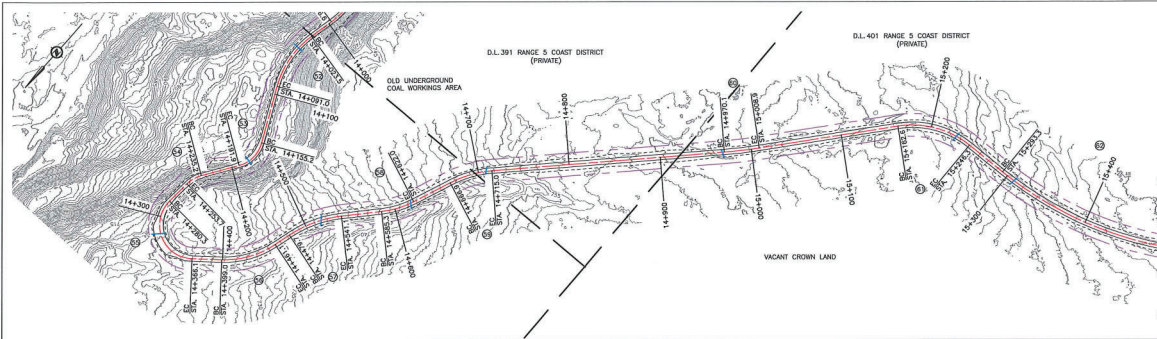
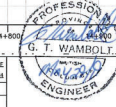
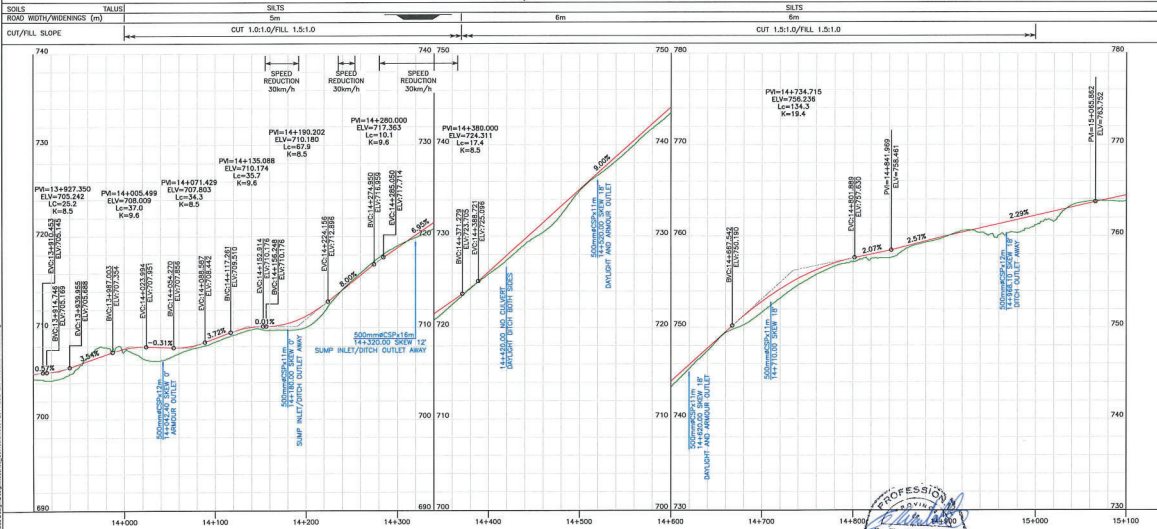




- NOTES:**
1. CONTOUR ELEVATIONS ARE PRESENTED AT 1.0m INTERVALS.
 2. DESIGN SPEED 50km/h.
 3. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.
 4. PROPOSED RANGE FENCELINE IS 1.0m INSIDE PROPOSED R.O.W. FOR RANGE FENCE SPECIFICATIONS & SECTION SEE DRAWINGS 18364-204-01 & 18364-204-02.
 5. PROPOSED BRIDGE CROSSINGS WILL REQUIRE A SITE PLAN SURVEY & DESIGN.
 6. FOR HORIZONTAL CURVE INFORMATION SEE DRAWING 18364-204-02.
 7. FOR MASS HAUL SEE DRAWINGS 18364-204-M1 TO 18364-204-M16.
 8. FOR CROSS SECTIONS SEE DRAWINGS 18364-204-X1 TO 18364-204-X94.

- LEGEND:**
- PROPOSED ROAD
 - CUT/FILL LIMITS
 - HORIZONTAL CURVE #
 - NEW CULVERT
 - PROPOSED R.O.W.
 - PRIVATE LAND
 - ROAD/UTILITY R.O.W.
 - GRADING PERMIT



SCALE: HORIZ. 1:4000 VERT. 1:400

REV	DATE	DESCRIPTION	BY	CHK	APP
1	APR 18	ISSUED FOR REVIEW	WSE	ED	WV
2	MAY 18	ISSUED FOR CONSTRUCTION	JAP	ED	WV

DATE: 2018-05-24

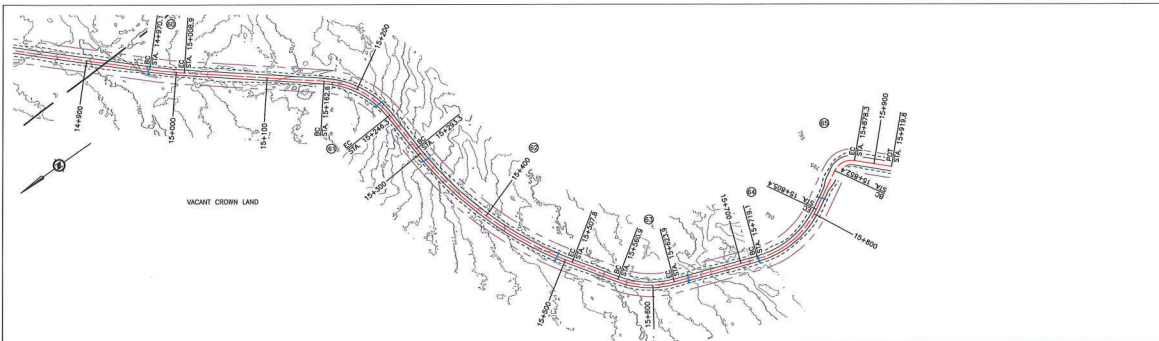
DWB Consulting Services Ltd. 214 P. Adams 214 P. Adams Phone: (204) 960-0041 Fax: (204) 960-0041	
DESIGNED	2018-05-24
QUALITY CONTROL	2018-05-24
QUALITY ASSURANCE	2018-05-24
DRAWN	2018-05-24

TELKWA COAL LIMITED
TENAS HAUL ROAD
 STA. 14+000 to 15+000

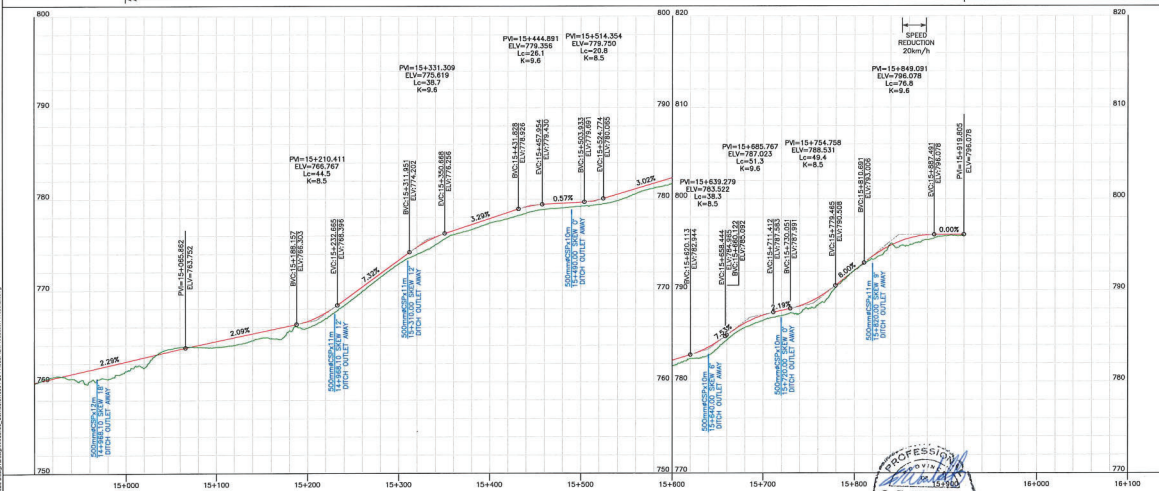
PLAN & PROFILE 15	
LATITUDE: 54° 38' 11.00"	NAD83
LONGITUDE: 127° 0' 2.90"	W
EASTING: 639938	NORTHING: 600000
DRAWING NUMBER: 18364-204-P15	

INTENDED TO BE PLOTTED ON 11"X17"
 ANY COPIES OF THIS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION



SOILS	SOILS	SOILS
ROAD WIDTH/WIDENINGS (m)	6m	10m
CUT/FILL SLOPE	CUT 1.5:1.0/FILL 1.5:1.0	CUT 1.5:1.0/FILL 1.5:1.0



- NOTES:**
1. CONTOUR ELEVATIONS ARE PRESENTED AT 1.0m INTERVALS.
 2. DESIGN SPEED 50km/h.
 3. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.
 4. PROPOSED RANGE FENCELINE IS 1.0m INSIDE PROPOSED R.O.W. FOR RANGE FENCE SPECIFICATIONS & SECTION SEE DRAWINGS 18364-204-01 & 18364-204-02.
 5. PROPOSED BRIDGE CROSSINGS WILL REQUIRE A SITE PLAN SURVEY & DESIGN.
 6. FOR HORIZONTAL CURVE INFORMATION SEE DRAWING 18364-204-02.
 7. FOR MASS HAUL SEE DRAWINGS 18364-204-M1 TO 18364-204-M16.
 8. FOR CROSS SECTIONS SEE DRAWINGS 18364-204-X1 TO 18364-204-X34.

- LEGEND:**
- PROPOSED ROAD
 - CUT/FILL LIMITS
 - HORIZONTAL CURVE #
 - NEW CULVERT
 - PROPOSED R.O.W.
 - PROPOSED FENCELINE
 - PRIVATE LAND
 - ROAD/UTILITY R.O.W.
 - GRAZING PERMIT

SCALE: HORIZ. 1:4000 VERT. 1:400			CAD FILE NAME: 18364-204-01.DWG		
REV	DATE	DESCRIPTION	DRAW	CHK	APP
1	2019-05-24	ISSUED FOR CONSTRUCTION	JAP	MD	TW
DESIGN DESIGNED: DATE: 2019-05-24					

TELKWA COAL LIMITED
TENAS HAUL ROAD
 STA. 15+000 TO 15+915.805

PLAN & PROFILE 16

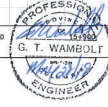
DWB Consulting Services Ltd.
 100-1111 16th Ave. S.E.
 Calgary, Alberta T2C 1S9
 Phone: (403) 940-0001 Fax: (403) 940-0001

DESIGNED: JAP DATE: 2019-05-24
 QUALITY ASSURANCE: TW DATE: 2019-05-24
 DRAWN: JAP DATE: 2019-05-24

LATITUDE: 54° 38' 11.82" N LONGITUDE: 107° 0' 3.98" W
 MAGNETIC NORTH: 666000 E
 GRID NORTH: 620000 E
 DRAWING NUMBER: 18364-204-P16

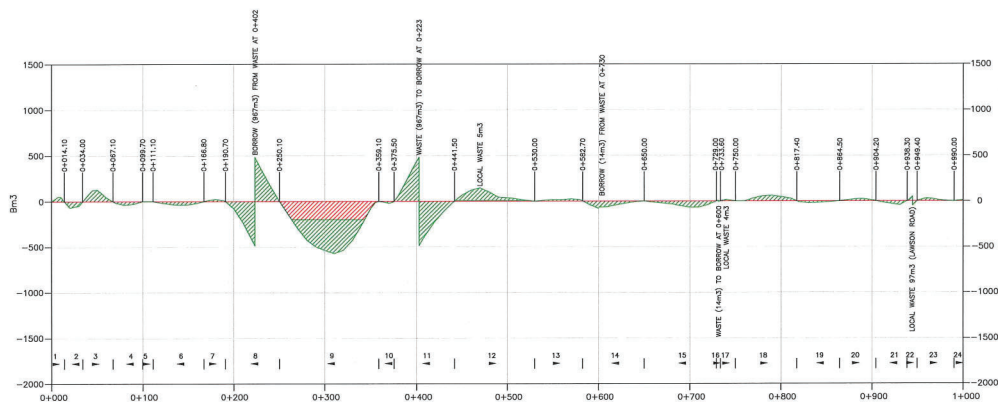
INTENDED TO BE PLOTTED ON 11"X17"
 ANY OTHER SIZE PLOT MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION



NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



LEGEND:

— BALANCE LINE
— NET MASS LINE
1 | 2 MOVEMENT DIRECTION
FREE HAUL (<80m)
OVERHAUL (>80m)

INTENDED TO BE PLOTTED ON 11"x17"
ANY COPIES or PDFS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION



DWB Consulting Services Ltd.
 1579-2nd Avenue
 Prince George, B.C.
 V2L 3R8
 Phone: (250) 562-5541 Fax: (250) 562-5541


TELKWA COAL
LIMITED
TENAS HAUL ROAD
STA. 0+000 to 1+000

MASS HAUL 1

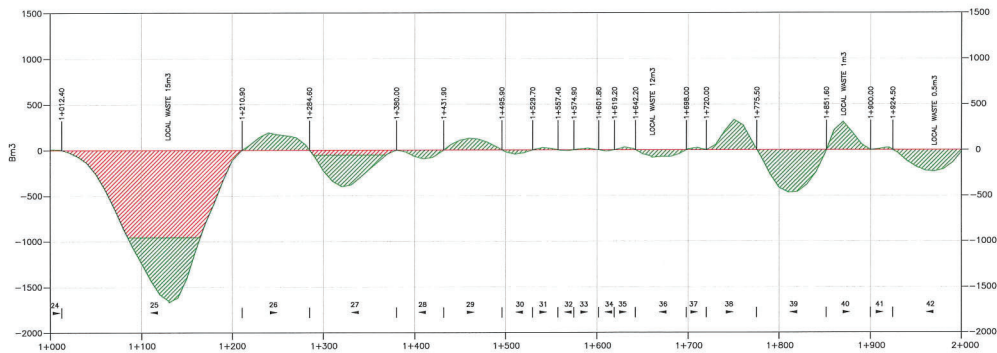
QUALITY CONTROL		TW DATE		2019-02-00		NAD83		DRAWING NUMBER		REV	
QUALITY ASSURANCE		DATE				NAD83		EASTING:		6056036	
DRAWN		KAK DATE		2019-02-13		GCS		EASTING:		623633	
								18364-204-M1		B	

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (bm ³)	GM Cut (bm ³)	Fill (bm ³ equiv)	Borrow (bm ³)	Waste (bm ³)	Surfacing (cm ³)	Mass Direction	Comment
24	1900.0	1012.4	127.5	50.6	90.6	0.0	0.0	119.5	>	
25	1012.4	1210.9	1073.5	1810.9	1795.7	0.0	15.2	754.3	<	Local Waste
26	1210.9	1284.6	380.5	456.3	456.3	0.0	0.0	221.2	>	
27	1284.6	1380.0	416.2	464.2	464.2	0.0	0.0	286.8	<	
28	1380.0	1431.9	217.4	176.4	176.4	0.0	0.0	155.9	<	
29	1431.9	1495.9	305.0	328.7	328.7	0.0	0.0	192.3	>	
30	1495.9	1529.7	160.3	143.1	143.1	0.0	0.0	101.8	<	
31	1529.7	1557.4	113.8	65.9	65.9	0.0	0.0	83.1	>	
32	1557.4	1574.9	71.8	36.6	36.6	0.0	0.0	52.6	<	
33	1574.9	1601.8	119.7	67.1	67.1	0.0	0.0	93.2	>	
34	1601.8	1619.2	35.2	74.6	74.6	0.0	0.0	83.4	<	
35	1619.2	1642.2	120.3	90.4	90.4	0.0	0.0	97.5	>	
36	1642.2	1698.0	298.0	366.8	355.0	0.0	11.7	167.7	<	Local Waste
37	1698.0	1720.0	133.7	132.6	132.6	0.0	0.0	66.0	>	
38	1720.0	1775.5	402.6	639.7	639.7	0.0	0.0	166.8	>	
39	1775.5	1851.5	453.9	692.4	692.4	0.0	0.0	228.4	<	
40	1851.5	1860.0	771.8	439.6	439.6	0.0	0.0	145.5	>	Local Waste
41	1860.0	1924.5	120.9	128.8	128.8	0.0	0.0	73.5	>	
42	1924.5	2001.4	367.2	402.1	402.5	0.5	0.0	231.0	<	Local Borrow

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



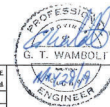
LEGEND:

- BALANCE LINE
- NET MASS LINE
- MOVEMENT DIRECTION
- FREE HAUL (<80m)
- OVERHAUL (>80m)

INTENDED TO BE PLOTTED ON 11"X17"
ANY COPIES OF THIS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	DATE
1	1910	ISSUED FOR REVIEW	1910	1910
2	1910	ISSUED FOR CONSTRUCTION	1910	1910



DESIGNER
DATE: 2018-05-24

SCALE	HORIZ. 1:4000	VERT. 1:400	CAD FILE NAME	18364-204-02A.DWG
DATE	2018-05-24			
DESIGNED	BY DATE	2018-05-24		
QUALITY ASSURANCE	BY DATE	2018-05-24		
DRAWN	BY DATE	2018-05-24		

QUALITY ASSURANCE	BY DATE	2018-05-24		
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TELKWA COAL
LIMITED
TENAS HAUL ROAD
STA. 1+000 TO 2+000

MASS HAUL 2

QUALITY ASSURANCE	BY DATE	2018-05-24		
DRAWN	BY DATE	2018-05-24		
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QUALITY ASSURANCE	BY DATE	2018-05-24		
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DATE	2018-05-24			

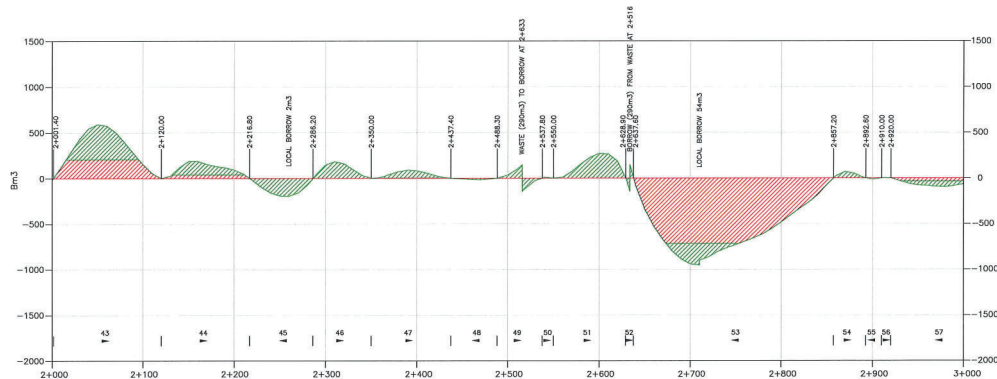
LATITUDE:	54° 38' 11.65"	NAD83	NORTHING:	6056036	DRAWING NUMBER	REV
LONGITUDE:	122° 5' 3.99"	90	EASTING:	623633	18364-204-M2	B

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (bm3)	OM Out (bm3)	Fill (bm3 equiv)	Borrow (bm3)	Waste (bm3)	Surfacing (cm)	Mass Direction	Comment
43	2001.4	2120.0	508.2	1445.1	645.3	0.0	0.0	356.4	>	
44	2120.0	2216.8	387.9	306.3	306.3	0.0	0.0	280.7	>	
45	2216.8	2286.2	284.8	235.3	237.9	2.4	0.0	208.9	<	Local Borrow
46	2286.2	2350.0	277.3	272.3	272.3	0.0	0.0	191.8	>	
47	2350.0	2437.4	358.8	209.7	209.7	0.0	0.0	262.5	>	
48	2437.4	2488.3	208.5	100.8	100.8	0.0	0.0	152.8	<	
49	2488.3	2537.8	225.5	302.9	12.9	0.0	290.0	146.7	>	Waste To Borrow at 2+633
50	2537.8	2550.0	50.4	26.4	26.4	0.0	0.0	36.8	>	
51	2550.0	2628.9	340.3	310.4	310.4	0.0	0.0	237.0	>	
52	2628.9	2637.8	44.4	0.0	290.0	290.0	0.0	26.1	>	Borrow supplied by Waste at 2+516
53	2637.8	2857.2	665.0	932.3	986.3	53.7	0.0	459.8	<	Local Borrow
54	2857.2	2892.8	146.0	102.3	102.3	0.0	0.0	106.3	>	
55	2892.8	2910.0	71.6	37.4	37.4	0.0	0.0	52.1	<	
56	2910.0	2920.0	41.1	23.2	23.2	0.0	0.0	30.2	>	
57	2920.0	3021.1	418.7	222.2	222.2	0.0	0.0	303.5	<	

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



LEGEND:
 — BALANCE LINE
 - - - NET MASS LINE
 1 2 3
 MOVEMENT DIRECTION
 FINE HAUL, (<60m)
 OVERHAUL, (>60m)

INTENDED TO BE PLOTTED ON 11"x17"
 ANY COPIES OF THIS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	BY	CHK	APP
1	2018-05-16	DESIGNED FOR REVIEW	2018-05-28	DKK	ED	TSV
2	2018-05-18	ISSUED FOR CONSTRUCTION		JAP	ED	TSV

PROFESSIONAL
 ENGINEER
 G. T. WAMBOLD
 (2018-05-28)

SCALE	HORIZ	VERT	CAD FILE NAME	DATE
1:400	1:400	1:400	18364-204-02A310316	2018-05-28

DESIGNED	BY	DATE	2018-05-16
QUALITY CONTROL	TSV	DATE	2018-05-28
QUALITY ASSURANCE	TSV	DATE	2018-05-28
DESIGNED	BY	DATE	2018-05-16

TELKWA COAL
 LIMITED
 TENAS HAUL ROAD
 STA. 2+000 TO 3+000

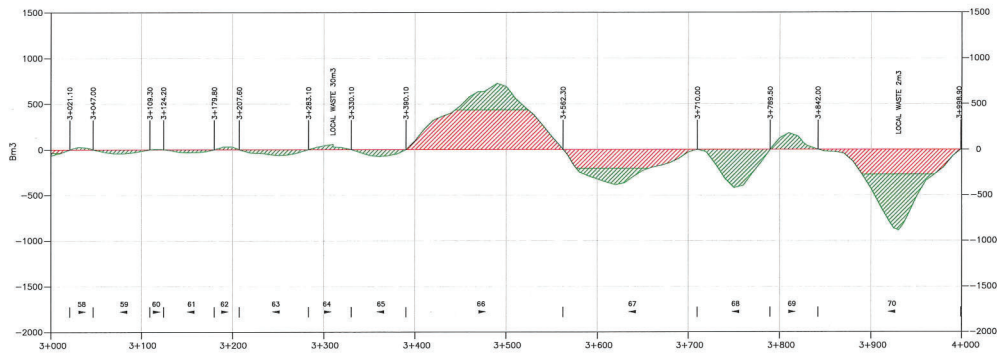
MASS HAUL 3	ISSUED FOR CONSTRUCTION	REV
18364-204-M3	B	

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (bm ³)	GM Cut (bm ³)	Fill (bm ³ equiv)	Borrow (bm ³)	Waste (bm ³)	Surfacing (bm ³)	Mass Direction	Comment
58	3021.1	3047.0	109.0	63.3	63.3	0.0	0.0	78.0	>	
59	3047.0	3109.3	256.2	124.5	124.5	0.0	0.0	187.1	<	
60	3109.3	3124.2	61.8	30.7	30.7	0.0	0.0	44.8	>	
61	3124.2	3179.8	223.0	103.4	103.4	0.0	0.0	166.9	<	
62	3179.8	3207.6	143.4	85.6	85.6	0.0	0.0	124.3	>	
63	3207.6	3283.1	339.1	179.7	179.7	0.0	0.0	298.0	<	
64	3283.1	3330.1	194.5	101.4	71.5	0.0	29.9	141.2	>	Local Waste
65	3330.1	3390.1	249.8	149.8	149.8	0.0	0.0	180.3	<	
66	3390.1	3562.3	726.6	844.7	844.7	0.0	0.0	517.4	>	
67	3562.3	3710.0	632.9	511.2	511.2	0.0	0.0	443.6	<	
68	3710.0	3789.5	409.0	589.5	589.5	0.0	0.0	238.9	<	
69	3789.5	3842.0	233.1	254.3	254.3	0.0	0.0	157.8	>	
70	3842.0	3998.0	698.0	1078.0	1078.0	0.0	1.9	471.4	<	Local Waste

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



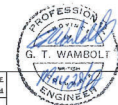
LEGEND:

- BALANCE LINE
- NET MASS LINE
- MOVEMENT DIRECTION
- FREE HAUL (<80m)
- OVERHAUL (>80m)

INTENDED TO BE PLOTTED ON 11"x17"
ANY COPIES OF THIS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

SCALE	HORIZ. 1:4000	VERT. 1:400
CAD FILE NAME	18364-204-04A.DWG	DATE 2018-05-24
REV	DATE	DESCRIPTION
1	FEB 18	ISSUED FOR REVIEW
2	MAY 18	ISSUED FOR CONSTRUCTION



DWB Consulting Services Ltd. P.O. Box 1000 Edmonton, Alberta T6C 2E1 Phone (780) 960-0001 Fax (780) 960-0001	
DESIGNED	2018-05-24
QUALITY ASSURANCE	2018-05-24
DRAWN	2018-05-24



TELKWA COAL
LIMITED
TENAS HAUL ROAD
STA. 3+000 to 4+000

MASS HAUL 4

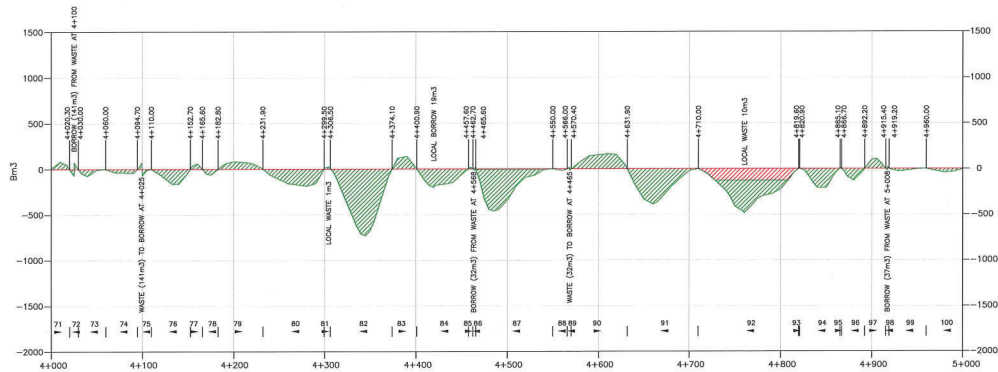
LATITUDE	54° 38' 11.89"	NAD83	NORTHING	699008
LONGITUDE	127° 0' 2.89"	W	EASTING	620033
DRAWING NUMBER				18364-204-M4
				B

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (bm3)	GM Out (bm3)	Fill (bm3 equiv)	Borrow (bm3)	Waste (bm3)	Surfacing (cm3)	Mass Direction	Comment
71	3998.9	4020.3	14.6	116.7	116.7	0.0	0.0	84.2	>	
72	4020.3	4030.0	35.6	0.0	140.9	140.9	0.0	29.0	<	Borrow supplied by Waste at 4+100
73	4030.0	4060.0	134.5	145.9	145.9	0.0	0.0	80.1	<	
74	4060.0	4094.7	146.7	113.3	113.3	0.0	0.0	104.2	<	
75	4094.7	4110.0	70.7	150.8	10.0	0.0	140.9	45.9	<	Waste to Borrow at 4+025
76	4110.0	4152.7	177.4	200.7	200.7	0.0	0.0	128.2	<	
77	4152.7	4165.6	60.1	82.5	82.5	0.0	0.0	38.9	>	
78	4165.6	4182.8	69.8	79.1	79.1	0.0	0.0	31.8	<	
79	4182.8	4231.9	200.2	159.6	159.6	0.0	0.0	147.3	>	
80	4231.9	4299.5	303.8	346.8	346.8	0.0	0.0	203.3	<	
81	4299.5	4306.5	37.4	63.4	62.2	0.0	1.3	20.9	>	Local Waste
82	4306.5	4374.1	381.9	876.8	876.8	0.0	0.0	203.1	<	
83	4374.1	4400.9	114.6	182.3	182.4	0.0	0.0	80.5	>	Local Borrow
84	4400.9	4457.0	763.4	268.7	281.1	15.3	0.0	170.4	<	
85	4457.0	4482.7	22.8	27.5	27.5	0.0	0.0	15.2	>	
86	4482.7	4485.8	12.7	5.0	37.7	32.1	0.0	8.8	<	Borrow supplied by Waste at 4+568
87	4485.8	4500.0	44.0	800.0	800.0	0.0	0.0	253.6	<	
88	4500.0	4566.0	68.5	55.3	55.3	0.0	0.0	48.0	<	
89	4566.0	4570.4	22.3	33.5	1.4	0.0	32.1	13.4	<	Waste to Borrow at 4+465
90	4570.4	4631.9	316.2	360.3	360.3	0.0	0.0	184.5	<	
91	4631.9	4710.0	364.8	476.1	476.1	0.0	0.0	234.7	<	
92	4710.0	4819.6	509.5	721.0	711.0	0.0	10.0	329.1	<	Local Waste
93	4819.6	4820.3	6.1	6.9	6.9	0.0	0.0	4.1	>	
94	4820.3	4855.1	198.5	293.2	293.2	0.0	0.0	132.6	<	
95	4855.1	4866.7	7.6	11.9	11.9	0.0	0.0	4.9	>	
96	4866.7	4892.2	116.6	153.8	153.8	0.0	0.0	76.7	<	
97	4892.2	4915.4	112.3	152.0	152.0	0.0	0.0	69.7	>	
98	4915.4	4919.2	14.8	0.7	37.9	36.9	0.0	11.4	<	Borrow supplied by Waste at 5+008
99	4919.2	4960.0	170.7	112.8	112.8	0.0	0.0	122.4	<	
100	4960.0	5002.1	178.0	121.3	121.3	0.0	0.0	126.4	<	

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



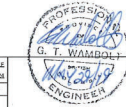
LEGEND:

- BALANCE LINE
- NET MASS LINE
- MOVEMENT DIRECTION
- FREE HAUL (<80m)
- OVERHAUL (>80m)

INTENDED TO BE PLOTTED ON 11"x17" ANY COPIES or PLOT MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	CHK	APP
1	2019-05-24	DESIGNED FOR REVIEW			
2	2019-05-24	DESIGNED FOR CONSTRUCTION			



DESIGNED	DATE	2019-05-24
QUALITY ASSURANCE	DATE	2019-05-24
DRAWN	DATE	2019-05-24

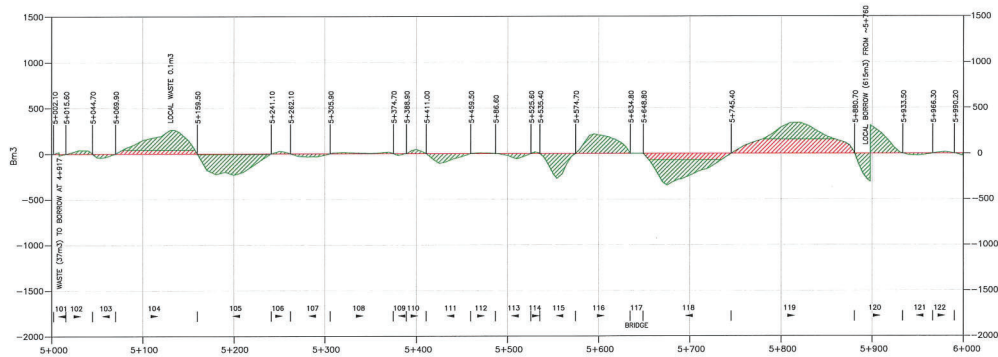
LIMITED			
TENAS HAUL ROAD			
STA. 4+000 to 5+000			
MASS HAUL 5			
LATITUDE: 54° 38' 11.88"		RAD83	NORTHING: 6060006
LONGITUDE: 123° 5' 3.99"		SJ	EASTING: 632633
		DRAWING NUMBER	
		18364-204-M5	
		REV	
		B	

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (bm3)	Old Cut (bm3)	Fill (bm3)	Borrow Waste (bm3)	Surfacing (bm3)	Mass Direction	Comment
101	5002.1	5015.6	59.0	49.2	12.2	0.0	36.9	<	Waste To Borrow at 4+917
102	5015.6	5044.7	118.2	72.2	72.2	0.0	0.0	>	
103	5044.7	5069.9	108.1	78.1	18.1	0.0	0.0	<	
104	5069.9	5159.5	367.9	331.6	331.5	0.0	0.1	>	Local Waste
105	5159.5	5241.1	358.0	346.4	346.4	0.0	0.0	<	
106	5241.1	5262.1	86.0	51.0	51.0	0.0	0.0	>	
107	5262.1	5305.9	179.7	121.0	121.0	0.0	0.0	<	
108	5305.9	5374.7	281.5	158.8	158.8	0.0	0.0	>	
109	5374.7	5488.6	58.7	45.3	45.3	0.0	0.0	<	
110	5488.6	5411.0	63.1	74.5	74.5	0.0	0.0	>	
111	5411.0	5459.3	191.6	143.3	143.3	0.0	0.0	<	
112	5459.3	5488.6	106.1	45.5	45.5	0.0	0.0	>	
113	5488.6	5525.6	161.2	123.0	123.0	0.0	0.0	<	
114	5525.6	5535.4	41.4	40.4	40.4	0.0	0.0	>	
115	5535.4	5574.7	175.5	303.4	303.4	0.0	0.0	<	
116	5574.7	5634.8	381.4	309.2	309.2	0.0	0.0	>	
117	5634.8	5648.6	0.0	0.0	0.0	0.0	0.1	n/a	BRIDGE CROSSING
118	5648.6	5745.4	564.8	420.6	420.6	0.0	0.0	<	
119	5745.4	5880.7	755.5	434.0	434.0	0.0	0.0	>	
120	5880.7	5933.5	270.5	21.0	635.7	614.7	0.0	>	Local Borrow from ~5+760 area
121	5933.5	5966.3	184.0	76.2	76.2	0.0	0.0	<	
122	5966.3	5990.2	131.6	51.6	51.6	0.0	0.0	>	

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



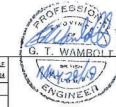
LEGEND:

- BALANCE LINE
- NET MASS LINE
- MOVEMENT DIRECTION
- FREE HAUL, (<80m)
- OVERHAUL, (>80m)

INTENDED TO BE PLOTTED ON 11"X17" LAY COPIES - THIS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

SCALE	HORIZ. 1:4000	VERT. 1:400
CAD FILENAME	18364-204-02.DWG	DATE: 2019-05-24
REV	DATE	DESCRIPTION
1	2019-05-24	ISSUED FOR CONSTRUCTION
2	2019-05-24	ISSUED FOR CONSTRUCTION



DWB Consulting Services Ltd. 2000 West 10th Street Suite 100 Fort Worth, TX 76104 Phone (817) 960-0001 Fax (817) 960-0001
DESIGNED BY DATE 2019-05-24
QUALITY ASSURANCE BY DATE 2019-05-24
DRAWN BY DATE 2019-05-24

TELKWA COAL
LIMITED

TENAS HAUL ROAD
STA. 5+000 TO 6+000

MASS HAUL 6

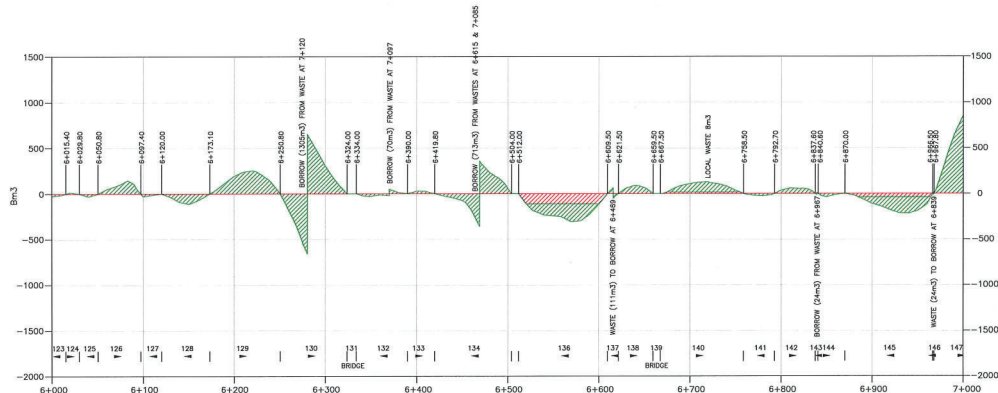
QUALITY ASSURANCE	DATE	2019-05-24	LATITUDE	34° 38' 11.89"	NAD83	NORTHING	6080038	DRAWING NUMBER	18364-204-M6	REV	B
DESIGNED	DATE	2019-05-24	LONGITUDE	107° 0' 3.97"	N	EASTING	422633				

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (m ³)	GM Cut (m ³)	Fill (m ³ equiv)	Borrow (m ³)	Waste (m ³)	Surfacing (m ³)	Mass Direction	Comment
123	5990.2	6015.4	136.3	68.1	68.1	0.0	0.0	75.7	<	
124	6015.4	6029.8	78.0	40.3	40.3	0.0	0.0	43.3	>	
125	6029.8	6050.8	102.4	56.8	56.8	0.0	0.0	43.0	<	
126	6050.8	6097.4	203.9	208.9	208.9	0.0	0.0	139.9	>	
127	6097.4	6120.0	94.0	80.3	80.3	0.0	0.0	68.0	<	
128	6120.0	6173.1	719.8	151.2	151.2	0.0	0.0	159.6	<	
129	6173.1	6250.8	335.2	301.2	301.2	0.0	0.0	233.2	>	
130	6250.8	6324.0	352.2	21.5	1306.3	1304.8	0.0	296.8	>	Borrow supplied by Waste at 7+120
131	6324.0	6334.0	0.0	0.0	0.0	0.0	0.0	n/a	>	BRIDGE CROSSING
132	6334.0	6390.0	242.0	158.1	228.5	70.4	0.0	181.8	<	Borrow supplied by Waste at 7+097
133	6390.0	6419.8	124.9	69.8	69.8	0.0	0.0	89.5	>	
134	6419.8	6504.0	375.0	37.8	750.9	713.3	0.0	332.3	<	Borrow mostly supplied by Waste at 6+615 & 7+085
135	6504.0	6512.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a	BRIDGE CROSSING
136	6512.0	6609.5	412.8	390.5	390.5	0.0	0.0	308.3	<	
137	6609.5	6621.5	62.6	111.4	0.0	0.0	111.4	48.8	<	Waste To Borrow at 6+469
138	6621.5	6659.5	192.5	114.5	114.5	0.0	0.0	180.3	>	
139	6659.5	6667.5	0.0	0.0	0.0	0.0	0.0	0.0	n/a	BRIDGE CROSSING
140	6667.5	6738.5	359.2	172.1	164.5	0.0	7.6	289.9	>	Local Waste
141	6738.5	6792.7	143.9	75.3	75.3	0.0	0.0	102.7	<	
142	6792.7	6837.6	203.6	116.5	116.5	0.0	0.0	134.8	>	
143	6837.6	6840.6	15.8	0.2	24.6	24.4	0.0	8.2	<	Borrow supplied by Waste at 6+567
144	6840.6	6870.0	129.0	75.1	75.1	0.0	0.0	88.2	<	
145	6870.0	6966.5	419.0	346.9	346.9	0.0	0.0	289.8	<	
146	6966.5	6967.6	7.5	24.4	0.0	0.0	24.4	4.0	<	Waste To Borrow at 6+839
147	6967.6	7033.0	477.6	1085.1	1085.1	0.0	0.0	274.4	>	

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



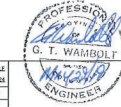
LEGEND:

- BALANCE LINE
- NET MASS LINE
- MOVEMENT DIRECTION
- FREE HAUL (<80m)
- OVERHAUL (>80m)

INTENDED TO BE PLOTTED ON 11"X17" DAY COVERED BY TOP MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DESIGNED	CHECKED	DATE
1	2019.03.24	ISSUED FOR CONSTRUCTION	JAP	MD	2019.03.24



DWB Consulting Services Ltd.	
DESIGNED	2019.03.24
QUALITY ASSURANCE	2019.03.24
ERRATA	2019.03.24

TELKWA COAL LIMITED
TENAS HAUL ROAD
STA. 6+000 TO 7+000

MASS HAUL 7

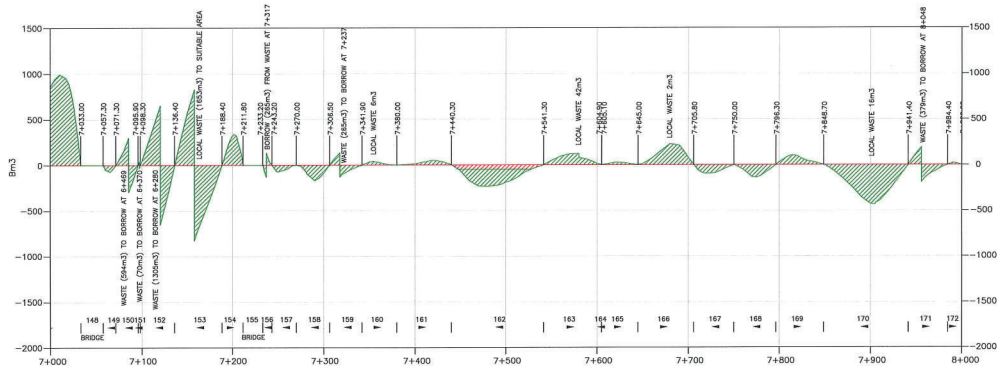
DATE	DATE	DATE	DATE	DATE	DATE
2019.03.24	2019.03.24	2019.03.24	2019.03.24	2019.03.24	2019.03.24

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (m ³)	DM Cut (m ³)	Fill (m ³ eq _W)	Borrow (m ³)	Waste (m ³)	Surfacing (m ³)	Mass Direction	Comment
148	7033.0	7057.3	0.0	0.0	0.0	0.0	0.0	0.0	n/a	BRIDGE CROSSING
149	7057.3	7071.3	76.5	126.1	126.1	0.0	0.0	55.2	<	
150	7071.3	7095.9	169.3	601.4	7.1	0.0	584.2	74.3	<	Waste To Borrow at 8+469
151	7095.9	7098.3	16.7	70.4	0.0	0.0	70.4	7.1	<	Waste To Borrow at 8+370
152	7098.3	7136.4	251.0	1304.8	0.0	0.0	1304.8	114.3	<	Waste To Borrow at 8+280
153	7136.4	7188.4	353.0	1652.6	0.0	0.0	1652.6	194.9	<	Waste to suitable waste area
154	7188.4	7211.8	202.6	437.6	0.0	0.0	0.0	110.4	>	
155	7211.8	7233.2	0.0	0.0	0.0	0.0	0.0	n/a		BRIDGE CROSSING
156	7233.2	7243.2	0.0	6.6	271.4	264.8	0.0	39.2	<	Borrow supplied by Waste at 7+317
157	7243.2	7270.0	137.9	174.0	174.0	0.0	0.0	85.0	<	
158	7270.0	7306.5	186.7	195.4	195.4	0.0	0.0	109.9	<	
159	7306.5	7341.9	172.6	274.3	9.5	0.0	264.8	106.2	<	Waste To Borrow at 7+237
160	7341.9	7380.0	159.7	100.9	95.4	0.0	5.5	114.4	>	Local Waste
161	7380.0	7440.3	548.3	136.0	136.0	0.0	0.0	101.2	>	
162	7440.3	7541.3	418.4	299.5	299.5	0.0	0.0	353.2	<	
163	7541.3	7604.9	268.4	157.0	115.3	0.0	41.7	191.3	>	Local Waste
164	7604.9	7605.1	0.6	0.3	0.3	0.0	0.0	0.5	<	
165	7605.1	7645.0	154.3	61.7	61.7	0.0	0.0	119.9	>	
166	7645.0	7705.0	257.8	262.4	260.8	0.0	1.7	162.5	>	Local Waste
167	7705.0	7750.0	179.3	104.2	104.2	0.0	0.0	132.9	<	
168	7750.0	7796.1	201.3	157.5	157.5	0.0	0.0	136.6	<	
169	7796.1	7864.3	215.2	126.8	126.8	0.0	0.0	157.6	>	
170	7864.3	7941.4	384.6	425.9	441.9	16.0	0.0	278.4	<	
171	7941.4	7984.4	192.0	380.7	1.5	0.0	379.2	128.9	>	Waste To Borrow at 8+048
172	7984.4	8000.0	62.0	30.8	30.8	0.0	0.0	46.8	>	

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.

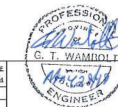


LEGEND:
 — BALANCE LINE
 - - - NET MASS LINE
 1 2 MOVEMENT DIRECTION
 FREE HAUL (<80m)
 OVERHAUL (>80m)

INTENDED TO BE PLOTTED ON 11"X17"
 ANY COVER OR PAPER MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	BY	CHK	APP
1	10/15/18	ISSUED FOR REVIEW	10/15/18	MD	MD	MD
2	10/15/18	ISSUED FOR CONSTRUCTION	10/15/18	JAP	MD	MD



DESIGNER
 DATE 2018-05-24

SCALE	HORIZ: 1:4000 VERT: 1:400
CAD FILE NAME	18364-204-01.DWG
DATE	2018-05-24
DESIGNED	MD DATE 2018-05-14
QUALITY ASSURANCE	MD DATE 2018-05-14
DRAWN	MD DATE 2018-05-14

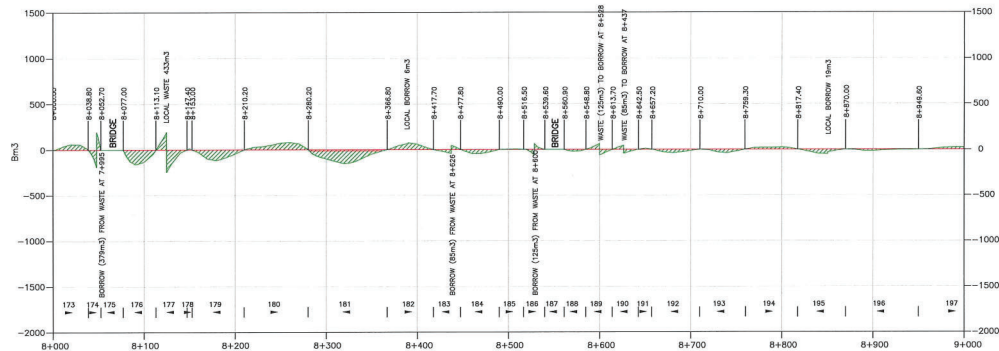
 TENAS HAUL ROAD STA. 7+000 to 8+000				
MASS HAUL 6				
LATITUDE:	54° 38' 11.87"	NAD83	NORTHING:	6060306
LONGITUDE:	127° 0' 2.89"	W	EASTING:	620033
			DRAWING NUMBER	18364-204-M8
			REV	B

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (m³)	OM Out (m³)	Fill (m³)	Borrow (m³)	Waste (m³)	Surfacing (m³)	Mass Direction	Comment
173	8000.0	8038.0	200.0	110.2	110.2	0.0	0.0	173.4	>	
174	8038.0	8052.7	78.8	1.4	380.6	379.2	0.0	64.2	>	Borrow supplied by Waste at 7+955
175	8052.7	8077.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a	BRIDGE CROSSING
176	8077.0	8113.1	167.4	169.3	169.3	0.0	0.0	121.8	<	
178	8147.4	8153.0	20.7	15.3	15.3	0.0	0.0	16.8	>	Haul waste to suitable disposal area
179	8153.0	8210.2	215.2	134.5	134.5	0.0	0.0	171.8	<	
180	8210.2	8280.2	256.9	116.5	116.5	0.0	0.0	210.5	>	
181	8280.2	8366.6	309.1	180.2	180.2	0.0	0.0	260.1	<	
182	8366.6	8417.7	207.4	142.5	149.0	8.4	0.0	152.7	>	Local Borrow
183	8417.7	8447.8	112.3	41.7	127.0	85.4	0.0	80.6	<	Borrow supplied by Waste at 8+626
184	8447.8	8490.0	159.2	74.4	74.4	0.0	0.0	127.0	<	
185	8490.0	8516.5	134.0	66.8	66.8	0.0	0.0	119.2	>	
186	8516.5	8539.6	142.4	58.7	181.6	124.9	0.0	108.6	>	Borrow supplied by Waste at 8+600
187	8539.6	8560.9	0.0	0.0	0.0	0.0	0.0	0.0	n/a	BRIDGE CROSSING
188	8560.9	8594.8	106.5	54.7	54.7	0.0	0.0	85.3	<	
189	8594.8	8613.7	123.5	79.3	1.4	0.0	124.9	86.7	<	
190	8613.7	8642.5	118.8	84.0	8.6	0.0	85.4	86.4	<	Waste to Borrow at 8+528
191	8642.5	8657.2	56.7	25.4	25.4	0.0	0.0	44.5	>	Waste to Borrow at 8+437
192	8657.2	8710.0	200.7	89.1	89.1	0.0	0.0	158.5	<	
193	8710.0	8758.3	187.9	86.5	86.5	0.0	0.0	148.0	<	
194	8758.3	8817.4	225.5	115.9	115.9	0.0	0.0	174.7	>	
195	8817.4	8870.0	201.2	89.7	108.2	18.6	0.0	158.0	<	Local Borrow
196	8870.0	8949.6	305.3	135.9	135.9	0.0	0.0	238.1	<	
197	8949.6	8957.6	296.1	114.4	112.4	0.0	2.0	234.8	>	Local Waste

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



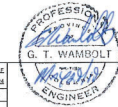
LEGEND:

- BALANCE LINE
- NET MASS LINE
- MOVEMENT DIRECTION
- FREE HAUL (<80m)
- OVERHAUL (>80m)

INTENDED TO BE PLOTTED ON 11"X17" ANY COVER or PAPER MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	DATE	DATE
1	2018-05-24	DESIGNED FOR REVIEW	2018-05-24	2018-05-24	2018-05-24
2	2018-05-24	DESIGNED FOR CONSTRUCTION	2018-05-24	2018-05-24	2018-05-24



DESIGNER: G. T. WAMBOLT
DATE: 2018-05-24

SCALE	HORIZ	VERT
1:400	1:400	1:400

DESIGNED	DATE	2018-05-24
QUALITY ASSURANCE	DATE	2018-05-24
DESIGNED	DATE	2018-05-24

TELKWA COAL LIMITED
TENAS HAUL ROAD
STA. 8+000 TO 9+000

MASS HAUL 9				DRAWING NUMBER		REV
LATITUDE:	54° 38' 11.82"	MA083	NORTHING:	6056036	18364-204-M9	B
LONGITUDE:	127° 5' 3.99"	SU	EASTING:	623633		

COORDINATES	DATE	2018-05-24
QUALITY ASSURANCE	DATE	2018-05-24
DESIGNED	DATE	2018-05-24

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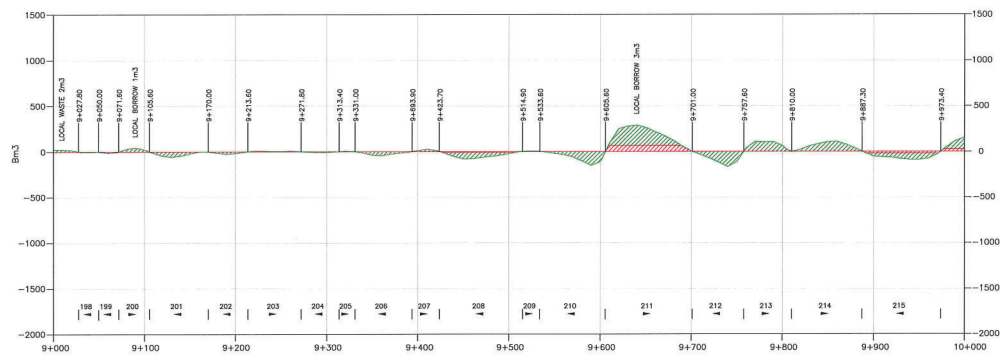
COORDINATES	DATE	2018-05-24
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DESIGNED	DATE	2018-05-24

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE
DRAWING 18364-204-01 & 18364-204-02.



LEGEND:

INTENDED TO BE PLOTTED ON 11"x17"
ANY COPIES or PDFS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION



DWB Consulting Services Ltd.
 1579 9th Avenue
 Prince George, B.C.
 V2L 3R8
 Phone: (250) 562-5541 Fax: (250) 562-5561



TELKWA COAL
LIMITED
TENAS HAUL ROAD
STA. 9+000 to 10+000

MASS HAUL 10

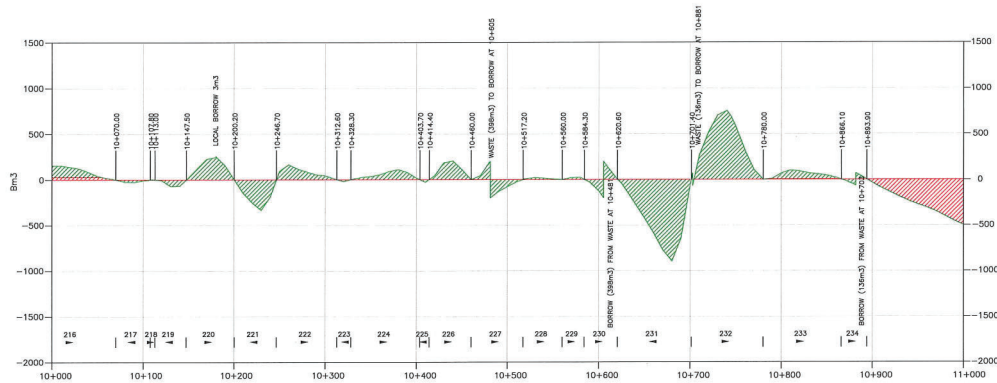
DESIGNED	BJ	DATE	2019-01-14	MASS HAUL 10						
QUALITY CONTROL	TW	DATE	2019-02-06	LATITUDE:	54° 38' 11.60"	NAD83	NORTHING:	6060036	DRAWING NUMBER	REV
QUALITY ASSURANCE		DATE		LONGITUDE:	127° 5' 3.96"	94	EASTING:	623633	18364-204-M10	B
DRAWN	KAK	DATE	2019-02-12							

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (bm ³)	GM Cut (bm ³)	Fill (bm ³ equiv)	Borrow (bm ³)	Waste (bm ³)	Surfacing (cm ³)	Mass Direction	Comment
216	9973.4	10070.0	372.4	260.2	260.2	0.0	0.0	260.1	>	
217	10070.0	10107.8	150.7	84.1	84.1	0.0	0.0	113.4	<	
218	10107.8	10113.0	2.1	15.9	15.9	0.0	0.0	15.9	>	
219	10113.0	10147.5	134.1	146.0	146.0	0.0	0.0	103.3	<	
220	10147.5	10200.2	213.4	280.8	280.8	0.0	0.0	158.6	<	Local Borrow
221	10200.2	10246.7	186.5	384.6	384.6	0.0	0.0	139.5	<	
222	10246.7	10312.6	260.8	262.5	262.5	0.0	0.0	197.9	>	
223	10312.6	10328.3	61.2	33.4	33.4	0.0	0.0	47.1	<	
224	10328.3	10403.7	258.3	203.4	203.4	0.0	0.0	226.5	>	
225	10403.7	10414.0	41.1	45.6	45.6	0.0	0.0	31.2	<	
226	10414.0	10460.0	184.6	260.2	260.2	0.0	0.0	136.0	<	
227	10460.0	10517.2	254.1	486.6	486.6	0.0	0.0	397.8	>	Waste To Borrow at 10+605
228	10517.2	10560.0	166.9	86.9	86.9	0.0	0.0	128.5	>	
229	10560.0	10584.3	32.5	46.1	46.1	0.0	0.0	27.9	>	
230	10584.3	10620.6	177.0	2.0	399.6	397.8	0.0	109.3	>	Borrow supplied by Waste at 10+481
231	10620.6	10701.4	371.2	952.0	952.0	0.0	0.0	242.7	<	
232	10701.4	10780.0	364.2	845.7	801.1	0.0	135.6	236.0	>	Waste To Borrow at 10+881
233	10780.0	10866.1	323.3	187.9	187.9	0.0	0.0	258.5	>	
234	10866.1	10883.8	101.6	8.1	143.6	135.6	0.0	83.6	>	Borrow supplied by Waste at 10+703

NOTES:

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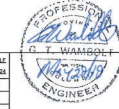
LEGEND:

- BALANCE LINE
- NET MASS LINE
- MOVEMENT DIRECTION
- FREE HAUL, (<80m)
- OVERHAUL, (>80m)

INTENDED TO BE PLOTTED ON 11"x17"
ANY COPIES OF THIS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

SCALE	HORIZ: 1:4000 VERT: 1:400	CAD FILE NAME	18364-204-02-01.DWG
REV	DATE	DESCRIPTION	DATE
1	2018-05-24	ISSUED FOR CONSTRUCTION	2018-05-24



DWB Consulting Services Ltd.	2018-05-24
2018-05-24	2018-05-24
2018-05-24	2018-05-24
2018-05-24	2018-05-24



TENAS HAUL ROAD
STA. 10+000 to 11+000

MASS HAUL 11

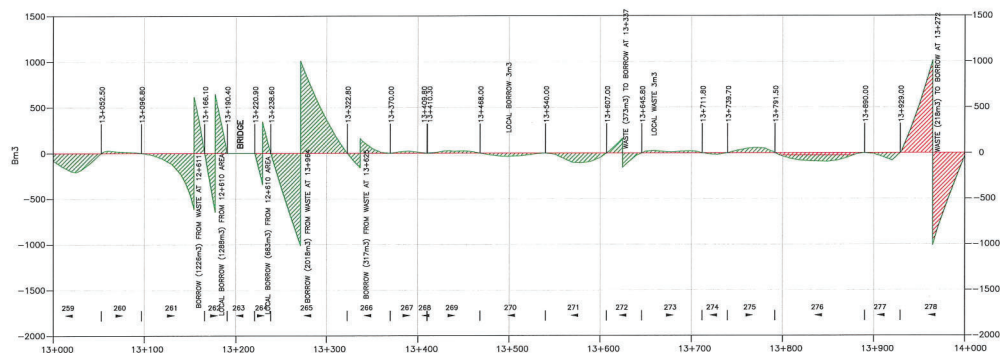
QUALITY ASSURANCE	DATE	2018-05-24	LATITUDE	54° 38' 11.87"	NAD83	NORTHING	6558008	EASTING	623633	18364-204-M11	B
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BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (m ³)	CU Cut (m ³)	Fill (m ³)	Borrow (m ³)	Waste (m ³)	Surfacing (m ³)	Mass Direction	Comment
259	12985.0	13052.4	74.3	288.5	288.5	0.0	0.0	158.6	<	
260	13052.4	13096.8	44.1	73.2	73.2	0.0	0.0	87.7	>	Borrow supplied by Waste at 12+611
261	13096.8	13166.1	188.0	8.9	1234.8	1234.8	0.0	270.3	>	Local Borrow (Endhaul) from 12+610 area
262	13166.1	13190.4	150.7	0.0	1287.6	1287.6	0.0	118.5	>	BRIDGE CROSSING
263	13190.4	13220.8	0.0	0.0	0.0	0.0	0.0	n/a	>	Local Borrow (Endhaul) from 12+610 area
264	13220.8	13338.6	90.5	0.0	883.2	883.2	0.0	57.4	>	Borrow supplied by Waste at 13+984
265	13338.6	13322.8	220.4	0.0	2017.8	2017.8	0.0	274.6	<	Borrow supplied by Waste at 13+984
266	13322.8	13370.8	52.1	20.9	337.4	316.8	0.0	141.7	<	Borrow supplied by Waste at 13+624
267	13370.8	13409.8	44.2	58.1	58.1	0.0	0.0	118.6	>	
268	13409.8	13410.3	0.5	0.5	0.5	0.0	0.0	1.5	<	
269	13410.3	13468.0	59.6	64.7	64.7	0.0	0.0	159.4	>	Local Borrow
270	13468.0	13540.0	59.6	55.9	58.5	2.6	0.0	141.3	<	
271	13540.0	13607.0	63.4	117.0	117.0	0.0	0.0	132.2	<	Waste To Borrow at 13+337
272	13607.0	13645.4	62.8	316.6	0.0	0.0	316.6	77.4	<	Local Waste
273	13645.4	13711.8	62.5	84.0	61.4	0.0	2.6	155.3	>	
274	13711.8	13738.3	22.0	22.3	22.3	0.0	0.0	58.4	>	
275	13738.3	13791.5	46.0	64.8	64.8	0.0	0.0	103.7	>	
276	13791.5	13890.0	92.1	121.0	121.0	0.0	0.0	191.0	<	
277	13890.0	13929.0	39.0	130.3	130.3	0.0	0.0	78.5	<	
278	13929.0	14001.4	129.9	2121.0	103.2	0.0	2017.8	146.0	<	Waste To Borrow at 13+271

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



LEGEND:

- BALANCE LINE
- NET MASS LINE
- Movement Direction
- FREE HAUL, (<80m)
- OVERHAUL, (>80m)

INTENDED TO BE PLOTTED ON 11"x17"
ANY COPIES OF THIS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

SCALE: HORIZ. 1:4000 VERT. 1:400

CAD FILE NAME: 18364-204-02-01.dwg

DATE: 2018.05.24

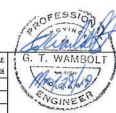
REV. DATE DESCRIPTION

8 MAY 18 ISSUED FOR CONSTRUCTION

JMP RD 797

DESIGN DESIGNED

DATE: 2018-05-24



DWB Consulting Services Ltd.
10171 W. Loop West
Houston, Texas 77057
Phone: (281) 980-0501 Fax: (281) 980-0501

DESIGNED: JWP DATE: 2018.05.24

QUALITY CONTROL: JWP DATE: 2018.05.24

QUALITY ASSURANCE: JWP DATE: 2018.05.24

DRAWN: JWP DATE: 2018.05.24

MASS HAUL 14
LATITUDE: 34° 38' 11.67" NAD83
LONGITUDE: 107° 0' 5.99" W
EASTING: 639333
NORTHING: 655004
DRAWING NUMBER: 18364-204-M14

TELKWA COAL
LIMITED

TENAS HAUL ROAD
STA. 13+000 to 14+000

MASS HAUL 14

DRAWING NUMBER: 18364-204-M14

DRAWING NUMBER: 18364-204-M14

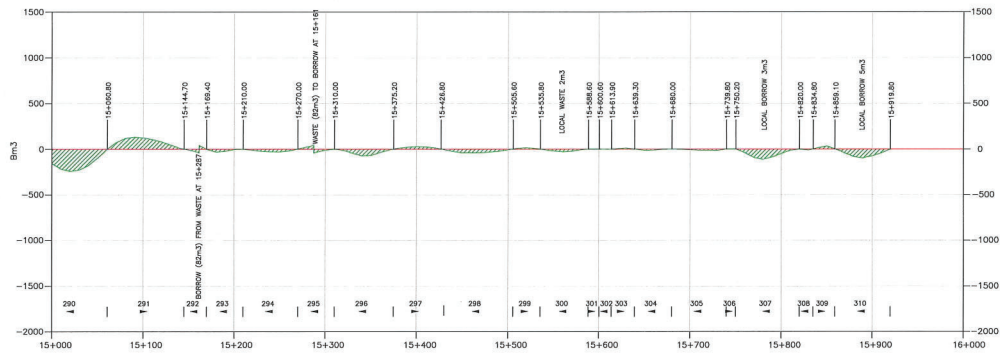
DRAWING NUMBER: 18364-204-M14

BALANCE POINT VOLUME SUMMARY

Movement Number	From Station	To Station	Stripping (m³)	GM Cut (m³)	Fill (m³)	Borrow (m³)	Waste (m³)	Surfacing (m³)	Mass Direction	Comment
290	14980.75	15060.8	65.3	284.1	284.1	0.0	0.0	234.6	<	
291	15060.81	15144.7	100.6	190.4	190.4	0.0	0.0	292.1	>	
292	15144.75	15169.4	26.0	26.0	107.9	81.9	0.0	74.3	<	
293	15169.45	15210.0	47.1	101.9	101.9	0.0	0.0	121.8	<	
294	15210.05	15270.0	71.7	96.9	96.9	0.0	0.0	180.2	<	
295	15270.05	15310.0	59.8	111.6	23.7	0.0	81.9	120.2	<	
296	15310.05	15375.2	80.8	167.2	167.2	0.0	0.0	195.9	<	
297	15375.25	15428.8	61.9	60.7	60.7	0.0	0.0	154.9	>	
298	15428.85	15505.8	76.1	130.8	130.8	0.0	0.0	236.7	<	
299	15505.85	15535.8	35.9	44.5	44.5	0.0	0.0	50.7	>	
300	15535.85	15588.6	52.8	89.5	87.7	0.0	1.8	156.8	<	Local Waste
301	15588.65	15600.6	14.5	22.7	22.7	0.0	0.0	35.9	>	
302	15600.65	15613.8	13.8	22.7	22.7	0.0	0.0	40.0	<	
303	15613.85	15635.3	21.5	46.6	46.6	0.0	0.0	76.4	>	
304	15635.35	15680.0	50.4	81.4	81.4	0.0	0.0	122.2	<	
305	15680.05	15719.8	27.0	102.1	102.1	0.0	0.0	179.8	<	
306	15719.85	15750.2	15.0	26.5	26.5	0.0	0.0	31.1	>	
307	15750.25	15820.0	235.4	137.8	140.5	2.8	0.0	209.8	<	Local Borrow
308	15820.05	15834.8	14.7	29.2	29.2	0.0	0.0	48.7	<	
309	15834.85	15855.1	112.9	73.3	73.3	0.0	0.0	113.0	>	
310	15855.15	15919.8	290.1	159.0	163.7	4.7	0.0	292.9	<	Local Borrow

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS & TYPICAL SECTIONS SEE DRAWING 18364-204-01 & 18364-204-02.



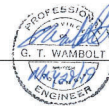
LEGEND:

- BALANCE LINE
- NET MASS LINE
- 1 2 3
- MOMENT DIRECTION
- FREE HAUL (<80m)
- OVERHAUL (>80m)

INTENDED TO BE PRINTED ON 11"x17"
ANY COPIES OF POPS MAY NOT BE TO SCALE

ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	DATE
1	FEB-19	ISSUED FOR REVIEW	2019-02-21	
2	MAY-19	ISSUED FOR CONSTRUCTION	2019-05-24	



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DESIGNED	DATE	2019-05-24
QUALITY ASSURANCE	DATE	2019-05-24
DATE	DATE	2019-05-24
DATE	DATE	2019-05-24

TELKWA COAL
LIMITED

TENAS HAUL ROAD
STA. 15+000 to 16+000

MASS HAUL 16

QUALITY ASSURANCE	DATE	2019-05-24
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APPENDIX B – GOATHORN CREEK BRIDGE DESIGN

Sheet List Table	
Sheet Number	Sheet Title
18504-204-01	Site Plan
18504-204-23	Site Profile & Sections
18504-204-23	General Arrangement Plan
18504-204-24	General Arrangement Profile & Sections
18504-204-25	Specification Notes
18504-204-26	Steel Panel A Details
18504-204-27	Steel Elevation
18504-204-28	Steel Section & Cap Details
18504-204-29	Steel Splice Details
18504-204-30	Steel Beaming Details
18504-204-31	Deck Layout & Connection Details
18504-204-32	Concrete Deck Panel A Details
18504-204-33	Concrete Deck Panel B Details
18504-204-34	Ballast Wall Details
18504-204-35	Vehicle Tracking Analysis



GOATHORN CREEK CROSSING
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE
ON PILES (110 TONNES)
STA. 13+200 ON TELKWA COALMINE ROAD

Lat. 54° 37' 04.1" Long. 127° 08' 07.8"



DOWNSTREAM FROM CROSSING



LOWCHAIN FROM CROSSING

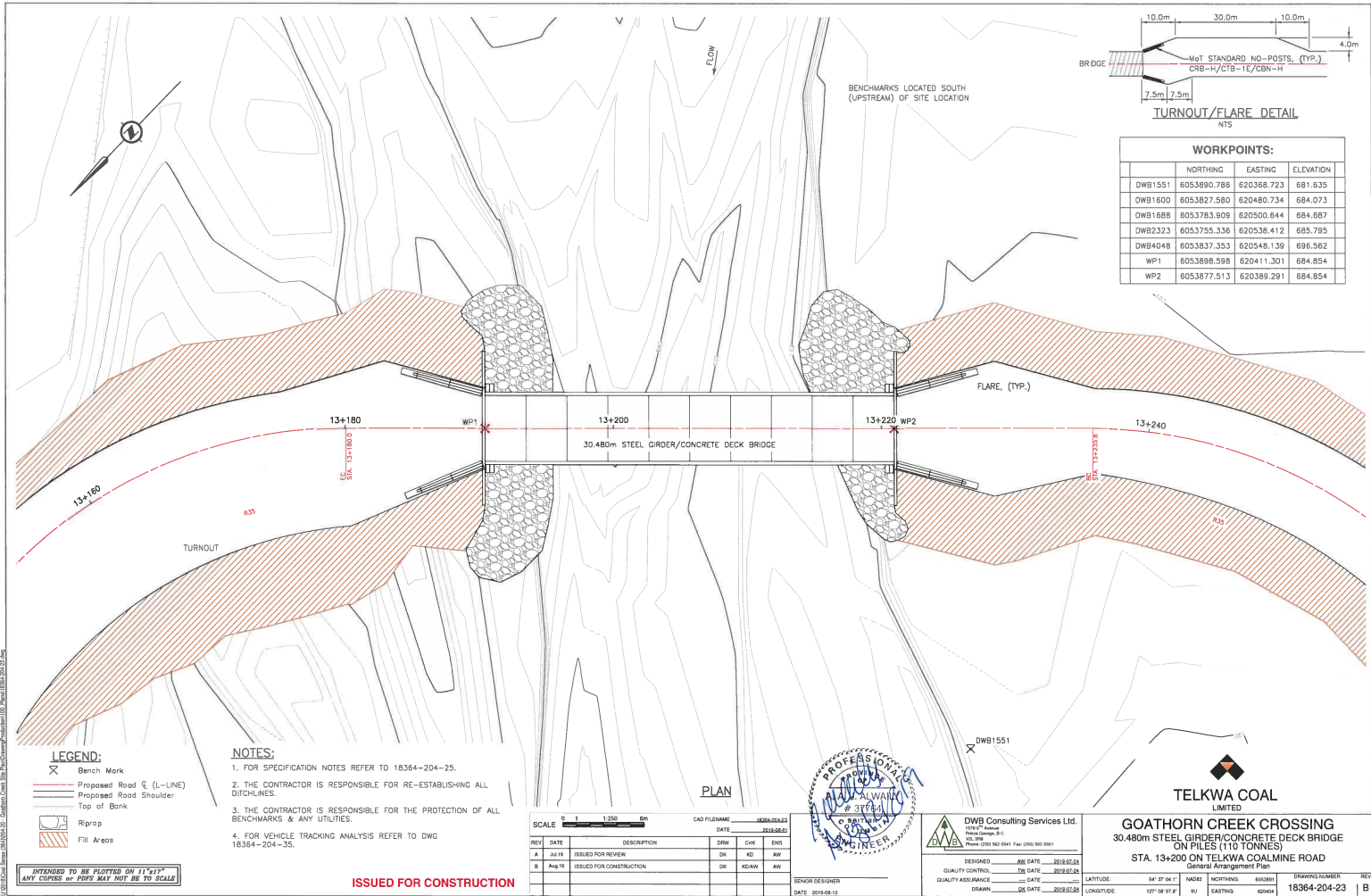


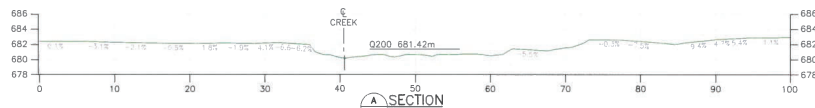
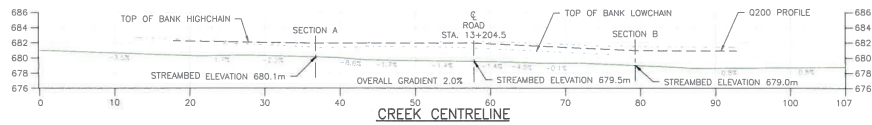
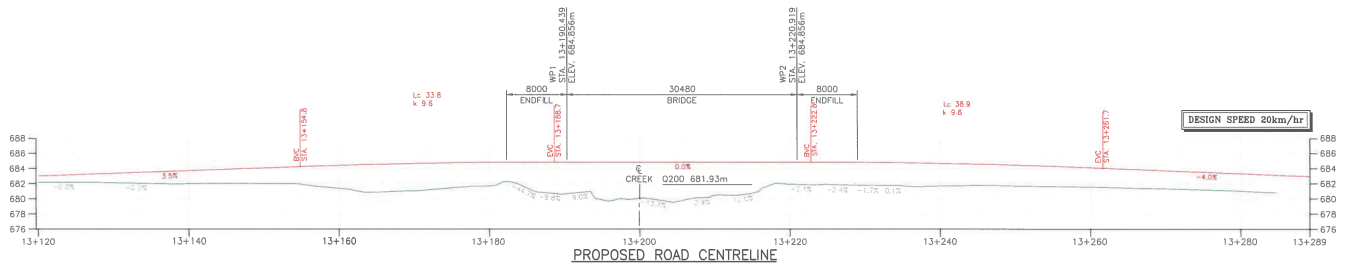
DWB Consulting Services Ltd.
1579 9th Avenue
Prince George, B.C.
V2L 3R8
Phone: (250) 562-5541 Fax: (250) 562-5581

INTENDED TO BE PLOTTED ON 11"x17"
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CLIENT PROJECT CODE	DATE	DRAWING NUMBER	REV
----	2019-08-13	18364-204-20	B

ISSUED FOR CONSTRUCTION





LEGEND:

- Road Design
- Existing Ground
- Present Water Level
- - - Top of Bank

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ISSUED FOR CONSTRUCTION

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				DATE		2019-09-01	
REV	DATE	DESCRIPTION		DRW	CHK	ENG	
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2	Aug 19	ISSUED FOR CONSTRUCTION		DK	KD/AW	AW	

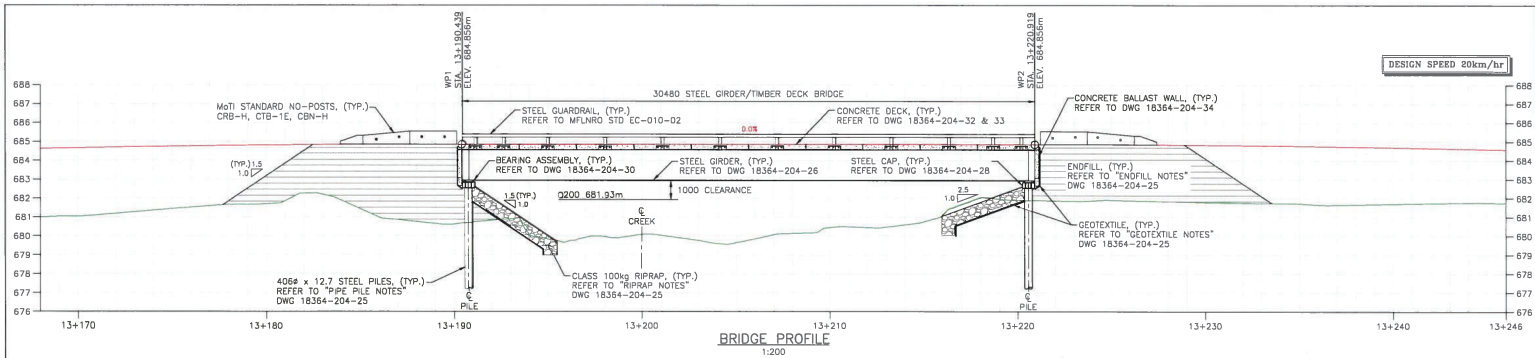


DESIGNED		DATE	18/07/20
QUALITY CONTROL		DATE	18/07/20
QUALITY ASSURANCE		DATE	18/07/20
DRAWN		DATE	18/07/20

LIMITED					
GOATHORN CREEK CROSSING					
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE					
ON PILES (110 TONNES)					
STA. 13+200 ON TELKWA COALMINE ROAD					
Site Profile & Sections					
LATITUDE:		54° 37' 04.1"	NAD83	NORTHING:	805091
LONGITUDE:		121° 08' 07.1"	9U	EASTING:	620044
				DRAWING NUMBER	18364-204-22
				REV	B

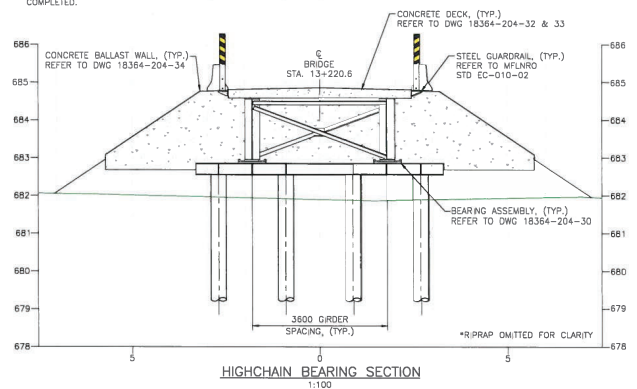
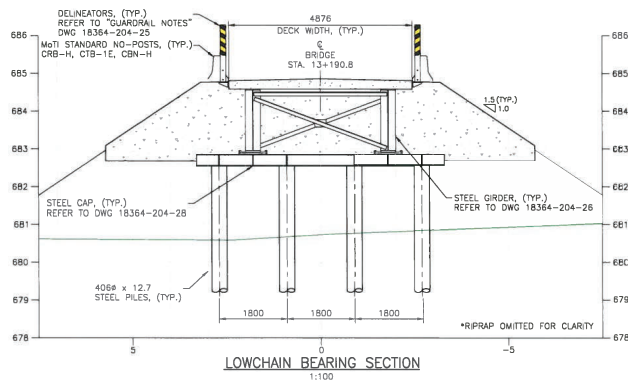


GOATHORN CREEK CROSSING
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE
ON PILES (110 TONNES)
STA. 13+200 ON TELKWA COALMINE ROAD



CLEARANCE NOTE:

MINIMUM UNDERSIDE OF GIRDER ELEVATION 682.93m; DEPTH OF STEEL WITH DECK TO BE 1926mm. IF STEEL VARIES FROM THIS, WORKPOINT ELEVATIONS, BALLAST WALL LENGTHS & LAYOUT MAY NEED TO BE ADJUSTED. PRIOR TO CONSTRUCTION, VERIFICATION OF WORKPOINTS BY THE DESIGN ENGINEER MUST BE COMPLETED.



NOTES:
1. FOR SPECIFICATION NOTES REFER TO 18364-204-25.

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ISSUED FOR CONSTRUCTION

SCALE		As Noted		CAD FILENAME	
REV	DATE	DESCRIPTION	CHK	BY	DATE
A	24/10	ISSUED FOR REVIEW	DK	BD	AW
B	Aug 18	ISSUED FOR CONSTRUCTION	DK	BD	AW



DESIGNED		DATE	
AW	2018-02-28	DATE	2018-02-28
QUALITY ASSURANCE		DATE	
DK	2018-02-28	DATE	2018-02-28

DRAWN		DATE	
DK	2018-02-28	DATE	2018-02-28

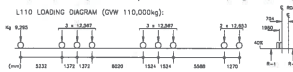


GOATHORN CREEK CROSSING
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE
ON PILES (110 TONNES)
STA. 13+200 ON TELKWA COALMINE ROAD
General Arrangement Profile & Sections

DRAWING NUMBER	REV
18364-204-24	B

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE (U.N.O.).
2. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL BENCHMARKS.
3. REFER TO GEOTECHNICAL REVIEW REPORT.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING SAFETY IN & AROUND THE WORK SITE. PROPER & SAFE METHODS OF CONSTRUCTION SHALL BE USED AT ALL TIMES. AS A MINIMUM, THE REQUIREMENTS OF THE LATEST EDITION OF W. SAFE BC'S HEALTH & SAFETY REGULATIONS PUBLICATION, CANADIAN CONSTRUCTION SAFETY CODE & THE PROVINCIAL GOVERNMENT SHALL BE ADHERED TO. WHERE THERE IS ANY DISCREPANCY BETWEEN THE ABOVE, THE MOST STRINGENT SHALL APPLY.

1. THIS PERMANENT BRIDGE HAS BEEN DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENCED TO PRACTICE IN BRITISH COLUMBIA. THE BRIDGE HAS BEEN DESIGNED IN ACCORDANCE TO CAN/CSA-S6 & THE FOLLOWING LOAD DIAGRAM.



REFER TO MFLNO STD-EC-000-001 FOR ADDITIONAL INFORMATION

2. THERMAL ACTION:

MAXIMUM DAILY TEMPERATURE:	+32°C
MINIMUM DAILY TEMPERATURE:	-21°C

3. WIND LOAD (DESIGN WIND PRESSURE $Q_{10} = 370\text{Pa}$):

ON STRUCTURE:	1.28 kN/m^2
ON LIVE LOAD:	0.78 kN/m^2

4. CONSTRUCTION LIVE LOAD SHALL BE ACCORDING TO CAN/CSA-S8-14 SECTION 3.16.4.2.

CONSTRUCTION LIVE LOAD	0.5 kPa
------------------------	------------------

5. DESIGN SPEED:

	30 km/hr
--	-------------------

1. ALL BEARING PAD MATERIAL SHALL BE OZONE RESISTING NATURAL RUBBER (NATURAL POLYISOPRENE) IN ACCORDANCE WITH CAN/CSA-S8-14 WITH A DUROMETER HARDNESS OF 50.
2. ALL BEARING PAD STEEL SHIMS SHALL BE ROLLED STEEL WITH A MINIMUM $F_y = 230\text{MPa}$.

3. STEEL COMPONENTS OF BEARING SHALL CONFORM TO CSA C40.21-W, PLATE GRADE OF 350AT OR GALVANIZED.
4. MAXIMUM EXPANSION JOINT MOVEMENT OF 15mm.
5. ALL BEARING PAD CERTIFICATES SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL.

1. STEEL PIPE FOR THE PILES SHALL CONFORM TO ASTM A252, GRADE 3 (Y_T=310MPa MINIMUM), DIAMETER & WALL THICKNESS AS INDICATED ON THE DRAWINGS. ALL CERTIFICATES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

2. PILES SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE DRAWINGS. MAXIMUM TOLERANCE FROM LOCATIONS SHOWN ON THE DRAWINGS SHALL BE 75mm AT GROUND & 25mm AT CUT-OFF ELEVATIONS.
3. PILES SHALL BE SPLICED, IF NECESSARY, IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS. PILING SHALL BE ALIGNED SUCH THAT PILES ARE STRAIGHT FROM END TO END.
4. ALL WELDING SHALL CONFORM IN QUALITY & WORKMANSHIP TO CURRENT CSA W47.1 & W48.1 REQUIREMENTS BY A COMPANY CERTIFIED FOR DIVISION 2 OR DIVISION 2 OF CSA W47.1 & APPROVED BY DWB Consulting Services Ltd. CERTIFICATION SHALL BE IN EFFECT THROUGHOUT THE CONSTRUCTION PERIOD.
5. PILE DRIVING EQUIPMENT SPECIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCEMENT OF PILE DRIVING. PILES SHALL BE DRIVEN TO THE REQUIRED ELEVATION.

	ABUTMENTS
SERVICE LOAD (SLS)	480kN
ULTIMATE LOAD (ULS)	900kN
PILE DEPTH	20m
PILE END	OPEN

1. SUPERSTRUCTURE MEMBERS SHALL BE GRADE 350AT, BRACING MEMBERS SHALL BE GRADE 350.

2. STRUCTURAL BOLTS SHALL BE ASTM A325, TYPE 3 M22 U.N.O. INSTALLED IN ACCORDANCE WITH CAN/CAS-58-14. ALL BOLTS SHALL BE PREVIOUSLY UNGRADED BOLTS SHALL HAVE SUFFICIENT LENGTH SUCH THAT THE FULL THREAD IS EXCLUDED FROM SHEAR PLANES BETWEEN CONNECTED PARTS.

3. NELSON STUDS SHALL BE IN ACCORDANCE WITH ASTM A108, GRADE 1015, 1018, OR 1020. SHEAR STUDS SHALL MEET THE REQUIREMENTS OF CAS W59 APPENDIX H FOR TYPE A & B STUDS.

4. NELSON STUDS SHALL BE 22x150mm U.N.O.

1. ALL DIMENSIONS ARE CORRECT AT 15°C, GIRDER LENGTHS ARE MEASURED ALONG THE CENTRELINE OF GIRDER.

2. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
3. ALL MATERIALS OR MATERIAL COMBINATIONS SHALL CONFORM TO APPLICABLE CSA OR ASTM STANDARDS & SHALL HAVE THE APPROPRIATE SUPPORTING IDENTIFICATION.
4. ORDER CHANGER SHALL BE 80mm.
5. ALL WELDING SHALL CONFORM TO CURRENT CSA W59. WELDING ELECTRODES SHALL BE COMPATIBLE WITH BASE METALS, ALL WELDS SHALL BE 8mm U.G.O.D.
6. THE FABRICATOR RESPONSIBLE FOR WELDED CONSTRUCTION SHALL BE CERTIFIED TO THE FOLLOWING STANDARDS:
 - a. WELDED CONSTRUCTION – CERTIFICATION OF COMPOSER FOR FUSION WELDING OF STEEL STRUCTURES. CERTIFICATION SHALL BE IN EFFECT THROUGHOUT MANUFACTURING PERIOD
7. FIELD WELDING SHALL BE COMPLETED BY A COMPANY CERTIFIED TO CSA W47.1 DIVISION 3 OR BETTER.
8. ALL WELDS SHALL BE VISUALLY INSPECTED.
9. CONTACT THE ENGINEER FOR FABRICATION INSPECTIONS A MINIMUM OF TWO WEEKS PRIOR TO SUBMITTING FOR INSPECTION.

1. PRECAST CONCRETE SHALL CONFORM TO CSA A23.1 EXPOSURE CLASS C1, $f'_{cm}=35MPa$ AT 28 DAYS. PRECAST CONCRETE SHALL BE FABRICATED IN ACCORDANCE WITH CSA A23.4 BY A PLANT CERTIFIED IN ACCORDANCE WITH CSA A23.4. FABRICATION TOLERANCES TO CSA A23.4. FINISH SHALL BE TRANSVERSE BROOM TO TOP OF DECK PANELS, OTHERWISE TO CSA A23.1 & A23.4. ALL CORNERS SHALL COME WITH 20x20 CHAMFER U.N.O. ON THE APPLICABLE

2. THE CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO CASTING.
3. THE ADDITION OF FLY ASH SHALL NOT EXCEED 15% BY MASS OF PORTLAND CEMENT IN SUBSTRUCTURE CONCRETE.
4. ALL CONCRETE IN CONTACT WITH NATURAL SOIL SHALL BE MADE ACCORDING TO THE CSA SPECIFICATION FOR EXPOSURE CLASSIFICATION S-2. THIS WILL REQUIRE A 56 DAY COMPRESSIVE STRENGTH OF 35MPa, A WATER CEMENT RATIO NO HIGHER THAN 40, & THE USE OF TYPE HS OR HS6 PORTLAND CEMENT.

1. ALL REINFORCING STEEL SHALL HAVE A MINIMUM GRADE OF $f_y=400\text{MPa}$.
2. TOP MAT OF DECK SHALL BE EPOXY COATED STEEL (CAN/GSA-Q30.18).

3. REINFORCING SHALL CONFORM TO CAN/CSA G30.18M GRADE 40R. REINFORCING STEEL SHALL NOT BE WELDED/TACK WELDED.

1. GROUT SHALL BE NON-SHRINK PORTLAND CEMENT BASED WITH A MINIMUM COMPRESSIVE STRENGTH OF 35MPa AT 28 DAYS, INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. GROUT SHALL BE A MIXTURE OF FINE &

2. FIELD SAMPLING OF GROUT PROCEDURES SHALL CONFORM WITH DESIGN

GUARDRAIL NOTES:

1. STEEL RAILS SHALL BE CSA G40.21M GRADE 350W (POWDER COATED YELLOW) OR
ASTM A500 GRADE C (POWDER COATED YELLOW).

2. STEEL POSTS & PLATE SHALL BE CSA 40.21M GRADE 350W (POWDER COATED YELLOW).
3. SHOP WELDING SHALL BE IN ACCORDANCE WITH CSA W59. FABRICATOR SHALL BE CERTIFIED FOR DIVISION 1, 2 OR 3 IN ACCORDANCE WITH CSA W47.1. FIELD WELDING (IF ANY) SHALL BE DONE BY COMPANIES CERTIFIED TO CSA W47.1. MINIMUM 1, 2 OR 3 DIVISION 1, 2 OR 3 MINIMUM 1/4" THICK FIELD WELDED. NOTED OTHERWISE.
4. INSERTS SHALL BE GALVANIZED TO CSA G164, MINIMUM 610g/m² AFTER FABRICATION.
5. QUADRANT BRACKETS & POST SHALL BE GALVANIZED TO CSA G164, MINIMUM 610g/m² AFTER FABRICATION.
6. DELINEATORS REQUIRED AS PER MFLNO STANDARD.

1. ERECTION PROCEDURE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. GIRDERS SHALL BE SUPPORTED BY TEMPORARY BRACING TO PREVENT DAMAGE DURING TRANSPORTATION & ERECTION.
3. ALL PRECAST COMPONENTS SHALL UTILIZE RECESSED LIFTING INSERTS AS LIFTING DEVICES. GROUT RECESSES AFTER INSTALLATION.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING GIRDERS IN CORRECT ALIGNMENT UNTIL THE DECK HAS BEEN GROUTED IN PLACE.
5. ONLY LOW IMPACT LIFTS ARE PERMITTED. THE ANGLE OF LIFT SHALL NOT EXCEED 30° FROM VERTICAL.

1. CONCRETE TEST RESULTS BY AN APPROVED TESTING LABORATORY FOR ALL PRECAST CONCRETE COMPONENTS & FIELD GROUTING SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW.

2. MILL CERTIFICATES FOR ALL STEEL INCORPORATED INTO THE STRUCTURE SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW.
3. CERTIFICATION TO CSA STANDARDS FOR THE STEEL & PRECAST CONCRETE MANUFACTURERS SHALL BE IN EFFECT AT THE TIME OF TENDER OPENING & THROUGHOUT THE MANUFACTURING PERIOD.
4. IT IS UNDERSTOOD THAT THE OWNER WILL ARRANGE TO CARRY OUT FIELD REVIEWS BY A QUALIFIED PERSON TO CONFIRM CONFORMANCE TO DESIGN DRAWINGS.

1. BRIDGE ENDFILL SHALL CONSIST OF WELL GRADED, SELECT, GRANULAR MATERIAL (75mm) FREE OF UNSUITABLE MATERIALS, FROZEN MATERIAL, & ORGANICS. BRIDGE ENDFILL SHALL BE CONSTRUCTED IN SUCCESSIVE HORIZONTAL LAYERS NOT EXCEEDING 200mm IN LOOSE THICKNESS. EACH LAYER SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DRY DENSITY. THE FINAL TWO LAYERS OF ENDFILL SHALL BE COMPACTED TO 100% STANDARD PROCTOR DRY DENSITY.
2. HEAVY EARTH COMPACTING EQUIPMENT OR OTHER HEAVY CONSTRUCTION EQUIPMENT SHALL NOT BE USED WITHIN 2.0m OF THE ABUTMENT & WALLS, WITH THE EXCEPTION OF A 10 TON VIBRATORY ROLLER FOR BASE PREPARATION.

1. CLASS 100kg RIPRAP SHALL BE HARD, DURABLE, ANGULAR ROCK AND IN ACCORDANCE TO THE "MOTI STANDARD SPECIFICATIONS" APPROXIMATE AVERAGE DIMENSION OF SPECIFIED ROCK CLASS MASS ($S_g=2.640$).

CLASS 100kg AVERAGE SIZE ROCK RPRAP, 700mm THICK
WITH THE FOLLOWING ROCK GRADATION:

	<u>DIAMETER</u>
15% AVERAGE DIMENSION	195#
50% AVERAGE DIMENSION	415#
85% AVERAGE DIMENSION	600#
<100% AVERAGE DIMENSION	715#

GEOTEXTILE NOTES:
1. LINE EXCAVATION & ROCK WITH NON-WOVEN GEOTEXTILE WITH THE FOLLOWING SPECIFICATIONS:

GRAB TENSILE STRENGTH	ASTM D4632 ≥ 900 N
PUNCTURE STRENGTH	ASTM D6241 ≥ 2000 N

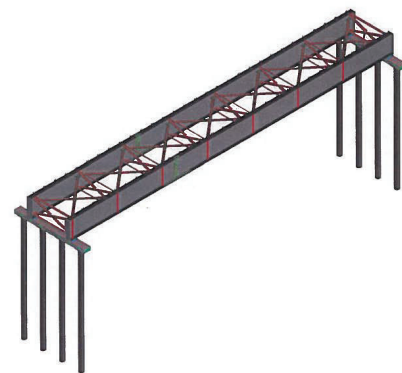
HYDROLOGY NOTES:

- Q200 ELEVATION:	681.93
- MINIMUM CLEARANCE:	1.0
- DESIGN VELOCITY:	3.67
- DESIGN DISCHARGE:	55.5

ESTIMATED QUANTITIES:

EXCAVATION:	13
GEOTEXTILE:	3

GEOTEXTILE:	34
ENDFILL:	72
CLASS 100kg R/PRAP:	21



ISOMETRIC
1:250

SCALE		AS NOTED		CAD FILE NAME _____ 13366.356.dwg		
				DATE _____ 2019.08.01		
REV	DATE	DESCRIPTION	DRWN	CHK	ENG	
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B	Aug 19	ISSUED FOR CONSTRUCTION	DK	KC/AN	AN	



GOATHORN CREEK CROSSING
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE
ON PILES (110 TONNES)
STA. 13+200 ON TELKWA COALMINE ROAD
Specification Notes

QUALITY CONTROL		TW DATE		2019-07-24		SPECIALIZATION NOTES			
QUALITY ASSURANCE		DATE				LATITUDE		54° 37' 04.1"	
DRAWN		DK DATE		2019-07-24		LONGITUDE		129° 08' 07.8"	
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						SUT		EASTING	
								DRAWING NUMBER	
								18364-204-25	
								REV	
								B	

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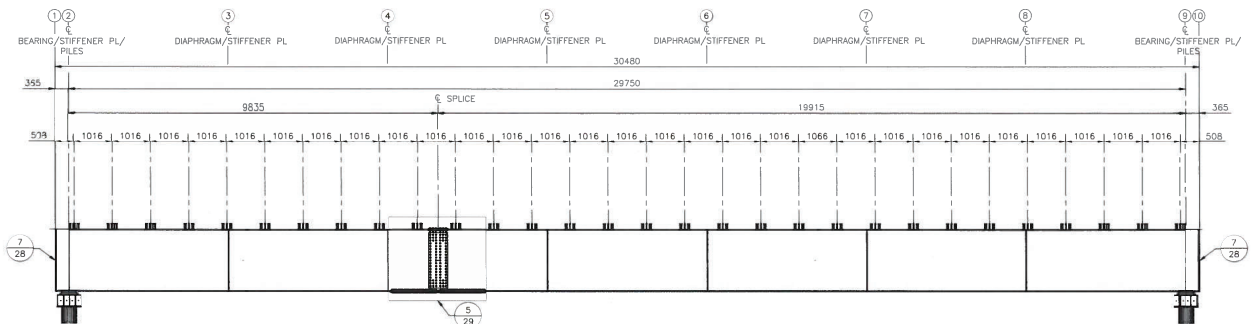


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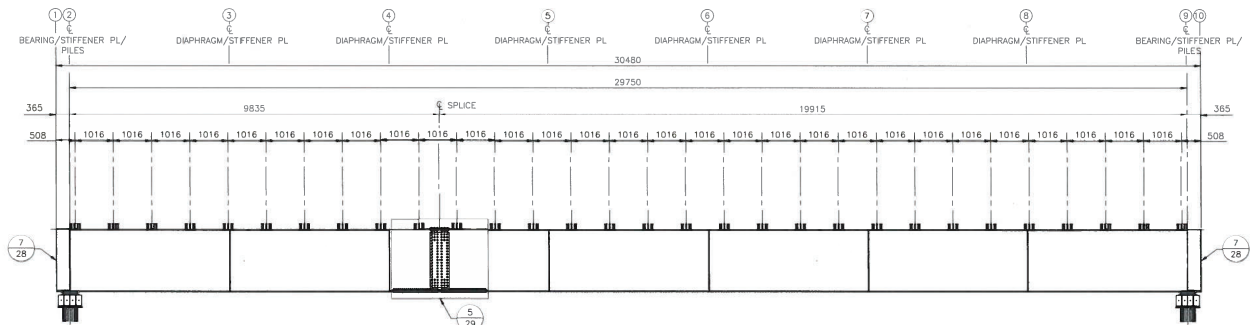
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NOTES:

1. FOR SPECIFICATION NOTES SEE DRAWING 18364-204-25.



ELEVATION AT GRIDLINE A



ELEVATION AT GRIDLINE B



GOATHORN CREEK CROSSING
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE
ON PILES (110 TONNES)
STA. 13+200 ON TELKWA COALMINE ROAD
Steel Elevation

SCALE 1:100		CAD FILENAME: 18364-204-27		DATE: 2019-08-12	
REV	DATE	DESCRIPTION	DRW	CHK	ENG
A	Jul 18	ISSUED FOR REVIEW	KD	AKND	AW
B	Aug 19	ISSUED FOR CONSTRUCTION	KD	KDRAV	AW

SENIOR DESIGNER
 DATE: 2019-08-12

DWB Consulting Services Ltd.
 17017 Avenue
 V2L 3P8
 Phone: (250) 522-0541 Fax: (250) 522-0551

DESIGNED: _____ DATE: 2019-07-28
 QUALITY CONTROL: _____ DATE: 2019-07-28
 QUALITY ASSURANCE: _____ DATE: _____
 DRAWN: _____ DATE: 2019-07-28

LATITUDE: 54° 37' 56.1" NAD83
 LONGITUDE: 127° 48' 07.8" W
 NAD83
 EASTING: 680381
 NORTHING: 680381
 18364-204-27 B

INTENDED TO BE PLOTTED ON 11"x17"
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ISSUED FOR CONSTRUCTION



1. FOR SPECIFICATION NOTES SEE DRAWING 18364-204-25.



SENSOR DESIGN

ISSUED FOR CONSTRUCTION

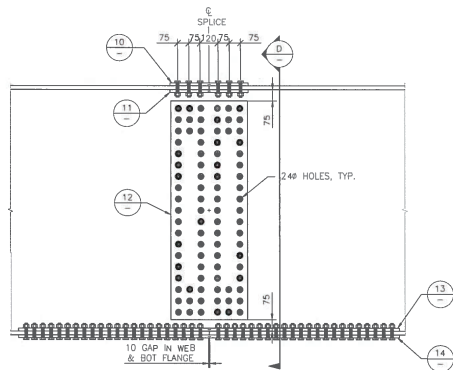
QUALITY ASSURANCE _____ DATE _____
DRAWN _____ KD DATE 2019-07-2

DATE: 54° 37' 04.1"	NAD83	NORTHING: 6053891	DRAWING NUMBER 18364-204-28
TIME: 1075.661 UT-04	GL	EASTING: 600000	

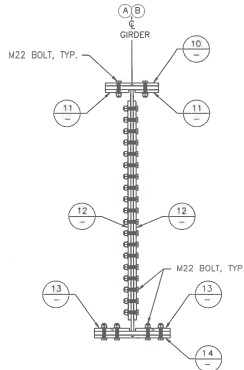
HORN CREEK CR

DATE: 54° 37' 04.1"	NAD83	NORTHING: 6053891	DRAWING NUMBER 18364-204-28
JOB: 1075-001-03-01	CU1	EASTING: 600000	

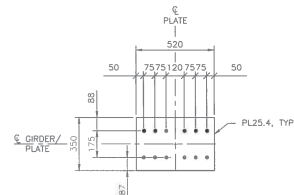
18364-204-28 | B



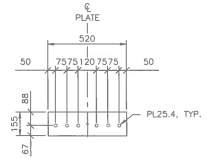
5
27
DETAIL
1:10



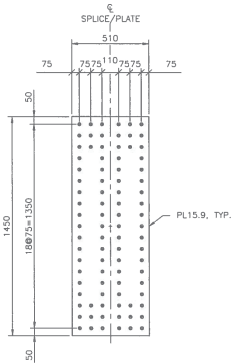
D
SECTION
1:10



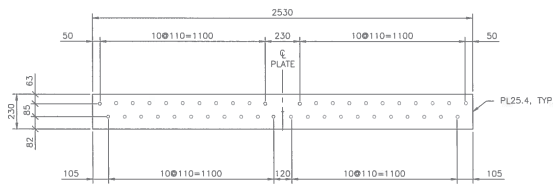
10
DETAIL
1:10
(2 REQUIRED)



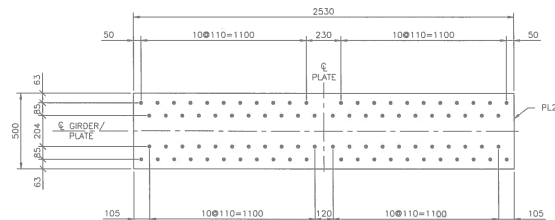
11
DETAIL
1:10
(4 REQUIRED)



12
DETAIL
1:10
(4 REQUIRED)



13
DETAIL
1:10
(4 REQUIRED)



14
DETAIL
1:10
(2 REQUIRED)

NOTES:

1. FOR SPECIFICATION NOTES SEE DRAWING 18364-204-25.

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SCALE		As Noted	CAD FILENAME		18364-204-25
			DATE		2018-08-15
REV	DATE	DESCRIPTION	DRW	CHK	ENG
A	Jul 18	ISSUED FOR REVIEW	KD	AKHND	AW
B	Aug 18	ISSUED FOR CONSTRUCTION	KD	KDRAH	AW

DESIGNER
DATE: 2018-08-15



DWB Consulting Services Ltd.	
DESIGNED	2018-07-28
QUALITY ASSURANCE	2018-07-28
DRAWN	2018-07-28

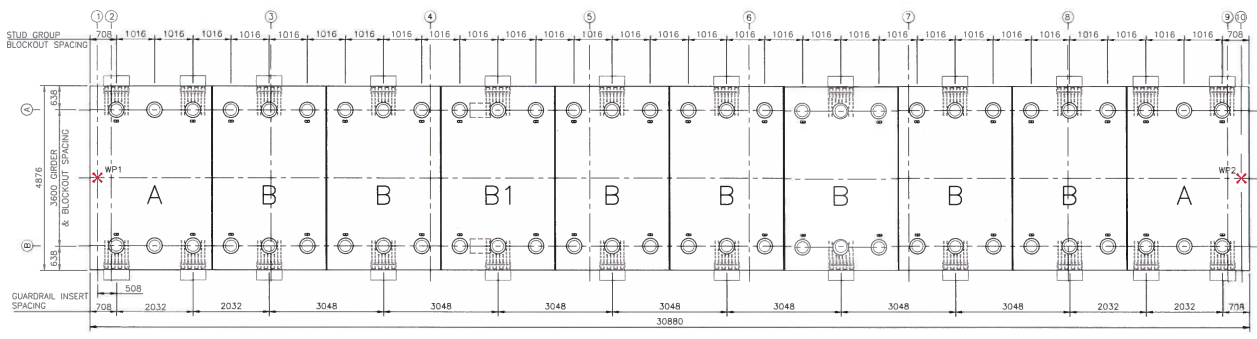
TELKWA COAL LIMITED	
GOATHORN CREEK CROSSING 30 480m STEEL GIRDER/CONCRETE DECK BRIDGE ON PILES (110 TONNES) STA: 13+200 ON TELKWA COALMINE ROAD Steel Splice Details	
LATITUDE	54° 37' 54.1"
LONGITUDE	127° 08' 07.8"
NAD83	6003891
EASTING	620404
PROJECT NUMBER	18364-204-29
REV	B



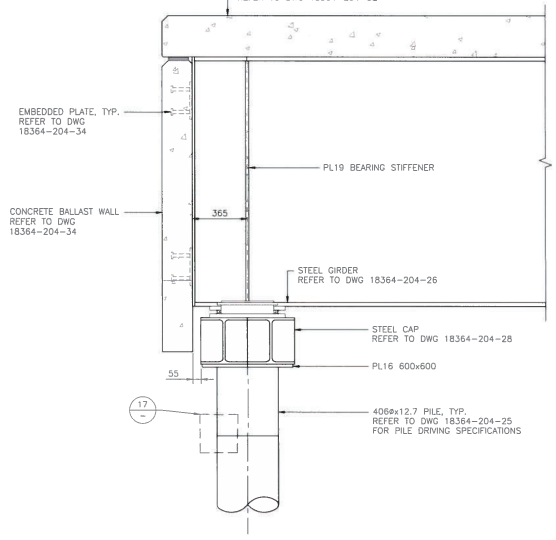
ISSUED FOR CONSTRUCTION

A circular professional seal for a Civil Engineer in the Province of Ontario. The seal contains the text: "PROFESSIONAL ENGINEER", "PROVINCE OF ONTARIO", "A. J. ALWALLY", "# 3776", and "CIVIL ENGINEERING". The seal is stamped over a blue ink signature.

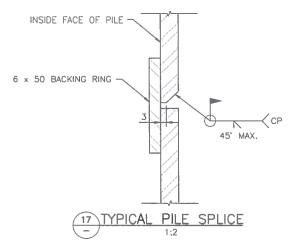
LIMITED			
GOATHORN CREEK CROSSING			
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE ON PILES (110 TONNES)			
STA. 13+200 ON TELKWA COALMINE ROAD			
Steel Bearing Details			
LATITUDE	54° 37' 04.1"	NAD83	NORTHING: 6053891
LONGITUDE	123° 38' 07.8"	SU	EASTING: 204564
DRAWING NUMBER			18364-204-30



DECK PANEL LAYOUT
1:100



TYPICAL ABUTMENT DETAIL
1:25

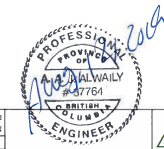


TYPICAL PILE SPLICE
1:2

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ISSUED FOR CONSTRUCTION

SCALE As Noted			CAD FILE NAME 18364-204-31		
REV	DATE	DESCRIPTION	CHK	CHK	APP
A	Jul 18	ISSUED FOR REVIEW	DK	RD	AW
B	Aug 19	ISSUED FOR CONSTRUCTION	DK	KD/HK	AW

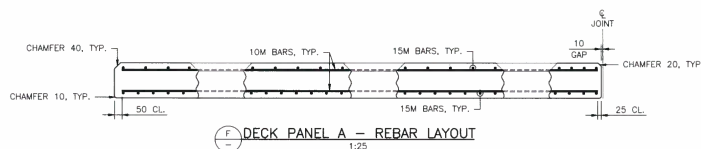
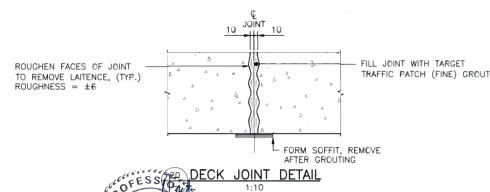
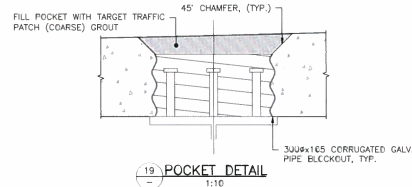
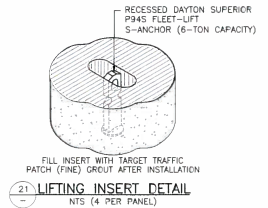
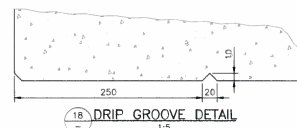
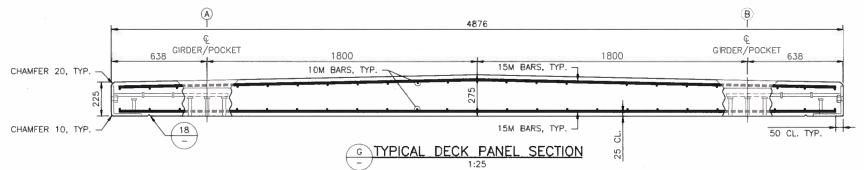
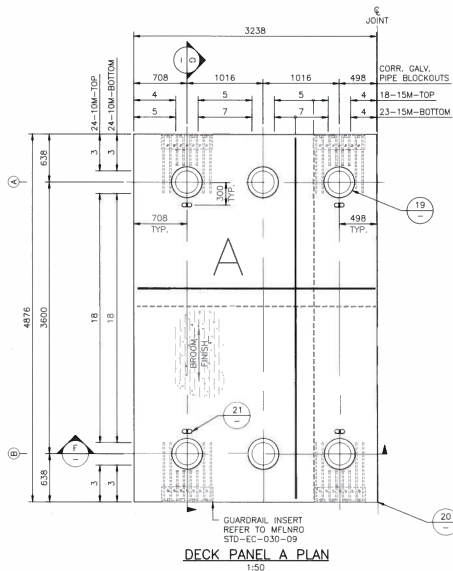


DWB Consulting Services Ltd.		
DESIGNED	AW	DATE 2018-07-28
QUALITY CONTROL	SW	DATE 2018-07-28
QUALITY ASSURANCE	SW	DATE 2018-07-28
DRAWN	DK	DATE 2018-07-28

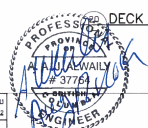
GOATHORN CREEK CROSSING					
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE					
ON PILES (110 TONNES)					
STA. 13+200 ON TELKWA COALMINE ROAD					
Deck Layout & Connection Details					
LATITUDE:	54° 37' 04.1"	NAD83:	NORTHING:	6052851	DRAWING NUMBER
LONGITUDE:	127° 08' 07.8"	SU:	EASTING:	620454	18364-204-31



DRAWING NUMBER	REV
18364-204-31	B



SCALE: As Noted		CAD FILENAME: 1808-204-32	
REV	DATE	DESCRIPTION	DATE
1	2018-08-13	ISSUED FOR CONSTRUCTION	2018-08-13
2	2018-08-13	ISSUED FOR CONSTRUCTION	2018-08-13



DWB Consulting Services Ltd.	
DESIGNED	2018-08-13
QUALITY ASSURANCE	2018-08-13
DRAWN	2018-08-13

GOATHORN CREEK CROSSING	
30.480m STEEL GIRDER/CONCRETE DECK BRIDGE	
ON PILES (110 TONNES)	
STA. 13+200 ON TELKWA COALMINE ROAD	
Concrete Deck Panel A Details	
LATITUDE	54° 37' 04" N
LONGITUDE	127° 08' 07" W
NORTHING	625081
EASTING	625464
DRAWING NUMBER	18364-204-32
REV	B

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U:\01\Telkwa Coal\1808-204-32 - Goathorn Creek Crossing\Drawings\1808-204-32-01.dwg