LAKE MACDONALD (SIX MILE CREEK DAM) TEMPORARY COFFERDAM

PROJECT DRAWING INDEX AND SITE LOCATION

	PROJECT DRAWINGS INDEX								
DRAWING No.	TITLE			REVISIONS					
B01179-03-DWG-000	PROJECT DRAWING INDEX AND SITE LOCATION	0							
B01179-03-DWG-001	GENERAL NOTES	0							
B01179-03-DWG-002	PLAN GENERAL ARRANGEMENT	0							
B01179-03-DWG-003	CENTRAL COFFERDAM (CD) GENERAL ARRANGEMENT	0							
B01179-03-DWG-004	LONGITUDINAL SECTION PROFILE	0							
B01179-03-DWG-005	CD LONGITUDINAL SECTION PROFILE	0							
B01179-03-DWG-006	CD CROSS-SECTION AND SPILLWAY BERM	0							
B01179-03-DWG-007	LEFT HAND ABUTMENT (LHA) PLAN GA	0							
B01179-03-DWG-008	LHA LONGITUDNIAL SECTION AND CROSS-SECTION	0							
B01179-03-DWG-009	RIGHT HAND ABUTMENT (RHA) PLAN GA	0							
B01179-03-DWG-010	RHA LONGITUDINAL SECTION AND CROSS-SECTION	0							
B01179-03-DWG-011	STRUCTURAL DETAILS 1	0							
B01179-03-DWG-012	STRUCTURAL DETAILS 2	0							
B01179-03-DWG-013	PLAN GENERAL ARRANGEMENT INSTRUMENTATION	0							
B01179-03-DWG-014	GEOLOGICAL PLAN	0							
B01179-03-DWG-015	GEOLOGICAL LONGITUDINAL SECTION (1:1 AND 2.5:1)	0							
B01179-03-DWG-016	GEOLOGICAL CROSS-SECTION 1 (1:1 AND 2.5:1)	0							
B01179-03-DWG-017	GEOLOGICAL CROSS-SECTION 2 (1:1 AND 2.5:1)								
B01179-03-DWG-018	GEOLOGICAL CROSS-SECTION 3 (1:1 AND 2.5:1)	0							
B01179-03-DWG-019	GEOLOGICAL CROSS-SECTION 4 (1:1 AND 2.5:1) 0								
B01179-03-DWG-020	RHA CONSTRUCTION SEQUENCE - STAGES 1 TO 5	0							

REFERENCE DRAWINGS INDEX					
DRAWING No.	TITLE	REVISION			
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NOT FOR CONSTRUCTION

LAKE MACDONALD (SIX MILE CREEK DAM) TEMPORARY COFFERDAM LAKE MACDONALD, QLD PROJECT DRAWING INDEX AND SITE LOCATION

B01179-03-DWG-000

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1. GENERAL

- 1.1 DRAWINGS TO BE READ IN CONJUNCTION WITH THE 90% DESIGN REPORT, REFERENCE B01179-3A0 DATED 23 MAY 2024.
- 1.2 GROUND CONDITIONS ARE TO BE CONFIRMED BY ADDITIONAL GEOTECHNICAL INVESTIGATIONS PRIOR TO CONSTRUCTION.

2. COFFERDAM CONSTRUCTION

- 2.1 GENERAL
- 2.1.1 CONSTRUCTION OF THE COFFERDAM WILL REQUIRE SUPERVISION BY A COMPETENT GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF QUEENSLAND (RPEQ).
- 2.1.2 THE GEOTECHNICAL ENGINEER MAY REQUIRE TEMPORARY MONITORING AND TESTING TO BE CARRIED OUT. AN INSPECTION AND TESTING PLAN WILL BE DEVELOPED IN CONJUNCTION WITH THE CONTRACTOR ONCE THE CONSTRUCTION METHODOLOGY IS PROPOSED.
- 2.1.3 THE GEOTECHNICAL ENGINEER WILL REVIEW RESULTS OF OBSERVED / MEASURED PERFORMANCE, AND ASSOCIATED CONTROLS IF REQUIRED, ARE IN ACCORDANCE WITH THE TRIGGER ACTION RESPONSE PLAN (TARP).
- 2.1.4 THE GEOTECHNICAL ENGINEER MAY REQUIRED TO HALT WORKS IF CONDITIONS OR STRUCTURE PERFORMANCE IS UNSATISFACTORY.
- 2.2 LHA
- 2.2.1 CONSTRUCTION OF THE LHA WOULD COMMENCE WITH INSTALLING THE ABUTMENT CUTOFF SHEET PILES.
- 2.2.2 SHEET PILES ARE TO BE DRIVEN VERTICALLY.
- 2.2.3 THE SHEET PILES WILL REQUIRE GROUT BACKFILL TO ENSURE SUFFICIENT CUTOFF.
- 2.2.4 ROCKFILL TO BE PLACED AROUND THE INSTALLED SHEET PILES
- 2.2.5 CAUTION MUST BE USED TO ENSURE THE SHEET PILES ARE NOT DAMAGED OR DISPLACED DURING FILLING.
- 2.3 RHA
- 2.3.1 THE RHA WAS DESIGNED SO THAT IT CAN BE BUILT INDEPENDENTLY AND IN ADVANCE OF THE REST OF THE COFFERDAM (E.G. AS AN EARLY WORKS PACKAGE). THE METHODOLOGY IS TO PUSH OUT FROM THE RIGHT BANK WITH THE SPECIFIC SEQUENCE AS FOLLOWS:
- 2.3.2 CONSTRUCTION OF THE LHA WOULD COMMENCE WITH INSTALLING THE ABUTMENT CUTOFF SHEET PILES.
- 2.3.3 SHEET PILES ARE TO BE DRIVEN VERTICALLY.
- 2.3.4 THE SHEET PILES WILL REQUIRE GROUT BACKFILL TO ENSURE SUFFICIENT CUTOFF.
- 2.3.5 ROCKFILL TO BE PLACED AROUND THE INSTALLED SHEET PILES.
- 2.3.6 CAUTION MUST BE USED TO ENSURE THE SHEET PILES ARE NOT DAMAGED OR DISPLACED DURING BACKFILLING
- 2.3.7 ROCKFILL IS THEN PLACED TO BUILD THE ROCK PLATFORM USING MATERIAL THAT MEETS THE SPECIFICATION IN TABLE 1. THE CREST OF THE ROCK PLATFORM IS AT RL 95m. THE SLOPE ANGLE IS 1V:1.3H FOR BOTH UPSTREAM AND DOWNSTREAM SIDES WITH A CREST WIDTH OF 15m. DURING THE PROCESS OF PLACING ROCKFILL MATERIALS, IT IS ESTIMATED THAT THE TOP 2m OF LACUSTRINE CLAY WOULD BE REPLACED BY ROCKFILL MATERIAL.
- 2.3.8 MUD-WAVING FROM THE DISPLACEMENT OF LACUSTRINE SHALL BE DIRECTED TOWARD THE STILLING BASIN.
- 2.3.9 AFTER THE CONSTRUCTION OF THE ROCK PLATFORM, SHEET PILES ON THE UPSTREAM SIDE WILL BE DRIVEN THROUGH LACUSTRINE CLAY, ALLUVIAL SOIL AND RESIDUAL SOIL TO PRACTICAL REFUSAL IN COMPETENT BEDROCK. THE LOCATION OF SHEET PILES IS AT THE TOF OF THE ROCK PLATFORM ON THE UPSTREAM SIDE THE TOP OF THE SHEET PLIES. SHALL BE AT RL 95m. DURING THE CONSTRUCTION, THE CRANE WORKING ON THE ROCK PLATFORM MUST KEEP A MINIMUM OF 4m OFFSET FROM THE EDGE OF THE CREST
- 2.3.10 AFTER THE SHEET PILES ON THE UPSTREAM SIDE ARE CONSTRUCTED, THE ROCK PLATFORM SHALL BE RESHAPED. THE CREST OF THE ROCK PLATFORM SHALL BE EXCAVATED DOWN TO RL93m. MEANWHILE, THE ROCK PLATFORM WILL NEED TO BE EXCAVATED BACK BY SEVERAL METERS. THE RESHAPED PLATFORM SHALL HAVE A CREST WIDTH AROUND 11m. THE GAP BETWEEN THE SHEET PILES AND THE ROCK PLATFORM SHALL BE FILLED BY ROCKFILL MATERIAL UP TO RL 92.5m. DETAILED DIMENSION OF THE RESHAPED ROCK PLATFORM IS PRESENTED IN THE DRAWING ATTACHED.

NOT FOR CONSTRUCTION

- 2.4 CENTRAL COFFERDAM
- 2.4.1 THE CENTRAL COFFERDAM CAN BE BUILT EITHER FROM A TEMPORARY BRIDGE OR WALKED OUT END-OVER-END. A TEMPORARY BRIDGE WOULD MOST LIKELY BE BUILT FROM THE LHA (POTENTIAL IN PARALLEL WITH THE RHA), PILING COULD FOLLOW THE INCREMENTAL BRIDGE LEFT TO RIGHT, OR WORK FROM RIGHT TO LEFT ONCE THE BRIDGE IS COMPLETE.
- 2.4.2 CONTRACTOR MUST PRESENT THE CONSTRUCTION METHODOLOGY FOR APPROVAL.
- 2.4.3 SHEET PILES ARE TO BE DRIVEN VERTICALLY.
- 2.4.4 SHEET PILES FOR THE CENTRAL COFFERDAM MAY BE DRIVEN USING VIBRATORY OR IMPACT HAMMER
- 2.4.5 PILING CONTRACTOR TO PROVIDE DRIVEABILITY ASSESSMENT FOR THE PROPOSED HAMMER
- 2.4.6 PILES TO BE DRIVEN TO REFUSAL ON ROCK.
- 2.5 DOWNSTREAM OVERTOPPING PROTECTION
- 2.5.1 THE DOWNSTREAM OVERTOPPING PROTECTION IS DESIGNED TO BE LIFTED INTO PLACE INCREMENTALLY IN LAYERS (I.E. ROCK BAGS) UNDER 'WET' CONDITIONS.
- 2.5.2 A PREPARATORY LAYER OF ROCKFILL MAY BE REQUIRED WHICH CAN BE PLACED BY CRANE/KIBBLE OR CONVEYORS IF THE LAKE BED SEDIMENTS ARE PRESENT.
- 2.5.3 PLACING OF ROCK BAGS RELIES ON A CONTROLLED PATTERN/SEQUENCE AND IS TO FOLLOW THE CENTRAL COFFERDAM BUILD AS CLOSE AS SAFE AND PRACTICAL
- 2.5.4 PROFILING USING SONAR OR SIMILAR, OF THE FOUNDING SURFACE AND THE TOP OF EACH LAYER MUST BE CARRIED OUT.

3. STRUCTURAL

- 3.1 GENERAL
- 311 THE FOLLOWING STANDARDS AND CODES HAVE BEEN USED TO DERIVE THE STRUCTURAL CAPACITY OF THE SHEET PILES, TIES AND WALER BEAMS:
 - 3.1.1.1 AS/NZS 1170.0:2002 STRUCTURAL DESIGN ACTIONS PART 0: GENERAL PRINCIPLES
 - 3.1.1.2 AS4100 STEEL STRUCTURES
 - 3.1.1.3 AS/NZS 4600:2018 COLD-FORMED STEEL STRUCTURES
 - 3.1.1.4 AS 4678-2002 EARTH-RETAINING STRUCTURES
- 3.1.1.5 AS5100 BRIDGE STRUCTURES 3.1.2 STRUCTURE DESIGN LIFE IS LESS THAN 5 YEARS
- 3.2 SHEET PILES
- 3.2.1 SHEET PILE PROFILE THAT HAS BEEN ADOPTED IS ESC GROUP ESC-CRZ32-750 GRADE S355JR
- 3.2.2 SHEET PILES TO BE PAIRED AND WELDED INCLUDING LIFTING HOLES
- 3.3 WALERS
- 3.3.1 380PFC GRADE 300
- 3.3.2 SPLICING DETAILS AS SHOWN ON THE DRAWINGS.
- 3.4 TIEBARS AND COUPLERS
- 3.4.1 TIEBARS AND COUPLERS TO BE ONE OF THE FOLLOWING:
 - 3.4.1.1 S670/800 DYWIDAG GEWI PLUS 57.5mm DIA WITH DYWIDAG COUPLER TR 3003 (C250/D102) AND 300x300x65 PLATE WITH HEX NUT TR 2002 (L 120/AIF,90), OR
 - 3.4.1.2 S950/1050 DYWIDAG WR 47mm DIA WITH DYWIDAG COUPLER D 3003 (C270/D83) AND 260x260x60 PLATE WITH WR 2002 HEX NUT WR 2002 (L 140/A/F,80); OR
 - 3.4.1.3 S835/1035 DYWIDAG E 57mm DIA WITH DYWIDAG COUPLER D 3003 (C240/D95) AND 330x330x70 PLATE WITH HEX NUT WR 2002 (L 120/A/F,90); OR
 - 3.4.1.4 APPROVED EQUIVALENT
 - 3.4.1.5 TIEBARS MUST BE PROTECTED FROM CONSTRUCTION LOADINGS. THIS MAY INCLUDE ENCAPSULATION IN EPS AND THE USE OF STEEL ROAD PLATES. CONTRACTOR TO PROVIDE DETAILS OF PROPOSED CONSTRUCTION EQUIPMENT TO DETERMINE SUITABLE PROTECTION MEASURES

4. ROCKFILLED BAGS

- 4.1 THE OVERTOPPING PROTECTION IS TO BE CONSTRUCTED USING 8 TONNE ROCK FILLED BAGS. EACH 8T BAG IS APPROXIMATELY $5m^3$ OF ROCK AND IS 3m IN DIAMETER AND 0.7m HIGH WHEN PLACED.
- 4.2 REFER TO TABLE 1 FOR ROCKFILL SPECIFICATIONS.
- BAGS TO HAVE SUFFICIENT STRENGTH TO LIFT FILLED BAGS INTO PLACE WITH ADEQUATE 4.3 SAFETY MARGIN

- THE EVENT OF A BREAKAGE.
- 4.5 BAG NET ELONGATION MORE THAN 30% AT YIELD.

5. INSTRUMENTATION

- 5.1 GENERAL
- SPECIFICATIONS

- 5.1.6 A TRIGGER ACTION RESPONSE PLAN (TARP) IS TO BE DEVELOPED. 5.2 INCLINOMETER
- LENGTH
- WITH ROCKFILL
- 5.3 PIEZOMETERS
 - TO PREVENT ISOLATION OF THE PIEZOMETER.
- DOWNSTREAM FACE OF THE SHEET PILE.
- 5.4 STRAIN GAUGES
- 5.4.1 STRAIN GAUGES SHALL BE VIBRATING WIRE TYPE.

6. OPERATION

- ENGINEER
- INSPECTIONS.

TABLE 1: ROCKFILL SPECIFICATION

	PROPERTY
RO	СК ТҮРЕ
SH	APE
CLI	EANLINESS
PA	RTICLE SIZE DISTRIBUTION
WE	T-DRY STRENGTH
PO	INT LOAD STRENGTH INDEX
WA	TER ABSORPTION
DE	GRADATION FACTOR

water WATER FOR LIFE

	SCALES - 50mm ON ORIGINAL DRAWING -						AS COM	NSTRUCTED	REV.	
							NAME:			
_							DATE:			
					-		SIGNATURE:			
							RPEQ No.			000
r							FOR CON	STRUCTION	REV.	200
1							NAME:			
es							DATE:			
p	ORIG. SIZE	0	Rev 0 Issued for 90% Design 2	3/5/24	LDW					
	٨٦	REV	DESLRIPTION	UATE	UWN	VPP SIG	DDEO No			

4.4 BAG NET TO BE POLYESTER AND WOVEN SUCH THAT THE THREAD DOES NOT UNRAVEL IN

5.1.1 ALL INSTRUMENTS TO BE INSTALLED AT THE LOCATIONS SHOWN ON THE DRAWINGS. 5.1.2 ALL INSTRUMENTATION TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S

5.1.3 ALL INSTRUMENTS SHALL BE CONNECTED TO A SINGLE DATALOGGER BOX THAT WILL RECORD AND STORE THE INSTRUMENTATION READINGS. 5.1.4 THE DATALOGGER BOX SHALL HAVE 4G TELEMETRY GATEWAY FOR REMOTE DATA ACCESS. 5.1.5 THE PILING CONTRACTOR IS TO PROVIDE SHOP DRAWINGS FOR CONDUITS TO HOUSE THE INSTRUMENTATION TO FACILITATE INSTALLATION.

5.2.1 INCLINOMETER TO BE UNIAXIAL IN-PLACE INCLINOMETERS WITH 1m GAUGE LENGTH OVER FULL

5.2.2 INCLINOMETERS TO BE INSTALLED AND BASELINE READING TAKEN PRIOR TO BACKFILLING

5.3.1 PIEZOMETERS SHALL BE OF VIBRATING WIRE TYPE. 5.3.2 PIEZOMETERS SHALL BE INSTALLED INSIDE OF A CONDUIT TO PROTECT THE INSTRUMENT FROM DAMAGE DURING INSTALLATION. THE CONDUIT MUST ALLOW FREE FLOW OF WATER 5.3.4 THE PIEZOMETER SHALL BE INSTALLED AT THE LOCATIONS SHOWN WHICH IS THE

5.4.2 THEY SHALL BE INSTALLED ON THE CROSS TIES AND WALER AS SHOWN.

6.1 VISUAL INSPECTION OF THE COFFERDAM SHOULD CARRIED OUT BY A GEOTECHNICAL

6.1.1 ON A REGULAR BASIS. THE VISUAL INSPECTION INTERVAL SHALL BE DETERMINED BASED ON THE ACTIVITIES BEING CARRIED OUT OR PLANNED AS WELL AS THE RESULTS OF PREVIOUS

6.1.2 AFTER FLOODING OR ANY OTHER UNUSUAL EVENTS.

6.2 INSTRUMENTATION READINGS SHALL BE TAKEN AND THE RESULTS INTERPRETED ON A REGULAR BASIS. THE INTERVAL SHALL BE DETERMINED BASED ON THE ACTIVITIES BEING CARRIED OUT OR PLANNED AS WELL AS THE RESULTS OF PREVIOUS INSPECTIONS. 6.3 ROCKFILLED BAG ON THE COFFERDAM CREST SHOULD BE LIFTED FOR INSPECTION. BAGS MUST NOT APPLY A VERTICAL LOAD ON THE CROSSTIES. IF REQUIRED ROCKFILL MAY BE PLACED BENEATH THE BAG IF SETTLEMENT HAS OCCURRED.

TEST METHOD	REQUIREMENT			
-	IGNEOUS OR METAMORPHIC			
AS 1141	SUB ANGULAR TO SUB ROUNDED; LEAST DIMENSION NOT LESS THAN HALF GREATEST DIMENSION			
N/A	FREE FROM OVERBURDEN, SPOIL, SHALE, CLAYEY MATERIALS AND ORGANIC MATTER			
AS 1289	D50 = 150mm			
AS 1141.22	35% MINIMUM			
AS 4133.4.1	+100mm FRACTION WITH Is50 LESS THAN 1MPa IS 10% MAXIMUM			
AS 1141.6.1	<5% AND <2.5% IN WET AREAS			
TEST METHOD Q208B	30 (MINIMUM)			

LAKE MACDONALD (SIX MILE CREEK DAM)
TEMPORARY COFFERDAM
LAKE MACDONALD, QLD
GENERAL NOTES
DRAWING NUMBER

B01179-03-DWG-001

	LOW FLOW HANNEL	OND		REHT HAND AT
5 LS 003	SPILLWAY	CENTRAL COFFERDAM		o o o o o o o o o o o o o o o o o o o
1 LEFT HAND ABU 0 0	TMENT °	o o o PLAN GENERAL ARRANGEMENT 1:1000		1 492917. 2 493275. 3 493108. 4 493105. 5 492949
EDG consulting engineering) design aust dences	SCALES - 50mm ON ORIGINAL DRAWING 0 10 20 25m 1:1000 (A3) ORIG. SIZE A3	Rev 0 Issued for 90% Design, fishway / access ramp ret REV DESCRIPTION REVISIONS	AS CONSTRUCTED AS CONSTRUCTED NAME: DATE: DATE: SIGNATURE: RPEQ No. FOR CONSTRUCTION NAME: DATE: DATE:	REV.



TEMPORARY COFFERDAM LAKE MACDONALD, QLD PLAN GENERAL ARRANGEMENT

B01179-03-DWG-002

EVISIO

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THE SPLICE LOCATION WITHIN THE TWIN PFC SHALL BE STAGGERED AND POSITIONED AWAY FROM ONE-THIRD OF THE SPAN FROM THE SUPPORT LOCATIONS.

SPLICE LOCATION





CONNECTION: 380PFC1 - BOLTED SPLICE GAP BETWEEN ENDS 10 FLANGE PLATES: 100×16×570 GR.300+ BOLTS: 4 × M24 8.8/S/N IN 1 LINE

WEB PLATES: 2 x 200x8x300 GR.300+ BOLTS: 6 x M24 8.8/S/N

PLATES: 21.9 KG BOLTS: 10.9 KG WELDS: 0.0 KG

DIMENSIONS IN MILLIMETRES



SPLICE DETAIL PER 1 PFC OPTION 2 - BOLTED WITH WELDED CONNECTION NTS

SPLICE DETAIL PER 1 PFC OPTION 1 - FULLY BOLTED CONNECTION NTS



onsultingVLake MacDonald OLDV2024 APRVLAKE MACDONALD COFFERDAM_90DD_Rev0.vvx | Thu, 23 May 2024. 1:12:34. PM | drawn by laurie white at www.reumad

CONNECTION: 380PFC_BOLTED AND WELDED SPLICE GAP BETWEEN ENDS 10 FLANGE PLATES: 120x16x570 GR.300+ WELDED ONE SIDE: FU=490 QUAL.=SP 8 FW 280 EA. EDGE BUT NOT END BOLTS: 2 x M24 8.8/S/N IN 1 LINE

WEB PLATES: 2 x 200x8x300 GR.300+ BOLTS: 6 x M24 8.8/S/N

PLATES: 24.7 KG BOLTS: 7.7 KG WELDS: 0.3 KG

DIMENSIONS IN MILLIMETRES

NOT FOR CONSTRUCTION

LAKE MACDONALD (SIX MILE CREEK DAM) TEMPORARY COFFERDAM LAKE MACDONALD, QLD STRUCTURAL DETAILS 1

B01179-03-DWG-011

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