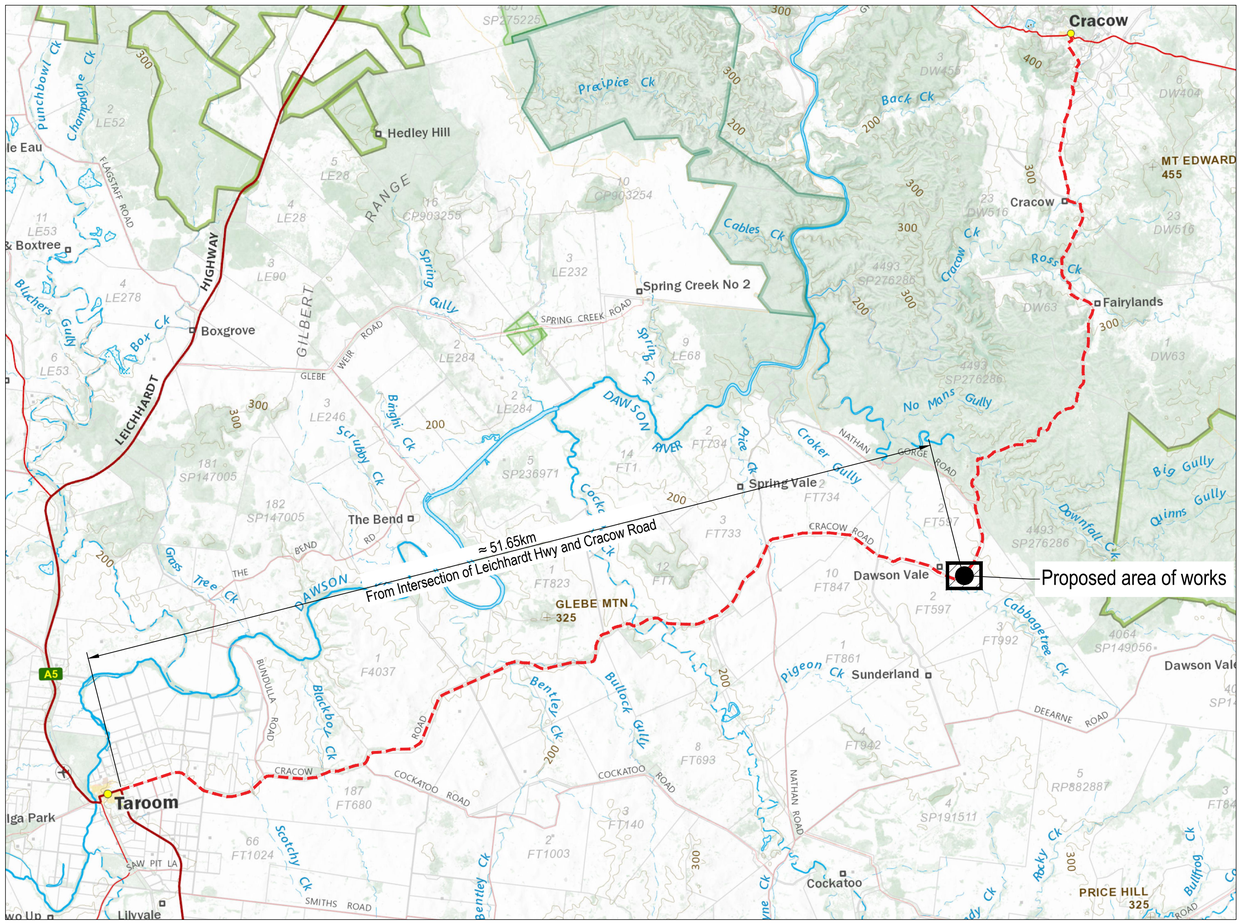
CRACOW ROAD, SITE 2, UN-NAMED CREEK 1

ROAD AND FLOODWAY UPGRADE



LOCALITY PLAN
(Not to scale)

DRAWING INDEX

Drawing Number	Date	Drawing Description
001	Oct-23	Project Cover Sheet
002	Oct-23	General Notes
300	Oct-23	Survey Control and Services Plan
400	Oct-23	Roadworks and Setout Plan Sheet 1
500	Oct-23	Pavement Plan
600	Oct-23	Longitudinal Section

DRAWING INDEX

Drawing Number	Date	Drawing Description
700	Oct-23	Typical Cross Sections
800	Oct-23	Annotated Cross Sections Sheet 1
801	Oct-23	Annotated Cross Sections Sheet 2
802	Oct-23	Annotated Cross Sections Sheet 3
803	Oct-23	Annotated Cross Sections Sheet 4
804	Oct-23	Annotated Cross Sections Sheet 5

DRAWING INDEX

Drawing Number	Date	Drawing Description
1000	Oct-23	Supplementary Signs and Linemarking Details
1200	Oct-23	Floodway Details
1600	Oct-23	Limit of Clearing Plan
1700	Oct-23	Temporary Erosion and Sediment Control Sheet 1
1701	Oct-23	Temporary Erosion and Sediment Control Sheet 2

STANDARD DRAWINGS:
ROADWORKS

Dwg.	Rev.	Description
CMDG-R-081	E	Sign Location and Installation Details
CMDG-R-094	B	Floodway - Bed Level Crossing

DEPARTMENT OF TRANSPORT AND MAIN ROADS - STANDARD DRAWINGS:
ROAD FURNITURE

1170	D	Flood Depth Indicators - Installation

GENERAL EARTHWORKS AND PROPERTY ACCESS

1178	E	Diversion of Water from Roadway and Table Drains

XREFS :- X_CRC_BSC_TITLE.dwg

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A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
PROJECT COVER SHEET

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	001
Revision	A
Series No.	1 of 17

SAFETY IN DESIGN NOTES:

1. Potential safety hazards identified by the Designer have been assessed for this project in accordance with Safe Design of Structures - Code of Practices by Safe Work Australia, 2012. Refer to the ***Safety In Design Report*** for the potential safety hazards.
2. Disclaimer: It must be acknowledged that new and/or different risks may become apparent during each project phase.The designer has ensured, so far as reasonably practicable, that the structure/municipal work is designed to minimise risk to the health and safety of persons involved in construction or use related activities. Further, in Appendix A - Safety in Design Risk Register of the ***Safety In Design Report***, assumptions may have been made within the different project phases as to how the project and/or project elements will be constructed and maintained. This may differ from the end methods adopted.
3. Any person who undertakes alterations, variations or modifications to these design drawings, without consultation and approval from the original or subsequent designer, will assume the duties of a designer and will be held responsible for the safety in design for this project.
4. All works must comply with W.H. & S. Act, 2011.

GENERAL NOTES:

1. Works shall be undertaken generally in accordance with the relevant CMDG construction specifications except where specific DTMR specification requirements are detailed within these Project specific Drawings. The most current version shall be adopted, unless noted otherwise.
2. Works to be measured in accordance with project specific *Supplementary Specification for Measurement and Work Operations for Work Items.*
3. If any archaeological or cultural material is exposed on the work site all works shall cease. The D.E.H.P., Aboriginal Land Council and I.C.C. are to be notified.
4. All works are to comply with the requirements of the Environmental Protection Act, 1994.
5. Disposal/movement of material in areas of Red Imported Fire Ants are to comply with the D.A.F.F. regulations. Refer the Department's website: ***www.daff.qld.gov.au/fireants*** for the current information.
6. Prior to commencement of work a Risk Management Plan to minimise the chance of spreading Fire Ants is to be completed.
7. The positions shown on drawings for public utilities services are based on the B.Y.D.A. information supplied at time of design and are indicative only. Prior to construction the current Service Authority information is to be obtained from B.Y.D.A. (website: www.byda.com.au). The position and depth of each service is to be verified by the relevant Service Authority on site before the start of any construction.
8. Where these drawings make reference to the Administrator or Contract Administrator it shall mean the Superintendent managing the works.
9. Prior to commencement of work contact the Superintendent if any PSM's are in the vicinity of the work site.
10. Order of Precedence of Documents, Ambiguities or Discrepancies - The following order of precedence shall apply where there is any ambiguity, discrepancy or inconsistency between the design documents comprising the Contract, with the higher in the list having a higher priority:
    a. These Project Specific Drawings
    b. Technical Specifications
    c. Standard Drawings

    The several documents forming the Contract are to be taken as mutually explanatory of one another. If either party discovers any ambiguity or discrepancy in any document prepared for the purpose of executing the Work Under the Contract, that party shall notify the Superintendent in writing of the ambiguity or discrepancy as soon as possible,
11. The Scheme Drawings listed on the Project Cover Sheet are to be read as a whole and not in isolation. Any isolated drawing separated from the control set will be considered voided and is not to be used.
12. All drawings are to be read in conjunction with the project's specification and all relevant Standard Drawings.
13. All drawings are to be read in conjunction with the Abbreviation Table shown.
14. Materials and workmanship - Where materials, material components, workmanship and procedures are not specifically described by the Contract, they shall be in accordance with the relevant Australian Standard. Where no Australian Standard is available, other specifications shall be used in the following order of priority:
    a. manufacturer's recommendations, and
    b. accepted industry standards.

    At a minimum materials and workmanship shall be the best of their respective kinds and fit for the purpose for which they are intended.

    Any product trade names have been used to establish a quality requirement. Written approval to be obtained prior to using any substitutions.
15. Dimensions / Levels - All levels and setout points shall be confirmed on site by a registered surveyor prior to construction. The Contractor shall seek clarification from the Superintendent for any discrepancy prior to proceeding with works. Dimensions shall not be scaled from drawings.
16. Set Out of Individual Installations - The Contractor shall set out an installation as shown on the Drawings in sufficient detail to identify the location, length and levels of the proposed installation. Once the initial set out is complete the Superintendent will determine the design appropriateness of the set out with regard to the actual site conditions. The Superintendent may direct amendments to the set-out details. Payment for such amendments will be made at appropriate rates in the Schedule of Rates or, where such rates are not deemed by the Superintendent to be appropriate, as determined by the Superintendent. Installations to be set out in accordance with the above requirements include:
    a. drainage pipes, culverts, slabs and structures
    b. landscaping
    c. traffic control
17. Existing Services - Locate service prior to commencing works. Services are shown on these drawings for information only. No responsibility is taken for the accuracy or completeness of the information supplied. Take care to protect services from damage, and report any hits or damage to the service authority immediately.

EROSION AND SEDIMENT CONTROL NOTES:

1. During construction all necessary precautions shall be taken to control erosion and downstream sedimentation. Monitor the prevailing weather conditions and protect any downstream construction and gully inlets.
2. All sediment control devices, sediment fences, check dams, straw bales, stone traps and entry/exit sediment traps are to be in accordance with the E&SC plans within these project drawings or amended as required by the Contractor's suitably qualified professional.

EARTHWORK NOTES:

1. All unsuitable material is to be stripped prior to placement of structural fill.
2. All unsuitable material is to be removed in accordance with the specification or as directed by the Superintendent.
3. All contaminated soil to be removed in accordance with the specification or as directed by the Superintendent.
4. Earthwork quantities include existing road pavement excavated where applicable.
5. Earthwork quantities include unsuitable and or contaminated material except where noted otherwise.
6. Earthwork quantities in cut are bank (nett) volumes and in fill are compacted volumes.
7. Class A1 or B material to comply with the requirements of TMR MRTS04, and specific requirements within these project drawings.

LINEMARKING NOTES:

1. All linemarking, signs and traffic devices shall comply with the M.U.T.C.D. - current edition.
2. Ensure that signage has clear sight distance, otherwise adjust location accordingly.
3. Superseded linemarking and signage to be removed.

SERVICE ADJUSTMENT NOTES:

1. Service Authority infrastructure adjustments are to be performed by contractors approved by the relevant service authority.

BEFORE YOU DIG www.byda.com.au

XREFS :- X_CRC_BSC_TITLE.dwg

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20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
GENERAL NOTES

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	002
Revision	A
Series No.	2 of 17

PLAN

Scale: 1:500

ENGINEERING SURVEY CONTROL

STATION	EASTING	NORTHING	LEVEL	REMARKS
201	222851.427	7171489.192	263.619	PBMK
202	222917.862	7171598.532	263.426	PBMK
203	223003.195	7171673.966	268.01	PBMK

PERMANENT SURVEY MARKS

PSM	EASTING	NORTHING	LEVEL	LOCATION
PM32323	222713.999	7171433.257	261.481	PPMK - Approx. Ch. 51390m, LHS, ≈10m off carriageway

LEGEND

403 ◎ - Survey Mark and Label

WARNING!

BEWARE OF AERIAL SERVICES

Overhead powerlines and communication cables within work area. Contact service provider for advice prior to commencement of work.

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

XREFS :- X_CRC_BSC_TITLE.dwg ; X_SURVEY.dwg ; X_CONTROL.dwg ; X_IMAGE.dwg

Last Modified :- Oct 27, 2023 - 2:12pm

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Scale A 0 5 10 15 20 25 1:500

Dimensions shown in metres except where shown otherwise

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245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

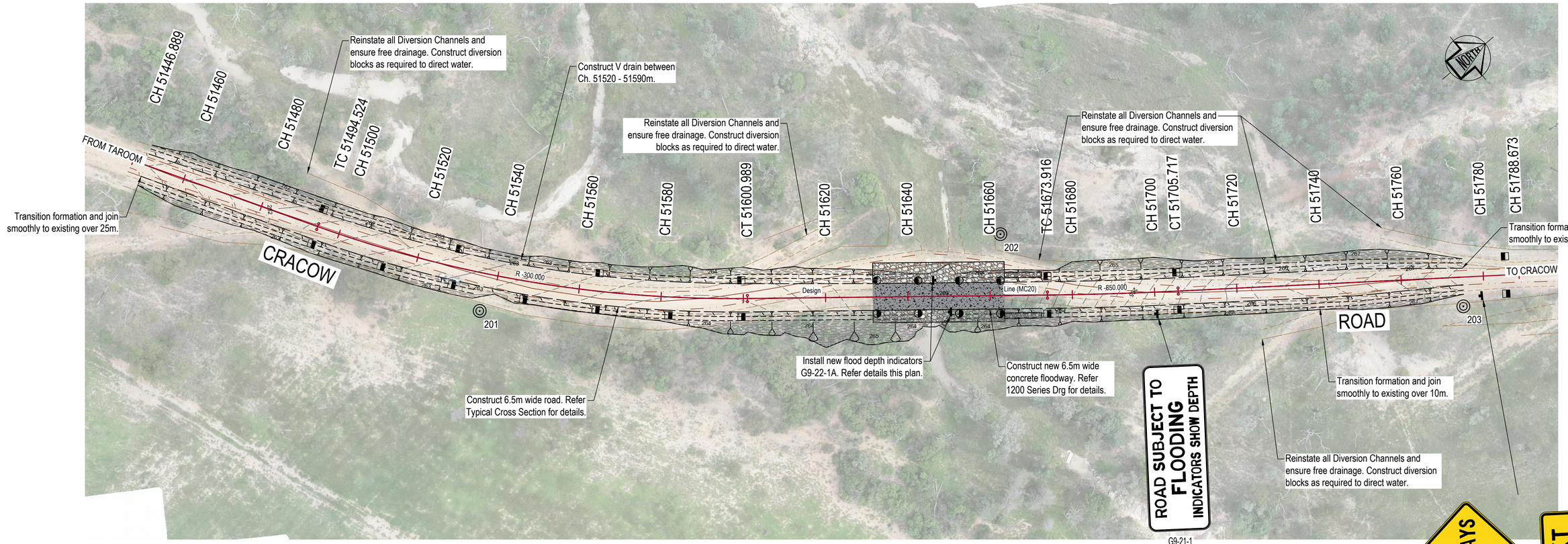
Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
SURVEY CONTROL AND SERVICES PLAN

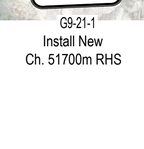
Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	300
Revision	A
Series No.	3 of 17

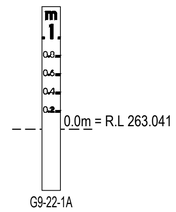




G9-21-1
Install New
Ch. 51700m RHS

W5-7-2B & W8-17-1 '1 km' B
Install New
Ch. 51780m RHS

PLAN
Scale: 1:500



G9-22-1A
Install New
Ch. 51646m LHS
Ch. 51649m RHS

LEGEND

- Red / White - Flexible Guidepost
- Red / White - Flexible Tubular Guidepost
- New Sign Location
- Existing Sign Location
- 403 - Survey Mark and Label

DESIGN LINE SETOUT (MC20)

POINT	CHAINAGE	EASTING	NORTHING	LEVEL	BEARING	RAD/SPIRAL	A.LENGTH	D.ANGLE
IP 1	51446.889	222769.534	7171447.673	261.348	59°19'60.00"			
TC	51494.524	222810.508	7171471.969	262.234	59°19'60.00"			
IP 2	51547.757	222856.782	7171499.409	263.245		R = -300.000	106.465	20°19'60.00"
CT	51600.989	222890.639	7171541.218	263.775	39°00'00.00"			
TC	51673.916	222936.533	7171597.893	263.853	39°00'00.00"			
IP 3	51689.816	222946.541	7171610.251	264.728		R = -850.000	31.801	2°08'36.93"
CT	51705.717	222956.079	7171622.975	265.552	36°51'23.07"			
IP 4	51788.673	223005.837	7171689.352	268.004	36°51'23.07"			

WARNING!

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20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

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245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
ROADWORKS AND SETOUT PLAN SHEET 1

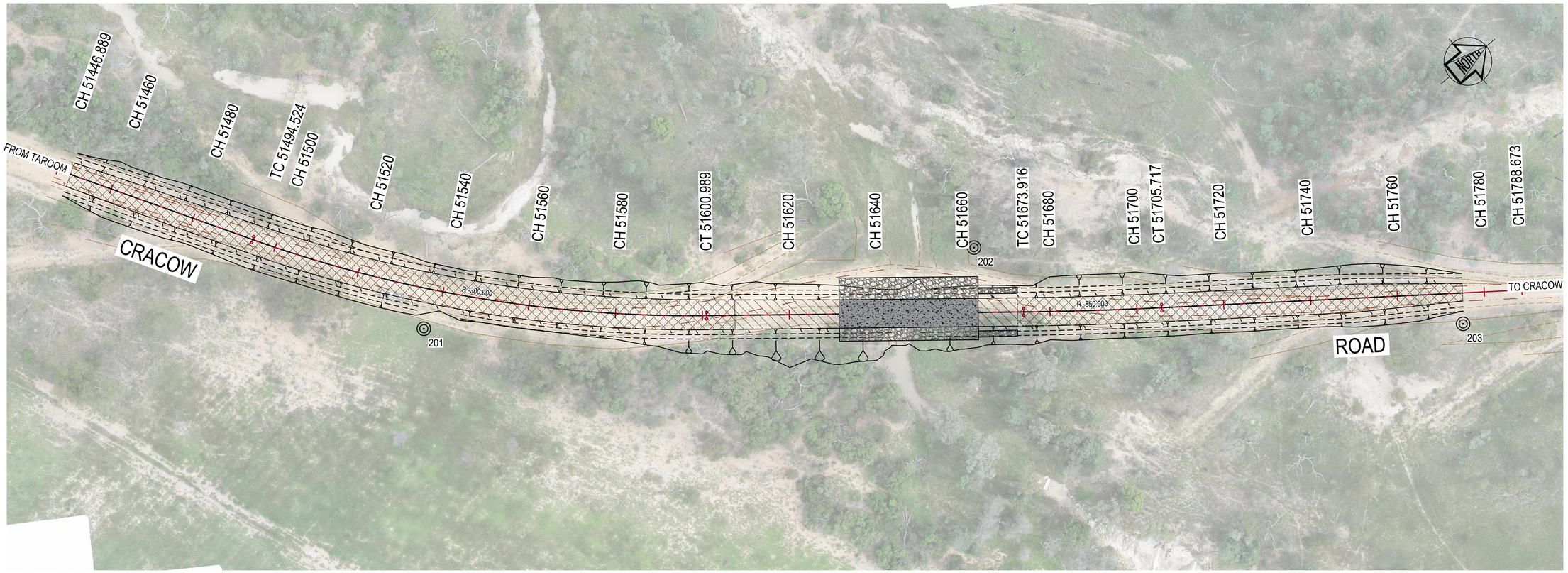
Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	400
Revision	A
Series No.	4 of 17

XREFS :- X_CRC_BSC_TITLE.dwg ; X_SURVEY.dwg ; X_CONTROL.dwg ; X_DESIGN.dwg ; X_HATCH.dwg ; X_IMAGE.dwg ; X_GUIDEPOSTS.dwg ;
Last Modified :- Oct 27, 2023 - 2:12pm



PLAN

Scale: 1:500

LEGEND

New pavement to be constructed. Refer Pavement Type 1 Details.

New pavement to be constructed. Refer Pavement Type 2 Details.

New concrete floodway to be constructed. Refer Standard Drawing CMDG-R-094

PAVEMENT TYPE 1 DETAILS

New pavement to be constructed

150mm Overlay, Full width,

Imported Unsealed Pavement Material **

Design Subgrade CBR 7 (soaked)

150mm Total thickness

PAVEMENT TYPE 2 DETAILS

New pavement to be constructed
(Ch. 51606.500 - 51631.500m & Ch. 51663.500 - 51673.500m)

150mm Stabilised Base, Full Width,

Imported Unsealed Pavement Material **

Insitu stabilised, GB binder (Cement/Fly Ash)
Target UCS value 1 - 2 MPa at 7 Days. Contractor to undertake additive testing to confirm percentage of stablising agent by mass. A nominal 3% by mass used for estimating purposes only.

Design Subgrade CBR 7 (soaked)

150mm Total thickness

All works to be carried out in accordance with the relevant CMDG Construction Specifications.

PAVEMENT DESIGN
(Lower Order Roads Design Guide)

Design Period:	20 Years
Design Traffic:	5.1 x 10^4 DESA
Design Subgrade CBR:	7 (Soaked)

**
UNSEALED PAVEMENT SPECIFICATION
(Lower Order Roads Design Guide)

Imported Unsealed Pavement Material to satisfy the following specifications

Grading Coefficient (Gc):	16 - 34
Shrinkage Product (Sp):	100 - 240
WPI:	< 1200
PI:	≥ 7%
Passing 0.075mm Sieve:	≥ 15%

WARNING!

BEWARE OF UNDERGROUND SERVICES

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Scale A 0 5 10 15 20 25 1:500

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ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
PAVEMENT PLAN

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	500
Revision	A
Series No.	5 of 17

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XREFS :- X_SURVEY.dwg ; X_CONTROL.dwg ; X_DESIGN.dwg ; X_HATCH.dwg ; X_CRC_BSC_TITLE.dwg ; X_IMAGE.dwg

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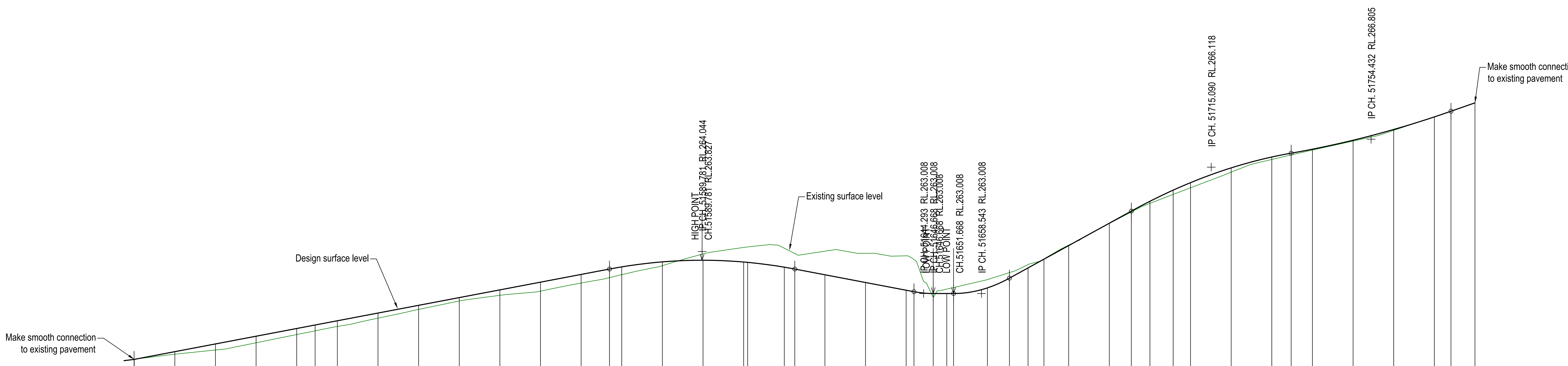

Horizontal Curve Data: R-300m; R-850m

Vertical Curve Length (m) / Vertical Curve Radius (m): 45.6 VC, R = 1200; 4.75 VC, R = 250; 13.75 VC, R = 250; 39.342 VC, R = 1048.315; 39.342 VC, R = 2244.394

Vertical Geometry Grade (%) / Vertical Grade Length (m): 1.9 %, 139.816; -1.9 %, 54.512; 0 %, 14.25; 5.5 %, 56.546; 1.747 %, 39.342; 3.5 %, 34.241

DATUM R.L.258.000

DESIGN CHAINAGE	CUT / FILL DEPTHS	DESIGN LINE LEVELS	EXISTING SURFACE LEVELS
51450.000	-0.003	261.388	261.391
51460.000	0.062	261.578	261.516
51470.000	0.15	261.768	261.618
51480.000	0.162	261.958	261.796
51490.000	0.149	262.148	261.999
51494.524	0.144	262.234	262.090
51500.000	0.14	262.338	262.198
51510.000	0.127	262.528	262.401
51520.000	0.1	262.718	262.618
51530.000	0.083	262.908	262.825
51540.000	0.134	263.098	262.963
51550.000	0.22	263.288	263.068
51560.000	0.211	263.478	263.266
51566.981	0.211	263.610	263.400
51570.000	0.191	263.664	263.473
51580.000	0.093	263.787	263.694
51590.000	-0.155	263.827	263.982
51600.000	-0.358	263.784	264.141
51600.989	-0.381	263.775	264.156
51610.000	-0.466	263.657	264.123
51612.581	-0.383	263.610	263.994
51620.000	-0.58	263.470	264.050
51630.000	-0.718	263.280	263.998
51640.000	-0.846	263.090	263.935
51641.918	-0.791	263.053	263.845
51646.668	0.095	263.008	262.913
51650.000	-0.109	263.008	263.117
51651.668	-0.148	263.008	263.156
51660.000	-0.204	263.147	263.351
51665.418	-0.137	263.386	263.523
51670.000	-0.083	263.638	263.721
51673.916	-0.006	263.853	263.860
51680.000	-0.012	264.188	264.200
51690.000	0.007	264.738	264.731
51695.418	0.021	265.036	265.015
51700.000	0.051	265.278	265.227
51705.717	0.105	265.552	265.447
51710.000	0.126	265.737	265.611
51720.000	0.105	266.100	265.995
51730.000	0.061	266.368	266.307
51734.761	0.044	266.462	266.418
51740.000	0.021	266.559	266.538
51750.000	0.021	266.780	266.759
51760.000	0.021	267.045	267.023
51770.000	-0.002	267.354	267.356
51774.103	-0.003	267.494	267.496
51780.000	-0.003	267.700	267.703

SUPER ELEVATION: LHS and RHS -4%; RHS 4%; LHS -4%; RHS 1%; LHS -1%; RHS 4%; LHS -4%; LHS and RHS -4%

Super elevation chainages: 51450.0, 51462.5, 51485.0, 51507.5, 51588.0, 51631.5, 51663.5, 51686.9, 51692.7, 51715.2, 51737.7, 51775.0

LONGITUDINAL SECTION

Horizontal Scale A
Vertical Scale B

XREFS :- X_CRC_BSC_TITLE.dwg ; X_MC20_LSECT_01.dwg

Last Modified :- Oct 27, 2023 - 2:13pm

20.01	Revisions/Descriptions	Drawn	Approved	Date
A	Issued for Construction			

Scales (sheet size A1)
Scale A 0 5 10 15 20 25 1:500
Scale B 0 0.5 1.0 1.5 2.0 2.5 1:50

Dimensions shown in metres except where shown otherwise

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245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
LONGITUDINAL SECTION

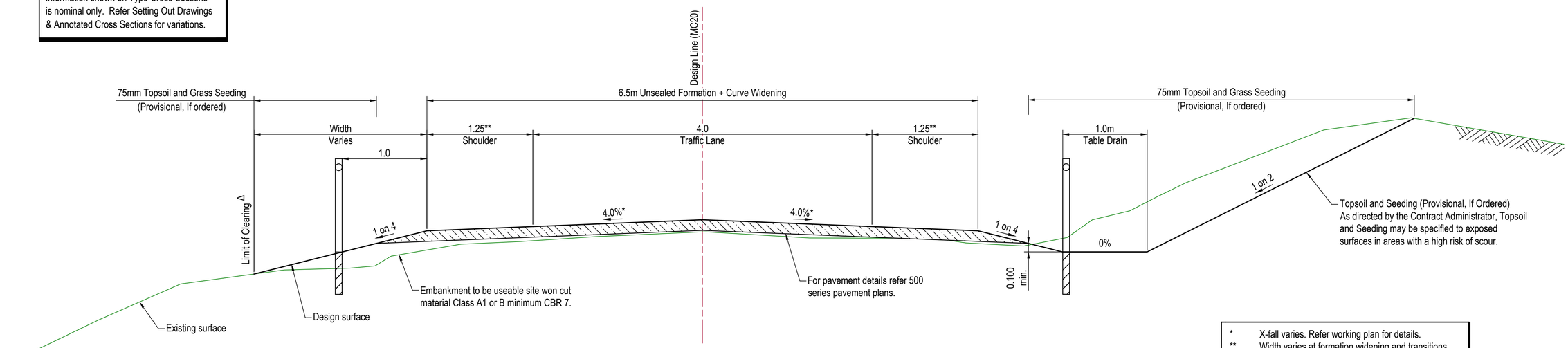
Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose	[signature]	24087	26/10/23

Job No.	CRC00286
Drawing No.	600
Revision	A
Series No.	6 of 17

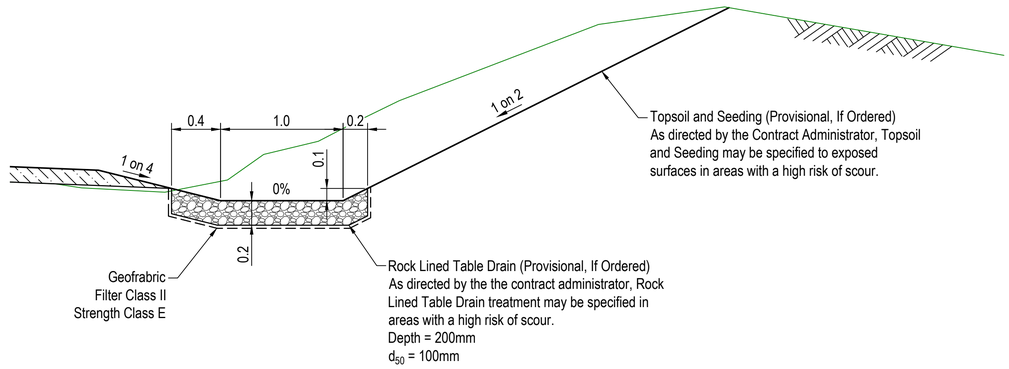
Information shown on Type Cross Sections is nominal only. Refer Setting Out Drawings & Annotated Cross Sections for variations.



* X-fall varies. Refer working plan for details.
** Width varies at formation widening and transitions to existing. Refer 400 and 800 series plans for details.
Δ Refer 1600 series plans for Limit of Clearing details.

TYPICAL CROSS SECTION A

Ch. START - END (MC20)
(Excluding Floodway)
Not to Scale



ROCK LINED TABLE DRAIN

Not to Scale

WARNING!

BEWARE OF UNDERGROUND SERVICES
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XREFS :- X_CRC_BSC_TITLE.dwg

Last Modified :- Oct 27, 2023 - 2:13pm

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Scales (sheet size A1)

Dimensions shown in metres except where shown otherwise

245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

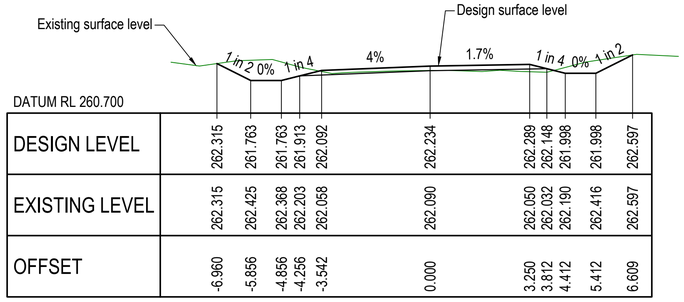
Client: Banana SHIRE

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
TYPICAL CROSS SECTIONS

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

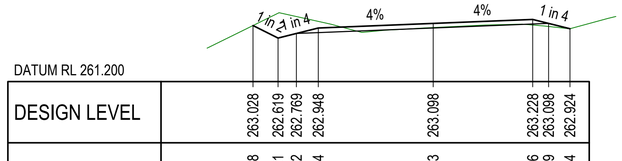
Job No.	CRC00286
Drawing No.	700
Revision	A
Series No.	7 of 17



DATUM RL 260.700

DESIGN LEVEL	262.315	261.763	261.763	261.913	262.092	262.234	262.289	262.148	261.998	261.998	262.597
EXISTING LEVEL	262.315	262.425	262.368	262.203	262.058	262.090	262.050	262.032	262.190	262.416	262.597
OFFSET	-6.960	-5.856	-4.856	-4.256	-3.542	0.000	3.250	3.812	4.412	5.412	6.609

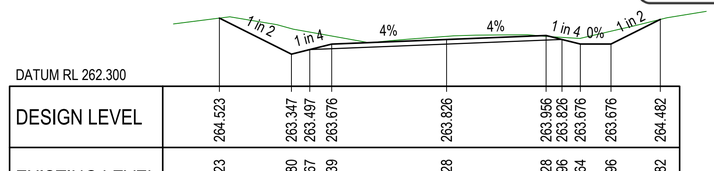
CH. 51494.524



DATUM RL 261.200

DESIGN LEVEL	263.028	262.619	262.769	262.948	263.098	263.228	263.098	262.924
EXISTING LEVEL	263.028	263.431	263.322	263.164	262.963	263.046	262.999	262.924
OFFSET	-5.882	-5.065	-4.465	-3.750	0.000	3.250	3.768	4.467

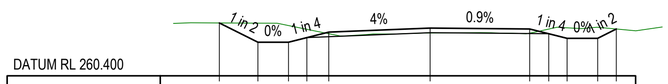
CH. 51540.000



DATUM RL 262.300

DESIGN LEVEL	264.523	263.347	263.497	263.676	263.826	263.956	263.826	263.676	263.676	264.482
EXISTING LEVEL	264.523	264.180	264.067	263.939	263.928	263.928	263.896	263.864	264.096	264.462
OFFSET	-7.416	-5.065	-4.465	-3.750	0.000	3.250	3.768	4.368	5.368	6.980

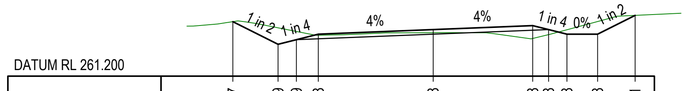
CH. 51588.000



DATUM RL 260.400

DESIGN LEVEL	262.126	261.497	261.497	261.647	261.826	261.958	261.929	261.773	261.623	261.623	261.927
EXISTING LEVEL	262.126	262.119	262.040	261.918	261.774	261.796	261.793	261.926	261.967	261.982	261.927
OFFSET	-6.881	-5.623	-4.623	-4.023	-3.309	0.000	3.250	3.872	4.472	5.472	6.080

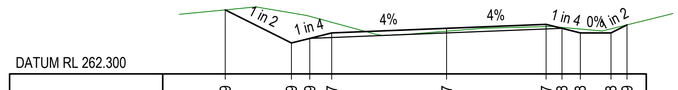
CH. 51480.000



DATUM RL 261.200

DESIGN LEVEL	262.977	262.239	262.389	262.568	262.718	262.848	262.718	262.568	262.568	263.181
EXISTING LEVEL	262.977	262.777	262.658	262.535	262.618	262.428	262.554	262.713	262.982	263.181
OFFSET	-6.540	-5.065	-4.465	-3.750	0.000	3.250	3.768	4.368	5.368	6.593

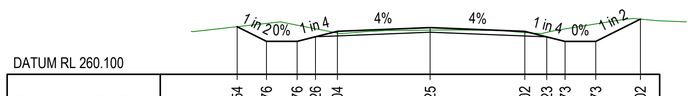
CH. 51520.000



DATUM RL 262.300

DESIGN LEVEL	264.389	263.309	263.459	263.637	263.787	263.917	263.788	263.638	263.638	263.899
EXISTING LEVEL	264.389	264.291	264.178	263.984	263.694	263.845	263.819	263.764	263.770	263.899
OFFSET	-7.227	-5.065	-4.465	-3.750	0.000	3.250	3.768	4.368	5.368	5.891

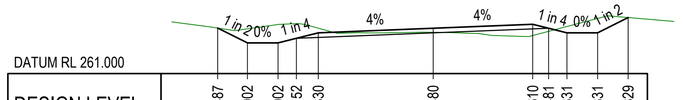
CH. 51580.000



DATUM RL 260.100

DESIGN LEVEL	261.654	261.176	261.176	261.326	261.504	261.625	261.502	261.323	261.173	261.173	261.902
EXISTING LEVEL	261.654	261.762	261.706	261.589	261.447	261.541	261.464	261.470	261.583	261.744	261.902
OFFSET	-6.300	-5.343	-4.343	-3.743	-3.028	0.000	3.093	3.808	4.407	5.407	6.866

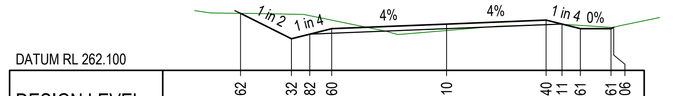
CH. 51462.500



DATUM RL 261.000

DESIGN LEVEL	262.487	262.002	262.002	262.152	262.330	262.480	262.610	262.481	262.331	262.331	262.829
EXISTING LEVEL	262.487	262.462	262.603	262.630	262.482	262.349	262.243	262.380	262.538	262.800	262.829
OFFSET	-7.035	-6.064	-5.064	-4.465	-3.750	0.000	3.250	3.768	4.368	5.368	6.365

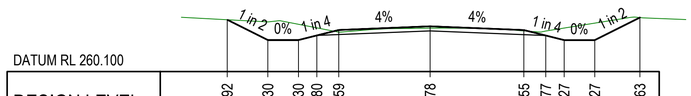
CH. 51507.500



DATUM RL 262.100

DESIGN LEVEL	263.962	263.132	263.282	263.460	263.610	263.740	263.611	263.461	263.461	263.506
EXISTING LEVEL	263.962	263.933	263.886	263.739	263.400	263.595	263.605	263.567	263.500	263.506
OFFSET	-6.725	-5.065	-4.465	-3.750	0.000	3.250	3.768	4.368	5.368	5.457

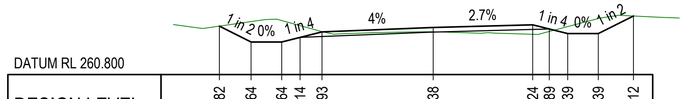
CH. 51566.981



DATUM RL 260.100

DESIGN LEVEL	261.792	261.130	261.130	261.280	261.459	261.578	261.455	261.277	261.127	261.127	261.863
EXISTING LEVEL	261.792	261.722	261.644	261.526	261.386	261.516	261.427	261.423	261.520	261.681	261.863
OFFSET	-6.623	-5.298	-4.298	-3.698	-2.983	0.000	3.061	3.776	4.376	5.376	6.849

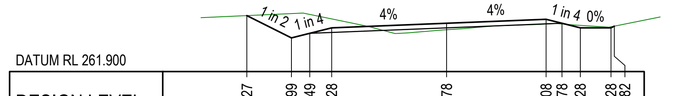
CH. 51460.000



DATUM RL 260.800

DESIGN LEVEL	262.382	261.864	261.864	262.014	262.193	262.338	262.424	262.289	262.139	262.139	262.712
EXISTING LEVEL	262.382	262.529	262.564	262.398	262.201	262.198	262.114	262.208	262.366	262.631	262.712
OFFSET	-6.980	-5.944	-4.944	-4.344	-3.629	0.000	3.250	3.793	4.392	5.392	6.539

CH. 51500.000



DATUM RL 261.900

DESIGN LEVEL	263.727	262.999	263.149	263.328	263.478	263.608	263.478	263.328	263.328	263.382
EXISTING LEVEL	263.727	263.793	263.765	263.619	263.266	263.453	263.455	263.409	263.361	263.382
OFFSET	-6.520	-5.065	-4.465	-3.750	0.000	3.250	3.768	4.368	5.368	5.475

CH. 51560.000

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

CROSS SECTIONS

Scale A

XREFS :- X_CRC_BSC_TITLE.dwg : X_MC20_XSECT_01.dwg

Last Modified :- Oct 27, 2023 - 2:13pm

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

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quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

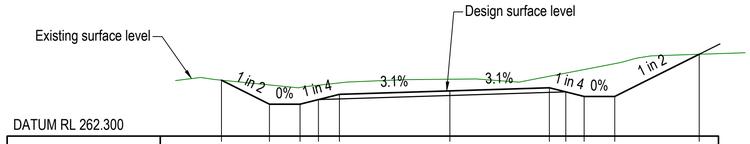
Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 1

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

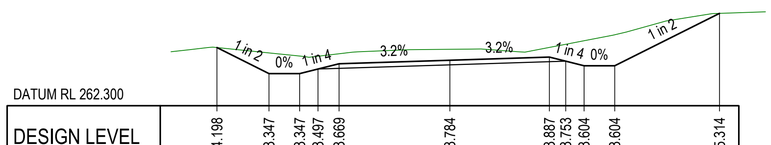
Job No.	CRC00286
Drawing No.	800
Revision	A
Series No.	8 of 17



DATUM RL 262.300

DESIGN LEVEL	264.125	263.342	263.342	263.492	263.663	263.775	263.876	263.742	263.592	264.970
EXISTING LEVEL	264.125	263.969	263.884	263.961	264.036	264.156	264.253	264.356	264.471	264.663	264.970
OFFSET	-7.457	-5.891	-4.891	-4.291	-3.606	0.000	3.250	3.784	4.384	5.384	8.141

CH. 51600.989



DATUM RL 262.300

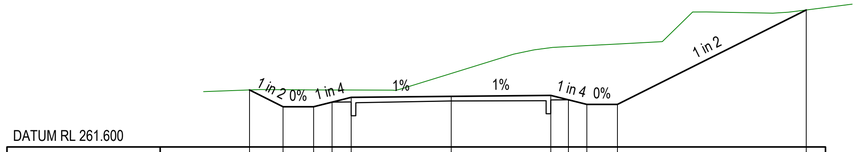
DESIGN LEVEL	264.198	263.347	263.347	263.497	263.669	263.784	263.887	263.753	263.604	263.604	265.314
EXISTING LEVEL	264.198	264.023	263.921	263.915	263.995	264.141	264.202	264.305	264.420	264.615	265.314
OFFSET	-7.605	-5.904	-4.904	-4.304	-3.617	0.000	3.250	3.783	4.383	5.383	8.804

CH. 51600.000

DATUM RL 262.300

DESIGN LEVEL	264.315	263.355	263.505	263.682	263.827	263.953	263.823	263.673	263.673	264.579
EXISTING LEVEL	264.315	264.194	264.087	263.960	263.977	263.955	263.923	263.930	264.163	264.579
OFFSET	-6.960	-5.041	-4.441	-3.730	0.000	3.250	3.770	4.370	5.370	7.181

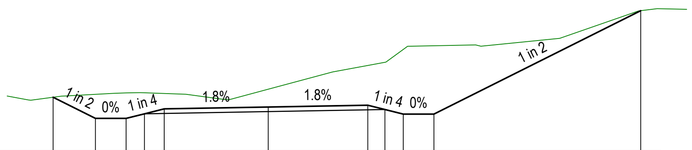
CH. 51589.781



DATUM RL 261.600

DESIGN LEVEL	263.459	262.912	262.912	263.062	263.218	263.251	263.284	263.139	262.989	262.989	266.071
EXISTING LEVEL	263.459	263.468	263.461	263.459	263.458	263.998	264.841	264.876	264.908	264.960	266.071
OFFSET	-6.586	-5.492	-4.492	-3.892	-3.267	0.000	3.250	3.827	4.427	5.427	11.590

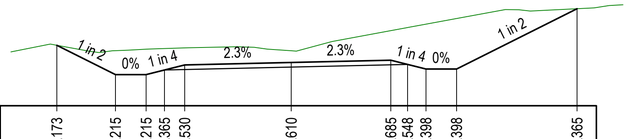
CH. 51631.500



DATUM RL 262.000

DESIGN LEVEL	263.789	263.097	263.097	263.247	263.409	263.470	263.528	263.388	263.238	263.238	266.614
EXISTING LEVEL	263.789	263.883	263.930	263.934	263.911	264.050	264.825	264.929	265.349	265.469	266.614
OFFSET	-7.024	-5.641	-4.641	-4.041	-3.394	0.000	3.250	3.810	4.410	5.410	12.163

CH. 51620.000



DATUM RL 262.200

DESIGN LEVEL	264.173	263.215	263.215	263.365	263.530	263.610	263.685	263.548	263.398	263.398	265.365
EXISTING LEVEL	264.173	263.996	264.044	264.066	264.088	263.994	264.649	264.751	264.861	265.045	265.365
OFFSET	-7.653	-5.738	-4.738	-4.138	-3.477	0.000	3.250	3.800	4.399	5.399	9.333

CH. 51612.581

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

CROSS SECTIONS

Scale A

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

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quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 2

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	801
Revision	A
Series No.	9 of 17

XREFS :- X_CRC_BSC_TITLE.dwg : X_MC20_XSECT_02.dwg

Last Modified :- Oct 27, 2023 - 2:13pm

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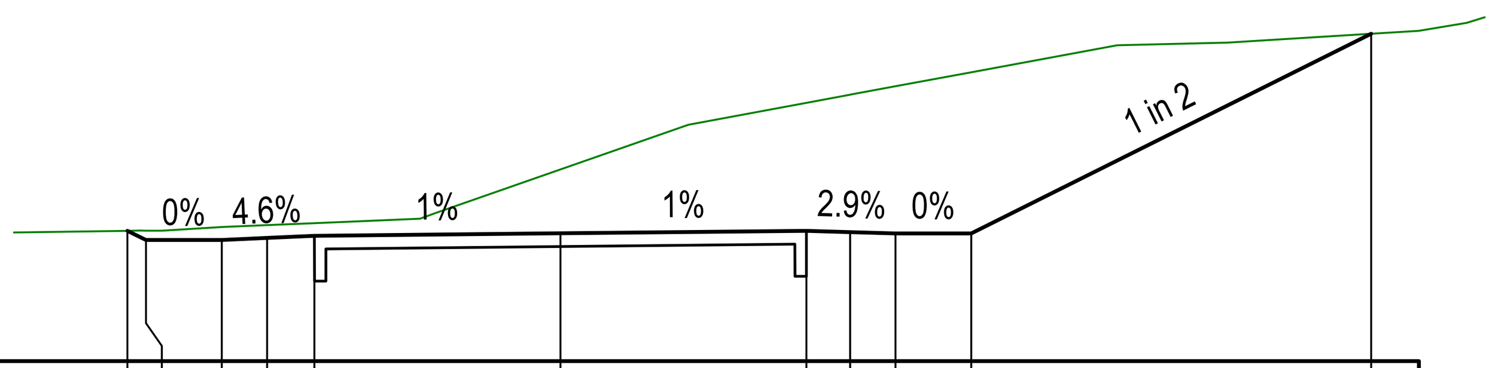
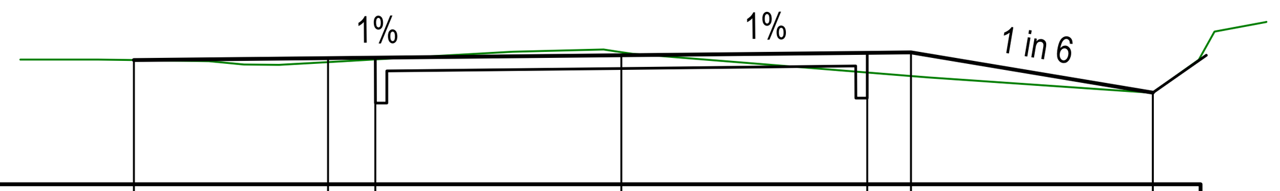


DATUM RL 261.400

DESIGN LEVEL	263.123	263.001	263.001	263.028	263.057	263.090	263.122	263.105	263.088	263.088	265.730
EXISTING LEVEL	263.123	263.125	263.173	263.199	263.225	263.935	264.816	264.924	265.035	265.220	265.730
OFFSET	-5.720	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	10.711

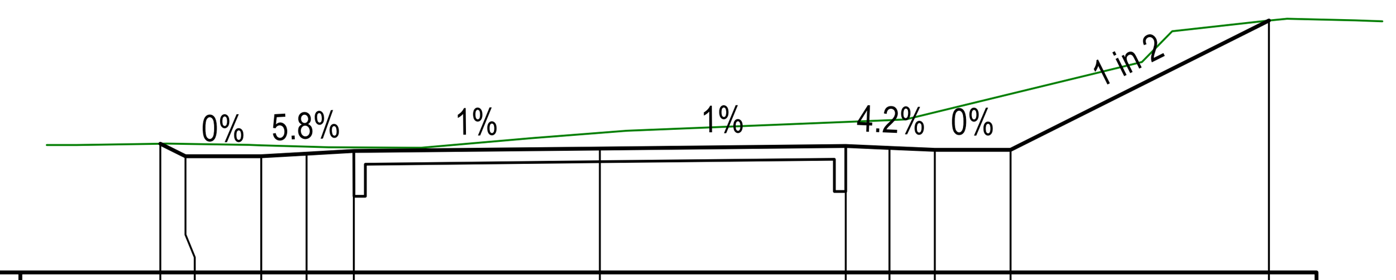
CH. 51640.000



DATUM RL 261.300

DESIGN LEVEL	262.944	262.969	262.975	263.008	263.040	263.046	262.514
EXISTING LEVEL	262.944	262.917	262.952	263.049	262.780	262.734	262.514
OFFSET	-6.441	-3.875	-3.250	0.000	3.250	3.827	7.025

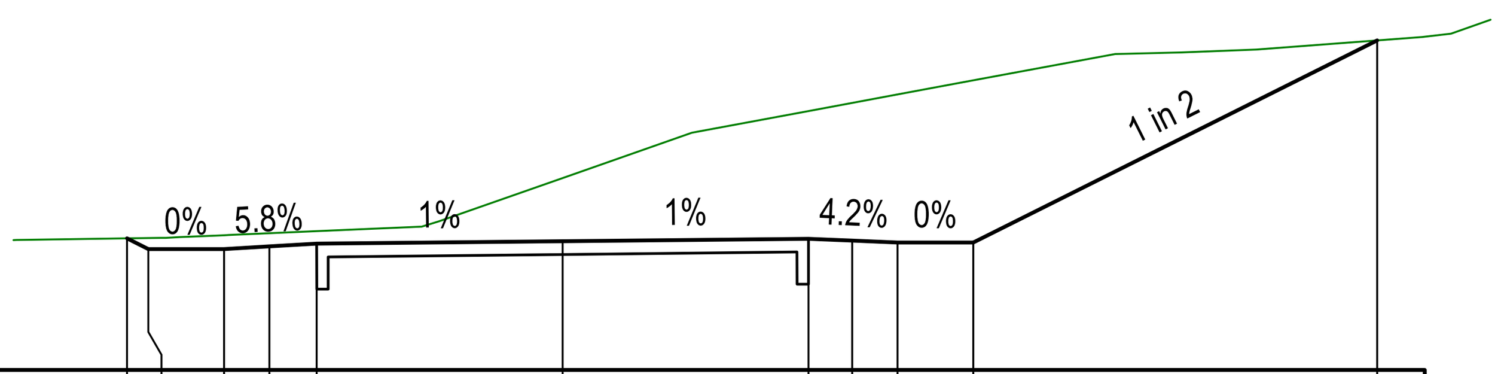
CH. 51647.500



DATUM RL 261.400

DESIGN LEVEL	263.100	262.934	262.934	262.969	263.005	263.037	263.070	263.046	263.020	263.020	264.727
EXISTING LEVEL	263.100	263.097	263.079	263.062	263.051	263.245	263.389	263.412	263.514	263.757	264.727
OFFSET	-5.808	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	8.841

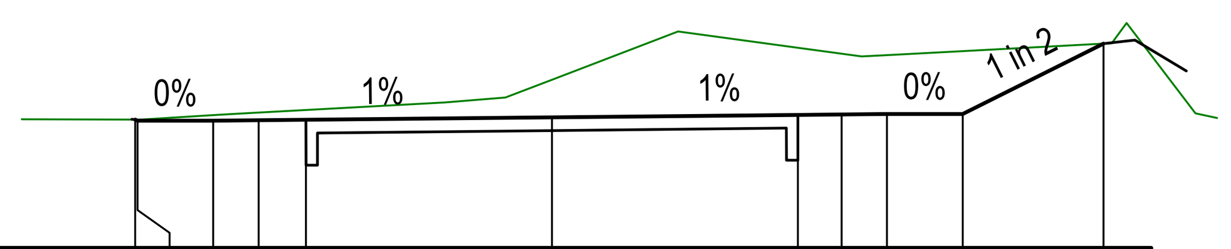
CH. 51655.500



DATUM RL 261.400

DESIGN LEVEL	263.136	262.995	262.995	263.030	263.067	263.099	263.132	263.107	263.082	263.082	265.751
EXISTING LEVEL	263.136	263.140	263.178	263.204	263.231	263.934	264.819	264.926	265.038	265.224	265.751
OFFSET	-5.757	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	10.765

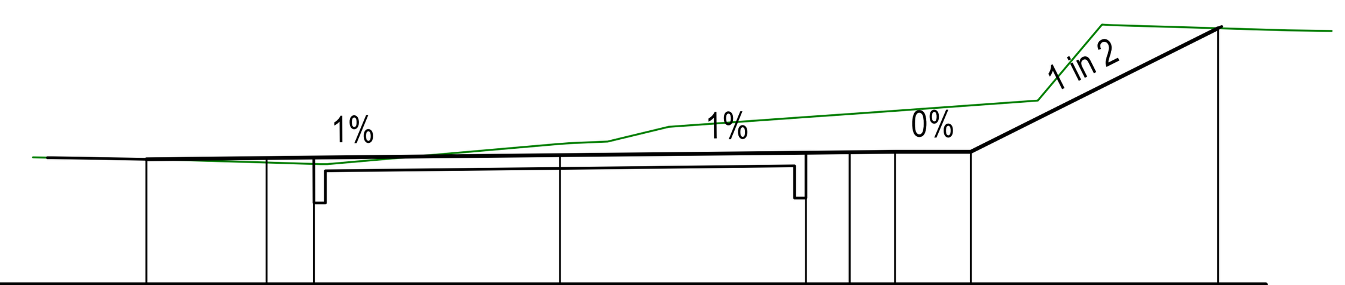
CH. 51639.500



DATUM RL 261.300

DESIGN LEVEL	262.999	262.983	262.983	262.989	262.996	263.028	263.061	263.066	263.072	263.072	264.003
EXISTING LEVEL	262.999	262.999	263.057	263.092	263.126	263.526	263.949	263.870	263.851	263.904	264.003
OFFSET	-5.506	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	7.288

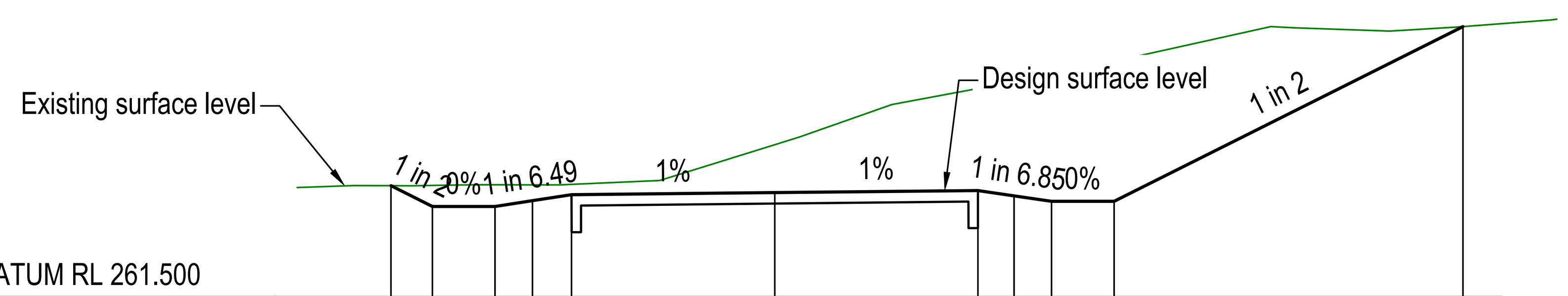
CH. 51643.500



DATUM RL 261.300

DESIGN LEVEL	262.953	262.969	262.975	263.008	263.040	263.046	263.052	263.052	264.686
EXISTING LEVEL	262.953	262.910	262.891	263.156	263.512	263.552	263.595	263.666	264.686
OFFSET	-5.462	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	8.694

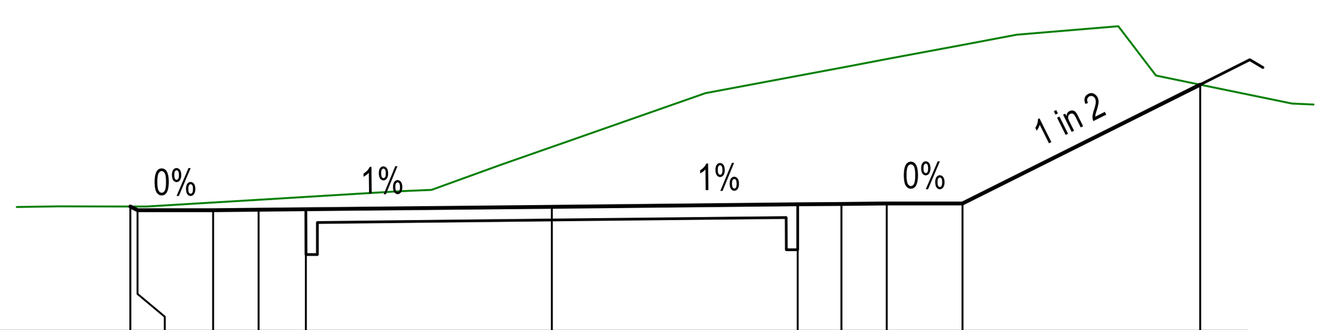
CH. 51651.668



DATUM RL 261.500

DESIGN LEVEL	263.285	262.954	262.954	263.046	263.143	263.175	263.208	263.123	263.036	263.036	265.826
EXISTING LEVEL	263.285	263.289	263.300	263.299	263.307	263.941	264.837	264.944	265.056	265.272	265.826
OFFSET	-6.138	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	11.008

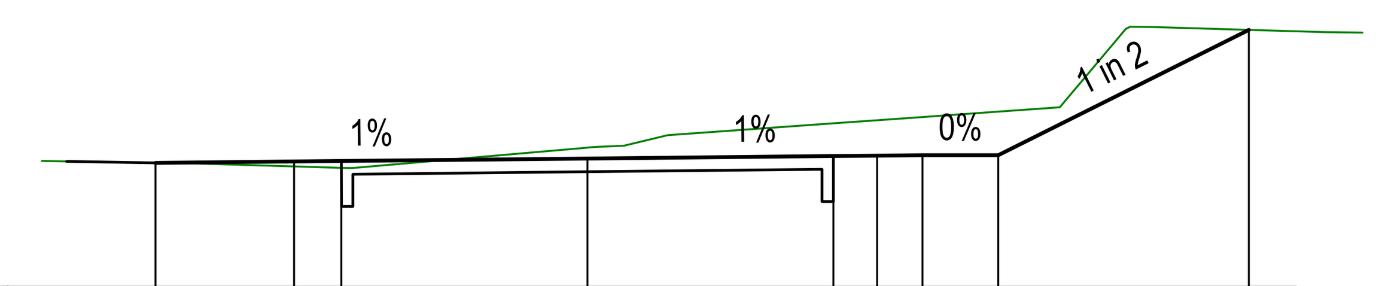
CH. 51635.500



DATUM RL 261.400

DESIGN LEVEL	263.056	263.008	263.008	263.014	263.021	263.053	263.086	263.091	263.097	263.097	264.668
EXISTING LEVEL	263.056	263.056	263.109	263.146	263.183	263.845	264.785	264.893	265.005	265.193	264.668
OFFSET	-5.571	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	8.569

CH. 51641.918



DATUM RL 261.300

DESIGN LEVEL	262.951	262.969	262.975	263.008	263.040	263.046	263.052	263.052	264.708
EXISTING LEVEL	262.951	262.903	262.885	263.152	263.473	263.514	263.556	263.627	264.708
OFFSET	-5.706	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	8.739

CH. 51651.500

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

CROSS SECTIONS

Scale A

XREFS :- X_CRC_BSC_TITLE.dwg ; X_MC20_XSECT_03.dwg

Last Modified :- Oct 27, 2023 - 2:13pm

20.01	Revisions/Descriptions	Drawn	Approved	Date
A	Issued for Construction			

Scales (sheet size A1)

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client
Banana SHIRE
SHIRE OF OPPORTUNITY

Title
CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 3

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

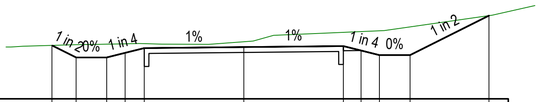
Job No.	CRC00286
Drawing No.	802
Revision	A
Series No.	10 of 17

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

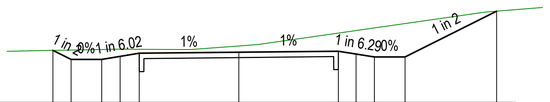
BEFORE YOU DIG www.byda.com.au



DATUM RL 261.600

DESIGN LEVEL	263.344	262.949	262.949	263.099	263.255	263.288	263.320	263.176	263.026	263.026	264.315
EXISTING LEVEL	263.344	263.367	263.383	263.395	263.400	263.462	263.769	263.794	263.819	263.947	264.315
OFFSET	-6.265	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	8.004

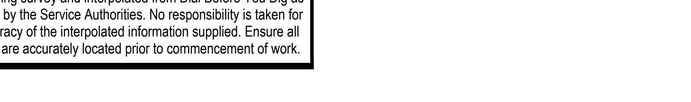
CH. 51663.500



DATUM RL 261.500

DESIGN LEVEL	263.208	262.911	262.911	263.011	263.114	263.147	263.179	263.088	262.992	262.992	264.487
EXISTING LEVEL	263.208	263.217	263.236	263.244	263.241	263.351	263.772	263.855	263.940	264.083	264.487
OFFSET	-6.069	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	8.417

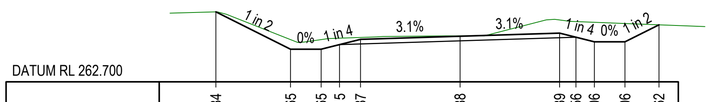
CH. 51660.000



DATUM RL 261.400

DESIGN LEVEL	263.196	262.909	262.909	263.002	263.098	263.131	263.163	263.079	262.991	262.991	264.460
EXISTING LEVEL	263.196	263.204	263.219	263.224	263.220	263.337	263.593	263.675	263.761	263.905	264.460
OFFSET	-6.047	-5.475	-4.475	-3.875	-3.250	0.000	3.250	3.827	4.427	5.427	8.364

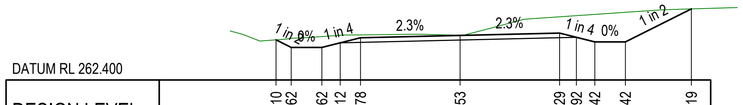
CH. 51659.500



DATUM RL 262.700

DESIGN LEVEL	264.984	263.765	263.765	263.915	264.087	264.188	264.289	264.156	264.006	264.006	264.562
EXISTING LEVEL	264.984	264.079	264.079	264.125	264.149	264.200	264.719	264.666	264.643	264.604	264.562
OFFSET	-7.972	-5.536	-4.536	-3.936	-3.250	0.000	3.250	3.784	4.384	5.384	6.495

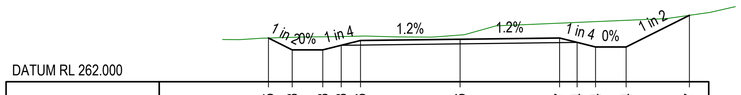
CH. 51680.000



DATUM RL 262.400

DESIGN LEVEL	263.710	263.462	263.462	263.612	263.778	263.853	263.929	263.792	263.642	263.642	264.719
EXISTING LEVEL	263.710	263.759	263.816	263.857	263.870	263.860	264.462	264.499	264.540	264.608	264.719
OFFSET	-6.008	-5.512	-4.512	-3.912	-3.250	0.000	3.250	3.799	4.399	5.399	7.552

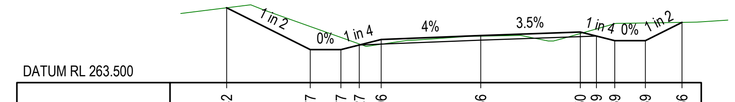
CH. 51673.916



DATUM RL 262.000

DESIGN LEVEL	263.425	263.038	263.038	263.188	263.346	263.386	263.427	263.284	263.134	263.134	264.167
EXISTING LEVEL	263.425	263.448	263.465	263.475	263.488	263.523	263.911	263.936	263.961	264.004	264.167
OFFSET	-6.256	-5.481	-4.481	-3.882	-3.250	0.000	3.250	3.822	4.422	5.422	7.487

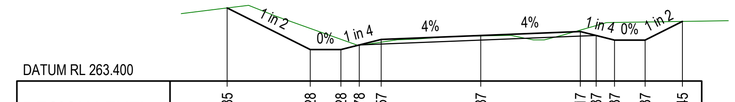
CH. 51665.418



DATUM RL 263.500

DESIGN LEVEL	265.942	264.577	264.577	264.727	264.906	265.036	265.150	265.019	264.869	264.869	265.466
EXISTING LEVEL	265.942	265.330	264.974	264.760	264.753	265.015	265.102	265.252	265.424	265.447	265.466
OFFSET	-8.295	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.776	4.376	5.376	6.571

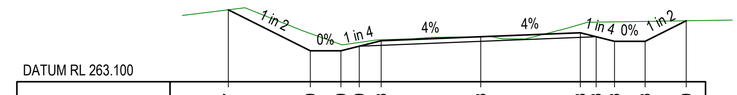
CH. 51695.418



DATUM RL 263.400

DESIGN LEVEL	265.785	264.428	264.428	264.578	264.757	264.887	265.017	264.887	264.737	264.737	265.345
EXISTING LEVEL	265.785	265.117	264.761	264.565	264.669	264.872	265.063	265.211	265.311	265.327	265.345
OFFSET	-8.280	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.768	4.368	5.368	6.584

CH. 51692.700



DATUM RL 263.100

DESIGN LEVEL	265.447	264.109	264.109	264.259	264.438	264.568	264.698	264.568	264.418	264.418	265.089
EXISTING LEVEL	265.447	264.673	264.317	264.381	264.468	264.568	264.971	265.044	265.053	265.069	265.089
OFFSET	-8.241	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.768	4.368	5.368	6.710

CH. 51686.900

CROSS SECTIONS

Scale A

A	Issued for Construction				
20.01	Revisions/Descriptions	Drawn	Approved	Date	

Scales (sheet size A1)

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven

245 Mary Street, GYMPIE, QLD, 4570

ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 4

Drawn: B Doherty

Designed: B Doherty

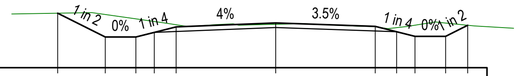
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	803
Revision	A
Series No.	11 of 17

XREFS :- X_CRC_BSC_TITLE.dwg ; X_MC20_XSECT_04.dwg

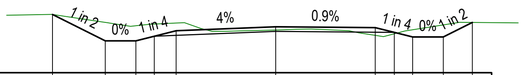
Last Modified :- Oct 27, 2023 - 2:13pm



DATUM RL 265.000

DESIGN LEVEL	266.780	266.003	266.003	266.153	266.332	266.462	266.349	266.174	266.024	266.024	266.385
EXISTING LEVEL	266.780	266.737	266.594	266.509	266.402	266.418	266.339	266.307	266.387	266.458	266.385
OFFSET	-7.119	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.947	4.547	5.547	6.268

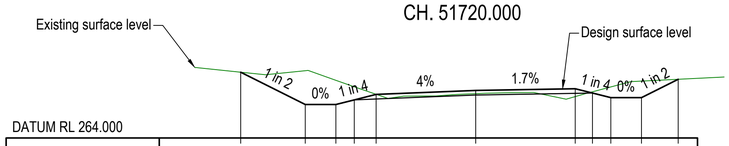
CH. 51734.761



DATUM RL 264.600

DESIGN LEVEL	266.502	265.641	265.641	265.791	265.970	266.100	266.072	265.917	265.767	265.767	266.241
EXISTING LEVEL	266.502	266.243	266.133	266.189	266.221	265.995	265.819	265.871	266.003	266.161	266.241
OFFSET	-7.287	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.871	4.471	5.471	6.420

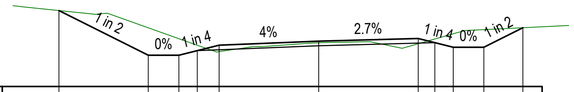
CH. 51720.000



DATUM RL 264.000

DESIGN LEVEL	266.147	265.093	265.093	265.243	265.422	265.552	265.607	265.466	265.316	265.316	265.916
EXISTING LEVEL	266.147	266.196	265.882	265.670	265.424	265.447	265.350	265.507	265.667	265.857	265.916
OFFSET	-7.673	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.812	4.412	5.412	6.611

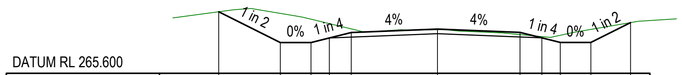
CH. 51705.717



DATUM RL 263.800

DESIGN LEVEL	266.278	264.819	264.819	264.969	265.148	265.278	265.366	265.231	265.081	265.081	265.717
EXISTING LEVEL	266.278	265.716	265.360	265.147	264.939	265.227	265.195	265.350	265.521	265.656	265.717
OFFSET	-8.481	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.792	4.392	5.392	6.665

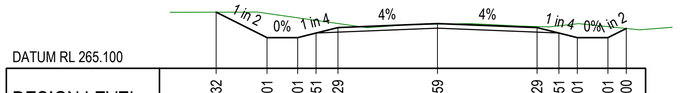
CH. 51700.000



DATUM RL 265.600

DESIGN LEVEL	267.609	266.603	266.603	266.753	266.932	267.045	266.937	266.758	266.608	266.608	267.256
EXISTING LEVEL	267.609	267.557	267.367	267.222	267.050	267.023	266.865	266.799	266.842	267.034	267.256
OFFSET	-7.142	-5.130	-4.130	-3.530	-2.816	0.000	2.693	3.408	4.008	5.008	6.304

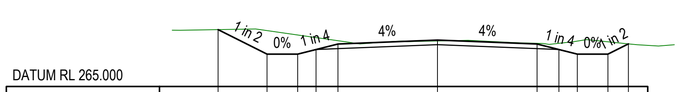
CH. 51760.000



DATUM RL 265.100

DESIGN LEVEL	266.932	266.101	266.101	266.251	266.429	266.559	266.429	266.251	266.101	266.101	266.400
EXISTING LEVEL	266.932	266.890	266.748	266.663	266.561	266.538	266.463	266.486	266.552	266.461	266.400
OFFSET	-7.227	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	6.163

CH. 51740.000



DATUM RL 265.000

DESIGN LEVEL	266.855	266.056	266.056	266.206	266.385	266.515	266.385	266.206	266.056	266.056	266.391
EXISTING LEVEL	266.855	266.823	266.681	266.595	266.494	266.485	266.409	266.408	266.481	266.459	266.391
OFFSET	-7.163	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	6.233

CH. 51737.700

CROSS SECTIONS

Scale A

WARNING!

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A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven

245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 5

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

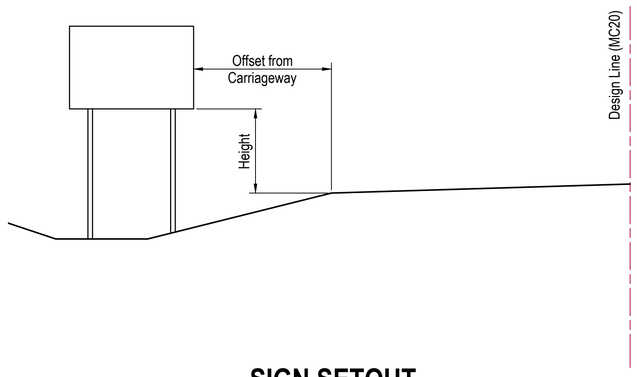
Job No.	CRC00286
Drawing No.	804
Revision	A
Series No.	12 of 17

XREFS :- X_CRC_BSC_TITLE.dwg : X_MC20_XSECT_05.dwg

Last Modified :- Oct 27, 2023 - 2:13pm

SIGN SCHEDULE

CHAINAGE (M)	POSITION	SIGN DESCRIPTION	SIGN TYPE	WORK DESCRIPTION	SIGN DETAILS					STIFFENER DETAILS				SUPPORT DETAILS							NEW FOOTING DETAILS			
					WIDTH (mm)	HEIGHT (mm)	AREA (m^2)	OFFSET FROM CARRIAGEWAY (mm)	HEIGHT ABOVE CARRIAGEWAY (mm)	TYPE	No.	SPACING (mm)	No. OF BRACKETS	Type	No.	SPACING (mm)	DIMENSION (mm) OD	MATERIAL	POST LENGTH 1 (mm)	POST LENGTH 2 (mm)	SLEEVE LENGTH (mm)	SLEEVE SIZE (mm)	DIA. (mm)	DEPTH (mm)
51646	LHS	Guide, Flood depth marker	G9-22-1A	Install New	Refer Details in DTMR Std Drg 1170 - Flood Depth Indicators - Installation																			
51649	RHS	Guide, Flood depth marker	G9-22-1A	Install New																				
51700	RHS	Guide, "Road Subject to Flooding"	G9-21-1	Install New	2150	800	1.7200	2000	1500	1	3	350	6	CHS Steel	2	1500	60.3	C350	3500 C.T.S	3500 C.T.S	-	-	300	750
51780	RHS	Warning, floodways with supplementary plate	W5-7-2B & W8-17-1 '1 km' B	Install New	750	750	0.56	2000	1500	1	0	0	0	CHS Steel	1	-	60.3	C350	3500 C.T.S	-	-	-	300	750



SIGN SETOUT

XREFS :- X_CRC_BSC_TITLE.dwg

Last Modified :- Oct 27, 2023 - 2:13pm

A	Issued for Construction				
20.01	Revisions/Descriptions	Drawn	Approved	Date	

Scales (sheet size A1)

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
SUPPLEMENTARY SIGNS AND LINEMARKING DETAILS

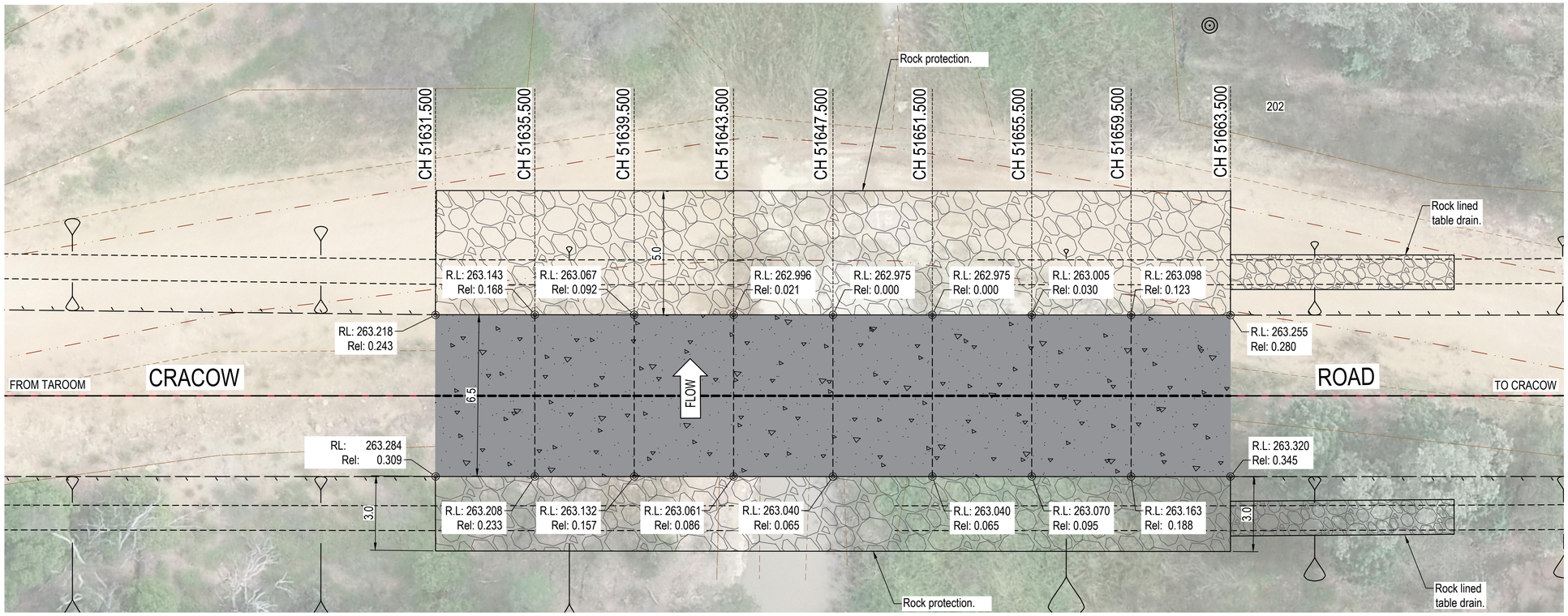
Drawn: B Doherty

Designed: B Doherty

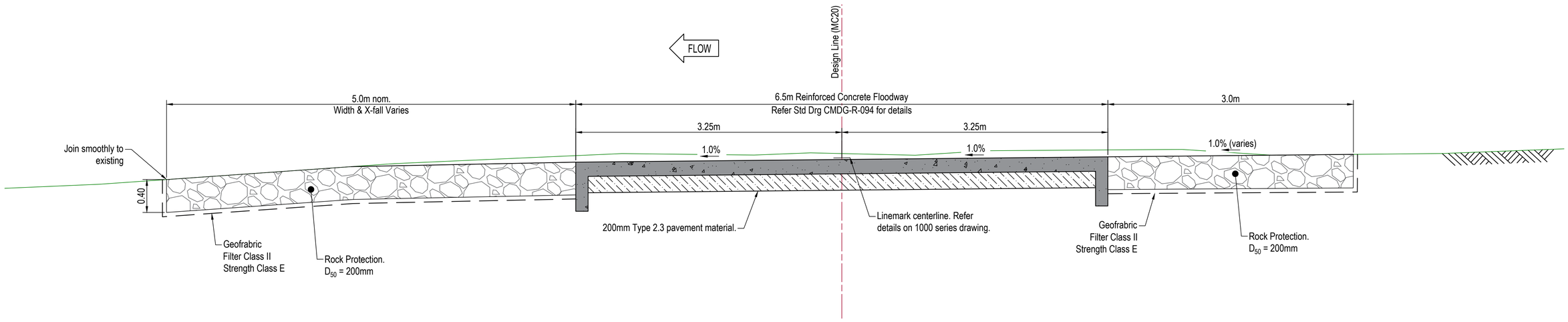
ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	1000
Revision	A
Series No.	13 of 17

Refer 400 series drawings for sign details.



PLAN
Scale: 1:100



TYPICAL CROSS SECTION B
Chge 51631.500 - 51663.500 (MC20 - Floodway)
Not to Scale

BEFORE YOU DIG www.byda.com.au

NORTH

LEGEND

R.L: Reduced Level AHD
Rel: Height relative to lowest point on floodway

WARNING!

BEWARE OF UNDERGROUND SERVICES

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A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
FLOODWAY DETAILS

Drawn: B Doherty
Designed: B Doherty

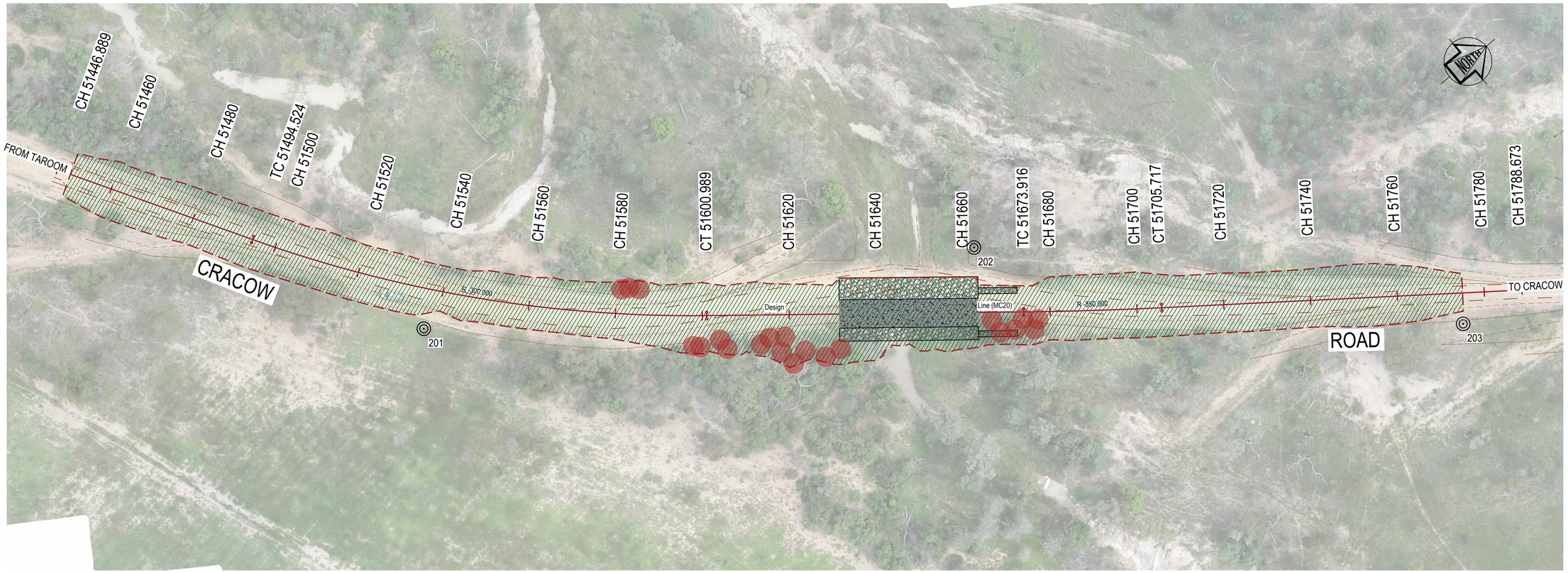
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No.	CRC00286
Drawing No.	1200
Revision	A
Series No.	14 of 17

Last Modified :- Oct 27, 2023 - 2:13pm

XREFS :- X_CRC_BSC_TITLE.dwg ; X_CONTROL.dwg ; X_SURVEY.dwg ; X_DESIGN.dwg ; X_HATCH.dwg ; X_IMAGE.dwg



PLAN

Scale: 1:500

DESIGN LINE MC20

CHAINAGE	OFFSET LHS	OFFSET RHS
51450	5.120	5.250
51460	6.623	6.849
51470	6.401	6.789
51480	6.881	6.080
51490	6.928	6.434
51500	6.980	6.539
51510	7.227	6.370
51520	6.540	6.593
51530	6.515	6.676
51540	5.882	4.467
51550	6.664	5.388

DESIGN LINE MC20

CHAINAGE	OFFSET LHS	OFFSET RHS
51560	6.520	5.475
51570	6.766	5.554
51580	7.227	5.891
51590	6.907	7.199
51600	7.605	8.804
51610	7.426	8.356
51620	7.024	12.163
51630	6.663	11.500
51640	5.720	10.711
51650	7.853	8.696
51660	6.069	8.417

DESIGN LINE MC20

CHAINAGE	OFFSET LHS	OFFSET RHS
51670	6.116	7.387
51680	7.972	6.495
51690	8.263	6.643
51700	8.481	6.665
51710	7.122	6.600
51720	7.287	6.420
51730	7.062	6.339
51740	7.227	6.163
51750	7.798	6.640
51760	7.142	6.304
51770	5.489	5.006

LEGEND

- Tree to be removed
- Limit of clearing
- 403 - Survey Mark and Label

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Scale A 0 5 10 15 20 25 1:500

Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

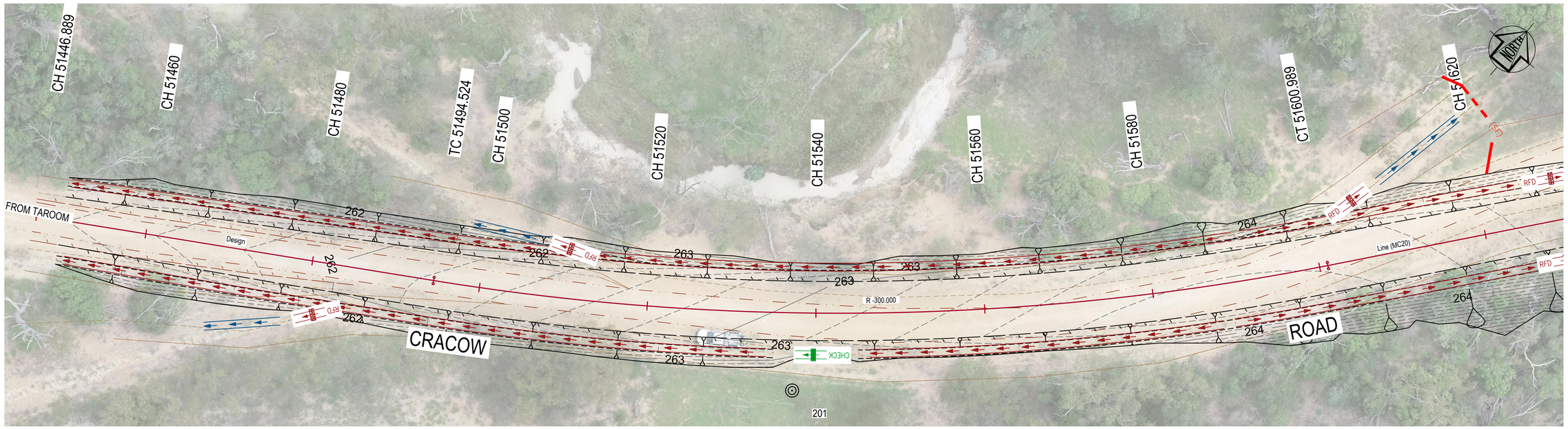
Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
LIMIT OF CLEARING PLAN

Drawn: B Doherty
Designed: B Doherty

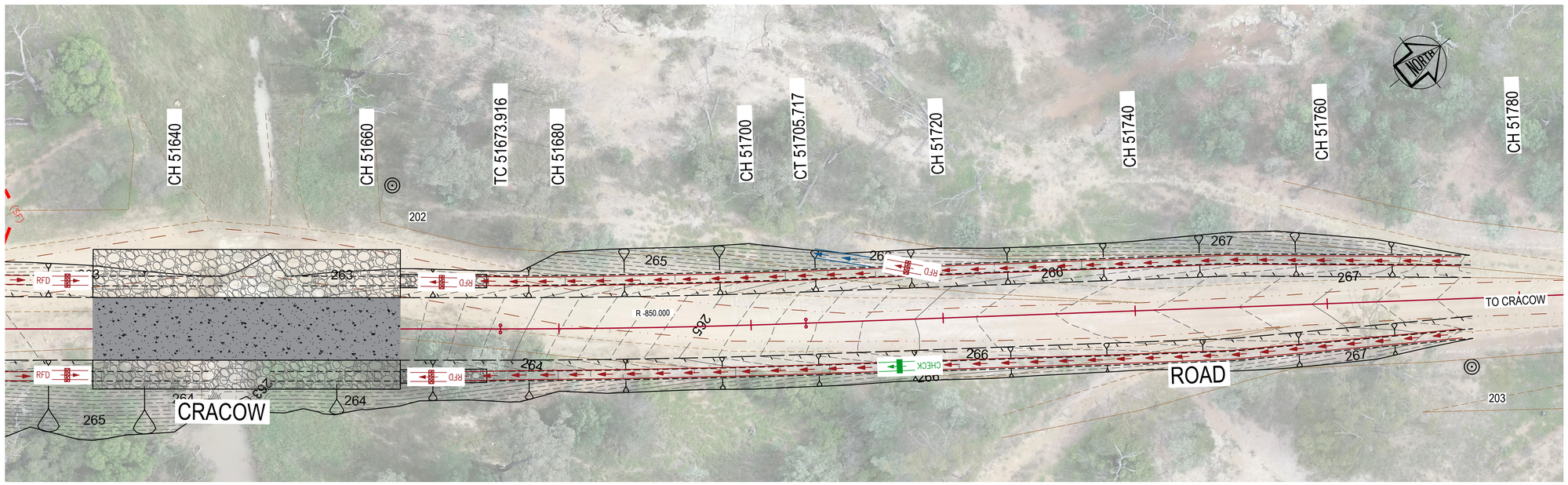
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/10/23

Job No. CRC00286
Drawing No. 1600
Revision A
Series No. 15 of 17



PLAN
Scale: 1:250



PLAN
Scale: 1:250

LEGEND

- Diversion Bank
- (SF) Silt Fence
- Geo Log
- Dirty Water Flow
- Clean Water Flow
- CHECK Rock Check Dam
- RFD End of line rock check dam (to act as rock filter dam)
- Existing Trees
- 403 Survey Mark and Label

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Scale A 0 2 4 6 8 10 12 1:250

Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

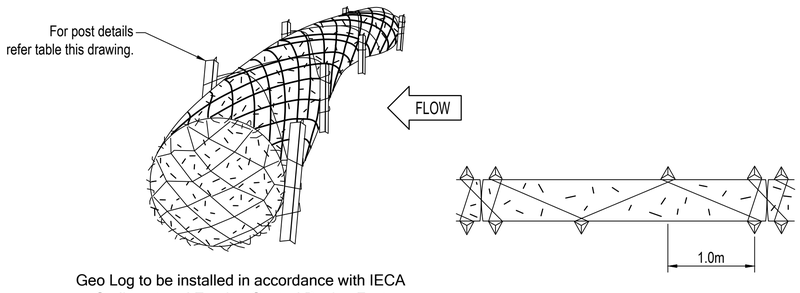
Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
TEMPORARY EROSION AND SEDIMENT CONTROL SHEET 2

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	P Meredith		15268	

Job No.	CRC00286
Drawing No.	1700
Revision	A
Series No.	16 of 17



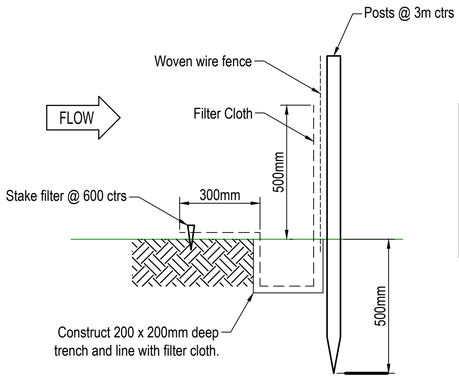
Geo Log to be installed in accordance with IECA Sediment and Erosion Control Design Fact Sheets - Instream Practices

GEO-LOG STAKING METHOD

N.T.S

MATERIALS

MATERIAL	TYPE
Posts (either)	1.5kg/m (min) Steel Star Picket or 1500mm^2 (min) Hardwood or 2500mm^2 (min) Softwood
Fence	Woven wire 14 guarge 150mm max aperture
Filter Cloth	Filter as specified (terram 100, polyfelt ts500, Bidim u24 or equivalent)
Prefabricated Unit	Geofab, envirofence or approved equivalent



Erection Notes

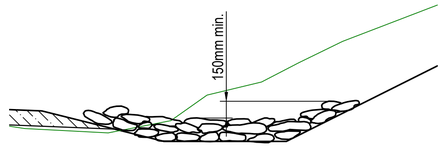
Woven fence to be fastened securely to fence posts with wire ties or staples. Filter cloth to be fastened securely to woven wire fence with teis speaced every 600mm at top of mid section. When two sections of filter cloth adjoin each other they shall be overlapped by 150mm and folded and material removeed when bulging of fence occurs.

SILT FENCE

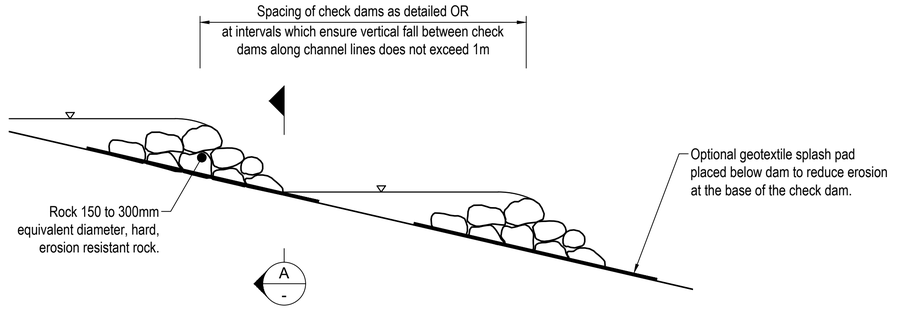
N.T.S

LEGEND

- Diversion Bank
- (SF) Silt Fence
- Geo Log
- Dirty Water Flow
- Clean Water Flow
- CHECK Rock Check Dam
- RFD End of line rock check dam (to act as rock filter dam)
- Existing Trees



SECTION A -

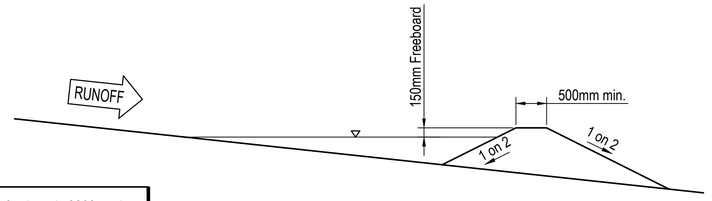


ROCK CHECK DAM

N.T.S

Notes

1. Design and construction of all sediment management devices is the contractors responsibility and shall be completed and effective prior to:
   (i) Stripping of topsoil and grass.
   (ii) Bulk earthworks to the site.
   (iii) Service installations.
2. All sediment management devices are to remain in place until notice from the Contract Administrator
3. Both temporary and permanent sediment management devices shall be maintained at a suitable level/condition throughout construction. Sediment fences are to be cleaned out when capacity is reduced by 30%.
4. If erosion and sediment control devices have been found to be deficient or failed in service, due to unforeseen circumstances, corrective action is to be undertaken immediately which may include amendments/additions to the original approved erosion control plans. such additions or amendments are to be approved by the Contract Administrator.
5. All erosion and sediment control devices are to be inspected at least weekly, before and after rainfall events. Any damage or excess erosion/sediment is to be repaired/managed as required to maintain control devices.
6. Devices shown on the drawings shall not necessarily be limited to the locations shown. Additional devices may be required as directed by Contract Administrator.
7. Rock check dams to be installed per detail this drawing in drainage channels with slopes greater than 2%. Spacing of check dams to be at every 1.0m vertical drop in drainage channel.
8. Contract Administrator to order installation of topsoil and grass seeding to disturbed areas.
9. The contractor shall ensure all turfed and/or seeded areas are regularly watered to ensure vegetation is maintained until there is 80% coverage.
10. Stockpiles shall be protected from erosion and sediment loss by:
    - The installation of diversion works on the upstream side.
    - The use of silt fences or other approved controls on the downstream side.
    - Compaction.
    - Re-vegetation if left exposed for longer than 30 days



A minimum freeboard of 300mm is recommended for non-vegetated earth embankments.

DIVERSION BANK

N.T.S

XREFS :- X_CRC_BSC_TITLE.dwg

Last Modified :- Oct 27, 2023 - 2:14pm

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales (sheet size A1)

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
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Client: Banana SHIRE — SHIRE OF OPPORTUNITY

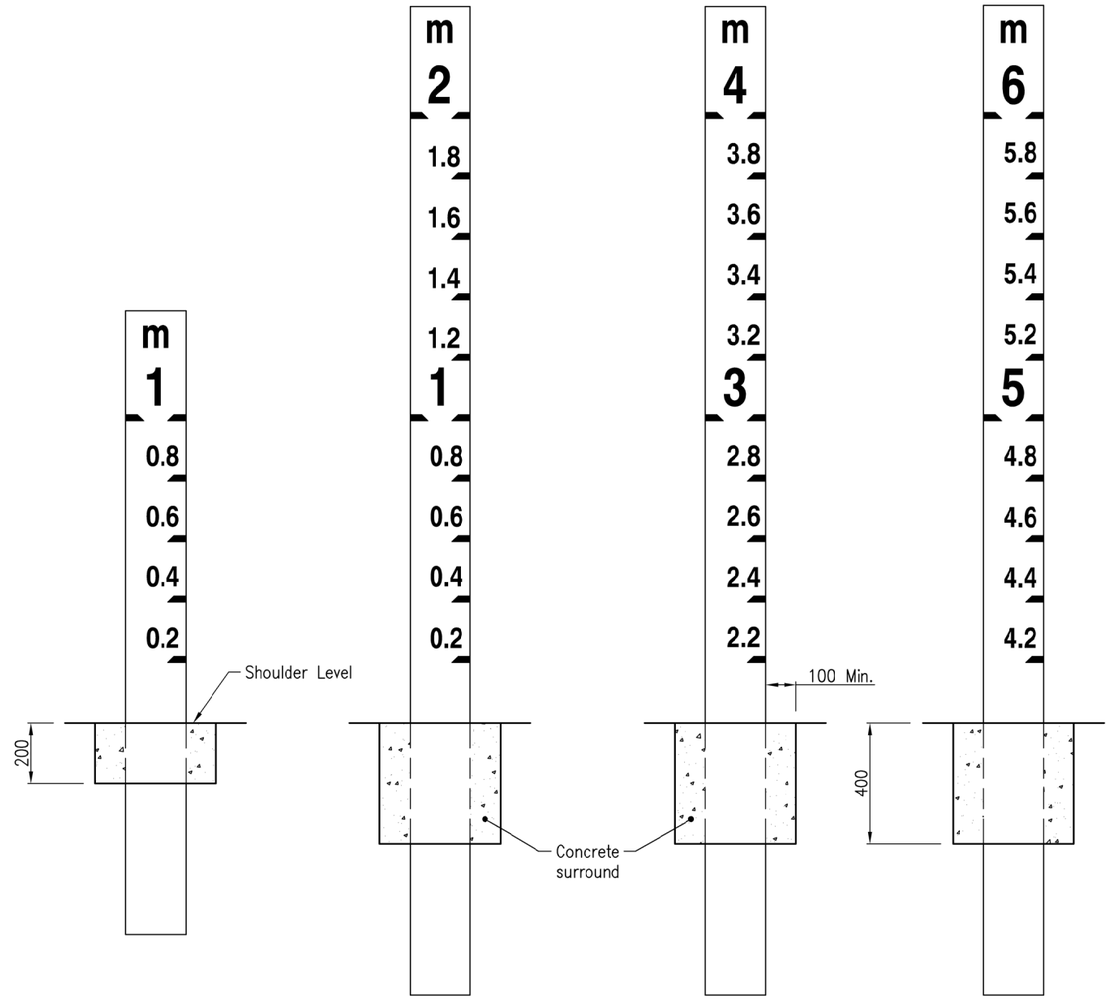
Title: CRACOW ROAD UPGRADE (Ch. 51450m - 51775m)
SITE 2 - UN-NAMED CREEK 1 FLOODWAY
TEMPORARY EROSION AND SEDIMENT CONTROL SHEET 2

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	P Meredith		15268	

Job No.	CRC00286
Drawing No.	1701
Revision	A
Series No.	17 of 17



G9-22-1A G9-22-1B G9-22-2 G9-22-3

NOTES:

FLOOD DEPTH INDICATORS:

1. To be located at the chainages specified or as directed by the Superintendent.
2. Zero mark to be set at the lowest pavement level on the section of road subject to flooding.
3. G9-22-2 and G9-22-3 indicators to be erected on progressively higher ground where flood depths are in excess of 1.5m or 3.5m respectively.
4. To conform with the details as shown in the MUTCD.

CONCRETE SURROUND:

5. To be class N20/20 and provide 100mm minimum cover all round.
6. Dimensions are in millimetres unless shown otherwise.

ASSOCIATED DEPARTMENTAL DOCUMENTS:

Standard Drawings
Specifications
Manual of Uniform Traffic Control Devices Part 2 (MUTCD)

REFERENCED DOCUMENTS:

Departmental Specifcctions:
MRTS14 Road Furniture
MRTS70 Concrete

Australian Standards:
AS1743 Road Signs – Specifications

Department of Transport and Main Roads

FLOOD DEPTH INDICATORS

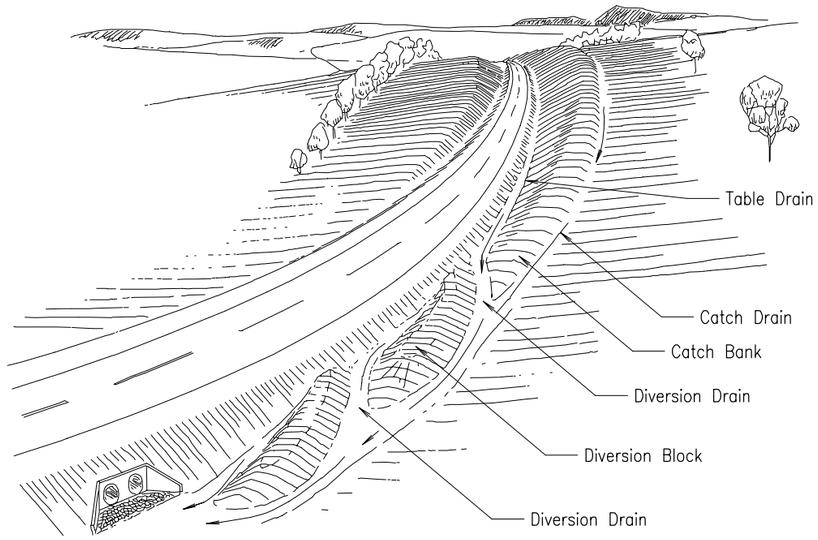
INSTALLATION

Queensland Government

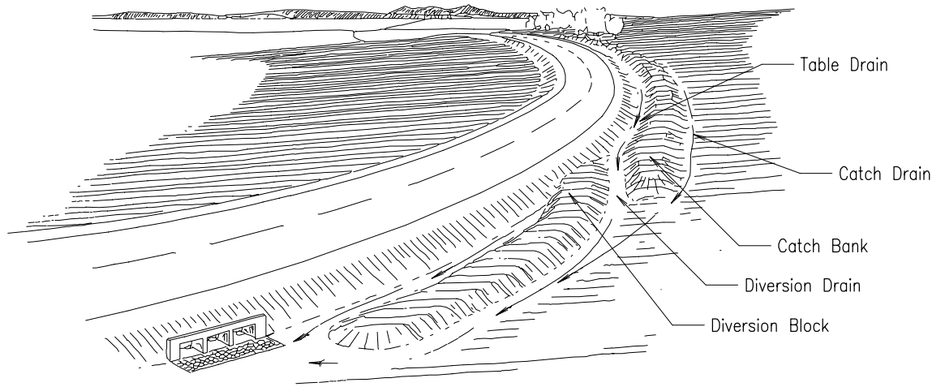
A3
Not to Scale

Standard Drawing No
1170
Date 11/2022

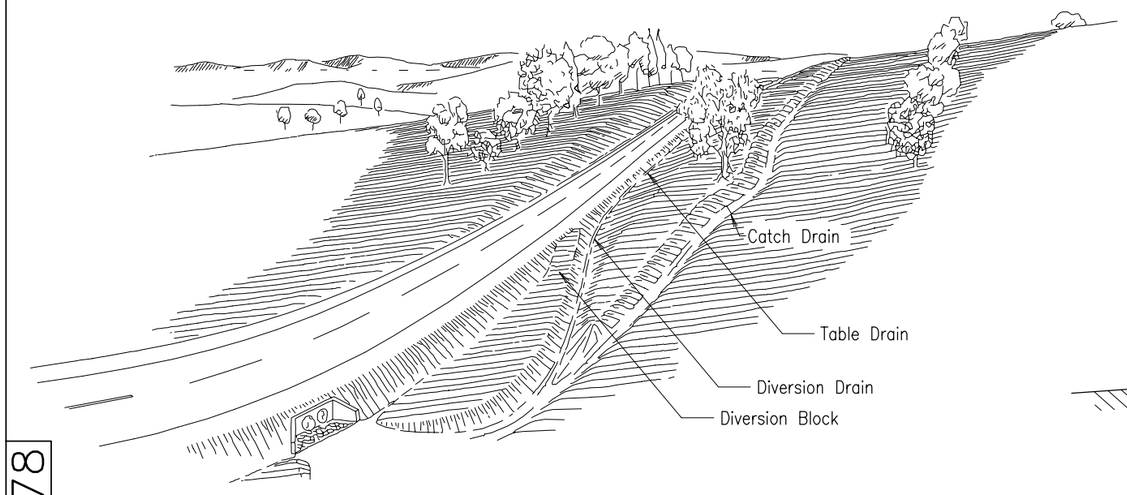
A B C D



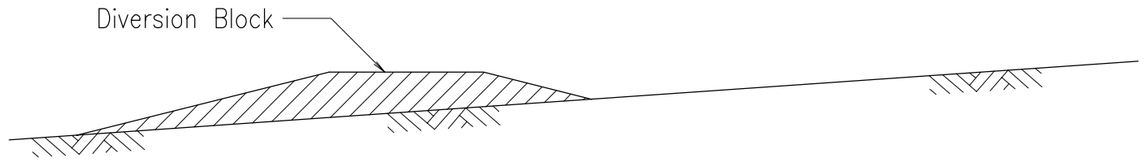
CATCH BANK ON
EARTHWORKS SECTIONS



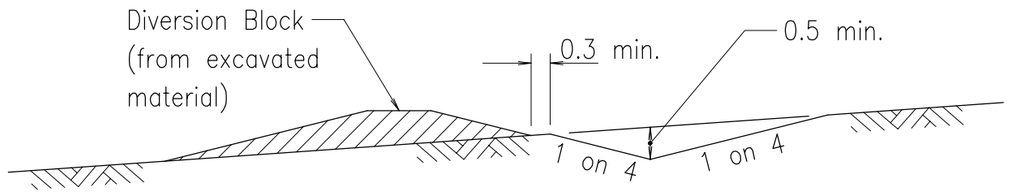
CATCH BANK ON
LOW FORMATION SECTIONS



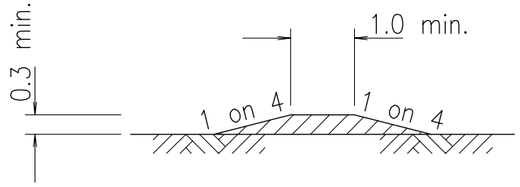
CATCH DRAINS ON
EARTHWORKS SECTIONS



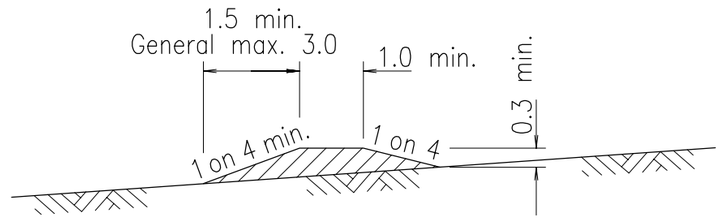
DIVERSION DRAIN IN ERODIBLE SOILS



DIVERSION DRAIN IN NON-ERODIBLE SOILS



DIVERSION BLOCK



CATCH BANK

NOTES:

1. DIVERSION DRAINS, unless shown otherwise in the scheme documents, shall be constructed at culverts and at intervals not exceeding 120m on grades up to 2%, 60m on grades 2% to 4%, 30m on grades 4% to 8% and 15m on grades over 8% (except in cuttings). They shall **have a cross sectional area at least equal to the cross sectional area of the table drains carrying water to them.**
2. ERODIBLE SOILS have sodic and/or dispersive characteristics. Soil testing is required prior to design.
3. DRAINAGE INTO PRIVATE PROPERTIES, with the cooperation of property owners, is to be discharged into contour banks and behind diversion banks to dams where possible.
4. DIMENSIONS are in metres unless shown otherwise.

ASSOCIATED DOCUMENTS:

Department of Main Roads Manual of Standard Drawings Roads
Department of Main Roads Manual of Standard Specifications Roads
Department of Main Roads Road Drainage Design Manual

REFERENCED DOCUMENTS:

Standard Drawings:

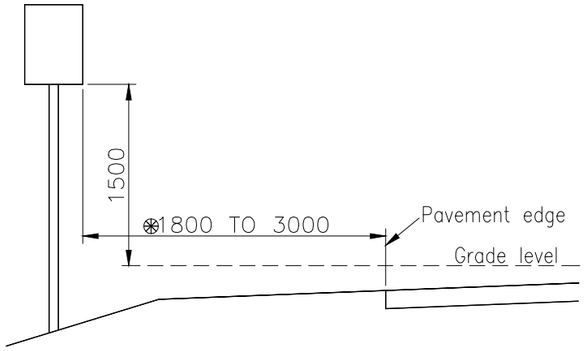
1045 Revegetation Treatment of Cut Batters

Standard Specifications:

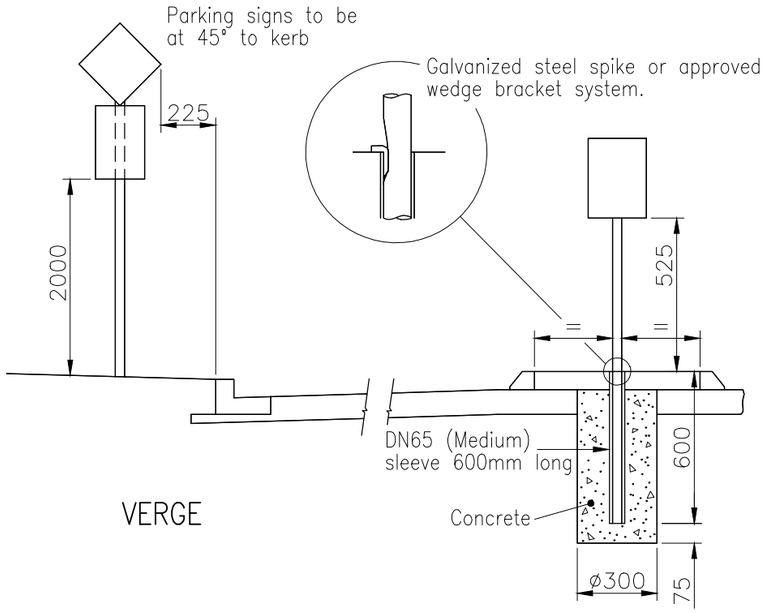
General Earthworks

1178

DIVERSION OF WATER	Queensland Government Department of Main Roads	
DIVERSION OF WATER FROM ROADWAY AND TABLE DRAINS	Size A3	Drawing No 1178
	Scales as shown	Date 10/03
		A B C D E



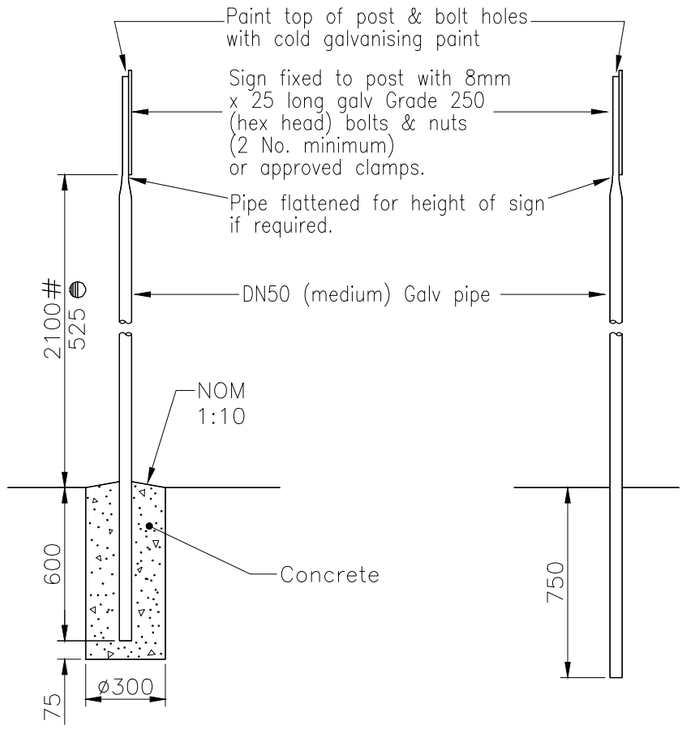
LOCATION OF SIGNS – RURAL ROADS



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

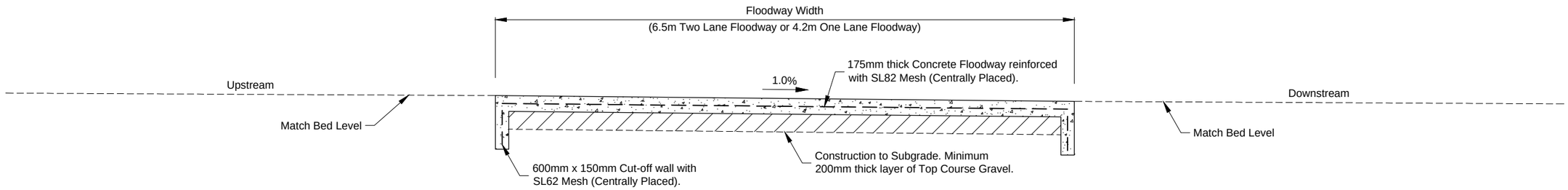
Capricorn Municipal Development Guidelines

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)

SIGN LOCATION AND INSTALLATION DETAILS

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



TYPICAL SECTION
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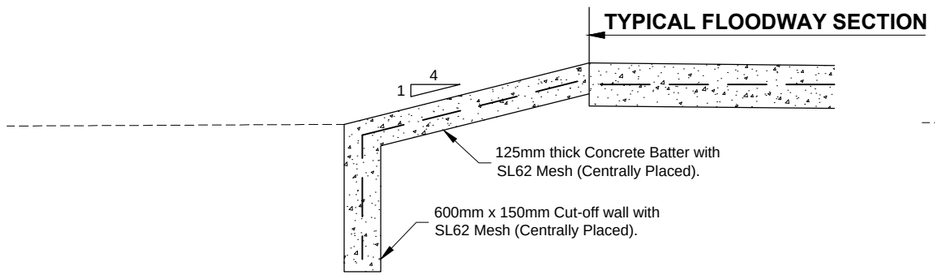
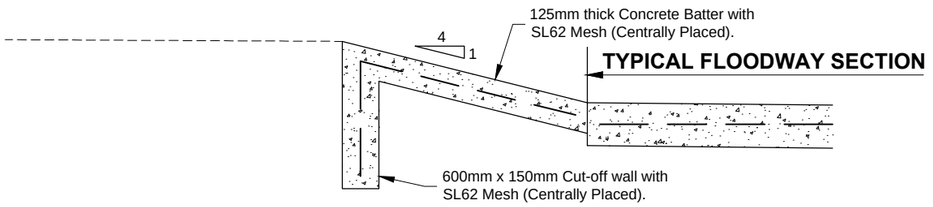
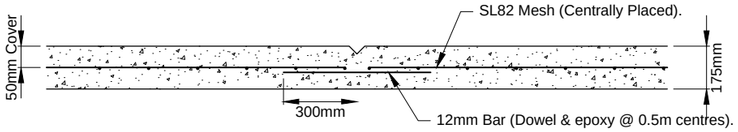


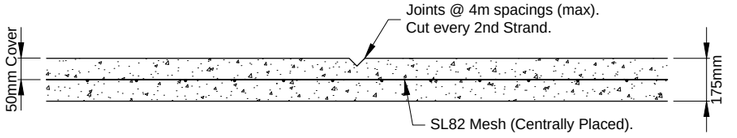
EDGE PROTECTION - FILL SITUATION
Scale 1: 25



EDGE PROTECTION - CUT SITUATION
Scale 1: 25



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

Capricorn Municipal Development Guidelines

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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

quality people client focused solution driven

Cracow Road – Site 2

Un-named Creek 1 Floodway

Safety in Design

Client: Banana Shire Council

26/10/2023

Document Control

Document History

Date	Version	Name	Position	Action (Review/endorse/approve)
03/07/2023	0.1	Bryan Doherty	Senior Designer (Civil)	Draft for internal review
01/09/2023	0.2	Bryan Doherty	Senior Designer (Civil)	Draft for council review
26/10/2023	1.0	Bryan Doherty	Senior Designer (Civil)	Final

Certification

Date	Name	Position	Signature
26/10/2023	B. Doherty	Senior Designer	
26/10/2023	T. Penrose	RPEQ	

Contents

Document Control 1

Document History 1

Certification 1

Contents 1

1. Purpose of this Document 2
2. Project Scope and Objectives 2
3. Safe Design 2
4. Duty of Care/Disclaimer 3
5. Risk Management 4
6. Appendix A – Safe Design Risk Register 5

1. Purpose of this Document

The purpose of this document is to identify and control project specific risks, where possible, in the civil design phase to ensure the safety of constructors, maintenance providers and end users. All risks identified as part of the design are documented in this report and provided for appropriate risk management in future phases. Risks unable to be closed out in the design phase are be documented in the report and communicated to the Client, for action in the construction and or later phases. This document has been produced to provide support to the design undertaken for Cracow Road, Site 2, Un-named Creek 1 Floodway.

2. Project Scope and Objectives

Scope of works for this project include,

- Pavement widening and overlay and stabilized floodway approaches.
- Geometric improvements.
- Floodway reconstruction.
- Signage and road edge guideposts.

3. Safe Design

Safe design begins from the outset or planning phase of a project and is further refined in the concept and development phases. Safe design covers the:

- Design of a project or a component of a project and its intended purpose or future use
- Materials being used
- Possible methods of construction, maintenance, and operation of the product, and
- Legislation, codes of practice and standards that need to be complied with.

Safe design is a collaborative effort between all parties involved throughout the lifecycle of the project and where possible should eliminate or minimize the risk of project lifecycle occupational health and safety hazards as early as practical. It also encompasses the management and documentation of remaining risks so all parties involved can understand and be aware of all risks identified in the design phase of the project lifecycle.

Safe design consists of a balance between cost, functionality, and aesthetics; without compromise to the health and safety of those who will construct, use, and maintain the product and community expectations. While not all risks can be eliminated or it be cost effective to remove all risks, Safe Design principles in the planning phase should aim to:

- Prevent injury and disease
- Improve useability of products, systems, and facilities
- Improve productivity in all phases
- Reduce operation costs
- Better predict and manage production and operational costs over the lifecycle of a product
- Comply with legislation, and
- Incorporate innovative design which fosters safer design practices and demands new thinking.

4. Duty of Care/Disclaimer

This document is not intended to be a standalone document, it should be read in conjunction with the *Work Health and Safety Act 2011* and the *Work Health and Safety Regulation 2011*. The Act and Regulation applies to all phases of a project lifecycle from concept, through design, construction, maintenance, and decommissioning and provides that all risks to health and safety be eliminated, so far as is practical or minimised so far as is reasonably practical where they cannot be eliminated. To properly manage exposure to a risk, a person must:

- Identify hazards
- Assess risks that may result because of the hazards
- Identify appropriate control measures to eliminate of minimise the level of risk
- Implement control measures, and
- Monitor and review the effectiveness of control measures.

To comply with the above, assumptions are made during the assessment as to what construction and maintenance practices may be adopted which may differ from actual methods adopted by those undertaking the works. Use of this document does not remove any obligation of any party involved, either during or after this document is published. A duty of care applies to all parties during subsequent phases and it is incumbent on those involved to further assess risks and hazards include:

- the client
- project managers
- constructor
- maintenance personnel
- users
- visitors
- demolishers, and
- disposers.

Further Safety advice, hazard identification, risk assessment or control measures may indicate other risks associated with the project that have not been identified in the document. Reference is made to the principle of what is considered 'reasonably practical' regarding the extent of Safe Design achievable by the designers.

Use of this document does not remove the obligation of the client, constructor end user or other parties during the lifecycle of the project.

Any party who has read this document and disagrees with the assessment or requires clarification of an item should contact the Project Designer at their earliest opportunity.

5. Risk Management

Table 1 – Methods of controlling risk in order of preference

Method	
Elimination	Remove the risk by modifying the design
Substitution	Remove or reduce the risk by modifying the design
Isolation	Physically separate the hazard
Engineered Control	Using *Design Safety* measure to reduce risks
Administration	Using formal process to reduce the risk
PPE	Ensure appropriate Personal Protective Equipment is used or worn.

The Risk Assessment Matrix is intended to assist our designers in:

- Fulfilling their obligations under the Work Health and Safety Act 2011.
- Achieving safe, economical and efficient constructions for our clients.
- Consulting and communicating with all parties involved in a project (designers, client, end-users, constructors etc.) to establish the hazards and risks identified during the design phase associated with the construction, operation, maintenance and decommissioning of a project.
- Consulting and communicating with all parties involved in a project on the controls that have or are required to mitigate these risks. This is not an exhaustive list and all parties should therefore undertake a thorough review of this document to satisfy themselves that it accurately reflects the intended purpose.
- Consulting and communicating to all parties the controls adopted to mitigate these risks and any residual risks that are considered present during construction, operation, maintenance and decommission that may need continual monitoring to achieve a safe working environment.

6. Appendix A – Safe Design Risk Register

Safety in Design Register

Cracow Road, Site 2, Un-named Creek 1 Floodway Upgrade

Hazards							Controls				Action		
				Raw Risk (no controls)				Residual Risk					
				Likelihood	Consequence			Likelihood	Consequence				
No.	Project Phase	Risk Description	Consequence Description	1. Very Unlikely 2. Unlikely 3. Possible 4. Likely 5. Almost Certain	A. Minor B. Major C. Severe D. Critical E. Catastrophic	Risk Rating	Mitigation Strategy / Control Measures	1. Very Unlikely 2. Unlikely 3. Possible 4. Likely 5. Almost Certain	A. Minor B. Major C. Severe D. Critical E. Catastrophic	Risk Rating	Responsibility	By When	Comments / Notes
1	Pre-Design	Insufficient/inaccurate data collection. (e.g. GIS, Traffic Data, LIDAR, Aerial photography)	Risk results in inadequate or substandard design that could lead to potential safety risk to travelling public, Constructors and maintenance workers.	4	D	Significant	Project is adequately scoped, discussed and documented during pre-detailed design phases to ensure data collection is appropriate. Detailed survey has been supplied for this project	1	C	Low	Designer/ Principal	Detailed Design	Residual risk with Principal
2	Pre-Design	Poor Scoping/Client brief on project requirements.	Risk results in inadequate design that could lead to potential safety risk. EDD, design exceptions, funding constraints.	4	D	Significant	Risks identified and accepted by Client. Mitigating treatments incorporated into design to the available funding.	2	B	Negligible	Designer/ Principal	Detailed Design	Residual risk with Principal Client decisions recorded within Design Decision Register.
1	Design	Errors and omissions in design.	Errors/omissions in design resulting in inadequate or substandard design that could lead to potential safety risk to travelling public. Constructor, maintenance – workers	3	E	Extreme	Design has been carried out in accordance with quality management procedures to avoid potential for errors in design. Design has been carried out in accordance with Australian Standards and quality management procedures in line with scope and deliverables to avoid potential for errors in design.	1	D	Moderate	Designer/ Principal	Detailed Design	Residual risk with Principal
2	Design	Design methodology poorly considers construction practices leading to potential safety risks for both construction workplace and the travelling public.	E.g. Traffic management, working near overhead power lines, lifting, trenching, site access, materials storage and handling (Asbetos identified within site), working close to travelling public due to corridor restrictions.	4	E	Extreme	Design incorporates learnings from previous projects and include recommendations from industry experts on appropriate site treatments in the design.	2	C	Low	Designer/ Principal	Detailed Design	Residual Risk transferred to Contractor.
3	Design	Project exceeds budget	Identified saftety issues will not be addressed leading to an unsafe environment for the travelling public.	3	D	Significant	BSC to prepare contingency plans to reduce project cost to within budget constraints.	2	D	Moderate	BSC	Detailed Design	Residual risk with Principal
4	Design	Hazards in designated clear zones and road corridor.	Poor Scoping of project requirements resulting in inadequate design that could lead to potential safety risk to travelling public, constructor, maintenance. Impact of errant vehicle resulting in injury or death.	3	E	Extreme	Risks identified and accepted by BSC. Mitigating treatments have been incorporated into the design. Hazard Treatment Evaluation undertaken in accordance with Austroads and the information available at the time of detailed design.	2	D	Moderate	Designer/ Principal	Detailed Design	Residual risk with Principal
5	Design	Inadequate treatment of private entrance or turnout design.	This could lead to potential safety risk to travelling public. SISD, ASD, angles, vertical clearance, appropriate layout, design vehicle.	3	D	Significant	Private entrances and turnouts to be designed in accordance with BSC standard drawing and incorporating validated road function, traffic volumes and usage. Key stakeholder consultation, EDD/Design Exceptions.	1	D	Moderate	Designer/ Principal	Detailed Design	Residual Risk with Principal
6	Design	Services not identified during design.	This could lead to the potential safety risk of constructors and/or closure of key services to the general public.	4	D	Significant	• Contact DBYD and other relevant authorities to identify existing services (DBYD received 17/02/23). • Designers have noted known services on drawings. • Carry out field inspection to confirm and identify any potential service related issues e.g. potholing and locating activities. • Locating activites have been carried out as part of the design phase and did not locate any underground services. • Contractor to complete service locations to verify no existing infrastructure is present.	2	D	Moderate	Designer/ Principal	Detailed Design	Residual Risk with Principal and Contractor
1	Construction	Drainage during construction	Poor drainage during construction affecting pavements/traffic/etc	3	B	Low	Maintain flow paths during construction where practical. Make pumping equipment available if required.	2	A	Negligible	Contractor	Construction	Residual risk with Principal and contractor
2	Construction	Exposure to asbestos	Existing abandoned conduits/pits/culverts may be present which could be exposed during construction.	2	D	Moderate	Details of existing services/culverts where known have been provided. Contractor to undertake appropriate intestigations as required.	1	D	Moderate	Contractor	Construction	Residual risk with Principal and Contractor It is unknown if any asbestos infrastructure is located within the project limit.
3	Construction	Deep excavation of trenches	Trench collapse injuries	2	E	Significant	Depth of culverts to be minimised where possible. Contractor to employ appropriate temporary work measures.	1	E	Moderate	Contractor	Construction	Residual risk with Principal and contractor
4	Construction	Design changes made by Contractor or Administrator following design completion	Design changes do not meet safety requirements.	3	C	Moderate	Contractor / Administrator to advise the Designer or any proposed design changes. Follow RFI process.	1	C	Low	BSC	Construction	Residual risk with Principal and contractor
5	Construction	Working in vicinity of High Voltage Ergon power lines, both overhead and underground.	Death or serious injury	2	E	Significant	Contractor to identify all services and have construction procedures for working near HV services.	1	E	Moderate	Contractor	Construction	Constructors shall conduct their own DBYD and verify all utilities on site prior to commencing any roadworks.
6	Construction	The risk of traffic not being managed adequately.	Traffic chaos, delays and accidents caused by lack of controls.	2	E	Significant	Designer has nominated traffic volumes in design documentation. It is noted that the traffic volumes are low. Contractor to engage a suitably qualified traffic manager to implement traffic management controls considering road function; traffic volumes; constructability and road users.	1	E	Moderate	Contractor	Construction	Residual Risk with Principal and Contractor
7	Construction	Working on top of high and steep embankments	Injury due to personnel fall or overturning construction plant	3	E	Extreme	Consider construction methodology prior to implemenation.	2	D	Moderate	Contractor	Construction	Residual risk with Principal and contractor
8	Construction	Lighting levels during construction.	Inadequate lighting of conflict points during construction resulting in confusion/collisions	2	B	Negligible	Temporary standalone LED lighting, if required.	1	B	Negligible	BSC	Construction	Residual risk with Principal and contractor
9	Construction	Disruption / damage to existing services	Constructors may damage existing services during construction. Service may/may not have been shown on design plans.	3	D	Significant	Constructors to conduct dial before you dig and no work shall be carried out over utility or within 3m of services without prior notification to the appropriate service authorities. Contractor to complete service locations to verify existing infrastructure. Appropriate demarcations and planning by contractor to highlight any locations where work activities are undertaking in the vicinity of existing services.	2	D	Moderate	Contractor	Construction	Constructors shall conduct their own DBYD and verify all utilities on site prior to commencing any roadworks or excavations.
10	Construction	Unexpected weather events resulting in potential injury to construction personnel and/or travelling public	Sudden weather events resulting in the need to evacuate the site.	4	D	Significant	Constructor to consider location, likely duration and characteristics of project to determine likelihood of event and consider project specific mitigation strategies via risk management.	3	D	Significant	Contractor	Construction	Residual Risk with Principal and Contractor
11	Construction	Unearthing unexpected soil types e.g. acid sulphate soil, sodic soils or contaminated soil from rail reserves. resulting in potential safety risk to construction personnel and general public.	This results in potential safety risk to construction personnel and general public.	3	D	Significant	• Design to consider location and likelihood of encountering specific soil type. • Site inspection and/or geotechnical investigation to confirm presence of soils requiring specific treatment. • Include comments in "notes to contract administrators" advising of potential for presence of hazardous materials. • Experienced construction staff that can recognise potential hazards	3	C	Moderate	Contractor	Construction	Residual Risk with Principal and Contractor
12	Construction	Incorrect or unsuitable surface treatment either temporary or permanent resulting in potential safety risk to the travelling public. e.g. line marking removal, appropriate seal design	This results in potential safety risk to construction personnel and general public.	3	D	Significant	Constructor to consider road function, traffic volumes, location and seasonal conditions to propose suitable surface treatment.	2	E	Significant	Contractor	Construction	Residual Risk with Principal and Contractor
1	Maintenance	Final product leads to potential safety issues with maintenance activities.	Personel cannot undertake maintainance activities safely due to the proposed design.	3	C	Moderate	Design to consider maintenance requirements including provision of safe environment to facilitate maintenance activities including safe ingress and egress and clear work area. E.g. batter slopes, under bridge inspections, gardens in medium strips, allowance for access tracks etc.	1	E	Moderate	BSC	Ongoing	Residual risk with Principal
2	Maintenance	Inadequate as constructed information.	Existing conditions not accurately reflected.	4	E	Extreme	Adequate handover to maintenance provider.	1	D	Moderate	BSC	Ongoing	Residual risk with Principal
1	Finalisation	Not applying all the appropriate standards.	This could result in an unsafe design.	3	D	Significant	Carry out appropriate design reviews and RPEQ approvals	1	D	Moderate	Designer	Ongoing	Residual risk with Principal