URBAN TREE MANAGEMENT

CONSULTING
ARBORICULTURISTS
& HORTICULTURISTS

Urban Tree Management Australia Pty Ltd
ACN 098 599 805
ABN 56 098 599 805

65 Excelsior Street
Merrylands NSW 2160

Phone 02 9760 1389

admin@utma.com.au
www.utma.com.au

INSTITUTE OF AUSTRALIAN CONSULTING ARBORICULTURISTS
IACA
ACCREDITED MEMBER™

Our ref: 11087.Addendum.4

8 November 2017

TSA Management
Attn: Simon Vuong – Assistant Project Manager
Level 16
207 Kent street
Sydney NSW 2000

Dear Simon Vuong,

Report: Additional Tree Removals and Tree Protection RSL Anzac Village: Labuan (Old and New Darby and Joan) 90 Veterans Parade, Narrabeen NSW *(the site)*

PURPOSE

Urban Tree Management writes for and on behalf of TSA Management, to provide comment on 19 trees being 12 previously assessed trees and 4 trees not previously assessed, all proposed for removal, and 3 additional trees not previously assessed which are to be protected adjacent modified works for revised plans for the Labuan (formerly known as Old Darby and Joan) residential area further to our Arboricultural Impact Assessment Report, RSL Anzac Village, Old Darby and Joan and New Darby and Joan, prepared 10 November 2009, Reference 11087(*the initial report*). The proposed additional tree removals are included as Appendix A and marked on plans extracted from *the initial report*. The 3 trees to be retained and protected adjacent excavation works are detailed in Appendix B - Tree Protection Plan.

DISCUSSION

Danny Draper (*the author*) attended *the site* on 2 August 2017 and the trees and their growing environment were examined by a Visual Tree Assessment (VTA) (Mattheck & Breloer, 1994) conducted from the ground. Terminology used in this report is taken from the Dictionary for Managing Trees in Urban Environments (Draper and Richards 2009).

Of the trees to be removed, Trees 49, 173 and 177 are small trees of exotic species; Trees 151, 152, 167 and 180 are locally indigenous species screened from view by surrounding trees to be retained and protected. Tree 170 is a mature Scribbly Gum in good condition encroached by proposed unit 39 but surrounded by trees of the same taxa of similar dimensions with minimal loss of amenity. Trees 174, 175, 178 and 179 all Narrow-leaved Black Peppermint are senescent, a non-locally indigenous tree species with a limited life expectancy in cultivation within the Sydney region and a short remaining life expectancy. Tree 269 is a self-sown tree emanating from the mulch in the shrub garden bed adjacent Lantana Avenue and is located where a new driveway is proposed requiring its removal.

Assessment of tree/s or stand/s of trees – Labuan

Tree No. / Stand No.	Genus & species / Common Name	Age Y = Young M = Mature O = Overmature	Condition G = Good F = Fair P = Poor D = Dead	Crown Form D = Dominant C = Co-dominant I = Intermediate S = Suppressed F = Forest E = Emergent	Ht. Approx. metres	Crown spread approx. metres / Orientation R = Radial, or other	Crown Symmetry 1 = symmetrical 2 = asymmetrical / Orientation	Crown cover / Crown density % / D = dormant	DBH in mm @ 1.4m, or other, as indicated and trunk orientation other than R = radial, e.g. N/S / DARB Diameter above root buttress	Trunk Lean 1 = Upright-Slight 2 = Moderate 3 = Severe 4 = Critical. 5 = Acaulescent / Orientation / ST = Static P = Progressive Sc = Self-correcting	Roots evident @ root crown 1. = None 2. = Adventitious 3. = Basal Flare 4. = Buttresses 5. = First Order Roots (FOR), No. & distribution e.g. R = radial, or one each to N, S, E, NE and W	Pests & diseases 1 = No or 2 = Yes (If 2. see comments)	Branch Bark included 1 = No or 2 = Yes or 3 = N/A	Vigour 1 = Normal Vigour 2 = Low Vigour	Form 1 = Good form 2 = Poor form	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au / ESTIMATED LIFE EXPECTANCY 1. Long 2. Medium 3. Short	Significance scale STARS www.iaca.org.au 1=High 2=Medium 3=Low 4= Weed 5=Hazard / Retention Value 1=High 2=Medium 3=Low 4=Remove
49	*Fraxinus angustifolia ssp. oxycarpa* 'Raywood' Claret Ash	M	G	D	5.5	6 R	1	90 90	300x340, 320 Av @ 600, E/W / 340	1	3. R	1	1	1	1	MGVG - 10 1	1 1
151	*Eucalyptus haemastoma* Scribbly Gum	M	P	C	9	6 R	2 W	80 85	900x650, 775 Av @ ground, N/S / 775	5	3. R	2	1	1	1	MGVP - 6 2	2 2
152	*Corymbia gummifera* Red Bloodwood	M	G	D	12	5 R	1	90 90	420x320, 370 Av, N/S / 400	1	3. R	1	1	1	1	MGVG – 10 1	2 2
167	*Eucalyptus haemastoma* Scribbly Gum	M	G	D	8	6 x 5 E/W	2 S	80 85	400x380, 360 Av @ 1 m, NW/SE / 400	2, S Sc., St	3. R	1	1	1	2	MGVG – 10 1	1 1
170	*Eucalyptus haemastoma* Scribbly Gum	M	G	D	11	12	1	90 90	400, R / 430	1	1.	1	1	1	1	MGVG – 10 1	1 1
173	*Washingtonia filifera* American Cotton Palm	M	G	D	9	2 R	1	90 90	300, R / 340	1	1.	1	3	1	1	MGVG – 10 1	2 2
174	*Eucalyptus nicholii* Narrow-leaved Black Peppermint	M	G	C	11	6 x 4 NW/SE	2 NE	85 85	320x380, 350 Av, N/S / 370	1	1.	1	1	1	1	MGVG – 10 3	2 3
175	*Eucalyptus nicholii* Narrow-leaved Black Peppermint	M	G	D	11	5 R	1	85 90	650x350, 500 Av @ 1 m, NW/SE / 400	1	1.	2	1	1	1	MGVG – 10 3	2 3
177	*Michelia figo* Port Wine Magnolia	M	G	D	5	5 R	1	90 90	800, R @ ground, / 800	5	3. R	1	2	1	1	MGVG – 10 2	1 1
178	*Eucalyptus nicholii* Narrow-leaved Black Peppermint	M	G	D	11	9 R	1	85 85	480x520, 500 Av, N/S / 520	1	1.	1	1	1	1	MGVG – 10 3	2 3

No.	Comments
49	Commemorative planting.
150	Acaulescent, crown deliquescent, comprised of 3 codominant first order structural branches (FOSB); orientation radial; 1 superior, 2 inferior. 1 inferior FOSB to N with basal wound and decay with termite mud evident to S. Possibly structurally unsound but could be retained and treated after Resistograph testing to determine structural integrity.
151	Acaulescent, crown deliquescent, comprised of 3 codominant first order structural branches (FOSB); orientation radial; 1 superior with canker lesion at 4 m below union of second order branches, apparently virulent decay fungus *Botryosphaeria ribis*, evident in other trees on site.
175	Borers evident at pruning wound on inferior FOSB to W, indicated by fresh medium frass. 2 mature epicormic shoots on W side of lower trunk.
177	Appears to be a commemorative planting.
178	High volume small deadwood, throughout. Medium volume epicormic shoots, mid-upper crown.

Assessment of tree/s or stand/s of trees – Labuan

Tree No. / Stand No.	Genus & species / Common Name	Age Y = Young M = Mature O = Overmature	Condition G = Good F = Fair P = Poor D = Dead	Crown Form D = Dominant C = Co-dominant I = Intermediate S = Suppressed F = Forest E = Emergent	Ht. Approx. metres	Crown spread approx. metres / Orientation R = Radial, or other	Crown Symmetry 1 = symmetrical 2 = asymmetrical / Orientation	Crown cover / Crown density % / D = dormant	DBH in mm @ 1.4m, or other, as indicated and trunk orientation other than R = radial, e.g. N/S / DARB Diameter above root buttress	Trunk Lean 1 = Upright-Slight 2 = Moderate 3 = Severe 4 = Critical. 5 = Acaulescent / Orientation / ST = Static P = Progressive Sc = Self-correcting	Roots evident @ root crown 1. = None 2. = Adventitious 3. = Basal Flare 4. = Buttresses 5. = First Order Roots (FOR), No. & distribution e.g. R = radial, or one each to N, S, E, NE and W	Pests & diseases 1 = No or 2 = Yes (If 2. see comments)	Branch Bark included 1 = No or 2 = Yes or 3 = N/A	Vigour 1 = Normal Vigour 2 = Low Vigour	Form 1 = Good form 2 = Poor form	SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au / ESTIMATED LIFE EXPECTANCY 1. Long 2. Medium 3. Short	Significance scale STARS www.iaca.org.au 1=High 2=Medium 3=Low 4= Weed 5=Hazard / Retention Value 1=High 2=Medium 3=Low 4=Remove
179	*Eucalyptus nicholii* Narrow-leaved Black Peppermint	O	G	S – C	6	10 x 8 E/W	2 NW	85 85	400x220, 310 Av @ 900, NW/SE / 350	1	1.	1	1	1	1	OGVG – 6 3	2 3
180	*Banksia integrifolia* Coast Banksia	M	G	D - C	5	3 R	2 W	90 90	350x300, 325 Av @ ground, N/S / 360	3, SW St	1.	1	1	1	1	MGVG – 10 1	2 2
263	*Eucalyptus nicholii* Narrow-leaved Black Peppermint	O	F	D	12	9	1	80 85	300, R / 350	1	3. R	1	2	1	1	OGVF - 5 3	3 3
264	*Eucalyptus haemastoma* Scribbly Gum	M	P	D	11	7	1	80 85	350, R / 375	1	1.	2	1	1	2	MGVP – 6 2	3 3
265	*Eucalyptus botryoides* Bangalay or Southern Mahogany	M	F	D	15	9	1	85 85	350x400, 375 Av. NE/SW / 400	1	1.	2	1	1	1	MGVF – 9 1	2 2
266	*Eucalyptus botryoides* Bangalay or Southern Mahogany	M	G	C	15	6	2 N	90 90	350, R / 375	1	1.	1	1	1	1	MGVG - 10 1	1 1
267	*Eucalyptus botryoides* Bangalay or Southern Mahogany	M	G	C	15	7	2 E	90 90	400, R / 420	1	1.	1	1	1	1	MGVG - 10 1	1 1
268	*Eucalyptus botryoides* Bangalay or Southern Mahogany	M	G	C	15	6	2 W	90 90	350, R / 400	1	1.	1	1	1	1	MGVG - 10 1	1 1
269	*Eucalyptus pilularis* Blackbutt	Y	G	D	4.5	3	1	90 90	100, R / 100	1	1.	1	1	1	1	YGVG – 9 1	3 3

No.	Comments
263 264 265 266-268	Tree declining, high volume epicormic shoots throughout. Structurally deteriorated from trunk wound from Longicorn borers, affecting 50% of trunk circumference. Crown projects over frequently used stairs and dwelling. Acaulescent, bifurcated, at 300 mm, old fungal sporophore below crotch on north side but appears to be declining. Stand of trees to be retained and encroached on north side be excavation and retaining wall for courtyard to new dwellings to north.

Trees 263-269 are additional to the initial report and of these Trees 263-265 and 269 are to be removed and Trees 266-268 are to be retained and protected. Tree 263 is a Narrow-leaved Black Peppermint, senescent and a non-locally indigenous tree species with a limited life expectancy in cultivation within the Sydney region. Tree 264 is a Scribbly Gum that is structurally deteriorated due to a large trunk wound from borers. Tree 265 is a locally indigenous Bangalay, located at the end of a *cul de sac* and required to be removed for road works. Trees 266-268 are a stand of locally indigenous Bangalay to be retained in an area adjacent to excavation for a court yard requiring a retaining wall to be constructed at the edge of the Tree Protection Zone and each expected to remain viable and stable. Tree 269 is a young a self-sown Blackbutt of small dimensions that has recently arisen from the mulch in the shrub garden adjacent Lantana Avenue. Trees 174, 175, 178, 179, 180 263 and 264 are to be removed to facilitate the widening of the internal road for ambulance access. This will require excavation and reconstruction of retaining walls where the trees are growing, which cannot be retained for reasons of safety due to root loss and expected resultant instability. Tree 269 is to be removed to facilitate the construction of a driveway. Tree 170 is a *Eucalyptus haematoma* – Scribbly Gum and will likely be adversely impacted by encroachment of the building envelope of Unit 39 and is expected to decline and become unstable and is to be removed.

CONCLUSION

We can certify that the proposed removal of 16 additional trees and retention of 3 adjacent trees will have minimal impact on the local amenity of the site or neighbourhood in situ. The tree removals proposed will need to be supplemented with additional plantings with advanced specimens to be incorporated into the Landscape Plan.

Yours faithfully,

Danny Draper
Principal Consultant
IACA ACM001203
Urban Tree Management Australia P/L
Dip. Hort. (Arboriculture), (AQF Level 5),
Assoc. Dip. Hort. (Pk. Mgmt.),
Hort. Cert.
TRAQ (ISA)

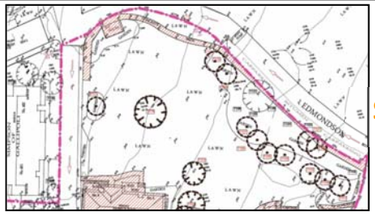
REFERENCES

1. Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.
2. IACA, 2010, *Sustainable Retention Index Value (SRIV)*, Version 4, A visual method of objectively rating the viability of urban trees for development sites and management, based on general tree and landscape assessment criteria, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au .
3. IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au
4. Mattheck K & Breloer H 1994, *The body language of trees.* A handbook for failure analysis, Published by TSO London, UK.
5. Shigo AL 1989, *A New Tree Biology,* (2nd edn.), Shigo and Trees, Associates, Durham, New Hampshire, USA.
6. Standards Australia 2007, *Australian Standard 4373 Pruning of amenity trees*, Standards Australia, Sydney, Australia.
7. Standards Australia 2009, *Australian Standard 4970 Protection of trees on development sites*, Standards Australia, Sydney, Australia.

DISCLAIMER

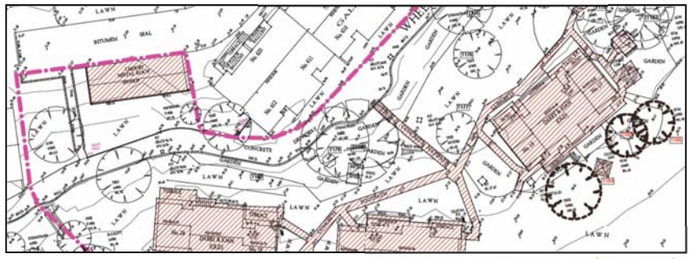
Appendix A from Appendix H (1 of 6) - Survey of Subject Tree/s - Labuan (formerly Old Darby and Joan)

From Old Darby and Joan Demolition Survey Plan, Drawing, No. DA3.02, issue 2, date Sept 2009, Scale 1:300 by Young and Metcalf Architects, Building 2, 6A Liverpool Street, Paddington NSW 2021, tel. 9360 9799



Section 5 – (6 of 6)

Section 4 – (5 of 6)



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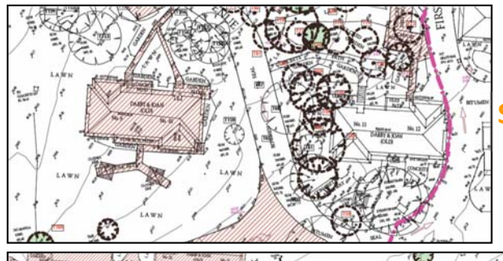

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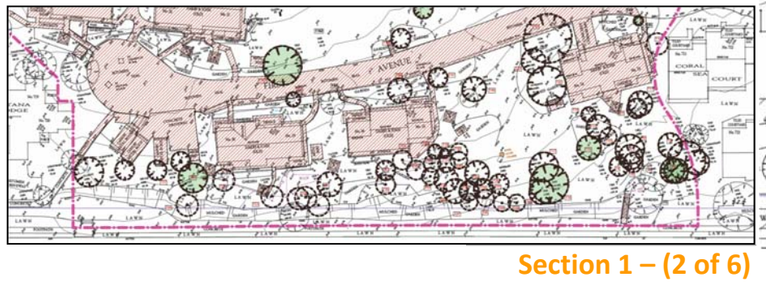

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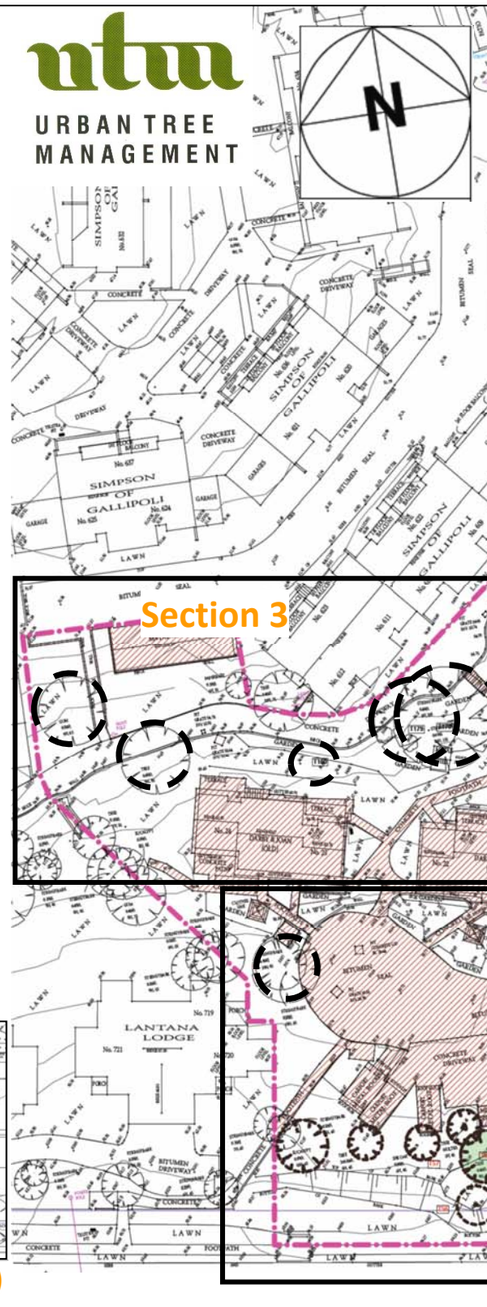
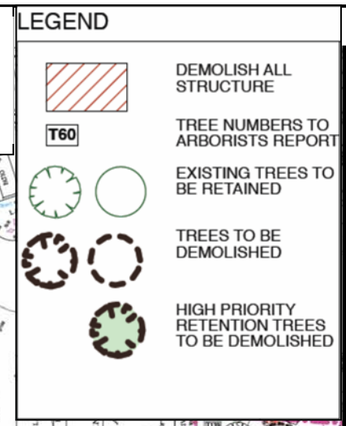
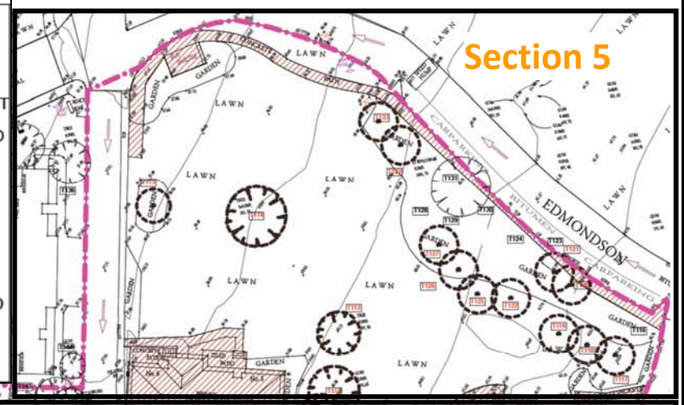


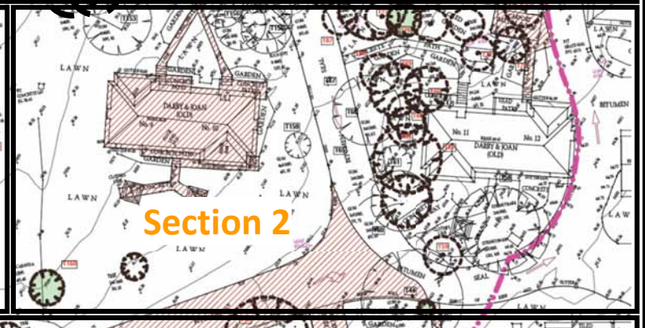




Section 5

Section 4

Section 3



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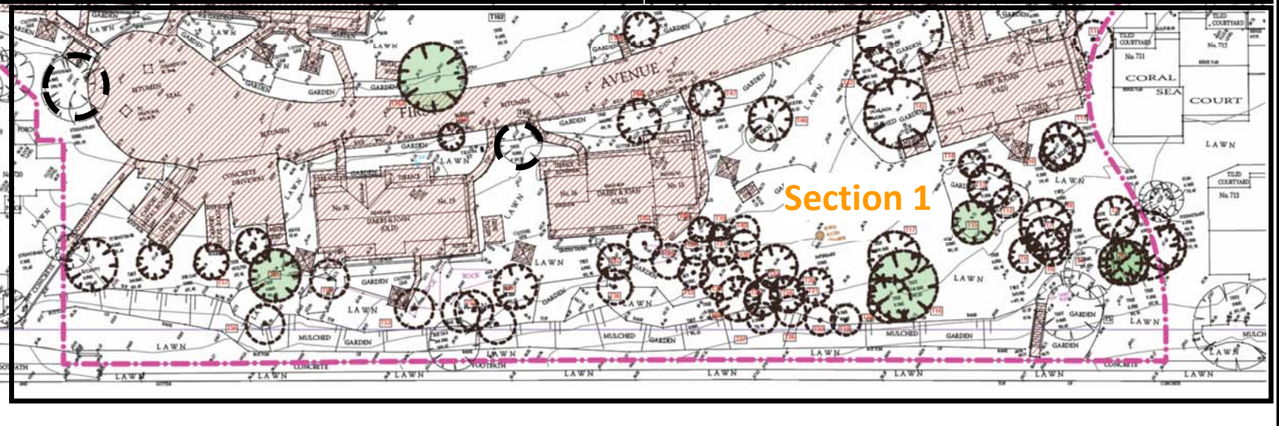

Section 1

Appendix A from Appendix H (2 of 6) – Section 1 - Survey of Subject Tree/s Labuan

From Old Darby and Joan Demolition Survey Plan, Drawing No. DA3.02, issue 2, date Sept 2009, Scale 1:300 by Young and Metcalf Architects, Building 2, 6A Liverpool Street, Paddington NSW 2021, tel. 9360 9799

LEGEND

- DEMOLISH ALL STRUCTURE
- T60 — TREE NUMBERS TO ARBORISTS REPORT
- EXISTING TREES TO BE RETAINED
- TREES TO BE DEMOLISHED
- HIGH PRIORITY RETENTION TREES TO BE DEMOLISHED

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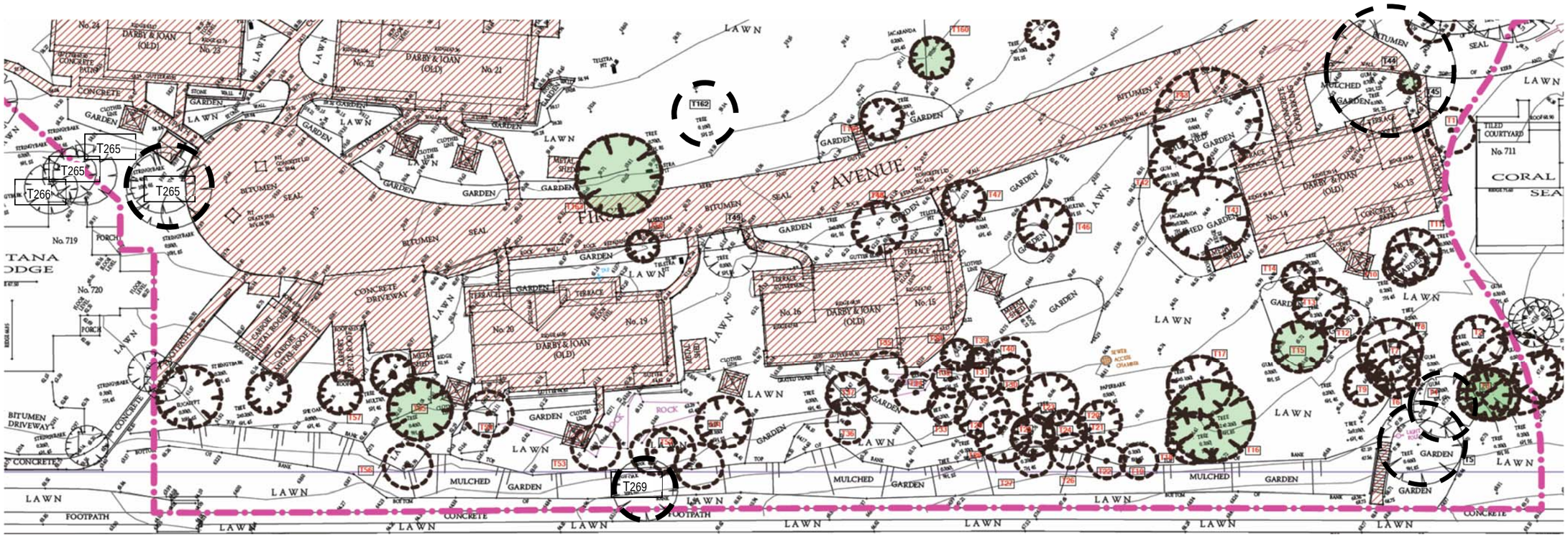
Old Darby and Joan - Site Plan



Appendix A from Appendix H (3 of 6) – Section 2 - Survey of Subject Tree/s Labuan

From Old Darby and Joan Demolition Survey Plan, Drawing, No. DA3.02, issue 2, date Sept 2009, Scale 1:300 by Young and Metcalf Architects, Building 2, 6A Liverpool Street, Paddington NSW 2021, tel. 9360 9799

LEGEND

- DEMOLISH ALL STRUCTURE
- T60 — TREE NUMBERS TO ARBORISTS REPORT
- EXISTING TREES TO BE RETAINED
- TREES TO BE DEMOLISHED
- HIGH PRIORITY RETENTION TREES TO BE DEMOLISHED

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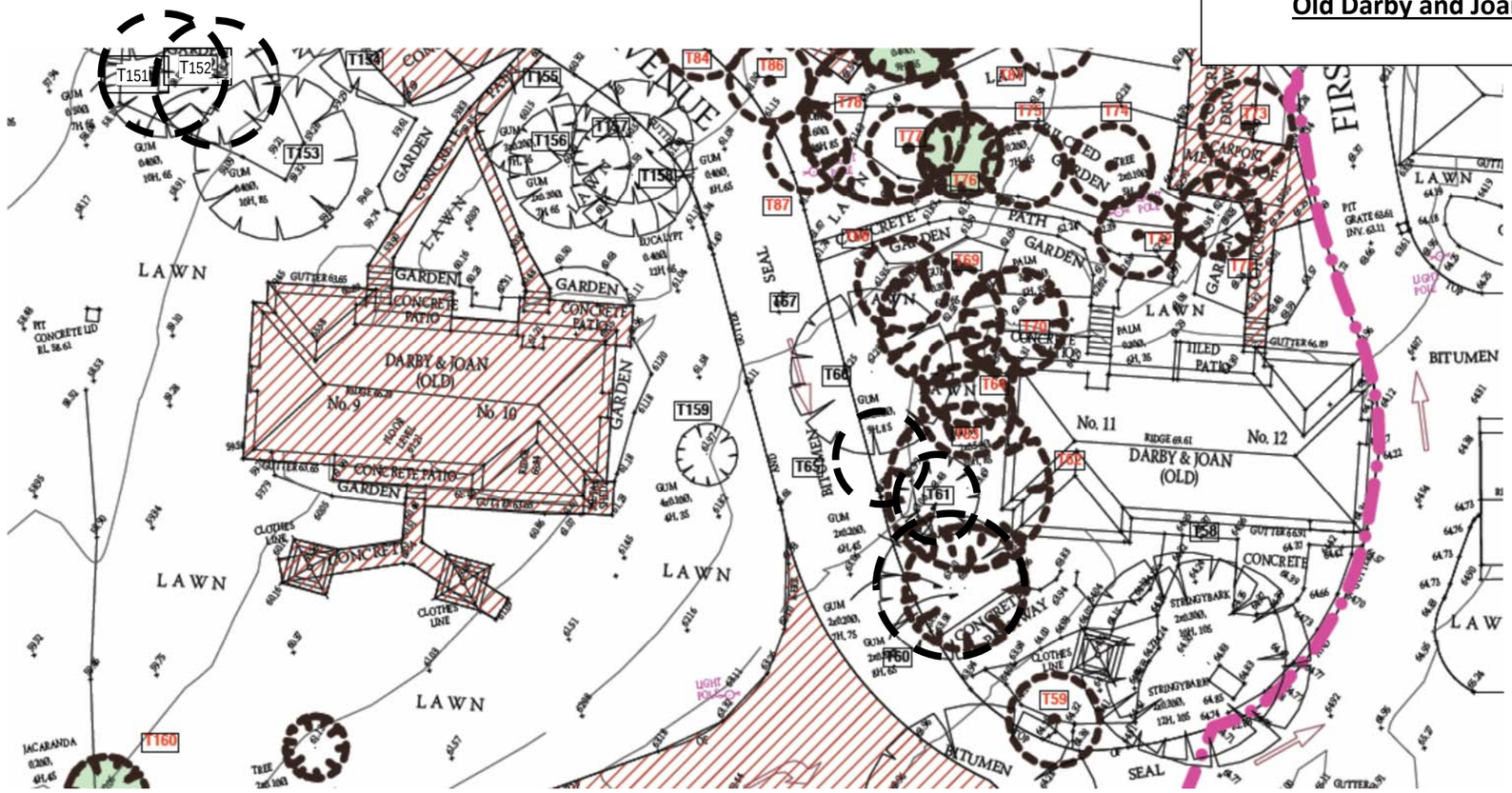
Old Darby and Joan - Site Plan



Appendix A from Appendix H (4 of 6) – Section 3 - Survey of Subject Tree/s Labuan

From Old Darby and Joan Demolition Survey Plan, Drawing, No. DA3.02, issue 2, date Sept 2009, Scale 1:300 by Young and Metcalf Architects, Building 2, 6A Liverpool Street, Paddington NSW 2021, tel. 9360 9799

LEGEND

- DEMOLISH ALL STRUCTURE
- T60 — TREE NUMBERS TO ARBORISTS REPORT
- EXISTING TREES TO BE RETAINED
- TREES TO BE DEMOLISHED
- HIGH PRIORITY RETENTION TREES TO BE DEMOLISHED

URBAN TREE MANAGEMENT

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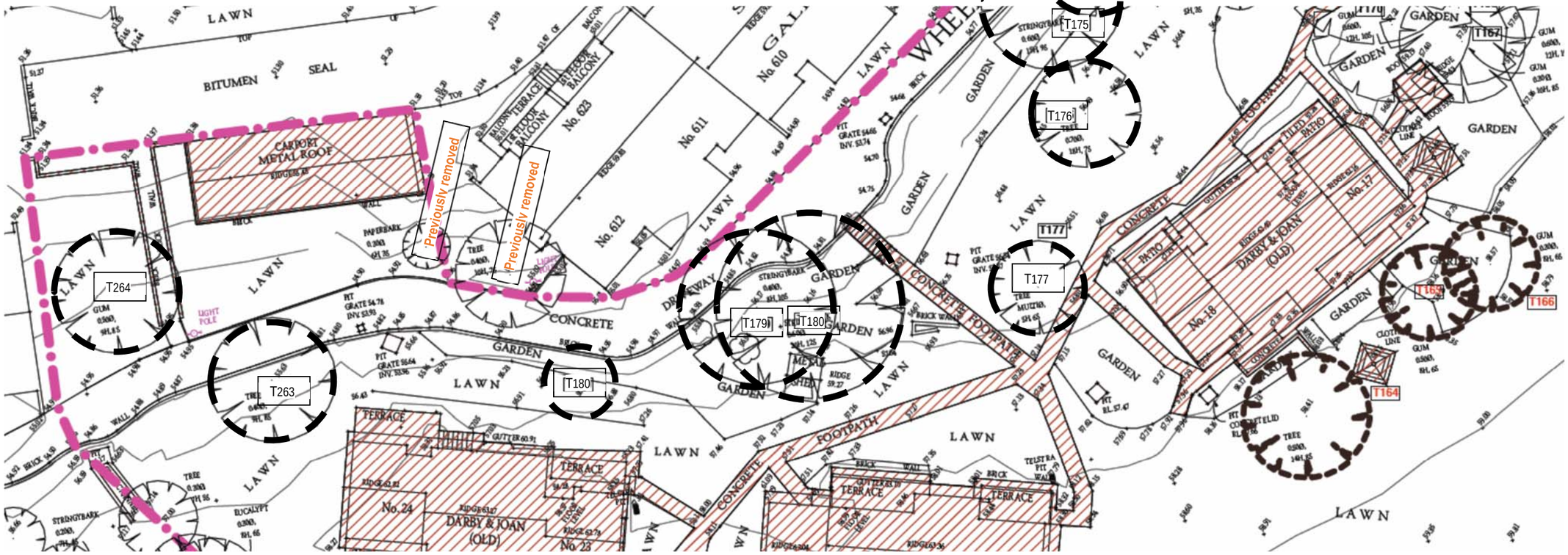
Old Darby and Joan - Site Plan



Appendix A from Appendix H (5 of 6) – Section 4 - Survey of Subject Tree/s Labuan

From Old Darby and Joan Demolition Survey Plan, Drawing, No. DA3.02, issue 2, date Sept 2009, Scale 1:300 by Young and Metcalf Architects, Building 2, 6A Liverpool Street, Paddington NSW 2021, tel. 9360 9799

LEGEND

- DEMOLISH ALL STRUCTURE
- T60 — TREE NUMBERS TO ARBORISTS REPORT
- EXISTING TREES TO BE RETAINED
- TREES TO BE DEMOLISHED
- HIGH PRIORITY RETENTION TREES TO BE DEMOLISHED

URBAN TREE MANAGEMENT

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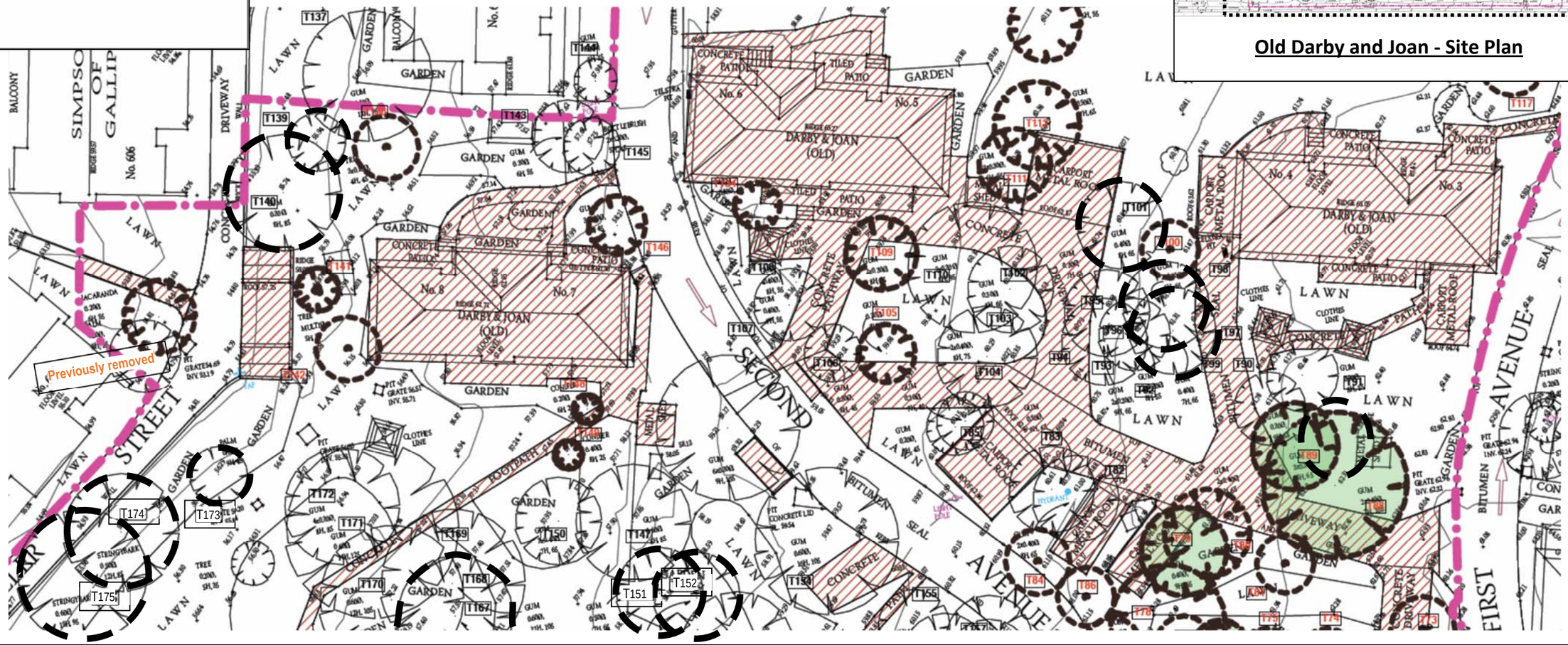
Old Darby and Joan - Site Plan



Appendix A from Appendix H (6 of 6) – Section 5 - Survey of Subject Tree/s Labuan

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LEGEND

- DEMOLISH ALL STRUCTURE
- T60 — TREE NUMBERS TO ARBORISTS REPORT
- EXISTING TREES TO BE RETAINED
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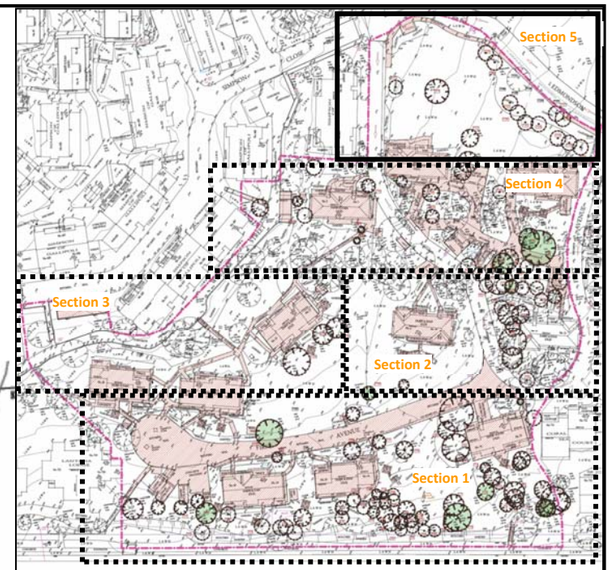
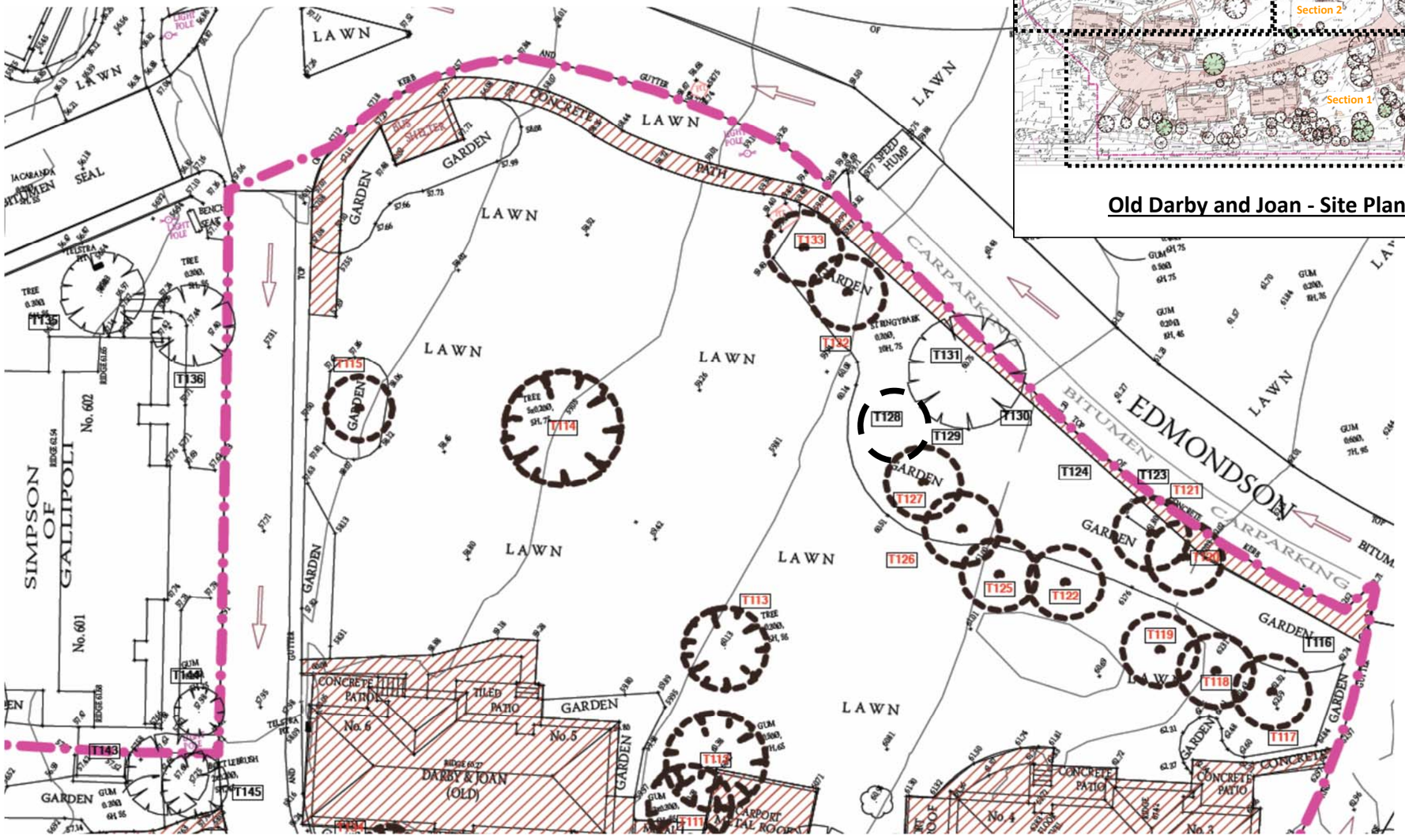


Old Darby and Joan - Site Plan



APPENDIX B – TREE PROTECTION PLAN 1 of 3 - Tree Protection Zones - Standard Procedure

URBAN TREE MANAGEMENT

The Protective fencing where required may delineate the ***TPZ*** and should be located as determined by the project arborist in accordance with AS4970 *Protection of trees on development sites*, Section 4, 4.3. *"Fencing should be erected before any machinery or materials are brought onto the site and before the commencement of works including demolition. Once erected, protective fencing must not be removed or altered without approval by the project arborist. The TPZ must be secured to restrict access. AS4687 Temporary fencing and hoardings specifies applicable fencing requirements. Shade cloth or similar should be attached to reduce the transport of dust, other particulate matter and liquids into the protected area. Fence posts and supports should have a diameter greater than 20 mm and be located clear of roots. Existing perimeter fencing and other structures may be suitable as part of the protective fencing."*

AS4970 Section 4, Tree protection measures.

"Legend:
1 *Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.*
2 *Alternative plywood or wooden paling fence panels. The fencing material also prevents building materials or soil entering the TPZ.*
3 *Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.*
4 *Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots. "*

AS4970 Section 4, Tree protection measures, 4.2 Activities restricted within the TPZ

"Activities generally excluded from the TPZ included but are not limited to-
(a) Machine excavation including trenching;
(b) Excavation for silt fencing;
(c) cultivation;
(d) storage;
(e) preparation of chemicals, including preparation of cement products;
(f) parking of vehicles and plant;
(g) refuelling;
(h) dumping of waste;
(i) wash down and cleaning of equipment;
(j) placement of fill;
(k) lighting of fires;
(l) soil level changes;
(m) temporary or permanent installation of utilities and signs, and
(n) physical damage to the tree."

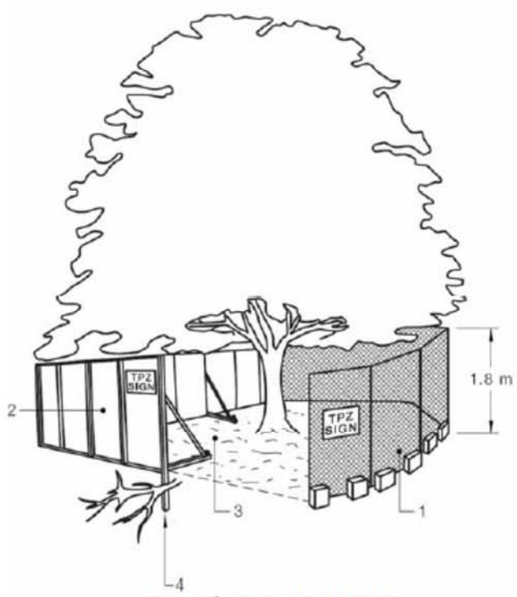


FIGURE 3 PROTECTIVE FENCING

FIGURE C1 TREE PROTECTION ZONE SIGN

Tree Protection signage is to be attached to each ***Tree Protection Zone*** and displayed from within the development site in accordance with AS4970 2009 *Protection of trees on development sites*, Section 4.4 and example Figure C1 (as shown) and lettering to comply with AS1319.

Where a tree is to be retained and a ***Tree Protection Zone*** cannot be adequately established due to restricted access e.g. tree located along side an access way, the trunk and branches in the lower crown will be protected by wrapping 2 layers of hessian or carpet underfelt around the trunk and branches for a minimum of 2 m or as lower branches permit, then wire or rope secures 75x50x2000 mm hardwood battens together around the trunk (do not nail or screw to the trunk or branches). The number of battens to be used is as required to encircle the trunk and the battens are to extend to the base of the tree (AS4970 2009 *Protection of trees on development sites*, Figure 4 Examples of Trunk, Branch and ground protection).

Trunk/Branch and root protection If a tree is growing down slope from an excavation, a silt fence located along the contours of *the site* in the area immediately above the ***Tree Protection Zone*** fencing may need to be installed and regularly maintained to prevent burial and asphyxiation of the roots of the tree. To allow for the maintenance of both fences, the silt fence must be constructed separately to the tree protection fence and the 2 fences must be constructed independently of each other and standalone. To reduce competition with the tree the area within the ***Tree Protection Zone*** 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 dripline, 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 to be controlled within the ***Tree Protection Zone***, for the duration of the project.

The area of the Tree Protection Zone to be mulched to a depth of 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 of mulch and type as indicated, to be maintained for the duration of the project. Where deep excavation will expose the soil profile to drying out the root plate is to be protected by pegging jute matting across the ground surface 2 m back from the edge of the profile and 2 m down the face of the profile and is to be in one continuous sheet or layers up to 5 mm thick and overlapped 300 mm and pegged. Pegs are to be a minimum length of 200 mm and spaced at 500 mm increments in a grid pattern. Once installed mulch is to be placed on top of the jute matting previously described.

No services either temporary or permanent are to be located within the ***Tree Protection Zone***. If services are to be located within the ***Tree Protection Zone***, special details will need to be provided by the Project Arborist for the protection of the tree regarding the location of the service/s.

A tree will not be fertilised during its protection within the ***Tree Protection Zone***, as this may hasten its decline if it were to decline. If a tree is to be fertilised this should be in consultation with the Project Arborist as per AS4970 (2009).

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 dripline 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 ***Tree Protection Zone***. 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 the Project Arborist as per AS4970 (2009).

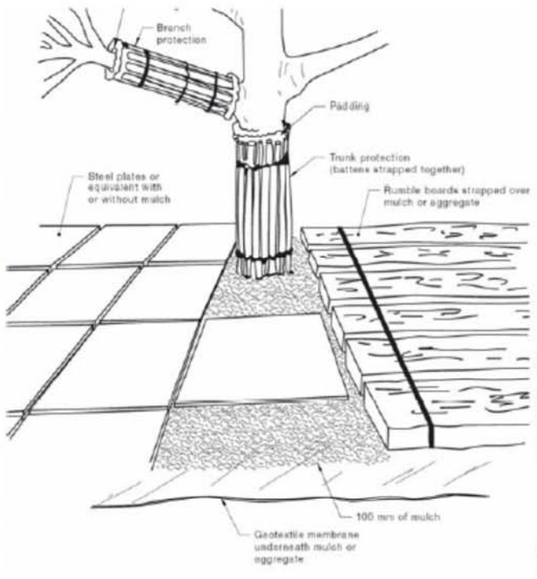
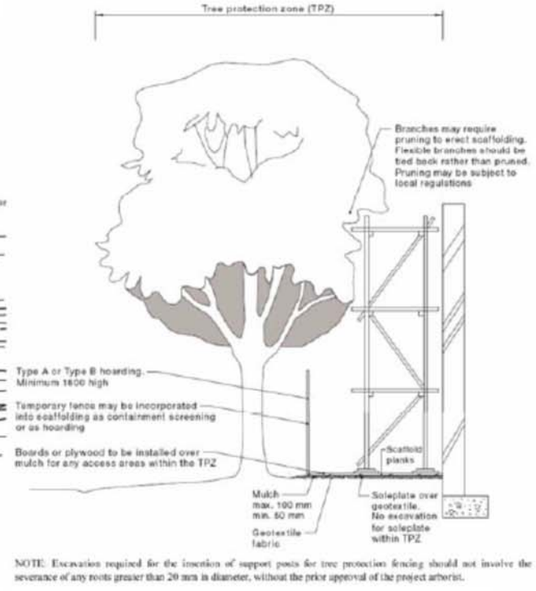


FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION



NOTE Excavation required for the insertion of support posts for tree protection fencing should not involve the severance of any roots greater than 20 mm in diameter, without the prior approval of the project arborist.

FIGURE 5 INDICATIVE SCAFFOLDING WITHIN A TPZ

Scaffolding *"Where scaffolding is required it should be erected outside the TPZ. Where it is essential for scaffolding to be erected within the TPZ, branch removal should be minimized. This can be achieved by designing scaffolding to avoid branches or tying back branches. Where pruning is unavoidable it must be specified by the project arborist in accordance with AS4373. Ground below the scaffolding should be protected by boarding (e.g. scaffolding board or plywood sheeting) as shown in Figure 5. Where access is required, a board walk or other surface material should be installed to minimise soil compaction. Boarding should be placed over a layer of mulch and impervious sheeting to prevent soil contamination. The boarding should be left in place until the scaffolding is removed."* (Standards Australia 2009, p. 18).

APPENDIX B
TREE PROTECTION PLAN 2 of 3 – Trees 266-268

RSL Anzac Village: Labuan (formerly Old Darby and Joan)**, 90 Veterans Parade, Narrabeen NSW, Ref: 11087.addendum.2, 18 august 2017**

Prepared by Urban Tree Management Australia P/L, 65 Excelsior Street, Merrylands NSW 2160, tel. 02 9760 1389.

URBAN TREE MANAGEMENT

Tree Protection Works - General

All retained tree/s Existing levels are to be preserved and no excavation except by hand to protect structural roots is to be undertaken within the Tree Protection Zones. No cutting or filling is to be undertaken within any TPZ unless specified by the Project Arborist.

Induction for Tree Protection All workers entering the site involved in construction must be advised of the tree protection measures and specifications outlined within this report during the site induction. This is to be verbally acknowledged and signed off before commencement of work.

Tree Protection Works - Specific

Prior to Demolition

TPZ Fencing or works – all trees Prior to demolition works, this tree is to be enclosed within a Tree Protection Zone with protective fencing and maintained and retained until the completion of all building works. Where possible, this is to include utilizing the existing side boundary fence. Protective fencing or alternative works is to be installed as shown in Appendix B – Tree Protection Plan - Tree Protection Zone - Standard Procedure, Plan 1 of 3.

Trunk and branch protection Not required.

Pruning – all trees Not required.

Any plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise damage to overhanging branches and to protect roots.

Root Protection – all trees No work is to be undertaken within the TPZ. Where access is required within the TPZ, roots are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) section 4, 4.5.3 Ground Protection, where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates as per AS4970 (2009) Figure 4, (see Appendix B, Plan 1 of 3). Plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise soil disturbance.

Root Mapping Not required.

Root Pruning Where a situation occurs that a structural root (root greater than >40 mm diameter) requires pruning or removal, the root is to be severed with a final cut to undamaged tissue to remove injured and crushed tissues allowing the tree to develop strong internal boundaries and generate new roots (Shigo 1989, p. 199) and protect their growing environment below ground. This will prevent tearing damage to the roots from excavation equipment which can extend beyond the point of excavation back towards the tree. If such works are to be undertaken within the Tree Protection Zone they are to be monitored and certified by the Project Arborist.

Mechanical excavation deeper than 600 mm post hand excavation, and where no structural roots are present, is permissible with plant equipment reaching into the TPZ from outside of the TPZ to protect roots from soil compaction. This may include post hole borers or screw piling.

Root Protection From Soil Profile Desiccation – all trees After excavation at the edge of the Tree Protection Zone for the soil level changes for the courtyard and construction of the retaining wall (Appendix B, Plan 3 of 3), roots are to be protected from exposed soil profiles drying out. Immediately root after excavation the exposed soil profile is to be protected with a double layer of hessian of Geotextile fabric installed to cover the exposed soil profiles within the Tree Protection Zone. The Geotextile fabric is to be fixed into place with metal pegs at the bottom of the soil profile, and the fabric is to overlap the top of the profile by 300 mm and be pegged into place. The soil profile protection is to remain in place and be maintained until the commencement of backfilling behind the new retaining wall, when it is to be removed.

Maintain Tree Protection Zones and their works during this period.

Protective Fencing See Appendix B – Tree Protection Plan - Tree Protection Zone - Standard Procedure, Plan 1 of 3.

During Demolition

Tree Removal Not required.

Root Protection – all trees No work is to be undertaken within the TPZ. Where access is required within the TPZ, roots are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) section 4, 4.5.3 Ground Protection, where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates as per AS4970 (2009) Figure 4, (see Appendix A, Plan 1 of 3).

Any plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise damage to overhanging branches and to protect roots to minimising soil disturbance and compaction, this to include using existing driveways, garage floors, slabs and pavement.

Maintain Tree Protection Zones and their works during this period.

Post Demolition and Prior to Construction

Mulching Not required.

Maintain Tree Protection Zones and their works during this period.

During Excavation and Construction

Root Protection for Tree – all trees The ground protection works are to remain in place until building works are completed.

Scaffolding within the Tree Protection Zone If required, this is to be of minimum width to protect the roots from soil compaction and is to be installed as per AS9470 (2009) as indicated in Appendix B– Tree Protection Plan - Tree Protection Zone - Standard Procedure, Plan 1 of 3. The scaffold should be approved by an engineer.

Location of underground utilities within a Tree Protection Zone – all trees Utility services should not be located within the Tree Protection Zone. Any utility services to be located underground within the TPZ are to be undertaken utilising excavation techniques that prevent or minimise damage to structural roots (roots greater than >40 mm diameter). Such works should be conducted with non-motorised hand tools of with an air knife or water knife and vacuum truck or with directional drilling with minimum depth to top of bore of 600 mm, to prevent soil compaction and root damage and works are to be monitored and certified by the Project Arborist.

Installation of boundary or internal fences and external services – all trees Boundary or internal fences within the Tree Protection Zone of these trees are to be installed using hand excavated holes to a minimum depth of 600 mm for posts or piers where pier and beam construction is to be used. This is to minimise any impact on structural roots and any infill masonry sections are to be located on steel lintels suspended a minimum of 100 mm above ground to protect the roots within the TPZ. A fence must have the flexibility of design to move a post or pier to be 100 mm clear of any structural root (a root greater than >40 mm diameter) to protect such roots and provide sufficient space for future growth without conflict between the 2 structures. Any piers to be relocated must be approved and certified by a structural engineer or architect.

Precautions in respect to temporary work – all trees If pedestrian or vehicular access is required within a Tree Protection Zone the roots of these trees are to be protected from soil compaction by the application of ground protection as per AS4970 (2009) Figure 4, (see Appendix B, Plan 1 of 3), where a permeable membrane such as geotextile fabric is to be located at existing ground level beneath a layer of mulch or crushed rock with no fines 100 mm deep and covered with rumble boards or steel plates. Such works are to be monitored and certified by the Project Arborist. Any plant equipment is to work from outside of the TPZ reaching into the TPZ to minimise soil disturbance and compaction. The ground protection works are to remain in place until building works are completed. Maintain tree protection, and waste material is to be kept clear of the trunk and branches.

Post Construction - Landscaping

Excavation for landscape plantings within the tree protection zones This should be undertaken manually, to prevent damage to structural roots. Existing soil grades should be maintained with plant container size restricted to a maximum size of 5 litres. No more than 2 plants per square metre for 5 litre and 5 plants per square metre for 150 mm pot size. Maintain crown protection, and waste material is to be kept clear of the trunk and branches.

Appendix B Tree Protection Plan (3 of 3) Trees 266, 267 and 268.

RSL Anzac Village: Labuan (formerly Old Darby and Joan), **90 Veterans Parade, Narrabeen NSW, Ref: 11087.addendum.2, 18 august 2017**

From Old Darby and Joan Demolition Survey Plan, **Drawing No. DA3.02**, issue 2, date Sept 2009, Scale 1:300 by Young and Metcalf Architects, Building 2, 6A Liverpool Street, Paddington NSW 2021, tel. 9360 9799

LEGEND

DEMOLISH ALL STRUCTURE

T60 TREE NUMBERS TO ARBORISTS REPORT

EXISTING TREES TO BE RETAINED

TREES TO BE DEMOLISHED

HIGH PRIORITY RETENTION TREES TO BE DEMOLISHED

Legend

10. Trees numbered in orange and bold are recommended for retention.

11. Trees numbered in blue and not bold are recommended for removal.

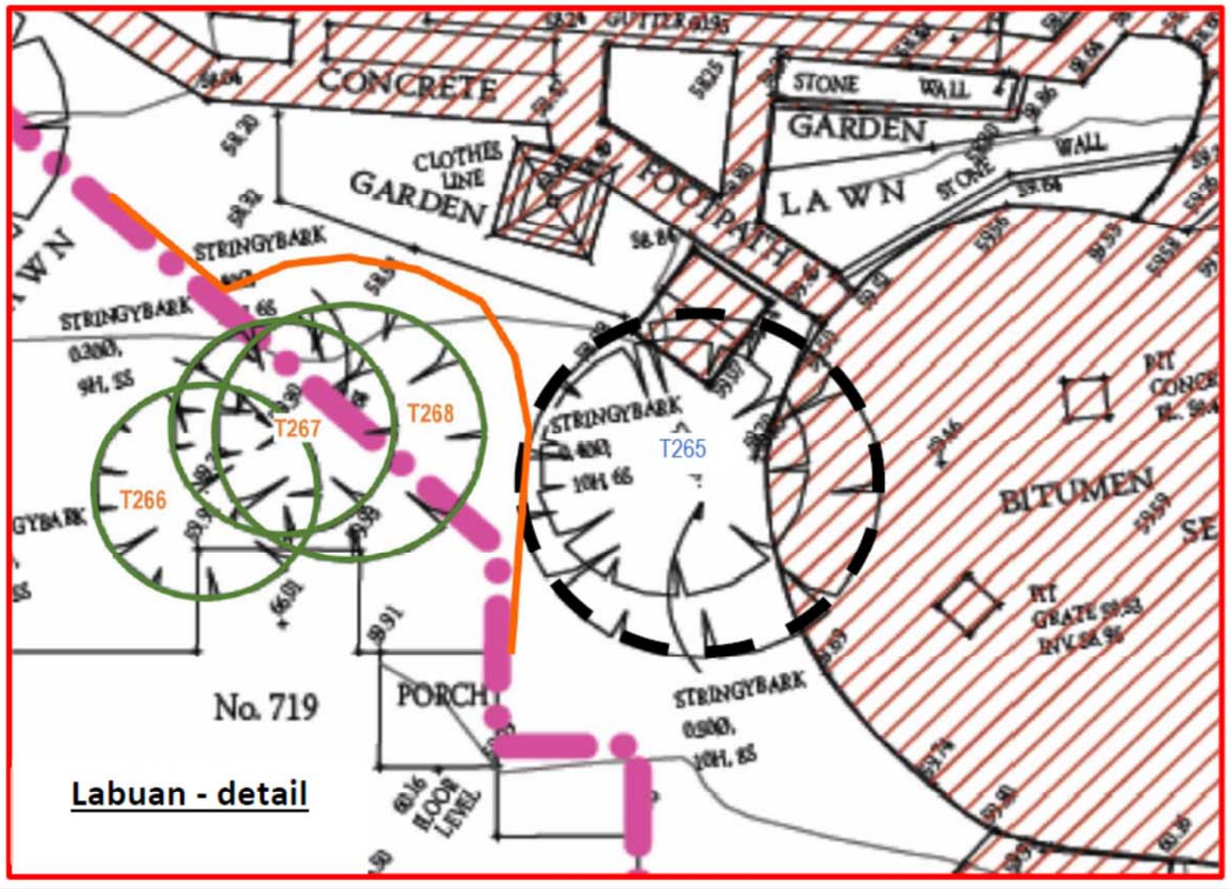
Tree Protection Zone (TPZ), as fencing with setbacks as indicated, or other protection measures or works as indicated.

Tree Protection Zone, within *the site*, area of special protection measures or works outside of or instead of a fenced area.

URBAN TREE MANAGEMENT

Tree Protection Zone setbacks

1. UTM Tree No. / UTM Stand No.	2. Structural Root Zone **SRZ** From center of trunk (COT), trunk diameter above root buttress (DARB) AS4970 (2009) Section 3, 3.3.5 (see Appendix C) where applicable (m)	3. Tree Protection Zone (TPZ) = **12 x DBH** (m) From center of trunk (COT) in metres AS4970 (2009) Section 3 (see Appendix B)	4. Distance of fence with TPZ setback **reduced by 10%** of area on one side of tree only, in metres equating to approx. 0.3 radius as per AS4970 (2009) Section 3, 3.3 (mm)	5. Proposed distance of works on the side closest to building construction in metres From center of trunk (COT), (m)
266	2.3	4.0	N/A	4.0
267	2.3	5.0	N/A	5.0
268	2.3	4.0	N/A	4.0



Labuan - detail

Labuan - Site Plan, Section 1, showing detailed area