



AEP

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NEWCASTLE SYDNEY CENTRAL COAST

Arborist Impact Assessment

Proposed Residential Development

Lot 9120 DP1295941

2 Settlers Boulevard, Chisholm, NSW, 2322



Prepared for: Avid Property Group

c/- ADW Johnson

May 2026

AEP Ref: 5629

Revision: 03

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Document Control

Document Name	Arborist Impact Assessment for Proposed Residential 2 Settlers Boulevard, Chisholm, NSW, 2322 (Waterford Living Stage 97).
Project Number	5629
Client Name	Avid Property Group
AEP Project Team	John Atkins Joe Young Brendon Young

Revision

Revision	Date	Author	Reviewed	Approved
00	17/07/2025	Joe Young	John Atkins	John Atkins
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Distribution

Revision	Date	Name	Organisation
01	17/07/2025	Mark Kelly	ADWJ
02	22/04/2026	Mark Kelly	ADWJ
03	05/05/2026	Mark Kelly	ADWJ

Disclaimer

Direct observations are relevant only to the trees identified within this report. This report utilizes a rapid assessment of tree health and condition to inform retention value. This assessment of tree health and condition is based on non-destructive visual observations from ground level. Thus, it is not possible to identify all structural faults at high levels in the tree, internal structural faults or within the root system. Observations about Tree Health, Structure, and other characteristics have been made at the time of assessment and these characteristics may change over time due to natural growth of the tree as a living organism or due to unforeseen events. As such the observations that are supplied within are relevant for a period of 12 months from the time of assessment, after which re-assessment may be required for the trees assessed within this report. The recommendations and methodologies for Tree Protection within this report are relevant only to the Trees assessed within this report. The author is not responsible for tree damage related to failure to apply these recommendations or methodologies for Tree Protection in full within this report or for tree damage relating to works conducted by an unaffiliated person. No responsibility for damage to persons or property is accepted for damage by trees referred to within this report.

Executive Summary

At the request of ADW Johnson on behalf of Avid Property Group (the client), Anderson Environment & Planning (AEP) have prepared an Arborist Impact Assessment (AIA) to address the potential arboricultural impacts from the proposed residential property development (the Proposal) at 2 Settlers Boulevard, Chisholm, NSW, 2322 (Waterford Living Stage 97) (the Subject Site).

The arborist site survey was undertaken on 3rd July and 3rd November 2025. Tree Assessment was undertaken by the following methodologies (**Section 4**);

- A visual tree assessment as described by Mattheck and Breloer (1994);
- Characteristic features for each tree were recorded;
- Structural Root Zone (SRZ) and Notional Root Zone (NRZ) using methods of calculation as outlined in AS 4970 – 2025; and
- Landscape Significance Rating (LSR) and Retention Values as outlined by Morton (2006).

A total of 67 trees identified within the site and surrounds were assessed. All trees assessed within the site are native species. The condition of the assessed trees includes one (1) dead tree, three (3) in poor condition, 16 in fair condition and 47 in good condition. (**Section 5.1**) The trees are predominantly *Corymbia maculata* species with some *Eucalyptus siderophloia* or *Eucalyptus paniculata*.

The following landscape significance ratings (LSRs) have been applied to the assessed trees (**Section 5.2**);

- One (1) tree classified as 'Significant' (Tree 66) due to its extremely large canopy area and as a hollow bearing tree with active wildlife presence;
- Four (4) 'Very High' due to canopy size, good health, good representation of original species and high visibility from surrounding properties in the area;
- Seven (7) 'High' due to their canopy size, good health, and strong representation of original vegetation in the area;
- 26 trees classified as 'Moderate' due to their smaller canopy size or native species with structural or health attributes that reduce their overall significance;
- 28 trees classified as 'Low' as they are native species with low visibility or in poor condition; and
- One (1) 'Very Low' tree as it is dead.

With consideration of the estimated life expectancy for each tree, Retention Values were assigned to each tree within the site. This identified the following:

- 11 'High';
- 52 'Moderate';
- Three (3) 'Low'; and
- One (1) 'Very Low' Retention Value Trees.

The impacts of the proposed development (see **Section 6.1, Table 3** for details) requires the removal of 47 trees due to earthworks proposed within the lots due to cut and fill creating levelled platforms for buildings.

This includes:

- Six (6) 'High';
- 36 'Moderate'; and

- Four (4) 'Low' Retention Value trees.

The proposed roadworks and infrastructure require a further nine (9) trees requiring removal as follows:

- Three (3) 'High'; and
- Seven (7) 'Moderate' Retention Value trees

Eleven (11) trees can be retained with protection measures.

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1.0 Introduction

1.1 Background

At the request of the ADW Johnson on behalf of Avid Property Group (the client), Anderson Environment & Planning (AEP) have prepared an Arborist Impact Assessment (AIA) and Tree Protection Plan (TPP) to address the potential arboricultural impacts from the proposed residential subdivision and associated civil infrastructure (the Proposal) at 2 Settlers Boulevard, Chisholm, NSW, 2322 (Waterford Living Stage 97). (the Subject Site).

1.2 Objectives

Further to the above the following objectives for this report have been assigned:

- Tree assessment to identify trees with potential to be retained during development.
- Tree identification plan and schedule identifying tree species, size, canopy spread and other dimensions:
- Assessment of all trees within the Subject Site, including, but not limited to, the health and vigour of the trees, structural integrity, life expectancy, retention value and landscape significance;
- Likely impact the proposed development will have on assessed trees, including NRZ and SRZ encroachments; and
- Tree protection plan and methodologies throughout the development for all impacted trees to be retained.

2.0 Arborist Details

Name	Joe Young	John Atkins
Business Name & ABN	Anderson Environmental & Planning ABN 57 659 651 537	
Business Address	10 Darvall St, Carrington, NSW 2294	
Qualification level and details	• AQF Level 5 Diploma of Arboriculture	• AQF Level 5 Diploma of Arboriculture (2015) TAFE NSW • Graduate Diploma in Arboriculture (2018) Melbourne University • Diploma of Applied Science (Landscape) (1994) • TRAQ and QTRA qualifications
Contact details	M:0411 446 203	M: 0407 019 076 E: john@andersonep.com.au

3.0 Site Description and Locality

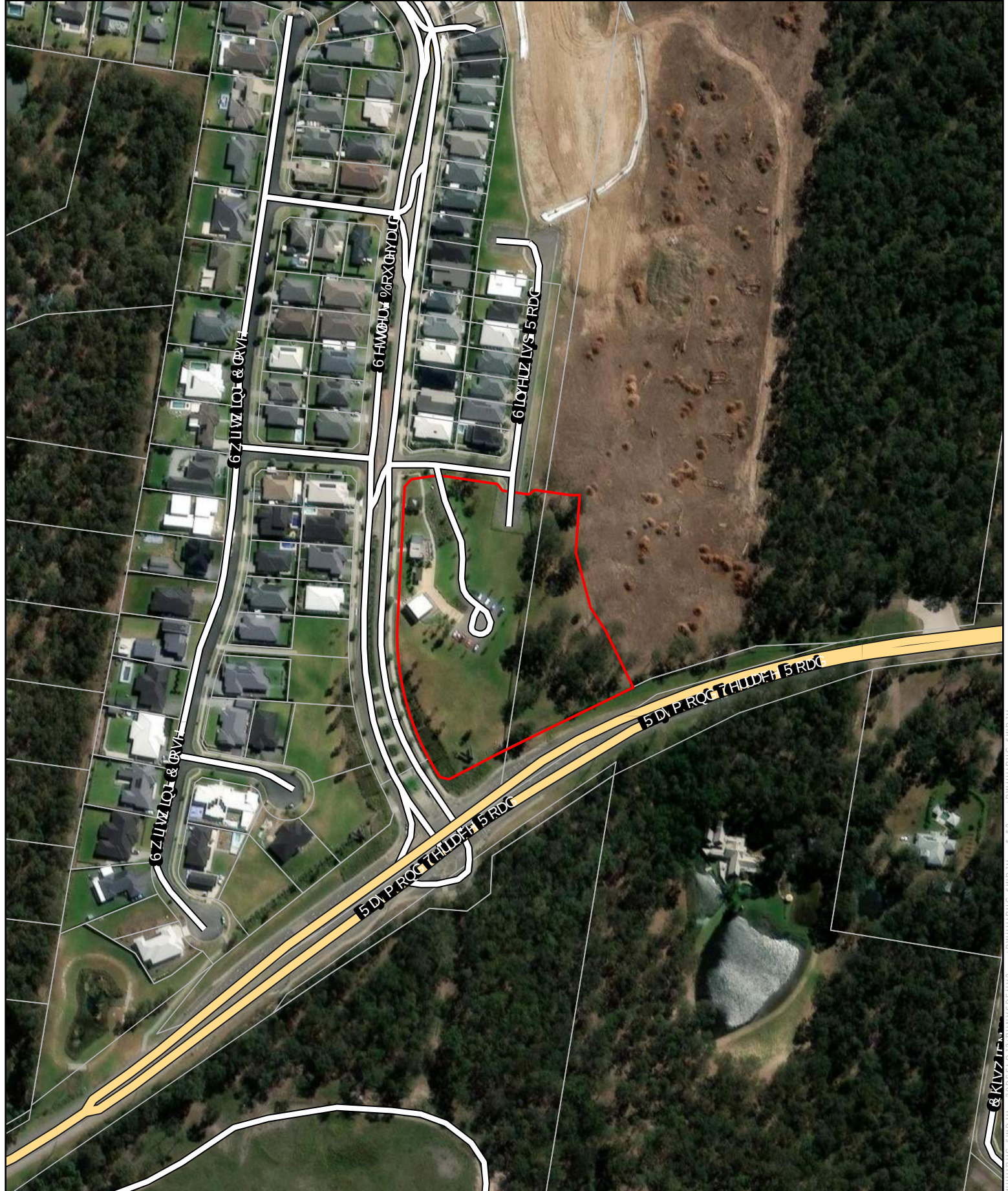
Table 1 provide the site details for the Subject Site.

Table 1: Site Particulars

Detail	Comments
Client	Avid Property Group c/- ADW Johnson
Address	2 Settlers Boulevard, Chisholm, NSW, 2322 (Waterford Living Stage 97).
Title(s)	Lot 9120 DP1295941
Date of Site Visits	3 rd July 2025 3 rd November 2025
Proposed development	It is proposed to subdivide the current lots and prepare 14 levelled lots with roadworks and civil installations.
Site Description	The site is situated on a gently sloping ridge surrounded by low-lying floodplains. It forms part of an ongoing residential development within the broader area. The site and its surroundings have been significantly modified from their original condition to accommodate housing, roads, and associated infrastructure.

Figure 1 depicts the extent of the Subject Site overlain on an aerial photograph of the locality.

Figure 2 shows a concept plan for the proposed development.



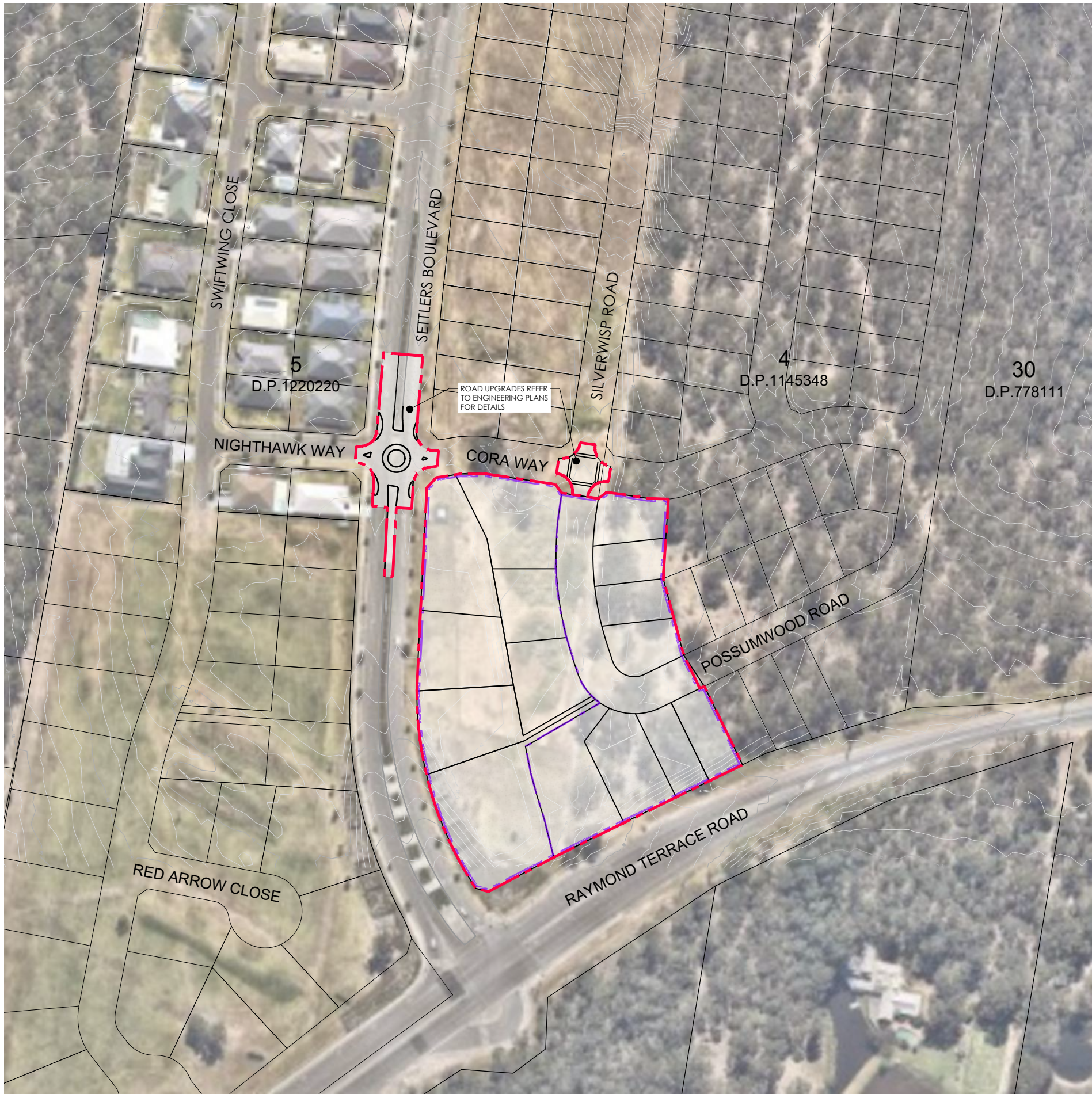
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LEGEND

SITE CADASTRAL BOUNDARY

PROPOSED DEVELOPMENT APPLICATION

PROPOSED STAGE BOUNDARY

EXISTING BOUNDARY

FUTURE BOUNDARY (APPROVED)

PROPOSED BOUNDARY

NOT FOR CONSTRUCTION

ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
A	29.04.2026	INITIAL ISSUE	BWe	MK	DATUM: GDA2020 MGA56 CONTOUR INTERVAL:	A1 1:3000 0 60 120 150m A3 1:6000	NOTE : PLANS ARE PREPARED IN COLOUR
• project management • civil engineering • infrastructure • superintendency • social impact • town planning • surveying • development feasibility • visualisation • urban design							

drawing title:

EXISTING SITE NATURAL
SURFACE PLAN

location:

CHISHOLM

council:

MAITLAND CITY COUNCIL

dwg ref:

190433(97)-DA-104

client:

AVID
Property Group

adw
johnson

central coast office
hunter office
sydney office

ph: (02) 4305 4300
ph: (02) 4978 5100
ph: (02) 8046 7411

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4.0 Methodology

The arborist site survey was undertaken on 3rd July and a further evaluation was undertaken on 3rd November 2025. Prior to field observations on site, the layout of lots and roadworks was reviewed in the plan titled “STAGE 97 LOT CONCEPT PLAN, Drawing reference: 190433-OFFICE-001 of 27-03-2026 Ver D, Sheets 1 - 3, A1 size. Additional engineering plans by ADW Johnson have been reviewed to determine the final impact on the trees. This plan showed 67 trees were present on the site as located by registered surveyors. Each tree assessed within the Subject Site was assigned a unique tree number, the remainder of the unassessed trees remain un-numbered. Tree species were identified based on guidance from regional identification guides (Fairley and Moore 1989, Robinson 2003), and descriptions and records provided by the Royal Botanic Gardens (Plantnet 2024).

4.1 Visual Tree Assessment

A visual tree assessment to evaluate the health and condition of these trees in relation to the impacts of the proposed development was undertaken from ground level following the methodology described by Mattheck and Breloer (1994):

- Each tree assessed within the Subject Site was assigned a unique tree number;
- Tree species were identified based on guidance from regional identification guides (Fairley and Moore 1989, Robinson 2003), and descriptions and records provided by the Royal Botanic Gardens (Plantnet 2024);
- Tree height was estimated following the guidance outlined in the Private Native Forestry Code of Practice (DECC 2007) and confirmed with a laser range finder;
- The Diameter at Standard Height (DSH) and Diameter Above Buttress (DAB) was determined using a DSH tape;
- Calculation of the Structural Root Zone (SRZ) and Notional Root Zone (NRZ) applied as outlined in Australian Standard 4970-2025 *Protection of trees on development Sites* (AS 4970 – 2025) (Standards Australia 2025);
- Tree Total Canopy Area was estimated from the formula $\pi \times (\text{average canopy spread})^2$; and
- Images of the tree and characteristics were taken using mobile phone camera.

4.2 Tree Location Mapping and Data

Tree locations were recorded using ESRI Field Maps in conjunction with a handheld GPS device. These coordinates were projected into GIS mapping software to visualise tree positions spatially. As handheld GPS units can be subject to minor positional inaccuracies, the plotted locations may not reflect absolute location.

To improve location accuracy, trees were surveyed by a licensed surveyor. Tree data was then joined to the surveyed data point, ensuring an accurate projection of tree positions.

Client supplied plans (**Figure 2**) were geo-referenced within GIS software. These plans served as a framework against which tree impact determinations were made. Tree protection and development-related constraints were assessed relative to the site layout.

4.3 Tree Retention Value

To determine tree Retention Value a Landscape Significance Rating (LSR) was assigned to each tree. The LSR value provides consideration of the tree’s amenity, environmental and heritage values (refer **Appendix B**). Trees are then assigned one of the following LSR categories:

- Significant (1);
- Very High (2);
- High (3);
- Moderate (4);
- Low (5);
- Very Low (6); and
- Insignificant (7).

Once the landscape significance value has been determined the following assessment matrix that utilises estimated life expectancy and landscape significance (**Table 2**) was applied to each tree.

Table 2: Tree Retention Status Assessment matrix adopted from Morton (2006).

Landscape significance rating							
Estimated Life Expectancy	1	2	3	4	5	6	7
Greater than 40 Years	High						
15 to 40 Years				Moderate			
5 to 15 Years				Low			
Less than 5 Years					Very low		
Dead or Hazardous							

4.4 Limitations

This report utilises a rapid assessment of tree health and condition to inform retention value. Should a detailed assessment of tree structural health and condition be required a tree risk assessment report should be commissioned.

This assessment of tree health and condition is based on non-destructive visual observations from ground level. Thus, it is not possible to identify all structural faults at high levels in the tree, internal structural faults or within the root system. Should a detailed assessment for structural faults be required a tree risk assessment report should be commissioned.

Weather conditions such as extreme wind, storm activity, lightning as well as other events or disturbances independent of the proposed activities are unpredictable. Unforeseeable damage to trees may occur as a result of unpredictable or unplanned weather events or disturbances.

Tree identifications are based on identifying features (fruit, inflorescence, etc.) found during July and made at ground level from within the Subject Site.

The total canopy area for each tree utilised within this report is an estimation based on field observation of canopy spread and the true amount of canopy area may differ.

Trees identified within this report are located to GPS accuracy and there may be some minor discrepancy in the true location.

5.0 Tree Assessment Results

A total of 67 trees identified within the site and neighbouring properties were assessed in detail. Observations were made for each assessed tree (**Appendix A**). Tree locations are shown in **Figure 3**. All other trees were visually assessed for possible retention but the proposed works were checked and it was clear that most of the existing trees were to be removed as they were clearly going to be severely impacted by earthworks and civil construction. The trees assessed were considered either for ecological values and possibility of retention or because they were highly viable for retention. The trees likely to be removed are broadly described in the data below.

5.1 Summary of Tree Condition and Characteristics

All 67 assessed trees are located within the Subject Site.

All trees assessed within the site are native species. The condition of the assessed trees includes one (1) dead tree, three (3) in poor condition, 16 in fair condition and 47 in good condition.

Notable Trees within this grouping that are in poor or dead Structural and Health Condition including the following:

- Tree 3 – *Eucalyptus paniculata* (Grey Ironbark) this tree is on a lean and presents with previous failures within the canopy. The crown is asymmetric adding to the trees unbalance. There appears to be small hollows within the dead branches of the tree. The estimated life expectancy of this tree is 15 – 40 years.
- Tree 9 – *Eucalyptus paniculata* (Grey Ironbark) this trees structure is considered to be fair due to the tight formation in the branch union between two codominant stems. The tree is buffered by surrounding trees and is in good health overall. This tree has a moderate retention value.
- Tree 49 – *Corymbia maculata* (Spotted Gum) this tree is a dead stag that is situated in the centre of Lot 9704, and will require removal for earthworks.

5.2 Summary of Landscape Significance and Retention Value

The following landscape significance ratings (LSRs) have been applied to the assessed trees:

- One (1) tree classified as 'Significant' (Tree 66) due to its extremely large canopy area and as a hollow bearing tree with active wildlife presence;
- Four (4) 'Very High' due to canopy size, good health, good representation of original species and high visibility from surrounding properties in the area;
- Seven (7) 'High' due to their canopy size, good health, and strong representation of original vegetation in the area;
- 26 trees classified as 'Moderate' due to their smaller canopy size or native species with structural or health attributes that reduce their overall significance;
- 28 trees classified as 'Low' as they are native species with low visibility or in poor condition; and
- One (1) 'Very Low' tree as it is dead.

With consideration of the estimated life expectancy for each tree, Retention Values were assigned to each tree within the site. This identified the following:

- 11 'High';
- 52 'Moderate';
- Three (3) 'Low'; and

- One (1) 'Very Low' Retention Value Trees.

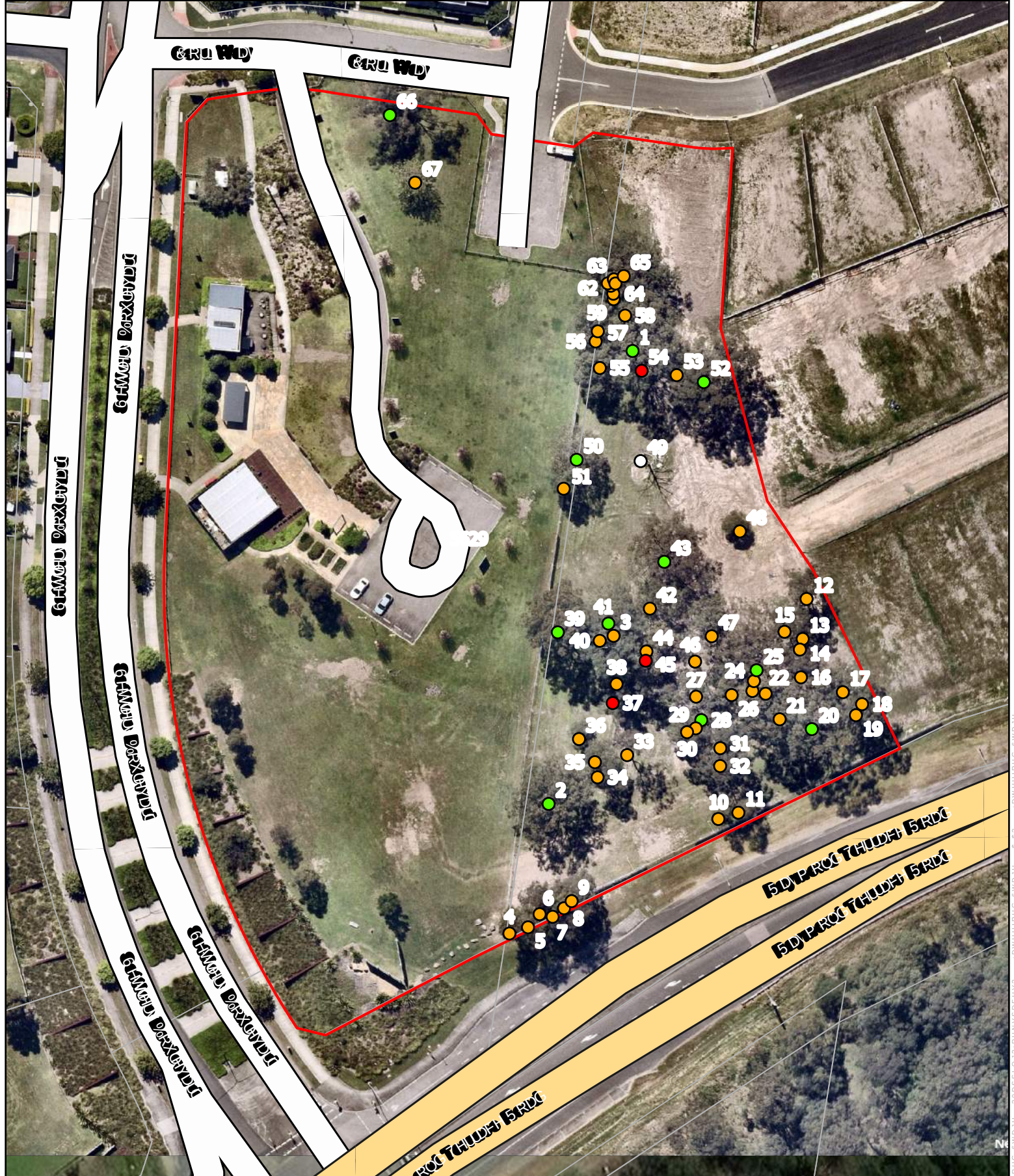
5.3 Ecological Observations

During assessment it was observed that Tree 1 (*Corymbia maculata*) had a small hollow in a fork at approximately 7m above ground level. Damage from Cockatoos was evident around the hollow entry.

Tree 2 (*Corymbia maculata*) was assessed as a possible mature tree that may have been suitable for retention.

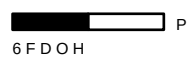
Tree 3, an over mature *Eucalyptus paniculata* appeared to have small hollows within dead branches. It does not appear to have any active fauna occupation.

Tree 66 had numerous hollows present and Rainbow Lorikeets were observed using one of them.



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6.0 Tree Impact Assessment

The Notional Root Zone (NRZ) encroachment may impact tree health and vigour depending on site conditions. Structural Root Zone (SRZ) is an indicative area closer to the tree critical for maintaining a tree's stability. Any ground works within the NRZ area is likely to impact the viability of the health and long-term sustainability of a tree. Any ground works within the SRZ will impact the stability of the tree by injuring the root system. Trees were assessed against plans provided by the client. Consideration is also given to the tree's tolerance to disturbance, health and structure condition and long-term viability within the site.

6.1 Proposal Impacts

Table 3 provides a summary of impact assessment.

Table 3: Summary of Impact Assessment

Tree Assessment	Retention Value (Tree No)			Total
	High	Moderate	Low	
Remove (Cut & Fill)	Trees 1, 20, 25, 28, 39, 52	Trees 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 38, 46, 47, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 67	Trees 37, 45, 49, 54	47
Remove (Development Footprint)	Tree 41, 43, 50	Tree 12, 40, 42, 44, 48, 51		9
Total Tree Removal	9	43	4	56
Retain (Protection fencing)	Tree 2, 66	Trees 3, 4, 5, 6, 7, 8, 9, 10, 11		11
Total Tree Retention	2	9	0	11

6.2 Details of impacts

The proposed development requires the removal of 47 trees due to earthworks proposed within the lots due to cut and fill creating levelled platforms for buildings.

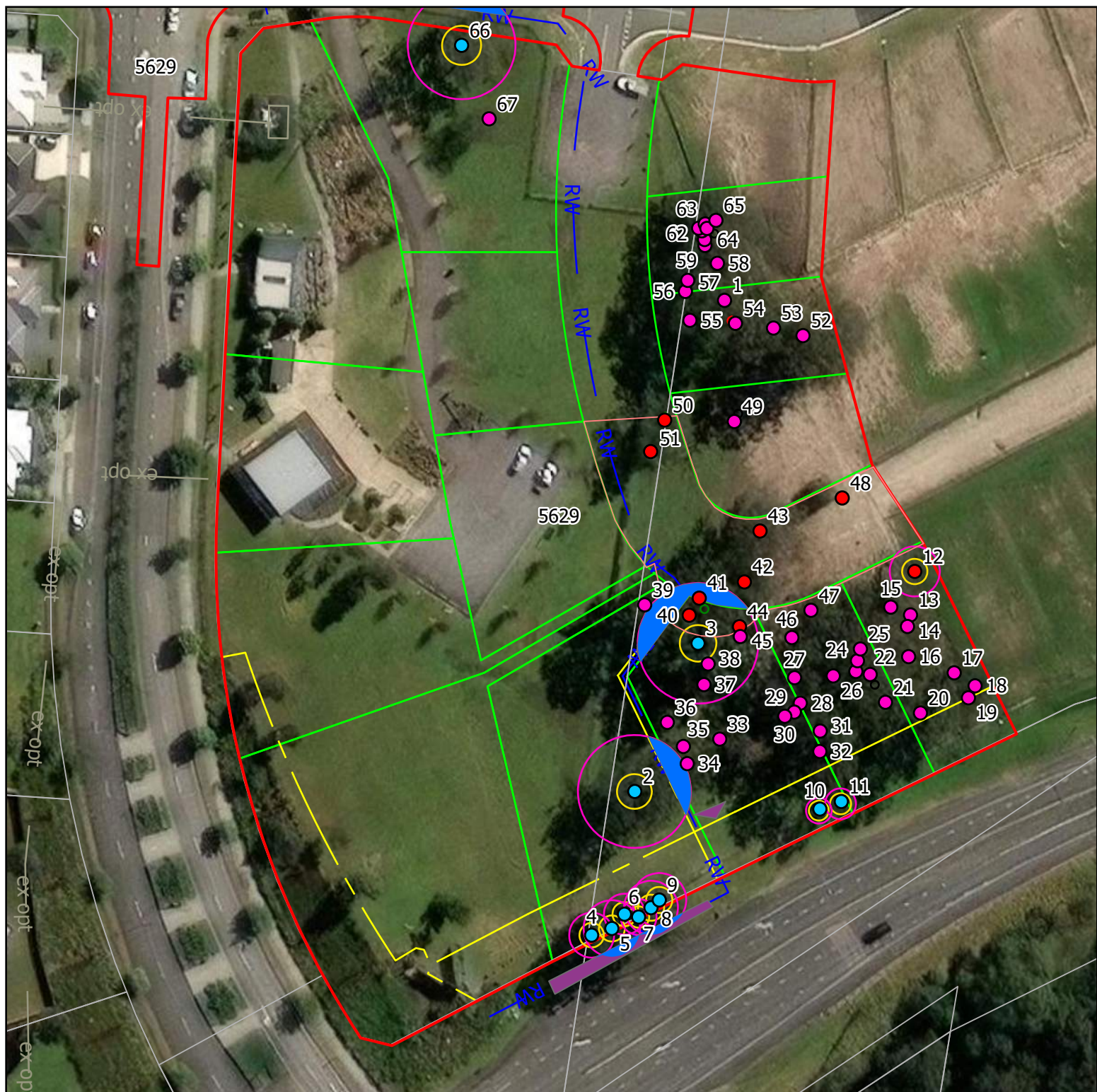
This includes:

- Six (6) 'High';
- 36 'Moderate'; and
- Four (4) 'Low' Retention Value trees

The proposed roadworks and infrastructure require a further 9 trees as follows:

- Three (3) 'High'; and
- Six (6) 'Moderate' Retention Value trees

A total of 11 trees of High and Moderate retention value can be retained with protection measures.



Legend

- Study Area
- Cadastre

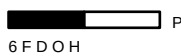
Tree Management

- Remove (Cut & Fill)
- Remove (Footprint)

- Retain (Protection)

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7.0 Recommendations

7.1 Tree Retention and Removal

- The design of the final lots and infrastructure has been developed by multiple site visits and engineering designs evaluated to ensure tree retention and project viability is practical.
- Retention of eleven (11) trees is recommended where the extent of earthworks and infrastructure will not impact tree root systems and ensure trees remain viable. In particular, Tree 66, a highly visually prominent tree with high habitat value is retained. The creation of Tree Protection Zones and fencing is described in sections 7.2 & 7.3 following.
- The proposed development requires the removal of 56 trees as described above.
- Trees designated for retention within this report as outlined in **Section 6** to the development footprint should be retained with Tree Protection Measures.

7.2 Project Arborist

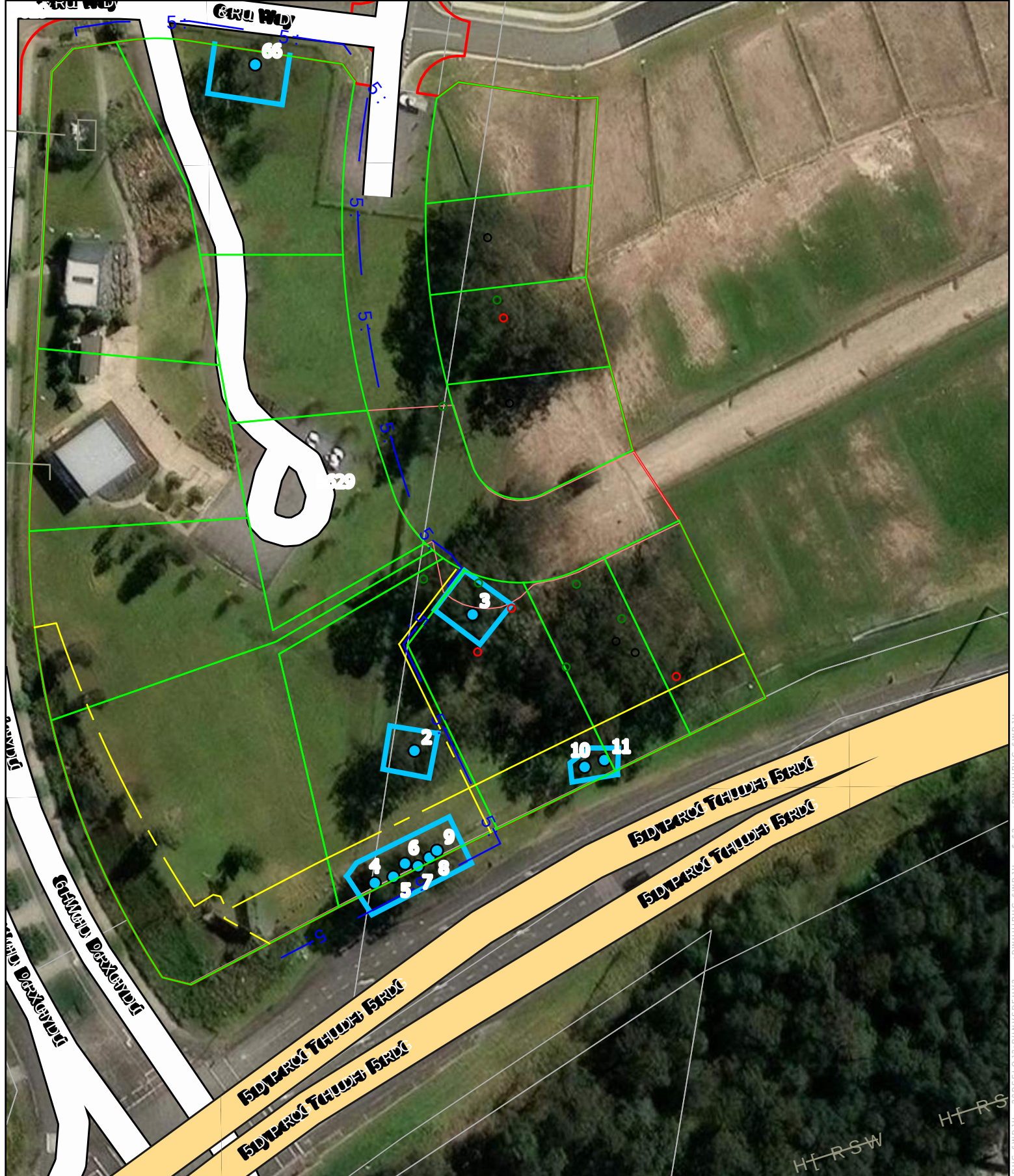
- At the commencement of the development a Project Arborist shall be appointed, holding a minimum of AQF level 5 in Arboriculture and with experience on site clearance work of trees.
- The Project Arborist (PA) shall communicate with the project manager and site supervisor prior to commencement of construction.
- The PA shall identify the trees to be retained and set out on ground the positions of tree protection fence panels to be installed.
- Prior to commencement of earthworks, the PA shall inspect the fences and ensure the trees are adequately protected, then issue an email stating compliance with tree protection fence placements has occurred.
- Trees will be inspected at the final stage of earthworks. The inspection will identify any changes in tree health due to impacts from the development or environmental factors. A compliance certificate will be issued.

7.3 Tree Protection Measures

- All tree maintenance and pruning works should be carried out by a qualified tree worker in accordance with AS4373 –2007 Pruning of Amenity Trees.
- A continuous TPZ fence should be installed for retained trees as displayed in **Figure 5**. The TPZ shall be delineated by a 1.8m interlocking chain wire fence located around trees designated to be retained within close proximity to the Works, in accordance with AS 4687. **Appendix D** details tree protection fencing that should be implemented.
- TPZ fencing must be installed before the commencement of any Works. The fencing should not be removed or altered until after the completion of works.
- All Contractors working in close proximity to the TPZ of Trees to be retained should be briefed as to the requirements of the Tree Protection Zone.
- The TPZ fencing and zone should be certified by the project arborist before construction commences.
- Tree health and condition should be monitored by the project arborist at regular stages during construction, at practical completion of construction, and after completion.
- The following activities should be avoided within the TPZ of trees to be retained where practicable:

- Machine excavation of soil including trenching;
 - Operation of heavy equipment;
 - Stockpiling of soils;
 - Storage of heavy or other equipment;
 - Parking of vehicles;
 - Wash down and cleaning of equipment;
 - Excavation for silt fencing;
 - Dumping of waste;
 - Change of soil level or gradient; and
 - Covering with concrete, impermeable, or compacted surfaces.
- Where works are required that encroach into TPZ of trees to be retained, additional protection measures, which include trunk and low branch guards, and ground protection measures should be implemented following guidance in Australian standard *AS 4970 – 2025 Protection of trees on development Sites (Appendix D)*. These works should only be conducted under supervision of the project arborist. The use of “soft” construction methods including manual and vacuum removal of soils is recommended for works conducted within the TPZ of Trees to be retained.
 - Clothing, equipment and boots should be clean and sanitised prior to each site visit to prevent onsite introduction of plant pests and diseases such as Myrtle rust.

Vehicles and construction equipment should utilise designated entry and egress points to avoid potential of impacts on Trees to be retained.



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8.0 Conclusion

The recommendations for tree retention and removal have been made with consideration of minimising tree loss and enabling tree retention where possible.

Trees to be retained should be retained with tree protection measures and provided care for the duration of the development.

Based on the tree retention and removal proposed above the current proposal will require the direct removal of 56 of the assessed trees, while 11 assessed trees can be retained with tree protection measures including tree protection fencing.

Please note that assessment of tree removal and retention has been determined by overlaying plans supplied by the client (**Figure 2**). These recommendations may be subject to change if further design and engineering detail iterations are made and this report will require updating in accordance with these changes if any.

The implementation of a detailed Tree Protection Plan and Tree Protection Measures will be an essential part of the Construction Environment Management Plan to avoid further loss of trees in close proximity to the construction footprint.

We trust this meets your requirements. Should you require further details or clarification, please do not hesitate to contact the undersigned or Joe Young, Team Leader - Arborist (0411 446 203).

Yours faithfully,



John Atkins

Senior Arborist

Dip. Arb. (AQF 5)

Grad. Cert. Arb. (AQF 8)

0407 019 076

9.0 References

Brooker M. I. H and Kleinig D.A (2006). Field Guide to Eucalypts - Volume 1 South-eastern Australia. Third Edition. Blooming books, Melbourne.

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Appendix A – Tree Schedule

Appendix A– Assessed Tree Schedule

Tree ID	Scientific Name	Common Name	DSH (m)	DAB (m)	Canopy Spread (m)				Canopy Spread Average (m)	Estimated Total Canopy Area (m ²)	Height (m)	Age Class	Health	Structure	Landscape significance rating	Estimated life expectancy	Retention Value	NRZ (m)	SRZ (m)	Remove / Retain	NRZ Encroachment %
					N	E	S	W													
1	<i>Corymbia maculata</i>	Spotted Gum	0.84	1.27	8	7	6	5	6.5	133	19	Mature	Good	Good	High	40+	High	10.1	3.7	Remove (Cut & Fill)	100.0
2	<i>Corymbia maculata</i>	Spotted Gum	0.88	0.96	9	9	8	8	8.5	227	19	Mature	Good	Good	Very High	40+	High	10.6	3.3	Retain (Protection)	12
3	<i>Eucalyptus paniculata</i>	Grey Ironbark	0.94	1.08	12	6	6	6	7.5	177	19	Over-Mature	Good	Fair	High	15-40	Moderate	11.3	3.4	Retain (Protection)	21
4	<i>Corymbia maculata</i>	Spotted Gum	0.35	0.41	2	2	3	3	2.5	20	16	Semi-Mature	Good	Good	Moderate	40+	Moderate	4.2	2.3	Retain (Protection)	0.5
5	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.44	0.48	3	4	3	3	3.25	33	16	Semi-Mature	Good	Good	Moderate	40+	Moderate	5.3	2.4	Retain (Protection)	11.9
6	<i>Eucalyptus fibrosa</i>	Broad Leaved Ironbark	0.32	0.40	3	3	3	3	3	28	16	Semi-Mature	Good	Good	Moderate	40+	Moderate	3.8	2.3	Retain (Protection)	8.4
7	<i>Eucalyptus paniculata</i>	Grey Ironbark	0.28	0.30	2	3	3	2	2.5	20	15	Semi-Mature	Good	Good	Moderate	40+	Moderate	3.4	2.0	Retain (Protection)	1.6
8	<i>Eucalyptus paniculata</i>	Grey Ironbark	0.42	0.48	3	3	2	2	2.5	20	16	Semi-Mature	Good	Good	Moderate	40+	Moderate	5.0	2.4	Retain (Protection)	9.2
9	<i>Eucalyptus paniculata</i>	Grey Ironbark	0.42	0.49	3	6	3	2	3.5	38	17	Semi-Mature	Good	Fair	Moderate	40+	Moderate	5.0	2.5	Retain (Protection)	4.4
10	<i>Corymbia maculata</i>	Spotted Gum	0.20	0.25	1	2	2	2	1.75	10	12	Semi-Mature	Good	Good	Low	40+	Moderate	2.4	1.9	Retain (Protection)	2.3
11	<i>Corymbia maculata</i>	Spotted Gum	0.24	0.29	2	2	3	2	2.25	16	14	Semi-Mature	Good	Good	Low	40+	Moderate	2.9	2.0	Retain (Protection)	5.6
12	<i>Eucalyptus paniculata</i>	Grey Ironbark	0.39	0.45	3	5	3	3	3.5	38	18	Semi-Mature	Good	Good	Moderate	40+	Moderate	4.7	2.4	Remove (Footprint)	100
13	<i>Eucalyptus moluccana</i>	Grey Box	0.28	0.29	4	4	3	1	3	28	8	Semi-Mature	Good	Fair	Moderate	40+	Moderate	3.4	2.0	Remove (Cut & Fill)	100
14	<i>Eucalyptus fibrosa</i>	Broad Leaved Ironbark	0.40	0.46	2	3	4	3	3	28	20	Mature	Good	Good	Moderate	40+	Moderate	4.8	2.4	Remove (Cut & Fill)	100
15	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.33	0.41	2	3	1	2	2	13	19	Mature	Good	Good	Low	40+	Moderate	4.0	2.3	Remove (Cut & Fill)	100

Tree ID	Scientific Name	Common Name	DSH (m)	DAB (m)	Canopy Spread (m)				Canopy Spread Average (m)	Estimated Total Canopy Area (m²)	Height (m)	Age Class	Health	Structure	Landscape significance rating	Estimated life expectancy	Retention Value	NRZ (m)	SRZ (m)	Remove / Retain	NRZ Encroachment %
					N	E	S	W													
16	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.37	0.43	1	3	3	2	2.25	16	20	Semi-Mature	Good	Good	Low	40+	Moderate	4.4	2.3	Remove (Cut & Fill)	100
17	<i>Corymbia maculata</i>	Spotted Gum	0.53	0.59	3	4	4	4	3.75	44	21	Mature	Good	Good	Moderate	40+	Moderate	6.4	2.7	Remove (Cut & Fill)	100
18	<i>Eucalyptus moluccana</i>	Grey Box	0.32	0.37	3	5	5	1	3.5	38	17	Mature	Good	Fair	Moderate	40+	Moderate	3.8	2.2	Remove (Cut & Fill)	100
19	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.41	0.44	2	4	4	3	3.25	33	17	Mature	Good	Fair	Moderate	40+	Moderate	4.9	2.3	Remove (Cut & Fill)	100
20	<i>Corymbia maculata</i>	Spotted Gum	0.77	0.84	6	7	6	5	6	113	23	Mature	Good	Good	High	40+	High	9.2	3.1	Remove (Cut & Fill)	100
21	<i>Corymbia maculata</i>	Spotted Gum	0.31	0.34	0	1	5	4	2.5	20	18	Mature	Good	Fair	Low	40+	Moderate	3.7	2.1	Remove (Cut & Fill)	100
22	<i>Corymbia maculata</i>	Spotted Gum	0.52	0.56	2	5	6	6	4.75	71	23	Mature	Good	Good	Moderate	40+	Moderate	6.2	2.6	Remove (Cut & Fill)	100
23	<i>Corymbia maculata</i>	Spotted Gum	0.32	0.37	2	2	3	4	2.75	24	21	Mature	Good	Good	Moderate	40+	Moderate	3.8	2.2	Remove (Cut & Fill)	100
24	<i>Corymbia maculata</i>	Spotted Gum	0.26	0.29	1	1	2	5	2.25	16	15	Semi-Mature	Good	Fair	Low	40+	Moderate	3.1	2.0	Remove (Cut & Fill)	100
25	<i>Corymbia maculata</i>	Spotted Gum	0.71	0.81	13	12	7	10	10.5	346	23	Mature	Good	Good	Very High	40+	High	8.5	3.0	Remove (Cut & Fill)	100
26	<i>Corymbia maculata</i>	Spotted Gum	0.27	0.31	2	2	3	4	2.75	24	16	Semi-Mature	Good	Fair	Low	40+	Moderate	3.2	2.0	Remove (Cut & Fill)	100
27	<i>Corymbia maculata</i>	Spotted Gum	0.27	0.31	5	3	2	3	3.25	33	14	Semi-Mature	Good	Good	Low	40+	Moderate	3.2	2.0	Remove (Cut & Fill)	100
28	<i>Corymbia maculata</i>	Spotted Gum	0.61	0.68	8	8	8	6	7.5	177	22	Mature	Good	Good	High	40+	High	7.3	2.8	Remove (Cut & Fill)	100
29	<i>Corymbia maculata</i>	Spotted Gum	0.38	0.42	1	1	5	6	3.25	33	18	Mature	Good	Good	Low	40+	Moderate	4.6	2.3	Remove (Cut & Fill)	100
30	<i>Eucalyptus acmenoides</i>	White Mahogany	0.27	0.32	2	2	5	4	3.25	33	11	Semi-Mature	Good	Good	Low	40+	Moderate	3.2	2.1	Remove (Cut & Fill)	100
31	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.41	0.43	4	4	5	4	4.25	57	20	Mature	Good	Good	Moderate	40+	Moderate	4.9	2.3	Remove (Cut & Fill)	100

Tree ID	Scientific Name	Common Name	DSH (m)	DAB (m)	Canopy Spread (m)				Canopy Spread Average (m)	Estimated Total Canopy Area (m²)	Height (m)	Age Class	Health	Structure	Landscape significance rating	Estimated life expectancy	Retention Value	NRZ (m)	SRZ (m)	Remove / Retain	NRZ Encroachment %
					N	E	S	W													
32	<i>Corymbia maculata</i>	Spotted Gum	0.41	0.61	2	4	6	5	4.25	57	20	Mature	Good	Good	Moderate	40+	Moderate	4.9	2.7	Remove (Cut & Fill)	100
33	<i>Corymbia maculata</i>	Spotted Gum	0.40	0.48	3	4	1	2	2.5	20	20	Mature	Good	Good	Low	40+	Moderate	4.8	2.4	Remove (Cut & Fill)	100
34	<i>Eucalyptus moluccana</i>	Grey Box	0.40	0.40	4	4	5	4	4.25	57	13	Mature	Fair	Good	Moderate	40+	Moderate	4.8	2.3	Remove (Cut & Fill)	100
35	<i>Eucalyptus moluccana</i>	Grey Box	0.29	0.38	3	3	2	4	3	28	9	Semi-Mature	Good	Good	Low	40+	Moderate	3.5	2.2	Remove (Cut & Fill)	100
36	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.24	0.28	3	3	4	2	3	28	8	Semi-Mature	Good	Good	Low	40+	Moderate	2.9	1.9	Remove (Cut & Fill)	100
37	<i>Eucalyptus moluccana</i>	Grey Box	0.30	0.45	0	2	4	2	2	13	9	Mature	Good	Poor	Low	15-40	Low	3.6	2.4	Remove (Cut & Fill)	100
38	<i>Corymbia maculata</i>	Spotted Gum	0.24	0.26	2	3	3	2	2.5	20	9	Semi-Mature	Good	Good	Low	40+	Moderate	2.9	1.9	Remove (Cut & Fill)	100
39	<i>Corymbia maculata</i>	Spotted Gum	0.75	0.88	8	6	7	8	7.25	165	22	Mature	Good	Good	High	40+	High	9.0	3.1	Remove (Cut & Fill)	100
40	<i>Corymbia maculata</i>	Spotted Gum	0.37	0.43	9	3	0	3	3.75	44	16	Mature	Fair	Fair	Low	40+	Moderate	4.4	2.3	Remove (Footprint)	100
41	<i>Corymbia maculata</i>	Spotted Gum	0.68	0.74	9	5	3	5	5.5	95	22	Mature	Good	Good	High	40+	High	8.2	2.9	Remove (Footprint)	100
42	<i>Corymbia maculata</i>	Spotted Gum	0.48	0.54	4	4	3	4	3.75	44	18	Mature	Good	Good	Moderate	40+	Moderate	5.8	2.6	Remove (Footprint)	100
43	<i>Corymbia maculata</i>	Spotted Gum	0.80	0.91	9	11	8	10	9.5	284	22	Mature	Fair	Good	Very High	40+	High	9.6	3.2	Remove (Footprint)	100
44	<i>Corymbia maculata</i>	Spotted Gum	0.40	0.45	5	5	5	1	4	50	20	Mature	Good	Good	Moderate	40+	Moderate	4.8	2.4	Remove (Footprint)	100
45	<i>Corymbia maculata</i>	Spotted Gum	0.22	0.28	0	3	4	2	2.25	16	10	Semi-Mature	Good	Poor	Low	15-40	Low	2.6	1.9	Remove (Cut & Fill)	100
46	<i>Corymbia maculata</i>	Spotted Gum	0.34	0.38	3	2	2	3	2.5	20	19	Semi-Mature	Good	Good	Low	40+	Moderate	4.1	2.2	Remove (Cut & Fill)	100
47	<i>Corymbia maculata</i>	Spotted Gum	0.38	0.43	5	4	4	3	4	50	20	Mature	Good	Good	Moderate	40+	Moderate	4.6	2.3	Remove (Cut & Fill)	100

Tree ID	Scientific Name	Common Name	DSH (m)	DAB (m)	Canopy Spread (m)				Canopy Spread Average	Estimated Total Canopy Area	Height (m)	Age Class	Health	Structure	Landscape significance rating	Estimated life expectancy	Retention Value	NRZ (m)	SRZ (m)	Remove / Retain	NRZ Encroachment %
					N	E	S	W	(m)	(m²)											
48	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.27	0.32	3	3	3	3	3	28	5	Juvenile	Good	Good	Low	40+	Moderate	3.2	2.1	Remove (Footprint)	100
48	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	0.27	0.32	3	3	3	3	3	28	5	Juvenile	Good	Good	Low	40+	Moderate	3.2	2.1	Remove (Footprint)	100
49	<i>Corymbia maculata</i>	Spotted Gum	0.50	0.60	0	0	0	0	0	0	18	Over-Mature	Dead	Dead	Very Low	Dead	Very Low	6.0	2.7	Remove (Cut & Fill)	100
50	<i>Corymbia maculata</i>	Spotted Gum	0.48	0.61	6	6	7	7	6.5	133	13	Mature	Good	Good	High	40+	High	5.8	2.7	Remove (Footprint)	100
51	<i>Corymbia maculata</i>	Spotted Gum	0.28	0.32	2	3	4	3	3	28	8	Semi-Mature	Good	Good	Low	40+	Moderate	3.4	2.1	Remove (Footprint)	100
52	<i>Eucalyptus moluccana</i>	Grey Box	0.88	0.94	9	13	8	6	9	254	18	Over-Mature	Good	Fair	Very High	15-40	High	10.6	3.2	Remove (Cut & Fill)	100
53	<i>Corymbia maculata</i>	Spotted Gum	0.28	0.33	3	2	3	3	2.75	24	14	Semi-Mature	Good	Good	Low	40+	Moderate	3.4	2.1	Remove (Cut & Fill)	100
54	<i>Corymbia maculata</i>	Spotted Gum	0.16	0.17	1	2	2	2	1.75	10	6	Semi-Mature	Good	Good	Low	15-40	Low	2.0	1.6	Remove (Cut & Fill)	100
55	<i>Corymbia maculata</i>	Spotted Gum	0.44	0.61	5	3	5	5	4.5	64	15	Mature	Good	Good	Moderate	40+	Moderate	5.3	2.7	Remove (Cut & Fill)	100
56	<i>Corymbia maculata</i>	Spotted Gum	0.47	0.51	3	4	4	4	3.75	44	13	Mature	Good	Good	Moderate	40+	Moderate	5.6	2.5	Remove (Cut & Fill)	100
57	<i>Corymbia maculata</i>	Spotted Gum	0.48	0.56	4	5	3	3	3.75	44	16	Mature	Good	Good	Moderate	40+	Moderate	5.8	2.6	Remove (Cut & Fill)	100
58	<i>Corymbia maculata</i>	Spotted Gum	0.29	0.38	2	3	1	0	1.5	7	14	Mature	Good	Good	Low	40+	Moderate	3.5	2.2	Remove (Cut & Fill)	100
59	<i>Corymbia maculata</i>	Spotted Gum	0.25	0.28	1	2	3	3	2.25	16	7	Semi-Mature	Good	Fair	Low	40+	Moderate	3.0	1.9	Remove (Cut & Fill)	100
60	<i>Corymbia maculata</i>	Spotted Gum	0.28	0.34	2	2	3	3	2.5	20	16	Mature	Good	Good	Low	40+	Moderate	3.4	2.1	Remove (Cut & Fill)	100
61	<i>Corymbia maculata</i>	Spotted Gum	0.32	0.37	1	1	3	2	1.75	10	17	Mature	Good	Good	Low	40+	Moderate	3.8	2.2	Remove (Cut & Fill)	100
62	<i>Corymbia maculata</i>	Spotted Gum	0.18	0.20	1	1	1	1	1	3	8	Semi-Mature	Good	Fair	Low	40+	Moderate	2.2	1.7	Remove (Cut & Fill)	100

Tree ID	Scientific Name	Common Name	DSH (m)	DAB (m)	Canopy Spread (m)				Canopy Spread Average	Estimated Total Canopy Area	Height (m)	Age Class	Health	Structure	Landscape significance rating	Estimated life expectancy	Retention Value	NRZ (m)	SRZ (m)	Remove / Retain	NRZ Encroachment %
					N	E	S	W	(m)	(m²)											
63	<i>Corymbia maculata</i>	Spotted Gum	0.17	0.19	0	0	1	4	1.25	5	7	Semi-Mature	Good	Fair	Low	40+	Moderate	2.0	1.7	Remove (Cut & Fill)	100
64	<i>Corymbia maculata</i>	Spotted Gum	0.41	0.73	7	3	1	5	4	50	18	Mature	Good	Good	Moderate	40+	Moderate	4.9	2.9	Remove (Cut & Fill)	100
65	<i>Corymbia maculata</i>	Spotted Gum	0.69	0.85	8	9	5	5	6.75	143	18	Over-Mature	Good	Poor	Moderate	15-40	Moderate	8.3	3.1	Remove (Cut & Fill)	100
66	<i>Eucalyptus moluccana</i>	Grey Box	1.01	1.23	9	14	10	9	10.5	346	22	Over-Mature	Good	Fair	Significant	40+	High	12.1	3.6	Retain (Protection)	10.8
67	<i>Grevillea robusta</i>	Silky Oak	0.42	0.46	3	4	4	4	3.75	44	12	Mature	Good	Good	Moderate	40+	Moderate	5.0	2.4	Remove (Cut & Fill)	100

Appendix B – Glossary

GLOSSARY

Age Classes

- Juvenile refers to an immature tree.
- Semi-mature refers to a tree between immaturity and full size.
- Mature refers to a full-sized tree with some capacity for further growth.
- Over-mature refers to a tree already in decline.

Diameter at standard height (DSH)

Tree stem diameter at 1.4 metres above ground level.

Diameter at buttress (DAB)

Tree stem diameter as measured above the root buttress at ground level.

Notional Root Zone (NRZ):

An indicative measure of the area necessary to protect for tree viability, as calculated by the formula $NRZ = DSH \times 12$

Tree Protection Zone (TPZ):

The specified zone both above and below ground encompassing the area necessary to protect both the crown and woody roots of trees during development.

Structural Root Zone (SRZ)

An indicative measure of the spread of the primary woody and structural roots necessary for tree stability, as calculated by the formula $SRZ = (DAB \times 50)^{0.42} \times 0.64$

Visual Tree Assessment (VTA)

Visual inspection of tree only.

Co-dominant leaders

A tree where two or more stems are of similar diameter.

Included Bark Junctions

A junction where the angle of the union creates an area of ingrown bark. This can create a structural weakness, and is often found on co-dominant stems.

Crown

The portion of the tree consisting of branches and leaves and any part of the trunk from which branches arise.

Stem

The position of the tree consisting of branches and leaves and any part of the trunk from which branches arise. An organ which supports branches, leaves, flowers and fruits.

Epicormic Growth

Refers to shoots produced by dormant buds within the bark or stem of a tree as a result of stress, incorrect pruning or increased light.

Health Condition

Exceptional

- Visually complete crown with dense foliage throughout that indicates strong health and vigour.

- Leaf size and colour that is true to type for the species and free from pest (insect) and disease (pathogen) damage.
- Expected levels of primary growth or seasonal extension and internodal growth evident for the species.
- No evidence of colonising saprophytes and no deadwood evident.

Good

- Visually complete crown, varying in foliage density throughout.
- Leaf size and colour that is true to type for the species with none or minor levels of pest (insect) and/or disease (pathogen) damage evident.
- Expected levels of primary growth or seasonal extension and internodal growth evident for the species.
- No evidence of colonising saprophytes and low levels of deadwood present and approximately 10mm or less in size.

Fair

- Sparse crown, varying in foliage density throughout.
- Reduced leaf size and atypical in colour for the species.
- Low to medium levels of pest (insect) and/or disease (pathogen) damage.
- Reduced, seasonal extension and internodal growth.
- Deadwood easily visible and less than approximately 30mm in size.
- Epicormic growth may be evident.

Poor

- Obvious signs of crown decline, exhibiting significant reduction in live crown volume and foliage density with reduced leaf size and atypical in colour for the species.
- Evidence of defoliation and/or dieback of branch tips.
- Medium to high levels of pest (insect) and disease (pathogen) damage.
- Presence of exudates (kino and resins) from wounds (open and/or weeping).
- Significant reduction in seasonal extension and internodal growth, with significant levels of epicormic growth evident.
- Deadwood easily visible, approximately 30mm to 100mm in size.

Dead

- No evidence of live foliage observed throughout the crown.
- Obvious signs of cracking and shrinking wood.
- Visible evidence of delaminating bark to stems and branches.

Structure Condition

Very Good

- Strong branch unions at attachment points with no acute angles (compression and tension forks) and good branch taper at unions.
- No visibly, defective tree parts or structural defects.
- No wounds to stems and branches, no crossing and rubbing of branches and no wounds to exposed roots.

- No fungal fruiting bodies present to stems, branches and roots indicating, a presence of fungal pathogens.

Good to Fair

- Developing inclusions at unions of leading, codominant stems and branches.
- Evidence of defective tree parts (low levels) including branch and stem inclusions and crossing and rubbing of branches.
- Evidence of mechanical damage to periderm of stems, branches and roots, exposing vascular tissues.
- Exposed wounds for surface, colonising pathogens and entry points for developing decay.
- Presence of fungal fruiting bodies.
- Some evidence of cavities or hollows. (Fair only)
- No evidence of soil upheaval surrounding base of tree.

Poor

- Obvious signs and evidence of included bark to basal unions of codominant, leading stems and branches.
- Advanced, structural defects evident with failure of tree parts determined within 5 years from time of inspection and assessment.
- Evidence of decay from open wounds with presence of exudates (kino and resins) and exposed and degraded woody tissues.
- Presence of fungal fruiting bodies.
- Presence of cavities and hollows.
- Evidence of mechanical damage with advanced degradation of exposed roots.

a) Hazardous Tree

b) Immediate Removal

- Advanced, structural defects evident. Open cracks to codominant stem and branch unions evident.
- Previous branch and stem failures evident. Failure of remaining tree parts determined within 3 months 6 months, from time of inspection and assessment. Arboricultural works to be scheduled immediately to mitigate associated hazard and risk.
- Severed roots and soil upheaval evident indicating failure of root zone.
- Tree failure imminent within 12 months from time of inspection and assessment

Landscape Significance

Assesses a tree within the landscape and rates according to criteria taken from Morton (2006):

1. Significant

- The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance; or
- The subject tree forms part of the curtilage of a Heritage Item (building / structure / artifact as defined under the LEP) and has a known or documented association with that item; or
- The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event; or

- The subject tree is scheduled as a Threatened Species or is a key indicator species of an Endangered Ecological Community as defined under the or Biodiversity Conservation Act 2016 (NSW) or The Environmental Protection and Biodiversity Conservation Act 1999 (Federal); or
- The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species; or
- The subject tree is a Remnant Tree, being a tree in existence prior to development of the area; or
- The subject tree has a very large live crown size exceeding 300m² with normal to dense foliage cover, is located in a visually prominent in the landscape, exhibits very good form and habit typical of the species and makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity; or
- The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.

2. Very high

- The tree has a strong historical association with a heritage item (building/structure/artifact/garden etc.) within or adjacent the property and/or
- Exemplifies a particular era or style of landscape design associated with the original development of the site; or
- The subject tree is listed on Council's Significant Tree Register; or
- The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link/ Wildlife Corridor or has known wildlife habitat value;
- The subject tree has a very large live crown size exceeding 200m²; a crown density exceeding 70% Crown Cover (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area.

3. High

- The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence; or
- The tree is a locally-indigenous species and representative of the original vegetation of the area; or
- The subject tree has a large live crown size exceeding 100m²; and
- The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% Crown Cover (normal); and
- The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area.

4. Moderate

- The subject tree has a medium live crown size exceeding 40m²; and
- The tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc.) with a crown density of more than 50% Crown Cover (thinning to normal); and
- The tree makes a fair contribution to the visual character and amenity of the area; and

- The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms.
- The tree has no known or suspected historical association

5. Low

- The subject tree has a small live crown size of less than 40m² and can be replaced within the short term with new tree planting; or
- The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% Crown Cover (sparse); and
- The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area.

6. Very low

- The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or a nuisance species.
- The subject tree is scheduled as exempt (not protected) under the provisions of the local Council's Tree Preservation Order due to its species, nuisance or position relative to buildings or other structures.

7. Insignificant

- The tree is a declared Noxious Weed under the Biosecurity Act (NSW) 2015 or identified as a priority weed within the local region.

Appendix C – Site Photographs



Plate 1 - Tree 3 – *Eucalyptus paniculata* on a lean with an asymmetric crown and arboreal termite nest.



Plate 2 - Tree 3 – Showing termite nest and a slight deformity in the adjacent trunk.



Plate 3 Above: Tree 9 – *Eucalyptus paniculata* with codominant stems and included bark, positioned between adjacent trees providing wind protection.

Plate 3



Plate 4 Above: Site photo showing change in ground levels and conditions.

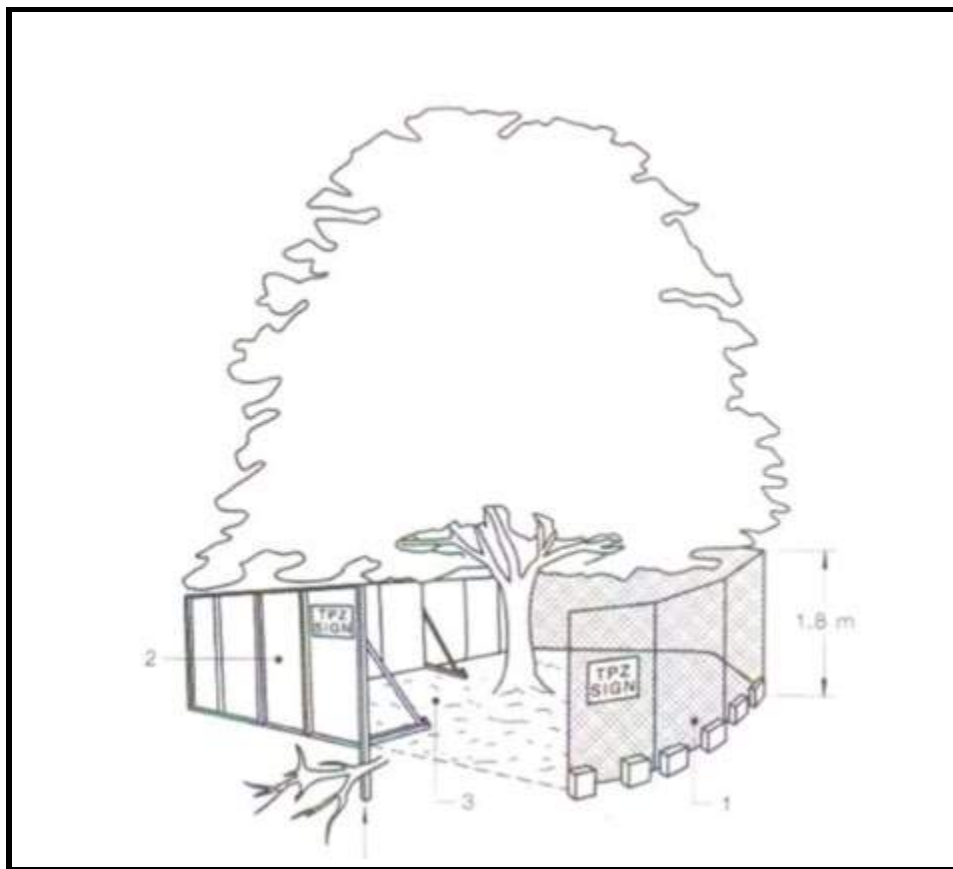
Plate 5 Below: Site photo showing trees and slope of site.



Appendix D – Tree Protection Fencing and Ground Protection

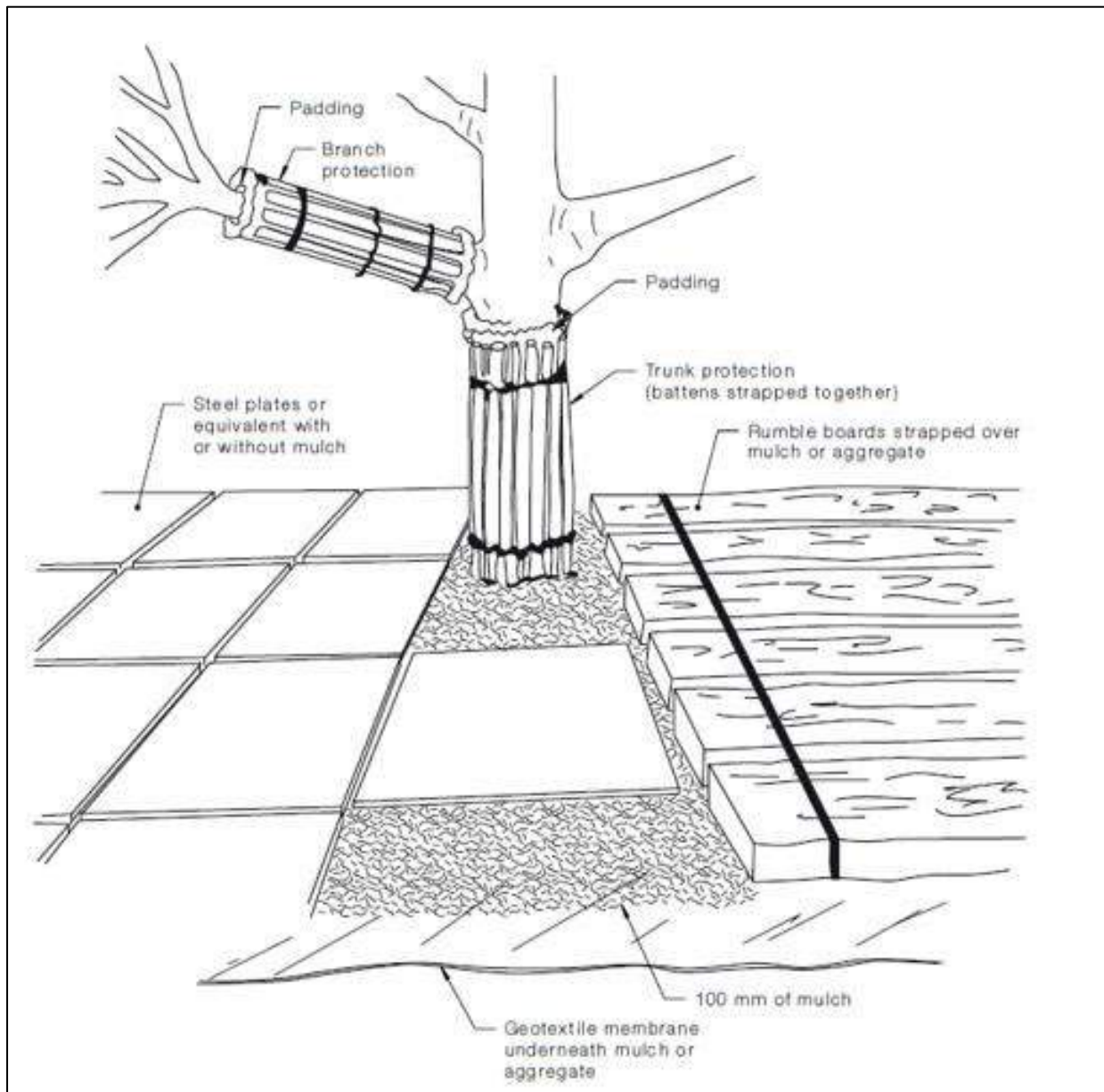
Example of tree protection fencing:

1. Fence off all trees noted for retention with 1.8m steel mesh fencing at the perimeter of the designated protection zone. Attach signs relating to the importance of tree protection and penalties for breaching tree protection orders to the fencing. If the area is large, install multiple signs.
2. Signs should state that this is a restricted area, no entry unless in the company of the arborist. Authorised access to the protected zone could be through a locked gate or via ladders
3. Mulching and semi-regular watering for established protection zones.



Ground Protection

If temporary access for machinery is required within the TPZ ground protection measures will be required. The purpose is to prevent root damage and soil compaction within the TPZ. Measures may include a permeable membrane such as geotextile beneath a layer a mulch or crushed rock below rumble boards as per the below diagram.



Notes:

1. For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to the trees, not nailed or screwed.
2. Rumble boards should be of suitable thickness to prevent compaction and root damage.