"GROWING MY WAY"
Tree Consultants
Established 1977
EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT
FULL INSURANCE PROTECTION
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**ABN 97 965 355 200**

# *Construction Impact & Management Statement & Preliminary Plan of Management*

## February 2024 – updated November 2024

**Prepared for: Tim Tregonning c/- Dan Raymond**

**35A Queens Avenue, Avalon Beach NSW 2107**

**Prepared by:** Kyle A Hill

Registered (Arb Aus #1884) Practising & Consulting Arborist
Post Graduate Certificate in Arboriculture (University of Melbourne)
Diploma of Horticulture–Arboriculture TAFE, Grow SA
Certificate of Horticulture, TAFE
Certificate Advanced Tree Care TAFE
Founder -Growing My Way Tree Services (1977)
Member of International Society of Arboriculture (ISA)
Member of Arboriculture Australia
Victorian Tree Industry Organisation (VTIO)

**Assisted by:** Ao Wang

Master of Protected Area, Governance & Management (University of Tasmania)
Bachelor of Environmental Biotechnology (University of Technology Sydney)

# 1. Summary

Tim Tregonning (as the Property Owner of 35A Queens Avenue, Avalon Beach NSW 2107) via Daniel Raymond from Raymond and Williams Design and Construct commissioned the Growing My Way Tree Consultancy (GMW) to prepare a Tree Assessment & Management *Report* to be linked to the project, *Proposed New Dwelling.*

The site is Land Zoned for *"C4 Environmental Living".*

The document relates to the subject site, 35A Queens Avenue, Avalon Beach NSW 2107.

A total of four (4) trees are discussed in this report.

The subject site shares common boundaries with seven (7) same land zoning common boundary adjoining properties, one (1) public road (Queens Avenue). All common boundary adjoining properties are developed to contain dwellings & other infrastructures.

Motor vehicle & pedestrian access to the subject site is via Queens Avenue (shared driveway).

The sole consent authority is the Northern Beaches Council. (from herein *NBC)*.

Information related to the discussed trees was gathered by onsite data collection with cross referencing to:

- *NBC website, online property & environment information website tools.*
- *Site Survey by ADAM CLERKE SURVEYORS PTY LTD, dated 21 June 2020.*
- *Proposed Plans, Elevations Sections etc., by RAYMOND AND WILLIAMS DESIGN AND CONSTRUCT, preliminary, dated 10 January 2024.*
- *NSW SEPP; 10/50 Vegetation Clearing 'Code of Practice'*
- *NBC "Tree Management Provisions"*
- *NBC Heritage Conservation Area & Land Zoning LEP Maps.*

*The aim of this report is:*

1. *To confirm the viability of the discussed trees, relating to individual health, vigour & condition considering any impact foreseen by the proposed works.*
2. *Provide a Preliminary Site Specific 'Tree Plan of Management'.*

This document supports (relative to tree management) the proposal as presented.

We note, no compromise to any discussed tree's Useful Life Expectancy can reasonably be predicted by the as proposed project with implementation of intensive ('live root') management.

Kyle A Hill - AQF level 5, Diploma of Horticulture / Arboriculture, (TAFE NSW & other) & AQF level 8, Post Graduate Certificate in Arboriculture, (University of Melbourne) Practicing/Consulting Arborist) with the assistance of Ao Wang (Master of Protected Area, Governance & Management (University of Tasmania) & Bachelor of Environmental Biotechnology (University of Technology Sydney) has prepared this report based on "Visual Tree Assessment" (VTA) undertaken on Friday, 12 January 2024 in the presence of the property owner/client.

# Table of Contents

## 2. Introduction

This report contains observations & recommendations intended to assist in the management of the four (4) trees identified as necessary to be discussed. All discussed trees are located within the subject site.

No trees within the subject site are interpreted as required to be replaced.

Numerous subject site & adjoining common boundary properties trees are acknowledged but have not been assessed a necessary to be discussed/documented. Trees along the subject site common boundary & the 9 Net Road property may be mathematically captured as required to be discussed but in reality are not on the basis their 'live root' systems are likely already pruned by the installation of sub surface 'stormwater infrastructure'

The *Australian Standard AS4970-2009 'Protection of trees on development sites'* is the major guideline document required to be addressed in this document.

We acknowledge & confirm to be familiar with the NBC "Tree Management Provisions", specifically the documents; Pittwater Local Environment Plan, 2014, (from herein Pittwater LEP), Pittwater 21 Development Control Plan (from herein Pittwater 21 DCP), the Pittwater Wildlife Corridor Map & the PC 21 DCP clause B4.22 Preservation of Trees & Bushland Vegetation, parts B & C, starting on page 103, & including recent changes to the NBC DCP plus the August 2017, SEPP, Vegetation in Non–Rural Areas. The subject site is within the Pittwater Wildlife Corridor Map CO1 - those areas though disturbed are likely to be of habitat value due to good crown cover and/or understory. (Pittwater Local Government Area Pittwater 21DCP).

The subject & adjoining sites are within the Pittwater Spotted Gum Forest in the Sydney Basin Bioregion, an endangered ecological community listing (See NSW Scientific Committee, established by the Threatened Species Conservation Act Final Determination Part 3 of Schedule 1 of the Listing of Endangered Ecological Communities is provided for by Part 2 of the Act.).

The sole consent authority is NBC.

The subject site is NOT within an *NBC* designated "*Heritage Conservation Area"*. Neither is the subject site, or any adjoining property listed 'Heritage Items'.

Information related to the discussed trees was gathered by onsite data collection with cross referencing to:

- *NBC website, online property & environment information website tools.*
- *Site Survey by ADAM CLERKE SURVEYORS PTY LTD, dated 21 June 2020.*
- *Proposed Plans, Elevations Sections etc., by RAYMOND AND WILLIAMS DESIGN AND CONSTRUCT, preliminary, dated 10 January 2024.*
- *NSW SEPP; 10/50 Vegetation Clearing 'Code of Practice'*
- *NBC "Tree Management Provisions"*
- *NBC Heritage Conservation Area & Land Zoning LEP Maps.*

This document includes a Preliminary Site Specific "Tree Plan of Management".

# 3. Methodology

Assessment Methodology for the discussed trees has been from ground level by eye, using *Visual Tree Assessment (VTA Stage 1),* techniques developed by Claus Mattheck. The principles of *VTA* are illustrated & explained in his widely used reference textbook *"The Body Language of Trees (1994)"*.

Assessment includes:

- *Onsite assessment, onsite data collection, onsite discussion*
- *Tree's current condition & likely future health*
- *Species tolerance to root disturbance &/or development*
- *Likely present & future risk to persons & property.*
- *Tree's (public & private landscape) amenity value, considering habitat potential.*

No root analysis, soil testing, 'Resistograph'® drilling or aerial canopy inspection was undertaken. See the following Appendices for further information:

- *Appendix A Glossary of Common Arboreal term*
- *Attachment A Tree Protection/Management Prior to & During Construction*

# 4. Observations

## 4.1 The Site

The report discusses trees within the subject site & common boundary adjoining properties. The subject site is 954m$^2$ in size (by *Site Survey by ADAM CLERKE SURVEYORS PTY LTD, dated 21 June 2020*). The subject site is linked to one (1) public road & seven (7) common boundary properties developed to contain residential dwellings.

No Geotechnical issues are known to exist relative to tree management.

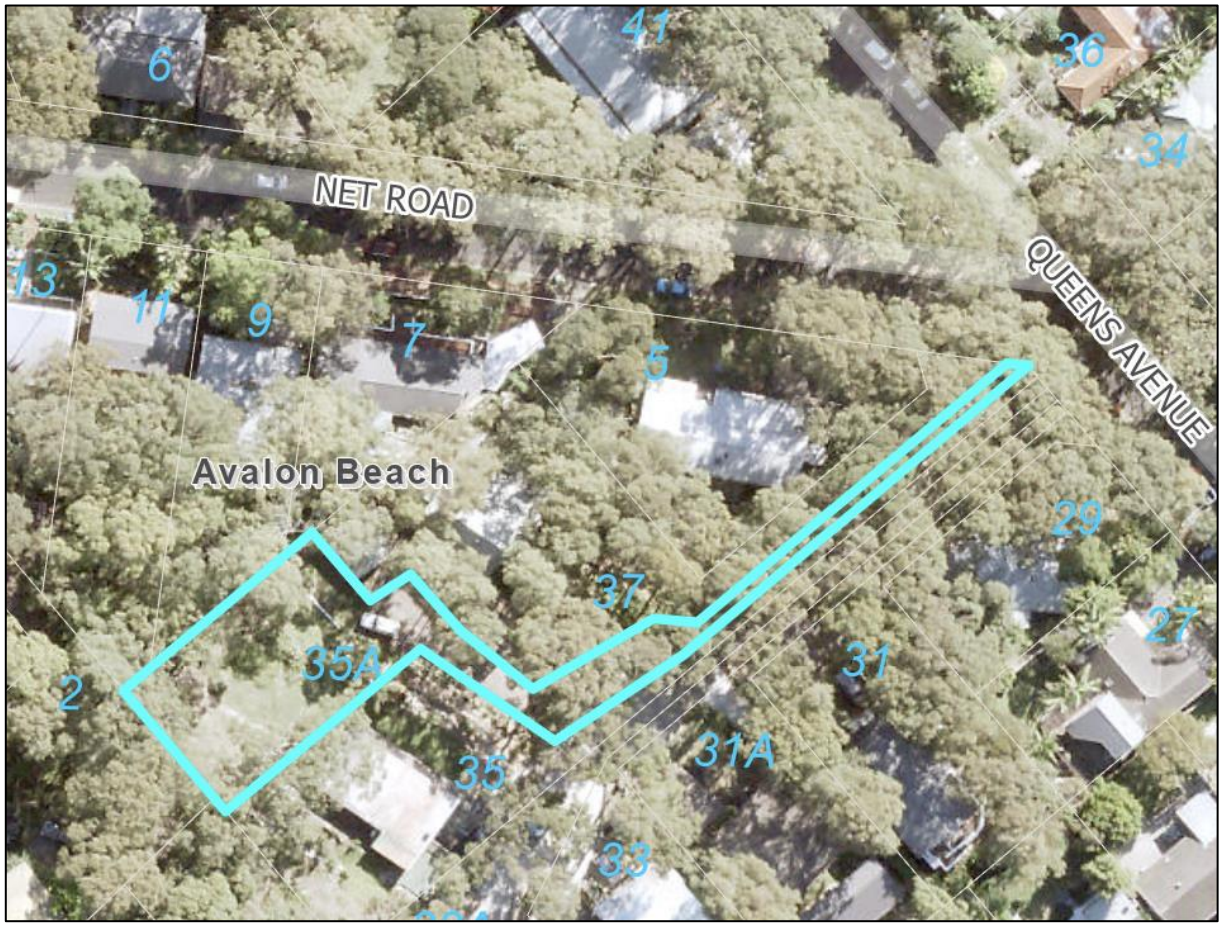



FIGURE 1: ABOVE ILLUSTRATES THE DISCUSSED TREES RELATIVE TO THE SITE 35A QUEENS AVENUE, AVALON BEACH NSW 2107. (AERIAL PHOTOGRAPH FROM MAP DATA NBC IMAGE, JACOBS AEROMETREX)

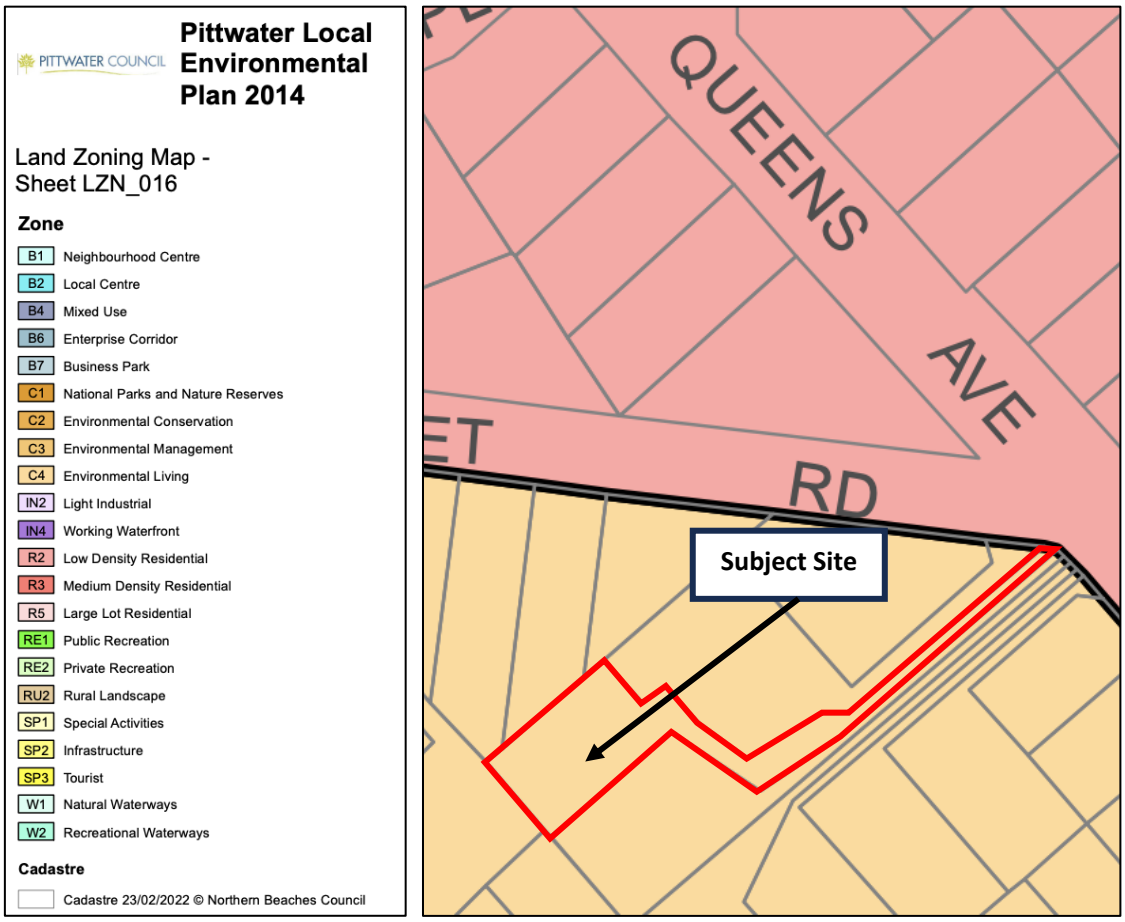



FIGURE 2: CONFIRMS STATUS OF THE SUBJECT SITE RELATIVE C4 ENVIRONMENTAL LIVING. (PITTWATER LOCAL ENVIRONMENTAL PLAN 2014, LAND ZONING MAP - SHEET LZN_016).

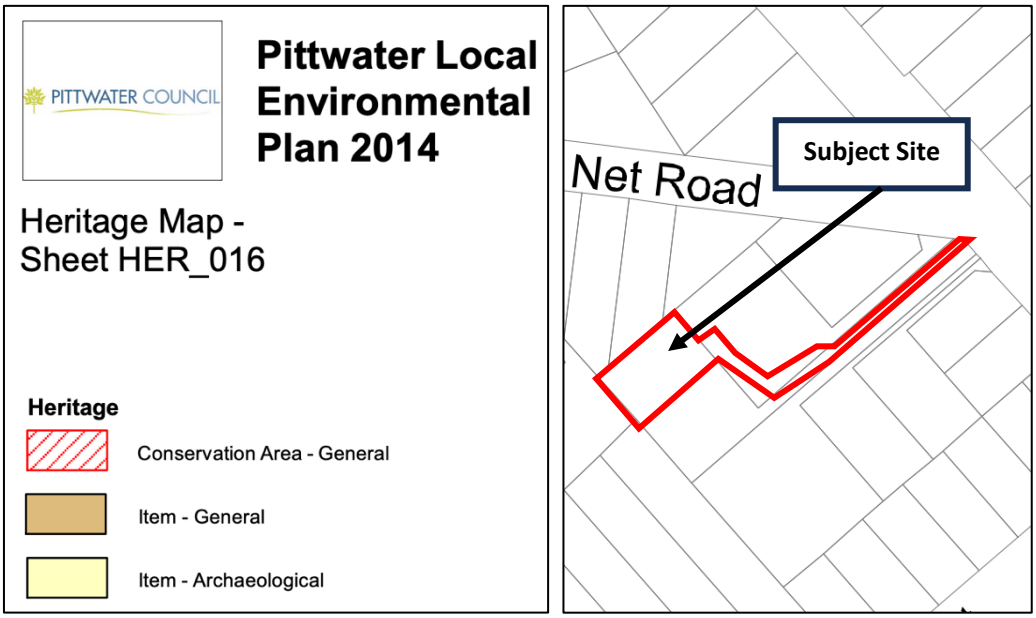



FIGURE 3: CONFIRMS STATUS OF THE SUBJECT SITE RELATIVE TO CADASTRE (PITTWATER LOCAL ENVIRONMENTAL PLAN 2014, HERITAGE MAP SHEET HER_016).

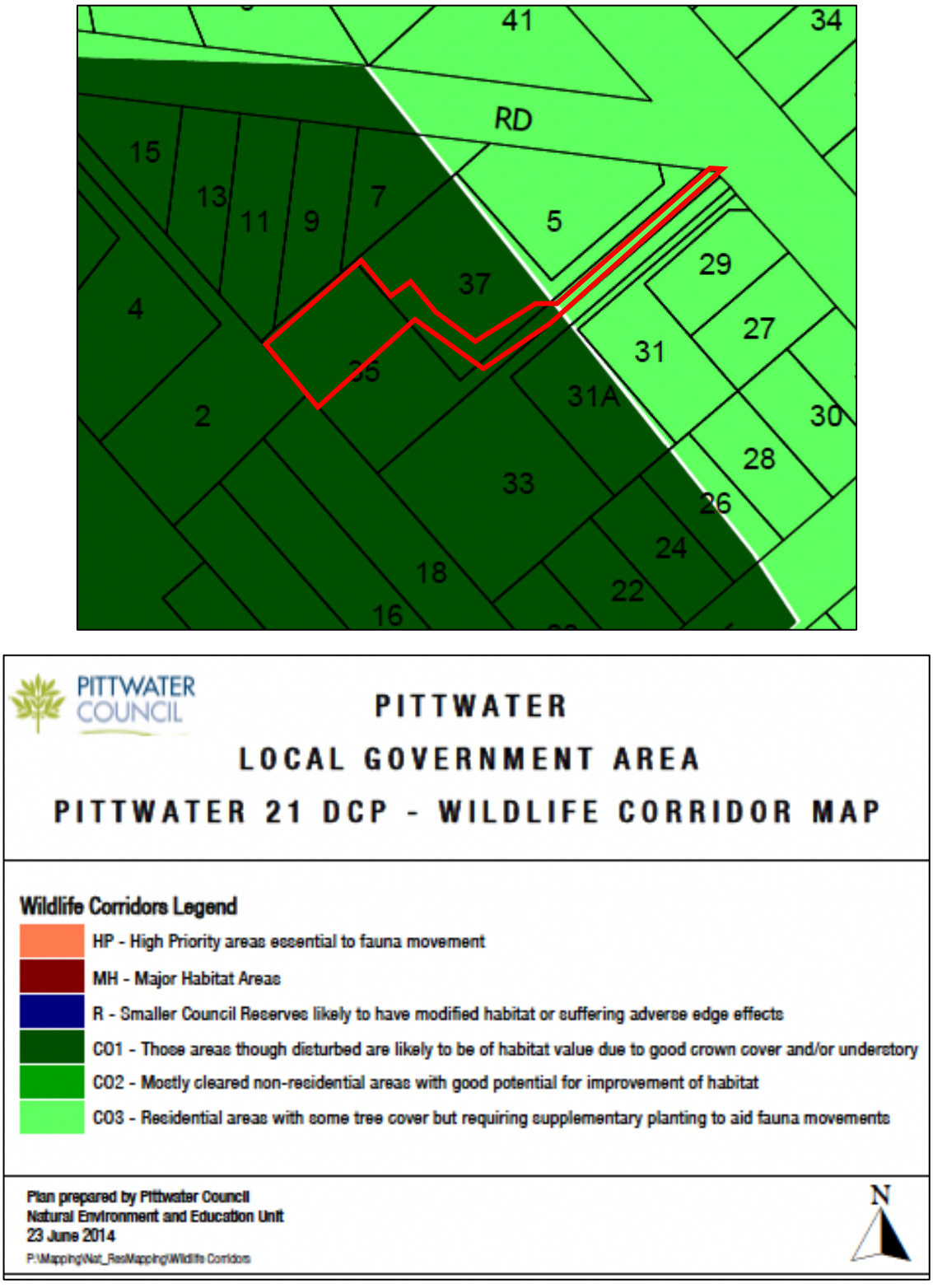



FIGURE 4: CONFIRMS SUBJECT SITE IS WITHIN CO1 - THOSE AREAS THOUGH DISTURBED ARE LIKELY TO BE OF HABITAT VALUE DUE TO GOOD CROWN COVER AND/OR UNDERSTORY (PITTWATER LOCAL GOVERNMENT AREA PITTWATER 21DCP – WILDLIFE)

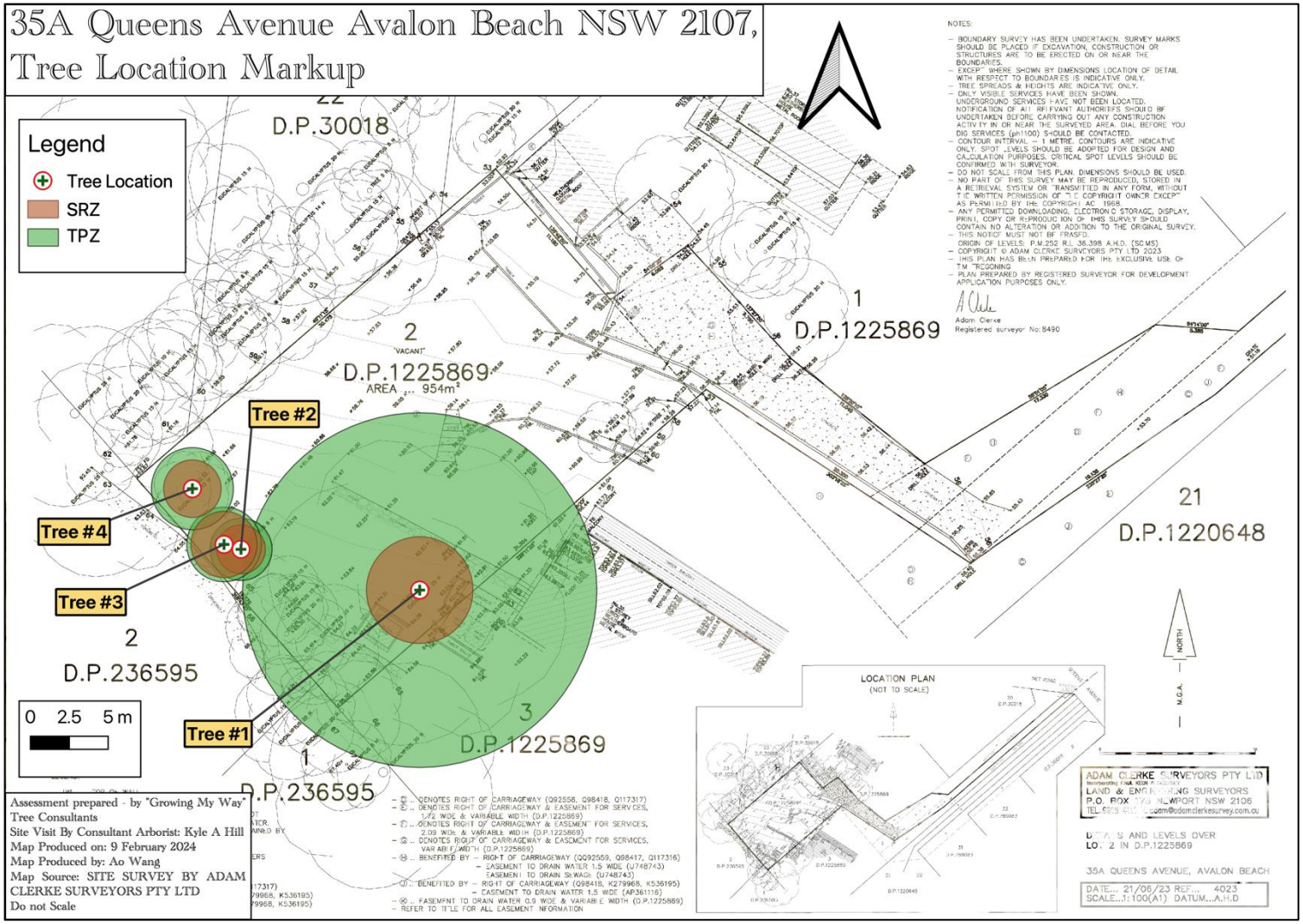



FIGURE 5: NUMBER AND LOCATION OF THE TREES ON SUBJECT SITE. (SITE SURVEY BY ADAM CLERKE SURVEYORS PTY LTD, DATED 21 JUNE 2020)

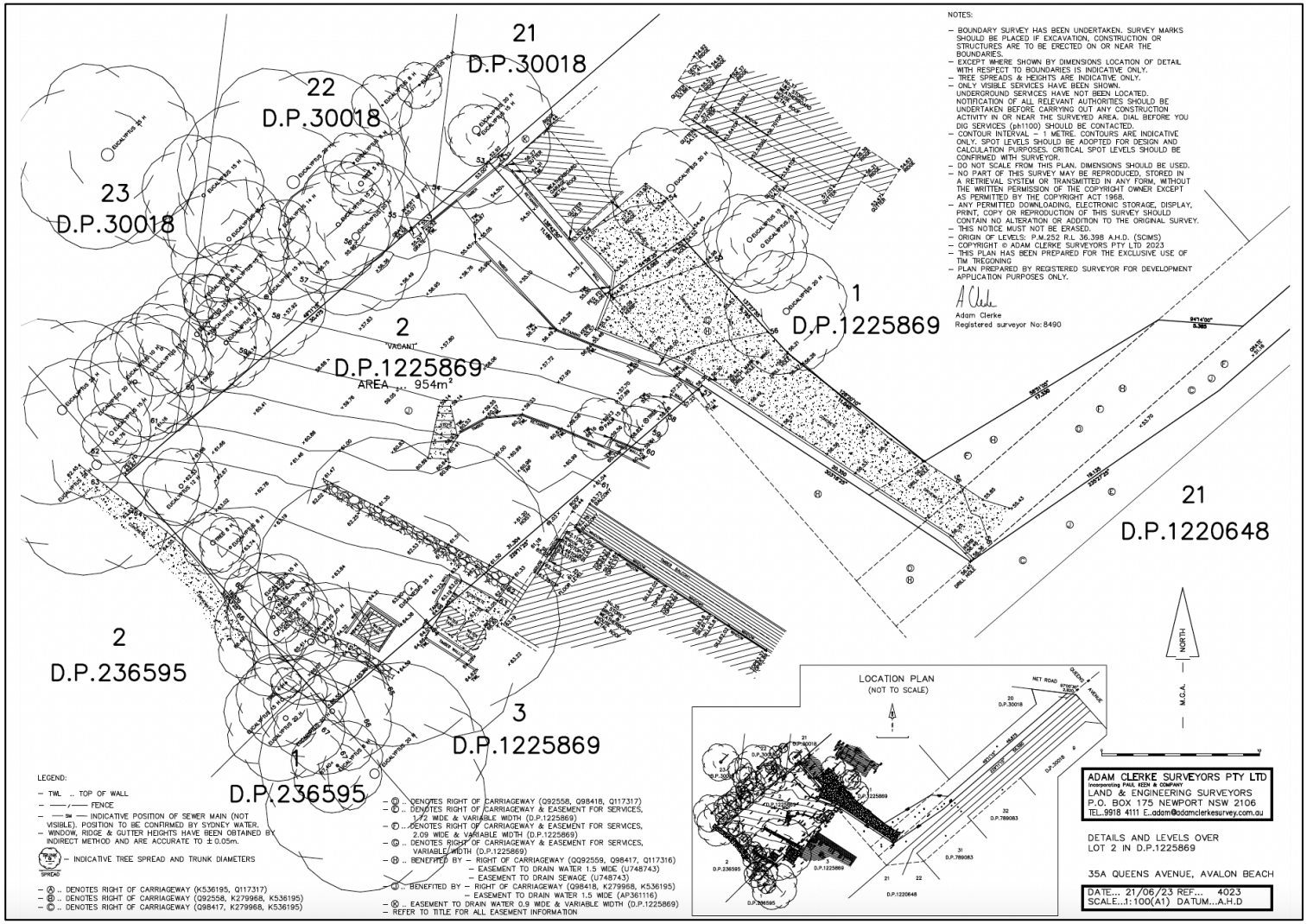



FIGURE 6: THE SITE SURVEY (SITE SURVEY BY ADAM CLERKE SURVEYORS PTY LTD, DATED 21 JUNE 2020)

## 4.2 The Proposal

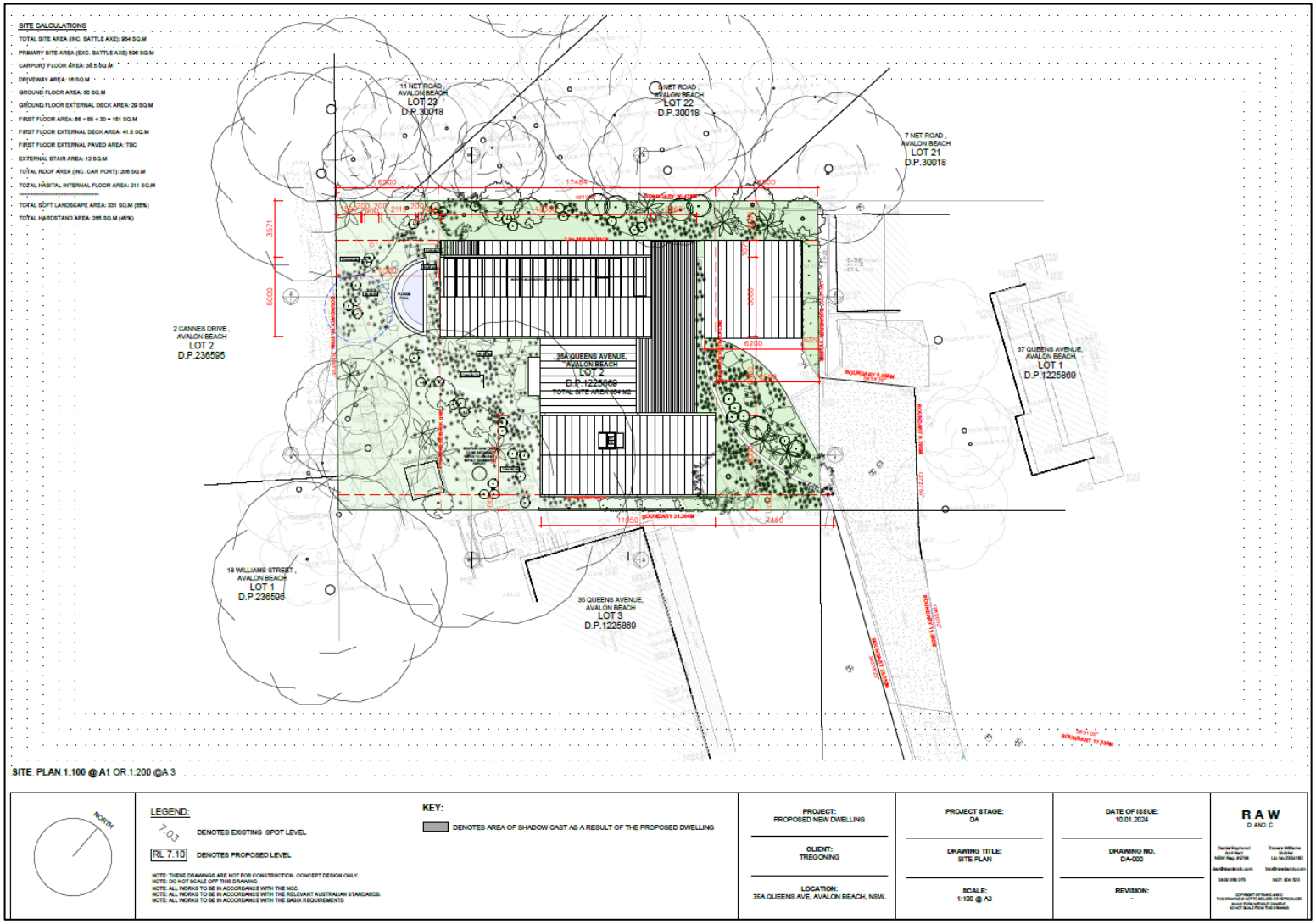



FIGURE 7: ILLUSTRATES PROPOSED SITE PLAN

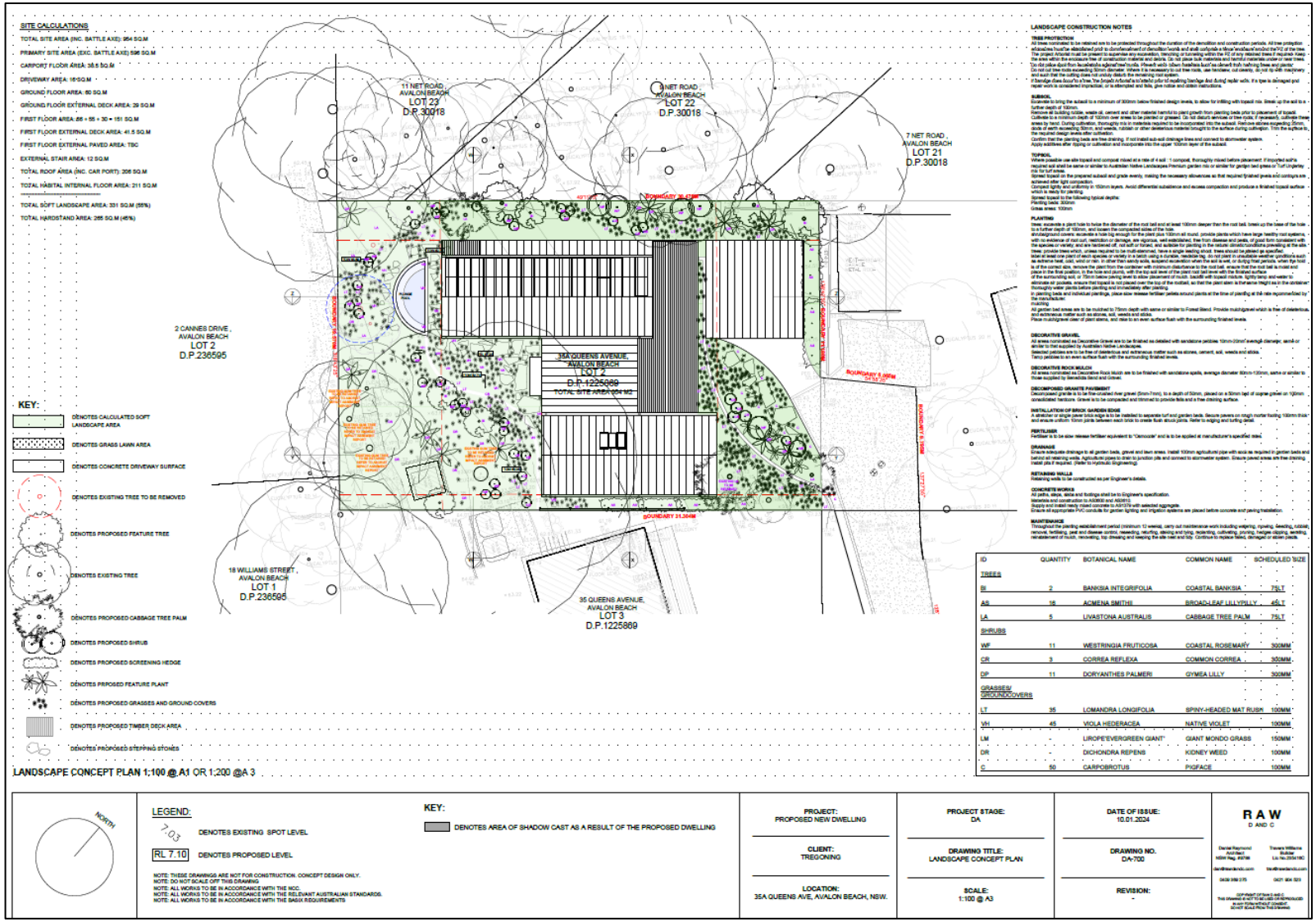



FIGURE 8: PROPOSED LANDSCAPE PLAN

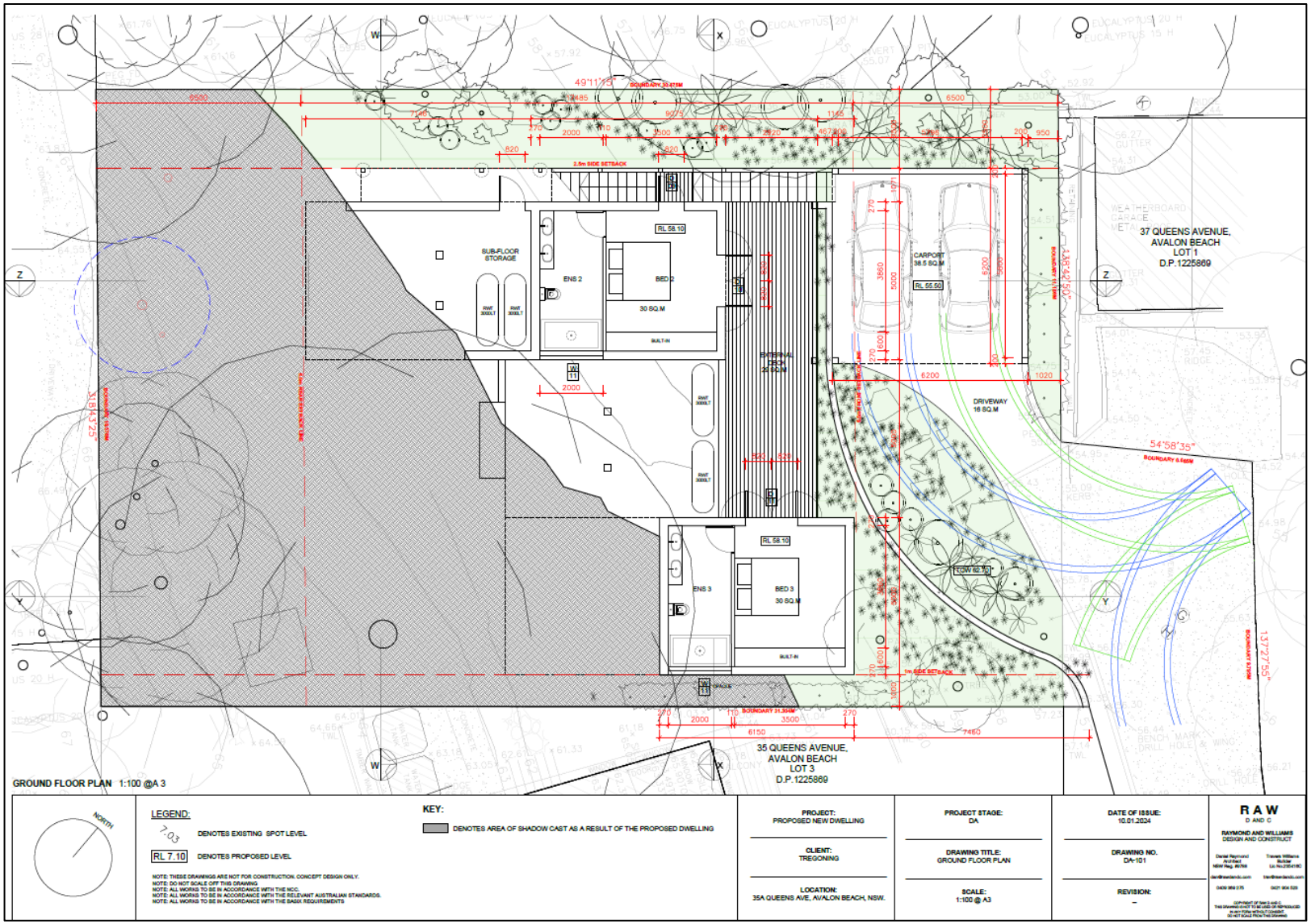



FIGURE 9: ILLUSTRATES PROPOSED GROUND FLOOR PLAN

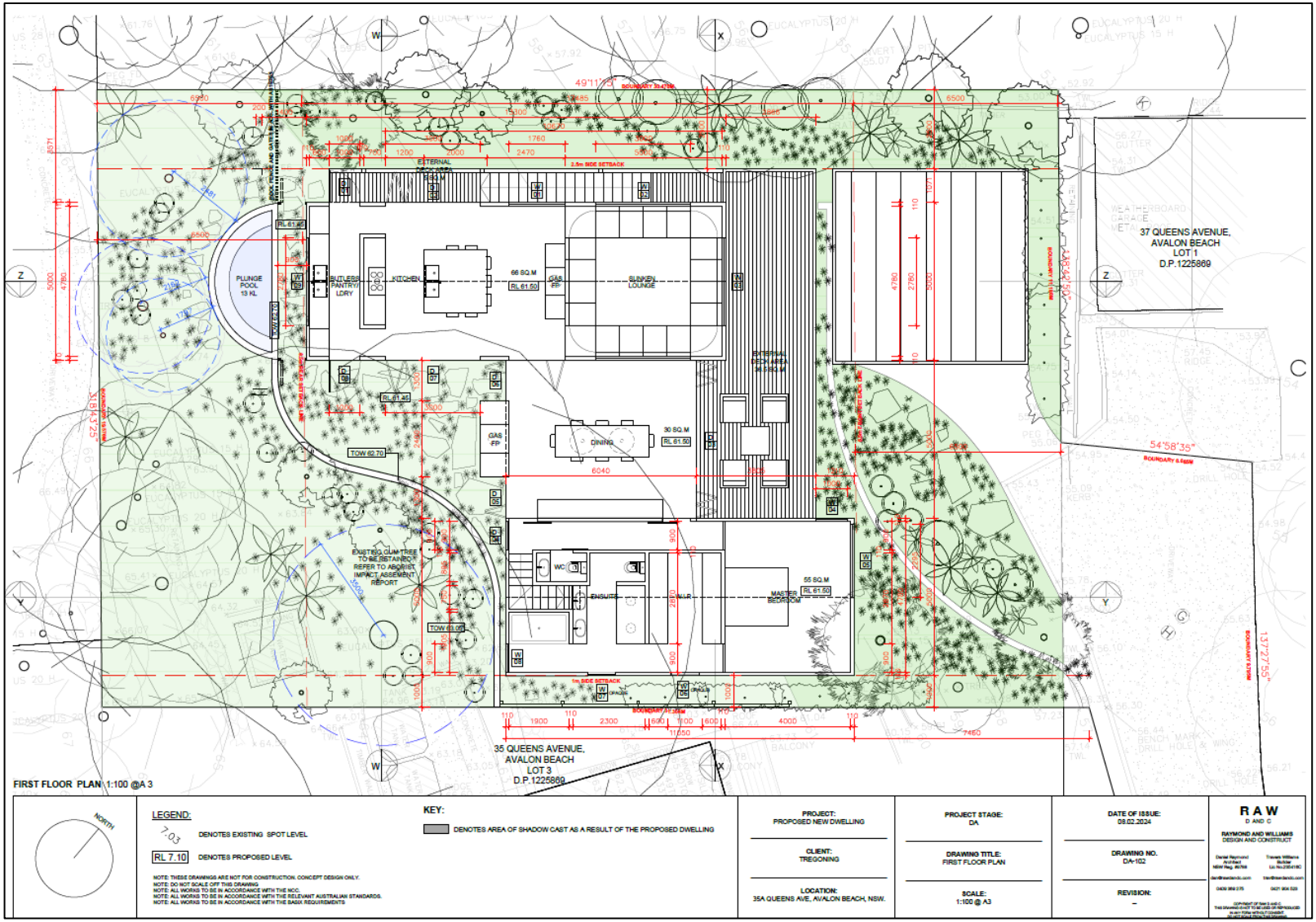



FIGURE 10: ILLUSTRATES PROPOSED FIRST FLOOR PLAN

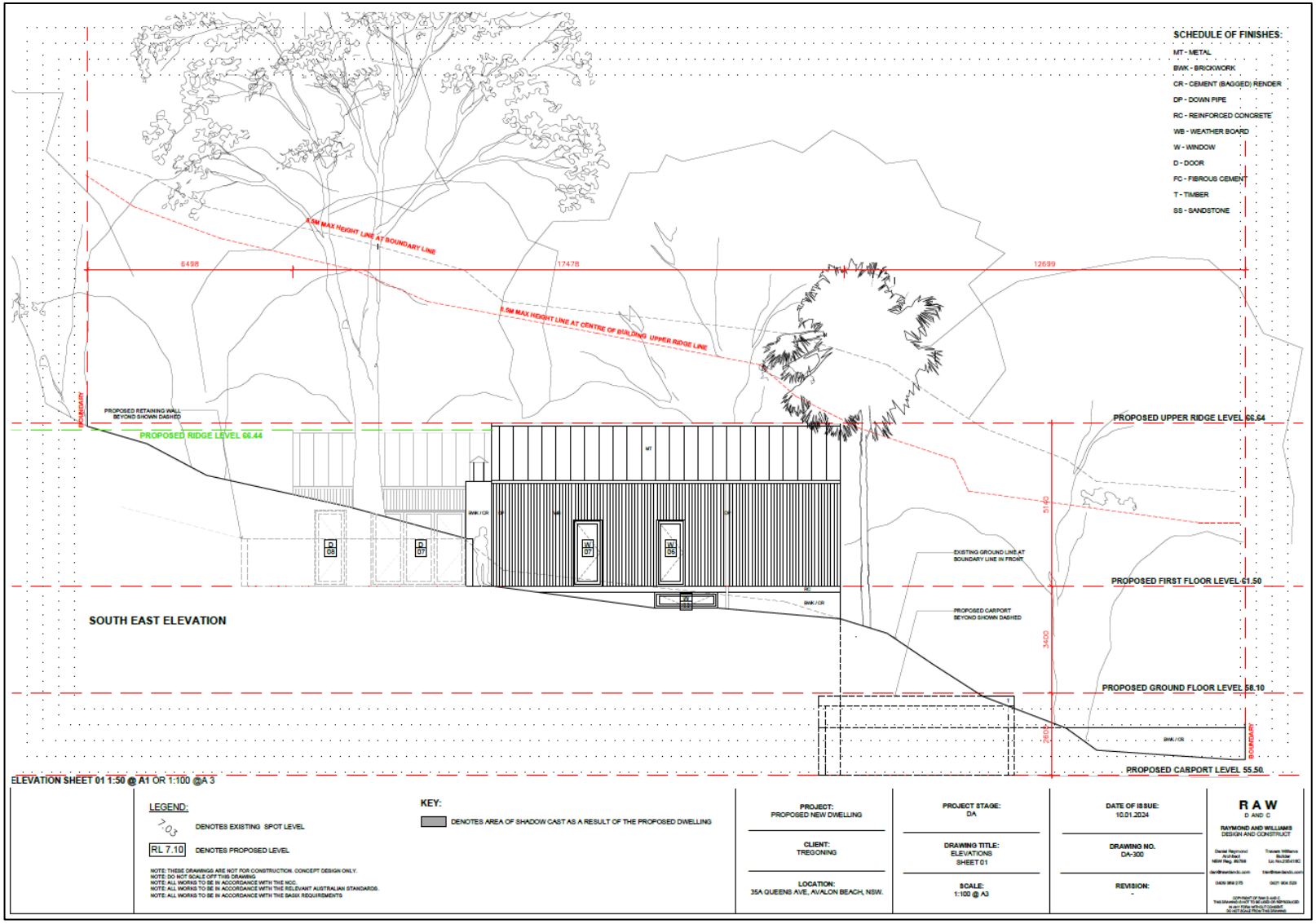



FIGURE 11: ILLUSTRATES PROPOSED SOUTH EAST ELEVATION

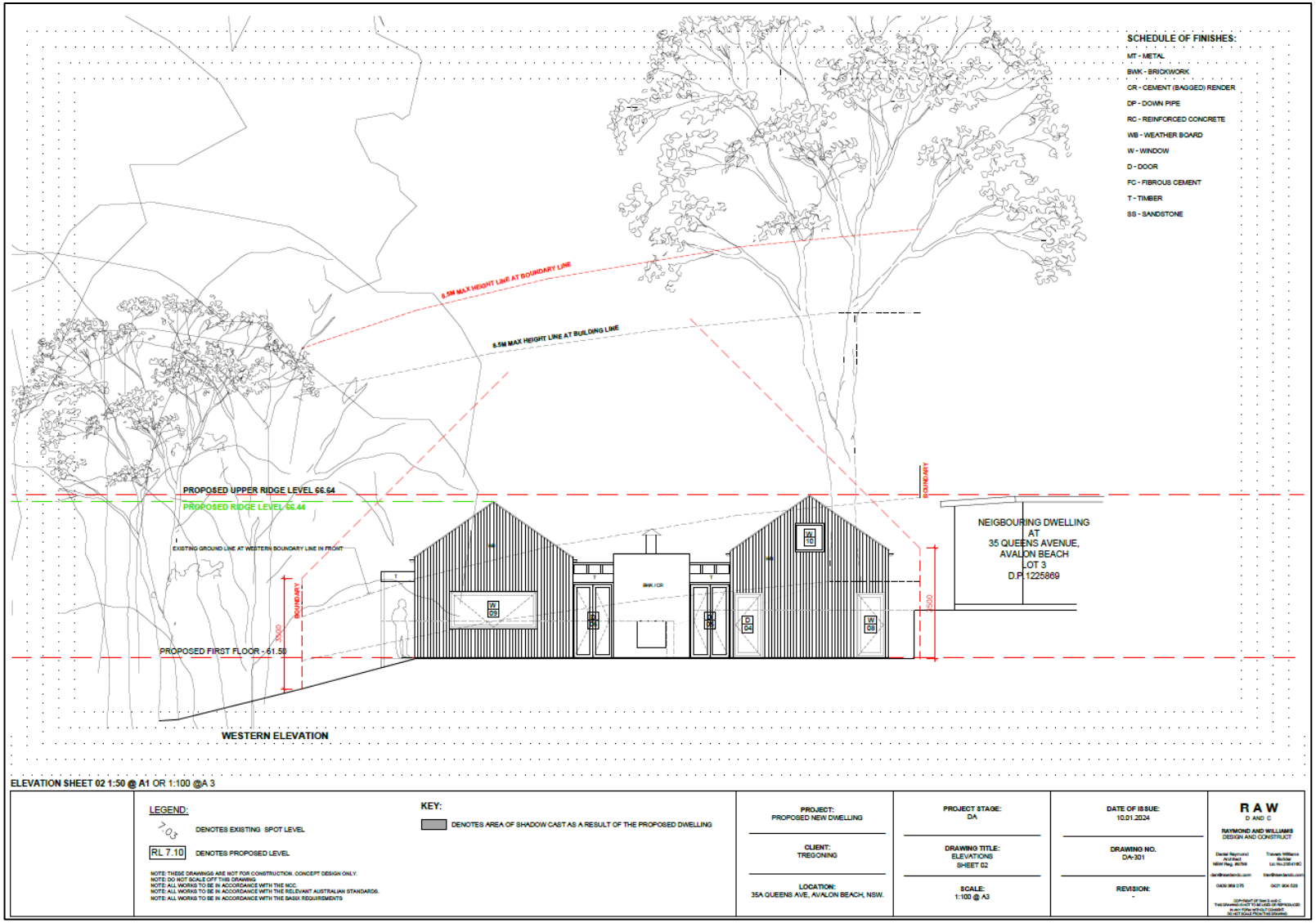



FIGURE 12: ILLUSTRATES PROPOSED WESTERN ELEVATION

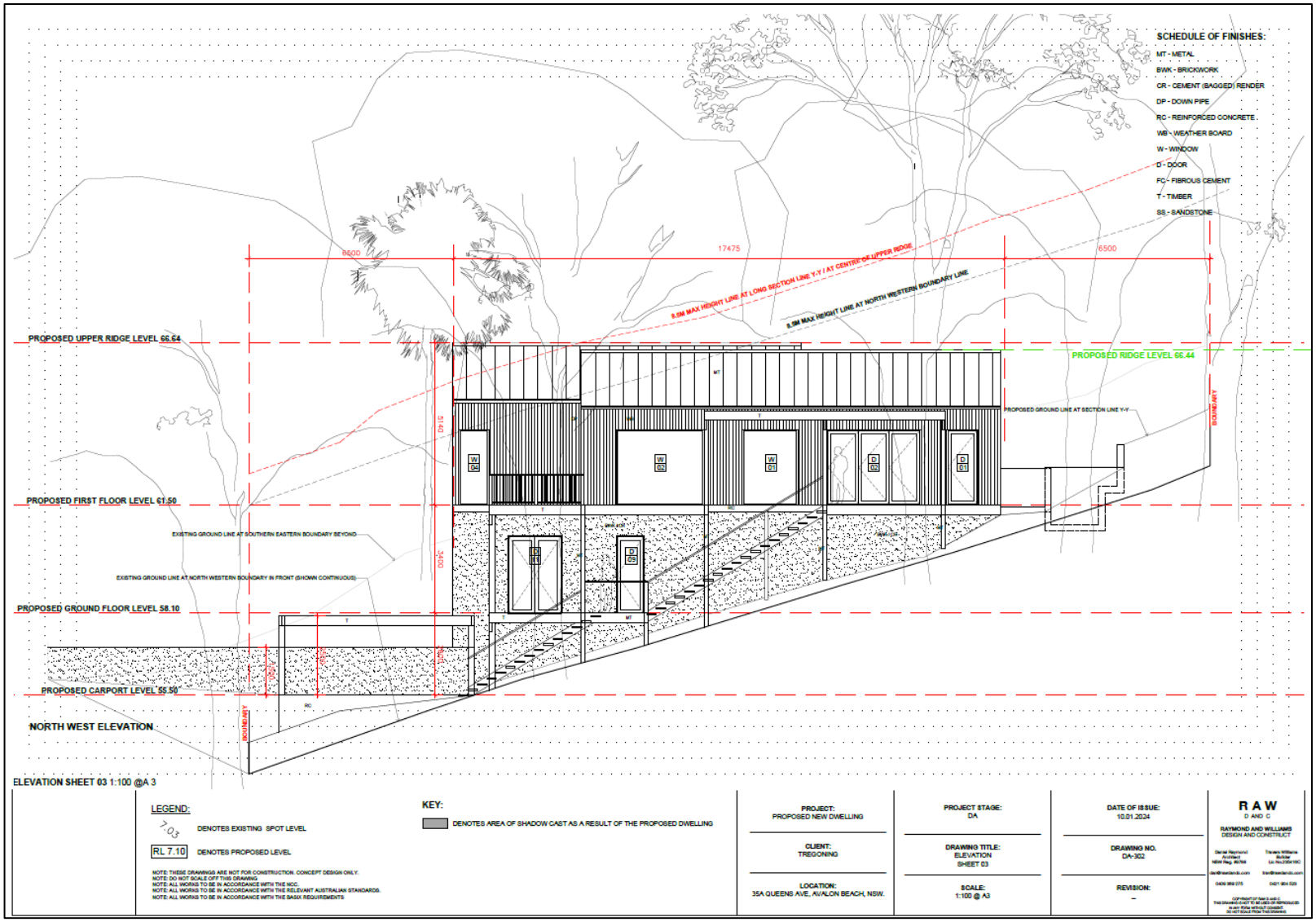



FIGURE 13: ILLUSTRATES PROPOSED NORTHWEST ELEVATION

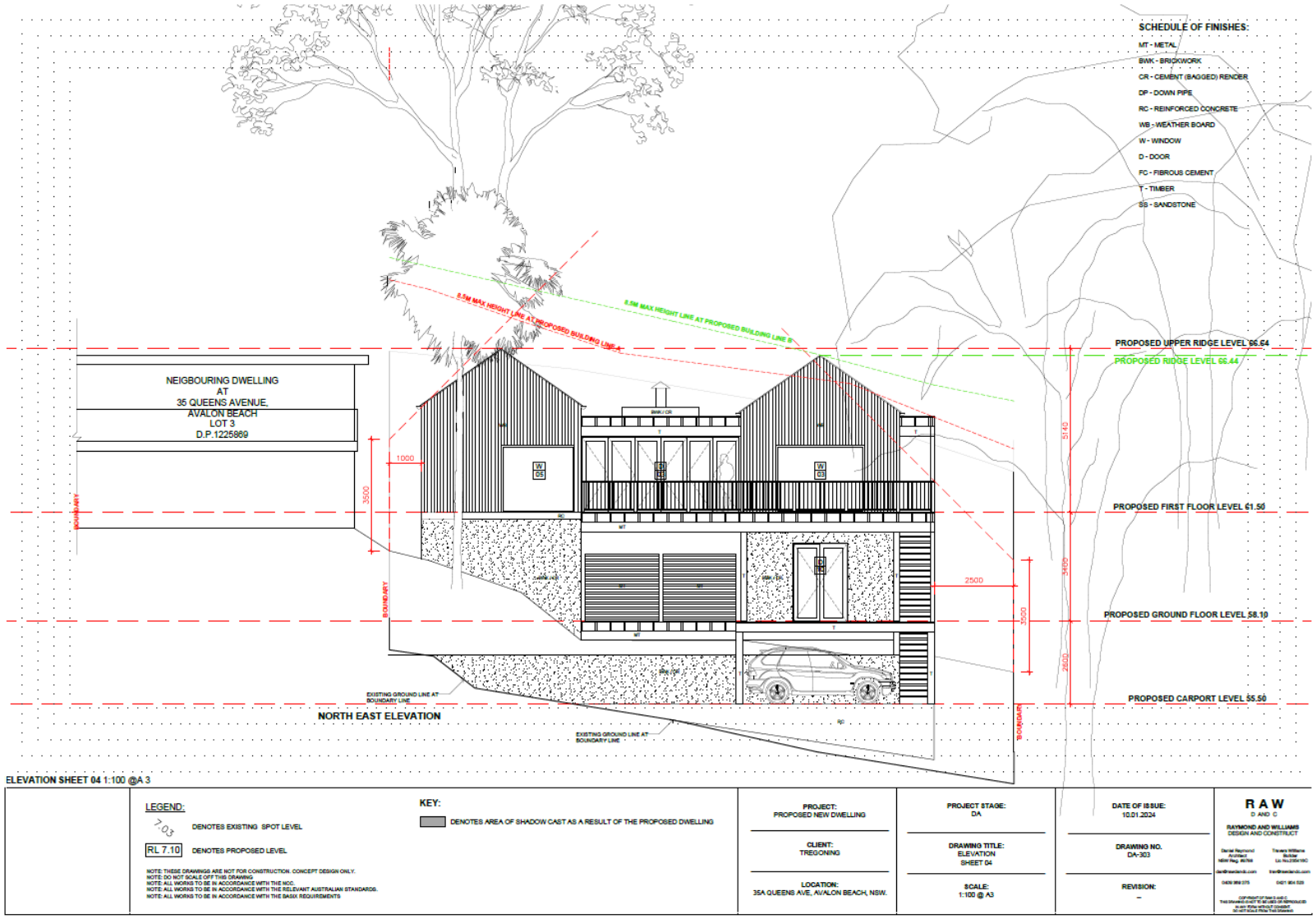



FIGURE 14: ILLUSTRATES PROPOSED NORTH EAST ELEVATION

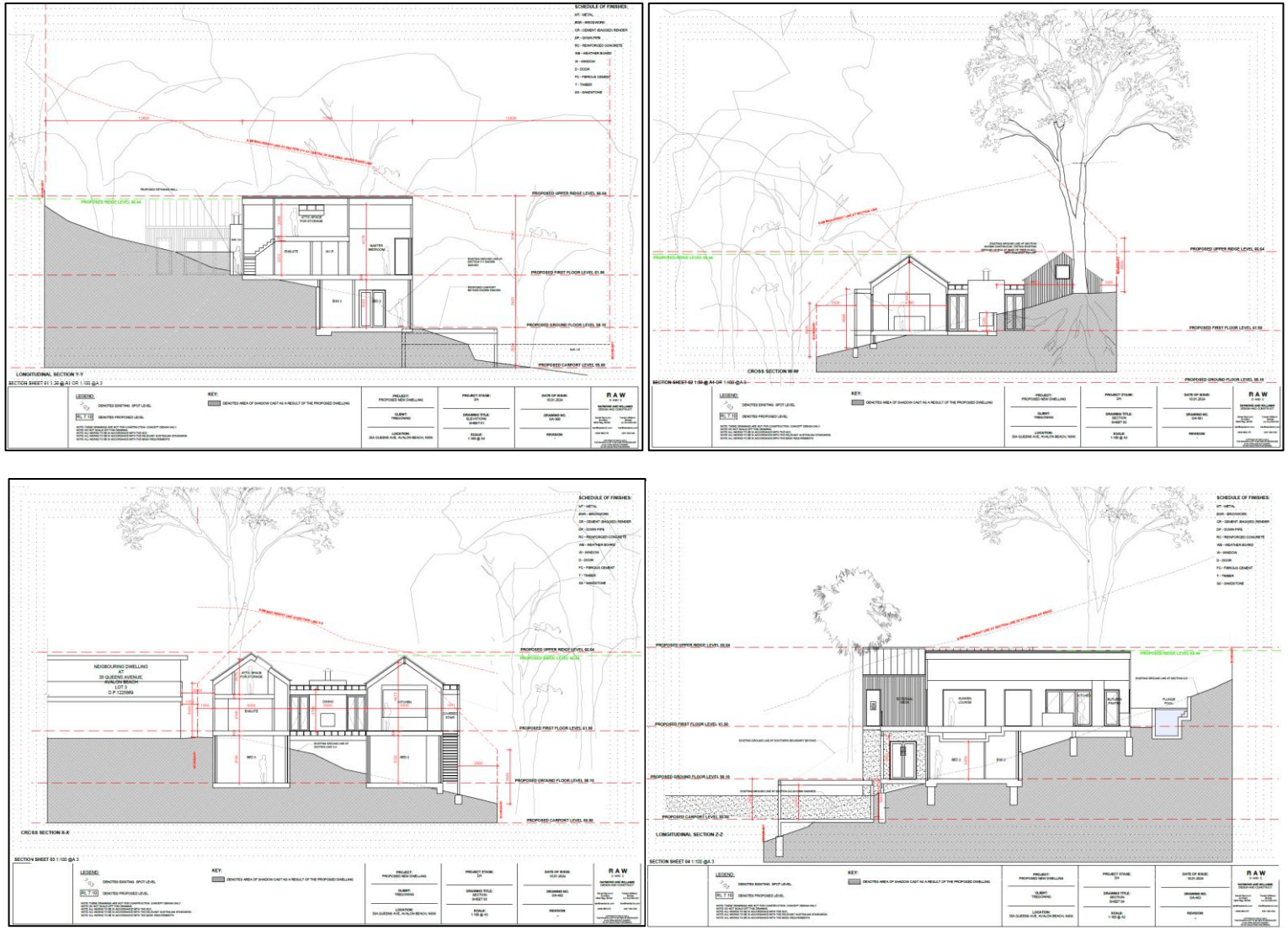


FIGURE 15:SECTIONS

## 4.3 The Trees – Summary Table

Read this table in conjunction with Appendix A– Common Arboreal Terms

| | |
|---|---|
| Trees Recommended for removal | Trees Recommended for retention |
| Exempt or Weed species | Trees retainable but of low amenity/significance |

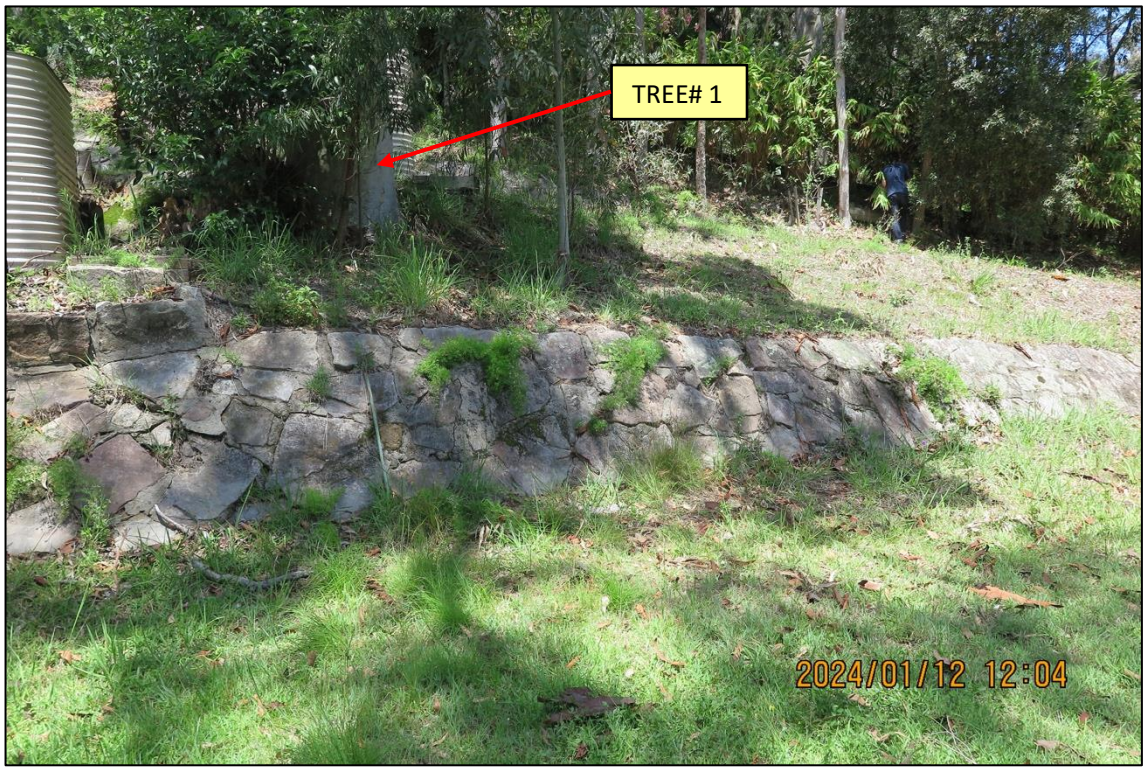
| | Identification | Height (m) | Crown (m) | DBH (m) | TPZ (m) | SRZ (m) | Age | Health/ Vigour | Retention & Significance Value | Structure/Form | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ***Corymbia maculata*** (Spotted Gum) | <24.00 | <26.00 | 0.95 | 11.40 | 3.43 | M | Good & Good | High & High | Typical | **RETAIN, PROTECT & MANAGE**: Standard Temporary Fencing and Manual Excavation where required within the TPZ is specified. |
| 2 | ***Angophora costata*** (Smooth Barked Apple) | <9.00 | <5.50 | 0.15 | 1.80 | 1.57 | M | Good & Good | High & High | Typical | **RETAIN, PROTECT & MANAGE**: Standard Temporary (Group) Fencing. Manual Excavation where required within the TPZ is specified. |
| 3 | ***Olea europaea* subsp. *cuspidata*** (African Olive) | <7.50 | <6.50 | 0.20 | 2.40 | 2.13 | | | | | **Exempt by Species** |
| 4 | ***Angophora costata*** (Smooth Barked Apple) | <9.00 | <5.00 | 0.22 | 2.64 | 1.85 | M | Fair to Good & Fair to Good | High & High | Typical | **RETAIN, PROTECT & MANAGE**: Standard Temporary (Group) Fencing. Manual Excavation where required within the TPZ is specified. |

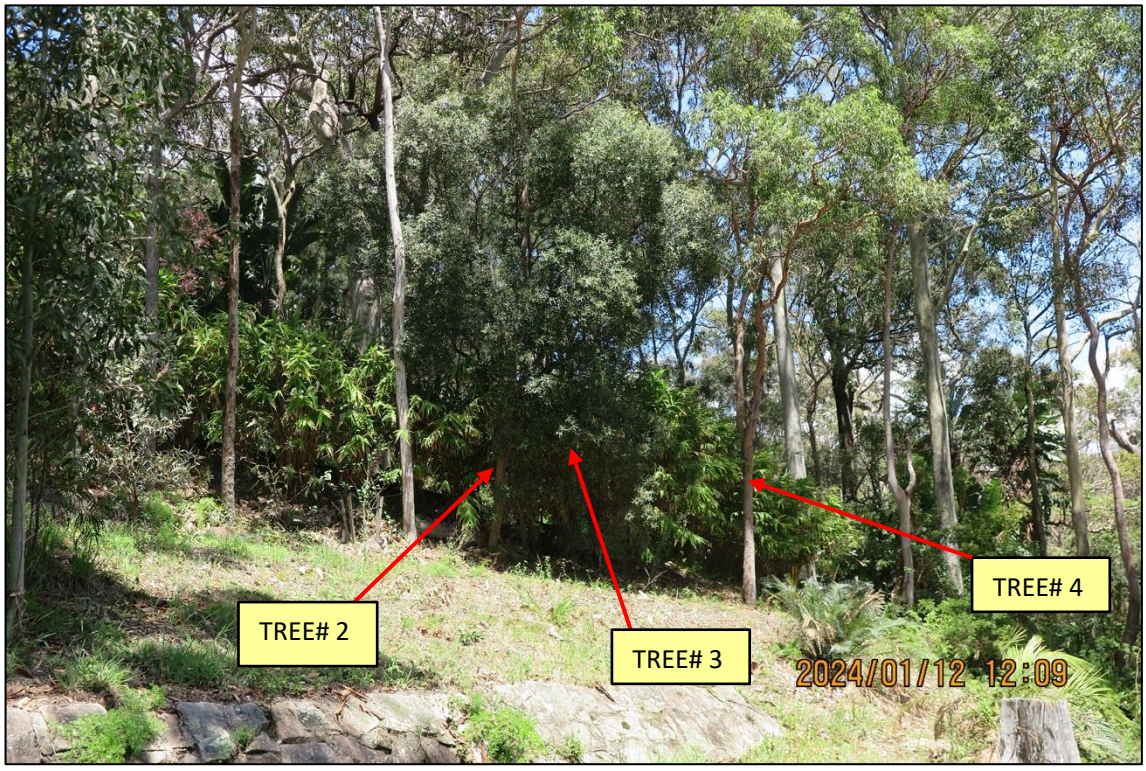
## 4.4 Tree & Site Images

(Photographs taken on Friday,12 January 2024 (Canon G1X MkII digital camera)



TREE# 1
2024/01/12 11:57


TREE# 1
2024/01/12 12:04


TREE# 2
TREE# 3
TREE# 4
2024/01/12 12:09

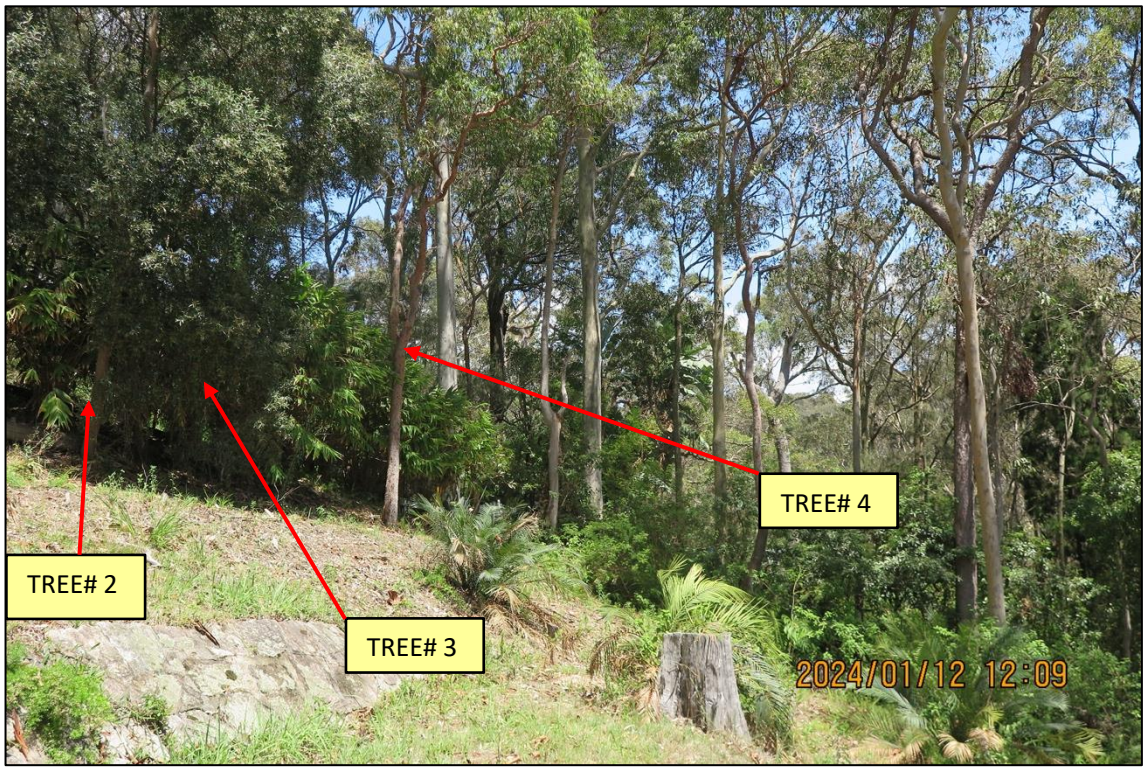



FIGURE 16: ABOVE & PREVIOUS PAGE PHOTOGRAPHS ILLUSTRATES THE FOUR (4) DISCUSSED TREE LOCATIONS & SITE FEATURES

# 5. Discussion

## 5.1 General Discussion /Tree Environments:

The total number of trees discussed is four (4).

**TREE #1: *Corymbia maculata*** (Spotted Gum)

Tree #1 is located within the subject site near to the south corner of the common boundary.

The proposed new dwelling breaches the Tree Protection Zone (from herein TPZ) but not the Structural Root Zone (from herein SRZ) radial distances for Tree #1.

By our calculation, the total TPZ surface area for Tree #1 is 407.95m$^2$. The proposed new work equates to an approximate 92.13m$^2$ mathematical disturbance of total TPZ surface area for Tree #1. This equates to approximately 22.6% of total TPZ surface area, defined by *AS4970-2009* as a Major Encroachment).

There is an existing retaining wall long term co-existing with Tree #1 which is located on north site of tree. The proposal retains this wall to minimise TPZ surface area breach

In the event any significant diameter 'live root/s' (defined in this situation as being greater than 50mm in diameter), are exposed, the direct input with written documentation & including supporting evidence photographs for the strategy adopted is required. This can only be undertaken by the retained project arborist with the objective being implement then confirm as close as possible to best Arboriculture Practice has been applied.

On this basis, Tree #1 requires management both above & below ground, especially during any TPZ total surface area construction works. Prior to the Commencement of any construction works Tree #1 is specified to be isolated from all works by installation of TPZ 'temporary metal mesh fencing panels with above ground supports'.

**TREE #2: *Angophora costata*** (Smooth Barked Apple)

Tree #2 is located within the subject site near to the west corner of the common boundary.

The proposed new dwelling breaches the Tree Protection Zone (from herein TPZ) but not the Structural Root Zone (from herein SRZ) radial distances for Tree #2.

By our calculation, the total TPZ surface area for Tree #2 is 12.56m$^2$. The proposed new work equates to an approximate 0.31m$^2$ mathematical disturbance of total TPZ surface area for Tree #2. This equates to approximately 1.5% of total TPZ surface area, defined by *AS4970-2009* as a Minor Encroachment).

In the event any significant diameter 'live root/s' (defined in this situation as being greater than 50mm in diameter), are exposed, the direct input with written documentation & including supporting evidence photographs for the strategy adopted is required. This can only be undertaken by the retained project arborist with the objective being implement then confirm as close as possible to best Arboriculture Practice has been applied.

On this basis, Tree #2 requires management both above & below ground, especially during any TPZ total surface area construction works. Prior to the Commencement of any construction works Tree #2 is specified to be isolated (as part of a group) from all works by installation of TPZ 'temporary metal mesh fencing panels with above ground supports'.

**TREE #3: *Olea europaea subsp. Cuspidata*** (African Olive)

Tree #3 is located within the subject site near to the west corner of the common boundary.

The proposed new dwelling breaches the Tree Protection Zone (from herein TPZ) but not the Structural Root Zone (from herein SRZ) radial distances for Tree #3.

By our calculation, the total TPZ surface area for Tree #2 is 18.08m$^2$. The proposed new work equates to an approximate 0.19m$^2$ mathematical disturbance of total TPZ surface area for Tree #3. This equates to approximately 1.8% of total TPZ surface area, defined by *AS4970-2009* as a Minor Encroachment).

In the event any significant diameter 'live root/s' (defined in this situation as being greater than 50mm in diameter), are exposed, the direct input with written documentation & including supporting evidence photographs for the strategy adopted is required. This can only be undertaken by the retained project arborist with the objective being implement then confirm as close as possible to best Arboriculture Practice has been applied.

On this basis, Tree #3 requires management both above & below ground, especially during any TPZ total surface area construction works. Prior to the Commencement of any construction works Tree #2 is specified to be isolated (as part of a group) from all works by installation of TPZ 'temporary metal mesh fencing panels with above ground supports'.

Tree #3 is an exempt from protection species by NBC.

**TREE #4: *Angophora costata*** (Smooth Barked Apple)

Tree #4 is located within the subject site near to the west corner of the common boundary.

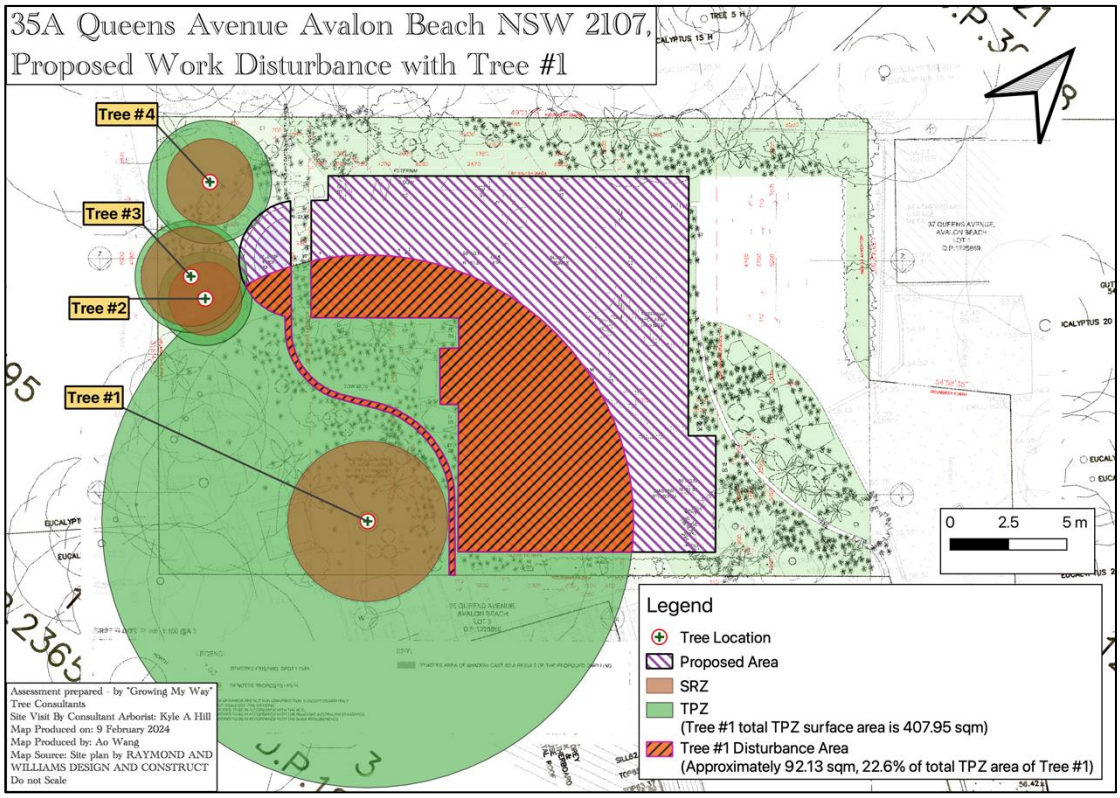
The proposed new dwelling breaches the Tree Protection Zone (from herein TPZ) but not the Structural Root Zone (from herein SRZ) radial distances for Tree #4.

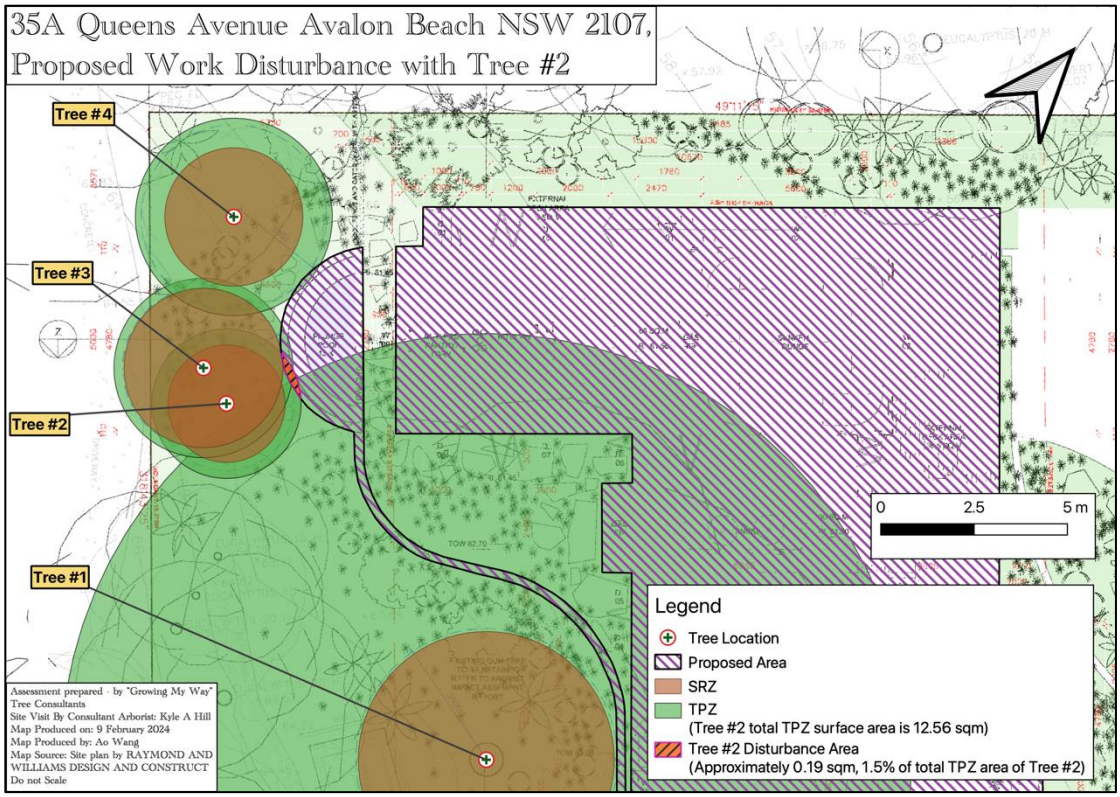
By our calculation, the total TPZ surface area for Tree #4 is 21.88m$^2$. The proposed new work equates to an approximate 0.15m$^2$ mathematical disturbance of total TPZ surface area for Tree #4. This equates to approximately 0.7% of total TPZ surface area, defined by *AS4970-2009* as a Minor Encroachment).

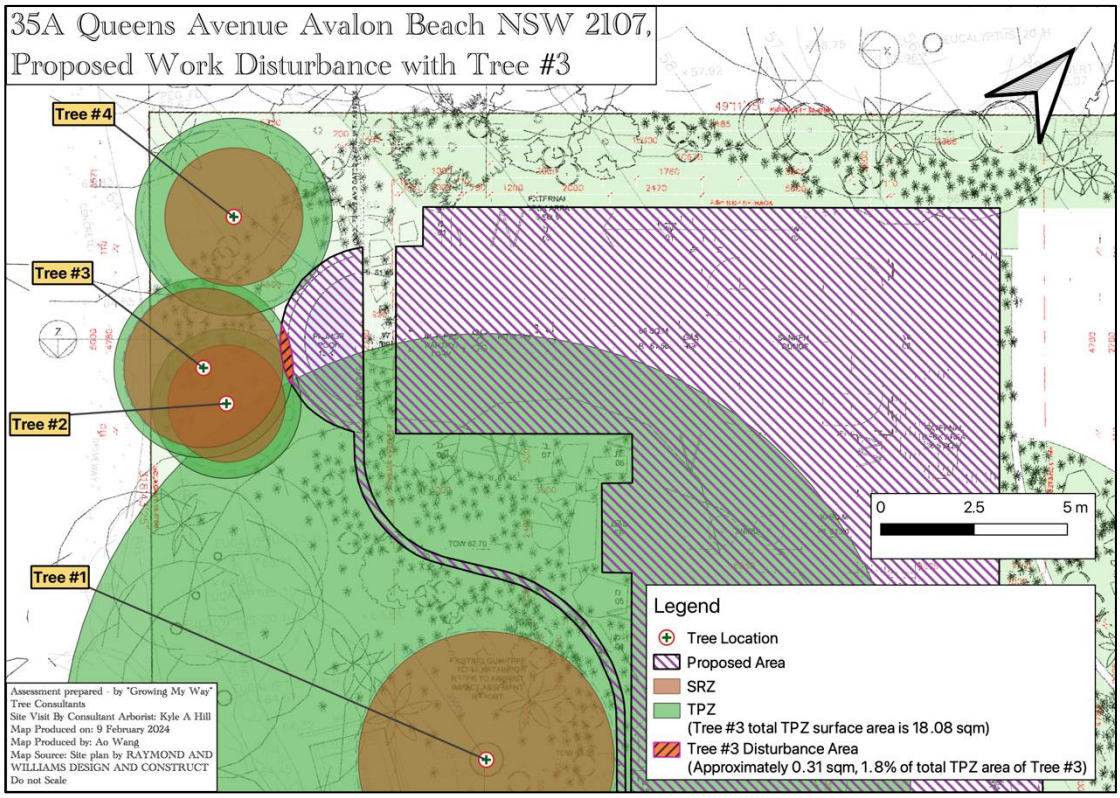
In the event any significant diameter 'live root/s' (defined in this situation as being greater than 50mm in diameter), are exposed, the direct input with written documentation & including supporting evidence photographs for the strategy adopted is required. This can only be undertaken by the retained project arborist with the objective being implement then confirm as close as possible to best Arboriculture Practice has been applied.

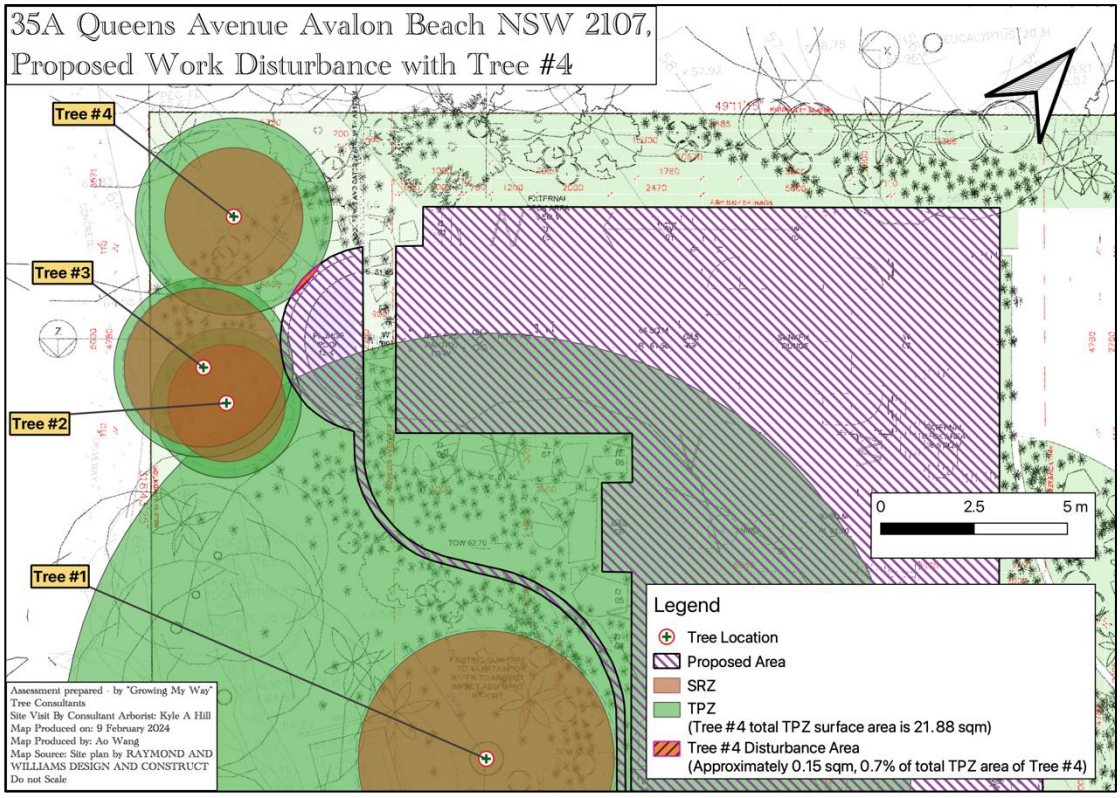
On this basis, Tree #4 requires management both above & below ground, especially during any TPZ total surface area construction works. Prior to the Commencement of any construction works Tree #2 is specified to be isolated (as part of a group) from all works by installation of TPZ 'temporary metal mesh fencing panels with above ground supports'.

## 5.2 TPZ / SRZ Tree Disturbance Calculation Diagrams




35A Queens Avenue Avalon Beach NSW 2107,
Proposed Work Disturbance with Tree #3
Tree #4
Tree #3
Tree #2
Tree #1
0
2.5
5 m
Legend
Tree Location
Proposed Area
SRZ
TPZ
(Tree #3 total TPZ surface area is 18.08 sqm)
Tree #3 Disturbance Area
(Approximately 0.31 sqm, 1.8% of total TPZ area of Tree #3)
Assessment prepared - by "Growing My Way" Tree Consultants
Site Visit By Consultant Arborist: Kyle A Hill
Map Produced on: 9 February 2024
Map Produced by: Ao Wang
Map Source: Site plan by RAYMOND AND WILLIAMS DESIGN AND CONSTRUCT
Do not Scale


35A Queens Avenue Avalon Beach NSW 2107,
Proposed Work Disturbance with Tree #4
Tree #4
Tree #3
Tree #2
Tree #1
0
2.5
5 m
Legend
Tree Location
Proposed Area
SRZ
TPZ
(Tree #4 total TPZ surface area is 21.88 sqm)
Tree #4 Disturbance Area
(Approximately 0.15 sqm, 0.7% of total TPZ area of Tree #4)
Assessment prepared - by "Growing My Way" Tree Consultants
Site Visit By Consultant Arborist: Kyle A Hill
Map Produced on: 9 February 2024
Map Produced by: Ao Wang
Map Source: Site plan by RAYMOND AND WILLIAMS DESIGN AND CONSTRUCT
Do not Scale

## 5.3 Preliminary Site Specific "Tree Plan of Management"

Pre-Commencement of Works

- *Establish temporary metal mesh fencing panels with above ground supports for Tree #1.*
- *Establish temporary metal mesh fencing panels with above ground supports as a group for Tree #2, Tree #3 & Tree #4.*
- *TPZ installations (including builders common boundary fencing) must be 'signed off' as being AS4970-2009 compliant. This requires documentation to be prepared in writing with supporting photographic evidence. This document must be provided to the appointed Principle Certifying Authority.*

Commencement of and During Works

- *Ensure common boundary isolation fencing is always intact.*
- *All demolition of existing infrastructure within any retained, managed & protected tree TPZ/SRZ is to be completed manually, especially when 'live roots' of a significant diameter belonging to any retained trees may be exposed. Any exposed 'live root' of a significant diameter must be covered until the required input & documentation from the retained Project Arborist can be obtained. Preferably, any 'live root' exposed would be covered in subject site topsoil. If this is not practicable, hessian or geotextile matting kept moist can be used until able to be covered & isolated from the proposed works.*
- *Any 'live roots' of any diameter exposed ideally should be covered if not by subject site topsoil, damp hessian, or similar suitable geotextile matting to reduce any desiccation of 'live roots' by exposure to direct sunlight.*

Post Completion of Works

- *Confirm the presence & condition of all required by the DA determination 'Conditions of Consent' individual trees required to be retained.*
- *The above is to be certified in writing with supporting photographic evidence as being DA determination 'Conditions of Consent' plus AS4970-2009 provisions compliant relative to all required to be retained trees.*
- *All documentation from each stage of works must be provided to the appointed Principle Certifying Authority as soon as is reasonably possible post each stage of works being completed.*

# 6. Conclusions

- The proposal in its present format is considered as compatible with the as discussed in detail four (4) trees& as such is considered as able to be built without any compromise to any discussed tree with respect to individual Useful Life Expectancy with implementation of the once finalised Site Specific 'Tree Plan of Management'.
- This document can be submitted to the NBC assessment officers for review & approval in its present form.

If you have any questions relating to this report or implementation of recommendations, please contact Kyle Hill on 0412-221-962.

Yours faithfully,

Kyle A. Hill (AQF level 5 & 8 Practicing & Consulting Arborist)

## 7. Limitations on the use of this report

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, & directly attached to that submission, report or presentation.

## 8. Assumptions

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible; however, Growing My Way Tree Services, can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

Information contained in this report covers only the trees that were examined & reflects the condition of the trees at the time of inspection.

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

## 9. Recommended References

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Hitchmough, J.D. 1994. '*Urban Landscape Management*', Inkata Press, Sydney.

Mattheck, C. & Breloar, H. 1994 '*Body Language of Trees'*, The Stationery Office, London.

AS 4373:2007, '*Pruning of Amenity Trees'*, Standards Australia.

AS 4970:2009, 'Protection of Trees on Development Sites'', Standards Australia.

BS 5837:2005, '*Guide for Trees in Relation to Construction'*, Standards Board, UK.

# 11. Appendix A – Glossary

## Glossary of common Arboreal terms

**Age:** **I** *Immature* refers to a refers to a well-established but juvenile tree

**SM** *Semi-mature* refers to a tree at growth stages between immaturity & full size

**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 tree about to enter decline or already declining

**LS** *Live Stag* refers to a tree in a significant state of decline. This is the last life stage of a tree prior to death

**Hth & Vig** Health & Vigour

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

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

**Vigour** refers to the tree's growth rate/condition as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion & the degree of dieback. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

**Useful Life Expectancy (ULE)** refers to any individual tree specimen's potential life

**expectancy (viability) based on VTA assessment, three groups are described,**

**Short = Less than Five years**

**Medium = Five–Fifteen years**

**Long = more than Fifteen years**

**Significant diameter roots** are defined as those being greater than 0.05m/50mm in diameter.

**Diameter at Breast Height (DBH)** refers to the tree trunk diameter at breast height (1.4 metres above ground level)

**Structural Root Zone (SRZ)** refers to a radial offset which relates to tree stability. This zone is presumed to be main location of the tree's structural support roots. It is calculated using the formula $SRZ\ radius = (D \times 50)^{0.42} \times 0.64$.

**Primary Root Zone (PRZ)** refers to a radial offset of ten (10) times the trunk DBH measured

from the centre of the trunk. This zone often contains a significant amount of (but by no means all a tree's) fine, non-woody roots required for uptake of nutrients, oxygen & water.

**Tree Protection Zone (TPZ)** is ideally a "No Go Zone" surrounding a tree to aid in its ability to cope with disturbances associated with construction works. **TPZ = DBH x 12**. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death & the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the TPZ.

A TPZ is required for each tree or group of trees within five metres (unless otherwise specified) of building envelopes.

**Stem/bark inclusion** refers to a genetic fault in the tree's structure. This fault is located at the point where the stems/branches meet. In the case of an inclusion this point of attachment is potentially weak due to bark obstructing healthy tissue from joining together to strengthen the joint.

**Decay** refers to the break down tissues within the tree. There are numerous types of decay that affect different types of tissues, spread at different rates & have different effect on both the tree's health & structural integrity.

**Point of Attachment** refers to the point at which a stem/branch etc join.

**Dead wood** refers to any whole limb that no longer contains living tissues (e.g., live leaves &/or bark). Some dead wood is common in several tree species.

**Die back** refers to the death of growth tips/shoots & partial limbs. Die back is often an indicator of stress & tree health.

**One dimensional crown** refers to branching habits & leaves that extend/grow in One direction only. There are many causes for this growth habit such as competition & pruning.

**Crown Foliage Density of Potential (CFDP)** refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

**Epicormic growth/shoots** refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

**Over Head Powerlines (OHP)** Over head electricity wiring.

**LVOHP** Low Voltage Overhead Powerlines

**HVOHP** High Voltage Overhead Powerlines

**ABC** Aerial Bundled Cable

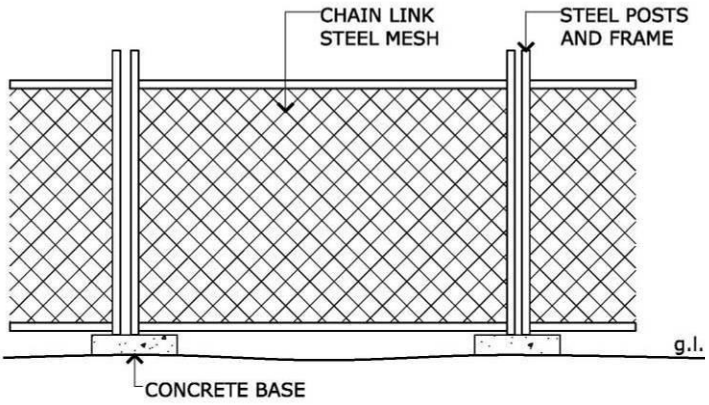
# 12. ATTACHMENT A: Tree Protection/Management Prior to & During Construction

The installation of Tree Protection Zone (TPZ) fencing is to be carried out prior to commencement of all works. The most suitable fencing material is 1.8m tall chain link mesh with 50mm metal pole supports, see **detail 1: tree protection fencing**.

A mulch layer of composted leaf & woodchip to a depth of 75mm is required within the TPZ to aid in retention of soil moisture & to protect soil from contaminants. Water is to be applied by handheld or soaker/leaky hose within TPZ as required & in Accordance with Stage 3 Water Restrictions. Watering is to be carried out by either an Arborist or is to form part of the Builder's/Contractor's contract, with recommended monthly checks by an Arborist.

There is to be no stock piling of building material (including waste), machinery or any other item within TPZ of any retained tree. Access to personnel & machinery, & storage of fuel, chemicals, cement or site sheds is prohibited.

Regular monitoring of protected trees during development works for unforeseen changes or decline, will aid in the success & longevity of the retained trees.

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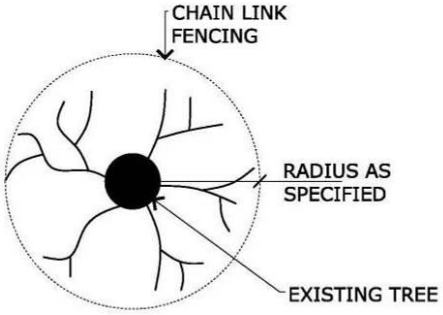


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