



# *Arboriculture Construction Impact Assessment with Preliminary Management Statement*

December 2021

<b>Site:</b>	Lot 5 in DP 4947 46 Martin Street FRESHWATER, NSW
<b>Client:</b>	Adam Hill (Property Owner) Via Hall & Hart Homes Attention: Monika Holovicova FRESHWATER, NSW Email: <a href="mailto:mholovicova@hallharthomes.com.au">mholovicova@hallharthomes.com.au</a>
<b>Commissioned:</b>	Monika Holovicova
<b>Author:</b>	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

Monika Holovicova (representing the property owner) commissioned *Aura Tree Services Pty Ltd* to prepare an “*Arboriculture Construction Impact Assessment with Preliminary Management Statement*” to be linked to an application for the Demolition of Existing Building & Construction of New Multi-Level Dwelling house.

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 two (2) groups of trees. By information provided, researched & confirmed the two (2) discussed groups of trees are confirmed to be located within the rear yard of the subject site (west side).

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 1 within the *Threatened Species Conservation Act*.) The discussed trees are not listed within any known “significant tree register”.

From a *Local Government Tree Management Provisions* perspective, the discussed tree is a significant by presence protected tree species. See the provisions within the *NBC (old Warringah Council) ‘Development Control Plan, 2011’* (from herein *DCP*), current *NBC Tree Management Provisions* & the *SEPP ‘Vegetation in Non-Rural Areas, 25 August 2017’*.

This document supports the retention with intensive management of the discussed tree.

Kyle Hill, Practicing & Consulting Arborist AQF Level 5 & 8, has prepared this document based on onsite inspection (Friday, 17 December 2021).

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## 2 Introduction

The 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 a group of *Dypsis lutescens* (Golden Cane Palms) & a group of *Viburnum odoratissimum* (Sweet Viburnum). The discussed trees are all planted specimens forming part an informal local planting theme.

The NBC (old Warringah Council) 'Development Control Plan, 2011' (from herein DCP), current NBC Tree Management Provisions & 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 R2 "Low density Residential" (old Warringah Council LEP, 2011, Land Zoning Map-Sheet LZN\_010).

This document supports the replacement of the Golden Cane Palms & two (2), possibly three most southern Sweet Viburnums. The palms are exempt from protection species, the Viburnums are assessed as protected species.

## 3 Methodology

Assessment of the tree 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 Hall & Hart Homes, Revision F-3 dated 7 December 2021.
- Site Survey by Intrax Land, dated 10 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'<sup>®</sup>, 'ArborTom'<sup>®</sup> assessment or similar was undertaken.

See the following Appendices for further information:

- Appendix A Glossary of Common Arboreal terms
- Appendix B Tree Protection & Management

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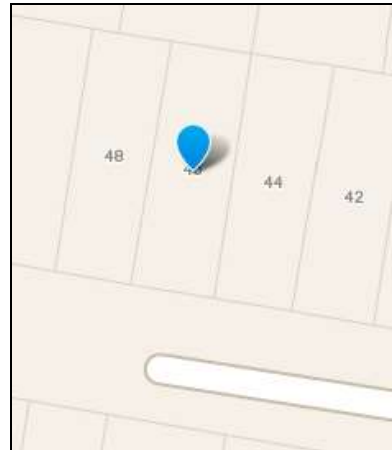
\* **VTA-Visual Tree Assessment**, as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e. no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily 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

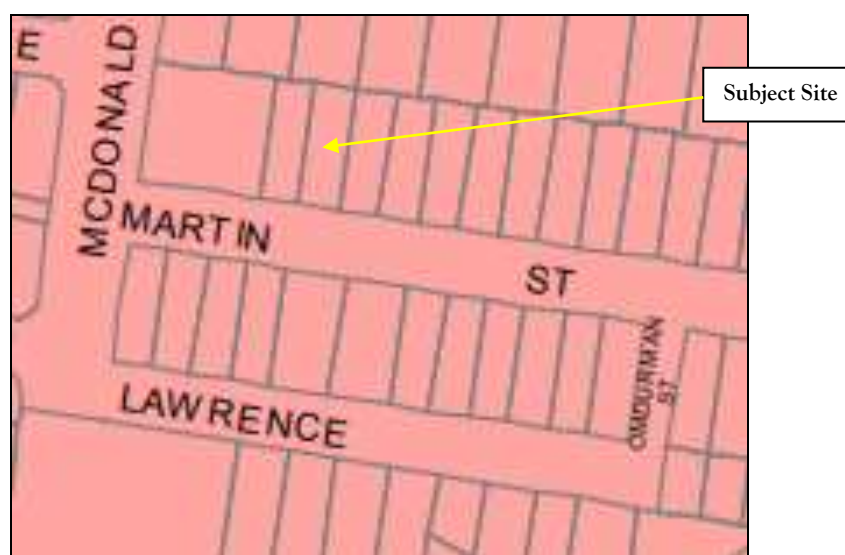
The subject site land area is approximately 449.60m<sup>2</sup> by Site Survey.

The site is developed to contain single residential dwelling house. The subject site plus the three (3) common boundary properties are Land Zoned R2 'Low Density Residential'. The subject site is additionally confirmed to share one (1) boundary with a public roadway.



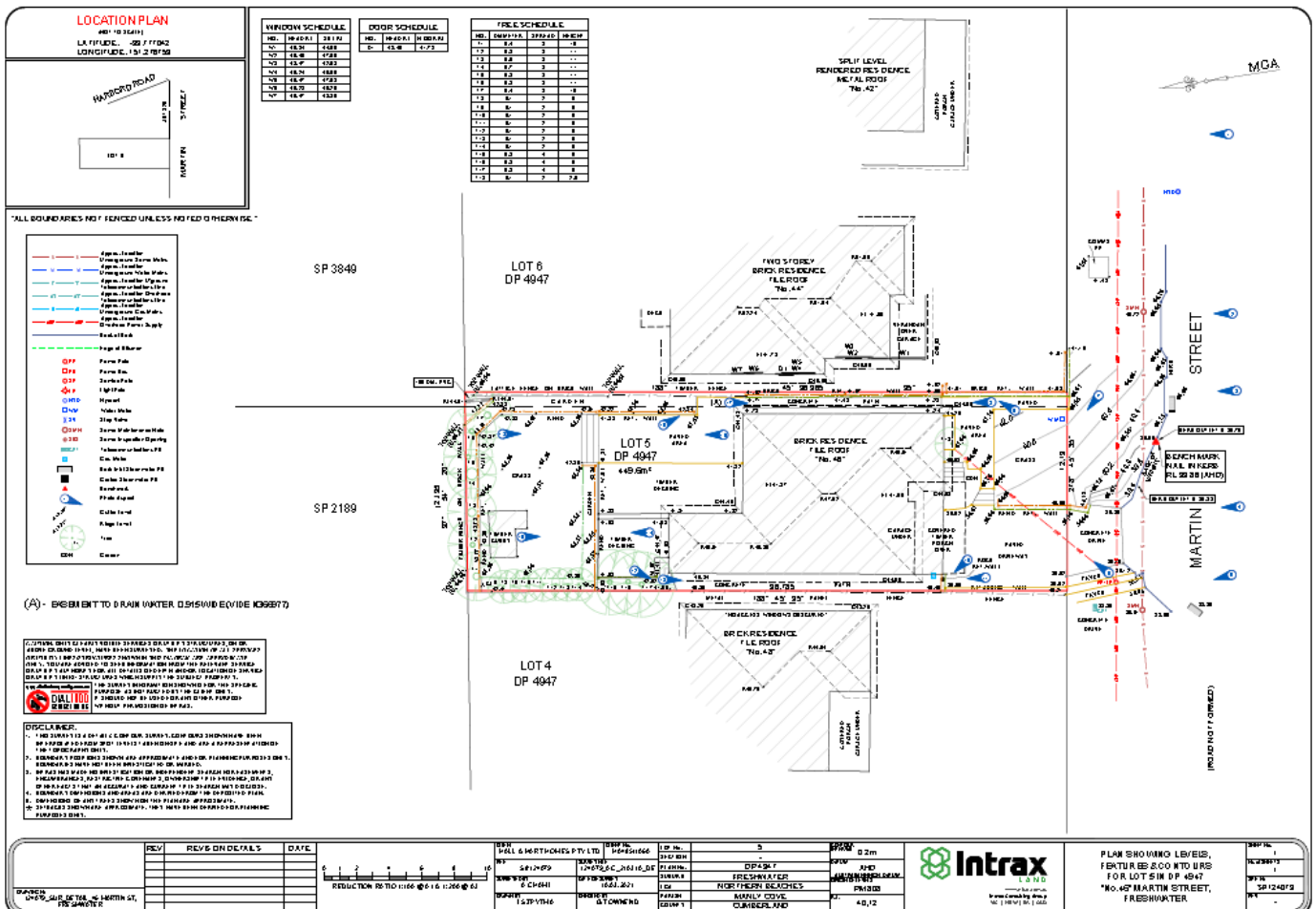
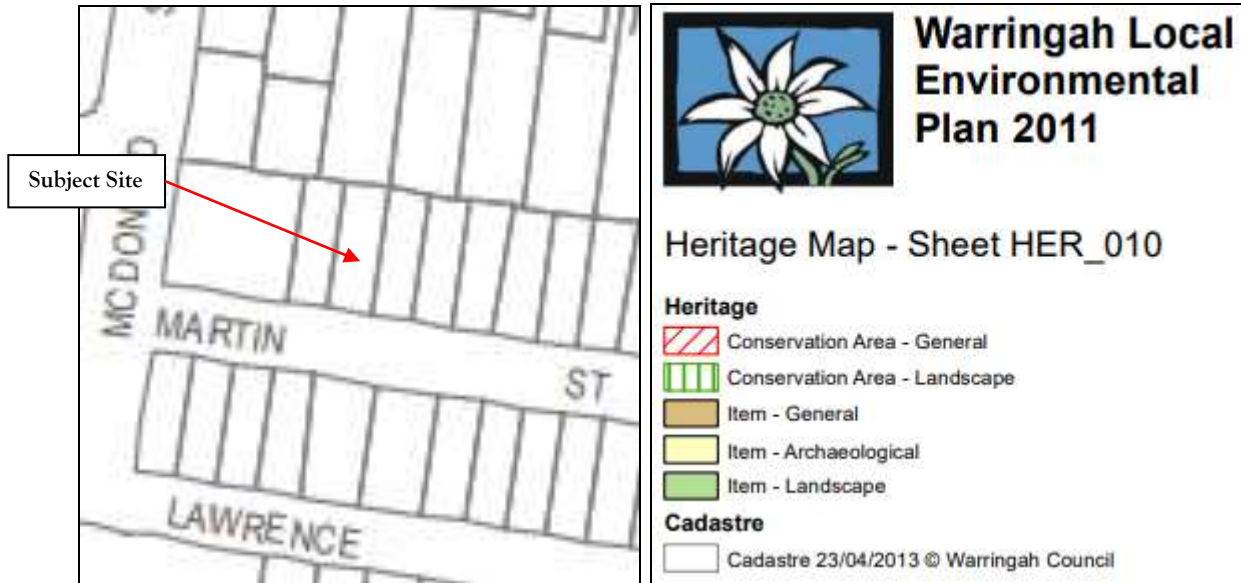
**Figure 1:** Location Map courtesy of NBC website tool & Whereis.com website tool.

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



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



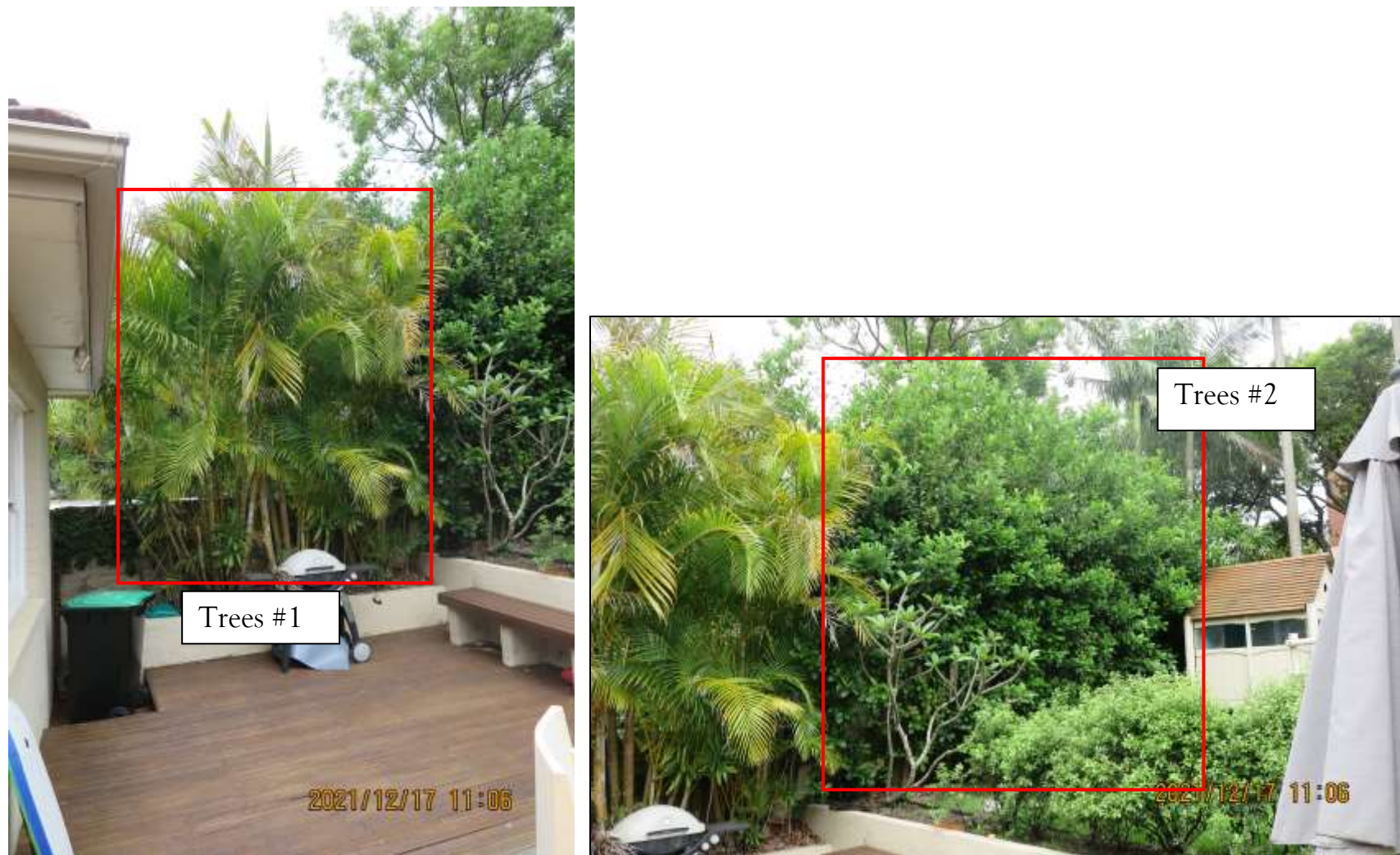


## 4.2 Tree Images



***Figure 3:*** Illustrates location of the discussed trees.





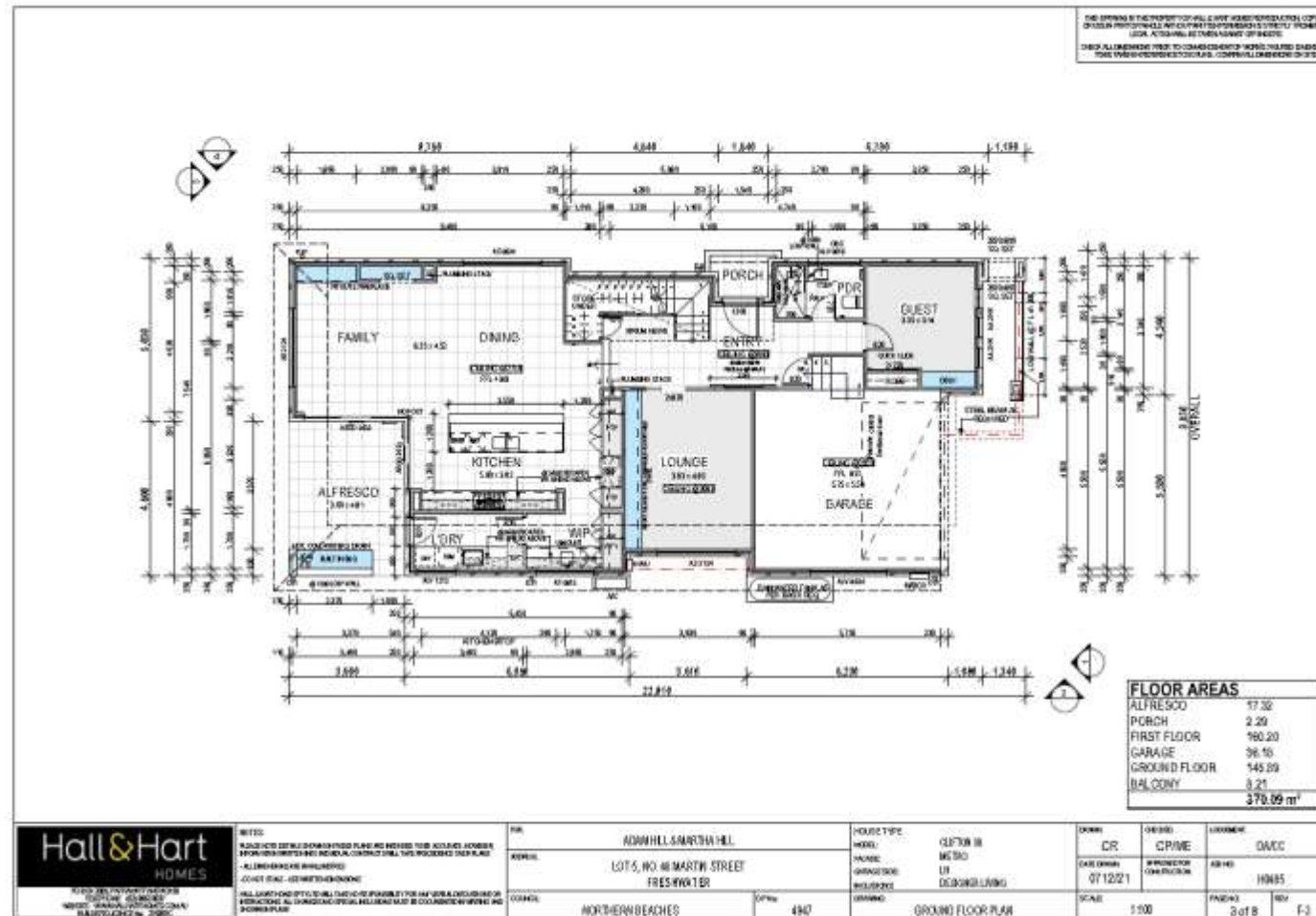
**Figure 4:** Illustrates the condition of two (2) groups of trees discussed.

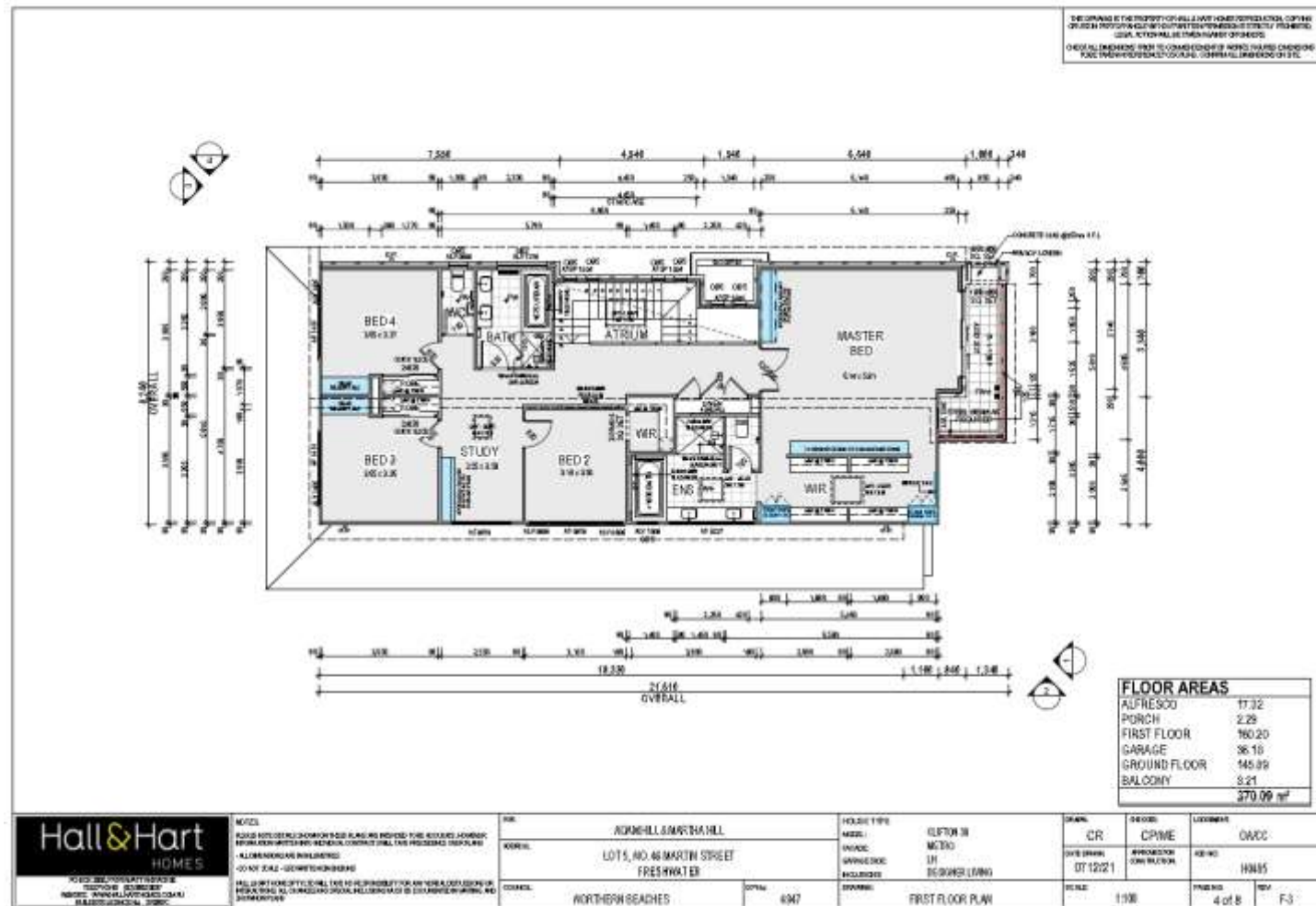
### 4.3 The Trees 'Summary Table'

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 (measured)	TPZ (calculated)	SRZ (calculated)	Age	Health/ Vigour	Retention & Significance Value	Structure/ Form	Comments
1	<i>Dypsis lutescens</i> Golden Cane Palms	<5.00	<2.00 wide, <5.00 (linking canopies)	<0.15	2.00	N/A	M	Good & Good	Moderate/ Moderate	Typical as an informal hedge planting	<b><u>Replace:</u></b> Trees are within/too close to the as proposed new dwelling.
2	<i>Viburnum odoratissimum</i> Sweet viburnum	<6.50	<3.00 wide, <9.00 (linking canopies)	<0.25	3.00	2.00	M	Good & Good	Moderate/ Moderate	Typical as an informal hedge planting	<b><u>Retain:</u></b> Trees (2 of 3) are easily managed by isolating with standard TPZ temporary fencing.

## 4.4 The Proposal











## 4 Discussion

The as proposed new dwelling house is by *Australian Standard (AS4970-2009 Protection of trees on development sites)* able to be supported relative to breaching the discussed trees (2 x groups of) calculated Tree Protection Zone (TPZ) & Structural Root Zone (SRZ) – Sweet Viburnums only radial distances & best Practice Arboriculture Management principles.

As Palms have fibrous roots, only SRZ radial distance for the Sweet Viburnums is calculated. Each tree has a maximum SRZ radial distance of 2.00m. This by the plans referenced will require two (2) to three (3) of the southernmost trees to be replaced. The palms are exempt from protection so require no further discussion.

Sweet Viburnum trees to be retained are specified to be isolated from the proposed works by the installation of standard TPZ temporary metal mesh fencing as close to the TPZ radial distance of three (3.00m) as the site/common boundary with adjoining property allows. See Appendix B.

No canopy pruning is likely to be required. If required, it can only be determined & specified once a DA 'Conditions of Consent' approval has been made. Any pruning specified must be undertaken in total compliance with the *Australian Standard (AS4373-2007 Pruning of amenity trees)* by suitably qualified/experienced persons under suitably qualified/experienced persons instruction (minimum AQF level 3 Arboriculture).

## 6 Preliminary Site Specific 'Tree Plan of Management'

Tree #	Retain, Protect & Manage	Manual Excavation for Root Location	Tree Trunk Guard or Tree Protection Fencing	Construction Certificate Documentation Occupation Certificate Documentation	Comments
Tree Group#1	NO	NO	N/A	NO NO	Trees are exempt species
Tree Group#2	YES	NO	Tree Protection Fencing	YES YES	Two (2) to three (3) most southerly trees are to be retained

## 7 Recommendations:

- Lodge DA as per information provided (Relative to Tree Management).

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,

A handwritten signature in black ink, appearing to read 'Kyle Hill', is centered below the text 'Yours faithfully,'.

Kyle A Hill, Practicing & Consulting Arborist (AQF 15 & 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 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', 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

<b>Age:</b>	<b>I</b>	<i>Immature</i> refers to a refers to a well-established but juvenile tree
	<b>SM</b>	<i>Semi-mature</i> refers to a tree at growth stages between immaturity & full size
	<b>M</b>	<i>Mature</i> refers to a full sized tree with some capacity for further growth
	<b>LM</b>	<i>Late Mature</i> refers to a full sized tree with little capacity for growth that is not yet about to enter decline
	<b>OM</b>	<i>Over-mature</i> refers to a tree about to enter decline or already declining
	<b>LS</b>	<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** 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  $SRZ\ radius = (D \times 50)^{0.42} \times 0.64$ .

**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.  $TPZ = DBH \times 12$ . 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.

<b>LVOHP</b>	Low Voltage Over head Powerlines
<b>HVOHP</b>	High Voltage Over head Powerlines
<b>ABC</b>	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.

