

August 31, 2018

Attention: Yan Zhou

Email: yan.zhou@bilton.ca

BILTON WELDING & MANUFACTURING LTD

5815 37 STREET

INNISFAIL, AB T4G 1S8

The design submission, tracking number 2018-05026, originally received on August 02, 2018 was surveyed and accepted for registration as follows:

CRN : Y8134.2

Accepted on: August 31, 2018

Reg Type: NEW DESIGN

Drawing No. : BWM-715-18B Rev 1

Description	MAWP	Design Temperature	MDMT
Internal Pressure	517kPa	66 °C	-29 °C

The registration is conditional on your compliance with the following notes:

- Please note that this letter, issued on September 05, 2018, supersedes the letter issued on August 31, 2018.
 - This registration includes following drawings: BWM-715-18A-REV. 0, BWM-715-18B-REV. 1, BWM-715-18C-REV. 1, BWM-715-18D-REV. 0, BWM-715-18E-REV. 1
 - Scope of the vessel registration is up to the grooves of the grooved nozzles, grooved connections and clamps are not in the scope of this vessel registration.
- For the use in Alberta the groove joint and mating clamp must have Alberta CRN.
- Nozzle N6 size was corrected on Drawing BWM-715-18B-Rev. 1 from 6 " CL 150 LWN to 10 " CL 150 LWN based on understanding that a typographical error has been made.


An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

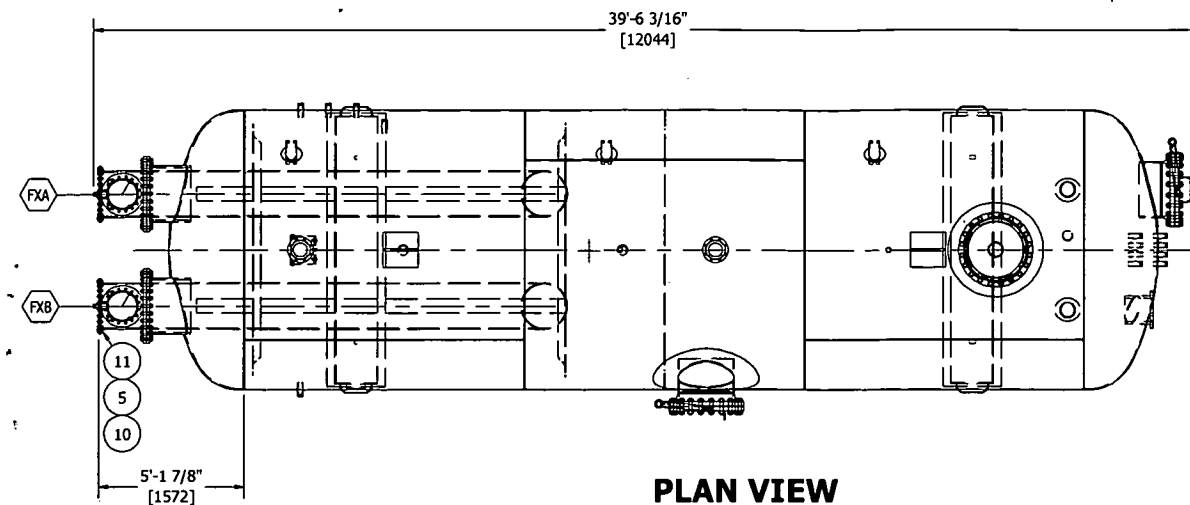
If you have any question don't hesitate to contact me by phone at (780) 433-0281 ext 3303 or fax (780) 437-7787 or e-mail Nikic@absa.ca.

Sincerely,

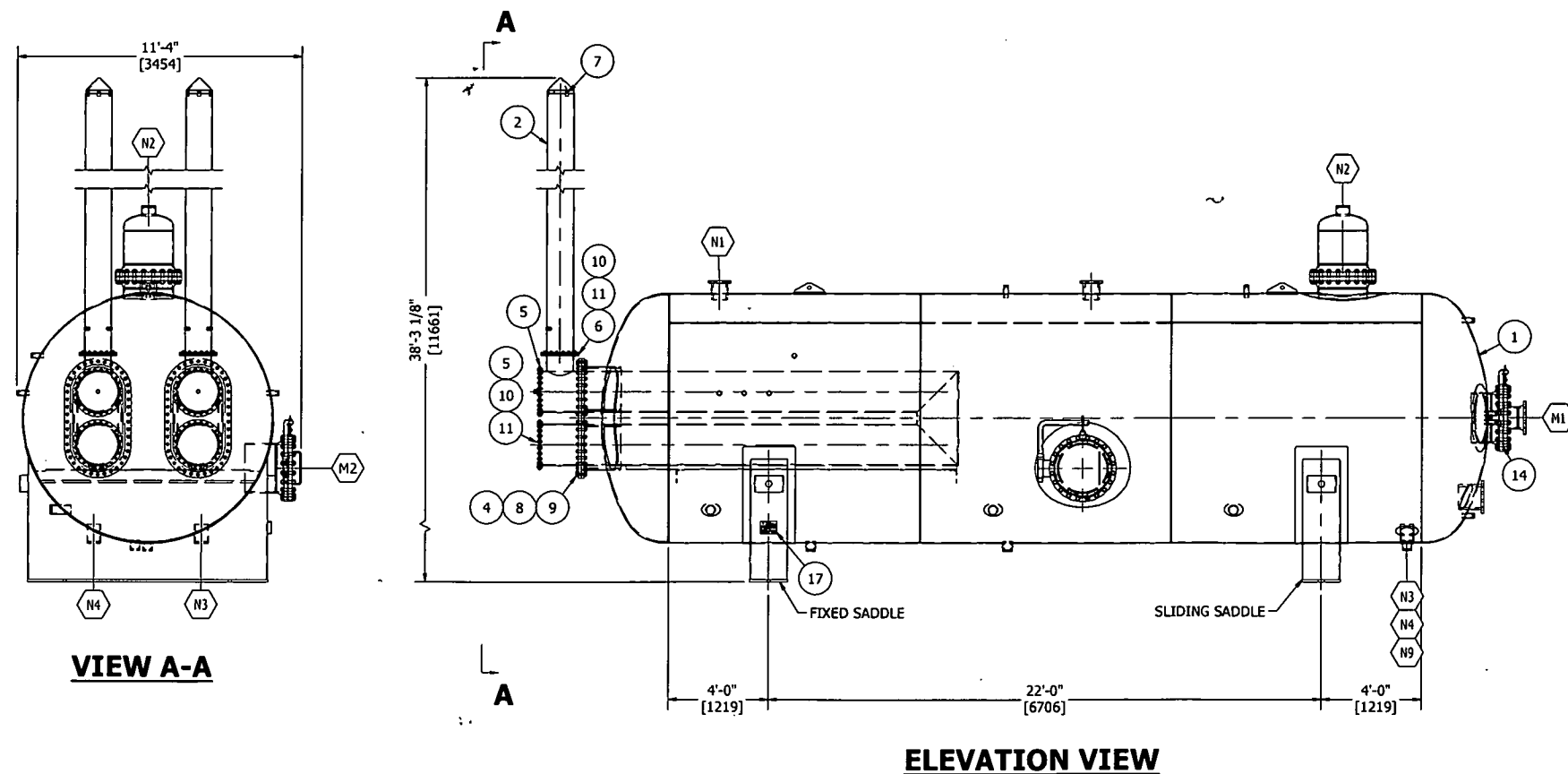


NIKIC, MILAN, P. Eng.


DOP # DD00003112



BILL OF MATERIALS						
ITEM	QTY	REF.	PART No.	DESCRIPTION	LENGTH	WEIGHT (lbs)
1	1	VESSEL	-	VESSEL ASSEMBLY (SEE DRAWING BWM-709-188 FOR DETAILS)		30304.40
2	2	FIRETUBE	-	FIRETUBE ASSEMBLY (SEE DRAWING BWM-709-18E FOR DETAILS)		10037.05
4	2	FIRETUBE	1-024191	GASKET 3/16" THK x 32" W (26" ID) x 57 1/2" LG (51 1/2" INSIDE) - BLACK COLOR		4.96
5	4	FIRETUBE	1-024192	GASKET 3/16" THK x 24" OD (21" ID) - BLACK COLOR		2.52
6	2	FIRETUBE	1-024193	GASKET-STACK FLANGE 3/16" THK x18" OD (13-3/8" ID) BLACK COLOR		1.39
7	6	BIRD SCREEN	1-024194	3/8-16 UNC x 3/4" LG HEX BOLT		0.25
8	168	FIRETUBE	1-001873	7/8" DIA HEX NUT		54.61
9	84	FIRETUBE	1-007127	7/8" DIA x 5" LG STUD		73.27
10	256	FIRETUBE	1-001864	1/2" DIA HEX NUT		18.36
11	128	FIRETUBE	1-002614	1/2" DIA x 2 1/2" LG STUD		18.28
12	120	M1/M2/DOME	1-001881	1 1/4" DIA HEX NUT		105.37
13	60	M1/M2/DOME	1-010804	1 1/4" DIA x 7" LG STUD		149.59
14	3	M1/M2/DOME	1-008401	24" x CLASS 150 RF "CGI" GRAPHITE FILLED GASKET		20.11
17	1	NAMEPLATE	1-001708	6" x 8" NAMEPLATE		0.50
18	4	GAS DOME	1-024197	3/8-16 UNC HEX NUT		0.08
19	4	GAS DOME	1-024195	3/8-16 UNC x 1 1/2" LG HEX BOLT		0.26
20	4	GAS DOME	1-024200	3/8" SAE FLAT WASHER		0.03
21	9	N1,N3,N4	1-024201	5/8" SAE FLAT WASHER		0.25
22	9	N1,N3,N4	1-024198	5/8-11 UNC HEX NUT		0.77
23	9	N1,N3,N4	1-024196	5/8-11 UNC x 1 3/4" LG HEX BOLT		2.17
						41524.70



BILTON
Welding and Manufacturing Ltd.

BOX 6106
5815 37 Street
INNISFAIL, AB
CANADA
403-227-7799
1-888-227-4923
FAX 227-7796

BILTON WELDING & MANUFACTURING LTD.
120" OD X 30'-0" S/S HEATER TREATER
FINAL ASSEMBLY

QUOTE NUMBER:-
PURCHASE ORDER:-
LOCATION:-
DATE: 21/06/2018
SHEET: 1 OF 5
CRN DWG: BWM-715-18
CRN NUMBER: TBD

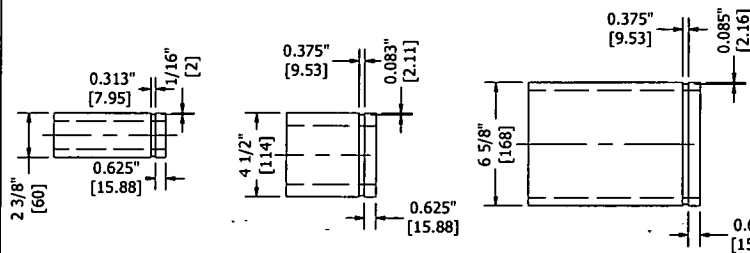
SALE ORDER:-
JOB ORDER:
D4661
DRAWING NO.:
BWM-715-18A

SIZE
D
REV.
0

REV	DATE	DESCRIPTION	BY	APP
0	07/30/2018	ISSUED FOR REGISTRATION	YZ	Y. Z.

GENERAL NOTES:

1. QUALITY CONTROL PROGRAM NUMBER: AQP-1317(S)
2. WELDING PROCEDURE REGISTRATION NUMBER: WP1970.2
3. HEAD, SHELL & REPAD MATERIAL: SA-516-70N, THK <= 1" - IMPACTS EXEMPT PER UG-20(f)(1-5)
4. FLANGE MATERIAL: SA-105-N - IMPACTS EXEMPT PER UG-20(f)(1-5)
5. PIPE MATERIAL: SA-106-B - IMPACTS EXEMPT PER UG-20(f)(1-5)
6. BOLTING MATERIALS: SA-193-B7 / SA-194-2H
7. IMPACTS EXEMPT PER FIG. UCS-66 NOTE(c)
8. PRODUCTION WELDS: IMPACTS EXEMPT PER UG-20(f)(1-5)
9. ALL WEAR PADS & REPADS TO HAVE 1/4" NPT WEEP HOLE LOCATED AT LOWEST ELEVATION
10. ALL BOLT HOLES TO STRADDLE CENTERLINE
11. ALL OUTSIDE PROJECTIONS ARE TO BE MEASURED ALONG CENTERLINE OF NOZZLE
12. ALL INSIDE PROJECTIONS ARE TO BE MEASURED ALONG THE SHORTSIDE OF THE NOZZLE
13. FABRICATION TOLERANCES AS PER BW&ML DWG: TOL2002
14. VESSEL REGISTRATION: NATIONAL BOARD/EXPORT OUTSIDE OF CANADA
15. NATIONAL BOARD: # 42
16. S.G. = 1
17. C.A. = 1/8" / ANODE NOZZLES (N10-12) = 1/16"



2" / 4" / 6" NPS GROOVE

NOZZLE SCHEDULE

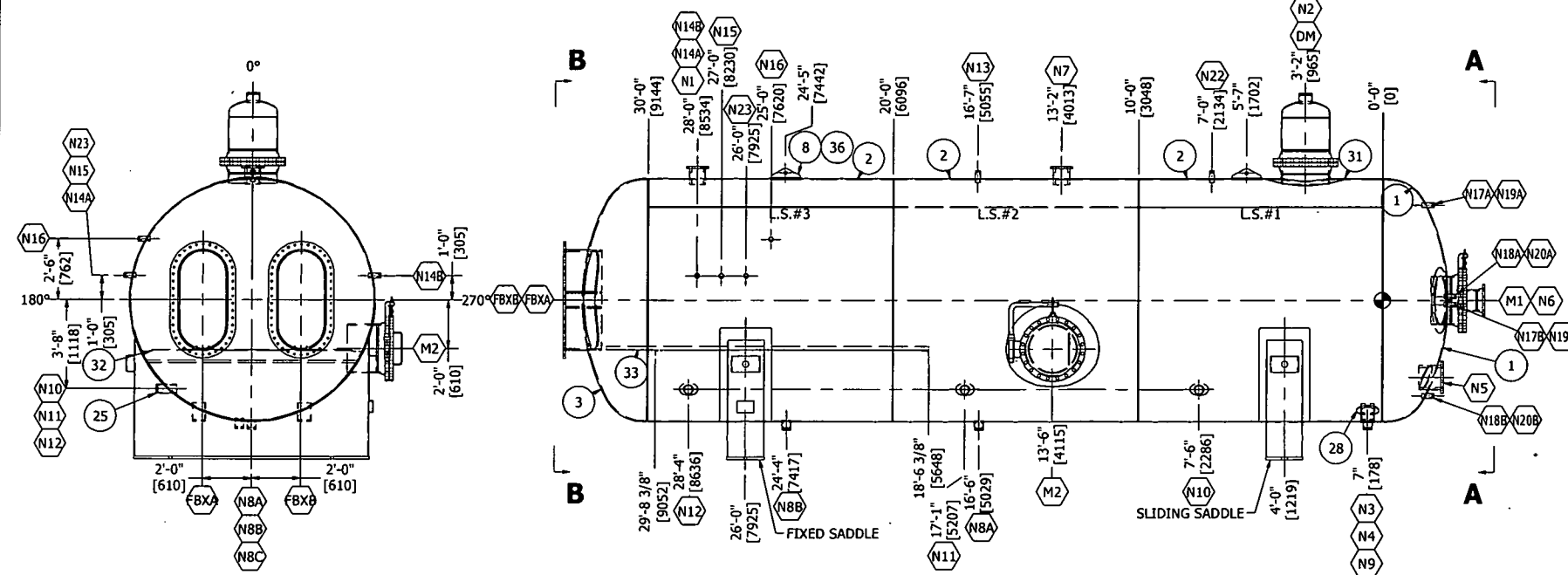
MARK	QTY	DESCRIPTION	NPS	CLASS	TYPE	IS PROJ	OS PROJ	DETAIL	WELD A	WELD B	REPAD C	REPAD D	BOM ITEM
N1	1	INLET	6	150	RFLWN	3/8"	6"	3	1/4"	-	-	-	12
N2	1	GAS OUTLET **	6	-	PIPE	0"	4"	2	1/4"	-	-	-	11
N3	1	WATER OUTLET	6	-	PIPE	3/8"	6"	3	15/32"	-	-	-	17
N4	1	OIL OUTLET	6	-	PIPE	3/8"	6"	3	15/32"	-	-	-	17
N5	1	WATER LLC	10	150	RFLWN	5/16"	4-5/8"	3	3/8"	-	-	-	21
N6	1	OIL LLC **	10	150	RFLWN	-	9"	1	1/4"	-	3/16"	-	12,38
N7	1	PSV (RELIEF)	6	150	RFLWN	3/8"	6"	3	1/4"	-	-	-	12
N8A/B	2	DRAIN	4	-	PIPE	1/4"	4"	3	7/16"	-	-	-	22
N9	1	OIL DRAIN	4	-	PIPE	3/8"	4"	2	1/4"	-	-	-	23
N10	1	ANODE	4	-	PIPE	1/4"	6"	4	1/4"	-	3/16"	-	25
N11	1	ANODE	4	-	PIPE	1/4"	6"	4	1/4"	-	3/16"	-	25
N12	1	ANODE	4	-	PIPE	1/4"	6"	4	1/4"	-	3/16"	-	25
N13	1	PRESSURE INDICATOR	2	-	PIPE	0"	4"	2	1/4"	-	-	-	26
N14A/B	2	THERMOSTAT	2	-	PIPE	1/4"	4"	3	1/4"	-	-	-	26
N15	1	THERMOMETER	2	-	PIPE	1/4"	4"	3	1/4"	-	-	-	26
N16	1	LLSD	2	-	PIPE	1/4"	4"	3	1/4"	-	-	-	26
N17 A	1	GAUGE GLASS	2	-	PIPE	0"	4"	3	5/16"	-	-	-	24
N17 B	1	GAUGE GLASS	2	-	PIPE	0"	4"	2	5/16"	-	-	-	24
N18 A	1	GAUGE GLASS	2	-	PIPE	0"	4"	2	5/16"	-	-	-	24
N18 B	1	GAUGE GLASS	2	-	PIPE	0"	4"	2	5/16"	-	-	-	24
N19 A	1	GAUGE GLASS	2	-	PIPE	0"	4"	2	5/16"	-	-	-	24
N19 B	1	GAUGE GLASS	2	-	PIPE	0"	4"	2	5/16"	-	-	-	24
N20 A	1	GAUGE GLASS	2	-	PIPE	0"	4"	2	5/16"	-	-	-	24
N20 B	1	GAUGE GLASS	2	-	PIPE	0"	4"	2	5/16"	-	-	-	24
N22	1	HLSD	2	-	PIPE	0"	4"	2	1/4"	-	-	-	26
N23	1	T-12 TEMP	2	-	PIPE	1/4"	4"	3	1/4"	-	-	-	24
M1	1	MANWAY	24	150	RFLWN	3/4"	10"	4	3/8"	-	5/16"	-	29
M2	1	MANWAY	24	150	RFLWN	0"	12"	4	1/4"	-	3/16"	-	30
FBXA/B	2	FIREBOX **	-	-	FAB	1 1/4"	7 3/4"	3	3/8"	-	-	-	11
DM	1	DOVE	24	150	RFLWN	0"	8"	4	1/4"	-	3/16"	-	11,31

NOTE: INSIDE PROJECTIONS ARE MINIMUM LENGTH, MAY BE LONGER
ALL REPADS ARE SEAMLESS

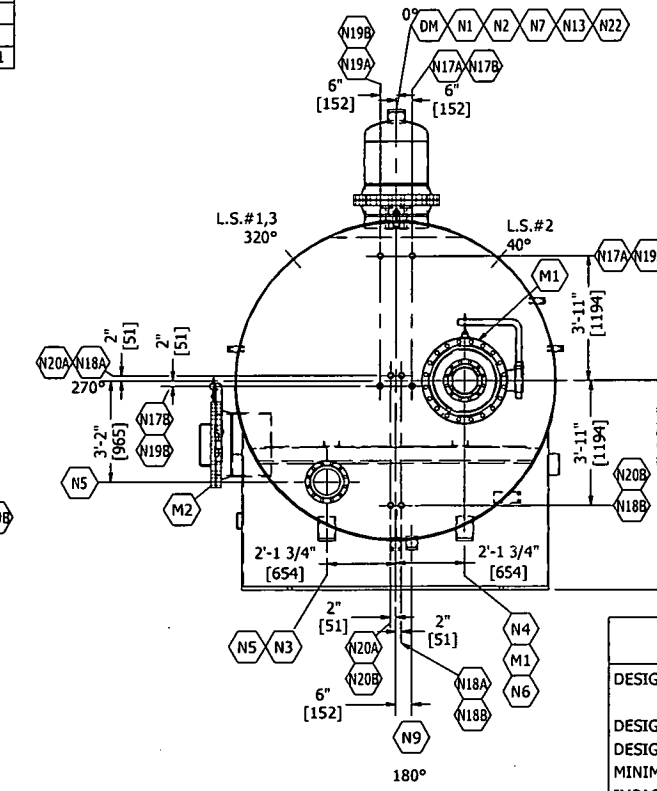
BILL OF MATERIALS

ITEM	QTY	REF.	PART No.	DESCRIPTION	LENGTH	MATERIAL	WEIGHT (lbs)
1	1	HEAD	1-001667	1/2" THK x 120" OD 2:1 S.E. HEAD (0.4375" MIN)		SA-516-70N	2336.48
2	3	SHELL	1-001668	3/8" THK x 120" W, ROLLED TO 120" OD		SA-516-70N	14388.26
3	1	HEAD	1-023652	5/8" THK x 120" OD 2:1 S.E. HEAD (0.5625" MIN)		SA-516-70N	2913.57
8	2	LIFTING LUG	2-013517	7/8" THK x 4 1/2" W x 14" LG		SA-516-70N	19.04
10	1			SADDLE ASSEMBLIES (SEE DWG BWM-709-18D FOR DETAILS)			3291.98
11	1			NOZZLE ASSEMBLIES (SEE DWG BWM-709-18C FOR DETAILS)			3856.91
12	3	N1, N7, N8	1-014429	6" x CLASS 150 RFLWN FLG	9"	SA-350-LF2	121.53
17	2	N3, N4	1-003375	6" PIPE SCH XXH (ROE, GROOVE ONE END)	9 1/8"	SA-106-B	43.34
21	1	N5	1-019000	10" x CLASS 150 RFLWN FLG	1'-0"	SA-350-LF2	144.73
22	2	N8A/B	1-003372	4" PIPE SCH XXH (ROE, GROOVE ONE END)	4 13/16"	SA-106-B	21.88
23	1	N9	1-003369	4" PIPE SCH XXH (ROE, GROOVE ONE END)	5"	SA-106-B	6.17
24	9	N17A/B, N18A/B, N19A/B, N20A/B, N23	1-003359	2" PIPE SCH XXH (ROE, GROOVE ONE END)	6"	SA-106-B	37.04
25	3	N10, N11, N12	1-003369	4" PIPE SCH XH (ROE, GROOVE ONE END)	10 3/16"	SA-106-B	37.83
26	6	N13, N14A/B, N15, N16, N22	1-003360	2" PIPE SCH XXH (ROE, GROOVE ONE END)	6"	SA-106-B	22.49
29	1	M1	1-024203	REPAD: 3/8" THK x 31 1/4" OD		SA-516-70N	26.43
30	1	M2	2-013526	REPAD: 1/4" THK x 45 1/2" OD		SA-516-70N	79.82
31	1	DOVE	2-013527	REPAD: 1/4" THK x 41" OD		SA-516-70N	61.38
32	2	FIRETUBE SUPPORT	2-013531	FORMED ANGLE 3/8" THK x 3" W x 6" H x 107 5/8" LG		SA-516-70N	196.65
33	2	FIRETUBE SLIDE	1-000399	C6x8.2	13'-2"	G40.21-4W	216.71
35	3	N10, N11, N12	2-013532	REPAD: 1/4" THK x 9" OD		SA-516-70N	8.07
36	2	LIFT LUG	2-013533	REPAD-LIFT LUG 1/2" THK x 15" W x 15" LG		SA-516-70N	64.00
37	2	FBXA/B	-	FIRE TUBE ASSEMBLIES (SEE DWG BWM-709-18E FOR DETAILS)			
38	1	N6	-	REPAD: 1/4" THK x 18" OD		SA-516-70N	

NOTE: ALL SA-350-LF2 MATERIAL ARE SA-350-LF2 CL1



ELEVATION VIEW



ORIENTATION VIEW A-A

ASCA
SAFETY CODES ACT - PROVINCE OF ALBERTA
REG. No. **Y 8134.2**
DWG. No. **BWM-715-18B-Rev. 1**

MAWP	Design Temp
517 kPa	66/-29 °C

INT. PRESSURE **517**

ACCEPTED
AUG 31 2018
Date
Signed *H. Hestell*

"See Acceptance Letter for the comments and/or conditions of registration"

DESIGN SPECIFICATIONS

DESIGN & FABRICATE TO: 2017 ASME BOILER & PRESSURE VESSEL CODE
SECTION VIII, DIVISION 1
DESIGN PRESSURE & TEMPERATURE: 75 PSIG @ 150°F
DESIGN EXTERNAL PRESSURE: NIL
MINIMUM DESIGN METAL TEMP: -20°F @ 75 PSIG
IMPACT TESTS: EXEMPT, SEE NOTES 3-7
RADIOGRAPHY: RT-2 AS PER UW-11(a)(5)(b)
POST WELD HEAT TREATMENT: NONE AS PER UCS-56
HYDROSTATIC TEST PRESSURE: 98 PSIG (NOTE 16) PREHEAT: 50°F
CORROSION ALLOWANCE: SEE NOTE # 16 MAWP: 75 PSIG @ 150°F
HEAD THK. MIN.: 0.5625" / 0.4375" VOLUME: 2610 FT³
WEIGHT EMPTY: 30,900 LBS WEIGHT FULL: 193900 LBS

BILTON WELDING & MANUFACTURING LTD.
120" OD x 30'-0" S/S HEATER TREATER
VESSEL DETAILS

QUOTE NUMBER: -	SALE ORDER: -	SIZE
PURCHASE ORDER: -	JOB ORDER: -	D
LOCATION: -	D4661	
DATE: 21/06/2018		
SHEET: 2 OF 5	DRAWING NO.: BWM-715-18B	REV. 1
CRN DWG: BWM-715-18		
CRN NUMBER: TBD		

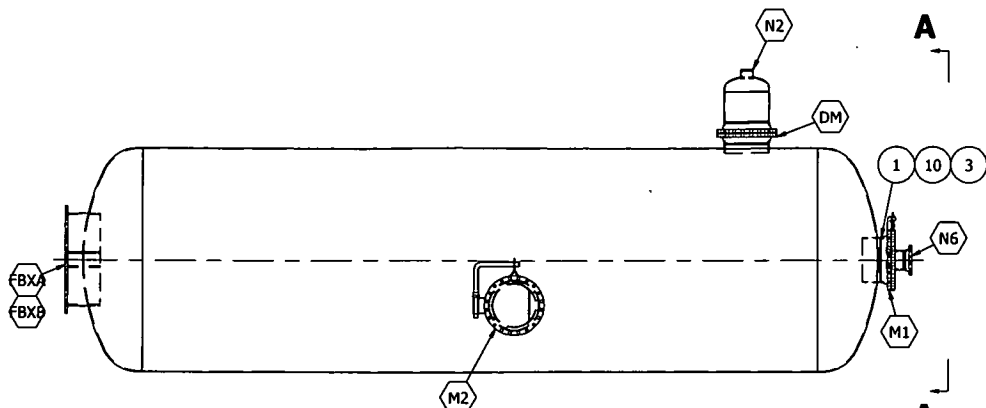
REGISTERED WELDING PROCEDURE NUMBER				
WELD DETAIL	ROOT	HOT PASS	FILL AND CAP	GOUGE/BACKWELD
1	BWM-44	BWM-3	BWM-3	N/A
2,3,4,5,6	BWM-44	BWM-44	BWM-44	N/A

1	SEAMS	2	NOZZLE NECK	3	NOZZLE NECK	4	NOZZLE NECK	5	EXT. ATTACHMENTS	6	SET ON NOZZLE/REPAD
	WITHOUT BACKING α=60°(±15°) G=1/8"(±1/16") h=3/32"	EXPOSED INSIDE EDGES SHALL BE CHAMFERED AS PER UG-76(c) α=40°(±15°) G=1/8"(±1/16") h=1/16"(±1/16")	EXPOSED INSIDE EDGES SHALL BE CHAMFERED AS PER UG-76(c) α=40°(±15°) G=1/8"(±1/16") h=1/16"(±1/16")	EXPOSED INSIDE EDGES SHALL BE CHAMFERED AS PER UG-76(c) α=40°(±15°) G=1/8"(±1/16")	EXPOSED INSIDE EDGES SHALL BE CHAMFERED AS PER UG-76(c) α=40°(±15°) G=1/8"(±1/16")	VESSEL WALL 1/4"	EXPOSED INSIDE EDGES SHALL BE CHAMFERED AS PER UG-76(c) α=40°(±15°) G=1/8"(±1/16")				

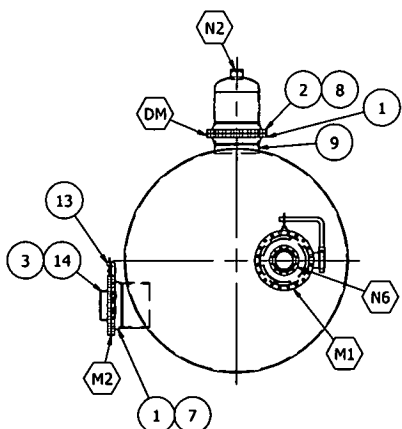
REV	DATE	DESCRIPTION	BY	APP
0	07/30/2018	ISSUED FOR REGISTRATION	YZ	
1	08/15/2018	REISSUED FOR REGISTRATION	YZ	Y. Z.

BILTON
Welding and Manufacturing Ltd.

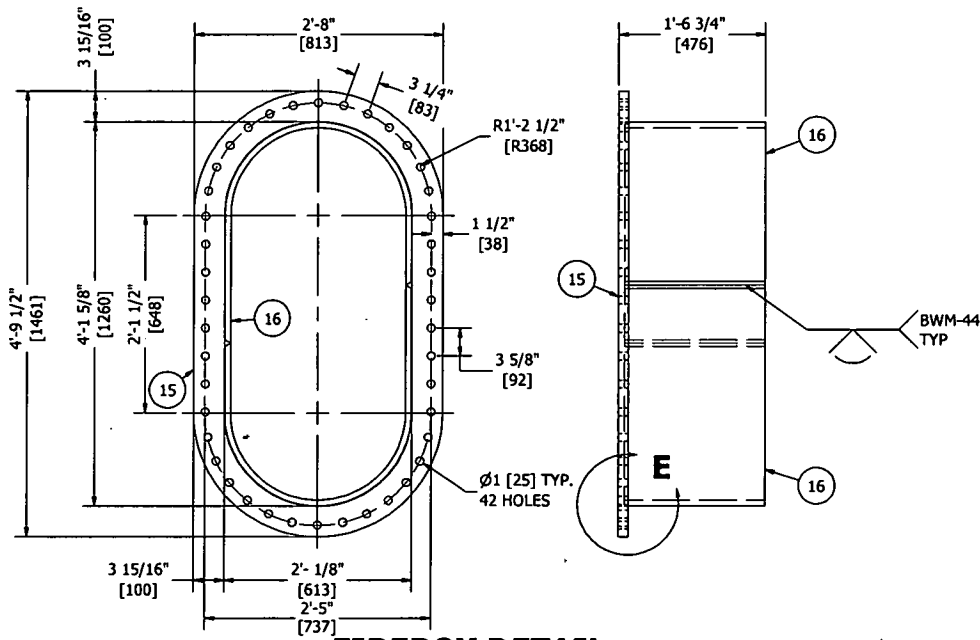
BOX 6106
5815 37 Street
INNISSFAIR, AB
CANADA
403-227-7799
1-888-227-4923
FAX 227-7796



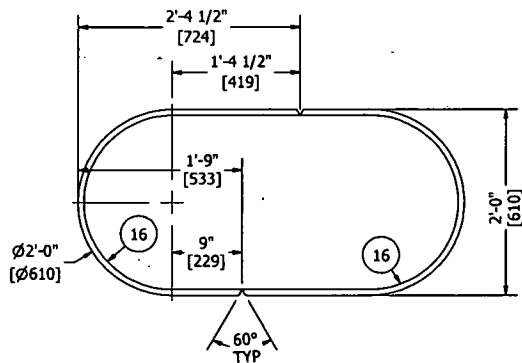
ELEVATION VIEW



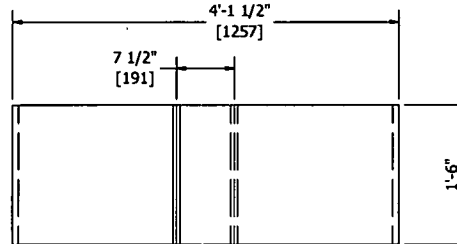
ORIENTATION VIEW A-A



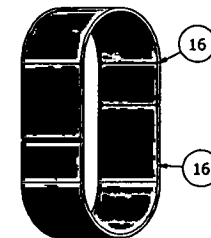
FIREBOX DETAIL
2 REQUIRED



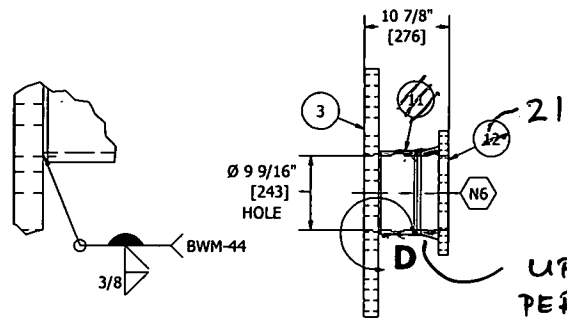
J-SECTION DETAIL



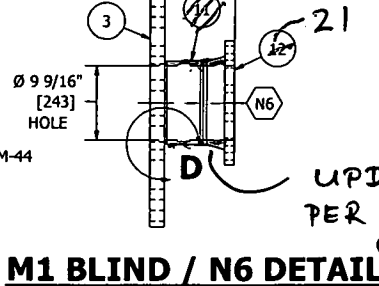
J SECTION: ELEVATION VIEW



ISOMETRIC VIEW

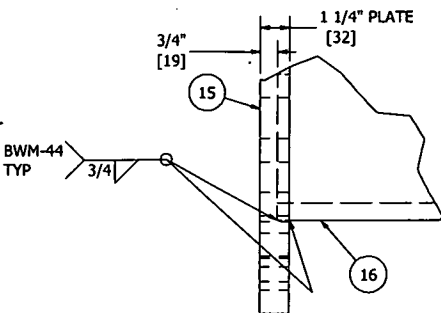


DETAIL D



M1 BLIND / N6 DETAIL

UPDATE AS
PER CORRECTION
ON BOM
H.N.



DETAIL E

BILL OF MATERIALS

ITEM	QTY	REF.	PART No.	DESCRIPTION	LENGTH	MATERIAL	WEIGHT (lbs)
1	3	M1, M2, DOME	1-000970	24" x CLASS 150 RFWN FLG SCH XH		SA-105-N	831.52
2	1	GAS DOME	1-000965	24" x CLASS 150 RFWN FLG SCH STD		SA-105-N	261.68
3	2	M1, M2	1-000966	24" x CLASS 150 RF BLIND FLG		SA-105-N	817.10
4	1	GAS DOME	1-001375	3/8" THK x 24" OD 2:1 S.E. HEAD (0.313" MIN)		SA-516-70N	80.91
5	1	N2	1-003375	6" PIPE SCH XH/80 (ROE, GROOVE ONE END)	5 1/16"	SA-106-B	11.95
7	1	M2	1-003406	24" PIPE SCH XH (BOE, COE)	1'-2 5/16"	SA-106-B	150.46
8	1	GAS DOME	1-003402	24" PIPE SCH STD/20 (BBE)	1'-3 3/4"	SA-106-B	124.64
9	1	GAS DOME	1-003406	24" PIPE SCH XH (BOE, COE)	4 1/2"	SA-106-B	46.91
10	1	M1	1-003406	24" PIPE SCH XH (BOE, COE)	9 1/8"	SA-106-B	95.74
13	2	M1, M2	1-004062	24" x CLASS 150 DAVIT ARM ASSEMBLY			67.04
14	1	M2	1-000077	1/2" MANWAY HANDLE ASSEMBLY		SA-36	1.27
15	2	FIREBOX	2-013542	1 1/4" THK x 32" W x 57 1/2" LG		SA-516-70N	366.04
16	4	FIREBOX	2-013524	3/4" THK J-SECTION x 24" OD x 16 1/2" LG & 9" LG TANGENT x 18" W		SA-516-70N	945.58
							3898.67

REGISTERED WELDING PROCEDURE NUMBER				
WELD DETAIL	ROOT	HOT PASS	FILL AND CAP	GOUGE/BACKWELD
1,2,3,4	BWM-44	BWM-44	BWM-44	N/A

1	WELD NECK FLANGE	2	EXT. ATTACHMENTS	3	SEAMS	4	NOZZLE NECK
$\alpha=75^\circ(\pm 15^\circ)$ $G=3/32"(-1/16")$		WITHOUT BACKING $\alpha=60^\circ(\pm 15^\circ)$ $G=1/8"(-1/16")$ $h=3/32"$		$\alpha=40^\circ(\pm 15^\circ)$ $G=1/8"(-1/16")$ $h=1/16"(-1/16")$		EXPOSED INSIDE EDGES SHALL BE CHAMFERED AS PER UG-76(c)	

REV	DATE	DESCRIPTION	BY	APP
0	07/30/2018	ISSUED FOR REGISTRATION	YZ	
1	08/16/2018	REMOVED N6 PIPE, REISSUED FOR REGISTRATION	YZ	Y. Z.

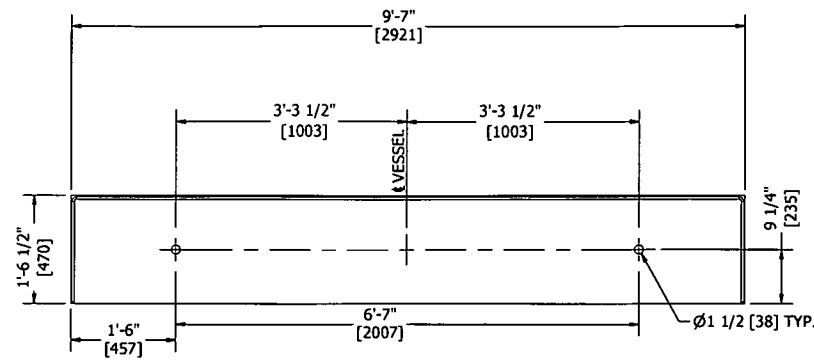
BILTON
Welding and Manufacturing Ltd.

BOX 6106
5815 37 Street
INNISFAIR, AB
CANADA
403-227-7799
1-888-227-4923
FAX 227-7796

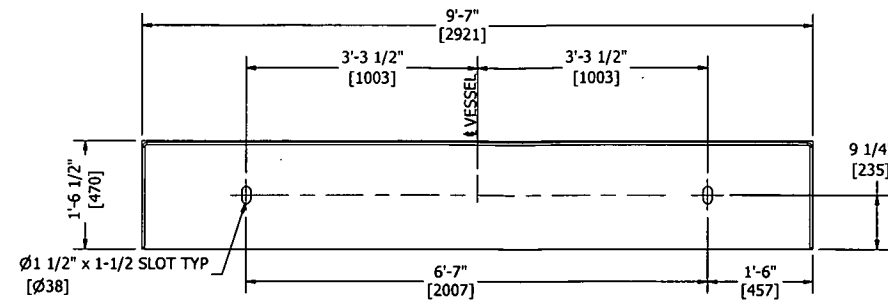
BILTON WELDING & MANUFACTURING LTD.

120" OD X 30'-0" S/S HEATER TREATER NOZZLE DETAILS		
QUOTE NUMBER:-	SALE ORDER:-	
PURCHASE ORDER:-	JOB ORDER:-	
LOCATION:-		
DATE: 21/06/2018		
SHEET: 3 OF 5		
CRN DWG: BWM-715-18		
CRN NUMBER: TBD		

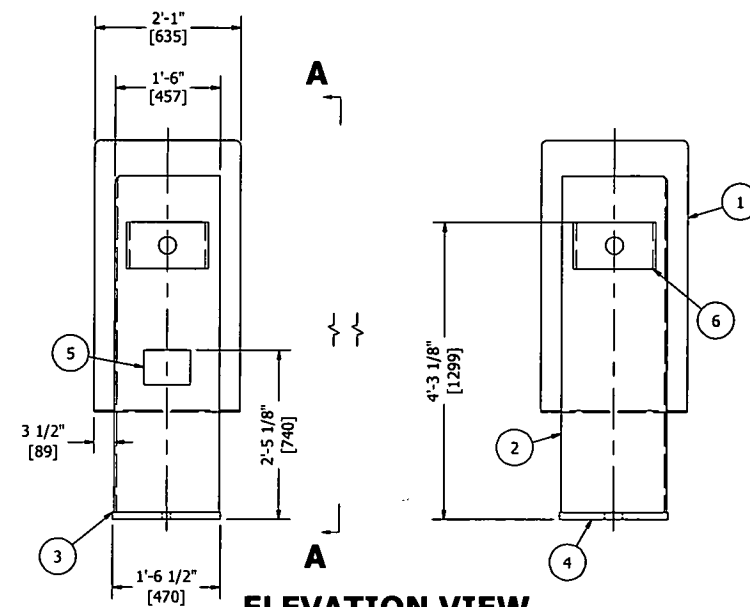
SIZE	REV.
D	1



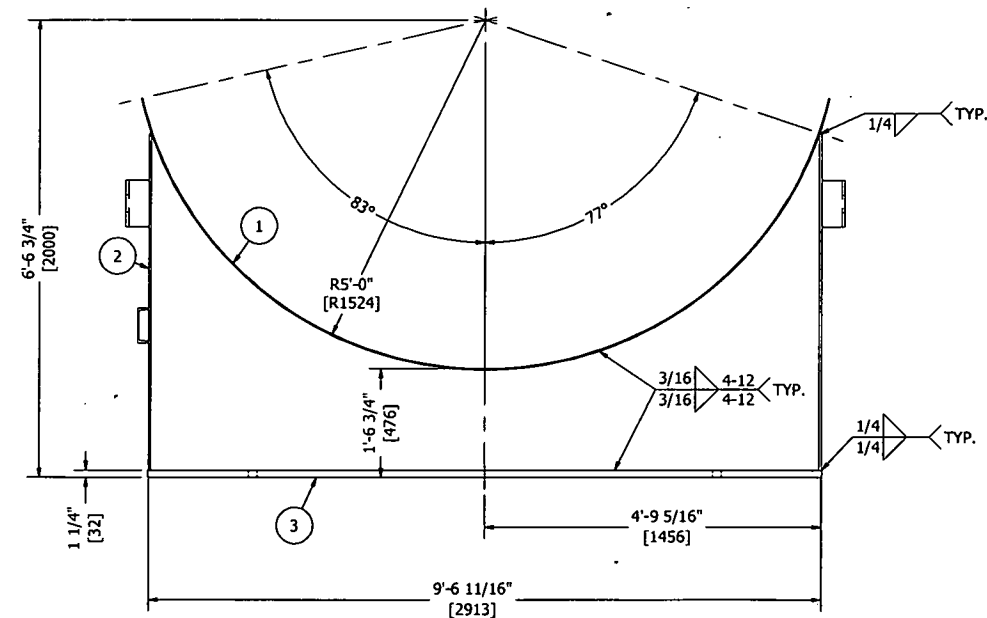
FIXED BASEPLATE DETAIL



SLIDING BASE PLATE DETAIL



ELEVATION VIEW



SECTION A-A

BILL OF MATERIALS

ITEM	QTY	REF.	PART No.	DESCRIPTION	LENGTH	MATERIAL	WEIGHT (lbs)
1	2	WEAR PAD	2-013551	1/4" THK x 25" W x 161 15/16" LG, ROLLED TO 120" ID		SA-516-70N	574.22
2	2	SADDLE	2-013556	3/8" THK x 114 11/16" W x 57 7/8" H c/w 18" RIB		SA-516-70N	1123.69
3	1	BASEPLATE	2-013557	1 1/4" THK x 18 1/2" W x 115" LG		SA-516-70N	754.86
4	1	BASEPLATE	2-013558	1 1/4" THK x 18 1/2" W x 115" LG		SA-516-70N	753.26
5	1			6" CHANNEL NAMEPLATE BRACKET	8"	G40.21-44W	5.49
6	4	TIE DOWN	2-006799	TIE DOWN: 1/2" THK x 8" W x 6" HIGH		SA-516-70N	80.46

Y 8 1 3 4 . 2

GENERAL NOTES:

- WELD PROCEDURE: GM-1, SM-1, MC-1
WELDERS AND WELD PROCEDURES QUALIFIED AS PER CSA W59

BILTON
Welding and Manufacturing Ltd.

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CANADA
403-227-7799
1-888-227-4923
FAX 227-7796

BILTON WELDING & MANUFACTURING LTD.

120" OD X 30'-0" S/S HEATER TREATER
SADDLE DETAILS

QUOTE NUMBER:-	SALE ORDER:-	SIZE
PURCHASE ORDER:-	JOB ORDER:-	D
LOCATION:-	D4661	
DATE: 21/06/2018		
SHEET: 4 OF 5	DRAWING NO.:	
CRN DWG: BWM-715-18	BWM-715-18D	
CRN NUMBER: TBD		0

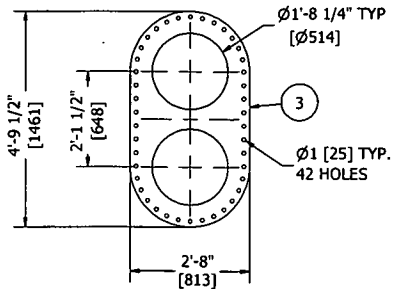
REV	DATE	DESCRIPTION	BY	APP
0	7/30/2018	ISSUED FOR REGISTRATION	YZ	Y. Z.

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GENERAL NOTES:

1. QUALITY CONTROL PROGRAM NUMBER: AQP-1317(S)
2. WELDING PROCEDURE REGISTRATION NUMBER: WP1970
3. ALL BOLT HOLES TO STRADDLE CENTERLINE
4. FABRICATION TOLERANCES AS PER BW&ML DWG: TOL2002
5. PWHT: CONTROL ALL FIRETUBE PIPE WELDS(WELD DETAIL 1) TO LESS THAN 5/8",
PWHT OF FIRETUBES ARE EXEMPT PER UW-2(d)(2)

1



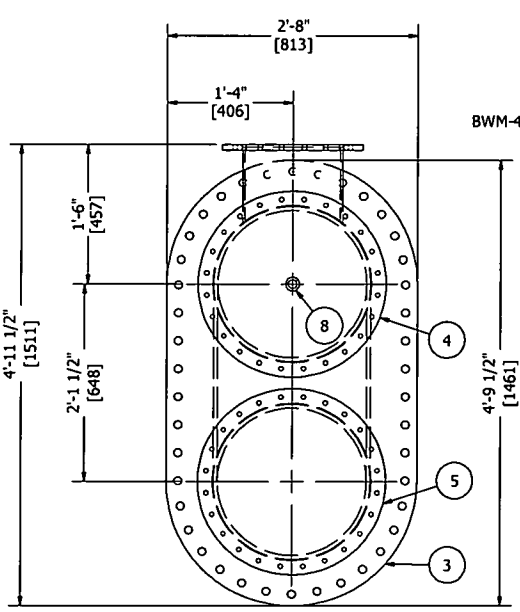
FLANGE: DETAIL

NOTE: SEE BWM-7151-18 BSI OBOUND FLANGE CALCS. REV.0

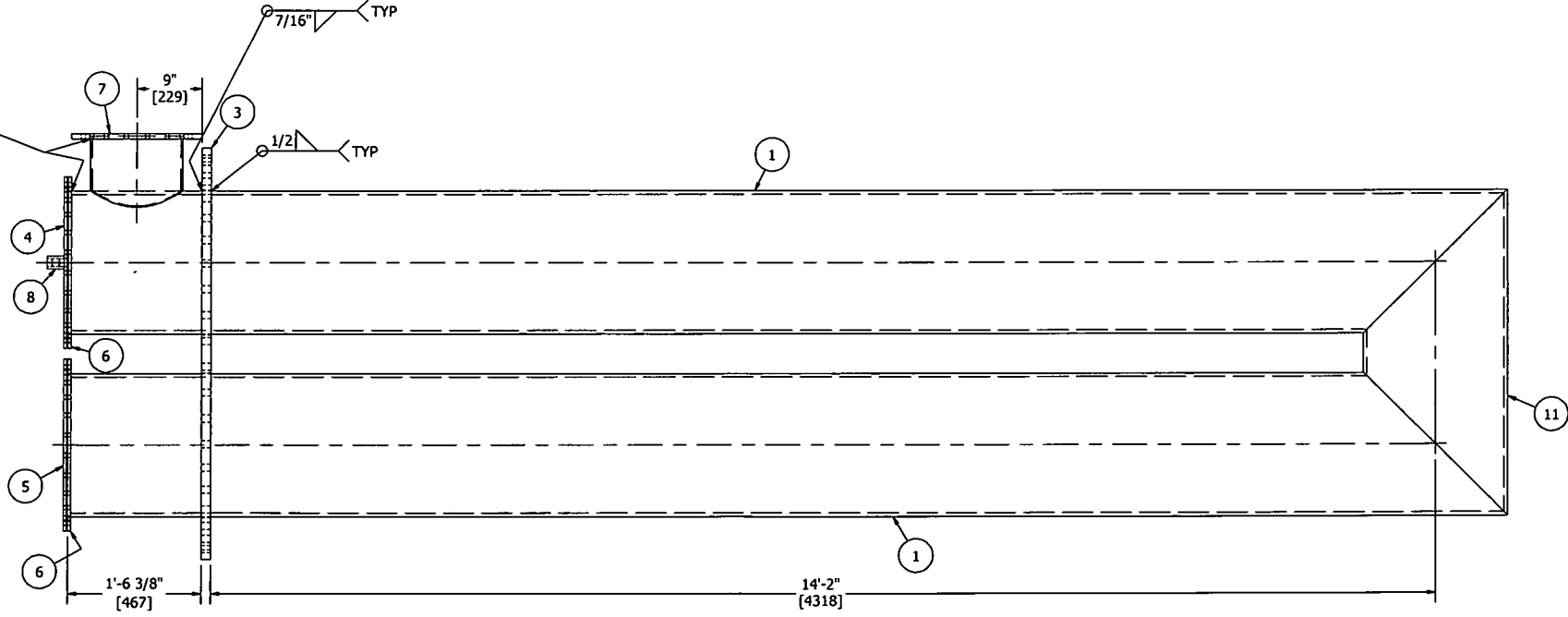
BILL OF MATERIALS -TWO (2) SETS REQD

ITEM	QTY	REF.	PART No.	DESCRIPTION	LENGTH	MATERIAL	WEIGHT (lbs)
1	2		1-007439	20" PIPE SCH XH/30 (MOE,POE)	16'-7 1/4"	SA-53-B	3296.33
2	1		1-008557	12" PIPE SCH 20 (PBE)	28'-5 1/2"	SA-53-B	953.24
3	1		-	1 1/2" THK x 32" W x 57 1/2" LG		SA-516-70N	335.19
4	1	BLIND	2-013560	3/8" THK x 24" OD		SA-36	47.49
5	1	BLIND	2-013561	3/8" THK x 24" OD		SA-36	47.60
6	2	FLANGE	2-013562	3/8" THK x 24" OD x 20 1/8" ID		SA-36	27.36
7	2	FLANGE-STACK	2-013563	3/4" THK x 18" OD x 12 7/8" ID		G40.21-44W	51.31
8	3		1-000527	1" x CL3000 THRD FULL COUPLING		SA-105-N	2.82
9	3	BIRD SCREEN	2-013565	CLIP 1/4" THK x 1 1/2" W x 2 1/2" LG -TAP FOR 3/8 BOLT		304SS	0.80
10	1	STACK	1-008557	12" PIPE SCH 20 (POE, COPE ONE END)	10"	SA-53-B	24.43
11	1	FIRE TUBE	1-007439	20" PIPE SCH XH/30 (MBE)	3'-9 1/2"	SA-53-B	222.08
12	1	BIRD SCREEN	1-009426	EXPANDED STEEL 3/4-13; 12 1/4" OD x 6" HIGH		316SS	6.72
13	1	BIRD SCREEN	2-013569	3/16 THK x 12 1/4" ID x 1 1/2" HIGH		304SS	3.16

Y 8 1 3 4 . 2



VIEW J-J



FIRETUBE DETAILS

NOTE: SEE BWM-715-18 FIRETUBE MITER CALC. REV.0
SEE BWM-715-18 FIRETUBE EXTERNAL PRESSURE CALCS. REV.0

DESIGN SPECIFICATIONS

DESIGN & FABRICATE TO: 2017 ASME BOILER & PRESSURE VESSEL CODE
SECTION VIII, DIVISION 1
DESIGN PRESSURE & TEMPERATURE: NIL
DESIGN EXTERNAL PRESSURE: 75 PSIG @ 150°F
MINIMUM DESIGN METAL TEMP: -20°F @ 75 PSIG
IMPACT TESTS: NONE AS PER UG-20(f)(1-5)
RADIOGRAPHY: NONE AS PER UG-11(c)
POST WELD HEAT TREATMENT: NONE AS PER UCS-56
HYDROSTATIC TEST PRESSURE: 98 PSI PREHEAT: 50°F
CORROSION ALLOWANCE: 1/8" EXTERNAL MAWP: 75 PSIG @ 150°F
HEAD THK. MIN.: - VOLUME: 150 GAL (1700L)
WEIGHT EMPTY: 5020 LBS WEIGHT FULL: 5020 LBS

BILTON WELDING & MANUFACTURING LTD.

120" OD X 30'-0" S/S HEATER TREATER
FIRETUBE DETAILS
QUOTE NUMBER: - SALE ORDER: -
PURCHASE ORDER: - JOB ORDER: D4661
LOCATION: -
DATE: 21/06/2018
SHEET: 5 OF 5
CRN DWG: BWM-715-18
CRN NUMBER: TBD
DRAWING NO.: BWM-715-18E
REV. 1

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REV	DATE	DESCRIPTION	BY	APP
0	7/30/2018	ISSUED FOR REGISTRATION	YZ	
1	08/23/2018	CHANGED ITEM 3 THK, REISSUED FOR REGISTRATION	YZ	Y. Z.

REGISTERED WELDING PROCEDURE NUMBER				
WELD DETAIL	ROOT	HOT PASS	FILL AND CAP	GOUGE/BACKWELD
1,2,3	BWM-44	BWM-44	BWM-44	N/A
1	PIPE WELDS	2	ATTACHMENTS	3
2	ATTACHMENTS	3	COUPLER DETAIL-SET: ON	
3	COUPLER DETAIL-SET: ON			