



Arborist Impact Assessment Report

PROJECT ADDRESS: **Main Works SSDA for Waterloo Mixed Use Development – Housing Development Authority (HDA)**

SSD-8044162. 881-885 Bourke Street, Waterloo

1 Introduction and Summary:

- 1.1 This Arboricultural Impact Assessment (**AIA**) report package has been prepared for The Trustee for Waterloo Property Pty Ltd as trustee for Waterloo Property Unit Trust (the Applicant) to support a Housing Development Authority (**HDA**) nominated State Significant Development Application (**SSDA**) for the proposed Main Works for Waterloo Mixed Use Development at 881-885 Bourke Street, Waterloo; The HDA SSDA (SSD-80441462) which follows the Early Works DA (SSD-80911502) for which the 16 July 2025 AIA report was compiled.
- 1.2 The site falls within the City of Sydney Council.
- 1.3 Out of a total of sixty-six (**66**) trees assessed on or adjacent the site, all trees are being proposed for retention and protection.
- 1.4 It must be noted that the Early Works DA (**EWDA**) proposed the removal of one (**1**) tree being T9b. This Main Works SSDA AIA report assumes the approval of the removal of T9b will be granted under the EWDA. T9b is a *Casuarina glauca* (She Oak) tree with a low retention rating. The total number of trees (66 trees) does not include T9b.
- 1.5 The purpose of this Main Works SSDA AIA report is to outline the existing condition of trees, describe the proposed tree removal (due to works impacts) and outline the tree protection requirements for trees to be retained and protected as part of the Main Works proposal.
- 1.6 Trees within the site are predominantly located in the north-west and western portions of the site. Tree protection zone fencing, ground protection, and exclusion of construction activity as well as consistent project arborist supervision and sign off of works within the tree protection zone fenced areas per a Tree Protection Plan (**TPP**) and a Tree Management Specification (**TMS**) report is vital in viable tree protection and retention.

- 1.7 Out of the total 66 trees assessed, **19** trees are located within the site's boundary and **47** trees adjacent the site (outside the site boundary, including street trees). It is noted that tree roots, tree rooting soil and tree canopies do extend across site boundaries.
- 1.8 The site and its context were assessed on 5 May 2025 by Elke Haege Thorvaldson, AQF Level 5 consulting arborist (the project consulting arborist). Elke also attended site on 21 November 2024.
- 1.9 This arborist impact assessment (AIA) package includes this written report with recommendations, mitigation measures, the tree data schedules (7 x A3 sheets) and 5 x A1 Arborist Impact Plans being: Arb_601 through to Arb_605 (A1 at 1:500 and 1:200 scale).

ASSESSMENT AND REPORT PREPARED BY: *Elke Haege Thorvaldson* AILA FRLA, MAIH

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PROJECT TEAM:

Client: Waterloo Property Pty Ltd as trustee for Waterloo Property Unit Trust

Project management: Coronation Property Development

Architecture: SJB Architects (parcels 1 + 4) Curious Practice (parcel 4), Bates Smart (parcels 2 + 3), Chenchow Little (parcel 3).

Engineering: Meinhardt (structural), Stantec (civil)

Landscape architecture: Turf Design, and Group GST (public domain)

Planning: Ethos Urban Pty Ltd - Colliers

Consulting arborist AQF Level 5: **ELKE - Elke Haege Thorvaldson** AILA FRLA, MAIH

ELKE's Arboricultural Impact Assessment report (including plans and schedules) may be reproduced only for the purposes of this project's development and management if the author, title, and date are referenced.

The information contained in this assessment report is considered accurate at the time of tree inspection.

The condition of the trees and site conditions can change over time.

1.10 An aerial of the site is provided in **Figure 1** below.



Figure 1 Site Aerial showing the approximate site boundary in red. Source: Nearmap. Image provided by the Planner: Ethos Urban

- 1.11 This application is preceded by a separate SSDA for Early Works that prepare the Site for the proposed development (SSD-80911502).
- 1.12 Specifically, consent is sought for the following Main Works for the Waterloo Mixed Use Development:
- Site establishment and enabling works (that were not included in the preceding Early Works SSDA);
 - Construction of residential and mixed-use buildings across four development parcels, inclusive of;
 - build to rent apartments and associated amenities;
 - affordable apartments;
 - non residential floor space including commercial premises and creative industry;
 - Construction of a consolidated basement with below-ground links between development parcels, comprising car parking, plant and storage area;
 - Landscaping and publicly accessible open space;
 - Works to site frontages; and
 - Extension and augmentation of infrastructure and services (that were not included in the preceding Early Works SSDA) as required.

- 1.13 Development on the site was declared State Significant Development (SSD) pursuant to State Significant Declaration Order 2025 (Order) dated 17 February 2025. The Order declares development specified in EOI application 229420 dated 8 January 2025, including development for the purposes of mixed-use development (Build to Rent including affordable housing) with ground floor non-residential uses at 881-885 Bourke Street, as identified in Schedule 3, is SSD.
- 1.14 On 5 March 2025, the Department of Planning, Housing and Infrastructure (the Department) issued SEARs and concurrent rezoning requirements for the project.
- 1.15 The site is subject to an existing Voluntary Planning Agreement (VPA) that sets out dedication of public domain between four development parcels. The public domain includes a new east-west street, a through site link and public open space area (comprising future shared zones and park). The development parcels and public domain as set out in the VPA will be delivered notwithstanding the works proposed in this SSDA.
- 1.16 Elke's Arborist Impact Assessment Report has been prepared to address the arboricultural part of item 14 (highlighted in Figure 2 below) of the *Planning Secretary's Environmental Assessment Requirements (SEARs)* issued by the Department of Planning, Housing and Infrastructure (DPHI) for the subject SSDA, with specific SEAR(s) identified in Figure 2 below.

14. Trees and Landscaping • Provide a landscape plan, that: ○ details the proposed site planting, including location, number and species of plantings, heights of trees at maturity and proposed canopy coverage (as a percentage of the site area). ○ provides evidence that opportunities to retain significant trees have been explored and/or inform the plan. • If the proposal involves impacts to trees, provide an Arboricultural Impact assessment that assesses the number, location, condition and significance of trees to be removed and retained including: ○ any existing canopy coverage to be retained on-site. ○ tree root mapping. if the proposal involves significant impacts to tree-protection zones of retained trees identified as being significant	Landscape Plan <u>If required:</u> Arboricultural Impact Assessment
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Figure 2. Item 14 of the SEARS. Dated 20 December 2024, Version 1

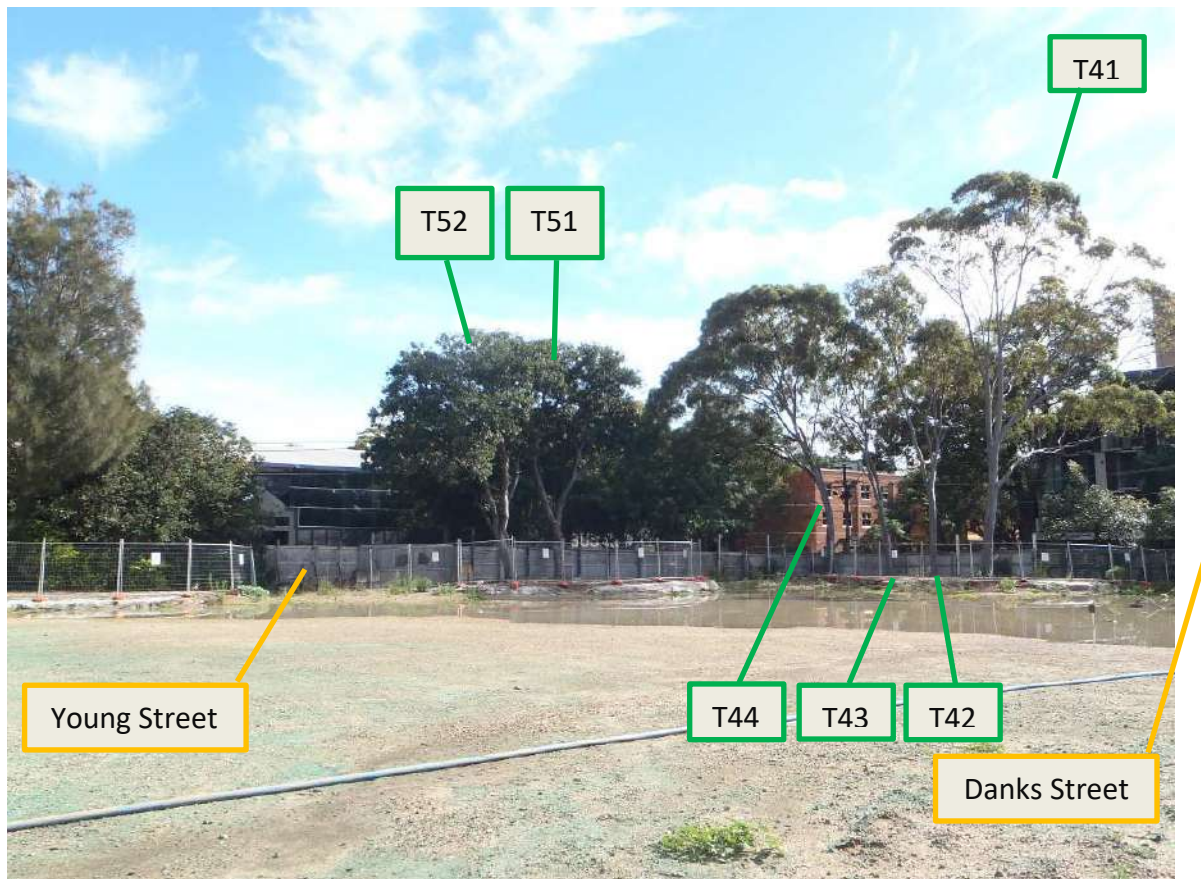
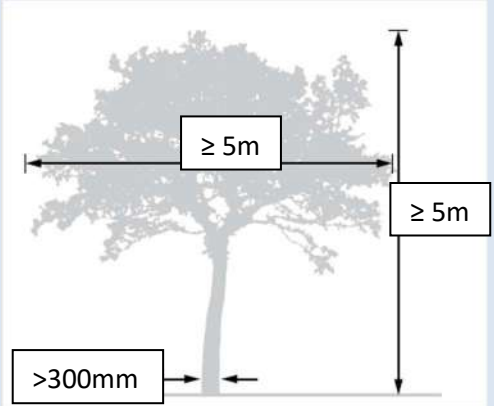


Figure 3. Photograph from within the site, looking north/northwest. This photo shows zones around the trees fenced off whilst site decontamination or dewatering works occur. Source: ELKE. Date of photo: 5 May 2025.

GLOSSARY AND ABBREVIATIONS:

Table 1

Abbreviation / Acronym	Description
AIA	Arboricultural Impact Assessment
AQF	Australian Qualifications Framework
CC	Construction Certificate
Council	City of Sydney Council. Policies that apply to the management of trees in the City of Sydney include the: • Urban Tree Management Policy, • Urban Forest Strategy, • Street Tree Master Plan, and • Park Tree Management Plans and • Register of Significant Trees. www.cityofsydney.nsw.gov.au. • Schedule 8 Tree Management provides information about notifications of proposals to remove a tree and arborist's reports.
EWDA	Early Works Development Application. The HDA SSDA (SSD-80911502) Early Works
MWDA	Main Works Development Application State Significant Development Application (SSDA) number: SSD-80441462
HDA	Housing Development Authority (HDA)
HDPI	The Department of Planning, Housing and Infrastructure
SEARS	Planning Secretary's Environmental Assessment Requirements
SRZ	Structural Zone (as defined in the Australian Standard AS4970-2009, The Protection of Trees on Development Sites)
SSDA	State Significant Development application SSD-80911502.
The site	The site is legally described as Lot 1 DP1308636 and Lot 2 DP1308636 and is located at 207-229 Young Street and 881-885 Bourke Street, Waterloo. The site has an area of 21,554m ² . The Site is partly identified as within the Waterloo Town Centre (Danks Street) in the Housing SEPP.

Tree	As defined in the City of Sydney DCP 2012, Section 3. <i>A permit or development consent is required to ringbark, cut down, top, lop, prune, remove, injure or wilfully destroy a tree that: (a) has a height of 5m or more; or (b) has a canopy spread of over 5m; or (c) has a trunk diameter of more than 300mm, measured at ground level; or (d) is listed in the Register of Significant Trees..</i>	 The diagram shows a tree with three measurement labels: a horizontal line across the canopy labeled '≥ 5m', a vertical line from the ground to the top of the canopy labeled '≥ 5m', and a horizontal line across the trunk at ground level labeled '>300mm'.
Exempt tree species	As provided in the City of Sydney DCP 2012, Section 3 – General Provisions (4)	
TPZ	Tree Protection Zone (as defined in the Australian Standard AS4970-2009)	

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2 Site Background

- 2.1 Existing site conditions: The irregularly shaped site is currently undergoing soil remediation measures on the majority of the site area, with the exception of the area containing mature trees along the western and north-western edges which is currently fenced off and mulched.
- 2.2 It is understood, and has been established through review of historical Google Streetview images, that the site prior to about 2023 had light commercial premises and a cafe along the Young and Danks Street edges. This is relevant in that the trees along this western and north-western zone were in close proximity to these former buildings with some trees (including T51, T52 and T41-T44) growing through awnings. Refer to figures 9 and 10.
- 2.3 Historically (as shown with the aerial photo taken in 1943 in figure 4 below), the site contained what appears to be industrial sheds.
- 2.4 It is estimated that the newer commercial building and trees were planted in association with the newer commercial buildings in the 1980s or 1990s, estimating the trees on site age approximately 35-45 years old.
- 2.5 The site and surrounding site is topographically relatively flat, and has a mix of residential apartment developments, commercial and retail and Hillsong Church opposite the site on Young Street.
- 2.6 The buildings on site have been demolished (sometime after January 2023), and site remediation works are underway. It is understood temporary dewatering or decontamination (a DA consent condition) is or has occurred (noting that both these actions can impact tree health and viability). Refer to Figures 5-12 below in comparison to the current photo in Figure 3 and aerial photo in Figure 4.
- 2.7 The works currently underway on site are part of a separate development consent under The City of Sydney, D/2020/45/C. PAN-388735, dated 23.08.2021 and later a Section 4.55 (1A) dated 07.03.2024. Refer to Table 2 below for a list of reference documents regarded in the formulation of this Arborist Impact Assessment report.
- 2.8 Elke initially visited the site on 21 November 2024, then conducted the Visual Tree Assessment on 5 May 2025 which included the trees on the site, and the street trees adjacent the site on the council verges. The Visual Tree Assessment Method was used (*after Mattheck 8.4 p 118, fig. 74*).
- 2.9 The same tree numbering has been adopted in this AIA (Elke's report) as the previous provided Arborist Reports for this site, by Birds Tree Consultancy (2021) and ArborScan (2022). Note: the survey provided does not adopt the same tree numbering.



Figure 4. 3 Aerial photos from top, a 1943 aerial, middle: around or pre ~2020 when buildings were on the site and trees established, and bottom photo: post ~2023 when the buildings were demolished (concrete remaining). Note: around 2024, the concrete has been mostly removed. Source: Google. Date accessed: 23.11.24.

3 Tree Impact Results Summary

- 3.1 Out of a total of sixty-six (66) trees assessed on or adjacent the site, all trees are being proposed for retention and protection.
- 3.2 It must be noted that the Early Works DA (EWDA) proposed the removal of one (1) tree being T9b. This Main Works SSDA AIA report assumes the approval of the removal of T9b will be granted under the EWDA. T9b is a *Casuarina glauca* (She Oak) tree with a low retention rating. The total number of trees (66 trees) does not include T9b.
- 3.3 Tree removals within the site have occurred as part of previous approvals. Refer to Table 3 in this report.
- 3.4 Tree protection requirements for trees to be retained and protected include tree protection fencing (TPZ fencing), TPZ signage, ground protection and, mulch, and specific methodology for the proposed elevated permeable paths within the TPZ fenced zones which are marked on the arborist plans in this report are discussed with protection recommendations outlined in Chapter 6 of this AIA report.
- 3.5 The Early Works DA included for excavation and shoring works and strict TPZ Fenced off zones for tree protection with no entry at all times. The Main Works DA is for the proposal of a mixed-use development including items listed in Chapter 1.11-1.15 above.
- 3.6 Summary: The following table is summary of the proposed tree retention and tree removal. Refer to **Table A** (7 x A3 Tree Data Schedules) in this report for more detail.

Table 2 – Summary of the proposed tree retention and tree removal for the Main Works DA

NUMBER OF TREES	RETENTION VALUE	PROPOSED FOR RETENTION	PROPOSED FOR REMOVAL
21	High	21 trees (T14, 16, 18, 29, 32, 33, 41, 42, 43, 44, 51, 52, 56, 57, 60, 62, 63, 65, 66, 80a, 81)	0 trees
41	Medium	41 trees (T4, 5, 6, 7, 9a, 10, 13, 15, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 31, 34, 35, 36, 37, 38, 39, 40, 45, 46, 47, 48, 49, 50, 54, 55a, 55b, 58, 59, 61, 65a, 80b, 82)	0 trees
4	Low	4 trees (T8, 11, 12, 17)	0 trees
TOTAL TREES: 66		66 trees proposed to be retained	0 tree proposed to be removed
Note: where tree numbers are written above with an Asterisk (*), the tree number references a group of trees. (Refer Tree Data Table A).			
T9b Tree 9b is proposed to be removed as part of the Early Works DA which for the purpose of this report is assumed that approval will be granted and therefore T9b has not been included in the above summary table nor total number of trees			

Tree Location Summary: Refer to Table A - Tree Data Schedules..

Trees located Outside the site boundary	Total number of trees assessed adjacent to /outside the site boundary:
T4, T5, T6, T7, T8, T9a, T10, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T36, T38, T39, T40, T42, T44, T45, T47, T46, T48, T49, T50, T54, T60, T80b, T80a, T81, T82	47 trees outside the site
Trees located within the site	Total number of trees within the site:
T37, T41, T42, T43, T44, T51, T52, T55b, T55a, T56, T58, T57, T59, T61, T62, T63, T65a, T65, T66	19 trees within the site
Total number of trees 66	

4 Assessment Methodology and Background

The following industry accepted, and recognised methodologies have been used where relevant to visually assess the health and condition of the tree. Results are shown in [Table A](#).

SUMMARY OUTLINE OF TREE ASSESSMENT METHODOLOGIES			
Refer to:	Category of Assessment	Methodology Name + description	Sources
Table A Arb_601	Visual Tree Assessment (VTA). On site measurements and calculations	Visual Tree Assessment (VTA) Procedure and strategy. Refer to Table A ¹	<i>Claus Mattheck and Breloer 2006. And David Lonsdale's Tree Assessment Strategy.</i>
Table A	Landscape Significance Rating	Determining Landscape Significance Rating	<i>Developed from: Earthscape Horticultural Services, December 2011</i>
Table A	SULE	Safe Useful Life Expectancy Procedure	<i>Jeremy Barrell 1996 from BS5837</i>
Table A	Retention Value	Determining Retention Value	<i>Developed from: Earthscape Horticultural Services, December 2011²</i>
Arborist Plan + Table A	Tree Protection Zones	Tree Protection Zones (TPZ's) and Structural Root Zones (SRZ's)	<i>AS 4970, Protection of Trees on Development Sites.</i>
Table A	Tree Retention Priorities	Analysing the implications for Proposed Development	<i>Earthscape Horticultural Services, December 2011</i>
	Australian Standard AS4790-2009	Protection of Trees on Development Sites. Determining permissible tree protection zones, encroachments, protection, fencing, incursions, terminology, and recommendations	<i>AS 4790-2009</i>
	Australian Standard AS4790-2009	Pruning of Amenity Trees	<i>AS4373 - 2007</i>
	QTRA. Quantified Tree Risk Assessment	QTRA quantifies the risk of significant harm from tree failure in a way that enables tree managers to balance safety with tree values and operate to predetermined limits of tolerable or acceptable risk.	<i>QTRA. Risk management principles to tree safety management. ³</i>

1. Table above outlines the Methodologies used.

¹ Claus Mattheck and Helge Breloer. Visual Tree Assessment and David Lonsdale's Tree Assessment Strategy.

² Modified from: Couston, Mark and Howden, Melanie, 2001, Tree Retention Values table, Footprint Green Pty., Ltd., Sydney, Australia.

³ Directory of Licensed Users (qtra.co.uk)

a) Australian Standards and Data Collection Documents

- 4.1 The Australian Standard, AS 4790-2009 'Protection of Trees on Development Sites' has been used as the guiding standard reference to provide recommendations of the assessed trees. This standard is not a specification, and there are deviations away from this standard that are discussed in Chapter 6 of this report together with tree protection recommendations.
- 4.2 The Australian Standard, AS 4373-2007 'Pruning of Amenity Trees' has also been referred to in this assessment however no tree pruning is envisaged for this project.

b) Not Assessed:

- 4.3 A visual tree assessment inspection from ground only was conducted. No invasive or destructive testing was conducted. Any changes to the proposed works will need tree re-assessment.
- 4.4 The location of some trees that were not on the survey have been approximately shown on the Arborist Impact Plan. This includes some of the group of trees labelled T30-39 and T43-52 as well as T42. The tree on the survey shown between T21 and T19 does not exist, although a tree pit opening is available in this location.
- 4.5 Tree numbering mirrors the tree numbering in the previous arborist report and as a result, are not sequential.
- 4.6 The Arborist Impact Plans Arb_601-605, Revision C by Elke shows the up-to-date tree information per Elke's tree and site inspection and shows the proposed tree protection fencing locations and other tree protection recommendations. No stormwater or services plans have been provided for review / coordination, nor a construction management plan or sediment and erosion control plan. For suitable tree protection no services or other incursions or encroachments into the tree protection zones (TPZs) can occur.
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5 Table A - Tree Data Schedule and Arborist Impact Plans

a) Tree Data Schedule:

- 5.1 Refer to the *Table A Tree Data Schedule* on the following pages for the tree condition description and tree data:
- a. *Table A: Tree Schedule – A3 size, 7 sheets.*
- Provides tree reference number, detail on health and structure, SULE rating, landscape, and retention rating, SRZ's, TPZ's⁴ and relevant encroachment percentages.

b) Arborist Impact Plan:

- 5.2 The Arborist Impact Plans Arb_601 to Arb_605 have been created on 5 x A1 sized sheets at 1:200 and 1:500 scale.
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⁴ TPZ and SRZ's are calculated using AS4970-2009 (which is an adaptation in the Australian Standard from Matheney and Clarke's British Standard adaption method, 1991).

Reference			(m)	(m)	AREA (m)															Refer to Appendix 4a and 4b				Refer to report.	
Id #	Species, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m)				Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	% TPZ Encroachm ent	% SRZ encroach ment				
						N	E	S	W																
Eastern Zone: Trees along Bourke Street (both within the site and on the street verge - per description below).																									
4	Platanus x hybrida	SM	10.5	0.5	Retain and protect	8	7	8	3	0.73	Heavily lopped street tree. Under power lines (on west). From the lopped branches there is some shooting/growth. Branches extend over the road at ~6m high. Softfall around tree pit opening. Root crown base growth over the kerb. Unit pavers either side. Survey suggests services under. Shared bike/pedestrian path on the west side. Trunk protection installed.	Medium (20)	Moderate	Moderate	OB.	6.00	113.10	2.90	26.41	0%	0%				
	London Plane Tree													5											
5	Tristaniopsis laurina	SM	6	0.36	Retain and protect	1	1	4	2	0.5	Co-dominant form at 1.5m high. Foliage cover appears good for the species. Tree provides a visual screen. Trunk protection installed. Located under power lines and canopy is being kept under power lines.	Medium (20)	Moderate	Moderate	OB	4.32	58.63	2.47	19.22	0%	0%				
	Water Gum													4											
6	Lophostemon confertus	J / SM	7	0.31	Retain and protect	4	3	2	0.5	0.41	Surface roots present. Trunk protection installed. Garden bed size is adequate (for a street tree) as it is continual/joined (despite some unit pavers). Tree is lopped for power line clearance, otherwise appears visually sound.	Medium (20)	Moderate	Moderate	OB	3.72	43.47	2.28	16.27	0%	0%				
	Brush Box.													3											
7	Tristaniopsis laurina	J / SM	7	0.21	Retain and protect	3.5	3.5	3.5	3.5	0.32	Form appears visually sound. Garden bed size (together with T6 and per T6 description is adequate). Trunk protection is installed.	Medium (20)	Moderate	Moderate	OB	2.52	19.95	2.05	13.21	0%	0%				
	Water Gum													3											
8	Platanus x hybrida	J	7.5	0.13	Retain and protect	1.5	1.5	1.5	1.5	0.21	T8 appears stunted in size and general appearance and possibly due to small tree pit opening and surrounding competition and constrained conditions.	Short (<6)	Low	Low	OB	1.56	7.65	1.72	9.27	0%	0%				
	London Plane Tree													5											
9a	Lophostemon confertus	SM	11	0.4	Retain and protect	5.5	5.5	5.5	5.5	0.6	Tree is cut under power lines, however the canopy has now extended over and has allowed powerlines to growth through the middle.	Medium (20)	Moderate	Moderate	OB	4.80	72.38	2.67	22.40	0%	0%				
	Brush Box.													3											
9b	Casuarina glauca	SM	9	0.24	Proposal to remove (with approval - under the EWDA)	2	1	4	4	0.4	T9b has been proposed to be removed under the Early Works DA, not this Main Works DA. It is assumed that the approval to remove this tree will be granted. This tree has not been counted in the Main Works DA report. Trunk protection installed (but tree not part of original arborist reports). T9b is located <2m from the existing building. Canopy extends over the building. Form of tree appears sound. Tree form has a tall, straight bole.	Medium to Short (~15)	Moderate to Low	Low	WP	2.88	26.06	2.25	15.94	~26% (Over)	over				
	She Oak													5											
10	Platanus x hybrida	SM	10	0.37	Retain and protect	6.5	6.5	6.5	6.5	0.46	Tall and straight bole up until the location where the trunk has been lopped for power line clearance, resulting in multiple 2nd order trunks from the similar/same height. This has resulted in 90 degree angles of 2nd order branches. Tree growing in Softfall.	Medium (20)	Moderate	Moderate	OB	4.44	61.93	2.39	17.92	0%	0%				
	London Plane Tree													4 to 5											
11	Tristaniopsis laurina	SM	5.5	0.19	Retain and protect	2	2.5	2	2	0.31	Tri-dominant form. Tree limb cut at base on west. New shoots on trunks and tree form is tri-dominant.	Short (~10)	Moderate to Low	Low	WP	2.28	16.33	2.02	12.86	0%	0%				
	Water Gum													5											
12	Lophostemon confertus	J	6.5	0.12	Retain and protect	3	2	3	2	0.11	Very stunted and located close to T13, therefore possibly outcompeted by T13	Short (~10)	Moderate to Low	Low	WP	1.44	6.51	1.31	5.39	0%	0%				
	Brush Box.													5											
Age Class ST (Senescent) OM (Over Mature) M (Mature) SM (Semi-Mature) J (Juvenile)		(Diameter at Breast Height) DBH is used in TPZ calculation.					Dia. RCB is used in SRZ calculation		Crown Density PFC Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40% PFC = projected foliage cover		SULE Long(> 40 Years) Medium(15-40 Years) Short(5-15 Years) Transient < 5) H (Hazardous/Dead)		LANDSCAPE RATING S (Significant) VH (Very High) H (High) M (Moderate) L (Low) VL (Very Low) IN (Insignificant) Ex (Exempt TPO) T (Threatened S)		Retention Rating H - high 1 to 3 Priority retain M - moderate 4 to 5 Consider retain L -low 6 Consider Removal VL - very low 7 Priority Removal		Site Location O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site WP Within Development Potential OB Outside Boundary		Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.						
TPZ minimum is 2m and maximum is 15m diameter																									

Reference			(m)	(m)	AREA (m)						Refer to Appendix 4a and 4b										Refer to report.	
Id #	Species, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m)				Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	% TPZ Encroachm ent	% SRZ encroach ment	
						N	E	S	W													
Eastern Zone: Trees along Bourke Street (both within the site and on the street verge - per description below).																						
13	Tristaniopsis laurina	J	6.5	0.22	Retain and protect	3	2	3	2	0.27	Tree is suckering and provides a visual screen and is located very close to T12.	Medium (15-20)	Moderate	Moderate	OB	2.64	21.90	1.91	11.45	0%	0%	
	Water Gum													4								
14	Corymbia citriodora	SM	15	0.47	Retain and protect	5	5	5	5	0.5	Tree located within site and ~2m to building and ~0.5m to brick wall (at the boundary). Despite close proximity, tree form appears visually sound. Also visually, tree is rather stately, albeit surrounding vegetation is visually concealing prominence. Garden bed grades from pavement level down (west) towards the building. Tree roots likely shaped with the garden bed (north/south orientation) and less likely under footpath or building.	Long (~30)	High	High	WP, E	5.64	99.93	2.47	19.22	0%	0%	
	Lemon Scented Gum													1 to 2								
15	Platanus x hybrida	SM	13	0.34	Retain and protect	6	6	6	6	0.5	Tree's root crown base has Softfall around. Like all the street trees along Bourke Street, T15 is growing in a linear and narrow strip between shared path and road/back of kerb. In consideration of the growing conditions, tree appears visually good.	Medium (20)	Moderate	Moderate	OB	4.08	52.30	2.47	19.22	0%	0%	
	London Plane													3								
16	Eucalyptus pilularis	M	17+	0.78	Retain and protect	6	7	6	8	0.9	Ficus and Callistemon at base of T16 which is ~3m from the edge of the existing building and <0.3m from the boundary side brick wall. Tree is tall and very prominent and a habitat and canopy tree. Tree form: straight bole to ~6m+	Long (40+)	High	High	WP, P, E	9.36	275.23	3.17	31.49	0%	0%	
	Blackbutt													1								
17	Platanus x hybrida	J	3.5	0.06	Retain and protect	1.2	1.2	1.2	1.2	0.07	Juvenile specimen with very slender trunk, overshadowed by T16 and the last in the street verge.	Short to Medium (~10-20)	Low	Low	OB	0.72	1.63	1.08	3.69	0%	0%	
	London Plane													6								
18	Eucalyptus punctata	M	19+	0.8	Retain and protect	8	8	7	8	1	Located within private land but at the prominent corner of Bourke and Danks Streets, providing prominent streetscape character. Within the garden bed Celtis (exempt tree) exists. <1m from the boundary edge low brick wall. Tree is displaying some deadwood (as is typical), but otherwise appears visually sound. T18 is a prominent canopy and habitat tree.	Long (40+)	High	High	WP, P, E	9.60	289.53	3.31	34.41	0%	0%	
	Grey Gum													1								
Northern Zone: Trees along Danks Street (both within the site and on the street verge - per description below).																						
19	Lophostemon confertus	J	5.5	0.13	Retain and protect	3.5	3.5	3.5	3.5	0.23	Stunted tree. Electrical box located to the west (possibly restricting tree root growth). Slight lean to the west.	Short to Medium (~18)	Moderate	Moderate	OB	1.56	7.65	1.79	10.01	0%	0%	
	Brush Box													5								
20	Lophostemon confertus	SM	5.5	0.19	Retain and protect	5	5	5	5	0.25	Lean to the east. Garden bed size is a suitable size for the street tree.	Medium (20)	Moderate	Moderate	OB	2.28	16.33	1.85	10.74	0%	0%	
	Brush Box													3								
22	Lophostemon confertus	SM	6.5	0.3	Retain and protect	5.5	5.5	5.5	5.5	0.48	Form appears visually sound. Tri-dominant trunk formation at 1.8m high. Visually appears a suitable street tree.	Medium (20)	Moderate	Moderate	OB	3.60	40.72	2.43	18.57	0%	0%	
	Brush Box													3								
23	Lophostemon confertus	SM	6.5	0.22	Retain and protect	5	5	5	5	0.3	Growing in a continuous garden bed together with T22 (which is desirable for soil rooting volumes in street trees).	Medium (20)	Moderate	Moderate	WP	2.64	21.90	2.00	12.51	0%	0%	
	Brush Box													3								
	Age Class ST (Senescent) OM (Over Mature) M (Mature) SM (Semi-Mature) J (Juvenile)		(Diameter at Breast Height) DBH is used in TPZ calculation.				Dia. RCB is used in SRZ calculation		Crown Density PFC Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40% PFC = projected foliage cover		SULE Long(> 40 Years) Medium(15-40 Years) Short(5-15 Years) τ (Transient < 5) h (Hazardous/Dead)		LANDSCAPE RATING S (Significant) VH (Very High) H (High) M (Moderate) L (Low) VL (Very Low) IN (Insignificant) Ex (Exempt TPO) T (Threatened S)	Retention Rating H - high Priority retain M - moderate Consider retain L -low Consider Removal VL - very low Priority Removal	Rating 1 to 3 4 to 5 6 7	Site Location O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site WP Within Development Potential OB Outside Boundary	Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.					
TPZ minimum is 2m and maximum is 15m diameter																						

Reference			(m)	(m)	AREA (m)										Refer to Appendix 4a and 4b				Refer to report.		
Id #	Species, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m)				Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	% TPZ Encroachm ent	% SRZ encroach ment
						N	E	S	W												
Northern Zone: Trees along Danks Street (both within the site and on the street verge - per description below).																					
24, 25, 26	3 x <i>Casuarina cunninghamiana</i>	SM	19+	0.62	Retain and protect	10	10	6	3	0.66	Located within brick and timber planter (~6 x 2m) amongst car park and closely adjacent to a building on the east side. Trees are closely planted. Stormwater pit lid indicates stormwater is nearby. Trees, on private land provide a good visual screen. Trees are very tall compared to the planter size they are within, indicating old age plus tree roots access to 'under hardscape' resources. Tree canopy is over the powerlines to the north.	Medium (15-20)	Moderate	Moderate	WP	7.44	173.90	2.78	24.27	0%	0%
	Forest She Oak													4							
27	<i>Lophostemon confertus</i>	J	6.5	0.18	Retain and protect	2.7	2.7	2.7	2.7	0.28	Growing within a small tree pit (~1x1m) and tree appears visually stunted. Tree form: straight and single bole. Form appears otherwise sound.	Medium (~20)	Moderate	Moderate	WP, E	2.16	14.66	1.94	11.81	0%	0%
	Brush Box													5							
28	<i>Lophostemon confertus</i>	SM	7	0.3	Retain and protect	4.5	4.5	4.5	4.5	0.63	Tree canopy has been built around by the fixed awning of the adjacent building. Tree located under power lines. Tree condition: displaying many seed capsules. Tree form: 4 x dominant trunks at ~2m high. Swollen root crown base and lean (slight) to the west. Tree pit opening is ~1.8 x 2.4m	Medium (20)	Moderate	Moderate	OB	3.60	40.72	2.73	23.34	0%	0%
	Brush Box													4							
29	<i>Lophostemon confertus</i>	SM	12	0.46	Retain and protect	5	5	5	5	0.5	Tree condition and form appears visually sound and providing good amenity. Tree pit opening is ~4 x 2m (suitable tree pit opening for this street tree species).	Long (40+)	High	High 1	OB	5.52	95.73	2.47	19.22	0%	0%
	Brush Box																				
30	<i>Lophostemon confertus</i>	SM	12	0.3	Retain and protect	4.5	4.5	4.5	4.5	0.4	Tree condition appears visually sound. Tree pit opening is ~3x2m. Canopy extends over power lines.	Long (40+)	Moderate to High	Moderate	OB	3.60	40.72	2.25	15.94	0%	0%
	Brush Box													3							
31	<i>Lophostemon confertus</i>	SM / J	5.5	0.13	Retain and protect	2.5	2.5	2.5	2.5	0.2	Tree form: slender, narrow and straight bole. Canopy extends to the north and around power lines with new growth on canopy. Tree pit opening: ~1.2 x 1.7m.	Medium to Long	Moderate	Moderate	OB	1.56	7.65	1.68	8.90	0%	0%
	Brush Box													4							
32	<i>Eucalyptus scoparia</i>	M	25+	0.58	Retain and protect	7	6	5	4	0.8	T32 located together in raised built up large planter with new building development and paving surrounding. Slight lean to the north. Soil built up around base. Services nearby at base (within box on east side). 1 x snapped limb otherwise a prominent pair with T33.	Long (40+)	High	High 1	P	6.96	152.18	3.01	28.53	0%	0%
	Wallangarra Gum																				
33	<i>Eucalyptus pilularis</i>	M	25+	0.95	Retain and protect	10	7	6	10	1.32	Located within large built up planter/formed around T32 and T33. Driveway to the west. Tree canopy over power lines. Larger specimen than T32. Both growing together. Slight liftin of asphalt on west (minimal and not problematic provided no excavation).	Long (40+)	High	High 1	P	11.40	408.28	3.72	43.44	0%	0%
	Blackbutt																				
34	<i>Lophostemon confertus</i>	SM	4.5 to 6m (see notes)	0.27	Retain and protect	3.5	3.5	3.5	3.5	0.6	Tree is lopped at 4.5m and overall height is 6m. T34 and T35 have epicormic shoots. T34 has 3 x trunks (tri-dominant) at 1.2m high with a good root crown base and buttress at base.	Medium (20)	Moderate	Moderate	OB	3.24	32.98	2.67	22.40	0%	0%
	Brush Box													4							
35	<i>Lophostemon confertus</i>	SM to J	6.5	0.1	Retain and protect	2	2	2	2	0.13	Tree growing in Corten (steel) ring, built up above tree pit and is stunted. Decomposed compacted granite surround.	Short to Medium (~10-15)	Low to Moderate	Moderate	OB	1.20	4.52	1.40	6.20	0%	0%
	Brush Box													5							
Age Class ST (Senescent) OM (Over Mature) M (Mature) SM (Semi-Mature) J (Juvenile)		(Diameter at Breast Height) DBH is used in TPZ calculation.				Dia. RCB is used in SRZ calculation		Crown Density PFC Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40% PFC = projected foliage cover		SULE Long(> 40 Years) Medium(15-40 Years) Short(5-15 Years) τ (Transient < 5) η (Hazardous/Dead)		LANDSCAPE RATING S (Significant) VH (Very High) H (High) M (Moderate) L (Low) VL (Very Low) IN (Insignificant) Ex (Exempt TPO) T (Threatened S)	Retention Rating H - high 1 to 3 Priority retain M - moderate 4 to 5 Consider retain L -low 6 Consider Removal VL - very low 7 Priority Removal	Site Location O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site WP Within Development Potential OB Outside Boundary	Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.						
TPZ minimum is 2m and maximum is 15m diameter																					

Reference			(m)	(m)	AREA (M)															Refer to Appendix 4a and 4b				Refer to report.	
Id #	Species, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m)				Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	tpz (m2) Area	SRZ Radius (m)	srz (m2) Area zone	% TPZ Encroachm ent	% SRZ encroach ment				
						N	E	S	W																
Northern Zone: Trees along Danks Street (both within the site and on the street verge - per description below).																									
36	Lophostemon confertus	SM	7	0.24	Retain and protect	3	3	3	3	0.36	Tree condition: Tree canopy appears sound, even though lopping under power lines. Tree form: straight bole to ~3m high.	Medium (15-20)	Moderate	Moderate	WP	2.88	26.06	2.15	14.59	0%	0%				
	Brush Box													5											
37	Corymbia citriodora	SM	16	0.49	Retain and protect	6	6	6	6	0.58	Canopy extends above power lines. Tree condition: foliage density is low/sparse and tree appears visually impacted / under stress. Singular tree with earthworks to decontaminate soil on the southern side. Tree is fenced off at ~5m radius with exclusion fencing. Installation of aeration slotted ag lines x 5 at ~6m out from tree (on south, south-east and south-west sides) and ~100mm thick mulch within fenced zone. It is understood regular monitoring is occurring during the ground works rehabilitation works (following building demolition under a separate DA). Note: TPZ and SRZ use previous reports due to no access within the fenced zone.	Medium (15-20)	High	Moderate	WP, E, P.	5.88	108.62	2.63	21.77	0%	0%				
	Lemon Scented Gum													3											
38	Lophostemon confertus	SM	6.5	0.28	Retain and protect	4	4	4	4	0.34	Trees lopped for under power line clearance. Epicormic shoots. Trees as a result are stunted.	Short to Medium (~10-15)	Moderate	Moderate	OB	3.36	35.47	2.10	13.90	0%	0%				
	Brush Box													5											
39	Lophostemon confertus	SM	6.5	0.28	Retain and protect	4	4	4	4	0.34	Concrete path adjacent street trees with no lifting. All 3 trees: T38, T39 and T40 are located under power lines and have been lopped. All have trunk protection and all have single dominant forms to ~3m high. Canopy clearance on the south (site side) is ~3.5m high and extends just into the site boundary line.	Short to Medium (~10-15)	Moderate	Moderate	OB	3.36	35.47	2.10	13.90	0%	0%				
	Brush Box													5											
40	Lophostemon confertus	SM	6.5	0.28	Retain and protect	4	4	4	4	0.34		Short to Medium (~10-15)	Moderate	Moderate	OB	3.36	35.47	2.10	13.90	0%	0%				
	Brush Box													4											
41	Corymbia citriodora	SM to M	24	0.63	Retain and protect	8	8	6	5	0.76	Trees T41 to T44 are considered within a copse (group) and all will have symbiotically connected rooting and underground networks (i.e. relying and reliant on the other and connected). Note: for T41 - T44, due to not being able to access within the TPZ fenced zone, the DBH and RCB and hence TPZ and SRZ calculations per the previous 2 arborist reports have been utilised and accepted. T41: The largest of the group of four. Branching starts very high up with a straight, somewhat twisting, but largely singular bole. Tree condition appears visually sound and robust. T41-T44: Tree protection zone fenced area contains the existing (retained) concrete ground slab (due to roots extending between multiple concrete slabs at ground and below ground level and relying upon the slabs for anchoring (reference: AIA Arborscan report). Stability of the trees relies upon these ground conditions being retained. T42: Straight bole with tree form typical of a copse of moderately closely planted trees (~4m apart). T43: slight lean to the north/northwest. This tree to be monitored for further movement in this direction, given the concrete ground anchoring (described above). T43 is slightly more slender, smaller in stature than the other three trees. T44: Also prominent with single dominant tree form and high branching. Again, the concrete slab to be retained for tree stability.	Long (40+)	High	High	P	7.56	179.55	2.95	27.32	7%	0%				
	Lemon Scented Gum													1 to 2											
42	Corymbia citriodora	SM	20	0.43	Retain and protect	5	5	5	5	0.5			Long (40+)	High	High	P	5.16	83.65	2.47	19.22	0%	0%			
	Lemon Scented Gum														1 to 2										
43	Corymbia citriodora	SM	20	0.38	Retain and protect	4	4	6	6	0.44			Long (40+)	High	High	P	4.56	65.33	2.34	17.26	0%	0%			
	Lemon Scented Gum														1 to 2										
44	Corymbia citriodora	SM to M	22	0.57	Retain and protect	5	8	8	8	0.64			Long (40+)	High	High	P	6.84	146.98	2.74	23.65	0%	0%			
	Lemon Scented Gum														1 to 2										
Eastern Zone: Trees along Young Street (both within the site and on the street verge - per description below).																									
45	Corymbia citriodora	J	10.5	0.12	Retain and protect	3	0	0	6	0.16	Tree form: Strong lean away from other trees. Poor form, spindly condition and attributes of being suppressed by Jacaranda. Very closely planted to T46 and T47. Located under power lines.	Short to Medium (~10-15)	Moderate to Low	Moderate	OB	1.44	6.51	1.53	7.38	0%	0%				
	Lemon Scented Gum													5											
Age Class ST (Senescent) OM (Over Mature) M (Mature) SM (Semi-Mature) J (Juvenile)		(Diameter at Breast Height) DBH is used in TPZ calculation.					Dia. RCB is used in SRZ calculation		Crown Density PFC Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40% PFC = projected foliage cover		SULE Long(> 40 Years) Medium(15-40 Years) Short(5-15 Years) τ (Transient < 5) h (Hazardous/Dead)		LANDSCAPE RATING S (Significant) VH (Very High) H (High) M (Moderate) L (Low) VL (Very Low) IN (Insignificant) Ex (Exempt TPO) T (Threatened S)		Retention H - high Priority retain M - moderate Consider retain L -low Consider Removal VL - very low Priority Removal		Rating 1 to 3 4 to 5 6 7		Site Location O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site WP Within Development Potential OB Outside Boundary		Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.				
TPZ minimum is 2m and maximum is 15m diameter																									

Reference		(m)		(m)	AREA (m)											Refer to Appendix 4a and 4b				Refer to report.		
Id #	Species, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m)				Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	% TPZ Encroachme nt	% SRZ encroach ment	
						N	E	S	W													
Eastern Zone: Trees along Young Street (both within the site and on the street verge - per description below).																						
46	Corymbia citriodora	J	10.5	0.12	Retain and protect	3	0	0	6	0.16	Tree form: Strong lean away from other trees. Poor form, spindly condition and attributes of being suppressed by Jacaranda. Very closely planted to T46 and T47. Located under power lines	Short to Medium (~10-15)	Moderate to Low	Moderate	OB	1.44	6.51	1.53	7.38	0%	0%	
	Lemon Scented Gum													5								
47	Jacaranda mimosifolia	SM	9.5	0.25	Retain and protect	4	3	4	6	0.32	Tree canopy does not extend much into the site (insignificant). Tree condition: 1 x epicormic shoot growing under power lines. Form: overall poor. T47 is located less than 1m from two juvenile trees being T46 and T45.	Short to Medium (~10-15)	Moderate to Low	Moderate	OB	3.00	28.27	2.05	13.21	0%	0%	
	Jacaranda													5								
48	Fraxinus griffithii	SM	7	0.32	Retain and protect	4	4	4	5	0.41	T48, T49 and T50 are a group of 3 x Fraxinus in the street verge. T48 has the best form and condition of the group, probably due to the least amount of pruning. T48 is less suppressed. Tree form: Co-dominant trunks from 1m high and overall form appears good, despite being located under power lines. Ivy is growing around base and in garden bed (whereas street trees further south on Young St are within turf).	Medium (~15-20)	Moderate	Moderate	OB	3.84	46.32	2.28	16.27	0%	0%	
	Evergreen Ash													4								
49	Fraxinus griffithii		6.5	0.3	Retain and protect	2	2.5	3	4	0.37	Located under power lines. Trunk protection installed. Pruned previously with epicormic shoots sprouting (pruning presumably for overhead powerline clearance).	Medium (~15-20)	Moderate	Moderate	OB	3.60	40.72	2.18	14.93	0%	0%	
	Evergreen Ash													5								
50	Fraxinus griffithii		6	0.14	Retain and protect	4	1	1	2	0.28	Form is poor. Tree condition: pruned previously and epicormic shoots have developed at a weak attachment and growing at an undesirable angle. Tree does provide some shade amenity and is growing within shade of the Tuckeroo trees (T51 and T52) within the site adjacent. There is sparse grass in verge, likely due to low light conditions.	Medium (~15-20)	Moderate	Moderate	OB	1.68	8.87	1.94	11.81	0%	0%	
	Evergreen Ash													5								
51	Cupaniopsis anacardioides	M	19	0.62	Retain and protect	7	5	4	6	0.87	TPZ fence erected to the east (within site) with geotextile and mulch of ~100mm thickness. Concrete edge exists along boundary. A former concrete pillar/column (likely from the former building) exists ~2m east of T51 (covered in geotextile fabric. Trees T51 and T52 have damage from ~4m and 5m high (as a result of former fixed awning). The trees appear to have overcome this wounding. Note: scarring will remain. Trees lean slightly to the west (towards Young St). Tree roots may be developing within the 100mm thick mulch zone given this mulch has been in place ~2 years or more whilst ground decontamination works are being carried out).	Medium to Long (~30-40+)	High	High	P, E	7.44	173.90	3.12	30.61	~7%	0%	
	Tuckeroo													3								
52	Cupaniopsis anacardioides	M	19	0.63	Retain and protect	3	7	5	4	0.8		Medium to Long (~30-40+)	High	High	P, E	7.56	179.55	3.01	28.53	~9.5%	0%	
	Tuckeroo													3								
54	Jacaranda mimosifolia with Casuarina suckering at base	SM	11	0.22	Retain and protect	5.5	1	1	4.5	0.29	Tree is leaning to the north. Suckering of Casuarina within verge (has the potential to take over/out-compete). Trunk protection installed on T54. 2nd order branches clashing with power lines (very close/touching). Canopy distribution is mostly to the west. Tree zone is shaded by the 2 x Tuckeroo trees on site (T55).	Medium (~15-20)	Moderate	Moderate	OB	2.64	21.90	1.97	12.16	0%	0%	
	Jacaranda and suckering She Oaks													5								
55a and 55b	2 x Cupaniopsis anacardioides	M	11	0.28	Retain and protect	5	5.5	3	3	0.33	Trees are not shown on survey and have been approximately located on the Arborist plan. A star picket stake is at the base of T55b on the north of T55b. There is a change in earth/soil level by cutting/excavation which can be detrimental to the trees. Trees are within the TPZ fenced area with mulch surround. Murraya (shrub) at base appears necrotic (indicating nutrient deficiency). The Tuckeroos themselves have some yellow spotting on their leaves which can be typical or indicate a deficiency. Overall condition: dull and lacklustre (possibly due to over-competition and possible nitrogen drawdown). There is a monitoring well (or other) ~4m to the east which may also point to a cause of impact.	Medium (~15-20)	Moderate	Moderate	E	3.36	35.47	2.08	13.56	0%	0%	
	2 x Tuckeroo trees													4								
56	Casuarina glauca	M	18	0.36	Retain and protect	4	4	4	4	0.57	Tree form: Tall, straight, single leader, grouped together with T56, T57, T58 (copse of 3) with dense understorey shrubs (mostly Murraya). Trees provide a good visual screen.	Long (~40)	Moderate to High	High	P, E	4.32	58.63	2.61	21.46	0%	0%	
	Swamp She Oak													3								
Age Class ST (Senescent) OM (Over Mature) M (Mature) SM (Semi-Mature) J (Juvenile)		(Diameter at Breast Height) DBH is used in TPZ calculation.					Dia. RCB is used in SRZ calculation		Crown Density PFC Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40% PFC = projected foliage cover		SULE L ong(> 40 Years) M edium(15-40 Years) s hort(5-15 Years) τ (Transient < 5) h (Hazardous/Dead)		LANDSCAPE RATING S (Significant) VH (Very High) H (High) M (Moderate) L (Low) VL (Very Low) IN (Insignificant) Ex (Exempt TPO) T (Threatened S)		Retention H - high Priority retain M - moderate Consider retain L -low Consider Removal VL - very low Priority Removal	Rating 1 to 3 4 to 5 6 7	Site Location O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site WP Within Development Potential OB Outside Boundary		Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.			
		TPZ minimum is 2m and maximum is 15m diameter																				

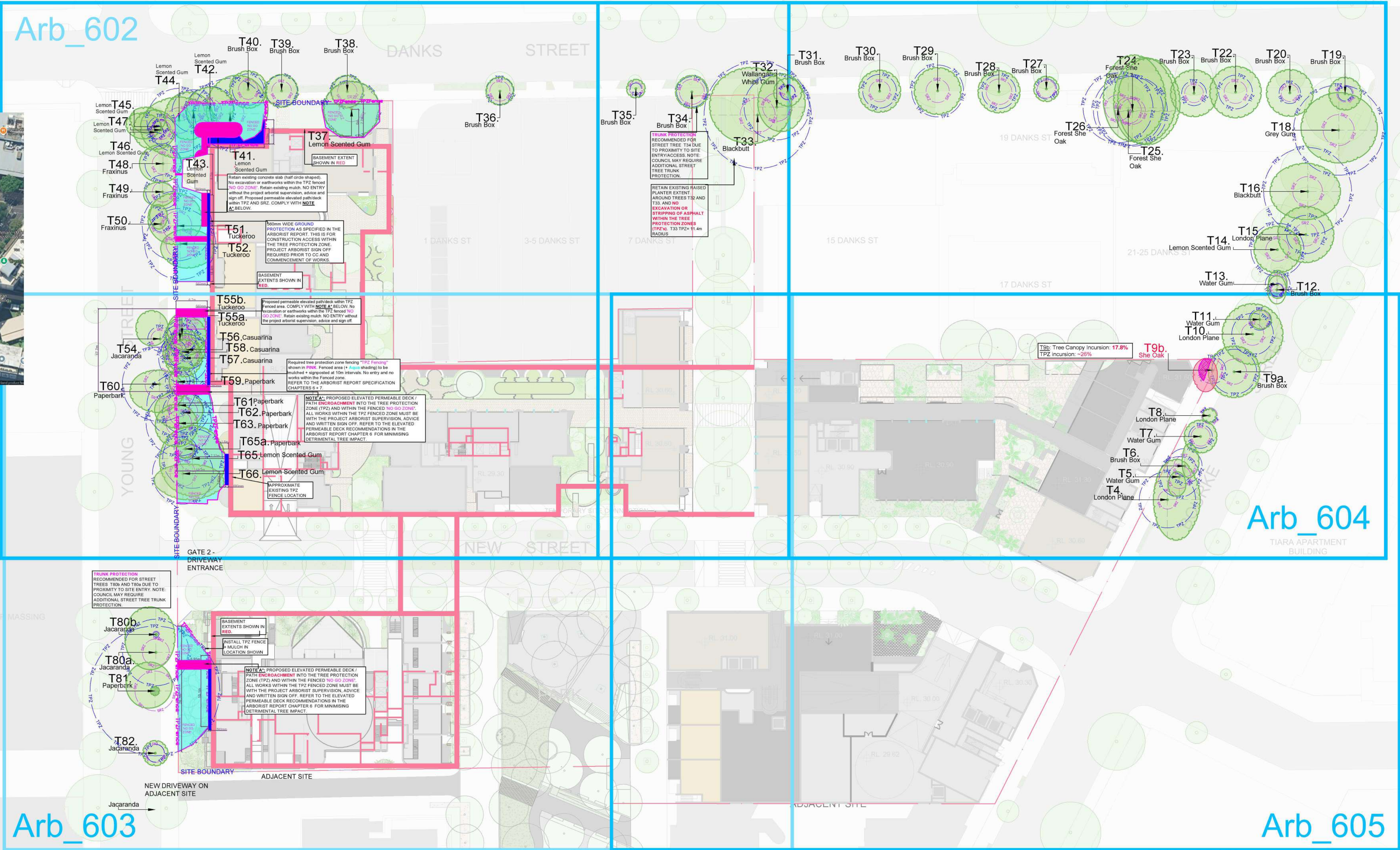
Reference			(m)	(m)	AREA (m)									Refer to Appendix 4a and 4b				Refer to report.									
Id #	Species, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m)				Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	% TPZ Encroachm ent	% SRZ encroach ment						
						N	E	S	W																		
Eastern Zone: Trees along Young Street (both within the site and on the street verge - per description below).																											
57	Casuarina glauca	M	18	0.44	Retain and protect	4	4	4	4	0.92	Tree form: Tall, straight, single leader, grouped together with T56, T57, T58 (copse of 3) with dense understorey shrubs (mostly Murraya). Trees provide a good visual screen.	Long (~40)	Moderate to High	High 3	P, E	5.28	87.58	3.20	32.08	0%	0%						
	Swamp She Oak																										
58	Casuarina glauca	SM	16	0.23	Retain and protect	4	4	4	4	0.3	T58 is the smaller sized specimen of the group of 3 (T56 - T58). All are closely planted together. Note: suckering of Casuarina on the street verge near T54 is likely from this copse.	Long (~40)	Moderate to High	Moderate	P, E	2.76	23.93	2.00	12.51	0%	0%						
	Swamp She Oak													3													
59	Melaleuca quinquenervia	J	9	0.22	Retain and protect	3	3.5	3	1.8	0.28	Supressed by T60. Small specimen with some borer activity in outer bark	Medium (~15-20)	Moderate	Moderate	E	2.64	21.90	1.94	11.81	0%	0%						
	Paperbark													4													
60	Melaleuca quinquenervia	M	15	0.66	Retain and protect	3	5	6	6	0.85	Location on street verge (Young St). Tree form: co-dominant at 2.5m high. Slight kerb deflection with lifting. Located under power lines which are through the branching arrangement and canopy over. Condition: overall visually appears sound.	Long (~40)	High	High	OB	7.92	197.06	3.09	30.02	0%	0%						
	Paperbark													1 to 2													
61	Melaleuca quinquenervia	SM	9	0.4	Retain and protect	3	5	5	5	0.47	Location is 1.3m from T62 (close proximity). T61 is somewhat supressed above and below ground by the surrounding trees being between T62, T59 and T60 (street)	Medium (~15-20)	Moderate	Moderate	E	4.80	72.38	2.41	18.25	0%	0%						
	Paperbark													3													
62	Melaleuca quinquenervia	SM	14	0.37	Retain and protect	5	4	3	5	0.84	Tree location is close to T63. T62 form: tall, fastigate and co-dominant at 1.5m high. Trees T6-63 and T60 are part of a copse of Paperbarks.	Long (~40)	High	High	E	4.44	61.93	3.08	29.72	0%	0%						
	Paperbark													2													
63	Melaleuca quinquenervia	M	12	0.58	Retain and protect	4	4	5	5	0.63	T63 form: tri-dominant, upright form and fastigate. Currently in flower. Canopy growing amongst T65. Part of a copse of Paperbarks (T60-T63) and provides visual screening and a linked canopy from Young Street.	Long (~40)	High	High	P, E	6.96	152.18	2.73	23.34	0%	0%						
	Paperbark													2													
65	Corymbia citriodora	M	17	0.53	Retain and protect	7	7	8	7	0.74	Tree branching over Gate 2 is approx. 4m high and to the north, low branches 1m high. To the east branching 7 to 8m out are low. Recommendation is for no tree branch pruning. It is also recommended that tree protection fencing to remain in place for tree viability given high retention rating of T65 and T66. Both trees are a pair that have shared rooting systems. The trees, being the same age, species and relative size have grown and developed their branching structure to suit each other (i.e. removing one will compromise the other tree). Note: existing tree protection zone fencing and proposed TPZ fencing is different (to accomodate proposed excavation and basement extent). Refer to Chapter 6 of this report.	Long (~40)	High	High	P, E, WP	6.36	127.08	2.92	26.72	0%	0%						
	Lemon Scented Gum													1													
66	Corymbia citriodora	M	15	0.54	Retain and protect	2	8	5.5	5.5	0.66	Branching for clearance is high (~8m high at the eastern extent). Tree form: prominent, very desirable and stately. Location: there is an in-ground services box (possibly communications) very close to the base of T65). Recommendations around this are outlined in the arborist report and any works to do with those services regarding tree impacts (as this is within the SRZ and may otherwise compromise the structural stability of the tree and overall viability). Tree surrounds are fenced off currently at the tree protection zone together with ~100mm thick mulch is within the fenced exclusion zone. Several Corymbia citriodora seedlings have sprouted within the mulch indicating mulch has been in situ for some time (~2 years) and it is possible there might be tree roots growing within this mulch stratum (if they have penetrated through the geotextile fabric).	Long (~40)	High	High	E	6.48	131.92	2.78	24.27	0%	0%						
	Lemon Scented Gum													1													
65a	Melaleuca quinquenervia	J		0.2	Retain and protect	2	2	2	2	0.25	Small Paperbark growing between T65 and T63, not on survey.	Medium (~15-20)	Moderate	Moderate	E.	2.40	18.10	1.85	10.74	0%	0%						
	Paperbark													3													
Age Class ST (Senescent) OM (Over Mature) M (Mature) SM (Semi-Mature) J (Juvenile)		(Diameter at Breast Height) DBH is used in TPZ calculation.				Dia. RCB is used in SRZ calculation				Crown Density PFC Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40% PFC = projected foliage cover		SULE Long(> 40 Years) Medium(15-40 Years) Short(5-15 Years) τ (Transient < 5) η (Hazardous/Dead)		LANDSCAPE RATING S (Significant) VH (Very High) H (High) M (Moderate) L (Low) VL (Very Low) IN (Insignificant) Ex (Exempt TPO) T (Threatened S)		Retention Rating H - high 1 to 3 Priority retain M - moderate 4 to 5 Consider retain L - low 6 Consider Removal VL - very low 7 Priority Removal		Site Location O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site WP Within Development Potential OB Outside Boundary		Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.							

Reference			(m)	(m)	AREA (m)																Refer to Appendix 4a and 4b				Refer to report.	
Id #	Species, Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m)				Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	% TPZ Encroachm ent	% SRZ encroach ment					
						N	E	S	W																	
Eastern Zone: Trees along Young Street (on the street verge)																										
80a	Jacaranda mimosifolia	M	8	0.59	Retain and protect	9.5	3.5	3.5	6	0.71	Canopy to the north is 3.5m high at ~4m out to the north (relevant for clearances). A power pole is located between T80a and T81. T80a has lean to the north and has trunk protection installed. The tree canopy extends only ~1m into the stie. The concrete footpath is located at the boundary with tree roots visible at the boundary interface which have been assessed to likely be from the now removed (approved) T79 - Tuckeroo.	Long (~40)	Moderate to High	High 3	OB	7.08	157.48	2.87	25.80	0%	0%					
	Jacaranda																									
80b	Jacaranda mimosifolia	J	3.5	0.05	Retain and protect	0.3	0.3	0.3	0.3	0.03	Newly installed/planted council street tree (close to / 1.5m from the driveway of 'Gate 2'). Tree is staked, has hardwood tree guards with hessian and appears to be recently planted (within the last 3 -5 months).	Medium (~15-20)	Moderate	Moderate 4	OB	0.60	1.13	0.76	1.81	0%	0%					
	Jacaranda																									
81	Melaleuca quinquenervia	M	8	1.15	Retain and protect	6	3.5	3.5	6	1.8	Very large trunk and base of tree, located within a 1.7m wide verge. The canopy extent does not extend into the site area. The branching structure is around the power lines.	Long (~40)	High	High 1	OB	13.80	598.28	4.24	56.37	~5%	0%					
	Paperbark																									
82	Jacaranda mimosifolia	J	5.5	0.16	Retain and protect	2.7	2.7	2.7	2.7	0.29	Top of canopy is just under the power lines and has not yet needed/been pruned for clearance. Tree form: tall, straight to 3.5m high. Tree has trunk protection. Tree is located adjacent a newly installed concrete driveway (for the adjacent development site - not the subject site)	Long (~40)	Moderate	Moderate 5	OB	1.92	11.58	1.97	12.16	0%	0%					
	Jacaranda																									
Age Class ST (Senescent) OM (Over Mature) M (Mature) SM (Semi-Mature) J (Juvenile)		(Diameter at Breast Height) DBH is used in TPZ calculation.				Dia. RCB is used in SRZ calculation				Crown Density PFC Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40% PFC = projected foliage cover		SULE Long(> 40 Years) Medium(15-40 Years) Short(5-15 Years) τ (Transient < 5) n (Hazardous/Dead)		LANDSCAPE RATING H (High) VH (Very High) M (Moderate) L (Low) VL (Very Low) IN (Insignificant) Ex (Exempt TPO) T (Threatened S)		Retention Rating H - high 1 to 3 Priority retain M - moderate 4 to 5 Consider retain L -low 6 Consider Removal VL - very low 7 Priority Removal		Site Location O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site		Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.						

- PROJECT: Main Works for Waterloo Mixed Use Development.**
State Significant Development Application (SSDA) number: SSD-80441462.
881-885 Bourke Street, Waterloo, NSW Consulting Arboricultural Impact Assessment Plan for SSDA
- Arb_601 Consulting Arboricultural Overall Site Plan, Drawing Schedule and Cover Sheet 1:500 at A1
 - Arb_602 Consulting Arboricultural Tree Impact Plan 1 (Stage 1. Parcel 1. North-western Zone) 1:200 at A1
 - Arb_603 Consulting Arboricultural Tree Impact Plan 2 (Stage 1. Parcel 4. South-western Zone) 1:200 at A1.
 - Arb_604 Consulting Arboricultural Tree Impact Plan 3 (Stage 2. Parcel 2. North-eastern Zone) 1:200 at A1.
 - Arb_605 Consulting Arboricultural Tree Impact Plan 4 (Stage 2. Parcel 3. South-eastern Zone) 1:200 at A1.
 - Table A Tree Data Schedules. 7 x A3 Sheets
 - Report Arboricultural Concept Phase Report at A4.



AERIAL PHOTO SHOWING THE SUBJECT SITE. Source: Google Maps. Date accessed: 23.11.2024



LEGEND: ADDITIONAL TREE IMPACT ITEMS

- Ground protection is required in locations shown - to limit tree impact during construction within the TPZ and to allow construction access for building construction (no cut or fill and no footings in this zone). To be specified/detailed for CC.
- Proposed elevated permeable new deck / path system. Where within TPZ various project arborist measures must be complied with to limit ground (soil) and tree impact. (no cut or fill in this zone). No construction access. Refer to Chapter 6 of the arborist impact assessment report.
- Do not enter into these zones. Contact the project arborist for prior written instructions and supervision and sign off.

THE COMBINED ARCHITECTURAL GROUND AND BASEMENT PLANS AND SURVEY PLAN HAS BEEN USED IN THE FORMULATION OF THE BASE UNDERLAY TO ASSESS THE TREE IMPACT AND CREATE THESE ARBORIST PLANS.

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 Level 1, Unit 2 / 120 Oxford Street, Woolahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

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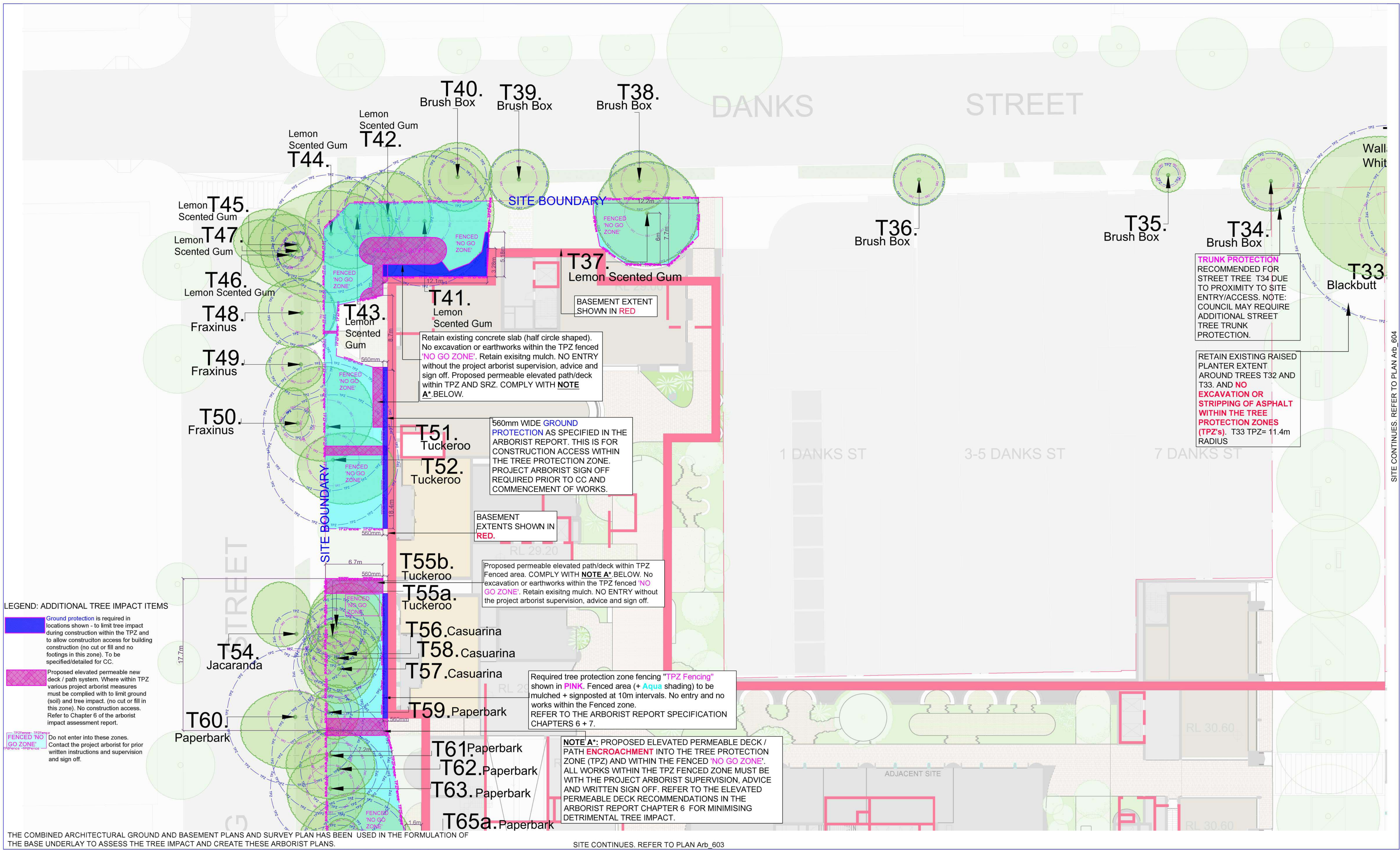
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LEGEND: ADDITIONAL TREE IMPACT ITEMS

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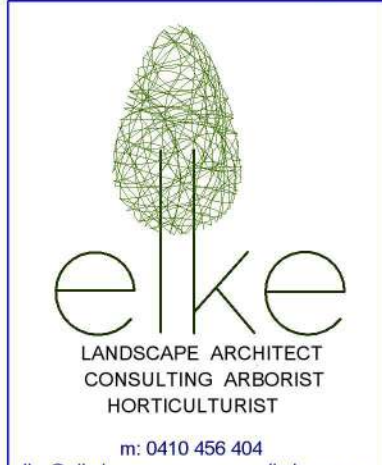
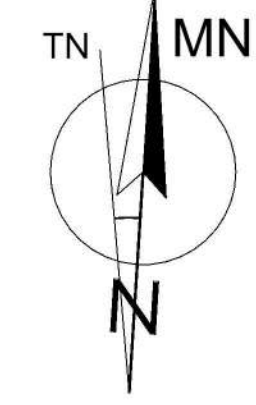
Registered Landscape Architect AILA (#001539)

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Issue	Revision Description	Date
C	Updated for SSDA submission.	05.09.25
B	Updated for EVDA submission (Excavation)	16.07.25
A	Draft for internal co-ordination	22.05.25

LEGEND

- T1. Tree Reference number. Arrow points to centre of tree.
- Calculated SRZ = Structural Root Zone TPZ = Tree Protection Zone
- Tree Proposed for removal (detrimental impact). Canopy (foliage) extent and centre of trunk shown.
- Tree proposed for retention and protection. Canopy (foliage) extent and centre of trunk shown.
- Tree Canopy Extent (north, south, east & west directions)
- Tree Protection Fencing (in pink), mulch + Signage Required. 'No Go' Zone. (to meet AS 4970-2007)



State Significant Development Application

Client: Waterloo Property Pty Ltd as trustee for Waterloo Property Unit Trust

Project Management: Coronation.

Consulting Arborist: ELKE

Project: Main Works for Waterloo Mixed Use Development (HDA)

881-885 Bourke Street, Waterloo NSW

Drawing Name: Consulting Arboricultural

Tree Impact Plan (North-west zone. Parcel 1)

This plan forms part of the consulting arboricultural SSDA Package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EHT

Job Number: 2411_c

Drawing Number: Arb_602

Issue: C

LEGEND: ADDITIONAL TREE IMPACT ITEMS

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elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 Level 1, Unit 2 / 120 Oxford Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

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Tree Reference number. Arrow points to centre of tree.

T1. Tree Name

Calculated

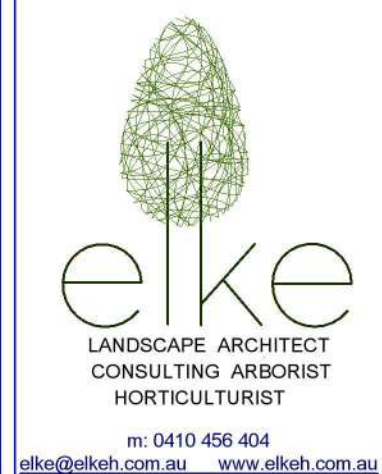
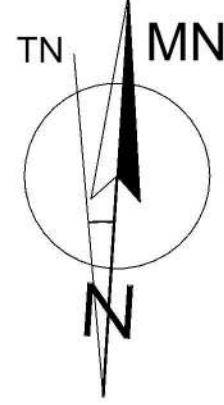
SRZ = Structural Root Zone
TPZ = Tree Protection Zone

Tree Proposed for **removal** (detrimental impact). Canopy (foliage) extent and centre of trunk shown.

Tree proposed for **retention** and protection. Canopy (foliage) extent and centre of trunk shown.

Tree Canopy Extent (north, south, east & west directions)

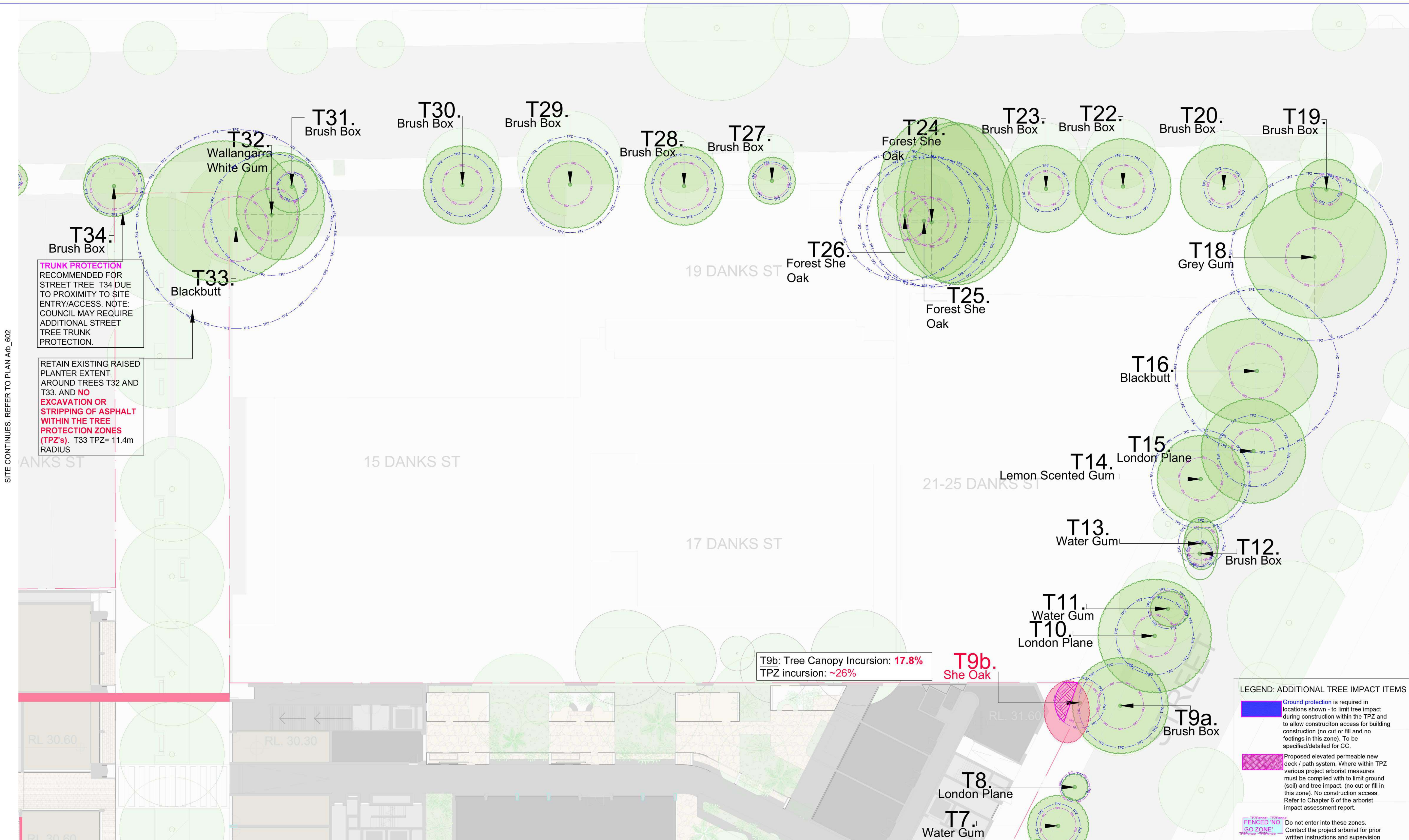
Tree Protection Fencing (in pink), mulch & Signage Required. **'No Go' Zone.** (to meet AS 4970-2007)



State Significant Development Application	
Client:	Waterloo Property Pty Ltd as trustee for Waterloo Property Unit Trust
Project Management:	Consulting Arborist:
Coronation.	ELKE
Project:	Main Works for Waterloo Mixed Use Development (HDA) 881-885 Bourke Street, Waterloo NSW

Drawing Name:		
Consulting Arboricultural Tree Impact Plan (South-west zone. Parcel 4) This plan forms part of the consulting arboricultural SSDA Package Scale: 1: 200 @A1 Scale bar:  10m		
Drawn:	EHT	
Job Number: 2411 c	Drawing Number: Arb 603 C	Issue: C

SITE CONTINUES. REFER TO PLAN Arb_602



TRUNK PROTECTION
RECOMMENDED FOR STREET TREE T34 DUE TO PROXIMITY TO SITE ENTRY/ACCESS. NOTE: COUNCIL MAY REQUIRE ADDITIONAL STREET TREE TRUNK PROTECTION.

RETAIN EXISTING RAISED PLANTER EXTENT AROUND TREES T32 AND T33. AND **NO EXCAVATION OR STRIPPING OF ASPHALT WITHIN THE TREE PROTECTION ZONES (TPZ's)**. T33 TPZ= 11.4m RADIUS

T9b: Tree Canopy Incursion: 17.8%
TPZ incursion: ~26%

LEGEND: ADDITIONAL TREE IMPACT ITEMS

- Ground protection is required in locations shown - to limit tree impact during construction within the TPZ and to allow construction access for building construction (no cut or fill and no footings in this zone). To be specified/detailed for CC.
- Proposed elevated permeable new deck / path system. Where within TPZ various project arborist measures must be complied with to limit ground (soil) and tree impact. (no cut or fill in this zone). No construction access. Refer to Chapter 6 of the arborist impact assessment report.
- Do not enter into these zones. Contact the project arborist for prior written instructions and supervision and sign off.

THE COMBINED ARCHITECTURAL GROUND AND BASEMENT PLANS AND SURVEY PLAN HAS BEEN USED IN THE FORMULATION OF THE BASE UNDERLAY TO ASSESS THE TREE IMPACT AND CREATE THESE ARBORIST PLANS.

SITE CONTINUES. REFER TO PLAN Arb_605

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 Level 1, Unit 2 / 120 Oxford Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

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Registered Landscape Architect AILA (#001539)

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown must be referred to the Landscape Architect for confirmation. The Contractor must not construct from this drawing unless it marked 'Issue for Construction'. The Contractor acknowledges this drawing may be one of a number of drawings which together document the landscape design and works.

Issue	Revision Description	Date
C	Updated for SSDA submission.	05.09.25
B	Updated for EWDA submission (Excavation)	16.07.25
A	Draft for internal co-ordination	22.05.25

LEGEND

T1. Tree Name
Tree Reference number. Arrow points to centre of tree.

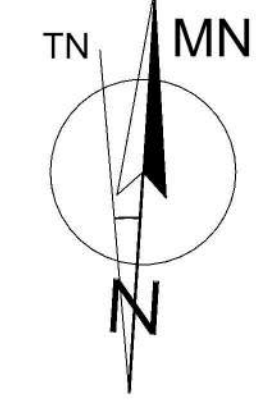
Calculated
SRZ = Structural Root Zone
TPZ = Tree Protection Zone

Tree Proposed for **removal** (detrimental impact). Canopy (foliage) extent and centre of trunk shown.

Tree proposed for **retention** and protection. Canopy (foliage) extent and centre of trunk shown.

Tree Canopy Extent (north, south, east & west directions)

Tree Protection Fencing (in pink), mulch + Signage Required. **'No Go' Zone.** (to meet AS 4970-2007)



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State Significant Development Application

Client: Waterloo Property Pty Ltd
as trustee for Waterloo Property Unit Trust
Project Management: Consulting Arborist: ELKE
Coronation.

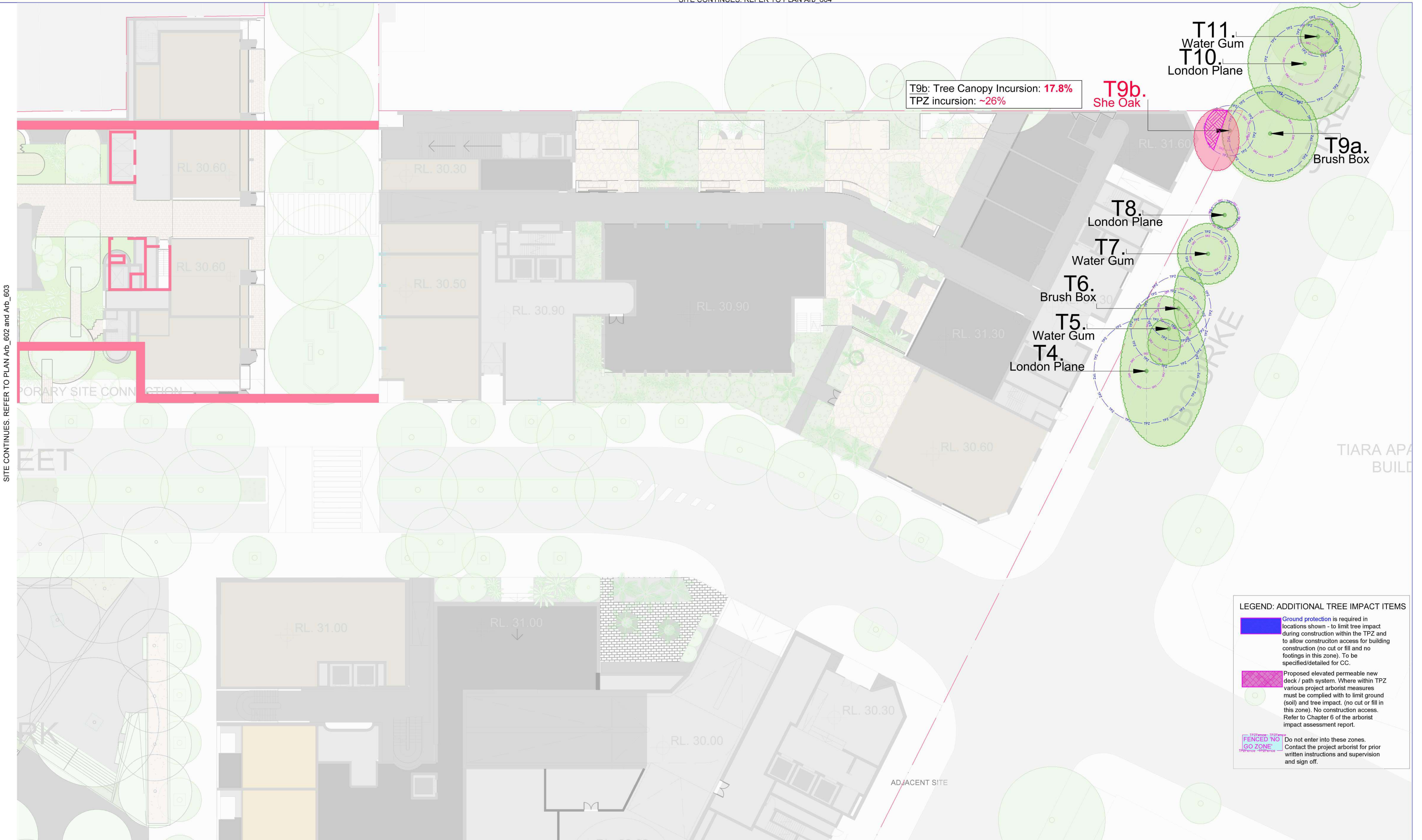
Project: Main Works for Waterloo
Mixed Use Development (HDA)
881-885 Bourke Street, Waterloo NSW

Drawing Name: Consulting Arboricultural
Tree Impact Plan (North-east zone. Parcel 2)
This plan forms part of the consulting arboricultural SSDA Package

Scale: 1: 200 @A1
Scale bar: 0 1 2 4 6 10m

Drawn: EHT
Job Number: 2411_c
Drawing Number: Arb_604
Issue: C

SITE CONTINUES. REFER TO PLAN Arb_602 and Arb_603



THE COMBINED ARCHITECTURAL GROUND AND BASEMENT PLANS AND SURVEY PLAN HAS BEEN USED IN THE FORMULATION OF THE BASE UNDERLAY TO ASSESS THE TREE IMPACT AND CREATE THESE ARBORIST PLANS.

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 Level 1, Unit 2 / 120 Oxford Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

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Registered Landscape Architect AILA (#001539)		
The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown must be referred to the Landscape Architect for confirmation. The Contractor must not construct from this drawing unless it marked 'Issue for Construction'. The Contractor acknowledges this drawing may be one of a number of drawings which together document the landscape design and works.		
C	Updated for SSDA submission.	05.09.25
B	Updated for EWDA submission (Excavation)	16.07.25
A	Draft for internal co-ordination	22.05.25
Issue	Revision Description	Date

NOT FOR CONSTRUCTION		
C	Updated for SSDA submission.	05.09.25
B	Updated for EWDA submission (Excavation)	16.07.25
A	Draft for internal co-ordination	22.05.25
Issue	Revision Description	Date

LEGEND

Tree Reference number. Arrow points to centre of tree.

Tree Proposed for **removal** (detrimental impact). Canopy (foliage) extent and centre of trunk shown.

Tree proposed for **retention** and protection. Canopy (foliage) extent and centre of trunk shown.

Tree Protection Fencing (in pink), mulch + Signage Required. **'No Go' Zone.** (to meet AS 4970-2007)

Tree Canopy Extent (north, south, east & west directions)

Calculated
SRZ = Structural Root Zone
TPZ = Tree Protection Zone

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State Significant Development Application

Client: Waterloo Property Pty Ltd
as trustee for Waterloo Property Unit Trust
Project Management: Coronation.
Consulting Arborist: ELKE

Project: Main Works for Waterloo
Mixed Use Development (HDA)
881-885 Bourke Street, Waterloo NSW

Drawing Name: Consulting Arboricultural
Tree Impact Plan (South-east zone. Parcel 3)

This plan forms part of the consulting arboricultural SSDA Package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EHT

Job Number: 2411_c

Drawing Number: Arb_605

Issue: C

LEGEND: ADDITIONAL TREE IMPACT ITEMS

Ground protection is required in locations shown - to limit tree impact during construction within the TPZ and to allow construction access for building construction (no cut or fill and no footings in this zone). To be specified/detailed for CC.

Proposed elevated permeable new deck / path system. Where within TPZ various project arborist measures must be complied with to limit ground (soil) and tree impact. (no cut or fill in this zone). No construction access. Refer to Chapter 6 of the arborist impact assessment report.

Do not enter into these zones. Contact the project arborist for prior written instructions and supervision and sign off.

6 Tree Impact Discussion and Recommendations (Mitigation Measures)

a) Previous tree impacts:

- 6.1 Elke reviewed the following previously commissioned reference reports and plans for 881-893 Bouke Street and 207-229 Young St, Waterloo NSW which formed part of a **City of Sydney** Notice of Determination for Modification of Development Consent. D/2020/45/C. PAN-388735 dated 23.08.2021 and later a Section 4.55 (1A): 07.03.2024.

Table 3 – List of Previous reference reports

Document, Report or Plan and Author	Date and revision/reference. <i>Listed in chronological order</i>
Geosurv, Survey plan	190105-DT-AD-01 Dated: 16.02.2021. Date of survey: 31.01.2019.
Birds Tree Consultancy , Arboricultural Development Impact Assessment Report (Birds AIA)	Revision A. Dated: 14.04.2021
ArborScan - Tree Root Mapping Report (TRMR)	R1037 V1.3 Dated: 11.08.2022
ArborScan – Arboricultural Impact Assessment (Arb AIA)	R1066 AIA Waterloo Version 5.0 Dated: 02.11.2022
City of Sydney Notice of Determination for Modification of Development Consent. (S4.55 (1A))	D/2020/45/C. PAN-388735 Date: 23.08.2021 Date of S4.55 (1A): 07.03.2024
RPS , Development Parcels Landscape Strategy	14.11.24, Issue B
TURNER Plan – “Consent Conditions Review Potential Impact to Envelope based on Arborist Report”	TURNER, SK-120-002, (not dated, received 21.11.24)

b) Summary of Facts and Findings (Key points from all 3 previous arborist reports listed in Table 3):

- 6.2 In a review of the 3 arborist reports, the following key points relate to the findings of the tree root mapping report (**TRMR**) findings and relevant points :
- The discovery of below ground foundations within the TPZ/SRZ areas and recommendation to retain the below ground footings was made (to minimise detrimental tree encroachment). The in-ground foundations have been left in-situ (where they exist within the Tree Protection Zones (**TPZ**) of trees to be retained.
 - The Arborscan TRMR Chapter 6.5.3 states that the below ground foundations within the TPZ of trees **T37** and **T65** is to be retained in full and in part for **T41**, **T51**, **T52**.
 - The Arborscan TRMR Chapter 6.5.9 states: Hard surfaces should remain in situ where practicable to maintain the protection of tree root areas (for tree stability).

- d) The Arborescan TRMR Chapter 6.9 states: Tree roots 40mm or greater in diameter are not to be disturbed.
- e) The Arborescan AIA (Ver 5.0) does not propose any tree removal (reference: Arborescan_AIA 6.3.2).
- 6.3 The DA consent conditions **S4.55 (1A): 07.03.2024**, relate to and must take into consideration the tree canopy extent as well as TPZs.

c) Tree root mapping report summary of findings.

- 6.4 The following is a summarised table of the Tree root mapping report findings from the Arborescan - Tree Root Mapping Report (**TRMR**) R1037 V1.3 Dated: 11.08.2022 .
- 6.5 The result of this, and observations on site, meant that the below ground footing could be partially cut/sawn at the recommended setbacks in **Table 4** below (with the remaining below ground footings left in situ). Note: some specialist ground slab removal around T41-44.

Table 4. Tree Root Mapping Report Summary

Area (per Arborescan TRMR) Tree	Summary of the tree root investigation (non-destructive digging) (NDD)
Area A. T81 <i>Melaleuca quinquenervia</i> (Paperbark)	No large structural roots identified, but numerous 40mm or less diameter roots present. The summary notes the below ground footings at all column locations in all areas A to D
Area B T65 <i>Corymbia citriodora</i> (Lemon Scented Gum)	Non- destructive digging (NDD) was not able to be completed in full. Several roots 40mm in diameter are tracking under the concrete path. Discovery of mostly a continuous footing, therefore limitations for root investigation. Path obstructing access.
Area C and D T41 – T44 <i>Corymbia citriodora</i> (Lemon Scented Gum)	Hand excavation only was possible in select areas: revealed the available soil / tree rooting available space approx. 500mm below slab and above the below ground footing. Area D (T41) Major, large structural roots 100mm and 130mm diameter and greater. Discovery of a continuous below ground foundations and tree roots have occupied the available soil space below the ground slab and above the buried /below ground footing.
Area H T37 <i>Corymbia citriodora</i> (Lemon Scented Gum)	Tree root investigation not conducted because of hard paved areas

- 6.6 The below Figure 5 is a diagrammatic summary by ELKE of the tree root mapping report (TRMR) findings as understood and outlined in the Arborescan TRMR Chapter 4.3.4 .

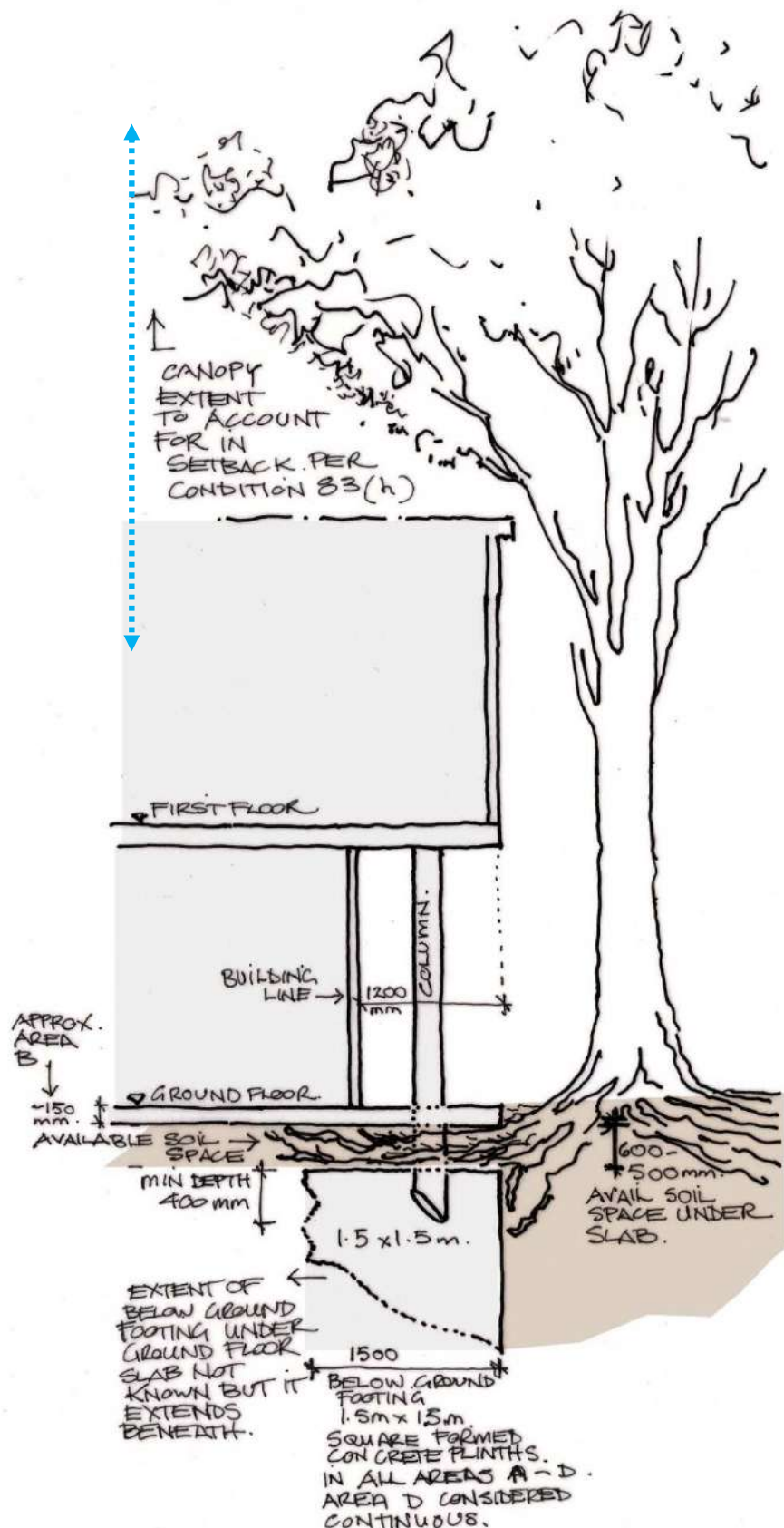


Figure 5. A diagrammatic summary of the tree root mapping report findings as understood and outlined in Arborscan TRMR Chapter 4.3.4. It was found that structural tree roots were growing between the 'new' and 'old' concrete slabs/footings. Since then, dewatering has occurred, and buildings removed with slabs/footings within the TPZ have been left in situ (and saw-cut at the TPZ). These must remain.

- 6.7 The following photos are from Google Street View and show awnings previously around the trees in the north-western corner of the site and buildings in close proximity to the trees along the western and north-western boundaries.
- 6.8 The trees have likely grown up together with the buildings in situ (i.e. at the same or similar time) and had developed roots systems in locations available to the trees at the time (including between the slab as shown in Figure 5).



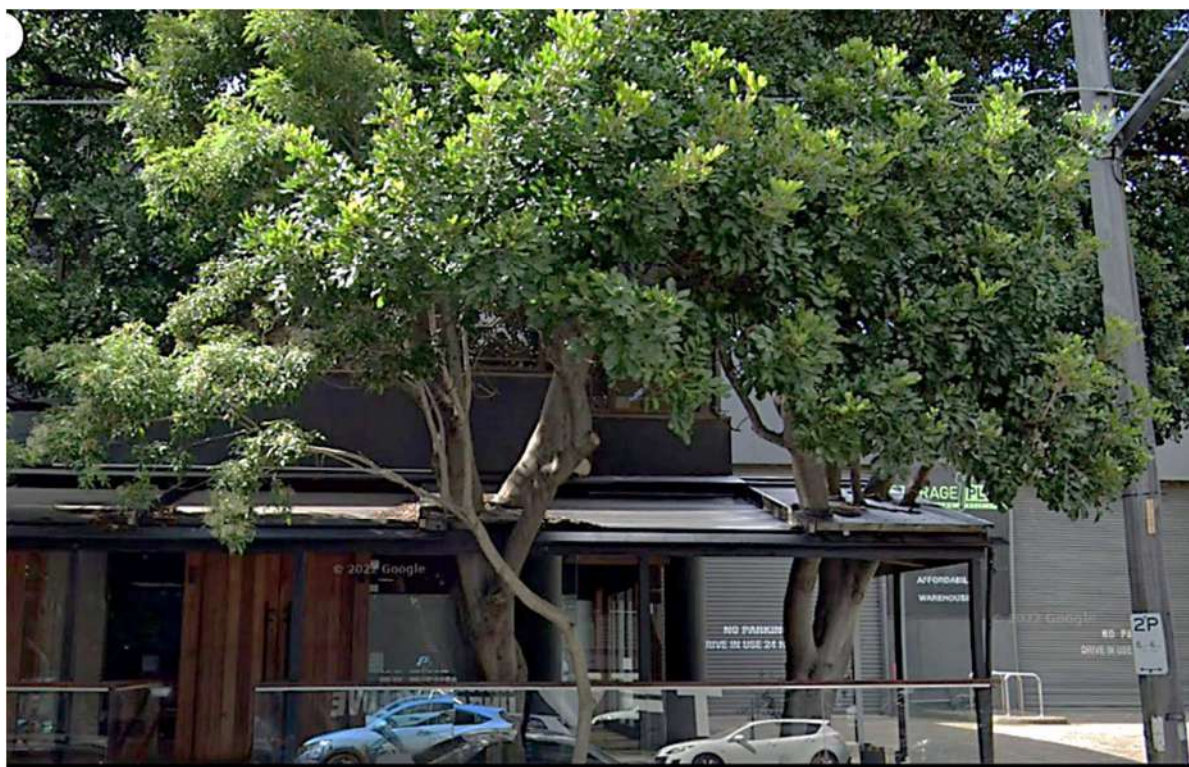


Figure 6. Trees T51 and T52 with fixed awnings around the trunks. Refer to Figures 45-46 for comparisons.
Date of Google Streetview photo: March 2021.



Figure 7. Two photos above show: T66 and T65 (Lemon Scented Gums) north of Entry Gate 2 near Young Street. Date of Google Streetview images: January 2023. Note: the palms visible have since been removed along with the building.



Figure 8. T66 and T65 (Lemon Scented Gums) on the far right and located north of Entry Gate 2 near Young Street. Photo looking north towards the site from Young St. The street tree is T60. Date of Google Streetview images: January 2023 (palms removed and site hoarding up).

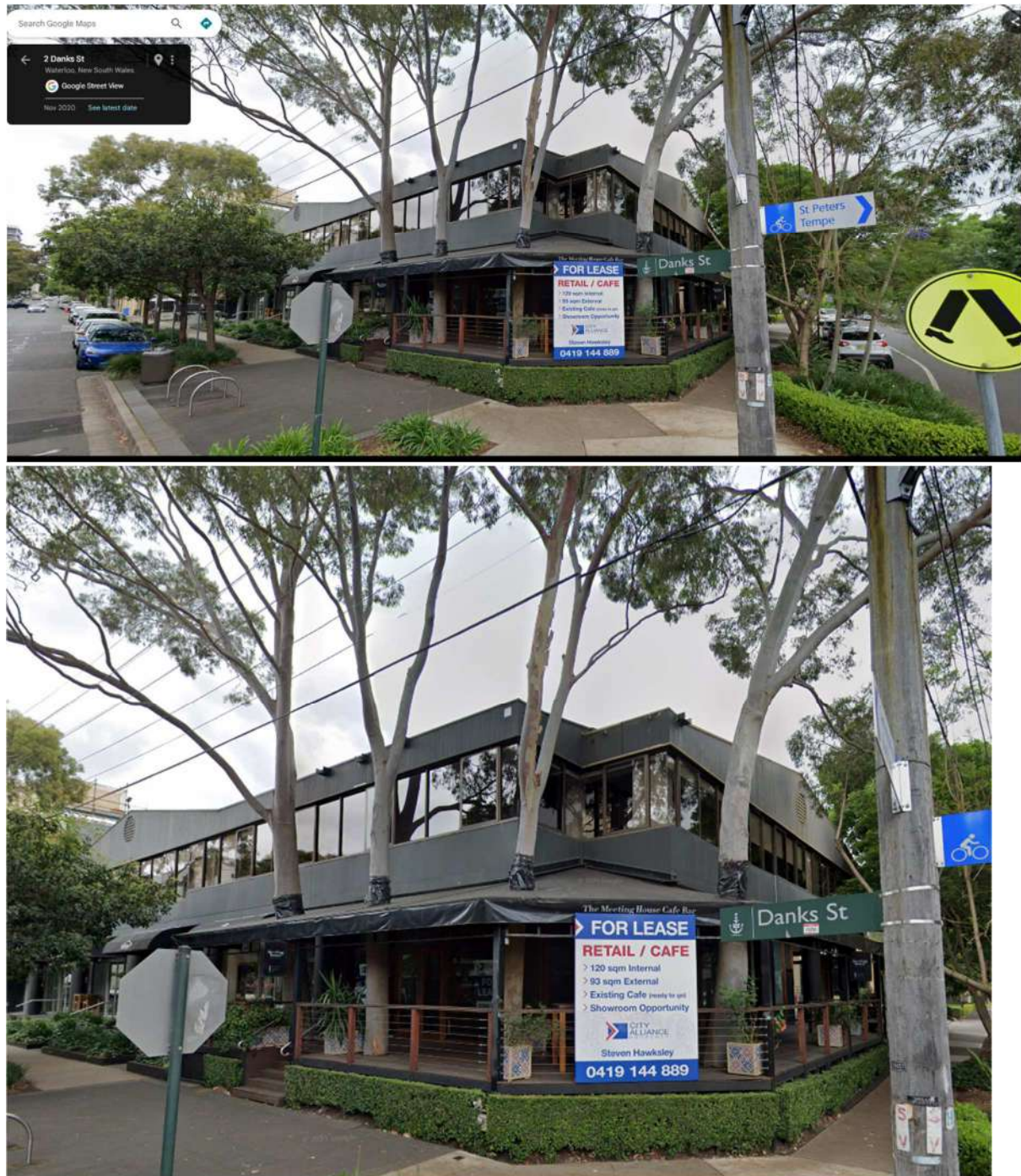


Figure 9. View looking south/south-east towards the site from the corner of Young and Danks Streets towards Trees (right to left) T44 – T40. Date of Google Streetview images: March 2021. The trees have the awnings in place and have had trunks wrapped. Buildings are not yet demolished, nor site hoarding up. See photo in figure 11.



Figure 10. View looking south/south-east towards the site from the corner of Young and Danks Streets towards Trees (right to left) T44 – T40. Date of Google Streetview images: October 2020. The trees have the awnings in place and have had trunks wrapped. Buildings are not yet demolished, nor site hoarding up. See next photo.



Figure 11. View looking south towards the site from the corner of Young and Danks Streets towards Trees (right to left) T44 – T40. Date of Google Streetview images: January 2023. The awnings have been removed, buildings in place, markings visible on tree trunks. Hoarding is erected. .

d) Current tree condition and recommendations (mitigation measures):

- 6.9 Trees that were growing through awnings have trunk damage /scarring where awnings rubbed around the trunks or where trunks were wrapped. Some awnings were fixed/rigid, and some awnings were canvas/fabric. The scars/marks on trees' trunks can be seen on some trees (such as on trees T51-52, T41-T44). Refer to Figures 6-11 & Chapter 8: Figures 44 - 45. Regarding the damage and impact to these trees, the damage appears to for the most part be being largely overcome by the tree healing over the wounds. Annual monitoring of this repair process is however recommended from a tree health and risk assessment perspective.



Figure 12. Views looking towards T37. This photo is March 2021 and shows the buildings erect. This photo is useful in showing a fuller canopy condition and density and to show the garden bed within which it was growing in comparison to current photos below in figures 14-16.



Figure 13. Views looking west along Danks Street with T37 on the left side. This photo is January 2023 and shows the buildings erect and hoarding erected. This photo is useful in showing the canopy condition and density.

- 6.10 Regarding **T37**, it is understood through the current on-site project manager, that the previous arborist (Arborscan) had identified Phytophthora (a soil fungus that impacts live plant roots). Arborscan identified that the Phytophthora was visibly impacting the tree health.
- 6.11 Remedial actions including installing aeration pipes along the southern TPZ extent of **T37**, and application of thick (~100mm) mulch has been applied. Tree protection (exclusion) fencing is erected (for tree protection and for quarantine purposes also) to reduce spread of the fungus – which can spread readily on shoes. Refer to the above Figures 12 and 13 and below Figures 14 -16.



Figure 14. Tree **T37** photographed by Elke on 5 May 2025. In comparison with the Google Streetview photo above (from January 2023) and the photo below (Figure 15) on 21 November 2024, canopy decline can be seen including sparse foliage and lacklustre appearance. In addition, there may be a slight lean north which at this stage is not of concern but is important to monitor, noting the removal of the building south of T37.

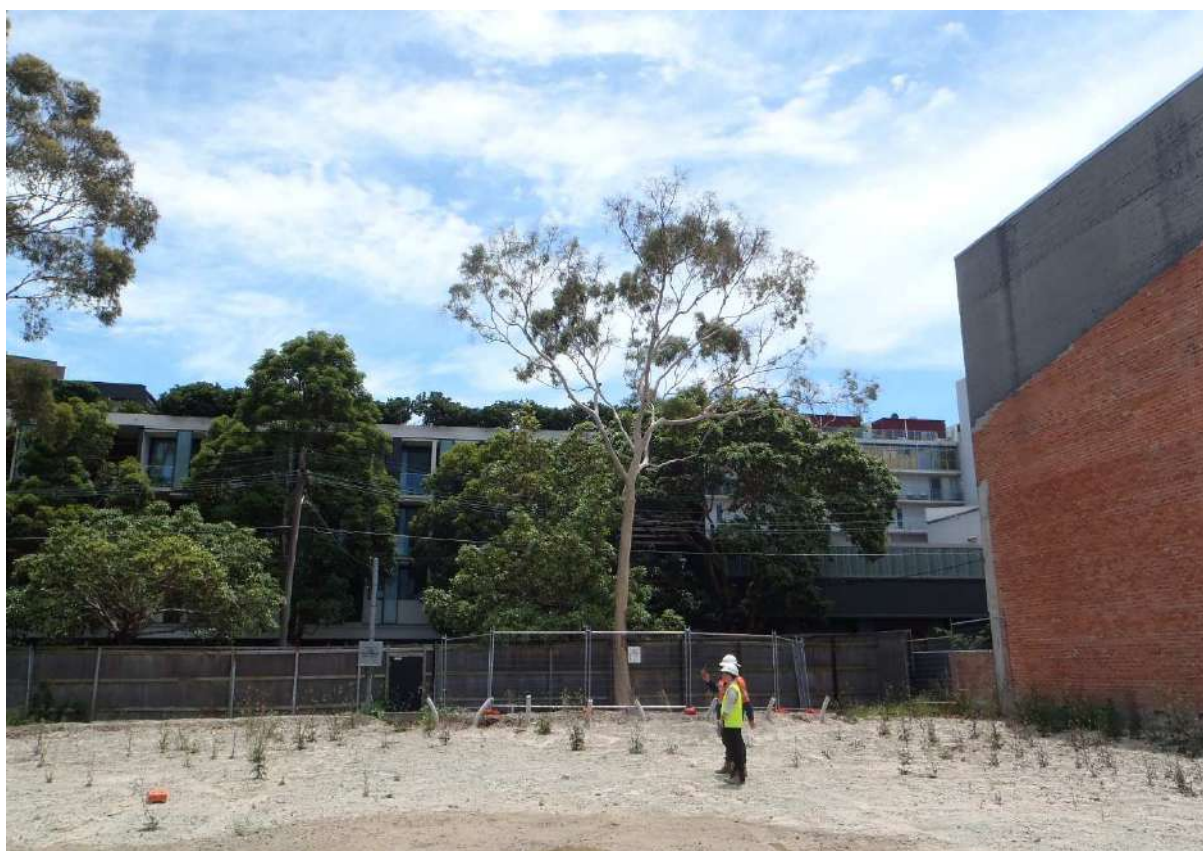


Figure 15. both photos above are of Tree **T37** photographed by Elke on 21 November 2024. In comparison with the Google Streetview photo (Figure 12 from January 2023) and the photo above (Figure 14 from 21 November 2024), canopy decline has occurred, including sparse foliage and lacklustre appearance. In addition, there may

be a slight lean north which at this stage is not of concern but is important to monitor, noting the removal of the building south of T37.



Figure 16. Tree T37 photographed by Elke on 5 May 2025. The top photos shows the current tree canopy condition and the bottom photo shows the soil zone aeration pipes, tree protection fencing and slight lean of the tree to the north.

- 6.12 As part of the Main Works DA, conditioning tree replacement planting and net canopy may require specific future conditions or contributions imposed on the subject site, noting future development applications will need to meet specific landscape requirements of canopy and deep soil. Notably, the majority of trees are proposed for retention and protection during the Main Works and the proposal has been designed to retain the remaining, existing trees along the north-west and west edges of the site.
- 6.13 No street trees are proposed to be removed as part of this Main Works DA. Trunk protection is already installed on most of the trees. Trunk protection is recommended to be adjusted and checked given the relatively long time that it has been installed on the trees and the possibility of trunk protection creating physical damage to the trees over time (due to tree movement and growth and prolonged time of being wrapped up which can cause trunk damage).
- 6.14 Trunk Protection: The arborist plans specifically notate and describe trunk protection to be installed and recommended for trees T80b, a new Jacaranda planting near Gate 2 (off Young Street) and trunk protection for T34 as well as specifically no excavation or change of ground conditions within the TPZ of T33 and T32. Trees T32, 33, and T34 have been singled out due to a possible accessway adjacent being used during the works.

e) Recommendations (mitigation measures):

- 6.15 Recommendations and mitigation measures for tree retention are as follows:

Table 5. Recommendations for the Main Works DA.

a. Appoint a project arborist for the works period who is an AQF Level 5 consulting arborist.
b. Retain the existing Tree Protection Zone Fencing in situ, with a slight decrease in the extent of fencing around T66 and T65 back to the Tree Protection Zone (TPZ). The dimensions are shown on the Arborist Plans in ELKE's report. Additional TPZ fencing and mulch is required in the area shown on the arborist plans near T81.
c. The project arborist must sign off the installed TPZ fencing, signage, mulch, and ground protection , prior to commencement of any works on site (including site preparation and including site setup).
d. This is typically and should be part of obtaining the construction certificate (CC). At this time, an induction regarding tree protection with the project arborist and the site foreman is to occur and be signed off by the project arborist to obtain a CC.
e. Retain all the tree protection measures for the duration of all the works (including landscaping).

Table 5. continued : Recommendations for the Main Works DA.

f.	Within the tree protection zones: Do Not Enter . These are “No Go Zones” as denoted on the Arborist plans.
g.	Retain the existing concrete slabs/footings within the TPZ Fenced Zones.
h.	Do not install any services within the TPZ fenced areas. Do not trench, dig, excavate, cut or fill, batter or bench or install ground anchors, scaffolding, or accessways within the TPZ fenced zones. Contact the project consulting arborist for prior written instructions, supervision and advice if any of the above need to occur. Note: Elke has not been made aware of any proposed services or stormwater plans. Contact the project arborist if there is any tree root, tree soil zone damage, tree branch or canopy damage.
i.	Do retain the mulch within the TPZ fenced areas on site. Top up the mulch annually (under the project arborist specification and sign off, including supervision of anyone within the TPZ Fenced Zones)
j.	Project arborist induction is required for the landscape contractor prior to their work commencing.
k.	Any excavation works / large machinery: Take care not to damage, bruise, tear, snap or cut tree branches, or tree roots (35mm in diameter or greater) within the TPZ and the tree soil zone. All machinery must stay clear of the TPZ fenced areas (both above and below ground)
l.	First check the tree canopy (branches) for overhead clearance for machinery (such as piling rigs and excavators and cranes) including manoeuvring and access, which must and stay clear of the tree canopy.
m.	Install Trunk protection for T80b (near Gate 2 Young St) and T34 and ensure no excavation within the TPZ of T33 and T32 (near Danks Street).
n.	Do. Monitor all trees but specifically T66 and T65, T81, T37, T41-44 and T51 – 52 for signs of decline and for structural changes such as changes in lean. Monitoring should be seasonally (i.e. once every 3 months) until completion and hand over of works.

f) Ground Protection

6.16 Install ground protection in the two areas shown on the arborist impact plans (in the north-western portion of the site). Keep the ground protection in place for the duration of the works.

6.17 The ground protection is to be signed off by the project arborist and consist of the following:

- The zone is to be protected by placing geotextile fabric on the existing ground surface,
- then covering this with a layer of mulch to a depth of 75-100mm and then placing boarding (scaffolding board, plywood sheeting or similar material) on top.
- The geotextile fabric and mulch shall be kept clear of tree stems by at least 50mm away.

- The mulch must comply with **AS 4454 – 2003⁵** and be mature and pasteurised.
- The extent is shown on the Arborist Plan and
- Erect Ground Protection Zone signage at 10m intervals (refer to Appendix 7 for an example sign).

- 6.18 A Ground protection mat product that could be used (or an approved equivalent) is: [Oxford Plastics EnduraMat Bog Mat & Ground Protection Access Mat — Ramp Champ](#) (alternatively use plywood sheeting, fixed together).
- 6.19 Ground protection to be removed fully at the completion of the building works (but first obtain the project arborist written permission following a nearing completion of building works and prior to landscape start (project arborist inspection with landscape contractor induction required to outline a tree viable methodology of landscape works and tree condition report at handover time to the landscape contractor).
- 6.20 An example diagram and photo of ground protection is shown below:

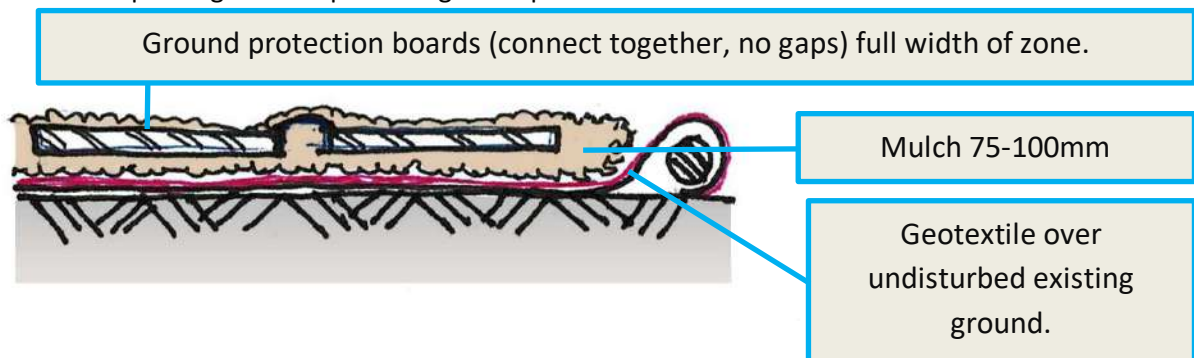


Figure 17 Diagram / cross section showing existing ground (undisturbed), Geotextile fabric, Mulch 75-100mm, Ground protection boards/plywood sheets/similar (to be fixed together -no gaps – across the whole zone).



Figure 18 Example photo showing ground protection boards over mulch and over geotextile. Note: mats/boards **must meet (no gaps), be fixed together and fill the whole width of the ground protection zone + to the edge of the fencing** as depicted on the Arborist Plans.

⁵ Australian Standard AS 4454 – 2003, Composts, soil conditioners and mulches

g) Proposed Landscape Works within the TPZ Areas (permeable, elevated paths/deck)

6.21 Installation of a permeable, elevated path/deck is proposed within the **TPZ fenced** areas in six locations.

6.22 The following list is an outline of the methodology and steps for installation that is to be further detailed in a Tree Protection Plan (**TPP**) and Tree Management Specification (**TMS**) report for Construction Certificate (CC) phase.

- These paths within the TPZ fenced areas must be elevated above existing ground (and not require cut/fill or compaction of the soil zone).
- The paths must be permeable and must have a footing system that is either on-ground plinths/pads (not requiring excavation such as TuffBlock), or on slimline posts with hand dug, isolated footings (not strip), installed only under the supervision, advice, sign off and direction of the project arborist (including review and approval of design at CC phase). In addition, the location of any posts will need to be able to allow for adjustment in the event of an clash with a structural root (which could be discovered on-site, during the hand digging, arborist supervision at installation phase).
- Entry into the TPZ fenced area to install these elevated, permeable paths is only permitted with the project arborist supervision, induction, and written sign off. The paths may not be used during the construction phase (such as for access) without a detailed specification, design and methodology and sign off by the project arborist. It is preferred these paths are not used during construction in order to maintain tree protection and soil protection. This is to be at the arborists discretion.

6.23 Landscape Contractor: Project arborist induction is required for the landscape contractor prior to their work commencing. The following compliance for the landscape contractor will be required:

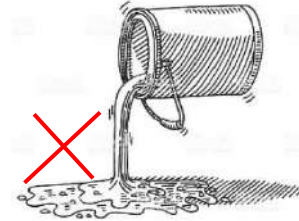
Within the **TPZ fenced** areas:

- no machinery, no vehicles, no stockpiles, no excavation, no removal of the existing concrete slab/footing.
- Hand tools only and avoid (bridge around) tree roots 35mm in diameter or greater.
- Contact the project arborist for advice and sign off, and when in doubt.
- Final inspection and sign off by the project arborist is required at the completion of the landscape installation, therefore the landscape contractor is encouraged to communicate with the project arborist to ensure that sign off will be achieved.

6.24 For any tree branch pruning works that are to be implemented, these must be under the direction, supervision and sign off of the project consulting arborist and carried out by a suitably experienced AQF level 3 practical arborist. Note: additional authority approvals may need to be sought to obtain approval.

h) General recommendations – and Quick reference list:

- TPZ fenced zones are '**No Go Zones**'. Entry into the **TPZ fenced** areas is only to be under the supervision with sign off, or with prior written permission and instructions of the project arborist AQF Level 5. Contact the project arborist when in doubt (such as if the digging of footings, or install of stormwater or services within the TPZ's or any other time if entry is needed into the **TPZ fenced** areas.
- The builder is to induct and manage all sub-contractors and staff so that they know not to enter into the TPZ fenced area and not to disturb, contaminate, dig into the area with 'Ground Protection' installed.
- No storage of materials, no vehicles, no disposal of any liquids or wastes, and no stockpiles of earth or soil and no fresh ('green') wood chips can be stored within the TPZ fenced areas.
- **Do not** wash out paint, concrete slurry, or other building waste into the '**Ground Protection**' area or in the **TPZ fenced areas** (as this will contaminate and impact the trees, soil growing zone and groundwater).
- Keep tree protection fencing and TPZ signage in place at all times (**do not move fencing**) for the whole duration of the project – do not remove or move fencing or ground protection without prior written permission by the project arborist.



- 6.25 Root Zone Pruning No roots over 35mm in diameter or greater can be severed, damaged. The project arborist must advise if tree roots are discovered to properly sign off and/or rectify or recommend remediation.
- 6.26 All pruning works are to be under supervision, direction and sign off by the project arborist and performed by an AQF Level 3 arborist and to the pruning Australian Standard 4373-2007 - Pruning of Amenity Trees.

6.27 Hold Points for Compliance: The following table is a typical hold point table that is to be detailed and confirmed in the Tree Protection Plan and Tree Management Specification Report, required for CC and tender phases.

Table 6. Typical Hold Points for project arborist supervisions and sign offs.

Hold Point	Task	Responsibility	Certification (written sign off)	Timing of project arborist inspection.
1	Indicate clearly (with tape and spray paint) trees approved for removal only	Principal Contractor	Project arborist	Prior to demolition and site establishment.
2	Establishment of Tree Protection fencing, signage, and ground protection	Principal Contractor	Project arborist	Prior to demolition and site establishment.
3	Supervise All excavation works, and under-boring works and other proposed works within the TPZ	Principal Contractor	Project arborist	As required prior to the works within TPZs proceeding
4	Inspection of trees by project arborist	Principal Contractor	Project arborist	At a minimum, seasonally every 3 months during the works period including at the start and end of both the landscape period and landscape establishment /maintenance period.
5	Final inspection of trees by project arborist	Principal Contractor	Project arborist	Prior to issue of Occupation Certification and prior to tree protection fencing being removed.

6.28 The above table provides a checklist of hold points that are to be signed and dated by the project arborist (AQF Level 5) and to be completed progressively and included as part of the final certification and typically provided to Council on completion of the project and the certifier.

7 Tree Protection Zone Fencing, shade cloth and TPZ signage

- 7.1 Install Tree Protection Zone Fencing, shade cloth or similar, and TPZ signage and ground protection: Prior to any works and as soon as possible in the site set up phase,
- 7.2 The Tree Protection Zone fencing (TPZ fencing), shade cloth and TPZ signage and ground protection must be installed in the locations shown on the arborist Tree Protection Plans and issued for Construction Certificate and incorporating consent conditions.
- 7.3 TPZ fencing, shade cloth, TPZ signage and ground protection is in order to protect the retained trees and their necessary soil zone by restricting the construction footprint (and associated services) that may unduly compact, damage, or disturb the tree soil zone and the tree root growing zone of trees.
- 7.4 In addition, project consultant arborist sign-off and induction with the builder is necessary to ensure fencing is compliant and for the project arborist to discuss relevant ongoing tree protection and future inspections that may be required during the construction phase. Refer to **Table 6**.



Figure 19 Example photos showing tree protection zone fencing with pad footings and **bolt cleated** panels, and TPZ signage. The TPZ fence locations are on the Arborist Impact Plan Arb_602.

- 7.5 Type of TPZ Fence: Tree protection fencing (TPZ Fences) are to comply with AS 4970-2009 and are to be a minimum 1.8 m high. This can be achieved with a 1.8 m high (ATF) or chain link fence with non-penetrable pad footings. E.g., temporary site or event fencing with plastic or concrete pad footing pads (that do not penetrate the ground).
- 7.6 The fencing panels are to be bolt cleated together (or zip tied) so they cannot be easily/readily lifted out of place without the use of a wrench or other tools.
- 7.7 Shade cloth or geotextile fabric or other similar woven material is to be attached to the TPZ fence to reduce/suppress the excavation dust migration to the soil zone.
- 7.8 Install mulch and top up mulch so that the mulch depth is between 75-100mm. Mulch must meet *Australian Standard AS 4454 – 2003, Composts, soil conditioners and mulches*.
- 7.9 Erect TPZ signage at 10m intervals, facing outwards, and in clear to read text size.
- 7.10 TPZ Signage is to state the following.



Figure 20. Example (left) of a TPZ sign to be at either A3 or A2 size. See Appendix 7

- 7.11 The site manager/builder/foreman is to ensure that all people and contractors on site know **not to enter** inside the tree protection fencing zone, **not to shift** the fence, **not to store** any materials inside the TPZ, and **not to damage, cut, crush, or sever any foliage, branches or tree roots** (roots 40 mm in diameter or greater).
 - 7.12 Contact the project consulting arborist for prior written instructions/permission or to book in supervisions/inspections including for any approved works within the TPZ fenced zone. Failure to do so, will result in non-compliance.
 - 7.13 No cutting, shaving, or removing of any tree parts may occur, including **tree roots 35 mm in diameter or greater**, any trunk, branches, or foliage without the prior written consent of the project arborist.
 - 7.14 Should **tree roots 35 mm in diameter or greater** be exposed or uncovered within the TPZ of retained trees, contact the project consulting arborist for instructions (which may include root protection measures, root severance, tree removal, or other by the project consulting arborist only).
 - 7.15 The project consulting arborist is to advise on recommendations and implications at time of site inspection and make a record of the site visit which will be provided to the certifier and client.
-

8 Site Photos.

- 8.1 Site photos were taken on 5 May 2025 by Elke Haege Thorvaldson, consulting arborist AQF Level 5 (ELKE), during the site/tree assessment, unless otherwise stated, where the date was 21 November 2024.



Figure 21. T81 on Young Street. View looking south from within the site. Note: water logging where there was a former building. Site sheds on blocks on the left. Note: this area is to be fenced off. Refer to the arborist plans.



Figure 22. T81 Paperbark on Young Street. View looking south from within the site. Note: water logging where there was a former building. Site sheds on blocks on the left. T80a Jacaranda is on the right-hand side photo.



Figure 23. View looking north with Gate 2 Entry on the left (off Young St). Trees visible on the left are T66 and T65 (Lemon Scented Gums) and street tree (far left) being T60 Paperbark. The tall tree in the distance (right of photo) is T41.



Figure 24. View looking west with Gate 2 Entry on the far left (off Young St). Trees are T66 and T65 (Lemon Scented Gums with white trunks) with trees T65a, T63, T62 and T61 towards the right of the photo and all fenced off. Note: The tree protection zone fencing and the mulch zone is slightly larger than is proposed for the Main Works DA where the proposed fencing is set at the TPZ extent. Refer to the Arborist plan.



Figure 25. View looking north-west with tree T65 (Lemon Scented Gum with white trunk) with trees T65a, T63, T62 and T61 beyond and towards the centre of the photo and all fenced off. Note: The tree protection zone fencing and the mulch zone is slightly larger than is proposed for the Main Works DA where the proposed fencing is set at the TPZ extent. Refer to the Arborist plan.

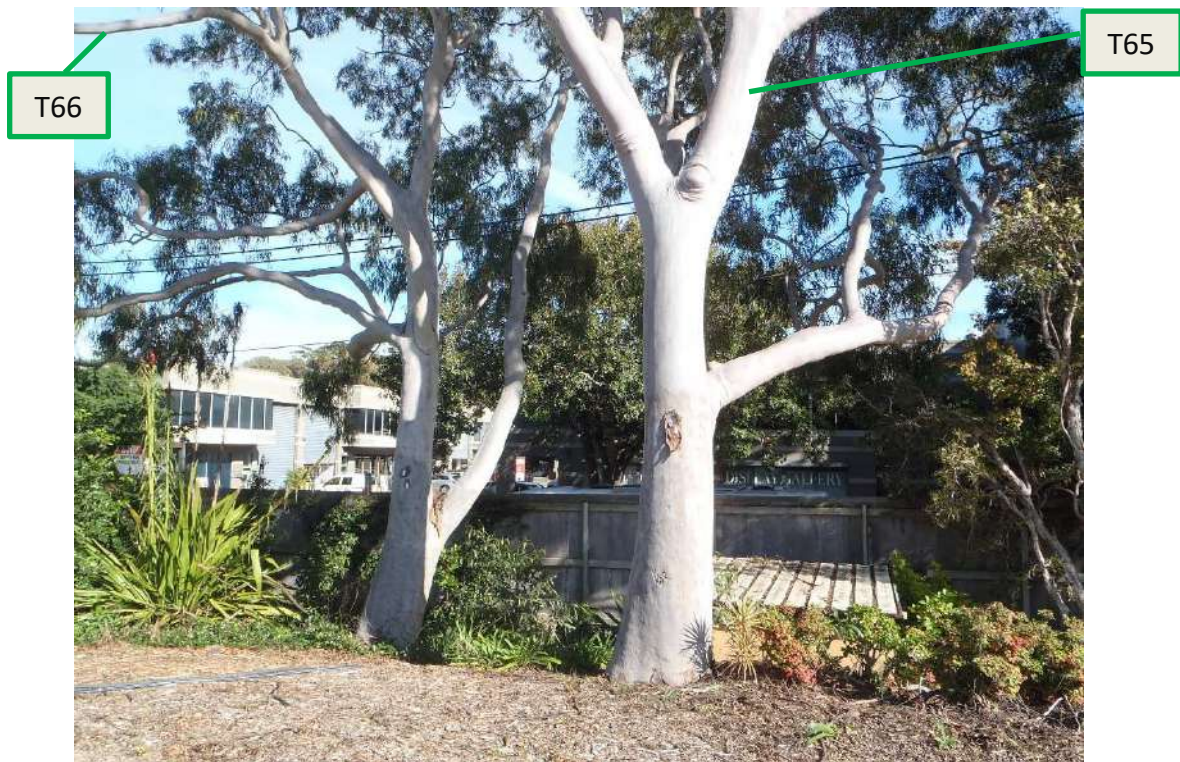


Figure 26. The base of T66 and T65 (Lemon Scented Gums with white trunks). The photo view is looking west towards Young St. Gate 2 is to the left. Note the existing submersed services shed.

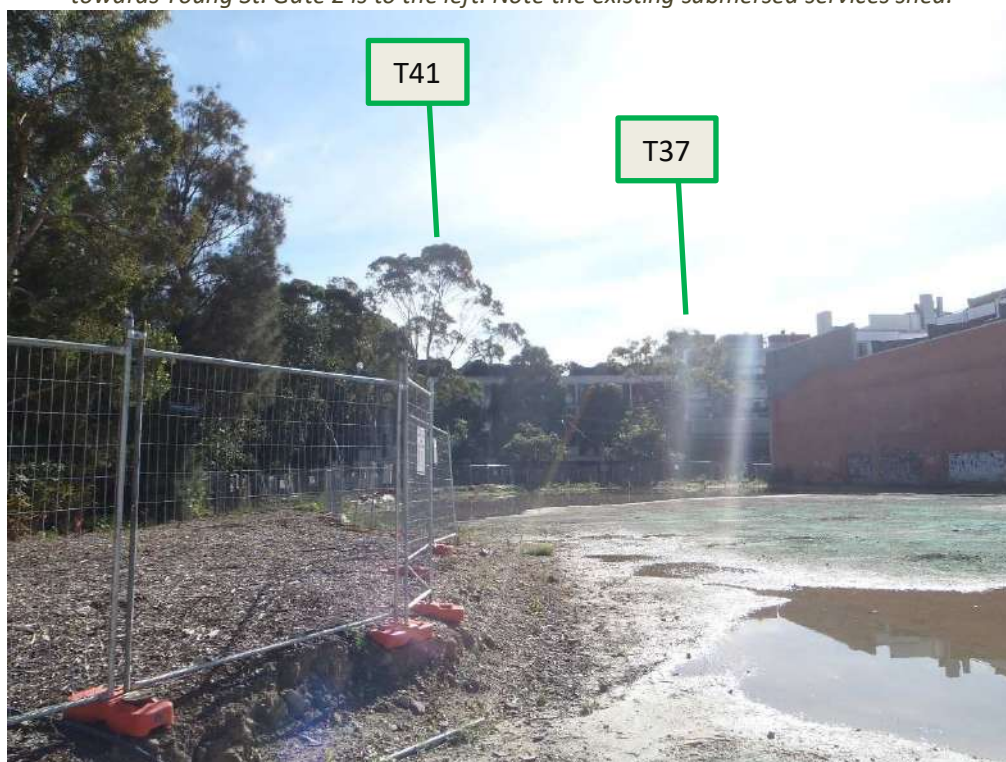


Figure 27. View looking north towards Danks Street and T41 (tallest tree in centre of photo). Trees on the left side of the photo are within the site along the western portion (near Young St)



Figure 28. View looking south with Young St on the right. The top photo shows the low branch of T66 (labelled) which is near Gate 2. This is not to be pruned. Photo taken from within the TPZ fenced zone.



Figure 29. Trees T65a, T63 T62. All paperbark trees



Figure 30. Trees T57, T58, T56 Casuarina trees. Lower and upper canopies.



Figure 31. Trees T56 Casuarina tree (far left) and T52 and T51 (Tuckeroo) All have been fenced off with mulch as shown.



Figure 32. Trees T52 and T51 (Tuckeroo) All have been fenced off with mulch as shown. Note: there appears to be footing/concrete slab remaining within the TPZ of this zone (as described in Chapter 6 c and Figure 5).



Figure 33. View (both photos) looking back from around T56 towards T65



Figure 34. Trees T41 and T37 (both are Lemon Scented Gums) T37 is the tree that has been identified as having Phytophthora and the canopy has been observed as declining since the removal of the building. Trees T37, T41 – 44 and T51 and T52 are all fenced off with mulch AND there appears to be footings/concrete slabs remaining within the TPZ of these zones (as described in Chapter 6 c and Figure 5), however the extent for T37 and T51 and T52 is not entirely apparent as mulch is over the top. The recommendation is to retain the fencing around T37 and T4-T44 and T51 and T52 for the Main Works DA plus additional requirements outlined in chapter 6 of this AIA Report.





Figure 35. Both photos above are taken from the site looking north-west towards trees to be retained. The recommendation is to retain the already installed TPZ fencing around T37 and T4-T44 and T51 and T52 for the Main Works DA and construction phase. Additional requirements will be needed for future proposals such as for building works and associated landscape design proposals. Trees T37, T41 – 44 and T51 and T52 are all fenced off with mulch and there appears to be footings/concrete slabs remaining within the TPZ of these zones (as described in Chapter 6 and Figure 5), however the extent of concrete for T37 and T51 and T52 is not entirely apparent as mulch is over the top.



Figure 36. Close up view of the trunk of T37. Note the slight lean to the north (towards Danks St). Note also the aeration pipes and the tree protection zone fencing (both of which are to remain for the Main Works DA for tree stability (utilising the slabs for stability)).



Figure 37. Close up views (both photos) of the trunk of T37. Note the slight lean to the north (towards Danks St). Note also the electrical services box and entry door at hoarding.

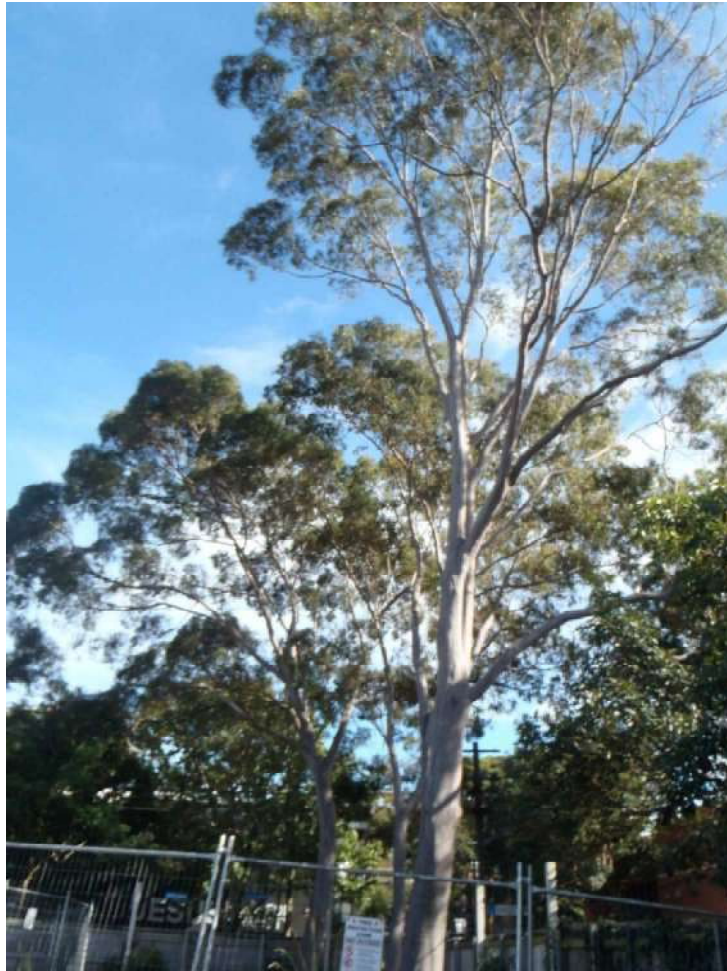


Figure 38. Close up views (both photos) of the trunk of T41. Photo looking west. Note retained slab (semi-circle) and understood to have the underground arrangement described in Figure 5. Retain TPZ fencing in place for the Main Works DA and for tree stability (utilising the slabs for stability).



Figure 39. Close up views (both photos) of the trunk and ground condition of T41 (foreground) and T44 (background). Note: T42 and T43 are obscured by the trunk of T41. Photo looking west. Note retained slab (semi-circle) and understood to have the underground arrangement described in Figure 5. Retain TPZ fencing in place for the Main Works DA and for tree stability (utilising the slabs for stability)



Figure 40. Close up views (both photos) of the trunk and ground condition of T41 (foreground) with T42, T43 and then T44 (in background). Photo looking west (Danks St on right and Young Street straight ahead). Note retained slab (semi-circle) and understood to have the underground arrangement described in Figure 5 (Chapter 6). Retain TPZ fencing in place for the Main Works DA / construction phase and for tree stability (utilising the slabs for stability)



Figure 41. Close up views (both photos) of the trunk and ground condition of trees T43, T42 and T41 (from left to right). Note: T44 just out of the photo on the far left. Photo looking north (Danks St straight ahead). Note retained slab (semi-circle) and understood to have the underground arrangement described in Figure 5 (Chapter 6). Retain TPZ fencing in place for the Main Works DA / construction phase and for tree stability (utilising the slabs for stability)



Figure 42. as above for Figure 41



Figure 43. Photo is looking south with T51 and T52 fenced off (Young St to the right). Note there are indications of concrete column footings near the root crown base of these trees and possible slab and understood underground in the arrangement described in Figure 5 (Chapter 6). Retain TPZ fencing in place for the Main Works DA / construction phase and for tree stability (trees utilising the slabs and footings for stability)



Figure 44. Both photos above of the lower and upper portion of trees T51 and T52. Scarring can be seen from the former fixed awnings (refer to Figures 6-11) as well as Figure 46 below.

Note there are indications of several concrete column footings near the root crown base of these trees and possible slab and as is understood that the underground arrangement as described in Figure 5 (Chapter 6). Retain TPZ fencing in place for the Main Works DA / construction phase and for tree stability (trees utilising the slabs and footings for stability)



Figure 45. Both photos above of the lower portions of trees T51 and T52. Scarring can be seen from the former fixed awnings (refer to Figures 6-11).

Note there are indications of several concrete column footings near the root crown base of these trees (at **red** arrows) and possible slab under -as it is understood that the underground arrangement is as described in Figure 5 (Chapter 6). Retain TPZ fencing in place for the Main Works DA / construction phase and for tree stability (trees utilising the slabs and footings for stability)

- 8.2 The next set of photos are of select and relevant street trees. It is noted that all trees have been photographed for condition reporting, however not all photos are contained within this Main Works DA AIA report. The photos below were taken by Elke, project arborist on 5 May 2025.



Figure 46. All 3 photos above: New tree planting T80b, Jacaranda (next to / south of Gate 2). Trunk protection is recommended for this tree. Refer to the Arborist report and Chapter 6 'recommendations' Table 5.



Figure 47. Both photos above: T80a Jacaranda (foreground) and T81 Paperbark on the street verge of Young St. The site is on the left. Note: the canopy does not extend into the site. Also note that there used to be a building on the site in this location (now demolished).

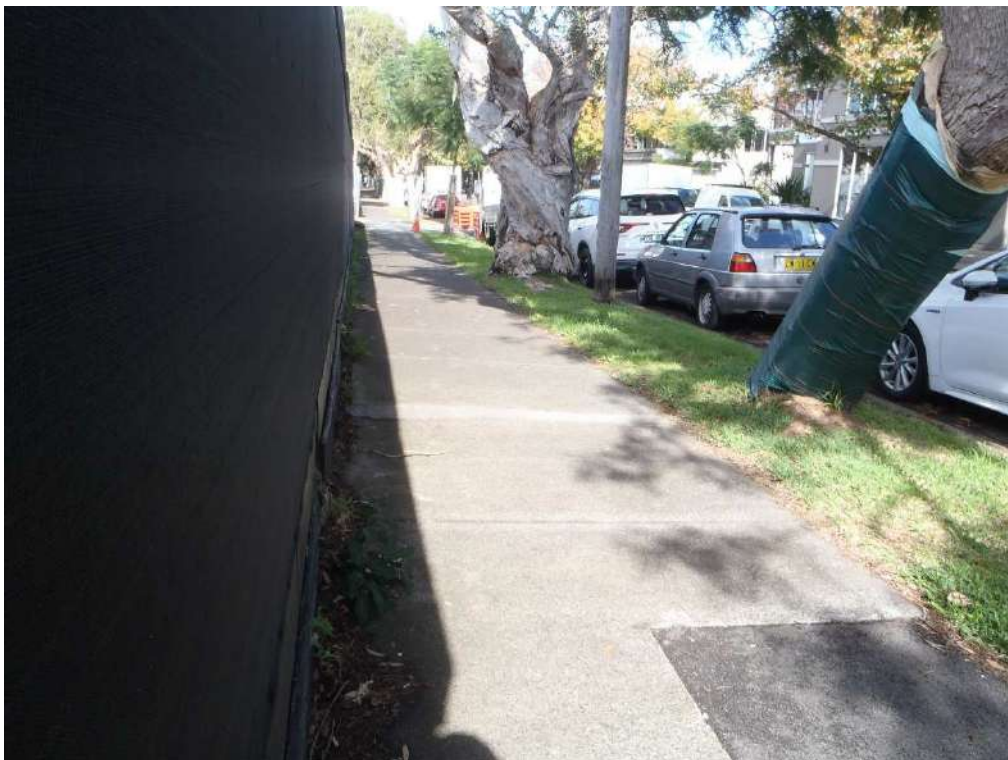


Figure 48. Both photos above: T80a Jacaranda (foreground) and T81 Paperbark on the street verge of Young St. The site is on the left. Note: the canopy does not extend into the site. Also note there used to be a building on the site in this location (now demolished).



Figure 49. Both photos above: T81 Paperbark on the street verge of Young St. The site is on the left. Note: the canopy does not extend into the site (it is mostly upright). Also note there used to be a building on the site next to this location (now demolished).

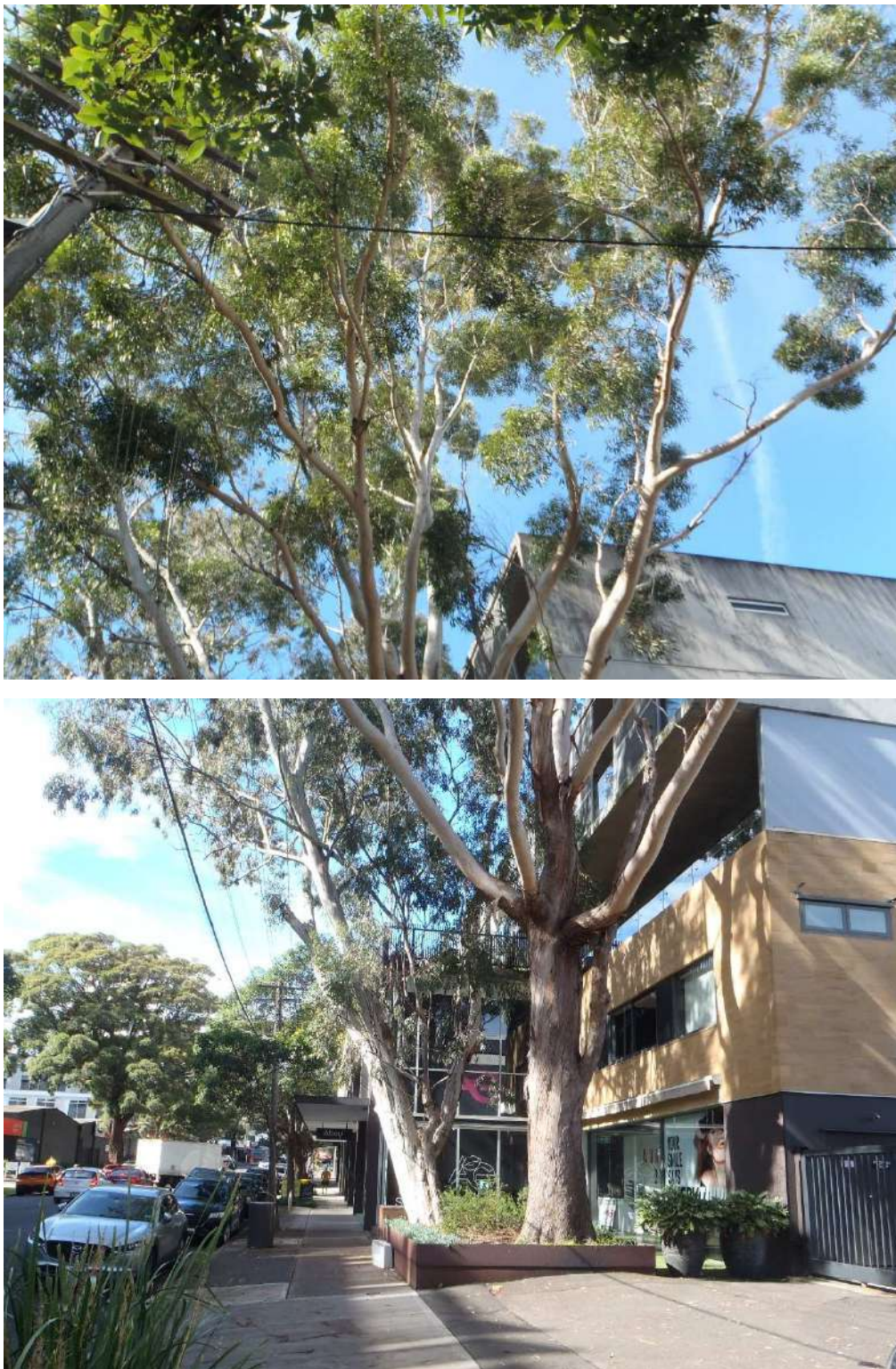


Figure 50. T33 and T32 along Danks Street where it is recommended and annotated on the arborist plan that the existing planter extent remain and that the driveway and asphalt within the TPZ of these trees remain (not be excavated, stripped or altered). The access way to the site is to the right of the photo (through the gates).



Figure 51. T34 along Danks Street where trunk protection is recommended (due to proximity to the access driveway).



Figure 52. Typical view along Bourke Street showing the street trees (mostly London Plane trees) from T4 - T9a.



Figure 53. Typical view looking towards the site from Bourke Street showing the street trees (mostly London Plane trees) from T4 - T9a. The entry from Bourke Street into the site is on the left-hand side of the photo.



Figure 54. Photos above of T9b (*Casuarina*) proposed for removal as part of the Early Works DA (not part of this Main Works DA as it is assumed approval will be granted for removal under the Early Works DA, which is not yet determined at the time of this report).

9 Conclusion and Discussion

- 9.1 All of the trees are being retained as part of this Main Works DA. It is noted that T9b is proposed for removal as part of the Early Works DA. T9b is a low retention value Casuarina tree (T9b) (refer Figure 54 above).
- 9.2 Provided the recommendations in Chapter 6, Table 5 and Hold points in Table 6, and tree protection measures in Chapter 7 are carried out satisfactorily, the impact to the trees proposed to be retained for the Main Works Development Application and construction phase can be limited.
- 9.3 The proposed design has considered the existing trees along the north-west and eastern portions of the site.
- 9.4 It is noted that there are existing impacts to the trees due to the current dewatering works and previous demolition, therefore the condition monitoring of the trees is an important recommendation for both health and condition of the trees as well as the structural stability of the trees. This is particularly relevant for trees: T65, T66, T5, T52, T37, T41 – T44.
- 9.5 Replacement tree ratios with like / same species should then be considered in the event that the level of tree decline goes beyond the ability to suitably retain and/or tree failure.
- 9.6 Noting the multiple development applications for this site, consideration of the proposed landscape design for the site should be regarded as well as reference to the already approved DA and removed trees that formed part of the already approved works on site: **City of Sydney** Notice of Determination for Modification of Development Consent. D/2020/45/C. PAN-388735 dated 23.08.2021 and later a Section 4.55 (1A): 07.03.2024.
- 9.7 In considering tree impact and directly applying AS4970-2009 '*Protection of Trees on Development Sites*' is not straightforward in urban situations with constrained growing conditions (as discovered with the Tree Root Mapping Report by Arborscan (and as summarised in Figure 5). Notwithstanding some assumptions can be made in relation to root growth and available soil zones when recommending tree protection zone fencing locations and designing with tree stunting in mind. Additionally, care when working within tree protection zones must be applied, such as via the use of hand-tools, identifying and avoiding roots by bridging or through other methods and through project arborist seasonal monitoring and site supervision with specific works.
- 9.8 Trees in limited spaces, such as urban street verges will typically stunt and have a shorter life expectancy, the size of the trees is invariably reduced. Therefore, specifying species that typically are larger growing trees is recommended to meet canopy cover expectancy, expected speed of establishment, and robustness. It should be noted there will be some stunting of tree size. This approach should therefore assist in faster establishment of tree canopy cover. Where trees exist and are already mature, a greater priority on retaining and protecting those trees should be sought.
- 9.9 Scientific evidence shows large, mature trees compared to smaller stature trees provide far greater (and in some cases eight times greater) benefits including:
- urban heat island mitigation and moderated wind abatement and moderation of ambient air temperature extremes,
 - reduced stormwater runoff and lower costs for stormwater controls,
 - extended the life of streets where they provide shade (as there is longer time between resurfacing),
 - improved local air, soil and water quality,
 - reduced atmospheric carbon dioxide,

- provision of wildlife and ecosystem habitat (birds, mammals, reptiles, insects, soil organisms)
- increase property values,
- long term local government budget cost savings.
- enhance the attractiveness and safety of the local neighbourhood and
- promote human health and well being ⁶
- where native trees are selected, improvement of environmental qualities and local identify characteristics of the local precinct.

10 References

- *Australian Standard AS4970-2009, Protection of trees on Development Sites. Standards Australia.*
 - *Australian Standard AS 4373 – 1996, Pruning of Amenity Trees, Standards Australia.*
 - *Australian Standard AS 4454 – 2003, Composts, soil conditioners and mulches.*
 - *Barrell, Jeremy, 1996, Pre-development Tree Assessment, SULE Categories and Sub-Categories, Proceedings of the International Conference on Trees and Building Sites (Chicago), International Society of arboriculture, Illinois, USA.*
 - *Barrell, J, 2009, Draft for Practical Tree AZ version 9.02 A+NZ, Barrel Tree Consultancy, Bridge House, Ringwood BH24 1EX*
 - *Craul, P.J. 1985. A description of urban soils and their desired characteristics, Journal of Arboriculture 11(11):330-339.*
 - *Draper and Richards, 2009, Dictionary for Managing Trees in Urban Environments, CSIRO Publishing.*
 - *Leake S and Haeger E, 2018, Soils for Landscape Development, Selection, Specification and Validation, CSIRO Publishing.*
 - *International Society of Arboriculture, 2009, The Landscape Below Ground III, Proceedings for a Third International Workshop on Tree Root Development in Urban soils, ISA, Champaign, Illinois, USA.*
 - *Mattheck C. and Breloer H., 2001, The Body Language of Trees - A handbook for failure analysis – Sixth impression (2001), The Stationery Office, London, U.K. Fig 120, Page 196.*
 - *Mattheck C., and Breloer H., 2010, The Body Language of Trees – A Handbook for Failure Analysis – 11th impression, The Stationery Office (TSO), London UK*
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⁶ *The Centre for Urban Forest Research, southern Centre for Urban Forestry Research and Information, US Forest Service, Department of Agriculture, The Large Tree Argument, the Case for Large-Stature Trees vs. Small-Stature Trees, circa: 2004*

11 Relevant Appendices

i) Appendix 1: Landscape Significance Rating

Refer to next page. As well this rating takes into consideration the context and relationship of the tree to its surrounds and contribution to the streetscape/site surrounds and character of the site.

j) Appendix 6: ISA Tree Risk Assessment

Methodology: ISA (International Society of Arboriculture, 2013)⁷. Hazard potential (Risk rating matrix)

<i>Likelihood of Failure and Impact</i>	Consequences of Failure			
	Negligible	Minor	Significant	Severe
<i>Very likely</i>	<i>Low</i>	<i>Moderate</i>	<i>High</i>	<i>Extreme</i>
<i>Likely</i>	<i>Low</i>	<i>Moderate</i>	<i>High</i>	<i>High</i>
<i>Somewhat likely</i>	<i>Low</i>	<i>Low</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Unlikely</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>

k) Appendix 2: Safe Useful Life Expectancy and Tree AZ by Jeremy Barrell

In 1993, the British Standard approach was superseded by a methodology known as Safe Useful Life Expectancy (SULE) developed by Jeremy Barrell, a British arboriculturist. SULE was based loosely on the British Standard BS 5837:1991 but is more systematic and rigorous in its approach. SULE made an attempt to assimilate the health, condition and value of a tree, using remaining life expectancy (in consideration of safety issues) as a measure of its sustainability in the landscape. This system was promoted as best practice in pre-development tree surveys and has been widely used throughout Britain, the United States and Australia. The concept behind SULE is that of sustained amenity, the longer a tree can contribute to amenity in a sustainable way (in consideration of safety and the proposed development), the higher the retention value. Other factors such as the size and appropriateness of retaining the tree in light of the proposed development (usefulness) are also considered.

The aim of SULE (and another method, Tree AZ) is to convert what amounts to a fairly complex arboricultural assessment into a few broad categories that are easily understood by planners and can be considered together with other constraints to determine the best layout and design of the site. Ultimately this is the main aim of establishing tree retention values.

Essentially these categories can be defined as follows:⁸

- Trees that are important to preserve (most suitable),
- Trees that are desirable to preserve (suitable),
- Trees that are undesirable for preservation (not particularly suitable); and
- Trees that should be removed (unsuitable).

**The SULE categories and classifications are subjective and based on the knowledge, experience and expertise of the assessor.*

⁷ <http://www.isa-arbor.com/education/onlineresources/basictreeriskassessmentform.aspx>

⁸ [The retention value of trees on development sites - TREENET](#)

PROCEDURE FOR ASSESSING SAFE USEFUL LIFE EXPECTANCY (SULE)

1	Estimate the age of the tree		
2	Establish the average life span of the species		
3	Determine whether the average life span needs to be modified due to the local environmental situation		
4	Estimate remaining life expectancy		
	Life Expectancy	=	the average modified life span of species – age of the tree
5	Consider how health may affect safety (& longevity)		
6	Consider how tree structure may affect safety		
7	Consider how the location will affect safety		
8	Determine safe life expectancy		
	Safe Life Expectancy	=	life expectancy modified by health, structure and location
9	Consider the economics of management (cost vs benefit of retention)		
10	Consider adverse impacts on better trees		
11	Consider sustaining amenities – making space for new trees		
12	Determine SULE		
	Safe Useful Life Expectancy	=	safe life expectancy modified by economics, effects on better trees and sustaining amenities

I) Appendix 3. Retention Rating

FIGURE 2 – TREE RETENTION VALUES – ASSESSMENT METHODOLOGY

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

Ref:- Modified from Couston, Mark & Howden, Melanie (2001) Tree Retention Values Table Footprint Green Pty Ltd, Sydney Australia

In effect what this table shows is that a tree that has high environmental, heritage and/or amenity value (high landscape significance) and is sustainable in the landscape in the long term should be considered of high retention value. A tree that has low landscape significance should be considered of low retention value, regardless of its sustainability. A tree that has a high landscape significance rating but is dead or potentially hazardous (and beyond remedial treatment), has a low retention value since its health and condition diminish its value.⁹

m) Appendix 4a. AS 4970. Development of Trees on Protection Sites: Tree Protection Zone (TPZ)

The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is 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 TPZ incorporates the structural root zone (SRZ)

Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH $\times$ 12.

TPZ = DBH $\times$ 12 where DBH = trunk diameter measured at 1.4 m above ground

Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2 m nor greater than 15 m (except where crown protection is required). Clause 3.3 covers variations to the TPZ. The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 m outside the crown projection.

⁹ [The retention value of trees on development sites - TREENET](#)

Structural Root Zone (SRZ)

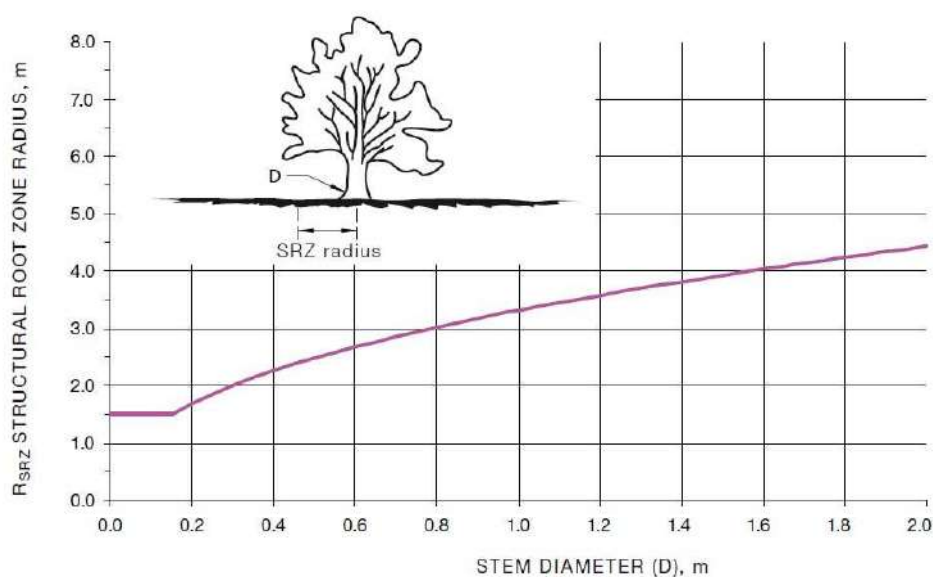
The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ only needs to be calculated when major encroachment into a TPZ is proposed.

There are many factors that affect the size of the SRZ (e.g., tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 1.

Root investigation may provide more information on the extent of these roots.

SRZ radius = $(D \times 50)^{0.42} \times 0.64$ where D = trunk diameter, in m, measured above the root buttress



The curve can be expressed by the following formula:

$$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$$

NOTES:

- 1 R_{SRZ} is the calculated structural root zone radius (SRZ radius).
- 2 D is the stem diameter measured immediately above root buttress.
- 3 The R_{SRZ} for trees less than 0.15 m diameter is 1.5 m.
- 4 The R_{SRZ} formula and graph do not apply to palms, other monocots, cycads and tree ferns.
- 5 This does not apply to trees with an asymmetrical root plate.

FIGURE 1 STRUCTURAL ROOT ZONE CALCULATION

ISBN 978 0 7337 9447 6

NOTE: The SRZ for trees with trunk diameters less than 0.15 m will be 1.5 m (see Figure).

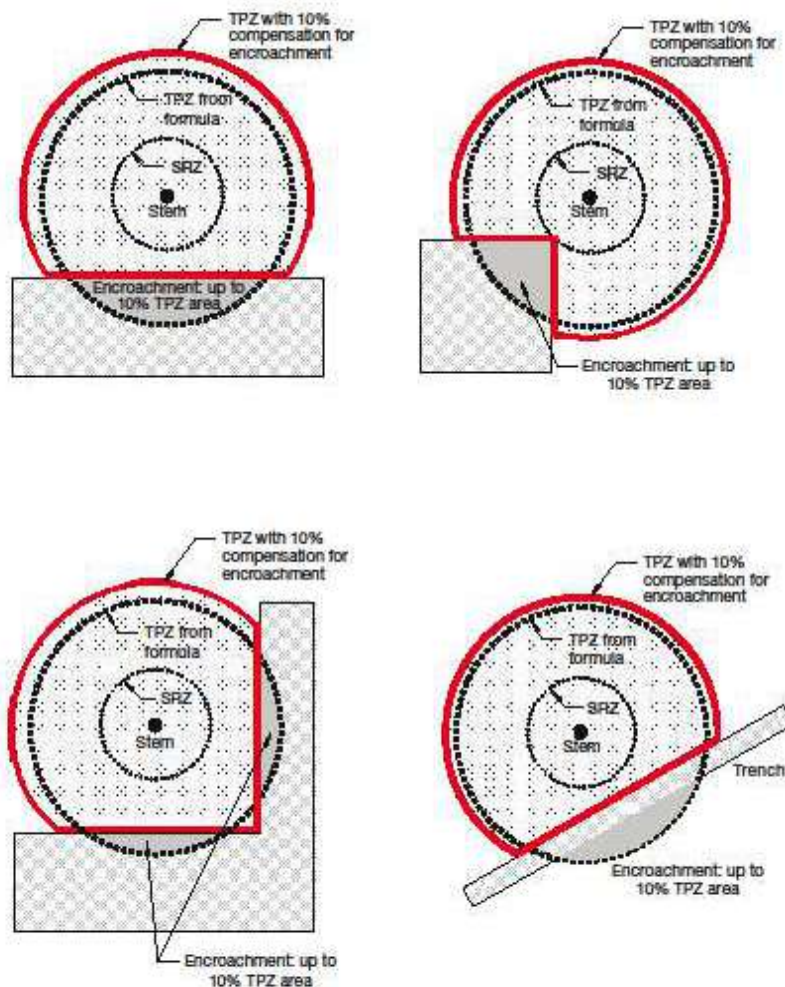
n) Appendix 4b AS 4970. Development of Trees on Protection Sites: Acceptable Incursions

AS 4970—2009

30

APPENDIX D
ENCROACHMENT INTO TREE PROTECTION ZONE
(Informative)

Encroachment into the tree protection zone (TPZ) is sometimes unavoidable. Figure D1 provides examples of TPZ encroachment by area, to assist in reducing the impact of such incursions.



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

FIGURE D1 EXAMPLES OF MINOR ENCROACHMENT INTO TPZ

o) Appendix 5: Tree Retention Priorities

The following table describes the implications of the Retention Values on site layout and design. Refer to Plan 2: Tree Retention Values for direct correlations to table below.

Appendix 5

	Tree Retention Priorities
Retention Value	Recommended Action
"High"	• These trees are 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 Tree Protection Zones as discussed in the following section to minimise any adverse impact. • In addition to Tree Protection Zones, 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"	• The retention of these trees is desirable. • 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 Replacement Policy to compensate for loss of amenity.
"Low"	• 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"	• 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.

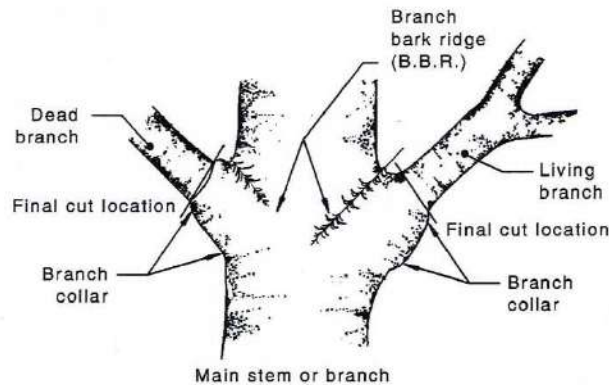
Source: Derived from: Earthscape Horticultural Services, December 2011

p) Appendix 6: Tree Pruning

Figure 1 from The Australian Standard 4373-2007 - Pruning of Amenity Trees.

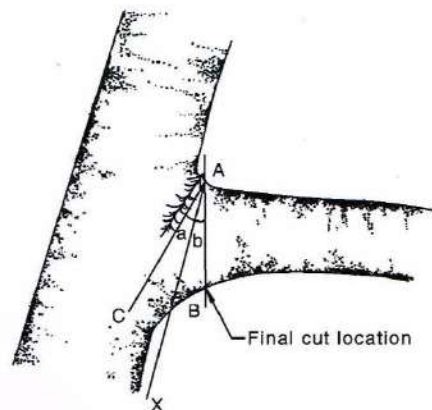
11

AS 4373—2007



(a) Up to but not including the branch collar

NOTE: When removing dead wood from a tree, make the final cut as close to the branch collar as possible. Do not damage living tissue. The branch collar is the best guide for the final cut when removing a living branch. However, if there is no branch collar use the branch bark ridge as depicted in Figure 1(b).



(b) In the absence of a collar using the branch bark ridge

NOTE: On living branches where the branch collar cannot be located, the branch bark ridge can be used as a guide. Line A-X is a line parallel to the stem or trunk occurring just outside the branch bark ridge. Line A-C indicates the angle of the branch bark ridge and Line A-B represents the angle and location of the final cut. Angle 'a' should equal angle 'b'.

FIGURE 1 FINAL CUT LOCATION

q) Appendix 7: Tree Protection Fencing signage and ground protection signage

The following page provides an A2 or A3 printable TPZ sign that can be laminated for use on the tree protection fencing.
