Independent
Arboricultural
Services

Arboricultural Impact Assessment

Prepared For: School Infrastructure NSW

Narrabeen Education Precinct

Narrabeen North Public School
Narrabeen NSW 2101

20th July 2022

IAS8602

Independent Arboricultural Services - Disclaimer

The material contained in this document has been prepared on an independent basis free of any bias and represents the honest opinion of the consulting arborist.

Tissue or soil samples have not been collected nor submitted for testing unless otherwise stated. Excavation is limited to minor earthworks and we submit this assessment on the basis that all data is based on visual inspection of the tree/s and its/their location, species, health and condition at the time of writing unless otherwise stated. Measurements and tree locations noted in this report are approximate and have not been determined by survey unless information and analysis has been provided by the consultant or such information is otherwise noted. Please request a more detailed arborist report if further information and analysis is required. Depending on site requirements, specific alternate specialist advice including engineering consultancy and certification maybe required in combination with this assessment. This assessment contains arborist advice and associated general information only and does not purport to provide other site-specific specialist advice such as engineering certification unless arrangement to source such advice for inclusion in this assessment has been requested and authorised.

This report containing opinions, advice and recommendations based on information and data gathered from site inspections carried out by personnel from Independent Arboricultural Services as well as information provided by the client and/or its representatives, is to be relied on by the client in that context. It is assumed that all such information provided to Independent Arboricultural Services is correct. All recommended arboricultural works detailed in this assessment including pruning of tree canopy or roots, tree removal, tree transplantation or other associated works including stump grinding or the application of any prescribed treatment shall be carried out in accordance with applicable standards including Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 Protection of trees on development sites.

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The invoice for this report will be issued to the person or entity as per the address advised at the time of confirmation of appointment. Assessment in this report is based on plans provided at the time of confirmation of engagement and report preparation. Additional time required for re-assessment of report detail due to subsequent re-issue of plans after report preparation will be subject to an additional fee which will be charged at our hourly rate. This report shall not be conveyed to any third party including regulatory authority/s until full payment of this invoice is received by Independent Arboricultural Services and a finalised report has been issued unless agreement to do so has been granted.

Factors including the absence of historical records or local knowledge, recognition of the variability of the integrity of a tree as a naturally living organism as well as the impact of conditions within its surrounds to which it maybe subject including the impacts of mechanical force and the occurrence of weather events, do not allow an arborist to guarantee the age of a tree, or the length of time a tree/s may live or such time as it /they may fail. There is no warranty or guarantee, expressed or implied that the problems or deficiencies of the plants or property in question may not arise in the future.

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Document Tracking & Information

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Abbreviations

NBC	Northern Beaches Council	**RPA**	Root Protection Area
DA	Development Application	**TMP**	Tree Management Plan
VPO	Vegetation Protection Order	**CMP**	Construction Management Plan
ULE	Useful Life Expectancy	**VMP**	Vegetation Management Plan
BLF	Building Location Footprint	**AS**	Australian Standard
BLE	Building Location Envelope	**AS 4373: 2007**	Pruning of amenity trees
TPZ	Tree Protection Zone	**AS 4970: 2009**	Protection of trees on development sites
SRZ	Structural Root Zone	**DBH**	Diameter at Breast Height

All comments and recommendations in this report have been determined in accordance with Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 Protection of trees on development sites. All recommended tree work should be carried out in accordance with these standards.

Roger Rankine

Consulting Arborist

Map

Figure 1: Subject Site (Nearmap 2021)

Introduction

This report is based on a visual inspection carried out from the ground on the 24th November 2021 & 9th May 2022. No soil or tissue sampling has been conducted. Tree assessment and Qualitative Visual Tree Analysis has been carried out in accordance with TRAQ ISA guidelines. Data and information provided to the client by others has been incorporated into this report as appropriate.

All Arboricultural recommendations contained in this report have been determined in accordance with Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 Protection of trees on development sites.

For the purposes of this report reference to a Consulting or Project Arborist is held to mean an Arboricultural specialist who holds minimum Arboricultural qualifications of Dip Arb/AQF 5, appropriate professional insurances and has appropriate experience in the protection of trees on construction sites. Where tree work is specified, all recommended tree work is to be carried out in accordance with the above-mentioned standards by an appropriately trained and AQF qualified arborist practitioner/s with an up-to-date record of training and membership of a recognised Australian Arboricultural association, e.g. Qld Arboricultural Association (QAA), Arboriculture Australia (AA), or a recognised international Arboricultural association. No climbing spikes are to be used if pruning is to be carried out on live trees except in the instance of an emergency.

Qualifications of the report authors include Diploma of Arboriculture/AQF Level 5 and ISA Certified Arborist accreditation. Report authors hold current insurances and memberships including qualified memberships of Queensland Arboricultural Association (QAA), and Arboriculture Australia (AA) as well as current accreditation and membership of International Society of Arboriculture (ISA).

Independent Arboricultural Services is a qualified registrant on the QAA Register of Consulting Arborists.

Executive Summary

Independent Arboricultural Services have been engaged by School Infrastructure NSW to assess potential impacts to the nominated vegetation resulting from the proposed Narrabeen Education Precinct development which includes the redevelopment of the Narrabeen North Public School (NNPS) and Narrabeen Sports High School (NSHS). The public school and the High School have been identified by the NSW Department of Education (DoE) as requiring upgrade works.

The proposed Narrabeen Education Precinct development includes redevelopment of Narrabeen North Public School (NNPS) and Narrabeen Sports High School (NSHS). The Public School and High School have been identified by the NSW Department of Education (DoE) as requiring upgrade works.

The works at NNPS upgrade the school including demolition of existing buildings (Blocks H and J), construction of three (3) new buildings with refurbishment of three (3) existing buildings (Blocks B, K and V).

This Development Application (DA) will seek consent for tree removal to facilitate works proposed under other planning pathways including Part 4 development application (DA), development without consent (REF) and exempt development. The proposed development does not seek to increase staff or student numbers.

Chantalle Hughes (AQF Level 5) attended site on 24th November 2022 & 9th May 2022 to undertake the assessment of the impact of the works. Roger Rankine (AQF Level 8) attended site on the 21st June 2022. Assessment of the impacts of proposed development on the identified trees in and around the development envelope, roads and services has been undertaken. Advice on both specific and general tree protection measures and Project Arborist Requirements have been detailed in this report. It is important as the design is refined, further reviews are undertaken by the Project Arborist and protection measures are further specified as required.

Further detailed designed will be assessed as available during the project including civil works (cut / fill) services layouts and building footprints. Protection measures and assessment of incursion has been based on the available information provided. Based on the current designs, thirty (30) trees have major incursion and the long term health and structural viability will be affected by the works. A remaining twenty one (21) trees are noted for retention subject to a review of the finalised earthworks and service layout plans along with a review of the site set out and pruning requirements.

As part of the design process and operational works it is recommended that the following is undertaken,

- The Project Arborist is to be consulted during the detailed design phase to minimise impacts to retainable vegetation.
- Current retention/removal recommendations are based on plans provided. Detailed assessment of final design plans and bulk earthworks are required prior to final retention/removal recommendations.
- Ensure all approvals and permits are in place before works commence.
- Undertake a pre-start meeting with contractors before works commence.
- Tree Protection Fencing is to be erected before works commence and audited by the Project Arborist (Min AQF Level 5).
- Supervision by a Project Arborist (Min AQF Level 5) and Fauna Spotter/Catcher of the approved tree removals.
- Any works proposed within the TPZ of retained trees requires supervision of a minimum AQF5 Project Arborist.

- Tree Pruning is to be undertaken by a minimum AQF Level 3 Arborist.
- Laydown areas and site shed/office locations are to be identified/finalised and excluded from the Tree Protection Zones of retained trees and minimise public impact.
- Route vehicles and equipment outside of TPZs. If access is required within TPZ, mulch to a depth of 100mm and tree padding needs to be installed with the option of track mats as determined and signed off by a minimum AQF5 Project Arborist.
- Construction materials, spoil, stockpiles, tools and equipment are not permitted within the TPZs of retained trees.

Site Description

The subject sites are located at 6 and 10 Namona Street, North Narrabeen (referred to as the Narrabeen Education Precinct) and falls within the local government area of Northern Beaches Council. The Narrabeen Education Precinct has a total area of 9.84 hectares.

Narrabeen North Primary School (NNPS) is located on the northern side of Namona Street, North Narrabeen and is legally described as Lot 3 Deposited Plan (DP) 1018621. NNPS is surrounded by residential dwellings to the east, grassed sporting fields (Warriewood Valley Sportsground) to the north and Northern Beaches Indoor Sports Centre to the west. NNPS contains two (2) Binishell domes (Block A and Block B) which are identified as a local heritage item under the Pittwater Local Environmental Plan 2014. The two (2) Binishell Domes are listed as State significant on DoE's Section 170 Heritage and Conservation Register. The Double Binishell Dome (Block B) is listed on the State Heritage Register (SHR).

Narrabeen Sports High School (NSHS) is located on the southern side of Namona Street and is legally described as Lot 12 DP 1119562. NSHS is surrounded by Pittwater Road to the east, Pittwater Sports Centre to the south and Mullet Creek to the west.

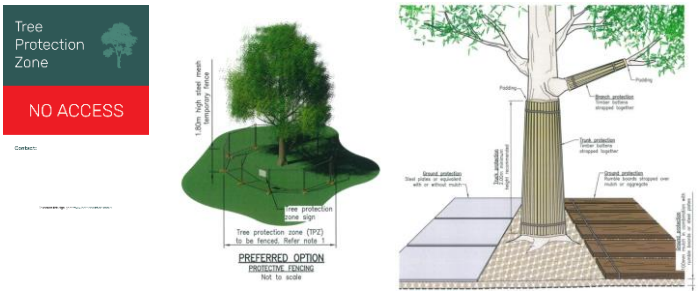
Figure – Site Aerial Map, Source: Nearmap

Arborist Comment

- **Protection of retained trees during construction works**
- **Impact of the proposed works on nominated trees**

Protection of Retained Trees During Construction Works

An exclusion zone is to be established along the perimeters of retained trees and cordoned off with a physical barrier of wire mesh fence, 1.8m in height, which is securely anchored (as noted on the Tree Protection Plan). The role of these fences is to prevent any damage to the complete tree including root system (SRZ & TPZ), stem and branch structure as well as the crown or canopy. Alternatively, and on approval of a minimum AQF5 Project Arborist, plastic mesh fencing, 1.2m in height, secured with star pickets and caps with straining wire can be utilised. All TPZ fencing will require appropriate signage to signify the relevant protection zones. This will require audit and sign off prior to operational works onsite.



Tree Protection Fencing to be utilised. Where works will be undertaken close to and within Tree Protection Zones specific tree protection measures to be utilised a directed by the project Arborist.

Project Hold Points

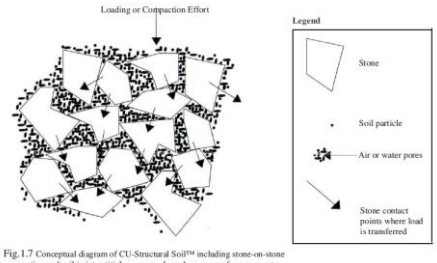
Engage an AQF5 minimum Project Arborist during the project life;

- Once tree protection fencing and signage has been established and finalised. Project Arborist (minimum AQF Level 5) to audit and sign off.
- Supervision of approved tree removals in conjunction with a fauna spotter.
- Any works within the TPZ of retained trees is required.
- If tree roots are encountered over 50mm in diameter outside of TPZs of retained trees.
- Changes to the plans occur.
- On completion of the project to conduct a final audit and summary.

(Site audits/summary reports will be conducted at each hold point interval by the Project Arborist)

Project Arborist Requirements	
1.	Pre-Start Inspection and Audit of Tree Protection Fencing Before Works Commence
2.	Any required Tree Works to be undertaken by a minimum AQF Level 3 Arborist under the Supervision of the Project Arborist (Min AQF Level 5). Tree Services Company to be a member of Queensland Arboricultural Association or Arboriculture Australia.
3.	All works within the Tree Protection Zones of the retained vegetation to be supervised by the Project Arborist (Min AQF Level 5). Audit Reports to be completed and submitted by the Project Arborist. Any below ground incursion to be water excavated under low pressure, under the supervision of the Project Arborist.
4.	All works to be excluded from the Structural Root Zone (SRZ) and supervised if located within Tree Protection Zone.
5.	The Project Arborist to be consulted if changes to plans are made that affect any retained vegetation.
6.	At the Completion of works, Project Arborist to undertake a site assessment and an audit report compile of any further remedial actions required.

Examples of Amended Protection Measures

Examples	Photos
Example of the use low pressure water excavation for the installation of conduits	 
Example of the use of black plastic to line pier holes	
Example of the use of black plastic to line concrete	 
Example of the use of Structural Soil. Structural Soils – (Source: Cornell University)	   Fig.1.7 Conceptual diagram of CU-Structural Soil™ including stone-on-stone compaction and soil in interstitial spaces used as a base course for pavements.

Conclusion

For all retained trees, with due care, implementation of appropriate work methodology as noted in this report and isolation of all TPZs of retained trees from construction works, the potential for ill-effect to retained/affected trees can be minimised in accordance with guidelines of AS4970:2009 – Protection of trees on development sites.

The following must occur:

NBC approvals must be in place prior to the commencement of any tree work for future construction work. Approvals are required should the Project Arborist prescribe pruning such as crown clean, canopy lift and/or directional pruning.

- Project Arborist must be appointed and engaged to guide the protection of protected trees from project commencement, i.e. during Design Planning and during the construction period until its completion.
- **All Arboricultural reports, TMPs, VMPs & approvals must be included in the CMP**
- Design Plans must be drafted to incorporate raised foundations supported by sleeved pier design or similar low impact design to bridge the roots zone of any development within TPZ's. Exploratory low pressure water excavation is to be undertaken as specified.
- Arborist briefing of all engaged persons on their commencement as well as diligent work practice must occur during all approved future construction work.
- Root disturbance must be minimised to prevent accidental injury, compression and the creation of exposure points to allow future entry of pests and pathogens.
- **All work within any TPZ must be supervised by the Project Arborist.**

All work within TPZs must be carried out with due care to avoid mechanical impact with retained tree/s during the construction phase. Where present existing strip footings or installed pier locations are to be utilised for any replacement of existing fence structures; alternatively, any removal of existing fence structures and new replacement work is to be carried out as detailed above, i.e. new fence foundations should utilise post and rail design with no concreted footing unless authorised by the Project Arborist. Sleeving should be installed to provide an impervious barrier between exposed TPZ perimeter/s and new concreted areas to prevent chemical leeching into the surrounding soil of retained trees.

Reactionary processes, such as the emergence of deadwood, dieback etc. are likely to occur as a result of disturbance and/or injury to any retained tree on a construction site. Amended design plans and construction methodology can serve to avoid or minimise the likely emergence of such issues and therefore their associated future OH&S issues to the future occupants of the new dwellings and or pedestrian or vehicular traffic within the vicinity of retained tree/s. Any required pruning is to be undertaken by a minimum AQF Level 3 Arborist under the supervision of the Project Arborist (AQF Level 5).

Tree Locations W/O TPZ

Please Note: Tree Locations are approximate only. Green circles represent TPZ as defined in AS4970 -2009 Protection of trees on development sites


Common Name
Avocado
Bangalow Palm
Black Tea-tree
Blue Berry Ash (2)
Blueberry Ash
Cabbage Fan-palm (2)
Camphor Laurel (7)
Canary Island Date Palm
Cedar Wattle (4)
Cheese Tree (24)
Coast Banksia (14)
Common Paperbark (2)
Cotton Wood
Crimson Bottle Brush
Flame Tree (3)
Fragrant Olive
Frangipani
Golden Banksia
Grey Gum
Grey She-oak (6)
Group of Trees
Gum (5)
Hills Weeping Fig
Jacaranda
Kaffir Plum
Kentia Palm
Lemon-scented Gum (9)
Lilly Pilly
Mango
Monterey Pine (2)
Moreton Bay Fig
Pencil Pine
Queen Palm (7)
Queensland Brush Box
Red Ironbark
Red Mahogany (3)
River She-oak
Saw Leaf Banksia (2)
Smooth-barked Apple Myrtle (5)
Southern Mahogany (31)
Swamp Mahogany (14)
Sweet Pittosporum
Sydney Blue Gum (3)
Tuckeroo (3)
Wallangarra Gum (4)
Wattle (7)
Weeping Fig
10 m

Tree Locations with Tree Protection Zones


Common Name
Avocado
Bangalow Palm
Black Tea-tree
Blue Berry Ash (2)
Blueberry Ash
Cabbage Fan-palm (2)
Camphor Laurel (7)
Canary Island Date Palm
Cedar Wattle (4)
Cheese Tree (24)
Coast Banksia (14)
Common Paperbark (2)
Cotton Wood
Crimson Bottle Brush
Flame Tree (3)
Fragrant Olive
Frangipani
Golden Banksia
Grey Gum
Grey She-oak (6)
Group of Trees
Gum (5)
Hills Weeping Fig
Jacaranda
Kaffir Plum
Kentia Palm
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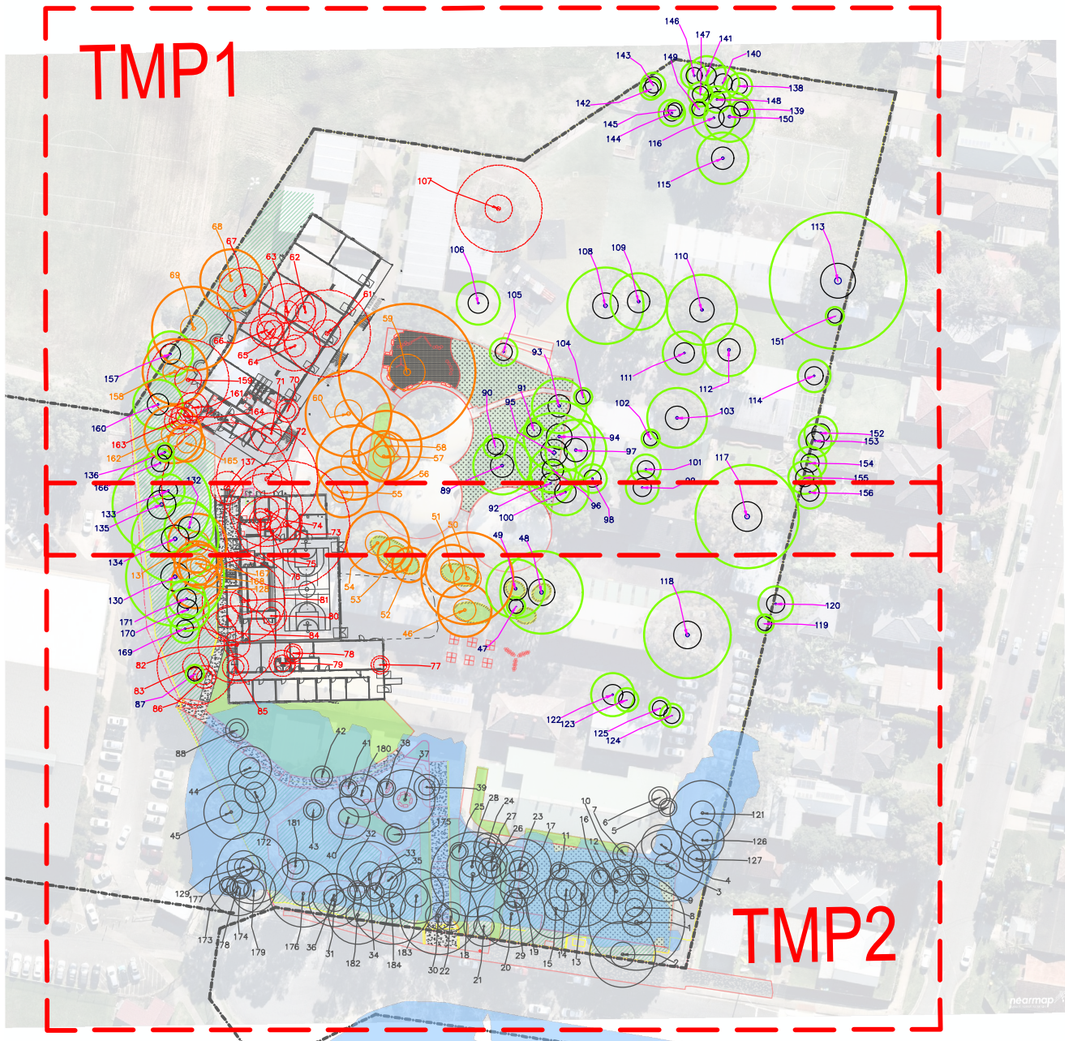
Sydney Blue Gum (3)
Tuckeroo (3)
Wallangarra Gum (4)
Wattle (7)
Weeping Fig
10 m

Sheet List Table	
Sheet Number	Sheet Title
CO1	COVER SHEET
TMP1	TREE MANAGEMENT PLAN 1
TMP2	TREE MANAGEMENT PLAN 2

NARRABEEN NORTH PUBLIC SCHOOL

6 NAMONA STREET NORTH NARRABEEN NSW 2101



TREE MANAGEMENT PLAN

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ISSUE	DESCRIPTION	DATE	DRAWN	AUTH.	NOTES
PR3	UPDATE REMOVES, LOCATIONS	7/07/2022	JA	RR	NARRABEEN NORTH PUBLIC SCHOOL, 6 NAMONA ST, NORTH NARRABEEN NSW 2101
PR4	WATERWAY VEG UPDATE	7/07/2022	JA	RR	--
PR5	UPDATE ARCH BASE	15/7/2022	JA	RR	--
PR6	UPDATE 57 & 58	19/7/2022	JA	RR	--

PROJECT
NARRABEEN EDUCATION PRECINCT- NARRABEEN NORTH PUBLIC SCHOOL

TITLE
TREE MANAGEMENT PLAN COVER SHEET

DESIGN: --		DESIGN CHECK: --	
DRAWN: JA	DATE: 19/07/2022	DRAWING CHECK: RR	DATE: 19/07/2022
AUTHORISED FOR ISSUE: RR		REFERENCE NO.: --	
		SCALE: N/A	ORG. SIZE: A3
PROJECT NUMBER / SHEET: 0000 / CO1		ISSUE: PR6	

Legend

00 — INDICATES TREE TO BE RETAINED & PROTECTED, TREE PROTECTION ZONE (TPZ) & STRUCTURAL ROOT ZONE (SRZ) INNER CIRCLE

00 — INDICATES TREE TO BE RETAINED SUBJECT TO DETAILED ARBORIST ASSESSMENT BASED ON FINALIZED PLANS

00 — INDICATES TREE TO BE REMOVED

Propose demountable location. Project Arborist (AQF Level 5) to review the final location and footprint of the demountable building. Low pressure water excavation to be utilised for any required footings within the TPZ of retained trees (under Project Arborist supervision).

HOLD POINT: Pre-start meeting to be undertaken with the building contractor before works commence to review the protection measures and project hold points.

Project Arborist (AQF Level 5) to review detailed design and set out of all buildings and associated services for trees in yellow before works commence.

Project Arborist (AQF level 5) to audit Tree Protection Fencing before works commence. Fencing is to utilise 1.8 metre mesh fencing on concrete feet.

HOLD POINT: Project Arborist (AQF Level 5) to review the final earthworks extent, services upgrades and hydrant requirements before works commence.

Independent Arboricultural Services

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PR5	UPDATE ARCH BASE	15/7/2022	JA	RR	--
PR6	UPDATE 57 & 58	19/7/2022	JA	RR	--

PROJECT: NARRABEEN EDUCATION PRECINCT- NARRABEEN NORTH PUBLIC SCHOOL

TITLE: TREE MANAGEMENT PLAN SHEET 1

DESIGN: --		DESIGN CHECK: --	
DRAWN: JA	DATE: 19/07/2022	DRAWING CHECK: RR	DATE: 19/07/2022
AUTHORISED FOR ISSUE: RR		REFERENCE NO.: --	
		SCALE: 1:500	ORIG. SIZE: A3
PROJECT NUMBER / SHEET: 0000 / TMP1		ISSUE: PR6	

Project Arborist (AQF level 5) to audit Tree Protection Fencing before works commence. Fencing is to utilise 1.8 metre mesh fencing on concrete feet.

HOLD POINT: Trees located within the Coastal Wetlands Areas is not part of this assessment and subject to alternate pathway approvals. Project Arborist to review final impacts.

HOLD POINT: Pre-start meeting to be undertaken with the building contractor before works commence to review the protection measures and project hold points.

HOLD POINT: Project Arborist (AQF Level 5) to review the final earthworks extent, services upgrades and hydrant requirements before works commence.

Legend

- 00 — INDICATES TREE TO BE RETAINED & PROTECTED, TREE PROTECTION ZONE (TPZ) & STRUCTURAL ROOT ZONE (SRZ) INNER CIRCLE
- 00 — INDICATES TREE TO BE RETAINED SUBJECT TO DETAILED ARBORIST ASSESSMENT BASED ON FINALIZED PLANS
- 00 — INDICATES TREE TO BE REMOVED
- 00 — INDICATES TREE NOT PART OF THIS ASSESSMENT
- COASTAL WETLANDS AREAS

Independent Arboricultural Services

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PR5	UPDATE ARCH BASE	15/7/2022	JA	RR	--
PR6	UPDATE 57 & 58	19/7/2022	JA	RR	--

PROJECT

NARRABEEN EDUCATION PRECINCT- NARRABEEN NORTH PUBLIC SCHOOL

TITLE

TREE MANAGEMENT PLAN SHEET 2

DESIGN: --		DESIGN CHECK: --	
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Tree Protection Plan

Tree Detail

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	SRZ (m)	Height [m]	Spread [m]	Est Height to Lowest Branch (m)	Health	Form	STARS - Tree Significance	Tree Retention Value	SULE	Observations
1	*Ficus macrophylla*	Moreton Bay Fig	88	10.56	3.28	18	20	1	Good	Typical	High Significance	High	2A-2D	Deadwood under 50mm
2	*Angophora costata*	Smooth-barked Apple Myrtle	60.61	7.27	3.01	20	20	6	Good	Poor	High Significance	High	2A-2D	Pruning for power lines, twisted upper branching.
3	*Banksia integrifolia*	Coast Banksia	66	7.92	3.06	18	10	3	Good	Typical	High Significance	High	2A-2D	
4	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	37	4.44	2.2	18	8	12	Good	Typical	Medium Significance	Medium	2A-2D	
5	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	7	2	1.26	7	3	6	Good	Typical	Medium Significance	Medium	2A-2D	
6	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	20	2.4	1.97	17	8	7	Good	Typical	Medium Significance	Medium	2A-2D	
7	*Acacia elata*	Cedar Wattle	22	2.64	2.05	17	7	12	Poor	Typical	Low Significance	Medium	3A-3D	Deadwood under 50mm
8	*Eucalyptus robusta*	Swamp Mahogany	32	3.84	2.3	17	6	10	Fair	Poor	Low Significance	Medium	3A-3D	Nesting box in tree, tied back to branch union.
9	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	19	2.28	1.97	16	5	12	Good	Typical	Medium Significance	Medium	2A-2D	
10	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	17	2.04	1.79	15	5	9	Good	Typical	Medium Significance	Medium	2A-2D	
11	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	15	2	1.68	17	5	8	Good	Typical	Medium Significance	Medium	2A-2D	
12	*Eucalyptus botryoides*	Southern Mahogany	58.82	7.06	2.92	20	12	1	Good	Typical	High Significance	High	2A-2D	
13	*Melaleuca quinquenervia*	Common Paperbark	60	7.2	2.92	21	16	1.5	Good	Typical	High Significance	High	2A-2D	
14	*Angophora costata*	Smooth-barked Apple Myrtle	40	4.8	2.25	19	14	2	Good	Typical	High Significance	High	2A-2D	Phototropic
15	*Eucalyptus botryoides*	Southern Mahogany	55	6.6	2.74	19	6	12	Good	Typical	High Significance	High	2A-2D	Heavily crown raised, nest box
16	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	13	2	1.68	8	4	7	Good	Typical	Medium Significance	Medium	2A-2D	

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17	*Angophora costata*	Smooth-barked Apple Myrtle	55	6.6	2.78	22	20	2	Good	Typical	High Significance	High	2A-2D	
18	*Eucalyptus botryoides*	Southern Mahogany	78	9.36	3.01	24	22	6	Good	Typical	High Significance	High	2A-2D	Epicormic growth
19	*Banksia integrifolia*	Coast Banksia	34	4.08	2.23	17	10	3	Good	Typical	Medium Significance	High	2A-2D	
20	*Banksia integrifolia*	Coast Banksia	61	7.32	2.98	20	11	5	Good	Typical	High Significance	High	2A-2D	Wound
21	*Eucalyptus botryoides*	Southern Mahogany	37	4.44	2.47	19	16	15	Good	Typical	High Significance	High	2A-2D	Epicormic growth
22	*Cinnamomum camphora*	Camphor Laurel	26.94	3.23	1.91	8	12	1.5	Good	Poor	Low Significance	Low	2A-2D	Epicormic growth
23	*Banksia serrata*	Saw Leaf Banksia	35	4.2	2.37	12	8	2	Good	Typical	Medium Significance	Medium	2A-2D	
24	*Casuarina cunninghamiana*	River She-oak	25	3	2.02	16	8	2	Good	Typical	Medium Significance	Medium	2A-2D	
25	*Banksia integrifolia*	Coast Banksia	14	2	1.61	5	4	2	Good	Typical	Medium Significance	Medium	2A-2D	Phototropic
26	*Banksia ericifolia*	Golden Banksia	25	3	1.85	4	6	1	Good	Poor	Medium Significance	Medium	2A-2D	Phototropic, suppressed
27	*Banksia integrifolia*	Coast Banksia	29	3.48	2.1	13	6	4	Good	Typical	Medium Significance	Medium	2A-2D	
28	*Eucalyptus botryoides*	Southern Mahogany	46	5.52	2.69	20	16	2	Good	Typical	High Significance	High	2A-2D	Epicormic growth
29	*Banksia integrifolia*	Coast Banksia	20	2.4	1.75	6	4	2	Good	Typical	Medium Significance	Medium	2A-2D	Group of coast banksia and tea tree.
30	*Eucalyptus botryoides*	Southern Mahogany	71.06	8.53	3.14	23	20	6	Good	Typical	High Significance	High	2A-2D	
31	*Banksia integrifolia*	Coast Banksia	48	5.76	2.51	17	8	5	Good	Typical	High Significance	High	2A-2D	Deadwood over 50mm
32	*Brachychiton acerifolius*	Flame Tree	18	2.16	1.68	9	6	4	Good	Typical	Medium Significance	Medium	2A-2D	
33	*Brachychiton acerifolius*	Flame Tree	16	2	1.65	9	4	2	Good	Typical	Medium Significance	Medium	2A-2D	
34	*Eucalyptus botryoides*	Southern Mahogany	60	7.2	2.67	16	8	7	Fair	Typical	Low Significance	Medium	3A-3D	

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	SRZ (m)	Height [m]	Spread [m]	Est Height to Lowest Branch (m)	Health	Form	STARS - Tree Significance	Tree Retention Value	SULE	Observations
35	*Banksia integrifolia*	Coast Banksia	32	3.84	2.15	5	1	N/A	Very Poor	Poor	Low Significance	Low	4A-4D	Head died out
36	*Banksia integrifolia*	Coast Banksia	40	4.8	2.25	20	8	7	Fair	Poor	Low Significance	Medium	3A-3D	Broken limbs, deadwood over 50mm, dieback, epicormic growth
37	*Angophora costata*	Smooth-barked Apple Myrtle	54.41	6.53	2.74	20	20	1	Good	Typical	High Significance	High	2A-2D	Low branches over demountable.
38	*Cinnamomum camphora*	Camphor Laurel	10	2	1.4	6	2	3	Good	Typical	Low Significance	Low	2A-2D	Group of self sown camphor
39	*Glochidion ferdinandi*	Cheese Tree	23.6	2.83	1.82	8	10	2	Good	Typical	Medium Significance	Medium	2A-2D	Included bark
40	*Livistona australis*	Cabbage Fan-palm	40	4.8	2.25	12	6	5	Good	Typical	High Significance	High	1A-1D	
41	*Acacia sp.*	Wattle	16	2	1.53	12	6	3	Good	Typical	Medium Significance	Medium	2A-2D	
42	*Elaeocarpus sp.*	Blue Berry Ash	20	2.4	1.68	5	4	3	Good	Typical	Medium Significance	Medium	2A-2D	
43	*Glochidion ferdinandi*	Cheese Tree	19	2.28		14	14	2	Good	Typical	Medium Significance	Medium	2A-2D	
44	*Eucalyptus botryoides*	Southern Mahogany	40	4.8	2.39	20	12	8	Good	Typical	High Significance	High	2A-2D	
45	*Ficus benjamina*	Weeping Fig	50	6	2.47	20	20	1	Good	Typical	Medium Significance	Medium	2A-2D	Just outside fence.
46	*Eucalyptus scoparia*	Wallangarra Gum	49	5.88	2.67	18	12	9	Good	Typical	Medium Significance	Medium	2A-2D	Deadwood over 50mm
47	*Eucalyptus resinifera*	Red Mahogany	12.21	2		4	6	1	Good	Poor	Low Significance	Low	2A-2D	Regrowth.
48	*Eucalyptus resinifera*	Red Mahogany	76	9.12	3.04	20	16	9	Good	Typical	High Significance	High	2A-2D	Epicormic growth
49	*Eucalyptus resinifera*	Red Mahogany	54	6.48	2.78	20	24	4	Good	Typical	High Significance	High	2A-2D	Epicormic growth
50	*Eucalyptus botryoides*	Southern Mahogany	84	10.08	3.17	18	14	7	Good	Typical	High Significance	High	2A-2D	Habitat box

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	SRZ (m)	Height [m]	Spread [m]	Est Height to Lowest Branch (m)	Health	Form	STARS - Tree Significance	Tree Retention Value	SULE	Observations
51	*Eucalyptus botryoides*	Southern Mahogany	48	5.76	2.67	17	6	6	Good	Typical	High Significance	High	2A-2D	
52	*Glochidion ferdinandi*	Cheese Tree	32	3.84	2.15	14	8	1	Good	Typical	Medium Significance	Medium	2A-2D	Included bark
53	*Eucalyptus botryoides*	Southern Mahogany	32	3.84	2.3	16	14	1.5	Fair	Poor	Medium Significance	Medium	2A-2D	Deadwood over 50mm
54	*Eucalyptus botryoides*	Southern Mahogany	58	6.96	2.74	21	14	2	Good	Typical	High Significance	High	2A-2D	
55	*Eucalyptus botryoides*	Southern Mahogany	46.1	5.53	2.57	14	18	3	Good	Typical	High Significance	High	2A-2D	
56	*Eucalyptus botryoides*	Southern Mahogany	68	8.16	2.93	24	14	8	Good	Typical	High Significance	High	2A-2D	Dead section (old branch) has cavity.
57	*Populus deltoides*	Cotton Wood	46	5.52	2.45	12	7	2	Good	Typical	High Significance	High	2A-2D	
58	*Eucalyptus botryoides*	Southern Mahogany	64	7.68	3.01	26	8	2	Good	Typical	High Significance	High	2A-2D	
59	*Ficus microcarpa*	Hills Weeping Fig	147	15	3.89	16	34	6	Good	Typical	High Significance	High	2A-2D	
60	*Harpephyllum caffrum*	Kaffir Plum	78.29	9.39	3.17	18	16	2	Good	Typical	High Significance	High	2A-2D	
61	*Lophostemon confertus*	Queensland Brush Box	80	9.6	3.12	19	16	4	Good	Typical	High Significance	High	2A-2D	Habitat box in canopy
62	*Eucalyptus sp.*	Gum	38	4.56	2.39	18	8	6	Good	Typical	High Significance	High	2A-2D	
63	*Eucalyptus scoparia*	Wallangarra Gum	52	6.24	2.71	18	8	10	Good	Typical	High Significance	High	2A-2D	Scratches up stem
64	*Eucalyptus robusta*	Swamp Mahogany	46	5.52	2.71	18	12	6	Good	Typical	High Significance	High	2A-2D	Epicormic growth
65	*Glochidion ferdinandi*	Cheese Tree	29.83	3.58	2.2	14	8	2	Fair	Typical	Medium Significance	Medium	2A-2D	Included bark
66	*Syagrus romanzoffiana*	Queen Palm	30	3.6	2	10	4	3	Fair	Poor	Low Significance	Low	4A-4D	Suppressed
67	*Glochidion ferdinandi*	Cheese Tree	51	6.12	2.67	16	12	2	Good	Typical	High Significance	High	2A-2D	

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68	*Eucalyptus scoparia*	Wallangarra Gum	57	6.84	2.73	16	7	2	Poor	Poor	Low Significance	Medium	3A-3D	Borers, deadwood, epicormic growth, kino flow, wound
69	*Banksia integrifolia*	Coast Banksia	76.58	9.19	2.97	20	20	3	Good	Typical	Medium Significance	Medium	2A-2D	Kino flow, heavily pruned. Trifurcation at ground level.
70	*Glochidion ferdinandi*	Cheese Tree	21	2.52	1.82	12	10	1	Good	Typical	Medium Significance	Medium	2A-2D	Included bark
71	*Acacia elata*	Cedar Wattle	37.74	4.53	2.3	14	10	2	Good	Typical	Low Significance	Medium	2A-2D	
72	*Eucalyptus saligna*	Sydney Blue Gum	93	11.16	3.31	12	2	6	Fair	Poor	Low Significance	Low	4A-4D	Habitat features, previously lopped (habitat pruned)
73	*Pinus radiata*	Monterey Pine	117	14.04	3.72	21	18	10	Good	Typical	High Significance	High	2A-2D	Broken limbs, deadwood over 50mm
74	*Pinus radiata*	Monterey Pine	67	8.04	3	22	16	10	Good	Typical	High Significance	High	2A-2D	
75	*Glochidion ferdinandi*	Cheese Tree	58.71	7.05	2.65	16	20	3	Good	Typical	High Significance	High	2A-2D	Sections of decay in lower stem, epicormic growth
76	*Elaeocarpus sp.*	Blue Berry Ash	20	2.4	1.68	6	4	0	Good	Typical	Medium Significance	Medium	2A-2D	
77	*Howea forsteriana*	Kentia Palm	10	2	1.26	6	5	2	Good	Typical	Medium Significance	Medium	2A-2D	
78	*Syzygium sp.*	Lilly Pilly	12.81	2	1.68	6	3	0	Fair	Typical	Medium Significance	Medium	2A-2D	
79	*Cupaniopsis anacardioides*	Tuckeroo	24	2.88	2.1	7	6	1	Good	Typical	Medium Significance	Medium	2A-2D	Nearly all canopy over classroom
80	*Angophora costata*	Smooth-barked Apple Myrtle	28	3.36	2.05	12	8	3	Good	Typical	High Significance	High	2A-2D	
81	*Eucalyptus punctata*	Grey Gum	76	9.12	3.22	24	18	7	Good	Typical	High Significance	High	2A-2D	
82	*Glochidion ferdinandi*	Cheese Tree	71	8.52	2.95	20	20	1	Good	Typical	High Significance	High	2A-2D	Tip of main leader has died back

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83	*Glochidion ferdinandi*	Cheese Tree	71.4	8.57	3.11	24	20	5	Good	Poor	Low Significance	Low	2A-2D	Co-dominant limbs, head died out
84	*Eucalyptus sideroxylon*	Red Ironbark	45	5.4	2.47	24	8	10	Good	Typical	High Significance	High	2A-2D	Deadwood under 50mm
85	*Cinnamomum camphora*	Camphor Laurel	24	2.88	2	10	7	8	Good	Typical	Low Significance	Low	2A-2D	
86	*Glochidion ferdinandi*	Cheese Tree	21	2.52	1.82	6	5	7	Good	Typical	Medium Significance	Medium	2A-2D	Phototropic, suppressed
87	*Glochidion ferdinandi*	Cheese Tree				4	1	1	Good	Typical	Medium Significance	Medium	2A-2D	
88	*Cupaniopsis anacardioides*	Tuckeroo	20.32	2.44	1.68	6	6	0	Good	Typical	Medium Significance	Medium	2A-2D	
89	*Eucalyptus botryoides*	Southern Mahogany	53	6.36	2.69	16	14	3	Good	Poor	Medium Significance	Medium	2A-2D	Co-dominant limbs, dieback, epicormic growth
90	*Eucalyptus botryoides*	Southern Mahogany	21	2.52	2	6	5	2	Good	Typical	Medium Significance	Medium	2A-2D	
91	*Eucalyptus botryoides*	Southern Mahogany	12	2	1.53	6	3	8	Good	Poor	Low Significance	Low	3A-3D	Previously removed leader
92	*Eucalyptus botryoides*	Southern Mahogany	40	4.8	2.39	10	10	7	Good	Typical	Medium Significance	Medium	2A-2D	
93	*Eucalyptus botryoides*	Southern Mahogany	50	6	2.57	14	18	6	Good	Typical	Medium Significance	Medium	2A-2D	Deadwood over 50mm, suppressed
94	*Eucalyptus botryoides*	Southern Mahogany	65	7.8	2.88	14	18	6	Good	Typical	High Significance	High	2A-2D	Deadwood over 50mm, epicormic growth
95	*Eucalyptus robusta*	Swamp Mahogany	73	8.76	3.01	20	16	2	Good	Typical	High Significance	High	2A-2D	Deadwood under 50mm
96	*Eucalyptus botryoides*	Southern Mahogany	42	5.04	2.37	18	8	12	Good	Typical	High Significance	Medium	2A-2D	
97	*Eucalyptus botryoides*	Southern Mahogany	56	6.72	2.78	18	8	17	Fair	Poor	Low Significance	High	3A-3D	
98	*Acacia sp.*	Wattle	26	3.12	2.05	12	8	1	Good	Typical	Medium Significance	Medium	2A-2D	

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99	*Acacia sp.*	Wattle	30	3.6	2	10	8	1	Good	Typical	Medium Significance	Medium	2A-2D	
100	*Eucalyptus botryoides*	Southern Mahogany	42	5.04	2.55	13	12	7	Fair	Typical	High Significance	High	2A-2D	Deadwood under 50mm, epicormic growth, suppressed
101	*Acacia sp.*	Wattle	27	3.24	2.15	10	9	4	Good	Typical	Medium Significance	Medium	2A-2D	Co-dominant limbs
102	*Elaeocarpus reticulatus*	Blueberry Ash	10	2	1.36	6	5	1	Fair	Typical	Medium Significance	Medium	2A-2D	
103	*Eucalyptus scoparia*	Wallangarra Gum	55	6.6	2.81	18	16	10	Good	Typical	High Significance	High	2A-2D	Wound
104	*Melaleuca bracteata*	Black Tea-tree	10	2	1.49	5	4	3	Good	Poor	Low Significance	Low	2A-2D	
105	*Eucalyptus botryoides*	Southern Mahogany	25	3	1.94	7	8	1	Fair	Poor	Low Significance	Medium	3A-3D	
106	*Eucalyptus botryoides*	Southern Mahogany	40	4.8	2.25	8	6	8	Poor	Poor	Low Significance	Remove	4A-4D	Head died out
107	*Melaleuca quinquenervia*	Common Paperbark	79.85	9.58	3.47	14	18	1	Good	Typical	High Significance	High	2A-2D	Low sprawling specimen. Low limbs will require removal to allow assess for demountable. On site staff made aware.
108	*Eucalyptus botryoides*	Southern Mahogany	70	8.4	3.03	17	9	2	Good	Typical	High Significance	High	2A-2D	
109	*Eucalyptus robusta*	Swamp Mahogany	52	6.24	2.69	18	18	6	Good	Typical	High Significance	High	2A-2D	Deadwood over 50mm
110	*Eucalyptus robusta*	Swamp Mahogany	64	7.68	2.95	16	16	7	Good	Typical	High Significance	High	2A-2D	Deadwood over 50mm, epicormic growth
111	*Casuarina glauca*	Grey She-oak	40	4.8	2.51	17	7	5	Good	Typical	High Significance	High	2A-2D	Co-dominant limbs
112	*Eucalyptus robusta*	Swamp Mahogany	48	5.76	2.59	17	20	3	Good	Typical	High Significance	High	2A-2D	Deadwood under 50mm , epicormic growth
113	*Cinnamomum camphora*	Camphor Laurel	144	15	3.87	22	18	4	Fair	Typical	Low Significance	Low	2A-2D	Deadwood over 50mm, epicormic growth
114	*Mangifera indica*	Mango	30	3.6	2	6	8	1	Good	Typical	Low Significance	Low	2A-2D	
115	*Eucalyptus robusta*	Swamp Mahogany	47	5.64	2.55	20	20	5	Good	Typical	High Significance	High	2A-2D	Co-dominant limbs, epicormic growth

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116	*Eucalyptus botryoides*	Southern Mahogany	40	4.8	2.47	18	14	7	Good	Typical	High Significance	High	2A-2D	Deadwood over 50mm; group of trees. Acacia sp. (one dead and requires removal)
117	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	95	11.4	3.28	21	20	4	Good	Typical	High Significance	High	1A-1D	
118	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	80	9.6	3.17	21	24	5	Good	Typical	High Significance	High	1A-1D	Deadwood under 50mm
119	*Persea americana*	Avocado	17	2.04	1.85	8	6	3	Good	Typical	Low Significance	Low	2A-2D	
120	*Eucalyptus sp.*	Gum	32	3.84	2.3	18	10	7	Good	Typical	Medium Significance	Medium	2A-2D	Neighbour's tree, minor branch overhang into site only
121	*Eucalyptus saligna*	Sydney Blue Gum	60	7.2	2.93	26	20	6	Good	Typical	High Significance	High	2A-2D	Neighbour's tree, low limb overhangs subject site driveway
122	*Banksia serrata*	Saw Leaf Banksia	40	4.8	2.49	6	6	4	Good	Typical	Medium Significance	Medium	2A-2D	
123	*Cupressus sempervirens 'Stricta'*	Pencil Pine	21	2.52	1.75	10	3	5	Good	Poor	Low Significance	Low	2A-2D	
124	*Syagrus romanzoffiana*	Queen Palm	21	2.52	2.05	7	6	7	Fair	Typical	Low Significance	Low	2A-2D	
125	*Plumeria alba*	Frangipani	19.21	2.31	1.82	6	8	1	Good	Typical	Low Significance	Low	2A-2D	
126	*Casuarina glauca*	Grey She-oak	40	4.8	2.47	20	8	15	Good	Poor	Medium Significance	Medium	2A-2D	
127	*Callistemon citrinus*	Crimson Bottle Brush	25	3	2	8	6	5	Good	Typical	Medium Significance	Medium	2A-2D	
128	*Glochidion ferdinandi*	Cheese Tree	45	5.4	2.47	6	6	5	Good	Typical	High Significance	High	2A-2D	Group of trees including self seeding.
129	*Banksia integrifolia*	Coast Banksia	30	3.6	2.25	14	4	3	Good	Typical	High Significance	High	2A-2D	
130	*Glochidion ferdinandi*	Cheese Tree	90	10.8	3.31	22	24	8	Poor	Typical	Low Significance	High	3A-3D	Co-dominant limbs, dieback, epicormic growth, head died out, included bark
131	*Glochidion ferdinandi*	Cheese Tree	53.38	6.41	2.53	18	16	8	Fair	Typical	High Significance	High	2A-2D	
132	*Brachychiton acerifolius*	Flame Tree	45	5.4	2.53	20	10	1	Good	Typical	Low Significance	Low	2A-2D	
133	*Cinnamomum camphora*	Camphor Laurel	30	3.6	2.25	17	15	5	Good	Typical	Low Significance	Low	2A-2D	Dieback, epicormic growth

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	SRZ (m)	Height [m]	Spread [m]	Est Height to Lowest Branch (m)	Health	Form	STARS - Tree Significance	Tree Retention Value	SULE	Observations
134	*Glochidion ferdinandi*	Cheese Tree	80	9.6	3.01	18	10	1.5	Good	Typical	High Significance	High	2A-2D	
135	*Glochidion ferdinandi*	Cheese Tree	90	10.8	3.44	22	24	1.5	Excellent	Typical	High Significance	High	2A-2D	
136	*Group of trees*	Group of trees						0.5	Good	Typical	Medium Significance	Medium	2A-2D	Group of trees
137	*Cinnamomum camphora*	Camphor Laurel	120	14.4	3.57	6	5	N/A	Dead	Dead	Low Significance	Low	2A-2D	Lopped
138	Acacia sp.	Wattle	23.32	2.8	1.88	8	7	1	Fair	Poor	Medium Significance	Medium	2A-2D	
139	Eucalyptus robusta	Swamp Mahogany	8	2	1.36	7	4	1	Fair	Typical	Medium Significance	Medium	2A-2D	
140	Acacia sp.	Wattle	28.98	3.48	2.18	10	12	2	Good	Typical	Medium Significance	Medium	2A-2D	
141	Banksia integrifolia	Coast Banksia	35.72	4.29	2.15	12	9	1	Good	Poor	Medium Significance	Medium	2A-2D	Multi from root crown.
142	Casuarina glauca	Grey She-oak	20	2.4	1.82	11	5	1	Good	Typical	Medium Significance	Medium	2A-2D	
143	Eucalyptus robusta	Swamp Mahogany	22	2.64	1.82	8	5	1	Good	Typical	Medium Significance	Medium	2A-2D	
144	Eucalyptus robusta	Swamp Mahogany	24	2.88	1.94	14	6	2	Good	Typical	Medium Significance	Medium	2A-2D	
145	Casuarina glauca	Grey She-oak	15.62	2	1.82	14	6	1	Good	Typical	Medium Significance	Medium	2A-2D	
146	Casuarina glauca	Grey She-oak	24	2.88	1.94	13	6	1	Good	Typical	Medium Significance	Medium	2A-2D	
147	Eucalyptus robusta	Swamp Mahogany	24	2.88	1.88	12	4	1	Good	Typical	Medium Significance	Medium	2A-2D	
148	Casuarina glauca	Grey She-oak	22	2.64	1.82	8	4	1	Good	Typical	Medium Significance	Medium	2A-2D	
149	Eucalyptus robusta	Swamp Mahogany	8	2	1.26	6	3	3	Good	Typical	Medium Significance	Medium	2A-2D	
150	Eucalyptus saligna	Sydney Blue Gum	46	5.52	2.55	16	14	2	Good	Typical	Medium Significance	Medium	3A-3D	
151	Jacaranda mimosifolia	Jacaranda	12.81	2	1.75	6	8	2	Fair	Typical	Low Significance	Low	2A-2D	
152	Syagrus romanzoffiana	Queen Palm	30	3.6	2	12	6	4	Good	Typical	Low Significance	Low	2A-2D	
153	Syagrus romanzoffiana	Queen Palm	30	3.6	2	12	6	4	Good	Typical	Low Significance	Low	2A-2D	

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	SRZ (m)	Height [m]	Spread [m]	Est Height to Lowest Branch (m)	Health	Form	STARS - Tree Significance	Tree Retention Value	SULE	Observations
154	Syagrus romanzoffiana	Queen Palm	30	3.6	2	12	6	4	Good	Typical	Low Significance	Low	2A-2D	
155	Syagrus romanzoffiana	Queen Palm	30	3.6	2	12	6	4	Good	Typical	Low Significance	Low	2A-2D	
156	Syagrus romanzoffiana	Queen Palm	30	3.6	2	12	6	4	Good	Typical	Low Significance	Low	2A-2D	
157	Cupaniopsis anacardioides	Tuckeroo	41.23	4.95	2.57	12	16	1	Good	Typical	High Significance	High	2A-2D	
158	Acacia elata	Cedar Wattle	60	7.2	2.88	17	14	3	Good	Poor	Medium Significance	High	3A-3D	
159	Phoenix canariensis	Canary Island Date Palm	75	9	2.93	10	8	3	Good	Typical	Medium Significance	Medium	2A-2D	
160	Glochidion ferdinandi	Cheese Tree	45	5.4	2.51	14	14	2	Good	Typical	High Significance	High	2A-2D	
161	Glochidion ferdinandi	Cheese Tree	28	3.36	2.1	15	8	3	Good	Typical	High Significance	High	2A-2D	
162	Acacia elata	Cedar Wattle	53	6.36	2.59	16	14	2	Good	Typical	Medium Significance	High	3A-3D	
163	Glochidion ferdinandi	Cheese Tree	24	2.88	1.94	12	8	1	Good	Typical	High Significance	High	2A-2D	
164	Cinnamomum camphora	Camphor Laurel	24	2.88	1.94	10	8	1	Good	Typical	Low Significance	Low	2A-2D	
165	Glochidion ferdinandi	Cheese Tree	34	4.08	2.2	16	10	1	Good	Typical	High Significance	High	2A-2D	
166	Glochidion ferdinandi	Cheese Tree	26	3.12	2	14	8	1	Good	Typical	High Significance	High	2A-2D	
167	Glochidion ferdinandi	Cheese Tree	40.31	4.84	2.13	14	10	2	Good	Typical	High Significance	High	2A-2D	
168	Glochidion ferdinandi	Cheese Tree	39.29	4.71	2.2	12	10	3	Good	Typical	High Significance	High	2A-2D	
169	Various spp.	Group of Trees	26	3.12	2.1	12	8	1	Good	Typical	High Significance	High	2A-2D	Group of cheese trees. Several
170	Eucalyptus sp.	Gum	40	4.8	2.47	16	10	8	Fair	Poor	High Significance	High	2A-2D	Fruiting bodies at base, recommend further investigation
171	Eucalyptus sp.	Gum	35	4.2	2.2	14	10	7	Fair	Poor	High Significance	High	2A-2D	Fruiting bodies at base, recommend further investigation
172	Eucalyptus sp.	Gum	38.42	4.61	2.2	14	10	7	Good	Typical	High Significance	High	2A-2D	Two trees shared root crown.
173	Pittosporum undulatum	Sweet Pittosporum	14	2	1.61	6	6	1	Fair	Typical	High Significance	High	2A-2D	

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	SRZ (m)	Height [m]	Spread [m]	Est Height to Lowest Branch (m)	Health	Form	STARS - Tree Significance	Tree Retention Value	SULE	Observations
174	Osmanthus fragrans	Fragrant Olive	20	2.4	1.68	5	2	1	Fair	Poor	Low Significance	Low	2A-2D	
175	Archontophoenix cunninghamiana	Bangalow Palm	20	2.4	1.68	8	4	6	Good	Typical	Medium Significance	Medium	2A-2D	
176	Eucalyptus botryoides	Southern Mahogany	61.03	7.32	2.69	17	14	1	Good	Typical	High Significance	High	2A-2D	
177	Eucalyptus botryoides	Southern Mahogany	65	7.8	2.85	16	14	1	Good	Typical	High Significance	High	2A-2D	Located outside fence.
178	Eucalyptus robusta	Swamp Mahogany	51.48	6.18	2.49	16	14	2	Good	Typical	High Significance	High	2A-2D	
179	Banksia integrifolia	Coast Banksia	40	4.8	2.25	16	16	4	Good	Typical	High Significance	High	2A-2D	
180	Livistona australis	Cabbage Fan-palm	40	4.8	2.25	8	4	2	Good	Typical	High Significance	High	2A-2D	
181	Glochidion ferdinandi	Cheese Tree	24	2.88	1.94	10	8	1	Good	Typical	High Significance	High	2A-2D	
182	Eucalyptus robusta	Swamp Mahogany	54	6.48	2.25	17	14	5	Good	Typical	High Significance	High	2A-2D	
183	Banksia integrifolia	Coast Banksia	50	6	2.47	16	10	3	Good	Typical	High Significance	High	2A-2D	
184	Eucalyptus botryoides	Southern Mahogany	71.06	8.53	3.12	19	16	3	Good	Typical	High Significance	High	2A-2D	

Table Legend:			
Health	**Form**	**Aged Class**	**Further Detail**
Good: Trees foliage is in exceptional condition and can be considered an excellent specimen of its species. No pests or diseases are present.	Good: Trees structure is exceptional and can be considered an excellent specimen of its species. No visible defects are present.	Juvenile: Tree will generally grow rapidly in this phase of its life cycle.	Diameter at Breast Height (DBH) measured at 1.4m above ground level. Diameter at Root Flare (DRF) measured at the base of the tree, at the trunk / root system transition zone. Diameter = circumference divided by π
Fair: Trees foliar condition is satisfactory but may be exhibiting some signs of stress such as tip dieback or chlorosis, pests or diseases may be present but not adversely affecting the tree.	Typical: Trees structure is normal for the species; some minor structural constraints may be present.	Mature: Tree has reached maturity and is producing flowers, fruits and seeds. Tree continues to grow.	Tree Protection Zone (TPZ) defined as metres radius. Calculated being DBH x 12 (minimum 2.0m and no greater than 15m).
Poor: Foliage density is sparse or largely discoloured, tree health is at or approaching a critical value which may be irreversible, pests or diseases are highly prevalent throughout the crown.	Poor: Structure is a poor example of its species and exhibits a combination of structural issues.	Full to Late Maturity: Tree has reached the maximum height for its species, elongation has stopped but the trunk continues to thicken, overall growth rate is starting to slow, foliar density may be starting to thin.	Structural Root Zone (SRZ) displaced as metres radius. Calculation being $(DRF \times 50)^{0.42} \times 0.64$ (never less than 1.5m or greater than 15m).
Dead: Tree is in advanced decline or completely dead.	Dead: Tree is in advanced decline or completely dead.	Senescent: Tree has / is starting to retract in size through dieback and shedding of limbs. Trees in this age class may be ecologically valuable, as their structure contains habitat necessary for native fauna.	

Tree Recommendations

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	Impact	Recommendations*
1	*Ficus macrophylla*	Moreton Bay Fig	88	10.56		Subject to alternate assessment pathway
2	*Angophora costata*	Smooth-barked Apple Myrtle	60.61	7.27		Subject to alternate assessment pathway
3	*Banksia integrifolia*	Coast Banksia	66	7.92		Subject to alternate assessment pathway
4	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	37	4.44		Subject to alternate assessment pathway
5	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	7	2		Subject to alternate assessment pathway
6	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	20	2.4		Subject to alternate assessment pathway
7	*Acacia elata*	Cedar Wattle	22	2.64		Subject to alternate assessment pathway
8	*Eucalyptus robusta*	Swamp Mahogany	32	3.84		Subject to alternate assessment pathway
9	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	19	2.28		Subject to alternate assessment pathway
10	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	17	2.04		Subject to alternate assessment pathway
11	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	15	2		Subject to alternate assessment pathway
12	*Eucalyptus botryoides*	Southern Mahogany	58.82	7.06		Subject to alternate assessment pathway
13	*Melaleuca quinquenervia*	Common Paperbark	60	7.2		Subject to alternate assessment pathway
14	*Angophora costata*	Smooth-barked Apple Myrtle	40	4.8		Subject to alternate assessment pathway
15	*Eucalyptus botryoides*	Southern Mahogany	55	6.6		Subject to alternate assessment pathway
16	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	13	2		Subject to alternate assessment pathway
17	*Angophora costata*	Smooth-barked Apple Myrtle	55	6.6		Subject to alternate assessment pathway
18	*Eucalyptus botryoides*	Southern Mahogany	78	9.36		Subject to alternate assessment pathway
19	*Banksia integrifolia*	Coast Banksia	34	4.08		Subject to alternate assessment pathway
20	*Banksia integrifolia*	Coast Banksia	61	7.32		Subject to alternate assessment pathway
21	*Eucalyptus botryoides*	Southern Mahogany	37	4.44		Subject to alternate assessment pathway
22	*Cinnamomum camphora*	Camphor Laurel	26.94	3.23		Subject to alternate assessment pathway
23	*Banksia serrata*	Saw Leaf Banksia	35	4.2		Subject to alternate assessment pathway
24	*Casuarina cunninghamiana*	River She-oak	25	3		Subject to alternate assessment pathway
25	*Banksia integrifolia*	Coast Banksia	14	2		Subject to alternate assessment pathway
26	*Banksia ericifolia*	Golden Banksia	25	3		Subject to alternate assessment pathway
27	*Banksia integrifolia*	Coast Banksia	29	3.48		Subject to alternate assessment pathway
28	*Eucalyptus botryoides*	Southern Mahogany	46	5.52		Subject to alternate assessment pathway
29	*Banksia integrifolia*	Coast Banksia	20	2.4		Subject to alternate assessment pathway
30	*Eucalyptus botryoides*	Southern Mahogany	71.06	8.53		Subject to alternate assessment pathway
31	*Banksia integrifolia*	Coast Banksia	48	5.76		Subject to alternate assessment pathway
32	*Brachychiton acerifolius*	Flame Tree	18	2.16		Subject to alternate assessment pathway
33	*Brachychiton acerifolius*	Flame Tree	16	2		Subject to alternate assessment pathway
34	*Eucalyptus botryoides*	Southern Mahogany	60	7.2		Subject to alternate assessment pathway
35	*Banksia integrifolia*	Coast Banksia	32	3.84		Subject to alternate assessment pathway
36	*Banksia integrifolia*	Coast Banksia	40	4.8		Subject to alternate assessment pathway
37	*Angophora costata*	Smooth-barked Apple Myrtle	54.41	6.53		Subject to alternate assessment pathway
38	*Cinnamomum camphora*	Camphor Laurel	10	2		Subject to alternate assessment pathway

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	Impact	Recommendations*
39	*Glochidion ferdinandi*	Cheese Tree	23.6	2.83		Subject to alternate assessment pathway
40	*Livistona australis*	Cabbage Fan-palm	40	4.8		Subject to alternate assessment pathway
41	*Acacia sp.*	Wattle	16	2		Subject to alternate assessment pathway
42	*Elaeocarpus sp.*	Blue Berry Ash	20	2.4		Subject to alternate assessment pathway
43	*Glochidion ferdinandi*	Cheese Tree	19	2.28		Subject to alternate assessment pathway
44	*Eucalyptus botryoides*	Southern Mahogany	40	4.8		Subject to alternate assessment pathway
45	*Ficus benjamina*	Weeping Fig	50	6	Nil	Retain and protect
46	*Eucalyptus scoparia*	Wallangarra Gum	49	5.88	**	**
47	*Eucalyptus resinifera*	Red Mahogany	12.21	2	Nil	Retain and protect
48	*Eucalyptus resinifera*	Red Mahogany	76	9.12	Nil	Retain and protect
49	*Eucalyptus resinifera*	Red Mahogany	54	6.48	Nil	Retain and protect
50	*Eucalyptus botryoides*	Southern Mahogany	84	10.08	**	**
51	*Eucalyptus botryoides*	Southern Mahogany	48	5.76	**	**
52	*Glochidion ferdinandi*	Cheese Tree	32	3.84	**	**
53	*Eucalyptus botryoides*	Southern Mahogany	32	3.84	**	**
54	*Eucalyptus botryoides*	Southern Mahogany	58	6.96	**	**
55	*Eucalyptus botryoides*	Southern Mahogany	46.1	5.53	**	**
56	*Eucalyptus botryoides*	Southern Mahogany	68	8.16	**	**
57	*Populus deltoides*	Cotton Wood	46	5.52	**	**
58	*Eucalyptus botryoides*	Southern Mahogany	64	7.68	**	**
59	*Ficus microcarpa*	Hills Weeping Fig	147	15	**	**
60	*Harpephyllum caffrum*	Kaffir Plum	78.29	9.39	**	**
61	*Lophostemon confertus*	Queensland Brush Box	80	9.6	Major – buildings	Remove and replace in accordance with landscaping plans
62	*Eucalyptus sp.*	Gum	38	4.56	Major – buildings	Remove and replace in accordance with landscaping plans
63	*Eucalyptus scoparia*	Wallangarra Gum	52	6.24	Major – buildings	Remove and replace in accordance with landscaping plans
64	*Eucalyptus robusta*	Swamp Mahogany	46	5.52	Major – buildings	Remove and replace in accordance with landscaping plans
65	*Glochidion ferdinandi*	Cheese Tree	29.83	3.58	Major – buildings	Remove and replace in accordance with landscaping plans
66	*Syagrus romanzoffiana*	Queen Palm	30	3.6	Major – buildings	Remove and replace in accordance with landscaping plans
67	*Glochidion ferdinandi*	Cheese Tree	51	6.12	Major – buildings	Remove and replace in accordance with landscaping plans
68	*Eucalyptus scoparia*	Wallangarra Gum	57	6.84	**	**
69	*Banksia integrifolia*	Coast Banksia	76.58	9.19	**	**
70	*Glochidion ferdinandi*	Cheese Tree	21	2.52	Major – Support GLS	Remove and replace in accordance with landscaping plans

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	Impact	Recommendations*
71	*Acacia elata*	Cedar Wattle	37.74	4.53	Major – Support GLS	Remove and replace in accordance with landscaping plans
72	*Eucalyptus saligna*	Sydney Blue Gum	93	11.16	Major – Support GLS / pathway	Remove and replace in accordance with landscaping plans
73	*Pinus radiata*	Monterey Pine	117	14.04	Major – buildings	Remove and replace in accordance with landscaping plans
74	*Pinus radiata*	Monterey Pine	67	8.04	Major – New Hall / Pathway & Admin Block	Remove and replace in accordance with landscaping plans
75	*Glochidion ferdinandi*	Cheese Tree	58.71	7.05	Major – buildings	Remove and replace in accordance with landscaping plans
76	*Elaeocarpus sp.*	Blue Berry Ash	20	2.4	Major – buildings	Remove and replace in accordance with landscaping plans
77	*Howea forsteriana*	Kentia Palm	10	2	Major –New Hall / Admin Block	Remove and replace in accordance with landscaping plans
78	*Syzygium sp.*	Lilly Pilly	12.81	2	Major –New Hall / Admin Block	Remove and replace in accordance with landscaping plans
79	*Cupaniopsis anacardioides*	Tuckeroo	24	2.88	Major – buildings	Remove and replace in accordance with landscaping plans
80	*Angophora costata*	Smooth-barked Apple Myrtle	28	3.36	Major –New Hall / Admin Block	Remove and replace in accordance with landscaping plans
81	*Eucalyptus punctata*	Grey Gum	76	9.12	Major –New Hall / Admin Block	Remove and replace in accordance with landscaping plans
82	*Glochidion ferdinandi*	Cheese Tree	71	8.52	Major – buildings	Remove and replace in accordance with landscaping plans
83	*Glochidion ferdinandi*	Cheese Tree	71.4	8.57	Major – buildings	Remove and replace in accordance with landscaping plans
84	*Eucalyptus sideroxylon*	Red Ironbark	45	5.4	Major – buildings	Remove and replace in accordance with landscaping plans
85	*Cinnamomum camphora*	Camphor Laurel	24	2.88	Major – buildings	Remove and replace in accordance with landscaping plans
86	*Glochidion ferdinandi*	Cheese Tree	21	2.52	Major – pathway	Remove and replace in accordance with landscaping plans
87	*Glochidion ferdinandi*	Cheese Tree			Nil	Retain and protect
88	*Cupaniopsis anacardioides*	Tuckeroo	20.32	2.44	Major – buildings / pathway	Subject to alternate assessment pathway
89	*Eucalyptus botryoides*	Southern Mahogany	53	6.36	Nil	Retain and protect
90	*Eucalyptus botryoides*	Southern Mahogany	21	2.52	Nil	Retain and protect
91	*Eucalyptus botryoides*	Southern Mahogany	12	2	Nil	Retain and protect
92	*Eucalyptus botryoides*	Southern Mahogany	40	4.8	Nil	Retain and protect
93	*Eucalyptus botryoides*	Southern Mahogany	50	6	Nil	Retain and protect
94	*Eucalyptus botryoides*	Southern Mahogany	65	7.8	Nil	Retain and protect

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	Impact	Recommendations*
95	*Eucalyptus robusta*	Swamp Mahogany	73	8.76	Nil	Retain and protect
96	*Eucalyptus botryoides*	Southern Mahogany	42	5.04	Nil	Retain and protect
97	*Eucalyptus botryoides*	Southern Mahogany	56	6.72	Nil	Retain and protect
98	*Acacia sp.*	Wattle	26	3.12	Nil	Retain and protect
99	*Acacia sp.*	Wattle	30	3.6	Nil	Retain and protect
100	*Eucalyptus botryoides*	Southern Mahogany	42	5.04	Nil	Retain and protect
101	*Acacia sp.*	Wattle	27	3.24	Nil	Retain and protect
102	*Elaeocarpus reticulatus*	Blueberry Ash	10	2	Nil	Retain and protect
103	*Eucalyptus scoparia*	Wallangarra Gum	55	6.6	Nil	Retain and protect
104	*Melaleuca bracteata*	Black Tea-tree	10	2	Nil	Retain and protect
105	*Eucalyptus botryoides*	Southern Mahogany	25	3	Nil	Retain and protect
106	*Eucalyptus botryoides*	Southern Mahogany	40	4.8	Nil	Retain and protect
107	*Melaleuca quinquenervia*	Common Paperbark	79.85	9.58	Major – demountable building	Remove and replace in accordance with landscaping plans
108	*Eucalyptus botryoides*	Southern Mahogany	70	8.4	Nil	Retain and protect
109	*Eucalyptus robusta*	Swamp Mahogany	52	6.24	Nil	Retain and protect
110	*Eucalyptus robusta*	Swamp Mahogany	64	7.68	Nil	Retain and protect
111	*Casuarina glauca*	Grey She-oak	40	4.8	Nil	Retain and protect
112	*Eucalyptus robusta*	Swamp Mahogany	48	5.76	Nil	Retain and protect
113	*Cinnamomum camphora*	Camphor Laurel	144	15	Nil	Retain and protect
114	*Mangifera indica*	Mango	30	3.6	Nil	Retain and protect
115	*Eucalyptus robusta*	Swamp Mahogany	47	5.64	Nil	Retain and protect
116	*Eucalyptus botryoides*	Southern Mahogany	40	4.8	Nil	Retain and protect
117	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	95	11.4	Nil	Retain and protect
118	*Corymbia citriodora subsp. variegata*	Lemon-scented Gum	80	9.6	Nil	Retain and protect
119	*Persea americana*	Avocado	17	2.04	Nil	Retain and protect
120	*Eucalyptus sp.*	Gum	32	3.84	Nil	Retain and protect
121	*Eucalyptus saligna*	Sydney Blue Gum	60	7.2		Subject to alternate assessment pathway
122	*Banksia serrata*	Saw Leaf Banksia	40	4.8	Nil	Retain and protect
123	*Cupressus sempervirens 'Stricta'*	Pencil Pine	21	2.52	Nil	Retain and protect
124	*Syagrus romanzoffiana*	Queen Palm	21	2.52	Nil	Retain and protect
125	*Plumeria alba*	Frangipani	19.21	2.31	Nil	Retain and protect
126	*Casuarina glauca*	Grey She-oak	40	4.8		Subject to alternate assessment pathway
127	*Callistemon citrinus*	Crimson Bottle Brush	25	3		Subject to alternate assessment pathway
128	*Glochidion ferdinandi*	Cheese Tree	45	5.4	**	**
129	*Banksia integrifolia*	Coast Banksia	30	3.6	Nil	Retain and protect
130	*Glochidion ferdinandi*	Cheese Tree	90	10.8	Nil	Retain and protect
131	*Glochidion ferdinandi*	Cheese Tree	53.38	6.41	**	**
132	*Brachychiton acerifolius*	Flame Tree	45	5.4	Nil	Retain and protect
133	*Cinnamomum camphora*	Camphor Laurel	30	3.6	Nil	Retain and protect

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	Impact	Recommendations*
134	*Glochidion ferdinandi*	Cheese Tree	80	9.6	Nil	Retain and protect
135	*Glochidion ferdinandi*	Cheese Tree	90	10.8	Nil	Retain and protect
136	*Group of trees*	Group of trees			Nil	Retain and protect
137	*Cinnamomum camphora*	Camphor Laurel	120	14.4	Major – pathway and support GLS	Remove and replace in accordance with landscaping plans
138	*Acacia sp.*	Wattle	23.32	2.8	Nil	Retain and protect
139	*Eucalyptus robusta*	Swamp Mahogany	8	2	Nil	Retain and protect
140	*Acacia sp.*	Wattle	28.98	3.48	Nil	Retain and protect
141	*Banksia integrifolia*	Coast Banksia	35.72	4.29	Nil	Retain and protect
142	*Casuarina glauca*	Grey She-oak	20	2.4	Nil	Retain and protect
143	*Eucalyptus robusta*	Swamp Mahogany	22	2.64	Nil	Retain and protect
144	*Eucalyptus robusta*	Swamp Mahogany	24	2.88	Nil	Retain and protect
145	*Casuarina glauca*	Grey She-oak	15.62	2	Nil	Retain and protect
146	*Casuarina glauca*	Grey She-oak	24	2.88	Nil	Retain and protect
147	*Eucalyptus robusta*	Swamp Mahogany	24	2.88	Nil	Retain and protect
148	*Casuarina glauca*	Grey She-oak	22	2.64	Nil	Retain and protect
149	*Eucalyptus robusta*	Swamp Mahogany	8	2	Nil	Retain and protect
150	*Eucalyptus saligna*	Sydney Blue Gum	46	5.52	Nil	Retain and protect
151	*Jacaranda mimosifolia*	Jacaranda	12.81	2	Nil	Retain and protect
152	*Syagrus romanzoffiana*	Queen Palm	30	3.6	Nil	Retain and protect
153	*Syagrus romanzoffiana*	Queen Palm	30	3.6	Nil	Retain and protect
154	*Syagrus romanzoffiana*	Queen Palm	30	3.6	Nil	Retain and protect
155	*Syagrus romanzoffiana*	Queen Palm	30	3.6	Nil	Retain and protect
156	*Syagrus romanzoffiana*	Queen Palm	30	3.6	Nil	Retain and protect
157	*Cupaniopsis anacardioides*	Tuckeroo	41.23	4.95	Nil	Retain and protect
158	*Acacia elata*	Cedar Wattle	60	7.2	**	**
159	*Phoenix canariensis*	Canary Island Date Palm	75	9	Major – buildings	Remove and replace in accordance with landscaping plans
160	*Glochidion ferdinandi*	Cheese Tree	45	5.4	Nil	Retain and protect
161	*Glochidion ferdinandi*	Cheese Tree	28	3.36	Major – buildings	Remove and replace in accordance with landscaping plans
162	*Acacia elata*	Cedar Wattle	53	6.36	**	**
163	*Glochidion ferdinandi*	Cheese Tree	24	2.88	Major – buildings	Remove and replace in accordance with landscaping plans
164	*Cinnamomum camphora*	Camphor Laurel	24	2.88	Major – buildings	Remove and replace in accordance with landscaping plans
165	*Glochidion ferdinandi*	Cheese Tree	34	4.08	**	**
166	*Glochidion ferdinandi*	Cheese Tree	26	3.12	Nil	Retain and protect
167	*Glochidion ferdinandi*	Cheese Tree	40.31	4.84	**	**
168	*Glochidion ferdinandi*	Cheese Tree	39.29	4.71	**	**
169	*Various spp.*	Group of Trees	26	3.12	Nil	Retain and protect

Tree Id	Botanical Name	Common Name	DBH [cm]	TPZ [m]	Impact	Recommendations*
170	*Eucalyptus sp.*	Gum	40	4.8	Nil	Retain and protect
171	*Eucalyptus sp.*	Gum	35	4.2	Nil	Retain and protect
172	*Eucalyptus sp.*	Gum	38.42	4.61		Subject to alternate assessment pathway
173	*Pittosporum undulatum*	Sweet Pittosporum	14	2		Subject to alternate assessment pathway
174	*Osmanthus fragrans*	Fragrant Olive	20	2.4		Subject to alternate assessment pathway
175	*Archontophoenix cunninghamiana*	Bangalow Palm	20	2.4		Subject to alternate assessment pathway
176	*Eucalyptus botryoides*	Southern Mahogany	61.03	7.32		Subject to alternate assessment pathway
177	*Eucalyptus botryoides*	Southern Mahogany	65	7.8		Subject to alternate assessment pathway
178	*Eucalyptus robusta*	Swamp Mahogany	51.48	6.18		Subject to alternate assessment pathway
179	*Banksia integrifolia*	Coast Banksia	40	4.8		Subject to alternate assessment pathway
180	*Livistona australis*	Cabbage Fan-palm	40	4.8		Subject to alternate assessment pathway
181	*Glochidion ferdinandi*	Cheese Tree	24	2.88		Subject to alternate assessment pathway
182	*Eucalyptus robusta*	Swamp Mahogany	54	6.48		Subject to alternate assessment pathway
183	*Banksia integrifolia*	Coast Banksia	50	6		Subject to alternate assessment pathway
184	*Eucalyptus botryoides*	Southern Mahogany	71.06	8.53		Subject to alternate assessment pathway

*Project Arborist (AQF Level 5) to be engaged during detailed design through to construction works. Reviews the final footprint of building works including cut / fill, building and services layout.

**Retention of trees is subject to a review of the finalised design, set out and pruning requirements by the Project Arborist (AQF Level 5).

Tree Protection Measures and Guidelines

Note 1: TPZ perimeter fencing should be grouped where perimeters overlap and appropriate.

Note 2: Signage is to be installed in accordance with Australian Standard AS 4970-2009 Protection of trees on development sites as illustrated below.

Protective Fencing

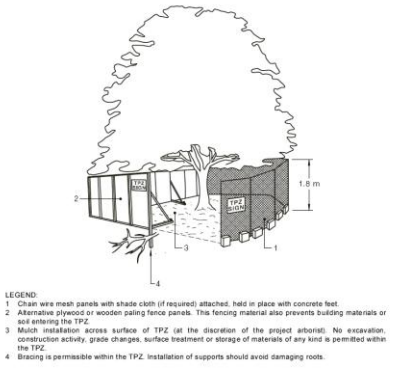


Figure 2

Examples of Trunk, Branch & Ground Protection

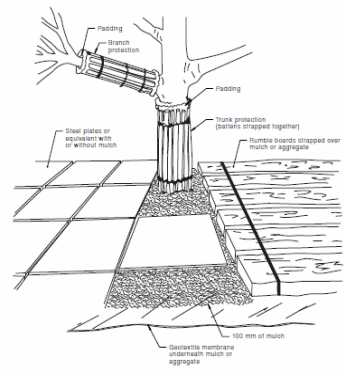


Figure 3

Tree Protection Zone Signage

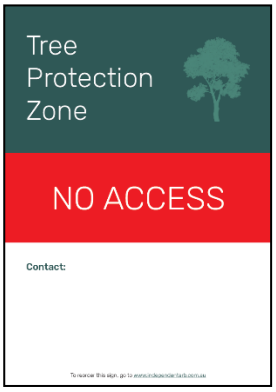


Figure 4

Low pressure Ground Excavation & Water Cutting

Figure 5

Figure 6

Figure 7

Figure 8

Example of Fauna Friendly Rigid Style Temporary Fencing

Figure 9

Figure 10

Source: AS4970-2009 Protection of Trees on Development Sites

Tree Management Plan (TMP) – Works Progress: Development Phase

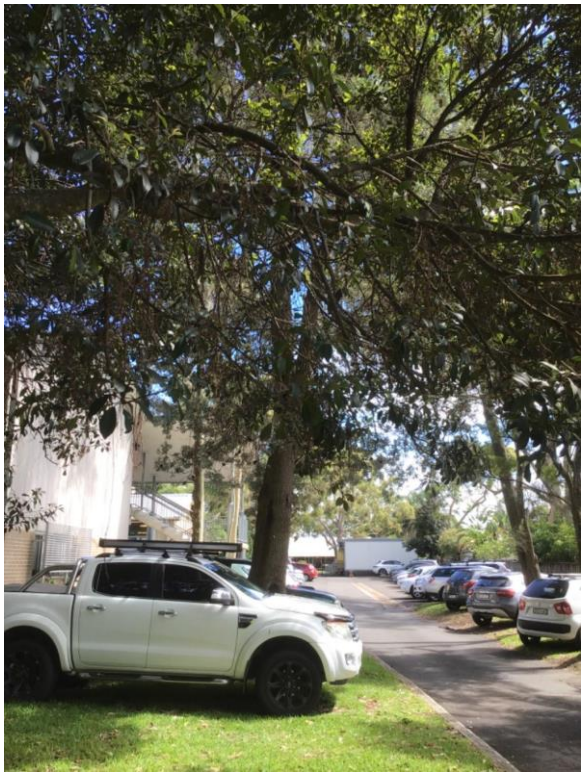
Stage	Tasks	Specific Outcomes
Pre-construction Phase		
Prepare and finalise Arboricultural Impact Assessments for submission to Council	Project Arborist to be appointed Review tree details in all approved Arboricultural reports following any new issue of plans	Submit Arboricultural reports including Arboricultural Impact Assessment for final Council Approval
Project Arborist to conduct Prestart Meeting with all representatives involved in construction	Prior to meeting: TPZ temporary protection/fencing installed **Arboricultural Report, TMP & Council approval copies to be included in CMP** and made available to onsite crews	Prestart Certification and approvals in place & available onsite with CMP
Commencement - Construction Phase		
Initial Site Preparation	Project Arborist to supervise all tree work. **Construction crew or others are not to remove any part of a tree.** Arborist prestart site inspection.	Compliance Certification of Arboricultural works for lodgement to Council Arborist certification of TPZ measures.
Prestart Toolbox Meeting	All relevant onsite crews to be briefed by Project Arborist prior to commencement of each work phase. Project Arborist must be notified and onsite at all times when construction works are within or close to TPZ. Note: Onsite attendance of Project Arborist is a condition for issue of Arboricultural Site Audit Statement/s.	Arborist Site Audit Reporting system to be in place. Copies of Arboricultural Report to be retained onsite. Arboricultural Site Audit Statement/s will not be issued retrospectively
Construction Phase		
Site Establishment	Project Arborist to monitor tree health during establishment phase including bulk earthworks, changes in hydrology etc.	Instigate remedial tree care measures if required
Construction work	Site Manager to liaise with and ensure Project Arborist is advised in time to allow them to be present for all work carried out within TPZ area including any work likely to affect identified tree/s. Any deviation/s from approved plans to be approved by Project Arborist. **Project Arborist to provide ongoing Site Audit Certification of all work within TPZ**	Any remedial tree works to be carried out by qualified arborists under supervision of Project Arborist. Project Arborist is responsible for issue of Arborist Site Audit Reports.
Practical Completion	Project Arborist to carryout review of tree health and vigour and advise on TPZ fencing.	On Project Arborist approval, carryout removal of remaining temporary tree protection measures
Post Construction Phase		
Final Arborist inspection	Carryout tree health review and provide recommendations for required tree care.	Issue of final Arborist Site Audit Compliance Statement for inclusion in final DA documentation and sealing.

Photos

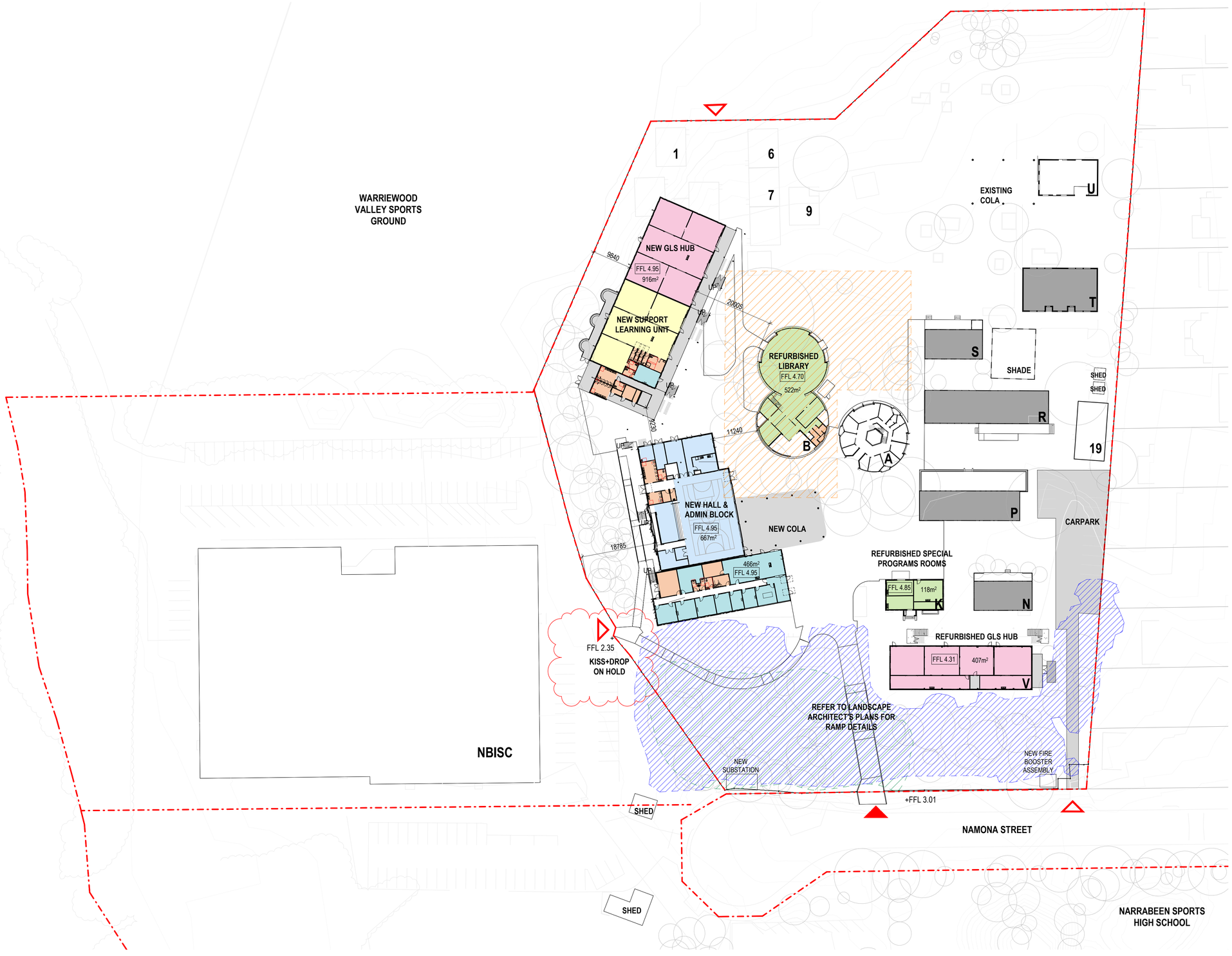
Tree 1

Tree 2

Tree 3



Tree 4



1 NNPS - NEW SITE PLAN - GROUND FLOOR_JO
AR-P-0220 SCALE 1 : 500

LEGEND

- GENERAL LEARNING SPACE HUB
- SUPPORT LEARNING HUB
- HALL, CANTEEN, & OSHC HUB
- LIBRARY HUB
- AMENITIES & SERVICES
- ADMIN STAFF HUB
- CIRCULATION
- EXISTING BUILDINGS
- MAIN ENTRY
- SECONDARY ENTRY
- PERMANENT BUILDING / STRUCTURE
- 1 DEMOUNTABLES
- PROJECT SITE EXTENTS
- BIODIVERSITY ZONE
- DEMOLISHED
- HERITAGE CURTILAGE
- COASTAL WETLANDS

SCALE BAR - 1:500 (0, 5, 10, 15, 20, 25 m)

NOT FOR CONSTRUCTION

0000 - GENERAL & SITE INFORMATION

ARCHITECTURE:

0000 GENERAL & SITE INFORMATION
1000 GENERAL ARRANGEMENT PLANS
2000 GA RCPs
3000 GA SECTIONS & ELEVATIONS
4000 REFERENCE PLANS
5000 STRUCTURAL SET-OUT
6000 VERTICAL CIRCULATION
7000 INTERIOR DESIGN DETAILS
8000 EXTERIOR & FACADE DETAILS
9000 DRAWN SCHEDULES
9000 SCHEDULES & SPECIFICATIONS

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4	24/06/2022	Pre-DA DRAFT - Updated	JO
5	29/06/2022	Pre-DA DRAFT - For Review	JO
6	12/07/2022	FOR INFORMATION	RF
7	15/07/2022	FOR INFORMATION	JO
8	18/07/2022	FOR INFORMATION	RF

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NAMONA ST, NORTH NARRABEEN NSW 2101

DETAILS
DRAWN JO
CHECKED RF
APPROVED Approver
SCALE 1 : 500 @ A1

TITLE
NEW SITE PLAN - SCHOOL - GROUND FLOOR

DRAWING NUMBER AR-P-0521
REVISION 8

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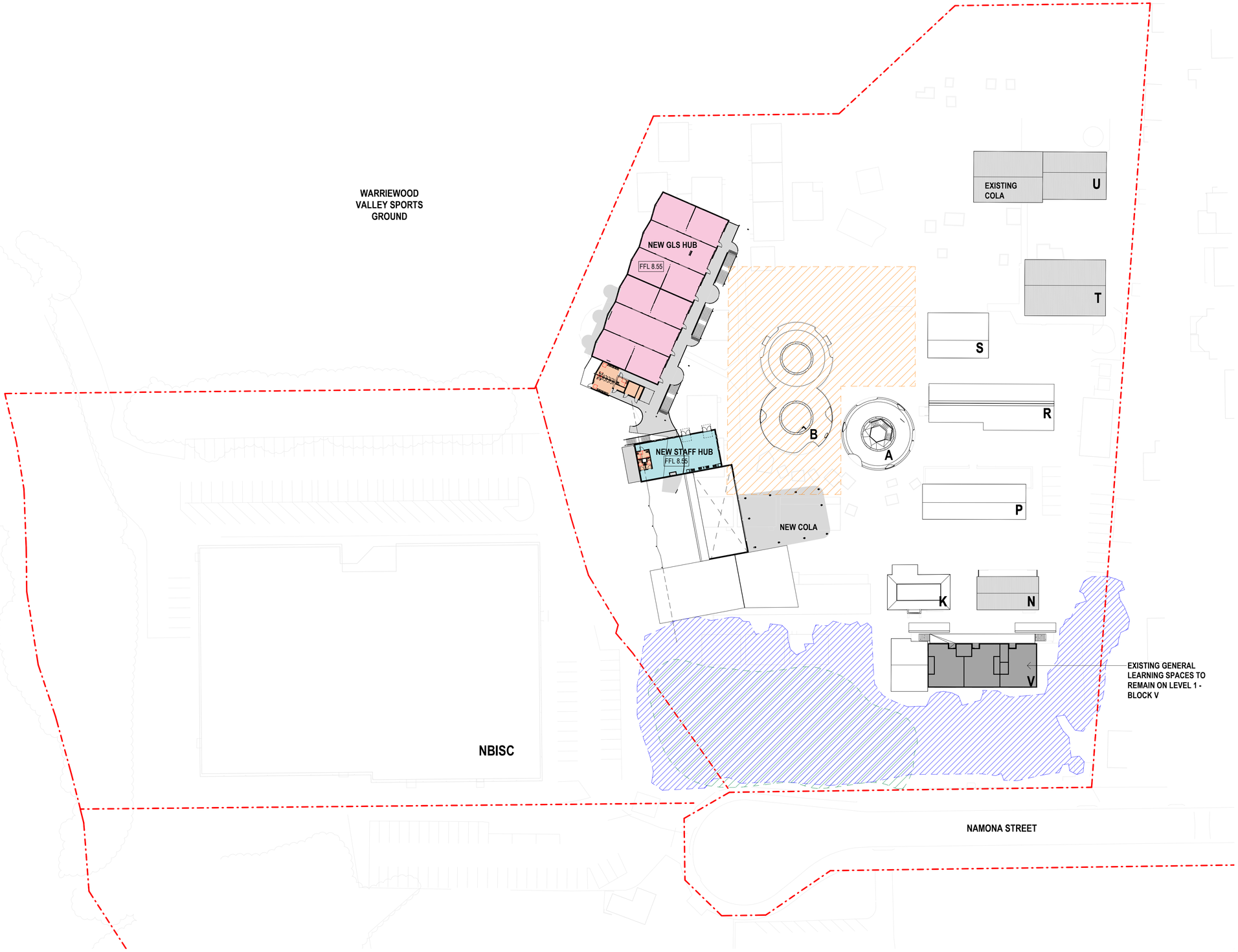

1 NNPS - NEW SITE PLAN - LEVEL 1
AR-P-0220 SCALE 1 : 500

LEGEND

- GENERAL LEARNING SPACE HUB
- SUPPORT LEARNING HUB
- HALL, CANTEEN, & OSHC HUB
- LIBRARY HUB
- AMENITIES & SERVICES
- ADMIN STAFF HUB
- CIRCULATION
- EXISTING BUILDINGS
- MAIN ENTRY
- SECONDARY ENTRY
- PERMANENT BUILDING / STRUCTURE
- 1 DEMOUNTABLES
- PROJECT SITE EXTENTS
- BIODIVERSITY ZONE
- DEMOLISHED
- HERITAGE CURTILAGE
- COASTAL WETLANDS

0 5 10 15 20 25 m
SCALE BAR - 1:500

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0000 - GENERAL & SITE INFORMATION

ARCHITECTURE:

0000	GENERAL & SITE INFORMATION
1000	GENERAL ARRANGEMENT PLANS
2000	GA RCPs
3000	GA SECTIONS & ELEVATIONS
4000	REFERENCE PLANS
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7000	INTERIOR DESIGN DETAILS
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DRAWN	JO	SCALE
CHECKED	RF	
APPROVED	Approver	1 : 500 @ A1

TITLE
NEW SITE PLAN - SCHOOL - LEVEL 1

DRAWING NUMBER
AR-P-0522

REVISION
6

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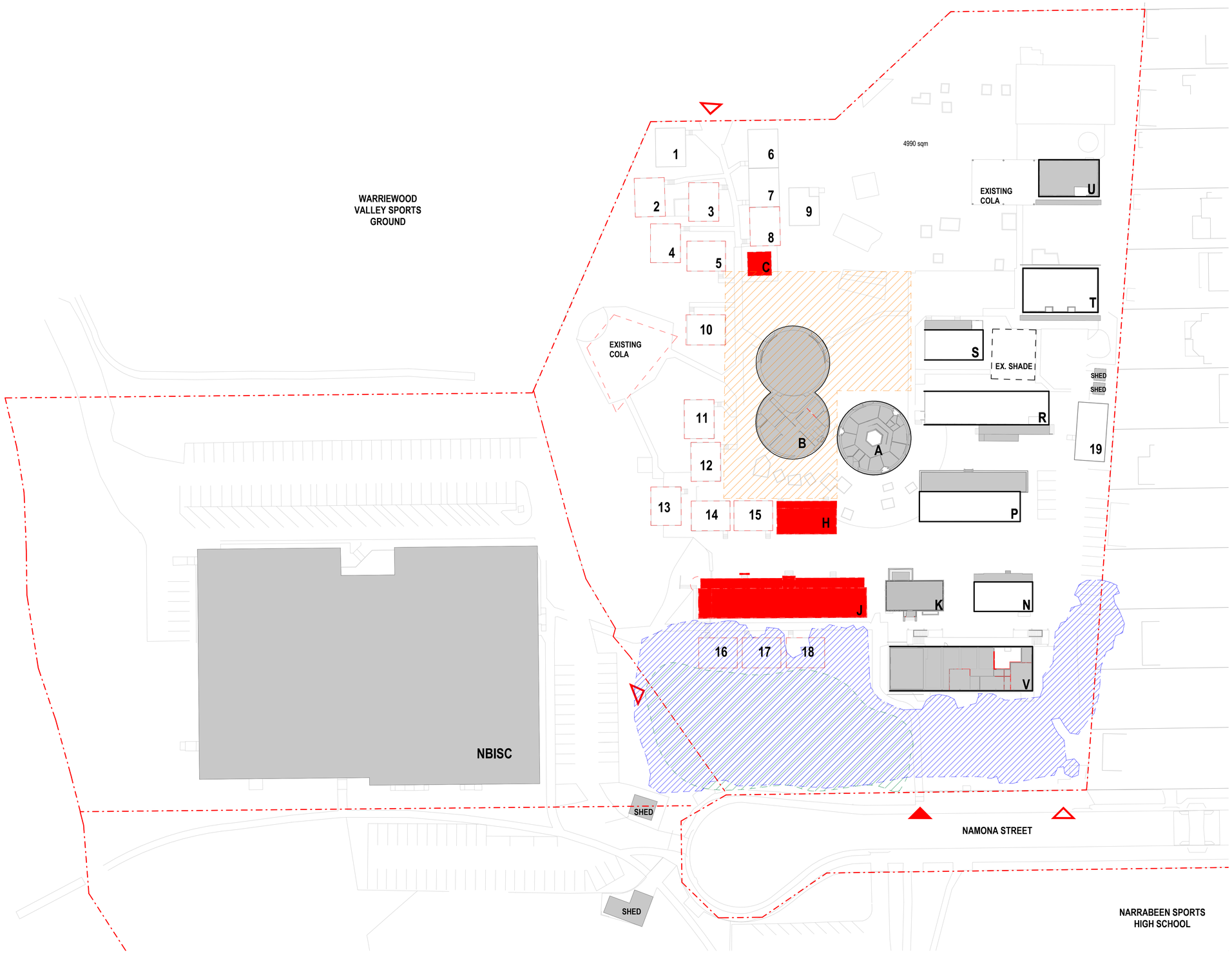

1 **NNPS - DEMOLITION SITE PLAN**
SCALE 1 : 500

LEGEND

- MAIN ENTRY
- SECONDARY ENTRY
- PROJECT SITE EXTENTS
- BIODIVERSITY ZONE
- COASTAL WETLAND
- HERITAGE CURTILAGE
- DEMOLISHED
- PERMANENT BUILDING / STRUCTURE
- 1 DEMOUNTABLES
- DEMOLISHED BUILDING / STRUCTURE
- 1 RELOCATED DEMOUNTABLES

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SCALE BAR - 1:500

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2000 GA RCPs
3000 GA SECTIONS & ELEVATIONS
4000 REFERENCE PLANS
5000 STRUCTURAL SET-OUT
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DETAILS

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CHECKED	JO	
APPROVED	Approver	1 : 500 @ A1

TITLE
DEMOLITION SITE PLAN

DRAWING NUMBER
AR-P-0511

REVISION
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Photos

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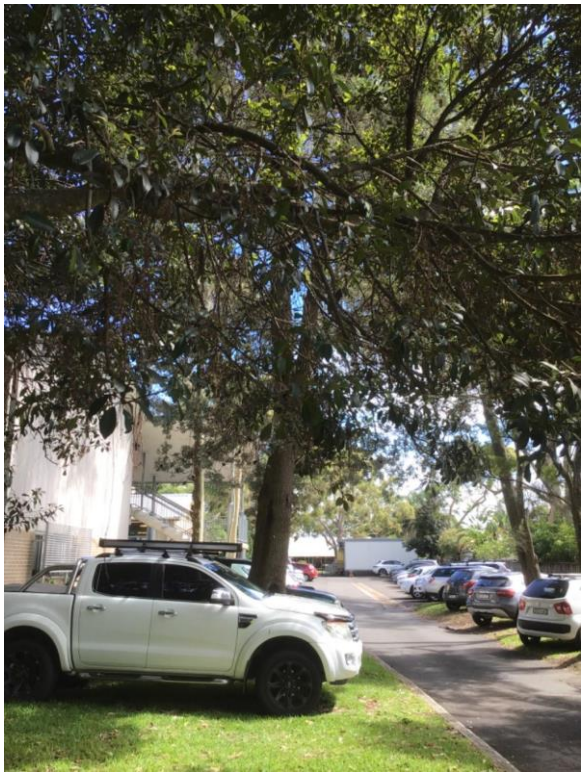
Tree 2

Tree 3



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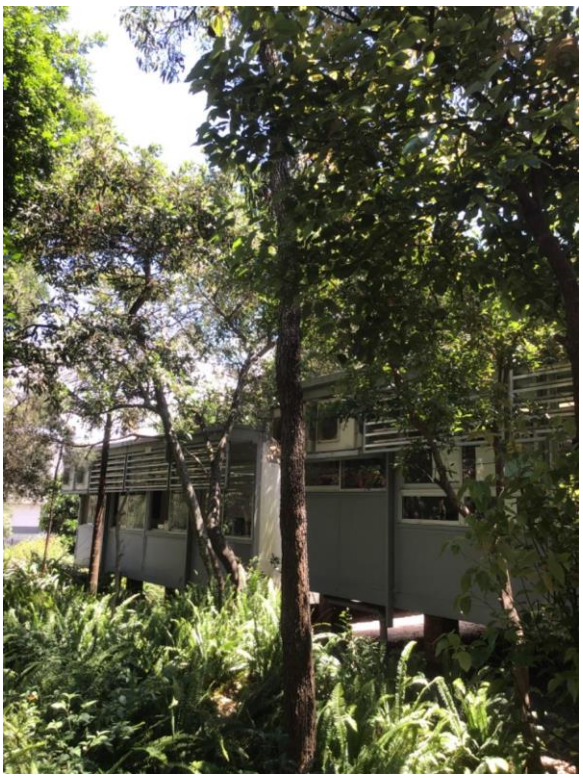

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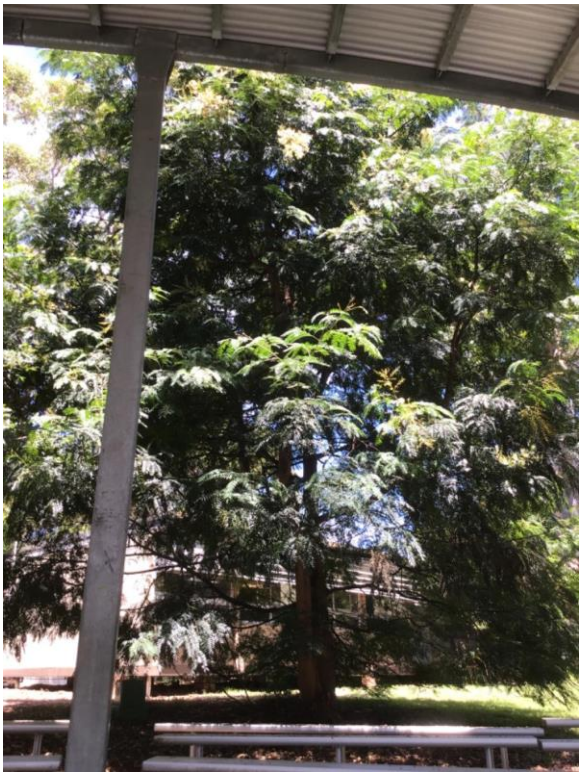

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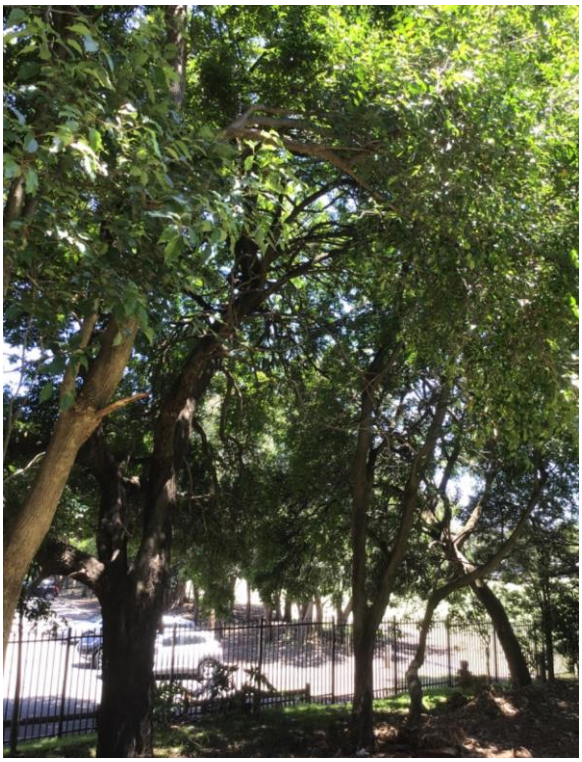

Tree 135

Tree 136

Tree 137

Reference Page

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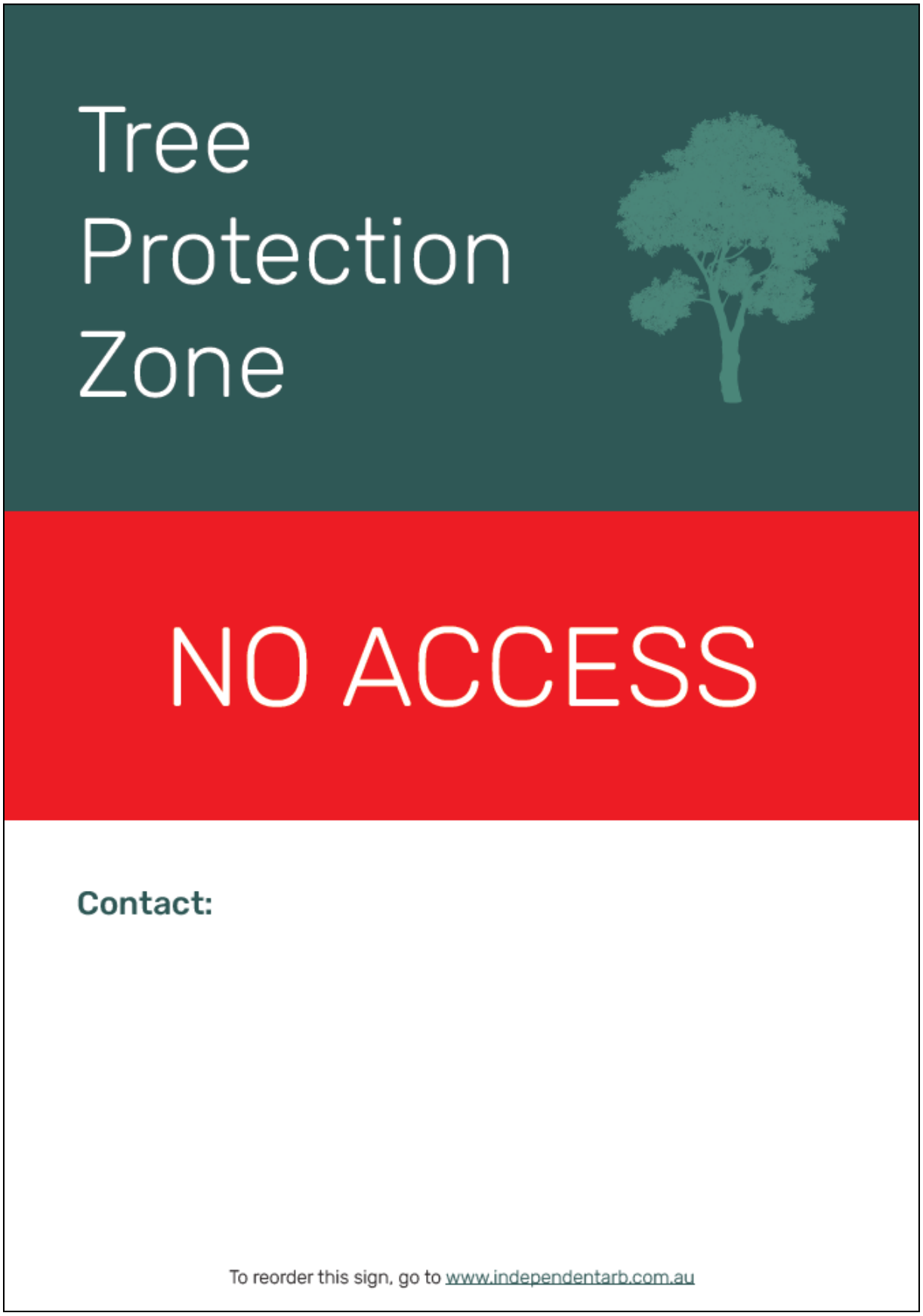
8. Nearmap 2020, www.nearmap.com.au

Appendix 1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Appendix 2: Explanation of Terminology

Definition	Process Description
Removal	Complete tree removal leaving stump as close as possible to ground level. Recommended process will include chipping of all foliage limbs and timber and reinstatement of work site. Recommendation typically based on tree being assessed as representing a health and safety concern [Dead, dying, structurally unsound, unstable, poor form]
Remove and grind	Complete tree removal to include grinding of stump to a depth of 75 millimetres unless otherwise specified. Recommended process will include chipping of all foliage limbs and timber and reinstatement of work site. Stump site will be cleaned of all grinding debris and sawdust and backfilled with premium topsoil free from weeds.
Crown Clean (Deadwood)	Removal of all major/significant deadwood and dead branches up to [and including] 30 millimetres in diameter in trees overhanging pedestrian or vehicular areas or removal of dead branches > 50mm diameter in canopy of trees located in parkland or similar area unless otherwise specified.
Crown Clean (General pruning)	Recommended pruning process will include removal of broken, crossing, rubbing, diseased, stressed or dying branches or limbs with poor attachment. Additional work process may include pruning to define leaders, balance the crown, reduce weight load, or clear the tree from obstructions. In summary, to rectify, as far as is possible, any structural defects and eliminate undesirable growth or deadwood.
Crown Reduction (Canopy reduction)	Recommended pruning process may include light and general pruning typically to encompass removal of up to 15% but no more than 20% of the leaf-bearing crown. By definition the unique shape and form of the tree will not be altered or compromised by the pruning process. Typically, the consulting arborist will nominate the reduction percentage [%] appropriate to species, condition and assessment.
Crown Raising (Canopy lift)	Pruning processes maybe involve the raising of the tree's lower canopy to a height specified in metres. Typically, the process is performed to provide for pedestrian and or vehicular clearance and unless otherwise specified the default parameters will be to provide 2 metres clearance from ground level or as specified by local or state government regulation. From time to time pruning requirements may be altered to accommodate various site-specific requirements as advised by the consulting arborist accordingly.
Crown Restoration	Pruning process will encompass crown restoration and remedial works where the tree has been previously lopped or otherwise damaged. Not feasible when tree has extensive decay and should only be considered when there is evidence of healthy re- growth. When performed correctly the process of remedial pruning will most likely take several years to complete.
Hanger Limb / Unattached branch	Pruning process may be restricted to the removal of any hanger/s or dangerous/dead/dying limbs and will typically involve the removal of a single limb. In some instances, removal of an individual limb may be necessary to accommodate an obstruction and the consulting arborist will advise accordingly.
Directional Pruning	Pruning process will be restricted to pruning canopy away from buildings/service wires/property boundary and will typically be performed to avoid future growth in these areas. Where appropriate future growth will be directed away from obstruction by selected pruning so as to encourage the development of the growth of new leaders.

Habitat Pruning	When pruning deadwood from trees, simple techniques and methods can be employed to achieve hazard reduction whilst leaving food and habitat for tree dwelling fauna. Long pieces of deadwood can be reduced in length to limit potential hazard but still retain food for the insects and microorganisms. Stubs that have been left by old pruning or previous branch failure can be retained, and with the use of a hole-saw or chainsaw they may also be bored out to create a nesting hollow for native birds or small mammals. Source: Mosman Council
Deadwood	Dead branches within canopy of tree59F. Deadwood is a naturally occurring feature of most tree species and comprises dead or decaying branches within the canopy of a tree. Deadwood may have habitat value and require removal only according to the considered risk of its location, i.e. high use pedestrian area or damage to adjacent infrastructure.
Decay	The process of degradation of woody tissues by micro-organisms61F
Compaction	Results from loads or stress forces applied to the soil as well as shear forces. Both foot traffic and vehicle traffic exert both forces on soils. Vehicle traffic may cause significant compaction at depths of 150–200 mm (the area in which most absorbing roots are located). The degree of compaction will depend on weight of vehicles, number of movements, soil moisture levels and clay content. Soil handling, stockpiling and transporting also tend to lead to the breakdown of soil structure and thus to compaction. Vibration as a result of frequent traffic or adjacent construction activities will also compact soils55F
Codominant Structure:	Stems or trunks of about the same size originating from the same position from the main stem52F. When the stem bark ridge turns upward the union is strong; when the ridge turns inward the union is weak, a likely point of failure in storm or windy weather conditions or where increasing weight causes undue stress on the defective union53F

Source: AS4373-2003 Pruning of Amenity Trees & AS 4970-2009 Protection of Tree on Development Sites & Habitat Creation By Kieran O'Neill, Mosman Council.

Appendix 3: Normal Function of a Tree

Background Note: The following diagrams and explanatory notes are useful to illustrate the structure of a tree in a normal growing environment. This information is taken from AS4970-2009 Protection of trees on development sites which has been released subsequently to AS4373-2007 Pruning of amenity trees.

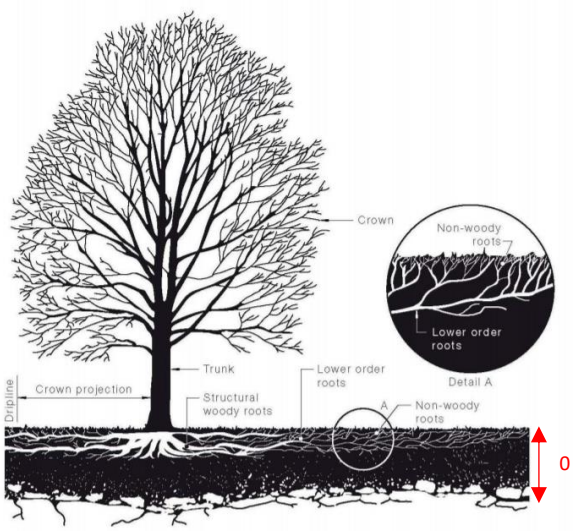

Figure 11: Structure of a tree in a normal growing environment

Leaves
The main function of leaves is photosynthesis, that is, the production of sugars. The sugars produced by the leaves (and any other green tissue) are the source of chemical energy for all living cells in the entire plant and as such are essential for the normal functioning and survival of the tree. Anything that directly or indirectly damages the leaves will interfere with photosynthesis.

Trunks and branches
Branches and trunks are composed of many tissues with specialized functions including the bark (protection), phloem (transport of sugars from the leaves), vascular cambium (growth of new transport tissues), sapwood (transport of water and nutrients from the roots), heartwood (strength and structural support) and rays (internal transport and storage of sugars). Damage to branches or trunks may allow infection by plant pathogens (disease causing organisms), disrupt the movement of vital materials and structurally weaken the tree.

Roots
The main functions of roots include the uptake of water and nutrients, anchorage, storage of sugar reserves and the production of some plant hormones required by the shoots. For roots to function, they must be supplied with oxygen from the soil. The root system of trees consists of several 'types' of roots found in different parts of the soil and is generally much more extensive than commonly thought. The importance of roots is easily overlooked because they are not visible, that is 'out of sight, out of mind'. Damage to the root system is a common cause of tree decline and death and is the most common form of damage associated with development sites.

Root systems consist of three main parts:

1. The structural woody roots (anchorage, storage and transport);
2. Lower order roots (anchorage, storage and transport); and
3. Non-woody roots (absorption of water and nutrients, extension, synthesis of amino acids and growth regulators) (see Figure).

In addition to lateral root spread being underestimated, root depth in trees has also been grossly exaggerated. Deep root systems or taproots are the exception rather than the rule. Most roots of most trees are found in the very top of the soil. The vast majority of these roots are small non-woody absorbing roots which grow upward into the very surface layers of the soil and leaf litter. This delicate, non-woody system, because of its proximity to the surface, is very vulnerable to injury."

Explanatory Note: The importance of gas exchange in soils

The fact that tree roots require oxygen to function is often misunderstood. Accessibility to available oxygen and water within the soil structure is dependent on the integrity of soil structure within their surrounds; when soils are compacted there is little space between soil aggregates with soil volume and total pore space, especially macropore space diminished. In turn, good soil oxygenation and gas exchange (Lonsdale) levels allow for successful function of tree roots. Oxygen levels in soils will typically decrease as soil depth increases and /or soils are heavily compacted.

Macropore is the term used to describe the relatively large space between soil particles that is usually air filled and allows for water movement and root penetration. Micropore is the term used to describe the space between soil particles that is relatively small and likely to be water filled.

Compaction results from loads or stress forces applied to the soil as well as shear forces. When soil within the root zone of a plant, including a tree, is compacted through either pedestrian or vehicular traffic, or by the heavy weight of stored materials or machinery, the ability of water and oxygen to penetrate the soil around the roots of living plants is compromised. Whilst tree roots are typically found in the top 600mm of the soil horizon, vehicle traffic, in particular may cause significant compaction at depths of 150–200 mm (the area in which most absorbing roots are located). (Refer Tree Function Note above).

The degree of soil compaction will depend on weight of vehicles, number of movements, soil moisture levels and clay content. Soil handling, stockpiling and transporting also tend to lead to the breakdown of soil structure and thus to soil compaction. Vibration, as a result of frequent traffic or adjacent construction activities, will also cause compaction of soil.

Contrary to the commonly held myth that all trees have tap roots, tree roots are typically located within the top 600mm of soil. Just as leaves perform the vital function of photosynthesis, tree roots are vital for the primary functions of anchorage, storage, absorption and conduction. Larger tree roots fulfil the main functions of anchorage, storage and conduction and smaller more fibrous tree roots, which grow primarily at the end of the main woody roots, fulfil a vital role in absorbing oxygen, essential mineral elements and moisture from the soil, often through a symbiotic relationship with soil borne fungi referred to as Mycorrhizae; the extent of root loss has the potential to jeopardise any or all of these main functions and most importantly may compromise the structural integrity of an established tree and its associated potential OH&S risk of failure occurring; any OH&S risk of potential failure in a high use area such as public roads, is noteworthy for all the wrong reasons and should be of major concern and avoided at all times. (Refer Appendix 2, Tree Function Note).

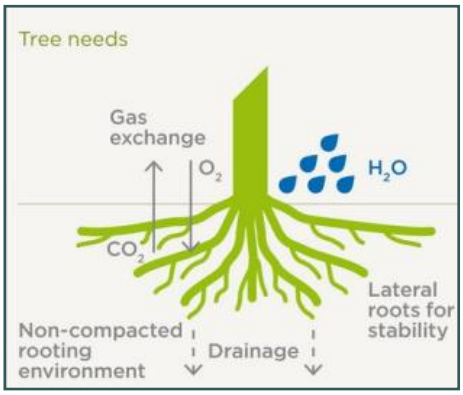

Figure 12: Gas exchange in woody tissues: the diffusion of gases into and out of a particular region (Jaluzot)

Reference Page

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Company Details

Independent Arboricultural Services

Independent Arboricultural Services, incorporated in May 2007, offers a completely independent arborist consulting and reporting service. Its directors and associated consultants bring extensive arboricultural knowledge gained over many years to this company. All consulting staff hold AQF Level 5 (Diploma of Arboriculture). Specialised advice when required, such as provision of survey mapping or engineering advice and certification is sourced from reputable professional providers according to site requirements as per Australian Standard 4970-2009.

Statement of Goal

To deliver continual improvement through the use of world's best arboricultural practices, supported by ongoing education and exposure to leading industry experts and research throughout the world.

Mission Statement

To provide timely, relevant and actionable consulting advice and practice based on the latest available and best scientific arboricultural knowledge.

Environmental Statement

Independent Arboricultural Services supports long term environmental sustainability sustainable sourced paper and ensuring all inks cartridges are recycled where possible.

Independent Arboricultural Services actively seeks to maintain a positive carbon footprint status and to that end is committed to protecting and preserving the environment, continuing to carry out tree planting, transplanting and replacement planting where practical, having planted in excess of 4000 trees in the first 2 years after its inception in May 2007 alone. Arboricultural recommendations involving the removal of tree/s will include replanting at a minimum ratio of 2 trees for any tree removed where possible. All arboricultural recommendations are made in accordance with world's best arboricultural practice and within the Australian Standards AS 4373-2007 Pruning of amenity trees and AS 4970-2009 – Protection of trees on development sites so as to ensure optimal outcomes for all living trees.

Independent Arboricultural Services acknowledges the benefits of healthy trees with good vigour and vitality and actively promotes better understanding in the general community of the contribution that trees make to reducing greenhouse gasses, the contribution of trees to better water retention and the prevention of soil erosion, the ability of trees to provide protection to infrastructure by diffusing strong winds in weather events and the contribution of trees to general liveability within the urban environment.

It is an acknowledged fact that air temperature beneath a tree canopy can be in excess of 5^{o} Celsius lower than the surrounding ambient air temperature thereby reducing reliance on greenhouse gas producing air conditioners and coal fired power sources.