

ARBORICULTURAL IMPACT ASSESSMENT

Prepared for:

Carla Middleton

Carla Middleton Architecture Pty Ltd

Site:

Lot 1 DP 90944 30 MacMillan Street, Seaforth NSW 2092

Published by:

MATHEW PHILLIPS

Dip. Arboriculture (AQF-5)

M: 0433 085 573

QTRA No.6067

E: sydneyarbor@hotmail.com



SYDNEY ARBOR TREES Pty Ltd
ARBORICULTURE/CONSULTATION/HABITAT CREATION

Tel: (02) 96666821

ABN: 39 106 413 610

www.sydneyarbor.com.au



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1 SUMMARY OF ASSESSMENT

This Arboricultural Impact Assessment and Site-Specific Tree Protection Strategy was prepared for Carla Middleton Architecture Pty Ltd, to discuss Eight (8) tree species. Consisting of one street tree, one neighbours tree and six trees on the proposed development site. All tree species have been identified for removal to facilitate the proposed development.

The aim of this Arboricultural report is to undertake a Visual Tree Assessment (VTA), determine the impact of the proposed development on the subject trees, and where appropriate, provide guidance and recommend tree sensitive protection methods to minimise adverse impacts.

Tree 1, the street tree requires removal to facilitate the construction of a double driveway, connecting to the proposed double garage. It is proposed that tree 1 be offset with a street tree planting on Frenches Forest Road, street verge to the north of the property. The remaining tree species are small tree and hedge species to be off set as part of the landscaping plan.

Through complying with the Site-Specific Tree Protection Strategy here within, the proposed demolition and construction of the new dwelling, garage and landscaped areas is assessed to not adversely impact tree 8. The landscaping plan and re-planting off sets will increase the future canopy cover of the site, and therefore increase the amenity of the site.

In preparing this report, the author is aware of and has considered the objectives of;

- *State environmental Planning Policy 'Vegetation in Non-Rural Areas 2017'*
- *AS 4970 Protection of Trees on Development Sites (2009)*
- *LGA Development Control plan*
- *LGA Local Environmental Plan*



Figure 1 The proposed development site.



Figure 2 The site aspect.

2 ASSESSMENT METHODOLOGY

On the 7th of December 2020, tree species of the subject site were assessed using the Visual Tree Assessment criteria as described in The Body Language of Trees- A Handbook for Failure Analysis. (Mattheck & Breloer, 1997) and the principals of Quantified Tree Risk Assessment. This assessment was limited to a visual examination of the subject trees from ground level only. Internal diagnostic testing, tissue samples, or soil samples were not undertaken as part of this assessment.

2.1 Site inspection

This report was determined as a result of a comprehensive site inspection.

2.2 Tree Locations and Numbers

The Eight (8) trees were assessed, indicated within Figure 11. The Site Survey Plans were used to identify tree locations. Tree species were numbered.

2.3 Tree Dimensions

Tree trunk diameters and heights were measured for all the subject trees.

2.4 Tree Health

The Health of the subject tree(s) was rated as Good, Fair or Poor based on an assessment of the following factors: Foliage size and colour, Pest and disease infestation, Extension growth, Crown density, Deadwood size and volume and Presence of epicormic or sucker growth.

2.5 Tree Condition

The structural Condition of the subject tree(s) was rated as Good, Fair or Poor based on an assessment of the following factors: Branching structure (i.e. co-dominant, bark inclusions, crossing branches, branch taper, terminal loading, previous branch failures), visible evidence of structural defects or instability (i.e. root plate movement, wounds, decay, cavities, fungal brackets, adaptive growth), evidence of previous pruning or physical damage (i.e. root severance/damage, lopping, flush-cutting, lions tailing, mechanical damage)

2.6 Estimated Life Expectancy (ELE)

The ELE is an estimate of the longevity of the subject tree(s) in its landscape context. The ELE is modified where necessary to take into consideration tree(s) health, structural condition and site suitability. The tree(s) have been allocated one of the following ELE categories; Long >40 years, Medium 15-40 years, Short <1-15 years and Dead.

ELE gives an estimation of how long a tree is likely to remain viable within that landscape based on species, stage of life cycle, health, contribution to the local environment, amenity values, conflicts with adjacent infrastructure and risk to the community. The ELE is also based on the site conditions not significantly being altered and any prescribed maintenance recommendations such as Crown maintenance and Deadwood removal. The age class of the assessed tree/s is dependent on known species characteristics and longevity in the urban environment and partially aids in the assessment of the Estimated life expectancy.

2.7 Trees & Development

Tree Protection Zones, Tree Protection Measures and Sensitive Construction Methods for the subject tree were based on methods outlined in Australian Standard 4970-2009 Protection of Trees on Development Sites. The Tree Protection Zone (TPZ) is described in AS-4970 as a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.

2.8 The Structural Root Zone (SRZ)

The SRZ is described in AS-4970 as the area around the base of a tree required for the tree's stability in the ground. Severance of structural roots within the SRZ is not recommended as it may lead to the destabilisation and/or demise of the tree. In some cases, it may be possible to encroach into or make variations to the theoretical TPZ. A Minor Encroachment is less than 10% of the area of the TPZ and is outside the SRZ. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. A Major Encroachment is greater than 10% of the TPZ or inside the SRZ. In this situation the Project Arborist must demonstrate that the tree would remain viable. This may require root investigation by non-destructive methods or the use of sensitive construction methods

2.9 The Tree Protection Zone (TPZ)

As described within AS-4970 as a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. TPZ's are calculated by multiplying the diameter at breast height by 12. This results in a setback distance radially from the trunk.

2.10 Tree AZ Methodology

TreeAZ as a method determines the retention value of trees in the planning process. TreeAZ is based on a systematic method of assessing whether individual trees are important and how much weight they should

be given in management considerations. Trees assessed as potentially important are categorised as 'A' and those assessed as less important are categorised as 'Z'. In the context of new development, all the Z trees are discounted as a material constraint in layout design. All the A trees are potentially important, and they dictate the design constraints. This relatively simple constraints information is suitable for use by the architect to optimise the retention of the best trees in the context of other material considerations. Further explanation of the TreeAZ method can be found in Appendix 1.

2.11 Qualifications and Experience

I have based this report on my site observations and the provided information. I have come to my conclusions in light of my formal qualification, Diploma of Arboriculture and experience as an (AQF- Level 5) Consulting Arborist.

2.12 Documents & Plans Provided

SCHEDULE OF PLANS/DOCUMENTS PROVIDED	
<i>Carla Middleton Architecture – 30 Macmillan Street Seaforth Drawing- DA000, DA100, DA101, DA102, DA200, DA201, DA300 DA400, DA500</i>	<i>Not Attached</i>

Table 1

3 ARBORICULTURAL IMPACT ASSESSMENT

3.1 Summary of the Impact

The subject trees have been assessed based on the extent of disturbance within the Tree Protection Zone (TPZ), The encroachment of structures into the Structural Root Zone (SRZ) and the requirement for development specific structures. The proposed development requires the removal of Six (6) A category important trees, the removal of One (1) Z Category unimportant tree and the protection of One (1) A Category important street tree located within the adjoining property.

Category 'A' Trees 'A1' 'A2' 'A3' & 'A4', are important trees suitable for retention for more than 10 years and worthy of being a material constraint. **NOTE:** Category 'A1' trees that are already large and exceptional or have the potential to become so with minimal maintenance, can be designated as 'AA' at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorization hierarchy and should be given the most weight in any selection process.

Category 'Z' Trees: Are unimportant trees not worthy of being a material constraint. Further explanation of the TreeAZ methodology can be found in Appendix 1.

3.2 Table of Scheduled Trees

Impact	Reason	Important Trees		Unimportant Trees
		AA	A	Z
Retained trees within proximity to development site that may be impacted.	Site disturbance, demolition and construction		8	
Removed trees within proposed development footprint.	Site disturbance, demolition and construction		2,3,4,5,6 & 7	1

Table 2

3.3 Tree Schedule

TREE SCHEDULE									
NOTE: COLOUR ANNOTATION IS		AA Trees Gr		Z & ZZ Trees Blue					Trees to be Removed in Red text
Tree No	Genus Species (Common Name)	Height (m)	SRZ	TPZ	Age Class	Health	Condition	E. L. E	Tree AZ Category
1	Iophostemon confertus (Variagated Brushbox)	11	2.4	6.0	MATURE	GOOD	POOR	15>40	Z10 Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
2	Syzygium australe (Brush Cherry)	7.6	1.9	3.6	MATURE	FAIR	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
3 (X5) Hedge	Syzygium australe (Brush Cherry)	4.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
4 (X3) Hedge	Michelia figo (Port Wine Magnolia)	2.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A1 No significant defects and could be retained with minimal remedial care
5 (x4) Hedge	Murraya paniculata (Mock Orange)	3.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
6 (x5) Hedge	Murraya paniculata (Mock Orange)	3.5	1.5	2.0	MATURE	Fair	Fair	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
7 (x7) Hedge	Murraya paniculata (Mock Orange)	3.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
8 Neighbours	Syzygium spp. (Lilly Pilly)	5	2.1	3.6	MATURE	FAIR	GOOD	15>40	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees

Table 3

3.4 The Subject Trees

3.4.1 Tree 1

The subject tree has been identified as a Brush Box and is situated within the street verge and is a publicly owned street tree under local Council management. The tree is situated 4.5m radius from the existing driveway, the driveway is outside the calculated 2.41m radius SRZ and within the calculated 6m radius TPZ. Tree health has been assessed as Good, leaf size is typical to the species, crown cover is typical to the species and crown density is typical to the species. New growth within the outer canopy layer indicated that the subject tree is growing. Tree condition has been assessed as Poor, this evident through the misshapen habit. The form has been significantly modified through historical power network pruning; however, the upper canopy has self-corrected and grown to form a canopy above the power lines.

The supplied plans show that the subject tree will be removed to facilitate the construction of a double driveway connecting to the proposed double garage.

3.4.2 Tree 2

The subject tree has been identified as a Brush Cherry/Lilly Pilly. The subject tree has been assessed as an A category tree, and the supplied plans show that the subject tree is to be removed to facilitate the construction of the garage.

3.4.3 Tree 3 (Hedge)

The subject trees (5) have been identified as a Brush Cherry/Lilly Pilly. The subject tree has been assessed as an A category tree, and the supplied plans show that the subject trees are to be removed to facilitate a grade change and re-landscaping.

3.4.4 Tree 4 (Hedge)

The subject trees (3) have been identified as a Port Wine Magnolia. The subject trees have been assessed as an A category tree, and the supplied plans show that the subject trees are to be removed to facilitate the construction of the rear of the proposed dwelling.

3.4.5 Tree 5 (Hedge)

The subject trees (4) have been identified as a Murraya. The subject trees have been assessed as an A category tree, and the supplied plans show that the subject trees are to be removed to facilitate the construction of the side walkway to be hardscaped.

3.4.6 Tree 6 (Hedge)

The subject trees (5) have been identified as a Murraya. The subject trees have been assessed as an A category tree, and the supplied plans show that the subject trees are to be removed to facilitate the construction of new landscaping.

3.4.7 Tree 7 (Hedge)

The subject trees (7) have been identified as a Murraya. The subject trees have been assessed as an A category tree, however the northern most is declining. The supplied plans show that the subject trees are to be removed to facilitate the construction of the side walkway to be hardscaped and landscaping.

3.4.8 Tree 8 (Neighbours)

The subject tree has been identified as a Lilly Pilly. The supplied plans show that the subject tree will be retained

Tree Locations

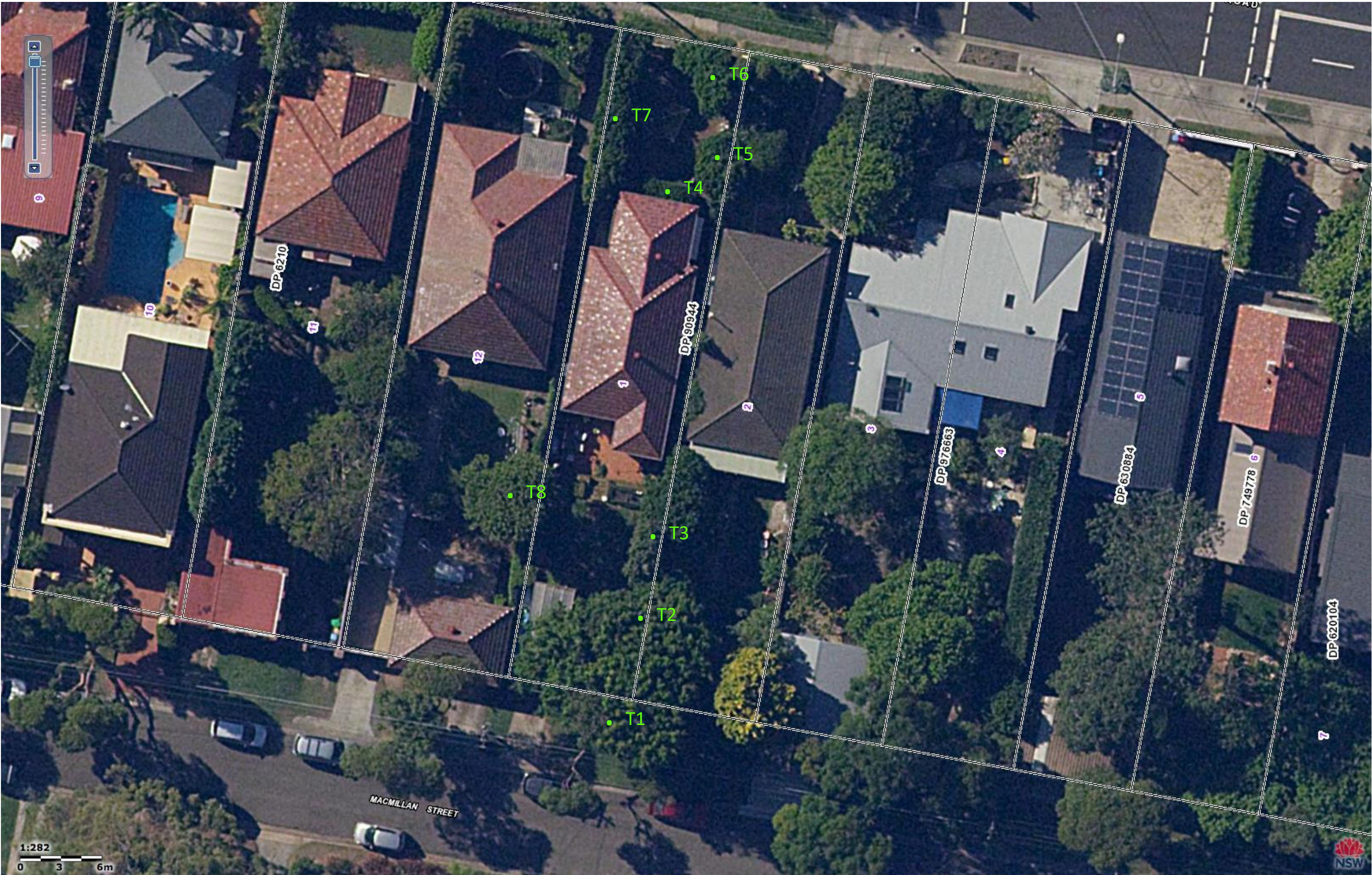


Figure 3 Shows the Development Site & Tree Location.

4 RECOMMENDATIONS

- 4.1 The removal of trees 1,2,3,4,5,6 & 7 is supported to facilitate the development, under consent from the consent authority or DA conditions.
- 4.2 Tree management works should be carried out by a qualified AQF-3 Arborist in accordance with:
- (AS4373 – 2007) Pruning of Amenity Trees.
 - SafeWork NSW Code of Practice for the Amenity Tree Industry 1998.
 - Work Health and Safety (WHS) Regulations 2011.
 - Safe Work Guide to managing Risks of Tree Trimming and Removal Work 2016.
- 4.3 The removal of tree 1 should be off set with a proposed re-planting on Frenches Forest Road, directly north of the Lot. The species should be suitable for the environment and meet the conditions of the street tree planting master plan or proffered species list under the LGA DCP.
- 4.4 Tree planting shall be conducted in accordance with the attached Tree planting Specification or specification directed by the consent authority.
- 4.5 Tree 2,3,4,5,6 & 7 should be offset in accordance with DA conditions of consent.
- 4.6 All other guidance within the 'Site Specific Tree Protection Strategy' should be implemented in order to limit adverse influences on tree 8.

5 STATEMENT OF LIMITATIONS

5.1 This Assessment report was undertaken by an Arborist with AQF level V (Diploma of Arboriculture) qualification. Mathew Phillips is a registered user of the Quantified Tree Risk Assessment® (QTRA) methodology. Only registered licence holders having received training and regular updates from Quantified Tree Risk Assessment Limited are permitted to use the QTRA system.

5.2 It is important to note that the QTRA risk assessment does Not evaluate risk exposure during unexpected, unusual, unpredictable, severe, or unseasonal weather; weather at the extremes of the historical distribution. The risk assessment provided is valid for 12 months only.

5.3 This assessment was based on a comprehensive site inspection, observations made at the time of the inspection and information provided by the client and their employees. Any and all conclusions reached or tree works recommended, do not imply that the tree will withstand adverse natural conditions such as environmental influences, soil failure and erosion, severe storms, works carried out or near it, land development and mechanical impact, miss-management or maintenance or changes in the growing environment, may impact the validity of the conclusions.

5.4 Any written or verbal submission, statements taken from the results, discussions, conclusions or recommendations made herein, may only be used where the whole of the original report is referenced in, and directly attached to that submission, report or presentation.

5.5 All care has been taken to obtain all information from reliable sources. All data collected has been verified insofar as practically possible: however, the author can neither guarantee nor be responsible for the accuracy of information provided by others. Information contained

herein, covers only those trees that were surveyed, examined and scheduled and reflects the condition of those trees at the time of inspection.

5.6 This report is Not a warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future, but a professional opinion of the current status and condition of the tree. Whilst all care has been taken to prepare this report, the author takes no responsibility for the continued vitality of the tree mentioned or for any damage that it may cause in the future.

If you have any questions regarding this report or require any further information, please contact me on the details below

Regards,



Mathew Phillips
P: 0433 085 573
AQF-5 Consulting Arborist
Dip. Arboriculture
Quantified Tree Risk Assessor ID. 6067
E: sydneyarbor@hotmail.com



6 REFERENCES

- Australian Standard AS4373-2007 Pruning of Amenity Trees. Standards Australia.*
- Australian Standard AS4970-2009 Protection of trees on development sites. Standards Australia.*
- Barrell, J (2009) Draft for Practical Tree AZ version 9.02 A+NZ Barrel Tree Consultancy, Bridge House, Ringwood BH24 1EX (n.d.).*
- Draper, D. B., & Richards, P. A. (2009). DICTIONARY for MANAGING TREES in URBAN ENVIRONMENTS. Collingwood: CSIRO publishing.*
- Lonsdale, D. (1999). Principles of Tree Hazard Assessment and Management. London, Great Britain: The Stationary Office (TSO).*
- Mattheck, C., & Breloer, H. (1997). The Body Language of Trees. A handbook for Failure Analysis. London, England: Department of Environment.*
- SEPP. (2017). State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017. Retrieved from Legislation.nsw.gov.au: <https://legislation.nsw.gov.au/EPIs/2017-454.pdf>*

7 APPENDICES

8 Appendix 1: TREE AZ METHODOLOGY

TreeAZ Categories (Version 10.04-ANZ)

CAUTION: TreeAZ assessments must be carried out by a competent person qualified and experienced in arboriculture. The following category descriptions are designed to be a brief field reference and are not intended to be self-explanatory. They must be read in conjunction with the most current explanations published at www.TreeAZ.com.

Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure <u>cannot</u> be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

Z9	Severe damage and/or structural defects where a high risk of failure can be <u>temporarily</u> reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorization hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

A1	No significant defects and could be retained with minimal remedial care
A2	Minor defects that could be addressed by remedial care and/or work to adjacent trees
A3	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years
A4	Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)

NOTE: Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorization hierarchy and should be given the most weight in any selection process.

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SITE-SPECIFIC TREE PROTECTION STRATEGY

Prepared for:

Carla Middleton
Carla Middleton Architecture Pty Ltd

Site:

Lot 1 DP 90944 30 MacMillan Street, Seaforth NSW 2092

Published by:

MATHEW PHILLIPS
Dip. Arboriculture (AQF-5)
M: 0433 085 573
QTRA No.6067
E: sydneyarbor@hotmail.com



SYDNEY ARBOR TREES Pty Ltd
ARBORICULTURE/CONSULTATION/HABITAT CREATION
Tel: (02) 96666821
ABN: 39 106 413 610
www.sydneyarbor.com.au



9.1 STRATEGY AND GUIDANCE EXPLANATION

- 9.1.1 This 'Site-Specific Tree Protection Strategy' is based on the Australian Standards AS 4970 Protection of Trees on Development Sites (2009) and outlines general principles that must be followed in order to protect trees that have been identified for protection during the proposed development.
- 9.1.2 This guidance is specifically for all parties associated with the proposed development to help them understand what has been agreed under consent and explain what is required to fully meet their obligations in regard to protect trees.
- 9.1.3 All personnel working on the site and specifically within 'Tree Protection Zones' must be properly briefed about their responsibilities towards important trees based on this guidance.
- 9.1.4 This guidance should be kept onsite, form part of the site-specific induction and be used in conjunction with the Tree Management Plan (TMP).

9.2 GUIDANCE 1. (G1) The Project Arborist

- 9.2.1 A project Arborist (Minimum AQF-5) shall be engaged prior to the commencement of demolition works on-site.
- 9.2.2 A pre-start meeting with the project manager and project Arborist shall be conducted to discuss the establishment of tree protection measures prior to demolition and construction.
- 9.2.3 A written Certificate that certifies the tree protection and documents the current status of the protected trees is to be issued to the project manager and principal certifying authority prior to any works starting onsite.

9.3 GUIDANCE 2. (G2) Compliance

- 9.3.1 The Tree Protection Plan shall be kept onsite, and form part of the site-specific induction. All contractors and site workers shall receive a copy of these specifications prior to commencing work on-site. Any works conducted within the 'Tree Protection Zones' shall be supervised by the project Arborist or an AQF-5 qualified Arborist.
- 9.3.2 The project Arborist shall undertake a site inspection prior to works being started onsite to certify that tree protection is in place, in accordance with this strategy and the conditions of consent.
- 9.3.3 Compliance documentation shall be prepared by the project Arborist following any inspections. Compliance documentation shall include documentary evidence of compliance with the tree protection measures and methods as outlined within this strategy.
- 9.3.4 Where compliance has been breached, the project manager will be notified in writing where a 'Hold Point' will be issued to the principal certifier until tree protection has been established and or damage to protected trees has been remediated under direction from the project Arborist.
- 9.3.5 The project Arborist shall conduct a final assessment of the protected trees and site to assess any adverse influences from the development and complete a final certification once works have been completed, with future recommended management strategies implemented as required.

9.4 GUIDANCE 3. (G3) Tree Removal

9.4.3 Tree 1,2,3,4,5,6 & 7 shall be removed under consent from the consent authority.

9.5 GUIDANCE 4. (G4) Tree Protection Zone (TPZ)

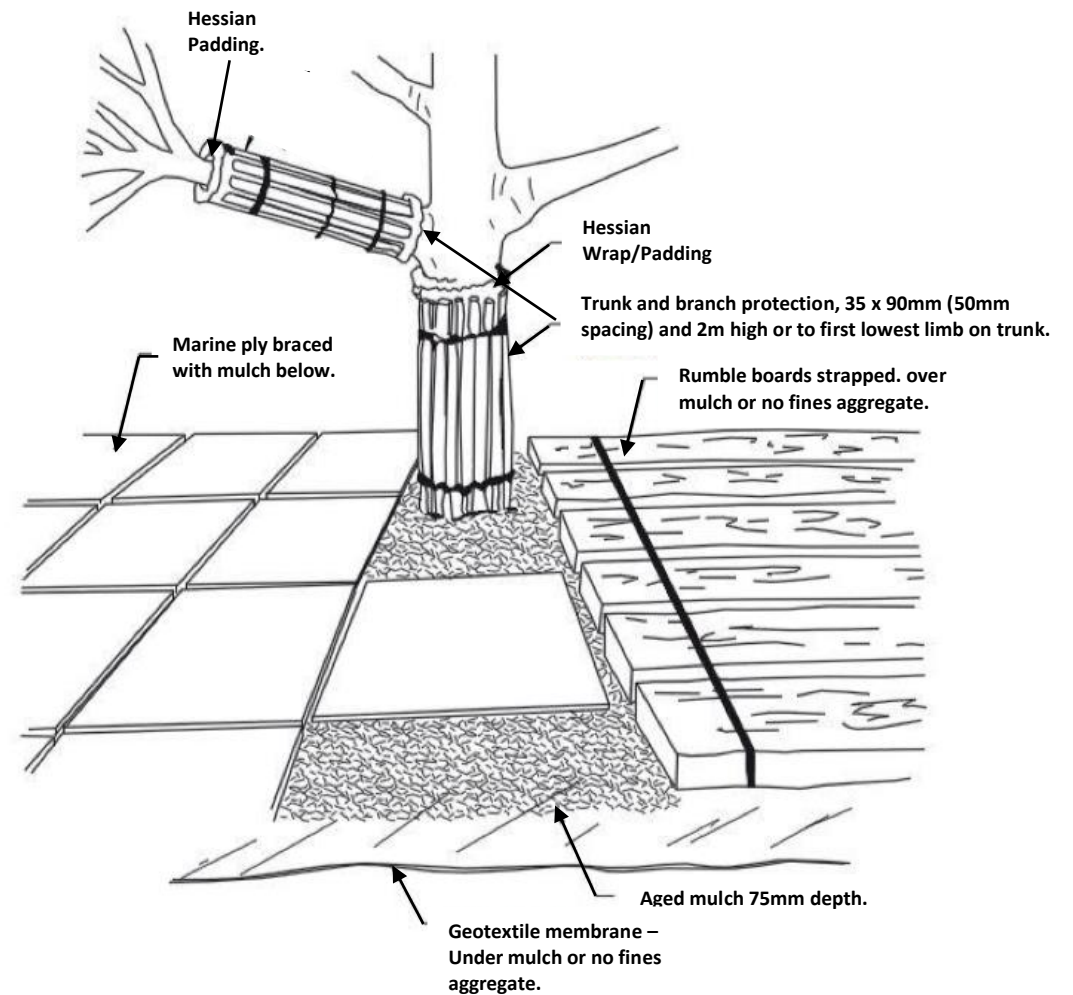
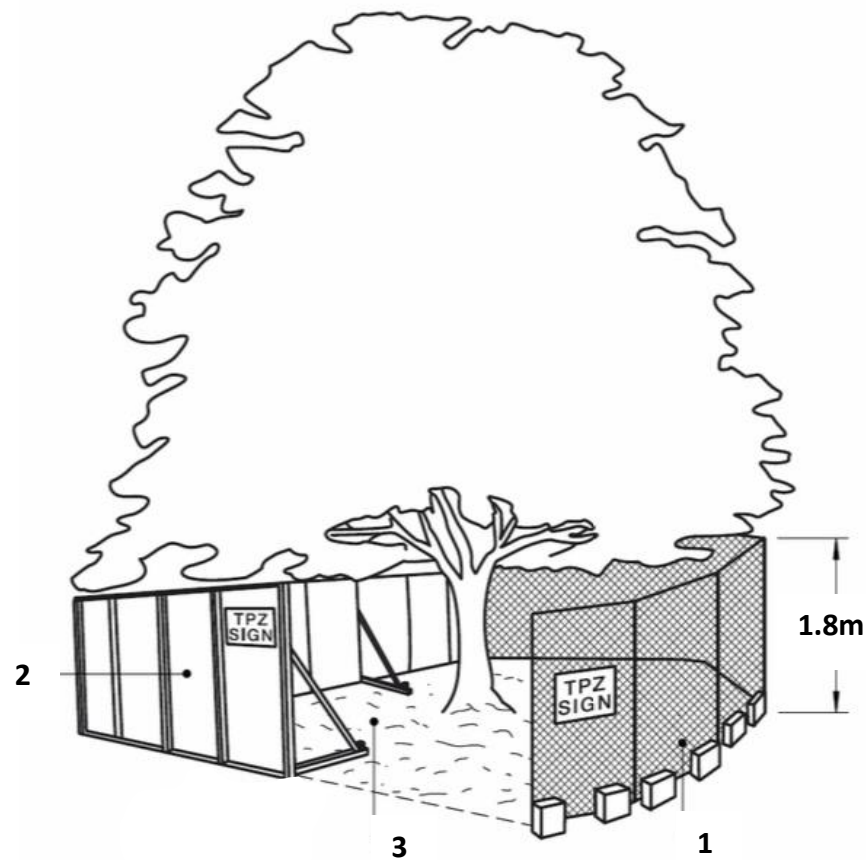
9.5.1 Tree 8 is to be retained and the existing boundary fence shall be certified as tree protection.

9.5.2 Tree Protection zones shall exclude the following activities unless supervised or approved by the project Arborist;

- a. Modification of existing soil levels.
- b. Storage of materials, plant, equipment or site sheds, Preparation of building materials, refuelling, disposal of waste and or chemicals.
- c. Movement of pedestrians or vehicular access Any other activity that may cause damage to the tree.
- d. Temporary or permanent location of services, or the works required for their installation.
- e. Run on, shall be limited where practical by the installation of a boundary outside the TPZ.

9.5.3 All works in 'Tree Protection Zones' shall be supervised by the project Arborist or an AQF-5 Arborist. **NOTE:** If access, encroachment or incursion into the 'Tree Protection Zone' is deemed essential, prior authorisation is required by the project Arborist.

9.6 GUIDANCE 5. (G5) Physical Tree Protection



1 = Chain mesh fencing, concrete feet (Shade cloth council dependent)

2 = Hoarding/timber fencing alternative (CBD)

3 = Aged quality mulch (75mm max depth) extent of TPZ (where practical) no construction unless supervised by AQF-5 Arborist. No grade changes, no surface changes, no storage of materials permitted and no excavation to occur as part of the site establishment related to tree protection.

9.7 GUIDANCE 6. (G6) Trunk Protection

9.7.1 N/A

9.8 GUIDANCE 7. (G7) Tree Protection Fencing

9.8.1 The existing boundary fence shall be retained as tree protection.

9.9 GUIDANCE 8. (G8) Ground Protection

9.9.1 N/A

9.10 GUIDANCE 9. (G9) Tree protection Signage

9.10.1 Shall be installed to all tree protection fencing (Sample Attached) throughout the site and approaches to the site perimeter.

9.10.2 Shall be laminated (weatherproof) and fixed to fencing with wire or zip ties.

9.11 GUIDANCE 10. (G10) TPZ Mulching

9.11.1 N/A

9.12 GUIDANCE 11. (G11) Tree Health Care

9.12.1.1 N/A

9.13 GUIDANCE 12. (G12) Cyclical Watering Schedule

9.13.1 N/A

9.14 GUIDANCE 13. (G13) Grade Changes in TPZ's

9.14.1 N/A

9.15 GUIDANCE 14. (G14) Tree Pit Aeration and Irrigation

9.15.1 N/A

9.16 GUIDANCE 15. (G15) Tree Root Exposure

9.16.1 Where tree roots are exposed during demolition of the existing structures these shall be inspected by the project Arborist, if believed to be from tree 8 these shall be protected and covered with Hessian or non-woven geotextile and mulch in the short-term and suitable soil consistent with the current soil profile until finishing surfaces are installed.

9.17 SCHEDULE OF WORKS AND RESPONSIBILITIES

ARBORICULTURAL ACTION	PROGRAMMING	EXTENT OF ARBORICULTURAL INPUT	SIGNED OFF (Project Arborist)
<i>Pre-start meeting with Project Manager and Demolition contractor team to discuss any emerging issues and tree protection establishment.</i>	<i>Before any activities start onsite.</i>	<ul style="list-style-type: none"> Meeting with relevant members of the project managers team to explain the extent of tree constraints, i.e. Architect, Site Manager, engineer, landscape architect, Contractor, etc. Review working space requirements to consider fencing and ground protection adjustments to improve site functionality. Review post consent layout changes that may affect trees. Confirm tree protection measures will be acceptable. 	
<i>Installation of tree protection measures as per this site specification for agreement with the consent authority.</i>	<i>Prior to any works being started onsite.</i>	<ul style="list-style-type: none"> Site fencing can be installed by the contractor as per this specification. 	
HOLD POINT 1			
<i>Tree protection certification.</i>	<i>Before hand over to contractor and site occupation.</i>	<ul style="list-style-type: none"> Project Arborist to inspect all tree protection measures. Conduct a VTA of all surveyed trees to assess and record Health, Vigour and Condition. Produce a certification document outlining observations and compliance. 	
HOLD POINT 2			
<i>Pre-demolition and construction meeting with contractor.</i>	<i>Before hand over to contractor and site occupation.</i>	<ul style="list-style-type: none"> Meeting with project managers team i.e. Architect, Site Manager, engineer, landscape architect, etc. and Contractor to explain the extent of tree constraints. Review site setup i.e. site office, equipment storage, plant, cranes. Review if any works are proposed in TPZ's. Review post consent layout changes that may affect trees. 	
<i>Site Inspections</i>	<i>During the demolition or construction phases</i>	<ul style="list-style-type: none"> Project Arborist shall conduct inspections of the site to conduct compliance checks as specified only by the consent authority. 	
<i>Tree Protection Measures removed</i>	<i>Post works onsite and prior to handing over the project completed and or occupation certificate.</i>	<ul style="list-style-type: none"> Removal of tree protection to be approved by the Project Arborist. Ground protection removal for tree 10 and 11 to be supervised by the project arborist. 	
HOLD POINT 3			
<i>Final Certification</i>		<ul style="list-style-type: none"> Project Arborist to conduct a final certification Conduct a VTA of all surveyed trees to assess and record Health, Vigour and Condition. Produce a certification document outlining observations and any recommendations. 	

9.18 Tree Schedule & Tree Protection Plan

TREE SCHEDULE									
NOTE: COLOUR ANNOTATION IS			AA Trees Gr		Z & ZZ Trees Blue				Trees to be Removed in Red text
Tree No	Genus Species (Common Name)	Height (m)	SRZ	TPZ	Age Class	Health	Condition	E.L.E	Tree AZ Category
1	<i>Iophostemon confertus</i> (Variagated Brushbox)	11	2.4	6.0	MATURE	GOOD	POOR	15>40	Z10 Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
2	<i>Syzygium australe</i> (Brush Cherry)	7.6	1.9	3.6	MATURE	FAIR	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
3 (X5) Hedge	<i>Syzygium australe</i> (Brush Cherry)	4.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
4 (X3) Hedge	<i>Michelia figo</i> (Port Wine Magnolia)	2.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A1 No significant defects and could be retained with minimal remedial care
5 (x4) Hedge	<i>Murraya paniculata</i> (Mock Orange)	3.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
6 (x5) Hedge	<i>Murraya paniculata</i> (Mock Orange)	3.5	1.5	2.0	MATURE	Fair	Fair	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
7 (x7) Hedge	<i>Murraya paniculata</i> (Mock Orange)	3.5	1.5	2.0	MATURE	GOOD	GOOD	<1-15	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees
8 Neighbours	<i>Syzygium</i> spp. (Lilly Pilly)	5	2.1	3.6	MATURE	FAIR	GOOD	15>40	A2 Minor defects that could be addressed by remedial care and/or work to adjacent trees

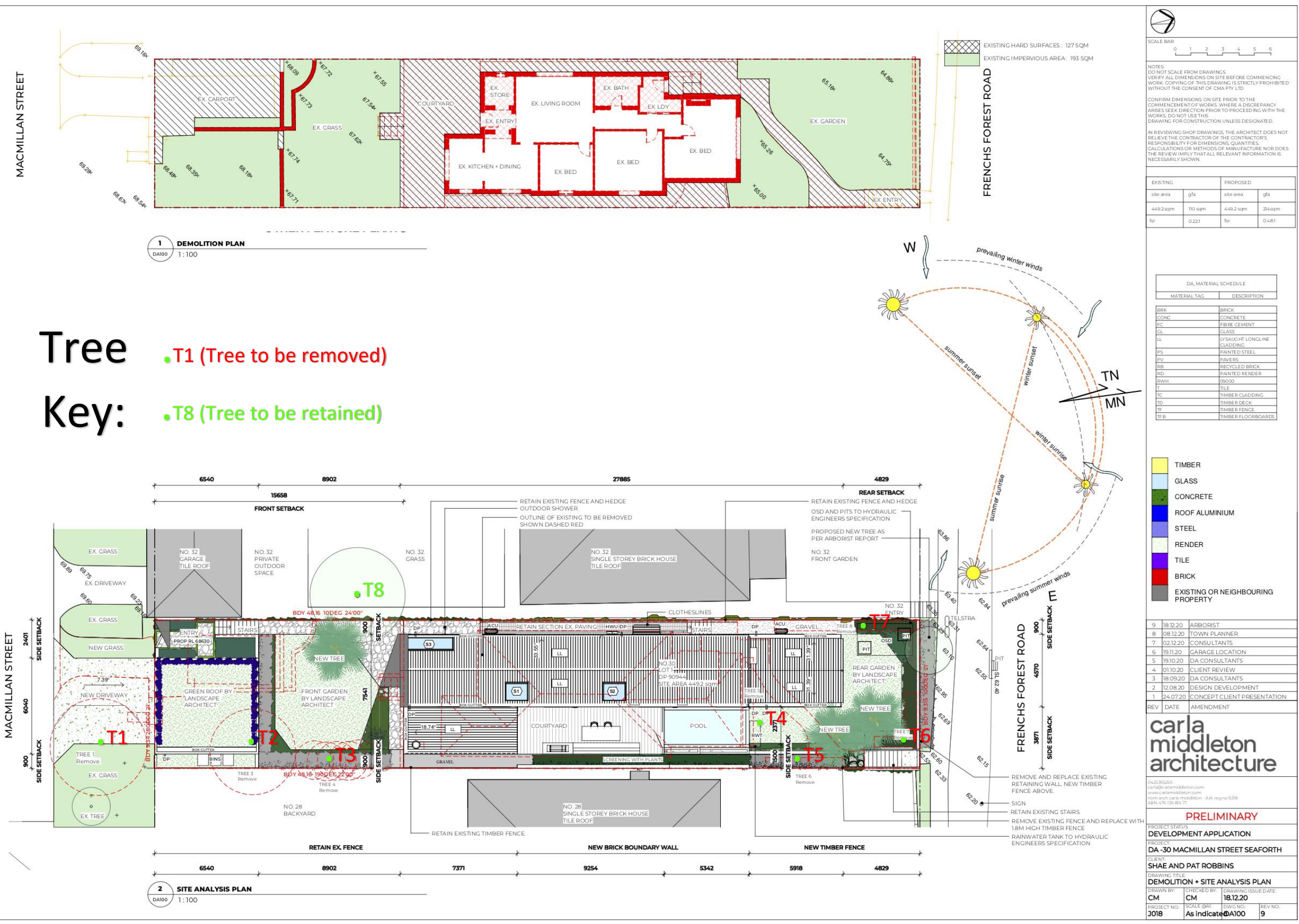


Figure 4 Shows the Development Site & Tree Location & Tree 8 to be protected.

TREE PROTECTION ZONE



**NO ACCESS
NO EXCAVATION
NO TRENCHING
NO STORAGE OF
MATERIALS**

www.sydneyarbor.com.au

Builder:

Project Arborist: Sydney Arbor 0296661435



TREE PLANTING SPECIFICATION

Published by:

MATHEW PHILLIPS

Dip. Arboriculture (AQF-5)

M: 0433 085 573

QTRA No.6067

E: admin@sydneyarbor.com.au



SYDNEY ARBOR TREES Pty Ltd
ARBORICULTURE/CONSULTATION/HABITAT CREATION

Tel: (02) 96666821

ABN: 39 106 413 610

www.sydneyarbor.com.au



10.1 SPECIFICATION EXPLANATION

10.1.1 This planting specification outlines general principles that must be followed in order to successfully install and establish new trees.

10.2 STANDARDS

10.2.1 All works shall be in accordance with the following relevant standards:

AS 4419-2003 Soils for Landscaping and garden use. AS 4454-2003 Compost, soil conditioners and mulches, and AS 4373-2007 Pruning of Amenity trees.

10.3 SPECIFICATION 1 (SP1) PERSONNEL

10.3.1 Tree planting shall be undertaken by an Arborist or Horticulturist with a minimum certification in accordance with Australian Qualifications Framework Level 2.

10.4 SPECIFICATION 2 (SP2) ENVIRONMENTAL

10.4.1 Installation should be ecologically sound, environmentally friendly, and consistent with principals of sustainable development.

10.5 SPECIFICATION 3 (SP3) SITE INVESTIGATION

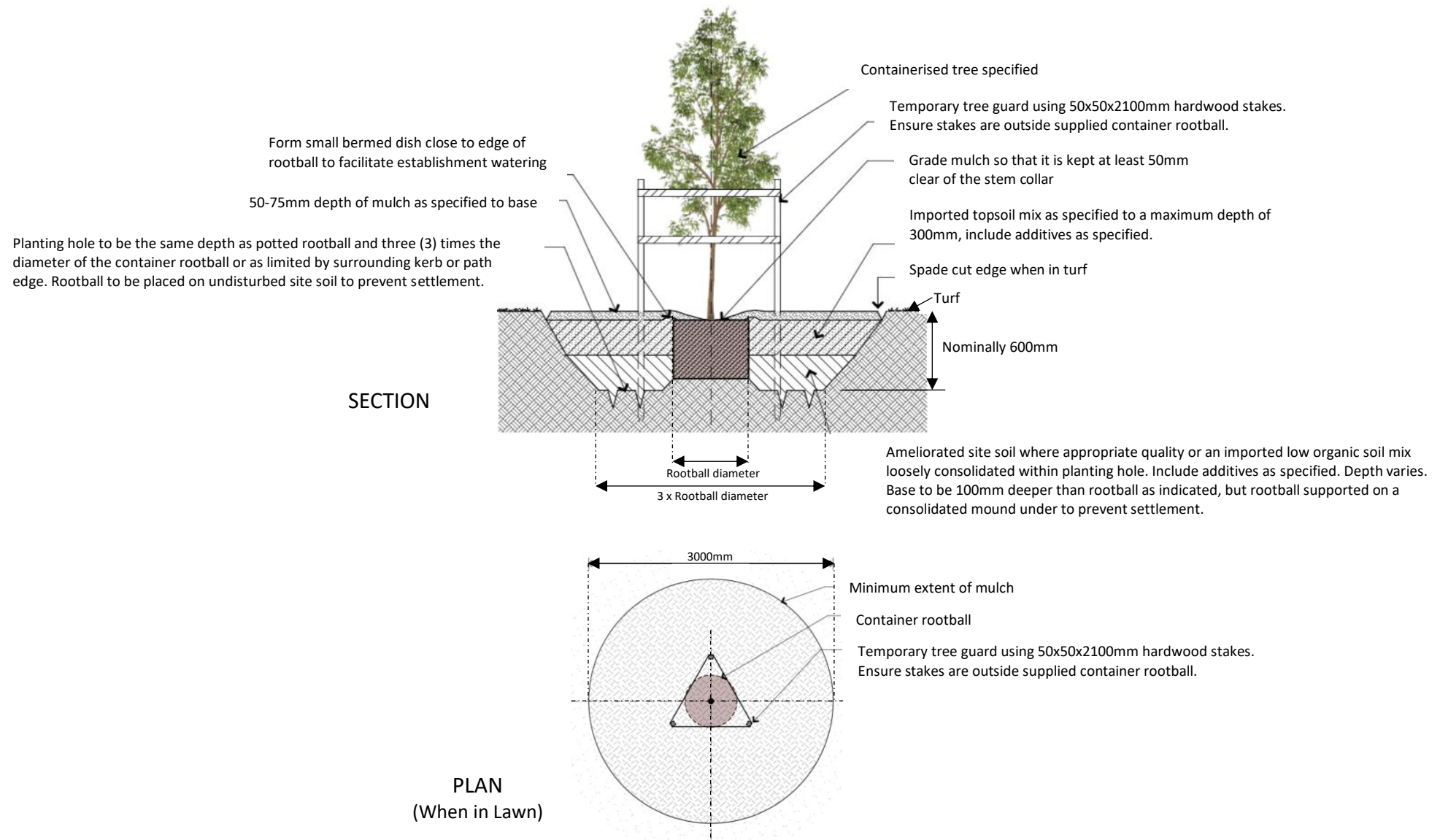
10.5.1 Replacement plantings should be planted in locations suitable to support above and below ground future growth.

10.6 SPECIFICATION 4 (SP4) EXTENT OF EXCAVATION

10.6.1 The tree pit shall be excavated to a depth the same as container rootball and three times the diameter width of the root ball or as shown in the 'Standard Tree Pit Detail (SP5).

10.6.2 The installer shall determine the root ball depth of each tree to determine the appropriate tree pit depth and allow additional depth to achieve specified falls for subsoil drainage lines and to satisfy finished levels.

10.7 SPECIFICATION 5 (SP5) STANDARD TREE PIT DETAIL



10.8 SPECIFICATION 6 (SP6) ADVERSE WEATHER

10.8.1 Do not plant during extremes of weather, such as extreme heat, cold wind and rain. Avoid planting where unseasonable and adverse weather is forecast within 24 hours of the operations. No trees to be planted on days exceeding 30° Celsius.

10.9 SPECIFICATION 7 (SP7) ROOT TRIMMING

10.9.1 All trees shall have their outer 10-25mm of the external root ball faces pruned or sliced away using secateurs or a sharp implement. Avoid excessive disturbance to the remaining rootball during this trimming. Where excessive soil falls away from the rootball, do not continue and discard.

10.9.2 Do not leave the rootballs exposed for extended periods. Cover the rootball with moist hessian if backfilling cannot occur immediately.

10.10 SPECIFICATION 8 (SP8) WATERING

10.10.1 Thoroughly water the roots before planting and then immediately after planting. Prevent the rootballs from drying out at the planting phase.

10.10.2 Ensure potted rootball is thoroughly wet through the entire soil profile and continue watering at a rate and frequency as required to avoid water stress in the plant.

10.10.3 Where possible drip irrigation shall be installed to the newly planted pit and scheduled to operate for 15 minutes prior to 10am daily.

10.10.4 All further watering schedules shall be in accordance with current water restrictions.

10.11 SPECIFICATION 9 (SP9) SOIL

10.11.1 Fill should be of a similar physiological structure as the current topsoil or with a higher soil to sand ration (80/20).

10.11.2 The media should be of acceptable chemical (pH range 5.8-7.8) and physical properties to support the subject trees survivability.

10.11.3 The media should be highly permeable, well drained friable material, equivalent in texture to the existing site topsoil material at a minimum. The fill should be free of rocks, vegetation and other extraneous material complying with AS 4419-2003 (Soils for Landscaping and Garden Use).

10.12 SPECIFICATION 10 (SP10) MULCH

10.12.1 Mulch shall be aged, free of extraneous matter, including soil, weeds, rocks and twigs and installed to a depth of 50-75mm.

10.12.2 Mulch shall not be in direct contact with the trunk.

10.12.3 Mulch shall be installed in accordance with Specification 5.

10.13 SPECIFICATION 11 (SP11) NUTRIENT AMENDMENT

10.13.1 50mg/sqm of Nitrate shall be amended to the mulch layer in order to reduce Nitrogen draw down from mulch breakdown.

10.13.2 It is recommended that Nutri-tech 'Black Gold' be used combined with the watering schedule as per manufactures recommendations.

10.13.3 Nutri-tech 'Black Gold' has a low NPK rating with a blend of fish protein, high-analysis kelp, polysaccharides, natural chelating agents, humic acid, fulvic acid and beneficial plant extracts. Nutri-Tech Black Gold® can be used for both foliar and fertigation applications and helps to build brix levels increase stress resistance and frost resistance chelates minerals and promotes soil life.