"GROWING MY WAY"

Tree Consultancy

Established 1977

EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

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PO Box 35, Newport Beach NSW 2106

Phone: (02) 9997-4101 Mobile: 0412-221-962 Fax: (02) 9940-0217

E-mail: kyleahill@optusnet.com.au

ABN 97 965 355 200

Arboriculture Construction Impact & Preliminary Management Statement

March 2022

Site:	Lot C in DP 24113 190 Riverview Road AVALON BEACH, NSW
Client:	Stephen Archer/Melanie Wilson JD Evans & Company Unit 7, 6 Jubilee Avenue WARRIEWOOD, NSW 2102
Author:	Kyle A Hill Registered (Arb Aus #1884) Practising & Consulting Arborist Post Graduate Certificate in Arboriculture, Uni of Melb 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 Member of Arboriculture Australia

1 Summary

John Evans (representing the property owners) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Preliminary Management Statement* relative to the proposed *Alterations/Additions to the existing dwelling* within the property known as 190 Riverview Road, Avalon Beach, (from herein the subject site).

One (1) individual tree has been identified as being required to be discussed relative to the proposal for *Alterations/Additions to an existing dwelling, new lower-level deck* with respect to tree management issues.

The discussed in detail tree is subject to the tree management provisions as defined within the *Northern Beaches Council (from herein NBC) "Tree Management Provisions" plus the new SEPP "Vegetation in non–rural Areas, August 2017.* The discussed tree is confirmed to be within the subject site. Multiple other trees are located within both the subject site & adjoining common boundary properties but are not discussed as they are well away from & therefore not impacted upon by the proposed works supported within this document.

The discussed tree with implementation of a 'Plan of Management' has been assessed as able to be retained without any reasonably predictable impact to its *Useful Life Expectancy.*

The proposal is considered as able to satisfy compliance criteria with the relevant provisions for *Australian Standard (AS4970-2009 Protection of trees on development sites).*

Motor vehicle & pedestrian access is via Riverview Road.

The sole consent authority is the *NBC.* The old *Pittwater Council* Planning Instrument (*Local Environment Plan, 2014*) applies at the time of writing.

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

- *Site Survey by Bee & Lethbridge (Quality Surveyors & Development Solutions), Issue A dated, 29 September 2021;*
- *Plans, Sections & Elevations, by JD Evans & Company, dated, 10 November 2021;*
- *Pittwater Council/NBC "Tree Management Provisions" &*
- *SEPP 'Vegetation in Non-Rural Areas, 25 August 2017.*

The aim of this report is:

1. *To confirm individual trees' health, vigour & condition considering any impact foreseen by the proposed design concept & related works.*
2. *Provide Preliminary Tree Plan of Management".*

This document supports (relative to tree management) the proposal for *Alterations/Additions to an existing dwelling, new lower-level deck* with respect to tree management issues.

Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist* has prepared this report based on "*Visual Tree Assessment" (VTA).* Data was collected on Monday, 28 March 2022 with photographs updated on Monday, 4 April 2022.

Table of Contents

2 Introduction

This report contains observations & recommendations intended to assist in the management of the one (1) individual tree identified as necessary to be discussed by virtue of NBC (LEP 2014) Land Zoning & being located nearby to proposed works, i.e., *Alterations & Additions to an existing dwelling, new lower-level deck* with respect to tree management issues.

The current built form within the subject site is a single dwelling residence.

This document supports the proposed *Alterations/Additions to an existing dwelling, new lower-level deck* with management.

We confirm to be familiar with both the old *Pittwater Council* & now *NBC "Tree Management Provisions" plus the new SEPP "Vegetation in non-rural Areas, August 2017".*

The sole consent authority is *NBC.*

The subject site is NOT within a *NBC* designated "*Heritage Conservation Area*". The subject site is confirmed to NOT be a listed "*Heritage Item*" – nor are any of the discussed trees known to be listed on any "*Significant Tree Register*". All trees discussed are captured as being subject to the protection provisions within the state legislated *'NSW Scientific Committee'–final determination, (Threatened Species Conservation Act)* which identifies & protects the *'Pittwater spotted gum forest–endangered ecological community listing'* under *'NSW legislation'*. The subject site is confirmed to be within a *'C01'*, "*Wildlife Corridor*" as defined within the *Pittwater 21 DCP (see page 8).*

The discussed tree with implementation of a 'Plan of Management' has been assessed as able to be retained without any reasonably predictable impact to its *Useful Life Expectancy.*

The subject site is zoned *"C4", 'Environmental Living'.*

A *Preliminary Site Specific "Tree Plan of Management"* is included within this document.

3 Methodology

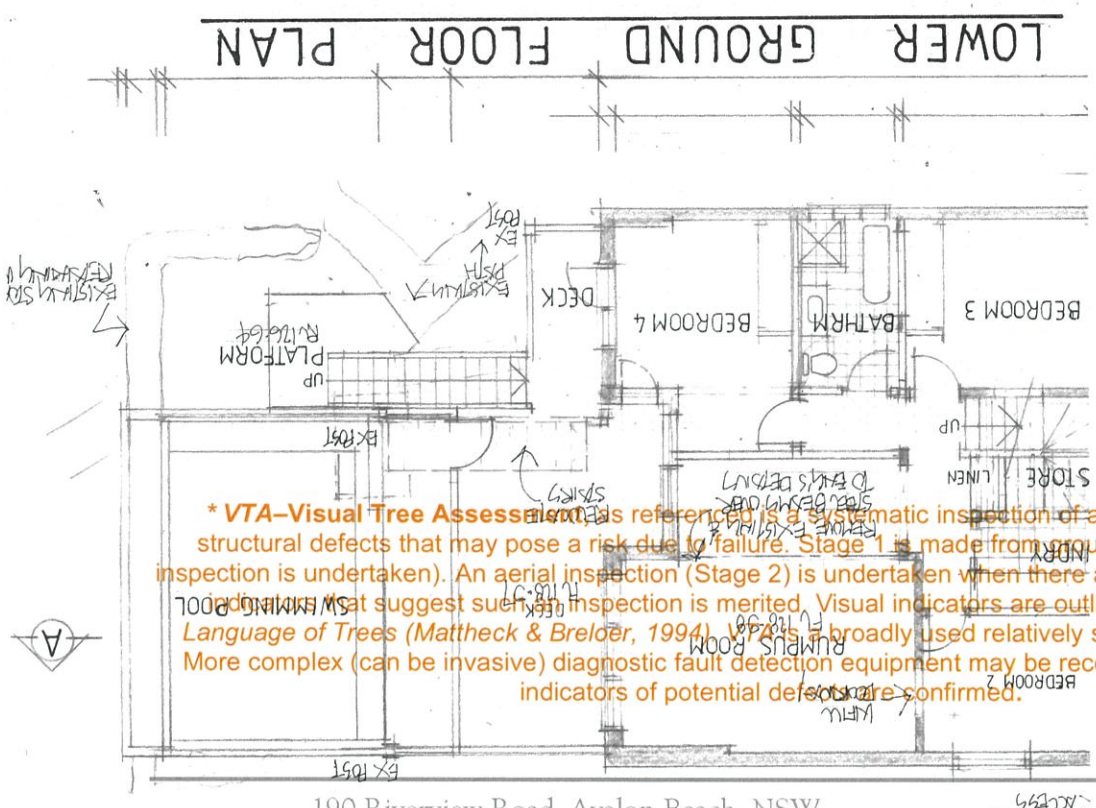
Assessment of the trees has been from ground level by eye, using *Visual Tree Assessment* * *(VTA)* techniques developed by Claus Mattheck. The principles of *VTA* are explained in his widely-used reference book *"The Body Language of Trees (1994)"*.

Assessment includes:

- Tree's current condition & likely future health. Species tolerance to root disturbance &/or development
- Likely future hazard potential to persons & property
- Tree's amenity value, such as significance, screening & habitat.

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 terms
- Appendix B Tree Protection Prior To & During Construction



* ***VTA*–Visual Tree Assessment** as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e. no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily identified visual indicators that suggest such inspection is merited. Visual indicators are outlined within *The Body Language of Trees (Mattheck & Breloer, 1994)*. *VTA* is a broadly used relatively standardised approach. More complex (can be invasive) diagnostic fault detection equipment may be recommended once visual indicators of potential defects are confirmed.

4 Observations

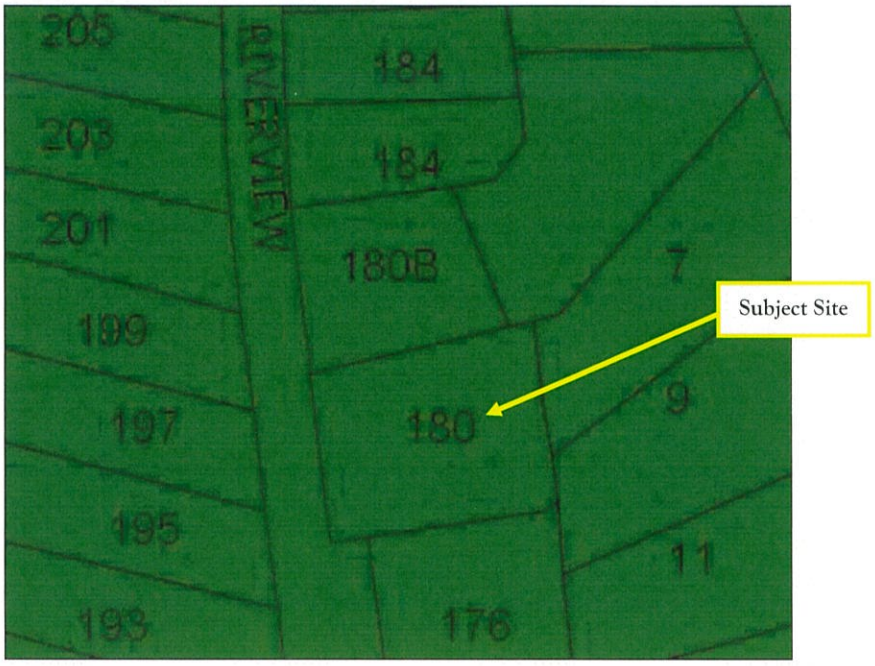
4.1 The Site

The report discusses only trees within Lot C in DP 24113. The site is 557.70m² by Site Survey in size. The site is linked to one (1) public road & four (4) residential lots.

Figure 1: Aerial photograph with lot boundaries courtesy of NBC website tool.

The subject site is Land Zoned "C4" Environmental Living'.

The discussed tree is captured as being subject to the protection provisions within the state legislated *'NSW Scientific Committee'–final determination, (Threatened Species Conservation Act)* which identifies & protects the *'Pittwater spotted gum forest–endangered ecological community listing'* under *'NSW legislation'*. The subject site is confirmed to be within a 'C01', "*Wildlife Corridor*" as defined within the *Pittwater 21 DCP (see page 7).*



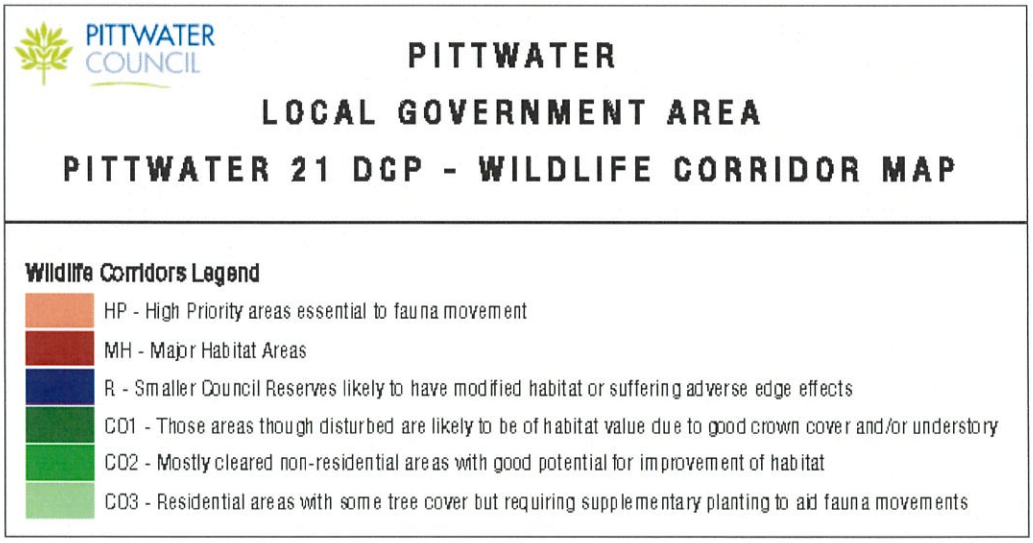
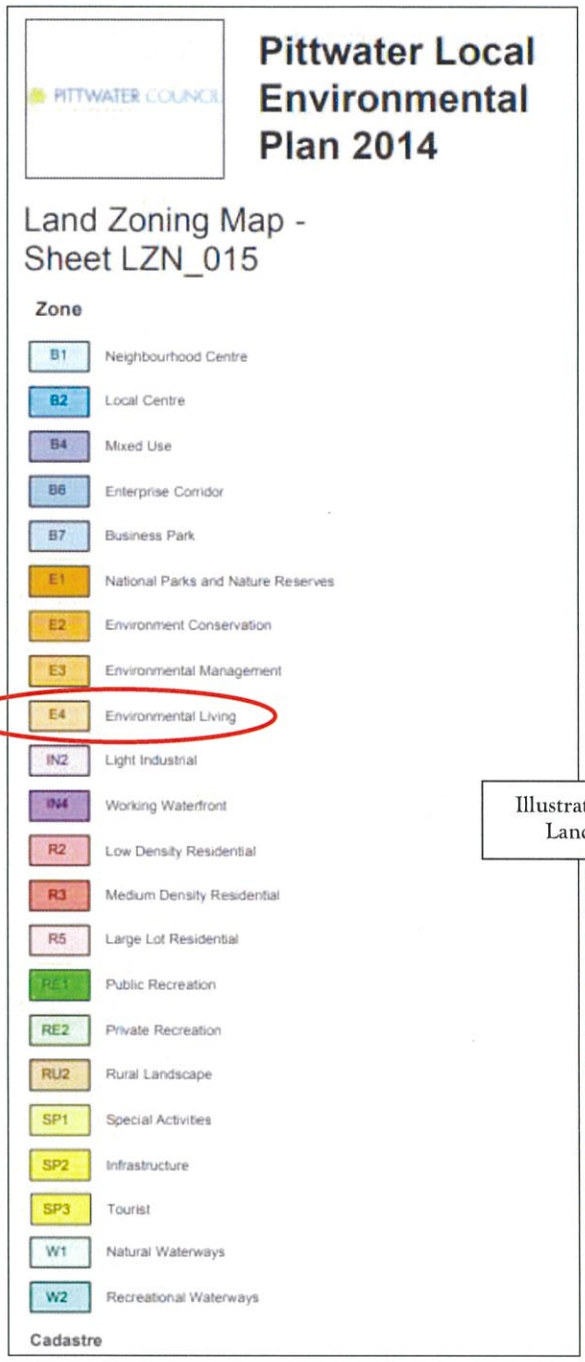
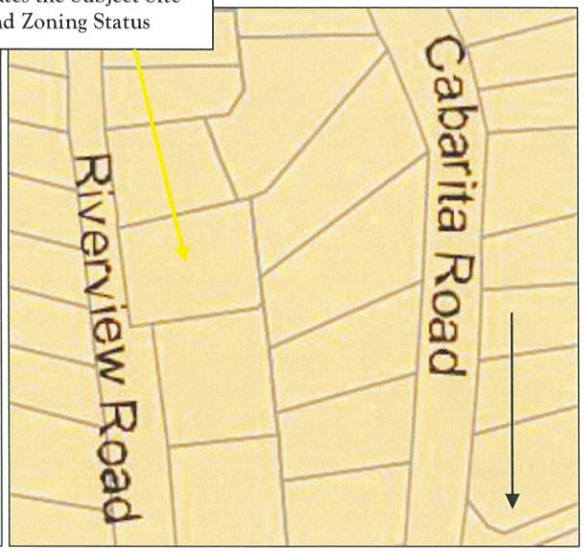


Figure 2: Confirms Pittwater 21 DCP-Wildlife Corridor Status.



Illustrates the Subject Site Land Zoning Status



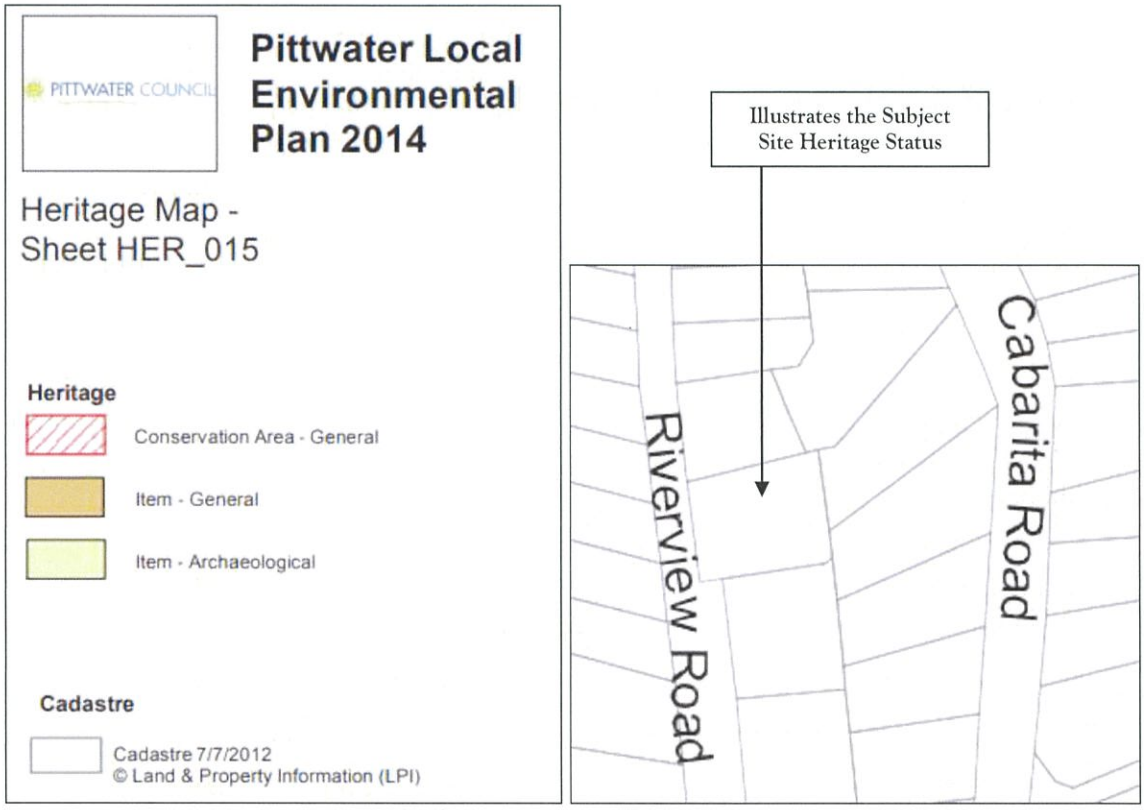


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a *NBC* designated "*Heritage Conservation Area*" *(see above)*. The site is also confirmed to NOT be a listed "*Heritage Item*" nor is it near any listed "*Heritage Item*". The discussed tree is captured as being subject to the protection provisions within the state legislated '*NSW Scientific Committee'–final determination, (Threatened Species Conservation Act)* which identifies & protects the '*Pittwater spotted gum forest–endangered ecological community listing*' under '*NSW legislation'*. The subject site is confirmed to be within a '*C01*', "*Wildlife Corridor*" as defined within the *Pittwater 21 DCP (see page 6)*.

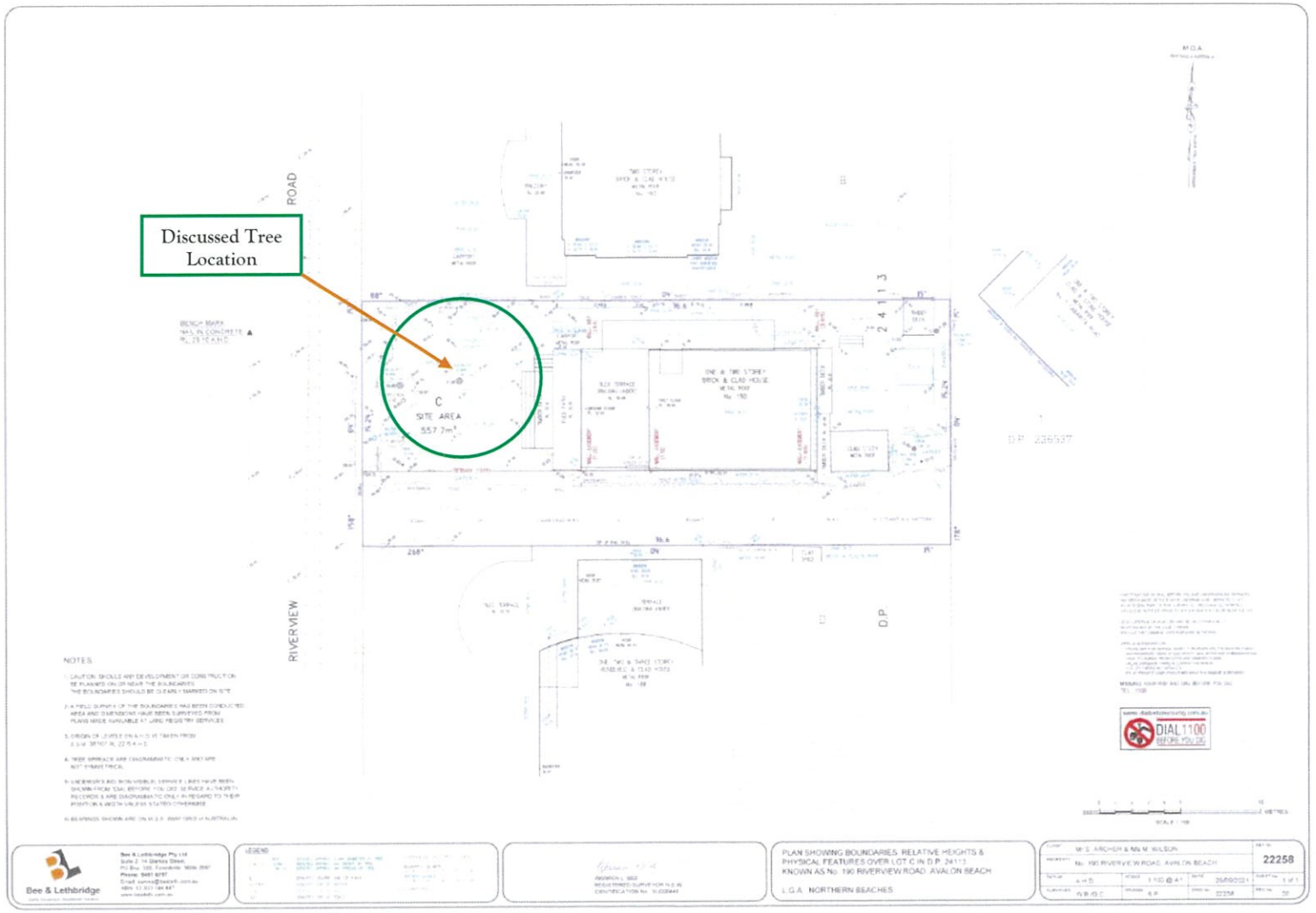


Figure 4: Site Survey with discussed tree location confirmed.

4.2 The Proposal

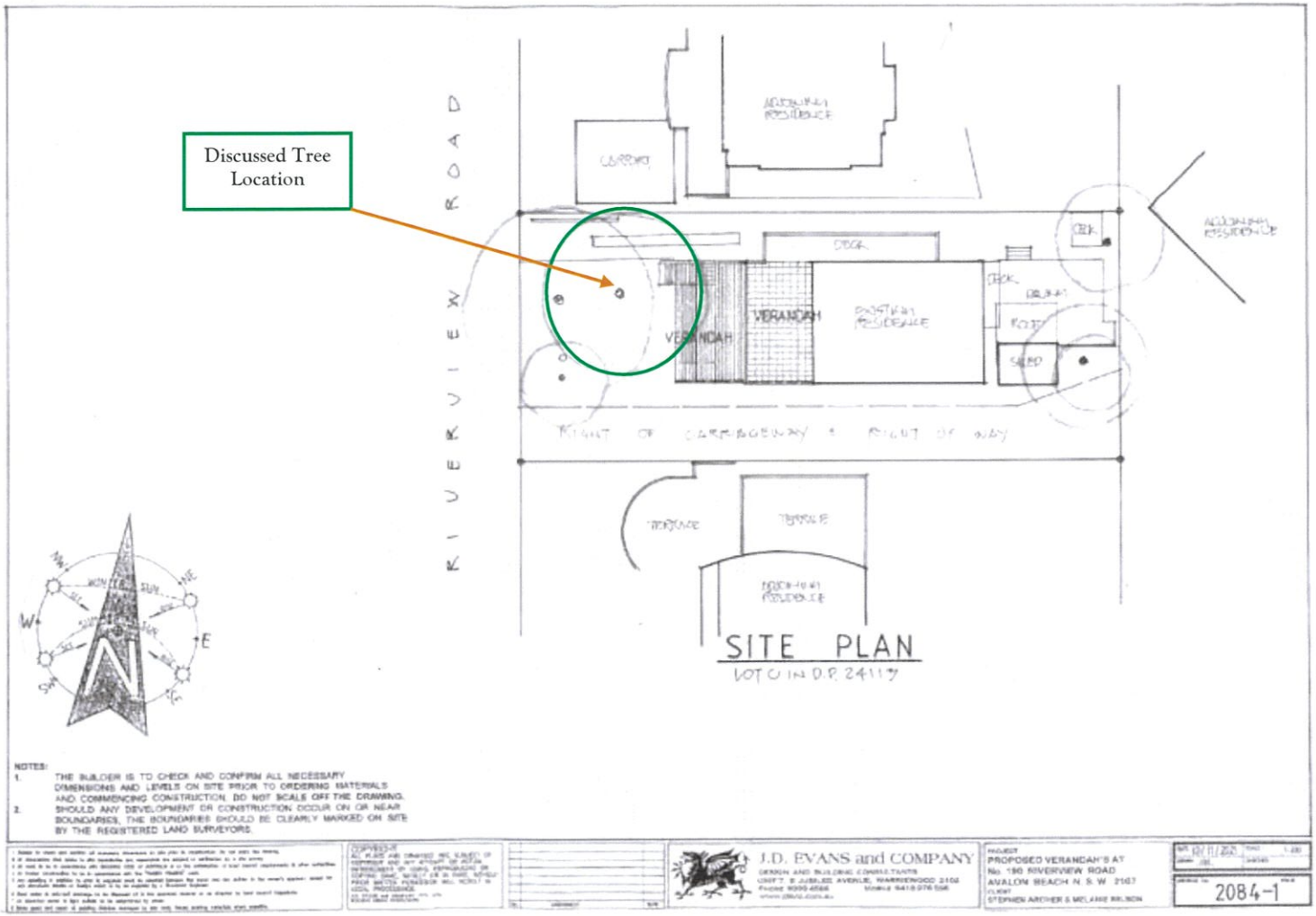


Figure 5: Site Plan as proposed

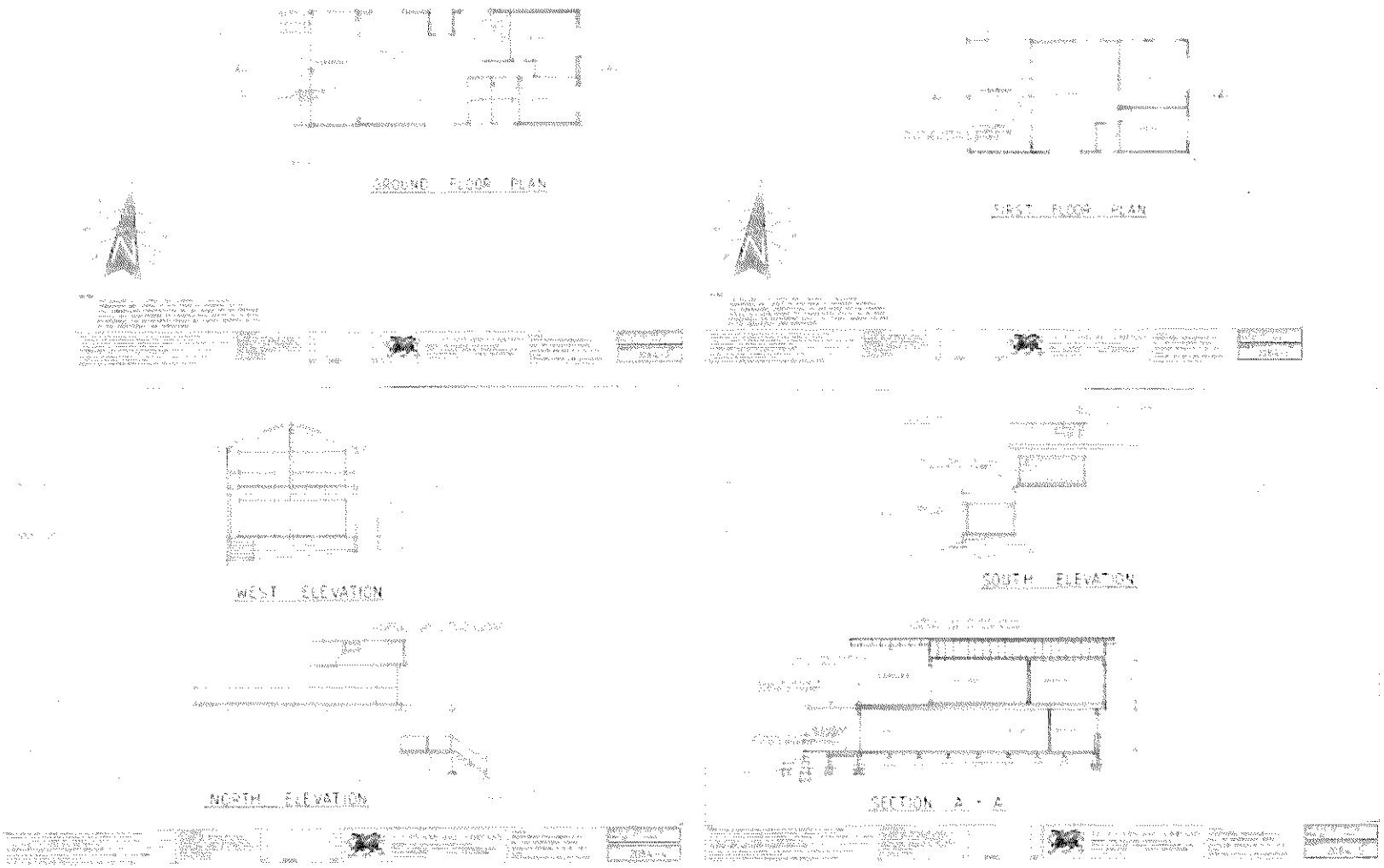


Figure 5: Floor Plans, Elevations & sections as proposed.

4.3 Tree Locations & Site Images

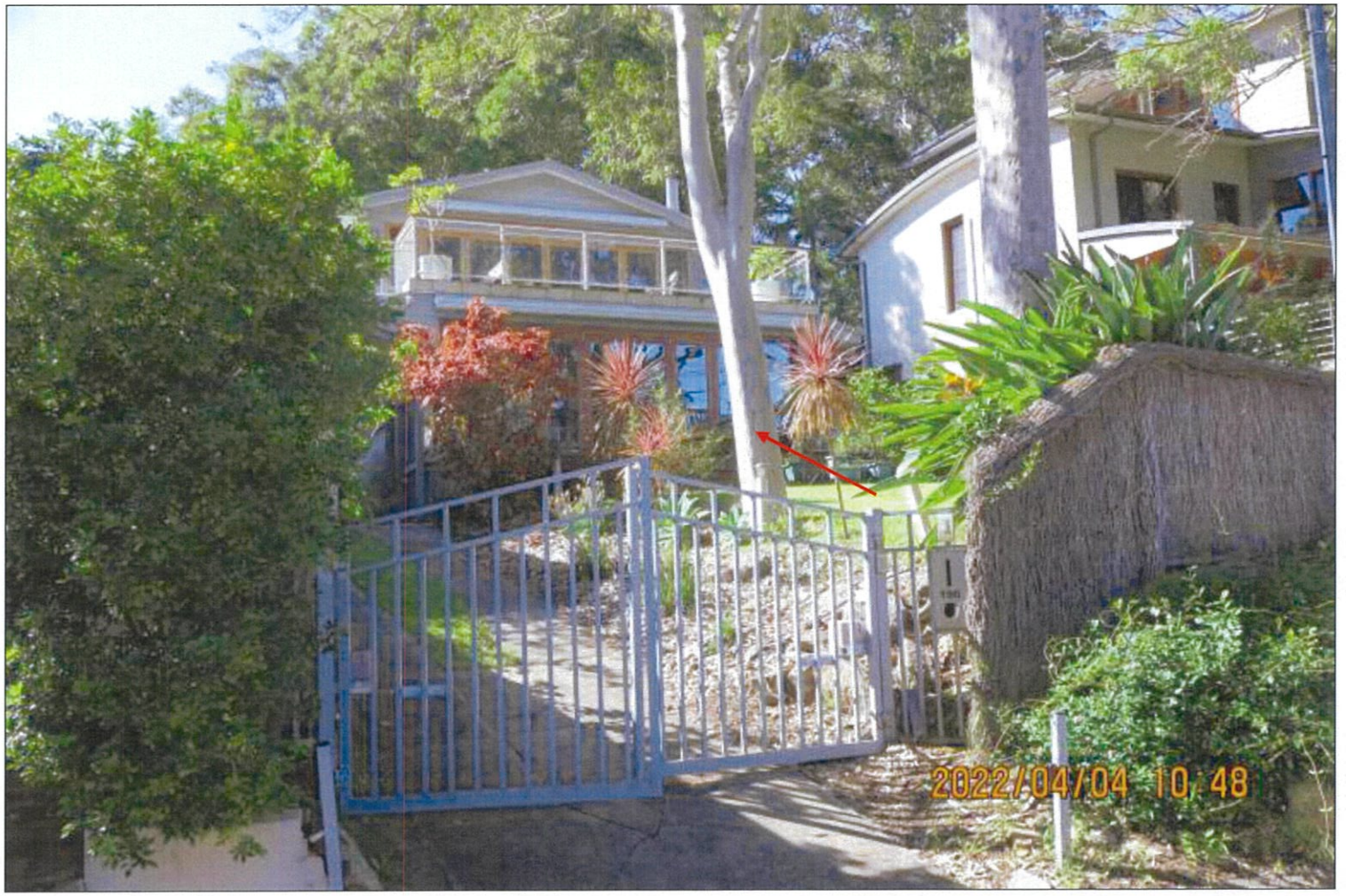


Figure 6: Illustrates the front of subject site current character with discussed tree location highlighted (red arrow).

Figure 7: Left illustrates site detail relative to the as proposed works & the discussed tree. Right illustrates the condition of the tre canopy at the time of data collection.

4.4 The Tree – Summary Table

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

Trees Recommended for removal	Trees Recommended for retention
Exempt species	Trees retainable but of low amenity

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Structure	Significance/ Retention Values	Comments
1	***Corymbia maculata*** *Spotted Gum*	<17.50	<18.00	0.41	4.92	2.32	Mature	Fair to Good & Fair to Good	Asymmetrical (competition from nearby tree)	High/ High	**Retain, Manage & Protect: Tree is assessed as easily managed by implementation of specifications within this document**

5 Discussion

This document acknowledges the *Australian Standard (AS4970–2009 Protection of trees on development sites)* & the *Australian Standard (AS4373–2007 Pruning of amenity trees)* as the best practice guideline documents for the management of trees in Australia. This document contains a "preliminary Tree Plan of Management" that will likely be the basis for *NBC DA* determination *'Conditions of Consent'*.

Discussed Tree #1 is confirmed to be within the subject site, (see pages 13 & 14 photographs).

The discussed tree is a locally indigenous species subject to the old *Pittwater Council* & now *NBC "Tree Management Provisions" plus the new SEPP "Vegetation in non–rural Areas, August 2017"*. The subject site is confirmed to be mapped as part of the *Pittwater Spotted Gum Forest Endangered Ecological Community*. The discussed tree is confirmed to be a *Corymbia maculata* (Spotted Gum).

This document supports the as proposed works with intensive management of its roots system and including the establishment of *'Temporary Metal Mesh Fencing Panels with above ground supports'* as far from the tree trunk centre (up to 4.92m) as the proposed works allow.

The discussed tree is assessed to be of fair to good 'health & vigour' at the time of data collection. It s habit (form) is atypical for its species. (The tree as a consequence of suppression/competition from other tree/s present has been described as 'asymmetrical', with a bias of tree canopy towards the dwelling.) The existing ground level at the tre trunk base is assessed as being modified. This is simply confirmed by the below photograph which shows a total lack of 'basal trunk flare. This presumed to be long term change to the tree's natural environment was also a factor in giving the tree a fair to good 'health & vigour' rating.

Figure 8: Photograph confirms total lack of 'basal trunk flare'.

As per the design concept plans referenced, the only ground level disturbance proposed nearby or within the discussed tree's calculated Tree Protection Zone (from herein TPZ) of 4.92m is for the excavation/installation of footings/piers to support the new deck structure. (This is confirmed by page 12 Sections/Elevations.) No incursion into the Structural Root Zone (from herein SRZ) of tree's calculated radial distance of 2.32m is proposed.

On the basis, the total TPZ incursion for footings/piers equates to a percentage incursion of well less than 10% of the tree's total TPZ calculated surface area of 76.05m^2 by AS4970-2009 provisions the discussed tree really need not be considered as being potentially adversely impacted upon. It is the fact the discussed tree is a *Spotted Gum* and within an *NBC LEP, 2014 'C4' Land Zoning* that the tree has been captured as requiring discussion/management.

Tree Protection measures to be adopted are:

- ***Flexible locations, so as to avoid damage to any (unlikely) to be exposed 'live root' of a significant diameter. (Significant diameter in this situ is specified to be greater than 50mm). In the unlikely event a significant diameter 'live root' cannot be avoided by simply moving the footing /pier location or bridging over it, the retained Project Arborist must manage & document with supporting evidence photographs the strategy adopted. This documentation with supporting evidence photographs must be provided to the appointed Principle Certifying Authority.***
- ***Manually excavated footing/pier sites. Photographs for final footing/pier locations must be provided to the appointed Principle Certifying Authority. (This can be completed by either the site manager or the retained Project Arborist.)***
- ***Install temporary metal mesh fencing panels with above ground supports as close to the 4.92m TPZ calculated radial distance as the site/proposed works allows. Photographs confirming compliance for the TPZ installation must be provided to the appointed Principle Certifying Authority. (This can be completed by either the site manager or the retained Project Arborist.)***

"Preliminary Site-Specific Tree Plan of Management"

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	Replacement Required	MANUAL EXCAVATION (for footings)	Install TPZ Fencing Install Tree Trunk Guard	CC Signoff	OC Signoff
1 *Corymbia maculata* *(Spotted Gum)*	YESo	NO	YES	YES NO	YES	YES

6 Conclusions

- **Relative to the updated information as presented the *GMW consultancy* supports the proposed works with intensive management as presented in documentation reviewed.**
- **The *DA submission* be submitted for determination by council officers as per plans referenced considering the specified Preliminary Site Specific "*Tree Plan of Management*".**

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

Kyle A. Hill
[AQF level 5 & AQF level 8 Registered 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

Barrell, J. 1993. '*Preplanning Tree Surveys: Safe Useful Life Expectancy (SULE) is the Natural Progression*', Arboricultural Journal 17:1, February 1993, pp.

Barrell, J. 1995, '*Pre-development Tree Assessments*', in Trees & Building Sites, Proceedings of n International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings, International Society of Arboriculture, Illinois

Dr. G. Watson & Dr. D. Neely, '*Trees & Building Sites*', LSA Illinois USA 1995

Dr. N. Matheny & Dr. J.R. Clark, '*Trees & Development*', ISA Illinois USA 1998

Phillip J. Craul, '*Urban Soil in Landscape Design*', J. Wiley & Sons, New York USA 1992

10 Selected Bibliography

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.

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 (ie. 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 Fifteen years

Medium = Fifteen – Twenty-five years

Long = more than Twenty-five 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 of 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 affect 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 (eg live leaves &/or bark). Some dead wood is common in a number of 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 Over head Powerlines
HVOHP	High Voltage Over head Powerlines
ABC	Aerial Bundled Cable

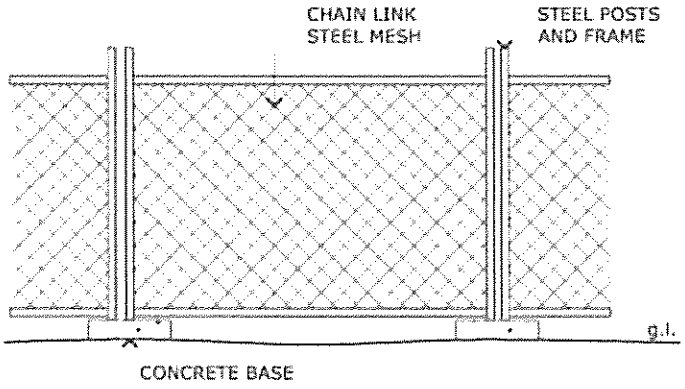
Appendix B – Tree Protection/Management Prior to & During Construction

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.**

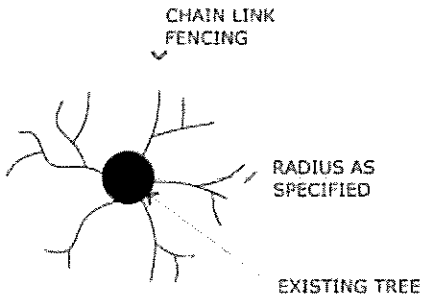
A mulch layer of composted leaf & woodchip to a depth of 75mm is required within the TPZ to aid in retention of soil moisture & to protect soil from contaminants. Water is to be applied by hand held or soaker/leaky hose within TPZ as required & in Accordance with Stage 3 Water Restrictions. Watering 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.



ELEVATION



PLAN