# *Arborist Report*

**Client: ICONFM Australia Pty Ltd**

Address: 1 Larapinta Place,

Glenhaven N.S.W 2156


***Bradley Magus***

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Tafe RTO Provider Number: 90002

# Table of Contents

## *1.0 Executive Summary*

- It is recommended that ICONFM Australia Pty Ltd embark on a management program for fifty nine (59) trees (Trees A1 - A59) before commencement of the proposed building/constructions works as follows:

- It is recommended that Trees A5, (A7 – dead tree in fork union), A10, A11, A12, A17, A18, A23 - A25, A29 – A36, (Dead Tree within A45), A46 & A54 - A58 (23 in total) be removed immediately (before commencement of building works) by a qualified arborist (minimum certificate 2 in arboriculture). It is recommended that professional indemnity and public liability insurances be current and sighted before commencement of works begin. The level of cover has to be one in agreement between ICONFM Pty Ltd and the arborist

- It is recommended that Trees A1 – A4, A6 – A9, A13 – A16, A19 – A22, A26 – A28, A37 – A45, A47 - 53 & A59 (36 in total) be retained and incorporated into the development.

## 2.0 Arborist Details

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| **Bradley Magus**<br><br>**Contact Details:**<br><br>P.O Box 333<br>Newcastle 2300<br>Ph: 0425 203 049<br><br>Email: abacustrees@gmail.com or bradmagus1@bigpond.com<br>Web: www.abacustreeservices.com | **Qualifications**<br><br>1. Diploma Horticulture (1993)<br>2. Bachelor of Horticulture Science (1996)<br>3. Masters Land Economics (2002)<br>4. Diploma Horticulture (Arboriculture) (AQF 5) 2007 (Dux)<br>5. International Society of Arboriculture Certified Arborist (2007)<br>6. QTRA Assessor – 2011 & 2013 |

## 2.1 Introduction

Abacus Tree Services was commissioned by ICONFM Australia Pty Ltd to assist in the preparation of an arborist report. An assessment was made on fifty nine (59) trees located within the confines of 1 Larapinta Place, Glenhaven. There is in total fifty nine (59) trees located at 1 Larapinta Place, Glenhaven that were assessed as per the applicant's instructions.

The purpose of this report is to provide information and guidance to the applicant in relation to fifty nine (59) trees only. The information in this report is to be used in correlation with other reports identified by The Hills Shire Council and will provide The Hills Shire Council with a framework for determining the development application (D.A).

This report and its recommendations are based upon a physical site inspection undertaken on the 14 & 19 June 2019.

The photographs included in this report were taken at the time of the inspection on the 14 & 19 June 2019.

## 2.2 Aims of this report/Procedure

The aim of this report is to assess the health and condition of fifty nine (59) trees (Trees A1 – A59). The condition of the trees was assessed from ground level using the VTA (Visual Tree Assessment) method as outlined by Mattheck & Breloer (1999). The following criteria will be assessed within this report –

- An assessment of the dimensions (age, class, height and Diameter at Breast Height (D.B.H)
- An assessment of the health and condition of the trees;
- An assessment of the Useful Life Expectancy (U.L.E)
- Compilation of an appropriate report detailing the results of the above assessments
- Trees earmarked for retention to be assessed as per Australian Standards 4970-2009
- Hazard Rating, Recommendations for each tree

The (U.L.E) method of tree assessment, as outlined by Jeremy Barrell (1999) has been adopted within this report. U.L.E categories give an indication of the useful life expectancy anticipated for the tree that has been adopted for this report. Several factors are considered in determining this rating such as species, location, age, condition and health of the tree. The five U.L.E categories are outlined in detail within Appendix 2.

## 3.0 Disclaimer

This assessment has been prepared for the exclusive use of the applicant (ICONFM Australia Pty Ltd), for the preparation of a development application submission. Information in this report relates to fifty nine (59) trees within the premises of 1 Larapinta Place, Glenhaven only and should not be used in conjunction with any other property.

This assessment was carried out from the ground, and covers what was reasonably able to be assessed and available to the assessor at the time of the inspection. The assessor carried out no aerial inspections. Information contained in this report covers only the trees that were examined and reflects the condition of the trees at the time of the inspection; furthermore the inspection was limited to a visual examination of the subject trees without dissection, excavation, probing or coring. Trees are living things and there condition will change over time. Therefore there is no guarantee that problems or deficiencies of the subject tree may not arise in the future.

3.1 Site Map

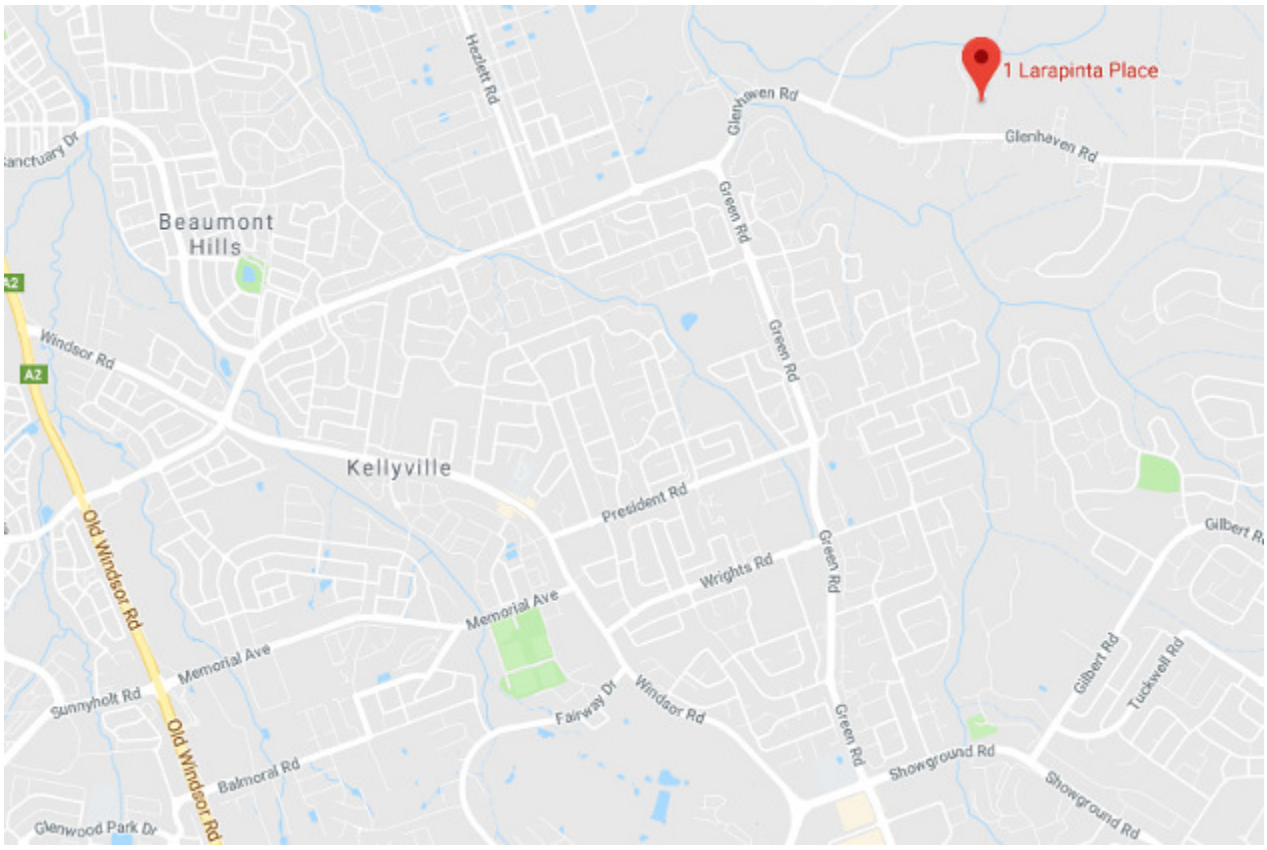


Figure 1
Location: All trees are located within 1 Larapinta Place, Glenhaven
Source: www.googlemaps.com.au

## *3.2 Site Description*

The site is located in the municipality of The Hills Shire Council. The species on site has been assessed against the requirements set out in The Hills Shire Council's Tree Preservation Order. The species on site have been assessed against the requirements set out in The Hills Shire Council's Local Environmental Plan (2012) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2012). All information is assessed per the requirements of the SEPP (State Environmental Planning Policy) Vegetation in Non-Rural Areas 2017. The Hills Shire Council comes under the requirements of SEPP (Vegetation in Non-Rural Areas) as per Part 1 – Section 5. I have assessed the property against Schedule 5 (Environmental Heritage) within The Hills Shire Council LEP. The property is not listed in accordance with Part 1 (Heritage Items) and/or Part 2 (Heritage Conservation Area).

Trees A1 – A59 have also been assessed against The Hills Shire Council (Tree Management Guidelines for Trees on Private Land 2014). The site is set on a flat block that gently slopes to the northern quadrant. The nearest major arterial road is Old Windsor Road to the east. Trees A1 – A59 are located within the subject property identified as 1 Larapinta Place, Glenhaven within close proximity to the subject property & proposed development.

Figure 2 – Location of subject property identified as 1 Larapinta Place, Glenhaven
Source: Google Maps

## *4.0 Tree Schedule*

Species & dimension requirements on Pages 9 - 13. This page intentionally left blank

| Tree No | Scientific Name | Common Name | DBH (MM) | Height (M) | AGE CLASS | Vigour | SPREAD N.E.S.W. | ULE | Comments |
|---|---|---|---|---|---|---|---|---|---|
| T56 | Glochidion ferdinandi | Cheese Tree | 500 | 9 | M | G | 6,4,5,6 | 2a | Symmetrical, LCR = 95 – 100%. No immediate works. Located 7.5 metres to the north entrance of the building. In proposed car park - Remove. Tree T 56 |
| T63 | Allocasuarina torulosa | Forest Oak | 280 | 6 | YM | G | 2,3,3,4 | 2a | Symmetrical, LCR = 95 – 100%. No immediate works. Located 15.1 metres to the north entrance of the building. Potential to retain depending on bushfire requirements |
| T55 | Harpephyllum caffrum | Kaffir Plum | 410,220, 150 | 6 | M | G | 8,5,4,6 | 2a | Trifurcated at ground level, Symmetrical, LCR = 95 – 100%. Located 23.6 metres to the north entrance of the building. On the edge of the proposed car park - Remove. Tree T 55 |
| T53 | Picea albies | Spruce | 235 | 7 | Y | G | 3,3,3,3 | 2a | Symmetrical, LCR = 95 – 100%. No immediate works. Located 25.1 metres to the north entrance of the building. In car park. Remove Tree 53 |
| T54 | Cupressocyparis leylandii | Leighton Pine | 195 | 7 | YM | G | 2,2,2,2 | 2a | Symmetrical, LCR = 95 – 100%. No immediate works. Located 27.8 metres to the north entrance of the building. In car park. Remove Tree 54. |
| T52 | Harpephyllum caffrum | Kaffir Plum | 460 | 6 | M | G | 4,5,5,5 | 2a | Symmetrical, LCR = 95 – 100%. No immediate works. Located 31.1 metres to the north entrance to the building. In car park. Remove Tree 52 |
| T64 | Eucalyptus haemastoma | Scribbly Gum | 370 | 7 | M | G | 1,3,4,1 | 2a | Symmetrical, LCR = 95 – 100%. No immediate works. Located 26.9 metres to the north entrance of the building. Has the potential to be retained depending on the bushfire requirements. |
| T65 | Allocasuarina torulosa | Black Sheoak | 235 | 7.5 | M | G | 4,2,2,2 | 2d | Symmetrical, LCR = 95 – 100%. No immediate works. Located 29.4 metres to the north entrance of the building. Has the potential to be retained depending on the bushfire requirements. |
| A1 | Angophora bakeri | Narrow Leaved Apple | 305 | 9 | M | G | 6,5,2,2 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 30 – 40 metre APZ. |
| A2 | Allocasuarina torulosa | Black Sheoak | 155 | 8 | M | G | 3,2,3,2 | 3d | Symmetrical, LCR = 95 – 100%. Symmetrical, LCR = 95 – 100%. Located in the 30 – 40 metre APZ. |
| A3 | Allocasuarina torulosa | Black Sheoak | 190 | 9 | M | G | 2,3,2,2 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 30 – 40 metre APZ. |
| A4 | Allocasuarina torulosa | Black Sheoak | 190 | 8 | M | G | 3,1,2,3 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 30 – 40 metre APZ. |
| A5 | Allocasuarina torulosa | Black Sheoak | 230 | 7.5 | M | P | 4,2,1,3 | 4a | Tree A5 has a branch failure at 3 metres above ground level. Short ULE, Symmetrical, LCR = 85 – 90% Remove Tree |
| A6 | Allocasuarina torulosa | Black Sheoak | 240 | 8 | M | G | 5,7,6,4 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 30 – 40 metre APZ. |

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| A7 | Eucalyptus haemastoma | Scribbly Gum | 420 | 10 | M | G | 5,4,3,7 | 2d | Dead Acacia resting in fork of the tree. Symmetrical, LCR = 95 – 100%. Located in the 30 – 40 metre APZ. Trunk decay noted to NE at ground level. Prune dead tree in fork union of Tree A7. Retain Tree A7 |
| A8 | Eucalyptus haemastoma | Scribbly Gum | 470 | 10 | M | G | 5,7,6,4 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 40 - 50 metre APZ. White rot noted in the SW section of the trunk at 4.5 metres above ground level. Located in the 30 – 40 metre APZ. |
| A9 | Allocasuarina torulosa | Black Sheoak | 270 | 8 | M | F | 4,3,3,4 | 3d | Symmetrical, LCR = 85 – 90%, MDW in all four quadrants. Located in the 40 - 50 metre APZ. |
| A10 | Acacia decurrens | Black Wattle | 160 | 8.5 | M | F | 2,3,3,2 | 3d | Borers noted in the trunk, short lived species. Top end of maturity. Located in the 40 - 50 metre APZ. Remove Tree A 10 |
| A11 | Acacia decurrens | Black Wattle | 195 | 9 | M | F | 2,1,2,2 | 3d | Symmetrical, LCR = 90 – 95%, Short lived species Located in the 40 - 50 metre APZ. Remove Tree A 11 |
| A12 | Acacia decurrens | Black Wattle | 110 | 7 | M | F | 1,0,3,3 | 3d | Symmetrical, LCR = 85 – 90%. Tropism to W quadrant. Located in the 40 - 50 metre APZ. MDW in all four quadrants. Remove Tree A 12. |
| A13 | Allocasuarina torulosa | Black Sheoak | 120,100 | 9 | M | F | 2,3,0,2 | 3d | Bifurcated at 1.3 metres above ground level, Symmetrical, LCR = 95 – 100%. . Located in the 40 - 50 metre APZ. Bifurcated at 1.3 metres above ground level. |
| A14 | Allocasuarina torulosa | Black Sheoak | 310 | 8 | M | G | 4,4,7,3 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A15 | Eucalyptus haemastoma | Scribbly Gum | 420,390, 570,370 | 10 | M | F | 7,7,9,5 | 3d | Noted decay in the four leaders, LDW in all four quadrants. Symmetrical, LCR 85 – 90% |
| A16 | Allocasuarina torulosa | Black Sheoak | 220 | 9 | M | G | 2,1,1,1 | 2d | Branch failure at 4 metres above ground level. Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A17 | Allocasuarina torulosa | Black Sheoak | 420 | 7.5 | M | P | 4,4,6,3 | 4a | Asymmetrical, LCR = 80 - 85% Top end of maturity. Short lived species. Located in the 50 - 60 metre APZ. Remove Tree A 17 |
| A18 | Allocasuarina torulosa | Black Sheoak | 215 | 7.5 | M | P | 4,2,4,5 | 4a | Apical dominant leader is dead. Upper third of quadrant is dead. Symmetrical, LCR = 50 – 55%. Located in the 50 - 60 metre APZ. Remove Tree A 18 |
| A19 | Allocasuarina torulosa | Black Sheoak | 100 | 7.5 | YM | G | 1,1,2,2 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |
| A20 | Angophora bakeri | Narrow Leaved Apple | 205 | 6 | M | G | 2,4,3,1 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |
| A21 | Angophora bakeri | Narrow Leaved Apple | 310 | 10 | M | G | 4,4,4,2 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |
| A22 | Allocasuarina torulosa | Black Sheoak | 150 | 7 | M | G | 2,2,2,1 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |

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| A23 | Acacia decurrens | Black Wattle | 110 | 8.5 | M | F | 2,2,1,2 | 3d | Extensive kino exudation, Active borers. Short lived species at the top end of maturity. Remove Tree A 23 |
| A24 | Angophora bakeri | Narrow Leaved Apple | 230 | 12 | M | G | 3,2,2,2 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. |
| A25 | Acacia decurrens | Black Wattle | 125 | 8 | M | P | 2,1,2,2 | 4a | Upper two thirds of the canopy is dead. Short lived species in poor condition. Remove Tree A 25 |
| A26 | Acacia decurrens | Black Wattle | 180 | 10 | M | G | 4,3,2,2 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. |
| A27 | Acacia decurrens | Black Wattle | 90 | 9 | M | G | 2,1,1,1 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. |
| A28 | Eucalyptus haemastoma | Scribbly Gum | 440 | 7.5 | M | G | 4,6,6,7 | 2d | Decay in trunk to the SW quadrant at 1.5 metres above ground level. Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. |
| A29 | Acacia decurrens | Black Wattle | 160 | 10 | M | G | 5,3,1,3 | 3d | Tropism to the N quadrant. Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. |
| A30 | Acacia decurrens | Black Wattle | 210 | 11 | M | P | 3,4,4,1 | 4a | Tropism to the N quadrant. Symmetrical, LCR = 80 - 85%. Located in the 70 – 80 metre APZ. Remove Tree A 30 |
| A31 | Acacia decurrens | Black Wattle | 110 | 8.5 | M | F | 3,2,0,1 | 3d | Located in the 70 – 80 metre APZ. Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. Remove Tree A 31 |
| A32 | Eucalyptus haemastoma | Scribbly Gum | 430 | 10 | M | G | 6,4,4,5 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 80 – 90 metre APZ. |
| A33 | Acacia decurrens | Black Wattle | 145 | 9 | M | G | 4,3,2,2 | 3d | MDW in all four quadrants. Symmetrical, LCR = 95 – 100%. Located in the 80 – 90 metre APZ. |
| A34 | Acacia decurrens | Black Wattle | 135 | 9 | M | G | 3,2,2,2 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 80 – 90 metre APZ. |
| A35 | Acacia decurrens | Black Wattle | 175 | 9 | M | G | 4,2,3,3 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 80 – 90 metre APZ. |
| A36 | Eucalyptus haemastoma | Scribbly Gum | 510,490 | 10 | M | G | 7,6,3,5 | 2d | Prune LDW to W at 4 metres above ground level. Decay noted in the trunk near ground level. Symmetrical, LCR = 95 – 100%. Located in the 80 – 90 metre APZ. |
| A37 | Eucalyptus haemastoma | Scribbly Gum | 430 | 9 | M | G | 2,4,4,3 | 2d | Extensive Kino exudation. Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. |
| A38 | Eucalyptus haemastoma | Scribbly Gum | 350,260 | 9 | M | G | 5,6,1,1 | 2d | Decay in both leaders to 1 metre above ground level. Bifurcated at ground level. Symmetrical, LCR = 95 – 100%. Located in the 70 – 80 metre APZ. |
| A39 | Eucalyptus haemastoma | Scribbly Gum | 330 | 6 | M | F | 7,5,2,0 | 2d | Decay noted at trunk near ground level. Tropism to N quadrant. Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |

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|---|---|---|---|---|---|---|---|---|---|
| A40 | Eucalyptus haemastoma | Scribbly Gum | 380,415 | 10 | M | G | 7,4,1,5 | 2d | Extensive decay to the NW quadrant. Prune LDW to the W quadrant. Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |
| A41 | Eucalyptus (hybridized) species* | Eucalyptus species | 510 | 8.5 | M | G | 5,5,6,3 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |
| A42 | Eucalyptus (hybridized) species* | Eucalyptus species | 430 | 9 | M | G | 2,5,7,4 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 60 – 70 metre APZ. |
| A43 | Eucalyptus (hybridized) species* | Eucalyptus species | 220 | 5 | SM | G | 0,7,0,0 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A44 | Eucalyptus (hybridized) species | Eucalyptus species | 290 | 9 | YM | G | 6,5,5,2 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A45 | Eucalyptus (hybridized) species* | Eucalyptus species | 290 | 8 | YM | G | 6,6,1,2 | 2d | Tropism to the NE quadrant. Casuarina has failed from ground level and is resting in Tree A 45. Remove the dead Casuarina in order to retain Tree A 45 |
| A46 | Eucalyptus (hybridized) species* | Eucalyptus species | 160 | 5 | YM | P | 0,0,0,0 | 2d | Dead Tree. No leaves and deadwood only in all four quadrants. Remove dead tree. A 46. Located in the 50 - 60 metre APZ. |
| A47 | Eucalyptus (hybridized) species* | Eucalyptus species | 220 | 6.5 | YM | G | 3,5,1,0 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A48 | Eucalyptus (hybridized) species | Eucalyptus species | 180,250, 260 | 8.5 | M | G | 6,4,3,1 | 2d | Bifurcated at ground level. Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A49 | Allocasuarina torulosa | Black Sheoak | 150 | 6.5 | YM | G | 2,3,2,3 | 3d | Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A50 | Eucalyptus (hybridized) species* | Eucalyptus species | 295 | 9 | YM | G | 6,5,1,2 | 2d | Minor asymmetry, Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A51 | Eucalyptus (hybridized) species* | Eucalyptus species | 240 | 7 | YM | G | 2,6,3,0 | 2d | Tropism to the E quadrant. Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A52 | Eucalyptus (hybridized) species* | Eucalyptus species | 280 | 8 | YM | G | 5,4,2,6 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A53 | Acacia decurrens | Black Wattle | 130 | 7 | M | G | 3,3,1,1 | 2d | Symmetrical, LCR = 95 – 100%. Located in the 50 - 60 metre APZ. |
| A54 | Allocasuarina torulosa | Black Sheoak | 360 | 10 | M | F | 4,3,1,1 | 3d | Sparse canopy, bifurcated at 2 metres above ground level, one of the main leaders has failed at 3 metres above ground level. Remove Tree A 54 |
| A55 | Acacia decurrens | Black Wattle | 195 | 11 | M | G | 5,3,3,3 | 3d | Top end of maturity, Extensive borer activity. Symmetrical, LCR = 85 – 90%. Located in the 40 - 50 metre APZ. Remove Tree A 55 |
| A56 | Banksia ericifolia | Candlestick Banksia | 230 | 7.5 | M | F | 3,4,1,1 | 3d | Moderately sparse canopy entering into an over mature phase. Symmetrical, LCR = 60 - 65%. Located in the 40 - 50 metre APZ. Remove Tree A 56 |

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|---|---|---|---|---|---|---|---|---|---|
| A57 | Banksia ericifolia | Candlestick Banksia | 190 | 7.5 | OM | P | 3,4,1,1 | 4a | Symmetrical, LCR = 35 – 40%, over mature species. Located in the 50 - 60 metre APZ. Remove Tree A 57 |
| A58 | Acacia decurrens | Black Wattle | 140 | 8 | OM | P | 0,0,0,0 | 4a | Dead Tree. LCR = 0%. Located in the 50 - 60 metre APZ. Remove Tree A 58 |
| A59 | Eucalyptus haemastoma | Scribbly Gum | 495,340, 440 | 12 | M | G | 10,10,9,11 | 2d | Decay in trunk to 0.7 metres above ground level. Active termites in trunk to central leader. Located in the 60 – 70 metre APZ. |

***Key:***

Age class: Young = Y, Semi mature = SM, Mature = M, YM = Young Mature, Over mature = OM
DBH = Diameter at Breast Height LCR = Live Crown Ratio
Vigour = Excellent = E, Good = G, Fair = f, Poor = P
LDW = large deadwood over 40mm, MDW = Minor deadwood less than 40mm
N= north, E = east, W = west, S = south MS = multiple Stems
ULE = Useful Life Expectancy (See appendix 2 for guidelines)
MS = Multiple Stems
THSC = The Hills Shire Council APZ = Asset Protection Zone
* = See conclusions (Page 27)

## *4.1 Trees & Impact on Development*

Trees are living organisms and their root systems play an integral role in stability and providing nutrient storage as well as water uptake. The majority of tree roots for Dicotyledons occur within the first metre of the soil. Therefore construction works can have a profound effect on their health and longevity as well as their structural stability. Tree distances from excavation works must be taken into consideration at the planning stage to ensure that the tree is not damaged.

There are several main factors that occur at the construction phase that can have a negative impact on the trees health and stability. These practices can include but are not limited to –

- Parking of vehicles and heavy machinery within the drip line of the tree.
- Stockpiling of materials within the drip line of the tree.
- Excavating within the drip line and damaging the structural root system.
- Raising soil levels in and around the base of the tree therefore reducing the trees ability for gaseous exchange.
- Damage to the tree due to heavy machinery and equipment resulting in large bark tears or loss of branches and scaffolds.

To reduce the effects of construction it is imperative to provide an area underneath the tree where no works are undertaken. The area where supervised works are undertaken is referred to as the structural root zone (SRZ). The S.R.Z is an area where no to minimal activities listed above should occur. All trees require a S.R.Z and will vary from species to species but for the purposes of this report the Australian Standards 4970 has now been adopted.

In conclusion the Australian Standards like similar methods for protecting trees is only a guide. To ensure the health and longevity of trees within construction sites it is imperative to provide a large protection zone taking into consideration that the tree will also grow over time. The greater area that can be put aside where no works occur will aid in the preservation of the tree. The activities listed above should be kept to a minimum and encroachment within the SRZ will require the supervision by a qualified AQF 5 arborist. These impacts will be taken into consideration in the discussion & recommendations section of this report.

## *5.0 Discussion & Compliance to Australian Standards 4970 – 2009, 4373 – 2007 & Rural Fire Service (RFS) 10:50 Code*

Abacus Tree Services has been approached by ICONFM Australia Pty Ltd to undertake an arborist (assessment) report on trees within the bushfire asset protection zone (0 - 85 metres). This includes trees within the 0 - 85 metre asset protection zone as outlined by the bushfire consultant. Abacus Tree Services assessed trees to the north of the proposed building. This included eight (8) trees from the original arborist report prepared by Abacus Tree Services on the 4 June 2018. There were fifty nine (59) trees that were assessed to the north of the proposed car park within the bushland zone. Trees 1 – 59 have been assessed and tagged as Trees A1 – A59. Trees A1 – A 59 are located wholly within 1 Larapinta Place, Glenhaven. Trees A1 – A59 are highlighted in Appendix 1 This report is to be read in conjunction with the arborist report prepared by Abacus Tree Services on the 4 June 2018.

Abacus Tree Services has relied upon the sketch drawings provided by Sydney Registered Surveyors (Plan reference – 3940 Larapinta 1) to formulate distances and setbacks in relation to proposed asset protection planning. I have relied upon this information to be true and accurate.

Figure 3 – showing the location to the north entrance of the building followed by the car park to the north. The entrance is highlighted in red. Ten metre intervals were taken from the north entrance of the proposed development.

Trees T 52 – 56, & 63 – 65 have already been inspected within the grounds of 1 Larapinta Place, Glenhaven. These trees have been re-assessed to determine their viability and proximity to the proposed building in order for the bushfire consultant to make their assessment. These trees have all been outlined with their distance to the north entrance of the development. Trees 52 - 56 require removal due to the proposed car park. These species are the front line trees and are the first row of trees to the car park and proposed building. These species would benefit from removal due to their proximity to the proposed development. Trees T63 – 65 are all within 30 metres to the proposed north entrance of the building. These trees could be retained and incorporated into the development subject to bushfire requirements.

Tree A5 has a branch failure at 3 metres above ground level and is a short lived species. This type of species are considered pioneer species that are located in disturbed sites. One of their roles is to establish a seedbank and allow bigger species to get established. This species is earmarked for removal before commencement of building works on site.

Figure 4 – showing the branch failure that has removed a section of the trunk. This species would not be suitable to long term retention.


Figure 5 – showing the location of Tree A7 in the bushland zone of the subject property. This species like all the Eucalyptus haemastoma in the surveyed area have decayed sections and cankers. This tree has the potential to be retained and incorporated into the development.

Tree A7 if retained would benefit from removing the dead tree in the fork union. The other tree has partially failed and is resting in the fork union of Tree A7. It would be beneficial to remove the fallen tree before commencement of building works on site.

Tree A10 is at the top end of its maturity with extensive borers within the trunk and the main scaffolds of the tree. This species has a short life span and is reduced dramatically by the borer activity. This species has been earmarked for removal before commencement of building works on site.

Figure 6 – showing the borer activity that is evident in Tree A10. This species has been earmarked for removal before commencement of building works on site.

Tree A11 is at the top end of its maturity with extensive borers within the trunk and the main scaffolds of the tree. This species has a short life span and is reduced dramatically by the borer activity. This species has been earmarked for removal before commencement of building works on site.

Tree A12 is at the upper end of its maturity with deadwood in all four quadrants. This species has a thinning canopy and is entering into a senescent phase. This species has a short life span and is reduced dramatically by the borer activity. This species has been earmarked for removal before commencement of building works on site.

Tree A17 is at the upper end of its maturity with deadwood in all four quadrants. This species has a thinning canopy and is entering into a senescent phase. This species has a short life span and is reduced dramatically by the borer activity. This species has been earmarked for removal before commencement of building works on site.

Figure 7 – showing the location of Tree A12 that is at the top end of its maturity. This species and several others on site are at the top end of maturity and have been earmarked for removal.

Tree A18 is in an over mature phase with a live crown ratio of 50 – 55%. The upper third of the canopy is dead with minor deadwood in all four quadrants. This species has been earmarked for removal before commencement of building works on site.

Tree A23 is at the top end of its maturity with extensive borers within the trunk and the main scaffolds of the tree. This species has a short life span and is reduced dramatically by the borer activity. This species has been earmarked for removal before commencement of building works on site.

Tree A25 is in an over mature phase with the upper two thirds dead with minor deadwood in all four quadrants. This species is in poor condition and would benefit from removal before commencement of building works on site.

Tree A30 is in an over mature phase with the upper two thirds dead with minor deadwood in all four quadrants. This species is in poor condition and would benefit from removal before commencement of building works on site.

Tree A31 is in an over mature phase with the upper two thirds dead with minor deadwood in all four quadrants. This species is in poor condition and would benefit from removal before commencement of building works on site.

Figure 8 – There is an unsealed road that extends into the subject property with a fallen tree along the path. There are several weed species including Lantana camara. This area could be managed including removal of the fallen tree and weed species. This could also include removal of selective species to reduce the canopy and extend the distance to the bush interface to the north.

Tree A45 could be retained unless required to be removed for the purposes of asset protection. Tree A5 has a partially fallen Casuarina that is resting in the fork union of the tree. The failed tree is resting in the tree as outlined in Figure 9. The casuarina that has fallen into Tree A45 has been earmarked for removal before commencement of building works on site.


Figure 9 – showing the location of Tree A45 in relation to the dead tree. The dead tree would benefit from removal in order to preserve Tree A45 on the proviso that it meets bushfire requirements.

Tree A46 is a dead tree and has been earmarked for removal before commencement of building works on site.

Tree A54 has a short life span due to the failure that has occurred to one of the two central scaffolds. Tree A54 has had a branch failure occur to the trunk at 3 metres above ground level. This species also has a sparse canopy and has a short life span. This species has been earmarked for removal before commencement of building works on site.

Figure 10 – showing the partially failed leader that has occurred to Tree A54. This species has been earmarked for removal before commencement of building works on site.

Tree A55 is at the top end of its maturity with extensive borer activity. This species has a moderately sparse canopy and will soon enter into an over mature phase. This species has been earmarked for removal before commencement of building works on site.


Figure 11 – showing the sparse canopy associated with Tree A55. This species is short lived (0 – 5 years) and would benefit from removal. This species has been earmarked for removal before commencement of building works on site.

Tree 56 & A57 have a moderately sparse canopy and are entering into an over mature phase. Trees A56 & A57 have a reduced canopy cover and a live crown ratio of 60 – 65%. Trees A56 & A57 have been earmarked for removal due to their short life span and poor condition. This species has been earmarked for removal before commencement of building works on site.

Tree A58 is a dead tree that would benefit from removal when the other trees are being removed for the bushfire asset protection. This species has been earmarked for removal before commencement of building works on site.

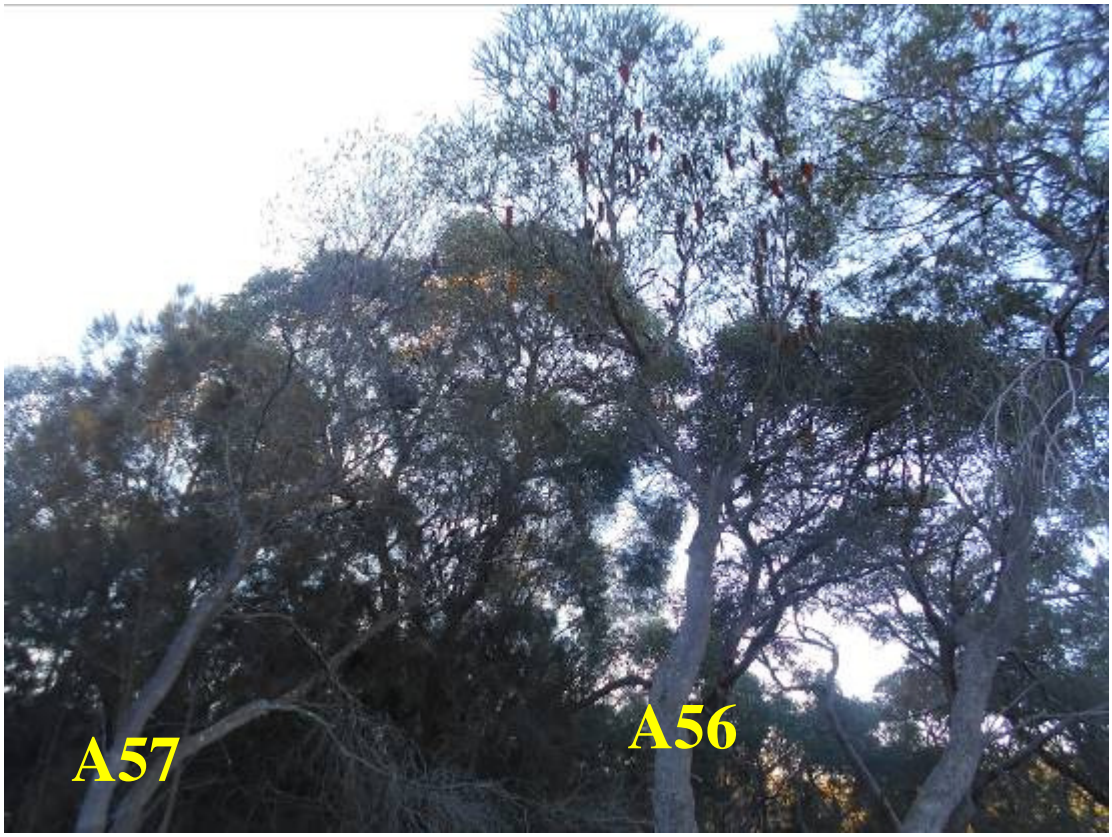



Figure 12 – showing the location of Trees A56 & A57. Both these species have entered into an over mature phase and are earmarked for removal before commencement of building works on site.

## 6.0 Conclusions

- Abacus Tree Services has been approached by ICONFM Australia Pty Ltd to undertake an arborist (assessment) report on trees within the bushfire asset protection zone (0 - 85 metres). This includes trees within the 0 - 85 metre asset protection zone as outlined by the bushfire consultant. Abacus Tree Services assessed trees to the north of the proposed building. This included eight (8) trees from the original arborist report prepared by Abacus Tree Services on the 4 June 2018. There were fifty nine (59) trees that were assessed to the north of the proposed car park within the bushland zone. Trees 1 – 59 have been assessed and tagged as Trees A1 – A59. Trees A1 – A59 are located wholly within 1 Larapinta Place, Glenhaven. Trees A1 – A59 are highlighted in Appendix 1 This report is to be read in conjunction with the arborist report prepared by Abacus Tree Services on the 4 June 2018.

- 10 metre intervals were marked from the north entrance of the building. The north entrance of the building is outlined in Figure 3. Trees were then assessed and placed within the 10 metre intervals from 0 – 10, 10 – 20, 20 – 30, 30 – 40, 40 – 50, 50 – 60, 60 – 70, 70 – 80 & 80 – 85. These intervals have been outlined for Trees A1 – A59 within the tree schedule. Trees A1-A59 are outside of the proposed car park and development envelope. These trees have been assessed for the purposes to outline species with low retention value to be removed within the APZ. The purpose of this report is to outline species that have short useful life spans within the APZ. The species with short useful life spans have been earmarked for removal.

- The site is located in the municipality of The Hills Shire Council. The species on site has been assessed against the requirements set out in The Hills Shire Council's Tree Preservation Order. The species on site have been assessed against the requirements set out in The Hills Shire Council's Local Environmental Plan (2012) pursuant to Section 5.9 & 5.9AA (repealed) & Development Control Plan (2012). All information is assessed per the requirements of the SEPP (State Environmental Planning Policy) Vegetation in Non-Rural Areas 2017. The Hills Shire Council comes under the requirements of SEPP (Vegetation in Non-Rural Areas) as per Part 1 – Section 5. I have assessed the property against Schedule 5 (Environmental Heritage) within The Hills Shire Council LEP. The property is not listed in accordance with Part 1 (Heritage Items) and/or Part 2 (Heritage Conservation Area).

- The subject property identified as 1 Larapinta Place, Glenhaven is located in a Rural Fire Service (RFS) 10:50 area. Therefore all trees have been assessed in accordance with council requirements with no exemptions under RFS 10:50 legislation. The search was undertaken on the 21 June 2019. Rules and regulations in relation to the RFS 10:50 can change and it is therefore up to the applicant to ensure they comply with the 10:50 code and any updates that may occur.

- There are several Acacia decurrens on site that are indicative of a disturbed site. This type of species have a shorter life span compared to Eucalyptus species or several other species within the subject allotment. There are several Acacia decurrens that are at the top end of maturity and/or over mature. The species as a whole are short lived species and several of these trees will come into an over mature phase within the next 5 years.

- Trees that are considered in poor health and condition with a shorter life span have been earmarked for removal. Removing these trees will have the effect of reducing the overall canopy within the APZ. Trees that have been earmarked for removal due to their shorter life span include A5, A7 – dead tree in fork union, A10, A11, A12, A17, A18, A23, A25, A30, A31, Dead Tree within A45, A46, A54, A55, A56, A57 & A58. There is in total sixteen (16) trees that are in poor health and condition and/or have a sort life span and have been earmarked for removal before commencement of building works on site. There are several other smaller species that are less than 5 metres in height that are dead and would benefit from removal. It is envisaged that Trees A7 and A45 will be retained and only the dead trees removed from the canopy. Therefore I have not included these trees for removal within the APZ.

- Trees A1 – A4, A6 – A9, A13 – A16, A19 – A22, A24, A26 – A29, A32 – A44, A47 – A53 & A59 (42 in total) have the potential to be retained and incorporated into the development on the proviso that they meet the requirements of the RFS 10:50 Code and any requirements set out within the bushfire report.

- There are several other dead trees within the subject property that do not come under council requirements. Removing these trees would benefit from removal due to being within the 85 metre asset protection zone. These trees are smaller trees in the APZ. They are primarily less than 5 metres in height and are small dead Acacia decurrens.

- There is an unsealed road that extends into the subject property as outlined in Figure 8. There are several species either side of the unsealed internal road. This includes Trees A24, A29, A31 & A32 – 36 (8 in total). Removing these trees would break up part of the canopy area in this zone. This would provide an estimated area of 15 metres along the internal road devoid of tree canopy. This small section of the internal road would then have a spatial separation of an estimated 15 metres once these trees were removed.

- Trees T52 – 56, T63, T64 & T65 were originally assessed in the previous arborist report prepared by Abacus Tree Services. These trees have been assessed according to the APZ. Several of the trees require removal in order to construct the proposed car park. These trees include T52 – 56 (5 in total) that will need removal for the proposed car park and will also provide a buffer to the proposed building. Trees T63 – T65 could be retained as they are outside of the proposed development and associated car park. These trees are within the 0 – 10 metre APZ and may benefit from removal before commencement of building works on site. I have left them out for removal however the bushfire consultant may want these removed due to their proximity to the proposed development.

- It is noted that there were several species that required assessment from the herbarium to determine if they were Eucalyptus cattai. Eucalyptus cattai is a threatened species of the Cumberland Vegetation. The species has been identified by the herbarium as a hybrid species but not Eucalyptus cattai. This species identified as A41 - A48 & A50 – A52 (11 in total) do not come under the threatened species as outlined by Sydney Herbarium. One of these trees is outlined for removal as it is dead (Tree A46) tree. All other trees in this stand have been earmarked for retention depending on the requirements of the bushfire report.

- Protection fencing for the native bushland has been considered. This includes providing protection fencing to this section of the site after tree removal has taken place. The trees to the north of the proposed car park will require retention in accordance with Australian Standards 4970 – 2009. Providing protection fencing before commencement of building works will alleviate damage to the trees during the construction phase.

## *7.0 Recommendations*

- It is recommended that ICONFM Australia Pty Ltd embark on a management program for fifty nine (59) trees (Trees A1 - A59) before commencement of the proposed building/constructions works as follows:

- It is recommended that Trees A5, (A7 – dead tree in fork union), A10, A11, A12, A17, A18, A23 - A25, A29 – A36, (Dead Tree within A45), A46 & A54 - A58 (23 in total) be removed immediately (before commencement of building works) by a qualified arborist (minimum certificate 2 in arboriculture). It is recommended that professional indemnity and public liability insurances be current and sighted before commencement of works begin. The level of cover has to be one in agreement between ICONFM Pty Ltd and the arborist

- It is recommended that Trees A1 – A4, A6 – A9, A13 – A16, A19 – A22, A26 – A28, A37 – A45, A47 - 53 & A59 (36 in total) be retained and incorporated into the development.

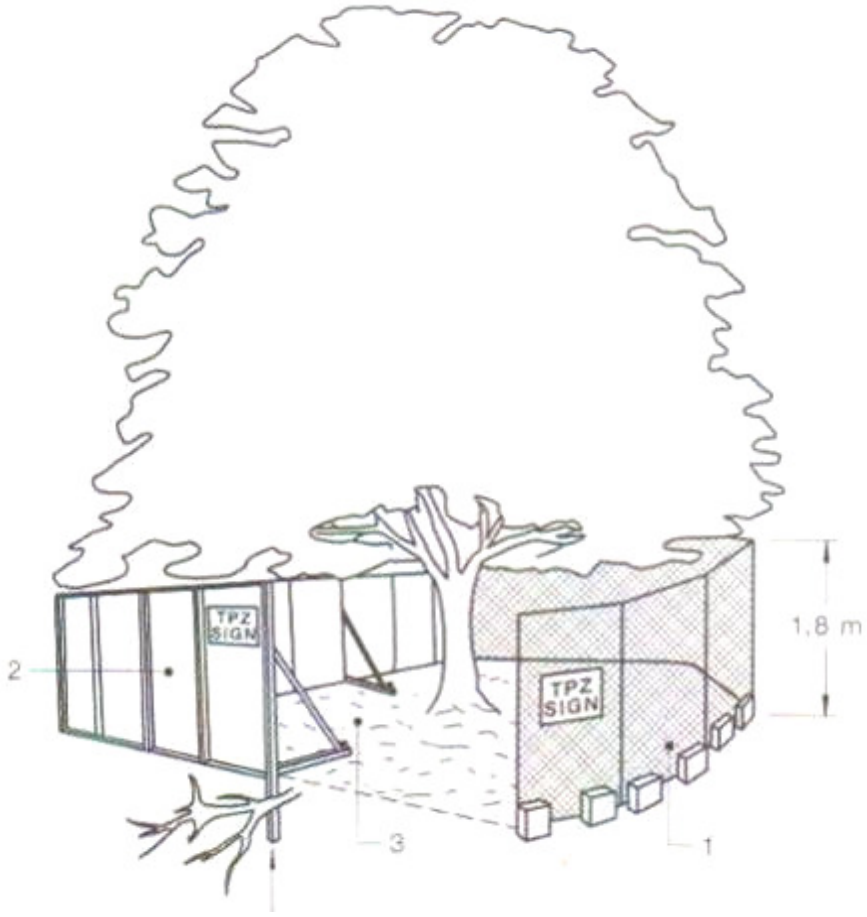
- It is recommended that protection measures be put in place that aid in the preservation of Trees A1 – A59 1 (59 in total) and the remaining trees within the area north of the proposed development. It is recommended that 1.8 metre inter locking chain wire fencing be installed before commencement of building works on site as indicated in Figure 13. Protection fencing is to be installed 2 metres from the proposed car park. The fencing is to be erected from the east to the western boundaries of the site a maximum of 2 metres from the proposed car park. The protection fencing is to be erected before commencement of building works and remain in place until the release of the occupation certificate. Designated zones are to be established in order for tree removal to take place and minimise damage to the existing vegetation. Machinery and trucks are to be set up along the internal road that separates the two sections of the bushland from the east to the west. Existing internal tracks are to be used at all times and under no circumstances is the machinery to be set up and used within TPZ of retained trees.

- It is recommended that all civil contractors that enter the site are made aware of the importance of preserving Trees A1 – A59 and understand the tree protection measures that are put in place to preserve Trees A1 – A59.

- All stockpile sites to be maintained to the south of the protection fencing outside of the APZ. All stock pile sites are to be designated within the southern portion of the site.

- It is recommended that all parking of vehicles and machinery be kept outside of the fenced area for the duration of the construction works. All machinery that is used to remove trees within the native bushland prior to construction works will need to be set up from within the internal road that is situated towards the middle of the bushland from retained trees during construction works and the side access road as indicated in Figure 8. .

- This report is not for publication to the internet and submission of this report in the submission phase set out by Council is to be taken down upon completion of the development application.




- Figure 13 – showing the proposed fencing that is to be put in place before the commencement of building works on site. The fencing is to be erected 2 metres from the proposed car park extending the east to western boundaries of the subject property.
  Source: Australian Standards 4970 - 2009

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Diploma in Horticulture (Arboriculture) (AQF 5) (Dux)
Bachelor of Horticulture Science

## *8.0 References*

AS4373-2007 Pruning of Amenity Trees. Standards Australia

AS 4970 – 2009 Protection of trees on development sites

Clark R.J & Matheny N (1998) Trees & Development – A technical guide to Preservation of trees during land development: International Society of Arboriculture

Mattheck C., Breloer, (1999) The Body Language of Trees – a handbook for failure analysis 5th ed., London: The Stationery Office, U.K

**Internet Sites**

www.googlemaps.com.au

www.rfs.nsw.gov.au

www.thehills.nsw.gov.au

www.olg.nsw.gov.au

## *9.0 APPENDIX 1 Site Maps*

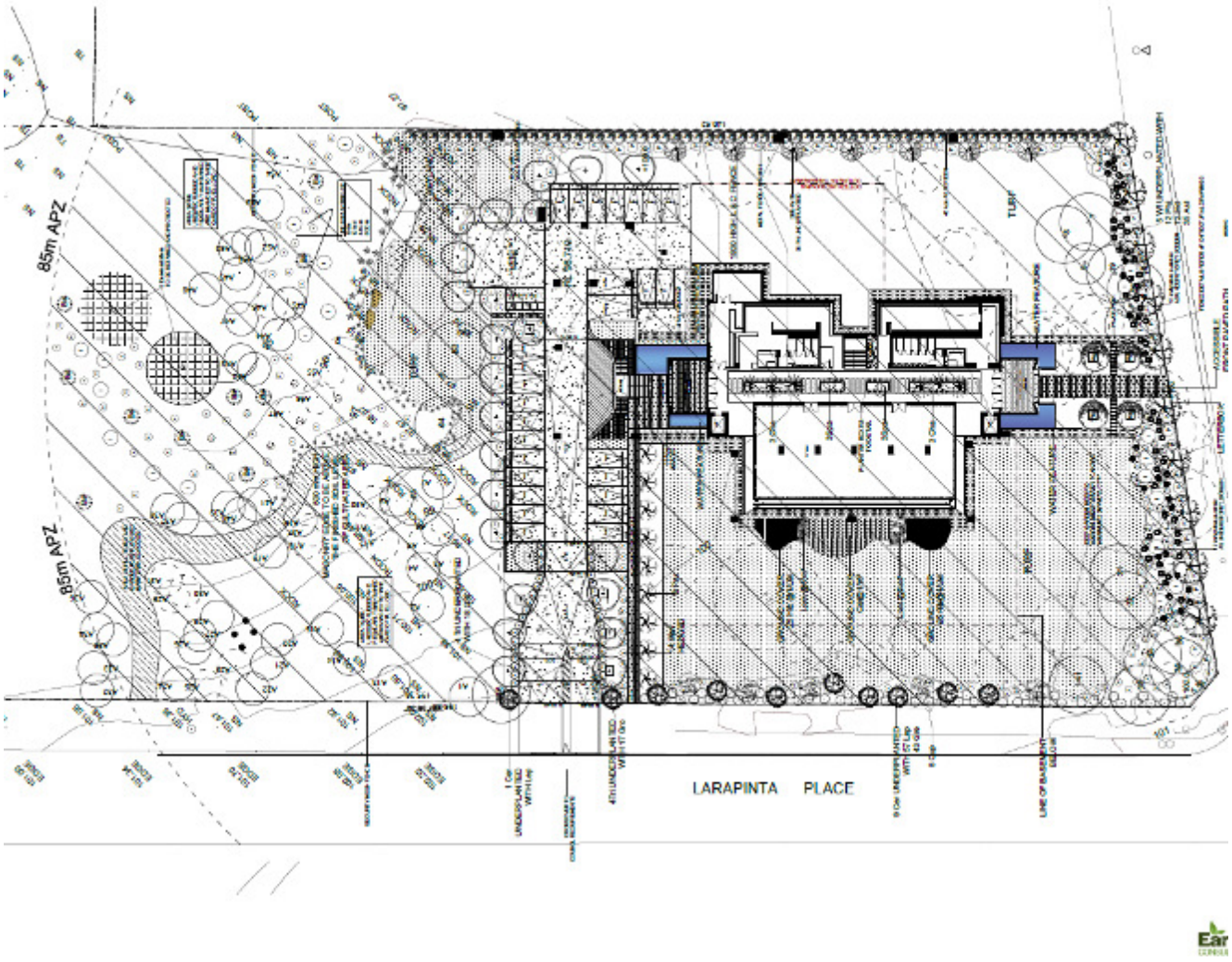


Figure 14 - Close up of the subject property and proposed development. Not to scale
Source: ICONFM Pty Ltd

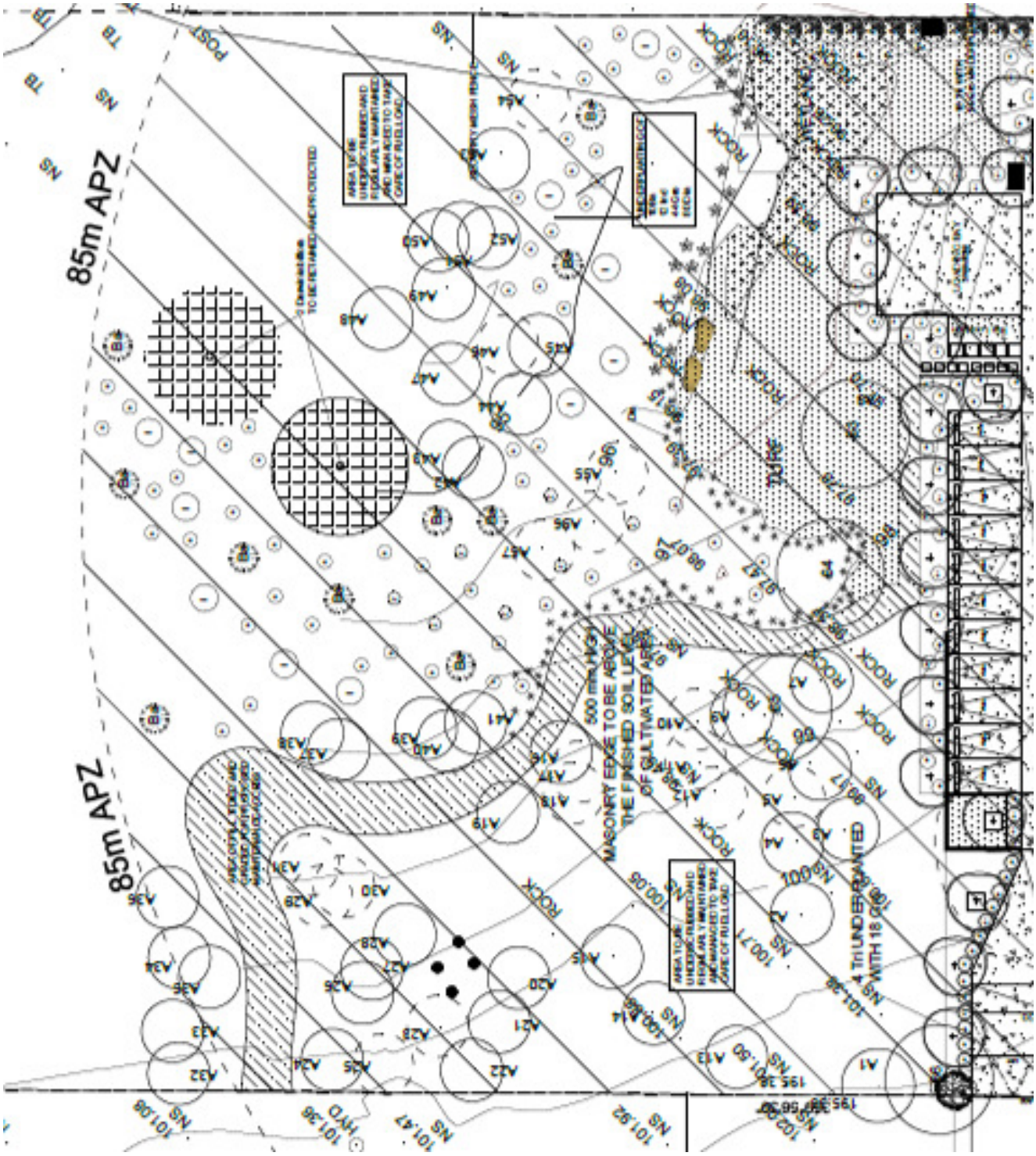


Figure 15 – showing the location of Trees A1 – A59.
Source: ICONFM Pty Ltd

## *APPENDIX 2 U.L.E (Useful Life Expectancy) Categories and Subgroups*

**Useful Life Expectancy – Classification**

### *1. Long ULE > 40 Years*

a. Structurally sound and can accommodate future growth
b. Long term potential with minor remedial treatment
c. Trees of special significance which warrant extra care

### 2. Medium ULE of 15-40years

a. Will live between 15 – 40 years
b. Will live for more than 40 years but would be removed for safety or other reasons
c. May live for more than 40 years but will interfere with more suitable specimens and need removal eventually
d. More suitable for retention in the medium term with some remedial care

### 3. Short ULE of 5-15 years

a. Trees that may only live between 5 – 15 more years
b. May live for more than 15 years but would need removal for safety or other reasons
c. Will live for more than 15 years but will interfere with more suitable specimens or provide space for replacement plantings
d. Require substantial remedial care but are only suitable for short term retention

### 4. Remove tree within 5 years

a. Dead, dying or seriously diseased
b. Dangerous trees through instability or loss of adjacent trees
c. Structural defects such as cavities
d. Damaged that are clearly not safe to retain
e. May live for more than 5 years but will need replacement to prevent interference or make space for more suitable trees
f. May or are causing damage to structures
g. That will become dangerous

### *5 Trees suitable to transplant*

a. Small trees can be reliably moved or replaced
b. Young trees between 5 – 15 years
c. Trees that have been regularly pruned to control growth

| Key | Criteria | Comments |
|---|---|---|
| **Tree no** | | |
| **Species** | Relates to the fifty nine on the site plan | |
| **Remnant /planted Self Sown** | May be coded – See Key for details | |
| **Special Significance** | A – Aboriginal<br>C- Commemorative<br>Ha- Habitat<br>Hi- Historic<br>M- Memorial<br>R- Rare<br>U- Unique form<br>O- Other | May require specialist knowledge |
| **Age Class** | Y- Young- Recently Planted<br>S-Semi mature (<20% of life expectancy<br>M- Mature (20-80% of life expectancy)<br>O- Over mature (>80% of life expectancy) | |
| **Height** | In Metres | |
| **Spread** | Average diameter of canopy in metres | |
| **Crown Condition** | Overall vigour and vitality<br>0 – Dead<br>1 – Severe decline (<20% canopy, major deadwood<br>2 – Declining 20-60% canopy density, twig dieback<br>3- Average/low vigour (60-90% canopy density, twig dieback)<br>4- Good (90-100% crown cover, little or no dieback or other problems)<br>5- Excellent (100% crown cover, no deadwood or other problems | |
| **Failure Potential** | Identifies the most likely failure and rates the likelihood that the structural defects will result in failure within the inspection period.<br>1- Low – Defects are minor (eg dieback of twigs, small wounds with good wound development)<br>2 – Medium – Defects are present and obvious egg Cavity encompassing 10-25% of the circumference of the trunk)<br>3 High- Numerous and/or significant defects present (eg cavity encompassing 30-50% of the circumference of the trunk, major bark inclusions)<br>4- Severe- Defects are very severe (eg fruiting | Requires specialist knowledge |

| | | |
|---|---|---|
| | bodies, cavity encompassing more than 50% of the trunk) | |
| **Size of defective part** | Rates the size of the part most likely to fail. The larger the part that fails the greater the potential for damage.<br>1- Most likely failure less than 150mm in diameter<br>2- Most likely failure 150-450mm in diameter<br>3- Most likely failure 450-750mm in diameter<br>4- Most likely failure more than 750mm in diameter | |
| **Target rating** | Rates the use and occupancy that would be struck by the defective part:<br>1. Occasional use (jogging, cycle track<br>2. Intermittent use (e.g picnic area, day use parking<br>3. Frequent use, secondary structure (eg seasonal camping, storage facilities)<br>4. Constant use structures (year round use for a fifty nine of hours each day, residences) | |
| **Hazard rating** | Failure potential + size of part + target rating<br>Add each of the above sections for a fifty nine out of 12 | The final fifty nine identifies the degree of risk. The next step is to determine a management strategy. A rating in this column does not condemn a tree but may indicate the need for more investigation and a risk management strategy. |
| **Root Zone** | C-Compaction<br>D- Damaged/wounded roots<br>E- Exposed roots<br>Ga- Tree in graded bed<br>Gi- Girdled roots<br>Gr- Grass<br>K-Kerb close to tree<br>L+- Raised soil level<br>L- Lowered soil level<br>M- Mulched | |

| | | |
|---|---|---|
| | Pa- Paving concrete bitumen<br>Pr- Roots pruned<br>O-Other | |
| **Defects** | B-Borers<br>C-Cavity<br>D-Decay<br>Dw-Deadwood<br>E-Epicormics<br>I-Inclusions<br>L- Lopped<br>LDCMP- Leaf damage by chewing mouthpiece insects<br>M- Mistletoe/parasites<br>MBA- Multi branch attachments<br>PD- Parrot damage<br>PFS- Previous failure sites<br>S-Splits/Cracks<br>T-Termites<br>TL- Trunk lean<br>TW- Trunk wound<br>O-Other | |
| **Services/adjacent structures** | Bs- Bus stop<br>Bu- Building within 3 metres<br>Hvo- High voltage open wire construction<br>Hvb- High voltage bundled (ABC)<br>Lvo- Low voltage open wire construction<br>Lvb- Low voltage bundled (ABC)<br>Na- No services above<br>Nb- No services below ground<br>Si- Signage<br>SL- Street light<br>T- Transmission<br>U- Underground services<br>O- Other | More than one of these may apply |