Project No: EDI/EMU/14 Report No: EDI/ILU/AIA/B

ARBORICULTURAL IMPACT ASSESSMENT
TREE PROTECTION SPECIFICATION

Edinglassie Village – Stage 2 Independent Living Units
Great Western Highway & Emerald Street
Emu Plains

Prepared for: UNITING

19th September 2023

Revision B

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Contents

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1.0 INTRODUCTION

1.1 Background

1.1.1 This Arboricultural Impact Assessment Report and Tree Protection Specification was prepared for Uniting in relation to Edinglassie Village (Stage 2), Great Western Highway and Emerald Street, Emu Plains. The purpose of this Report is to determine the impact of the proposed works on the trees, and where appropriate, recommend the use of sensitive construction methods and tree protection measures to minimise adverse impacts. A Preliminary Arboricultural Report was prepared for the site in October 2021 (treeiQ Report No. EDI/ILU/PAR/A, dated 20.10.2021).

1.1.2 As background, treeiQ prepared an Arboricultural Impact Assessment & Tree Protection Specification (AIA) for the project in November 2022. A meeting with Penrith Council, treeiQ and Midson was undertaken on 18th May 2023 to discuss the Tree Protection Zone (TPZ) encroachments and pruning requirements. At this meeting Council advised:

- TPZ encroachments from the proposed building or basement would not be accepted
- Tree pruning to facilitate the construction of the building or basement would not be accepted
- The removal of Trees 61, 85, 86, 87 & 96 to facilitate building redesign would be accepted

1.1.3 Uniting is responsible for the Uniting Church's ministry for older people, particularly those who are disadvantaged, vulnerable and isolated. Uniting operates more than 200 aged care services, with more than 14,000 clients in residential and community care programs and employs over 3,500 full time equivalent staff across NSW/ACT. Uniting is the single largest provider of aged care services in NSW and the ACT. The Edinglassie Village site has been identified by Uniting as in need of redevelopment. A 73-bed nursing home and a 53-bed hostel have made way for the recently constructed 100 bed residential aged care facility and carparking, whilst existing 45 Independent Living Units (ILUs) remain. The existing 45 ILUs are in the south-eastern and north-western portions of the site and were constructed in the 1970's as villa style developments. Their design and features are out of step with contemporary demand and requiring increasing levels of maintenance to keep them to a serviceable condition. For these reasons, the proposal is to demolish and replace them with 147 ILUs with a more contemporary design and greater product mix.

1.1.4 In preparing this Report, the authors are aware of and have considered the objectives of the following:

- *State Environmental Planning Policy - Biodiversity and Conservation (2021)*
- *Penrith Local Environmental Plan (2010)*
- *Penrith City Council Tree & Vegetation Removal Fact Sheet (not dated)*
- *Australian Standard 4970 Protection of Trees on Development Sites (2009)*
- *Australian Standard 4373 Pruning of Amenity Trees (2007)*
- *Australian Standard 2303 Tree Stock for Landscape Use (2015)*
- *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)*

Refer to Methodology **(Appendix 1)**

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1.1.5 This impact assessment is based on an assessment of the following supplied documentation/plans only:

- Basement Plan Dwg No. A-2000/F – prepared by GroupGSA (dated 15.09.23)
- Ground Floor Plan Dwg No. A-2001/I – prepared by GroupGSA (dated 15.09.23)
- Roof Plan Dwg No. A-2005/H – prepared by GroupGSA (dated 15.09.23)
- Landscape Detail Plan Dwg No. LA03/F – prepared by Taylor Brammer (dated 18.09.23)
- Landscape Detail Plan Dwg No. LA04/F – prepared by Taylor Brammer (dated 18.09.23)
- Landscape Detail Plan Dwg No. LA05/F – prepared by Taylor Brammer (dated 18.09.23)
- Landscape Detail Plan Dwg No. LA11/E – prepared by Taylor Brammer (dated 18.09.23)

Refer to Plans **(Appendix 2)**

1.2 The Proposal

1.2.1 The supplied plans show the proposed works include:

- Demolition of existing structures and pavements
- Construction of basement carpark
- Construction of 147 ILUs over multistorey buildings
- Landscaping & associated works

2.0 RESULTS

2.1 The Site

2.1.1 The site comprises three parcels of land including Lot 10 in DP1242243 and Lots 12 and 13 DP 232740 (6 & 8 Troy Street). It is irregular in shape and has frontage to the Great Western Highway, Troy Street and Emerald Street. It is bounded to the south by the Emu Plains Public School.

2.1.2 The site is generally level with a number of isolated landscaped/turfed mounds in landscaped areas. There are several substantial trees scattered across the site, primarily along the highway frontage.

2.1.3 The site contains a locally heritage-listed chapel (Item 82) located mid-way along the Emerald Street boundary and a drainage easement in favour of the adjacent primary school. Council has also advised that the site is flood affected.

2.2 The Trees

2.2.1 Eighty-two (82) trees (and tree groups) were addressed within this Report. Trees 1-12, 12, 19-22, 28, 33, 34, 37-53, 59-61, 64-73, 75-78, 80, 83, 85-92, 96, 97, 105, 108, 109, 110 and 113-119 are located within the subject property. Trees A-C are located within 8 Troy Street, Trees D and E are located in adjoining properties to the south and Trees G-K are street trees. Tree 66 is dead. A full VTA was not undertaken for trees not owned by Uniting (Trees D, E & G-K) with species and trunk diameter measurements recorded for the purposes of determining Tree Protection Zones (TPZ) calculations only.

Refer to Tree Assessment Schedule **(Appendix 2)**

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2.2.2 The trees comprise of a mix of locally indigenous, Australian-native and exotic species. Twenty-six (26) species are represented with *Corymbia maculata* (Spotted Gum) the dominant species on site.

2.2.3 Trees 8, 46, 47, 52, 60 and 73 *Eucalyptus* spp. (Eucalypt species), Tree 50 *Angophora costata* (Sydney Red Gum), Trees 53 and 117 *Corymbia* spp. (Eucalypt species), Trees 59 and 75 *Melaleuca linariifolia* (Snow-in-Summer), Trees 61 and 69 *Allocasuarina torulosa* (Forest Oak) and Tree 97 *Prunus dulcis* (Almond) and have significantly reduced crown densities. Fungal fruiting bodies (potentially *Phellinus* sp.) were noted on wound sites on several of these trees. *Phellinus* is a common fungal pathogen which causes a white rot of the hosts woody tissue and it is likely that the presence of a pathogen has contributed to the reduction in crown density of a number of trees. Where *Phellinus* or other wood decay pathogens infect a tree, the structural integrity of the affected parts will gradually diminish and ultimately the tree's Useful Life Expectancy is likely to be reduced. Trees with a reduced vigour, older trees and trees infected with fungal pathogens which are retained within high 'target' areas will generally require more intensive management such as deadwood removal, ongoing monitoring, and potentially internal diagnostic testing to monitor the rate of spread of internal decay.

2.2.4 Tree 9 *Casuarina cunninghamiana* (She-Oak) has a wound with advanced stages of decay present at the base of a first order branch. Tree 68 *Eucalyptus eugenioides* (Thin Leaf Stringybark) has a wound with advanced stages of decay present on the trunk. If Trees 9 and 68 are retained, internal diagnostic testing (i.e. Resistograph or Tomograph testing) should be undertaken to assess their internal structural condition. If the results indicate the trees can be retained within the acceptable limits of risk, ongoing testing may be required. Testing intervals ranging from 12-36 months would be considered typical however these should be determined on an individual tree basis.

2.2.5 Tree 33 *Eucalyptus saligna* (Sydney Blue Gum) has a cable girdling the trunk which is likely to become occluded if not removed in the near future. During the occlusion process, the cable is likely to restrict the vascular function of the tree and may impact its health and vigour.

2.2.6 Tree 48 *Eucalyptus saligna* (Sydney Blue Gum) is in poor health and structural condition as evidenced by a reduced crown density of 0-25% and wounds with advanced stages of decay. This tree has a ULE of less 5 years and has been allocated a Retention Value of *Priority for Removal.* This tree should be removed irrespective of future development works.

2.2.7 Tree 87 *Angophora costata* (Sydney Red Gum) has medium (25-75mm) and large (>75mm) diameter deadwood in its crown and a damaged branch which extends over the site boundary into the neighboring property and internal road within the site. All deadwood greater than 25mm diameter and the damaged branch should be removed regardless of future development works.

2.2.8 Tree 105 *Eucalyptus tereticornis* (Forest Red Gum) and Tree 118 *Corymbia citriodora* (Lemon Scented Gum) have significant bark inclusions present within their crowns. If retained, aerial inspections should be undertaken to determine the severity of these defects.

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2.2.9 Tree 108 *Schinus molle* var. *areira* (Peppercorn Tree) has a major cavity present on its trunk. A recent assessment of the tree (including sounding around the circumference of the trunk using a nylon mallet to establish the extent of hollowness) determined that the residual wall thickness of healthy tissue is minimal. The trunk hollow extends the length of the trunk into large diameter branches in the lower crown where cavities and a failed first order branch are present. The tree is no longer considered viable for retention due to the increased likelihood of further large diameter branch or whole tree failure associated with the extensive internal decay. This tree should be removed irrespective of future development works.

2.2.10 Eleven (11) trees listed in Table 1 are locally indigenous and representative tree species of the Cumberland Plain Woodland. Cumberland Plain Woodland is listed as a *Critically Endangered* ecological community under the NSW *Biodiversity Conservation Act (2016)* and the Commonwealth *Environment Protection and Biodiversity Conservation Act (1999).* However, the majority of trees at the site appear to be planted specimens. The ecological and habitat values of the trees have not been assessed and is beyond the scope of this Report.

2.2.11 Table 1: Cumberland Plain Woodland Species

Species	Tree Number
Corymbia maculata (Spotted Gum)	6, 38, 39, 40, 44, 45, 53, 109 & A
Eucalyptus tereticornis (Forest Red Gum)	52 & 105

2.2.12 Two (2) trees listed in Table 2 are outlined as exempt species in the *Penrith City Council Tree & Vegetation Removal – Protected & Exempt Vegetation Factsheet*.[1] Tree 113 is also subject to a *General Biosecurity Duty* by the Department of Primary Industries.[2]

2.2.13 Table 2: Exempt Species

Species	Tree Number
Prunus dulcis (Almond)	97
Syagrus romanzoffiana (Cocos Palm)	113

2.2.14 Tree B *Acer negundo* (Box Elder) is generally considered an environmental weed species due to its propensity to self-seed. However, it is still protected by Council's tree management controls.

2.2.15 The trees are not listed within Schedule 5 Environmental Heritage of the *Penrith Local Environmental Plan (2010)*.[3]

2.2.16 As required by Clause 2.3.2 of *Australian Standard 4970 Protection of Trees on Development Sites (2009)*, each of the trees assessed has been allocated a Retention Value. TreeiQ allocates one of four Retention Value categories based on a combination of Landscape Significance and Useful Life Expectancy (ULE). The assessment of Landscape Significance and ULE involves a degree of subjectivity and there will be a range of tree quality and value within each of the Retention Value categories. The Retention Values do not consider any proposed development works and are not a schedule for tree retention or removal. The trees have been allocated one of the following Retention Values:

[1] Penrith City Council (2019)
[2] Department of Primary Industries (2017)
[3] Penrith City Council (2010)

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- Priority for Retention
- Consider for Retention
- Consider for Removal
- Priority for Removal

2.2.17 The allocation of a Retention Value to each tree is a key step in the tree management process as it helps the architect, other project consultants and the consent authority identify which are the most valuable trees on site. It may not be possible to retain all existing trees on a development site. However, the proposal should demonstrate that the retention of the higher value trees have been prioritised within the design process.

2.2.18 Table 3: Retention Values

Priority for Retention	Consider for Retention	Consider for Removal	Priority for Removal
6, 21, 22, 34, 38, 39, 40, 44, 72, 87, 96, 105, 109, 115 & 116	1, 7, 8, 9, 10, 11, 19, 20, 28, 33, 37, 41, 42, 45, 46, 47, 49, 50, 51, 52, 53, 60, 61, 64, 65, 67, 68, 69, 70, 71, 76, 78, 80, 83, 85, 90, 92, 110, 114, 117, 118, A & C	12, 43, 59, 73, 75, 77, 86, 88, 89, 91, 97, 103, 113 & 119	48, 108 & B

3.0 ARBORICULTURAL IMPACT ASSESSMENT

3.1 Tree Removal

3.1.1 The supplied plans show that twenty-four (24) trees and tree groups are to be removed as part of the proposed development. This includes two (2) trees with a Retention Value of *Priority for Retention*, ten (10) trees with a Retention Value of *Consider for Retention,* nine (9) trees with a Retention Value of *Consider for Removal* and three (3) trees with a Retention Value of *Priority for Removal.*

3.1.2 Table 4: Tree Removal

	Priority for Retention	Consider for Retention	Consider for Removal	Priority for Removal
Basement Footprint = 9	96	90, 92, A & C	91, 97 & 119	B
Basement – Major encroachment = 4		53 & 60	88 & 89	
Landscape Treatment = 11	87	61, 80, 83 & 85	59, 73, 86 & 113	48 & 108
TOTAL = 24	**2**	**10**	**9**	**3**

3.1.3 Tree 66 which is dead is also to be removed.

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3.2 Tree Retention

3.2.1 The supplied plans show that fifty-seven (57) trees and tree groups are to be retained as part of the proposed development. This includes thirteen (13) trees with a Retention Value of *Priority for Retention*, thirty-three (33) trees with a Retention Value of *Consider for Retention* and four (4) trees with a Retention Value of *Consider for Removal.* Seven (7) trees located outside of the site boundaries are also proposed for retention.

3.2.2 Table 5: Tree Retention

	Priority for Retention	Consider for Retention	Consider for Removal	Priority for Removal	Trees Outside Uniting Boundaries
No works within TPZ = 42	6, 21, 22, 34, 38, 40 & 44	1, 7, 8, 9, 10, 11, 19, 20, 28, 33, 37, 41, 42, 46, 49, 50, 51, 64, 65, 67, 69, 70, 76 & 110	12, 43, 75 & 77		D, E, G, H, I, J & K
Minor Encroachment = 9	39, 72 & 109	45, 47, 52, 68, 71 & 78			
Major Encroachment = 6	105, 115 & 116	114, 117 & 118			
TOTAL = 57	**13**	**33**	**4**		**7**

3.2.3 The are no TPZ encroachments from the basement level. It is understood no over-excavation, benching or battering will be required as part of basement construction as all excavation will occur inside the perimeter piling line.

3.3 Minor Encroachment

3.3.1 The supplied plans show that works are proposed within the TPZ areas of Trees 39, 45, 47, 52, 68, 71, 72, 78 and 109. As the encroachment into the individual TPZ is less than 10% and outside of the Structural Root Zone (SRZ), the extent of works represents *Minor Encroachments* as defined by *Australian Standard 4970-2009 Protection of Trees on Development Sites* (AS-4970). A *Minor Encroachment* is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ. The encroachments into TPZ areas should be compensated for by extending the TPZ in areas not subject to encroachment.

3.3.2 For Tree 45, 47, 68, 71, 72 and 78, the *Minor Encroachments* are represented by terraces/balconies which should be cantilevered out over the TPZ areas and not require excavation.

3.4 Major Encroachment

3.4.1 The supplied plans show that footpaths are proposed with TPZ areas of Trees 105, 114, 115, 116, 117 and 118. The extent of works represents *Major Encroachments* as defined by AS-4970. New pavements should be designed and installed above existing grade (including any sub-base layers where required) with only minimal compaction of the sub-grade (i.e. pedestrian plate compactor only).

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3.4.2 Where existing pavements surfaces are to be replaced, the pavement can be installed at existing grade where the underlying subbase is retained and reused. Where roots are present within the existing subbase layer, the subbase and wearing surface should be locally modified as required to enable the retention of roots (>25mmø) as determined by the Project Arborist. New kerbs should be modified to enable the retention of roots (>25mmø) as required by the Project Arborist.

3.5 Other Works within TPZ Areas

3.5.1 Demolition Works

Demolition works within TPZ areas should be supervised by the Project Arborist and utilise tree sensitive methods. Structures should be demolished in small sections ensuring demolition machinery/equipment does not come into contact with any part of the tree. Existing structures within the SRZ can contribute to tree stability by providing ballast to the rootplate or act as a stop to the overturning of the rootball and should be retained in-situ if possible.

3.5.2 Basement Construction

Preliminary excavation and root pruning should be undertaken along the building line adjacent to the TPZ areas prior to the commencement of the bulk excavation works. No over-excavation, battering or benching should be undertaken beyond the building footprint.

3.5.3 It is understood that due to the high-water table at the site an extended period (12-18 months) of dewatering of the basement level may be required. It is assumed that dewatering should not significantly impact soil moisture levels around the perimeter of the building as the majority of a tree's root system is located in the upper soil profile where oxygen levels are higher. It is also assumed that irrigation will be installed to support the establishment and growth of new landscape plantings which will also benefit the trees. To ensure dewaterng does not significantly impact the trees, the health of the trees adjacent to the basement should be monitored at three monthly intervals with photographic records of each site visit kept for comparative analysis of canopy cover and colouration of foliage of the trees. If required, additional supplementary irrigation should be provided as directed by the Project Arborist.

3.5.4 Underground Services

Underground services should be located outside of the TPZ areas. Where this is not possible, services should be installed using tree sensitive excavation (hand/hydrovac/air spade) methods with the services located around/below roots (>25mmø) as required by the Project Arborist. Excavation using compact machinery fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mmø).

3.5.5 Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1200mm below existing grade. Excavations for starting and receiving pits for boring equipment should be located outside of the TPZ areas or located to avoid roots (>25mmø) as deemed necessary by the Project Arborist.

3.5.6 Garden Edging

Garden edging within TPZ areas should be installed using hand excavation with the edging modified (cut away) as required to bridge over and enable the retention of roots (>25mmø) as determined by the Project Arborist. Pegs/pins to which the edging is affixed should be located as to avoid roots (>25mmø).

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3.5.7 Landscaping

The installation of plants/turf within the TPZ should be undertaken using hand tools and roots (>25mmø) should be protected. There should be no modification to landscape levels, mechanical cultivation or ripping of soils within TPZ areas. Soil conditioners and turf underlay may be installed however should not increase existing soil levels within the TPZ by greater than 100mm and must not raise levels within 1m of the base of any tree.

3.6 Pruning

3.6.1 Although significant amendments have been made to Buildings A and C, the pruning of Trees 76, 78 and 115 will still be required for the erection of scaffolding. For Tree 115, a detailed assessment of the pruning (based on both a point cloud survey and site inspection) has identified two (2) options. It should be noted that the scaffolding requirements adjacent to the tree have been designed to reduce the scaffold deck to the minimum acceptable width of 1.2m.

3.6.2 Pruning Option 1 is the favoured option which minimises pruning to the Reduction Pruning of higher order branches only for building clearance with larger diameter branches to be temporarily pushed/tied back outside of the scaffold structure.

3.6.3 Pruning Option 2 will be required where larger diameter branches in the lower crown cannot be pushed/tied back outside of the scaffold structure without sustaining damage. This will include the Selective Pruning of one (1) 200mm diameter first order branch and Reduction Pruning of higher order branches.

3.6.4 Both pruning options can be undertaken in accordance with *Australian Standard 4373: Pruning of Amenity Trees (2007)* and will remove less than 10% of the tree's total crown volume. Furthermore, the pruning detailed in both options should not significantly impact the health, Useful Life Expectancy (ULE) or amenity value of the tree.

3.6.5 Complete accuracy as to pruning requirements cannot be guaranteed from ground-based observation and some additional minor pruning works (< 100mm branches & < 5% of total crown volume) at the construction phase may be required to provide building clearances. Pruning works should be carried out by a Practising Arborist. The Practising Arborist should hold a minimum qualification equivalent (using the Australian Qualifications Framework) of Level 3 or above, in Arboriculture or its recognised equivalent. The Practising Arborist should have a minimum of 3 years' experience in practical Arboriculture. Pruning work should be undertaken in accordance with *Australian Standard 4373: Pruning of Amenity Trees (2007), Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)* and other applicable legislation and codes. Deadwood greater 30mmø should be removed from the crowns of the trees in areas with high value targets.

Refer to Plates 9-12 **(Appendix 4)**

3.7 Replacement Planting

3.7.1 The supplied plans show that approximately eighty-three (83) trees are proposed to help off-set the loss of canopy cover and amenity resultant from the tree removal. Trees should be supplied as advanced size specimens (i.e. ≥ 75L) and in accordance with *Australian Standard 2303 (2015) Tree Stock for Landscape Use.*

3.7.2 New tree plantings should be supervised by Horticulturalists (AQF Level 3 or above in Horticulture) to ensure correct planting methods.

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4.0 CONCLUSION

4.1.1 Eighty-two (82) trees were addressed within this Report and consist of a mix of Australian native and exotic species. Tree 66 is dead.

4.1.2 The supplied plans show the proposed works include demolition of existing structures and pavements, construction of two basement carparks, 147 ILUs, landscaping and associated works.

4.1.3 The supplied plans show twenty-four (24) trees are proposed for removal. These are Trees 48, 53, 59, 60, 61, 73, 80, 83, 85- 92, 96, 97, 108, 113, 119 and A-C. Tree 66 which is dead is also to be removed.

4.1.4 The supplied plans show fifty-seven (57) trees are proposed for retention. These are Trees 1, 6-12, 19- 22, 28, 33, 34, 37-47, 49-52, 64, 65, 67-72, 75-78, 105, 109, 110, 114-118, D, E and G-K. Tree sensitive methods will be required for Trees 105, 114, 115, 116, 117 and 118 to minimise adverse impacts. Refer to Section 3. The trees to be retained should be protected in accordance with the Tree Protection Specification **(Appendix 5)** and Typical Tree Protection Details **(Appendix 6).** A detailed Tree Protection Plan should be prepared based on the Construction Certificate Plans.

4.1.5 The supplied plans show that Trees 76, 78 and 115 will need to be pruned for building and construction clearance. Pruning work should be undertaken in accordance with *Australian Standard 4373: Pruning of Amenity Trees (2007), Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)* and other applicable legislation and codes.

4.1.6 The supplied plans show that approximately eighty-three (83) are proposed to help off-set the loss of canopy cover and amenity resultant from the tree removal. Trees should be supplied in accordance with *Australian Standard 2303 (2015) Tree Stock for Landscape Use.*

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5.0 LIMITATIONS& DISCLAIMER

TreeiQ takes care to obtain information from reliable sources. However, TreeiQ can neither guarantee nor be responsible for the accuracy of information provided by others. Plans, diagrams, graphs and photographs in this Arboricultural Report are visual aids only and are not necessarily to scale. This Report provides recommendations relating to tree management only. Advice should be sought from appropriately qualified consultants regarding design/construction/ecological/heritage etc issues.

This Report has been prepared for exclusive use by the client. This Report shall not be used by others or for any other reason outside its intended target or without the prior written consent of TreeiQ. Unauthorised alteration or separate use of any section of the Report invalidates the Report.

Many factors may contribute to tree failure and cannot always be predicted. TreeiQ takes care to accurately assess tree health and structural condition. However, a tree's internal structural condition may not always correlate to visible external indicators. There is no warranty or guarantee, expressed or implied that problems or deficiencies regarding the trees or site may not arise in the future. Information contained in this Report covers only the trees assessed and reflects the condition of the trees at the time of inspection. Additional information regarding the methodology used in the preparation of this Report is attached as Appendix 1. A comprehensive tree risk assessment and management plan for the trees is beyond the scope of this Report.

Reference should be made to any relevant legislation including Tree Management Controls. All recommendations contained within this Report are subject to approval from the relevant Consent Authority.

6.0 BIBLIOGRAPHY& REFERENCES

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7.0 APPENDICES

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Appendix 1: Methodology

1.1 **Site Inspection**: This report was determined as a result of a comprehensive site during October 2021 and July/August 2023. The comments and recommendations in this report are based on findings from this site inspection.

1.2 **Visual Tree Assessment (VTA)**: The subject tree(s)was assessed using the Visual Tree Assessment criteria and notes as described in *The Body Language of Trees – A Handbook for Failure Analysis.*[4]The inspection was limited to a visual examination of the subject tree(s)from ground level only. No internal diagnostic testing was undertaken as part of this assessment. Trees outside the subject site were assessed from the property boundaries only.

1.3 **Tree Dimensions**: The dimensions of the subject tree(s) are approximate only.

1.4 **Tree Locations:** The location of the subject tree(s) was determined from the supplied plans. Trees not shown on the supplied plans have been plotted in their approximate location only.

1.5 **Trees & Development**: Tree Protection Zones, Tree Protection Measures and Sensitive Construction Methods for the subject tree were based on methods outlined in *Australian Standard 4970-2009 Protection of Trees on Development Sites*.

The *Tree Protection Zone* (TPZ) is described in AS-4970 as a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

The *Structural Root Zone* (SRZ) is described in AS-4970 as the area around the base of a tree required for the tree's stability in the ground. Severance of structural roots within the SRZ is not recommended as it may lead to the destabilisation and/or demise of the tree.

In some cases it may be possible to encroach into or make variations to the theoretical TPZ. A *Minor Encroachment* is less than 10% of the area of the TPZ and is outside the SRZ. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. A *Major Encroachment* is greater than 10% of the TPZ or inside the SRZ. In this situation the Project Arborist must demonstrate that the tree would remain viable. This may require root investigation by non-destructive methods or the use of sensitive construction methods.

1.6 **Tree Health**: The health of the subject tree(s) was determined by assessing:

I. Foliage size and colour
II. Pest and disease infestation
III. Extension growth
IV. Crown density
V. Deadwood size and volume
VI. Presence of epicormic growth

1.7 **Tree Structural Condition**: The structural condition of the subject tree(s) was assessed by:

I. Assessment of branching structure
(i.e co-dominant/bark inclusions, crossing branches, branch taper, terminal loading, previous branch failures)
II. Visible evidence of structural defects or instability
(i.e root plate movement, wounds, decay, cavities, fungal brackets, adaptive growth)
III. Evidence of previous pruning or physical damage
(root severance/damage, lopping, flush-cutting, lions tailing, mechanical damage)

1.8 **Useful Life Expectancy (ULE)**: The ULE is an estimate of the longevity of the subject tree(s) in its growing environment. The ULE is modified where necessary to take in consideration tree(s) health, structural condition and site suitability. The tree(s) has been allocated one of the following ULE categories (Modified from Barrell, 2001):

I. 40 years +
II. 15-40 years
III. 5-15 years
IV. Less than 5 years

[4]Mattheck&Breloer (2003)

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1.9 **Landscape Significance**: Landscape Significance was determined by assessing the combination of the cultural, environmental and aesthetic values of the subject tree(s). Whilst these values are subjective, a rating of high, moderate, low or insignificant has been allocated to the tree(s). This provides a relative value of the tree's Landscape Significance which may aid in determining its Retention Value. If the tree(s) can be categorized into more than one value, the higher value has been allocated.

Landscape Significance	Description
Very High	The subject tree is listed as a Heritage Item under the *Local Environmental Plan* with a local or state level of significance.
	The subject tree is listed on Council's Significant Tree Register or meets the criteria for significance assessment of trees and/or landscapes by a suitably qualified professional. The criteria are based on general principles outlines in the Burra Charter and on criteria from the Register of the National Estate.
High	The subject tree creates a 'sense of place' or is considered 'landmark' tree.
	The subject tree is of cultural or historical importance or is widely known.
	The subject tree is a prominent specimen which forms part of the curtilage of a heritage item with a known or documented association with that item.
	The subject tree has been identified by a suitably qualified professional as a species scheduled as a Threatened or Vulnerable Species for the site defined under the provisions of the NSW *Biodiversity Conservation Act (2016)* or the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (1999).
	The subject tree is known to contain nesting hollows to a species scheduled as a Threatened or Vulnerable Species for the site as defined under the provisions of the NSW *Biodiversity Conservation Act (2016)* or the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (1999).
	The subject tree is an excellent representative of the species in terms of aesthetic value.
	The subject tree is of significant size, scale or makes a significant contribution to the canopy cover of the locality.
Moderate	The subject tree makes a positive contribution to the visual character or amenity of the area.
	The subject tree provides a specific function such as screening or minimising the scale of a building.
	The subject tree is a good representative of the species in terms of aesthetic value.
Low	The subject tree is a known environmental weed species or is exempt under the provisions of the local Council's Tree Management Controls
	The subject tree makes little or no contribution to the amenity of the locality.
	The subject tree is a poor representative of the species in terms of aesthetic value.

1.10 **Retention Value**: Retention Value was based on the subject tree's Useful Life Expectancy and Landscape Significance. The Retention Value was modified where necessary to take in consideration the subject tree's health, structural condition and site suitability. The subject tree(s) has been allocated one of the following Retention Values:

I. Priority for Retention
II. Consider for Retention
III. Consider for Removal
IV. Priority for Removal

<table>
<tr><th>ULE</th><th></th><th colspan="3">Landscape Significance</th></tr>
<tr><td></td><td>Very High</td><td>High</td><td>Moderate</td><td>Low</td><td>Insignificant</td></tr>
<tr><td>40 years +</td><td rowspan="3">Priority for Retention</td><td colspan="2">Priority for Retention</td><td rowspan="3">Consider for Removal</td><td rowspan="3">Priority for Removal</td></tr>
<tr><td>15-40 years</td><td>Priority for Retention</td><td>Consider for Retention</td></tr>
<tr><td>5-15 years</td><td colspan="2">Consider for Retention</td></tr>
<tr><td>Less than 5 years</td><td>Consider for Removal</td><td colspan="3">Priority for Removal</td></tr>
</table>

The above table has been modified from the Footprint Green Tree Significance and Retention Value Matrix.

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Appendix 2: Plans

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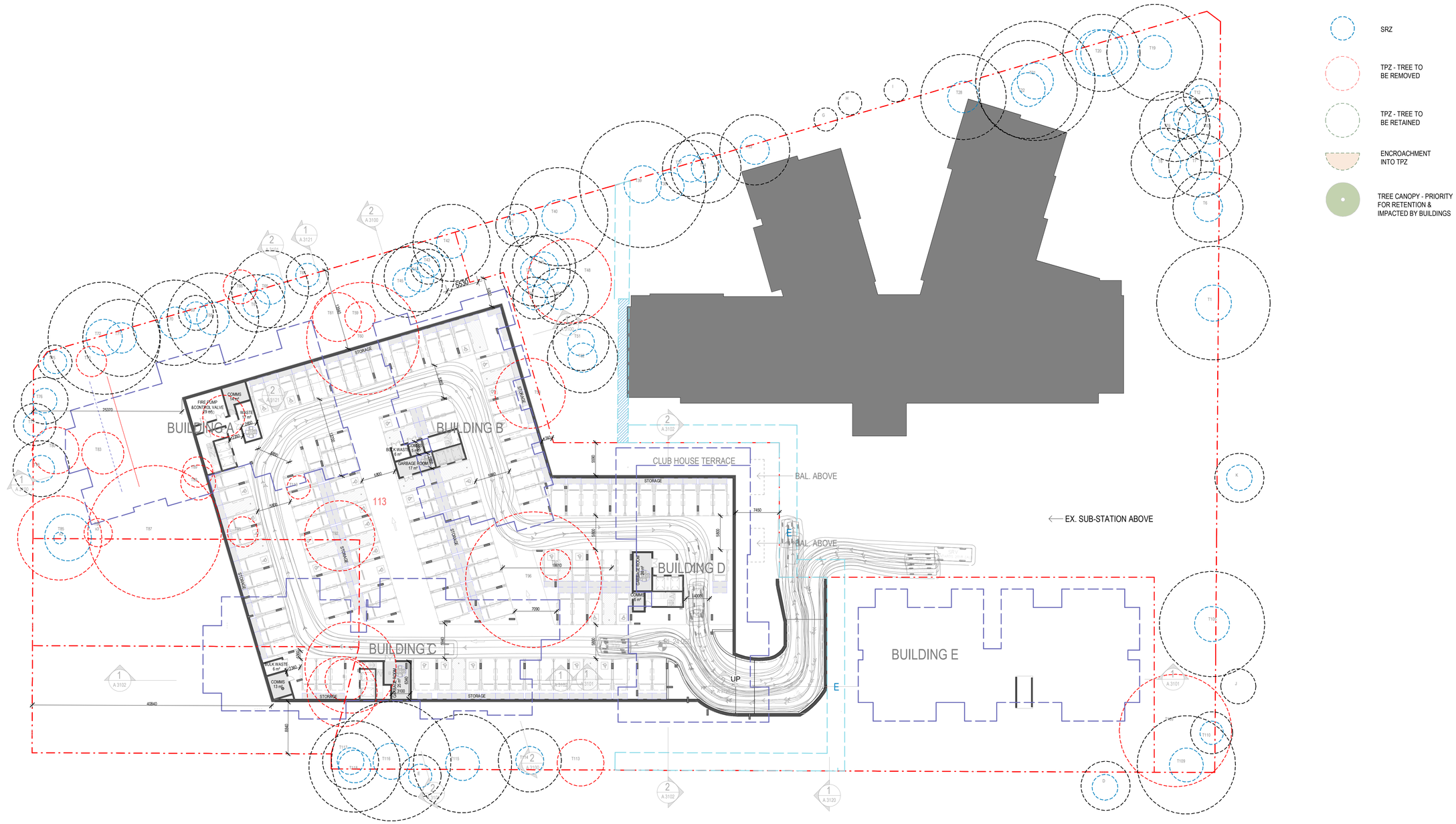

1 GA - BASEMENT
1 : 350

NOTE: HARDCOPIES OF THIS DRAWING TO BE PRINTED IN COLOUR

Amendments

Issue	Description	Date
A	FINAL DA SET	25.11.22
B	FOR INFORMATION	19.06.23
C	AMENDED DA TEAM ISSUE_02	02.09.23
D	AMENDED DA TEAM ISSUE_03	10.09.23
E	FOR INFORMATION	14.09.23
F	AMENDED DA TEAM ISSUE_04	15.09.23

Amendments

Issue	Description	Date

Consultant

GYDE Consulting
Town Planner

TTW Engineers
Traffic and Civil

JHA Consulting
Services Engineers

Client

Uniting

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architecture interior design urban design landscape
nom architect Lisa-Maree Carrigan 7568

North Point

DA SUBMISSION

9/18/2023 12:50:56 AM

Project Title
UNITING EDINGLASSIE

Drawing Title
BASEMENT

Plotted and checked by	HMN/TL/FS		
Verified	MF	Approved	FS
Drawing Created (date)		Drawing Created (by)	
			04/11/2022

Scale	Project No	Drawing No	Issue
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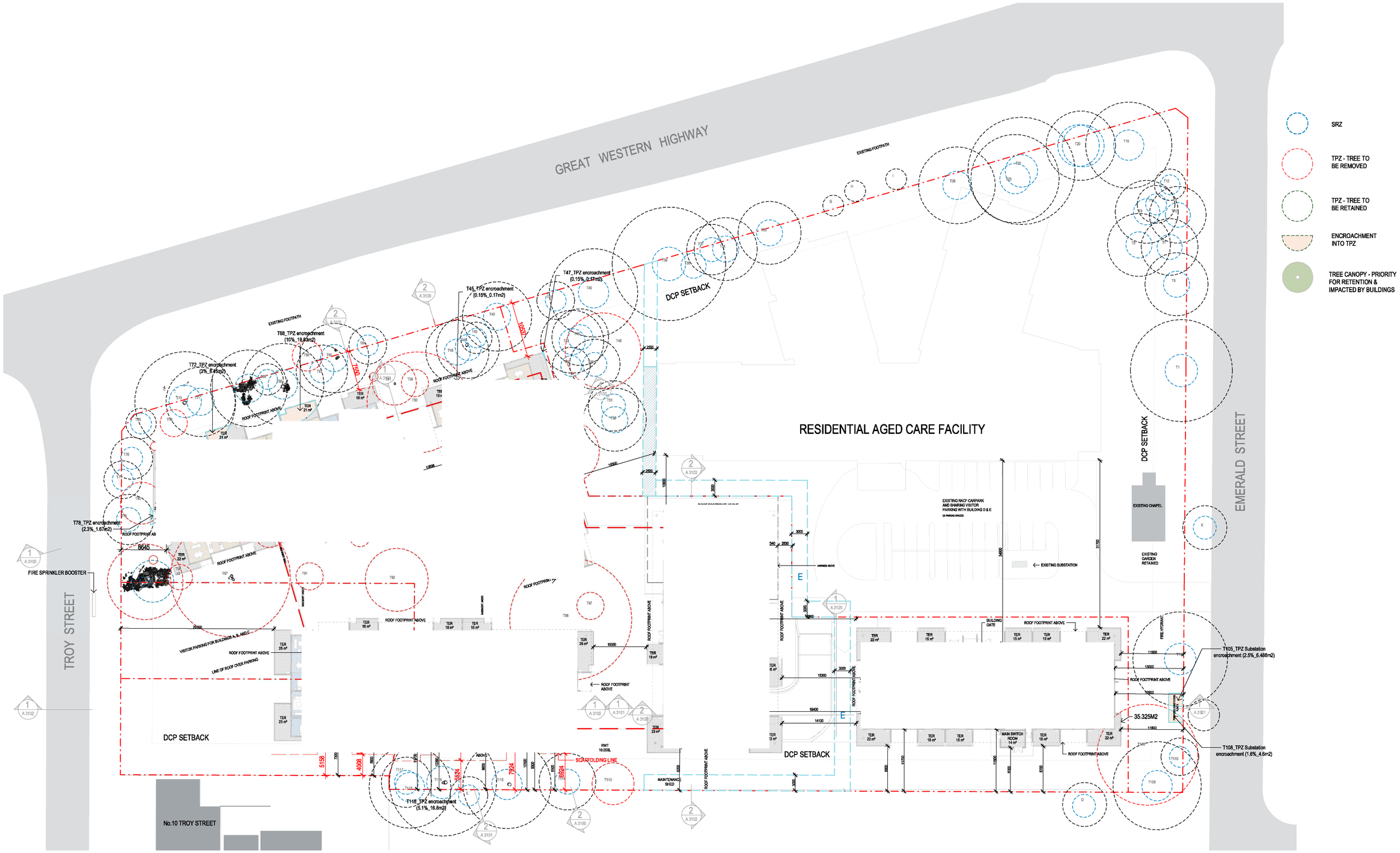

1 GA - GROUND FLOOR
1 : 350

NOTE: HARDCOPIES OF THIS DRAWING TO BE PRINTED IN COLOUR

Amendments

Issue	Description	Date
A	FINAL DA SET	25.11.22
B	Response to Council RFI's	27.04.23
C	DRAFT DA ENVELOPE REVIEW	08.06.23
D	FOR INFORMATION	19.06.23
E	FOR INFORMATION	21.06.23
F	AMENDED DA TEAM ISSUE_02	02.09.23
G	AMENDED DA TEAM ISSUE_03	10.09.23
H	FOR INFORMATION	14.09.23
I	AMENDED DA TEAM ISSUE_04	15.09.23

Amendments

Issue	Description	Date

Consultant

GYDE Consulting
Town Planner

TTW Engineers
Traffic and Civil

JHA Consulting
Services Engineers

Client

Uniting

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North Point

DA SUBMISSION

Plotted and checked by HMN/TL/FS

Verified MF Approved FS

Drawing Created (date) Drawing Created (by)

9/18/2023 12:54:30 AM

04/11/2022

Project Title

UNITING EDINGLASSIE

Drawing Title

GA - GROUND FLOOR

Scale	Project No	Drawing No	Issue
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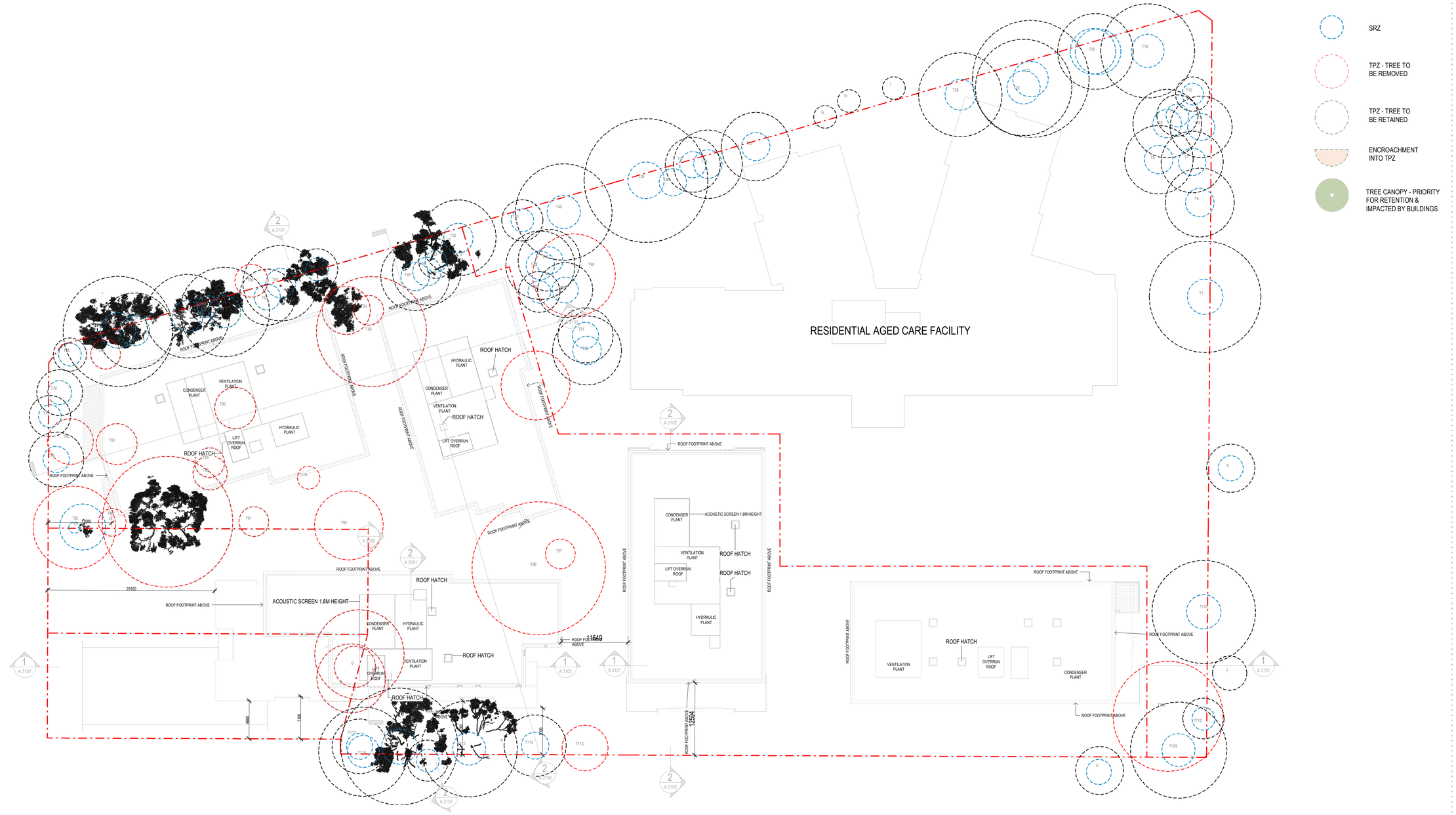

1 GA - ROOF
1 : 350

NOTE: HARDCOPIES OF THIS DRAWING TO BE PRINTED IN COLOUR

Amendments

Issue	Description	Date
A	FINAL DA SET	25.11.22
B	Response to Council RFI's	27.04.23
C	DRAFT DA ENVELOPE REVIEW	08.06.23
D	FOR INFORMATION	19.06.23
E	FOR INFORMATION	21.06.23
F	AMENDED DA TEAM ISSUE_03	10.09.23
G	FOR INFORMATION	14.09.23
H	AMENDED DA TEAM ISSUE_04	15.09.23

Amendments

Issue	Description	Date

Consultant
GYDE Consulting
Town Planner

TTW Engineers
Traffic and Civil

JHA Consulting
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Client
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North Point

Project Title
UNITING EDINGLASSIE

Drawing Title
GA - ROOF PLAN

DA SUBMISSION

Plotted and checked by	HMN/TL/FS
Verified	MF
Approved	FS
Drawing Created (date)	
Drawing Created (by)	
	04/11/2022

Scale	Project No	Drawing No	Issue
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Appendix 3: Tree Assessment Schedule

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
1	*Jacaranda mimosifolia* (Jacaranda)	450 300 600	10	8	Good	Good	Small (<25mm) & medium (25-75mm) diameter epicormic growth in low volumes. Co-dominant inclusion, minor. Pruned/lopped for line clearance.	15-40	Moderate	Consider for Retention	9.7	3.1	Retain. No works within TPZ.
6	*Corymbia maculata* (Spotted Gum)	600	20	5	Good	Good		40+	High	Priority for Retention	7.2	2.7	Retain. No works within TPZ.
7	*Jacaranda mimosifolia* (Jacaranda)	450	10	6	Good	Good		15-40	Moderate	Consider for Retention	5.4	2.4	Retain. No works within TPZ.
8	*Eucalyptus sideroxylon* (Mugga Ironbark)	600	19	6	Fair	Good	Crown density 50-75%. Small (<25mm) and medium (25-75mm) diameter deadwood in low volumes. Wound/s, early stages of decay. Small (<25mm) epicormic growth in moderate volumes.	5-15	High	Consider for Retention	7.2	2.7	Retain. No works within TPZ.
9	*Casuarina cunninghamiana* (She-Oak)	600	24	9	Good	Fair	Wound/s, advanced stages of decay at base of first order branch. Recommend internal diagnostic testing if tree is to be retained.	5-15	High	Consider for Retention	7.2	2.7	Retain. No works within TPZ.
10	*Casuarina cunninghamiana* (She-Oak)	450	13	4	Good	Good	Partially suppressed. Medium (25-75mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	5.4	2.4	Retain. No works within TPZ.
11	*Casuarina cunninghamiana* (She-Oak)	300	9	4	Good	Fair	Partially suppressed. Previous branch failure/s. Wound/s, advanced stages of decay.	5-15	Moderate	Consider for Retention	3.6	2	Retain. No works within TPZ.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
12	*Eucalyptus sideroxylon* (Mugga Ironbark)	250	7	3	Good	Good	Partially suppressed. Phototropic lean, slight.	15-40	Low	Consider for Removal	3	1.9	Retain. No works within TPZ.
19	*Jacaranda mimosifolia* (Jacaranda)	450 400 300	12	7	Good	Fair	Pruned/lopped for line clearance. Previous branch failure/s. Wound/s, early stages of decay. Small (<25mm) epicormic growth in moderate volumes. Roots damaging adjacent sandstone retaining wall.	15-40	Moderate	Consider for Retention	8.2	2.9	Retain. No works within TPZ.
20	*Jacaranda mimosifolia* (Jacaranda)	300 450	11	7	Good	Good	Pruned/lopped for line clearance. Small (<25mm) & medium (25-75mm) diameter epicormic growth in moderate volumes. Wound/s, early stages of decay.	15-40	Moderate	Consider for Retention	6.6	2.6	Retain. No works within TPZ.
21	*Casuarina cunninghamiana* (She-Oak)	850	23	6	Good	Good	Partially suppressed. Small (<25mm) diameter deadwood in low volumes.	15-40	High	Priority for Retention	10.2	3.1	Retain. No works within TPZ.
22	*Casuarina cunninghamiana* (She-Oak)	700	23	6	Good	Good	Partially suppressed. Wound/s, early stages of decay. Previous branch failure/s. Branch inclusion/s, minor.	15-40	High	Priority for Retention	8.4	2.9	Retain. No works within TPZ.
28	*Jacaranda mimosifolia* (Jacaranda)	400 450	17	6	Good	Fair	Pruned/lopped for line clearance. Co-dominant inclusion. Small (<25mm) & medium (25-75mm) diameter epicormic growth in moderate volumes. Wound/s, early stages of decay.	5-15	Moderate	Consider for Retention	7.3	2.7	Retain. No works within TPZ.
33	*Eucalyptus saligna* (Sydney Blue Gum)	500	18	6	Good	Fair	Medium (25-75mm) diameter deadwood in low volumes. Occluded cable girdling trunk. Wound(s), early stages of decay.	15-40	Moderate	Consider for Retention	6	2.5	Retain. No works within TPZ.
34	*Casuarina cunninghamiana* (She-Oak)	600	22	6	Good	Good	Partially suppressed. Medium (25-75mm) diameter deadwood in low volumes.	15-40	High	Priority for Retention	6	2.5	Retain. No works within TPZ.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
37	*Casuarina cunninghamiana* (She-Oak)	400	10	3	Good	Good	Heavily suppressed.	5-15	Moderate	Consider for Retention	4.8	2.3	Retain. No works within TPZ.
38	*Corymbia maculata* (Spotted Gum)	450	10	4	Good	Fair	Trunk wound/s, early stages of decay. Partially suppressed.	15-40	High	Priority for Retention	5.4	2.4	Retain. No works within TPZ.
39	*Corymbia maculata* (Spotted Gum)	900	25	8	Good	Good	Wound/s/s, early stages of decay. Medium (25-75mm) diameter deadwood in low volumes.	15-40	High	Priority for Retention	10.8	3.2	Retain. Minor encroachment, footpath.
40	*Corymbia maculata* (Spotted Gum)	700	24	9	Good	Good	Crown density 75-100%. Small (<25mm) & medium (25-75mm) diameter deadwood in low volumes. Wound/s, early stages of decay.	15-40	High	Priority for Retention	8.4	2.9	Retain. No works within TPZ.
41	*Eucalyptus* sp. (Eucalypt)	300	7	4	Good	Fair	Wound/s, early stages of decay. Partially suppressed. Trunk cavities, minor.	5-15	Moderate	Consider for Retention	3.6	2	Retain. No works within TPZ.
42	*Corymbia citriodora* (Lemon Scented Gum)	550	17	6	Good	Good	Partially suppressed. Small (<25mm) diameter deadwood in low volumes.	5-15	Moderate	Consider for Retention	6.6	2.6	Retain. No works within TPZ.
43	*Melaleaca quinquenervia* (Broad Leaf Paperbark)	250	6	2	Good	Good	Partially suppressed. Branch inclusions, minor.	15-40	Low	Consider for Removal	3	1.9	Retain. No works within TPZ.
44	*Corymbia maculata* (Spotted Gum)	600	20	6	Good	Good	Crown density 75-100%. Partially suppressed. Wound/s, early stages of decay.	15-40	High	Priority for Retention	6	2.5	Retain. No works within TPZ.
45	*Corymbia maculata* (Spotted Gum)	600	25	6	Good	Good	Partially suppressed. Small (<25mm) diameter deadwood in low volumes. Wound/s, early stages of decay.	5-15	Moderate	Consider for Retention	6	2.5	Retain. Minor encroachment, terrace.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
46	*Eucalyptus sideroxylon* (Mugga Ironbark)	450	18	5	Fair	Good	Crown density 50-75%. Small (<25mm) diameter deadwood in low volumes. Partially suppressed.	5-15	High	Consider for Retention	5.4	2.4	Retain. No works within TPZ.
47	*Eucalyptus sideroxylon* (Mugga Ironbark)	600	19	8	Fair	Good	Crown density 50-75%. Partially suppressed.	5-15	High	Consider for Retention	6	2.5	Retain. Minor encroachment, terrace.
48	*Eucalyptus saligna* (Sydney Blue Gum)	600	20	11	Poor	Poor	Crown density 0-25%. Medium (25-75mm) diameter deadwood in low volumes. Basal wound, advanced stages of decay. Wound/s, advanced stages of decay. Borer.	<5	High	Priority for Removal	6	2.5	Remove. Landscape treatment.
49	*Casuarina cunninghamiana* (She-Oak)	400	14	4	Good	Good	Partially suppressed.	15-40	Moderate	Consider for Retention	4.8	2.3	Retain. No works within TPZ.
50	*Angophora costata* (Sydney Red Gum)	300	10	5	Fair	Good	Crown density 25-50%. Partially suppressed. Small (<25mm) diameter deadwood. in low volumes.	5-15	Moderate	Consider for Retention	3.6	2	Retain. No works within TPZ.
51	*Melaleaca quinquenervia* (Broad Leaf Paperbark)	400	9	4	Good	Fair	Co-dominant inclusion. Partially suppressed.	15-40	Moderate	Consider for Retention	4.8	2.3	Retain. No works within TPZ.
52	*Eucalyptus tereticornis* (Forest Red Gum)	500	15	4	Fair	Good	Crown density 50-75%. Small (<25mm) diameter deadwood in low volumes. Small (<25mm) epicormic growth in low volumes.	15-40	Moderate	Consider for Retention	6	2.5	Retain. Minor encroachment, footpath.
53	*Corymbia maculata* (Spotted Gum)	500	15	7	Fair	Good	Crown density 50-75%. Small (<25mm) diameter deadwood in moderate volumes.	5-15	Moderate	Consider for Retention	6	2.5	Remove. Major encroachment, basement.
59	*Melaleuca linariifolia* (Snow-in-Summer)	150 150	6	2	Fair	Fair	Crown density 50-75%. Co-dominant inclusion. Small (<25mm) diameter deadwood in moderate volumes.	5-15	Low	Consider for Removal	2.6	1.8	Remove. Landscape treatment.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
60	*Eucalyptus* sp. (Eucalypt)	800	13	5	Fair	Good	Crown density 25-50%. Small (<25mm) diameter epicormic growth in low volumes. Small (<25mm) diameter deadwood in moderate volumes. Wound/s, early stages of decay.	5-15	Moderate	Consider for Retention	9.6	3.1	Remove. Major encroachment, basement.
61	*Allocasuarina torulosa* (Forest Oak)	350	10	4	Fair	Good	Crown density 25-50%. Small (<25mm) & medium (25-75mm) diameter deadwood in low volumes.	5-15	Moderate	Consider for Retention	4.2	2.2	Remove. Landscape treatment.
64	*Jacaranda mimosifolia* (Jacaranda)	300	6	4	Good	Good	Phototropic lean, moderate. Wound/s, early stages of decay. Mechanical damage to exposed roots.	15-40	Moderate	Consider for Retention	3.6	2	Retain. No works within TPZ.
65	*Angophora costata* (Sydney Red Gum)	550	11	8	Good	Good	Large (>75mm) diameter deadwood in low volumes. Partially suppressed. Phototropic lean, slight.	15-40	Moderate	Consider for Retention	6.6	2.6	Retain. No works within TPZ.
66	DEAD									DEAD			DEAD
67	*Melaleaca quinquenervia* (Broad Leaf Paperbark)	300 275	10	3	Good	Fair	Co-dominant inclusion, major.	15-40	Moderate	Consider for Retention	4.9	2.3	Retain. No works within TPZ.
68	*Eucalyptus eugenioides* (Thin Leaf Stringybark)	650	14	7	Fair	Good	Large (>75mm) diameter deadwood in low volumes. Wound/s, advanced stages of decay. Recommend internal diagnostic testing if tree is to be retained.	5-15	Moderate	Consider for Retention	7.8	2.8	Retain. Minor encroachment, terrace.
69	*Allocasuarina torulosa* (Forest Oak)	250	6	3	Fair	Fair	Crown density 50-75%. Partially suppressed. Small (<25mm) diameter deadwood in moderate volumes. Co-dominant inclusion, major	5-15	Moderate	Consider for Retention	3	1.9	Retain. No works within TPZ.
70	*Melaleaca quinquenervia* (Broad Leaf Paperbark)	350 350 350	12	4	Good	Fair	Co-dominant inclusion, major. Mechanical damage to exposed roots.	15-40	Moderate	Consider for Retention	7.3	2.7	Retain. No works within TPZ.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
71	*Eucalyptus sideroxylon* (Mugga Ironbark)	550	16	6	Good	Good	Partially suppressed. Wound/s, early stages of decay. Small (<25mm) & medium (25-75mm) diameter deadwood in low volumes.	5-15	High	Consider for Retention	6.6	2.6	Retain. Minor encroachment, terrace.
72	*Eucalyptus sideroxylon* (Mugga Ironbark)	800	20	7	Good	Good	Small (<25mm), medium (25-75mm) & large (>75mm) diameter deadwood in low volumes.	15-40	High	Priority for Retention	9.6	3.1	Retain. Minor encroachment, terrace.
73	*Eucalyptus* sp. (Eucalypt)	150 150	5	3	Fair	Fair	Crown density 50-75%. Coppiced stool. Small (<25mm) diameter deadwood in moderate volumes.	5-15	Low	Consider for Removal	2.6	1.8	Remove. Landscape treatment.
75	*Melaleuca linariifolia* (Snow-in-Summer)	150 150 100	4	3	Fair	Fair	Crown density 50-75%. Small (<25mm) diameter deadwood in moderate volumes. Wound/s, early stages of decay.	5-15	Low	Consider for Removal	2.9	1.9	Retain. No works within TPZ.
76	*Melaleuca linariifolia* (Snow-in-Summer)	200 250	6	4	Good	Good	Crown density 75-100%. Small (<25mm) diameter deadwood in moderate volumes. Wound/s, early stages of decay.	5-15	Moderate	Consider for Retention	4	2.1	Retain. No works within TPZ.
77	*Melaleuca linariifolia* (Snow-in-Summer)	150 150 200	5	3	Good	Fair	Lopped with resultant epicormic growth.	5-15	Low	Consider for Removal	3.6	2	Retain. No works within TPZ.
78	*Callistemon viminalis* (Weeping Bottlebrush)	400	5	4	Good	Good	Branch inclusion/s, minor. Small (<25mm) diameter deadwood in moderate volumes.	5-15	Moderate	Consider for Retention	4.8	2.3	Retain. Minor encroachment, terrace.
80	*Callistemon viminalis* (Weeping Bottlebrush)	200 200 150	6	4	Good	Good	Small (<25mm) diameter deadwood in moderate volumes. Branch inclusion/s, minor.	5-15	Moderate	Consider for Retention	4	2.1	Remove. Landscape treatment.
83	*Callistemon viminalis* (Weeping Bottlebrush)	300 @ grade	6	4	Good	Good	Branch inclusion/s, minor. Wound/s, early stages of decay.	5-15	Moderate	Consider for Retention	3.6	2	Remove. Landscape treatment.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
85	*Cupressus sempervirens* (Mediterranean Cypress)	600 max at grade	12	2	Good	Good	Group of 3. Branch inclusion/s, minor.	15-40	Moderate	Consider for Retention	7.2	2.7	Remove. Landscape treatment.
86	*Callistemon viminalis* (Weeping Bottlebrush)	200 max	5	2	Good	Good	Group of 3.	15-40	Low	Consider for Removal	2.4	1.7	Remove. Landscape treatment.
87	*Angophora costata* (Sydney Red Gum)	950	18	7	Good	Good	Crown density 75-100%. Medium (25-75mm) & Large (>75mm) diameter deadwood in low volumes. Wound/s, early stages of decay. Remove deadwood and damaged branch over neighbouring property. Cracked kerb at base of tree.	15-40	High	Priority for Retention	11.4	3.3	Remove. Landscape treatment.
88	*Callistemon viminalis* (Weeping Bottlebrush)	250 max at grade	5	2	Good	Good	Group of 2. Branch inclusion/s, minor.	15-40	Low	Consider for Removal	3	1.9	Remove. Major encroachment, basement.
89	*Plumeria acutifolia* (Frangipani)	150 150 at grade	3	3	Good	Fair	Wound/s, early stages of decay.	5-15	Low	Consider for Removal	2.6	1.8	Remove. Major encroachment, basement.
90	*Callistemon viminalis* (Weeping Bottlebrush)	300	6	3	Good	Good	Branch inclusion/s, minor.	15-40	Moderate	Consider for Retention	3.6	2	Remove. Basement footprint.
91	*Callistemon viminalis* (Weeping Bottlebrush)	150 150	4	2	Good	Good		15-40	Low	Consider for Removal	2.6	1.8	Remove. Basement footprint.
92	*Angophora costata* (Sydney Red Gum)	500	10	4	Good	Good	Medium (25-75mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	6	2.5	Remove. Basement footprint.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
96	*Melaleaca quinquenervia* (Broad Leaf Paperbark)	800 450 300	12	5	Good	Good	Branch inclusion/s, minor. Wound/s, early stages of decay.	15-40	High	Priority for Retention	11.6	3.3	Remove. Basement footprint.
97	*Prunus dulcis* (Almond)	150	3	3	Fair	Good	Crown density 50-75%. Partially suppressed. Small (<25mm) diameter deadwood in moderate volumes.	5-15	Low	Consider for Removal	2	1.5	Remove. Basement footprint.
105	*Eucalyptus tereticornis* (Forest Red Gum)	750	18	7	Good	Fair	Crown density 75-100%. Large (>75mm) diameter deadwood in low volumes. Recommend aerial inspection of branch inclusion at 7m if tree is to be retained.	15-40	High	Priority for Retention	9	3	Retain. Major encroachment, footpath. Minor encroachment, substation.
108	*Schinus molle* var. *areira* (Peppercorn Tree)	800	9	6	Good	Fair	Trunk cavity, major. Small (<25mm) diameter deadwood in moderate volumes. Recommend internal diagnostic testing if tree is retained.	<5	Moderate	Priority for Removal	9.6	3.1	Remove. Landscape treatment.
109	*Corymbia maculata* (Spotted Gum)	700	22	6	Good	Good	Medium (25-75mm) diameter deadwood in low volumes.	15-40	High	Priority for Retention	8.4	2.9	Retain. Minor encroachment, footpath.
110	*Callistemon salignus* (White Bottlebrush)	250 150	6	3	Good	Fair	Partially suppressed. Branch inclusion/s, minor. Co-dominant inclusion.	5-15	Moderate	Consider for Retention	3.6	2	Retain. No works within TPZ.
113	*Syagrus romanzoffiana* (Cocos Palm)	250	11	3	Good	Good		15-40	Low	Consider for Removal	4	n/a	Remove. Landscape treatment.
114	*Angophora costata* (Sydney Red Gum)	450	15	6	Good	Good	Crown density 75-100%. Wound/s, early stages of decay. Medium (25-75mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	5.4	2.4	Retain. Major encroachment, footpath.
115	*Corymbia citriodora* (Lemon Scented Gum)	700	24	9	Good	Good	Crown density 75-100%. Medium (25-75mm) diameter deadwood in low volumes.	15-40	High	Priority for Retention	8.4	2.9	Retain. Major encroachment, footpath.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
116	*Corymbia citriodora* (Lemon Scented Gum)	850	22	10	Good	Good	Co-dominant inclusion. Wound/s, early stages of decay. Cracked kerb at base of trunk.	15-40	High	Priority for Retention	10.2	3.1	Retain. Major encroachment, footpath. Minor encroachment stairs & ramp.
117	*Corymbia citriodora* (Lemon Scented Gum)	400	12	6	Fair	Good	Crown density 50-75%. Small (<25mm) diameter deadwood in moderate volumes.	5-15	Moderate	Consider for Retention	4.8	2.3	Retain. Major encroachment, footpath.
118	*Corymbia citriodora* (Lemon Scented Gum)	650	22	8	Fair	Fair	Crown density 50-75%. Co-dominant inclusion. Recommend aerial inspection if tree is to be retained. Wound(s), early stages of decay.	5-15	High	Consider for Retention	7.8	2.8	Retain. Major encroachment, footpath.
119	*Magnolia grandiflora* (Bull Bay Magnolia)	75	3	1	Good	Good		15-40	Low	Consider for Removal	2	1.5	Remove. Basement footprint.
A	*Corymbia maculata* (Spotted Gum)	500	16	7	Good	Good	Located in 8 Troy Ave. No access to base to tree. Hanger in crown. Medium (25-75mm) & large (>75mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	6	2.5	Remove. Basement footprint.
B	*Acer negundo* (Box Elder)	300	7	3	Good	Poor	Located in 8 Troy Ave. No access to base to tree. Wounds, advanced stages of decay.	<5	Low	Priority for Removal	3.6	2	Remove. Basement footprint.
C	*Corymbia citriodora* (Lemon Scented Gum)	650	15	7	Good	Good	Located in 8 Troy Ave. No access to base to tree. Medium (25-75mm) & large (>75mm) diameter deadwood in low volumes.	15-40	Moderate	Consider for Retention	7.8	2.8	Remove. Basement footprint.
D	*Jacaranda mimosifolia* (Jacaranda)	350					Located in neighbouring property. Crown 3m over boundary.				4.2	2.2	Retain. No works within TPZ.
E	*Eucalyptus botryoides* (Bangalay)	300					Located in neighbouring property.				3.6	2	Retain. No works within TPZ.

Tree No.	Species	DBH (mm)	Height (m)	Radial Crown Spread (m)	Health Rating	Structural Condition Rating	Comments	ULE (years)	L/Sign	Retention Value	TPZ (m)	SRZ (m)	Implication
G	*Fraxinus* sp. (Ash)	50					Street tree.				2	1.5	Retain. No works within TPZ.
H	*Lagerstroemia indica* (Crepe Myrtle)	50					Street tree.				2	1.5	Retain. No works within TPZ.
I	*Fraxinus* sp. (Ash)	50					Street tree.				2	1.5	Retain. No works within TPZ.
J	*Callistemon salignus* (White Bottlebrush)	250					Street tree.				3	1.9	Retain. No works within TPZ.
K	*Callistemon salignus* (White Bottlebrush)	350					Street tree.				4.2	2.2	Retain. No works within TPZ.

Appendix 4: Plates

Plate 1: Showing Tree 96

Plate 2: Showing Trees 114-118

Plate 3: Showing Trees 87 (left) and 88 (right)

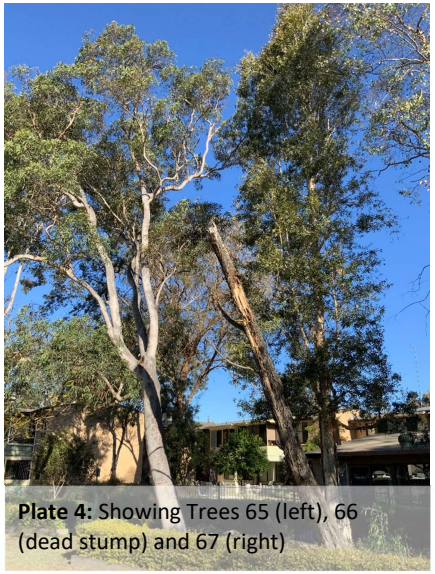


Plate 4: Showing Trees 65 (left), 66 (dead stump) and 67 (right)

Plate 5: Showing Trees 42-45

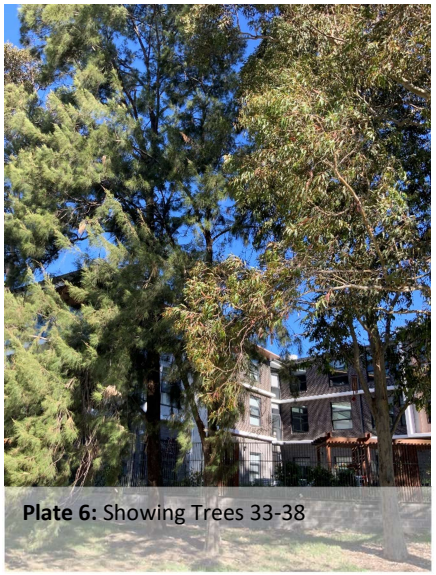


Plate 6: Showing Trees 33-38

Plate 7: Showing Trees 105 (right) and 119 (street tree)

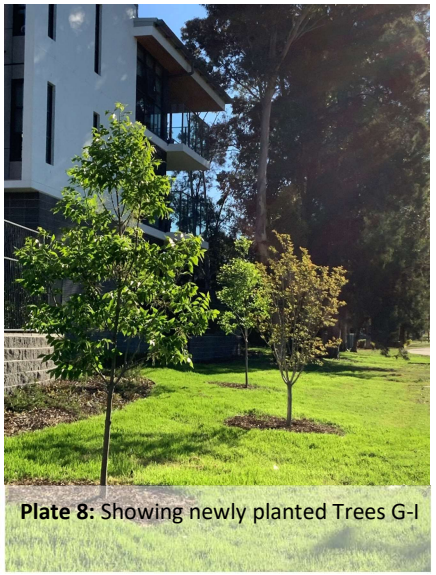


Plate 8: Showing newly planted Trees G-I

Plate 9: Showing Pruning of Tree 76

Plate 10: Showing Pruning of Tree 78

Plate 11: Showing pruning of Tree 115 – Option 1

Plate 12: Showing pruning of Tree 115 – Option 2

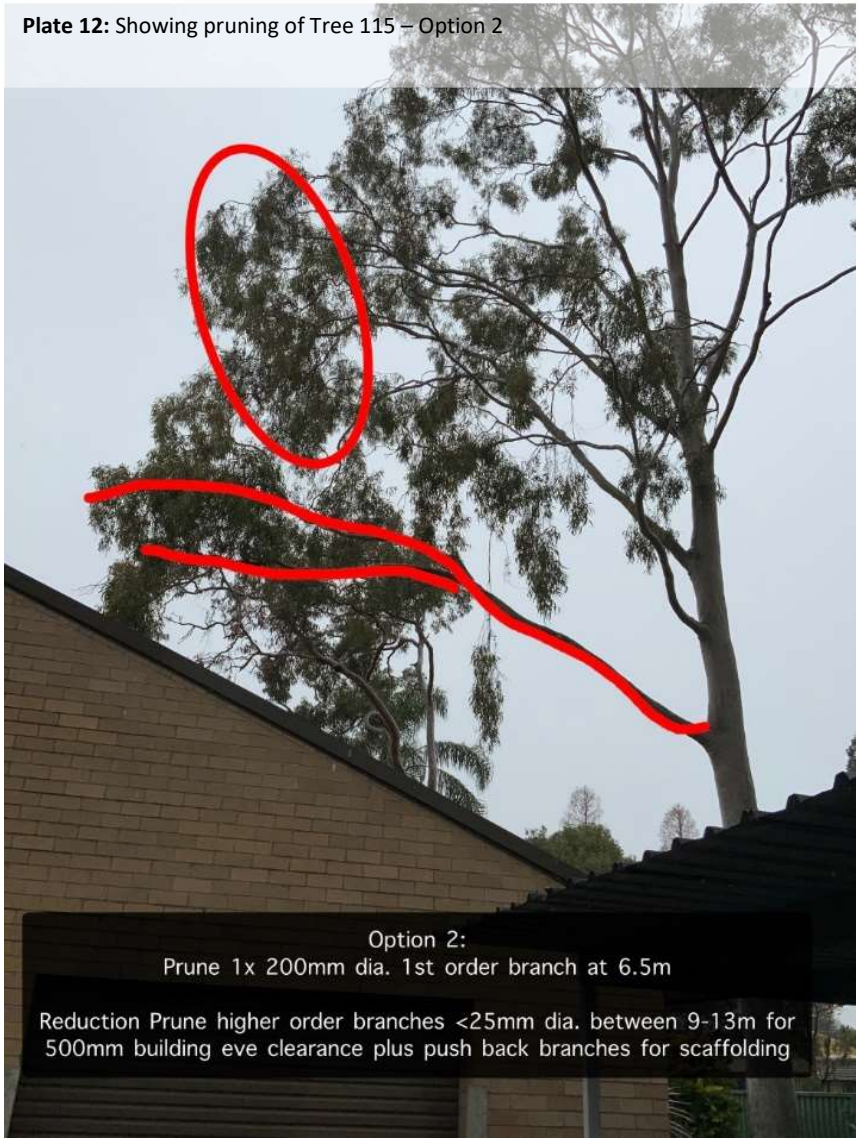
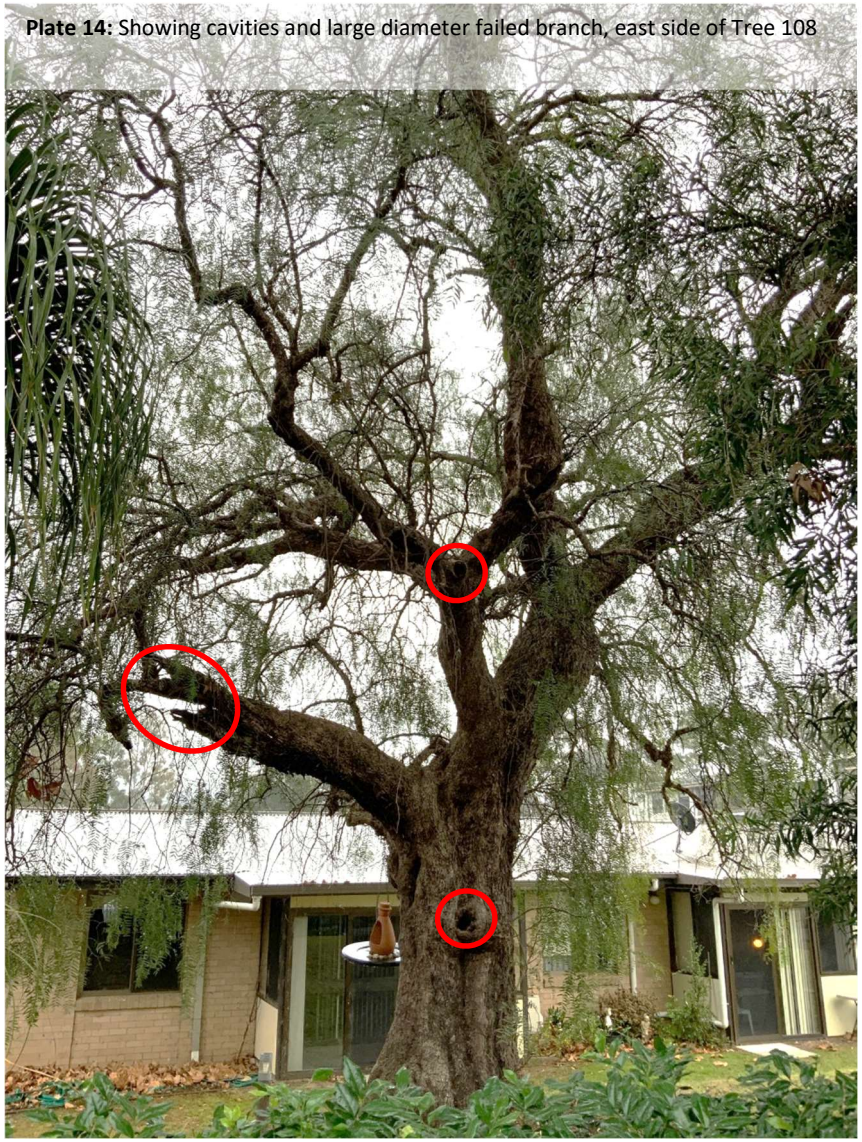


Plate 13: Showing cavities, west side of Tree 108

Plate 14: Showing cavities and large diameter failed branch, east side of Tree 108



Appendix 5: Tree Protection Specification

1.0 Appointment of Project Arborist

A Project Arborist shall be engaged prior the commencement of work on-site and monitor compliance with the protection measures. The Project Arborist shall inspect the tree protection measures and Compliance Certification shall be prepared by the Project Arborist for review by the Principal Certifying Authority prior to the release of the Compliance Certificate.

The Project Arborist shall have a minimum qualification equivalent (using the Australian Qualifications Framework) of NSW TAFE Certificate Level 5 or above in Arboriculture.

1.1 Compliance

Contractors and site workers shall receive a copy of these specifications a minimum of 3 working days prior to commencing work on-site. Contractors and site workers undertaking works within the Tree Protection Zone shall sign the site log confirming they have read and understand these specifications, prior to undertaking works on-site.

The Project Arborist shall undertake regular site inspections and certify that the works are being undertaken in accordance with this specification.

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 recommended management strategies implemented as required.

1.2 Tree & Vegetation Removal

Tree removal works shall be undertaken in accordance with the *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016)* and other applicable codes and legislation.

Tree removal shall not damage the trees to be retained. Other vegetation to be removed within a TPZ shall be carefully lifted by hand/hand tools to avoid damaging roots (>25mmø) within the surrounding soil profile.

1.3 Tree Protection Zone

The trees to be retained shall be protected prior and during construction from activities that may result in an adverse effect on their health or structural condition. The area within the Tree Protection Zone (TPZ) shall exclude the following activities, unless otherwise stated: -

- Modification of existing soil levels, excavations and trenching
- Mechanical removal of vegetation
- Movement of natural rock
- Storage of materials, plant or equipment or erection of site sheds
- Affixing of signage or hoarding to the trees
- Preparation of building materials, refueling or disposal of waste materials and chemicals
- Lighting fires
- Movement of pedestrian or vehicular traffic
- Temporary or permanent location of services, or the works required for their installation
- Any other activities that may cause damage to the tree

NOTE: If access, encroachment or incursion into the TPZ is deemed essential, prior authorisation is required by the Project Arborist.

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1.4 Tree Protection Fencing

TPZ fencing shall be installed at the perimeter of the TPZ. Refer Ground Floor Plan **(Appendix 2).** 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 and for the installation of pavements only where appropriate ground protection is installed and approved by the Project Arborist.

As a minimum, the Tree Protection Fence shall consist of 1.8m high wire mesh panels supported by concrete feet. Panels shall be fastened together and supported to prevent sideways movement. The tree shall not be damaged during the installation of the Tree Protection Fencing. Refer to Typical Tree Protection Details (3) **(Appendix 6)**.

1.5 Signage

Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site. The lettering on the sign should comply with *Australian Standard - 1319 (1994) Safety signs for the occupational environment*. The signage shall be installed prior to the commencement of works on-site and shall be maintained in good condition for the duration of the development period.

1.6 Site Management

Materials, waste storage, and temporary services shall not be located within the TPZ.

1.7 Works within the Tree Protection Zones

In some cases works within the TPZ may be authorized by the determining authority. **These works shall be supervised by the Project Arborist**. When undertaking works within the TPZ, care should be taken to avoid damage to the tree's root system, trunks and lower branches.

1.8 Ground Protection

Ground protection shall be installed to any unfenced areas of the TPZ as required by the Project Arborist. Vehicular and machinery access shall be restricted to areas of existing pavement or from areas of temporary ground protection such as ground mats or steel road plates. Refer to Typical Tree Protection Details (3) **(Appendix 4).**

1.9 Trunk Protection

Trunk protection shall be installed as required by the Project Arborist by wrapping padding (either carpet underlay or 10mm thick jute geotextile mat) 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 (3) **(Appendix 4)**. Branch protection shall be installed as deemed necessary by the Project Arborist.

1.10 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 (refer to Section 1.5). Machinery shall work in conjunction with a spotter to guide the machinery operator and ensure that the ground surface/tree roots beneath the structure/pavement are not disturbed/damaged by demolition works. Machinery should not contact any part of a tree. Wherever possible, footings or elements below grade shall be retained to minimise disturbance to roots. The Project Arborist shall assess any inground structures within the SRZ prior to their removal and determine if these structures may be contributing to the stability of the tree. Where required, inground structures should be retained in situ.

Small structures to be demolished within a TPZ shall be carefully broken up in small sections using a hand-operated pneumatic/electric breaker and waste material removed by hand/hand tools. Large structures to be demolished within the TPZ shall be undertaken within the footprint of the existing structure ('top down, pull back') and away from the trees.

When removing slab/pavement sections within TPZ, machinery shall work backwards out of the TPZ to ensure machinery remains on un-demolished sections of slab at all times. Existing sub-base materials within a TPZ shall remain in-situ and (and reused) where possible. If the existing sub-base is to be removed, these works shall be undertaken by hand/hand tools ensuring that tree roots are retained and protected.

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If roots (>25mmø) are encountered during the demolition works, these roots must be retained in an undamaged condition and advice sought from the Project Arborist. Exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with a 10mm thick jute geotextile fabric. The geotextile fabric shall be kept in a damp condition at all times. Where the Project Arborist determines that the tree is using underground elements (i.e footings, pipes, rocks etc.) for support, these elements shall be left in-situ.

1.11 Pavement/Kerb Installation

Installation of the pavements and sub-base within the TPZ shall be supervised by the Project Arborist. The new surfaces and sub-base materials shall be placed at (for areas of existing pavement only) or above grade to minimise excavations and retain roots (unless prior root mapping results show above sensitive construction to be unnecessary).

If roots (>25mmø) are encountered during the installation of the new sub-base and surfaces, these roots must be retained in an undamaged condition and advice sought from the Project Arborist. Adjustment of final levels and design shall remain flexible to enable the retention of structural roots (>25mmø) where deemed necessary by the Project Arborist. Compaction of the sub-base shall be consolidated with a pedestrian-operated plate compactor only. If possible, the pavement material shall be permeable.

Where required, new kerbs within the TPZ should be modified to bridge tree roots (>25mmø) unless root pruning is approved and undertaken by the Project Arborist.

1.12 Footings Installation

Footing installation within TPZ areas shall be supervised by the Project Arborist. Other than for the isolated piers, all other parts of the structure shall be installed above grade.

Drilling/piling machinery shall be excluded from the TPZ unless operating from an area where ground protection has been installed (refer to Section 1.8) or from the existing slabs or pavements. Drilling/piling machinery shall be of a suitable size to not damage the trees' roots, trunk, branches and crown. No clearance pruning is permitted to allow for machinery access. Machinery shall work in conjunction with an observer to ensure that adequate clearance from trees is maintained at all times.

1.13 Underground Services

Underground service installation within the TPZ shall be supervised by the Project Arborist.

The installation of underground services shall be located outside of the TPZ. Where this is not possible, they shall be installed using tree sensitive excavation methods (hand/hydrovac/airspade) with the services installed around/below roots (>25mmø, or as determined by the Project Arborist). Excavation using compact machinery fitted with a flat bladed bucket is permissible where approved by the Project Arborist. Excavation using compact machinery should be undertaken in small increments, guided by a spotter who is to look for and prevent damage to roots (>25mmø).

Alternatively, boring methods may be used for underground service installation where the obvert level (highest interior level of pipe) is greater than 1200mm below existing grade. Excavations for starting and receiving pits for boring equipment shall be located outside of the TPZ areas or located to avoid roots (>25mmø) as deemed necessary by the Project Arborist. OSD tanks (where required) should be located outside of the TPZ areas.

1.14 Excavations, Root Protection & Root Pruning

Excavations and root pruning within the TPZ shall be supervised by the Project Arborist. Excavations within the TPZ shall be avoided wherever possible.

Excavations within the TPZ shall be undertaken by hand or using hydro vacuum excavation methods (or similar approved device) to protect tree roots. If there is any delay between excavation works and backfilling, exposed roots shall be protected from direct sunlight, drying out and extremes of temperature by covering with a 10mm thick jute mat. The mat shall be kept in a damp condition at all times.

No over-excavation, battering or benching shall be undertaken beyond the footprint of any structure unless approved by the Project Arborist. Hand excavation and root pruning shall be undertaken along the excavation line prior to the commencement of mechanical excavation to prevent tearing and shattering damage to the roots from excavation equipment.

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Roots (>25mmø) shall be pruned by the Project Arborist only. Roots (<25mmø) may be pruned by the Principal Contractor. Root pruning shall be undertaken with clean, sharp secateurs or a pruning saw to ensure a smooth wound face, free from tears.

Damaged roots shall be pruned behind the damaged tissues with the final cut made to an undamaged part of the root.

1.15 Landscape Planting

Planting of new trees, shrubs and ground covers and the installation of turf within the TPZ areas shall be undertaken using hand tools and roots (>25mmø) shall be protected. No mechanical cultivation/ripping of soils shall be undertaken within TPZ areas.

Landscape planting shall be completed in the final stage of the development works and tree protection fencing and trunk protection shall remain in place until these works are due to commence.

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Appendix 6: Typical Tree Protection Details

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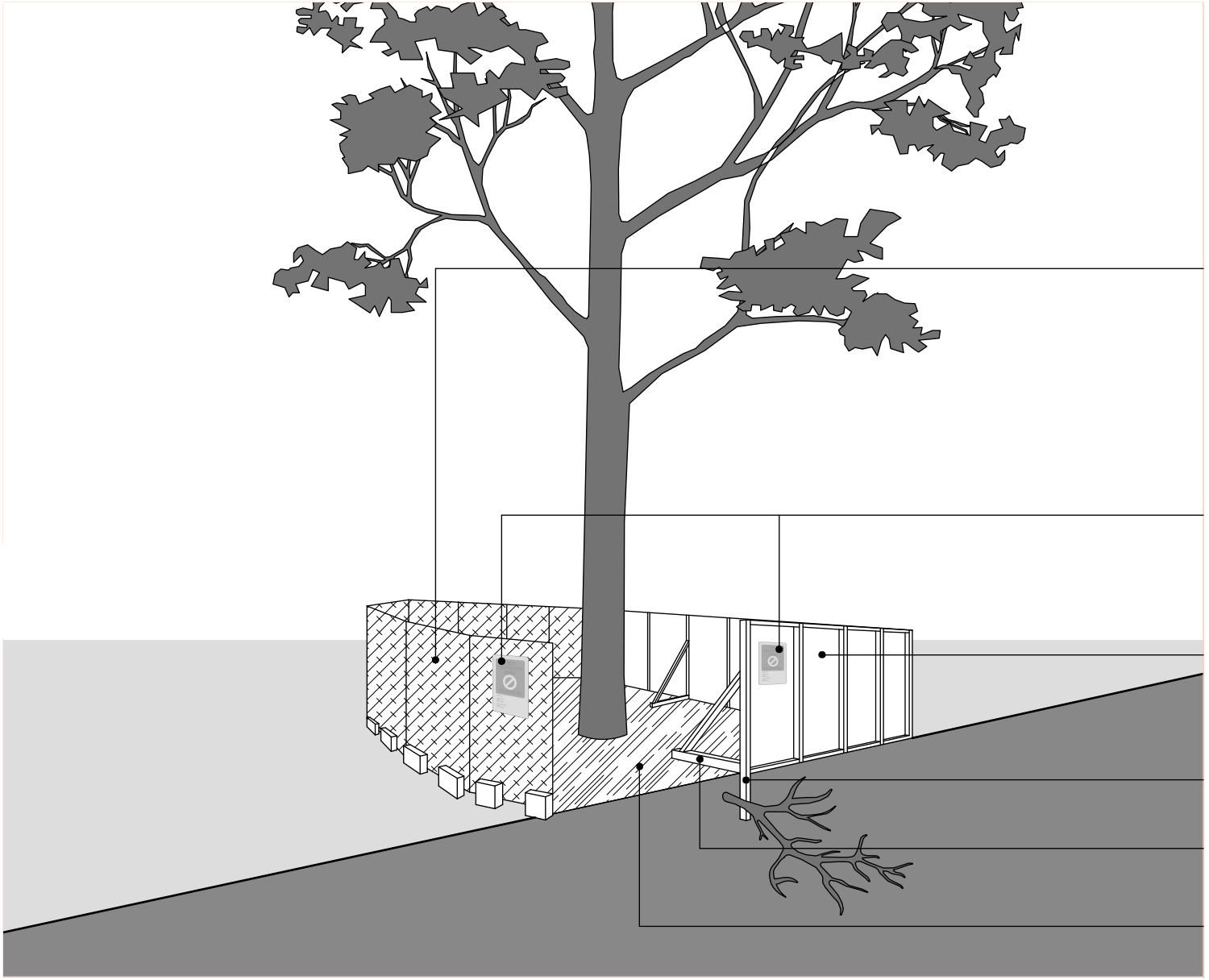


Note:
No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

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.

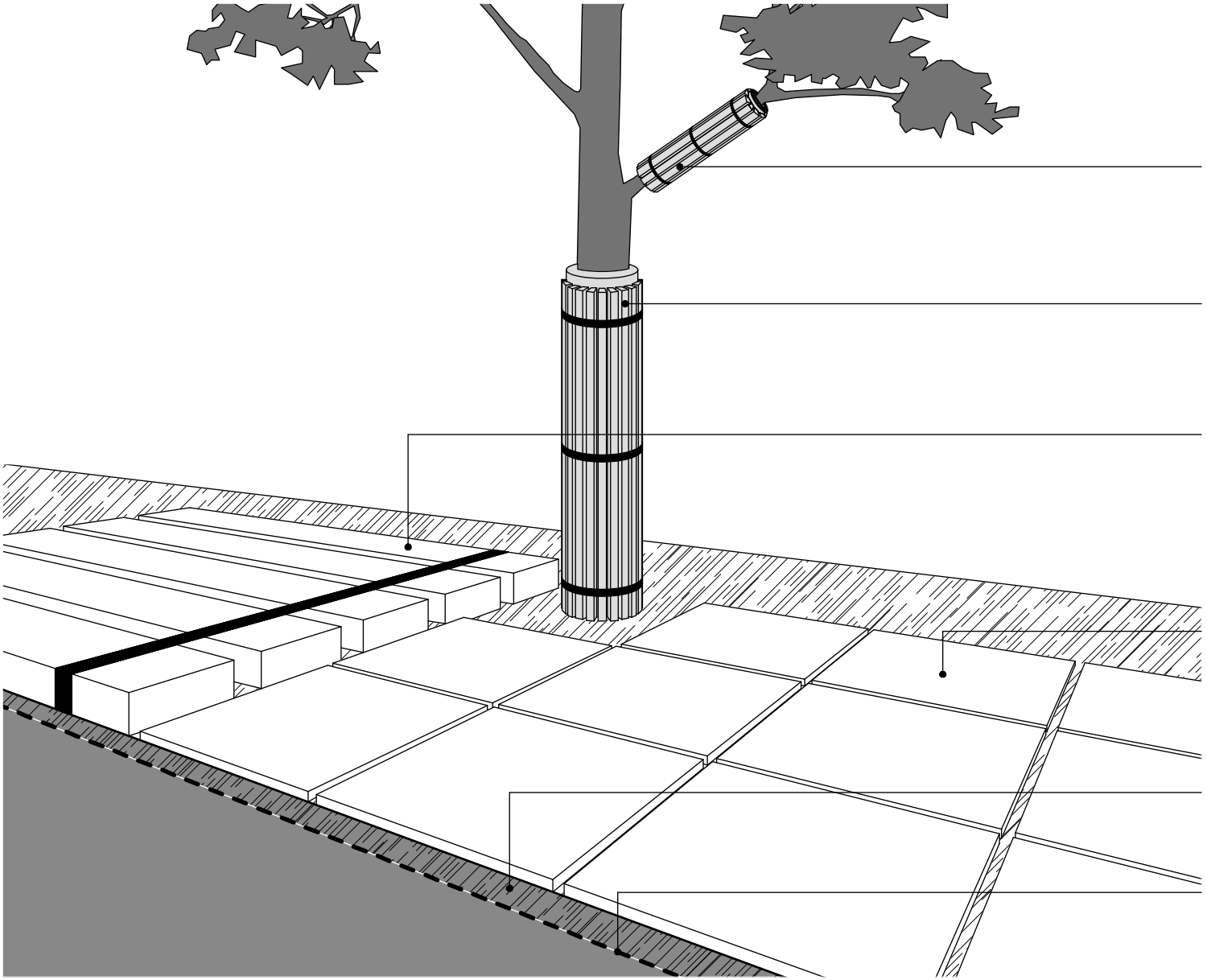
Installation of supports should avoid damaging roots.

Bracing is permissible within the TPZ.

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

03 Tree Protection Fencing

Not to Scale



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.

04 Examples of Branch, Trunk and Ground Protection

Not to Scale

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

05 Indicative Scaffolding within a Tree Protection Zone (TPZ) Not to Scale