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ARBORICULTURAL IMPACT ASSESSMENT REPORT

SITE ADDRESS: Shelley Public School
Hadrian Avenue, Blacktown (NSW)

CLIENT: SMEC Australia Pty Ltd

PREPARED BY: ArborSkills Arboricultural Consultancy

DATE: 17 December 2015

1. INTRODUCTION /METHODOLOGY

Mr Michael Drowley, Senior Environmental Scientist from SMEC Australia Pty Ltd, commissioned ArborSkills Arboricultural Consultancy to provide a report on the trees, located within the zone of development on the property identified as Shelley Public School, Hadrian Avenue, Blacktown (NSW).

Only those plants which qualify as a 'tree' under the provisions of the relevant local government's tree management policy have been included in this report. Details of other plantings and vegetation may be provided where such detail is considered appropriate or relevant. Inclusion and assessment of trees is based on information provided by the client.

A Visual Tree Assessment (VTA) was conducted from ground level employing techniques developed by Mattheck, Claus and et al. Principle explanations and illustrations are contained within the publication, *The Body Language of Trees* by Mattheck, C (1994). No aerial inspections or root mapping was undertaken. Tree heights and canopy spreads were visually estimated. Unless otherwise stated, Diameter at Breast Height (DBH), indicated using the mathematical symbol for diameter, was measured using a diameter tape and taken at 1.4 meters above existing ground level. The Diameter at Base is measured in accordance with the provisions of AS4970-2009. Where a variation to this occurs, the height at which the measurement was taken is shown with the relevant figure.

Structural Root Zones and Tree Protection Zones were calculated using the Australian Standard 4970 - Protection of Trees on Development Sites, 2009. The calculated radial Tree Protection Zone is shown in brackets within the Observations Table. This figure has been rounded either up or down to the nearest half meter for practical application purposes.

All pruning specifications are written in compliance of, and should be carried out in accordance with, Australian Standard 4373, Pruning of Amenity Trees, 2007 and Workcover NSW Code of Practice 'Amenity Tree Industry', 1998. Definitions for all terminology used in this report are taken from AS4373 – Pruning of amenity trees, 2007, AS4970-Protection of trees on development sites, 2009 and the International Society of Arboriculture's *Glossary of Arboricultural Terms*.

2. AIM

The trees were inspected on Monday, 26 October 2015. The aim of the inspection was to identify all relevant trees, assess their health and structural condition and to make comment with regard to the potential impact of the proposed development of the site.

The development has two (2) components. The first is construction of a 'kiss and ride' facility on the Hadrian Avenue frontage of the school. The second is installation of a roundabout at the intersection of Hadrian Avenue and Keyworth Drive.

The following documents and plans were referenced in preparation of this report:

- Information Document 20150915-TREE-DD-SC-0162_{ID}, Site Clearing Plan – Sheet 20, Trees, prepared by SMEC Australia Pty Ltd, undated.
- Blacktown Local Environment Plan 2015, Part 5, Sections 5.9, 5.9AA and 5.10,
- Blacktown Local Environment Plan 2015, Schedule 5 – Environmental Heritage,
- Blacktown Development Control Plan, 2015, Part A, Sections 4.3 and 4.4,
- Blacktown Council Register of Significant Trees and Vegetation, Final Report, July 2012,
- Aerial Photos with proposed works overlaid, provided 3 December 2015,
- Design Drawings MR644 – Prospect Highway Upgrade Shelley Public School Kiss and Ride Facility, prepared by SMEC Australia Pty Ltd, dated 18 November 2015 (supplied 3 December 2015),
- Design Drawings MR644 – Prospect Highway Upgrade Keyworth Drive Roundabout, prepared by SMEC Australia Pty Ltd, dated 18 November 2015 (supplied 3 December 2015).

3. OBSERVATIONS

For detailed Observations, please refer to Appendix 2: Tree Schedule located on page 13 of this report.

4. DISCUSSION

4.1 The Site

The property is a primary school located within the local government area of Blacktown. It has frontages to Blacktown Road to the east, Pelleas Street to the south and Hadrian Avenue to the west. The primary entry point for both vehicles and pedestrians appears to be via the Hadrian Street frontage. The site is surrounded by residential properties. The school relocated to this site in the late 1960's. A variety of typical, single level institutional buildings is located on the property.

Along the Hadrian Street frontage, the property has a gradual rise in levels from west to east and north to south. A number of mature and semi-mature trees are scattered throughout open grassed areas. Some trees appear to be contemporary to the establishment of the school on this site whilst others are clearly later plantings.

4.2 Proposed Area of Development

The area of the school understood to be proposed for development is located in the north-western corner, fronting Hadrian Avenue. This area of the school grounds is open grassed area dotted with mature and semi-mature trees. Observations made during the course of the day, when data was collected on site, did not appear to constitute 'play ground' area for the students however, there is clear evidence that the space is periodically used by students.

The space is located between the residential properties to the north, Hadrian Avenue to the west, school buildings to the east and a car parking area to the south.

4.3 The Trees

A total of fifteen (15) trees located on the site, eight (8) located within the Hadrian Avenue road reserve and five (5) within the Keyworth Avenue road reserve were inspected and assessed in preparation of this report. Of the assessed trees, the majority were found to have significant structural defects, be in poor health or a combination of these factors. A total of ten (10) trees, within the school grounds, could reasonably be considered for removal based only on their arboricultural condition.

The remaining five (5) trees were all considered either very good specimens or significant and therefore appropriate for retention. These included Trees 111 English Oak (*Quercus robur*), 112 Lemon Scented Gum (*Corymbia citriodora*), 116 Aleppo Pine (*Pinus halepensis*), 127 Lilly Pilly (*Syzygium smithii*) and 128 Lemon Scented Gum (*Corymbia citriodora*).

Tree 111 English Oak (*Quercus robur*) is a good example of the species and of a significant size. This species is normally considered a slow growing species. Given its size and its location, which would further slow normal growth rates, this tree is considered to be in the vicinity of 60 years of age. The inhospitable environmental conditions of the site and

its location are also in contrast to the overall condition of the tree which is considered fairly good. As a species whose native environment is much cooler and wetter than that of the western suburbs of Sydney, the tree is in relatively good overall health. The additional stresses associated with being located in a school environment, where supplementary care is mostly non-existent and compaction of surrounding areas is almost a given, have impacted on the tree but not to the extent that has been observed in other specimens in comparable locations. The soil surrounding the tree was noted to be extremely compacted, most likely as a result of pedestrian traffic however, this issue could easily, and relatively inexpensively, be addressed with some soil remediation which would serve to improve the overall condition of the tree.

The second tree considered significant and suitable for retention is Tree 112 Lemon Scented Gum (*Corymbia citriodora*). This mature tree has good health, is in good structural condition and has good form. Its placement near the front boundary of the property is highly visible and adds significantly to the streetscape. Generally speaking, Lemon Scented Gums (*Corymbia citriodora*) are considered reasonably tolerant of disturbance as compared to other native Australian species.

The third tree identified is Tree 116. This tree has been identified as an Aleppo Pine (*Pinus halepensis*). This species is also commonly known as the 'Lone Pine'. This alternate common name results from a direct connection to the Lone Pine battle at Gallipoli in 1915. Some confusion surrounds the correct species of Pine for the 'Lone Pine' as two (2) different species were brought back by Australian soldiers in 1915. Both were propagated and planted as commemorative trees. The fact that there were two (2) different species was not identified until 2007. Regardless of this fact, all specimens of both species of tree can trace their heritage back to two (2) individual pine cones collected by serving Australian soldiers during the battle, propagated in Australia and then planted for commemorative purposes. As such, this tree has great historical significance. Unfortunately, at the time of this reports preparation, research had not been able to identify when the tree was planted, by whom or what pre-empted the planting. Despite this, given the nature of the tree and its symbolism, it is recommended that all efforts be made to retain and protect this tree.

The fourth tree recommended for retention and protection has been identified as tree 127 Lilly Pilly (*Syzygium smithii*). This tree is a mature specimen and appears to be a contemporary planting to the original school development of the site. It is in good health and with no significant structural or formative defects visible. The canopy of the tree intersects with those of trees to the south forming an informal hedge across the school building. This provides some privacy to classroom windows and would assist in blocking some traffic noise from the street. This is particularly relevant as a raised crossing is located at this point which requires cars to slow. The physical action of a vehicle slowing to go over this raised pedestrian crossing would cause additional vehicular noise as compared to a vehicle moving at a constant pace. Whilst this tree's species is not locally indigenous it does support local fauna and provides excellent amenity and environmental value to the property.

The final tree recommended for retention and protection has been identified as tree 128 Lemon Scented Gum (*Corymbia citriodora*). The species is a native and this semi-mature specimen has the potential to provide a high level of amenity value to the school. The

placement of the tree is such that as it grows, it will shade the school building from the western sun. This will assist in cooling the building, reducing electricity costs and making it more comfortable for staff and students. Given its current condition, the tree has great potential to be an asset to the site for many years to come.

An additional eight (8) trees within the road reserve of Hadrian Avenue were inspected and assessed in preparation of this report. Four (4) were identified as Weeping Bottlebrush (*Callistemon viminalis*). This species is a common street tree planting due to its hardy nature and medium size. Unfortunately, all four (4) specimens were found to contain the same structural defects that are typical of the species. Known as included junctions, this is where bark is located between the junction point of branches. It is considered a structural defect because the areas of bark do not form a 'bond' to each other as wood does. This means that as the branches increase in girth and push against each other, there is less surface area 'bonded' together to provide structural strength to the junction. As a variety of internal and external factors impact on the junction, it can fail. As previously stated, this defect is quite common in the species and does not necessarily mean that it has an increased risk of failure however, it is a likely point for failure should one occur.

Similarly, the two (2) Flax Leaf Paperbark (*Melaleuca linariifolia*) also contained inherent included junctions. This species also commonly develops in this manner however, failures are comparatively rare and, in the case of street trees, is usually facilitated by large or high vehicle impact (eg. busses or trucks). These trees have not been affected in this manner and have developed a relatively natural form.

The trees were considered typical of street tree plantings within the area in regard to their health and form. As the overhead electrical service lines are located on the western side of Hadrian Avenue, these trees have not been lopped for clearances. This has resulted in the trees developing their relatively natural form. They provide amenity, environmental and aesthetic value to the area.

The final tree in this grouping was identified as a *Grevillea* spp., possibly a *Grevillea* 'Moonlight'. This species is not consistent with the planting within the area suggesting that it may have been planted by a resident. As the property identified as No.7 Hadrian Avenue has a largely Australian native garden and is immediately adjacent to the tree, it is reasonable to assume that these are the residents most likely to be responsible for this planting. The tree has developed its typical form although it has a slightly flatter canopy shape than would normally be expected. Otherwise the tree is unremarkable from an arboricultural perspective.

4.4 Construction Impact for the Kiss and Ride

The information provided is insufficient to prepare an appropriate or thorough construction impact assessment. Drawings in accordance with AS4970-Protection of trees on construction sites, 2009 which show the location of each tree, its level and that of the proposed development would be required to complete this component of the project.

From the information that has been supplied it would appear that the following trees, which are located within the footprint of the proposed construction, would require removal to facilitate construction;

Tree ID No.	Arborsite Tag No.	Common Name	Botanical Name
106	00026	Lemon Scented Gum	<i>Corymbia citriodora</i>
107	00036	Prickly Paperbark	<i>Melaleuca styphelioides</i>
108	00037	Black She-oak	<i>Allocasuarina littoralis</i>
109	00038	Prickly Paperbark	<i>Melaleuca styphelioides</i>
112	00027	Tallowwood	<i>Eucalyptus microcorys</i>
113	00025	Lemon Scented Gum	<i>Corymbia citriodora</i>
114	00024	Grey Gum	<i>Eucalyptus punctata</i>
115	00035	Narrow-leaf Peppermint	<i>Eucalyptus crebra</i>
117	00028	Tallowwood	<i>Eucalyptus microcorys</i>
118	00041	Prickly Paperbark	<i>Melaleuca styphelioides</i>
120	-	Weeping Bottlebrush	<i>Callistemon viminalis</i>
127	N/A	Lilly Pilly	<i>Syzygium smithii</i>

Depending upon how close excavation is to their bases, it may be possible to retain trees 119 and 128. Tree 119 is growing at an acute angle to the south-west and as such, the predominance of its structural roots are likely to be located in the north-eastern quadrant of its Tree Protection Zone. This is precisely where it is proposed to excavate. The combination of likely root damage as a result of bulk excavation and disturbance to the soil within this area, which reduces its cohesive strength, could result in the failure of the tree. Additionally, as the tree is already in poor health, it is likely that this level of disturbance and reduction to its effective catchment area will result in its death. Mitigating actions and tree protection measures would serve to alleviate some of these impacts and are more likely to allow for retention of the tree. A more detailed assessment, involving more specific details of the project, would be required to determine these.

In the case of Tree 128, excavation is certainly within the Tree Protection Zone of this tree and has the potential to have the same sort of impact as detailed for Tree 119. As this tree is growing vertically however, there is a greater capacity to encroach on the Tree Protection Zone before instability in the tree is likely. Regardless, and at a minimum, care should be exercised when undertaking excavation not to tear roots or cause excessive disturbance to the soil within the Tree Protection Zone. Construction works at the proximity indicated by the supplied plans will have a negative impact on the health and vigour of this tree however, if appropriate and effective tree protection measures are put into place and maintained during construction, these negative impacts should be minimised.

From available information, it would appear that, provided responsible and appropriate site management is carried out, Trees 110 and 111 should not be significantly impacted by the proposed works. Certainly, excavation to attain appropriate levels for the kiss and ride will impact on these trees. The extent to which the trees are impacted, and the precise implications of that impact, will depend on site management and actions at the time. To reduce the potential for direct physical damage, particularly to Tree 111, it is recommended that, as a minimum, tree protection fencing, in accordance with AS4970-

2009, be installed around the edge of the canopy to create an exclusion zone. This fencing should be installed prior to any works on the site commencing.

Subsequent plans have indicated an intention to install a concrete slab at the top of a ramp from the kiss and ride facility to the school proper. The slab would be located at the convergence of two (2) of the school buildings and at the base of Tree 134 White Cedar (*Melia azederach*). Installation of a concrete slab at the base of this tree will have a negative impact on its health and structure.

In the first instance, excavation for form work and site preparation will cause damage to the root plate of the tree. Such work impacts on the fine, absorbing roots which supply a tree with its moisture and nutrients. Damage to these roots limits the uptake of these vital supplies and impacts negatively on the trees health and vigour. Installation of the slab prevents the soil from absorbing moisture or carrying out gaseous exchange, both vital actions for the survival and growth of tree roots. This limits the soil area conducive to root colonisation and again, impacts negatively on the trees health and vigour.

Finally, excavation and installation of a concrete slab has the potential to negatively impact on a tree by causing direct, impact damage to the trunk, branches or both. Excavators and concrete pumps have the potential to damage branches as well as causing impact wounds to the trunk unless active measures are taken to prevent such damage. The wounds which result from this sort of damage are likely places of pathogenic infection which, over time, can cause the tree to become structurally compromised. As the effects of the damage occur over time and internally to the tree, it is not readily diagnosable and often results in failures of either branches or the whole tree.

Given the location of Tree 134 in relation to the existing structures, it would be possible to design a ramp, to replace the existing stairs, which then interconnects to the new ramp section down to the kiss and ride. This would still permit the necessary disabled access but minimise the level of disturbance to the trees root plate. Since the stair structure is already in existence, and would appear to be contemporary in its construction to the planting of the tree, it is unlikely that the tree has developed roots under the stairway. Removal and alteration within that existing footprint would allow for retention of this tree which provides positive amenity to the buildings adjacent.

4.5 Construction Impact for the Roundabout

Information supplied has indicated that it is intended to install a roundabout at the intersection of Keyworth Drive and Hadrian Avenue. To install this roundabout, some realignment of the existing kerb and guttering will be required. The brief detailed a requirement to remove a street tree, subsequently identified as Tree 122 Weeping Bottlebrush (*Callistemon viminalis*). Having now been supplied with a proposal for the works, additional trees will be impacted by the works and may require removal.

Realignment of the kerb and guttering will require demolition and excavation works to be carried out. This will impact on the root systems of trees planted within the road reserve. The subject trees have been identified as Trees 129 to 133, a mixture of Weeping Bottlebrush (*Callistemon viminalis*) and Water Gum (*Tristaniopsis laurina*). Through

damage to their roots, the proposed works have the potential to cause the trees to become unstable. Additionally, the works will negatively impact on the health and vigour of the trees. At a minimum, inspection of the works and assessment of the implications for the trees should be carried out once the existing kerb and guttering has been removed. This will allow any roots, and their function, within the area to be identified. This will permit a more accurate assessment of whether retention of the specific tree is appropriate or not.

5. RECOMMENDATIONS

As a result of inspection and assessment of the subject trees, the following recommendations are made;

1. The following trees, within the school, be retained and protected;

Tree ID No.	Arborsite Tag No.	Common Name	Botanical Name
111	00043	English Oak	<i>Quercus robur</i>
116	00023	Aleppo Pine	<i>Pinus halepensis</i>

2. Based on construction plans, a Tree Protection Plan be developed in accordance with AS4970-2009 which provides for maximum protection of all trees, within the construction zone, and which are to be retained.
3. In accordance with AS4970-2009, a Project Arborist should be appointed to design appropriate tree protection measures and provide ongoing advice during construction to maximise protection to trees which are to be retained.
4. At a minimum, tree protection fencing, in accordance with AS4970-2009, be installed around the edge of the canopy of Tree 111 English Oak (*Quercus robur*), prior to any works on the site commencing. The fencing should form an exclusion zone around the tree and be maintained until all works are completed.
5. The Project Arborist should inspect and assess the street trees located in Keyworth Drive and Hadrian Avenue once the existing kerb and guttering has been removed and the new line of kerb and guttering has been determined. From this inspection, it will be possible to determine which trees can be retained and which will require removal. Determination of this can only be made based on visual inspection of the roots exposed during the detailed works.

6. CONCLUSION

It is for the reasons which have been outlined in the Construction Impact assessments above that prevention of damage is seen as the best management practice for trees on development sites and why appropriate tree protection measures should be engaged on site to ensure optimal protection to all trees which are to be retained. To assist in this, details of Structural Root Zones and Tree Protection Zones for all trees have been provided in Appendix 2 of this report. These distances are all radial from the trunk of the subject tree and should be plotted on all drawings as part of the design process. Any encroachment into the Structural Root Zone is likely to result in the need to remove the tree. Major encroachments into the Tree Protection Zone, that is anything equal to or greater than 10% of the total area, should have further, more detailed assessment to determine the precise impact and any appropriate tree protection measures that should be applied.

Should you require any further information in relation to this report, please contact our office on (02) 9871 1530.



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LIMITATION OF LIABILITY

ArborSkills are tree specialists who use their qualifications, education, knowledge, training, diagnostic tools and experience to examine trees, recommend measures to enhance the health and structure of trees and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of this assessment and report.

ArborSkills cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways the arboriculture industry does not fully understand. Conditions are often hidden within trees and below ground. Unless otherwise stated, observations have been visually assessed from ground level. ArborSkills cannot guarantee that a tree will be healthy or structurally sound under all circumstances, or for a specified period of time. Likewise, remedial treatments cannot be guaranteed.

Treatment, pruning and removal of trees may involve considerations beyond the scope of ArborSkills services, such as property boundaries and ownership, disputes between neighbours, sight lines, landlord-tenant matters, and related incidents. ArborSkills cannot take such issues into account unless complete and accurate information is given prior or at the time of the site inspection. Likewise ArborSkills cannot accept responsibility for the authorisation or non-authorisation of any recommended treatment or remedial measures undertaken.

ArborSkills has no affiliation with any private contractors, associations or companies involved in the tree removal and pruning business. This ensures an impartial approach to all recommendations given regarding tree removals, recommended works and assessments.

In the event that ArborSkills recommends retesting or inspection of trees at stated intervals these works must be carried out within the designated time frame. It is the client's responsibility to make arrangements for an appropriately qualified and experienced person to conduct the re- inspection. Trees can be managed but, they cannot be controlled. To live or work near a tree involves an inherent degree of risk. There is no warranty or guarantee, either expressed or implied by ArborSkills, that problems or deficiencies of the subject trees may not arise at a future time.

Trees are living entities. As such, their health may alter, they will grow and their environmental circumstances may change from the time of the site inspection upon which this report is based. For this reason, this report has a maximum validity time of 1 year from the date of being written. Should there be any alteration to the site, the tree or the trees immediate environment from those current at the time of the site inspection upon which this report is based, the report will become invalid immediately. Such alterations may include wind storms, heavy or extended periods of rain or other natural weather phenomenon.

All written reports must be read in their entirety, at no time shall part of the written assessment be referred to unless taken in full context of the whole written report. This report remains the intellectual property of ArborSkills. It has been issued to the identified client for the specified and agreed purpose only. Use of this report for any other purpose or by any other individual or company must have the written consent of ArborSkills **PRIOR** to that use. Failure to obtain such consent is deemed a breach of copyright and will result in legal action being undertaken against all parties involved. If this written report is to be used in a court of law or any legal situation ArborSkills must be advised in writing prior to the written assessment being presented in any form to any other party.

Care has been taken to obtain information from reliable sources. All data has been verified wherever possible however, ArborSkills can neither guarantee nor be responsible for the accuracy of information provided by others. It is assumed that all information has been provided by appropriately qualified and experienced persons.

References and Bibliography

Google Inc. 2012, Google™ earth (Version 6.2.2.6613) [Software]. Google Inc., Mountain View, CA (USA)

APPENDIX 1: TREE LOCATION PLAN – School Grounds



APPENDIX 2: TREE SCHEDULE

Tree ID No.	Aborsite Tag No.	Common Name	Botanical Name	Height (m)	Width (m)	Ø (m)	Ø @ Base (m)	Health	Structure	Form	Age	Tree Protection Zone	Structural Root Zone	Comments
106	00026	Lemon Scented Gum	<i>Corymbia citriodora</i>	14	12	0.515	0.65	Fair	Poor	Very Poor	M	6.18	2.76	Topped @ 6m. Mulch & fill @ base. Large Ø branch removed @ 5m, small bracket fungi on wound face-saprophytic. Mistletoe. <10% epicormic.
107	00036	Prickly Paperbark	<i>Melaleuca styphelioides</i>	9	7	1.2	0.36	Good	Poor	Poor	M	14.40	2.15	Divides @ 1.5m. 1st order branch failure, north side @ main junction. Lopped & crown lifted. Asymmetrical canopy to west.
108	00037	Black She-oak	<i>Allocasuarina littoralis</i>	11	6	0.21	0.27	Fair	Poor	Poor	M	2.52	1.91	Included main junction. Lopped. Asymmetrical canopy due to competition.
109	00038	Prickly Paperbark	<i>Melaleuca styphelioides</i>	9	6	0.2 / 0.16 / 0.19	0.37	Good	Very Poor	Poor	M	3.83	2.18	Trifurcated @ base. West leader included bark. Subordinate leader previously failed. Wound on remaining leaders - good wound wood development. Lopped. Included junctions throughout canopy.
110		Crepe Myrtle	<i>Lagerstroemia indica</i>	4	4	Multi @ base. All <0.1.	0.115	Poor	Poor	Very Poor	M	2.30	1.33	Heavily lopped. Flush cuts. Mallee form.
111	00043	English Oak	<i>Quercus robur</i>	10	10	0.545	0.545	Fair	Good	Good	M	6.54	2.56	Severe compaction & erosion. Main branch junction @ 0.9m. Large Ø 1st order lateral to north removed @ 1.3m. Little wound wood developed. 2nd order lateral lost @ stem junction - wound face stable. 20% epicormic shoots.
112	00027	Tallowwood	<i>Eucalyptus microcorys</i>	14	10	0.46	0.51	Fair	Fair	Poor	SM	5.52	2.49	2nd order lateral to north side - some delamination & small fracture splits. Same @ 2nd order lateral to north. Raised soil levels @ base.
113	00025	Lemon Scented Gum	<i>Corymbia citriodora</i>	14	12	0.54	0.7	Good	Good	Good	M	6.48	2.85	10-15% deadwood. Less than 10% epicormic. Previous branch failures - small Ø west side. Surface root w side - mechanical damage, no decay evident.

Tree ID No.	Aborsite Tag No.	Common Name	Botanical Name	Height (m)	Width (m)	Ø (m)	Ø @ Base (m)	Health	Structure	Form	Age	Tree Protection Zone	Structural Root Zone	Comments
114	00024	Grey Gum	<i>Eucalyptus punctata</i>	8	3	0.11 / 0.15	0.34	Fair	Very Poor	Poor	SM	2.23	2.10	Dual leaders @ base. Main stem junction included. Mechanical damage @ base - possible decay into root crown. Branch tear wounds. Suppressed leader removed from base.
115	00035	Narrow-leaf Peppermint	<i>Eucalyptus crebra</i>	10	3	0.195	0.26	Good	Poor	Fair	SM	2.34	1.88	Wound south side. Extends H0.5 x W0.07. Wound face solid. Good wound wood development. Divides @ 6m, main stem junction included.
116	00023	Aleppo Pine (Gallipoli Lone Pine)	<i>Pinus halepensis</i>	6	10	0.33	0.42	Poor	Fair	Fair	M	3.96	2.30	Lopped. 25o lean to south-west. Tension side to north-east. 20% deadwood.
117	00028	Tallowwood	<i>Eucalyptus microcorys</i>	13	8	0.25	0.31	Fair	Good	Good	SM	3.00	2.02	Very little epicormic. 10% deadwood.
118	00041	Prickly Paperbark	<i>Melaleuca styphelioides</i>	9	7	0.375	0.42	Fair	Poor	Fair	M	4.50	2.30	Main stem junction @1.6m included. Lost main leader from central crown. Included junctions in canopy. 15% epicormic growth. Slight lean to north-west. 15% epicormic growth.
119	-	Weeping Bottlebrush	<i>Callistemon viminalis</i>	5	4	N/A	0.26	Fair	Poor	Fair	M		1.88	Divides @ 1m. Crossing & conflicting branches. Lopped. Sooty mould.
120	-	Weeping Bottlebrush	<i>Callistemon viminalis</i>	6	4	0.305	0.34	Fair	Poor	Fair	M	3.66	2.10	Included junctions in canopy. Divides @ 1.3m, included main stem junction. Asymmetrical canopy to north. Minor epicormic shoots.
121	-	Weeping Bottlebrush	<i>Callistemon viminalis</i>	9	7	N/A	0.48	Fair	Poor	Fair	M	6.50	2.43	Divides @ 1.3m- main stem junction included. Girdling roots. Branch failures. Included junctions in canopy.
122	-	Weeping Bottlebrush	<i>Callistemon viminalis</i>	6	5	0.3	0.35	Fair	Poor	Fair	M	3.60	2.13	Included junctions.
123		Grevillea sp	<i>Grevillea sp.</i>	3	4	N/A	0.25	Fair	Fair	Fair	M	3.00	1.85	Divides @ 0.3m. Some epicormic growth - approx. 10%. Broad, flat canopy.
124		Weeping Bottlebrush	<i>Callistemon viminalis</i>	6	7	N/A	0.45	Fair	Fair	Fair	M	2.37	5.40	Divides @ 0.9m. Included junctions in canopy.
125		Flax Leaf Paperbark	<i>Melaleuca linariifolia</i>	9	7	N/A	0.45	Good	Good	Fair	M	2.37	5.40	Divides @ 1m. Included junctions. Minor mechanical damage @ base.

Tree ID No.	Aborsite Tag No.	Common Name	Botanical Name	Height (m)	Width (m)	Ø (m)	Ø @ Base (m)	Health	Structure	Form	Age	Tree Protection Zone	Structural Root Zone	Comments
126		Flax Leaf Paperbark	<i>Melaleuca linariifolia</i>	6	6	0.07 / 0.1 / 0.12 / 0.14	0.35	Fair	Fair	Fair	M	2.13	2.65	Suppressed. Divides @ 1m. Included junctions. Lopped. 10% deadwood mostly small Ø.
127		Lilly Pilly	<i>Syzygium smithii</i>	8	6		0.35	Good	Good	Fair	M	2.13	4.20	Canopy adjoins trees immediately to south forming 'hedge'.
128		Lemon Scented Gum	<i>Corymbia citriodora</i>	12	12	0.4	0.48	Good	Good	Good	SM	2.25	5.76	<10% deadwood and epicormic.
129		Weeping Bottlebrush	<i>Callistemon viminalis</i>	2.5	1.5	N/A	0.2	Very Poor	Poor	Poor	M	2.40	1.68	Suppressed. In decline. Borer. Thin, chlorotic foliage.
130		Weeping Bottlebrush	<i>Callistemon viminalis</i>	3	3	0.22 / 0.2 / 0.25	0.32	Fair	Poor	Poor	M	4.66	2.05	Dual leaders @ 0.3m. Main stem junction included. Vertically crown reduction, lopped for power line clearance. Lateral crown reduction on eastern side to clear roadway.
131		Water Gum	<i>Tristaniopsis laurina</i>	4	3	N/A	0.25	Poor	Fair	Fair	M	3.00	1.85	Divides @ 1.2m. Main stem junction excluded. Laterally crown reduced over roadway. Some tip die back. <10% deadwood.
132		Water Gum	<i>Tristaniopsis laurina</i>	4.5	4	N/A	0.25	Poor	Fair	Fair	M	3.00	1.85	Divides @ 1m. Main stem junction excluded. Tip die back. Thin, chlorotic foliage.
133		Water Gum	<i>Tristaniopsis laurina</i>	4.5	5.5	N/A	0.4	Fair	Good	Fair	M	4.80	2.25	Laterally crown reduced over roadway.
134		White Cedar	<i>Melia azederach</i>	10	7	0.35	0.45	Fair	Fair	Fair	M	4.20	2.37	Growing immediately adjacent to school building.

APPENDIX 3: ARBORICULTURAL TERMINOLOGY AND SYMBOLOGY

Tree ID No	A unique identification number assigned to a particular tree and used to identify it throughout the report.
Common Name	The name in common use and accepted by most persons for that particular species.
Botanical Name	The taxonomic name, expressed in binomial nomenclature, derived from visual identification features and visible from ground level or specimen collection.
Height (m)	The visually estimated height of the tree in metres.
Width	The visually estimated median width of the canopy in metres.
∅ (m)	Diameter at Breast Height (DBH) measured at 1.4m above ground, unless otherwise noted, as outlined in AS 4970 – 2009.
∅ @ Base (m)	Diameter at Base measured above the root flares and below the DBH as outlined in AS4970-2009.
Health	Good – In good, health with no significant health issues visible. Fair – Some health issues which could be addressed by intervention. Poor – Significant health issues that could be addressed by intervention. Very Poor – Significant health issues which are unlikely to be addressed by intervention. Senescent – tree has entered a cycle of decline from where it is unlikely to recover regardless of intervention.
Structure	Good – No visible defects within the structure of the tree. Fair – Minor visible defects within the structure of the tree relative to the species. Poor – Major visible defects within the structure of the tree relative to the species. Very Poor – Significant visible defects within the structure of the tree relative to the species.
Form	Good – A specimen that has attained its full genetic potential and with no physical or environmental impediments to growth. Fair – A specimen that has generally attained its genetic potential and with some minor physical or environmental impediments to growth. Poor – A specimen that has attained some of its genetic potential and with significant physical or environmental impediments to growth. Very Poor – A specimen that has not attained any of its full genetic potential due to major physical or environmental impediments to growth.
Age	S = Sapling – young tree that is yet to establish. SM = Semi-mature – an established tree but one that has not attained its full genetic potential for size and/or form. M = Mature – a tree that has attained its full genetic potential in size and/or form. OM = Over Mature – a tree that is no longer capable of further growth and/or has entered a cycle of decline.
Tree Protection Zone	A defined, radial area within which certain activities are prohibited or restricted to prevent or minimise potential injury to designated trees. Calculated using the formula outlined in AS4970-2009.
Structural Root Zone	A radial area of soil around a tree where the majority of the structural roots are located and in which encroachment or activity is prohibited to prevent or minimise the potential for destabilisation of designated trees. Calculated using the formula outlined in AS4970-2009.