"GROWING MY WAY"

Tree Consultancy

Established 1977

EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

PO Box 35, Newport Beach NSW 2106

Phone: (02) 9997-4101 Mobile: 0412-221-962 Fax: (02) 9940-0217

E-mail: kyleahill@optusnet.com.au

ABN 97 965 355 200

Construction Impact & Management Statement: Lodged DA2021/1802

November 2021

Site: **Lot 10 in DP 233448**
11 Bertana Crescent
WARRIEWOOD, NSW

Client: **Mrs. Angela Curgenven**
c/ Mark Hurcum Design Practice Pty Ltd
271 Alfred Street North
NORTH SYDNEY, NSW 2060

Author: Kyle A Hill
Registered (Arb Aus #1884) Practising & Consulting Arborist
Post Graduate Certificate in Arboriculture, Uni of Melb
Diploma of Horticulture–Arboriculture TAFE, Grow SA
Certificate of Horticulture, TAFE
Certificate Advanced Tree Care TAFE
Founder -Growing My Way Tree Services (1977)
Member of International Society of Arboriculture
Member of Arboriculture Australia

1 Summary

Angela Curgenven (property owner) via Nitika Duggal (Mark Hurcum design Practice) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to the proposed *Alterations/Additions to an existing dwelling, including the alteration of deck, addition of rumpus room & access stair in the family room* within the property known as 11 Bertana Crescent, Warriewood, (from herein the subject site). This document has been prepared following a request from the Northern Beaches Council (Landscape Referral Response) for additional information relative to the proposal & the management of one (1) tree. (A second exempt from protection Palm species is proposed to be removed as part of as lodged DA. As an exempt from protection species is not required to be discussed.)

The discussed tree is considered to be incompatible with he as proposed DA submission. This will be clarified in detail within this document in Section 5 (Discussion).

Whilst acknowledging the subject site as being within an 'E4' Environmental Living Land Zoning area the discussed tree is a planted *Eucalyptus* spp. not locally indigenous.

By Best Practice Arboriculture Principles, the tree is totally unsuitable in its present location relative to its propensity to 'drop' both live & dead branches over recent years. The tree has additionally been assessed as being in a 'state of advanced decline'.

From a 'risk' level to persons & property the majority of its canopy overhangs permanent built infrastructure, not the least being the linked to dwelling open deck entertaining area.

The DA submission proposes the existing linked to the rear of the dwelling house to be raised so as to eliminate stairs from the residence to the deck. There is a 'special needs' person in the family that will greatly benefit from level access to the new open deck entertainment area (described as an 'open terrace' in plans as lodged).

Motor vehicle & pedestrian access is via Bertana Crescent.

The sole consent authority is the *NBC*. The old *Pittwater Council* Planning Instrument (*Local Environment Plan, 2014*) applies at the time of writing.

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

- *Site Survey by CMS Surveyors, dated, 17 June 2021;*
- *Pittwater Council/NBC "Tree Management Provisions" &*
- *SEPP 'Vegetation in Non-Rural Areas, 25 August 2017.*

The aim of this report is:

1. *To confirm tree health, vigour & condition considering any impact foreseen by the proposed Alterations & Additions.*
2. *To provide a list of potentially suitable to the subject site & its local surrounding environment replacement tree species.*

This document supports (relative to tree management) the proposal for *Alterations/Additions.*

Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist* has prepared this report based on "*Visual Tree Assessment" (VTA).* Data was collected on Saturday, 20 November 2021.

Table of Contents

1 Summary 2
2 Introduction 5
3 Methodology 6
4 Observations 7
4.1 The Site 7
4.2 The Proposal 11
4.3 Tree Location & Site Images 14
4.4 The Tree – Summary Table 15
5 Discussion 16
6 Conclusions 18
7 Limitations on the use of this report 19
8 Assumptions 19
9 Recommended References 19
10 Selected Bibliography 19
Appendix A – Glossary 20

2 Introduction

This report contains observations & recommendations intended to assist in the management of the one (1) individual tree identified as necessary to be discussed by virtue of its location & proposed works, i.e., *Alterations/Additions to an existing dwelling, including the alteration of deck, addition of rumpus room & access stair in the family room.*

Multiple other trees are located within both the subject site & adjoining common boundary properties but are not discussed as they are well away from & therefore not impacted upon by the proposed works supported within this document.

Built form within the subject site is a single dwelling residence, with hard & soft landscaping & an inground (rear yard) swimming pool.

This document supports the replacement of the discussed tree relative to its declining condition/previous behaviour (dropping of branches) & the proposed *Alterations/Additions to an existing dwelling, including the alteration of deck, addition of rumpus room & access stair in the family room.*

We confirm to be familiar with both the old *Pittwater Council* & now *NBC "Tree Management Provisions" plus the new SEPP "Vegetation in non–rural Areas, August 2017".*

The sole consent authority is *NBC.*

The subject site is NOT within a *NBC* designated "*Heritage Conservation Area*". The subject site is confirmed to NOT be a listed "*Heritage Item*" nor are any of the discussed trees known to be listed on any "*Significant Tree Register*". The tree discussed is NOT captured as being subject to the protection provisions within the state legislated '*NSW Scientific Committee'–final determination,* (*Threatened Species Conservation Act*) which identifies & protects the '*Pittwater spotted gum forest–endangered ecological community listing*' under '*NSW legislation'.* The subject site is confirmed to be within a '*C01*', "*Wildlife Corridor*" as defined within the *Pittwater 21 DCP (see page 8).*

Other protected trees, both within the subject site & adjoining common boundary properties are assessed as able to be retained without any impact relative to the DA proposal, as such no formal protection specification is required for these trees.

The subject site is zoned *"E4", 'Environmental Living'.*

3 Methodology

Assessment of the tree/shrubs has been from ground level by eye, using *Visual Tree Assessment* * *(VTA)* techniques developed by Claus Mattheck. The principles of *VTA* are explained in his widely-used reference book *"The Body Language of Trees (1994)"*.

Assessment includes:

- Tree's current condition & likely future health. Species tolerance to root disturbance &/or development
- Interpretation of Modified Concept Plans, Elevations etc.
- Likely future hazard potential to persons & property
- Tree's amenity value, such as significance, screening & habitat.

No root analysis, soil testing, 'Resistograph'® drilling or aerial canopy inspection was undertaken. See the following Appendices for further information:

- Appendix A Glossary of Common Arboreal terms

*** *VTA*–Visual Tree Assessment,** as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e. no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily identified visual indicators that suggest such an inspection is merited. Visual indicators are outlined within *The Body Language of Trees (Mattheck & Breloer, 1994). VTA* is a broadly used relatively standardised approach. More complex (can be invasive) diagnostic fault detection equipment may be recommended once visual indicators of potential defects are confirmed**.**

4 Observations

4.1 The Site

The report discusses only one (1) tree within Lot 10 of DP 233448. The site is 712.20m^2 by Site Survey in size. The site is linked to one (1) public road, one (1) public Right of Carriageway & two (2) residential lots.

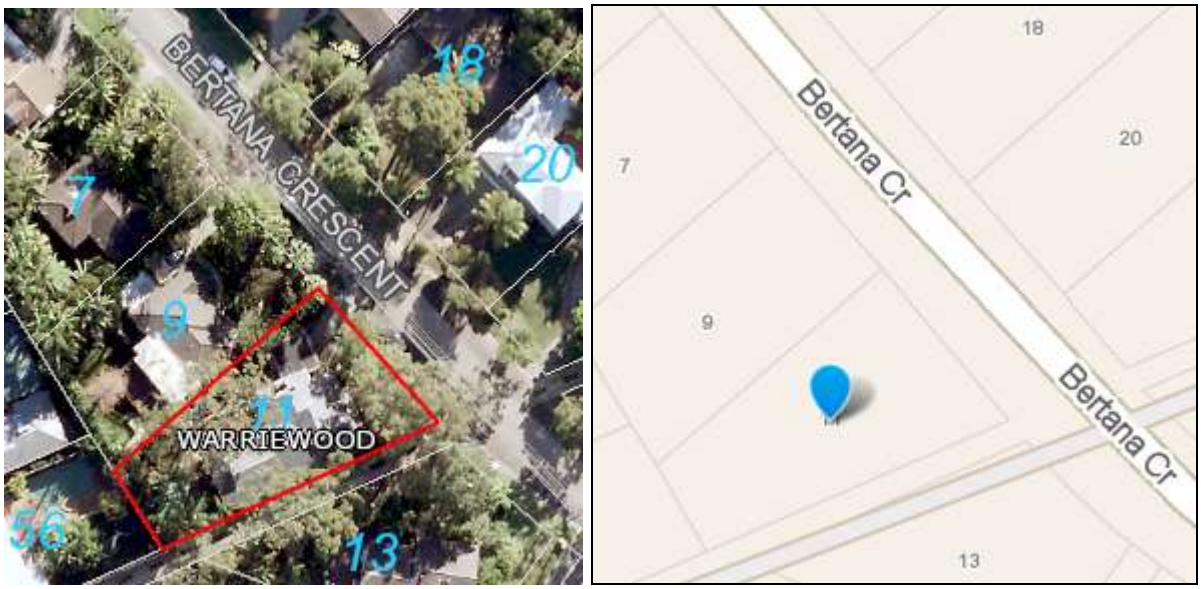
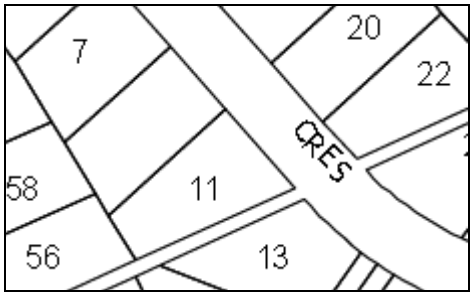


Figure 1: Aerial photograph with lot boundaries courtesy of NBC website tool, Map courtesy of Whereis.com web site tool.

The subject site is Land Zoned "E4" 'Environmental Living'.



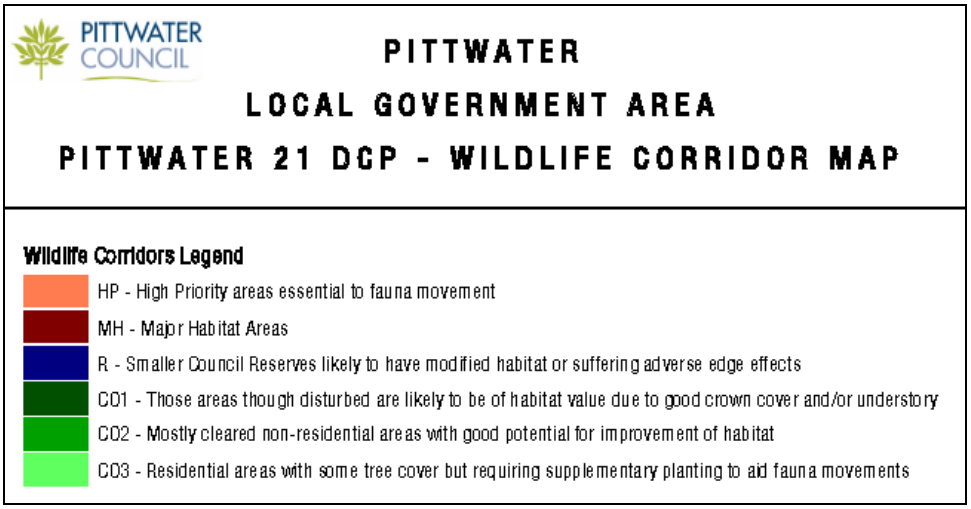


Figure 2: Confirms Pittwater 21 DCP-Wildlife Corridor Status.

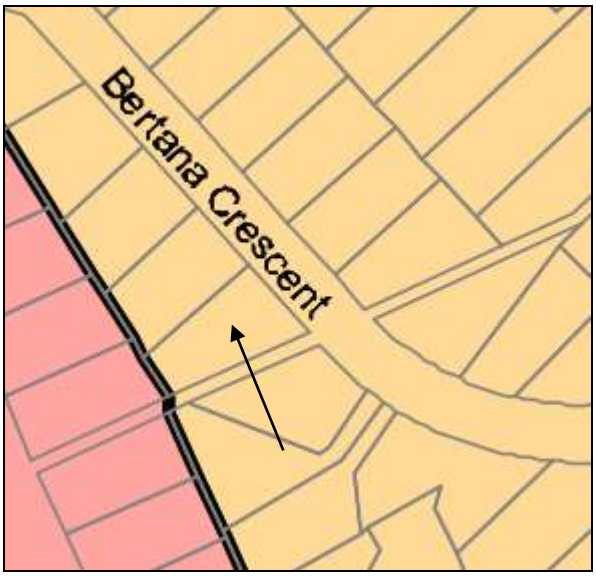
PITTWATER COUNCIL

Pittwater Local Environmental Plan 2014

Land Zoning Map - Sheet LZN_012

Zone

B1	Neighbourhood Centre
B2	Local Centre
B4	Mixed Use
B6	Enterprise Corridor
B7	Business Park
E1	National Parks and Nature Reserves
E2	Environment Conservation
E3	Environmental Management
E4	Environmental Living
IN2	Light Industrial
IN4	Working Waterfront
R2	Low Density Residential
R3	Medium Density Residential
R5	Large Lot Residential
RE1	Public Recreation
RE2	Private Recreation
RU2	Rural Landscape
SP1	Special Activities
SP2	Infrastructure
SP3	Tourist
W1	Natural Waterways
W2	Recreational Waterways



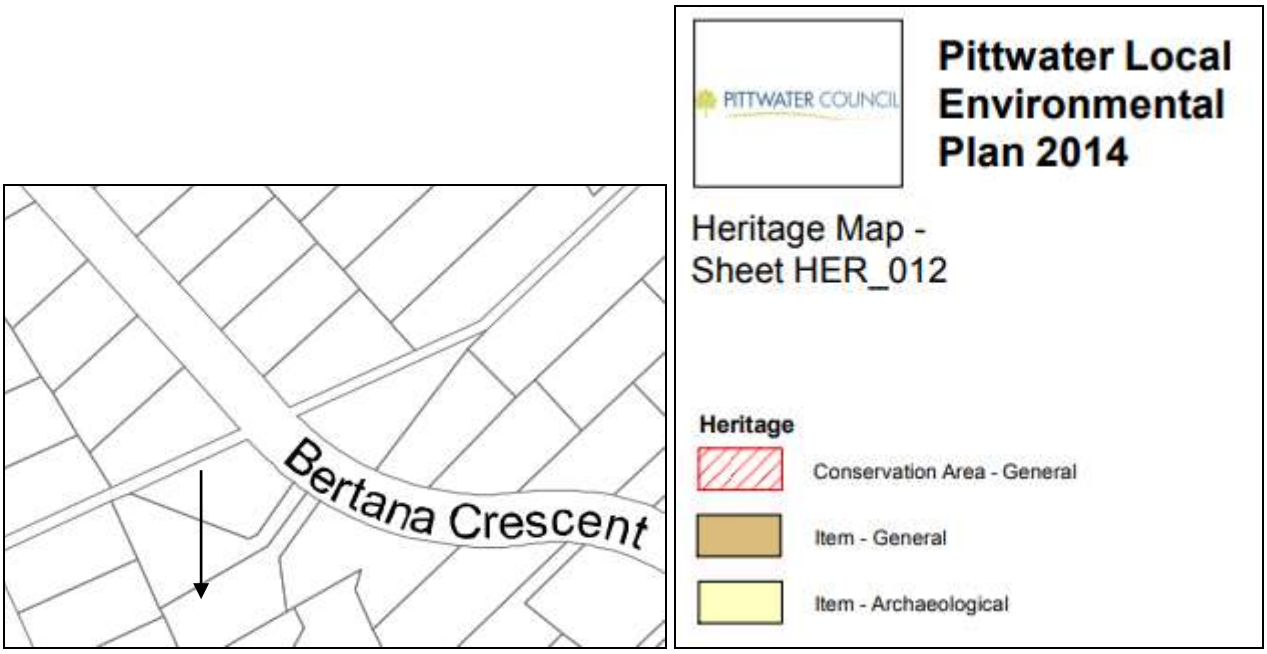


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a *NBC* designated "*Heritage Conservation Area*" *(see above)*. The site is also confirmed to NOT be a listed "*Heritage Item*" nor is it near any listed "*Heritage Item*". The discussed tree is NOT known to be on any '*significant tree register*'. The subject site & local environs are NOT located within a designated *'Wildlife Corridor'. (See Page 7 of this document.)*

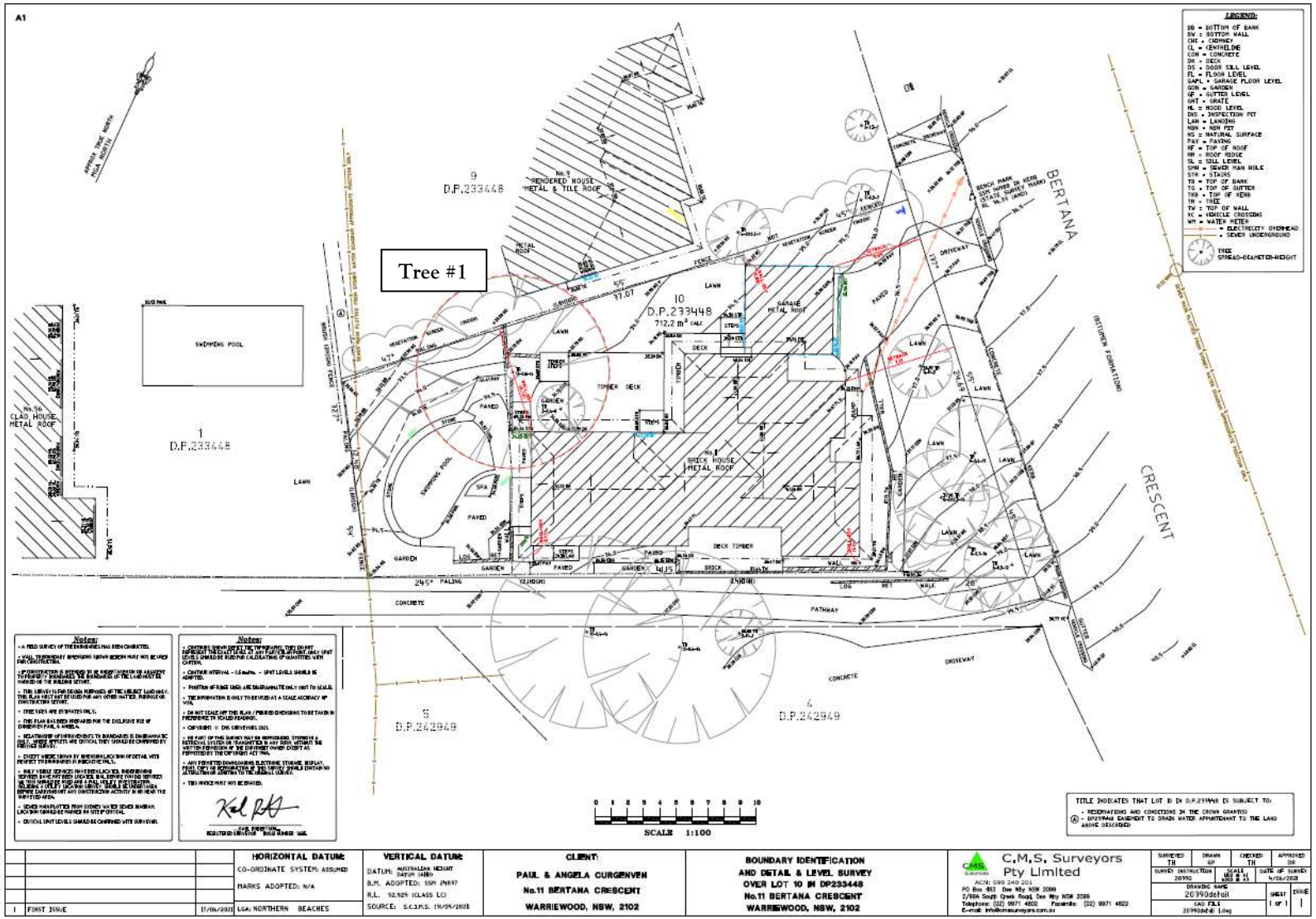
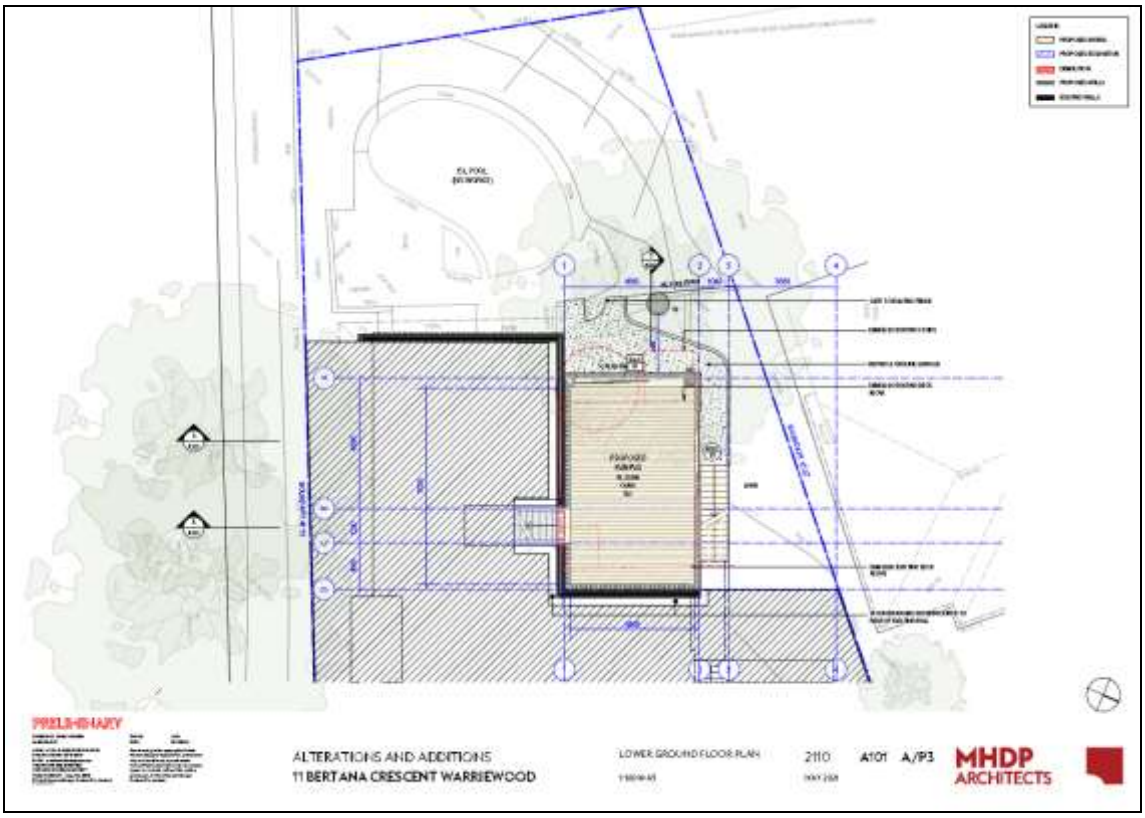


Figure 4: Site Survey with discussed Tree Location plotted

4.2 The Proposal



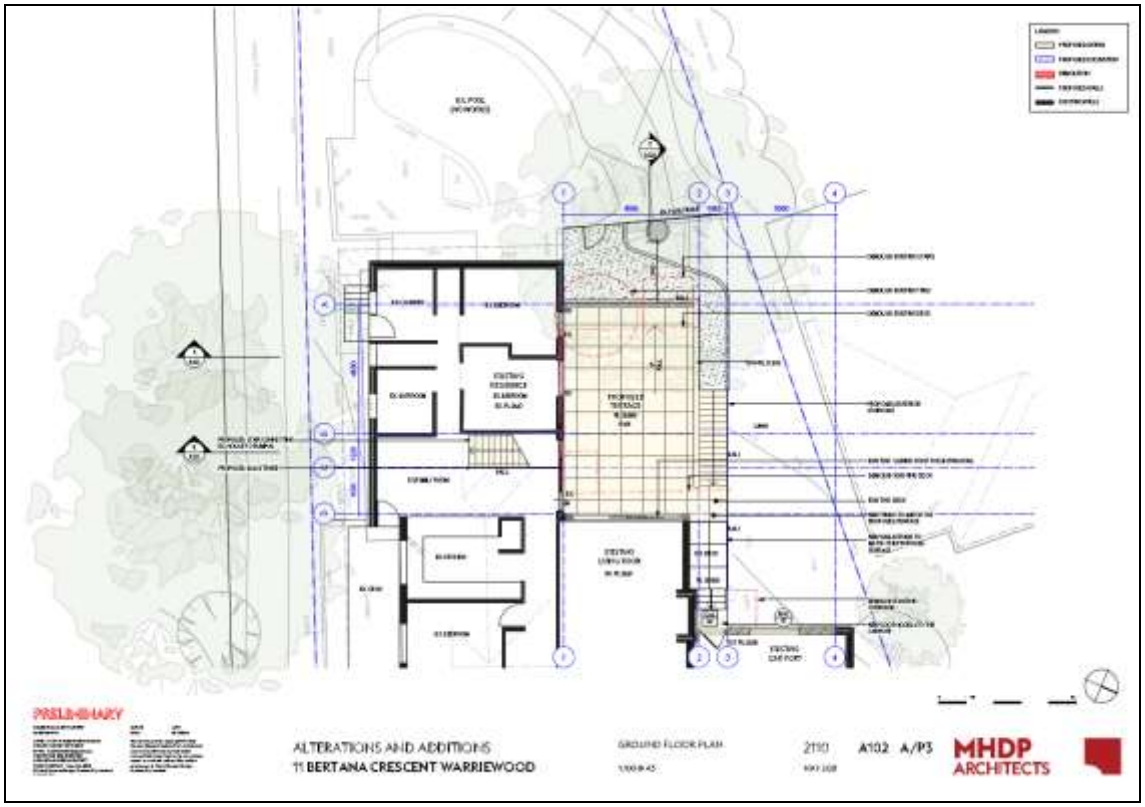
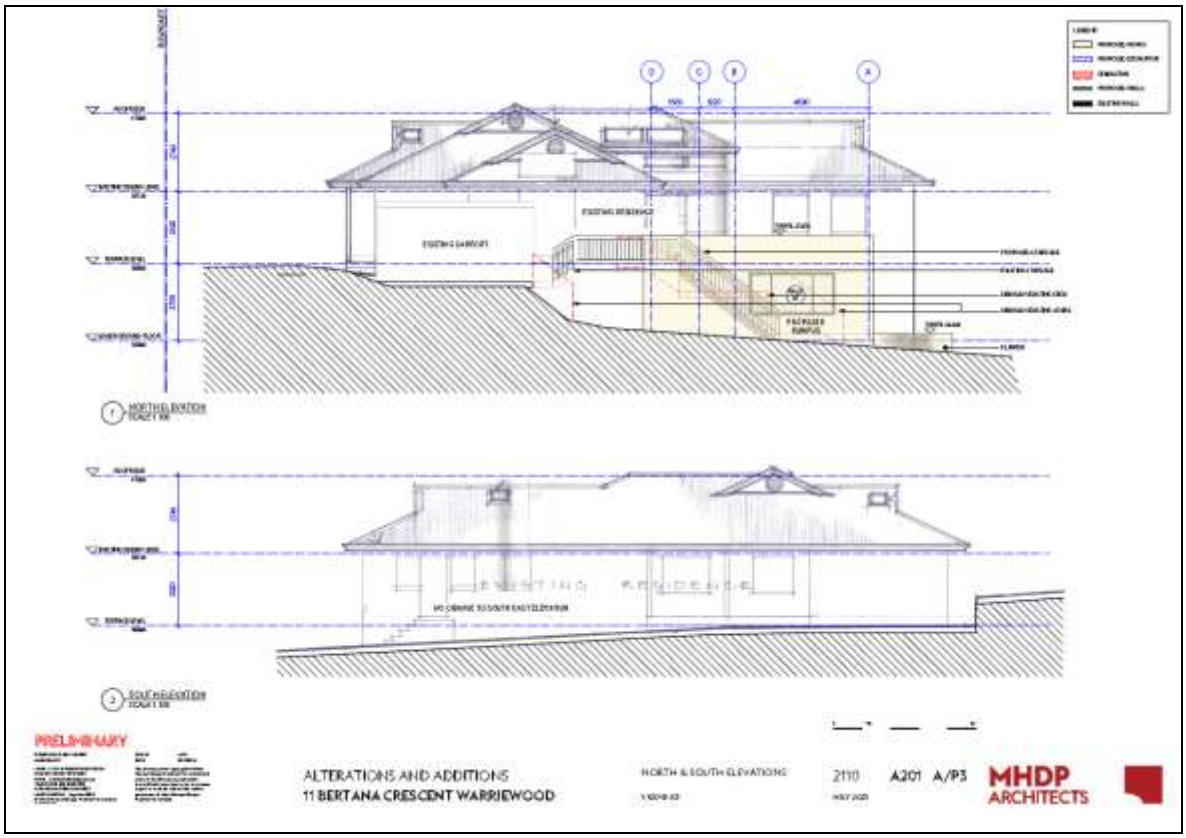


Figure 5: Illustrates the proposed Lower Ground Floor & Ground Floor Alterations/Additions.



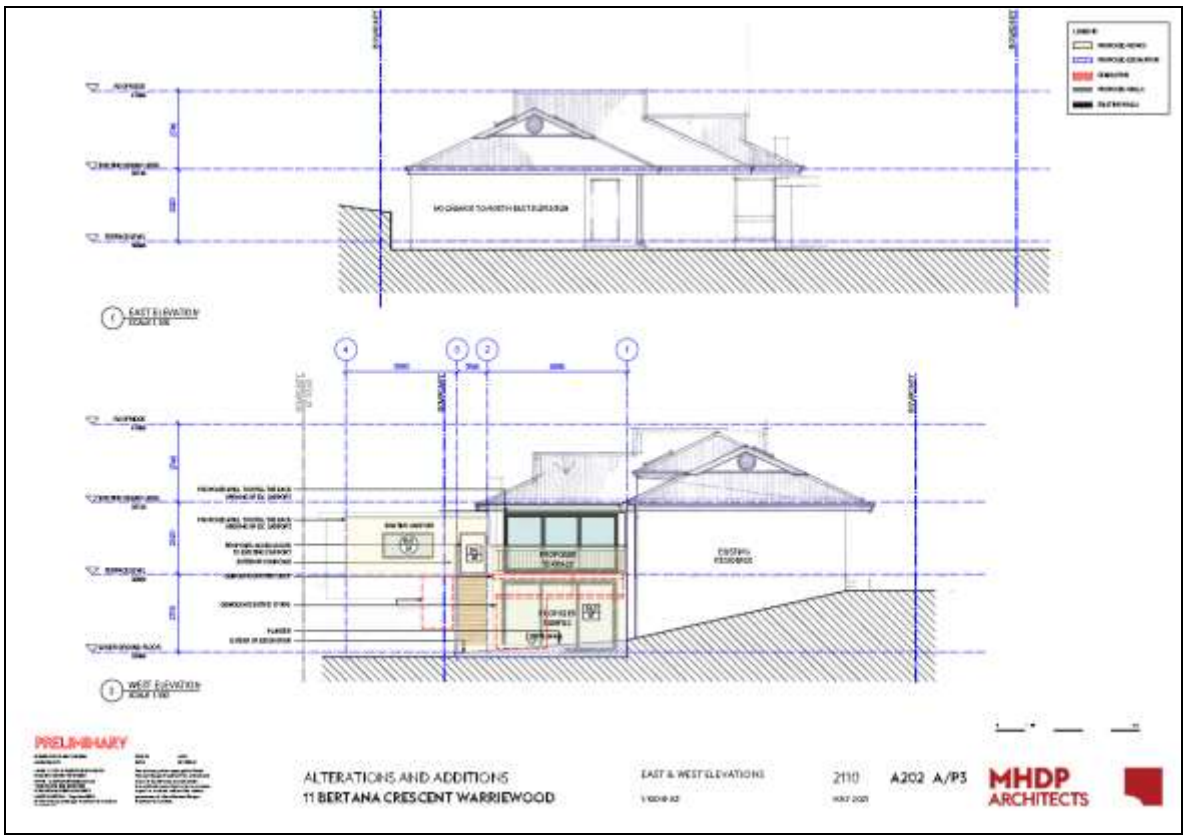


Figure 6: Illustrates the proposed Elevations.

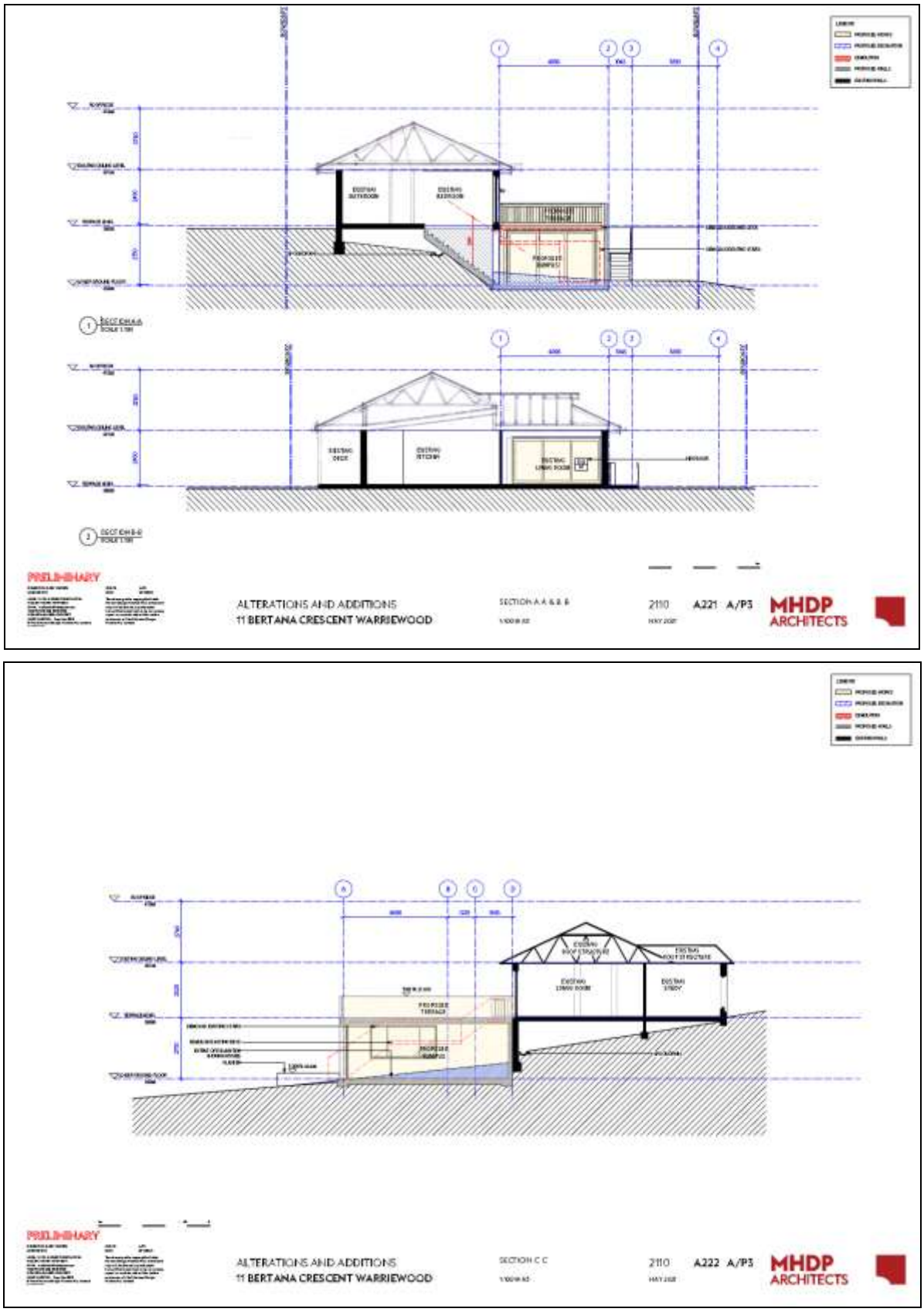


Figure 7: Sections Drawings illustrate the proposed excavation for rumpus room.

4.3 Tree Location & Site Images

Figure 8: Illustrates Tree Location & canopy profile as viewed from the Bertana Crescent roadway.

4.4 The Tree – Summary Table

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

Trees Recommended for removal	Trees Recommended for retention
Exempt species	Trees retainable but of low amenity

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Structure	Significance/ Retention Values	Comments
1	***Eucalyptus saligna*** *Sydney Blue Gum*	<21.00	<17.00	0.96	11.52	3.30	Overmature	Fair & Fair (declining)	Typical by Habit Significant number of dead/dying branches	Moderate/ Moderate (declining)	**<u>Replace</u>: The as proposed works require significant excavation for the rumpus room/ground level access to swimming pool area.** **Additional to the above comment the discussed tree is assessed as being in a 'state of decline'.**

5 Discussion

The *Australian Standard (AS4970–2009 Protection of trees on development sites)* is the guideline required to be addressed relative to best practice '*Tree Management Principles*'. See Chapters 3, 4 & 5 of the (*AS4970–2009* document.

The discussed tree is not a locally indigenous species. It is a species that naturally occurs in soils more dominated by alluvial valleys or shale derivative tops, *Robinson L Field Guide to the Native Plants of Sydney, Kangaroo Press, 200, 3rd edition*. (Simply, soils very different to its planted location.)

Regardless of any proposal for development (*Alterations/Additions to an existing dwelling, including the alteration of deck, addition of rumpus room & access stair in the family room*) the discussed tree is considered to be not only in an advanced 'state of decline', it also displays characteristics consistent with 'sudden branch drop syndrome'.

By intensive VTA ground level assessment from multiple locations it is evident the discussed tree drops both 'live' & 'dead branches' of a significant diameter (i.e., greater than 100mm). Client discussion confirms the failure of 'live branches' during both 'storm incidents' as well as on 'still weather days'. (Dead/dying branch failures are not discussed in detail as they are generally considered to be a management issue.)

'Still weather days' when 'live branches' fail where targets exist (persons or property) is considered unacceptable 'risk'.

The following photographs confirm dead/dying branches throughout the tree canopy as well as multiple previous 'branch failure sites'. Of greatest concern relative to tree health, vigour & risk is that the tree displays many dead/dying branch tips which is usually linked to 'root dysfunction'.

Figure 9: Previous page photographs illustrates dead/dying branches/branch tips plus branch failure sites. Above arrow points towards dysfunctional tissue consistent as an indicator of internal fungal pathogen activity.

The above photograph (red arrow) confirms additional concern relative to the tree & its Useful Life Expectancy as this area is consistent as an indicator of internal fungal pathogen activity.

The below Nearmap® aerial photographs additionally confirm the tree to have been in a 'state of decline' at least since October 2016. See below dated aerial photographs courtesy of Nearmap® .

Figure 10: Left to right, arial photographs dated Sunday 2 Oct 2016, Monday 13 Apr 2020 & Wednesday 11 August 2021 clearly confirm canopy density decline in the last five (5) years.

By virtue of the tree being confirmed beyond reasonable doubt to be declining in health & vigour as well as its propensity to drop 'live branches' (still weather incidents) it is not considered reasonable to propose/support any design modifications that would eliminate current proposal Structural Root Zone radial distance (3.30m) disturbance (excavation-change to existing soil levels) or reduce the mathematical Tree Protection Zone radial distance (11.52m) breach, classed as being a 'Major Encroachment'.

There is ample area within the subject site for a new tree (locally indigenous species preferably) to be established in a manner that would provide long term 'landscape amenity' that the discussed tree has previously provided. See suggested species list.

Below is a list of considered to be potentially new tree species as a replacement for the discussed tree.

Locally Indigenous Species

- *Eucalyptus paniculata (Northern Gry Ironbark)*
- *Eucalyptus botryoides (Bangalay Gum)*
- *Glochidion ferdinandi (Cheese Tree)*
- *Banksia integrifolia (Coast Banksia)*

Potentially Suitable Species

- *Acacia binervia (Coast Myall)*
- *Alphitonia excelsa (Red Ash)*
- *Backhousia myrtifolia (Grey Myrtle)*
- *Backhousia citriodora (Lemon Scent Myrtle)*
- *Melaleuca linariifolia (Snow in Summer)*

6 Conclusions

- **Relative to the information as presented the** *GMW Consultancy* **supports the replacement of the discussed tree in a location where it can develop with no conflict to exiting built fom. proposed works as presented in documentation reviewed.**
- **The** *DA submission* **be re-assessed for determination by council officers taking into account the contents of this document.**

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

Kyle A. Hill
[AQF level 5 & AQF level 8 Registered Practicing & Consulting Arborist]

7 Limitations on the use of this report

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

8 Assumptions

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

Unless stated otherwise:

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

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

9 Recommended References

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

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

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

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

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

10 Selected Bibliography

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

Mattheck, C. & Breloar, H. 1994 '*Body Language of Trees*', The Stationery Office, London.

AS 4373:2007, '*Pruning of Amenity Trees*', Standards Australia.

AS 4970:2009, 'Protection of Trees on Development Sites", Standards Australia.

BS 5837:2005, '*Guide for Trees in Relation to Construction*', Standards Board, UK.

Appendix A – Glossary

Glossary of common Arboreal terms

Age: **I** *Immature* refers to a refers to a well-established but juvenile tree

SM *Semi-mature* refers to a tree at growth stages between immaturity & full size

M *Mature* refers to a full sized tree with some capacity for further growth

LM *Late Mature* refers to a full sized tree with little capacity for growth that is not yet about to enter decline

OM *Over-mature* refers to a tree about to enter decline or already declining

LS *Live Stag* refers to a tree in a significant state of decline. This is the last life stage of a tree prior to death

Hth & Vig Health & Vigour

Health refers to the tree's form & growth habit, as modified by its environment (aspect, suppression by other tree, soils) & the state of the scaffold (ie. trunk & major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health & it is possible for a tree to be healthy but in poor condition/vigour. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Vigour refers to the tree's growth rate/condition as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion & the degree of dieback. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Useful Life Expectancy (ULE) refers to any individual tree specimen's potential life

expectancy (viability) based on VTA assessment, three groups are described,

Short = Less than Fifteen years

Medium = Fifteen – Twenty-five years

Long = more than Twenty-five years

Significant diameter roots are defined as those being greater than 0.05m/50mm in diameter.

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

Structural Root Zone (SRZ) refers to a radial offset which relates to tree stability. This zone is presumed to be main location of the tree's structural support roots. It is calculated using the formula *SRZ radius= (D x 50)$^{0.42}$ x 0.64.*

Primary Root Zone (PRZ) refers to a radial offset of ten (10) times the trunk DBH measured from the centre of the trunk. This zone often contains a significant amount of (but by no means all of a tree's) fine, non-woody roots required for uptake of nutrients, oxygen & water.

Tree Protection Zone (TPZ) is ideally a "No Go Zone" surrounding a tree to aid in its ability to cope with disturbances associated with construction works. **TPZ = DBH x 12**. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death & the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the TPZ.

A TPZ is required for each tree or group of trees within five metres (unless otherwise specified) of building envelopes.

Stem/bark inclusion refers to a genetic fault in the tree's structure. This fault is located at the point where the stems/branches meet. In the case of an inclusion this point of attachment is potentially weak due to bark obstructing healthy tissue from joining together to strengthen the joint.

Decay refers to the break down tissues within the tree. There are numerous types of decay that affect different types of tissues, spread at different rates & have different affect on both the tree's health & structural integrity.

Point of Attachment refers to the point at which a stem/branch etc join.

Dead wood refers to any whole limb that no longer contains living tissues (eg live leaves &/or bark). Some dead wood is common in a number of tree species.

Die back refers to the death of growth tips/shoots & partial limbs. Die back is often an indicator of stress & tree health.

One dimensional crown refers to branching habits & leaves that extend/grow in One direction only. There are many causes for this growth habit such as competition & pruning.

Crown Foliage Density of Potential (CFDP) refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

Epicormic growth/shoots refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

Over Head Powerlines (OHP) Over head electricity wiring.

LVOHP	Low Voltage Over head Powerlines
HVOHP	High Voltage Over head Powerlines
ABC	Aerial Bundled Cable