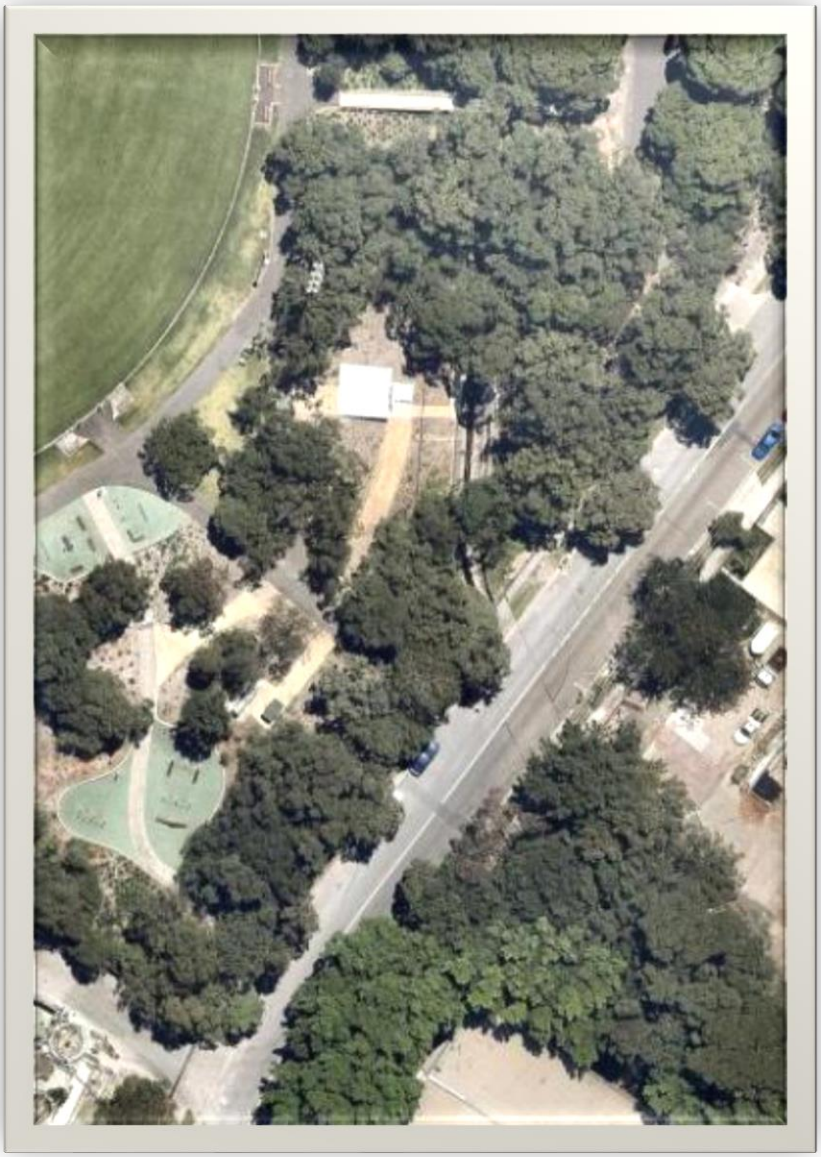
ARBORICULTURAL REPORT



Euston Rd Widening and 132kV Service Investigation

WestConnex New M5.

Prepared for CDS-JV.
03 March 2017

CDS-JV Document Number M5N-ES-RPT-LRW-0001 (Rev 03)

Contents

1. Introduction

The WestConnex scheme which is a NSW Government initiative to connect Sydney's west and south-west with the Sydney Airport and Port Botany precinct. It is being delivered by the Sydney Motorway Corporation (SMC), formerly the WestConnex Delivery Authority (WDA). Part of that project is the WestConnex Stage 2 referred to as the New M5. The Project will run from the existing M5 East corridor at Beverly Hills via a tunnel to St Peters, providing improved access to the airport, South Sydney and Port Botany precincts. The Project will substantially improve the east - west corridor access between the Sydney CBD, Port Botany and Sydney Airport precincts and the South West growth areas. The Project will deliver approximately nine (9) kilometers of two-lane twin tunnels with capacity to operate three lanes in the future, motorway to motorway connections to the King Georges Road Interchange Upgrade at Beverly Hills, and a new interchange at St Peters. Infrastructure Approval was granted for the project on 20 April 2016. Major works are expected to commence in mid-2016 and the New M5 tunnel is scheduled to open to traffic in late 2019.

The CPB Contractors Dragados Samsung Joint Venture (CDS-JV) has been awarded the design and construction of the New M5.

CPB Dragados Samsung Joint Venture (CDS-JV) has commissioned [redacted] to prepare an Arboricultural Impact Assessment Report associated with two proposed scopes of works. The scopes of work being:

- Scope 1: Part of the widening associated with Euston Road (both road and footpath construction), Alexandria NSW, and
- Scope 2: Identification of the existing 132kV service investigation works.

The proposed works are part of the WestConnex New M5 Development Project.

The purpose of this report is to:

- Identify trees that are likely to be affected by both proposed scope of works.
- Assess the current overall health and condition of the subject trees.
- Evaluate the significance of the subject trees and assess their suitability for retention.

The Report has been developed to mirror the same requirements of the reports previously approved DPE and addresses the requirements of Condition B63 in accordance with Table 1.

Table 1: Condition of Approval B63 Compliance Table

Condition	Requirement	Where addressed in this Report
B63	The SSI must be designed to retain as many trees as possible and provide a net	This Report

	increase in the number of replacement trees. The Proponent must commission an independent experienced and suitably qualified arborist, to prepare a comprehensive Tree Report(s) prior to removing any trees on the periphery and/or outside the construction footprint as identified in the figures in Section 6 of the document referred to in condition A2(b), including any tree(s) removed along Euston Road. The Tree Report may be prepared for the entire SSI or separate reports may be prepared for individual areas where trees are required to be removed. The report(s) must identify the impacts of the SSI on trees and vegetation within and adjacent to the construction footprint. The report(s) must include:	
B63(a)	a visual tree assessment with inputs from the design, landscape architect, construction team;	Section 4a: Site Observation Section 4c: Documents Meetings and Plans Referenced
B63(b)	consideration of all options to amend the SSI where a tree has been identified for removal, including realignment, relocation of services, redesign of or relocation of ancillary components (such as substations, fencing etc.) and reduction of standard offsets to underground services; and	Section 4c: Documents Meetings and Plans Referenced
B63(c)	measures to avoid the removal of trees or minimise damage to existing trees and is to ensure the health and stability of those trees to be protected. This includes details of any proposed canopy or root pruning, excavation works, site controls on waste disposal, vehicular access, storage of materials and protection of public utilities.	Section 6: Recommendations
	In the event that trees are to be removed, then replacement trees are to be planted within, or in close proximity to, the SSI boundary, including along Euston Road where feasible and reasonable The location of the trees must be determined in consultation with the relevant council(s). The replacement trees are to have a minimum pot size of 75 litres. A copy of the report(s) must be submitted to the Secretary for approval prior to the removal, damage and/or pruning of any trees, including those affected by site establishment works. All	Consistent with earlier approved Tree Reports replanting will be detailed in the Urban Design and Landscape Plan in consultation with relevant councils.

	recommendations of the report must be implemented by the Proponent, unless otherwise agreed by the Secretary.	

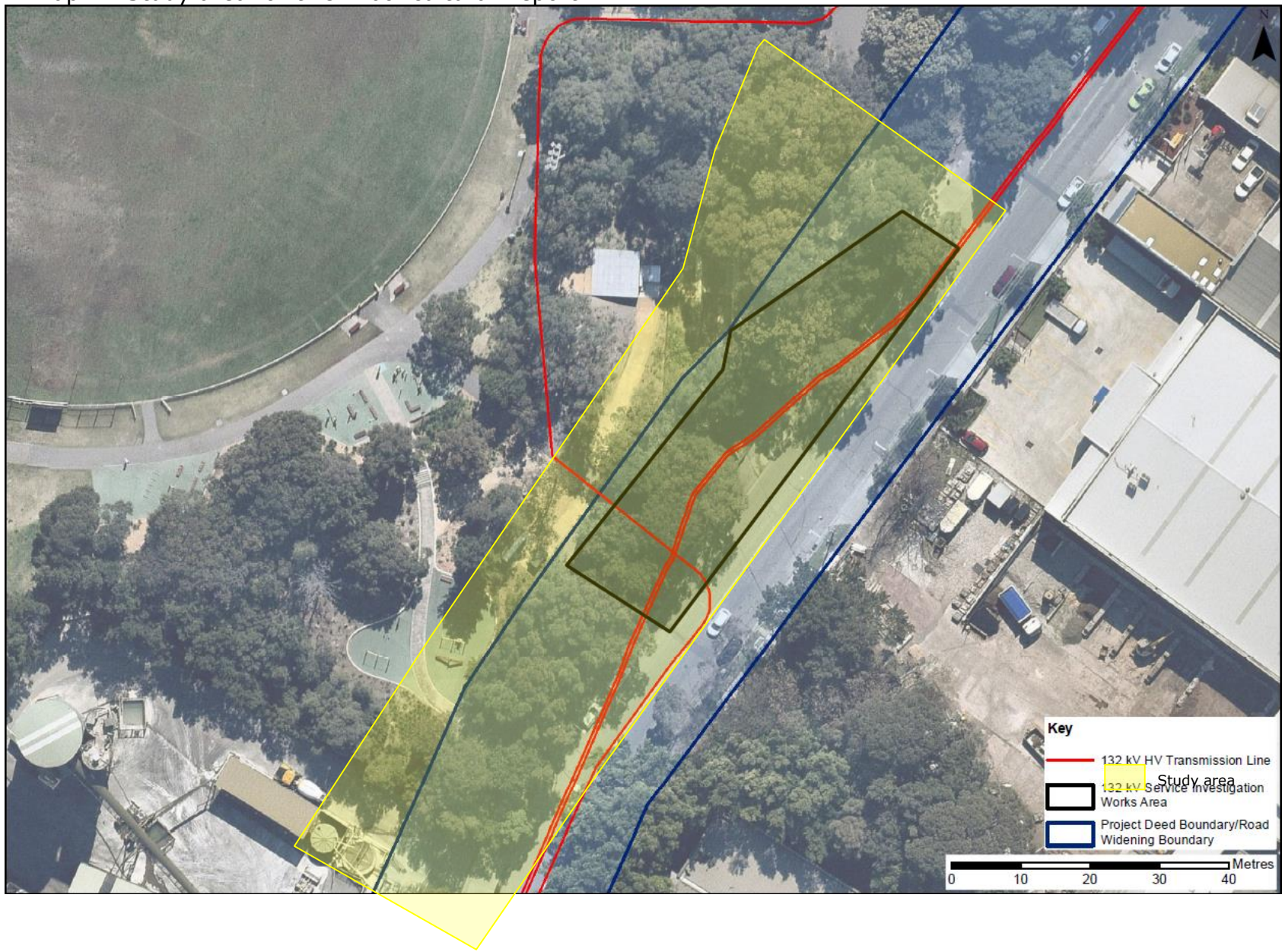
2. Study Area – Euston Rd, Alexandria.

The study area comprises of 0.32 ha of land on the western nature strip of Euston Road and eastern edge of Sydney Park. The study area was chosen to ensure consistency with Condition of Approval B63, namely that the report must identify the impacts or potential impacts of the SSI on trees and vegetation within and adjacent to the construction footprint.
The study area is an irregular shape reflecting the features of the area.

- The northern extent is bound by a concrete driveway and a bitumen paved car park.
- The eastern extent is bound by Euston Rd.
- The southern extent is bound by the Metromix Concrete batch plant.
- The western extent is bound by the following features, in order from south to north;
    - Paved area of Sydney Park Fitness Station
    - Electrical kiosk and compacted earth paths
    - Bitumen paths and grassed landscape
    - Munni St stormwater channel

Future works that may affect trees beyond the study area will be addressed in a tree report prepared and approved before any such works.

Map 1. Study area for this Arboricultural Report.



3. Scope of works

There are two scopes of works associated with this Tree Report:

Scope 1: Investigation of existing 132kV Electricity Supply

An existing 132kV electricity supply runs approximately on and adjacent to Euston Road on the eastern edge of Sydney Park (chainage 2665 to 2785) under Munni Street Drain (also referred to as Macdonaldtown Stormwater Channel). The widening of Euston Road will be preceded by works to investigate and identify this cable bundle to the immediate north and south of the Munni Street Drain. In order to accurately identify the cable and to ensure both public and worker safety is managed best safety practice is being applied which included a benched 6m excavation to positively identify and mark the cable route. The location of the route is provided in map 2

Scope 2: Part of Euston Road Widening – Permanent works

Euston Road will be upgraded permanently to six (6) lanes of road which includes footpaths and drainage infrastructure. The eastern edge of the works are constrained by the existing properties, resulting in the additional lanes being constructed along the western nature strip of Euston Road and eastern edge of Sydney Park. This is on land acquired (and to be acquired) by Roads and Maritime Service. The road, footpath and drainage infrastructure extends from project boundary to project boundary. The width of the upgrade cannot be lessened without compromising safety design considerations and for this reason the design width cannot be decreased. The location of the road widening is provided in Map 2 and is represented by the full width of the Project Deed boundary.

4. METHODOLOGY

a. Site Observations

The subject trees for both scopes were inspected on 22nd August 2016, 22nd September 2016 and 3 February 2017. An AQF Level 5 Consulting Arborist [redacted] undertook the site inspection.

275 trees (grouped as 64 trees) were identified within the study area shown in Map 2. Trees of the same species, with similar dimensions, growing in close proximity to each other, have been documented as a group and presented under a single way point. Trees located outside of the specified study area have not been included in this report. If trees located outside of the study area are likely to be impacted, additional arboricultural assessment will be required.

Details on species; measurements of height, canopy spread, diameter at breast height (DBH), Tree Protection Zones (TPZ) and Structural Root Zones (SRZ); and an assessment of the health, structure, retention value and recommended outcome for each of the subject trees is contained in Appendix A.

b. Visual Tree Inspection

The subject trees were assessed in accordance with a stage one Visual Tree Assessment (VTA) as formulated by Mattheck & Breloer (1994), and practices consistent with modern arboriculture.

The following limitations apply to this methodology:

- Trees were inspected from ground level, without the use of any invasive or diagnostic tools and testing.
- Trees within adjacent properties or restricted areas were not subject to a complete visual inspection (i.e. defects and abnormalities may be present but not recorded).
- No aerial inspections or root mapping was undertaken.
- Tree heights, canopy spread and diameter at breast height (DBH) was estimated, unless otherwise stated.
- Tree identification was based on broad taxonomical features present and visible from ground level at the time of inspection.

c. Retention Value

Tree Retention Value takes into account the significance of each of the subject trees and an assessment of their suitability for retention within the proposed development site (refer Appendix B).

d. Documents, Meetings and Plans Referenced

A tree assessment input meeting was held on 22nd September 2016 with this report Author and the following attendees;

- CDS-JV Project Engineer, Local Road Works
- CDS-JV Engineering Design Manager
- Hassell Studio Principal Urban Landscape Designer
- Hassell Studio Urban Landscape Designer
- CDS-JV – Environment Manager - East

CDS-JV GIS was used to discuss the study area in relation to the road design. Options to amend the SSI for this area were discussed. In particular it was noted that the road corridor has been designed to be as narrow as possible while conforming to relevant design standards and there is no further option to reduce the footprint. The road corridor is built to boundary which means no trees can be retained within the corridor. It was stated that measures should be undertaken to mitigate impacts to

trees adjacent to the construction footprint. The construction methodology was discussed.

The following contributions were also taken into account during the assessment from the meeting on the 22nd September 2016:

- Opportunities for tree retention within the road widening, from design perspective, is not available as the design occupies the full width.
- The final urban design and landscape plan will address the planting of trees, where feasible and reasonable, within the SSI boundary.

The conclusions and recommendations of this report are based on the *Australian Standard, AS 4970-2009, Protection of Trees on Development Sites.*

An inspection of all trees within Sydney Park potentially affected by the works in the study area of this report was undertaken on 3 February 2017 with City of Sydney Arborists, [redacted] and staff from CDS-JV. Agreement was reached on the percentage incursion of works into the tree protection zone and the recommended action for each tree. This was a technical meeting and does not constitute consent to remove any trees in City of Sydney land which shall be sought seperately and in addition to approval of this report.

5. RESULTS

Within the study area 225 trees (grouped as 64 trees) were inspected.

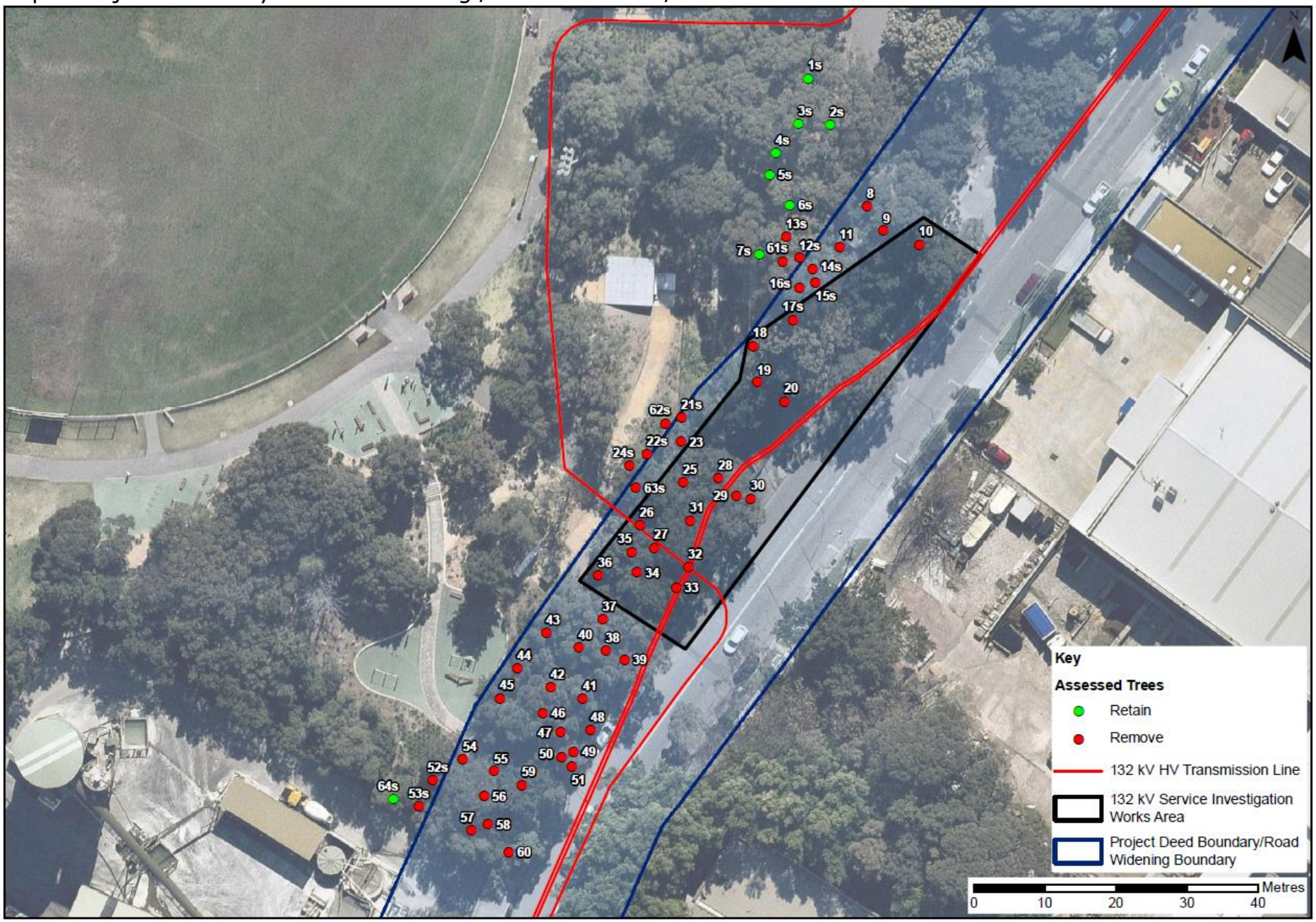
All data of trees is contained in Appendix A Tree Schedule.

The Tree Schedule illustrates which trees need to be removed, trimmed or retained against the two scopes of work.

214 trees (grouped as 56 trees) are recommended for removal. Of these, 11 trees (grouped as 8 trees) are outside the project boundary.

11 trees (grouped as 8 trees) are recommended for retention. All of these are outside the project boundary.
Map 2 below shows the location of trees in relation to the project boundary. Further the tree numbers on this map correspond to Appendix A which identified which trees are being removed, trimmed and retained.

Map 2 Project Boundary – Road Widening / Tree locations / 132 kV Locations



6. RECOMMENDATIONS - Tree Management Plan

a) Trees recommended for retention

The following tree protection measures will be required for trees suitable for retention which are trees No 1 – 7 and 64s:

- Tree protection fencing must be established around the perimeter of the TPZ. If the protective fencing requires temporary removal, trunk, branch and ground protection must be installed and must comply with *AS 4970-2009 - Protection of trees on development sites*.
- If temporary access for machinery is required within the TPZ, ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Ground protection may include a permeable membrane such as geotextile fabric beneath a layer of mulch, crushed rock or rumble boards.
- The area within the TPZ is to be mulched with material that complies with *AS 4454-2012, Composts, soil conditioners and mulches*, and should be maintained at a depth of 50 - 100 mm.
- Any additional construction activities within the TPZ of the subject trees must be assessed and approved by the project arborist, and must comply with *AS 4970-2009 - Protection of trees on development sites.*
- If any changes are made to Tree Protection Fencing it must be authorised by the site arborist prior to the fencing being removed.

Further information and guidelines on tree protection if required can be provided by [redacted].

b) The subject trees

The tree management plan should be implemented for all subject trees assessed for retention which are trees No 1 – 7 and tree 64s (refer to map 2 and Appendix A).

Scheduled inspections should be undertaken for all subject trees assessed for retention during the course of construction. Normally this is every two (2) weeks. Site diary for Arboricultural works must be kept at the onsite office for the duration of the project. All matters pertaining to tree management must be documented in this diary and signed of as each issue is resolved.

Trees outside of the study area that may be impacted during the works will require additional Arboricultural Assessment. Site arborist to organise as required.

c) Trees under review

Conditional approval was granted by the Department of Planning and Environment (DPE) on 5 October 2016. Revision 2 of this report addressed the conditional requirements. This revision (revision 3) addresses the minor

comments provided in the Department's conditional approval, dated 29 March 2017.

d) Tree work

- All pruning and/or tree removal work is to be carried out by an arborist with a minimum AQF Level 3 qualification in Arboriculture.
- All pruning must be in accordance with *Australian Standard AS 4373-2007, Pruning of Amenity Trees.*
- All pruning and/or tree removal work is to be carried out in accordance with the *NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).*
- Reference should also be undertaken for any tree works to the SafeWork Australia Guide to Managing Risks of Tree Trimming and Removal Work – 2016.
- Permission must be granted from the relevant consent authority, prior to removing or pruning of any of the subject trees.
- All tree material to be mulched and taken off site and stored for landscaping use or disposal.

References

Australian Standard, AS 4373-2007*, Pruning of Amenity Trees*.

Australian Standard, AS 4970-2009, *Protection of Trees on Development Sites*.

Mattheck, C & Breloer, H (1994) 'Field Guide for Visual Tree Assessment' *Arboricultural Journal*, Vol 18 pp 1-23.

SafeWork Australia Guide to Managing Risks of Tree Trimming and Removal Work – 2016.

WorkCover NSW. 1998. *Code of Practice: Amenity Tree Industry*

Appendix A - Tree schedule

Phase 1: 132kV Investigation												
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Other notes**	**Retention Value**	**Outcome**	**Reason for outcome**
10	*Melaleuca quinquenervia*	17	12	700	8.4	2.9	Moderate	Moderate	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
18	*Eucalyptus microcorys*	22	14	800	9.6	3	Good	Good	N/A	High	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
19	*Melaleuca quinquenervia*	16	9	300	3.6	2	Good	Moderate	Group of 2 trees	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
20	*Melaleuca quinquenervia*	16	12	700	8.4	2.9	Good	Moderate	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
25	*Callistemon species*	4	2	150	2	1.5	Good	Moderate	Group of 10 trees	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
26	*Casuarina cunninghamiana*	12	7	300	3.6	2	Good	Good	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
27	*Casuarina cunninghamiana*	12	7	300	3.6	2	Good	Good	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
28	*Melaleuca quinquenervia*	10	6	500	6	2.5	Good	Moderate	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
29	*Callistemon species*	6	6	250	3	1.9	Good	Good	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
30	*Melaleuca quinquenervia*	12	6	450	5.4	2.4	Good	Moderate	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
31	*Melaleuca styphelioides*	5	2	150	2	1.5	Good	Good	Group of 15 trees	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
32	*Eucalyptus species*	14	8	450	5.4	2.4	Good	Good	N/A	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
33	*Melaleuca styphelioides*	9	3	200	2.4	1.7	Good	Good	Group of 5 trees	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint

Phase 1: 132kV Investigation												
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Other notes**	**Retention Value**	**Outcome**	**Reason for outcome**
34	*Casuarina glauca*	7	2	150	2	1.5	Good	Good	Group of 7 trees	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
35	*Angophora floribunda*	14	7	250	3	1.9	Good	Good	Group of 4 trees	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint
36	*Casuarina cunninghamiana*	10	5	150	2	1.5	Good	Moderate	Group of 10 trees	Medium	Remove	Affected by 132 kV investigation and Inside permanent works road widening footprint

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
1s	*Syncarpia glomulifera*	14	7	300	3.6	2	Moderate	Good	N/A	Medium	Retain	Outside of Project Boundary. No encroachment into TPZ by works. Adverse impacts are not expected to occur on this tree.	332548.88, 6246463.126
2s	*Eucalyptus robusta*	17	9	500	6	2.5	Good	Good	N/A	High	Retain	Outside of Project Boundary. No encroachment into TPZ by works. Adverse impacts are not expected to occur on this tree.	332551.988, 6246456.654
3s	*Eucalyptus grandis*	24	16	1100	12	3.4	Good	Good	N/A	High	Retain	Outside of Project Boundary. No encroachment into TPZ by works. Adverse impacts are not expected to occur on this tree.	332547.531, 6246456.762
4s	*Casuarina cunningha miana*	17	9	500	6	2.5	Good	Good	N/A	Medium	Retain	Outside of Project Boundary. No encroachment into TPZ by works. Adverse impacts are not expected to occur on this tree.	332544.399, 6246452.689

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
5s	*Eucalyptus robusta*	17	9	300	3.6	2	Moderate	Moderate	Group of 2 trees	Medium	Retain	Outside of Project Boundary. No encroachment into TPZ by works. Adverse impacts are not expected to occur on this tree.	332543.521, 6246449.657
6s	*Eucalyptus microcorys*	17	10	500	6	2.5	Good	Good	N/A	High	Retain	<10% encroachment into TPZ by the works. Retention possible through tree protection and / or non-destructive construction in consultation with arborist.	332546.344, 6246445.377
7s	*Eucalyptus grandis*	17	7	300	3.6	2	Good	Moderate	Group of 3 trees	Medium	Retain	<10% encroachment into TPZ by the works. Retention possible through tree protection and / or non-destructive construction in consultation with arborist.	332542.119, 6246438.465
8	*Eucalyptus grandis*	18	12	600	7.2	2.7	Good	Good	N/A	High	Remove	Inside permanent works road widening footprint	
9	*Callistemon species*	9	8	250	3	1.9	Moderate	Moderate	N/A	Medium	Remove	Inside permanent works road widening footprint	
11	*Eucalyptus robusta*	15	9	300	3.6	2	Moderate	Moderate	Group of 2 trees	Medium	Remove	Inside permanent works road widening footprint	

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
12s	*Eucalyptus grandis*	22	12	500	6	2.5	Good	Good	N/A	High	Remove	>40% encroachment into TPZ by the works. When removal of trees and building within the construction footprint occurs to allow for excavation for utilities and shared path, this tree will be significantly impacted and will no longer be viable. Non-destructive construction not possible due to excavation required for essential services.	332547.727, 6246437.914
13s	*Eucalyptus robusta*	9	6	200	2.4	1.7	Moderate	Moderate	Group of 2 trees	Medium	Remove	>10% encroachment into TPZ by the works. When removal of trees and building within the construction footprint occurs to allow for excavation for utilities and shared path, this tree will be significantly impacted and will no longer be viable. Non-destructive construction not possible due to excavation required for essential services.	332545.829, 6246440.906
14s	*Corymbia maculata*	12	9	300	3.6	2	Moderate	Moderate	N/A	Medium	Remove	Tree wholly within footprint. Cannot be retained under current proposal. Removal required to allow cut/excavation to required levels to install geotechnical layers needed for northbound / southbound road construction, pedestrian access and drainage.	332549.542, 6246436.35

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
15s	*Syncarpia glomulifera*	10	5	200	2.4	1.7	Good	Good	N/A	Medium	Remove	Tree wholly within footprint. Cannot be retained under current proposal. Removal required to allow cut/excavation to required levels to install geotechnical layers needed for northbound / southbound road construction, pedestrian access and drainage.	332549.939, 6246434.526
16s	*Eucalyptus grandis*	24	10	600	7.2	2.7	Good	Good	N/A	High	Remove	Tree wholly within footprint. Cannot be retained under current proposal. Removal required to allow cut/excavation to required levels to install geotechnical layers needed for northbound / southbound road construction, pedestrian access and drainage.	332547.697, 6246433.824
17s	*Melaleuca quinquenervia*	6	4	200	2.4	1.7	Good	Good	N/A	Medium	Remove	Tree wholly within footprint. Cannot be retained under current proposal. Removal required to allow cut/excavation to required levels to install geotechnical layers needed for northbound / southbound road construction, pedestrian access and drainage.	332546.822, 6246429.25
21s	*Casuarina cunninghamiana*	16	13	300	3.6	2	Good	Good	N/A	Medium	Remove	Tree wholly within footprint. Cannot be retained under current proposal. Removal required to allow cut/excavation to required levels to install geotechnical layers needed for northbound / southbound road construction, pedestrian access and drainage.	332531.123, 6246415.539

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
22s	*Casuarina cunningha miana*	10	6	200	2.4	1.7	Good	Moderate	N/A	Medium	Remove	>40% encroachment into TPZ by the works. Pruning and / or protection not viable given extent of encroachment (major). Non-destructive digging not possible due to required construction. Removal required to allow cut/excavation to required levels to install retaining wall, utilities and geotechnical layers needed for construction of shared path. Project works will make this tree unviable and unstable.	332526.212, 6246410.436
23	*Callistemon species*	7	3	150	2	1.5	Good	Moderate	Group of 10 trees	Medium	Remove	Inside permanent works road widening footprint	
24s	*Casuarina cunningha miana*	12	6	250	3	1.9	Good	Good	N/A	Medium	Remove	>40% encroachment into TPZ by the works. Pruning and / or protection not viable given extent of encroachment (major). Non-destructive digging not possible due to required construction. Removal required to allow cut/excavation to required levels to install retaining wall, utilities and geotechnical layers needed for construction of shared path. Project works will make this tree unviable and unstable.	332523.775, 6246408.759
37	*Casuarina cunningha miana*	15	9	350	4.2	2.1	Good	Moderate	Group of 2 trees	Medium	Remove	Inside permanent works road widening footprint	
38	*Casuarina glauca*	8	3	200	2.4	1.7	Good	Moderate	Group of 2 trees	Medium	Remove	Inside permanent works road widening footprint	

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
39	*Melaleuca quinquenervia*	14	7	400	4.8	4.8	Good	Moderate	N/A	Medium	Remove	Inside permanent works road widening footprint	
40	*Melaleuca styphelioides*	4	2	150	2	1.5	Good	Good	Group of 9 trees	Medium	Remove	Inside permanent works road widening footprint	
41	*Casuarina glauca*	12	4	200	2.4	1.7	Good	Moderate	Group of 3 trees	Medium	Remove	Inside permanent works road widening footprint	
42	*Casuarina cunninghamiana*	4	2	150	2	1.5	Good	Good	Group of 12 trees	Medium	Remove	Inside permanent works road widening footprint	
43	*Casuarina cunninghamiana*	4	2	150	2	1.5	Good	Good	Group of 12 trees	Medium	Remove	Inside permanent works road widening footprint	
44	*Casuarina glauca*	5	2	150	2	1.5	Good	Good	Group of 12 trees	Medium	Remove	Inside permanent works road widening footprint	
45	*Casuarina cunninghamiana*	4	2	150	2	1.5	Good	Good	Group of 14 trees	Medium	Remove	Inside permanent works road widening footprint	
46	*Casuarina glauca*	16	9	450	5.4	2.4	Good	Moderate	Group of 2 trees	Medium	Remove	Inside permanent works road widening footprint	
47	*Casuarina cunninghamiana*	9	4	150	2	1.5	Good	Good	Group of 9 trees	Medium	Remove	Inside permanent works road widening footprint	
48	*Melaleuca quinquenervia*	16	8	4.8	4.8	4.8	Good	Moderate	N/A	Medium	Remove	Inside permanent works road widening footprint	
49	*Melaleuca styphelioides*	4	2	150	2	1.5	Good	Moderate	Group of 3 trees	Medium	Remove	Inside permanent works road widening footprint	
50	*Eucalyptus robusta*	14	7	300	3.6	2	Good	Good	Group of 2 trees	Medium	Remove	Inside permanent works road widening footprint	

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
51	*Melaleuca quinquenervia*	9	4	300	3.6	2	Good	Moderate	N/A	Medium	Remove	Inside permanent works road widening footprint	
52s	*Casuarina cunninghamiana*	6	3	150	2	1.5	Good	Good	Group of 2 trees	Medium	Remove	>10% encroachment into TPZ by the works. Pruning and / or protection not viable given extent of encroachment (major). Non-destructive digging not possible due to required construction. Removal required to allow cut/excavation to required levels to install retaining wall, utilities and geotechnical layers needed for construction of shared path. Project works will make this tree unviable and unstable.	332496.14, 6246364.585
53s	*Melaleuca styphelioides*	5	2	150	2	1.5	Good	Moderate	Group of 2 trees	Medium	Remove	>10% encroachment into TPZ by the works. Pruning and / or protection not viable given extent of encroachment (major). Non-destructive digging not possible due to required construction. Removal required to allow cut/excavation to required levels to install retaining wall, utilities and geotechnical layers needed for construction of shared path. Project works will make this tree unviable and unstable.	332494.216, 6246360.916
54	*Eucalyptus grandis*	12	8	250	3	1.9	Good	Moderate	N/A	Medium	Remove	Inside permanent works road widening footprint	
55	*Eucalyptus grandis*	16	9	4.8	4.8	4.8	Good	Good	N/A	Medium	Remove	Inside permanent works road widening footprint	
56	*Melaleuca styphelioides*	5	5	150	2	1.5	Good	Good	Group of 2 trees	Medium	Remove	Inside permanent works road widening footprint	

Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
57	*Melaleuca quinquenervia*	9	7	350	4.2	2.1	Good	Moderate	Group of 4 trees	Medium	Remove	Inside permanent works road widening footprint	
58	*Melaleuca styphelioides*	6	3	150	2	1.5	Good	Good	Group of 7 trees	Medium	Remove	Inside permanent works road widening footprint	
59	*Melaleuca quinquenervia*	12	4	250	3	1.9	Good	Moderate	N/A	Medium	Remove	Inside permanent works road widening footprint	
60	*Lophostemon confertus*	9	5	200	2.4	1.7	Good	Good	N/A	Medium	Remove	Inside permanent works road widening footprint	
61s	Syncarpia glomulifera	6	6	200	2.4	2	Good	Fair	N/A	Medium	Remove	>10% encroachment into TPZ by the works. When removal of trees and building within the construction footprint occurs to allow for excavation for utilities and shared path, this tree will be significantly impacted and will no longer be viable. Non-destructive construction not possible due to excavation required for essential services.	332545.368, 6246437.5
63s	Mixed species group of 20	5	3	100	2	1.5	Fair	Fair	Group of 20.	Medium	Remove	Group of trees wholly within footprint. Cannot be retained under current proposal. Removal required to allow cut/excavation to required levels to install geotechnical layers needed for northbound / southbound road construction, pedestrian access and drainage.	332524.72, 6246405.692

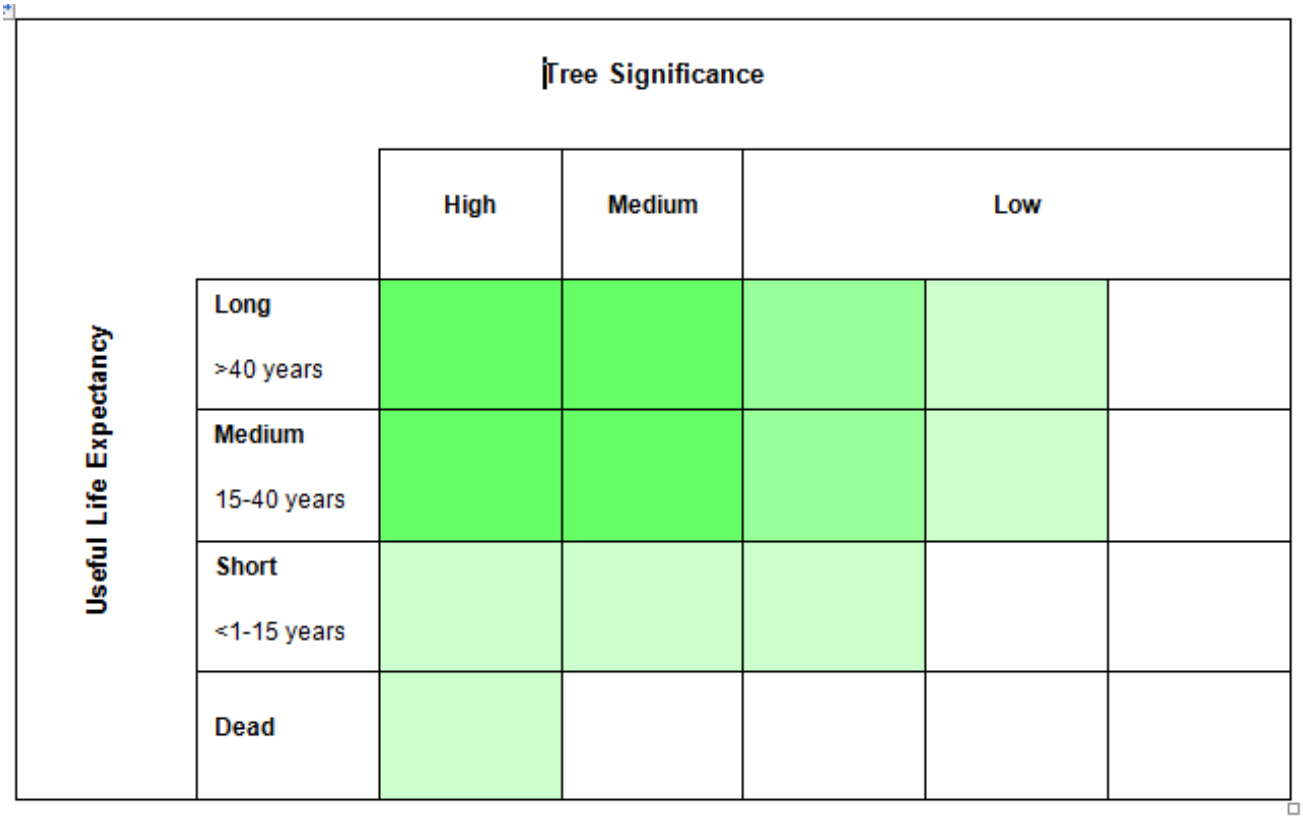
Phase 2: Euston Rd Widening													
No.	**Botanical name**	**Height (m)**	**Spread (m)**	**DBH (mm)**	**TPZ (m)**	**SRZ (m)**	**Health**	**Structure**	**Notes**	**Retention Value**	**Outcome**	**Reason for outcome**	**Coordinates**
62s	Melaleuca styphelioides	6	3	200	2.4	2	Fair	Fair	N/A	Medium	Remove	>10% encroachment into TPZ by the works. Pruning and / or protection not viable given extent of encroachment (major). Non-destructive digging not possible due to required construction. Removal required to allow cut/excavation to required levels to install retaining wall, utilities and geotechnical layers needed for construction of shared path.	332528.861, 6246414.703
64s	Casuarina glauca	8	3	200	2.4	1.7	Good	Good	N/A	Medium	Retain	<10% encroachment into TPZ by the works. Retention possible through tree protection and / or non-destructive construction in consultation with arborist.	332490.667 , 6246361.965

Appendix B: Tree retention assessment©

Tree Significance - Assessment Criteria - STARS©		
Low	**Medium**	**High**
The tree is in fair-poor condition and good or low vigour. The tree has form atypical of the species The tree is not visible or is partly visible from the surrounding properties or obstructed by other vegetation or buildings The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area The tree is a young specimen which may or may not have reached dimensions to be protected by local Tree Preservation Orders or similar protection mechanisms and can easily be replaced with a suitable specimen The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ – tree is inappropriate to the site conditions The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms The tree has a wound or defect that has the potential to become structurally unsound. The tree is an environmental pest species due to its invasiveness or poisonous/allergenic properties. The tree is a declared noxious weed by legislation	The tree is in fair to good condition The tree has form typical or atypical of the species The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street The tree provides a fair contribution to the visual character and amenity of the local area The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ	The tree is in good condition and good vigour The tree has a form typical for the species The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age. The tree is listed as a heritage item, threatened species or part of an endangered ecological community or listed on councils significant tree register The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity. The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values. The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ – tree is appropriate to the site conditions.

Useful Life Expectancy - Assessment Criteria – Tree AZ©

Dead	Short	Medium	Long
Trees that should be removed within the next 5 years. Dead, dying, suppressed or declining trees because of disease or inhospitable conditions. Dangerous trees because of instability or recent loss of adjacent trees. Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form. Damaged trees that are clearly not safe to retain. Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. Trees that are damaging or may cause damage to existing structures within 5 years. Trees that will become dangerous after removal of other trees for the reasons.	Trees that appear to be retainable at the time of the assessment for 5-15 years with an acceptable level of risk. Trees that may only live between 5 and 15 more years. Trees that could live for more than 15 years but may be removed for safety or nuisance reasons. Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that appear to be retainable at the time of the assessment for 15-40 years with an acceptable level of risk. Trees that may only live between 15 and 40 more years. Trees that could live for more than 40 years but may be removed for safety or nuisance reasons. Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that appear to be retainable at the time of the assessment for more than 40 years with an acceptable level of risk. Structurally sound trees located in positions that can accommodate future growth. Trees that could be made suitable for retention in the long term by remedial tree care. Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.


Tree Significance
High
Medium
Low
Useful Life Expectancy
Long
>40 years
Medium
15-40 years
Short
<1-15 years
Dead

LIMITATION OF LIABILITY

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

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

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

In the event that [redacted] recommends retesting or inspection of trees at stated intervals or installs any cable/s, bracing systems and support systems, [redacted] must inspect the system installed at intervals not greater than 12 months unless otherwise specified in written reports. It is the client's responsibility to make arrangements with [redacted] to conduct the re-inspection.

Trees can be managed, but they cannot be controlled. To live or work near a tree involves a degree of risk. The only way to eliminate all risks associated with a tree is to eliminate the tree.

All written reports must be read in their entirety, at no time shall part of the written assessment be referred to unless taken in full context of the whole written report.

If this written report is to be used in a court of law or any legal situation [redacted] must be advised in writing prior to the written assessment being presented in any form to any other party.