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# **rain Tree consulting**

## **Arboricultural Management**

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11 November 2022

## **46 NARRABEEN PARK PARADE**

**WARRIEWOOD, NSW**

## **DEVELOPMENT PROPOSAL**

## **ARBORICULTURAL ASSESSMENT REPORT**

*Report Ref No- 15322*

Prepared for  
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C/ Gartner Trovato Architects  
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## INTRODUCTION

This report has been commissioned Mr. & Mrs. Steele C/ Gartner Trovato Architects 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 new development proposal consists of additions and alterations to an existing dwelling located within Lot 2 of DP 23008, known as 46 Narrabeen Park Parade, WARRIEWOOD NSW.

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.

Development incursions within tree protection zones (TPZ) and impacts to trees have been outlined within Note 2 of Appendix- A where incursions are described as Minor (<10%) & Major (>10%) TPZ occupancy having low, moderate to high level impacts within the TPZ. Where site restrictions within notional root zone radiuses exist development impacts or encroachment disturbances are based on author's experience, observations of site conditions, soil type and topography.

The trees assessed have been identified by the tree accorded tree number corresponding with site survey documentation with additional trees provided with temporary tree identification numbers. For additional trees not plotted on provided documentation their location has been estimated by taking offsets from existing trees and structures. The trees, their location, development impact and design requirements may be referenced within the Tree Assessment Schedule and Tree Location Plan of Appendices D & E.

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

1. In preparation for this report a site and ground level visual tree inspection was conducted on Friday 28<sup>th</sup> October 2022 by the author of this report. The principles of tree inspection were primarily adopted from components of Mattheck & Breloer 1994 '*The Body Language of Trees*' with basic risk values determined by criteria explained within the ISA TRAQ manual 2017. The inspection included observing the overall health and vigour of 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 inspection the retention value of the tree was summarised utilizing the tree inspection Checklist provided within Appendix- C.
2. The inspection was limited to 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). The height of palms was taken from ground level to the top of the crown shaft only and excludes the central apical spear projection.
3. 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.
4. Unless specified otherwise all distances and development offsets within this report are taken from the centre of the tree.
5. Plans and/or documentation received to assist in preparation of this assessment include:
  - Gartner Trovato Architects project No: 2229 *specific to:*
    - Site Plan Dwg No. DA-01 issue A dated 20.9.2022
    - Lower Ground Floor Plan Dwg No. DA-02 issue A dated 20.9.2022
    - Ground Floor Plan Dwg No. DA-03 issue A dated 20.9.2022
    - Elevations 01 & 02 Dwg No. DA-04 & 5 issue A dated 20.9.2022
    - Sections Dwg No. DA-07 issue A dated 20.9.2022
  - Stutchbury Jaques Pty Limited
    - Survey Plan ref No: 11588/22 dated 29.7.2022

## 1. SUMMARY OF ASSESSMENT

### 1.1 General tree assessment

1.1.1 Thirteen (13) trees or groups of have been assessed for the purpose of this development proposal. Of the thirteen trees eleven (11) trees are non-prescribed (exempt) species and one (1) tree is located within a neighbouring property.

1.1.2 Neighbouring tree is identified as Norfolk Island Hibiscus tree T6.

The building footprint addition has Minor (<10%) TPZ encroachment however, excavation that may be required to accommodate design at RL27.2 may increase the TPZ occupancy to Major (>10%) encroachment. Further information on the extent of cut required to accommodate design is recommended to be provided prior to obtaining a Construction Certificate (CC).

1.1.3 Exempt non-prescribed trees within the site are identified as:

- T1, 3, 4, 5, 7, 8, 9, 10G, 11G & 12.

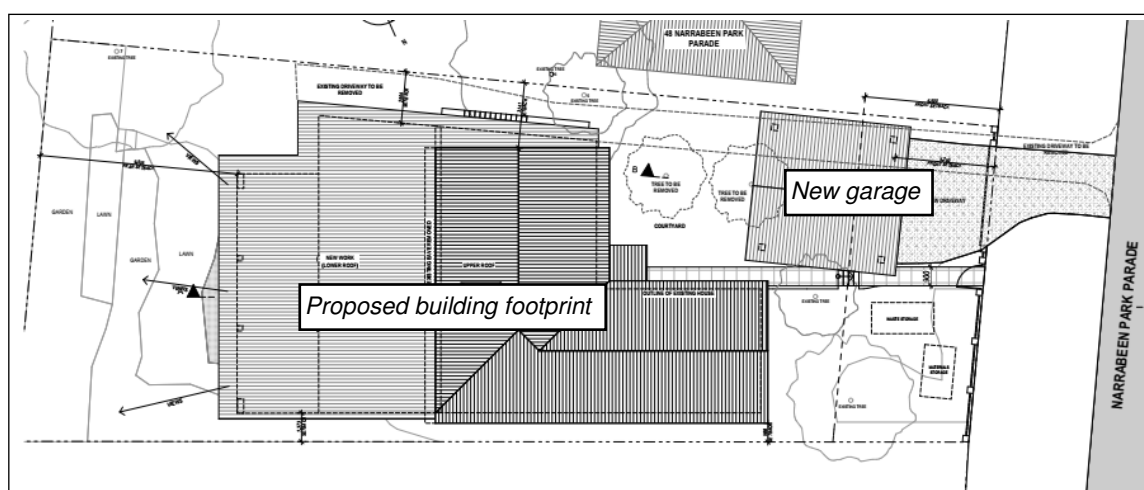
Being exempt non-prescribed species, the trees are permitted to be managed (pruned, removed or relocated) without Council consent. Should an exempt tree require retention further advice and protection methodology is required prior to works occurring within Tree Protection Zone (TPZ) setbacks.

For the purpose of this development proposal exempt trees T1, 3, 4, 8 & 9 are recommended for removal to accommodate design.

### 1.2 The development proposal

1.2.1 The development proposal consists of additions and alterations to the existing dwelling with provision for outdoor covered terrace entertaining, new landscape modifications with cut & fill located within Tree Protection Zone (TPZ) radiuses of prescribed (protected) and non-prescribed trees.

Figure 1, showing proposed building footprint

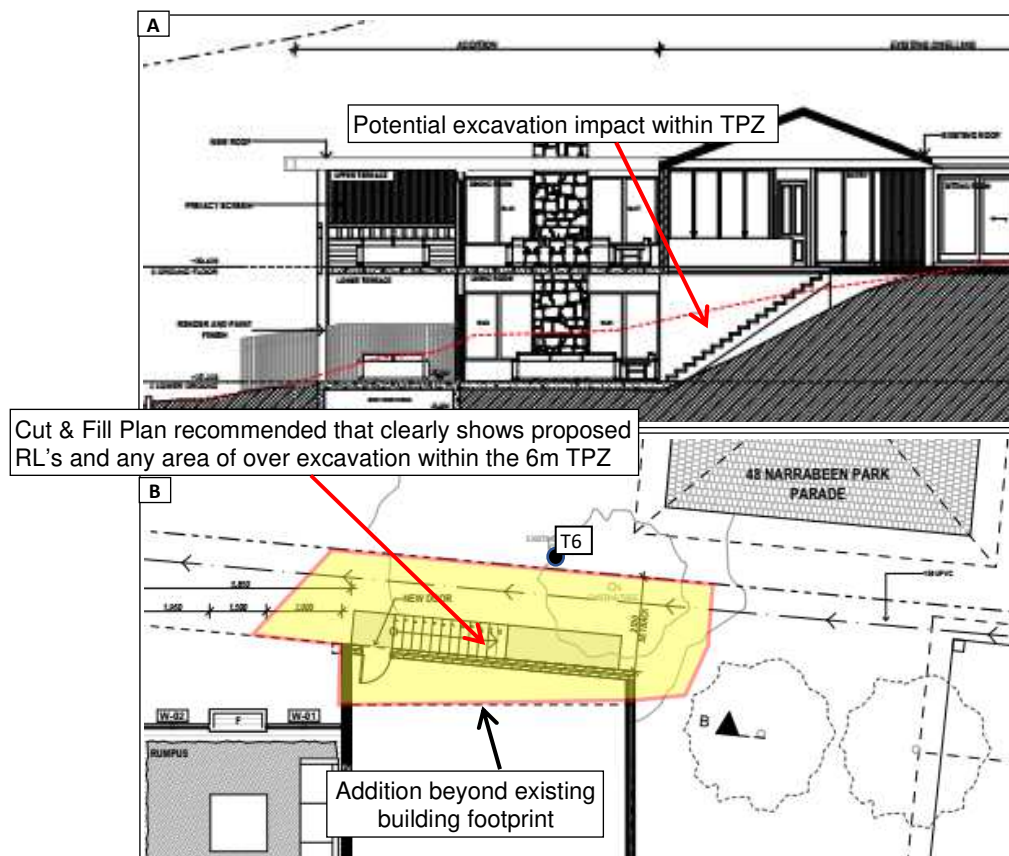


### 1.3 Details which require further information

- 1.3.1 Given that neighbouring tree T6 is an established tree, it is likely critical roots have established or extended to the existing building footprint indicating tree root investigations may be required to identify the location, distribution and impact on critical roots, see Figure 2 below.

Prior to obtaining a Construction Certificate (CC) clearer more detailed information including a detailed colour coded cut and fill plan is recommended to be provided for arborist review and endorsement.

Figure 2, showing T6 potential impact area



### 1.4 Tree removal to accommodate design

- 1.4.1 No prescribed (protected) trees require removal to accommodate this development proposal.
- 1.4.2 Exempt trees permitted to be removed to accommodate design are identified as trees:
- T1, 3, 4, 5, 7, 8, 9, 10G, 11G & 12.
- 1.4.3 Within this report the identified development impacts and design requirements have been detailed within Appendix- D and are summarized within the following sections.

## 1.5 Discussion of development impacts – prescribed trees

- 1.5.1 Tree 2: The tree receives negligible (0%) new building footprint encroachment with potential Minor (<10%) TPZ disturbances by work access during construction activities. Having Minor (<10%) disturbances the tree is capable of being managed in accordance with Section 2.3 *General tree protection requirements* specific to the following guidelines:
- Prior to works tree protection fencing shall be installed under the guidance of appointed site arborist. Given that the centre of the tree at ground level is offset, tree protection fencing shall be constructed to ensure the 2.3m SRZ extending to the east is adequately protected. Protective fencing should then be placed outside the canopy dripline ensuring a development work exclusion zone is adequately provided.
- 1.5.2 Tree 6: Further information is required to provide detailed tree management advice as the extent of excavation within the TPZ is unclear. Given the proposed building addition beyond the existing building footprint is of Minor (<10%) new TPZ occupancy, impacts are likely to increase to Major (>10%) TPZ encroachment where excavation is required to achieve construction and proposed lower level RL27.2 shown within Plan DA-05. Prior to obtaining a Construction Certificate (CC) a detailed cut & fill plan with existing & proposed RL's within the 6m TPZ is recommended to be provided for arborist review & comment.
- 1.5.3 Remaining trees within the site are exempt from Local Government Authority (LGA) protection, being exempt non-prescribed species. Should an exempt species require retention the trees should be protected in accordance with Section 2.3 *General tree protection requirements*.

## 2. CONCLUSIONS & RECOMMENDATIONS

### 2.1 Tree Removal

- 2.1.1 No prescribed trees require removal under this development proposal.
- 2.1.2 Exempt species permitted to be removed, pruned or relocated to accommodate design without the consent of Council are identified T1, 3, 4, 5, 7, 8, 9, 10G, 11G & 12.

### 2.2 Specific tree management recommendations

- 2.2.1 In addition to the recommendations provided within this report the following summary and/or additional recommendations are provided as a guide for tree protection during works:
- a) Tree 2: the tree requires to be adequately protected with tree protection fencing that extends to the extent of the SRZ from the centre of the tree to the east.
  - b) Tree 6: Detailed construction drawings showing a cut & fill plan with proposed and existing RL's within the 6m TPZ are required for arborist review and comment prior to obtaining a Construction Certificate (CC).

## 2.3 General tree protection requirements

- a) Prior to site works Tree Protection Fencing (TPF) and/or zones as identified within this report or Appendix- B are recommended to be located under the guidance of an appointed site arborist. Unless specified otherwise the location of tree protection fencing is to be positioned to allow for adequate work access and/or be located at the extremity of the TPZ radius as indicated within the SRZ & TPZ distance column Appendix- D.

Where design & construction access may be restrictive by tree protection fencing timber beam trunk protection is recommended to be installed with ground protection mats provided to protect underlying tree roots within tree protection zones or designated tree protection areas (TPA).

- b) Unless approved otherwise activities to be excluded within TPZ radius or specified tree protection areas (TPA) include:
- Machine access, excavation, including trenching & installation of utility services
  - Storage & work preparation including wash down areas
  - Soil level change and physical damage to trees.

Activities that minimize the impact of TPZ disturbances include:

- Within the TPZ, TPA or extending 2m outside the canopy dripline installation of native leaf mulch not greater than 80mm in depth with routine irrigation based on arborist advice is recommended.
- c) In accordance with AS4970 - 2009 (1.4.4) during works a Project or Site Arborist is to be engaged to monitor, supervise excavation within TPZ setbacks, advise and provide certification of protection works conducted. The project arborist is recommended to hold a minimum Australian Qualification Framework (AQF) Level 4 certification and be competent in protecting trees on development sites.
- d) The project arborist is to provide final certification outlining tree protection measures with photographic evidence of ongoing works retained for certification purposes (AS4970 S/5.5.2 *Final certification*).
- e) The project arborist is to be familiar with protection measures specific to Australian Standard AS4970 'Protection of Trees on Development Sites' – 2009 requirements with any modification in Tree Protection Fencing (TPF) or Zones (Z) to be compliant with AS4970 Section 4.5 *Other Tree Protection Measures*.



- f) Unless specified otherwise during approved excavation within TPZ setbacks excavation is to be conducted manually (by hand) under the supervision of an appointed site arborist. Where approved by the arborist the pruning of roots at or <30mm(Ø) is to be conducted in accordance with AS4970 – 2009 Section 4.5.4 *Root protection during works within the TPZ*, such that tree roots are not damaged or ripped beyond the point of excavation by site machinery.

Where larger roots have been encountered, they are to be referred to an independent Level 5 arborist for further advice. For deep excavations exposed roots at the excavated cut face are to be protected with jute mesh, geotextile fabric or similar being secured in place to avoid drying of roots and the exposed soil profile.

- g) During approved excavation within TPZ setbacks there shall be no over excavation beyond the line of cut as shown within construction drawings without arborist advice. Should over excavation be required the extent of excavation should be detailed within approved drawings or a construction management plan for arborist review and certification.

- h) *Additional inground services* which may include landscape works, fencing, 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. Where landscaping (excavation) is required within the SRZ further advice from an appointed project arborist is recommended.

- i) *Tree sensitive construction measures* such as pier and beam bridging over critical roots, suspended slabs, cantilevered building sections, screw piles and contiguous piling can minimise the impact of encroachment (AS4970).

Where Bushfire BAL conflicts exist with tree management advice the appointed project arborist shall be consulted to advise on an appropriate design outcome.

- j) *Canopy pruning / tree removal*: where required tree removal and canopy reductions are to be approved by the Local Government Authority. Works are to be conducted by a suitably qualified AQF Level 3 certified arborist in accordance with 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](http://www.swa.gov.au)).

- k) To ensure tree(s) are appropriately protected the development site superintendent is recommended to be familiar with all tree protection and ongoing certification requirements.

The superintendent is responsible for informing all subcontractors of the responsibilities and requirements of tree protection prior to their engagement.

- l) *Hold points*: specific to no works are to commence without arborist advice, inspections & certifications:
    - 1) Prior to construction arboricultural certification is to be provided ensuring that all trees have been adequately protected in accordance with this report, or as indicated within Australian Standard AS 4970 Protection of Trees on Development Sites– 2009.
    - 2) No works (including landscaping) shall occur within the SRZ of any tree without prior arborist advice and certification. Where excavation may be required prior exploratory tree root investigation are to identify the location, distribution and impact to underlying tree roots for arborist review & comment.
    - 3) No excavation shall occur within the Tree Protection Zone (TPZ) without prior project arborist notification and/or site supervision.
    - 4) No access or work activity is permitted within fenced or specifically designed and designated tree protection areas (TPA's) without arborist advice.
  - m) Should there be any uncertainty with tree protection requirements the site superintendent shall contact the appointed project arborist for advice prior to works occurring within tree protection zones (TPZ) or specified tree protection areas (TPA).
- 

Should you require further liaisons in this matter please contact me direct on  
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Yours sincerely



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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 6/2024  
Member: ISA, Arboriculture Australia & IACA, Working With Children No: WWC0144637E



## APPENDICES

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## APPENDIX- A: Terminology, notes & references

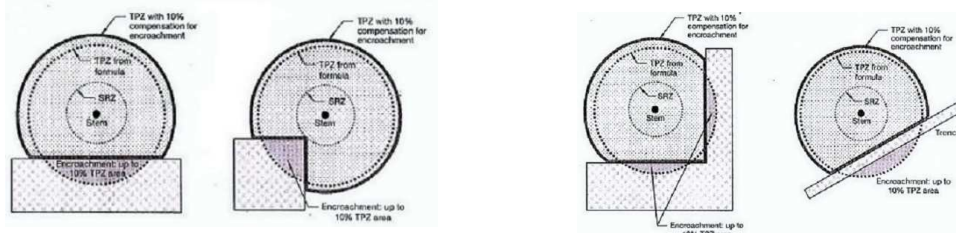
**Acceptable Risk:** Exposure to or reject risk of varying degrees. The acceptable risk is defined as 'The person who accepts some degree of risk in return for a benefit being exposed to some risk of varying degree. **Age classes:** (I) Immature refers to a well established but juvenile tree. (ESM) refers 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.

**NOTE 1:** 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.

**NOTE 2: The extent of inclusion within the TPZ radius has been categorised as follows:**

No impact 0% incursion, **Low** impact 0 - 10% of minor consequence. **Low to Moderate** 10 – 15% incursion where the project arborist is to demonstrate the tree(s) remain viable. **Moderate** 15 – 20% incursion where the project arborist is to demonstrate the tree(s) remain viable by tree sensitive construction techniques. **Moderate to high** 20 – 25% incursion requiring specific protection methodology to retain. **High** impact 25 – 35% incursion where design changes or further information is required to manage tree vitality which includes **Significant** impact >35% incursion. **WBF** = tree located within the building footprint where design necessitates tree removal.

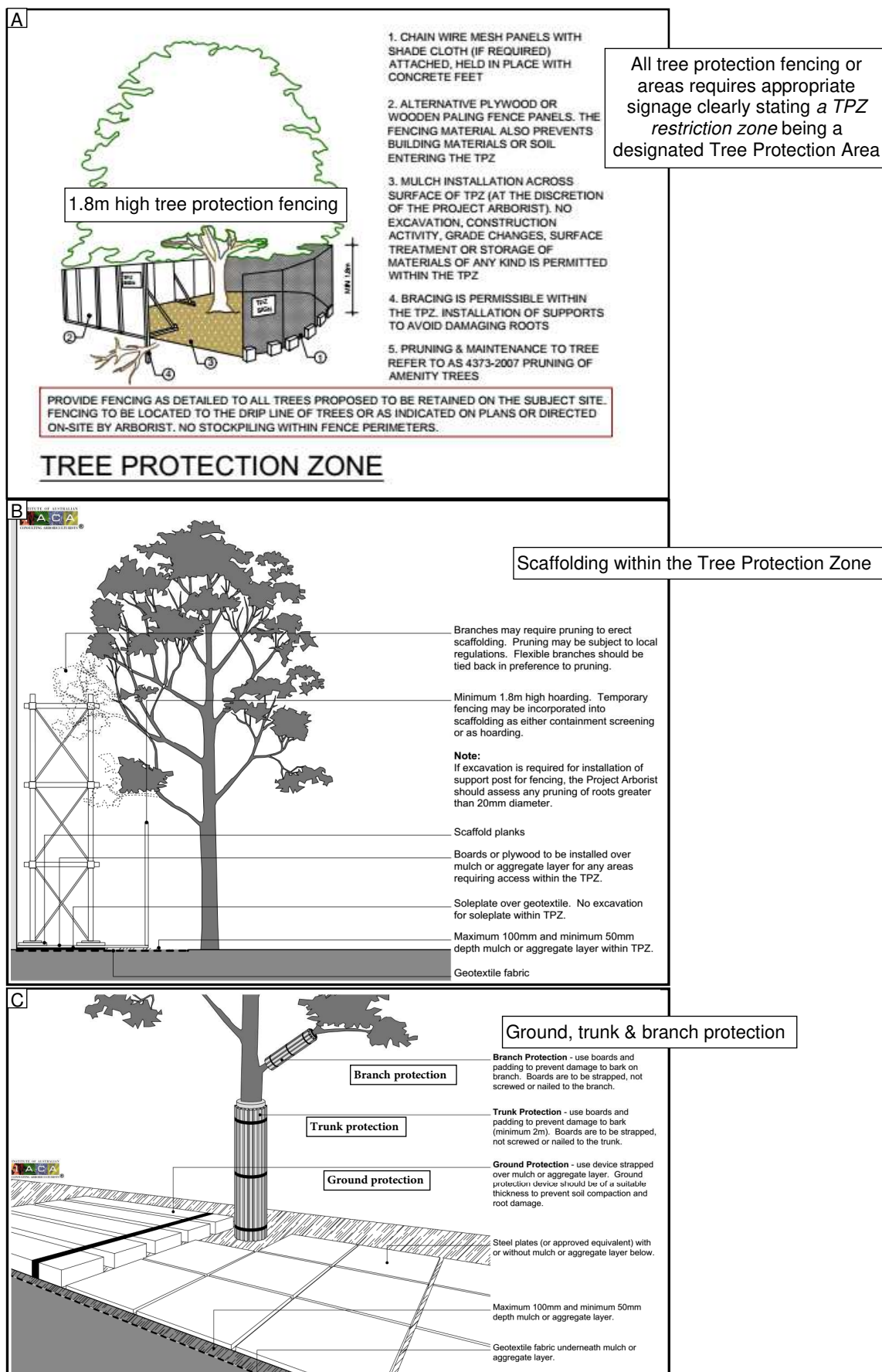
Showing acceptable incursion within the TPZ (AS4970)



### 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.
- ProSafe: TPZ encroachment calculator [https://proofsafe.com.au/tpz\\_incursion\\_calculator.html](https://proofsafe.com.au/tpz_incursion_calculator.html) 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.
- Northern Beaches Council DCP <https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/planning-controls>

## APPENDIX- B: Tree protection fencing, ground and trunk protection detail



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

**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 - *exempt 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 &/or risk mitigation or rectification works may compromise tree anchorage. Tree(s) may be contained by solid structures with restricted anchoring root potential
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 have become exposed or are subject to wind loading pressure, or have tall forest form where exposure may result in windthrow or limb snap
		5A	Screen trees or shrubs that are routinely hedged or pruned for height control
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- D: 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 TPZ	Age	Health	Condition	Significance	VTA	RV	U. L.E.	Comments CV = Council verge tree NT= Neighbouring tree
*1	<i>Callistemon Harkness</i> Bottle Brush	3 x 3	300at base	2 3.6	M	Good	Good	4	0/6	1	3	Exempt tree species height class, aging specimen tree
Design impact summary: Exempt tree species manage in accordance with design requirement, permitted to be removed to accommodate access pathway & site works												
2	<i>Banksia integrifolia</i> Costal Banksia	5 x 5.5	400at base	2.3 4.8	SM	Good	Fair / Good	3	2C	2	2	Skewed leaning lower trunk with bowing form W, past pruning cuts modifying form with no significant visual faults
Design impact summary: Proposed retention with existing building footprint located within TPZ. No new additions within SRZ & TPZ with likely works disturbances of Minor (<10%) TPZ disruption. Given Minor (<10%) TPZ incursion tree recommended to be managed in accordance with Section 2.3 General tree protection requirements, specific to: Note- the base of the tree is off centre and SRZ root protection is required on the eastern side. Tree protection fencing is recommended to be installed to accommodate the eastern SRZ extension and encage the remaining canopy dripline to allow for construction. No storage of builder's material within TPZ is recommended.												
*3	<i>Callistemon viminalis</i> Bottle Brush	4.5 x 3	200at base	1.6 2.4	SM	Fair	Fair	4	0/4	2	<2	Exempt tree species height class, canopy slightly environmentally stressed with minor decline & past pruning cuts modifying form
Design impact summary: Proposed removal of exempt tree species to accommodate works												
*4	<i>Callistemon viminalis</i> Bottle Brush	4.5 x 3	200at base	1.6 2.4	SM	Fair	Fair / Good	4	0/4	2	<2	Exempt tree species height class, canopy slightly environmentally stressed with minor decline & past pruning cuts modifying form
Design impact summary: Proposed removal of exempt tree species to accommodate works												
*5	<i>Strelitzia reginae</i> Giant Bird of Paradise	av 5 x 2	av 150	- 2	ESM	Good	Good	4	0/6	1	1	Exempt non-prescribed palm species, multi stemmed at base
Design impact summary: Exempt clumping palm species, manage in accordance with design requirement, permitted to be removed to accommodate works. Palm retention requires arborist advice with no excavation within 2m TPZ												



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 TPZ	Age	Health	Condition	Significance	VTA	RV	U. L.E.	Comments CV = Council verge tree NT= Neighbouring tree
6 NT	Lagunaria patersonii Norfolk Island Hibiscus	15 x 9	500	2.6 6	SM	Good	Fair / Good	4/3	2C	2	2	Restricted VTA site conditions, above ground visual parts appear in good order, past pruning cuts modifying form
Design impact summary: new additions beyond the existing building footprint include increased building setback at or near 3m from the tree and outside the SRZ radius. Works include part excavation cut for lower level RL27.2 with dwelling stair access. Based on the building line footprint excluding suspended stairs new TPZ occupancy beyond the existing building line is of Minor (<10%) TPZ encroachment, at or near 8.6%. Details which requires further information & investigations is the extent of over excavation to accommodate design. A detailed colour coded cut & fill plan showing extent of cut required within the TPZ is recommended prior to obtaining a Construction Certificate (CC). Where over excavation is required impacts within the SRZ & TPZ are likely to be greater and may likely have Major (>10%) encroachment. Tree root investigations along the line of cut would provide more information on root zone disturbances.												
*7	Lagunaria patersonii Norfolk Island Hibiscus	11 x 11	550	2.8 6.6	SM	Good	Good	4/3	0/2C	2	2	Exempt non-prescribed tree, minor past pruning cuts S side modifying form with no significant visual faults
Design impact summary: Exempt clumping tree species, manage in accordance with design requirement, permitted to be removed to accommodate works. Tree retention requires no works within TPZ without arborist advice, see Section 2.3 General tree protection requirements												
*8	Nerium oleander Oleander	5 x 5	600at base	2.8? 7.2?	SM	Good	Fair / Good	4	0	2E	1/5	Exempt non-prescribed tree, multi stemmed at base
Design impact summary: Exempt tree species manage in accordance with design requirement, permitted to be removed to accommodate design requirements												
*9	Nerium oleander Oleander	4 x 4	600at base	2.8? 7.2?	SM	Good	Fair / Good	4	0	2E	1/5	Exempt non-prescribed tree, multi stemmed at base
Design impact summary: Exempt tree species manage in accordance with design requirement, permitted to be removed to accommodate design requirements												
*10G	Nerium oleander Oleander	4 x 3	500at base	2.5? 6?	SM	Good	Fair / Good	4	0	1	1/5	Exempt non-prescribed screen tree, multi stemmed at base
Design impact summary: Exempt tree species manage in accordance with design requirement, permitted to be removed to accommodate design requirements												
*11G	Nerium oleander Oleander	5 x 5	600at base	2.8? 7.2?	SM	Good	Fair / Good	4	0	1	1/5	Exempt non-prescribed screen tree, multi stemmed at base
Design impact summary: Exempt tree species manage in accordance with design requirement, permitted to be removed to accommodate design requirements												
*12	Camellia japonica Camellia	4 x 4	250at base	1.8 3	SM	Good	Good	4	0/6	1	1/5	Exempt tree species height class with no significant visual faults
Design impact summary: Exempt tree species manage in accordance with design requirement, permitted to be removed to accommodate design requirements												



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								
*13	<i>Dypsis Lutescens</i> Golden Cane Palm/s	av 4 x 3	av 120	-	ESM	Good	Good	4	0/6	1	1/5	Exempt non-prescribed palm clump with no significant visual faults
Design impact summary: Exempt tree species manage in accordance with design requirement, permitted to be removed to accommodate design requirements												

## APPENDIX- E: Tree Location Plan

