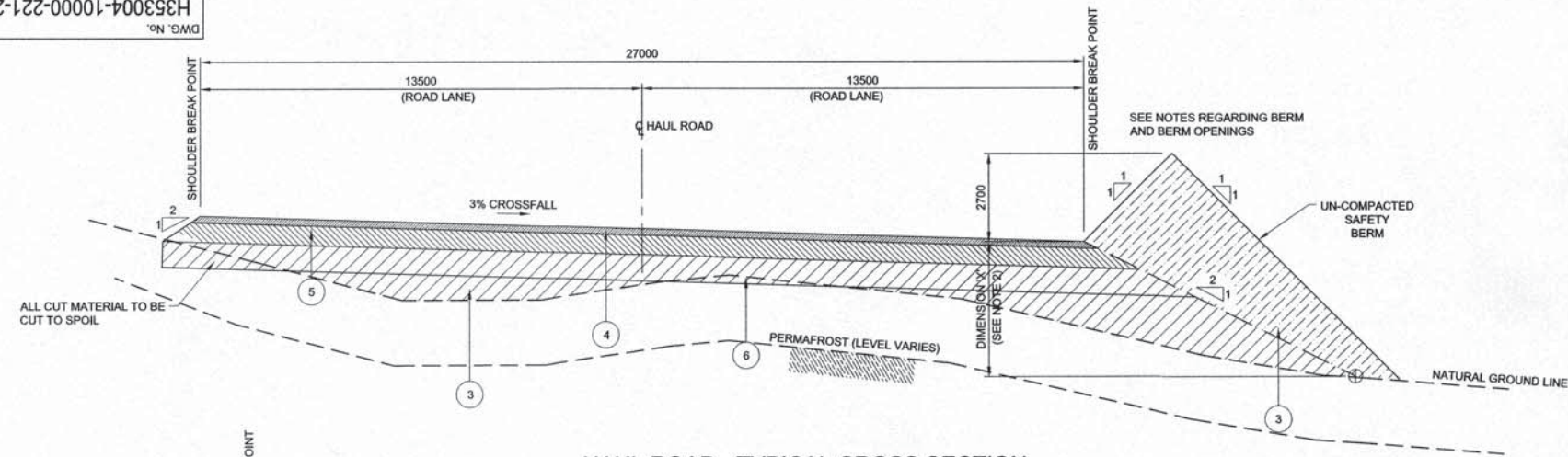
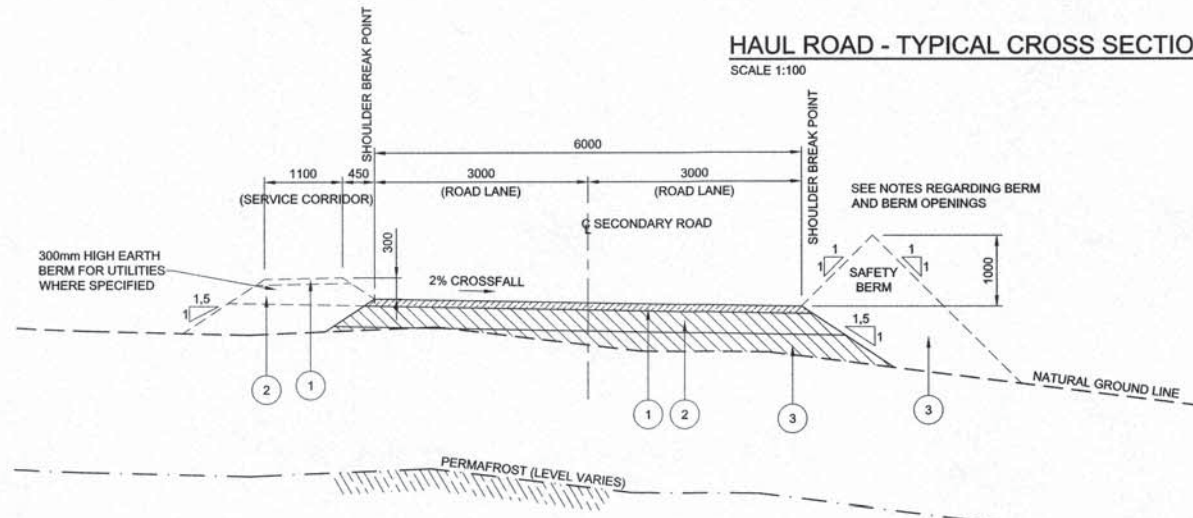


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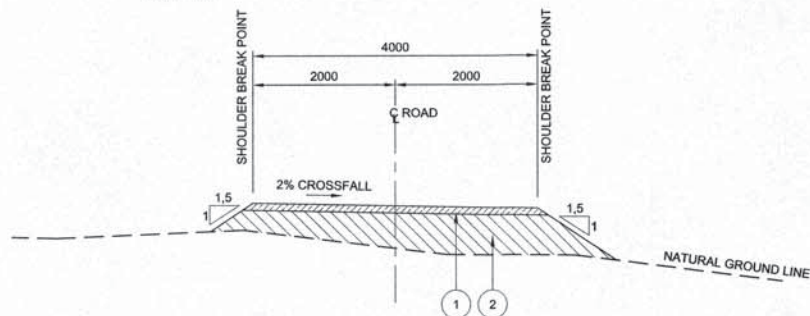
HAUL ROAD - TYPICAL CROSS SECTION

SCALE 1:100



SECONDARY ROAD - TYPICAL CROSS SECTION

SCALE 1:50



TERTIARY AND TEMPORARY ROAD - TYPICAL CROSS SECTION

SCALE 1:50

ROAD MATERIAL IDENTIFICATION: (SEE NOTE 4)

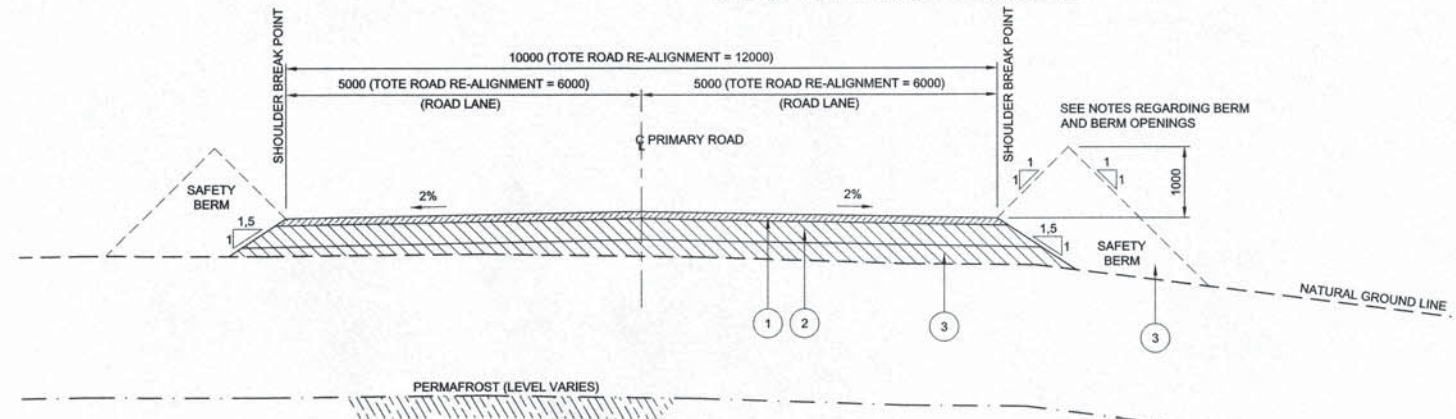
- 100mm WEARING COURSE / BASE LAYER, TYPE 5 (-32mm) MATERIAL
- 300mm ROCK SUBBASE LAYER, TYPE 8 (-150mm) MATERIAL WHERE FILL IS LESS THAN 600mm THICK, OR, TYPE 12 (-600mm) MATERIAL WHERE FILL IS GREATER THAN 600mm
- GENERAL FILL, TYPE 8 (-150mm) MATERIAL WHERE FILL IS LESS THAN 600mm THICK, OR, TYPE 12 (-600mm) MATERIAL WHERE FILL IS GREATER THAN 600mm
- 200mm WEARING COARSE / BASE LAYER, TYPE 5 (-32mm) MATERIAL
- 600mm ROCK SUBBASE LAYER, TYPE 8 (-150mm) MATERIAL
- 800mm ROCK SUBGRADE LAYER, TYPE 12 (-600mm) MATERIAL

GENERAL NOTES:

- SAFETY BERMS FOR ALL ROADS SHALL BE PROVIDED BASED ON THE NUNAVUT MINE HEALTH AND SAFETY ACT.
- THIS BARRIER SHALL BE PROVIDED WHERE THE ELEVATION DIFFERENCE IS GREATER THAN 3.0m (DIMENSION 'X'), MEASURED AT THE ROAD SHOULDER BREAK POINT. SEE TYPICAL SECTIONS FOR LOCATION. BERMS TO BE CONSTRUCTED AS PRESCRIBED BY THE ENGINEER ON SITE.
- 1.0m WIDE OPENINGS ARE TO BE PROVIDED IN THE BERMS AT 25.0m C/C FOR WATER RUN OFF AND SNOW CLEARANCE DURING MAINTENANCE.
- THICKNESS FOR ROAD FILL MATERIALS ARE MINIMUM, AND TO BE ADJUSTED IN THE FIELD DEPENDING ON SITE AND LOCAL CONDITIONS

PRIMARY ROAD - TYPICAL CROSS SECTION

SCALE 1:50



PERMIT TO PRACTICE
HATCH LTD.
Signature: [Signature]
Date: 2018-01-23
PERMIT NUMBER: P 512
The Association of Professional Engineers,
Geologists and Geophysicists of NWT/NJ

FOR CONSTRUCTION

HATCH

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

MINE SITE
HAUL, PRIMARY AND SECONDARY ROADS
TYPICAL CROSS SECTIONS

DRAFTSPERSON	I BARNARD	NR
DESIGNER	I BARNARD	NR
CHECKER	F HUGO	2018-01-23
DESIGN COORD.	R GOOSEN	2018-01-23
RESP. ENG.	R HALIM	2018-01-23
LEAD DISC. ENG.	A GROBBELAAR	2018-01-23
AREA MANAGER	V LAVRIC	N/A
ENG. MANAGER	D STANGER	2018-01-23
CLIENT	F PITTMAN	2018-01-23

ROLE	NAME	SIGNATURE	DATE
DRAWING APPROVAL STATUS:	Approved for Construction		

SCALE	DWG. No.	REV
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OR AS NOTED		

SHEET SIZE: D



REG. PROFESSIONAL

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No.	0	APPROVED FOR CONSTRUCTION	DESCRIPTION	REVISIONS
BY	IHB	FH	23/01/2018	
CHK'D				
DATE				

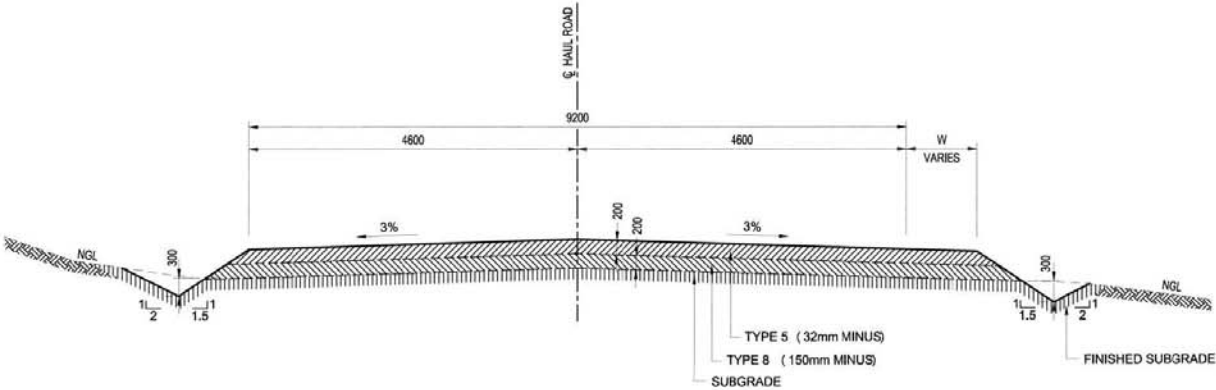
THIS DRAWING WAS PREPARED BY HATCH LTD. (HATCH) FOR THE EXCLUSIVE USE OF BAFFINLAND IRON MINES LP (CLIENT) AND ITS USE IS SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT BETWEEN HATCH AND THE CLIENT. INCLUDING ANY LIMITATIONS ON LIABILITY CONTAINED THEREIN. THIS DRAWING AND ITS CONTENTS REMAIN THE INTELLECTUAL PROPERTY OF HATCH SUBJECT TO CLIENT'S ROYALTY-FREE, IRREVOCABLE, PERPETUAL AND NON-EXCLUSIVE LICENSE TO USE AND REPRODUCE THE DRAWING FOR PURPOSES CONNECTED WITH THE PROJECT, INCLUDING THE CONSTRUCTION, COMPLETION, MAINTENANCE, EXTENSION, RESTATEMENT AND REPAIR OF THE PROJECT. THIS DRAWING, AND THE INFORMATION CONTAINED HEREIN, SHALL BE TREATED AS CONFIDENTIAL FOR ALL OTHER PURPOSES AND SHALL NOT BE MODIFIED WITHOUT THE WRITTEN CONSENT OF HATCH.

H353004-30000-224-294-0010-0001
DWG. No.

ROAD PAVEMENT STRUCTURE BY SOIL TYPE		
SOIL TYPE BY FROST SUSCEPTIBILITY	TYPE 8 DEPTH (mm)	TYPE 5 DEPTH (mm)
HIGHLY SUSCEPTIBLE (HS)	150	150
MODERATELY SUSCEPTIBLE (MS)	150	150
POTENTIALLY SUSCEPTIBLE (PS)	-	150
NON SUSCEPTIBLE	-	150

WIDENING TABLE					
DESIGN SPEED: 65 km/h		DESIGN SPEED: 65 km/h		DESIGN SPEED: 65 km/h	
RADIUS	WIDENING	RADIUS	WIDENING	RADIUS	WIDENING
10000	0	475	0.3	190	1
5000	0	390	0.4	180	1.1
3000	0	380	0.5	170	1.2
2000	0	370	0.5	160	1.3
1500	0	360	0.5	150	1.4
1200	0	350	0.5	140	1.5
1000	0	340	0.5	130	1.6
950	0	330	0.5	120	1.7
900	0	320	0.6	110	1.9
850	0.1	310	0.6	100	2
800	0.1	300	0.6	90	2.3
750	0.1	290	0.6	80	2.6
700	0.1	280	0.7	70	2.9
650	0.2	270	0.7	60	3.3
600	0.2	260	0.7	55	3.5
575	0.2	250	0.8	50	3.7
550	0.2	240	0.8		
525	0.2	200	1		

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
 2. 'W' - REFER TO WIDENING TABLE FOR WIDTH OF WIDENING.
 3. THIS DRAWING WAS PREVIOUSLY ISSUED: H353004-00000-224-272-0034-0001



TYPICAL HAUL ROAD CROSS SECTION
SCALE 1:50

PERMIT TO PRACTICE
HATCH LTD.
Signature: *[Signature]*
Date: *[Date]*
PERMIT NUMBER: P-012
The Association of Professional Engineers,
Geologists and Geophysicists of NWTNU

APPROVED FOR CONSTRUCTION

HATCH

Baffinland

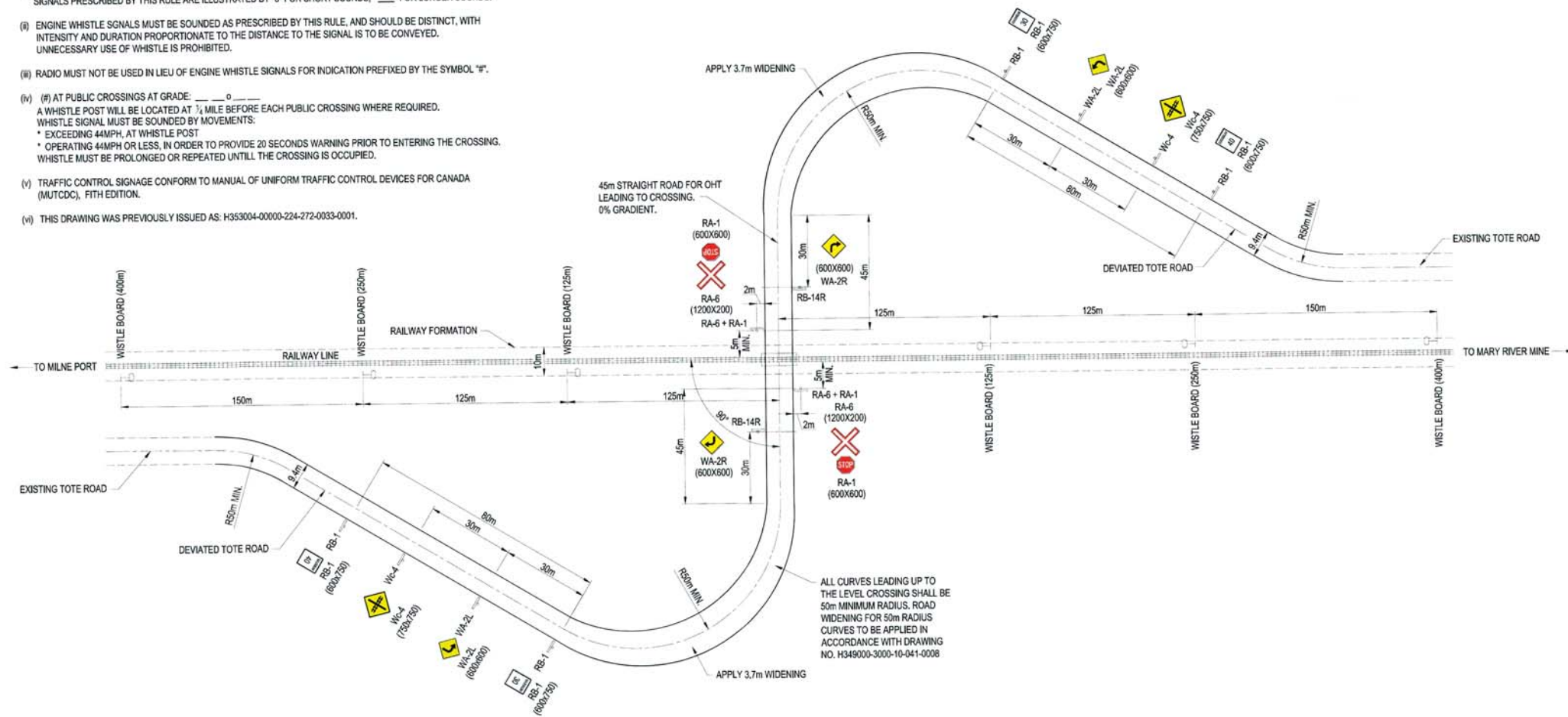
BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

TOTE ROAD
STANDARD DRAWING
TYPICAL HAUL ROAD CROSS SECTION

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NOTES:

- (i) WHEREVER THE WORDS 'ENGINE WHISTLE' APPEAR IN THESE RULES THEY ALSO REFER TO 'ENGINE HORN'. SIGNALS PRESCRIBED BY THIS RULE ARE ILLUSTRATED BY "o" FOR SHORT SOUNDS; "—" FOR LONGER SOUNDS.
- (ii) ENGINE WHISTLE SIGNALS MUST BE SOUNDED AS PRESCRIBED BY THIS RULE, AND SHOULD BE DISTINCT, WITH INTENSITY AND DURATION PROPORTIONATE TO THE DISTANCE TO THE SIGNAL IS TO BE CONVEYED. UNNECESSARY USE OF WHISTLE IS PROHIBITED.
- (iii) RADIO MUST NOT BE USED IN LIEU OF ENGINE WHISTLE SIGNALS FOR INDICATION PREFIXED BY THE SYMBOL "R".
- (iv) (a) AT PUBLIC CROSSINGS AT GRADE: — 0 —
A WHISTLE POST WILL BE LOCATED AT 1/4 MILE BEFORE EACH PUBLIC CROSSING WHERE REQUIRED. WHISTLE SIGNAL MUST BE SOUNDED BY MOVEMENTS:
* EXCEEDING 44MPH, AT WHISTLE POST
* OPERATING 44MPH OR LESS, IN ORDER TO PROVIDE 20 SECONDS WARNING PRIOR TO ENTERING THE CROSSING. WHISTLE MUST BE PROLONGED OR REPEATED UNTIL THE CROSSING IS OCCUPIED.
- (v) TRAFFIC CONTROL SIGNAGE CONFORM TO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR CANADA (MUTCD), FIFTH EDITION.
- (vi) THIS DRAWING WAS PREVIOUSLY ISSUED AS: H353004-00000-224-272-0033-0001.



TYPICAL LEVEL CROSSING LAYOUT
NTS

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HATCH LTD.
Signature _____
Date _____
PERMIT NUMBER: P-512
The Association of Professional Engineers,
Geologists and Geophysicists of NWT/NU

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HATCH

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER PROJECT

TOTE ROAD
STANDARD DRAWING
TYPICAL GRADE CROSSING LAYOUT

DRAFTSPERSON	A VAN NIEKERK	NR	13/12/17
DESIGNER	A VAN NIEKERK	NR	13/12/17
CHECKER	G JOHNSTONE		
DESIGN COORD.	G JOHNSTONE		
RESP. ENG.	D STANGER		2018-12-18
LEAD DISC. ENG.	F VAN BILJON		2018-12-18
AREA LEAD	F VAN BILJON		2018-12-18
ENG. MANAGER	D STANGER		2018-12-18
AREA MANAGER	F PITTMAN		2018-12-20

ROLE	NAME	SIGNATURE	DATE
ROLE	NAME	SIGNATURE	DATE

DRAWING APPROVAL STATUS: Approved for Construction

SCALE	DWG. No.	REV
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SHEET SIZE: D

H353004-30000-224-294-0007
DRAWING No.

ROAD SIGNS AND SIGN POST DETAIL

DRAWING TITLE

REFERENCE DRAWINGS

REG. PROFESSIONAL

0 APPROVED FOR CONSTRUCTION

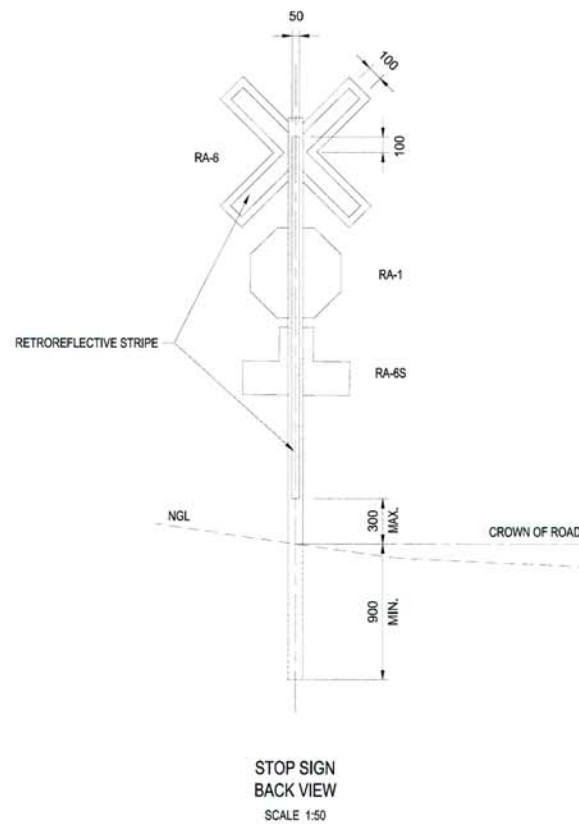
DESCRIPTION

REVISIONS

AVJN
BY
CHKD
DATE

2018/04/09

DRAWING APPROVAL STATUS: Approved for Construction



NOTES:

- (i) TRAFFIC CONTROL SIGNAGE CONFORM TO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR CANADA (MUTCD), FIFTH EDITION.
- (ii) WHEN ROAD CROSSES TWO OR MORE TRACKS, SIGNAGE RA-8S MUST BE ADDED BELOW STOP SIGN RA-1.
- (iii) THIS DRAWING WAS PREVIOUSLY ISSUED AS: H353004-00000-220-294-0008-0001.








PERMIT TO PRACTICE
HATCH LTD.
Signature _____
Date _____
PERMIT NUMBER: P 512
The Association of Professional Engineers,
Geologists and Geophysicists of NWT/NU

THIS DRAWING WAS PREPARED BY HATCH LTD. (HATCH) FOR THE EXCLUSIVE USE OF BAFINLAND IRON MINES PLC (CLIENT) AND ITS USE IS SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT BETWEEN HATCH AND THE CLIENT. INCLUDING ANY LIMITATIONS ON LIABILITY CONTAINED THEREIN. THIS DRAWING AND ITS CONTENTS REMAIN THE INTELLECTUAL PROPERTY OF HATCH LTD. AND CLIENTS PROPRIETARY AND CONFIDENTIAL. PERMITTED NON-EXCLUSIVE REUSE IS TO COPY AND REPRODUCE THE DRAWING FOR PURPOSES CONNECTED WITH THE PROJECT, INCLUDING THE CONSTRUCTION, COMPLETION, MAINTENANCE, EXTENSION, REINSTATEMENT AND REPAIR OF THE PROJECT. THIS DRAWING, AND THE INFORMATION CONTAINED HEREIN, SHALL BE TREATED AS CONFIDENTIAL FOR ALL OTHER PURPOSES AND SHALL NOT BE MODIFIED WITHOUT THE WRITTEN CONSENT OF HATCH.



TOTE ROAD
STANDARD DRAWING
ROAD SIGNS AND SIGN POST DETAIL

SCALE NTS OR AS NOTED	DWG. No. H353004-30000-224-294-0007-0001	P
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DRAFTSPERSON	A VAN NIEKERK	NR	10/01/18
DESIGNER	A VAN NIEKERK	NR	10/01/18
CHECKER	G JOHNSTONE	 <small>Digitally signed by G. Johnstone DN: cn=G. Johnstone, o=City of Johannesburg, ou=City of Johannesburg, email=G. Johnstone</small>	
DESIGN COORD.	G JOHNSTONE	 <small>Digitally signed by G. Johnstone DN: cn=G. Johnstone, o=City of Johannesburg, ou=City of Johannesburg, email=G. Johnstone</small>	
RESP. ENG.	D STANGER	 <small>2018-12-19</small>	
LEAD DISC. ENG.	F VAN BILJON	 <small>2018-11-19</small>	
AREA LEAD	F VAN BILJON	 <small>2018-11-19</small>	
ENG. MANAGER	D STANGER	 <small>2018-12-19</small>	
09 AREA MANAGER	F PITTMAN	 <small>2018-12-20</small>	
ROLE	NAME	SIGNATURE	DATE
DRAWING APPROVAL STATUS:		Approved for Construction	

REG. PROFESSIONAL

0	APPROVED FOR CONSTRUCTION
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DESCRIPTION

REVISIONS

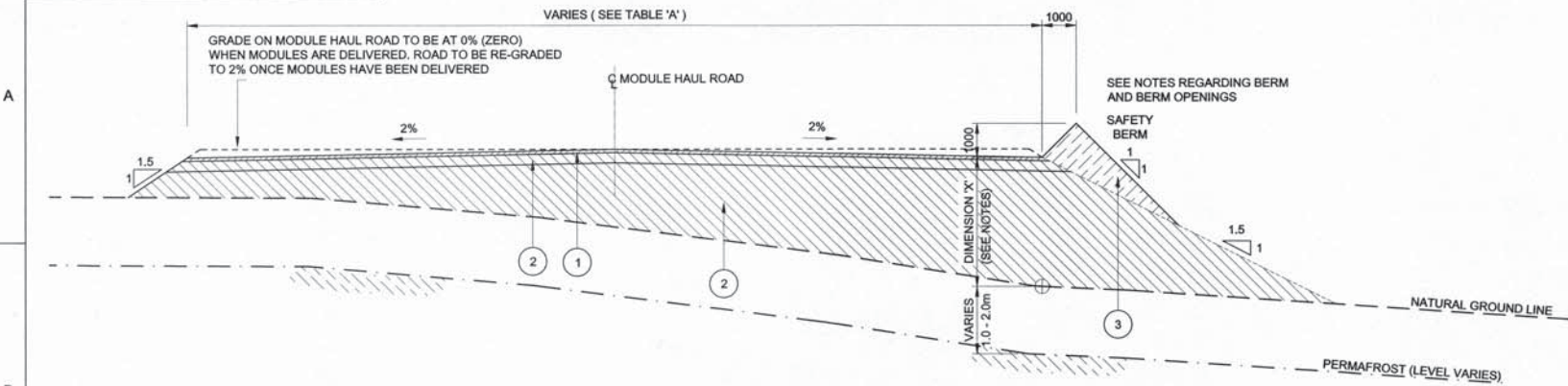
AJVN	6-7	2018/04/0
BY	CHK'D	DATE

ROLE	NAME
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Approved for Construction

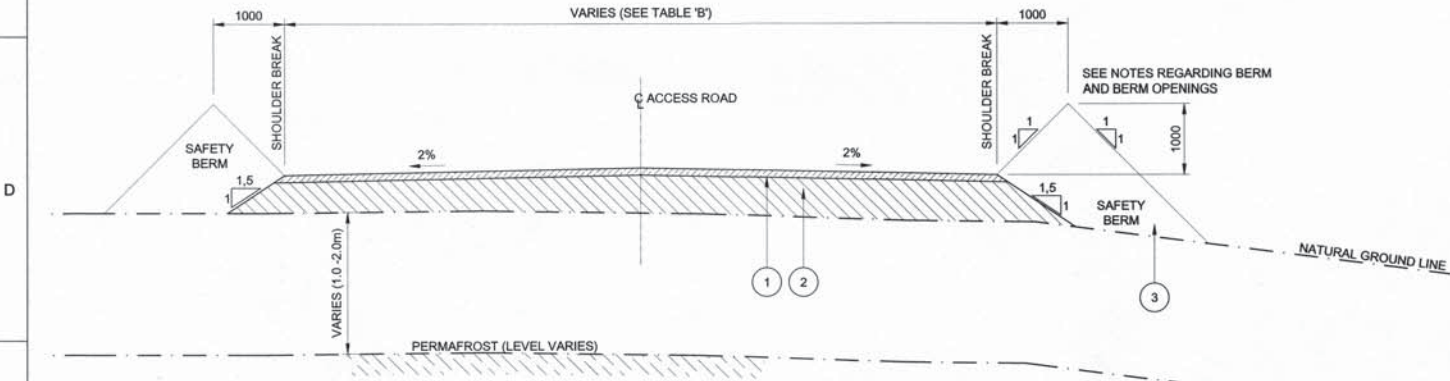
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MODULE ROAD - TYPICAL CROSS SECTION
SCALE 1:100

TABLE 'A'		
MODULE	ROAD WIDTH	APPLICABLE DRAWING NUMBER
RAIL CAR DUMPER / INDEXER	15.000m (STRAIGHTS)	H353004-40000-223-271-0007-0001 TO 0004
RAIL CAR DUMPER / INDEXER	17.000m (CURVES)	H353004-40000-223-271-0007-0001 TO 0004
STOCKPILE APRON FEEDER	15.000m	H353004-40000-223-271-0007-0001 TO 0004
SCREENING BUILDING	24.000m	H353004-40000-223-271-0007-0001 TO 0004
CRUSHING BUILDING	24.000m	H353004-40000-223-271-0007-0001 TO 0004
STACKER RECLAIMER AND TRIPPER CAR	24.000m	H353004-40000-223-271-0007-0001 TO 0004
STOCKYARD CONVEYOR AND CONVEYOR SECTIONS	24.000m	H353004-40000-223-271-0007-0001 TO 0004



PRIMARY ROAD - TYPICAL CROSS SECTION
SCALE 1:50

TABLE 'B'		
ROAD	ROAD WIDTH	APPLICABLE DRAWING NUMBER
DRIVE STATION ACCESS	20.000m	H353004-40000-221-272-0005-0001
SOUTHERN BYPASS	12.000m	H353004-40000-223-271-0006-0001 TO 0004
DUMPER TUNNEL ACCESS	10.000m	H353004-40000-221-272-0005-0001

MATERIAL AND COMPACTION SPECIFICATION:

TYPE 5 (CRUSHER RUN 32mm MINUS MATERIAL) OR TYPE 3 (CRUSHER RUN 50mm MINUS):
THE MATERIAL MUST BE PLACED IN LIFTS NOT EXCEEDING 200mm AND SHALL BE
COMPACTED BY MINIMUM 5 PASSES OF A MINIMUM 15 TON VIBRATORY ROLLER
WITH VIBRATIONS IN THE RANGE OF 1200 TO 1500 vpm AND THE ROLLER SPEED OF
ABOUT 2mph (3.2km/h). ALTERNATIVELY, THE COMPACTION SHOULD ACHIEVE A
MINIMUM OF 100 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY TEST
METHOD ASTM D698.

TYPE 8 (CRUSHER RUN 150mm MINUS):
THE ROCKFILL MUST BE PLACED IN LIFTS NOT EXCEEDING 500mm. THE PLACEMENT
SHALL AVOID SEGREGATION AND NESTING OF COARSE PARTICLES. IT SHALL BE
COMPACTED BY MINIMUM 5 PASSES OF A MINIMUM 15 TON VIBRATORY ROLLER
WITH VIBRATIONS IN THE RANGE OF 1200 TO 1500 vpm AND THE ROLLER SPEED OF
ABOUT 2mph (3.2km/h). EACH LIFT MUST BE "PROOF-ROLLED" PRIOR TO PLACING
THE SUBSEQUENT LIFT.

TYPE 12 (RUN OF MINE, TYPICALLY 600mm MINUS):
THE ROCKFILL, IF USED, MUST BE PLACED IN LIFTS NOT EXCEEDING 1000mm. THE
ROCKFILL SHALL BE COMPACTED BY MINIMUM 5 PASSES OF A MINIMUM 15 TON
VIBRATORY ROLLER WITH VIBRATIONS IN THE RANGE OF 1200 TO 1500 vpm AND
THE ROLLER SPEED OF ABOUT 2mph (3.2km/h). ALTERNATIVE COMPACTIONERS SUCH
AS HEAVY LOADED RUBBER TIED HAUL TRUCKS CAN ONLY BE USED AS PER A
WRITTEN APPROVAL FROM THE ENGINEER.

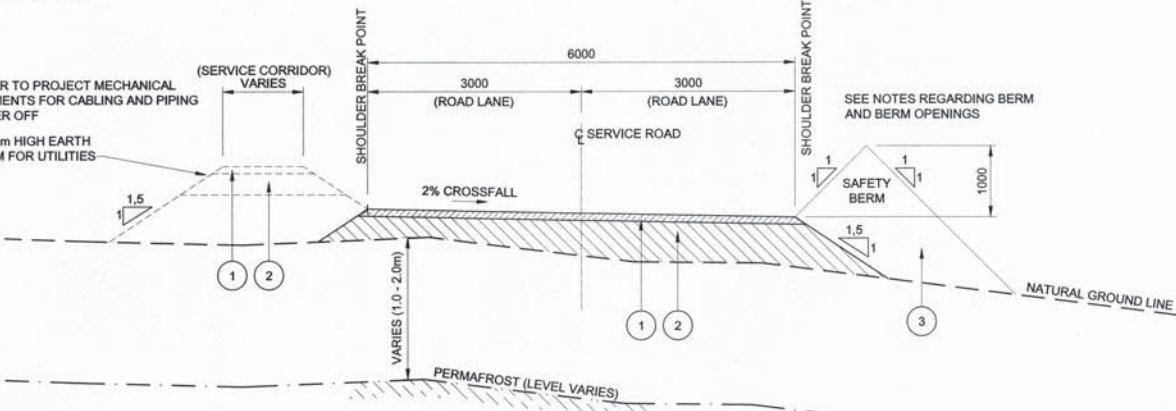
ROAD MATERIAL IDENTIFICATION:

- 100mm WEARING COURSE / BASE LAYER, TYPE 5 (-32mm) MATERIAL
- 300mm ROCK SUBBASE LAYER, TYPE 8 (-150mm) MATERIAL WHERE FILL IS
LESS THAN 600mm THICK,
OR,
TYPE 12 (-600mm) MATERIAL WHERE FILL IS GREATER THAN 600mm
- GENERAL FILL TYPE 12 (-600mm) MATERIAL

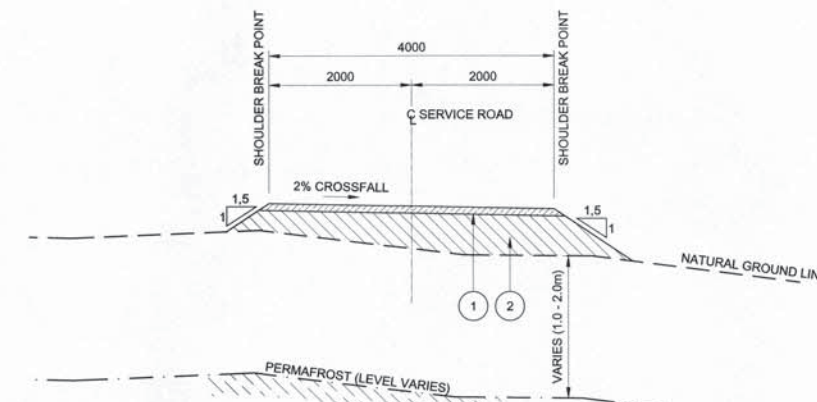
GENERAL NOTES:

- SAFETY BARRIERS FOR ALL ROADS SHALL BE PROVIDED BASED ON THE
NUNAVUT MINE HEALTH AND SAFETY ACT.
1.1 THIS BARRIER SHALL BE PROVIDED WHERE THE ELEVATION DIFFERENCE IS
GREATER THAN 3.0m (DIMENSION 'X'), MEASURED AT THE ROAD SHOULDER
BREAK POINT. SEE TYPICAL SECTIONS FOR LOCATION. BERM TO
BE CONSTRUCTED AS PRESCRIBED BY THE ENGINEER ON SITE
- 1.0m WIDE OPENINGS ARE TO BE PROVIDED IN THE BERMS AT 25.0m C/C FOR
WATER RUN OFF AND SNOW CLEARANCE DURING MAINTENANCE.
- THICKNESS FOR ROAD FILL MATERIALS ARE MINIMUM, AND ARE TO BE
ADJUSTED IN THE FIELD DEPENDING ON SITE AND LOCAL CONDITIONS.

NOTE:
FOR BERM TOP WIDTH REFER TO PROJECT MECHANICAL
AND ELECTRICAL REQUIREMENTS FOR CABLE AND PIPING
SIZES, SPACING AND NUMBER OFF



SECONDARY ROAD - TYPICAL CROSS SECTION
SCALE 1:50



TERTIARY AND TEMPORARY ROAD - TYPICAL CROSS SECTION
SCALE 1:50

PERMIT TO PRACTICE
HATCH LTD.
Signature: [Signature]
Date: 2018-04-05
PERMIT NUMBER: P 512
The Association of Professional Engineers,
Geologists and Geophysicists of NWT/NJ

FOR CONSTRUCTION

0

APPROVED FOR CONSTRUCTION

DESCRIPTION

REVISIONS

REGISTERED PROFESSIONAL ENGINEER

L1247

R. A. HALIM

LICENSEE

2018-04-05

NWT/NJ

REG. PROFESSIONAL

HATCH

DRAFTSPERSON: I BARNARD, NR

DESIGNER: I BARNARD, NR

CHECKER: F HUGO, 2018-03-28

DESIGN COORD.: R GOOSEN, 2018-03-28

RESP. ENG.: R HALIM, 2018-04-05

LEAD DISC. ENG.: A GROBBELAAR, 2018-03-28

AREA LEAD: D STANGER, 2018-04-05

ENG. MANAGER: T. ATISA, 2018-04-05

AREA MANAGER: T. ATISA, 2018-04-05

ROLE: NAME: SIGNATURE: DATE:

DRAWING APPROVAL STATUS: Approved for Construction

BAFFINLAND

BAFFINLAND IRON MINES LP

MARY RIVER EXPANSION PROJECT

PORT SITE

MODULE, PRIMARY, SECONDARY ROADS

TYPICAL CROSS SECTIONS

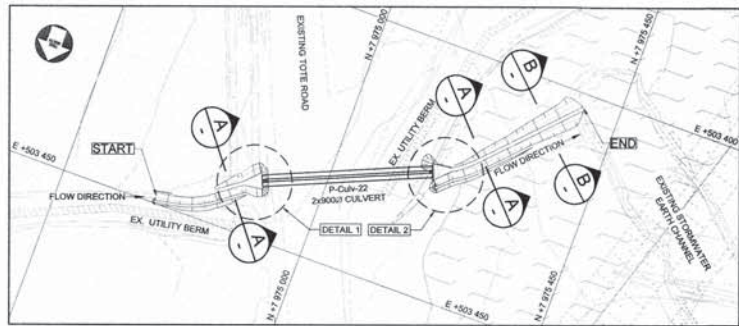
SCALE: 1:100 OR AS NOTED

DWG. No.: H353004-40000-221-273-0001-0001

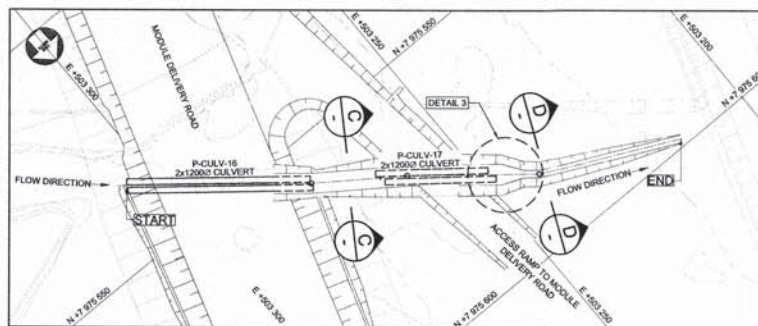
REV: 0

SHEET SIZE: D

SUSANNAH STILES



LAYOUT: P-SWD-LP3-1
SCALE 1:500



LAYOUT: P-SWD-LP3-2
SCALE 1:500

SETTING OUT DATA-P-SWD-LP3-1					
NAME	CH	E	N	DETAILS	
START	0.000	503481.237	7975497.573	L 4.189m	
BCC1	4.189	503477.130	7975496.749	R 16.500m	
PI1	11.432	503473.521	7975496.028	DA 25°00'00"	
ECC1		503470.562	7975495.837	TL 3.881m	
BCC2	18.079	503466.826	7975491.074	R 25.000m	
PI2	21.868	503464.488	7975489.345	DA 12°16'10"	
ECC2		503461.818	7975488.199	TL 2.906m	
BCC3	56.551	503429.842	7975474.526	R 20.000m	
PI3	64.675	503423.321	7975472.902	DA 12°16'10"	
ECC3		503420.321	7975469.915	TL 4.124m	
END	90.012	503405.877	7975451.539	L 25.337m	

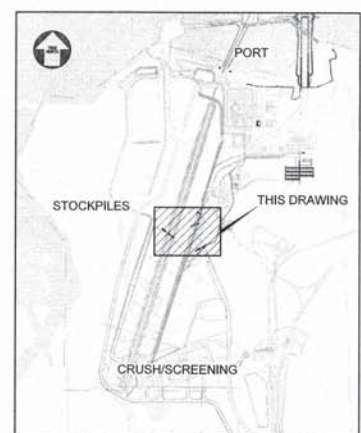
SETTING OUT DATA-P-SWD-LP3-2					
NAME	CH	E	N	DETAILS	
START	0.000	503306.928	7975533.849	L 38.920m	
PI1	38.920	503276.731	7975558.404	L 38.920m	
PI2	56.041	503261.126	7975569.453	L 19.121m	
PI3	84.321	503240.725	7975586.020	L 26.280m	
END	113.370	503214.518	7975598.551	L 29.698m	

LEGEND:

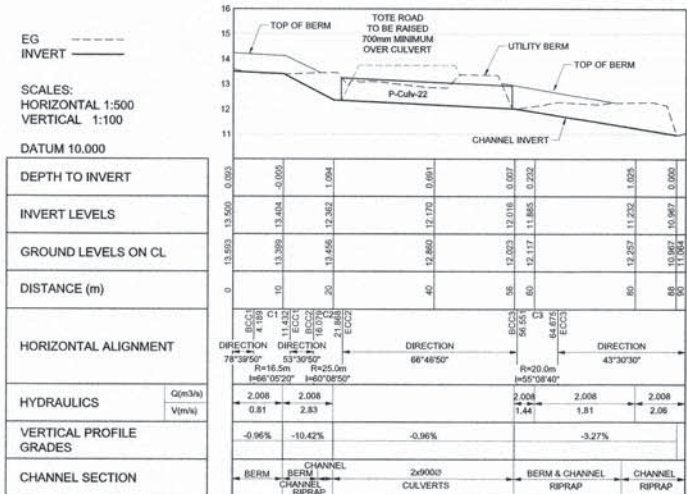
EG EXISTING GROUND
CH CHAINAGE
L LENGTH
R RADIUS
DA DEFLECTION ANGLE
TL TANGENT LENGTH
AL ARC LENGTH
BCC BEGINNING OF CURVE
ECC END OF CURVE
PI POINT OF INTERSECTION
HWL HIGH WATER LEVEL
FB FREE BOARD
FLOW DIRECTION
DIVERSION CENTER LINE
R/RAP

NOTES:

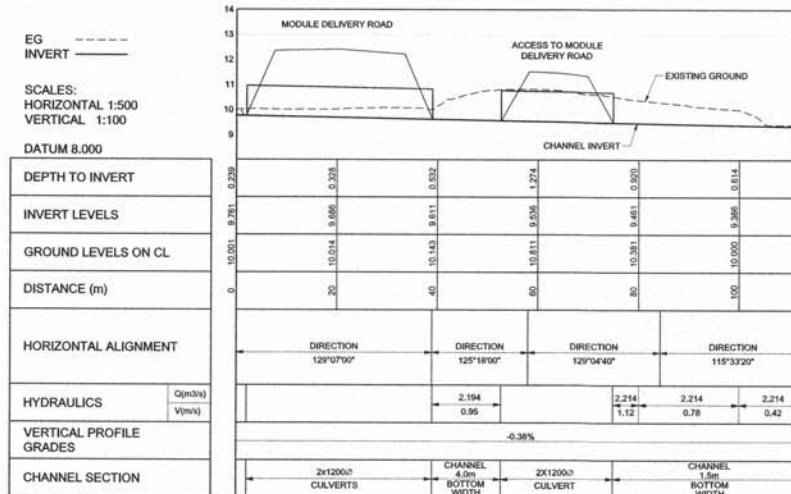
1. LEAD SURVEY PROVIDED BY PHOTSAF (2016)
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS.
3. CONTOURS AND ELEVATIONS ARE IN METERS. CONTOUR INTERVAL IS 0.5m.
4. ALL DIMENSIONS ARE IN MILLIMETER UNLESS NOTED OTHERWISE.
5. FINAL CULVERT POSITIONS TO BE CONFIRMED ON SITE.



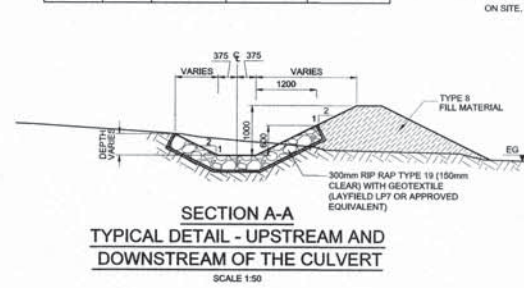
KEY PLAN



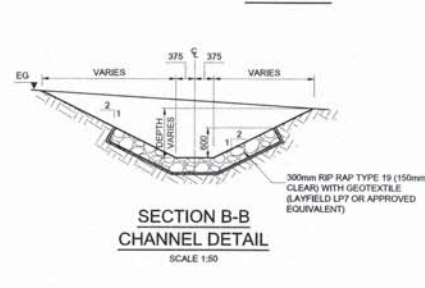
P-SWD-LP3-1 DIVERSION LONGITUDINAL SECTION



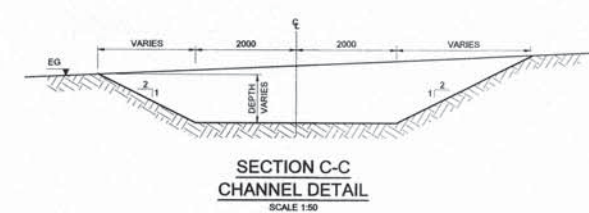
P-SWD-LP3-2 DIVERSION LONGITUDINAL SECTION



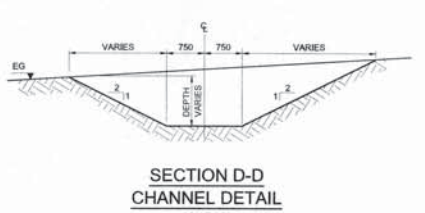
SECTION A-A
TYPICAL DETAIL - UPSTREAM AND
DOWNSTREAM OF THE CULVERT
SCALE 1:50



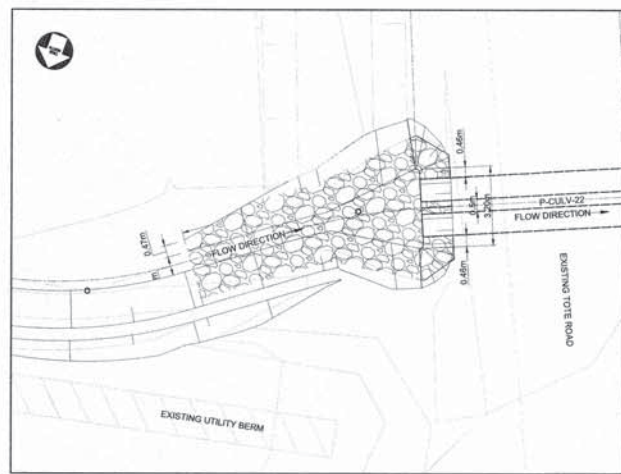
SECTION B-B
CHANNEL DETAIL
SCALE 1:50



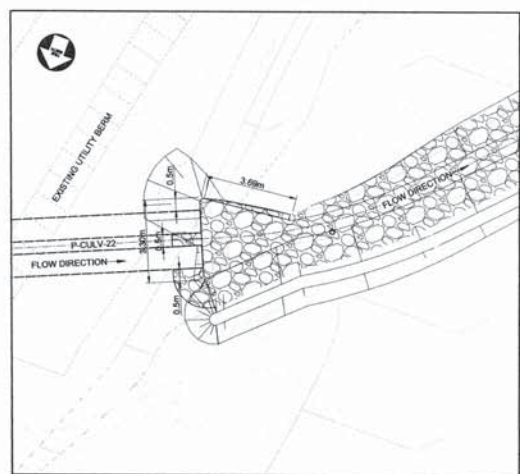
SECTION C-C
CHANNEL DETAIL
SCALE 1:50



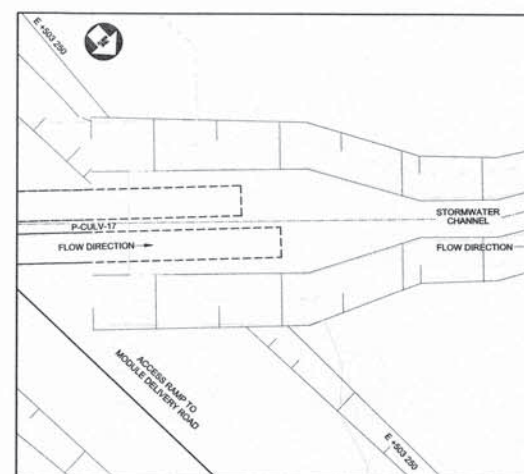
SECTION D-D
CHANNEL DETAIL
SCALE 1:50



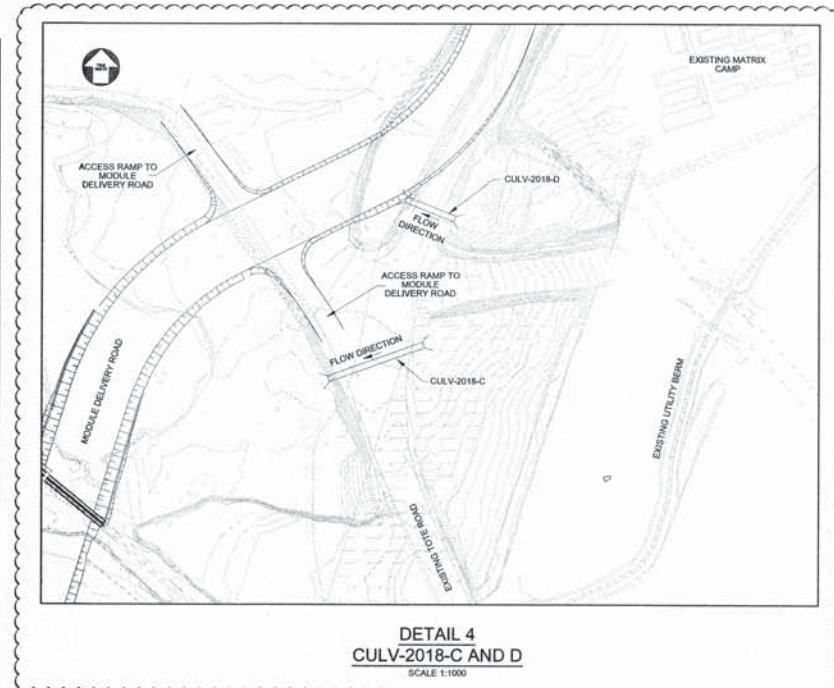
DETAIL 1
CULVERT INLET
SCALE 1:100



DETAIL 2
CULVERT OUTLET
SCALE 1:100



DETAIL 3
CULVERT OUTLET
SCALE 1:100



DETAIL 4
CULV-2018-C AND D
SCALE 1:1000

CULVERT SCHEDULE (THIS SCHEDULE TO BE READ IN CONJUNCTION WITH DRG. No. H353004-00000-221-294-0001-0001-TYPICAL CULVERT DETAILS)														
CULVERT AT UPSTREAM					CULVERT AT DOWNSTREAM					NOTE: FINAL US INVERT AND DS INVERT LEVELS ARE TO BE CONFIRMED ON SITE				
CULVERT ID	FISH BEARING	NUMBER OF PIPES	D (mm)	LENGTH (m)	E (mm)	W (mm)	TYPE	NORTHING	EASTING	US INV. ELEV (m)	RP RAP REQ'D	NORTHING	EASTING	DS INV. ELEV (m)
P-CULV-16	N	2	1200	30.900	0	3900	CSP	7975535.240	503305.45	9.754	N	7975558.404	503276.731	9.616
P-CULV-17	N	2	1200	22.245	0	3900	CSP	7975586.310	503265.480	9.564	Y	7975586.076	503248.004	9.481
P-CULV-17	N	2	900	34.000	0	2300	CSP	7975488.350	503462.190	12.339	Y	7975474.959	503430.844	12.020
CULV-2018-C	N	1	600	40.125	0	900	CSP	7975607.324	503432.367	10.885	N	7975593.650	503394.646	10.000
CULV-2018-D	N	1	600	20.635	0	900	CSP	7975657.567	503444.695	10.200	N	7975665.360	503425.374	10.000

CULVERT SCHEDULE LEGEND:

D CULVERT DIAMETER
E EMBEDMENT DEPTH
C CULVERT SPACING AND BEDDING CLEARANCE
C = 500 WHILE D > 900mm
C = 300 WHILE D < 900mm
W CULVERT BACKFILL TOP WIDTH
W = (πD) + (2-1)C
N = NO. OF PIPES / CULVERTS
TYPE CULVERT MATERIAL
US INV. CULVERT UPSTREAM INVERT ELEVATION
DS INV. CULVERT DOWNSTREAM INVERT ELEVATION
L R/RAP APRON LENGTH
L = 4m (APPROX)
S CULVERT SLOPE
LENGTH CULVERT LENGTH
CSP CORRUGATED STEEL PIPE

DRAWING No.	DRAWING TITLE
H353004-00000-221-294-0002-0010	STANDARD DRAWING - EARTHWORKS AND DRAINAGE
H353004-00000-221-294-0001-0001	STANDARD DRAWING - TYPICAL CULVERT DETAIL
H353004-00000-225-272-0001-0001	PORT SITE - BLOCK PLAN
	REFERENCE DRAWINGS



FOR CONSTRUCTION			
No.	DESCRIPTION	REVISIONS	DATE
1	EDC STAMP REMOVED, DETAIL 4 ADDED AND CULVERT SCHEDULE UPDATED		
0	FOR CONSTRUCTION		

HATCH

DRAFTSPERSON H HERBST
CHECKER F HUGO
DESIGN COORD. R GOOSSEN
RESP. ENG. R HALM
LEAD ENG. A GROBBELAAR
AREA LEAD V LAVRIC
ENG. MANAGER D STANGER

DATE	SCALE	DRG. No.	REV
08/04/2018	1:500	H353004-00000-228-271-0005-0001	1

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER PROJECT

PORT SITE
MODULE ROAD AND TOTE ROAD
DRAINAGE DETAILS

SHEET SIZE: E