"GROWING MY WAY"

Tree Consultancy

Established 1977

EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

PO Box 35, Newport Beach NSW 2106

Phone: (02) 9997-4101 Mobile: 0412-221-962 Fax: (02) 9940-0217

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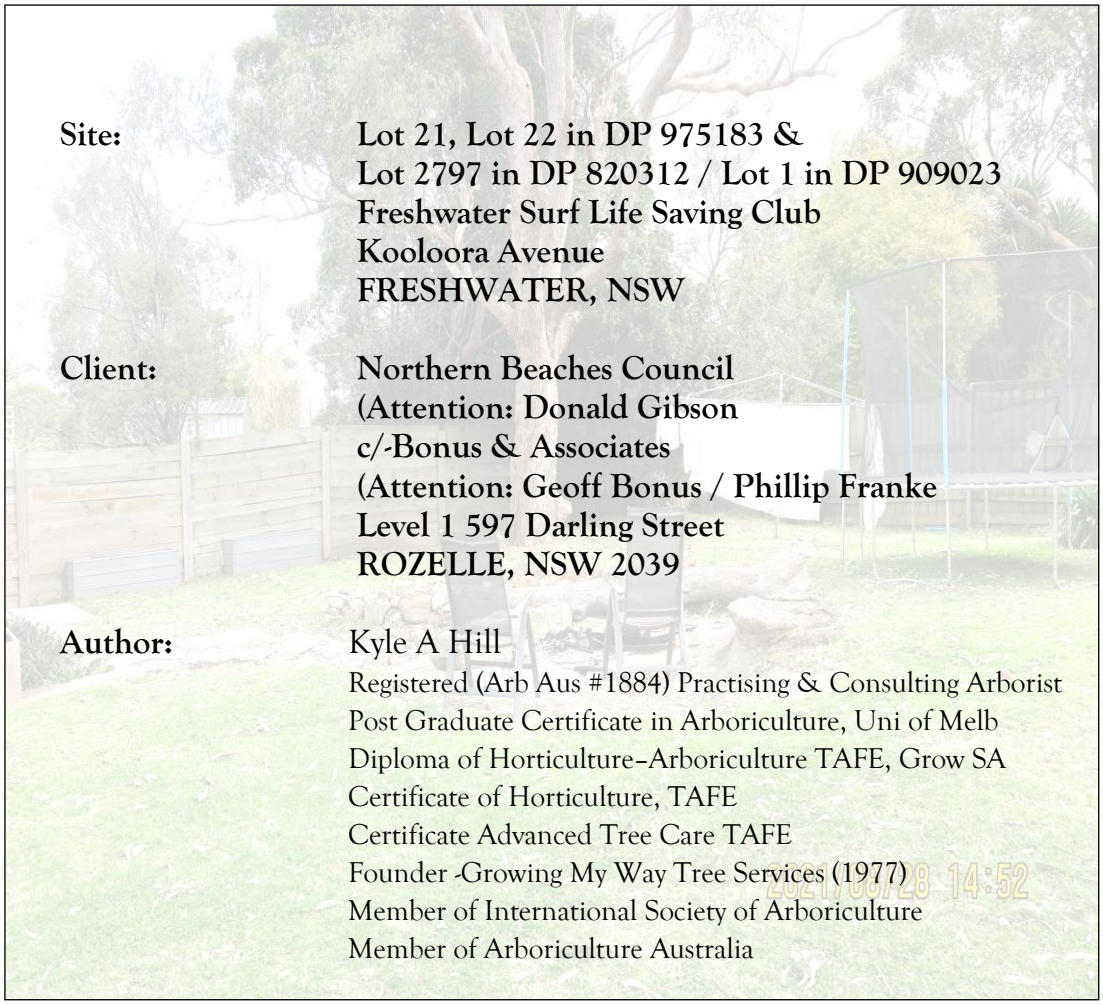
ABN 97 965 355 200

Construction Impact & Preliminary Management Statement

February 2023, updated May 2023



Site: Lot 21, Lot 22 in DP 975183 &
Lot 2797 in DP 820312 / Lot 1 in DP 909023
Freshwater Surf Life Saving Club
Kooloora Avenue
FRESHWATER, NSW

Client: Northern Beaches Council
(Attention: Donald Gibson
c/-Bonus & Associates
(Attention: Geoff Bonus / Phillip Franke
Level 1 597 Darling Street
ROZELLE, NSW 2039

Author: Kyle A Hill
Registered (Arb Aus #1884) Practising & Consulting Arborist
Post Graduate Certificate in Arboriculture, Uni of Melb
Diploma of Horticulture–Arboriculture TAFE, Grow SA
Certificate of Horticulture, TAFE
Certificate Advanced Tree Care TAFE
Founder -Growing My Way Tree Services (1977)
Member of International Society of Arboriculture
Member of Arboriculture Australia

1 Summary

The Northern Beaches Council (represented by Donald Gibson) as the property owner via the Bonus & Associates (Architects- Geoff Bonus / Phillip Franke) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Preliminary Management Statement* relative to the proposed *Alterations & additions to the Freshwater Surf Life Savers Clubhouse* (from herein the *FSLSC) & surrounds.* This document focuses on multiple trees located nearby to the existing / proposed to be upgraded building footprint.

The subject site is located within an area covered by the *Coastal Lands Plan of Management* (from herein the *POM*).

One (1) part of existing buildings is a listed 'Heritage Item, (I 66). This is interpreted to be the original 1935 surf club building closest to the beach.

Our brief is to assess trees located both within the clubhouse footprint sites and adjoining public reserve sites. The discussed in detail trees are mostly confirmed to be subject to the tree management provisions as defined within the *Northern Beaches Council (from herein NBC) "Tree Management Provisions" plus the SEPP "Vegetation in non–rural Areas, August 2017.* Other, acknowledged but not discussed in detail trees are confirmed to be within the subject site/adjoining sites.

Motor vehicle access to the subject site is primarily via Kooloora Avenue. Pedestrian access is via multiple directions that includes formal pathways as well as multiple streets public reserve access.

The sole consent authority is the *NBC*. The old *Warringah Council* Planning Instrument (*Local Environment Plan, 2011*) applies at the time of writing.

Information related to the discussed trees was gathered by onsite data collection with cross referencing to:

- *Site Survey by Daw & Walton, (two sheets), dated, 18 November 2016;*
- *Plans, Sections & Elevations, by Bonus & Associates, Rev. P2, dated, 16 March 2023;*
- *Pittwater Council/NBC "Tree Management Provisions" &*
- *SEPP 'Vegetation in Non-Rural Areas, 25 August 2017.*

The aim of this report is:

1. *To confirm the viability or otherwise for the discussed trees,*
2. *Provide a Preliminary Site Specific 'Plan of Tree Management',*
3. *Provide a list of potentially suitable to the local environment new trees with sourcing, planting & management specifications.*

This document supports (relative to tree management) the proposal for *Alterations & additions to the FSLSC & surrounds.* Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist* has prepared this report based on "*Visual Tree Assessment" (VTA).* Data was collected onsite on multiple occasions, the most recent being Saturday, 18 March 2023.

Table of Contents

2 Introduction

This report contains observations & recommendations intended to assist in the management of several individual as well as groups of trees interpreted as necessary to be discussed by virtue of location & works proposed.

Proposed works is for *Alterations & additions to the FSLSC & surrounds.*

With respect to tree management, only trees/vegetation (protected or otherwise) within five (5.00m) of proposed works are focused upon.

This document supports the proposed *Alterations & additions to the FSLSC & surrounds* with respect to tree management issues. Trees/vegetation at the (western end) rear of the existing building is the greatest challenge with respect to endeavouring to retain in a viable manner existing (discussed trees/vegetation).

We confirm to be familiar with both the old *Warringah Council* & now *NBC "Tree Management Provisions" plus the SEPP "Vegetation in non–rural Areas, August 2017".*

The sole consent authority is *NBC*. The subject site/s is Land Zoned "RE1" Public Recreation.

The subject site is NOT within any *NBC (Old Warringah Council)* designated "*Heritage Conservation Area*". The subject site existing buildings are mostly confirmed to NOT be a listed "*Heritage Item*". However, the building closest to the ocean frontage (original 1935 clubhouse) is confirmed to be a listed 'Heritage Item (I 66). There is no documentation able to be found relative to any discussed tree or groups of trees being listed on any "*Significant Tree Register*". The discussed trees/vegetation is not interpreted as being subject to any protection provisions within the state legislated '*NSW Scientific Committee'–final determination,* (*Threatened Species Conservation Act*). The subject site/s are additionally confirmed to NOT be within any classified "*Wildlife Corridor*".

The aim of this report is:

1. *To confirm the viability or otherwise for the discussed trees,*
2. *Provide a Preliminary Site Specific 'Plan of Tree Management',*
3. *Provide a list of potentially suitable to the local environment new trees with sourcing, planting & management specifications.*

3 Methodology

Assessment of the tree has been from ground level by eye, using *Visual Tree Assessment** *(VTA)* techniques developed by Claus Mattheck. The principles of *VTA* are explained in his widely-used reference book *"The Body Language of Trees (1994)"*.

Onsite assessment includes:

- Tree/s current condition & likely future health relative to natural Useful Life Expectancy. Species tolerance relative to root disturbance &/or proposed works.
- Likely future hazard potential to persons & property.
- Tree's amenity value, such as significance, screening & habitat.

No root analysis, soil testing, 'Resistograph'® drilling or aerial canopy inspection was undertaken. See the following Appendices for further information:

- Appendix A Glossary of Common Arboreal terms
- Appendix B Site Survey
- Appendix C Tree Protection & Management Prior to Excavation & During Construction

*** *VTA*–Visual Tree Assessment,** as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e. no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily identified visual indicators that suggest such an inspection is merited. Visual indicators are outlined within *The Body Language of Trees (Mattheck & Breloer, 1994). VTA* is a broadly used relatively standardised approach. More complex (can be invasive) diagnostic fault detection equipment may be recommended once visual indicators of potential defects are confirmed.

4 Observations

4.1 The Site

The report discusses only trees assessed as being particularly valuable relative to retention & significance values close to the as proposed works for *Alterations & additions to the FSLSC & surrounds.*

The subject site is NOT within any *NBC (Old Warringah Council)* designated "*Heritage Conservation Area*". The subject site existing buildings are mostly confirmed to NOT be a listed "*Heritage Item*". However, the building closest to the ocean frontage (original 1935 clubhouse) is confirmed to be a listed 'Heritage Item (I 66). There is no documentation able to be found relative to any discussed tree or groups of trees being listed on any "*Significant Tree Register*". The discussed trees/vegetation is not interpreted as being subject to any protection provisions within the state legislated '*NSW Scientific Committee'–final determination,* (*Threatened Species Conservation Act*). The subject site/s are additionally confirmed to NOT be within any classified "*Wildlife Corridor*".

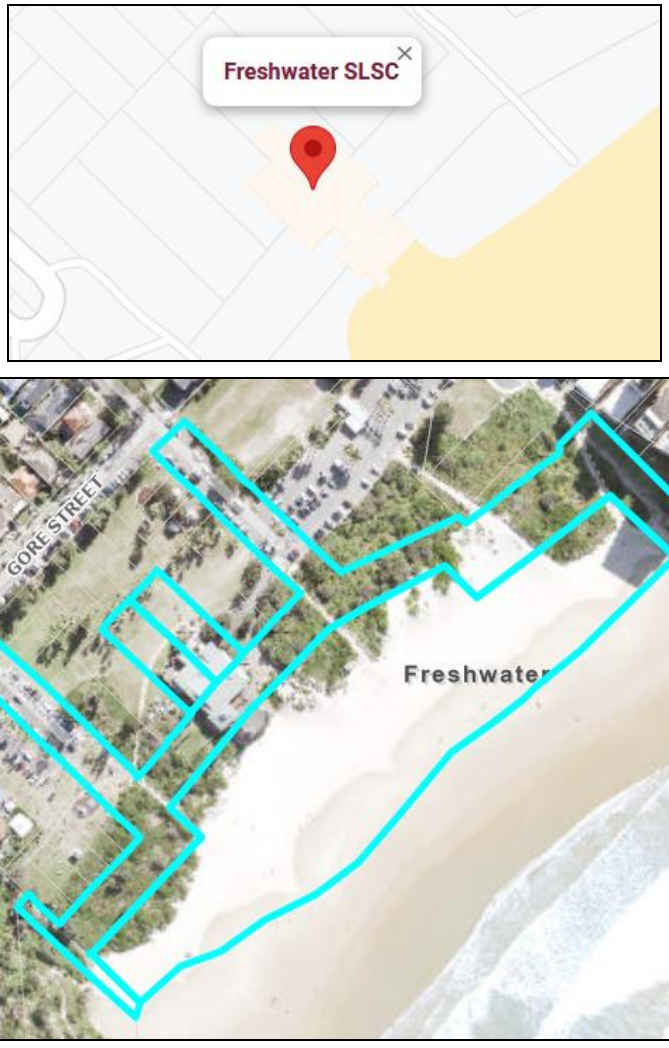


Figure 1: Aerial photograph with lot boundaries courtesy of NBC website tool.

The subject site is Land Zoned "RE1" Public Recreation.

The site is NOT within a *NBC* designated "*Heritage Conservation Area" (see above).* The site is also confirmed to NOT be a listed "*Heritage Item*" nor is it near any listed "*Heritage Item*". The discussed tree is NOT known to be on any '*significant tree register*'. The subject site & local environs are confirmed to NOT be located within any designated *'Wildlife Corridor'.*

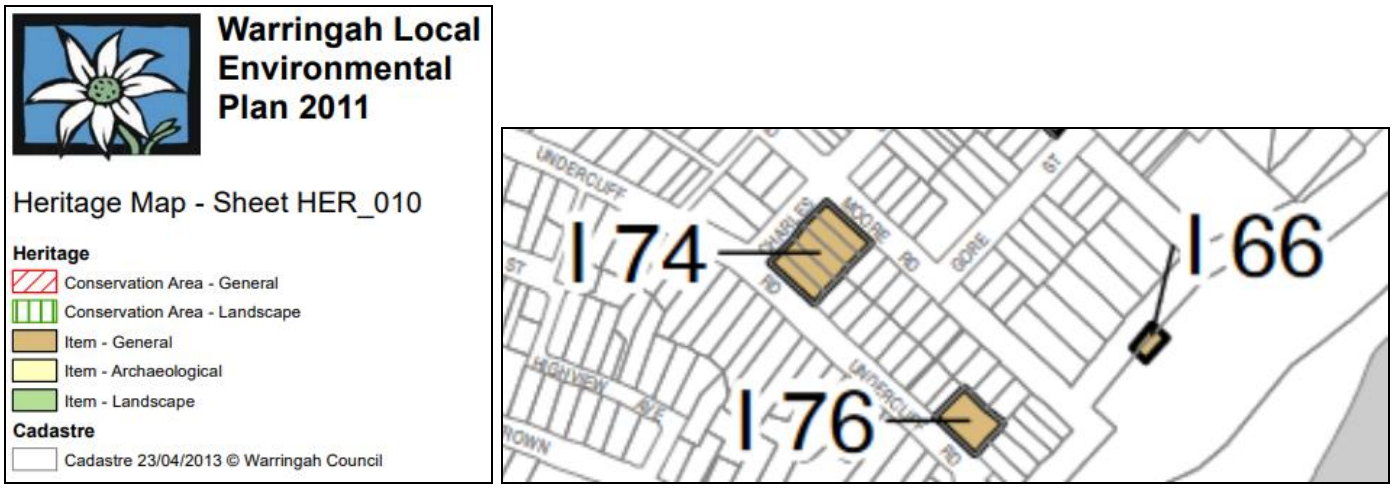
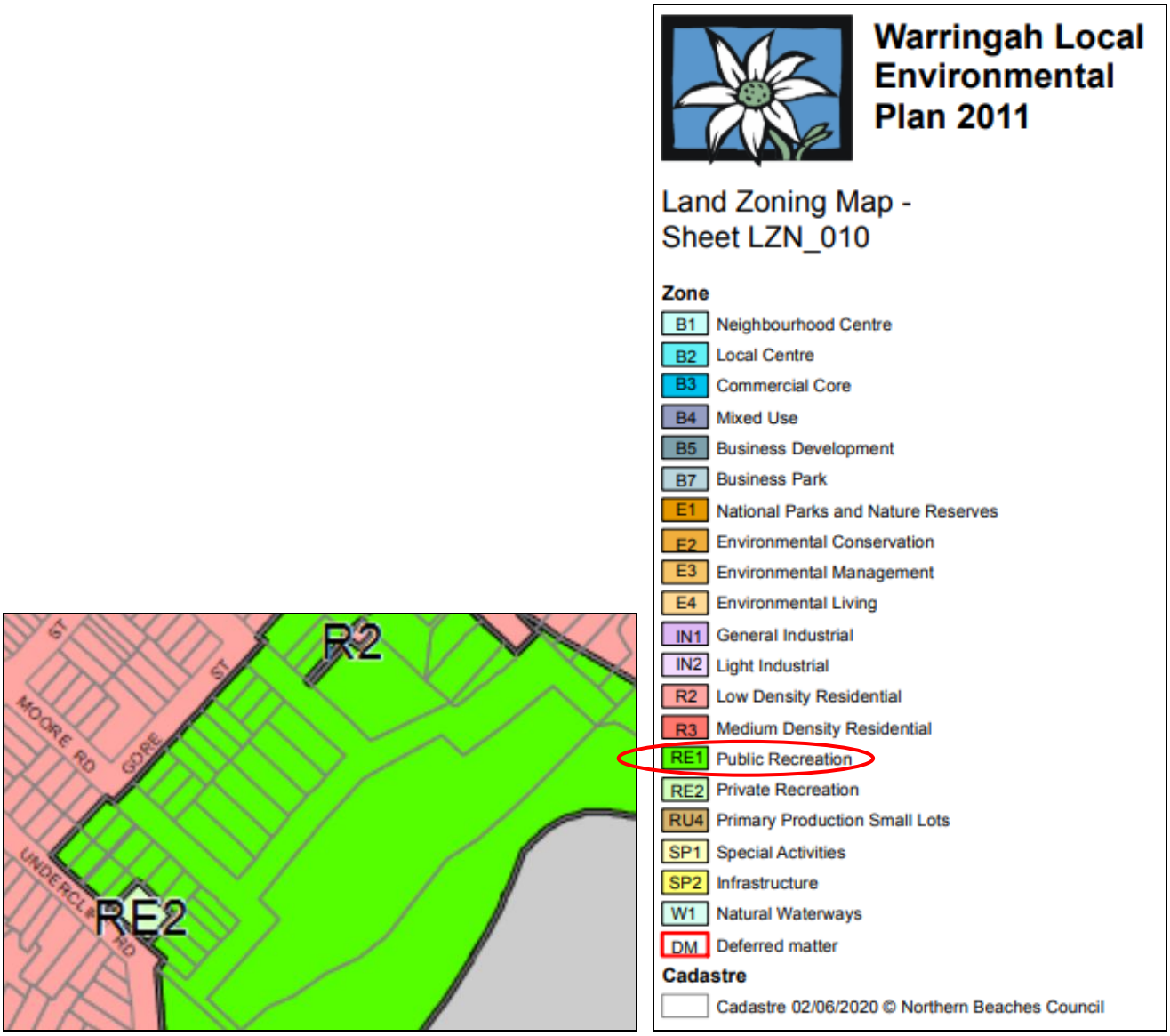


Figure 2: Illustrates Heritage Conservation Area & Land Zoning & status.



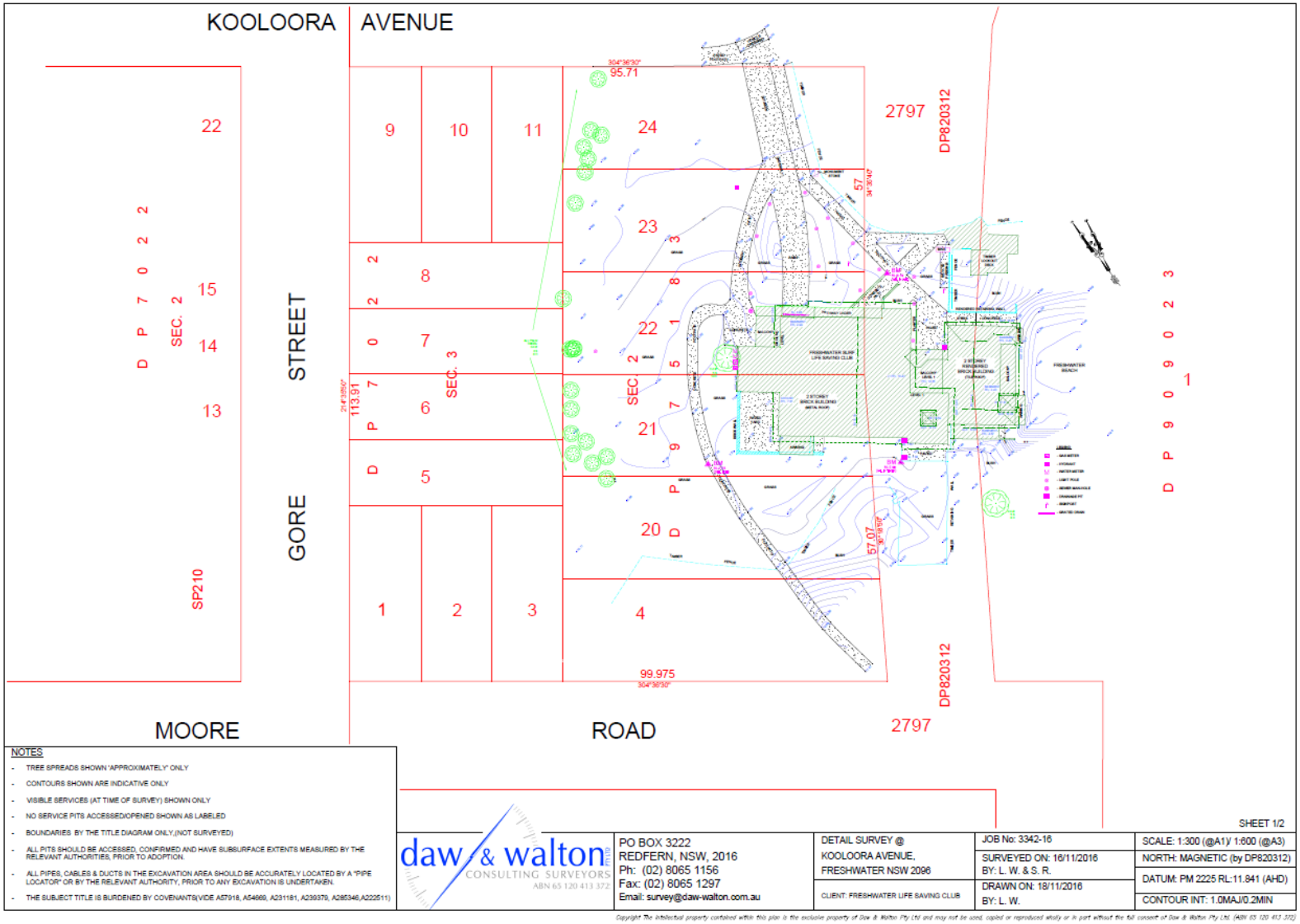
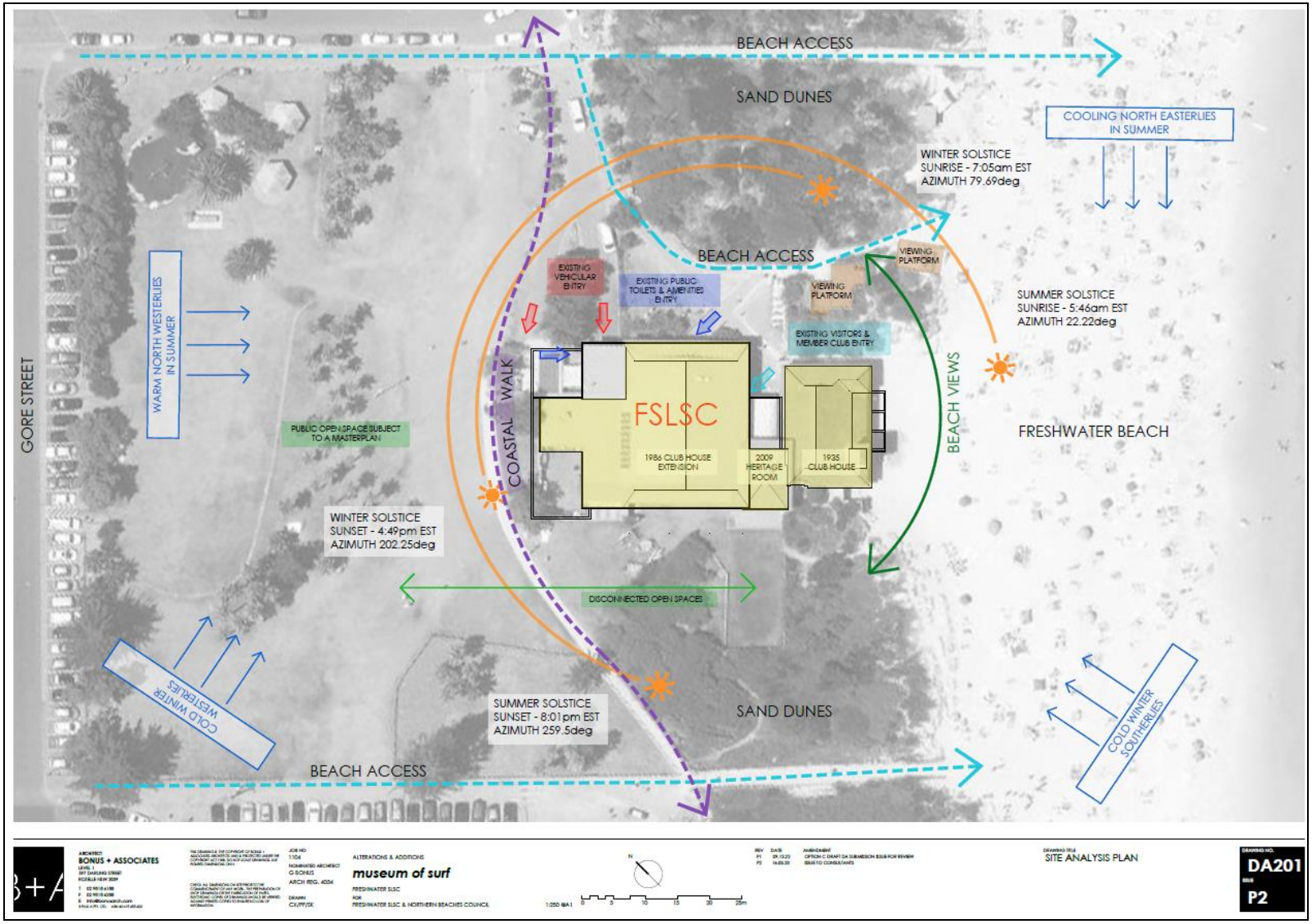
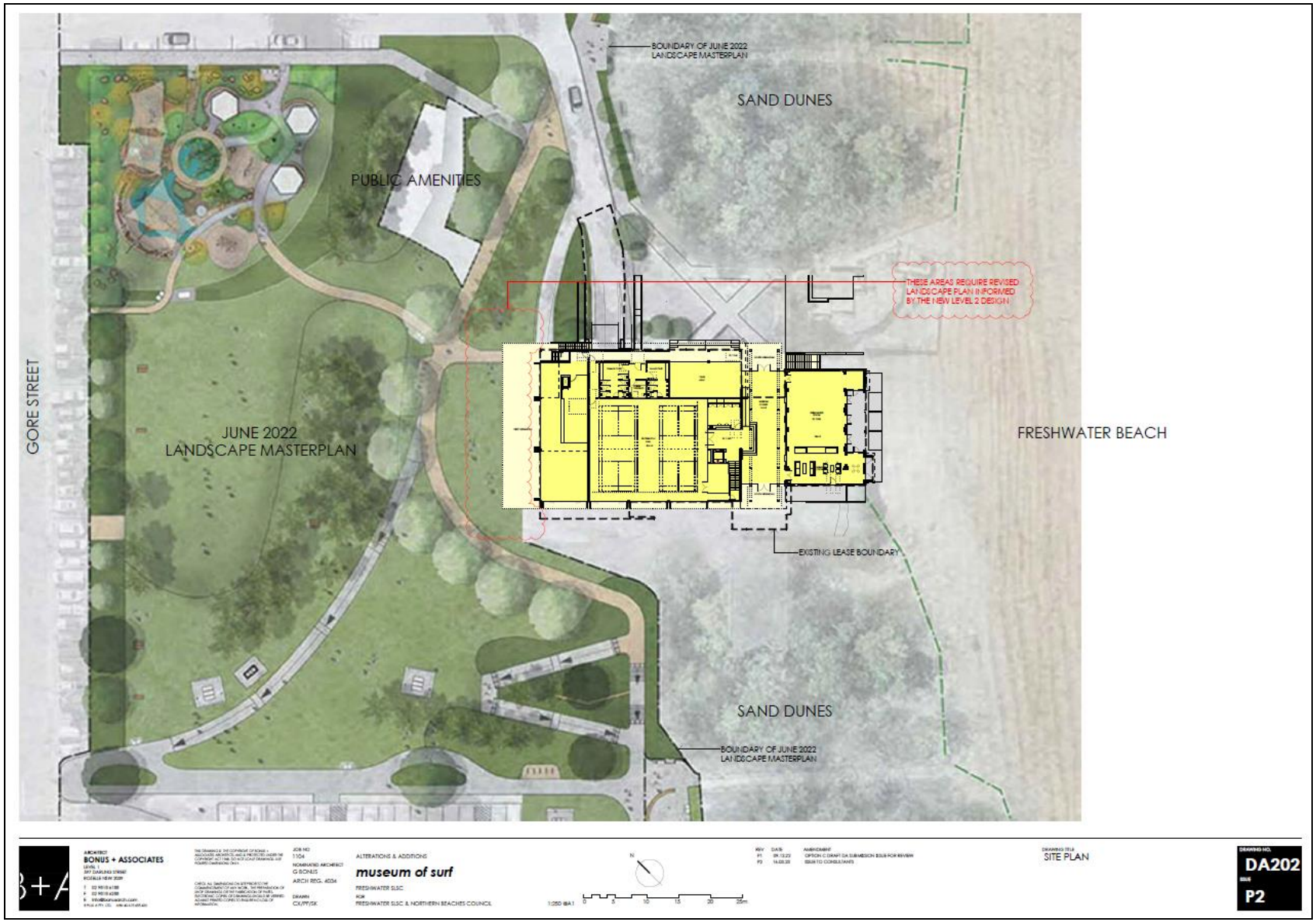
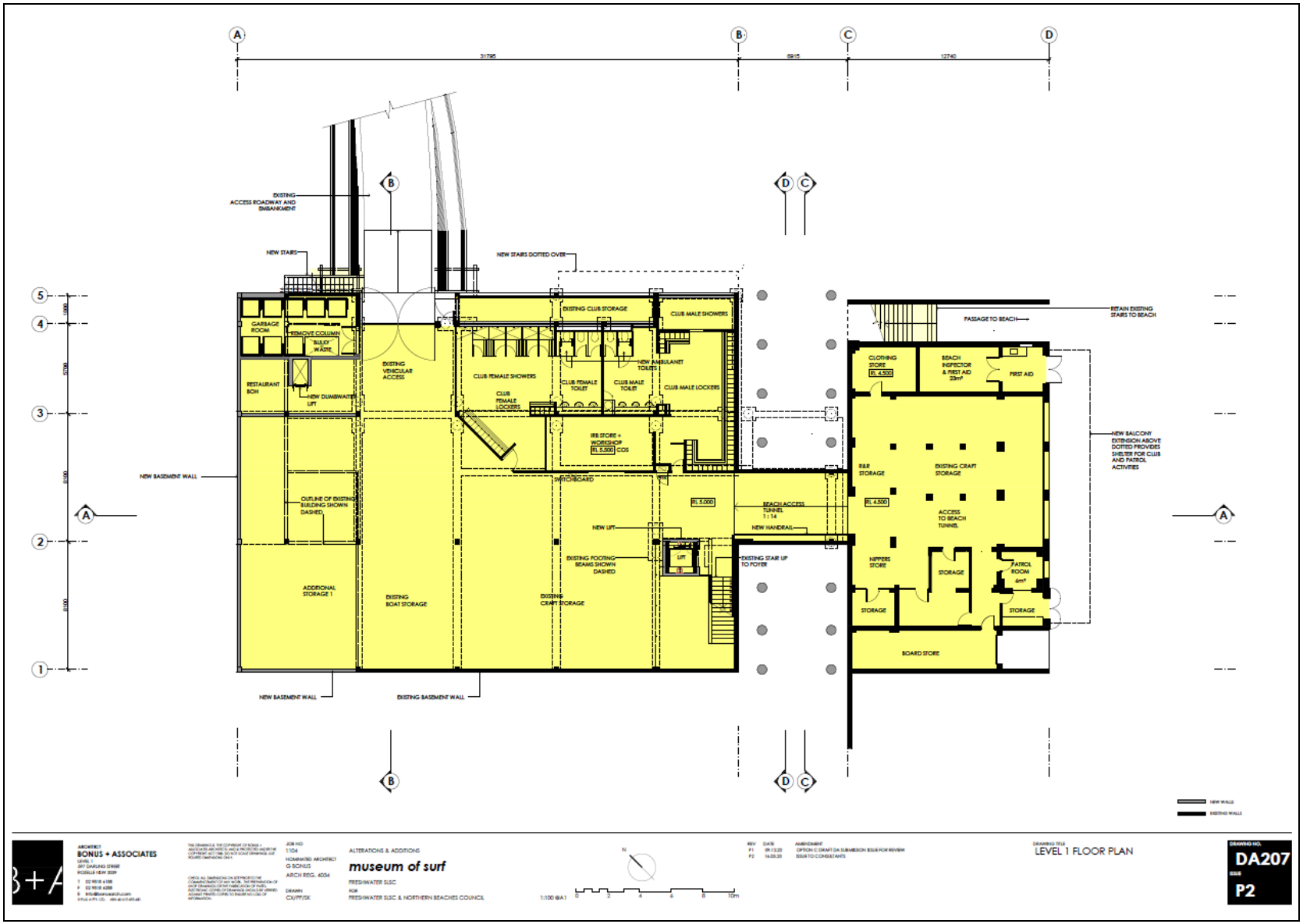


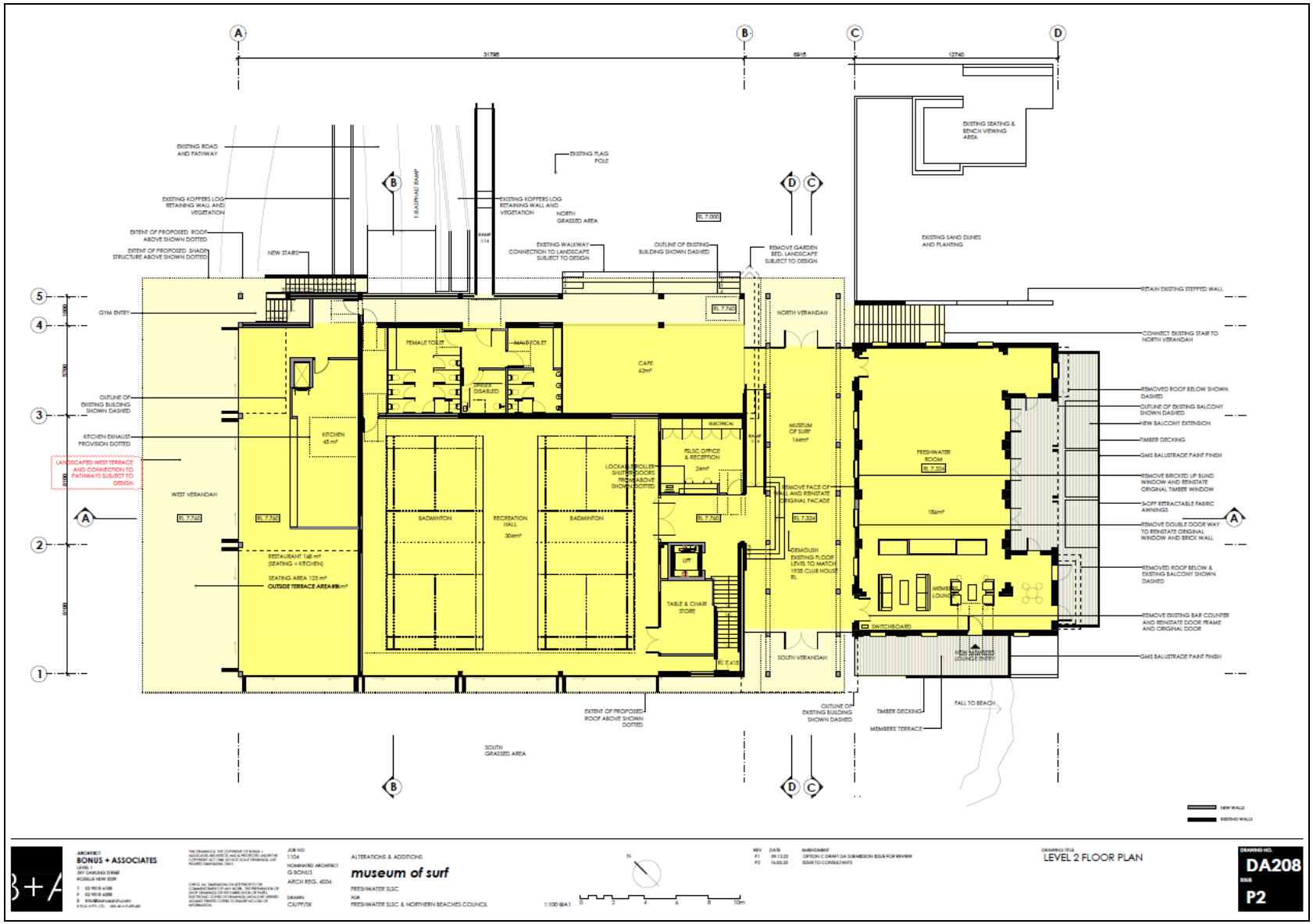
Figure 3: Subject sites & nearby linked public property sites

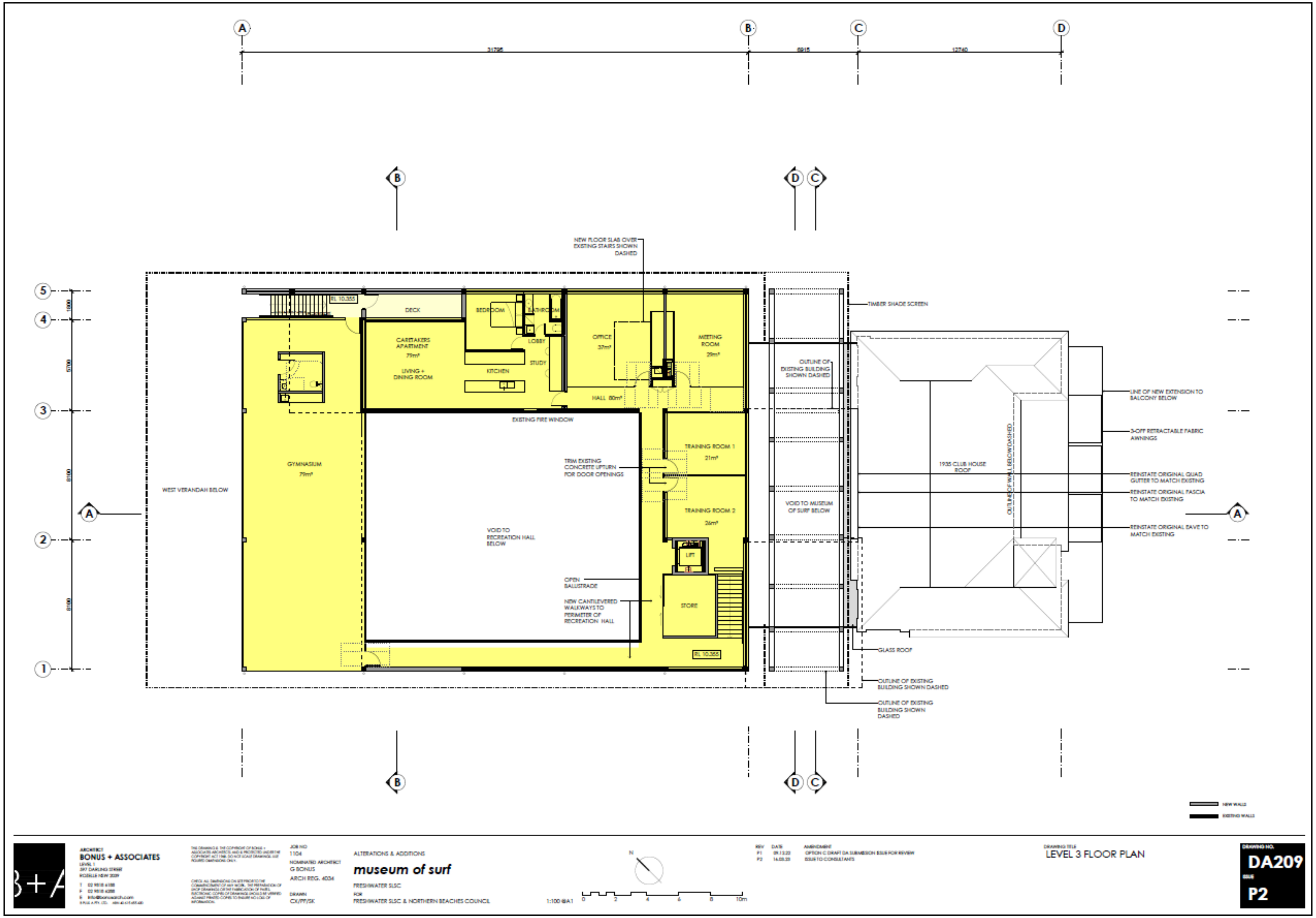
4.2 The Proposal



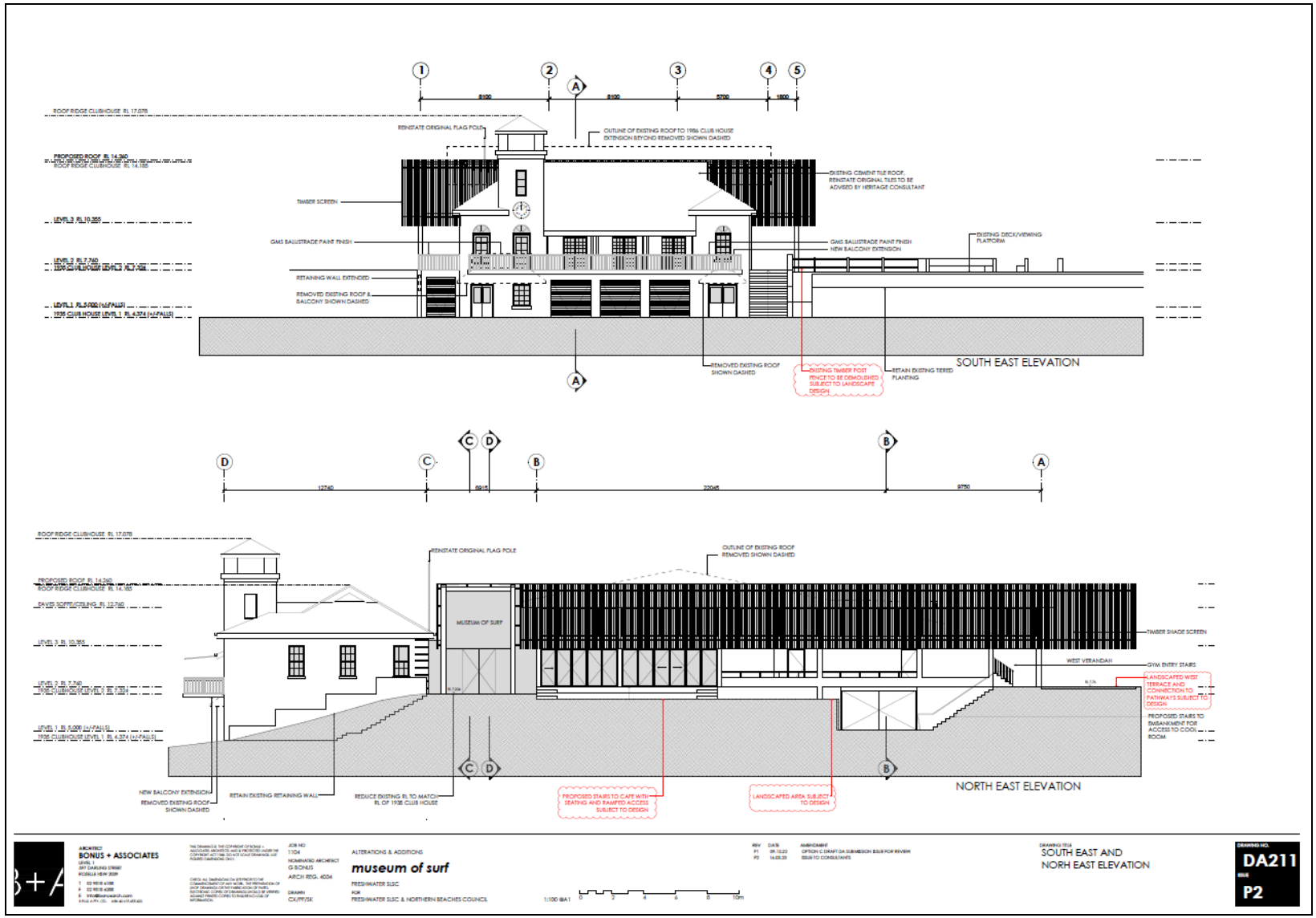

BOUNDARY OF JUNE 2022 LANDSCAPE MASTERPLAN
SAND DUNES
PUBLIC AMENITIES
THESE AREAS REQUIRE REVISED LANDSCAPE PLAN INFORMED BY THE NEW LEVEL 2 DESIGN
GORE STREET
JUNE 2022 LANDSCAPE MASTERPLAN
FRESHWATER BEACH
EXISTING LEASE BOUNDARY
SAND DUNES
BOUNDARY OF JUNE 2022 LANDSCAPE MASTERPLAN
BONUS + ASSOCIATES
ALTERATIONS & ADDITIONS
museum of surf
FRESHWATER SLSC
FRESHWATER SLSC & NORTHERN BEACHES COUNCIL
SITE PLAN
DA202
P2


A
B
C
D
31795
6915
12740
EXISTING ACCESS ROADWAY AND EMBANKMENT
NEW STAIRS
NEW STAIRS DOTTED OVER
EXISTING CLUB STORAGE
CLUB MALE SHOWERS
GARBAGE ROOM
REMOVE COLUMN
BULKY WASTE
RESTAURANT BOH
NEW DUMBWAITER LIFT
EXISTING VEHICULAR ACCESS
CLUB FEMALE SHOWERS
CLUB FEMALE LOCKERS
CLUB FEMALE TOILET
CLUB MALE TOILET
NEW AMBULANT TOILETS
CLUB MALE LOCKERS
IRB STORE + WORKSHOP
RL 5.500 COS
PASSAGE TO BEACH
RETAIN EXISTING STAIRS TO BEACH
CLOTHING STORE
RL 4.500
BEACH INSPECTOR & FIRST AID 23m²
FIRST AID
NEW BALCONY EXTENSION ABOVE DOTTED PROVIDES SHELTER FOR CLUB AND PATROL ACTIVITIES
NEW BASEMENT WALL
OUTLINE OF EXISTING BUILDING SHOWN DASHED
SWITCHBOARD
RL 5.000
BEACH ACCESS TUNNEL 1:14
NEW HANDRAIL
IRB STORAGE
EXISTING CRAFT STORAGE
ACCESS TO BEACH TUNNEL
NEW LIFT
LIFT
EXISTING FOOTING BEAMS SHOWN DASHED
EXISTING STAIR UP TO FOYER
NIPPERS STORE
STORAGE
PATROL ROOM 6m²
ADDITIONAL STORAGE 1
EXISTING BOAT STORAGE
EXISTING CRAFT STORAGE
BOARD STORE
NEW BASEMENT WALL
EXISTING BASEMENT WALL
1
2
3
4
5
ARCHITECT
BONUS + ASSOCIATES
ALTERATIONS & ADDITIONS
museum of surf
FRESHWATER SLSC
FOR
FRESHWATER SLSC & NORTHERN BEACHES COUNCIL
1:100 @A1
AMENDMENT
OPTION C DRAFT DA SUBMISSION ISSUE FOR REVIEW
ISSUE TO CONSULTANTS
LEVEL 1 FLOOR PLAN
DA207
P2


EXISTING ROAD AND PATHWAY
EXISTING FLAG POLE
EXISTING KOPPERS LOG RETAINING WALL AND VEGETATION
EXISTING SEATING & BENCH VIEWING AREA
EXISTING SAND DUNES AND PLANTING
NORTH GRASSED AREA
EXTENT OF PROPOSED ROOF ABOVE SHOWN DOTTED
EXTENT OF PROPOSED SHADE STRUCTURE ABOVE SHOWN DOTTED
NEW STAIRS
EXISTING WALKWAY CONNECTION TO LANDSCAPE SUBJECT TO DESIGN
OUTLINE OF EXISTING BUILDING SHOWN DASHED
REMOVE GARDEN BED, LANDSCAPE SUBJECT TO DESIGN
RETAIN EXISTING STEPPED WALL
CONNECT EXISTING STAIR TO NORTH VERANDAH
GYM ENTRY
NORTH VERANDAH
FEMALE TOILET
MALE TOILET
UNISEX DISABLED
CAFE 40m²
REMOVED ROOF BELOW SHOWN DASHED
OUTLINE OF EXISTING BALCONY SHOWN DASHED
NEW BALCONY EXTENSION
TIMBER DECKING
GMS BALUSTRADE PAINT FINISH
OUTLINE OF EXISTING BUILDING SHOWN DASHED
KITCHEN EXHAUST PROVISION DOTTED
KITCHEN 45 m²
ELECTRICAL
MUSEUM OF SURF 144m²
FRESHWATER ROOM
REMOVE BRICKED UP BLIND WINDOW AND REINSTATE ORIGINAL TIMBER WINDOW
3-OFF RETRACTABLE FABRIC AWNINGS
LANDSCAPED WEST TERRACE AND CONNECTION TO PATHWAYS SUBJECT TO DESIGN
WEST VERANDAH
FSLSC OFFICE & RECEPTION 24m²
LOCKABLE ROLLER SHUTTER DOORS FROM ABOVE SHOWN DOTTED
REMOVE FACE OF WALL AND REINSTATE ORIGINAL FACADE
REMOVE DOUBLE DOOR WAY TO REINSTATE ORIGINAL WINDOW AND BRICK WALL
BADMINTON
RECREATION HALL 304m²
BADMINTON
RESTAURANT 168 m² (SEATING + KITCHEN)
SEATING AREA 123 m²
OUTSIDE TERRACE AREA 85m²
LIFT
TABLE & CHAIR STORE
DEMOLISH EXISTING FLOOR LEVEL TO MATCH 1935 CLUB HOUSE RL
REMOVED ROOF BELOW & EXISTING BALCONY SHOWN DASHED
REMOVE EXISTING BAR COUNTER AND REINSTATE DOOR FRAME AND ORIGINAL DOOR
SWITCHBOARD
SOUTH VERANDAH
GMS BALUSTRADE PAINT FINISH
EXTENT OF PROPOSED ROOF ABOVE SHOWN DOTTED
OUTLINE OF EXISTING BUILDING SHOWN DASHED
TIMBER DECKING
FALL TO BEACH
MEMBERS TERRACE
SOUTH GRASSED AREA
ARCHITECT BONUS + ASSOCIATES
ALTERATIONS & ADDITIONS
museum of surf
FRESHWATER SLSC
FOR FRESHWATER SLSC & NORTHERN BEACHES COUNCIL
LEVEL 2 FLOOR PLAN
DA208
P2



DECK
BEDROOM
CARETAKERS APARTMENT 79m²
LIVING + DINING ROOM
KITCHEN
LOBBY
STUDY
OFFICE 37m²
MEETING ROOM 29m²
HALL 80m²
EXISTING FIRE WINDOW
GYMNASIUM 79m²
WEST VERANDAH BELOW
VOID TO RECREATION HALL BELOW
TRAINING ROOM 1 21m²
TRAINING ROOM 2 26m²
LIFT
STORE
OPEN BALUSTRADE
TIMBER SHADE SCREEN
1935 CLUB HOUSE ROOF
VOID TO MUSEUM OF SURF BELOW
GLASS ROOF
BONUS + ASSOCIATES
ALTERATIONS & ADDITIONS
museum of surf
FRESHWATER SLSC
FRESHWATER SLSC & NORTHERN BEACHES COUNCIL
LEVEL 3 FLOOR PLAN
DA209
P2


SOUTH EAST ELEVATION
NORTH EAST ELEVATION
BONUS + ASSOCIATES
museum of surf
SOUTH EAST AND
NORTH EAST ELEVATION
DA211
P2

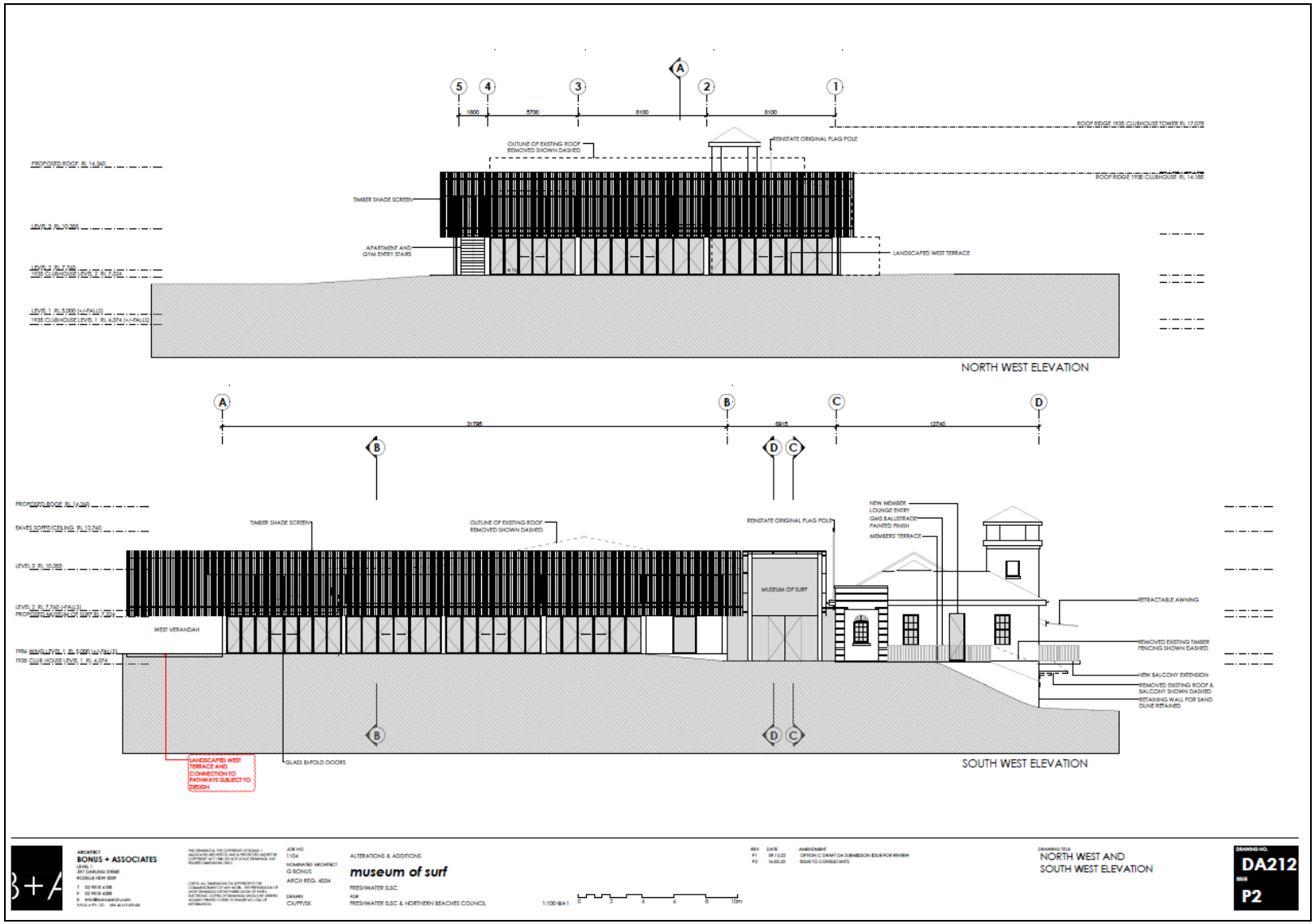
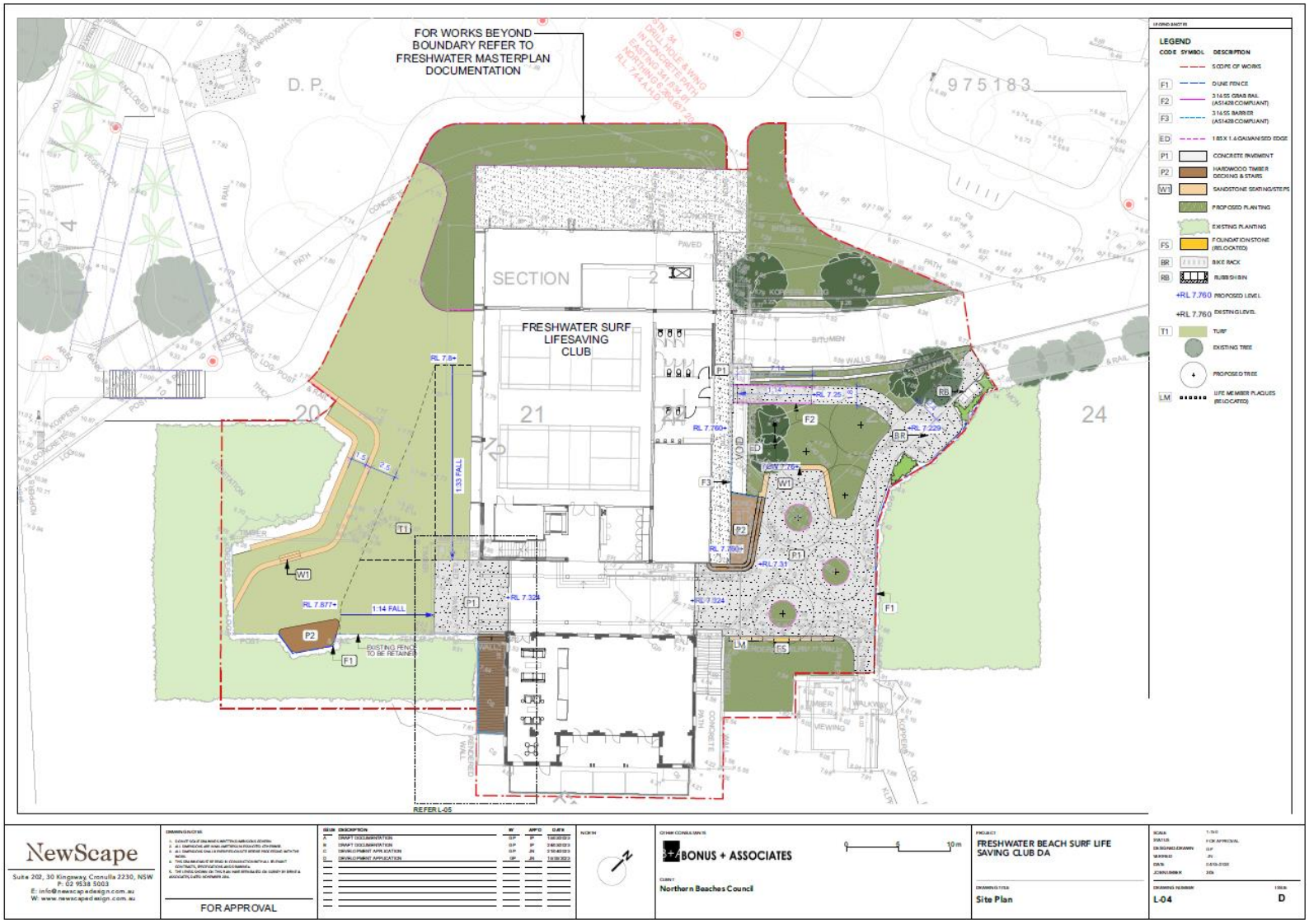
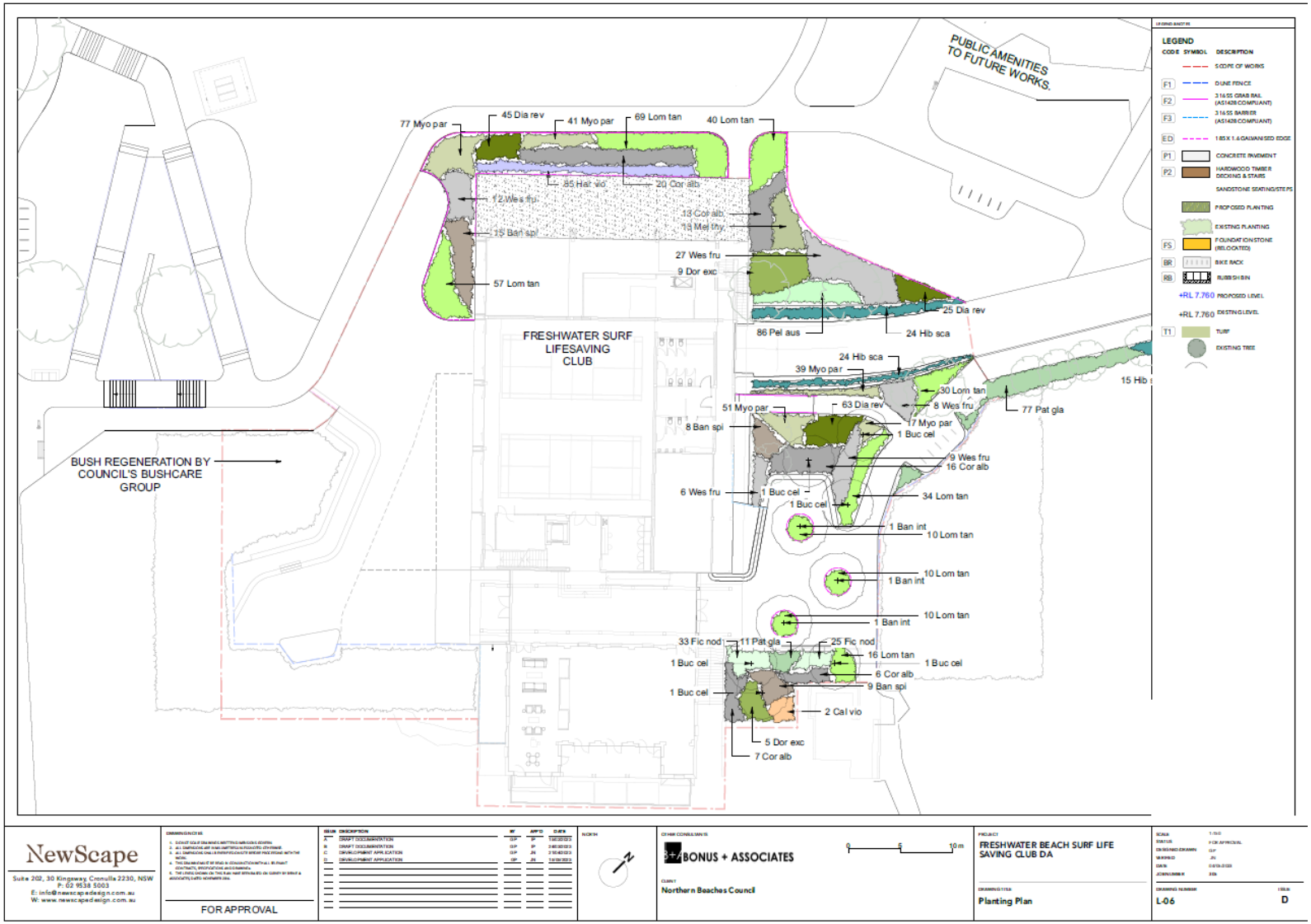


Figure 4: Site Analysis Plan, Proposed Site Plan, Proposed Level Plans & Proposed Elevations (pages +9 through 15).


FOR WORKS BEYOND BOUNDARY REFER TO FRESHWATER MASTERPLAN DOCUMENTATION
FRESHWATER SURF LIFESAVING CLUB
SECTION
D. P. 975183
LEGEND
SCOPE OF WORKS
DUNE FENCE
316SS GRAB RAIL (AS1428 COMPLIANT)
316SS BARRIER (AS1428 COMPLIANT)
1.85 X 1.4 GALVANISED EDGE
CONCRETE PAVEMENT
HARDWOOD TIMBER DECKING & STAIRS
SANDSTONE SEATING/STEPS
PROPOSED PLANTING
EXISTING PLANTING
FOUNDATION STONE (RELOCATED)
BIKE RACK
RUBBISH BIN
+RL 7.760 PROPOSED LEVEL
+RL 7.760 EXISTING LEVEL
TURF
EXISTING TREE
PROPOSED TREE
LIFE MEMBER PLAQUES (RELOCATED)
1:33 FALL
1:14 FALL
EXISTING FENCE TO BE RETAINED
REFER L-05
NewScape
Suite 202, 30 Kingsway Cronulla 2230, NSW
P: 02 9538 5003
E: info@newscapedesign.com.au
W: www.newscapedesign.com.au
FOR APPROVAL
BONUS + ASSOCIATES
Northern Beaches Council
FRESHWATER BEACH SURF LIFE SAVING CLUB DA
Site Plan
L-04
D


PUBLIC AMENITIES TO FUTURE WORKS.
FRESHWATER SURF LIFESAVING CLUB
BUSH REGENERATION BY COUNCIL'S BUSHCARE GROUP
77 Myo par
45 Dia rev
41 Myo par
69 Lom tan
40 Lom tan
85 Hal vid
20 Cor alb
12 Wes fru
13 Cor alb
15 Ban spi
15 Mel thy
27 Wes fru
9 Dor exc
57 Lom tan
25 Dia rev
86 Pel aus
24 Hib sca
24 Hib sca
39 Myo par
30 Lom tan
8 Wes fru
77 Pat gla
51 Myo par
63 Dia rev
17 Myo par
8 Ban spi
1 Buc cel
9 Wes fru
16 Cor alb
6 Wes fru
1 Buc cel
1 Buc cel
34 Lom tan
1 Ban int
10 Lom tan
10 Lom tan
1 Ban int
10 Lom tan
1 Ban int
33 Fic nod
11 Pat gla
25 Fic nod
1 Buc cel
16 Lom tan
1 Buc cel
6 Cor alb
1 Buc cel
9 Ban spi
2 Cal vio
5 Dor exc
7 Cor alb
LEGEND
CODE SYMBOL DESCRIPTION
SCOPE OF WORKS
DUNE FENCE
316SS GRAB RAIL (AS1428 COMPLIANT)
316SS BARRIER (AS1428 COMPLIANT)
165X1.6GALVANISED EDGE
CONCRETE PAVEMENT
HARDWOOD TIMBER DECKING & STAIRS
SANDSTONE SEATING/STEPS
PROPOSED PLANTING
EXISTING PLANTING
FOUNDATION STONE (RELOCATED)
BIKE RACK
RUBBISH BIN
+RL 7.760 PROPOSED LEVEL
+RL 7.760 EXISTING LEVEL
TURF
EXISTING TREE
NewScape
Suite 202, 30 Kingsway Cronulla 2230, NSW
P: 02 9538 5003
E: info@newscapedesign.com.au
W: www.newscapedesign.com.au
FOR APPROVAL
BONUS + ASSOCIATES
Northern Beaches Council
FRESHWATER BEACH SURF LIFE SAVING CLUB DA
Planting Plan
L-06
D

Plant List							
ID	**Qantity**	**Common Name**	**Botanical Name**	**Scheduled Size (m)**	**Mature Height (m)**	**Mature Spread (m)**	**Plant Density/m2**
Trees							
Ban int	3	Coastal Banksia	Banksia integifolia	100L	5 - 10m	3.5 - 6m	As Shown
Buc cel	6	Ivory Curl Tree	Buckinghamia celsissima	100L	5 - 10m	3.5 - 6m	
Shrubs							
Ban spi	32	Hairpin Banksia	Banksia spinulosa	200mm	0.9 - 1.5m	0.9 - 1.2m	1
Cor alb	62	White Correa	Correa alba	200mm	0.9 - 1.5m	0.9 - 1.2m	1
Dor exc	14	Gymea Lily	Doryanthes excelsa	5L	1.5 - 3m	1.2 - 2.0m	0.7
Mel thy	13	Thyme Honey-myrtle	Melaleuca thymifolia	140mm	0.75 - 0.9m	0.6 - 0.9m	1
Wes fru	62	Coastal Rosemary	Westringia fruticosa	200mm	0.9 - 1.5m	0.9 - 1.2m	1
Grasses/Herbs							
Dia rev	133	Little Rev Flax Lily	Dianella revoluta 'Little Rev'	140mm	0.5m	0.5m	5
Fic nod	155	knobby club-rush	Ficinia nodosa	140mm	1m	1m	5
Lom tan	276	Mat rush	Lomandra longifolia 'Tanika'	140mm	0.6m	0.6m	3
Pat gla	98	Bugulbi (Cadigal)	Patersonia glabrata	140mm	0.6 - 0.75m	0.3 - 0.6m	3
Pel aus	86	Coastal Geranium	Pelargonium australe	140mm	0.3 - 0.45m	0.0 - 0.3m	3
Climbers							
Har vio	85	Vine Lilac Combination	Hardenbergia violacea 'Happy Wanderer'	140mm	1.5 - 3m	2.0 - 3.5m	4
Hib sca	63	Snake Vine	Hibbertia scandens	140mm	0.0 - 0.3m	3.5 - 6m	5
Myo par	225	Carpet Spreading Myoporum	Myoporum parvifolium	140mm	0.45 - 0.6m	0.9 - 1.2m	5
Total	**1313**						

Figure 5: Pages 16 thru 18 - Landscape Concept Plan, Issue D, dated 4th May 2023.

4.3 Tree Location & Tree/Site Images

Trees plotted with yellow centres locations are approximate as they were not plotted on the site survey provided.

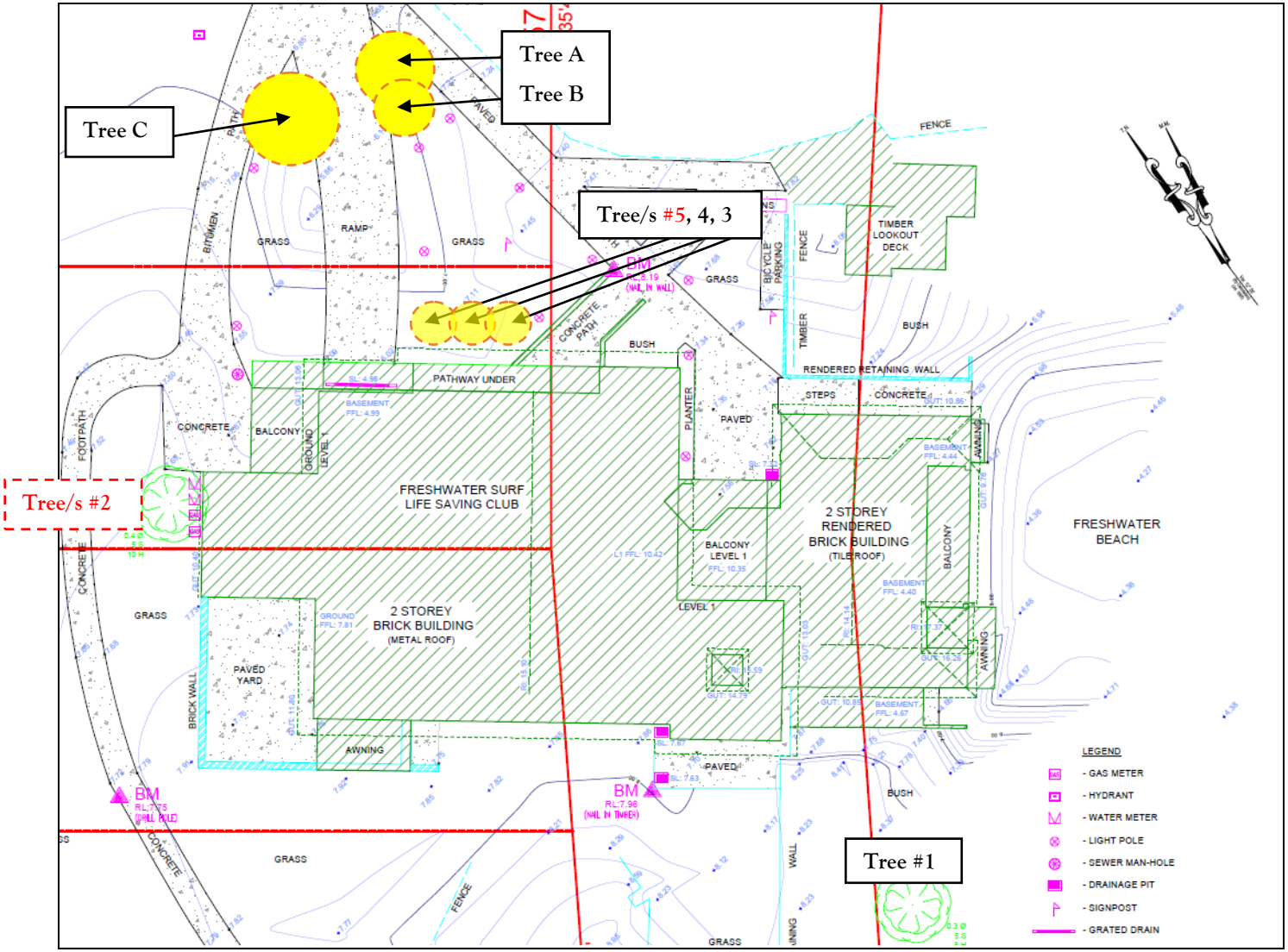


Figure 6: Above & previous page confirms the location of the discussed trees.

Figure 7: Illustrates the lo0cation & condition of Tree #1, assessed to be of high significance & retention values.


2023/03/18 11:46

Figure 8: Previous page & above illustrates the trees/vegetation that makes up Tree/s #2. Note; above Banksia integrifolia is less than 2.00m from approved building.

Figure 9: Illustrates the location & condition of Tree 33, Tree #4 & Tree #5.

Figure 10L Illustrates the location & condition of Tree #A, Tree #B & Tree #C.

4.4 The Tree – Summary Table

Read this table in conjunction with Appendix A–Common Arboreal Terms

Trees Recommended to be replaced	Trees Recommended for retention
Exempt species	Trees retainable but of low amenity

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Structure	Significance/ Retention Values	Comments
1	***Banksia integrifolia*** *Coast Banksia*	<9.00	<9.50	0.40	4.80	2.63	Mature	Fair to Good & Fair to Good	Appears sound	High/ High	**Retain, Protect & Manage:**
2	***Banksia integrifolia*** *Coast Banksia* ***Banksia serrata*** *Old Man Banksia* ***Schefflera arboricola*** *Taiwan Umbrella Tree*	<8.00	<8.50	0.37	4.44	2.61	Mature	Good & Good	Appears sound	High/ High	***Banksia serrata*** **is exempt from protection by location (<2.00m from approved building) &** ***Schefflera arboricola*** **is exempt by species.**
3	***Banksia integrifolia*** *Coast Banksia*	<5.00	<3.50	0.20	2.40	1.85	Semi Mature	Fair to Good & Fair to Good	Appears sound	High/ High	**Retain, Protect & Manage:**

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Structure	Significance/ Retention Values	Comments
4	***Banksia integrifolia*** *Coast Banksia*	<6.00	<4.50	0.27	3.24	1.91	Semi Mature	Fair to Good & Fair to Good	Appears sound	High/ High	**Retain, Protect & Manage:**
5	***Banksia integrifolia*** *Coast Banksia*	<5.50	<3.00	0.16	2.00	1.79	Semi Mature	Fair & Fair	Appears sound	High/ High	**Replace:** **Banksia integrifolia is likely exempt from protection by location (<2.00m from approved building). If not exempt, the tree is supported to be replaced on the grounds of conflict with new built form infrastructure (pedestrian ramp plus vehicle/equipment access ramp).**
A	***Banksia integrifolia*** *Coast Banksia*	<7.00	<7.00	0.35	4.20	2.34	Mature	Good & Good	Appears sound	High/ High	**Retain, Protect & Manage:**
B	***Banksia integrifolia*** *Coast Banksia*	<4.00	<3.00	0.23	2.76	1.88	Mature	Fair & Fair	Suppressed /Struggling	High/ High	**Retain, Protect & Manage:**
C	***Banksia integrifolia*** *Coast Banksia*	<7.50	<8.00	0.61	7.32	2.74	Mature	Good & Good	Appears sound	High/ High	**Retain, Protect & Manage:**

5 Discussion with Preliminary Site Specific "Plan of Tree Management"

The subject site/s is Land Zoned "RE1" Public Recreation.

Multiple, same land zoning lots share common boundaries with the subject site/s built structures.

Works proposed within the subject site are *Alterations & additions to the FSLSC & surrounds*. No impact to trees vegetation not discussed within this document but near the as proposed works is interpreted.

Tree 1: This tree is confirmed to be a locally indigenous species with an approximate age of less than fifty years (50). There is no valid Horticulture or Arboriculture reason to condemn the tree. It has simply been assessed as being of High Retention & Significance values relative to the nearby as proposed works.

This tree is specified to have standard Tree Protection instated to isolate it from any potential to be disturbed by the as proposed works. This specification is compliant with the *Australian Standard (AS4970-2009 Protection of trees on development sites.)*. See Chapters 3, 4 & 5.

Tree/s #2: These trees are incompatible with the as proposed works. Simply, they are located where the below & above ground western end of the surf club footprint is to be expanded.

These trees will be specified to be replaced within the as proposed landscape concept plan

Tree #3: This tree is part of a group of three (3) trees known as Tree #3, Tree #4 & Tree #5. This tree is confirmed to be a locally indigenous species with an approximate age of less than fifteen years (15). There is no valid Horticulture or Arboriculture reason to condemn the tree. It has simply been assessed as being of High Retention & Significance values relative to the nearby as proposed works.

This tree will be specified to have standard Tree Protection instated to isolate it (as a group of three (3) trees) from any potential to be disturbed by the as proposed works.

This tree is specified to have standard Tree Protection instated to isolate it from any potential to be disturbed by the as proposed works. This specification is compliant with the *Australian Standard (AS4970-2009 Protection of trees on development sites.)*. See Chapters 3, 4 & 5.

No canopy pruning is envisaged as being necessary. In the event canopy pruning is required the retained Project Arborist is to prepare the specification in a manner totally compliant with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*. See Chapter 7.

Tree #4: This tree is part of a group of three (3) trees known as Tree #3, Tree #4 & Tree #5. This tree is confirmed to be a locally indigenous species with an approximate age of less than fifteen years (15). There is no valid Horticulture or Arboriculture reason to condemn the tree. It has simply been assessed as being of High Retention & Significance values relative to the nearby as proposed works.

This tree will be specified to have standard Tree Protection instated to isolate it (as a group of three (3) trees) from any potential to be disturbed by the as proposed works.

This tree is specified to have standard Tree Protection instated to isolate it from any potential to be disturbed by the as proposed works. This specification is compliant with the *Australian Standard (AS4970-2009 Protection of trees on development sites.)*. See Chapters 3, 4 & 5.

No canopy pruning is envisaged as being necessary. In the event canopy pruning is required the retained Project Arborist is to prepare the specification in a manner totally compliant with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*. See Chapter 7.

Tree #5: This tree is part of a group of three (3) trees known as Tree #3, Tree #4 & Tree #5. This tree is confirmed to be a locally indigenous species with an approximate age of less than fifteen years (15). There is no valid reason by virtue with conflict of new infrastructure that this tree cannot be replaced. Simply, the tree cannot be retained by virtue of the as proposed new proposed infrastructure, i.e., the pedestrian ramp plus vehicle/equipment access ramp.

Tree #A: This tree is part of a group of two (2) trees known as Tree #A & Tree #B. This tree is confirmed to be a locally indigenous species with an approximate age of less than twenty years (20). There is no valid Horticulture or Arboriculture reason to condemn the tree. It has simply been assessed as being of High Retention & Significance values relative to the nearby as proposed works.

This tree will be specified to have standard Tree Protection instated to isolate it (as a group of two (2) trees) from any potential to be disturbed by the as proposed works.

This tree is specified to have standard Tree Protection instated to isolate it from any potential to be disturbed by the as proposed works. This specification is compliant with the *Australian Standard (AS4970-2009 Protection of trees on development sites.)*. See Chapters 3, 4 & 5.

No canopy pruning is envisaged as being necessary. In the event canopy pruning is required the retained Project Arborist is to prepare the specification in a manner totally compliant with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*. See Chapter 7.

Tree #B: This tree is part of a group of two (2) trees known as Tree #A & Tree #B. This tree is confirmed to be a locally indigenous species with an approximate age of less than twenty years (20). There is no valid Horticulture or Arboriculture reason to condemn the tree. It has simply been assessed as being of High Retention & Significance values relative to the nearby as proposed works.

This tree will be specified to have standard Tree Protection instated to isolate it (as a group of two (2) trees) from any potential to be disturbed by the as proposed works.

This tree is specified to have standard Tree Protection instated to isolate it from any potential to be disturbed by the as proposed works. This specification is compliant with the *Australian Standard (AS4970-2009 Protection of trees on development sites.)*. See Chapters 3, 4 & 5.

No canopy pruning is envisaged as being necessary. In the event canopy pruning is required the retained Project Arborist is to prepare the specification in a manner totally

compliant with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*. See Chapter 7.

Tree #C: This tree is a stand-alone tree specimen. This tree is confirmed to be a locally indigenous species with an approximate age of less than twenty-five years (25). There is no valid Horticulture or Arboriculture reason to condemn the tree. It has simply been assessed as being of High Retention & Significance values relative to the nearby as proposed works.

This tree will be specified to have standard Tree Protection instated to isolate it (as a group of two (2) trees) from any potential to be disturbed by the as proposed works.

This tree is specified to have standard Tree Protection instated to isolate it from any potential to be disturbed by the as proposed works. This specification is compliant with the *Australian Standard (AS4970-2009 Protection of trees on development sites.)*. See Chapters 3, 4 & 5.

No canopy pruning is envisaged as being necessary. In the event canopy pruning is required the retained Project Arborist is to prepare the specification in a manner totally compliant with the *Australian Standard (AS4373-2007 Pruning of amenity trees)*. See Chapter 7.

Below is a list of considered to be suitable to the subject site replacement specie trees:

- *Callitris rhomboidea (Port Jackson Cypress)*
- *Glochidion ferdinandi (Cheese Tree)*
- *Banksia integrifolia (Coast Banksia)*
- *Acacia binervia (Coast Myall)*
- *Backhousia citriodora (Lemon Scent Myrtle)*
- *Melaleuca linariifolia (Snow in Summer)*

Specifications for Supported Outcomes:

- **The trees proposed to be replaced must be removed by persons that abide at all times to the "*WorkCover NSW Industry Code of Practice, (1998)*".**
- **Any NBC specified replacement trees are to be sourced from growers/suppliers whose stock meets the production benchmarks of the *Australian Standard (AS2303.2015 Tree stock for landscape use)* or *NATSPEC* specification for the production of quality container produced trees.**
- **Any NBC specified new tree specimens are to be professionally planted & maintained for a minimum period of one (1) full active growing season in the Sydney Environment.**

6 Conclusions

- Whilst there is no challenge that two (2) Tree /s #2 discussed trees are of High Significance by size & species they are simply not able to be viably retained with the subject site being redeveloped to include a western end of clubhouse expanded footprint.

- The trees identified as able to be viably retained, protected & managed by information provided are very unlikel to to adversely impacted in any manner relative to individual tree's Useful Life Expectancy with intensive management.
- Relative to the information as presented the GMW *consultancy* supports the proposed redevelopment of the subject site as per documentation reviewed.

If you have any questions relating to this report or implementation of recommendations, please contact Kyle Hill on 0412-221-962.

Kyle A. Hill

[AQF level 5 & AQF level 8 Registered with Arboriculture Australia (Reg #1884) Practicing & Consulting Arborist]

7 Limitations on the use of this report

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, & directly attached to that submission, report or presentation.

8 Assumptions

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible; however, Growing My Way Tree Services, can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

Information contained in this report covers only the trees that were examined & reflects the condition of the trees at the time of inspection.

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

9 Recommended References

Barrell, J. 1993. '*Preplanning Tree Surveys: Safe Useful Life Expectancy (SULE) is the Natural Progression*', Arboricultural Journal 17:1, February 1993, pp.

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Dr. G. Watson & Dr. D. Neely, '*Trees & Building Sites',* LSA Illinois USA 1995

Dr. N. Matheny & Dr. J.R. Clark, '*Trees & Development',* ISA Illinois USA 1998

Phillip J. Craul, '*Urban Soil in Landscape Design',* J. Wiley & Sons, New York USA 1992

10 Selected Bibliography

Hitchmough, J.D. 1994. '*Urban Landscape Management*', Inkata Press, Sydney.

Mattheck, C. & Breloar, H. 1994 '*Body Language of Trees*', The Stationery Office, London.

AS 4373:2007, '*Pruning of Amenity Trees*', Standards Australia.

AS 4970:2009, 'Protection of Trees on Development Sites", Standards Australia.

BS 5837:2005, '*Guide for Trees in Relation to Construction*', Standards Board, UK.

Appendix A – Glossary

Glossary of common Arboreal terms

Age: **I** *Immature* refers to a refers to a well-established but juvenile tree

SM *Semi-mature* refers to a tree at growth stages between immaturity & full size

M *Mature* refers to a full sized tree with some capacity for further growth

LM *Late Mature* refers to a full sized tree with little capacity for growth that is not yet about to enter decline

OM *Over-mature* refers to a tree about to enter decline or already declining

LS *Live Stag* refers to a tree in a significant state of decline. This is the last life stage of a tree prior to death

Hth & Vig Health & Vigour

Health refers to the tree's form & growth habit, as modified by its environment (aspect, suppression by other tree, soils) & the state of the scaffold (ie. trunk & major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health & it is possible for a tree to be healthy but in poor condition/vigour. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Vigour refers to the tree's growth rate/condition as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion & the degree of dieback. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Useful Life Expectancy (ULE) refers to any individual tree specimen's potential life

expectancy (viability) based on VTA assessment, three groups are described,

Short = Less than Fifteen years

Medium = Fifteen – Twenty-five years

Long = more than Twenty-five years

Significant diameter roots are defined as those being greater than 0.05m/50mm in diameter.

Diameter at Breast Height (DBH) refers to the tree trunk diameter at breast height (1.4 metres above ground level)

Structural Root Zone (SRZ) refers to a radial offset which relates to tree stability. This zone is presumed to be main location of the tree's structural support roots. It is calculated using the formula *SRZ radius= (D x 50)$^{0.42}$ x 0.64.*

Primary Root Zone (PRZ) refers to a radial offset of ten (10) times the trunk DBH measured from the centre of the trunk. This zone often contains a significant amount of (but by no means all of a tree's) fine, non-woody roots required for uptake of nutrients, oxygen & water.

Tree Protection Zone (TPZ) is ideally a "No Go Zone" surrounding a tree to aid in its ability to cope with disturbances associated with construction works. **TPZ = DBH x 12**. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death & the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the TPZ.

A TPZ is required for each tree or group of trees within five metres (unless otherwise specified) of building envelopes.

Stem/bark inclusion refers to a genetic fault in the tree's structure. This fault is located at the point where the stems/branches meet. In the case of an inclusion this point of attachment is potentially weak due to bark obstructing healthy tissue from joining together to strengthen the joint.

Decay refers to the break down tissues within the tree. There are numerous types of decay that affect different types of tissues, spread at different rates & have different affect on both the tree's health & structural integrity.

Point of Attachment refers to the point at which a stem/branch etc join.

Dead wood refers to any whole limb that no longer contains living tissues (eg live leaves &/or bark). Some dead wood is common in a number of tree species.

Die back refers to the death of growth tips/shoots & partial limbs. Die back is often an indicator of stress & tree health.

One dimensional crown refers to branching habits & leaves that extend/grow in One direction only. There are many causes for this growth habit such as competition & pruning.

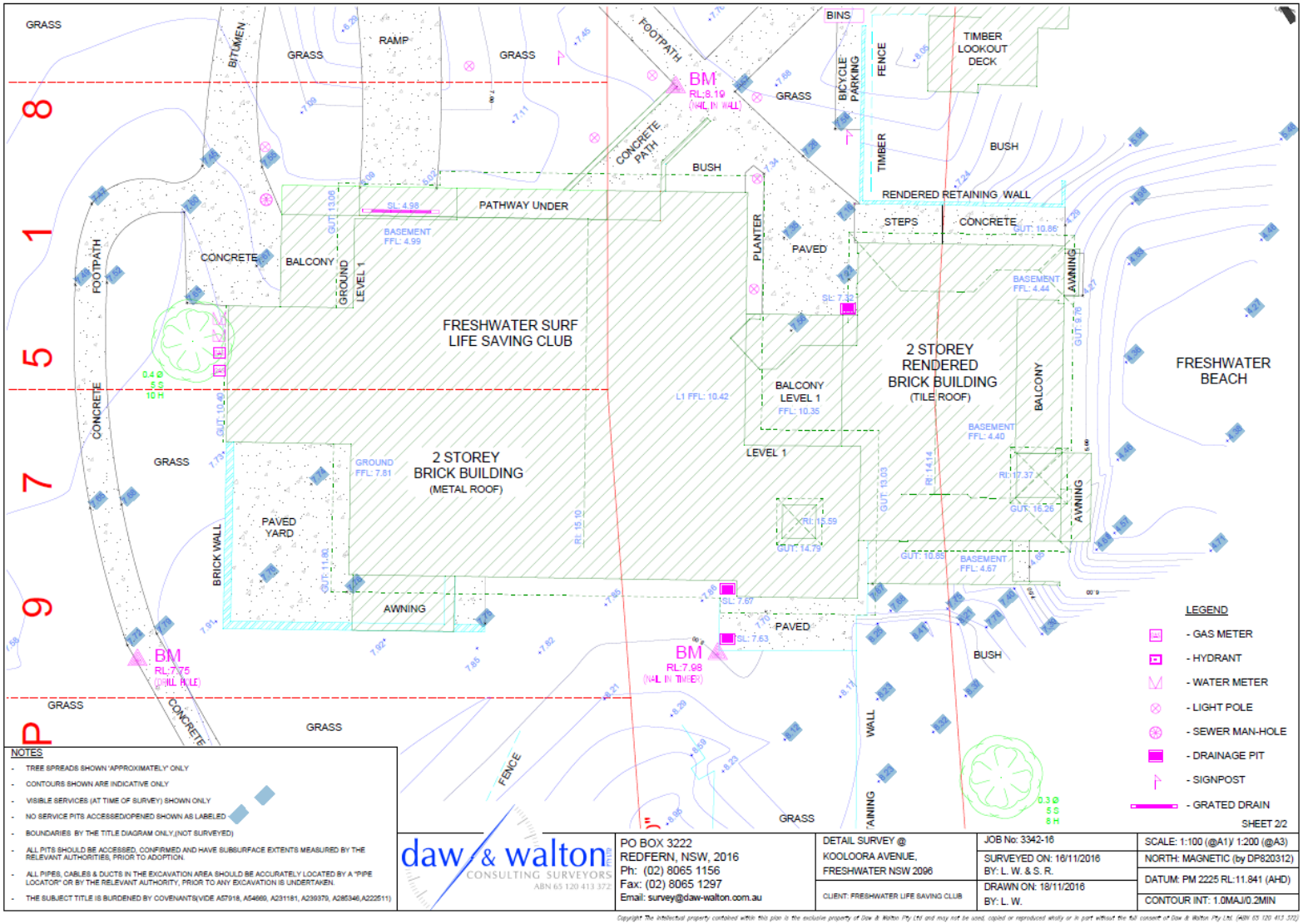
Crown Foliage Density of Potential (CFDP) refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

Epicormic growth/shoots refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

Over Head Powerlines (OHP) Over head electricity wiring.

LVOHP	Low Voltage Over head Powerlines
HVOHP	High Voltage Over head Powerlines
ABC	Aerial Bundled Cable

Appendix B – Site Survey



Appendix C Tree Protection & Management

Tree Protection & Management Prior to Excavation &During Construction

The installation of Tree Protection Zone (TPZ) fencing is to be carried out prior to commencement of all works. The most suitable fencing material is 1.8m tall chain link mesh with 50mm metal pole supports, see **detail 1: tree protection fencing**.

Trunk protection "Tree Guards" are detailed (below) by generic diagram.

A mulch layer of composted leaf & woodchip to a depth of 75mm is required within the TPZ to aid in retention of soil moisture & to protect soil from contaminants. Water is to be applied by handheld or soaker/leaky hose within TPZ as required & in Accordance with Stage 3 Water Restrictions. Watering is to be carried out by either an Arborist or is to form part of the Builder's/Contractor's contract, with recommended fortnightly checks by an Arborist.

There is to be no stock piling of building material (including waste), machinery or any other item within the TPZ of any retained tree. Access to personnel, machinery, & storage of fuel, chemicals, cement or site sheds is prohibited

Regular monitoring of protected trees during development works for unforeseen changes or decline, will aid in the success & longevity of the retained trees.