

PLAN  
SCALE 1:2000

LEGEND

- EXISTING LIMESTONE PATH CENTRELINE
- PROPOSED NEW PATH CENTRELINE



NOT FOR CONSTRUCTION

NO	DATE	ISSUE	BY	CHKD
0	05-04-20	FINAL ISSUE	HS	SS
1	26-04-19	ISSUED FOR COMMENT	SP	SS
DATE	ISSUE	BY	CHKD	

PROJECT NO: 1803-01

- NOTES**
- AERIAL PHOTO TAKEN DECEMBER 2018
  - CONTOURS: 2017 MNG SURVEY

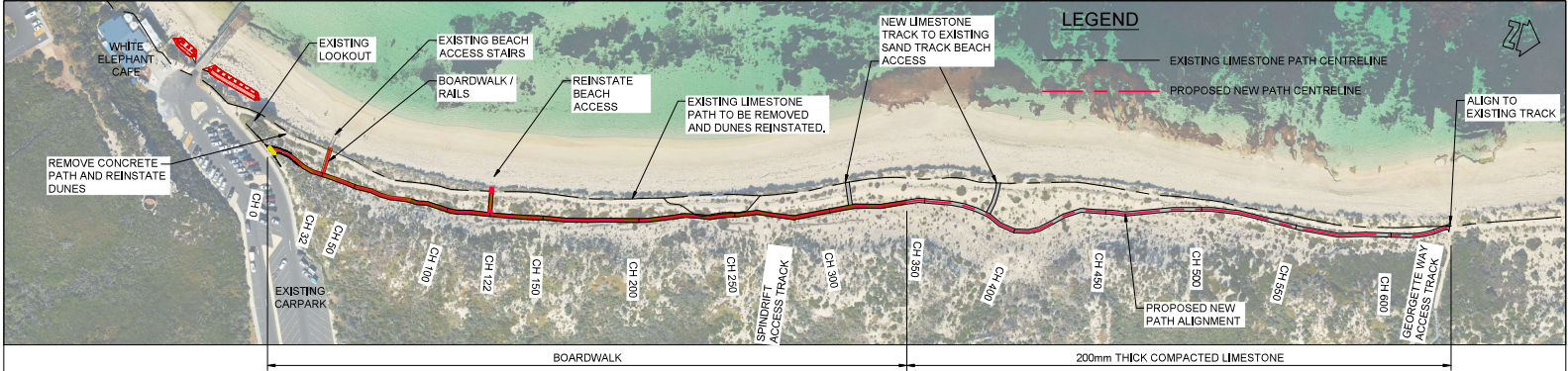
SCALE	1 : 2000
	25 0 100
	METRES
DATUM	AUSTRALIAN HEIGHT DATUM (AHD)
VERTICAL	MAP GRID OF AUSTRALIA, BASED ON GDA94
HORIZONTAL	

NO	NAME	SIGNATURE	DATE
1	PROJECT MANAGER		
2	ENGINEER		
3	CHECKER		
4	APPROVED PROJECT MGR		

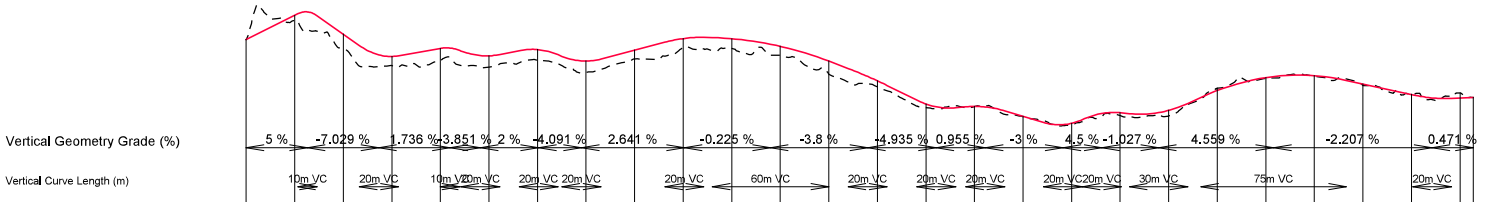
Civil/Structural Consulting Pty Ltd

**SHORE COASTAL**

SHIRE OF AUGUSTA / MARGARET RIVER	
PREVELLY - GNARABUP BEACH	
COASTAL ADAPTATION WORKS	
GENERAL ARRANGEMENT	
DRAWING NUMBER	SC 1803-01-03
REV	0



PLAN  
SCALE 1:2000



DATUM R.L.-1	NATURAL SURFACE	DESIGN CENTRELINE	CHAINAGE
8.566	8.566	8.57	0
9.585	9.585	9.82	25
8.097	8.097	8.65	50
7.227	7.227	7.7	75
7.474	7.474	8.11	100
7.15	7.15	7.73	125
7.558	7.558	8.05	150
6.87	6.87	7.46	175
7.957	7.957	8.02	200
8.17	8.17	8.62	225
8.116	8.116	8.62	250
7.741	7.741	8.22	275
6.81	6.81	7.46	300
6.139	6.139	6.45	325
5.053	5.053	5.25	350
5.118	5.118	5.13	375
4.6	4.6	4.62	400
4.153	4.153	4.26	425
4.667	4.667	4.8	450
4.638	4.638	4.93	475
6.062	6.062	5.94	500
6.556	6.556	6.61	525
6.692	6.692	6.71	550
6.21	6.21	6.29	575
5.752	5.752	5.73	600
5.925	5.925	5.57	625
5.6	5.6	5.6	631.84

LONGITUDINAL SECTION  
HORIZONTAL 1:2000  
VERTICAL 1:200

NO	DATE	ISSUED FOR	BY	CHKD BY
0	05-24-20	FINAL ISSUE	HD	SB
1A	26-04-19	ISSUED FOR COMMENT	SB	SB
1B	DATE	ISSUED FOR	BY	CHKD BY

PROJECT NO: 1803-01

- NOTES**
- AERIAL PHOTO TAKEN DECEMBER 2018
  - CONTOURS: 2017 MNG SURVEY

SCALE 1:2000  
25 0 100  
METRES

DATUM  
VERTICAL AUSTRALIAN HEIGHT DATUM (AHD)  
HORIZONTAL MAP GRID OF AUSTRALIA, BASED ON GDA94

NO	NAME	DATE
1	DESIGNED	
2	CHECKED	
3	ENGINEER'S SIGNATURE	
4	DATE	
5	APPROVED PROJECT MGR	

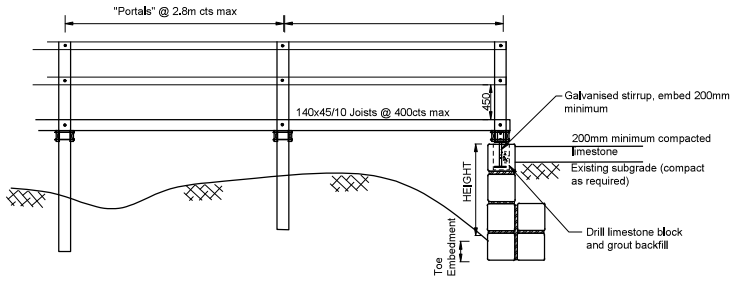
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**SHORE COASTAL**

**NOT FOR CONSTRUCTION**

SHIRE OF AUGUSTA/ MARGARET RIVER  
PREVELLY - GNARABUP BEACH  
COASTAL ADAPTATION WORKS  
PLAN AND SECTION

DRAWING NUMBER **SC 1803-01-04** OF **0**

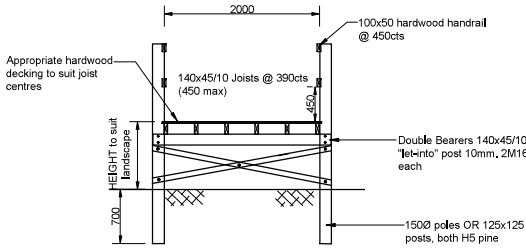


**TYPICAL BOARDWALK LONG SECTION**  
SCALE 1:50

**BOARDWALK/LIMESTONE PATH INTERFACE**  
SCALE 1:50

**AVAILABLE SIZES OF RECONSTITUTED LIMESTONE BLOCKS**

- 1000 x350 x350
- x350 x170
- 500 x350 x350
- x240
- x170
- x350 x110
- x240 x170
- x240 x110
- 350 x350 x170



**TYPICAL BOARDWALK CROSS SECTION**  
SCALE 1:50

BRACING PACKED OUT TO MEET POST FLUSH AND BOLTED USING M10 STAINLESS STEEL (316)  
 WHERE HEIGHT LESS THAN 900 - NOT REQUIRED  
 WHERE HEIGHT 900<1500 - 90X35MGP10  
 WHERE HEIGHT GREATER THAN 1500 - 90X45MGP10 AT 45° TO POST, REPEATED FROM DECK TO GROUND LEVEL

NOTE: Drainage through wall not required unless wall is constructed in poor draining soils

Retained Height	Width at Ground Level (min)	Min Toe Embedment
To 600	350	200
To 1200	700	280

NO SURCHARGE (SOIL BATTER LESS THAN 5°)

Retained Height	Width at Ground Level (min)	Min Toe Embedment
To 700	350	200
To 900	460	250
To 1100	520	280

SURCHARGE (SOIL BATTER UP TO 25°)

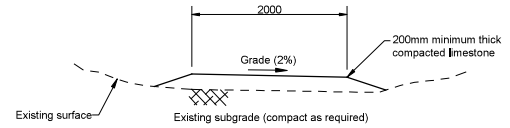
Retained Height	Width at Ground Level (min)	Min Toe Embedment
To 600	350	200
To 800	460	250
To 1000	520	280

**GENERAL NOTES (BOARDWALKS)**

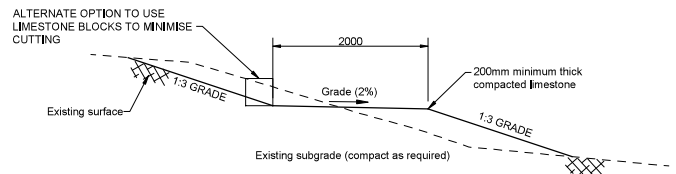
- To be read in conjunction with Drawing SC1803-01-02 (NOTES)
- All fixings grade 316 stainless steel UN.
- All materials supplied by Contractor,
- Minor variations in levels and alignment may be required, exact details to be confirmed onsite,
- Pine in contact with the ground to be H5 treated, all other pine H3 treated.
- Minimum depth of post embedment 700mm.
- Base of excavations for posts to be suitably compacted (equivalent to 7 blows to 300mm penetration with a Standard Penetrometer).
- Where doubt exists for density of post foundation, overexcavate and provide 150mm of 20mm aggregate, hand compacted,
- Hand compact backfill to posts during backfilling.

**GENERAL NOTES LIMESTONE PATHS**

- Geometry of proposed limestone paths to match existing limestone paths (minimum width 2.0m).
- Fully compact path subgrade prior to placement of limestone (minimum 7 blows per 300mm penetration of a Standard Sand Penetrometer).
- Limestone is to be at Optimum Moisture Content for compaction during placement and compaction. Achieve 95% MDD (Modified) dense.
- Minimum depth of limestone 200mm after compaction.
- Proposed limestone type is to match existing limestone type.



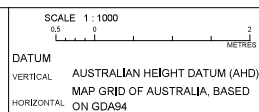
**TYPICAL LIMESTONE PATH DETAIL IN FLAT AREAS**  
SCALE 1:50



**TYPICAL LIMESTONE PATH CUT / FILL AREAS**  
SCALE 1:50

NO	DATE	ISSUED FOR	BY	CHKD
0	05-04-20	FINAL ISSUE	HD	SB
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REV	DATE	ISSUED FOR	BY	CHKD

**NOTES**  
 1. AERIAL PHOTO TAKEN DECEMBER 2018  
 2. CONTOURS: 2017 MNG SURVEY



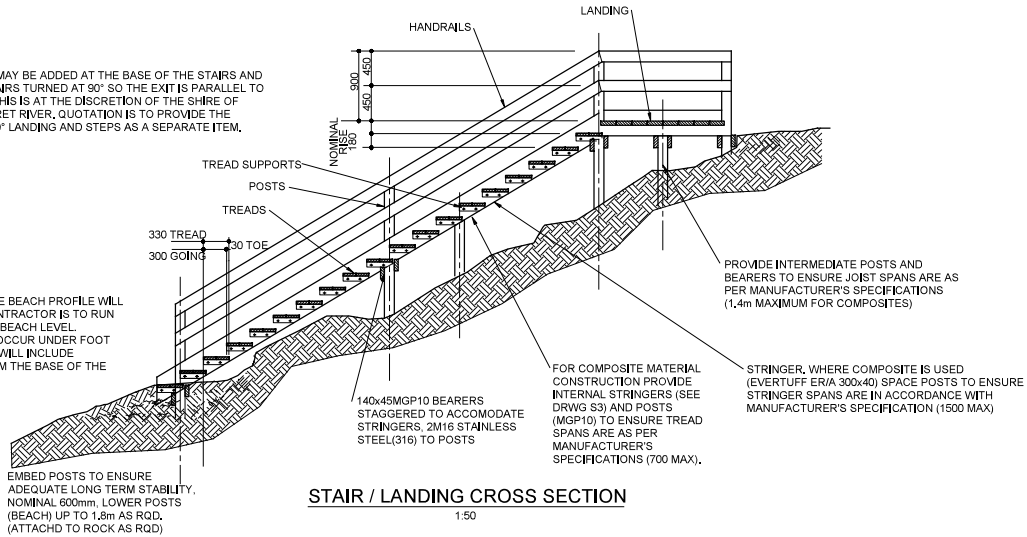
NO	NAME	SIGNATURE	DATE
1	PROJECT MANAGER	[Signature]	
2	ENGINEER	[Signature]	
3	CHECKER	[Signature]	
4	DATE		

**NOT FOR CONSTRUCTION**

SHIRE OF AUGUSTA / MARGARET RIVER  
 PREVELLY - GNARABUP BEACH  
 COASTAL ADAPTATION WORKS  
 TYPICAL DETAILS - SHEET 1

DRAWING NUMBER **SC 1803-01-05** OF **0**

NOTE: A LANDING MAY BE ADDED AT THE BASE OF THE STAIRS AND THE LAST FEW STAIRS TURNED AT 90° SO THE EXIT IS PARALLEL TO THE SHORELINE. THIS IS AT THE DISCRETION OF THE SHIRE OF AUGUSTA MARGARET RIVER. QUOTATION IS TO PROVIDE THE OPTION OF THIS 90° LANDING AND STEPS AS A SEPARATE ITEM.



IT IS IMPORTANT TO NOTE THAT THE BEACH PROFILE WILL BE DYNAMIC, WHERE FEASIBLE CONTRACTOR IS TO RUN THE LAST FEW STAIRS BELOW THE BEACH LEVEL. IT IS LIKELY BEACH EROSION WILL OCCUR UNDER FOOT TRAFFIC, ONGOING MAINTENANCE WILL INCLUDE MAINTAINING A SUITABLE EXIT FROM THE BASE OF THE STAIRS ONTO THE BEACH

**TABLE 1 - MATERIAL CHOICE vs MEMBER SIZES**

MEMBER	DETAILS	JARRAH	TREATED PINE
Post	Evertuff ES/P 125x125	125 square	125 square OR 125 round
Handrail, Top Rail and Mid-Rail	All Evertuff ER/D 140x40	100x50	90x45
Toe-Rail	N APP	N APP	N APP
Stringer	Evertuff ER/A 300x40	250x50	240x45
Joist @ 450cmts	Evertuff ER/D	150x50	140x45
Deck	Everdeck ES-ED 33x165	150x50	140x45
Bearer	2off 140x45MGP10	150x50	2off 140x45
Bracing (if reqd)	90x35MGP10	100x38	90x35
M12 bolts	Stainless Steel, grade 316	316 Stainless	316 Stainless
Minor Fixings	Stainless Steel, grade 316	316 Stainless	316 Stainless

**GENERAL NOTES**

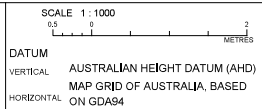
- To be read in conjunction with Drawings 1803-01-02 and 05.
- Stairways and landings to comply with AS1657.
- Maximum number of stairs per flight is 18, add intermediate landing(s) as necessary.
- Measurements shown on plans are approximate only. Contractors to check and confirm relevant dimensions onsite as required.
- All fixings grade 316 stainless steel UON.
- Three material options are provided:
  - Recycled composite timber/plastic,
  - Jarrah and
  - Treated Pine.
 Decision as to what material(s) are to be used is to be made by the Shire of Augusta / Margaret River.
- All materials, including fixings and finishings are to be supplied by Contractor.
- Minor variations in levels and alignment may be required, exact details to be confirmed onsite.
- Nominal tread width 330 (300 going with 30 toe), nominal rise 180.
- Nominal width:
  - Stairs - 1.2m (composite requires 1 internal stringer).
  - Landings - 1.2m.



NO	DATE	ISSUED FOR	BY	CHKD
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1	26-04-19	ISSUED FOR COMMENT	DMOR	SB
2	DATE	ISSUED FOR	BY	CHKD

PROJECT NO: 1803-01

**NOTES**  
 1. AERIAL PHOTO TAKEN DECEMBER 2018  
 2. CONTOURS: 2017 MNG SURVEY



NO	NAME	DATE
1	DESIGNED	
2	CHECKED	
3	ENGINEER'S CHECK	
4	CONTRACTOR'S CHECK	
5	APPROVED PROJECT MGR	

Civil/Structural Consulting Pty Ltd

**SHORE COASTAL**

**NOT FOR CONSTRUCTION**

SHIRE OF AUGUSTA / MARGARET RIVER  
 PREVELLY - GNARABUP BEACH  
 COASTAL ADAPTATION WORKS  
 TYPICAL DETAILS - SHEET 2

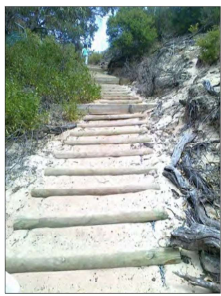
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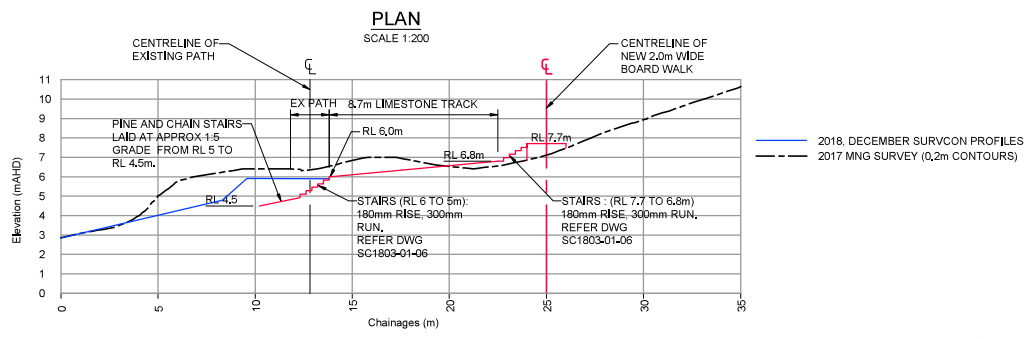


**NOTE:**  
FINAL STAIR LOCATION SUBJECT TO PRE-CONSTRUCTION SURVEY AND CONFIRMATION OF LOCATION BY THE SHIRE

**LEGEND**  
 --- EXISTING LIMESTONE PATH CENTRELINE  
 - - - PROPOSED NEW PATH CENTRELINE



**EXAMPLE PHOTO OF PINE AND CHAIN STAIRS**



**SECTION A**  
SCALE 1:200

NO	DATE	ISSUED FOR	BY	CHKD BY
0	05-04-20	FINAL ISSUE	HS	SS
1	26-04-19	ISSUED FOR COMMENT	SP	SS

**NOTES**  
 1. AERIAL PHOTO TAKEN DECEMBER 2018  
 2. CONTOURS: 2017 MNG SURVEY

SCALE 1:200 @ A3  
 2.5 0 10 METRES  
 DATUM AUSTRALIAN HEIGHT DATUM (AHD)  
 VERTICAL MAP GRID OF AUSTRALIA, BASED ON GDA94  
 HORIZONTAL

PROJECT	DATE	SCALE	DATE
ENGINEER	CHECKED	DATE	
DRAWN	CHECKED	DATE	
APPROVED PROJECT MGR			

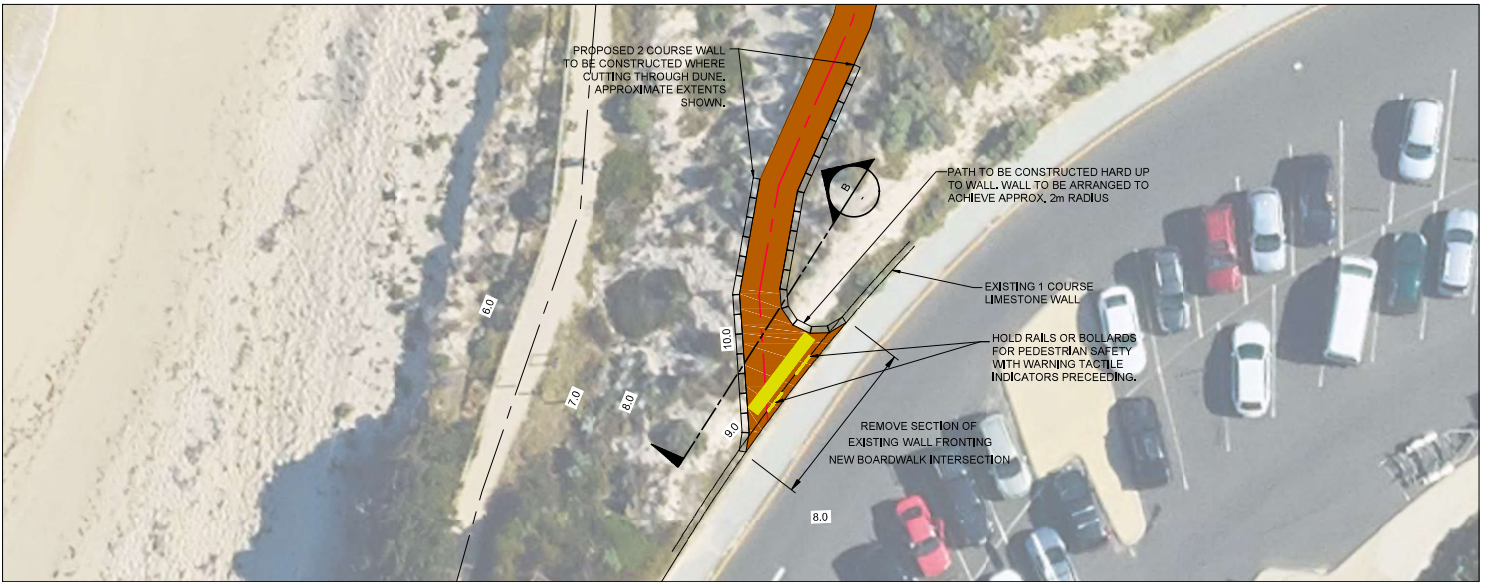
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**SHORE COASTAL**

**NOT FOR CONSTRUCTION**

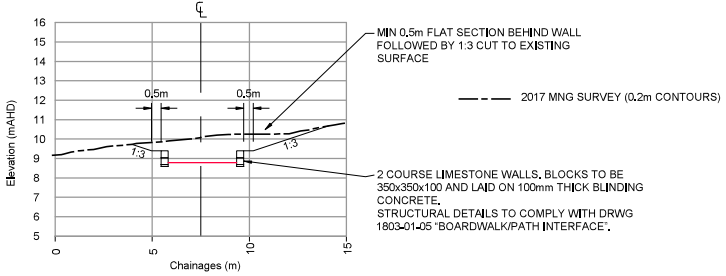
SHIRE OF AUGUSTA/ MARGARET RIVER  
 PREVELLY - GNARABUP BEACH  
 COASTAL ADAPTATION WORKS  
 BEACH ACCESS STRUCTURES - SHEET 1

DRAWING NUMBER **SC 1803-01-07** OF **0**





**PLAN**  
SCALE 1:200



**SECTION B**  
SCALE 1:200

**LEGEND**

- — — — — EXISTING LIMESTONE PATH CENTRELINE
- — — — — PROPOSED NEW PATH CENTRELINE

NO	DATE	ISSUED FOR COMMENT	BY	CHKD
0	05-24-20	FINAL ISSUE	HS	SB
1	26-24-19	ISSUED FOR COMMENT	SP	SB

DRG: A3  
 ARCHIVE  
 PROJECT NO: 1803-01

**NOTES**  
 1. AERIAL PHOTO TAKEN DECEMBER 2018  
 2. CONTOURS: 2017 MNG SURVEY

SCALE 1:200 @ A3  
 METRES  
 DATUM AUSTRALIAN HEIGHT DATUM (AHD)  
 VERTICAL MAP GRID OF AUSTRALIA, BASED ON GDA94  
 HORIZONTAL

NO	DATE	SIGNATURE	DATE
1			

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 SHORE COASTAL

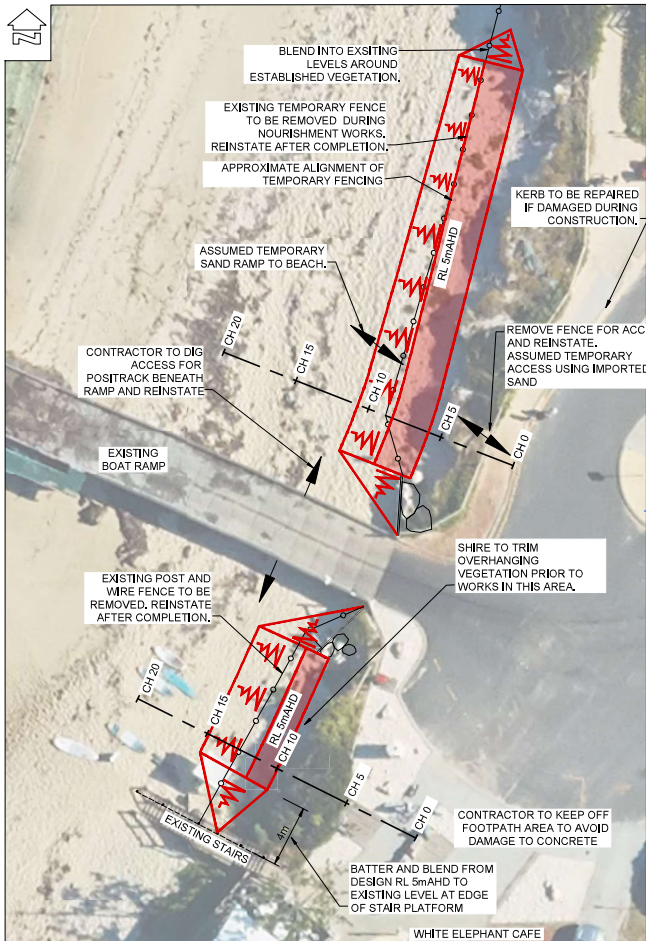
**NOT FOR CONSTRUCTION**

SHIRE OF AUGUSTA/ MARGARET RIVER  
 PREVELLY - GNARABUP BEACH  
 COASTAL ADAPTATION WORKS  
 SOUTHERN ACCESS

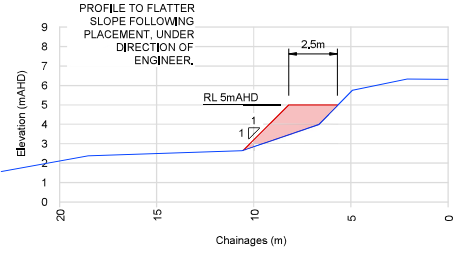
DRAWING NUMBER **SC 1803-01-08** OF **0**







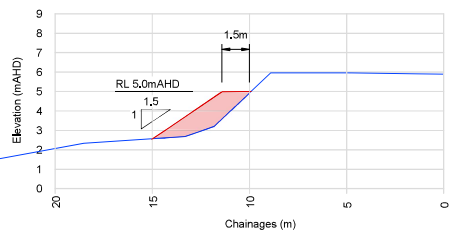
**PLAN**  
SCALE 1:250



**NOURISHMENT NORTH OF BOAT RAMP**  
HORZ SCALE 1:200  
VERT SCALE 1:200  
2018 MAY, SURVCON PROFILES



**PHOTO 1**  
NORTH OF BOAT RAMP



**NOURISHMENT SOUTH OF BOAT RAMP**  
HORZ SCALE 1:200  
VERT SCALE 1:200



**PHOTO 2**  
SOUTH OF BOAT RAMP



**PHOTO 3**  
SEDIMENT SAMPLE AT SITE (COURSE TO MEDIUM, CREAM/BROWN)

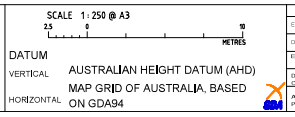
**NOTES:**

- SAND: IMPORT SAND FROM EXTERNAL SOURCE, SAND TO BE SIMILAR SIZE, DISTRIBUTION AND COLOUR TO THE EXISTING MATERIAL (PHOTO 3), APPROXIMATE VOLUME REQUIRED IS ~200m<sup>3</sup>. SAND TO BE FREE OF SILT / ORGANIC MATERIAL AND CONTAMINANTS, SHIRE TO UNDERTAKE PARTICLE SIZE DISTRIBUTION (PSD) TESTS OF EXISTING DUNE SANDS PRIOR TO SELECTION OF SUITABLE SAND FOR NOURISHMENT.
- METHOD: PRELIMINARY DESIGN ASSUMES CONTRACTOR WILL USE A POSITRACK OR SIMILAR TO UNDERTAKE WORKS, ACCESS ASSUMED TO BE VIA TEMPORARY SAND RAMP NORTH OF THE BOAT RAMP BUILT BY CONTRACTOR, ANY DAMAGE / DISTURBANCE TO EXISTING INFRASTRUCTURE TO BE RECTIFIED.
- SAFETY: DRAWING SHOULD BE READ IN CONJUNCTION WITH SAFETY IN DESIGN ASSESSMENT, CONTRACTOR TO DEVELOP SAFE WORK METHOD STATEMENT FOR THE WORKS
- TIMING: NOURISHMENT TO BE UNDERTAKEN IN AUTUMN PRIOR TO WINTER STORM SEASON (PRE-EMPTIVE), IN RESPONSE TO A STORM (REACTIVE) OR PRIOR TO SUMMER.
- ENVIRONMENTAL: SPRING PLACEMENT PROVIDES BEST OPPORTUNITY FOR STABILISATION WITH VEGETATION. CONSIDER PLACEMENT OF WRACK ON BATTER TO MITIGATE WIND BLOWN SAND. NOURISHMENT WILL SMOOTH INCIPENT VEGETATION. THE SITE OF THE SAND ACCESS RAMP IS TO MINIMISE DISTURBANCE TO VEGETATION.
- CONSULTATION: SHIRE TO UNDERTAKE REQUIRED COMMUNITY CONSULTATION PRIOR TO WORKS.
- MAINTENANCE: SAND NOURISHMENT REQUIRES ONGOING MONITORING AND REPLENISHMENT TO RETAIN EROSION BUFFERS TO ASSETS.



NO	DATE	FINAL ISSUE	ISSUED FOR COMMENT	HD	SB
0	06-04-20				
1A	26-04-19				
2					
DATE	DATE	DATE	DATE	DATE	DATE

**NOTES**  
1. AERIAL PHOTO TAKEN DECEMBER 2018  
2. CONTOURS: 2017 MING SURVEY



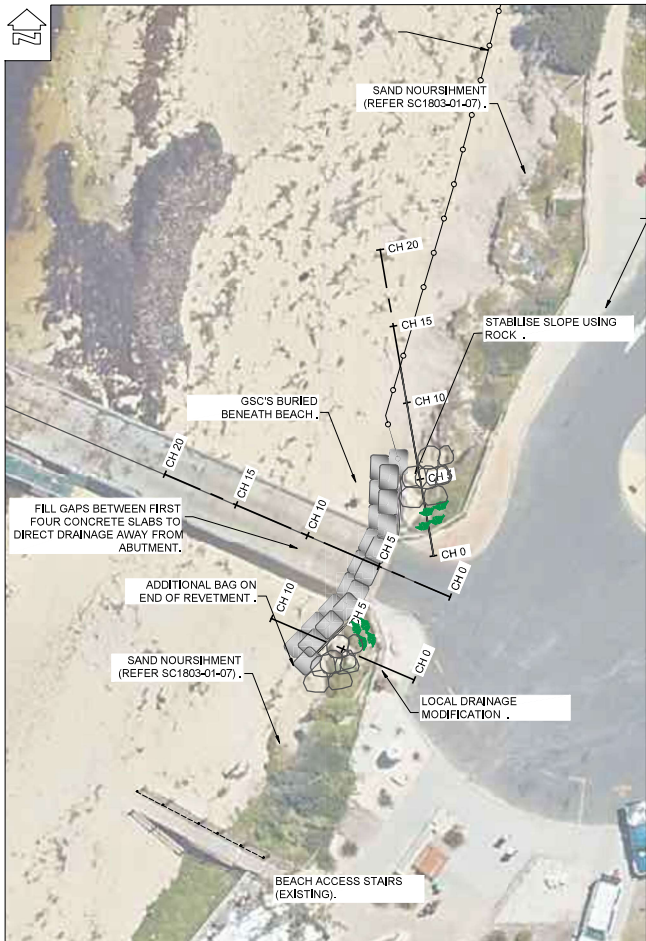
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8			

**SHIRE OF AUGUSTA/ MARGARET RIVER**  
**PREVELLY - GNARABUP BEACH**  
**COASTAL ADAPTATION WORKS**  
**BOAT RAMP DUNE NOURISHMENT**

Civil/Structural Consulting Pty Ltd

**SHORE COASTAL**

DRAWING NUMBER **SC 1803-01-09** 0

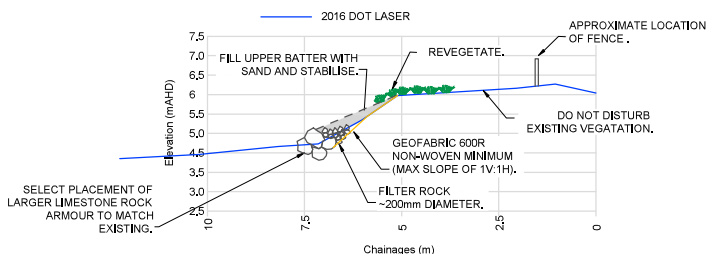


**PLAN**  
SCALE 1:250

**[NOT FOR CONSTRUCTION]**

NO.	DATE	FINAL ISSUE	ISSUED FOR COMMENT	HD	SB
0	06-04-20				
1A	26-04-19				
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1X					
1Y					
1Z					

**NOTES**  
1. AERIAL PHOTON TAKEN NOVEMBER 2017



**TYPICAL SECTION (BATTER: NORTH/SOUTH OF BOAT RAMP)**

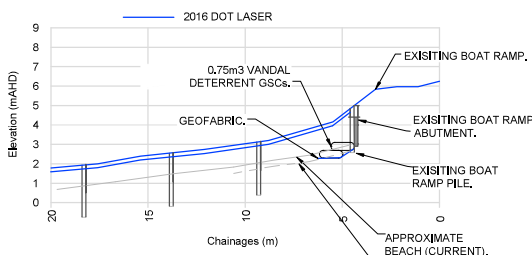
HORZ SCALE 1:100  
VERT SCALE 1:100



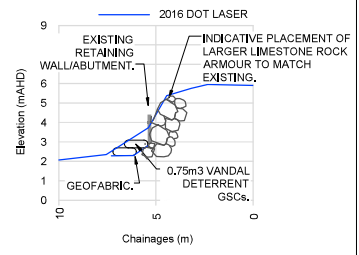
**PHOTO 1**  
SOUTH OF BOAT RAMP



**PHOTO 2**  
NORTH OF BOAT RAMP



**CROSS SECTION: BOAT RAMP**  
SCALE 1:200



**CROSS SECTION: TOE SCHEMATIC**  
SCALE 1:200

SCALE 1:250 @ A3  
METRES  
DATUM  
VERTICAL AUSTRALIAN HEIGHT DATUM (AHD)  
HORIZONTAL MAP GRID OF AUSTRALIA, BASED ON GDA94

NO.	NAME	SIGNATURE	DATE
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2	CHECKED		
3	ENGINEERING		
4	DATE OF THIS ISSUE		
5	APPROVED PROJECT MGR		



SHIRE OF AUGUSTA/ MARGARET RIVER  
GNARABUP BEACH  
PRELIMINARY DESIGN  
BOAT RAMP SCOUR PROTECTION  
DRAWING NUMBER **SC 1803-01-10** 0