Attachment 1

arboricultural impact assessment report

AIA-01

Revision B, Issued for Development Application
9 March, 2018

DOCUMENT INCLUDES

- T-03 Tree Protection & Removal Plan

PROJECT

Adventist Aged Care – RACF Extension and New ILU's 54-56 Elsom Street, Kings Langley

CLIENT / PRINCIPAL

Adventist Aged Care

54-56 Elsom Street
Kings Langley, NSW 2147

arterra CONSULTING ARBORICULTURE

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i EXECUTIVE SUMMARY

On the 3 October 2016, Arterra was engaged by Okane Management to undertake an arboricultural assessment of the trees located at Adventist Aged Care Kings Langley and prepare the relevant arboricultural reports and plans to help guide the proposed re-development.

Revision A of this report was issued 9 December 2016 to support the original DA submission to Council. This revision B has been prepared in response to feedback from the independent planning panel and the requirement to retain a number of the more significant trees within the site. The trees were again reviewed on site on the 23 February 2018. Changes were required to the site plan, specifically the deletion of 6 ILUs (previously numbered 9/10,24/25, 26/27) to enable the retention of an extra 4 trees (T60, T104, T105, T106). Two trees suggested for retention by the planning panel (T68, T69) are still recommended for removal due to their current condition, the species (being *Eucalyptus saligna*) and their location within the proposed development.

A tree assessment was completed for most of the trees on the development site. The trees were given a unique identification number and plotted onto a scaled survey base plan for referencing and identification throughout the report and for future discussions and co-ordination with Contractors and stakeholders. The proposal involves major site works including the construction of roadways, numerous residential buildings and a major extension to an existing Residential Aged Care Facility. This will involve major site disturbances and re-grading and substantial services installation. Trees that are located within the proposed building envelopes and re-grading areas will be required to be removed. The area of proposed site disturbance has been illustrated on the accompanying 'Tree Removal and Protection Plan' (Refer to Appendix 4.1). Refer also to Appendix 4.2 – Tree Assessment and Impact Schedule for a complete listing of the trees and the likely expected impacts to existing trees.

In summary, of the trees found on the site:-

- There are approximately **210** trees across the proposed development site.
- **60** trees were removed as part of the initial demolition works that was submitted as a separate application prior to this application. They have been noted in this report for clarity and consistency.
- A further **70** trees are proposed to be removed around the other parts of the site to facilitate the construction of all the other new buildings, roads and landscape embellishments associated with the development.
- **78** trees are proposed to be retained and protected. These will be protected using appropriate temporary fencing and other work protocols.
- **8** have minor encroachments as defined under AS 4970. In the authors opinion, if appropriate protection is installed and maintained, these trees may be successfully retained;
- Most of the trees being removed are relatively small and common place trees with low retention values. Some are in only fair condition.
- All other remaining trees outside the immediate work zone are to be retained and protected via appropriate demarcation of the work zones.

As with all aspects in the development and construction process, the tree related constraints have to be weighed up against many other relevant development opportunities and constraints. The retention and removal of the trees on the site must also consider economic, social, environmental, construction and practical realities.

This document has been prepared by Arterra Design Pty Ltd, using the expertise of our in-house consulting arborist (AQF Level 5), Robert Smart. He is a member of the International Society of Arboriculture - Australian Chapter. Robert Smart is also a Registered Consulting Arborist with Arboriculture Australia.

Robert Smart AAILA , ISA, AA
Director, Registered Landscape Architect (054), Registered Consulting Arborist (1804).

1.0 INTRODUCTION

1.1 Background

On the 3 October 2016, Arterra Design was engaged by Okane Management on behalf of Adventist Aged Care (AAC, the client) to undertake an arboricultural assessment of 54-56 Elsom Street (the site) and prepare the relevant reports and plans to help guide the proposed re-development. This assessment was restricted to the trees within or immediately adjacent to the site, which are likely to be impacted by the proposed works. The other trees within the broader site and are unlikely to be impacted are not specifically addressed as part of this report.

Revision A of this report was issued 09 December 2016 to support the original DA submission to Council. This revision B has been prepared in response to feedback from the independent planning panel and the requirement to retain a number of the more significant trees within the site. Changes were required to the site plan, specifically the deletion of 6 ILUs (previously Nos 9/10,24/25,26/27) to enable the retention of an extra 4 trees (T60, T104, T105, T106). These four trees were ranked 3 as high and 1 as moderate retention value. Two trees suggested for retention by the planning panel (T68, T69) are still recommended for removal due to their condition, inappropriate species (*Eucalyptus saligna*) and location within the proposed development. The site plan changes and the development related tree impacts are discussed in greater detail in Section 2.6 below.

The client proposes to redevelop the site, upgrading and expanding the existing aged care facilities. The site currently contains a variety of buildings, roadways, pedestrian pathways, formal and informal gardens and open spaces with scattered trees and other infrastructure throughout. It is likely that any demolition and construction work on the site will have major impacts on the numerous mature trees.

This impact assessment has been prepared to identify the trees to be retained and removed as part of the development and so that AAC can take a proactive approach to the management of the trees to be retained and implement appropriate measures to protect them during the construction.

1.2 Aims of This Report

The aim of this report is to assess the impact of the new development on the existing trees within the site. Specifically the aim of the report is to:-

- assess the health and condition of the trees;
- accurately record information relevant to the existing trees;
- assess the significance, SULE and retention values of the existing trees;
- provide clear recommendations as to which trees should ideally be retained and protected;
- identify the proposed Tree Protection Zones (TPZ) of the tree being retained and identify and assess the likely arboricultural impacts of the development on the trees and
- provide preliminary advice on the necessary tree protection measures that will be required during construction to ensure the trees are successfully retained.

The following limitations apply to this reports use: -

1. Plans: All plans are based on provided information. They should only be used relating to tree issues and are not suitable for any other purpose.
2. Notification of proposed alterations to disturbance within TPZs: Arterra must be clearly notified of any proposed alterations to the plans or additional disturbance in TPZs, so that we can advise on the implications before any work is undertaken.

1.3 Conduct and Author Qualifications

Given the above stated aims of this report, as authors of this report, Arterra Design confirms that Robert Smart is a suitably qualified (AQF 5 Consulting Arborist) to provide comment and the required arboricultural advice pertaining to these matters.

Furthermore, Mr Smart confirms that he has read and agrees to be bound by the NSW Uniform Civil Procedure Rules 2005, Part 31 Division 2 Provisions, Schedule 7 - Expert witness code of conduct.

Arterra provides specialist consulting arborist services only and does not provide any physical tree work services such as climbing, pruning, removal, root investigations or root pruning. Our advice is based on impartial professional assessment only, as we do not derive any financial benefit from specifying pruning or other physical services. We will not specify any such activities unless we determine them to be essential to the ongoing tree health or stability.

1.4 Key Definitions and Abbreviations

The following abbreviations are used throughout this report.

"TPZ" = Tree Protect Zone
This is the area as defined by AS 4970 – "Protection of Trees on Development Sites" and means the typical minimum area above and below ground at a given distance from the trunk to provide for protection of the tree. Most importantly it represents the root zone required to be kept uninjured to maintain a healthy and viable tree. Please note, that roots will usually extend well beyond this zone, so this represents the minimum remaining root zone required, assuming all others are lost or damaged due to construction. It is typically calculated as a circle centred on the trunk unless existing site conditions can be assessed and indicate otherwise.

"SRZ" = Structural Root Zone
This is the area as defined by AS 4970 – "Protection of Trees on Development Sites" and means the area immediately around the base of the tree at a given distance from the trunk. The woody roots and soil cohesion in this area are considered vital to the structural stability of the tree. Damage or removal of soil and roots from this area will typically render the tree unstable and require its removal. It is typically calculated as a circle, centred on the trunk, unless existing site conditions can be assessed and indicate otherwise.

DBH = Diameter at Breast Height
This is the diameter of the trunk measured at 1.4m above ground level.

1.5 Relevant Controls or Legislation

Blacktown City Council LEP 2015, Clauses 5.9 Tree Preservation, applies to trees and vegetation within the LGA and states:- *Unless development approval has been given, or trees are within 3m of the perimeter of a building, Council consent is required for the removal of trees as well as for lopping or topping of trees where:*

- *The tree has a height of, or greater than, three (3) metres;*
- *The tree has a trunk diameter of 200mm or more measured at 1.0m above ground level.*

1.6 Documents Reviewed

Plans and documents referenced and reviewed as part of this tree impact assessment were:-
Stanton Dahl Architects:-

- Project 31522.13 Preliminary Drawing Set
  - Drawings - SK00 – SK19

Calder Flower Architects:-

- Project 16100, Dated 11.07.2016
  - Proposed Plans Levels 1-4 - SK00 – SK19

Arterra Landscape Architects:-

- Landscape Concept Plans – L-SD-01- L-SD-05

At present we have not reviewed any of the detailed proposed servicing plans for the development but have been advised by the architects and engineers that no new

services are proposed to be extended into or through the proposed TPZs and any existing services in these areas that are no longer required will be capped off and left in situ.

1.7 Site Location, History and Context

The site is located approximately 30km north west from the Sydney CBD, on the corner of Sunnyholt Road and James Cook Drive, Kings Langley. The site is currently a residential care facility and has served this purpose since it was first developed in the early 1960s.

Figure 1 – The site and surrounding development. M7 motorway to north, Sunnyholt Rd to the west. No access is available off Sunnyholt Road.

The surrounding area is a mixture of primarily residential development to the north, east and west. The Blacktown Industrial Area can be seen in the south west corner of the image at Figure 1, above.

1.8 Site Ownership and Zoning

The site is owned and managed by Adventist Aged Care. The site is known as Lot 33 of DP 1089417, with a site area of approximately 2.63 ha. It is bounded by James Cook Drive to the north, Sunnyholt Road and Elsom Street to the west, Hawkesworth Parade to the east and established residences to the south. The south-eastern corner of the site abuts an existing public reserve that lies between the site and Hawkesworth Parade to the east.

The site is currently zoned R2 (Low Density Residential) under Blacktown LEP 2015 Land Zoning Map (http://www.legislation.nsw.gov.au accessed 26/10/15).

1.9 Assessment Methodology

On the 10th October 2015, Robert Smart of Arterra undertook a detailed assessment of existing trees located within the site and the immediately adjacent street frontage. The trees health and condition were assessed via a visual inspection of the trees from the ground only. Requisite tree data (including DBH, DGL, height & canopy spread, condition & proximity to services) was recorded using an Apple iPad and Filemaker Pro database.

The basic health and condition criteria that were inspected for each tree can be summarised as follows: -

- Tree size, broad age-class and general balance of the tree;
- Above ground obstructions;
- Evidence of recent site disturbance;
- Canopy foliage size, colour and density;
- Dieback and epicormic growth;
- Trunk or branch wounding, branch tear outs and pruning history;
- Structural defects such as any co-dominant stems, cracks, splits, included bark, decay and
- Pests and disease evidence or occurrence.

All of the trees were photographed and given a unique identification number and plotted onto a scaled base plan for referencing and identification throughout the report and for future discussions and co-ordination. (Refer Appendix 4.2 and 4.1 TP-03 'Tree Removal and Protection Plan'). The photographic record of trees and general site context was taken using the inbuilt Apple iPad camera and a Nikon Coolpix AW120 digital camera with GPS recording. Files have been resized, dated, named and filed in accordance with normal office procedures and protocols. No other image manipulation has been undertaken.

Tree trunk diameters were measured using a metric diameter tape measure. Tree heights were measured using the two-point clinometer function of a Nikon Forestry Pro laser range finder. Canopy spreads were estimated by pacing out distances along the cardinal axis of the canopy and cross-referencing to survey information and aerial photos. Canopy position and extents were then altered on the plans to more accurately portray the canopy extent and position.

A representative soil sample was taken in the immediate vicinity of the trees and tested for pH, structure, colour and soil texture class to get a basic understanding of likely soil conditions and topsoil depths surrounding the trees. The testing was done using a Dormer 50mmØ hand soil auger.

Tests for pH were done using an Manutec field pH test kit. Soil structure was assessed by observation of soil pedality and soil texture assessment was done using procedures outlined for the field testing of a moist bolus by McDonald et al, 1998 and Roberts, et al, 2006.

No exploratory excavations on the site were done to determine location and condition or roots and no detailed soil laboratory testing was undertaken. No specialised equipment or methods were employed to test for the extent of decay in any of the trees, apart from a nylon 'sounding' mallet. No plant samples were analysed or independently tested to verify or formally identify any pests or diseases.

Desktop Review and Research

Digital AutoCAD files of the proposed works were imported into Arterra's standard CAD software (ArchiCAD v19) and superimposed over the tree and site survey information. The extent of site disturbance was analysed for the proposed building works, landscaping, services and other site grading. An assessment was made of the likely extent of impacts on the TPZs, taking into account the likely construction impacts depending on the type of work being undertaken (ie: cut or fill, suspended slabs, decks, service trenches). Various area calculations and measurements were made in the CAD software of the likely incursions into the TPZs or SRZs.

Recent aerial photography was data was obtained from the Nearmap website with aerial photos of the site dating from February 2016 imported into the above software for cross checking and assessment. (http://www.nearmap.com/ accessed 14 10 2016)

Climatic data was obtained from the Bureau of Meteorology using statistics from Prospect Reservoir, which is located 8.0km to the south west of the site. (http://www.bom.gov.au/climate/data/ accessed 14 July 2016)

1.10 Pre-Development Tree Assessment – Tree Retention Values & Risk Assessment

The information gathered in the field was tabulated and the tree retention values assessed using a combination of techniques commonly used and recognised in the arboricultural industry. The tree life expectancy was established using the Safe Useful Life Expectance (SULE) system. A brief summary of these systems is provided below.

SULE

This is a system developed by Jeremy Barrell in 1993 that determines the time a tree may be expected to be retained based on its age, health, condition, safety and location. This is then moderated by the economics of maintenance or other costs of retaining the tree. A long SULE means the tree is presently expected to live longer than 40 years with minimal intervention and cost. A short SULE indicates a tree that is not expected to live longer than 5 years or may require substantial intervention or costs to retain it.

RETENTION VALUE

The proposed retention value of the trees was determined based on a considered combination of the size, age, condition and suitability of the tree.

Each tree was then ranked according to one of 4 retention categories.

1. **"High" Retention Value** – these are trees that are typically in good or very good condition, large and visually prominent, historically or environmentally important. They may also be lesser quality trees, but part of an important grouping of trees. They should represent a serious physical constraint to the development and their removal avoided where possible and feasible.
2. **"Moderate" Retention Value** – these are trees that are in good to reasonable condition and should be retained where possible and feasible to do so. They may also be lesser trees, but part of an important grouping of trees and therefore warrant retention based on the groups value.
3. **"Low" Retention Value** – these are trees that are of poor condition or have structural defects, are particularly small or commonplace, are not historically, environmentally or socially significant and should not be considered as a constraint to the development. They could be retained only if they are not likely to be impacted by, or constrain potential desirable, development outcomes.
4. **"Should Remove" / No Retention Value** – these are trees that are in very poor health, or poor form, or have serious structural defects, are considered weeds or combination of all these, and therefore should be considered for removal regardless of any development.

Consideration has also been given to the relationship of the trees to one and other and their proximity to the likely development areas on the site. For example, trees that are part of a closely spaced group, or are likely to be significantly misshapen or unstable with the removal of surrounding trees and structures are considered with these factors in mind.

1.11 Tree Assessment – Tree Protection Zones

In order to ensure the long-term survival and growth of any trees, to be retained on the development site, a suitable area is required to be protected around the tree. This area should typically be as large as possible. It should also take into consideration: -

- The size and age of the tree;

- Above and below ground properties;
- The health and condition of the tree;
- The species of tree and its tolerance to disturbance;
- Soil conditions, type, depth and site hydrology and
- Site specific conditions and any existing obstructions to root development

The Tree Protection Zones (TPZs) have been calculated using the formula and criteria outlined in AS 4970-2009 Protection of Trees on Development Sites. In summary the standard applies the calculation for the radius of the TPZ as 12 x (the tree trunk diameter (in metres) calculated at breast height (DBH)). DBH is taken at 1.4m above ground level.

A maximum TPZ radius will be 15m (unless crown protection is required) while the minimum TPZ radius shall be 2m.

The TPZ is typically assumed to be radial and centred on the centre of the tree's trunk unless other site factors or tree canopy size and location dictate an adjustment. Encroachments of up to 10% of the area may be accepted within the TPZ as long as it is outside of the Structural Root Zone (SRZ). This is known as a "minor encroachment". Encroachments greater than this, known as "major encroachments" will only be accepted with additional specific evidence that the tree will not be unduly impacted.

Whenever an encroachment is made into a TPZ, a suitable compensation should be made elsewhere and physically contiguous to the remaining TPZ.

The Structural Root Zone (SRZ) is the area defined as the minimum area required to retain the structural stability of the tree. The formula for calculating the SRZ is outlined in AS 4970 Section 3.3.5. No encroachment into the SRZ shall typically be allowed.

2.0 KEY FINDINGS & OBSERVATIONS

2.1 The Proposed Development

The proposed building and development will result in a major site disturbance. This will potentially have a significant impact on the trees within and adjacent to the site.

Specifically the proposed development will involve:-

- Major demolition works;
- Use of large scale civil and earthmoving equipment;
- Access to and from the site with large trucks and construction plant;
- Major excavations;
- Large stockpiles of excavated material and demolition waste;
- Stockpiles/ storage of building materials;
- Regrading and filling of the surface levels;
- Trenching for services;
- Major building works involving concreting, painting and general construction;
- Use of large cranes;
- Parking for site personnel and deliveries;
- Paving and retaining walls and
- Landscaping.

Key Assumptions:-

- The line of disturbance outside of the building line has been typically estimated at 1.5m from the face of the building to allow for provision of water proofing, services, access and scaffolding around the building during construction.
- All services for the RACF building will enter and exit from James Cook Drive and will be clear of any retained trees TPZs
- All construction access and deliveries are to be made from Elsom Rd for the ILUs and James Cook Drive for the RACF. Concrete will typically be pumped and will not require any truck movements through TPZs to deliver concrete.
- Where no spot levels are indicated it is assumed that the existing surface levels are retained.
- It is assumed that any new landscape grading within the TPZs will be minimal.
- That traditional cantilevered retaining wall footings will be used (ie: footings extending to the rear of the face of the wall, typically equalling the height of the wall).

2.2 Climate and Microclimate

Kings Langley is located within the Greater Western Sydney region. The general climate of this region has moderate temperatures, reasonable rainfall and minimal climatic and weather extremes. It is typically described as a temperate climate with hot to warm summers and cold winters, with relatively uniform rainfalls greater than 800mm / year. There is no distinct dry season.

Kings Langley is located approximately 35.0km from the ocean and the coastal beaches of Manly. Climate statistics have been obtained for the area that show average annual rainfall of 874mm, fairly evenly spread across the year but with a drier period during late winter. The highest rainfall period is usually January with an average of 96mm and the driest month being September with an average of 46mm.

Maximum average daily temperatures range from 28.4ºC in January to 16.8ºC in July. The minimum average daily temperatures range from a high of 17.8ºC in February down to lows of 6.1ºC in July.

The site is very flat. It may typically be defined as a moderately sheltered location. There are no prominent microclimatic influences visible on the site.

The primary wind direction is from the south-west in the mornings, becoming stronger in the afternoons.

2.3 Soils and Landform

The site is relatively flat with a gentle slope rising from the low point on the eastern boundary at Hawkesworth Parade at RL 57.91 to the high point at the north western corner of Sunnyholt Road and James Cook Drive at RL 67.20 giving the site a slight easterly aspect. On the proposed development site the slopes are typically slight with grades around 1 in 25 (4% slopes).

Soil landscape mapping of the area shows the site to be part of the Luddenham soil association. Landform of the area is typically described as undulating to rolling low hills on Wianamatta Group Shales. Luddenham soils are typically described as shallow dark podzolic soils or massive earthy clays. (Bannerman & Hazelton 1990).

A soil sample was taken from the open lawn area in the centre of the site. The soil from the sample is generally consistent with Luddenham soil association however the profile appears to have been inverted, with clay subsoils placed over and above a more naturalistic soil profile below. (Refer to Figure 2)

The sample results are summarised as follows. The top soil (A Horizon) is likely an imported sandy loam with an apedal structure and shallow to only 100mm deep. The next layer from 100mm-500mm is a medium to heavy clay soil more consistent with the subsoils found on the site naturally. The pH of this material was very slightly acidic at 6.5. Its structure is a coarse to medium blocky pedal structure.

This profile arrangement is probably as a result of previously excavated subsoil material being placed as a fill layer over the pre-existing topsoil profiles to level and raise the area where the sample was taken. This would be consistent with the use and character of the site. The bottom half of the profile is then more consistent with what would be expected from the naturally occurring soil profiles described for the Luddenham soil association. The material from 500-800mm is a dark brown clay loam with a medium to coarse sub angular blocky structure with a pH of 7.0.

Figure 2 – Typical Soil Profile to a depth of 1m. Note the soil profile appears to be altered and inverted. This is probably as a result of excavated subsoil material previously being placed as a fill layer over the existing topsoil profile to level and raise the area where the sample was taken. The bottom half of the profile is more consistent with what would be expected from the natural soil profiles. The fill material was then toped with 100mm of imported sandy loam topsoil to apply the grass. (Photo: Arterra)

2.4 Tree Assessment - General

210 trees were assessed for this report and were generally determined to be in fair to good health. They are generally located mostly along the northern site boundary as screening to James Cook Drive. Other trees are around the perimeter of existing buildings, and adjacent to roads and pedestrian pathways. Some are scattered throughout the formal and informal open spaces across the site. Detailed information on each tree including; heights, trunk diameters, canopy spreads, age classes and condition are all provided in Appendix 4.2 'Tree Assessment and Impact Schedule'.

Figure 3 – The site is generally out-of-date independent residential living units with scattered amenity planting surrounding the units and site periphery. There are only a few large or significant trees on the site. Most are relatively small exotic trees.

Figure 4 –Photo illustrating the few larger and more significant trees on the site. With the proposed changes to the proposed site planning layout some of these tree are now able to be retained.

Figure 5 – The site contains numerous Swanes Golden Pencil Pines. These trees are located in very close proximity to the buildings to be demolished and cannot realistically be retained or adequately protected during the construction operations.

2.5 Tree Biology and Tree Care Basics

Trees are dynamic living organisms. Trees can be very susceptible to damage, stress and declining rapidly if overly impacted by construction. Trees take decades to grow but can be injured and killed in a very short time frame. This is particularly due to the irreparable damage to the often shallow, extensive and unseen root systems. It is rarely possible to repair a stressed or damaged tree, after the damage has occurred. Proper protection is the key. Severing of roots within the Structural Root Zone (SRZ) can also lead to potentially unsafe instability of the tree as a structure.

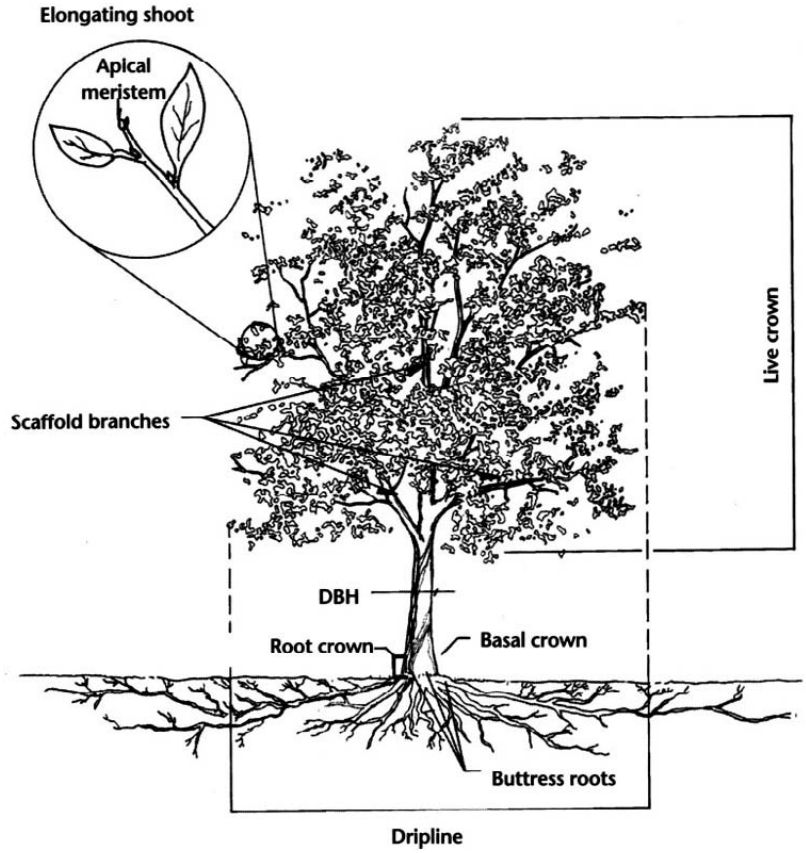


Figure 6 – Typical form and structure of a tree illustrating the typical form, location and extent of root growth (Source: Matheny and Clark, 1998)

Basic Tree Needs

As a living organism a tree remains alive by completing the following chemical reaction -

Carbon Dioxide and water in combination with chlorophyll and light is converted to Glucose and Oxygen [$CO_2 + H_2O$ + light = sugar (CH_2O [Glucose]) + O_2]

The process ultimately leads to the plant cells 'respiring' and producing energy for survival, a natural requirement for all living cells. Anything that affects a plant's photosynthesis and then cellular respiration will affect the overall plant health. The limiting factors of photosynthesis and respiration will typically be the availability of oxygen, water and nutrients that make up the important chemical molecules and reactions.

Trees therefore have five basic requirements to survive and successfully grow:-

1. Oxygen (and particularly oxygen within the soil);
2. Water (a cellular necessity and primarily taken up by the tree roots);
3. Light & Sufficient Foliage (in order to photosynthesise and create the resources needed for cellular survival);
4. Soil (for physical anchorage and critical chemical nutrients) and
5. Physical Space (both above and below ground to grow).

Importantly, a minimum of 15% soil oxygen is required for active root growth and nutrient uptake. Less than 10% available soil oxygen starts to restrict root extension and growth and a minimum of 3% soil oxygen is required to just maintain root existence. Less than this will result in root death (Harris 1999).

One of the most insidious affects of construction on trees is often that of soil compaction or covering of root zones with impervious surfaces, as it:-

- Reduces infiltration rates of surface water;
- Reduces the availability of water to the roots as they can't naturally extract remaining moisture when soil becomes too dry;

- Reduces air to roots (roots cease to function properly and die without oxygen);
- Increased soil strength caused by compaction mean that roots need more energy to growth through it or can't even physically penetrate the soil;
- Roots are physically broken or crushed and there is increased potential for fungal and pathogen attack. (Harris 1999).

Tree Tolerance

Typically older and larger trees are less tolerant of construction impacts. Different species also have different tolerance of injury and disturbance. Importantly it needs to be stressed, that a tree does not "heal" from injury as animals do. Typically any injury made to a tree results in the tree expending considerable energy reserves to create new growth that "seals" and surrounds a wound and then attempting to compensate structurally and physically for any losses. Impacts to trees are therefore cumulative and a series of otherwise small and unrelated impacts can easily result in the death of a tree.

A tree that is already compromised or showing signs of stress is far less likely to tolerate construction impacts due to its lower levels of energy reserves and already weakened state. Therefore a tree that is only in a fair condition or poor condition is less likely to tolerate construction impacts than a young tree in good or excellent condition.

Weakened or stressed trees are also far less able to combat the myriad of normal environmental stresses and pathogens that are naturally imposed against them such as drought, decay, fungi, bacteria and insect pests.

2.6 Tree Impact Assessment

The intention of this assessment is to clearly illustrate the trees to be retained and removed as part of the development. It is also to determine any incursions into the retained trees' root zones and canopies by the proposed development and evaluate the likely impact of the proposed works on the trees. A detailed summary of the incursions and likely impacts of the proposed development on each tree is shown in Appendix 4.2 'Tree Assessment and Impacts Schedule'.

The site works proposed will result in extensive site disturbance and re-grading. This means that many of the trees will require removal. Only those trees that have a reasonable and practical chance of being successfully retained have been targeted fro retention and protection.

The following information has been adjusted to reflect the additional trees to be retained following the independent planning panel review and recommendations.

Of the **210** trees on the site:-

- **80** trees are proposed to be retained and protected;
- **77** of these have no or only minimal foreseeable impact from the proposed construction related activity;
- **8** have minor encroachments as defined under AS 4970. In the authors opinion, if appropriate protection is installed and maintained, these trees may be successfully retained;
- **60** trees were proposed to be removed and are already subject to a separate Development Application that has been submitted for the demolition of the first stage of existing buildings. They have also been shown in this report for consistency and clarity.
- A further **70** trees are proposed to be removed around the other parts of the site to facilitate the construction of all the other new buildings, roads and landscape embellishments associated with the development.

Trees that were assessed as having a major encroachment as defined under AS 4970 have been proposed for removal and are not discussed further in this report.

Following a review of the original DA consent by the independent planning panel, a number of recommendations were made, one of which was the requirement to retain a greater number of the more significant trees within the proposed development site. Specific reference was made to the six trees (T68, T69, T60, T104, T105, T106). These are discussed in greater detail below.

Trees To Be Removed - T68 & T69 *Eucalyptus saligna* (Sydney blue Gum)
Of the trees raised by the panel, we believe that Tree **68** and **69** are not worthy of retention nor is it appropriate to modify the site plan around them.

T68 is relatively poor quality tree immediately adjacent to T69. It has a very asymmetrical canopy to the east and extensive wounding via borer damage to its base. This wounding is on the side of the tree under the most structural stress as the tree has a slight lean towards the east. The basal area affected is in excess of 50% of the trunk circumference at its base. This tree should not be retained as part of the development. Its condition is unlikely to improve as the area around it has been extensively compacted due to frequent trafficking and use.

T69, although currently displaying good vitality, is a large Sydney Blue Gum with significant cavities and defects at 8.5m, 11m & 12m height. There is also a history of previous significant branch failures throughout the tree canopy. It has significant structural weakness within the major body of the trunk due to the extensive Cockatoo damage and subsequent decay at most of the major branch junctions. Although the tree has compensated, to various degrees, for these weaknesses, by putting on additional wood around the cavities, there are still very major structural deficiencies within this tree that cannot be realistically rectified or catered for in the site planning. In our opinion this tree would represent too great a risk if left in close proximity to underlying residences or within actively used roadways or car parking areas. In its current condition it is also unlikely to tolerate any significant disturbance around its base. It is extremely likely to continue to periodically shed very sizeable branches from its canopy. In the author's opinion, there is a very significant risk that major parts of the upper canopy of this tree could fail in a moderate storm or wind event.

Both T68 and T69 are, in the author's opinion, unsuitable to be retained within the context of an aged care development and accordingly are recommended for removal.

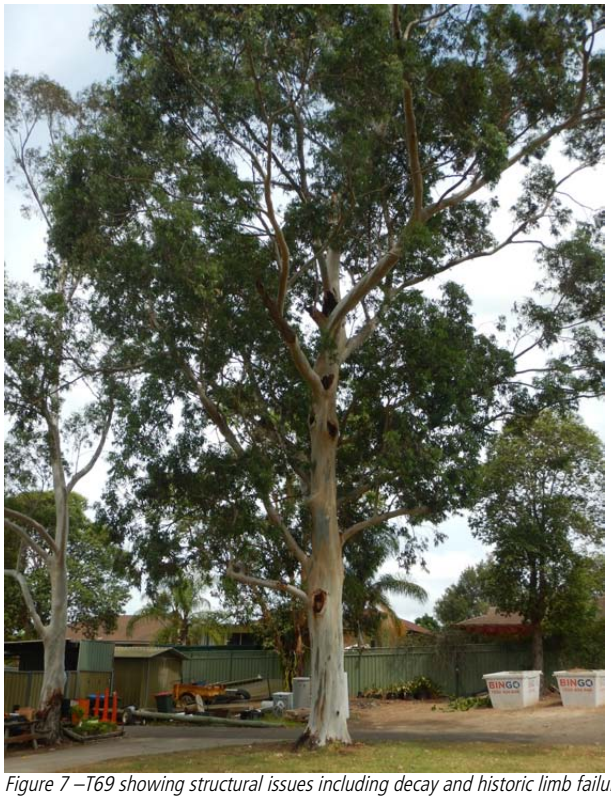


Figure 7 –T69 showing structural issues including decay and historic limb failures.

Figure 8 –T68 showing extensive borer wounding and soil compaction at the base.

Trees To Be Retained - T60, T105, T106 *Eucalyptus saligna* (Sydney Blue Gum) & T104 *Eucalyptus microcorys* (Tallowood)

The areas within the nominal Tree Protection Zone (TPZ) radii of the 4 trees to be retained would need to remain largely undisturbed by construction activities which includes, construction of buildings, services and trenches and ground level changes or soil compaction. Only a relatively small incursion of approximately 10% may be considered acceptable in order to successfully retain these trees.

T60, T106, T105 and T104 are all good quality, but large trees. They are all worthy of retention. T60 has a small defect on its south-western side which could be rectified with judicious and appropriate pruning, although if the area is left largely un-developed this could also be left without pruning. This would be the preferred outcome.

Details of the trees are summarised below:-

Tree ID	Species	TPZ radius (m)	TPZ (m^2)	Incursion (m^2)	% Incursion
T60	*Eucalyptus saligna*	8.28	215	14	7%
T104	*Eucalyptus microcorys*	7.20	163	16	10%
T105	*Eucalyptus saligna*	6.72	141	7	5%
T106	*Eucalyptus saligna*	7.80	191	14	8%

T60 is now to be retained following the deletion of previously submitted units (9/10). All trenching for the proposed services is to occur on the northern side of the road or be underbored, or run along the southern boundary to avoid conflict with tree roots.

An existing asphalt road runs through the northern portion of T60's nominal TPZ and a new asphalt road is proposed in the same location, however, it is to be constructed slightly above the existing road grades. As the tree is already growing in proximity to the

existing impermeable road surface, the proposed new road is unlikely to have any adverse effects on the condition of the tree. Appropriate care must be exercised in the demolition and subsequent road construction to limit the subsurface impacts. The house construction works proposed to the east and west in the immediate vicinity of the tree will result in a minor incursion of 7% of the nominal TPZ. This is likely to result in some minor root loss but it is considered this will have only minor detrimental impact on the condition of the tree. It is the author's opinion that the tree can be successfully retained and protected for the duration of the project in the revised scheme.

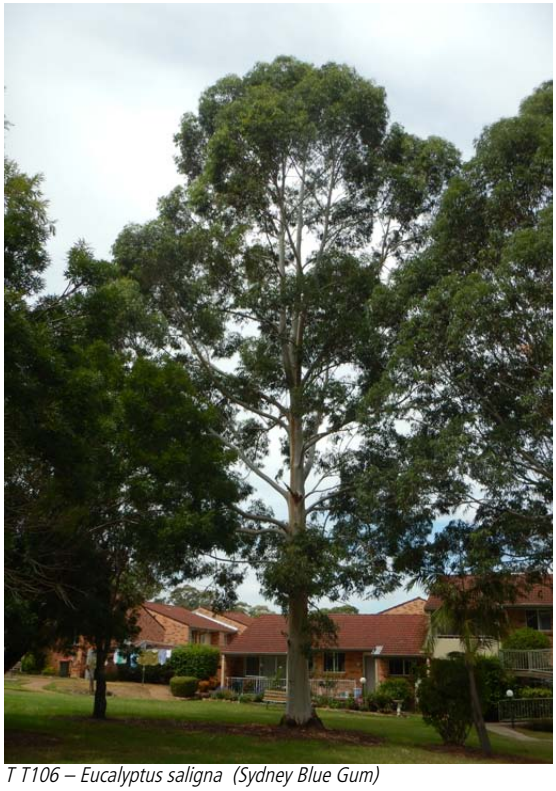
T104 a *Eucalyptus microcorys* (Tallowood) and **T105, T106** both *Eucalyptus saligna* (Sydney Blue Gum) are now to be retained following the deletion of previously submitted units 26/27 and 24/25. The proposed pedestrian paths have been kept mostly clear of the trees and those passing into the TPZ are to be constructed at or above existing ground level to minimise tree impacts. All three trees will experience some minor incursions (10% or less) as a result of the excavations for the detention basin, car parking and road construction occurring to their west. Given the healthy condition of the trees and the very minor nature of the incursions, it is the author's opinion that the trees may be successfully retained and protected for the duration of the project. All new services shall be kept clear of the remaining nominal TPZ.

Please refer to Appendix 4.1 'Tree Removal and Protection Plan' for graphical representation of the incursions and proposed tree protection measures to be implemented and refer to Appendix 4.2 'Tree Assessment & Impact Schedule' for details of the condition of the trees.

T60 – Eucalyptus saligna (Sydney Blue Gum)

T104 – Eucalyptus microcorys (Tallowood)

T105 – Eucalyptus saligna (Sydney Blue Gum)



T T106 – Eucalyptus saligna (Sydney Blue Gum)

2.7 Potential Tree Related Impacts to be Managed During Construction

The main potential impacts from the proposed construction activity can be summarised as tree damage and 'reduced life expectancy' caused by:-

- Root loss and disturbance due to excavation for the driveway;
- Compaction of the root zone from storage and stockpiling of materials;
- Contamination of the soil from; the preparation of chemicals, wash down/ cleaning of equipment, refuelling of vehicles and dumping of waste;
- Compaction of the root zone from haul roads and the parking of vehicles/ plant equipment;
- Root disturbance from cut and fill and soil level changes;
- Physical damage to the tree trunks and branches from passing machinery;
- Damage to the tree roots from landscaping and pedestrian pathway construction.

The following Section provides recommendations and proposed measures that aim to minimise and avoid these impacts as much as realistically possible.

3.0 RECOMMENDATIONS

3.1 Potential Amendments to Site Layout and Design

The landscape concept design and revised proposed building layout have been developed in consultation with the Client and Architects. Arterra, as both the consulting arborist and landscape architects for the project have aimed to minimise the impact on the existing site trees to be retained and the previously submitted site plan and design has been modified to this effect. The trees noted for removal, as well as those to be retained, have been given careful consideration and recommendation for removal has not been given lightly.

As the current revised design has been developed in consultation with the consulting arborist, appropriate changes have been implemented to accommodate existing trees wherever possible. On this basis there are no recommendations to alter the design further at this time.

3.2 Key Recommendations to Reduce Tree Impacts

The following recommendations are made to potentially reduce the negative construction impacts on the remaining site trees.

- Appropriately fence all TPZs outside of the nominated incursions for the duration of all major site construction work. See Appendix 4.1 TP-03 'Tree Removal & Protection Plan' for locations.
- Carefully control and fence access to and from the construction areas so that movement does not occur through any TPZs.
- Ensure all the above and below ground services are excluded from running through any TPZs beyond any already noted incursion.
- Minimise the re-grading of the ground surface within the nominated TPZs, beyond the already noted building incursions, to meet and match proposed pathways and building levels. Where it is required, limit it to a maximum depth of 200mm above existing ground levels and ensure it is only quality sandy manufactured organic garden mix.
- Mulching of the TPZs, as noted on TP-03 'Tree Protection & Removal Plan' at the start of construction. This will typically be the more isolated trees. This will aid tree health with moisture retention, remove competition from grasses, and improve soil conditions with the TPZs.
- Avoid digging into existing any tree root zones for the installation of the proposed landscaping around the retained trees. Installation sizes of new plants to be 5L or less to ensure that excavations are less than 200mm in depth. Build up soil levels when planting to a maximum of 200mm to enable the planting to occur without disturbing roots.
- Do not allow storage or stockpiling of any materials or site sheds within established TPZs unless that it can be demonstrated that this will not impact on the tree retention and is approved in writing by the Consulting Arborist.

3.3 Proposed Tree Protection & Construction Activity Sequencing

The following sequence of activities should be followed for this project: -

1. A Tree Protection Specification & Plan be prepared and issued as part of the construction contract prior to any construction work.
2. Project Consulting Arborist, Landscape Architect, Civil and Structural Engineers, Client and Contractor Site Foreman are to meet prior to beginning any work on the site to discuss and review all work procedures, construction access routes, stockpiling and tree protection measures (ie: fence types and locations, access, cranage points, piling methods etc.).
3. Contractor's to discuss locations and type of any sediment and erosion controls (if any) and install them with minimal tree impact when within or passing through the TPZ.
4. Existing pathways, fences, driveways, furniture and shrubs are to be carefully removed from within the TPZ.
5. Existing surrounding trees are to be removed. Stumps are to be ground to avoid the use of excavators and the like from grubbing out stumps, which may lead to damage of any intertwined roots.

6. Designated TPZs are to be mulched with 75mm of recycled hardwood woodchip mulch to improve soil conditions around tree and remain in place until future landscaping.
7. The Construction Phase TPZ is to be clearly defined and fenced off with a 1.8m high metal or plywood temporary fence prior to any further work within the vicinity of the trees. Any required rumble boards installed to protect TPZ areas where temporary access is required.
8. A utility Arborist is to undertake selective pruning of canopy or branches to facilitate construction of the building and the use of any large scale piling equipment without accidental damage to the tree canopy. Pruning to be done in accordance with AS4373 - Pruning of Amenity Trees and performed by staff with minimum AQF 3 qualification.
9. Building works to be completed (external).
10. Contractor to remove the TPZ fencing and then install final pathways and landscaping within the TPZ under the trees, after construction of the building exterior is completed.

3.4 Demolition Work Near Trees or within TPZs

Demolition of paths and other structures required that are within a TPZ shall be done with small tracked equipment or by hand, with care to limit damage and disturbance of the root zone. All such work within TPZs shall be supervised and overseen by the qualified Project Consulting Arborist.

3.5 Tree Protection Fencing & Definition of TPZs

Establish a clearly defined tree protection zone as indicated in Appendix 4.1 "T-03 Tree Protection and Removal Plan". Install a 1.8m high temporary fence with either plywood hoarding or temporary steel mesh or chain wire fencing with adequate lateral bracing. Fencing shall comply with the requirements of AS 4687-2007 Temporary fencing and hoardings. These areas around the trees shall be delineated as a "Tree Protection Zone" during the remaining construction process, via appropriate weatherproof signage. Access will typically be excluded from these zones and the levels will be left largely at the existing levels with the exception of the installation of the 75mm of mulch where noted. No stockpiling, excavation, trenching, re-fuelling or material storage should be allowed in this area.

3.6 Ground Protection within TPZs

Vehicular movement and access shall typically not be required or approved through the TPZ areas. If it is necessary and it is proposed to create any temporary access or haul road, or similar, within the TPZ of a retained tree, the Contractor shall install rumble strips / boards over the TPZ ground surface. No excavation shall be allowed. Contractor shall first place a suitable permeable geotextile to the extent required and then a 100mm thick layer of wood chip mulch or coarse no-fines gravel over the extent to be covered with the rumble strip / boards. Then place hardwood boards (minimum 3600 x 200 x 75mm) on their flat edge, side by side, with a 30 - 50mm gap to form a rumble strip. These boards are to be held together with three galvanised metal bracing straps nailed to each board. The two outer straps are to be approximately 200mm in from the ends of the boards. The third strap is to be along the centre line of the boards.

Figure 7 – Example of acceptable Tree Protection Area ground protection

3.7 Trunk and Lower Branch Protection

Trunk protection shall typically not be required as all trees that are proposed to be retained are to be adequately protected with designated and fenced areas or a well clear of the proposed works zones. Should the Project Consulting Arborist deem it necessary to install trunk protection, it shall be installed in accordance with the specifications below.

A trunk barrier is to be erected around the circumference of the tree trunk and trunk flare and root buttress. This barrier will consist of a double layer of suitable 'used' artificial grass matting, carpet or carpet underfelt placed around the trunk. A layer of battens is to be placed over the underfelt. The battens are to have a maximum spacing of 50-100mm. The height of the battens is to be 2 metres or to the height of the first branches. Lower large branches may require the same protection if they are likely to be damaged by passing vehicles or equipment. Secure in place with galvanised steel bracing straps. Do not nail into or otherwise injury the trunk or bark. Battens may be made from any suitable waste timber of similar sizes and depths. All sharp or protruding edges are to be properly covered with tape or similar padding.

Figure 8 – Example of acceptable Trunk Protection batten installation

3.8 Final Landscaping within TPZs

Once final levels are set by the finished structural elements. The final trimming and landscaping shall be judiciously undertaken. The final pedestrian pavements shall be installed without undue excavation or compaction to the soil and all soft landscaping within the tree protection zone will be installed with care to avoid root disturbance via irrigation trenching, lighting installation and the planting of larger plants. The installation of 100-200mm of new garden mix topsoil over the pre-existing soil will provide a suitable medium in which to plant new plants without damage to existing tree roots. Permanent irrigation (if used) shall be installed as spray heads located outside of TPZs and spraying inwards. All other services such as electrical services shall also be designed and installed to avoid any excavation or trenching around the trees.

3.9 Final Building and Pedestrian Clearance Pruning

Once the final levels and finishes are in place the Project Consulting Arborist shall supervise and advise on the selective pruning of any lower peripheral branches to retained trees to achieve any clearances for final pedestrian access. This shall be minimised as much as possible. It is anticipated that the final pruning of any of the retained trees will be less than 10% of the existing canopy and will not have any serious impact to the trees health or habit.

The branches of the tree shall only be pruned as specifically needed and directed by the Project Consulting Arborist. Work is to be in strictly accordance with to AS4373 - Pruning of Amenity Trees. Do not treat wounds. Only clean, sharp pruning implements shall be used for all pruning work, ensuring that cuts are made without damage, tearing or bruising of the vascular tissue.

3.10 Other Tree Protection Measures to be Implemented

The following is a summary of the main measures that will be required during construction. These should be adopted for the Construction Contract and conditioned by Council.

Controlled Construction Access & Parking

Construction access points and stockpiling and storage areas shall be clearly identified and fenced where appropriate. Uncontrolled access points and parking of vehicles outside of designated areas is to be avoided. If temporary access is required through a

tree protection zone, ground protection shall be employed to limit soil compaction and root damage and disturbance.

Clearing and Removal of Trees to be Removed

Removal and clearing of existing trees should be done by qualified arboricultural staff with care not to impact or damage other surrounding trees throughout the process. Existing stumps should be grubbed out or ground in a controlled fashion to remove wood that may decay and promote unwanted pathogens.

Communication - Tool Box Meetings and Construction Inductions

All contractors and subcontractors shall be inducted prior to working on the site. All inductions shall include description and identification of the Tree Protection Zones and the restriction on work and activities with regard to trees. The site foreman shall ensure that all new staff and contractors are appropriately inducted and that brief "tool box" meetings are conducted regularly to ensure Tree Protection is maintained at the forefront of all construction workers minds.

3.11 References

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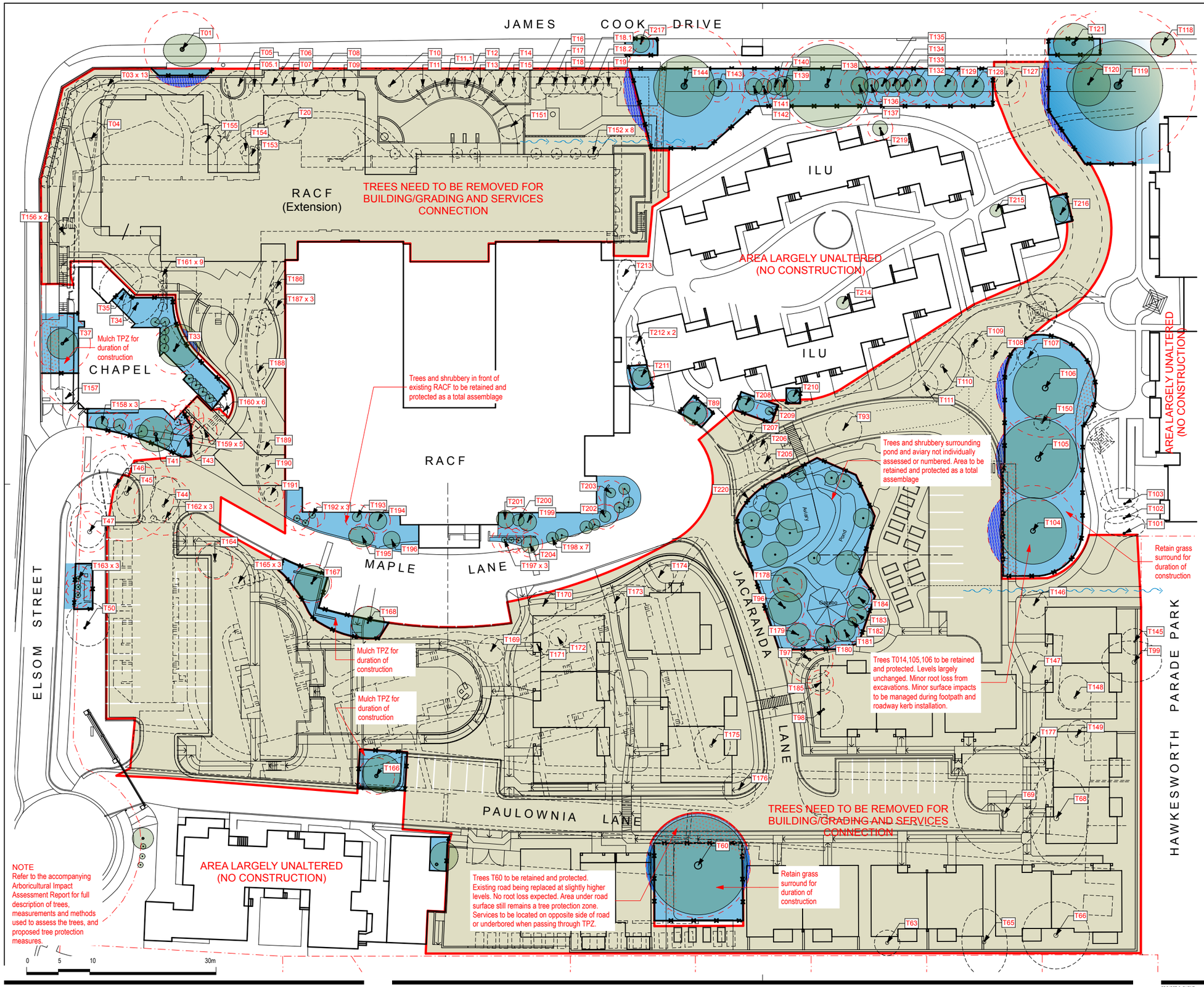
- Wrigley J.W. and Fagg M. 1996, Australian Native Plants: Propagation, Cultivation and Use in Landscaping, 4th Ed. Reed Books, Sydney, NSW.

- End of report.

4.0 APPENDICES

4.1 TP-03 Tree Protection & Removal Plan



NOTE
Refer to the accompanying Arboricultural Impact Assessment Report for full description of trees, measurements and methods used to assess the trees, and proposed tree protection measures.

Adventist Aged Care, Kings Langley - Tree Assessment and Impact Schedule

Tree ID	Tree Species	Common Name	Trunk Diameter Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Retention Value	Recommendation
1	*Eucalyptus saligna ?*	Sydney Blue Gum	0.60	0.63	6.00	2.73	Moderate	Retain and Protect
3	*Callistemon viminalis cv. x 13*	Weeping Bottlebrush	0.12	0.17	2.00	1.57	Moderate	Remove
4	*Olea europaea subsp. africana*	African Olive	0.29	0.40	3.48	2.03	Low	Remove
5	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.30	0.30	3.60	2.00	Low	Remove
5	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.13	0.15	2.00	1.49	Low	Remove
6	*Callistemon salignus cv.*	Willow Bottlebrush	0.23	0.25	2.76	1.85	Low	Remove
7	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.37	0.39	4.44	2.23	Low	Remove
8	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
9	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
10	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
11	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
11	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
12	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
13	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
14	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
15	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
16	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
17	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
18	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
18	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
19	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.31	0.38	3.72	2.20	Low	Remove
20	*Schizolobium parahyburn*	Yellow Jacaranda	0.23	0.28	2.76	1.94	Moderate	Remove
33	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.31	0.33	3.72	2.08	Moderate	Retain and Protect
34	*Pistacia chinensis*	Chinese Pistachio	0.27	0.34	3.24	2.10	Moderate	Remove
35	*Pistacia chinensis*	Chinese Pistachio	0.27	0.36	3.24	2.15	Moderate	Remove
37	*Cupressus glabra cv.*	Smooth Cypress	0.37	0.42	4.44	2.30	Moderate	Retain and Protect
41	*Cupressus glabra cv.*	Smooth Cypress	0.45	0.52	5.40	2.51	Moderate	Remove
43	*Araucaria heterophylla*	Norfolk Island Pine	0.30	0.36	3.60	2.00	Moderate	Remove
44	*Cedrus deodara*	Himilayan Cedar	0.39	0.43	4.68	2.32	Moderate	Remove
45	*Eucalyptus haemastoma*	Scribbly Gum	0.63	0.68	7.56	2.81	Moderate	Remove
46	*Eucalyptus nicholi*	Narrow-leaved Black Peppermint	0.51	0.59	6.12	2.65	V Low / Remove	Remove
47	*Jacaranda mimosifolia*	Jacaranda	0.27	0.47	3.24	2.41	Moderate	Remove
50	*Jacaranda mimosifolia*	Jacaranda	0.30	0.32	3.60	2.05	Moderate	Remove
60	*Eucalyptus saligna*	Sydney Blue Gum	0.68	1.14	8.28	3.00	High	Retain and Protect
63	*Araucaria columnaris*	Cook Pine	0.42	0.51	5.04	2.49	High	Remove
65	*Lophostemon confertus*	Brush Box	0.46	0.56	5.52	2.59	Moderate	Remove
66	*Eucalyptus saligna*	Sydney Blue Gum	0.65	0.67	7.80	2.80	Low	Remove
68	*Eucalyptus saligna*	Sydney Blue Gum	0.59	0.76	7.08	2.95	Low	Remove
69	*Eucalyptus saligna*	Sydney Blue Gum	0.81	0.98	9.72	3.28	Moderate	Remove
89	*Hymenosporum flavum*	Native Frangipani	0.15	0.19	2.00	1.65	Moderate	Remove
93	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.21	0.26	2.52	1.88	Moderate	Remove
96	*Jacaranda mimosifolia*	Jacaranda	0.27	0.28	3.24	1.54	Moderate	Retain and Protect
97	*Jacaranda mimosifolia*	Jacaranda	0.31	0.39	3.72	2.23	Moderate	Remove
98	*Jacaranda mimosifolia*	Jacaranda	0.25	0.29	3.00	1.97	Low	Remove
99	*Jacaranda mimosifolia*	Jacaranda	0.40	0.68	4.80	2.81	Moderate	Remove
101	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.21	0.34	2.52	2.10	Moderate	Remove
102	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.19	0.27	2.28	1.91	Moderate	Remove
103	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.23	0.28	2.76	1.94	Moderate	Remove
104	*Eucalyptus microcorys*	Tallowood	0.60	0.74	7.20	2.92	Moderate	Retain and Protect
105	*Eucalyptus saligna*	Sydney Blue Gum	0.56	0.85	6.72	3.11	High	Retain and Protect
106	*Eucalyptus saligna*	Sydney Blue Gum	0.65	0.89	7.80	3.15	High	Retain and Protect
107	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.34	3.00	2.10	Low	Remove
108	*Fraxinus oxycarpa 'Raywood'*	Claret Ash	0.46	0.53	5.52	2.53	Low	Remove
109	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.35	0.40	4.20	2.43	Low	Remove
110	*Fraxinus oxycarpa 'Raywood'*	Claret Ash	0.55	0.58	6.60	2.63	Low	Remove
111	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.37	3.00	2.18	Low	Remove
118	*Lophostemon confertus*	Brush Box	0.11	0.18	2.00	1.61	Moderate	Retain and Protect
119	*Eucalyptus bretlcornis*	Forest Red Gum	1.02	1.13	12.24	3.48	Moderate	Retain and Protect
120	*Jacaranda mimosifolia*	Jacaranda	0.29	0.31	3.48	2.02	Low	Retain and Protect
121	*Eucalyptus saligna ?*	Sydney Blue Gum	0.38	0.48	4.56	2.43	Moderate	Retain and Protect
127	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Remove
128	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
129	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
132	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
133	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
134	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
135	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
136	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
137	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.25	0.25	3.00	1.85	Moderate	Retain and Protect
138	*Eucalyptus bretlcornis*	Forest Red Gum	0.60	0.60	7.20	2.67	Low	Retain and Protect
139	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.22	0.32	2.64	2.05	Moderate	Retain and Protect
140	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.13	0.15	2.00	1.49	Moderate	Retain and Protect
141	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.21	0.25	2.52	1.85	Moderate	Retain and Protect
142	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.19	0.20	2.28	1.68	Moderate	Retain and Protect
143	*Callistemon viminalis cv.*	Weeping Bottlebrush	0.19	0.23	2.28	1.79	Moderate	Retain and Protect
144	*Eucalyptus bretlcornis*	Forest Red Gum	0.80	0.91	9.60	3.27	Low	Retain and Protect
145	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.23	0.27	2.76	1.91	Low	Remove
146	*Sapium sebiferum*	Chinese Tallow Tree	0.23	0.30	2.76	2.00	Moderate	Remove
147	*Sapium sebiferum*	Chinese Tallow Tree	0.25	0.35	3.00	2.13	Moderate	Remove
148	*Olea europaea subsp. africana*	African Olive	0.22	0.35	2.64	2.26	Low	Remove
149	*Morus nigra*	Mulberry	0.21	0.39	2.52	2.23	Low	Remove
150	*Archontophoenix alexandrae*	Alexandra Palm	0.14	0.20	2.00	2.13	V Low / Remove	Remove
151	*Pyrus calleryana cv.*	Callery Pear	0.10	0.15	2.00	1.49	Low	Remove
152	*Cupressus sempervirens 'Swanes Golden' x 8*	Swanes Golden Pencil Pine	0.15	0.20	2.00	1.68	Low	Remove
153	*Metrosideros excelsa*	NZ Christmas Tree	0.13	0.10	2.00	1.36	Low	Remove
154	*Chamaecyparis sp. cv.*	False Cypress ?	0.09	0.10	2.00	1.26	V Low / Remove	Remove
155	*Acer palmatum*	Japanese Maple	0.23	0.25	2.76	1.85	Low	Remove
156	*Cupressus macrocarpa cv x 2*	Monterey Cypress	0.24	0.33	2.88	2.08	Low	Remove
157	*Eucalyptus bretlcornis?*	Forest Red Gum	0.12	0.25	2.00	1.85	Low	Remove
158	*Cupressus sempervirens 'Swanes Golden' x 3*	Swanes Golden Pencil Pine	0.08	0.10	2.00	1.26	Moderate	Remove
159	*Cupressus sempervirens 'Swanes Golden' x 5*	Swanes Golden Pencil Pine	0.10	0.15	2.00	1.49	Moderate	Remove
160	*Cupressus sempervirens 'Swanes Golden' x 6*	Swanes Golden Pencil Pine	0.09	0.15	2.00	1.49	Low	Retain and Protect (4 western specimens only)
161	*Cupressus sempervirens 'Swanes Golden' x 9*	Swanes Golden Pencil Pine	0.08	0.10	2.00	1.26	Low	Retain and Protect (5 southern specimens only)
162	*Cupressus sempervirens 'Swanes Golden' x 3*	Swanes Golden Pencil Pine	0.06	0.07	2.00	1.08	Low	Remove
163	*Cupressus sempervirens 'Swanes Golden' x 3*	Swanes Golden Pencil Pine	0.10	0.12	2.00	1.36	Moderate	Retain and Protect
164	*Lagerstroemia indica*	Crepe Myrtle	0.35	0.35	4.20	2.13	High	Remove
165	*Thuja orientalis cv X 3*	Chinese Arborvitae	0.18	0.16	2.16	1.53	Low	Remove
166	*Lagerstroemia indica*	Crepe Myrtle	0.32	0.32	3.84	2.01	High	Remove
167	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.26	0.28	3.12	1.94	Moderate	Retain and Protect
168	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.22	0.20	2.64	1.68	Moderate	Retain and Protect
169	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.19	0.26	2.28	1.88	Low	Remove
170	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.19	0.18	2.28	1.61	Low	Remove
171	*Tibouchina lepidota*	Lasiandra	0.20	0.19	2.40	1.65	Low	Remove
172	*Prunus cerasifera 'Nigra'*	Purple-leaved Cherry-plum	0.12	0.12	2.00	1.36	Low	Remove
173	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.10	0.15	2.00	1.49	Low	Remove
174	*Robinia pseudoacacia 'Frisia'*	Black Locust	0.15	0.21	2.00	1.72	Low	Remove
175	*Syagrus romanzoffiana*	Queen Palm	0.31	0.41	3.72	2.41	V Low / Remove	Remove
176	*Jacaranda mimosifolia*	Jacaranda	0.27	0.33	3.24	2.06	Low	Remove
177	*Sapium sebiferum*	Chinese Tallow Tree	0.10	0.15	2.00	1.49	Moderate	Remove
178	*Hymenosporum flavum*	Native Frangipani	0.14	0.20	2.00	1.68	Moderate	Retain and Protect
179	*Brachychiton acerifolius*	Illawarra Flame Tree	0.11	0.14	2.00	1.45	Moderate	Retain and Protect
180	*Waterhousea floribunda*	Weeping Lilly Pilly	0.11	0.16	2.00	1.53	Moderate	Retain and Protect
181	*Hymenosporum flavum*	Native Frangipani	0.19	0.23	2.28	1.79	Moderate	Retain and Protect
182	*Melaleuca bracteata*	Black Tea-Tree	0.07	0.10	2.00	1.26	Low	Retain and Protect
183	*Hibiscus heterophylla*	Coast Cottonwood	0.11	0.15	2.00	1.49	Low	Retain and Protect
184	*Hymenosporum flavum*	Native Frangipani	0.16	0.23	2.00	1.79	Moderate	Retain and Protect
185	*Brachychiton acerifolius*	Illawarra Flame Tree	0.10	0.14	2.00	1.45	Moderate	Remove
186	*Archontophoenix alexandrae*	Alexandra Palm	0.13	0.21	2.00	1.72	Low	Remove
187	*Betula pendula x 3*	Silver Birch	0.11	0.17	2.00	1.57	Low	Remove
188	*Cupressus sempervirens 'Stricta'*	Pencil Pine	0.11	0.14	2.00	1.45	Low	Remove
189	*Pyrus calleryana cv.*	Callery Pear	0.13	0.13	2.00	1.40	Low	Remove
190	*Gleditsia triacanthos*	Honey Locust	0.07	0.09	2.00	1.20	Low	Remove
191	*Koelreuteria bipinnata*	Chinese Rain Tree	0.10	0.12	2.00	1.36	Moderate	Remove
192	*Cupressus sempervirens 'Swanes Golden' x 3*	Swanes Golden Pencil Pine	0.08	0.10	2.00	1.26	Moderate	Retain and Protect
193	*Cupressus sempervirens 'Stricta'*	Pencil Pine	0.05	0.06	2.00	1.02	Moderate	Retain and Protect
194	*Acer palmatum*	Japanese Maple	0.10	0.10	2.00	1.26	Moderate	Retain and Protect
195	*Gleditsia triacanthos*	Honey Locust	0.08	0.10	2.00	1.26	Moderate	Retain and Protect
196	*Magnolia grandiflora*	American Bull Bay Magnolia	0.06	0.08	2.00	1.15	Low	Retain and Protect
197	*Cupressus sempervirens 'Swanes Golden' x 3*	Swanes Golden Pencil Pine	0.07	0.08	2.00	1.15	Moderate	Retain and Protect
198	*Betula pendula x 7*	Silver Birch	0.10	0.16	2.00	1.53	Low	Retain and Protect
199	*Gleditsia triacanthos*	Honey Locust	0.08	0.11	2.00	1.31	Low	Retain and Protect
200	*Magnolia grandiflora*	American Bull Bay Magnolia	0.04	0.06	2.00	1.02	Moderate	Retain and Protect
201	*Ginkgo biloba*	Ginkgo or Maidenhair Tree	0.07	0.12	2.00	1.36	Low	Retain and Protect
202	*Cupressus sempervirens 'Swanes Golden'*	Swanes Golden Pencil Pine	0.06	0.09	2.00	1.26	Moderate	Retain and Protect
203	*Cupressus sempervirens 'Stricta'*	Pencil Pine	0.10	0.11	2.00	1.31	Moderate	Retain and Protect
204	*Pyrus calleryana cv.*	Callery Pear	0.14	0.15	2.00	1.49	Moderate	Retain and Protect
205	*Waterhousea floribunda*	Weeping Lilly Pilly	0.21	0.27	2.52	1.91	Moderate	Remove
206	*Acmena smithii var. minor*	Small Leaf Lilly Pilly	0.11	0.12	2.00	1.36	Low	Remove
207	*Agonis flexuosa*	Willow Myrtle	0.19	0.21	2.28	1.72	Low	Remove
208	*Hymenosporum flavum*	Native Frangipani	0.11	0.20	2.00	1.68	Low	Retain and Protect
209	*Cupressus sempervirens 'Swanes Golden'*	Swanes Golden Pencil Pine	0.08	0.09	2.00	1.15	Moderate	Retain and Protect
210	*Persea gratissima*	Avocado	0.09	0.12	2.00	1.36	Low	Retain and Protect
211	*Hymenosporum flavum*	Native Frangipani	0.15	0.19	2.00	1.65	Moderate	Retain and Protect
212	*Removed 2017 (within 3m of appr. structure)*							Remove
213	*Hymenosporum flavum*	Native Frangipani	0.13	0.17	2.00	1.57	Low	Remove
214	*Cupressus sempervirens 'Swanes Golden'*	Swanes Golden Pencil Pine	0.13	0.13	2.00	1.40	Low	Retain and Protect
215	*Cupressus sempervirens 'Swanes Golden'*	Swanes Golden Pencil Pine	0.15	0.15	2.00	1.49	Low	Retain and Protect
216	*Callistemon citrinus cv.*	Crimson Bottlebrush	0.18	0.18	2.16	1.61	Low	Retain and Protect
217	*Lophostemon confertus*	Brush Box	0.11	0.18	2.00	1.61	Moderate	Retain and Protect
219	*Lagerstroemia indica*	Crepe Myrtle	0.19	0.19	2.28	1.65	Moderate	Retain and Protect
220	*Callistemon citrinus cv.*	Crimson Bottlebrush	0.18	0.18	2.16	1.61	Low	Remove

Tree Protection and Removal Plan Legend

- Existing Tree Retained
- Existing Tree Removed (Note: no TPZ's shown for these trees)
- Nominal Tree Protection Zone Radius (TPZ) (Note: TPZ shown for High & Moderate Retention Value trees only)
- T26 Tree Identification Number
- Proposed Tree Protection Zones - consolidated area
- Tree Protection Zone temporary fencing
- Loss of roots due to excavation or trenching
- Surface impact to be managed - minimal root loss expected
- Extent of building and grading disturbance
- Existing buildings and structures to be demolished

REVISION	DESCRIPTION	CHKD	DATE
B	Amended For Development Application T60, 104,105,106 Retained	RWS	8/3/18
A	For Development Application	RWS	9/12/16

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PROJECT & CLIENT
Adventist Aged Care, Kings Langley
Adventist Aged Care

Project No : 16.31
Designed : CLB
Drawn : CLB
Scale : 1:300@A1 , 1:600@A3

DRAWING TITLE
Tree Removal and Protection Plan

DRAWING NUMBER T-03
REVISION B

Plotted at : 3:10 pm 9/3/18

4.2 Tree Assessment & Impact Schedule

Adventist Aged Care, Kings Langley - Tree Assessment and Impact Schedule

Tree ID	Tree Species	Common Name	Height (m)	Spread (m)	Trunk Diameter Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Incursion and Impact	Recommendation
1	*Eucalyptus saligna ?*	**Sydney Blue Gum**	12.0	8.0	0.50	0.63	6.00	2.73	Mature	Good	Average	Tip Dieback, Epicormic Growth	Medium (15-40 years)	**Moderate**	Crown raised for road clearances. Minor tip dieback otherwise OK.	Potential root loss due to grading and wall construction to south. Less than 10% incursion into nominal root zone.	Retain and Protect
3	*Callistemon viminalis cv. x 13*	**Weeping Bottlebrush**	4.8	3.0	0.12	0.17	2.00	1.57	Mature	Good	Average	Epicormic Growth	Medium (15-40 years)	**Moderate**	Row planting along fence. Most multi trunk from ground. Good screen to fence/ acoustic wall.	Removal requested as part of Stage 1 Demolition DA	Remove
4	*Olea europaea subsp. africana*	**African Olive**	5.4	7.0	0.29	0.46	3.48	2.39	Mature	Good	Average	Epicormic Growth, Co-dominant Stems	Long (>40 years)	**Low**		Removal requested as part of Stage 1 Demolition DA	Remove
5	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	6.0	5.0	0.30	0.30	3.60	2.00	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
5.1	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	4.0	3.0	0.13	0.15	2.00	1.49	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
6	*Callistemon salignus cv.*	**Willow Bottlebrush**	4.0	3.0	0.23	0.25	2.76	1.85	Mature	Good	Average	Epicormic Growth	Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
7	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	4.0	3.0	0.37	0.39	4.44	2.23	Mature	Good	Average	Epicormic Growth	Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
8	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
9	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
10	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
11	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
11.1	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
12	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
13	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
14	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
15	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
16	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
17	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
18	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
18.1	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
18.2	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
19	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	5.0	5.0	0.31	0.38	3.72	2.20	Mature	Good	Average		Medium (15-40 years)	**Low**	Row planting along fence. Most in this group have been previously lopped at approx. 2.0m to promote coppicing. Most multi trunk from ground.	Removal requested as part of Stage 1 Demolition DA	Remove
20	*Schizolobium parahyburn*	**Yellow Jacaranda**	9.5	8.0	0.23	0.28	2.76	1.94	Mature	Good	Good		Long (>40 years)	**Moderate**		Removal requested as part of Stage 1 Demolition DA	Remove
33	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	7.5	8.4	0.31	0.33	3.72	2.08	Mature	Good	Average	Inclusions, Pest/Disease	Medium (15-40 years)	**Moderate**	Inclusion and some borer frass noted in one branch junction. Provides amenity and shading of chapel.	Excavation for courtyard to the north-east. Line of excavation at existing road and kerb line so root loss expected to be	Retain and Protect
34	*Pistacia chinensis*	**Chinese Pistachio**	7.0	8.4	0.27	0.34	3.24	2.10	Mature	Good	Average	Asymmetric Canopy, Epicormic Growth	Medium (15-40 years)	**Moderate**	Closely planted pair of trees. Good amenity and shading of chapel. Previously crown reduced, often leaving long stubs.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
35	*Pistacia chinensis*	**Chinese Pistachio**	7.0	8.4	0.27	0.36	3.24	2.15	Mature	Good	Average	Asymmetric Canopy, Epicormic Growth	Medium (15-40 years)	**Moderate**	Closely planted pair of trees. Good amenity and shading of chapel. Previously crown reduced, often leaving long stubs.	Removal requested as part of Stage 1 Demolition DA	Remove
37	*Cupressus glabra cv.*	**Smooth Cypress**	8.6	6.0	0.37	0.42	4.44	2.30	Mature	Good	Good	Tip Dieback	Long (>40 years)	**Moderate**		Surface pedestrian pavement work only. Minimal grade change expected. Surface impact to be managed.	Retain and Protect
41	*Cupressus glabra cv.*	**Smooth Cypress**	11.4	8.0	0.45	0.52	5.40	2.51	Mature	Good	Good		Long (>40 years)	**Moderate**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
43	*Araucaria heterophylla*	**Norfolk Island Pine**	12.5	8.0	0.30	0.38	3.60	2.20	Semi-mature	Fair	Average		Long (>40 years)	**Moderate**	Die back of lower level fronds. Suspect from heat scorch. Could be pruned off.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
44	*Cedrus deodara*	**Himilayan Cedar**	12.5	9.0	0.39	0.43	4.68	2.32	Semi-mature	Fair	Average	Asymmetric Canopy	Long (>40 years)	**Moderate**	Crown raised. Canopy biased to north.	Removal requested as part of Stage 1 Demolition DA	Remove
45	*Eucalyptus haemastoma*	**Scribbly Gum**	13.0	10.0	0.63	0.68	7.56	2.81	Mature	Good	Good	Deadwood-Minor	Long (>40 years)	**Moderate**	Good tree.	Removal requested as part of Stage 1 Demolition DA	Remove
46	*Eucalyptus nicholii*	**Narrow-leaved Black Peppert**	8.5	4.0	0.51	0.59	6.12	2.65	Mature	Fair	Poor	Asymmetric Canopy	Short (5-15 years)	**V Low / Remove**	Very poor form.	Removal requested as part of Stage 1 Demolition DA	Remove
47	*Jacaranda mimosifolia*	**Jacaranda**	8.0	8.0	0.27	0.47	3.24	2.41	Semi-mature	Good	Average	Co-dominant Stems Inclusions	Long (>40 years)	**Moderate**		Removal requested as part of Stage 1 Demolition DA	Remove
50	*Jacaranda mimosifolia*	**Jacaranda**	8.0	9.5	0.30	0.32	3.60	2.05	Semi-mature	Good	Average	Co-dominant Stems	Long (>40 years)	**Moderate**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
60	*Eucalyptus saligna*	**Sydney Blue Gum**	22.0	14.0	0.69	1.14	8.28	3.50	Mature	Excellent	Good	Deadwood-Minor	Long (>40 years)	**High**	Dysfunction at 8.0 to south west from old branch junction wound. Good signs of reaction wood.	Minor incursion (7% total) on both east and west extremities of the TPZ due to adjacent house construction. Minor root loss expected. New road remains within TPZ as new road constructed above existing road level. Surface impacts to be managed.	Retain and Protect
63	*Araucaria columnaris*	**Cook Pine**	11.5		0.42	0.51	5.04	2.49	Semi-mature	Good	Good		Long (>40 years)	**High**	Previous co-dominant trunk removed but now almost occluded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
65	*Lophostemon confertus*	**Brush Box**	10.0	8.0	0.46	0.56	5.52	2.59	Semi-mature	Good	Good		Long (>40 years)	**Moderate**	Rubbish around base. Otherwise good tree.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
66	*Eucalyptus saligna*	**Sydney Blue Gum**	15.5	9.0	0.65	0.67	7.80	2.80	Mature	Fair	Average	Deadwood-Minor	Long (>40 years)	**Low**	Table embedded in trunk forks.	Within building area footprint or major site disturbance area. Unable to be retained	Remove

Tree ID	Tree Species	Common Name	Height (m)	Spread (m)	Trunk Diameter Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Incursion and Impact	Recommendation
68	*Eucalyptus saligna*	**Sydney Blue Gum**	17.5	9.0	0.59	0.76	7.08	2.95	Mature	Fair	Average	Deadwood-Minor, Asymmetric Canopy, Root Impacts	Long (>40 years)	**Low**	Significant borer blaze at base to west. Sparse canopy. Generally poor condition and species prone to sudden limb failure inappropriate in an aged care setting. Should remove.		Remove
69	*Eucalyptus saligna*	**Sydney Blue Gum**	17.5	9.0	0.81	0.98	9.72	3.28	Mature	Good	Average	Deadwood-Minor, Root Impacts, Cavity, Branch Tearouts, Epicormic Growth	Long (>40 years)	**Moderate**	Significant cavities at 8.5m, 11m, 12.0m. Large branch 400mm Diam removed to north at 3.5m. Evidence of historic large limb failures. Species prone to sudden limb failure and inappropriate in an aged care setting. Should remove.		Remove
89	*Hymenosporum flavum*	**Native Frangipani**	8.0	6.0	0.15	0.19	2.00	1.65	Semi-mature	Good	Average		Medium (15-40 years)	**Moderate**	Planted right next to SW pit.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
93	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	7.5	7.0	0.21	0.26	2.52	1.88	Mature	Good	Good		Medium (15-40 years)	**Moderate**	Previously lopped.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
96	*Jacaranda mimosifolia*	**Jacaranda**	10.0	8.0	0.27	0.28	3.24	1.94	Mature	Fair	Average	Epicormic Growth, Root Impacts	Medium (15-40 years)	**Moderate**	Mounding placed around trunk.	Outside expected works. Nil impact.	Retain and Protect
97	*Jacaranda mimosifolia*	**Jacaranda**	10.0	8.0	0.31	0.39	3.72	2.23	Mature	Fair	Average	Epicormic Growth, Root Impacts	Medium (15-40 years)	**Moderate**	Mounding placed around trunk.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
98	*Jacaranda mimosifolia*	**Jacaranda**	7.5	6.0	0.25	0.29	3.00	1.97	Mature	Fair	Average	Epicormic Growth, Root Impacts, Lean-Minor, Asymmetric Canopy	Medium (15-40 years)	**Low**	Mounding placed around trunk. Minor lean and canopy biased to north east.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
99	*Jacaranda mimosifolia*	**Jacaranda**	9.5	10.0	0.40	0.68	4.80	2.81	Mature	Good	Average	Co-dominant Stems, Epicormic Growth	Long (>40 years)	**Moderate**	Low branching habit from base.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
101	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	8.0	6.0	0.21	0.34	2.52	2.10	Mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Moderate**	Part of a closely spaced group of 3. Crown raised.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
102	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	8.0	6.0	0.19	0.27	2.28	1.91	Mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Moderate**	Part of a closely spaced group of 3. Crown raised.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
103	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	8.0	6.0	0.23	0.28	2.76	1.94	Mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Moderate**	Part of a closely spaced group of 3. Crown raised.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
104	*Eucalyptus microcorys*	**Tallowood**	18.0	11.0	0.60	0.74	7.20	2.92	Mature	Good	Average		Long (>40 years)	**Moderate**	One of a group of three trees to be retained and protected	Minor incursion (10%) on western edge of TPZ due to excavations for detentiona basin, construction carparking/ road. Minor root loss expected.	Retain and Protect
105	*Eucalyptus saligna*	**Sydney Blue Gum**	17.0	11.0	0.56	0.86	6.72	3.11	Mature	Good	Average		Long (>40 years)	**High**	One of a group of three trees to be retained and protected	Minor incursion (5%) on western edge of TPZ due to excavations for construction carparking/ road. Minor root loss expected.	Retain and Protect
106	*Eucalyptus saligna*	**Sydney Blue Gum**	17.0	11.0	0.65	0.89	7.80	3.15	Mature	Good	Average		Long (>40 years)	**High**	One of a group of three trees to be retained and protected	Minor incursion (8%) on western edge of TPZ due to excavations for construction carparking/ road. Minor root loss expected.	Retain and Protect
107	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	6.5	3.0	0.25	0.34	3.00	2.10	Mature	Fair	Average		Medium (15-40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
108	*Fraxinus oxycarpa 'Raywood'*	**Claret Ash**	10.5	9.0	0.46	0.53	5.52	2.53	Mature	Fair	Average	Decay-Minor, Tip Dieback, Epicormic Growth	Medium (15-40 years)	**Low**	Previously lopped.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
109	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	7.5	6.5	0.35	0.48	4.20	2.43	Mature	Fair	Average	Asymmetric Canopy	Medium (15-40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
110	*Fraxinus oxycarpa 'Raywood'*	**Claret Ash**	10.5	9.0	0.55	0.58	6.60	2.63	Mature	Fair	Average	Decay-Minor, Tip Dieback, Epicormic Growth	Medium (15-40 years)	**Low**	Previously lopped.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
111	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	7.5	6.5	0.25	0.37	3.00	2.18	Mature	Fair	Average	Asymmetric Canopy	Medium (15-40 years)	**Low**	Previously lopped.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
118	*Lophostemon confertus*	**Brush Box**	4.5	2.0	0.11	0.18	2.00	1.61	Young	Good	Good	Pest/Disease	Long (>40 years)	**Moderate**	New street tree. Sooty mold.	Outside expected works. Nil impact.	Retain and Protect
119	*Eucalyptus tereticornis*	**Forest Red Gum**	15.0		1.02	1.13	12.24	3.48	Mature	Fair	Average	Tip Dieback, Epicormic Growth	Medium (15-40 years)	**Moderate**	Leader lost at 8.0m	Outside expected works. Very minor potential incursions. Nil impact.	Retain and Protect
120	*Jacaranda mimosifolia*	**Jacaranda**	9.0	7.0	0.29	0.31	3.48	2.02	Mature	Fair	Poor	Asymmetric Canopy	Medium (15-40 years)	**Low**		Outside expected works. Nil impact.	Retain and Protect
121	*Eucalyptus saligna ?*	**Sydney Blue Gum**	10.0	8.0	0.38	0.48	4.56	2.43	Semi-mature	Good	Average	Co-dominant Stems	Long (>40 years)	**Moderate**		Outside expected works. Very minor potential incursions. Nil impact.	Retain and Protect
127	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	4.0	3.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
128	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	4.0	3.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
129	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	4.0	3.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
132	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	4.0	3.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
133	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	2.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
134	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	2.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
135	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	2.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
136	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	2.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
137	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	2.0	0.25	0.25	3.00	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
138	*Eucalyptus tereticornis*	**Forest Red Gum**	15.0	12.0	0.60	0.60	7.20	2.67	Mature	Fair	Average	Tip Dieback, Epicormic Growth Deadwood-Major	Medium (15-40 years)	**Low**		Outside expected works. Nil impact.	Retain and Protect
139	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	4.5	3.0	0.22	0.32	2.64	2.05	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
140	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	2.0	0.13	0.15	2.00	1.49	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
141	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	3.0	0.21	0.25	2.52	1.85	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
142	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	3.0	0.19	0.20	2.28	1.68	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect
143	*Callistemon viminalis cv.*	**Weeping Bottlebrush**	3.5	3.0	0.19	0.23	2.28	1.79	Mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Moderate**	Part of row planting along fence line. Most have been lopped at 2.0m. Provide good screen to street.	Outside expected works. Nil impact.	Retain and Protect

Tree ID	Tree Species	Common Name	Height (m)	Spread (m)	Trunk Diameter Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Incursion and Impact	Recommendation
144	*Eucalyptus tereticornis*	**Forest Red Gum**	13.5	12.0	0.80	0.97	9.60	3.27	Mature	Fair	Average	Tip Dieback, Epicormic Growth, Deadwood-Major	Medium (15-40 years)	**Low**	Numerous stem cankers.	Outside expected works. Very minor potential incursions. Minimal impact.	Retain and Protect
145	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	9.0	6.0	0.23	0.27	2.76	1.91	Mature	Good	Average	Asymmetric Canopy, Lean-Minor	Medium (15-40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
146	*Sapium sebiferum*	**Chinese Tallow Tree**	7.5	8.0	0.23	0.30	2.76	2.00	Semi-mature	Good	Good		Long (>40 years)	**Moderate**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
147	*Sapium sebiferum*	**Chinese Tallow Tree**	7.0	8.0	0.25	0.35	3.00	2.13	Semi-mature	Good	Good		Long (>40 years)	**Moderate**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
148	*Olea europaea subsp. africana*	**African Olive**	7.0	6.0	0.22	0.38	2.64	2.20	Mature	Good	Poor	Co-dominant Stems	Long (>40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
149	*Morus nigra*	**Mulberry**	6.5	8.0	0.21	0.39	2.52	2.23	Mature	Good	Average		Medium (15-40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
150	*Archontophoenix alexandrae*	**Alexandra Palm**	4.0	3.0	0.14	0.35	2.00	2.13	Mature	Fair	Average	Decay-Major	Short (5-15 years)	**V Low / Remove**	Major decay in western larger stem. Should remove.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
151	*Pyrus calleryana cv.*	**Callery Pear**	4.0	3.0	0.10	0.15	2.00	1.49	Semi-mature	Fair	Good		Medium (15-40 years)	**Low**		Removal requested as part of Stage 1 Demolition DA	Remove
152	*Cupressus sempervirens 'Swanes Golden' x 8*	**Swanes Golden Pencil Pine**	9.4	1.0	0.15	0.20	2.00	1.68	Mature	Good	Good		Medium (15-40 years)	**Low**	Group of 8. Very closely planted to existing building and pathway	Removal requested as part of Stage 1 Demolition DA	Remove
153	*Meterosideros excelsa*	**NZ Christmas Tree**	5.0	4.0	0.13	0.10	2.00	1.26	Mature	Fair	Poor	Asymmetric Canopy	Medium (15-40 years)	**Low**	Very close to building and other trees.	Removal requested as part of Stage 1 Demolition DA	Remove
154	*chamaecyparis sp. cv.*	**False Cypress ?**	3.5	3.0	0.09	0.10	2.00	1.26	Mature	Fair	Suppressed	Asymmetric Canopy	Medium (15-40 years)	**V Low / Remove**	Very close to building and other trees. Very poor form.	Removal requested as part of Stage 1 Demolition DA	Remove
155	*Acer palmatum*	**Japanese Maple**	3.5	4.0	0.23	0.25	2.76	1.85	Mature	Good	Good		Medium (15-40 years)	**Low**		Removal requested as part of Stage 1 Demolition DA	Remove
156	*Cupressus macrocarpa cv. x 2*	**Monterey Cypress**	7.2	4.0	0.24	0.33	2.88	2.08	Mature	Fair	Poor	Tip Dieback	Short (5-15 years)	**Low**	Crown raised and tip dieback evident.	Removal requested as part of Stage 1 Demolition DA	Remove
157	*Eucalyptus tereticornis?*	**Forest Red Gum**	7.0	2.4	0.12	0.25	2.00	1.85	Young	Good	Average	Co-dominant Stems	Long (>40 years)	**Low**	Self down sapling. could be retained if not impacting on site planning. Close to powerlines.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
158	*Cupressus sempervirens 'Swanes Golden' x 3*	**Swanes Golden Pencil Pine**	6.0	0.5	0.08	0.10	2.00	1.26	Semi-mature	Good	Good		Medium (15-40 years)	**Moderate**	Group of 3.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
159	*Cupressus sempervirens 'Swanes Golden' x 5*	**Swanes Golden Pencil Pine**	6.5	0.8	0.10	0.15	2.00	1.49	Semi-mature	Good	Good		Medium (15-40 years)	**Moderate**	Group of 5	Within building area footprint or major site disturbance area. Unable to be retained	Remove
160	*Cupressus sempervirens 'Swanes Golden' x 6*	**Swanes Golden Pencil Pine**	6.5	0.8	0.09	0.15	2.00	1.49	Semi-mature	Fair	Average		Short (5-15 years)	**Low**	Group of 6. Very close to building line. one with suspected mite damage, lower level die back.	Within building area footprint or major site disturbance area. Unable to be retained	Retain and Protect (4 western specimens only)
161	*Cupressus sempervirens 'Swanes Golden' x 9*	**Swanes Golden Pencil Pine**	6.5	0.5	0.08	0.10	2.00	1.26	Semi-mature	Fair	Average		Short (5-15 years)	**Low**	Group of 9. Very close to building line and driveway. One growing under and into satellite dish.	Removal of 4 northern specimens requested as part of Stage 1 Demolition DA. Southern specimens to be retained and protected. No impact expected	Retain and Protect (5 southern specimens only)
162	*Cupressus sempervirens 'Swanes Golden' x 3*	**Swanes Golden Pencil Pine**	6.5	0.5	0.06	0.07	2.00	1.08	Semi-mature	Good	Average		Short (5-15 years)	**Low**	Group of 3. Very close to building line.	Removal requested as part of Stage 1 Demolition DA	Remove
163	*Cupressus sempervirens 'Swanes Golden' x 3*	**Swanes Golden Pencil Pine**	8.5	1.0	0.10	0.12	2.00	1.36	Semi-mature	Good	Good		Short (5-15 years)	**Moderate**	Group of 3. Very close to path but screening electrical kiosk. Good specimens	Outside immediate works area. Nil impact expected	Retain and Protect
164	*Lagerstroemia indica*	**Crepe Myrtle**	5.0	5.0	0.35	0.35	4.20	2.13	Semi-mature	Excellent	Good		Long (>40 years)	**High**	Very good tree, could be transplanted. Multitrunked from ground. only DGL recorded. Some crossing and fused branches.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
165	*Thuja orientalis cv. X 3*	**Chinese Arborvitae**	5.5	2.0	0.18	0.16	2.16	1.53	Mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
166	*Lagerstroemia indica*	**Crepe Myrtle**	5.5	5.0	0.52	0.52	6.24	2.51	Semi-mature	Excellent	Good		Long (>40 years)	**High**	Very good tree, could be transplanted. Multitrunked from ground. only DGL recorded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
167	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	7.0	8.0	0.26	0.28	3.12	1.94	Semi-mature	Good	Average	Co-dominant Stems Inclusions	Medium (15-40 years)	**Moderate**	Recent amenity planting.	Adjacent to existing carpark. Minimal work nearby. Incursion less than 10%	Retain and Protect
168	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	6.5	6.0	0.22	0.20	2.64	1.68	Semi-mature	Good	Average	Co-dominant Stems, Inclusions, Congested Branches	Medium (15-40 years)	**Moderate**	Recent amenity planting.	Adjacent to existing carpark. Minimal work nearby. Incursion less than 10%	Retain and Protect
169	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	7.5	6.0	0.19	0.26	2.28	1.88	Semi-mature	Good	Poor	Co-dominant Stems, Inclusions Congested Branches, Lean-Minor	Medium (15-40 years)	**Low**	Recent amenity planting.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
170	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	7.5	6.0	0.19	0.18	2.28	1.61	Semi-mature	Good	Poor	Co-dominant Stems, Inclusions, Congested Branches	Medium (15-40 years)	**Low**	Recent amenity planting. Pink flowering variety.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
171	*Tibouchina lepidota*	**Lasiandra**	3.5	6.0	0.20	0.19	2.40	1.65	Mature	Good	Average		Medium (15-40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
172	*Prunus cerasifera 'Nigra'*	**Purple-leaved Cherry-plum**	3.5	3.0	0.12	0.12	2.00	1.36	Semi-mature	Good	Good		Medium (15-40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
173	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	7.0	6.0	0.10	0.15	2.00	1.49	Semi-mature	Good	Average	Co-dominant Stems, Inclusions	Medium (15-40 years)	**Low**	Recent amenity planting. Pink flowering variety.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
174	*Robinia pseudoacacia 'Frisia'*	**Black Locust**	7.0	6.0	0.15	0.21	2.00	1.72	Semi-mature	Good	Average	Co-dominant Stems, Inclusions	Medium (15-40 years)	**Low**	Recent amenity planting.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
175	*Syagrus romanzoffiana*	**Queen Palm**	8.0	4.0	0.31	0.47	3.72	2.41	Mature	Good	Good		Long (>40 years)	**V Low / Remove**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
176	*Jacaranda mimosifolia*	**Jacaranda**	6.0	6.0	0.27	0.33	3.24	2.08	Mature	Fair	Average	Tip Dieback, Co-dominant Stems	Long (>40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
177	*Sapium sebiferum*	**Chinese Tallow Tree**	6.0	3.0	0.10	0.15	2.00	1.49	Young	Good	Good		Long (>40 years)	**Moderate**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
178	*Hymenosporum flavum*	**Native Frangipani**	10.0	3.0	0.14	0.20	2.00	1.68	Semi-mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Moderate**		Outside works area. Nil impact	Retain and Protect
179	*Brachychiton acerifolius*	**Illawarra Flame Tree**	4.0	2.5	0.11	0.14	2.00	1.45	Semi-mature	Good	Good		Long (>40 years)	**Moderate**		Outside works area. Nil impact	Retain and Protect
180	*Waterhousea floribunda*	**Weeping Lilly Pilly**	7.0	2.0	0.11	0.16	2.00	1.53	Young	Good	Average		Long (>40 years)	**Moderate**		Outside works area. Nil impact	Retain and Protect
181	*Hymenosporum flavum*	**Native Frangipani**	9.0	6.5	0.19	0.23	2.28	1.79	Semi-mature	Good	Good		Medium (15-40 years)	**Moderate**		Outside works area. Nil impact	Retain and Protect
182	*Melaleuca bracteata*	**Black Tea-Tree**	5.0	2.0	0.07	0.10	2.00	1.26	Semi-mature	Fair	Suppressed		Short (5-15 years)	**Low**		Outside works area. Nil impact	Retain and Protect
183	*Hibiscus heterophylla*	**Coast Cottonwood**	4.5	3.0	0.11	0.15	2.00	1.49	Semi-mature	Good	Average		Short (5-15 years)	**Low**		Outside works area. Nil impact	Retain and Protect

Tree ID	Tree Species	Common Name	Height (m)	Spread (m)	Trunk Diameter Breast Height (dbh) (m)	Trunk Diameter at base (dgl) (m)	Nominal TPZ radius (m) 12xdbh (AS 4970)	Nominal SRZ radius (m) (AS 4970)	Age Class	Current Vigour	Current Form	Noted Defects	SULE Rating	Retention Value	General Comments and Notes	Incursion and Impact	Recommendation
184	*Hymenosporum flavum*	**Native Frangipani**	7.0	5.0	0.16	0.23	2.00	1.79	Semi-mature	Good	Good		Medium (15-40 years)	**Moderate**		Outside works area. Nil impact	Retain and Protect
185	*Brachychiton acerifolius*	**Illawarra Flame Tree**	4.5	2.0	0.10	0.14	2.00	1.45	Young	Good	Good	Inclusions	Long (>40 years)	**Moderate**	Suspected nursery tie left around trunk.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
186	*Archontophoenix alexandrae*	**Alexandra Palm**	3.5	3.0	0.13	0.21	2.00	1.72	Semi-mature	Fair	Average		Medium (15-40 years)	**Low**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
187	*Betula pendula x 3*	**Silver Birch**	7.0	4.0	0.11	0.17	2.00	1.57	Semi-mature	Poor	Average	Asymmetric Canopy, Lean-Minor	Medium (15-40 years)	**Low**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
188	*Cupressus sempervirens 'Stricta'*	**Pencil Pine**	9.5	1.0	0.11	0.14	2.00	1.45	Mature	Good	Average		Medium (15-40 years)	**Low**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
189	*Pyrus calleryana cv.*	**Callery Pear**	4.5	4.0	0.13	0.13	2.00	1.40	Mature	Good	Average	Asymmetric Canopy	Long (>40 years)	**Low**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
190	*Gleditsia triacanthos*	**Honey Locust**	5.0	5.0	0.07	0.09	2.00	1.20	Mature	Good	Average		Long (>40 years)	**Low**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
191	*Koelreuteria bipinnata*	**Chinese Rain Tree**	5.5	4.0	0.10	0.12	2.00	1.36	Mature	Good	Average		Long (>40 years)	**Moderate**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Within building area footprint or major site disturbance area. Unable to be retained	Remove
192	*Cupressus sempervirens 'Swanes Golden' x 3*	**Swanes Golden Pencil Pine**	8.0	4.0	0.08	0.10	2.00	1.26	Mature	Good	Average		Long (>40 years)	**Moderate**	Group of 3. Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
193	*Cupressus sempervirens 'Stricta'*	**Pencil Pine**	5.0	0.5	0.05	0.06	2.00	1.02	Mature	Good	Average		Long (>40 years)	**Moderate**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
194	*Acer palmatum*	**Japanese Maple**	5.0	3.0	0.10	0.10	2.00	1.26	Semi-mature	Good	Average	Asymmetric Canopy	Long (>40 years)	**Moderate**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
195	*Gleditsia triacanthos*	**Honey Locust**	5.5	5.0	0.08	0.10	2.00	1.26	Semi-mature	Good	Average	Asymmetric Canopy	Long (>40 years)	**Moderate**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
196	*Magnolia grandiflora*	**American Bull Bay Magnolia**	5.0	3.0	0.06	0.08	2.00	1.15	Semi-mature	Fair	Average	Asymmetric Canopy	Long (>40 years)	**Low**	Part of sunken garden planting adjacent to recent RACF building. Close to walls and building and planting density quite crowded.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
197	*Cupressus sempervirens 'Swanes Golden' x 3*	**Swanes Golden Pencil Pine**	6.0	0.5	0.07	0.08	2.00	1.15	Semi-mature	Good	Good		Medium (15-40 years)	**Moderate**	Group of 3	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
198	*Betula pendula x 7*	**Silver Birch**	6.0	3.0	0.10	0.16	2.00	1.53	Semi-mature	Fair	Average	Lean-Minor	Medium (15-40 years)	**Low**		Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
199	*Gleditsia triacanthos*	**Honey Locust**	8.0	4.0	0.08	0.11	2.00	1.31	Semi-mature	Fair	Average		Medium (15-40 years)	**Low**	Planted very close to building and other trees.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
200	*Magnolia grandiflora*	**American Bull Bay Magnolia**	8.0	4.0	0.04	0.06	2.00	1.02	Semi-mature	Fair	Average		Medium (15-40 years)	**Moderate**	Planted very close to building and other trees.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
201	*Ginkgo biloba*	**Ginkgo or Maidenhair Tree**	8.0	4.0	0.07	0.12	2.00	1.36	Semi-mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Low**	Planted very close to building and other trees.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
202	*Cupressus sempervirens 'Swanes Golden'*	**Swanes Golden Pencil Pine**	6.0	0.5	0.06	0.09	2.00	1.20	Semi-mature	Good	Good	Asymmetric Canopy	Medium (15-40 years)	**Moderate**	Planted very close to building and other trees.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
203	*Cupressus sempervirens 'Stricta'*	**Pencil Pine**	9.0	1.0	0.10	0.11	2.00	1.31	Semi-mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Moderate**	Planted very close to building and other trees.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
204	*Pyrus calleryana cv.*	**Callery Pear**	6.5	4.0	0.14	0.15	2.00	1.49	Semi-mature	Good	Average	Congested Branches	Medium (15-40 years)	**Moderate**	Planted very close to building and other trees. Crown lifted on one side for road.	Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
205	*Waterhousea floribunda*	**Weeping Lilly Pilly**	8.0	4.0	0.21	0.27	2.52	1.91	Semi-mature	Good	Average	Co-dominant Stems, Inclusions	Long (>40 years)	**Moderate**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
206	*Acmena smithii var. minor*	**Small Leaf Lilly Pilly**	5.0	2.0	0.11	0.12	2.00	1.36	Semi-mature	Poor	Average	Co-dominant Stems	Long (>40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
207	*Agonis flexuosa*	**Willow Myrtle**	5.0	2.0	0.19	0.21	2.28	1.72	Semi-mature	Good	Average	Co-dominant Stems, Inclusions	Long (>40 years)	**Low**		Within building area footprint or major site disturbance area. Unable to be retained	Remove
208	*Hymenosporum flavum*	**Native Frangipani**	8.0	2.5	0.11	0.20	2.00	1.68	Semi-mature	Good	Average	Co-dominant Stems	Medium (15-40 years)	**Low**		Nearby road works. TPZ able to befenced and protected. Minimal impacts expected.	Retain and Protect
209	*Cupressus sempervirens 'Swanes Golden'*	**Swanes Golden Pencil Pine**	8.0	2.5	0.08	0.08	2.00	1.15	Semi-mature	Good	Good	Co-dominant Stems	Medium (15-40 years)	**Moderate**		Nearby road works. TPZ able to befenced and protected. Minimal impacts expected.	Retain and Protect
210	*Persea gratissima*	**Avocado**	5.0	2.5	0.09	0.12	2.00	1.36	Semi-mature	Poor	Average	Co-dominant Stems	Short (5-15 years)	**Low**		Nearby road works. TPZ able to befenced and protected. Minimal impacts expected.	Retain and Protect
211	*Hymenosporum flavum*	**Native Frangipani**	8.0	4.0	0.15	0.19	2.00	1.65	Semi-mature	Good	Average		Medium (15-40 years)	**Moderate**		Outside works area. Landscape to be retained in current form adjoining building. Nil impacted expected.	Retain and Protect
212	*Removed 2017 (within 3m of appr. structure)*															Removed in 2017. Within 3m of approved building structure	Remove
213	*Hymenosporum flavum*	**Native Frangipani**	11.5	4.0	0.13	0.17	2.00	1.57	Semi-mature	Poor	Average	Asymmetric Canopy, Epicormic Growth	Medium (15-40 years)	**Low**	Planted very close to building	Poor condition and planted too close to existing building. Recommend removal	Remove
214	*Cupressus sempervirens 'Swanes Golden'*	**Swanes Golden Pencil Pine**	6.5	1.2	0.13	0.13	2.00	1.40	Mature	Good	Average		Medium (15-40 years)	**Low**		Outside works area. Nil impact	Retain and Protect
215	*Cupressus sempervirens 'Swanes Golden'*	**Swanes Golden Pencil Pine**	6.5	1.2	0.15	0.15	2.00	1.49	Mature	Good	Average		Medium (15-40 years)	**Low**		Outside works area. Nil impact	Retain and Protect
216	*Callistemon citrinus cv.*	**Crimson Bottlebrush**	5.0	4.0	0.18	0.18	2.16	1.61	Mature	Good	Average	Asymmetric Canopy	Medium (15-40 years)	**Low**		Small tree, minor road works nearby. Nil impact	Retain and Protect
217	*Lophostemon confertus*	**Brush Box**	4.5	2.0	0.11	0.18	2.00	1.61	Young	Good	Good		Long (>40 years)	**Moderate**	New street tree.	Within building area footprint or major site disturbance area. Unable to be retained	Retain and Protect
219	*Lagerstroemia indica*	**Crepe Myrtle**	4.0	2.5	0.19	0.19	2.28	1.65	Semi-mature	Good	Average		Medium (15-40 years)	**Moderate**	Multistemmed from base.	Outside works area. Nil impact	Retain and Protect