

Vendor Name: Penticton Foundry Ltd.

MR #: ALB-000-MR-PI-000003

PO#: 1399742

CNRL PROJECT NUMBER: KI191025-JPM INPIT CELL 1

MOC #: 2019-JPP-001

Document Title: Detailed Fabrication Drawings

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Canadian Natural Resources Limited

Albian - Oilsands Projects

VENDOR PRINT REVIEW STAMP

Submittal No. **002**

Permission to proceed does not constitute acceptance of design, details, calculations or analysis, test methods or materials developed or selected by Supplier and does not relieve Supplier from full compliance with contractual or other obligations

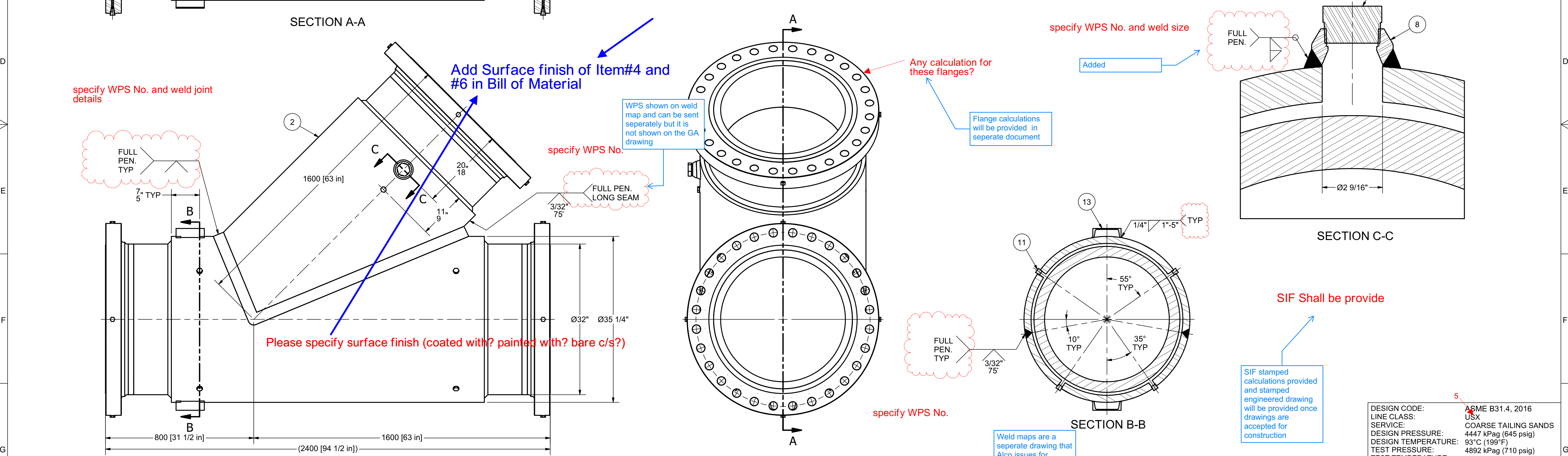
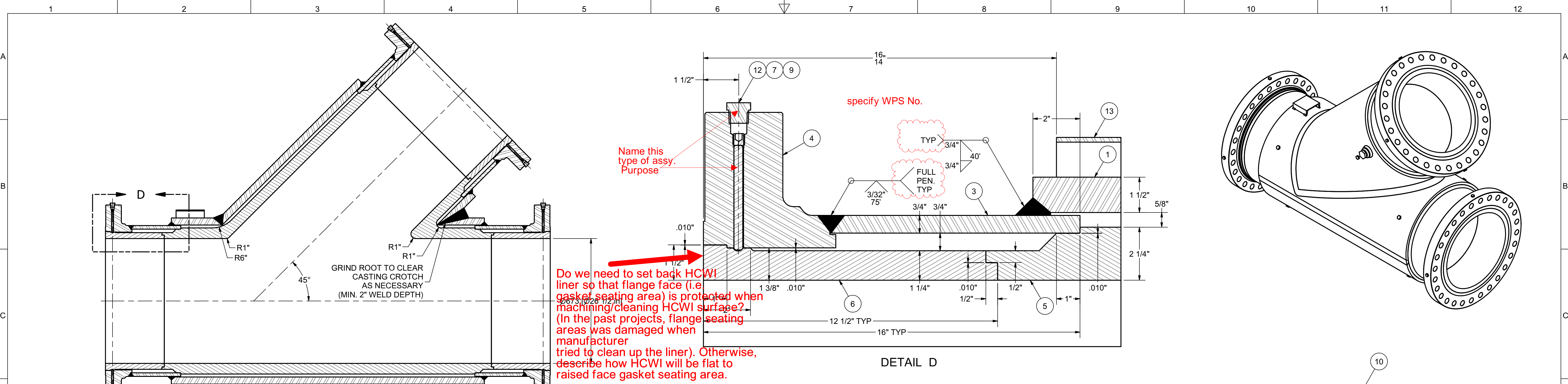
- ☐ 1. Accepted, proceed.
- ☒ 2. Proceed, incorporate comments and resubmit as final.
- ☐ 3. Do **NOT** proceed, revise and resubmit.
- ☐ 4. Proceed, review not required/completed.

Signature: **GP**

Date: **2020-02-06**

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ITEM		ITEM QTY	PART NUMBER	BILL OF MATERIAL	DESCRIPTION
1	1	1	A1-19037-100-01 Trunk shell	106 1/32" x 66 1/2" x 1 1/2" PLATE, A516 Gr.70N, ROLLED TO 35 1/4" OD	
2	1	1	A1-19037-100-02 Branch shell	106 1/32" x 48 15/16" x 1 1/2" PLATE, A516 Gr.70N, ROLLED TO 35 1/4" OD	
3	3	3	A1-19037-100-03 32in pipe	32" x 3/4" WALL x 10 17/32" PIPE, API 5L X52 PSL-2	
4	3	3	A1-19037-100-04 28in CL300 RF flange - custom	28" CLASS 300 B16.47 Ser.A FFSO FLANGE, A105N, Ø28 7/8" BORE	
5	1	1	A1-19037-100-05 HCWI lateral	26 1/2" ID x 2 1/4" WALL x 45° HCWI LATERAL, 19 1/2" x 51" x 51", ASTM A532 CLASS III TYPE A, LEVEL 2, PF#(TBD)	
6	3	3	A1-19037-100-06 HCWI liner - pup	26 1/2" ID x 1 1/4" WALL x 12 1/2" HCWI LINER, ASTM A532 CLASS III TYPE A, LEVEL 2, PF#(TBD)	
7	12	12	A1-19037-100-07 Trap rod	Ø3/8" x 4 7/16" ROUND BAR, A36	
8	1	1	A1-19037-100-08 2in x 36in threadolet	2" x 36" CLASS 3000 THREADOLET, A105N	
9	12	12	ANSI B18.3 - 1/2-13 UNC x 0.5	1/2"-NC x 1/2" FLAT POINT SOCKET HEAD SET SCREW, PLATED	
10	1	1	ASME B16.11 Hex Head Plug 2	2"-NPT HEX HEAD PLUG, A105N	
11	9	9	ASME B16.11 Hex Head Plug 3/4	3/4"-NPT HEX HEAD PLUG, A105N	
12	12	12	ASME B16.11 Hex Head Plug 1/2	1/2"-NPT HEX HEAD PLUG, A105N	
13	2	2	Tag mount - 6in	C6x8.2 x 6" [152mm], 44W	

DESIGN CODE: ASME B31.4, 2016

LINE CLASS: USX

SERVICE: COARSE TAILING SANDS

DESIGN PRESSURE: 4447 kPag (645 psig)

DESIGN TEMPERATURE: 93°C (199°F)

TEST PRESSURE: 4892 kPag (710 psig)

TEST TEMPERATURE: 15°C (59°F)

TEST DURATION: 30 MINUTES

EST. WT. 13,020 lbs.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES 01" OR GR. RADI 05" T.I.R. 010. INTERPRET DWG PER ANSI Y14.5 STANDARD.

TOLERANCES:

X = ±.118

X.X = ±.050

X.XX = ±.015

X.XXX = ±.005

ANGLES = ±.12

125/✓ FINISH ON ALL MACHINED SURFACES

DO NOT SCALE

DRAWN BY: GVD

DATE: 11/25/19

CHECKED BY: DATE

APPROVED: DATE

MATERIAL & HEAT TREAT

TITLE: 28" x 28" x 45° HCWI LATERAL

CNUL ALBIAN

PROJECT No: A1-19037

REFERENCE: 3-2-0218 Sht.4 OF 7

FILE NAME: A1-19037-100-00 28in lateral.idw

REV: B

SHEET 1 OF 1

REVISION HISTORY

REV	DATE	DESCRIPTION
B	11/25/19	32" PIPE WAS PSL-1, ADDED "LEVEL 2" TO HCWI DESCRIPTIONS, UPDATED DESIGN DATA, ADDED TAG MOUNTS
A	11/14/19	ISSUED FOR REVIEW

Weld maps are a separate drawing that Alco issues for fabrication and that is included in the final emb. It is not the drawing that is needed for approval however

weld map shall be added in the fabrication drawings

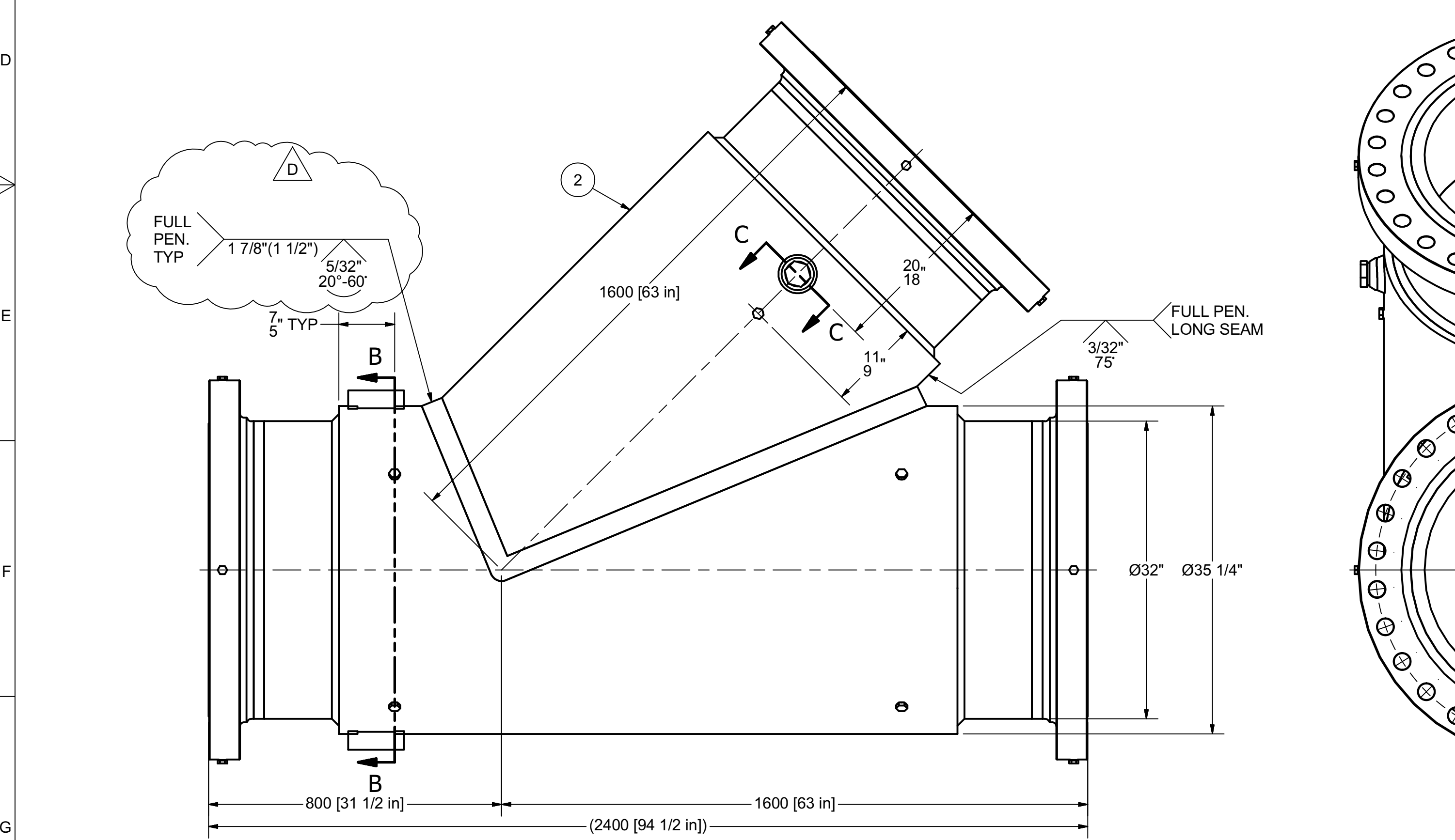
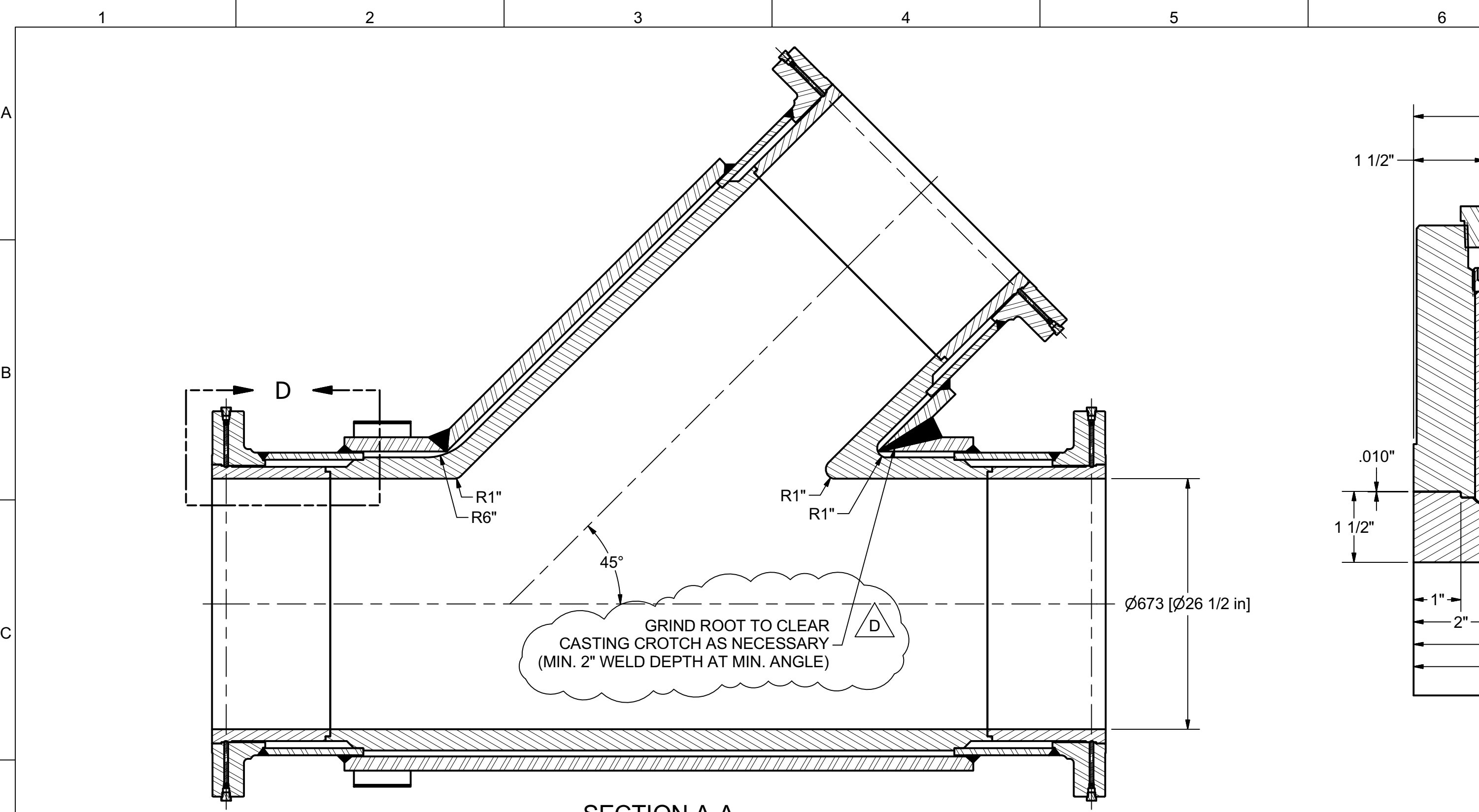
REFER TO DRAWING A1-00001-100-01 FOR ALL GENERAL NOTES AND SPECIFICATIONS

CNRL-OVR-STD-MC-00007 Shall follow

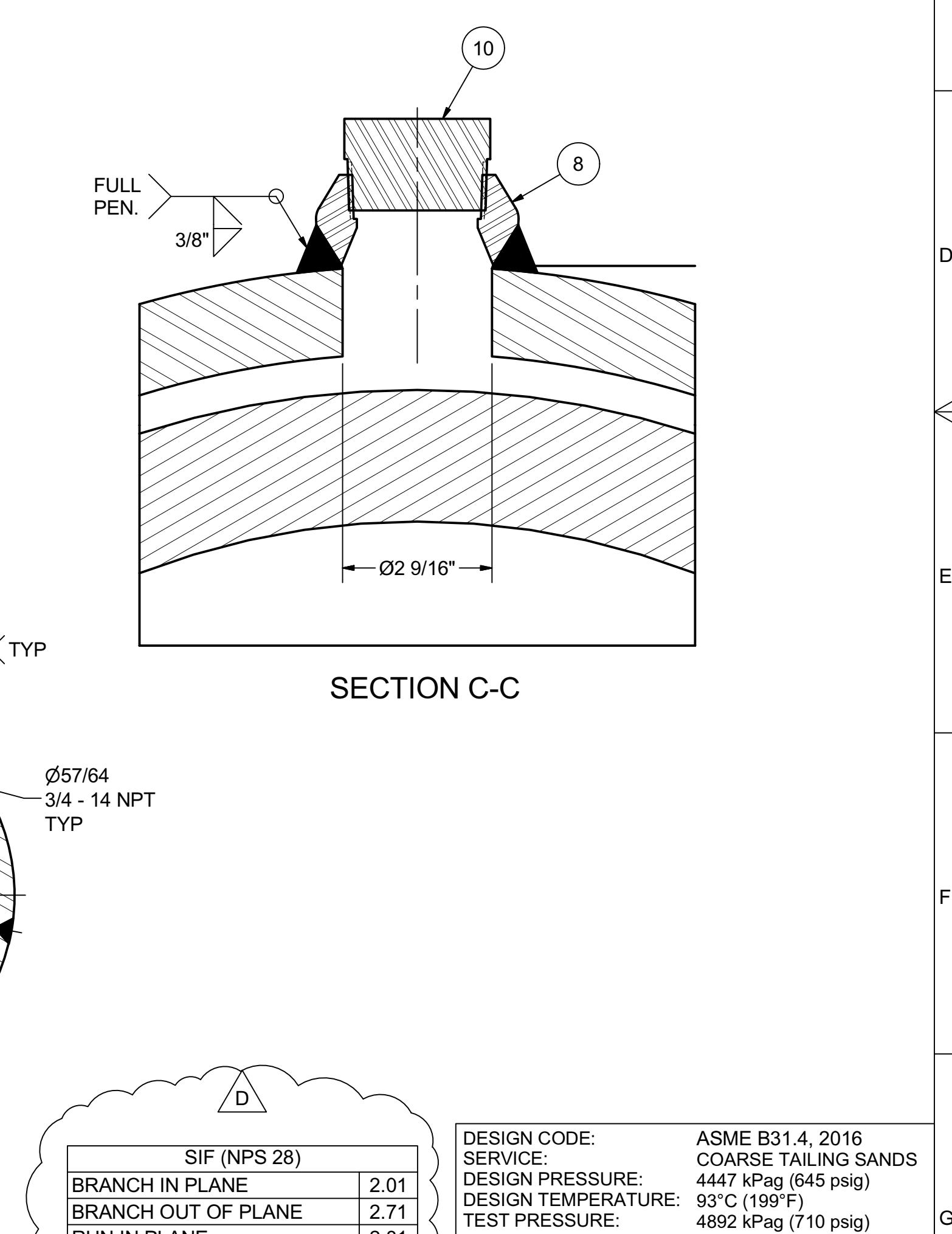
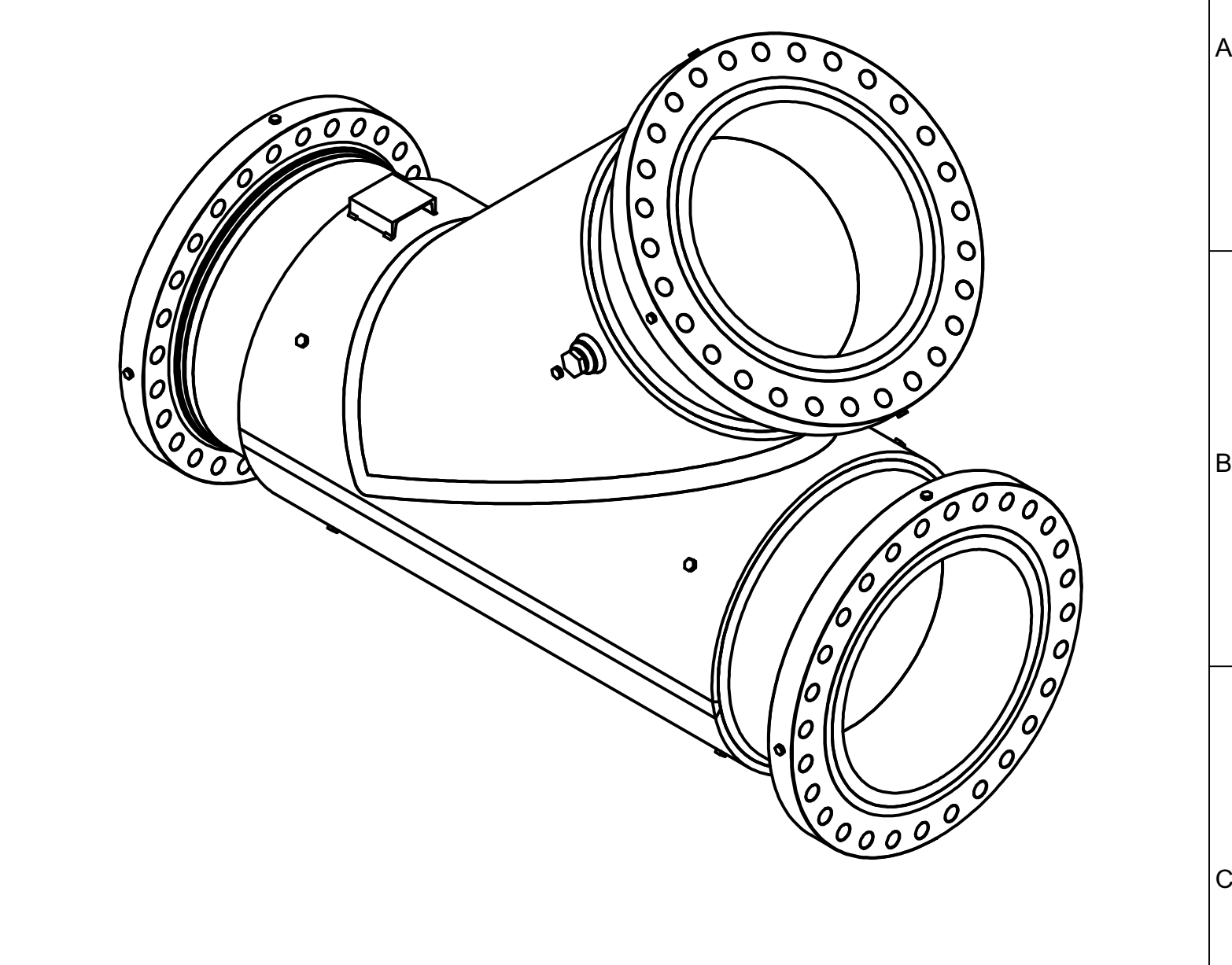
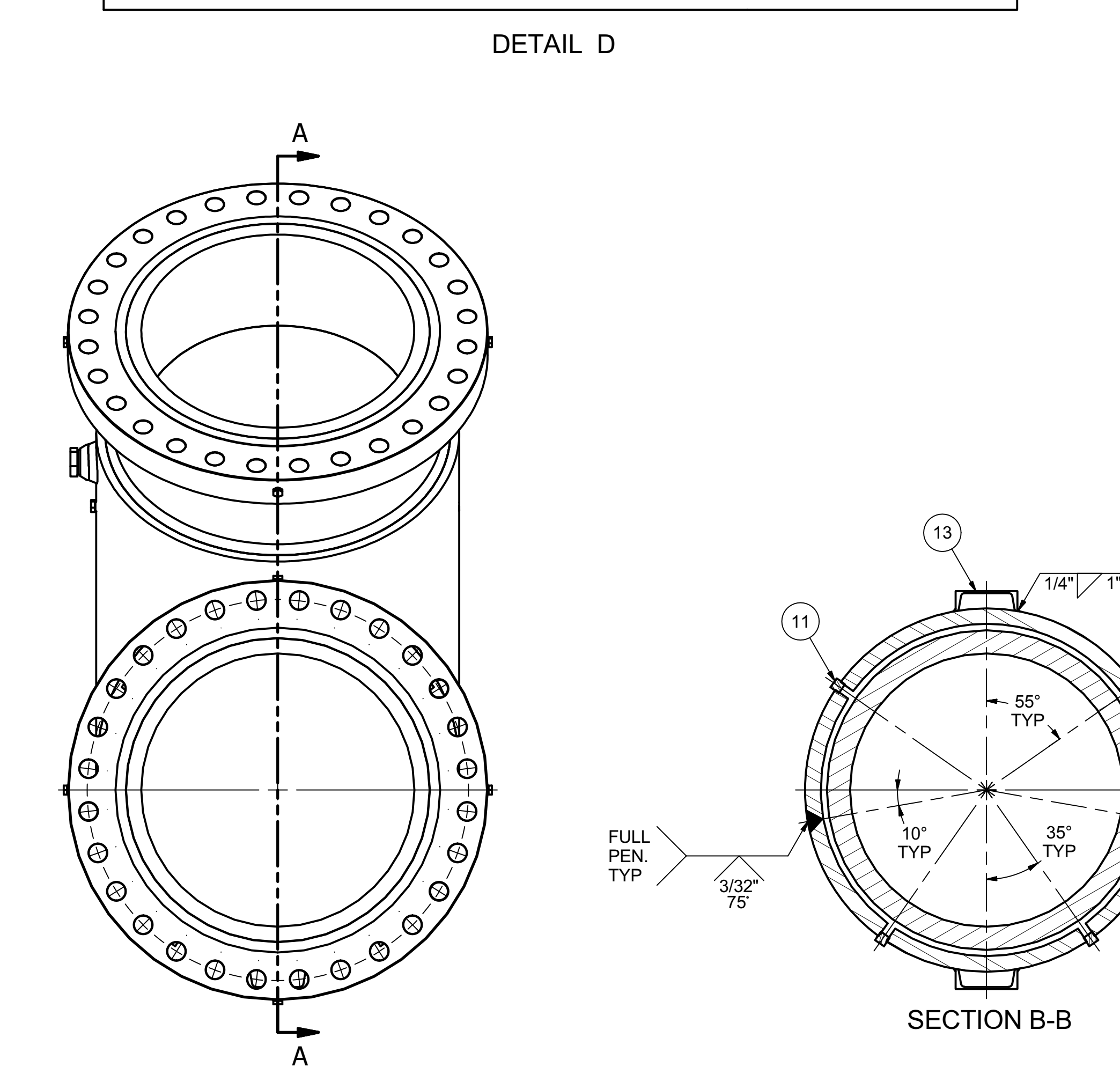
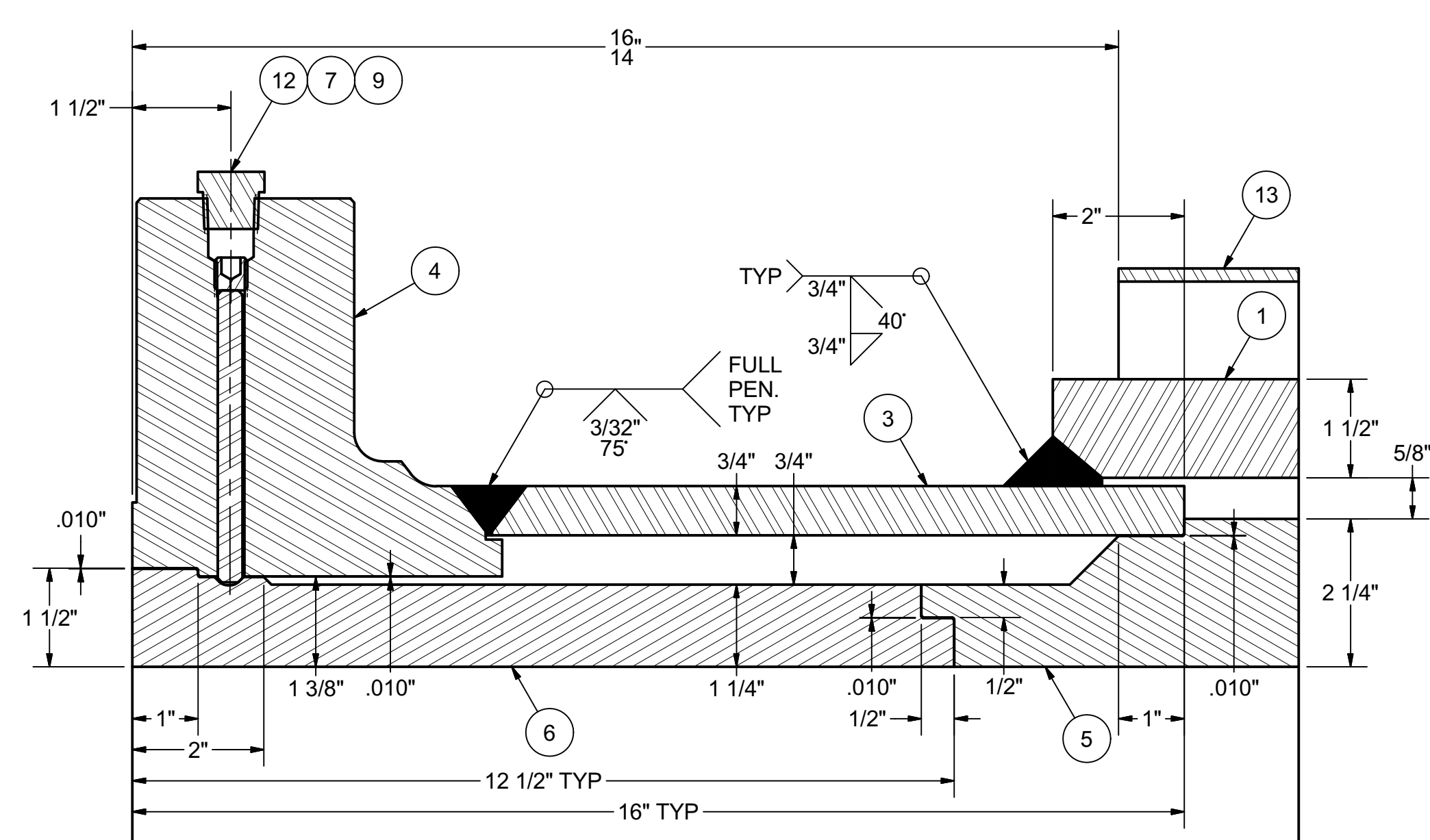
ALCO Industrial

2103 - 8 Street, Nisku, Alberta, Canada T9E 7Y9

Phone: (780) 451-8222 • Fax: (780) 452-4355



BILL OF MATERIAL			
ITEM	ITEM QTY	PART NUMBER	DESCRIPTION
1	1	A1-19037-100-01 Trunk shell	106 1/32" x 66 1/2" x 1 1/2" PLATE, A516 Gr.70N, ROLLED TO 35 1/4" OD
2	1	A1-19037-100-02 Branch shell	106 1/32" x 48 15/16" x 1 1/2" PLATE, A516 Gr.70N, ROLLED TO 35 1/4" OD
3	3	A1-19037-100-03 32in pipe	32" x 3/4" WALL x 10 17/32" PIPE, API 5L X52 PSL-2
4	3	A1-19037-100-04 28in CL300 RF flange - custom	28" CLASS 300 B16.47 Ser.A FFSO FLANGE, A105N, Ø28 7/8" BORE
5	1	A1-19037-100-05 HCWI lateral	26 1/2" ID x 2 1/4" WALL x 45° HCWI LATERAL, 19 1/2" x 51" x 51", ASTM A532 CLASS III TYPE A, LEVEL 2, PF# 503364
6	3	A1-19037-100-06 HCWI liner - pup	26 1/2" ID x 1 1/4" WALL x 12 1/2" HCWI LINER, ASTM A532 CLASS III TYPE A, LEVEL 2, PF# 503363
7	12	A1-19037-100-07 Trap rod	Ø3/8" x 4 7/16" ROUND BAR, A36
8	1	A1-19037-100-08 2in x 36in threadolet	2" x 36" CLASS 3000 THREADOLET, A105N
9	12	ANSI B18.3 - 1/2-13 UNC x 0.5	1/2"-NC x 1/2" FLAT POINT SOCKET HEAD SET SCREW, PLATED
10	1	ASME B16.11 Hex Head Plug 2	2"-NPT HEX HEAD PLUG, A105N
11	9	ASME B16.11 Hex Head Plug 3/4	3/4"-NPT HEX HEAD PLUG, A105N
12	12	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



EST. WT. 13,020 lbs.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES 0.1" RADIUS. PER ANSI Y14.5 STANDARD.

TOLERANCES:
X = ± 1/16
X.X = ± .030
X.XX = ± .015
X.XXX = ± .005
ANGLES: ± 1/2°
✓ 125° FINISH ON ALL MACHINED SURFACES

DO NOT SCALE

DRAWN BY: GVD
DATE: 11/14/19

CHECKED BY: KLS
DATE: 1/16/20

APPROVED: BEM
DATE: 1/16/20

MATERIAL & HEAT TREAT

ALCO

ALCO Industrial
2103 - 8 Street,
Nisku, Alberta, Canada T9E 7Y9
Phone: (780) 451-8222 • Fax: (780) 452-4355

TITLE
28" x 28" x 45° HCWI LATERAL
CNUL ALBIAN

PROJECT No.
A1-19037

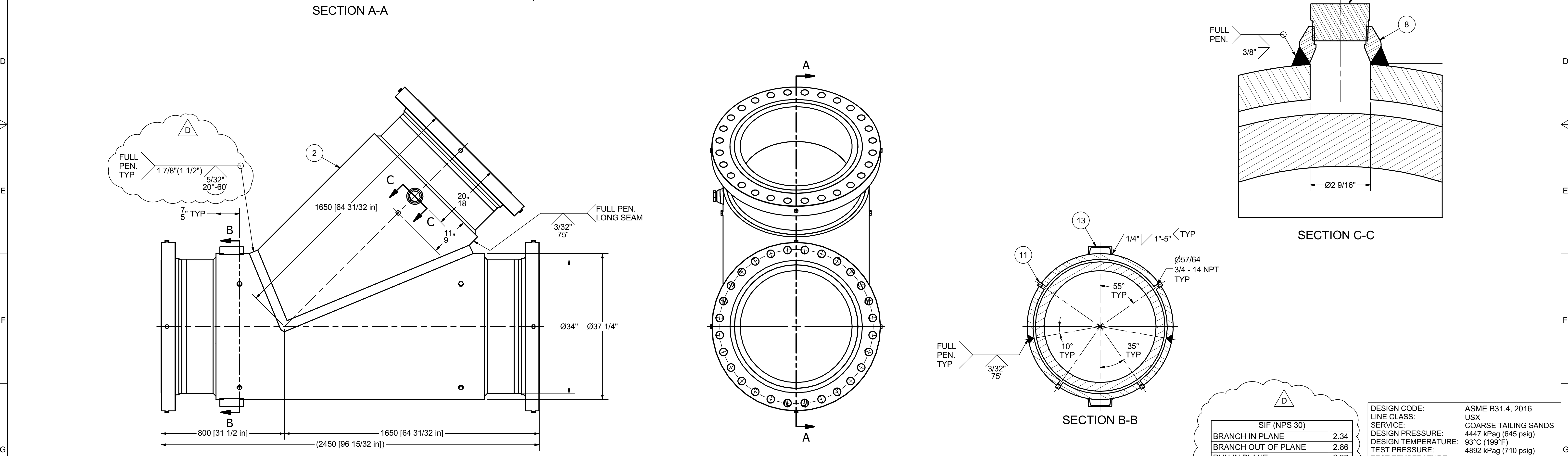
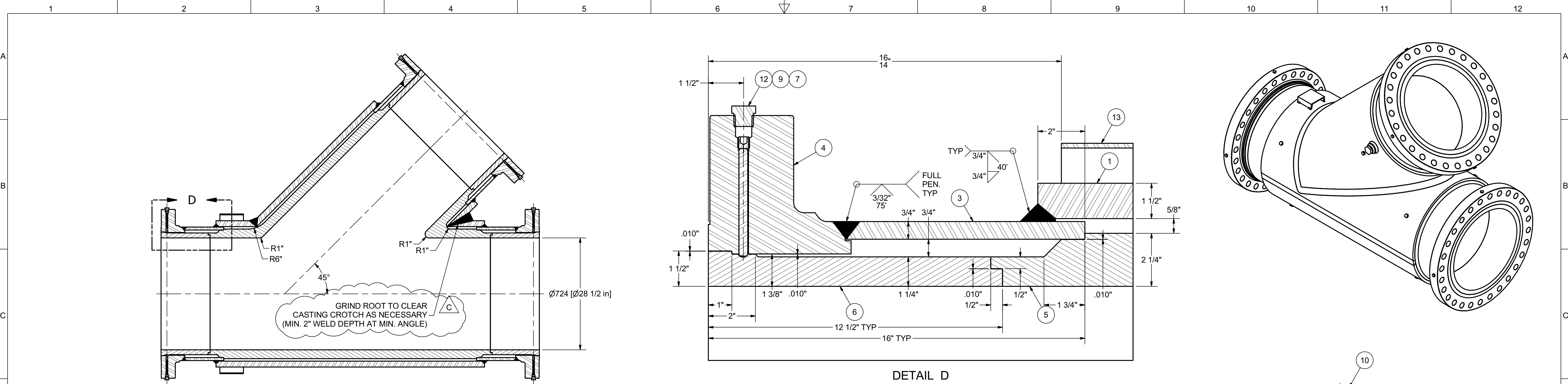
REFERENCE
3-2-0218 Sht.4 OF 7

REV.
E
SHEET
1 OF 1

CNRL-OVR-STD-MC-00007 SHALL FOLLOW

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

REVISION HISTORY			
REV	DATE	DESCRIPTION	INITIALS
E	1/16/20	ADD PF NUMBERS TO DESCRIPTIONS	JDS
D	1/10/20	UPDATED WELD SYMBOL, UPDATED NOTE, ADDED SIF TABLE	GVD
C	12/18/19	CHANGED HYDRO TO 4 HOURS	BEM
B	11/25/19	32" PIPE WAS PSL-1, ADDED "LEVEL 2" TO HCWI DESCRIPTIONS, UPDATED DESIGN DATA, ADDED TAG MOUNTS	GVD
A	11/14/19	ISSUED FOR REVIEW	GVD



BILL OF MATERIAL			
ITEM	ITEM QTY	PART NUMBER	DESCRIPTION
1	1	A1-19037-200-01 Trunk shell	112 5/16" x 68 15/32" x 1 1/2" PLATE, A516 Gr.70N, ROLLED TO 37 1/4" OD
2	1	A1-19037-200-02 Branch shell	112 5/16" x 50 29/32" x 1 1/2" PLATE, A516 Gr.70N, ROLLED TO 37 1/4" OD
3	3	A1-19037-200-03 34in pipe	34" x 3/4" WALL x 10 3/32" PIPE, API 5L X52 PSL-2
4	3	A1-19037-200-04 30in CL300 RF flange - custom	30" CLASS 300 B16.47 Ser.A FFSO FLANGE, A105N, Ø31 1/4" BORE
5	1	A1-19037-200-05 HCWI lateral	28 1/2" ID x 2 1/4" WALL x 45° HCWI LATERAL, 19 1/2" x 52 31/32" x 52 31/32", ASTM A532 CLASS III TYPE A, LEVEL 2, PF# 503369
6	3	A1-19037-200-06 HCWI liner - pup	28 1/2" ID x 1 1/4" WALL x 12 1/2" HCWI LINER, ASTM A532 CLASS III TYPE A, LEVEL 2, PF# 503368
7	12	A1-19037-200-07 Trap rod	Ø3/8" x 4 9/16" ROUND BAR, A36
8	1	A1-19037-200-08 2in x 38in threadolet	2" x 36" CLASS 3000 THREADOLET, A105N
9	12	ANSI B18.3 - 1/2-13 UNC x 0.5	1/2"-NC x 1/2" FLAT POINT SOCKET HEAD SET SCREW, PLATED
10	1	ASME B16.11 Hex Head Plug 2	2"-NPT HEX HEAD PLUG, A105N
11	10	ASME B16.11 Hex Head Plug 3/4	3/4"-NPT HEX HEAD PLUG, A105N
12	12	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

REVISION HISTORY

REV	DATE	DESCRIPTION	INITIALS
E	1/16/20	ADD PF NUMBERS TO PART DESCRIPTIONS, ITEM 1 WAS 69	JDS
D	1/10/20	UPDATED WELD SYMBOL, UPDATED NOTE, ADDED SIF TABLE	GVD
C	12/18/19	CHANGED HYDRO TO 4 HOURS	BEM
B	11/25/19	34" PIPE WAS PSL-1, ADDED "LEVEL 2" TO HCWI DESCRIPTIONS, UPDATED DESIGN DATA, ADDED TAG MOUNTS	GVD
A	11/14/19	ISSUED FOR REVIEW	GVD

DO NOT SCALE

DRAWN BY:	DATE:
GVD	11/14/19
CHECKED BY:	DATE:
KLS	1/16/20
APPROVED:	DATE:
BEM	1/16/20

MATERIAL & HEAT TREAT

ALCO Industrial

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TITLE
30" x 30" x 45° HCWI LATERAL
CNUL ALBIAN

PROJECT No:
A1-19037

REFERENCE
3-2-0218 Sht 5 OF 7

REV.
E

SHEET
1 OF 1

DESIGN CODE: ASME B31.4, 2016

LINE CLASS: USX

SERVICE: COARSE TAILING SANDS

DESIGN PRESSURE: 4447 kPag (645 psig)

DESIGN TEMPERATURE: 93°C (199°F)

TEST PRESSURE: 4892 kPag (710 psig)

TEST TEMPERATURE: 15°C (59°F)

TEST DURATION: 4 HOURS

SIF (NPS 30)

BRANCH IN PLANE	2.34
BRANCH OUT OF PLANE	2.86
RUN IN PLANE	2.37
RUN OUT OF PLANE	1.10

CNRL-OVR-STD-MC-00007 SHALL FOLLOW

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

EST. WT. 14,270 lbs.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. BREAK ALL SHARP EDGES 0.1" OR 0.4" RADI PER ANSI Y14.5 STANDARD.

TOLERANCES:
X = ± 1/16
X.X = ± .050
X.XX = ± .015
X.XXX = ± .005
ANGLES = ± 12°

125° FINISH ON ALL MACHINED SURFACES

ALCO Industrial

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Nisku, Alberta, Canada T9E 7Y9
Phone: (780) 451-8222 • Fax: (780) 452-4355

TITLE
30" x 30" x 45° HCWI LATERAL
CNUL ALBIAN

PROJECT No:
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REFERENCE
3-2-0218 Sht 5 OF 7

REV.
E

SHEET
1 OF 1

Changemark History

There are no outstanding changemarks on this document.

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