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Arboricultural Assessment & Report – Preliminary Design

Melbourne Water Storage Facility, 8 - 20 & (part of) 22 - 28 Phillip Street, Dallas

For: Melbourne Water

Monday 31 August 2015

Arboricultural Assessment and Report
8-20 & (part of) 22-28 Phillip Street, Dallas

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Objectives

To assess those trees located within and adjacent the subject site that may be affected by a future residential development.

To provide an assessment of the subject trees detailing age, health, structure, dimensions, status within any relevant planning scheme and tree protection zones.

To assess the retention value of the subject trees within a residential setting.

To provide remedial and tree protection information for the subject trees should development occur.

Provide preliminary information that will assist the design process.

Methodology

A site inspection was undertaken on Thursday 30 & Friday 31 July, 2015. The trees were inspected and observations made of the surrounding area. No intrusive investigation or sampling of the tree/s or soil was undertaken. Visual observations were undertaken from ground level to determine age, structure and condition with measurements taken to establish approximate trunk and canopy dimensions. Canopy height was estimated, canopy width was measured using a laser-measuring device and trunk diameters measured using a forester's tape. No internal sampling or aerial inspection was undertaken.

We have utilised a *Proposed Fencing and Access Track Plan* by Peyton Waite, dated 25 / 08 / 2004.

Numerical identifiers ascribed to individual trees correspond with those numbers placed on the plan provided in appendix 4 of this report. Appendix 4 also contains tree retention value coding to assist the design process.

Observations

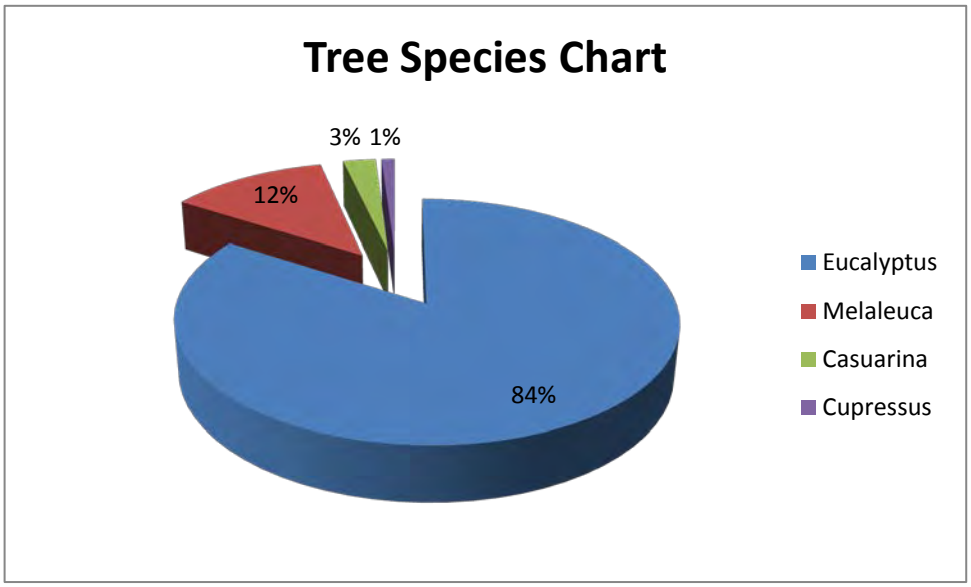
The subject site consists of a Public Use Zone allotment in Dallas, a suburb located within the City of Hume. The site holds an existing water storage facility surrounded by a population of established trees.

A broad range of species have been planted across the site. The most commonly utilised being the Eucalyptus genera; which included nine species. Of the One hundred and eighty six trees assessed, one hundred and sixty four were Eucalypts.

Three large maturing River Red Gum (nos. 5, 18 & 24) are thought to be naturally occurring indigenous trees.

Most of the subject trees are planted in formal rows adjacent Inverloch Street and Phillip Street. Other trees are planted in a more random pattern.

Chart 1



One street tree is located on the Phillip Street nature strip and is considered to be of low retention value.

As the land is greater than 0.4 of a hectare it is subject to Clause 52.17 Native Vegetation Controls. Under this state planning provision a permit is required to lop, remove or destroy native vegetation. Exemptions also apply for trees that are dead (less than 40cm in trunk diameter at 1.3m from grade), trees grown for amenity or agricultural purposes, shelter belts, woodlots, street trees, gardens or the like.
The above exemptions do not apply if public funding was provided to plant or manage the vegetation and the terms of the funding did not anticipate removal or harvesting of that vegetation. If the trees were planted for ecological reasons, e.g. by a river then their indefinite retention would have been foreseen. Considering the context of the subject site the trees are obviously planted for amenity and their eventual degradation and loss would have been anticipated.

The site is currently being considered for rezoning to facilitate future residential development. The existing trees will be a considered an asset if they are in sound condition and can provide a sustained contribution to the final outcome. Where trees are in poor condition or capable of negatively affecting the site they will be considered a liability. Trees may also be viewed negatively by the design team if their location significantly constrains the requirements of the design brief.

Discussion

Tree Value

Trees can make a positive contribution to the appeal of a completed development by providing a visual softening of the built form, a maturity to the landscape, a connection with the pervading landscape and neighbourhood character, they also provide scale, shade, beauty and habitat. However not all trees are suitable for retention particularly within a proposed development; an arboricultural assessment will ultimately place a retention value on the existing vegetation, depending on that vegetations potential to have a positive or negative influence on the site proposal.

In a residential context safety has to be valued above economics or amenity with tree risk the primary consideration regarding whether a tree is to be retained or removed. If hazard potential can be effectively managed then other factors such as amenity, longevity, tolerance to impact, anti social traits, habitat etc. will be considered. These attributes are useful in estimating the retention value and useful life expectancy of a given tree.

- Trees of low retention value are unsuitable for retention,
- Trees of medium retention value can be retained if site constraints can accommodate tree retention,
- Trees of high retention value are recommended for retention and should be accommodated within the design process.

Chart 2

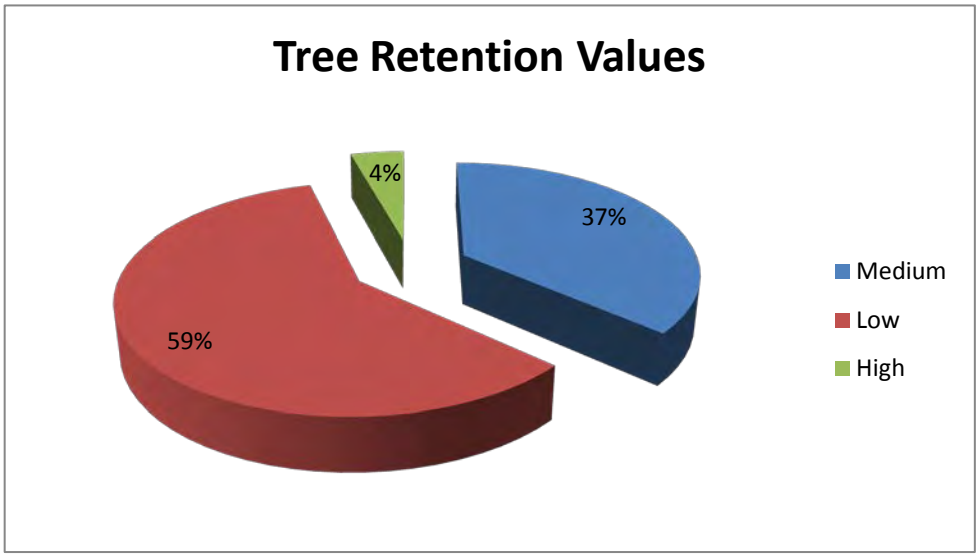


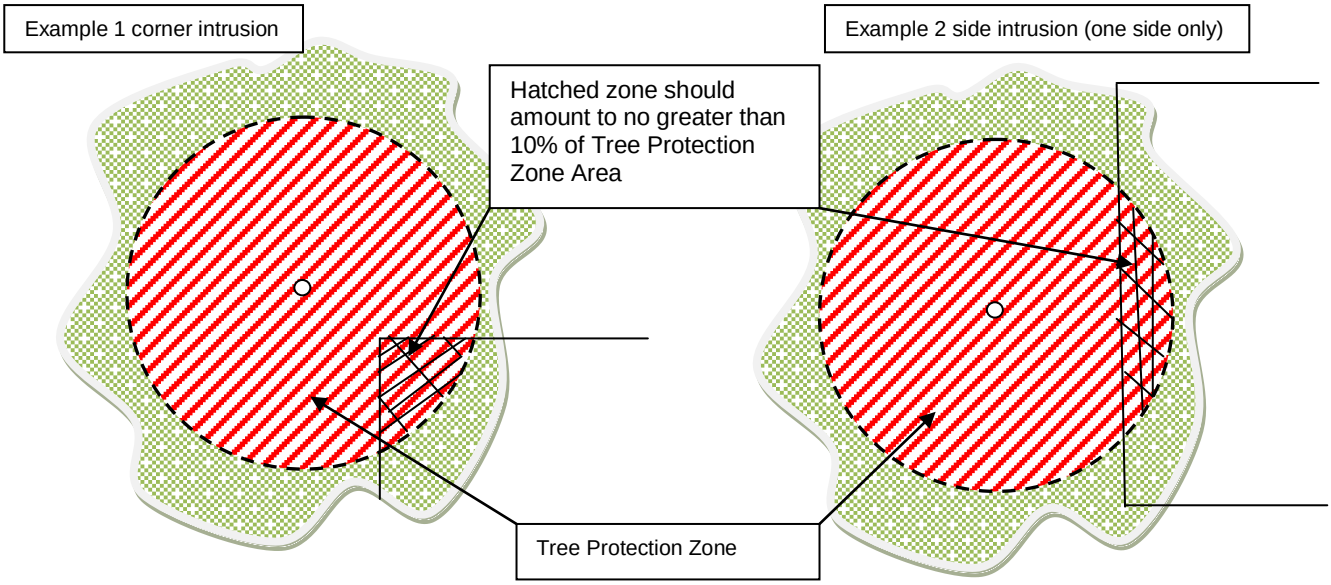
Chart 2 indicates that 4% of the assessed trees are well suited to retention within a residential site, 37% are moderately suited to retention within a residential site and 59% are unsuitable.

Tree Retention and Acceptable Impacts

If trees are to be successfully retained within a development site then measures must be taken to ensure adequate protection of the canopy and root mass. To this end an arborist identifies Tree Protection Zones (TPZ) so that adequate amounts of canopy and root mass are left unaffected by construction, thereby providing for a healthy, stable, long-term tree resource.

AS 4970-2009 *Protection of Trees on Development Sites* provides guidelines for determining the radius of the TPZ based upon the size of the trunk diameter. This standard considers that an encroachment of less than 10% of the area of the TPZ is acceptable, provided that other contiguous areas can be used to increase the TPZ. If encroachments are greater than 10% the project arborist must demonstrate why the tree may remain viable with such an encroachment. The tree protection zones and 10% threshold in appendix 1 are based upon the information provided in AS4970 – 2009.

Figure 1. Examples of acceptable Tree Protection Zone Intrusions



Example: TPZ area = 187m2. Acceptable encroachment = 18.7m2 (10% of TPZ area)

It should be noted that tree protection zones are a model for planning and design and are not sacrosanct from some sympathetic intrusion, root growth is often unpredictable and for this reason negotiation into a TPZ may be possible. Careful exploratory excavation can give a more accurate depiction of a trees root mass and the setback required to minimise any negative impact. However exploratory excavation is sometimes impractical particularly when dealing with large populations of trees or in areas of heavy clay/shale soil environments such as the subject site and for this reason the TPZ model is provided.

Tree Protection

In order to protect trees on construction sites tree protection fencing must be erected prior to the commencement of any demolition, excavation or construction works. Tree protection fencing excludes access and defines the extent of the TPZ given for all retained trees. If construction is set at the edge or close to the TPZ then the fence may be temporarily moved to facilitate construction - with the approval of the responsible authority. N.B. The relocation of the fence does not indicate a change in the TPZ of the tree and suitable protection measures must be undertaken; this may include the use of heavy plywood sheeting laid over a bed of coarse mulch to reduce soil compaction from vehicles and pedestrian traffic.

The relocation of the protection fence should be used for short-term purposes only and must be reinstalled as soon as possible. Tree protection fencing specifications are listed in Tree Protection Measures, Appendix 3 of this report.

An Overview of the Subject Trees

The assessed vegetation is an eclectic mixture of one hundred and thirty (130) SA species, twenty-eight (28) NSW species, sixteen (16) indigenous species, eight (8) planted Victorian natives, three (3) WA species and one (1) exotic specimen. Of the indigenous trees assessed only trees 5, 18 & 24 (all River Red Gum) are thought to be naturally occurring trees. Due to the modified and disturbed nature of the site, which includes mowing maintenance, the decades of difference between the semi mature trees and the mature River Red Gum, it is probable that the semi mature indigenous trees have been planted.

Some past tree removals and tree pruning has been undertaken on those trees lining adjacent roadways and the existing water storage tank.

A large population of Sugar Gum exists across the site. Most of the older trees display hollow decaying structures with limb failure a consistent theme. Due to their ultimate size and propensity to shed limbs indiscriminately, this species is considered inappropriate for retention within a residential development. Consequently all trees have been rated as Low Retention Value. There are far better species that can provide long term future benefits to the site.

The close plantings of the majority of trees have caused suppressed asymmetric forms as canopies compete for available sunlight. Consequently most of these trees are of Medium Retention Value.

The subject trees display varying levels of health, structural condition and usefulness, which is reflected in the retention value assigned to each tree. Of the assessed population eight (8) have high retention value, sixty-eight (68) have medium retention value and one hundred and ten (110) have low retention value.

Tree nos. 1, 5, 10, 18, 24, 25, 26 and 99 are of high retention value as they displayed such good overall condition; landscape contribution and long expected remaining usefulness that they should be accommodated within the design wherever possible.

The medium retention value trees are nos. 6, 9, 11, 13, 16, 17, 19, 21, 22, 23, 27, 29, 31, 32, 34, 35, Group 36, 40, 42, 44, 48, 52, 53, 54, 57, 58, 62, 64, 65, 67, 68, 69, 71, 73, 75, 76, 77, 78, 79, 80, 81, 82, 84, 85, 86, 87, 88, 89, 90, 92, 93. 94, 95, 102, 105, Group 134, 145, 149, Group 151, 170, 172, 174, 175, 177, 179, 180, 181 and 183. They are not significantly good examples or of significant size and condition, but they do still offer some value to the site. If they are not considered a constraint to any future design then they can be retained.

Tree nos. 2, 3, 4, 7, 8, 12, 14, 15, 20, 28, 30, 33, 37, 38, 39, 41, 43, 45, 46, 47, 49, 50, 51, 55, 56, 59, 60, 61, 63, 66, 70, 72, 74, 83, 91, 96, 97, 98, 100, 101, 103, 104, 106, 107, 108, 109, 110, 111, 112, Group 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 146, 147, 148, 150, 152, 153, 154, 155, 156, 157, 158, Group 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 171, 173, 176, 178, 182, 184, 185 and 186 are of low retention value. They are considered a liability to the site as they are either dead, inappropriate species for residential sites or in poor health and/or poor structural condition.

Planning Considerations

Clause 52.17 would require planning permission to lop, remove or destroy trees 5, 18 & 24. The remainder of the assessed trees are exempt as they have been planted for amenity purposes.

The loss of trees 5, 18 & 24 would trigger a biodiversity report and a No Net Loss assessment, which is costly and time consuming. All three trees have poor structure but excellent habitat value due to their hollow structures. The Department of Environment, Land Water & Planning would consider the trees 'lost' if structures are placed beneath their canopies or if the TPZ is encroached by greater than 10%. Due to the hazard potential presented by all three trees, the simplest way to protect the public, and avoid Clause 52.17 planning issues, is to retain the trees within areas of low use, such as a large roundabout, reserve or public park.

Conclusions & Recommendations

The site has eight high retention value trees, being nos. 1, 5, 10, 18, 24, 25, 26 and 99. The remainder of the site vegetation is of medium and low retention value.

To utilise the information provided in this report efficiently the following should be undertaken:

- Nominate the loss of those trees of low retention value where they occur within the subject site (see appendix 1 tree data & appendix 4 for tree retention value plan).

- Consider the retention of medium retention value trees if they are not a constraint to the design and landscape plan.

- Make every effort to accommodate the retention of high retention value trees 1, 5, 10, 18, 24, 25, 26 and 99.

- Draw the Tree Protection Zones (provided in Appendix 1) of retained trees onto the Preliminary Site Plan, consider the percentage of TPZ area that may be encroached and how this may affect those trees of medium and high retention value and the design intent.

- Where encroachments are greater than 10% of TPZ area, (see Appendix 1 for TPZ area) consider modifying the design or removing the tree. Further arboricultural advice regarding species tolerance and footing design may also be sought.

- Plot the location of tree protection fencing onto the plans, including areas where modified protection is required to facilitate construction (see Appendix 3, Table 2, taken from AS4970 2009).

Tree protection measures in accordance with AS4970 2009 *Protection of Trees on Development Sites* must be installed prior to the commencement of any site works. Tree protection guidelines are provided in appendix 3 which can provide guidance regarding tree protection notations that should be placed on plan.

A final design must clearly indicate the location of those trees nominated for removal, those trees nominated for retention and the location of tree protection fencing for those retained trees.

Storm water drains and other underground services must be diverted around the retained trees TPZ, the only exception would be if the services are installed by underground boring, at appropriate depths, with machinery access and entry pits located outside the TPZ.

Graeme Lewis
Consultant Arborist

References:ASA 4970 2009 *Protection of Trees on Development Sites* (Standards Australia)

Appendix 1

***DESCRIPTORS IN APPENDIX 2**
DBH = DIAMETER OF TRUNK AT 1.4M FROM GRADE. TPZ = TREE PROTECTION ZONE SRZ= STRUCTURAL ROOT ZONE (BOTH TPZ & SRZ ARE MEASURED AS A RADIUS FROM THE TRUNK CENTRE). .
*** INDICATES A TREE WITH MULTIPLE TRUNKS.**

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
1	*Eucalyptus melliodora*	Yellow Box	15	13	56	6.7	4.6	2.8	Good	Fair	Fair	Planted Indigenous	High	
2	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	8	10	53	6.4	4.4	2.9	Good	Poor	Fair	Planted SA Native	Low	Trunk decay. Dead central stem. Decay canker, heavy crown lean.
3	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	5	9	35	4.2	2.9	2.7	Good	Poor	Poor	Planted SA Native	Low	History of limb failures.
4	*Eucalyptus globulus*	Southern Blue Gum	10	4	26	3.1	2.1	2.2	Fair	Poor	Fair	Planted VIC Native	Low	Decay canker at 5m
5	*Eucalyptus camaldulensis*	River Red Gum	9	13	88	10.6	7.3	3.4	Good	Poor	Fair	Naturally occurring Indigenous	High	Decay from lopped stem. Needs exclusion zone due to potential for limb failure
6	*Melaleuca linariifolia*	Snow In Summer	5	5	26	3.1	2.1	1.9	Good	Fair	Fair	Planted NSW Native	Medium	
7	*Melaleuca linariifolia*	Snow In Summer	4	4	25*	3.1	2.1	2	Poor	Poor	Poor	Planted NSW Native	Low	

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
8	*Melaleuca linariifolia*	Snow In Summer	4	4	13	2	1.4	1.6	Good	Fair	Poor	Planted NSW Native	Low	Major asymmetry.
9	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	5	6	24*	2.8	2	2	Good	Fair	Fair	Planted NSW Native	Medium	
10	*Eucalyptus leucoxylon subsp. Megalocarpa*	Large Fruited Yellow Gum	10	10	48	5.8	4	2.6	Good	Fair	Fair	Planted VIC Native	High	
11	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	10	5	25	3	2.1	2.1	Good	Fair	Fair	Planted SA Native	Medium	
12	*Melaleuca linariifolia*	Snow In Summer	4	1	21*	2.5	1.7	1.9	Poor	Poor	Poor	Planted NSW Native	Low	
13	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	7	5	25*	3	2.1	2.2	Good	Fair	Fair	Planted NSW Native	Medium	
14	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	10	6	32*	3.8	2.6	2.3	Good	Poor	Fair	Planted NSW Native	Low	Bifurcated with included bark
15	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	5	5	25*	3	2.1	2.2	Poor	Poor	Poor	Planted NSW Native	Low	

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Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
16	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	10	9	55*	6.6	4.5	3	Fair	Fair	Fair	Planted SA Native	Medium	Borer in base.
17	*Eucalyptus camaldulensis*	River Red Gum	7	7	42*	5	3.4	2.4	Fair	Poor	Fair	Planted Indigenous	Medium	History of limb failure. Possum grazing.
18	*Eucalyptus camaldulensis*	River Red Gum	14	12	98	11.8	8.1	3.6	Good	Poor	Fair	Naturally occurring Indigenous	High	Decaying trunk and limbs. History of limb failure. Needs exclusion zone due to potential for limb failure.
19	*Casuarina cunninghamiana*	River She-Oak	13	4	31	3.7	2.6	2.3	Fair	Fair	Fair	Planted NSW Native	Medium	Sparse canopy.
20	*Casuarina cunninghamiana*	River She-Oak	13	4	32	3.8	2.6	2.3	Poor	Poor	Poor	Planted NSW Native	Low	
21	*Casuarina cunninghamiana*	River She-Oak	13	4	25	3	2.1	2.1	Fair	Fair	Poor	Planted NSW Native	Medium	Some dieback.
22	*Casuarina cunninghamiana*	River She-Oak	15	5	49	5.9	4	2.8	Fair	Fair	Fair	Planted NSW Native	Medium	Some dieback.

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23	*Eucalyptus camaldulensis*	River Red Gum	9	6	36	4.3	3	2.5	Good	Good	Fair	Planted Indigenous	Medium	
24	*Eucalyptus camaldulensis*	River Red Gum	10	13	94	11.3	7.7	3.8	Good	Poor	Fair	Naturally occurring Indigenous	High	Basal cavity. Recent limb failures. Decay from lopped stem. Needs exclusion zone due to potential for limb failure.
25	*Eucalyptus camaldulensis*	River Red Gum	10	8	43*	5.1	3.5	2.6	Good	Fair	Fair	Planted Indigenous	High	
26	*Eucalyptus camaldulensis*	River Red Gum	11	13	56*	6.7	4.6	3.1	Good	Poor	Fair	Planted Indigenous	High	Basal bifurcation. Decay cankers.
27	*Eucalyptus camaldulensis*	River Red Gum	10	6	24	2.9	2	2	Good	Poor	Fair	Planted Indigenous	Medium	
28	*Eucalyptus camaldulensis*	River Red Gum	10	12	42*	5	3.5	2.7	Good	Poor	Poor	Planted Indigenous	Low	Basal bifurcation. Heavy trunk lean.
29	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	7	5	22*	2.6	1.8	1.9	Good	Fair	Fair	Planted NSW Native	Medium	
30	*Melaleuca armillaris*	Giant Honey Myrtle	7	6	22*	2.6	1.8	2.2	Poor	Poor	Fair	Planted NSW Native	Low	

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
31	*Eucalyptus camaldulensis*	River Red Gum	12	3	23	2.8	1.9	2.1	Good	Fair	Poor	Planted Indigenous	Medium	
32	*Eucalyptus camaldulensis*	River Red Gum	11	7	28	3.4	2.3	2.4	Fair	Fair	Poor	Planted Indigenous	Medium	Sparse canopy. Possum grazed.
33	*Eucalyptus botryoides*	Southern Mahogany	13	1	27	N/A	N/A	1.9	Dead	Poor	Poor	Planted VIC Native	Low	No hollows observed.
34	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	8	7	30*	3.7	2.5	2.2	Good	Fair	Good	Planted NSW Native	Medium	
35	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	9	7	34*	4.1	2.8	2.4	Good	Fair	Fair	Planted NSW Native	Medium	
Grp 36	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	10	4	35*	4.2	2.9	2.1	Good	Fair	Fair	Planted NSW Native	Medium	Group of 6 trees.
37	*Casuarina cunninghamiana*	River She-Oak	10	4	19	2.3	1.6	2.1	Poor	Poor	Poor	Planted NSW Native	Low	
38	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	10	5	26*	3.1	2.2	2.2	Poor	Fair	Poor	Planted SA Native	Low	

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
39	*Melaleuca armillaris*	Giant Honey Myrtle	4	9	27*	3.2	2.2	2.5	Fair	Poor	Poor	Planted VIC Native	Low	Root plate and trunk failure.
40	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	10	13	45	5.4	3.7	2.5	Good	Fair	Poor	Planted SA Native	Medium	
41	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	12	7	42	5	3.5	2.5	Good	Fair	Poor	Planted SA Native	Low	Heavy trunk lean.
42	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	12	9	49	5.9	4	2.6	Good	Fair	Fair	Planted SA Native	Medium	Trunk wound.
43	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	12	9	46	5.5	3.8	2.7	Fair	Poor	Poor	Planted SA Native	Low	Decay canker on central stem.
44	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	9	39	4.7	3.2	2.3	Good	Fair	Fair	Planted SA Native	Medium	
45	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	12	8	41	4.9	3.4	2.5	Good	Poor	Poor	Planted SA Native	Low	Past bifurcation failure. Root loss. Basal wound.
46	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	4	4	22	2.6	1.8	2	Good	Fair	Poor	Planted SA Native	Low	Heavy crown lean.
47	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	13	10	35	4.2	2.9	2.4	Good	Fair	Poor	Planted SA Native	Low	Borer. Epicormics.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
48	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	6	5	27	3.2	2.2	2.2	Good	Fair	Poor	Planted SA Native	Medium	
49	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	13	11	49	5.9	4	2.8	Fair	Poor	Fair	Planted SA Native	Low	Trunk decay
50	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	10	5	44	5.3	3.6	2.5	Fair	Poor	Poor	Planted SA Native	Low	History of limb failures
51	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	8	40	4.8	3.3	2.5	Good	Poor	Poor	Planted SA Native	Low	Stem failure
52	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	12	10	49	5.9	4	2.7	Fair	Fair	Poor	Planted SA Native	Medium	
53	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	13	49	5.9	4	2.7	Good	Fair	Fair	Planted SA Native	Medium	
54	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	5	4	19	2.3	1.6	1.9	Good	Fair	Poor	Planted SA Native	Medium	
55	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	9	6	36	4.3	3	2.3	Good	Fair	Poor	Planted SA Native	Low	Beginning to decay. Heavy lean towards footpath.
56	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	12	10	54	6.5	4.4	2.7	Good	Poor	Poor	Planted SA Native	Low	Cracking in tension wound.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
57	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	8	4	23*	2.7	1.9	2	Good	Fair	Fair	Planted NSW Native	Medium	
58	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	8	4	31*	3.7	2.5	2.5	Good	Fair	Fair	Planted NSW Native	Medium	
59	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	8	4	35*	4.1	2.8	2.2	Fair	Fair	Fair	Planted NSW Native	Low	Beginning to senesce.
60	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	8	4	34*	4.1	2.8	2.1	Poor	Fair	Fair	Planted NSW Native	Low	Senescent.
61	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	7	5	27*	3.3	2.3	2.1	Fair	Fair	Fair	Planted NSW Native	Low	Beginning to senesce.
62	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	6	4	24*	2.9	2	2.1	Good	Fair	Poor	Planted NSW Native	Medium	
63	*Eucalyptus camaldulensis*	River Red Gum	12	3	44	N/A	N/A	2.7	Dead	Poor	Poor	Planted Indigenous	Low	No hollows observed.
64	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	7	6	26*	3.2	2.2	1.9	Good	Fair	Poor	Planted NSW Native	Medium	

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Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
65	*Melaleuca styphelioides*	Prickly-Leaved Paperbark	9	6	25*	3	2	2.1	Good	Fair	Poor	Planted NSW Native	Medium	
66	*Melaleuca armillaris*	Giant Honey Myrtle	7	8	39*	4.7	3.2	2.8	Fair	Poor	Poor	Planted NSW Native	Low	
67	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	8	43	5.2	3.5	2.6	Good	Fair	Fair	Planted SA Native	Medium	
68	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	6	7	26	3.1	2.1	2.1	Good	Fair	Fair	Planted SA Native	Medium	
69	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	5	28	3.4	2.3	2.2	Good	Fair	Fair	Planted SA Native	Medium	
70	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	9	6	31	3.7	2.6	2.3	Good	Fair	Poor	Planted SA Native	Low	Heavy crown lean.
71	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	6	39	4.7	3.2	2.4	Good	Fair	Poor	Planted SA Native	Medium	
72	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	13	60*	7.2	5	2.7	Good	Poor	Fair	Planted SA Native	Low	Decay canker on main stem.
73	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	8	38	4.6	3.1	2.6	Good	Fair	Poor	Planted SA Native	Medium	

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
74	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	4	25	3	2.1	2	Good	Fair	Poor	Planted SA Native	Low	Crowded position. Rubbing against tree 73.
75	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	7	31	3.7	2.6	2.3	Good	Fair	Poor	Planted SA Native	Medium	
76	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	7	8	29	3.5	2.4	2.2	Good	Fair	Fair	Planted SA Native	Medium	
77	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	8	41	4.9	3.4	2.6	Good	Fair	Fair	Planted SA Native	Medium	
78	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	13	11	56	6.7	4.6	2.9	Good	Fair	Fair	Planted SA Native	Medium	
79	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	8	7	28	3.4	2.3	2.2	Good	Fair	Fair	Planted SA Native	Medium	
80	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	9	8	32	3.8	2.6	2.4	Good	Fair	Fair	Planted SA Native	Medium	
81	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	8	46	5.5	3.8	2.7	Good	Fair	Fair	Planted SA Native	Medium	Limb failure to south.
82	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	8	9	31*	3.7	2.6	2.2	Good	Fair	Poor	Planted SA Native	Medium	
83	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	10	4	35	4.2	2.9	2.4	Good	Fair	Poor	Planted SA Native	Low	Heavy trunk lean.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
84	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	9	31	3.7	2.6	2.2	Good	Fair	Fair	Planted SA Native	Medium	
85	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	9	7	29	3.5	2.4	2.2	Good	Fair	Fair	Planted SA Native	Medium	
86	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	6	5	23	2.8	1.9	2	Good	Fair	Fair	Planted SA Native	Medium	Limb failure to east.
87	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	9	12	32	3.8	2.6	2.3	Good	Fair	Fair	Planted SA Native	Medium	
88	*Eucalyptus sideroxylon*	Red Ironbark	8	10	33	4	2.7	2.5	Good	Fair	Poor	Planted Vic Native	Medium	
89	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	11	11	33*	4	2.7	2.2	Good	Fair	Fair	Planted SA Native	Medium	
90	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	9	8	33	4	2.7	2.3	Good	Fair	Fair	Planted SA Native	Medium	
91	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	8	5	20	2.4	1.6	1.9	Good	Fair	Poor	Planted SA Native	Low	Heavy crown lean.
92	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	9	10	43*	5.2	3.5	2.4	Good	Fair	Good	Planted SA Native	Medium	
93	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	4	7	39*	4.7	3.2	2.4	Good	Fair	Poor	Planted SA Native	Medium	Root plate failure. Interesting form.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
94	*Eucalyptus cladocalyx* 'Nana'	Dwarf Sugar Gum	8	10	38	4.6	3.1	2.4	Good	Fair	Fair	Planted SA Native	Medium	Bifurcation failure at 6m.
95	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	5	5	35*	4.2	2.9	2.1	Good	Fair	Poor	Planted SA Native	Medium	Suppressed form.
96	*Eucalyptus botryoides*	Southern Mahogany	12	9	73*	8.7	6	2.9	Good	Poor	Fair	Planted VIC Native	Low	Decay canker on central stem. Limb shedding species.
97	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	6	4	20*	2.4	1.7	2.5	Good	Poor	Poor	Planted SA Native	Low	Stump regrowth.
98	*Eucalyptus botryoides*	Southern Mahogany	6	3	13*	2	1.4	2.3	Good	Poor	Poor	Planted VIC Native	Low	Stump regrowth. Limb shedding species.
99	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	10	8	35	4.2	2.9	2.4	Good	Good	Fair	Planted SA Native	High	
100	*Eucalyptus botryoides*	Southern Mahogany	10	10	40	4.8	3.3	2.4	Good	Fair	Fair	Planted VIC Native	Low	Limb shedding species.
101	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	4	4	23*	2.8	1.9	2	Poor	Fair	Fair	Planted SA Native	Low	

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
102	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	8	6	19	2.3	1.6	1.9	Fair	Fair	Fair	Planted SA Native	Medium	
103	*Melaleuca armillaris*	Giant Honey Myrtle	4	3	19	2.3	1.6	1.8	Poor	Poor	Poor	Planted NSW Native	Low	Street tree. 50 per cent dead. Root decay.
104	*Eucalyptus cladocalyx*	Sugar Gum	15	10	83	10	6.8	3.1	Good	Poor	Fair	Planted SA Native	Low	Trunk decay. Limb failures. Inappropriate species for residential sites.
105	*Eucalyptus cladocalyx*	Sugar Gum	3.5	1	55	6.6	4.5	2.6	Fair	Poor	Poor	Planted SA Native	Medium	Lopped ringbarked stump. Habitat hollows.
106	*Eucalyptus cladocalyx*	Sugar Gum	20	13	80	9.6	6.6	3.1	Good	Poor	Fair	Planted SA Native	Low	Recent limb failure. Decay cankers. Inappropriate species for residential sites.
107	*Eucalyptus cladocalyx*	Sugar Gum	24	16	102	12.2	8.4	3.4	Good	Poor	Fair	Planted SA Native	Low	Decay cankers. Hollow trunk. Inappropriate species for residential sites.
108	*Eucalyptus cladocalyx*	Sugar Gum	10	10	53	6.4	4.4	2.6	Good	Fair	Poor	Planted SA Native	Low	Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
109	*Eucalyptus cladocalyx*	Sugar Gum	3.5	1	87	10.4	7.2	3.3	Fair	Poor	Poor	Planted SA Native	Low	Lopped ringbarked stump.
110	*Eucalyptus cladocalyx*	Sugar Gum	13	8	64	7.7	5.3	2.8	Good	Poor	Poor	Planted SA Native	Low	Large limb failure. Trunk decay. Inappropriate species for residential sites.
111	*Eucalyptus cladocalyx*	Sugar Gum	6	3	10	N/A	N/A	1.5	Dead	Poor	Poor	Planted SA Native	Low	No hollows observed.
112	*Eucalyptus cladocalyx*	Sugar Gum	12	5	25	3	2.1	2.1	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
Grp 113	*Eucalyptus cladocalyx*	Sugar Gum	22	7	54	6.5	4.4	2.7	Fair	Poor	Poor	Planted SA Native	Low	Group of thirteen crowded trees. History of limb failures. Decaying structures. Inappropriate species for residential sites.
114	*Eucalyptus cladocalyx*	Sugar Gum	15	6	33	4	2.7	2.3	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
115	*Eucalyptus cladocalyx*	Sugar Gum	16	4	31	3.7	2.6	2.2	Good	Fair	Poor	Planted SA Native	Low	Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
116	*Eucalyptus cladocalyx*	Sugar Gum	10	4	21	2.5	1.7	1.9	Poor	Poor	Poor	Planted SA Native	Low	Dead terminal . Epicormics. Inappropriate species for residential sites.
117	*Eucalyptus cladocalyx*	Sugar Gum	8	6	20	2.4	1.6	1.9	Fair	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
118	*Eucalyptus cladocalyx*	Sugar Gum	15	5	29	3.5	2.4	2.2	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
119	*Eucalyptus cladocalyx*	Sugar Gum	17	9	39	4.7	3.2	2.3	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
120	*Eucalyptus cladocalyx*	Sugar Gum	12	4	20	2.4	1.6	1.8	Fair	Fair	Fair	Planted SA Native	Low	Epicormics. Inappropriate species for residential sites.
121	*Eucalyptus cladocalyx*	Sugar Gum	10	4	24	2.9	2	1.9	Fair	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
122	*Eucalyptus cladocalyx*	Sugar Gum	11	5	22	2.6	1.8	2	Good	Fair	Poor	Planted SA Native	Low	Inappropriate species for residential sites.
123	*Eucalyptus cladocalyx*	Sugar Gum	12	5	32	N/A	N/A	2.2	Dead	Poor	Fair	Planted SA Native	Low	No hollows observed. Inappropriate species for residential sites.
124	*Eucalyptus cladocalyx*	Sugar Gum	10	3	19	2.3	1.6	1.8	Fair	Fair	Poor	Planted SA Native	Low	Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
125	*Eucalyptus cladocalyx*	Sugar Gum	18	4	16	2	1.4	1.6	Poor	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
126	*Eucalyptus cladocalyx*	Sugar Gum	7	6	13*	N/A	N/A	1.5	Dead	Poor	Fair	Planted SA Native	Low	No hollows observed. Inappropriate species for residential sites.
127	*Eucalyptus cladocalyx*	Sugar Gum	9	3	17	N/A	N/A	1.7	Dead	Poor	Fair	Planted SA Native	Low	No hollows observed. Inappropriate species for residential sites.
128	*Eucalyptus cladocalyx*	Sugar Gum	19	12	51	6.1	4.2	2.6	Good	Poor	Fair	Planted SA Native	Low	History of limb failure. Decay at 8m. Inappropriate species for residential sites.
129	*Eucalyptus cladocalyx*	Sugar Gum	16	10	53	6.4	4.4	2.7	Good	Poor	Fair	Planted SA Native	Low	Basal cavity. Inappropriate species for residential sites.
130	*Eucalyptus cladocalyx*	Sugar Gum	7	3	13	2	1.4	1.5	Poor	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
131	*Eucalyptus cladocalyx*	Sugar Gum	8	2	13	2	1.4	1.5	Poor	Poor	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
132	*Eucalyptus cladocalyx*	Sugar Gum	12	8	52	6.2	4.3	2.7	Good	Poor	Poor	Planted SA Native	Low	Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
133	*Eucalyptus cladocalyx*	Sugar Gum	18	17	84	10.1	6.9	3.3	Good	Poor	Fair	Planted SA Native	Low	Decay cankers. Inappropriate species for residential sites.
Grp 134	*Eucalyptus platypus*	Round Leaved Moort	5	5	22*	2.6	1.8	1.8	Good	Fair	Good	Planted WA Native	Medium	Group of three trees.
135	*Eucalyptus platypus*	Round Leaved Moort	4	5	17*	2.1	1.4	1.8	Poor	Poor	Poor	Planted WA Native	Low	
136	*Eucalyptus cladocalyx*	Sugar Gum	15	7	34	4.1	2.8	2.3	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
137	*Eucalyptus cladocalyx*	Sugar Gum	8	6	23	2.8	1.9	1.9	Good	Fair	Poor	Planted SA Native	Low	Decay cankers. Inappropriate species for residential sites.
138	*Eucalyptus cladocalyx*	Sugar Gum	15	8	40	4.8	3.3	2.5	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
139	*Eucalyptus cladocalyx*	Sugar Gum	16	8	39	4.7	3.2	2.5	Good	Poor	Fair	Planted SA Native	Low	Bifurcated with included bark at 10m. Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
140	*Eucalyptus cladocalyx*	Sugar Gum	9	5	22	2.6	1.8	2	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
141	*Eucalyptus cladocalyx*	Sugar Gum	8	4	25	3	2.1	1.9	Poor	Fair	Poor	Planted SA Native	Low	Inappropriate species for residential sites.
142	*Eucalyptus cladocalyx*	Sugar Gum	9	4	25	3	2.1	2.1	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
143	*Eucalyptus cladocalyx*	Sugar Gum	9	5	22	2.6	1.8	1.9	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
144	*Eucalyptus cladocalyx*	Sugar Gum	9	3	18	2.2	1.5	1.8	Poor	Poor	Poor	Planted SA Native	Low	Inappropriate species for residential sites.
145	*Eucalyptus sideroxylon*	Red Ironbark	8	4	22	2.6	1.8	2	Good	Fair	Fair	Planted VIC Native	Medium	
146	*Eucalyptus cladocalyx*	Sugar Gum	9	3	19	2.3	1.6	1.8	Poor	Poor	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
147	*Eucalyptus cladocalyx*	Sugar Gum	20	16	97	11.6	8	3.5	Good	Poor	Fair	Planted SA Native	Low	Decay cankers. Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
148	*Eucalyptus cladocalyx*	Sugar Gum	21	4	35	4.2	2.9	2.3	Good	Fair	Poor	Planted SA Native	Low	Inappropriate species for residential sites.
149	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	4	3	9	2	1.4	1.5	Fair	Fair	Fair	Planted SA Native	Medium	
150	*Eucalyptus cladocalyx*	Sugar Gum	21	15	40	4.8	3.3	2.4	Fair	Fair	Poor	Planted SA Native	Low	Heavy crown lean. Inappropriate species for residential sites.
Grp 151	*Eucalyptus platypus*	Round Leaved Moort	6	7	23*	2.7	1.9	2.2	Good	Good	Good	Planted WA Native	Medium	Row of six trees.
152	*Eucalyptus cladocalyx*	Sugar Gum	20	17	70	8.4	5.8	2.9	Good	Poor	Poor	Planted SA Native	Low	Trunk decay. Inappropriate species for residential sites.
153	*Eucalyptus cladocalyx*	Sugar Gum	12	18	83	10	6.8	3.1	Fair	Poor	Poor	Planted SA Native	Low	Decay cankers. Inappropriate species for residential sites.
154	*Eucalyptus cladocalyx*	Sugar Gum	24	14	85	10.2	7	3.1	Good	Poor	Fair	Planted SA Native	Low	Trunk decay. Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
155	*Eucalyptus cladocalyx*	Sugar Gum	18	5	52	6.2	4.3	2.6	Poor	Poor	Poor	Planted SA Native	Low	Trunk decay. Epicormics. Inappropriate species for residential sites.
156	*Eucalyptus cladocalyx*	Sugar Gum	18	17	80	9.6	6.6	3.1	Fair	Poor	Fair	Planted SA Native	Low	Trunk decay. Inappropriate species for residential sites.
157	*Eucalyptus cladocalyx*	Sugar Gum	18	8	74	8.9	6.1	2.9	Fair	Poor	Poor	Planted SA Native	Low	Trunk decay. Trunk lean to west. Inappropriate species for residential sites.
158	*Eucalyptus cladocalyx*	Sugar Gum	19	14	65	7.8	5.4	2.9	Good	Fair	Fair	Planted SA Native	Low	Decay canker. Inappropriate species for residential sites.
Grp 159	*Cupressus macrocarpa*	Monterey Cypress	6	5	28	N/A	N/A	2.2	Dead	Poor	Poor	Planted Exotic	Low	Two dead trees.
160	*Eucalyptus cladocalyx*	Sugar Gum	18	12	80	9.6	6.6	3.1	Good	Poor	Fair	Planted SA Native	Low	Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
161	*Eucalyptus cladocalyx*	Sugar Gum	20	15	67	8	5.5	2.8	Good	Poor	Poor	Planted SA Native	Low	Trunk decay. Inappropriate species for residential sites.
162	*Eucalyptus cladocalyx*	Sugar Gum	19	9	70	8.4	5.8	3	Good	Poor	Poor	Planted SA Native	Low	Stem failure to north. Inappropriate species for residential sites.
163	*Eucalyptus cladocalyx*	Sugar Gum	16	12	59	7.1	4.9	2.7	Good	Poor	Poor	Planted SA Native	Low	Trunk decay. Crown failure. Inappropriate species for residential sites.
164	*Eucalyptus cladocalyx*	Sugar Gum	19	14	70	8.4	5.8	3	Good	Poor	Fair	Planted SA Native	Low	Trunk decay. Inappropriate species for residential sites.
165	*Eucalyptus cladocalyx*	Sugar Gum	10	7	37	4.4	3	2.2	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
166	*Eucalyptus cladocalyx*	Sugar Gum	20	17	114	13.7	9.4	3.4	Good	Poor	Poor	Planted SA Native	Low	Trunk decay. Inappropriate species for residential sites.

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
167	*Eucalyptus cladocalyx*	Sugar Gum	16	12	75	9	6.2	3.1	Good	Poor	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
168	*Eucalyptus cladocalyx*	Sugar Gum	5	2	80	9.6	6.6	3	Good	Poor	Poor	Planted SA Native	Low	Lopped hollow stump. Inappropriate species for residential sites.
169	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	7	2	15	N/A	N/A	1.6	Dead	Poor	Poor	Planted SA Native	Low	
170	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	6	3	15	2	1.4	1.6	Good	Good	Fair	Planted SA Native	Medium	
171	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	7	4	13	N/A	N/A	1.5	Dead	Poor	Poor	Planted SA Native	Low	
172	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	7	5	20	2.4	1.6	1.9	Good	Good	Good	Planted SA Native	Medium	
173	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	4	2	9	2	1.4	1.5	Poor	Fair	Fair	Planted SA Native	Low	
174	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	9	6	23	2.8	1.9	2.1	Good	Good	Good	Planted SA Native	Medium	

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
175	*Eucalyptus sideroxylon*	Red Ironbark	9	17	24	2.9	2	2	Fair	Fair	Fair	Planted Vic Native	Medium	Sparse canopy.
176	*Eucalyptus sideroxylon*	Red Ironbark	11	6	35	4.2	2.9	2.2	Poor	Fair	Fair	Planted Vic Native	Low	Die back. Decay canker on trunk.
177	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	8	3	12	2	1.4	1.5	Fair	Fair	Poor	Planted SA Native	Medium	
178	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	8	4	20*	2.4	1.6	1.8	Poor	Fair	Poor	Planted SA Native	Low	
179	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	8	4	19*	2.3	1.6	2.1	Fair	Fair	Fair	Planted SA Native	Medium	
180	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	9	4	21	2.5	1.7	1.8	Fair	Fair	Fair	Planted SA Native	Medium	
181	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	7	4	14	2	1.4	1.6	Fair	Fair	Fair	Planted SA Native	Medium	
182	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	7	3	14	2	1.4	1.6	Poor	Fair	Poor	Planted SA Native	Low	

Appendix 1

Ref	Botanical Name	Common Name	Height (m)	Width (m)	DBH (cm)	TPZ (m)	TPZ area (m2)	SRZ (m)	Health	Structure	Form	Origin	Retention Value	Comments
183	*Eucalyptus leucoxylon subsp. megalocarpa*	Large Fruited Yellow Gum	5	5	11	2	1.4	1.5	Good	Fair	Fair	Planted SA Native	Medium	
184	*Eucalyptus cladocalyx*	Sugar Gum	19	17	53	6.4	4.4	2.7	Fair	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.
185	*Eucalyptus cladocalyx*	Sugar Gum	19	8	48	5.8	4	2.6	Fair	Fair	Poor	Planted SA Native	Low	Cankers forming. Inappropriate species for residential sites.
186	*Eucalyptus cladocalyx*	Sugar Gum	12	6	32	3.8	2.6	2.2	Good	Fair	Fair	Planted SA Native	Low	Inappropriate species for residential sites.

Appendix 2

Tree Descriptors Age:

Category	Description
Young	Sapling tree and/or recently planted. As a guide a tree up to ≈ 5 years of age.
Semi-mature	Tree rapidly increasing in size and yet to achieve expected size in situation.
Maturing	Specimen has reached expected size in situation, with reduced incremental growth.
Over-mature	Tree is senescent and in decline.
Dead	Tree is dead

Health:

Category	Description
Good	Good growth indicators, eg. extension growth. Crown full, with good density, foliage entire with good colour. No or minimal canopy dieback. Minimal or no pathogen damage. Good wound wood development.
Fair	Typical growth indicators, eg. extension growth, leaf size, canopy density for species in location. Tree may have <30% dead wood, or can have minor canopy dieback. Foliage generally with good colour, some discolouration may be present. Minor pathogen damage may be present.
Poor	Poor growth indicators. Tree may have >30% dead wood. Canopy dieback present. Discoloured or distorted leaves, and/or excessive epicormic growth. Pathogen is present and/or stress symptoms that could lead or are leading to decline of tree.

Structure:

Category	Description
Good	Good branch attachment and/or no or minor structural defects. Trunk and scaffold branches sound or minor damage. Good trunk and scaffold branch taper. No branch over extension. No damage to structural roots and/or good buttressing present. No obvious root pests or diseases.
Fair	Typical structure for species. Some minor structural defects and/or minor damage to trunk. Bark missing. Cavities could be present. Minimal or no damage to structural roots.
Poor	Major structural defects and/or trunk damaged and/or missing bark, large cavities, and/or girdling or damaged roots that are problematic.
Hazardous	Tree poses immediate hazard potential that should be rectified as soon as possible.

Form (General shape of the tree):

Category	Description
Good	Canopy full and symmetrical.
Fair	Minor asymmetry or suppression. Considered typical for species in situation.
Poor	Canopy suppressed, major asymmetry. Stump re-growth

Retention Value:

Category	Description
High	In good condition and able to respond to changes in its environment. May be of particular significance to site e.g. environmental or heritage. Tree has potential to be a long-term component of the landscape if managed appropriately. Make every effort to retain
Medium	Tree in fair condition and structure. Tree may have condition or structural problems that would require treatment. Tree could sustain changes to its environment. Tree has potential to be a medium to long-term component of the landscape if managed appropriately. Tree has yet to achieve a significant landscape impact. May be retained or removed depending on design preference
Low	Tree is in poor condition and/or poor structure that can not be rectified. Tree could not sustain dramatic or severe changes, or tree has detrimental effects on environment, eg. woody weed. Recommended for removal.

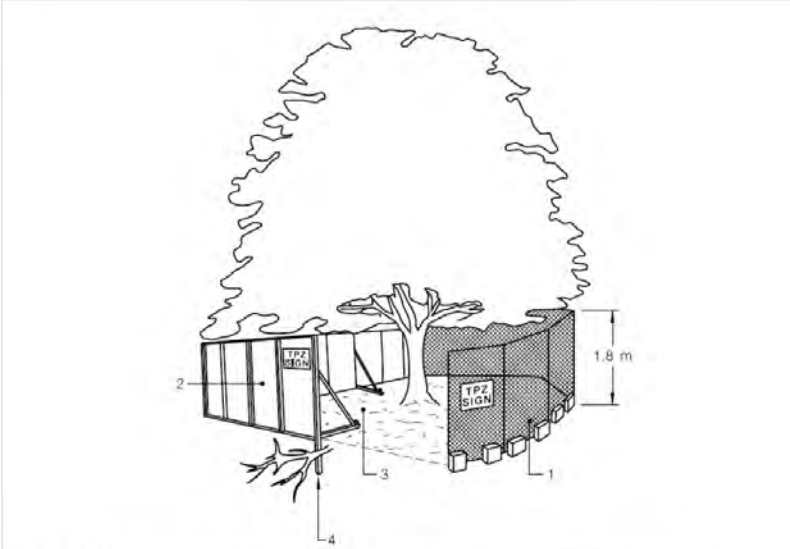
Appendix 3 Tree Protection

The protection and preservation of the existing trees on a development site is to be ensured by the installation of tree protection fencing set at the edge of the tree protection zones. Tree Protection fencing is to be installed prior to the commencement of any site works including demolition, excavation, delivery of materials etc.

The Tree Protection Zones will be determined by the consulting arborist in conjunction with the Site Manager, wherever possible the measures shall conform to AS4970 2009.

The actual fence specifications should be a minimum of 1.2 - 1.5 metres of chain mesh or like fence with 1.8 meter star pickets every 3-4 metres and a top line of high visibility plastic hazard tape. This fence will deter the entry of heavy equipment and vehicles and also the entry of workers and/or the public into the Tree Protection Zone. The tree protection zone shall be clearly signed on all visible sides “Tree Protection Zone – No entry without permission from site manager”

Table 1 Protection Fencing



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. This 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.

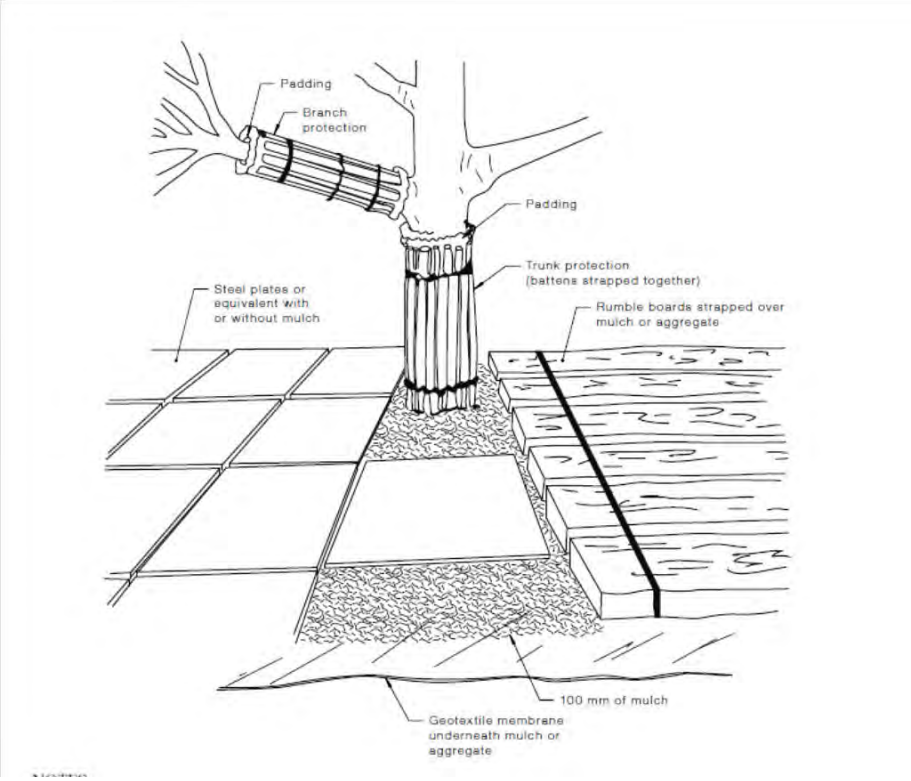
These fences should only be removed or shifted by the consent of the Responsible Authority.

The area inside this Tree Protection Zone should be mulched with a covering of approximately 75mm of woodchip mulch or like material.

If temporary access is required through a Tree Protection Zone this may be carried out using sheets of heavy plywood or like protection but should not be considered for long term requirements (see table 2).

Appendix 3 Tree Protection

Table 2. Protection of tree during temporary access arrangement.



The following are guidelines that <u>must</u> be implemented to minimise the impact of the proposed construction works on the existing trees.

- The Tree Protection Zone is fenced and clearly marked at all times (according to the specification above).
- The consultant arborist is on-site to supervise all excavation works within the TPZ. This is more paramount if substantial roots (i.e. > 40 mm ∅) are encountered and may require pruning. Inspection will need to take place by a qualified arborist to ascertain impact on the trees and recommend follow up works if required.
- A layer of organic mulch (woodchips) to a depth of 80mm (no deeper) should be placed over all root systems (not just in the Tree Protection Zones) of trees which are to be retained to assist with moisture retention and to reduce the impact of compaction. This is particularly important where there will be constant construction vehicle traffic.
- No persons, vehicles or machinery are to enter the Tree Protection Zone without the consent of the consulting arborist or site manager.
- Any underground service installations should be bored and utility authorities should common trench where possible.
- No fuel, oil dumps or chemicals shall be allowed in or stored on the Tree Protection Zone and the servicing and re-fuelling of equipment and vehicles should be carried out away from the root zones.
- No storage of material, equipment or temporary building should take place over the Tree Protection Zone of any tree.

Appendix 3 Tree Protection

- Nothing whatsoever should be attached to any tree including temporary services wires, nails, screws or any other fixing device.

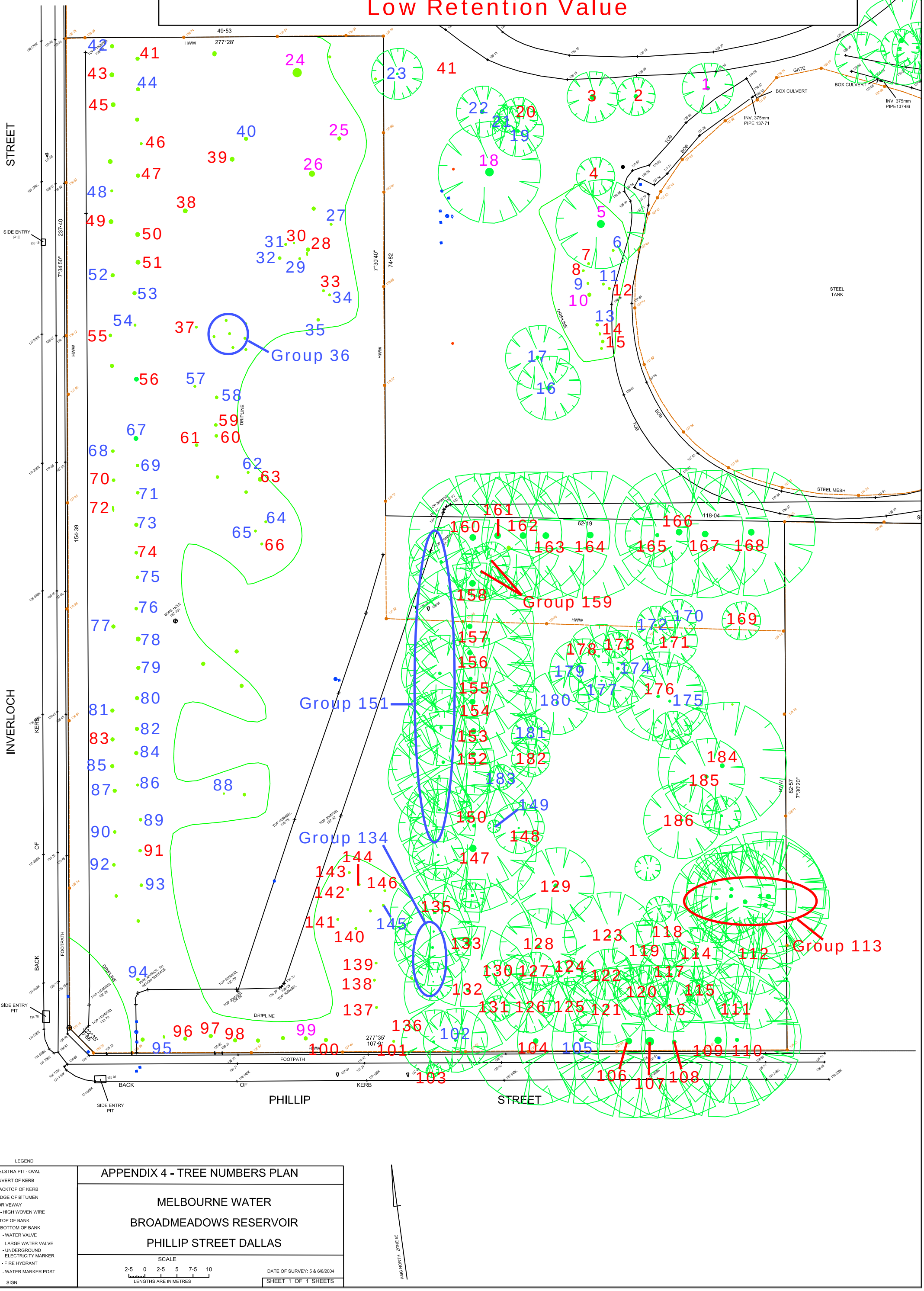
- Supplementary watering should be provided to all trees through any dry periods during and after the construction process.

- Any pruning that is required must be carried out by trained and competent arborist who has a thorough knowledge of tree physiology and pruning methods and carry out pruning to the Australian Standard – AS 4373 – 1996 Pruning of Amenity Trees.

- All root excavation should be carried out by hand digging or with the use of 'Air-Excavation' techniques, and roots should be severed by saw cutting or with a sharp axe and not with a Backhoe or any machinery or blunt instrument.
  .

Appendix 4 - Tree Nos. Plan

High Retention Value Medium Retention Value
Low Retention Value



LEGEND

- TELSTRA PIT - OVAL
- INV - INVERT OF KERB
- BK - BACKTOP OF KERB
- EB - EDGE OF BITUMEN
- DW - DRIVEWAY
- HWW - HIGH WOVEN WIRE
- TOB - TOP OF BANK
- BOB - BOTTOM OF BANK
- - WATER VALVE
- - LARGE WATER VALVE
- - UNDERGROUND ELECTRICITY MARKER
- - FIRE HYDRANT
- - WATER MARKER POST
- - SIGN

APPENDIX 4 - TREE NUMBERS PLAN

MELBOURNE WATER

BROADMEADOWS RESERVOIR

PHILLIP STREET DALLAS

SCALE
2·5 0 2·5 5 7·5 10
LENGTHS ARE IN METRES

DATE OF SURVEY: 5 & 6/8/2004

SHEET 1 OF 1 SHEETS

AMG NORTH ZONE 55

Stem Arboricultural Consultancy
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