

BILL OF MATERIAL					BILL OF MATERIAL					BILL OF MATERIAL				
MARK	QTY	SIZE	DESCRIPTION	LENGTH	MARK	QTY	SIZE	DESCRIPTION	LENGTH	MARK	QTY	SIZE	DESCRIPTION	LENGTH
1	1	1"	PIPE, ASTM A-106, XH, GRADE B, SMLS, PE	6'-11"	37	1	7/8"	(8) STUD BOLTS FOR 4" 600LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	6 1/4"	75	3	1"	UNION, FNPT, 3000#, ASTM A-105, GRADE B	
1A	1	3/4"	PIPE, ASTM A-106, XH, GRADE B, SMLS, PE	30'-9"						75A	3	1 1/2"	UNION, FNPT, 3000#, ASTM A-105, GRADE B	
2	1	2"	PIPE, ASTM A-106, XH, GRADE B, SMLS, PE	29'-11"	38	24	5/8"	(8) STUD BOLTS FOR 2" 600LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	4 3/4"	75B	1	3/4"	UNION, FNPT, 3000#, ASTM A-105, GRADE B	
3	1	2"	PIPE, ASTM A-106, XH, GRADE B, SMLS, PE, FBE COATED 14-16 MILS	301'-5"						76	2	3/4"	PLUG, ASTM A-106, MNPT, SCH. 160, GRADE B	
4	4	16"	BENT PIPE, API 5L, STD, X-52, ERW, PE, 0.312 WALL	8'-2 1/4"	38A	3	5/8"	(8) STUD BOLTS FOR 4" 150LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	4"	77	3	8"x3/4"	THRED-O-LET, ASTM A-105, FNPT, 3000#, GRADE B	
5	1	1 1/2"	PIPE, ASTM A-106, XH, GRADE B, SMLS, PE	4'-8"						78	2	12"x3/4"	THRED-O-LET, ASTM A-105, FNPT, 3000#, GRADE B	
6	1	16"	PIPE, API 5L, STD, X-52, ERW, PE	47'-3"	39	1	1 3/8"	(12) STUD BOLTS FOR 8" 900LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	9 1/4"	79	3	10"x3/4"	THRED-O-LET, ASTM A-105, FNPT, 3000#, GRADE B	
7	1	16"	PIPE, API 5L, STD, X-52, ERW, PE, FBE COATED 14-16 MILS	8'-2"	40	1	1 3/8"	(16) STUD BOLTS FOR 10" 900LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	9 3/4"	80	11	2"	BALL VALVE, ANSI 600, RFFE, FULL PORT, 316 SS BALL AND TRIM, PTFE SEATS, API 6D, FIRE SAFE DESIGN	7"
8	1	12"	PIPE, API 5L, STD, GRADE B, ERW, PE	52'-10"	41	4	5/8"	(4) STUD BOLTS FOR 2" 150LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	3 1/2"	80A	2	2"	BALL VALVE, ANSI 150, RFFE, FULL PORT, 316 SS BALL AND TRIM, PTFE SEATS, API 6D, FIRE SAFE DESIGN	7"
9	1	12"	PIPE, API 5L, STD, GRADE B, ERW, PE, FBE COATED 14-16 MILS	177'-9"						82	8	3/4"	BALL VALVE, SERIES 800 WOG 3000#, FNPT, REDUCED PORT, 316 SS BALL AND TRIM, SS BODY, PTFE SEATS, API 6D OR ASME B16.34, FIRE SAFE DESIGN	1 5/8"
10	1	10"	PIPE, API 5L, STD, GRADE B, ERW, PE	11'-7"	42	1	1 1/4"	(16) STUD BOLTS FOR 10" 600LB FLANGES WITH SPECTACLE BLIND, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	11"	83	2	1/2"	BALL VALVE, SERIES 800 WOG 3000#, FNPT, REDUCED PORT, 316 SS BALL AND TRIM, SS BODY, PTFE SEATS, API 6D OR ASME B16.34, FIRE SAFE DESIGN	1 7/16"
11	1	10"	PIPE, API 5L, STD, GRADE B, ERW, PE, FBE COATED 14-16 MILS	28'-5"	43	2	1 1/4"	(16) STUD BOLTS FOR 10" 600LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	9"	84	1	2"	CHECK VALVE, ANSI 600, RFFE, FULL CONDUIT W/BONNET COVER, API 6D, 13 CR TRIM, SWING TYPE, HF SEAT	11 1/2"
12	1	8"	PIPE, API 5L, STD, GRADE B, ERW, PE	5'-4"	44	2	1 1/4"	(20) STUD BOLTS FOR 12" 600LB FLANGES WITH SPECTACLE BLIND, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	11"	85	1	16"	CHECK VALVE, ANSI 600, RFFE, FULL CONDUIT W/BONNET COVER, API 6D, 13 CR TRIM, SWING TYPE, HF SEAT	3'-3"
13	1	4"	PIPE, API 5L, STD, GRADE B, ERW, PE, FBE COATED 14-16 MILS	102'-1"						86	2	12"	CHECK VALVE, ANSI 600, RFFE, FULL CONDUIT W/BONNET COVER, API 6D, 13 CR TRIM, SWING TYPE, HF SEAT	2'-9"
14	16	12"	ELL, 90' LR, ASTM A-234, BUTT WELD, STD WALL, WPB		45	8	1 1/4"	(20) STUD BOLTS FOR 12" 600LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	9 1/4"	87	1	16"	GATE VALVE, ANSI 600, RFFE, FULL CONDUIT, SLAB GATE, FABRICATED STEEL BODY, C.S. ENP GATE, VITON SEATS, API-6D, FIRE SAFE DESIGN	3'-3"
15	4	10"	ELL, 90' LR, ASTM A-234, BUTT WELD, STD WALL, WPB							88	3	12"	GATE VALVE, ANSI 600, RFFE, FULL CONDUIT, SLAB GATE, FABRICATED STEEL BODY, C.S. ENP GATE, VITON SEATS, API-6D, FIRE SAFE DESIGN	2'-9"
16	4	4"	ELL, 90' LR, ASTM A-234, BUTT WELD, STD WALL, WPB		46	6	1 1/2"	(20) STUD BOLTS FOR 16" 600LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	10 1/2"	89	1	10"	GATE VALVE, ANSI 600, RFFE, FULL CONDUIT, SLAB GATE, FABRICATED STEEL BODY, C.S. ENP GATE, VITON SEATS, API-6D, FIRE SAFE DESIGN	2'-7"
17	30	2"	ELL, 90' LR, ASTM A-234, BUTT WELD, STD WALL, WPB		46A	2	1/2"	(4) STUD BOLTS FOR 1 1/2" 150LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	3 1/4"	90	2	3/4"x1"	RELIEF VALVE, 800LB THRD	
18	6	2"	TEE, ASTM A-234, BUTT WELD, STD WALL, WPB							91	3	12"	BLIND, SPECTACLE, 600LB, ASTM A-105	1 5/8"
19	2	12"	TEE, ASTM A-234, BUTT WELD, STD WALL, WPB							93	1	10"	BLIND, SPECTACLE, 600LB, ASTM A-105	1 3/8"
20	6	4"x2"	TEE, REDUCING, ASTM A-234, BUTT WELD, STD WALL, WPB		46B	2	1/2"	(4) STUD BOLTS FOR 1/2" 150LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	2 3/4"	94	3	2"x1"	COUPLING RED THRD, ASTM A-105	
21	2	12"x10"	TEE, REDUCING, ASTM A-234, BUTT WELD, STD WALL, WPB							94A	1	2"x1 1/2"	COUPLING RED THRD, ASTM A-105	
22	2	16"x12"	TEE, REDUCING, ASTM A-234, BUTT WELD, STD WALL, WPB, WPHY-42		47	1	8"	GASKET, ANSI 900, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		94B	2	3/4"x1/2"	COUPLING RED THRD, ASTM A-105	
23	1	12"x10"	REDUCER, ECC., ASTM A-234, BUTT WELD, STD WALL, WPB		48	3	4"	GASKET, ANSI 150, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		95	2	16"	INSULATING FLANGE KIT, 600LB	
24	1	10"x8"	REDUCER, ECC., ASTM A-234, BUTT WELD, STD WALL, WPB							96	2	12"	INSULATING FLANGE KIT, 600LB	
25	8	16"	FLG, ANSI 600 RFWN, ASTM A-105, STD WALL, WPHY-46		49	1	4"	GASKET, ANSI 600, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		97	1	2"	INSULATING FLANGE KIT, 600LB	
26	11	12"	FLG, ANSI 600 RFWN, ASTM A-105, STD WALL, WPB							98	1	1"	COPPER PIPE	17'-8"
27	3	10"	FLG, ANSI 600 RFWN, ASTM A-105, STD WALL, WPB		50	25	2"	GASKET, ANSI 600, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		99	10	1"	ELL, 90', COPPER, SWEAT FITTING	
28	1	4"	FLG, ANSI 600 RFWN, ASTM A-105, STD WALL, WPB							100	2	1"	ELL, 45', COPPER, SWEAT FITTING	
28A	3	2"	FLG, ANSI 150 RFWN, ASTM A-105, XH, WPB		50A	4	2"	GASKET, ANSI 150, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		101	1	3/4"	FLEXIBLE HOSE	4'-5"
29	21	2"	FLG, ANSI 600 RFWN, ASTM A-105, XH, WPB							102	1	2"	FLEXIBLE HOSE	5'-1"
29A	2	1 1/2"	FLG, RF, FNPT, 150LB		51	4	16"	GASKET, ANSI 600, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		103	1	2"x1"	REDUCER, CONC S/XS, ASTM A-234 GR WPB	
29B	2	1/2"	FLG, RF, FNPT, 150LB							104	1	3/4"	COUPLING, THRD, 3000# FNPT, ASTM A-105	
30	1	8"	FLG, ANSI 900 RFWN, ASTM A-105, STD WALL, WPB		52	12	12"	GASKET, ANSI 600, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		105	2	1"x1"	NPT TO SWEAT COPPER FITTING	
31	3	4"	FLG, ANSI 150 RFWN, ASTM A-105, STD WALL, WPB							106	2	1 1/2"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	CLOSE
32	1	10"	FLG, ANSI 900 RFWN, ASTM A-105, STD WALL, WPB		53	4	10"	GASKET, ANSI 600, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		107	2	1 1/2"x1"	BUSHING, RED. THRD 3000LB, ASTM A-105	
33	1	4"	FLG, RF BLIND 600LB, ASTM A-105							108	1	2"	FLG, ANSI 600, FNPT, XS BORE, ASTM A-105, GRADE B	
34	2	2"	FLG, RF BLIND 600LB, ASTM A-105		54	1	10"	GASKET, ANSI 900, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		109	1	6"	FLG, RF BLIND 150LB, ASTM A-105	
35	1	12"	FLG, RF BLIND 600LB, ASTM A-105							110	2	2"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	3"
36	1	10"	FLG, RF BLIND 600LB, ASTM A-105		55	2	1 1/2"	GASKET, ANSI 150, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		111	3	1"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	3"
36A	1	2"	FLG, RF BLIND 150LB, ASTM A-105							112	1	1"	TEE, FNPT, 3000#, ASTM A-105 GRADE B	
36B	1	4"	FLG, RF BLIND 150LB, ASTM A-105		55A	2	1/2"	GASKET, ANSI 150, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING		113	3	1"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	CLOSE
										114	1	1"	BALL VALVE, SERIES 800 WOG 3000#, FNPT, REDUCED PORT, 316 SS BALL AND TRIM, SS BODY, PTFE SEATS, API 6D OR ASME B16.34, FIRE SAFE DESIGN	
					56	18	3/4"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	3"	115	1	6"	(8) STUD BOLTS FOR 6" 150LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	4 1/4"
					56A	1	3/4"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	6"					
					57	21	2"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	6"	116	1	6"	GASKET, ANSI 150, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
					58	4	1 1/2"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	3"	117	4	2"	THREAD-O-RING, TDW	
					59	2	1/4"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	3"	118	4	16"x3/4"	WELD-O-LET, ASTM A-105, BUTT WELD, 3000#, GRADE B	
					60	2	1/2"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	5"	119	2	4"	FLEXIBLE HOSE ASSY	
					60A	2	1/2"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	3"	120	2	1"x3/4"	TEE, RED. ASTM A-106, FNPT, 3000#, GRADE B	
					61	2	1"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B BOE-TOE	6"					
					62	8	1"	NIPPLE, ASTM A-106, MNPT, SCH. 160, GRADE B TBE	6"					
					63	1	2"x3/4"	SWAGE, CONC., ASTM A-105, FNPT, SCH. 160, WPB						
					64	2	3/4"x1/2"	SWAGE, CONC., ASTM A-105, FNPT, SCH. 160, WPB						
					65	2	3/4"x1/2"	TEE REDUCING, THRD, 3000LB (GRINNELL) (EST WGT),(C/END&THRD.ENG- ASME B16.11-2001)						
					66	2	1/2"x1/4"	BUSHING, THRD 3000LB, HEXAGON HEAD (LADISH PART NO. 600),(LGT,THD,(LE)&THD.(SE) PER ASME B16.11-2001)						
					67	2	1 1/2"	ELL, 90', FNPT, 3000#, ASTM A-105 GRADE B						
					68	22	2"	ELL, 90', FNPT, 3000#, ASTM A-105 GRADE B						
					69	14	1"	ELL, 90', FNPT, 3000#, ASTM A-105 GRADE B						
					69A	13	3/4"	ELL, 90', FNPT, 3000#, ASTM A-105 GRADE B						
					70	8	12"x2"	WELD-O-LET, ASTM A-105, BUTT WELD, 3000#, GRADE B						
					71	2	10"x2"	WELD-O-LET, ASTM A-105, BUTT WELD, 3000#, GRADE B						
					72	4	2"	TEE, FNPT, 3000#, ASTM A-105 GRADE B						
					72A	4	3/4"	TEE, FNPT, 3000#, ASTM A-105 GRADE B						
					73	1	1 1/2"	TEE, FNPT, 3000#, ASTM A-105 GRADE B						
					74	12	2"	UNION, FNPT, 3000#, ASTM A-105, GRADE B						

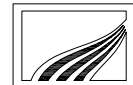
1	AS-BUILT	12/18/07	EK	ADJ
0	ISSUED FOR CONSTRUCTION	3/28/07	EJK	ADJ
NO	REVISION	DATE	APPR	BY

**ENBRIDGE PIPELINES (ND)**

**LARIMORE STATION**  
PIPING MATERIALS

PROJECT:	SCALE: AS NOTED	DATE: 7/27/06	DRAWN: ADJ
CHECK:	APPR:	DATE:	

DWG. NO. 2406-P-009



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