



APPENDIX F ARBORICULTURAL ASSESSMENT REPORT (EARTHSCAPE HORTICULTURAL SERVICES)



EARTHSCAPE HORTICULTURAL SERVICES
Arboricultural, Horticultural and Landscape Consultants

ABN 36 082 126 027

ARBORICULTURAL ASSESSMENT REPORT

GREEN SQUARE 2 ASHMORE COLLECTOR ALEXANDRIA

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Prepared for: Suzanne Lange
Design Manager, Professional Services
City of Sydney
GPO Box 1591
SYDNEY NSW 2000

Ph:- 02 9246 7551

Prepared by: Andrew Morton
Dip. (Arboriculture) [AQF Level 5]
B. App. Sci. (Horticulture)
A. Dip. App. Sci. (Landscape)

EARTHSCAPE HORTICULTURAL SERVICES
Ph: - 0402 947 296

*Member of Arboriculture Australia
Member International Society of Arboriculture - Australian Chapter (ISAAC)
Member Local Government Tree Resources Association (LGTRA)*



EXECUTIVE SUMMARY

This report examines the potential impact of the proposed Green Square 2 Ashmore Collector (GS2AC) on existing street trees under the care, control and management of the City of Sydney Council located in the vicinity of the proposed roadworks. A total of thirty-eight (38) street trees are located within the vicinity of the proposed works, within O’Riordan Street, Botany Road, Bourke Road and Bowden Street, Alexandria.

The proposed works will necessitate the removal of a total of twelve (12) street trees, including six (6) assessed as being of low retention value, eight (8) of moderate retention value and one (1) of high retention value. A further six (6) trees may be adversely affected by the proposed works. However, the implementation of tree protection measures in accordance with AS 4970:2009 prior to and during construction will minimize any adverse impact on these trees.

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1 INTRODUCTION

- 1.1.1 This report was commissioned by the Council of the City of Sydney to assess the health and condition of thirty-eight (38) trees located within sections of O’Riordan Street, Botany Road, Bourke Road and Bowden Street, Alexandria in the vicinity of the proposed Green Square 2 Ashmore Collector (GS2AC) road forming part of the Green Square development. Only those trees under the care, control and management of the City of Sydney Council have been included in this assessment.
- 1.1.2 The purpose of this report is to identify the trees within the site, provide information on their current health and condition, determine their remaining Safe Useful Life Expectancy (SULE) and assess their suitability for retention/preservation. The report also provides recommended Tree Protection Zones to ensure the long-term preservation of the trees to be retained where appropriate.
- 1.1.3 This report has been prepared in accordance with the City of Sydney Council’s guidelines for preparation of Arborists Reports, the scope of work outlined in Section 4.4.1 of the City of Sydney’s Consultant Arboricultural Services Contract No. 1352 and Sections 2.3.2 and 2.3.3 of the Australian Standard for *Protection of Trees on Development Sites* (AS 4970:2009).

2 THE SITE

- 2.1.1 The subject property includes several sections of the Road Reserve within O’Riordan Street, Botany Road and the intersection of Bourke Road and Bowden Street, Alexandria, which form three (3) main intersections with the GS2AC. For the purposes of this report, the subject areas of road reserve will be referred to as ‘the site’. Botany Road and O’Riordan Street are zoned Infrastructure (SP2) [Classified Road] and Bourke Road and Bowden Street are zoned General Industrial (IN1) under the *Sydney Local Environmental Plan 2012* (SLEP).
- 2.1.2 The intersection of Bowden Street and Bourke Road is located in an industrial area with low level warehousing and some commercial premises. Bowden Street contains an avenue of predominantly Broad-leaved Paperbark trees. Bourke Road contains a mixed planting of Broad-leaved Paperbark, Black Poplar, Balsam Poplar and recent plantings of Mugga Ironbark. O’Riordan Street is also mainly industrial with some commercial premises. The street planting includes predominantly Broadleaved Paperbark and Narrow-leaved Ironbark. Botany Road is mainly old warehousing, with some adjacent dilapidated and demolished former industrial land. The street plantings include Broad-leaved Paperbark, Golden Robinia, London Plane and Brushbox.
- 2.1.3 The landscape and soils of this area have been extensively disturbed and modified for urban development. Remnant soils of this area are typical of the Tuggerah Soil Landscape Group (as classified in the *Soil Landscapes of the Sydney 1:100,000 Sheet*), consisting of “deep (greater than 2000mm) *Podzols* on dunes and *Podzol/Humus Podzol* intergrades on swales.” The landscape of the area was formerly gently undulating to rolling coastal dune fields with slope gradients of 1-10%.¹
- 2.1.4 Most of the locally indigenous vegetation has been cleared from surrounding areas for residential and industrial development. The original vegetation of this area consisted of open woodland & Eastern Suburbs Banksia Scrub, with dominant locally-indigenous tree species formerly occurring in this area including *Angophora costata* (Sydney Red Gum), *Eucalyptus piperita* (Sydney Peppermint) and *Banksia aemula* (Wallum Banksia), with *Eucalyptus robusta* (Swamp Mahogany) and *Melaleuca quinquenervia* (Broadleaved Paperbark) occurring in low lying areas.²

3 SUBJECT TREES

- 3.1.1 The subject trees were inspected by Earthscape Horticultural Services (EHS) on the 24th February 2015. Each tree has been provided with an identification number for reference purposes denoted on

the attached Tree Location Plan (**Appendix 6**), based on the survey prepared by Cardno Hard & Forester, Dwg. Ref No. 117367500 Rev 00, dated 30/01/2015. The numbers used on this plan correlate with the Tree Assessment Schedule (**Appendix 4**). Photographs of each tree are shown in **Appendix 3**.

4 HEALTH AND CONDITION ASSESSMENT

4.1 Methodology

4.1.1 An assessment of each tree was made using the Visual Tree Assessment (VTA) procedure.³ All of the trees were assessed in view from the ground. No aerial inspection or diagnostic testing has been undertaken as part of this assessment.

4.1.2 The following information was collected for each tree:-

- Tree Species (Botanical & Common Name);
- Approximate height;
- Canopy spread; measured using a metric tape and an average taken.
- Trunk diameter (measured at 1.4 metres from ground level);
- Live Crown Size; (measured by subtracting the total height of the tree from the lowest point of the crown and multiplying by the average crown spread to give a value in square metres).
- Health & vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators,
- Condition; using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators.
- Suitability of the tree to the site and its existing location; in consideration of damage or potential damage to services or structures, available space for future development and nuisance issues.

This information is presented in a tabulated form in **Appendix 3**.

4.2 Safe Useful Life Expectancy (SULE)

4.2.1 The remaining Safe Useful Life Expectancy⁴ of the tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of the tree has been further modified where necessary in consideration of its current health and vigour, condition and suitability to the site. The estimated SULE of each tree is shown in **Appendix 4**.

4.2.2 The following ranges have been allocated to each tree:-

- Greater than 40 years (Long)
- Between 15 and 40 years (Medium)
- Between 5 and 15 years (Short)
- Less than 5 years (Transient)
- Dead or immediately hazardous (defective or unstable)

5 LANDSCAPE SIGNIFICANCE

5.1 Methodology for Determining Landscape Significance

5.1.1 The significance of a tree in the landscape is a combination of its amenity, environmental and heritage values. Whilst these values may be fairly subjective and difficult to assess consistently, some measure is necessary to assist in determining the retention value of each tree. To ensure in a

consistent approach, the assessment criterion shown in **Appendix 1** have been used in this assessment.

- 5.1.2 A rating has been applied to each tree to give an understanding of the relative significance of each tree in the landscape and to assist in determining priorities for retention, in accordance with the following categories:-

1. **Significant**
2. **Very High**
3. **High**
4. **Moderate**
5. **Low**
6. **Very Low**
7. **Insignificant**

5.2 Environmental Significance

5.2.1 Tree Preservation Order

Trees within the City of Sydney Local Government Area (LGA) are protected under Section 3.5.3 of the *Sydney Development Control Plan 2012* (SDCP), made pursuant to Clause 5.9 (2) of the *Sydney Local Environmental Plan 2012* (SLEP). The SDCP generally protects all trees of a height of five (5) metres or greater or with a canopy spread of five (5) metres or greater, or trunk diameter of 300mm or greater (measured at ground level) or any tree listed on Council's Significant Tree Register. Some exemptions apply. However, all of the subject trees are protected under the provisions of the SDCP.

5.2.2 Wildlife Habitat

Melaleuca quinquenervia (Broad-leaved Paperbark) [T206, T207, T208, T209, T211, T221, T223, T228, T304, T130, T129, T120, T106, T105, T103, T101, T146 & T118] are all locally-indigenous species, representative of the original vegetation of the area and would be of benefit to native wildlife. Note that all of these trees have been planted (none of the trees are remnant of the original vegetation community). None of the trees contain cavities that would be suitable as nesting hollows for arboreal mammals or birds or other visible signs of wildlife habitation.

5.2.3 Noxious and Environmental Weed Species

None of the trees assessed are scheduled as Noxious Weeds under the meaning of *Noxious Weeds Act* (NSW) 1993.

5.2.4 Threatened Species and Endangered Ecological Communities

None of the trees are listed as Threatened or Vulnerable Species or form part of Endangered Ecological Communities (EECs) under the provisions of the *Threatened Species Conservation Act* 1995 (NSW) or the *Environmental Protection and Biodiversity Conservation Act* 1999.

5.3 Heritage Significance

5.3.1 Heritage Items

The site does *not* contain any items of Environmental Heritage under Part 1, Schedule 5 of the *Sydney Local Environmental Plan* (SLEP) 2012. None of the trees have any known or suspected heritage significance.

5.3.2 Heritage Conservation Area

The site is *not* located within a Heritage Conservation Area under Part 2 of Schedule 5 of the SLEP 2012.

5.3.3 Significant Tree Register

None of the subject trees are listed on Council's Register of Significant Trees Volume 2 (Significant Street Trees).⁵

5.4 Amenity Value

5.4.1 Criteria for the assessment of amenity values are incorporated into **Appendix 1**. The amenity value of a tree is a measure of its live crown size, visual appearance (form, habit, crown density), visibility and position in the landscape and contribution to the visual character of an area. Generally the larger and more prominently located the tree, and the better its form and habit, the higher its amenity value.

6 TREE RETENTION VALUES

6.1.1 The Retention Values shown in **Appendix 5** and **Appendix 6** have been determined on the basis of the estimated longevity of the trees and their landscape significance rating, in accordance with **Table One**. Together with guidelines contained in **Section 7** (Tree Protection Zones) this information should be used to determine the most appropriate position of building footprints and other infrastructure within the site, with due consideration to other site constraints, to minimise the impact on trees considered worthy of preservation.

TABLE 1 – TREE RETENTION VALUES – ASSESSMENT METHODOLOGY

	Landscape Significance Rating							
Estimated Life Expectancy	1	2	3	4	5	6	7	
Long - Greater than 40 Years	High Retention Value			Moderate Retention Value				
Medium- 15 to 40 Years								
Short - 5 to 15 years			Low Ret. Value					
Transient - Less than 5 Years								
Dead or Potentially Hazardous	Very Low Retention Value							

TABLE 2 – TREE RETENTION PRIORITIES.

6.1.2 The following table describes the implications of the retention values on site layout and design.

RETENTION VALUE	RECOMMENDED ACTION
“High”	<ul style="list-style-type: none"> These trees considered worthy of preservation; as such careful consideration should be given to their retention as a priority. Proposed site design and placement of buildings and infrastructure should consider the recommended setbacks as discussed in the following section to minimise any adverse impact. In addition to Minimum Setback Distances, the extent of the canopy (canopy drip-line) should also be considered, particularly in relation to high rise developments. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.

“Moderate”	<ul style="list-style-type: none">• The retention of these trees is desirable, but not essential.• These trees should be retained as part of any proposed development if possible, however they trees are considered less critical for retention.• If these trees must be removed, replacement planting should be considered in accordance with Council’s Tree Replenishment Policy to compensate for loss of amenity.
“Low”	<ul style="list-style-type: none">• These trees are not considered to worthy of any special measures to ensure their preservation, due to current health, condition or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE.• These trees should not be considered as a constraint to the future development of the site.
“Very Low”	<ul style="list-style-type: none">• These trees are considered potentially hazardous or very poor specimens, or may be environmental or noxious weeds.• The removal of these trees is therefore recommended regardless of the implications of any proposed development.

7 TREE PROTECTION ZONES

7.1.1 The Tree Protection Zone (TPZ) is a radial distance measured from the centre of the trunk of the tree as specified in **Appendix 5**. These have been calculated in accordance with AS 4970-2009 (Protection of Trees on Development Sites).⁶

7.1.2 The intention of the TPZ is to ensure protection of the root system and canopy from the potential damage from construction works and ensure the long-term health and stability of each tree to be retained. Incursions to the root zone may occur due to excavations, changes in ground levels, (either lowering or raising the grade), trenching or other forms or soil disturbance such as ripping, grading or inverting the soil profile. Such works may cause damage or loss of part of the root system, leading to an adverse impact on the tree

7.1.3 Notwithstanding the above recommendations, it is likely that the existing kerb and gutter and adjacent road pavement limit root development to a certain extent. The kerb and kerb footing create a physical barrier and the level of compaction of the sub-grade and sub-base material beneath the road pavement generally create hostile environment that deters root growth. It is likely therefore, that most of the root development of the subject trees is limited to the nature strip area between the kerb line and the boundary with private properties, where the footings of built structures also create a physical barrier to root growth to some extent.

7.2 Structural Root Zone (SRZ)

7.2.1 The Structural Root Zone (SRZ) provides the bulk of mechanical support and anchorage for a tree. This is also a radial distance measured from the centre of the trunk as specified in **Appendix 5**. The SRZ has been calculated in accordance with AS 4970-2009 (Protection of Trees on Development Sites).

7.2.2 Incursions within the SRZ are not recommended as they are likely to result in the severance of woody roots which may compromise the stability of the tree or lead to its decline and demise.

7.3 Acceptable Incursions to the Tree Protection Zone.

7.3.1 Where encroachment to the TPZ is unavoidable, an incursion to the TPZ of not exceeding 10% of the area of the TPZ and outside the SRZ may be acceptable. Examples of acceptable incursions are shown in **Appendix 2**. Greater incursions to the TPZ may result in an adverse impact on the tree.

- 7.3.2 Where incursions greater than 10% of the TPZ are unavoidable, exploratory excavation using non-destructive methods may be required to evaluate the extent of the root system affected and determine whether or not the tree can remain viable.

7.1 Acceptable Incursions to the Canopy.

- 7.1.1 The removal of a small portion of the crown (foliage and branches) is generally tolerable provided that the extent of pruning required is less than 10% of the total foliage volume of the tree and the removal of branches does not create large wounds or disfigure the natural form and habit of the tree. All pruning cuts must be undertaken in accordance with AS 4373:2007. This generally involves reduction of the affected branches back to the nearest branch collar at the junction with the parent branch, rather than at an intermediate point. The latter is referred to as “lopping” and is no longer an acceptable arboricultural practice. Generally speaking, the minimum pruning as required to accommodate any proposed works is desirable. Extensive pruning can result in a detrimental impact on tree health and may lead to exposure of remaining branches to wind forces that they were previously sheltered from, leading to a greater risk of branch failure.
- 7.1.2 Clearance to between the building line and canopy should take into account any projecting structures, such as balconies, awnings and the roofline and any requirement for temporary scaffolding to be erected during construction (typically 1-1.5 metres wide). High structures should preferably be located outside the canopy dripline (as shown indicatively on the attached plans) in order to avoid or minimise canopy pruning.

8 IMPACT OF THE PROPOSED DEVELOPMENT

- 8.1.1 The proposed development will necessitate the removal of six (6) trees of low retention value. These include Tree No.s T132 (Black Poplar), T222 (Narrow-leaved Ironbark), T223 & T304 (Broad-leaved Paperbark) and T305 & T306 (Golden Robinia). None of these trees are considered significant or worthy of special measures to ensure their preservation. The removal of these trees to accommodate the proposed development is considered warranted in this instance.
- 8.1.2 The proposed development will also necessitate the removal of eight (8) trees of moderate retention value. These include Tree No.s T128 (Mugga Ironbark), T133 (Balsam Poplar) and T101, T129, T206, T207, T208 & T221 (Broadleaved Paperbark). These trees are not considered significant, but are in good health and condition and make a fair contribution to the amenity of the site and surrounding properties. In order to compensate for loss of amenity resulting from the removal of these trees to accommodate the proposed development, consideration should be given to replacement planting elsewhere within the road reserve in accordance with Section 9.
- 8.1.3 The proposed development will also necessitate the removal of one (1) tree of high retention value, being T120, a Broadleaved Paperbark. This tree has no special ecological or heritage significance, but is in good health and condition and makes a positive contribution to the amenity of the streetscape. Given the limitations of the road alignment and design, there are no feasible alternatives that can be recommended that would permit the retention of this tree. In order to compensate for loss of amenity resulting from the removal of this tree to accommodate the proposed development, consideration should be given to replacement planting elsewhere within the road reserve in accordance with Section 9.
- 8.1.4 Proposed kerb and gutter and stormwater works are located within the TPZs of trees T204 & T218 (Narrow-leaved Ironbark), T106 (Broad-leaved Paperbark) and T108 (Balsam Poplar) of moderate retention value and T303 (London Plane) & T227 (Narrow-leaved Ironbark) of low retention value. These works have the potential to result in an adverse impact on these trees. However, implementation of suitable tree protection measures prior to and during construction should avoid any adverse impact.

9 REPLACEMENT PLANTING

- 9.1.1 Where compromises to tree retention are proposed, consideration should be given to replanting new trees within the streetscape in accordance with Council's Street Tree Master Plan (STMP) 2011. The STMP indicates the following species for each of the nominated streets within the study area (refer STMP Part C, Precinct 30 – Southern Industrial):-

Bowden Street:-

- *Fraxinus pennsylvanica* (Green Ash)

Bourke Road:-

- *Corymbia eximia* (Yellow Bloodwood)
- *Lophostemon confertus* (Brushbox).

O'Riordan Street:-

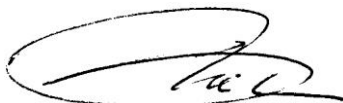
- *Eucalyptus sideroxylon* (Mugga Ironbark)

Botany Road:-

- *Robinia pseudoacacia* 'Frisia' (Golden Robinia)
- *Lophostemon confertus* (Brushbox).

10 RECOMMENDATIONS:-

1. Trees nominated in **Appendix 4 & 6** as significant or of high retention value are considered worthy of preservation. Careful consideration should be given to their retention. Proposed site design and placement of buildings and infrastructure should consider the recommended Tree Protection Zones (**Section 7**) to minimise any adverse impact.
2. Trees nominated in **Appendix 4 & 6** as being of moderate retention value should be retained wherever possible. These trees are considered to be worthy of preservation but are less critical for retention.
3. Trees nominated in **Appendix 4 & 6** as being of low or very low retention value are not considered to be worthy of any special measures to ensure their preservation. These trees should not be viewed as a constraint to the development.



Andrew Morton

EARTHSCAPE HORTICULTURAL SERVICES

29th September 2017

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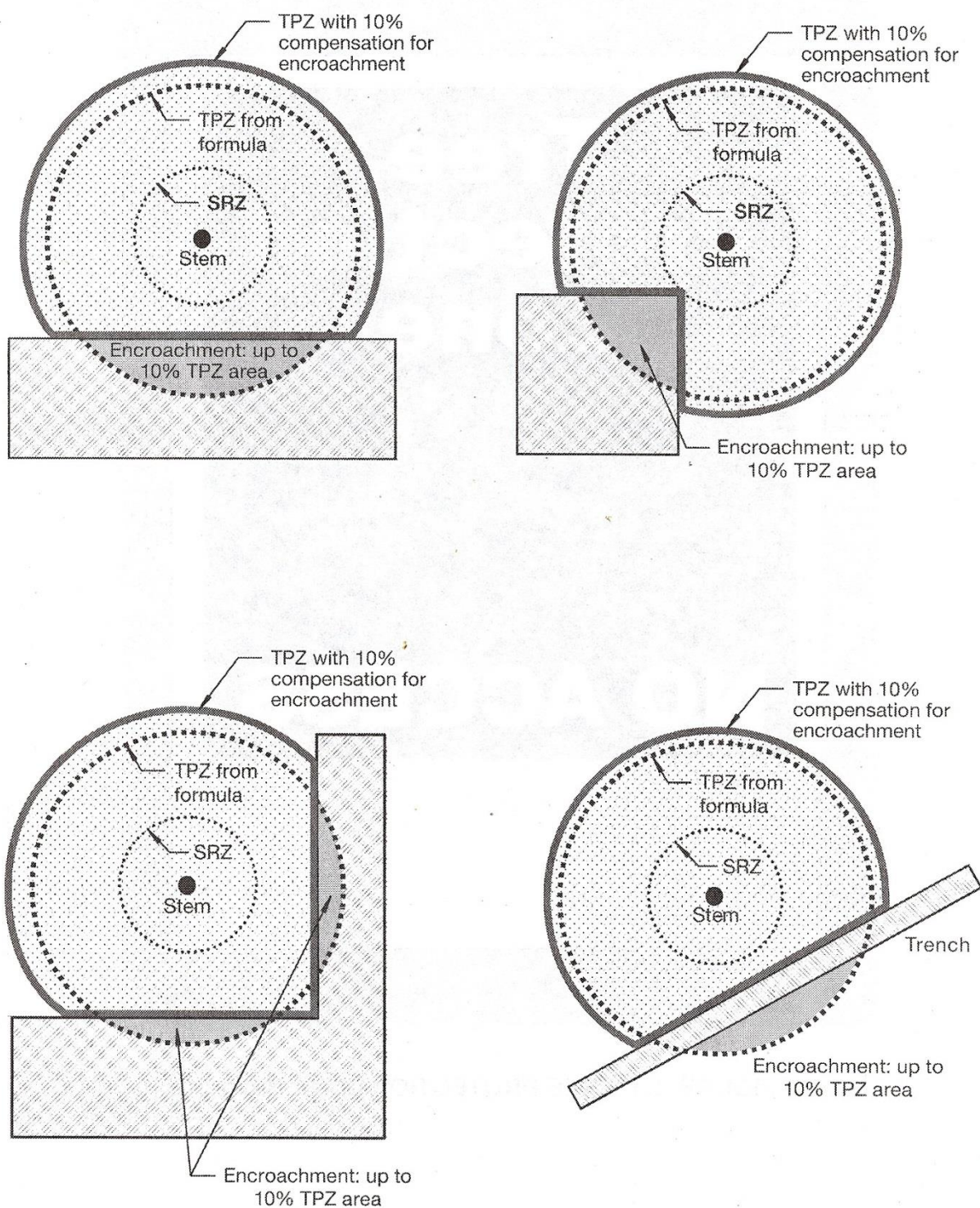
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Landarc Pty Ltd & the Council of the City of Sydney, Sydney NSW
- ⁶ Council of Standards Australia (August 2009)
AS 4970 – 2009 – Protection of Trees on Development Sites
Standards Australia, Sydney

APPENDIX 1 - CRITERIA FOR ASSESSMENT OF LANDSCAPE SIGNIFICANCE

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
1. SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened Species as defined under the Threatened Species Conservation Act 1995 (NSW) or the Environmental Protection and Biodiversity Conservation Act 1999	The subject tree has a very large live crown size exceeding 300m ² with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally-indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m ² ; a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value	The subject tree has a large live crown size exceeding 100m ² ; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
4. MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of this DCP.	The subject tree has a medium live crown size exceeding 40m ² ; The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of this DCP due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m ² and can be replaced within the short term (5-10 years) with new tree planting
6. VERY LOW	The subject tree is causing significant damage to a heritage Item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
7. INSIGNIFICANT	The tree is completely dead and has no visible habitat value	The tree is a declared Noxious Weed under the Noxious Weeds Act (NSW) 1993 within the relevant Local Government Area.	The tree is completely dead and represents a potential hazard.

Ref:- Morton, Andrew (2006) **Determining the Retention Value of Trees on Development Sites** Proceedings of the 7th National Street Tree Symposium TreeNet Adelaide Australia

APPENDIX 2 – ACCEPTABLE INCURSIONS TO THE TREE PROTECTION ZONE (TPZ)



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

REF:- Council of Standards Australia (August 2009)
AS 4970 – 2009 – Protection of Trees on Development Sites
 Standards Australia, Sydney

APPENDIX 3 – PHOTOGRAPHS OF EACH TREE



Plate 1 – T101 *Melaleuca quinquenervia*



Plate 3 – T105 *Melaleuca quinquenervia*



Plate 5 – T108 *Populus sp [basamifera]*



Plate 2 – T103 *Melaleuca quinquenervia*



Plate 4 – T106 *Melaleuca quinquenervia*



Plate 6 – T109 *Populus nigra 'Italica'*



Plate 7 – T110 *Populus nigra*



Plate 9 – T118 *Melaleuca quinquenervia*



Plate 11 – T128 *Eucalyptus sideroxylon*



Plate 8 – T117 *Populus nigra*



Plate 10 – T120 *Melaleuca quinquenervia*



Plate 12 – T129 *Melaleuca quinquenervia*



Plate 13 – T130 *Melaleuca quinquenervia*



Plate 15– T133 *Populus sp [basamifera]*



Plate 17 – T146 *Melaleuca quinquenervia*



Plate 14 – T132 *Populus nigra*



Plate 16 – T134 *Populus nigra*



Plate 18 – T201 *Eucalyptus sideroxylon*



Plate 19 – T202 *Eucalyptus crebra*



Plate 21– T206 *Melaleuca quinquenervia*



Plate 23 – T208 *Melaleuca quinquenervia*



Plate 20 – T204 *Eucalyptus crebra*



Plate 22 – T207 *Melaleuca quinquenervia*



Plate 24 – T209 *Melaleuca quinquenervia*



Plate 25 – T211 *Melaleuca quinquenervia*



Plate 27– T221 *Melaleuca quinquenervia*



Plate 29 – T223 *Melaleuca quinquenervia*



Plate 26 – T218 *Eucalyptus crebra*



Plate 28 – T222 *Eucalyptus crebra*



Plate 30 – T227 *Eucalyptus crebra*



Plate 31 – T228 *Melaleuca quinquenervia*



Plate 33 – T302 *Lophostemon confertus*



Plate 35 – T304 *Melaleuca quinquenervia*



Plate 32 – T229 *Eucalyptus crebra*



Plate 34 – T303 *Platanus x hybrida*



Plate 36 – T305 *Robinia pseudoacacia* 'Frisia'



Plate 37 – T306 *Robinia pseudoacacia* 'Frisia'



Plate 38 – T307 *Robinia pseudoacacia* 'Frisia'

APPENDIX 4 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE														
Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
									Vigour	Pest & Disease				
101	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	8.5	12	857	66	M	Appears stable with fair branching structure.	Lopped at 4-5 metres (gully-cut) to clear powerlines.	Very Good	No Evidence	Medium 15-40 Years	3	Moderate	Bowden Street
103	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	14	12	697	132	M	Appears stable with fair branching structure.	Previously lopped at 5 metres (crown restored)	Good	No Evidence	Medium 15-40 Years	3	Moderate	Bowden Street
105	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	13	9	494	81	M	Appears stable with fair branching structure.	Crown lifted to 4 metres. Selectively pruned (gully cut) at 3-5 metres to clear powerlines.	Fair	No Evidence	Short 5-15 Years	4	Low	Bowden Street
106	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	9	10	678	70	M	Appears stable with fair branching structure. Exhibits multiple low bark inclusions at 2-3 metres.	Crown lifted to 3metres	Very Good	No Evidence	Long - more than 40 years	4	Moderate	Bowden Street
108	<i>Populus sp [balsamifera]</i> (Balsam Poplar)	16	11	443	132	M	Appears stable with sound branching structure.	Crown lifted to 4 metres	Good	No Evidence	Long - more than 40 years	4	Moderate	Bourke Road
109	<i>Populus nigra</i> (Black Poplar)	16	4	382	56	SM	Appears stable with sound branching structure. Located in close proximity to existing kerb and gutter. 15% epicormic growth.	Crown lifted to 3 metres	Fair with slightly thinning crown	No Evidence	Short 5-15 Years	4	Low	Bourke Road
110	<i>Populus nigra</i> (Black Poplar)	15	9	624	117	M	Appears stable with sound branching structure.	Crown lifted to 3 metres	Fair with slightly thinning crown	Moderate Poplar Rust infection	Medium 15-40 Years	4	Moderate	Bourke Road
117	<i>Populus nigra</i> (Black Poplar)	16	9	404	108	M	Appears stable with sound branching structure.	Crown lifted to 3 metres	Fair with slightly thinning crown	Moderate Poplar Rust infection	Medium 15-40 Years	4	Moderate	Bourke Road
118	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	11	646	99	M	Appears stable with fair branching structure.	Previously lopped at 4 metres (crown restored)	Good	No Evidence	Long - more than 40 years	3	High	Bourke Road

APPENDIX 4 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m ²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
									Vigour	Pest & Disease				
120	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	13	10	1013	90	M	Appears stable with fair branching structure. Multiple primary limbs at 2 metres. Visible woody surface roots for 4 metres radius (lineal within landscape strip). Displacing kerb & footpath.	Previously lopped at 4 metres (crown restored)	Good	No Evidence	Long - more than 40 years	3	High	Bourke Road
128	<i>Eucalyptus sideroxylon</i> (Mugga Ironbark)	10	4	146	20	I	Appears stable with sound branching structure.	Crown lifted to 5 metres	Good	No Evidence	Long - more than 40 years	5	Moderate	Bourke Road
129	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	10	662	80	M	Appears stable with fair branching structure. Exhibits a prominent lean to the SE. Some dieback with 10% deadwood.	Selectively pruned to clear overhead powerlines	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	4	Moderate	Bourke Road
130	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	6	6	271	24	SM	Appears stable with poor branching structure. Exhibits a prominent lean to the north. Crown suppressed on the SE side due to previous pruning. 5% deadwood	Topped at 3 metres. lopped at 4-5 metres to clear powerlines.	Good	No Evidence	Short 5-15 Years	5	Low	Bourke Road
132	<i>Populus nigra</i> (Black Poplar)	14	5	481	60	M	Appears stable with fair branching structure. Exhibits multiple moderate axial wounds on secondary limbs at 7-9 metres. Some dieback with 10% deadwood and 10% epicormic growth.	Selectively pruned & deadwooded	Fair with slightly thinning crown	Moderate Poplar Rust infection	Short 5-15 Years	4	Low	Bourke Road
133	<i>Populus sp [balsamifera]</i> (Balsam Poplar)	12	8	334	88	SM	Appears stable with sound branching structure. Multiple epicormics on lower trunk	Crown lifted to 5 metres	Fair with slightly thinning crown	No Evidence	Medium 15-40 Years	4	Moderate	Bourke Road
134	<i>Populus nigra</i> (Black Poplar)	15	8	530	96	M	Appears stable with fair branching structure. Multiple basal epicormic sprouts with 15% deadwood.	Selectively pruned & deadwooded	Fair with slightly thinning crown	Moderate Poplar Rust infection	Short 5-15 Years	4	Low	Bourke Road
146	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	13	12	900	108	M	Appears stable with fair branching structure. Exhibits multiple moderate bark inclusions at 3 metres.	Lopped at 3-5 metres to clear powerlines (ABCs).	Good	No Evidence	Medium 15-40 Years	3	Moderate	Bourke Road
201	<i>Eucalyptus sideroxylon</i> (Mugga Ironbark)	8.5	3.5	153	19.25	I	Appears stable with sound branching structure. Minor dieback with 5% deadwood.	Crown lifted to 3 metres.	Fair with slightly thinning crown	No Evidence	Long - more than 40 years	5	Moderate	O'Riordan Street

GREEN SQUARE 2 ASHMORE COLLECTOR (GS2AC), ALEXANDRIA

		APPENDIX 4 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE												
Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
									Vigour	Pest & Disease				
202	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	7	4	182	16	I	Appears stable with sound branching structure. Crown suppressed on east side due to crowding. Exhibits multiple bends in trunk.	Crown lifted to 3 metres.	Good	No Evidence	Long - more than 40 years	5	Moderate	O'Riordan Street
204	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	9	5	194	32.5	SM	Appears stable with sound branching structure. Crown suppressed on east side due to overshadowing.	Crown lifted to 3 metres.	Very Good	No Evidence	Medium 15-40 Years	4	Moderate	O'Riordan Street
206	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	11	10	885	70	M	Appears stable with fair branching structure. Exhibits multiple moderate bark inclusions at 3-4 metres. Multiple termite flight tubes at 0.5 metres.	Crown lifted to 3 metres.	Good	Suspected termite infestation	Long - more than 40 years	4	Moderate	O'Riordan Street
207	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	10	1019	90	M	Appears stable with fair branching structure. Exhibits multiple high bark inclusions at 2-3 metres.	Crown lifted to 3 metres.	Good	No Evidence	Medium 15-40 Years	3	Moderate	O'Riordan Street
208	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	10	10	599	70	M	Appears stable with fair branching structure. Exhibits multiple moderate bark inclusions at 1.5-3 metres.	Crown lifted to 3 metres.	Good	No Evidence	Long - more than 40 years	4	Moderate	O'Riordan Street
209	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	10	965	90	M	Appears stable with fair branching structure. Exhibits multiple high bark inclusions at 2-3 metres. Multiple termite flight tubes on lower trunk. Visible woody surface roots for 4 metres radius (lineal within landscape strip)	Crown lifted to 3 metres.	Good	Suspected termite infestation	Medium 15-40 Years	3	Moderate	O'Riordan Street
211	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	9	806	63	M	Appears stable with fair branching structure. Exhibits multiple high bark inclusions at 2-3 metres.	Crown lifted to 3 metres. Selectively pruned (gully cut) at 4-5 metres to clear powerlines (ABCs).	Good	No Evidence	Medium 15-40 Years	4	Moderate	O'Riordan Street
218	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	6	5	191	15	I	Appears stable with poor branching structure. Main leader suppressed due to previous pruning. 10% epicormic growth.	Lopped at 4-5 metres to clear overhead powerlines (ABCs).	Good	No Evidence	Short 5-15 Years	5	Low	O'Riordan Street

APPENDIX 4 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
									Vigour	Pest & Disease				
221	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	10	771	80	M	Appears stable with fair branching structure. Exhibits multiple moderate bark inclusions at 4 metres.	Lopped at 4-5 metres to clear overhead powerlines (ABCs).	Good	No Evidence	Medium 15-40 Years	3	Moderate	O'Riordan Street
222	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	10	3.5	210	14	SM	Appears stable with poor branching structure. Multiple elite epicormic sprouts emanating from old pruning wounds.	Lopped at 4-5 metres to clear overhead powerlines (ABCs).	Good	No Evidence	Short 5-15 Years	5	Low	O'Riordan Street
223	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	9	739	81	M	Appears stable with fair branching structure. Exhibits multiple moderate bark inclusions at 3.5 metres. Prominent lean to the north. Crown suppressed on south side due previous pruning. Large wound at 1.5 metres due previous pruning (removal of primary limb)	Crown lifted to 4 metres. Selectively pruned (gully cut) at 3-5 metres to clear powerlines (ABCs).	Good	No Evidence	Short 5-15 Years	4	Low	O'Riordan Street
227	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	9	6	303	33	SM	Appears stable with poor branching structure. Crown suppressed on east side due to previous pruning. Multiple elite epicormic sprouts emanating from old pruning wounds. 20% epicormic growth.	Lopped at 5 metres to clear overhead powerlines (ABCs).	Very Good	No Evidence	Short 5-15 Years	4	Low	O'Riordan Street
228	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	12	9	901	81	M	Appears stable with fair branching structure. Multiple moderate bark inclusions at 4 metres.	Crown lifted to 3 metres. Selectively pruned at 3-5 metres to clear powerlines (ABCs).	Good	No Evidence	Medium 15-40 Years	3	Moderate	O'Riordan Street
229	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	12	9	315	90	SM	Appears stable with fair branching structure.	Crown lifted to 3 metres. Lopped at 4 metres to clear powerlines (ABCs).	Very Good	No Evidence	Medium 15-40 Years	4	Moderate	O'Riordan Street
302	<i>Lophostemon confertus</i> (Brushbox)	5	3.5	204	10.5	I	Appears stable with fair branching structure. Exhibits multiple co-dominant leaders at 2.5 metres	Topped at 2.5 metres. lopped at 4-5 metres to clear powerlines.	Very Good	No Evidence	Long - more than 40 years	5	Moderate	Botany Road

GREEN SQUARE 2 ASHMORE COLLECTOR (GS2AC), ALEXANDRIA

APPENDIX 4 - TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE

Tree Identification No.	Species	Height (m)	Spread (m)	Trunk Diameter (mm)	Live Crown Size (m ²)	Maturity Class	Condition	Previous Pruning	Health		Remaining Safe Useful Life Expectancy (SULE)	Landscape Significance Rating	Retention Value	Location
									Vigour	Pest & Disease				
303	<i>Platanus x hybrida</i> (London Plane)	4.5	5	191	15	I	Appears stable with fair branching structure. Crown suppressed on the east side due to previous pruning. Basal sprout.	Topped at 3.5 metres. lopped at 4-5 metres to clear powerlines.	Very Good	Moderate Sycamore Lace Bug infestation.	Medium 15-40 Years	5	Low	Botany Road
304	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	9	7	522	49	M	Appears stable with poor branching structure. Crown suppressed on east side due to previous pruning. Multiple moderate wounds due previous pruning. Large axial wound from GL to 2 metres with decay evident. 10% eicormic growth.	Crown lifted to 3 metres, topped at 3 metres	Good	Low termite infestation	Short 5-15 Years	5	Low	Botany Road
305	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	5.5	5	226	20	M	Appears stable with fair branching structure. Exhibits a moderate wound at 2.5 metres due borer damage. Large axial wound from GL to 0.7 metres (vehicle damage). Multiple elite epicormics with 70% epicormic growth.	Lopped at 4-5 metres to clear powerlines.	Good	Moderate borer damage	Short 5-15 Years	5	Low	Botany Road
306	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	5	4	178	12	M	Appears stable with poor branching structure. Small partially occluded wound from GL to 0.5 metres. Multiple elite epicormics with 50% epicormic growth.	Topped at 3.5 metres. lopped at 4-5 metres to clear powerlines.	Good	No Evidence	Short 5-15 Years	5	Low	Botany Road
307	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	5	5	236	15	M	Appears stable with poor branching structure. Exhibits a large axial wound from GL to 0.7 metres. Multiple elite epicormics with 50% epicormic growth.	Topped at 3 metres. lopped at 4-5 metres to clear powerlines.	Good	No Evidence	Short 5-15 Years	5	Low	Botany Road

APPENDIX 5 - IMPACT ASSESSMENT SCHEDULE

Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m²)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
101	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	7.7	3.1	186.7	Located within footprint of proposed pedestrian crossing.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
103	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	6.3	2.8	123.7	No proposed works within TPZ	No adverse impact	To be retained
105	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	4.9	2.5	76.5	No proposed works within TPZ	No adverse impact	To be retained
106	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	6.8	2.8	144.5	Realignment of kerb and gutter within offset 1.3 metres south-west (assumed close to existing grade). Demolition of existing kerb and excavations for footings of new kerb an gutter within SRZ/TPZ.	Proposed works have the potential to result in some adverse impact.	To be retained
108	<i>Populus sp [balsamifera]</i> (Balsam Poplar)	M	5.3	2.4	88.6	Proposed new pram ramp offset 4 metres south-west. Excavations for pram ramp within TPZ. Minor encroachment to TPZ (<5%).	No adverse impact	To be retained
109	<i>Populus nigra</i> (Black Poplar)	M	4.6	2.2	66.0	No proposed works within TPZ	No adverse impact	To be retained
110	<i>Populus nigra</i> (Black Poplar)	M	7.5	2.7	176.2	No proposed works within TPZ	No adverse impact	To be retained
117	<i>Populus nigra</i> (Black Poplar)	M	4.9	2.3	74.0	No proposed works within TPZ	No adverse impact	To be retained
118	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	6.5	2.8	131.2	No proposed works within TPZ	No adverse impact	To be retained

GREEN SQUARE 2 ASHMORE COLLECTOR (GS2AC), ALEXANDRIA

APPENDIX 5 - IMPACT ASSESSMENT SCHEDULE								
Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m²)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
120	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	10.1	3.3	322.1	Located close to proposed new kerb and gutter, pram ramp and stormwater works	Proposed works may result in an adverse impact.	Remove tree. Undertake replacement planting in accordance with Section 9.
128	<i>Eucalyptus sideroxylon</i> (Mugga Ironbark)	P	2.2	1.5	15.2	Located within footprint of proposed roadway.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
129	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	6.6	2.8	137.8	Located within footprint of proposed roadway.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
130	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	3.2	1.9	33.1	No proposed works within TPZ	No adverse impact	To be retained
132	<i>Populus nigra</i> (Black Poplar)	M	5.8	2.4	104.6	Located within footprint of proposed new cycleway path.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
133	<i>Populus sp [balsamifera]</i> (Balsam Poplar)	M	4.0	2.1	50.6	Located within footprint of proposed new cycleway path.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
134	<i>Populus nigra</i> (Black Poplar)	M	6.4	2.5	127.0	No proposed works within TPZ	No adverse impact	To be retained
146	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	9.0	3.2	254.3	No proposed works within TPZ	No adverse impact	To be retained
201	<i>Eucalyptus sideroxylon</i> (Mugga Ironbark)	P	2.3	1.5	16.5	No proposed works within TPZ	No adverse impact	To be retained

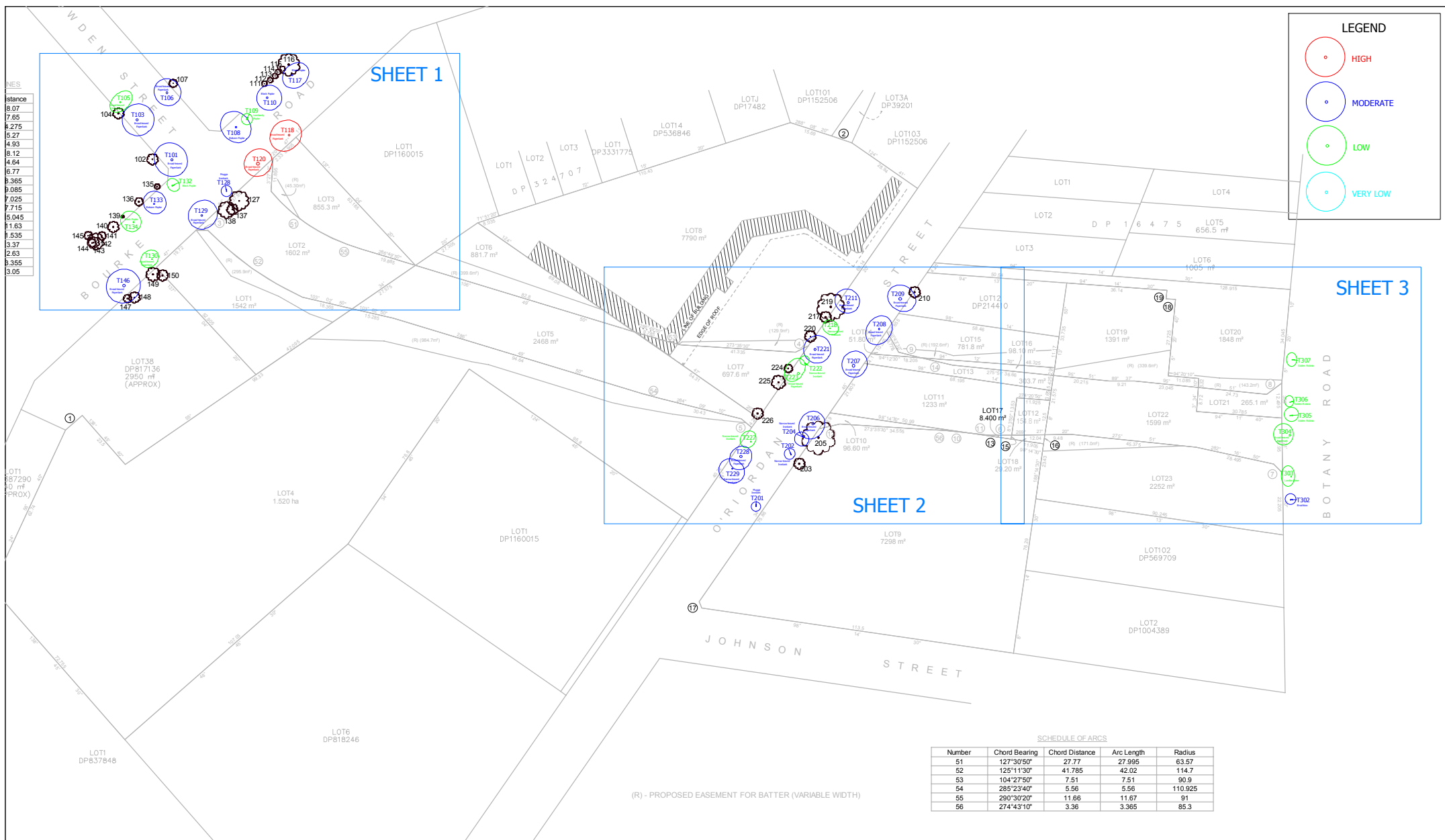
GREEN SQUARE 2 ASHMORE COLLECTOR (GS2AC), ALEXANDRIA

APPENDIX 5 - IMPACT ASSESSMENT SCHEDULE								
Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m²)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
202	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	P	2.7	1.6	23.3	No proposed works within TPZ	No adverse impact	To be retained
204	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	P	2.9	1.7	26.7	Kerb and gutter and stormwater works within TPZ.	Proposed works may result in an adverse impact.	To be retained
206	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	8.9	3.1	246.1	Located close to proposed new kerb and gutter and stormwater works. Located within footprint of proposed new pram ramp.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
207	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	10.2	3.3	326.1	Located within footprint of proposed roadway.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
208	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	6.0	2.7	112.6	Located close to proposed new kerb and gutter and stormwater works	Proposed works may result in an adverse impact.	Remove tree. Undertake replacement planting in accordance with Section 9.
209	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	9.6	3.3	292.4	No proposed works within TPZ	No adverse impact	To be retained
211	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	8.1	3.0	203.9	No proposed works within TPZ	No adverse impact	To be retained
218	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	P	2.9	1.7	25.8	Kerb and gutter and stormwater works within TPZ.	Proposed works may result in an adverse impact.	To be retained

APPENDIX 5 - IMPACT ASSESSMENT SCHEDULE								
Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m²)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
221	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	7.7	3.0	186.5	Located close to proposed new kerb and gutter and stormwater works. Located within footprint of proposed new pram ramp.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
222	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	P	2.5	1.7	20.0	Located within footprint of proposed roadway.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
223	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	7.4	2.9	171.4	Located within footprint of proposed roadway/ kerb and gutter	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
227	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	P	3.6	2.0	41.4	Realignment of kerb and gutter within offset 1.9 metres north-easts (assumed close to existing grade). Demolition of existing kerb and excavations for footings of new kerb an gutter within SRZ/TPZ.	Proposed works have the potential to result in some adverse impact.	To be retained
228	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	9.0	3.2	255.1	No proposed works within TPZ	No adverse impact	To be retained
229	<i>Eucalyptus crebra</i> (Narrow-leaved Ironbark)	P	4.7	2.0	70.2	No proposed works within TPZ	No adverse impact	To be retained
302	<i>Lophostemon confertus</i> (Brushbox)	M	2.4	1.7	18.8	No proposed works within TPZ	No adverse impact	To be retained

GREEN SQUARE 2 ASHMORE COLLECTOR (GS2AC), ALEXANDRIA

APPENDIX 5 - IMPACT ASSESSMENT SCHEDULE								
Tree Identification No.	Species	Construction Tolerance	Tree Protection Zone (m R)	Structural Root Zone (m R)	TPZ (m²)	Incursions To Root Zone &/or Canopy	Likely Impact	Recommendation
303	<i>Platanus x hybrida</i> (London Plane)	M	2.9	1.7	25.8	Kerb and gutter and stormwater works within TPZ.	Proposed works may result in an adverse impact.	To be retained
304	<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	M	5.2	2.5	85.7	Located within footprint of proposed roadway.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
305	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	M	2.7	1.8	23.1	Located within footprint of proposed roadway.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
306	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	M	2.1	1.6	14.4	Located within footprint of proposed roadway.	Proposed works will necessitate removal	Remove tree. Undertake replacement planting in accordance with Section 9.
307	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	M	2.8	1.8	25.1	No proposed works within TPZ	No adverse impact	To be retained



APPENDIX 6
TREE LOCATION PLAN SHOWING
TREE RETENTION VALUES
 Green Square East West Relief Road
 ALEXANDRIA



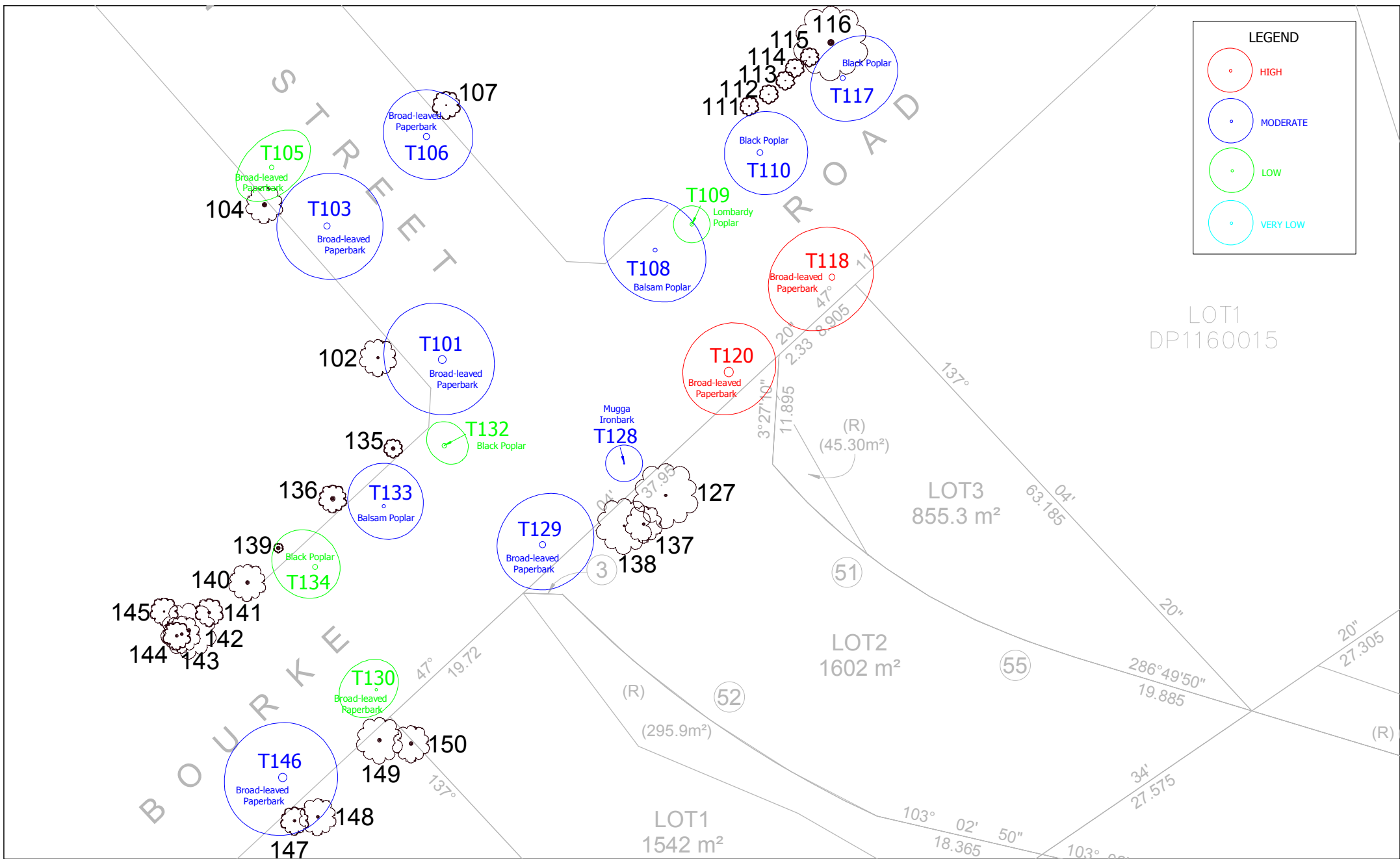
Earthscape Horticultural Services
 Arboricultural and Horticultural Consultants
 PO Box 364
 BEROWRA NSW 2081
 Ph: 02 9456 4787
 Fax: 02 9456 5757 e: earthscape@iinet.net.au

Based on the Survey Drawing
 prepared by Cardno Hard & Forester
 Dwg Ref No. 117367500 Rev 00
 Dated 30/01/2015



DWG No. T15-030201 KEY PLAN

DATE: 02/03/2015



APPENDIX 6
TREE LOCATION PLAN SHOWING
TREE RETENTION VALUES
 Green Square East West Relief Road
 ALEXANDRIA



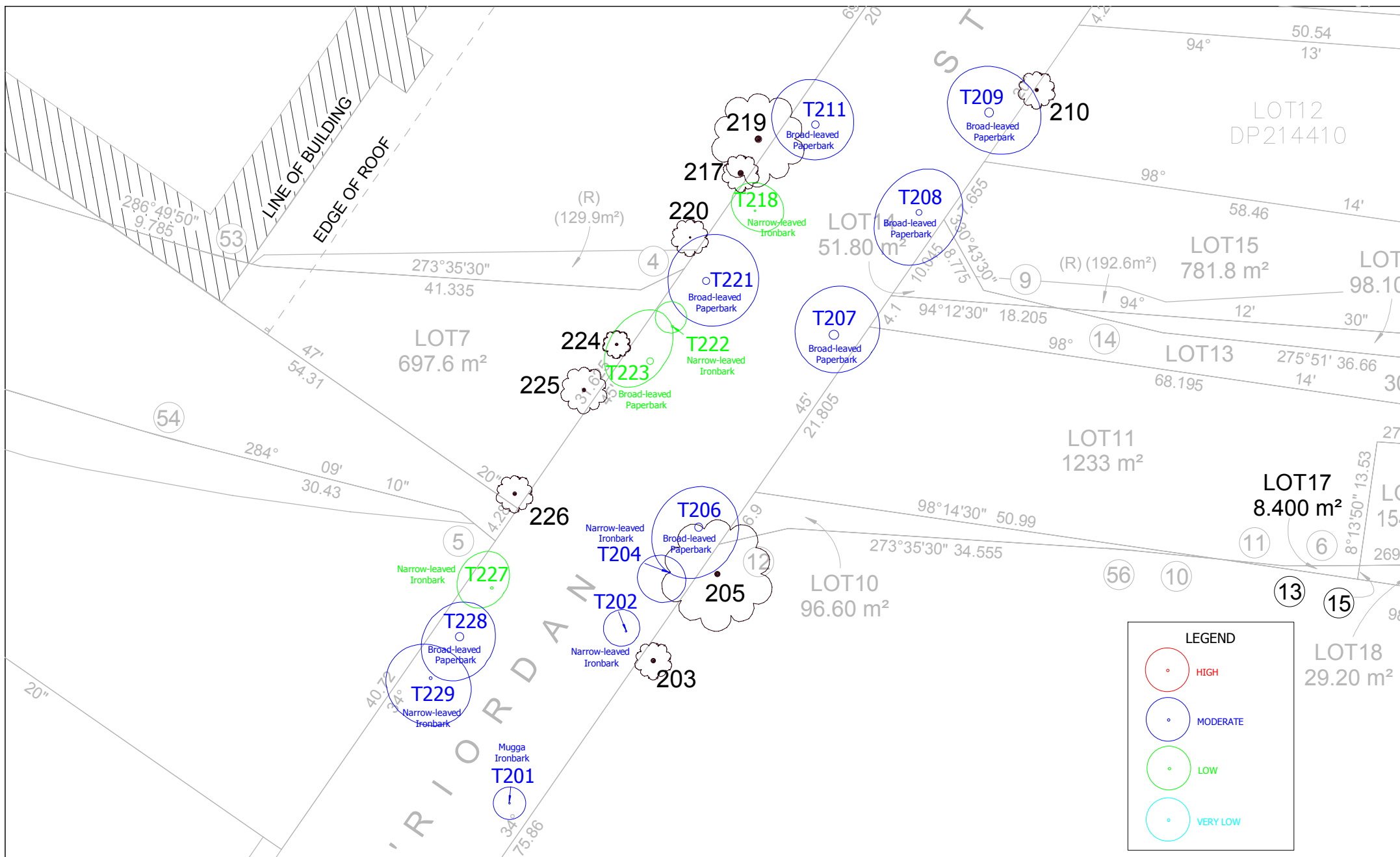
Earthscape Horticultural Services
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 Ph: 02 9456 4787
 Fax: 02 9456 5757 e: earthscape@iinet.net.au

Based on the Survey Drawing
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 Dwg Ref No. 117367500 Rev 00
 Dated 30/01/2015



DWG No. T15-030201 SHEET 1

DATE: 02/03/2015



APPENDIX 6
TREE LOCATION PLAN SHOWING
TREE RETENTION VALUES
 Green Square East West Relief Road
 ALEXANDRIA



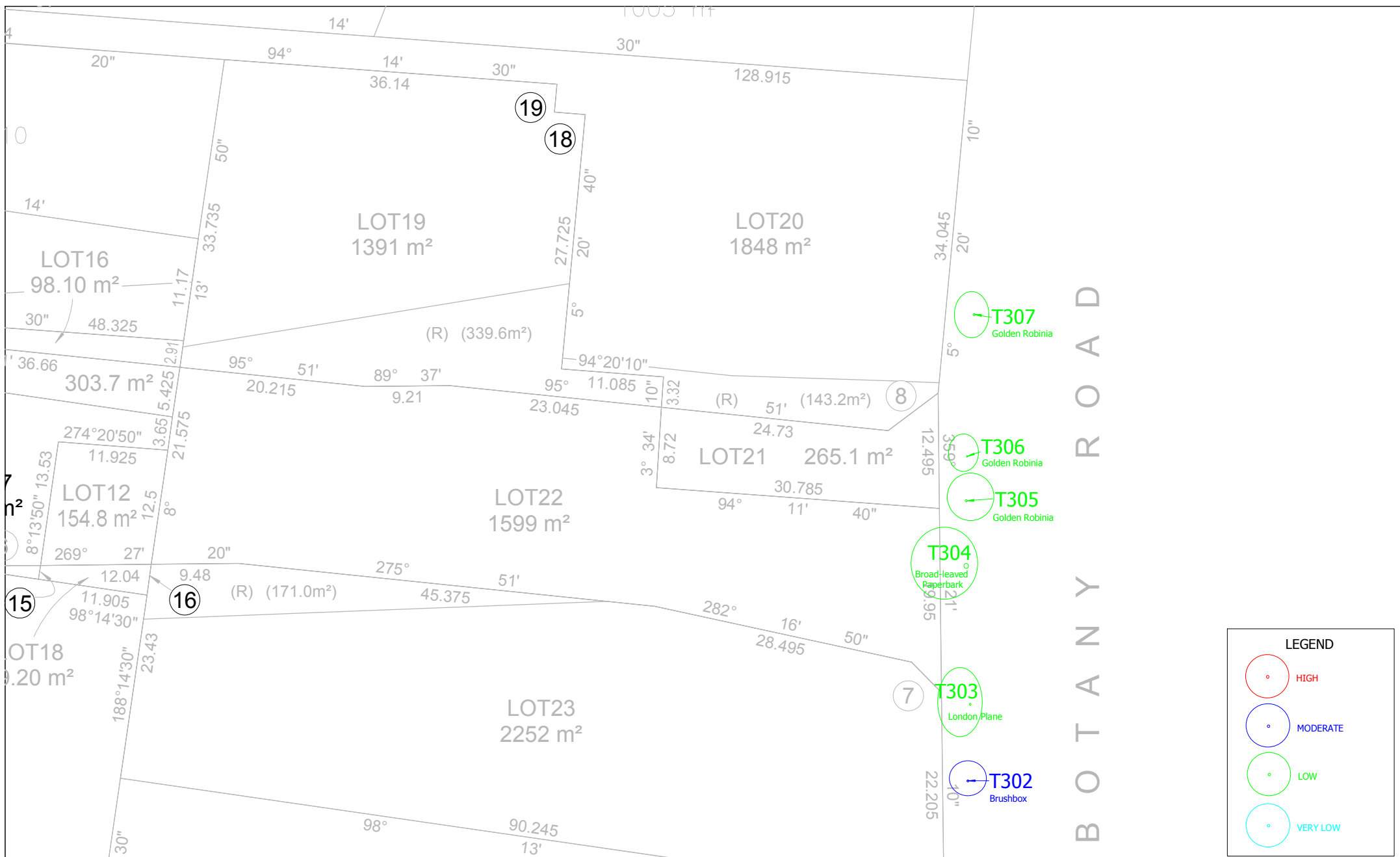
Earthscape Horticultural Services
 Arboricultural and Horticultural Consultants
 PO Box 364
 BEROWRA NSW 2081
 Ph: 02 9456 4787
 Fax: 02 9456 5757 e: earthscape@iinet.net.au

Based on the Survey Drawing
 prepared by Cardno Hard & Forester
 Dwg Ref No. 117367500 Rev 00
 Dated 30/01/2015



DWG No. T15-030201 SHEET 2

DATE: 02/03/2015



APPENDIX 6
TREE LOCATION PLAN SHOWING
TREE RETENTION VALUES
 Green Square East West Relief Road
 ALEXANDRIA



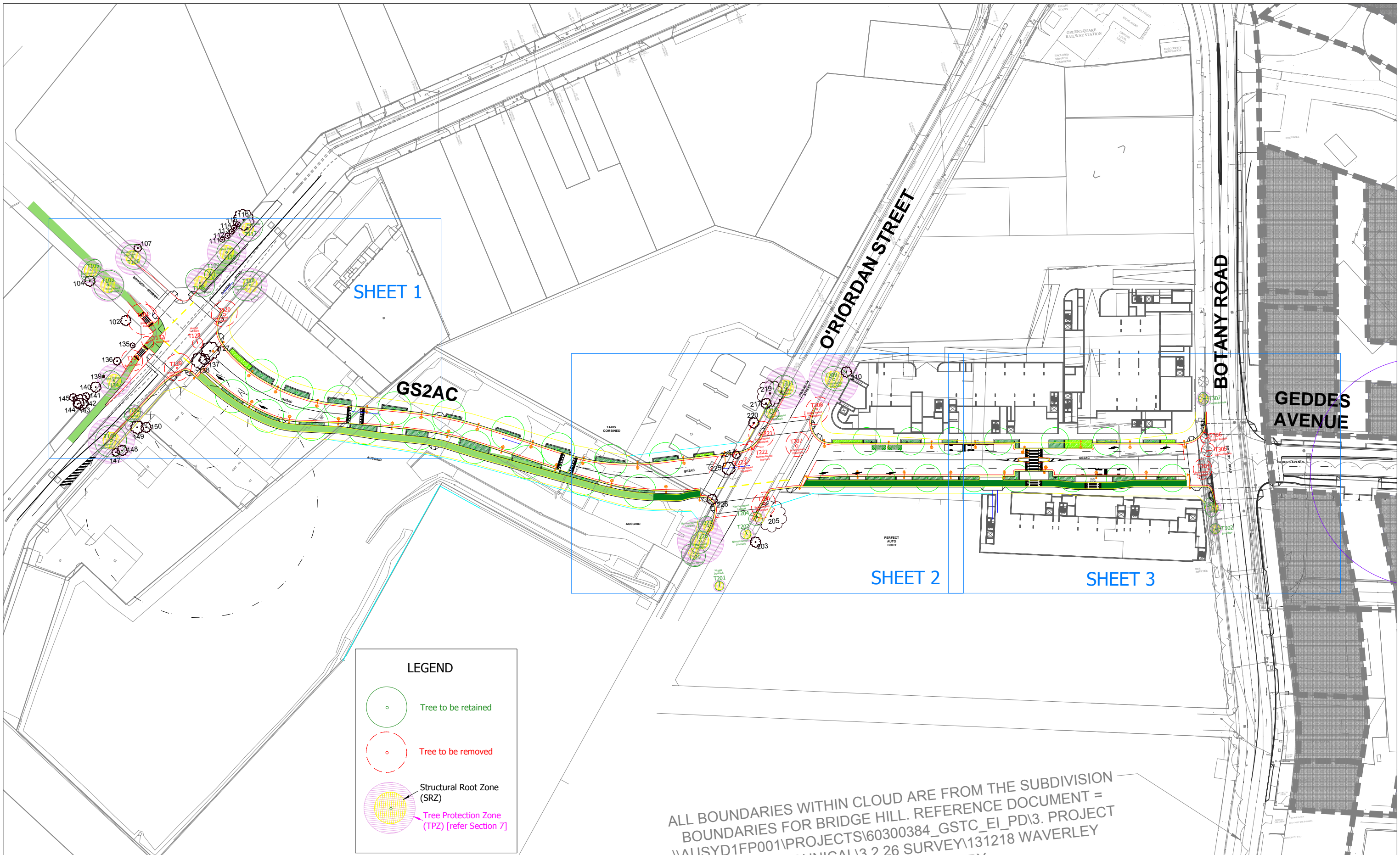
Earthscape Horticultural Services
 Arboricultural and Horticultural Consultants
 PO Box 364
 BEROWRA NSW 2081
 Ph: 02 9456 4787
 Fax: 02 9456 5757 e: earthscape@iinet.net.au

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DWG No. T15-030201 SHEET 3

DATE: 02/03/2015

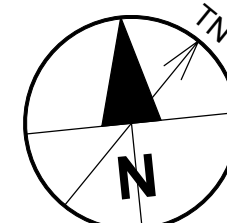


APPENDIX 7
TREE REMOVAL & RETENTION PLAN
 Green Square 2 Ashmore Collector
 ALEXANDRIA



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 PO Box 364
 BEROWRA NSW 2081
 Ph: 02 9456 4787
 Fax: 02 9456 5757 e: earthscape@iinet.net.au

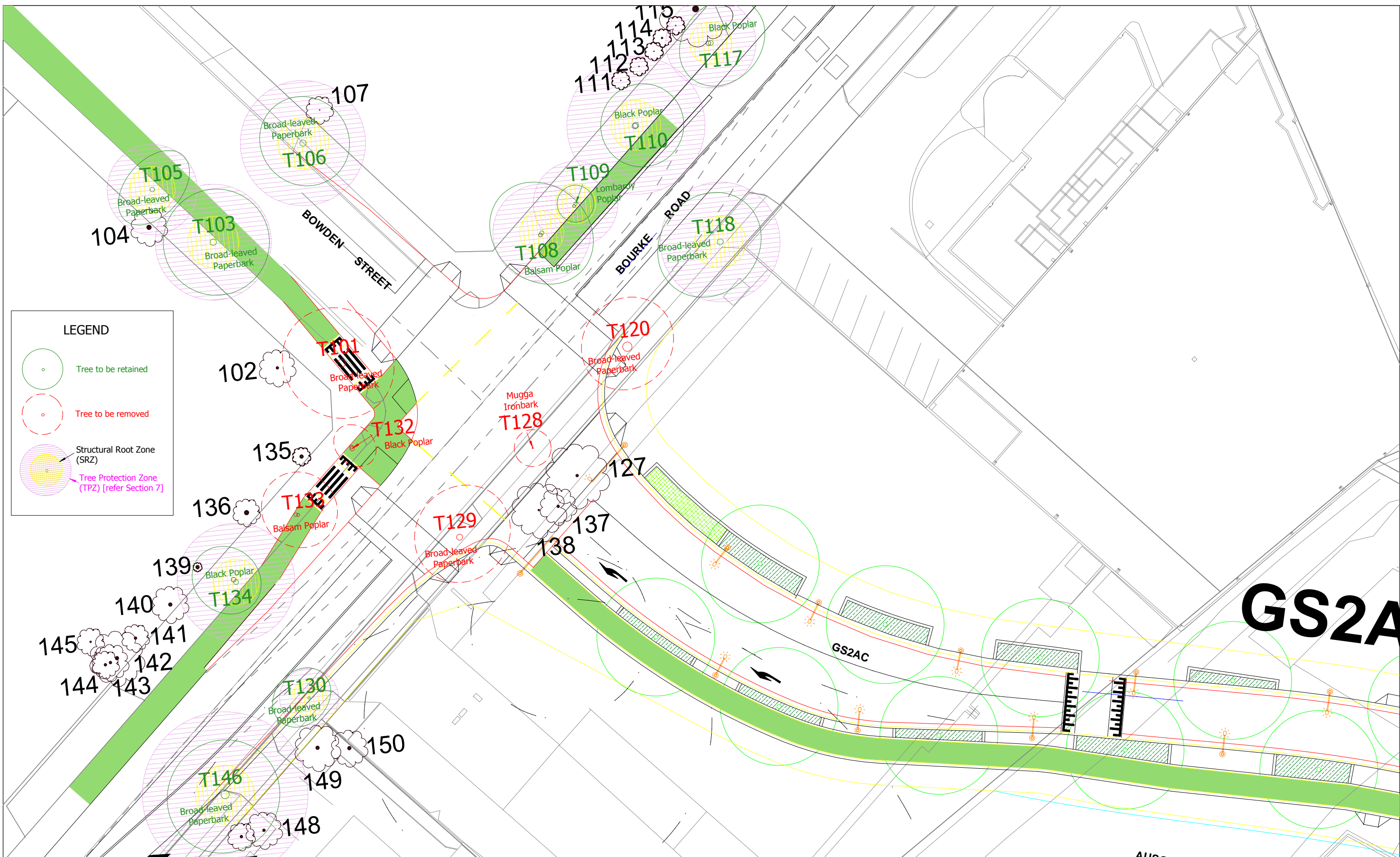
Based on the Survey Drawing
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 Dated 30/01/2015



DWG No. T17-092203

KEY PLAN

DATE: 29/09/2017

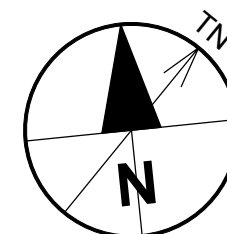


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 BEROWRA NSW 2081
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DWG No. T17-092203

SHEET 1

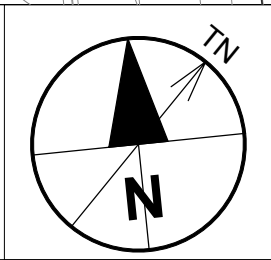
DATE: 29/09/2017



APPENDIX 7
TREE REMOVAL & RETENTION PLAN
 Green Square 2 Ashmore Collector
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 Arboricultural and Horticultural Consultants
 PO Box 364
 BEROWRA NSW 2081
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DWG No. T17-092203
SHEET 3
 DATE: 29/09/2017