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Arborist Report

Arboricultural Impact Assessment

Tree Protection Plan

Prepared For:	Brewster Murray *Attn: Anthony Geck* *Attn: Haiyue Zhou*	**Prepared By:**	Alyx Capper *Diploma of Horticulture (Arboriculture)*
Site Address:	40-46 18th Avenue Sawtell, NSW 2452		
Ref No:	6716b	**Date:**	25 May 2023

Contents

1 Introduction

1.1 Background

Brewster Murray has commissioned Arbpro Pty Ltd to prepare an Arboricultural Impact Assessment (AIA) and Tree Protection Plan (TPP) on trees listed for retention located at four (4) properties at 40-46 18th Avenue, Sawtell, NSW 2452. The properties relate to the land which is legally defined as Lots 26-29 in Deposited Plan (DP) 240215. The report will focus on trees listed for retention that are in close proximity to the proposed construction.

It is understood the area is proposed to have a development of a Senior Housing project, consisting of twenty-two (22) units.

The trees were inspected during a site visit on 12 July 2022, and the assessments were completed by Alyx Capper (AQF Level 5 Arborist). An additional site visit was undertaken on 3 April 2023 to ensure the trees listed for retention will remain viable during and after construction.

This report should be read in conjunction with the Visual Tree Assessment prepared by Alyx Capper from Arbpro Pty Ltd; Titled: Arborist Report 6716 - 18th Ave, Sawtell July2022; Ref no: 6716; Dated: 20 July 2022.

The assessment reflects the condition of the subject trees on site at the time of inspection.

1.2 Aim

The aim of the inspection is to:

- Assess the potential impact that the proposed development will have on the subject trees, with recommendations for amendments to the design to ensure that trees listed for retention will remain viable in the future.
- Prepare a TPP to ensure that trees being retained remain viable in the future.

1.3 Disclaimer

The information in this report is for the use of the client and Arbpro Pty Ltd only. Arbpro limits the use of this document solely to the client and no permission is granted for the forwarding or reproduction of this report to any other parties. No responsibility will be accepted by any other use or interpretation of this report.

Any information provided from others about the condition of the trees and the site can only be assumptions.

All inspections are carried out using Visual Tree Assessment (VTA) methods from ground level only and do not include the use of any diagnostic devices.

Roots and internal defects that are now compartmentalised cannot be assessed as they are not visible. Arbpro cannot determine the structural integrity of internal defects or roots due to this reason.

Extreme and adverse weather conditions are unpredictable and can cause unexpected or inexplicable tree failure.

Trees are living organisms whose health and condition can change rapidly. The recommendations in this report are valid for twelve (12) months from the date of inspection, providing the site remains the same. If the site changes in any way, the report will be invalidated.

It is the client's responsibility to make arrangements with Arbpro Pty Ltd to conduct any recommended re- inspections.

2 Methodology

2.1 Visual Tree Inspection

The inspection included a Visual Tree Assessment (VTA) of the trees from ground level only. The inspection included the notation of the dimensions of the tree and an assessment of the health, age and sustainibility (tree life expectancy). Measurements of diameters at breast height (DBH) were taken with a diameter tape at approximately 1.4 metres from ground level and expressed in millimetres. Tree heights were estimated and expressed in metres.

The assessment did not include any woody tissue testing or root exploration. No diagnostic equipment was used to determine the extent of defects.

Each tree was given a reference number that is shown on the supplied 'Surveyors Original Plan'. Three (3) trees did not appear to be surveyed and their approximate location has been plotted on the plan by Alyx Capper.

2.2 Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)

Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) were calculated according to the Australian Standard – Protection of Trees on Development Sites 2009 (AS 4970-2009).

The TPZ is the primary means of protecting trees on development sites. The TPZ is a combination of the root area and crown area that requires protection. It is an area isolated from construction disturbance, so that the tree remains sustainable and stable. The TPZ radius is calculated with the following formula, taken from AS 4970-2009:

TPZ radius = DBH x 12

A TPZ should not be less than 2m nor greater than 15m (except where crown protection is required).

The SRZ is a specified distance measured from the trunk that is set aside for the protection of the trees roots both structural and fibrous. The woody root growth and soil cohesion in this area are necessary to hold the tree upright (AS 4970-2009). The SRZ is calculated with the following formula, taken from AS 4970-2009:

$$\text{SRZ radius} = (\text{DAB} \times 50)^{0.42} \times 0.64$$

The SRZ for trees with trunk diameters less than 0.15 m will be 1.5m.

2.3 Tree Life Expectancy and Significance

Tree Life Expectancy (TLE) was estimated based on the species, age, health and site condition of the tree. The tree retention value was determined by using the Retention Value - Priority Matrix of the IACA Significance of a Tree, Assessment Rating System (STARS)© (IACA, 2010). For further information, please refer to *Appendix B – Tree Retention Value*, located at the end of this report.

2.4 Documents Referenced

The discussions and recommendations of this report are based on the findings from the site inspection and the analysis of the following documents:

- Australian Standard 4373-2007, Pruning of amenity trees (AS 4373-2007).
- Australian Standard 4970-2009, Protection of trees on development sites (AS 4970-2009).
- CHCC Online Mapping Tool.
- Coffs Harbour Development Control Plan (DCP) 2015.
- Survey plan prepared by Hopkins Consultants Pty Ltd; Drawing Title: Detail Survey of Lots 26-29, DP 240215; Date: 08/04/2022.
- Arbpro Pty Ltd; Titled: Arborist Report 6716 - 18th Ave, Sawtell July2022; Ref no: 6716; Dated: 20 July 2022.
- Site plan prepared by Brewster Murray Pty Ltd; File Name: 40-46 Eighteenth Ave Sawtell_DA04 SITE PLAN 10-05-23.pdf; Project: Seniors Housing Development Under NSW Housing Sepp 2021; Drawing Title: Site Plan; Date: 27/03/2023.

2.5 Supporting Documents

Please refer to the supplied electronic files to view the following information:

2.5.1 Excel Spreadsheet: '18th Ave, Sawtell Tree Data.xlsx'.

This contains all tree data to easily view specified information.

3 Observations

3.1 Site Description

40-46 18th Avenue, Sawtell is located in the Coffs Harbour City Council (CHCC) Local Government Area (LGA) and is bordered by a sports oval to the north, and residential properties to the east,

south and west *(Figure 1)*. The total land area is 3058.3 square metres in size and it is currently zoned as R2 – Low Density Residential.

The CHCC Online Mapping Tool has not identified any further environmental significance for the area.

Figure 1 The red shaded area shows the location of properties of 40-46 18th Ave, Sawtell. As shown on the CHCC Online Mapping Tool, accessed 20 July 2022.

3.2 Benefits of Trees

Mature trees provide many benefits to people living and working in the urban environment, they range from ecological and monetary to aesthetic and sociological. Some benefits include shade and cooler air temperatures, privacy screening and noise reduction. Trees clean the air by producing oxygen, intercepting airborne particulates and reducing smog, which can enhance a community's respiratory health. The environmental benefits include, but not limited to, sequestering carbon, water filtration and retention, and providing habitat for wildlife.

3.3 Tree Risk and Targets

Risk is the combination of the likelihood of an event and the severity of the potential consequences of that event. It is impossible to maintain a tree free of risk, some level of risk must be accepted to experience the benefits that trees provide. It is essential to achieve a balance between the risk that a tree poses and the benefits that individuals and communities receive from trees.

In risk assessment, a target is people who could be injured, property that could be damaged, or activities that could be disrupted by a tree failure. Examples of targets include people, buildings, infrastructure, power lines, vehicles and landscape structures. The type of target directly affects both the likelihood of impact and the consequences (ISA, 2013).

People are the most important target and the greatest risk for people comes when they are unprotected within the target zone for long periods of time. To continue enjoying the benefits that trees provide, targets that are relatively easy to be moved should be done so as soon as possible. Targets should be relocated to a place beyond the target zone, which then reduces the level of risk.

3.4 The Trees

A total of twenty-nine (29) trees were tagged and assessed, and they were given a reference number of T1-T25, T1a, T2a, T12a, T17a. Six (6) trees are located on the nature strip on CHCC land (trees T20-T25).

Tree locations can be seen on the supplied plan (prepared by Hopkins Consultants Pty Ltd; Drawing Title: Detail Survey of Lots 26-29, DP 240215; Date: 08/04/2022) below in *Figure 2.*

The trees appear to be predominantly in fair health with a short-medium tree life expectancy. The majority of the trees appeared to be non-native species with a low retention value.

It appears that the majority of the trees listed in the previous report (Prepared by Arbpro Pty Ltd, Ref no: 6716; Dated: 20 July 2022) are intending to be removed, with the exception of trees T1a, T1, T2, T3, T16, T19, T21, T23-T25, which are planned to be retained and protected.

The proposed development *(Figure 3)* has taken into consideration the TPZ of trees listed for retention and designed a concept plan (40-46 Eighteenth Ave Sawtell_DA04 SITE PLAN 10-05-23.pdf) to ensure they will remain viable in the future.

For further information, see section *3.7 Impact Assessment & Results*; which will focus on trees that are impacted by the development.

3.5 Survey Plan

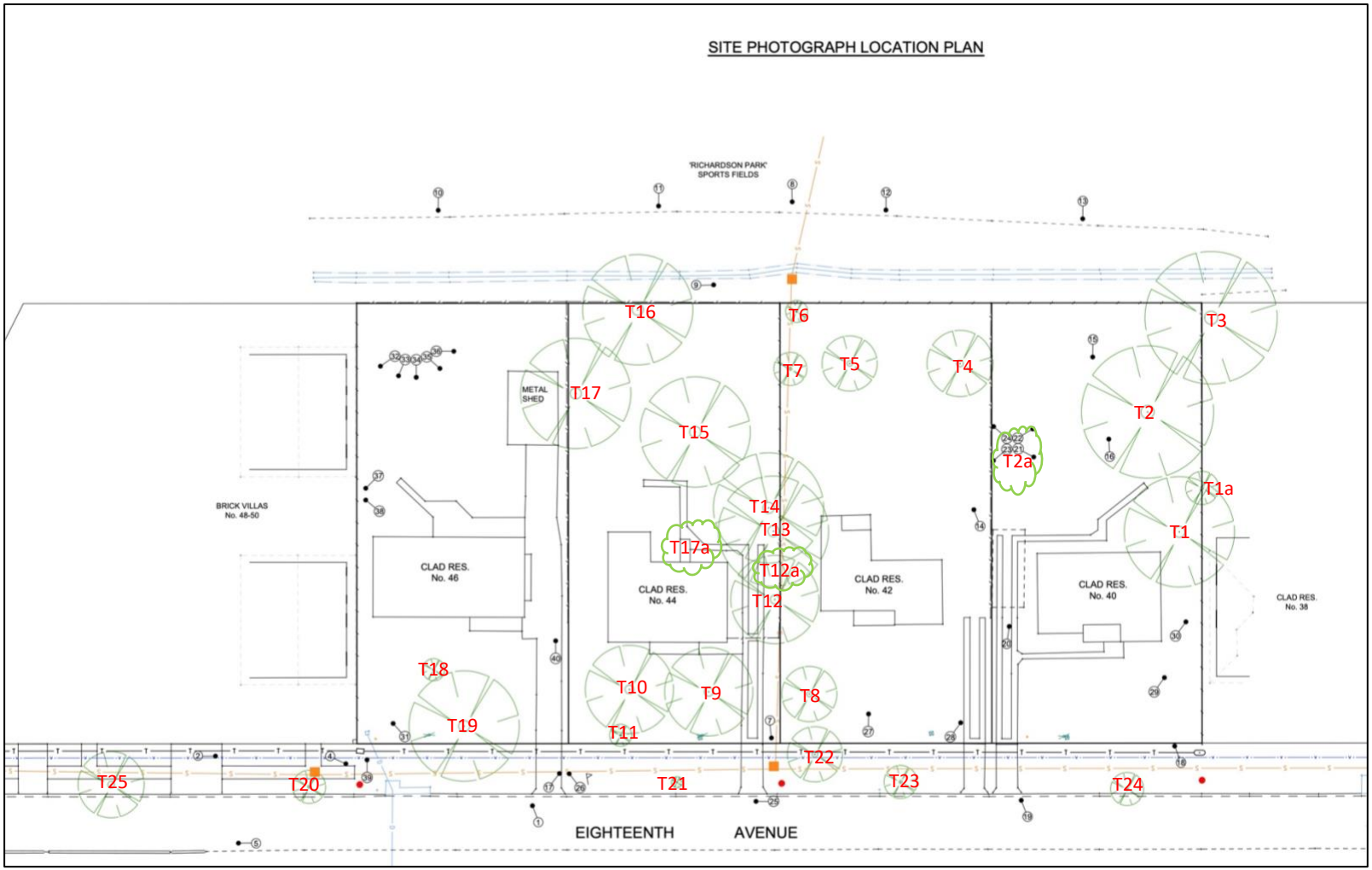

Figure 2 Overview of tree locations on the supplied by Brewster Murray. Tree reference numbers and extra trees have been plotted by Alyx Capper. Their locations are approximate and are to be used as a guide only.

3.6 Proposed Site Plan

Figure 3 Proposed new site plan as provided by Brewster Murray (40-46 Eighteenth Ave Sawtell_DA04 SITE PLAN 10-05-23.pdf).

3.7 Impact Assessment & Results

The table below lists trees to be retained as per the proposed site plan provided by Brewster Murray (40-46 Eighteenth Ave Sawtell_DA04 SITE PLAN 10-05-23.pdf).

Tree No	Species (Common Name)	Retention Value	Tree Location	TPZ (m)	SRZ (m)	Encroachment into TPZ		Cause of encroachment	Proposed Outcome	Comments / Reason for proposed outcome	Recommended Arborist Actions
1	Paperbark	Moderate	Adjacent to construction footprint	6.1	2.6	Minor	<10%	Demolition of existing building/structures. Construction of new building, floating ramp and raised deck.	Retain tree	As the encroachment is less than 10% of the total TPZ area, and outside the SRZ, a detailed root investigation should not be required. The area lost to this encroachment should be compensated for elsewhere, and be connecting with the TPZ.	• Prune deadwood. • Deck and ramp shall be supported on posts as per supplied plan. • Install tree protection fencing *(see Figure 4 & Section 5 Tree Protection Plan (TPP)).* • Project Arborist (minimum AQF Level 5) shall oversee works within TPZ, including both demolition of existing building/structures and construction of new building.
1a	Frangipani	-	Outside construction footprint	-	-	-	-	-	Retain tree	Tree is in the yard of #38 and the construction is not believed to have any encroachment.	• No arborist actions required.

Tree No	Species (Common Name)	Retention Value	Tree Location	TPZ (m)	SRZ (m)	Encroachment into TPZ		Cause of encroachment	Proposed Outcome	Comments / Reason for proposed outcome	Recommended Arborist Actions
2	Paperbark	Moderate	Adjacent to construction footprint	6.7	2.9	Minor	<10%	Demolition of existing building/structures. Construction of new building, floating ramp and raised deck.	Retain tree	As the encroachment is less than 10% of the total TPZ area, and outside the SRZ, a detailed root investigation should not be required. The area lost to this encroachment should be compensated for elsewhere, and be connecting with the TPZ.	• Prune deadwood. • Deck and ramp shall be supported on posts as per supplied plan. • Install tree protection fencing *(see Figure 4 & Section 5 Tree Protection Plan (TPP)).* • Project Arborist (minimum AQF Level 5) shall oversee works within TPZ, including both demolition of existing building/structures and construction of new building.
3	Cocks Comb Coral Tree	Low	Outside construction footprint	-	-	-	-	-	Retain tree	Tree is in the yard of #38 and the construction is not believed to have any encroachment.	• No arborist actions required.
16	Alexander Palm	Low	Outside construction footprint	2.0	1.5	Minor	<10%	Landscaped area at rear fence and what appears to be Private Open Space at the rear of proposed Unit 9. Boundary fence is also being replaced.	Retain tree	Palm trees have a small root ball that will not likely be encroached by the proposed construction. A retaining is proposed to be built approximately 1050mm from the tree and the area on the outside of the retaining wall will be filled.	• The tree protection fence will have to be removed to construct the retaining wall and replace boundary fence. • Install tree protection fencing *(see Figure 4 & Section 5 Tree Protection Plan (TPP)).* • Project Arborist (minimum AQF Level 5) shall oversee works within TPZ.

Tree No	Species (Common Name)	Retention Value	Tree Location	TPZ (m)	SRZ (m)	Encroachment into TPZ		Cause of encroachment	Proposed Outcome	Comments / Reason for proposed outcome	Recommended Arborist Actions
19	Bottlebrush	Low	Inside construction footprint	4.7	2.6	Minor	<10%	Construction of ramp/path.	Retain tree	As the encroachment is less than 10% of the total TPZ area, and outside the SRZ, a detailed root investigation should not be required. The area lost to this encroachment should be compensated for elsewhere, and be connecting with the TPZ.	• Crown lift to 3m from ground level. • Install tree protection fencing *(see Figure 4 & Section 5 Tree Protection Plan (TPP)).*
21	Tuckeroo	Low	Outside construction footprint	2.0	1.5	-	-	-	Remove tree	Tree is currently a 1.2m high trunk in poor health and structure and does not contain any attributes worthy of preservation.	• Remove tree. • Grind stump.
23	Tuckeroo	Low	Outside construction footprint	2.2	1.6	-	-	-	Retain tree	Construction appears to be outside the TPZ of this tree, however, it should still have protection fencing installed to ensure it remains viable during and post construction.	• Install tree protection fencing *(see Figure 4 & Section 5 Tree Protection Plan (TPP)).*
24	Tuckeroo	Low	Outside construction footprint	2.0	1.8	-	-	-	Retain tree	Construction appears to be outside the TPZ of this tree, however, it should still have protection fencing installed to ensure it remains viable during and post construction.	• Install tree protection fencing *(see Figure 4 & Section 5 Tree Protection Plan (TPP)).*

Tree No	Species (Common Name)	Retention Value	Tree Location	TPZ (m)	SRZ (m)	Encroachment into TPZ		Cause of encroachment	Proposed Outcome	Comments / Reason for proposed outcome	Recommended Arborist Actions
25	Brushbox	Low	Outside construction footprint	2.5	1.9	-	-	-	Retain tree	Tree is in front of #48-50 property and should be well outside any construction activity.	• Construction vehicles should not load/unload equipment/materials adjacent to this tree.

3.8 Glossary for Impact Assessment & Results

The impact assessment has been undertaken in accordance with the *Australian Standard 4970-2009 Protection of trees on development sites (AS4970-2009)*. Included in the results is an assessment of retention value, tree location, encroachment in the TPZ, cause of encroachment, proposed outcome and reasons for proposed outcome.

3.8.1 Retention Value

Tree retention value is gained by a matrix system that takes in to account the significance of the subject tree and the estimated tree life expectancy

3.8.2 Tree location

The location of a tree is one of the key contributing factors to the level of impact likely to be sustained by the proposed construction activities.

- Inside building footprint – trees within the construction footprint that cannot be retained with design modification. In order to retain trees of high significance, design modification and/or the use of tree sensitive construction methods may be recommended.
- Adjacent to building footprint – trees located adjacent to the building footprint or proposed construction activities may be impacted. The level of encroachment that is likely to occur within the TPZ determines the impact.
- Outside building footprint – trees located outside of the construction footprint that are not likely to be significantly impacted by the proposed development. These trees can be successfully retained and will require tree protection and ongoing monitoring throughout the project.

3.8.3 TPZ

The TPZ is the primary means of protecting trees on development sites. For further information, please see *Section 2.2 Tree Protection Zone (TPZ) and Structural Root Zone (SRZ).*

3.8.4 SRZ

The SRZ is a specified distance measured from the trunk that is set aside for the protection of the trees roots both structural and fibrous. For further information, please see *Section 2.2 Tree Protection Zone (TPZ) and Structural Root Zone (SRZ).*

3.8.5 Encroachment into TPZ

Encroachment includes but is not limited to; excavation, compacted fill, soil disturbance, machine trenching, ground penetration.

- None – The tree is located outside the proposed building footprint and is not likely to be affected by construction activities.
- Minor encroachment – if the encroachment is less than 10% of the total TPZ area, and outside the SRZ, a detailed root investigation should not be required. The area lost to this encroachment should be compensated for elsewhere, and be connecting with the TPZ.
- Major encroachment – if the proposed encroachment is greater than 10% of the total area of the TPZ or within the SRZ, the Project Arborist must demonstrate that the tree(s) will remain viable. This may require a detailed root investigation by non-destructive

methods. The area lost to this encroachment should be compensated for elsewhere, and be connecting with the TPZ.

The location and distribution or roots may be determined by using non-destructive methods such as air spade or hand tools (manual excavation). Root investigation is used to determine the extent and location of roots within the area. The retention of the tree is not guaranteed by undertaking a root investigation.

3.8.6 Cause of encroachment

This determines the particular part of the proposed construction will impact the tree.

3.8.7 Proposed outcome

The proposed outcome is the solution recommended for conflict between trees and the proposed works.

- Remove tree – tree is recommended for removal. The subject tree may be recommended for removal regardless of location; it may be based on species, health, structure or risk associated with the tree.
- Retain tree – tree can be retained successfully. Trees suitable for retention will require tree protection and ongoing monitoring throughout the project. Protection is the preferred option in all cases, but pruning may be implemented by an arborist, if that is the recommended action, if required to maintain the viability of the tree being retained. The recommendations are specified in *Section 5* and will be reviewed during the regular site inspections.

3.8.8 Reason for proposed outcome

A brief explanation for why the proposed outcome was recommended.

4 Discussion

4.1 Trees for Removal

Trees T2a, T4-T15, T17, T18, T20, T22 are all recommended for removal based on the current design, as per supplied site plan (40-46 Eighteenth Ave Sawtell_DA04 SITE PLAN 10-05-23.pdf). The trees range in health (poor-good), each have a Low or Moderate retention value and do not contain many attributes worthy of preservation.

Tree T21 is listed for retention in the supplied site plan, however, the tree is a 1.2m high trunk that contains poor health and structure and does not warrant being retained and protected. Permission will need to be granted by CHCC prior to its removal.

4.2 Trees for Retention

Trees T1, T1a, T2, T3, T16, T19, T23, T24, T25 are listed for retention based on the current design, as per supplied site plan (40-46 Eighteenth Ave Sawtell_DA04 SITE PLAN 10-05-23.pdf).

Trees T1 and T2 should have deadwood removed prior to installing tree protection fencing. The post holes for the deck between trees T1 and T2 should be determined on site and in consultation with the Project Arborist

Trees T1a and T3 do not require any arborist actions.

Tree T16 should only be retained if soil level changes do not occur around the base of the tree. The supplied site plan indicates that a retaining wall is to be constructed along the northern boundary to create what appears to be a raised landscape area. The area outside of the retaining wall is proposed to be filled to the height of the retaining wall. This soil level change is not likely to have an impact on the tree's health. The boundary fence is also proposed to be replaced with a 1.8m high fence. It is recommended that post holes are not constructed directly adjacent to the tree.

Tree T19 should be crown lifted to three (3) metres from ground level prior to installing tree protection fencing.

Trees T23-T25 do not require any arborist actions.

5 Tree Protection Plan (TPP)

Tree protection for all retained trees is mandatory. The TPP is to provide the developers with a guide so that trees being retained can be protected during all stages of the development.

5.1 Tree Protection Fencing

5.1.1 Trees T1, T1a, T2 and T3

Temporary metal fencing *(Figure 4)* should be erected around the perimeter of the TPZ of trees T1 and T2, within the property of 40 18th Ave. These trees have a TPZ of 6.1m (T1) and 6.7m (T2), however, one (1) single fence should encompass both trees and continue directly north to the northern boundary. This shall be installed after recommended tree works; and after the demolition of existing building and concrete path; and before the commencement of any construction works. The demolition of the north-east corner of house #40 shall be overseen by the Project Arborist

(minimum AQF Level 5 Arborist) to ensure no damage occurs to any part of the tree, and that they remains viable in the future.

5.1.2 Tree T16

Temporary metal fencing *(Figure 4)* should be erected as close to the perimeter of the TPZ of tree T16 as the chain wire mesh panels allow. The existing boundary fence can be used as protection on the northern side until the fence is replaced.

5.1.3 Tree T19

Temporary metal fencing *(Figure 4)* should be erected around the perimeter of the TPZ of tree T19 on the north, south and west sides. The eastern side should have the fence installed adjacent to the proposed path to units 1 and 2. The tree has a TPZ of 4.7m and the fence shall be installed before the demolition of the existing buildings to ensure no damage occurs to any part of the tree, and that it remains viable in the future.

5.1.4 Trees T23, T24 and T25

Temporary metal fencing *(Figure 4)* should be erected around the perimeter of the TPZ of trees T23 and T24. These trees have a TPZ of 2.2m (T23) and 2m (T24). However, due to no construction occurring in close proximity to these trees, the temporary metal fencing should at minimum, be installed outside the dripline of their canopies to ensure no damage occurs to any part of the tree, and that they remains viable in the future.

Tree T25 is in front of the neighbouring property (#48), is outside the construction footprint and is not likely to be significantly impacted by the proposed development. Temporary metal fencing is not deemed necessary for this tree based on the current design plan.

5.2 Tree Protection Specifications

The fences should be 1.8m high and made of chain wire mesh. *Australian Standard 4687-2007 Temporary fencing and hoardings,* specifies applicable fencing requirements. *See Figure 4,* for an example of tree protection fencing.

Once installed, the protection fencing must not be removed or altered without approval by the Project Arborist. The TPZ should be secured to restrict access and should remain intact until completion of the works.

Please see *Appendix C – Tree Protection Specifications* for further detailed information.

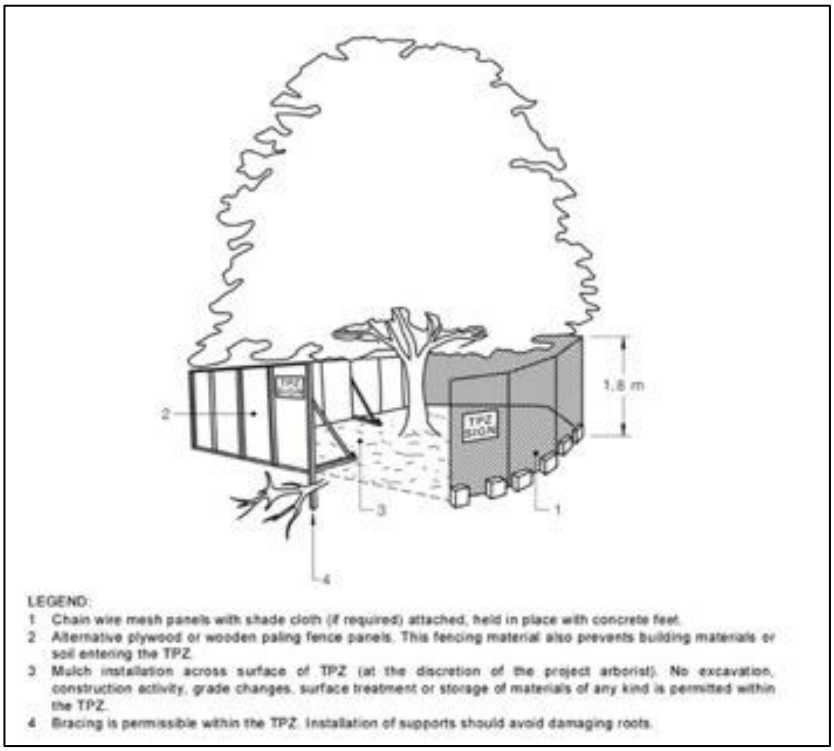

Figure 4 Example of tree protection fencing, taken from AS 4970-2009 Protection of tree on development sites.

5.3 Signs

Signs identifying the TPZ should be placed around the edge of the TPZ and be visible from within the development site, *see Figure 5*. The lettering on the sign should comply with *AS 1319-1994 Safety signs for the occupational environment*.

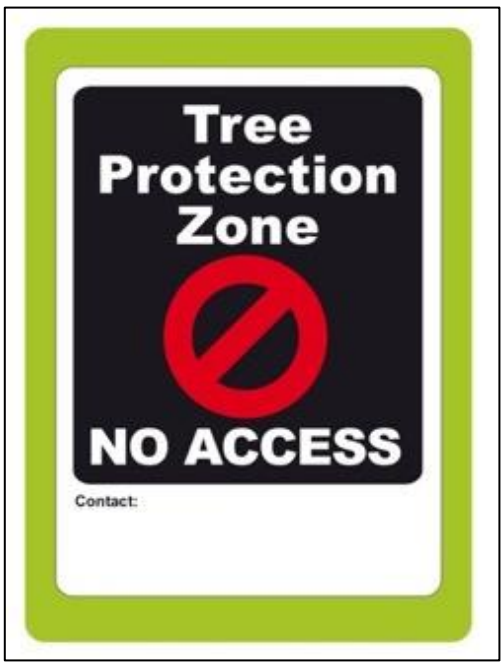

Figure 5 Example of an appropriate TPZ sign, taken from AS 4970-2009 Protection of tree on development sites.

5.4 Activities Restricted Within the TPZ

Activities generally excluded from the TPZ include, but are not limited to the following:

- Machine excavation including trenching.
- Excavation for silt fencing.
- Cultivation.
- Storage.
- Preparation of chemicals, including preparation of cement products.
- Parking of vehicles and plant.
- Refuelling.
- Dumping of waste.
- Wash down and cleaning of equipment.
- Placement of fill.
- Soil level changes.
- Temporary or permanent installation of utilities and signs.
- Physical damage to the tree.

5.5 Construction Phases

5.5.1 Pre-construction Stage

- Trees identified for pruning should be undertaken prior to erection of protection fencing.
- Tree protection zones should be implemented on completion of tree works.

5.5.2 Construction Stage

- Regular inspections should be undertaken to ensure compliance with the TPP is maintained.
- The Project Arborist should supervise any works within an established TPZ.
- The condition of trees should be assessed on completion of the development and tree protection fencing can be removed.

5.5.3 Post-construction Stage

- The Project Arborist should assess the condition of the trees and make recommendations for any remedial actions.
- Following completion of any remedial works, the Project Arborist should certify compliance with the TPP. Certification should include a statement on the overall condition of trees after construction.

6 Recommendations

6.1 Tree Work

All pruning and tree removal work should comply with *AS 4373-2007 Pruning of amenity trees* and Safe Work Australia *Guide to managing risks of tree trimming and removal work* (2016) and be undertaken by an arborist with a minimum AQF Level 3 in Arboriculture.

Based on an analysis of the tree data at the time of inspection and the current site plan, the following recommendations are made:

- Trees T2a, T4-T17, T18, T20-T22:
    - Remove trees.
    - Remove/grind stumps
- Trees T1, T1a, T2 and T3:
    - Remove deadwood on trees T1 and T2
    - Install tree protection fencing as per section 5.1.1.
- Tree T16:
    - Install tree protection fencing as per section 5.1.2.
- Tree T19:
    - Crown lift to three (3) metres from ground level.
    - Install tree protection fencing as per section 5.1.3.
- Trees T23-T25:
    - Install tree protection fencing as per section 5.1.4.

7 Conclusion

It is the conclusion of the assessing arborist that the subject trees that are to be retained and protected should remain viable in the future if the Tree Protection Plan (TPP) *(please refer to Section 5)* is adhered to.

Based on the encroachment being less than 10% of the total area of the TPZ of each trees T1 and T2, a detailed root investigation is not required. The area lost to this encroachment should be compensated for on the east side of the trees, and be connecting with the TPZ. However, the post holes for the deck between trees T1 and T2 should be determined on site and in consultation with the Project Arborist.

Based on the encroachment being less than 10% of the total area of the TPZ of tree T16 and T19, a detailed root investigation is not required. The area lost to this encroachment should be compensated for on the north side (T16) and west side (T19) of the tree, and be connecting with the TPZ.

All work is to be completed to *AS 4970-2009 Protection of tree on development sites* and *AS 4373-2007 Pruning of amenity trees*.

The nominated Project Arborist shall have a minimum AQF Level 5 in Arboriculture. The Project Arborist (AQF Level 5) is to inspect Tree Protection measures and approve before construction works begin.

It is the sole responsibility of the principle contractor of the development to enforce tree protection.

If there are any deviations within the proposed construction plans and the tree protection plan, the Project Arborist must be consulted.

Should you require any further information on this arborist report, please do not hesitate to contact our office on 0400 822 848.

Date: 25 May 2022

Alyx Capper
Consulting Arborist
AQF Level V Arboriculture
Tree Risk Assessment Qualified (International Society of Arboriculture, USA)

References

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Appendix A – Site Plan

40-46 Eighteenth Ave Sawtell_DA04 SITE PLAN 10-05-23.pdf

Appendix B – Tree Retention Value

Tree Life Expectancy (TLE) – Assessment Criteria (Adapted from Jeremy Barrell, 2001)			
Long >40 years	**Medium 15-40 years**	**Short 5-15 years**	**Dead <5 years**
Trees that appear to be retainable at the time of the assessment for more than 40 years with an acceptable level of risk. Structurally sound trees located in positions that can accommodate future growth. Trees that could be made suitable for retention in the long term by remedial tree care. Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that appear to be retainable at the time of the assessment for 15-40 years with an acceptable level of risk. Trees that may only live between 15 and 40 years. Trees that could live for more than 40 years but may be removed for safety or nuisance reasons. Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. Trees that could be made suitable for retention in the medium term by tree care.	Trees that appear to be retainable at the time of the assessment for 5-15 years with an acceptable level of risk. Trees that may only live between 5 and 15 years. Trees that could live for more than 15 years but may be removed for safety or nuisance reasons. Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. Trees that could be made suitable for retention in the medium term by tree care.	Trees that should be removed within the next 5 years. Dead, dying, suppressed or declining trees because of disease or inhospitable conditions. Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form. Damaged trees that are clearly not safe to retain. Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting. Trees that are damaging or may cause damage to existing structures within 5 years. Trees that will become dangerous after removal of other trees.

Barrell, Jeremy. 2009. *SULE: Its use and status into the new millennium.* [Online]. [13 December 2016]. Available from: http://www.barrelltreecare.co.uk/pdfs/BT08-Sydney.pdf

Tree Significance – Assessment Criteria		
High	**Medium**	**Low**
The tree is in good condition and vigour. The tree has a form typical of the species. The tree is a remnant or is planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age. The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register. The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due its size and scale and makes a positive contribution to the local amenity. The tree supports local and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values. The trees growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* – tree is appropriate to the site conditions.	The tree is in fair-good condition and good or low vigour. The tree has a form typical or atypical of the species. The tree is planted locally indigenous or a common species with its taxa commonly planted in the local area. The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street. The tree provides a fair contribution to the visual character and amenity of the local area. The trees growth is moderately restricted by above and below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.	The tree is in fair-poor condition and good or low vigour. The tree has a form atypical of the species. The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings. The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area. The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation Orders or similar protection mechanisms and can easily be replaced with a suitable specimen. The trees growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* – tree is inappropriate for the site conditions. The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms. The tree has a wound or defect that has potential to become structurally unsound. The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties. The tree is a declared noxious weed by legislation. The tree is structurally unsound and /or unstable and is considered potentially dangerous. The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

Tree Life Expectancy	Tree Significance					
		High	**Medium**	**Low**		
	Long >40 years					
	Medium 15-40 years					
	Short <1-15 years					
	Remove / Dead					

Legend for Matrix Assessment	
	Priority for Retention (High) – These trees are considered important for retention and should be retained and protected. Design modification and re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard 4970 *Protection of tree on development sites*. Tree sensitive construction measures must be implemented if works are to proceed within the Tree Protection Zone.
	Consider for Retention (Medium) – These trees may be retained and protected. These are considered less critical; however, their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	Consider for Removal (Low) – These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	Priority for Removal – These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, http://www.iaca.org.au

Appendix C – Tree Protection Specifications

Trees T1, T1a, T2, T3, T23, T24

Tree T16, T19


A
B
C
D
T16
T17
T15
T18
T19
T17a
T10
T9
T11
T21
#07 / 18
#08 / 19
#09 / 20
#01 / 12
#02 / 13
#03 / 14
DSZ-1
DSZ-9
EXISTING GROUND LEVEL TO BE RETAINED
HIGH WINDOW
RETAINING WALL
SIDE SETBACK LINE
48 EIGHTEENTH AVENUE
EXTENT OF EXISTING FOOTPATH
EX. STORMWATER PIT
STREET No.
Tree T25 – Tree protection fencing not required.
The purple segmented line shows the approximate location to install tree protection fencing and signs