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Project No: ST/IGN/20 Report No: ST/IGN/AIA/B

# ARBORICULTURAL IMPACT ASSESSMENT TREE PROTECTION SPECIFICATION

## Saint Ignatius' College, Riverview Ignis Stage 02 – New STEMP Building

Prepared for: EPM PROJECTS

2<sup>nd</sup> November 2020  
Revision B

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## 1.0 INTRODUCTION

### 1.1 Background

1.1.1 This Arboricultural Impact Assessment Report and Tree Protection Specification was prepared for EPM Projects, on behalf of Saint Ignatius College Riverview (SICR), in relation to the proposed Ignatius Project Stage 2.

1.1.2 The purpose of this Report is to undertake a Visual Tree Assessment<sup>1</sup> (VTA), determine the impact of the proposed works on the trees, and where appropriate, recommend the use of sensitive construction methods and tree protection methods to minimise adverse impacts. The ecological and heritage significance of the trees has not been assessed and is beyond the scope of this Report.

1.1.3 In preparing this Report, the author has considered the objectives of the following:

- *Lane Cove Development Control Plan (2011) Chapter Part J – Landscaping*
- *State Environmental Planning Policy Vegetation in Non-Rural Areas (2017)*
- *Australian Standard 4970 Protection of Trees on Development Sites (2009)*
- *Australian Standard 4373 Pruning of Amenity Trees (2007)*
- *Australian Standard 2303 Tree Stock for Landscape Use (2015)*
- *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)*

Refer to Methodology (**Appendix 1**)

1.1.4 This impact assessment is based on an assessment of the following supplied documentation/plans only:

- Demolition Plan – DWG No. DA120 (Rev A) prepared by PMDL, dated 27.10.2020
- Site Plan – DWG No. DA100 (Rev A) prepared by PMDL, dated 27.10.2020
- Landscape SSDA – prepared by Arcadia dated October 2020

Refer to Plans (**Appendix 2**)

### 1.2 The Proposal

1.2.1 The proposed development seeks approval for Stage 2 Development to provide new teaching and educational facilities, as detailed below:

- New four (4) storey STEMP Building for Science, Technology, Engineering, Mathematics & PDHPE with House Group areas and Faculty Staffroom areas
- Refurbishment of O'Neil building allowing for the new STEMP building to connect to existing fabric and re-fit of existing O'Neil learning spaces
- Basement level loading dock and associated store and services facilities
- New centralised thermal plant at roof level to service Stage 2 and future stages
- New COLA, multipurpose hall, canteen (F&B) and print room on ground level serviced by basement level loading dock
- New north landscape area
- New landscape area between existing Wallace Building and Stage 2

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<sup>1</sup> Mattheck & Breloer (2003)

## 2.0 RESULTS

### 2.1 The Site

- 2.1.1 The College site comprises forty (40) hectares including the Main Campus (Senior School) and Regis Campus (Junior School). The Site is legally described as Lot 10 DP 1142773 and is owned by The Trustees of the Jesuit Fathers (ABN 80 167 682 043), a body corporate by virtue of the Roman Catholic Church Communities' Land Act 1942 No 23 (NSW). The College leases the Site from the landowner.
- 2.1.2 The site is located in the suburb of Riverview within the Lane Cove Local Government Area. The site is bounded by Riverview Street to the north, Tambourine Bay Road to the east and the Lane Cove River to the south and west which is a prime waterfront position on the Lane Cove River.
- 2.1.3 For the purpose of this Report, the site is bound by the Therry and O'Neil Buildings to the north, Loyola Drive and parking areas to the south and east, and the Wallace and Ramsey Buildings to the west.
- 2.1.4 The site is generally level comprising of turf and garden bed areas intersected by a footpath linking the recreation yard to the west of the site to Loyola Drive to the east.

### 2.2 The Trees

- 2.2.1 Sixty-three (63) trees were assessed using the Visual Tree Assessment<sup>2</sup> (VTA) criteria and notes. The trees comprise of a mix of locally indigenous, Australian-native and exotic species. Twenty-five (25) species are represented with *Cupressus sempervirens* 'Stricta' (Pencil Pine) the dominant species on site.
- 2.2.2 Trees 9, 10, 22 and 23 are not covered by Lane Cove Council's tree management controls due to their size.<sup>3</sup> None of the trees are listed in *Schedule 5 Environmental Heritage* of the *Lane Cove Local Environmental Plan (2009)*.<sup>4</sup>
- 2.2.3 Trees 136, 140 and 141 were identified as *Eucalyptus nicholii* (Narrow Leaf Peppermint). This species is an Australian-native which naturally occurs in the New England Tableland on the NSW-Queensland border.<sup>5</sup> *Eucalyptus nicholii* (Narrow Leaf Peppermint) is listed as *Vulnerable* under the *NSW Biodiversity Conservation Act (2016)* and the *Commonwealth Environment Protection & Biodiversity Conservation Act (1999)*. However, these trees appear to be planted specimens and are not components of a locally indigenous vegetation community.
- 2.2.4 As required by Clause 2.3.2 of *Australian Standard 4970 Protection of Trees on Development Sites (2009)*, each tree (and tree group) has been allocated a Retention Value. TreeIQ allocates one of four Retention Value categories based on a combination of Landscape Significance and Useful Life Expectancy (ULE). The assessment of Landscape Significance and ULE involves a degree of subjectivity and there will be a range of tree quality and value within each of the Retention Value categories. The Retention Values do not consider any proposed development works and are not a schedule for tree retention or removal. The trees (and tree groups) have been allocated one of the following Retention Values:

<sup>2</sup> Mattheck & Breloer (2003)

<sup>3</sup> Lane Cove Council (2011)

<sup>4</sup> Lane Cove Council (2009)

<sup>5</sup> NSW Office of Environment and Heritage (2011)

- Priority for Retention
- Consider for Retention
- Consider for Removal
- Priority for Removal

Refer to Tree Assessment Schedule (**Appendix 3**)

2.2.5 In general the trees within the site are of moderate quality. In this regard, of the sixty-three (63) trees assessed:

- Eight (8) trees (13%) were allocated a Retention Value of *Priority for Retention*
- Seventeen (17) trees (27%) were allocated a Retention Value of *Consider for Retention*
- Thirty-two (32) trees (51%) were allocated a Retention Value of *Consider for Removal*, and
- Six (6) trees (9%) were allocated a Retention Value of *Priority for Removal*

2.2.6 The VTA has identified some trees with a reduced health and/or structural defects of varying degrees of severity as detailed below:

#### 2.2.7 Tree 19

Tree 19 was identified as a *Robinia pseudoacacia* 'Frisia' (Golden Robinia) and is of good health and poor structural condition due to the presence of a trunk wound and dead terminal leader.

#### 2.2.8 Tree 38

Tree 38 was identified as a *Eucalyptus botryoides* (Bangalay) and is of good health and fair structural condition. A failed branch is hung up in the crown of the tree.

#### 2.2.9 Tree 40

Tree 40 was identified as a *Pinus radiata* (Monterey Pine) and is of fair health and poor structural condition due to a reduced crown density of 75-95% and the presence of a major-co-dominant inclusion. This inclusion represents a major structural defect and has an increased likelihood of failure. The tree is located adjacent to a footpath, buildings and carpark all of which represent targets in the event of failure.

#### 2.2.10 Tree 55

Tree 55 was identified as a *Corymbia citriodora* (Lemon Scented Gum) and is of good health and structural condition. Three (3) small diameter, first order stems arise from the base of the tree and are contacting and beginning to cause abrasion damage to the bark of the larger, dominant stem.

#### 2.2.11 Tree 57

Tree 57 was identified as a *Corymbia citriodora* (Lemon Scented Gum) and is of good health and structural condition. A small cavity is present at the base of the trunk which may be associated with more extensive decay within the trunk and root crown. In addition, a small fragment of desiccated material characteristic of a fungal fruiting body was removed from the margins of the cavity which may indicate the tree is host to a wood decay pathogen.

#### 2.2.12 Tree Group 1

Tree Group 1 is a group of *Leptospermum petersonii* (Lemon Scented Teatree) which are of fair health and poor structural condition due to a reduced crown density and the presence of major co-dominant bark inclusions.

## 3.0 ARBORICULTURAL IMPACT ASSESSMENT

### 3.1 Tree Removal

#### 3.1.1 Tree 83

Tree 83 was identified as *Liquidambar styraciflua* (Liquidambar) and is an early mature specimen located adjacent to the existing Ramsey Building. The tree is of low Landscape Significance and has been allocated a Retention Value of *Consider for Removal*.

3.1.2 The supplied plans show that Tree 83 will need to be removed to accommodate the proposed landscape treatment.

#### 3.1.3 Tree 84

Tree 84 was identified as *Lophostemon confertus* (Brush Box) and is an early mature specimen located adjacent to the existing Ramsey Building. The tree is of low Landscape Significance and has been allocated a Retention Value of *Consider for Removal*.

3.1.4 The supplied plans show that Tree 84 will need to be removed to accommodate the proposed landscape treatment.

#### 3.1.5 Trees 85 & 86

Trees 85 and 86 were identified as *Angophora costata* (Sydney Red Gum) and are early mature specimens located within a small, raised planter adjacent to the existing Wallace Building. The trees are of moderate Landscape Significance and have been allocated a Retention Value of *Consider for Retention*.

3.1.6 The supplied plans show that Trees 85 and 86 will need to be removed to accommodate the proposed landscape treatment.

#### 3.1.7 Tree C

Tree C was identified as *Corymbia* sp. (Eucalypt) and is an early mature specimen located adjacent to the existing crossing on Loyola Drive. The tree is of low Landscape Significance and has been allocated a Retention Value of *Consider for Removal*.

3.1.8 The supplied plans show that Tree C will need to be removed to accommodate the proposed roundabout and crossing reconfiguration.

### 3.2 Tree Retention

3.2.1 The supplied plans show that fifty-eight (58) trees are to be retained as part of the proposed development. This includes eight (8) trees with a Retention Value of *Priority for Retention*, fifteen (15) trees with a Retention Value of *Consider for Retention*, twenty-nine (29) trees with a Retention Value of *Consider for Removal* and six (6) trees with a Retention Value of *Priority for Removal*.

#### 3.2.2 Table 2: Retention Values

Priority for Retention	Consider for Retention	Consider for Removal	Priority for Removal
57, 58, 59, 89, 90, 112, 113 & 130	38, 52, 53, 85, 86, 88, 91, 92, 93, 94, 95, 98, 99, 106, 135, 137 & 138	7, 8, 9, 10, 11, 12, 14, 15, 16, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 51, 54, 55, 56, 96, 97, 1317, 1318, A & B	19, 40, 136, 140, 141 & G1

### 3.2.3 Major Encroachment

The supplied plans show that seating, stairs, path and soft landscaping works are proposed with Tree Protection Zone (TPZ) of Tree 137. The extent of works represents a *Major Encroachment* as defined by AS-4970. As an individual encroachment, the seating, stairs and path account for less than 10% of the TPZ and should impact the tree.

3.2.4 Minor grading works maybe required to tie in landscape levels with the adjacent garden area. Excavation works within the TPZ of should be supervised by the Project Arborist and be undertaken using compact excavation machinery (<2t). The excavator should be fitted with a flat bladed bucket and be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mmØ). Localised modification of the levels will be required in areas where roots have been identified for retention and protection by the Project Arborist. Imported soils should have a high level of porosity (e.g. 80/20 - washed river sand/screened topsoil) and must not raise levels by more than 150mm. Existing levels should be retained within the Structural Root Zone (SRZ).

3.2.5 The installation of plants/turf within the TPZ should be undertaken using hand tools and roots (>25mmØ) should be protected. No mechanical cultivation/ripping of soils should be undertaken within TPZ areas.

### 3.3 Replacement Planting

3.3.1 Replacement tree planting should be undertaken to help off-set the loss of canopy cover and amenity resultant from the tree removal. Replacement planting should be supplied in accordance with *Australian Standard 2303 (2015) Tree Stock for Landscape Use*.

3.3.2 New tree plantings should be supervised by Horticulturalists (AQF Level 3 or above in Horticulture) to ensure correct planting methods.

## 4.0 CONCLUSION

4.1.1 Sixty-three (63) trees were assessed and comprise of a mix of locally indigenous, Australian-native and exotic species. In general, the trees are of moderate quality.

4.1.2 The supplied plans show the Stage 2 works include the construction of a new building basement level, thermal plant, COLA, multipurpose hall, canteen and print room, refurbishment of O'Neil building, and landscaping and associated works.

4.1.3 The supplied plans show that five (5) trees are to be removed as part of the proposed development. These are Trees 83-86 and C.

4.1.4 The supplied plans show that fifty-eight (58) trees are to be retained as part of the proposed development. These are Trees 7-12, 14-16, 19-29, 38, 40, 51-59, 88-99, 106, 112, 113, 130, 135-138, 140, 141, 1317, 1318, G1 and B.

4.1.5 The supplied plans show that works are proposed with TPZ of Tree 137. The extent of work represents a *Major Encroachment* as defined by AS-4970. The works within the TPZ should be undertaken as outlined within Sections 3.2.4 and 3.2.5 to minimise adverse impacts. The TPZ for Tree 137 is shown on the Landscape Plan (**Appendix 2**).

4.1.6 It is assumed that the trees to be retained will be excluded from the works by site fencing. TPZ fencing should be provided where site fencing does not fully exclude TPZ areas. The TPZ fence shall consist of 1.8m high wire mesh panels supported by concrete feet.

4.1.7 Replacement tree planting should be undertaken to help off-set the loss of canopy cover and amenity resultant from the tree removal. Replacement planting should be supplied in accordance with *Australian Standard 2303 (2015) Tree Stock for Landscape Use*.

4.1.8 The VTA has identified some trees with a reduced health and/or structural defects of varying degrees of severity which should be addressed as per below, irrespective of future development works:

- Trees 19, 40 and Group 1 should be removed.
- The hung-up branch should be removed from the crown of Tree 38.
- The three (3) small diameter branches from Tree 55 which are abrading the larger co-dominant stem should be removed. Pruning work should be undertaken in accordance with *Australian Standard 4373: Pruning of Amenity Trees (2007)*, *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)* and other applicable legislation and codes.
- Internal diagnostic testing (i.e. Resistograph or Tomograph testing) of Tree 57 should be undertaken in the lower trunk and root crown to assess its internal structural condition. If the results indicate the tree can be retained within the acceptable limits of risk, ongoing testing may be required. Testing intervals ranging from 12-36 months would be considered typical however these must be determined on an individual tree basis.

Refer to Plates **(Appendix 4)**



## 5.0 LIMITATIONS& DISCLAIMER

TreeiQ takes care to obtain information from reliable sources. However, TreeiQ can neither guarantee nor be responsible for the accuracy of information provided by others. Plans, diagrams, graphs and photographs in this Arboricultural Report are visual aids only and are not necessarily to scale. This Report provides recommendations relating to tree management only. Advice should be sought from appropriately qualified consultants regarding design/construction/ecological/heritage etc issues.

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Many factors may contribute to tree failure and cannot always be predicted. TreeiQ takes care to accurately assess tree health and structural condition. However, a tree's internal structural condition may not always correlate to visible external indicators. There is no warranty or guarantee, expressed or implied that problems or deficiencies regarding the trees or site may not arise in the future. Information contained in this report covers only the trees assessed and reflects the condition of the trees at the time of inspection. Additional information regarding the methodology used in the preparation of this Report is attached as Appendix 1. A comprehensive tree risk assessment and management plan for the trees is beyond the scope of this Report.

Reference should be made to any relevant legislation including Tree Management Controls. All recommendations contained within this Report are subject to approval from the relevant Consent Authority.

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Standards Australia (2009), *Protection of Trees on Development Sites AS-4970*

Standards Australia (2007), *Pruning of Amenity Trees AS-4373*

Standards Australia (2015), *Tree Stock for Landscape Use AS-2303*



## Appendix 1: Methodology

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- 1.1 Site Inspection:** This report was determined as a result of a comprehensive site inspection during November 2019.
- 1.2 Visual Tree Assessment (VTA):** The subject tree(s) was assessed using the Visual Tree Assessment criteria and notes as described in *The Body Language of Trees – A Handbook for Failure Analysis*.<sup>6</sup> The inspection was limited to a visual examination of the subject tree(s) from ground level only. The inspection was limited to a visual examination of the subject tree(s) from ground level only. No internal diagnostic or tissue testing was undertaken as part of this assessment. Trees outside the subject site were assessed from the property boundaries only.
- 1.3 Tree Dimensions:** The dimensions of the subject tree(s) are approximate only.
- 1.4 Tree Locations:** The location of the subject tree(s) was determined from the supplied plans. Trees not shown on the supplied plans have been plotted in their **approximate location only**.
- 1.5 Trees & Development:** Tree Protection Zones, Tree Protection Measures and Sensitive Construction Methods for the subject tree were based on methods outlined in *Australian Standard 4970-2009 Protection of Trees on Development Sites*.
- The *Tree Protection Zone* (TPZ) is described in AS-4970 as a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.
- The *Structural Root Zone* (SRZ) is described in AS-4970 as the area around the base of a tree required for the tree's stability in the ground. Severance of structural roots within the SRZ is not recommended as it may lead to the destabilisation and/or demise of the tree.
- In some cases it may be possible to encroach into or make variations to the theoretical TPZ. A *Minor Encroachment* is less than 10% of the area of the TPZ and is outside the SRZ. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. A *Major Encroachment* is greater than 10% of the TPZ or inside the SRZ. In this situation the Project Arborist must demonstrate that the tree would remain viable. This may require root investigation by non-destructive methods or the use of sensitive construction methods.
- 1.6 Tree Health:** The health of the subject tree(s) was rated as *Good, Fair or Poor* based on an assessment of the following factors:
- I. Foliage size and colour
  - II. Pest and disease infestation
  - III. Extension growth
  - IV. Crown density
  - V. Deadwood size and volume
  - VI. Presence of epicormic growth
- 1.7 Tree Structural Condition:** The structural condition of the subject tree(s) was rated as *Good, Fair or Poor* based on an assessment of the following factors:
- I. Assessment of branching structure  
(i.e co-dominant/bark inclusions, crossing branches, branch taper, terminal loading, previous branch failures)
  - II. Visible evidence of structural defects or instability  
(i.e root plate movement, wounds, decay, cavities, fungal brackets, adaptive growth)
  - III. Evidence of previous pruning or physical damage  
(root severance/damage, lopping, flush-cutting, lions tailing, mechanical damage)
- 1.8 Useful Life Expectancy (ULE):** The ULE is an estimate of the longevity of the subject tree(s) in its growing environment. The ULE is modified where necessary to take in consideration tree(s) health, structural condition and site suitability. The tree(s) has been allocated one of the following ULE categories (Modified from Barrell, 2001):
- I. 40 years +
  - II. 15-40 years
  - III. 5-15 years
  - IV. Less than 5 years

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<sup>6</sup> Mattheck & Breloer (2003)

- 1.9 Landscape Significance:** Landscape Significance was determined by assessing the combination of the cultural, environmental and aesthetic values of the subject tree(s). Whilst these values are subjective, a rating of high, moderate, low or insignificant has been allocated to the tree(s). This provides a relative value of the tree's Landscape Significance which may aid in determining its Retention Value. If the tree(s) can be categorized into more than one value, the higher value has been allocated.

Landscape Significance	Description
Very High	The subject tree is listed as a Heritage Item under the <i>Local Environmental Plan</i> with a local or state level of significance.
	The subject tree is listed on Council's Significant Tree Register or meets the criteria for significance assessment of trees and/or landscapes by a suitably qualified professional. The criteria are based on general principles outlined in the Burra Charter and on criteria from the Register of the National Estate.
High	The subject tree creates a 'sense of place' or is considered 'landmark' tree.
	The subject tree is of cultural or historical importance or is widely known.
	The subject tree is a prominent specimen which forms part of the curtilage of a heritage item with a known or documented association with that item.
	The subject tree has been identified by a suitably qualified professional as a species scheduled as a Threatened or Vulnerable Species for the site defined under the provisions of the NSW <i>Biodiversity Conservation Act (2016)</i> or the Commonwealth <i>Environmental Protection and Biodiversity Conservation Act (1999)</i> .
	The subject tree is known to contain nesting hollows to a species scheduled as a Threatened or Vulnerable Species for the site as defined under the provisions of the NSW <i>Biodiversity Conservation Act (2016)</i> or the Commonwealth <i>Environmental Protection and Biodiversity Conservation Act (1999)</i> .
	The subject tree is an excellent representative of the species in terms of aesthetic value.
Moderate	The subject tree is of significant size, scale or makes a significant contribution to the canopy cover of the locality.
	The subject tree makes a positive contribution to the visual character or amenity of the area.
	The subject tree provides a specific function such as screening or minimising the scale of a building.
Low	The subject tree is a good representative of the species in terms of aesthetic value.
	The subject tree is a known environmental weed species or is exempt under the provisions of the local Council's Tree Management Controls
	The subject tree makes little or no contribution to the amenity of the locality.
	The subject tree is a poor representative of the species in terms of aesthetic value.

- 1.10 Retention Value:** Retention Value was based on the subject tree's Useful Life Expectancy and Landscape Significance. The Retention Value was modified where necessary to take in consideration the subject tree's health, structural condition and site suitability. The subject tree(s) has been allocated one of the following Retention Values:

- I. Priority for Retention
- II. Consider for Retention
- III. Consider for Removal
- IV. Priority for Removal

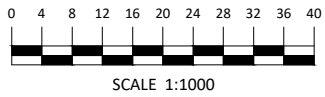
ULE		Landscape Significance			
	Very High	High	Moderate	Low	Insignificant
40 years +	Priority for Retention	Priority for Retention		Consider for Removal	Priority for Removal
15-40 years		Priority for Retention	Consider for Retention		
5-15 years		Consider for Retention			
Less than 5 years	Consider for Removal	Priority for Removal			

The above table has been modified from the Footprint Green Tree Significance and Retention Value Matrix.





**NOTE:**  
Trees 28, 29, A & B were not plotted on the Detail Survey. These trees are located on plan however are approximate only.



Legend

83 Tree Id Number

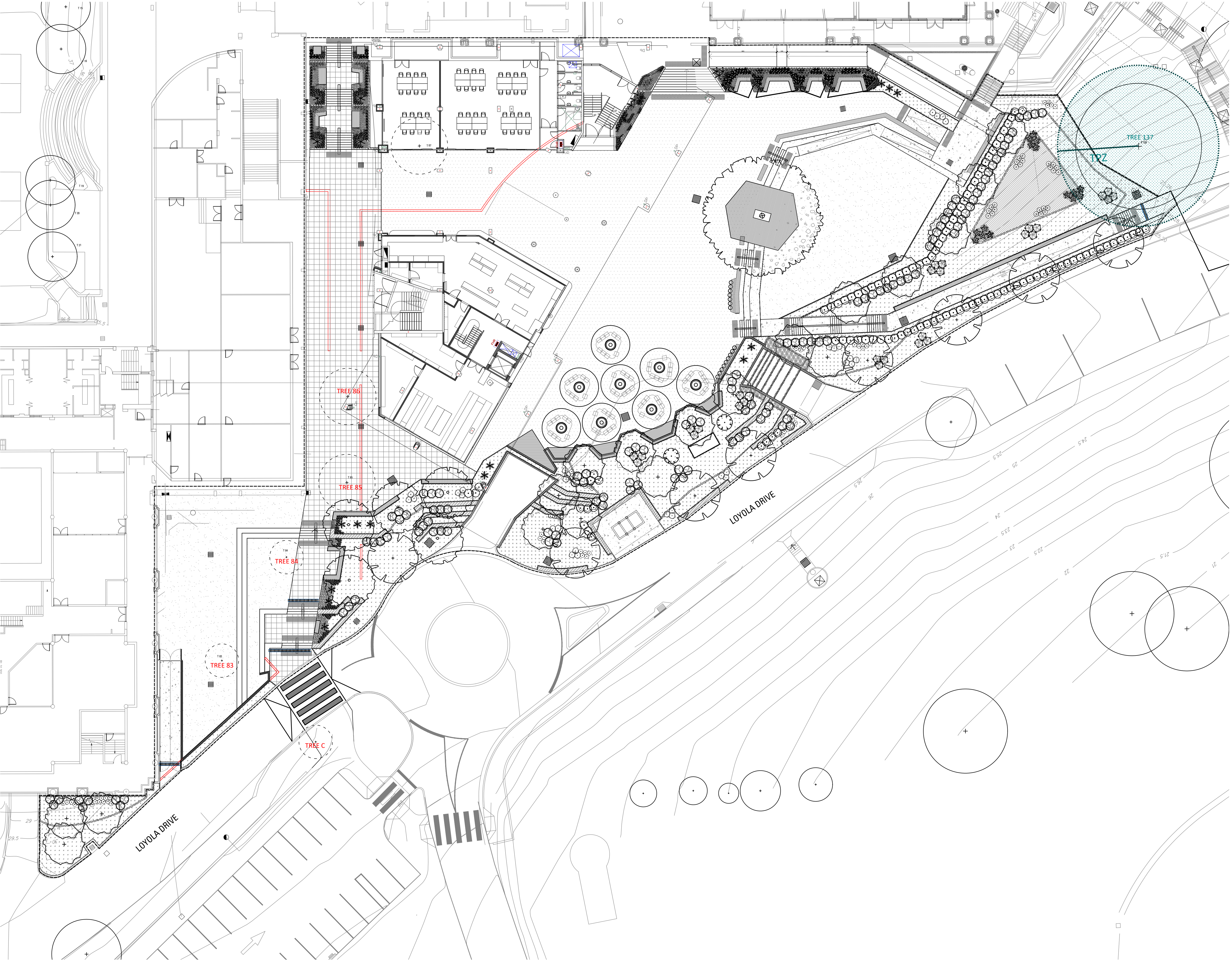


St. Ignatius College Review  
Plan : Tree Location Plan  
Sheet 1  
Client: EPM Projects  
date: 19th June 2020 Rev C  
scale: 1:1000 (A3)

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- EXISTING TREES TO BE REMOVED
- EXISTING TREES TO BE RETAINED
- PROPOSED FEATURE TREE PLANTING
- PROPOSED SHRUB AND ACCENT PLANTING
- PROPOSED GROUNDCOVER PLANTING
- PROPOSED CONCRETE PAVING
- PROPOSED DECOMPOSED GRANITE PAVING
- RETAINING WALL  
Refer Architects Drawings
- LANDSCAPE SCOPE OF WORKS LINE
- EXISTING ELEMENTS TO BE DEMOLISHED

D	DRAFT for Information	SE	AL	23.10.20
C	DRAFT for Information	SE	AL	27.07.20
B	DRAFT for Information	SE	AL	13.07.20
A	DRAFT for Information	SE	AL	08.07.20
Issue	Revision Description	Drawn	Check	Date

Not for Construction

Project  
**ST IGNATIUS  
RIVERVIEW S2  
LANE COVE NSW**  
SSDA

Client

Drawing No.  
**101**

Drawing Name  
**LANDSCAPE STAGE 2  
MASTER PLAN**

Job No.  
19-655

Issue  
D

Scale  
1:200 A1

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### Appendix 3: Tree Assessment Schedule

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
7	<i>Podocarpus elatus</i> (Brown Pine)	250	5	3	Good	Good	Restricted growing environment.	Mature	5-15	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
8	<i>Castanospermum australe</i> (Black Bean)	195	5	3	Fair	Good	Restricted growing environment. Crown density 50-75%. Wound(s), early signs of decay.	Mature	5-15	Low	Consider for Removal	2.3	1.7	Retain. No works within TPZ.
9	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	100	4	1	Good	Good	Restricted growing environment.	Mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
10	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	100	4	1	Good	Good	Restricted growing environment.	Mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
11	<i>Pyrus</i> sp. (Pear)	354	4	5	Good	Fair	Partially failed root plate, now stable. Restricted growing environment.	Mature	5-15	Low	Consider for Removal	4.3	2.2	Retain. No works within TPZ.
12	<i>Castanospermum australe</i> (Black Bean)	465	6	4	Good	Good	Restricted growing environment. Root pressure damaging garden bed walls. Wound(s), early signs of decay.	Mature	5-15	Low	Consider for Removal	5.6	2.5	Retain. No works within TPZ.
14	<i>Pittosporum undulatum</i> (Native Daphne)	200	6	6	Good	Good	Small (<25mmØ) deadwood in low volumes.	Mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
15	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	100	7	5	Good	Good	Partially suppressed.	Mature	5-15	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
16	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	250	8	7	Good	Fair	Co-dominant inclusions, minor. Wound(s), various stages of decay.	Mature	5-15	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.



Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
19	<i>Robinia pseudoacacia</i> 'Frisia' (Golden Robinia)	400	8	8	Fair	Poor	Dead terminal leader. Trunk wound.	Mature	<5	Low	Priority for Removal	4.8	2.3	Retain. No works within TPZ.
20	<i>Grevillea</i> sp. (Grevillea)	200	6	2	Fair	Fair		Mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
21	<i>Grevillea</i> sp. (Grevillea)	200	6	2	Fair	Fair		Mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
22	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	100	4	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
23	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	100	4	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.0	1.5	Retain. No works within TPZ.
24	<i>Viburnum odoratissimum</i> (Viburnum)	232	3	3	Good	Good		Mature	5-15	Low	Consider for Removal	2.8	1.9	Retain. No works within TPZ.
25	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	200	6	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
26	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	200	6	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
27	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	200	6	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
28	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	200	6	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
29	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	200	5	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
38	<i>Eucalyptus botryoides</i> (Bangalay)	400	10	5	Good	Fair	Remove hung up branch from crown. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Small (<25mmø) & medium (25-75mmø) epicormic growth in low volumes. Wound(s), no visible sign of decay. Previous branch failure(s).	Mature	5-15	Moderate	Consider for Retention	4.8	2.3	Retain. No works within TPZ.
40	<i>Pinus radiata</i> (Monterey Pine)	781	20	12	Fair	Poor	Remove tree. Crown density 75-95%. Small (<25mmø), medium (25-75mmø) & large (>75mmø) deadwood in moderate volumes. Co-dominant inclusion, major.	Mature	<5	High	Priority for Removal	9.4	3.1	Retain. No works within TPZ.
51	<i>Corymbia citriodora</i> (Lemon Scented Gum)	275	10	4	Good	Good	Crown density 75-95%.	Mature	15-40	Low	Consider for Removal	3.3	2.0	Retain. No works within TPZ.
52	<i>Pinus radiata</i> (Monterey Pine)	375	9	5	Fair	Good	Crown density 50-75%. Small (<25mmø), medium (25-75mmø) & large (>75mmø) deadwood in low volumes. Partially suppressed.	Mature	5-15	Moderate	Consider for Retention	4.5	2.3	Retain. No works within TPZ.
53	<i>Pinus radiata</i> (Monterey Pine)	450	10	5	Fair	Good	Crown density 50-75%. Small (<25mmø), medium (25-75mmø) & large (>75mmø) deadwood in low volumes. Partially suppressed. Wound(s), no visible sign of decay.	Mature	5-15	Moderate	Consider for Retention	5.4	2.5	Retain. No works within TPZ.
54	<i>Corymbia citriodora</i> (Lemon Scented Gum)	200	7	5	Good	Good	Heavily suppressed. Wound(s), no visible sign of decay.	Semi-mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
55	<i>Corymbia citriodora</i> (Lemon Scented Gum)	247	9	5	Good	Good	Remove 3 smaller diameter stems causing abrasion damage to main stem. Partially suppressed.	Mature	15-40	Low	Consider for Removal	3.0	1.9	Retain. No works within TPZ.
56	<i>Corymbia citriodora</i> (Lemon Scented Gum)	225	10	5	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in low volumes. Partially suppressed.	Mature	15-40	Low	Consider for Removal	2.7	1.8	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
57	<i>Corymbia citriodora</i> (Lemon Scented Gum)	800	22	9	Good	Good	Potential decay in root crown, SE side. Excavate root crown and undertake internal diagnostic testing if required. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Partially suppressed. Wound(s), early signs of decay.	Mature	15-40	High	Priority for Retention	9.6	3.1	Retain. No works within TPZ.
58	<i>Corymbia citriodora</i> (Lemon Scented Gum)	1200	22	10	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in low volumes.	Mature	15-40	High	Priority for Retention	14.4	3.7	Retain. No works within TPZ.
59	<i>Corymbia gummifera</i> (Red Bloodwood)	675	22	10	Good	Good	Crown density 75-95%. Medium (25-75mmø) deadwood in low volumes. Partially suppressed.	Mature	15-40	High	Priority for Retention	8.1	2.9	Retain. No works within TPZ.
83	<i>Liquidambar styraciflua</i> (Liquidambar)	350	8	5	Good	Good	Girdled roots.	Early-mature	15-40	Low	Consider for Removal	4.2	2.2	Remove.
84	<i>Lophostemon confertus</i> (Brush Box)	350	8	5	Good	Good	Grade alteration, fill.	Early-mature	15-40	Low	Consider for Removal	4.2	2.2	Remove.
85	<i>Angophora costata</i> (Sydney Red Gum)	500	15	7	Good	Good	Limited crown clearance with building. Located in retained planter. Crown density 75-95%. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Grade alteration, fill.	Early-mature	15-40	Moderate	Consider for Retention	6.0	2.6	Remove.
86	<i>Angophora costata</i> (Sydney Red Gum)	500	15	8	Good	Good	Limited crown clearance with building. Located in retained planter. Crown density 75-95%. Small (<25mmø) & medium (25-75mmø) deadwood in low volumes. Grade alteration, fill.	Early-mature	15-40	Moderate	Consider for Retention	6.0	2.6	Remove.
88	<i>Hymenosporum flavum</i> (Native Frangipani)	275	12	4	Good	Good	Crown density 75-95%. Small (<25mmø) deadwood in low volumes. Wound(s), early signs of decay.	Mature	15-40	Moderate	Consider for Retention	3.3	2.0	Retain. No works within TPZ.
89	<i>Phoenix canariensis</i> (Canary Island Date Palm)	600	18	3	Good	Good		Mature	15-40	High	Priority for Retention	4.0	56.0	Retain. No works within TPZ.
90	<i>Phoenix canariensis</i> (Canary Island Date Palm)	700	14	3	Good	Good		Mature	15-40	High	Priority for Retention	4.0	56.0	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
91	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	450	19	8	Good	Fair	Partially suppressed. Basal wound, early stages of decay. Structures within SRZ. Wound(s), various stages of decay.	Mature	5-15	Moderate	Consider for Retention	5.4	2.5	Retain. No works within TPZ.
92	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	500	19	8	Good	Good	Partially suppressed. Small (<25mmØ) epicormic growth in low volumes. Structures within SRZ. Wound(s), various stages of decay.	Mature	15-40	Moderate	Consider for Retention	6.0	2.6	Retain. No works within TPZ.
93	<i>Eucalyptus microcorys</i> (Tallowwood)	400	20	12	Good	Good	Partially suppressed. Structures within SRZ.	Mature	15-40	Moderate	Consider for Retention	4.8	2.3	Retain. No works within TPZ.
94	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	600	21	9	Good	Fair	Partially suppressed. Structures within SRZ. Adaptive growth on trunk. Wound(s), various stages of decay.	Mature	5-15	Moderate	Consider for Retention	7.2	2.8	Retain. No works within TPZ.
95	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	500	19	10	Good	Good	Partially suppressed. Structures within SRZ. Wound(s), various stages of decay. No tag.	Mature	5-15	Moderate	Consider for Retention	6.0	2.6	Retain. No works within TPZ.
96	<i>Callistemon viminalis</i> (Weeping Bottlebrush)	200	7	4	Good	Fair	Crown density 75-95%. Co-dominant inclusions, minor.	Late Mature	5-15	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
97	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	300	16	7	Fair	Fair	Heavily suppressed. Adaptive growth on trunk. Grade alteration, fill. Wound(s), various stages of decay.	Mature	5-15	Low	Consider for Removal	3.6	2.1	Retain. No works within TPZ.
98	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	650	20	10	Good	Good	Medium (25-75mmØ) deadwood in low volumes. Small (<25mmØ) epicormic growth in low volumes. Wound(s), various stages of decay.	Mature	15-40	Moderate	Consider for Retention	7.8	2.9	Retain. No works within TPZ.
99	<i>Eucalyptus saligna</i> (Sydney Blue Gum)	650	20	10	Good	Good	Depressed patch of tissue under 1st order branch. Medium (25-75mmØ) deadwood in low volumes. Small (<25mmØ) epicormic growth in low volumes. Partially suppressed. Wound(s), various stages of decay.	Mature	15-40	Moderate	Consider for Retention	7.8	2.9	Retain. No works within TPZ.
106	<i>Corymbia maculata</i> (Spotted Gum)	400	16	7	Good	Good	Pruned for building clearance. Small (<25mmØ) deadwood in low volumes. Wound(s), various stages of decay. Grade alteration, fill.	Mature	May-15	Moderate	Consider for Retention	4.8	2.3	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
112	<i>Corymbia maculata</i> (Spotted Gum)	600	18	8	Good	Good	Limited crown clearance. Small (<25mmø) deadwood in low volumes. Partially suppressed. Wound(s), no visible sign of decay. Grade alteration, fill.	Mature	15-40	High	Priority for Retention	6.6	2.7	Retain. No works within TPZ.
113	<i>Corymbia maculata</i> (Spotted Gum)	600	18	8	Good	Good	Small (<25mmø) deadwood in low volumes. Partially suppressed. Wound(s), no visible sign of decay. Grade alteration, fill. Crown in contact with building.	Mature	15-40	High	Priority for Retention	7.2	2.8	Retain. No works within TPZ.
130	<i>Corymbia maculata</i> (Spotted Gum)	700	18	10	Good	Good		Mature	15-40	High	Priority for Retention	8.4	3.0	Retain. No works within TPZ.
135	<i>Corymbia citriodora</i> (Lemon Scented Gum)	500	17	8	Good	Good	Small (<25mmø) deadwood in low volumes. Grade alteration, fill.	Mature	15-40	Moderate	Consider for Retention	6.0	2.6	Retain. No works within TPZ.
136	<i>Eucalyptus nicholii</i> (Narrow Leaf Peppermint)	464	6	6	Poor	Fair	Crown density 25-50%. Small (<25mmø) & medium (25-75mmø) deadwood in high volumes. Heavily suppressed. Grade alteration, fill.	Late Mature	<5	Low	Priority for Removal	5.6	2.5	Retain. No works within TPZ.
137	<i>Eucalyptus botryoides</i> (Bangalay)	800	15	12	Fair	Fair	Pruning has removed intrenal branching framework. Small (<25mmø) epicormic growth in moderate volumes. Wound(s), various stages of decay. Grade alteration, fill.	Mature	5-15	Moderate	Consider for Retention	9.6	3.1	Retain. Major encroachment, landscape works.
138	<i>Eucalyptus botryoides</i> (Bangalay)	800	15	12	Fair	Fair	Minor trunk cavity. Pruning has removed intrenal branching framework. Small (<25mmø) epicormic growth in moderate volumes. Wound(s), various stages of decay. Trunk cavity(s), minor. Grade alteration, fill.	Mature	5-15	Moderate	Consider for Retention	9.6	3.1	Retain. No works within TPZ.
140	<i>Eucalyptus nicholii</i> (Narrow Leaf Peppermint)	550	8	6	Poor	Fair	Crown density 25-50%. Small (<25mmø) & medium (25-75mmø) deadwood in high volumes. Mechanical damage to exposed surface roots. Grade alteration, fill.	Late Mature	<5	Low	Priority for Removal	6.6	2.7	Retain. No works within TPZ.
141	<i>Eucalyptus nicholii</i> (Narrow Leaf Peppermint)	550	8	6	Poor	Fair	Crown density 25-50%. Small (<25mmø) & medium (25-75mmø) deadwood in high volumes. Partially suppressed. Grade alteration, fill.	Late Mature	<5	Low	Priority for Removal	6.6	2.7	Retain. No works within TPZ.
1317	<i>Elaeocarpus reticulatus</i> (Blueberry Ash)	175	4	2	Good	Good		Semi-mature	15-40	Low	Consider for Removal	2.1	1.7	Retain. No works within TPZ.

Tree No.	Species	DBH comb. (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	Age Class	ULE (years)	L/Sign	Retention Value	Radial TPZ (m)	Radial SRZ (m)	Implication
1318	<i>Brachychiton acerifolius</i> (Illawarra Flame Tree)	225	7	3	Good	Fair	Bark inclusion(s), minor. Formative pruning recommended to remove branches with included bark.	Semi-mature	15-40	Low	Consider for Removal	2.7	1.8	Retain. No works within TPZ.
G1	<i>Leptospermum petersonii</i> (Lemon Scented Teatree)	300 av	6av	4av	Fair	Poor	Crown density 75-95%. Wound(s), various stages of decay. Small (<25mmø), medium (25-75mmø) & large (>75mmø) deadwood in moderate volumes. Co-dominant inclusion, major.	Late Mature	<5	Low	Priority for Removal	3.6	2.1	Retain. No works within TPZ.
A	<i>Cupressus sempervirens</i> 'Stricta' (Pencil Pine)	200	6	1	Good	Good		Mature	15-40	Low	Consider for Removal	2.4	1.8	Retain. No works within TPZ.
B	<i>Brachychiton acerifolius</i> (Illawarra Flame Tree)	430	6	3	Good	Fair	Co-dominant inclusion, minor.	Early-mature	15-40	Low	Consider for Removal	5.2	2.4	Retain. No works within TPZ.
C	<i>Corymbia</i> sp. (Eucalypt)	100 100	6	3	Good	Good		Australian Native	Semi-mature	15-40	Consider for Removal	2	1.8	Remove.

#### Appendix 4: Plates

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