Arboricultural Impact Assessment

TREEISM
Arboricultural Services

Prepared For
Gartner Trovato Architects
PO Box 1122
MONA VALE NSW 2103

SITE ADDRESS
4-12 & 11-25 KEVIN AVENUE & 40 CENTRAL AVENUE
AVALON BEACH NSW 2107

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1 Introduction

1.1 Brief

1.1.1 **This Arboricultural Impact Assessment (AIA) was prepared by Chantalle Hughes of Treeism Arboricultural Services. This report was commissioned by Sean Gartner of Gartner Trovato Architects, on behalf of the owners of the subject site. The site is a section of Council managed land, running along 4-12 and 11-25 Kevin Avenue and 40 Central Avenue, Avalon Beach, New South Wales.**

1.1.2 **A new pathway (in sections) to Barrenjoey Road from 25-27 Kevin Avenue is proposed.**

1.1.3 **The purpose of this report is to identify the species of each assessed tree, assess their vigour, condition, landscape prominence and ascribe a Retention Value to each tree.**

1.1.4 **This report identifies the potential impacts the proposal will have on the retention or long-term viability of each tree and aims to provide guidelines for tree retention and protection during development.**

1.2 Context

1.2.1 **Acknowledgement of the original inhabitants of the Northern Sydney area is complex. The Aboriginal Heritage Office (AHO) states… 'Clan names which can be found on most maps for the northern Sydney region of the AHO partner Councils are the following: Gayamaygal, Gamaragal, Garigal, Darramurragal and many more'…..exact clan name knowledge has been lost, or at the very least is hard to find, as traditional inhabitants of Australia were told to 'give up their language, stop practicing ceremony and hide their Aboriginality'.**

1.3 Methodology

1.3.1 **In preparation for this report, ground level, visual tree assessment* or limited VTA (e.g. where access was limited), of sixty-three (63) trees was completed by Treeism on 16 & 20th June 2025. An additional five (5) trees were previously assessed for the development application at 25-27 Kevin Avenue 1st August 2023. Inspection details of these trees are provided in Appendix 3 —Schedule of Assessed Trees.**

1.3.2 **The tree heights were visually estimated or measured using a Nikon ForestryPro, unless otherwise noted in Appendix 3, the trunk Diameter at Standard Height were measured at 1.4 metres above ground level (DSH) using a diameter tape. Tree canopy spreads were stepped out with field observations written down, and photographs of the site and trees were taken using an iPhone 16 Pro Max.**

1.3.3 **The Structural Root Zone (SRZ) and the Notional Root Zone (NRZ) of each tree is established using the formula provided within the Australian Standard 4970-2025 Protection of trees on development sites (AS4970).**

1.3.4 **Tree Retention Values (RV) were calculated utilising STARS – Significance of a Tree Assessment Rating System (IACA 2010) ©.**

1.3.5 **Tree data and field observations were entered into a data dictionary on a Trimble TDC600. Data was managed through Terraflex Trimble Connect.**

1.4 Plans and Documents Referenced

* Visual Tree Assessment (VTA) is a procedure of defect analysis developed by Mattheck and Breloer (1994) that uses the growth response and form of trees to detect defects.

[illegible]

1.4.2 **Arboricultural Impact Assessment, Revision 2, March 2024, Treeism Arboricultural Services.**

1.4.3 **AS4970-2025 Protection of trees on development sites, Standards Australia.**

1.4.4 **AS4373-2007 Pruning of amenity trees, Standards Australia.**

1.4.5 **This AIA takes account Chapter 2 *Vegetation in Non-Rural Areas* of the State Environmental Planning Policy (Biodiversity and Conservation) 2021 'The SEPP', and Section B4.22 – Preservation of Trees and Bushland Vegetation of Pittwater 21 Development Control Plan (P21DCP).**

1.5 Limitations

1.5.1 **Care has been taken to obtain all information from reliable sources. All data has been verified as far as possible; however, I can neither guarantee nor be responsible for the accuracy of information provided by others.**

1.5.2 **This report is not intended to be a comprehensive tree risk assessment; however, the report may make recommendations, where appropriate, for further assessment, treatment or testing of trees where potential structural problems have been identified, or where below ground investigation may be required.**

1.5.3 **No aerial inspections, root mapping or woody tissue testing were undertaken as part of this tree assessment.**

1.5.4 **Information contained in this report only reflects the condition of the trees at the time of inspection. Trees are dynamic, living things which can be subject to change without notice in certain circumstances.**

1.5.5 **This AIA is an assessment of impacts to the trees based on the provided and referenced plans only and not of any future proposals for development or unapproved development of the site. This document is not a Tree Protection Specification or Tree Protection Plan.**

2 Observations and Discussion

2.1 Threatened Species

2.1.1 **No species of assessed tree is subject to threatened conservation status under Australian and/or State Government legislation (i.e. NSW Threatened Species Conservation Act 1995 and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999).**

2.2 Assessed Trees

2.2.1 **Sixty-eight (68) street (located within Council managed land either fully or partially) trees/tree groups were assessed or identified and are included in this report. Details of these are included in the Schedule of Assessed Trees—Appendix 3.**

2.2.2 **Twenty-nine (29) trees were reviewed in relation to pruning/risk impacts only, a footpath is existing within the Notional Root Zone (NRZ) of these trees—Trees 1-24, DA24, 25, 27 28 & 29.**

3 Impact of the Proposed Development

3.1 Prescribed Trees Proposed for Removal

3.1.1 Twelve (12) trees and two (2) trees that are part of a Group will require removal for the path;

- **Tree 3 Wattle –** Whilst the path is existing in this location, most of this small Low RV tree is dead and poses a small risk to pedestrians.
- **Tree 30 Viburnum –** This low RV tree is located too close to the path and could not be retained.
- **Group 32A Hibiscus –** Just one (1) tree within this group sits within/is too close to the footprint of the path and will require removal.
- **Tree 34 Viburnum –** This low RV tree is located within the path and could not be retained.
- **Group 37B Frangipani –** Just one (1) tree within this group cannot be pruned for path clearances and will require removal.
- **Tree 38 Coast Banksia –** This high RV tree sits too close to the footprint of the path (44.5% encroachment) and will require removal.
- **Tree 39 Silky Oak –** This medium RV tree sits within/is too close to the footprint of the path and will require removal.
- **Tree 40 Scribbly Gum –** This medium RV tree sits within/is too close to the footprint of the path, leans heavily over the proposed path and will cause obstruction. This tree will require removal.
- **Tree 46 Sydney Red Gum –** This low RV tree sits within/is too close to the footprint of the path and will require removal.

- **Tree 50 Coast Banksia –** This high RV tree is too close to the footprint of the path, however the main issue is it leans heavily over the proposed path and will cause an obstruction, it will require removal.
- **Tree 53 Hakea & Shrub –** This Hakea and small shrub next to it have failed/sit low on the ground and would require removal.
- **Tree 56 Sydney Red Gum –** This low RV tree is too close to the footprint of the path and will require removal. The path at this section is an excavation, an encroachment of 33.9% and within the SRZ is proposed. The tree also leans heavily over the roadway (see Plate 6 and Inset, Appendix 5- Photographs).

3.1.2 **The following two (2) Council trees are currently dead but will be within five (5) meters of the new path, so an escalation of removal is considered reasonable to reduce risk to pedestrians;**

- **Tree 59 & 61 Coast Banksia –** These two trees are dead and should be removed to reduce risk to pedestrians in the area. Potentially Northern Beaches Council has this lodged and scheduled.

3.2 Potential Impacts on Trees to be Retained

3.2.1 Under the Australian Standard 4970-2025 Protection of trees on development sites (AS4970), encroachments equal to or less than 10% of the Notional Root Zone (NRZ) are considered to be *minor*. Encroachments greater than 10% and less than or equal to 20% are considered *moderate*. Encroachment is considered *major* if it is greater than 20% of the area of the NRZ or inside the SRZ.

3.2.2 To avoid a net loss of soil area and volume, an area equivalent to the encroachment shall be incorporated into the TPZ regardless of level of encroachment, unless the Project Arborist (PA) otherwise demonstrates that the tree will remain viable.

3.2.3 In relation to *minor* encroachment, it is unlikely that there will be a significant impact to tree health, longevity or structure.

3.2.4 For *moderate* encroachment, the project arborist shall be engaged to review the proposed impact and undertake any other necessary investigation to address the factors listed in Clause 3.3.2 to demonstrate tree viability. This may be through the implementation of suitable design measures and construction controls to mitigate impacts during the development process as part of a TPS and TPP.

3.2.5 For *major* encroachment the PA shall be engaged to review the proposed impact and undertake any other necessary investigation to address the factors listed in Clause 3.3.2 to demonstrate tree viability. The PA shall be engaged to explore alternative designs with the design team and/or demonstrate that the tree will remain viable.

3.2.6 When determining the potential impacts of encroachment into the NRZ, (i.e determining the Tree Protection Zone {TPZ}) the project arborist should consider the following items listed under Clause 3.3.2 of AS4970-2025:

(a) Location and distribution of the roots.

(b) The potential loss of root mass resulting from the encroachment (number of roots and diameter of roots).

(c) Tree species and tolerance to root disturbance.

(d) If the works will result in a temporary (e.g. service trench) or permanent (e.g. basement carpark) loss of available soil volume.

(e) Age, health, current size and projected size of the tree.

(f) Presence of other trees with overlapping NRZ or grafted roots.

(g) Proposed staging and timing of excavation or root-cutting

(h) Proposed tree maintenance and tree care activities.

(i) Lean and stability of the tree.

(j) Soil characteristics and volume, topography and drainage.

(k) Presence of existing or past structures, obstacles affecting root growth or recent encroachments.

(l) Proposed construction measures that reduce the impact the impact on trees. (Note 1 states – Construction measures such as pier and beam, suspended slabs, cantilevered building sections and screw piles can reduce the impact of encroachment.)

(m) Whether a root investigation is required. The location and distribution of the roots should be determined through minimally destructive investigation methods (pneumatic, hydraulic, hand digging or ground penetrating radar). Photographs should be taken, and, where needed to address geospatial issues, a root zone map prepared. (Note 2 states – Root damage should be minimized during this process. The roots should only be exposed for as long as required to meet the purposes of the investigation.)

3.2.7 Disturbance within the SRZ, and extent of encroachments into the NRZ's of street trees without an existing pathway within the NRZ and to be retained are summarised in Table 1 below.

Table 1: Estimated encroachments of permanent structures into the SRZ and NRZ of trees proposed for retention. Note 1: These figures are based on the SRZ and NRZ's offsets of the trees as calculated under AS4970 and do not necessarily reflect the actual root zones of the trees. Existing at or below ground structures, site topography and soil hydrology will influence the presence, spread and direction of tree root growth.

Tree No.	Tree	NRZ encroachment (approx. %)	SRZ affected	Works Mainly above grade (AG) / Below grade (BG)
25	Dwarf Date Palm	0%	N/A	AG
26	Dwarf Date Palm	0%	N/A	AG
27	Lilly Pilly	0%	-	AG
28	Weeping Bottlebrush	0%	-	AG
29	Orange Jessamine	0%	-	AG
31	Sydney Red Gum	16.6%	Yes	AG
32B	Hibiscus	34.1%	Yes	AG
32C	Hibiscus	31.4%	Yes	AG
33	Sydney Red Gum	34.5%	Yes	AG
35	Frangipani	4.8%	-	AG
36A	Frangipani	19.0%	Yes	AG
36B	Frangipani	0.3%	-	AG
36C	Frangipani	0%	-	AG

Tree No.	Tree	NRZ encroachment (approx. %)	SRZ affected	Works Mainly above grade (AG) / Below grade (BG)
37A	Frangipani	28.0%	Yes	AG
37C	Frangipani	27.8%	Yes	AG
37D	Frangipani	26.4%	Yes	AG
41	Forest She-oak	36.8%	Yes	AG
42	Forest She-oak	36.2%	Yes	AG
43	Coast Banksia	34.6%	Yes	AG
44	Watergum	23.8%	Yes	AG
45	Sydney Red Gum	19.3%	Yes	AG
47	Sydney Red Gum	6.3%	Yes	AG
48	Lilly Pilly	5.0%	-	AG
49	Watergum	32.1%	Yes	AG
51	Swamp she-oak	30.7%	Yes	AG
52	Grevillea	0%	-	AG
54	Brushbox	0%	-	AG
55	Dracena	0%	-	AG
57	Coast Banksia	16.8%	-	BG
58	Coast Banksia	0%	-	BG
60	Swamp Mahogany	0%	-	BG
62	Coast Banksia	0%	-	BG
63	Coast Banksia	0%	-	BG

Low encroachment estimated – Green, Moderate – Orange, Major – Yellow. Pruning required – Grey.

3.2.8 Trees with Nil or Low encroachment calculation discussion – Trees 25-29, 35, 36B, 36C, 47, 48, 52, 54, 55, 58-63.

Structural Root Zone impacts:

- All works fall outside the calculated SRZ of these specimens (in relation to Tree 25/26 under AS4970-2025, the SRZ calculation for palms, cycads, tree ferns and the like is not calculated).

Notional Root Zone impacts:

- All works are less than a 10% encroachment, this is considered *minor* encroachment under AS4970. Impact of tree health/condition is not expected.

Pruning impacts:

- Hibiscus shrubs under Tree 5, and low branches on Trees 28 and 54 currently extend over the pathway and pruning for clearances is recommended.

3.2.9 Trees with Moderate encroachment calculation discussion – Tree 57.

Structural Root Zone impacts:

- The proposed footpath works fall outside the calculated SRZ of this specimen.

Notional Root Zone impacts:

- With a 16.8% estimated encroachment SA4970 states the Arborist shall review the proposed impact and undertake necessary investigation to address the factors listed in Clause 3.3.2 to demonstrate tree viability.
- The relevant factors under Clause 3.3.2 are; (d) If the works will result in a temporary or permanent loss of available soil volume, (e) Age, health, current size and projected size of the tree, (i) Lean and stability of the tree and (j) Soil characteristics and volume, topography and drainage.
- In relation to (d) the works are only temporary, once the path is constructed roots will be able to move in soil below the path if required (depending on depth in this area). In relation to (e) the tree is mature, but with ample resources for continued vigor/growth and at a mature height, taking into account the slope and aspect.
- In relation to (i) and (j), the tree has three (3) stems from ground level, with a sprawling habit relatively evenly weighted, the works are proposed down slope with ample unimpeded root growth area up slope.
- The proposed work is likely to incur a moderate impact on tree health in the short term.

Pruning impacts:

- No pruning of this tree is expected to be required.

3.2.10 Trees with High encroachment calculation discussion – Trees 31, 36A, 32B/C, 33, 37A/C/D, 43, 44, 45, 49 & 51.

Structural Root Zone impacts:

- All proposed works fall inside the calculated SRZ of these specimens. See discussion in NRZ impacts below.

Notional Root Zone impacts:

- Under AS4970 for *major* encroachment, the Arborist shall review the proposed impact and undertake any necessary investigation to address the factors listed in Clause 3.3.2 to demonstrate tree viability.
- Under Section 3.3.2 the most relevant factors are (k) Presence of existing or past structures, obstacles affecting root growth and (l) Proposed construction measures that reduce the impact the impact on trees.
- In relation to (k), the area of the proposed path is already being used as an informal pathway, with the expected compaction noted. In relation to (i), the proposed path sits at ground level near the kerb and then above grade with a 300mm pier footing. A 200mm fill for batter is also proposed.
- Provided the piers can be located to avoid woody roots, that the batter is a friable soil mix (80/20 ideal) and the tree stems are not 'buried', long term tree retention is viable.

Pruning impacts:

- These trees (except Tree 31) will require clearance pruning for the pathway, this work can be carried out to comply with AS4373, impact on long term tree viability is not expected.

4 Conclusions

4.1.1 A total of sixty-eight (68) trees are included in this Arboricultural Impact Assessment.

4.1.2 No assessed tree has been identified as endangered or threatened under State or Federal Government legislation.

4.1.3 Ten (10) assessed trees are proposed for removal to accommodate the construction of the new pathway – Tree 3, 30, 34, 38-40, 46, 50, 53 & 56.

4.1.4 An additional two (2) trees are dead and may pose a risk to pedestrians however hopefully Council has these works scheduled already – Tree 59 & 61.

4.1.5 Forty-five (45) assessed trees/part of tree groups will incur nil to minor encroachment and impact on tree health is not expected – Trees DA24, DA25, DA27, DA28, DA29, 1, 2, 4-29, 35, 36B, 36C, 47, 48, 52, 54, 55, 58-63.

4.1.6 One (1) assessed tree will incur 'moderate' encroachment (as per parameters under AS4970 -2025 Protection of trees on development sites) as the works fall between the 10% and 20% TPZ threshold. Site and tree factors have been considered and impact on health or condition is not considered likely – Tree 57.

4.1.7 Ten (10) assessed tree will incur 'major' encroachment (as per parameters under AS4970 -2025 Protection of trees on development sites) as the works fall over the 20% TPZ threshold. Site and construction method factors have been considered and long term impact on health or condition is not considered likely – Trees 31, 36A, 32B/C, 33, 37A/C/D, 43, 44, 45, 49 & 51.

5 Recommendations

5.1 Trees Proposed for Removal

5.1.1 Any tree removal is to be undertaken in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998) and Safe Work Guide to Managing Risks of Tree Trimming and Removal Work 2016. Tree pruning shall be in accordance with the Work Health and Safety Act 2011, the Work Health and Safety (WHS) Regulations 2017 and AS4373 Pruning of Amenity Trees.

5.1.2 Any tree pruning/removal is subject to permit approval from the relevant consent authority and likely to require Councils approved 'Tree Contractors' to undertake the works.

5.2 Project Arboriculturist

5.2.1 A Project Arboriculturist (PA) shall be engaged prior to work commencing on the site.

5.2.2 The PA must have a minimum Australian Qualification Framework Level 5 (AQF5) or above in Arboriculture.

5.2.3 Duties of the PA shall include, but not be limited to:

- Liaising with the Project Manager/Head Contractor/Site Manager to confirm the tree protection and other specific tree protection requirements prior to site works commencing.

- Inspection of Tree Protection Devices and supervision of works as recommended in this report or as specified in any Conditions of Consent associated with an approved development application.
- Provision of Compliance/Occupation Certification if, and when required.

5.3 General Tree Protection Measures

5.3.1 Works within TPZs of trees to be retained shall be done under direct supervision of an AQF Level 5 Consulting Arborist and shall comply with any TPS and TPP.

5.3.2 Non-destructive excavation is to be used when working within the TPZ of trees to be retained and must be supervised by an AQF level 5 consulting arborist.

5.3.3 Encroachment within the TPZ must be offset with a range of mitigation measures to ensure that impacts to trees to be retained are reduced or restricted wherever possible. Mitigation must be increased relative to the level of encroachment within the TPZ to ensure trees to be retained remain viable. This can mean (but is not limited to) specific watering over warmer months, carbohydrate/mycorrhizal treatments and regular monitoring of tree condition.

5.3.4 Activities such as replacing or installing footpaths/driveways/retaining walls shall be done with minimal ground and root disturbance within the TPZs of trees that are proposed to be retained.

5.3.5 Any pruning required (including clearances for vehicle movements or other construction impacts) will need to be assessed and supervised by an AQF level 5 consulting arborist and is subject to consent authority approval. This shall be specified in the TPS and TPP.

5.3.6 If temporary access for machinery is required within the TPZ of trees to be retained, ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Ground protection may include a permeable membrane such as geotextile fabric beneath a layer of mulch (minimum 75-100mm thickness), crushed rock or rumble boards. This is to be directed within the TPP.

5.3.7 Any additional construction activities within the TPZ of trees to be retained must be assessed and written in the TPS and TPP. All activities require approval by the Project Arborist and must comply with AS 4970-2025 - Protection of trees on development sites.

5.4 General Arboricultural advice

5.4.1 <u>Tree and Root Pruning</u>

- Any pruning required is to be assessed and approved by the Council/PA, prior to undertaking any of this type of work.
- Pruning shall not be undertaken by unqualified site personnel at any time.
- Pruning of branches must be undertaken by a minimum AQF Level 3 arborist in accordance with the Australian Standard AS4373-2007 *Pruning of amenity trees*,
- Unless otherwise approved by the Conditions of Development Consent, or by separate application and approval by the consent authority, pruning is to be limited to cutting of limbs less than 80mm diameter, and no more than 10% total live material removed.

5.4.2 Stockpiling and location of site sheds

- The project arboriculturist must be consulted prior to placing any items within a tree's TPZ.
- Where stockpiling must be located within the TPZ offset of trees to be retained, the existing/undisturbed natural ground must be covered with thick, coarse mulch to a minimum 75-100mm thickness.
- Large, or bulky materials (non-contaminating) can be stacked on wooden pallets or boards placed over the mulch.
- Tarpaulins (or similar) placed on boards or pallets on top of mulch shall be used to prevent loose or potentially contaminating materials from moving into the soil profile within the TPZ of trees or within 10m upslope of trees.
- Where site sheds must be located within the TPZ offset of a tree/s, the shed must be fully elevated on all sides with a minimum 300m between existing ground and the floor/floor bearers. Isolated pad footings must be carefully dug by hand and not damage or sever any roots greater than 20mm diameter.
- Any conflict between footing locations and woody roots (i.e. 20mm Ø plus) must be brought to the attention of the project arboriculturist who is to provide practical alternatives that do not include unnecessary tree root removal.

5.4.3 Fill Material

- Placement of fill material within the TPZ of trees to be retained should be avoided where possible.
- The fill material should be consolidated by hand to minimise compaction of the underlying soil.
- Permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade. No fill material shall be placed in direct contact with the trunk.

5.4.4 Pavements

- Pavements should be avoided within the TPZ of trees to be retained where possible.
- Proposed paved areas within the TPZ of trees to be retained is to be placed above grade to minimise excavations within the root zone, avoiding root severance and damage.

5.4.5 Fencing and walls within the TPZ of retained trees.

- Where fencing and/or masonry walls are to be constructed along site boundaries, they must provide for the presence of any living woody tree roots greater than 50mm diameter.
- Hand digging must occur within the SRZ of trees to be retained.
- For masonry walls/fences it may be acceptable to delete continuous concrete strip footings and replace with suspended in-fill panels (e.g. steel or timber pickets, lattice etc) fixed to pillars.

5.4.6 Landscaping within tree root zones.

- The level of introduced planting media into any proposed landscaped areas within the TPZ is not to be greater than 75mm depth, and be of a coarse, sandy material to avoid development of soil layers that may impede water infiltration.

- Appropriate container size of proposed plants within the SRZ of trees should be determined prior to purchase of plants. Otherwise, any proposed landscaping within the SRZ must consist of tubestock only. This is required to ensure that damage to tree roots is avoided.
- Mattocks and similar digging instruments must not be used within the TPZ of the trees. Planting holes should be dug carefully by hand with a garden trowel, or similar small tool.
- Where possible, do not plant large canopy trees beneath, or within 6 - 8m of overhead lines.

5.4.7 Other

- No washing or rinsing of tools or other equipment, preparation of any mortars, cement mixing, or brick cutting is to occur within 8m upslope of any palms or trees to be retained.
- Regular monitoring of the trees during development works for unforeseen changes or decline will help maintain the trees in a healthy state.

6 References

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7 Appendices

Appendix 1 – Terms and Definitions

Absorbing Roots: Refers to small, non-woody roots with root hairs or a mycorrhizal association and no bark, responsible for the uptake of most of the water and solutes used by the tree. Absorbing roots are less than two millimetres in diameter.

Age classes

Y Young refers to an established but juvenile tree.
SM Semi-mature refers to a tree at growth stages between immaturity and full size.
EM Early-mature refers to a tree close to full sized still actively growing.
M Mature refers to a full sized tree with some capacity for further growth.
LM Late-Mature refers to a full sized tree with little capacity for growth that is not yet about to enter decline.
OM Over-Mature refers to a full sized tree with little capacity for growth that is entering or has entered decline.

Condition/Structure: refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition/structure.

Diameter at Standard Height (DSH): Refers to the tree trunk diameter at standard height (1.4 metres above ground level).

Epicormic growth: adventitious branches that are considered to be a weak attachment in the short term due to minimal wood formation. There are generally formed following storm-related branch breakage or poor pruning practices. Should sufficient holding wood form in the long-term this growth is less of an issue.

Health: Refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

Shall: Under AS4970-2025 this is taken to mean '*indicate*(s) *a statement that is mandatory*'.

Should: Under AS4970-2025 this is taken to mean '*indicate*(s) *a recommendation'*.

SRZ: refers to the Structural Root Zone of the tree, this is the theoretical area around the base of a tree required for stability.

NRZ: refers to the Notional Root Zone of the tree, this is the area required to maintain tree health/vigour and at times stability.

TPZ: refers to the Tree Protection Zone of the tree of which the NRZ is the starting point. This is a given offset from the trunk, set aside, and is the primary method of protecting trees on development sites. It is a combination of the root area, the canopy, the SRZ is located within it.

Visual Tree Assessment (VTA): a procedure of defect analysis developed by Mattheck and Breloer (1994) that uses the growth response and form of trees to detect defects.

Appendix 2 – STARS – Significance of a Tree Assessment Rating System (IACA 2010)©

Estimated Life Expectancy - STARS refers to an estimated life expectancy of a tree, Treeism utilises the ULE categories (after Barrell 1996, Updated 01/04/01) to clarify how this was obtained/decided.

The five categories and their sub-groups are as follows:

1. Long ULE - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:
    a) Structurally sound trees located in positions that can accommodate future growth
    b) Trees which could be made suitable for long term retention by remedial care
    c) Trees of special significance which would warrant extraordinary efforts to secure their long term retention
2. Medium ULE - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:
    a) Trees which may only live from 15 to 40 years
    b) Trees which may live for more than 40 years but would be removed for safety or nuisance reasons
    c) Trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    d) Trees which could be made suitable for retention in the medium term by remedial care
3. Short ULE - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:
    a) Trees which may only live from 5 to 15 years
    b) Trees which may live for more than 15 years but would be removed for safety or nuisance reasons
    c) Trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    d) Trees which require substantial remediation and are only suitable for retention in the short term.
4. Removal - trees which should be removed within the next 5 years:
    a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions
    b) dangerous trees through instability or recent loss of adjacent trees
    c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form
    d) Damaged trees that are clearly not safe to retain
    e) Trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
    f) Trees which are damaging or may cause damage to existing structures within the next 5 years
    g) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f)
    h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review
5. Small, young or regularly pruned - Trees that can be reliably moved or replaced:
    a) small trees less than 5m in height
    b) young trees less than 15 years old but over 5m in height
    c) formal hedges and trees intended for regular pruning to artificially control growth

Landscape Significance

The landscape significance of a tree is an essential criterion for establishing the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree.
This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance and *Useful Life Expectancy* of an individual tree has been defined, the retention value can be determined.

Tree Significance - Assessment Criteria

1. High Significance in landscape.

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

2. Medium Significance in landscape.

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

3. Low Significance in landscape.

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

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

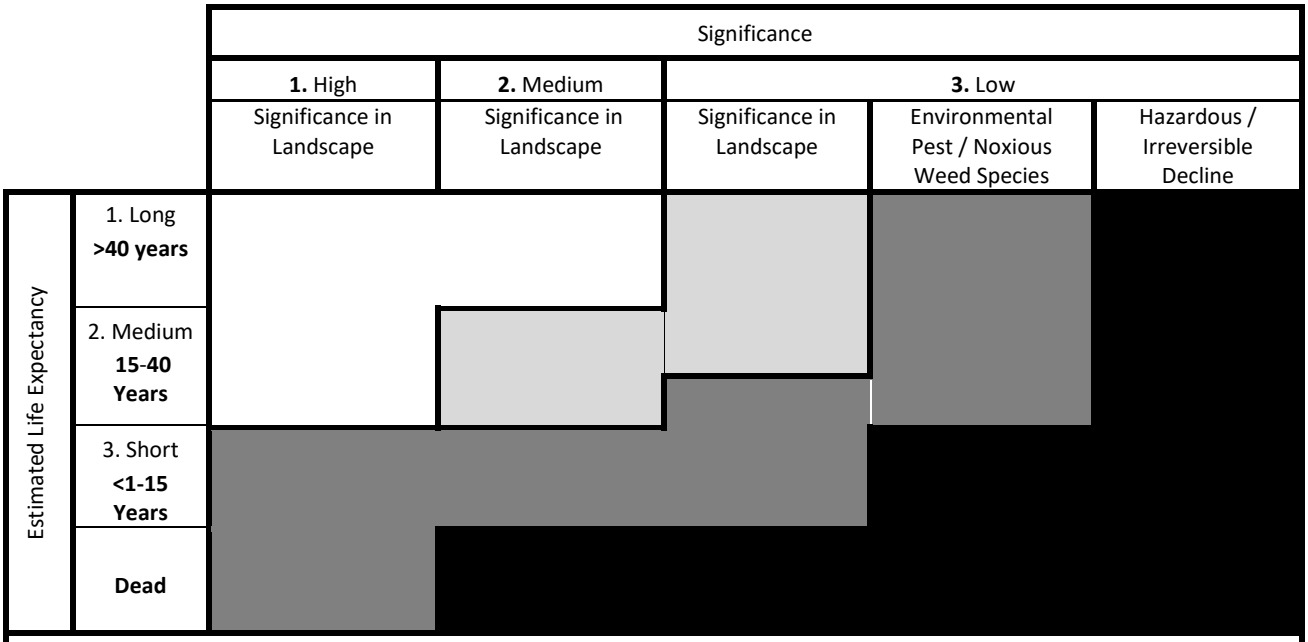
Environmental Pest / Noxious Weed Species:
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties;
- The tree is a declared noxious weed by legislation.

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

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

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

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



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 e.g. pier and beam etc 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 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.
	Priority for Removal -These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

Table 1 - Tree Retention Value - Priority Matrix.

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

Appendix 3 – Schedule of Assessed Trees – Site inspection 16 & 20/6/2025, Kevin Avenue, Avalon Beach.

NOTE: Trees noted as 'DA" details taken from previous AIA report – not reassessed. Trees DA24, DA25, DA27-DA29 & Trees 1-25 do not have encroachment calculations as pathway remains unchanged from existing.

Tree No.	*Genus* & *species* **Common Name**	Ht (m)	Sp (m)	DSH (mm)	AB (mm)	Age	V	C	Comments	ULE	TSR	RV	SRZ (m)	NRZ (m)	NRZ (area)	NRZ encroachment (approx. %)
DA 24	*Eucalyptus haemastoma* **Scribbly Gum**	12	10	230	340	M	G	G-F	Located on Council managed land, locally native species. Leans to north. As per previous assessment with DA (not reassessed).	1B	H	**H**	2.1	2.8	24	N/A
DA 25	*Glochidion ferdinandi* **Cheese Tree**	14	13	500/ 240 (555)	560	M	G	G-F	Located on Council managed land, locally native species. Lopped around power lines (bundled now). As per previous assessment with DA (not reassessed).	1B	H	**H**	2.6	6.7	139	N/A
DA 27	*Glochidion ferdinandi* **Cheese Tree**	7	12	120/ 160 (200)	280	M	G-F	G-F	Located on Council managed land, locally native species. High percentage of twiggy deadwood. As per previous assessment with DA (not reassessed).	1B	M	**M**	1.9	2.4	18	N/A
DA 28	*Glochidion ferdinandi* **Cheese Tree**	8	14	200/ 220 (297)	320	M	G	G-F	Located on Council managed land, locally native species. Lopped under powerlines. As per previous assessment with DA (not reassessed).	2A	M	**M**	2.1	3.6	40	N/A
DA 29	*Callistemon viminalis* **Weeping Bottlebrush**	5	6	60	100	M	G	G	Located on Council managed land, introduced native species. Not on survey. As per previous assessment with DA (not reassessed).	2A	M	**M**	1.5	2.0	13	N/A
1	*Eucalyptus haemastoma* | **Scribbly Gum**	9	12	325	380	M	G	F	Located on Council managed land. |Locally native species. Under power lines, leans to the north.	2A	H	**H**	2.2	3.9	48	N/A
2	*Syncarpia glomulifera* | **Turpentine**	16	15	550	700	M	G	G-F	Located on Council managed land. |Locally native species. Against boundary fence, up on bank.	2A	H	**H**	2.8	6.6	137	N/A
3	*Acacia* sp. | **Wattle**	2	4	80/90 (120)	*120	OM	P	P	Located on Council managed land. |Locally native species. One stem dead, other has only one (1) branch remaining	4A	L	**L**	1.5	2.0	13	N/A
4	*Casuarina cunninghamiana* | **River She-oak**	7	14	290/150 (326)	340/180 (385)	M	G	F	Located on Council managed land. |Locally native species. Poor form, lopped under lines, canopy all to north. New driveway to east, roots severed.	2A	M	**M**	2.2	3.9	48	N/A
5	*Glochidion ferdinandi* | **Cheese Tree**	15	14	*230	*320	M	G	G-F	Located on Council managed land. |Locally native species. Bundles power lines, stem around it. Surrounded by hibiscus shrubs and agapanthus. Hibiscus requires pruning over path.	2A	H	**H**	2.1	2.8	24	N/A
6	*Cotoneaster* sp. | **Cotoneaster**	2.5	4	Multi 10 x 6 (240)	*240	M	G	G	Located on Council managed land. |Introduced exotic species.	5A	L	**L**	1.8	2.9	26	N/A
7	*Liquidamber styraciflua* | **Sweet Gum**	19	18	720	880	M	G-F	G-F	Located on Council managed land. |Introduced exotic species. Roots noted at edge of footpath, possibly cut previously.	2A	H	**H**	3.1	8.6	235	N/A
8	*Schefflera actinophylla* | **Umbrella Tree**	6	3	*40/20/ 40 (60)	*150	SM	G	G	Located on Council managed land. |Introduced native species.	2A	L	**L**	1.5	2.0	13	N/A
9	*Syagrus romanzoffiana* | **Cocos Palm**	14	6	*120	N/A	M	G	G	Located on Council managed land. |Introduced exotic species.	2C	L	**L**	N/A	2.0	13	N/A
10	*Callistemon* sp. | **Bottlebrush**	8	6	*240	*340	M	G-F	G-F	Located on Council managed land. |Introduced native species. Monstera up stem.	2A	M	**M**	2.1	2.9	26	N/A

Tree No.	*Genus & species* **Common Name**	Ht (m)	Sp (m)	DSH (mm)	AB (mm)	Age	V	C	Comments	ULE	TSR	RV	SRZ (m)	NRZ (m)	NRZ (area)	NRZ encroachment (approx. %)
11	*Erythrina crista-galli* | **Cockscomb Coral Tree**	5	6	*100/60/40/40/60/100/50 (181)	*180	M	G	F-P	Located on Council managed land. |Introduced exotic species. Appears lopped/cut down to stump and reshoots.	2C	L	**L**	1.6	2.2	15	N/A
12	*Archontophoenix cunninghamiana* | **Bangalow Palm**	14	6	*200	N/A	M	G	G	Located on Council managed land. |Introduced native species.	2A	M	**M**	N/A	2.0	13	N/A
13	*Nerium oleander* | **Oleander**	6	6	Multiple	*350	EM	G	G-F	Located on Council managed land. |Introduced exotic species.	2A	L	**L**	2.1	2.0	13	N/A
14	*Camellia sasanqua* | **Camellia**	6	6	200 @1m	*200	M	G	G	Located on Council managed land. |Introduced exotic species. In raised sandstone planter wall.	2A	M	**M**	1.7	2.4	18	N/A
15	*Archontophoenix cunninghamiana* | **Bangalow Palm**	12	6	100	N/A	M	G	G	Located on Council managed land. |Introduced native species. Behind raised sandstone wall.	2A	M	**M**	N/A	2.0	13	N/A
16	*Podocarpus elatus* | **Brown Pine**	7	12	190/175 (258)	290	M	G	G	Located on Council managed land. |Introduced native species.	2A	H	**H**	2.0	3.1	30	N/A
17	*Dypsis leutescens* | **Golden Cane Palm**	2	4	-	-	M	G	G	Located on Council managed land. |Introduced exotic species.	5A	L	**L**	N/A	2.0	13	N/A
18	*Callistemon* sp. | **Bottlebrush**	3	2	60/20 (63)	*100	EM	F	F	Located on Council managed land. |Introduced native species.	2A	L	**L**	1.5	2.0	13	N/A
19	*Dypsis leutescens* | **Golden Cane Palm**	5	6	-	-	M	G	G	Located on Council managed land. |Introduced exotic species.	2A	M	**M**	N/A	2.0	13	N/A
20	*Corymbia ficifolia* | **WA Red Flowering Gum**	3	6	*160	*200	M	G	G	Located on Council managed land. |Introduced native species. Behind sleeper wall.	2A	M	**M**	1.7	2.0	13	N/A
21	*Banksia integrifolia* | **Coast Banksia**	3.5	6	*110/100 (149)(	310*	M	G	G	Located on Council managed land. |Locally native species. Behind sleeper wall.	2A	M	**M**	2.0	2.0	13	N/A
22	*Grevillea* sp. | **Grevillea**	3	2	80	100	M	G-F	G-F	Located on Council managed land. |Introduced native species. Behind sleeper wall.	5A	L	**L**	1.5	2.0	13	N/A
23	*Phoenix canariensis* | **Canary Island Date Palm**	7	7	400	N/A	M	G	G	Located on Council managed land. |Introduced exotic species.	2A	M	**M**	N/A	2.0	13	N/A
24	*Angophora costata* | **Sydney Red Gum**	19	22	*600	*730	M	G	G	Located on neighbouring property. |Located on Council managed land. |Locally native species.	2A	H	**H**	2.9	7.2	163	N/A
25	*Phoenix roebelenii* | **Dwarf Date Palm**	2.5	4	100	N/A	M	G	G	Located on Council managed land. |Introduced exotic species.	2A	M	**M**	N/A	2.0	13	0
26	*Phoenix roebelenii* | **Dwarf Date Palm**	3	4	100	N/A	M	G	G	Located on Council managed land. |Introduced exotic species.	2A	M	**M**	N/A	2.0	13	0
27	*Syzygium* sp. | **Lilly Pilly**	6	8	Multi	300	M	G	G	Located on Council managed land. |Introduced native species.	2A	M	**M**	2.0	2.0	13	0
28	*Callistemon viminalis* | **Weeping Bottlebrush**	6	12	180/220/220 (359)	*360	M	G	G	Located on Council managed land. |Introduced native species. Branches low over speed hump and path. Lopped under bundled cable.	2A	H	**H**	2.2	4.3	58	0
G29	*Murraya paniculata* | **Orange Jessamine**	2	4	-	*100	M	G	F-P	Located on Council managed land. |Introduced exotic species. Row of nine (9), lopped heavily, only epicormic growth left.	2C	L	**L**	1.5	2.0	13	0

Tree No.	*Genus & species* **Common Name**	Ht (m)	Sp (m)	DSH (mm)	AB (mm)	Age	V	C	Comments	ULE	TSR	RV	SRZ (m)	NRZ (m)	NRZ (area)	NRZ encroachment (approx. %)
30	*Viburnum* sp. | **Viburnum**	1	1	20	20	SM	G	G	Located on Council managed land. |Introduced exotic species.	5A	L	**L**	1.5	2.0	13	38.5 & SRZ
31	*Angophora costata* | **Sydney Red Gum**	13	10	220	250	EM	G	G	Located on Council managed land. |Locally native species. Behind hedge.	2A	H	**H**	1.8	2.6	22	16.6 & SRZ
G32	*Hibiscus* sp | **Hibiscus (A-C)**	3.5	4	100/100 /60/20 (155)	*155	M	G	G	Located on Council managed land. |Introduced exotic species. Group-two (2) hibiscus (dimensions taken from largest one), and one (1) Viburnum sp. Tree 'A' will require removal.	5A	M	**M**	1.5	2.0	13	A- 100 B- 34.1 & SRZ C- 31.4 & SRZ
33	*Angophora costata* | **Sydney Red Gum**	14	15	@.5m AGL 460	460	M	G	G	Located on Council managed land. |Locally native species. Wound roadside, mechanical damage suspected. Canopy low over road.	2A	H	**H**	2.4	5.5	96	34.5 & SRZ
34	*Viburnum* sp. | **Viburnum**	2.5	4	-	80/80/ 20/40 (122)	M	G	G	Located on Council managed land. |Introduced exotic species.	5A	M	**L**	1.5	2.0	13	100
35	*Plumeria* sp. | **Frangipani**	3	6	100/100 (141)	*140	M	G	G	Located on Council managed land. |Introduced exotic species.	5A	M	**L**	1.5	2.0	13	4.8
G36	*Plumeria* sp. | **Frangipani**	2	6	-	100	M	G	G	Located on Council managed land. |Introduced exotic species. Planted between driveway of no. 8 & 10 but driveway for no. 10 not on survey.	5A	M	**L**	1.5	2.0	13	19 & SRZ
G37	*Plumeria* sp. | **Frangipani (A-D)**	2.5	4	-	120	EM	G	G	Located on Council managed land. |Introduced exotic species. Group of four (4) in a line, canopy over/blocking proposed path, largest specimen had stem diameter taken. 'B' will require removal, A & C prune required, D clear.	5A	M	**L**	1.5	2.0	13	A- 28 B- 29.2 C- 27.8 D- 26.4
38	*Banksia integrifolia* | **Coast Banksia**	13	10	270	330	M	G	G-F	Located on Council managed land. |Locally native species. Poor pruning over driveway.	2A	H	**H**	2.1	3.2	33	44.5
39	*Grevillea robusta* | **Silky Oak**	18		390	510	M	G	G	Located on Council managed land. |Exempt Species under P21DCP. |Introduced native species.	2A	M	**M**	2.5	4.7	69	100
40	*Eucalyptus haemastoma* | **Scribbly Gum**	7	12	250	390	M	F	F-P	Located on Council managed land. |Locally native species. Poor form, canopy low all over roadway, suppressed under large Angophora closer to private boundary, kino exuding, several wound sites.	3A	M	**M**	2.2	3.0	28	38.5 & SRZ
41	*Allocasuarina torulosa* | **Forest She-oak**	5	6	130	180	EM	G	G-F	Located on Council managed land. |Locally native species.	2A	M	**M**	1.6	2.0	13	36.8 & SRZ
42	*Allocasuarina torulosa* | **Forest She-oak**	12	8	250	290	M	G	G-F	Located on Council managed land. |Locally native species. Right (to east) of concrete stairs. Die-back in upper branches.	2A	M	**M**	2.0	3.0	28	36.2 & SRZ
43	*Banksia integrifolia* | **Coast Banksia**	12	9	280	320	M	G	G	Located on Council managed land. |Locally native species.	2A	M	**M**	2.1	3.4	35	34.6 & SRZ
44	*Tristaniopsis laurina* | **Watergum**	7	6	*140/ 100/80 (190)	*360	M	G	G	Located on Council managed land. |Locally native species. Dense lower foliage, will need crown raising.	2A	H	**H**	2.2	3.4	36	23.8 & SRZ
45	*Angophora costata* | **Sydney Red Gum**	13	8	210	260	M	G-F	F	Located on Council managed land. |Locally native species. Dieback on branch tips.	2A	M	**M**	1.9	2.5	20	19.3 & SRZ

Tree No.	*Genus* & *species* **Common Name**	Ht (m)	Sp (m)	DSH (mm)	AB (mm)	Age	V	C	Comments	ULE	TSR	RV	SRZ (m)	NRZ (m)	NRZ (area)	NRZ encroachment (approx. %)
46	*Angophora costata* | **Sydney Red Gum**	7	9	70	100	SM	F	F-P	Located on Council managed land. |Locally native species. Damage to cambium at base, dieback noted.	3A	M	**L**	1.5	2.0	13	38.1 & SRZ
47	*Angophora costata* | **Sydney Red Gum**	14	8	180	240	M	G-F	F	Located on Council managed land. |Locally native species. Dieback noted. Twiggy.	2A	M	**M**	1.8	2.2	15	6.3 & SRZ
48	*Syzigium* sp. | **Lilly Pilly**	6	4	110	130	EM	G	G	Located on Council managed land. |Locally native species. Suppressed.	2A	M	**M**	1.5	2.0	13	5.0
49	*Tristaniopsis laurina* | **Watergum**	9	6	140/170 /180 (284)	320	M	G	G	Located on Council managed land. |Locally native species. Low branches over road/path area.	2A	H	**H**	2.1	3.4	36	32.1 & SRZ
50	*Banksia integrifolia* | **Coast Banksia**	7	7	280	290	M	G	G-F	Located on Council managed land. |Locally native species. Upper branch has minor dieback, leans over road/path will be in way.	2A	H	**H**	2.0	3.4	35	37.3& SRZ
51	*Casuarina glauca* | **Swamp she-oak**	17	10	400	510	M	G	G	Located on Council managed land. |Locally native species. Low broken limb will need pruning for path clearance.	2A	H	**H**	2.5	4.8	72	30.7 & SRZ
52	*Grevillea* sp. | **Grevillea**	1.6	3	90	140	M	F	F	Located on Council managed land. |Introduced native species.	2A	L	**L**	1.5	2.0	13	0
G53	*Hakea* sp. | **Hakea**	2	5	-	470	M	G	F	Located on Council managed land. |Locally native species. Decay into root crown. Shrub next to it, partially on ground.	5A	M	**L**	2.4	2.0	13	19.3 & SRZ
G54	*Lophostemon confertus* | **Brushbox**	5	6	100/80/ 150 @ .2m AGL (197)	*200	EM	G	F-P	Located on private and Council managed land. |Locally native species. Group planted/self-sown hard against building. Palms and Brushbox suspected to have been cut down and reshoots only.	5A	M	**L**	1.7	2.4	18	0
G55	*Dracena* sp. | **Dracena** x	4	2	-	-	M	G	G	Located on Council managed land. |Introduced exotic species. Garden bed planted out outside childcare with several Dracaena sp. And one (1) Magnolia grandiflora cv. With sandstone or concrete garden raised garden bed.	5A	M	**L**	N/A	2.0	13	0
56	*Angophora costata* | **Sydney Red Gum**	6	9	300/310 (431)	500	M	F-P	P	Located on Council managed land. |Locally native species. Directly under power lines, canopy all to north.	3A	L	**L**	2.5	5.2	84	33.9 & SRZ
57	*Banksia integrifolia* | **Coast Banksia**	8	8	290/330 /220 (491)	*500	M	G-F	G-F	Located on neighbouring property. |Locally native species. Three (3) stems from root crown.	2A	H	**H**	2.5	5.9	109	16.8
58	*Banksia integrifolia* | **Coast Banksia**	7	6	160/100 (189)	260	M	G	G	Located on Council managed land. |Locally native species.	2A	H	**H**	1.9	2.3	16	0
59	*Banksia integrifolia* | **Coast Banksia**	6	-	-	-	-	P	P	Located on Council managed land. |Locally native species. **Dead.**	4A	L	**L**	-	-	-	N/A
60	*Eucalyptus robusta* | **Swamp Mahogany**	11	12	230/340 /270 (491)	410	M	G-F	G-F	Located on Council managed land. |Locally native species.	2A	H	**H**	2.3	5.9	109	0
61	*Banksia integrifolia* | **Coast Banksia**	14	-	-	-	-	P	P	Located on Council managed land. |Locally native species. **Dead.**	4A	L	**L**	-	-	-	N/A
62	*Banksia integrifolia* | **Coast Banksia**	12	6	390	470	M	G	G	Located on Council managed land. |Locally native species. Canopy orientated to east/south-east.	2A	H	**H**	2.4	4.7	69	0
63	*Banksia integrifolia* | **Coast Banksia**	9	6	160/150 (219)	360	M	G	G-F	Located on Council managed land. |Locally native species. Decay extended from old pruning wound into lower stem.	2A	H	**H**	2.2	2.6	22	0

KEY

Trees to be retained.

Tree that requires pruning for path clearances.

Trees proposed for removal.

L Low Retention Value-These trees are not considered important for retention.

M Medium Retention Value-These trees may be retained & protected.

H High Retention Value -These trees are considered important for retention and should be retained and protected.

* DSH is visually estimated (usually adjoining trees or those that are hard to access). AB – above *buttress roots*. AGL - above ground level. Figures in brackets indicates the determined DSH and NRZ for a multi-stemmed tree based on the formula shown in Appendix A of AS4970-2025. Under AS4970-2025, the NRZ calculation for palms, cycads, tree ferns and the like is not calculated, but shall not be less than 2m, SRZ is not calculated/utilised.

H refers to the approximate height of a tree in metres, from base of stem to top of tree crown.

Sp refers to the approximate and average spread in metres of branches/canopy (the 'crown') of a tree.

DSH refers to the approximate diameter of tree stem at standard height i.e. 1.4 metres above ground (unless otherwise noted) and expressed in millimetres. Figures in brackets indicate the minimum NRZ allowable as per Section 3.2 Calculating the Notional Root Zone AS4970-2025.

Age refer to Appendix 1 -Terms and Definitions for more detail.

V refers to the tree's vigour (health) Refer to Appendix 1 -Terms and Definitions for more detail. G- Good, F-Fair, P-Poor.

C refers to the tree's structural condition. Refer to Appendix 1 -Terms and Definitions for more detail.

ULE refers to the estimated *Useful Life Expectancy* of a tree. Refer to Appendices 2 for details.

TSR The *Tree Significance Rating* considers the importance of the tree because of its prominence in the landscape and its amenity value, from the point of view of public benefit. Refer to Appendix 2 – Significance of a Tree Assessment Rating for more detail.

RV Refers to the retention value of a tree, based on the tree's ULE *and* Tree Significance. Refer to Appendix 2 – Significance of a Tree Assessment Rating for more detail.

SRZ Structural Root Zone (SRZ) refers to the critical area required to maintain stability of the tree. Refer to Appendix 1 -Terms and Definitions for more detail.

NRZ Notional Root Zone (NRZ) refers to the zone enclosed by a radius of 12 times DSH that is a primary trigger for Arboricultural input on a development site. Refer to Appendix 1 -Terms and Definitions for more detail.

Appendix 4 – Tree Protection Devices

Figure 1 – Tree Protection Zone Fencing Key

1. 1.8m high chain wire mesh panels with appropriate feet such as concrete or water filled base blocks.
2. Inside TPZ fencing , 75-100mm deep layer of suitable, organic mulch is to be installed. No excavation, grade change, construction activity or material storage is permitted.
3. Alternate fencing option of 1.8m plywood/wooden panels can also be used, (with above ground bracing) to ensure prevention of soil build up/building materials entering TPZ.
4. Appropriate Tree Protection Zone signage must be displayed – see Figure 2.

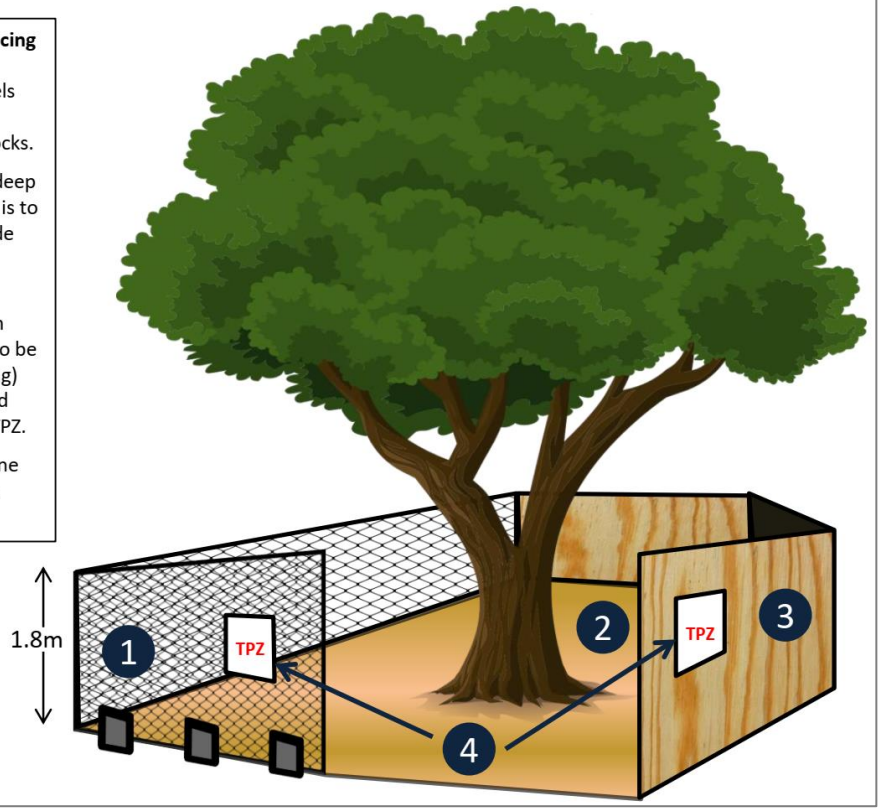


Figure 2
Suitable Tree Protection Zone Signage

Figures 1 & 2 – Tree Protection Fencing and appropriate signage.

Figure 3 - Stem, Branch & Ground protection measures

Key

1. Padding (such as geotextile membrane, natural hessian, rubber, or carpet to protect bark).
2. Battens/boards for branch/stem protection, strapped together NOT nailed into bark/tree. Minimum 2m in height on stem where feasible.
3. Ground protection base 75-100mm of fit for purpose mulch.
4. If machinery is required to move within the TPZ then steel rumble boards (4a) or wide, timber sheeting/boards thrashed together (4b) is to be placed over mulch layer (preferably with geotextile base layer), this to spread the weight and minimise soil compaction

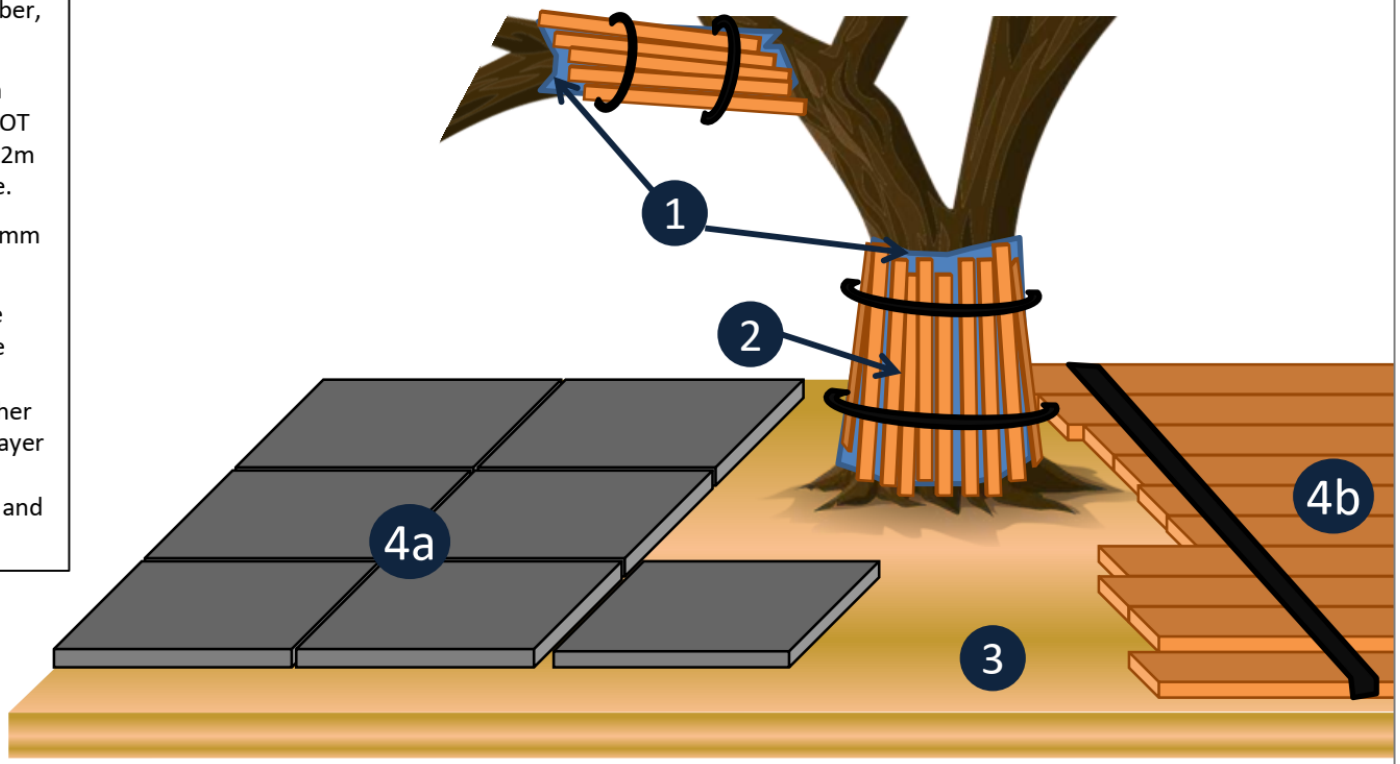


Figure 3 – Stem and ground protection measures.

Appendix 5 – Photographs

Plate 1 – Group 29 – Row of heavily lopped Murraya.

Plate 2 – Tree 28 – Arrow notes subject tree, may require crown raise over path.

Plate 3 – Trees as noted. Trees 30-36 impacted.

Plate 4 – Tree 31 as noted.

Plate 5 – Tree 34 – Tree right on corner of driveway and within the footprint of proposed path.

Plate 6 & Inset –Tree 56. Porr form and right over roadway. Tree proposed for removal.

Plate 7 –Tree 38 in foreground. Inset – Tree 50 can be seen leaning low over pathway.

Plate 8 and Inset –Tree 40, will require removal due to head clearances over path.

Appendix 6 – Tree Location Plan

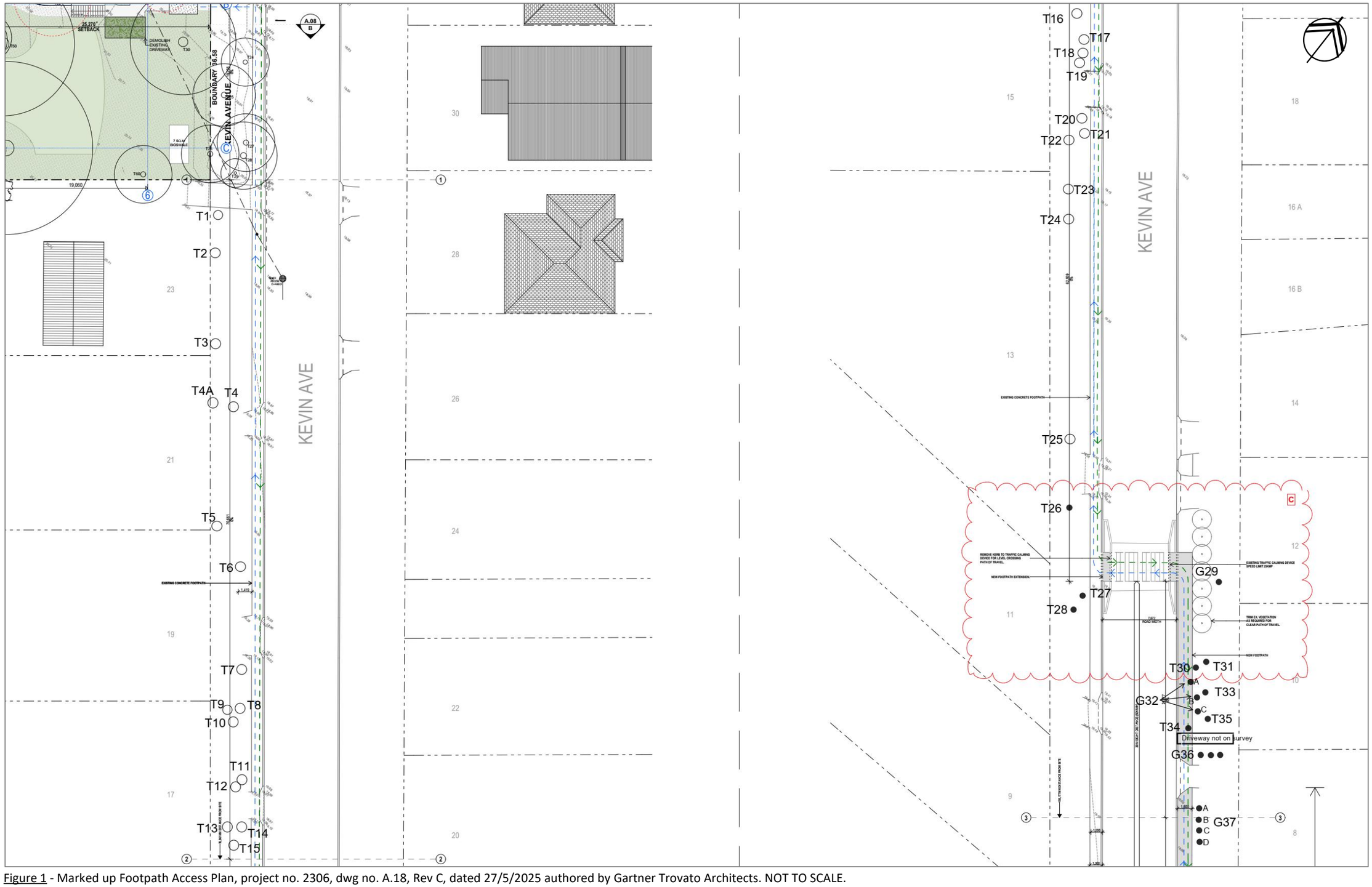


Figure 1 - Marked up Footpath Access Plan, project no. 2306, dwg no. A.18, Rev C, dated 27/5/2025 authored by Gartner Trovato Architects. NOT TO SCALE.

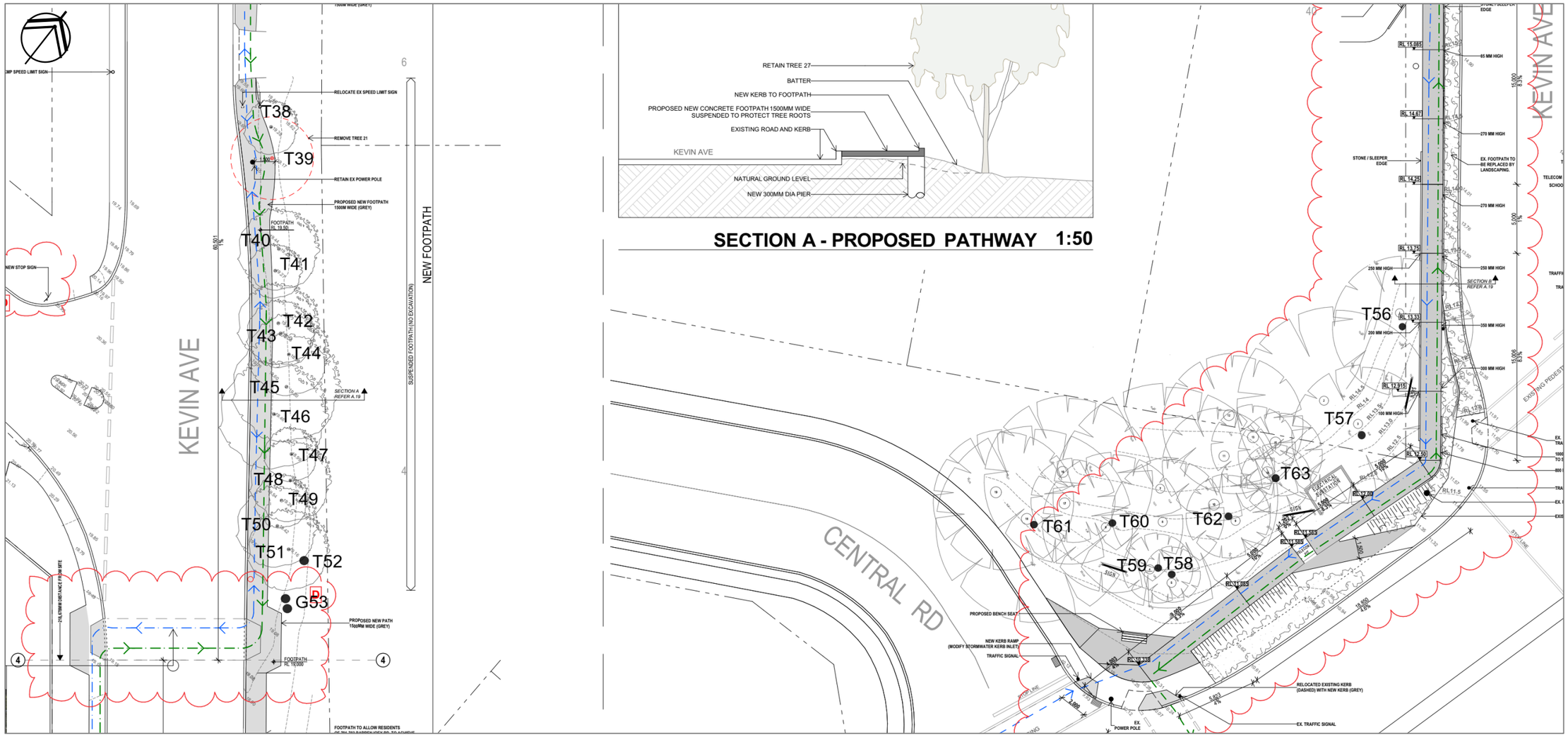


Figure 2 - Marked up Footpath Access Plan, project no. 2306, dwg no. A.19, Rev D, dated 27/5/2025 authored by Gartner Trovato Architects. NOT TO SCALE.

Appendix 7 – Tree Encroachment Calculations – visual

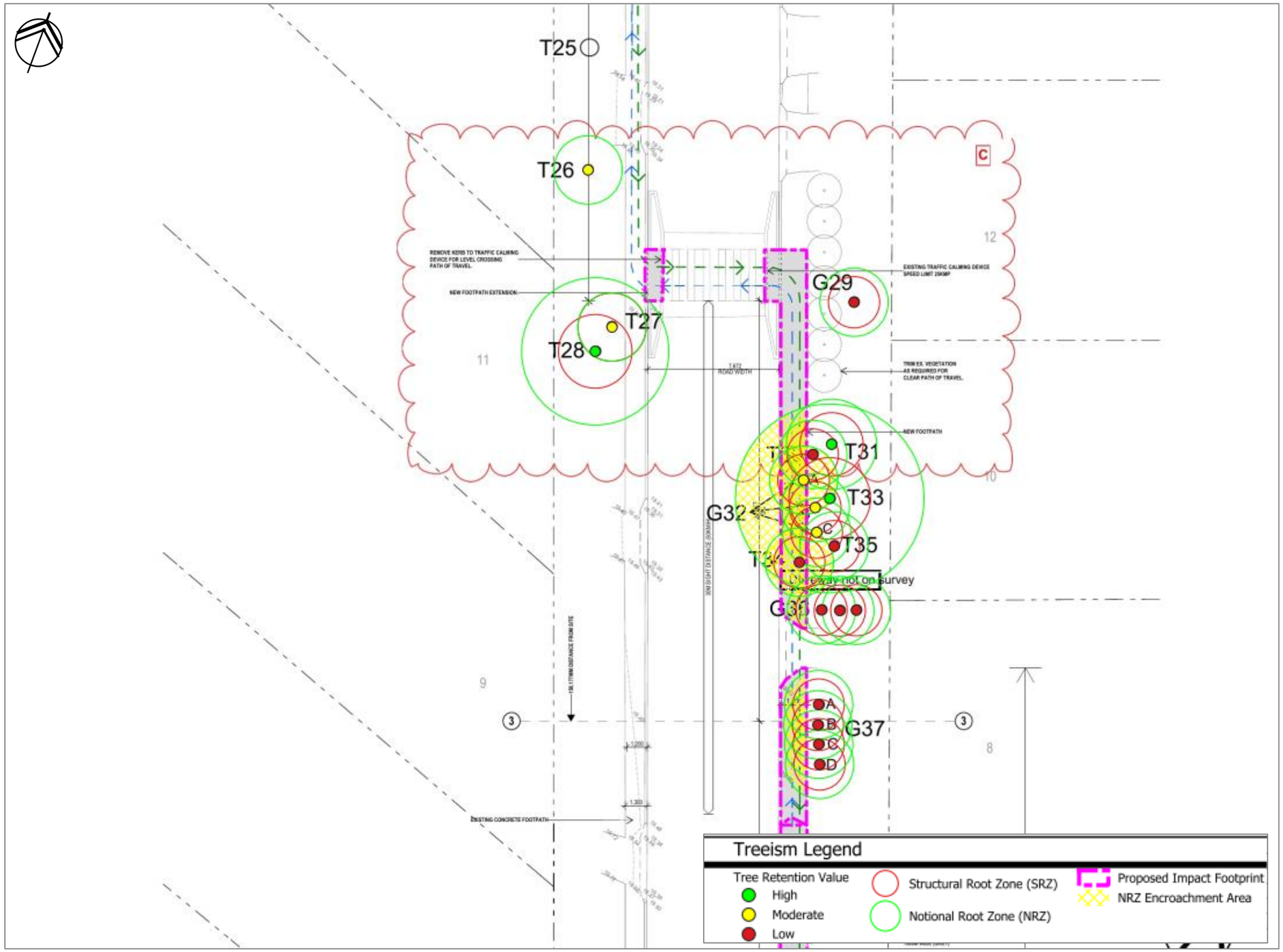


Figure 3 - Marked up Footpath Access Plan, project no. 2306, dwg no. A.18, Rev C, dated 27/5/2025 authored by Gartner Trovato Architects. NOT TO SCALE.

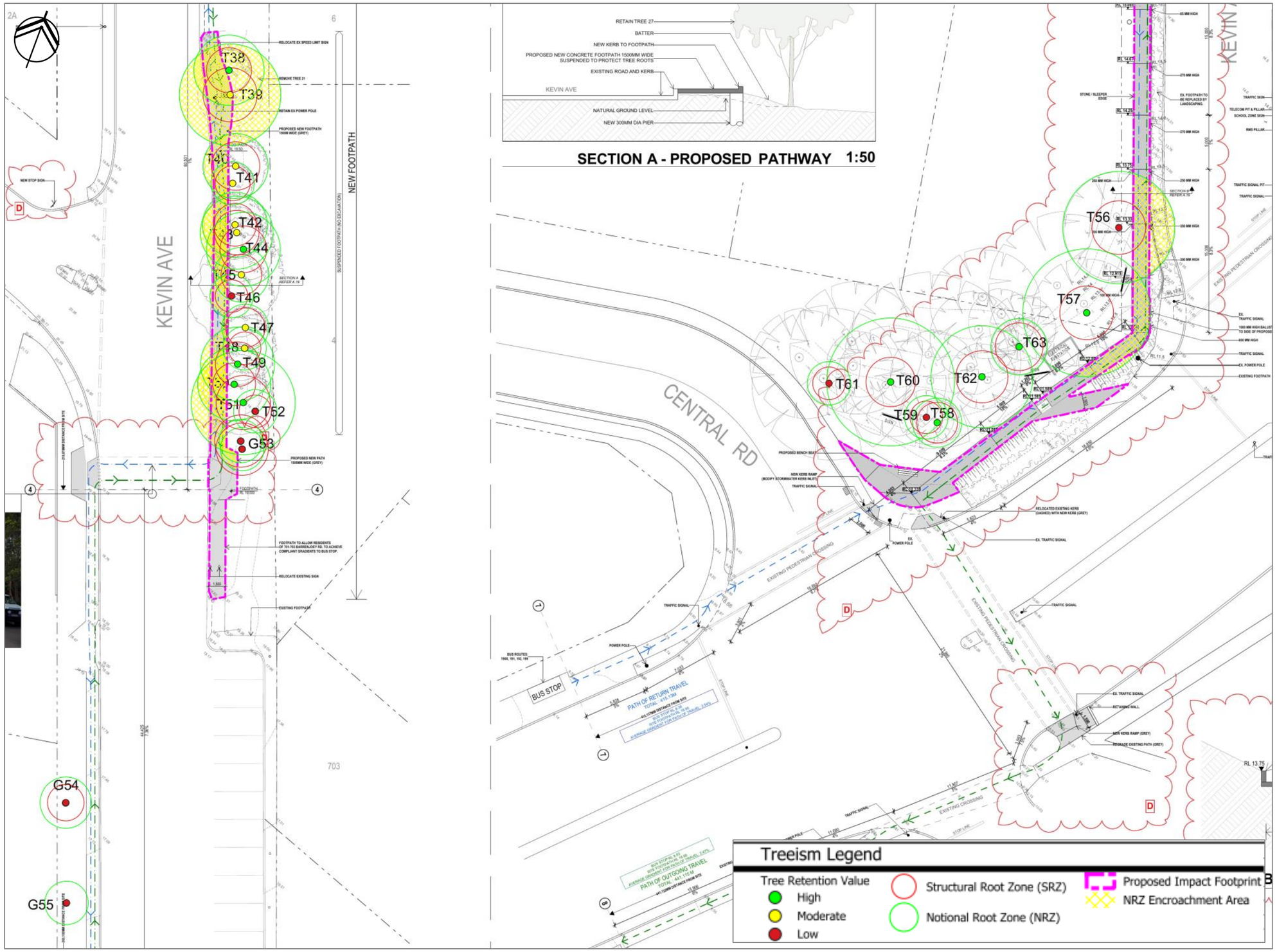


Figure 4 - Marked Up Footpath Access Plan, project no. 2306, dwg no. A.19, Rev D, dated 27/5/2025 authored by Gartner Trovato Architects. NOT TO SCALE