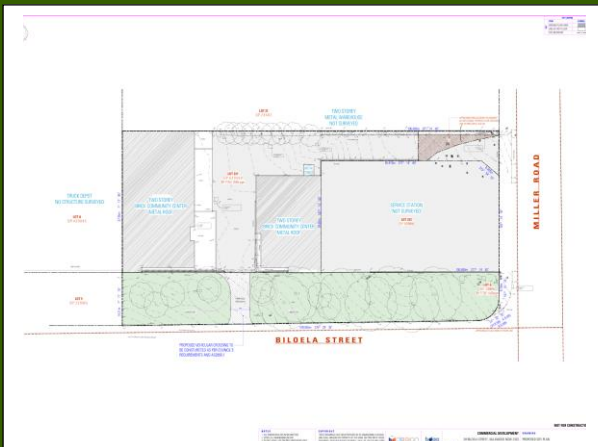


# ARBORICULTURAL IMPACT ASSESSMENT AND TREE MANAGEMENT PLAN



**PROPOSED DRIVEWAY  
DEVELOPMENT APPLICATION**

**2H BILOELA STREET  
VILLAWOOD, NSW**

Report prepared for:

“Ël-Dunnieh Sons Charity Association”  
C/o ES Design  
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*Diploma of Conservation and Land Management*

15th May 2025 – Version 2

## DISCLAIMER

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This report has been prepared in accordance with the scope of services described in agreement between Horticultural Management Services and the client.

This report relies upon data, surveys and site inspections results taken at or under the particular time and or conditions specified herein.

Any representation, statement, opinion or advice, expressed or implied in this publication is made in good faith but on the basis that Horticultural Management Services, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

Every effort has been made in this report to include, assess, and address all defects, structural weaknesses, and instabilities of the subject trees. All inspections were made from ground level using only visual means and no intrusive or destructive means of inspection were used. For many structural defects such as decay and inclusions, internal inspection is required by means of resistograph or similar. No such investigation has been made in this case. Trees are living organisms and are subject to failure through a variety of causes not able to be identified by means of this inspection and assessment.

Information contained in this report covers only the subject tree that was assessed and reflects the condition of the subject tree at the time of inspection. Any finding, conclusion or recommendations only apply to the aforementioned and no greater reliance should be assumed or drawn by the Client.

There is no warranty or guarantee, expressed or implied that problems or deficiencies regarding the subject trees or the subject site may not arise in the future.

Furthermore, this report has been prepared solely for the use by the Client. The Client acknowledges that this assessment, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the Client, and based on the data observations, measurements and analysis carried out or obtained by Horticultural Management Services and referred to in the assessment.

Horticultural Management Services accepts no responsibility for its use by other parties.

## TABLE OF CONTENTS

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1.0	INTRODUCTION .....	4
2.0	AIMS .....	4
3.0	SITE DESCRIPTION AND OBSERVATIONS.....	5
3.1	HERITAGE SIGNIFICANCE .....	5
3.2	TREES ON ADJOINING LAND .....	5
3.3	SITE LOCATION .....	6
3.4	AERIAL SITE LOCATION .....	6
4.0	METHODOLOGY .....	7
5.0	IMPACT ASSESSMENT .....	8
6.0	TREE ASSESSMENT SUMMARY .....	9
7.0	TREE IDENTIFICATION BASED ON PROPOSED DEVELOPMENT DEVELOPMENT .....	14
8.0	TREES PROPOSED TO BE REMOVED BASED ON DRIVEWAY DEVELOPMENT LAYOUT .....	15
8.1	TREE MANAGEMENT PLAN (TMP) .....	16
8.2	SITE SPECIFIC TREE MANAGEMENT PLAN (TMP), APPOINTMENT OF SITE ARBORIST .....	17
9.0	SITE PHOTOGRAPHS .....	19
10.0	CONCLUSION .....	25
11.0	RECOMMENDATIONS .....	26

## APPENDICIES

APPENDIX A: PROPOSED DRIVEWAY DEVELOPMENT LAYOUT .....	27
APPENDIX B: SUPPORTING INFORMATION FOR TREE ASSESSMENT TABLE .....	28
APPENDIX C: TREE PROTECTION ZONES .....	33
APPENDIX D: TERMINOLOGY .....	35
APPENDIX E: REFERENCES .....	37
APPENDIX F: CERTIFICATION .....	38

## 1.0 INTRODUCTION

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Horticultural Management Services were engaged to conduct an Arboricultural Impact Assessment and Tree Management Plan for the proposed driveway application at 2H Biloela Street, Villawood NSW (the site).

It is understood that this report is to form part of a Development Application for the proposed car parking development under this application, which includes approved tree removal, site excavations, construction of new driveway entrance, kerb and gutter, stormwater service line infrastructure as per APPENDIX A Proposed Development Layout.

The purpose of this report is to identify the trees within and or adjoining the site, provide information on their individual current health and condition, determine their remaining life expectancy and significance in the landscape, and assess their suitability for retention/preservation or removal. The scope of this report includes the allocation of SULE ratings (Safe Useful Life Expectancy), and identification of arboricultural work required.

The potential impact of the proposed development has also been assessed, together with recommendations for amendments to the design or construction to ensure the retention of trees considered worthy of preservation.

A site investigation was undertaken on Thursday 27<sup>th</sup> July 2024 and subsequent inspections to assess the trees onsite and those adjoining which may be affected by the proposed design. Information contained in this report covers only the subject trees that were assessed and reflects the condition of the subject trees on site at the time of inspection.

This assessment has been conducted with consideration of the State Environmental Planning Policy (Biodiversity and Conservation) 2021, and Canterbury Bankstown City Council Development Control Plan 2023–Section 2.3 Tree Management, June 2023.

## 2.0 AIMS

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To detail the condition of the trees and consider the location and condition of such in relation to their surrounds.

To complete the following:

- Inspect the subject trees within and adjacent to the site/s and site conditions,
- Assess the condition of the subject tree(s),
- Observe and describe the trees and other vegetation on the subject site,
- Discuss the trees within their current landscape,
- Determine the subject trees' Landscape Significance including cultural, environmental, and aesthetic values,
- Consider the benefits of retention or removal of the trees for the medium to long-term benefit of the trees and on-going public safety,
- Provide recommendations for Tree Management, if or as required, within the context of a development application, and
- Prepare site specific tree protection specifications for trees recommended for retention.

### 3.0 SITE DESCRIPTION AND OBSERVATIONS

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The site is identified as 2H Biloela Street, Villawood NSW.

Relevant site plans and/or documents reviewed prior to undertaking the Arborist Assessment include:

- *ES Design, Proposed Site Plan, Drawing Number 24086-02, Issue R01 22.4.2025,*
- *Canterbury Bankstown City Council Development Control Plan 2023–Section 2.3 Tree Management June 2023,*

Included within this report is a site plan showing the locations of the site trees based on the proposed development layout.

Site observations noted a mixture of introduced (planted) native/remnant species.

The ground cover consisted mostly of crusted concrete/tiles/bricks used for parking pavement within the existing verge as per site photos.

### 3.1 HERITAGE SIGNIFICANCE

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There are no trees within the site that have been identified as Heritage Items under Council Planning Instrument or identified within a Significant Tree Register.

### 3.2 TREES ON ADJOINING LAND

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In accordance with Council's requirements, trees adjoining the development have been assessed as part of this report. There are no trees on adjoining properties that will be affected by this development.

### 3.3 SITE LOCATION

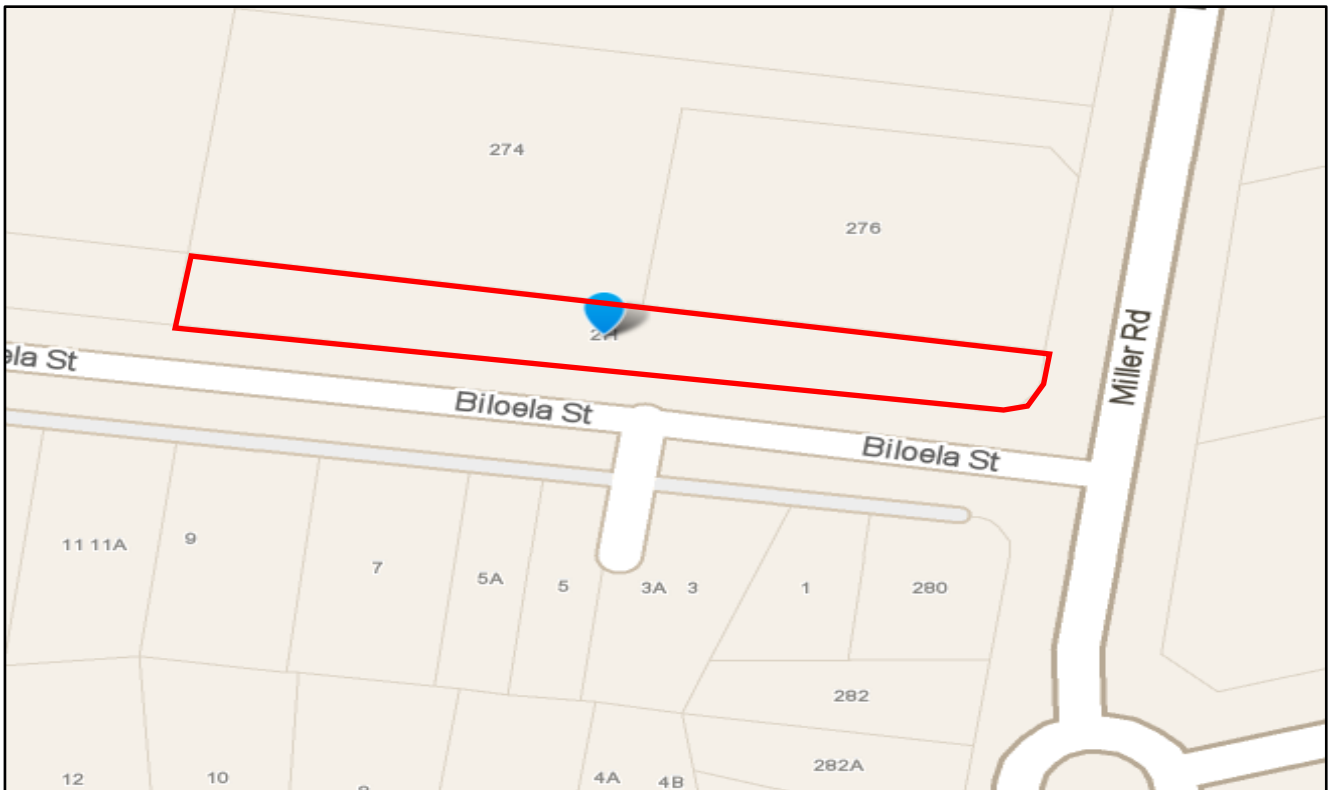


Figure 1 Shows the location of the site. Source [whereis.com.au](http://whereis.com.au)

### 3.4 AERIAL SITE LOCATION



Figure 2 Shows an aerial location of the site. Source [Nearmaps.com.au](http://Nearmaps.com.au)



## 4.0 METHODOLOGY

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This report is the result of a comprehensive site inspection undertaken on Thursday 27<sup>th</sup> July 2024 and subsequent inspections by Horticultural Management Services (HMS).

The following tree assessment was undertaken using criteria based on the Tree Risk Assessment Guidelines by the International Society of Arboriculture. A Level 2 Visual Tree Assessment (VTA) was used as described in 'The Body language of trees – A handbook for Failure Analysis'. This involves inspection from ground height and includes only the external features of the trees. Trees on adjoining sites were assessed from within the site boundaries only and only within 5m of the site boundaries.

For reference throughout the report, each tree has been allocated an identification number listed in the Tree Assessment Summary table and identified on the tree location site plan.

Assessment of individual trees includes the following:

- Species identification (botanical and common),
- Height and form,
- Observations made including an evaluation of the tree's health and vigour using Crown spread and cover, foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators,
- Condition, using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators,
- Suitability of the tree to the site and its existing location; in consideration of damage or potential damage to services or structures, available space for future development and nuisance issues,
- Likely future amenity based on a visual assessment,
- The trees tolerance to development impacts based on surface observations,
- Significance -specific heritage, cultural or intrinsic importance,
- Amenity value -as shade, windbreak etc or subjective, aesthetic values,
- Habitat value -both as an individual tree and as part of an ecological community,
- Observations of soil conditions and likely root spread,
- Overall condition assessment and suitability,
- Hazard/failure potential of tree to damage property or result in death,
- Safe Useful Life Expectancy (SULE) after Barrell (1995),

**Retention Value** was based on the subject tree's Remaining Life Expectancy Range and Landscape Significance. The Retention Value was modified where necessary to take in consideration the subject tree's health, structure, and site suitability.

**Landscape Significance** was determined by assessing the combination of the cultural, environmental, and aesthetic values of the subject trees. A subjective rating of high, moderate, low, or nil has been allocated to the trees. This provides a relative value of the trees' Landscape Significance which may aid in determining their Retention Value. A more detailed explanation is outlined Appendix B.7.

**Tree height and canopy spread**, were estimated only. Diameter at Breast Height (DBH) was determined by measuring the main stem at 1.4m above ground. Photos were taken of the subject trees and subject site for the inclusion in this tabled report.

The components of **tree risk assessment** include the trees failure potential or in the case of the proposed, an environment conducive to tree failure.

## 5.0 IMPACT ASSESSMENT

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A summary of each tree identified within the site is outlined in section 6.0 TREE ASSESSMENT SUMMARY.

The assessment in each case has considered the following:

- Structural Root Zones (SRZ),
- Building works or footprint within TPZ or SRZ,
- Optimum Tree Protection Zones (TPZ) and Structural Root Zones (SRZ),
- SULE Rating for value of the tree assessed,
- Assessment of the likely impact of the proposed works,
- Recommendations for retention, management, or removal.

The components of tree risk assessment include the trees failure potential or in the case of land clearing/management, an environment conducive to tree failure.

Other factors are also considered related to the site, such as potential development or land use, soil condition and prevailing winds must be considered in conjunction when assessing the potential of failure for any tree.



## 6.0 TREE ASSESSMENT SUMMARY

Risk Matrix	Catastrophic Urgent- Tree requires immediate removal due to WH&S concerns.	Major Tree requires removal as part of development application.	Moderate TPO Exempt due to species, height requirements and or approved to be removed by Council.	Low Tree to be retained, protected, and monitored	Tree approved to be removed by Council.
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Tree Number	Tree Species Common Name Botanical name	Height (m)	DBH @ 1.4m	DAB (mm)	SRZ Required (m)	TPZ Required (m)	Tree Age * Young * Semi Mature * Mature * Over Mature	Tree Health * Good * Fair * Poor * Dead	Tree Structure * Good * Fair * Poor	SULE Rating	Ecological Significance * High * Medium * Low * Nil	Landscape Visual Significance * High * Moderate * Low * Nil	Retention Value * H 40yrs + * M 15 - 40yrs * L 5 to 15ys * Nil Less 5ys * Dead	To Be Retained
1	Woollybutt <i>Eucalyptus longifolia</i>	14	570	630	2.8	6.9	Mature	Good	Good to Fair	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended.  This tree will be monitored by an AQF L5 Project Arborist.													
2	Woollybutt <i>Eucalyptus longifolia</i>	14	500	690	2.9	6	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended.  This tree will be monitored by an AQF L5 Project Arborist.													
3	Woollybutt <i>Eucalyptus longifolia</i>	12	580	600	2.7	7	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended.  This tree will be monitored by an AQF L5 Project Arborist.													

Tree Number	Tree Species Common Name Botanical name	Height (m)	DBH @ 1.4m	DAB (mm)	SRZ Required (m)	TPZ Required (m)	Tree Age * Young * Semi Mature * Mature * Over Mature	Tree Health * Good * Fair * Poor * Dead	Tree Structure * Good * Fair * Poor	SULE Rating	Ecological Significance * High * Medium * Low * Nil	Landscape Visual Significance * High * Moderate * Low * Nil	Retention Value * H 40yrs + * M 15 - 40yrs * L 5 to 15ys * Nil Less 5ys * Dead	To Be Retained
4	Woollybutt <i>Eucalyptus longifolia</i>	13	460	500	2.5	5.6	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended. This tree will be monitored by an AQF L5 Project Arborist.													
5	Forest Red Gum <i>Eucalyptus tereticornis</i>	16	660	700	2.9	8	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended. This tree will be monitored by an AQF L5 Project Arborist.													
6	Grey Box <i>Eucalyptus moluccana</i>	10	340	370	2.2	4.1	Mature	Good	Good	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended. This tree will be monitored by an AQF L5 Project Arborist.													
7	Spotted Gum <i>Corymbia maculata</i>	12	300	370	2.2	3.6	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended. This tree will be monitored by an AQF L5 Project Arborist.													
8	Grey Box <i>Eucalyptus moluccana</i>	15	480	540	2.6	5.8	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
	<b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended. This tree will be monitored by an AQF L5 Project Arborist.													

Tree Number	Tree Species Common Name Botanical name	Height (m)	DBH @ 1.4m	DAB (mm)	SRZ Required (m)	TPZ Required (m)	Tree Age * Young * Semi Mature * Mature * Over Mature	Tree Health * Good * Fair * Poor * Dead	Tree Structure * Good * Fair * Poor	SULE Rating	Ecological Significance * High * Medium * Low * Nil	Landscape Visual Significance * High * Moderate * Low * Nil	Retention Value * H 40yrs + * M 15 - 40yrs * L 5 to 15ys * Nil Less 5ys * Dead	To Be Retained
9	Grey Box <i>Eucalyptus moluccana</i>	14	380	440	2.4	4.6	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
	<p><b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended.</p> <p>This tree will be monitored by an AQF L5 Project Arborist.</p>													
10	Spotted Gum <i>Corymbia maculata</i>	12	350	460	N/A	N/A	Mature	Fair to Poor	Poor	4C	Nil	Low	Nil	No
	<p><b>Comments:</b> This tree is in poor declining health and structural condition, based on its limited canopy foliage, large open mechanical wounds, previous lightning strike and gravel hard stand parking that would have resulted in additional soil compact, which supports its removal. No roosting or habitat hollows were observed, and in summary, this tree is required to be removed.</p> <p>It is recommended this tree will be replaced in the landscape upon completion of the driveway works with an advanced canopy trees in 75lt and planted in a location that can support and accommodate its further growth.</p>													
11	Grey Box <i>Eucalyptus moluccana</i>	15	530	680	N/A	N/A	Mature	Fair	Fair to Poor	4	Nil	Low	Nil	No
	<p>This tree is in fair declining health and poor structural condition, based on its canopy foliage percentage, large open mechanical wounds, previous limb failure from storm damage and gravel hard stand parking that would have resulted in additional soil compact, which supports its removal. No roosting or habitat hollows were observed, and in summary, this tree is required to be removed.</p> <p>It is recommended this tree will be replaced in the landscape upon completion of the driveway works with an advanced canopy trees in 75lt and planted in a location that can support and accommodate its further growth.</p>													

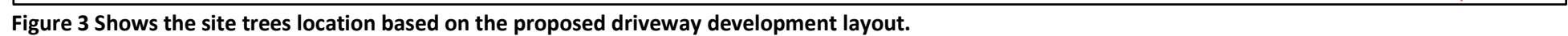
Tree Number	Tree Species Common Name Botanical name	Height (m)	DBH @ 1.4m	DAB (mm)	SRZ Required (m)	TPZ Required (m)	Tree Age * Young * Semi Mature * Mature * Over Mature	Tree Health * Good * Fair * Poor * Dead	Tree Structure * Good * Fair * Poor	SULE Rating	Ecological Significance * High * Medium * Low * Nil	Landscape Visual Significance * High * Moderate * Low * Nil	Retention Value * H 40yrs + * M 15 - 40yrs * L 5 to 15yrs * Nil Less 5yrs * Dead	To Be Retained
12	Grey Box <i>Eucalyptus moluccana</i>	14	500	600	2.7	6	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
<p><b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this tree adjoins the proposed new driveway, and it is sufficiently distanced to be safely retained and protected.</p> <p>No objections to this driveway location and scope of works are raised, with all works complying with <i>AS 4970-2009 Protection of trees on development sites</i>, ensuring the safe retention of this tree. The following points are recommended;</p> <ul style="list-style-type: none"> <li>A Qualified Arborist/Horticulturalist undertakes any and all Arboricultural works adjoining this tree,</li> <li><b>ANY</b> excavation required for the proposed driveway is to be excavated via hand digging, Airknife® or Vacuum Gerni truck to ensure minimal disturbance to structural and or surface feeding roots,</li> <li>Any minor tree feeder roots discovered are cut cleanly with root pruning devices,</li> <li>No woody roots over 40mm are to be cut without Council approval,</li> <li>Regular watering is to be undertaken in hot dry periods to alleviate any short-term stress or loss of available water.</li> <li>This tree will be monitored and managed by an engaged AQF L5 Project Arborist.</li> </ul>														
13	Grey Box <i>Eucalyptus moluccana</i>	13	410	510	N/A	N/A	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
<p><b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this tree adjoins the proposed new driveway location, and it is sufficiently distanced to be safely retained and protected with all considered building works outside of its SRZ and minor TPZ incursion. Any minor site excavations with in its TPZ for the driveway will be hand dug by an AQF L5 Arborist. This tree will be monitored by an AQF L5 Project Arborist.</p>														
14	Grey Box <i>Eucalyptus moluccana</i>	14	430	510	2.5	5.2	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
<p><b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended. This tree will be monitored by an AQF L5 Project Arborist.</p>														

Tree Number	Tree Species Common Name Botanical name	Height (m)	DBH @ 1.4m	DAB (mm)	SRZ Required (m)	TPZ Required (m)	Tree Age * Young * Semi Mature * Mature * Over Mature	Tree Health * Good * Fair * Poor * Dead	Tree Structure * Good * Fair * Poor	SULE Rating	Ecological Significance * High * Medium * Low * Nil	Landscape Visual Significance * High * Moderate * Low * Nil	Retention Value * H 40yrs + * M 15 - 40yrs * L 5 to 15ys * Nil Less 5ys * Dead	To Be Retained
15	Grey Box <i>Eucalyptus moluccana</i>	14	480	620	2.8	5.8	Mature	Good to Fair	Good to Fair	3	Low	Moderate	Low	Yes
<p><b>Comments:</b> Based on AS4970-2009 Protection of Trees on Development Sites, this mature Council Street tree is sufficiently distanced to be safely retained and protected with all considered driveway works outside of its TPZ/SRZ. Erection of tree protection fencing is also recommended.</p> <p>This tree will be monitored by an AQF L5 Project Arborist.</p>														

**Key. Multi trunk (M/T)**

**Table 1:** Shows a list of trees observed and assessed in relation to this development application by a Qualified Horticulturist and AQF Level 5 Arborist (Dip Arb).

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## 8.0 TREES PROPOSED TO BE REMOVED BASED ON DRIVEWAY DEVELOPMENT LAYOUT

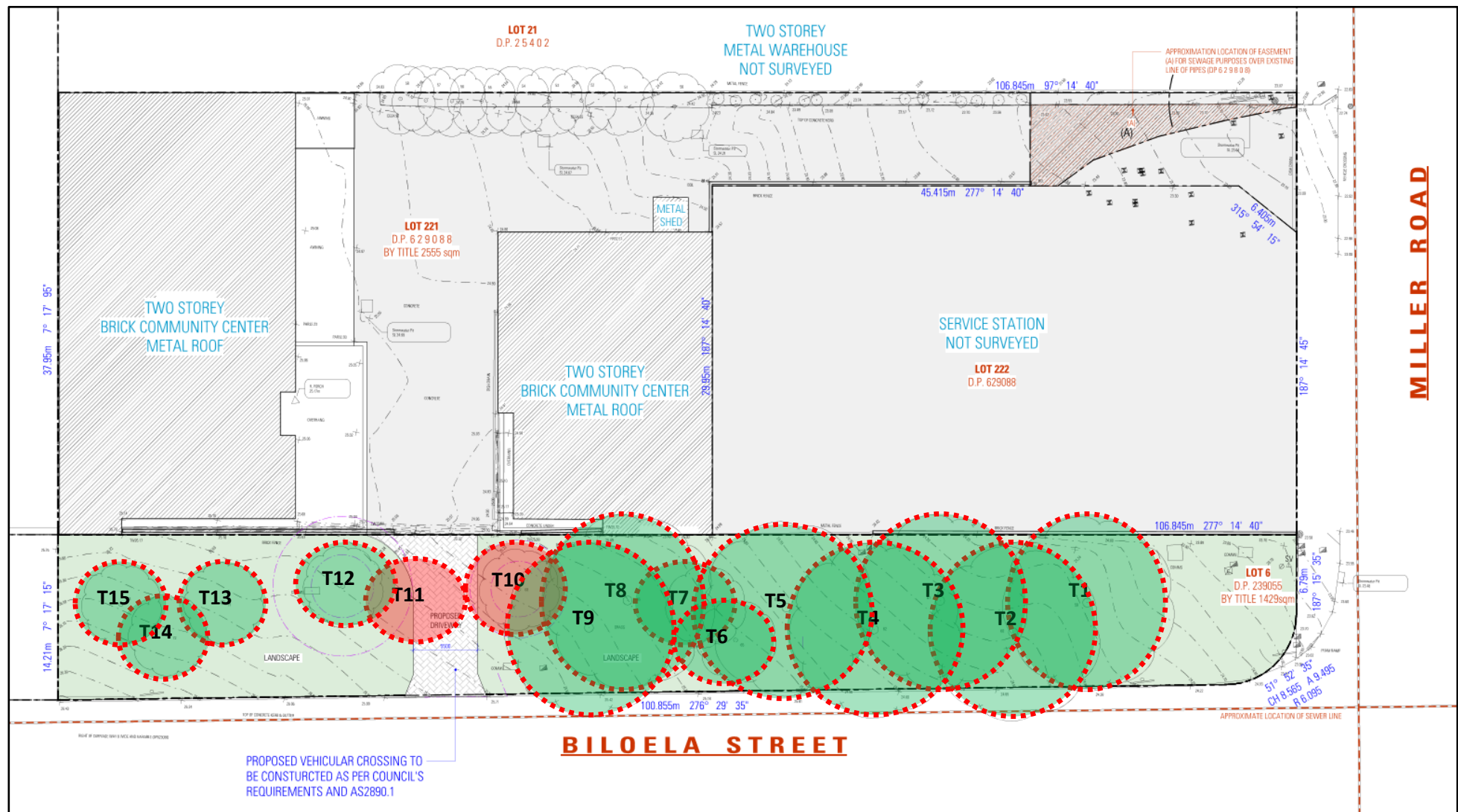


Figure 4 Shows the site trees in red proposed to be removed based on the driveway development layout.



## 8.1 TREE MANAGEMENT PLAN (TMP)

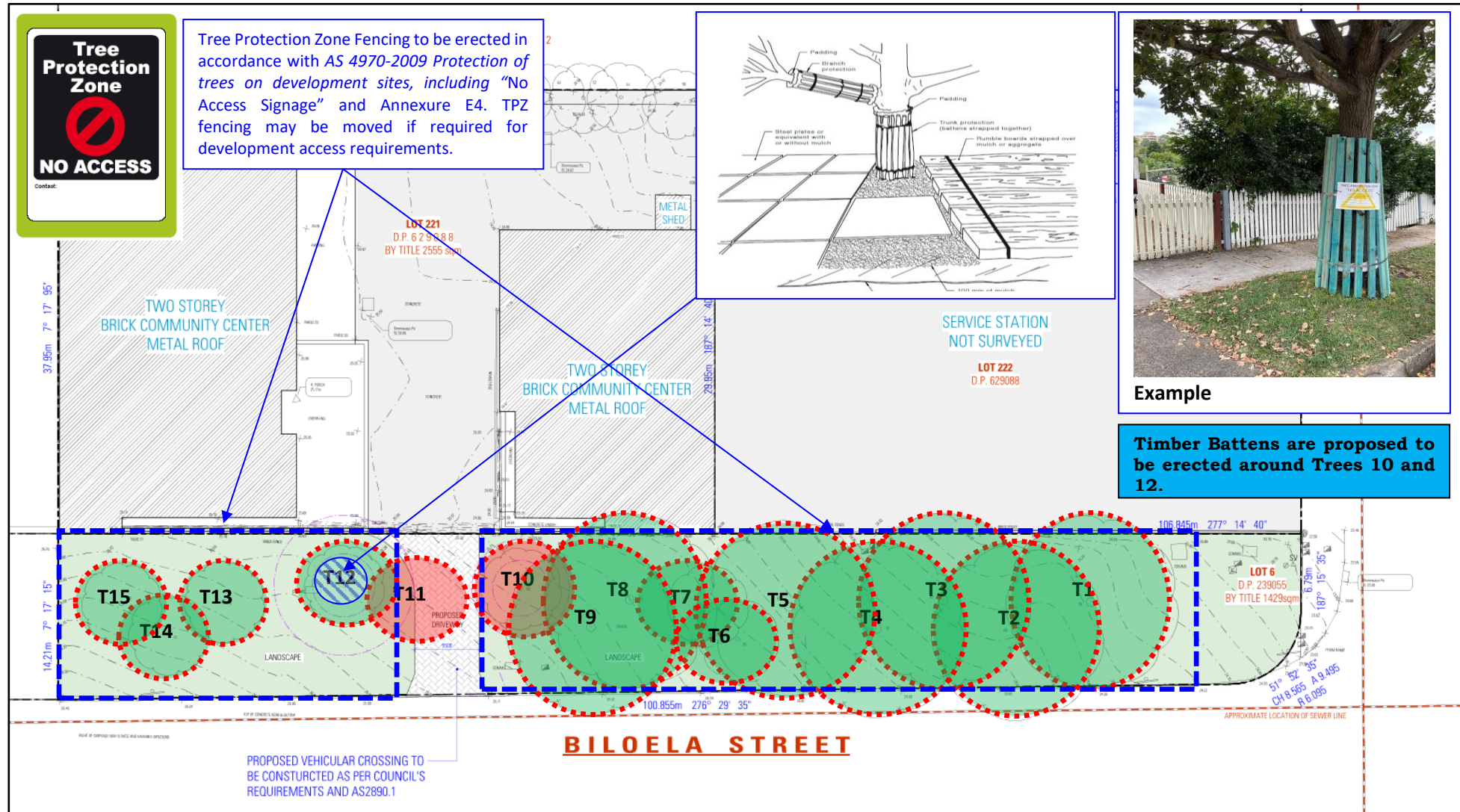


Figure 5 Shows site trees to be retained and protected.

## 8.2 SITE SPECIFIC TREE MANAGEMENT PLAN (TMP), APPOINTMENT OF SITE ARBORIST AND STAGED INSPECTIONS/HOLD POINTS

This tree management plan refers to the trees outlined in the following Tree Schedule and Tree location plan which indicates trees to be removed and or retained.

An AQF L5 Site Arborist shall be appointed prior the commencement of all works on-site and identify all trees approved to be removed and supervise the site management and tree protection measures of trees tabled to be retained as per the approved Conditions of Consent. An allowance of Five-(5) working days' notice to allow inspections to be undertaken at the following stages would be considered standard practice.

HOLD POINT	TASK	RESPONSINILITY	TIMING OF INSPECTION	DATE	ARBORIST COMMENTS TO BE COMPLETED AT STAGED HOLD POINTS
1	Engage AQF L5 Project Arborist	Principal Contractor	Prior to commencement for Construction Certificate and DA Condition of Consent.		
2	Identification of trees numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14 and 15, tabled to be retained and protected and identification of Two-(2) site trees numbered 10 and 11 approved to be removed and documented.	Principal Contractor Project Arborist	Prior to demolition and site establishment.		
3	Erection of tree protection measures were practical i.e. Timber Battens, Tree Protection Fencing with appropriate signage as per approved DA Conditions of Consent to ensure no impacts to retained trees, protected, and documented.	Principal Contractor Project Arborist	Undertake prior to demolition and site establishment.		
4	Project Manager and persons engaged in the site driveway excavations, stormwater service line installations and construction are to receive an induction, which forms their responsibilities regarding tree protection measures prior to commencement.	Principal Contractor Project Arborist	Prior to earth works and or construction schedule.		
5	Check TPZ Zones/fencing prior to excavation. Supervise all excavations and stormwater service line excavation work proposed within identified TPZ, if or as required.	Project Arborist Principal Contractor	Bulk earthworks, excavation and construction stage as required.		

6	Staged fortnightly Inspections of retained trees as per Conditions of Consent.	Principal Contractor Project Arborist	Construction Stage		
7	Removal of Tree Protection Fences may be removed at the end of the construction work for the installation of landscape plantings, however, prohibited activities as tabled in E 3 Prohibited works clauses may still apply.	Project Arborist	Completion of construction works and commencement of soft landscaping works.		
8	<p>Any Landscape construction phase of the project, the Project Arborist is to meet with the landscape contractors to advise on the requirements for tree protection measures during any installation of soft or hard landscape elements (including irrigation, lighting, paving or areas of potential cut or fill).</p> <p>All excavation including replanting within the tree protection zones must be undertaken by hand and approved by the Project Arborist.</p> <p>The tree protection area must remain watered during this time to limit any stress to the retained trees health during the landscape construction phase of the project.</p>	Principal Contractor Project Arborist.	Landscape Construction Stage.		
9	Final inspection of all construction works (Post Construction and Landscaping) and sign off regarding retained trees health, conditions, and outcomes.	Principal Contractor Project Arborist.	Project Completion		

**Table 2 Shows staged hold points specific to this project, to ensure the safe retention, preservation, and management of adjoining trees.**





**Figure 6 Shows the hard parking area facing along Biloela Street with trees to be protected.**



**Figure 7 Shows a mixture of planted trees within the site and crushed road base for parking.**





**Figure 8 Shows Tree 11 within the proposed new driveway entrance with open wound that is required to be removed for the new driveway entrance.**



**Figure 9 Shows vehicles parked underneath existing trees to be protected.**





**Figure 10 Shows road base/gravel used for the hard standing parking area compacting the existing soil profile.**



**Figure 11 Shows Tree 10 with declining canopy, deadwood and lightening strike damage.**





**Figure 12 Shows again Tree 10 in poor health, condition and density, hence removal.**



**Figure 13 Shows looking at Trees 11 to 15 and proximity to existing dwelling.**





**Figure 14 Shows again Tree 11 with previous failed scaffold limbs resulting in large open wounds.**



**Figure 15 Shows lightning damage and dead cambium on Tree 10.**





**Figure 16 Shows trees to be protected and managed as part of these works.**



**Figure 17 Shows again crushed road base etc compacting the existing soil profile.**

## 10.0 CONCLUSION

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The trees which are subject of this report are protected under Canterbury Bankstown City Council Development Control Plan 2023–Section 2.3 Tree Management, June 2023 (Tree Preservation Order).

Consideration of retaining mature significant vegetation to the area was paramount. After close visual and physical investigation of the various trees condition the results from field investigations are as follows;

Site and adjoining trees to the driveway numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14 and 15 are sufficiently distanced to be safely retained, protected, and managed as per the Section 8.2 Site Specific Tree Management Plan.

Subject to Council or equivalent approval process, site trees numbered 10 and 11, to be removed as they are required to be removed based on their individual location within the proposed driveway excavation works.

Furthermore, these trees are both in poor declining health and individual poor structural condition from previous mechanical damage, lightning damage and soil compaction from hardstand parking area, hence their removal is required.

No roosting or habitat hollows were observed in any of the site trees proposed to be removed.

As stated, this tabled report is a snapshot of the existing trees structural condition, health, and condition at that particular point in time on site and should be used as a guide when assessing this Development Application.

In summary, no objections to these Two – (2) trees' removal are raised, subject to appropriate environmental safeguards and relevant replacement plantings where appropriate.



## 11.0 RECOMMENDATIONS

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After close visual and physical investigation of the trees condition (VTA), results from the field investigations indicated the following:

Subject to Council or equivalent approval process, site trees numbered 10 and 11, to be removed as they are required to be removed based on their individual location within and adjoining the proposed driveway excavation works.

Furthermore, these trees are both in poor declining health and individual poor structural condition from previous mechanical damage, lightning damage and soil compaction from hardstand parking area, hence their removal is required.

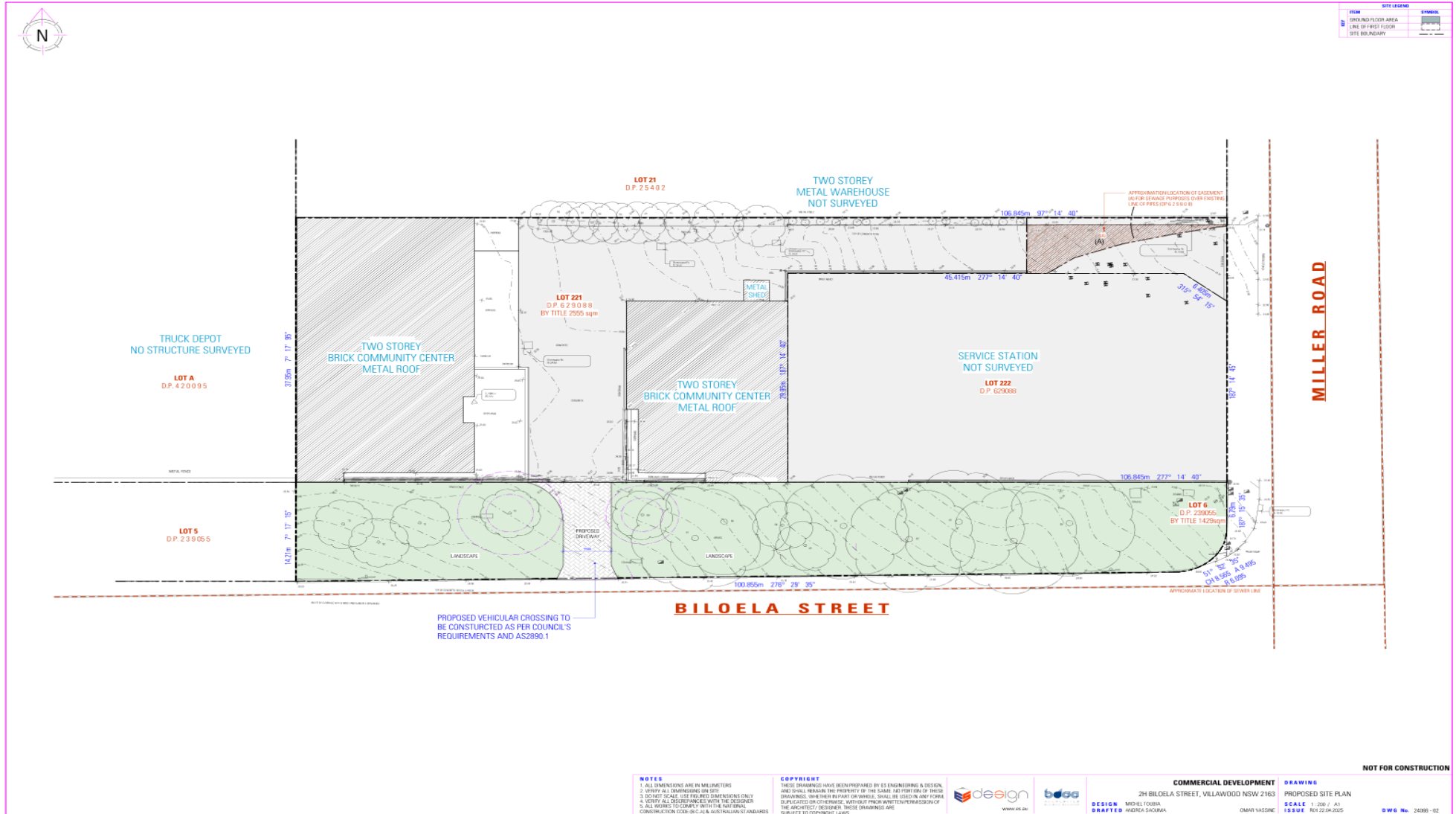
Site and adjoining trees to the driveway numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14 and 15 are sufficiently distanced to be safely retained, protected, and managed as per the Section 8.2 Site Specific Tree Management Plan.

The following points may be considered for the proposed driveway development and retention of site trees under this application;

- Avoid large changes to the surface structure due to modification of the tree's moisture / surface feeding roots,
- Outline driveway construction zone is recommended as to not over excavate,
- A Qualified AQF L5 Arborist/Horticulturalist undertakes all Arboricultural works,
- Any excavation within the Tree Protection Zone is to be undertaken via hand digging, with no mechanical methods,
- Any tree roots discovered are cut cleanly with root pruning devices,
- Erection of Tree Protection Fencing is also recommended.
- Any proposed work located near the trunk or outer canopy of the trees drip line, where services are known to be in the vicinity, any excavation for services should be hand dug to ensure minimal impact to the trees surface feeding and support roots,
- No building waste is to be disposed of/or stored near the tree trunk or drip zone,
- To ameliorate impact of any development, standard erosion and sediment controls are recommended,
- Erection of a chain mesh safety fence be installed to ensure the protection of Trees Critical Root Zone as per APPENDIX E 4,
- These trees will be monitored by an AQF L5 Project Arborist.

## APPENDICES

### APPENDIX A: PROPOSED DRIVEWAY DEVELOPMENT LAYOUT



## APPENDIX B: SUPPORTING INFORMATION FOR TREE ASSESSMENT TABLE

### B.1 TREE PROTECTION ZONE CALCULATION

A Tree Protection Zone (TPZ) is a radial distance measured from the centre of the trunk of the tree. The intention of the TPZ is to minimise incursions to the root system and canopy to ensure the long-term health and stability of the tree.

A commonly used delineation for the TPZ is the dripline (extent of the crown spread projected to the ground plane). However, this may not provide adequate protection for trees that have prominent leans or distorted imbalanced or narrow crowns. A more appropriate guideline is the trunk diameter.

The Tree trunk measurement is recorded and known as the Diameter at Breast Height (DBH) at 1.4 metres from ground level using a metric tape measure. The TPZ area is then calculated by  $DBH \times 12$ .

The TPZ incorporates the Structural Root Zone (SRZ). The SRZ is the area required for tree stability and has a standard calculation formula. The SRZ calculation is only used when a major encroachment into a TPZ is proposed.

### B.2 TREE AGE TERMINOLOGY

Rating	Description
Juvenile	Less than 20% of the life expectancy for the species
Semi-mature	Middle age trees, 20% to 50% of life expectancy
Mature	Greater than 50 – 80% of the life expectancy for the species
Over-mature	Greater than 80% of the life expectancy for the species, senescent tree, or those declining irreversibly to death

### B.3 DEFINITION OF ASSESSED HEALTH AND CONDITION OF TREE

The condition of each tree has been rated in overall terms as one of the following:

Rating	Description
Good	The tree is generally healthy, vigorous, and free from the presence of major disease, obvious structural weaknesses, and fungal or insect infestation. It is expected to continue to live in the same condition as at the time of the inspection. Only small recommendations may be required to help continue the trees longevity.
Fair	The tree is generally vigorous but has some indication of decline possibly due to the early effects of disease, fungal or insect infestation, affected by physical (storm damage) or mechanical damage (Vandalism or involved in an accident by a vehicle), or is faltering due to the modification of the tree's environment essential for its survival. This tree group may recover with remedial work undertaken by a Qualified Arborist where appropriate or without intervention and may regain some vigour and stabilise over time. Medium recommendations are required to bring this tree up to a satisfactory standard.
Poor	The tree is exhibiting symptoms of advanced and irreversible decline due to possible factors such as fungal infestation, termite damage, ring barking of the tree's trunk due to borer infestation. Symptoms observed can include major die-back in branches, foliage thinning in the crown, and epicormic growth throughout the inner canopy. This tree group will normally decline further to death regardless of remedial works or modifications undertaken.
Dead	The tree is no longer alive and is in poor structural condition, that may cause damage to people or property and removal is strongly recommended.

### B.4 ASSESSED STRUCTURAL CONDITION

This refers to the tree's form and growth habit, modified by its environment, including the state of the trunk and main structural branches. It considers the presence of defects such as decay, weak branch junctions and other visible abnormalities. Although some trees without defects fail in major storms, the presence of any defect will increase the chances of failure.

Rating	Description
Good	Trees with a single dominant trunk along which evenly spaced branches are spread. Branches have properly formed collars which provide strong attachment to the trunk and are about 25% of the trunk diameter. Minor structural defects may be present with low failure potentials.
Average	Trees with structural defects with low failure potential.
Fair	Trees with structural defects with medium failure potentials and require monitoring on an annual basis.
Poor	Trees with defects which have failed, or have a high risk of failing soon, and corrective action must be taken soon as possible.



## B.5 SAFE USEFUL LIFE EXPECTANCY (SULE)

The remaining Safe Useful Life Expectancy of a tree is an estimate of the sustainability of the tree within the site/landscape, calculated based on an estimate of the average age of the species in an urban area, compared with its estimated current age. SULE ratings are estimated in line with the following table:

	1 LONG - 40+ yrs	2 MEDIUM - 15 to 40 yrs	3 SHORT- 5 to 15 yrs	4 REMOVAL - < 5 yrs	5 MOVED OR REPLACED
	Likely to be useful for over 40 years with acceptable risk and assuming reasonable maintenance	Likely to be useful for 15-40 years with acceptable risk and assuming reasonable maintenance	Trees that appeared to be retainable at the time of assessment for 5 to 15 years with acceptable level of risk.	Tree to be removed within the next 5 years	Tree which can be reliably moved or replaced.
A	Structurally sound trees growing in positions that can accommodate future growth	Trees which may only live 15-40 years	Trees that may only live between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small tree less than 5m in height.
B	Trees which could be made suitable for long term retention by further care	Trees which may live for more than 40 years but which would be removed for safety or nuisance reasons	Trees which may live for more than 15 years but which would 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 5m in height.
C	Trees of special significance for history, commemorative or rarity reasons that warrant extraordinary efforts to secure their long-term future	Trees that may live for more than 40 years but would 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 plantings	Dangerous trees through structural defects including cavities, decay included bark, wounds or poor form.	Trees that have been pruned to artificially control growth.
D		Trees which could be made suitable for medium term retention by remedial care	Trees which require substantial remediation tree 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 plantings	
F				Trees damaging Or which may cause damage to existing structures within the next 5 years	
G				Trees that will become dangerous after removal of other trees for reasons given in A) to F)	

SULE table adapted from Barrell (1995).

**NOTE:** No tree is “safe” i.e. entirely without hazard potential. The SULE rating given to any tree in this report assumes that reasonable maintenance will be provided by & qualified arborist using correct and acknowledged techniques. Retained trees are to have a reasonable setback and be protected from root damage. Incorrect practices can significantly accelerate tree decline and increase hazard potential.

## B.6 ECOLOGICAL SIGNIFICANCE

These categories are based upon the criteria used in the Thyer Tree Valuation Method (1996) to evaluate a tree's ecological benefit.

Rating	Description
None	Weed species
Low	Restricts desirable plants or of little benefit to fauna.
Medium	Beneficial to flora & fauna provides food source and/or shelter.
High	Remnant /indigenous species of native vegetation.
Very High	Indigenous species being an integral part of a natural ecosystem.

## B.7 LANDSCAPE SIGNIFICANCE

The site's **Landscape Significance** is a subjective value determined by assessing a combination of cultural, environmental, and aesthetic values of the subject trees. This may aid in determining their overall retention value. Generally, the Landscape Significance of the subject trees has been determined using the following criteria:

RATING	DESCRIPTION
<b>HIGH</b>	The subject tree is listed as a Heritage Item under the <i>Local Environmental Plan</i> with a local or state level of significance.
	The subject tree forms part of the curtilage of a heritage item.
	The subject tree creates a 'sense of place' or is considered 'landmark' tree.
	The subject tree is of local, cultural, or historical importance or is widely known.
	The subject tree is listed on Council's Significance Tree Register.
	The subject tree is scheduled as a Threatened Species or Threatened Plant Community under replaced by the Biodiversity Conservation Act (2016)
	The subject tree is a remnant tree.
	The subject tree is a locally indigenous species and is representative of the original vegetation of the area.
	The subject tree provides habitat to a threatened species.
	The subject tree is an excellent representative of the species in terms of aesthetic value.
<b>MODERATE</b>	The subject tree makes a positive contribution to the visual character or amenity of the area.
	The subject tree provides a specific function such as screening or minimising the scale of a building.
	The subject tree has a known habitat value.
	The subject tree is a good representative of the species in terms of aesthetic value.
<b>LOW</b>	The subject tree is an environmental pest species or is exempt under the provisions of the local Council's Tree Preservation Order.
	The subject tree makes little or no contribution to the amenity of the locality.
	The subject tree is a poor representative of the species in terms of aesthetic value.
<b>NIL</b>	The subject tree is declared a Noxious Weed under the Biosecurity Act (2015)

\*NOTE: If the tree can be categorised into more than one value, the higher value should be allocated.

## B.8 RETENTION VALUE WITHIN THE LANDSCAPE

The Retention Values of the trees have been determined based on the estimated longevity of the individual tree with consideration of its landscape significance rating. Together with recommendations contained within this report, the information should be used to determine the most appropriate action for trees considered for either retention or removal.

Retention Value Rating	Landscape/Environmental Significance						
Estimated Life Expectancy	1- Very High	2- Very High to High	3- High to Moderate	4 - Moderate	5- Moderate to Low	6- Low	7- Nil
HIGH – (H) Greater than 40 Years	High Retention Value			Moderate Retention Value		Low Retention Value	
MEDIUM- (M) 15 to 40 Years							
LOW – (L) 5 to 15 years							
Less than 5 Years							
Dead or Hazardous							

## APPENDIX C: TREE PROTECTION ZONES

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The Tree Protection Zone (TPZ) is the designated area around a tree where optimum protection and preservation efforts should be implemented.

Root systems have two major functions, which are to obtain water and minerals from the soil and to give anchorage support to the tree. Most of the root system is in the surface 600mm to 800mm deep, extending radially for distances which are frequently in excess of the tree height. Unless conditions are uniform around the tree, which would be highly unusual, the extent of the root-systems can be irregular and difficult to predict. As tree roots are very opportunistic, they will not generally show the symmetry seen in the aerial parts.

On average, the tree's roots will extend to the outer reaches of their canopies, depending on morphology and disposition of the individual tree roots, and known to be influenced by past or existing site conditions including but not limited to;

- The individual tree species,
- Soil type, structure, and location,
- Topography and existing drainage,
- Location of either manmade hard structures or environment
- Pruning requirements, if required,

No disturbance should occur within this area. It is calculated by using a formula that considers the tolerance level of the species to disturbance, its age class, and its condition and trunk diameter.

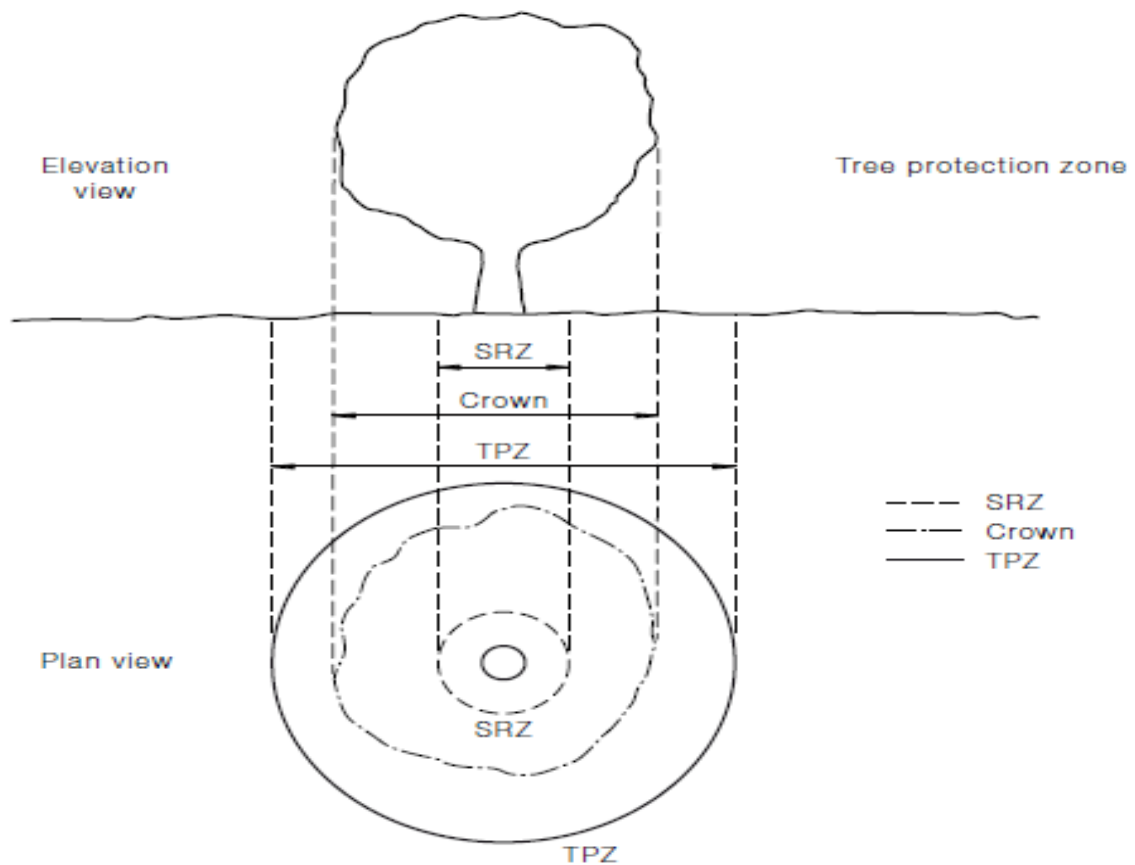
The main area for surface feeding roots to occur is from the tree trunk to the outer canopy known as the drip zone. These fibrous roots are less likely to occur under or near other buildings, as there is little surface moisture or soil air presence for root survival. These fibrous roots are those that take up water and nutrients.

While some tree roots will deeply penetrate the soil profile, in search of available water, most will occupy the first 60-80cm of the soil, as to obtain the needed sustenance. At times, it will not be possible to retain the optimum TPZ around each tree and any activities proposed within this area must be carefully analysed to minimise any effects on its health and/or stability.

The actual spread of the root system is largely dependent on the species involved, and their localised environment. Any work carried out within the TPZ should be reviewed and supervised by an appropriately qualified Arborist.

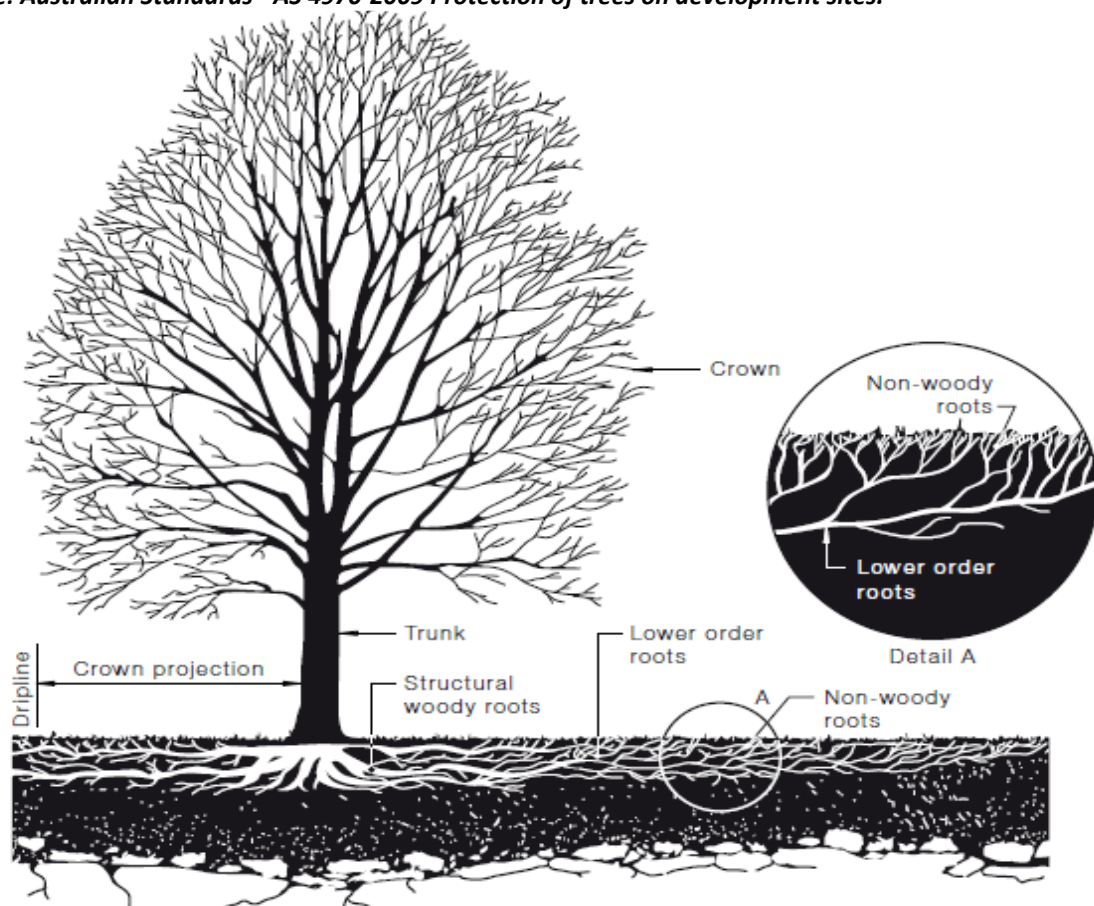
Construction works proposed to be undertaken around the trees if not correctly assessed may modify the natural water table and reduce the amount of soil air and moisture present/available to the trees and their longevity may be greatly diminished. Changing the drainage patterns around a tree by constructing a building, driveways, road, and paths etc will alter the amount of water the tree receives and may cause root death or damage. Trenches dug beside or adjoining large trees for water, sewer or services may also damage the roots and will make a tree unstable.

Older trees will tolerate far less stress than younger trees as with age they become less responsive and find it very strenuous to respond to changes in their environment.



**C.1. Diagram of the TPZ and SRZ of a typical tree.**

*Source: Australian Standards - AS 4970-2009 Protection of trees on development sites.*



**C.2. Diagram of a typical tree root structure.**

*Source: Australian Standards - AS 4970-2009 Protection of trees on development sites.*

## APPENDIX D: TERMINOLOGY

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**CO-DOMINANT STEMS:** The term 'co-dominant' is used to describe two or more stems or leaders that are approximately the same diameter and emerge from the same location on the main trunk. The junction where the two stems meet is a common location of above ground tree failure (Harris, Clark & Matheny, 1999).

**CONDITION:** An evaluation of the structural status of the tree including defects that may affect the useful life of an otherwise healthy specimen. Influencing factors include cavities and decay, weak unions between scaffolds (major branches) or trunks and faults of form or habit.

**DBH:** Acronym for trunk diameter at breast height (1.4m from ground level).

**DEADWOOD:** Deadwood is a normal function for plant growth and development. The safety of the target, namely pedestrians, is considered the primary basis for deadwood removal. As deadwood has an ecological value, the removal of deadwood is usually only carried where it is a potential hazard to site users. Deadwooding a tree does not increase its life expectancy.

**DIEBACK:** Dieback is the progressive death of branches or shoots originating from the tips. Dieback and decline are parts of a disease complex that have similar causal agents. Crown dieback is a recognizable, visible symptom of the early stages of decline and potential tree death.

**DOMINANT:** Trees with crowns above the upper layer of the canopy and generally receiving light from above and the sides.

**EDGE:** Trees located on the edge of a more dominant canopy of trees, and frequently possessing asymmetrical crowns, (heavier on the open side) and trunks that may be distorted due to competing with others for valuable nutrients i.e. soil air, water, light.

**EPICORMIC GROWTH:** Epicormic growth comes from dormant buds held in the cambium. Under normal growth conditions, these buds are held in a dormant state by hormones produced in the canopy. These shoots are often produced by the tree in response to injury or environmental stress. Epicormic growth has implications for tree structure as the attachment of an epicormic shoot is much weaker than that of a 'naturally' developed branch.

**FOREST:** Trees that have grown in a forest setting and only have about 1/3 of their canopy located on tall straight trunks.

**INCLUDED BRANCH JUNCTIONS:** Included branch junctions often form when two branches or trunks grow together at sharply acute angles, producing a wedge of inward-rolling bark. Junctions with included bark form weak attachments, as there is little connective tissue between the two stems.

**INTERMEDIATE:** Trees that have been overtopped, and become part of the understorey canopy

**MYCORRHIZAE:** Mycorrhizae are fungi that grow in symbiotic association with tree roots (especially the fine root hairs) and are attributed with increasing the uptake of nutrients, particularly phosphorus, and reducing infection from soil borne pathogens. They greatly increase the surface area of a tree's root system. Mycorrhizae require aerobic soil conditions and are reduced in number by compaction, waterlogging and over-use of soil fertilisers. Forest litter or similar mulch provides ideal conditions for the proliferation of mycorrhizae.

**NON-WOODY ROOTS:** Extending from the woody root system, a mass of non-woody, fine feeder roots develop. These non-woody roots are active in water and nutrient uptake, are fine in structure, typically less than 0.5mm diameter, and include mycorrhizal associations with some soil fungi.

**PROJECT ARBORIST:** The person responsible for carrying out the tree assessment, report preparation, consultation with designers, specifying tree protection measures, monitoring and certification. The project arborist will be suitably experienced and competent in arboriculture, having acquired through training, qualification (minimum Australian Qualification Framework (AQF) Level 5, Diploma of Horticulture (Arboriculture)) and/or equivalent experience, the knowledge and skills enabling that person to perform the tasks required by this Standard.

**ROOT PLATE:** This forms the main structural woody roots which provides overall anchorage for the tree. It is this central part of the root-system (large root mass with sub-soil normally attached) which may tilt over or rotates in storm events.

**STRUCTURAL ROOT ZONE (SRZ):** The area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres. This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area.

**TREE HAZARD POTENTIAL:** An assessment of the risks associated in retaining a tree in its existing or proposed surrounds. Factors to consider are the growth characteristics of the species, tree vitality, condition and the frequency and type of potential targets. The impact the proposed works may have on tree vitality can only be assumed.

**TREE PROTECTION ZONE (TPZ):** A specified area above and below ground, and at a given distance from the trunk, set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained.

**TREE:** Long lived woody perennial plant greater than (or usually greater than) 3 m in height with one or relatively few main stems or trunks (or as defined by the determining authority).

**VIGOUR:** Ability of a tree to sustain its life processes. The term 'vigour' in this document is synonymous with commonly used terms such as 'health' and 'vitality'.

**VITALITY:** Indicates the energy reserves of the tree and is determined by the observed crown colour and density, the percentage of dead / dying branches and epicormic growth. The vitality of the canopy and that of the root system is interdependent. Root damage or heavy pruning draws on a tree's energy reserves. The tree's ability to initiate internal defence systems (compartmentalisation of damage) is reduced and it can also become predisposed to attack by insects and pathogens.

**WOODY ROOTS:** Beyond the root plate the root system rapidly subdivides into smaller diameter woody roots (hydrotropic) which conduct water and nutrients from the non-woody roots.

**WORK:** Any physical activity in relation to land that is specified by the determining authority.

**WOUNDING:** Wounding may be the result of mechanical injury from construction equipment; branch failure, splitting or cracking during high wind events. The long-term effects of tree wounding are the potential development of decay and loss of wood strength.



## APPENDIX E: REFERENCES

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Canterbury Bankstown City Council Development Control Plan 2023–Section 2.3 Tree Management, June 2023.

## APPENDIX F: CERTIFICATION

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I certify that the enclosed "Arboricultural Impact Assessment and Tree Management Plan" for the proposed driveway development located at 2H Biloela Street, Villawood has been prepared by Horticultural Management Services.

To the best of my knowledge and professional integrity, it is true in all material particulars and does not, by its presentation or omission of information, materially mislead.

### Qualifications:

- *Diploma of Arboriculture (AQF L5)*
- *International Society of Arboriculture (ISA) Tree Risk Assessment TRAQ Certified*
- *Diploma of Horticulture*
- *Diploma of Conservation and Land Management*

*Scott Freeman*

Scott Freeman  
Principal  
Horticultural Management Services

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