

# Arboricultural Impact Assessment



**St Luke's Grammar School – New Senior Campus  
Midson Group  
800 Pittwater Road  
Dee Why NSW 2099**

**1 November 2019**

C91488

**ASSESSMENT & REPORT COMMISSIONED BY:**

Toby James  
Project Manager  
Midson Group  
Suite 7, 33 Alexandra Street  
Hunters Hill NSW 2110

**ASSESSMENT & REPORT PREPARED BY:**

Kane Hollstein  
AQF Level 5  
Consulting Arborist

1 November 2019

Toby James  
Project Manager  
Midson Group  
Suite 7, 33 Alexandra Street  
Hunters Hill NSW 2110

Ref: Midson Group – St Luke's Grammar School – New Senior Campus

**Arboricultural Impact Assessment for sixty-two (62) trees located within the vicinity of the proposed redevelopment of 800 Pittwater Road, Dee Why and 224 Headland Rd, North Curl Curl**

Dear Toby,

We are pleased to provide you with the following Arboricultural Impact Assessment for sixty-two (62) site trees within of 800 Pittwater Road, Dee Why and 224 Headland Rd, North Curl Curl.

Complete use of this report is authorised under the conditions limiting its use as stated in Appendix A Item 7 of *"Arboricultural Reporting Assumptions and Limiting Conditions"*.

Should you have any queries relating to this report, its recommendations, or the options considered please do not hesitate to contact us on 1300 272 671.

Regards



**Kane Hollstein**

Consulting Arborist  
Dip. Arb., AQF Level 5

## Table of Contents

1	Executive Summary .....	4
2	Introduction.....	5
3	Scope .....	5
4	Methodology.....	6
4.1	Data Collection .....	6
4.2	Tree Protection Zones.....	6
4.3	Retention Values.....	6
4.4	Images and Site Photographs .....	6
5	Observations .....	7
5.1	Aerial Images .....	7
5.2	Site Details .....	8
5.3	Heritage and Vegetation Status .....	8
5.4	Site Trees.....	10
5.5	Proposed Construction.....	11
5.6	Determining Tree Retention Values .....	12
5.7	Category A Trees (High Retention Value).....	13
5.8	Category B Trees (Moderate Retention Value).....	15
5.9	Category C Trees (Low Retention Value) .....	17
5.10	Category U Trees (Unsuitable for Retention).....	19
6	Discussion .....	21
6.1	Major and Minor TPZ Encroachment .....	21
6.2	Impact of Proposed Development.....	21
6.3	TPZ Encroachment .....	21
6.4	Proposed Pruning .....	22
6.5	Additional Excavation/Trenching within TPZs .....	22
7	Recommendations .....	23
7.1	Tree Removal.....	23
7.2	Tree Retention .....	23
7.3	Tree Pruning .....	23
7.4	Protection and Reporting Measures During Construction .....	24
7.5	Activities Prohibited within the TPZ.....	24
7.6	Protective Fencing Specification .....	25
7.7	Trunk and Ground Protection .....	26
7.8	Tree Protection Signs.....	27
7.9	Project Arborist.....	27
7.10	Project Milestones.....	28
7.11	Compliance Reporting.....	28
7.12	Offset Tree Planting .....	28
7.13	Trenching for Installation of Underground Services .....	29
8	References .....	29
9	Appendices.....	30
9.1	Appendix A – Arboricultural Reporting Assumptions and Limiting Conditions .....	30
9.2	Appendix B – Explanation of Tree Assessment Terms .....	31
9.3	Appendix C – Tree Assessment Data .....	35

## 1 Executive Summary

- 1.1.1 The following Arboricultural Impact Assessment (Report) regards sixty-two (62) trees located within the grounds of 800 Pittwater Road, Dee Why. The subject site was identified by the Client as possessing trees that may be impacted by a proposed development.
- 1.1.2 In part, the project scope was to nominate subject trees that can be retained, or require removal to facilitate this development, as well as identify and reduce potential conflicts between subject trees and site development. Accurate information on the area required for tree retention and methods/techniques suitable for tree protection during construction have been provided.
- 1.1.3 An arborist inspection of the subject trees was undertaken on 26 July 2019, where tree data was collected.
- 1.1.4 Tree retention values have been determined based upon the assessment of the trees' health, structure, dimensions, age class, life expectancy, location and environmental amenity/significance in accordance with British Standard BS 5837–2012: *Trees in Relation to Design, Demolition and Construction*. The Tree Protection Zone (TPZ) method has been derived from Australian Standard AS 4970–2009: *Protection of Trees on Development Sites*. The TPZ is defined as a specified area above and below ground and at a given distance measured radially away from the centre of the tree's trunk and which is set aside for the protection of its roots and crown.
- 1.1.5 Two (2) trees were of Category A retention value. Typically trees in this category were of a significant size in the landscape, possess fair to good health and structure, a Useful Life Expectancy (ULE) of more than 25 years, made significant amenity contributions to the landscape and made high environmental contributions. Category A retention value trees are 1 and 2 and have High Retention Value.
- 1.1.6 Seven (7) tree were of Category B retention value. Trees in this category were typically of a medium size, had good to fair health and good to fair structure, and a Useful Life Expectancy (ULE) of more than 15 years. Moderate Retention Value trees made moderate amenity contributions to the landscape, and made low to moderate environmental contributions. Category B retention value trees are 19, 20, 22, 25, 26, 27 and 31 and have a Moderate Retention Value.
- 1.1.7 Forty-Three (43) trees were of Category C retention value. Trees in this category were typically of small–medium size, of low significance in the landscape, may have poor health or structure, are easily replaceable and do not warrant design consideration. Category C retention value trees are 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 21, 23, 24, 28, 29, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 61 and 62 and have a Low Retention Value.
- 1.1.8 Ten (10) trees were of Category U retention value. Trees in this category were typically of poor health and/or structure, of undesirable species and are recommended for removal irrespective of site development. Category U retention value trees are 13, 14, 15, 16, 17, 18, 30, 41, 44 and 52.
- 1.1.9 Category B Tree 22 and Category C Trees 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 35, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 50, 51, 54 and 62 are trees that would require removal to facilitate this development.
- 1.1.10 Trees 1 and 2 are Category A retention value trees that are to be retained and require specific protection measures during construction to ensure they remain viable following the completion of works pending whether the existing retaining wall to the south of the site can be retained in situ. It is recommended the existing retaining wall is maintained to minimise the potential for root disturbance and further encroachment in these TPZ's.
- 1.1.11 Trees 1 and 33 will require pruning within the northern and western portions of their crowns to facilitate works.

## 2 Introduction

- 2.1.1 ArborSafe Australia Pty Ltd was engaged by Toby James of Midson Group on behalf of St Luke's Grammar School (the Client) to complete an Arboricultural Impact Assessment (report) on sixty-two (62) trees located within or surrounding 800 Pittwater Road, Dee Why and 244 Headland Rd North Curl Curl.
- 2.1.2 The site is comprised of the two (2) aforementioned sites which are currently utilised as industrial units and commercial facilities.
- 2.1.3 The report has been requested as part of a State Significant Development Application (SSDA) that involves the demolition of existing buildings at 800 Pittwater Road and construction of new school facilities.
- 2.1.4 The report was intended to provide information on site trees and how they may be impacted upon by the proposed development. Report findings and recommendations provided are based upon guidance provided within Australian Standard AS 4970–2009: *Protection of Trees on Development Sites*.
- 2.1.5 Observations and recommendations provided within this report are based upon information provided by the Client and an arborist site visit.

## 3 Scope

- 3.1.1 Carry out a visual examination of the nominated trees located within the vicinity of the proposed development, including trees located within neighbouring properties.
- 3.1.2 Inspect the nominated trees and their growing environment in the context of the proposed development.
- 3.1.3 Provide an objective appraisal of the subject trees in relation to their species, estimated age, health, structural condition and viability within the landscape.
- 3.1.4 Based on the findings of this investigation, provide independent recommendations on the retention value of the trees.
- 3.1.5 Nominate subject trees that can be retained or require removal to facilitate this development.
- 3.1.6 Review the proposed development in the context of Warringah Local Environment Plan (LEP), 2011.
- 3.1.7 Identify and reduce potential conflicts between subject trees and site development by providing accurate information on the area required for tree retention and methods/techniques suitable for tree protection during construction.
- 3.1.8 Provide information on restricted activities within the area nominated for tree protection, as well as suitable construction methods to be adopted during construction.

## 4 Methodology

### 4.1 Data Collection

- 4.1.1 Kane Hollstein and Jesse Tree of ArborSafe Australia Pty Ltd carried out a site inspection of the subject trees on 26 July 2019.
- 4.1.2 Trees that are the subject of this report were identified during discussions with the client and an onsite meeting with the Project Manager, Toby James of Midson Group on 28 May 2019.
- 4.1.3 The subject trees were inspected from ground level. No foliage or soil samples were taken. No aerial or internal investigations were undertaken.
- 4.1.4 Tree height and canopy width were estimated and have been provided to the nearest whole metre. Trunk Diameter at Breast Height (DBH) was measured with a diameter tape and provided to the nearest centimetre.
- 4.1.5 Data collected on site was analysed by Kane Hollstein, collated into report format, and relevant recommendations were formulated.

### 4.2 Tree Protection Zones

- 4.2.1 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) methods have been derived from the Australian Standard AS 4970–2009: *Protection of Trees on Development Sites* (Standards Australia, 2009).
- 4.2.2 The TPZ is defined as a specified area above and below ground and at a given distance measured radially away from the centre of the tree's trunk and which is set aside for the protection of its roots and crown. It is the area required to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development. The radius of the TPZ is calculated by multiplying its DBH by 12. TPZ radius = DBH × 12. (Note "Breast Height" is nominally measured as 1.4m from ground level).
- 4.2.3 The SRZ is the area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres. SRZ radius =  $(D \times 50)0.42 \times 0.64$ .

### 4.3 Retention Values

- 4.3.1 Retention values are determined based upon the British Standard BS 5837–2012: *Trees in Relation to Design, Demolition and Construction* (The British Standards Institution, 2012). This standard categorises tree retention value based upon assessment of the tree's quality (health and structure), and life expectancy. Other criteria such as its physical dimensions, age class, location and its Amenity, Heritage and Environmental significance are also considered. A breakdown of attributes required for each category can be obtained from Appendix B – Explanation of Tree Assessment Terms.

### 4.4 Images and Site Photographs

- 4.4.1 All photographs were taken at the time of the site inspection by the inspecting arborist. Photographs have been altered for brightness and/or cropped only. Other images used within this report have been sourced from ArborSite or via the internet. The source of all images has been referenced accordingly.

## 5 Observations

### 5.1 Aerial Images



Figure 1. The red line indicates approximate site boundary. All trees within this area or properties surrounding that may be impacted by future development or may be a constraint on development have been assessed and are documented in this report. (SIX Maps, 2019).

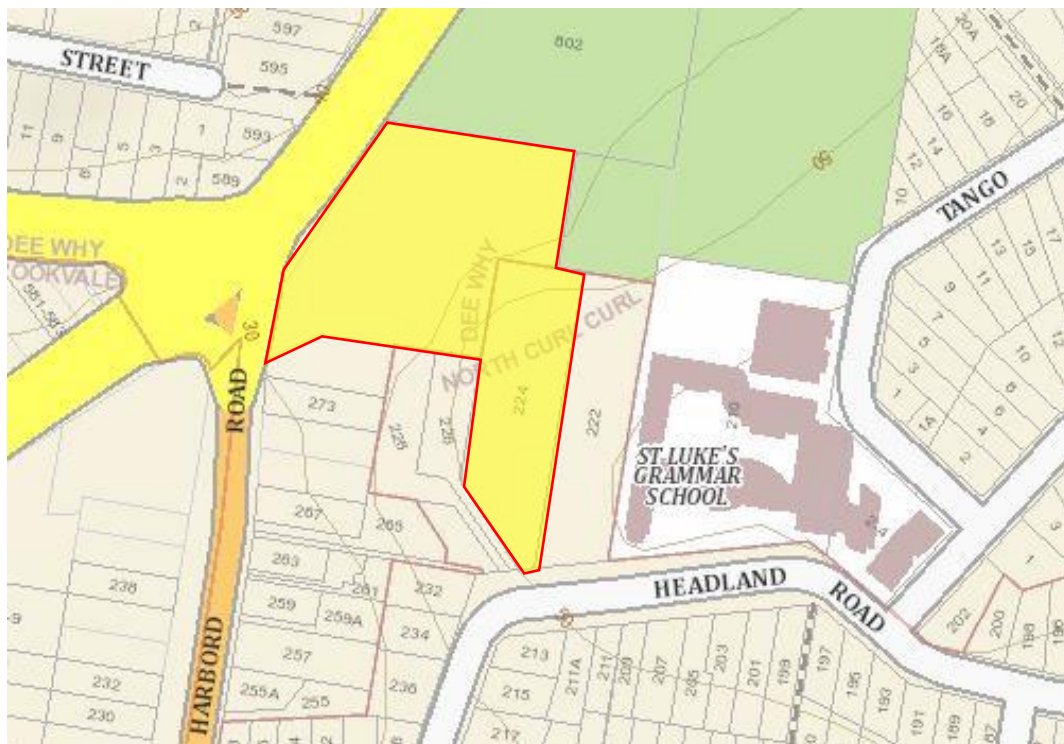


Figure 2. Plan showing property boundaries and street names. Red line delineates approximate site boundary. (SIX Maps, 2019).

## 5.2 Site Details

- 5.2.1 The subject site is comprised 800 Pittwater Road, Dee Why and 244 Headland Rd, North Curl Curl (Figure 1 and Figure 2).
- 5.2.2 The site is bounded by Stony Range Botanic Garden to the north and north-east, industrial units and St Luke's Grammar School to the east, Headland Road and industrial units to the south-west and Pittwater Road to the west.
- 5.2.3 The main building of 800 Pittwater Road is currently occupied by commercial entities including Officeworks and Fitness First among others.
- 5.2.4 The site contains hard surface parking areas extending from the buildings of 800 Pittwater Road and 224 Headland Road to the property boundaries. Retaining walls have been utilised to retain earth along the southern and northern property boundaries.
- 5.2.5 An underground carpark to the north of the site and beneath the main buildings of 800 Pittwater Road has been retained with screw piling.
- 5.2.6 Narrow garden beds containing small trees and vegetation were located to the south and along the western frontage of Pittwater Road.
- 5.2.7 Remaining surveyed vegetation was located within proximity to the proposed development along the northern and north-eastern areas adjoining Stony Range and a disused area between both properties that contained a mix of self-sown trees including *Casuarina glauca* (Swamp She oak), *Olea africana* (African Olive) and an understorey of *Lantana camara* (Lantana) all located on a steep gradient with a north-westerly aspect.
- 5.2.8 The soil landscape for the site is likely to be disturbed which is typical of an urban setting. Soil type is therefore expected to deviate from its natural state due to extensive previous site development and its location within an urban area. (State Government of NSW and Office of Environment and Heritage (OEH), 2015) indicates the site is within an area mapped as the GyMEA soil group.

## 5.3 Heritage and Vegetation Status

- 5.3.1 800 Pittwater Road, Dee Why is listed in the Warringah Local Environment Plan (LEP), 2011. As identified in the SEARS application (Tonkin Zulaikha Greer Architects, 2019) this pertains to the original building façade.
- 5.3.2 Stony Range Botanic Garden which borders the property is also listed in the Warringah LEP. The plant community of this site is mapped *Smooth-barked Apple - Red Bloodwood open forest on enriched sandstone slopes around Sydney and the Central Coast*.

- 5.3.3 Figure 3 is an aerial view of Dee Why and its surrounds. While the 1943 imagery indicates vegetation to be present on site, given the size, species and age class of extant trees, it is unlikely any trees considered as part of this report were in existence at this time.



Figure 3. 1943 imagery of the site. (SIX Maps, 2019).

## 5.4 Site Trees

- 5.4.1 A total of sixty-two (62) trees were inspected and are the subject of this report. Complete attributes for each tree can be found in Appendix C – Preliminary Tree Assessment Data.
- 5.4.2 Trees to be included in the report were detailed by the client in a project briefing. No trees beyond the scope outlined by the client have been inspected as part of this report.
- 5.4.3 Trees can be identified on site using tree tags which are typically located at approximately 2.0m from ground level on the southern side of the trunk. Figure 4 depicts the tree locations.

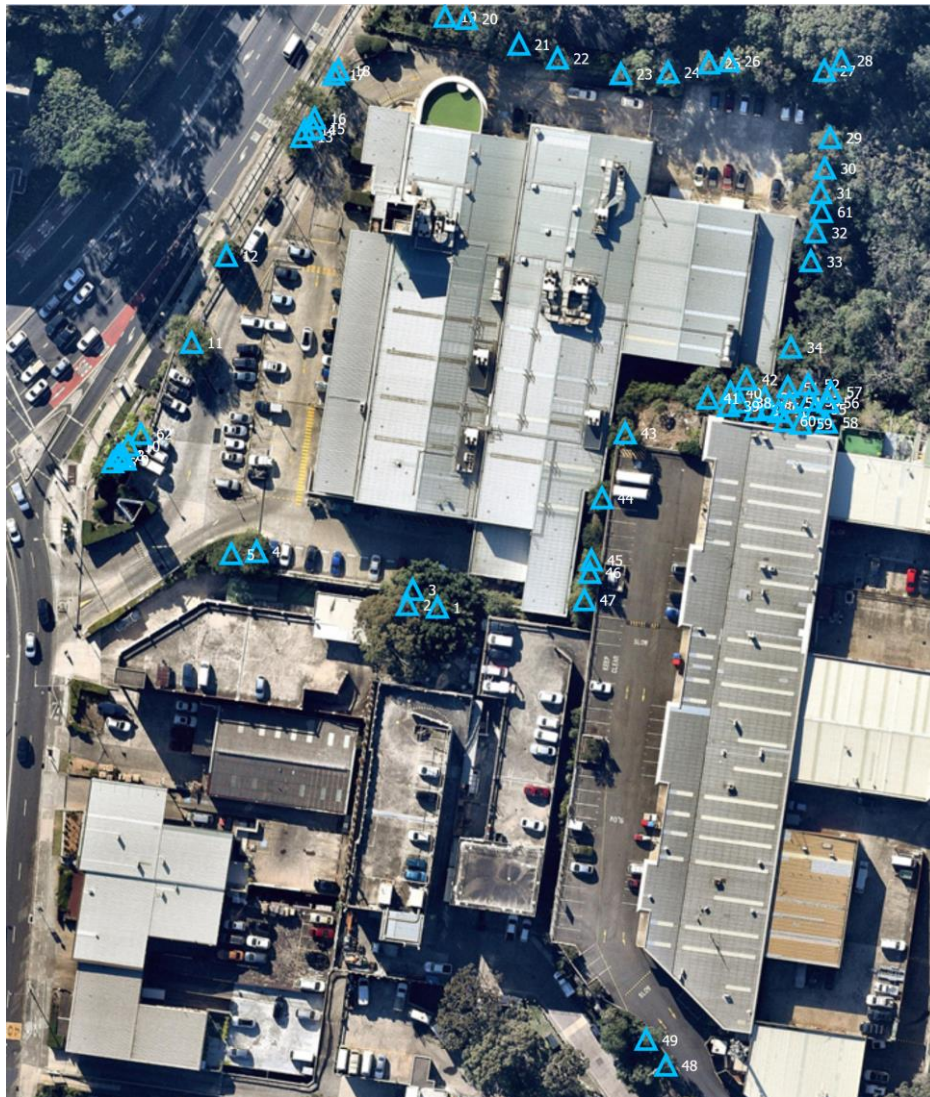


Figure 4. Trees subject to this report as represented with numbered blue icons. (ArborSafe, 28 October 2019).

## 5.5 Proposed Construction

5.5.1 Plans of the existing site (Figure 5) and of the proposed development were provided to ArborSafe and include:

- St Luke's Grammar School – New Senior School Campus Drawing Package, A000-A602, Rev A, Tonkin Zulakha Greer Architects, October 2019
- Landscape Concept Design Package, LD – 001-LD - 401, Issue A, Spackman Mossop Michaels Architects, 30/09/2019
- Preliminary Geotechnical Assessment: Proposed St Luke's Grammar School Senior School and Sports Centre, Martens Consulting Engineers, October 2019.

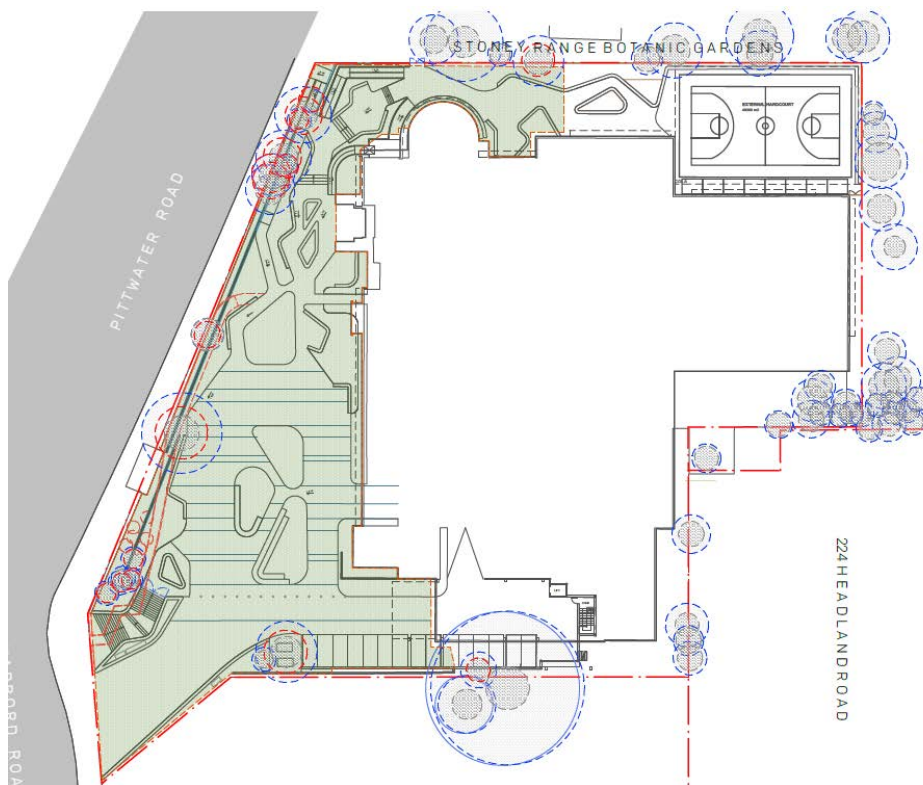


Figure 5. Excerpt from Depp Soil Plan (L401, Issue A (Spackman Mossop Michaels, 2019)).

5.5.2 The proposed development has been reviewed and in summary consists of:

### Stage 1

- Removal of existing internal walls to create large open space for two basketball courts within footprint of former Units 2–6 of 224 Headland Road
- In Stage 1 Basketball courts will also be used as Dance Studio and Multi-Purpose Hall
- New pedestrian access path from street as proposed in DA2019/0977.

### Stage 2

- Internal refurbishment of IMED and Fitness First tenancies as per Architectural drawings
- Landscaping to Northern portion of site as per Landscape design
- Accessible path to main entrance of school as per Architectural and Landscape drawings
- Basement North carparking reconfigured

- Basement South carparking retained
- New pedestrian path from Officeworks Basement carparking to Officeworks entrance
- Reconfiguration of the southern on-grade car park to include a drop-off/pick-up area and bus turning path
- New infill building between 224 Headland Road and 800 Pittwater Road to provide an accessible vertical connection.

### Stage 3

- Internal refurbishment of Officeworks as per Architectural drawings
- New extension to south of existing building as per Architectural drawings
- Temporary spaces in Stage 2 reconfigured as per Architectural drawings
- Landscaping to remainder of site as per Landscape design
- Front parking area to be reconfigured to accommodate bus and kiss and drop area
- Basement carpark reconfigured, entrance to carpark relocated to South.

5.5.3 No proposed underground service locations have been reviewed in the preparation of this report.

## 5.6 Determining Tree Retention Values

5.6.1 Tree Retention Value has been determined based on a combination of tree attributes. Tree retention value is categorised as per the British Standard BS 5837–2012: *Trees in Relation to Design, Demolition and Construction*. Attribute considered when determining the retention value include tree health, structure and form, life expectancy, suitability of the tree in the context of local landscape. Arboricultural, Cultural, Environmental and Heritage significance are all also considered within the subcategories identified.

5.6.2 Collectively tree attributes are reviewed and used to categorise tree value in a development context. Additional information explaining Tree Retention Value can be found in Appendix B – Explanation of Tree Assessment Terms.

## 5.7 Category A Trees (High Retention Value)

- 5.7.1 Two (2) trees were determined to be Category A Trees. Typically trees in this category are of high quality with an estimated remaining life expectancy of at least 25 years and of dimensions and prominence that it cannot be readily replaced in <20 years. The tree may make significant amenity contributions to the landscape and may make high environmental contributions. In some cases, trees within this category may not meet the above criteria, however, possess significant heritage or ecological value. Trees of this retention value warrant design consideration and amendment to ensure their viable retention.
- 5.7.2 Category A trees are numbered 1 and 2 and are shown in Figure 6. Both trees were located within the adjoining property, being SP65574, along the southern boundary.



Figure 6. Aerial image showing location of High Retention Value Trees. Tree attributes are to be obtained from the Appendix C – Preliminary Tree Assessment Data. (ArborSafe, 28 October 2019).

- 5.7.3 Tree 1 is a *Ficus microcarpa* var. *hillii* (Hill's Weeping Fig). The tree is a prominent local feature in an otherwise heavily urbanised landscape and provides screening to and from 800 Pittwater Road and is shown in Figure 7.
- 5.7.4 Tree 1 is of good health and fair structure and has a life expectancy of 25–50 years.
- 5.7.5 The TPZ for Tree 1 is 12.8m measured at a radial distance from the centre of the trunk. However, root growth and development have likely been influenced by hard surface and a concrete retaining wall to the north. It is expected no significant roots would extend beyond the retaining wall.
- 5.7.6 Tree 2 is a *Corymbia maculata* (Spotted Gum). The tree is a prominent local feature in an otherwise heavily urbanised landscape and provides screening to and from 800 Pittwater Road and is shown in Figure 7.
- 5.7.7 Tree 2 is of good health and structure and has a life expectancy of >50 years.
- 5.7.8 The TPZ for Tree 2 is 4.8m measured at a radial distance from the centre of the trunk.



Figure 7. View to south-east of Tree 1 (Hill's Weeping Fig) and 2 (Spotted Gum) in their growing environment as shown by red numbering. (Kane Hollstein, 26 July 2019).

## 5.8 Category B Trees (Moderate Retention Value)

- 5.8.1 Seven (7) trees were considered to have a Moderate Retention Value. Typically trees in this category are of moderate quality with an estimated remaining life expectancy of 15–25 years and prominence of size dimensions that cannot be readily replaced within ten years. They may make moderate amenity contributions to the landscape and make low/moderate environmental contributions. Trees with this retention value warrant minor design consideration in an attempt to allow for their retention.
- 5.8.2 Category B trees are numbered 19, 20, 22, 25, 26, 27 and 31 and are shown in Figure 8. All Category B trees were located within Stony Range Botanic Garden in proximity to the subject site.

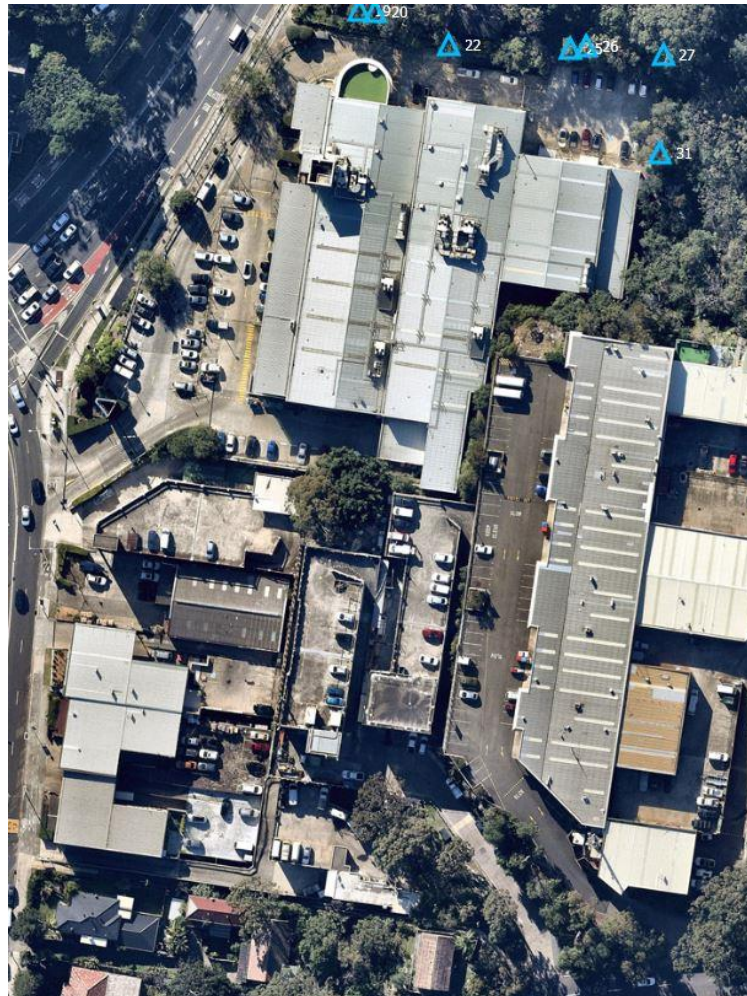


Figure 8. Aerial image showing location of Moderate Retention Value Trees. Note that icon colour indicates trees current risk rating (not Retention Value). Tree attributes are to be obtained from the Appendix C – Preliminary Tree Assessment Data. (ArborSafe, 28 October 2019).

- 5.8.3 Tree 19 is a *Eucalyptus acmenoides* (White Mahogany) and Tree 20 a *Syncarpia glomulifera* (Turpentine) located to the north of the site shown in Figure 9.
- 5.8.4 Tree 19 is of moderate size and in good health and structure with an estimated life expectancy of >50 years.
- 5.8.5 Tree 20 is of moderate size and in good health with fair structure and an estimated life expectancy of 25–50 years.
- 5.8.6 Both trees have been downgraded from Category A due to small dimensions and lack of visual prominence.
- 5.8.7 The TPZ for Tree 19 is 4.1m measured at a radial distance from the centre trunk.
- 5.8.8 The TPZ for Tree 20 is 6.5m measured at a radial distance from the centre trunk.
- 5.8.9 However, root growth and development have likely been influence by hard surfaces to the south. It is expected the volume of significant roots south of the fence line would be limited.



Figure 9. View to north of Tree 19 (left) (White Mahogany) and Tree 20 (right) (Turpentine) in their growing environment. (Kane Hollstein, 26 July 2019).



Figure 10. View to north of Tree 22 (Coast Banksia) in its growing environment. (Kane Hollstein, 26 July 2019).

- 5.8.10 Tree 22 is a *Banksia integrifolia* (Coast Banksia) tree located north of the site within Stony Range Botanic Gardens as shown in Figure 10. The tree is of good health and fair structure with an estimated life expectancy of 15–25 years.
- 5.8.11 The TPZ for Tree 22 is 4.2m measured at a radial distance from the centre trunk. However, root growth and development have likely been influence by hard surfaces and a retaining wall to the south. It is expected the volume of significant roots south of the fence line would be limited.

**5.9 Category C Trees (Low Retention Value)**

5.9.1 Forty-Three (43) trees were identified as being Category C Trees. Trees in this category are of low quality with an estimated remaining life expectancy of 5–15 years, or young trees that are easily replaceable, may have poor health and/or structure, are easily replaceable, or are of undesirable species and do not warrant design consideration.

5.9.2 Category C trees are: Trees 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 21, 23, 24, 28, 29, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 61 and 62 and are shown in Figure 11.

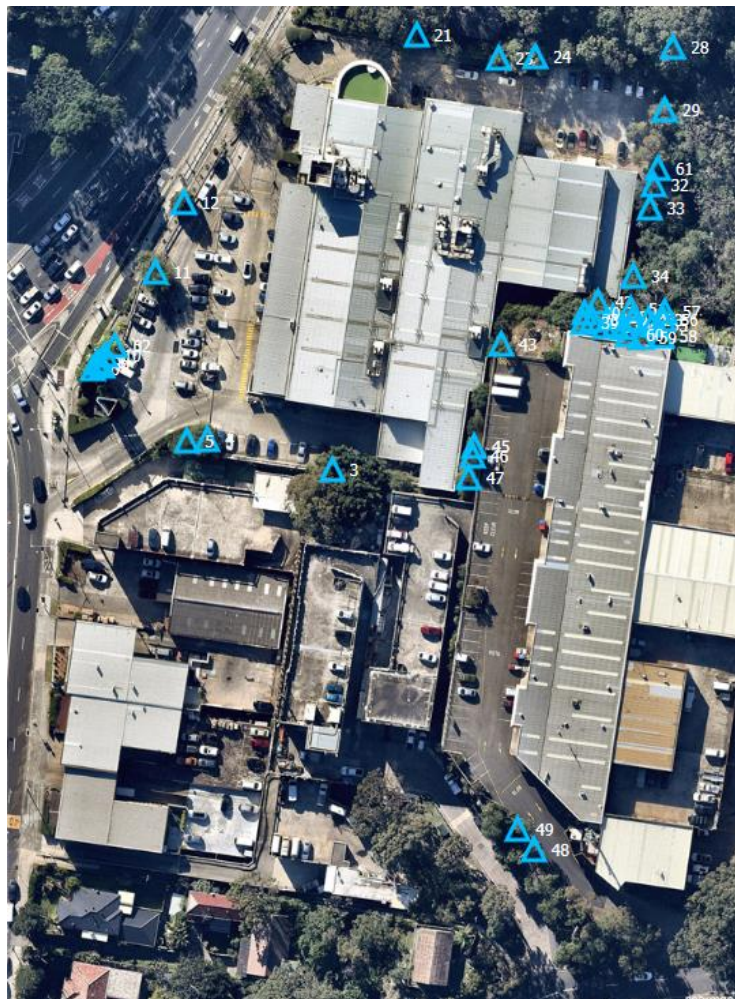


Figure 11. Aerial image showing location of Low Retention Value Trees. Tree attributes are to be obtained from the Appendix C – Preliminary Tree Assessment Data. (ArborSafe, 28 October 2019).

- 5.9.3 Tree 11 is a *Schinus areira* (Peppercorn) tree located along the western frontage of Pittwater Road as shown in Figure 12. The tree is in a visually prominent location and provides low to moderate amenity and screening. It has been downgraded from a Category B due to past poor pruning (lopping) practices (Standards Australia, 2007) which have resulted in a form not true to type and an estimated life expectancy of 10-15 years.
- 5.9.4 The TPZ for Tree 11 is 6.7m measured at a radial distance from the centre trunk.
- 5.9.5 Tree 33 is a *Banksia serrata* (Saw-toothed Banksia) tree located along the eastern property boundary within Stony Range Botanic Garden and is shown in Figure 13. The tree is an endemic species but possesses a highly asymmetrical crown towards 800 Pittwater Road due to phototropism. The tree has no visual prominence but may provide a forage source for local fauna.
- 5.9.6 The TPZ for Tree 33 is 3.8m measured at a radial distance from the centre trunk. However, root growth and development have likely been influence by a natural sandstone shelf and hard surfaces to the west. It is expected the volume of significant roots west of this would be limited.



Figure 12. View to west of Tree 11 (Peppercorn) in its growing environment. (Kane Hollstein, 26 July 2019).

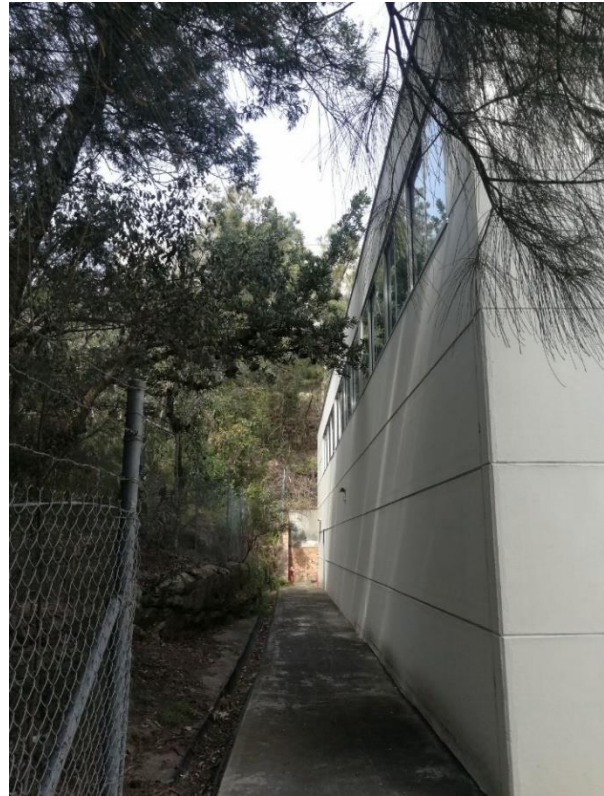


Figure 13. View to south of Tree 33 (Saw-toothed Banksia) in its growing environment. (Kane Hollstein, 26 July 2019).

## 5.10 Category U Trees (Unsuitable for Retention)

5.10.1 Ten (10) trees were found to be in such a condition that they cannot realistically be retained as viable trees in the context of the current land use for longer than five years. These trees may be dead and/or of a species recognised as a weed that resulted in them being unretainable. These trees should be removed irrespective of any future development on the site.

5.10.2 Category U Trees were 13, 14, 15, 16, 17, 18, 30, 41, 44 and 52 and are shown in Figure 14.

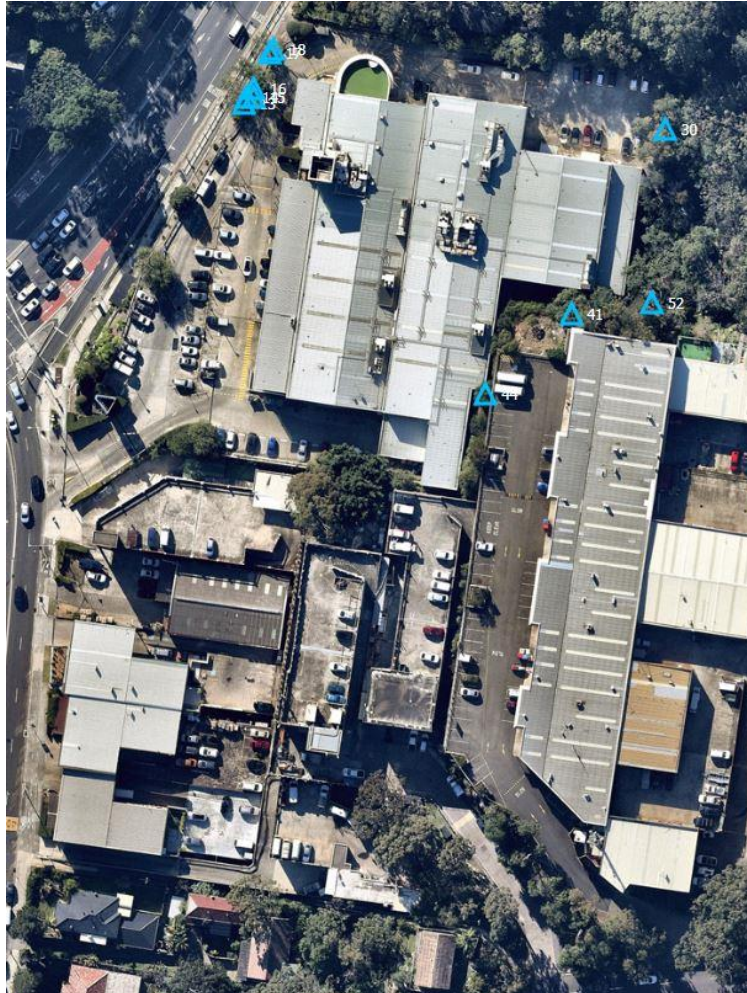


Figure 14. Aerial image showing location of Remove Retention Value Trees (Nil/No Retention Value). Tree attributes are to be obtained from the Appendix C – Preliminary Tree Assessment Data. (ArborSafe, 28 October 2019).

- 5.10.3 Trees 13–18 are *Acacia saligna* (Golden Wreath Wattle) located in the north-western corner of the site along the Pittwater Road frontage. These trees are listed as an exempt species in the Warringah Development Control Plan (DCP), 2011, are naturally short lived and are all either dead or in decline.



Figure 15. View to north of Trees 17 and 18 (Golden Wreath Wattle) in their growing environment. (Kane Hollstein, 26 July 2019).

## 6 Discussion

### 6.1 Major and Minor TPZ Encroachment

- 6.1.1 As per the Australian Standard AS 4970–2009: *Protection of Trees on Development Sites*, a major encroachment into the TPZ of any tree is considered to occur when it is beyond 10% of the total TPZ area. A minor encroachment is determined as being less than 10% of the total TPZ area.
- 6.1.2 The proposed development will significantly impact twenty-seven (27) site trees identified within this report. Trees will require removal if they are located within the development footprint or have major encroachment into their TPZs.
- 6.1.3 Trees with minor or no encroachment may be retained with specific, generic or no protection requirements throughout the construction stage.
- 6.1.4 For the purposes of this report trees to be removed or retained have been identified as those:
- Requiring removal due to major encroachment into their TPZ
  - Retainable and requiring specific protection requirements throughout construction (i.e. generic requirements plus arborist supervision and careful construction methods within their TPZ)
  - Retainable and requiring generic tree protection measures only (i.e. protective fencing and restriction of activities within the TPZ).

### 6.2 Impact of Proposed Development

- 6.2.1 Review of the proposed design has been undertaken in the context of tree retention and removal across the site. The proposal includes the internal refurbishment of existing site buildings, reconfiguration of basement car parking and associated enabling and landscape works. The proposal also includes the construction of an elevator/linking building in the vacant land between 800 Pittwater Road and 224 Headland Road.
- 6.2.2 The development will affect twenty-seven (27) site trees through encroachment via excavation into their TPZs.

### 6.3 TPZ Encroachment

- 6.3.1 Trees 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 22, 35, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 50, 51, 54 and 62 have major encroachments in their TPZ's. Retention of these trees is therefore unviable. Apart from Tree 22 (Category B), all trees are of Category C retention value.
- 6.3.2 Encroachment will occur largely due to proposed landscaping works to the north and west of the site. Construction of the elevator between 800 Pittwater Road and 224 Headland Road necessitates the removal of Trees, 35, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 50, 51 and 54. This group of trees appear to be largely self-sown and offer little amenity and/or environmental benefit.
- 6.3.3 Review of concept landscape plans indicates removal of trees along the Pittwater Road frontage are to be offset with medium to large size locally indigenous species which will achieve greater environmental and amenity benefit than existing vegetation.
- 6.3.4 Root development of Trees 1 and 2 located on adjoining property to the south of the site is expected to have been influenced by the extant concrete retaining wall. Geotechnical documentation indicates a small volume of fill above sandstone at 0.45m depth (BH101). Root penetration below the retaining wall and underneath the existing concrete footpath is unlikely. The TPZ of these trees therefore terminates at the retaining wall alignment.

- 6.3.5 The proposal includes the demolition of the concrete retaining wall to the south to achieve required RL alterations. This may result in further excavation closer to Trees 1 and 2. Therefore, the retention of the retaining wall in-situ is the preferred option, especially given their Category A status.
- 6.3.6 The remaining twenty-one (21) trees numbered 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 31, 32, 34, 53, 55, 56, 57, 58, 59, 60 and 61 located along the northern and eastern boundaries are expected to have asymmetrical root systems influenced by shored concrete walls and existing concrete footings and surfaces. The TPZ of these trees therefore is deemed to end at the alignment of these structures. Therefore, the proposed works are therefore not expected to impact these trees.

#### **6.4 Proposed Pruning**

- 6.4.1 Tree 1 has proposed development within the northern portion of its crown as part of Stage 3. It is anticipated that minor reduction and crown lifting pruning only will be required of no greater than 10% of the trees total crown volume. Due to the expected timeframe completion of Stage 3, pruning should commence immediately to achieve required clearance from the proposed building with tree growth and subsequent pruning to be reviewed every two (2) years to maintain appropriate proposed building clearance.
- 6.4.2 Tree 33 possess a strong crown bias over the existing building due to suppression. Minor reduction pruning expected to be no greater than 10% of the total crown volume will be required to achieve appropriate building and scaffold clearance.

#### **6.5 Additional Excavation/Trenching within TPZs**

- 6.5.1 In the event additional excavation is required within the TPZs of retained trees identified within this report, or any other site trees, arborist involvement will be required to ensure works are undertaken in accordance with the Australian Standard AS 4970–2009: *Protection of Trees on Development Sites*.
- 6.5.2 Excavation/trenching within the TPZs of retained trees should be undertaken using sensitive construction methods such as manual excavation, hydro-vac or air spade.

## 7 Recommendations

### 7.1 Tree Removal

- 7.1.1 Twenty-six (26) trees would require removal to facilitate this development. These are trees 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 22, 35, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 50, 51, 54 and 62.
- 7.1.2 Ten (10) trees were recommended for removal irrespective of future development on the site. These are trees 13, 14, 15, 16, 17, 18, 30, 41, 44 and 52.

### 7.2 Tree Retention

- 7.2.1 Two (2) trees, numbered 1 and 2 are recommended for retention and require specific protection measures during construction to ensure they remain viable following the completion of works pending whether the existing retaining wall to the south of the site can be retained *in-situ*. It is recommended the retaining wall is maintained to minimise the potential for root disturbance and further encroachment in these TPZ's.
- 7.2.2 Excavation and demolition are to be carried out only under arborist supervision. No excavation should occur within the SRZ of these trees.
- 7.2.3 Works should be undertaken using techniques that are sensitive to tree roots to avoid unnecessary damage. Such techniques include:
- Excavation using an adjustable high-pressure water jet and vacuum truck under arborist supervision
  - Excavation using an Air Spade with vacuum truck
  - Excavation by hand.
- 7.2.4 Machine excavation should be prohibited within the TPZs of retained trees unless undertaken at the direct consent from the project arborist.
- 7.2.5 Roots discovered are to be treated with care and minor roots (<40mm diameter) pruned with sharp, clean handsaw or secateurs. All significant roots (>40mm diameter) are to be recorded, photographed and reported to the project arborist.
- 7.2.6 Other proposed surfacing within the TPZ is to be installed above existing grade and be of a permeable nature to allow the passage of air and moisture. If the surfacing is to be load bearing, then it is suggested that a geogrid/web or similar is incorporated to ensure the rooting area below does not become compacted.
- 7.2.7 Twenty-one (21) trees numbered 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 31, 32, 34, 53, 55, 56, 57, 58, 59, 60 and 61 located to the north and east of the site are beyond the existing fence line. Installation of TPZ signage along existing or temporary fencing would achieve effective tree protection during the project.

### 7.3 Tree Pruning

- 7.3.1 Pruning is required within the northern portion of the crown of Tree 1. All pruning is to be undertaken in accordance with the Australian Standard AS 4373–2007: Pruning of Amenity Trees (Standards Australia, 2007) and undertaken by a suitably qualified arborist (minimum AQF 3 arborist). Due to the expected timeframe completion of Stage 3, pruning should commence immediately to achieve required clearance from the proposed building with tree growth and subsequent pruning to be reviewed every two (2) years to maintain appropriate proposed building clearance.
- 7.3.2 Tree 33 possess a strong crown bias over the existing building due to suppression. Minor reduction pruning expected to be no greater than 10% of the total crown volume will be required to achieve appropriate building and scaffold clearance.

7.3.3 Reduction and crown lifting pruning should focus on the removal of smaller diameter branches where feasible and remove no greater than 10% of the total crown. Branches no greater than 50mm diameter are to be removed unless specifically approved by the project arborist.

7.3.4 Irrespective of the proposed development it was recommended that trees 6, 31 and 32 are pruned as per the specifications provided within Appendix C – Tree Assessment Data.

#### **7.4 Protection and Reporting Measures During Construction**

7.4.1 All trees to be retained require protection during the construction stage. Tree protection measures include a range of:

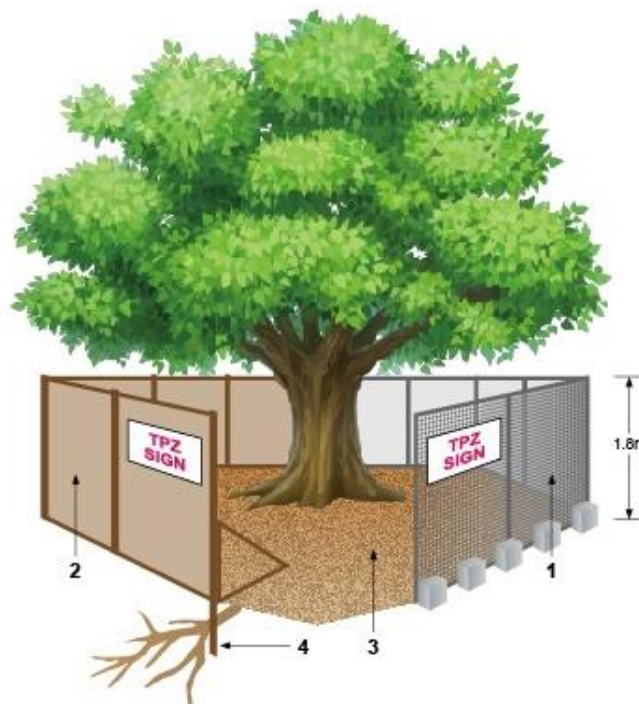
- Activities restricted within the TPZ
- Protective fencing
- Trunk and ground protection
- Tree protection signage
- Involvement from the project arborist
- Project milestones
- Compliance reporting

#### **7.5 Activities Prohibited within the TPZ**

1. Machine excavation including trenching
2. Storage
3. Preparation of chemicals, including cement products
4. Parking of vehicles and plant
5. Refuelling
6. Dumping of waste
7. Wash down and cleaning of equipment
8. Placement of fill
9. Lighting of fires
10. Soil level changes
11. Temporary or permanent installation of utilities and signs
12. Physical damage to the tree

## 7.6 Protective Fencing Specification

- 7.6.1 Protective fencing is to be installed as far as practicable from the trunk of any retained trees. Fencing should be erected as per the image below before any machinery or materials are brought to site and before commencement of works (including demolition).
- 7.6.2 In some areas of the site (i.e. protection of trees on neighbouring properties) existing boundary fencing may be used as an alternative to protective fencing.
- 7.6.3 Once erected, protective fencing must not be removed or altered without approval from the project arborist. The TPZ fencing should be secured to restrict access.
- 7.6.4 TPZ fencing is to be a minimum of 1.8m high and mesh or wire between posts must be highly visible – an example is shown in Figure 16. Fence posts and supports should have a diameter greater than 20mm and should ideally be freestanding, otherwise be located clear of the roots. See image below.
- 7.6.5 Tree protection fencing must remain intact throughout all proposed construction works and must only be dismantled after their conclusion. The temporary dismantling of tree protection fencing must only be done with the authorisation of a consulting arborist and/or the responsible authority.
- 7.6.6 The subject trees themselves must also not to be used as a billboard to support advertising material. Affixing nails or screws into the trunks of trees to display signs of any type is not a recommended practice in the successful retention of trees.



### Legend:

1. Chain wire mesh panels with shade cloth attached (if required), held in place with concrete feet
2. Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ
3. Mulch installation across surface of TPZ (at discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage materials of any kind are permitted within the TPZ
4. Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

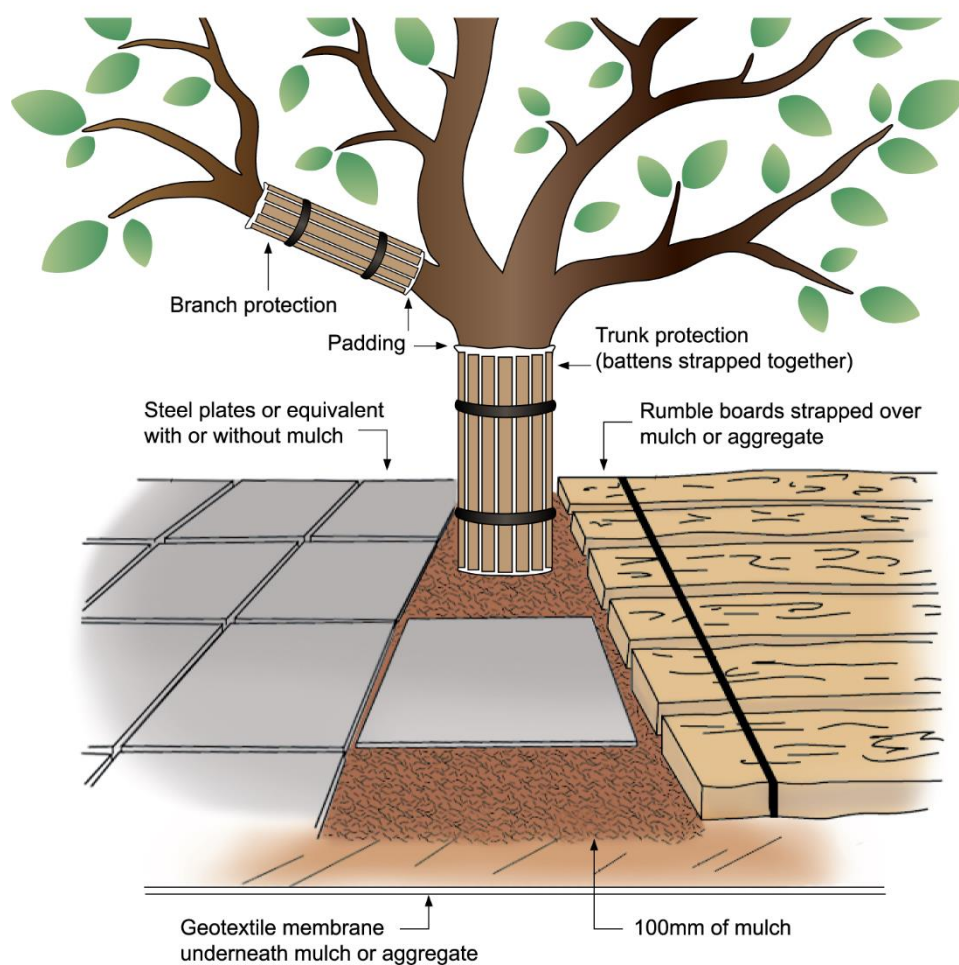
Figure 16. Depicts standard fencing techniques. (AS 4970–2009)

## 7.7 Trunk and Ground Protection

7.7.1 Given that proposed works are often within the TPZs of retained trees, standard protective fencing may not always be a viable method of protection. In these areas trunk protection and ground protection should be installed prior to the commencement of works and remain in place until after construction works have been completed.

7.7.2 Where construction access into the TPZ of retained trees cannot be avoided, the root zone of each tree must be protected using either steel plates or rumble board strapped over mulch/aggregate until such a time as permanent above ground surfacing (cellular confinement system or similar) is to be installed as shown in Figure 17.

7.7.3 Trunk and ground protection should be undertaken in line with the Australian Standard AS 4790–2009: *Protection of Trees on Development Sites* as per the image below:



### Notes:

1. For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
2. Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

Figure 17. Depicts trunk and ground protection techniques. (AS 4790–2009).

## 7.8 Tree Protection Signs

- 7.8.1 Signs identifying the TPZ should be placed at 10m intervals around the edge of the TPZ and should be visible from within the development site. An example is shown below in Figure 18.



Figure 18. Depicts standard fencing techniques. (AS 4970–2009).

## 7.9 Project Arborist

- 7.9.1 An official “Project Arborist” must be commissioned to oversee the tree protection, any works within the TPZ’s and complete regular monitoring compliance certification.
- 7.9.2 The project arborist must have minimum five (5) years industry experience in the field of arboriculture, horticulture with relevant demonstrated experience in tree management on construction sites, and Diploma level qualifications in arboriculture – AQF Level 5.
- 7.9.3 Inspections are to be conducted by the project arborist at several key points during the construction in order to ensure that protection measures are being adhered to during construction stages and decline in tree health or additional remediation measures can be identified.

## 7.10 Project Milestones

7.10.1 The following visits and milestones were recommended as to when on-site tree inspection by the project arborist is required:

Item	Purpose of Visit	Timing of Visit(s)	Prerequisites
1	Pre-start induction	Following sign off from Item 1. Contractor to provide a minimum of five days advance notice for this visit.	Prior to commencement of works. All parties involved in the project to attend.
2	Supervision of works in TPZ's including all regrading and excavations	Whenever there is work planned to be performed within the TPZ's. Contractor to provide a minimum of five days advance notice for such visits.	
3	Regular site inspections	Minimum frequency monthly for the duration of the project.	The checklist must be completed by the Project Arborist at each site inspection and signed by both parties.
4	Final sign off	Following completion of works.	Practical completion of works and prior to tree protection removal.

## 7.11 Compliance Reporting

7.11.1 Following each inspection, the project arborist shall prepare a report detailing the condition of the trees. These reports should certify whether the works have been completed in compliance with the consent relating to tree protection.

7.11.2 These reports should contain photographic evidence where required to demonstrate that the work has been carried out as specified.

7.11.3 Matters to be monitored and included in these reports should include tree condition, tree protection measures and impact of site works which may arise from changes to the approved plans.

7.11.4 The reports and Compliance Statements shall be submitted to the Project Manager (as well as the Clients' nominated representative) following each inspection.

7.11.5 The reports and any Non-Compliance Statements shall be submitted to the Project Manager (as well as the Clients' nominated representative) if tree protection conditions have been breached. Reports should contain clear remedial action specifications to minimise any adverse impact on any subject tree.

## 7.12 Offset Tree Planting

7.12.1 Offset planting should reflect the number of trees removed and the initial loss of amenity and biomass. New trees should be of long-term potential and sourced from a reputable supplier.

7.12.2 Replacement tree species must suit their location on the site in terms of their potential physical size and their tolerance(s) to the surrounding environmental conditions. To avoid unethical or unprofessional tree selection and/or their placement within the landscape, replacement tree species must be selected in consultation with a consulting arborist, who can also assist in implementing successful tree establishment techniques.

7.12.3 Replacement tree species must have the genetic potential to reach a mature size potential of those trees removed to facilitate the development. As a guide, potential height will be a minimum of 10m (or more) and produce a spreading canopy so as they may provide amenity value to the property and contribute to the tree canopy of the surrounding area in the future.

### 7.13 Trenching for Installation of Underground Services

- 7.13.1 Where excavation or trenching is required to facilitate installation of underground services within the TPZs of any site trees arborist supervision is required. Works should be undertaken using techniques that are sensitive to tree roots to avoid unnecessary damage. Such techniques include:
1. Excavation by hand
  2. Excavation using a high-pressure water jet and vacuum truck
  3. Excavation using an Air Spade with vacuum truck.
- 7.13.2 Machine excavation should be prohibited within the TPZs of retained trees unless undertaken at the direct consent from the project arborist and/or the responsible authority.

## 8 References

- SIX Maps. (2019, July 31). *SIX Maps*. (N. G. Services, Producer, & NSW Government) Retrieved from SIX Maps: <https://maps.six.nsw.gov.au>
- Standards Australia. (2007). *AS 4373–2007 Pruning of Amenity Trees*. Sydney: Standards Australia.
- Standards Australia. (2009). *AS4970 - 2009 Protection of Trees on Development Sites*. Sydney: Standards Australia.
- State Government of NSW and Office of Environment and Heritage (OEH). (2015, September 27). *Soil Landscapes of the Sydney 1:100,000 Sheet*. Retrieved from eSpade: <https://www.environment.nsw.gov.au/eSpade2Webapp#>
- The British Standards Institution. (2012). *BS 5837:2012 - Trees in relation to design, demolition and construction*. London: BSI Standards Limited.
- Tonkin Zulaikha Greer Architects. (2019). *St Luke's Grammar School New Senior Campus SEARS Application | Final*. Surry Hills: Tonkin Zulaikha Greer Architects.

## 9 Appendices

### 9.1 Appendix A – Arboricultural Reporting Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownership of any property are assumed to be good. No responsibility is assumed for matters legal in character.
2. It is assumed that any property/project is not in violation of any applicable codes, ordinances, statutes or other government regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified in so far as possible, however, the consultant can neither guarantee nor be responsible for the accuracy of the information provided by others.
4. The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.
5. Loss or alteration of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the person to whom it is addressed, without the prior written consent of the consultant.
7. Neither all nor any part of the contents of this report, nor any copy thereof, shall be used for any purpose by anyone but the person to whom it is addressed, without the written consent of the consultant. Nor shall it be conveyed by anyone, including the Client, to the public through advertising, public relations, news, sales or other media, without the written consent of the consultant.
8. This report and any values expressed herein represent the opinion of the consultant and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys unless expressed otherwise.
10. Information contained in this report covers only those items that were examined and reflect the condition of those items at the time of inspection.
11. Inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee expressed or implied that the problems or deficiencies of the plants or property in question may not arise in the future.

## 9.2 Appendix B – Explanation of Tree Assessment Terms

**Tree name:** Provides the botanic name, (Genus, species, sub-species, variety and cultivar where applicable) in accordance with the International Code of Botanical Nomenclature (ICBN), and an accepted common name.

**Age:** Refers to the life cycle of the tree

Category	Description
Young	Newly planted tree not fully established may be capable of being transplanted or easily replaced.
Juvenile	Tree is small in terms of its potential physical size and has not reached its full reproductive ability.
Semi-mature	Tree in active growth phase of life cycle and has not yet attained an expected maximum physical size for its species and/or its location.
Mature	Tree has reached an expected maximum physical size for the species and/or location and is showing a reduction in the rate of seasonal extension growth.
Senescent	Tree is approaching the end of its life cycle and is exhibiting a reduction in vigour often evidenced by natural deterioration in health and structure.

**Health:** Summarises the health and vigour of the tree

Category	Description
Excellent	Canopy full with dense foliage coverage throughout, leaves are entire and are of an excellent size and colour for the species with no visible pathogen damage. Excellent growth indicators, e.g. seasonal extension growth.
Good	Canopy full with minor variations in foliage density throughout, leaves are entire and are of good size and colour for the species with minimal or no visible pathogen damage. Good growth indicators.
Fair	Canopy with moderate variations in foliage density throughout, leaves not entire with reduced size and/or atypical in colour, moderate pathogen damage. Reduced growth indicators, visible amounts of deadwood/dieback, and epicormic growth.
Poor	Canopy density significantly reduced throughout, leaves are not entire, are significantly reduced in size and/or are discoloured, significant pathogen damage. Significant amounts of deadwood and/or epicormic growth, noticeable dieback of branch tips, possibly extensive.
Dead	No live plant material observed throughout the canopy, bark may be visibly delaminating from the trunk and/or branches.

**Table 1. ArborSafe Structure Descriptors**

**Structure:** Summarises the structure of the tree from roots to crown

Category	Description
Good	Good form and branching habit. Minor structural defects that are insignificant and typical or common within the species. e.g. included bark, co-dominant stems. No fungal pathogens present. No visible wounds to the trunk and/or root plate.
Fair	Moderate structural defects present that impact longevity e.g. apical leaders sharing common union(s). Minor damage to structural roots. Small wounds present where decay could begin. No fungal pathogens present. A fair representation of the species.
Poor	Significant structural defects present that have a significant impact on longevity and result in a poor representation of the species e.g. Branch/stems with included bark with failure likely within 0–5 years. Wounding evident with cavities and/or decay present. Damage to structural roots.
Hazardous	Serious structural defects with failure determined to be imminent (<12 months). Defects may include active splits and/or partial branch or root plate failures. Tree requires immediate arboricultural works to alleviate the associated risk.

**Useful Life Expectancy (ULE):** Useful Life Expectancy refers to an expected period of time the tree can be retained within the landscape before its amenity value declines to a point where it may detract from the appearance of the landscape and/or becomes potentially hazardous to people and/or property. ULE values consider tree species, current age, health, structure and location. ULE values are based on the tree at the time of assessment and do not consider future changes to the tree’s location and environment which may influence the ULE value.

Category:
0–5 Years
5–10 Years
10–20 Years
20–30 Years
30–50 Years
>50 Years

**Tree Retention Value:** (based upon BS 5837–2012: *Trees in relation to design, demolition and construction – recommendations*)

Category and definition	Criteria (including sub-categories where appropriate)		
<b>Category U</b>			
Trees in such a condition that they cannot realistically be retained as viable trees in the context of the current land use for longer than 5 years.	<ul style="list-style-type: none"> <li>• Trees that have a severe structural defect that are not remediable such that their failure is expected within 12 months.</li> <li>• Trees that will become unviable after removal of other Category U trees (e.g. where for whatever reason the loss of companion shelter cannot be mitigated by pruning).</li> <li>• Trees that are dead or are showing signs of significant, immediate and irreversible overall decline.</li> <li>• Trees infected with pathogens of significance to the health and or safety of other trees nearby</li> <li>• Low quality trees suppressing adjacent trees of better quality.</li> <li>• Noxious weeds or species categorised as weeds within the local area.</li> </ul> <p><b>Note:</b> Category U trees can have existing or potential conservation value* which might make it desirable to preserve.</p>		
	<b>1. Arboricultural Qualities</b>	<b>2. Landscape qualities</b>	<b>3. Cultural and environmental values</b>
<b>Category A</b>			
Trees of High Quality with an estimated remaining life expectancy of at least 25 years and of dimensions and prominence that it cannot be readily replaced in <20 years.	Trees that are particularly good examples of their species, especially if rare or unusual (in the wild or under cultivation); or those that are important components of groups or avenues.	Trees or groups of significant visual importance as arboricultural and/or landscape features. (e.g. feature and landmark trees).	Trees, groups or plant communities of significant conservation, historical, commemorative or other value (e.g. remnant trees, aboriginal scar trees, critically endangered plant communities, trees listed specifically within a Heritage statement of significance).
<b>Category B</b>			
Trees of Moderate Quality with an estimated remaining life expectancy of 15–25 years and of dimensions and prominence that cannot be readily replaced within 10 years.	Trees that might be included within Category A but are downgraded because of diminished condition such that they are unlikely to be suitable for retention beyond 25 years.	Trees that are visible from surrounding properties and/or the street but make little visual contribution to the wider locality.	Trees with conservation or other cultural value (trees within conservation areas or landscapes described within a statement of significance, locally indigenous species).
<b>Category C</b>			
Trees of Low Quality with an estimated remaining life expectancy of 5–15 years, or young trees that are easily replaceable.	Trees of very limited value or such impaired condition that they do not qualify in higher categories.	Trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.

\*Where trees would otherwise be categorised as U, B or C but have significant identifiable conservation, heritage or landscape value even though only for the short term, they may be upgraded, although they might be suitable for retention only.

Table 2. Tree Quality

		Health**			
		Excellent/ Good	Fair	Poor	Dead
Structure	Good	A	B	C	U
	Fair	B	B	C	U
	Poor	C	C	U	U
	Hazard*	U	U	U	U

\*Structural hazard that cannot be remediated through mitigation works to enable safe retention.

\*\* Trees of short term reduced health that can be remediated via basic, low cost plant health care works (e.g. mulching, irrigation etc.) may be designated in a higher health rating to ensure correct retention value nomination.

### 9.3 Appendix C – Tree Assessment Data

Tree no.	Botanical Name	Common Name	Trees in group	DBH Total (cm)	DRB (cm)	Radial TPZ (m)	TPZ area (m2)	Radial SRZ (m)	Tree Height (m)	Canopy (m)	Health	Structure	Age	ULE (Yrs.)	Defects	Significance	Action (irrespective of development)	Arborist comments	Tree Quality Score	Tree Retention value subcategory	Recommendation
1	<i>Ficus microcarpa var. hillii</i>	Hill's Weeping Fig	1	107	125	12.8	515.72	3.6	15-20	20-30	Good	Fair	Mature	25-50	Co-dominant stems, Crossing/rubbing branches, Deadwood/stubs < 30mm, Included bark	Amenity value/shade, Attractive landscape feature		- 26-07-2019 : kaneasafe : Located on adjacent property. Measurements estimated due to inaccessibility.	A	2	Retain tree with specific protection requirements (i.e. Generic measures plus supervision of works within the TPZ and/or use of root sensitive construction techniques).
2	<i>Corymbia maculata</i>	Spotted Gum	1	40	50	4.8	72.38	2.5	15-20	10-15	Good	Good	Semi-Mature	>50	Deadwood/stubs > 30mm	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Measurements estimated due to inaccessibility.	A	2	Retain tree with specific protection requirements (i.e. Generic measures plus supervision of works within the TPZ and/or use of root sensitive construction techniques).
3	<i>Eucalyptus microcorys</i>	Tallowwood	1	25	31	3.0	28.27	2.0	10-15	5-10	Good	Fair	Juvenile	10-15	Suppressed, Uncharacteristic form			- 26-07-2019 : kaneasafe : Heavy suppression has resulted in strong crown bias and low ULE.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
4	<i>Schinus areira</i>	Peppercorn	1	43	55	5.1	81.88	2.6	5-10	5-10	Good	Poor	Semi-Mature	10-15	Co-dominant stems, Poor pruning, Weak union(s), Wound(s)	Amenity value/shade		- 26-07-2019 : kaneasafe : Previous lopping has resulted in poor structure.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
5	<i>Acacia decurrens</i>	Green Wattle	1	11	13	2.0	12.57	1.5	5-10	<5	Good	Good	Semi-Mature	10-15				- 26-07-2019 : kaneasafe : Naturally short lived species.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
6	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	1	17	22	2.0	13.07	1.8	5-10	<5	Fair	Fair	Semi-Mature	10-15	Dieback, Included bark	Amenity value/shade, Screen value	Remove selective branches	- 26-07-2019 : kaneasafe : Remove basal stem.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
7	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	1	13	15	2.0	12.57	1.5	5-10	<5	Fair	Fair	Semi-Mature	5-10	Dieback	Amenity value/shade, Screen value			C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
8	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	1	10	13	2.0	12.57	1.5	5-10	<5	Good	Good	Semi-Mature	10-15		Amenity value/shade, Screen value			C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
9	<i>Glochidion ferdinandi</i>	Cheese Tree	1	9	12	2.0	12.57	1.5	5-10	<5	Good	Fair	Juvenile	10-15	Co-dominant stems, Included bark	Amenity value/shade, Screen value			C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
10	<i>Cyathea cooperi</i>	Rough Tree Fern	1	13	19	2.0	12.57	1.6	5-10	<5	Good	Good	Mature	15-25		Amenity value/shade			C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
11	<i>Schinus areira</i>	Peppercorn	1	56	74	6.7	141.87	2.9	5-10	5-10	Good	Poor	Semi-Mature	10-15	Crossing/rubbing branches, Decay, Poor pruning, Weak union(s), Wound(s)	Amenity value/shade		- 26-07-2019 : kaneasafe : Tree previously lopped resulting in poor structure. Regrowth poorly attached.	C	13	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
12	<i>Glochidion ferdinandi</i>	Cheese Tree	1	22	60	2.7	22.62	2.7	5-10	5-10	Good	Poor	Semi-Mature	10-15	Co-dominant stems, Included bark			- 26-07-2019 : kaneasafe : Potentially regrowth from cut stump. Co-dominant at base.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
13	<i>Acacia saligna</i>	Golden Wreath Wattle	1	34	52	4.1	52.88	2.5	5-10	5-10	Poor	Fair	Mature	<5	Co-dominant stems, Dieback, Excessive thinning, Included bark, Undesirable species		Removal - poor specimen	- 26-07-2019 : kaneasafe : Naturally short lived species in decline.	U		Remove tree irrespective of future development.
14	<i>Acacia saligna</i>	Golden Wreath Wattle	1	29	41	3.5	38.27	2.3	5-10	5-10	Poor	Fair	Mature	<5	Co-dominant stems, Crossing/rubbing branches, Deadwood/stubs > 30mm, Dieback, Excessive thinning, Included bark, Wound(s), Undesirable species		Removal - poor specimen	- 26-07-2019 : kaneasafe : Naturally short lived species in decline.	U		Remove tree irrespective of future development.
15	Dead Tree	Dead tree	1	15	23	2.0	12.57	1.8	5-10	<5	Dead	Poor	Mature	0	Deadwood/stubs > 100mm		Removal - poor specimen		U		Remove tree irrespective of future development.
16	<i>Acacia saligna</i>	Golden Wreath Wattle	1	38	47	4.6	65.51	2.4	5-10	5-10	Fair	Poor	Mature	<5	Co-dominant stems, Crossing/rubbing branches, Hanger(s), Included bark, Previous failure(s), Weak union(s), Wound(s), Undesirable species		Removal - poor specimen	- 26-07-2019 : kaneasafe : Naturally short lived species in decline. Central leader has previously failed and is retained in crown.	U		Remove tree irrespective of future development.
17	Dead Tree	Dead tree	1	16		2.0	12.57		5-10	<5	Dead	Poor	Semi-Mature	0			Removal - poor specimen	- 26-07-2019 : kaneasafe : Dead tree.	U		Remove tree irrespective of future development.
18	<i>Acacia saligna</i>	Golden Wreath Wattle	1	39	40	4.7	68.31	2.3	5-10	5-10	Poor	Fair	Mature	<5	Co-dominant stems, Deadwood/stubs > 30mm, Dieback, Included bark, Undesirable species		Removal - poor specimen	- 26-07-2019 : kaneasafe : Naturally short lived species in decline.	U		Remove tree irrespective of future development.
19	<i>Eucalyptus acmenoides</i>	White Mahogany	1	34	41	4.1	52.30	2.3	5-10	5-10	Good	Good	Semi-Mature	>50	Deadwood/stubs < 30mm	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. 4.2m from boundary.	B	2	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
20	<i>Syncarpia glomulifera</i>	Turpentine	1	54	58	6.5	131.92	2.6	10-15	5-10	Good	Fair	Semi-Mature	25-50	Co-dominant stems, Included bark	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. 3.9m from boundary.	B	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
21	<i>Acacia sp.</i>	Wattle	1	15	20	2.0	12.57	1.7	5-10	<5	Good	Good	Semi-Mature	10-15	Borers/termites, Suppressed	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property.	C	2	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
22	<i>Banksia integrifolia</i>	Coast Banksia	1	35	41	4.2	55.42	2.3	10-15	5-10	Good	Fair	Semi-Mature	15-25	Poor pruning	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on sandstone wall. Root plate shape irregular due to retaining wall.	B	12	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
23	<i>Alphitonia excelsa</i>	Soap Tree	1	22	35	2.6	21.90	2.1	5-10	5-10	Good	Fair	Semi-Mature	5-10	Poor pruning, Soil problems, Wound(s)	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Highly asymmetrical rootplate growing on rock shelf. No TPZ to impact. Tag on sandstone wall.	C	13	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
24	<i>Acacia sp.</i>	Wattle	1	38	55	4.6	66.32	2.6	5-10	5-10	Fair	Fair	Mature	<5	Borers/termites, Co-dominant stems, Deadwood/stubs > 100mm, Dieback, Excessive thinning, Previous failure(s), Wound(s)			- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on sandstone wall. Tree in advanced decline. Previously failed root plate.	C	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
25	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	1	32	37	3.8	46.32	2.2	10-15	5-10	Good	Fair	Semi-Mature	25-50	Suppressed, Uncharacteristic form	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence.	B	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
26	<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	1	47	69	5.6	98.62	2.8	10-15	5-10	Good	Good	Mature	25-50	Co-dominant stems	Amenity value/shade, Attractive landscape feature		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence.	B	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
27	<i>Ficus rubiginosa</i>	Port Jackson Fig	1	28	40	3.4	35.47	2.3	10-15	5-10	Good	Good	Juvenile	>50	Deadwood/stubs < 30mm	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence.	B	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
28	Unknown sp.	Unknown sp.	1	37	54	4.4	61.93	2.6	10-15	5-10	Good	Poor	Semi-Mature	5-10	Cavity(s), Decay, Suppressed, Wound(s)	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. Decaying wound at base.	C	123	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).

Tree no.	Botanical Name	Common Name	Trees in group	DBH Total (cm)	DRB (cm)	Radial TPZ (m)	TPZ area (m <sup>2</sup> )	Radial SRZ (m)	Tree Height (m)	Canopy (m)	Health	Structure	Age	ULE (Yrs.)	Defects	Significance	Action (irrespective of development)	Arborist comments	Tree Quality Score	Tree Retention value subcategory	Recommendation
29	<i>Casuarina glauca</i>	Swamp she-oak	1	13	19	2.0	12.57	1.6	5-10	<5	Good	Fair	Semi-Mature	15-25	Co-dominant stems, Suppressed, Uncharacteristic form	Amenity value/shade			C	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
30	<i>Casuarina glauca</i>	Swamp she-oak	1	28	37	3.4	35.47	2.2	10-15	5-10	Good	Poor	Semi-Mature	<5	Crack(s)/Split(s), Decay, Suppressed, Wound(s)	Amenity value/shade	Removal - poor specimen	- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. Strong crown bias over proposed development due to phototropism. Structural cracking and decay at base.	U		Remove tree irrespective of future development.
31	<i>Casuarina glauca</i>	Swamp she-oak	1	37	51	4.4	61.93	2.5	15-20	5-10	Good	Good	Mature	>50	Co-dominant stems, Poor pruning, Weak union(s)	Amenity value/shade	Remove selective branches	- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. Remove low branch that has been previously lopped to the collar.	B	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
32	<i>Acacia mearnsii</i>	Black Wattle	1	31	45	3.7	43.47	2.4	15-20	5-10	Fair	Fair	Mature	<5	Borers/termites, Deadwood/stubs > 100mm, Dieback, Resin exudation/Kino, Wound(s)	Amenity value/shade	Remove deadwood/stubs > 30mm	- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. Species ID tentative.	C	123	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
33	<i>Banksia serrata</i>	Saw-toothed Banksia	1	32	25	3.8	46.37	1.8	5-10	5-10	Good	Fair	Semi-Mature	10-15	Deadwood/stubs > 100mm, Poor pruning, Wound(s)	Amenity value/shade	Shape from infrastructure	- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. Strong crown bias over proposed development due to phototropism. Provide ~1m building clearance.	C	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
34	<i>Alphitonia excelsa</i>	Soap Tree	1	27	32	3.2	32.98	2.1	15-20	5-10	Fair	Good	Semi-Mature	10-15	Deadwood/stubs < 30mm, Dieback	Amenity value/shade		- 26-07-2019 : kaneasafe : Located on adjacent property. Tag on fence. Crown extends over existing building.	C	12	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
35	<i>Casuarina glauca</i>	Swamp she-oak	2	21	30	2.5	19.95	2.0	10-15	5-10	Good	Fair	Semi-Mature	15-25	Co-dominant stems, Wound(s)	Amenity value/shade		- 26-07-2019 : kaneasafe : Group includes small tree to west.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
36	<i>Casuarina glauca</i>	Swamp she-oak	1	16	20	2.0	12.57	1.7	5-10	5-10	Fair	Fair	Semi-Mature	5-10	Co-dominant stems, Crossing/rubbing branches, Suppressed, Uncharacteristic form			- 26-07-2019 : kaneasafe : Heavily suppressed tree.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
37	<i>Casuarina glauca</i>	Swamp she-oak	1	15	20	2.0	12.57	1.7	10-15	<5	Fair	Good	Semi-Mature	15-25	Dieback	Amenity value/shade			C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
38	<i>Casuarina glauca</i>	Swamp she-oak	1	15	23	2.0	12.57	1.8	10-15	5-10	Poor	Fair	Semi-Mature	5-10	Dieback, Excessive thinning			- 26-07-2019 : kaneasafe : Excessively thin upper crown.	C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
39	<i>Casuarina glauca</i>	Swamp she-oak	1	26	32	3.1	30.58	2.1	10-15	5-10	Good	Good	Semi-Mature	15-25		Amenity value/shade			C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
40	<i>Strelitzia nicolai</i>	Giant Bird of Paradise	1	29	50	3.5	38.23	2.5	5-10	5-10	Good	Good	Semi-Mature	25-50	Co-dominant stems				C	123	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
41	<i>Olea africana</i>	African Olive	5	19	31	2.3	16.42	2.0	5-10	5-10	Good	Good	Mature	15-25	Co-dominant stems, Undesirable species	Weed species	Removal	26-07-2019 : kaneasafe : Group of weed species.	U		Remove tree irrespective of future development.
42	<i>Alphitonia excelsa</i>	Soap Tree	1	21	30	2.6	20.72	2.0	10-15	5-10	Fair	Fair	Semi-Mature	5-10	Dieback, Wound(s)	Amenity value/shade			C	12	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
43	<i>Eucalyptus microcorys</i>	Tallowwood	1	20	30	2.4	18.10	2.0	5-10	5-10	Good	Fair	Juvenile	15-25	Epicormic growth, Included bark, Poor pruning	Amenity value/shade			C	12	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
44	<i>Olea africana</i>	African Olive	1	27	33	3.2	32.80	2.1	5-10	5-10	Good	Fair	Mature	25-50	Co-dominant stems, Crossing/rubbing branches, Included bark, Undesirable species	Weed species	Removal	- 26-07-2019 : kaneasafe : Tag on fence. Located beyond fence atop sandstone wall. Measurements estimated. Self-sown weed species.	U		Remove tree irrespective of future development.
45	<i>Casuarina glauca</i>	Swamp she-oak	1	30	29	3.6	40.72	2.0	10-15	5-10	Good	Good	Semi-Mature	10-15	Inappropriate location	Amenity value/shade		- 26-07-2019 : kaneasafe : Tag on fence. Located beyond fence atop sandstone wall. Measurements estimated. Self-sown tree growing very close to carpark.	C	12	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
46	<i>Casuarina glauca</i>	Swamp she-oak	1	21	34	2.5	19.95	2.1	5-10	5-10	Good	Fair	Juvenile	5-10	Co-dominant stems, Crossing/rubbing branches, Included bark, Wound(s)		Removal	- 26-07-2019 : kaneasafe : Tag on fence. Located beyond fence atop sandstone wall. Measurements estimated. Self-sown tree growing against carpark.	C	12	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
47	<i>Hakea salicifolia</i>	Willow Hakea	1	23	35	2.8	23.93	2.1	5-10	5-10	Good	Fair	Mature	10-15	Inappropriate location, Parasitic plant/Mistletoe, Suppressed	Amenity value/shade		- 26-07-2019 : kaneasafe : Tag on fence. Located beyond fence atop sandstone wall. Measurements estimated. Smothered in Lantana.	C	12	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
48	<i>Banksia integrifolia</i>	Coast Banksia	1	18	26	2.2	14.66	1.9	5-10	<5	Good	Good	Semi-Mature	15-25		Amenity value/shade, Attractive landscape feature		- 26-07-2019 : kaneasafe : Proximity to driveway limits ULE.	C	2	Retain tree - outside project scope
49	<i>Banksia integrifolia</i>	Coast Banksia	1	20	31	2.4	18.10	2.0	5-10	5-10	Good	Poor	Semi-Mature	5-10	Cavity(s), Co-dominant stems, Decay, Previous failure(s), Wound(s)	Amenity value/shade		- 26-07-2019 : kaneasafe : Proximity to driveway and decay in lower trunk limits ULE.	C	12	Retain tree - outside project scope
50	<i>Casuarina glauca</i>	Swamp she-oak	1	12	13	2.0	12.57	1.5	5-10	<5	Poor	Fair	Juvenile	<5	Dieback, Excessive thinning, Suppressed			- 02-08-2019 : kaneasafe : Heavily suppressed tree.	C	1	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
51	<i>Casuarina glauca</i>	Swamp she-oak	1	32	50	3.8	45.65	2.5	10-15	5-10	Good	Fair	Semi-Mature	15-25	Exposed root(s), Soil problems			- 02-08-2019 : kaneasafe : Asymmetrical rootplate.	C	1	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
52	<i>Casuarina glauca</i>	Swamp she-oak	1	32	41	3.8	46.32	2.3	10-15	5-10	Poor	Poor	Semi-Mature	<5	Deadwood/stubs > 100mm, Dieback, Excessive thinning		Removal	- 02-08-2019 : kaneasafe : Tree in advanced decline.	U		Remove tree irrespective of future development.
53	<i>Casuarina glauca</i>	Swamp she-oak	1	17	18	2.0	13.07	1.6	5-10	<5	Fair	Fair	Semi-Mature	10-15	Deadwood/stubs > 30mm, Dieback				C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
54	<i>Casuarina glauca</i>	Swamp she-oak	1	17	25	2.0	13.07	1.8	10-15	<5	Good	Good	Semi-Mature	15-25	Deadwood/stubs < 30mm, Dieback				C	1	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.
55	<i>Casuarina glauca</i>	Swamp she-oak	1	17	21	2.0	13.07	1.7	15-20	<5	Good	Good	Semi-Mature	15-25	Deadwood/stubs < 30mm				C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
56	<i>Casuarina glauca</i>	Swamp she-oak	1	16	19	2.0	12.57	1.6	5-10	<5	Good	Fair	Semi-Mature	10-15	Suppressed				C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
57	<i>Casuarina glauca</i>	Swamp she-oak	1	15	22	2.0	12.57	1.8	5-10	<5	Good	Fair	Juvenile	15-25	Parasitic plant/Mistletoe, Previous failure(s), Suppressed				C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).

Tree no.	Botanical Name	Common Name	Trees in group	DBH Total (cm)	DRB (cm)	Radial TPZ (m)	TPZ area (m2)	Radial SRZ (m)	Tree Height (m)	Canopy (m)	Health	Structure	Age	ULE (Yrs.)	Defects	Significance	Action (irrespective of development)	Arborist comments	Tree Quality Score	Tree Retention value subcategory	Recommendation
58	<i>Casuarina glauca</i>	Swamp she-oak	1	18	25	2.2	14.66	1.8	5-10	<5	Fair	Poor	Semi-Mature	5-10	Dieback, Poor pruning, Previous failure(s), Wound(s)				C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
59	<i>Casuarina glauca</i>	Swamp she-oak	1	23	26	2.8	23.93	1.9	10-15	<5	Good	Good	Semi-Mature	15-25	Wound(s)				C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
60	<i>Casuarina glauca</i>	Swamp she-oak	1	18	24	2.2	14.66	1.8	10-15	<5	Good	Good	Juvenile	15-25					C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
61	<i>Casuarina glauca</i>	Swamp she-oak	1	20	25	2.4	18.10	1.8	10-15	<5	Good	Fair	Semi-Mature	15-25					C	1	Retain tree with generic protection requirements (i.e. protective fencing and restriction of activities within the TPZ).
62	<i>Cyathea cooperi</i>	Rough Tree Fern	6	13	19	2.0	12.57	1.6	<5	<5	Good	Good	Semi-Mature	25-50					C	1	Remove - tree located within proposed development footprint or has major encroachment into its TPZ.