



NORTHERN
TREE
CARE

Arboricultural Impact Assessment Report

29 Shirley St & 2-4 Milton St, Byron Bay.

Client:
29 Shirley St Pty Ltd



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1. Introduction

1.1 Peter Gray has compiled this report on request from Mr James Davidson of One Project MGMT Group who are managing the project to develop the land at 29 Shirley St, Byron Bay. The proposal is to demolish the existing backpacker facility and construct 26 Units on the site.

1.2 There are a number of trees growing on the site. Some of these trees will be impacted by the proposed development.

2. Scope

2.1 This report is an Arboricultural Impact Assessment Report. The report describes the trees growing on the site that are protected by Byron Shire Council's Development Control Plan 2014 Chapter B2 Tree and Vegetation Management.

2.2 The trees will be assessed for their retention value in the new development. Where it is considered to be appropriate, recommendations for their management will be made. Where the trees are retained, recommendations for their protection during construction are made.

2.3 Only trees that are significant or are protected by Council's Chapter B2 are described. Trees that are not protected can be removed without Council approval.

3. Method

3.1 The trees were assessed visually from the ground. The diameter at breast Height (DBH) was measured at 1.4 m above the ground. The height of the trees was measured using a hypsometer or estimated where the view of the trees was partially obstructed. The conventions and methods recommended in the Australian Standard AS 4970-2009 Protection of trees on development sites were used to assess the trees.

3.2 The health and condition of the tree was assessed using the Visual Tree Assessment method (Mattheck & Breloer 2003). This is a method of assessing trees using the body language or shape and features of the tree to indicate their condition. These tree shapes or body language are a reliable indicator of the underlying condition of that part of the tree. The tree was identified using the signs and features present at the time of inspection.



3.3 The trees were inspected by P. Gray of Northern Tree Care on 1st February 2022. This report is compiled from information gathered during the inspection and from plans and documents supplied by One Project MGMT Group. The plans and documents include:

- *29 Shirley St, Byron Bay.* Hayball. 3/8/2022
- *Ecological Assessment.* JWA. March 2022.
- *Urban Context Report.* Hayball. 11/11/2021.



4. Observations

4.1 The property subject of this report is described as 29 Shirley St, Byron Bay. NSW. Lot Lot 12 on DP1138310, Lot 2 on DP582819, Lot 7 on DP841611, Lot 8 Sec 52 on DP758207 and Lot 9 Sec 52 on DP758207. The land is zoned R3 Medium Density Residential and DM Deferred Matter. The land is located in a residential area of the township of Byron Bay (see Attachment 1. Aerial Photo).

4.2 The land is bounded by Shirley St to the south and private residences to the east and west. The land to the north is a rail corridor.

4.3 The trees on the site were inspected from the ground. The trees are described in detail in Table 1. Tree Data

Table 1. Tree Data

Tree #	Name	Age	Health	Height m	DBH mm	Crown m	TPZ m
1	Small Leaf Fig <i>Ficus obliqua</i>	Mature	Good	10-15	1,010	20	12.1
2	Coconut <i>Cocos nucifera</i>	Mature	Good	5-10	300	3	2.5
3	Bloodwood <i>Corymbia intermedia</i>	Mature	Good	10-15	200	4	2.4
4	Tuckeroo <i>Cupaniopsis anacardioides</i>	Mature	Good	5-10	240	4	2.9
5	Group of Bloodwood <i>Corymbia intermedia</i>	Mature	Good	10-15	200	7	2.4
6	Pandanau <i>Pandanus tectorius</i>	Over mature	Dying	<5	200	3	2.5
7	Tuckeroo <i>Cupaniopsis anacardioides</i>	Mature	Good	5-10	180	4	2.2
8	Paperbark <i>Melaleuca quinquenervia</i>	Mature	Good	5-10	180	4	2.2
9	Firewheel <i>Stenocarpus sinuata</i>	Mature	Good	5-10	280	4	3.7
10	Ivorycurl <i>Buckinghamia celsissima</i>	Mature	Good	5-10	280	4	3.7
11	Lilli Pilli <i>Syzygium leuhmannii</i>	Mature	Good	5-10	250	4	3.0
12	Cook Island Pine <i>Araucaria columnaris</i>	Mature	Good	10-15	330	3	4.0
13	Paperbark <i>Melaleuca quinquenervia</i>	Mature	Good	5-10	250	4	3.0
14	Guioa <i>Guioa semiglauc</i>	Mature	Good	5-10	170	3	2.0
15	Bloodwood	Mature	Good	10-15	280	5	3.7



5. Tree Significance

5.1 When considering the retention value of trees, two major issues were considered. They are the significance of the tree and its estimated life expectancy.

5.2 When assigning a value to the significance of the tree, a number of factors should be considered (Moreton 2003). The significant outcomes have been determined in Attachment 4. Significance of Trees in the Landscape.

6. Tree Retention Value

		Landscape Significance Rating							
		1 Significant	2 Very High	3 High	4 Moderate	5 Low	6 Very Low	7 Insignificant	
Estimated Life Expectancy	> 40 yrs	High Retention Value # 1			Moderate Retention Value		Low Retention Value		
	15-40 yrs								
					3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15 # 2				
	5-15 yrs								
	< 5 yrs						# 6 Very Low Retention Value		
Dead									

Ref: Modified from Couston, Howden (2001) Tree Retention Values Table. Footprint Green Pty Ltd, Sydney Australia.

6.1 Where trees have a high retention value they should be retained if possible. Where the development is considered to be more important than the trees they may be removed (Barrell 2006).



7. Discussion

7.1 The proposed development will demolish the existing Backpackers facility and associated structures. The new development will cover much of the site with an area on the northern side left as open space.

7.2 Many of the existing trees on the site are exotic planted species in close proximity to the existing building. The trees that are protected by Council's DCP 2014 Chapter B2 Trees and Vegetation are all in the northern section of the site with the addition of the large Fig tree.

7.3 It is proposed to retain the Fig tree; tree # 1.

7.4 The encroachment of the proposed new building into the TPZ of tree # 1 is calculated to be approximately 30%. This is a major encroachment as defined by the Australian Standard *AS 4970-2009 Protection of trees on development sites. Sect. 3.3.3 Major encroachment*. The Standard allows for major encroachment where it can be demonstrated that the tree will remain viable.

7.5 Factors to be taken into consideration when assessing the viability of the tree include:

	Encroachment Considerations	Site specific factors
(a)	Location of roots	Roots are confined by the presence of the existing building
(b)	Potential loss of roots	30% of the TPZ will be lost
(c)	Tree species and tolerance	Fig trees are very tolerant of root loss
(d)	Age and vigour of the tree	This is a mature aged tree with good vigour and vitality
(e)	Lean and stability	The tree is upright with a broad canopy spread
(f)	Soil characteristics	Sandy soil with relatively low water table
(g)	Presence of existing structures	There are existing buildings, paths and structures in the root zone
(h)	Design factors	The building will include an underground car park

7.6 A 30% encroachment into the TPZ is at the high end of tolerability for retaining the tree in a viable condition. The tree has existing constraints to its root system so not all of the 30% will be lost. This species is very tolerant of root loss and the tree is in good health with good vitality. There is an area contiguous with the existing root system available for the tree to grow additional roots to compensate for the loss of roots due to construction. The construction of the development as planned will not cause this tree to become unviable.

7.7 The TPZ of the other 3 trees will have no encroachment into their TPZ.



8. Recommendations

8.1 It is recommended that the development be constructed as proposed. The trees # 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 should be removed to allow construction. Of these trees ten are protected by Council's Chapter B2 Trees and Vegetation. There is a further group of trees (tree # 5) comprising of approximately 6 individual trees that will require removal.

8.2 Council has a No Net Vegetation Loss Policy. This requires that protected trees removed be replaced. The replacement ratio for these trees is:

Tree #	Replacement ratio	Number of additional trees
2	0	0
3	10:1	10
4	5:1	5
5	10:1	60
6	5:1	5
7	5:1	5
8	5:1	5
9	5:1	5
10	0	0
11	5:1	5
12	0	0
13	5:1	5
14	5:1	5
15	10:1	10
Total replacement trees		120

5.3 The replacement trees should be local native species that naturally occur near the coast. A list of suitable species is shown in Table 2. Replacement Tree Species. Not all of the species listed must be planted and the list is not exhaustive. The location of the planting will be shown in the landscaping plans.

5.4 The planting stock should be in 1 litre pots and sourced from a local registered nursery. A mixture of trees, shrubs and understory plants should be used to give a planted area that is self sustaining.



Table 2. Replacement Tree Species

Beach Acronychia <i>Acronychia imperforata</i>	Swamp Oak <i>Casuarina glauca</i>
Bangalow Palm <i>Archontophoenix cunninghamiana</i>	Three Veined Laurel <i>Cryptocarya triplinervis</i>
Feather Plan <i>Baloskion tetraphyllum</i>	Tuckeroo <i>Cupaniopsis anacardioides</i>
Coast Banksia <i>Banksia integrifolia</i>	Tea Tree <i>Leptospermum juniperinum</i>
Bungwald Fern <i>Blechnum indicum</i>	Swamp Turpentine <i>Lophostemon suaveolens</i>
Weeping Bottlebrush <i>Callistemon viminalis</i>	Snow in Summer <i>Melaleuca linariifolia</i>
<i>Hemarthria uncinata</i>	River Bottlebrush <i>Melaleuca sieberi</i>
<i>Ischaemum australe</i>	Willow Bottlebrush <i>Melaleuca salicina</i>
Sawsedges <i>Ghannia</i> sp.	Common Silkpod <i>Parsonsia straminea</i>



9. Tree Protection

9.1 The trees retained on the site should be protected during construction in accordance with the recommendations of the Australian Standard *AS 4970-2009 Protection of trees on development sites*. The Standard sets out a Tree Protection Zone that is calculated to be an area around the tree with a radius of 12 x diameter at breast height (DBH). The TPZ has a minimum of 2 m and maximum of 15 m. The TPZ should be protected during construction as effectively as is practicable.

9.2 The Standard lists activities that are prohibited in the TPZ. They are:

- a. Machine excavation
- b. excavation for silt trenching
- c. cultivation
- d. storage
- e. preparation of chemicals, including preparation of cement products
- f. parking of vehicles and plant
- g. refuelling
- h. dumping of waste
- i. wash down and cleaning of equipment
- j. placement of fill
- k. lighting of fires
- l. soil level changes
- m. temporary or permanent installation of utilities and signs and
- n. physical damage to the tree.

9.3 The proposed construction of the development is planned to be undertaken within the TPZ of the trees. In order to ensure that the trees remain viable it is important to protect them during construction as much as is practicable. Any of the activities detailed above should not be undertaken in the TPZ of the tree unless absolutely necessary. A 1 m high visibility plastic mesh fence should be erected around the trees. An example of a suitable plastic mesh fence is shown in Figure 1. The location of the plastic mesh fence is shown in Figure 2.

9.4 The protective fencing must be installed before commencement of works and not removed until landscaping stage.



Figure 1. Example of 1m high visibility plastic mesh fencing

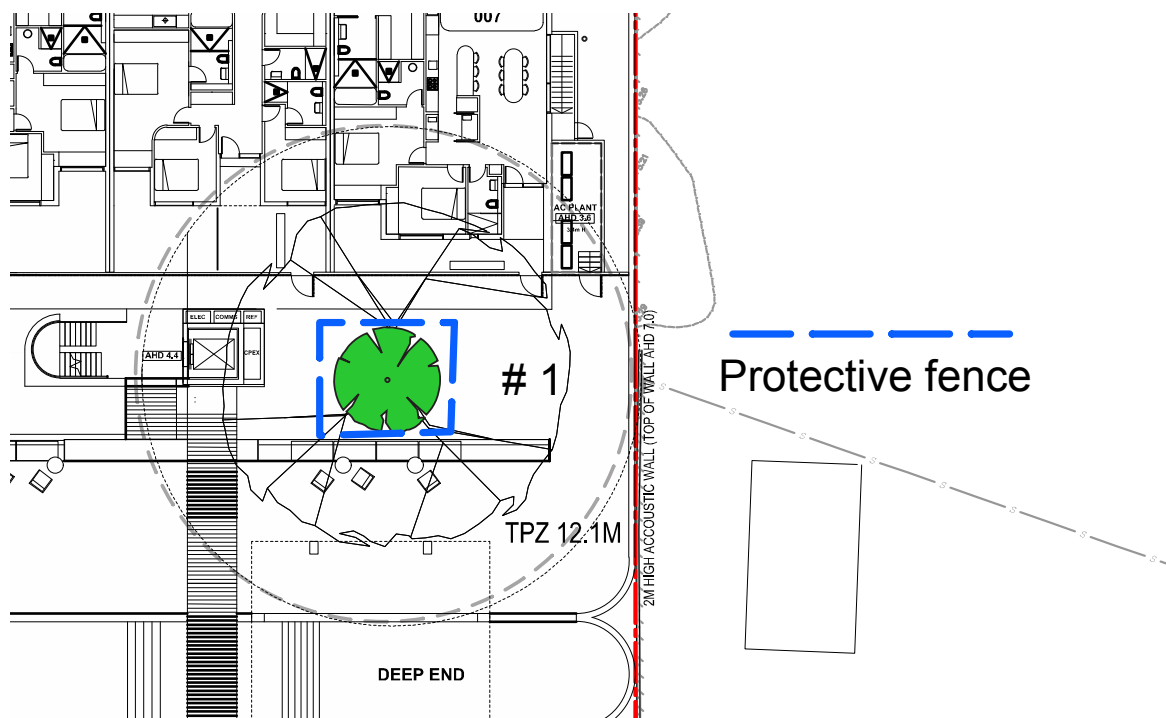


Figure 2. Location of the protective fencing.



10. References

Barrell J. 2006. *Workshop Manual Trees on Construction Sites*. Barrell Tree Consultancy. Brisbane.

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Harden G. MacDonald W. Williams J. 2009. *Rainforest Trees and Shrubs*. Gwen Harden Publishing. Nambucca Heads.

Mattheck C. Breloer H. 2003. *The Body Language of Trees*. TSO. London.

Moreton A. 2003. *Criteria for Assessment of Landscape Significance*. 7th National Street Tree Symposium 2006.

Standards Australia. 2009. AS 4970 Protection of Trees on Development Sites. Australian Standards. Sydney.



11. About The Author

11.1 This report was compiled by Peter Gray of Northern Tree Care. The author is an arborist who has been providing Arboricultural Reports for Local Government, State Government and private clients for over 20 years. His qualifications include:

Graduate Certificate of Arboriculture (AQF 8)

Diploma of Arboriculture (AQF 5)

Diploma of Horticulture (Arboriculture)

Quantified Tree Risk Assessment (QTRA)

Tree Risk Assessment Qualification (ISA)

VALID Tree Risk-Benefit Validator.

11.2 Peter Gray is an AQF level 8 Consulting Arborist general member No. 2344 with Arboriculture Australia. He is a trained and registered practitioner of Quantified Tree Risk Assessment (QTRA) Registered User number 980. In 2020 he was appointed as a director to the board of Arboriculture Australia.

11.3 I declare that I have compiled this report impartially using best professional judgement. I have no financial interest in the outcome of the report.

Signed Peter Gray, Northern Tree Care

23 Aug 2022

A handwritten signature in black ink, appearing to be 'P. Gray', with a long, sweeping horizontal stroke extending to the right.



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12. Attachment 1 Location Plan

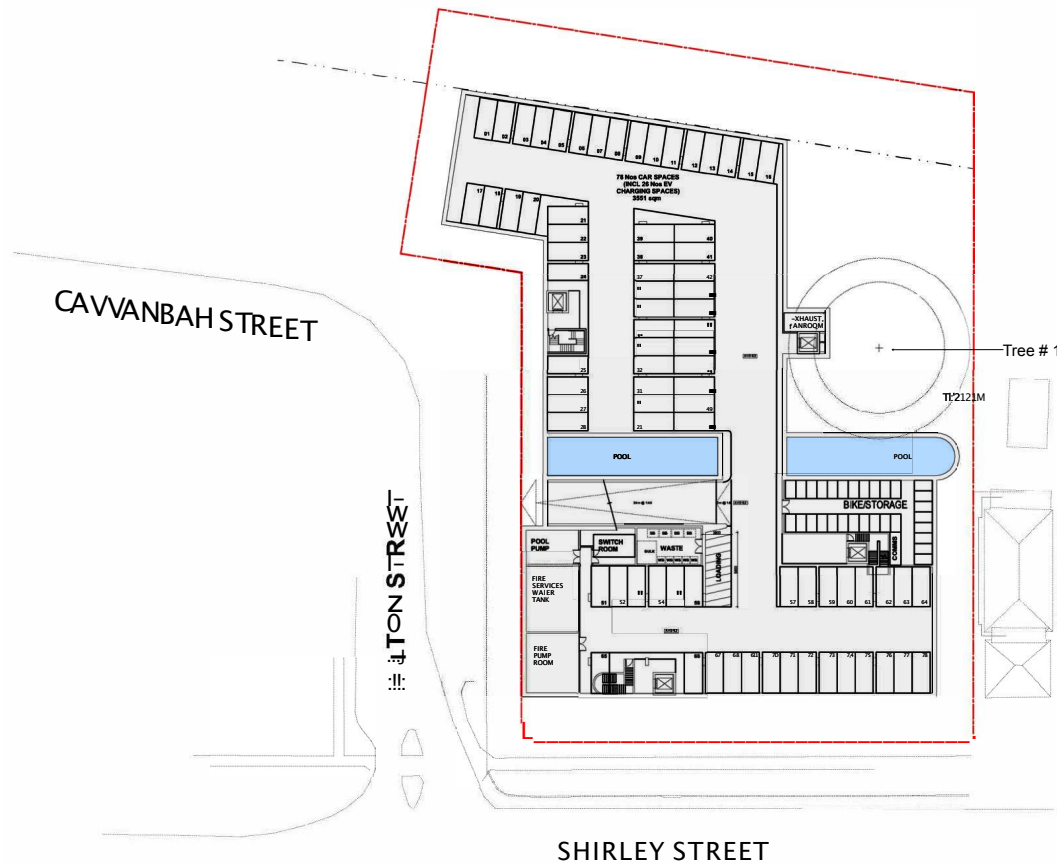


Proposed Floor Plans
Basement



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14. Attachment 3 Retained Trees with Basement



SCALE 1:500

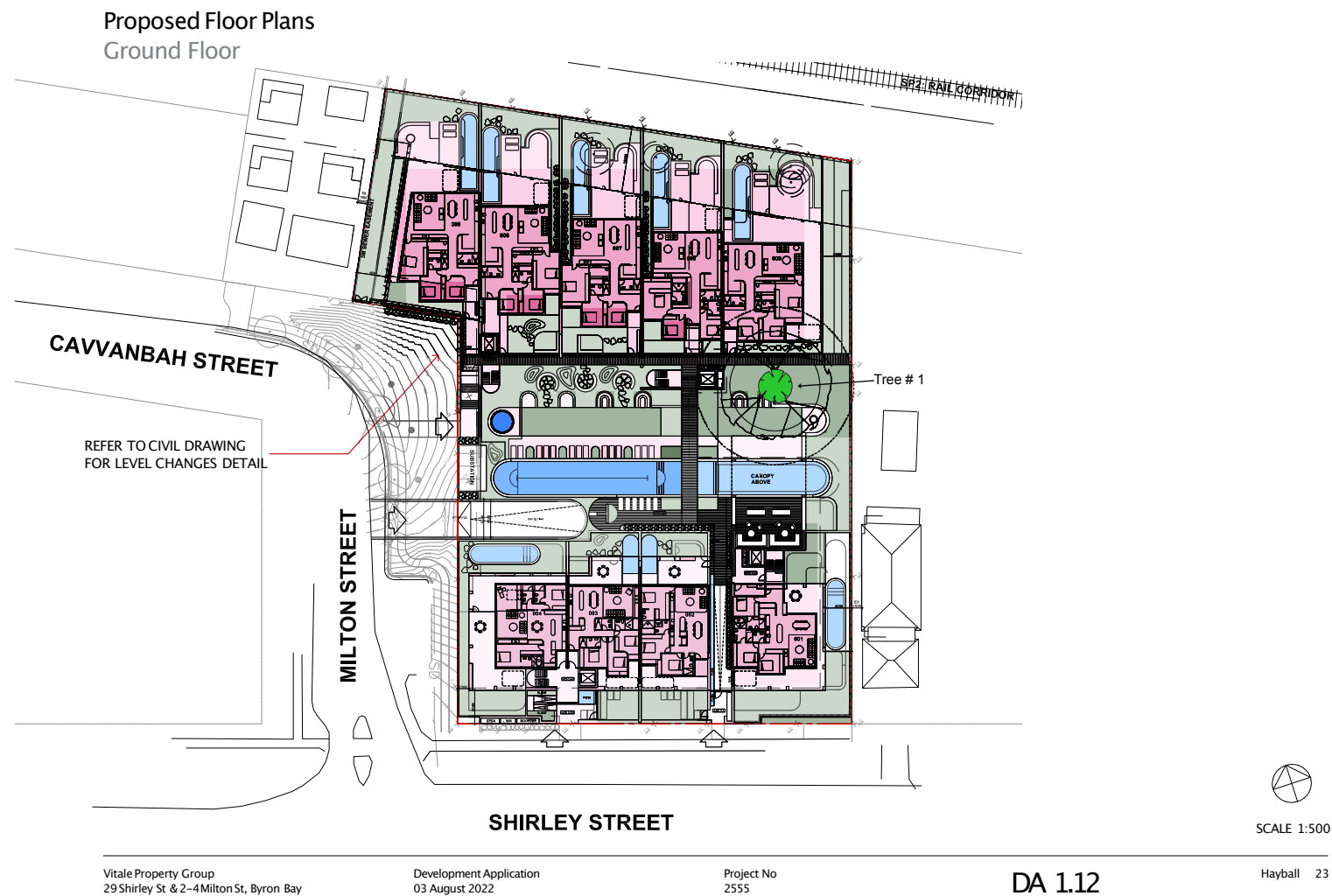
Vitale Property Group
29 Shirley St & 2-4 Milton St, Byron Bay

Development Application
03 August 2022

Project No
2555

DA 1.11

Hayball 22



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15. Attachment 3 Retained Trees with Ground Floor



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16. Attachment 4. Significance of Trees

Tree #	Name	Condition	Vigour	Protected	Environmental value	Amenity value	Significance
1	Small Leaf Fig <i>Ficus obliqua</i>	Good	Good	Yes	Very High	Very High	Significant
2	Coconut <i>Cocos nucifera</i>	Good	Good	No	Low	Medium	Low
3	Bloodwood <i>Corymbia intermedia</i>	Good	Good	Yes	High	Medium	Moderate
4	Tuckeroo <i>Cupaniopsis anacardioides</i>	Good	Good	Yes	High	Medium	Moderate
5	Group of Bloodwood <i>Corymbia intermedia</i>	Good	Good	Yes	High	High	Moderate
6	Pandanus <i>Pandanus tectorius</i>	Dying	Poor	Yes	High	Low	Low
7	Tuckeroo <i>Cupaniopsis anacardioides</i>	Good	Good	Yes	High	Medium	Moderate
8	Paperbark <i>Melaleuca quinquenervia</i>	Good	Good	Yes	High	Medium	Moderate
9	Firewheel <i>Stenocarpus sinuata</i>	Good	Good	Yes	Medium	Medium	Moderate
10	Ivorycurl <i>Buckinghamia celsissima</i>	Good	Good	No	Medium	Medium	Moderate
11	Lilli Pilli <i>Syzygium leuhmannii</i>	Good	Good	Yes	High	Medium	Moderate
12	Cook Island Pine <i>Araucaria columnaris</i>	Good	Good	No	Low	Medium	Moderate
13	Paperbark <i>Melaleuca quinquenervia</i>	Good	Good	Yes	High	Medium	Moderate
14	Guioa <i>Guioa semiglauca</i>	Good	Good	Yes	High	Medium	Moderate
15	Bloodwood	Good	Good	Yes	High	Medium	Moderate



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17. Attachment 5. Photos



Photo 1. Tree # 1
Fig tree



Photo 2. Tree # 2
Coconut



Photo 3. Tree # 5
Group of Bloodwoods

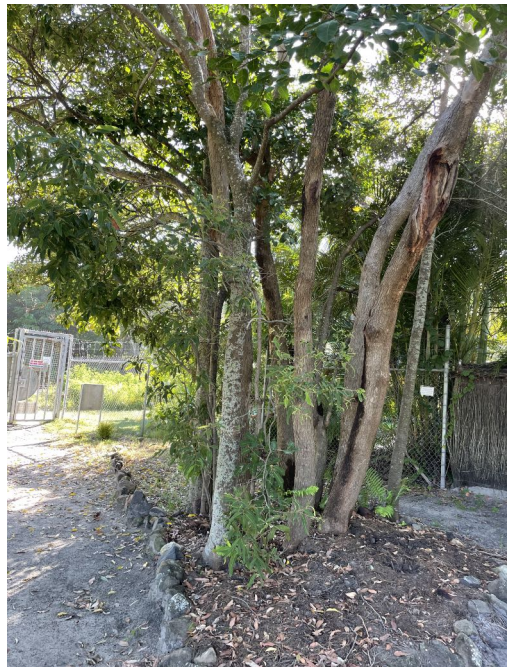


Photo 4. Tree # 5
Bloodwoods



Photos continued



Photo 5. Tree # 6
Pandanus



Photo 6. Tree # 14 and 15



Photo 7.
Most of the trees are exotic species



Photo 8.
Garden fronting Shirley St. Exotic species.