

REVISION: B (revision A date: 03.07.22)

PROJECT ADDRESS:

67-73 Lords Road, Leichhardt, NSW 2040
Consulting Arboricultural Assessment Report.



PURPOSE:

This arboricultural assessment report package is for Inner West Council submission and covers a total of seventeen (17) trees. The retention and protection of two (2) street trees, and the removal of fifteen (15) trees is proposed.

This assessment also describes the proposed impact to the trees and recommended tree protection measures for the trees proposed for retention. This arborist impact assessment report has been conducted and reported in relation to the [Inner West Council's Development Fact Sheet - Trees on Development sites 2018, Development fact sheet – Arborist reports V2. 2018 and the Tree Management DCP, 2021](#)

This arborist assessment and written report includes a summary table of the tree assessment data (3 x A3 sheets), and arborist retention plans (Arb_601a and 601b) and the arborist impact plans (Arb_602a and 602b) which are A1 in size and at 1:200 scale.

The trees and their context were assessed on 9th May 2022, by Elke Haege Thorvaldson, AQF Level 5 consulting arborist.

PROJECT TEAM:

Client: [Platino Properties](#)

Architect/Urban Designer: [SJB Architecture](#)

Consulting arborist AQF Level 5: [Elke Haege Thorvaldson](#)

This assessment report 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 may change over time.

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1 [Abstract/ Summary](#)

- 1.1 A new planning proposal development including open space, built form mixed use development is proposed including basement parking and both private and common landscaped gardens.
- 1.2 This arboricultural assessment report package covers a total of seventeen (17) trees. The retention and protection of two (2) street trees, and the removal of fifteen (15) trees is proposed
- 1.3 One street tree is proposed to be removed and replaced due to a low retention rating and opportunity for replacing T16, a False Robinia or low retention rating, with a suitable native tree, to council's requirements.
- 1.4 The following table is a summary of the tree assessment. Refer to [Table A](#) in this report for more detail.

NUMBER OF TREES	RETENTION VALUE	PROPOSED FOR RETENTION	PROPOSED FOR REMOVAL
3	High	0 trees	3 trees (T3, T4 and T15)
8	Medium	2 trees (T17 and T18) trees	6 trees (T1, T7, T8, T9, T11, T13)
3	Low	0 trees	3 trees (T2, T14, T16)
3	Very Low	0 trees	3 Trees (T5, T10, T12)
TOTAL TREES: 17		2 trees proposed to be retained	15 trees proposed to be removed

- 1.5 Tree protection measures are recommended in Chapter 6 of this report, particularly in relation to the protection measures during the excavation and establishment of the basement and construction of the building, particularly to the western side of trees T1 and T2 and particularly around the lower ground level deck and the ground level and above building and balconies that encroach into the tree protection zones (TPZ's) for T1 and T2.
- 1.6 The arborist [Table A](#) (data sheets) and [Chapter 6](#) in this report provides further information and discussion around the proposed tree removal.
- 1.7 Table A outlines the trees' condition and calculations. Refer to [Table A: Tree Schedules](#)
- 1.8 Refer also to the arborist plans [Arb_601 and Arb_602](#). within this report.

2 Introduction

- 2.1 Elke Haege visually assessed and inspected the trees from ground level on 9th May 2022. The Visual Tree Assessment Method was used (after Mattheck 8.4 p 118, fig. 74).
- 2.2 Soil/ Geology/The site: The existing site is a light industrial site with less than 5% of the site as deep soil. The site is predominantly hard paved space for car parking and a series of light industrial buildings. Whilst the site is predominantly flat / benched, there is a grade from east to west towards Hawthorne Canal to the west. There is a several metre level change at the boundary towards Lambert Park sports field to the north.
- 2.3 The predominant zone of vegetation is along the western boundary with Davies Lane which can be seen in both aerial photos including the 1943 aerial in figure 2 below.



Figure 1 Aerial photo showing the approximate site (shaded in yellow). Source: Six Maps. Date accessed: 5th May 2022.



Figure 2 Aerial photo showing the approximate site (shaded in yellow) from 1943 aerial imagery. The brush box trees along Davies Lane (western boundary) are visible in the photo. The buildings have increased in footprint along the northern portion and the southwestern portion of the site. As well, the 1943 aerial appears to not have hard paved asphalt around the trees along the western or southern zones where trees are planted, as is the case in the present. Source: Six Maps. Date accessed: 5th May 2022.

3 Assessment Methodology

The following industry accepted, and recognised methodologies have been used 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>
Arb_601 Table A	Retention Value	Determining Retention Value	<i>Developed from: Earthscape Horticultural Services, December 2011²</i>
Arb_601 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 Standards 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 Standards AS4373-2007	Pruning of Amenity Trees	<i>AS 4373-2007</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.*

Australian Standards and Data Collection Documents

- 3.1 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.
- 3.2 The Australian Standard, *AS 4373-2007 'Pruning of Amenity Trees'* has also been referred to in this assessment letter within the recommendations section.

Not Assessed:

- 3.3 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.

Reviewed:

- 3.4 The following documents have been reviewed and considered as part of this arboricultural impact assessment and assisted in formulating this assessment including understanding the tree definitions and exempt species and parameters.
 - 3.4.1 *Inner West Council's Development Fact Sheet - Trees on Development sites 2018, Development fact sheet – Arborist reports V2. 2018 and Technical Reports.*
 - 3.4.2 *The Tree Management Development Control Plan for Inner West Council 2021.*
 - 3.4.3 *Inner West Council's Heritage Trees List, March 2020.* It is noted that there are no trees as part of this assessment that are listed on the Heritage Trees List.
 - 3.4.4 *Marrickville DCP 2011, Biodiversity and Biodiversity Map 2.13.*
 - 3.4.5 *Inner West Council's Tree Minor Works list.*
-

4 Tree Data.

Refer to the *Table A Schedule* on the following page for the tree condition description and tree data. Provided on the next pages in this report is the following schedule:

- a. *Table A: Tree Schedule – A3 size, 3 sheets.*
Provides tree reference number, detail on health and structure, SULE rating, landscape, and retention rating, SRZ's, TPZ's³ and relevant encroachment percentages.

Refer also to the '*Recommendations + Discussion*' chapter in this report.

5 Tree Assessment Plans:

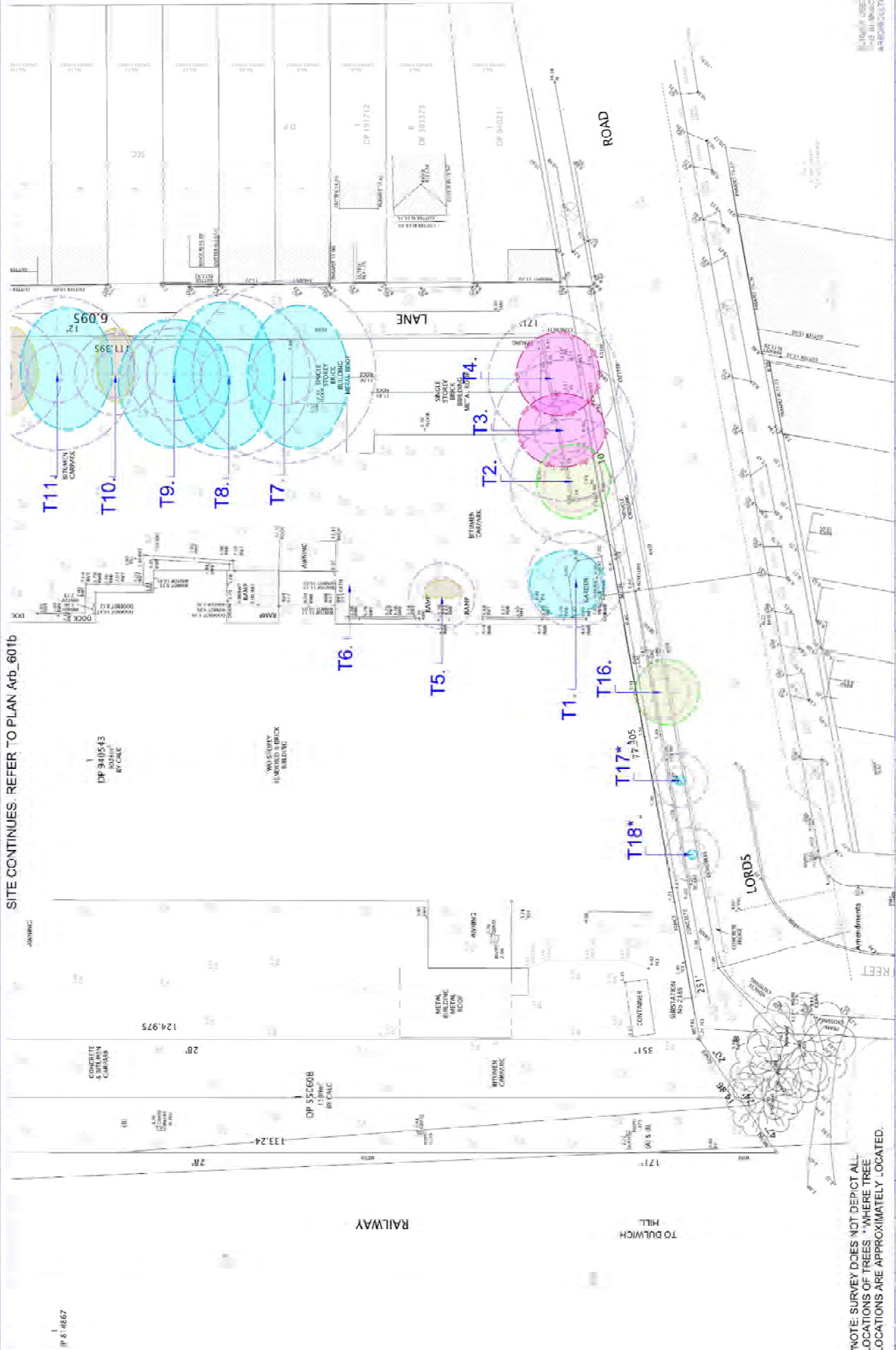
- b. *Arborist Plans have been created on A1 sized sheets at 1:200 scale:*
 - i. *Arb_601a and Arb_601b: Tree Retention Plans.*
 - ii. *Arb_602a and Arb_602b: Tree Impact Plans.*
-

³ TPZ and SRZ's are calculated using AS4970-2009 (adapted from Matheney and Clarke's British Standard adaption method, 1991).

Reference		(m)	(m)	AREA (m)				(m)	Canopy spread (m)				Diameter above root crown (RCB)		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		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 Encroachment	% SRZ encroachment											
						N	E	S	W																							
Within site along southern boundary																																
1	Lophostemon confertus with Schefflera	M	11	0.44	Proposal to remove (with approval)	5	5	3	4	0.6	Located within timber kerbed/edged garden bed with hardstand surrounds at vehicular entry gates and east of main building. Overgrown vegetation within garden bed including a mature Schefflera. T1 has a single trunk to approx. 4m before canopy starts. Appears from branching T1 was cut down at 4m H and subsequent pruning due to multiple trunks (such as in pollarding). Slight suppression / asymmetrical canopy growth from Schefflera. T1 has a vertical split in a dominant trunk on west (monitor size and any change to split). Garden bed also contains a palm, camphor laurel sapling, fiddle leaf fig, Murraya and is crowded out.	M - L	H	M	P, E	5.28	87.58	2.67	22.40	over allowable limit												
	Brush Box with Umbrella tree																															
2	Lophostemon confertus	SM - M	9	0.57	Proposal to remove (with approval)	4	4	4	4	0.98	Tri-dominant form at 1.4m H. Low brick retaining wall 0.55m H to north of tree has 2 cracks adjacent tree. Tree is <0.2m from wall. Central trunk many years ago has ripped out/failed and decay is present in that junction. 3 main trunks emanate from beneath that failure and tree form is now of an open habit. T2 appears stunted and is smaller in height compared to T3 and T4, yet was likely planted at the same time. Asphalt pieces at the root crown base on upper level could indicate tree had asphalt surrounding. Currently is a garden bed south of low brick wall.	S to M	L to M	L to M	P, E	6.84	146.98	3.28	33.83	over allowable limit												
	Brush Box																															
3	Lophostemon confertus	M	13	0.64	Proposal to remove (with approval)	5	4	4.5	4	0.92	Co-dominant form from 2.5m H. T2 close to low brick wall which is tilting away from tree. Co-dominant attachment occluded but visible in trunk from 0.5-2.5m on both sides indicating possible internal arrested crack. Asphalt pieces also at base of tree. 2.8m from building to centre of tree.	M	M to H	M to H	P, E	7.68	185.30	3.20	32.08	over allowable limit												
	Brush Box																															
4	Lophostemon confertus	M	13	0.59	Proposal to remove (with approval)	4	5	5	4	0.8	1.5m from building to centre of tree. Wall immediately to the north appears to be moving / building away from tree. Opportunity on street verge adjacent for tree planting opportunity (under powerlines).	M	M to H	M to H	P, E	7.08	157.48	3.01	28.53	over allowable limit												
	Brush Box																															
Centrally located within Site																																
5	Hibiscus sp. and Viburnum shrub	M	5.5	0.3	Proposal to remove (with approval)	1.5	1.8	1.8	0.2	0.33	Lopped at ramp height, T5 growing from lower level. Poor form, epicormic shoots.	S	L	VL	WP	3.60	40.72	2.08	13.56	over allowable limit												
	Hibiscus with Viburnum shrub																															
6	no tree at position 6 (refer survey)										n.a.																					
Age Class		(Diameter at Breast Height) DBH is used in TPZ calculation.				Dia. RCB is used in SRZ calculation				Crown Density PFC		SULE		Retention		Rating		Site Location		Measured in CAD.												
ST (Senescent)		Proposal to Retain								Dense >90% Normal 70-90% Slightly thin'g 60-70% Thinning 40-60% SP sparse <40%		L Long(> 40 Years) M edium(15-40 Years) s hort(5-15 Years) t (Transient < 5) H (Hazardous/Dead)		H - high Priority retain M - moderate Consider retain L - low Consider Removal VL - very low Priority Removal		1 to 3 4 to 5 6 7		O Inconspicuous /obscured location M Moderate location, not obscuring P Prominent position HV Highly Visible from street/surrounds E (Edges) Periphery of site		Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.												
OM (Over Mature)		Proposal to remove (with approval)																														
M (Mature)		Proposal to transplant																														
SM (Semi-Mature)																																
J (Juvenile)																																
		WP Within Development Potential																														
		OB Outside Boundary																														

Tree evaluation Table by: Elke Haeghe Thorwaldson, Consulting Arborist and Landscape Architect 0410 456 404

Reference		(m)	(m)	AREA (m)				Trunk Diameter 1.4m DBH		Estimated Height (m)	Canopy spread (m)				Diameter above root crown (RCB)	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	Refer to Appendix 4a and 4b				Refer to report.			
Id #	Species Common Name	Age class	Estimated Height (m)	N	E	S	W	Proposal to: retain and protect or remove	DBH	8.5	M	3	3.5	4	3.5	0.55	Located in street verge under power lines. T16 has been pruned heavily (limbs of approximately 100mm diameter) at approximately 1.7-2m high with epicormic branches with thorns present on branches. Overall tree form is poor. Tree currently displaying/holding many seed pods.	S to M	L	L	OB	5.76	104.23	2.57	20.82	over allowable limit	over allowable limit
Outside site boundary on Lords Road street verge adjacent site																											
16	Robinia pseudoacacia	M	8.5	3	3.5	4	3.5	0.55	0.48	8.5	M	3	3.5	4	3.5	0.55	Located in street verge under power lines. T16 has been pruned heavily (limbs of approximately 100mm diameter) at approximately 1.7-2m high with epicormic branches with thorns present on branches. Overall tree form is poor. Tree currently displaying/holding many seed pods.	S to M	L	L	OB	5.76	104.23	2.57	20.82	over allowable limit	over allowable limit
	Robinia - Black locust																										
17	Tristaniaopsis laurina 'Luscious'	J	3.5	0.5	0.5	0.5	0.5	0.05	0.03	3.5	J	0.5	0.5	0.5	0.5	0.05	Newly planted tree in verge and staked. Cup moth caterpillar (venomous) and their pupae were present and browsing on the leaves.	M to L	M	M	OB	0.36	0.41	0.94	2.78	0%	0%
	Water Gum																										
18	Tristaniaopsis laurina 'Luscious'	J	3.5	0.5	0.5	0.5	0.5	0.05	0.03	3.5	J	0.5	0.5	0.5	0.5	0.05	Newly planted tree in verge and staked. Doratifera vulnerans (Mottled cup moth caterpillar - venomous) and their pupae were present and browsing on the leaves.	M to L	M	M	OB	0.36	0.41	0.94	2.78	0%	0%
	Water Gum																										
Age Class		(Diameter at Breast Height) DBH is used in TPZ calculation.		Dia. RCB is used in SRZ calculation		Crown Density PFC		SULE		LANDSCAPE RATING		Retention		Rating		Site Location		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.									
ST (Senescent)		Proposal to Retain		Dense >90%		Long (> 40 Years)		L		S (Significant)		H - high		1 to 3		O		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.									
OM (Over Mature)		Proposal to remove (with approval)		Normal 70-90%		Medium (15-40 Years)		M		VH (Very High)		M - moderate		4 to 5		M		Moderate location, not obscuring									
M (Mature)		Proposal to transplant		Slightly thin'g 60-70%		Short (5-15 Years)		T		H (High)		Consider retain		6		P		Prominent position									
SM (Semi-Mature)				Thinning 40-60%		Transient (< 5)		H		M (Moderate)		L - low		7		HV		Highly Visible from street/surrounds									
J (Juvenile)				SP sparse <40%		Hazardous/Dead		L		L (Low)		VL - very low		Priority Removal		E		Edges									
				PFC = projected foliage cover				IN (Insignificant)		Ex (Exempt TPO)		T (Threatened S)		WP Within Development Potential													



NOTE: SURVEY DOES NOT DEPICT ALL LOCATIONS OF TREES. WHERE TREE LOCATIONS ARE APPROXIMATELY LOCATED.

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LEGEND

T1	Tree Reference number
Calculated Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)	
Tree Retention Rating as assessed by Elke, AQF Level 5 consulting arborist	
Very Low	
Low	
Moderate	
High	

INFORMED TREE RETENTION RATING

as assessed by Elke, AQF Level 5 consulting arborist

Very Low

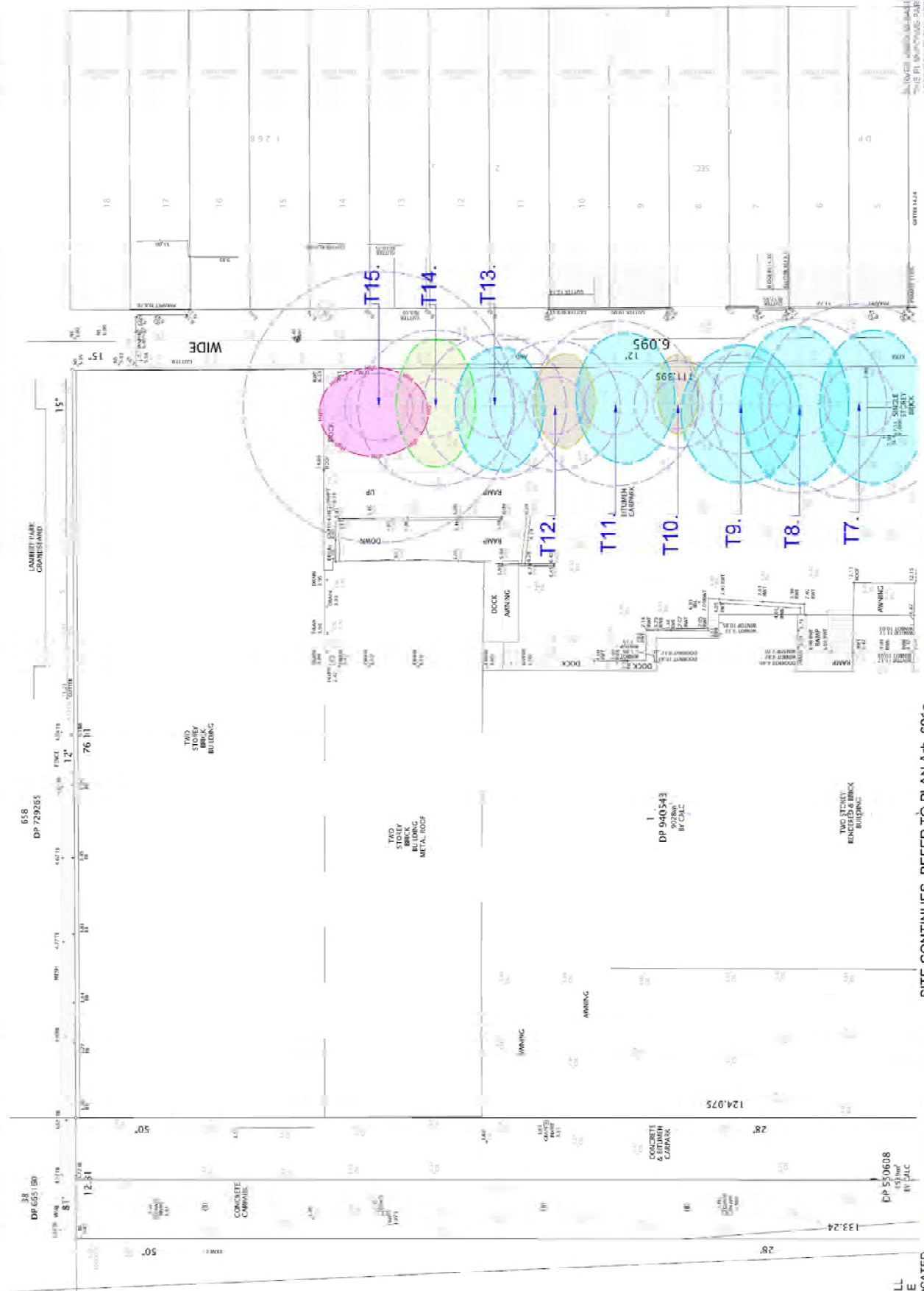
Low

Moderate

High

Development Application
Pallino Properties Pty Ltd
Elke Consulting Arborist
67-73 Lords Road, Leichhardt, NSW
2205 c Arb 601a B

Consenting Arboricultural Tree Retention Plan - Southern Zone
Scale: 1:200 (G+1)
Drawing Name: Consenting Arboricultural Tree Retention Plan - Southern Zone
Drawing Number: 2205 c Arb 601a B



NOTE: SURVEY DOES NOT DEPICT ALL LOCATIONS OF TREES. WHERE TREE LOCATIONS ARE APPROXIMATELY LOCATED.

SITE CONTINUES. REFER TO PLAN Arb_601a

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LEGEND
T1. Tree Reference number
Calculated Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)

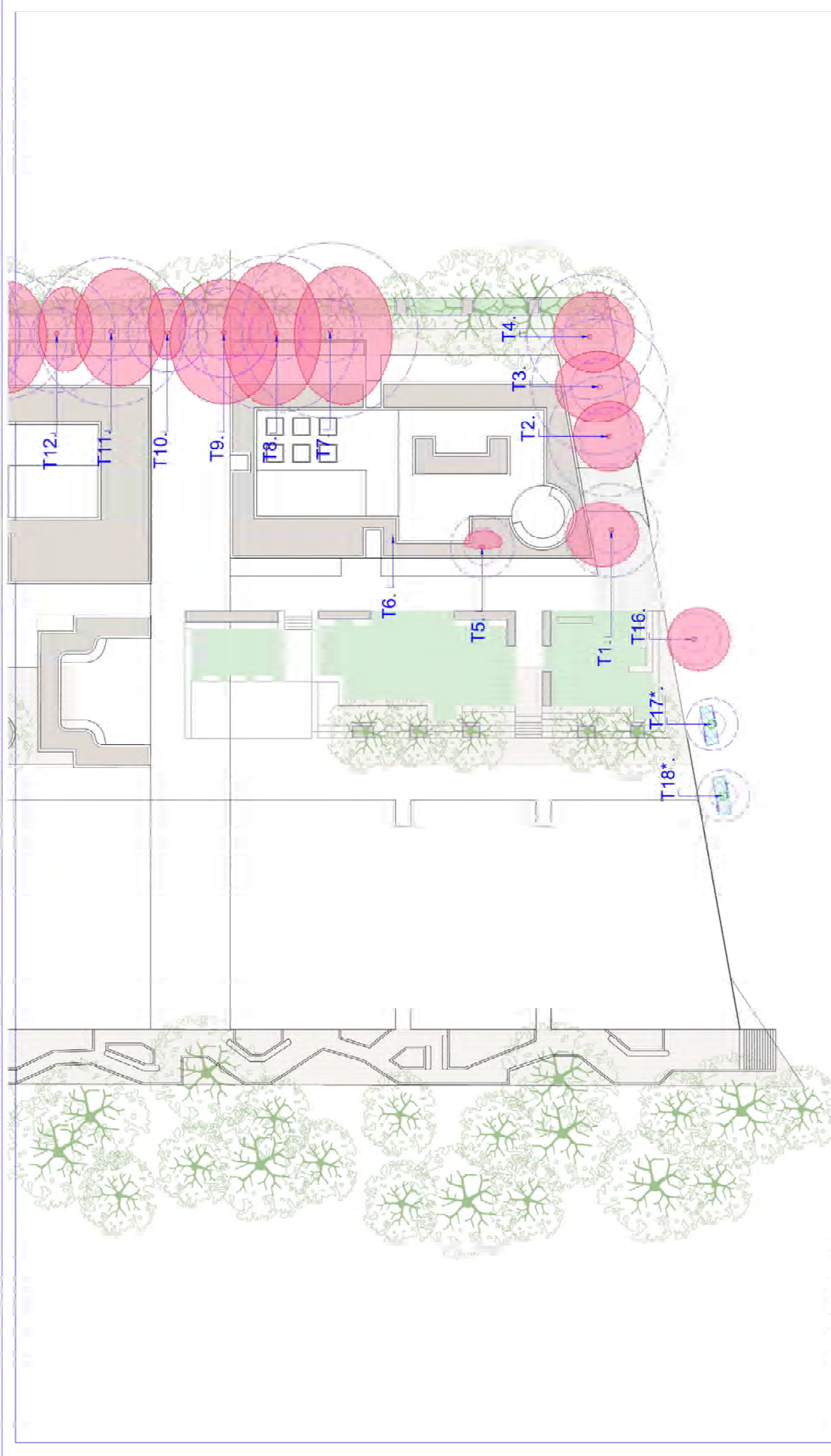
Informed Tree Retention Rating as assessed by Elke, AQF Level 5 consulting arborist

Very Low
- High
- Moderate
- Low

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Development Application
Platino Properties Pty Ltd
Elke Consulting Arborist
57-73 Lotts Road, Leichhardt, NSW
2205 c Arb_601b B

Consisting of
Rating Plan - Northern Zone
Scale: 1:200 (B-A1)
2205 c Arb_601b B



NOTE: SURVEY DOES NOT DEPICT ALL LOCATIONS OF TREES. WHERE TREE LOCATIONS ARE APPROXIMATELY LOCATED.

SITE CONTINUES. REFER TO PLAN Arb_602a

PLAN, LAYOUT PLANNING PROPOSAL
USED AS BASE UNDERLAY

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Development Application Platino Properties Pty Ltd Consenting authority Ever Consulting Arborist Project 67-73 Lords Road, Leichhardt, Leichhardt, NSW	Development Application Platino Properties Pty Ltd Consenting authority Ever Consulting Arborist Project 67-73 Lords Road, Leichhardt, Leichhardt, NSW
--	--

Tree Name	Tree Reference number	Existing Tree recommended for Retention and Protection	Existing Tree proposed to be removed	Recommended Tree Protected on Fencing to as anti-climb
T1.				

Tree Name	Tree Reference number	Existing Tree recommended for Retention and Protection	Existing Tree proposed to be removed	Recommended Tree Protected on Fencing to as anti-climb
T2.				
T3.				
T4.				
T5.				
T6.				
T7.				
T8.				
T9.				
T10.				
T11.				
T12.				
T13.				
T14.				
T15.				
T16.				
T17.				
T18.				

Tree Name	Tree Reference number	Existing Tree recommended for Retention and Protection	Existing Tree proposed to be removed	Recommended Tree Protected on Fencing to as anti-climb
T1.				
T2.				
T3.				
T4.				
T5.				
T6.				
T7.				
T8.				
T9.				
T10.				
T11.				
T12.				
T13.				
T14.				
T15.				
T16.				
T17.				
T18.				

Tree Name	Tree Reference number	Existing Tree recommended for Retention and Protection	Existing Tree proposed to be removed	Recommended Tree Protected on Fencing to as anti-climb
T1.				
T2.				
T3.				
T4.				
T5.				
T6.				
T7.				
T8.				
T9.				
T10.				
T11.				
T12.				
T13.				
T14.				
T15.				
T16.				
T17.				
T18.				

Tree Name	Tree Reference number	Existing Tree recommended for Retention and Protection	Existing Tree proposed to be removed	Recommended Tree Protected on Fencing to as anti-climb
T1.				
T2.				
T3.				
T4.				
T5.				
T6.				
T7.				
T8.				
T9.				
T10.				
T11.				
T12.				
T13.				
T14.				
T15.				
T16.				
T17.				
T18.				

6 *Impact, Discussion and Recommendations*

6.1 This arboricultural assessment report package covers a total of seventeen (17) trees. The retention and protection of two (2) street trees, and the removal of fifteen (15) trees is proposed.

6.2 As shown in the Executive Summary, Chapter 1 above, the following table shows the proposed tree removal. Refer to [Table A](#) in this report for more detail.

NUMBER OF TREES	RETENTION VALUE	PROPOSED FOR RETENTION	PROPOSED FOR REMOVAL
3	High	0 trees	3 trees (T3, T4 and T15)
8	Medium	2 trees (T17 and T18) trees	6 trees (T1, T7, T8, T9, T11, T13)
3	Low	0 trees	3 trees (T2, T14, T16)
3	Very Low	0 trees	3 Trees (T5, T10, T12)
TOTAL TREES: 17		2 trees proposed to be retained	15 trees proposed to be removed

6.3 Under the *Inner West Council's DCP, Tree Management, 2020, Part 5.2 i*, where trees are located within 2m of a dwelling house or garage, unless protected under Section 4, removal with replacement may be sought through council. The trees proposed for removal that have been identified as falling under this **distance criteria** are:

T2	<i>Lophostemon confertus</i> (Brush Box)
T3	<i>Lophostemon confertus</i> (Brush Box)
T4	<i>Lophostemon confertus</i> (Brush Box)
T5	Hibiscus and Viburnum shrub
T7	<i>Lophostemon confertus</i> (Brush Box)

6.4 Under the *Inner West Council's DCP, Tree Management, 2020, Part 5.2 iv*, the structural integrity of the trees have been assessed for visible signs of decay or deterioration and the likelihood of the species towards branch failure/limb fall. The trees proposed for removal that have been identified as falling under this **structural integrity condition criteria** are:

T10	<i>Lophostemon confertus</i> (Brush Box)
T12	<i>Lophostemon confertus</i> (Brush Box)
T14	<i>Lophostemon confertus</i> (Brush Box)

- 6.5 As well, the Health of the trees has been assessed under [Part 5.2 v \(Inner West Council's DCP, Tree Management, 2020\)](#) in relation to longevity of the species within its current location, particularly in relation to compaction of soil in hard paved car parking areas. The trees proposed for removal that have been identified as falling under or partly under this **health susceptibility and compromised longevity condition criteria** are:

T1	<i>Lophostemon confertus</i> (Brush Box)
T8	<i>Lophostemon confertus</i> (Brush Box)
T9	<i>Lophostemon confertus</i> (Brush Box)
T11	<i>Lophostemon confertus</i> (Brush Box)
T13	<i>Lophostemon confertus</i> (Brush Box)
T15	<i>Lophostemon confertus</i> (Brush Box)

- 6.6 The predominant tree species within the site is Brush Box. Generally, across the site, it appears there have been gradual changes around the trees during their life including the asphaltting of the carpark / driveway (refer to Figure 2 showing the 1943 aerial photo showing what appears to be an unsealed car park zone). In Figure 2, (a 1943 aerial photo) compared with Figure 1 (a current day aerial photo) an increase in the building footprint is apparent as well which reduces the available soil volume to adjacent trees.
- 6.7 Other visible changes observed on site that are suspected of having occurred around the trees that may have impacted the trees' health, structural integrity, condition and safe useful lifespan include:

Visible changes that are suspected of having occurred around the trees	Potential impact to Tree(s):
changing of levels such as footpath and low walls	near T1 and T2
upgrades to buildings including level changes and walls	around T1 through to T7 and T15 loading dock
dumping of waste/rubbish and material and the parking of cars	around T7 through to T15
lopping / topping of trees during life of tree	identified in T1 and T15
penetrating the trunks of trees for signage or a netball hoop	T11, T13, T14, and T15

- 6.8 In relation to the Brush Box trees on site, these trees are likely between 80 -100 years old and have likely reached their full, mature size within the context of their surroundings. The stand of Brush Box, particularly trees T2-T4 and another stand T7-T15 will likely be sharing root systems. This means that if only several of each stand of trees were removed, the remaining trees may be supported for a period of time until the root system of the cut down tree dies off, which is inevitable with its removal. Further, the cut down tree will have a large open cut (wound) which is an open site of pathogen entry, which may in turn result in infecting the remaining tree(s). (Refer to Figures 7 to 9 and 17-26, Chapter 8 below).

Shared root systems are where trees of the same or like species⁴ and in near proximity to each other, and where the soil zones connect, tree roots from different trees can graft or fuse together or be physically connected through mycorrhiza⁵ (symbiotic fungi). These physical connections act as pathways to transfer and swap information, nutrients, carbon, sugars, carbon dioxide and oxygen, and water⁶.

- 6.9 Further, removing several and not all of the stand of trees will also result in an exposed side or sides of the remaining trees which were previously protected (from wind and solar exposure) by the removed tree. The dramatic change in conditions can often cause instability from the exposed side and sudden solar exposure, both of which can add to the impacts to the remaining tree(s). Therefore, the proposal does not propose retaining one or a few of each of the stand of trees.
- 6.10 The planning proposal includes for replacement trees. [Part 5.4, C11 \(Inner West Council's DCP, Tree Management, 2020\)](#) calls for a 2:1 replacement tree ratio, amounting to a minimum of thirty (30) new replacement trees, of which 'tree container size and mature tree height will be determined by Council'. The urban design landscape proposal plan by SJB Architecture which is underlaid to the arborist impact plans *Arb_602a and 602b* proposes a total of 63 trees. Of this 63 trees: 15 trees along the western boundary, 8 trees in the central spine, 12 trees along the northern boundary, and 28 trees along the eastern setback zone are proposed.
- 6.10.1 For any new proposed trees, it is recommended that adequate soil volume and composition is provided suitable for the tree species, design size, and longevity of the tree that is proposed. As a starting point, the **Soil Volume Simulator**⁷ is recommended to be utilized by the project landscape architects and urban design team to assist with the suitable soil to tree design.

⁴ And sometimes different species

⁵ Symbiotic fungi that grow alongside and between tree roots

⁶ *Science*, DOI: 10.1126/science.aad6188 Trees share vital goodies through a secret underground network | New Scientist

⁷ Leake S and Haege E, 2018, Soils for Landscape Development, CSIRO Publishing and [Soils - Elke Haege](#) <https://www.elkeh.com.au/soils/>

- 6.11 The proposed removal of T16, a *Robinia pseudoacacia* (False Robinia) located within the street verge of Lords Road whilst not hinging or contingent on this planning proposal, is proposed as it is seen as an opportunity for replacement to a more suitable, and native tree planting along the street verge of Lords Road. This would be considered a more beneficial outcome for both parties (council and adjacent site owner).
- 6.11.1 T16 is listed in the [Inner West Council DCP, Tree Management, 2020](#), on the exempt species list.
- 6.11.2 T16 has been heavily pruned (branch diameters of 100mm) and the epicormic branch regrowth displays thorns /spikes, and the SULE⁸ has been rated as short (5-15 years) and the retention rating and landscape rating are both set as “low – consider removal”. The tree is located under overhead power lines. (Refer to Figure 4, Chapter 8 below).
- 6.12 T17 and T18 are both newly planted *Tristaniopsis laurina* (Water Gum). These juvenile street verge plantings are proposed for retention and protection with tree protection fencing during construction. It should be noted that the presence of *Doratifera vulnerans* (Mottled cup moth caterpillar – venomous and native) and their pupae were present and browsing on the leaves. Provided the trees receive good water, soil nutrition and suitable protection including protection of the soil during any development, it is believed that the trees will be able to naturally overcome the cup moth caterpillar outbreak as they grow and mature. (Refer to Figure 5 and 6, Chapter 8 below).
-
- 6.13 It is recommended that no stormwater or other services trenches be located within the TPZ of trees to be retained
- 6.14 Refer to [Chapter 7 below for the TPZ Fence and TPZ signage specification](#), and outline of what activities are allowable within and what activities/works are possible within the TPZ fencing, under project consulting arborist supervision.
- 6.15 In addition, it is assumed and recommended that no stockpiling, machinery, or storing of materials or other building works or construction footprint occur within the TPZ fenced zone (refer to plan Arb_602).
- 6.16 It is recommended that for construction certificate phase, a detailed [Tree Protection Plan \(TPP\)](#) methodology and specification is developed be submitted for approval together with a schedule of project arborist inspection/sign off points.
- 6.17 It is not envisaged for this project that any pruning works will be needed, however, should the need for pruning of branches arise, contact the project consulting arborist for direction and advice. Generally, pruning is only to be done by an AQF Level 3 in arboriculture, under the supervision of the project consulting arborist (who is to be AQF Level 5 in arboriculture).
-

⁸ SULE: Safe Useful Life Expectancy (refer Chapter 3 and Table A)

7 Tree Protection Zone Fencing and TPZ signage.

7.1 Install compliant Tree Protection

Fencing: Prior to any construction and as soon as possible in the site set up phase, Tree Protection Zone fencing (TPZ fencing) and TPZ signage is to be installed in the locations determined by the project consulting arborist following DA approval.

7.2 The project consulting arborist is to confirm the locations of the TPZ fencing on the arborist plan: [Arb_602](#). TPZ fencing is to protect the retained trees and their necessary soil zone by restricting the construction footprint that may unduly compact, damage, or disturb the tree soil zone and the tree root growing zone of trees.

7.3 In addition, site set up and arborist sign off is recommended 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.

7.4 **Type of Fence:** Tree or trunk protection fences (TPZF) are to comply with AS [4970-2009](#) and are recommended 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 footings**. **E.g., temporary site or event fencing with plastic or concrete pad footing pads (that do not penetrate the ground).** The fencing panels are to be bolt cleated together so they cannot be easily/readily lifted out of place without the use of a wrench or other tools.



Figure 3. Example of tree protection fencing and signage..

- 7.5 Erect signage on all visible sides of the TPZ fencing and in clear to read text size. For this project use 4 signs evenly spaced and facing outwards across the TPZ fencing. TPZ Signage is to state the following:

Tree Protection Zone. Do not move this fence.

Do not store or dispose of materials or park vehicles inside the fenced zone.

Do not enter without prior written approval by the project consulting arborist: 0410 456 404

- 7.6 A printable A2 or A3 sized sheet of the tree protection signage (*example right*) is provided at the end of this report which can be laminated for use.

- 7.7 The site manager/builder 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 over 40mm diameter) regardless if roots or tree parts are within the TPZ or not. Should access into the TPZ fenced zone be required, contact the project consulting arborist prior and obtain written permission. Failure to do so, will result in non-compliance.
- 7.8 No cutting, shaving, or removing of any tree parts may occur, including **tree roots >40mm**, any trunk, branches, or foliage without the prior written consent of the project arborist.
- 7.9 Should **tree roots >40mm** be exposed or uncovered, contact the project arborist for instructions (which may include root protection measures, root severance, tree removal, or other by the project consulting arborist only). 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.

All site photos were taken on 9th May 2022 by Elke, consulting arborist during the site assessment.



Figure 4. Photo showing T16, Robinia street tree. The pruning and thorns on epicormic shoots are visible.



Figure 5. Photo showing The Doratifera vulnerans (Mottled cup moth caterpillar – venomous and native) on T17 and T18, new Tristaniopsis laurina (Water Gum) juvenile street trees.



Figure 6. Photo showing The cup moth on T17 and T18, new *Tristaniopsis laurina* (Water Gum) juvenile street trees. T16 is in the background. Overhead powerlines just visible above these trees.



Figure 7. Photo from Lords Rd towards T3 and T4 (south western corner). Davies lane is also visible in the photo



Figure 8. Photo from Lords Rd towards T1 (left of driveway) and T2 (right of driveway) with T3 and T4 far right.



Figure 9. T1, Brush box with Schefflera growing close to it (photo on the left). Photo on the right shows T1 has previously been lopped/topped at approximately 4m high with the new branches growing from one node.



Figure 10. Photo T2 behind entry fence and T3 closer to building



Figure 11. Photo T2. View looking south. Crack in brick wall. Hard pave surface where table/chairs are placed.



Figure 12. Photo T3. Wall to the north of T3. Lords Rd footpath in background on right. T4 in background.



Figure 13. Photo T3 – co-dominant form



Figure 14. Photo T4. Brick wall displacement visible in photo.



Figure 15. Photo T4. Brick wall displacement visible in photo.



Figure 16. Trees 7 (right – near red car) through to T15 (far left)



Figure 17. Trees 7 (right – near white van) through to T15 (far left)



Figure 18. Trees 7-15 all within asphalt. Much displacement of the hard pave around the root crown base, rubbish dumped and cars parking.



Figure 19. Trees 7-15 all within asphalt. Much displacement of the hard pave around the root crown base, rubbish dumped and cars parking.



Figure 20. Trees T11 with netball hoop drilled into the tree (at red arrow)



Figure 21. Tree T9. Slight stunting to tree. Rubbish dumped at base. Davies Lane in background. Tillandsia growing on limbs. Fungal mycelia present on trunk. Vertical split in trunk (refer next photo)



Figure 22. Tree T9. Slight stunting to tree. Rubbish dumped at base. Davies Lane in background. Tillandsia growing on limbs. Fungal mycelia present on trunk. Vertical split in trunk.



Figure 23. Tree T13 with two signs nailed into trunk and hard pave up to base of T13, T14, and T15 in background. Photo on right is T10 in very poor form



Figure 24. Tree 12 with decay on both sides of trunk. Asphalt up to base of tree and car parking either side.



Figure 25. Tree 14 with decay on trunk and sign and asphalt up to base of tree and car parking either side.



Figure 26. Tree 15 with several large limb scars at 1m above asphalt. It is suspected that this tree was lopped /topped at this height and the remaining trunks regrew. There is a lack of root crown base taper at the collar where asphalt has been laid at the trunk, indicating higher ground level than was existing.

9 [Discussion and Conclusion](#)

- 9.1 The planning proposal includes for 63 new trees. As discussed in Chapter 6.10, this is over the calculated 2:1 replacement ratio amounting to a minimum of 30 trees. I believe this is an acceptable approach.
- 9.2 The proposed and recommended removal (with replacement) of both stands of trees T2-4 and T7-T15 is described in chapters 6.8 to 6.9. providing rationale against isolating singular trees.
- 9.3 The proposal and recommendation for tree removal, is predominantly regarding the trees health and structural conditions, growing conditions, and proximity to built structures as described in chapters 6.3 to 6.7 and under [Part 5.2 of the Inner West Council's DCP, Tree Management, 2020](#) .
- 9.4 In my professional opinion, the tree removals with replacement trees proposed, provides opportunity to improve on the sites' capacity to contribute and improve the local landscape qualities, Greenway vegetation buffer and zone, improve vegetation longevity, canopy cover, and landscape integration as a transition zone site between single residential development and Greenway corridor link by implementing a design proposal with new large native trees in suitable soil volume and growing conditions as recommended in chapter 6.10.1 and more in line with current/modern tree planting and suitable urban landscape soil volume practices.

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 Haege E, 2014, Soils for Landscape Development, Selection, Specification and Validation, CSIRO Publishing.*
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- *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*

11 [Relevant Appendices](#)

[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.

[Appendix 6: ISA Tree Risk Assessment](#)

Methodology: ISA (International Society of Arboriculture, 2013)⁹. 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>

[Appendix 2: Safe Useful Life Expectancy](#)

Refer to next page.

The following worksheet template shows the categories for SULE as derived from the attached appendices.

Life expectancy (LE)				Safe Life Expectancy LE				Safe Useful Life Expectancy			Final SULE	SULE Category
Age of tree	Average Lifespan	Lifespan modified by local factors	Life expectancy	LE modified by health	structure	LE modified by location	SLE	experience	Interference	Space for planting		
1	2	3	4	5	6	7	8	9	10	11	12	

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

⁹ <http://www.isa-arbor.com/education/onlineresources/basictreeriskassessmentform.aspx>
 Arboricultural Development Impact Assessment. Elke Landscape Architect and Consulting Arborist AQF 5.

Sule Categories and Sub-Categories

	1	2	3	4	5
	Long SULE:	Medium SULE:	Short SULE:	Remove:	Small, Young or regularly clipped:
	Trees that appeared to be retainable at the time of assessment for more than 40 years with and acceptable level of risk	Trees that appeared to be retainable at the time of assessment for 15 to 40 years with and acceptable level of risk	Trees that appeared to be retainable at the time of assessment for 5 to 15 years with and acceptable level of risk	Trees that should be removed within the next 5 years	Trees that can be reliably transplanted or replaced
A	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live for between 15 and 40 more years	Trees that may only live for between 5 and 15 more years	Dead, dying, suppressed or declining trees through disease or inhospitable conditions	Small trees less than 5 metres in height
B	Trees that could be made suitable for retention in the long term by remedial Care	Trees that may live for more than 40 years, but would need to be removed for safety or nuisance reasons	Trees that may live for more than 15 years, but would need to be removed for safety or nuisance reasons	Dangerous trees through instability or recent loss of adjacent trees	Young trees less than 15 years old but over 5 metres in height
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention	Trees that may live for more than 40 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	Trees that may live for more than 15 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form	Trees that have been regularly pruned to artificially control growth
D		Trees that could be made suitable for retention in the medium term by remedial Care	Trees that require substantial remedial care and are only suitable for retention in the short term	Damaged trees that are clearly not safe to retain	
E				Trees that may live for more than 5 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	
F				Trees that may cause damage to existing structures within 5 years	
G				Trees that will become dangerous after removal of other trees for reasons given in 1A-1F	

Ref: Barrrell, Jeremy (1996)

Pre-development Tree Assessment

Proceedings of the International Conference on Trees and Building Sites (Chicago)

International Society of arboriculture, Illinois, USA

Appendix 3. Retention Rating

Tree retention priority. Refer to Plan 2.

	Landscape Significance Rating						
SULE	1	2	3	4	5	6	7
Long >40yrs	High Retention Value						
Medium 15-40 years			Moderate Retention Value				
Short 5-15 yrs				Low Retention Value			
Transient <5years				Very Low Retention Value			
Dead or Hazardous							

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

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.

Structural Root Zone (SRZ)

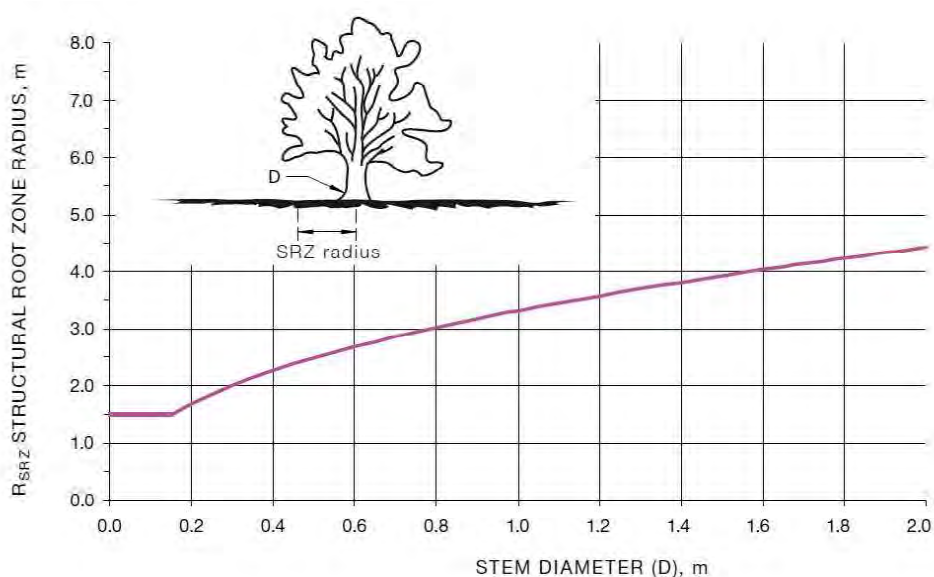
The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

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.

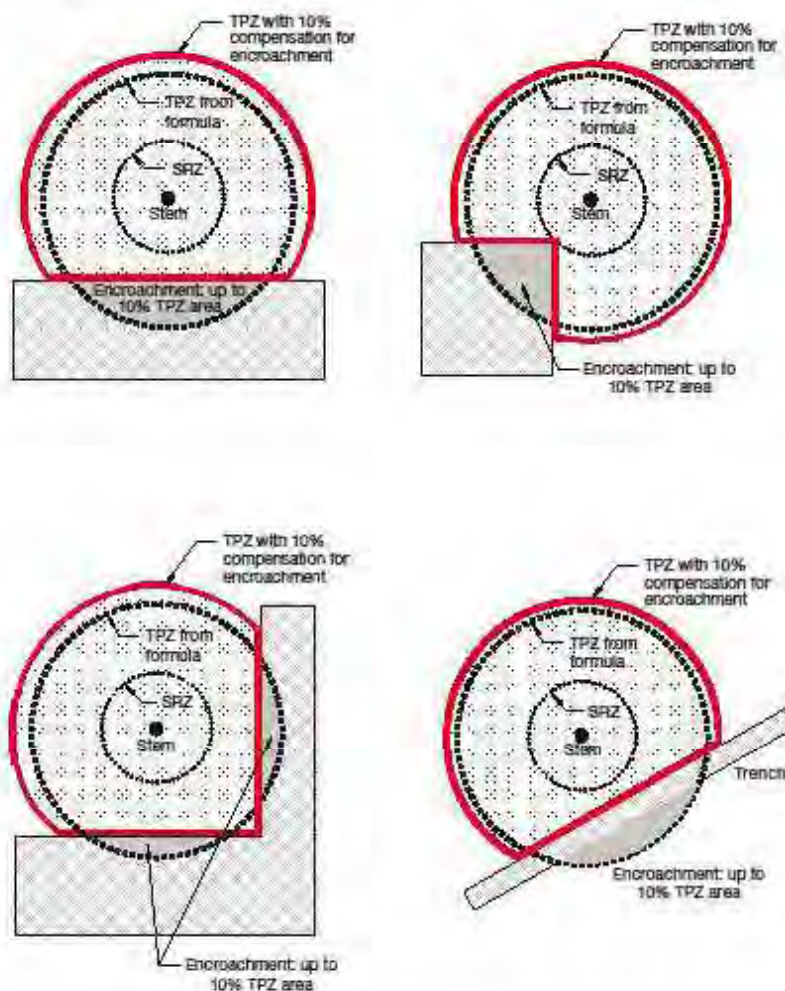
FIGURE 1 STRUCTURAL ROOT ZONE CALCULATION

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).

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

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"	<ul style="list-style-type: none">• 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"	<ul style="list-style-type: none">• 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"	<ul style="list-style-type: none">• These trees are not considered to worthy of any special measures to ensure their preservation, due to current health, condition or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE.• These trees should not be considered as a constraint to the future development of the site.
"Very Low"	<ul style="list-style-type: none">• These trees are considered potentially hazardous or very poor specimens or may be environmental or noxious weeds.• The removal of these trees is therefore recommended regardless of the implications of any proposed development.

Source: Derived from: Earthscape Horticultural Services, December 2011

Appendix 7: Tree Protection Fencing signage

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

tpz fence sign