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CREATIVEPLANNINGSOLUTIONS

ARBORICULTURAL IMPACT ASSESSMENT

Rouse Hill Hospital – Main Works

Commercial Road & Windsor Road,
Rouse Hill NSW 2155

Project No: H357
Date: 29 August 2025
Revision: B

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B	29 August 2025	For Approval – Minor Amendment
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Disclaimer
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1 EXECUTIVE SUMMARY

This Arboricultural Impact Assessment (AIA) was commissioned by NSW Health Infrastructure on the 29th of May 2025 to support a State Significant Development Application (SSDA) for the construction and operation of a new hospital campus at the Corner of Commercial Road and Windsor Road, Rouse Hill.

The site has been largely cleared of vegetation as part of the Rouse Hill Hospital Early Works to be undertaken as Development Without Consent under a separate planning application (refer to the AIA prepared CPS dated 11 July 2025).

This report provides an evaluation of the likely impact to one hundred and thirty-seven (137) trees located within proximity to proposed works associated with the Rouse Hill Hospital development.

A summary of those trees identified has been provided in ***Table 1*** below along with a description of their retention values, locations and nominated retention/removal status under the proposal.

Table 1 *- Tree Assessment Summary*

Retain / Remove	Location	Identified Retention Values				Number of Trees	Canopy cover
		High	Medium	Low	Dead		
Remove	**Hospital Site** (Lots 311 & 312, DP1274392)	-	-	-	-	-	-
	Commercial Road Works (Lot 101, DP1060353)	**4 Trees** *Trees 43, 44, 45 & 46*	-	-	-	**4**	**243m²**
	Construction Compound (Part Lot 229 DP1249147)	-	-	-	-	-	-
	Pedestrian and Cycle Pathway Connection (Part Lot 229 DP1249147)	-	-	**4 Trees** *Trees 168, 171, 176 & 177*	-	**4**	**62m²**
					Total	**8 Trees**	**305m²**

Retain / Remove	Location	Identified Retention Values				Number of Trees	Canopy cover
		High	Medium	Low	Dead		
Retain & Protect	**Neighbouring Allotments** (Lot 101, DP1058862, Lot 1, DP1204916 and Lots 27 & 32, DP270520)	**3 Trees** *Trees 1, 3 & 7*	**7 Trees** *Trees 2, 4, 5, 6, 10, 12 & 16*	**5 Trees** *Trees 9, 11, 14, 15 & 17*	**1 Tree** *Tree 13*	**16 Trees**	**428m²**
	Windsor Road Verge	**7 Trees** *Trees 91, 100, 102, 107, 109, 113 & 114*	**6 Trees** *Trees 94, 96, 98, 105, 119 & 120*	**17 Trees** *Trees 92, 93, 95, 97, 99, 101, 103, 104, 106, 108, 110, 111, 112, 115, 116, 117 & 118*	-	**30 Trees**	**366m²**
	Existing T-Way (Part Lot 229 DP 1249147)	**3 Trees** *Trees 162, 165 & 166*	**4 Trees** *Trees 149, 151, 153 & 160*	**15 Trees** *Trees 121, 143, 145, 146, 148, 150, 152, 154, 155, 156, 158, 159, 161, 163 & 167*		**22 Trees**	**231m²**
	Hospital Site (Lots 311 & 312, DP 1274392)	-	-	-	-	-	-
	Commercial Road Verge (Lot 101, DP1060353)	**4 Trees** *Trees 52, 67, 68 & 74*	**10 Trees** *Trees 47, 48, 49, 50, 51, 65, 66, 77, 84 & 87*	**24 Trees** *Trees 53, 54, 56, 57, 59, 60, 62, 69, 70, 71, 73, 75, 76, 78, 79, 80, 81, 82, 83, 85, 86, 88, 89 & 90*	-	**38 Trees**	**517m²**
	Construction Compound (Part Lot 229 DP 1249147)	-	-	-	-	-	-
	Pedestrian and Cycle Pathway Connection (Part Lot 229 DP 1249147)	-	**3 Trees** *Trees 169, 170 & 181*	**19 Trees** *Trees 172, 173, 174, 175, 178, 179, 180, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192 & 193*	-	**22 Trees**	**120m²**
	Rouse Hill Drive Verge	**1 Tree** Tree 194	-	-	-	**1 Tree**	**50m²**
					Total	**129 Trees**	**1,712m²**

Based on the plans supplied and should the proposed works proceed in their current form, it is recommended that:

- Eight (8) trees (**Trees 43-46, 168, 171** & **176-177**) be removed, and
- One hundred and twenty-nine (129) trees be retained and protected (**Trees 1-7, 9-17, 47-52, 53-54, 56-57, 59-60, 62, 65-71, 73-121, 143, 145-146, 148-156, 158-163, 165-167, 169-170, 172-175** & **178-194**).

Specific recommendations as per ***Section 7*** will need to be adopted to ensure root sensitive construction techniques and methodology are employed which mitigate any potential negative impacts to retained trees.

It is noted that fifty-seven (57) trees not included as part of this AIA (**Trees 8, 18-42, 55, 58, 61, 63-64, 72, 122-142, 144, 147, 157** & **164**) are proposed to be removed as part of the Rouse Hill Hospital Early Works to be undertaken as Development Without Consent under a separate planning application (refer to the AIA prepared CPS dated 11 July 2025).

2 INTRODUCTION

2.1 Background

This Arboricultural Impact Assessment (AIA) has been prepared by Creative Planning Solutions to support a State Significant Development Application (SSDA) for the construction and operation of a new hospital campus at the Corner of Commercial Road and Windsor Road, Rouse Hill (SSDA-9628991).

The proposed development comprises:

- Site preparation including earthworks and tree removal;
- Construction of internal roads with connection to Commercial Road;
- Incoming electrical and communications services
- Construction of hospital buildings up to eleven storeys;
- Construction of a ten storey above-ground car park;
- Pedestrian and cycle pathway connections;
- Landscaping; and
- Ancillary works to Commercial Road, comprising:
    - Minor works (including realignment of existing median strip, kerb and gutter, footpath and lane marking) to provide access from Commercial Road into Hospital Road; and
    - associated tree removal along Commercial Road.

The scope of the proposed works includes:

- An emergency department and primary access clinic
- Comprehensive birthing services including birthing rooms and a maternity inpatient unit
- Inpatient beds and day surgery services
- Short stay medical assessment services
- Pathology, pharmacy, and medical imaging services
- Outpatient and ambulatory care services including paediatrics and renal dialysis and antenatal and postnatal services
- Virtual care and hospital in the home services
- Prehabilitation, rehabilitation and lifestyle medicine.
- Administration, staff support, loading dock and back-of-house services; and
- Ancillary commercial uses to support the hospital, including retail.

This report has addressed the following matters within the Secretary's Environmental Assessment Requirements (SEARs) issued for the SSDA on 16 October 2025 (see ***Table 2*** below).

The Project consists of two stages, with Early Works undertaken as Development Without Consent. Early Works will be completed prior to the commencement of the works sought for approval under the SSDA.

Accordingly, the purpose of this report is to assess the potential impact of the proposed development on the subject trees, as well as provide recommendations for construction methodology where necessary to minimise any adverse impact. The report also provides recommended tree protection measures to ensure the long-term preservation of the trees to be retained where appropriate.

***Table 2** - Relevant Planning Secretary's Environmental Assessment Requirements*

SEARs item	Response
8. Trees and Landscaping • Assess the number, location, condition and significance of trees to be removed and retained and note any existing canopy coverage to be retained on-site. • Provide a detailed site-wide landscape plan, that: o details the proposed site planting, including location, number and species of plantings, heights of trees at maturity and proposed canopy coverage (as a percentage of the site area) o provides evidence that opportunities to retain significant trees have been explored and/or informs the plan. o demonstrates how the proposed development would: ▪ contribute to long term landscape setting in respect of the site and streetscape. ▪ mitigate the urban heat island effect and ensure appropriate comfort levels on-site. ▪ contribute to the objective of increased urban tree canopy cover. ▪ maximise opportunities for green infrastructure, consistent with Greener Places and having regard to any bush fire risk.	This Arboricultural Impact Assessment has been prepared in accordance with the Australian Standard – AS4970:2025 *Protection of Trees on Development Sites*. Tree assessment data is presented at ***Appendix 1*** of this report. A discussion of trees proposed for removal and retention is contained at ***Section 5*** of this report. Recommended mitigation measures are outlined at ***Section 7*** of this report.

2.2 Objectives

This report has been prepared to assess the level of impact development works are likely to cause to existing trees and make a determination as to whether trees will be adversely affected. The report will provide guidance as to those trees requiring removal, retention or protection in accordance with the provisions of *AS4970-2025 Protection of trees on development sites*. Where necessary, it will also provide recommendations for design modifications and any replacement planting. As such, the objectives of this report are as follows:

- Assess the current site and growing conditions of trees;
- Assess the current health, condition, lifespan & significance of the trees within the site;
- Identify relative retention values of trees within the site;
- Calculate anticipated encroachment levels resulting from proposed works;
- Determine the likely impact as a result of the calculated encroachments;
- Assess potential for retention and protection of trees where possible;
- Advise any design modifications necessary to retain important trees;
- Recommend tree and root sensitive design and construction methodologies to mitigate impacts to trees to be retained;
- Inform of any tree removal necessary due to unsustainable impacts;

No aerial inspection, root mapping or internal diagnostic testing have been carried out as part of this report. Additionally, no cation exchange capacity testing or plant tissue analysis has been undertaken.

2.3 Legislation & Regulating Documents

This Arboricultural Impact Assessment has considered the following regulatory documents:

- *State Environmental Planning Policy (Biodiversity and Conservation) 2021*
- *The Hills Local Environmental Plan (LEP) 2019*
- *The Hills Development Control Plan (DCP) 2012*
- *Greater Sydney Regional Strategic Weed Management Plan 2023-2027*

2.4 Documentation Received

The following documents were received and have been relied upon for this Assessment:

***Table 2** – Documentation received and reviewed as part of the Arboricultural Impact Assessment*

Document Description	Author	Revision No. / Date
Architectural Plans	HDR	E / 27 June 2025
Landscape Plans	Site Image	D / 27 June 2025
Civil Engineering Plans	ACOR	0 / 15 August 2025
Detail Survey	Project Surveyors	L / 11 June 2025

Note: care has been taken to obtain all information from reliable sources; however, the author makes no representations, guarantees or warranties as to the accuracy of information provided by others. No other information has been reviewed, should this become available impacts may be subject to change.

2.5 The Site

The Rouse Hill Hospital is to be located on the corner of Commercial Road and Windsor Road, Rouse Hill. The hospital site boundary is legally described as Lots 311 & 312, DP 1274392 (totalling 2.2ha). The SSDA site will extend to the full extent of works including the hospital site, footpath connection (Part Lot 229, DP 1249147), construction compounds (Part Lot 229, DP 1249147) and works to Commercial Rd (Lot 2011, DP 1131519 and Lot 101, DP1060353). The hospital site currently contains underground electrical transmission infrastructure and historically cleared land and features a relatively consistent grade, falling 8.4m from the northern boundary (RL57.6) to the southern boundary (RL49.2)

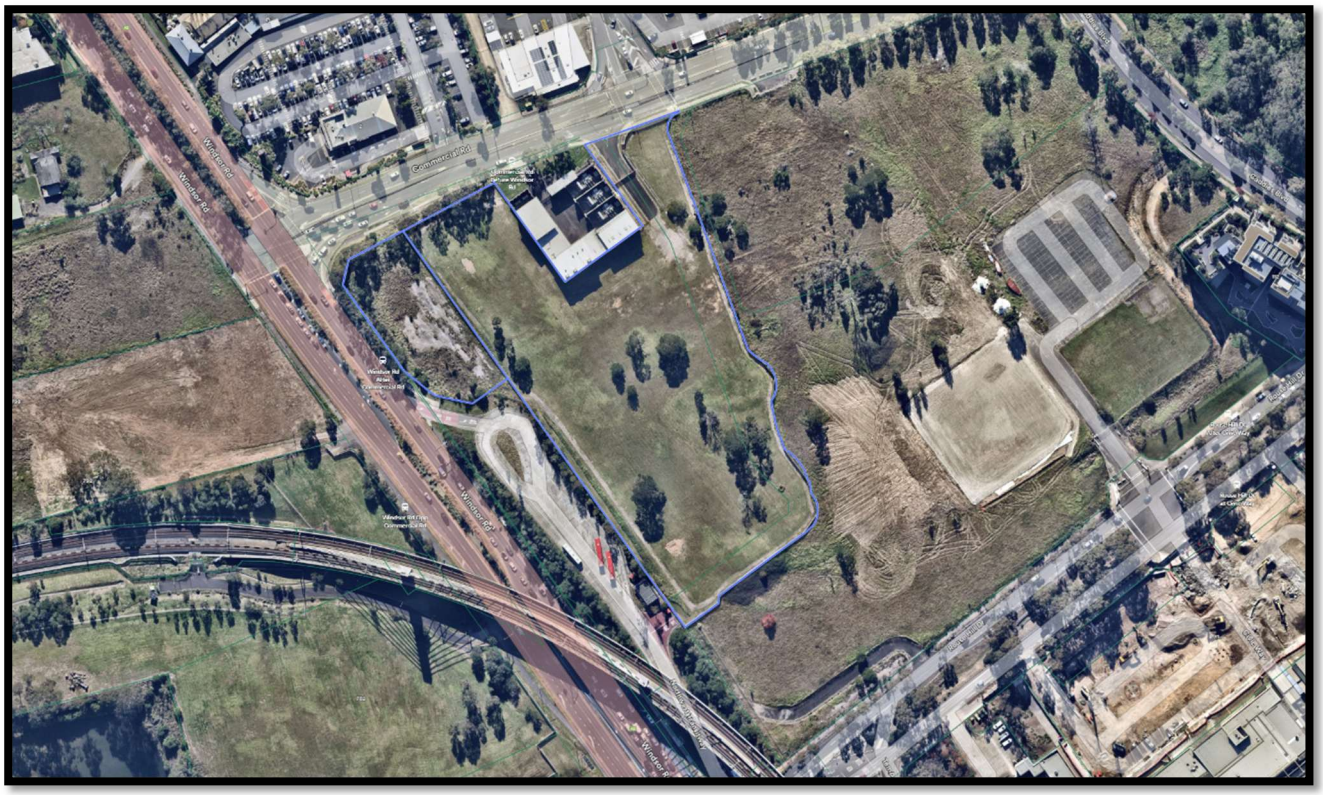

Figure 1 *- Aerial image indicating the study area (outlined* blue*). Source: Nearmap* – 6 June 2025

2.6 Proposed Construction Works

The proposed development is for construction works associated with the Rouse Hill Hospital. Works include site preparation including earthworks and tree removal, construction of internal roads with access from Commercial Road, upgrade of Commercial Road/Hospital Road Intersection, incoming electrical and communications services, construction of hospital buildings up to eleven (11) storeys, construction of a ten (10) storey above-ground car park, pedestrian and cycle pathway connections, landscaping, and ancillary works to Commercial Road, comprising minor works to provide access from Commercial Road into Hospital Road and associated tree removal (refer to ***Figures 2-3*** below). Specifically, those works considered likely to impact the existing trees on the subject site include the Commercial Road works as well as the pedestrian and cycle pathway connections.

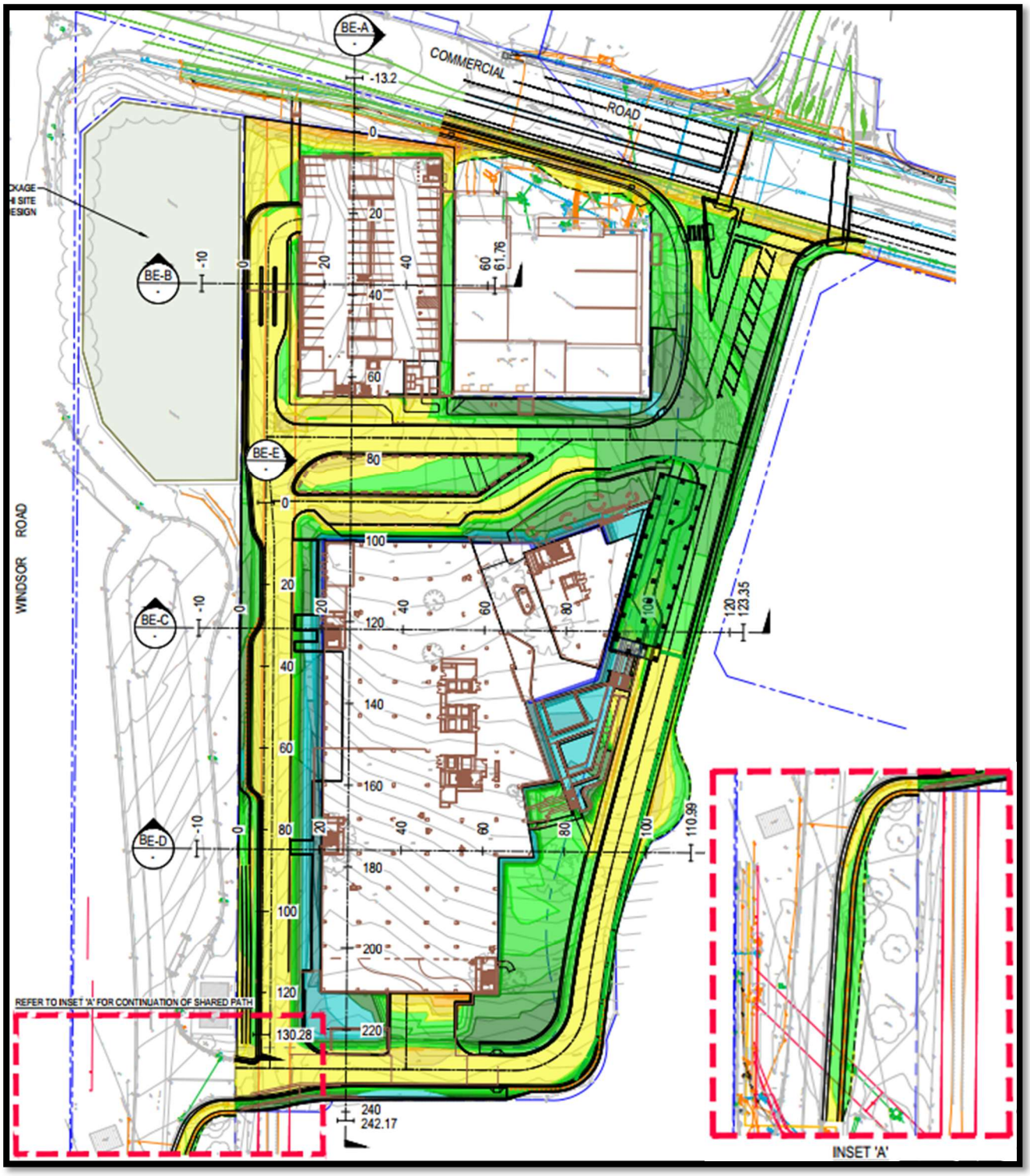

Figure 2 *– SSDA Bulk Earthworks Plan extract showing the extent of proposed bulk earthworks*
Source*: ACOR Consultants Pty Ltd – 15 August 2025*

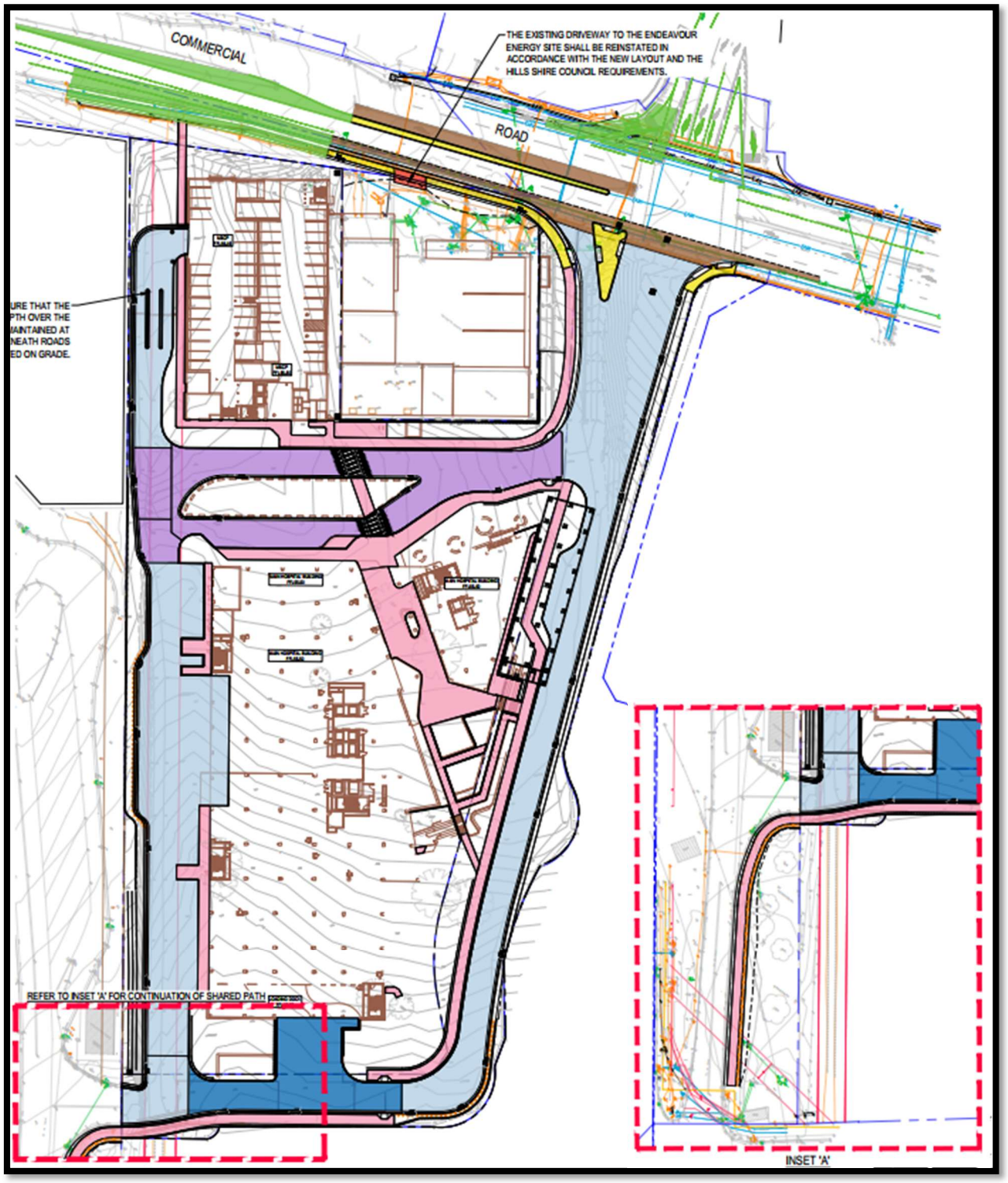

Figure 3 *– SSDA Pavement Plan extract showing the extent of proposed Commercial Road Works and pedestrian, cycle pathway connection (refer to INSET 'A')*[1].
Source*: ACOR Consultants Pty Ltd – 15 August 2025*

[1] ***Note:*** *The road layout design, Commercial Road intersection layout and external shared path are currently under review by Council and TfNSW. These elements are subject to change pending the outcome of the review process.*

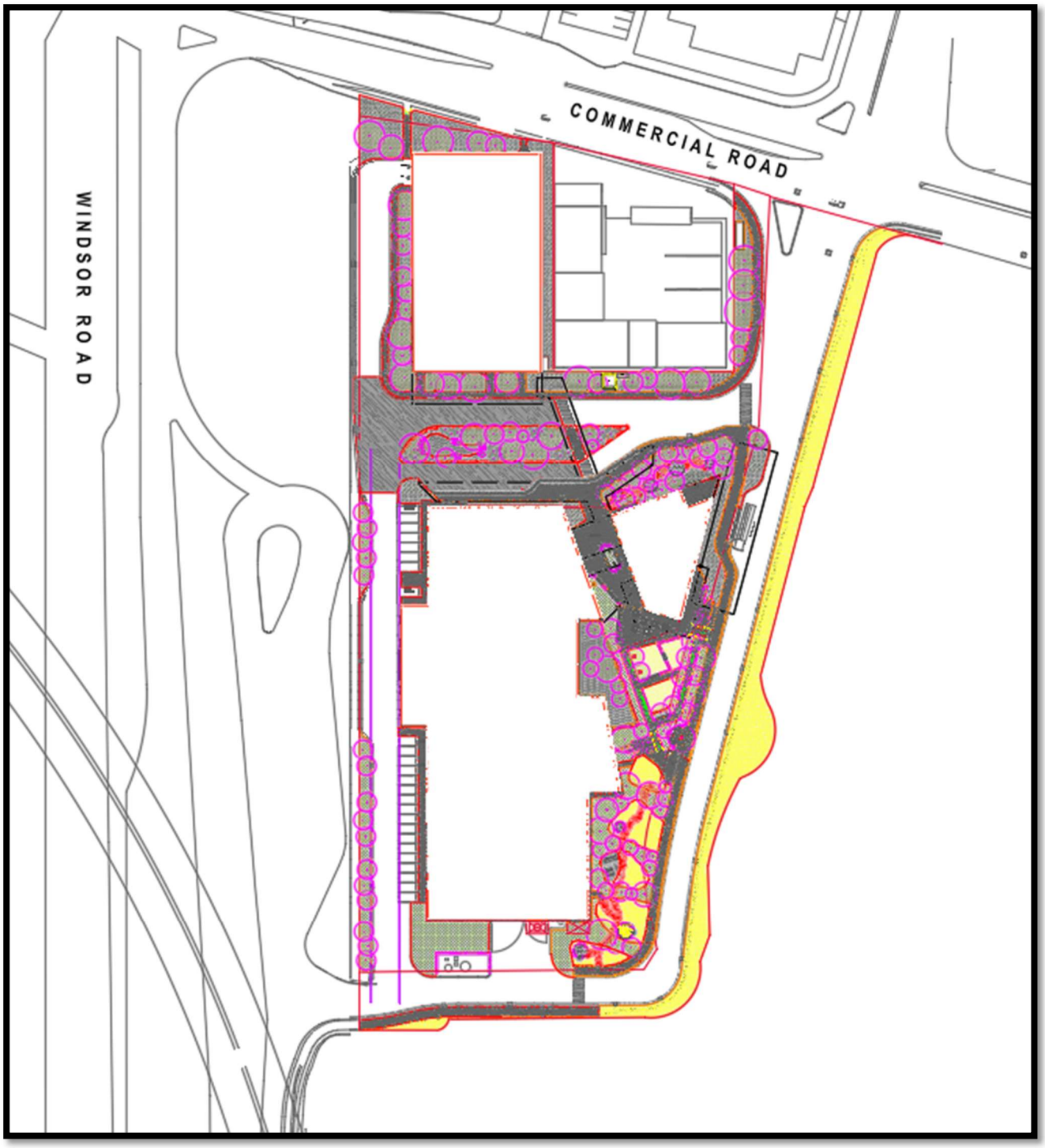

Figure 4 *– Ground Floor Plan extract showing layout of the proposed development*
Source*: HDR – 27 June 2025*

2.7 Limitations

Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are valid for one (1) year only from the date of the report, unless otherwise stated. Any changes to the site as it stands at present, for example building extensions, excavation works, importing of soils, extreme weather events etc. will invalidate this report. Any reproduction of this report must be in full colour using the report in its entirety.

3 METHOD

3.1 Method

3.1.1 Site Inspection

A site inspection was carried out by the author with the subject trees and the general growing environment evaluated on the 29th of May 2025. The weather at the time of inspections was sunny and dry with good visibility.

Trees were inspected from ground level utilising an adaptation of the Visual Tree Assessment (VTA) methods described by Mattheck and Breloer (Mattheck & Breloer, 1994) with the following information recorded and provided in tabulated form at ***Appendix 1***:

- Tree Species (Botanical & Common Name);
- Approximate height;
- Approximate canopy spread;
- Trunk Diameter (measured at 1.4 metres from ground level);
- Trunk Diameter at base (above root crown);
- Age class;
- Health & vigour; using 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;
- Useful Life Expectancy (ULE).

3.1.2 Tree Location and Identification

Where provided, the location of assessed trees has been informed by the Detail Survey prepared by Project Surveyors dated 11 June 2025. Where trees were not formally surveyed, their locations have been obtained onsite using a Trimble TDC600 GNSS Receiver delivering sub-metre accuracy.

3.1.3 Useful Life Expectancy (ULE)

The remaining Useful Life Expectancy of a tree is an estimate of the sustainability of the tree in the landscape, calculated based on an estimate of the average age of the species in an urban area, less its estimated current age. The life expectancy of each tree has been further modified where necessary in consideration of its current health, vigour, condition and suitability to the site. The estimated ULE of each tree is shown in ***Appendix 1***.

The following ranges have been allocated to each tree:

- Long ULE: Trees that appear to be retainable for > 40 years.
- Medium ULE: Trees that appear to be retainable for 15 to 40 years.
- Short ULE: Trees that appear to be retainable for 5–15 years.
- Remove: Trees that would need removing within the next 5 years.
- Small, Young or Regularly Pruned.

3.1.4 Landscape Significance

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. Several factors contribute towards the assessment of a tree's significance including but not limited to condition and vigour, form, visual prominence, heritage status, indigeneity, legislative protection, cultural sentiment and future growth potential.

For the purposes of this report the Australian Institute of Consulting Arborists (IACA) Significance of a Tree, Assessment Rating System (STARS)© has been utilised. The system uses a scale of High, Medium and Low significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Appendix 3 provides a full outline of assessment criteria for each significance rating as per IACA STARS (2010).

3.1.5 Retention Value

Retention values have been determined for each tree on site to establish a hierarchy for tree retention. Retention values are based on estimated life spans and their associated landscape significance rating in accordance with the Tree Retention Value Priority Matrix. This matrix established the following retention values and can be found at ***Appendix 3*** with attributed retention values found within ***Appendix 1***:

- Priority for Retention (High)
- Consider for Retention (Medium)
- Consider for Removal (Low)
- Priority for Removal

3.1.6 AS4970-2025 Protection of Trees on Development Sites

The Australian Standard, *AS4970-2025- 'Protection of trees on development sites'*, has been used as a guide to provide recommendations for the assessed trees. The Standard provides guidance on the principles for protecting trees on land subject to development as well as principles for determining viability of tree retention. Terminology and recommended methods are consistent with *AS4970-2025*.

3.1.7 Notional Root Zones

The assessed trees have been allocated Notional Root Zones (NRZ). The Australian Standard, *AS4970-2025- 'Protection of trees on development sites'*, has been used as a guide in the allocation of NRZs for the assessed trees. The NRZ is calculated based on trunk (stem) diameter at standard height (DSH), measured at 1.4 metres above ground level. The radius of the NRZ is calculated by multiplying the trees DSH by 12. The method provides a NRZ that addresses health and growing requirements of a tree as well as the trees stability. NRZ distances are measured as a radius from the centre of the trunk at (or near) ground level. The maximum NRZ should be no more than 15m radius and the minimum NRZ should be no less than 2m radius.

An extract of the *AS4970-2025* for calculating NRZ has been provided at ***Appendix 4*** for reference.

3.1.8 Structural Root Zone

The assessed trees have been allocated Structural Root Zones (SRZ). The Australian Standard, *AS4970-2025 - 'Protection of trees on development sites'*, has been used as a guide in the allocation of SRZ's for the assessed trees. The SRZ is a notional area extending outwards from the centre of the trunk required for tree stability and is calculated as follows:

SRZ (Radius) = (D x 50)$^{0.42}$ x 0.64

3.1.9 Tree Protection Zone

Using the NRZ as a starting point, a Tree Protection Zone (TPZ) is a specified area located both above and below ground that is required for the protection of trees during development works. The purpose of a TPZ is to protect of a tree's roots and crown throughout the development process via the installation of tree protection measures and appropriate site management. The location and alignment of specified TPZs are shown in the Tree Location Plans held at ***Appendix 2***.

4 OBSERVATIONS

4.1 General

The site area subject to this assessment was observed as highly disturbed with historical clearing, introduction of exotic grasses and vegetation, and native understorey regrowth. Species observed varied including exotic, Australian native and locally indigenous species. Health, vigour and condition was also highly varied across the trees forming part of the assessment. Root zones of assessed trees were generally observed as modified groundcover within deep soil areas.

4.2 Tree Preservation Order

Part C Section 3, Chapter 2.4: Tree Management Provisions of The Hills DCP 2012 applies to all trees and native vegetation within the Hills Shire Local Government Area. The provisions included within the DCP generally protect any tree that corresponds with the following criteria:

i. *A spread of more than 3 metres or;*
ii. *A height of more than 6 metres or;*
iii. *A trunk diameter of more than 300mm measured at the base.*

4.3 The Trees

A total of one hundred and thirty-seven (137)) trees were observed on and adjoining the subject site, and within proximity to the proposed works. All tree data recorded on site has been tabulated and is contained at ***Appendix 1***. Each tree has been provided with an identification number for reference purposes and is denoted on the Tree Location Plan held at ***Appendix 2***.

Trees 1-7 are located on the northern side of Commercial Road and within the neighbouring allotments; Lot 101, DP 1058862 and Lot 1, DP 1204916.

Trees 8-17 are located to the east of the subject site within neighbouring allotments: Lots 27 & 32, DP 270520.

Trees 43-54, 56, 57, 59, 60, 62, 65-71 & **73-90** are located to the north of site and within the Commercial Road verge: Lot 101 DP1060353. **Trees 43, 44, 45, 46** & **52** (*Corymbia maculata*) growing adjacent to the existing pedestrian pathway were assessed to hold 'high' retention value. The majority of remaining trees consisted of semi-mature native tree species and native understorey regrowth that were assessed to hold 'medium/low' retention value.

Trees 91-120 are located to the west of site and within the Windsor Road Council verge. The majority of trees were observed to be locally native species.

Tree 121 is located within the site area comprised of part Lot 229 DP 1249147. This tree is a semi-mature native tree species and with native understorey regrowth that was assessed to hold 'low' retention value.

Trees 143, 145, 146, 148-156, 158-163 & **165-194** are located to the south and west of the subject site within the neighbouring allotment: Lot 229 DP 1249147 and the adjacent existing North-West T-Way. The majority of trees were observed to be semi-mature locally native species.

5 DISCUSSION

5.1 Impact Assessment

The impact assessment is to calculate the incursions to the root zones and canopies as a result of the proposed construction works and evaluate the likely impact of the proposed works on the subject trees. A summary of the impacts anticipated is contained within the Tree Schedule at ***Appendix 1***. Additionally, plans demonstrating the level of incursion and conflict to NRZ's and SRZ's can be found at ***Appendix 2***. As part of the assessment the following criteria have been considered:

- Existing Relative Levels (R.L.);
- Proposed Relative Levels;
- Notional Root Zones (NRZ);
- Structural Root Zones (SRZ);
- Footprint of the proposed development;
- Incursions to the NRZ & SRZ;
- Incursions to the tree canopy from vehicles and equipment;
- Pruning necessary for clearance;
- Remediation works for soil contaminants;
- Species tolerance to disturbance; and
- Assessment of the likely impact of the works on existing trees.

5.2 Trees Recommended for Removal

Should the proposed works proceed in their current form, it is recommended that eight (8) trees be removed. This includes **Trees 43-46, 168, 171** & **176-177**. Removals have been recommended based upon:

- trees being in direct conflict with the proposed bulk earthworks as part of the Commercial Road works;
- trees being in direct conflict with the proposed bulk earthworks for the pedestrian and cycle pathway connection;

Four (4) of those trees (**Trees 43-46**) nominated for removal are noted to be located within the adjoining Commercial Road Council verge / Lot 101 DP1060353. In addition four (4) trees nominated for removal are located within the allotment: Lot 229 DP1249147 (**Trees 168, 171** & **176-177**).

Table 3 below provides a summary of impacts to be sustained as part of the proposed works and subsequent reasoning for removal.

Refer to ***Appendix 2*** for a plan indicating the location of the tree that will require removal (dashed red).

***Table 3** – Trees recommended for removal*

Reason for Removal	**Trees Recommended for Removal**				
	High Retention Value	**Medium Retention Value**	**Low Retention Value**	**Dead**	**Total**
Full encroachment - within the footprint of the proposed bulk earthworks as part of Commercial Road works.	***4 Trees*** *Trees 43, 44, 45, 46*	**-**	**-**	-	**4 Trees**
Full encroachment - within the footprint of the proposed bulk earthworks for pedestrian and cycle pathway connection.	**-**	**-**	***4 Trees*** *Trees 168, 171, 176 & 177*	-	**4 Trees**
				Total	**8 Trees**

5.3 Recommended for Retention & Protection

Should the proposed works proceed in their current form, it is recommended that one hundred and twenty-nine (129) trees (**Trees 1-7, 9-17, 47-52, 53-54, 56-57, 59-60, 62, 65-71, 73-121, 143, 145-146, 148-156, 158-163, 165-167, 169-170, 172-175** & **178-194**) be retained and protected. Impacts from the proposed works are likely to be sustainable with minimal impact to health and condition subject to the implementation of tree protection measures as per ***Section 7***.

Refer to ***Appendix 2*** for a plan indicating the location of trees that are to be retained and protected (shaded green).

Table 4 *– Trees recommended for retention & protection*

Works Within the Notional Root Zone (NRZ)	**Trees Recommended for Retention & Protection**				
	High Retention Value	**Medium Retention Value**	**Low Retention Value**	**Dead**	**Total**
Minor NRZ encroachment (2-9%) from proposed bulk earthworks for hospital site or the pedestrian and cycle pathway connection	***1 Tree*** *Tree 67*	-	***1 Tree*** *Tree 182*	-	**2 Trees**
No works proposed within the NRZ.	***16 Trees*** *Trees 1, 3, 7, 52, 74, 91, 100, 102, 107, 109, 113-114, 162, 165-166 & 194*	***30 Trees*** *Trees 2, 4-6, 10, 12, 16, 47-51, 65-66, 77, 84, 87, 94, 96, 98, 105, 119-120, 149, 151, 153, 160, 169, 170 & 181*	***80 Trees*** *Trees 9, 11, 14-15, 17, 53-54, 56-57, 59, 60, 62, 68-71, 73, 75-76, 78-83, 85-86, 88-90, 92-93, 95, 97, 99, 101, 103-104, 106, 108, 110-112, 115-118, 121, 143, 145-146, 148, 150, 152, 154-156, 158-159, 161, 163, 167, 172-175, 178-180 & 183-193*	***1 Tree*** *Tree 13*	**127 Trees**
				Total	**129 Trees**

Ten (10) of those trees (**Trees 86-87, 91, 102, 107, 111, 114, 119, 143** & **160**) nominated for retention are subject to apparent NRZ encroachment from the proposed visitor / contractor car parking area. Impacts from these works have already been addressed in the AIA for the Rouse Hill Hospital Early Works to be undertaken as Development Without Consent under a separate planning application. As such, these trees are unlikely to be impacted by the proposed SSDA for the Rouse Hill Hospital main works.

5.4 Ancillary Construction Related Impacts

Vehicles, machinery and equipment requiring access to the site have potential to result in inadvertent impacts to those trees being retained including compaction of the root zone, soil disturbance, physical damage to roots, trunk damage etc. and as such will require management.

Furthermore, storage and stockpiling of material may result in similar impacts and will require management. In this regard, protection for those trees to be retained is to be carried out in accordance with ***Appendix 5***.

6 CONCLUSION

6.1 Proposed Development Impact

Based on the plans and information supplied, the proposal would result in the following impacts to existing trees on site:

Removal of eight (8) trees, including:

- Four (4) trees (**Trees 43, 44, 45** & **46**) being in direct conflict with the proposed bulk earthworks as part of the Commercial Road works;

  Four (4) trees (**Trees 168, 171, 176** & **177**) being in direct conflict with the proposed bulk earthworks for the pedestrian and cycle pathway connection.

Retention and protection of one hundred and twenty-nine (129) trees, including:

- One hundred and twenty-nine (129) trees (**Trees 1-7, 9-17, 47-52, 53-54, 56-57, 59-60, 62, 65-71, 73-121, 143, 145-146, 148-156, 158-163, 165-167, 169-170, 172-175** & **178-194**) that are to be subject to either nil or 'Minor' encroachment their respective NRZs.

Impacts are unlikely to result in decline to health and viability of trees nominated for retention pending implementation of tree protection measures and Project Arborist supervision. Any significant departures from the protection measures may result in a reduced Useful Life Expectancy and/or tree removal.

Specific recommendations as per ***Section 7*** will need to be adopted to ensure potential negative impacts to trees nominated for retention are mitigated.

7 RECOMMENDATIONS

7.1 Tree Removal

Remove **Trees 43-46, 168, 171** & **176-177** (8 trees) to facilitate the proposed development works.

Development consent and relevant approvals must be obtained prior to the removal or pruning of any tree.

All tree removal work is to be carried out by an experienced Arborist with minimum AQF Level 3 qualifications in accordance with *AS4373-2007 - Pruning of Amenity Trees*, Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation.

7.2 Tree Retention & Protection

Retain and protect **Trees 1-7, 9-17, 47-52, 53-54, 56-57, 59-60, 62, 65-71, 73-121, 143, 145-146, 148-156, 158-163, 165-167, 169-170, 172-175** & **178-194** (129 trees) in accordance with the Tree Location Plan & Tree Protection Specifications held at ***Appendices 2 & 5***, *AS497-2025 Protection of trees on development sites* and the specific recommendations below:

7.2.1 Project Arborist Engagement

A Project Arborist experienced in tree protection on construction sites should be engaged prior to the commencement of any works on site. The Project Arborist shall monitor and report regularly to the Principal Certifying Authority (PCA) and the Applicant on the condition and protection of the retained trees during the works. The Project Arborist is to supervise and monitor any excavation, machine trenching or compacted fill placement within the NRZ of retained trees throughout construction.

7.2.2 Specific Tree Protection Measures

Tree Protection Fencing must be installed as shown on the Tree Location & Protection Plan Specification held at ***Appendix 2*** and in accordance with Section 4.3 of AS4970-2025 and ***Appendix 6***. Elsewhere, existing boundary site fencing has been determined as suitable to restrict and isolate the Tree Protection Zones (TPZs) of trees nominated for retention. Any additional Tree Protection should be installed under direction from the Project Arborist and in accordance with Section 4 of AS4970-2025 and ***Appendix 6***. Tree protection must not be removed or altered without prior approval of the Project Arborist.

8 REFERENCES

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APPENDIX 1: TREE ASSESSMENT DATA SCHEDULE

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
1	*Brachychiton rupestris*	QLD Bottle Tree	11	5	1450	1150	15.00	3.51	M	Average	Fair	Medium 15-40 years	High	High	No works proposed within NRZ	Retain	Southern canopy pruned. Fairy lights fixed to trunk and branches
2	*Livistona sp.*	Fan Palm	8	4	400	950	3.00	N/A	M	Good	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Swollen base
3	*Brachychiton rupestris*	QLD Bottle Tree	11	5	1350	1000	15.00	3.31	M	Average	Fair	Medium 15-40 years	High	High	No works proposed within NRZ	Retain	Cavity/hollow in NE trunk. Canopy bias north. Branch failures. Fairy lights fixed to trunk and branches
4	*Eucalyptus tereticornis*	Forest Red Gum	10	6	250	300	3.00	2.00	SM	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Growing in confined garden bed
5	*Eucalyptus moluccana*	Grey Box	14	6	250, 250	500	4.24	2.47	SM	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Growing in confined garden bed
6	*Pyrus calleryana*	Callery Pear	6	3	150	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Bark lower trunk delaminated
7	*Eucalyptus tereticornis*	Forest Red Gum	13	9	400	400	4.80	2.25	M	Average	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Included branch unions
9	*Acacia parramattensis*	Parramatta Wattle	6	7	200, 150, 150	300	3.50	2.00	OM	Fair	Poor	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Branch dieback. Severe borer infestation
10	*Eucalyptus sp.*	Eucalyptus	6	1	50	100	2.00	1.50	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Multiple Acacia shrubs growing near base
11	*Acacia parramattensis*	Parramatta Wattle	5	7	200, 200	350	3.39	2.13	OM	Average	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Moderate borer infestation. Fungal fruiting body at base of trunk
12	*Acacia parramattensis*	Parramatta Wattle	5	6	200	250	2.40	1.85	M	Good	Good	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
13	*Dead tree*	-	6	4	400	500	-	-	-	-	-	Dead	Low	Dead	No works proposed in proximity	Retain	Dead tree. No habit or hollows observed
14	*Acacia parramattensis*	Parramatta Wattle	6	6	100, 100, 100	300	2.08	2.00	OM	Fair	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Branch dieback. Moderate borer infestation
15	*Acacia parramattensis*	Parramatta Wattle	4	4	50, 50, 50, 50	250	2.00	1.85	M	Fair	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Borer infestation. Fungal fruiting bodies at base of trunk
16	*Pinus radiata*	Radiata Pine	15	11	650	700	7.80	2.85	M	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Branch dieback
17	*Pyrus calleryana*	Callery Pear	5	3	50, 50, 50, 50	100	2.00	1.50	SM	Good	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Surrounded by blackberry
43	*Corymbia maculata*	Spotted Gum	17	10	450	500	5.40	2.47	M	Average	Average	Long 40 years +	Medium	High	Within footprint of proposed bulk earthworks as part of Commerical Road works	Remove	Adjoining pathway cracked/lifting
44	*Corymbia maculata*	Spotted Gum	12	7	250	300	3.00	2.00	M	Average	Average	Long 40 years +	Medium	High	Within footprint of proposed bulk earthworks as part of Commerical Road works	Remove	Nil
45	*Corymbia maculata*	Spotted Gum	14	9	400	450	4.80	2.37	M	Average	Average	Long 40 years +	Medium	High	Within footprint of proposed bulk earthworks as part of Commerical Road works	Remove	Nil
46	*Corymbia maculata*	Spotted Gum	14	9	400	450	4.80	2.37	M	Average	Average	Long 40 years +	Medium	High	Within footprint of proposed bulk earthworks as part of Commerical Road works	Remove	Nil

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
47	*Eucalyptus tereticornis*	Forest Red Gum	7	2	100	150	2.00	1.50	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil
48	*Eucalyptus tereticornis*	Forest Red Gum	15	10	300	350	3.60	2.13	M	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
49	*Eucalyptus crebra*	Narrow-leaved Ironbark	10	7	200	200	2.40	1.68	SM	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
50	*Acacia binervata*	Two-veined Hickory	12	8	200, 200	400	3.39	2.25	M	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
51	*Eucalyptus crebra*	Narrow-leaved Ironbark	14	10	200, 200	300	3.39	2.00	SM	Fair	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
52	*Corymbia maculata*	Spotted Gum	14	7	300	350	3.60	2.13	M	Good	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
53	*Acacia decurrens*	Early Black Wattle	6	3	100	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
54	*Eucalyptus tereticornis*	Forest Red Gum	6	2	100	150	2.00	1.50	SM	Fair	Fair	Medium 15-40 years	Low	Low	Minor 5% NRZ encroachment from proposed footpath extents as part of Commercial Road works	Retain	Nil
56	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	100	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
57	*Acacia decurrens*	Early Black Wattle	5	4	100	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
59	*Melaleuca nodosa*	Prickly-leaved paperbark	4	3	100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
60	*Melaleuca nodosa*	Prickly-leaved paperbark	3	3	100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
62	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
65	*Eucalyptus tereticornis*	Forest Red Gum	7	2	100	150	2.00	1.50	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil
66	*Eucalyptus tereticornis*	Forest Red Gum	10	5	200	250	2.40	1.85	SM	Fair	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
67	*Eucalyptus tereticornis*	Forest Red Gum	14	11	350	350	4.20	2.13	M	Average	Average	Long 40 years +	Medium	High	Minor 9% NRZ encroachment from proposed bulk earthworks extents for hospital site	Retain	Nil
68	*Eucalyptus crebra*	Narrow-leaved Ironbark	12	11	250	300	3.00	2.00	M	Average	Average	Long 40 years +	Medium	High	Minor 2% NRZ encroachment from bulk earthworks extents fro Commerical Road works	Retain	Nil
69	*Acacia decurrens*	Early Black Wattle	4	2	100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
70	*Acacia decurrens*	Early Black Wattle	8	3	100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Bursaria shrubs growing near base
71	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	100, 100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
73	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	100, 100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
74	*Eucalyptus tereticornis*	Forest Red Gum	14	9	300	350	3.60	2.13	M	Average	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Juvenile Phoenix Palms growing nearbase
75	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	100, 100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
76	*Melaleuca nodosa*	Prickly-leaved paperbark	4	2	100, 100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
77	*Eucalyptus tereticornis*	Forest Red Gum	13	7	200	250	2.40	1.85	M	Average	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Bursaria shrubs growing near base
78	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	100, 100	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
79	*Eucalyptus tereticornis*	Forest Red Gum	10	3	150	200	2.00	1.68	SM	Poor	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Very sparse canopy
80	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	50, 50, 50, 50	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
81	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	50, 50, 50, 50	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
82	*Melaleuca nodosa*	Prickly-leaved paperbark	3	2	100, 100	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
83	*Melaleuca nodosa*	Prickly-leaved paperbark	4	2	100, 50, 50, 50	150	2.00	1.50	M	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
84	*Eucalyptus tereticornis*	Forest Red Gum	12	9	300	350	3.60	2.13	M	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Sparse canopy
85	*Melaleuca nodosa*	Prickly-leaved paperbark	5	3	100, 100, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
86	*Melaleuca nodosa*	Prickly-leaved paperbark	5	3	100, 100, 50	200	2	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
87	*Eucalyptus tereticornis*	Forest Red Gum	13	10	300	350	3.6	2.13	M	Average	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
88	*Cotoneaster glaucophyllus*	Cotoneaster	4	5	50, 50, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
89	*Melaleuca nodosa*	Prickly-leaved paperbark	5	2	100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
90	*Melaleuca nodosa*	Prickly-leaved paperbark	4	3	100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
91	*Eucalyptus crebra*	Narrow-leaved Ironbark	11	6	250	300	3	2	M	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Branch tear out
92	*Melaleuca nodosa*	Prickly-leaved paperbark	4	3	100, 100, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
93	*Olea europaea subsp. cuspidata*	African Olive	4	4	100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
94	*Eucalyptus tereticornis*	Forest Red Gum	14	8	200	250	2.40	1.85	M	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
95	***Melaleuca nodosa***	Prickly-leaved paperbark	4	3	100, 100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
96	***Eucalyptus tereticornis***	Forest Red Gum	14	6	200	250	2.40	1.85	M	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Sparse canopy
97	***Melaleuca nodosa***	Prickly-leaved paperbark	5	2	100, 50, 50	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
98	***Eucalyptus tereticornis***	Forest Red Gum	14	5	200, 150	300	3.00	2.00	M	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Sparse canopy. Slender form
99	***Melaleuca nodosa***	Prickly-leaved paperbark	3	3	100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of three
100	***Eucalyptus tereticornis***	Forest Red Gum	15	6	250	300	3.00	2.00	M	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
101	***Melaleuca nodosa***	Prickly-leaved paperbark	3	3	100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
102	***Eucalyptus tereticornis***	Forest Red Gum	16	8	300	350	3.60	2.13	M	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
103	***Melaleuca nodosa***	Prickly-leaved paperbark	3	2	100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of two
104	***Melaleuca nodosa***	Prickly-leaved paperbark	4	3	100, 100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
105	***Eucalyptus tereticornis***	Forest Red Gum	14	6	250	300	3.00	2.00	M	Fair	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Sparse canopy. Slender form
106	***Melaleuca nodosa***	Prickly-leaved paperbark	4	3	100, 100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
107	***Eucalyptus tereticornis***	Forest Red Gum	14	6	250	300	3	2	M	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Slender form
108	***Melaleuca nodosa***	Prickly-leaved paperbark	4	2	100, 100, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of two
109	***Eucalyptus tereticornis***	Forest Red Gum	14	7	250	300	3.00	2.00	M	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Slender form
110	***Melaleuca nodosa***	Prickly-leaved paperbark	4	2	100, 100, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of two
111	***Acacia decurrens***	Early Black Wattle	7	3	100	100	2	1.5	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
112	***Melaleuca nodosa***	Prickly-leaved paperbark	4	2	100, 100, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of two
113	***Eucalyptus tereticornis***	Forest Red Gum	15	8	300	350	3.60	2.13	M	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
114	***Eucalyptus tereticornis***	Forest Red Gum	12	11	300	350	3.6	2.13	M	Average	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
115	***Melaleuca nodosa***	Prickly-leaved paperbark	4	2	100, 100, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of two

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
116	***Eucalyptus tereticornis***	Forest Red Gum	9	3	150	200	2.00	1.68	SM	Fair	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Trunk wounding and decay
117	***Melaleuca nodosa***	Prickly-leaved paperbark	4	3	100, 100, 50, 50	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of two
118	***Eucalyptus tereticornis***	Forest Red Gum	7	2	100, 100	200	2.00	1.68	SM	Fair	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
119	***Eucalyptus moluccana***	Grey Box	8	4	150, 150, 100, 100	250	3.06	1.85	SM	Average	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Coppiced regrowth from stump
120	***Eucalyptus crebra***	Narrow-leaved Ironbark	9	4	150, 100	200	2.16	1.68	SM	Good	Fair	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Twin trunks
121	***Acacia decurrens***	Early Black Wattle	4	2	100	150	2.00	1.50	M	Fair	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Moderate borer infestation near base. Bursaria shrubs near base
143	***Acacia decurrens***	Early Black Wattle	5	4	100, 50, 50	150	2	1.5	OM	Fair	Fair	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Extensive borer infestation
145	***Casuarina glauca***	Swamp Oak	5	2	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
146	***Acacia decurrens***	Early Black Wattle	5	2	100	150	2.00	1.50	OM	Poor	Fair	Very Short < 5 years	Low	Low	No works proposed within NRZ	Retain	Group of three
148	***Melaleuca styphelioides***	Prickly-leaved Paperbark	4	3	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 4
149	***Casuarina glauca***	Swamp Oak	10	6	150	200	2.00	1.68	SM	Good	Average	Medium 15-40 years	Medium	Medium	No works proposed within NRZ	Retain	Nil
150	***Acacia decurrens***	Early Black Wattle	6	5	100, 100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
151	***Eucalyptus moluccana***	Grey Box	9	3	150	200	2.00	1.68	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil
152	***Casuarina glauca***	Swamp Oak	7	3	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
153	***Eucalyptus tereticornis***	Forest Red Gum	9	5	150	200	2.00	1.68	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil
154	***Acacia decurrens***	Early Black Wattle	6	5	150	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
155	***Acacia saligna***	Golden Wreath Wattle	3	4	50, 50	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
156	***Melaleuca styphelioides***	Prickly-leaved Paperbark	4	3	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
158	***Casuarina glauca***	Swamp Oak	7	2	50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
159	***Casuarina glauca***	Swamp Oak	6	2	50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 7
160	***Eucalyptus tereticornis***	Forest Red Gum	11	4	200	250	2.4	1.85	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil

Tree No.	Genus & species	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
161	***Melaleuca styphelioides***	Prickly-leaved Paperbark	4	2	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 4 melaleucas
162	***Corymbia maculata***	Spotted Gum	12	5	200	200	2.40	1.68	SM	Good	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
163	***Acacia decurrens***	Early Black Wattle	6	5	150	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
165	***Eucalyptus moluccana***	Grey Box	12	5	200	250	2.40	1.85	SM	Average	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil
166	***Eucalyptus moluccana***	Grey Box	12	5	200	250	2.40	1.85	SM	Average	Fair	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Branch failure
167	***Melaleuca decora***	White Feather Honey Myrtle	5	2	100, 50	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
168	***Acacia decurrens***	Early Black Wattle	8	5	150	200	2.00	1.68	M	Average	Average	Medium 15-40 years	Low	Low	WIthin proposed bulk earthworks for pedestrian and cycle pathway connection	Remove	Group of 5
169	***Eucalyptus tereticornis***	Forest Red Gum	10	4	200	250	2.40	1.85	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil
170	***Eucalyptus tereticornis***	Forest Red Gum	11	4	150	200	2.00	1.68	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil
171	***Casuarina glauca***	Swamp Oak	6	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	WIthin proposed bulk earthworks for pedestrian and cycle pathway connection	Remove	Group of 3
172	***Acacia decurrens***	Early Black Wattle	6	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 5
173	***Acacia decurrens***	Early Black Wattle	7	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 2
174	***Casuarina glauca***	Swamp Oak	8	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
175	***Melaleuca styphelioides***	Prickly-leaved Paperbark	5	3	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
176	***Acacia decurrens***	Early Black Wattle	6	4	100, 100	200	2.00	1.68	M	Fair	Average	Medium 15-40 years	Low	Low	WIthin proposed bulk earthworks for pedestrian and cycle pathway connection	Remove	Nil
177	***Acacia decurrens***	Early Black Wattle	8	6	100, 100	200	2.00	1.68	M	Fair	Average	Medium 15-40 years	Low	Low	WIthin proposed bulk earthworks for pedestrian and cycle pathway connection	Remove	Nil
178	***Acacia decurrens***	Early Black Wattle	5	2	100, 100	150	2.00	1.50	M	Fair	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 3
179	***Casuarina glauca***	Swamp Oak	6	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
180	***Acacia decurrens***	Early Black Wattle	6	2	100	150	2.00	1.50	M	Fair	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 3
181	***Melaleuca quinquenervia***	Broad-leaved Paperbark	6	1	50	100	2.00	1.50	SM	Average	Average	Long 40 years +	Low	Medium	No works proposed within NRZ	Retain	Nil
182	***Acacia decurrens***	Early Black Wattle	6	3	100	150	2.00	1.50	M	Fair	Average	Medium 15-40 years	Low	Low	Minor 2% NRZ incursion from proposed bulk earthworks for pedestrian and cycle pathway connection	Retain	Group of 2

Tree No.	*Genus & species*	Common Name	Height (m)	Crown Spread (m)	DSH (mm)	DGL (mm)	NRZ Radius (m)	SRZ Radius (m)	Age Class	Health / Vitality	Structure/ Condition	ULE Rating	Landscape Significance	Retention Value	Development Impact	Retain / Remove	Comments
183	***Acacia decurrens***	Early Black Wattle	8	3	150	200	2.00	1.68	M	Fair	Average	Short 5-15 years	Low	Low	No works proposed within NRZ	Retain	Group of 2
184	***Melaleuca decora***	White Feather Honey Myrtle	5	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 3
185	***Melaleuca decora***	White Feather Honey Myrtle	5	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 3
186	***Acacia decurrens***	Early Black Wattle	7	5	150, 100	250	2.16	1.85	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 2
187	***Melaleuca styphelioides***	Prickly-leaved Paperbark	5	2	50, 50	100	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Group of 3
188	***Melaleuca decora***	White Feather Honey Myrtle	5	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
189	***Melaleuca decora***	White Feather Honey Myrtle	5	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
190	***Acacia decurrens***	Early Black Wattle	4	4	100	150	2.00	1.50	M	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
191	***Casuarina glauca***	Swamp Oak	8	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
192	***Eucalyptus sp.***	Eucalyptus	4	1	50	100	2.00	1.50	SM	Average	Fair	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Covered in vine
193	***Melaleuca decora***	White Feather Honey Myrtle	4	2	100	150	2.00	1.50	SM	Average	Average	Medium 15-40 years	Low	Low	No works proposed within NRZ	Retain	Nil
194	***Eucalyptus crebra***	Narrow-leaved Ironbark	13	8	300	400	3.60	2.25	M	Good	Average	Long 40 years +	Medium	High	No works proposed within NRZ	Retain	Nil

Tree Inspection Data Notes & Terminology

Tree No. (Tree Number)
The tree number associated to each tree located on or adjacent to the subject site. Relates to the Tree Location Plan held at Appendix 2.

Botanical Name and Common Name
The botanical and common name of each tree is identified and recorded. Occasionally the exact species name is unknown; sp. is recorded to indicate this.

Height, Crown Width and DSH
- The trees height and crown spread is recorded in metres (m);
- The tree DSH is recorded in millimetres (mm). DSH is an abbreviation of Diameter (of the trunk) measured at Standard Height (or 1.4m from the base of the trunk). If more than one trunk is present the DSH is calculated in accordance with AS4970-2025 Protection of Trees on Development Sites

Age Class
The age class of each tree is estimated as either:
J – Juvenile refers to a well established but young tree
SM – Semi Mature, a tree that has not grown to mature size
M – Mature, a tree that has reached mature size and will slowly increase in size over time
OM – Over Mature, a tree that has been mature for a long period and is beginning to display signs of decline, e.g. large dead branches
S – Senescent, an over mature tree that is now in decline

Health & Condition
The trees health and vigour is recorded as a measurement of:
Good - the tree does not appear to appear stressed with no excessive dieback, insect infestation, decay, deadwood or epicormic shoots
Average - the tree appears stressed and has some crown dieback, and /or a few epicormic shoots, and/or some deadwood in the crown and some new growth at branch tips. These trees may benefit from remediation of the growing environment to reduce stress and return it to good health
Fair - the tree may have areas of crown dieback, and/or epicormic shoots, and/or areas of decay, and/or reduced new growth at branch tips. These trees have been stressed for a short period of time, remediation of the growing environment may improve trees health
Poor - the tree may have large areas of crown dieback, and/or many epicormic shoots, and/or reduced new growth at branch tips. These trees have been stressed for a long period of time, remediation of the growing environment would not return the tree to good health.

SRZ (Structural Root Zone)
The SRZ is a radial area extending outwards from the centre of the trunk. This area contains the majority of the structural woody roots. This area is responsible primarily for stability. Root damage or root loss within this zone greatly increases the opportunity for decay fungi to ingress into the heartwood, causing internal decay in addition to destabilising the trees structural integrity. The SRZ is calculated as follows (This calculation is taken from the Australian Standard 4970 – 2025 Protection of Trees on Development Sites): (D x 50)0.42 x 0.64

NRZ (Notional Root Zone)
The NRZ is a radial area measured by multiplying the DSH by twelve (12) or a circular area the size of the trees drip line, whichever is greater. This area contains the majority of the structural and feeder roots responsible for stability, gaseous exchange and water and nutrient uptake. Excavation, back filling, compaction or other disturbance should not occur in this area. The NRZ is used to identify the minimum area required for the safe retention of a given tree. This calculation is derived from the Australian Standard 4970-2025 Protection of Trees in Development Sites. An incursion up to 10% within the NRZ is potentially acceptable if no other option is available. A major encroachment (in excess of 10%) is required to be clearly justified by the Project Arborist and compensated for elsewhere. Justification methodology may vary depending on site or individual tree's health, vigour and ability to withstand disturbance and may require root investigation.

Landscape Significance
The landscape significance of a tree or group of trees is determined using a combination of health/vigour/condition, amenity, heritage and ecological values in accordance with IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©.
1. High Significance in Landscape
2. Medium Significance in Landscape
3. Low Significance in Landscape

Retention Value (RV)
Determined by [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce ULE, [3] trees which should not restrict development applications containing faults that are likely to become problematic in the short term, [4] trees to be considered for removal due to average condition.

High Retention - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 Protection of trees on development sites. Tree sensitive construction measures must be implemented e.g. pier and beam etc. if works are to proceed within the Tree Protection Zone.
Medium Retention - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
Low Retention - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

U.L.E. Categories
Useful Life Expectancy (after *Barrell* 1996, modified by the author). A trees U.L.E. category is the life expectancy of the tree modified first by its age, health, condition and location. U.L.E. assessments may be modified as dictated by changes in trees health and environment.
Long - Appear retainable at the time of assessment for over 40 years assuming reasonable maintenance.
Medium - Appear to be retainable at the time of assessment for 15 to 40 years assuming reasonable maintenance.
Short - Trees appear to be retainable at the time of assessment for 5 to15 years assuming reasonable maintenance.
Very Short - Removal - Trees which should be scheduled for removal within the very short term or as specified within this report.
Small, Young or Regularly Pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

Development Impact
Brief outline of the impact of the proposed development works or ancillary construction related activities likely to impact the tree.

Retain/Remove
The proposed removal or retention recommendation in light of the proposed development related impacts.

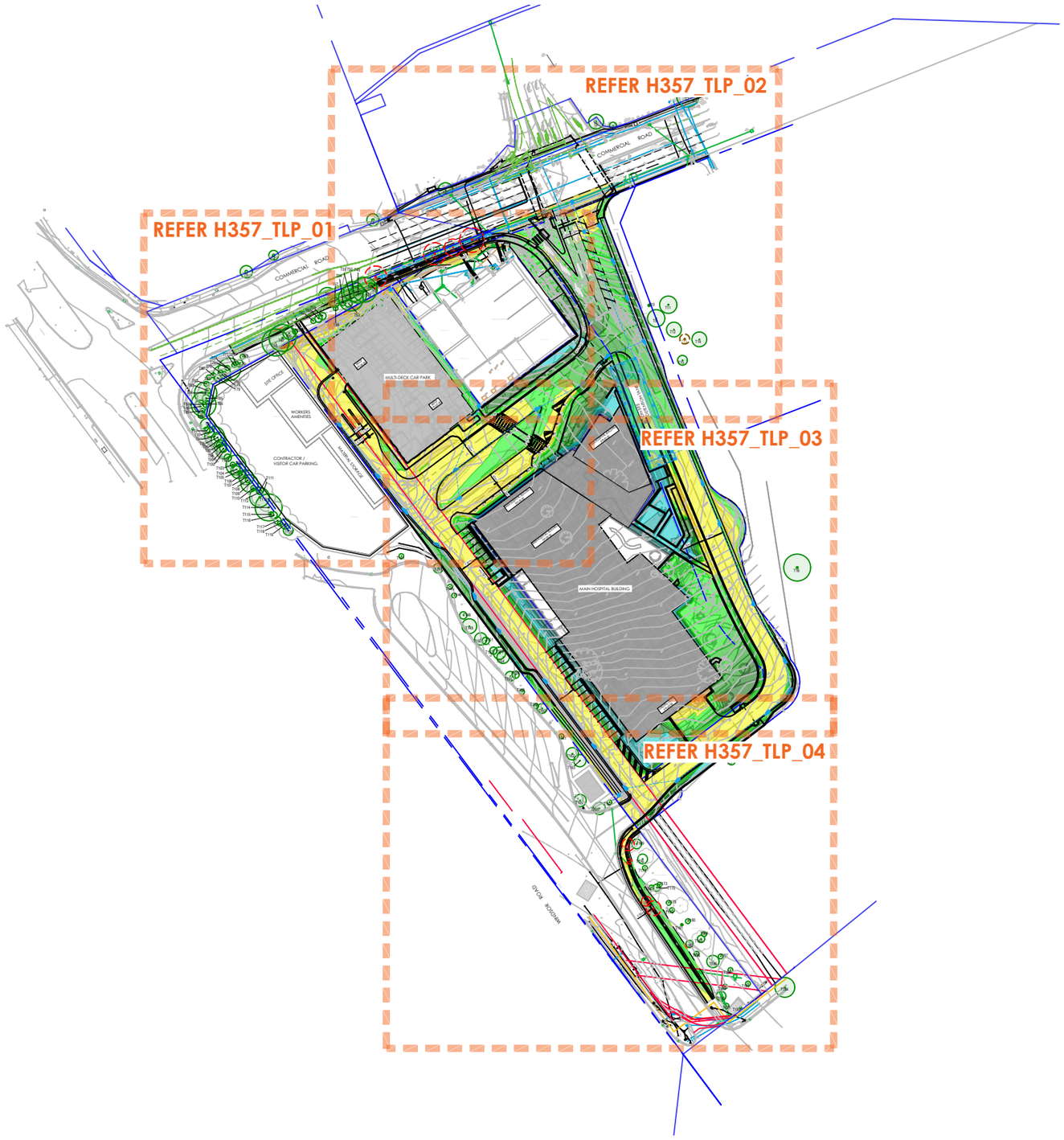
NOTES: This report acknowledges the current Australian Standards 'Protection of Trees on Development Sites' AS 4970 – 2025 with reference to the Notional Root Zone (NRZ): being a combination of the root and crown area requiring protection. The NRZ takes into consideration the Structural Root Zone (SRZ): The area required for tree stability. Determined by AS4970 - 2025 Figure 2, Structural Root Zone Calculation, section 3.4 of the standards. The standard states where a greater than 10% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s. 3.3.2. Encroachments are referred to within this report as major, moderate or minor encroachments (AS4970 s. 3.3.4, 3.3.5 & 3.3.6). Below is the terminology used for estimated percentage of development incursion used within this report. To retain specific trees and ensure their viability, development must take into consideration protection of the NRZ radius. The extent of inclusion within the NRZ radius has been categorised within this report as follows:

APPENDIX 2 - TREE LOCATION PLANS

NOTE: MUST BE READ IN CONJUNCTION WITH ARBORICULTURAL IMPACT ASSESSMENT

DRAWING LIST -

SHEET:	TITLE:
H357_TLP_00	COVER SHEET
H357_TLP_01	TREE LOCATION PLAN 01
H357_TLP_02	TREE LOCATION PLAN 02
H357_TLP_03	TREE LOCATION PLAN 03
H357_TLP_04	TREE LOCATION PLAN 04



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CPSPLANNING.COM.AU

DIMENSIONS :
All dimensions are in millimetres unless otherwise noted. Do not scale from this drawing.

Verify all dimensions on site prior to construction.

CIVIL, STRUCTURAL, HYDRAULIC, ELECTRICAL AND SPECIALIST WATER FEATURE WORKS :
Refer to specialist and consultant's drawings for all information contained within these documents relating to and nominated as specialist and consultant work. Specialist and consultant drawing information contained in the landscape documents are indicative only and not for construction or certification purposes.

Issue	Code	Issue Description	By	Chk	Date
B	-	FOR SSDA	NZ	TP	21.08.25
A	-	FOR SSDA	SZ	TP	15.07.25

PRE - Preliminary CA - Council Approval T - Tender

PROJECT

PROPOSED DEVELOPMENT

ROUSE HILL HOSPITAL

DRAWING TITLE

COVER SHEET

CLIENT

NSW GOVERNMENT Health Infrastructure

Drawn : SZ
Designed : -
Project No. : H357
Bar Scale

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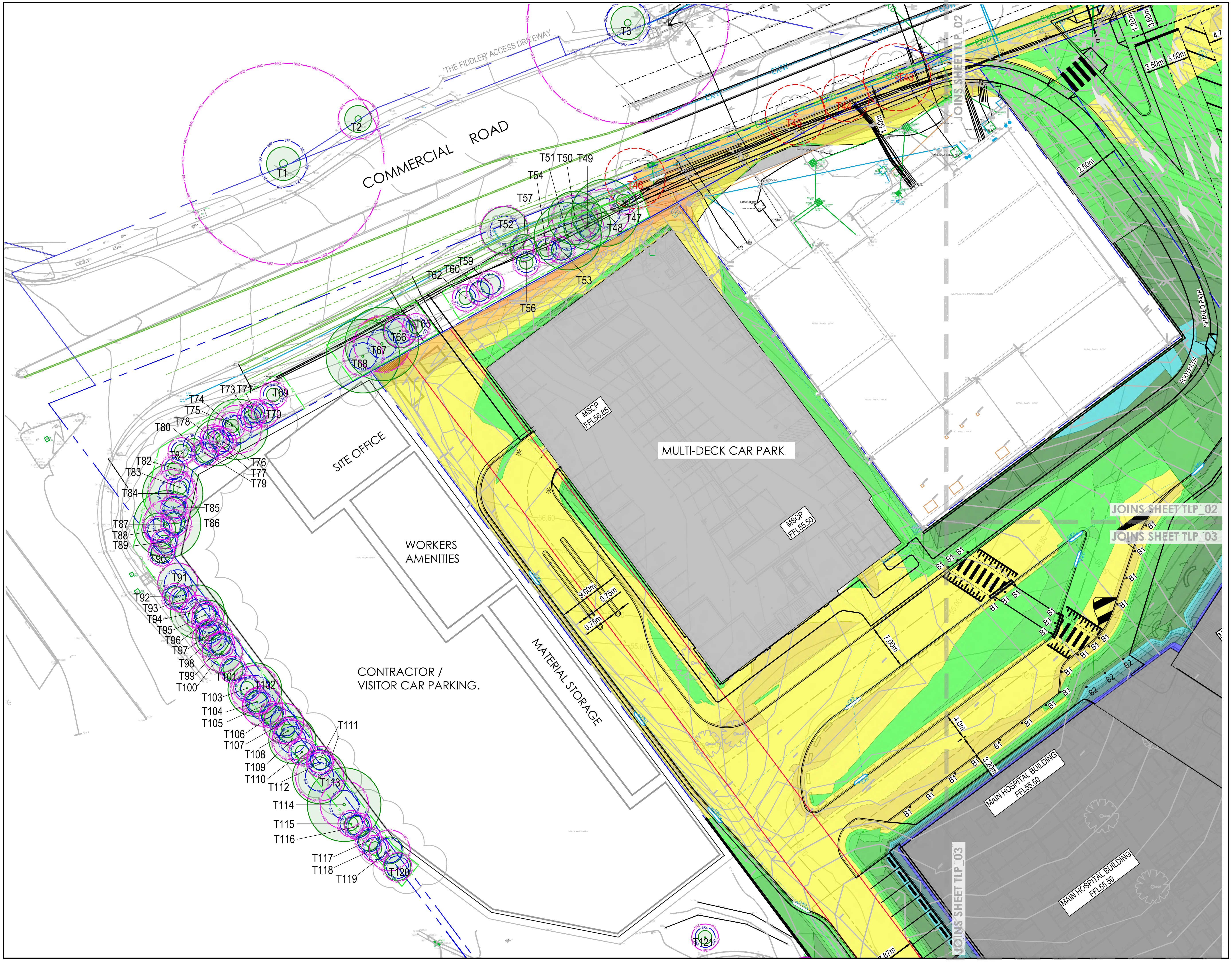
1:2000 @ A3

SHEET NUMBER H357_TLP_00

REVISION B



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LEGEND

- EXISTING TREE: TO BE RETAINED
- EXISTING TREE: TO BE REMOVED DUE TO THE SSDA WORKS
- EXISTING TREE: DEAD
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)
- STORMWATER INFRASTRUCTURE
- PROPOSED BULK EARTHWORKS FOOTPRINT
- TREE PROTECTION FENCING *(AS PER APPENDIX 6)*

Issue	Code	Issue Description	By	Chk	Date
B	-	FOR SSDA	NZ	TP	21.08.25
A	-	FOR SSDA	SZ	TP	15.07.25

PRE - Preliminary CA - Council Approval T - Tender

PROJECT

PROPOSED DEVELOPMENT

ROUSE HILL HOSPITAL

DRAWING TITLE

TREE LOCATION PLAN 01

CLIENT

NSW GOVERNMENT Health Infrastructure

Drawn : SZ
Designed : -
Project No. : H357
Bar Scale

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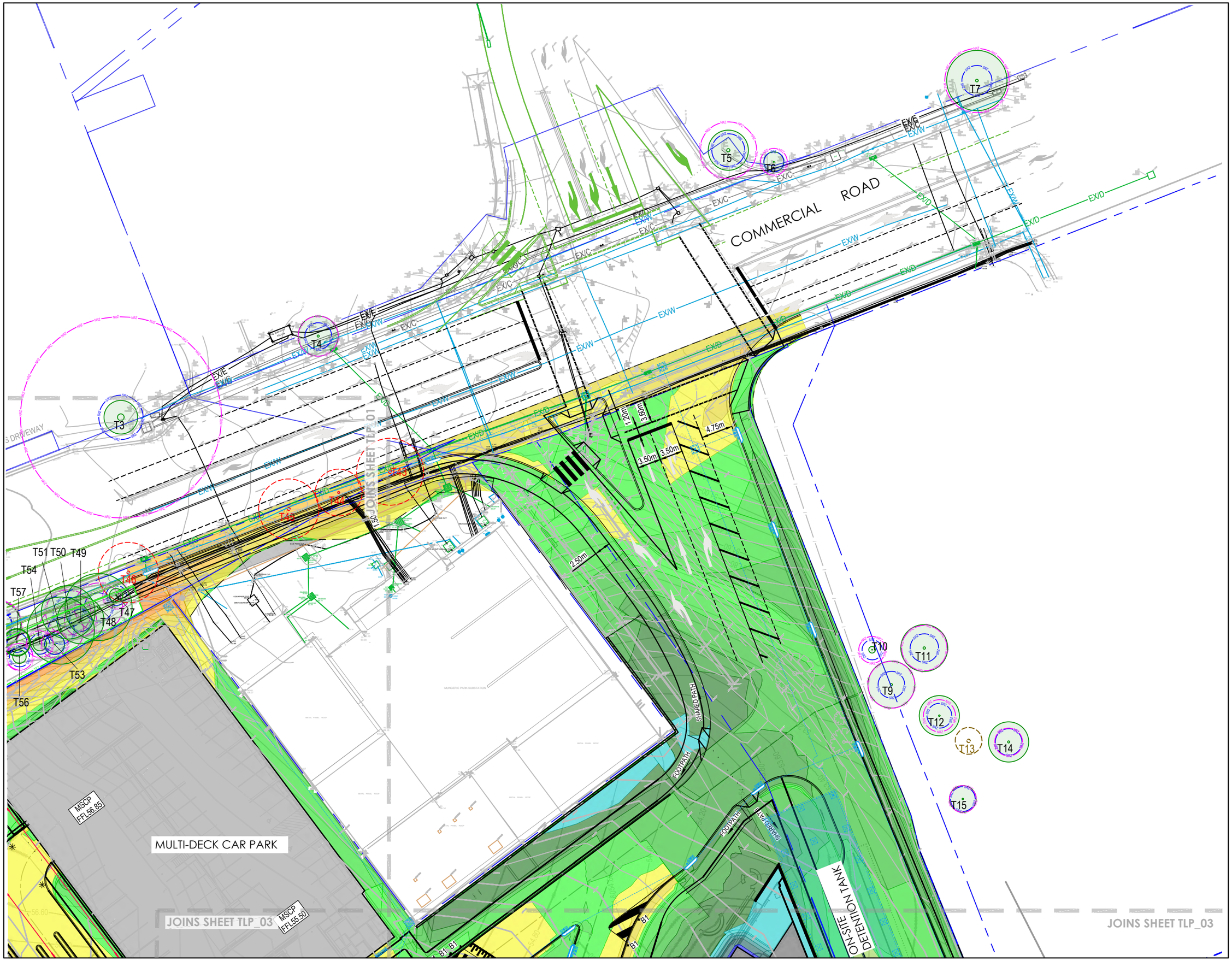
1:500 @ A3

N

SHEET NUMBER H357_TLP_01
REVISION B



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LEGEND

- EXISTING TREE: TO BE RETAINED
- EXISTING TREE: TO BE REMOVED DUE TO THE SSDA WORKS
- EXISTING TREE: DEAD
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)
- STORMWATER INFRASTRUCTURE
- PROPOSED BULK EARTHWORKS FOOTPRINT
- TREE PROTECTION FENCING *(AS PER APPENDIX 6)*

Issue	Code	Issue Description	By	Chk	Date
B	-	FOR SSDA	NZ	TP	21.08.25
A	-	FOR SSDA	SZ	TP	15.07.25

PRE - Preliminary CA - Council Approval T - Tender

PROJECT

PROPOSED DEVELOPMENT

ROUSE HILL HOSPITAL

DRAWING TITLE

TREE LOCATION PLAN 02

CLIENT

NSW GOVERNMENT Health Infrastructure

Drawn : SZ
Designed : -
Project No. : H357
Bar Scale
0 2 4 6 8 10 metres
1:500 @ A3

N

SHEET NUMBER H537_TLP_02

REVISION B

JOINS SHEET TLP_02

MSCP
FFL55.50

MULTI-DECK CAR PARK

JOINS SHEET TLP_02

ON-SITE DETENTION TANK

MAIN HOSPITAL BUILDING
FFL55.50

MAIN HOSPITAL BUILDING
FFL55.50

MAIN HOSPITAL BUILDING
FFL55.50

MAIN HOSPITAL BUILDING

LOADING DOCK
FFL49.80

JOINS SHEET TLP_01

JOINS SHEET TLP_04

JOINS SHEET TLP_04

7.00m
4.0m
3.20m
7.87m
2.60 TYP.
5.40 TYP.
7.10m
7.50m
2.50m

B1 B2

T121 T143 T145 T146 T148 T149 T150 T151 T152 T153 T154 T155 T156 T158 T159 T160 T16

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LEGEND

- EXISTING TREE: TO BE RETAINED
- EXISTING TREE: TO BE REMOVED DUE TO THE SSDA WORKS
- EXISTING TREE: DEAD
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)
- STORMWATER INFRASTRUCTURE
- PROPOSED BULK EARTHWORKS FOOTPRINT
- TREE PROTECTION FENCING *(AS PER APPENDIX 6)*
- NRZ ENCROACHMENT ZONE

Issue	Code	Issue Description	By	Chk	Date
B	-	FOR SSDA	NZ	TP	21.08.25
A	-	FOR SSDA	SZ	TP	15.07.25

PRE - Preliminary CA - Council Approval T - Tender

PROJECT

PROPOSED DEVELOPMENT

ROUSE HILL HOSPITAL

DRAWING TITLE

TREE LOCATION PLAN 03

CLIENT

NSW GOVERNMENT Health Infrastructure

Drawn : SZ
Designed : -
Project No. : H357
Bar Scale

N

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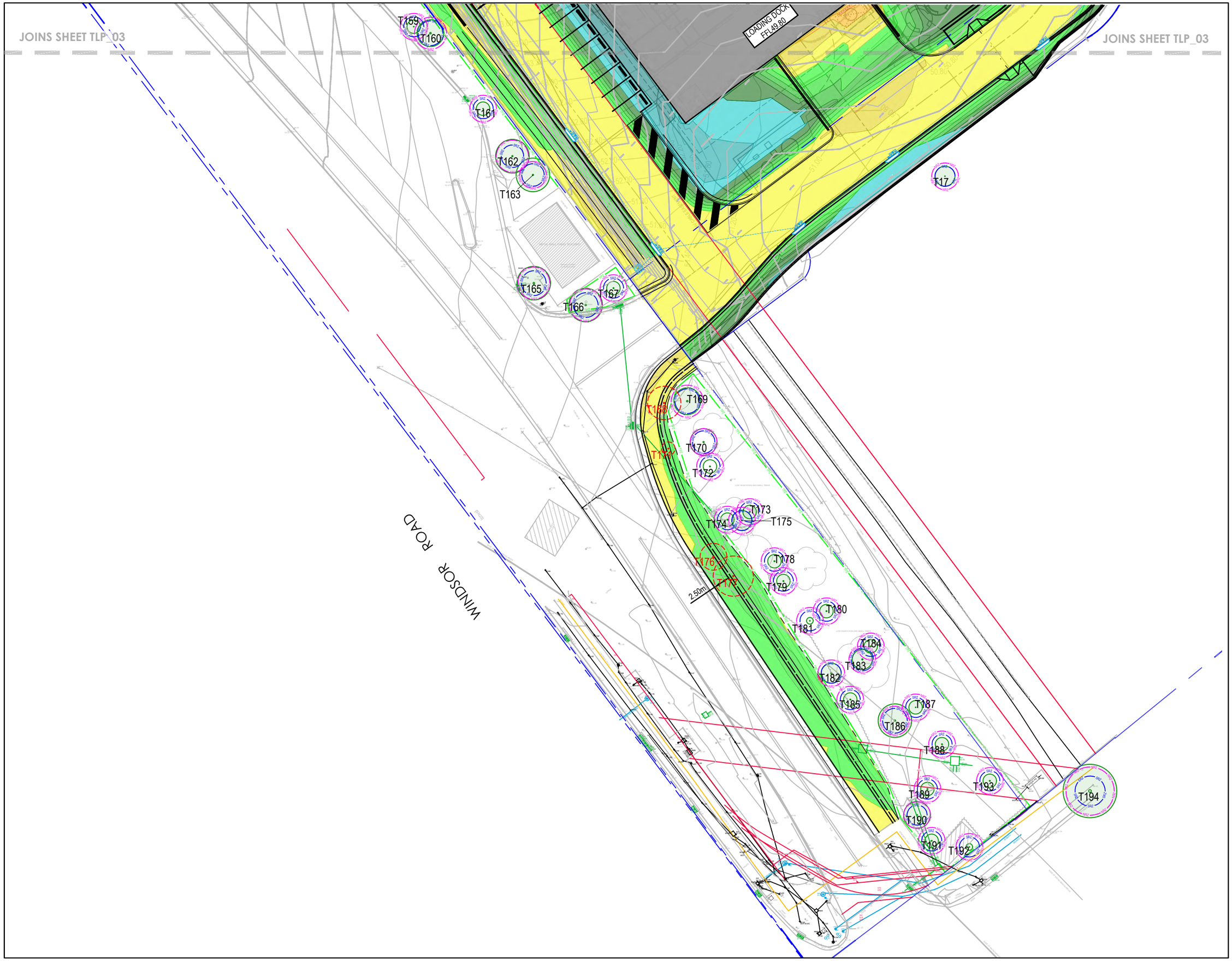
SHEET NUMBER H357_TLP_03

REVISION B



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LEGEND

- EXISTING TREE: TO BE RETAINED
- EXISTING TREE: TO BE REMOVED DUE TO THE SSDA WORKS
- EXISTING TREE: DEAD
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)
- STORMWATER INFRASTRUCTURE
- PROPOSED BULK EARTHWORKS FOOTPRINT
- TREE PROTECTION FENCING *(AS PER APPENDIX 6)*
- NRZ ENCROACHMENT ZONE

Issue	Code	Issue Description	By	Chk	Date
B	-	FOR SSDA	NZ	TP	21.08.25
A	-	FOR SSDA	SZ	TP	15.07.25

PRE - Preliminary CA - Council Approval T - Tender

PROJECT

PROPOSED DEVELOPMENT

ROUSE HILL HOSPITAL

DRAWING TITLE

TREE LOCATION PLAN 04

CLIENT

NSW GOVERNMENT Health Infrastructure

Drawn : SZ
Designed : -
Project No. : H357
Bar Scale
0 2 4 6 8 10 metres
1:500 @ A3

N

SHEET NUMBER H357_TLP_04

REVISION B

APPENDIX 3

IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA 2010)©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. An example of its use in an Arboricultural report is shown as Appendix A.

Tree Significance - Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

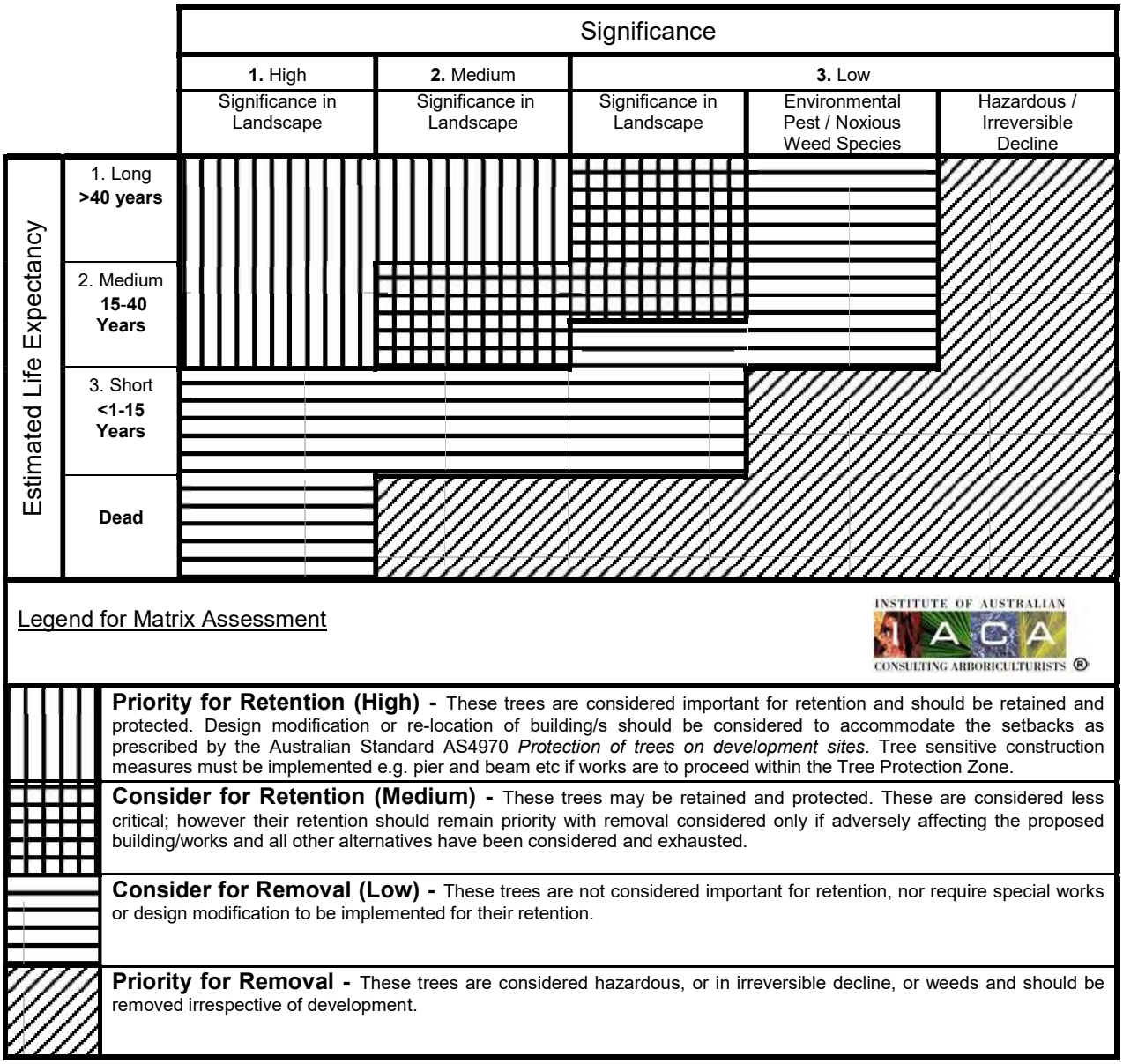
Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.



USE OF THIS DOCUMENT AND REFERENCING

The IACA Significance of a Tree, Assessment Rating System (STARS) is free to use, but only in its entirety and must be cited as follows:

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

REFERENCES

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

The following example shows the IACA **Significance** of a **Tree, Assessment Rating System** (STARS) used in an Arboricultural report.

Tree Significance

Determined by using the Tree Significance - Assessment Criteria of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Trees 14, 16, 17/3, 19 and 20/4 are of high significance with the remaining majority of medium significance and a few of low significance. Tree 14 is significant as a prominent specimen and a food source for indigenous avian fauna. Tree 16 as a non-locally indigenous planting is of good from and prominent *in situ*; Tree 17/3 as a stand of 6 street trees along the Davey Street frontage screening views to and from the site and contiguous with trees in Victoria Park extending the aesthetic influence of the urban canopy to the site. Similarly for Trees 20/4 as street trees in Long Road and Tree 19 as an extant exotic planting as a senescent component of the original landscaping. The trees of low significance are recent plantings as fruit trees – Avocados, and 1 Cootamundra Wattle as a non-locally indigenous tree in irreversible decline and potentially structurally unsound.

Significance Scale

1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Tree No. / Stand No.	14, 16, 17/3, 19, 20/4	1/1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12/2, 15, 18, 21/5	3, 13, 22

Tree Retention Value

Determined by using the Retention Value - Priority Matrix of the *IACA Significance of a Tree, Assessment Rating System* (STARS)© (IACA, 2010), Appendix B.

Retention Value

High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for Removal
Tree No. / Stand No.	1/1, 5, 17/3*, 19	2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 20/4*, 21/5	3, 12/2, 13,	22

* Trees located within the neighbouring property and should be retained and protected.

APPENDIX 4 - EXTRACT FROM AS4970-2025: PROTECTION OF TREES ON DEVELOPMENT SITES

Section 3 Determining protection zones

3.1 Tree Protection Zone (TPZ)

Establishing and maintaining a TPZ is the most important part of protecting trees during the onsite stages of work (e.g. site establishment, demolition, construction). The TPZ is the zone determined by the project arborist using the process set out below. It shall be shown on the TPP to be isolated or managed so that the tree remains viable.

The NRZ is the starting point for determining the TPZ, along with the considerations in Clause 3.3.2. Alternatively, the TPZ may be specified by the consent authority.

3.2 Calculating the Notional Root Zone (NRZ)

The radius of the NRZ is calculated for each tree by multiplying its diameter at standard height (DSH) by 12.

$$\text{Radius of the NRZ} = \text{DSH} \times 12$$

where

DSH = trunk diameter measured at 1.4 m above ground

The radius of the NRZ is measured from the centre of the stem.

The NRZ for palms, cycads, tree ferns and the like, is not calculated but shall not be less than 2 m.

Any NRZ radius shall not be less than 2 m nor greater than 15 m. Clause 3.3 details the methods to produce the TPZ based on the NRZ.

3.4 Structural Root Zone (SRZ)

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

The SRZ shall be calculated when major encroachment (greater than 20 %) into an NRZ is proposed. SRZ locations and dimensions may be included on arboriculture documentation.

Many factors affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). Natural or built structures, such as rocks and footings, can also influence the SRZ. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 2. Root investigation can provide more information on the extent of these roots.

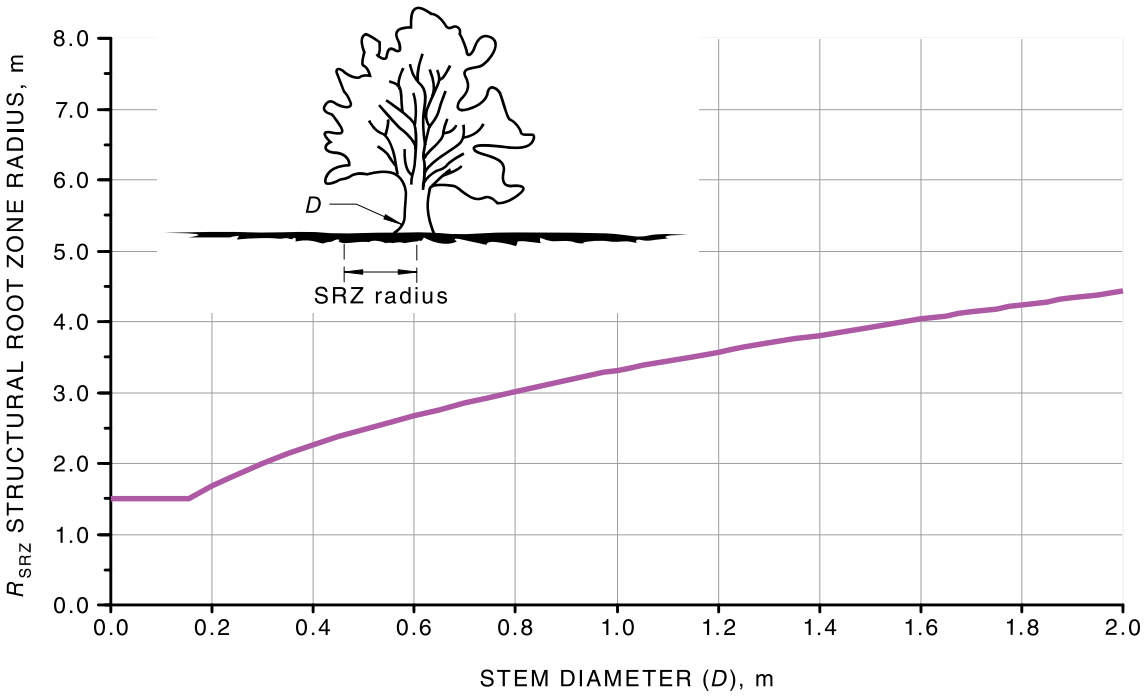
$$\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$$

where

D = trunk diameter, in m, measured above the root buttress flare.

Where the tree is multi-stemmed, the project arborist should determine if they will measure around all stems or work out the cross-sectional area, as noted in Figure A.1, and provide their reasons for the method selected. The SRZ calculation does not apply to palms, cycads, tree ferns and the like.

NOTE The SRZ for trees with trunk diameters less than 0.15 m is 1.5 m, as shown in Figure 2.



The curve can be expressed by the following formula:
$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

Figure 2 — Structural Root Zone (SRZ) calculation

APPENDIX 5 – GENERAL TREE PROTECTION SPECIFICATION

1.0 Project Arborist

A Project Arborist with AQF Level 5 qualifications may be appointed prior to works commencing to ensure trees to be retained are appropriately monitored and protected throughout the proposed works. The Project Arborist shall review all tree protection measures, ensure compliance with requirements set out by the Principal Certifying Authority and provide compliance reports as per the schedule of works and responsibilities below.

Table 5 - *Schedule of Works and Responsibilities*

HOLD POINT	TASK	RESPONSIBILITY	CERTIFICATION	TIMING OF INSPECTION
1	Review & certification of all tree protection measures	Principal Contractor	Project Arborist (AQF5)	Prior to demolition or site establishment
2	Supervise all excavation works proposed within the TPZ	Principal Contractor	Project Arborist (AQF5)	As required prior to works proceeding within TPZ
3	Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Quarterly during construction
4	Final Inspection of trees by Project Arborist	Principal Contractor	Project Arborist (AQF5)	Following removal of tree protection measures prior to Occupation Certificate

2.0 Compliance

Compliance Documentation shall be prepared by the Project Arborist following each site inspection. The Compliance Documentation shall include documentary evidence of compliance with the tree protection measures and methods as outlined within this Specification. Upon the completion of the works, a final assessment of the trees shall be undertaken by the Project Arborist and future management strategies recommended.

3.0 Tree Removal

The trees to be removed shall be removed prior to the establishment of the tree protection measures. Tree removal works shall be undertaken in accordance with the *Workcover Code of Practice for the Amenity Tree Industry (1998)*. All tree removal work is to be carried out by an experienced Arborist with minimum AQF Level 3 qualifications in accordance with AS4373-2007 - Pruning of Amenity Trees, Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation. Care should be taken to avoid damaging trees to be retained.

4.0 Tree Protection Zone

The Tree Protection Zone (TPZ) is a specified area above and below ground set aside for the protection of a tree. The TPZ should be protected to ensure development activities do not have an adverse effect on the viability and stability of trees to be retained. Activities restricted within the TPZ include:

- Soil cutting or filling, including excavation and trenching
- Soil compaction and modification
- Storage of materials and waste
- Parking of vehicles and plant
- Temporary or permanent installation of sheds, utilities and signs
- Cement or chemical preparation
- Refuelling
- Any other action leading to damage of the tree

5.0 Tree Protection Fencing

TPZ fencing shall be located at the perimeter of the TPZ. Where TPZ areas overlap, TPZ fencing may be combined to form a single larger TPZ area. The exact location of the fencing shall be confirmed through consultation between the Head Contractor/Project Manager and the Project Arborist prior to the commencement of works.

Fencing may be setback to allow for demolition/construction access only where appropriate ground protection is installed and approved by the Project Arborist.

Tree Protection Fencing shall consist of galvanised steel temporary fencing panels supported by concrete feet with panels coupled together. Care should be taken to avoid damaging the tree during the installation of the Tree Protection Fencing. Refer to Typical Tree Protection Details (***Appendix** 6*).

6.0 Scaffolding

Scaffolding shall be erected outside of the TPZ. If scaffolding is deemed essential within the TPZ, the ground shall be protected, and branch removal minimised. Ground below scaffolding shall be protected by boarding placed over a layer of mulch to prevent soil compaction. Scaffolding shall be designed to avoid branches or branches tied back. Refer to Typical Tree Protection Details (***Appendix** 6*).

7.0 Ground Protection

Where deemed necessary by the Project Arborist, temporary ground protection, such as ground mats or steel road plates placed over a mulch layer with geotextile fabric underneath, shall be utilised to prevent damage to tree roots during construction. Refer to Typical Tree Protection Details (***Appendix** 6*).

8.0 Trunk Protection

Trunk protection shall be installed by wrapping padding around the trunk and first order branches to a minimum height of 2m. Timber battens (90 x 45mm) spaced at 150mm centres shall be strapped together and placed over the padding. Timber battens must not be fixed to the trees. Refer to Typical Tree Protection Details (***Appendix** 6*).

9.0 Works within the Tree Protection Zones

The Principal Certifying Authority may approve works within Tree Protection Zones. The Project Arborist shall ensure compliance with the prescribed requirements as set out by the Principal Certifying Authority to ensure trees nominated for retention are adequately retained and protected throughout the works.

10.0 Structure & Pavement Demolition

Demolition of existing structures/pavement within the TPZ shall be supervised by the Project Arborist. Machinery is to be excluded from the TPZ unless operating from the existing slabs, pavements or areas of ground protection.

Pavement is to be shattered with a hand-operated pneumatic/electric breaker prior to removal taking place and carefully lifted to minimise damage to the underlying soil profile and tree roots. The underlying soil profile and existing sub-base materials shall remain in-situ.

When removing slab sections within TPZ, machinery shall work backwards out of the TPZ to ensure machinery remains on un- demolished sections of slab at all times. Machinery should not contact the tree's roots, trunk, branches and crown.

Exposed roots shall be irrigated by hand and covered with a 75-100mm layer of mulch as soon as possible after being exposed. The mulch must remain in place until new surfaces are put into place.

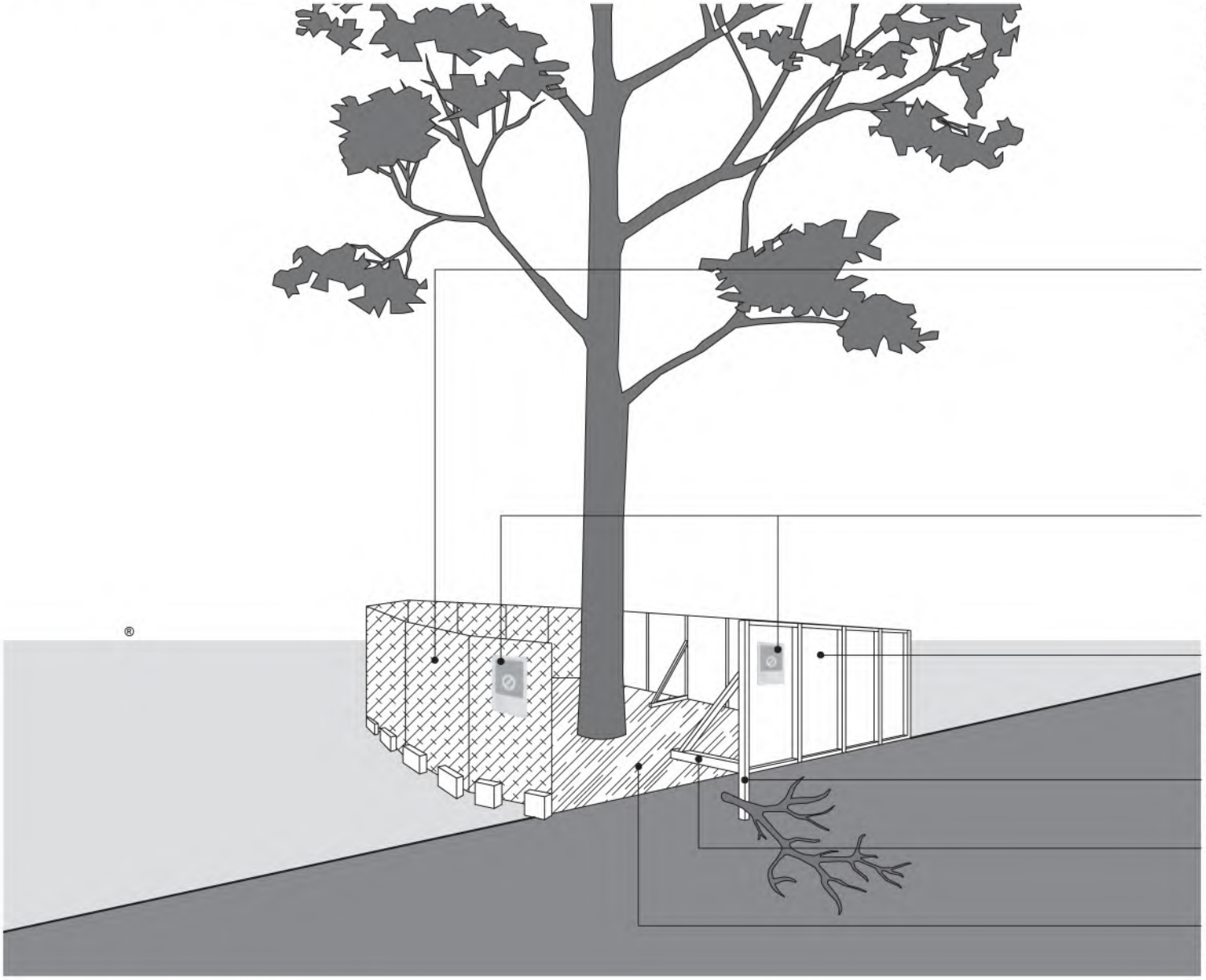
11.0 Underground Services

The installation of underground services shall be located outside of the TPZ. Where this is not possible, they shall be installed using in a root-sensitive manner utilising manual hand excavation methods or employ a pneumatic excavation device to ensure roots are maintained and undamaged under supervision of the Project Arborist. Services are to be threaded in between and/or under to preserve existing roots.

13.0 Excavations, Root Protection & Root Pruning

Excavation required within the TPZ shall be undertaken using non-motorised hand tools or a pneumatic excavation device under supervision of the Project Arborist. Excavation must be undertaken in a root sensitive manner to ensure roots are maintained and un-damaged. Should significant roots be identified (>25mmØ) during construction, works are to cease and direction sought from the Project Arborist with regards to root pruning, modification of construction methodology or design alteration.

APPENDIX 6 - TYPICAL TREE PROTECTION DETAILS



Note:
No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

Option 1 - Fencing
1.8m high chain wire mesh panels with shade cloth attached (if required), held in place with concrete feet.

Tree Protection Zone (TPZ) sign

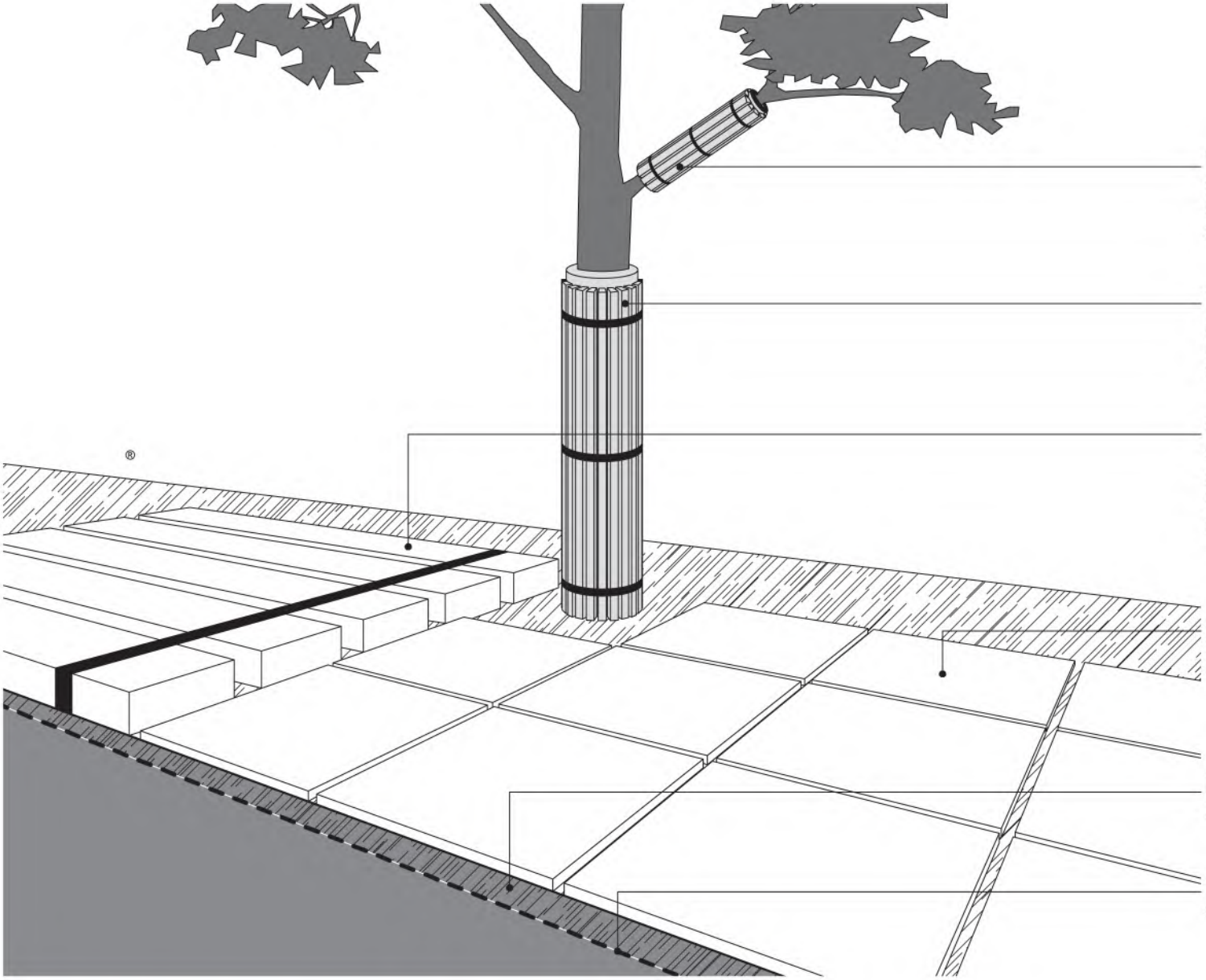
Option 2 - Fencing
Plywood or wooden panel paling fence. This type of fencing material also prevents building materials or soil entering the TPZ.

Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer installed across surface of TPZ.

01 Tree Protection Fencing



Branch Protection - use boards and padding to prevent damage to bark on branch. Boards are to be strapped, not screwed or nailed to the branch.

Trunk Protection - use boards and padding to prevent damage to bark (minimum 2m). Boards are to be strapped, not screwed or nailed to the trunk.

Ground Protection - use device strapped over mulch or aggregate layer. Ground protection device should be of a suitable thickness to prevent soil compaction and root damage.

Steel plates (or approved equivalent) with or without mulch or aggregate layer below.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer.

Geotextile fabric underneath mulch or aggregate layer.

02 Examples of Branch, Trunk and Ground Protection

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Branches may require pruning to erect scaffolding. Pruning may be subject to local regulations. Flexible branches should be tied back in preference to pruning.

Minimum 1.8m high hoarding. Temporary fencing may be incorporated into scaffolding as either containment screening or as hoarding.

Note:
If excavation is required for installation of support post for fencing, the Project Arborist should assess any pruning of roots greater than 20mm diameter.

Scaffold planks

Boards or plywood to be installed over mulch or aggregate layer for any areas requiring access within the TPZ.

Soleplate over geotextile. No excavation for soleplate within TPZ.

Maximum 100mm and minimum 50mm depth mulch or aggregate layer within TPZ.

Geotextile fabric

03 Indicative Scaffolding within a Tree Protection Zone (TPZ)