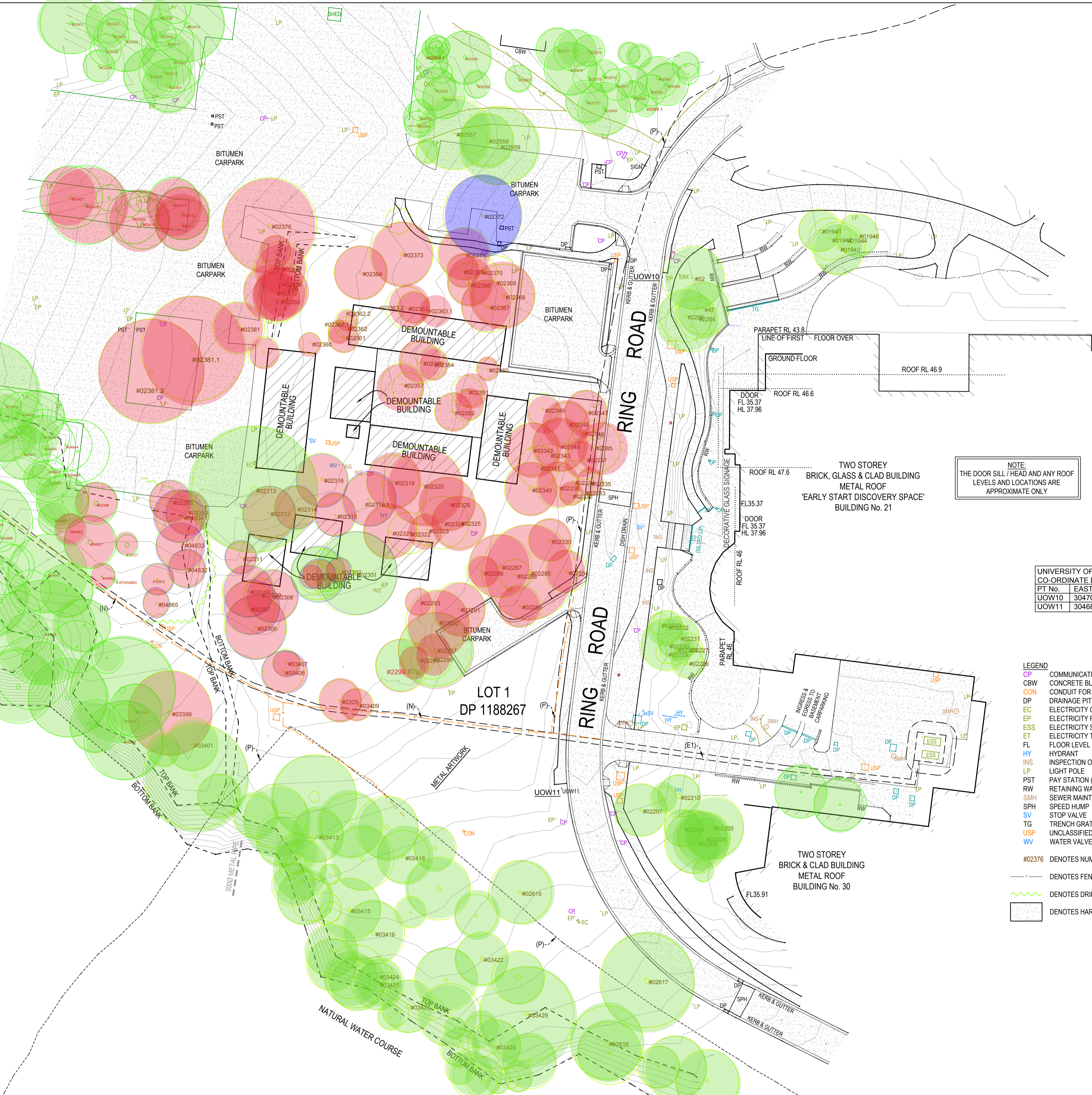
- Tree to be retained
- Tree to be retained subject to level of encroachment
- Tree to be removed

CLASSIFICATION OF SUBSURFACE UTILITY SHOTS BY LANEYRIE ELECTRICAL

CLASS B (TRACED) ELECTRONICALLY TRACED QL-B ON 30/06/2017 WITH GOOD SIGNAL (TOLERANCE +/-300mm)

NOTE: UNDERGROUND SERVICES LOCATED BY ELECTRONIC TRACE METHODS BY LANEYRIE ELECTRICAL. LOCATION OF SERVICES IN THE MODEL ARE BASED ON INFORMATION MARKED UP ON SITE BY LANEYRIE ELECTRICAL & LOCATED HORIZONTALLY ONLY BY LANDTEAM FOLLOWING LANEYRIE ELECTRICAL WORK.

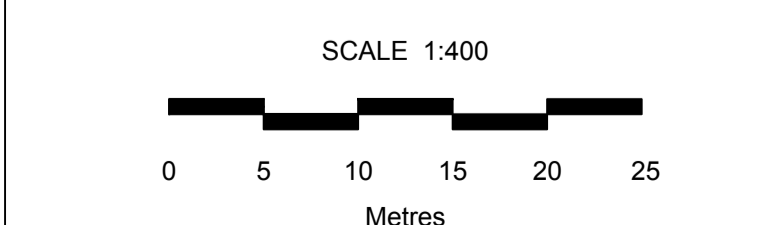
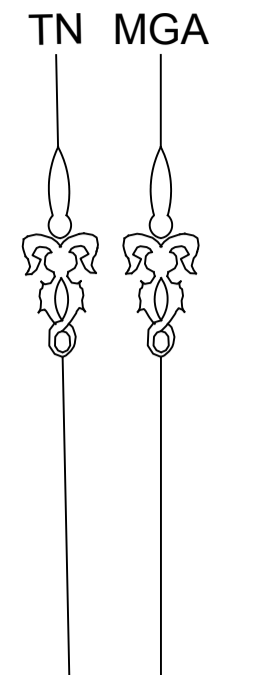
- EXPLANATORY NOTES**
- ONLY APPARENT SERVICES HAVE BEEN LOCATED BY SURVEY. NO SEARCH OF PUBLIC UTILITIES OR SUB-SURFACE INVESTIGATION HAS BEEN CARRIED OUT TO DETERMINE THE LOCATION OF ANY UNDERGROUND SERVICES SUCH AS COMMUNICATIONS, ELECTRICITY, GAS, WATER OR SEWER. SEE THE ATTACHED DIAL BEFORE YOU DIG CAUTION IN THIS PLAN SPACE. NO INVESTIGATION OF LOCATION OF ANY FOOTINGS OR FOUNDATIONS HAS BEEN CARRIED OUT.
 - SPOT LEVELS & CONTOURS REPRESENT GENERAL GROUND LEVEL ONLY. THEY GIVE AN APPROXIMATE REPRESENTATION ONLY OF THE SHAPE AND LEVELS OF THE GROUND SURFACE. CONTOURS DO NOT REPRESENT THE PRECISE LEVEL AT ANY PARTICULAR POINT EXCEPT WHERE A SPOT LEVEL IS SHOWN. SHOULD CRITICAL DESIGN FACTORS BE IN EXISTENCE THEN IT MAY BE NECESSARY TO OBTAIN SUPPLEMENTARY LEVELS TO CONFIRM DESIGN CONSTRAINTS OR PARTICULARS. (TO THIS EXTENT IT SHOULD BE NOTED THAT THE CONTOUR INTERVAL IS 0.25m)
 - CONTOURS ARE INTERPOLATED FROM SPOT LEVELS AS SHOWN & SHOULD BE USED AS A GUIDE ONLY. DO NOT RE-INTERPOLATE CONTOURS.
 - PLEASE NOTE THAT NO BOUNDARY DEFINITION SURVEY HAS BEEN UNDERTAKEN FOR THIS PLAN AND NO BOUNDARIES HAVE BEEN MARKED. BOUNDARIES ARE SHOWN IN APPROXIMATE LOCATION ONLY. DIMENSIONS AS SHOWN ON THE PLAN HAVE ONLY BEEN TAKEN FROM A COPY OF THE DEPOSITED PLAN AND NOT VERIFIED BY FIELD SURVEY. THE DIMENSIONS CAN ONLY BE VERIFIED BY UNDERTAKING A COMPREHENSIVE BOUNDARY DEFINITION SURVEY TO ESTABLISH THE AVAILABLE DIMENSIONS OF THE PROPERTY.
 - RELATIONSHIP OF IMPROVEMENTS AND TREES TO BOUNDARIES IS DIAGRAMMATIC ONLY AS THEY HAVE NOT BEEN ACCURATELY DETERMINED. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY. THE CO-ORDINATES OF BUILDING CORNERS WERE DETERMINED BY TOPOGRAPHIC SURVEY AND THEREFORE ARE APPROXIMATE ONLY.
 - TREE CANOPIES & TRUNKS ARE POSITIONED FOR DIAGRAMMATIC PURPOSES ONLY. THE CANOPY & TRUNK SIZES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY.
 - ORIGIN OF LEVELS IS AUSTRALIAN HEIGHT DATUM (A.H.D.) DERIVED FROM UNIVERSITY OF WOLLONGONG (UOW) CONTROL MARKS AS SUPPLIED.
 - WE HAVE NOT CARRIED OUT A TITLE SEARCH OF THE FOLIO IDENTIFIER AT THE OFFICE OF LAND & PROPERTY INFORMATION IN ORDER TO DETERMINE THE EXISTENCE OF EASEMENTS OR RESTRICTIONS THAT MAY AFFECT THE LAND. (ANY EASEMENTS SHOWN ARE TAKEN DIRECTLY FROM THE PLAN OF SUBDIVISION CREATING THE ALLOTMENT.)
 - THIS PLAN & ACCOMPANYING DIGITAL MODEL HAS BEEN PREPARED FOR DONALD CANT WATTS CORKE - ITS USE IS LIMITED TO SITE ANALYSIS MATTERS & MUST BE USED FOR NO OTHER PURPOSE OR BY ANY UNAUTHORIZED THIRD PARTY. THE CONTENTS REMAINS THE INTELLECTUAL PROPERTY OF LANDTEAM.
 - THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE README FILE ON THE ACCOMPANYING DIGITAL TRANSFER AND THE PDF FILE ATTACHED.



UNIVERSITY OF WOLLONGONG CONTROL MARKS CO-ORDINATE LISTING

PT No.	EASTING	NORTHING	LEVEL
UOW10	304701.816	6190963.438	36.825
UOW11	304682.546	6190865.795	36.406

- LEGEND**
- CP COMMUNICATIONS PIT
 - CBW CONCRETE BLOCK WALL
 - CON CONDUIT FOR UNKNOWN SERVICE
 - DP DRAINAGE PIT
 - EC ELECTRICITY CUPBOARD
 - EP ELECTRICITY PIT
 - ESS ELECTRICITY SUB STATION
 - ET ELECTRICITY TURRET
 - FL FLOOR LEVEL
 - HY HYDRANT
 - INS INSPECTION OPENING
 - LP LIGHT POLE
 - PST PAY STATION (PARKING)
 - RW RETAINING WALL
 - SMH SEWER MAINTENANCE HOLE
 - SPH SPEED HUMP
 - SV STOP VALVE
 - TG TRENCH GRATE
 - USP UNCLASSIFIED SERVICE PIT
 - WW WATER VALVE
- #02376 DENOTES NUMBER AS SHOWN ON TREE TAG (WHERE VISIBLE)
- DENOTES FENCE
 - DENOTES DRIP LINE
 - DENOTES HARSTAND AREA



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ISSUE	AMENDMENT	DRAWN	DATE
A	INITIAL ISSUE	JAK	11/04/17
B	EXTRA DETAIL ADDED AS SURVEYED 4/07/17	JAK	10/07/17

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DONALD CANT WATTS CORKE

DETAIL & CONTOUR SURVEY PLAN
 PART OF LOT 1 IN D.P. 1188267
 SOCIAL SCIENCES, LAW HUMANITIES & ART
 BUILDINGS - UNIVERSITY OF WOLLONGONG

SURVEYED: BK
 DRAWN: JAK
 CHECKED: R.VDZ
 DRAWING No. 209936-TS01
 SHEET 1 OF 1 SHEET(S)

DATUM AHD CONTOUR INTERVAL 0.25m DATE SURVEYED 31/3-5/4/2017

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