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Arborist Report

Project **35 Darley Street**
 Mona Vale NSW 2103
 Ref: 2026 - 1390
 Job: 68915

Client **The Trustee for IPG Dev 2 Unit Trust & GOP AFF 1 Unit Trust & IPG Aff 1 Trust**
 35-39 Darley Street
 Mona Vale NSW 2103

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1 Summary

- 1.1 42 trees were assessed growing on site and Tree 31 – Jacaranda and tree 34 – Syzygium spp are growing in the neighbouring property.
- 1.2 Tree 31 – Jacaranda is located on the southern boundary and has no incursion into the tree protection zone. Tree 34 – Syzygium spp is located on the western boundary and is growing at a much lower RL where the existing boundary wall is being retaining. The existing driveway will be removed and the area from the fence line to the proposed building will be landscaped. This area is to be heavily mulched during construction.
- 1.3 Trees 9,28 – Melaleuca and Tree 30 – Jacaranda are to be retained. These trees have existing structures within their structural root zone and tree protection zone. The removal of these structures is to be monitored by the on-site arborist.
- 1.4 The on-site arborist is to monitor the excavation for the basement footprint and cut necessary roots within the basement footprint. The proposed building and basement excavation is in a similar footprint to the existing building in and around Tree 28.
- 1.5 Trees 1-8,10-27 and 32,33,35,36 ,37,38,39,40,41 and 42 are proposed to be removed as they fall within the building footprint/ for landscaping purposes. These trees have a low to moderate suitability for preservation.

2 Aims of the Report

- 2.1 Carry out a site inspection on all trees that are taller than 6 metres and are growing in 35 Darley Street and in surrounding properties that are within 5 metres of the site.
- 2.2 The base of Trees 39-42 could not be accessed as they are located in a locked private courtyard. An estimate of the diameter was completed.

3 Method

- 3.1 In preparation of this report, a ground level visual tree assessment (VTA¹) was undertaken.
- 3.2 No aerial (climbing) inspections, woody tissue testing, or tree root mapping were undertaken as part of the preparation of this report.
- 3.3 Heights, widths were estimated by eye from ground level. By putting a given measurement on the trunk (of two metres with a tape measure) and standing back at an appropriate distance where the top of the tree and based the tree can be seen, and also same measurement was used to determine the width of the tree. diameter tape was used to take measurements of diameter of trunk at 1.4 metres. Where the diameters were estimated due to man-made structures or access to neighbouring property was not available, an A4 piece of paper was used or the clipboard which has 30-centimetre markings, or a tape was placed next the trunk of the tree.
- 3.4 The comments and recommendations contained in this report are based on findings from the site inspection. Common names have been used in site inspections in Section 5 of report. botanical names have been used in site assessment sheets with common names section 12.
- 3.5 This report has been prepared in accordance with AS4970-2009 – Protection of Trees on Development Sites.
- 3.6 SULE categories L=long, tree that appears to be returnable within an acceptable level of risk for more than 40 years. M=medium, a tree that appears to be returnable within acceptable level risk for 15 - 40 years. SH=short, Tree that appears to be returnable within acceptable level risk for 5- 15 years. R= remove, a tree with a high level of risk that would need to be removed within the next five years (listed weed trees will also be given the removal category). SM= young or small trees, U=unstable.

¹ VTA-Visual Tree Assessment undertaken by tree professionals is a recognised (International Society of Arboriculture) systematic method of identifying tree characteristics as hazard potential. Journal of Arboriculture, Vol. 22, No. 6, Nov. 1996. VTA is also an assessment method described by Claus Mattheck in the Body Language of Trees – a handbook for failure analysis. The Stationery Office, London (1994).

- 3.7 Long SULE (A) structurally sound trees located in positions that can accommodate future growth. (B) storm damage or defects trees that could be made suitable for retention in the long term by remedial tree surgery. (C) Trees all the species significant for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.
- 3.8 Medium SULE (A) trees that may only live between 15 and 40 more years. (B) Trees that may live for then 40 years but would be removed to allow the safe development of more suitable individuals. (C) Trees that may live for more than 40 years but would be removed during the course of normal management for safety or nuisance reasons. (B) Storm damage or defect trees maybe made suitable for retention in the medium turn by remedial work.
- 3.9 Short SULE (A) trees that may only live between 5 and 15 more years. (B) Trees that may live for more than 15 years but would be removed to allow the safe development of more suitable individuals. (C) my live for more than 15 years but would be removed during the course of normal management for safety or nuisance reasons. (D) Storm damaged or defective trace that require substantial media work to make safe and are only suitable for attention in the short term.
- 3.10 Remove SULE rating. (A) dead tree. (B) Dying or suppressed and declining trees fruit disease or inhospitable conditions. (C) dangerous tree through instability or recent loss of adjacent trees. (D) dangerous tree through structural defects including cavities, decay, including bark, wounds, or poor form. (E) Damage trees that are considered unsafe to retain. (F) Trees that will become dangerous after removal of other trees for the reasons given in points(A) to (E).
- 3.11 Young or small Trees SULE rating. (A) trees which are less than five metres in height. (B) trees which are over 5 in height but less than 15 years old.

3.12 TABLE 1 – TREE RETENTION VALUES – ASSESSMENT METHODOLOGY

ESTIMATED LIFE EXPECTANCY	LANDSCAPE SIGNIFICANCE RATING						
	1	2	3	4	5	6	7
Long - Greater than 40 years	High Retention Value						
Medium - 15 to 40 years			Moderate Retention Value				
Short - 5 to 15 years				Low Retention Value			
Transient - Less than 5 years					Very -Low Retention Value		
Dead or Potentially Hazardous							

THE FOLLOWING TABLE DESCRIBES THE IMPLICATIONS OF THE RETENTION VALUES ON SITES LAYOUT AND DESIGN

3.13 TABLE 2 – TREE RETENTION PRIORITIES

RETENTION VALUE	RECOMMENDED ACTION
“HIGH”	These trees considered worthy of preservation as such careful consideration should be given to their retention as a priority. Proposed site design and placement of building and infrastructure should consider the recommended setbacks as discussed in the following section (refer also Appendix 2) to avoid any adverse impact on the trees. In addition to Tree Protection Zones, the extent of the canopy (canopy drip-line) should also considered, particularly in relation to high rise developments. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
“MODERATE”	The retention of these trees is desirable, but not essential. These trees should be retained as part of any proposed development if possible. However, these trees are considered less critical for retention. If these trees must be removed, replacement planting should be considered in accordance with Council’s Tree Replenishment Policy to compensate for loss of amenity (refer also Section 9).
“LOW”	These trees are not considered to potentially to worthy of any special measures to ensure their preservation, due to current health, condition, or suitability. They do not have any special ecological, heritage or amenity value or these values are substantially diminished due to their SULE. These trees should not be considered as a constraint to the future development of the site.
“VERY LOW”	These trees are considered potentially hazardous or very poor specimens or may be environmental or noxious weeds. The removal of these trees is therefore recommended regardless of the implications of any proposed development.

3.14 Tree Age Classification recorded as one of six (6) categories:

- a) Y - Young. Recently planted or establishing tree that could be transplanted without specialist equipment, ie up to 12-14 cms stem girth.
- b) S/M - Semi-mature. An established tree but one which has not reached its potential ultimate height and has significant growth potential.
- c) M - Mature. A mature specimen with limited potential for any significant increase in size but with a reasonable safe useful life expectancy.
- d) O/M - Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.
- e) V - Veteran. An over-mature specimen of high value due to either its age, size and/or ecological significance
- f) D - Dead.

3.15 LANDSCAPE SIGNIFICANCE

(1) ***Methodology for Determining Landscape Significance***

- A. The significance of a tree in the landscape is a combination of its environmental, heritage and amenity values. Whilst these values may be fairly subjective and difficult to assess consistently, some measure is necessary to assist in determining the retention value of each tree. To ensure a consistent approach, the assessment criteria shown in Appendix 1 have been used in this assessment.
- B. A rating has been applied to each tree to give an understanding of the relative significance of each tree in the landscape and to assist in determining priorities for retention, in accordance with the following categories:

- 1. Significant**
- 2. Very High**
- 3. High**
- 4. Moderate**
- 5. Low**
- 6. Very Low**
- 7. Insignificant**

RATING	HERITAGE VALUE	ECOLOGICAL VALUE	AMENITY VALUE
1. SIGNIFICANT	The subject tree is listed as a Heritage Item under the Local Environment Plan (LEP) with a local, state or national level of significance or is listed on Council's Significant Tree Register	The subject tree is scheduled as a Threatened or Vulnerable Species as defined under the provisions of the <i>Biodiversity Conservation Act 2016</i> (NSW) or the <i>Environment Protection and Biodiversity Conservation Act 1999</i> .	The subject tree has a very large live crown size exceeding 300m ² with normal to dense foliage cover, is located in a visually prominent position in the landscape, exhibits very good form and habit typical of the species
	The subject tree forms part of the curtilage of a Heritage Item (building /structure /artefact as defined under the LEP) and has a known or documented association with that item	The tree is a locally indigenous species, representative of the original vegetation of the area and is known as an important food, shelter or nesting tree for endangered or threatened fauna species	The subject tree makes a significant contribution to the amenity and visual character of the area by creating a sense of place or creating a sense of identity
	The subject tree is a Commemorative Planting having been planted by an important historical person (s) or to commemorate an important historical event	The subject tree is a Remnant Tree, being a tree in existence prior to development of the area	The tree is visually prominent in view from surrounding areas, being a landmark or visible from a considerable distance.
2. VERY HIGH	The tree has a strong historical association with a heritage item (building/structure/artefact/garden etc) within or adjacent the property and/or exemplifies a particular era or style of landscape design associated with the original development of the site.	The tree is a locally-indigenous species, representative of the original vegetation of the area and is a dominant or associated canopy species of an Endangered Ecological Community (EEC) formerly occurring in the area occupied by the site.	The subject tree has a very large live crown size exceeding 200m ² ; a crown density exceeding 70% (normal-dense), is a very good representative of the species in terms of its form and branching habit or is aesthetically distinctive and makes a positive contribution to the visual character and the amenity of the area
3. HIGH	The tree has a suspected historical association with a heritage item or landscape supported by anecdotal or visual evidence	The tree is a locally-indigenous species and representative of the original vegetation of the area and the tree is located within a defined Vegetation Link / Wildlife Corridor or has known wildlife habitat value	The subject tree has a large live crown size exceeding 100m ² ; The tree is a good representative of the species in terms of its form and branching habit with minor deviations from normal (e.g. crown distortion/suppression) with a crown density of at least 70% (normal); The subject tree is visible from the street and surrounding properties and makes a positive contribution to the visual character and the amenity of the area
4. MODERATE	The tree has no known or suspected historical association, but does not detract or diminish the value of the item and is sympathetic to the original era of planting.	The subject tree is a non-local native or exotic species that is protected under the provisions of the local or state planning controls (Development Control Plan etc).	The subject tree has a medium live crown size exceeding 40m ² ; the tree is a fair representative of the species, exhibiting moderate deviations from typical form (distortion/suppression etc) with a crown density of more than 50% (thinning to normal); and
			The tree is visible from surrounding properties, but is not visually prominent – view may be partially obscured by other vegetation or built forms. The tree makes a fair contribution to the visual character and amenity of the area.
5. LOW	The subject tree detracts from heritage values or diminishes the value of a heritage item	The subject tree is scheduled as exempt (not protected) under the provisions of the local or state planning controls (DCP etc) due to its species, nuisance or position relative to buildings or other structures.	The subject tree has a small live crown size of less than 40m ² and can be replaced within the short term (5-10 years) with new tree planting
6. VERY LOW	The subject tree is causing significant damage to a heritage item.	The subject tree is listed as an Environment Weed Species in the relevant Local Government Area, being invasive, or is a known nuisance species.	The subject tree is not visible from surrounding properties (visibility obscured) and makes a negligible contribution or has a negative impact on the amenity and visual character of the area. The tree is a poor representative of the species, showing significant deviations from the typical form and branching habit with a crown density of less than 50% (sparse).
7. INSIGNIFICANT	The tree is completely dead and has no known heritage value (or any habitat value)	The tree is scheduled as a potential 'Biosecurity Risk' ('Priority Weed' – formerly 'Noxious Weed') within NSW or within the relevant Local Government Area under the provisions of the <i>Biosecurity Act 2015</i>	The tree is completely dead and represents a potential hazard.

Ref:- Morton, A (2006) **Determining the Retention Value of Trees on Development Sites**

TreeNet - Proceedings of the 7th National Street Tree Symposium 2006 Government of South Australia Department for Transport, Energy and Infrastructure

4 Site Observations

- 4.1 Tree 1 – *Callistemon* spp is a multiple trunk specimen that has a height of 6 metres and a canopy spread of 4 by 2 metres. This tree is overmature in age and the main leader is dead. The tree has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.13 metres and the tree has a health and structural rating of 2 out of 5. The specimen has a codominant crown class and 20% canopy cover and has a short SULE rating and a low landscape significance rating.
- 4.2 Tree 2 – *Callistemon* spp is a multiple trunk specimen that has a height of 6 metres and a canopy spread of 6 by 10 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.47 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5, this tree has three trunks growing at the base. This specimen has a dominant crown class and has 55% canopy cover and a long SULE rating and a low landscape significance rating.
- 4.3 Tree 3 – *Grevillea* spp has a height of 6 metres and a canopy spread of 2 metres. The tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 1.61 metres. This tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5, this specimen has been heavily pruned/ lopped on the northern side of the tree. This specimen has a codominant crown class and has only 30% canopy cover and a short SULE rating and a low landscape significance rating.
- 4.4 Tree 4 – *Archontophoenix cunninghamiana* (Bangalow Palm) has a height of 6 metres and a canopy spread of 2 metres. This tree is mature in and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 1.94 metres. The tree has a health rating and structural rating of 3 out of 5 and there is a major trunk wound on the western side of the tree. This specimen has a codominant crown class and has 70% canopy cover and a medium SULE rating and a low landscape significance rating.
- 4.5 Tree 5 – *Chrysalidocarpus lutesecens* has a height of 6 metres and a canopy spread of 2 by 4 metres. The tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.67 metres. This tree has a health rating and structural rating of 5 out of 5 and the specimen has a codominant crown class and 70% canopy cover. This specimen has a long SULE rating and a low landscape significance rating.
- 4.6 Tree 6 – *Archontophoenix cunninghamiana* (Bangalow Palm) has a height of 6 metres and a canopy spread of 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 1.94 metres. The tree has a health rating and structural rating of 5 out of 5 and the tree has a codominant crown class and 40% canopy cover. This specimen has a long SULE rating and a low landscape significance rating.

- 4.7 Tree 7 – *Chrysalidocarpus lutesecens* has a height of 6 metres and a canopy spread of 3 by 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.67 metres. This tree has a health and structural rating of 5 out of 5 and the tree has a codominant crown class and 40% canopy cover. This specimen has a long SULE rating and a low landscape significance rating.
- 4.8 Tree 8 – *Archontophoenix cunninghamiana* (Bangalow Palm) are two palms growing next to each other. The trees have a height of 6 metres and a canopy spread of 1.5 metres and are mature in age. They have a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 1.68 metres and have a health and structural rating of 5 out of 5. These specimens have a codominant crown class and have 40% canopy cover and the canopy is growing through the dominant Tree 9. They have a long SULE rating and a low landscape significance rating.
- 4.9 Tree 9 – *Melaleuca quinquenervia* (Paperbark) has a height of 10 metres and a canopy spread of 8 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.85 metres. This tree is growing next to the small retaining wall that is within the structural root zone of the tree. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and there is a branch inclusion located at the 4-metre mark. This specimen has a dominant crown class and has 80% canopy cover and a long SULE rating and a moderate landscape significance rating.
- 4.10 Tree 10 – *Melaleuca quinquenervia* (Paperbark) has a height of 10 metres and a canopy spread of 4 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.47 metres. The tree is growing in a raised garden bed which is within the structural root zone. This specimen has a health rating of 4 out of 5 and there is tip dieback on the foliage and the tree has a structural rating of 4 out of 5. The tree has a codominant crown class and has less than 30% canopy cover as the canopy is one-sided due to competition from Tree 9. This tree has a medium SULE rating and a low landscape significance rating.
- 4.11 Tree 11 – *Syagrus romanzoffiana* (Cocos palm) is a listed state weed species and this tree has a height of 13 metres and a canopy spread of 2 metres. The tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and is growing next to the building. This tree has a health rating and structural rating of 4 out of 5 and there is major cambium damage on the trunk. The tree has a dominant crown class and has 30% canopy cover and has a medium SULE rating and a low landscape significance rating.
- 4.12 Trees 12 and 13 – *Archontophoenix cunninghamiana* (Bangalow Palm) have a height of 9 metres and 11 metres, these trees have their bases growing next to each other. The trees have a canopy spread of 2 metres and are mature in age and have a tree protection zone (TPZ) of 2.4 metres and a structural root zone (SRZ) of 2.05 metres and 2.15 metres. These specimens have a health and structural rating of 5 out of 5 and they have 60% canopy cover and a long SULE rating and low landscape significance rating.

- 4.13 Tree 14 – *Beaucarnea recurvata* (Ponytail) has a height of 4 metres and a canopy spread of 1.5 metres and the tree has been lopped. This tree is mature in age and has a tree protection zone (TPZ) of 2.4 metres and a structural root zone (SRZ) of 3.31 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and the tree has an intermediate crown class and 60% canopy cover. This specimen has a long SULE rating and a low landscape significance rating.
- 4.14 Tree 15 – *Syagrus romanzoffiana* (Cocos palm) is a listed state weed species and this tree has a height of 8 metres and a canopy spread of 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 2.4 metres and a structural root zone (SRZ) of 2 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and the tree has a dominant crown class and 30% canopy cover. This specimen has a medium SULE rating and a low landscape significance rating. It is noted there are spike marks on the trunk of the tree.
- 4.15 Tree 16 – *Syagrus romanzoffiana* (Cocos Palm) is a listed state weed species and this tree has a height of 8 metres and a canopy spread of 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.67 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and the tree has a dominant crown class and 30% canopy cover. This specimen has a medium SULE rating and a very low landscape significance rating.
- 4.16 Tree 17 – *Archontophoenix cunninghamiana* (Bangalow Palm) has a height of 9 metres and a canopy spread of 2 metres. The tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.13 metres. The tree is growing next to the building and is possibly impacting on the wall. This tree has a health rating and structural rating of 5 out of 5 and the tree has a dominant crown class and 90% canopy cover. This specimen has a medium SULE rating and a low landscape significance rating.
- 4.17 Tree 18 – *Syagrus romanzoffiana* (Cocos Palm) is a listed state weed species and this tree is growing next to the existing car park. This tree has a height of 11 metres and a canopy spread of 2 metres and the tree is mature in age. The tree has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.97 metres. This tree has a health rating and structural rating of 5 out of 5 and has a dominant crown class and 50% canopy cover. There are exposed roots at the base of this tree that presents a hazard and there are multiple spike marks on the trunk.
- 4.18 Tree 19 – *Syagrus romanzoffiana* (Cocos Palm) has a height of 9 metres and a canopy spread of 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.37 metres. The tree has a health rating and structural rating of 5 out of 5 and has a dominant crown class and 50% canopy cover. This specimen has a long SULE rating and a low landscape significance rating.

- 4.19 Tree 20 – *Syzygium* spp (Lilly pilly) has a height of 8 metres and a canopy spread of 4 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.37 metres, there are structures within the SRZ. The tree has a health rating of 5 out of 5 and has a structural rating that is a maximum of 4 out of 5, it could be lower as there is a trunk inclusion at the base of the tree. This specimen has a dominant crown class and 85% canopy cover.
- 4.20 Trees 21,22,23 growing as a group in between the building and the swimming pool. There are structures within the structural root zones of all these trees.
- 4.21 Tree 21 – *Chrysalidocarpus lutesecens* are three lumps growing as a larger group. This tree has a height of 6 metres and a canopy spread of 3 metres and is mature in age. The tree has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.67 metres and has a health rating and structural rating of 5 out of 5. This tree has a codominant crown class and has 50% canopy cover and a long SULE rating and a low landscape significance rating.
- 4.22 Tree 22 – *Callistemon* spp has a height of 7 metres and a canopy spread of 6 metres and is mature in age. This tree has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.47 metres and a health and structural rating of 5 out of 5. The tree has a dominant crown class and has 50% canopy cover and a long SULE rating and a low landscape significance rating.
- 4.23 Tree 23 – *Callistemon* spp has a height of 6 metres and a canopy spread of 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 1.68 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and the tree has a codominant crown class and 20% canopy cover. The canopy has been pruned/lopped to give structural clearance and this tree has a medium SULE rating and a low landscape significance rating.
- 4.24 Tree 24 – *Nerium oleander* is a multi-trunk specimen that has a height of 5 metres and a canopy spread of 6 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 3.01 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and the tree has a codominant crown class and 100% canopy cover. This specimen has a long SULE rating and a very low landscape significance rating. This tree has been lopped multiple times and is an exempt species.
- 4.25 Tree 25 – *Melaleuca alternifolia* is a multi-trunk specimen that has one dead trunk. This tree has a height of 7 metres and a canopy spread of 3 by 6 metres that is misshaped due to competition from another specimen. The tree is overmature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 3.17 metres. This tree has a health rating of 3 out of 5 and a structural rating of 2 out of 5 and the tree has a codominant crown class and 20% canopy cover. This specimen has a short SULE rating and a low landscape significance rating.

- 4.26 Tree 26 – *Pittosporum undulatum* (Native Daphne) is growing closest to the footpath. This tree has a height of 7 metres and a canopy spread of 3 metres and the tree is mature in age. The tree has a tree protection zone (TPZ) of 3.16 metres and a structural root zone (SRZ) of 1.82 metres and a health rating of 5 out of 5 and a structural rating of 4 out of 5. This tree has a codominant crown class and has 40% canopy cover and a long SULE rating and a low landscape significance rating.
- 4.27 Tree 27 – *Nerium oleander* is a multi-trunk specimen that has a height of 8 metres and a canopy spread of 4 by 8 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 3.2 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and has a dominant crown class and 80% canopy cover. This specimen has a long SULE rating and a very low landscape significance rating.
- 4.28 Tree 28 – *Melaleuca quinquenervia* (Paperbark) has a height of 12 metres and a canopy spread of 8 metres and is mature in age. The tree has a tree protection zone (TPZ) of 9.6 metres and a structural root zone (SRZ) of 3.31 metres. It is noted there are structures within the tree protection zone. This tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and the tree has a dominant crown class and 80% canopy cover. This specimen has a long SULE rating and a high landscape significance rating.
- 4.29 Tree 29 - *Melaleuca quinquenervia* (Paperbark) has a height of 8 metres and a canopy spread of 2 metres. This tree is overmature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2 metres. The tree has a health rating of 4 out of 5 and a structural rating of 2 out of 5, it is noted there is a dead trunk at the 2-metre mark. This tree has a codominant crown class and only 5% canopy cover and it has a medium SULE rating and a low landscape significance rating.
- 4.30 Tree 30 – *Jacaranda mimosifolia* is a multi-trunk specimen that has a height of 9.5 metres and a canopy spread of 10 metres. This tree is mature in age and has a tree protection zone (TPZ) of 7.2 metres and a structural root zone (SRZ) of 2.85 metres. The tree has a health rating and structural rating of 5 out of 5 and the tree has a dominant crown class and 80% canopy cover. This specimen has a long SULE rating and a moderate landscape significance rating.
- 4.31 Tree 31 – *Melaleuca quinquenervia* (Paperbark) is growing in the neighbour's garden about 4-5 metres from the boundary fence line. This tree has a height of 11 metres and a canopy spread of 8 metres and the tree is mature in age. The tree has a tree protection zone (TPZ) of 4.8 metres and a structural root zone (SRZ) of 2.67 metres and has a health rating and structural rating of 5 out of 5.

- 4.32 Tree 32 – *Callistemon* spp (Bottlebrush) has a height of 6 metres and a canopy spread of 4 metres. This tree is mature in age and has a tree protection zone (TPZ) of 2.4 metres and a structural root zone (SRZ) of 1.68 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and the tree has a dominant crown class and a one-sided canopy that has 30% canopy cover. This specimen has a medium SULE rating and a low landscape significance rating.
- 4.33 Tree 33 – *Callistemon* spp (Bottlebrush) has a height of 5.5 metres and a canopy spread of 6 by 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 2.4 metres and a structural root zone (SRZ) of 1.68 metres. The tree has a health rating of 5 out of 5 and a structural rating of 4 out of 5 and has a codominant crown class and 60% canopy cover. This tree is growing next to the two smaller *Callistemon*'s and this specimen has a medium SULE rating and a low landscape significance rating.
- 4.34 Tree 34 – *Syzygium* spp (Lilly pilly) growing in the neighbour's land at a much lower RL. This tree has a height and canopy spread of 8 metres and is mature in age. The tree has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.13 metres and has a health rating of 5 out of 5 and a structural rating of 4 out of 5. The canopy has recently been pruned off the neighbour's building and the tree has a dominant crown class and 50% canopy cover. This specimen has a long SULE rating and a moderate landscape significance rating.
- 4.35 Trees 35,36,37,38 – *Callistemon* spp (Bottlebrush) are growing along the eastern pathway and these trees have been pruned off the pathway. These trees have a height of 6 metres and a canopy spread ranging from 3-4 metres and are mature in age. The trees have a tree protection zone (TPZ) ranging from 2-2.4 metres and a structural root zone (SRZ) ranging from 1.5-2 metres. These specimens have a codominant crown class and a canopy cover ranging from 30-70% and these trees all have a low landscape significance rating.
- 4.36 Tree 39 – *Chrysalidocarpus lutescens* is a multi-trunk specimen that has a height of 6 metres and a canopy spread of 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2 metres. The tree is growing next to the building and it forms the lower canopy of Trees 40 and 41. This tree has a health rating and structural rating of 5 out of 5 and it has a codominant crown class and 80% canopy cover. This specimen has a long SULE rating and a low landscape significance rating.
- 4.37 Tree 40 – *Archontophoenix cunninghamiana* (Bangalow Palm) has a height of 12 metres and a canopy spread of 2 metres. The tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2 metres and it is noted there is a building within the structural root zone of this tree. This tree has a health rating and structural rating of 5 out of 5 and has a codominant crown class and 85% canopy cover. This specimen has a long SULE rating and a low landscape significance rating.

- 4.38 Tree 41 – *Archontophoenix cunninghamiana* (Bangalow Palm) has a height of 13 metres and a canopy spread of 2 metres. This tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.05 metres. This tree is growing next to the building and had a health rating and structural rating of 5 out of 5. This specimen has a long SULE rating and a low landscape significance rating.
- 4.39 Tree 42 - *Chrysalidocarpus lutesecens* is a multi-trunk specimen that has a height of 6 metres and a canopy spread of 2 metres. The tree is mature in age and has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2 metres. This tree is growing next to the building in the structural root zone and the tree has a health rating and structural rating of 5 out of 5. The specimen has a codominant crown class and has 80% canopy cover and a long SULE rating and a low landscape significance rating.
- 4.40 The proposed scope of works is to demolish the existing building and construct a large building in the same footprint with the appropriate setbacks from the rear and front boundary. The existing driveway is to be retained and the driveway is to be used for access to the underground carpark.

5 Conclusions

- 5.1 Trees 9,28,30,31,34 should be retained and will need the TPZs and SRZ calculated for these trees based on the construction footprint drawings.
- 5.2 Tree 9 – *Melaleuca quinquenervia* (Paperbark) is growing in front of the block in the northeastern corner. The tree has existing garden beds that consist of low retaining walls and pathways in the structural root zone, as seen in photograph 8. These are to be removed and a new stepping stone pathway is to be installed which is in the rough location of the existing pathway. This tree has a tree protection zone (TPZ) of 3.6 metres and a structural root zone (SRZ) of 2.85 metres. The new substation is in the outer perimeter (blast wall) in the tree protection zone. No canopy pruning is required
- 5.3 Tree 28 – *Melaleuca* has an existing incursion into the tree protection zone from the existing building and carpark the proposed building is in a similar footprint. The existing building is only two storeys high so currently the canopy overhangs the roof and therefore will require a canopy modification for the lower 3 floors.
- 5.4 Tree 29 – *Melaleuca quinquenervia* falls within the tree protection zone of Tree 28 and this tree can be retained. The tree requires major dead wooding.
- 5.5 Tree 30 – *Jacaranda mimosifolia* (Jacaranda) is growing at the rear on the southern boundary. This tree has a tree protection zone (TPZ) of 7.2 metres and a structural root zone (SRZ) of 2.85 metres and it has a minor incursion into the tree protection zone from the building and stepping stone pathway. No canopy is required to be pruned.
- 5.6 Tree 31 – *Melaleuca quinquenervia* (Paperbark) is growing on the southern boundary of the neighbouring property
- 5.7 Tree 34 – *Syzygium* spp (Lilly pilly) is growing on the western boundary in the rear of the neighbours at a much lower RL. The area where the existing driveway has been removed and the piers for the basement are in the tree protection zone and should have minimal root activity due to the existing structures and retaining wall along the boundary. This tree has an estimated tree protection zone of 3.6 metres and a structural root zone of 2.3 metres and an estimated setback from the boundary of 1-1.2 metres. No canopy pruning is required.
- 5.8 Trees 1-27 ,32,33,35,36,37,38,39,40,41 and 42 are proposed to be removed as they fall within the footprint of the building and the surrounding structures.

6 Recommendations

- 6.1 Tree protection zones are to be installed around Tree 9 and the arborist is to monitor the demolition of surrounding structures consisting of retaining walls and pathways that are within the tree protection zone. Exposed soil from the wall removal are to be covered in jute matting and water is to be applied to keep it moist. The existing structures are in a similar footprint to the proposed structures and therefore will be limited to no root impact.
- 6.2 The area is to be heavily mulched with woodchip and leaf litter, not pine bark or straight timber chip.
- 6.3 The arborist is to carry out root mapping along the proposed basement excavation lines and the tree roots are to be clean cut with a clean sharp handsaw and any roots found are to be wrapped in damp natural fibre rags.
- 6.4 Tree 28 and Tree 29 – Melaleuca quinquenervia - The arborist is to monitor the removal of the existing footpath and underground structures i.e. the existing carpark. Once the structures have been removed the area is to be heavily mulched with woodchip and leaf litter. The arborist is to carry out a root mapping exercise along the base of the footprint within the tree protection zone and any exposed roots are to be wrapped in damp rags. The existing structures are in a similar footprint to the proposed structures and therefore will be limited to no root impact.
- 6.5 Tree 30 – Jacaranda requires tree protection fencing and mulching within the tree protection zone.
- 6.6 Tree 34 – Syzygium – The arborist is to monitor the removal of the existing driveway slab within the tree protection zone and this area is to be mulched. The arborist is to monitor the excavation works for the basement and prune the roots which could occur in the basement. The roots are to be wrapped in damp rags and there should be limited root activity in this area due to the existing retaining walls and the tree that is growing a lower RL to the driveway slab.
- 6.7 Tree protection fencing is to be installed before demolition works. Access into the tree protection zones are only permissible under arborist supervision and the zones are to be fenced off at the end of each day.
- 6.8 Following Australian standards for tree protection AS4970-2009
- 6.9 Ground protection will be required for temporary foot traffic movements and scaffolding on site. Geotech fabric is to be laid on top of the mulch and running boards are to be placed on top for access.

7 Tree Assessment Survey Sheets

7.1

1.0 Tree Assessment Survey Sheet

Client: Inca Property Group

Job: 68915

DATE: 25/08/2025
WEATHER : FINE

Page number: 1/5
Version: 0.3

LOCATION: 35 DARLEY STREET MONA VALE

Tree #	Species Botanical name Common name	Trunk Diameter @1.4m CM	Trunk Diameter (buttress) CM	Height MT	Width MT	Age	TPZ MT SRZ	Health 1 = Poor 5 = Excel	Structure 1 = Poor 5 = Excel	Canopy Cover % m	Crown Class	SULE Rating Landscape Significance	Tree Surgery	Suitability for Preservation	Comments
1	<i>Callistemon spp</i>	15,10 5	35	6	4x2	OM	3.6 2.13	2	2	20%	C	Short Low	1	Low	Dead main leader
2	<i>Callistemon spp</i>	20 19,10	50	6	6x10	M	3.6 2.47	5	4	55%	D	Long Low		Moderate	3-way trunk at the base of tree
3	<i>Grevillea spp</i>	15	18	6	2	M	3.6 1.61	5	4	30%	C	Short Low		Low	Has been lopped on the northern and southern side
4	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	20	28	6	2	M	3.6 1.94	3	3	70%	C	Medium Low	3	Low	Major cambium damage on the western side
5	<i>Chrysalidocarpus lutescens</i> Golden Cane	10x2 6x5	60	6	2x4	M	3.6 2.67	5	5	70%	C	Long Low		Moderate	
6	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	20	28	6	2	M	3.6 1.94	5	5	70%	C	Long Low	3	Moderate	
7	<i>Chrysalidocarpus lutescens</i> Golden Cane	10x3	60	6	3x2	M	3.6 2.67	5	5	40%	C	Long Low		Moderate	
8 x2	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	15	20	6	1.5	M	3.6 1.68	5	5	30%	C	Long Low		Moderate	x2 trees growing through the canopy of Tree 9 - Melaleuca
9	<i>Melaleuca quinquenervia</i> Paperbark	60	70	10	8	M	3.6 2.85	5	4	80%	D	Long Moderate		Moderate	Growing next to the small retaining wall Inclusion at 4 metres
10	<i>Melaleuca quinquenervia</i> Paperbark	30	50	10	4	M	3.6 2.47	4	4	30%	C	Long Low	16	Low	One-sided canopy and tip die-back Growing in garden bed

Tree surgery:

1. Deadwood.
2. Reshape Crown.
3. Wound repair.
4. Insect control.
5. Improve soil conditions (mulch fertility, aeration etc).
6. Investigate cavities

7. Thin crown, consider installation of cabling/bracing and/or retain and fence off for public safety.
8. Line clearance of structures or service wires.
9. Remove attached plant.
10. Root girdling.
11. Remove.

12. No tree surgery required.
13. Requires tree protection measures.
14. Borer damage.
15. Fungal or bacterial damage.
16. Monitor.
17. has been pruned

Age classification:
Y - Young
SM - Semi Mature
M - Mature
OM - Overmature
V - Veteran

Crown class:
D - Dominant
C - co-dominant
I - intermediate
S - Suppressed

SULE
L = Long
M = Medium
Sh = Short
R = Remove
Sm = Small
U = Unstable

Landscape Significance
1 - Significant
2 - Very High
3 - High
4 - Moderate
5 - Low
6 - Very Low
7 - Insignificant

ESTIMATED LIFE EXPECTANCY	LANDSCAPE SIGNIFICANCE RATING						
	1	2	3	4	5	6	7
Long - Greater than 40 years	High Retention Value						
Medium - 15 to 40 years		Moderate Retention Value					
Short - 5 to 15 years			Low Retention Value				
Transient - Less than 5 years				Very Low Retention Value			
Dead or Potentially Hazardous							

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7.2

1.0 Tree Assessment Survey Sheet

Client: Inca Property Group

Job: 68915

DATE: 25/08/2025

Page number: 2/5

WEATHER : FINE

Version: 0.3

LOCATION: 35-39 DARLEY STREET MONA VALE

Tree #	Species Botanical name Common name	Trunk Diameter @1.4m CM	Trunk Diameter (buttress) CM	Height MT	Width MT	Age	TPZ MT SRZ	Health 1 = Poor 5 = Excel	Structure 1 = Poor 5 = Excel	Canopy Cover %	Crown Class	SULE Rating Landscape Significance	Tree Surgery	Suitability for Preservation	Comments
11	<i>Syagrus romanzoffiana</i> Cocos Palm	30	50	13	2	M	3.6 2.47	4	4	30%	D	Medium Low	11 17	Low	Major cambium damage on the trunk
12	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	20	32	9	2	M	2.4 2.05	5	5	60%	C	Long Low		Moderate	Tree 12 and 13 are growing next to each other and have a one-sided root plate
13	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	20	36	11	2	M	2.4 2.15	5	5	60%	D	Long Low		Moderate	Tree 12 and 13 are growing next to each other and have a one-sided root plate
14	<i>Beaucarnea recurvata</i> Ponytail	22	1 metre	4	1.5	M	2.4 3.31	5	4	60%	I	Long Low	17	Moderate	Has been lopped
15	<i>Syagrus romanzoffiana</i> Cocos Palm	20	30	8	2	M	2.4 2	5	4	30%	D	Medium Low	15	Low	Spike marks on trunk Exposed root ball Listed weed species
16	<i>Syagrus romanzoffiana</i> Cocos Palm	30	60	8	2	M	3.6 2.67	5	4	35%	D	Medium Low	15	Low	Exposed roots Listed weed species
17	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	28	35	9	2	M	3.6 2.13	5	5	90%	D	Medium Low		Low	Growing next to the building wall Possible impact to the wall
18	<i>Syagrus romanzoffiana</i> Cocos Palm	30	60	11	2	M	3.6 2.67	5	5	50%	D	Medium Low	17	Low	Exposed roots Spike marks on trunk, listed weed species
19	<i>Syagrus romanzoffiana</i> Cocos Palm	20	45	9	2	M	3.6 2.37	5	5	50%	D	Long Low	17	Moderate	Spike marks on trunk, listed weed species
20	<i>Syzygium spp</i> Lilly Pilly	20,15 12	45	8	4	M	3.6 2.37	5	4	85%	D	Medium Moderate		Moderate	Trunk inclusion at the base

Tree surgery:

1. Deadwood.
2. Reshape Crown.
3. Wound repair.
4. Insect control.
5. Improve soil conditions (mul fertility, aeration etc).
6. Investigate cavities

7. Thin crown, consider installation of cabling/bracing and/or retain and fence off for public safety.
8. Line clearance of structures or service wires.
9. Remove attached plant.
10. Root girdling.
11. Remove.

12. No tree surgery required.

13. Requires tree protection measures.
14. Borer damage.
15. Fungal or bacterial damage.
16. Monitor.
17. has been pruned

Landscape Significance

- 1 - Significant
- 2 - Very High
- 3 - High
- 4 - Moderate
- 5 - Low
- 6 - Very Low
- 7 - Insignificant

- SULE**
L = Long
M = Medium
Sh = Short
R = Remove
Sm = Small
U = Unstable

- Crown class:**
D - Dominant
C - co-dominant
I - intermediate
S - Suppressed

- Age classification:**
Y - Young
SM - Semi Mature
M - Mature
OM - Overmature
V - Veteran

ESTIMATED LIFE EXPECTANCY	LANDSCAPE SIGNIFICANCE RATING						
	1	2	3	4	5	6	7
Long - Greater than 40 years	High Retention Value						
Medium - 15 to 40 years			Moderate Retention Value				
Short - 5 to 15 years				Low Retention Value			
Transient - Less than 5 years					Very Low Retention Value		
Dead or Potentially Hazardous							

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7.3

1.0 Tree Assessment Survey Sheet

Client: Inca Property Group

Job: 68915

DATE: 25/08/2025

Page number: 3/5

WEATHER : FINE

Version: 0.3

LOCATION: 35-39 DARLEY STREET MONA VALE

Tree #	Species Botanical name Common name	Trunk Diameter @1.4m CM	Trunk Diameter (buttress) CM	Height MT	Width MT	Age	TPZ MT SRZ	Health 1 = Poor 5 = Excel	Structure 1 = Poor 5 = Excel	Canopy Cover % m	Crown Class	SULE Rating Landscape Significance	Tree Surgery	Suitability for Preservation	Comments
21	<i>Chrysoidocarpus lutescens</i> Golden Cane	10x4	60	6	3	M	3.6 2.67	5	5	50%	C	Long Low		Moderate	3x clumps
22	<i>Callistemon spp</i>	25,25	50	7	4x6	M	3.6 2.47	5	5	50%	D	Long Low	17	Moderate	
23	<i>Callistemon spp</i>	17	20	6	2	M	3.6 1.68	5	4	20%	C	Medium Low	17.8	Low	Has been lopped
24	<i>Nerium oleander</i> Oleander	15x4 multiple	80	5	6	M	3.6 3.01	5	4	100%	C	Long Very low		Low	Has been lopped multiple times Exempt species
25	<i>Melaleuca alternifolia</i> Tea Tree	30,30 Dead	90	7	3x6	OM	3.6 3.17	3	2	20%	C	Short Low		Low	One trunk lopped at 1.6 metre, Dead trunk Main trunk growing on 55-65° lean
26	<i>Pittosporum undulatum</i> Native Daphne	20	24	7	3	M	3.6 1.82	5	4	40%	C	Long Low		Moderate	Has been lopped Growing next to the pathway
27	<i>Nerium oleander</i> Oleander	15x4 multiple	1 metre +	8	4x8	M	3.6 3.2	5	4	70%	D	Long Very Low	17	Low	
28	<i>Melaleuca quinquenervia</i> Paperbark	80	1.1m	12	8	M	9.6 3.31	5	4	80%	D	Long High	13	High	Lifted pathway, existing building in TPZ and SRZ
29	<i>Melaleuca quinquenervia</i> Paperbark	28	30	8	2	OM	3.6 2	4	2	5%	C	Medium Low		Low	Dead trunk at 2 metres
30	<i>Jacaranda mimosifolia</i> Jacarandaoleand	50,10 20,20	70	9 1/2	10	M	7.2 2.85	5	5	80%	D	Medium Moderate	13	Moderate	

Tree surgery:

- Deadwood.
- Reshape Crown.
- Wound repair.
- Insect control.
- Improve soil conditions (mulch fertility, aeration etc).
- Investigate cavities

- Thin crown, consider installation of cabling/bracing and/or retain and fence off for public safety.
- Line clearance of structures or service wires.
- Remove attached plant.
- Root girdling.
- Remove.

12. No tree surgery required.

- Requires tree protection measures.
- Borer damage.
- Fungal or bacterial damage.
- Monitor.
- has been pruned

Landscape Significance

- 1 - Significant
- 2 - Very High
- 3 - High
- 4 - Moderate
- 5 - Low
- 6 - Very Low
- 7 - Insignificant

SULE
L = Long
M = Medium
Sh = Short
R = Remove
Sm = Small
U = Unstable

Crown class:
D - Dominant
C - co-dominant
I - intermediate
S - Suppressed

Age classification:
Y - Young
SM - Semi Mature
M - Mature
OM - Overmature
V - Veteran

	LANDSCAPE SIGNIFICANCE RATING						
ESTIMATED LIFE EXPECTANCY	1	2	3	4	5	6	7
Long - Greater than 40 years	High Retention Value						
Medium - 15 to 40 years			Moderate Retention Value				
Short - 5 to 15 years					Low Retention Value		
Transient - Less than 5 years					Very -Low Retention Value		
Dead or Potentially Hazardous							

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7.4

1.0 Tree Assessment Survey Sheet

Client: INCA PROPERTY GROUP

Job: 68915

DATE: 25/08/2025
WEATHER : FINE

Page number: 4/5
Version: 0.3

LOCATION: 35-39 DARLEY STREET MONA VALE

Tree #	Species Botanical name Common name	Trunk Diameter @1.4m CM	Trunk Diameter (buttress) CM	Height MT	Width MT	Age	TPZ MT SRZ	Health 1 = Poor 5 = Excel	Structure 1 = Poor 5 = Excel	Canopy Cover % m	Crown Class	SULE Rating Landscape Significance	Tree Surgery	Suitability for Preservation	Comments
31	<i>Melaleuca quinquenervia</i> Paperbark	40 est	60 est	11	8	M	4.8 2.67	5	5	50%	D	Long High	13	High	Growing in the rear of the neighbours Southern side
32	<i>Callistemon spp</i>	10, 5	20	6	4	M	2.4 1.68	5	4	30%	D	Medium Low		Low	One-sided canopy
33	<i>Callistemon spp</i>	10,8	20	5.5	6x2	M	2.4 1.68	5	4	60%	C	Medium Low		Low	Growing next to 2 small Callistemons
34	<i>Syzygium spp</i> Lilly Pilly	30 est	35 est	8	8	M	3.6 2.13	5	4	50%	D	Long Moderate	13,16	Moderate	Growing next to the driveway in the neighbour at a low RL
35	<i>Callistemon spp</i>	15	30	6	4	M	2.4 2	3	5	30%	C	Medium Low		Low	Mishapen canopy due to clearance
36	<i>Callistemon spp</i>	10,8	15	6	3	M	2 1.5	5	4	30%	C	Long Low		Moderate	
37	<i>Callistemon spp</i>	10,10 8	22	6	3	M	2 1.6	5	5	60%	C	Long Low		Moderate	
38	<i>Callistemon spp</i>	5,10 8	25	6	3	M	2 1.85	5	4	70%	C	Long Low		Moderate	
39	<i>Chrysalandocarpus lutescens</i> Golden Cane	15x4	30 est	6	2	M	3.6 2	5	5	80%	C	Long Low	8	Moderate	Growing near building
40	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	28 est	30 est	12	2	M	3.6 2	5	5	85%	C	Long Low		Moderate	Growing next to the building Wind damage to fronds

Tree surgery:

- Deadwood.
- Reshape Crown.
- Wound repair.
- Insect control.
- Improve soil conditions (mulch fertility, aeration etc).
- Investigate cavities

- Thin crown, consider installation of cabling/bracing and/or retain and fence off for public safety.
- Line clearance of structures or service wires.
- Remove attached plant.
- Root girdling.
- Remove.

- No tree surgery required.
- Requires tree protection measures.
- Borer damage.
- Fungal or bacterial damage.
- Monitor.
- has been pruned

Age classification:
Y - Young
SM - Semi Mature
M - Mature
OM - Overmature
V - Veteran

Crown class:
D - Dominant
C - co-dominant
I - intermediate
S - Suppressed

SULE
L = Long
M = Medium
Sh = Short
R = Remove
Sm = Small
U = Unstable

Landscape Significance
1 - Significant
2 - Very High
3 - High
4 - Moderate
5 - Low
6 - Very Low
7 - Insignificant

ESTIMATED LIFE EXPECTANCY	LANDSCAPE SIGNIFICANCE RATING						
	1	2	3	4	5	6	7
Long - Greater than 40 years	High Retention Value						
Medium - 15 to 40 years			Moderate Retention Value				
Short - 5 to 15 years				Low Retention Value			
Transient - Less than 5 years					Very Low Retention Value		
Dead or Potentially Hazardous							



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7.5

1.0 Tree Assessment Survey Sheet

Client: Inca Property Group

Job: 68915

DATE: 25/08/2025

Page number: 5/5

WEATHER: FINE

Version: 0.2

LOCATION: 35-39 DARLEY STREET MONA VALE

Tree #	Species Botanical name Common name	Trunk Diameter @1.4m CM	Trunk Diameter (buttress) CM	Height MT	Width MT	Age	TPZ MT SRZ	Health 1 = Poor 5 = Excel	Structure 1 = Poor 5 = Excel	Canopy Cover % m	Crown Class	SULE Rating Landscape Significance	Tree Surgery	Suitability for Preservation	Comments
41	<i>Archontophoenix cunninghamiana</i> Bangalow Palm	28 est	32 est	13	2	M	3.6 2.05	5	5	80%	C	Long Low		Moderate	Growing near building Wind damage to fronds
42	<i>Chrysalidocarpus lutescens</i> Golden Cane	15x4	30 est	6	2	M	3.6 2	5	5	80%	C	Long Low	8	Moderate	Growing near building

Tree surgery:

1. Deadwood.
2. Reshape Crown.
3. Wound repair.
4. Insect control.
5. Improve soil conditions (mul fertility, aeration etc).
6. Investigate cavities.

7. Thin crown, consider installation of cabling/bracing and/or retain and fence off for public safety.
8. Line clearance of structures or service wires.
9. Remove attached plant.
10. Root girdling.
11. Remove.

12. No tree surgery required.
13. Requires tree protection measures.
14. Borer damage.
15. Fungal or bacterial damage.
16. Monitor.
17. has been pruned

Age classification:
Y - Young
SM - Semi Mature
M - Mature
OM - Overmature
V - Veteran

Crown class:
D - Dominant
C - co-dominant
I - intermediate
S - Suppressed

SULE
L = Long
M = Medium
Sh = Short
R = Remove
Sm = Small
U = Unstable

Landscape Significance
1 - Significant
2 - Very High
3 - High
4 - Moderate
5 - Low
6 - Very Low
7 - Insignificant

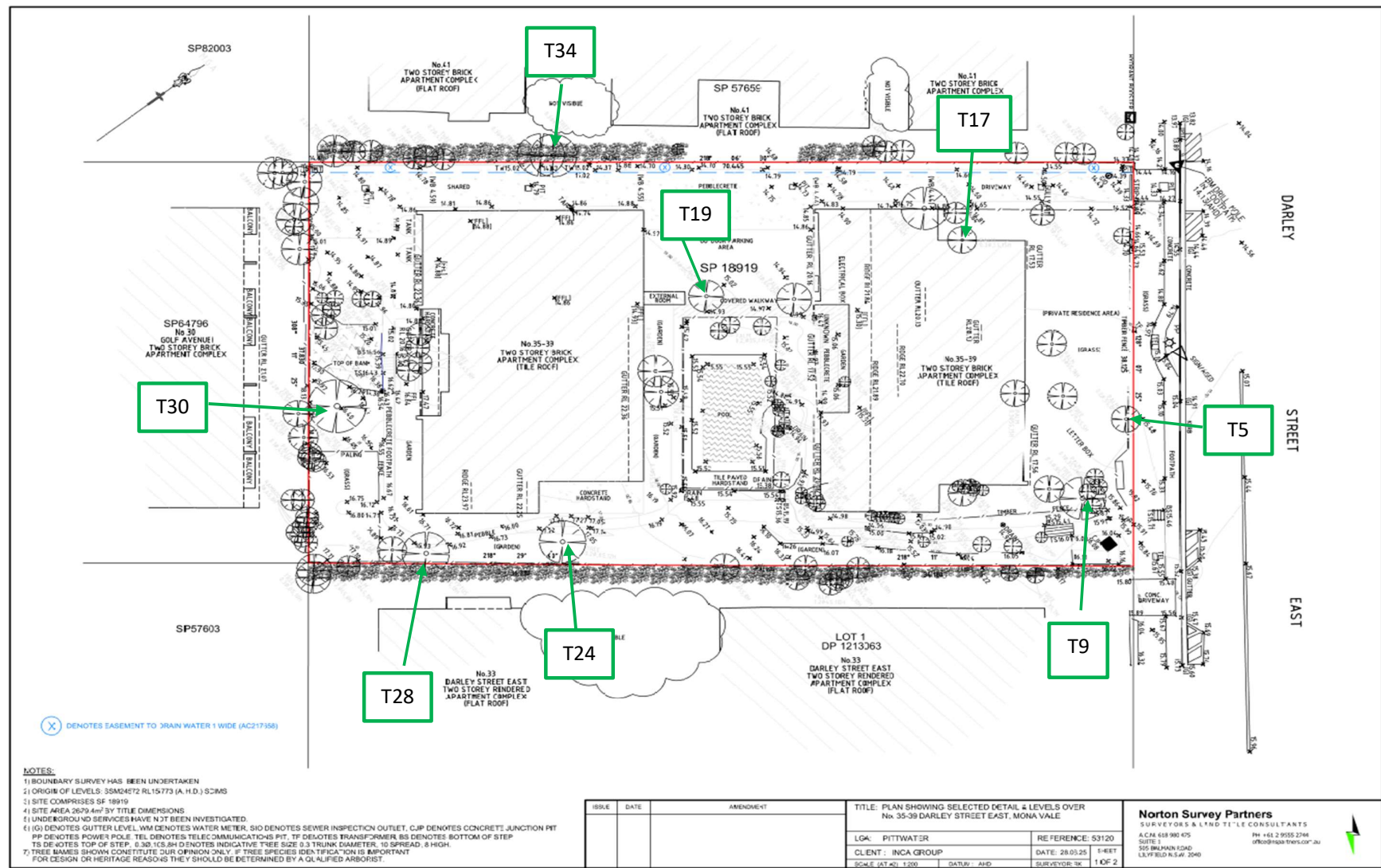
ESTIMATED LIFE EXPECTANCY	LANDSCAPE SIGNIFICANCE RATING						
	1	2	3	4	5	6	7
Long - Greater than 40 years	High Retention Value						
Medium - 15 to 40 years			Moderate Retention Value				
Short - 5 to 15 years				Low Retention Value			
Transient - Less than 5 years					Very Low Retention Value		
Dead or Potentially Hazardous							

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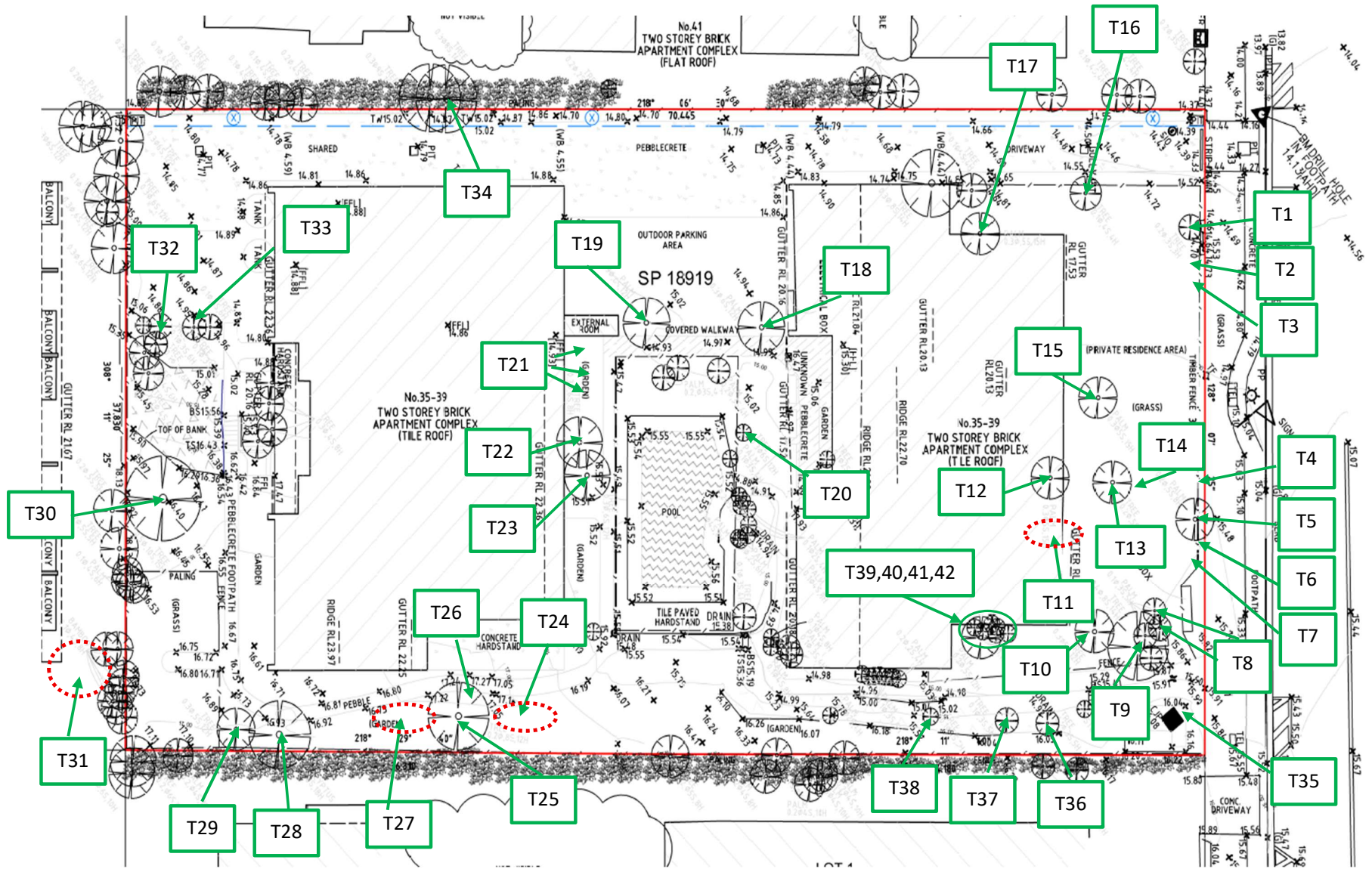
sir WILLIAM HOME bt: 0418979022
info@drtreegood.com.au
ENQUIRIES, PLEASE CONTACT office: 0452 405 682

8 Survey

8.1 Figure 1 –

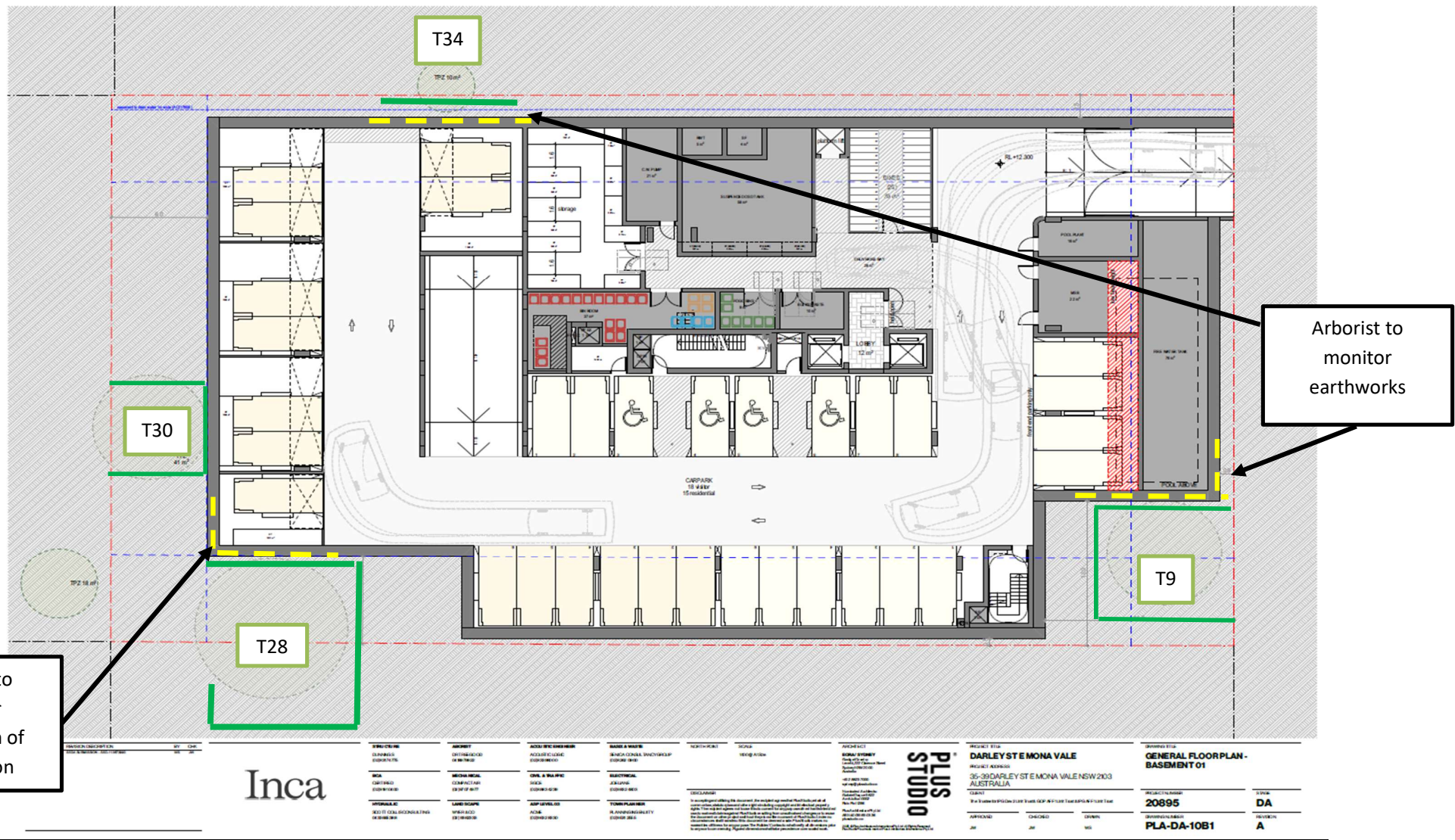


8.2 Figure 2 – Close up

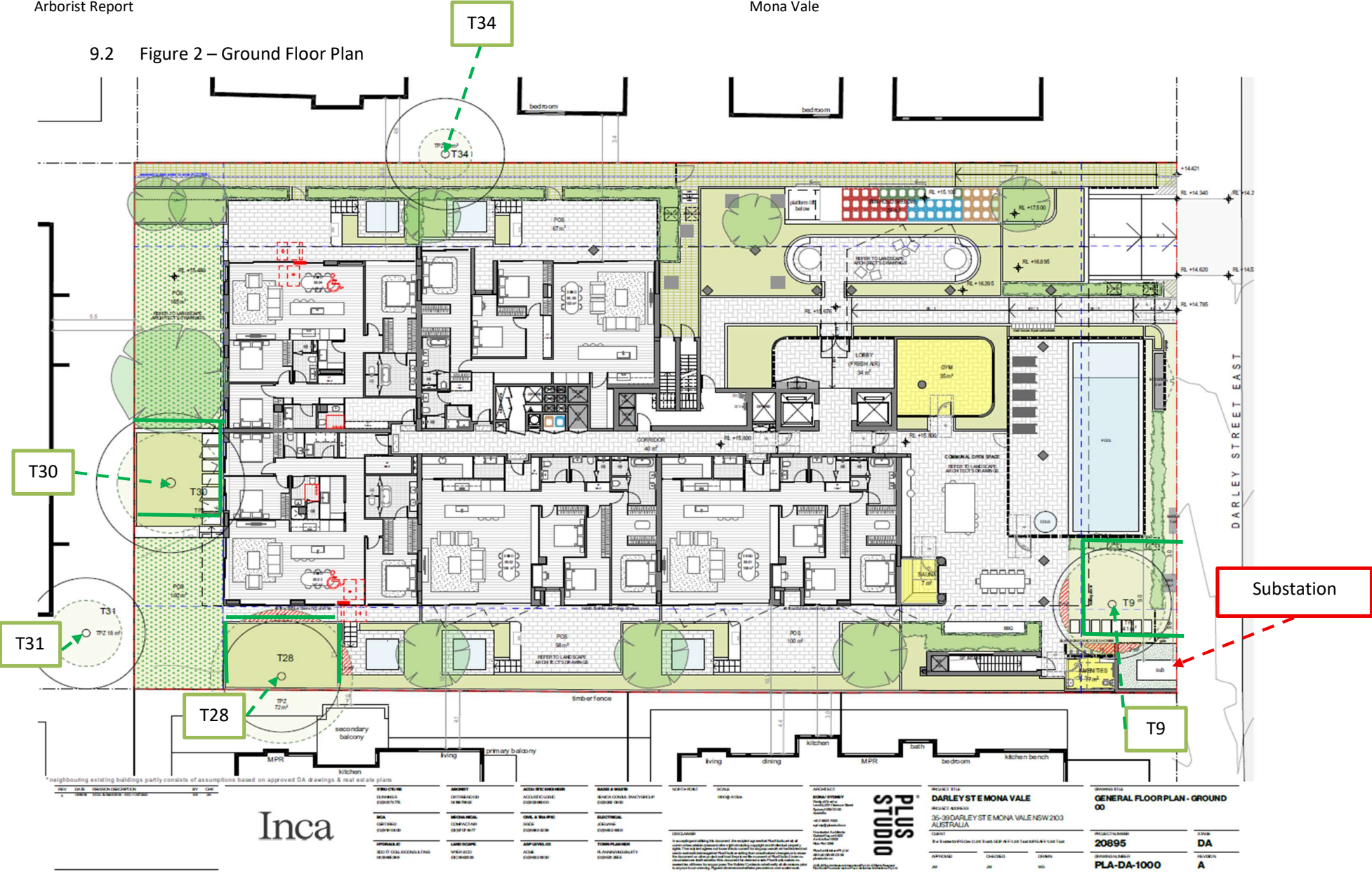


9 Site Plans

9.1 Figure 1 – Basement 01 Plan



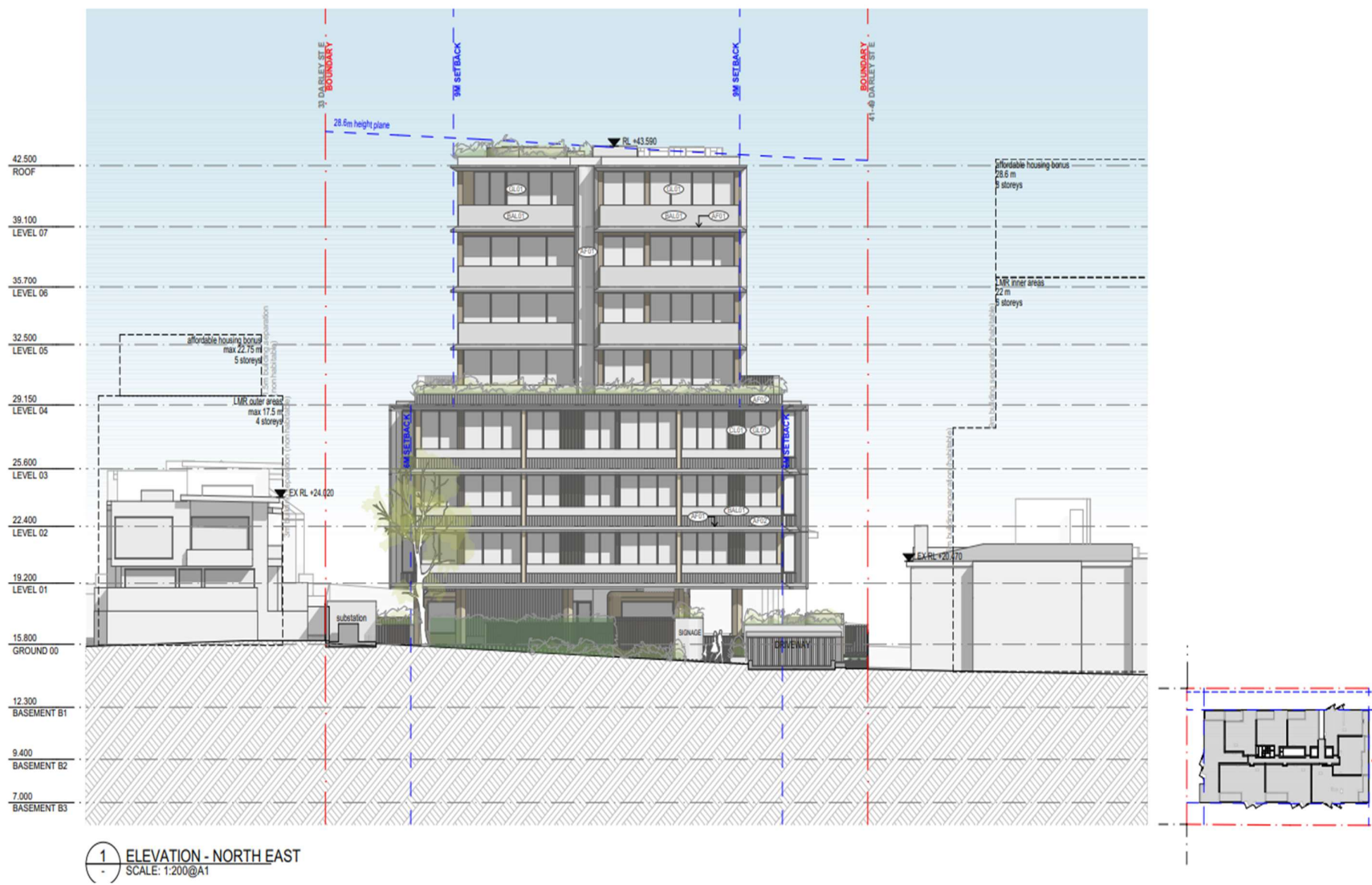
9.2 Figure 2 – Ground Floor Plan



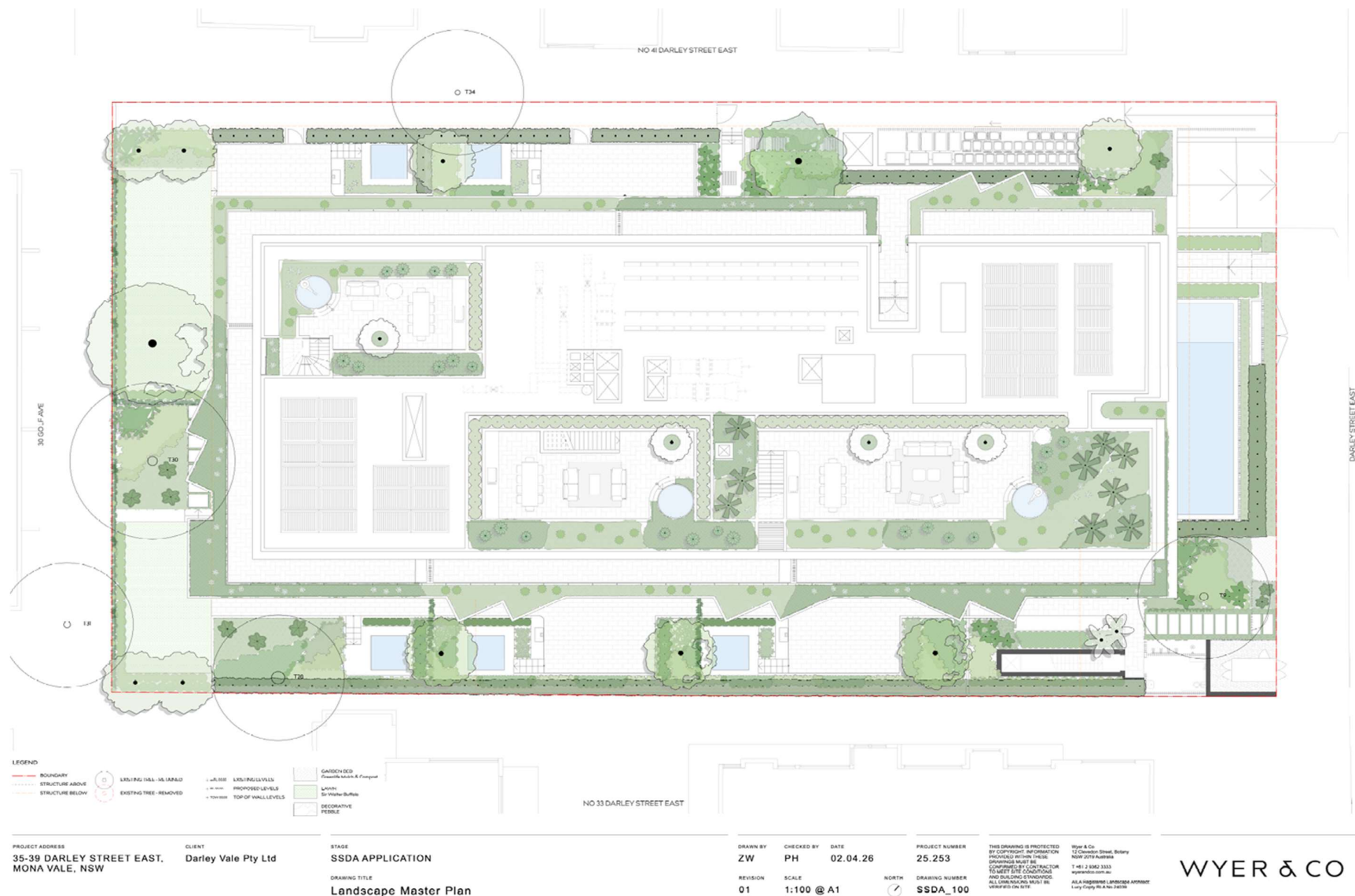
9.3 Figure 3 – South West Elevation



9.4 Figure 4 – North East Elevation



9.5 Figure 5 – Landscape Master Plan



10 Photographs

PHOTO 1



Tree 1 –Callistemon has a dead leader

PHOTO 2



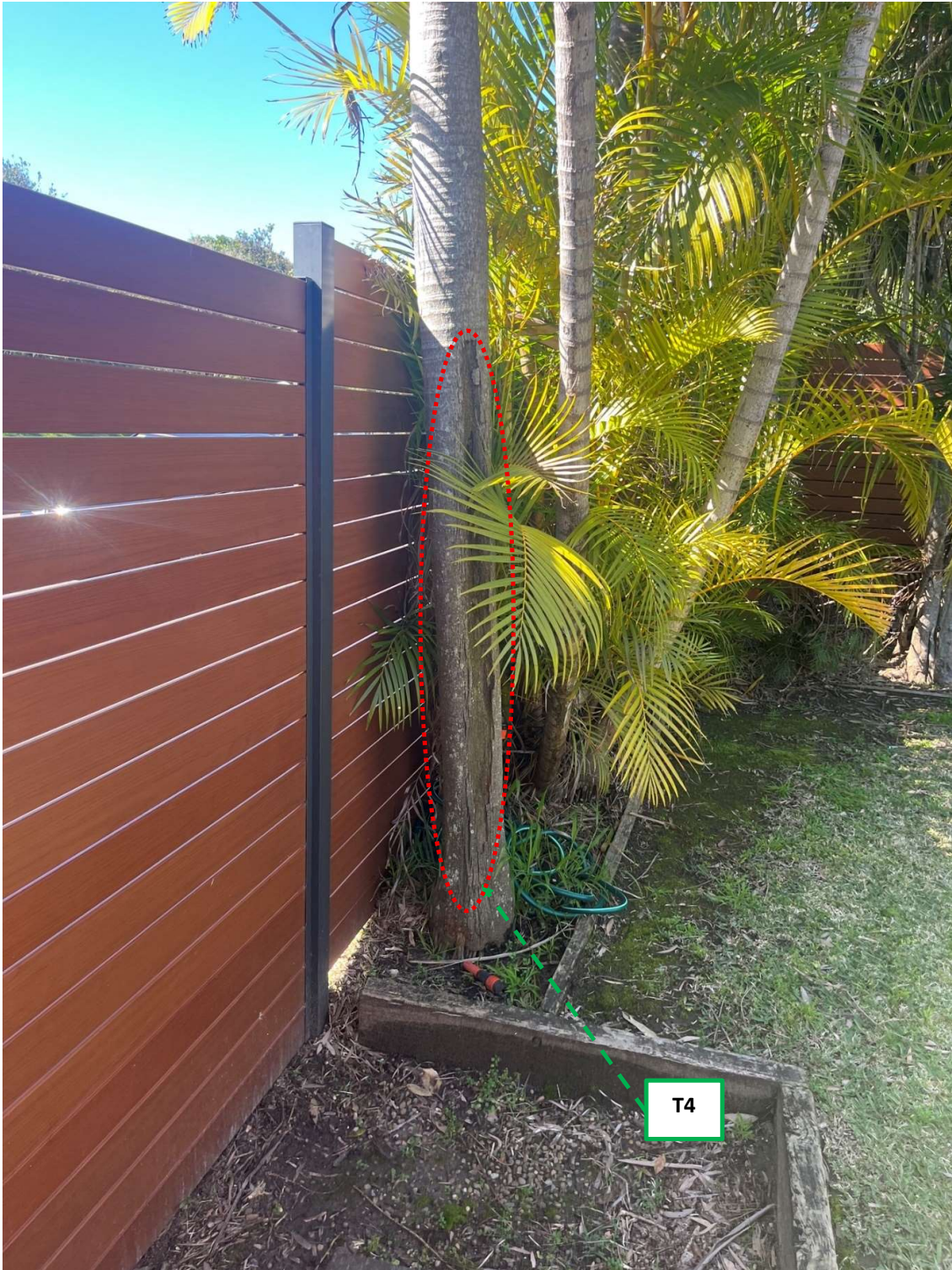
Tree 2 – Callistemon spp

PHOTO 3



Tree 3 - Grevillea has been lopped on northern side back to fence line

PHOTO 4



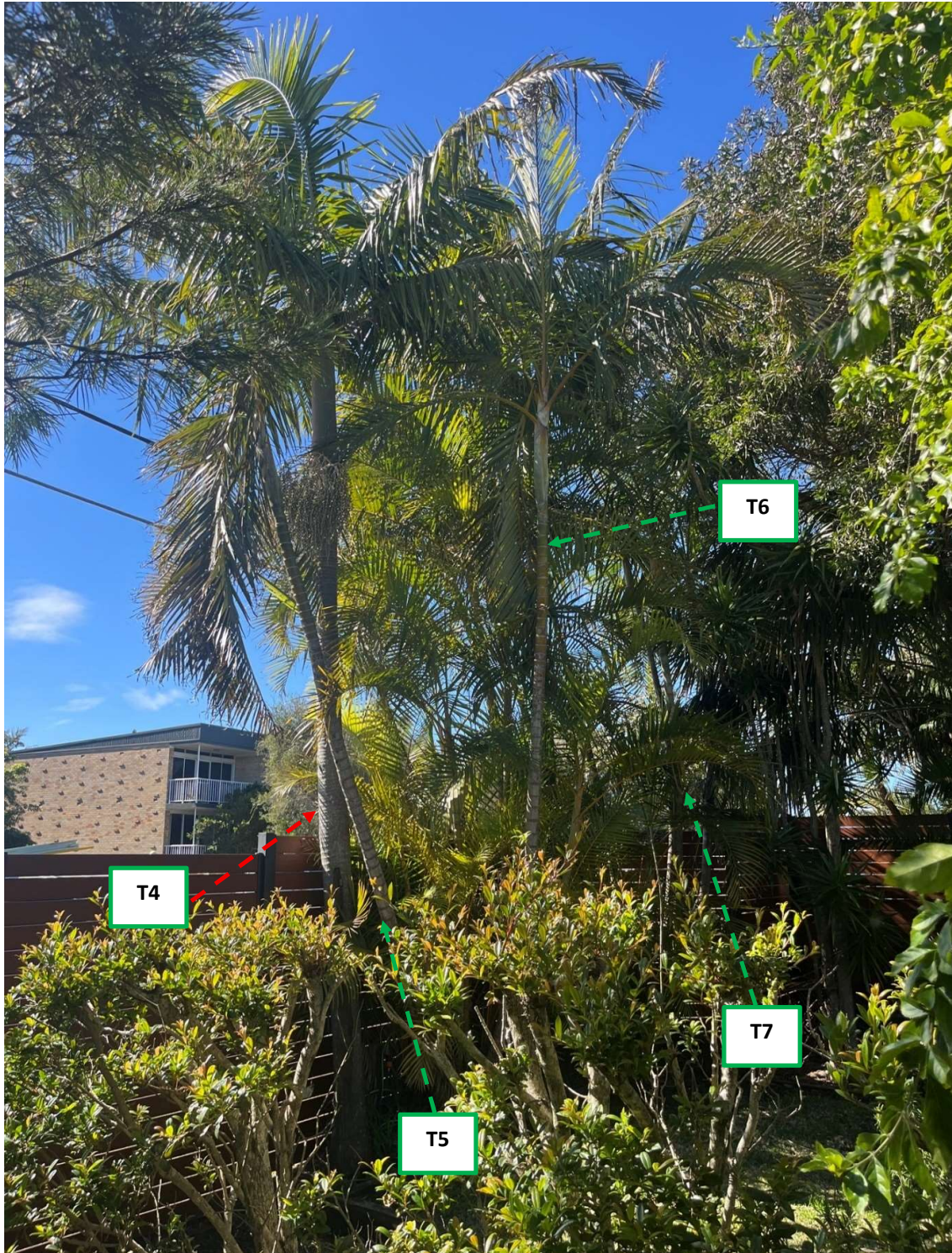
Tree 4 - *Archontophoenix cunninghamiana* (Bangalow) has a major trunk wound on the western side

PHOTO 5



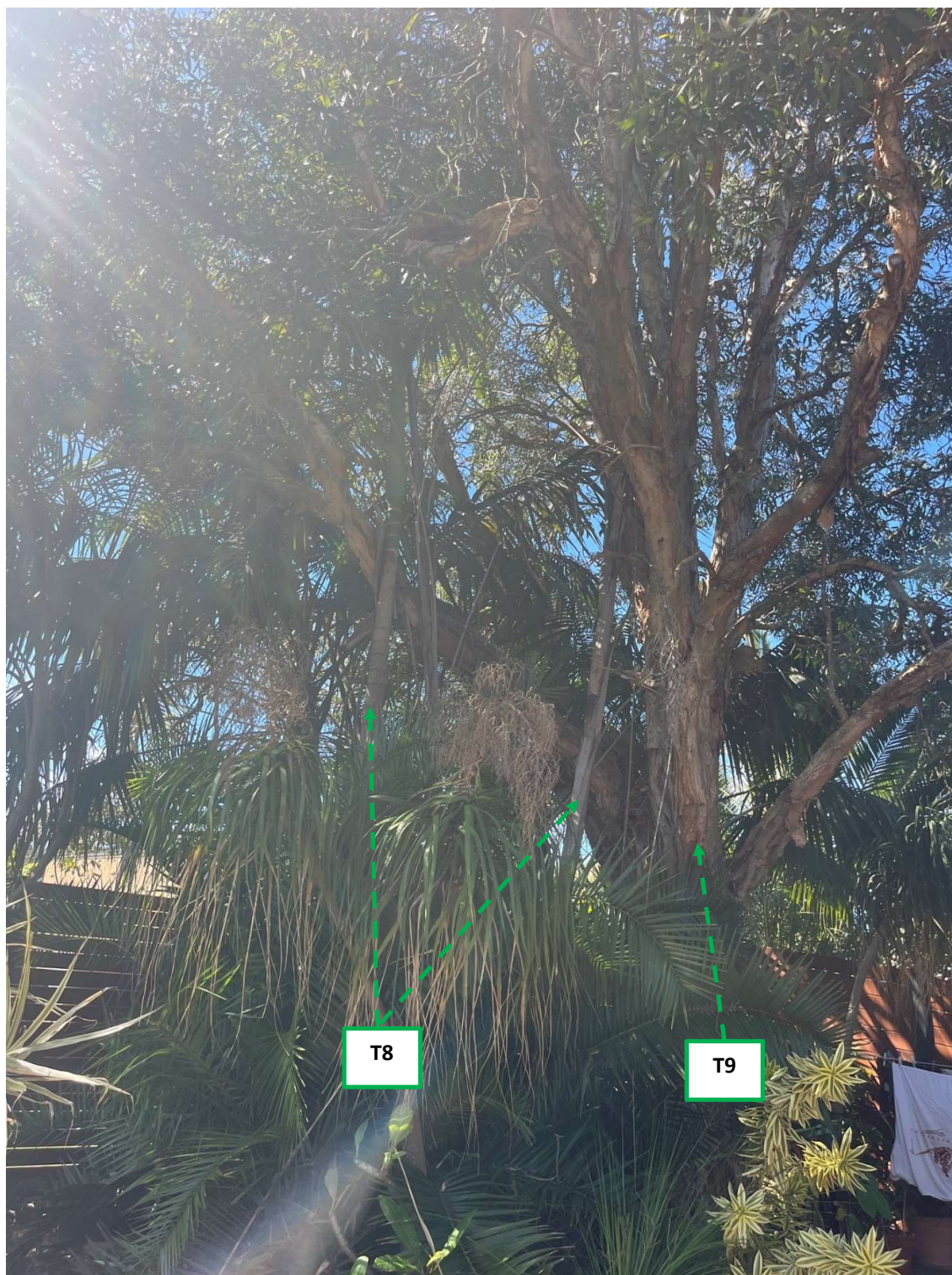
Tree 6 – Archontophoenix cunninghamiana (Bangalow) has a trunk wound on the western side

PHOTO 6



Tree 4- Archontophoenix , Tree 5 - Chrysalidocarpus, Tree 6 - Archontophoenix, Tree 7 - Chrysalidocarpus

PHOTO 7



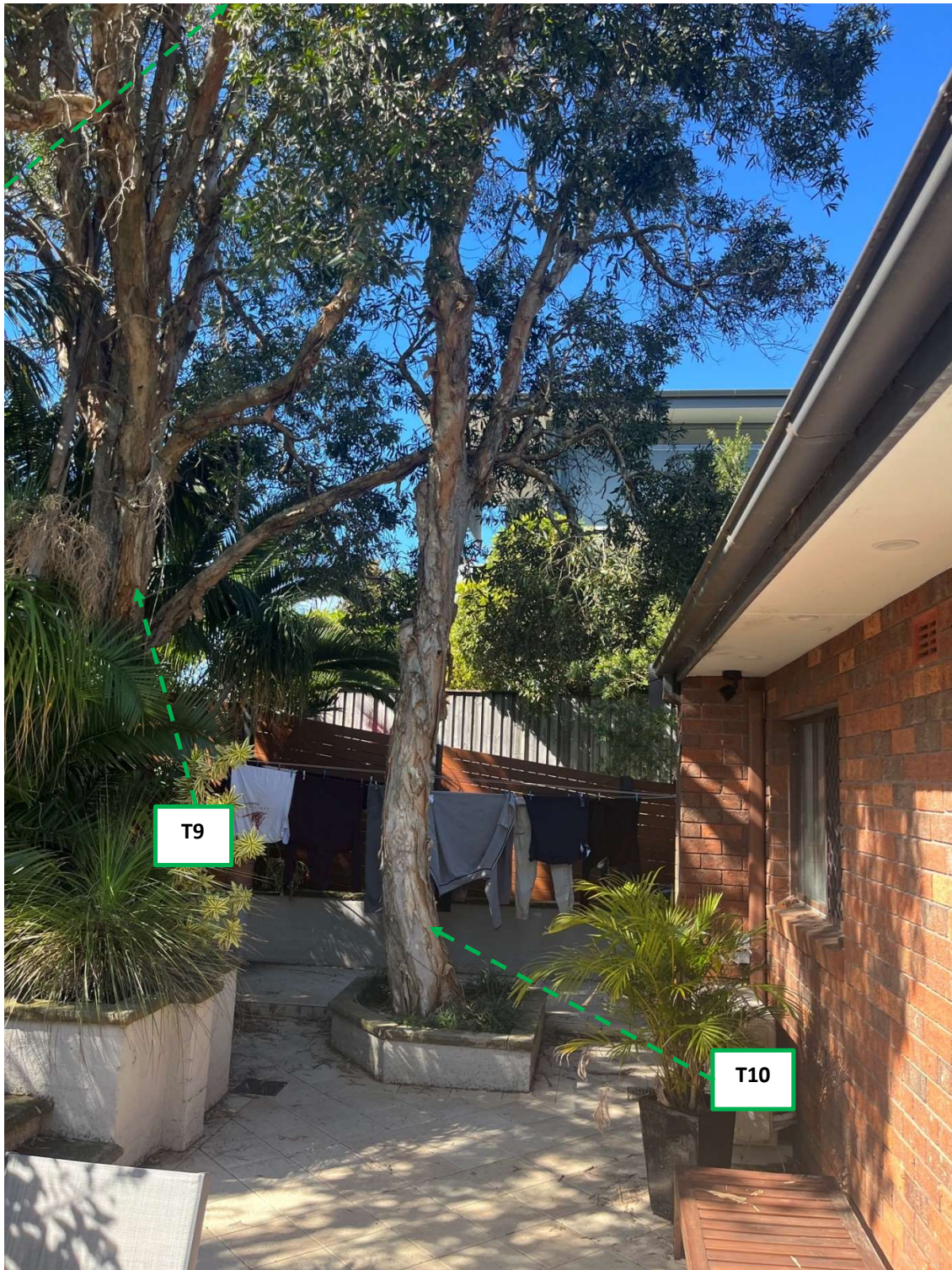
Tree 8 - Archontophoenix and Tree 9 - Melaleuca quinquenervia

PHOTO 8



Tree 9 - Melaleuca quinquenervia and Tree 10 - Melaleuca quinquenervia - both trees are growing in the raised garden bed next to the base of the trees

PHOTO 9



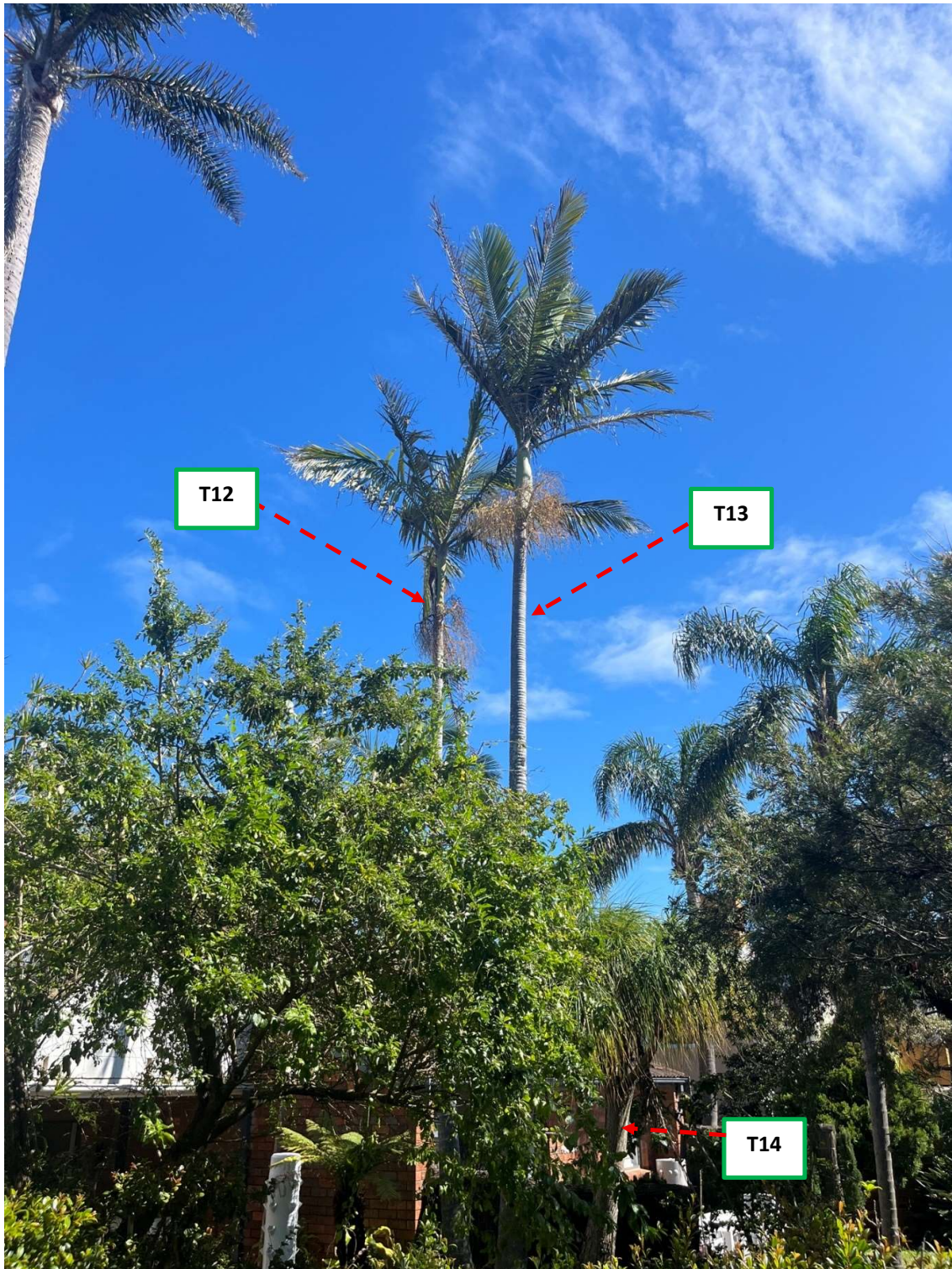
Tree 9 - Melaleuca quinquenervia and Tree 10 - Melaleuca quinquenervia there is a structure within the SRZ

PHOTO 10



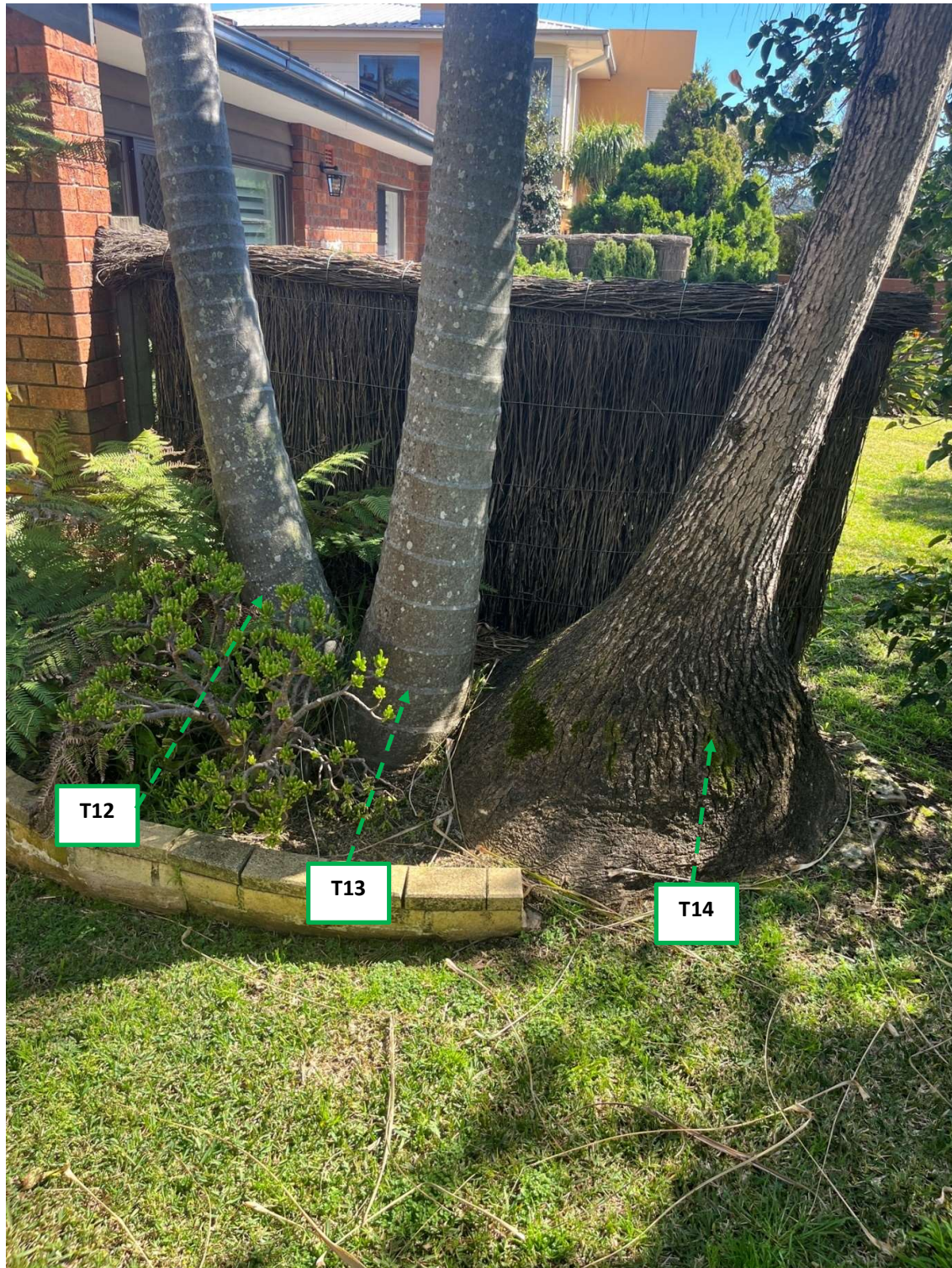
Tree 11 Syagrus (Cocos palm) – There are spike marks on the tree and the tree has cambium damage

PHOTO 11



Tree 12 - Archontophoenix and Tree 13 - Archontophoenix

PHOTO 12



Tree 12 - Archontophoenix, Tree 13 - Archontophoenix and Tree 14 - Beaucarnea ponytail

PHOTO 13



Tree 15 - Syagrus (Cocos palm) – Exposed roots

PHOTO 14



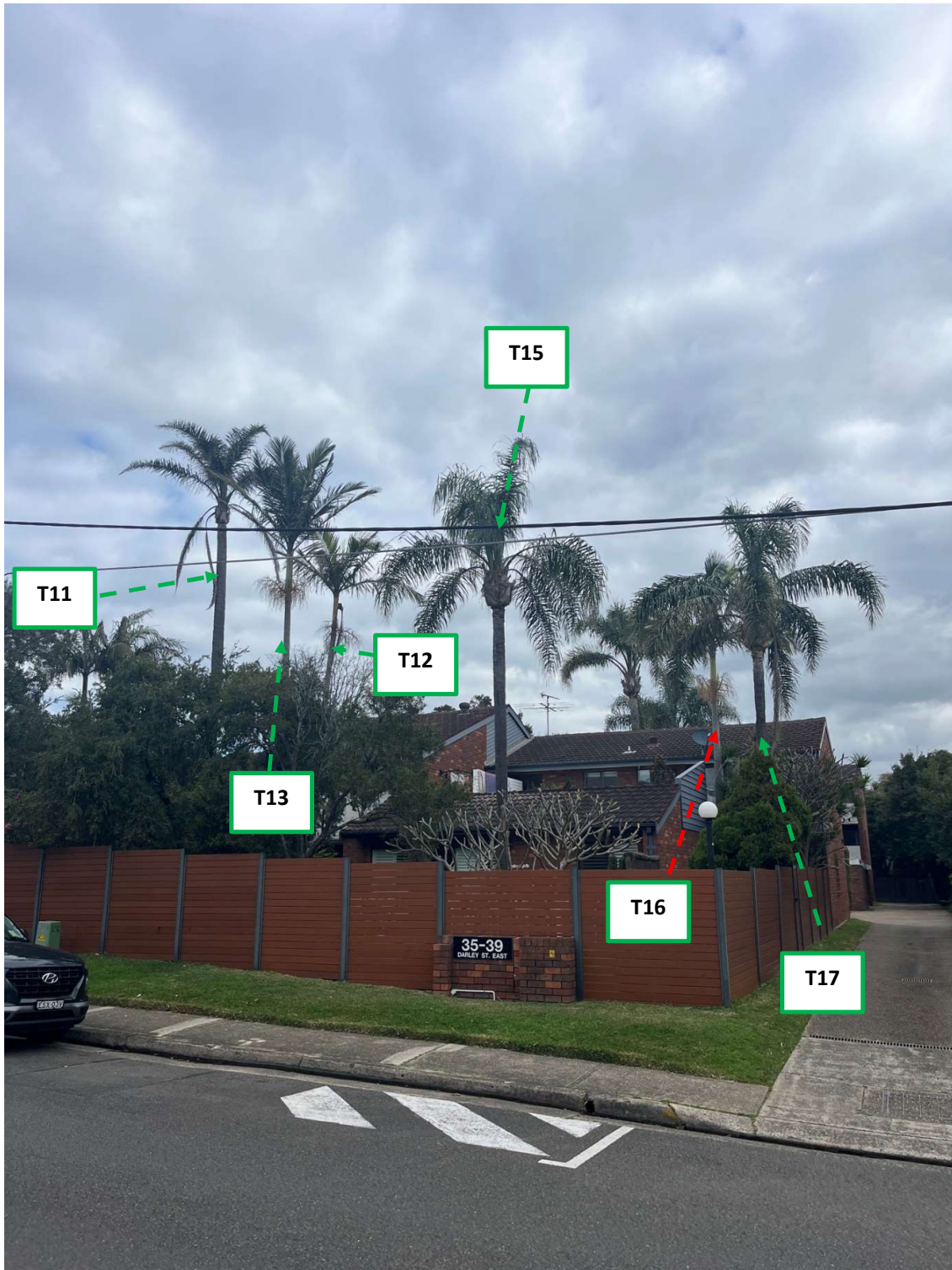
Tree 16 - Syagrus (Cocos palm) – Exposed roots

PHOTO 15



Tree 17 – Archontophoenix cunninghamiana (Bangalow Palm)

PHOTO 16



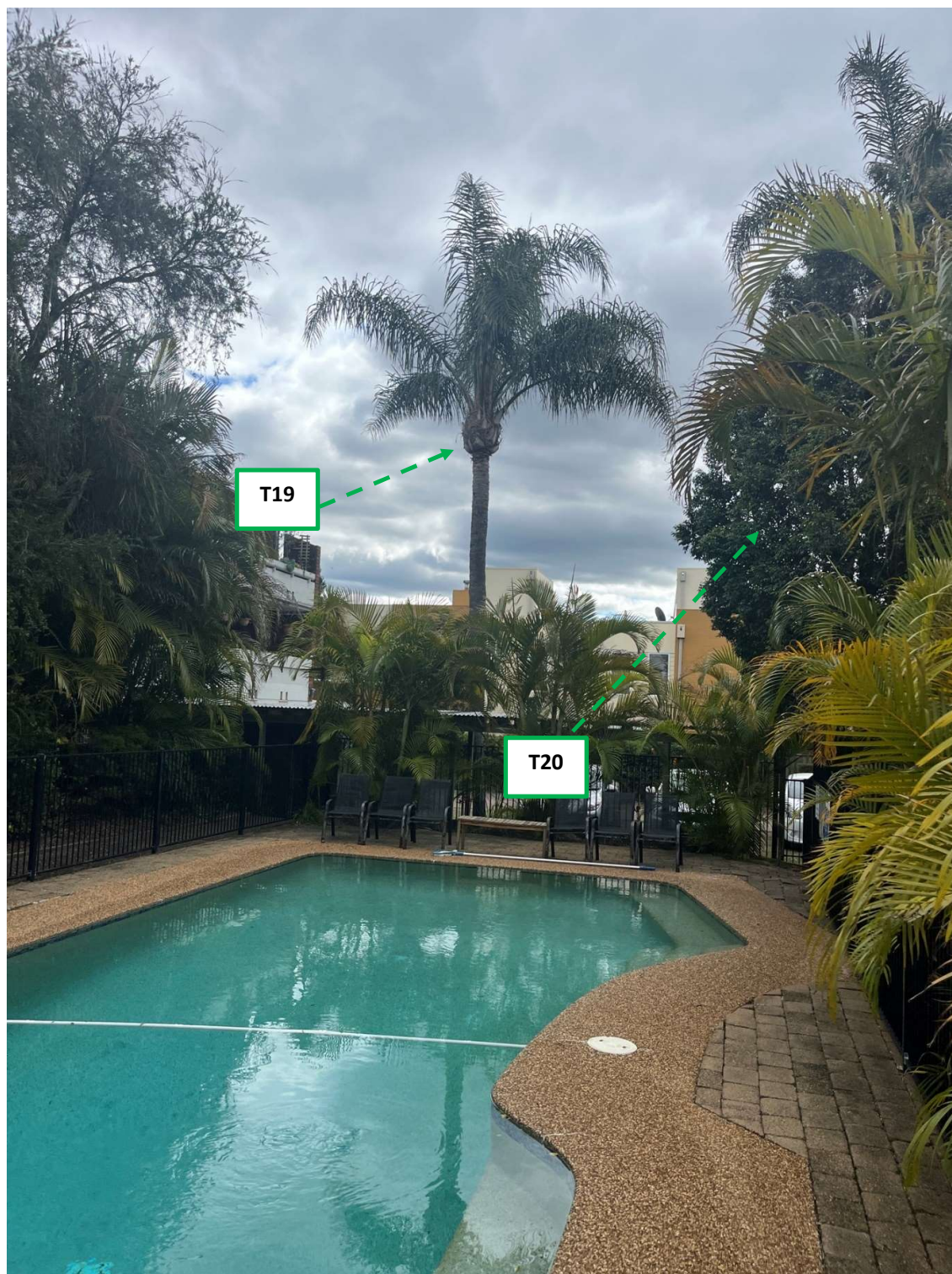
Tree 11- Syagrus (Cocos palm), Tree 12 - Archontophoenix, Tree 13 - Archontophoenix, Tree 15 - Syagrus (Cocos palm), Tree - 16 Archontophoenix, Tree 17 - Syagrus (cocos palm)

PHOTO 17



Tree 18 – *Syagrus romanzoffiana* (Cocos Palm) – Exposed roots

PHOTO 18



Tree 19 – *Syagrus romanzoffiana* (Cocos palm)

PHOTO 19



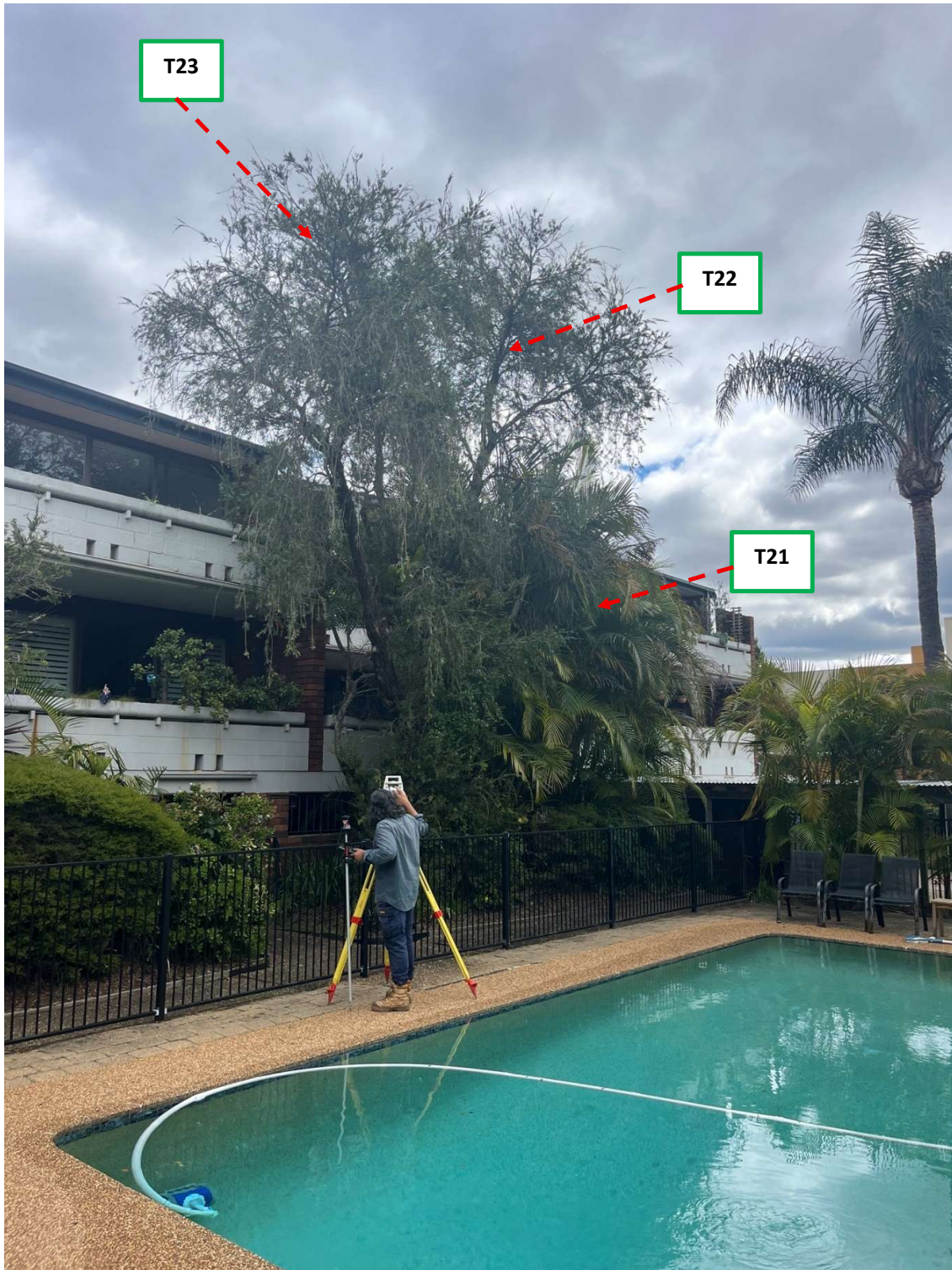
Tree 20 – *Syzygium smithii* (Lilly Pilly)

PHOTO 20



Tree 20 - *Syzygium smithii* (Lilly Pilly) – Three trunk specimen possible was lopped at ground level

PHOTO 21



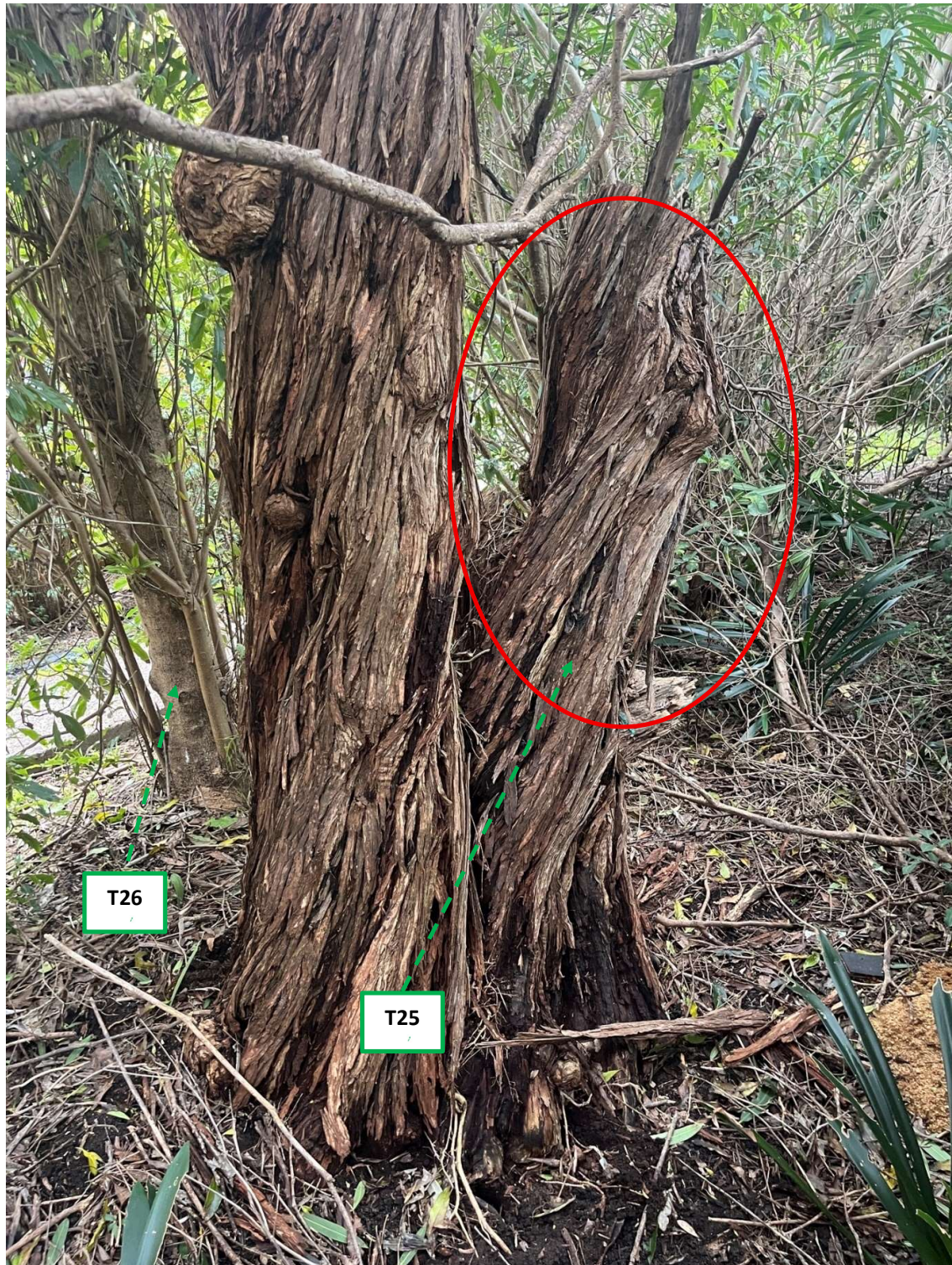
Tree 23- Callistemon, Tree 22 - Callistemon and Tree 21 - Chrysalidocarpus– These trees are growing as a group

PHOTO 22



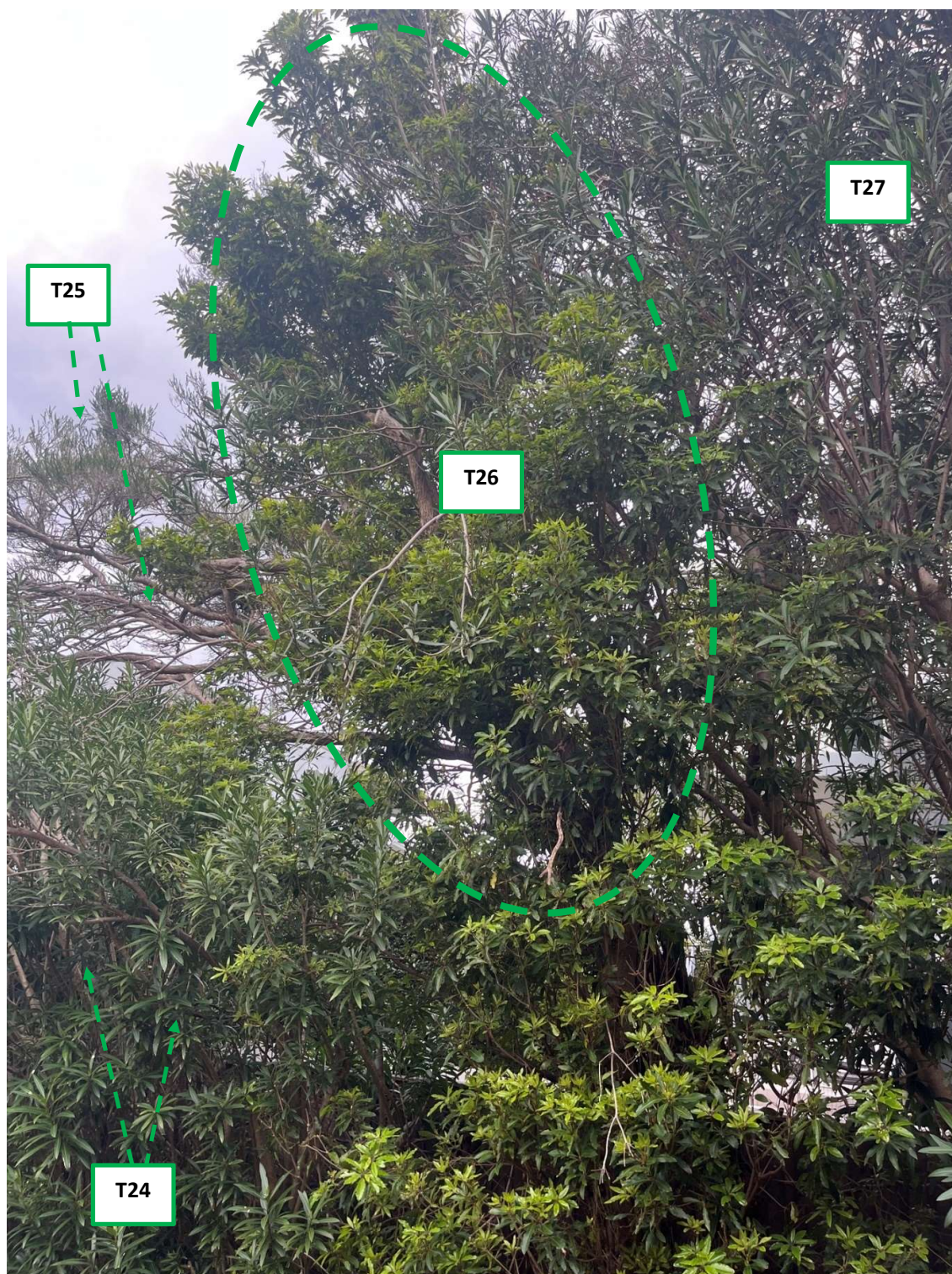
Tree 24 – Oleander, Tree 25 - Tea tree, Tree 26 - Pittosporum

PHOTO 23



Tree 25 - Melaleuca – Dead trunk, Tree 26 - Pittosporum

PHOTO 24



Tree 24 - Nerium oleander, Tree 25- Melaleuca , Tree 26 - Pittosporum ,Tree 27 - Nerium oleander

PHOTO 25



Tree 26 - Pittosporum and Tree 27 - oleander – This tree has been pruned over the path

PHOTO 26



Tree 28 - *Melaleuca quinquenervia* has lifted the pathway and Tree 29 - *Melaleuca quinquenervia* small tree at rear

PHOTO 27



Tree 28 - Melaleuca quinquenervia and Tree 29 - Melaleuca quinquenervia dead small leader

PHOTO 28



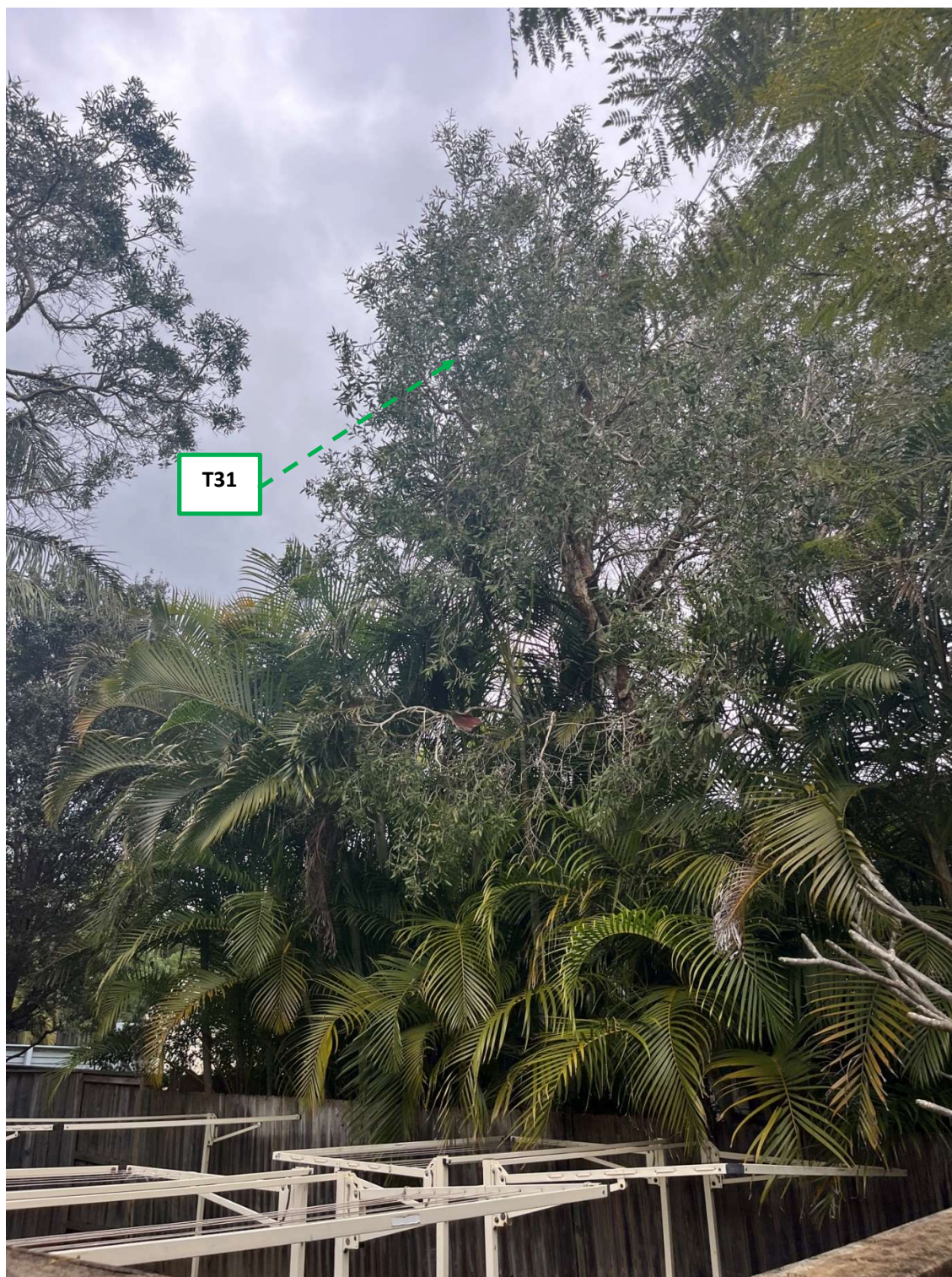
Tree 30 - Jacaranda

PHOTO 29



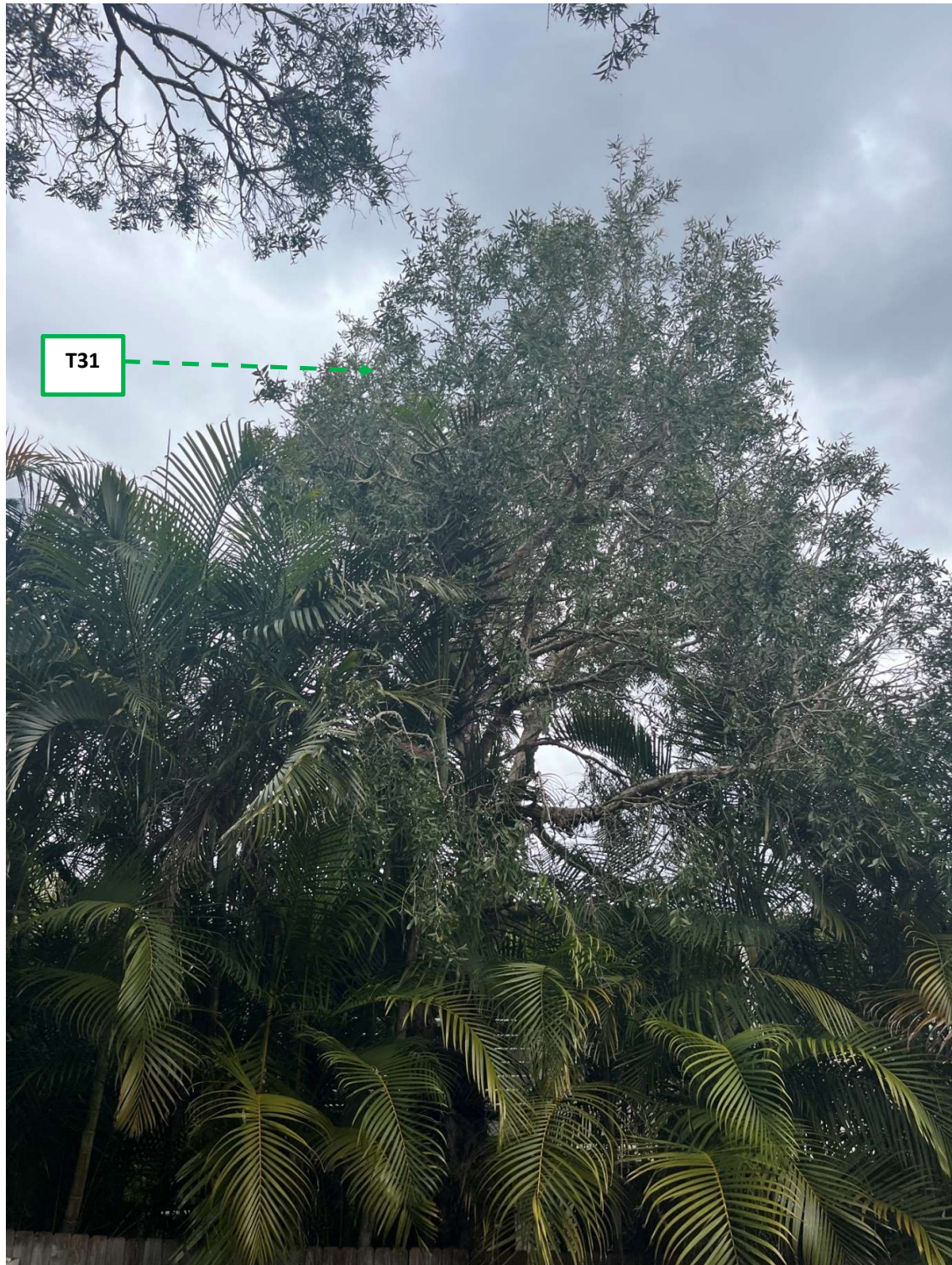
Tree 28 - Melaleuca quinquenervia and Tree 29- Melaleuca quinquenervia misshapen canopy with the small leader being dead

PHOTO 30



Tree 31 - *Melaleuca quinquenervia* growing in neighbours

PHOTO 31



Tree 31 - *Melaleuca quinquenervia* growing in neighbours

PHOTO 32



Tree 32 – Callistemon and Tree 33 - Callistemon

PHOTO 33



Tree 34 - *Syzygium* spp growing in the neighbours at a much lower R.L than the driveway

PHOTO 34



Tree 34 *Syzygium* spp – This tree has been pruned off the building

PHOTO 35



Tree 34 - Syzygium is growing in the neighbours at a much lower R.L than the driveway

PHOTO 36



Tree 35 - Callistemon has had the canopy lifted over the pathway

PHOTO 37

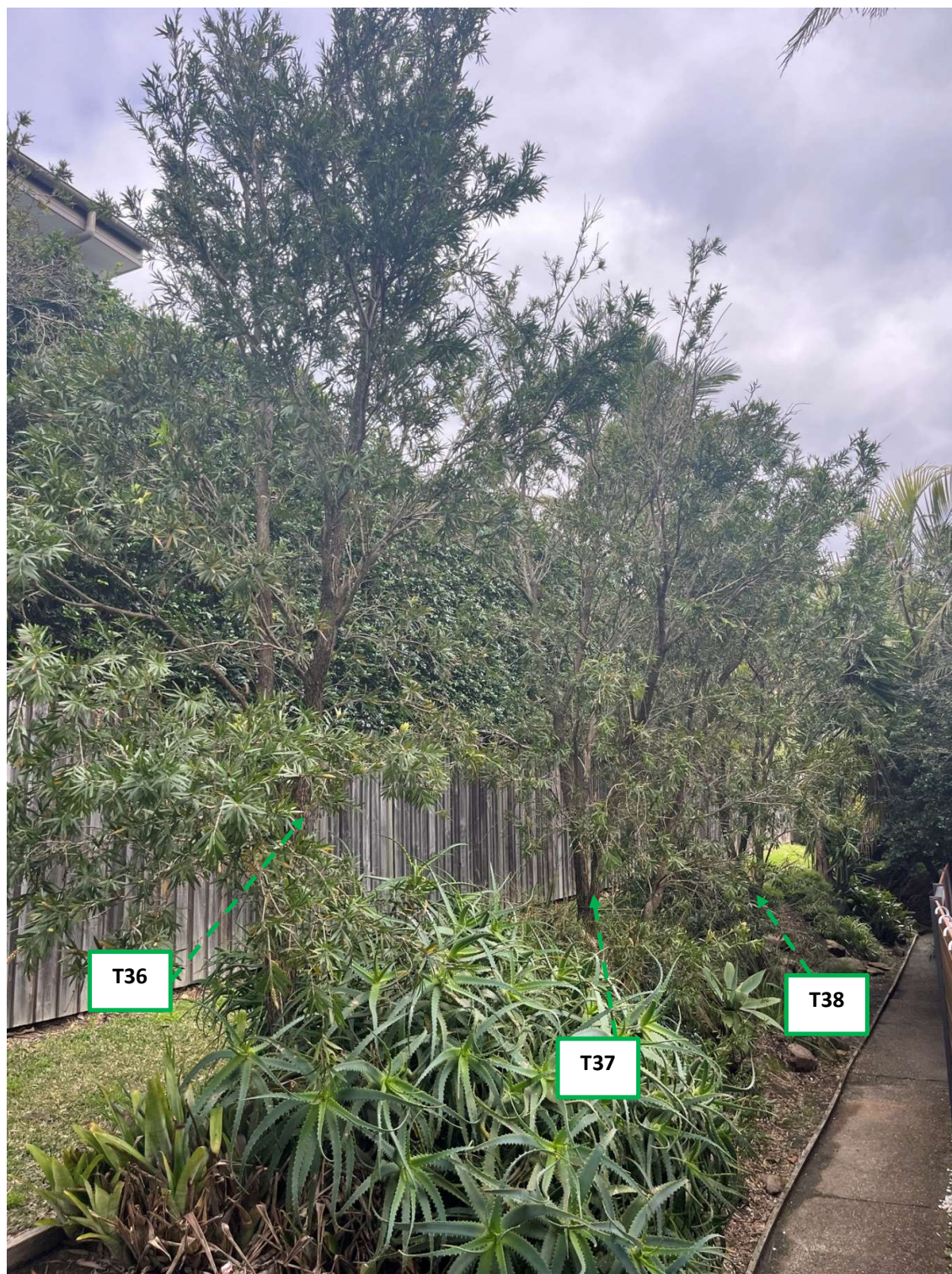
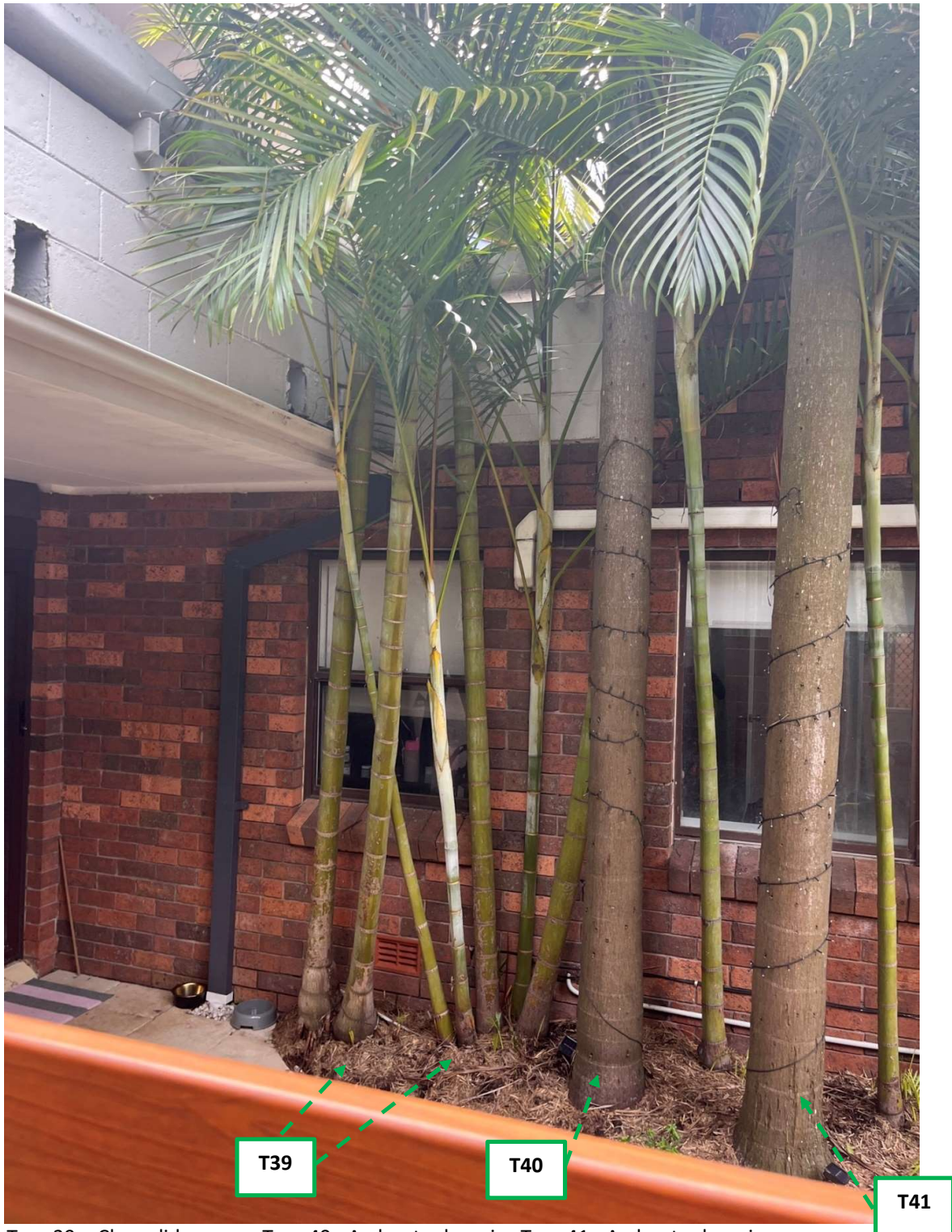


PHOTO 38



Tree 38 - Callistemon spp has had canopy lifted over pathway

PHOTO 39



Tree 39 - Chrysalidocarpus ,Tree 40 - Archontophoenix ,Tree 41 - Archontophoenix

PHOTO 40



Tree 39 - Chrysalidocarpus , Tree 40 - Archontophoenix , Tree 41 - Archontophoenix and Tree 42
Chrysalidocarpus

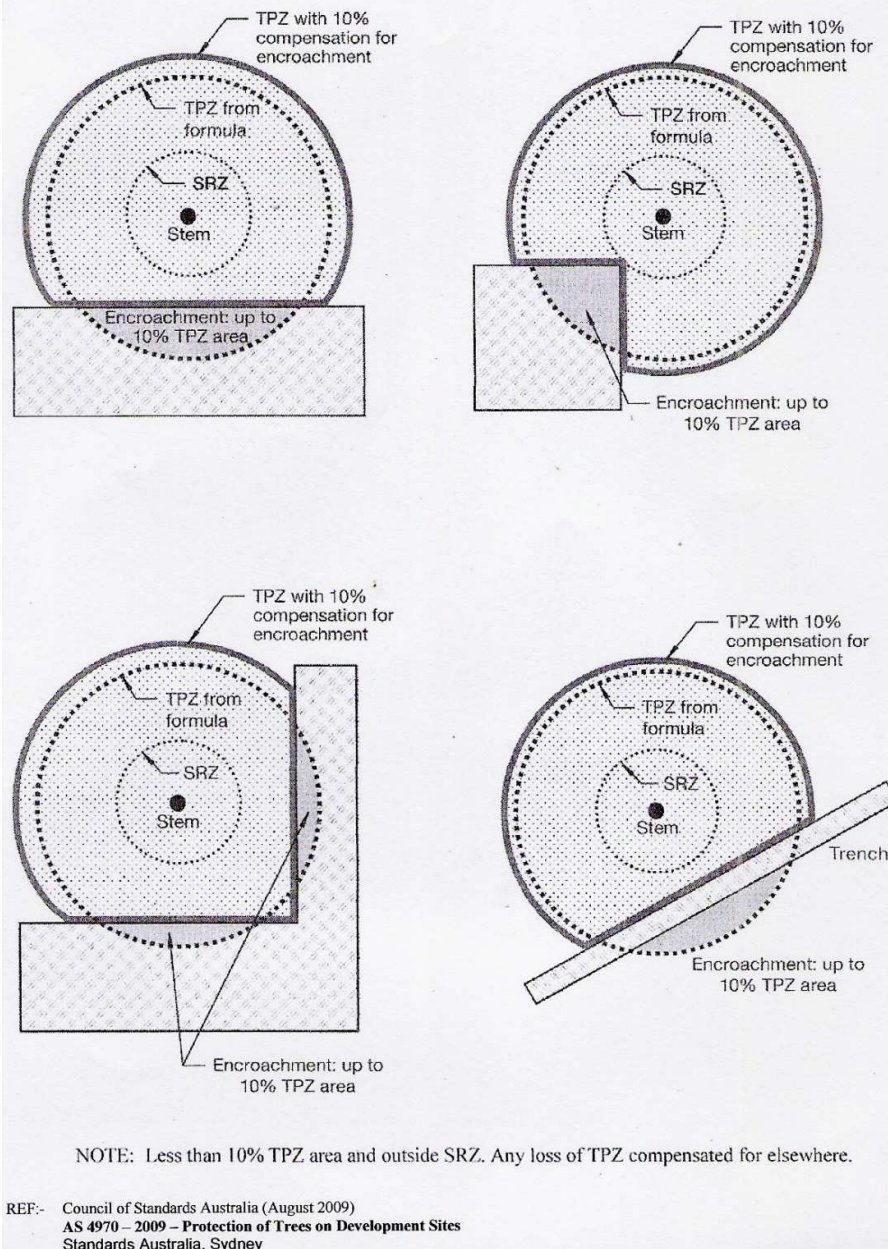
PHOTO 41



Tree 39- Chrysalidocarpus ,Tree 40- Archontophoenix ,Tree 41- Archontophoenix ,Tree 42 - Chrysalidocarpus

11 (TPZ)Acceptable Incursions to the Tree Protection Zone (TPZ)

APPENDIX 2 – ACCEPTABLE INCURSIONS TO THE TREE PROTECTION ZONE (TPZ)



12 Tree and Trunk Protection Methodology

12.1 Tree Protection Fencing

- a) The trees to be retained should be protected by means of fencing prior to commencement of demolition (including tree removal) or bulk earthworks.
- b) The protection fencing should be immovable. It should be constructed from 1.8-metre-high chain link suspended on 2.4m x 45mm galvanised steel pipe.
- c) The area within should be kept free of all building materials, contaminants and other debris. It should not be used for storage of any building materials.

12.2 Mulching

- a) The area within the protective fencing should be mulched to a depth greater than 75mm and not exceeding 100millimetre using a leaf mulch or 25-millimetre eucalypt chip. The mulch should be free of weed seeds and other contaminants. If construction access is required within the tree's dripline, outside the protective fencing, heavier mulch should be spread to a depth no greater than 100 millimetres to reduce soil compaction.

12.3 Trunk Protection

- a) Trunk protection of hardwood timbers should be used to protect the tree's trunk where construction is proposed. This should be fastened around the trunk with hoop iron strapping or similar, and padded with carpet underlay or equivalent

12.4 Mulching within Tree Protection Zone



13 Tree Protection Photograph



14 Guidelines for Excavating near Trees to be preserved

- 14.1 Monitor the excavation work within a five plus metre radius of the tree. Excavation in this zone is to be done using hand tools, not an excavator.
- a) An arborist must monitor all excavation works within the TPZ.
 - b) Use hand tools to carry out any work within the drip zone of the tree.
 - c) Excavation work can be also done with Air Knit or Air Spade.
- 14.2 An arborist must cut any roots to be removed with a clean sharp handsaw.
- a) Cut all roots with clean equipment that is specifically designed to cut roots not with impacted tool.
 - b) Do not cut large roots (>30mm diameter) closer than halfway from drip line to the trunk.
 - c) Severance of structural roots of 25mm or more in diameter is not permitted without prior permission of the arborist.
- 14.3 Wrap any roots found in damp cloth.
- a) Protect roots that are exposed during excavation from drying out – wrap etc.
 - b) Immediately wrap all tree roots uncovered in dampened jute matting or equivalent sacking made of natural fibre cloth, until backfilling takes place. Hessian fibre or Hessian sack. Tree roots must not remain exposed.
 - c) Clumps of fibrous roots must not be severed/cut and need to be retained as per wrapping instructions in 'b'. Arborist must inspect to give guidelines.
- 14.4 Any area within five metres of the tree trunk (limited) should not be used to storage or mixing of building materials as this could change the microorganisms in the soil.
- a) Do not store equipment, materials, or chemical based solutions in the TPZ.
 - b) Do not use heavy machinery within the protection zone.
 - c) No vehicle access without the agreement of the arborist.
 - d) If vehicle access require measure must be put in place to prevent compaction.
- 14.5 Any footing in the zone of the roots is to be built with a pier and beam construction with the aim to give 100mm clearance of the roots.
- a) Keep the original soil level – RL – where possible – with no disturbance of the soil, including level changes or compaction, within the TPZ without prior consultation with the arborist.
 - a) Make no changes that will alter the amount of water infiltration surrounding or within the TPZ without the consent of the arborist.
- 14.6 Any paving installed must allow air and water penetration to the root zone. The pavers must have sand placed between them and not cement as cement would prevent air flow to the root location.

- 14.7 If any roots are found in this zone, the pavers are to be raised by the placement of washed sand over the roots. This RL should be determined at an early stage of the construction so that the pavers do not go above the damp course of the house.

15 Tree Root Protection.

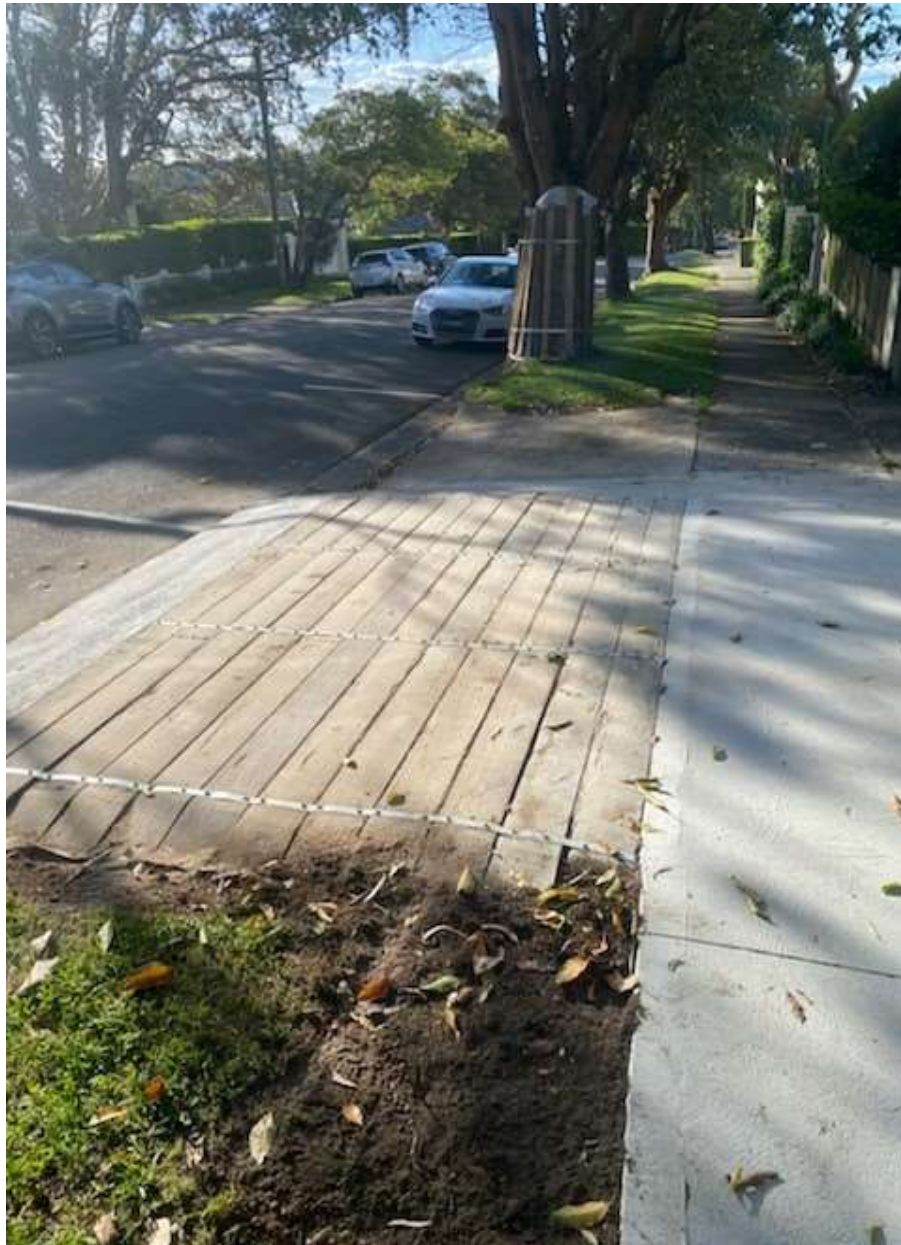
15.1 Timber placed over root system to prevent compaction



15.2 Ground protection for tree roots in Tree Protection Zone – temporary driveway placed within TPZ to prevent compaction



15.3 Root protection by placing timbers on top of existing soil levels and held together with iron strapping

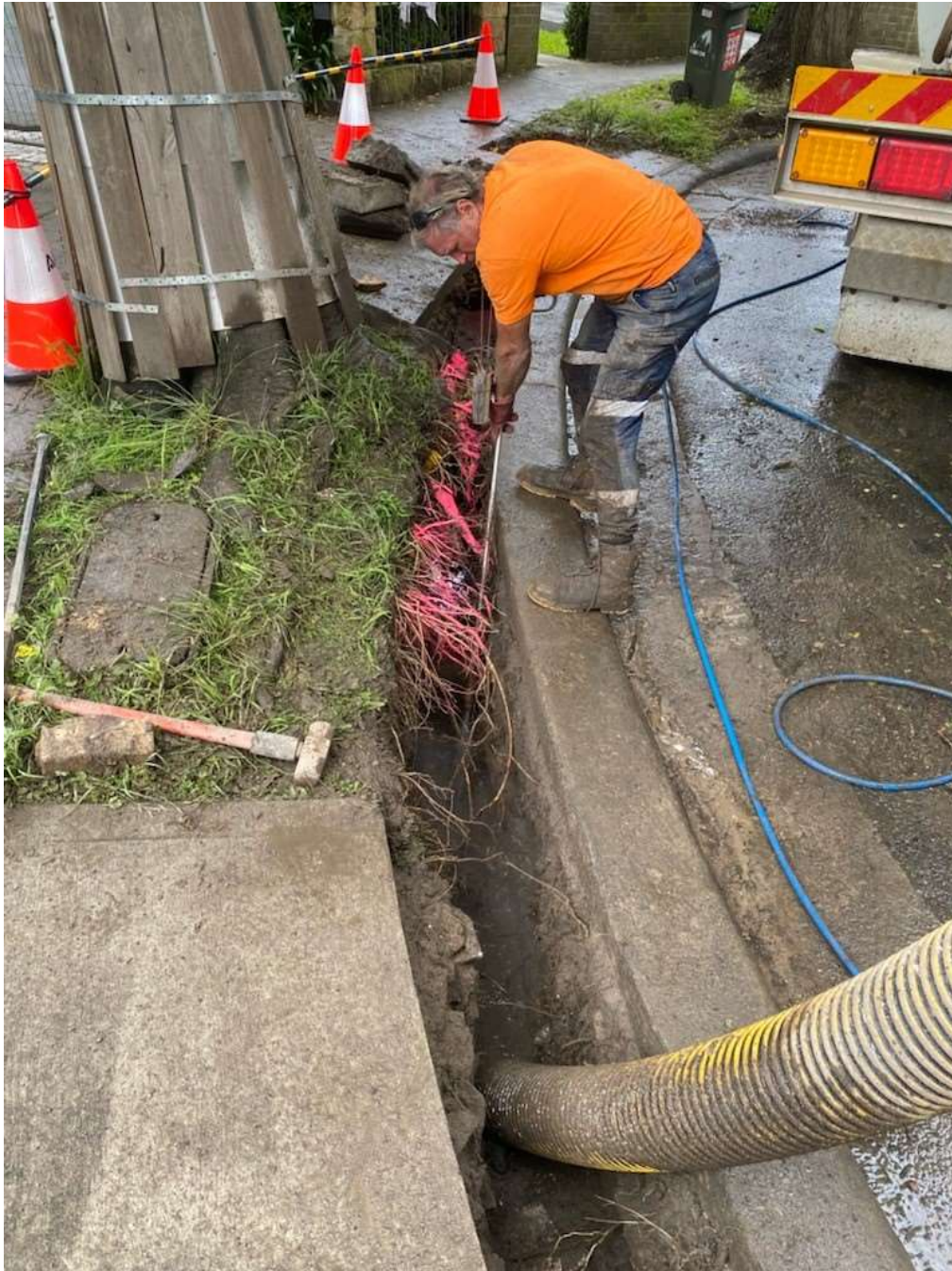


- 15.4 Timbers held together by iron hoop strapping and placed on top of existing soil levels to prevent compaction to Tree Protection Zone.



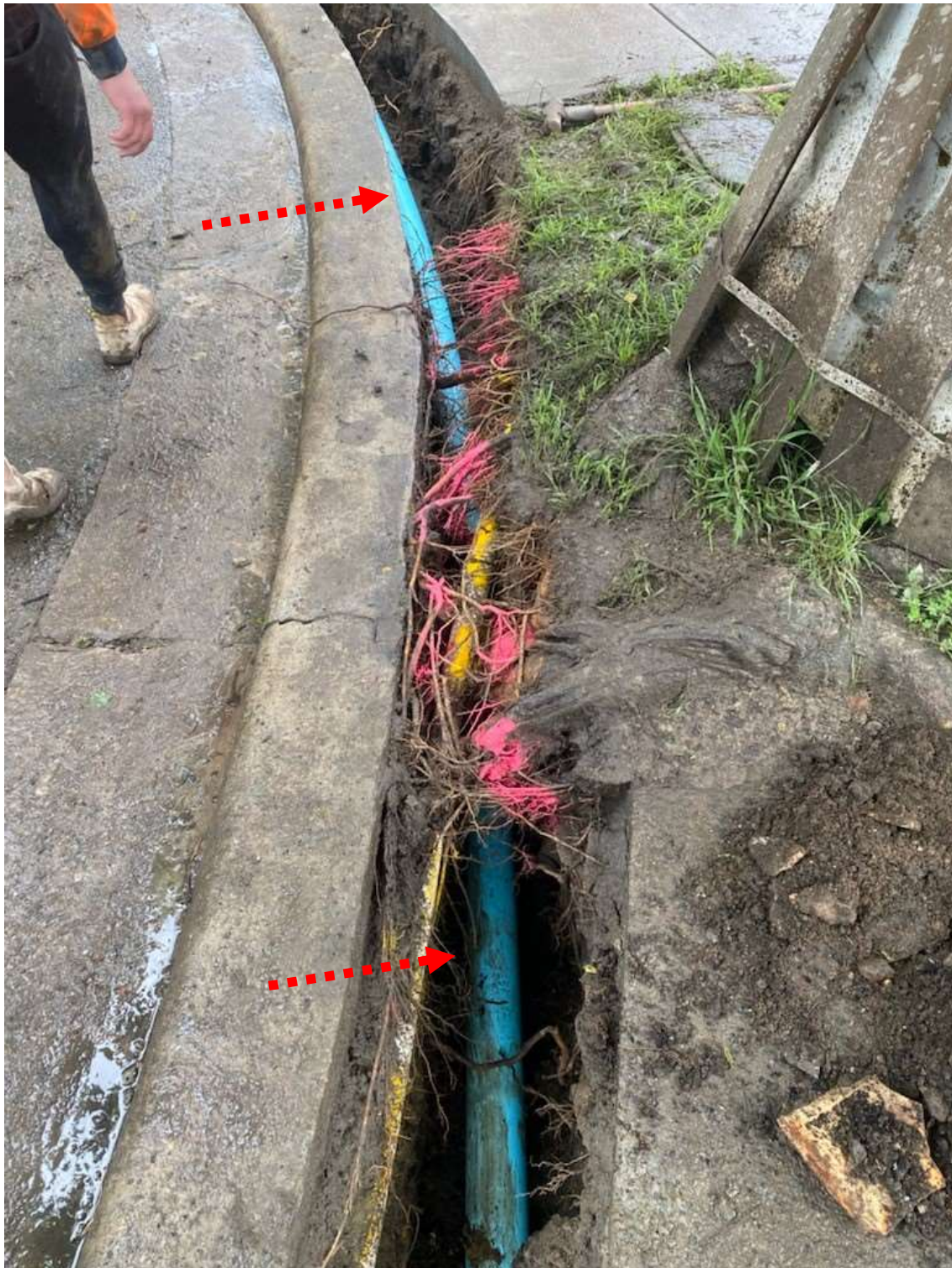
16 Excavation with Vac truck within Tree Protection Zone

16.1 Photo 1



A Vac truck is used to expose roots so services can be placed underneath tree roots.

16.2 Photo 2



Roots have been exposed and painted to highlight location so that services can be placed underneath tree roots without impact to tree roots

17 Root Pruning Methodology

- 17.1 Expose roots with hand tools or air spade or air knife. Clean roots with water or soft brush. Cover exposed roots and soil and prevent foot traffic in area. A trained arborist should inspect roots before pruning or removing roots.
- 17.2 Cover the roots with wetted rags or natural fibre. Then cover with soil where possible if left exposed for more than one day, or as soon as possible in extreme weather conditions. The natural fibre will break down in time and can be left on roots or buried.
- 17.3 Clean cut any roots found with a clean and sharp handsaw. The saw or secateurs should be cleaned by dipping in bleach or methylated spirits, or use alcohol wipes, to clean the saw. This can be done after each cut and must be done if pruning roots of different trees. This will minimise the spreading of pathogens or disease.
- 17.4 Drench the exposed soil with water and mulch soil surface with wood chips and leaf litter, not pine bark or palm fronds.
- 17.5 Hydrophobic soil may need wetting agent applied to aid in water penetration.
- 17.6 Cover the exposed soil along the excavation line with jute matting or hessian and apply water to the covering material once a day minimum in cool weather and up to 3 times per day in hot or windy conditions, until the trench is back filled. Hold jute matting in place with pegs or equivalent.

18 References

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Mattheck, C, & Breloer, H, The body language of trees – A handbook for failure analysis, The stationary office, London England (1999)

TreeAZ Categories Field Sheet (Version 10.04-ANZ)

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

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

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

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc
High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure	
Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure <u>cannot</u> be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc
Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people	
Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognized court or tribunal would be likely to authorize removal, i.e. severe structural damage to surfacing and buildings, etc
Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population	
Z9	Severe damage and/or structural defects where a high risk of failure can be <u>temporarily</u> reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

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

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

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

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

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Further explanations to assist categorization

Z1	Any existing statutory definitions of trees that are too small to be legally protected should be applied and trees less than those heights or diameters will be Z1. If there are none, then if the tree has been planted for less than 5 years it is Z1. If it is less than 5m in height, it will be Z1 unless it is significant, i.e. clearly mature, but small trees are not Z1. If it is greater than 10m in height it is not Z1 unless it was planted in the last 5 years. Applying Z1 to trees between 5–10m is a matter of judgment; the most obvious test being that the tree could be easily and reliably moved or replaced. Ideally, the replacement tree should not be less than 20% of the replaced tree's trunk, height and spread dimensions.
Z2	Any existing statutory rules that prevent protection of trees within a fixed distance of a structure will allow a tree to be subcategorized as Z2.
Z3	Any existing statutory rules or guidance that prevent protection of trees for reasons other than size and proximity dictate Z3, i.e. invasive or alien species. If none exist, then Z3 cannot be applied.
Z4	This subcategory is for trees that are unlikely to recover from a serious health problem. The condition must be terminal with no obvious potential to recover, i.e. severe crown dieback related to excavation damage or root decay, to the extent that the structural branch framework is compromised. Trees that are likely to recover or improve should not be placed in this subcategory, i.e. trees suffering from a foliar problem that has little impact on the branch framework and varies from year to year.
Z5	Severe means so bad that there is no realistic chance of the tree achieving its full potential and there is a high of failure risk. In many cases, the risk of failure can be reduced by dramatic reduction in tree size, but this has severe health, maintenance cost and amenity implications, so is unlikely to be a sustainable management option. A common example is a severely unbalanced tree within a group that will be particularly vulnerable in adverse weather conditions and the adjacent trees mean there is no hope of remedial works resulting in an improvement. Topped trees do not automatically fit into this subcategory, although there is an obvious temptation. Species prone to decay, such as willow and poplar, often have severe decay at the origin of vigorous re-growth, creating a high risk of failure in adverse weather conditions. Z5 is clearly appropriate for them. However, this needs to be a careful judgment because topping in itself does not necessarily condemn a tree to this subcategory. Some trees, such as plane, oak and lime, are particularly good at coping with this treatment and often are able to mature with a low risk of failure. If remedial works will allow the tree to be retained with no significant adverse impact on amenity, health or maintenance costs, then it does not fit here.
Z6	Trees can become poorly anchored because of soil erosion through climatic factors, i.e. water or wind, wear from traffic - pedestrian or vehicular, changing soil conditions - increasing wetness, sudden and severe physical stress from storms and root damage such as decay or severance reducing root strength. In some case, i.e. storm induced instability, there may be a realistic chance of recovery and a subcategorization of Z6 may be premature. However, if excessive remedial work is required, it is likely that Z6 is a defensible subcategory. Alterations to tree exposure to the wind occurs because of changes in the shelter provided by adjacent objects such as buildings or trees. This often applies to groups of trees where one large dominant individual will be lost because of poor health or a structural problem, which then dramatically exposes the remaining trees.
Z7	Establishing thresholds of acceptable levels of inconvenience: In its broadest sense, inconvenience is the interference with the authorized use of land. In relation to trees, it can be in the form of roots disrupting landscaping and hard surfacing, parts of trees physically preventing land use, tree debris such as leaves and fruit falling and tree crowns causing excessive shade. The principles for establishing what are acceptable levels of inconvenience are the same irrespective of the cause. In a community context, it is generally accepted that trees provide a significant benefit to society and it is reasonable for individuals to tolerate some level of inconvenience from their presence. However, the precise location or value of these thresholds is not always obvious and is often a subjective interpretation rather than a definitive point. There will always have to be a balancing of the benefit to the community weighed against the inconvenience suffered by the individual. What is an acceptable, tolerable or reasonable level of inconvenience is often a matter of judgment for each specific situation, tempered by experience and common sense. This, in turn, should be guided by court, tribunal and planning decisions that have made informed judgments on these issues. Common examples: Very large trees near existing occupied buildings can dominate to the extent that the disbenefit from the anxiety of the occupants outweighs the benefit of the tree. Regular and severe staining caused by fallen debris to a swimming pool surround may be unacceptable because the stark contrast in colours creates a dirty impression whereas the same staining on a path or drive surface may be more acceptable. In contrast, falling leaves blocking gutters causing them to be cleaned once a year is not that much of a local inconvenience in the context of the wider benefits that trees impart. Making the decision: Assessing inconvenience is almost entirely a subjective judgment, based on experience and understanding of what is perceived as being reasonable and unreasonable for a normal person. As with all these judgments, a simple test is to imagine a court hearing where a judge has to decide if the levels of inconvenience are intolerable. If they are, then the tree is Z7; if they are not that bad, then the tree belongs in another subcategory.
Z8	Where more serious damage occurs to property from root action, then court/tribunal judgments on liability help to focus on what level of damage is deemed tolerable by society. The most common example is direct damage from roots, trunks and branches to structures and surfacing. Repairs to walls may require such extensive excavation and cutting of roots that the tree cannot be retained. However, the use of innovative techniques may reduce root damage, but still produce a viable boundary, allowing the tree to be retained. Root damage to surfacing is often a sustainable reason for removal if rectifying the damage will significantly adversely affect the tree. In contrast, the potential for roots to deform surfacing would be a less reliable basis for allocation to this subcategory because it is so unpredictable. As a general rule, there would need to be good evidence for ongoing damage, with little scope for remedial works, before a tree could be reliably allocated to this subcategory.
Z9	This is a similar subcategory to Z5, but where the defect is not so severe that remedial works have to be extensive and immediate. Quite often, there are less severe defects that are so bad there is no realistic potential for the tree to improve, but it could be retained in the short term with some significant remedial works. This would only be seen as a temporary measure because to continue applying the same principle would not be cost-effective compared to replacement. A typical example would be a tree with a large and progressive cavity that will clearly prevent it ever improving its condition or contribution to amenity. However, substantial thinning and reduction would allow it to be retained in the short term to allow other replacement trees to develop to buffer its inevitable loss. The benefit of retaining it in the short term might outweigh the cost of doing the works as a one-off, but not on a regular basis.
Z10	It is common to find trees that are obviously not good enough for long term retention because they look unhealthy or are so unbalanced or so tall and thin or that they will never improve. However, the problems are not so severe that there is a high risk of death or failure, and they cannot be discounted for that reason. This subcategory is for those trees and relies on the principle of sustained amenity to justify the allocation. Trees with no potential to improve are taking up space where new trees could be growing, which would be enhancing the desirable objective of an uneven age class structure. The replacements would obviously be small trees and these would then fall into the Z1 subcategory. As set out in the Z1 explanations, the precise location on the site is not often that critical, so these trees would not generally be considered worthy of being a material constraint.

Z11	This applies to trees in groups where one individual is destructively interfering with another. The judgment of which is the better tree is obviously subjective and would be informed by which tree had the best potential for sustainable retention. An obvious example is one tree growing up through another and directly rubbing causing damage. Retaining both would probably result in the loss of each, whereas removing one may allow the other to achieve its full potential. Another example would be one tree shading and preventing the sustainable development of a neighbour to the extent that both trees would be prematurely removed if left alone. The removal of one tree may be justified if it allowed the remaining tree to reach its full potential. If both trees could be retained as a group and achieve their full potential, then they should not be included in this subcategory.
Z12	This is a matter of judgment and may vary widely. It primarily applies to existing trees that are not suited to their location, but there is resistance to their replacement. As a general principle, all trees will incur some management costs and these would normally not be a valid reason for removal. However, as those costs increase, their acceptability decreases to a point where it will be more cost-effective to plant a new tree more suited to the location rather than incur the burden of repeated and excessive costs indefinitely. Typical examples include topped trees with excessive decay, pollarded trees to reduce subsidence risk, trees beneath power lines and trees close to buildings, roads and paths. All these examples will require high levels of maintenance that may not be financially acceptable unless the benefits that arise from retaining the trees are particularly high.
A1	Trees that do not require any specific remedial works above those that would be required for normal maintenance.
A2	Trees with minor defects likely to recover from remedial works to be retainable in the long term, i.e. pollards with little decay.
A3	'Special' means unusual, rare or uncommon, i.e. a tree of some historical/cultural significance, etc.
A4	Trees can be valuable ecological habitat that may be protected by legislation, which may be a material constraint on the type and timing of changes that can occur on a site. If an ecological assessment has not been carried out by the time of the survey, and the arborist suspects there may be habitat issues, the tree should be identified as A4, and specialist assessment should be sought.

9.2.3 Tree Sensitive Footpath Construction: To retain the trees in a viable condition, the footpath must be constructed in a tree sensitive method. The footpath should be constructed above existing grades in the TPZ of the trees. The diagram below (Image A) gives an example of a no-excavation method for constructing hard surfacing close to trees. The location of retaining pegs should be flexible, avoiding damage to structural roots.

If excavations are essential, they must not exceed 100mm below the existing grades. The excavations should be supervised by a project Arborist with a minimum AQF level 5 qualification. All excavations for the footpath should be carried out manually to avoid impacting retained tree roots. All tree roots greater than 40mm in diameter should be retained unless the project arborist has assessed and advised that the pruning/severing of the root will not impact the condition or stability of the tree. Manual excavation may include the use of pneumatic and hydraulic tools, high-pressure air or a combination of high-pressure water and a vacuum device.

Where tree roots greater than 40mm are encountered that must be retained, the footpath should be elevated over the individual tree root to allow for its retention. Examples of methods that can be used to bridge individual tree roots have been included below (Image B and C). Using pier and beam bridges as per image C is the recommended/preferred method, as it will allow for future growth of the tree roots, reducing future damage to the pavement from the roots.

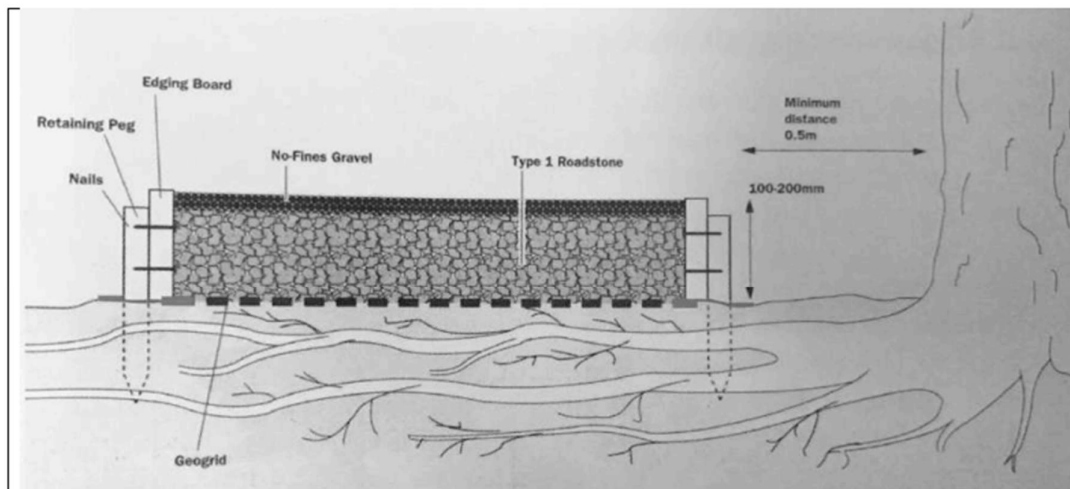
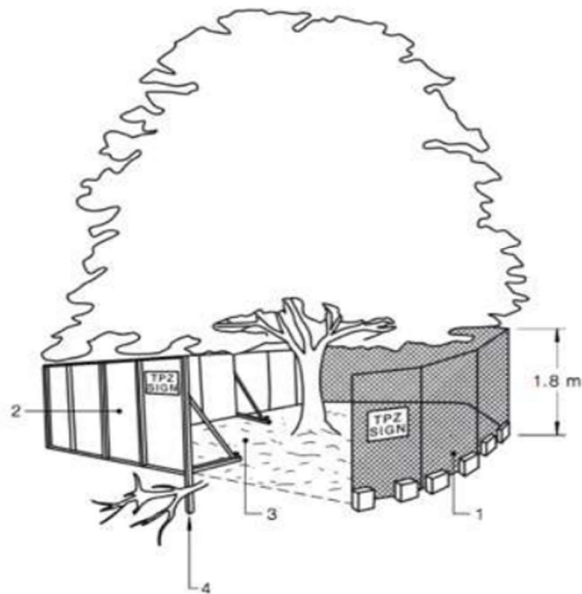


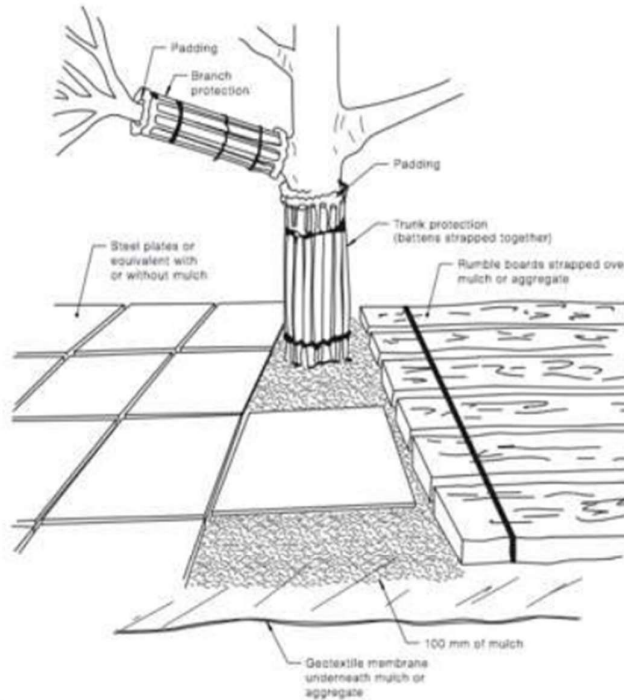
Image A: An image from 'Tree Roots in the Built Environment'⁸, showing how to construct hard surfacing above a trees root system without excavation. Type 1 Roadstones are an example of blue metal or crushed sandstone.



LEGEND:

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

An image from AS4970-2009,⁹ with example tree protection.



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.

An image from AS4970-2009.¹⁰ with example tree protection.

19 Glossary

Absorbing roots – common term describing the fine, non-woody, short-lived roots that absorb water and mineral nutrients and that are often infected with beneficial organisms.

Aerobic – a biochemical process or condition occurring in the presence of oxygen.

Air knife – device that directs a jet of highly compressed air to excavate and loosen soil. Used within the root zone of trees or near underground structures such as pipes and wires to avoid or minimize damage to the roots or structure.

Anaerobic – biological process that occurs in the absence of oxygen.

Bark – protective outer covering of branches and stems that arises from the cork cambium or cambium.

Basal (or trunk) flare – the increased diameter where the roots and trunk meet (also known as the root flare or buttress).

Bifurcation – Tree fork - A tree fork is a bifurcation in the trunk of a tree giving rise to two roughly equal diameter branches. These forks are a common feature of tree crowns. The wood grain orientation at the top of a tree fork is such that wood cells interlock to provide sufficient mechanical support.

Branch collar – area where a branch joins another branch or trunk that is created by the over-lapping vascular tissues from both the branch and the trunk. Typically enlarged at the base of the branch.

Broad-leaved – trees whose foliage is flat and broad.

Buttress root – roots at the trunk base that help support the tree and equalize mechanical stress.

Cambium – thin layer(s) of meristematic cells that give rise (outward) to the phloem and (inward) to the xylem, increasing stem and root diameter.

Central leader – the main stem, trunk, or bole.

Clay – (1) soil particles with a typical grain size less than 0.002 millimetre (USDA classification) and less than 0.005 AASHTO Classification. (2) A soil predominantly composed of such particles.

Compaction – compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

Compartmentalization – natural defence process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organisms.

Compost – (1) (noun) organic matter that has been intentionally subjected to decay processes and is more or less decomposed. (2) (verb) To subject organic matter to decay and decomposition processes.

Compression – action of forces to squeeze, crush, or push together any material(s) or substance(s). Contrast with tension.

Coppicing – to cut back (a tree or shrub) to ground level periodically to stimulate growth.

Cork cambium – meristematic tissue from which the corky, protective outer layer of bark is formed.

Crown (or canopy) – the leaves and branches of a tree.

Deciduous – Trees that lose their leaves each year.

Decurrent – trees that lack a central leader; the crown is composed of a number of equal-sized branches.

Dripline – the edge of the canopy

D.C.P. – Development Control Plan

Epicormic branches – shoot arising from a latent or adventitious bud (growth point).

Evergreen – trees that maintain foliage throughout the year.

Expanding clay – clay that tends to expand when wet and then, when drying, contracts more than other particles in the soil.

Field capacity – maximum soil moisture content following the drainage of water due to the force of gravity.

Gap-graded – soil with some particles coarse and some fine but without any significant amount of intermediate-sized fine and very fine sand particles.

Girdling root – root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

Heart rot – any of several types of fungal decay of tree heartwood, often beginning with infected wounds in the living portions of wood tissue.

Heartwood – wood that is altered (inward) from sapwood and provides chemical defence against decay-causing organisms and continues to provide structural strength to the trunk. Trees may or may not have heartwood.

Hyphae – long, root-like, filamentous cells of a fungus.

Inclusion - A narrow or appressed junction between two or more branches where bark formation continues to develop, gradually pushing the adjacent limb out from the primary one causing severe stress on the internal wood structure.

Infiltration – movement of water penetrating the soil surface and into the soil. Contrast with percolation.

Lateral roots – roots that branch from larger primary roots.

Loam – soil texture classification containing some proportion of each of the tree major soil particle types (sand, silt, and clay). Has good qualities for plant growth.

Multi-trunked – tree with more than one trunk arising at or near the ground.

Percolation – movement of water through the soil. Contrast with infiltration.

Phloem – plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

Pollarding – specialty pruning technique in which a tree with a large-maturing form is kept relatively short. Starting on a young tree, pruning cuts are made at the same point in the tree, resulting in the development of callus knobs at the cut height. Requires regular (usually annual) removal of the sprouts arising from the cuts.

Psyllid – tiny sap sucking insects which attack mostly native plants such as lily pilli.

Reaction wood – wood formed in leaning or crooked trunks and stems as a means of counteracting the effects of gravity.

Root crown – the point at which the trunk and buttress roots meet.

Root plate – area under the ground around the base of the tree where the roots taper away from the trunk (see zone of rapid taper). The area of the primary roots that structurally support the forces on the tree.

R.L – Reduced level.

Scaffold branches – the major structural support branches that attach to the trunk.

Sapwood – outer wood (xylem) that is active in longitudinal transport of water and minerals.

Soil – surface layers of sand, silt, clay, and organic material on the surface of the earth that support plants. More generally, the material between the rocky parts of the planet and the atmosphere composed of fine – to coarse-grained mineral material.

Soil amendment – item added to the soil to improve certain aspects of the soil's condition.

Suckers – shoot arising from the roots.

S.R.Z. – Structural Root Zone

Taper – the change in diameter associated with height or length; related to strength.

Tap root – central, vertical root growing directly below the main stem or trunk that may or may not persist into plant maturity; rarely exists in nursery-produced plants.

Tension – in mechanics, the action of forces to stretch or pull apart any material or substance.

Trunk flare or root flare – transition zone from trunk to roots, above the ground where the trunk expands begins to expand to the form root structures that support the tree.

T.P.Z - Tree Protection Zone.

Xylem – main water – and mineral-conducting (unidirectional, up only) tissue in trees and other plants. Provides structural support. Arises (inward) from the cambium and becomes wood after lignifying. Contract with phloem.

Zone of rapid taper – area around the base of the tree under the ground where the roots taper away from the trunk. The taper reflects the stresses within the root generated by wind and gravity.

20 Expert Witness Code of Conduct

20.1 UNIFORM CIVIL PROCEDURE RULES 2005, as of 1st December 2021

Schedule 7 Expert witness code of conduct

(Rule 31.23)

1 Application of code

This code of conduct applies to any expert witness engaged or appointed—

- (a) to provide an expert's report for use as evidence in proceedings or proposed proceedings, or
- (b) to give opinion evidence in proceedings or proposed proceedings.

2 General duties to the Court

An expert witness is not an advocate for a party and has a paramount duty, overriding any duty to the party to the proceedings or other person retaining the expert witness, to assist the court impartially on matters relevant to the area of expertise of the witness.

3 Content of report

Every report prepared by an expert witness for use in court must clearly state the opinion or opinions of the expert and must state, specify or provide—

- (a) the name and address of the expert, and
- (b) an acknowledgement that the expert has read this code and agrees to be bound by it, and
- (c) the qualifications of the expert to prepare the report, and
- (d) the assumptions and material facts on which each opinion expressed in the report is based (a letter of instructions may be annexed), and
- (e) the reasons for and any literature or other materials utilised in support of each such opinion, and
- (f) (if applicable) that a particular question, issue or matter falls outside the expert's field of expertise, and
- (g) any examinations, tests or other investigations on which the expert has relied, identifying the person who carried them out and that person's qualifications, and
- (h) the extent to which any opinion which the expert has expressed involves the acceptance of another person's opinion, the identification of that other person and the opinion expressed by that other person, and

(i) a declaration that the expert has made all the inquiries which the expert believes are desirable and appropriate (save for any matters identified explicitly in the report), and that no matters of significance which the expert regards as relevant have, to the knowledge of the expert, been withheld from the court, and

(j) any qualification of an opinion expressed in the report without which the report is or may be incomplete or inaccurate, and

(k) whether any opinion expressed in the report is not a concluded opinion because of insufficient research or insufficient data or for any other reason, and

(l) where the report is lengthy or complex, a brief summary of the report at the beginning of the report.

4 Supplementary report following change of opinion

(1) Where an expert witness has provided to a party (or that party's legal representative) a report for use in court, and the expert thereafter changes his or her opinion on a material matter, the expert must forthwith provide to the party (or that party's legal representative) a supplementary report which must state, specify or provide the information referred to in clause 3(a), (d), (e), (g), (h), (i), (j), (k) and (l), and if applicable, clause 3(f).

(2) In any subsequent report (whether prepared in accordance with subclause (1) or not), the expert may refer to material contained in the earlier report without repeating it.

5 Duty to comply with the court's directions

If directed to do so by the court, an expert witness must—

(a) confer with any other expert witness, and

(b) provide the court with a joint report specifying (as the case requires) matters agreed and matters not agreed and the reasons for the experts not agreeing, and

(c) abide in a timely way by any direction of the court.

6 Conferences of experts

Each expert witness must—

(a) exercise his or her independent judgment in relation to every conference in which the expert participates pursuant to a direction of the court and in relation to each report thereafter provided, and must not act on any instruction or request to withhold or avoid agreement, and

(b) endeavour to reach agreement with the other expert witness (or witnesses) on any issue in dispute between them, or failing agreement, endeavour to identify and clarify the basis of disagreement on the issues which are in dispute.