

34 Coasters Retreat

Arboricultural Assessment and Report

Supplied by Ecological Consultants Australia Pty Ltd

Technical Expertise by Consulting and Practicing Arborist Kyle Hill (Arb Aus #1884)

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About this document

This report was commissioned by Ecological Consultants Australia on behalf of the Architect Sue Harper of Tropp and the property owners. This document is by: “GROWING MY WAY” Tree Consultancy Established 1977 in conjunction with Ecological Consultant’s Australia (ecologicaca@outlook.com). “GROWING MY WAY” PO Box 35, Newport Beach NSW 2106 Phone: (02) 9997-4101 Mobile: 0412-221-962 Fax: (02) 9940-0217E-mail: kyleahill@optusnet.com.au ABN 97 965 355 200

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1 Summary

- Twelve trees (12) were assessed on-site. Eleven are locally native of these two are dead.
- Two trees are proposed for removal. One Cheese Tree and a small *Angophora floribunda*. Replacement planting and seed collection has been recommended.
- The proposed dwelling and associated water-tanks will be on piers. Piers will be in the critical root zone of a Grey Iron Bark. Exploratory hand excavation is required to ensure no damage to significant roots – as per details in this report.
- The waste-water dispersal area can be located outside the primary root zone of trees.
- Additional locally native trees are growing on-site and are shown on the survey plan. These are outside of the proposed development zone, including that of services and low-key pathway to access the proposed dwelling. These trees will be excluded from the development area via exclusion fencing.
- Exclusion fencing is required to minimise the number of trees within the construction zone. Trees within the construction zone are to have protecting fencing – as per recommendations.

2 Introduction

This report contains observations & recommendations intended to assist in the management of the **twelve (12)** trees identified as necessary to be discussed.

Eleven are subject to the Pittwater Council tree management provisions as outlined in the Pittwater Council “Local Environment Plan. The sole consent authority is Pittwater Council.

Information related to individual trees was gathered by onsite data collection with cross referencing to:

- Plans & Elevations, by Troppo Design and Construction (S. Harper 2015);
- Survey by C.M.S surveyors Pty Limited Dated: 27th April 2015
- Observations & data collection on site by Kyle Hill (Consulting Practicing Arborist), Mia Dalby-Ball and James Baldry.

The aim of this report is:

1. To confirm the viability of the discussed trees, relating to their individual health, vigour & condition taking into account any impact foreseen by the proposed development.
2. Prepare specifications for the management of trees to be retained.

Trees identified as being viably retained will be specified to be managed & protected in compliance with the Australian Standard (AS4970-2009) for the protection of trees on development sites.

A site specific developed “TREE MANAGEMENT STRATEGY” is included within this document.

Any tree removed is presumed to be required to be replaced with a new tree (in a more suitable location) that is capable to develop as a long term viable specimen chosen to provide renewed & improved private & communal landscape amenity.

No tree assessed was determined to have habitat potential other than for nesting fauna species. The development proposal relates to the construction of a new sole occupancy dwelling within an existing vacant residential allotment located at 34 Coasters Retreat (Lot 12 DP 25653).

Site Location

The site is located at 34 Coasters Retreat, on the border of the Kuring-Gai Chase National Park and comes under the Pittwater Local Government Area, NSW. The site has existing dwellings to the east, north and west. South (south west and south east) is bushland of Ku-ring-gai Chase NP (see Figures 1 and 2).

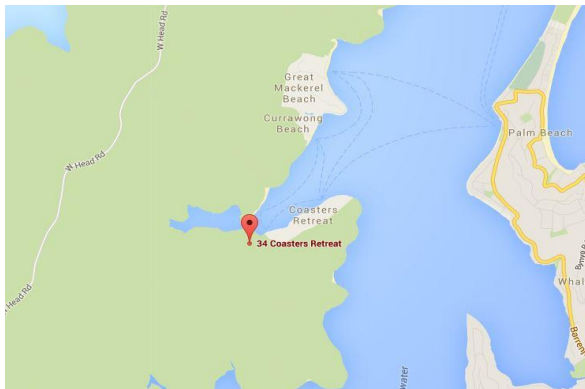


Figure 1. Location of 34 Coasters Retreat (Source: Google Maps)



Figure 2. Location of 34 Coasters Retreat showing flora density (Source: Google Maps)

3 Proposed Development

The proposed development refers to the construction of a new residency in a currently vacant lot located at 34 Coasters Retreat. The subject property is a water access only allotment. The subject property is a battle-axe style allotment and abuts private residential allotments to the northeast, northwest and southwest and Kuring-Gai Chase National Park to the southeast. See plans associated with this DA for details on the development (Troppo 2015).

Pittwater Council's Bushfire Prone Land Map identifies the subject property as containing designated Category 1 Vegetation, therefore the application of Planning for Bush Fire Protection -2006 (PBP) must apply in this instance.

The vacant lot contains a variety of mature tree species, many of which are indigenous to the area. Dominated by Forest Oak and Grey Iron bark. This proposal will impact select trees on the site either through direct removal or indirect impacts due to the presence of the residency.

Figure 3 displays position of the proposed residence as well as the surrounding vegetation.

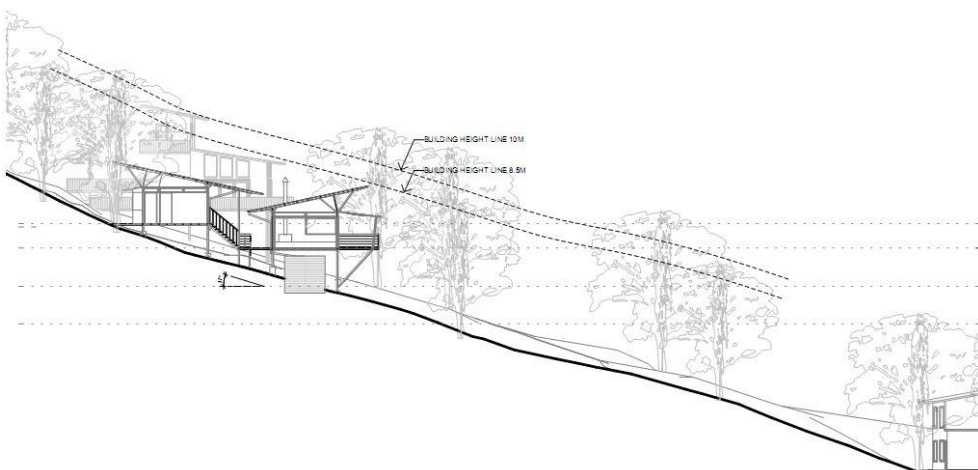


Figure 3. Floorplan of proposed development. Source: Architect (Troppo 2015).

4 Methods

4.1 Site Inspections

Kyle Hill with assistance from Mia Dalby-Ball and James Baldry assessed the site on 9th of December 2015. During the site visit, the development plans were used in order to determine its overall impact on the vegetation present. This involved the identification and analysis of trees on site. A later inspection was conducted by Mia Dalby-Ball to confirm tree species based on the site survey showing all trees. The most recent site survey has been used in this report.

Assessment of the tree has been from ground level by eye, using Visual Tree Assessment (VTA) techniques developed by Claus Mattheck. The principles of VTA are illustrated & 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
- 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:

Recommendations Section: Tree Protection/Management Prior to & During Construction

4.2 Previous studies

Previous studies reviewed included the ecology report by ECA (Baldry and Dalby-Ball Jan 2015) and Fire report by (McMonies 2015). As well as plans relating to the proposed development:

- Site Survey
- Architecture drawings (Troppo 2015)

Pittwater Council documents and mapping were also consulted including the:

- Pittwater Development Control Plan 21
- Wildlife Corridor Plan and Maps
- Vegetation Management Plan

5 Results

Figure 4 provides the tree plan with trees numbers identifying the trees summarised in Table 1 and discussed below.

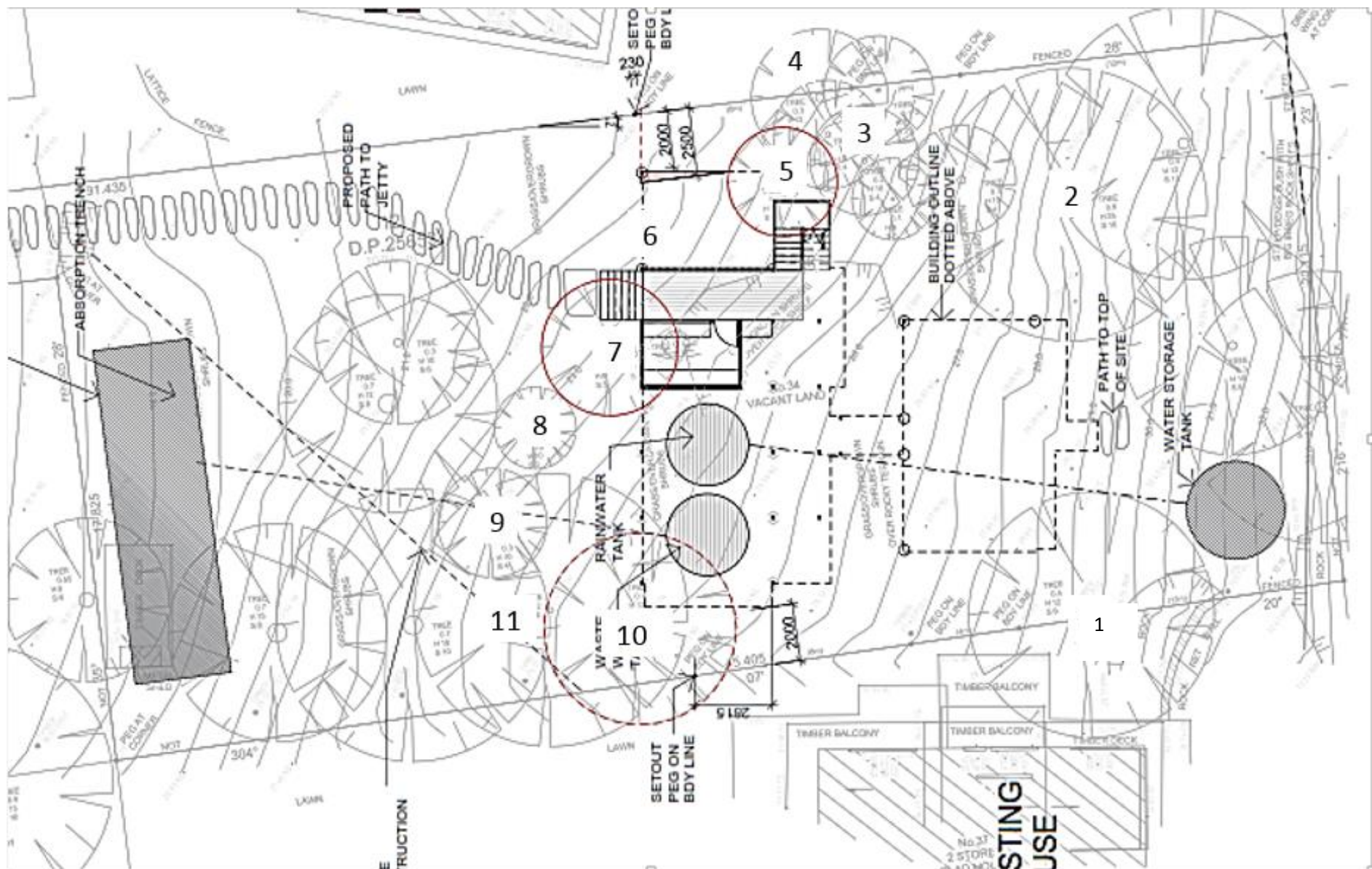


Figure 3 Survey plan with Tree numbers relating to the description in this report.

Table 1 Summary of tree data from on-site inspection.

Tree Number	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Structure	Retention/ Significance	Comments
1	<i>Toona ciliata</i>	14.0-15.0	8.0-9.0	0.6	7.2	2.7	M	Good & Good	Typical of specie	High & High	Requires intensive root management
2	<i>Allocasuarina</i> spp.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Tree has been removed
3	6 x <i>Allocasuarina torulosa</i>	Up to 13.0	Combine d canopies < 9.0	0.3	3.6	2.0	M	Good & Good	Typical of specie	High & High	Requires standard TPZ fencing
4	<i>Angophora floribunda</i>	Up to 14.0	< 9.0	0.37	4.6	2.2	M	Good & Good	Typical of specie	High & High	Requires standard TPZ fencing
5	<i>Glochidion ferdinandi</i>	8.0	6.0-7.0	0.32	4.0	2.1	M	Good & Good	Typical of specie	Medium & Medium	Tree is too close to proposed works. Remove & Replace
6	<i>Allocasuarina torulosa</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Tree is dead
7	<i>Angophora floribunda</i>	8.0-9.0	4.5-5.5	0.22	2.8	1.8	OM	Poor & Poor	Typical of specie	Medium & Medium	Tree is too close to proposed works. Remove & Replace
8	<i>Allocasuarina torulosa</i>	13.0-14.0	5.0-6.0	0.28	3.6	2.0	M	Good & Good	Typical of specie	High & High	Requires standard TPZ fencing
9	<i>Angophora</i>	10.0-	5.5-6.5	0.15	2.0	1.5	OM	Poor &	Typical	Medium &	Requires standard

Tree Number	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Structure	Retention/ Significance	Comments
	<i>floribunda</i>	11.0						Poor	of specie	Medium	TPZ fencing
10	<i>Eucalyptus paniculata</i>	21.0-22.0	11.0-12.0	0.65	7.8	2.8	OM	Fair & Fair	Typical of specie	High & High	Requires intensive root management & standard TPZ fencing
11	<i>Angophora floribunda</i>	16.0-17.0	12.0-13.0	0.6	7.2	2.7	M	Good & Good	Typical of specie	High & High	Requires standard TPZ fencing

5.1.1 “Tree Management Strategy” specific tree data

- Tree #1: With careful excavation (i.e. manual excavation) for flexibly located footings/support piers (these must be outside the Structural Root Zone radial distance of 2.70m) this tree's “Useful Life Expectancy” is very unlikely to be compromised by the development proposal.

No temporary “Tree Protection Zone” fencing is specified as the proposed works are largely within its calculated TPZ radial distance of 7.20m.

As the proposal is a suspended structure the building footprint will itself act as an exclusion zone.

No inground services are to installed within the TPZ radial distance.

Excavated footing/pier sites within the TPZ radial distance are to be photographed as evidence the excavation has not damaged any significant diameter woody tree root.

- Tree #2: This tree is confirmed to have been removed by unknown persons prior to our data collection process.

- Trees #3: This is actually a group of 6 same species trees. With careful excavation (i.e. manual excavation) for flexibly located footings/support piers (these must be outside the Structural Root Zone radial distance of 2.00m) these tree's “Useful Life Expectancy” is very unlikely to be compromised by the development proposal.

Temporary “Tree Protection Zone” fencing is specified as the proposed works are largely outside the calculated TPZ radial distance of 3.60m.

Temporary “Tree Protection Zone” fencing is specified to incorporate the group of 3 trees known as Tree's #4.

No inground services are to installed within the TPZ radial distance.

Excavated footing/pier sites within their TPZ radial distance are to be photographed as evidence the excavation has not damaged any significant diameter woody tree root.

- Trees #4: This is actually a group of 3 same species (different species to Trees #3) trees. With careful excavation (i.e. manual excavation) for flexibly located footings/support piers (these must be outside the Structural Root Zone radial distance of 2.20m) these tree's “Useful Life Expectancy” is very unlikely to be compromised by the development proposal.

Temporary “Tree Protection Zone” fencing is specified as the proposed works are largely outside the calculated TPZ radial distance of 4.60m.

Temporary “Tree Protection Zone” fencing is specified to incorporate the group of 6 trees known as Tree's #3.

No inground services are to installed within their TPZ radial distance.

Excavated footing/pier sites within the TPZ radial distance are to be photographed as evidence the excavation has not damaged any significant diameter woody tree root.

- Tree #5: This tree is confirmed as being required to be removed & replaced as it is too close to the proposed lower level pavilion.

- Tree #6: This tree is confirmed to be upright but dead. As such it is required to be removed & replaced as it is too close to the proposed lower level pavilion.

- Tree #7: This tree is confirmed to be upright but of poor health & vigour. As such it is required to be removed & replaced as it is too close to the proposed lower level pavilion.

- Tree #8: This tree's “Useful Life Expectancy” is very unlikely to be compromised by the development proposal.

Temporary “Tree Protection Zone” fencing is specified as the proposed works are totally outside the calculated TPZ radial distance of 3.60m.

Temporary “Tree Protection Zone” fencing is specified to incorporate the group of 4 trees known as Tree #8, 9, 10 & 11.

No inground services are to installed within its TPZ radial distance.

- Tree #9: This tree is confirmed to be upright but of very poor health & vigour. This tree's “Useful Life Expectancy” is very unlikely to be compromised by the development proposal.

Temporary “Tree Protection Zone” fencing is specified as the proposed works are totally outside the calculated TPZ radial distance of 2.40m.

Temporary “Tree Protection Zone” fencing is specified to incorporate the group of 4 trees known as Tree #8, 9, 10 & 11.

No inground services are to be installed within its SRZ radial distance.

- Tree #10: With careful excavation (i.e. manual excavation) for flexibly located footings/support piers (these must be outside the Structural Root Zone radial distance of 2.80m) this tree's “Useful Life Expectancy” is very unlikely to be compromised by the development proposal.

Temporary “Tree Protection Zone” fencing is specified as some of the proposed works are within its calculated SRZ radial distance of 2.80m.

Temporary “Tree Protection Zone” fencing is specified to incorporate the group of 4 trees known as Tree #8, 9, 10 & 11.

No inground services are to installed within its SRZ radial distance.

- Tree #11: With careful excavation (i.e. manual excavation) for flexibly located footings/support piers (these must be outside the Structural Root Zone radial distance of 2.70m) this tree's “Useful Life Expectancy” is very unlikely to be compromised by the development proposal.

Temporary “Tree Protection Zone” fencing is specified as some of the proposed works are within its calculated TPZ radial distance of 7.20m.

Temporary “Tree Protection Zone” fencing is specified to incorporate the group of 4 trees known as Tree #8, 9, 10 & 11.

No in ground services are to installed within its SRZ radial distance.

- The proposed dispersal trench located near the bottom of the wide section of the subject site is specified to be moved as far as possible from trees located near or just outside the northwest corner of the wide section.

5.1.2 Site Photos – Coasters retreat

	
Tree 1 trunk	Tree 1 part canopy showing proximity to existing neighbouring property
	
Trees at entrance – no development proposed here.	Tree 2 – cut tree
	
Tree 3 group of <i>Allocasuarina torulosa</i>	Canopy of Tree 10

5.1.3 Tree management / removal

Trees were assessed by Kyle Hill – a representative of ArborSafe. The proposal requires the removal of two trees on the site. The lot has a dual layer canopy. The upper stratum is dominated by Grey Ironbark which and the substratum of Forest Oak and Rough-Barked Apple trees.

Tree #2 is noted to have been removed prior to data collection process. Tree #5 is determined to be in compatible with the proposed lower pavilion footprint. Tree #7 is noted to be dead. Tree #5 & Tree #7 are supported to be removed & replaced.

The proposed dispersal trench located near the bottom of the wide section of the subject site is specified to be moved as far as possible from trees located near or just outside the northwest corner of the wide section.

Collect seed and give to the Pittwater council or a local nursery which grows native plants.

Forest Oak: plant 20 - assuming 10 will survive to maturity. Can be planted as tube stock size.

6 Summary of Recommendations

6.1 Tree Recommended Conditions

Tree management requirements as per the retained Practicing & Consulting Arborist's input are all supported. In addition to these the following is recommended:

- 1) Exclusion fencing is to be erected between the proposed studio office and bushland and remain in place for the duration of the construction. No building or other materials shall be stored in the bushland area.
- 2) Seed is to be collected from She-Oaks at least 10 Forest She-Oaks to be planted.

Removal of the dead tree is to occur with regard to wildlife site. Measures are to be put in place, prior to tree removal, to manage any fauna displaced by the tree removal.

Bushfire mitigation– on-going management

Bushfire considerations have also been made (McMonies 2015) and while tree removal is not proposed for bushfire purposes. Tree pruning of low over hanging limbs may be required. Any future tree works would have to be consistent with any Pittwater Council tree Policies.

The methodology proposed to be adopted for the proposed project to be completed in a manner whereby disturbance & possible adverse impacts to any retained tree's individual ULE is minimised is the guideline known as AS4970–2009 Protection of trees on development sites. (Standards are guidelines & not statute documents.)

Any pruning (above or below ground) must be at all times compliant with the Australian Standard (AS4373–2007 Pruning of amenity trees). The relevant Sections, Clauses & subclauses are Section 7 Clauses 7.1 & 7.2, subclause 7.2.2. Any total tree removal must be undertaken by persons that abide at all times to the "WorkCover NSW Industry Code of Practice, (1998)".

The Site Specific “Tree Management Strategy” requires the following points to be implemented.

- 1) Standard site perimeter fencing to exclude trees, where ever possible from the development area. The retained Principal Certifying Authority (PCA) will require photographic evidence this process complies with the “DA determination”.
- 2) Standard temporary fencing (1.80m tall) is specified to be installed around trees (radial distance of 6.10m where ever possible), or groups of trees within the development area. The reason being to reduce potential Tree Protection Zone & S Root Zone soil compaction &/or contamination. The retained Principal Certifying Authority (PCA) will require photographic evidence this process complies with the “DA determination”.
- 3) No “builder’s material” of any description is to be stored at any time during the life of proposed project within the trees TPZ radial distance of 6.10m. The reason being to reduce potential TPZ & SRZ soil compaction &/or contamination.
- 4) Work within Tree Protection Zone (TPZ) radial distance of 6.10m and 1m of major roots to be undertaken manually. The “site supervisor” must keep photographic records of all works undertaken. Piering for supports can be with light machinery within the TPZ however only after checks have been made manually to confirm no major trees roots will be damage. Work with TPZ must be minimised in both duration and intensity.
- 5) Any “live woody tree roots” exposed less than 0.05m/50mm in diameter are not considered to be significant & may be cleanly severed by construction site workers. The “site supervisor” must keep photographic records of all works undertaken.
- 6) Any “live woody tree roots” exposed greater than 0.05m/50mm in diameter are considered to be significant & will require the input of the sites retained Practicing & Consulting Arborist whose responsibility is to determine & directly supervise (as well as document with written & photographic evidence) the “best practice management process” to be adopted for any individual “live woody tree root”.

6.1.1 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.

6.1.2 9 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.

6.1.3 10 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

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

6.1.4 11 Selected Bibliography

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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.

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

Yours faithfully,

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