

“GROWING MY WAY”

Tree Consultancy

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EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

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Construction Impact & Management Statement

June 2021

Site:	Lot 1 in DP 1263133 31 Marine Parade AVALON BEACH, NSW
Clients:	Shaun Timbrell & Sarah Parker c/ RAMA Architects Pty Ltd Attention: Thomas Martin 6/20 Avalon Parade AVALON BEACH, NSW 2107
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

Shaun Timbrell & Sarah Parker (clients) via RAMA Architects Pty Ltd (Thomas Martin) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to a *New Residential Dwelling, including new Landscape Concept*, for the property known as 31 Marine Parade, Avalon Beach, (from herein the subject site).

Twelve (12) individual trees have been identified as being required to be discussed relative to the proposal for demolition of existing dwelling/garage & construction of a new multi-level dwelling with garage. 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 subject site & one (1) common boundary property.

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.

One (1) discussed & protected tree within the subject site is proposed to be replaced. Regardless of any DA proposal this tree would be supported to be removed simply by virtue of its very poor health & vigour. An additional four (4) subject site exempt from protection trees are proposed to be replaced for a variety of reasons. No trees discussed (protected or otherwise) within the adjoining property are proposed to be replaced. Tree #1 within the adjoining property will require intensive 'live root management' with respect to the as proposed new driveway which requires excavation to establish the new garage proposed level.

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

Existing & proposed to be retained motor vehicle & pedestrian access is via Marine Parade.

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 Detailed Surveys, Adam Clerke Surveyors Pty Ltd, dated, May 2020;*
- *Plans, Sections & Elevations, by RAMA Architects Pty Ltd, Revision B, dated, 24 May 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 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). Onsite Data was collected on Tuesday, 17 November 2020, most recently updated on Tuesday, 8 June 2021.

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2 Introduction

This report contains observations & recommendations intended to assist in the management of the twelve (12) trees identified as necessary to be discussed by virtue of their location & the as proposed redevelopment of the subject site, i.e., *demolition of existing dwelling/garage & construction of a new multi-level dwelling with garage.*

The existing built form within the subject site is a single dwelling residence with single garage hard & soft landscaping.

This document supports the proposed *demolition of existing dwelling/garage & construction of a new multi-level dwelling with garage*, 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 & two (2) common boundary properties are both *Land Zoned as E2-Environmental Conservation & E4-Environmental Living.*

The subject site is not within a NBC designated “Heritage Conservation Area” (Area 5). 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 ‘HP’ (High Priority), “Wildlife Corridor” as defined within the *Pittwater 21 DCP* (see page 8).

One (1) protected & discussed tree is proposed to be replaced. An additional four (4) of the discussed trees, all within the subject site but exempt from NBC protection by virtue of size &/or species are proposed to be replaced. All other trees are proposed to be retained, managed & protected prior to & throughout all phases of construction.

The subject site is zoned both “E4”, ‘*Environmental Living*’ & “E2” *Environmental Conservation*’.

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

3 Methodology

Assessment of the tree 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

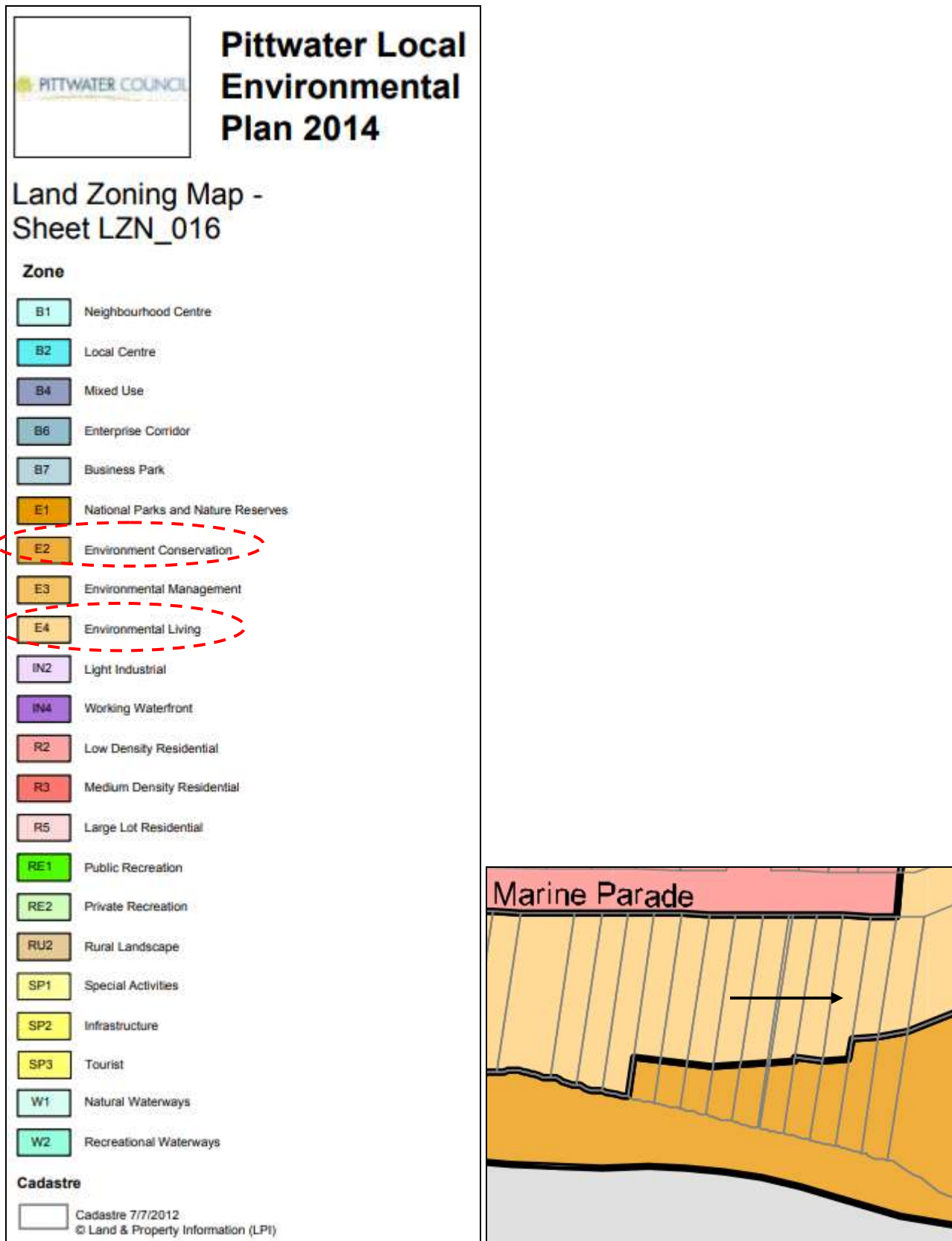
* **VTA–Visual Tree Assessment**, as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e. no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily 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 1 of DP 1263133 (the subject site) & Lot 4 in DP 576219 (Adjoining property). The site is 1347.00m² by Survey in size. The site is linked to one (1) public road & two (2) residential lots. The subject site is Land Zoned both “E4” ‘Environmental Living’ & E2 ‘Environmental Conservation’.





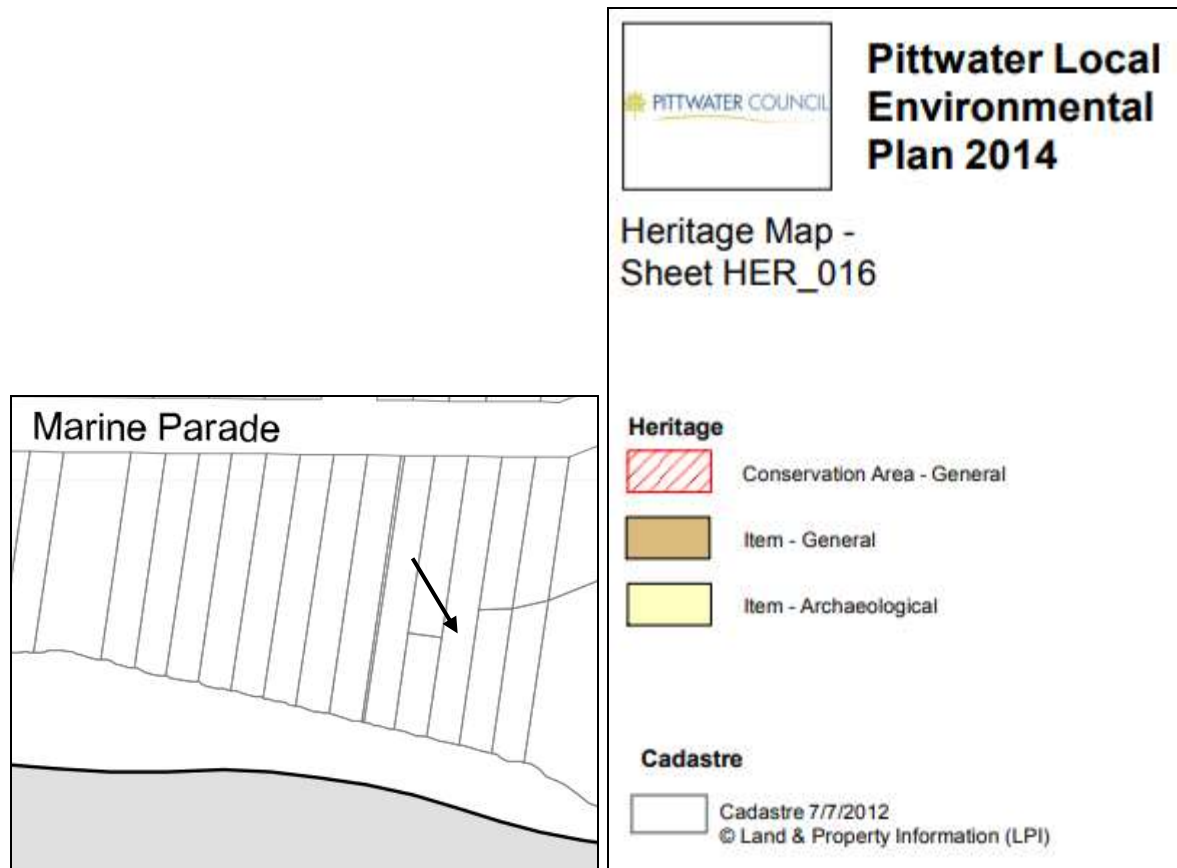


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is confirmed to be 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 NOT known to be on any ‘significant tree register’. A portion of the subject site & adjoining properties are located within a designated ‘Wildlife Corridor’ HP – “High priority areas essential to fauna movement”.

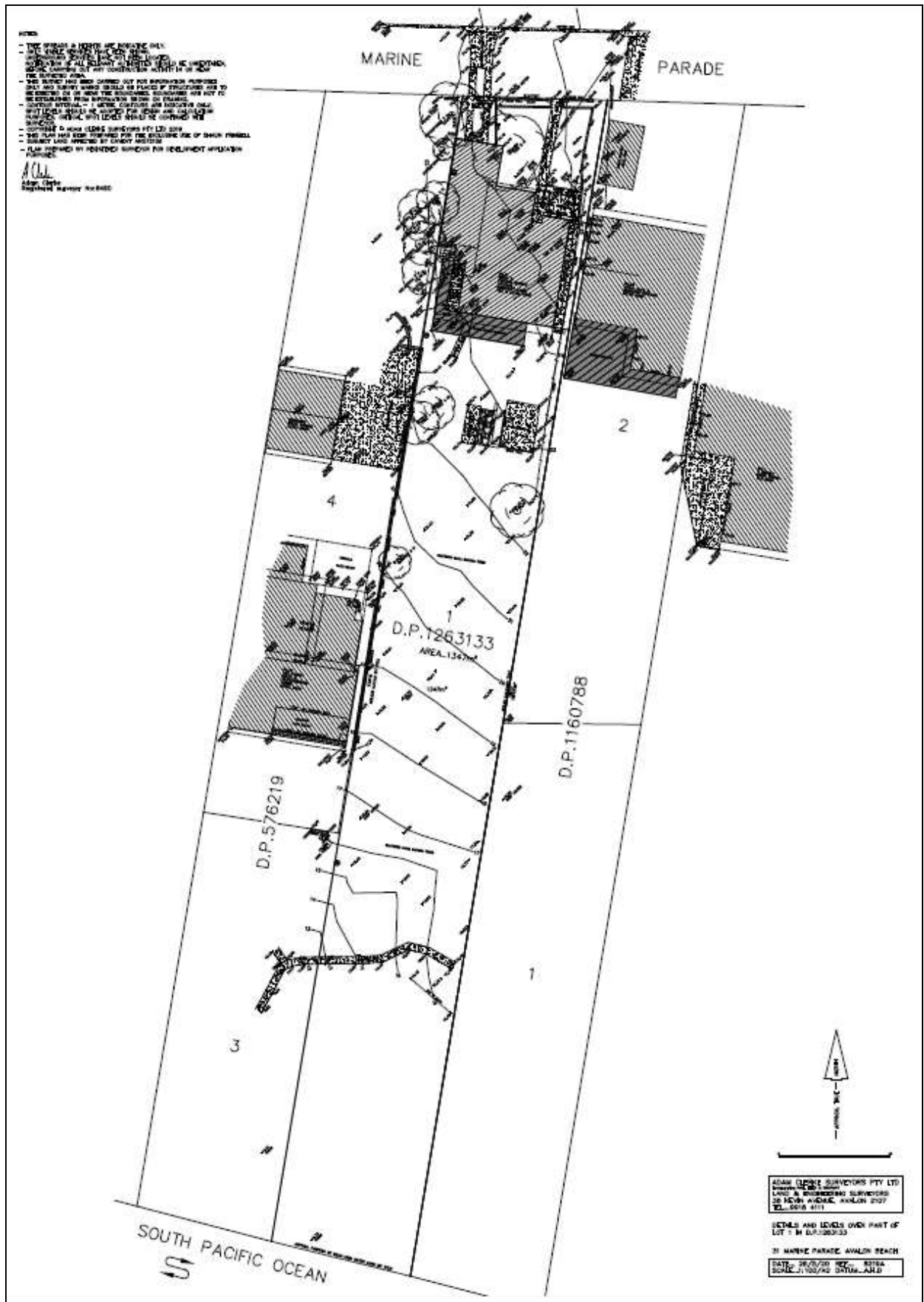


Figure 4: Site Survey, dated 26 May 2020.

.2 The Proposal

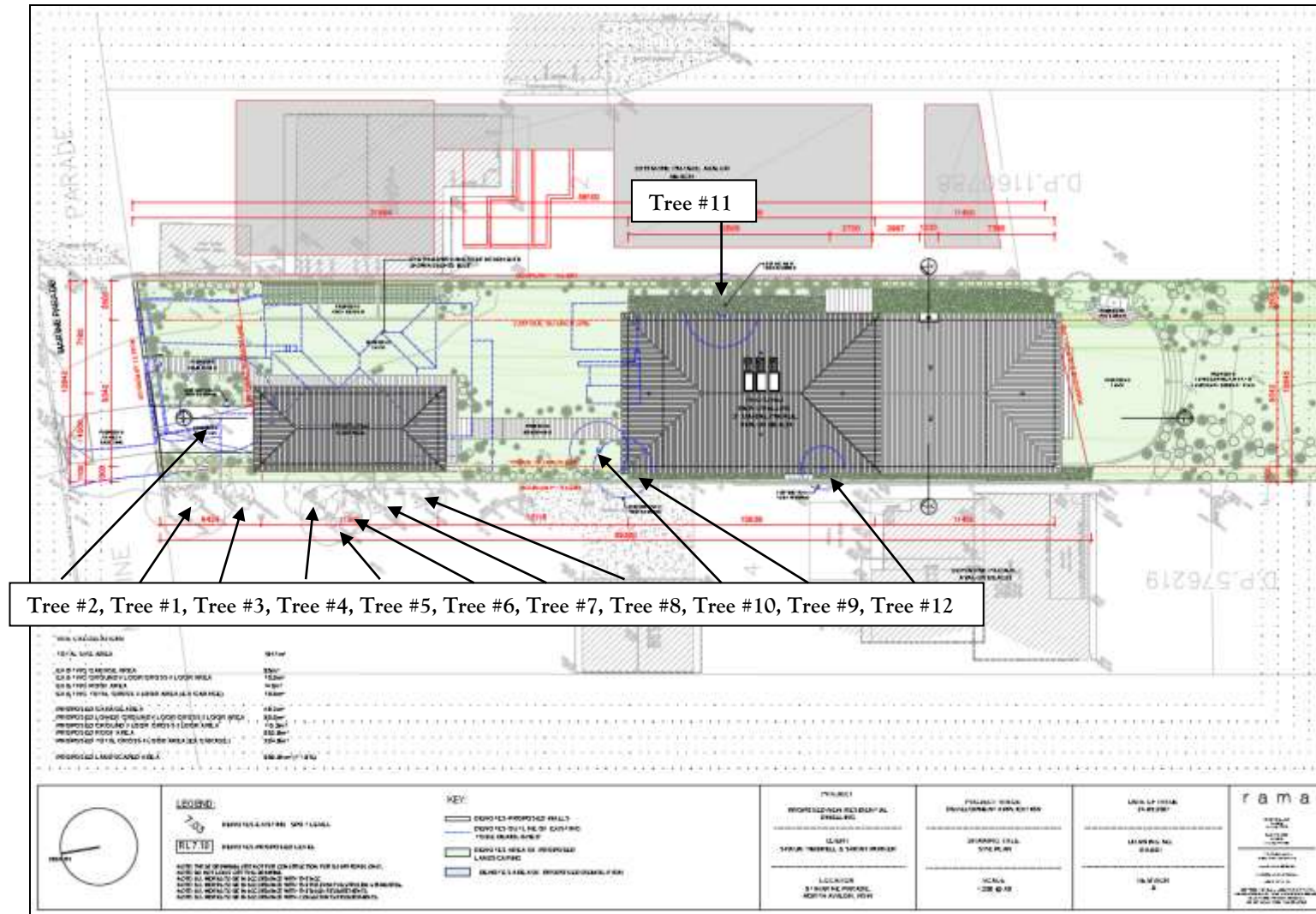
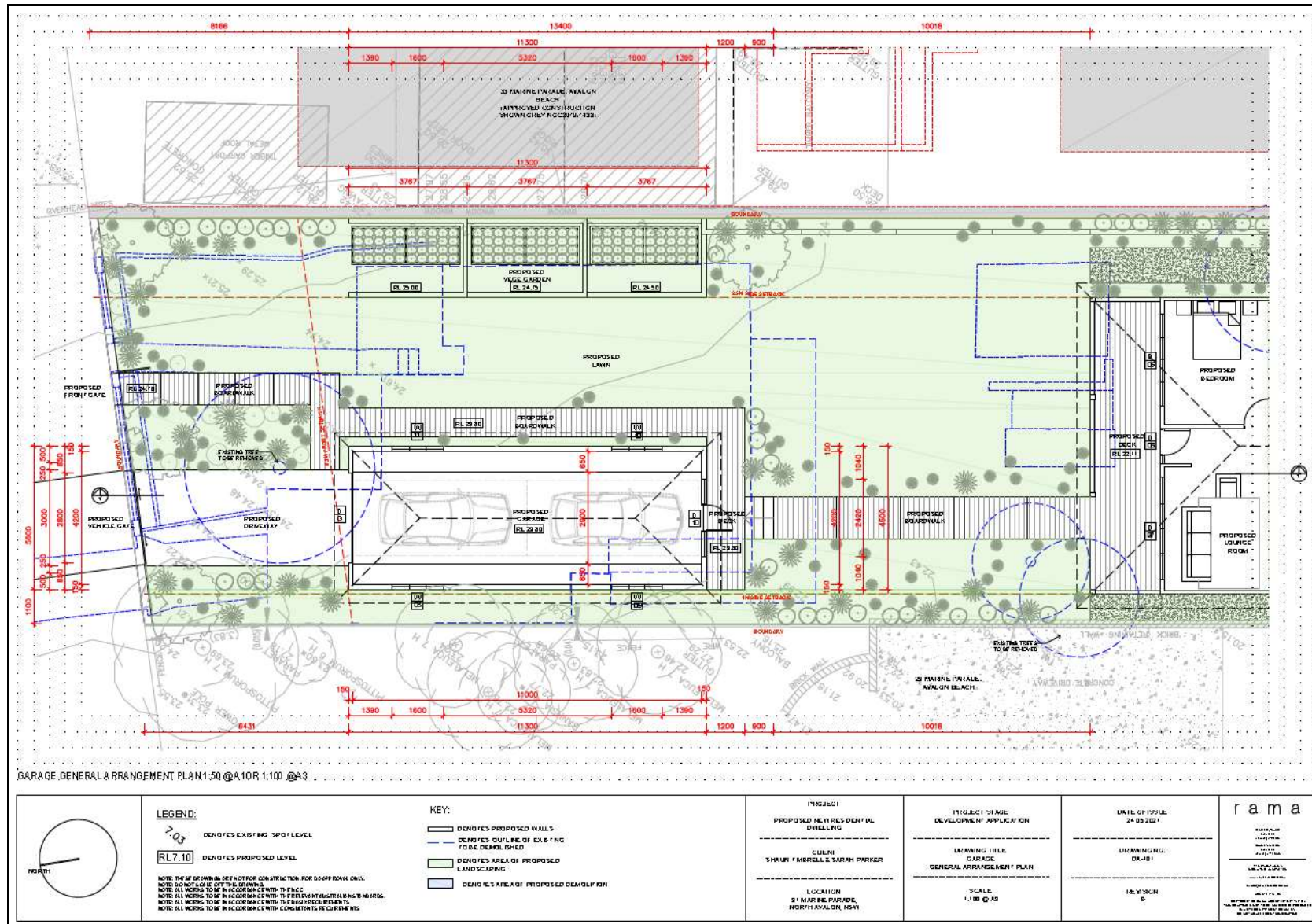
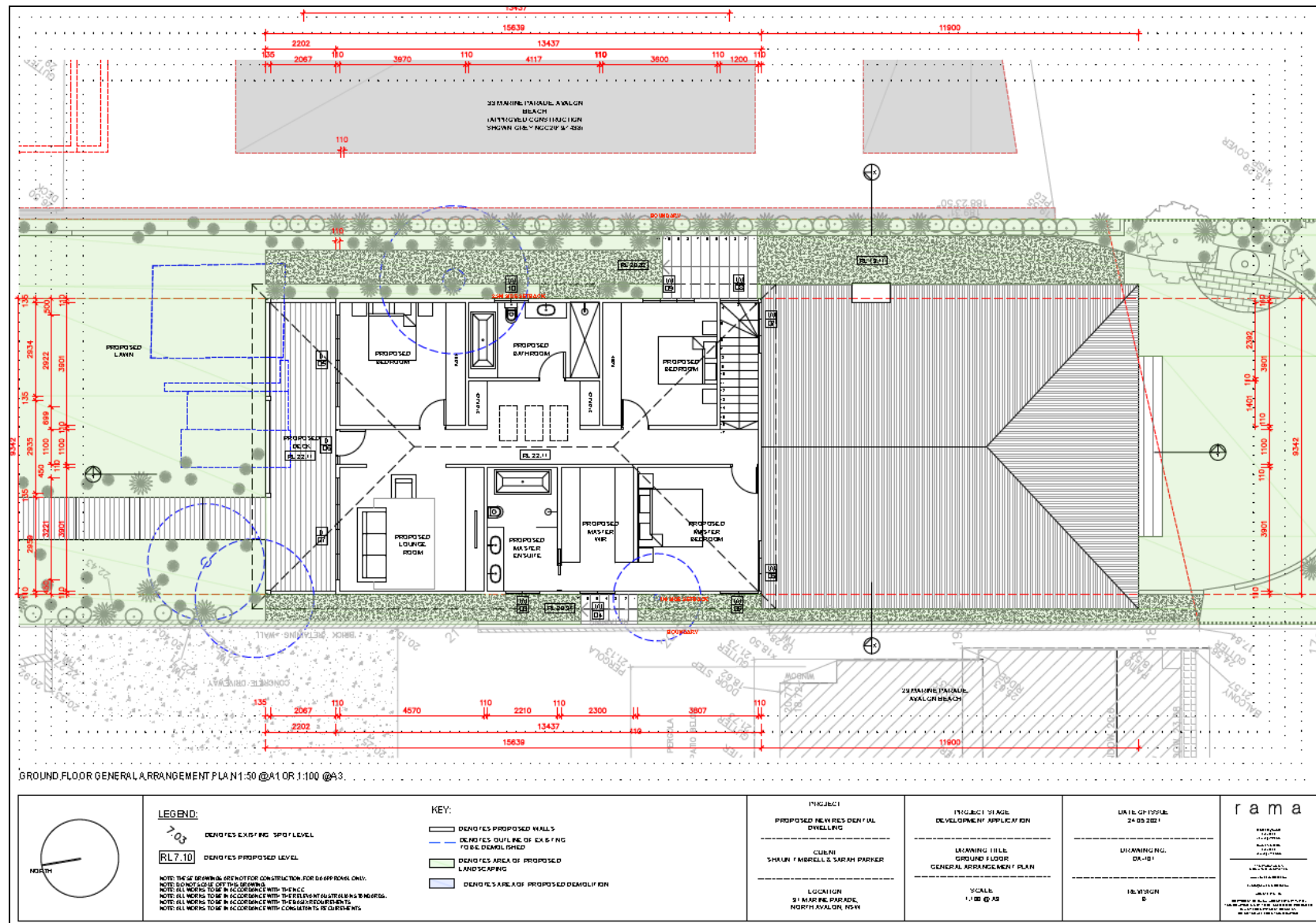
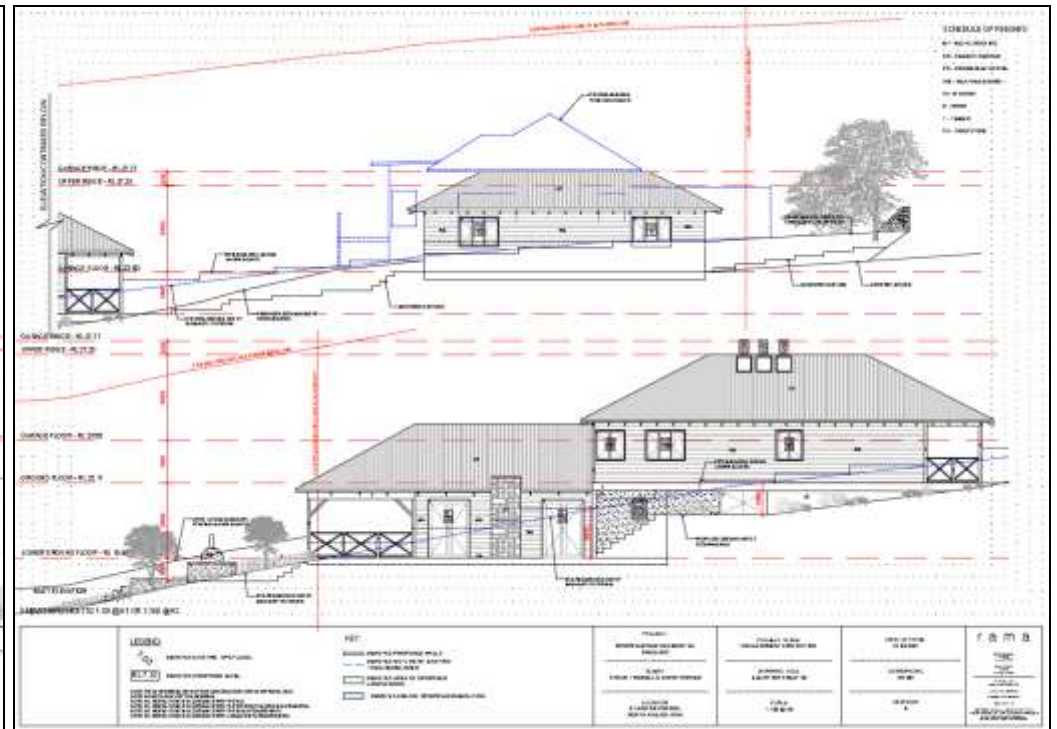
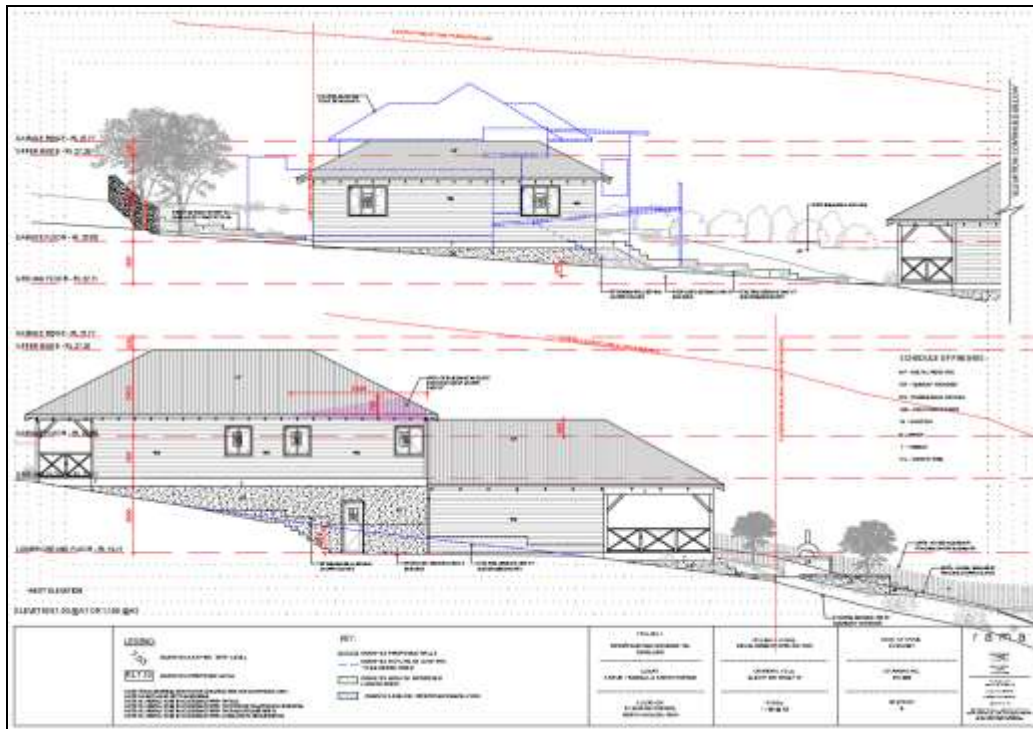


Figure 5: Site/Roof Plan showing the proposed works near the tree required to be discussed.







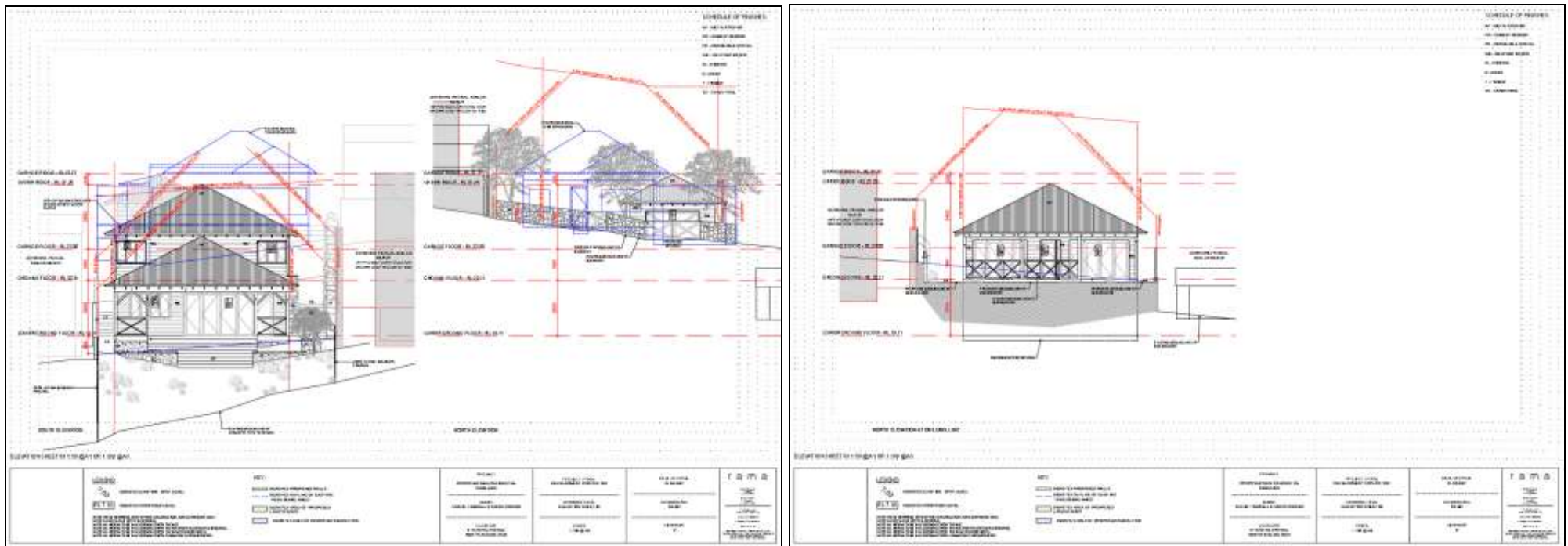


Figure 6: Pages 11 thru 14 illustrates the updated (Revision) concept for DA Lodgement

4.3 *Tree Location & Site Images*



4.4 The Tree – Summary Table

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

Trees Recommended for removal/replacement

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 salignus</i> Willow Bottlebrush	<9.50	<7.00	0.35	<4.20	2.20	Mature	Good & Good	Typical	Moderate/Moderate	<u>Retain, Protect & Manage</u> Within adjoining site. Tree is considered as able to be retained with intensive root management.
2	<i>Callistemon viminalis</i> Weeping Bottlebrush	<10.00	<10.50	0.40	4.80	2.30	Over Mature	Poor & Poor	Typical	Nil/Nil	<u>Replace:</u> Tree has no Useful Life Expectancy
3	<i>Pittosporum undulatum</i> Native Daphne	<6.50	Linking T#3 to T#8 <17.00	0.13	2.00	1.50	Mature	Fair & Fair	Typical	Low/Low	<u>Retain, Protect & Manage</u> Within adjoining site. Tree is considered as easily retained with site specific management plan.
4	<i>Melaleuca quinquenervia</i> Broadleaf Paperbark	<6.50	Linking T#3 to T#8 <17.00	0.26	2.90	1.90	Mature	Fair & Fair	Typical	Moderate/Moderate	<u>Retain, Protect & Manage</u> Within adjoining site. Tree is considered as easily retained with site specific management plan.
5	<i>Banksia integrifolia</i> Coast Banksia	<5.00	Linking T#3 to T#8 <17.00	0.11	2.00	1.50	Mature	Fair & Fair	Typical	Moderate/Moderate	<u>Retain, Protect & Manage</u> Within adjoining site. Tree is considered as easily retained with site specific management plan.

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/Vigour	Structure	Significance/Retention Values	Comments
6	<i>Melaleuca quinquenervia</i> Broadleaf Paperbark	<6.50	Linking T#3 to T#8 <17.00	0.32	3.80	2.10	Mature	Fair & Fair	Typical	Moderate/ Moderate	<u>Retain, Protect & Manage</u> Within adjoining site. Tree is considered as easily retained with site specific management plan.
7	<i>Melaleuca quinquenervia</i> Broadleaf Paperbark	<5.00	Linking T#3 to T#8 <17.00	0.24	2.90	1.90	Mature	Fair & Fair	Typical	Moderate/ Moderate	<u>Retain, Protect & Manage</u> Within adjoining site. Tree is considered as easily retained with site specific management plan.
8	<i>Callistemon salignus</i> Willow Bottlebrush	<7.50	Linking T#3 to T#8 <17.00	0.35	4.20	2.20	Mature	Fair & Fair	Typical	Moderate/ Moderate	<u>Retain, Protect & Manage</u> Within adjoining site. Tree is considered as easily retained with site specific management plan.
9	<i>Callistemon viminalis</i> Weeping Bottlebrush	N/A	Linking	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<u>Replace</u> Exempt by size.
10	<i>Lagunaria patersonia</i> Cow Itch Tree	N/A	Linking	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<u>Replace</u> Exempt by species
11	<i>Phoenix canariensis</i> Canary Isle Date Palm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<u>Replace</u> Exempt by species
12	<i>Banksia integrifolia</i> Coast Banksia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<u>Replace</u> Exempt by size

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.

Of the twelve (12) discussed trees, five (5) trees (Tree #2, Tree #9, Tree #10, Tree #11 & Tree #12) are confirmed to be totally located within the subject site. The other seven (7) trees are located within the adjoining western side common boundary property, 29 Marine Parade.

Tree #1, Tree #2, Tree #4, Tree #6 & Tree #8 are all NBC 'Tree Management' provisions protected. All are proposed to be retained with the exception of Tree #2 with intensive management. Exempt tree species (Tree #3, Tree #5 & Tree #7) are proposed to be retained & as such are discussed in detail relative to both demolition & construction phases as well as including ongoing management recommendations.

Discussed Tree #2, within the subject site has been assessed as having no Useful Life Expectancy regardless of any proposal for development. See below photograph.



Figure 7: Confirms the discussed Tree 32 as having no viable ULE.

Retention & Significance values for trees proposed to be retained range from Low to Moderate.

Any excavation required within the Structural Root Zone (from herein SRZ) radial distance specified to be retained, managed & protected trees must be completed 'manually'. Any 'live woody root' exposed less than fifty millimetres (50mm/0.05m) in diameter may be cleanly pruned without any input from the sites retained Practicing & Consulting Arborist (minimum AQF level 5 'Diploma of Horticulture/Arboriculture' with suitable similar site management experience). The excavated sites (driveway/footings/piers/services etc.) for any specified to be retained, managed & protected tree must be documented in writing with supporting photographic evidence collated by the sites retained Practicing & Consulting Arborist & provided to the appointed Principle Certifying Authority as part of the legally

required paperwork responsibilities. This applies to the as proposed to be retained Tree #1, Tree #3, Tree #4, Tree #5, Tree #6, Tree #7 & Tree #8.

Should any significant diameter 'live supporting root' (defined as being greater than 50mm/0.05m) be exposed & deemed as not able to be worked around (relative to driveway/footing/piers/services etc.) the sites retained Practicing/consulting Arborist must be summonsed to manage & document with supporting photographic evidence of the strategy adopted that results in the least disturbance to any such exposed significant diameter 'live supporting root'. Any such strategy 'specified/adopted' can only be completed under the direct supervision/instruction of the sites retained Practicing & Consulting Arborist & provided in writing with supporting photographic evidence to the appointed Principle Certifying Authority as part of the legally required paperwork responsibilities.

The adjoining common boundary property where Tree #1, Tree #3, Tree #4, Tree #5, Tree #6, Tree #7 & Tree #8 are located will be isolated by the proposed works by the legally required boundary protection fence for site security.

Site Specified "Tree Plan of Management"

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT/ REPLACE	MANUAL EXCAVATION (for driveway & footings)	CANOPY PRUNING	Install TPZ Fencing (Site Isolation Fencing is Specified)	Excavation Signoff	CC Signoff	OC Signoff
1. <i>Callistemon salignus</i> Willow Bottlebrush	Retain	Yes	No	Yes	Yes	Yes	Yes
2. <i>Callistemon viminalis</i> Weeping Bottlebrush	Replace	No	No	No	No	No	No
3. <i>Pittosporum undulatum</i> Native Daphne	Retain	No	No	Yes	Yes	Yes	Yes
4. <i>Melaleuca quinquenervia</i> Broadleaf Paperbark	Retain	Yes	No	Yes	Yes	Yes	Yes
5. <i>Banksia integrifolia</i> Coast Banksia	Retain	Yes	No	Yes	Yes	Yes	Yes

TREE # & IDENTIFICATION <i>Coast Banksia</i>	RETAIN MANAGE PROTECT/ REPLACE	MANUAL EXCAVATION (for drivay/footings)	CANOPY PRUNING	Install TPZ Fencing Install Tree Trunk Guard	Excavation Signoff	CC Signoff	OC Signoff
6. <i>Melaleuca quinquenervia</i> <i>Broadleaf Paperbark</i>	Retain	Yes	No	Yes	Yes	Yes	Yes
7. <i>Melaleuca quinquenervia</i> <i>Broadleaf Paperbark</i>	Retain	Yes	No	Yes	Yes	Yes	Yes
8. <i>Callistemon salignus</i> <i>Willow Bottlebrush</i>	Retain	Yes	No	Yes	Yes	Yes	Yes
9. <i>Callistemon viminalis</i> <i>Weeping Bottlebrush</i>	Replace	No	No	No	No	No	No
10. <i>Lagunaria patersonia</i> <i>Cow Itch Tree</i>	Replace	No	No	No	No	No	No
11. <i>Phoenix canariensis</i> <i>Canary Isle Date Palm</i>	Replace	No	No	No	No	No	No
12. <i>Banksia integrifolia</i> <i>Coast Banksia</i>	Replace	No	No	No	No	No	No

No canopy pruning is predicted to be required. Should the trees be 'dead wooded or pruned' as per NBC specifications or DA approval all works must be completed in compliance with the Australian Standard (AS4373-2007 *Pruning of amenity trees*). See Section 7 Pruning Classes, sub section 7.1 General & 7.2, Crown maintenance, specifically clauses 7.2.1 General, 7.2.2 Deadwooding (D) & 7.2.4 Selective pruning (S). These works must be completed by suitably qualified & experienced tree pruning practitioners or persons under the direct instruction/supervision of such a person.

New Tree Planting & Establishment Criteria:

- Replacement trees are to be sourced from growers/suppliers whose stock meets the production benchmarks of the *Australian Standard (AS2303.2015 Tree stock for*

landscape use) or NATSPEC specification for the production of quality container produced trees.

- New tree specimens are to be professionally planted & maintained for a minimum period of six (6) months once installed.

Below is a list of suggested potentially suitable new tree species compatible with the local environment & the subject site.

- *Callitris rhomboidea* (Port Jackson Cypress)
- *Corymbia gummifera* (Red Bloodwood Gum)
- *Glochidion ferdinandi* (Cheese Tree)
- *Banksia integrifolia* (Coast Banksia)
- *Acacia binervia* (Coast Myall)
- *Backhousia citriodora* (Lemon Scent Myrtle)
- *Melaleuca linariifolia* (Snow in Summer)
- *Murraya paniculata* (Orange Jessimine)

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 Specified “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 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	<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 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

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.

