

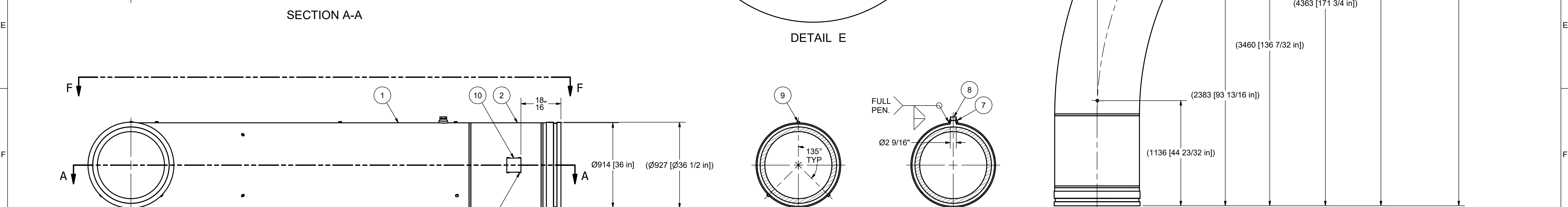
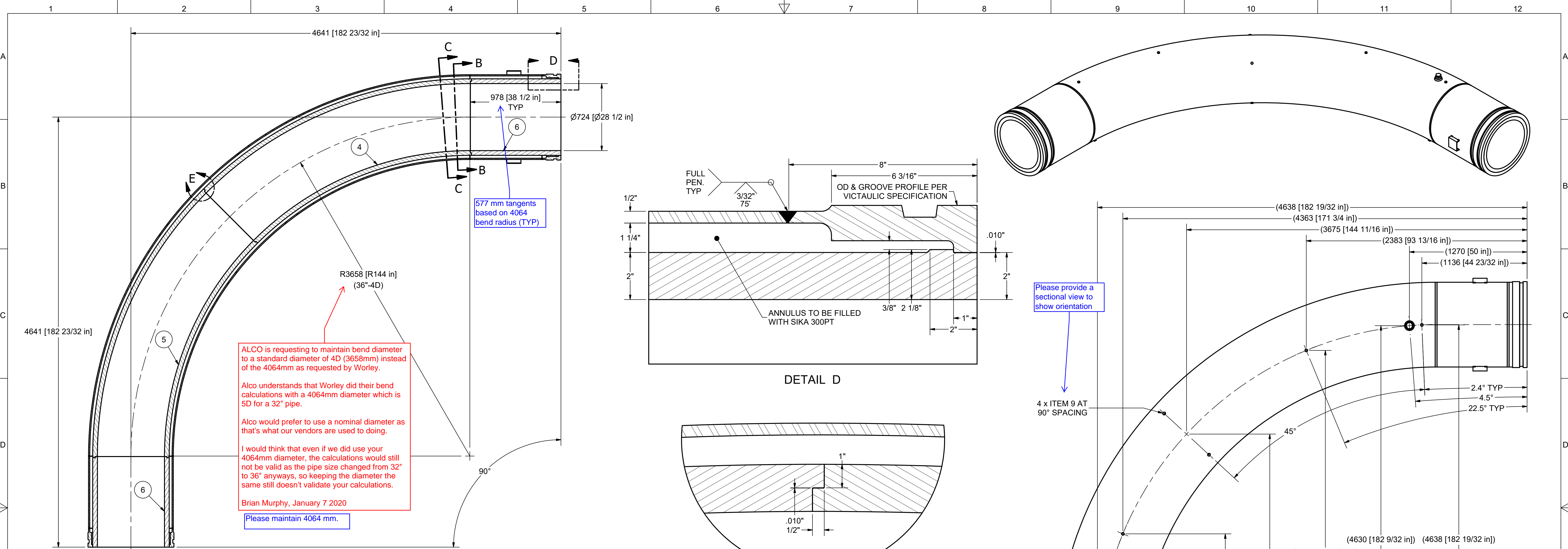
**SUPPLIER DOCUMENT COVER SHEET****Syncrude Canada Ltd.****WorleyParsons**  
resources & energy**Worley – Syncrude Projects Group****Supplier Name:** PENTICTON FOUNDRY LTD.**Client Contract No.:** 4410322556**Purchase Order Description:** HCWI Spools**Supplier Document Title:** Detailed Fabrication Drawings and Bill of Materials**Supplier's Revision Record**

Rev.	Date	Issue	By	Checked	Approved
1	08/01/20	For Review – Formal Drawings	Penticton Foundry		
0	09/12/19	For Review – Mainline Spools	Penticton Foundry		

**Project Document**

Job No.	Purchase Order No.	Document	SDRL Code
407035-05914	407035- 05914_E00324_MR235L5001_POD-001	Detailed Fabrication Drawings and Bill of Materials	H03 & C04

**SUPPLIER DOCUMENT TITLE:** Detailed Fabrication Drawings and Bill of Materials**VENDOR DOCUMENT REVIEW**



BILL OF MATERIAL			
ITEM	ITEM QTY	PART NUMBER	DESCRIPTION
1	1	A1-19027-100-01 36in elbow	36" XS-4D x 90° PIPE BEND, API 5L X56
2	2	A1-19027-100-02 36in pipe	36" XS x 30 17/32" PIPE, API 5L X56
3	2	A1-19027-100-03 34in Type B victaulic ring	34" INVERTED TYPE B VICTAULIC RING FOR 200 SERIES COUPLING, A350 LF2, CUSTOM TYPE B
4	1	A1-19027-100-04 HCWI elbow - male	28 1/2" ID x 2" WALL x 46° HCWI ELBOW - MALE w/ 7/32" TANGENT, ASTM A532 CLASS III TYPE A, PF#(TBD)
5	1	A1-19027-100-05 HCWI elbow - female	28 1/2" ID x 2" WALL x 46° HCWI ELBOW - FEMALE w/ 7/32" TANGENT, ASTM A532 CLASS III TYPE A, PF#(TBD)
6	2	A1-19027-100-06 HCWI liner - pup	28 1/2" ID x 2" WALL x 38 1/2" HCWI LINER PUP, ASTM A532 CLASS III TYPE A, PF#(TBD)
7	1	A1-19027-100-07 2in x 36in threadolet	2" x 36" CLASS 3000 THREADOLET, A105N
8	1	ASME B16.11 Hex Head Plug 2	2"-NPT HEX HEAD PLUG, A105N
9	14	ASME B16.11 Hex Head Plug 3/4	3/4"-NPT HEX HEAD PLUG, A105N
10	2	Tag mount - 6in	C6x8.2 x 6" [152mm], 44W
11	-	GROUT	SIKA 300PT

REVISION HISTORY			
REV	DATE	DESCRIPTION	INITIALS
A	1/07/20	ISSUED FOR REVIEW	GVD

EST. WT. 24,865 lbs.	DO NOT SCALE
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES 0.1" OR GRAY: RADIUS 0.1" I.R. 0.10. INTERPRET DWG PER ANSI Y14.5 STANDARD.	DRAWN BY: GVD DATE: 1/07/20
TOLERANCES: X.XX = ±.010 X.XXX = ±.005 X.XXXX = ±.002	CHECKED BY: DATE:
125/125 FINISH ON ALL MACHINED SURFACES	APPROVED: DATE:
	MATERIAL & HEAT TREAT

DESIGN CODE: ASME B31.3, 2018	HYDROTRANSPORT - SLURRY
SERVICE: 3447 kPag (500 psig)	
DESIGN TEMPERATURE: 94°C (201°F)	
TEST PRESSURE: 5171 kPag (750 psig)	
TEST TEMPERATURE: 15°C (59°F)	
TEST DURATION: 10 MINUTES	

PROJECT No. A1-19027	REFERENCE SP-237-2-P-126-1-B Rev.A	REV. A
FILE NAME A1-19027-100-00 SP-237-2-P-126-1-B.idw		SHEET 1 OF 1

ALCO	ALCO Industrial
2103 - 8 Street, Nisku, Alberta, Canada T9E 7Y9 Phone: (780) 451-6222 • Fax: (780) 452-4355	

REFER TO DRAWING A1-00001-100-01 FOR ALL GENERAL NOTES AND SPECIFICATIONS

Can you use PLUG, HEX BULL, THD, SA234 WPB-S9 as available in Syncrude line class ET2D?

Adjust for 577 mm tangents and 4064 radius

7665 kPa

Please provide a sectional view to show orientation

4 x ITEM 9 AT 90° SPACING

Please maintain 4064 mm.

Brian Murphy, January 7 2020

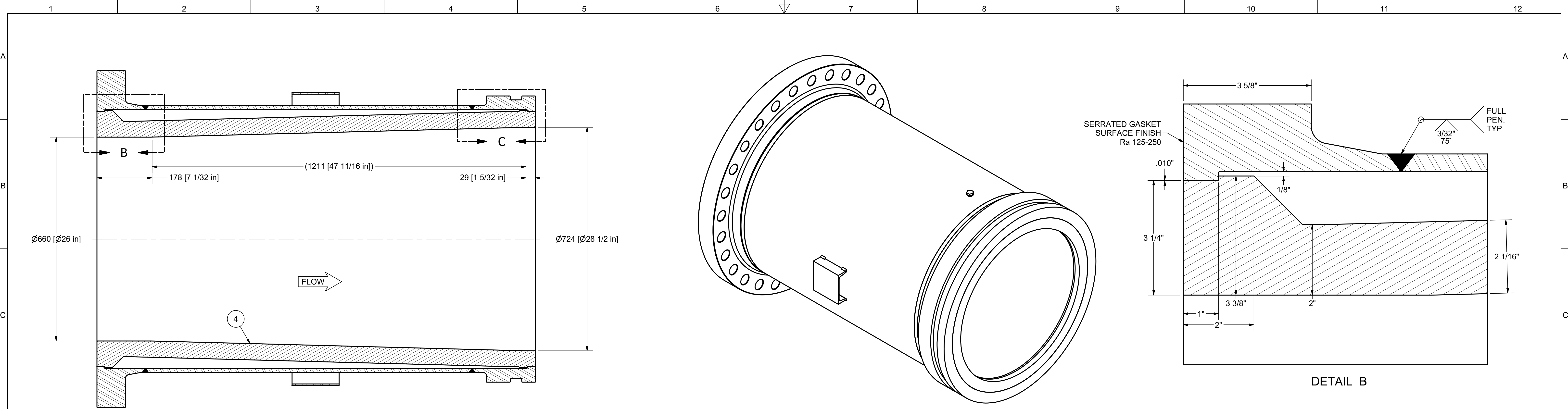
Alco would prefer to use a nominal diameter as that's what our vendors are used to doing.

Alco understands that Worley did their bend calculations with a 4064mm diameter which is 5D for a 32" pipe.

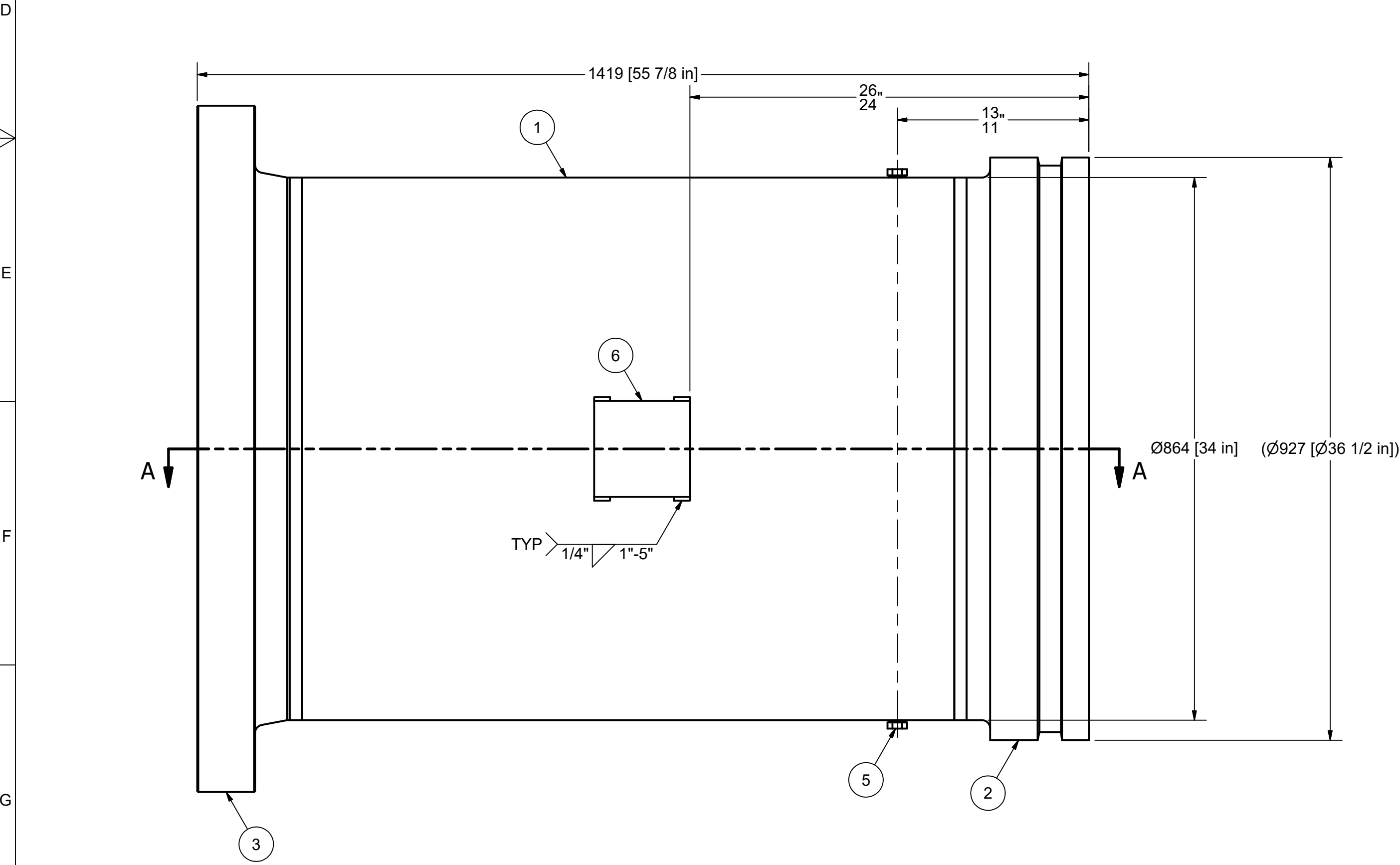
ALCO is requesting to maintain bend diameter to a standard diameter of 4D (3658mm) instead of the 4064mm as requested by Worley.







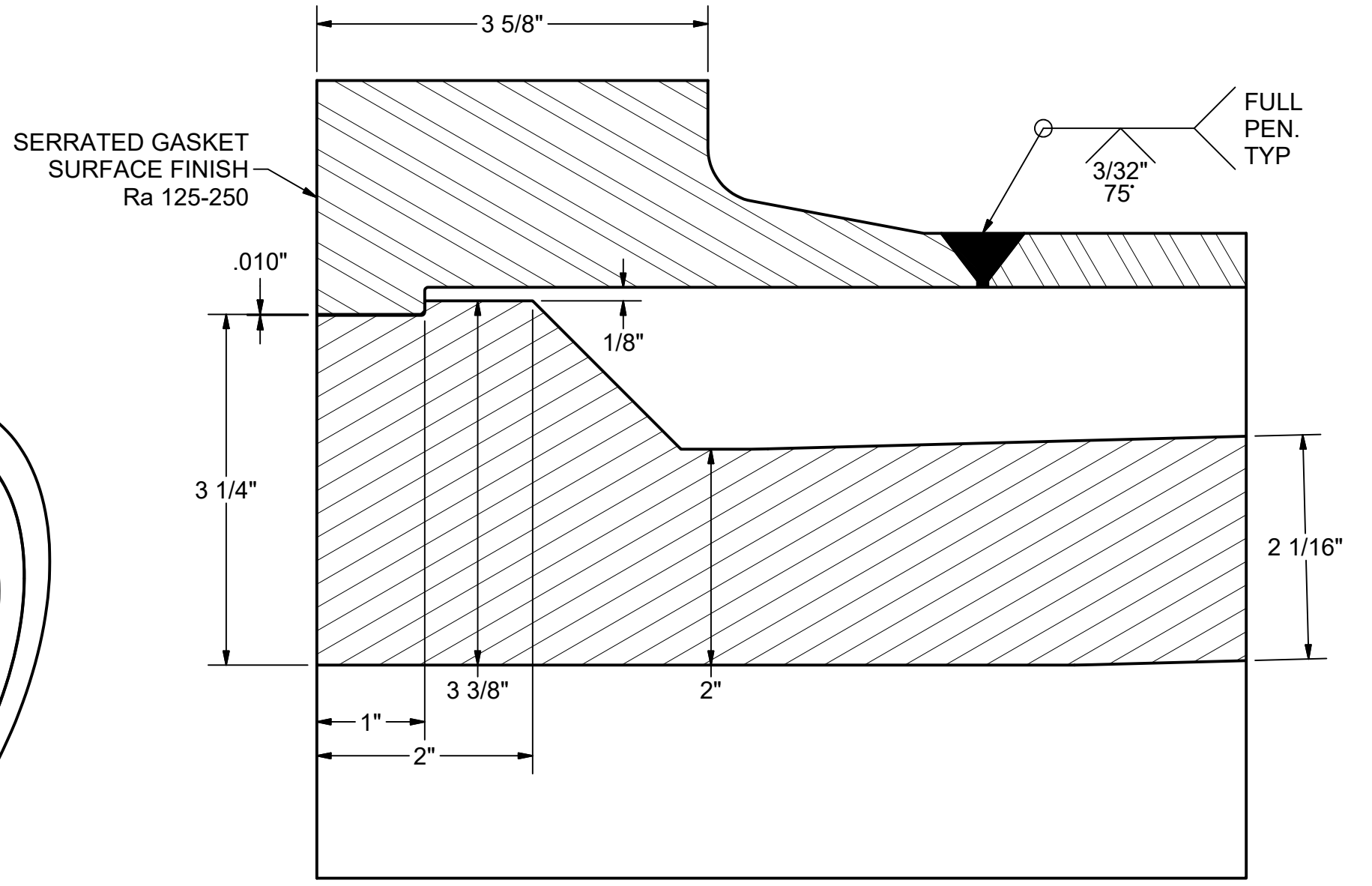
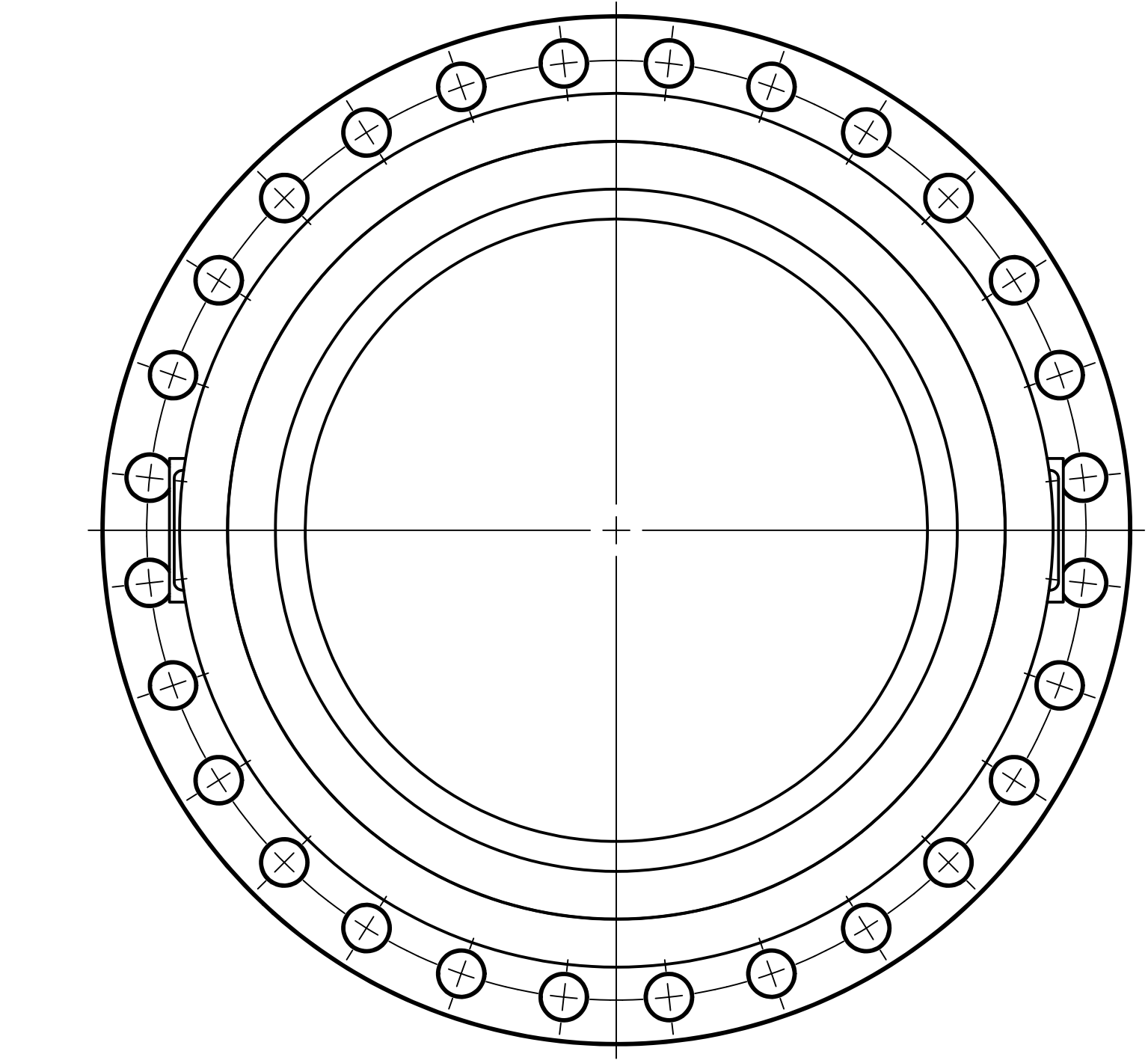
SECTION A-A



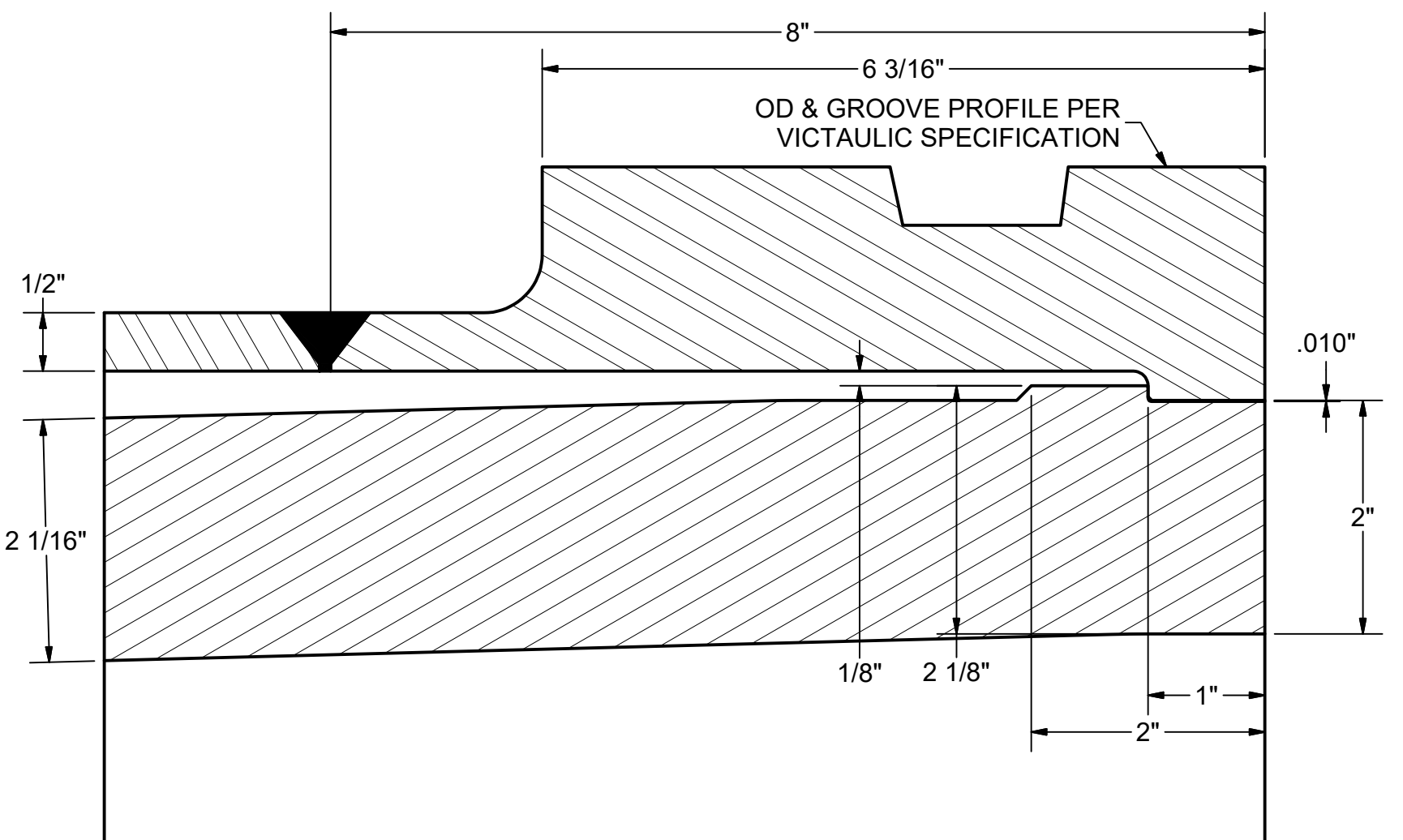
BILL OF MATERIAL			
ITEM	ITEM QTY	PART NUMBER	DESCRIPTION
1	1	A1-19027-200-01 34in pipe	34" XS x 41 9/16" PIPE, API 5L X56
2	1	A1-19027-200-02 34in Type B victaulic ring	34" TYPE B VICTAULIC RING FOR 200 SERIES COUPLING, A350 LF2, CUSTOM TYPE B
3	1	A1-19027-200-03 30in CL300 flange	30" CLASS 300 FFWN FLANGE, A350 LF2, Ø32 1/2" BORE
4	1	A1-19027-200-04 HCWi reducer	28 1/2" ID x 26" ID x 2 1/16" WALL x 55 7/8" HCWi REDUCER, ASTM A532 CLASS III TYPE A, PF#(TBD)
5	2	ASME B16.11 Hex Head Plug 3/4	3/4"-NPT HEX HEAD PLUG, A105N
6	2	Tag mount - 6in	C6x8.2 x 6" [152mm], 44W

What is the plug used for? No grouting done here

Can you use PLUG, HEX BULL, THD, SA234 WPB-S9 as available in Syncrude line class E T2D?



DETAIL B



DETAIL C

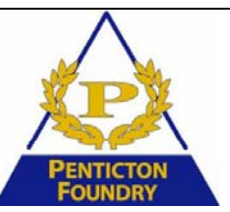
DESIGN CODE:	ASME B31.3, 2018
SERVICE:	HYDROTRANSPORT SLURRY
DESIGN PRESSURE:	3447 kPag (500 psig)
DESIGN TEMPERATURE:	94°C (201°F)
TEST PRESSURE:	5171 kPag (750 psig)
TEST TEMPERATURE:	15°C (59°F)
TEST DURATION:	10 MINUMTES

7665 kPa

REFER TO DRAWING A1-00001-100-01 FOR ALL GENERAL NOTES AND SPECIFICATIONS

REVISION HISTORY			
REV	DATE	DESCRIPTION	INITIALS
A	1/06/20	ISSUED FOR REVIEW	GVD

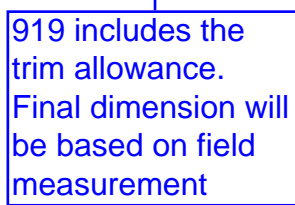
EST. WT. 4,475 lbs.		DO NOT SCALE	
OTHERWISE SPECIFIED		DRAWN BY: GVD	
ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES 0.1" OR 0.04" RADIUS. 0.1" R. 0.10. INTERPRET DWG PER ANSI Y14.5 STANDARD.		DATE: 1/06/20	
TOLERANCES:		CHECKED BY: DATE	
X.XX = ± 0.00		APPROVED: DATE	
X.XXX = ± 0.015		MATERIAL & HEAT TREAT	
X.XXXX = ± 0.005		125° FINISH ON ALL MACHINED SURFACES	
ANGLES = ± 1/2°		PROJECT No: A1-19027	
		REFERENCE: SP-237-2-P-126-1-A Rev.A	
		FILE NAME: A1-19027-200-00 SP-237-2-P-126-1-A.idw	
		REV. A	
		SHEET 1 OF 1	







Can you use PLUG, HEX BULL, THD, SA234 WPB-S9 as available in Syncrude line class ETLB?



NOTES:

1. SPOOL TO BE HYDROTESTED PRIOR TO INSTALLATION OF HCWI LINER.
2. LENGTH OVER FLANGES TO BE DETERMINED BY FIELD MEASUREMENT.  
51mm (2") PROVIDED ON FLANGE FACE TO PERMIT MACHINING TO  
FIELD SPECIFIED LENGTH.
3. 919mm (36 3/16") LINER INSERTION TO BE MAINTAINED  
REGARDLESS OF FLANGE TO FLANGE LENGTH.






2950  
Kpa

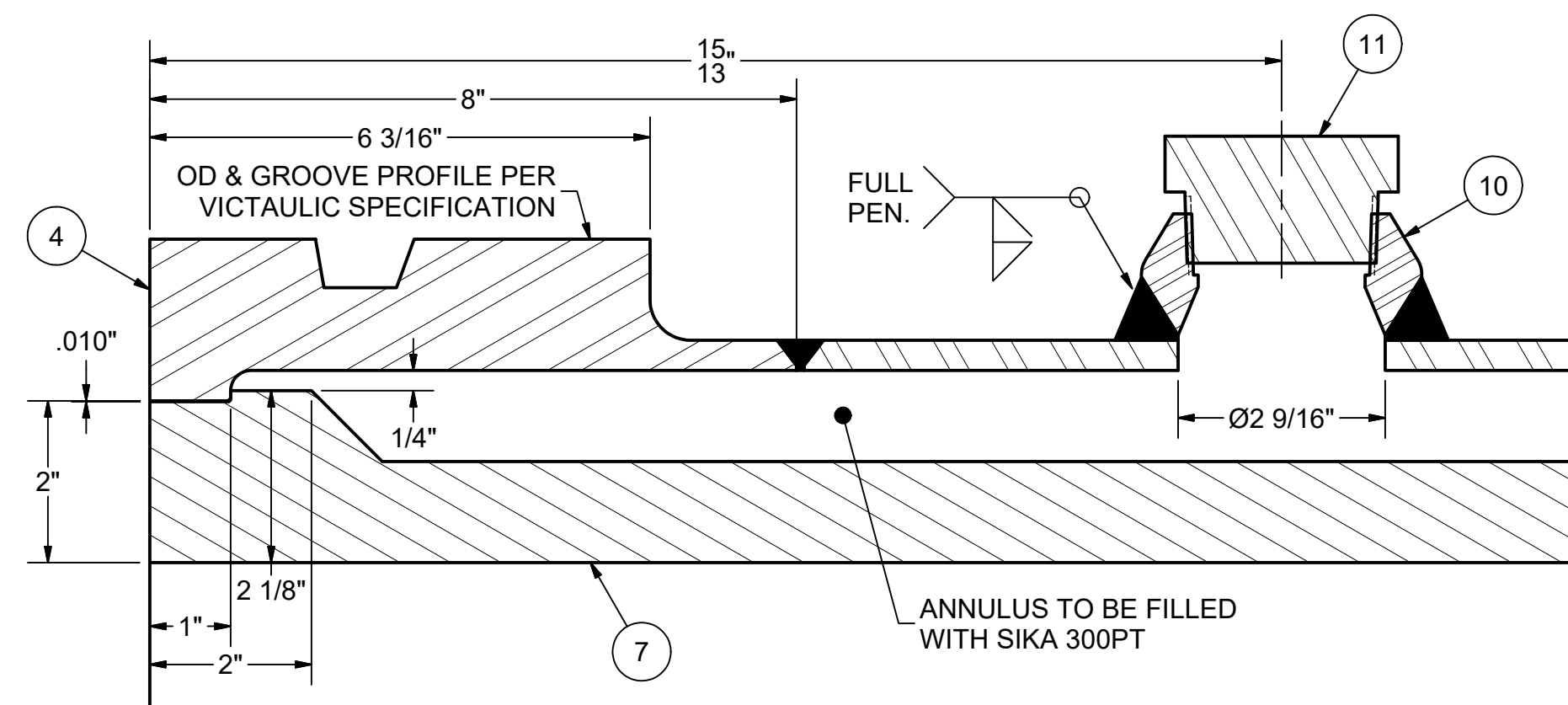
DESIGN CODE:	ASME B31.3, 2018
SERVICE:	HYDROTRANSPORT SLURRY
DESIGN PRESSURE:	1770 kPag (257 psig)
DESIGN TEMPERATURE:	94°C (201°F)
TEST PRESSURE:	2655 kPag (385 psig)
TEST TEMPERATURE:	15°C (59°F)
TEST DURATION:	10 MINUTES



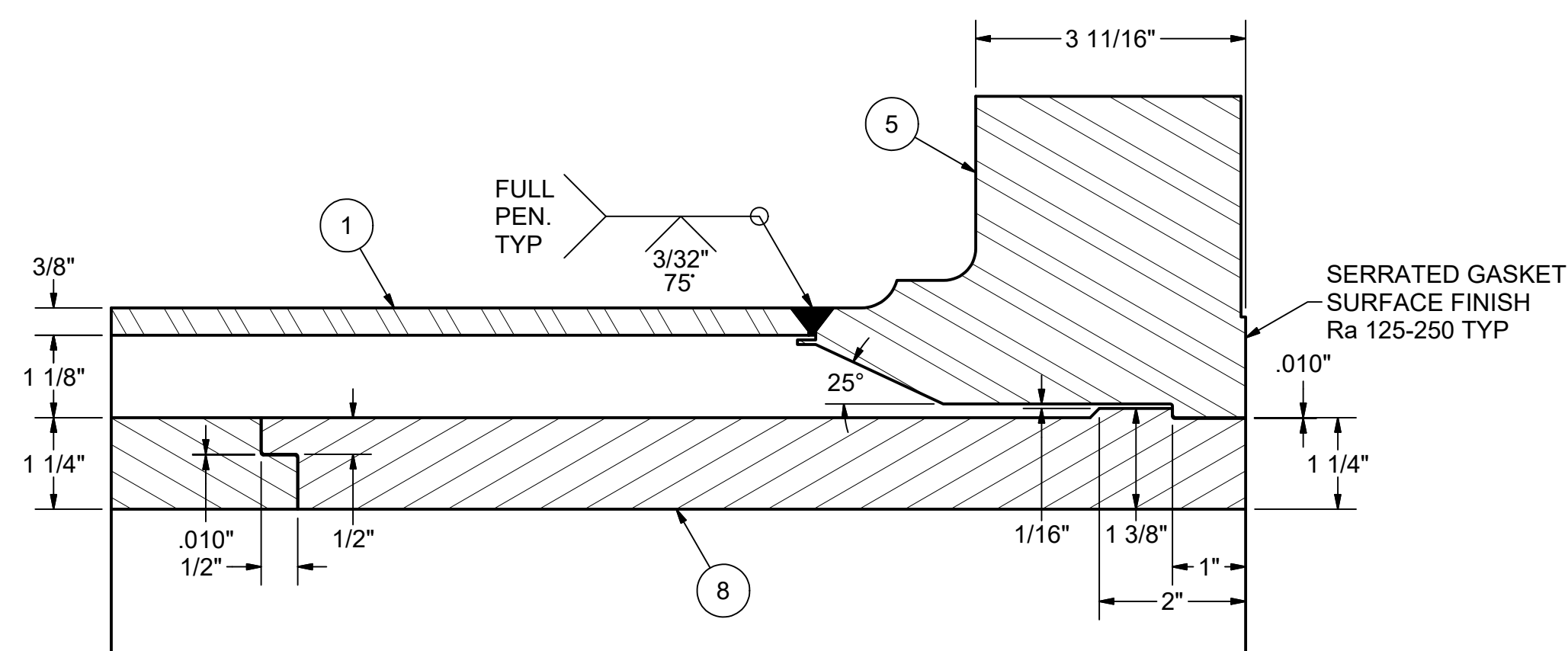
REFER TO DRAWING A1-00001-100-01 FOR  
ALL GENERAL NOTES AND SPECIFICATIONS

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	UNLESS OTHERWISE SPECIFIED	DRAWN BY: GVD	DATE: 1/07/20		
	ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES .01-.03R OR .04. RADI 56.1 R. 0.0. INTERPRET DWG PER ANSI Y14.5 STANDARD.	CHECKED BY:	TITLE:		
	TOLERANCES X .XX ± .010 XXX ± .015 XXXX ± .005 ANGLES ± 1/16"	APPROVED: DATE:	SPOOL RD-235-D-2-1 SYNCRUDE AURORA HT2 MAIN LINE		
	MATERIAL & HEAT TREAT	PROJECT NO: A1-19027	REFERENCE: RD-235-002-D-002-1 Rev. A4		REV: A
	125  FINISH ON ALL MACHINED SURFACES	FILE NAME: A1-19027-300-00 RD-235-D-2-1.idw			SHEET 1 OF 1

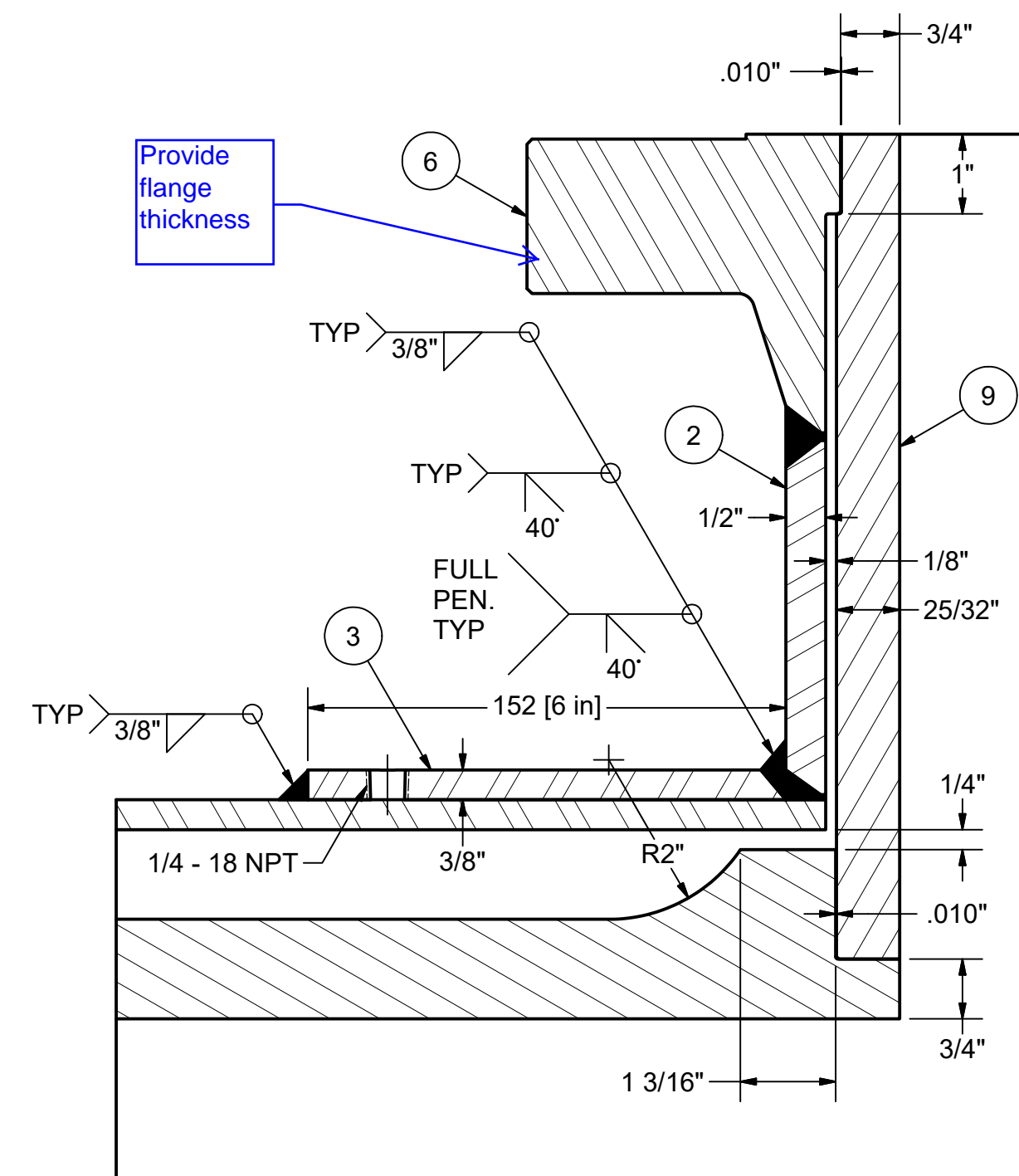




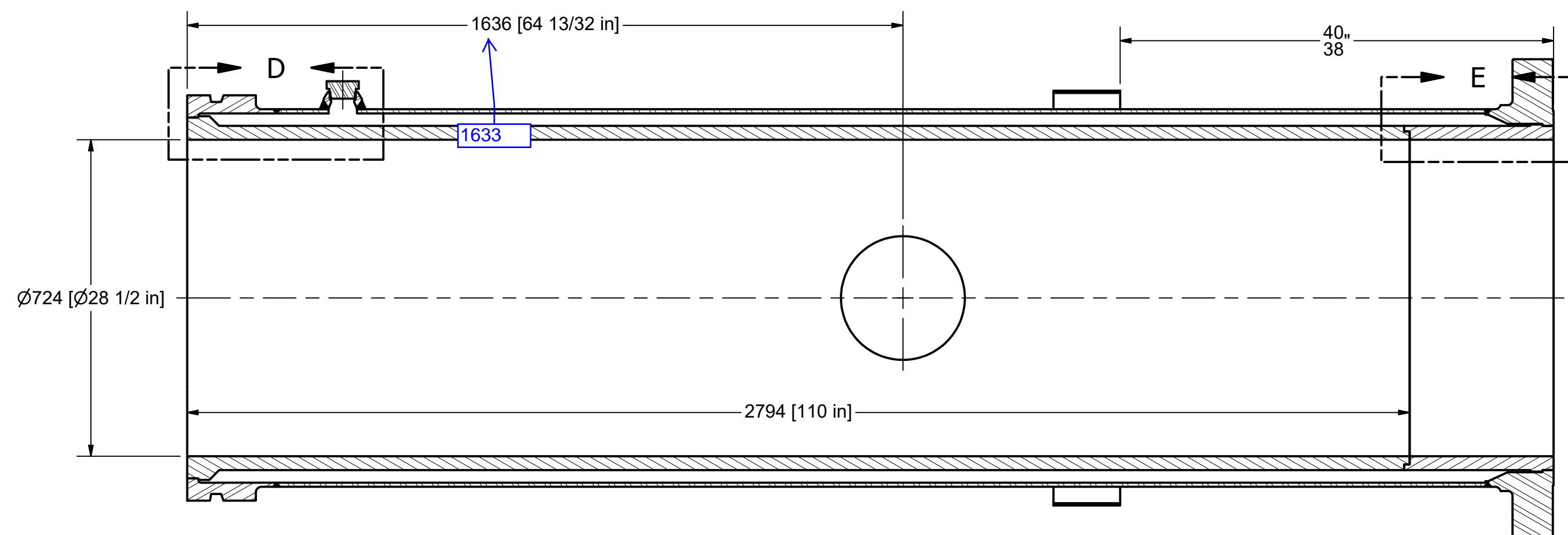
DETAIL D



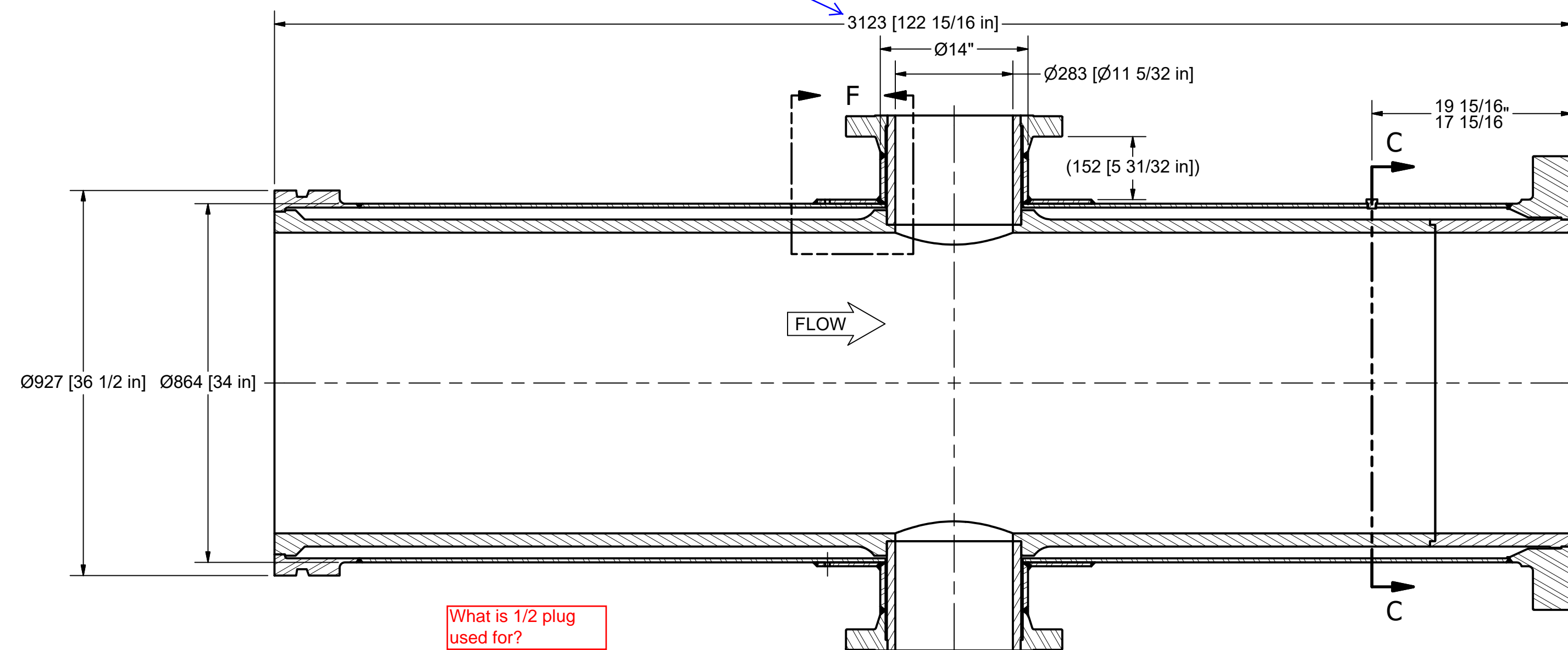
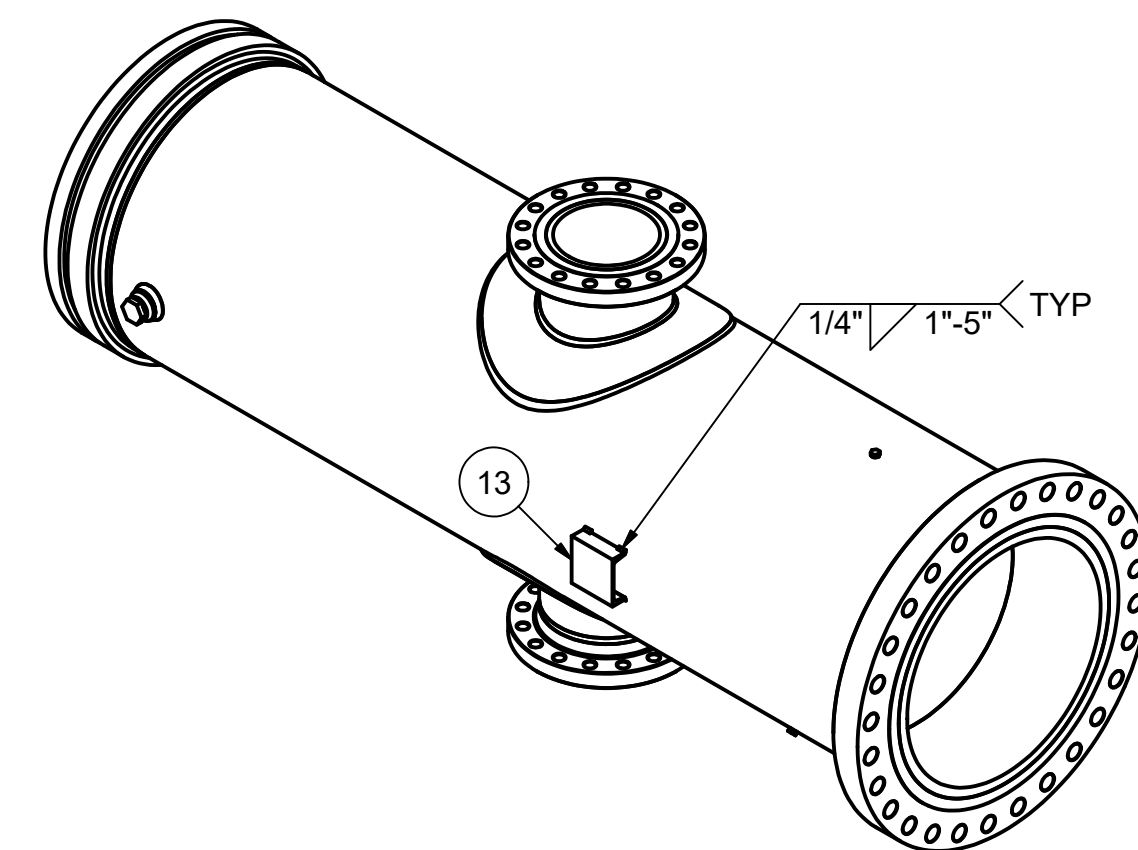
DETAIL E



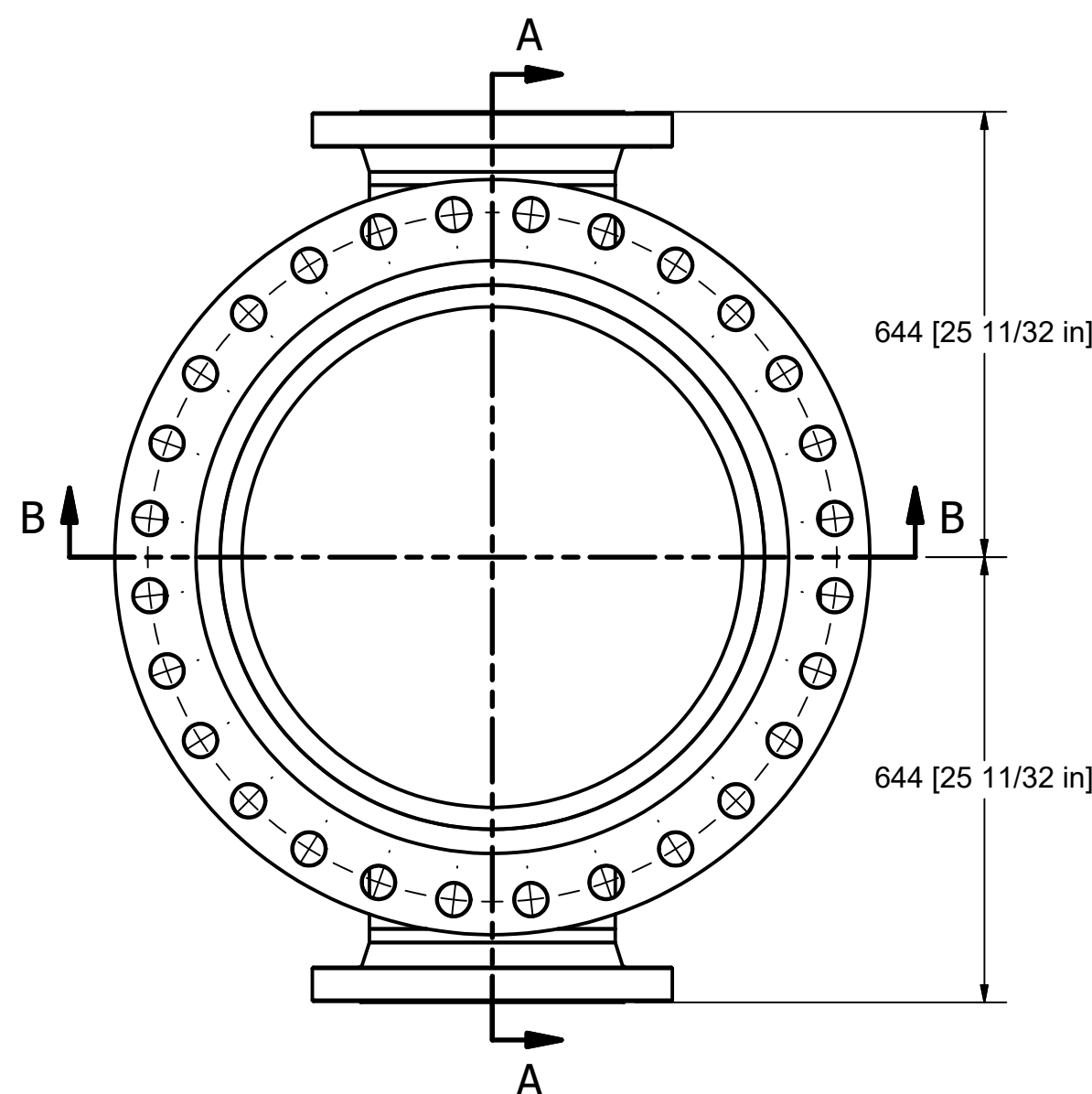
DETAIL F



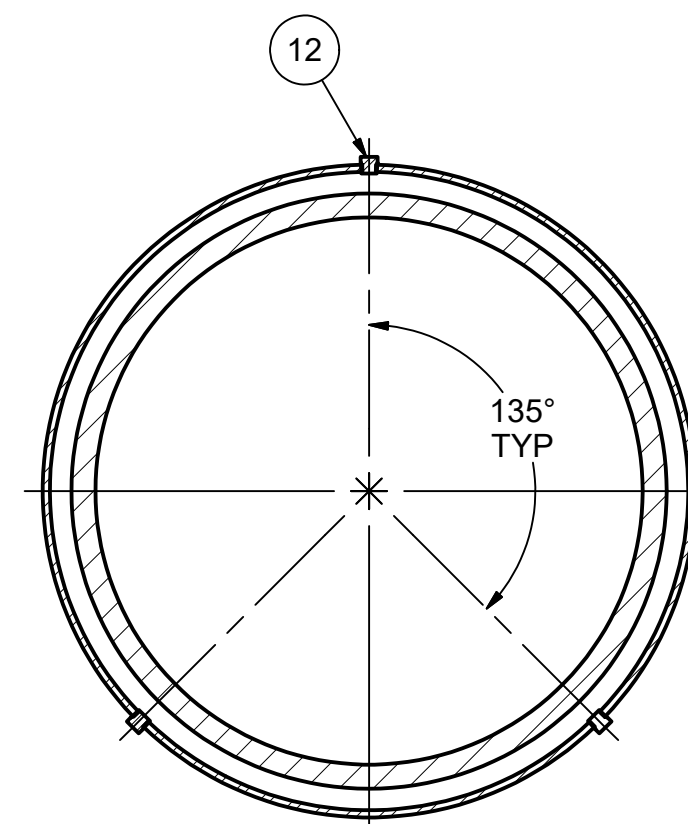
SECTION B-B



SECTION A-A



SECTION C-C



DESIGN CODE:	ASME B31.3, 2018
SERVICE:	HYDROTRANSPORT SLURRY
DESIGN PRESSURE:	3447 kPag (500 psig)
DESIGN TEMPERATURE:	94°C (201°F)
TEST PRESSURE:	5171 kPag (750 psig)
TEST TEMPERATURE:	15°C (59°F)
TEST DURATION:	10 MINUTES

ITEM	ITEM QTY	PART NUMBER	BILL OF MATERIAL	DESCRIPTION
1	1	A1-19027-400-01 34in pipe	34" STD x 108 29/32" PIPE, API 5L X56	
2	2	A1-19027-400-02 14in pipe	14" XS x 22 1/2" PIPE, API 5L X56	
3	2	A1-19027-400-03 Repad	14" ID x 6" WIDE x 90" REPAD CUT FROM 34" STD PIPE (26" x 100"), API 5L X56	
4	1	A1-19027-400-04 34in Type B Victaulic ring	34" TYPE B VICTAULIC RING FOR 200 SERIES COUPLING, A350 LF2, CUSTOM TYPE B	
5	1	A1-19027-400-05 30in CL300 FF flange	30" CLASS 300 ASME B16.47 Ser.A FF50 FLANGE, A350 LF2, Ø29" BORE	
6	2	A1-19027-400-06 Alco flange - 12in CL300	12" CLASS 300 RF ALCO FLANGE, A350 FL2, Ø12 5/8" BORE, MATES TO B16.5 CLASS 300	
7	1	A1-19027-400-07 HCWI liner - trunk	28 1/2" ID x 1 1/4" WALL x 90" HCWI LINER w/ DRAINS, ASTM A532 CLASS III TYPE A, PF#(TBD)	
8	1	A1-19027-400-08 HCWI liner - pup	28 1/2" ID x 1 1/4" WALL x 13 15/32" HCWI LINER PUP, ASTM A532 CLASS III TYPE A, PF#(TBD)	
9	2	A1-19027-400-09 HCWI liner - drain	11 1/8" ID x 13/16" WALL x 10 11/32" HCWI LINER, ASTM A532 CLASS III TYPE A, PF#(TBD)	
10	1	A1-19027-400-10 2in x 34in threadolet	2" x 34" CLASS 3000 THREADOLET, A105N	
11	1	ASME B16.11 Hex Head Plug 2	2"-NPT HEX HEAD PLUG, A105N	Can you use PLUG, HEX BULL, THD, SA234 WPB-S9 as available in Syncrude line class ET2D?
12	3	ASME B16.11 Hex Head Plug 1/2	1/2"-NPT HEX HEAD PLUG, A105N	
13	2	Tag mount - 6in	C6x8.2 x 6" [152mm], 44W	
14	-	GROUT	SIKA 300PT	

REVISION HISTORY			
REV	DATE	DESCRIPTION	INITIALS
A	1/06/20	ISSUED FOR REVIEW	GVD

REFER TO DRAWING A1-00001-100-01 FOR  
ALL GENERAL NOTES AND SPECIFICATIONS

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	UNLESS OTHERWISE SPECIFIED	DRAWN BY:	DATE
	ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES 1/16 OR 45° RADI 50 TYP. 010. INTERPRET DWG PER ANSI Y14.5 STANDARD.	CHECKED BY:	DATE
	TOLERANCES X ± .010 X ± .015 X ± .005 X ± .005 ANGLES ± 1/2°	APPROVED:	DATE
	125/ FINISH ON ALL MACHINED SURFACES	MATERIAL & HEAT TREAT	

E	 <b>ALCO Industrial</b> 2103 - 9 Street Nisku, Alberta, Canada T9E 7Y9 Phone: 403-451-6222 Fax: (780) 452-4343		
	TITLE <p style="text-align: center;">SPOOL SP-237-2-P-126-1-C          SYNCRUDE AURORA HT2 MAIN LINE</p>		
	PROJECT No. <b>A1-19027</b>	REFERENCE <b>SP-237-2-P-126-1-C Rev.A</b>	REV. <b>A</b>
	FILE NAME <b>A1-19027-400-00 SP-237-2-P-126-1-C.idw</b>		SHEET 1 OF 4

