

“GROWING MY WAY”

Tree Consultancy

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Construction Impact & Management Statement

October 2020

Site:	Lot 24 in DP 29879 20 Bilwara Avenue BILGOLA PLATEAU, NSW
Client:	Erhan & Gulseren Izmir c/ JD Evans & Co 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

Erhan & Gulseren Izmir (property owner) via JD Evans & Co Pty Ltd (John Evans) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to the proposed *Alterations/Additions* within the property known as 20 Bilwara Avenue, Bilgola Plateau, (from herein the subject site).

Two (2) individual trees have been identified as being required to be discussed relative to the proposal for Alterations/Additions. The discussed in detail trees are 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 trees are confirmed to be within the property identified as 22 Bilwara Avenue which shares a common boundary with 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 the proposed works supported within this document.

The discussed trees are NOT proposed to be replaced.

The proposal is able to satisfy compliance criteria with the *Australian Standard (AS4970-2009 Protection of trees on development sites)*. The proposal is able to satisfy compliance criteria with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*.

Motor vehicle & pedestrian access is via Bilwara Avenue.

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 TSS (Total Surveying Solutions), dated, 19 June 2020;
- Plans, Sections & Elevations, by J D Evans & Company, Sheet 2042-1 thru 2029-6, dated, 09 September 2020;
- 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 tree health, vigour & condition considering any impact foreseen by the proposed demolition & redevelopment.
2. Confirm the Site-Specific 'Tree Plan of Management' for tree to be retained, protected & managed is AS4970-2009 compliant. Confirm any Site-Specific Pruning is AS4373-2007 compliant

This document supports (relative to tree management) the proposal for *Alterations/Additions*.

Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist*) has prepared this report based on "Visual Tree Assessment" (VTA). Data was collected on Thursday, 1 October 2020.

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2 Introduction

This report contains observations & recommendations intended to assist in the management of the two (2) trees identified as necessary to be discussed by virtue of their location & proposed works within the subject site.

Built form within the subject site is a concrete driveway, multi-level single dwelling residence, including hard & soft landscaping.

This document supports the proposed *Alterations/Additions* with respect to tree management issues.

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*”. The discussed trees 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 ‘*C03*’, “*Residential areas with some tree cover but requiring supplementary planting to aid fauna movements*” *Wildlife Corridor* as defined within the *Pittwater 21 DCP* (see page 6).

The two (2) protected discussed trees are proposed to be retained, managed & protected prior to & throughout all phases of construction. Other subject site & adjoining property nearby trees are assessed as not being impacted upon in any manner by the as proposed works.

The subject site is zoned “*R2*”, ‘*Low Density Residential*’.

A *Site Specific* “*Tree Plan of Management*” is included within this document.

3 Methodology

Assessment of the trees discussed 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 & Management

* **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 an 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 24 of DP 29879. The site is 701.90m² by Title in size. The site is linked to one (1) public road & two (2) residential lots.



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

The subject site is Land Zoned “R2” ‘Low Density Residential’.

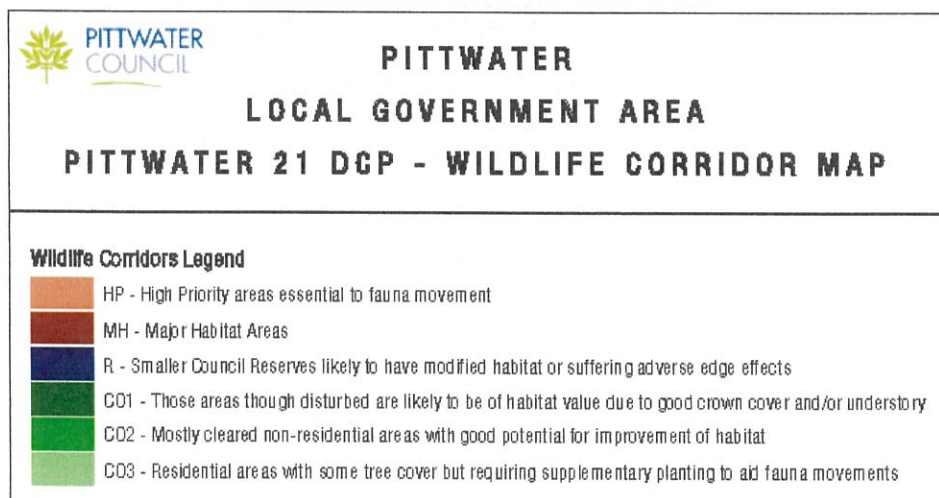
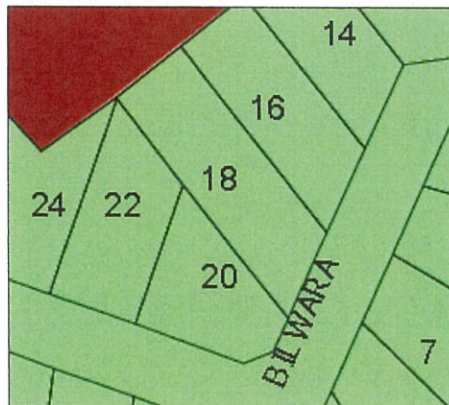



Figure 2: Confirms Pittwater 21 DCP-Wildlife Corridor Status.



Pittwater Local Environmental Plan 2014

Land Zoning Map - Sheet LZN_016

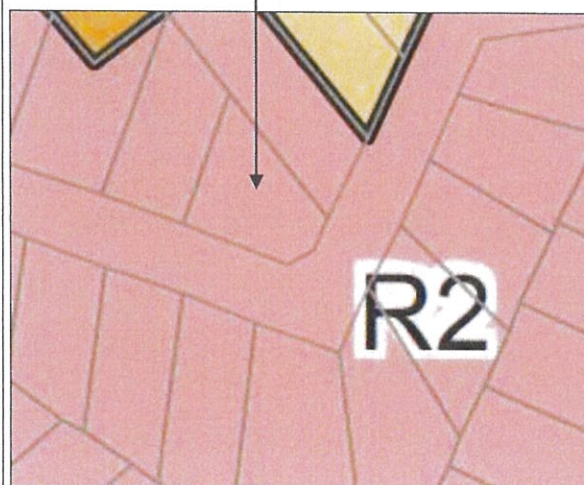
Zone

B1 Neighbourhood Centre
B2 Local Centre
B4 Mixed Use
B6 Enterprise Corridor
B7 Business Park
E1 National Parks and Nature Reserves
E2 Environment Conservation
E3 Environmental Management
E4 Environmental Living
IN2 Light Industrial
IN4 Working Waterfront
R2 Low Density Residential
R3 Medium Density Residential
R5 Large Lot Residential
RE1 Public Recreation
RE2 Private Recreation
RU2 Rural Landscape
SP1 Special Activities
SP2 Infrastructure
SP3 Tourist
W1 Natural Waterways
W2 Recreational Waterways

Cadastre

Cadastre 7/7/2012
© Land & Property Information (LPI)

Illustrates 20 Bilwara Avenue



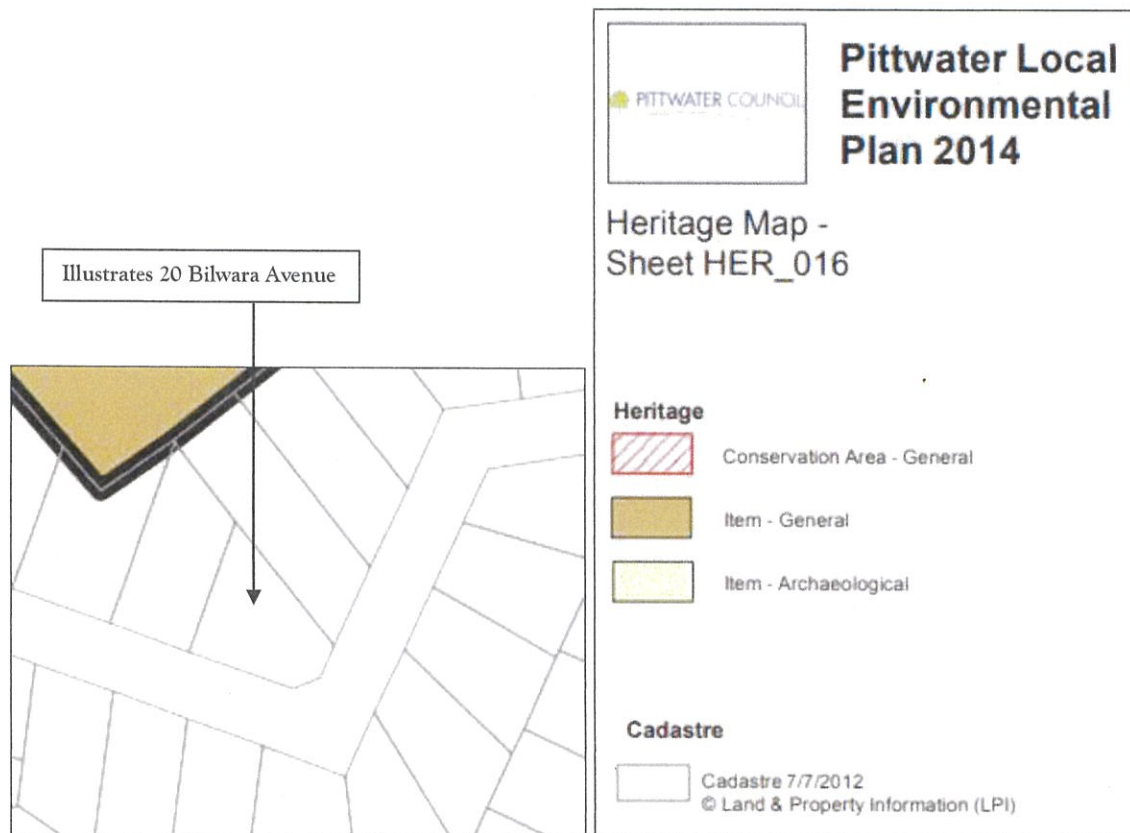


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a NBC designated “Heritage Conservation Area” (see page 7). The site is also confirmed to NOT be a listed “Heritage Item” nor is it near any listed “Heritage Item”. The discussed tree is NOT known to be on any ‘significant tree register’. The subject site & local environs are located within a designated ‘Wildlife Corridor’ C03 – “Residential areas with some tree cover but requiring supplementary planting to aid fauna movements”.

4.2 The Proposal

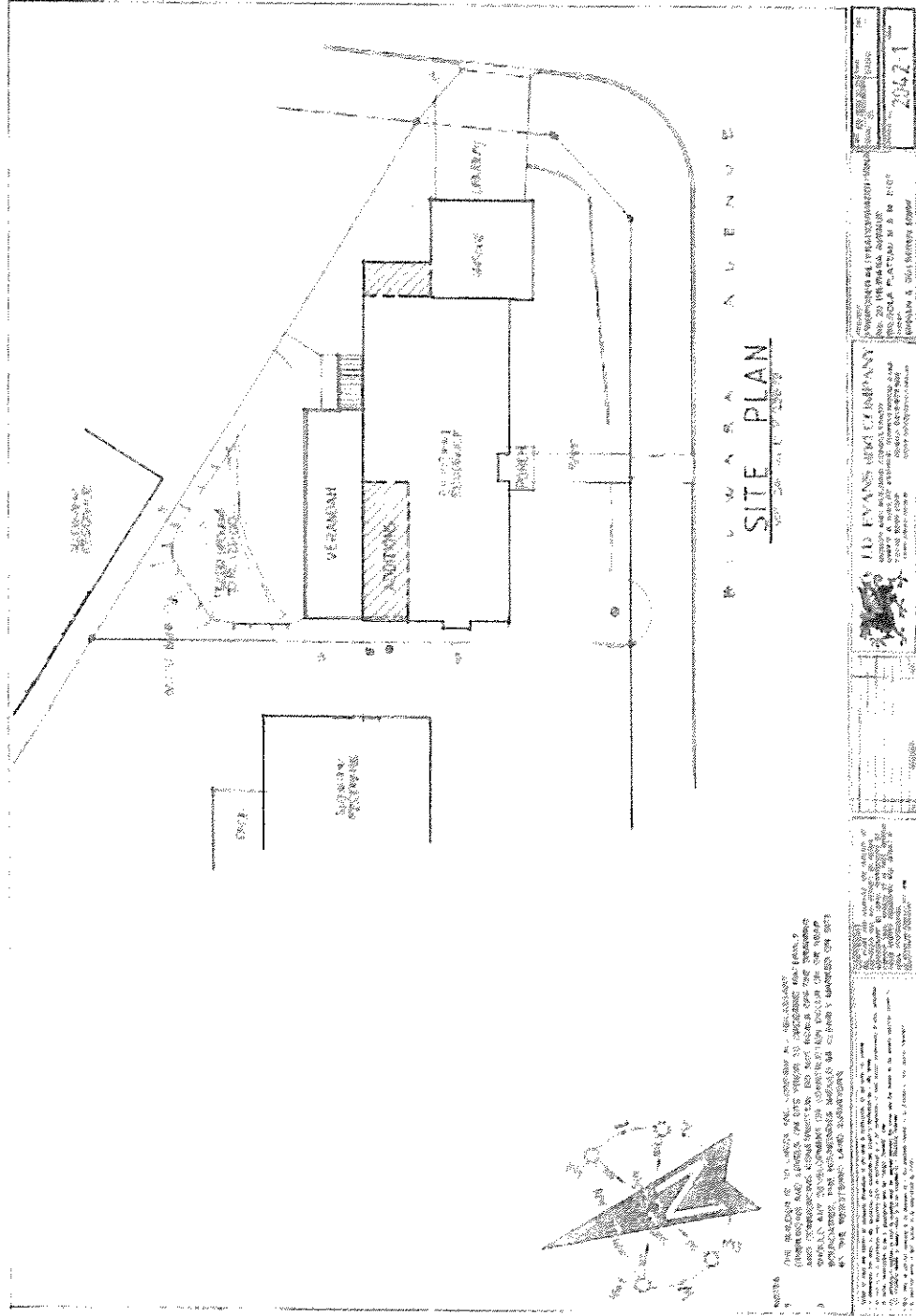


Figure 5: Site Plan showing the proposed works near the trees required to be discussed.



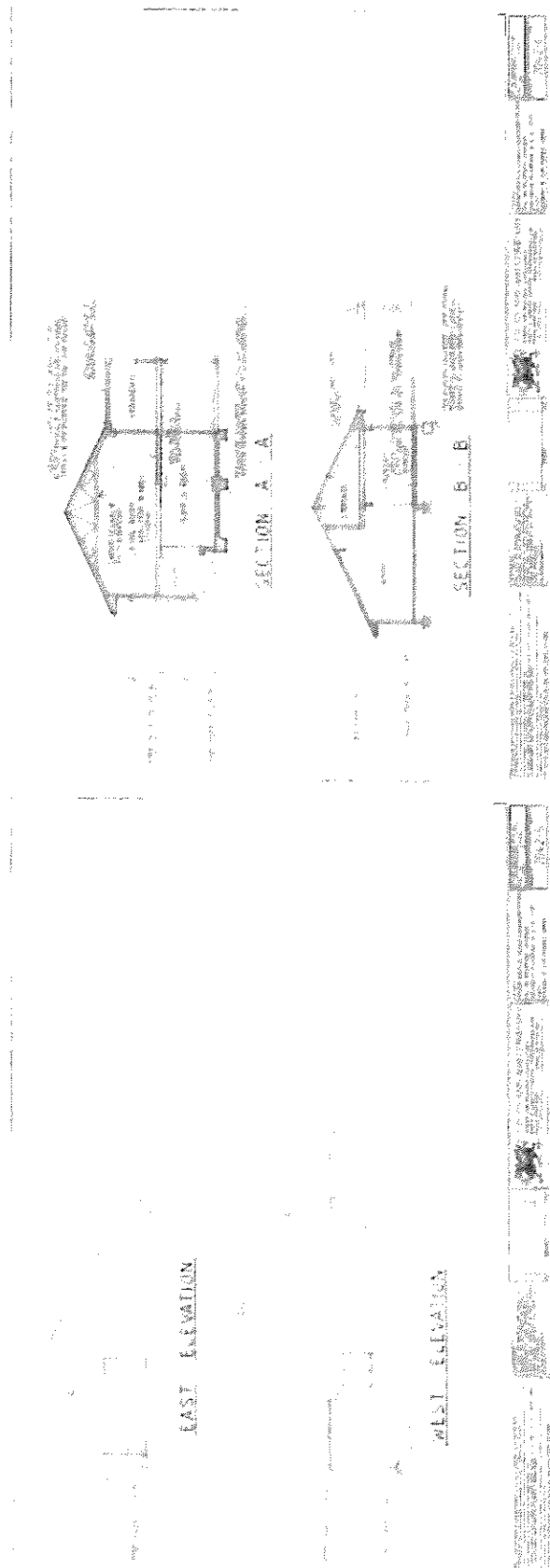


Figure 6: (Above & previous page) Illustrates the proposed Plans, Elevations & Sections.

4.3 Tree Location & Site Images



Figure 7; Illustrates discussed trees location & canopy as viewed from onsite on Thursday, 1 October 2020

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	<i>Callistemon citrinus</i> Lemon Scent Bottlebrush	<28.00	<4.50	0.25	3.00	2.25	Mature	Good & Good	Typical	High/ High	<u>Retain, Protect & Manage</u> : Tree is specified to have temporary ‘metal mesh fencing panels’ instated along the common boundary. In addition to this tree being physically isolated from the proposed works ‘native mulch’ maintained at a minimum thickness of 75mm is specified to be instated prior to commencement & then maintained throughout the construction phase.
2	<i>Glochidion ferdinandi</i> Cheese Tree	<5.50	<5.00	0.24	2.88	2.20	Mature	Good & Good	Typical	Moderate/ Moderate	<u>Retain, Protect & Manage</u> : Tree is specified to have temporary ‘metal mesh fencing panels’ instated along the common boundary. In addition to this tree being physically isolated from the proposed works ‘native mulch’ maintained at a minimum thickness of 75mm is specified to be instated prior to commencement & then maintained throughout the construction phase.

5 Discussion

The *Australian Standard (AS4970-2009 Protection of trees on development sites)* is the guideline required to be addressed relative to best practice 'Tree Management Principles'. See Chapters 3, 4 & 5 of this document. Additionally, compliance criteria with the *Australian Standard (AS4373-2007 Pruning of amenity trees)* is required to be addressed.

Both discussed Tree #1 & Tree #2 are confirmed to be very close to the proposed Alterations/Additions. This is NOT interpreted to be a concern on the basis that the existing subject site-builtform footprint (closest to the discussed trees) is not proposed to be changed. Simply, the two (2) discussed trees have very successfully co-existed with the existing subject site-builtform footprint. There is no reasonable reason to link the as proposed works to any predictable decline to either tree relative to individual Useful Life Expectancy (from herein ULE).

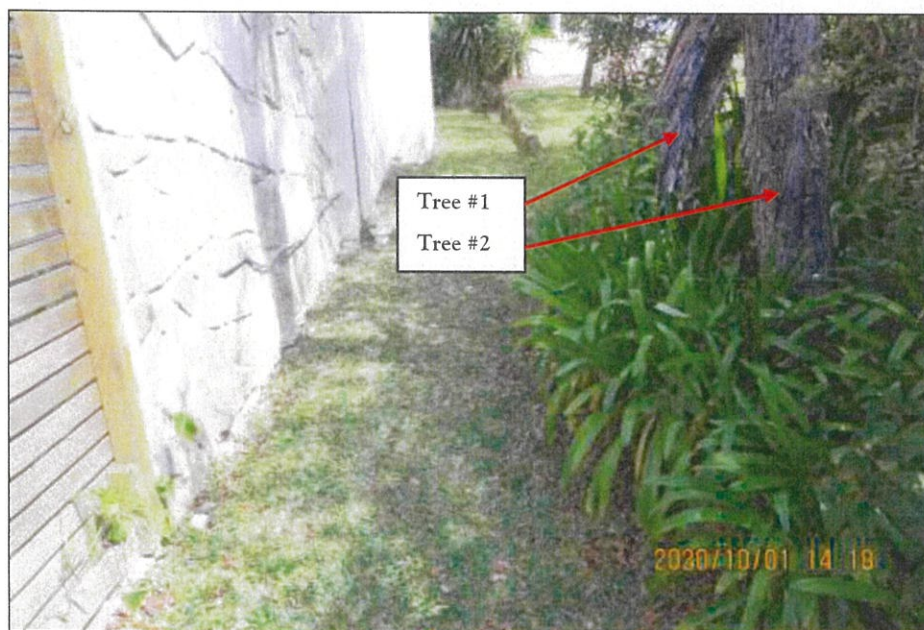


Figure 8: Illustrates the existing subject site-builtform & the location of the discussed trees.

Tree #1 is acknowledged as being of High Significance & High Retention value by size, species (it is locally indigenous), condition &/or presence. This tree is assessed to display by Health & Vigour to be a good example of its species relative to Condition.

The tree is considered as easily retained without out any compromise to its Useful Life Expectancy with implementation of the *Site Specific 'Tree Plan of Management'* which will include installation of a temporary 'metal mesh fencing panels with above ground supports' located along the common boundary of 22 & 20 Bilwara Avenue properties. Additionally, 'native tree mulch' installed prior to the commencement of works & maintained for the total length of the project at a minimum thickness of 75mm.. Note the end of the as proposed new/expanded verandas closest to the discussed tree should be removed with support being provided by the floor levels being either braced to the existing dwelling profile or cantilevered from within the existing dwelling profile.

Tree #2 is acknowledged as being of Moderate Significance & Moderate Retention value by size, species (native but not locally indigenous), condition &/or presence. This

tree is assessed to display by Health & Vigour to be a good example of its species relative to Condition.

The tree is considered as easily retained without out any compromise to its Useful Life Expectancy with implementation of the *Site Specific 'Tree Plan of Management'* which will include installation of a temporary 'metal mesh fencing panels with above ground supports' located along the common boundary of 22 & 20 Bilwara Avenue properties. Additionally, 'native tree mulch' installed prior to the commencement of works & maintained for the total length of the project at a minimum thickness of 75mm.. Note the end of the as proposed new/expanded verandas closest to the discussed tree should be removed with support being provided by the floor levels being either braced to the existing dwelling profile or cantilevered from within the existing dwelling profile.

Excavation required for the installation of footings/piers within the calculated Tree #1 (3.00m) & Tree #2 (2.88m) TPZ/SRZ radial distances must be completed manually with photographic evidence to be provided to the retained Principle Certifying Authority confirming NO Significant Diameter (in this situ defined as being >50mm Ø) 'live supporting root' has been damaged.

Should a significant diameter 'live supporting root' be exposed & deemed as not able to be worked around (relative to footing or services) the sites retained Practicing/consulting Arborist must be summonsed to manage & document with supporting photographic evidence the strategy adopted that results in the least disturbance to any significant diameter 'live supporting root'.

"Site Specific Tree Plan of Management"

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	MANUAL EXCAVATION (for footings)	CANOPY PRUNING	Install TPZ Fencing Install Tree Trunk Guard	Excavation Signoff	CC Signoff	OC Signoff
1 <i>Callistemon citrinus</i> Lemon Scent Botlebrush	Yes	Yes	No	Yes Yes	Yes	Yes	Yes
2 <i>Glochidion ferdinandi</i> Cheese Tree	Yes	Yes	No	Yes Yes	Yes	Yes	Yes

6 Conclusions

- Relative to the information as presented the GMW consultancy supports the proposed works as presented in documentation reviewed.

- **The DA submission is lodged for determination by council officers as per plans referenced considering the specified 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 with Arboriculture Australia (Reg #1884)
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 an 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	<i>Immature</i> refers to a refers to a well-established but juvenile tree
	SM	<i>Semi-mature</i> refers to a tree at growth stages between immaturity & full size
	M	<i>Mature</i> refers to a full sized tree with some capacity for further growth
	LM	<i>Late Mature</i> refers to a full sized tree with little capacity for growth that is not yet about to enter decline
	OM	<i>Over-mature</i> refers to a tree about to enter decline or already declining
	LS	<i>Live Stag</i> 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. $TPZ = DBH \times 12$. 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

Tree Protection & Management Prior to Excavation & 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**.

Trunk protection "Tree Guards" are detailed (below) by generic diagram.

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 fortnightly checks by an Arborist.

There is to be no stock piling of building material (including waste), machinery or any other item within the 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.

