



# Arboricultural Impact Assessment Report

## Broadwater Public School

Client

ADCO



Northern Tree Care  
ABN 73 674 526 681  
6 Abalone Place, Ballina. NSW 2478

File No: 2324  
Version: Final  
13 Sept 2023

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## 1. Introduction

1.1 This report has been prepared on request from ADCO. The Broadwater Public School was extensively damaged in the 2020 floods. ADCO is carrying out the construction of the new school buildings. There are a number of trees growing on the school grounds that may potentially be affected by the new building.

## 2. Scope

2.1 This report is an Arboricultural Impact Assessment Report. The report describes the trees. The retention value of the trees is assessed. Where it is considered appropriate recommendations for the management of the trees are made. Where trees are retained in the new development recommendations for their protection construction are made.

2.2 Northern Tree Care provided a Preliminary Tree Report in 2022. This report uses some of the information gathered for the previous report. The potential and likely effect of the construction of the new buildings and infrastructure on the trees is assessed in this report.



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### 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 was used to assess the tree.

3.2 The health and condition of the trees 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 trees were identified using the signs and features present at the time of inspection.

3.3 The trees were inspected by Peter Gray of Northern Tree Care on 2<sup>nd</sup> June 2023. This report is compiled from information gathered during the inspection and from plans and documents supplied by ADCO. The plans and documents include:

- *Detail Survey Plan.* Beveridge Williams. 18/01/2023.
- *Masterplan.* Pedavoli Architects. 19/05/2023

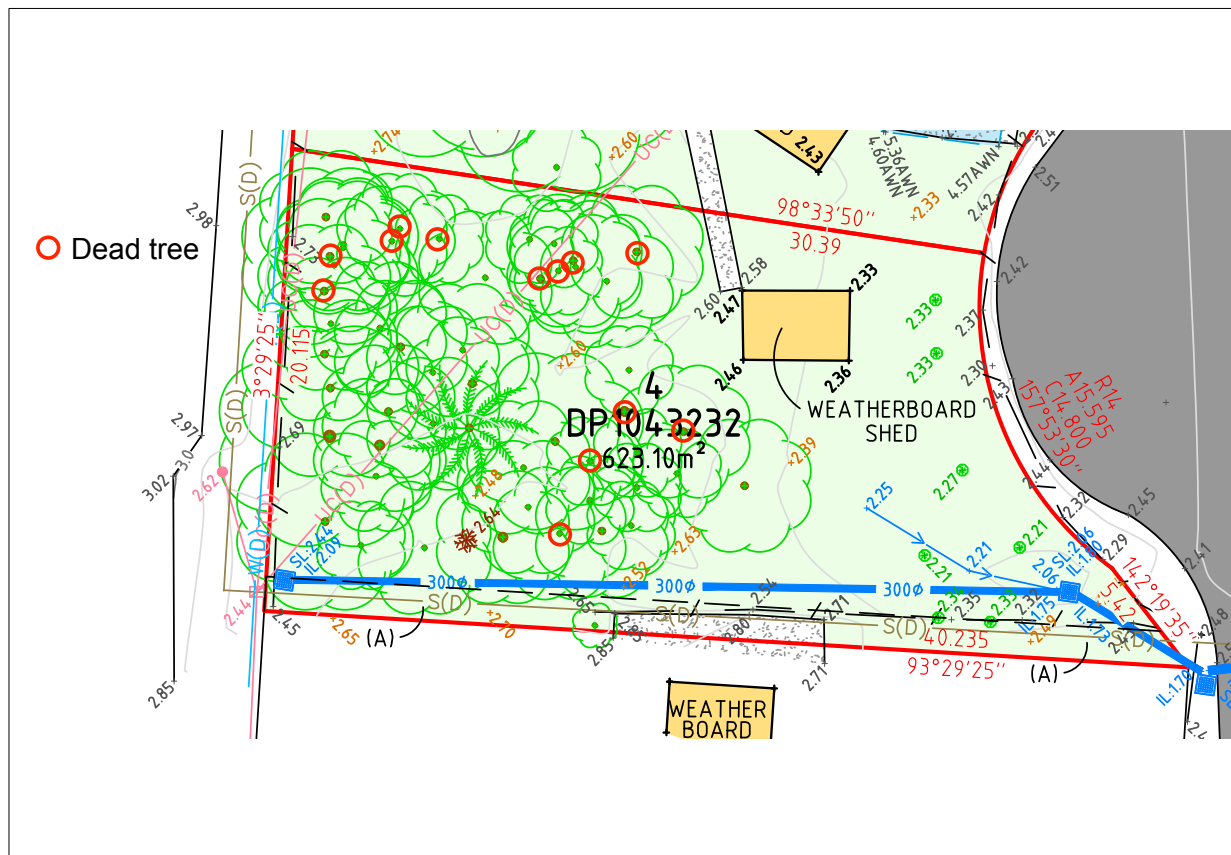
## 4. Observations

4.1 The property subject of this report is described as 9 Byrnes Street, Broadwater, Lot 4 & 5 in DP 1043232 and Lot 501 in DP 755624. The land is zoned RU1 Primary Production. The land is bounded by the Pacific Highway to the west, private residences to the north and south and farmland to the east. The land is flat and the soil is sandy loam.

4.2 The trees growing on the school grounds have all been planted. Some of the trees are planted in groups or rows. Where the trees are in groups or rows that were planted at the same time tree trees have been described as a group (see Attachment 2. Site Plan).

4.3 It is planned to construct some of the buildings near the group of trees G 4. This group of trees has now been individually described. The trees are described in detail in Table 1. Tree Data.

4.4 The group of trees # 22 has thirteen dead trees in the group. The trees in the group that are dead are shown in Figure 1 below. There are also two trees that are planned to be removed to allow installation of a services trench.



#### 4.4 Table 1. Tree Data

Tree #	Name	Age	Health	Height m	DBH mm	Crown m	TPZ m	Retain
1	Tallowwood <i>Eucalyptus microcorys</i>	Mature	Good	20-25	850	15	10.2	Yes
2a	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2b	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2c	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2d	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2e	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2f	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2g	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2h	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2i	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2j	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
2k	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Mature	Good	10-15	250	3	2.5	Yes
3a	Bottlebrush x 2 <i>Callistemon viminalis</i>	Nature	Good	5-10	500	6	6.0	No
3b	Bottlebrush x 2 <i>Callistemon viminalis</i>	Nature	Good	5-10	500	6	6.0	No
4a	Swamp Mahogany <i>Eucalyptus robusta</i>	Mature	Poor	10-15	710	6	8.5	No
4b	Swamp Mahogany <i>Eucalyptus robusta</i>	Mature	Fair	10-15	480	5	5.8	No
4c	Forest Red Gum <i>Eucalyptus tereticornis</i>	Mature	Good	15-20	820	8	9.8	Yes
4d	Forest Red Gum <i>Eucalyptus tereticornis</i>	Mature	Good	15-20	510	6	6.1	Yes
4e	Flooded Gum <i>Eucalyptus grandis</i>	Mature	Good	15-20	560	7	6.7	Yes

#### 4.4 Table 1. Tree Data

Tree #	Name	Age	Health	Height m	DBH mm	Crown m	TPZ m	Retain
5	Weeping Fig <i>Ficus microcarpa</i> var. <i>hillii</i>	Mature	Good	20-25	1,170	20	14.0	Yes
6	Coastal Pine <i>Callitris columellaris</i>	Mature	Good	5-10	410	5	4.9	Yes
7	Flooded Gum <i>Eucalyptus grandis</i>	Mature	Good	10-15	880	9	10.6	Yes
8	Brushbox <i>Lophostemon confertus</i>	Mature	Good	5-10	320	5	3.8	Yes
9	Forest Red Gum <i>Eucalyptus tereticornis</i>	Mature	Good	10-15	540	8	6.5	Yes
10	Poplar <i>Populus</i> sp.	Mature	Good	5-10	550	9	6.6	Yes
11	Hoop Pine <i>Araucaria cunninghamii</i>	Mature	Good	10-15	430	8	5.2	Yes
12a	Cocos Palm <i>Syagrus romanzofiana</i>	Mature	Good	5-10	350	4	3.0	Yes
12b	Cocos Palm <i>Syagrus romanzofiana</i>	Mature	Good	5-10	350	4	3.0	Yes
13	Hoop Pine <i>Araucaria cunninghamii</i>	Mature	Good	10-15	1,000	14	12.0	Yes
14a	Bangalow Palm <i>Archontophoenix alexandrae</i>	Mature	Good	5-10	200	3	2.5	No
14b	Bangalow Palm <i>Archontophoenix alexandrae</i>	Mature	Good	5-10	200	3	2.5	No
15	Exotic species	Mature	Good	5-10	330	5	4.0	No
16	Camphor Laurel <i>Cinnamomum camphora</i>	Mature	Good	15-20	1,600	15	15.0	No
17	Camphor Laurel <i>Cinnamomum camphora</i>	Mature	Good	15-20	1,600	15	15.0	Yes
18	Group of rainforest trees x 62	Mature	Good	15-20	<700			Yes
18a	She Oak <i>Casuarina glauca</i>	Mature	Good	15-20	400	8	4.8	No
18b	Dead tree							No
19a	Camphor Laurel <i>Cinnamomum camphora</i>	Mature	Fair	15-20	1,500	12	15.0	Yes
19b	Camphor Laurel <i>Cinnamomum camphora</i>	Mature	Fair	15-20	1,500	12	15.0	Yes



**Table 1. Tree Data continued**

Tree #	Name	Age	Health	Height m	DBH mm	Crown m	TPZ m	Retain
19c	Camphor Laurel <i>Cinnamomum camphora</i>	Mature	Fair	15-20	1,500	12	15.0	Yes
20	Weeping Paperbark <i>Melaleuca leucadendra</i>	Mature	Good	10-15	600	8	7.2	Yes
21	Weeping Paperbark <i>Melaleuca leucadendra</i>	Mature	Good	10-15	600	8	7.2	Yes
22	Group of Rainforest trees	Mature	Poor	5-10	<250	4		Yes
23	Brown Kurrajong <i>Commersonia bartramia</i>	Dead	Dead	5-10	620	6		No
24	Firewheel <i>Stenocarpus sinuatus</i>	Mature	Good	5-10	290	5	3.5	No
25	Paperbark <i>Melaleuca quinquenervia</i>	Mature	Good	5-10	240	4	2.9	Yes



## 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 Values

		Landscape Significant Rating							
		Significant	Very High	High	Moderate	Low	Very Low	Insignificant	
Est. Life Expectancy years	> 40	High Retention Value # 1 # 18			Moderate Retention Value # 3a, 3b, 4a, 4b, 4c, 4d, 4e, 5, 6, 7, 10, 11, 13, 14a, 14b, 16, 17, 20, 21, 24		# 2a, 2b, 2c, 2d, 2e, 2f, 2g, 2h, 2i, 2j, 2k, 8, 12, 15, 19a, 19b, 19c, 22	Low Retention Value	Very Low Retention Value
	15-40								
	5-15								
	<5								
	Dead							# 23	

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).



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## 7. Discussion

7.1 The existing school buildings will be demolished and new building will be constructed. The new buildings will be constructed in an area that is currently used as a sports field. A total of 10 trees will be removed to allow construction of the new buildings and also a new sports field. Of the 10 trees to be removed seven are assessed as being of moderate retention value. They include tree # 3 and 14 which are actually two trees growing close together as shown on the plans. One of the trees to be removed is dead and one of the trees is of low retention value.

7.2 Three of the trees planned to be retained have encroachment into their Tree Protection Zones. The Australian Standard *AS 4970 -2009 Protection of trees on development sites* describes the Tree Protection Zone (TPZ) as an area around the tree that should be protected during construction. The Standard allows for encroachment into a TPZ in certain circumstances. Where the encroachment is less than 10% it is considered to be a minor encroachment and is allowed. Where it is greater than 10% it is considered to be a major encroachment and is allowed where the Project Arborists can show that the tree will remain viable. The Standard lists a number of consideration that must be taken into account when determining whether a major encouragement is allowable.

7.3 There are two trees that have an encroachment into their TPZ. These are trees # 5 and 13. The encroachment into tree # 5 is calculated to be 3%. The encroachment in to tree # 13 is calculated to be 1%. The encroachment into trees # 5 and 13 are minor encroachments and are allowed according to the Standard.

7.4 An underground power line is proposed to be installed from the power pole in the road through the group of trees # 18. This will require two trees, # 18a and 18b to be removed. Tree # 8b is dead.

7.5 The group of trees # 22 have 13 trees that are dead. There are a further 2 trees that will be required to be removed to allow construction of a services trench.



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## **8. Recommendations**

8.1 It is recommended that the new school buildings and related infrastructure should be constructed as planned. The trees required to be removed to allow construction of the new building trees # 3a, 3b, 4a, 4b, 14a, 14b, , 15, 16, 18a, 18b, 23 and 24. There are 15 trees in Group 22 that also should be removed. Thirteen of these trees are dead and another two trees should be removed to allow construction of a services trench. The other trees growing on the school grounds should be retained and protected during construction.

8.2 The specifications for the protection of retained trees during construction are given in 9. Tree Protection.

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## 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 some 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 1.8 m wire panel fence should be erected around the trees. An example of a suitable fence is shown in Figure 2. The location of the fence is shown in Figure 3.

9.4 The protective fencing must be installed before commencement of works and not removed before the building works are completed.



Figure 2. Example of a suitable protective fence

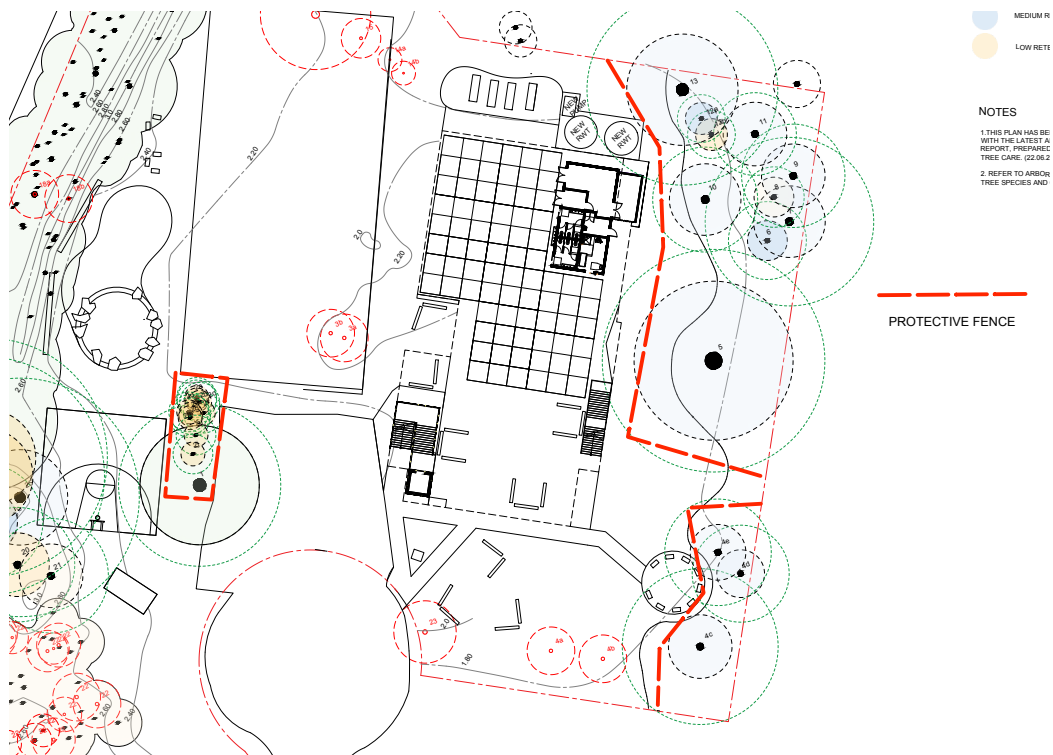


Figure 3. Location of protective fence



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## 10. References

- Barrell J. 2006. *Workshop Manual Trees on Construction Sites*. Barrell Tree Consultancy. Brisbane.
- Brooker M. Kleinig D. 1999. *Field Guide to Eucalypts*. Bloomings Books. Hawthorn.
- 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.



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## 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

13 September 2023



**12.  
Attachment 1  
Location**





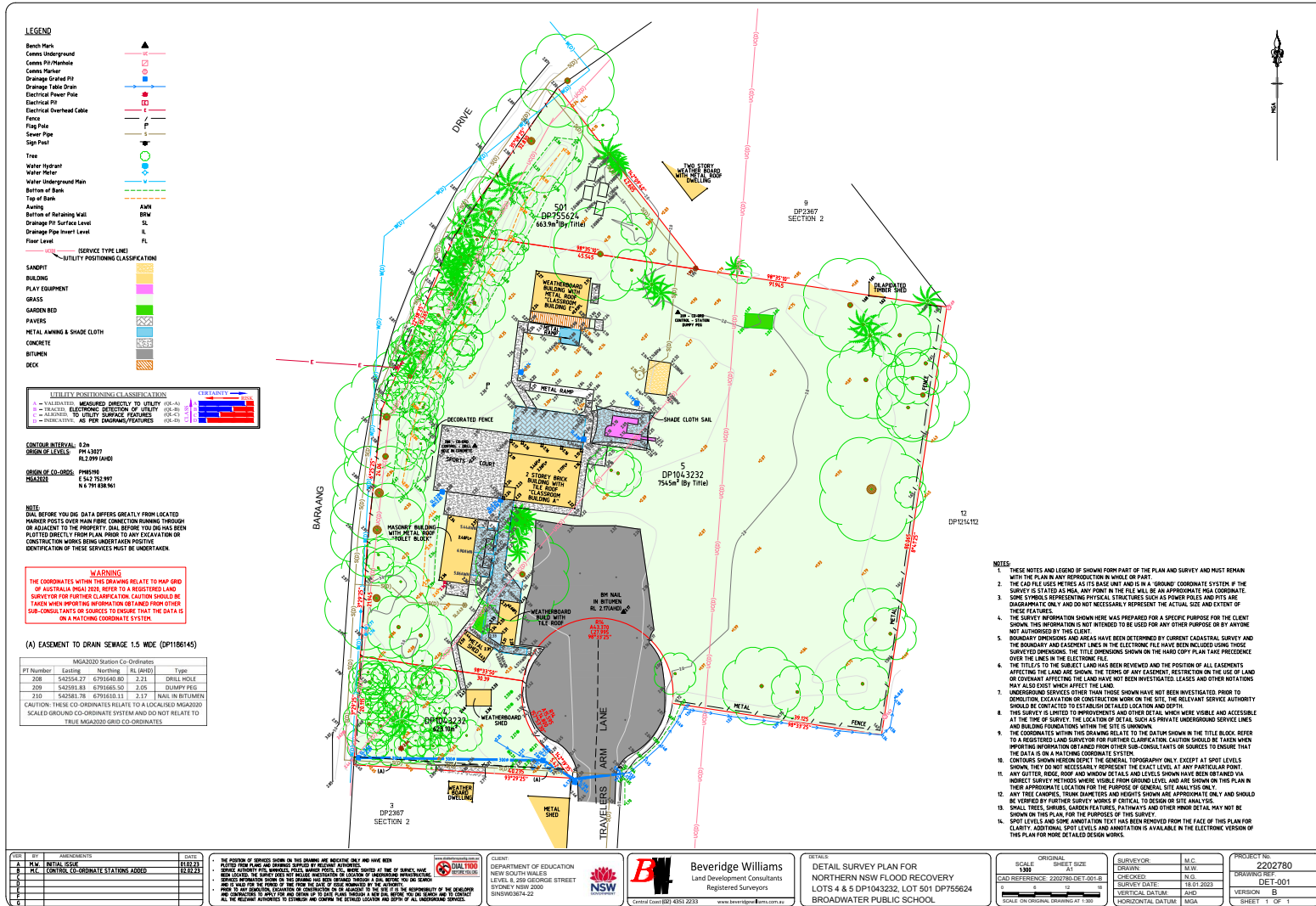


**13.  
Attachment 2  
Aerial Photo**





# 14. Attachment 3 Survey



**LEGEND**

Bench Mark	▲
Cover Underground	—
Cover PI/Manhole	○
Cover Manhole	□
Drainage Grated PI	■
Drainage Table Drain	—
Electrical Power Pole	—
Electrical PI	○
Electrical Overhead Cable	—
Fence	—
Flag Pole	—
Sewer Pipe	—
Sign Post	—
Tree	—
Water Hydrant	—
Water Meter	—
Water Underground Main	—
Bottom of Bank	—
Top of Bank	—
Awning	—
Bottom of Retaining Wall	—
Drainage PI Surface Level	SL
Drainage Pipe Invert Level	IL
Floor Level	FL

**UTILITY POSITIONING CLASSIFICATION**

SANDPIT	—
BUILDING	—
PLAY EQUIPMENT	—
GRASS	—
GARDEN BED	—
PAVERS	—
METAL AWNING & SHADE CLOTH	—
CONCRETE	—
BITUMEN	—
DECK	—

**UTILITY POSITIONING CLASSIFICATION**

—	VALIDATED - MEASURED DIRECTLY TO UTILITY (S1-A)	—	PRIORITY
—	VALIDATED - ELECTRONIC DETECTION OF UTILITY (S1-B)	—	PRIORITY
—	ADJUSTED TO UTILITY SURFACE FEATURES (S1-C)	—	PRIORITY
—	APPROXIMATE - AS PER DRAWINGS/FEATURES (S1-D)	—	PRIORITY

CONTOUR INTERVAL: 0.2m  
 ORDER OF LEVELS: P14307  
 RL 200 (MVD)  
 ORDER OF CO-ORDS: P14308  
 E 542 753 997  
 N 6 791 628 861

**NOTE:**  
 DIAL BEFORE YOU DIG. DATA DIFFERS GREATLY FROM LOCATED MARKER POSTS OVER MAIN FIBRE CONNECTION RUNNING THROUGH OR ADJACENT TO THE PROPERTY. DIAL BEFORE YOU DIG HAS BEEN PLOTTED DIRECTLY FROM PLAN PRIOR TO ANY EXCAVATION OR CONSTRUCTION WORKS BEING UNDERTAKEN. POSITIVE IDENTIFICATION OF THESE SERVICES MUST BE UNDERTAKEN.

**WARNING:**  
 THE COORDINATES WITHIN THIS DRAWING RELATE TO MAP GRID OF AUSTRALIA (MGA 102). REFER TO A REGISTERED LAND SURVEYOR FOR FURTHER CLARIFICATION. CAUTION SHOULD BE TAKEN WHEN IMPORTING INFORMATION OBTAINED FROM OTHER SUB-COMPACT LOTS OR SUBJECTS TO ENSURE THAT THE DATA IS TRUE, CORRECT AND A MATCHING COORDINATE SYSTEM.

(A) EASEMENT TO DRAIN SEWAGE 1.5 MDE (DP1186145)

PI Number	Easting	Northing	RL (AHD)	Type
208	542594.27	6791640.80	2.21	DRILL HOLE
209	542591.83	6791640.50	2.05	DUMPY PILE
210	542581.78	6791640.11	3.17	NAIL IN BITUMEN

CAUTION: THESE CO-ORDINATES RELATE TO A LOCALISED MGA2020 SCALED GROUND CO-ORDINATE SYSTEM AND DO NOT RELATE TO TRUE MGA2020 GRID CO-ORDINATES.

NO.	REVISIONS	DATE
1	ISSUE FOR PERMIT	02/02/23
2	FINAL TITLE PLAN	02/02/23
3	CONTROL CO-ORDINATE STATIONS ADDED	02/02/23
4		
5		
6		

THE POSITION OF SERVICES SHOWN ON THIS DRAWING ARE INDICATED ONLY AND HAVE BEEN PLOTTED FROM SURVEY DATA. THE POSITION OF SERVICES SHOWN ON THIS DRAWING ARE INDICATED ONLY AND HAVE BEEN PLOTTED FROM SURVEY DATA. THE POSITION OF SERVICES SHOWN ON THIS DRAWING ARE INDICATED ONLY AND HAVE BEEN PLOTTED FROM SURVEY DATA.

CLIENT: DEPARTMENT OF EDUCATION  
 NORTHERN NSW FLOOD RECOVERY  
 LEVEL 8, 209 GEORGE STREET  
 SYDNEY NSW, 2000  
 BRNWS074-22

**Beveridge Williams**  
 Land Development Consultants  
 Registered Surveyors

Central Coast 051 8331 2233  
 www.beveridgewilliams.com.au

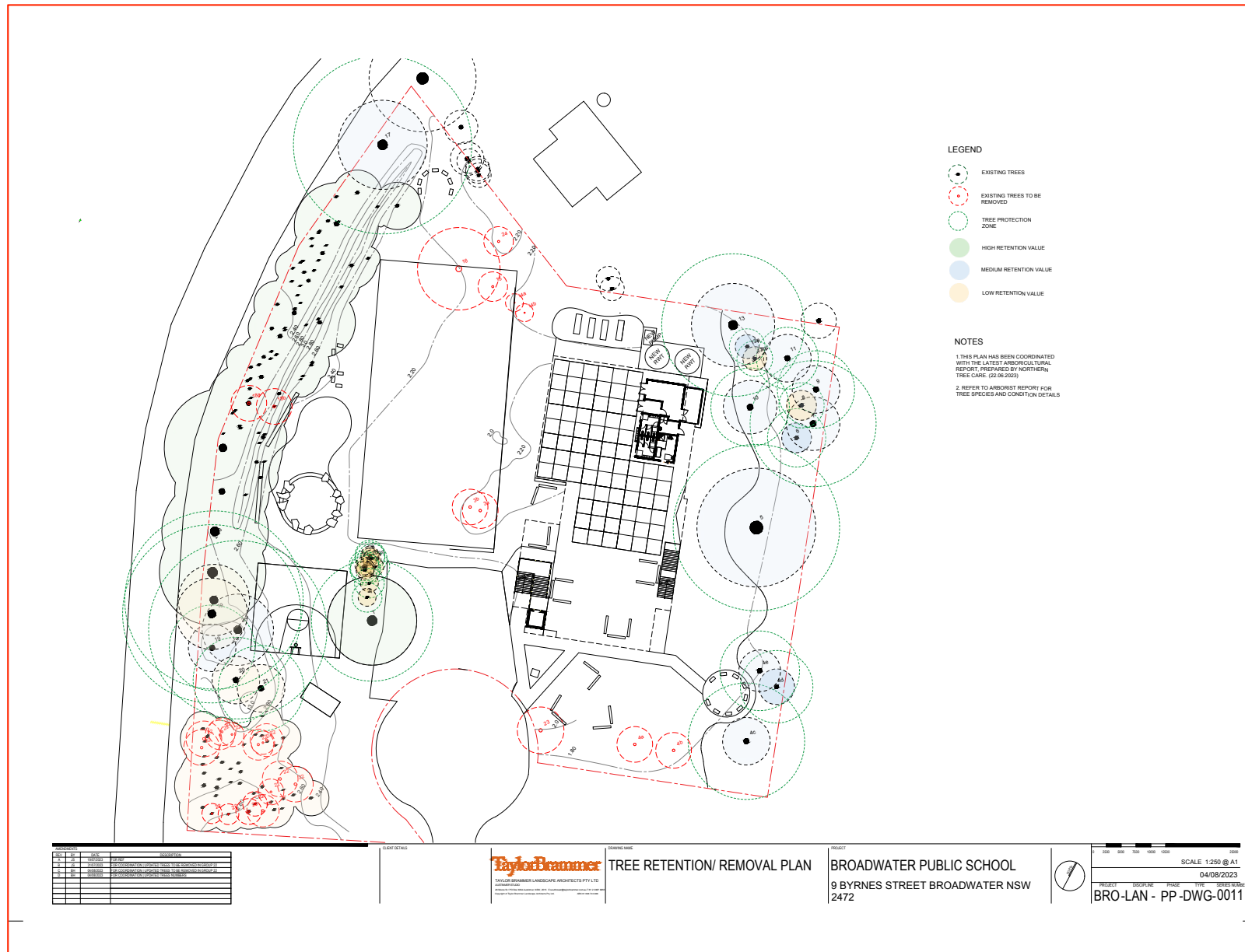
DETAIL SURVEY PLAN FOR  
 NORTHERN NSW FLOOD RECOVERY  
 LOTS 4 & 5 DP1043232, LOT 501 DP755624  
 BROADWATER PUBLIC SCHOOL

SCALE ORIGINAL: 1:500	SCALE: AS SHOWN	SURVEYOR: M.W.	M.G.	PROJECT NO: 2202780
SCALE: AS SHOWN	SCALE: AS SHOWN	DRAWN: M.W.	M.G.	DRAWING REF: DIET-001
SCALE: AS SHOWN	SCALE: AS SHOWN	CHECKED: M.G.	M.G.	VERSION: 0
SCALE: AS SHOWN	SCALE: AS SHOWN	SURVEY DATE: 18/01/2023	M.G.	SHEET: 1 OF 1
SCALE: AS SHOWN	SCALE: AS SHOWN	VERTICAL DATUM: AHD	M.G.	
SCALE: AS SHOWN	SCALE: AS SHOWN	HORIZONTAL DATUM: MGA	M.G.	

- NOTES:**
- THESE NOTES AND LEGEND IF SHOWN PART OF THE PLAN AND SURVEY AND MUST REMAIN WITH THE PLAN IN ANY REPRODUCTION IN WHOLE OR PART.
  - THE CAD FILE USES METRES AS ITS BASE UNIT AND IS IN A GROUND COORDINATE SYSTEM IF THE SURVEY IS STATED AS MGA. ANY POINT IN THE FILE WILL BE AN APPROXIMATE MGA COORDINATE.
  - SOME SYMBOLS REPRESENTING PHYSICAL STRUCTURES SUCH AS POWER PILES AND PITS ARE QUADRAPHATIC ONLY AND DO NOT NECESSARILY REPRESENT THE ACTUAL SIZE AND EXTENT OF THESE FEATURES.
  - THE SURVEY INFORMATION SHOWN HERE WAS PREPARED FOR A SPECIFIC PURPOSE FOR THE CLIENT SHOWN. THE INFORMATION IS NOT INTENDED TO BE USED FOR ANY OTHER PURPOSE OR BY ANYONE NOT AUTHORIZED BY THE CLIENT.
  - BOUNDARY OPERATIONS AND AREAS HAVE BEEN DETERMINED BY CURRENT CADASTRAL SURVEY AND THE BOUNDARY AND EASEMENT LINES IN THE ELECTRONIC FILE HAVE BEEN INCLUDED USING THOSE SURVEYED OPERATIONS. THE TITLE OPERATIONS SHOWN ON THE HARD COPY PLAN TAKE PRECEDENCE OVER THE LINES IN THE ELECTRONIC FILE.
  - THE TITLES TO THE SUBJECT LAND HAS BEEN REVIEWED AND THE POSITION OF ALL EASEMENTS AFFECTING THE LAND ARE SHOWN. THE TERMS OF ANY EASEMENT, RESTRICTION ON THE USE OF LAND OR COVENANT AFFECTING THE LAND HAVE NOT BEEN INVESTIGATED. LEASES AND OTHER NOTATIONS MAY ALSO EXIST WHICH AFFECT THE LAND.
  - UNDERGROUND SERVICES OTHER THAN THOSE SHOWN HAVE NOT BEEN INVESTIGATED. PRIOR TO DEMOLITION, EXCAVATION OR CONSTRUCTION WORK ON THE SITE, THE RELEVANT SERVICE AUTHORITY SHOULD BE CONTACTED TO ESTABLISH DETAILED LOCATION AND DEPTH.
  - THIS SURVEY IS LIMITED TO IMPROVEMENTS AND OTHER DETAILS WHICH WERE VISIBLE AND ACCESSIBLE AT THE TIME OF SURVEY. THE LOCATION OF DETAIL SUCH AS PRIVATE UNDERGROUND SERVICE LINES AND BUILDING FOUNDATION WITHIN THE SITE IS UNKNOWN.
  - THE COORDINATES WITHIN THIS DRAWING RELATE TO THE DATUM SHOWN IN THE TITLE BLOCK REFER TO A REGISTERED LAND SURVEYOR FOR FURTHER CLARIFICATION. CAUTION SHOULD BE TAKEN WHEN IMPORTING INFORMATION OBTAINED FROM OTHER SUB-COMPACT LOTS OR SUBJECTS TO ENSURE THAT THE DATA IS TRUE, CORRECT AND A MATCHING COORDINATE SYSTEM.
  - CONTOURS SHOWN HEREIN REFLECT THE GENERAL TOPOGRAPHY ONLY. EXCEPT AT SPOT LEVELS SHOWN, THEY DO NOT NECESSARILY REPRESENT THE EXACT LEVELS AT ANY PARTICULAR POINT.
  - ANY GUTTER, ROOF, ROOM AND WINDOW DETAILS AND LEVELS SHOWN HAVE BEEN OBTAINED VIA INDIRECT SURVEY METHODS USING PUBLIC FLOOR GROUND LEVELS AND ARE SHOWN ON THIS PLAN IN THEIR APPROXIMATE LOCATION FOR THE PURPOSE OF GENERAL SITE ANALYSIS ONLY.
  - ANY TREE CANOPIES, TRUNK DIAMETERS AND HEIGHTS SHOWN ARE APPROXIMATE ONLY AND SHOULD BE VERIFIED BY FURTHER SURVEY WORKS IF CRITICAL TO DESIGN OR SITE ANALYSIS.
  - SMALL TREES, SHRUBS, GARDEN FEATURES, PALMS AND OTHER PLANTS ARE NOT SHOWN ON THIS PLAN FOR THE PURPOSES OF THIS SURVEY.
  - SPOT LEVELS AND SLOPE ANNOTATION TEXT HAS BEEN REMOVED FROM THE FACE OF THIS PLAN FOR CLARITY. ADDITIONAL SPOT LEVELS AND ANNOTATION IS AVAILABLE IN THE ELECTRONIC VERSION OF THIS PLAN FOR PURPOSE OF DETAIL DESIGN WORKS.



# 15. Attachment 4 New Buildings





## 16. Attachment 5. Significance of Trees

Tree #	Name	Condition	Vigour	Protected	Environmental value	Amenity value	Significance
1	Tallowwood <i>Eucalyptus microcorys</i>	Good	Good	No	High	High	Very High
2a	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2b	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2c	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2d	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2e	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2f	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2g	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2h	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2i	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2j	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low
2k	Alexander Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Low	Medium	Low



## Significance of Trees Continued

Tree #	Name	Condition	Vigour	Protected	Environmental value	Amenity value	Significance
3a	Bottlebrush <i>Callistemon viminalis</i>	Good	Good	No	Medium	Medium	Moderate
3b	Bottlebrush <i>Callistemon viminalis</i>	Good	Good	No	Medium	Medium	Moderate
4a	Swamp Mahogany <i>Eucalyptus robusta</i>	Poor	Fair	No	High	Low	Moderate
4b	Swamp Mahogany <i>Eucalyptus robusta</i>	Fair	Fair	No	High	Low	Moderate
4c	Forest Red Gum <i>Eucalyptus tereticornis</i>	Good	Good	No	High	Medium	Moderate
4d	Forest Red Gum <i>Eucalyptus tereticornis</i>	Good	Good	No	High	Medium	Moderate
4e	Flooded Gum <i>Eucalyptus grandis</i>	Good	Good	No	Medium	Medium	Moderate
5	Weeping Fig <i>Ficus microcarpa</i> var. <i>hillii</i>	Good	Good	No	Medium	Medium	Moderate
6	Coastal Pine <i>Callitris columellaris</i>	Good	Good	No	High	Low	Moderate
7	Flooded Gum <i>Eucalyptus grandis</i>	Good	Good	No	Medium	Low	Moderate
8	Brushbox <i>Lophostemon confertus</i>	Poor	Good	No	Medium	Low	Low
9	Forest Red Gum <i>Eucalyptus tereticornis</i>	Good	Good	No	High	Medium	Moderate
10	Poplar <i>Populus</i> sp.	Good	Good	No	Low	Medium	Moderate
11	Hoop Pine <i>Araucaria cunninghamii</i>	Good	Good	No	Medium	Medium	Moderate
12a	Cocos Palm x 2 <i>Syagrus romanzofiana</i>	Good	Good	No	Low	Low	Low
12b	Cocos Palm x 2 <i>Syagrus romanzofiana</i>	Good	Good	No	Low	Low	Low
13	Hoop Pine <i>Araucaria cunninghamii</i>	Good	Good	No	Medium	Medium	Moderate



## Significance of Trees Continued

Tree #	Name	Condition	Vigour	Protected	Environmental value	Amenity value	Significance
14a	Bangalow Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Medium	Low	Moderate
14b	Bangalow Palm <i>ArchontoePhoenix alexandrae</i>	Good	Good	No	Medium	Low	Moderate
15	Exotic species	Good	Good	No	Low	Low	Low
16	Camphor Laurel <i>Cinnamomum camphora</i>	Good	Good	No	Low	Medium	Moderate
17	Camphor Laurel <i>Cinnamomum camphora</i>	Good	Good	No	Low	High	Moderate
18	Group of rainforest trees x 62	Good	Good	No	Medium	High	High
18a	She Oak <i>Casuarina glauca</i>	Good	Good	No	Medium	Medium	Moderate
18b	Dead tree						Very Low
19a	Camphor Laurel <i>Cinnamomum camphora</i>	Fair	Good	No	Low	High	Low
19b	Camphor Laurel <i>Cinnamomum camphora</i>	Fair	Good	No	Low	High	Low
19c	Camphor Laurel <i>Cinnamomum camphora</i>	Fair	Good	No	Low	High	Low
20	Weeping Paperbark <i>Melaleuca leucadendra</i>	Good	Good	No	Medium	Medium	Moderate
21	Weeping Paperbark <i>Melaleuca leucadendra</i>	Good	Good	No	Medium	Medium	Moderate
22	Group of Rainforest trees	Poor	Poor	No	Medium	Medium	Low
23	Brown Kurrajong <i>Commersonia bartramia</i>	Dead		No	Low	Low	Very Low
24	Firewheel <i>Stenocarpus sinuatus</i>	Good	Good	No	Medium	Low	Moderate
25	Paperbark <i>Melaleuca quinquenervia</i>	Good	Fair	No	Medium	Low	Moderate



## 17. Attachment 6. Photos



Photo 1. Tree # 1  
Tallowood



Photo 2. Tree # 3  
Bottlebrush



Photo 3. Tree # 4  
Gum trees



Photo 4. Tree # 5  
Weeping Fig



## Photos Continued



Photo 5. Trees # 6 - 13



Photo 6. Tree # 14  
Bangalow Palms

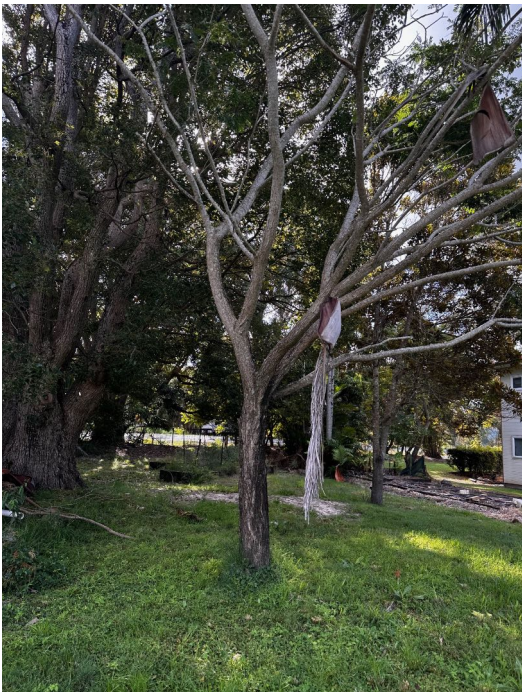


Photo 7. Tree # 15  
Exotic species



Photo 8. Tree # 16  
Camphor Laurel

Exotic species  
Arborist Report. Broadwater public School. File # 2324

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## Photos Continued



Photo # 9. Tree # 24  
Firewheel



Photo 10. Tree # 16  
Camphor Laurel



Photo 11. Tree # 18  
Group of 62 trees



Photo 12. Tree # 22  
Group of trees. Many have died.