
rainTree consulting

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6 November 2017

35 TERRY STREET

AVALON BEACH, NSW

ARBORICULTURAL ASSESSMENT & DEVELOPMENT IMPACT REPORT

Report Ref No- RTC-15617

Prepared for

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INTRODUCTION

This report has been commissioned by Peter & Christie Stewart C/- Avalon Granny Flats to assess the remaining Useful Life Expectancy (ULE) and potential impacts that may occur to significant trees in relation to a new development proposal. The development proposal consists of constructing a new secondary dwelling within Lot 6 of DP 209493 being known as 35 Therry Street, AVALON BEACH NSW 2017.

Recommendations for retention or removal of trees is based on the trees condition, accorded ULE category, current design and potential impacts to trees under this development application.

Each tree has been accorded a temporary identification number and is referred to by number throughout this report. For additional trees not plotted on provided documentation their location has been estimated by taking offsets from existing trees and structures. The assessed trees may be referenced within the Tree Assessment Schedule and Tree Location Plan Appendices C and D.

Care has been taken to obtain information from reliable sources. All data has been verified as far as possible, however, I can neither guarantee nor be responsible for the accuracy of information provided by others.

DISCLAIMER & LIMITATION ON THE USE OF THIS REPORT

This report is to be utilized 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 copy) is referenced in, and directly to that submission, report or presentation. Unless stated otherwise: Information contained in this report covers only the tree/s that were examined and reflects the condition of the trees at the time of inspection: and the inspection was limited to visual examination of the subject tree without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree/s may not arise in the future. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period of time. Trees are a living entity and change continuously, they can be managed but not controlled and to be associated near one involves some degree of risk.

METHODOLOGY

- i In preparation for this report a limited site and ground level Visual Tree Assessment (VTA) was conducted on Thursday 26th October 2017 by the author of this report. The principles of VTA were primarily adopted from components of Mattheck & Breloer 1994 '*The Body Language of Trees*' with risk values determined by criteria explained within the ISA TRAQ manual 2013. The inspection included assessment of the overall health and vigour of the trees, tree form, structure and structural condition commencing from near the lower trunk to the upper first order branch division as best as site conditions would allow. On completion of the VTA the retention value of the tree was summarised utilizing the tree assessment Checklist, Appendix- B.
- ii The inspection was limited to a visual assessment from within the subject site where the retention value, condition and diameters of neighbouring trees was estimated. No aerial (climbing) inspections, woody tissue testing or tree root investigation was undertaken as part of this tree assessment. Tree height and canopy spread was estimated and expressed in metres with trunk diameters measured at approximately 1.4 metres above ground level, rounded off to the nearest 50mm and expressed as DBH (Diameter at Breast Height). Palm heights were estimated by the height of the palm extending from ground level to the top of the crown shaft only. Palm protection zones are provided as a guide based on site conditions and their adventitious root systems being more tolerant to development disturbances.
- iii This report acknowledges and utilizes the current Australian Standards 'Protection of Trees on Development Sites' AS 4970 – 2009 as explained within Notes of Appendix- A. Unless specified otherwise all distances and development offsets within this report are taken from the centre of the tree. To retain specific trees and ensure their viability development must take into consideration protection of the Tree Protection Zone (TPZ) radius as identified within Appendix- A Notes: *acceptable incursions*. As a guide to determining impacts the Structural Root Zone (SRZ) & Tree Protection Zone (TPZ) setbacks have been provided within Appendix- C the SRZ & TPZ distance column.
- iv Plans and/or documentation received to assist in preparation of this assessment include:
Avalon Granny Flats job No. AGF2152
 - Site Plan Sheet A2 issue DA-B dated 18.10.17
 - Floor Plan Sheet A5 issue DA-B dated 18.10.17
 - Elevations Sheet A6 & A7 issue DA-B dated 18.10.17Sydney Surveyors
 - Survey Plan ref No: 15089 dated 11.4.2017

1. SUMMARY OF ASSESSMENT

1.1 General tree assessment

- 1.1.1 Nine (9) trees, palms or palm groups have been assessed under this development proposal. Of the nine trees assessed three (3) trees or groups of are exempt species, one (1) tree is located within the front Council verge and four (4) trees are located within adjoining properties.

Exempt species identified within Northern Beaches Council Exempt species list permitted to be managed (pruned, removed or relocated) without Council approval are identified as trees:

- 5, 6x14 palms & T7

Should an exempt species require retention the principle of tree protection as identified within the generic Tree Management Plan (TMP) Attachment-A are to be adopted. Prior to works within their Tree Protection Zone (TPZ) radiuses an appointed site arborist is to be consulted to provide additional protection advice.

Council verge tree is identified as tree 1. The tree contains a structural fault at near 8m and displays a strong bowing lean to the north. The structural fault is likely to become problematic in time indicating the tree contains a low and short safe retention value.

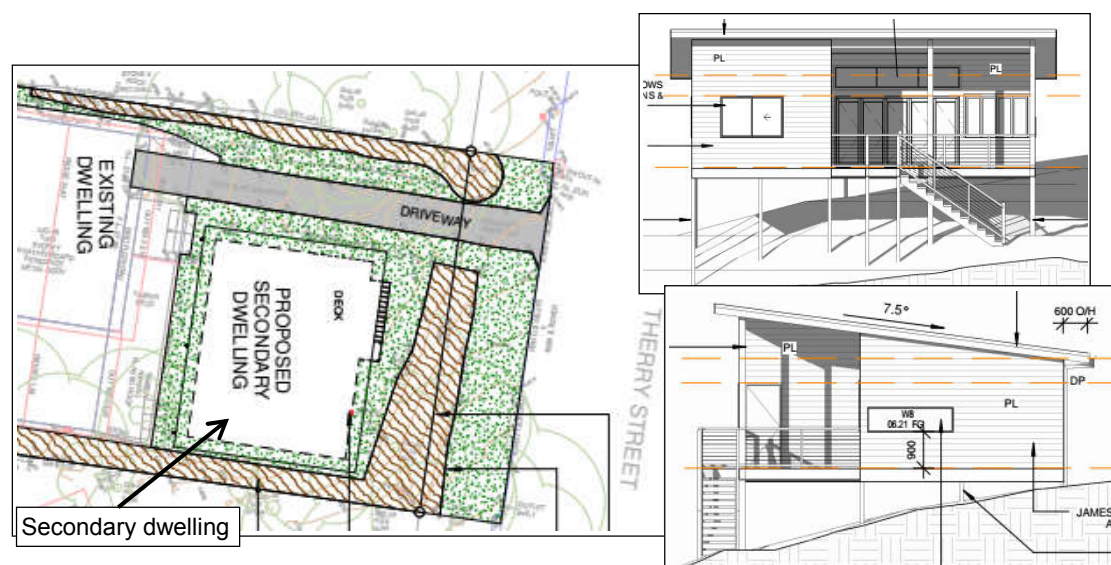
Neighbouring trees are identified as trees 2, 3, 4 & 9. Of these trees Jacaranda T2 is an exempt species requiring protection during development works as do trees 3, 4 & 9 to ensure the trees remain viable.

- 1.1.2 Remaining trees on site are considered viable for retention without change in existing site conditions or modification within their Tree Protection Zone (TPZ) radiuses, refer Appendix- C, the SRZ & TPZ distance column.

1.2 The development proposal

- 1.2.1 The development proposal consist of constructing a secondary dwelling suspended well above ground level with no excavation cut or site fill proposed to accommodate design.

Figure 1, showing proposed secondary dwelling footprint



1.3 Tree removal to accommodate design

- 1.3.1 Of the trees assessed exempt palm 5 and Bangalow palm group 6x14 require removal to accommodate design.

Tree 7 is also an exempt species permitted to be managed (removed, pruned or relocated) without the consent of Council.

Provided within the following sections discussions relating to development impacts and removal by design have been provided.

1.4 Discussion of development impacts

Council verge tree.

- 1.4.1 Tree 1 - The design footprint is located outside of the trees 4.2m TPZ indicating a negligible impact to the tree by the proposal.

Neighbouring trees 2, 3 & 4

- 1.4.2 Tree 2 - The design footprint is located outside of the trees 2m Structural Root Zone (SRZ), the area required for tree stability (AS4970) with minor (<10%) coverage over the 3m Tree Protection Zone (TPZ). To ensure the tree remains viable hand excavation for post / pier footing is required ensuring no tree root >30mmØ is damaged by works.

Tree 3 - The proposal covers a moderate to high level (<25%) of the TPZ. As shown within Elevation Plans the structure is well above ground level and requires no excavation cut to accommodate design. To ensure the tree remains viable the location of pier footings is recommended to be positioned outside of the 3m SRZ, tree roots >30mmØ are to be retained with trench excavation for hydraulic services (sewer, stormwater ect) not placed inground within 6m of the tree.

Tree 4 - The design footprint is located outside of the trees 2.6m SRZ with minor & manageable (<15%) coverage over the trees 6m TPZ. To ensure the tree remains viable hand excavation for post / pier footing is required with tree roots >30mmØ retained. Trench excavation for hydraulic services are recommended to be positioned outside of the trees 2.6m Structural Root Zone (SRZ).

To ensure trees 2, 3 & 4 remain viable the following additional recommendations are provided:

1. Tree Protection Fencing (TPF) in accordance with TMP Section 1 / Figure A is to be constructed along the boundary line with ground protection provided where access within or over the SRZ occurs
2. There is to be no in line trench excavation within the SRZ without prior arborist advice. Should pier footing excavations be required within the SRZ works are to be supervised by an appointed project arborist ensuring no tree roots >30mmØ are damaged by works
3. The location of fill is to be avoided within the TPZ with existing levels and site conditions recommended to remain as best as possible
4. Prior to additional excavations required to accommodate hydraulic services within the TPZ the project arborist is to be consulted to provide further tree protection advice

2. CONCLUSIONS & RECOMMENDATION

2.1 Tree Removal

2.1.1 Under the current development proposal exempt palm trees T5 & group 16 consisting of fourteen small palm trees require removal to accommodate design.

Tree 7 is also an exempt tree permitted to be managed (removed or pruned) without Council consent

2.2 Recommended tree management & protection principles

Recommendations in minimising tree impacts

2.2.1 In addition to the recommendations provided within this report the following summary and/or additional recommendations are provided as a guide to tree protection during works:

1. *Specific* – The location of pier footings is recommended to be positioned outside of SRZ areas of all trees, with no in line trench excavations permitted within the SRZ. Where pier footing excavations are required within the SRZ on site arborist supervision is to be conducted to ensure no tree root >30mm(Ø) is damaged by works.
2. *Neighbouring tree* 3. Given the proximity of the tree to the proposal all footings are to be located outside of the 3m SRZ with no trench excavations within 6m of the tree to ensure the tree remains viable.
3. *General*. Tree Protection Fencing (TPF) as identified within Section 1 of Attachment- A is recommended to be located under the guidance of an appointed site arborist. Unless specified otherwise the location of the TPF is to be positioned to allow for adequate work access and/or be located at the extremity of the TPZ radius, see SRZ & TPZ distance column Appendix- C. Where construction access may be restricted by protective fencing timber beam trunk protection is recommended to be installed, see TMP Figure B - *timber beam trunk & branch protection requirements*.

To protect underlying tree roots ground mats or similar ground protection is to be used to avoid soil compaction and root damage during construction activities.

4. Unless specified otherwise within this report in accordance with AS4970 - 2009 (1.4.4) a Project Arborist is to be engaged to monitor, supervise excavation within TPZ setbacks and provide certification of protection works conducted. Final certification is to outline tree protection methodology conducted with photographic evidence of ongoing works retained for final certification purposes (AS4970 S/5.5.2 *Final certification*).
5. The project arborist is to be familiar with all protection measures as stated within this report and specific to Australian Standard AS4970 'Protection of Trees on Development Sites' – 2009, ensuring any modification in Tree Protection Fencing (TPF) or Zones (Z) is compliant to AS4970 Section 4.5 *Other Tree Protection Measures*.

6. Unless specified otherwise there shall be no excavation or soil disturbance within SRZ setbacks (the area required for tree stability AS4970) of any tree without prior project arborist advice, see SRZ & TPZ setback distance column Appendix- C.
 7. All existing soil levels are to remain unchanged within TPZ areas. The placement of fill is also an activity restricted within the TPZ (AS4970) and should be avoided to ensure the vitality of trees remains.
 8. Should there be any uncertainty in tree protection requirements the appointed arborist is to be consulted prior to work activities commencing.
 9. During approved excavation activities (pier footing excavation) within TPZ setback root pruning is to be conducted by an appointed arborist. Root pruning is to be conducted in accordance with AS4970 – 2009 Section 4.5.4 and AS4373 - 2007 Section 9 'Root pruning', such that tree roots are not damaged or ripped beyond the point of excavation.
 10. *Additional inground services within TPZ's* which may include sewer, stormwater, water and electrical services, final design and impact to trees shall be reviewed and endorsed by the project arborist prior to their installment.
 11. Attachment- A, the generic Tree Management Plan (TMP) outlines general tree protection methodology which is to be adopted with any tree specific recommendation provided within this report.
 12. To ensure trees are adequately protected the development site superintendent is recommended to be familiar with all tree protection requirements as outlined within this report and specific to TMP section 3 Hold Points.
 13. Prior to the engagement of subcontractor services the development site superintendent is required to inform and make aware to workers of the responsibilities and requirements of tree protection.
-

Should you require further liaisons in this matter please contact me direct on
0419 250 248

Yours sincerely



Mark A Kokot

AQF Level 5 consulting arborist

Diploma of Hort/Arboriculture (AQF5), Associate Diploma Parks Management (AQF4)

Certified Arborist / Tree Surgeon (AQF3), ISA Tree Risk Assessment Qualified 6/2014

Member: Arboriculture Australia No.1292, Working With Children No: WWC01446

ATTACHMENT- A: Generic Tree Management Plan

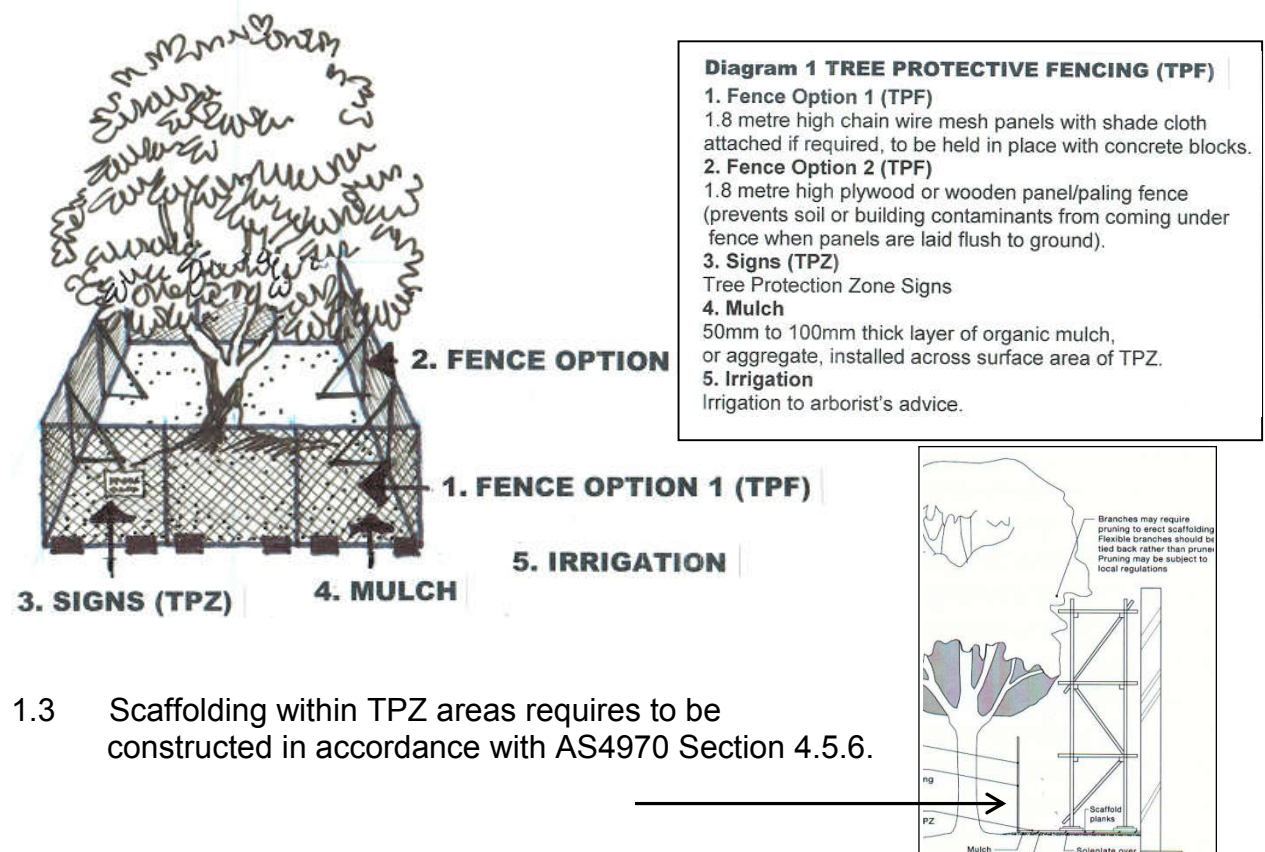
1. **Tree Protection Fencing (TPF)** unless specified otherwise TPF is to be constructed prior to any works commencing to ensure no impact occurs to trees requiring retention. If required TPZ fencing is to consist of 1.8m high chain link fencing secured to the ground by 50 x 50mm steel posts. Generally the location of the TPZ is to be constructed outside of the canopy drip line or extent of the TPZ, refer Appendix- C, SRZ & TPZ distance column. Should development site constraints exist the location of the TPZ fence may be reduced or altered to timber beam trunk protection, see TMP Figure B. If reduced TPZ fencing or timber beam protection is required the arborist may request that the extent of the TPZ / root zone be protected by ground mats and native leaf mulch during site works.

The location of the TPZ is to be constructed as to allow for best tree management practices while providing adequate development work access to finalise the development proposal.

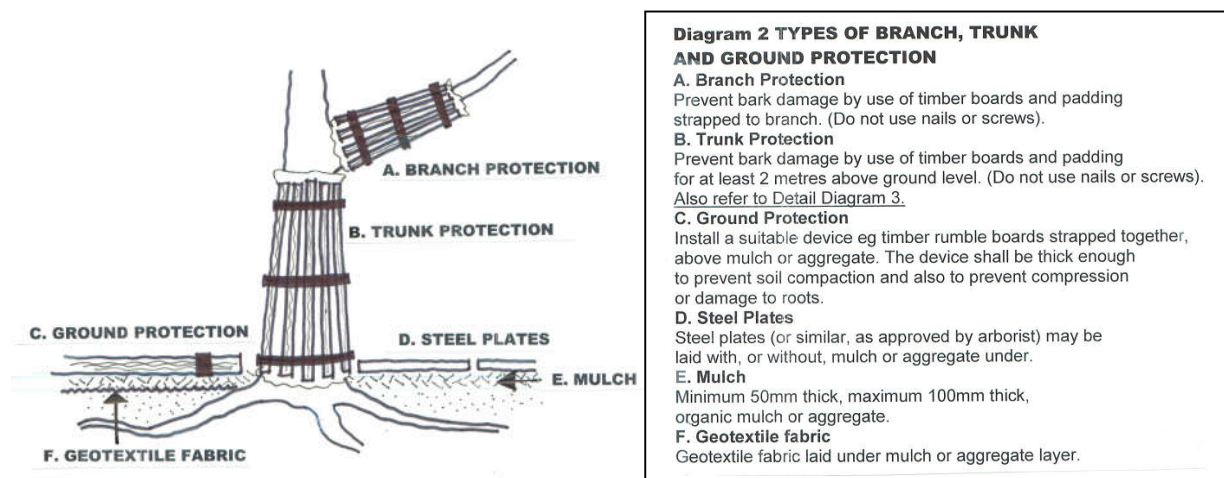
- 1.2 The TPZ is a development exclusion zone, it is an area isolated from construction disturbance so that the tree remains viable. No works or storage of materials are permitted within the TPZ without prior consultation and written approval from the appointed site arborist.

Appropriate signage shall be erected on TPZ fencing identifying the prevention of any unauthorised activity and/or access. Certification of TPZ modifications are to be provided by the site arborist to the development site superintendent for Principal Certifying Authority (PCA) compliance matters.

TMP Figure A, showing fence construction detail



TMP Figure B, showing trunk & root protection detail



2. **Appointing a Project Arborist.** Prior to works commencing a qualified arborist with a minimum AQF Level 5 qualification is to be appointed as the Project Arborist to address any development impacts that may occur to trees that require retention including any neighbouring tree.

The development site superintendent is responsible for enforcing all tree protection methodology, contacting and liaising with the appoint site arborist. The appointed site arborist must be consulted at all times when working within the TPZ and specifically be on site if development activities are required within the SRZ to discuss root impact management techniques, refer Appendix C for SRZ & TPZ setbacks. The appointed Site Arborist is to certify to the Principal Certifying Authority (PCA) that all tree protection methodology has been conducted accordingly as specified within this report.

3. **Hold Points.** unless specified otherwise no works are permitted within the SRZ radius of any tree without prior onsite arborist consultation or direct site involvement. The SRZ setback is a development exclusion zone. Where works are proposed within the SRZ an air spade or water jetting root investigation is required to identify the potential impact which is to be assessed by the site arborist.

Hand tools are to be used when working within both the SRZ & TPZ with cantilevering or bridging over the SRZ under pier & beam construction recommended.

4. **Demolition within the Tree Protection Zone (TPZ)** is to be supervised by the site arborist. Rubber tracked excavators are recommended to work within the footprint of any hard surface such as pathways and pavements to minimise the radial impact to the TPZ and/or SRZ. No tree roots at or exceeding 30mm(Ø) are to be damaged during works. Where larger woody roots are located the appointed site arborist is to be notified.

5. **Excavation within the TPZ,** is to be avoided where possible. Any excavation for footings, foundations or grading (site leveling) is to be approved and supervised by the appointed arborist.

- 5.2 To appropriately protect the root zone air spade or water jetting excavation is recommended to locate and expose any tree roots which may be affected and to avoid ripping by site machinery. Tree roots <30mm(Ø) in diameter shall be clean cut with sharp clean root pruning tools. Further advice from the site arborist is required where larger woody tree roots have been located.
6. **Landscaping or development within the TPZ** is to complement the long term needs to retain the subject trees. Pervious paving materials are recommended within the TPZ to maintain soil moisture availability.
Unless approved within this report no grade changes being cut or fill is to occur within 10% of the TPZ radius. Greater than ten (10%) percent of the TPZ may be affected by development encroachment given prior arborist consultation and appropriate tree management.
Maintaining the existing soil levels, moisture and aeration is the key to significant tree preservation. All efforts are to be made in maintaining the TPZ, soil moisture content and soil microorganism activity essential for maintaining good tree vigour.
7. **Fill material within the Tree Protection Zone**, fill material within the Tree Protection Zone shall be avoided.
8. **Site machinery**, demolition, excavations and site construction machinery must ensure that no direct conflicts occur to protected trees which may include canopy overhang towards development areas.
- 8.2 In the event of tree damage the appointed site arborist is to be notified immediately. The site arborist is to immediately undertake action to minimise any impact.
9. **Underground services**, no trenching for underground services is permitted within the radial SRZ setback without prior arborist approval. Where underground services are required within the SRZ or in line cutting through the TPZ, underboring or directional drilling is recommended.
10. **Root pruning**, tree roots are to be correctly treated, clean cut by the appointed arborist abiding to the Australian Standards Pruning of Amenity Trees AS 4373 2007 section 9 *Root pruning* at all times.
With the exception of palms at no stage are tree roots greater than 30mm(Ø) (in diameter) allowed to be cut by site contractors without prior arborist consultation. Where significant woody tree roots are located they are to be referred to the arborist for advice. Bridging over or tunneling beneath the root system may be required to ensure the vigour of the tree is not adversely affected by proposed works.
11. **Canopy pruning / tree removal**, where required tree removal and canopy reductions are to be approved by the Local Government Authority and conducted by a suitably qualified AQF Level 3 arborist to AS4373 Pruning Standards, and specifically be conducted in accordance with Safe Work Australia – Guide to managing risks of tree trimming and removal works 2016 (www.swa.gov.au)

12. **Regular site inspections**, the appointed site arborist shall undertake regular site inspections of Tree Protection Zones (TPZ) & Tree Protection Fencing (TPF). Unless specified otherwise within this report site inspections are recommended at the following stages.
- Prior to commencement of demolition activities
 - At completion of works prior to handover - Occupation Certificate (OC) to ensure no detrimental impact to trees has occurred
13. **Certifications**, obtaining relevant arborist certifications is the responsibility of the development site superintendent. Certifications are to be provided to the Principal Certifying Authority (PCA) stating that all tree protection fencing and/or methodology has been installed to adequately protect any tree requiring retention which includes neighbouring trees.
- Arborist Certification is to consist of timing of events, discussions of attendance, tree roots encountered and mitigation works conducted to minimise development impacts on protected trees during the course of development activities.

Yours sincerely

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Level 5 consulting arborist

APPENDICES

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APPENDIX- A: Terminology & references

Acceptable Risk: Exposure to or reject risk of varying degrees. The acceptable risk is defined as 'The person who accepts some degree of risk in return for a benefit being exposed to some risk of varying degree.'

Age classes: (I) Immature refers to a well established but juvenile tree. (ESM) refers to an early semi mature tree not of juvenile appearance. (SM) Semi-mature refers to a tree at growth stages advancing into maturity and full size. (LSM) Late Semi- Mature, refers to a tree between semi-mature and close to mature. (EM) refers to a tree at the first stages of maturity. (M) Mature refers to a full size tree with some capacity for future growth. **Health:** Refers to a trees vigor exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion and the degree of dieback.

Condition: Refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. Trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk / branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition. **Decay:** (N) – an area of wood that is undergoing decomposition. (V) – decomposition of an area of wood by fungi or bacteria. **Decline:** Is the response of a tree to a reduction of energy levels resulting from stress. Recovery from decline is difficult and slow; is usually irreversible. **Defect:** A identifiable fault in a tree. **Epicormic Shoots:** Shoots that arise from latent or adventitious buds that occur on stems and branches and on suckers produced from the base of the tree. A symptom / result of stress related factors. **Footprint:** The area occupied by site structures, including the dwelling driveways and hard surfaces.

Included Bark: (Inclusion) a genetic weak fault, pattern of development at branch junctions where the bark is turned inwards rather than pushed out, can pose a potential hazard. **Order of branches:** First order being those that are the first to extend from the main trunk or codominant limbs, second order branches extend from the first order and third order branches extend from the second order. **Probability:** The likelihood of some event happening. **Risk:** Is the probability of something adverse happening. **Suppression:** Restrained growth pattern from competition of other trees or structures. **Wound:** Damage inflicted upon a tree through injury to its living cells, may continue to develop further weakening of the structure compromising structural integrity.

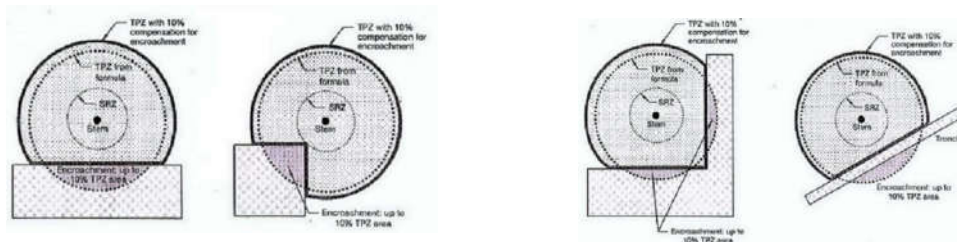
NOTES:

This report acknowledges the current **Australian Standards 'Protection of Trees on Development Sites'** AS 4970 – 2009 with reference to the Tree Protection Zone (TPZ): being a combination of the root and crown area requiring protection. The TPZ takes into consideration the Structural Root Zone (SRZ): The area required for tree stability. Determined by AS4970 - 2009 Figure 1, Table of determining the SRZ, section 3.3.5 of the standards. The standard states where a greater than 10% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s. 3.3.4. Encroachments are referred to within this report as major or minor encroachments (AS4970 s. 3.3.2 & 3.3.3). Below is the terminology used for estimated percentage of development incursion used within this report. To retain specific trees and ensure their viability development must take into consideration protection of the TPZ radius.

The extent of inclusion within the TPZ radius has been categorised as follows:

<10% = negligible incursion / >10 - <15% = low to moderate level of incursion / >15 - <20% = moderate level of incursion / >20 - <25% = moderate to high level of incursion / >25 - <35% = high level of incursion, >35% = significant inclusion within the TPZ

Showing acceptable incursion within the TPZ (AS4970)



SELECTED REFERENCES:

- Barrell J. 1993, 'Preplanning Tree Surveys: Safe useful Life expectancy (SULE) is the Natural Progression', Arboricultural Journal 17: 1, February 1993, pp. 33-46.
- International Society of Arboriculture (ISA) 2013, Tree Risk Assessment Manual, Martin Graphics, Champaign Illinois U.S.
- Mattheck, C. & Breloer, H.(1994) *The Body Language of Trees*. Research for Amenity Trees No.4 the Stationary Office, London.
- Matheny N. & Clark J. 1998, *Trees & Development 'A Technical Guide to Preservation of Trees During Land Development'* International Society of Arboriculture, Champaign USA.
- Standards Australia 2009, *Australian Standards 4970 Protection of Trees on Development Sites* - Standards Australia, Sydney, Australia.
- Standards Australia 2007, *Australian Standards 4373 Pruning of Amenity Trees* - Standards Australia, Sydney, Australia.

APPENDIX- B: Tree Retention Value *Check list* @rainTree consulting

VTA i) Landscape Significance (LS): The significance of a tree in the landscape is a combination of its amenity, environmental and heritage values.

Values may be subjective however, offer a visual understanding of the relative importance of the tree to the environment. The Landscape Significance of a tree is described in seven categories to assist in determining the retention value of trees.

1	Significant	2	Very High	3	High	4	Moderate	5	Low	6	Very Low	7	Insignificant
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ii) Visual Tree Assessment (VTA)

0	If appropriate to VTA - * <i>exempt</i> trees from Local Government Authority (LGA) Tree Management or Preservation Orders (TPO)	2E	Trees location likely to be affected by infrastructure restricting root growth potential, or tree has potential to cause infrastructure damage where risk mitigation or rectification works may likely compromise tree
0A	Noxious or invasive species located within heritage conservation area		
1	Trees that are dead, significantly declining >75% volume or obviously hazardous	3	This rating incorporates trees that may require further investigation of defects such as cavities or symptoms indicating internal decay to an extent that cannot be quantified under visual examination. Further inspections may be in the way of arborist climbing inspection within the canopy, root crown investigation and/or drill penetrating or Picus Sonic Tomograph ultrasound testing procedures to determine percentage of internal decay.
2	Trees that are structurally damaged. Have poor structure or weak & detrimental large stem inclusions capable of failure opposed to 2B. Tree also may be affected by extensive borer damage, fungal pathogens (wood rot) or viruses. Some symptoms may be reversible, remediated or controlled give appropriate management.		
2A	Tree damage specific to basal and/or root plate damage, very shallow soils or steep topography resulting in poor anchorage where condition may become problematic in near future / may include trees with included bark splits to ground level	4	Trees which appear specifically environmentally stressed by drought, poor soil or site conditions. Symptoms may be reversible given appropriate management
2B	Defect specific to stem inclusions development (weak branch attachments) where the condition may not be immediately detrimental however, require annual to biannual monitoring with control to prevent stem failure by installing slings, cable or bracing. Tree may also contain multi stems or codominant twin stems	5	Trees that would benefit from crown maintenance pruning as identified within the Australian Standards AS 4373 – 2007 Pruning of Amenity Trees
		5A	Trees that require little or no maintenance at time of inspection other than close monitoring
2C	Tree may contain minor wounds, pest or minor pathogen activity, altered from storm damaged to an extent that is not considered immediately detrimental - may also display average form. Likely to require close annual monitoring or minor corrective pruning	6	Trees may be typical for species type, of good form and visual condition for age class May have suppressed one sided canopies or are low risk trees
2D	Trees significantly altered by recent storm or over pruning events which may reduce retention values due to average form- or tree extensively pruned for power line clearance	7	VTA restricted by canopy or plant material vine or ivy covering tree parts, or site conditions which do not allow access- fences to neighbouring sites

iii) Retention Value (RV): Determined by [1] tree free of visual defects and viable for retention, [2] viable for retention with minor faults which may reduce ULE, [3] trees which should not restrict development applications containing faults that are likely to become problematic in the short term, [4] trees to be considered for removal due to average condition.

1	High retention	2	Medium retention	3	Low retention	4	Consider removal
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iv) U.L.E. categories Useful Life Expectancy (after *Barrell* 1996, modified by the author). A trees U.L.E. category is the life expectancy of the tree modified first by its age, health, condition, safety and location. U.L.E. assessments are not static but may be modified as dictated by changes in trees health and environment.

1. Long U.L.E. - Appear retainable at the time of assessment for over 40 years with an acceptable degree of risk assuming reasonable maintenance.
2. Medium U.L.E. - Appear to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk assuming reasonable maintenance.
3. Short U.L.E. - Trees appear to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk assuming reasonable maintenance.
4. Very short - Removal- Trees which should be scheduled for removal within the very short term or as specified within this report.
5. Small, young or regularly pruned – Trees under 5m in height that can be easily moved or replaced, includes screen plantings or hedge lines.

APPENDIX- C: Tree Assessment Schedule

Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification							Trees with low retention values: senescence, developing defects or being *exempt trees from the LGA Tree Preservation Order (TPO)					
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	SRZ	Age	Health	Condition	Significance	VTA	RV	U. L.E.	Comments CV = Council verge tree NT= Neighbouring tree
				TPZ								
1 CV	<i>Corymbia citriodora</i> Lemon Scented Gum	15 x 14	350	2.3m 4.2	ESM	Fair / Good	Poor	4/3	2	3	3	Structurally damaged at 8m NTH with lean = low retention value tree
2 NT	<i>Jacaranda mimosifolia</i> Jacaranda	9 x 5	250	2 3	ESM	Good	Fair / Good	4/3	6	1	2	Neighbouring tree – exempt species requires protection. Strong bowing lean NTH/EST with slight soil heave evident at base
3 NT	<i>Corymbia maculata</i> Spotted Gum	20 x 15	750	3 9	SM	Fair	Good	2	4	2	2	Environmentally stressed low foliage volume & slight lean EST
4 NT	<i>Corymbia maculata</i> Spotted Gum	18 x 16	500	2.6 6	ESM	Fair	Good	2	4	2	2	Environmentally stressed with low foliage volume
5	<i>Howea forsteriana</i> Kentia Palm	8 x 4	150	- 3	M	Good	Good	4/3	6	1	2	Exempt palm species with no significant defects noted
*6 14	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	av 4 x 2.5	av 100	- 2	ESM	Good	Good	4/3	0	1	5	Exempt palm species with no significant defects noted
*7	<i>Jacaranda mimosifolia</i> Jacaranda	15 x 12	600	2.7 7.2	ESM	Good	Fair / Good	4/3	0/2B	2	2	Exempt tree species, suppressed canopy form with slight lean NTH, minor stem inclusion development at 1m WST side
8	<i>Corymbia maculata</i> Spotted Gum	20 x 10	450	2.5 5.4	ESM	Fair	Fair / Good	2	4	2	2	Environmentally stressed decline in canopy with large diameter deadwood evident
9 NT	<i>Corymbia maculata</i> Spotted Gum	19 x 13	200, 400	2.7 7.2	ESM	Fair / Good	Good	2	4	2	2	Environmentally stressed low foliage volume restricted VTA due to site conditions

APPENDIX- D: Tree Location Plan

