AURA TREE SERVICES pty ltd

"We go out on a limb for you"

Arboriculture Assessment & Hazard Management Statement

March 2021

Site:	**Lot 1 in DP 571975** **48-50 Lawrence Street** **FRESHWATER, NSW**
Client:	**Life Property group** **PO Box 1097** **DEE WHY, NSW** **Email:** ClaudioM@lifepropertygroup.com.au
Commissioned:	**Claudio Minns**
Author:	**Kyle A Hill** Registered (Arb Aus #1884) Practising & Consulting Arborist Post Graduate Certificate in Arboriculture, Melbourne University 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

Claudio Minns (representing the property developer) commissioned *Aura Tree Services Pty Ltd* to prepare an "*Arboriculture Assessment & Management Statement–Tree Management Strategy*" to be linked to an application for the Demolition of Existing Building & Construction of New Multi-Level Retail & Apartment Building with Basement Carparking..

The site is within the *Northern Beaches Council (*from herein *NBC)* local government area.

NBC is the sole consent authority for the soon to be Tree Removal Applications.

Relative to tree management this document focuses on three (3) trees. By information provided & researched two (2) discussed trees are located within the Oliver Street common boundary road reserve. The third tree is located within the subject site.

The site is not listed within the *NBC (old Warringah Council) 'Local Environment Plan, 2011' (*from herein *LEP) as being part of any 'Heritage Conservation Area'*. The subject site is not a listed 'Heritage Item', nor are any in close proximity. The tree discussed is not a species within any local *endangered ecological community.* (*See Part 3 of Schedule 1within the Threatened Species Conservation Act*.) The discussed trees are not listed within any known "*significant tree register*".

From a *Local Government Tree Management* perspective, the discussed tree within the subject site is acknowledged to be an exempt from protection tree species. The two (2) whilst also exempt from protection tree species are within the road reserve so are subject to the provisions within the *NBC (old Warringah Council) 'Development Control Plan, 2011' (from herein DCP) & the SEPP 'Vegetation in Non-Rural Areas, 25 August 2017'*

This document supports the removal/replacement of the subject site discussed tree & both of the two (2) road reserve trees.

Kyle Hill, Practicing & Consulting Arborist AQF Level 5 & 8, has prepared this document based on onsite inspection (Friday, 13 March 2020).

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2 Introduction

NBC is the *local government area* primary consent authority relative to development & tree management for the discussed & surrounding properties.

The discussed trees are identified to be (2x) *Gleditsia triacanthos* (Honey Locust) & (1x) *Cupressus sempervirens* (Italian Cypress). The Italian Cypress tree is significantly older than the (2x) Honey Locust trees. All three (3) discussed trees are planted specimens.

The *Warringah DCP* & *NBC* 'Tree Management Provisions/Guidelines' plus the *SEPP 'Vegetation in Non-Rural Areas, 25 August 2017* are acknowledged to be the management criteria required to be addressed.

The subject site is Zoned *B2* "*Local Centre*" (*old Warringah Council LEP, 2011, Land Zoning Map*– Sheet LZN_010).

This document supports the removal/replacement of the subject site discussed tree & both of the two (2) road reserve trees.

3 Methodology

Assessment of the trees has been by eye from ground level & aerial photography from multiple sources. Implementation of the *Visual Tree Assessment (VTA) Stage 1 principles* developed by Claus Mattheck, et.al is the assessment method & tool chosen for this site. The principles of *VTA* Stage 1 are explained & illustrated in the publication *The Body Language of Trees (1994).*

Assessment includes:

- *Plans, Elevations, Sections etc., by CKOS Architecture, Revision D, dated March 2021.*
- *Tree's current condition & likely future health.*
- *Perusal of NBC (old Warringah Council) "Tree Management Provisions". Perusal of NBC (old Warringah Council) "Endangered Ecological Community listing" information.*
- *Perusal of NBC communication/responses to the as lodged DA submission*
- *Discussion of environment where the tree is growing. Tree's amenity & retention value, such as significance, screening & habitat.*

No root tissue analysis, soil testing, '*Resistograph*'®, '*ArborTom*'® assessment or similar was undertaken.

See the following Appendices for further information:

- *Appendix A Glossary of Common Arboreal terms*

*** *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 subject site land area is approximately 580.00m^2 by Site Survey.

The site is developed to contain commercial premises & residential dwellings. The subject site is Land Zoned B2 'Local Centre'. The one (1) common boundary property is Land Zoned R2 'Low Density Residential'. The subject site is additionally confirmed to share three (3) boundaries with public roadways.

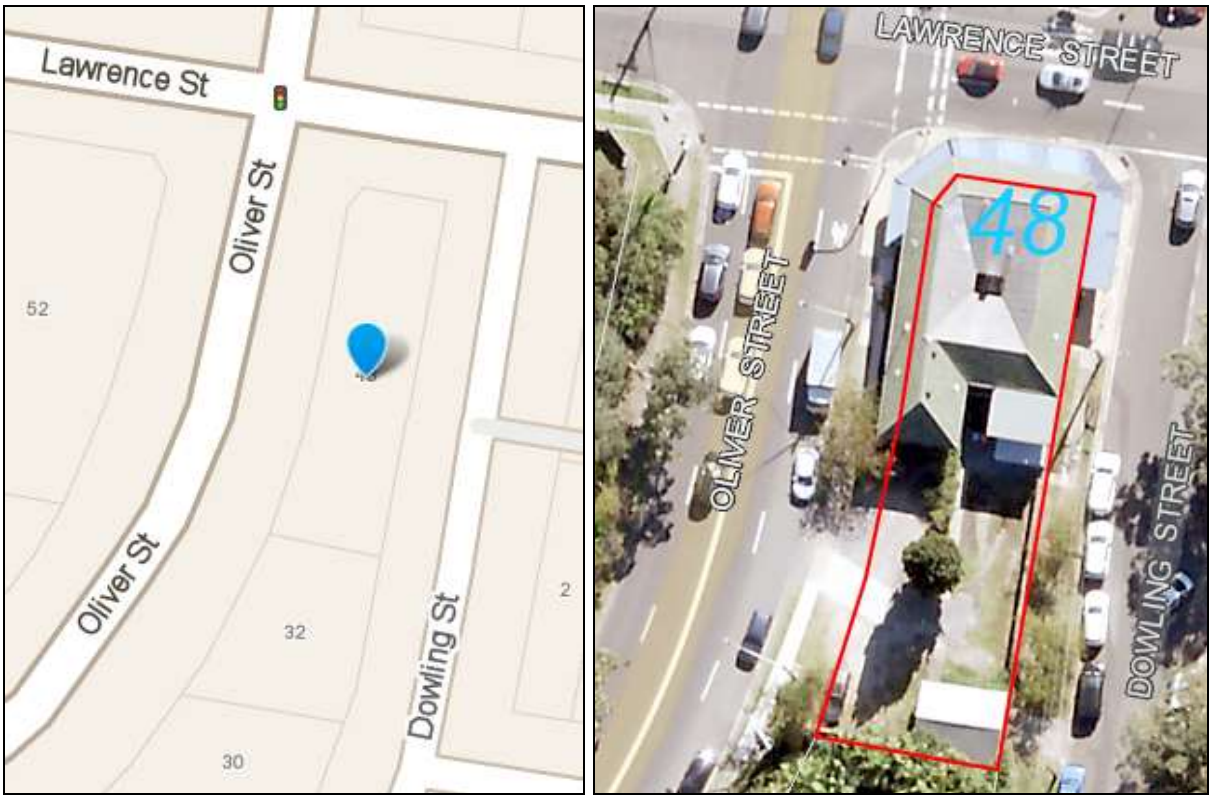


***Figure 1*: Location Map courtesy of SixMaps area calculation website tool & Whereis.com website tool.**

The site is NOT within an area noted to be a classified area of "Wildlife Corridor" significance. The discussed trees are not listed on any known "*significant tree register*".

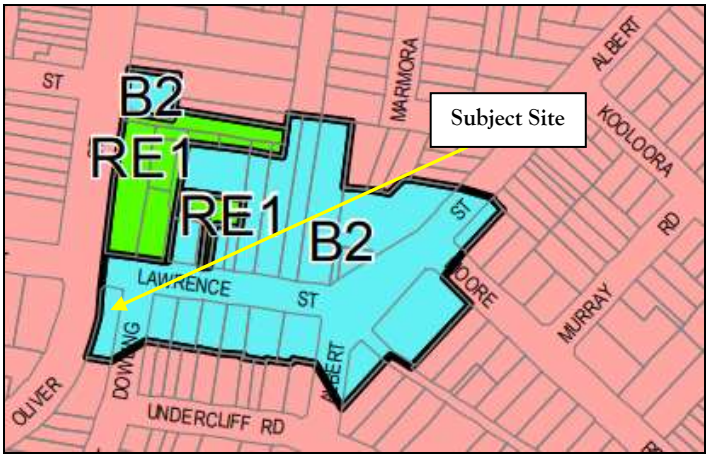
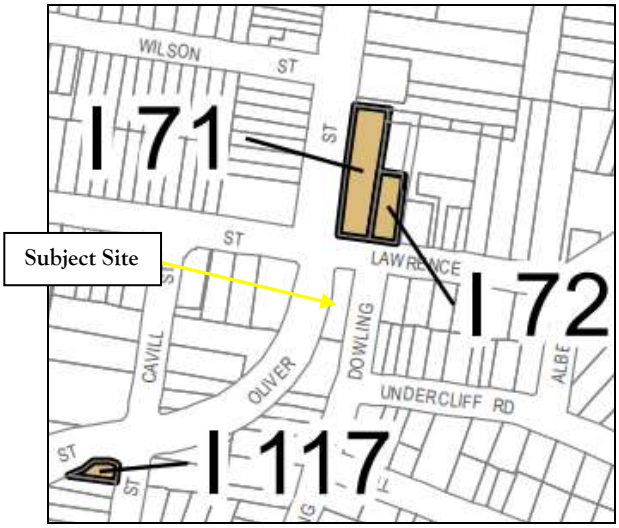


***Figure 2*: Confirms Land Zoning classification as being R2 'Low Density Residential'.**



4.2 Tree Images

Figure 3: Illustrates Tree #1 location & canopy outline.

Figure 4:Illustrates Tree #2 location & canopy outline.

Figure 5: Illustrates Tree #3 location & canopy outline.

4.3 The Trees 'Summary Table'

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

Trees Recommended for removal relative to site character, condition or safety	Trees Recommended for protection & retention
Exempt species	Trees retainable but of low amenity/significance

	Identification	Height (approx in m)	Crown (approx in m)	DBH (approx in m)	TPZ (approx in m)	SRZ (approx in m)	Age	Health/ Vigour	Retention & Significance Value	Structure/ Form	Comments
1	***Gleditsia triacanthos*** *Honey Locust*	<7.00	<7.500	<0.24	2.90	1.90	SM	Good & Good	Moderate/ Moderate	Typical	**Remove & Replace: Tree is considered as best replaced as canopy pruning required for new built form/canopy separation is considered to likely totally disfigure the tree.**
2	***Cupressus sempervirens*** *Italian Cypress*	<14.50	<5.00	<0.35 x 5	Approx. 6.00	Approx. 2.50	M	Good & Good	Moderate/ Moderate	Typical	**Remove & Replace: Tree is located within the middle of the proposed new built form.**
3	***Gleditsia triacanthos*** *Honey Locust*	<6.50	<6.50	0.21	2.50	1.80	SM	Fair & Fair	Moderate/ Moderate	Typical (but displays symptoms of stress)	**Remove & Replace: Tree is considered as best replaced as basement level excavation will breach its supporting root, i.e. Structural Root Zone radial distance.**

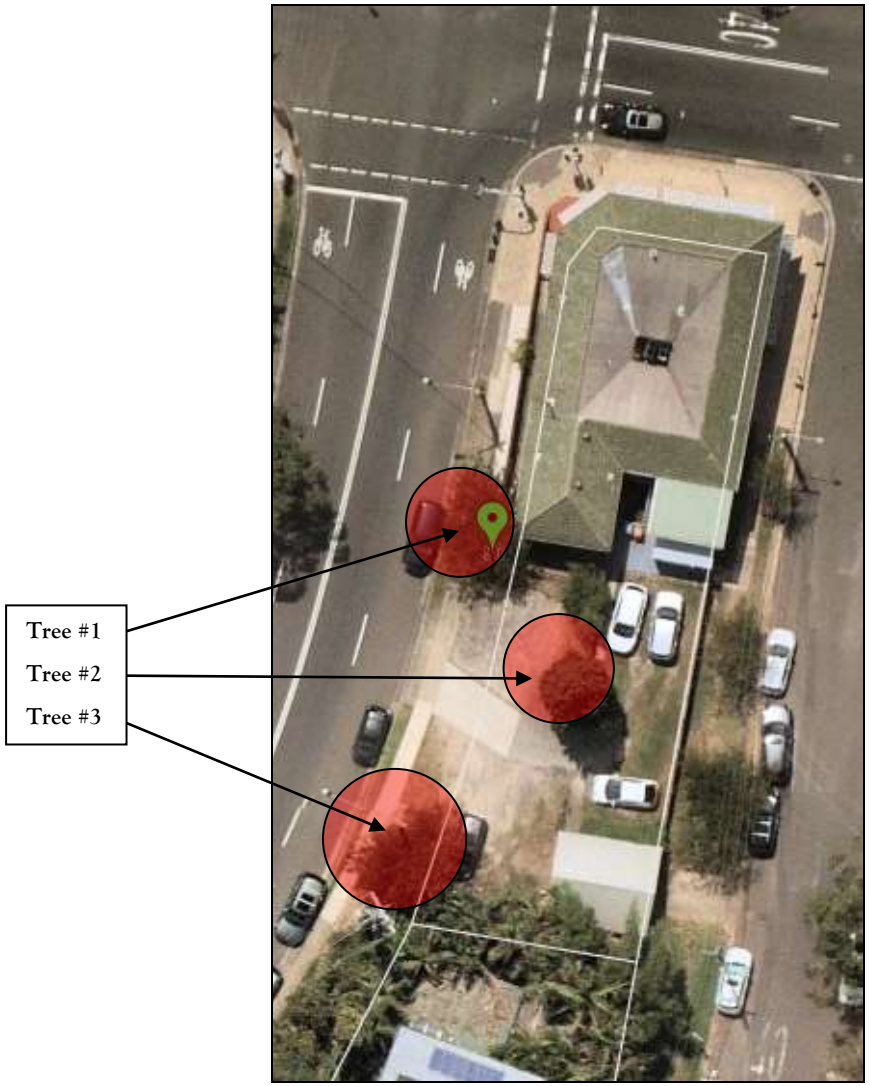
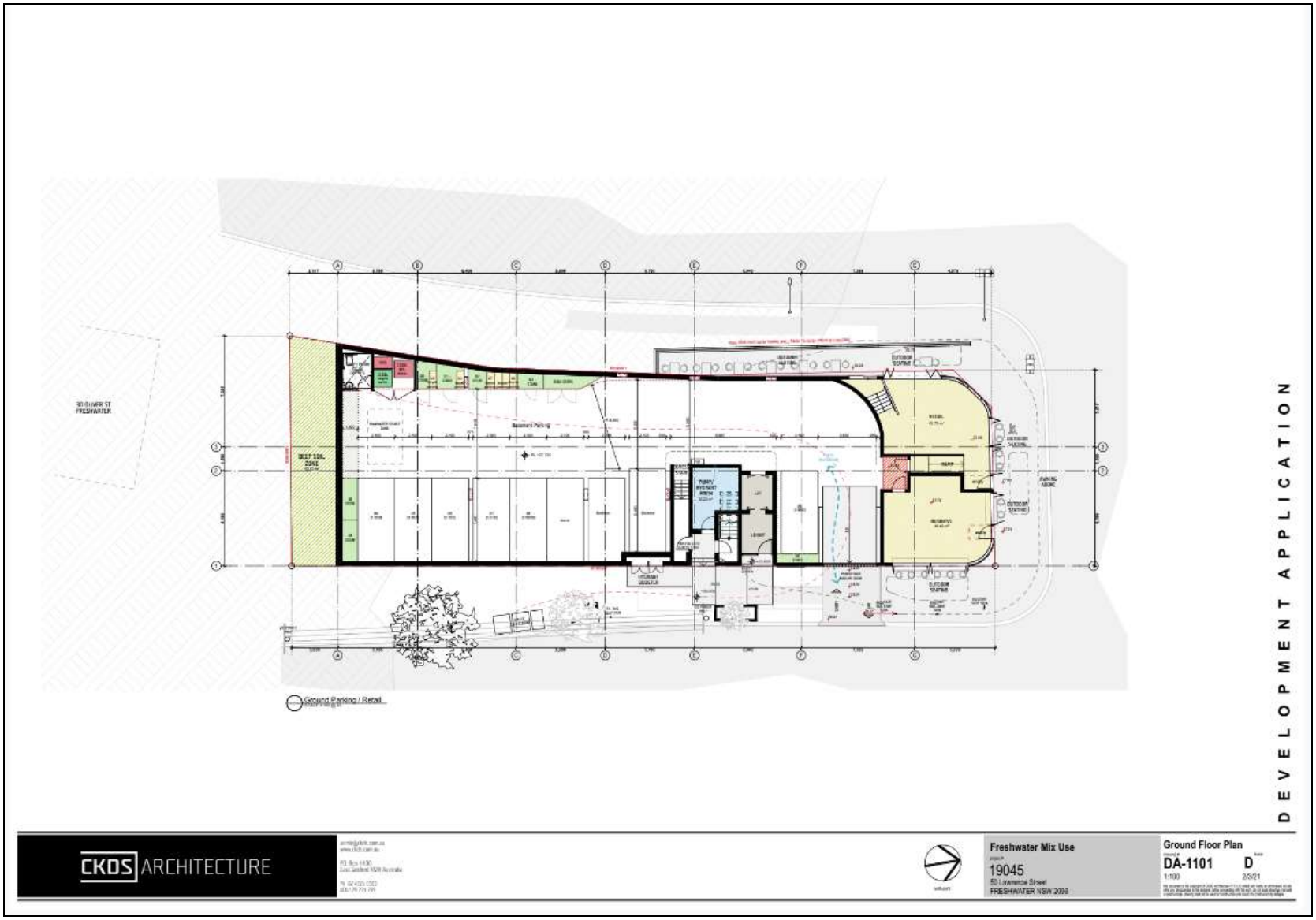
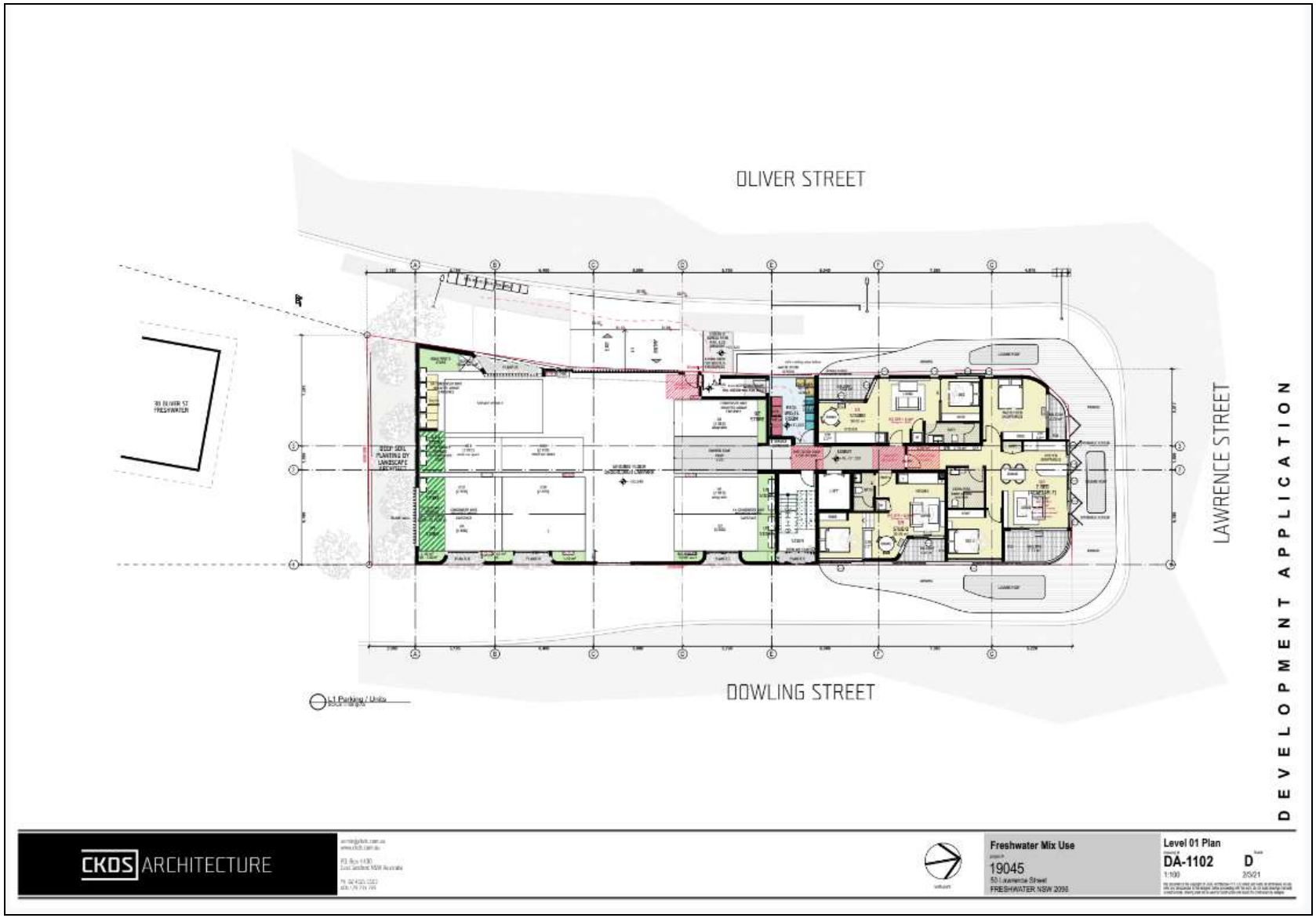


***Figure 6*: Aerial Map, dated Friday, 28 February 2020, (courtesy of Nearmap) confirms discussed tree locations.**

4.4 The Proposal

Figure 7: Revision D Façade Concept.


DEVELOPMENT APPLICATION
CKDS ARCHITECTURE
Freshwater Mix Use
19045
50 Lawrence Street
FRESHWATER NSW 2099
Ground Floor Plan
DA-1101
D
1:100
2/3/21


OLIVER STREET
LAWRENCE STREET
DOWLING STREET
DEVELOPMENT APPLICATION
CKDS ARCHITECTURE
Freshwater Mix Use
19045
50 Lawrence Street
FRESHWATER NSW 2099
Level 01 Plan
DA-1102
D
1:100
2/3/21

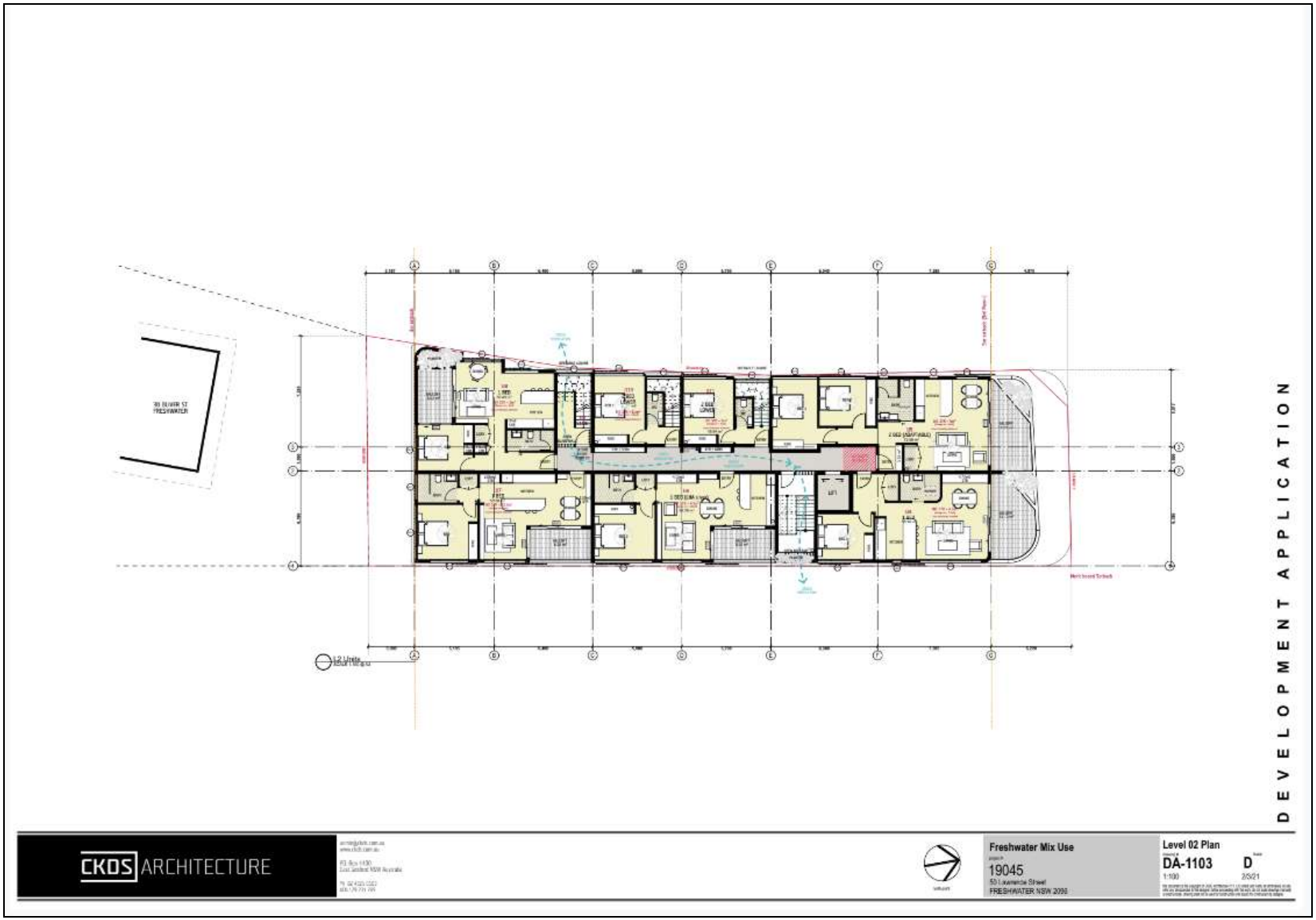
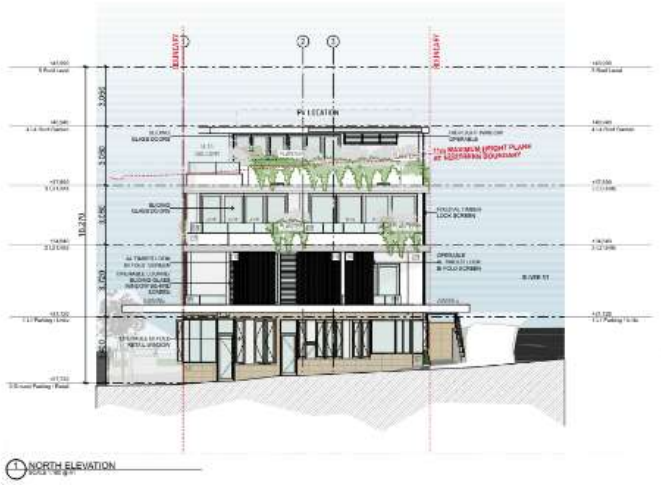
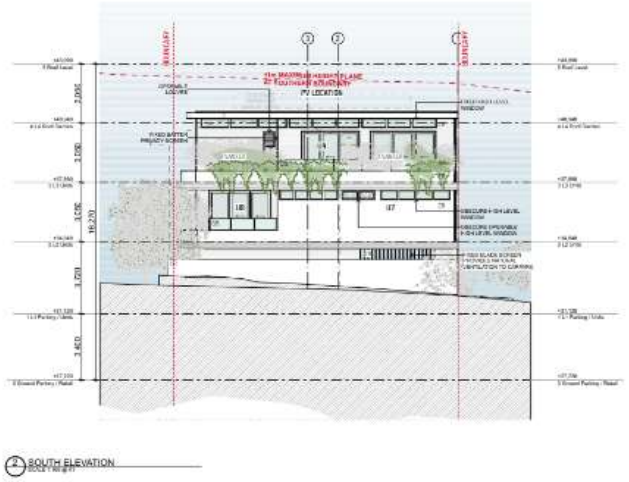

DEVELOPMENT APPLICATION
CKDS ARCHITECTURE
Freshwater Mix Use
19045
50 Lawrence Street
FRESHWATER NSW 2099
Level 02 Plan
DA-1103
D
1:100
2/3/21

Figure 8: Pages 13 to 16 illustrates Revision D proposed Basement & Lower F1, Floor 1, Floor 2 & Floor 3.



1 NORTH ELEVATION



2 SOUTH ELEVATION

NOTES:

- FOR EXTERNAL FINISHES PLEASE REFER DA-7001

DEVELOPMENT APPLICATION

CKDS ARCHITECTURE

Freshwater Mix Use

19045

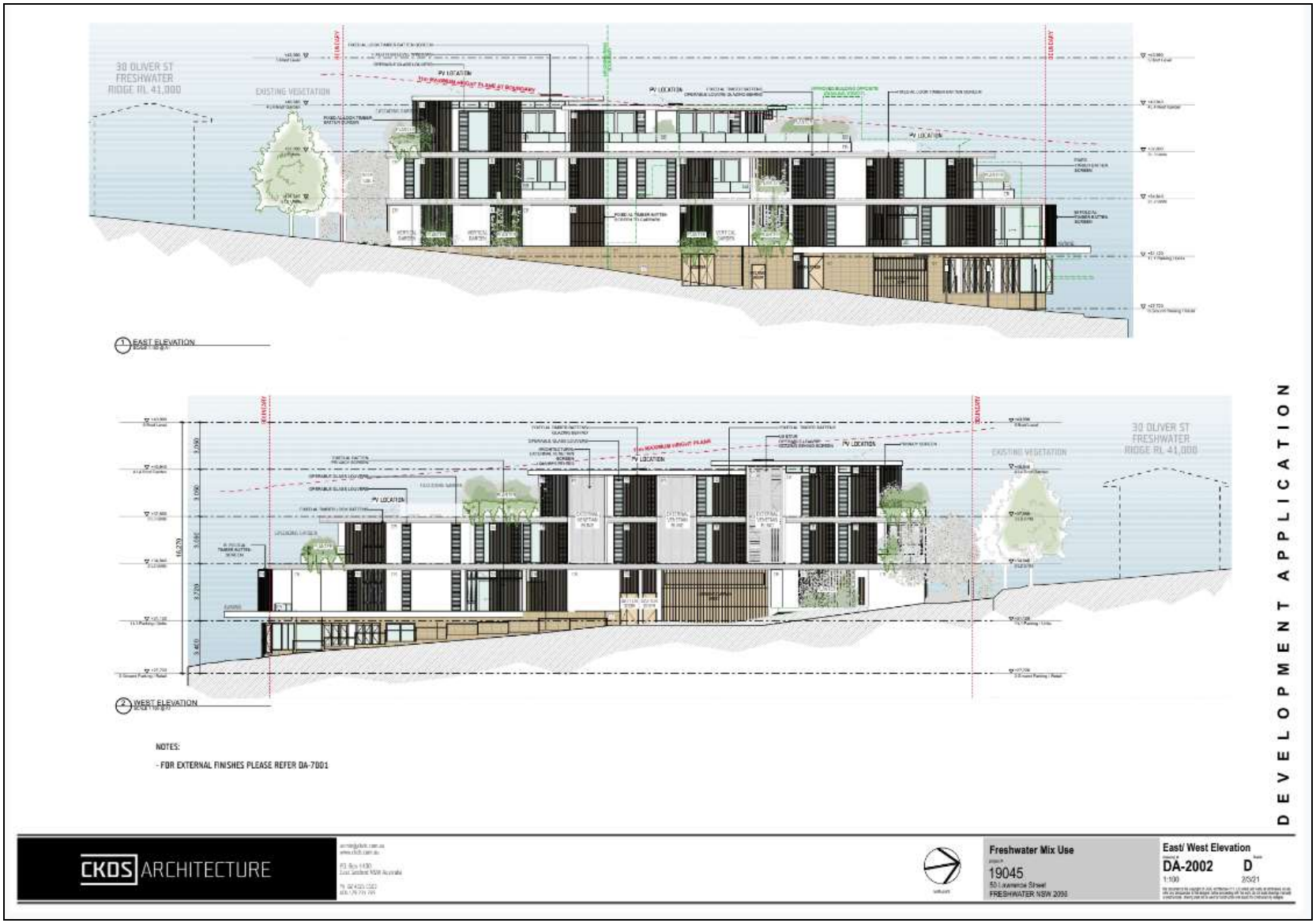
50 Lawrence Street

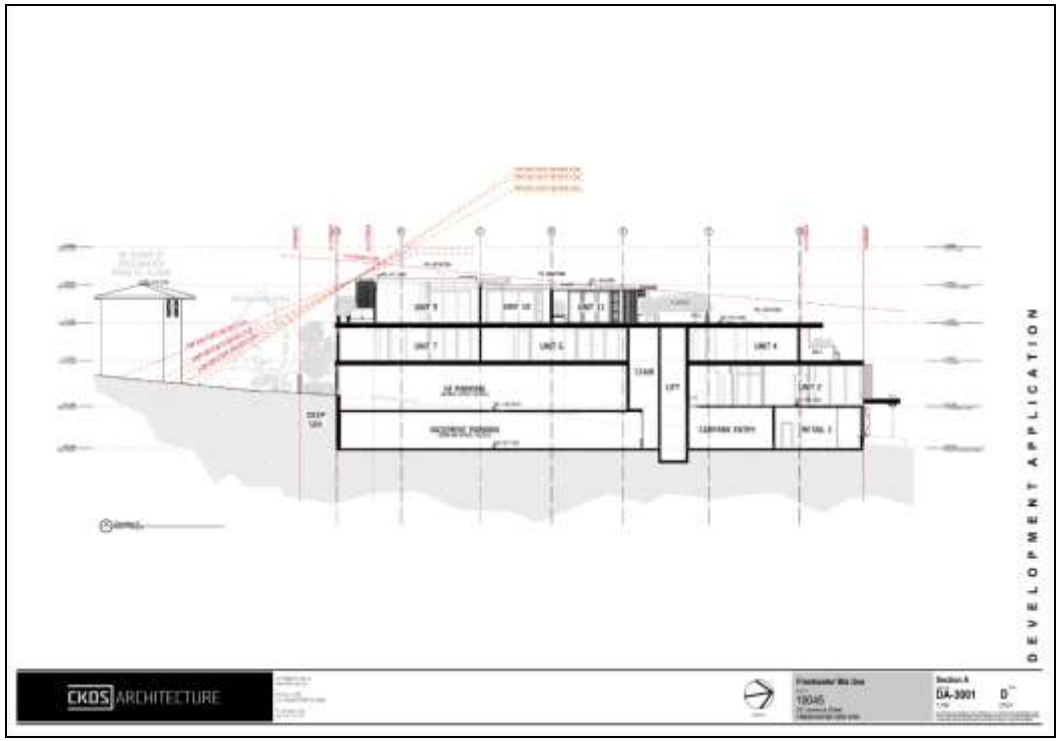
FRESHWATER NSW 2099

North/ South Elevation

DA-2001 D

1:100 2/5/21


30 OLIVER ST
FRESHWATER
RIDGE RL 41,000
EXISTING VEGETATION
PV LOCATION
1 EAST ELEVATION
2 WEST ELEVATION
NOTES:
- FOR EXTERNAL FINISHES PLEASE REFER DA-7001
DEVELOPMENT APPLICATION
CKDS ARCHITECTURE
Freshwater Mix Use
19045
50 Lawrence Street
FRESHWATER NSW 2099
East/ West Elevation
DA-2002
D
1:100
2/3/21



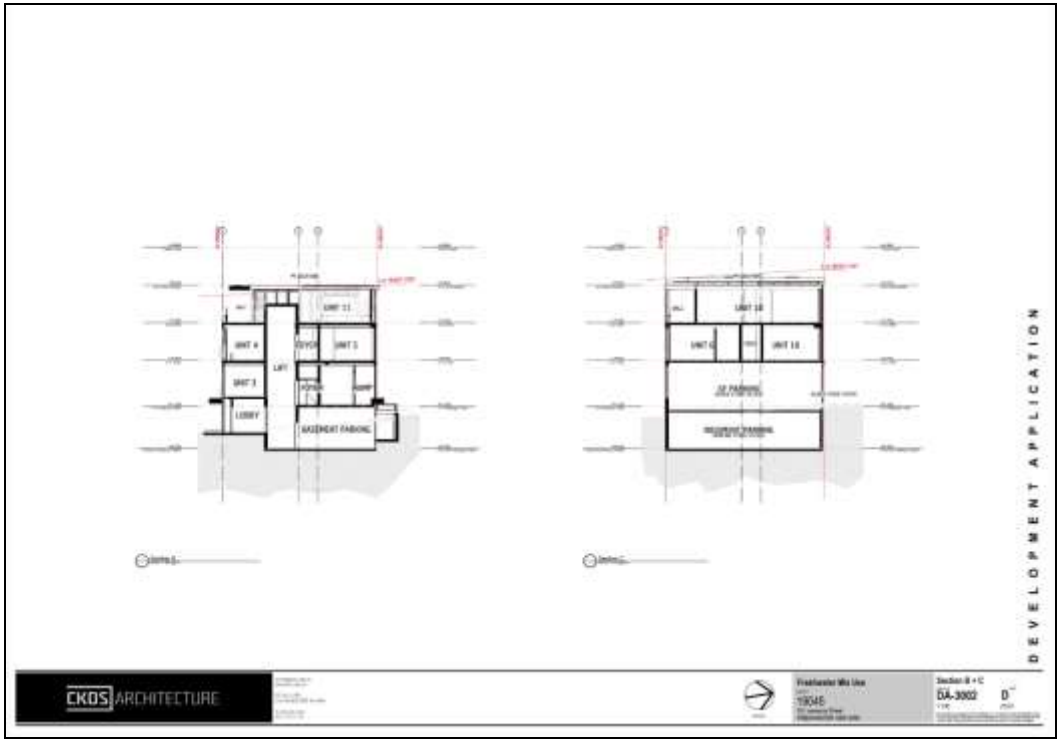


Figure 9: Illustrates Revision D proposed Sections, pages 17 to 19.

5 Discussion

Only Tree #1 & Tree #3 require de3tailed discussion. (Tree #2 has been confirmed to be an exempt from protection tree species, on that basis it can be removed at any time regardless of any proposal for site re-development.)

Tree #1 & Tree #3 whilst also not NBC protected tree species are public property trees & as such are required to be discussed. Both trees are presumed to be required to be replaced (probably within the road reserve) but with more suitable to the local environment tree species.

- ***Tree removal must be undertaken by suitably experienced & qualified tree workers as per the provisions within the SafeWork NSW 'Amenity Tree Industry 'Industry Code of Practice, 1998'.***
- ***The replacement tree is 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.***
- ***The replacement tree is to be professionally planted & maintained for a minimum period of one (1) full active growing season in the Sydney Environment.***

Potentially Suitable to the Local Environment New Tree Species:

- ***Angophora hispida*** **(Dwarf Apple)**
- ***Banksia serrata*** **(Old Man Banksia)**
- ***Banksia marginata*** **(Silver Banksia)**
- ***Hymenospermum flavum*** **(Native Frangipani)**
- ***Tristaniopsis laurina*** **(Watergum)**

6 Site Specific 'Tree Plan of Management'

Tree #	Retain, Protect & Manage	Remove	Replace	Comments
Tree #1				Pruning required is assessed to likely permanently disfigure the tree canopy profile
Tree #2				Tree provides Landscape Amenity so should be replaced.
Tree #3				Tree root system will be significantly compromised by the proposed excavation & adjacent new built form.

7 Recommendations:

- **Lodge DA as per information provided (Relative to Tree Management).**
- **Tree Removal/Replacement as per the page 21 dots points in Discussion Section.**

If you have any questions relating to this report or require the implementation of recommendations, please contact Kyle Hill (Monday to Friday) on 02 9939 0078.

Yours faithfully,

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

8 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.

9 Assumptions

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible; however, AURA Tree Services Pty Ltd, 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; and

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.

10 Recommended References

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

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',* ISA 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,

Clark, Ross, '*A Guide to Assessment of Tree Quality*'. NATSPEC/ Construction Information, Milson's Point NSW, 2003 &

Clark, Ross. '*Purchasing Landscape Trees*', Construction Information Systems Australia Pty. Ltd., Milson's Point NSW, 1996.

11 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.

AS4373.2007 '*Pruning of amenity trees*', Standards Australia.

AS4970.2009 '*Protection of trees on development sites*', Standards Australia.

BS5837-2005. '*Guide for Trees in Relation to Construction*', Standards Board, UK.

Appendix A – 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 refers to any trees potential life expectancy (viability) not related to potential disturbances based on VTA assessment, classifications are: **Short, (0 – 5 years), Medium, (5 – 15 years) & Long, (15 or more years).**

Retention Value is expressed as Low, Medium, High or of Heritage Importance

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

Significant Diameter Roots are defined as being woody roots with a diameter greater than 0.05m/50mm. (Unless otherwise specified)

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 x 50)$^{0.42}$ x 0.64.*

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