



ARBORICULTURAL IMPACT REPORT

For: Mr Giompaolo

Site Address: 113-115 Faraday Rd. Padstow

Site Inspection Date (By Author): 16.06.2022

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Job No: 6221

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mb: 0409123200 e: paul@monaco.net.au abn: 69078380168 Code of Ethics - Value - Honesty - Efficiency ARBORICULTURAL REPORTS LANDSCAPE PLANS

IMPORTANT NOTES:-

Trees on development sites (and neighbouring properties) can potentially render it undevelopable, or reduce potential yield. Developers and builders should obtain advice from a Consulting Arborist prior to purchasing a site, or engaging a Building Designer. A simple site analysis of significant trees and determining their TPZ's could save all parties involved significant time and money.

Many trees contain internal defects, of which many cannot be determined without dissection. These defects could be from genetic, human or environmentally influenced factors that may be hazardous to persons or property. Although deaths are rare from falling trees, common sense should prevail in extreme weather conditions.

This report was not written with the intention of being used in a court of law.

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Common Abbreviations:-

DBH – Diametre at Breast Height	NGL – Natural Ground Level
FGL – Finished Ground Level	PA – Project Arborist
PCA – Principle Certifying Authority	SRZ - Structural Root Zone
TPB – Tree Protection Barrier	TPZ – Tree Protection Zone
TPZV – Tree Protection Zone Varied	

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1. Executive Summary – Key points

- 1.1. Trees to be retained T1-T6, T8-T13 and T19
- 1.2. AS 4970-2009 'Protection of Trees on Development Sites' (here after 'The Standard') Section 2.3.5 states '...the location of tree protection measures should also be shown on other documents such as demolition, bulk earth works, construction and landscape plans.'
- 1.3. Appointment of Project Arborist is required to document and log all works in relation to retained trees. This documentation is to be forwarded to Council or PCA at end of construction works.
- 1.4. An 1800mm temporary chain wire fence (with plastic feet not posts driven into ground) is to be installed to protect trees. It is to be erected prior to demolition / excavation / benching and remain until the end of the construction period. Refer to attached diagram for fence locations and or setback dimensions. (Note: Dimensions have been set by CAD and should be rounded up.)
- 1.5. Signage is to be placed on fencing, outlining appointed Project Arborist with mobile phone number.
- 1.6. All contractors / consultants on the site should be inducted to the penalties that may apply if the tree protection area is breached.
- 1.7. Contractor to expect that all trenching and excavation within the designated TPZ must be undertaken by hand, under the supervision of the Project Arborist. No changes to NGL's over site are required.

2. Introduction

- 2.1 This report has been commissioned by Mr Giompaolo to assess the species, health, general condition and retention value of the trees located at the pre-mentioned address, (hereafter 'The Site').
- 2.2 Proposed development / construction includes:-
 - 2.2.2 Demolish existing dwelling
 - 2.2.3 Construct two attached duplex's
 - 2.2.4 Simple stormwater requirements

3. Documents Provided

Company	Drawings / Report	Issue / Dated
TSS	Survey	03.03.2020
Niche Home Designs	Architectural Plans / Binder	09.11.23
KD Stormwater PL	Drainage Concept	14.11.23

4. Important Methods and Limits

- 4.1 Canterbury Bankstown City Council defines a tree as follows: 'All trees that are 5m or more in height' (DCP 2023 Chapter 2.3 page 4)
- 4.2 Observations and recordings of the trees were made using the Visual Tree Assessment (VTA) at ground level during the site inspection as dated. The VTA '*interprets the body language of trees, linking internals defects to the trees own repairs structures....so trees that are apparently dangerous should be distinguished from trees that are really dangerous...*' (Mattheck 2007). No invasive, or explorative tests, ie dissections, excavation, probing, coring or aerial inspections were undertaken.
- 4.3 Retention Value:- Has been generally determined based on (but not limited to) the following criteria:-
 - 4.3.1 <u>Zero</u> Tree is a noxious / environmental weed, diseased or damaged beyond remediation and removal required or exempt from Local Council's TPO.
 - 4.3.2 <u>Low</u> An immature specimen that could be replaced with new tree planting, or a poor representation of the species, negative impact on amenity, or visual significance within the landscape.
 - 4.3.3 <u>Moderate</u> Tree has a fair contribution to visual character, good representation of species, semi-mature / mature specimen, potential habitat relevance.
 - 4.3.4 <u>High</u> Excellent visual character / amenity, representation of species, mature specimen, indigenous / endemic species. Neighbouring or public property.
 - 4.3.5 <u>Very High</u> Endangered or threatened species, heritage / historical or cultural significance, endemic species / remnant vegetation, habitat for endangered or threatened fauna, commemorative planting. Tree on neighbouring or public property.
- 4.4 DBH's that are rounded (units of 10's) up have been measured as a straight diameter. DBH's with units of 1's have been determined by measuring the trunk circumference for more accuracy.
- 4.5 TPZ encroachments are typically calculated using Autocad software. If Autocad files are not used and pdf's are inserted into Autocad software, minor deviations may occur to calculations in respect to scaling (typically less than 1%).
- 4.6 The Australian Standard AS 4970-2009 'Protection of Trees on Development Sites' is utilised where applicable for determining minimum clearances where works encroach the tree protection zone (TPZ). However, distances may be varied by the Consulting Arborist once other factors are taken into consideration, including but not limited to; *individual species tolerance to disturbance, soil geology and topography, meso / microclimate, proposed construction / engineering methods and potential Arboricultural techniques that could be utilised.*

5. Generic Method and Limits

- 5.1 As the scope for the report is limited to development impact and retention value, a thorough VTA was not conducted for hazard reduction purposes.
- 5.2 The author will never support root mapping as a means to assist TPZ / SRZ encroachments.
- 5.3 Photographs included within this report were taken at time of initial inspection, unless noted otherwise. Typically using an Olympus Stylus TG-3
- 5.4 Monaco Designs does not use colour coding in their reports so as to not burden those whom are colour blind.
- 5.5 Terminology used in this report is explained in Section 11.
- 5.6 Crown spreads are taken as an average of the radii, unless the crown is severely distorted or the issue requires more accurate dimensioning. Tree heights are estimated.
- 5.7 At the time this report was prepared, the author is not affiliated with any industry bodies, hence does not utilise or promote any methodologies, ideologies etc that these industry bodies support or endorse.

6. The Site

- 6.1 The sites are residential allotments. The site is typical of a residential setting.
- 6.2 Vegetation consists of the existing trees as numbered and with roughly cut grass.

	ASSESSMENT										IMPACT (RETAINED TREES ONLY)				
No	Scientific Name	Age Class	Health	Condition	Height (m)	Spread (m)	D BH (mm)	(On / Off Site)	Disease	Retention Value	Proposed to be removed or retained	TPZ – AS 4970 (rad. m)	SRZ – AS4970 (rad. m)	Encroach TPZ / SRZ	TPZV (TPZ Variation)
1	Syncarpia glomulifera	М	G	G	20	18	557	On	-	Very High	Retained	6.68	2.81	No	No
2	Syncarpia glomulifera	М	G	G/ A	12	10	250 x 2	Off	Y	Very High	Retained	3	1.85	No	No
3	Angophora floribunda	М	G	Α	12	10	350 App	Off	Y	Very High	Retained	4.2	2.13	Ν	No
4	Angophora floribunda	М	G	G	> 20	20	550 App	Off	-	Very High	Retained	6.60	2.57	No	No
5	Syncarpia glomulifera	М	G	G	> 20	> 20	739	On	-	Very High	Retained	8.86	2.91	No	No
6	Syncarpia glomulifera	М	G	G	> 20	> 20	755	On	-	Very High	Retained	9.05	2.94	No	No
7	Ligustrum luci	<i>ridum</i> – exempt specimen													
8	Syncarpia glomulifera	М	G	g	12	10	420	On	-	Very High	Retained	5.04	2.29	No	No
9	Syncarpia glomulifera	М	G	G	18	18	978 Base	On	-	Very High	Retained	11.73	3.27	14.03 %	Yes
10	Syncarpia glomulifera	М	G	G	18	-	484	On	-	Very High	Retained	5.80	-	No	No
11	Syncarpia glomulifera	М	G	G	18	-	666	On	-	Very High	Retained	7.99	2.79	No	No
12	Syncarpia glomulifera	М	Р	Р	10	-	250	On	Y	Low	Retained	-	-	No	No
13	Syncarpia glomulifera	М	G	G	8	-	300	On	-	Very High	Retained	3.6	1.99	No	No
14	Angophora floribunda	М	G	g/a	> 20	> 20	754	On	-	Very High	Removed	9.05	2.93	-	-
15	Syncarpia glomulifera	М	G	g/a	16	12	376	On	Y	Very High	Removed	4.51	-	-	-
16	Syncarpia glomulifera	М	G	g/a	18	12	710	On	Y	Very High	Removed	8.52	2.88	-	-
17	Syncarpia glomulifera	М	G	G	> 20	18	694	On	-	Very High	Removed	8.33	2.79	-	-
18	Syncarpia glomulifera	М	G	G	12	10	270	On	-	Very High	Removed	3.24	1.89	-	-
19	Syncarpia glomulifera	М	G	G	14	12	350 App	Off	-	Very High	Retained	4.2	2.12	No	No
20	Cupressus sp.	М	G	А	14	12	767	On	-	Mod	Removed	-	-	-	-
21	Syncarpia glomulifera	М	G	G	14	18	694	On	-	Very High	-	8.33	2.81	-	-
22	Cupressus 'CV'	М	G	g/a	11	6	637	On	-	Mod/ Low	Removed	-	-	-	-
23	Camellia sp.	<3m - exempt													

7. Tree Assessment and Impact Schedule for Trees Proposed to be Retained

* Refer to section 10 for explanation of terminology – <u>Age Class</u> – I=Immature - S=Semi Mature - M=Mature - O=Over mature <u>Health / Condition / Construction Tolerance</u> – G=Good – A=Average – P=Poor. <u>General</u> - Y=Yes – N=No. (as)=assumed.

8. Discussion / Recommendations

- 8.1 T1-T6 and T8 are not impacted by the proposed development. These trees will be subjected to wholesale tree protection measures.
- 8.2 T9 is the largest specimen on site. A co-dominant stem has been removed. Proposed encroachment is 14.03% which is acceptable from Authors perspective. This encroachment can easily be reduced by applying contiguous compensation as per Appendix of AS4970-2009. Response to Section 3.3.4 of AS4970-2009 as follows:-

Sect	ion 3.3.4 of AS4970-2009						
(a)	Location and distribution of roots	Irrelevant – minimal impact proposed. The author does not support root mapping, particularly when the SRZ is not be directly affected by the proposed development					
(b)	Potential loss of root mass	As above					
(c)	Tolerance to root disturbance (Construction Tolerance as per Sec 11.8)	Very resilient.					
(d)	Age vigour and size of tree	Good					
(e)	Lean and stability	Good					
(f)	Soil characteristics and volume, topography and drainage	N/a					
(g)	The presence of existing or past structures / obstacles affecting root growth	No					
(h)	Design factors	Significant consultation has occurred to ensure any encroachment is within the tolerances of AS4970-2009.					
Section 3.3.6 of AS4970-2009		Crown Projection					
Prur	ning / branch tying etc	Due to the 'forest form' of the specimen, no crown reduction is anticipated.					

- 8.3 T10 T13 are not impacted by the proposed development. These trees will be subjected to wholesale tree protection measures.
 - 8.3.1 T12 is senescent. Retain as part of existing community.
 - 8.3.2 T13 is suppressed with north eastern lean.
- 8.4 T14-T18 are proposed to be removed to facilitate development.
 - 8.4.1 T14 has a sparse crown and small percentage of deadwood.
 - 8.4.2 T15 has been previously lopped.
 - 8.4.3 T18 is suppressed.
- 8.5 T19 has less than 5% TPZ encroachment. Boundary fence will adequately protect specimen.

8.6 T20-T23 are proposed to be removed to facilitate development.

- 8.6.1 T20 has significant dieback and crown lifting.
- 8.6.2 T22 has a co-dominant stem removed and internal decay.

9. Tree Protection / Management Requirements

9.1 PRE CONSTRUCTION - DEMOLITION AND TREE REMOVAL

- 9.1.1 Trees that must be retained and not adversely impacted upon T1-T6, T8-T13 and T19.
- 9.1.2 AS 4970-2009 'Protection of Trees on Development Sites' (here after 'The Standard') Section 2.3.5 states '...the location of tree protection measures should also be shown on other documents such as demolition, bulk earth works, construction and landscape plans.
- 9.1.3 Appointment of a Project Arborist is required. They must document and log all works in relation to retained trees. This documentation is to be forwarded to Council or PCA at end of construction works.
- 9.1.4 **NOTE:-** Project Arborist to ensure Councils Conditions of Consent / Notice of Determination are cited prior to works commencing. Council may require additional tree protection measures or specific documentation that may need to be addressed to appease the PCA.
- 9.1.5 An 1800mm temporary chain wire fence (with plastic feet not posts driven into ground) must be installed to protect retained trees as per Tree Protection Plan. It is to be erected prior to demolition / excavation / benching and remain until the end of the construction period. Refer to attached diagram for fence locations and or setback dimensions. (Note:-Dimensions have been set by CAD and should be rounded up.) Refer to AS 4970-2009 Figure 3 and AS 4687-2007 'Temporary Fencings and Hoardings'.
- 9.1.6 Tree Protection Zone Varied (TPZV) will be implemented.
- 9.1.7 Signage is to be placed on fencing, outlining appointed Project Arborist with mobile phone number. All contractors / consultants on the site should be inducted to the penalties that may apply if the tree protection area is breached. Refer to AS 4970-2009 Figure C1 and AS 1319-1994 'Safety Signs'.
- 9.1.8 Tree removal must be undertaken by qualified Arborist (AQF 3/5), in accordance with applicable codes and standards for the Tree Industry. Mulch is to be stockpiled on site where appropriate for reuse in TPZ's (weed free). Ensure retained trees are not damaged, by segmentally removing adjacent trees as opposed to felling where applicable.
- 9.1.9 No lopping, topping or spiking of trees proposed to be retained. Any pruning is to be undertaken in accordance with AS 4373 'Pruning of Amenity Trees'. Remove major deadwood / diseased material as a matter of course and is only to be undertaken by AQF 3 Arborist. Stumps are to be ground and not pulled by machines. Retained existing trees are not to be used as anchorages points.
- 9.1.10 TPZV must be mulched with 100mm recycled leaf litter mulch, preferably recycled from any trees removed from site (no weed seeds) to reduce soil compaction, stimulate microbial activity and retain moisture.

- 9.1.11 A dedicated lockable hose tap is to be provided within each TPZV for sole use by the Project Arborist (if required).
- 9.1.12 No siting of sheds, stockpiling of materials etc permitted within TPZV.
- 9.1.13 TPZV must not to be entered unless under direction of Project Arborist.
- 9.1.14 Trunk protection not deemed necessary. However if required, place 100mm x 50mm x 2000mm battens (as a minimum or practical) vertically at 100mm intervals around trunk. Battens are to be secured by metal strapping and buffered from direct contact with tree geo-tech fabric / hessian or similar. Double layer, 100 mm wide top and bottom should be adequate. *Battens are not to be fixed directly to tree with screws / nails etc.*

9.2 DURING CONSTRUCTION

- 9.2.1 Contractor is to expect that all trenching / excavation within the designated TPZV will be undertaken by hand, under the supervision of Project Arborist.
- 9.2.2 Should heavy machinery be required to access TPZV, Project Arborist is to determine appropriate method. Options include; a designated path / track could be constructed using 150 x 75 mm sleepers OR 150 mm mulch layer OR 50 mm layer of washed river sand beneath rumble boards discuss with Arborist.
- 9.2.3 No changes to natural ground level (NGL) are permitted within TPZV unless approved on Council stamped plans, or by the Project Arborist.
- 9.2.4 Cranes must be located where no damage to canopy will occur (onsite and neighbouring). For sites with tight aerial access, the Project Arborist to be present for advice on possible canopy reduction and / or remedial pruning.
- 9.2.5 Underground services should use common trenches as far as practical from trunk and TPZV of tree. If large diameter roots are encountered (>40 mm), the contractor is to tunnel beneath. Developer to ensure Project Arborist is present if Utility companies need to access the TPZV (within property boundaries). Naivety is not accepted and heavy fines could be applicable.
- 9.2.6 Roots greater than 10 mm in diameter must be cleanly cut rather than torn by machinery.
- 9.2.7 Any vegetation or weed removal within TPZV to be undertaken by hand. Herbicides must be used in accordance with the label and applied on a calm day. Herbicide damage to existing vegetation is not acceptable and fines may apply.
- 9.2.8 Underground Boring Although currently not deemed necessary, if underground boring is required, an open trench is to be excavated 90 degrees to the trunk at either end of the TPZV, to an approximate depth of 1000mm, unless altered by Project Arborist in respect to particular species and its current vitality. Excavator can be used until 20mm roots are encountered. Once 20mm roots are encountered, all excavation there after must be undertaken by hand.

9.3 POST CONSTRUCTION

- 9.3.1 Only approved changes to NGL will be accepted. That includes Landscape works. Project Arborist and Landscape Consultant to ensure final works comply prior to issue of Certification.
- 9.3.2 Proposed hard surfacing within TPZV should preferably utilise permeable materials, ie dry jointed paving layed on a granular base with screeded sharp sand.
- 9.3.3 Retaining wall construction should give preference to gravity masonry wall or timber that reduces the need for concrete footings and increases permeability and movement. Backfill with an inert granular material ie washed river sand. Use of root deflection barriers may be appropriate.
- 9.3.4 Any irrigation methods proposed should mimic site conditions pre development; in respect to tree species.

10. Conclusion

10.1 It is recommended Council condition that a Project Arborist be appointed prior to demolition and that they 'register' with the PCA before any works commence so that the builder can be inducted as to important times when Arborist will be required on site.

Regards Paul Monaco

Paul Monaco, Bach. Hort. Sc. (AQF 7), Arboriculture (AQF 5), Bushland Regeneration (AQF 3). Landscape and Horticultural Consultant, Consulting Arborist. Quantified Tree Risk Assessment (QTRA) – Trained – Not registered

Limitation of liability

This report has been prepared by the arborist and must be accepted on the basis that all reasonable attempts have been made to identify factors and features relevant to the tree(s) specified. Unless otherwise stated, observations have been made by eye from ground level (VTA).

It must be noted that any opinions given by the arborist relating to the health, desirability, or significance of any tree will not necessarily coincide with the opinions of the relevant Council Officer.

Surveys are not undertaken by Monaco Designs Pty Ltd, therefore we cannot confirm their accuracy.

Tree related hazards should be kept in perspective with manmade hazards. Roof materials, advertising material, general rubbish etc can cause serious harm if they fail in extreme weather conditions.

- AGE CLASSES: (I) Immature refers to a juvenile tree. (S) Semi-mature, refers to a tree 11.1 between growth stages immature and mature. (M) Refers to a tree at full size with some opportunity for further growth. (O) Over-mature, refers to a tree past its peak growth or health and is either in, or about to enter decline.
- 11.2 HEALTH CLASS: - Exhibited by crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion and degree of dieback. Good (G) / Average (A) / Poor (P) / Deciduous at time of inspection (D).
- 11.3 CONDITION CLASS: - Refers to the trees form and growth habit as a result of its environment (aspect, suppression by other trees and soils). Also takes into consideration potential structural defects such as cavities and weak trunk / branch unions. Good (G)/ Average (A) / Poor (P).
- 11.4 DIAMETER AT BREAST HEIGHT: - Expressed in millimetres, this is the average radius measured at 1400mm from the ground for single trunk specimens. For multiple trunked specimens, the measurement is taken below the flange of the branch collar. Where a tree is trunkless, an average diameter is determined by taking an average of the radius and noted at ground level.
- 11.5 DISEASE: - Includes a range of factors biotic and abiotic in nature that could affect the long term vitality of the specimen, ie pests, pathogens, cankers, soil compaction etc.
- 11.6 FFL / FGL / NGL:- Finished Floor Level / Finished Ground Level / Natural Ground Level.
- 11.7 CONSTRUCTION TOLERANCE: - Provides an indication of the trees potential longevity after being exposed to many of the issues within a construction zone, ie; soil compaction, reduction in root zone and soil volume, changes in soil pH, canopy reduction, changes in overland flow / water table.

Good (G) – Average (A) – Poor (P). Based on experience as opposed to scientific data.

- TREE PROTECTION ZONE (TPZ):- As defined by AS 4970-2009 'A specified area above 11.8 and below ground and at a given distance from the trunk set aside for the protection of a trees roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development'. $TPZ = DBH \times 12$ (represented as radius). Generally speaking, AS4970-2009 states:-
 - 1. Minor encroachment is <10%
 - 2. Major encroachment is >10%
- 11.9 TREE PROTECTION ZONE VARIED (TPZV):- As defined by Section 3.3 in AS 4970-2009. This variation may be determined by the Project Arborist, or a necessity due to Council approving works without Arboricultural intervention prior to DA approval. Contiguous compensated up to 10% of encroachment as per Appendix D of AS4970-2009 is permissible.
- 11.10 STRUCTURAL ROOT ZONE (SRZ):- As defined by AS 4970-2009 'The area around the base of a tree required for the trees stability in the ground'.
- 11.11 SENESCENCE: This is a stage within the trees life cycle where the health of the tree is in decline. This may be a result of maturity or a combination of circumstances resulting in

premature senescence. Premature senescence is usually a result of modification to the tree or its environment, most commonly by; lopping for powerlines, erecting hard surfaces in the vicinity of the tree, trenching for services and compaction of soils within the dripline.

- 11.12 VIGOUR: Genetic feature of tree to resist strain. (Shigo)
- 11.13 VITALITY: General ability of a tree to grow in its current location.
- 11.14 VTA Visual Tree Assessment described by Dr Clause Mattheck in '*The Body Language of Trees*'. This assessment process is supported by <u>The International Society of Arboriculture</u>, as a system to inspect trees for indicators of structural defects that may pose a risk of failure.
- 11.15 (as): Assumed species, dbh etc.

12. Reference / Bibliography

- 12.1 Australian Standard AS 4970-2009 'Protection of Trees on Development Sites'.
- 12.2 AS 1319-1994 'Safety Signs'.
- 12.3 AS 4373-1996 'Pruning of Amenity Trees'.
- 12.4 AS 4687-2007 'Temporary Fencings and Hoardings'.
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- 12.12 Raven, P.H., et al, (1986) <u>'Biology of Plants 4th Ed.'</u>, Worth Publishers.
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- 12.14 Shigo, A. (1997) '<u>A New Tree Biology</u>', Shigo and Trees Associates.
- 12.15 Shigo, A. (2008) 'Modern Arboriculture', Shigo and Trees Associates.



14. Assorted Pictures



Plate 1 – Street view – T22 left



Plate 2 – T1-T5 and T19



Plate 3



Plate 4 – T8-T13