
# Arboricultural Impact Assessment Report

## 36-42 Cabbage Tree Road, Bayview (SSD-77240466)

**Version 2**

**Prepared For:**

**Principal Healthcare Finance Pty Limited (Opal Healthcare)**

**Date:**

**8th October 2025**

# Document Control

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| Document Title: | 36-42 Cabbage Tree Road AIA |
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| Version: | 2 |

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# 1. Background

## 1.1. Introduction

This Arboricultural Impact Assessment Report is submitted to the Department of Planning, Housing and Infrastructure (DPHI) on behalf of Principal Healthcare Finance Pty Limited (Opal Healthcare) in support of a State Significant Development Application (SSDA) (SSD-77240466) for a 177 bed residential aged care facility (RACF) at 36-42 Cabbage Tree Road, Bayview (the site).

The proposed development will comprise the following:

- Demolition of the existing aged care building and driveway on the site;
- Construction of a three-storey residential aged care facility, accommodating:
  - 177 beds,
  - Basement parking,
  - Ground floor ancillary facilities;
- Construction of a community room, to be located on the Aveo Bayview Gardens Retirement Living (Aveo BGRL) site;
- Construction of a new driveway, to be located on the Aveo BGRL site;
- Torrents Title subdivision of the Opal Healthcare Bayview site from Aveo BGRL;
- Associated amenities and landscaping works;
- Augmentation of, and connection to, existing utilities as required.

For a detailed project description, refer to the Environmental Impact Statement prepared by Beam Planning.

**Relevant SEARs**

This Arboricultural Impact Assessment Report addresses all relevant Secretary's Environmental Assessment Requirements (SEARs).

This assessment will include:

- The identification of all trees that have the potential to be impacted by the building proposal,
- A ground based Visual Tree Assessment (VTA) of all trees potentially affected by the building proposal,
- A retention rating for all trees potentially affected by the building proposal,
- Any encroachments to the existing trees and their ability to be retained,
- Any recommendations for pruning or removal, and a
- Tree Protection Plan (TPP) for trees to be retained.

## 1.2. Purpose of this report

This report provides an analysis of the impact the proposed development may have on existing trees on the site and will provide specifications for the effective management of the existing trees including tree protection measures and supervision of works.

The primary purpose of the report is to:

- identify which trees can be retained under the building proposal,
- provide evidence to the Department that those trees will remain viable and be protected prior to, during and after construction.

## 1.3. The Site

The Opal HealthCare Bayview site comprises a ~6,000sqm portion of the current Aveo BGRL site at 36-42 Cabbage Tree Road, legally described at Lot 121 in DP 789400. The site in irregular is shape, bound by Annam Road to the east, and the Aveo BGRL site to the north, west, and south.

A site aerial is provided below.


*Figure 1: Context of the site within the broader Avero Site*


*Figure 2: Subdivision site*

## 1.4. Subject Trees

There are a total of 79 prescribed trees on or near the site.

There are numerous shrubs and small trees located on the site that do not meet Northern Beaches Council's definition of a prescribed tree. These trees are not protected and have not been included in this report.

Specific details such as observations, species, and measurements on each tree can be found in Section 3.4 Assessment Results.

Numbered tree locations can be found in *Figure 3*.

## 1.5. Documents Referenced

- (IACA) Significance of a Tree Assessment Rating System (STARS),
- AS4970 - 2009 Protection of trees on development Sites,
- Heritage.nsw.gov.au,
- Site analysis and Survey plan provided by the Client.
- Northern Beaches Council DCP.

# 2. Method

## 2.1. Assessment Method

The subject trees were assessed in accordance with a stage one limited visual tree assessment as formulated by *Mattheck & Breloer (1994),* and practices consistent with modern arboriculture.

This method is subject to the following limitations:

- Tree heights and canopy widths were estimated unless stated otherwise,
- Tree identification was based on the broad taxonomical features present, available, and visible from the ground at the time of the assessment unless stated otherwise,
- A complete visual assessment was not undertaken on trees that were not easily accessible or located in restricted areas,
- The subject trees were assessed from ground level without the use of any invasive diagnostic tools. The following non-invasive tools may have been used; binoculars, probe, sounding hammer, diameter tape, electronic data collection device.

## 2.2. Retention Value

The retention value of a tree or group of trees is determined using a combination of environmental, cultural physiological and social values.

- **Low:** These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
- **Medium:** These trees are moderately important for retention. Their removal should only be considered if they are adversely affecting the proposed building/ works and all other alternatives have been considered and exhausted.
- **High:** These trees are considered important for retention and should be retained and protected. Design modification or relocation of buildings should be considered to accommodate the setbacks as prescribed by the Australian standard *AS4970 Protection of trees on development sites.*

This tree retention assessment has been undertaken in accordance with the Institute of Australian Consulting Arboriculturists (IACA) Significance of a Tree Assessment Rating System (STARS). The System uses a scale of High, Medium, and Low significance in the landscape. Once the landscape significance of a tree has been defined, the retention value can be determined. Each tree must meet a minimum of three assessment criteria in order to be classified within a category. Further details and the assessment criteria can be found in Appendix 3.

## 2.3. Tree Protection Zones

The most important consideration for the successful retention of trees is to ensure appropriate crown and root area of the trees remain unaffected during construction/works thus allowing them to continue to grow. This requires the allocation of Tree Protection Zones (TPZ) for all trees to be retained within the construction footprint.

As detailed in the Australian Standard for Protection of Trees on Development Sites (AS4970 – 2009), a TPZ. defines an area in which construction activity is either avoided, or as a minimum controlled, in order to successfully retain the tree/s.

The Structural Root Zone (SRZ) represents the minimum area required to maintain tree stability without consideration to the ongoing health of the tree. Severing roots within the SRZ that are >50mm is not recommended as it may lead to the decline or structural failure of the tree/s

All TPZ measurements are provided in the tree assessment data in *table 2.*


*Figure 3: TPZ and SRZ cross section*

## 2.4. Encroachment Assessment

Encroachment into the TPZ is generally broken into the three categories listed below:

- **No Encroachment:** No likely foreseeable encroachment within the TPZ,
- **Minor Encroachment (<10%):** If the proposed encroachment within the TPZ is less than 10% and there is no encroachment into the SRZ then detailed root investigations should not be required. The area that has been encroached upon should be compensated for elsewhere and be contiguous with the TPZ,
- **Major Encroachment (>10%):** The project arborist must be able to demonstrate that the subject tree/s remain viable if the encroachment is greater than 10%. The area that has been encroached upon should be compensated for elsewhere and be contiguous with the TPZ,


*Figure 4: Encroachment zones*

## 2.5. Mitigation Measures

Any encroachment within a TPZ must be compensated for to ensure the impacts of the encroachment are mitigated. The amount of compensation required increases as the level of encroachment increases.

The following table outlines the levels of encroachment and the corresponding mitigation measures that are required.

| Encroachment | Mitigation Measures |
|---|---|
| No Encroachment (0%) | No mitigation measures required |
| Minor Encroachment (<10%) | A detailed noninvasive root investigation should not be required under most circumstances,<br>The area that has been lost must be compensated for elsewhere, contiguous with the TPZ, and<br>Any roots that are cut must be done so with a sharp saw to ensure a clean cut. |
| Major Encroachment (>10%) | A detailed noninvasive root investigation should be carried out using approved methods such as air spade, Vacuum Excavator, or hand digging.<br>The Project Arborist must be onsite to determine which roots may be severed,<br>The area that has been lost must be compensated for elsewhere, contiguous with the TPZ,<br>The project arborist must be able to demonstrate the tree/s would remain viable, and<br>consideration should be given to, size, age, species, root diameter, location and species. |

*Table 1: encroachment*

## 2.6. Tree Protection Plan

A detailed site-specific Tree Protection Plan (TPP) is to be prepared by an AQF Level 5 Arboricultural Consultant and submitted for approval to the nominated certifier prior to issue of the Construction Certificate. The TPP is to be prepared in accordance with the principles and specifications identified in AS4970 - 2009 Protection of trees on development sites and is to include, but not be limited to the following:

- A site plan showing locations of proposed tree protection fencing, trunk and ground protection within the identified Tree Protection Zones (TPZ) of trees identified for retention,
- Tree Protection fences and other protection methods such as trunk protection,
- Specifications for any proposed pruning to above ground parts of the tree,
- Tree root protection specifications for excavations or soil fill within the TPZ,
- Hold points and site compliance reporting schedules if applicable, and
- Ground protection for vehicular access to limit compaction if required.

The Tree Protection Plan can be found in the appendix of this report.

# 3. Results

The results were calculated by overlaying the TPZ radius onto the survey plans provided. The results can be found in *Table 2*.

Any discrepancies to the Survey Plans may result in inaccuracies in the TPZ encroachment calculation.

Trees 1- 7, 11, 14, 16, 20-22, 33, 34, 38-47, 49, 50, 58 and 71-78 **(35 trees)** will have no encroachment into their TPZs. Of these trees, 5 either have a low significance or are dead.

## 3.1. Minor Encroachment (<10%)

The following trees have minor encroachment of less than 10%:

- Trees 8, 15 and 18 (3 trees) will have a minor encroachment of <10% of the TPZ due to the ground floor excavations or the demolition of the existing driveway. Tree 18 has a low retention rating and has been recommended for removal.

## 3.2. Major Encroachment (>10%)

The following trees have a major encroachment of more than 10%:

- Trees 19, and 79 will experience major TPZ encroachments of 17.8% and 15% respectively. All excavation works within the TPZs of these trees are to be conducted using tree-sensitive excavation techniques under the direct supervision of the Project Arborist to minimise root disturbance.

- Trees 13, 17 and 23–26 will experience major TPZ encroachments between 19.6% and 41.6%. The encroachment to Trees 23 and 24 will be significantly reduced through the use of a suspended slab design within their TPZs. Tree 25 will sustain unacceptable encroachment within its SRZ and cannot be retained should the proposed development proceed. All works within the TPZs of Trees 17, 23, 24, and 26 must be carried out using tree-sensitive excavation methods under Project Arborist supervision.

- Trees 5, 8, 9, 10, 12, 27–32, 33, 35–37, 48, 51–57, 59–70, and 75 are located within the proposed construction footprint and will require removal to facilitate the development.

## 3.3. Trees unable or unworthy of retention

The following trees are unworthy or unable to be retained:

- Trees 13 and 25 **(2 trees)** has an unacceptable encroachment to the TPZ and or SRZ and will not be able to be retained if the proposal is to proceed.

- Trees 5, 8, 9, 10, 12, 27–32, 33, 35–37, 48, 51–57, 59–70, and 75 **(36 trees)** are within the proposed construction footprint.

- Trees 16, 18, 20-22 and 34 **(6 trees)** have either a low significance to the landscape, have a short useful life expectancy or have died. These trees should be removed as part of good arboricultural practice.

Of the **79** trees on or near the site, **38** will need to be removed if the proposed development is to proceed with a further **6** trees recommended for removal due to having either a low significance to the landscape, have a short useful life expectancy or have died.

# 3.4. Assessment Results

| Project Name: | Arboricultural Impact Assessment - 36-42 Cabbage Tree Road Bayview | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Results | | | | | | | | | | | | | | | | | |
| Survey Number | Genus | Species | Common Name | Height (M) | Canopy Spread (M) | Age Class | DBH (CM) | Health | Structural condition | Defects | Significance | Useful Life Expactancy | Retention Priority | TPZ Radius (M) | SRZ Radius (M) | Encroachment (%) | Retain/ remove | Comments |
| T1 | Eucalyptus | punctata | Grey Gum | 23 | 20 | Mature | 78 | Good | Fair | Failure with small cavity | High | Medium 15-40Y | Priority for retention | 9.36 | 3.0 | 0.0% | Retain | |
| T2 | Jacaranda | mimosifolia | Jacaranda | 7 | 12 | Mature | 36 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 4.32 | 2.2 | 0.0% | Retain | |
| T3 | Banksia | integrifolia | Costal Banksia | 11 | 7 | Mature | 20 | Fair | Fair | Lean | Medium | Medium 15-40Y | Consider for retention | 2.4 | 1.7 | 0.0% | Retain | |
| T4 | Banksia | integrifolia | Costal Banksia | 11 | 8 | Mature | 22 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 2.64 | 1.8 | 0.0% | Retain | |
| T5 | Jacaranda | mimosifolia | Jacaranda | 11 | 13 | Mature | 28 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 3.36 | 1.9 | 100.0% | Remove | |
| T6 | Jacaranda | mimosifolia | Jacaranda | 9 | 8 | Mature | 30 | Poor | Fair | Suppressed | Medium | Medium 15-40Y | Consider for retention | 3.6 | 2.0 | 0.0% | Retain | |
| T7 | Livistona | australis | Cabbage palm | 8 | 5 | Mature | 28 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 3.36 | 1.9 | 0.0% | Retain | |
| T8 | Jacaranda | mimosifolia | Jacaranda | 8 | 8 | Mature | 28 | Fair | Fair | Vine growing on trunk | Medium | Medium 15-40Y | Consider for retention | 3.36 | 1.9 | 100.0% | Remove | Encroachment due to ground floor excavations |
| T9 | Leptospermum | patersonii | Lemon scented tea tree | 6 | 5 | Semi Mature | 17 | Fair | Fair | | Low | Short 5-15Y | Consider for removal | 2.04 | 1.6 | 100.0% | Remove | Encroachment due to removal of existing driveway. Low retention rating |
| T10 | Leptospermum | patersonii | Lemon scented tea tree | 6 | 4 | Semi Mature | 15 | Fair | Fair | | Low | Short 5-15Y | Consider for removal | 2 | 1.5 | 100.0% | Remove | Encroachment due to ground floor excavations and removal of existing driveway. Low retention rating |
| T11 | Acacia | baileyana | Cootamundra Wattle | 6 | 7 | Mature | 17 | Good | Fair | Callistemon growing in the pit | Medium | Medium 15-40Y | Consider for retention | 2.04 | 1.6 | 0.0% | Retain | |
| T12 | Ulmus | parvifolia | Chineese Tallow | 11 | 19 | Mature | 45 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 5.4 | 2.4 | 100.0% | Remove | Encroachment due to demolition of existing building and placement of retaining wall. |
| T13 | Eucalyptus | punctata | Grey Gum | 18 | 18 | Mature | 52 | Good | Good | | High | Medium 15-40Y | Priority for retention | 6.24 | 2.5 | 19.6% | Remove | Encroachment due to demolision of existing driveway and construction of ground floor buildings. |
| T14 | Livistona | australis | Cabbage palm | 9 | 5 | Mature | 29 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 3.48 | 2.0 | 0.0% | Retain | |
| T15 | Banksia | integrifolia | Costal Banksia | 12 | 6 | Mature | 25 | Fair | Fair | Suppressed | Medium | Medium 15-40Y | Consider for retention | 3 | 1.8 | 2.5% | Retain | Encroachment due to removal of existing driveway. |
| T16 | Jacaranda | mimosifolia | Jacaranda | 6 | 5 | Semi Mature | 11 | Fair | Poor | Suppressed | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 0.0% | Remove | Tree is of low significance |
| T17 | Eucalyptus | fibrosa | Red Ironbark | 19 | 20 | Mature | 85 | Good | Fair | Deadwood | High | Medium 15-40Y | Priority for retention | 10.2 | 3.1 | 24.3% | Retain | Encroachment due to demolision of existing driveway and construction of ground floor buildings. Can be retained if exixting driveway is removed using tree sensitive tecniques. Excavation for the building must be undertaken using tree sensitive tecniques. |
| T18 | Melaleuca | quinquenervia | Broad leaved paperbark | 9 | 5 | Semi Mature | 18 | Good | Fair | Suppressed | Low | Medium 15-40Y | Consider for retention | 2.16 | 1.6 | 3.5% | Remove | Encroachment due to removal of existing driveway. Tree is of low significance. |
| T19 | Eucalyptus | fibrosa | Red Ironbark | 19 | 18 | Mature | 65 | Good | Fair | Deadwood | High | Medium 15-40Y | Priority for retention | 7.8 | 2.8 | 17.8% | Retain | Encroachment due to removal of existing driveway and construction of new driveway. |
| T20 | Melaleuca | quinquenervia | Broad leaved paperbark | 6 | 5 | Semi Mature | 12 | Fair | Poor | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 0.0% | Remove | Tree is of low significance |
| T21 | Melaleuca | quinquenervia | Broad leaved paperbark | 6 | 5 | Semi Mature | 13 | Fair | Poor | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 0.0% | Remove | Tree is of low significance |
| T22 | Eucalyptus | fibrosa | Red Ironbark | 6 | 3 | Young | 8 | Good | Good | Self seeded | Low | Medium 15-40Y | Consider for removal | 2 | 1.5 | 0.0% | Remove | Tree is of low significance |
| T23 | Eucalyptus | punctata | Grey Gum | 11 | 10 | Mature | 36 | Good | Fair | Suppressed | Medium | Medium 15-40Y | Consider for retention | 4.32 | 2.2 | 20.4% | Retain | Encroachment due to construction of the ground floor and basement. Suspended slab will allow this tree to be retained. |
| T24 | Angophora | floribunda | Rough bark apple | 19 | 17 | Mature | 70 | Fair | Fair | Deadwood | High | Medium 15-40Y | Priority for retention | 8.4 | 2.8 | 24.0% | Retain | Encroachment due to construction of the ground floor and basement. Suspended slab will allow this tree to be retained. |
| T25 | Syncarpia | glomulifera | Turpentine | 17 | 17 | Mature | 78 | Good | Good | | High | Medium 15-40Y | Priority for retention | 9.36 | 3.0 | 41.6% | Remove | Encroachment due to construction of the ground floor, basement and driveway. This tree cannot be retained. |
| T26 | Corymbia | maculata | Spotted Gum | 23 | 24+ | Mature | 85 | Good | Good | | High | Medium 15-40Y | Consider for retention | 10.2 | 3.1 | 21.6% | Retain | Encroachment due to construction of the driveway. Construction of the driveway should be at or above grade to minimise encroachment. |
| T27 | Ulmus | parvifolia | Chineese Tallow | 5 | 6 | Semi Mature | 10 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Within the building footprint |
| T28 | Strelitzia | nicolai | Bird of paradise | 9 | 7 | Mature | 20 | Fair | Poor | | Medium | Medium 15-40Y | Consider for retention | 2.4 | 1.7 | 100.0% | Remove | Within the building footprint |
| T29 | Polyspora | axillaris | Fried egg plant | 6 | 6 | Mature | 23 | Good | Fair | | Low | Medium 15-40Y | Consider for retention | 2.76 | 1.8 | 100.0% | Remove | Within the building footprint |
| T30 | Murraya | paniculata | Murraya | 4 | 5 | Mature | 19 | Fair | Fair | | Low | Medium 15-40Y | Consider for retention | 2.28 | 1.6 | 100.0% | Remove | Within the building footprint |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Results | | | | | | | | | | | | | | | | | |
| Survey Number | Genus | Species | Common Name | Height (M) | Canopy Spread (M) | Age Class | DBH (CM) | Health | Structural condition | Defects | Significance | Useful Life Expactancy | Retention Priority | TPZ Radius (M) | SRZ Radius (M) | Encroachment (%) | Retain/ remove | Comments |
| T31 | Jacaranda | mimosifolia | Jacaranda | 8 | 9 | Mature | 20 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 2.4 | 1.7 | 100.0% | Remove | Within the building footprint |
| T32 | Strelitzia | nicolai | Bird of paradise | 7 | 12 | Mature | 25 | Good | Fair | | Low | Short 5-15Y | Consider for removal | 3 | 1.8 | 100.0% | Remove | Within the building footprint |
| T33 | Jacaranda | mimosifolia | Jacaranda | 7 | 4 | Mature | 20 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 2.4 | 1.7 | 100.0% | Remove | Within the building footprint |
| T34 | Robinia | pseudoacacia | Golden robinia | 7 | 11 | Scenescent | 30 | Dead | Poor | tree has died | Dead | Dead | Priority for removal | 3.6 | 2.0 | 0.0% | Remove | Tree is dead and should be removed |
| T35 | Banksia | integrifolia | Costal Banksia | 9 | 4 | Semi Mature | 12 | Fair | Poor | Growing under catwalk | Low | Short 5-15Y | Consider for removal | 2 | 1.5 | 100.0% | Remove | Within the building footprint |
| T36 | Lagerstroemia | indica | Crepe Myrtle | 8 | 7 | Mature | 17 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 2.04 | 1.6 | 100.0% | Remove | Within the building footprint |
| T37 | Polyspora | axillaris | Fried egg plant | 8 | 11 | Mature | 40 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 4.8 | 2.3 | 100.0% | Remove | Within the building footprint |
| T38 | Eucalyptus | grandis | Flooded Gum | 18 | 12 | Mature | 37 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 4.44 | 2.2 | 0.0% | Retain | |
| T39 | Brachychiton | acerifolius | Illawarra Flame Tree | 14 | 8 | Mature | 40 | Fair | Good | | Medium | Medium 15-40Y | Consider for retention | 4.8 | 2.3 | 0.0% | Retain | |
| T40 | Syncarpia | glomulifera | Turpentine | 10 | 7 | Semi Mature | 22 | Fair | Fair | Suppressed | Low | Medium 15-40Y | Consider for retention | 2.64 | 1.8 | 0.0% | Retain | Outside construction area |
| T41 | Brachychiton | acerifolius | Illawarra Flame Tree | 14 | 8 | Mature | 40 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 4.8 | 2.3 | 0.0% | Retain | |
| T42 | Syncarpia | glomulifera | Turpentine | 13 | 12 | Mature | 28 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 3.36 | 1.9 | 0.0% | Retain | |
| T43 | Callistemon | salignus | Willow Bottlebrush | 13 | 5 | Semi Mature | 20 | Fair | Fair | Suppressed | Medium | Medium 15-40Y | Consider for retention | 2.4 | 1.7 | 0.0% | Retain | |
| T44 | Callistemon | salignus | Willow Bottlebrush | 13 | 5 | Mature | 25 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 3 | 1.8 | 0.0% | Retain | |
| T45 | Callistemon | salignus | Willow Bottlebrush | 10 | 6 | Mature | 22 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 2.64 | 1.8 | 0.0% | Retain | |
| T46 | Callistemon | salignus | Willow Bottlebrush | 10 | 6 | Mature | 22 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 2.64 | 1.8 | 0.0% | Retain | |
| T47 | Howea | forsteriana | Kentia Plam | 5 | 5 | Semi Mature | 12 | Good | Good | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 0.0% | Retain | Outside construction area |
| T48 | Livistona | australis | Cabbage tree palm | 12 | 5 | Mature | 29 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 3.48 | 2.0 | 100.0% | Remove | Tree will be impacted by the demolition of the existing structure. |
| T49 | Elaeocarpus | reticulatus | Blueberry Ash | 12 | 6 | Mature | 20 | Poor | Poor | crown dieback | Low | Short 5-15Y | Consider for removal | 2.4 | 1.7 | 0.0% | Retain | Outside construction area |
| T50 | Corymbia | maculata | Spotted Gum | 17 | 22 | Mature | 50 | Good | Good | | High | Medium 15-40Y | Consider for retention | 6 | 2.5 | 0.0% | Retain | |
| T51 | Pittosporum | undulatum | Sweet Pittosporum | 6 | 5 | Mature | 20 | Poor | Fair | crown dieback | Low | Short 5-15Y | Consider for removal | 2.4 | 1.7 | 100.0% | Remove | Growing in a raised garden bed that is to be demolished. |
| T52 | Elaeocarpus | reticulatus | Blueberry Ash | 6 | 5 | Semi Mature | 16 | Fair | Poor | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Growing in a raised garden bed that is to be demolished. |
| T53 | Strelitzia | nicolai | Bird of paradise | 7 | 12 | Mature | 25 | Good | Fair | | Low | Short 5-15Y | Consider for removal | 2 | 1.8 | 100.0% | Remove | Growing in a raised garden bed that is to be demolished. |
| T54 | Melaleuca | quinquenervia | Broad leaved paperbark | 16 | 16 | Mature | 55 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 6.6 | 2.6 | 100.0% | Remove | Within the building footprint |
| T55 | Melaleuca | quinquenervia | Broad leaved paperbark | 16 | 16 | Mature | 50 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 6 | 2.5 | 100.0% | Remove | Within the building footprint |
| T56 | Plumeria | acutifolia | Frangipanni | 5 | 5 | Mature | 17 | Good | Fair | | Low | Medium 15-40Y | Consider for retention | 2.04 | 1.6 | 100.0% | Remove | Within the building footprint |
| T57 | Phoenix | roebelenii | Minature Date Palm | 5 | 4 | Mature | 16 | Good | Good | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Within the building footprint |
| T58 | Buckinghamia | celissima | Ivory curl tree | 9 | 9 | Mature | 20 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 2.4 | 1.7 | 0.0% | Retain | |
| T59 | Grevillea | robusta | Grevillia | 7 | 6 | Semi Mature | 15 | Fair | Poor | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Tree will be impacted by the demolition of the existing structure. |
| T60 | Livistona | australis | Cabbage Palm | 10 | 7 | Mature | 29 | Good | Good | | Medium | Medium 15-40Y | Consider for retention | 3.48 | 2.0 | 100.0% | Remove | Growing in a raised garden bed that is to be demolished. |
| T61 | Banksia | integrifolia | Costal Banksia | 5 | 4 | Semi Mature | 15 | Fair | Fair | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Growing in a raised garden bed that is to be demolished. |
| T62 | Cyathea | australis | Fern tree | 8 | 3 | Mature | 15 | Fair | Fair | Suppressed | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Within the building footprint |
| T63 | Hymenosporum | flavum | Australian frangipani | 14 | 9 | Mature | 24 | Poor | Fair | | Medium | Short 5-15Y | Consider for removal | 2.88 | 1.8 | 100.0% | Remove | Within the building footprint |
| T64 | Magnolia | grandiflora | Bull Bay Magnolia | 6 | 5 | Mature | 15 | Good | Good | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Within the building footprint |
| T65 | Magnolia | grandiflora | Bull Bay Magnolia | 6 | 5 | Mature | 15 | Good | Good | | Low | Medium 15-40Y | Consider for retention | 2 | 1.5 | 100.0% | Remove | Within the building footprint |

| Project Name: | Arboricultural Impact Assessment - 36-42 Cabbage Tree Road Bayview | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Results | | | | | | | | | | | | | | | | | |
| Survey Number | Genus | Species | Common Name | Height (M) | Canopy Spread (M) | Age Class | DBH (CM) | Health | Structural condition | Defects | Significance | Useful Life Expactancy | Retention Priority | TPZ Radius (M) | SRZ Radius (M) | Encroachment (%) | Retain/ remove | Comments |
| T66 | Camellia | sasanqua | Camellia | 5 | 5 | Mature | 17 | Good | Good | | Low | Medium 15-40Y | Consider for retention | 2.0 | 1.6 | 100.0% | Remove | Within the building footprint |
| T67 | Magnolia | grandiflora | Bull Bay Magnolia | 6 | 5 | Mature | 15 | Good | Good | | Low | Medium 15-40Y | Consider for retention | 2.0 | 1.5 | 100.0% | Remove | Within the building footprint |
| T68 | Eucalyptus | saligna | Sydney Blue Gum | 16 | 17 | Mature | 46 | Poor | Fair | | Medium | Medium 15-40Y | Consider for retention | 5.5 | 2.4 | 100.0% | Remove | Tree will be impacted by the demolition of the existing structure. |
| T69 | Banksia | integrifolia | Costal Banksia | 7 | 6 | Mature | 24 | Fair | Fair | Rubbing against tree | Low | Short 5-15Y | Consider for removal | 2.9 | 1.8 | 100.0% | Remove | Tree will be impacted by the demolition of the existing structure. |
| T70 | Eucalyptus | saligna | Sydney Blue Gum | 16 | 17 | Mature | 54 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 6.5 | 2.6 | 100.0% | Remove | Tree will be impacted by the demolition of the existing structure. |
| T71 | Corymbia | maculata | Spotted Gum | 13 | 7 | Mature | 32 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 3.8 | 2.1 | 0.0% | Retain | |
| T72 | Leptospermum | pattersonii | Lemon Scented Tea Tree | 6 | 7 | Mature | 25 | Poor | Poor | | Low | Medium 15-40Y | Consider for retention | 3.0 | 1.8 | 0.0% | Retain | Outside construction footprint |
| T73 | Eucalyptus | saligna | Sydney Blue Gum | 13 | 8 | Mature | 38 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 4.6 | 2.2 | 0.0% | Retain | |
| T74 | Corymbia | maculata | Spotted Gum | 13 | 7 | Mature | 32 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 3.8 | 2.1 | 0.0% | Retain | |
| T75 | Acer | palmatum | Japanese Maple | 7 | 7 | Mature | 20 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 2.4 | 1.7 | 100.0% | Remove | Tree will be impacted by the demolition of the existing structure. |
| T76 | Corymbia | maculata | Spotted Gum | 16 | 9 | Mature | 35 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 4.2 | 2.1 | 0.0% | Retain | |
| T77 | Corymbia | maculata | Spotted Gum | 16 | 10 | Mature | 33 | Fair | Fair | | Medium | Medium 15-40Y | Consider for retention | 4.0 | 2.1 | 0.0% | Retain | |
| T78 | Eucalyptus | saligna | Sydney Blue Gum | 17 | 14 | Mature | 48 | Good | Fair | | Medium | Medium 15-40Y | Consider for retention | 5.8 | 2.4 | 0.0% | Retain | |
| T79 | Eucalyptus | microcorys | Tallowwood | 23 | 21 | Mature | 95 | Good | Fair | | High | Medium 15-40Y | Consider for retention | 11.4 | 3.2 | 15.0% | Retain | Encroachment due to construction of the basement and first floor. |

*Table 2 Results from site survey*

# 4. Specifications

The following specifications are required if the proposed development is to proceed:

A detailed site-specific Tree Protection Plan (TPP) is to be prepared by an AQF Level 5 Arboricultural Consultant along with an AIA and submitted to the nominated certifier for approval (*See Appendix 2 for TPP*).

- The building design must be modified to include a suspended slab within the TPZs of trees 23 and 24 to reduce the encroachment for these trees.
- Trees 9, 12, 13, 17, 19, 23, 24, 26 and 79 (9 trees) will have a major encroachment between 11.3% and 21.6%. Tree sensitive excavation methods must be undertaken under the supervision of the Project Arborist when excavating around these trees.
- Scaffolding erected within the TPZ must be done under the supervision of the project arborist. There may be instances where pruning of branches may be required to install scaffolding. The project arborist must be notified prior to the pruning of any tree branches and must supervise the pruning works. Any pruning must be undertaken by a minimum level 3 arborist.
- The Project Arborist must be informed prior to any further unplanned encroachment within the TPZs.
- The area within the tree protection fencing should be mulched with good quality leaf mulch to a depth of 100mm prior to construction to promote better tree health during the construction period.
- Ensuring that the soil moisture content stays above 50% within the TPZs will greatly benefit the trees to be retained on the site and will help offset the impacts of construction.

## 4.1. Tree removals

The following trees will need to be removed if the proposed development is to proceed.

- Trees 13 and 25 **(2 trees)** has an unacceptable encroachment to the TPZ and or SRZ and will not be able to be retained if the proposal is to proceed.

- Trees 5, 8, 9, 10, 12, 27–32, 33, 35–37, 48, 51–57, 59–70, and 75 **(36 trees)** are within the proposed construction footprint.

Of the **79** trees on or near the site, **38** will need to be removed if the proposed development is to proceed.

# Appendix 1 – Tree locations

Below is an image of the tree locations showing the TPZ and encroachments.

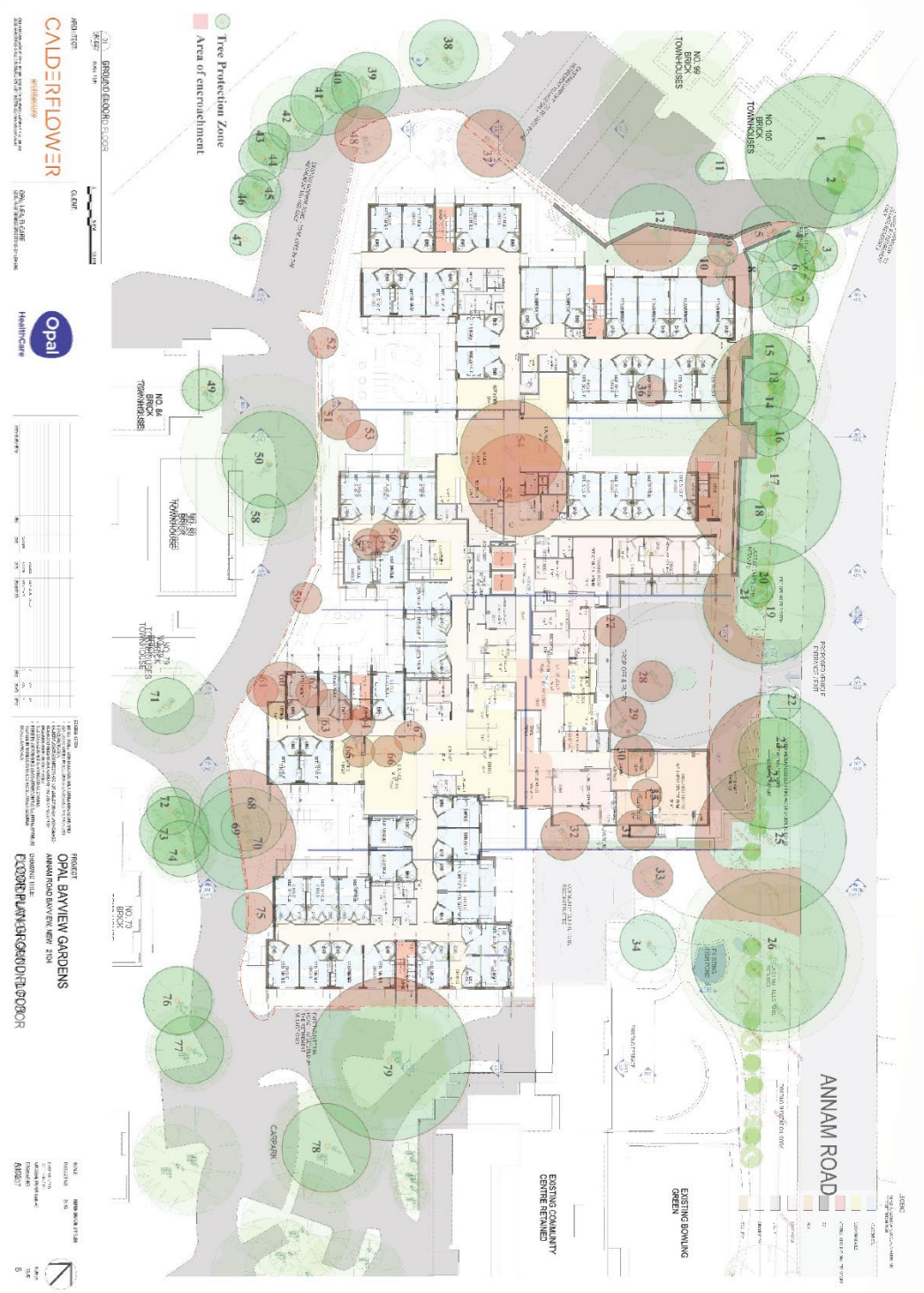


*Figure 5: Showing the TPZ and area of encroachment*

# Appendix 2 – Tree Protection Plan

## Specifications

The following specifications are required if the proposed development is to proceed:

- The building design must be modified to include a suspended slab within the TPZs of trees 23 and 24 to reduce the encroachment for these trees.
- Trees 9, 12, 13, 17, 19, 23, 24, 26 and 79 (9 trees) will have a major encroachment between 11.3% and 21.6%. Tree sensitive excavation methods must be undertaken under the supervision of the Project Arborist when excavating around these trees.
- Scaffolding erected within the TPZ must be done under the supervision of the project arborist. There may be instances where pruning of branches may be required to install scaffolding. The project arborist must be notified prior to the pruning of any tree branches and must supervise the pruning works. Any pruning must be undertaken by a minimum level 3 arborist.
- The Project Arborist must be informed prior to any further unplanned encroachment within the TPZs.
- The area within the tree protection fencing should be mulched with good quality leaf mulch to a depth of 100mm prior to construction to promote better tree health during the construction period.
- Ensuring that the soil moisture content stays above 50% within the TPZs will greatly benefit the trees to be retained on the site and will help offset the impacts of construction.

## Tree Protection Fencing

Tree protection fencing must be established in the locations shown in *Figure 6*. Existing fencing, site hoarding or structures (such as a wall or building) may be used as tree protection fencing, providing the TPZ remains isolated from construction footprint.

Tree protection fencing must be installed prior to site establishment and remain intact until completion of works. Once erected, protective fencing must not be removed or altered without the approval of the project arborist.

Tree protection fencing shall be:

- Enclosed to the full extent of the TPZ (or as specified in the Specifications and Tree Protection Plan).
- Temporary mesh panel fencing (minimum height 1.8m).
- Certified and inspected by the project arborist.
- Installed prior to the commencement of works.
- Prominently signposted with 300mm x 450mm boards stating, “NO ACCESS - TREE PROTECTION ZONE”.

If tree protection fencing cannot be installed due to sloping or uneven ground, tree protection barriers must be installed as an alternative.

Specifications for tree protection barriers are as follows:

- Star pickets spaced at 2m intervals,
- Connected by a continuous high-visibility barrier/hazard mesh.
- Maintained at a minimum height of 1m.

Where approved works are required within the TPZ, fencing may be setback to provide construction access. Trunk, branch and ground protection shall be installed and must comply with AS 4970-2009, Protection of Trees on Development Sites. Any additional construction activities within the TPZ of the subject trees must be assessed and approved by the Project Arborist.

# TPZ Fencing Plan

Below is an image of the Fencing plan.

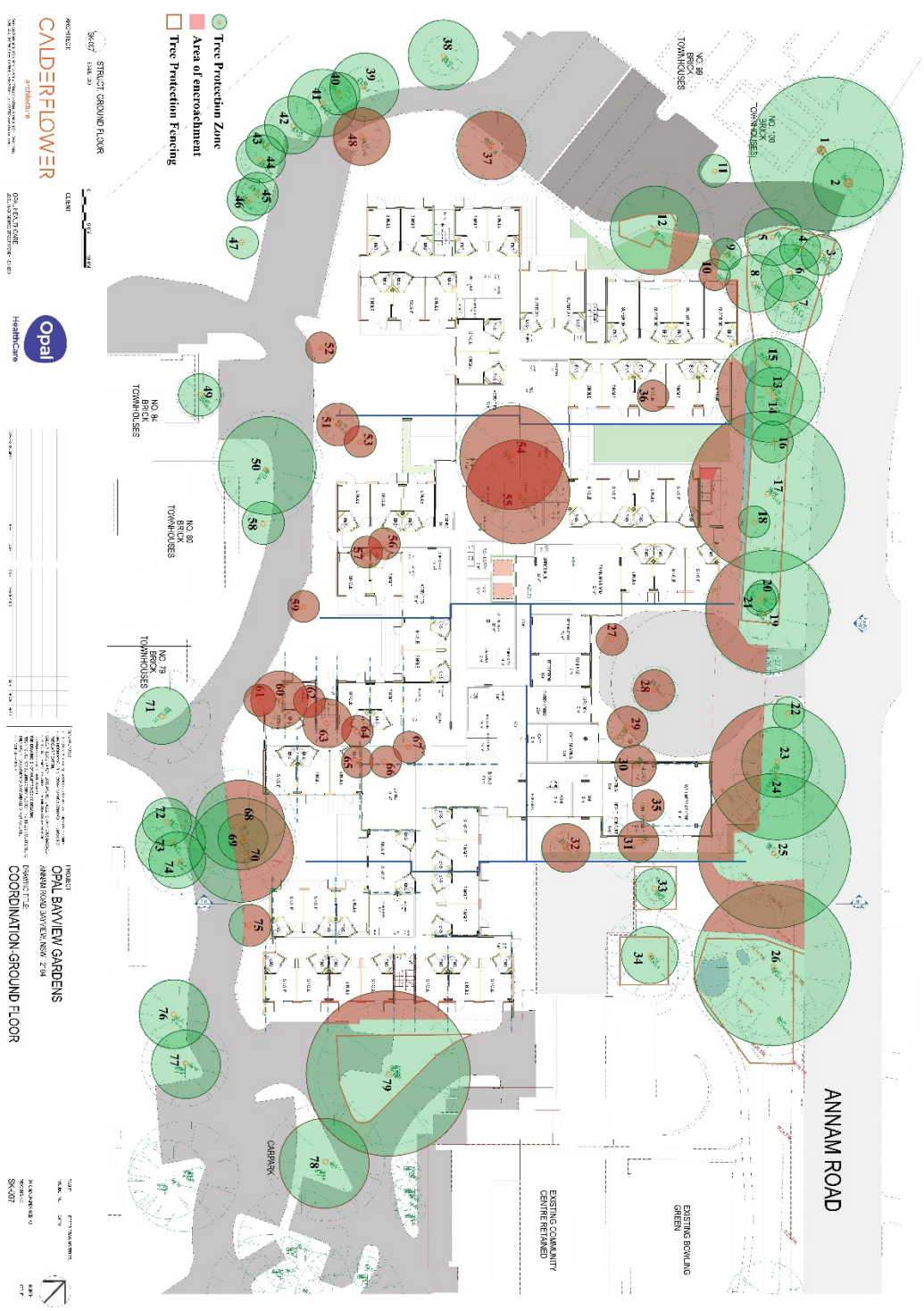


*Figure 6: Fencing Plan - Fence in brown*

## Trunk protection

Where the provision of tree protection fencing is impractical or must be temporarily removed, trunk protection must be installed to avoid accidental mechanical damage.

Specifications for trunk protection are as follows:

- A thick layer of carpet underfelt, geotextile fabric or similar wrapped around the trunk to a minimum height of 2m.
- 1.8m lengths of softwood timbers aligned vertically and spaced evenly around the trunk (with a small gap of approximately 50mm between the timbers).
- The timbers must be secured using galvanized hoop strap.

The timbers shall be wrapped around the trunk but not fixed to the tree, as this will cause injury/damage to the tree.

## Ground protection

If temporary access for vehicles, plant or machinery is required within the TPZ, ground protection shall be installed. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Where possible, areas of existing pavement shall be used as ground protection.

Specifications for light traffic access (<3.5 tonne) are as follows:

- Permeable membrane such as geotextile fabric.
- Layer of mulch or crushed rock (at minimum depth of 100mm)

Specifications for heavy traffic access (>3.5 tonne) are as follows:

- Permeable membrane such as geotextile fabric.
- Layer of lightly compacted road base (at minimum depth of 200mm)
- Geotextile fabric shall extend a minimum of 300mm beyond the edge of the road base.

Pedestrian, vehicular and machinery access within the TPZ shall be restricted solely to areas where ground protection has been installed.

## Excavations

All approved excavations (including root investigations) within the TPZ must be carried out using tree sensitive methods under supervision of the Project Arborist. These methods may include:

- Manual excavation (hand tools).
- Air spade.
- Hydro-vacuum excavations (sucker-truck).

Where approved by the Project Arborist, excavations using compact machinery fitted with a flat bladed bucket is permissible. Excavations using compact machinery shall be undertaking

in small increments and guided by the Project Arborist who is to look for and prevent root damage to roots >50mm in diameter.

No over-excavation, battering or benching shall be undertaken beyond the footprint of any structure unless approved by the Project Arborist. Hand excavation and root mapping shall be undertaken along excavation lines within the TPZ prior to the commencement of mechanical excavation (to prevent tearing and shattering of roots from excavation equipment). Any conflicting roots (>50mm in diameter) shall be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut free from tears. All root pruning must be documented and carried out by the project arborist.

## Underground services

All underground services should be routed outside of the TPZ. If underground services need to be installed within the TPZ, they must be installed using tree sensitive excavation methods under supervision of the Project Arborist.

Alternatively, boring methods such as horizontal directional drilling (HDD) may be used for underground service installation, providing the installation is at minimum depth of 800mm below grade. Excavations for entry/exit pits must be located outside the TPZ.

## Site Inspections

In accordance with the Australian Standard, *AS 4970-2009, Protection of Trees on Development Sites*, inspections must be conducted by the Project Arborist at the following key project stages:

- Prior to any work commencing on-site (including demolition, earthworks or site clearing) and following installation of tree protection.
- During any excavations, building works and any other activities carried out within the TPZ of any tree to be retained & protected.
- Following completion of the building works.

It shall be the responsibility of the Project Manager to notify the Project Arborist prior to any works within the TPZ, of any protected tree at a minimum of 48 hours' notice. To ensure the Tree Protection Plan is implemented, hold points have been specified in the schedule of work *(Table 4).*

## Schedule of Work

| Hold Point | Instruction |
|---|---|
| Pre - Construction Works | A project arborist is to be nominated and a site meeting/walkthrough is to be undertaken with the principal builder. |
| Pre - Construction Works | Tree protection (for trees that will be retained) shall be installed prior to demolition and site establishment, this may include mulching of areas within the TPZ. Project Arborist shall inspect and certify tree protection. |
| During Construction works | Project Arborist to undertake monthly compliance inspections and document any noncompliance with the approved Tree protection plan along with specifying rectification works. |
| During Construction works | Project Arborist to supervise and document all works carried out within the TPZ of trees to be retained. |
| Post Construction Works | Inspection of trees by Project Arborist after all major construction has ceased, following the removal of tree protection measures. |

*Table 3: Hold points*

# Appendix 3 – STARS Retention Rating Method

| Estimated Life Expectancy | Tree Significance | | | | |
|---|---|---|---|---|---|
| | High | Medium | Low | | |
| | Significance in Landscape | Significance in Landscape | Significance in Landscape | Priority Weed Species | Hazardous / Irreversible decline |
| Long >40 Years | | | | | |
| Medium 15-40 Years | | | | | |
| Short <1-15 Years | | | | | |
| Dead | | | | | |

## Legend for Matrix Assessment

| | |
|---|---|
| | **Priority for retention (High)** - These trees are considered important for retentionand should be retainedand protected. Design modification or relocation of buildings should be considered to accommodate the setbacks as prescribed by the Australisn Standards AS4970 Protection of trees on development sites. Tree sensitive construction measures must be implimented e.g. pier and beam etc if works are to proceed within teh Tree Protection Zone |
| | **Consider for Retention (Medium)** - These trees may be retained and protected. These are considered less critical; however their retentionshould remain a prioritywith removal considered only if adversly affecting the proposed building/works and all other alternitaves have been considered and exhausted. |
| | **Consider for Removal (Low)** - These trees are not considered important for retention, nor require special works or designmodification to be implimented for their retention. |
| | **Priority for Removal** - These trees are considered hazardous, or are in irreversible declin, or weeds and should be removed irrespective of development. |

**Refrence:**

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