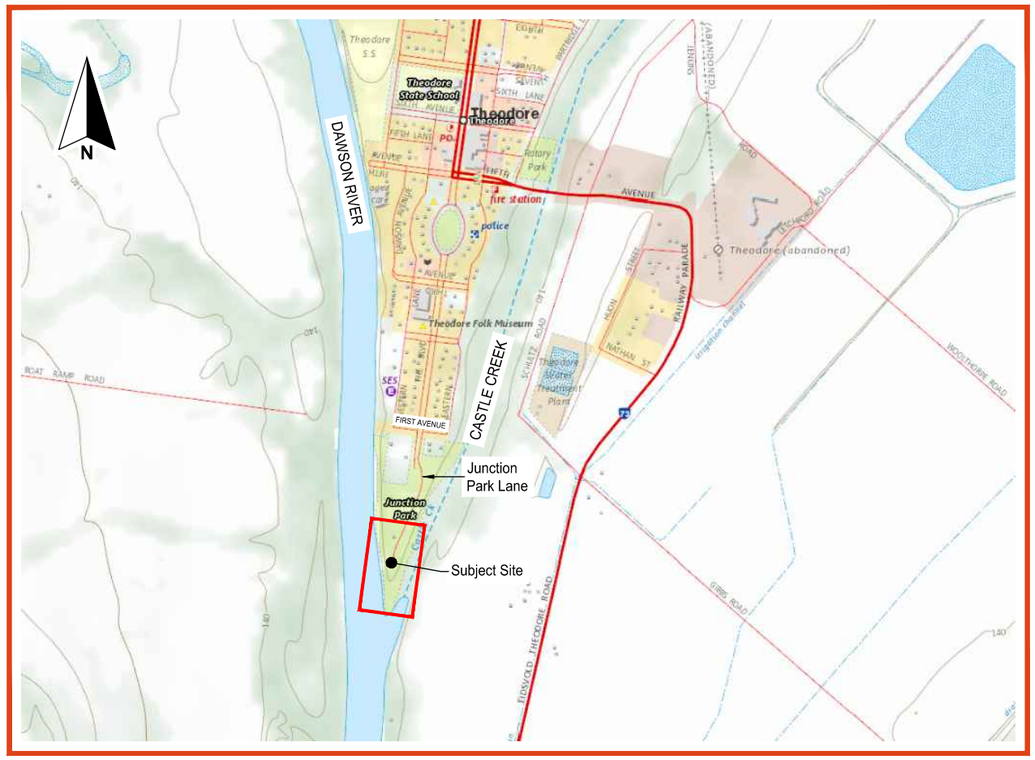
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP

JUNCTION PARK LANE, THEODORE

BANANA SHIRE COUNCIL

D21-100-TBR

CIVIL DESIGN



LOCALITY PLAN

(Not To Scale)

DESIGN DRAWING LIST INDEX

SHEET NUMBER	SHEET TITLE	REVISION
	GENERAL	
D21-100-TBR-01	EXISTING FEATURES & SERVICES	B
D21-100-TBR-02	GENERAL LAYOUT AND TYPICAL SECTIONS	B
D21-100-TBR-03	STAGING PLAN	B
D21-100-TBR-04	EARTHWORKS PLAN	B
	WORKING	
D21-100-TBR-05	CONTROL LINE ONE - LONG SECTION	B
D21-100-TBR-06	CONTROL LINE ONE - CROSS SECTION	B
D21-100-TBR-07	CONTROL LINE TWO - LONG SECTION	B
D21-100-TBR-08	CONTROL LINE TWO - CROSS SECTION	B
D21-100-TBR-09	TURN PATHS	B
	ENVIRONMENT	
D21-100-TBR-10	EROSION & SEDIMENT CONTROL	B

REFERENCE DRAWING LIST INDEX

SHEET NUMBER	SHEET TITLE	REVISION
	STANDARD DRAWINGS	
SD4000	PRECAST PLANKS FOR BOAT RAMP - TYPES RG4000 AND RG3500	C
SD4002	PRECAST PLANKS FOR BOAT RAMP - TYPES T4000 AND T3500	B
SD4020	BOAT RAMP - BOAT RAMP CONSTRUCTION - PRECAST PLANK INSTALLATION AND ANCHOR BEAM - TYPES 1 AND 2	C
SD4021	BOAT RAMP CONSTRUCTION - EARTHWORKS AND CRUSHED ROCK CORE DETAILS	B
SD4022	BOAT RAMP CONSTRUCTION - FULLY GROUTED SHOULDERS AND UNGROUTED SHOULDERS	B
CMDG-R-055	COUNCIL APPROVED FIXED BOLLARDS	G
CMDG-R-081	STANDARD KERB AND CHANNEL PROFILES	F
CMDG-R-081	SIGN LOCATION AND INSTALLATION DETAILS	E
CMDG-R-094	FLOODWAY - BED LEVEL CROSSING	B
CMDG-D-040	SUBSOIL DRAINAGE	F

DILEIGH

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FOR CONSTRUCTION

SUBJECT TO COUNCIL APPROVAL

C:\OneDrive - DILEIGH CONSULTING ENGINEERS PTY LTD\Data\2021\D21.100_BSC Design Secondment\Theodore\Boat\C DID21.100.P_RFI.dwg, 00, 8/02/2023 3:47:14 PM, Campbell Thomasson, ISO full bleed A3 (420.00 x 297.00 MM), 1:1

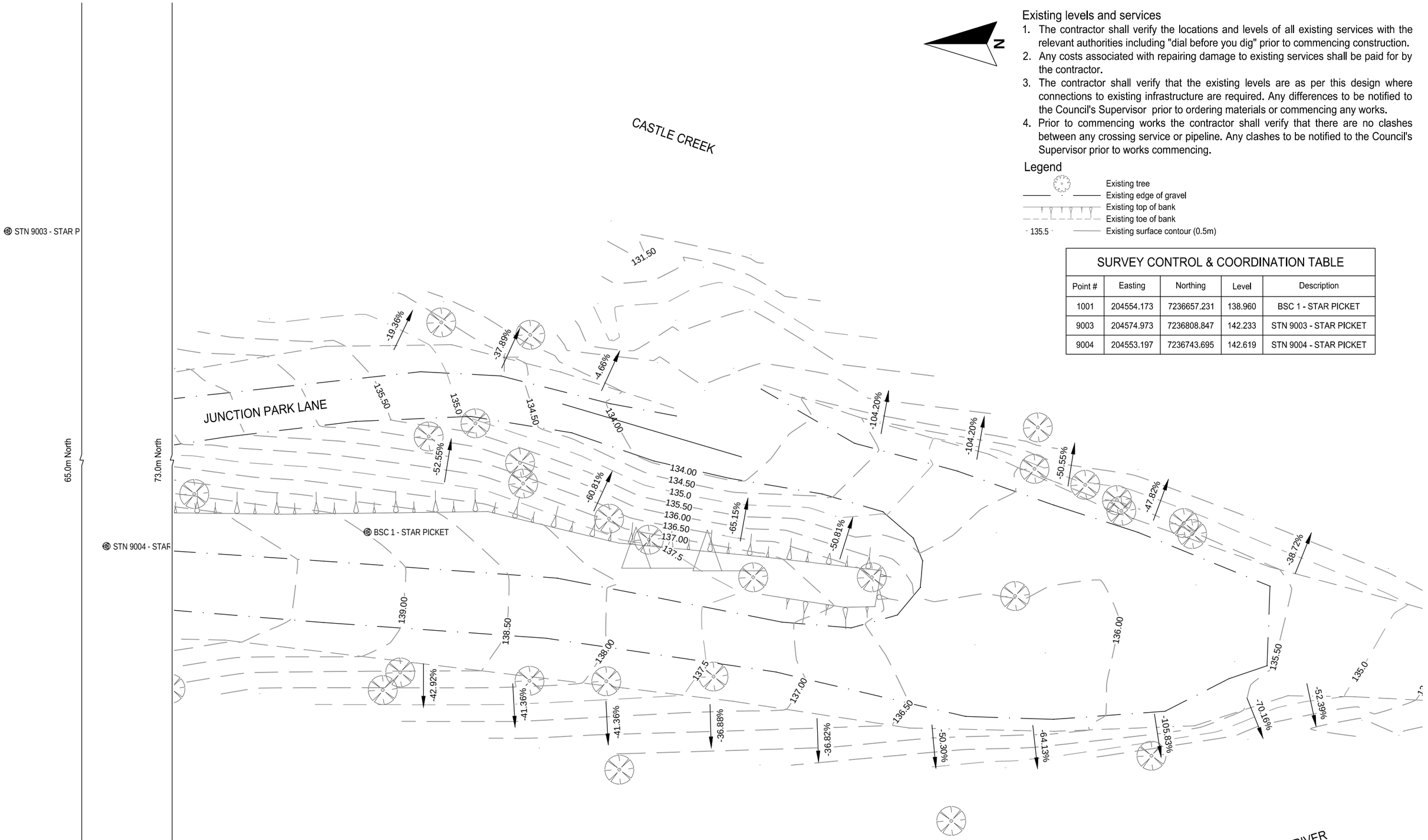
Existing levels and services

1. The contractor shall verify the locations and levels of all existing services with the relevant authorities including "dial before you dig" prior to commencing construction.
2. Any costs associated with repairing damage to existing services shall be paid for by the contractor.
3. The contractor shall verify that the existing levels are as per this design where connections to existing infrastructure are required. Any differences to be notified to the Council's Supervisor prior to ordering materials or commencing any works.
4. Prior to commencing works the contractor shall verify that there are no clashes between any crossing service or pipeline. Any clashes to be notified to the Council's Supervisor prior to works commencing.

Legend

- Existing tree
- Existing edge of gravel
- Existing top of bank
- Existing toe of bank
- 135.5 — Existing surface contour (0.5m)

SURVEY CONTROL & COORDINATION TABLE				
Point #	Easting	Northing	Level	Description
1001	204554.173	7236657.231	138.960	BSC 1 - STAR PICKET
9003	204574.973	7236808.847	142.233	STN 9003 - STAR PICKET
9004	204553.197	7236743.695	142.619	STN 9004 - STAR PICKET



0 1.25 2.5 3.75 5 1:250
PLAN

SCALES m. FULL SIZE A3

FOR CONSTRUCTION

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REV	REVISION DESCRIPTION	DATE
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Drafted	C.E.R
Designed	C.J.T
Checked	A.C.D.
Approved	G J BROWN
RPEQ 7682	Sign
14.02.2023	

BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
EXISTING FEATURES & SERVICES

Dwg No. D21-100-TBR-01
CIVIL
Revision B

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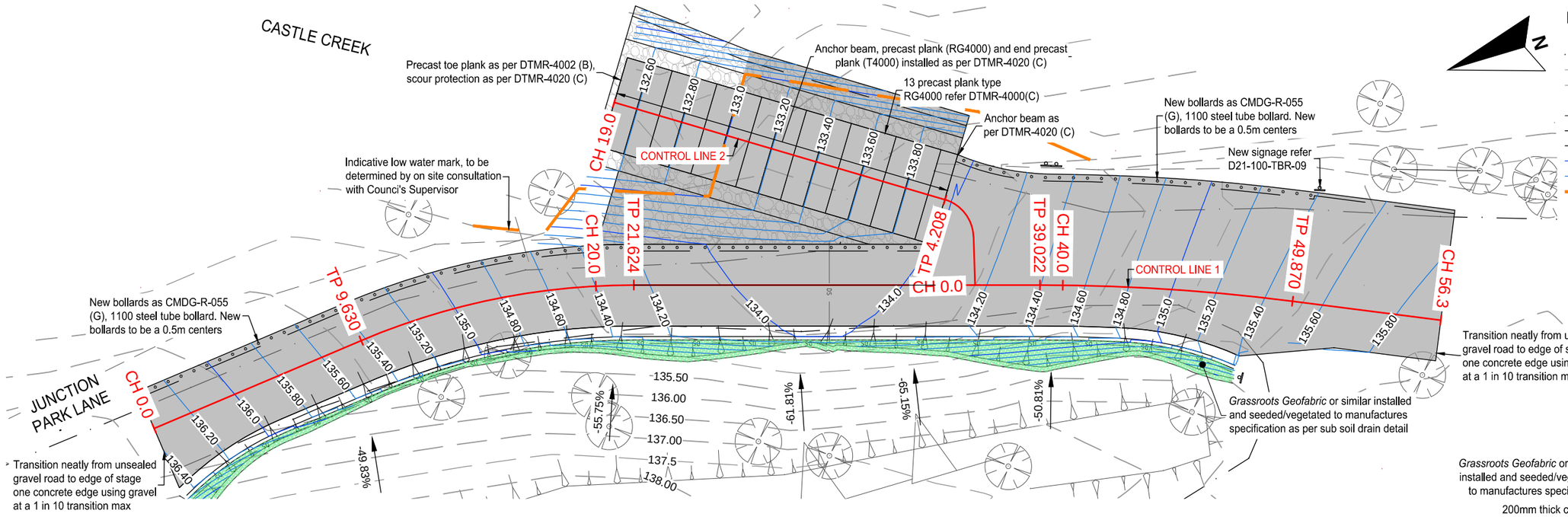

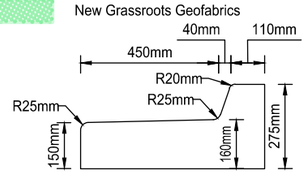

BARRIER KERB AND TRAY
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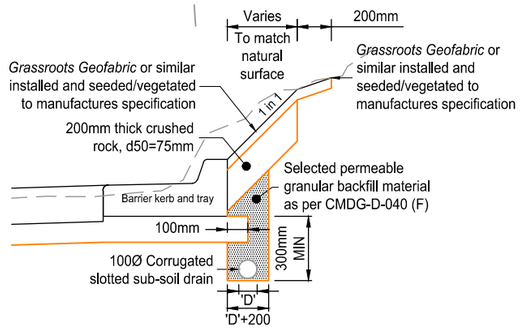
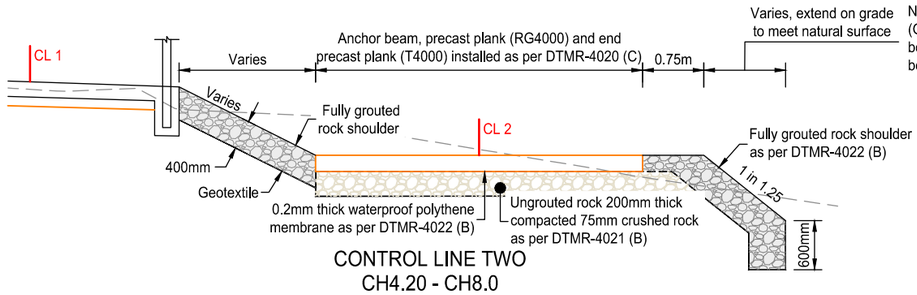
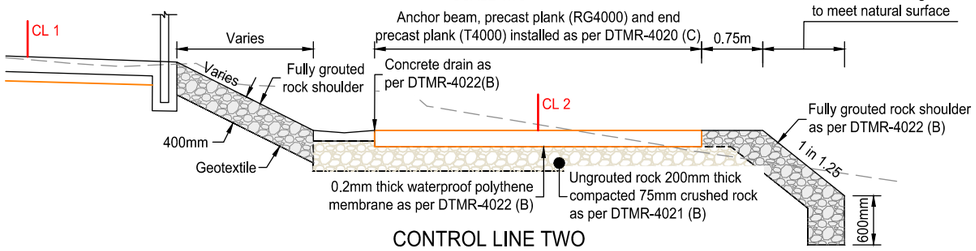


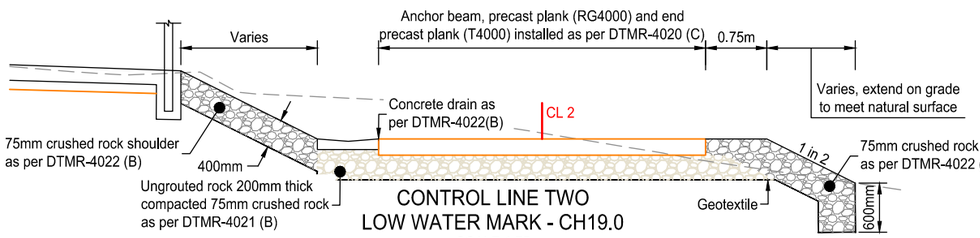
SUB SOIL DRAIN DETAIL
NTS



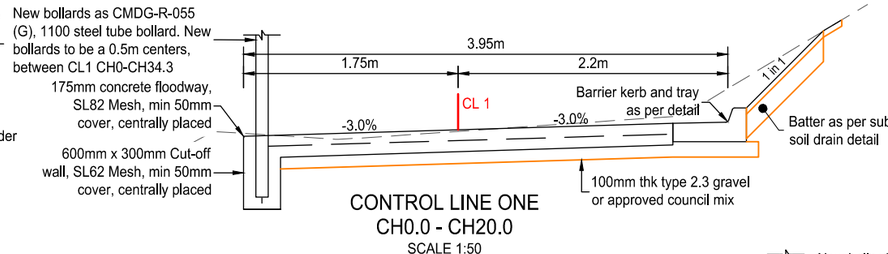
CONTROL LINE TWO
CH4.20 - CH8.0
SCALE 1:75



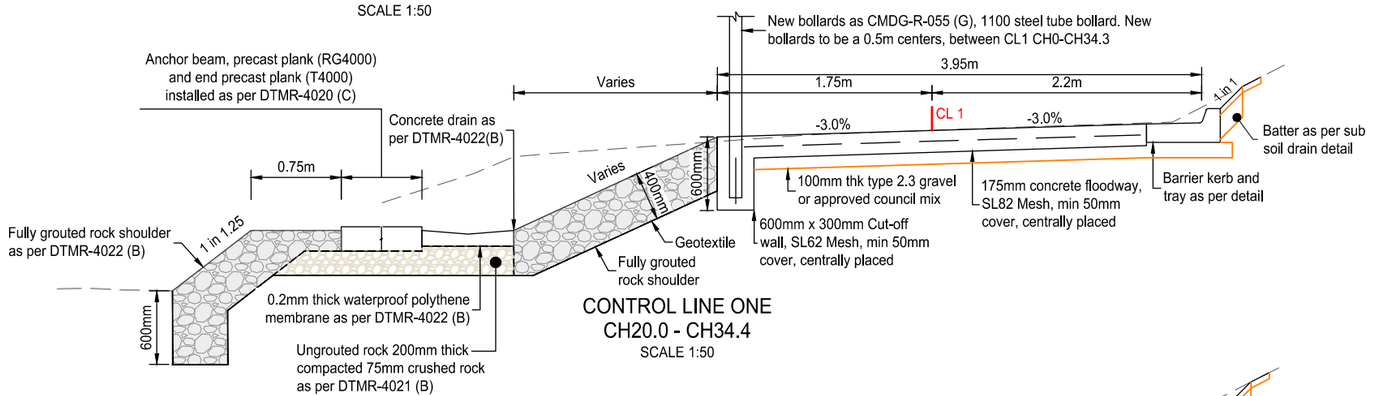
CONTROL LINE TWO
CH8.0 - LOW WATER MARK
SCALE 1:75



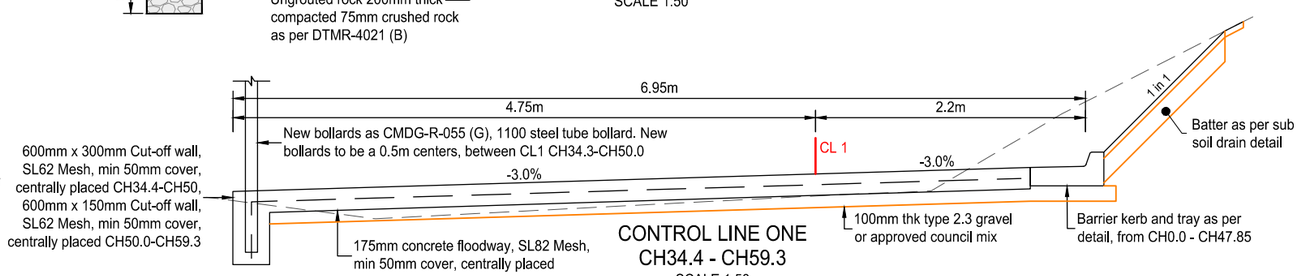
CONTROL LINE TWO
LOW WATER MARK - CH19.0
SCALE 1:75



CONTROL LINE ONE
CH0.0 - CH20.0
SCALE 1:50



CONTROL LINE ONE
CH20.0 - CH34.4
SCALE 1:50



CONTROL LINE ONE
CH34.4 - CH59.3
SCALE 1:50

0 0,1 0,2 0,3 0,4 1:20 KERB DETAIL
0 0,25 0,5 0,75 1,0 1:50 SECTION
0 0,75 1,5 1:75 SECTION
0 1 2 3 4 1:200 PLAN
SCALES m. FULL SIZE A3

FOR CONSTRUCTION

SUBJECT TO COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR CONSTRUCTION	11/10/2022
B	AMENDMENTS RECEIVED FROM BSC	

DILEIGH
CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT
ACN 121 309 171
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Email: admin@dileigh.com.au

Drafted	C.E.R
Designed	C.J.T
Checked	A.C.D.
Approved	G J BROWN
RPEQ 7682	Sign
14.02.2023	

BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
GENERAL LAYOUT AND TYPICAL SECTIONS

Dwg No. D21-100-TBR-02
CIVIL
Revision B

C:\OneDrive - DILEIGH CONSULTING ENGINEERS PTY LTD\Data\2021\D21.100_BSC Design Secondment\Theodore\Boat\C DID21.100.P_RFI.dwg, 02. 8/02/2023 3:47:17 PM, Campbell Thomasson, ISO full bleed A3 (297.00 x 420.00 MM), 1:1

CASTLE CREEK

N

CH 0.0

TP 9.630

CH 20.0

TP 21.624

CH 19.0

TP 4.208

CH 0.0

TP 39.022

CH 40.0

TP 49.870

CH 56.3

Transition neatly from unsealed gravel road to edge of stage one concrete edge using gravel at a 1 in 10 transition max

Transition neatly from unsealed gravel road to edge of stage one concrete edge using gravel at a 1 in 10 transition max

JUNCTION PARK LANE

BSC 1 - STAR PICKET

JUNCTION PARK LANE

Legend

Stage 1

Stage 2

0 1 2 3 4 PLAN 1:200

SCALES m.

FULL SIZE A3

FOR CONSTRUCTION

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BANANA SHIRE COUNCIL

RECONSTRUCTION OF CASTLE CREEK BOAT RAMP

JUNCTION PARK LANE, THEODORE

RECONSTRUCTION OF BOAT RAMP STAGING PLAN

Dwg No. D21-100-TBR-03

CIVIL

Revision B

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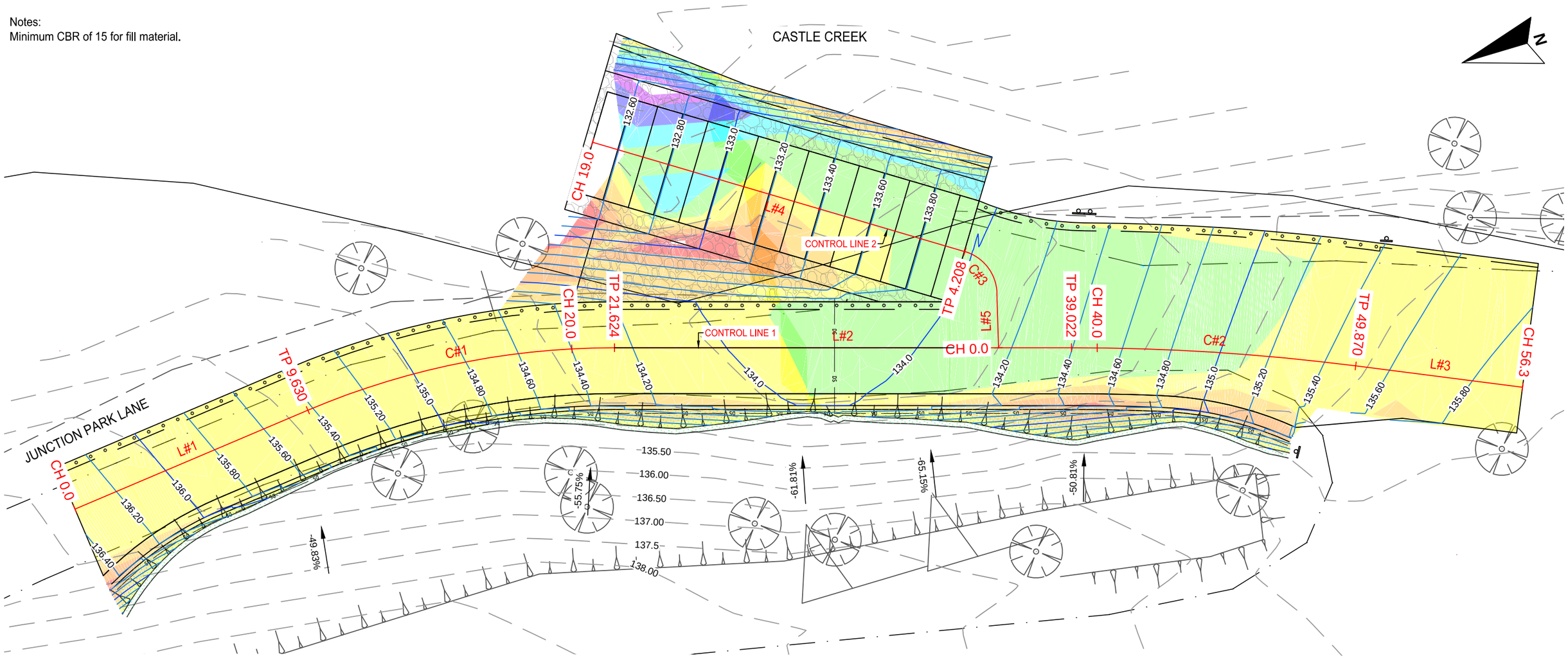
Notes:
Minimum CBR of 15 for fill material.



CL 1 - Alignment Setout Table

Number		Chainage	Easting	Northing	Radii/A Value	Bearing
L#1	Start End	0.000 9.630	204562.973 204564.066	7236665.176 7236655.609	-	173°28'53" Straight
C#1	Start End IP Co-ords	9.630 21.624 15.709	204564.066 204563.031 204564.757	7236655.609 7236643.740 7236649.569	29.870	173°28'53" Arc 196°29'20" Arc
L#2	Start End	21.624 39.022	204563.031 204558.093	7236643.740 7236627.057	-	196°29'20" Straight
C#2	Start End IP Co-ords	39.022 49.870 44.453	204558.093 204554.360 204556.552	7236627.057 7236616.880 7236621.849	85.000	196°29'20" Arc 203°48'04" Arc
L#3	Start End	49.870 56.271	204554.360 204551.776	7236616.880 7236611.024	-	203°48'04" Straight

CL 2 - Alignment Setout Table

Number		Chainage	Easting	Northing	Radii/A Value	Bearing
L#5	Start End	0.000 2.074	204558.882 204560.886	7236629.721 7236629.192	-	104°47'06" Straight
C#3	Start End IP Co-ords	2.074 4.208 3.307	204560.886 204562.748 204562.079	7236629.192 7236629.913 7236628.877	1.700	104°47'06" Arc 32°51'45" Arc
L#4	Start End	4.208 18.980	204562.748 204570.764	7236629.913 7236642.321	-	32°51'45" Straight

Levels Table

No.	Min. Level	Max. Level	Colour
1	-0.700	-0.500	
2	-0.500	-0.300	
3	-0.300	-0.100	
4	-0.100	0.100	
5	0.100	0.300	
6	0.300	0.500	
7	0.500	0.700	
8	0.700	0.800	

0 1 2 3 4 HORIZONTAL 1:200
SCALES m. FULL SIZE A3

FOR CONSTRUCTION

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BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
EARTHWORKS PLAN

Dwg No. D21-100-TBR-04
CIVIL
Revision B

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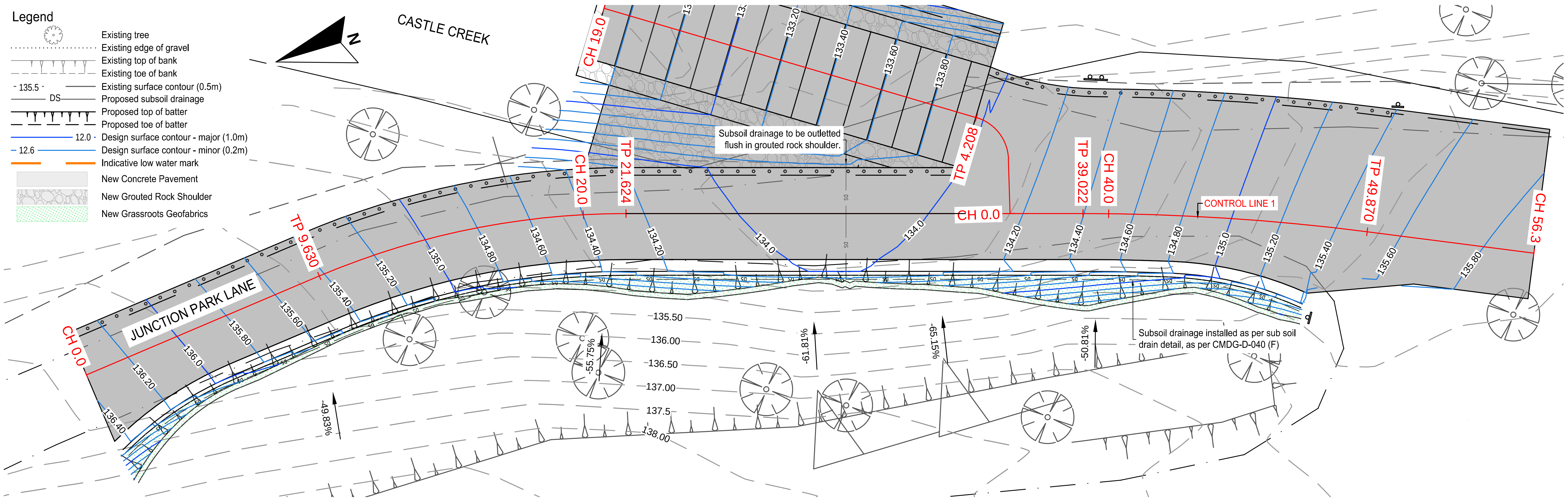

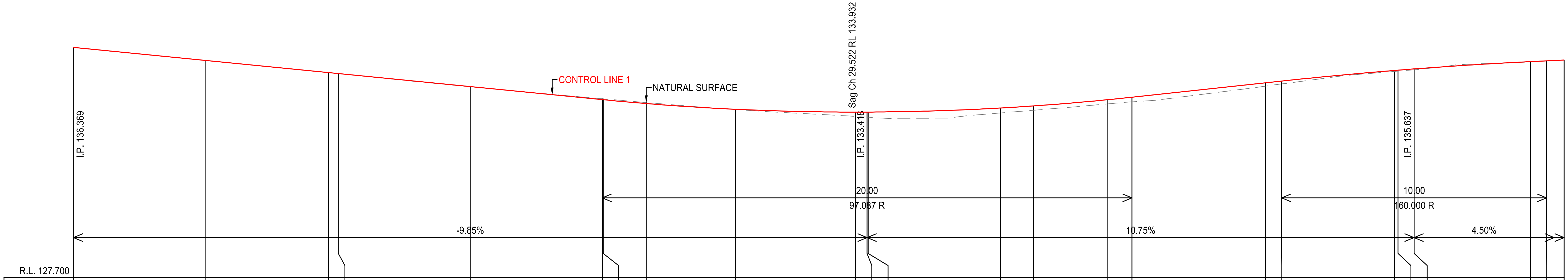

CUT & FILL	+0.000	-0.001	-0.001	-0.001	+0.006	-0.031	-0.031	-0.038	+0.013	+0.163	+0.191	+0.194	+0.186
DESIGN C.L.	136.369	135.876	135.420	135.384	134.891	134.403	134.399	134.253	134.037	133.932	133.933	133.933	134.086
EXISTING LEVELS	136.369	135.877	135.421	135.385	134.885	134.434	134.430	134.291	134.024	133.769	133.742	133.739	133.900
CHAINAGE	0.000	5.000	9.630	10.000	15.000	19.959	20.000	21.624	25.000	29.522	29.959	30.000	35.000

CUT & FILL	+0.162	+0.159	+0.178	+0.124	+0.108	+0.036	+0.037	+0.033	+0.007	+0.004	+0.000
DESIGN C.L.	134.164	134.396	134.493	135.034	135.100	135.501	135.512	135.559	135.834	135.862	135.892
EXISTING LEVELS	134.002	134.237	134.315	134.910	134.992	135.465	135.475	135.526	135.827	135.858	135.892
CHAINAGE	36.244	39.022	39.959	45.000	45.608	49.870	50.000	50.608	55.000	55.608	56.271

CONTROL LINE ONE - LONGITUDINAL SECTION
SCALE (HORIZ & VERT): 1:150

0 0.75 1.5 2.25 3
HORIZ, PLAN & VERT 1:150
SCALES m.
FULL SIZE A3

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RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
CONTROL LINE ONE - LONG SECTION

Dwg No.
D21-100-TBR-05
CIVIL
Revision
B

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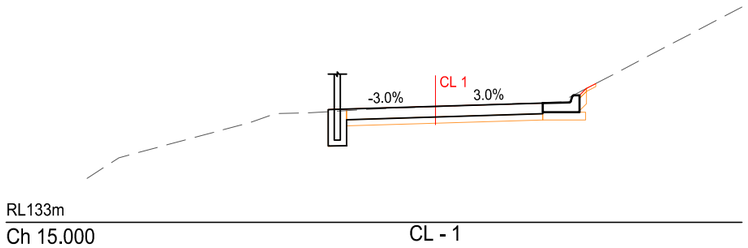

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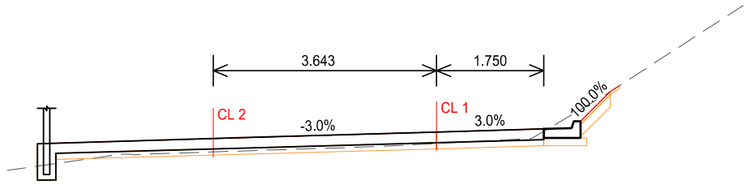

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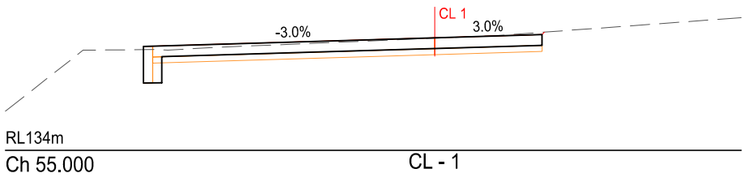

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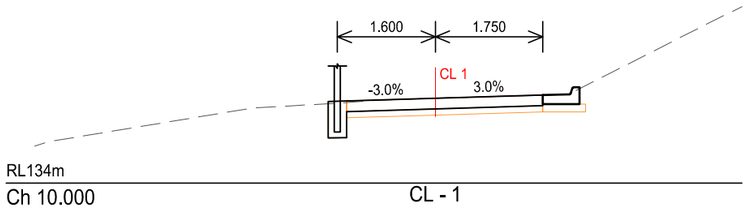

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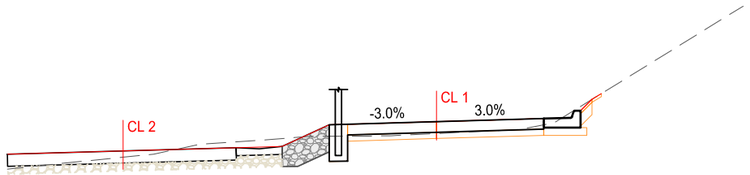

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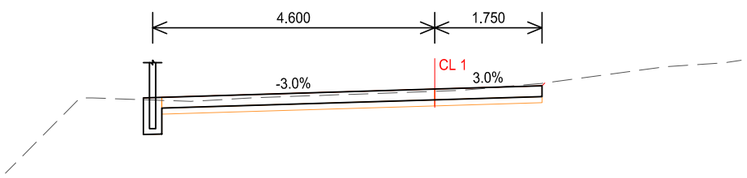

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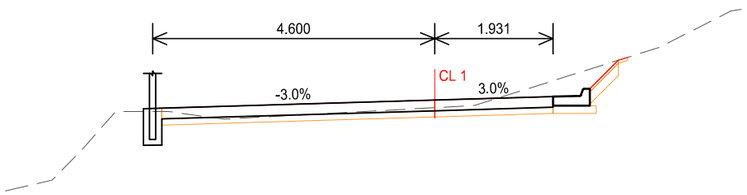

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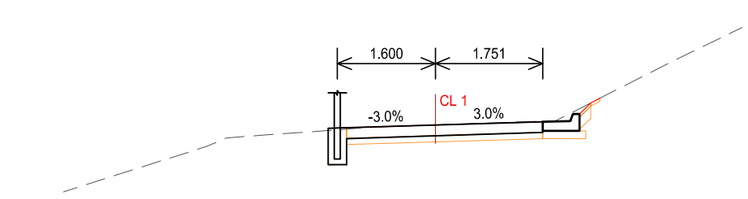

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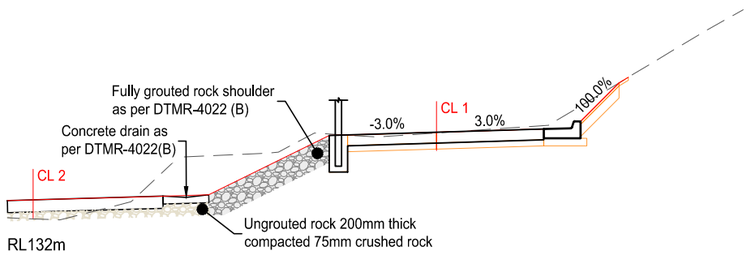

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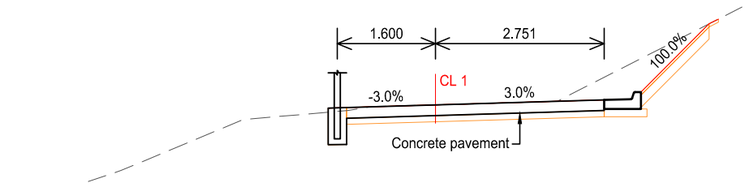

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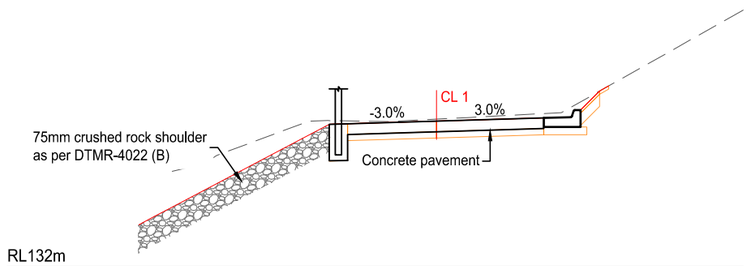
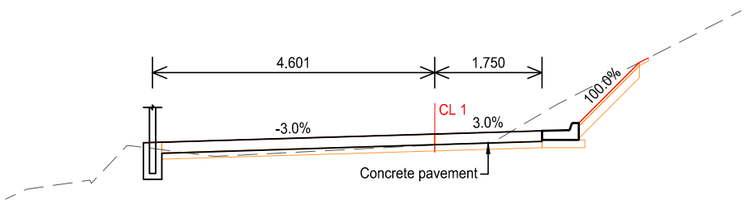


RL132m
Ch 20.000
CL - 1



RL132m
Ch 40.000
CL - 1

0 0.5 1.0 1.5 2.0
HORIZ AND PLAN 1:100

SCALES m. FULL SIZE A3

FOR CONSTRUCTION

SUBJECT TO COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR CONSTRUCTION	11/10/2022
B	AMENDMENTS RECEIVED FROM BSC	

DILEIGH
CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

ACN 121 309 171
47 Normanby Street
Yeppoon, Queensland 4703

Phone: 07 49112553
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Email: admin@dileigh.com.au

Drafted	C.E.R
Designed	C.J.T
Checked	A.C.D.
Approved	G J BROWN
RPEQ 7682	Sign
14.02.2023	

BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
CONTROL LINE ONE - CROSS SECTION

Dwg No. D21-100-TBR-06
CIVIL
Revision B

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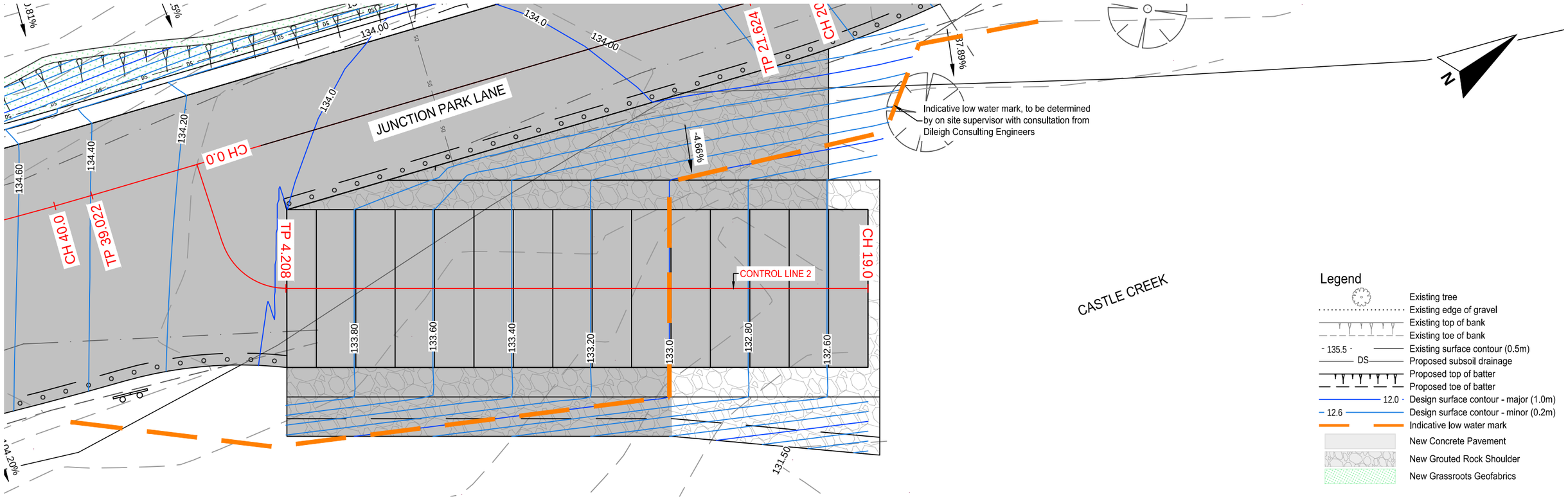
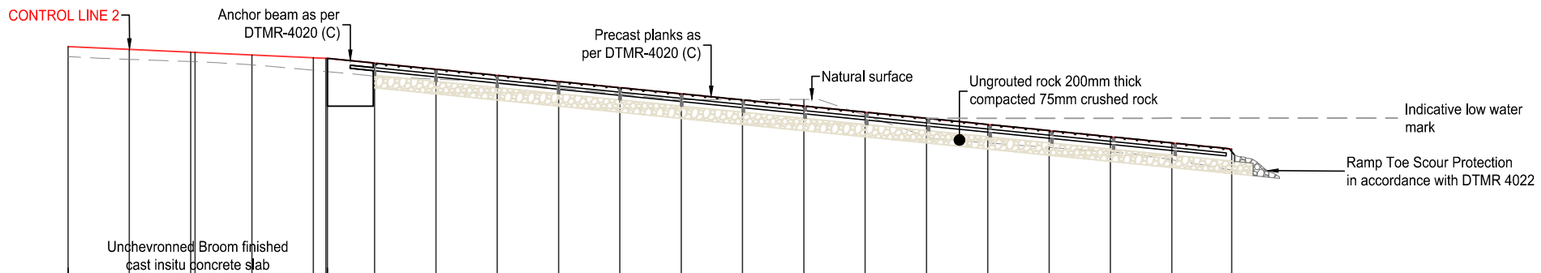


Notes:
Design criteria for ramp to be in accordance with 'Design Criteria for Boat Ramps, Transport and Main Roads, October 2015' Figure 7.4 and Department of Transport and Main Roads standard drawings 4020, 4021 and 4022



R.L. 128.300

CUT & FILL	+0.162	+0.163	+0.152	+0.152	+0.161	+0.203	+0.213	+0.214	+0.220	+0.161	+0.119	+0.101	+0.103	+0.097	-0.006	-0.108	+0.051	+0.296	+0.300	+0.274	+0.249		
DESIGN C.L.	134.164	134.119	134.073	134.070	134.027	133.981	133.972	133.971	133.894	133.794	133.694	133.594	133.494	133.394	133.294	133.194	133.094	132.994	132.894	132.794	132.694	132.594	132.496
EXISTING LEVELS	134.002	133.956	133.921	133.918	133.866	133.778	133.759	133.757	133.674	133.633	133.575	133.493	133.391	133.297	133.300	133.302	133.043	132.698	132.594	132.520	132.445	132.395	132.532
CHAINAGE	0.000	1.000	2.000	2.074	3.000	4.000	4.208	4.230	5.000	6.000	7.000	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000	18.000	18.980

0 0.5 1.0 1.5 2.0 HORIZONTAL & VERTICAL 1:100

SCALES m. FULL SIZE A3

FOR CONSTRUCTION

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RPEQ 7682	Sign
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BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
CONTROL LINE TWO - LONG SECTION

Dwg No. D21-100-TBR-07
CIVIL
Revision B

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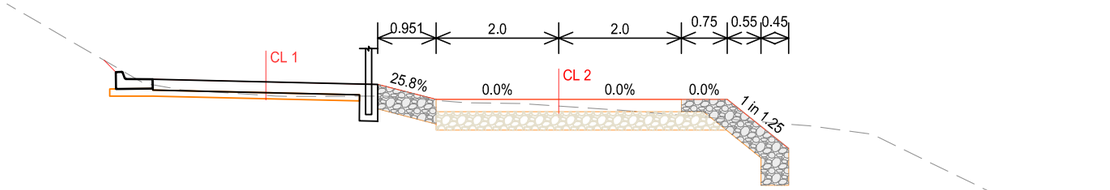
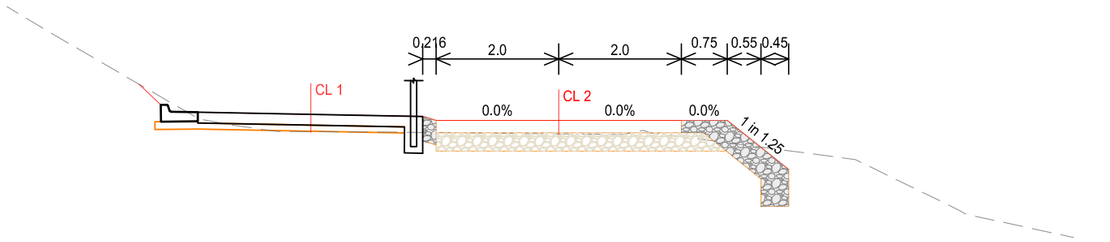


RL131m
Ch 7.500
CL 2



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Ch 5.000
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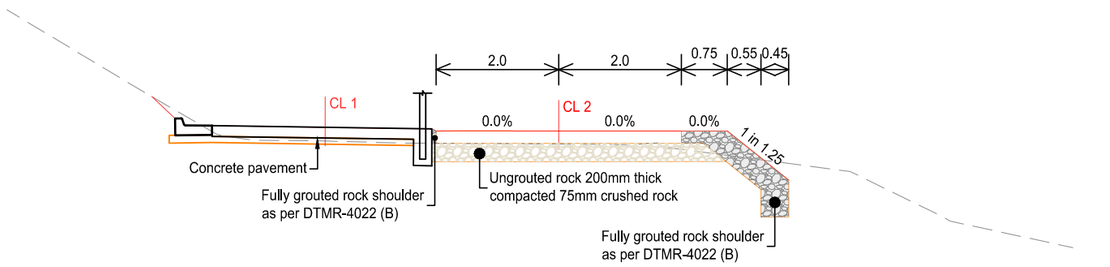

RL131m
Ch 4.208
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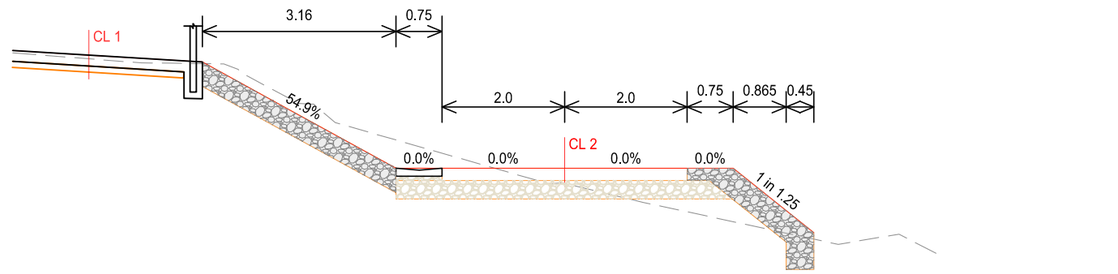

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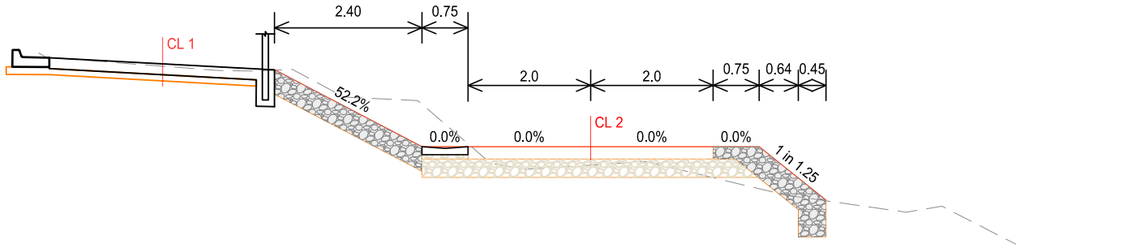

RL130m
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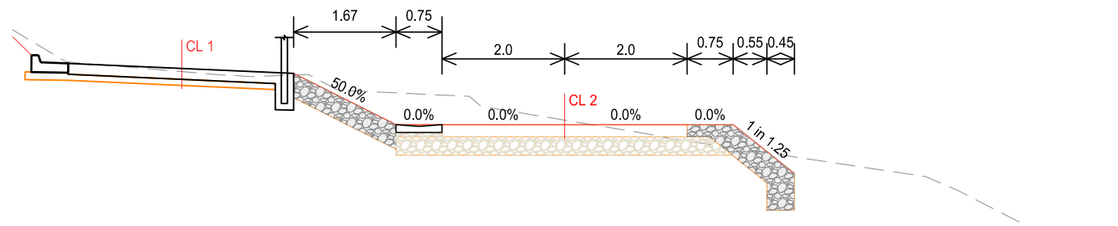

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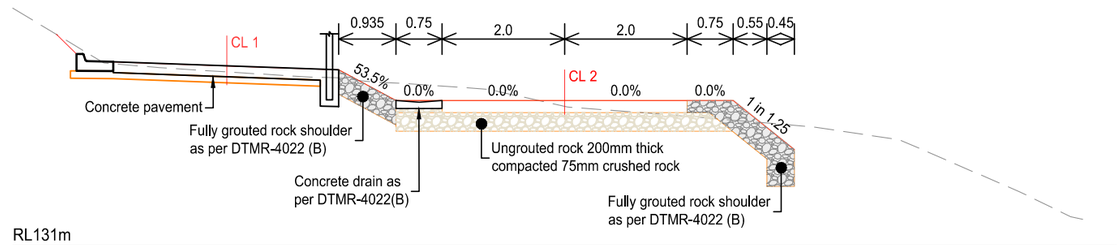

RL131m
Ch 10.000
CL 2

0 0.5 1.0 1.5 2.0 HORIZ AND PLAN 1:100

SCALES m. FULL SIZE A3

FOR CONSTRUCTION

SUBJECT TO COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR CONSTRUCTION	11/10/2022
B	AMENDMENTS RECEIVED FROM BSC	

DILEIGH
CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

ACN 121 309 171
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Yeppoon, Queensland 4703

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Email: admin@dileigh.com.au

Drafted	C.E.R
Designed	C.J.T
Checked	A.C.D.
Approved	G J BROWN
RPEQ 7682	Sign
14.02.2023	

BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
CONTROL LINE TWO - CROSS SECTION

Dwg No. D21-100-TBR-08

CIVIL

Revision B

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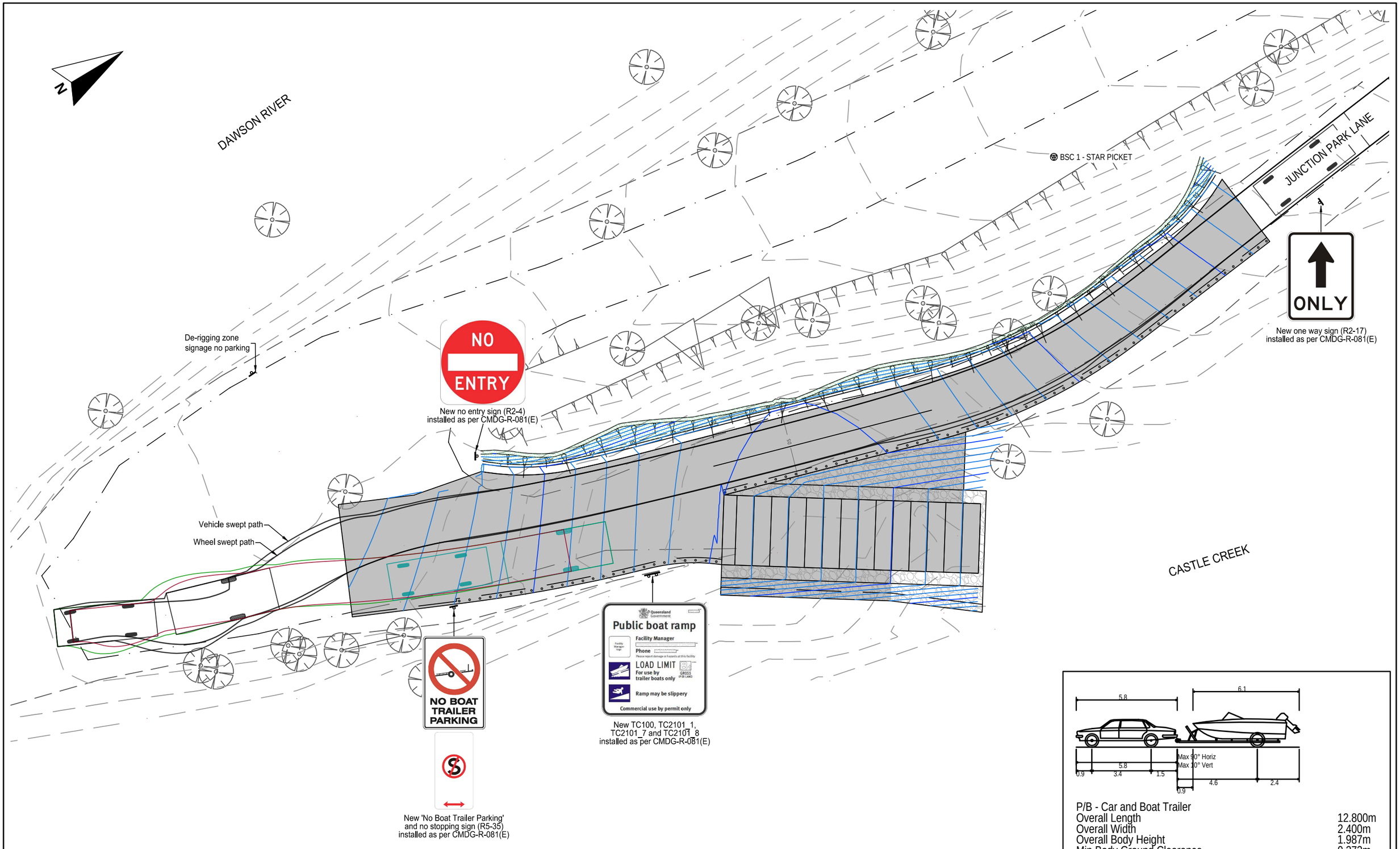

P/B - Car and Boat Trailer

Overall Length	12.800m
Overall Width	2.400m
Overall Body Height	1.987m
Min Body Ground Clearance	0.273m
Max Track Width	2.400m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.300m

0 1 2 3 4 1:200
PLAN & TEMPLATE

SCALES m. FULL SIZE A3

FOR CONSTRUCTION

SUBJECT TO COUNCIL APPROVAL

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RPEQ 7682	Sign
14.02.2023	

BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
TURN PATHS

Dwg No. D21-100-TBR-09

CIVIL

Revision B

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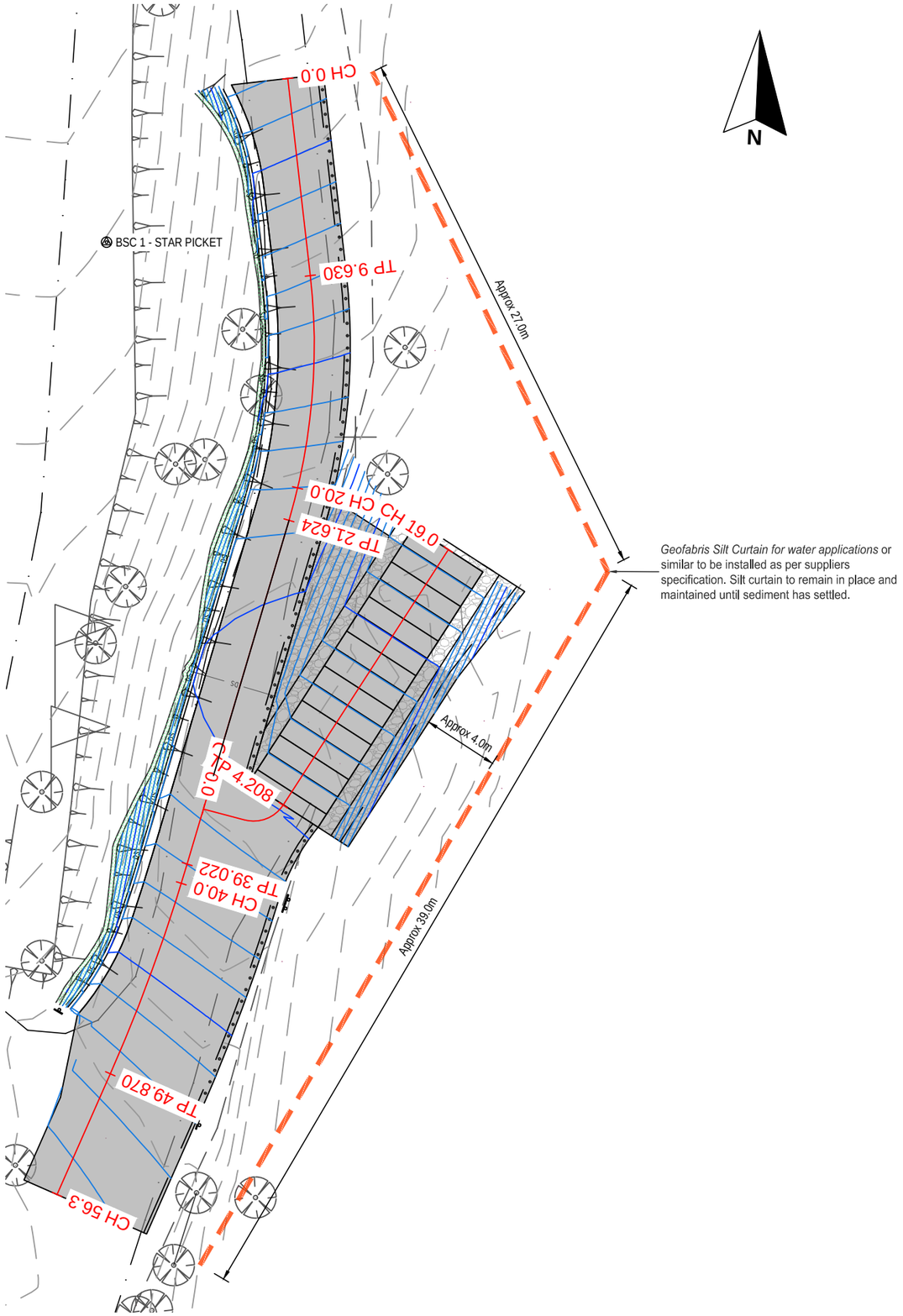

ENVIRONMENTAL MANAGEMENT NOTES:

1. PRIOR TO THE COMMENCEMENT OF EARTHWORKS, TOPSOIL SHALL BE STRIPPED AND STOCKPILED FROM SELECT AREAS ONLY FOR RE-SPREADING OVER DISTURBED AREAS PRIOR TO REVEGETATION AND LANDSCAPING.
2. PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS ALL SEDIMENT CONTROL DEVICES WILL BE ERECTED WHERE SHOWN ON THE DRAWINGS OR OTHERWISE DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS ON-SITE AND IN ROAD RESERVE WILL BE RE-TOPSOILED, TURFED OR LANDSCAPED.
4. ALL SOIL CONSERVATION AND ENVIRONMENTAL PROTECTION MEASURES SHALL BE MONITORED BY THE CONTRACTOR AT REGULAR INTERVALS DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES WILL BE MONITORED AFTER RAIN EVENTS AND MADE GOOD WHERE NECESSARY. THIS WILL ALSO BE CARRIED OUT DURING THE DEFECTS LIABILITY PERIOD.
5. SILT FENCES SHALL BE INSTALLED ON THE LOW SIDE OF ALL STOCKPILES WHERE REQUIRED.
6. SILT FENCES SHALL REMAIN ON SITE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND THERE IS 90% VEGETATION COVERAGE OF PROPOSED LANDSCAPED AREAS.

NOISE MANAGEMENT:

1. WORKING HOURS - WORKING HOURS FOR THE SITE ARE TO BE 6.30am TO 6.30pm MONDAY TO SATURDAY. NO WORK TO BE UNDERTAKEN OUTSIDE OF TIMES SPECIFIED UNDER ANY CIRCUMSTANCES.
2. NOISE MINIMISATION METHODS - NOISE WILL BE MINIMISED USING THE FOLLOWING METHODS:-
   - 2.1. RESTRICTED WORKING HOURS AS DETAILED ABOVE
   - 2.2. NOISE GENERATING MACHINERY TO OPERATED ONLY WHEN NECESSARY TO UNDERTAKE WORKS - VEHICLES AND MACHINERY ARE NOT TO BE LEFT 'IDLING' WHEN NOT IN USE.
   - 2.3. NOISE SHIELDING ON PLANT TO BE INSPECTED PRIOR TO COMMENCEMENT OF WORKS AND MADE GOOD WHERE FOUND TO BE FAULTY.
   - 2.4. VEHICLES AND MACHINERY TO BE REGULARLY MAINTAINED TO REDUCE ENGINE NOISE THROUGH INFREQUENT MAINTENANCE.

DUST MANAGEMENT:

1. MINIMISING DUST GENERATION - THE FOLLOWING WORK PRACTICES WILL BE USED TO MINIMISE DUST GENERATION:-
   - 1.1. WIND CONDITIONS ON SITE ARE TO BE MONITORED AND SITE WORKS STOPPED IF WIND STRENGTH IS SUCH THAT EFFORTS TO MINIMISE AND/OR SUPPRESS DUST ARE INEFFECTIVE.
   - 1.2. SOIL STABILISATION OF BATTERS (THROUGH TOPSOILING AND REVEGETATION) TO BE UNDERTAKEN IMMEDIATELY AFTER FINAL TRIM TO MINIMISE EXPOSURE OF BARE EARTH.
   - 1.3. STOCKPILES INTENDING TO BE LEFT IN PLACE FOR 28 DAYS OR GREATER SHALL BE GRASS SEEDED.
2. DUST SUPPRESSION -
   - 2.1. WET DOWN DUST GENERATING SURFACES DAILY PRIOR TO COMMENCEMENT OF WORK USING WATER TRUCKS, SPRINKLERS AND HOSE WATERING BY HAND.
   - 2.2. ADDITIONAL WETTING DOWN OF SITE AREAS IS TO BE UNDERTAKEN AS NEEDED DURING THE COURSE OF THE DAY WHERE WORK AREAS HAVE DRIED AND ARE GENERATING DUST.

WEED MANAGEMENT:

1. MOVEMENT OF SOIL - EXISTING TOP SOIL IS TO BE STOCKPILED AND RE-USED ON SITE AFTER SITE WORKS ARE COMPLETE, ANY ADDITIONAL TOP SOIL REQUIRED IS TO BE FREE OF PLANT SEEDS PRIOR TO SPREADING ON SITE.
2. FILL MATERIAL - FILL MATERIAL TO BE IMPORTED ON SITE IS TO BE 'CLEAN FILL' AND FREE FROM ANY ORGANIC MATTER OR MATERIALS.

EMERGENCY VEHICLE ACCESS:

1. MAINTAIN CLEAR ACCESS TO SITE FOR EMERGENCY VEHICLES AT ALL TIMES

WASTE MANAGEMENT:

1. ALL LITTER AND WASTE TO BE CONTAINED ON SITE IN CONTAINERS PROVIDED FOR THAT PURPOSE.
2. ALL WASTE TO BE FURTHER DISPOSED OFF SITE IN A RESPONSIBLE MANNER.
3. WHERE POSSIBLE MINIMISE WASTE THROUGH WASTE MINIMIZATION AND RE-USE.

EROSION AND SEDIMENT MANAGEMENT:

DRAINAGE MANAGEMENT - WHERE POSSIBLE, RAINWATER DISCHARGE FROM UPSTREAM PROPERTIES IS TO BE DIRECTED AWAY FROM WORKS THROUGH TEMPORARY BUNDING.

1. SOIL STABILISATION -
   - 1.1. EXPOSED EARTH SHALL BE TOPSOILED, VEGETATED, AND LANDSCAPED AS SOON AS POSSIBLE AFTER TRIMMING.
   - 1.2. RE-VEGETATED AND LANDSCAPED AREAS SHALL BE REGULARLY WATERED TO ASSIST ESTABLISHMENT OF COVER.
   - 1.3. ALL BANKS AND BATTERS ARE TO BE REGULARLY INSPECTED TO IDENTIFY AREAS OF EROSION AND RESHAPED TO PREVENT FURTHER EROSION IF NECESSARY - RECTIFICATION WORKS ARE TO BE RE-VEGETATED IMMEDIATELY.
2. STOCKPILE PROTECTION -
   - 2.1. STOCKPILES ARE TO BE SITUATED SUCH THAT THEY ARE NOT IN ANY STORMWATER FLOW PATHS.
   - 2.2. SILT FENCING IS TO BE INSTALLED TO DOWNSTREAM SIDE OF STOCKPILE AREAS PRIOR TO THEIR USE.
   - 2.3. STOCKPILES INTENDING TO BE LEFT IN PLACE FOR 28 DAYS OR GREATER SHALL BE GRASS SEEDED.
   - 2.4. STOCKPILES TO HAVE A MAXIMUM SLOPE OF 2H:1V.
3. SEDIMENT TRAPS -
   - 3.1. SILT FENCING & SEDIMENT TRAPS TO BE INSTALLED AT AREAS OF SITE DISCHARGE AS SHOWN ON PLAN.
   - 3.2. SILT FENCING TO BE INSTALLED TO DOWNSTREAM SIDE OF STOCKPILE AREAS, STRIPPED AREAS, AND ANY OTHER AREAS OF BARE EARTH WHERE SILT LADEN RUNOFF CAN BE GENERATED.
   - 3.3. SEDIMENT FENCING TO BE INSTALLED IN ACCORDANCE WITH SEDIMENT FENCE DETAILS ON THIS SHEET.
   - 3.4. SEDIMENT FENCE LAYOUT SHALL CONFORM TO "TYPICAL LAYOUT ACROSS GRADE" AS DETAILED ON STANDARD DRAWING CMDG-D-050.
   - 3.5. SILT FENCES AND SEDIMENT TRAPS SHALL REMAIN ON SITE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND THERE IS 90% VEGETATION COVERAGE OF PROPOSED LANDSCAPED AREAS.
4. VEHICLE AND ROAD MANAGEMENT:-
   - 4.1. VEHICLES AND PLANT ARE TO ONLY ACCESS THE SITE FROM TANBY ROAD SITE ACCESS TO BE OVER A SHAKER ACCESS PAD OR RUMBLE GRID IN ACCORDANCE WITH STANDARD DWG CMDG-D-050.
   - 4.2. VEHICLE OPERATOR TO ASSESS MATERIAL ON VEHICLE PRIOR TO EXITING SITE AND REMOVE EXCESS WITH SHOVEL OR BRUSH.
   - 4.3. TANBY ROAD TO BE INSPECTED AT END OF EACH DAY AND ANY DEPOSITED MATERIAL IS TO BE REMOVED.

ACID SULFATE SOILS:

1. DUE TO THE ELEVATION AND SITE GEOLOGY IT IS UNLIKELY THAT A.S.S. WILL BE ENCOUNTERED ON THIS SITE.
2. IF A.S.S. ARE ENCOUNTERED ON THE SITE DURING CONSTRUCTION ENGAGE A SUITABLY QUALIFIED ENVIRONMENTAL CONSULTANT TO PRODUCE AN A.S.S. MANAGEMENT PLAN FOR IT.

FAUNA MANAGEMENT:

1. ANY CLEARING OF REMNANT VEGETATION WILL REQUIRE A FAUNA SPOTTER / CATCHER TO BE IN ATTENDANCE.

VEGETATION MANAGEMENT:

1. WHERE VEGETATION COVENANT EXISTS ON SITE. THIS AREA TO BE CLEARLY PEGGED AND FLAGGED OR FENCED PRIOR TO WORK COMMENCING ON SITE TO PREVENT ANY CLEARING IN THIS AREA.

BUSH FIRE MANAGEMENT:

1. THE SITE IS PREDOMINANTLY CLEARED AND NOT IN A BUSH FIRE HAZARD ZONE (BUT STILL MAY BE SUBJECT TO BUSH FIRES)
2. ANY CLEARED VEGETATION TO BE MULCHED AND USED ON SITE.
3. MULCHED STOCK PILES TO BE NO MORE THAN 2.0m HIGH AND WET DOWN DAILY.
4. REMOVE MULCH FROM SITE IF SAFE TO DO SO SHOULD BUSHFIRES THREATEN THE AREA.

0 1.25 2.5 3.75 5 PLAN 1:250

SCALES m. FULL SIZE A3

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BANANA SHIRE COUNCIL
RECONSTRUCTION OF CASTLE CREEK BOAT RAMP
JUNCTION PARK LANE, THEODORE
RECONSTRUCTION OF BOAT RAMP
EROSION & SEDIMENT CONTROL

Dwg No. D21-100-TBR-10

CIVIL

Revision B

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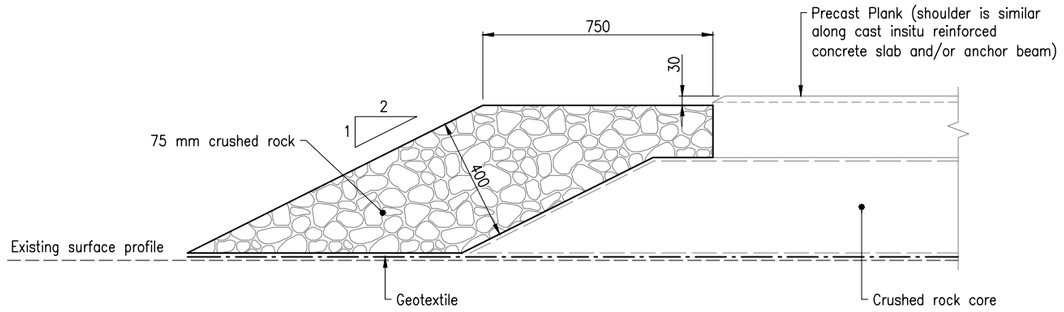
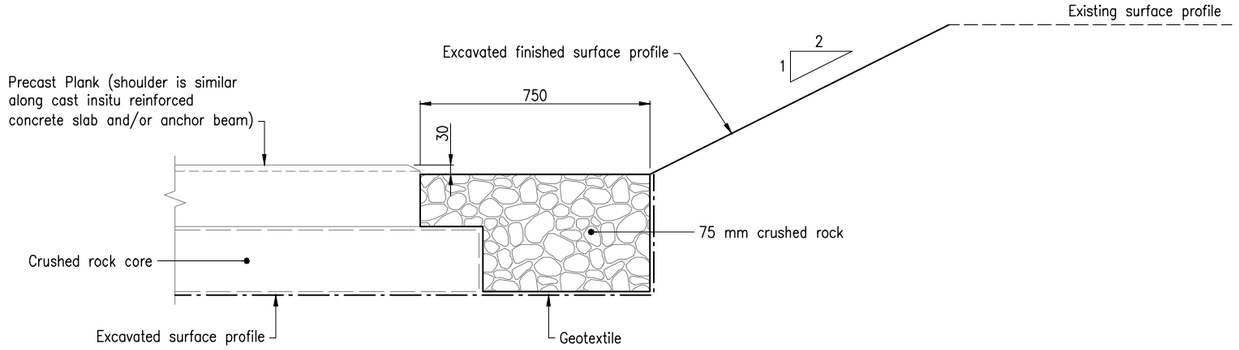
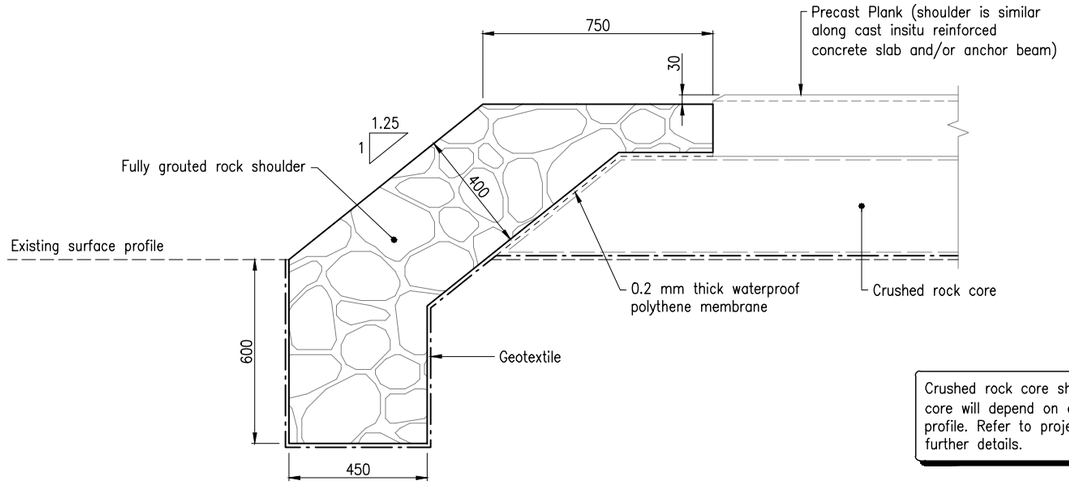


UNGROUTED ROCK SHOULDER IN FILL

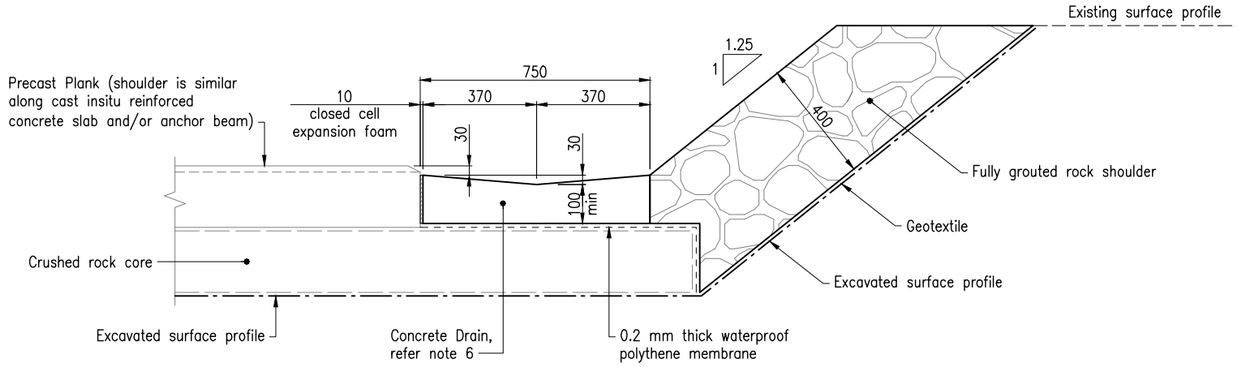


UNGROUTED ROCK SHOULDER IN CUT



FULLY GROUTED ROCK SHOULDER IN FILL

Crushed rock core shown indicatively only. Depth of core will depend on existing/excavated surface profile. Refer to project specific design drawings for further details.



FULLY GROUTED ROCK SHOULDER IN CUT

NOTES:

1. CONSTRUCTION OF BOAT RAMP shall be in accordance with MRTS300.
2. ROCK for the fully grouted shoulders shall be unweathered, clean, hard and durable graded 150 to 200 mm with essentially flat faces.
   Grout shall be 20 MPa cement mortar made from a 1:3 GP cement/sand mixture with sufficient water added to give it a plastic like texture that will retain its shape and not flow like a liquid.
3. FOOTINGS: The excavation for footings shall be to the minimum design depth and thickness and fully lined with geotextile. Sufficient extra geotextile shall be allowed so that full separation of footing and existing base material is retained during consolidation.
   The footings shall be full thickness grouted rock to ensure that structural integrity of the core and shoulders is retained if the existing base materials erode.
   Footings may alternatively be constructed using S25/20 mass concrete.
4. SHOULDER BATTERS CONSTRUCTION: The shoulder and shoulder batter shall be constructed by placing alternate layers of grout and rock so that the grout shall extend through the full design thickness of the shoulders. Rocks shall be placed to form irregular joints and be interlocked with smaller sized rock so that there are not any large voids and individual rocks cannot be easily dislodged.
   Shoulders which are constructed by placing rock and then grouting or shotcreting only the outer surface shall be rejected.
   The shoulder batter shall be fully supported and not extend beyond the edge of the footing.
5. GROUTED ROCK SURFACE FINISH: Exposed surfaces shall have a minimum of 80% of exposed rock with a close faced maximum mortar setback of 10. Excess cement mortar coating shall be removed.
   The finished surface shall have a generally flat, even and neat appearance, and will not have any sharp or angular points which will be hazardous to ramp users.
6. CONCRETE DRAIN: Concrete shall be S50/20, exposure classification C and cured in accordance with MRTS70.
   Tooled contraction joints to be provided at 2 m nominal spacings by forming grooves 40 deep and not more than 6 mm wide in exposed surfaces of the concrete. Grooves shall be normal to the top surface and square to the drain alignment. Joint locations shall match with adjacent precast plank gaps.
   Trafficable surface shall have a medium broom finish at 90° to the boat ramp control line.
7. For geotextile, geogrid, 75 mm crushed rock grading and earthworks details refer Standard Drawing 4021.
8. DIMENSIONS are in millimetres unless shown otherwise.

ASSOCIATED DEPARTMENTAL DOCUMENTS:
- Standard Drawings
- Specifications

REFERENCED DOCUMENTS:
Departmental Standard Drawings:
- 4020 Boat Ramp Construction – Precast Plank Installation and Anchor Beam Types 1 and 2
- 4021 Boat Ramp Construction – Earthworks and Crushed Rock Core Details

Departmental Specifications:
- MRTS70 Concrete
- MRTS300 Boat Ramps

Department of Transport and Main Roads

BOAT RAMP

BOAT RAMP CONSTRUCTION – FULLY GROUTED SHOULDERS AND UNGROUTED SHOULDERS

Queensland Government

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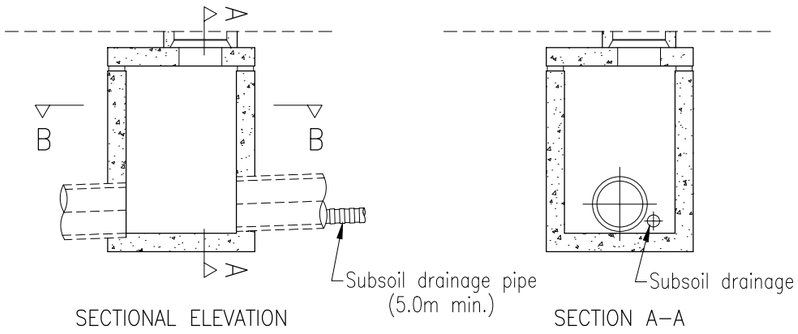
A3

Not to Scale

Standard Drawing No 4022

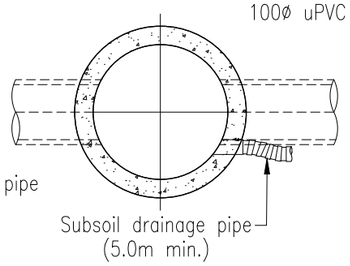
Date 10/15

A | B



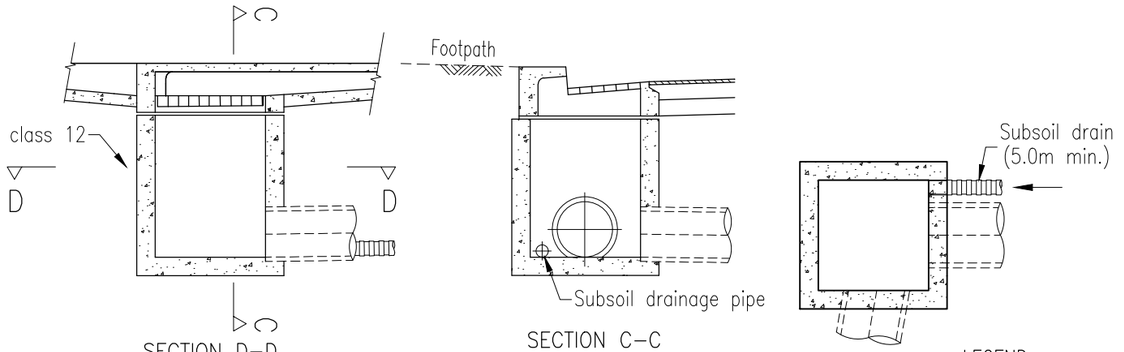
SECTIONAL ELEVATION SECTION A–A

TYPICAL ACCESS CHAMBER DETAILS



SECTION B–B

TYPICAL GULLY DETAILS



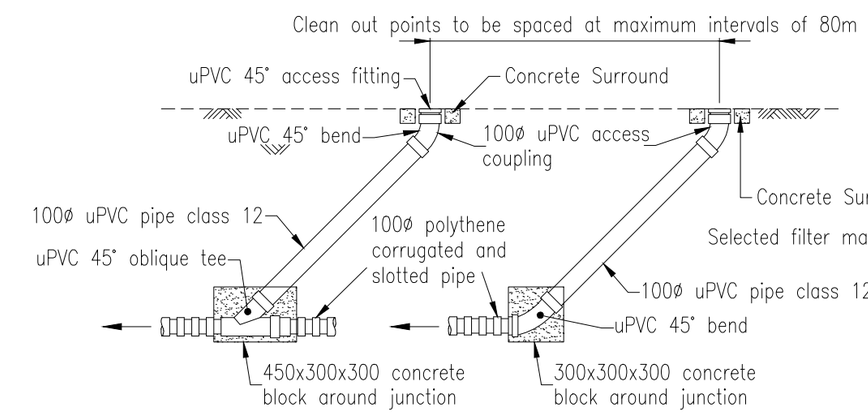
SECTION D–D SECTIONAL ELEVATION SECTION C–C

LEGEND:

⊗ Refer note 9

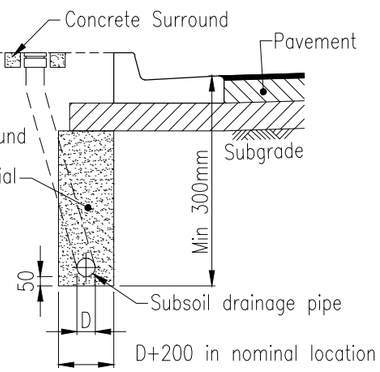
NOTES:

1. Minimum 5.0m length of subsoil drainage pipe to be located upstream of all manholes to drain trench.
2. All Subsoil pipe drains to be polyethylene corrugated slotted pipe to AS 2439.1.
3. Subsoil drains to outlet at invert level of inlet pipe, unless noted otherwise.
4. Minimum grade of Type 1 subsoil drain to be 0.5%. Desirable minimum grade of Type 2 Subsoil drain 0.5%. Absolute minimum grade 0.1% subject to council approval.
5. Filter materials not complying with the specified grading requirements may be used if approved by the Superintendent. A geofabric may be used to line trenches where approved by the Superintendent.
6. Concrete anchors N32 in accordance with AS1379 and AS 3600.
7. At an oblique tee on subsoil drain cleaning points, the contractor may install Vinidex vertical fittings or similar if approved by the Superintendent.
8. Minimum cover over subsoil drain for various compactors unless approved otherwise: Hand held units – 100, Units < 15 tonnes – 200, Units > 15 tonnes – 300
9. Subsoil drain dia.(D)=100 nom. unless specified otherwise.
10. Impervious material to be provided where subsoil drainage is not under pavement. When impervious material is omitted the backfill/selected filter material shall extend to underside of pavement.
11. All dimensions in millimetres.

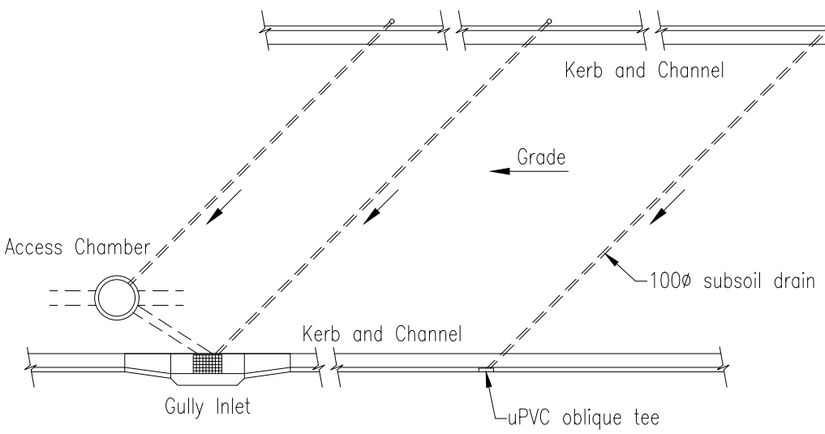


SUBSOIL DRAIN CLEANING POINTS

Subsoil drain may be located either behind or infront of the kerb and channel



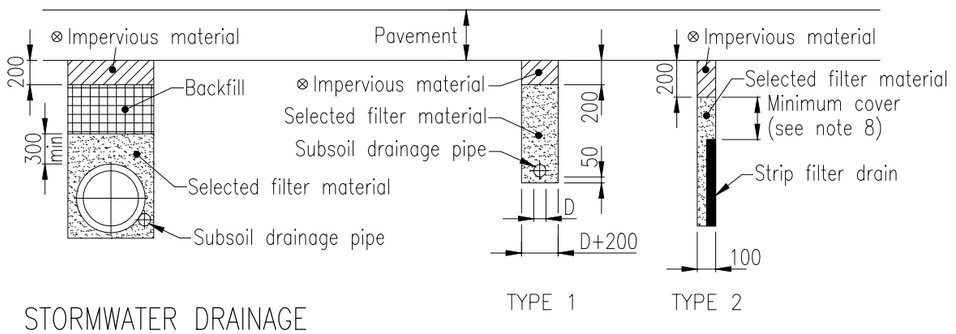
SUBSOIL PAVEMENT DRAIN



TYPICAL MITRE DRAIN LOCATIONS

AS Sieve Size	% Passing by mass
9.5mm	100
4.75mm	90–100
1.18mm	45–80
300µm	10–30
150µm	0–10
75µm	0–1

RECOMMENDED FILTER MATERIAL GRADING



STORMWATER DRAINAGE TRENCHES WITH SUBSOIL DRAINAGE

STANDARD SUBSOIL DRAIN

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
F	IRC ADDED	12/2016
E	GRC AND LSC ADDED	09/2014
D	MRC ADDED	04/2011
C	NOTE 4 AMENDED	01/2011
B	CLEAN OUT POINTS SHOWN AT SURFACE WITH CONCRETE SURROUND	07/2010
A	POST AMALGAMATION REVIEW	01/2010

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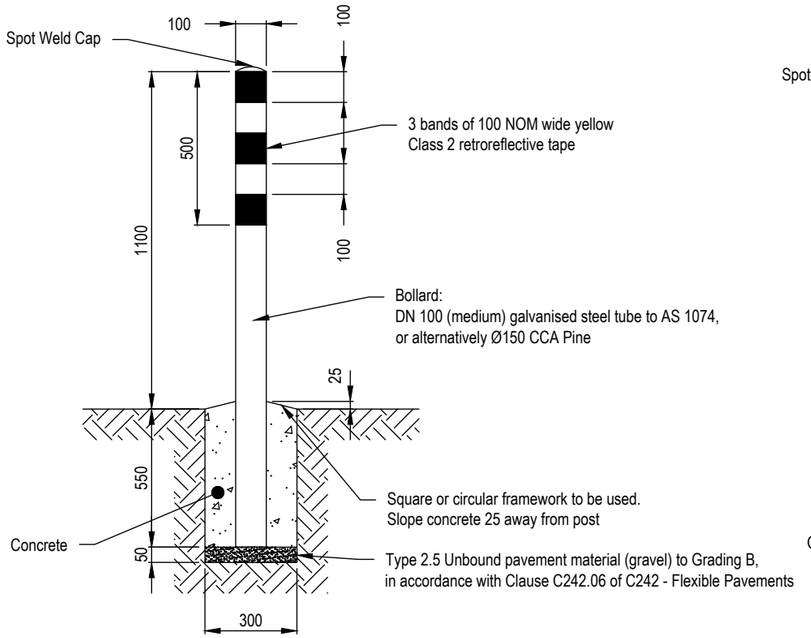
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

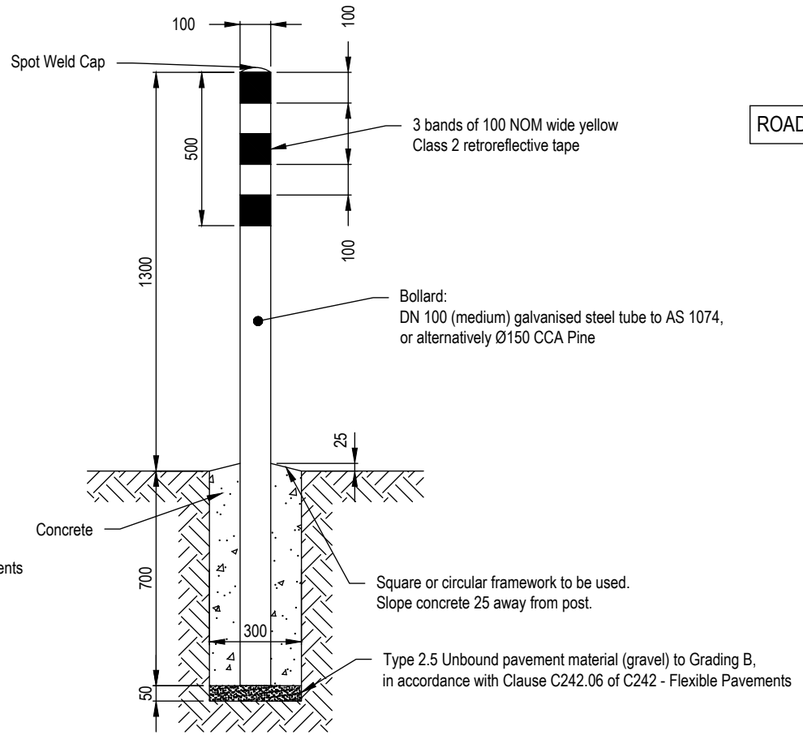
SUBSOIL DRAINAGE

DRAINAGE
STANDARD DRAWING
CMDG–D–040
REV. A B C D E F



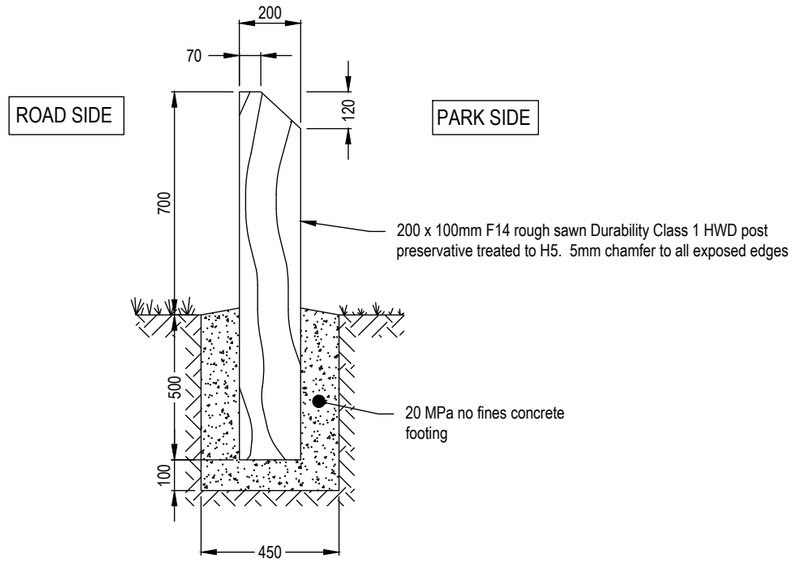
1100 STEEL TUBE BOLLARD

Scale 1:20



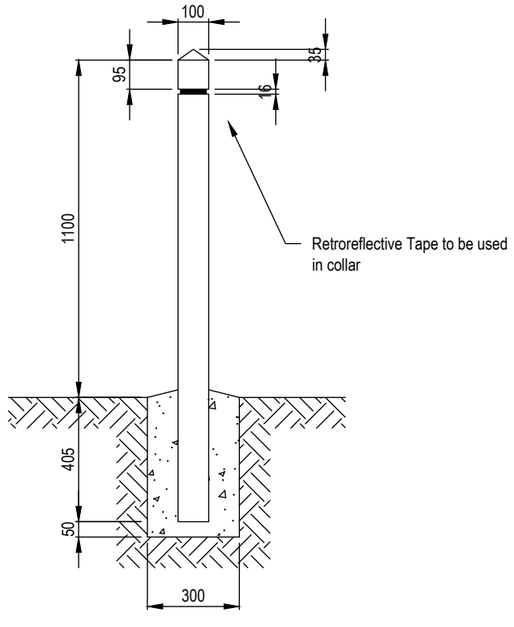
1300 STEEL TUBE BOLLARD

Scale 1:20



SIDE SECTION

Scale 1:20

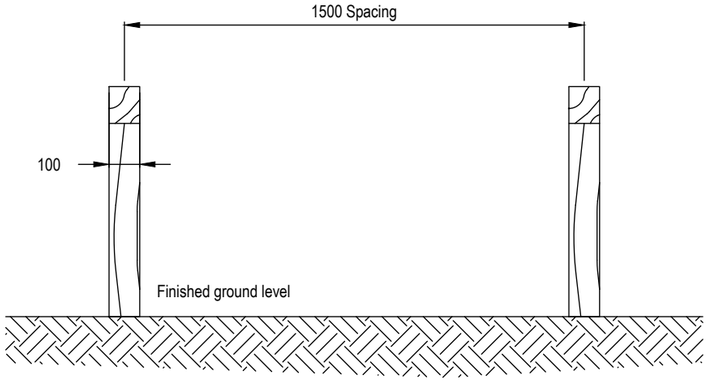


PLASTIC BOLLARD
(WHERE APPROVED BY LOCAL GOVERNMENT)

Scale 1:20

NOTES:

1. Concrete N32 in accordance with AS 1379 and AS 3600 unless noted otherwise
2. Retroreflective tape to AS/NZS 1906.1. Apply in accordance with manufacturer's recommendations.
3. All dimensions in millimetres.
4. Paint all cut surfaces on timber bollard with industrial clear water repellant to lock in chemicals used on CCA, in accordance with AS 1607.
5. This drawing is intended for ground level bollards only. The designer must specify bollard requirements in accordance with AS/NZS 2890 in all other instances.
6. Plastic Bollards must be made from recycled material.



FRONT ELEVATION HARDWOOD TIMBER BOLLARD

Scale 1:20

APPLICABILITY TABLE							
Council	**BSC**	**CHRC**	**GRC**	**IRC**	**LSC**	**MRC**	**RRC**
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plastic bollards approved	Yes	No	Yes	Yes	No	Yes	No
Applicable DWG		CMDG-R-055					

REVISIONS		DATE
G	ADDITIONAL BOLLARDS INCL.PLASTIC ADDED	11/2022
F	IRC ADDED	12/2016
E	GRC AND LSC ADDED	09/2014
D	APPLICABILITY TABLE AMENDED	08/2012
C	APPLICABILITY TABLE AMENDED	08/2012

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Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

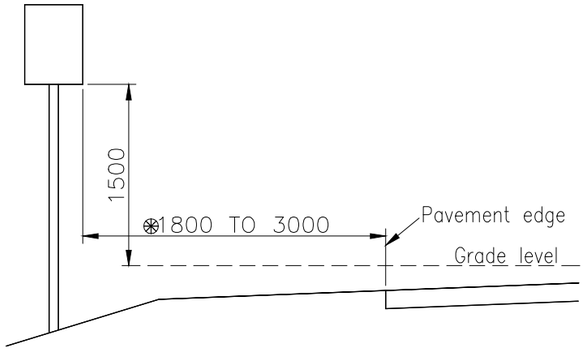
COUNCIL APPROVED FIXED BOLLARDS

ROADS

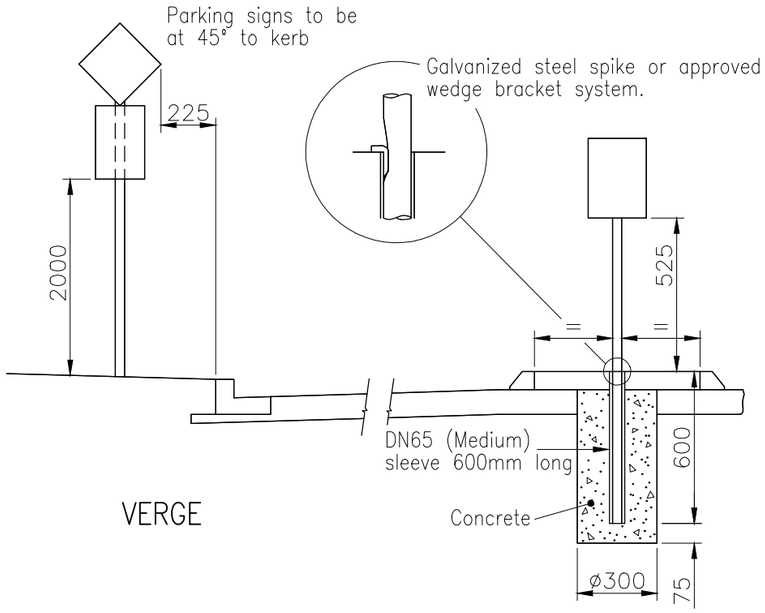
STANDARD DRAWING | A3

CMDG-R-055

REV. C D E F G



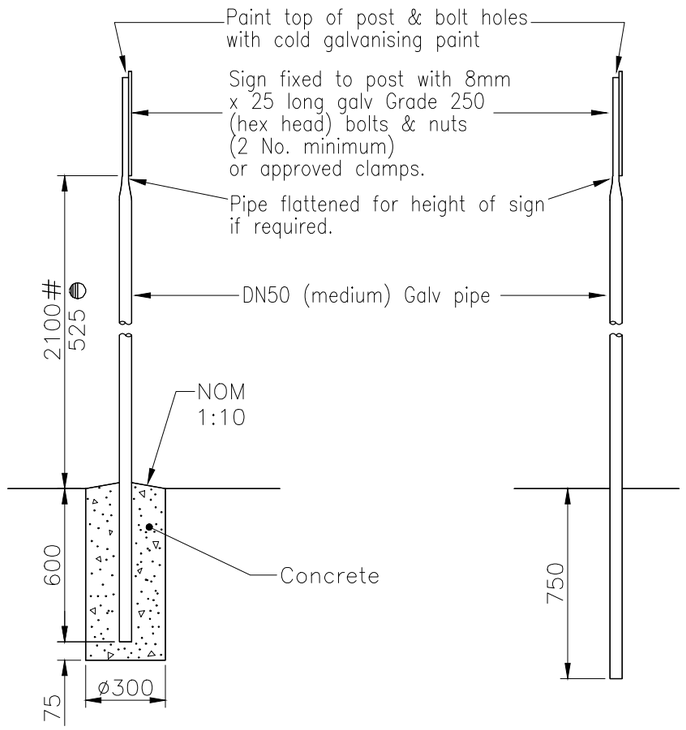
LOCATION OF SIGNS – RURAL ROADS



VERGE

MEDIAN

LOCATION OF SIGNS – STREETS



STREETS

RURAL ROADS

NOTES:

1. All signs to be reflectorised Class 1 to AS1743 unless noted otherwise.
2. Size & sign type has been included in the schedule and/or in the project drawings. Special standards are to be provided at large signs when indicated in the project drawings.
3. All signs are to be approved by the Superintendent prior to erection.
4. Where signs are to be erected in streets where footpaths are not constructed to permanent levels the Rural Roads type base shall be adopted.
5. Signs shall be out of aluminium or aluminium alloy not less than 2mm thick to AS 2848.
6. The DN65 sleeve and spike shall only be used on medians.
7. All pipes to be galvanised. Steel pipe to AS 1074. Galvanising to AS/NZS 4680.
8. Concrete N25 in accordance with AS 1379 and AS 3600.
9. Hexagonal head bolts to AS 1111.
   Nuts to AS 1112.
   Washers to AS 1237.
   Galvanizing to AS 1214.
10. All dimensions in millimetres.
11. Sleeve to be provided as directed by Council

LEGEND

\# on footpaths

⊛ As directed by the Superintendent

⊖ on medians

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
E	IRC ADDED	12/2016
D	GRC AND LSC ADDED	09/2014
C	MRC ADDED	04/2011
B	NOTE 11 ADDED	07/2010
A	POST AMALGAMATION REVIEW	01/2010

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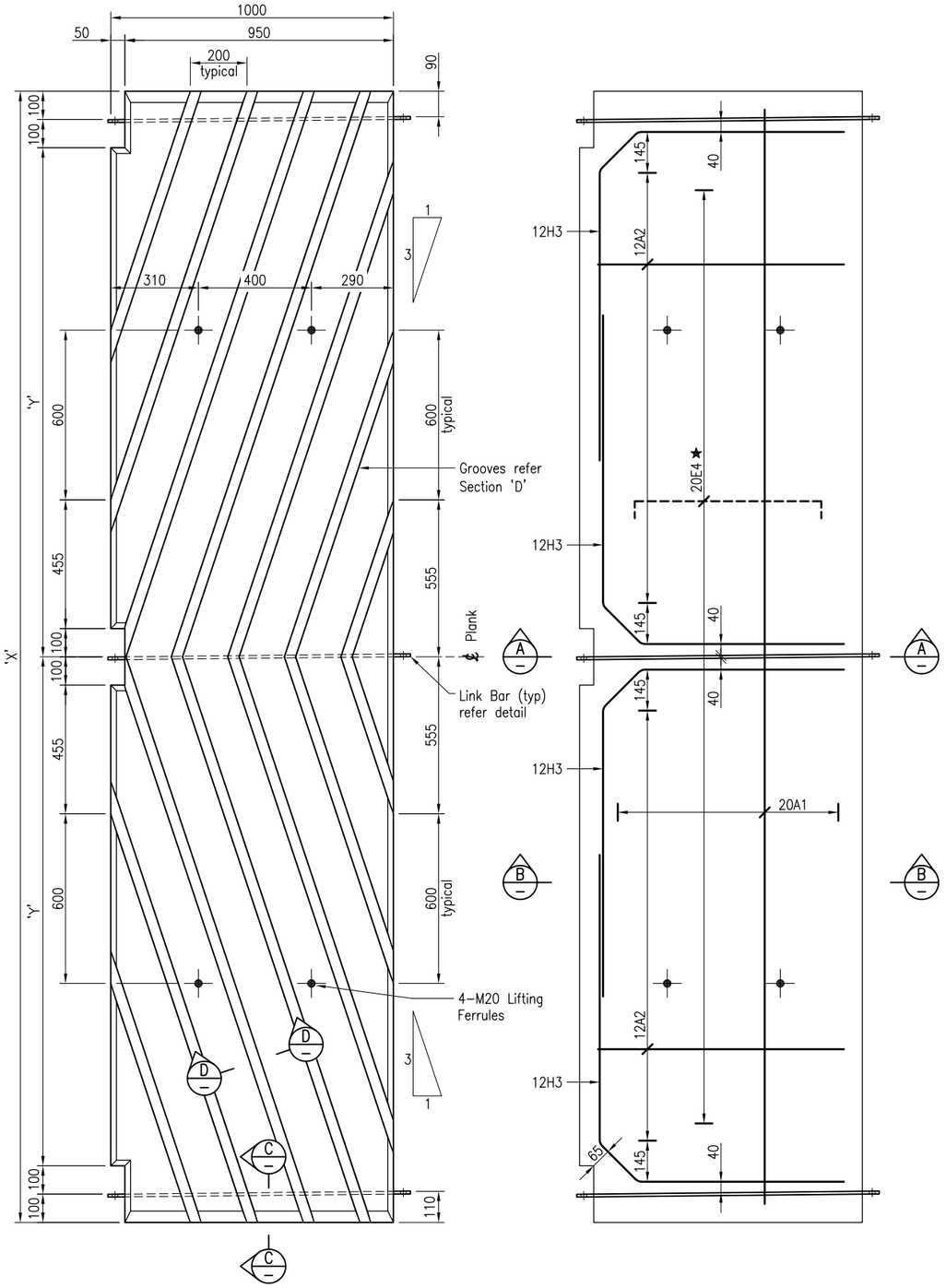
Rockhampton Regional Council (RRC)

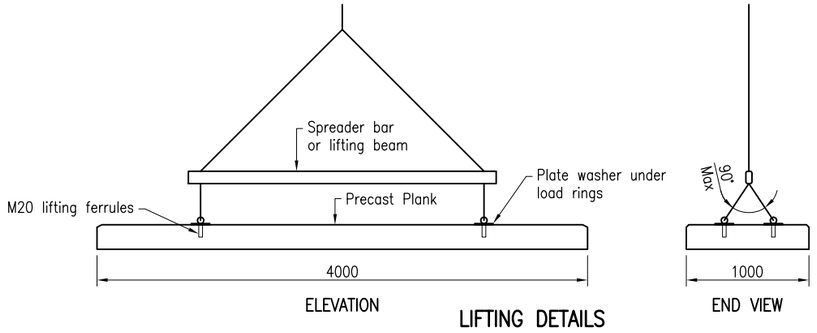
SIGN LOCATION AND INSTALLATION DETAILS

ROADS
STANDARD DRAWING
CMDG-R-081
REV. A B C D E

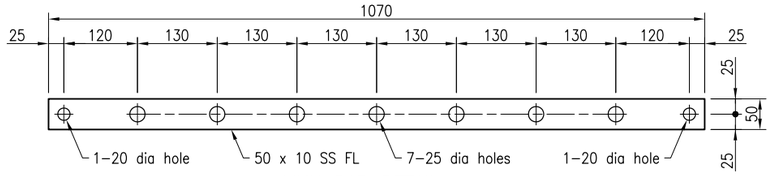


PLAN

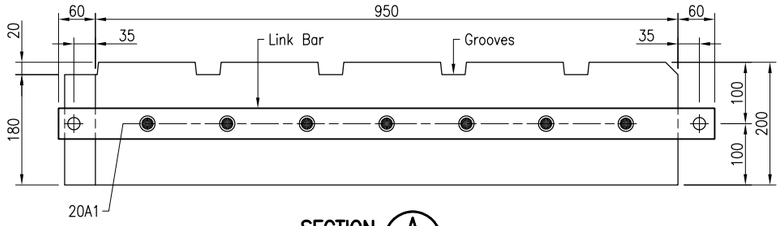
REINFORCEMENT PLAN



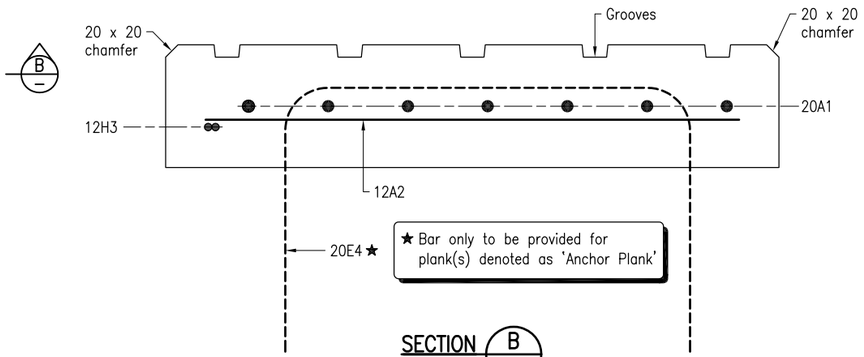
LIFTING DETAILS



LINK BAR DETAIL
(No OFF = 3)

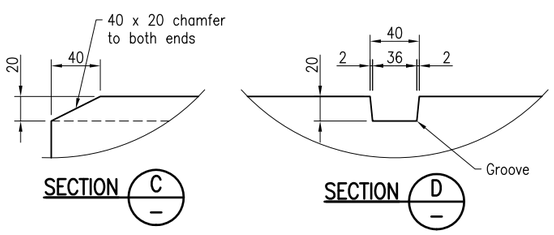


SECTION A



SECTION B

BAR DIMENSIONS



NOTES:

1. PRECAST PLANKS to be manufactured to MRTS72.
2. DESIGN LOADING: This plank shall only be used for recreational boating situations. The maximum design load is for a dual axle trailer – 2 tonnes per axle at 750 centres.
3. CONCRETE to be in accordance with MRTS70.
   Concrete to be S50/20, exposure classification C.
4. REINFORCING STEEL to be in accordance with AS/NZS 4671 and MRTS71.
   Deformed bars Grade D500N.
   Minimum cover to reinforcing steel shall be 65 unless shown otherwise.
   All carbon reinforcing steel to be Australian Certification Authority for Reinforcing Steel (ACRS) certified.
   All carbon steel reinforcing bars, reinforcing mesh and tie wires shall be hot dip galvanised to AS/NZS 4680.
   Stainless Steel reinforcing to be in accordance BS 6774 and MRTS71A.
   Stainless Steel round bar Grade 316.
5. STAINLESS STEEL to be in accordance with ASTM A276.
   Stainless Steel flat bar Grade 316.
   All work shall be neatly finished with sharp edges removed.
6. TRAFFICABLE SURFACE FINISH: The aggregate shall be lightly or medium exposed and level with or slightly above the concrete matrix to achieve a non–slip finish.
7. MASS of RG4000 Precast Plank is 2000 kg.
   MASS of RG3500 Precast Plank is 1750 kg.
   The mass of the plank shall be clearly and permanently marked on a side surface.
8. M20 FERRULES shall be stainless steel Grade 316 Elephant Foot Ferrules with the following capacities:

Ferrule	Length	Minimum Working Load Limit
M20	95mm	(Tension) 26.6kN for concrete strength of 32MPa

   Cross bars (if required to achieve minimum strength requirements) shall be stainless steel Grade 316
   The manufacturer shall seek approval for the proposed ferrules in accordance with Clause 5.6 of MRTS72
9. LIFTING, TRANSPORTATION AND STORAGE shall be in accordance with MRTS72. Planks shall not be moved before attaining a minimum strength of 32 MPa.
10. DIMENSIONS are in millimetres unless shown otherwise.

Departmental Specifications:

MRTS70 Concrete
MRTS71 Reinforcing Steel
MRTS71A Stainless Steel Reinforcing
MRTS72 Manufacture of Precast Elements

Australian and International Standards:

AS/NZS 1594 Hot Rolled Steel Flat Products
AS/NZS 3678 Structural Steel – Hot–rolled Plates, Floor Plates and Slabs
AS/NZS 4671 Steel Reinforcing Materials
AS/NZS 4680 Hot–dip Galvanized (Zinc) Coatings on Fabricated Ferrous Articles
ASTM A276 Standard Specification for Stainless Steel Bars and Shapes
BS 6744 Stainless Steel Reinforcement for use in Concrete

SCHEDULE

PLANK TYPE	DIMENSIONS 'X'	DIMENSIONS 'Y'	REINFORCEMENT Bar Mark	Grade and Size	Shape	P	A	B	C	E	F	Length	Quantity	Centres
RG4000	4000	1800	20A1	N20	A	–	3870	–	–	–	–	3870	7	130
			12A2	N12	A	–	870	–	–	–	–	870	24	138
			12H3	N12	H	60	1020	140	715	855	198	1933	4	–
			20E4 ★	20 dia SS round bar	E	100	660	430	430	–	–	1429	4	1100
RG3500	3500	1550	20A1	N20	A	–	3370	–	–	–	–	3370	7	130
			12A2	N12	A	–	870	–	–	–	–	870	20	138
			12H3	N12	H	60	900	140	715	855	198	1813	4	–
			20E4 ★	20 dia SS round bar	E	100	660	430	430	–	–	1429	4	1000

Department of Transport and Main Roads

PRECAST PLANKS FOR BOAT RAMP

TYPES RG4000 AND RG3500

Queensland Government

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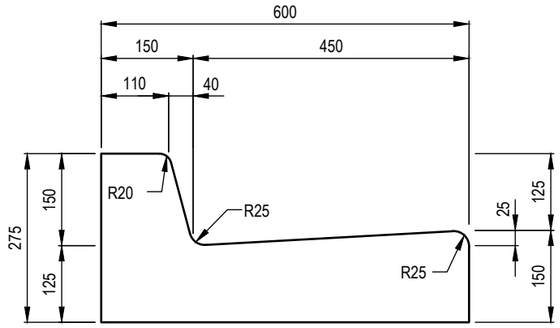
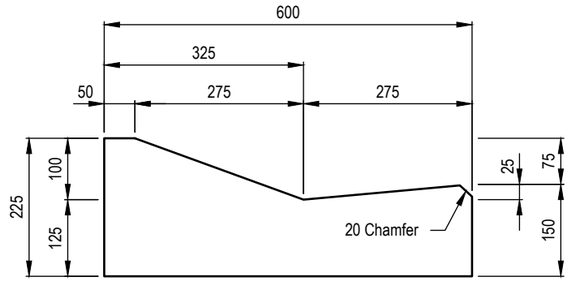
A3
Not to Scale

Standard Drawing No
4000
Date 10/16

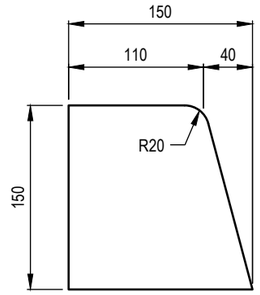
A B C



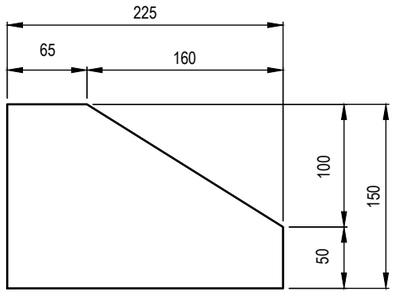
TYPE 1 - BARRIER KERB AND CHANNEL
Scale 1:10



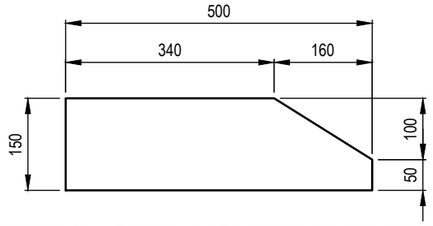
TYPE 2 - MOUNTABLE KERB AND CHANNEL
Scale 1:10



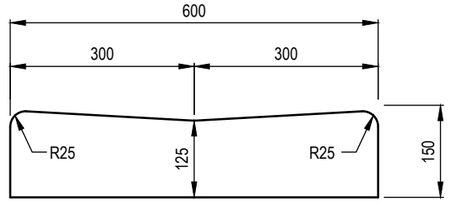
TYPE 3 - BARRIER KERB
Scale 1:5



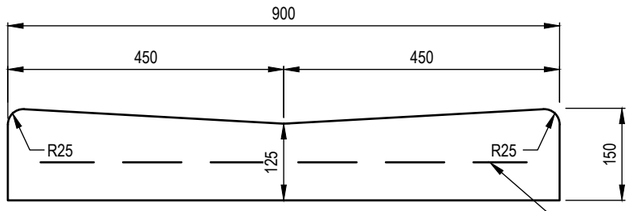
TYPE 4 - SEMI-MOUNTABLE KERB
Scale 1:5



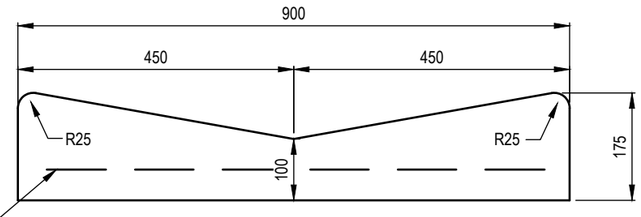
TYPE 5 - SEMI-MOUNTABLE KERB
Scale 1:10



TYPE 6 - CONCRETE INVERT (600 WIDE)
Scale 1:10

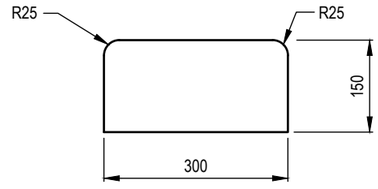


TYPE 7 - CONCRETE INVERT (900 WIDE)
Scale 1:10

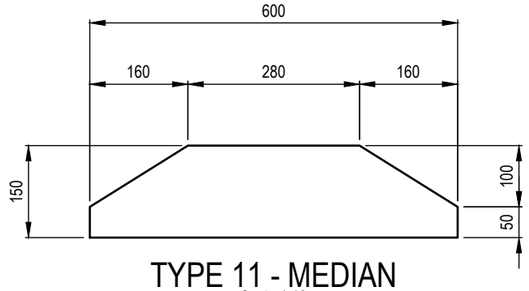


SL62 Centrally placed, concrete strength 32 MPa

TYPE 8 - CONCRETE CHANNEL (900 WIDE)
Scale 1:10



TYPE 10 - FLUSH KERB
Scale 1:10



TYPE 11 - MEDIAN
Scale 1:10

NOTES:

1. All dimensions in millimeters.

APPLICABILITY TABLE							
Council	**BSC**	**CHRC**	**GRC**	**IRC**	**LSC**	**MRC**	**RRC**
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
H	TYPE 9 REMOVED, TYPE 11 ADDED	04/2023
G	BSC APPLICIBILITY AMENDED	10/2022
F	IRC ADDED	12/2016
E	FLUSH KERB ADDED	07/2015
D	GRC AND LSC ADDED	09/2014
C	MRC ADDED/ROLLOVER KERB & CHANNEL AMENDED	07/2011

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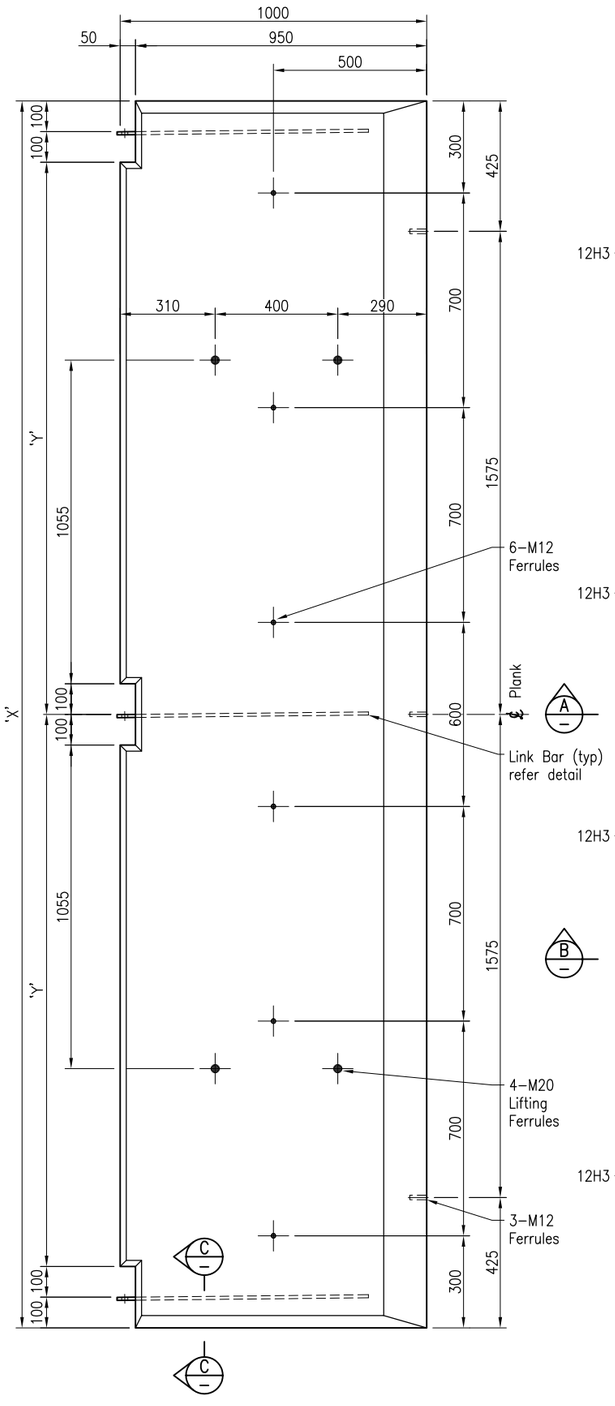
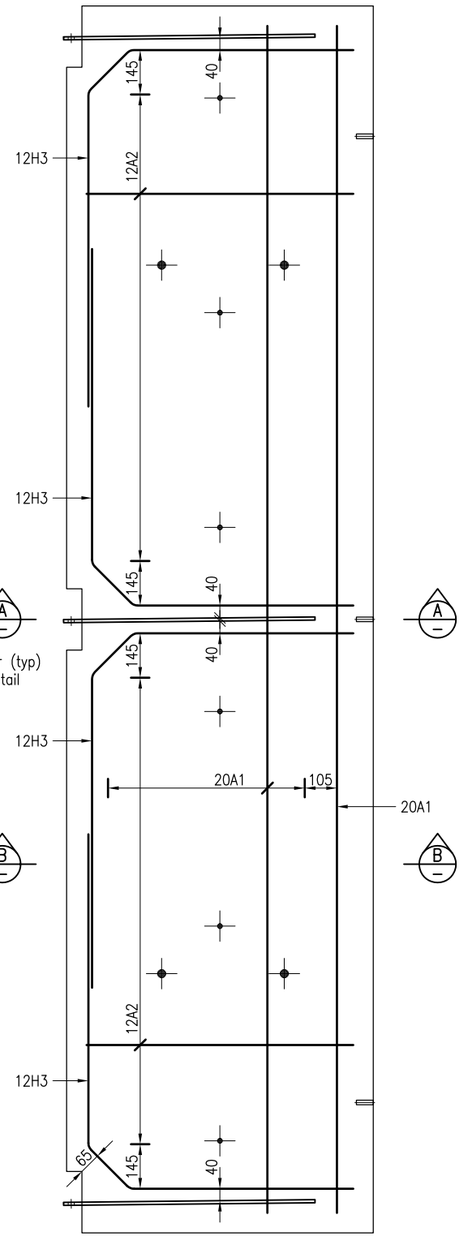
Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)

STANDARD KERB AND CHANNEL PROFILES

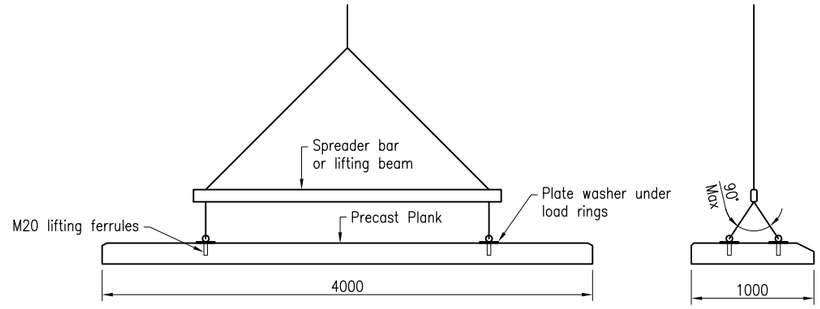
ROADS
STANDARD DRAWING A3
CMDG-R-060
REV. C D E F G H



PLAN



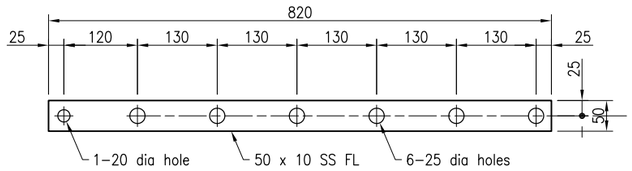
REINFORCEMENT PLAN



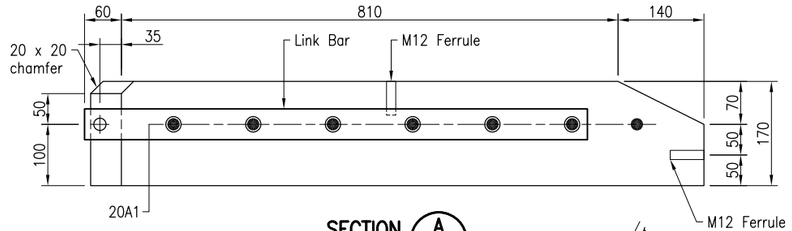
ELEVATION

LIFTING DETAILS

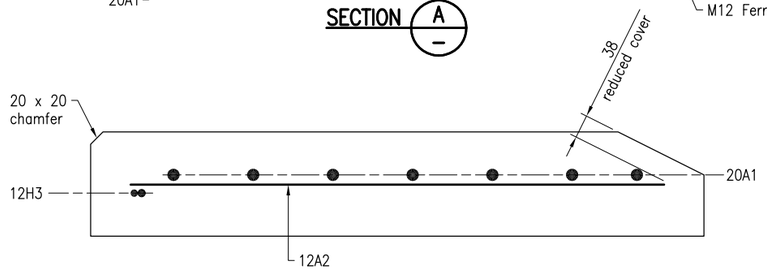
END VIEW



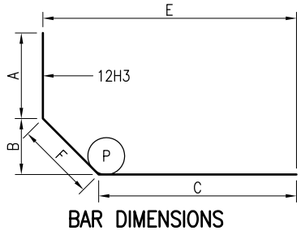
LINK BAR DETAIL
(No OFF = 3)



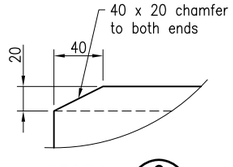
SECTION A



SECTION B



BAR DIMENSIONS



SECTION C

NOTES:

1. PRECAST PLANKS to be manufactured to MRTS72.
2. DESIGN LOADING: This plank shall only be used for recreational boating situations. The maximum design load is for a dual axle trailer – 2 tonnes per axle at 750 centres.
3. CONCRETE to be in accordance with MRTS70.
   Concrete to be S50/20, exposure classification C.
4. REINFORCING STEEL to be in accordance with AS/NZS 4671 and MRTS71.
   Deformed bars Grade D500N.
   Minimum cover to reinforcing steel shall be 65 unless shown otherwise.
   All carbon reinforcing steel to be Australian Certification Authority for Reinforcing Steel (ACRS) certified.
   All carbon steel reinforcing bars, reinforcing mesh and tiewires shall be hot dip galvanised to AS/NZS 4680.
5. STAINLESS STEEL to be in accordance with ASTM A276.
   Stainless Steel flat bar Grade 316.
   All work shall be neatly finished with sharp edges removed.
6. TRAFFICABLE SURFACE FINISH: The aggregate shall be lightly or medium exposed and level with or slightly above the concrete matrix to achieve a non–slip finish.
7. MASS of T4000 Precast Plank is 1650 kg.
   MASS of T3500 Precast Plank is 1450 kg.
   The mass of the plank shall be clearly and permanently marked on a side surface.
8. M12 AND M20 FERRULES shall be stainless steel Grade 316 Elephant Foot Ferrules with the following capacities:

Ferrule	Length	Minimum Working Load Limit
M12	55mm	(Tension) 10.8kN
		(Shear) 12.1kN for concrete strength of 40MPa
M20	95mm	(Tension) 26.6kN for concrete strength of 32MPa

   Cross bars (if required to achieve the minimum strength requirement) shall be stainless steel Grade 316.
   The manufacturer shall seek approval for the proposed ferrules in accordance with Clause 5.6 of MRTS72.
9. LIFTING, TRANSPORTATION AND STORAGE shall be in accordance with MRTS72.
   Planks shall not be moved before attaining a minimum strength of 32 MPa.
10. DIMENSIONS are in millimetres unless shown otherwise.

REFERENCED DOCUMENTS:

Departmental Specifications:

- MRTS70 Concrete
- MRTS71 Reinforcing Steel
- MRTS71A Stainless Steel Reinforcing
- MRTS72 Manufacture of Precast Elements

Australian and International Standards:

- AS/NZS 1594 Hot Rolled Steel Flat Products
- AS/NZS 3678 Structural Steel – Hot–rolled Plates, Floor Plates and Slabs
- AS/NZS 4671 Steel Reinforcing Materials
- AS/NZS 4680 Hot–dip Galvanized (Zinc) Coatings on Fabricated Ferrous Articles
- ASTM A276 Standard Specification for Stainless Steel Bars and Shapes

SCHEDULE

PLANK TYPE	DIMENSIONS		REINFORCEMENT										
	'X'	'Y'	Bar Mark	Grade and Size	Shape	P	A	B	C	E	F	Length	Quantity	Centres
T4000	4000	1800	20A1	N20	A	–	3870	–	–	–	–	3870	7	130
			12A2	N12	A	–	870	–	–	–	–	870	24	138
			12H3	N12	H	60	1020	140	715	855	198	1933	4	–
T3500	3500	1550	20A1	N20	A	–	3370	–	–	–	–	3370	7	130
			12A2	N12	A	–	870	–	–	–	–	870	20	138
			12H3	N12	H	60	900	140	715	855	198	1813	4	–

Department of Transport and Main Roads

PRECAST PLANKS FOR BOAT RAMP

TYPES T4000 AND T3500

Queensland Government

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A3

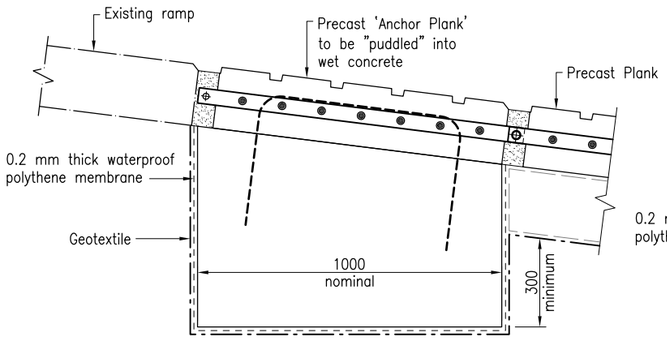
Not to Scale

Standard Drawing No
4002
Date 10/16

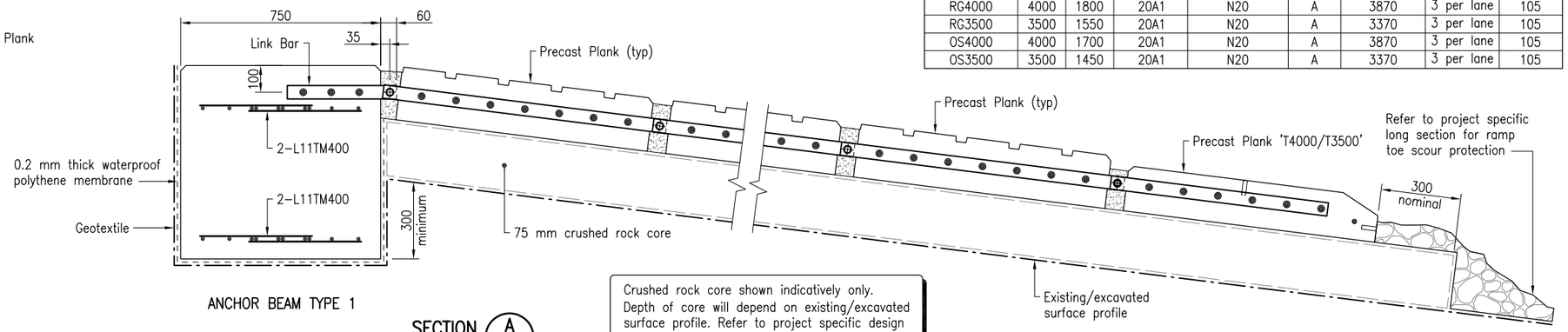
A | B

ANCHOR BEAM TYPE 1 SCHEDULE

PLANK TYPE	DIMENSIONS		REINFORCEMENT					
	'X'	'Y'	Bar Mark	Grade & Size	Shape	Length (A)	Quantity	Centres
RG4000	4000	1800	20A1	N20	A	3870	3 per lane	105
RG3500	3500	1550	20A1	N20	A	3370	3 per lane	105
OS4000	4000	1700	20A1	N20	A	3870	3 per lane	105
OS3500	3500	1450	20A1	N20	A	3370	3 per lane	105



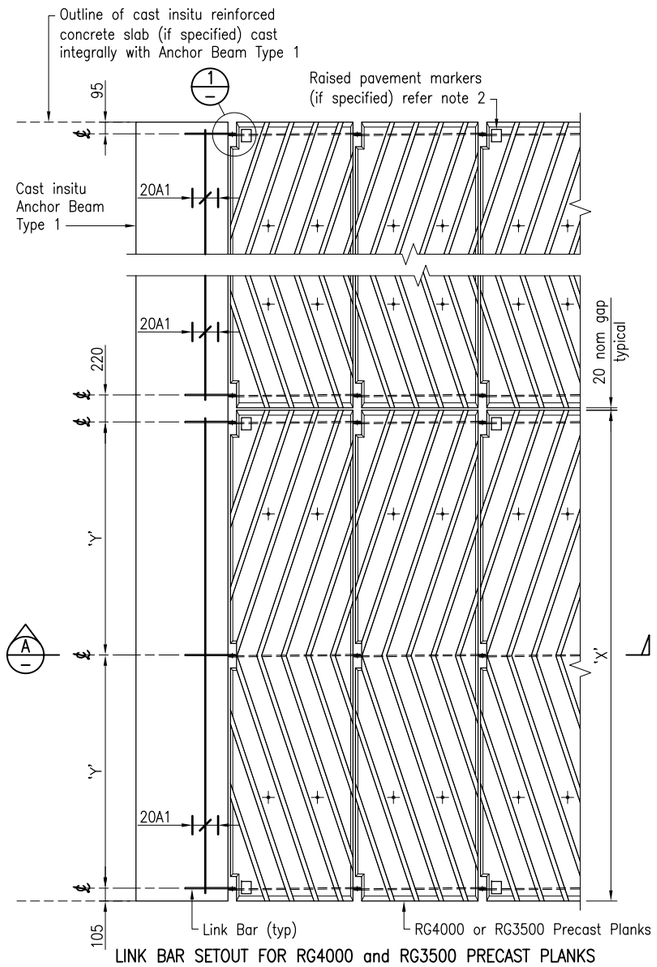
ANCHOR BEAM TYPE 2



ANCHOR BEAM TYPE 1

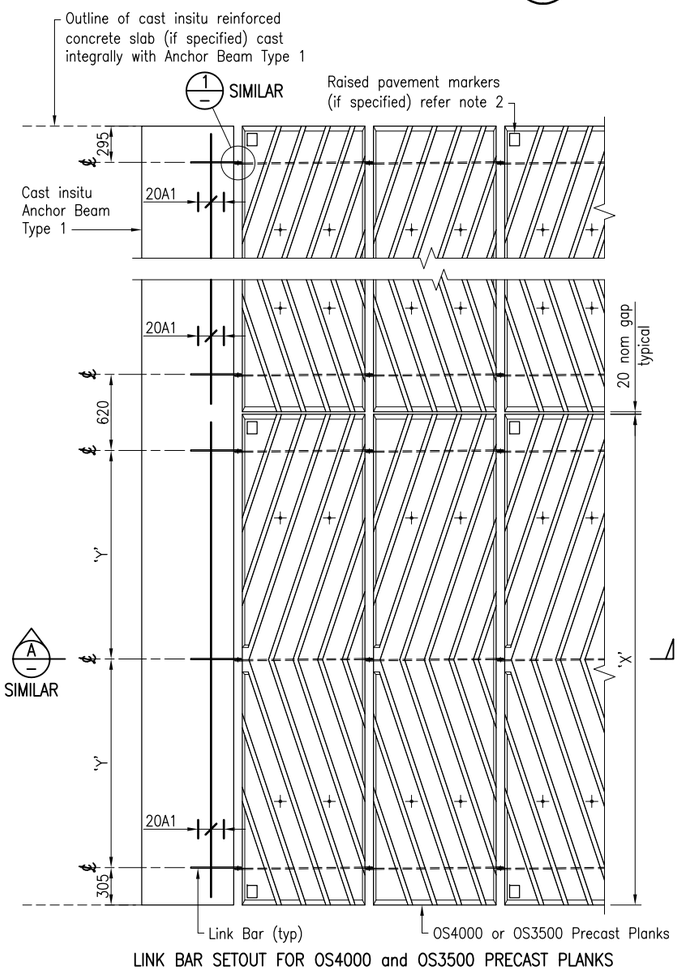
Crushed rock core shown indicatively only. Depth of core will depend on existing/excavated surface profile. Refer to project specific design drawings for further details.

SECTION A



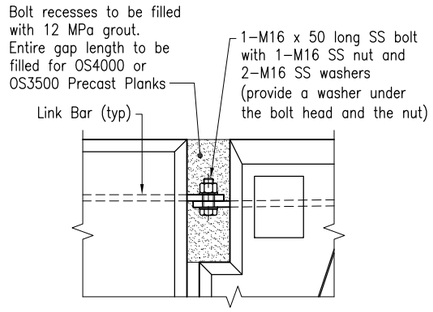
LINK BAR SETOUT FOR RG4000 and RG3500 PRECAST PLANKS

PLAN VIEW

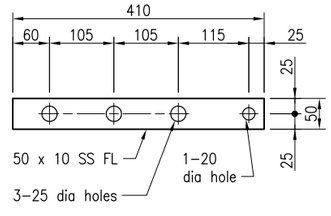


LINK BAR SETOUT FOR OS4000 and OS3500 PRECAST PLANKS

PLAN VIEW



DETAIL 1



(No OFF = 3 per lane)

LINK BAR DETAIL

NOTES:

1. CONSTRUCTION OF BOAT RAMP shall be in accordance with MRTS300.
2. RETROREFLECTIVE RAISED PAVEMENT MARKERS (RRPM) shall be applied where shown (if required) on the project specific design drawings.
   Pavement markers shall be yellow Type A1 bidirectional markers in accordance with AS 1906.3. Size to be 80 x 100 or 100 x 100.
   Pavement markers shall be fully supported on precast planks without overhanging the grooves. The reflective faces shall be aligned longitudinally so they face the water and the ramp approach.
   Contact surfaces are to be evenly ground back 1–2 mm, cleaned to remove all loose material and other contaminants, and thoroughly dried prior to adhesion.
   A two part epoxy adhesive for bonding to concrete shall be spread evenly over the entire base of the marker with sufficient thickness to fill voids, and shall flow out the sides to demonstrate full adhesion. Excess adhesive shall be removed without contaminating the reflective faces.
3. CONCRETE to be in accordance with MRTS70.
   Concrete to be S50/20, exposure classification C.
   Concrete to be cured in accordance with MRTS70.
   All exposed concrete edges shall have 20 x 20 chamfers unless shown otherwise.
4. REINFORCING STEEL to be read in conjunction with Standard Drawings 1043 and 1044.
   Reinforcing steel to be in accordance with AS/NZS 4671 and MRTS71.
   Deformed bars Grade D500N.
   Mesh Grade D500L.
   Minimum cover to reinforcing steel shall be 65 unless shown otherwise.
   All carbon reinforcing steel to be Australian Certification Authority for Reinforcing Steel (ACRS) certified.
   All carbon steel reinforcing bars, reinforcing mesh and tiewires shall be hot dip galvanised to AS/NZS 4680.
5. STAINLESS STEEL to be in accordance with ASTM A276.
   Stainless Steel flat bar Grade 316.
   All work shall be neatly finished with sharp edges removed.
6. SURFACE FINISH: Trafficable surface of Anchor Beam Type 1 to have a medium broom finish at 90° to the boat ramp control line.
7. STAINLESS STEEL BOLTS to be Grade A4/316, nuts to be Grade A4/316 A4–70 and washers to be Grade 316, and shall conform to ISO 3506.
   All stainless steel bolts, nuts and washers shall be either electro polished or passivated in accordance with ASTM 380.
   A nickel based anti–sieze lubricant shall be applied to threads prior to assembly.
   Bolted joints to be wrapped with polyethylene tape before grouting.
8. For RG4000 and RG3500 Precast Plank details refer Standard Drawing 4000.
   For OS4000 and OS3500 Precast Plank details refer Standard Drawing 4001.
   For T4000 and T3500 Precast Plank details refer Standard Drawing 4002.
   For geotextile, geogrid, 75 mm crushed rock and earthworks details refer Standard Drawing 4021.
9. DIMENSIONS are in millimetres unless shown otherwise.

ASSOCIATED DEPARTMENTAL DOCUMENTS:
- Standard Drawings
- Specifications

REFERENCED DOCUMENTS:

Departmental Standard Drawings:
- 1043 Reinforcing Steel – Standard Bar Shapes, Typical Details and Notes
- 1044 Reinforcing Steel – Lap Lengths

Departmental Standard Drawings continued:
- 4000 Precast Plank for Boat Ramp – Types RG4000 and RG3500
- 4001 Precast Plank for Boat Ramp – Types OS4000 and OS3500
- 4002 Precast Plank for Boat Ramp – Types T4000 and T3500
- 4021 Boat Ramp Construction – Earthworks and Crushed Rock Core Details

Departmental Specifications:
- MRTS70 Concrete
- MRTS71 Reinforcing Steel
- MRTS300 Boat Ramps

Australian and International Standards:

AS 1906.3	Retroreflective Materials and Devices for Road Traffic Control Purposes – Raised Pavement Markers
AS/NZS 4671	Steel Reinforcing Materials
AS/NZS 4680	Hot–dip Galvanized (Zinc) Coatings on Fabricated Ferrous Articles
ASTM A276	Standard Specification for Stainless Steel Bars and Shapes
ASTM 380	Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems
ISO 3506	Mechanical Properties of Corrosion–resistant Stainless Steel Fasteners

Department of Transport and Main Roads

BOAT RAMP

BOAT RAMP CONSTRUCTION – PRECAST PLANK INSTALLATION AND ANCHOR BEAM – TYPES 1 AND 2

Queensland Government

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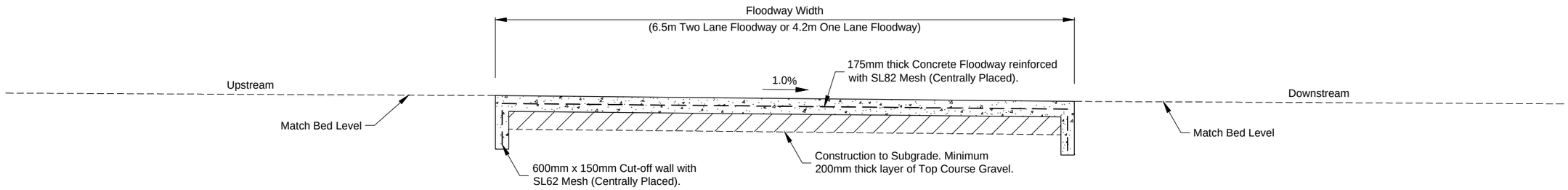
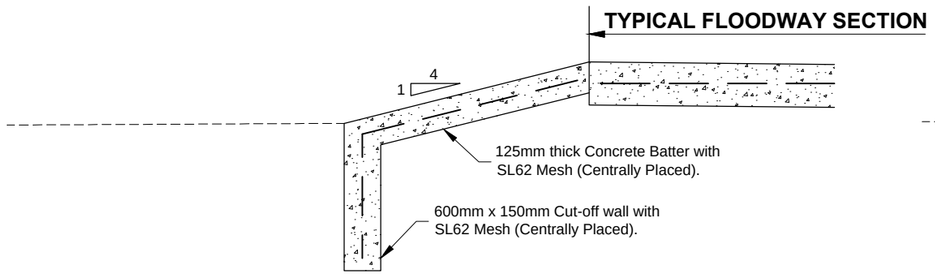
A3
Not to Scale

Standard Drawing No
4020
Date 07/16

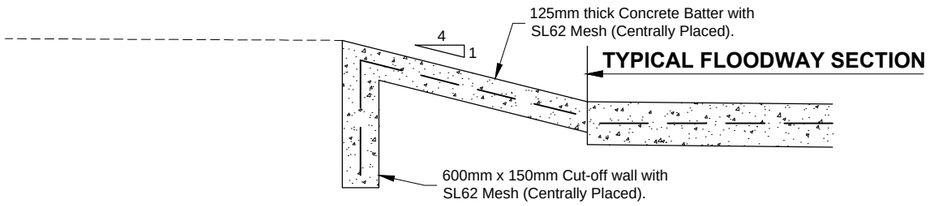
A | B | C



TYPICAL SECTION
Scale 1: 50



EDGE PROTECTION - FILL SITUATION
Scale 1: 25



EDGE PROTECTION - CUT SITUATION
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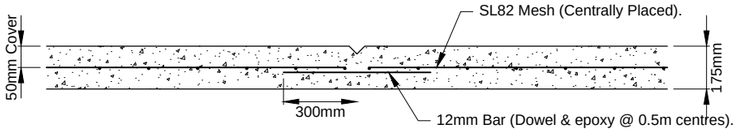
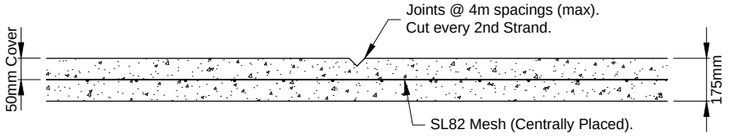


LONGITUDINAL CONSTRUCTION JOINT
Scale 1: 25



TRANSVERSE JOINT
Scale 1: 25

NOTES:

1. **Provide Transverse joints at 4.0m spacings.**
2. **Provide longitudinal joints at centreline for two-lane floodway.**
3. **Provide longitudinal joints at shoulder where edge-protection is required.**
4. **Concrete strength to be 32 MPa.**
5. **Lap Reinforcement fabric 250mm.**
6. **Floodway signage to be installed in accordance with MUTCD (Part 2, Figure 4.27).**
7. **Delineation to be installed on floodway shoulder at maximum 5m centres and spaced evenly to suit floodway length. Delineation to be installed at centreline of two-lane floodway.**
8. **Floodway depth markers to be installed at lowest point on floodway aligned to downstream side.**

WATERWAY BARRIER WORKS - COMPLIANCE NOTES:

1. **Floodway site to be checked on Queensland Government Spatial Data Layer "*Queensland Waterways for Waterway Barrier Works*" to determine if assessable or self-assessable codes apply.**
2. **The lowest level of the floodway must be installed at the level of lowest point of the natural stream bed (Within the footprint of the crossing.)**
3. **There must be a height difference of at least 100mm from the lowest point of the crossing to the edges of the low flow section of the crossing.**
4. **The level of the remainder of the crossing must be no higher than the lowest point of the natural stream bed outside of the low flow channel.**
5. **Refer to *Code for self-assessable development, Minor waterway barrier works, Part 4: Bed level crossings* for more information and alternative treatments.**

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	No	Yes	Yes	Yes
Applicable DWG	CMDG-R-094A						

REVISIONS		DATE
B	IRC ADDED	12/2016
A	ORIGINAL ISSUE	04/2016

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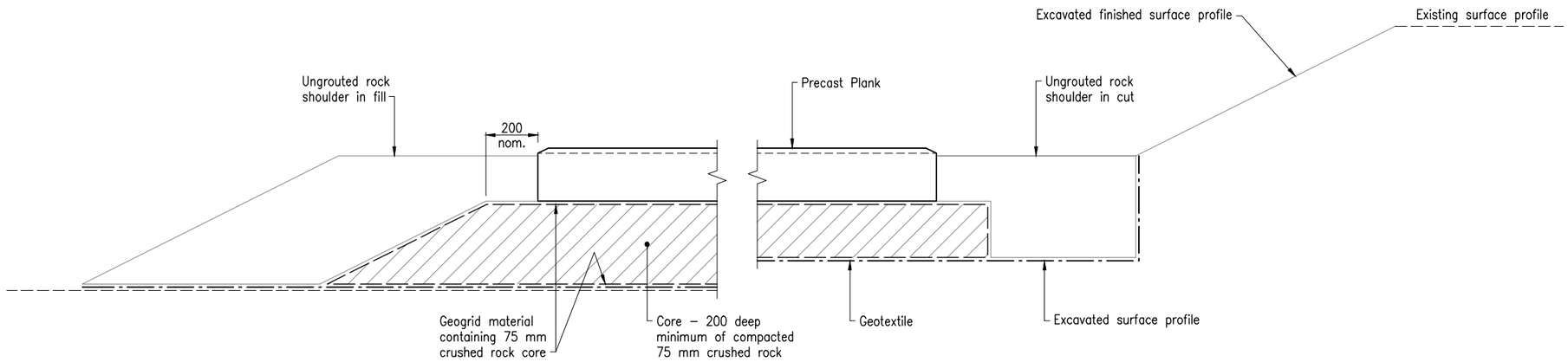
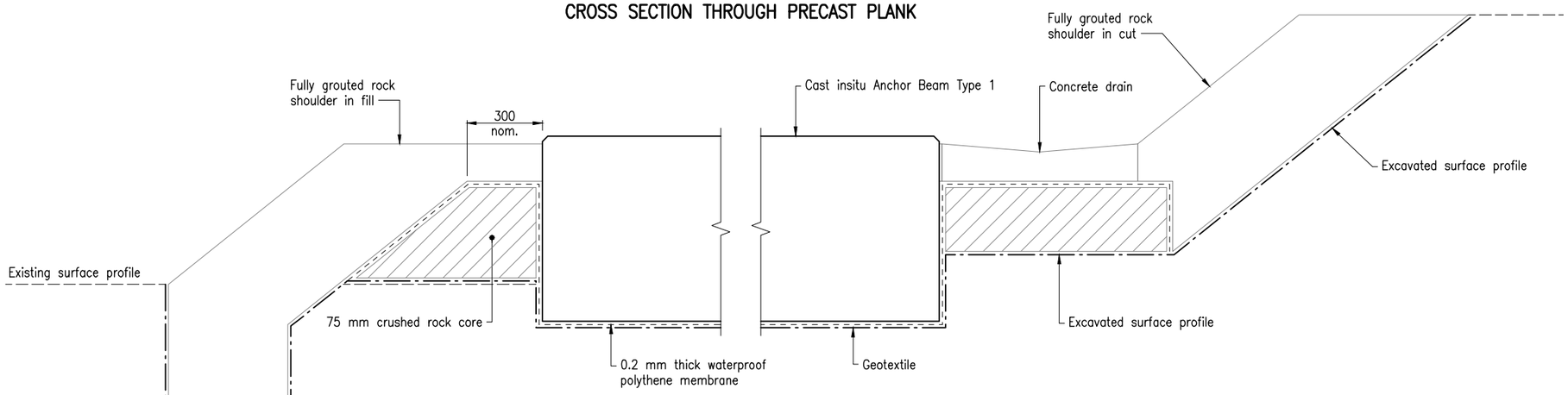
Capricorn Municipal Development Guidelines
Incorporating:
Banana Shire Council (BSC)
Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

FLOODWAY – BED LEVEL CROSSING

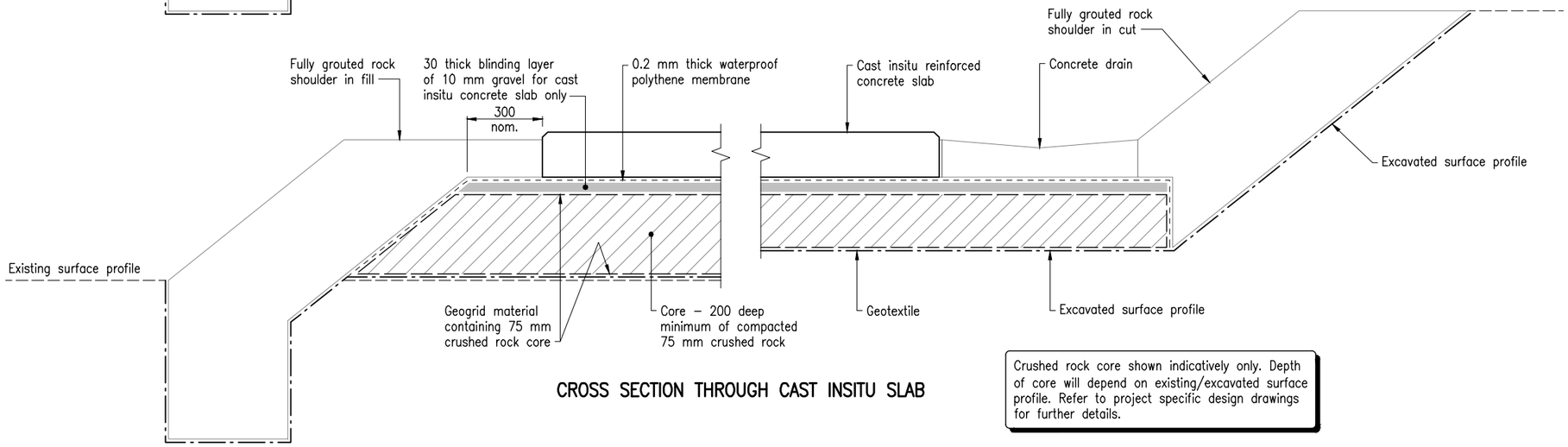
ROADS
STANDARD DRAWING
CMDG-R-094
REV. A B



CROSS SECTION THROUGH PRECAST PLANK



CROSS SECTION THROUGH CAST INSITU ANCHOR BEAM TYPE 1



CROSS SECTION THROUGH CAST INSITU SLAB

Crushed rock core shown indicatively only. Depth of core will depend on existing/excavated surface profile. Refer to project specific design drawings for further details.

ASSOCIATED DEPARTMENTAL DOCUMENTS:
- Standard Drawings
- Specifications

REFERENCED DOCUMENTS:
Departmental Standard Drawings:
- 4022 Boat Ramp Construction – Fully Grouted Shoulders and Ungrouted Shoulders

Departmental Specifications:
- MRTS300 Boat Ramps

NOTES:
1. CONSTRUCTION OF BOAT RAMP shall be in accordance with MRTS300.
2. 75 mm CRUSHED ROCK shall have the following grading:

Australian Standard Sieve Size	Percent Passing
100	100
53	< 30
37.5	0

3. CRUSHED ROCK COMPACTION shall be in accordance with MRTS300.
4. 10 mm GRAVEL BLINDING LAYER shall only be used under cast insitu concrete slabs. Blinding layer is not to be used under precast planks.
5. TREATMENT OF ASS/PASS and other contaminants (if required) is defined in the project specific Environmental Management Plan.
6. GEOGRID shall have the following properties:

Parameter	Requirement
Material	Manufactured from polypropylene sheet with transverse and longitudinal ribs of minimum thickness 1.3 mm
Aperture size	Approximately 37x 37 to contain 75 mm crushed rock
Quality Control Strength	30 kN/m with a peak strain of 10% in both directions
Junction strength between the longitudinal and transverse ribs	Greater than 95% of the Quality Control Strength in both directions

Unless shown otherwise laps shall be 250 minimum and braided together so that both edges are fixed to the lapped sheets.

Braid shall have a nominal weight of 6.8 g/m and be made from 3 ply, 19 strands per ply, high density polyethylene (HDPE), and shall have a breaking strength greater than 200 kg.

7. GEOTEXTILE shall have the following properties:

Parameter	Requirement
Material	Non-woven needle punched staple fibre polyester or polypropylene meeting minimum strength Class D and Filtration Class 1
Elongation	>= 30%
Grab Strength	1200 N
Tear Strength	450 N
G Rating	3000

Placement shall be in accordance with MRTS300.

Unless shown otherwise laps shall be 500 minimum.

Construction equipment shall not stand or travel directly over geotextile.

Rock armour (> 150 mm) placed directly on geotextile shall have a maximum drop height of 1.5m.

8. For precast plank installation and anchor beam details refer Standard Drawing 4020.
9. DIMENSIONS are in millimetres unless shown otherwise.

Department of Transport and Main Roads

BOAT RAMP

BOAT RAMP CONSTRUCTION – EARTHWORKS AND CRUSHED ROCK CORE DETAILS

Queensland Government

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A3 | Not to Scale

Standard Drawing No 4021

Date 10/15

A | B