
Arboricultural Impact Assessment Report

Prepared for: Paul Godsell, Crawford Architects

Site Address: 351-353 Barrenjoey Road, Newport NSW 2106
lot 65 & 66, Section 5, DP6248

Date: 28/09/2019

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1 Summary

This report was commissioned by Paul Godsell of Crawford Architects, Damian Green attended an onsite inspection on 17/07/2019.

The report is an assessment of six (6) private and council owned trees. T1 a *Corymbia maculata* (Spotted Gum) located in a small council garden directly adjoining the Robertson Road frontage of 351 Barrenjoey Road and T2,3,4,5 & 6 are located in the rear garden of 353 Barrenjoey Road, Newport. A development has been proposed to demolish the existing single and three-story buildings and construct a mixed-use development consisting of a three-story building and twin-level basement. At the time of inspection T2,3,4,5 & 6 were identified to all be less than 5m in height and have 100% incursion from the proposed plans, these trees are not protected by Northern Beaches Council tree preservation. T2,3,4,5 & 6 have been recommended for removal.

T1 displayed fair health and poor structure, was noted to have a Short Safe Useful Life Expectancy (SULE) and Medium Tree Significance.

Construction of the ground, first and second floors are shown to have major impact resulting in a 47% Tree Protection Zone encroachment.

Removal of the north facing lower canopy is required to accommodate proposed building construction and would require removal of approximately 65% live canopy growth, leaving an imbalanced crown extending over Robertson Road causing major and significant impact on tree health and long-term retention.

Trees identified with Short SULE and Medium Tree Significance values are considered less critical for retention, however their retention should be a priority with removal considered only if adversely affecting the proposal. Following this guideline, due to the required major architectural redesign, current health, condition and structure of T1, whole tree removal is recommended.

Council consultation and permission shall be required prior to the removal of T1.

2 Introduction

This report was commissioned by Paul Godsell of Crawford Architects, Damian Green attended an onsite inspection on 17/07/2019. The report is an assessment of six (6) trees located in a small council garden directly adjoining the Robertson Road frontage of 351 Barrenjoey Road and the rear of 353 Barrenjoey Road Newport.

A development has been proposed to demolish the existing single- and three-story buildings and construct a mixed-use development consisting of a three-story building and twin-level basement. The aim of this assessment is to identify the subject trees, comment on the current health & condition of the trees, to discuss proposed development and potential impacts, and to provide recommendations taking into consideration *Australian Standard 4970-2009 (Protection of trees on development sites)* and Northern Beaches Council tree preservation requirements.

3 Location of Site & Trees

Tree locations: Robertson Road frontage and rear of 351-353 Barrenjoey Road, Newport NSW 2106



Figure 1 351-353 Barrenjoey Road, Newport and tree locations. Google Earth 2019

4 Method

- 4.1 Site inspections were undertaken by Damian Green on 17/07/2019, comments and recommendations in this report are based on findings from the site inspections.
- 4.2 The subject trees were assessed by the process of a stage one visual tree assessment (VTA) as formulated by Mattheck & Broloer (1994) and practices consistent with modern arboriculture. The trees were inspected from ground level without the use of any invasive or diagnostic tools or testing. No aerial inspections or root mapping were undertaken.
- 4.3 Tools used to take measurements and photographs.
 - iPhone X
 - Data collected using Trimble TerraFlex software
 - Tree height was recorded using a Nikon Forestry Pro laser rangefinder.
- 4.4 Diameter at breast height and canopy dimensions were estimated.

5 Provided Documents

- Scale Plans **See Appendix F**

6 Observations

- 6.1 Six (6) native and exotic species were assessed in preparing this report, details of the trees dimensions, condition, Safe Useful Life Expectancy (SULE) and tree significance (STARS) are attached in **Appendix A**.

7 Discussion

7.1 Tree Health and Condition

- 7.1.1 At the time of inspection T1 located in a small elevated council garden was noted to be in fair health with a thinning heavy south-west leaning upper canopy with a dense north facing lower canopy that extends over the current single-story building, foliage size was normal. 5-10% deadwood and twiggy dieback was observed within the upper canopy only; no pests or diseases were noted. The lower trunk splits into three first order stems approximately 1m from ground level, these branch unions have tight, included stems and are considered poor form and not typical of the species. **See Appendix B** for images
- 7.1.2 Trees 2,3,4,5 & 6 were all noted to be in good health and condition all with canopies less than 5m in height. Northern Beaches Council states 'Trees under 5m in height do not require a council permit to be removed and are not protected'. T2,3 & 4 are also exempt species.
- 7.1.3 Paul Godsell of Crawford Architects is aware of the fact that several trees are to be removed for the proposed development and has stated that supplement plantings will be included in final plans after a formal outcome from council has been made on this report.

7.2 AS4970-2009 Protection of Trees on Development Sites

- 7.2.1 The standard was established to provide appropriate guidelines to ensure the long-term viability and stability of trees to be retained on development sites.

7.3 Tree Protection Zone (TPZ)

- 7.3.1 The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains un-damaged during development and remains viable. (Minor encroachment = less than 10%, major encroachment = 10-35%)

7.4 Structural Root Zone (SRZ)

- 7.4.1 The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree. The SRZ only needs to be calculated when major encroachment into a TPZ is proposed (Any works within the SRZ is considered major encroachment).
- 7.5 T1 was noted to have major TPZ encroachment of approximately 47%, this includes both root and tree canopy incursion no SRZ encroachment was noted.

7.6 Tree Retention Value and Tree Significance

- 7.6.1 It is possible to determine a tree's significance and retention value based upon several factors including size, condition and maturity coupled with methodologies STARS and SULE. **Appendix C & D**.
- 7.6.2 T1 had a SULE value of S(b): Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals. The tree also falls within several of the criteria for Medium Tree Significance.
- 7.6.3 Trees identified with Short SULE and Medium Tree Significance values are considered less critical for retention, however their retention should be a priority with removal considered only if adversely affecting the proposal, T1 falls within these criteria.

- 7.6.4 T2,3,4,5 & 6 had a SULE value of Y/S(a): Young or Small trees that are less than 5m in height.
- 7.6.5 Trees identified with Young/Small SULE and Low Tree Significance values are not considered important for retention, nor require special works or design modification to be implemented for their retention, T2,3,4,5 & 6 fall within these criteria.

8 Impact Assessment

- 8.1 Building construction consists of a two-floor basement, a ground floor with mezzanine and an additional two floors, the current building adjacent to T1 is a flat roof single story and located >300mm from the trunk.
 - 8.1.1 T1 has a calculated TPZ encroachment of 47% (major), This includes both root zone and several second order stems that encroach into the construction footprint of the proposed three floor mixed use development.
 - 8.1.2 The new construction footprint has been set back to allow minimal root disturbance to the northern side of the TPZ. Excavation for the basement has a calculated 10% TPZ encroachment with no SRZ encroachment.
 - 8.1.3 Ground floor construction is set back 3m from the centre of the trunk, with a pier suspended decking and garden area covers the TPZ to the property boundary. The construction foot print excluding the suspended decking and garden areas is approximately 35% or 47% including suspended decking and gardens.
 - 8.1.4 The first and second floors have balcony's that extend over the decking and garden areas of the ground floor. An area 4m wide and 2.8m deep has been left to accommodate the trunk area of the tree. The lower north facing canopy extends 4m. Removal of the entire lower canopy would be required to accommodate the building design.
- 8.2 Although basement excavation has shown to have a minor TPZ encroachment, ground, first and second floor construction has shown to have major impacts to T1. Removal of the lower canopy to accommodate building construction would reduce live canopy growth by approximately 65%, leaving an imbalanced crown extending over Robertson Road.
 - 8.2.1 The removal of 65% live canopy is far above the recommended maximum 30% live canopy in any calendar year. Pruning of 30% would not achieve required building clearances.
 - 8.2.2 Without major architectural redesign, impact to T1 would be considered major and would have significant impact on tree health and long-term retention.
 - 8.2.3 T2,3,4,5 & 6 have 100% TPZ incursion from the building footprint.

9 Conclusions

- 9.1 A total of Six (6) trees were assessed in preparing this report, at the time of inspection T2,3,4,5 & 6 were noted to be all less than 5m in height and are not protected under Northern Beaches Council tree preservation. T1 a council owned Spotted Gum located at Robertson Road frontage of 351-353 Barrenjoey Road, Newport displayed fair health and poor structure, had a Short Safe Useful Life Expectancy and Medium Tree Significance.
- 9.2 Trees identified with Short SULE and Medium Tree Significance values are considered less critical for retention, however their retention should be a priority with removal considered only if adversely affecting the proposal.
- 9.3 Following this guideline, due to the required major architectural redesign, current health, condition and structure of T1 removal should be considered.
- 9.4 Supplement plantings have been suggested by the building architect and will be included in final plans.

10 Recommendations

- Whole tree removal of T1,2,3,4,5 & 6.
- **Council consultation and permission shall be required prior to the removal of T1.**
- Removal works are to be undertaken by suitably qualified tree workers (minimum AQF Level 3 or equivalent), in accordance with the *NSW WorkCover Code of Practice for the Amenity Tree industry and AS4373-2007 Pruning of Amenity Trees*.
- Council consultation is also required for species selection and size of supplement planting.

11 Limitations on the use of this report

This report is to be used in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the observations, discussions, conclusions or recommendations made in this report may only be used where the whole original report (or a copy) is referenced to and directly attached to that submission, report or presentation. Information contained in this report covers only the trees that were inspected and reflects the trees condition at the time of the inspection. There is no guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

Any questions or comments please contact me to discuss.

Regards,



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12 Works Cited

- Barrell Tree Consultancy,. (1993). Pre-Planning tree surveys: Safe Useful Life Expectancy (SULE) is the natural progression. TreeAZ.
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- Standards Australia Limited. (2007). Australian Standard® Pruning of amenity trees. Sydney, NSW, AU.

13 Appendix

- Appendix A: Tree assessment schedule
- Appendix B: Images
- Appendix C: Safe Useful Life Expectancy description and categories
- Appendix D: Significance of a Tree Assessment Rating System (STARS)
- Appendix E: Trees for retention or removal
- Appendix F: Plans

Appendix A: Tree assessment schedule

Tree Number	Botanical Name	Height (m)	Spread N,E,S,W (m)	DBH (mm)	DAB (mm)
1	Corymbia maculata	14.4	4,3,9,8	1000	900
2	Mangifera indica	4	4,4,4,4	500	450
3	Ficus benjamina	3	1,1,1,1	250	250
4	Ficus benjamina	3	1,1,1,1	250	250
5	Howea forsteriana	4	2,2,2,2	150	180
6	Howea forsteriana	4	2,2,2,2	150	180

Tree number	Health	Condition	Age class	TPZ radius (m) Approx.	SRZ radius (m) Approx.	TPZ Encroachment	SULE category	Tree significance	Retention Value
1	Fair	Fair	Mature	12m	3m	Major 47%	S(b)	Medium	Low
2	Good	Good	Mature	6m	2.3m	Major 100%	Y/S(a)	Low	Low
3	Good	Good	Mature	3m	1.8m	Major 100%	Y/S(a)	Low	Low
4	Good	Good	Mature	3m	1.8m	Major 100%	Y/S(a)	Low	Low
5	Good	Good	Mature	2m	1.6m	Major 100%	Y/S(a)	Low	Low
6	Good	Good	Mature	2m	1.6m	Major 100%	Y/S(a)	Low	Low

Key:**Health:** Poor, Fair, Good**Condition:** Poor, Fair, Good**Age class:** Young, Mature, Over mature, Dead

Retention Value:

- Trees highlighted in are of high landscape and SULE and should be retained and protected.
- Trees highlighted in are considered less critical for retention, however their retention should be a priority with removal considered only if adversely affecting the proposal.
- Trees highlighted in are not considered important for retention, nor require special works or design modification to be implemented for their retention.
- Trees highlighted in are considered hazardous or in irreversible decline or environmental weeds and should be removed irrespective of development.

Appendix B: Images



Figure 2 eastern aspect of T1 showing lower and upper crown.

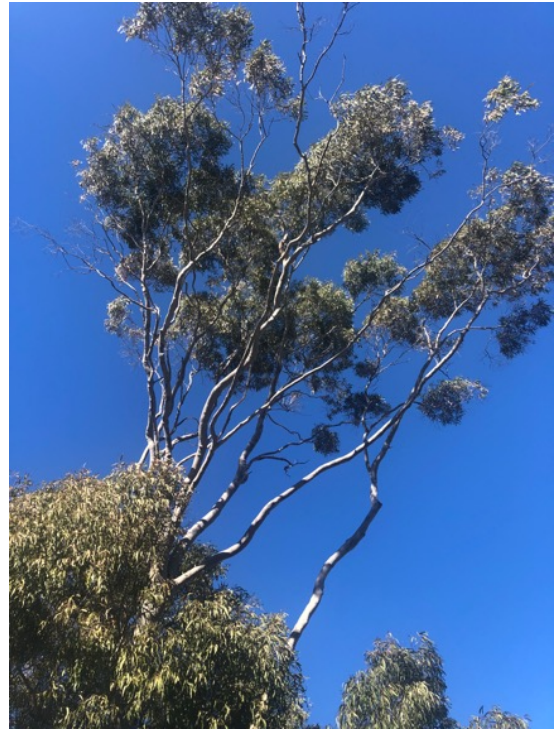


Figure 3 upper canopy of T1 displaying thinning canopy and twiggy dieback.



Figure 4 included stems 1 & 2.



Figure 5 included stems 2 & 3.

Appendix C: Safe Useful Life Expectancy description and categories

Safe Useful Life Expectancy (SULE)

SULE is the length of time that the arboriculturist assesses an individual tree can be retained with an acceptable level of risk based on the information available at the time of inspection. It is a snapshot in time of the potential an individual tree has for survival in the eyes of the assessor. SULE is not static – it is closely related to tree health and the surrounding conditions. Alterations in these variables may result in changes to the SULE assessment. Consequently, the reliability all SULE assessments have will decrease as time passes from the initial assessment and the potential for changes in variables increases.

SULE Assessment Categories

Long SULE: Trees that appear to be retainable with an acceptable level of risk for more than 40 years.

- (a) Structurally sound trees located in positions that can accommodate future growth.
- (b) Storm damaged or defective trees that could be made suitable for retention in the long term by remedial tree surgery.
- (c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

Medium SULE: Trees that appear to be retainable with an acceptable level of risk for 15 to 40 years.

- (a) Trees that may only live between 15 and 40 more years.
- (b) Trees that may live for more than 40 years but would be removed to allow the safe development of more suitable individuals.
- (c) Trees that may live for more than 40 years but would be removed during normal management for safety or nuisance reasons.
- (d) Storm damaged or defective trees that can be made more suitable for retention in the medium term by remedial work.

Short SULE: Trees that appear to be retainable with an acceptable level of risk for 5 to 15 years.

- (a) Trees that may only live between 5 and 15 more years.
- (b) Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals.
- (c) Trees that may live for more than 15 years but would be removed during normal management for safety or nuisance reasons.
- (d) Storm damaged or defective trees that require substantial remedial work to make safe and are only suitable for retention in the short term.

Remove: Trees with a high level of risk that would need removing within the next 5 years.

- (a) Dead trees.
- (b) Dying or suppressed and declining trees through disease or inhospitable conditions.
- (c) Dangerous trees through instability or recent loss of adjacent trees.
- (d) Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.
- (e) Damaged trees that are considered unsafe to retain.
- (f) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (e).

Young or Small Trees:

- (a) Trees which are less than 5 meters (m) in height.
- (b) Trees which are over 5m in height but less than 25 years old.

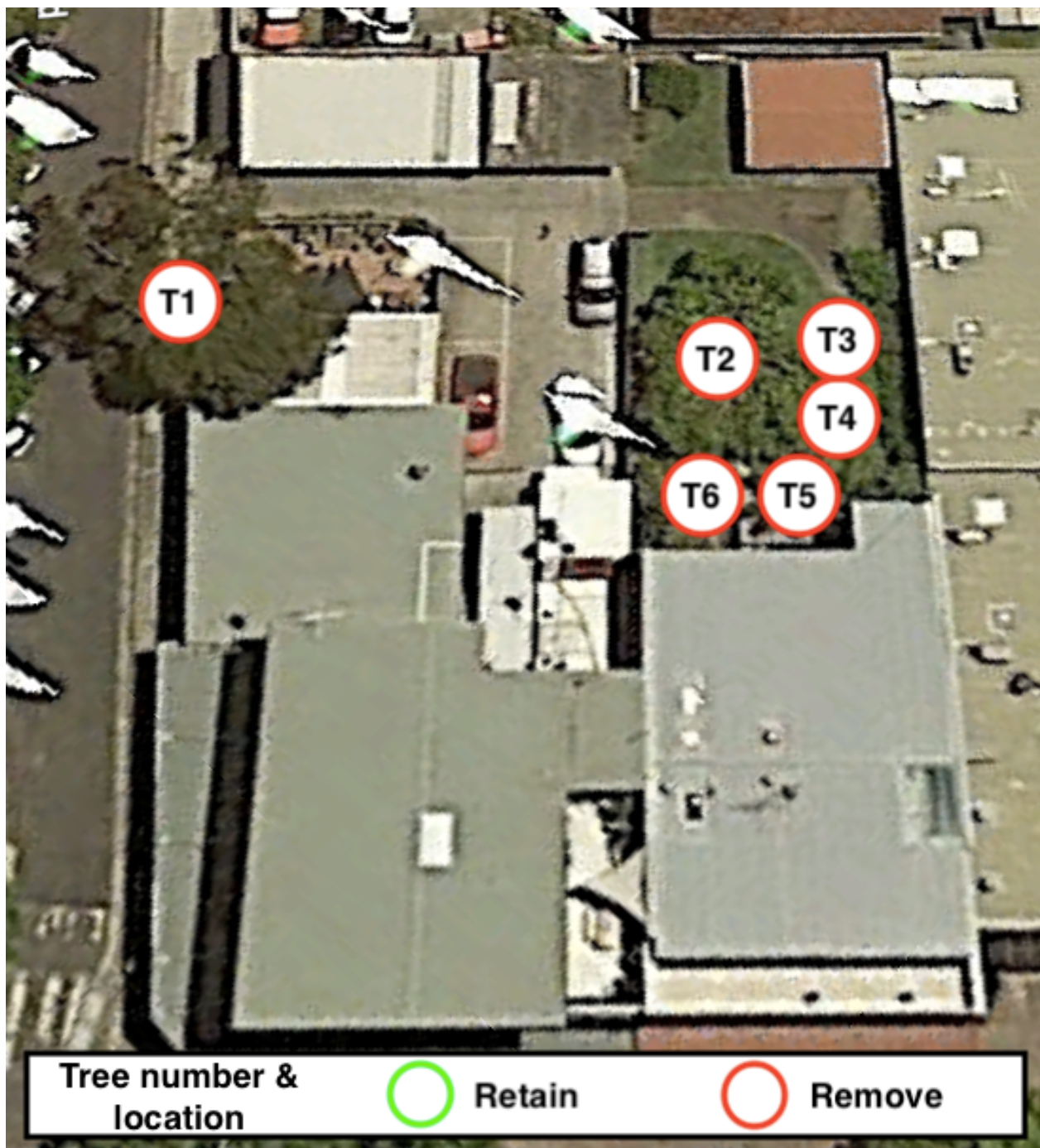
Appendix D: Significance of a Tree Assessment Rating System (STARS)

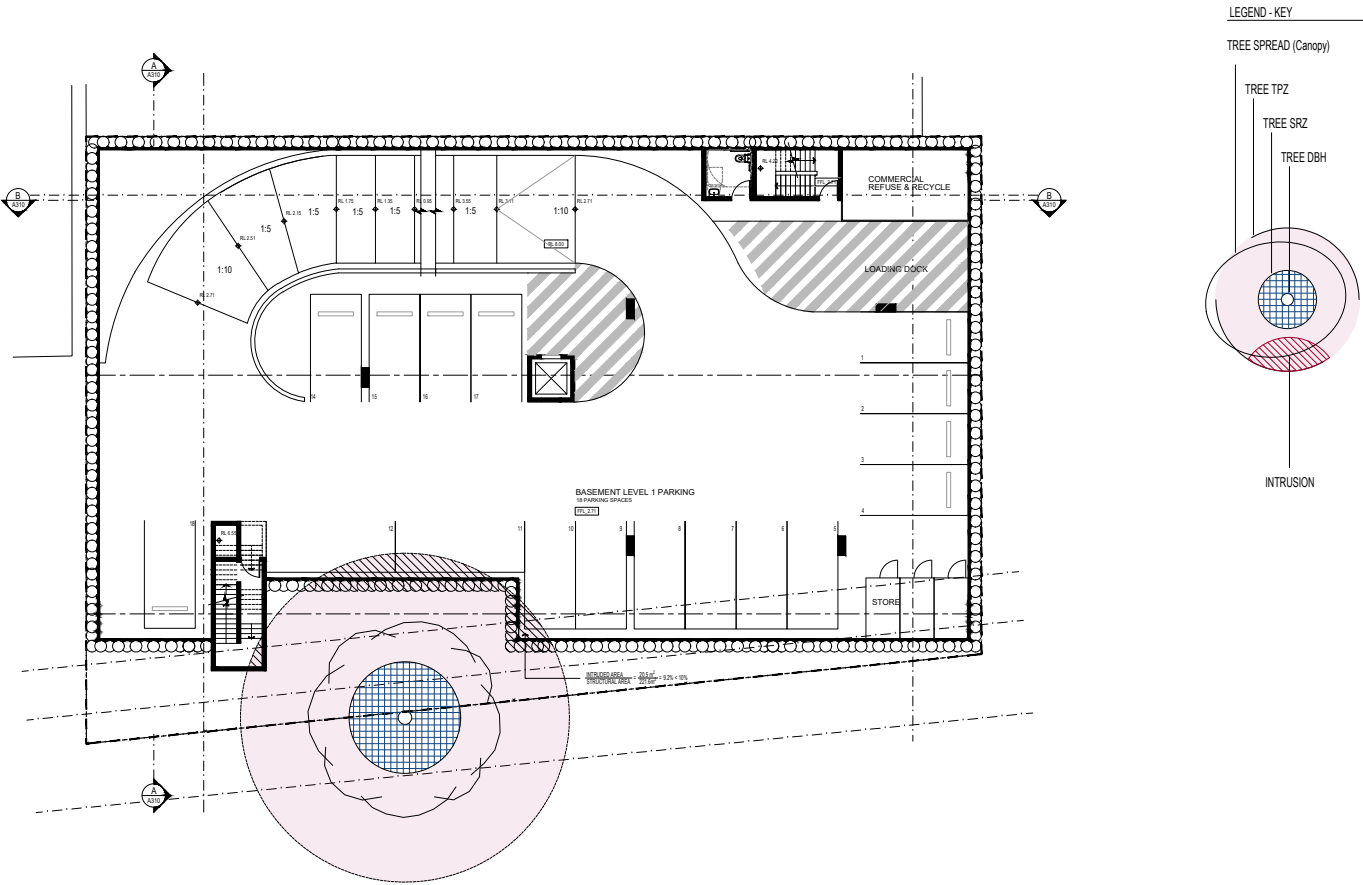
Tree Significance - Assessment Criteria - STARS®		
Low	Medium	High
The tree is in fair-poor condition and good or low vigour. The tree has form atypical of the species The tree is not visible or is partly visible from the surrounding properties or obstructed by other vegetation or buildings The tree 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 dimensions 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 the potential to become structurally unsound. The tree is an environmental pest species due to its invasiveness or poisonous/allergenic properties. The tree is a declared noxious weed by legislation	The tree is in fair to good condition 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	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 council's 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.

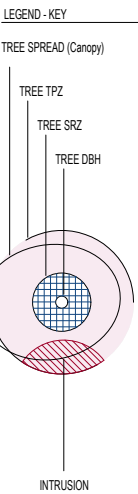
Tree Significance					
Safe Useful Life Expectancy		High	Medium	Low	
	Long >40 years				
	Medium 15-40 years				
	Short <1-15 years				
	Dead				

Legend for Matrix Assessment	
	Priority for retention (High): 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 if works are to proceed within the Tree Protection Zone.
	Consider for retention (Medium): These trees may be retained and protected. These are considered less critical; however, their retention should remain priority with the removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	Consider for removal (Low): These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	Consider for removal (Low): These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

Appendix E: Trees for Retention or Removal



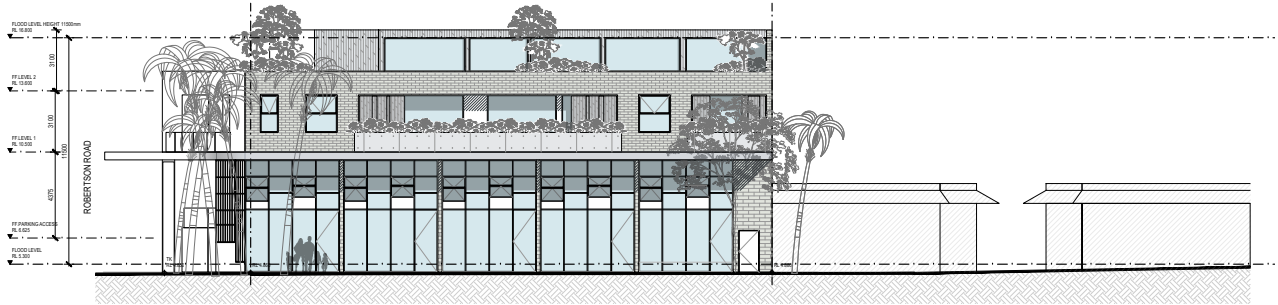








FRONT ELEVATION / ROBERTSON ROAD



FRONT ELEVATION / BARRENJOEY ROAD

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