

## **“GROWING MY WAY”**

### **Tree Consultants**

Established 1977

EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

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## ***Arboriculture Impact Assessment & Site-Specific Preliminary Plan of Management***

**July 2024**

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c/ J. D. Evans & Company**

**34 Plateau Road Bilgola Plateau NSW 2107**

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Bachelor of Environmental Biotechnology (University of Technology Sydney)



## 1. Summary

Craig & Nicole Lester (as the Property Owners of 34 Plateau Road Bilgola Plateau NSW 2107) via information provided by J. D. Evans & Company commissioned the Growing My Way Tree Consultancy (GMW) to prepare an Arboriculture Impact Assessment & Preliminary Site - Specific Plan of Management to be linked to a Development Application (DA) submission for *Alterations & Additions to Existing Dwelling including Carport & Driveway*.

The site is Land Zoned as *"E4 Environmental Living by NBC LEP, (C4 by State Legislation change)"*.

The document relates to five (5) trees located within the subject site & Plateau Road road reserve area.

The subject site shares common boundaries with three (3) same land zoning common boundary adjoining properties, one (1) common boundary adjoining property (Betsy Wallis Reserve) is land zoned, *RE 1 Public Recreation* & one (1) public road (Plateau Road). All same zoning common boundary adjoining properties are developed to contain dwellings & other infrastructure.

Motor vehicle & pedestrian access to the subject site is only via Plateau Road.

The sole consent authority is the Northern Beaches Council. (from herein *NBC*).

Information related to the discussed tree was gathered by onsite data collection with cross referencing to:

- *NBC website, online property & environment information website tools.*
- *Site Survey by H & S Land Surveyors, date 02 February 2024.*
- *Proposed Plans, Elevations Sections etc., by J. D. Evans & Company, dated 19 April 2024.*
- *NSW SEPP; 10/50 Vegetation Clearing 'Code of Practice'.*
- *NBC "Tree Management Provisions".*
- *NBC Heritage Conservation Area & Land Zoning LEP Maps.*
- *NBC Heritage Wildlife Corridor Map, Pittwater 21 DCP.*

*The aim of this report is:*

1. *To confirm the viability of the discussed trees, relating to individual health, vigour & condition taking into consideration potential impacts foreseen by the proposed works.*
2. *Provide a Preliminary Site Specific 'Tree Plan of Management'.*

This document supports (relative to tree management), the proposal as presented for the subject site.

All protected & discussed in detail trees are within five metres (5.00m) of the as proposed works.

All protected trees discussed are within the subject site & the Plateau Road road reserve.

Four (4) of the five (5) protected trees discussed require intensive management during the period of proposed construction work to enable viable retention.

The fifth (5<sup>th</sup>) tree discussed is supported to be removed, just above ground level. This tree is additionally specified to be replaced within the subject site.

We confirm, the four (4) trees assessed as able to be viably retained can be reasonably predicted that there will be no compromise to any individual tree's Useful Life Expectancy, with implementation of the intensive management strategies as specified.

Kyle A Hill - AQF level 5, Diploma of Horticulture / Arboriculture, (TAFE NSW & other) & AQF level 8, Post Graduate Certificate in Arboriculture, (University of Melbourne) Practicing/Consulting Arborist) with the assistance of Ao Wang (Master of Protected Area, Governance & Management (University of Tasmania) & Bachelor of Environmental Biotechnology (University of Technology Sydney) has prepared this report based on "Visual Tree Assessment" (VTA) undertaken on Saturday 13 June 2024.

## Table of Contents

1. Summary .....	2
Table of Contents .....	4
2. Introduction .....	5
3. Methodology .....	6
4. Observations .....	7
4.1 The Site .....	7
4.2 The Proposal .....	13
4.3 The Tree – Summary Table .....	20
4.4 Tree & Site Images .....	21
5. Discussion .....	24
5.1 General Discussion /Tree Environments: .....	24
5.2 TPZ / SRZ Tree Disturbance Calculation Diagrams .....	28
5.3 Preliminary Site Specific “Tree Plan of Management” .....	30
6. Conclusions .....	31
7. Limitations on the use of this report .....	31
8. Assumptions .....	32
9. Recommended References .....	32
10. Selected Bibliography .....	32
11. Appendix A – Glossary .....	33
12. Attachment A: Tree Protection/Management Prior to & During Construction .....	35



## 2. Introduction

This report contains observations & recommendations intended to assist in the management of the five (5) trees identified as necessary to be discussed.

Tree #1, Tree #2 & Tree #3 are located within the Plateau Road road reserved area in front of the subject site. Tree #4 & Tree #5 are located within subject site (uphill side of the existing dwelling footprint) adjacent to the existing dwelling.

The subject site is confirmed to be within a designated 10/50 Vegetation Entitlement Clearing area by the NSW SEPP. The relevance being, technically, Tree #4 & Tree #5 can be removed without any formal permission from the local consent authority, the NBC.

As previously stated, four (4) of the five (5) protected trees discussed require intensive management during the period of proposed construction work to enable viable retention.

Again, as previously stated, the fifth (5<sup>th</sup>) tree discussed is supported to be removed, just above ground level. This tree is additionally specified to be replaced within the subject site.

The *Australian Standard (AS4970-2009) for the 'Protection of trees on development sites'* is the guideline document required to be addressed in this document.

We acknowledge & confirm to be familiar with the NBC "Tree Management Provisions", specifically the documents; Pittwater Local Environmental Plan 2014, (from herein; Pittwater *LEP*), the Pittwater Development Control Plan 21 last Amendments Dec 2020 (from herein Pittwater *DCP*), plus the State Environmental Planning Policy, Vegetation in Non-Rural Areas, 2017 (August 2017 SEPP).

The sole consent authority is NBC.

The subject site is NOT within an NBC designated "*Heritage Conservation Area*". One (1) of the subject site common boundary adjoining properties is a listed 'Heritage Items' as 2270497.

The subject site & subject adjoining properties are within the CO1 - Those areas though disturbed are likely to be of habitat value due to good crown cover and/or understory (Pittwater Local Government Area Pittwater 21DCP – wildlife).

Information related to the discussed tree was gathered by onsite data collection with cross referencing to:

- *NBC website, online property & environment information website tools.*
- *Site Survey by H & S Land Surveyors, date 02 February 2024.*
- *Proposed Plans, Elevations Sections etc., by J. D. Evans & Company, dated 19 April 2024.*
- *NSW SEPP; 10/50 Vegetation Clearing 'Code of Practice'.*
- *NBC "Tree Management Provisions".*
- *NBC Heritage Conservation Area & Land Zoning LEP Maps.*
- *NBC Heritage Wildlife Corridor Map, Pittwater 21 DCP.*

This document includes a Preliminary Site Specific "Plan of Management".

### 3. Methodology

Assessment Methodology for the discussed tree has been from ground level by eye, using *Visual Tree Assessment (VTA Stage 1)*, techniques developed by Claus Mattheck. The principles of VTA are illustrated & explained in the widely used reference textbook *"The Body Language of Trees (1994)"*.

Assessment includes:

- *Onsite assessment, data collection*
- *Tree's current condition & likely future health*
- *Species tolerance to root disturbance &/or development*
- *Likely present & future risk to persons & property.*
- *Tree's (public & private landscape) amenity value, considering habitat potential.*

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 term*
- *Attachment A    Tree Protection/Management Prior to & During Construction*



## 4. Observations

### 4.1 The Site

The document relates to five (5) trees located within the subject site & adjacent front of subject site Plateau Road road reserve area.

The subject site is 558.9m<sup>2</sup> in size (*Site Survey by H & S Land Surveyors, date 02 February 2024*).

The subject site shares common boundaries with three (3) same land zoning common boundary adjoining properties, one (1) common boundary adjoining property (Betsy Wallis Reserve) zoned as *RE 1 Public Recreation* & one (1) public road (Plateau Road). All same zoning common boundary adjoining properties are developed to contain dwellings & other infrastructure.

No Geotechnical issues are known to exist relative to tree management as per the DA proposal.



FIGURE 1: ABOVE ILLUSTRATES THE DISCUSSED TREE RELATIVE TO THE SITE 34 PLATEAU ROAD BILGOLA PLATEAU NSW 2107. (AERIAL PHOTOGRAPH FROM SUNDAY 7 APRIL 2024, MAP DATA COURTESY OF NEARMAP™)

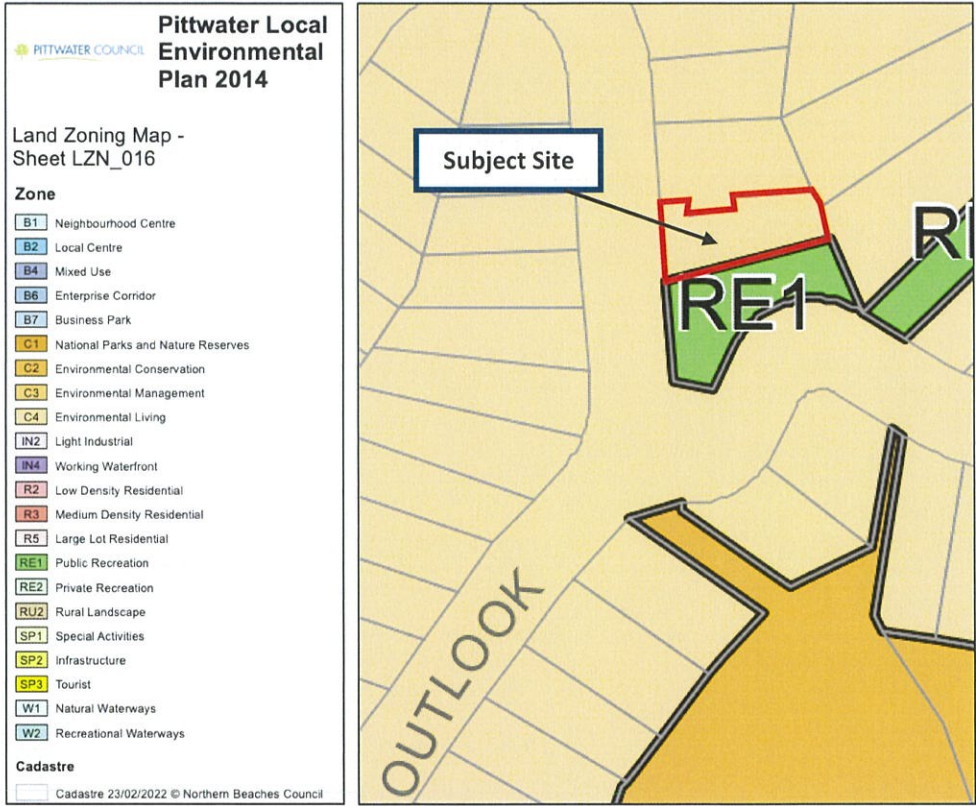


FIGURE 2: CONFIRMS STATUS OF THE SUBJECT SITE RELATIVE E4 ENVIRONMENTAL LIVING (CURRENT C4). (PITTWATER LOCAL ENVIRONMENTAL PLAN 2014, LAND ZONING MAP - SHEET LZN\_016).

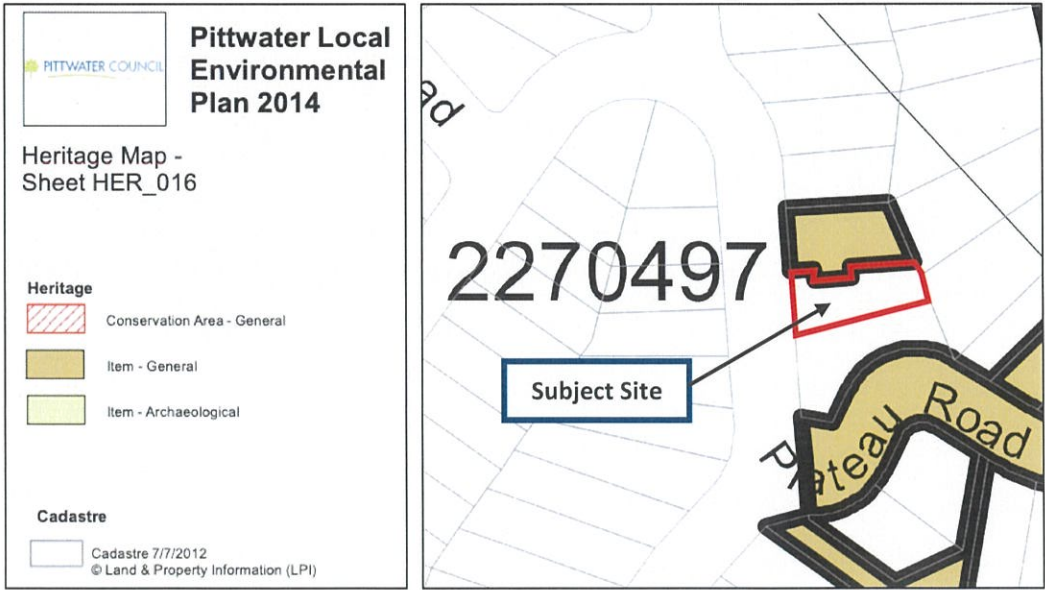
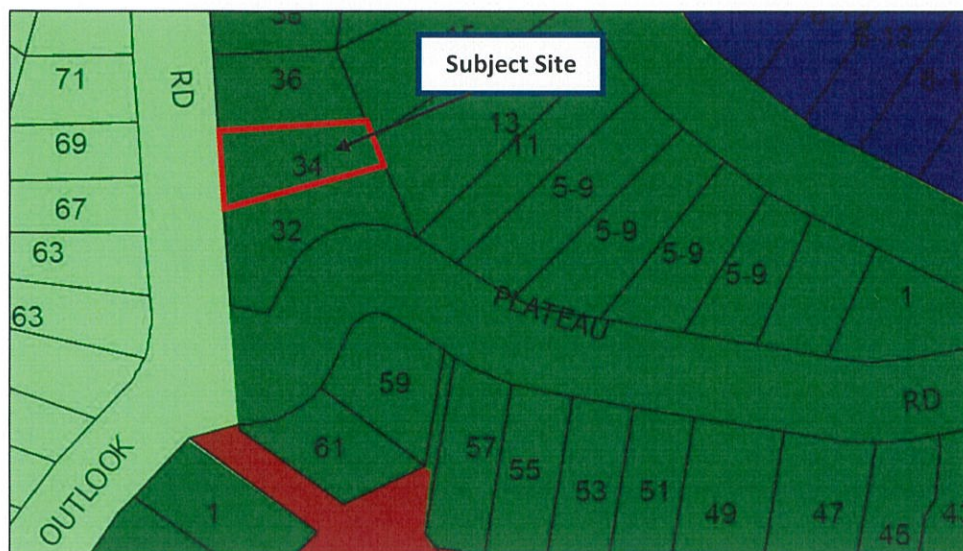


FIGURE 3: CONFIRMS STATUS OF THE SUBJECT SITE RELATIVE TO CADASTRE (PITTWATER LOCAL ENVIRONMENTAL PLAN 2014, HERITAGE MAP SHEET HER\_0016)





## PITTWATER LOCAL GOVERNMENT AREA PITTWATER 21 DCP - WILDLIFE CORRIDOR MAP

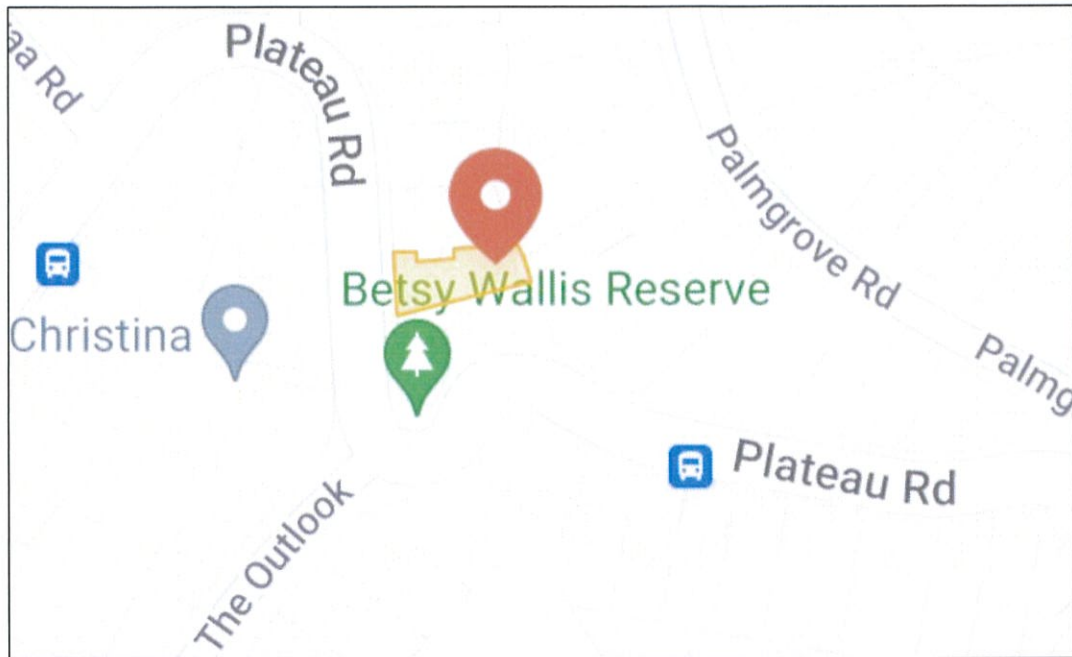
### Wildlife Corridors Legend

- HP - High Priority areas essential to fauna movement
- MH - Major Habitat Areas
- R - Smaller Council Reserves likely to have modified habitat or suffering adverse edge effects
- C01 - Those areas though disturbed are likely to be of habitat value due to good crown cover and/or understory
- C02 - Mostly cleared non-residential areas with good potential for improvement of habitat
- C03 - Residential areas with some tree cover but requiring supplementary planting to aid fauna movements

Plan prepared by Pittwater Council  
Natural Environment and Education Unit  
23 June 2014  
P:\Mapping\Nat\_Res\Mapping\Wildlife Corridors



FIGURE 4: SUBJECT SITE IS WITHIN C01 - THOSE AREAS THOUGH DISTURBED ARE LIKELY TO BE OF HABITAT VALUE DUE TO GOOD CROWN COVER AND/OR UNDERSTORY (PITTWATER LOCAL GOVERNMENT AREA PITTWATER 21DCP – WILDLIFE



### Your 10/50 search result

You have conducted a search of the 10/50 online tool for the land identified in the map above. This search result is valid for the date the search was conducted.

Please retain a copy of this search result for your records as evidence the 10/50 rules were applicable to your clearing on the day you undertook the clearing.



The parcel of land you have selected is located in a designated 10/50 vegetation entitlement clearing area. However, the online tool has identified that your land parcel may exclude or otherwise restrict your clearing under the 10/50 Code.

However, land parcels that do not contain the legal protection measure/s identified below (despite being mapped as one of those categories) are not excluded from the 10/50 Code. This situation may occur due to minor inaccuracies with the mapping that may result in your land parcel being wrongfully identified. The onus is on the landowner to demonstrate that their land parcel does not contain the identified legal protection measure.

The online tool has identified that your land parcel may contain:

- local heritage as mapped by Councils and provided by the Department of Planning and Environment. If your land parcel contains any vegetation that is legally protected under local heritage listing then you may not clear vegetation on any of that land under the 10/50 Code. Further information [on local heritage](#) can be obtained from the Office of Environment and Heritage or contact your local council for specific advice relating to your property.

FIGURE 5: CONFIRMS STATUS OF THE SUBJECT SITE IS UNDER THE 10/50 SCHEME. (10/50 VEGETATION CLEARING CODE OF PRACTICE FOR NEW SOUTH WALES)

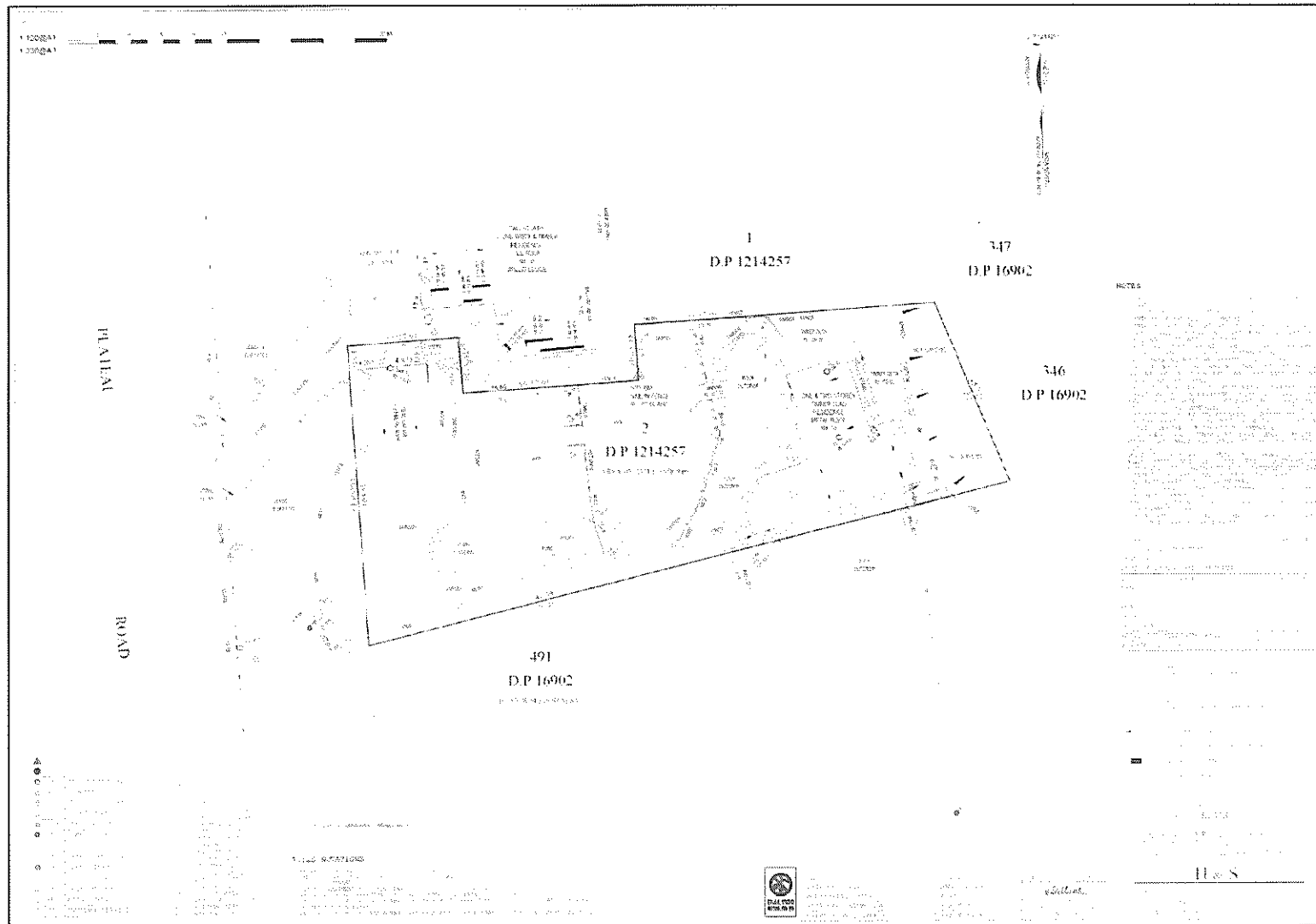


FIGURE 6: THE SITE SURVEY (SITE SURVEY BY H & S LAND SURVEYORS, DATE 02 FEBRUARY 2024)



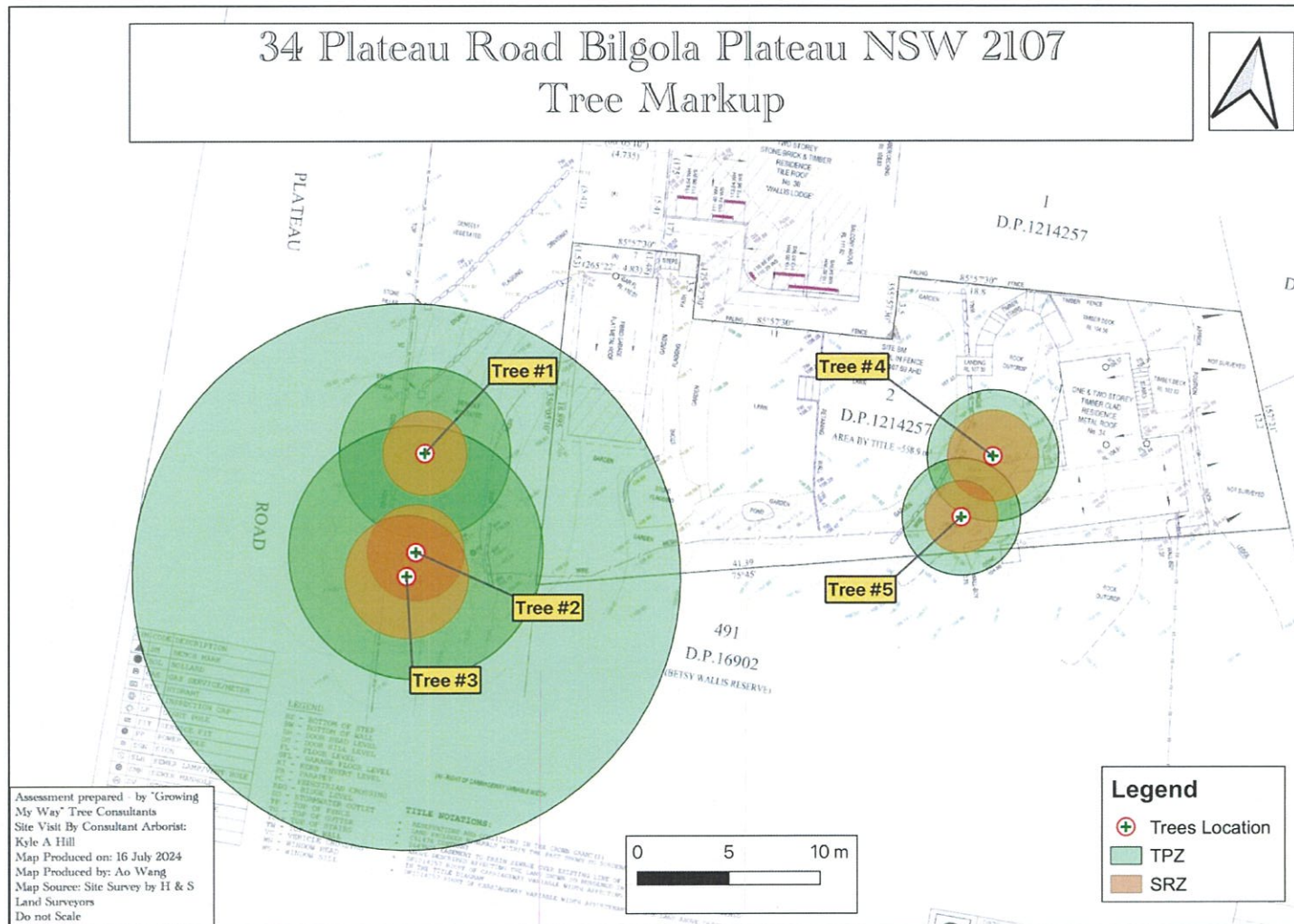


FIGURE 7: NUMBER AND LOCATION OF THE TREE ON SUBJECT SITE. (BY QGIS)

## 4.2 The Proposal

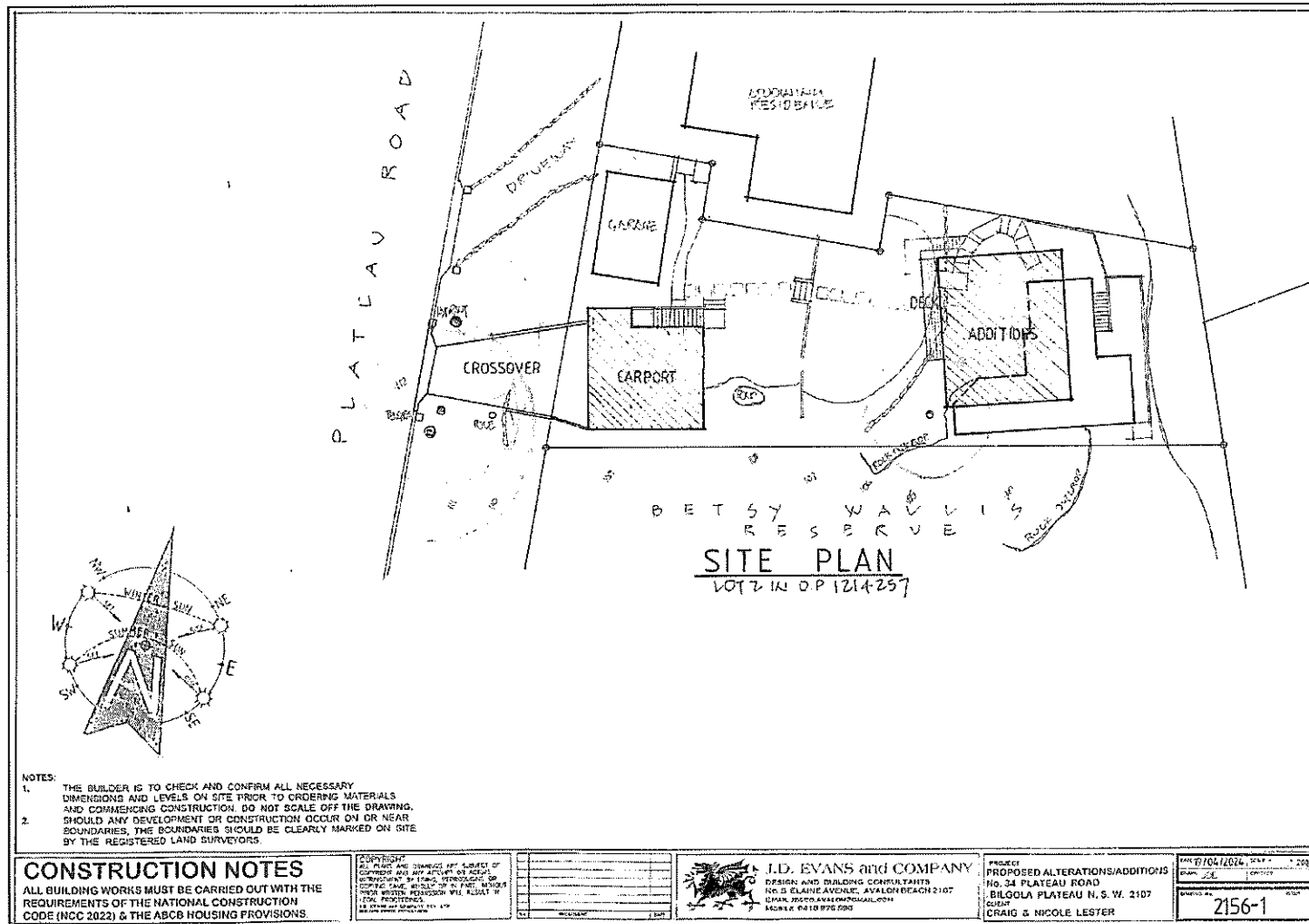


FIGURE 8: ILLUSTRATES PROPOSED SITE PLAN

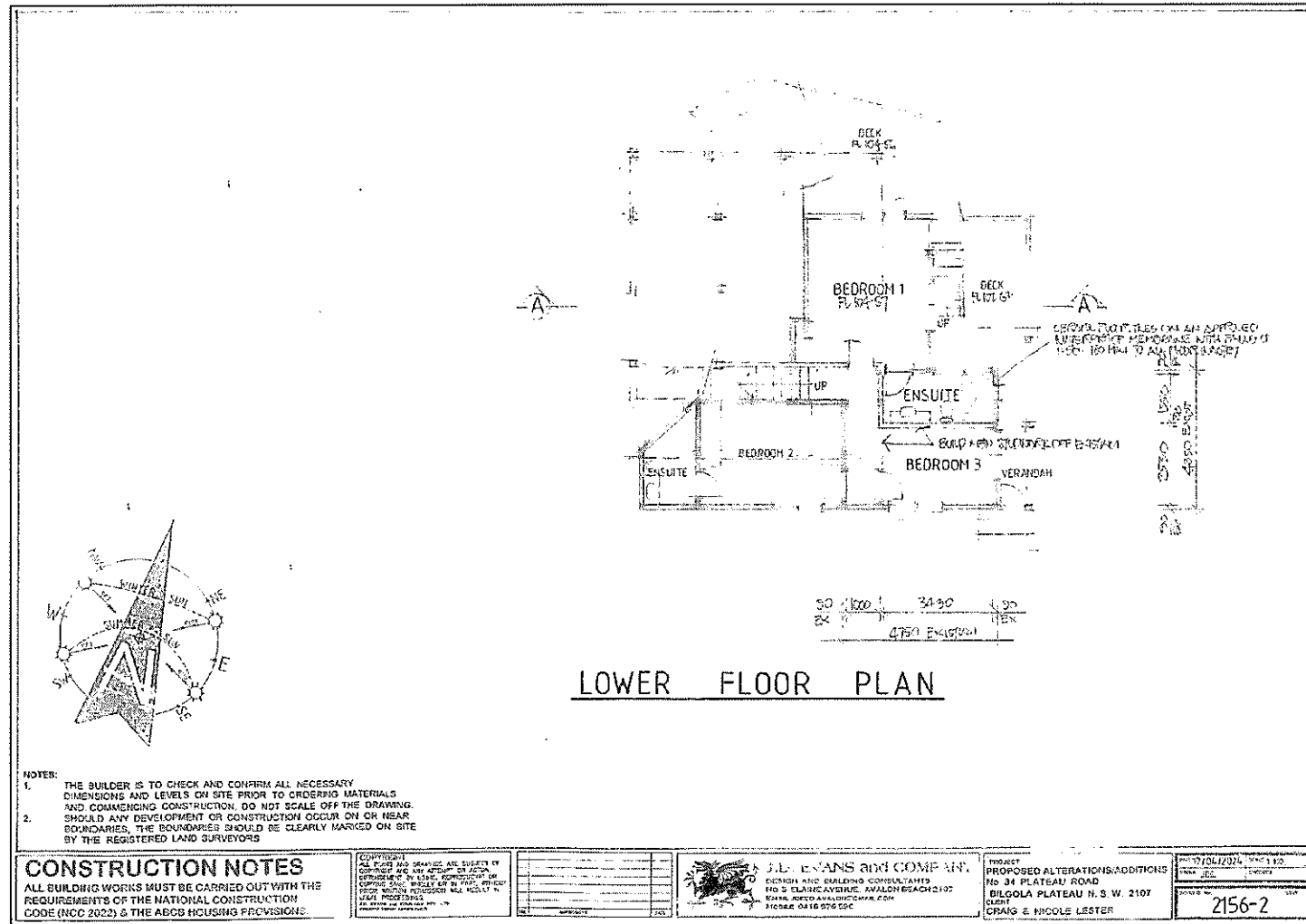


FIGURE 9: ILLUSTRATES PROPOSED LOWER FLOOR PLAN



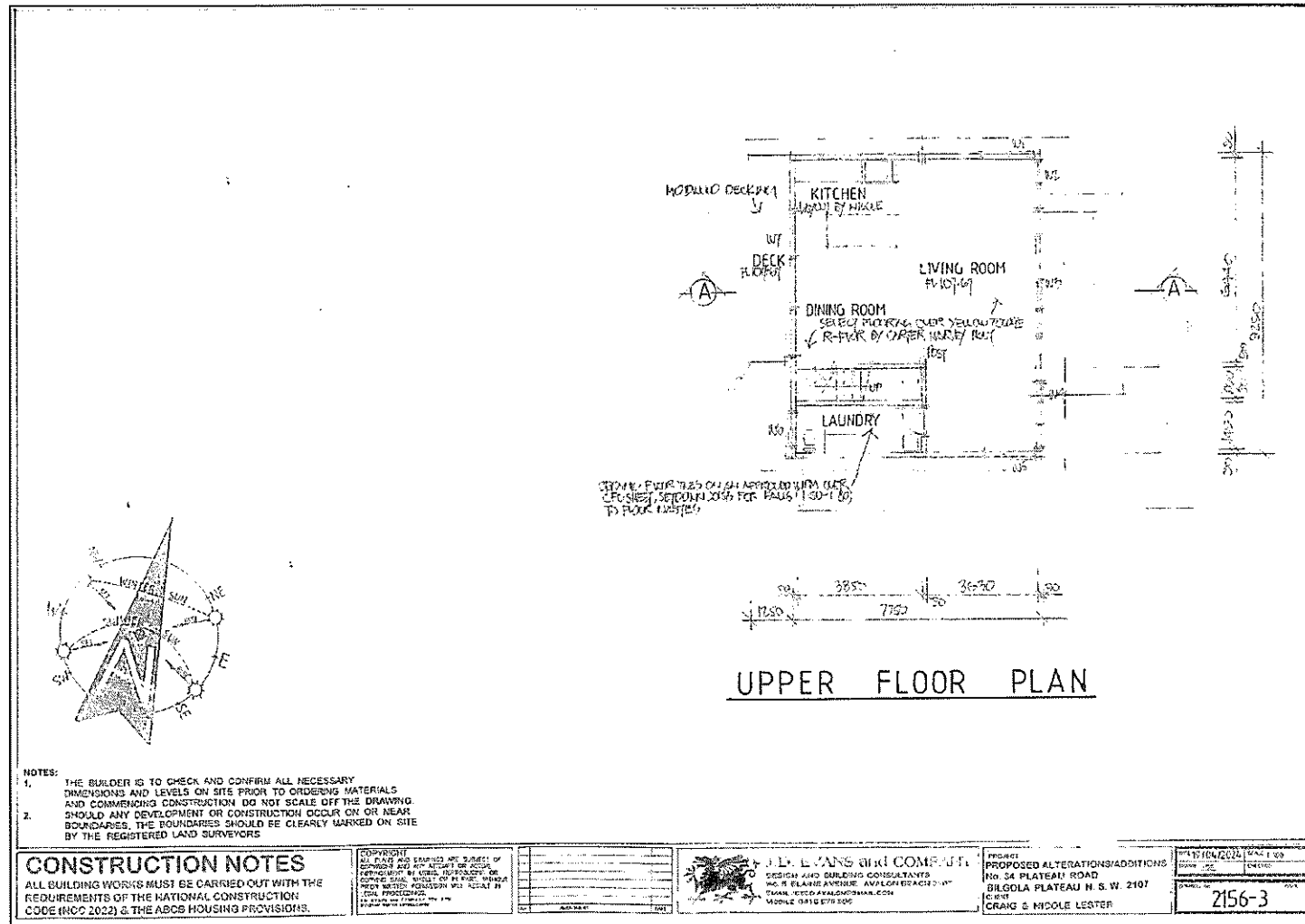


FIGURE 10: ILLUSTRATES PROPOSED UPPER FLOOR PLAN

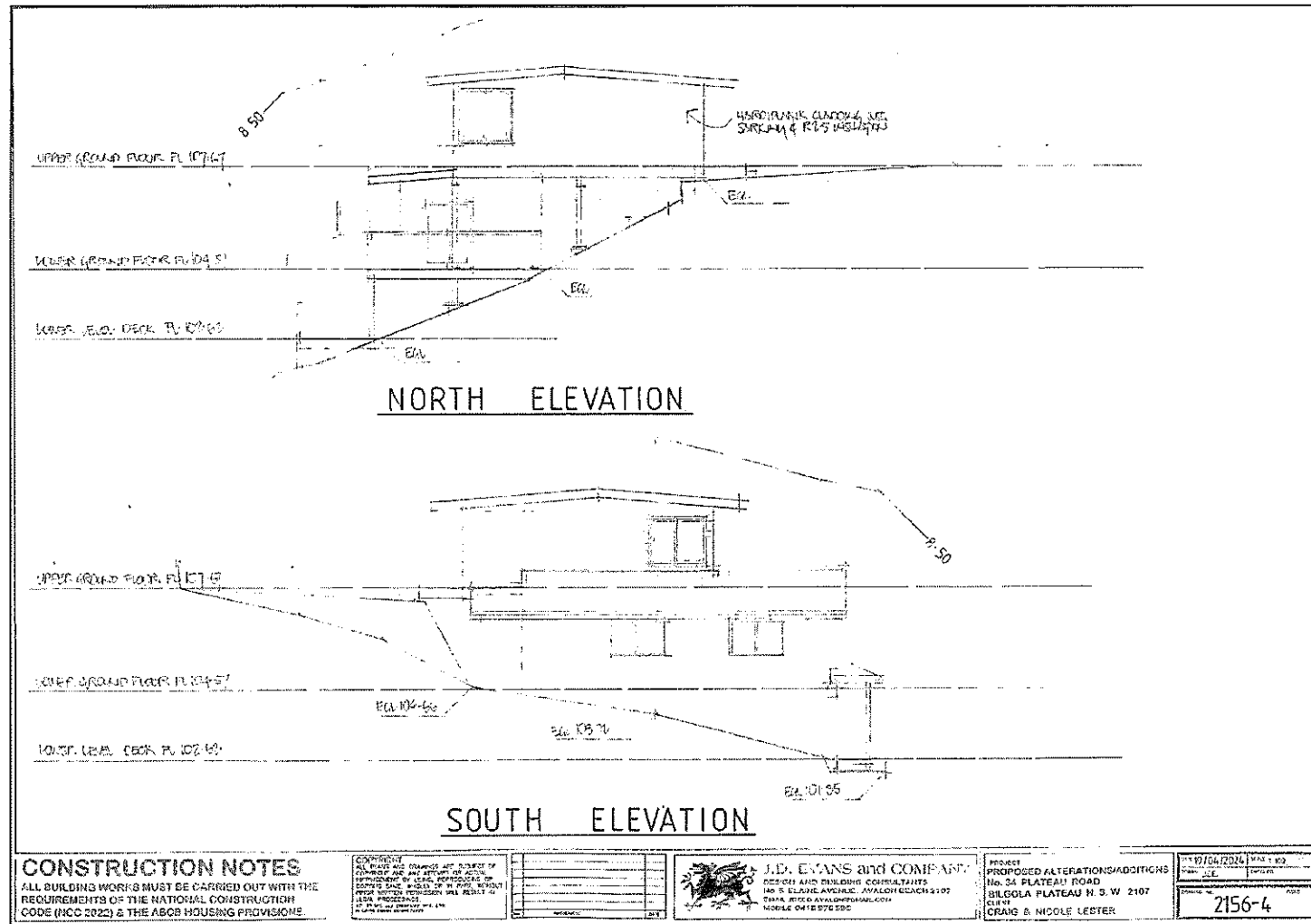


FIGURE 11: ILLUSTRATES PROPOSED NORTH & SOUTH ELEVATION

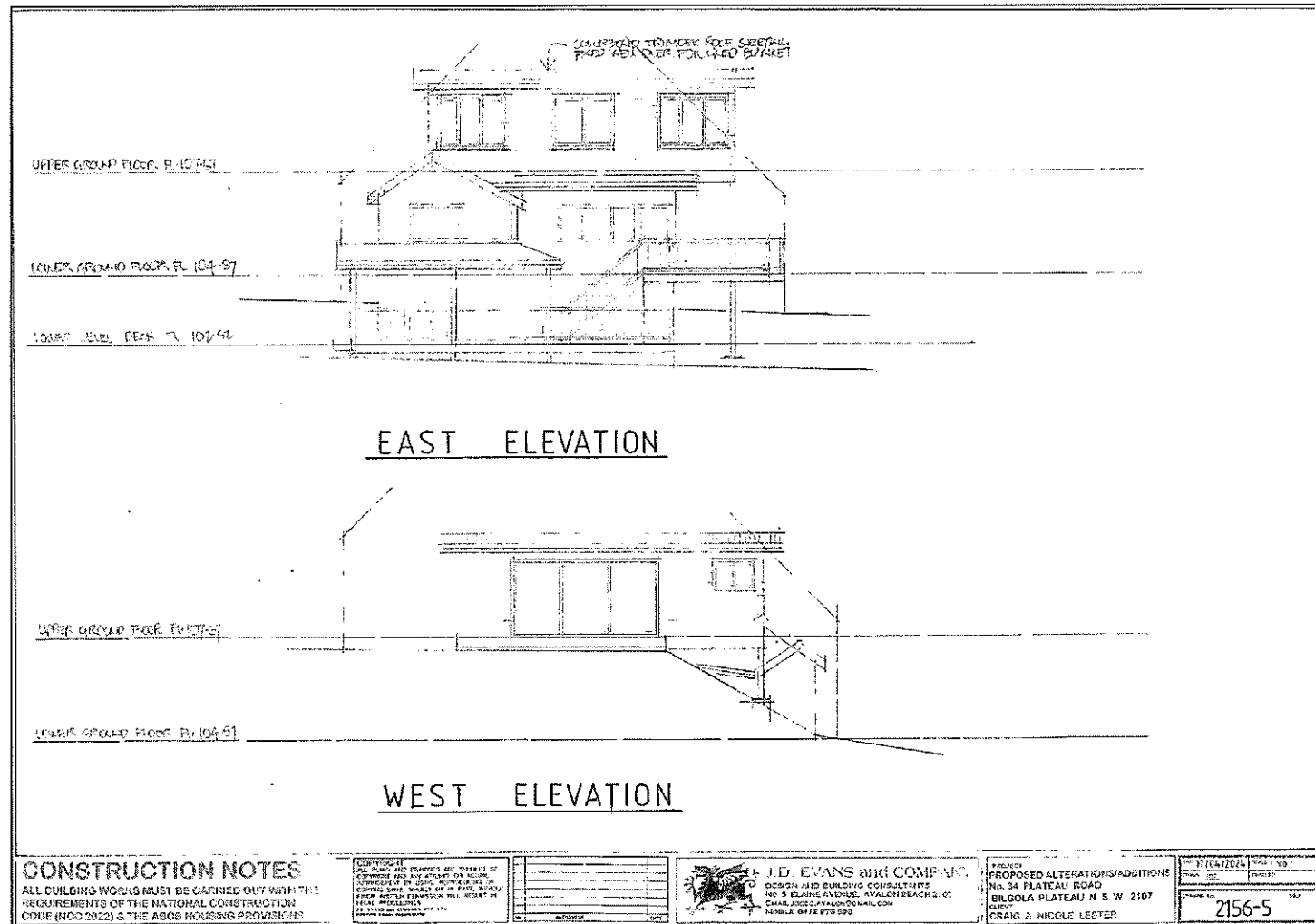


FIGURE 12: ILLUSTRATES PROPOSED EAST & WEST ELEVATION



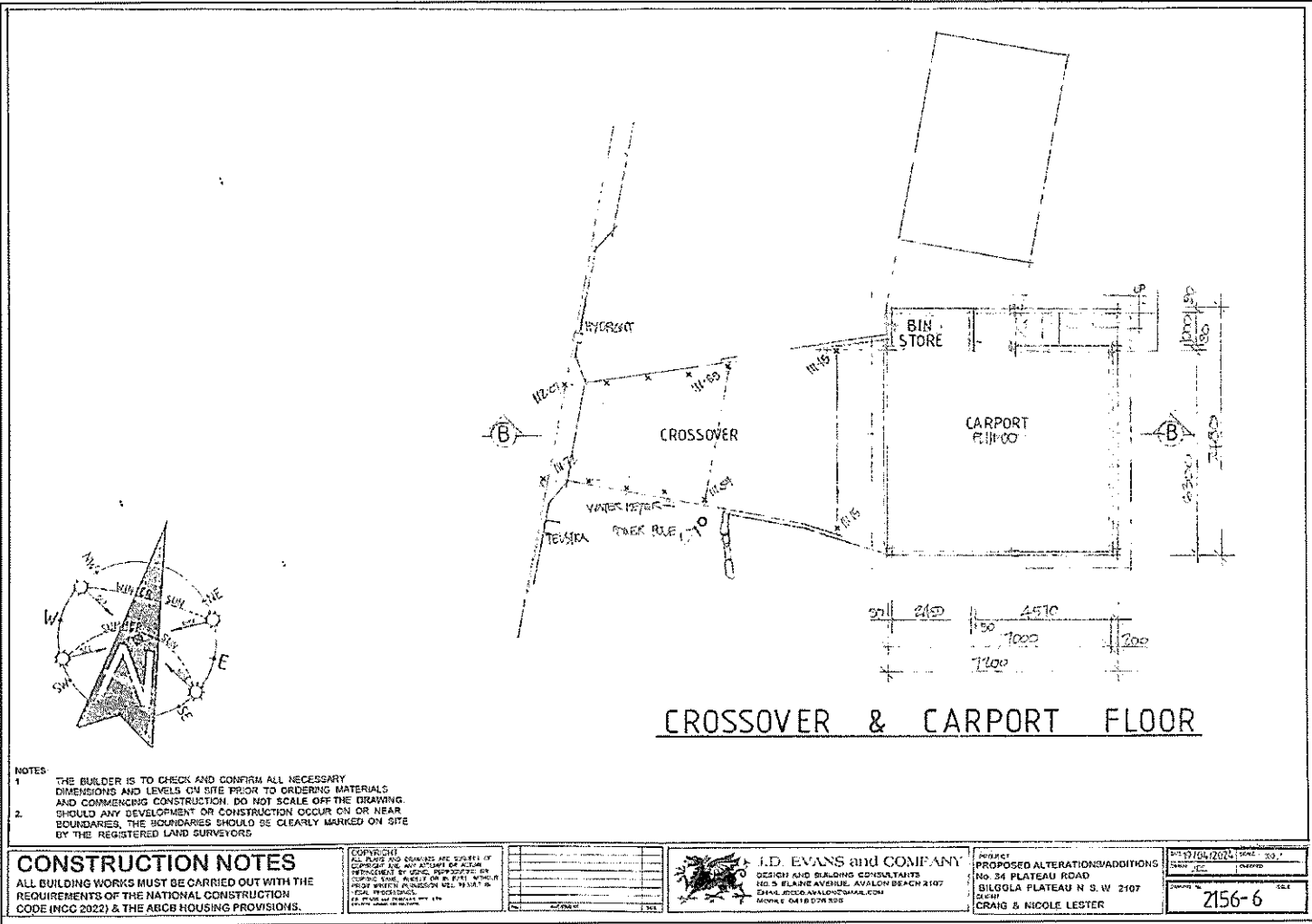


FIGURE 13: ILLUSTRATES PROPOSED CROSSOVER & CARPORT FLOOR

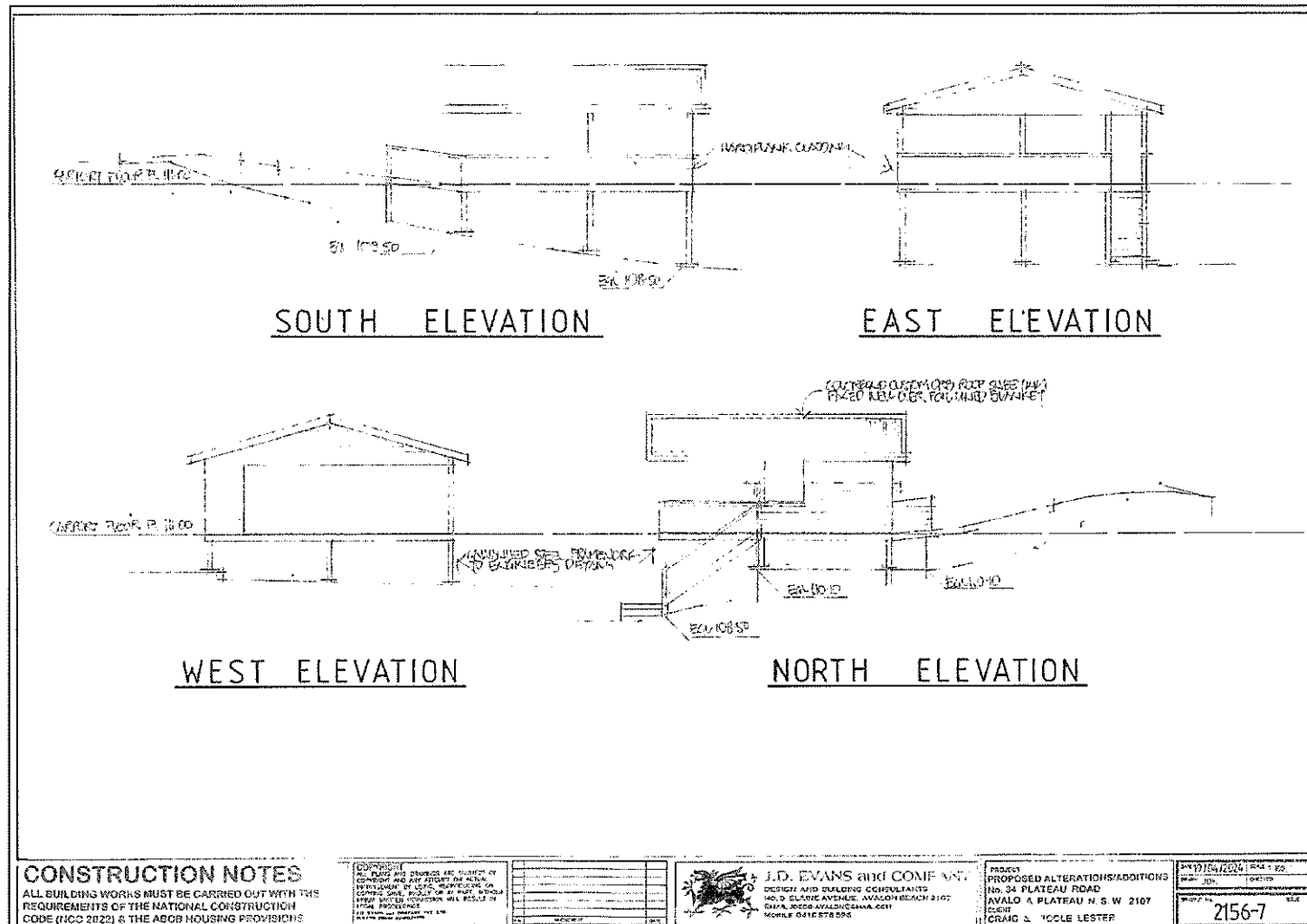


FIGURE 14: ILLUSTRATES PROPOSED ELEVATION

### 4.3 The Tree – Summary Table

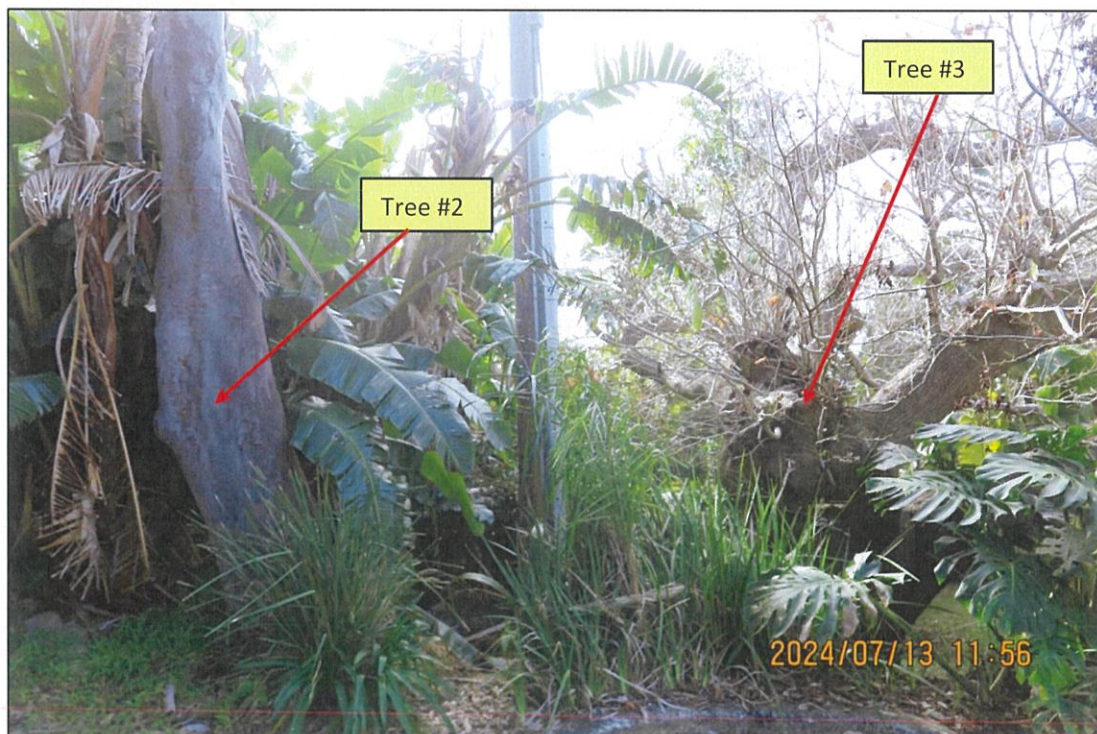
Read this table in conjunction with Appendix A– Common Arboreal Terms

Trees Recommended for removal							Trees Recommended for retention				
Exempt or Weed species							Trees retainable but of low amenity/significance				
	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Retention & Significance Value	Structure /Form	Comments
1	<b><i>Angophora costata</i></b> (Smooth-Barked Apple)	<13.00	<9.50	0.39	4.68	2.30	M	Good & Good	High & High	Typical	<u>RETAIN, PROTECT &amp; MANAGE:</u> Standard Temporary Fencing and Manual Excavation within TPZ radial distance is specified
2	<b><i>Angophora costata</i></b> (Smooth-Barked Apple)	<12.00	<9.50	0.58	6.96	2.65	M	Good & Good	High & High	Typical	<u>RETAIN, PROTECT &amp; MANAGE:</u> Standard Temporary Fencing and Manual Excavation within TPZ radial distance is specified
3	<b><i>Liquidambar spp.</i></b> (Sweetgums)	<8.00	<5.00	1.28	15.00	3.39	M	Poor & Poor	Moderate & Moderate	Typical	<u>RETAIN, PROTECT &amp; MANAGE:</u> Standard Temporary Fencing and Manual Excavation within TPZ radial distance is specified
4	<b><i>Ficus rubiginosa</i></b> (Port Jackson Fig)	<6.00	<10.00 Linking Canopy	0.30	3.60	2.49	M	Good & Good	High & High	Typical	<u>REPLACE:</u> Tree located within the proposed new work footprint. Cut stump just above ground level.
5	<b><i>Ficus rubiginosa</i></b> (Port Jackson Fig)	<6.00	<10.00 Linking Canopy	0.27	3.24	2.00	M	Good & Good	High & High	Typical	<u>RETAIN, PROTECT &amp; MANAGE:</u> Standard Temporary Fencing and Manual Excavation within TPZ radial distance is specified. Light pruning required



#### 4.4 Tree & Site Images

Photographs taken on Saturday, 13 July 2024. (Canon G1X MkII digital camera)





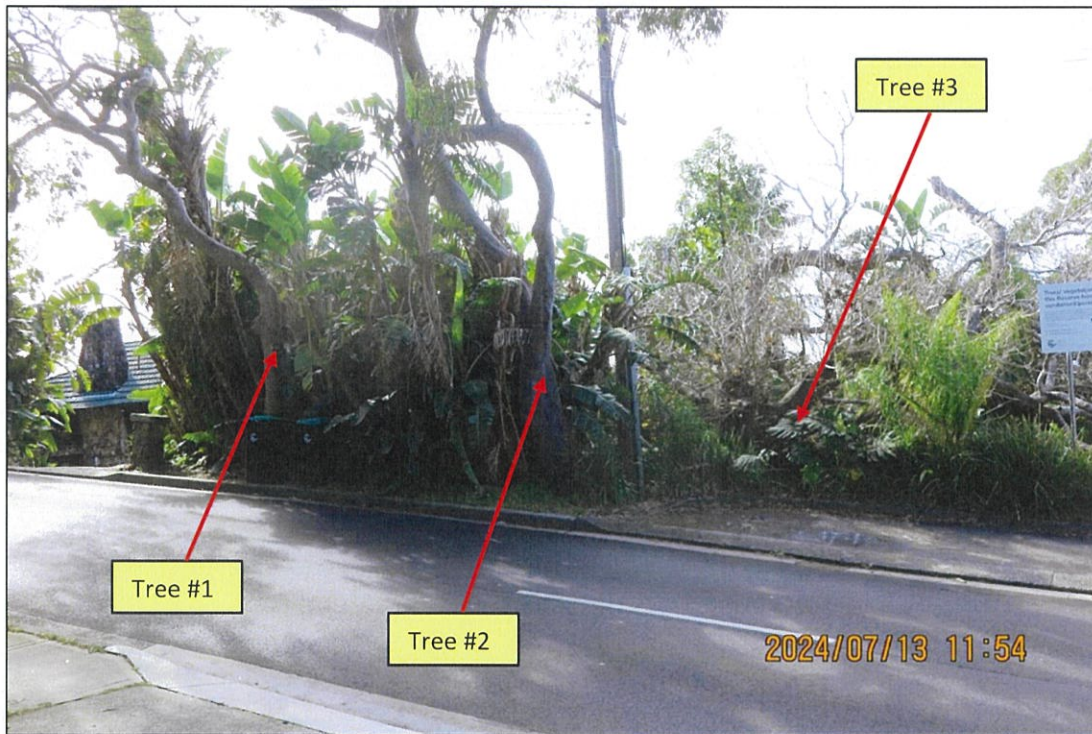






FIGURE 15: ABOVE & PREVIOUS PAGE PHOTOGRAPHS ILLUSTRATES THE FIVE (5) DISCUSSED TREE LOCATIONS & SITE FEATURES



## 5. Discussion

### 5.1 General Discussion /Tree Environments:

Five (5) trees are necessary to be discussed.

#### **Tree #1: *Angophora costata*** (Smooth-Barked Apple)

Tree #1 is located within the Plateau Road road reserved area in front of the subject site. The proposed new work is confirmed to breach the TPZ total surface area for Tree #1.

By our calculation, the total TPZ surface area of Tree #1 is 68.75m<sup>2</sup>. The proposed driveway, driveway crossover & car port equates to an approximate 20.54m<sup>2</sup> mathematical disturbance to the total TPZ surface area for Tree #1. This mathematically equates to approximately 29.9% of total TPZ surface area, (defined by AS4970-2009 as a Major Encroachment).

Factually, the breach by percentage is significantly lower as most of its carport structure is suspended. The design allows for flexibly located footings/piers. (See Page 18 & 19)

This strategy without challenge reduces the actual current total TPZ surface area breach to well less than 10% of the Tree #1 total TPZ surface area. A less than 10% breach is defined by AS4970-2009 as a Minor Encroachment, a way preferable outcome for all & especially for the locally indigenous Tree #1.

Should any significant diameter 'live root/s' (greater than 50mm in diameter), be exposed that are unable to be avoided by 'bridging over or re-locating the footing/pier site), the direct input with documentation including supporting evidence photographs from the retained project arborist is specified as essential to confirm as close as possible to best Arboriculture Practice being applied.

Tree #1 is additionally specified to require TPZ temporary 'temporary tree trunk guard' as well as native tree mulch being instated within the subject site ground level where proposed works are within the Tree #1 total TPZ surface area.

*In our opinion, with intensive management, this tree is assessed as able to be viably retained.*

#### **Tree #2: *Angophora costata*** (Smooth-Barked Apple)

Tree #2 is located within the Plateau Road road reserved area in front of the subject site. The proposed new work is confirmed to breach the TPZ & SRZ total surface area for Tree #2.

By our calculation, the total TPZ surface area of Tree #2 is 152.06m<sup>2</sup>. The proposed driveway, driveway crossover & car port equates to an approximate 31.99m<sup>2</sup> mathematical disturbance of total TPZ surface area for Tree #2. This mathematically equates to approximately 21% of total TPZ surface area, (defined by AS4970-2009 as a Major Encroachment).

Factually, the breach by percentage is significantly lower as most of its carport structure is suspended. The design allows for flexibly located footings/piers. (See Page 18 & 19)

This strategy without challenge reduces the actual current total TPZ surface area breach to well less than 10% of the Tree #2 total TPZ surface area. A less than 10% breach is defined by AS4970-2009 as a Minor Encroachment, a way preferable outcome for all & especially for the locally indigenous Tree #1.

Should any significant diameter 'live root/s' (greater than 50mm in diameter), be exposed that are unable to be avoided by 'bridging over or re-locating the footing/pier site), the direct input with documentation including supporting evidence photographs from the retained project



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arborist is specified as essential to confirm as close as possible to best Arboriculture Practice being applied.

Tree #1 is additionally specified to require TPZ temporary 'temporary tree trunk guard' as well as native tree mulch being instated within the subject site ground level where proposed works are within the Tree #2 total TPZ surface area.

*In our opinion, with intensive management, this tree is assessed as able to be viably retained.*

### **Tree #3: Liquidambar spp. (Sweetgums)**

Tree #3 is located within the Plateau Road road reserved area in front of the subject site. The proposed new work is confirmed to breach the TPZ & SRZ total surface area for Tree #3.

By our calculation, the total TPZ surface area of Tree #3 is 706.28m<sup>2</sup>. The proposed driveway, driveway crossover & car port equates to an approximate 84.51m<sup>2</sup> mathematical disturbance of total TPZ surface area for Tree #3. This mathematically equates to approximately 12.0% of total TPZ surface area, (defined by AS4970-2009 as a Major Encroachment).

Factually, the breach by percentage is significantly lower as most of its carport structure is suspended. The design allows for flexibly located footings/piers. (See Page 18 & 19)

This strategy without challenge reduces the actual current total TPZ surface area breach to well less than 10% of the Tree #1 total TPZ surface area. A less than 10% breach is defined by AS4970-2009 as a Minor Encroachment, a way preferable outcome for all & especially for the locally indigenous Tree #3.

Should any significant diameter 'live root/s' (greater than 50mm in diameter), be exposed that are unable to be avoided by 'bridging over or re-locating the footing/pier site), the direct input with documentation including supporting evidence photographs from the retained project arborist is specified as essential to confirm as close as possible to best Arboriculture Practice being applied.

Tree #3 is additionally specified to require TPZ temporary 'temporary tree trunk guard' as well as native tree mulch being instated within the subject site ground level where proposed works are within the Tree #3 total TPZ surface area.

*In our opinion, with intensive management, this tree is assessed as able to be viably retained.*

### **Tree #4: Ficus rubiginosa (Port Jackson Fig)**

The subject site is confirmed to be within a designated 10/50 Vegetation Entitlement Clearing area by the NSW SEPP. The relevance being, technically, Tree #4 & Tree #5 can be removed without any formal permission from the local consent authority, the NBC.

Regardless, Tree #4 is discussed in detail.

Tree #4 is located within the subject site (uphill side of the existing dwelling footprint) adjacent to the existing dwelling.

The proposed new work is confirmed significantly breach the TPZ & SRZ total surface area for Tree #4.

By our calculation, the total TPZ surface area of Tree #4 is 40.68m<sup>2</sup>. The proposed existing dwelling expansion of footprint equates to an approximate 29.74m<sup>2</sup> mathematical disturbance of total TPZ surface area for Tree #4. This mathematically equates to approximately 71.6% of total TPZ surface area, (defined by AS4970-2009 as a Major Encroachment).

## Growing My Way Tree Services

On this basis, we support total removal to just above ground level. (The reason being, as the same species as Tree #5, it is highly likely they have a single common 'live root system'. To compromise 'live roots' potentially could adversely impact upon the Tree #5 Useful Life Expectancy.)

A replacement tree/s is specified to be planted as far from any permanent existing (neighbours) & new lot infrastructure as possible. The replacement tree/s must be sourced from a grower/supplier whose stock is certified to meet the production benchmarks as described within the *Australian Standard (AS2303- 2015 Tree stock for landscape use)*.

Required new replacement tree/s are to be professionally planted & and maintained for at least a minimum full Sydney active growing season. defined as being from mid-August through late May.

### **Tree #5: *Ficus rubiginosa*** (Port Jackson Fig)

The subject site is confirmed to be within a designated 10/50 Vegetation Entitlement Clearing area by the NSW SEPP. The relevance being, technically, Tree #4 & Tree #5 can be removed without any formal permission from the local consent authority, the NBC.

Tree #5 is located within the subject site (uphill side of the existing dwelling footprint) adjacent to the existing dwelling.

The as proposed new work is confirmed to breach the TPZ total surface area for Tree #5.

By our calculation, the total TPZ surface area of Tree #5 is 272.66m<sup>2</sup>. The proposed addition to existing dwelling is equates to an approximate 28.59m<sup>2</sup> mathematical disturbance of total TPZ surface area for Tree #5. This mathematically equates to approximately 10.5% of total TPZ surface area, (defined by AS4970-2009 as a Major Encroachment).

Factually, the breach by percentage is significantly lower as most of its carport structure is suspended. The design allows for flexibly located footings/piers. (See Page 18 & 19)

This strategy without challenge reduces the actual current total TPZ surface area breach to well less than 10% of the Tree #5 total TPZ surface area. A less than 10% breach is defined by AS4970-2009 as a Minor Encroachment, a way preferable outcome for all & especially for the locally indigenous Tree #5.

Should any significant diameter 'live root/s' (greater than 50mm in diameter), be exposed that are unable to be avoided by 'bridging over or re-locating the footing/pier site), the direct input with documentation including supporting evidence photographs from the retained project arborist is specified as essential to confirm as close as possible to best Arboriculture Practice being applied.

Tree #5 is additionally specified to require TPZ temporary 'temporary tree trunk guard' as well as native tree mulch being instated within the subject site ground level where proposed works are within the Tree #5 total TPZ surface area.

*In our opinion, with intensive management, this tree is assessed as able to be viably retained.*

NBC policy when trees have been approved to be replaced by impacts for proposed works, is to replace those trees with new trees that at maturity will equal & preferably exceed the existing 'green footprint' previously provided (when in good health & vigour) by the discussed in detail.

## Growing My Way Tree Services

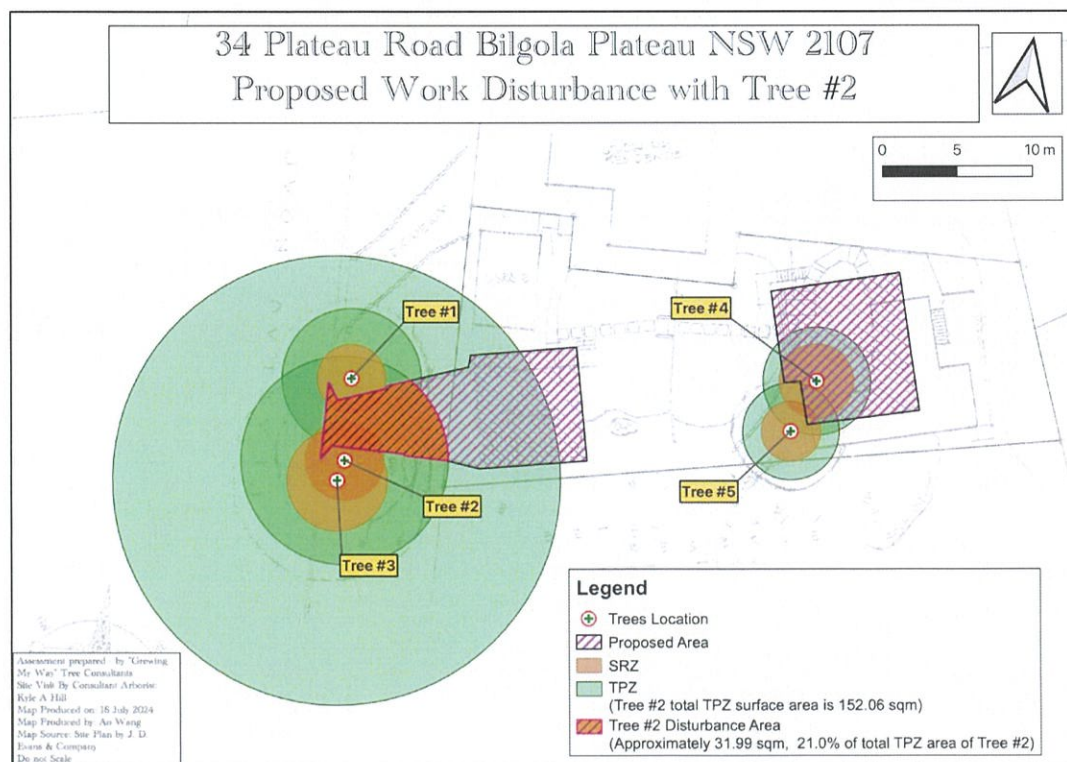
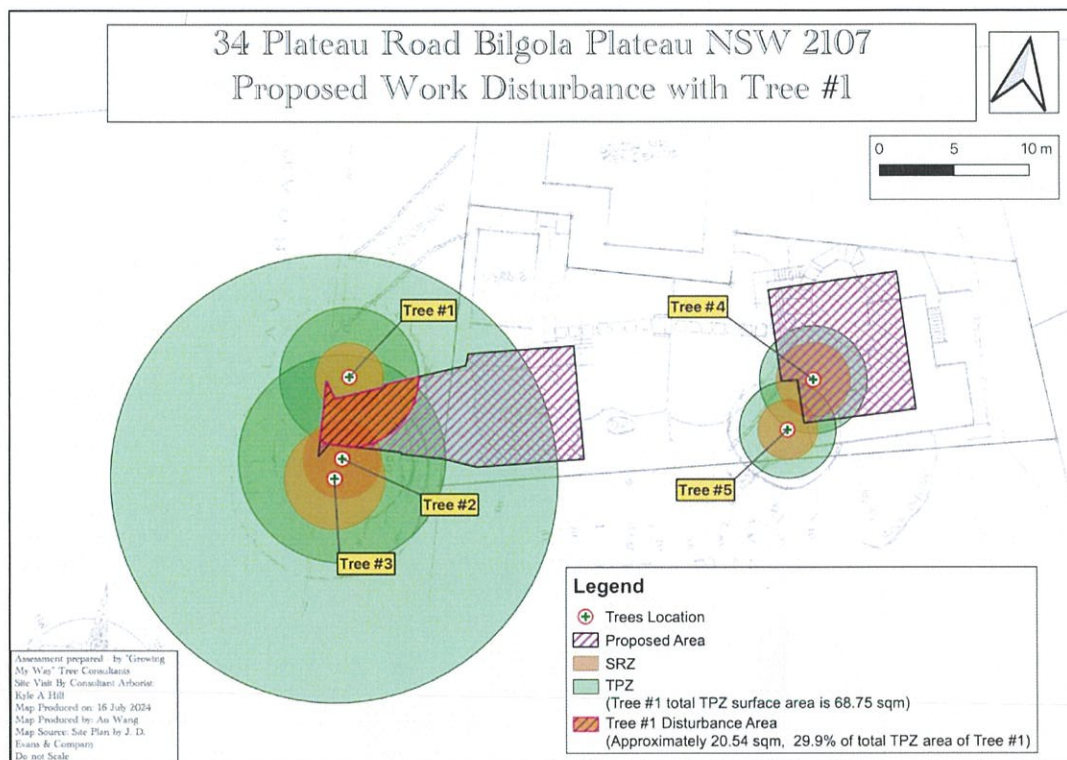
New trees are specified to be sourced from growers/suppliers whose stock is certified to meet the production benchmarks of the Australian Standard (AS23023-2015 Tree stock for landscape use). New trees are to be professionally planted & managed for a minimum of one coastal Sydney growing season (late August through early June).

Tree removal can only be undertaken by suitably qualified practitioners (or those always supervised/instructed by such a person) in compliance with the provisions within the WorkSafe NSW, (old WorkCover NSW) "*Amenity Tree Industry – Code of Practice 1998*".

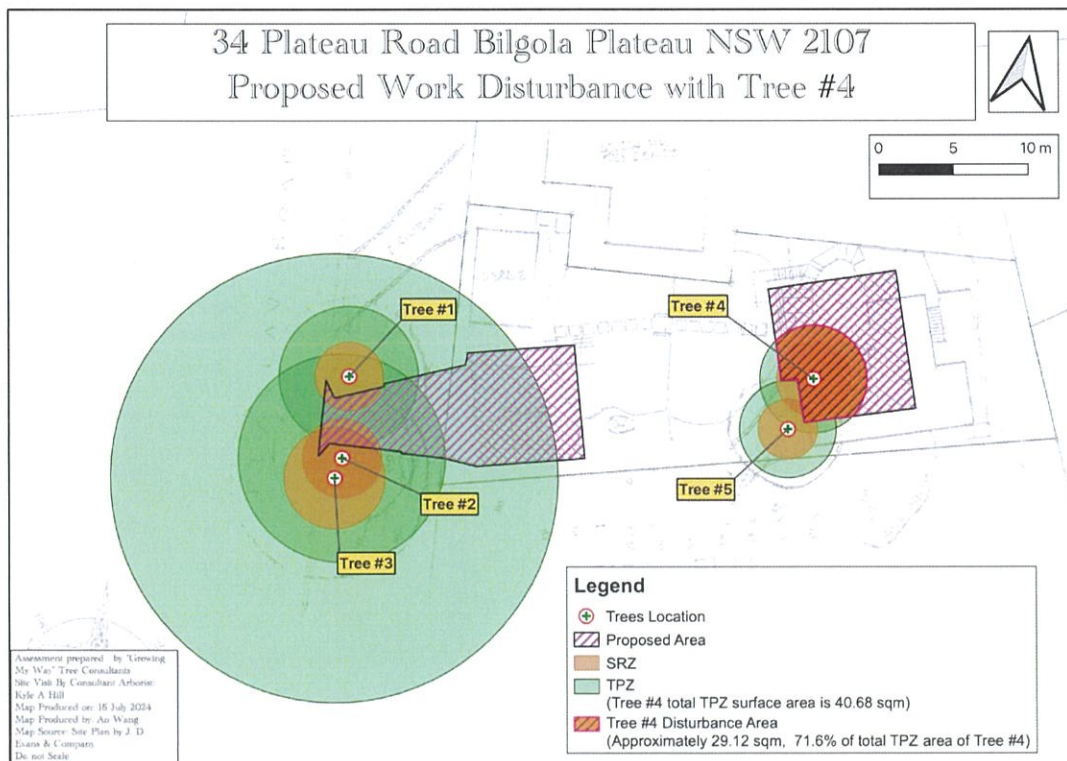
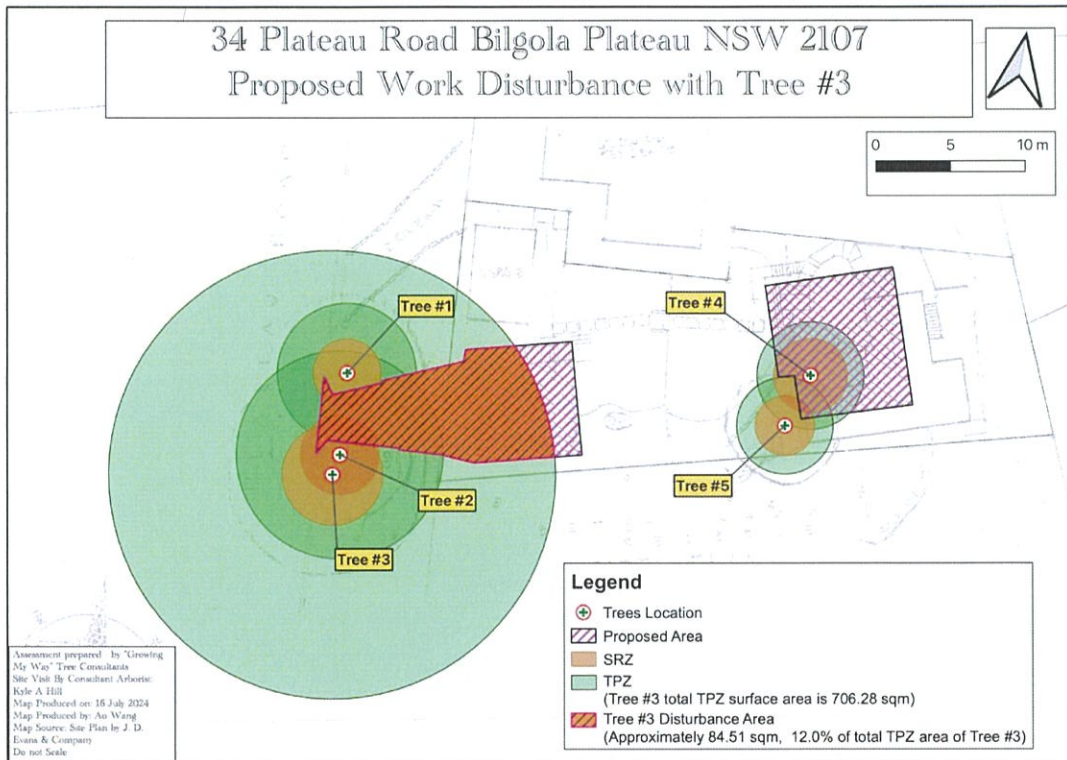
See the below potentially suitable to the subject site tree species list is provided within this document. (The list includes both Exotic & Australian Native species. It is not necessarily the only species potentially chosen/specified for the subject site. We additionally, acknowledge that species availability may have an impact on the preferred chosen species.)

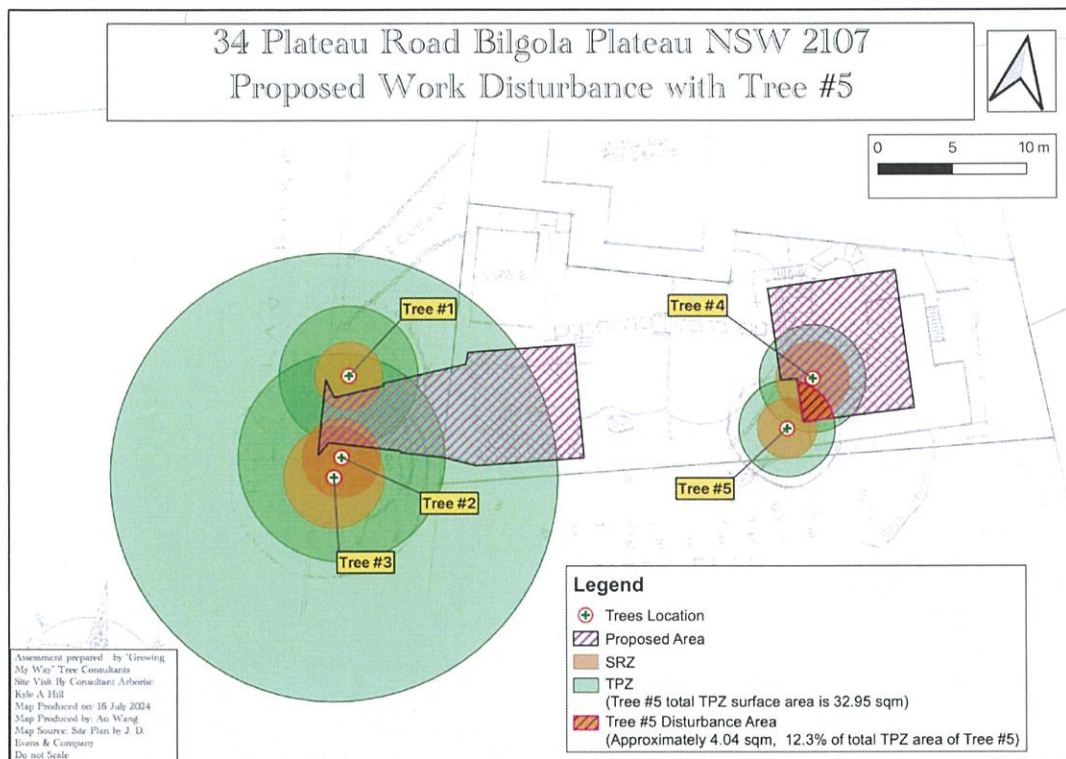
- *Backhousia citriodora* (Lemon Scent Myrtle)
- *Banksia integrifolia* (Coast Banksia)
- *Banksia serrata* (Old Man Banksia)
- *Livistona australis* (Cabbage Tree Palm)
- *Melaleuca linariifolia* (Snow in Summer)
- *Michelia champaca* (Himalayan Magnolia)
- *Tristanopsis laurina* 'Luscious'™ (Watergum Cultivated Variety)
- *Waterhousea floribunda* 'Green Avenue'™ (Weeping Lilly Pilly)

## 5.2 TPZ / SRZ Tree Disturbance Calculation Diagrams









### 5.3 Preliminary Site Specific “Tree Plan of Management”

#### Pre-Commencement of Works

- Establish builder’s common boundary fencing to establish isolation from the as di discussed as able to be retained in a viable manner.
- Install ‘temporary metal mesh fencing panels with above ground supports’ Tree #5
- Install ‘temporary tree trunk guard’ for Tree #1, Tree #2 & Tree 3.
- Install native mulch for the life of the project with a maintained thickness of 50mm to 75mm
- TPZ installations (builders common boundary fencing) & mulch instated must be ‘signed off’ as being AS4970-2009 compliant. This requires documentation to be in writing with supporting photographic evidence. This document must be provided to the appointed Principle Certifying Authority.
- In the unlikely event, excavation (completed manually) exposes a ‘live root’ of a significant diameter it can only be managed & documented relative to the management strategy applied by the retained Project Arborist. Again, this requires documentation to be in writing with supporting photographic evidence. This document must be provided to the appointed Principle Certifying Authority.

#### Commencement of and During Works

- Ensure common boundary isolation fencing & mulch thickness is always intact.
- Any ‘live roots’ of any diameter are exposed they ideally should be covered if not by subject site topsoil, damp, hessian, or similar suitable geotextile matting to reduce any desiccation by exposure to direct sunlight.

#### Post Completion of Works

- Confirm the presence & condition of the required by the DA determination ‘Conditions of Consent’ individual tree required to be retained.

- *The above is to be certified in writing with supporting photographic evidence as being DA determination 'Conditions of Consent' plus AS4970-2009 provisions compliant relative to all required to be retained trees.*
- *All documentation from each stage of works must be provided to the appointed Principle Certifying Authority as soon as is reasonably possible post each stage of works being completed.*

## 6. Conclusions

- The proposal in its present format is considered as able to be built without any compromise to any discussed tree with respect to individual useful Life Expectancy with implementation of the once finalised Site Specific 'Tree Plan of management'.
- This document can be submitted to the NBC assessment officers for review & approval in its present form.

If you have any questions relating to this report or implementation of recommendations, please contact Kyle Hill on 0412-221-962.

Yours faithfully,



Kyle A. Hill (AQF level 5 & 8 Practicing & Consulting Arborist)

## 7. Limitations on the use of this report

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, & directly attached to that submission, report or presentation.



## 8. Assumptions

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible; however, Growing My Way Tree Services, can neither guarantee nor be responsible for the accuracy of information provided by others.

### Unless stated otherwise:

Information contained in this report covers only the trees that were examined & reflects the condition of the trees at the time of inspection.

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

## 9. Recommended References

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

Barrell, J. 1995, '*Pre-development Tree Assessments*', in Trees & Building Sites, Proceedings of an International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings, International Society of Arboriculture, Illinois

Dr. G. Watson & Dr. D. Neely, '*Trees & Building Sites*', LSA Illinois USA 1995

Dr. N. Matheny & Dr. J.R. Clark, '*Trees & Development*', ISA Illinois USA 1998

Phillip J. Craul, '*Urban Soil in Landscape Design*', J. Wiley & Sons, New York USA 1992

## 10. Selected Bibliography

Hitchmough, J.D. 1994. '*Urban Landscape Management*', Inkata Press, Sydney.

Mattheck, C. & Breloer, 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.



## 11. Appendix A – Glossary

### 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 (i.e., 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 Five years**

**Medium = Five–Fifteen years**

**Long = more than Fifteen 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 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 effect 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 (e.g., live leaves &/or bark). Some dead wood is common in several 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 Overhead Powerlines

**HVOHP** High Voltage Overhead Powerlines

**ABC** Aerial Bundled Cable

## 12. Attachment A: Tree Protection/Management Prior to & 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**.

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 monthly checks by an Arborist.

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

