

YOUR REF:

OUR REF: OP1999/2017 (813288)

16 May 2017

Douglas Shire Council
PO Box 723
MOSSMAN QLD 4873

Attention: Scott Hahne

Dear Sir

**DECISION NOTICE FOR OPERATIONAL WORKS - RESERVOIR
FERRERO ROAD CRAIGLIE**

Please find attached the relevant Decision Notice for the above Operational Works. Also find attached a 'Pre-Start' meeting template, which identifies the information that must be provided for Council approval, prior to the commencement of works.

The template also provides the Consulting Engineer with a format for conducting the meeting. An invitation to attend the meeting must be sent to Council's representative Neil Beck on telephone number 07 4099 9451.

In addition to the Decision Notice, Council provides the following 'Advice Statement' which relates to issues that are relevant to the proposed works:

1. The Landscape Plan is subject to a separate approval process. The Landscape Plan is to be submitted to Council for assessment once works have commenced; and
2. The Consulting Engineer is to present all contractors with a copy of this Decision Notice and the Council approved plans, prior to the commencement of works.

Should you require further information or assistance, please contact Neil Beck of Development Assessment and Coordination on telephone 07 4099 9451.

Yours faithfully

Paul Hoye
Manager Sustainable Communities

Att

Copy: Manager Infrastructure – Michael Kreidemann
 Co-ordinator Water & Waster – Peter White
 Coordinator Civil Works – Peter Tonks
 GIS Support – Alistair Hart

YOUR REF:

OUR REF: OP1999/2017 (813288)

16 May 2017

**DECISION NOTICE FOR OPERATIONAL WORKS
FERRERO ROAD CRAIGLIE**

PROPOSAL:

Operational Works (Earthworks, Roadwork Construction Works & Water Main Installation)

TYPE OF DEVELOPMENT:

Operational Work

REAL PROPERTY DESCRIPTION:

Lot 801 on SP279536

REFERRAL AGENCY CONDITIONS:

None applicable

FURTHER DEVELOPMENT PERMITS OR APPROVALS REQUIRED:

Building Works (Construction of Reservoir)

DECISION DATE:

12 May 2017

DECISION:

Approved subject to conditions

TYPE OF APPROVAL:

Development Permit

ASSESSMENT MANAGER CONDITIONS – STANDARD:

The standard conditions are shown in Appendix B and must be read in conjunction with any approved plans and project specific conditions identified below.

ASSESSMENT MANAGER CONDITIONS – PROJECT SPECIFIC:

1. Plan Drafting

On review of certified plans, it would appear some drafting errors have been introduced between Revisions A & B. Reference is made to Drawing No. B00217-CR001 Rev B. In particular, the water main alignment relative to the road reserve and adjacent property boundary. The plan view shows the mains outside the road reserve and in private property, whereas the cross sections confirm the intended location of the water mains is to be within the road reserve. Amended plans correcting the error must be submitted to Council.

2. Earthworks

- a. The works must not cause, or be likely to cause, environmental harm resulting from the release of contaminants, dust, noise or sediments from the site. Appropriate Erosion and Sediment Control (ESC) measures must be installed and maintained for the duration of the works or until all exposed areas have been fully re-vegetated or stabilized;
- b. Earthworks compaction testing must be provided for both the reservoir site and the proposed surplus fill stockpile site;
- c. The resulting batters and earthworks finished levels are to be assessed by the project geotechnical engineer and advice on the long-term stability is to be confirmed to the satisfaction of the Chief Executive Officer prior to acceptance of the works;
- d. Consideration to be given to revising the design to remove the table drain batter slopes within the road verge that are steeper than 25%.

3. Stormwater

- a. The road side table drains from road Chainage 390 to Chainage 470 and from Chainage 470 to Chainage 570 have longitudinal grades of 10% and 16% respectively. Further consideration of drain lining and or treatments to be implemented in this location is required. This is to ensure long term stability and assist with maintenance of road side drains.
- b. Consideration to be given the placement of a kerb on the southern side of the internal access road within the site from Chainage 440m to 540m in order to reduce extent of earthworks and table drain formation and assist with batter slopes and interfaces.
- c. Consideration to be given to the batter slope interface at Chainage 560 in order to avoid locating the invert of the drain at the interface of the fill batter with the existing ground. Note the verge crossfall is steeper than 25% and longitudinal grade is 16% in this location.

4. Water

- a. Consider providing revised longitudinal design that achieves increased cover to the pipes within the Crees Road and Ferrero Road reserves to allow for future road upgrades and provision of municipal services within the road corridor. These roads are within the Residential Investigation Area in Council's Strategic Framework Mapping. It is recommended that the water mains be provided with a minimum of 1000mm cover to facilitate future services crossings above the pipes.
- b. Confirm the horizontal alignment (offsets are 4.75m and 5.95m respectively to each pipe from road reserve boundary) in Crees Road will not compromise future road carriageway widening. Nomination of future road carriageway and services corridors to confirm separation of services will address this issue.

5. Roads and Paths

- a. Consideration be given to increasing the width of the road shoulders from 0.5 metres to 1 metre thereby providing a 6.5 metre road formation. The 4.5m road seal is acceptable.
- b. In the event that construction over the proposed new road proceeds prior to the road opening (part of Lot 8 on SP243566), the consent of the landowner must be provided to Council before works commence on site.
- c. Confirmation (with onsite testing) of the assumed subgrade CBR and pavement design is to be submitted to Council for approval prior to the commencement of construction for the road pavements.

Site Office

6. For the purpose of constructing the works, a Site Office can establish within the road reserve of Ferrero Road on the southern side of the intersection of Ferrero Road and Crees Road. Access to the Site Office from Ferrero Road must not be located closer than 30 metres from the intersection. At the completion of the works, the area occupied by the Site Office is to be reinstated to the satisfaction of the Chief Executive Officer.

7. Erosion and Sediment Control

- a. A copy of the contractors Erosion and Sediment Control (ESC) Plan is to be submitted to Council and endorsed by the Consulting Engineer, prior to commencement of any works. In particular, the ESC Plan must address the Institution of Engineers Australia Guidelines for Soil Erosion and Sediment Control and the Environment Protection (Water) Policy and Clauses CP1.05, CP1.13 and D5.10 of Council's FNQROC Development Manual. The ESC Plan must be relevant to all phases of the construction and be updated where necessary as works progress.

APPROVED PLANS AND SPECIFICATIONS:

Generally in accordance with the following drawings submitted by Empower subject to any alterations made by conditions of Development Permit for Operational Work .

Drawing Description	No	Rev
Face	B00217-CG001	B
Reservoir Site with Aerial Photo	B00217-CG002	A
Land Acquisition Plan	B00217-CG003	A
Constraints Map	B00217-CG004	A
Road Works & Drainage		
Road Works & Drainage Plan	B00217-CR001	B
Access Road Longitudinal Section	B00217-CR002	B
Access Road Cross Sections (Sheet 1 of 2)	B00217-CR003	B
Access Road Cross Sections (Sheet 2 of 2)	B00217-CR004	A
Road Works Signs	B00217-CR005	B
Stormwater Longitudinal Sections	B00217-CR006	B
Stormwater Catchment Plan	B00217-CR007	A
Reservoir Site		
Reservoir Layout	B00217-CE001	A
Reservoir Site Earthworks	B00217-CE002	A
Reservoir Concrete Jointing	B00217-CE003	A
Reservoir Site Fencing	B00217-CE004	A
Trunk Water Mains		
Trunk Water Main Notes Schedules & Locality Plan	B00217-CW001	A
Trunk Water Main Longitudinal Section (Sheet 1 of 7)	B00217-CW002	A
Trunk Water Main Longitudinal Section (Sheet 2 of 7)	B00217-CW003	B
Trunk Water Main Longitudinal Section (Sheet 3 of 7)	B00217-CW004	B
Trunk Water Main Longitudinal Section (Sheet 4 of 7)	B00217-CW005	B
Trunk Water Main Longitudinal Section (Sheet 5 of 7)	B00217-CW006	A
Trunk Water Main Longitudinal Section (Sheet 6 of 7)	B00217-CW007	A
Trunk Water Main Longitudinal Section (Sheet 7 of 7)	B00217-CW008	A
Miscellaneous Details		
Water Main Details (Sheet 1 of 4)	B00217-CM003	A
Water Main Details (Sheet 1 of 4)	B00217-CM004	A
Water Main Details (Sheet 1 of 4)	B00217-CM005	A
Water Main Details (Sheet 1 of 4)	B00217-CM006	A
Thrust Block Details – 20ML Reservoir Lines	B00217-CM007	A
Thrust Block Details – Future Reservoir Lines	B00217-CM008	A
Erosion & Sediment Control		
Construction Phase	B00217-CV001	B
Operational Phase	B00217-CV002	B
Detail	B00217-CV003	A

EROSION AND SEDIMENT CONTROL DRAWINGS

The following drawings must form the basis of the contractor's Erosion and Sediment Control Plan in accordance with the *FNQROC Development Manual*, Clause CP1.06.

Drawing Description	No	Rev
Erosion & Sediment Control		
Construction Phase	B00217-CV001	B
Operational Phase	B00217-CV002	B
Detail	B00217-CV003	A

For information relating to the *Sustainable Planning Act 2009* log on to www.dsdip.qld.gov.au .
To access the *FNQROC Development Manual*, Local Laws and other applicable Policies log on to www.douglas.qld.gov.au .

RIGHTS OF APPEAL

Attached

End of Decision Notice

Att Appeal Rights
Pre-Start Meeting Template
Approved Drawings, Appendix A
Standard Conditions, Appendix B

APPENDIX A: APPROVED DRAWINGS

DOUGLAS SHIRE COUNCIL

PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY

DEVELOPMENT SUMMARY

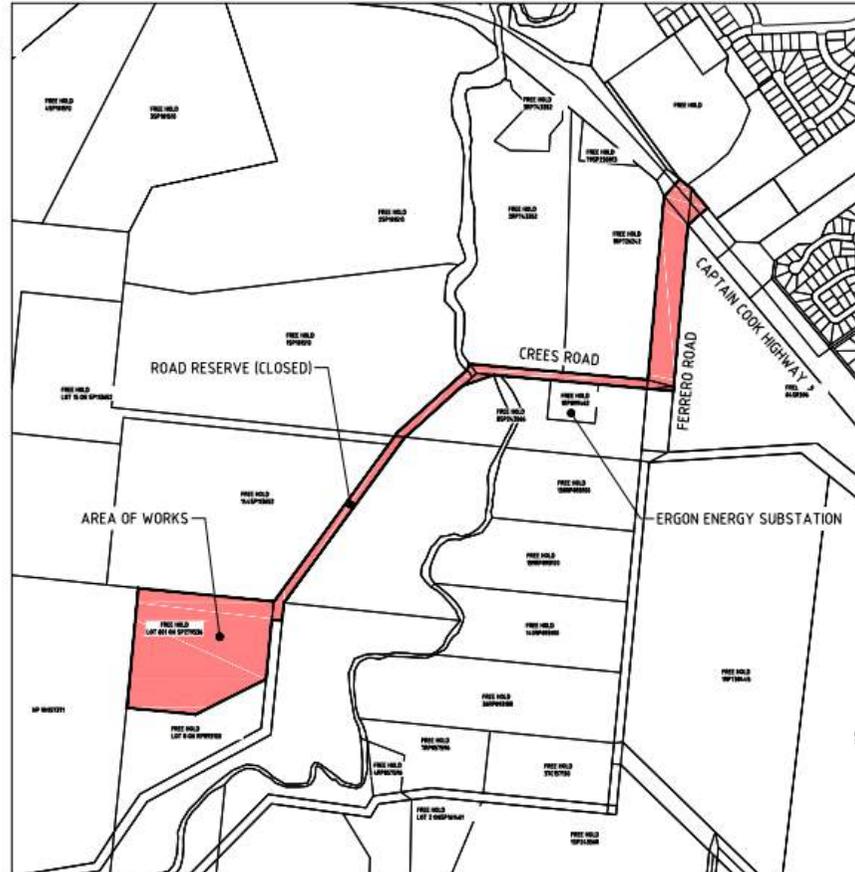
NAME: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY INFRASTRUCTURE
 LOCATION: PORT DOUGLAS

NAME OF AUTHORITY:
 DOUGLAS SHIRE COUNCIL

PROPERTY DESCRIPTION:
 LOT 801 ON SP279536

SURVEY ORIGIN

PSM: 156708
 RL: 7.358
 DATUM: AHD
 SURVEYOR: CHARLES O'NEILL



SCALE 15000 (A1) 1:10000 (A3)
 DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.



LOCALITY PLAN
 NOT TO SCALE

DRAWING INDEX

SHEET NUMBER	REVISION	SHEET TITLE
GENERAL ARRANGEMENT		
000217-CG001	B	FACE
000217-CG002	A	RESERVOIR SITE WITH AERIAL PHOTO
000217-CG003	A	LAND ACQUISITION PLAN
000217-CG004	A	CONSTRAINTS MAP
ROADWORKS AND DRAINAGE		
000217-CR001	B	ROADWORKS AND DRAINAGE PLAN
000217-CR002	B	ACCESS ROAD LONGITUDINAL SECTION
000217-CR003	B	ACCESS ROAD CROSS SECTIONS (SHEET 1 OF 2)
000217-CR004	A	ACCESS ROAD CROSS SECTIONS (SHEET 2 OF 2)
000217-CR005	B	ROADWORKS SIGNS
000217-CR006	B	STORMWATER LONGITUDINAL SECTIONS
000217-CR007	A	STORMWATER CATCHMENT PLAN
RESERVOIR SITE		
000217-CE001	A	RESERVOIR LAYOUT
000217-CE002	A	RESERVOIR SITE EARTHWORKS
000217-CE003	A	RESERVOIR CONCRETE JOINTING
000217-CE004	A	RESERVOIR SITE FENCING
TRUNK WATER MAINS		
000217-CW001	A	TRUNK WATER MAIN NOTES SCHEDULES AND LOCALITY PLAN
000217-CW002	A	TRUNK MAIN LONGITUDINAL SECTION (SHEET 1 OF 7)
000217-CW003	B	TRUNK MAIN LONGITUDINAL SECTION (SHEET 2 OF 7)
000217-CW004	B	TRUNK MAIN LONGITUDINAL SECTION (SHEET 3 OF 7)
000217-CW005	B	TRUNK MAIN LONGITUDINAL SECTION (SHEET 4 OF 7)
000217-CW006	A	TRUNK MAIN LONGITUDINAL SECTION (SHEET 5 OF 7)
000217-CW007	A	TRUNK MAIN LONGITUDINAL SECTION (SHEET 6 OF 7)
000217-CW008	A	TRUNK MAIN LONGITUDINAL SECTION (SHEET 7 OF 7)
MISCELLANEOUS DETAILS		
000217-CD003	A	WATER MAIN DETAILS (SHEET 1 OF 4)
000217-CD004	A	WATER MAIN DETAILS (SHEET 2 OF 4)
000217-CD005	A	WATER MAIN DETAILS (SHEET 3 OF 4)
000217-CD006	A	WATER MAIN DETAILS (SHEET 4 OF 4)
000217-CD007	A	THRUST BLOCK DETAILS - 20ML RESERVOIR LINES
000217-CD008	A	THRUST BLOCK DETAILS - FUTURE RESERVOIR LINES
EROSION AND SEDIMENT CONTROL		
000217-CV001	B	CONSTRUCTION PHASE
000217-CV002	B	OPERATIONAL PHASE
000217-CV003	A	DETAIL



John
 AND
 Paul 196708
 RL 7088
 (SMAL COORD)

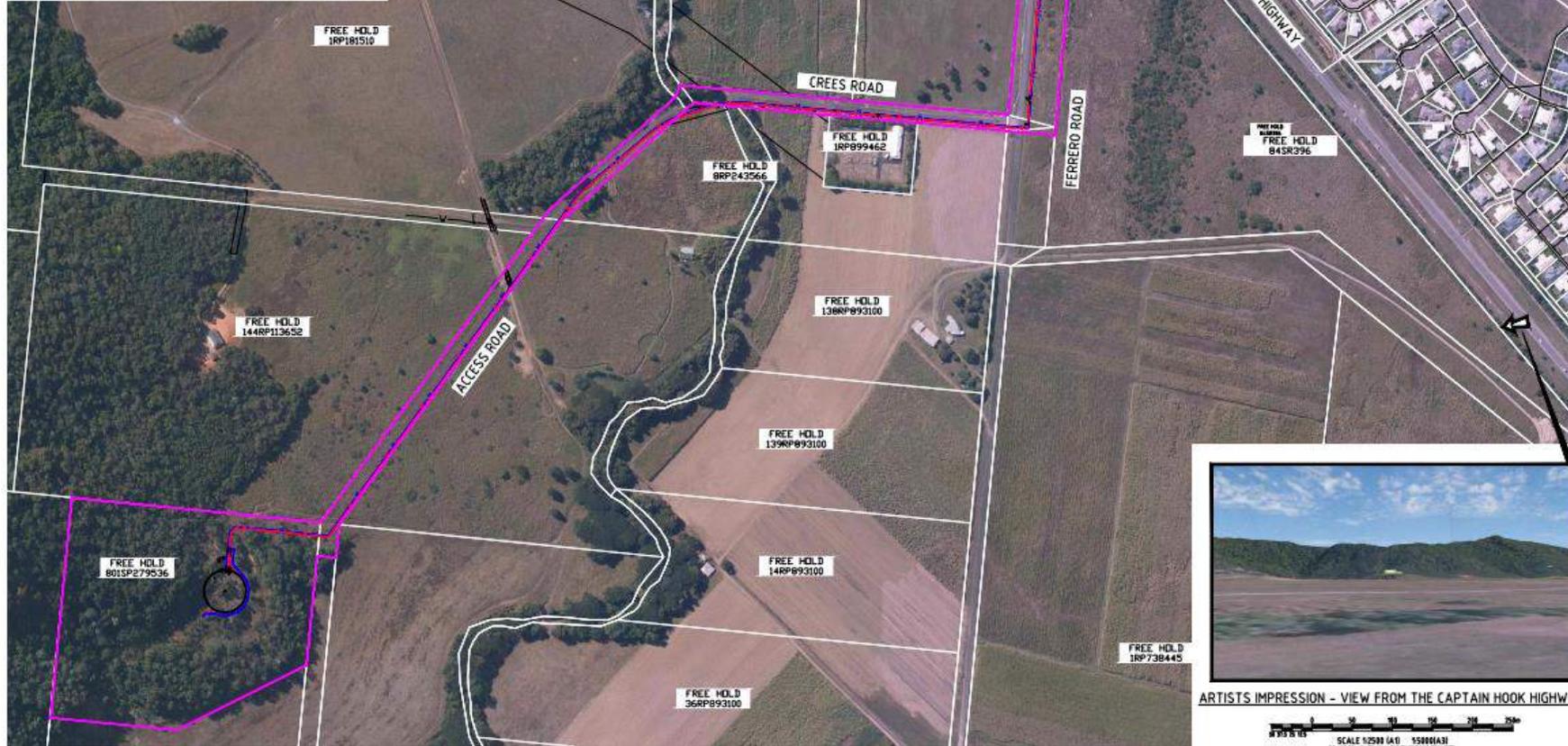


FOR TENDER

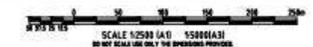
Project No. Drawing No. Rev
 B00217-CG001 B



ARTISTS IMPRESSION - AERIAL VIEW OF RESERVOIR



ARTISTS IMPRESSION - VIEW FROM THE CAPTAIN COOK HIGHWAY



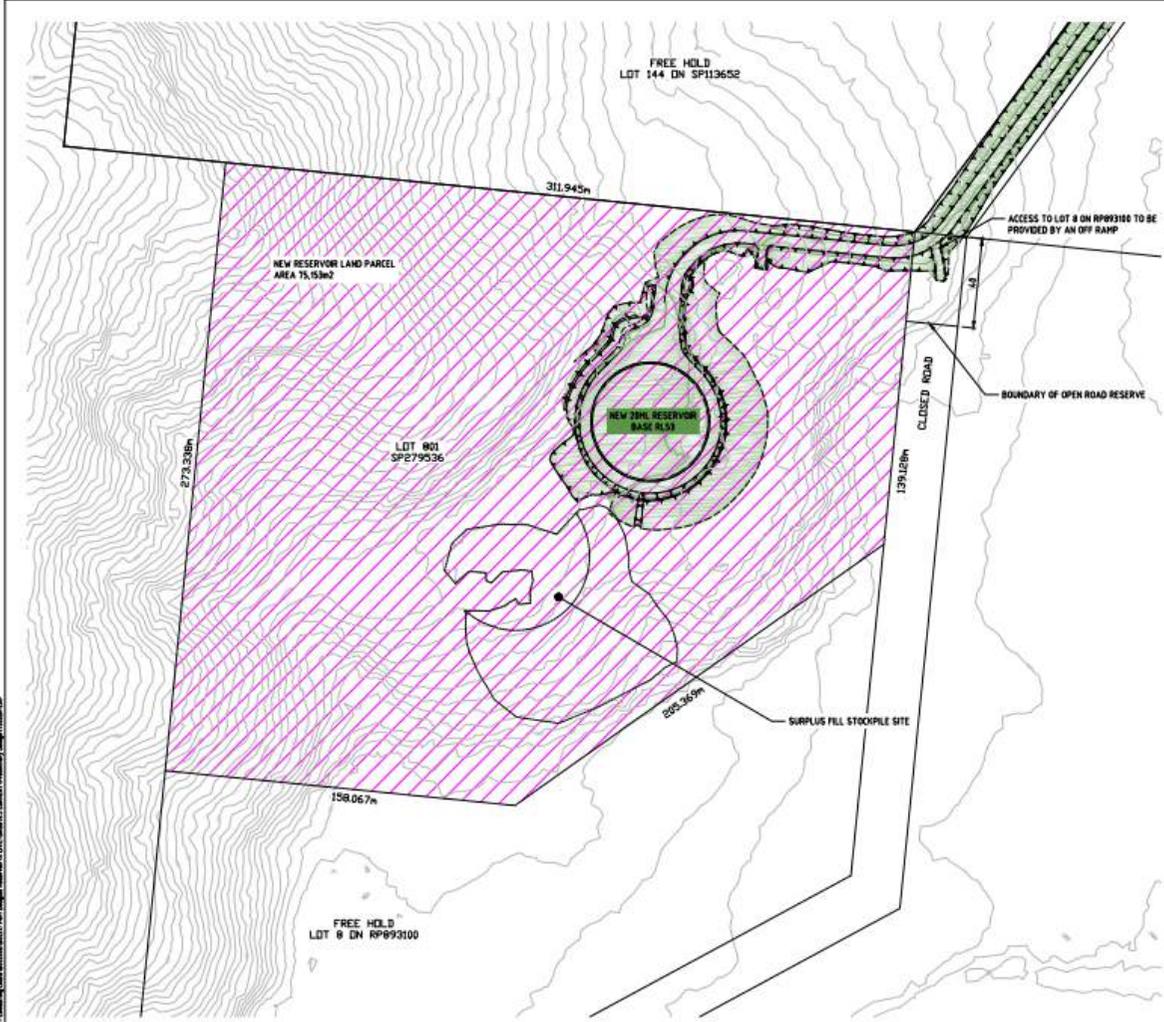
This drawing cannot be copied or reproduced in any form or used for any purpose other than that originally intended without the written permission of Empower Engineers and Project Managers. ©ICP170017 2017

No.	Amendment's	ESS	LW	OH	App'd	Registered Engineer	Reg No.	Date
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS				<i>Cheryl Wilson</i>		12192	29/10/17

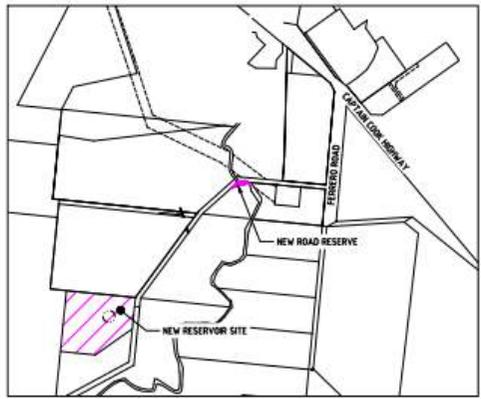
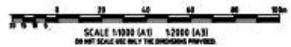


Client	DOUGLAS SHIRE COUNCIL	Drawn	AND
Project	PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY	Reg. No.	126708
Title	RESERVOIR SITE WITH AERIAL PHOTO	Reg. No.	7388
		Reg. No.	800217-CG002
		Project No.	B00217-CG002
		Drawing No.	A
		Rev.	A

44.2017.1999
 9/47 (D#813288)



NEW RESERVOIR SITE - LAND PARCEL DIMENSIONS
RESUMPTION BY DOUGLAS SHIRE COUNCIL
SCALE: 1:1000



LAND PARCEL LOCATIONS
NTS

- LEGEND**
-  EXTENT OF EARTHWORKS
 -  RESERVOIR
 -  BOTTOM OF BATTER
 -  TOP OF BATTER



NEW ROAD RESERVE - LAND PARCEL DIMENSIONS
RESUMPTION BY DOUGLAS SHIRE COUNCIL
SCALE: 1:1000

No.	Revisions	Drawn/Checked	App'd	Registered Engineer	Reg No.	Date
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	SSS	LW	CR	<i>Cheryl Wilson</i> 19782	23/10/17

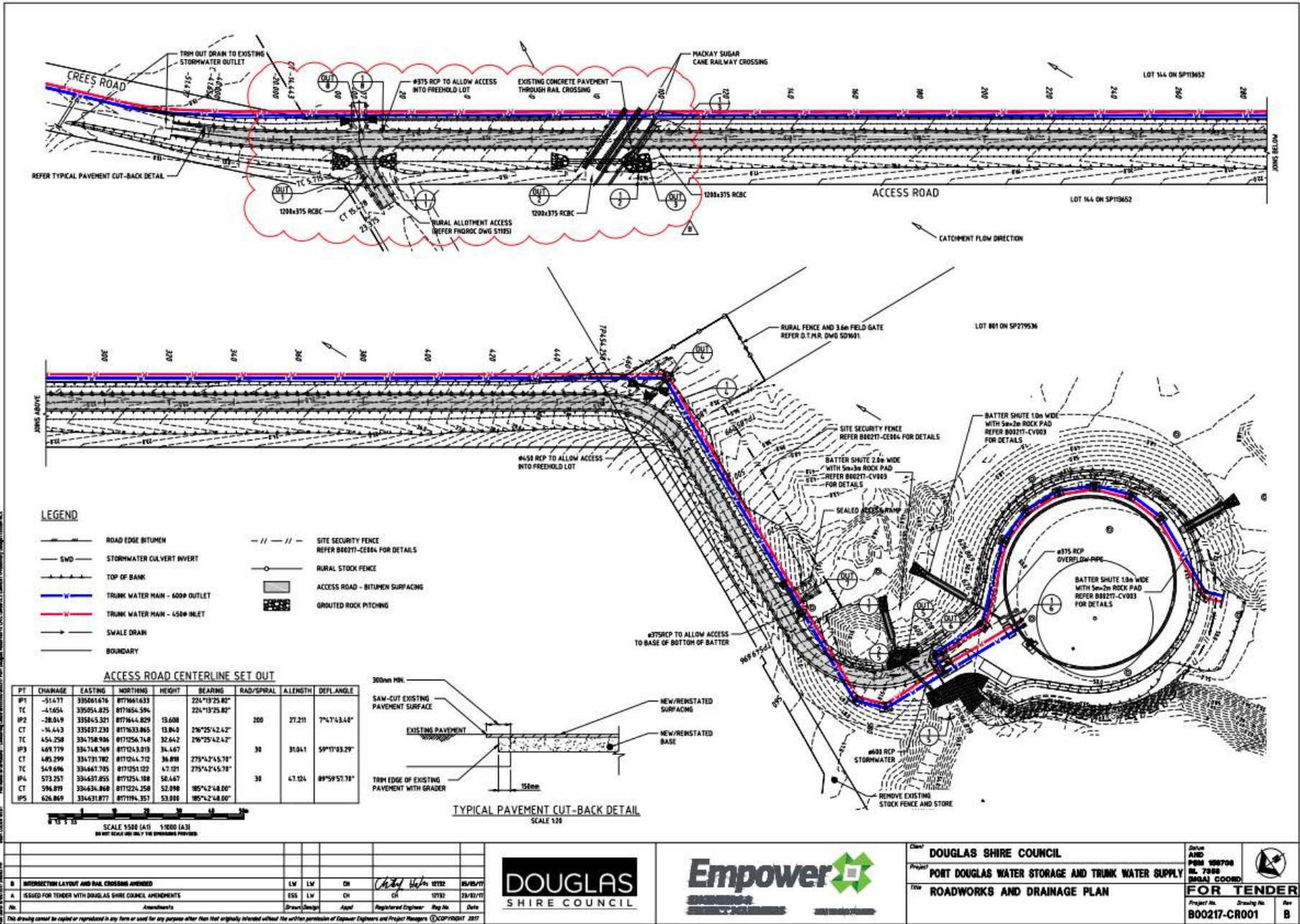


Client: **DOUGLAS SHIRE COUNCIL**
Project: **PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY**
Title: **LAND ACQUISITION PLAN**

Drawn AND PBM 100700
RL 7089
DRAJ COORD

FOR TENDER

Project No. Drawing No. Rev
B00217-CG003 A



LEGEND

- ROAD EDGE BITUMEN
- SWD — STORMWATER CULVERT INVERT
- TOP OF BANK
- TRUNK WATER MAIN - 600P OUTLET
- TRUNK WATER MAIN - 450P INLET
- SWALE DRAIN
- BOUNDARY
- — — SITE SECURITY FENCE REFER B00217-C0804 FOR DETAILS
- RURAL STOCK FENCE
- ACCESS ROAD - BITUMEN SURFACING
- GRouted ROCK PITCHING

ACCESS ROAD CENTERLINE SET OUT

PT	CHANGAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPRAL	ALLENGTH	DEFLANGLE
SP1	-514.77	335061876	8771601633		224°13'25.82"			
TC	-41654	335054.825	8771654.596	13.608	224°13'25.82"	200	27.211	7°47'43.44"
IP2	-28.049	335045.321	8771644.829	13.804	226°25'42.42"			
CT	-14.443	335037.230	8771633.865	13.804	226°25'42.42"	30	31.041	59°17'43.29"
TC	454.258	334758.936	8771256.718	32.642	226°25'42.42"			
IP3	469.179	334748.569	8771243.019	34.467	275°42'45.71"			
CT	485.299	334731.782	8771244.712	36.898	275°42'45.71"	30	47.124	89°59'57.71"
TC	549.696	334667.795	8771251.122	47.121	275°42'45.71"			
IP4	573.257	334637.855	8771254.188	50.467	185°42'48.00"			
CT	596.879	334634.868	8771224.258	52.898	185°42'48.00"			
IP5	626.869	334631.877	8771194.357	53.888	185°42'48.00"			

TYPICAL PAVEMENT CUT-BACK DETAIL SCALE 1:20

No.	Amendments	Drawn/Design	Appd	Registered Engineer	Reg No.	Date
B	INTERSECTION LAYOUT AND RAIL CROSSING AMENDED	LW	LW	CH	10132	03/05/17
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	CH	10132	23/02/17



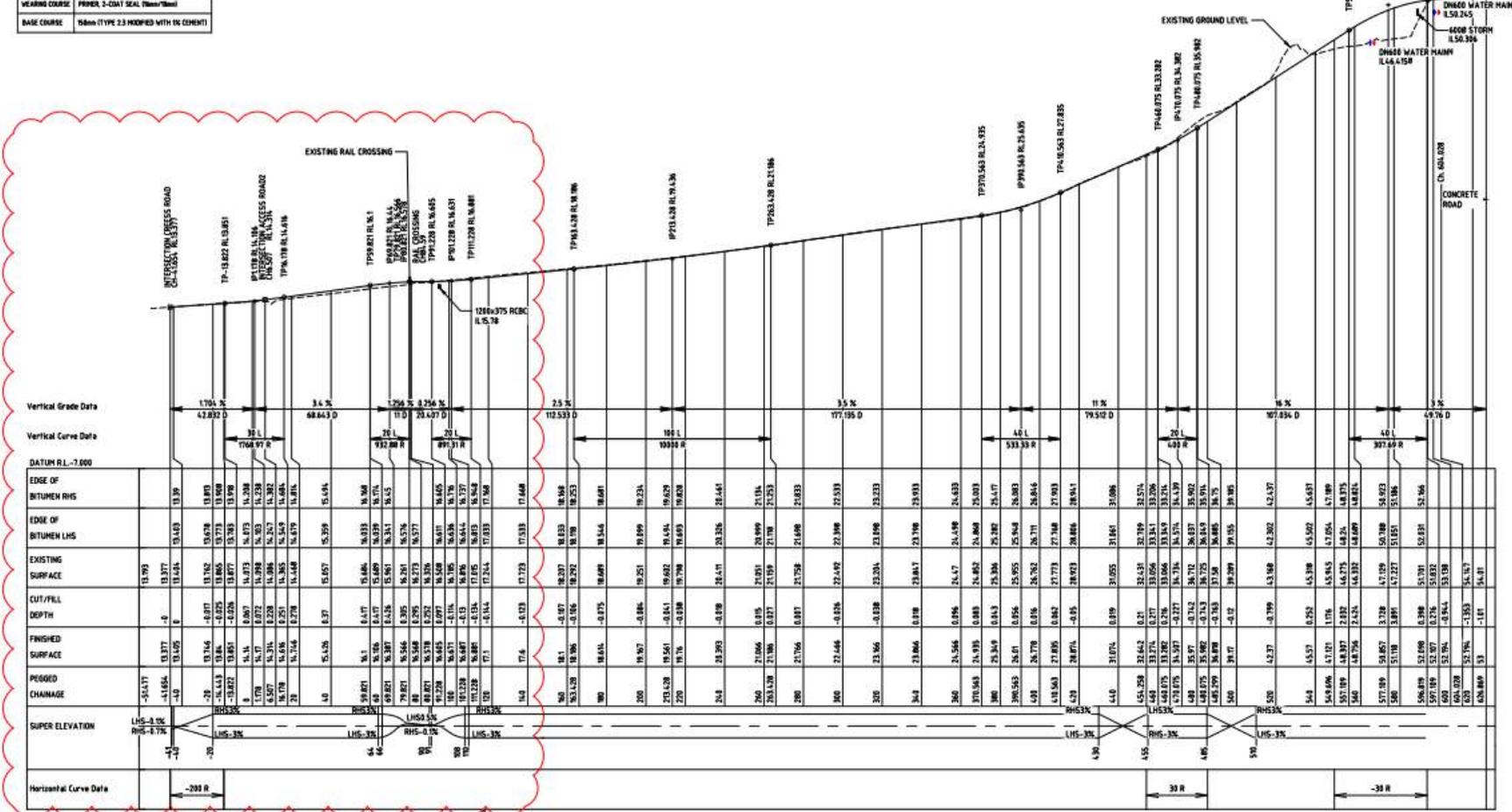
Client: DOUGLAS SHIRE COUNCIL
 Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
 Title: ROADWORKS AND DRAINAGE PLAN

Scale AND PMS 100706
 M. 7988
 (MMA) GOOND

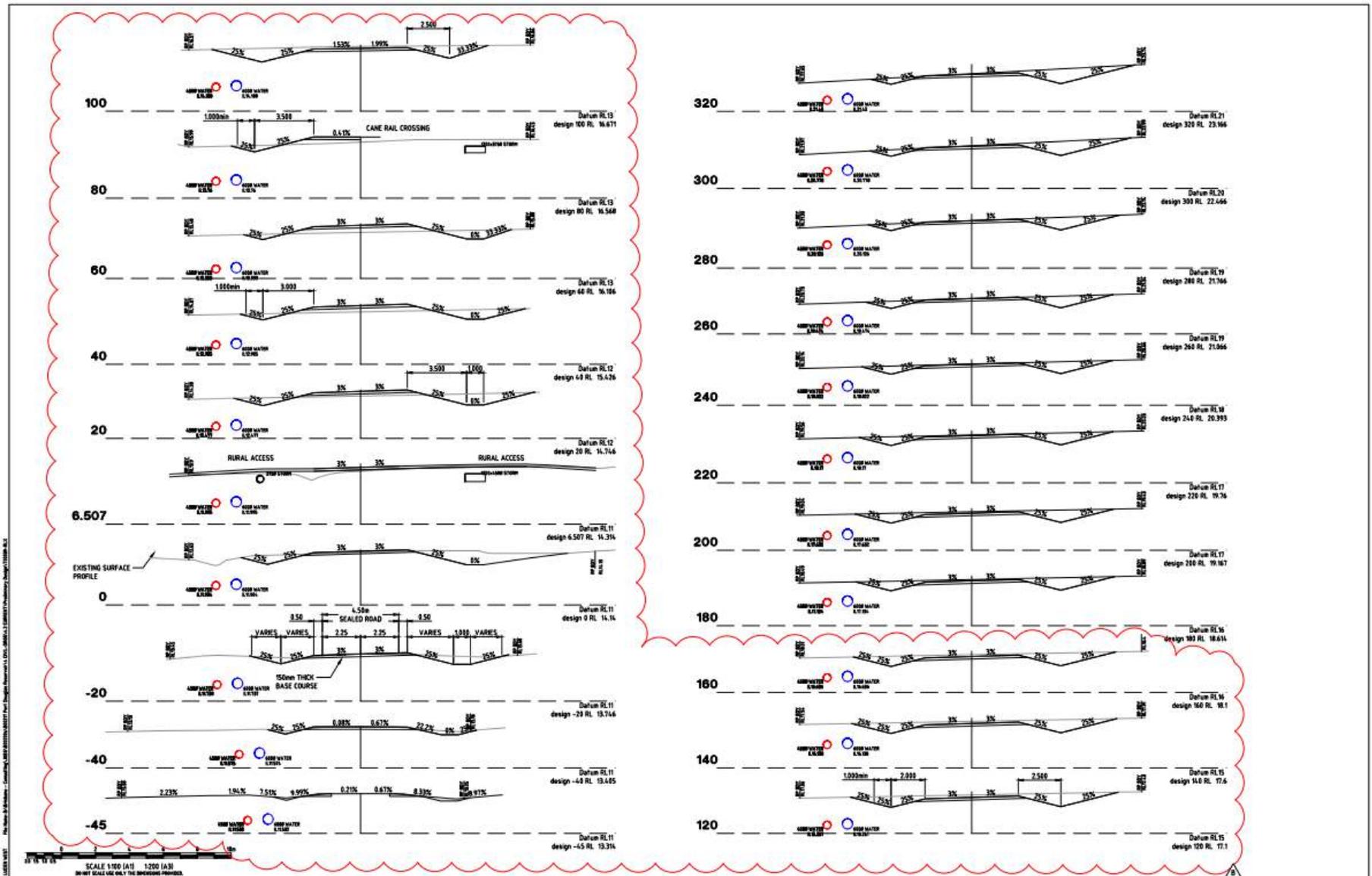
FOR TENDER
 Project No. Drawing No. Rev
 B00217-CR001 B

PROVISIONAL
PAVEMENT DESIGN

WEARING COURSE	PRIMER 3-COAT SEAL (5mm/1mm)
BASE COURSE	150mm TYPE 2.3 MODIFIED WITH 1% CEMENT



STATION	EDGE OF BITUMEN RHS	EDGE OF BITUMEN LHS	EXISTING SURFACE	CUT/FILL DEPTH	FINISHED SURFACE	PROPOSED CHANGING	SUPER ELEVATION
13+99	13.99		13.99		13.99		LHS -0.1%
13+99.5	13.995		13.995		13.995		RHS -0.1%
14+00	14.00		14.00		14.00		LHS -0.1%
14+00.5	14.005		14.005		14.005		RHS -0.1%
14+01	14.01		14.01		14.01		LHS -0.1%
14+01.5	14.015		14.015		14.015		RHS -0.1%
14+02	14.02		14.02		14.02		LHS -0.1%
14+02.5	14.025		14.025		14.025		RHS -0.1%
14+03	14.03		14.03		14.03		LHS -0.1%
14+03.5	14.035		14.035		14.035		RHS -0.1%
14+04	14.04		14.04		14.04		LHS -0.1%
14+04.5	14.045		14.045		14.045		RHS -0.1%
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14+05.5	14.055		14.055		14.055		RHS -0.1%
14+06	14.06		14.06		14.06		LHS -0.1%
14+06.5	14.065		14.065		14.065		RHS -0.1%
14+07	14.07		14.07		14.07		LHS -0.1%
14+07.5	14.075		14.075		14.075		RHS -0.1%
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14+16	14.16		14.16		14.16		LHS -0.1%
14+16.5	14.165		14.165		14.165		RHS -0.1%
14+17	14.17		14.17		14.17		LHS -0.1%
14+17.5	14.175		14.175		14.175		RHS -0.1%
14+18	14.18		14.18		14.18		LHS -0.1%
14+18.5	14.185		14.185		14.185		RHS -0.1%
14+19	14.19		14.19		14.19		LHS -0.1%
14+19.5	14.195		14.195		14.195		RHS -0.1%
14+20	14.20		14.20		14.20		LHS -0.1%
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14+21	14.21		14.21		14.21		LHS -0.1%
14+21.5	14.215		14.215		14.215		RHS -0.1%
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14+23	14.23		14.23		14.23		LHS -0.1%
14+23.5	14.235		14.235		14.235		RHS -0.1%
14+24	14.24		14.24		14.24		LHS -0.1%
14+24.5	14.245		14.245		14.245		RHS -0.1%
14+25	14.25		14.25		14.25		LHS -0.1%
14+25.5	14.255		14.255		14.255		RHS -0.1%
14+26	14.26		14.26		14.26		LHS -0.1%
14+26.5	14.265		14.265		14.265		RHS -0.1%
14+27	14.27		14.27		14.27		LHS -0.1%
14+27.5	14.275		14.275		14.275		RHS -0.1%
14+28	14.28		14.28		14.28		LHS -0.1%
14+28.5	14.285		14.285		14.285		RHS -0.1%
14+29	14.29		14.29		14.29		LHS -0.1%
14+29.5	14.295		14.295		14.295		RHS -0.1%
14+30	14.30		14.30		14.30		LHS -0.1%
14+30.5	14.305		14.305		14.305		RHS -0.1%
14+31	14.31		14.31		14.31		LHS -0.1%
14+31.5	14.315		14.315		14.315		RHS -0.1%
14+32	14.32		14.32		14.32		LHS -0.1%
14+32.5	14.325		14.325		14.325		RHS -0.1%
14+33	14.33		14.33		14.33		LHS -0.1%
14+33.5	14.335		14.335		14.335		RHS -0.1%
14+34	14.34		14.34		14.34		LHS -0.1%
14+34.5	14.345		14.345		14.345		RHS -0.1%
14+35	14.35		14.35		14.35		LHS -0.1%
14+35.5	14.355		14.355		14.355		RHS -0.1%
14+36	14.36		14.36		14.36		LHS -0.1%
14+36.5	14.365		14.365		14.365		RHS -0.1%
14+37	14.37		14.37		14.37		LHS -0.1%
14+37.5	14.375		14.375		14.375		RHS -0.1%
14+38	14.38		14.38		14.38		LHS -0.1%
14+38.5	14.385		14.385		14.385		RHS -0.1%
14+39	14.39		14.39		14.39		LHS -0.1%
14+39.5	14.395		14.395		14.395		RHS -0.1%
14+40	14.40		14.40		14.40		LHS -0.1%
14+40.5	14.405		14.405		14.405		RHS -0.1%
14+41	14.41		14.41		14.41		LHS -0.1%
14+41.5	14.415		14.415		14.415		RHS -0.1%
14+42	14.42		14.42		14.42		LHS -0.1%
14+42.5	14.425		14.425		14.425		RHS -0.1%
14+43	14.43		14.43		14.43		LHS -0.1%
14+43.5	14.435		14.435		14.435		RHS -0.1%
14+44	14.44		14.44		14.44		LHS -0.1%
14+44.5	14.445		14.445		14.445		RHS -0.1%
14+45	14.45		14.45		14.45		LHS -0.1%
14+45.5	14.455		14.455		14.455		RHS -0.1%
14+46	14.46		14.46		14.46		LHS -0.1%
14+46.5	14.465		14.465		14.465		RHS -0.1%
14+47	14.47		14.47		14.47		LHS -0.1%
14+47.5	14.475		14.475		14.475		RHS -0.1%
14+48	14.48		14.48		14.48		LHS -0.1%
14+48.5	14.485		14.485		14.485		RHS -0.1%
14+49	14.49		14.49		14.49		LHS -0.1%
14+49.5	14.495		14.495		14.495		RHS -0.1%
14+50	14.50		14.50		14.50		LHS -0.1%
14+50.5	14.505		14.505		14.505		RHS -0.1%
14+51	14.51		14.51		14.51		LHS -0.1%
14+51.5	14.515		14.515		14.515		RHS -0.1%
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14+52.5	14.525		14.525		14.525		RHS -0.1%
14+53	14.53		14.53		14.53		LHS -0.1%
14+53.5	14.535		14.535		14.535		RHS -0.1%
14+54	14.54		14.54		14.54		LHS -0.1%
14+54.5	14.545		14.545		14.545		RHS -0.1%
14+55	14.55		14.55		14.55		LHS -0.1%
14+55.5	14.555		14.555		14.555		RHS -0.1%
14+56	14.56		14.56		14.56		LHS -0.1%
14+56.5	14.565		14.565		14.565		RHS -0.1%
14+57	14.57		14.57		14.57		LHS -0.1%
14+57.5	14.575		14.575		14.575		RHS -0.1%
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14+59.5	14.595		14.595		14.595		RHS -0.1%
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14+68	14.68		14.68		14.68		LHS -0.1%
14+68.5	14.685		14.685		14.685		RHS -0.1%
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14+69.5	14.695		14.695		14.695		RHS -0.1%
14+70	14.70		14.70		14.70		LHS -0.1%
14+70.5	14.705		14.705		14.705		RHS -0.1%
14+71	14.71		14.71		14.71		LHS -0.1%
14+71.5	14.715		14.715		14.715		RHS -0.1%
14+72	14.72		14.72		14.72		LHS -0.1%
14+72.5	14.725		14.725		14.725		RHS -0.1%
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14+75	14.75		14.75		14.75		LHS -0.1%
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14+76	14.76		14.76		14.76		LHS -0.1%
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14+78.5	14.785		14.785		14.785		RHS -0.1%
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14+79.5	14.795		14.795		14.795		RHS -0.1%
14+80	14.80		14.80		14.80		LHS -0.1%
14+80.5	14.805		14.805		14.805		RHS -0.1%
14+81	14.81		14.81		14.81		LHS -0.1%
14+81.5	14.815		14.815		14.815		RHS -0.1%
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14+82.5	14.825		14.825		14.825		RHS -0.1%
14+83	14.83		14.83		14.83		LHS -0.1%
14+83.5	14.835		14.835		14.835		RHS -0.1%
14+84	14.84		14.84		14.84		LHS -0.1%
14+84.5	14.845		14.845		14.845		RHS -0.1%
14+85							

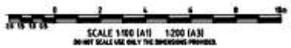
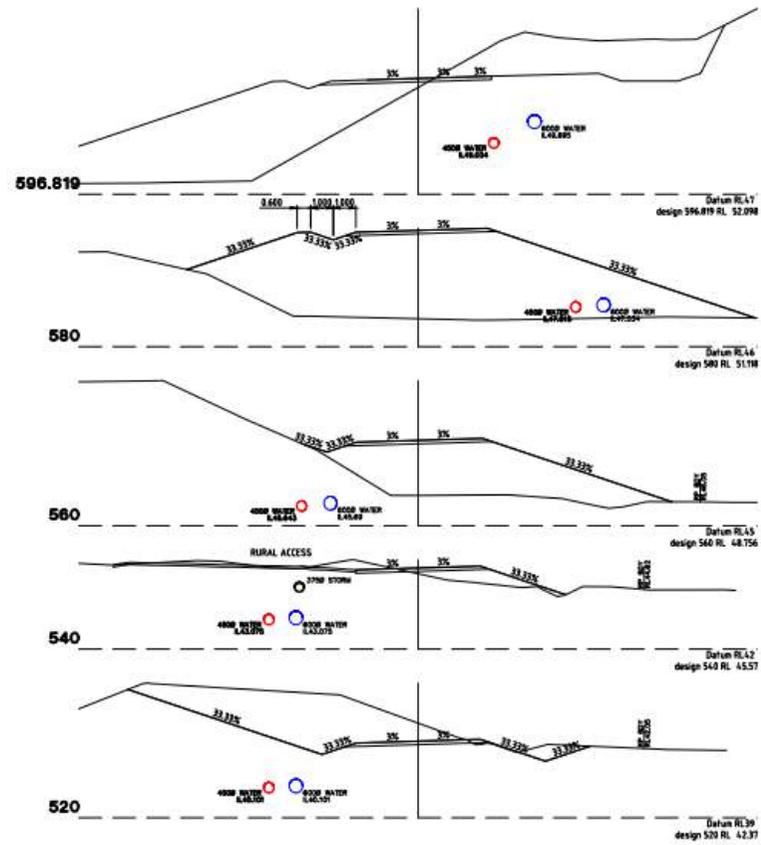
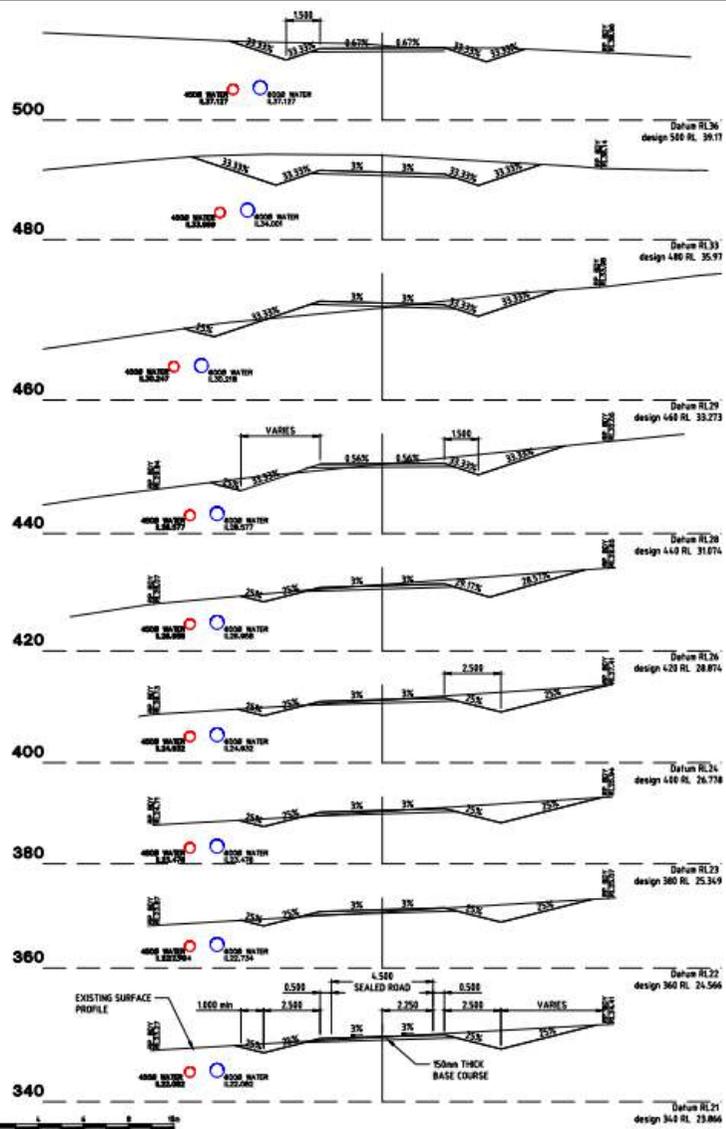


No.	Description	Author	Checked	Date
B	CROSS SECTIONS AMENDED FOR NEW RAIL CROSSING LEVELS	LW	LW	06/16/17
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	23/10/17
Rev	Amendments	Drawn/Design	Appd	Registered Engineer



Client: DOUGLAS SHIRE COUNCIL
 Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
 Title: ACCESS ROAD CROSS SECTIONS (SHEET 1 OF 2)

Datum AHD PDMS RL. 7388 (BGAJ COORD)	FOR TENDER
Project No. B00217-CR003	Drawing No. B



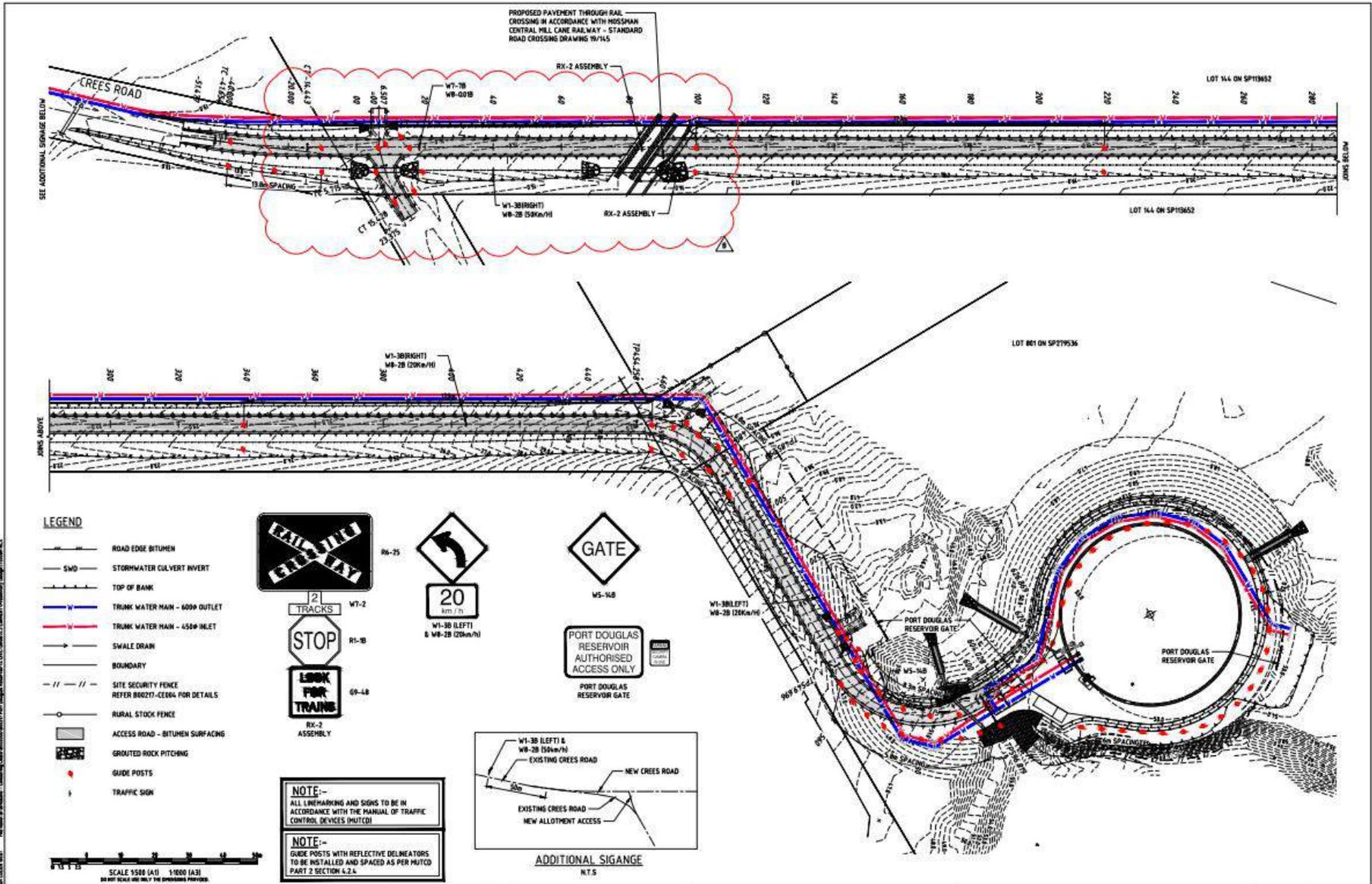
No. 44-2017-1999
 15/47 (D#813288)
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No.	Description	Rev	By	Date			
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	1	ESS	LW	CH	10/10/17	23/02/17



Client	DOUGLAS SHIRE COUNCIL	Datum	AUSTRALIAN
Project	PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY	Point	198700
		RL	7368
		BM/AJ	COORD
Title	ACCESS ROAD CROSS SECTIONS (SHEET 2 OF 2)	For Tender	FOR TENDER
		Project No.	800217-CR004
		Drawing No.	A

44.2017.1999
15/47 (D#813288)



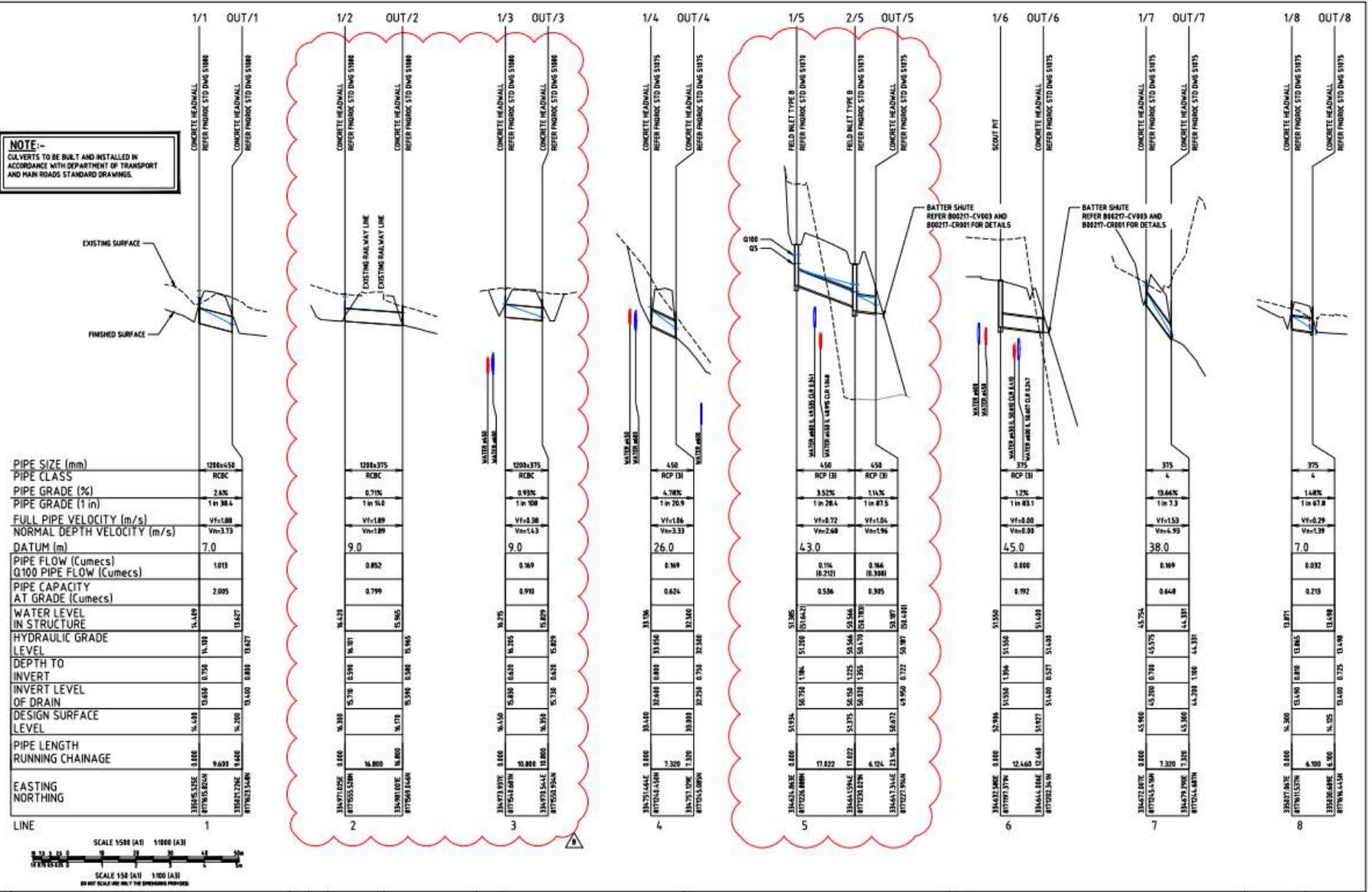
No.	Revisions	Drawn/Design	App'd	Registered Engineer	Reg. No.	Date
B	INTERSECTION LAYOUT AND RAIL CROSSING AMENDED	LW	LW	CH	12152	05/05/17
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	CH	12152	23/02/17
01	As Issued					

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Client	DOUGLAS SHIRE COUNCIL	Scale	AS10100
Project	PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY	Plan	7988
Drawn	ESS	Coord	ESS
SIGNS LAYOUT PLAN		NOT FOR CONSTRUCTION	
Project No.	B00217-CR005	Drawing No.	B

NOTE:-
 CULVERTS TO BE BUILT AND INSTALLED IN ACCORDANCE WITH DEPARTMENT OF TRANSPORT AND MAIN ROADS STANDARD DRAWINGS.



8	LINE 2 AND 3 AMENDED FOR NEW RAIL CROSSING LEVELS	LW	LW	CH				
9	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ISS	LW	CH				
10	As Amended	Drawn/Design	Appd	Registered Engineer	Reg No.	Date		

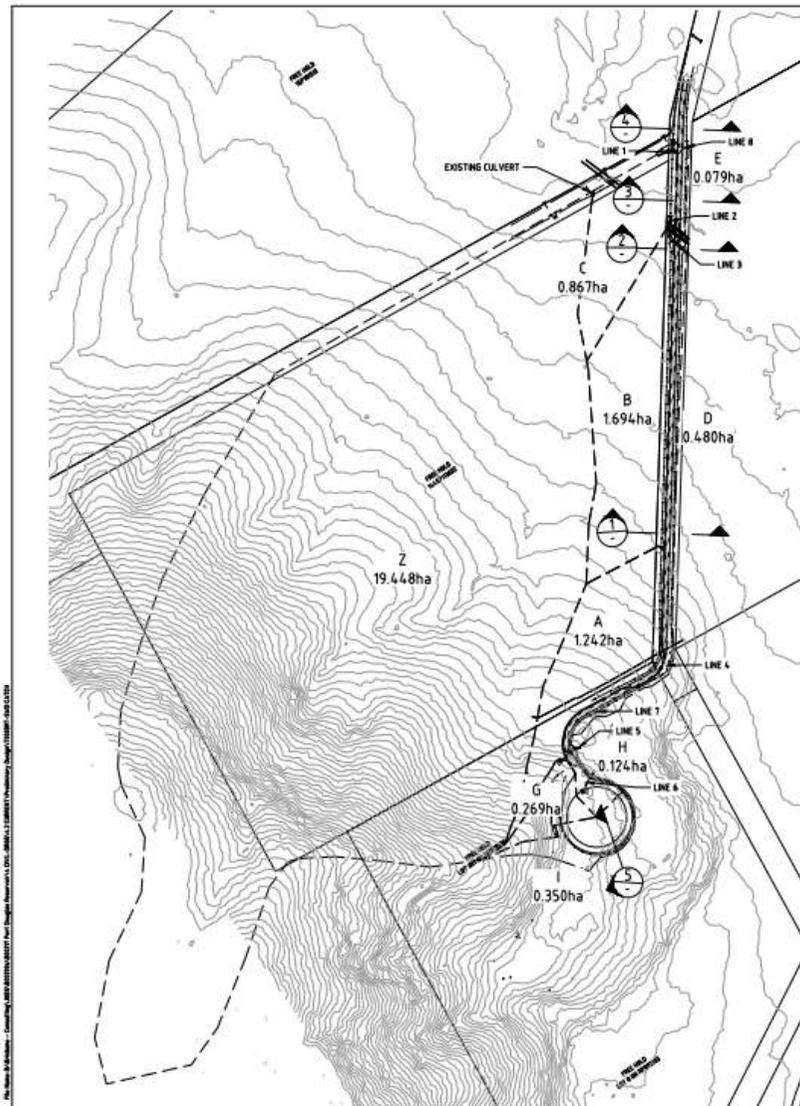


Client: **DOUGLAS SHIRE COUNCIL**
 Project: **PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY**
 Title: **STORMWATER LONGITUDINAL SECTIONS**

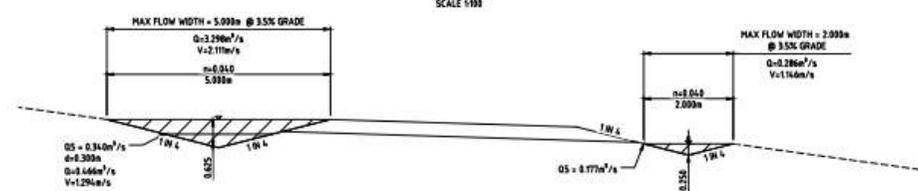
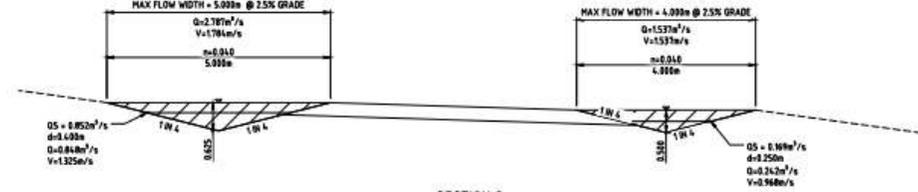
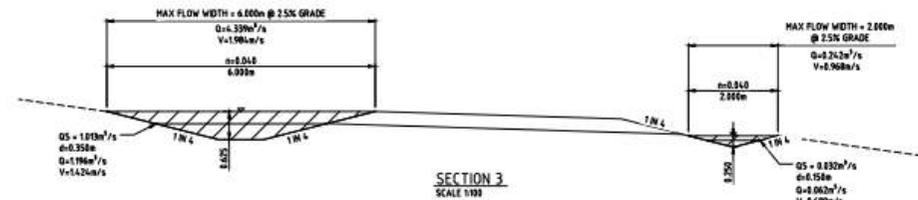
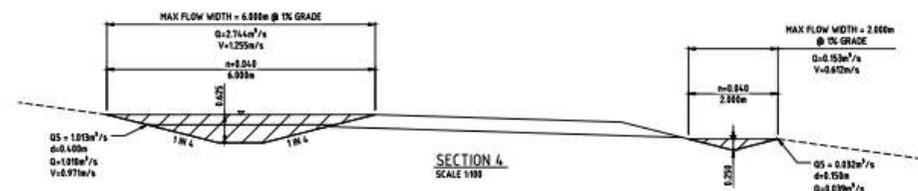
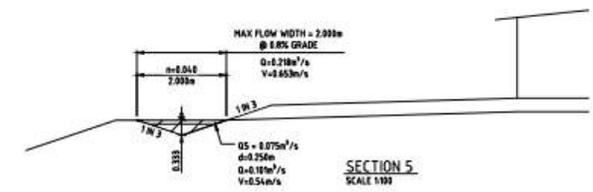
Drawn: **AID**
 PBR 100706
 BS 7388
 (SIN)A COORD

FOR TENDER

Project No. **B00217-CR006** Drawing No. **8**



QS CATCHMENT FLOWS					
CATCHMENT	C	TC (mm)	QS INTENSITY (mm/hr)	AREA (HA)	Q (m³/s)
A	0.665	10	14.8	1.24	0.348
A-B	0.665	10	13.5	2.94	0.732
A-B-C-D	0.665	10	13.5	3.42	0.852
D	0.758	5	15.9	0.48	0.189
E	0.758	5	10.1	0.079	0.032
G	0.858	5	10.1	0.269	0.115
H	0.858	5	10.1	0.124	0.053
(HALF) Z	0.858	5	10.1	0.175	0.075
Z	5.504	20	11.4	19.448	3.184

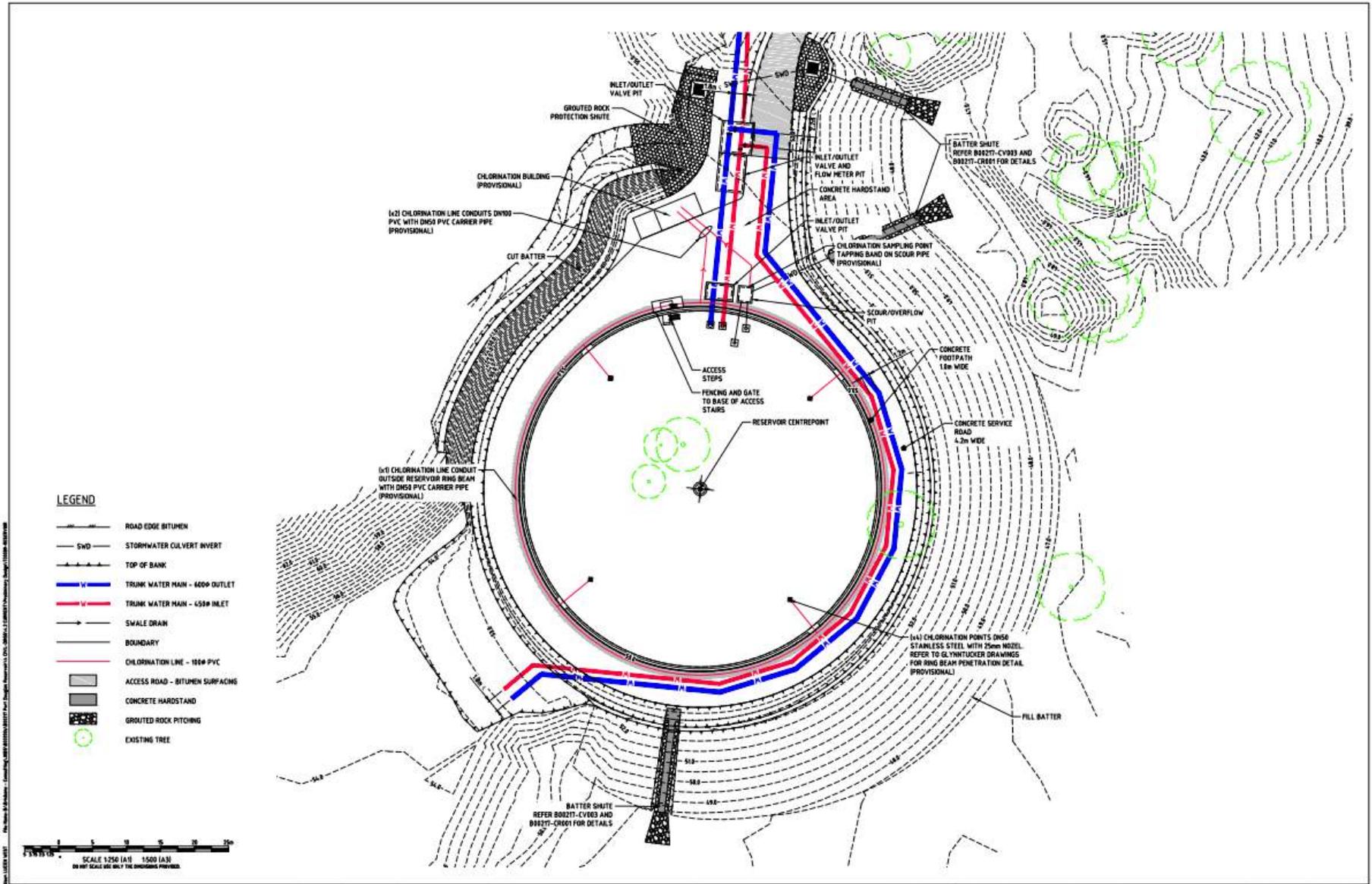


No.	Description	Author	Checked	Date
1	ORIGINAL ISSUE	LW	LW	05/15/17



Client: DOUGLAS SHIRE COUNCIL
 Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
 Title: STORMWATER CATCHMENT PLAN

Scale: NOT FOR CONSTRUCTION
 Project No: B00217-CR007
 Drawing No: A



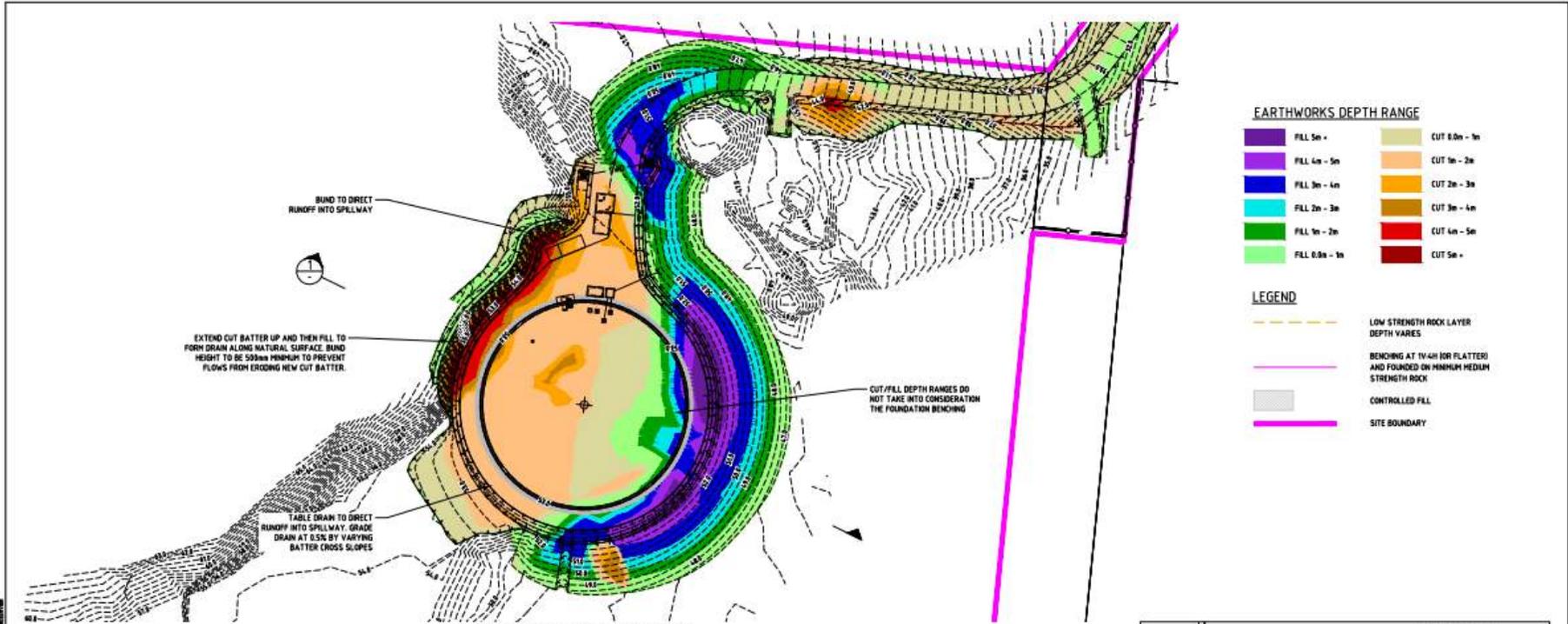
A		ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESK	LW	EN	17/12	29/12/17
Re:		Amendments	Drawn/Design	App'd	Registered Engineer	Reg No.	Date

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Client	DOUGLAS SHIRE COUNCIL
Project	PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
Title	RESERVOIR LAYOUT
Drawn	AJD
PEM	128708
RE. 7088	BMAL COORD
FOR TENDER	
Project No.	B00217-CE001
Drawing No.	A

44.2017.1999
19/47 (D#813288)



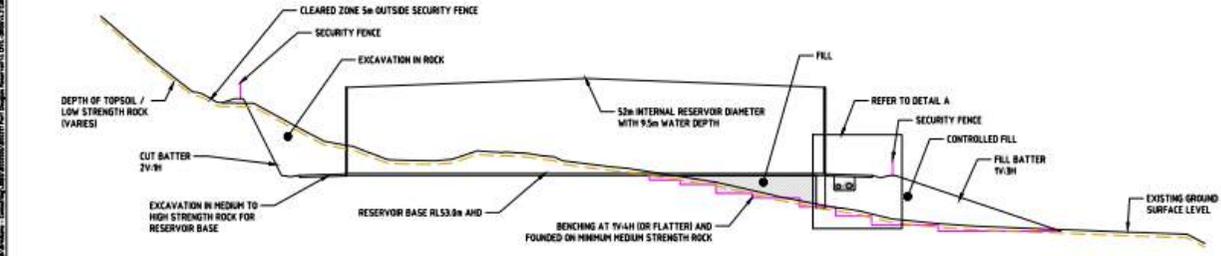
EARTHWORKS DEPTH RANGE

FILL 5m +	CUT 0.0m - 1m
FILL 4m - 5m	CUT 1m - 2m
FILL 3m - 4m	CUT 2m - 3m
FILL 2m - 3m	CUT 3m - 4m
FILL 1m - 2m	CUT 4m - 5m
FILL 0.0m - 1m	CUT 5m +

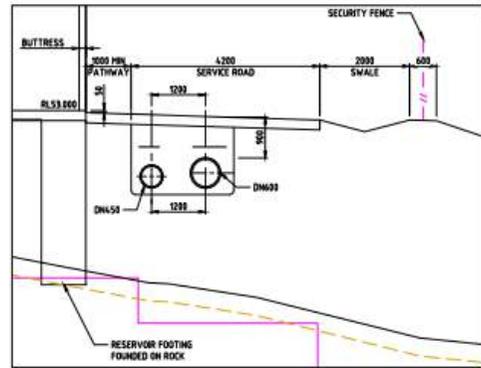
LEGEND

	LOW STRENGTH ROCK LAYER DEPTH VARIES
	BENCHING AT 1V:4H (OR FLATTER) AND FOUNDED ON MINIMUM MEDIUM STRENGTH ROCK
	CONTROLLED FILL
	SITE BOUNDARY

RESERVOIR SITE EARTHWORKS PLAN
SCALE 1:500
SCALE 1:500 (A1) 1:1000 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.



SECTION 1 - RESERVOIR FOOTPRINT
SCALE 1:250
SCALE 1:250 (A1) 1:500 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.



DETAIL A - TYPICAL SECTION
SCALE 1:50
SCALE 1:50 (A1) 1:100 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

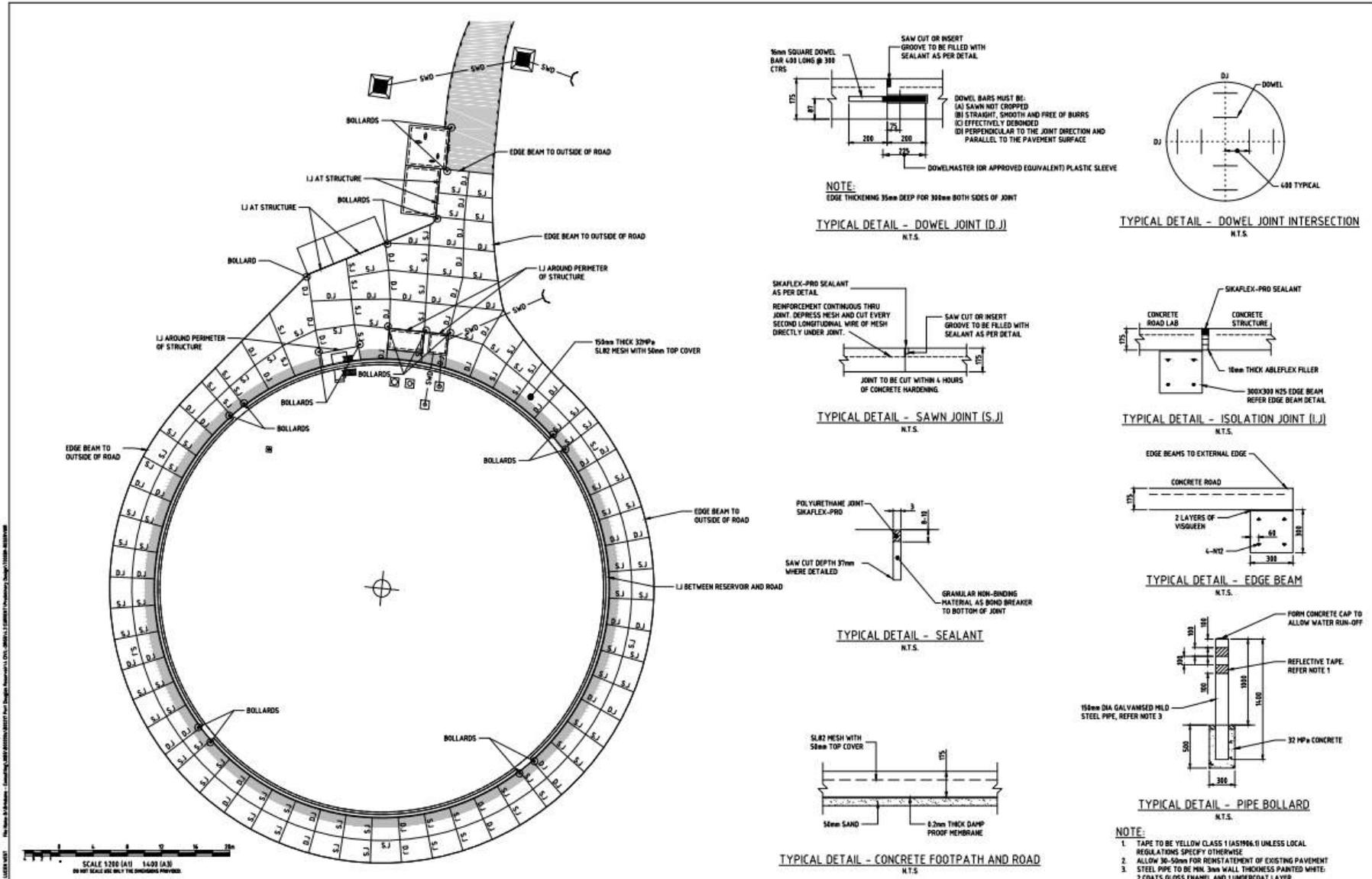
No.	Amendment	ESS	LM	CH	Author/Engineer	Reg No.	Date
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS				Cheryl Walker	17192	29/03/17



Client: **DOUGLAS SHIRE COUNCIL**
 Project: **PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY**
 Title: **RESERVOIR SITE EARTHWORKS**

Drawn AND PLEN 199708
 RL 7088
 (MGA) COORD.

FOR TENDER
 Project No. **800217-CE002** Drawing No. **A**



This drawing is to be used for the purpose of tender only. It is not to be used for construction. The contractor is responsible for checking the dimensions and details of the work shown on this drawing. The contractor is also responsible for ensuring that the work is done in accordance with the specifications and standards of the relevant authorities.

No.	Description	Issued By	Checked By	Date
1	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	01/12/11
2	Amendments	Drawn/Design	Appr'd	Reg./Contract Engineer
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Client	DOUGLAS SHIRE COUNCIL	Drawn AND PWD	128708
Project	PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY	Reg. No.	7288 (BQAA) COORD
File	RESERVOIR CONCRETE JOINTING LAYOUT PLAN AND DETAILS	Project No.	B00217-CE003
		Drawn No.	A

44.2017.1999
21/47 (D#813288)

GENERAL NOTES

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DOUGLAS SHIRE COUNCIL STANDARD DRAWINGS (WATER) AND OTHER CONTRACT DOCUMENTATION AND DRAWINGS.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT W.S.A. CODES AND THE BY-LAWS OF THE RELEVANT BUILDING AUTHORITY.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DRAWINGS SHALL NOT BE SCALED.
- ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.
- NO SUBSTITUTE MATERIALS SHALL BE USED WITHOUT THE APPROVAL OF THE SUPERINTENDENT.
- THE CONTRACTOR SHALL MAKE THEMSELVES FULLY CONVERSANT WITH ALL EXISTING SERVICES AND STRUCTURES WITHIN AND ADJACENT TO THE SITE OF THE WORK AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THESE SERVICES AND STRUCTURES DURING THE COURSE OF THE CONTRACT.
- ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE QUEENSLAND WORKPLACE HEALTH AND SAFETY ACT, REGULATIONS AND GUIDELINES. COMPLIANCE WITH THE ELECTRICAL SAFETY ACT 2002 INCLUDING ANY CODE OF PRACTICE UNDER THE ACT AND THE ELECTRICAL SAFETY REGULATION 2002 INCLUDING ANY SAFETY EXCLUSION ZONES DEFINED IN THE REGULATION.

ENVIRONMENTAL MANAGEMENT APPROVAL NOTES

- GENERAL**
 - ALL ENVIRONMENTAL PROTECTION MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING, COMMENCING.
 - THE CONTRACTOR SHALL PROVIDE AN APPROVED SEDIMENT AND EROSION CONTROL PLAN PREPARED BY A CERTIFIED PROFESSIONAL.
 - CLEARING OF VEGETATION IS TO BE KEPT TO A MINIMUM AND IS TO ONLY COVER THE AREAS AFFECTED BY THE WORKS AND IN ACCORDANCE WITH SELF ASSESSABLE CODES.
 - ALL DISTURBED AREAS ARE TO BE REHABILITATED.
 - PIPES, FITTINGS AND CONSTRUCTION MATERIALS ARE TO BE STORED ONLY AT DESIGNATED AREAS.
 - VEHICLES MUST BE CLEANED PRIOR TO LEAVING THE SITE TO PREVENT SPREADING OF WEEDS.
- SOIL**
 - TOPSOIL AND SUBSOIL SHALL BE STOCKPILED SEPARATELY.
 - CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.
- SEDIMENT CONTROL**
 - SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ALL EXCAVATION WORK & IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED SEDIMENT CONTROL PLAN.
 - APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING DRAINAGE CHANNELS.
 - NO SOIL SHALL BE STOCKPILED WITHIN 5m OF DRAINAGE CHANNELS.
- REHABILITATION**
 - PRE-DISTURBANCE SOIL PROFILES AND COMPACTION LEVELS ARE TO BE REINSTATED.

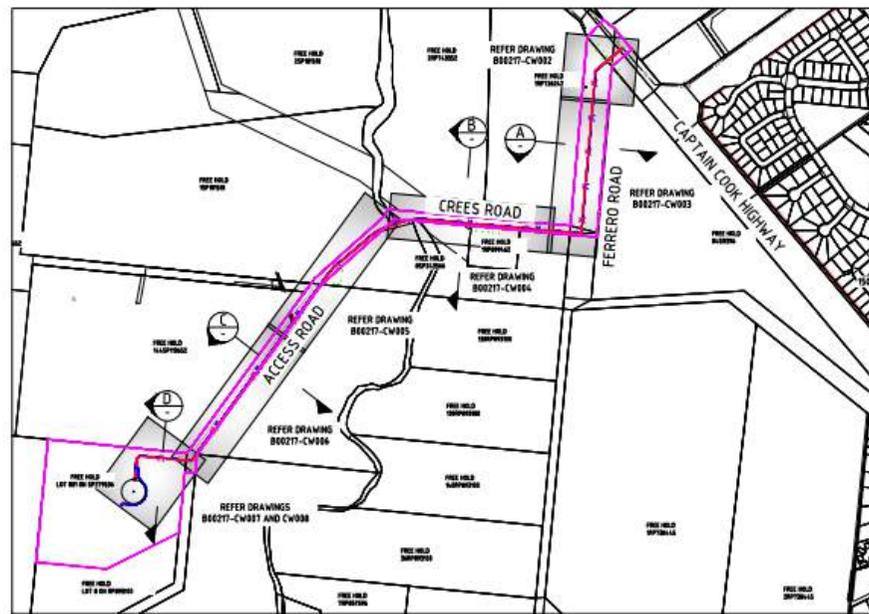
PIPELINE NOTES

- THE CONTRACTOR SHALL PROVIDE ALL PIPES, FITTINGS, THRUST BLOCKS ETC REQUIRED TO CONSTRUCT THE PIPELINES AND PIPELINE APPURTENANCES U.K.D.
- PIPELINE TO BE CONSTRUCTED ON A CONTINUAL GRADE BETWEEN NOMINATED PIPE INVERT LEVELS AND TO SLIT MINIMUM COVER REQUIREMENTS.
- COVER TO PIPELINE TO BE 600mm MIN U.K.D.
- ALIGNMENT TO BE PEGGED AND CONFIRMED PRIOR TO CONSTRUCTION COMMENCING.
- MAXIMUM PIPE CURVATURE OR JOINT DEFLECTION IS TO BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE HORIZONTAL ALIGNMENT MAY BE DEVIATED FROM THE TABULATED LAYOUT TO AVOID UNFORESEEN HAZARDOUS OBSTACLES SUCH AS TREES WITH THE CONTRACT ADMINISTRATOR'S APPROVAL.
- DISTANCES INDICATED ON LONGITUDINAL SECTION ARE MEASURED HORIZONTALLY ALONG THE CONSTRUCTION CENTERLINE.
- WHILST REASONABLE EFFORT HAS BEEN TAKEN IN LOCATING UNDERGROUND SERVICES, THE CONTRACTOR IS STILL REQUIRED TO VERIFY THE LOCATION OF ALL UNDERGROUND SERVICES WITH THE RELEVANT AUTHORITIES PRIOR TO ANY EXCAVATION. THIS WOULD INCLUDE BUT NOT LIMITED TO A DIAL BEFORE YOU DIG REQUEST.
- EXCAVATION BEHIND EXISTING THRUST BLOCKS SHALL NOT BE CARRIED OUT WHILST THE EXISTING WATER MAIN IS CHARGED.
- CONNECTION TO EXISTING DOUGLAS SHIRE COUNCIL WATER MAIN TO BE CARRIED OUT BY CONTRACTOR UNDER D.S.C. STAFF SUPERVISION.
- EXISTING PIPES THAT ARE TO BE REMOVED FROM SITE SHALL BE DISPOSED OF TO APPROVED COUNCIL LANDFILL. PIPES MAY CONTAIN ASBESTOS, IF SO THEY ARE TO BE REMOVED SO THAT IT DOES NOT CREATE A HEALTH RISK. REMOVAL IS TO BE CARRIED OUT IN ACCORDANCE WITH QUEENSLAND WORKPLACE HEALTH AND SAFETY ACT 2008 AS WELL AS RELEVANT NATIONAL CODES OF PRACTICE FOR THE MANAGEMENT, CONTROL AND SAFE REMOVAL OF ASBESTOS.
- ALL THRUST BLOCKS ARE TO BE SPECIFIED ACCORDING TO GEOTECHNICAL ADVICE ON SOIL TYPE AND TO BE IN ACCORDANCE WITH THE WATER SUPPLY CODE OF AUSTRALIA. REFER STANDARD DRAWINGS WAT-1000 & 1295 U.K.D.
- THRUST FLANGES TO CONFORM TO AS 4087 FIGURE B5 AND SHALL BE INTEGRALLY CAST.
- REFER DWG. FIGURE C2018 AND C2019 FOR DETAILS OF PIPELINE IDENTIFICATION MARKERS.
- REFER TO WS463-2011 PART 1 FOR BULKHEAD AND THROTTLE REQUIREMENTS.

LEGEND

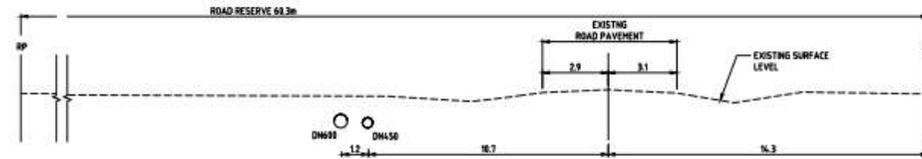
- TRUNK WATER MAIN - 600mm OUTLET
- TRUNK WATER MAIN - 450mm INLET

NOTE:-
REFER TO PLAN B00217-CW007 FOR WATER MAIN SETOUT TABLES AND B00217-CW008 FOR SCHEDULE OF FITTINGS



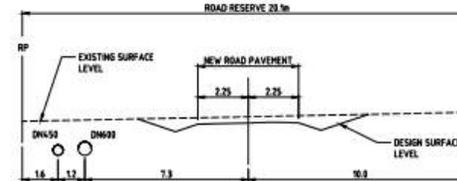
LOCALITY PLAN

SCALE 1:5000



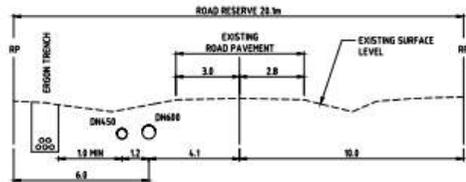
TYPICAL CROSS-SECTION A - FERRERO ROAD

SCALE 1:100



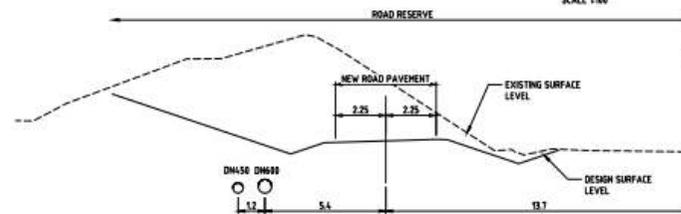
TYPICAL CROSS-SECTION C - NEW ACCESS ROAD

SCALE 1:100



TYPICAL CROSS-SECTION B - CREES ROAD

SCALE 1:100



TYPICAL CROSS-SECTION D - CREES ROAD

SCALE 1:100

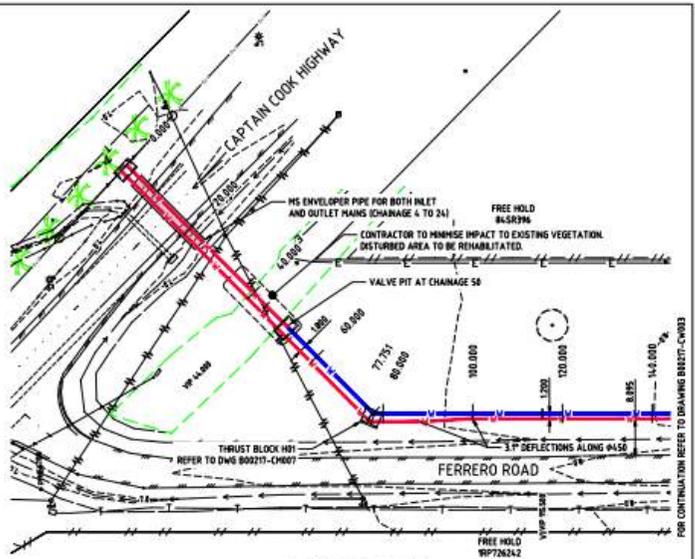
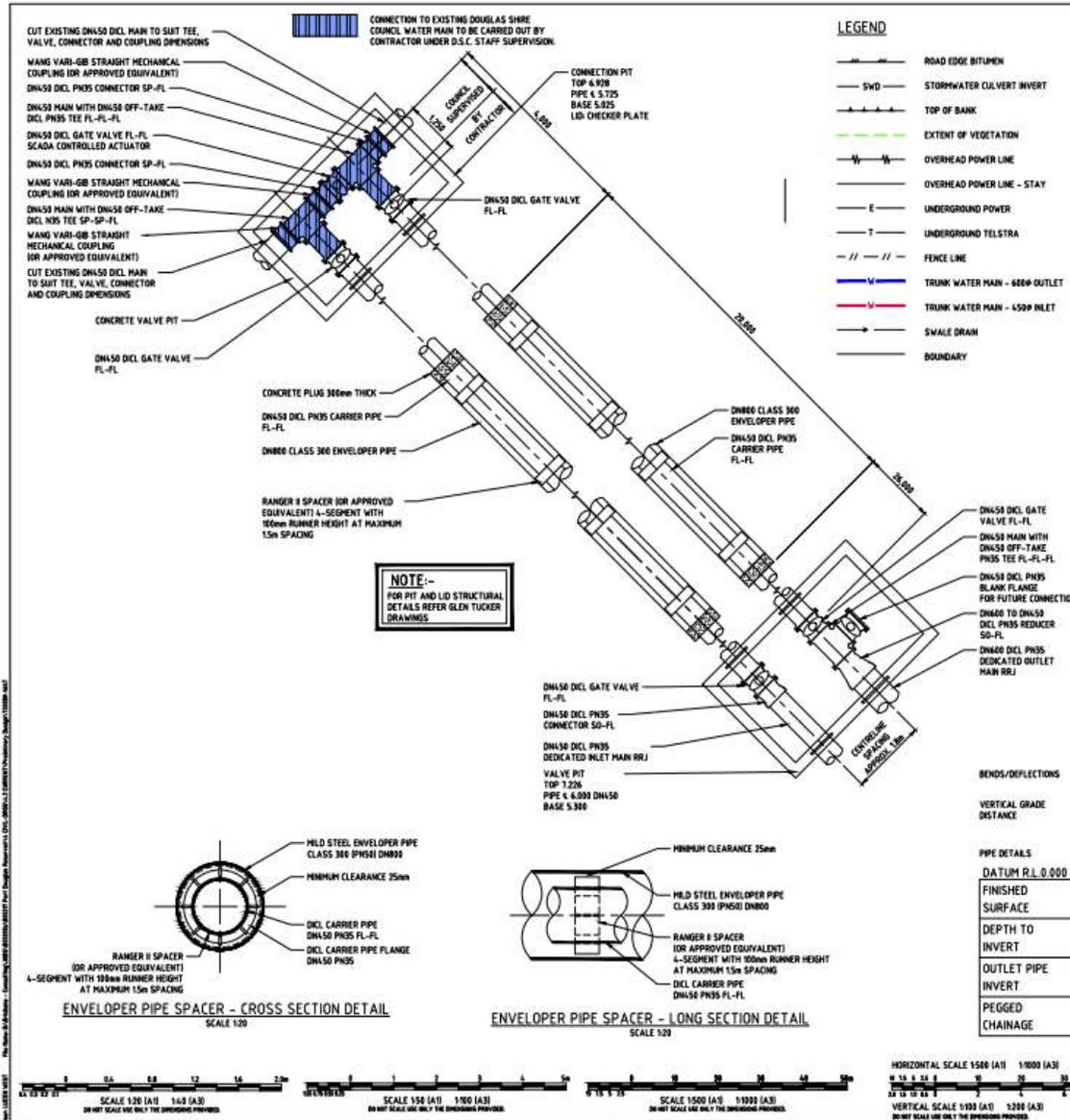


44.2017.1999
 23/47 (D#813288)
 Project No. B00217-CW001
 Drawing No. A
 Rev. A
 Date 23/03/2017
 Author [Signature]
 Checked [Signature]
 Approved [Signature]
 Scale 1:5000 (A1) 1:6000 (A3)
 DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.
 Scale 1:100 (A1) 1:200 (A3)
 DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.
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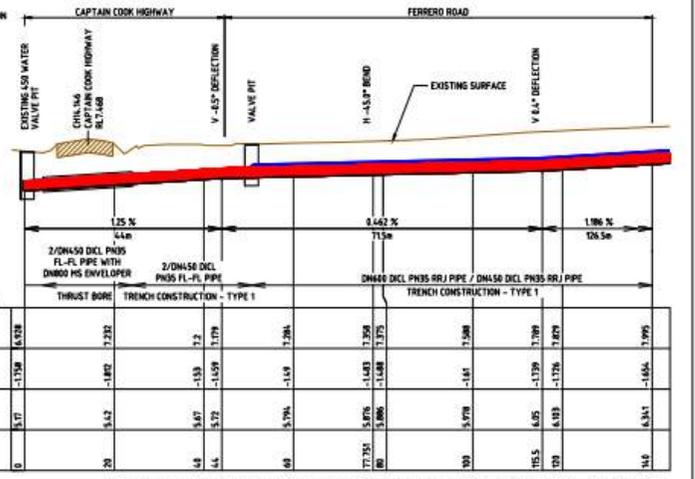


Client: DOUGLAS SHIRE COUNCIL
 Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
 Title: TRUNK WATER MAIN NOTES SCHEDULES AND LOCALITY PLAN

Scale AND PDM 100708
 RL 7000
 8000
 8000
FOR TENDER
 Project No. B00217-CW001
 Drawing No. A
 Rev. A



LAYOUT PLAN
SCALE 1:500



OUTLET WATER MAIN INVERT LEVEL LONGITUDINAL SECTION
INLET WATER MAIN INVERT LEVELS SIMILAR

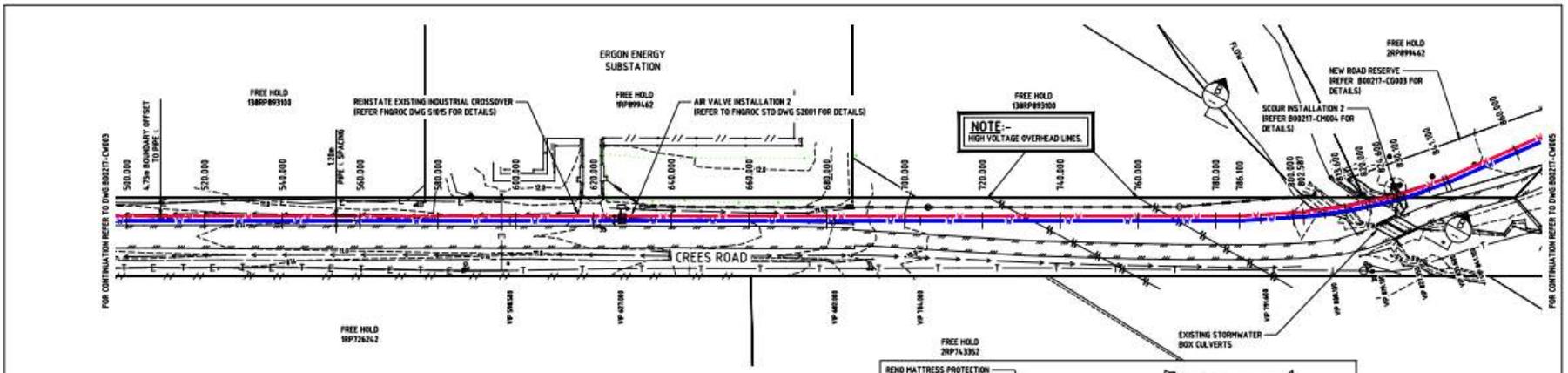
No.	Description	Issued By	Checked By	Date
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	Amendments		Appl	



Client: DOUGLAS SHIRE COUNCIL
 Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
 Title: TRUNK MAIN LONGITUDINAL SECTION (SHEET 1 OF 7)

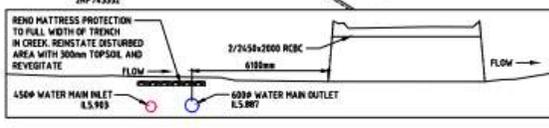
Drawn AND PLEN: 1007100
 RL: 7000
 BINAL COORD

FOR TENDER
 Project No. B00217-CW002
 Drawing No. A



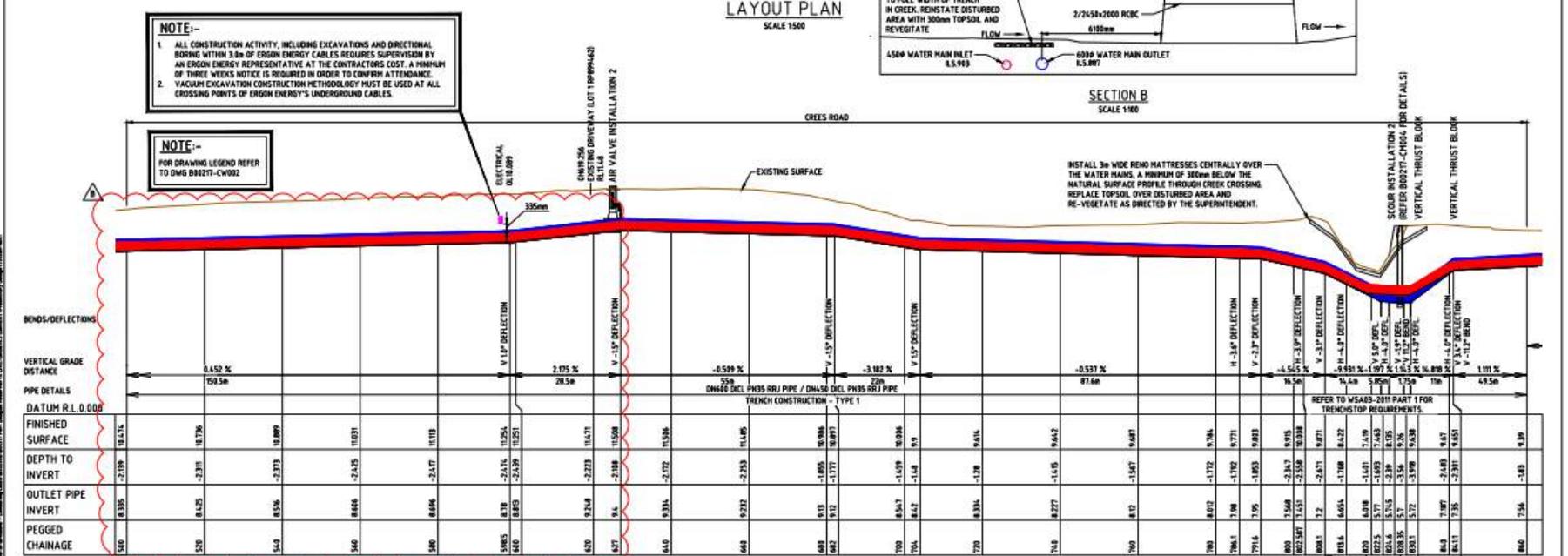
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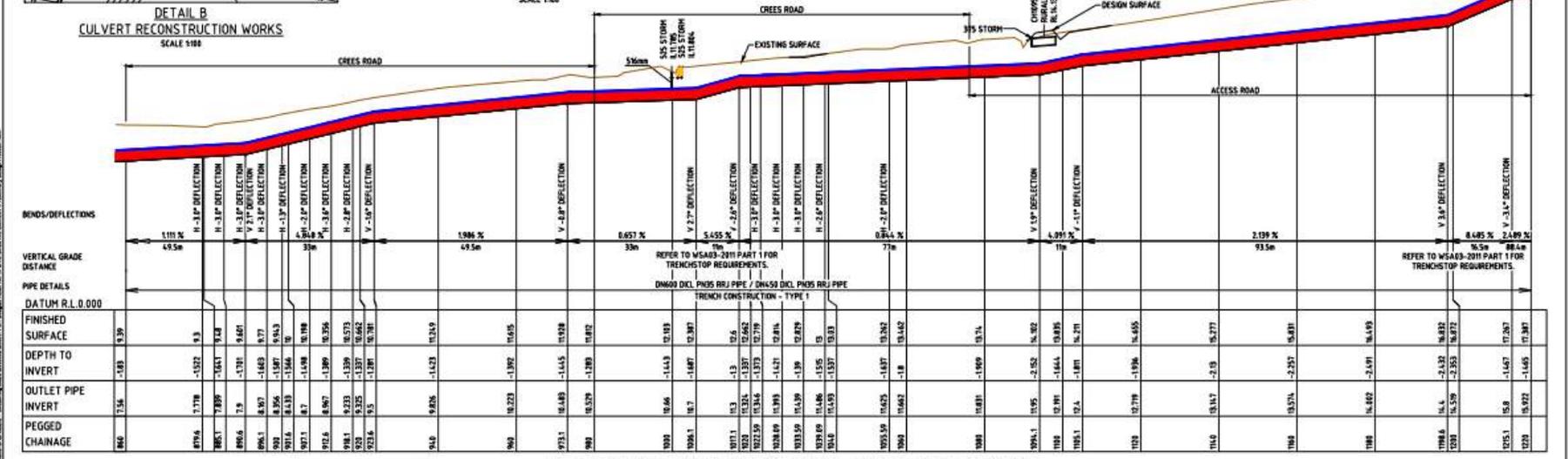
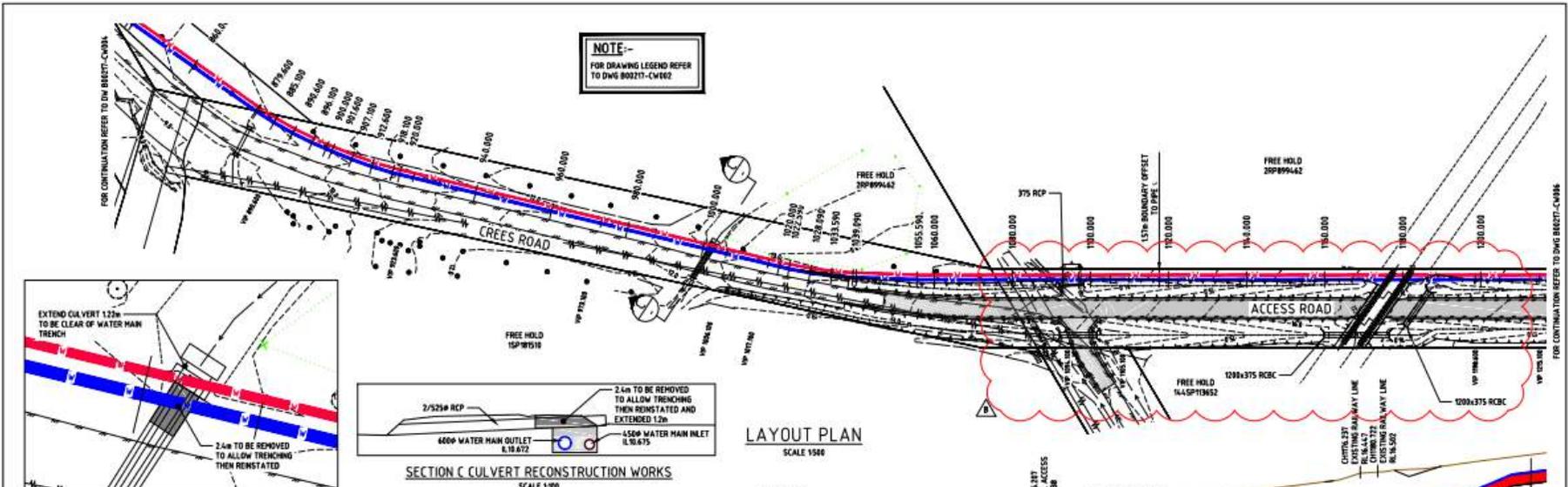
1. ALL CONSTRUCTION ACTIVITY, INCLUDING EXCAVATIONS AND DIRECTIONAL BORING WITHIN 3.0m OF ERGON ENERGY CABLES REQUIRES SUPERVISION BY AN ERGON ENERGY REPRESENTATIVE AT THE CONTRACTORS COST. A MINIMUM OF THREE WEEKS NOTICE IS REQUIRED IN ORDER TO COMPLY ATTENDANCE.
2. ALL CROSSING POINTS OF ERGON ENERGY'S UNDERGROUND CABLES.



NOTE--

FOR DRAWING LEGEND REFER TO DWG B00217-CW002





NOTE--
FOR INFORMATION ONLY, REFER TO GEOTECHNICAL REPORT FOR POTENTIAL GROUND CONDITIONS

NOTE--
FOR DRAWING LEGEND REFER TO DWG B00217-CW002

NOTE--
FOR INFORMATION ONLY, REFER TO MS A628-2011 PART 1 FOR TRENCHSTOP REQUIREMENTS.

NOTE--
FOR INFORMATION ONLY, REFER TO MS A628-2011 PART 1 FOR TRENCHSTOP REQUIREMENTS.

No.	Description	Author	Checked	Date
B	INTERSECTION LAYOUT AND RAIL CROSSING ADVISED	LW	LW	01/12
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	23/03/17
Amendments		Appd	Reg/Instal Engineer	Reg No. Date

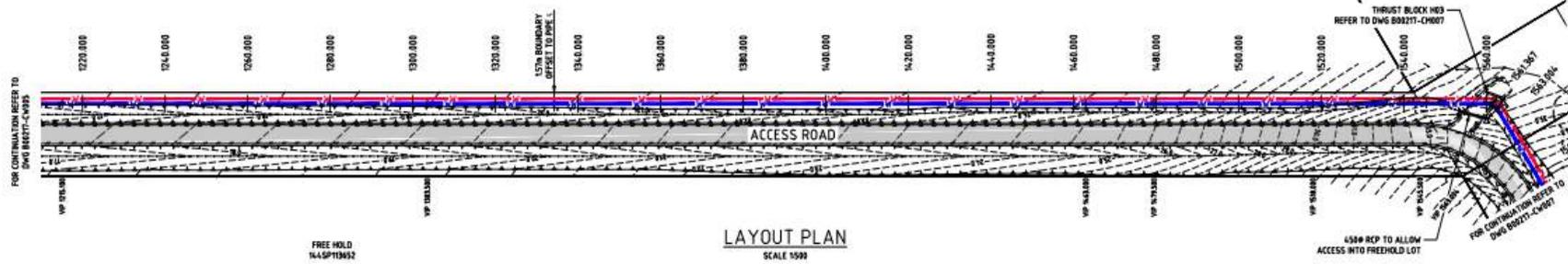


Client: DOUGLAS SHIRE COUNCIL
 Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
 Title: TRUNK MAIN LONGITUDINAL SECTION (SHEET 4 OF 7)

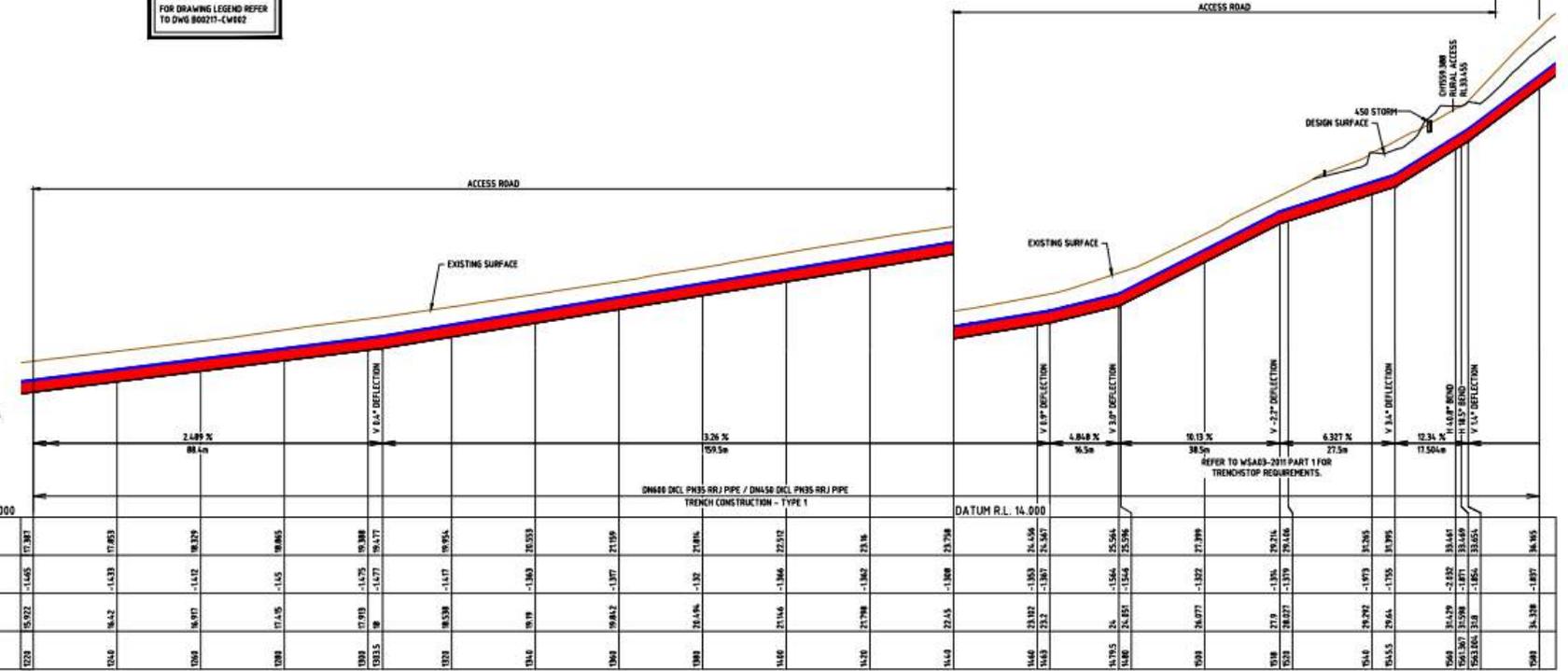
Drawn: AUB
 PBM 100700
 RL 7000
 BAGLAL COORD

FOR TENDER

Project No. B00217-CW005
 Drawing No. B



NOTE:-
FOR DRAWING LEGEND REFER TO DWG B00217-CW02



OUTLET WATER MAIN INVERT LEVEL LONGITUDINAL SECTION
INLET WATER MAIN INVERT LEVELS SIMILAR
HORIZONTAL SCALE 1500 (A1) 1:1000 (A3)
VERTICAL SCALE 1:1000 (A3)

P:\Projects\B00217-CW05\Drawings\B00217-CW05-05.dwg
 14/08/2017 10:58:11 AM
 User: chris.walsh
 Plot: B00217-CW05-05.dwg
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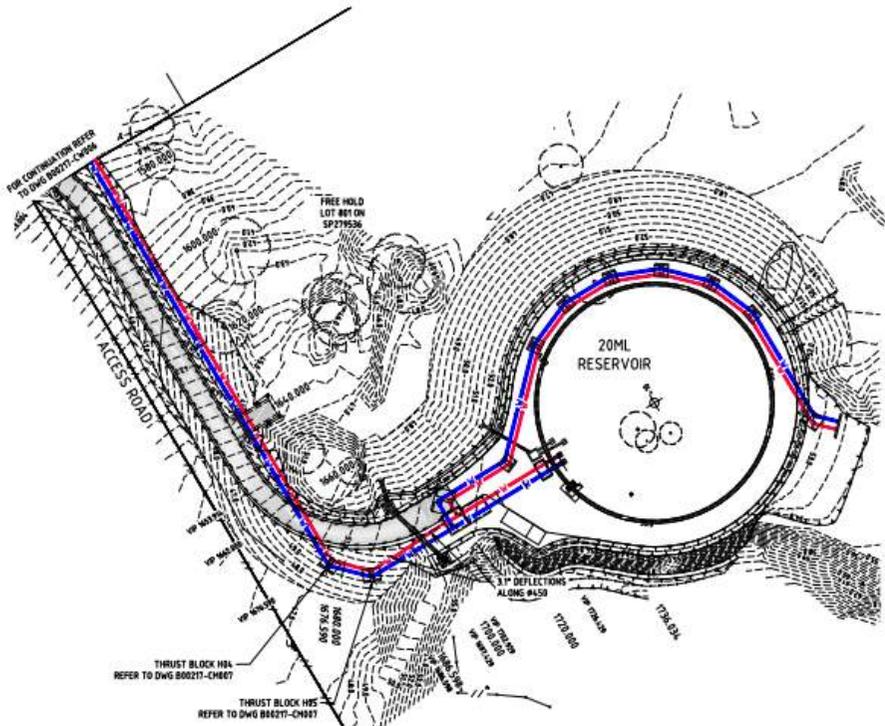
No.	Amendment	ESS	LW	OR	Checked	Date
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS				Chris Walsh	23/03/17



Client	DOUGLAS SHIRE COUNCIL
Project	PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
Drawn	AND PGM 100708
Checked	MR. 7088
Approved	MR. 7088
Project No.	B00217-CW06
Drawing No.	
Rev	A

SURVEY CONTROL POINTS

NO.	EASTING	NORTHING	ELEVATION	DESCRIPTION
16	336427.349	877187.794	53.893	IRON PIN 16
16	336428.621	877185.692	46.960	IRON PIN 16
31	335660.861	877198.843	9.343	CONCRETE 31
32	335687.491	877173.248	10.544	MAIL IN CONCRETE 32
33	335626.789	877160.681	13.973	IRON PIN 33
34	335246.880	877189.965	9.711	IRON PIN 34
35	335444.325	877179.252	11.599	MAIL IN BITUMEN 35
156188	335648.376	877276.436	7.358	PSM 156188

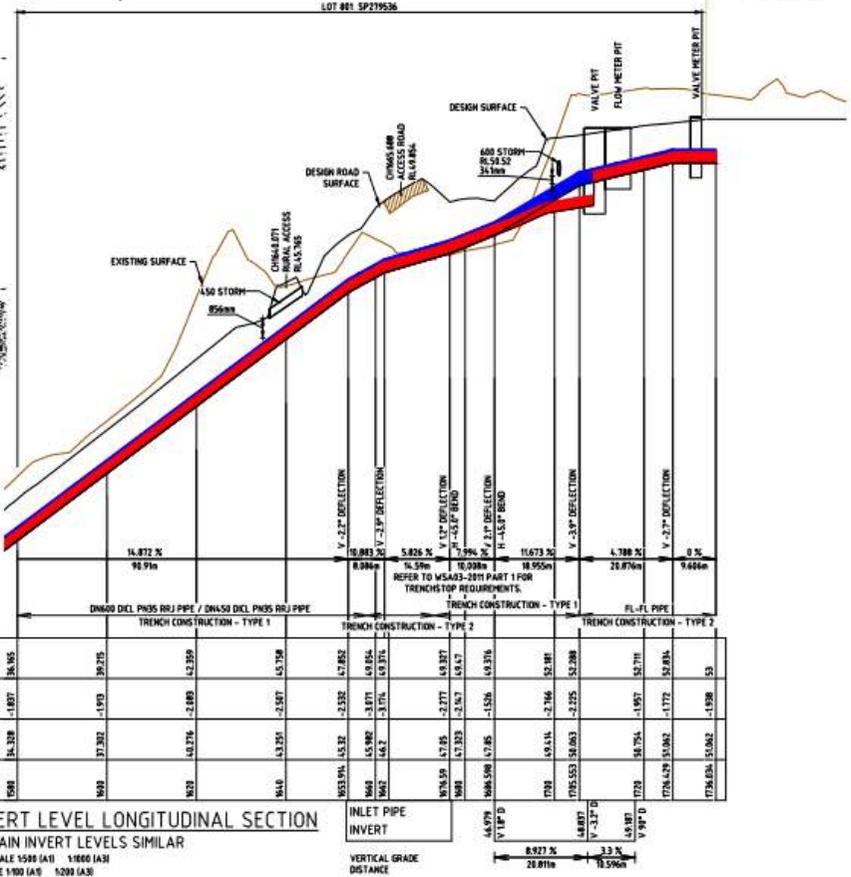


LAYOUT PLAN
SCALE 1:500

SETOUT TABLES
DN600 OUTLET WATER MAIN INVERT

PT	CHAINAGE	EASTING	NORTHING	HEIGHT
IP1	0.846	335718.133	877215.941	5.710
IP2	77.751	335658.444	877281.118	5.876
IP3	438.952	335626.342	877174.171	7.963
IP4	106.192	335280.194	877172.512	7.988
IP5	813.697	335263.813	877172.952	7.451
IP6	813.699	335252.869	877172.497	6.654
IP7	824.620	335241.877	877171.271	5.745
IP8	836.103	335236.467	877170.287	5.720
IP9	841.103	335225.811	877169.588	7.448
IP10	879.460	335189.272	877155.426	7.789
IP11	885.190	335184.150	877153.422	7.844
IP12	893.620	335179.140	877151.153	7.990
IP13	896.193	335174.256	877148.826	8.767
IP14	901.600	335169.511	877145.844	8.439
IP15	907.193	335164.832	877142.953	8.700
IP16	912.620	335160.256	877139.901	8.967
IP17	918.100	335155.677	877136.573	9.233
IP18	1022.590	335075.890	877168.340	11.346
IP19	1028.590	335071.871	877166.340	11.393
IP20	1033.590	335068.854	877164.626	11.439
IP21	1039.690	335064.449	877161.472	11.486
IP22	1055.590	335054.203	877164.539	11.625
IP23	1061.307	334753.852	877127.599	31.598
IP24	1563.084	334752.256	877127.237	31.883
IP25	1076.590	334639.234	877124.843	47.050
IP26	1068.590	334631.888	877124.207	47.850
IP27	1736.934	334628.567	8771193.015	51.062

NOTE--
FOR DRAWING LEGEND REFER TO DWG B06217-CW007



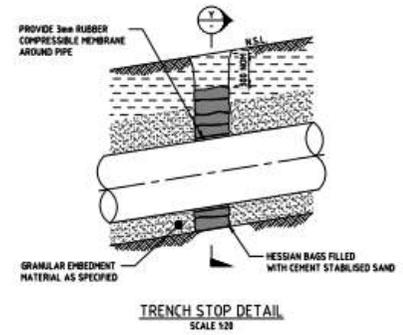
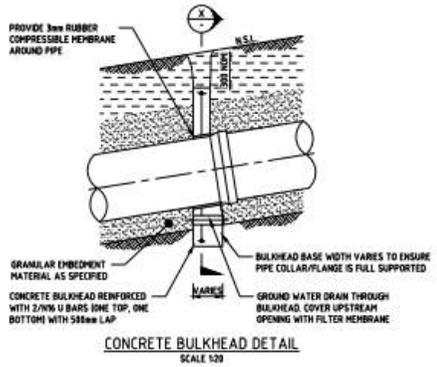
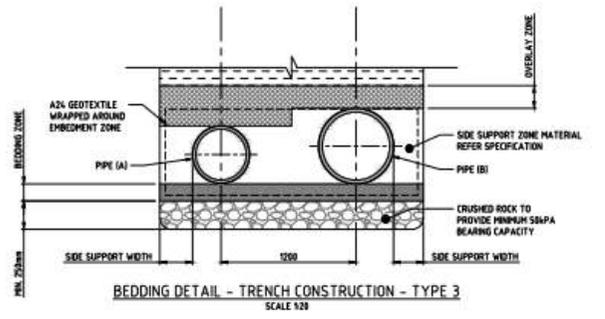
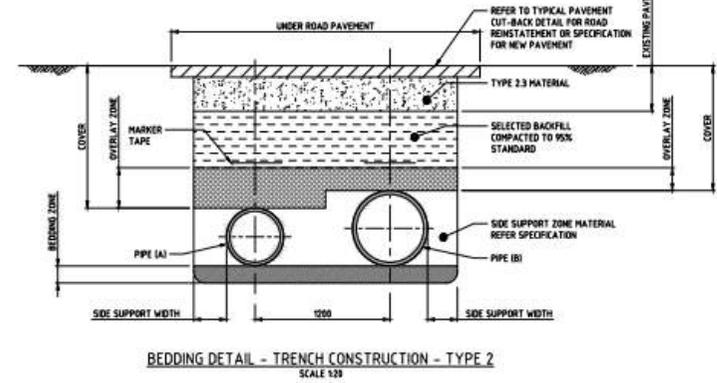
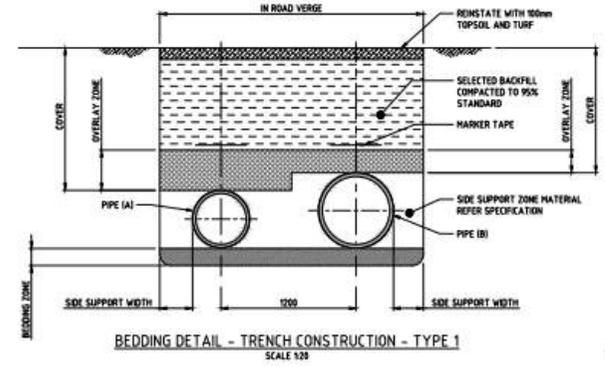
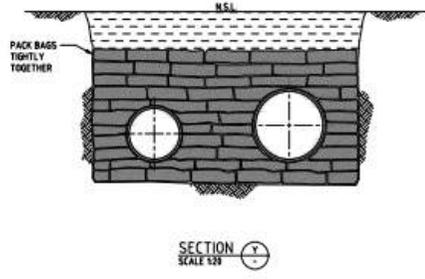
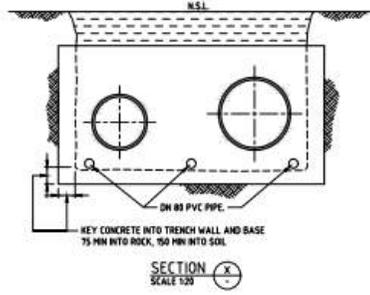
OUTLET WATER MAIN INVERT LEVEL LONGITUDINAL SECTION
INLET WATER MAIN INVERT LEVELS SIMILAR
HORIZONTAL SCALE 1:500 (A1) 1:1000 (A3)
VERTICAL SCALE 1:100 (A1) 1:200 (A3)

HORIZONTAL SCALE 1:500 (A1) 1:1000 (A3)
VERTICAL SCALE 1:100 (A1) 1:200 (A3)
DO NOT SCALE THE BOLT-TYPE DIMENSIONS PRESENTED.

NO.	REVISION	DATE	BY	CHECKED
1	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	23/02/21	ESS	LW
2	Amendments		Drawn/Design	App'd



Client DOUGLAS SHIRE COUNCIL
Project PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
Title TRUNK MAIN LONGITUDINAL SECTION (SHEET 6 OF 7)
FOR TENDER
Project No. Drawing No. Rev
B00217-CW007 A



MINIMUM DIMENSIONS			
	SIDE SUPPORT WIDTH	BEDDING ZONE	OVERLAY ZONE
≤ 150mm	100mm	100mm	150mm
> 150mm and ≤ 300mm	150mm	100mm	100mm
> 300mm and ≤ 450mm	200mm	100mm	150mm
> 450mm and ≤ 900mm	300mm	150mm	150mm

REFERENCE: AS/NZS 2968:1:1998 - FIGURE 3.1 EMBEDMENT GEOMETRY

WATER PIPELINE LOCATION	MIN. PIPE COVER
UNDER UNKERBED ROADS	900mm
UNDER HERBED ROADS	800mm
IN ROAD VERGES	600mm

REFERENCE: AS/NZS 2968:1:1998 - TABLE 3.1 MINIMUM COVER

	CLEARANCE TO SERVICES	HORIZONTAL	VERTICAL
WATER MAINS < DN275	600mm	180mm	
WATER MAINS > DN275	800mm	500mm	
SEWER MAINS	1000mm	500mm	
STORMWATER LINES	800mm	150mm	
TELSTRA CONDUITS	800mm	150mm	
ERGON ENERGY CONDUITS	1000mm	300mm (NOTE 1)	

REFERENCE: WSA 03 2002 - TABLE 4.1 CLEARANCES

- NOTES**
1. VERTICAL CLEARANCE TO ERGON ENERGY CONDUITS HAS BEEN INCREASED TO MATCH LOCAL REQUIREMENTS.
 2. MARKER TAPE SHALL BE INSTALLED 300mm ABOVE EACH PIPELINE IN ACCORDANCE WITH AS/NZS 2648.1.
 3. TYPE 3 BEDDING SHALL BE USED IN WET CONDITIONS WHERE THE FOUNDATION MATERIAL IS UNSUITABLE.

MAXIMUM ALLOWABLE JOINT DEFLECTION FOR TYTON FITTINGS	
NOMINAL SIZE DN	ALLOWABLE JOINT DEFLECTION
450 - 750	3"

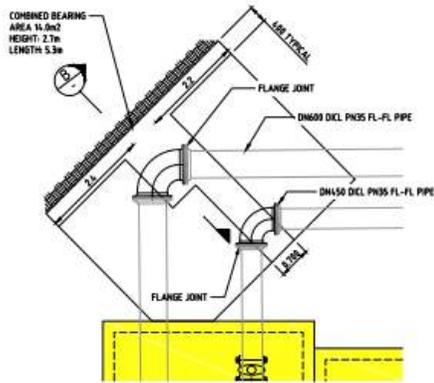
MAXIMUM ALLOWABLE JOINT DEFLECTION FOR TYTON PIPES				
NOMINAL SIZE DN	ALLOWABLE JOINT DEFLECTION	LATERAL OFFSET PER METER OF PIPE BARREL MM	OFFSET PER 5.5M LENGTHS OF MM	RADIUS OF 5.5M LENGTHS M
375 - 600	6"	78	385	73

No.	Revisions	By	Checked	Date
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	01/07/17
	Amendments		Appd	Registered Engineer Reg No. Date

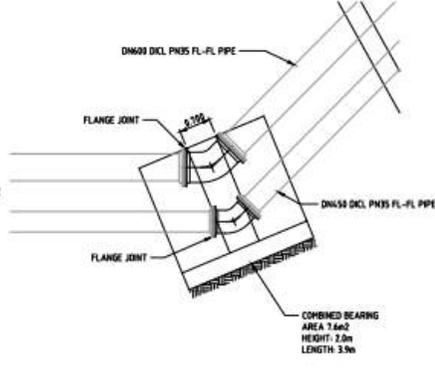


Client: DOUGLAS SHIRE COUNCIL
 Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY
 Title: WATER MAIN DETAILS (SHEET 4 OF 4)
 TRENCH CONSTRUCTION TYPES

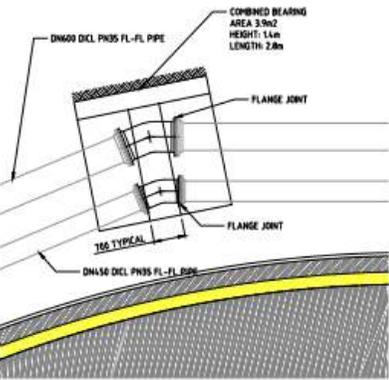
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 M. 7988
 (SMAJ) COORD.
FOR TENDER
 Project No. B00217-CM006
 Drawing No. A



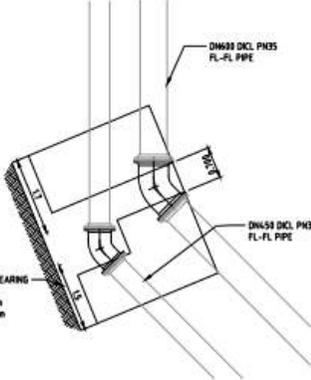
THRUST BLOCK H06
BEND E 90° OFFSET - CHAINAGE 6.950
SCALE 150



THRUST BLOCK H07
BEND D 45° - CHAINAGE 24.434
SCALE 150

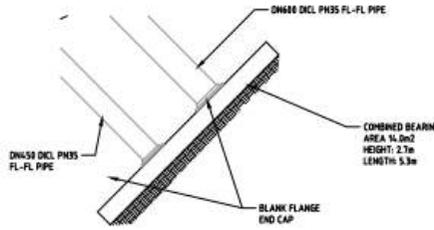


THRUST BLOCKS H08, H09, H10, H11, H12 AND H13
BEND B 22.5° - BETWEEN CHAINAGE 50.946 AND 109.128
SCALE 150

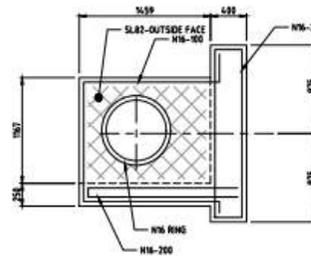


THRUST BLOCK H14
BEND D 45° OFFSET - CHAINAGE 135.521
SCALE 150

CONNECTION TO FUTURE RESERVOIR - HORIZONTAL THRUST BLOCKS				
BEND DESCRIPTION	PIPE SIZE	BEND ANGLE (DEGREES)	SOIL BEARING CAPACITY (KPA)	MIN. BEARING AREA (M2)
B	DN450 AND DN600	22.5	100	3.9
D	DN450 AND DN600	45	100	7.6
D - OFFSET	DN450 AND DN600	45	100	7.6
E - OFFSET	DN450 AND DN600	90	100	15.0
-	DN450 AND DN600	DEAD END	100	15.0



THRUST BLOCK 15
DEAD END - CHAINAGE 14.1124
SCALE 150



SECTION B
TYPICAL THRUST BLOCK REINFORCING
SCALE 1:25

LEGEND

ANCHOR BLOCKS ANCHOR BLOCKS MUST BE CAST AGAINST UNDISTURBED GROUND, CEMENT STABILISED SAND (M30) OR CONCRETE. CEMENT STABILISED SAND SHALL BE COMPACTED TO A DRY DENSITY RATIO NOT LESS THAN 100% STANDARD COMPACTION.

NOTES

- REFER TO PLANS AND LONGITUDINAL SECTIONS FOR THRUST BLOCK LOCATIONS.
- THRUST BLOCK BEARING AREAS HAVE BEEN CALCULATED ASSUMING:
 - LATERAL ALLOWABLE BEARING CAPACITY - 100kPa
 - VERTICAL ALLOWABLE BEARING CAPACITY - 100kPa
 - TEST PRESSURE AT LOWEST POINT - 1200kPa
- ANCHOR BLOCK DESIGN PARAMETERS SHALL BE CONFIRMED BY AN EXPERIENCED GEOTECHNICAL ENGINEER AFTER EXCAVATION AND PRIOR TO PLACEMENT OF REINFORCEMENT.
- THE DEPTH FROM GROUND LEVEL TO THE CENTERLINE OF THE PIPE FOR EACH ANCHOR BLOCK HAS BEEN DETAILED ON THE DRAWINGS. THIS DEPTH SHALL BE CONFIRMED BY THE CONTRACTOR AFTER EXCAVATION AND PRIOR TO PLACEMENT OF REINFORCEMENT.
- THE DIMENSIONS OF THE BEARING AREA MAY VARY FROM THAT DETAILED ON THE DRAWINGS IF THE GROUND CONDITIONS/DEPTH TO CENTERLINE ARE DIFFERENT TO THOSE ASSUMED FOR THE DESIGN.

CONCRETE NOTES:

- CONCRETE, CONCRETE WORK, AND STEEL REINFORCEMENT SHALL CONFORM TO A.S.3600, CONCRETE STRUCTURES.
- STRENGTH GRADE = 32MPa U.O.R.
- COVER TO REINFORCEMENT SHALL BE 50mm U.M.D.
- THE PROPORTION OF FLY ASH SHALL BE 25% BY WEIGHT OF THE TOTAL COMBINED WEIGHT OF FLY ASH AND CEMENT.
- MAXIMUM SLUMP OF CONCRETE = 85 - 95mm U.M.D.
- MAXIMUM NOMINAL SIZE OF AGGREGATE = 20mm
- STRIP FOOTING REINFORCEMENT SHALL BE CONTINUOUS AT ALL T AND L FOOTING JUNCTIONS.
- PROVIDE ALL EXPOSED EDGES AND CORNERS WITH 20mm CHAMFERS OR FILLETS, U.M.D.
- REINFORCEMENT SHOWN ON DRAWINGS IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
- ALL REINFORCEMENT HOOKS AND CROSS SHALL BE STANDARD UNLESS SHOWN OR NOTED OTHERWISE ON THE DRAWINGS.

REINFORCEMENT NOTATION

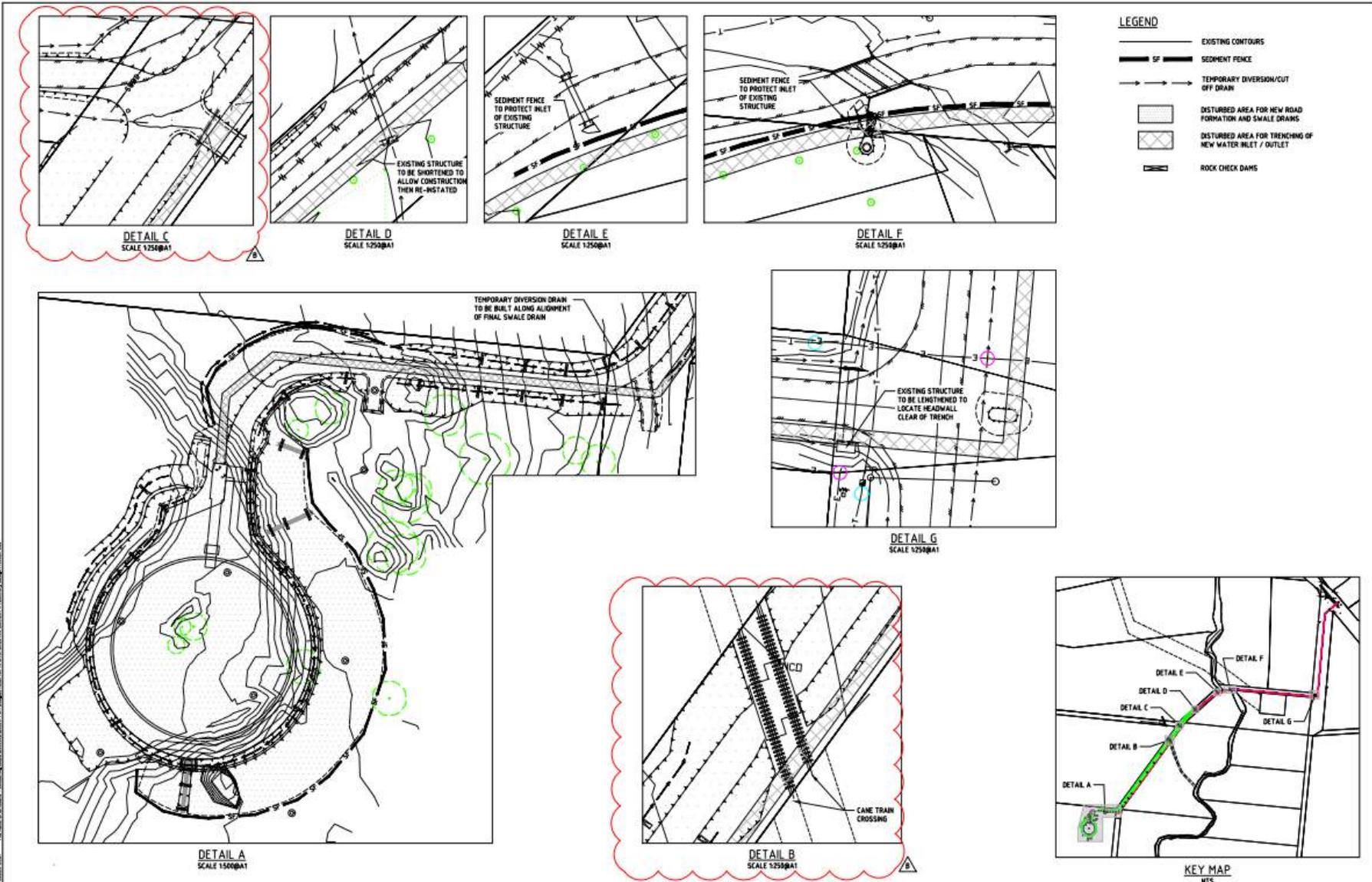
- EXAMPLE N16-200 OR R16-300
- N = DEFORMED CLASS N BARS
- R = GRADE 250R PLAIN BAR
- % = BAR SIZE IN MILLIMETERS
- 300 = SPACING OF BARS

LEGEND TO NOTATIONS ON DRAWINGS:

- EW EACH WAY
- EF EACH FACE
- T TOP
- B BOTTOM
- U.M.D. UNLESS NOTED OTHERWISE

MINIMUM LAP LENGTH	BAR SIZE				
	N12	N16	N20	N24	N28
	600	800	1150	1550	2400

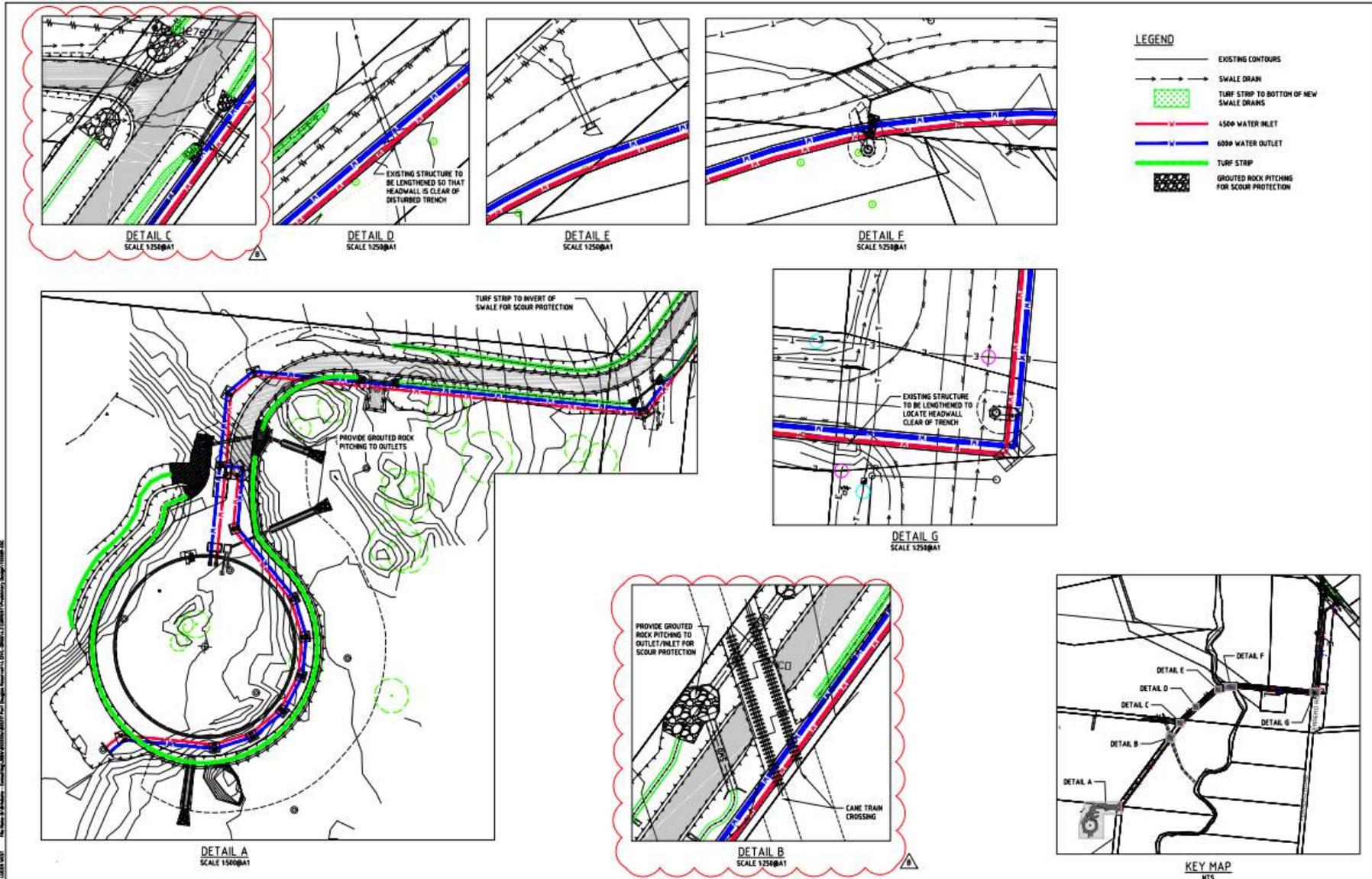
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Rev	Description	Drawn/Design	App'd	Registered Engineer	Reg No.	Date
B	INTERSECTION LAYOUT AND RAIL CROSSING AMENDED	LW	LW	CH	12132	04/26/11
A	ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	CH	12132	29/07/11
Rev	Amendments	Drawn/Design	App'd	Registered Engineer	Reg No.	Date
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Client	DOUGLAS SHIRE COUNCIL	Drawn	AJSD
Project	PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY	Permit	926708
Title	SEDIMENT AND EROSION CONTROL PLAN CONSTRUCTION PHASE	Reg. No.	7288
		Scale	AS041 COORD
		Project No.	B00217-CV001
		Drawing No.	B
		Rev	B



B		INTERSSECTION LAYOUT AND RAIL CROSSING AMEND	LW	LW	CH	<i>Chris Vignoli</i>	10132	05/18/11
A		ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS	ESS	LW	CH		10132	28/02/11
No.		Amendments	Drawn/Design	App'd	Registered Engineer	Reg No.	Date	

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Client: DOUGLAS SHIRE COUNCIL

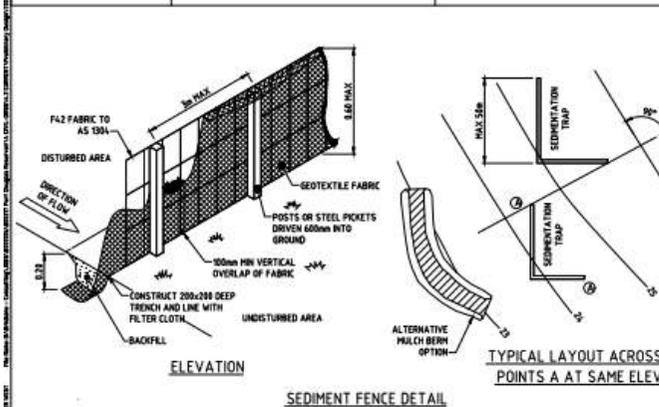
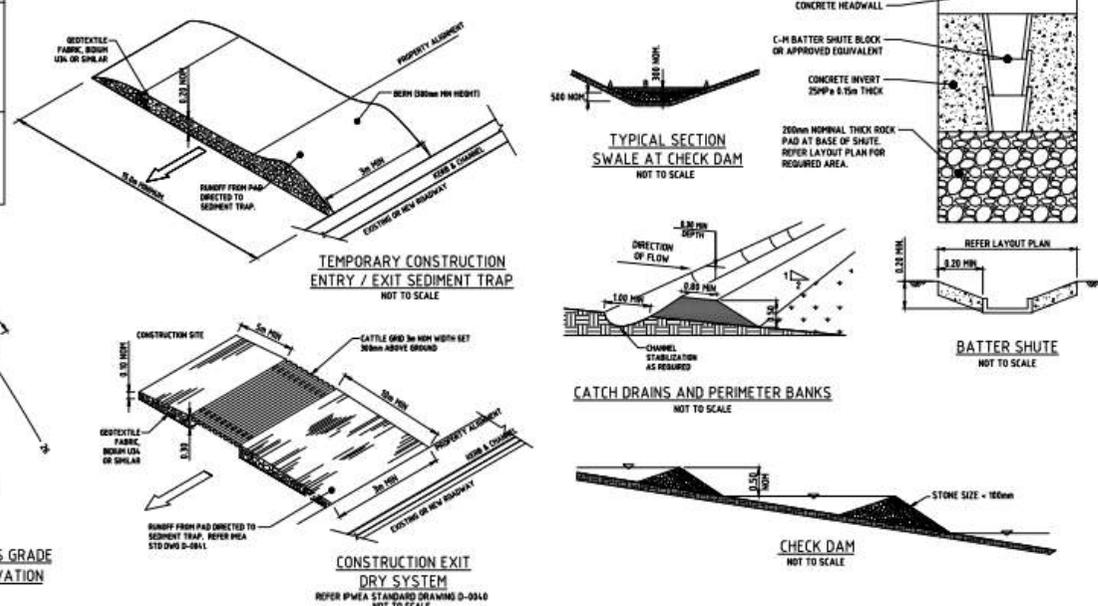
Project: PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY

Title: SEDIMENT AND EROSION CONTROL PLAN OPERATIONAL PHASE

Drawn AND PERS: 926708
 RL: 7286
 BBAJ COORD

Project No. Drawing No. Rev
 B00217-CV002 B

DEVICE	CONSTRUCTION REQUIREMENTS	MAINTENANCE REQUIREMENTS	SEQUENCE OF ACTIONS TO BE UNDERTAKEN BY CONTRACTOR	WATER QUALITY MANAGEMENT	NOTE
CONSTRUCTION EXITS - USED TO PREVENT THE TRACKING OF DEBRIS FROM TYPES OF VEHICLES ONTO PUBLIC ROAD.	- REFER TO DETAIL ON THIS PLAN. - SURFACE WATER FLOWING TO THE CONSTRUCTION EXIT SEDIMENT TRAP MUST BE PIPED UNDER THE TRAP OR A PERIMETER BANK SHOULD BE CONSTRUCTED TO DIRECT SURFACE FLOW AWAY FROM THE TRAP. - WASH-OFF TO BE DIRECTED TO A SEDIMENT TRAP OR BUFFER ZONE. - ONLY PROVIDE ONE CONSTRUCTION EXIT FOR THE SITE UNLESS SITE ACCESS OR TOPOGRAPHY REQUIRE MORE. - ENSURE THAT CONTAMINATED VEHICLES CANNOT BYPASS IT WHEN EXITING THE SITE.	- REMOVAL OF SEDIMENT AND/OR ADDING EXTRA AGGREGATE. - REMOVE SEDIMENT TRANSPORTED ONTO ROADWAYS AND APPLY CORRECTIVE MEASURES TO PREVENT RECURRENCE. - EXTEND LENGTH OF THE GRAVEL PAD IF EXCESSIVE SEDIMENT IS STILL BEING TRANSPORTED OFF THE SITE.	1. SITE POSSESSION - INSTALLATION OF CONSTRUCTION EXIT. - CONSTRUCT TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILT FENCING AND DIVERSION BANKS. - INSTALL DIVERSION BANKS TO DIRECT WATER FROM DISTURBED AREAS TO THE BASIN. 2. CONSTRUCTION - TOPSOIL TO BE STRIPPED AND STOCKPILED IN LOCATIONS AGREED WITH THE SUPERINTENDENT. A SEDIMENT FENCE IS TO BE CONSTRUCTED AROUND THE BOTTOM OF THE STOCKPILE TO TRAP SEDIMENT. A DIVERSION DRAIN IS TO BE INSTALLED UPSTREAM OF THE STOCKPILE. - SEDIMENT CONTROL DEVICES REQUIRED TO BE REMOVED TO ALLOW CONSTRUCTION ACCESS ARE TO BE REINSTATED AT THE COMPLETION OF EACH WORKDAY. - MOVEMENT OF CONSTRUCTION EQUIPMENT SHALL BE LIMITED TO THE AREA OF WORK AND EXISTING ROADS. - DISTURBED AREAS ARE TO BE GRASSED FOLLOWING FINAL TRIMMING. AREAS ARE TO BE DISTURBED AND RESTORED PROGRESSIVELY. - TURF STRIPS (900mm WIDE) SHALL BE LAD TO THE BASE OF ALL DOWNSTREAM EARTHWORKS BATTERS STEEPER THAN 1:1.4. BATTERS SHALL BE TOPSOILED AND GRASS SEEDS IMMEDIATELY UPON COMPLETION OF EARTHWORKS. - MULCH PILES ARE TO BE SPREAD ONTO LANDSCAPED AREAS. - KERB SEDIMENT TRAPS ARE TO BE PROVIDED AT EACH DRAINAGE PIT ADJACENT DISTURBED AREAS.	1. WATER QUALITY MANAGEMENT MEASURES AND OBJECTIVES SHALL COMPLY WITH THE ENVIRONMENTAL PROTECTION ACT, ENVIRONMENTAL PROTECTION POLICY - WATER AND STORMWATER MANAGEMENT PLAN BY BMD CONSULTING PTY LTD. 2. THE CONTRACTOR SHALL MAINTAIN A WATER QUALITY LOG ON SITE AT ALL TIMES FOR WATER QUALITY MONITORING AS PER THE WATER QUALITY MONITORING TABLES. THIS LOG SHALL MONITOR (BY LOCATION) THE RELEVANT TEST, THE DATE THEY WERE INSPECTED AND ANY RELEVANT NOTES. THE SITE FOREMAN SHALL SIGN EACH LOG ENTRY AS CONFIRMATION THAT ALL CONTROL MEASURES ARE FUNCTIONAL AND ADEQUATELY MAINTAINED. THE LOG SHALL ALSO INCLUDE ALL RELEVANT INFORMATION RELATING TO CHEMICAL FLOCCULATION RATES, RESIDENCE TIME ETC., IF USED ON THE SITE. 3. MONTHLY REPORT GIVING THE RESULTS OF THE WATER QUALITY LOGS INCLUDING SUMMARY OF RESULTS AGAINST OBJECTIVES SHALL BE FORWARDED TO THE SUPERINTENDENT PRIOR RELEASE TO LOCAL AUTHORITY AND CLIENT. 4. WHERE WATER QUALITY RESULTS FAIL TO MEET THE APPROVED CRITERIA, CORRECTIVE ACTION OR ALTERNATIVE PROCEDURES WILL BE REQUIRED TO BE IMPLEMENTED IMMEDIATELY TO ACHIEVE COMPLIANCE WITH THESE WATER QUALITY OBJECTIVES.	1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE DUE CARE OF NATURAL VEGETATION. 2. NO CLEARING IS TO BE UNDERTAKEN WITHOUT PRIOR APPROVAL FROM THE SUPERINTENDENT. TO AVOID DISTURBANCE TO EXISTING TREES, EARTHWORKS WILL BE MODIFIED AS DIRECTED ON-SITE BY THE SUPERINTENDENT. 3. THE LOCATION OF SILTATION AND EROSION CONTROL DEVICES WILL BE DETERMINED ON SITE BY THE SUPERINTENDENT OR AT THE CONTRACTOR'S DISCRETION. 4. ACCESS TRACKS THROUGH THE SITE WILL BE LIMITED TO THOSE DETERMINED BY THE SUPERINTENDENT AND THE CONTRACTOR PRIOR TO ANY WORK COMMENCING.
GROSS POLLUTANT TRAPS - INTERCEPTION OF TRASH, DEBRIS AND COARSE SEDIMENTS.	- SUITABLE ACCESS SHOULD BE PROVIDED FOR MAINTENANCE VEHICLES. - ACCESS RAMPS SHOULD ALLOW TRUCK ACCESS PREFERABLY 1 IN 10 TO THE EDGE OF THE TRAP. - OPEN GUTS SHOULD BE FENCED OR SUITABLY SCREENED FROM PUBLIC ACCESS AREAS.	- INSPECT AFTER EACH MODERATE STORM EVENT. - SEDIMENT CLEANING REQUIRED WHEN THE BASIN IS HALF FULL. - CLEARING OF TRASH BACK TO OCCUR AFTER SIGNIFICANT STORM EVENTS.	3. MAINTENANCE - REGULARLY CHECK CAPACITY OF EROSION CONTROL DEVICES. - DISTURBED AREAS ARE TO HAVE 80% COVERAGE WITHIN 30 DAYS OF FINAL ALLOTMENT TRIMMING. - FULL WIDTH TUNING OF THE FOOTPATHS. GENERAL - PLANS TO BE READ IN CONJUNCTION WITH STORMWATER MANAGEMENT PLAN FOR THE SITE. - THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES FROM THE POSSESSION OF THE SITE UNTIL THE SITE IS CLEARED BY THE LOCAL AUTHORITY "OFF MAINTENANCE" OR UNTIL STABILISATION HAS OCCURRED TO THE SATISFACTION OF THE SUPERINTENDENT. - ADDITIONAL CONTROL DEVICES MAY BE REQUIRED BY THE SUPERINTENDENT. - ALTERNATIVE DESIGNS ARE TO BE APPROVED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION. - ROADS AFFECTED BY WORKS ARE TO BE KEPT CLEAN. MATERIAL IS TO BE SWEEP FROM ROAD SURFACE BUT NOT WASHED.	DUST 1. NO VISIBLE DUST EMISSIONS, AND OTHER AIR EMISSIONS INCLUDING ODOURS MUST OCCUR AT THE BOUNDARIES OF THE SITE DURING EARTHWORKS AND CONSTRUCTION ACTIVITIES ON THE SITE. 2. THE CONTRACTOR TO PROVIDE A WATER TRUCK AS REQUIRED TO ELIMINATE THE DUST PROBLEM CAUSED BY SITE TRAFFIC.	SEDIMENT FENCE NOTES • WOVEN WIRE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. • FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 600mm AT TOP OF SID SECTION. • WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 150mm AND FOLDED. • MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE. STEEL EITHER T OR U TYPE OF 50mm HARDWOOD FENCE: WOVEN WIRE IS TO BE 150mm MAX. MESH OPENING FILTER CLOTH: 150mm MAX. MESH OPENING 500 APPROVED EQUIVALENT
ROCK CHECK DAMS (TYPE 1 DEVICE) - USED TO INTERCEPT CONCENTRATED FLOW.	- REFER TO DETAIL ON THIS PLAN. - PROVIDE AT 3m MAX. DOWNSTREAM OF ALL OUTLETS AND AT 20m MAX. ALONG OPEN CHANNELS AND AROUND FIELD INLETS. - SHOULD BE EMBEDDED AT LEAST 200mm INTO THE SOIL TO PREVENT WATER TUNNELLING BENEATH THEM. - ACCESS WILL BE REQUIRED FOR MAINTENANCE.	- EXCESSIVE SEDIMENT SHOULD BE REMOVED FROM UPSTREAM OF THE DAM. - THE UPSTREAM GRAVEL FILTER LAYER SHOULD BE RE-ESTABLISHED WHEN SEDIMENT BEGINS TO FLOW THROUGH THE STRUCTURE OR WHEN PERMEABILITY IS EXCESSIVELY REDUCED.	GENERAL - PLANS TO BE READ IN CONJUNCTION WITH STORMWATER MANAGEMENT PLAN FOR THE SITE. - THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES FROM THE POSSESSION OF THE SITE UNTIL THE SITE IS CLEARED BY THE LOCAL AUTHORITY "OFF MAINTENANCE" OR UNTIL STABILISATION HAS OCCURRED TO THE SATISFACTION OF THE SUPERINTENDENT. - ADDITIONAL CONTROL DEVICES MAY BE REQUIRED BY THE SUPERINTENDENT. - ALTERNATIVE DESIGNS ARE TO BE APPROVED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION. - ROADS AFFECTED BY WORKS ARE TO BE KEPT CLEAN. MATERIAL IS TO BE SWEEP FROM ROAD SURFACE BUT NOT WASHED.	WATER QUALITY OBJECTIVES TABLE	
SEDIMENT FENCES (TYPE 3 DEVICE) - USED TO TEMPORARILY REDUCE THE VELOCITY OF CONTAMINATED SHEET FLOW AND TO INDUCE GRAVITATIONAL SETTLEMENT OF THE ENTRAINED SEDIMENT.	- REFER TO DETAIL ON THIS PLAN. - ALL SEDIMENT FENCES TO BE INSTALLED PARALLEL TO CONTOURS. - REGULAR TURN-BACKS (10m MAX. SPACING) AND A FIRM WIRE MESH BACKING ARE REQUIRED TO PREVENT THE FURTHER CONCENTRATION OF FLOW. - THE FENCE SHOULD BE SEGMENTED INTO A SERIES OF L-SHAPED FENCES TO AVOID THE CONCENTRATION OF FLOW ALONG THE FENCE. - WHERE POSSIBLE, AVOID INSTALLING SEDIMENT FENCES ALONG PROPERTY BOUNDARIES IN NEW SUBDIVISIONS UNLESS THE PROPERTY BOUNDARY ALIGNS CLOSELY WITH CONTOUR, OTHERWISE REGULAR TURN-BACKS ARE REQUIRED.	- REGULAR INSPECTIONS AND MAINTENANCE ARE REQUIRED TO REPAIR DAMAGE CAUSED BY ON-SITE VEHICLES OR THE MOVEMENT OF STOCKPILE MATERIAL. - INSPECT AFTER EACH STORM EVENT THAT RESULTS IN RUN-OFF. - REMOVE EXCESSIVE SEDIMENT DEPOSITS. INVESTIGATE THE SOURCE OF EXCESSIVE SEDIMENT, AND APPLY REMEDIAL ACTION IMMEDIATELY. - IF THE FENCE IS REGULARLY DAMAGED, INSTALL A SECOND FENCE AT LEAST 10m DOWNLOPE OF THE EXISTING FENCE.	1. OIL AND GREASE NO VISIBLE FILMS OR ODOUR. 2. LITTER/GROSS POLLUTANTS NO ANTHROPOGENIC (MAN-MADE) MATERIAL, GREATER THAN 5mm IN ANY DIMENSION.		
GULLY INLET PROTECTION (TYPE 5 DEVICE) - USED TO LIMIT SEDIMENT BUILDUP IN STORMWATER DRAINS.	- REFER TO DETAIL ON THIS PLAN. - PROVIDE AT GULLY PITS. - PONDING MUST BE ALLOWED TO OCCUR UPSLOPE OF THE TRAP IN ORDER TO ACHIEVE PARTICLE SETTLEMENT. - OPEN PIPES DURING CONSTRUCTION AND GULLY PITS ARE TO BE CAPPED OR PLUGGED (SILT OR FILTER CLOTH) AT THE END OF EACH DAY OF WORK.	- COVERS TO GULLY GRATES TO BE REMOVED IF SUPERINTENDENT INDICATES THE GRASS STRIKE IS SUFFICIENT. - REGULAR MAINTENANCE AND INSPECTION AFTER EACH RAINFALL PRODUCING STORM EVENT. - BULK SEDIMENT SHOULD REGULARLY BE REMOVED. THE REMAINING SEDIMENT AND SILT SHOULD NOT BE ALLOWED TO WASH INTO THE STORMWATER DRAIN.			
DIVERSION DRAIN/PERIMETER BANKS - USED TO DIVERT FLOW AROUND DISTURBED AREAS OR USED WITHIN DISTURBED AREAS TO DIRECT CONTAMINATED FLOW TO SEDIMENT TRAPS.	- REFER TO DETAIL ON THIS PLAN. - THE ERODIBLE NATURE OF THE SUBSOIL SHOULD BE INVESTIGATED BEFORE PLANNING ANY EXCAVATED DRAINS. CHANNELS MUST HAVE A STABLE OUTLET. - DRAINS AND BANKS SHOULD BE SEEDED AND MULCHED IF THEIR WORKING LIFE IS EXPECTED TO EXCEED 30 DAYS.	- REGULARLY INSPECT BANKS AND REPAIR ANY SLUMPS, WHEEL TRACK DAMAGE OR LOSS OF FREEBOARD. - SEDIMENT SHOULD BE REMOVED TO AVOID PONDING.			



						DOUGLAS SHIRE COUNCIL PORT DOUGLAS WATER STORAGE AND TRUNK WATER SUPPLY SEDIMENT AND EROSION CONTROL TYPICAL DETAILS		Date: 08/08/2019 Project: BMD 190708 Rev: 7/04 Drawn: GORDON FOR TENDER Project No: B00217-CV003 Drawing No: A	
A ISSUED FOR TENDER WITH DOUGLAS SHIRE COUNCIL AMENDMENTS No. _____ Date _____				ESS LW CH Drawn/Design: _____ Appr: _____ Registered Engineer Reg No. _____ Date _____		30/01/11 12/03/11			

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APPENDIX B: STANDARD CONDITIONS

General

1. The proposed works are permitted subject to any alterations:
 - a. found necessary by Chief Executive Officer at the time of examination of Engineering drawings or during construction of the works because of particular engineering requirements and.
 - b. to ensure the works comply in all respects with the requirements of the *FNQROC Development Manual* and good engineering practice; and
 - c. to comply with project specific conditions and the following standard conditions of approval.

All works must be carried out in accordance with the approved plans, conditions and specifications, to the requirements and satisfaction of the Chief Executive Officer.

2. The conditions of any Reconfiguration of Lot or Material Change of Use permits applicable to the subject lot or lots shall be complied with in conjunction with this development permit.
3. Council's examination of the documents should not be taken to mean that the documents have been checked in detail and Council takes no responsibility for their accuracy. If during construction, inadequacies of the design are discovered, it is the responsibility of the Principal Consulting Engineer to resubmit amended plans to Council for approval and rectify works accordingly.
4. Notwithstanding any approval given to engineering documents, where a discrepancy occurs between these documents and Council's standards, then Council's standards shall apply. All works must be performed in accordance with Council standards and Local Laws and other statutory requirements.
5. If in fact there are errors, omissions or insufficient detail on the plans for the purpose of construction, these deficiencies shall be made good during construction and Council reserves the right to withhold approval of construction until such deficiencies are made good to its satisfaction.
6. Work and or Technical Documents identified within these Development Approval Conditions are nominated as requiring Compliance Assessment under section 398 of the *Sustainable Planning Act 2009*. In particular As-Constructed Water, Stormwater and Sewerage Plans must be submitted to the Compliance Assessor (Douglas Shire Council) on the approved form (Form 32) and will be assessed against the provisions of Council's *FNQROC Development Manual*. Council must issue a Compliance Certificate for the assessable documents prior to granting Early Plan Sealing or Plan Sealing of a Subdivision Plan or the issue of a Works Acceptance Certificate, whichever occurs first.

Timing of Effect

7. The conditions of this development permit must be effected prior to the approval and dating of the survey plan, except where specified otherwise in these conditions of approval, or at Council's discretion.

Easement Documentation

8. Easement documents are to be submitted to Council's solicitors for checking in accordance with the conditions of the Reconfiguration Development Permit. Contact Council for current nominated solicitors details.

Portable Long Service Leave Notification

9. As per the QLeave – Building and Construction Industry Authority Guidelines, if the works are over \$80 000, Council must sight a copy of the receipted Portable Long Service Notification and Payment form prior to commencement of work.

Construction Security Bond

10. Lodgement of Construction Security Bond as per the *FNQROC Development Manual*, Section CP1.07, (ie, five (5) per cent of the value of the works) is required, prior to commencement of work. The bond shall be in favour of Council and in the format of cash or an unconditional bank guarantee, which must cover all aspects of the construction and have no termination date.

Third Party Agreement

11. The developer must obtain written agreement from third parties and/or Referral Agencies for any works proposed on adjacent properties. The agreement(s) must be provided prior to the associated works commencing on site. All agreements must be available for Council scrutiny, upon request.

Commencement of Works

12. Council is to receive written Notice of Intention to Commence Works and all matters relevant to the Pre-Start meeting are to be attended to in accordance with Section CP1.07, CP1.08 and Section CP1.09, of the *FNQROC Development Manual*.

Hours of Work

13. Work involving the operation of construction plant and equipment of any description, shall only be carried out on site during the following times:
 - a. 7:00 am to 6:00 pm, Monday to Friday;
 - b. 7:00 am to 1:00 pm, Saturdays; and
 - c. no work is permitted on Sundays or Public Holidays.

Any variations to the above working hours must be authorised by the Chief Executive Officer, prior to the commencement of such works.

Public Notification of the Works

14. The developer or the nominated representative must provide:
 - a. Public notification of the development in local newspapers in accordance with Section CP1.11 of the *FNQROC Development Manual*.

- b. Signage identifying the location of the project, general allotment layout, contact numbers (including out-of-office hours emergency numbers) must be provided at all entrance points to the development. All signage must be appropriately positioned, prior to the commencement of any works on the site.

Site Inspections

15. Council requires a number of major inspections to be completed as Witness and Hold Points for Consulting Engineers and Council officers during the construction of the works. Inspections undertaken during construction shall be in accordance with Section CP1.16 (Inspection and Testing) of the *FNQROC Development Manual*. These Witness and Hold points are to be included in the contractors Inspection and Test Plan (ITP) and be made available for inspection, prior to the commencement of any works on the site.

Soil and Water Management

16. All works must be in accordance with Section CP1.13 and D5 of the *FNQROC Development Manual*, and must comply with the following:
 - a. A copy of the contractor's Erosion and Sediment Control (ESC) Plan is to be submitted to Council and endorsed by the Consulting Engineer, prior to commencement of any works. In particular, the ESC Plan must address the Institution of Engineers' Australia *Guidelines for Soil Erosion and Sediment Control and the Environment Protection (Water) Policy* and Clauses CP1.06, CP1.13 and D5.10 of Council's *FNQROC Development Manual*. The ESC Plan must be relevant to all phases of the construction and be updated where necessary as works progress.
 - b. Any dewatering activities will require approval from Council's Environmental Protection Unit, telephone number 07 4099 9475 and a valid permit obtained prior to commencement.
 - c. During the construction period, the Consulting Engineer shall randomly audit and inspect ESC measures for compliance with the Engineer endorsed contractor's ESC Plan, derived from the Engineer's ESC Strategy (As per *FNQROC Development Manual* CP1 Appendix A).
 - d. It is the contractor's responsibility to ensure that the ESC Plan is updated and amended to reflect any changes in the construction methodology. All such amendments shall be approved by the Engineer and presented to Council.
 - e. The developer shall be held responsible for any rectification works required to clean up dust, pollutants and sediments that may leave the site as a result of construction activities.
 - f. The developer or their representative shall be responsible for communicating with third parties affected by any dust, pollutants or sediment leaving the site as a result of any construction activity that is associated with the project site.

Street Lighting

17. The provision of street lighting is to be in accordance with the *FNQROC Development Manual* D8 and designed to comply with the Road Lighting Standard AS/NZS 1158, a compliance certificate that has been certified by an appropriate Registered Professional Engineer of Queensland (RPEQ) must be provided to demonstrate the lighting design

complies to the requirements of the Road Lighting Standard AS/NZS 1158. New street lighting is to be erected as a Rate 2 public lighting installation, Rate 1 will only be considered where an overhead electricity reticulation exists:

- a. Lighting columns, luminaires and lamps are to be of a type specified in Ergon Energy's *Lighting Construction Manual*, unless approved otherwise by Council.
- b. The applicable lighting category for roads associated with this project having a road hierarchy of residential access and above is identified in Table D8.1 of the *FNQROC Development Manual*.
- c. Local Area Traffic Management (LATM) devices including roundabouts, must be provided with an illumination of not less than 3.5 Lux as specified in the Road Lighting Standard AS/NZS 1158.
- d. Street lighting located adjacent to the development frontage must be located behind the kerb (usually a minimum of 820 mm from the invert of the kerb) and spaced to meet the required lighting category for the road.

Infrastructure Plans for Utility Services

18. Approved infrastructure plans for gas, electrical and telecommunications services must be endorsed by Council, prior to the commencement of associated works.

Landscaping General

19. Landscaping shall be provided in accordance with Part D9 and Part S8 of the *FNQROC Development Manual*, unless approved otherwise by Council.
20. The landscaping works must be constructed in accordance with the approved plans and conditions. The developer must seek approval in writing from the Council for any changes to the plan or the landscaping works on the site. This approval must be obtained prior to commencement of these works on site.
21. The landscape must be maintained in good order by the developer for at least three (3) months during the Works Acceptance period, and generally timed to coincide with the Final Works Acceptance Inspection, when all landscaping works must be in a condition suitable for Council to commence regular maintenance.

Trees

22. Any trees must be planted and staked in accordance with the *FNQROC Development Manual* drawing S4210, with root barriers installed such that they are just visible at the finished surface level. Note that where footpaths are to be provided, a root barrier must also be provided between the tree and the path. Root barriers must be installed and appropriate topsoil, level of compaction and drainage provided, as specified by the manufacturer.
23. Street tree planting locations must be in compliance with *FNQROC Development Manual* D9.07.6 'Alignment and placement of Street Trees'. Trees shall be positioned a minimum of:
 - a. 7.5 metres from streetlights;
 - b. two (2) metres from the inlet or outlet of stormwater pipes;

- c. three (3) metres from any driveways;
 - d. ten (10) metres back from the apex of both boundaries of a corner lot;
 - e. 0.8 metres – one (1) metres from the back of kerbs.
24. All trees must be watered directly after planting and prior to laying mulch. The mulch must be left clear of the trunk and be laid in accordance with *FNQROC Development Manual* drawing S4210 and S8.14, at a radius of 0.5 metre around the base of the tree and out to the back of kerb.
25. All trees must be of good vigour and health and must not be root-bound at the time of planting. They should be approximately 1.5 metres – two (2) metres tall with well-established root and branch formation. Trees should have a clear dominant central leader.
26. A joint site inspection is to be held with Council officers and developer's representative to assess the general condition of any existing trees and shrubs within six (6) metres of any property boundary abutting the road reserve, or other Council land. If any dead, dying or dangerous trees are identified during the meeting, with the landowner's consent, they are to be removed to the satisfaction of Council officers, prior to the sealing of plans for the associated lot.
27. Any trees identified on drawings to be retained, are to be protected in accordance with approved plans. This must include, but is not limited to, the erection and continued maintenance of suitable physical barrier(s) placed around the tree to protect the tree and the root system. Additional protection of tree trunks by the fixing of timber planks using wire loops is also required unless approved otherwise by Council. Any damage caused to nominated trees as a result of construction activity, will require inspection by Council and will require a specified number of suitable replacements trees of suitable maturity to be provided to replace the loss in amenity.

Verges

28. All verges are to be covered full-width with topsoil (AS 4419/Soils for Landscaping and Garden Use) to a depth of not less than 40 mm, lightly compacted and grassed in accordance with Council's Guidelines and Specifications.
29. Any island beds or any shrub beds must have a permanent irrigation system installed, which must be connected to the Douglas Water Network. An Application for a Water Service Connection must be presented to Douglas Water & Waste to facilitate the connection, and must include the installation of a flow meter and associated valves.
30. All water reticulation, including permanent irrigation systems, are to be identified in as-constructed plans which must be submitted to Council for approval prior to the Works Acceptance (On Maintenance) meeting for landscaping.

Structures and Retaining Walls

31. Separate building certification and/or structural certification is required for any works to alter existing structures, provide new structures or construct retaining walls that are over 900 mm high. Certification by a suitably qualified engineer must be provided, prior to opening the work site to the public.

The Location of Stormwater Quality Interception Devices (SQIDs)

32. Council must approve the location of any SQIDs prior to installation. They shall be positioned to allow for economic and efficient maintenance operations, and will require a reinforced concrete hard standing area to be provided from the edge of the carriageway to the SQID location. Vehicular access from the public road reserve to the SQID must remain unrestricted.

Sewer and Water

33. All water and sewerage works must be in accordance with Sections D6 and D7 of the *FNQROC Development Manual*, and must comply with the following:
 - a. Douglas Shire Council requires a minimum of five (5) working days notice of intention to commence water and sewerage related works. The notice shall be given to the Senior Plumbing Inspector at Douglas Shire Council either in writing, by telephone 07 4099 9479, fax 07 4098 2902 or email to enquiries@douglas.qld.gov.au prior to the commencement of works.
 - b. The developer shall be responsible for confirming the location of all existing sewer, water and utility service infrastructure prior to the commencement of works on site. Any permits necessary to alter/interfere with such services must be obtained prior to the commencement of work and be available for Council inspection if required.
 - c. Any works over or within the zone of influence of Council's existing water and sewerage infrastructure must be approved by Douglas Shire Council prior to the commencement of the proposed works. Unless otherwise approved in writing, existing infrastructure impacted by the development shall be subject to the maintenance period provisions contained in this Decision Notice.

Construction works shall include any works that may impact on existing infrastructure such as, but not limited to, mobilisation of heavy earthmoving equipment, stripping and grubbing, site filling, stockpiling of materials and installation of erosion and sediment control measures.

- d. All testing and acceptance of water and sewerage works shall be in accordance with CP1 Construction Procedures of the *FNQROC Development Manual*. Works are to be certified as acceptable by Douglas Water & Waste, and any operating manuals etc be provided to Council, prior to making an application for the acceptance of the works.

Sewer

34. Douglas Water & Waste must be contacted to perform any direct connection to live sewer mains. Unless otherwise approved in writing, separate applications for approval on the prescribed forms shall be made to Douglas Water & Waste for each connection together with payment of the relevant fee. All connections are to be provided subject to the terms and conditions of Douglas Shire Council's 'Application for Plumbing Works'.
 - a. Amended drawings in accordance with these conditions must be approved prior to the pre-start meeting.
 - b. The Inspection and Test Plan (ITP) must be approved prior to the pre-start meeting. At project completion the completed and validated ITP must be submitted and approved prior to the issue of a Works Acceptance Certificate.

- c. Where retaining walls are located within the zone of influence of a sewer the footings must be 1000 mm clear of the sewer and designed in accordance with the *Queensland Development Code*. Full design details and structural certification must be approved prior to commencement of works.
- d. Minimum clearances between sewer mains and other services must be in accordance with the *Sewerage Code of Australia*. Clearances must be included on the long-section drawing.
- e. Where a manhole is located in a batter, a flat area of 1.5 metres radius from the centre of the manhole must be provided. Where the manhole is located along a side or rear boundary and is on the 0.8 metre standard alignment then the flat area must be on at least three (3) sides.
- f. Where an easement is required the property connection branch must be extended at least one (1) metre from the easement boundary.
- g. House drains are to extend one (1) metre past the end of the driveway on hatchet blocks and 1.5 metres beyond the top of batters. An I.O. is to be provided at the downstream end of the house drain within one (1) metre of the boundary to delineate the end of the property connection branch.
- h. As-constructed sewerage drawings must be approved prior to granting of Early Plan Sealing or Issue of a Works Acceptance Certificate whichever occurs first. The as-constructed submission is to include the 'Statement of Compliance – As-constructed Documentation' and must be the final issue.

Water

- 35. Douglas Shire Council must be contacted to perform any direct connection to live water mains whether being as a permanent connection, a connection for irrigation purposes or for construction water. Unless otherwise approved in writing, separate applications on the prescribed forms shall be made to Douglas Shire Council for connections, together with payment of the relevant fee. All connections are to be provided subject to the terms and conditions of Douglas Shire Council's 'Application for a Water Service Connection'.
 - a. Amended drawings in accordance with these conditions must be approved prior to the pre-start meeting.
 - b. The Inspection and Test Plan (ITP) must be approved prior to the pre-start meeting. At project completion the completed and validated ITP must be submitted and approved prior to the issue of a Works Acceptance Certificate.
 - c. Minimum clearances between water mains and other services must be in accordance with the *Water Supply Code of Australia* in particular the minimum clearance between water mains and sewer mains must be 500 mm with the sewer under the water main.
 - d. As-constructed water drawings must be approved prior to Issue of a Works Acceptance Certificate. The as-constructed submission is to include the 'Statement of Compliance – As-constructed Documentation' and must be the final issue.

Roads and Footpaths

36. All works are to be designed and constructed in accordance with AS 1428.1-2001: *'Design for access and mobility'* – General requirements for access – New building work, and associated standard AS/NZS 1428.4 2002, *'Design for Access and Mobility'* – Tactile Indicators. The design is required to provide equal access for people with disability and include the provision of suitable ramps and landing areas and the installation of Tactile Ground Surface Indicators (TGSIs) where required.

Cultural Heritage

37. The *Aboriginal Cultural Heritage Act 2003* (the Act) seeks to protect artefacts and cultural sites that are of significance to Aboriginal people. The Act requires anyone carrying out an activity to exercise a Duty of Care. Guidelines have been produced to enable assessment of sites under the Act. These are available from Department of Environment Heritage Protection and can be downloaded from their website at www.ehp.qld.gov.au. The work identified in the project documentation is likely to require assessment of the site under the Act.