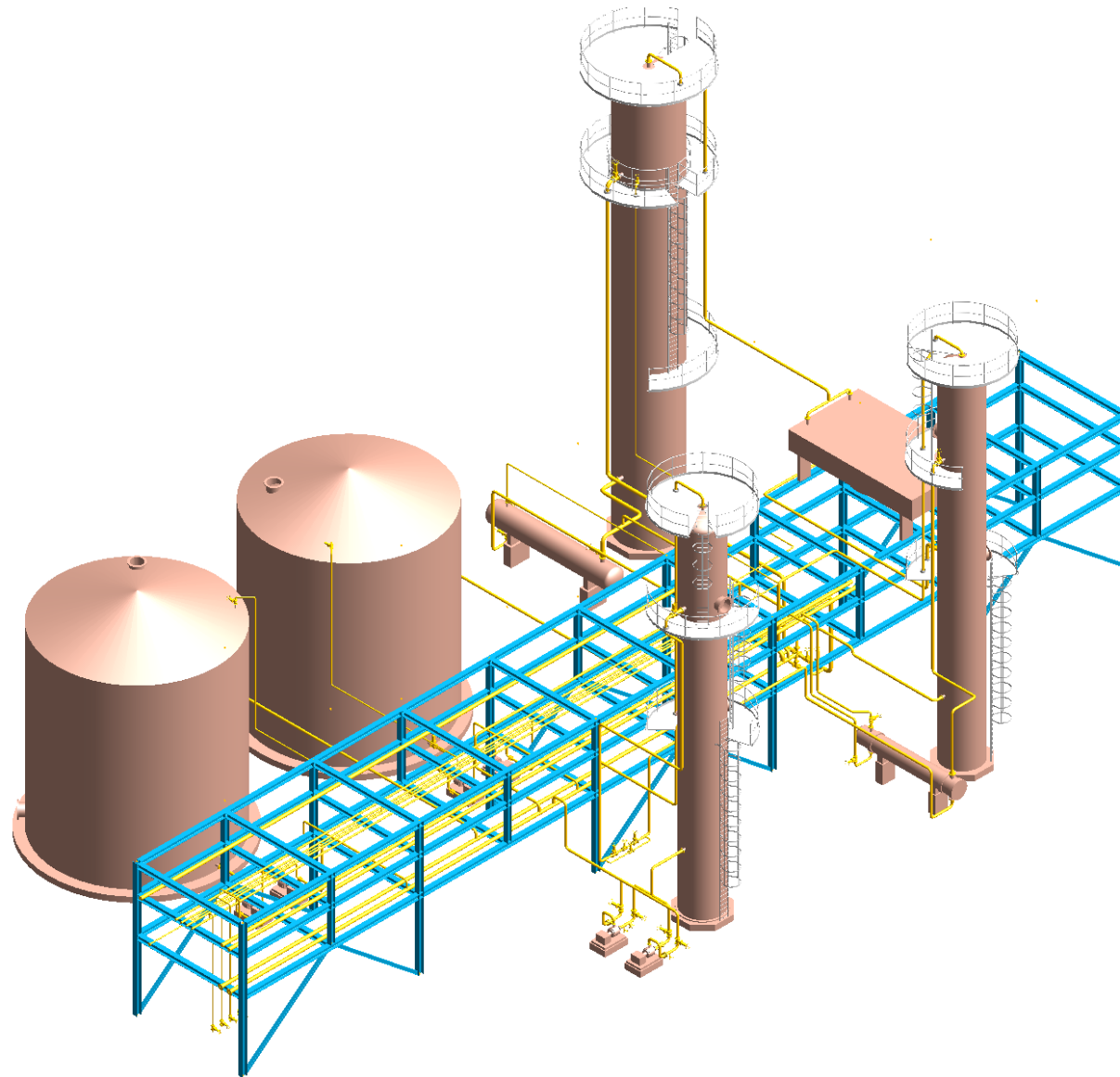
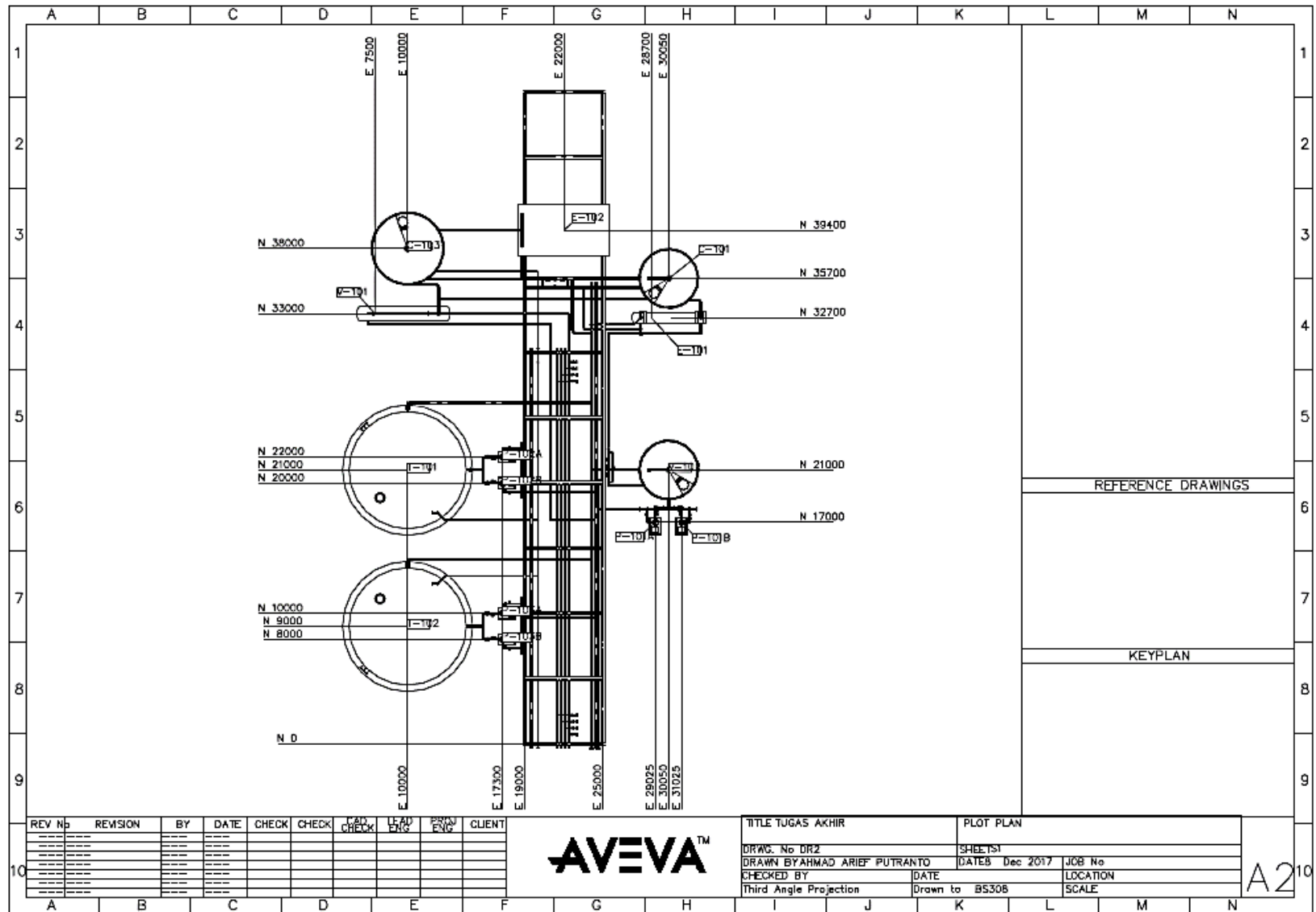


# LAMPIRAN

1. Hasil gambar 3D *General Plant*

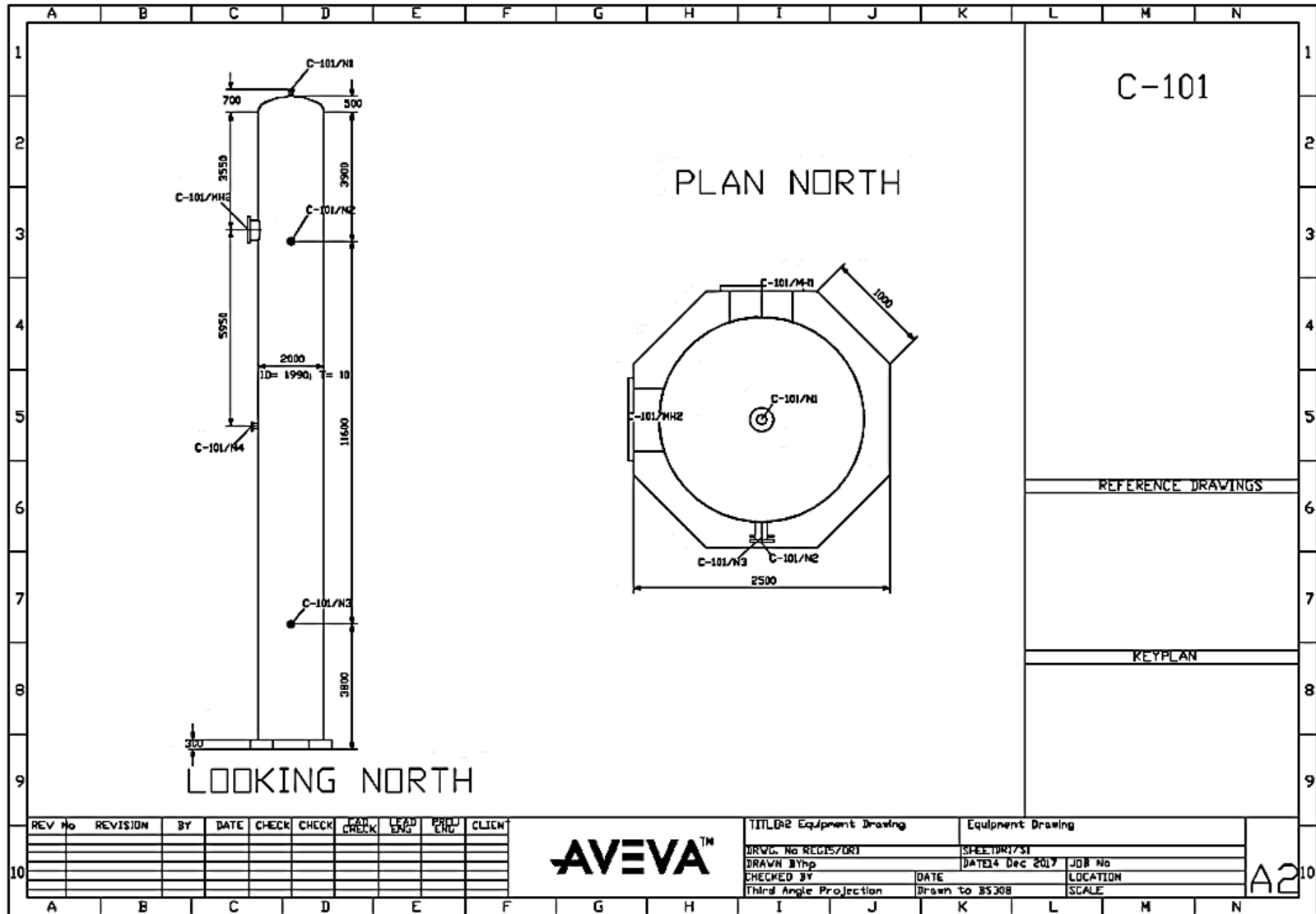


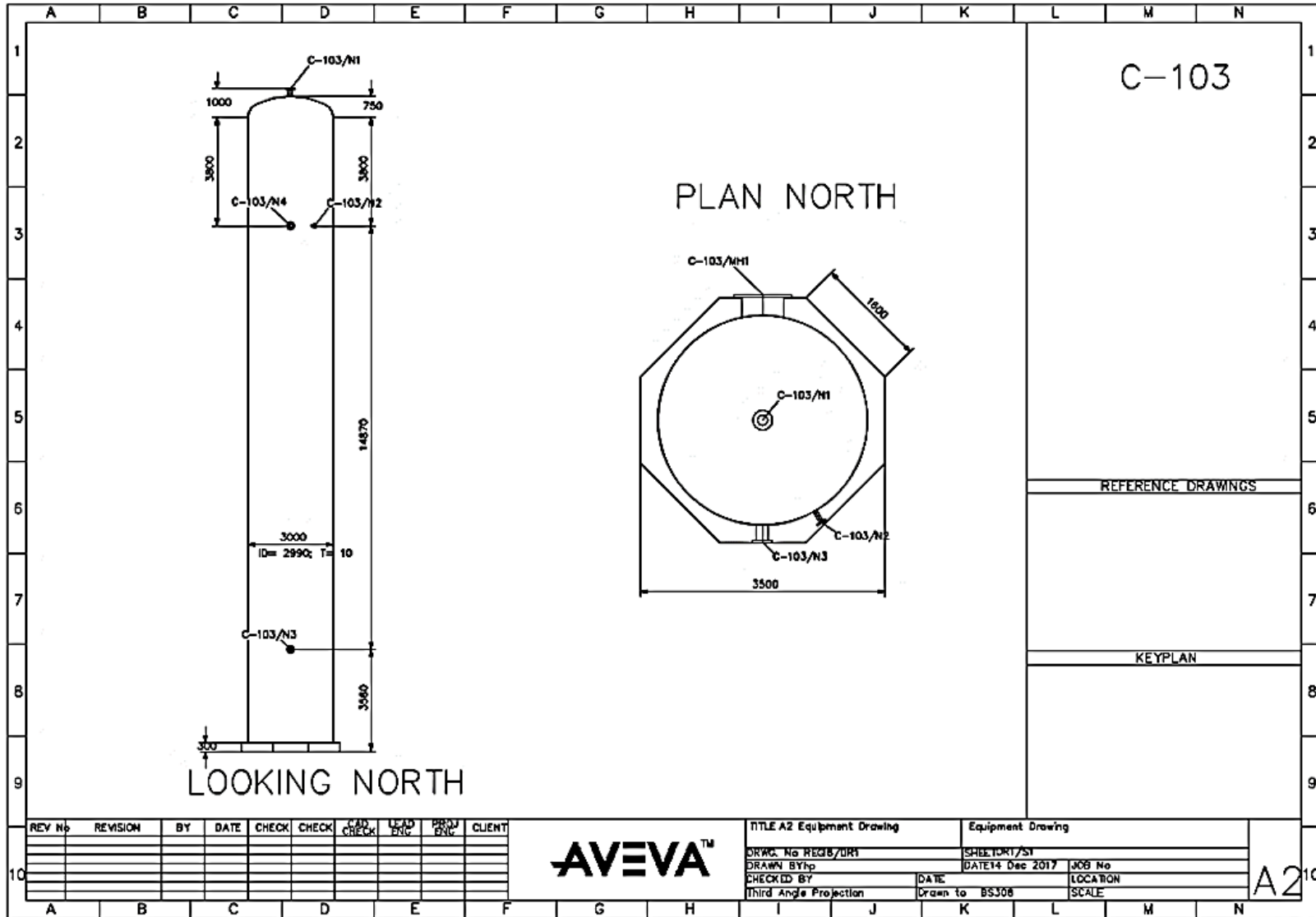
1. Hasil gambar 2D Plot Plant



A2

2. Hasil gambar 2D *Equipment*





C-103

PLAN NORTH

LOOKING NORTH

REFERENCE DRAWINGS

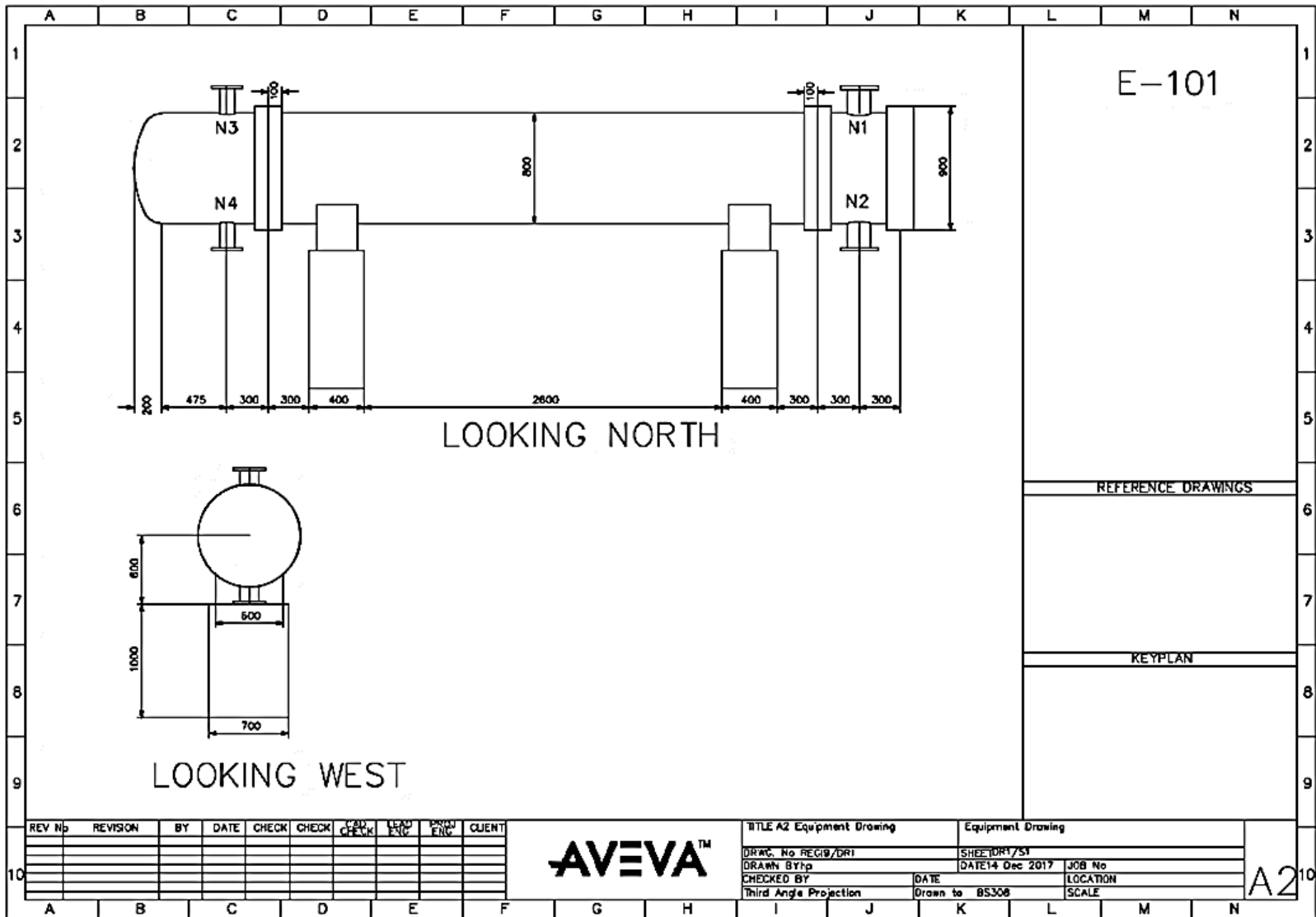
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	APP. CHECK	LEAD ENG.	PROJ. ENG.	CLIENT

**AVEVA™**

TITLE A2 Equipment Drawing		Equipment Drawing	
DRWC. No REG6/DR1	SHEET DR1/S1	DATE 14 Dec 2017	JOB No
DRAWN BY hp	CHECKED BY	DATE	LOCATION
Third Angle Projection	Drawn to BS308	SCALE	

A2



E-101

LOOKING NORTH

LOOKING WEST

REFERENCE DRAWINGS

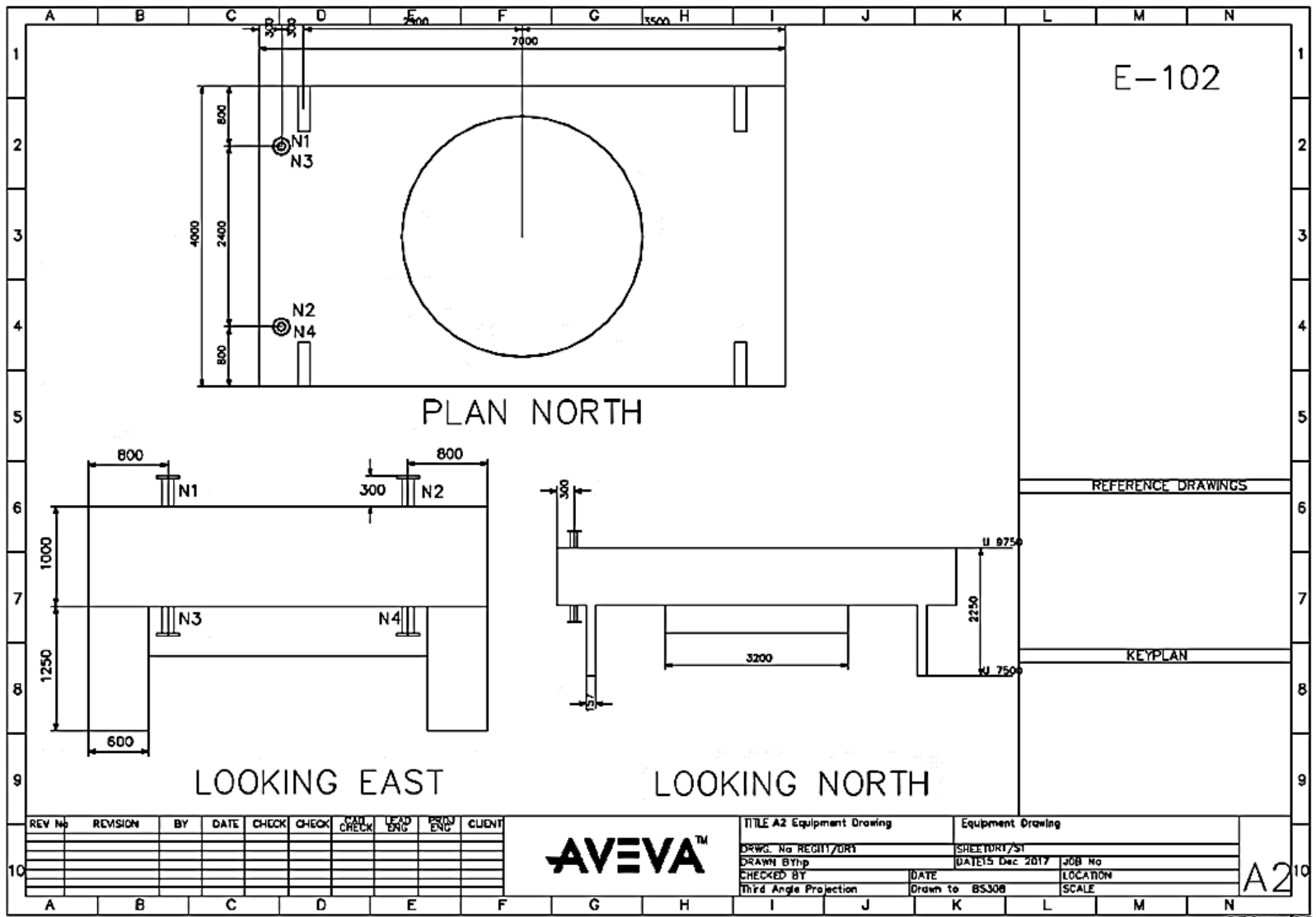
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	APP. CHECK	APP. ENG	APP. ENG	CLIENT

**AVEVA™**

TITLE A2 Equipment Drawing		Equipment Drawing	
DRWC. No REG9/DR1	SHEET DR1/S1	DATE 14 Dec 2017	JOB No
DRAWN BY hp	CHECKED BY	DATE	LOCATION
Third Angle Projection	Drawn to BS308	SCALE	

A2



E-102

PLAN NORTH

LOOKING EAST

LOOKING NORTH

REFERENCE DRAWINGS

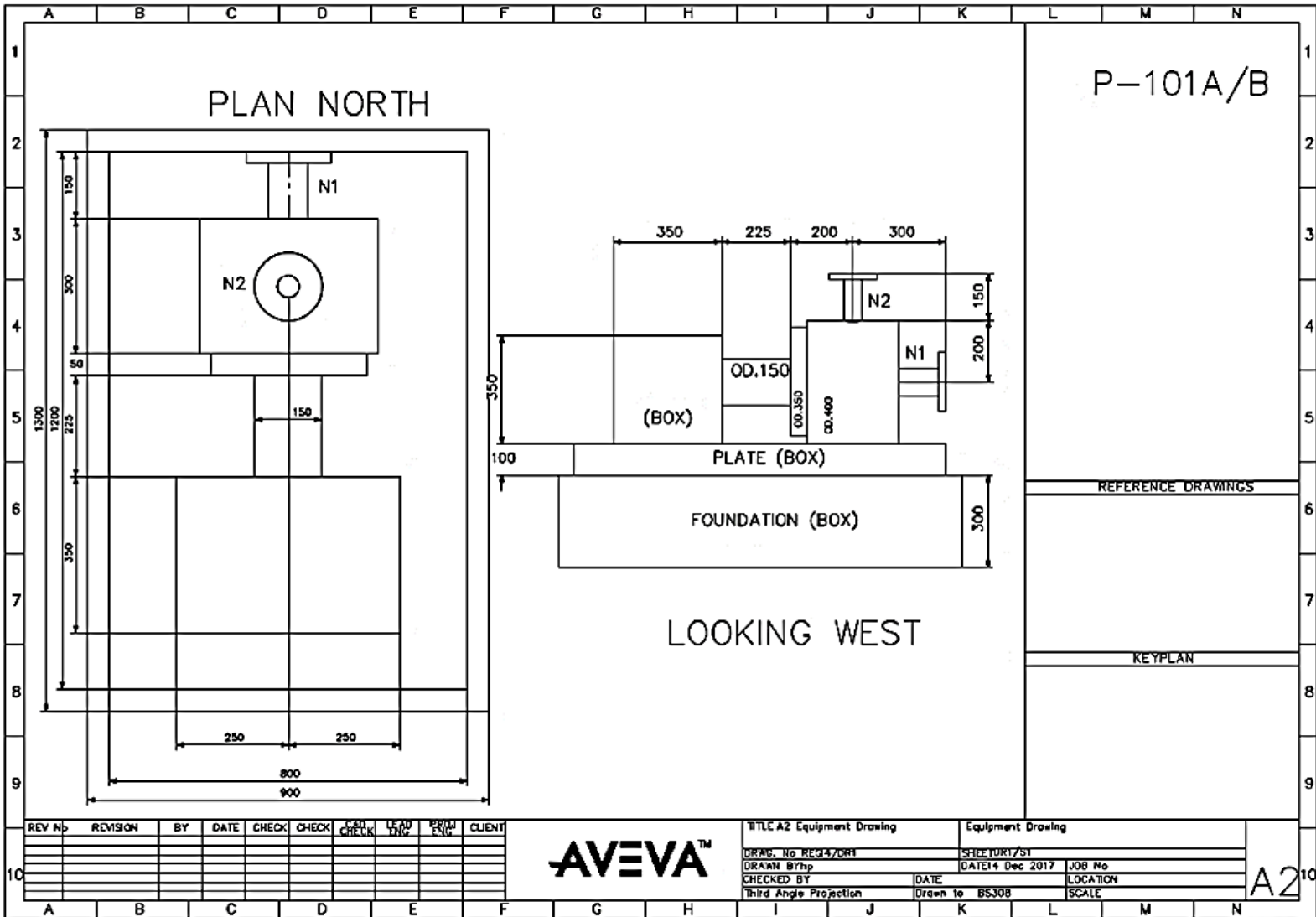
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	CHG. CHECK	LEAD ENG	PROJ. ENG	CLIENT



TITLE A2 Equipment Drawing		Equipment Drawing	
DRWG. No REG11/DR1	SHEET01/31		
DRAWN BY hp	DATE 15 Dec 2017	JOB No	
CHECKED BY	DATE	LOCATION	
Third Angle Projection	Drawn to BS308	SCALE	

A2



P-101A/B

PLAN NORTH

(BOX)

PLATE (BOX)

FOUNDATION (BOX)

LOOKING WEST

REFERENCE DRAWINGS

KEYPLAN

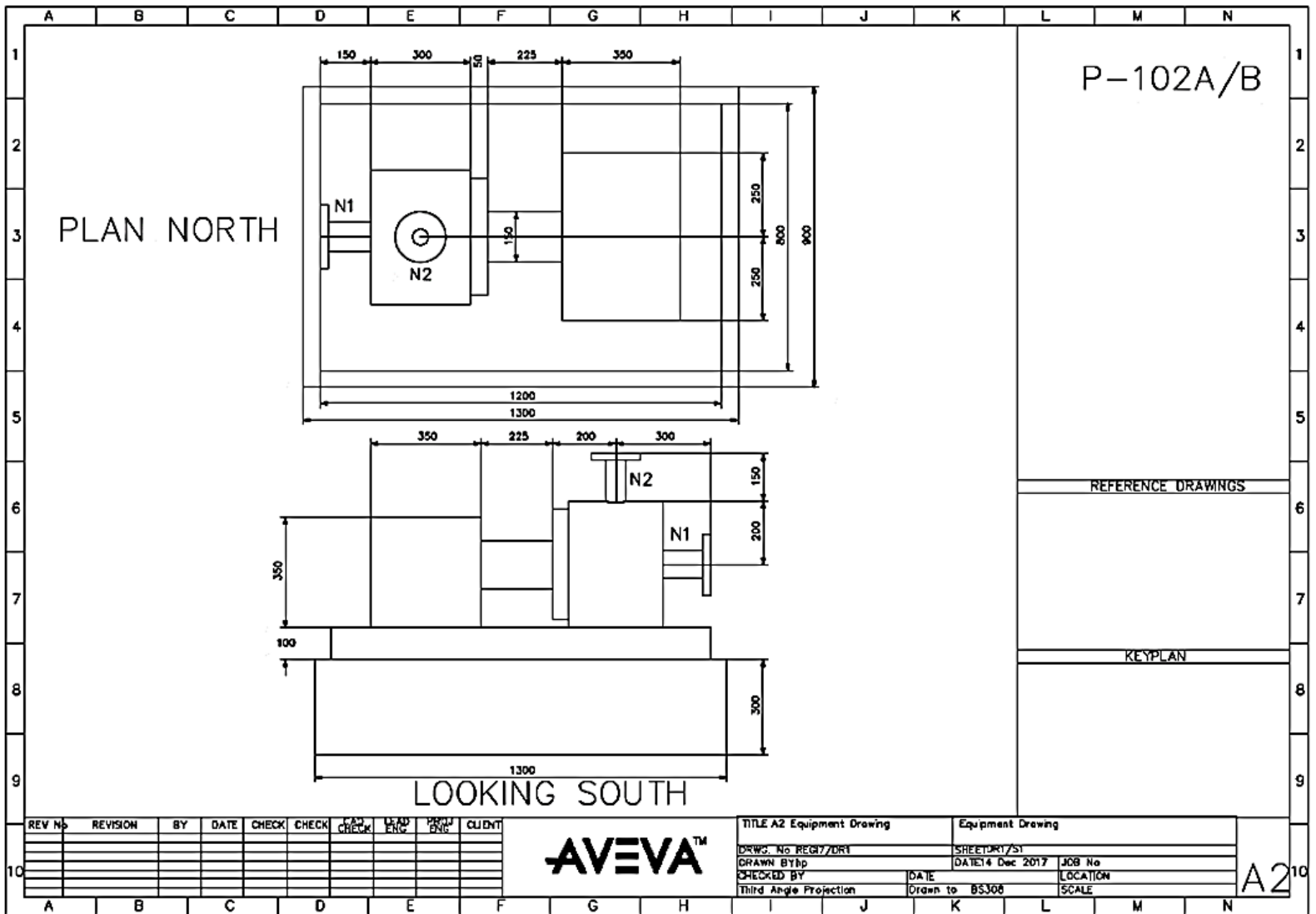
REV No	REVISION	BY	DATE	CHECK	CHECK	CON. CHECK	LEAD ENG	PRD. ENG	CLIENT



TITLE A2 Equipment Drawing		Equipment Drawing	
DRWG. No REG4/DR1	DATE 14 Dec 2017	JOB No	
DRAWN BY hp		LOCATION	
CHECKED BY	DATE	SCALE	
Third Angle Projection	Drawn to BS308		

A2





P-102A/B

PLAN NORTH

LOOKING SOUTH

REFERENCE DRAWINGS

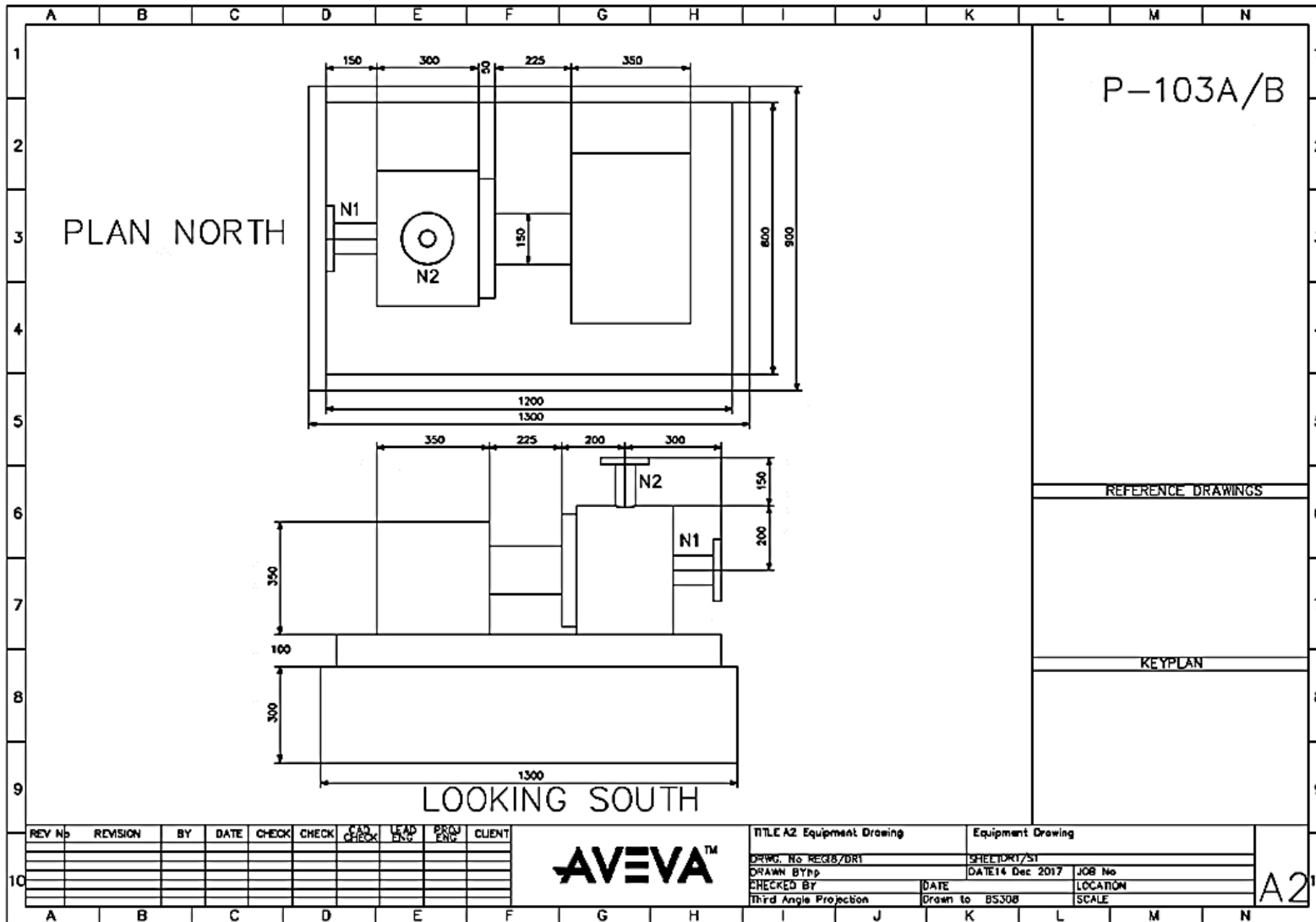
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	CAD CHECK	LEAD ENG	PRJL ENG	CLIENT

**AVEVA**<sup>TM</sup>

TITLE A2 Equipment Drawing		Equipment Drawing	
DRWG. No REG17/DR1	SHEET DR1/S1	DATE 14 Dec 2017	JOB No
DRAWN BY bp	CHECKED BY	DATE	LOCATION
Third Angle Projection	Drawn to BS308	SCALE	

A2



P-103A/B

PLAN NORTH

LOOKING SOUTH

REFERENCE DRAWINGS

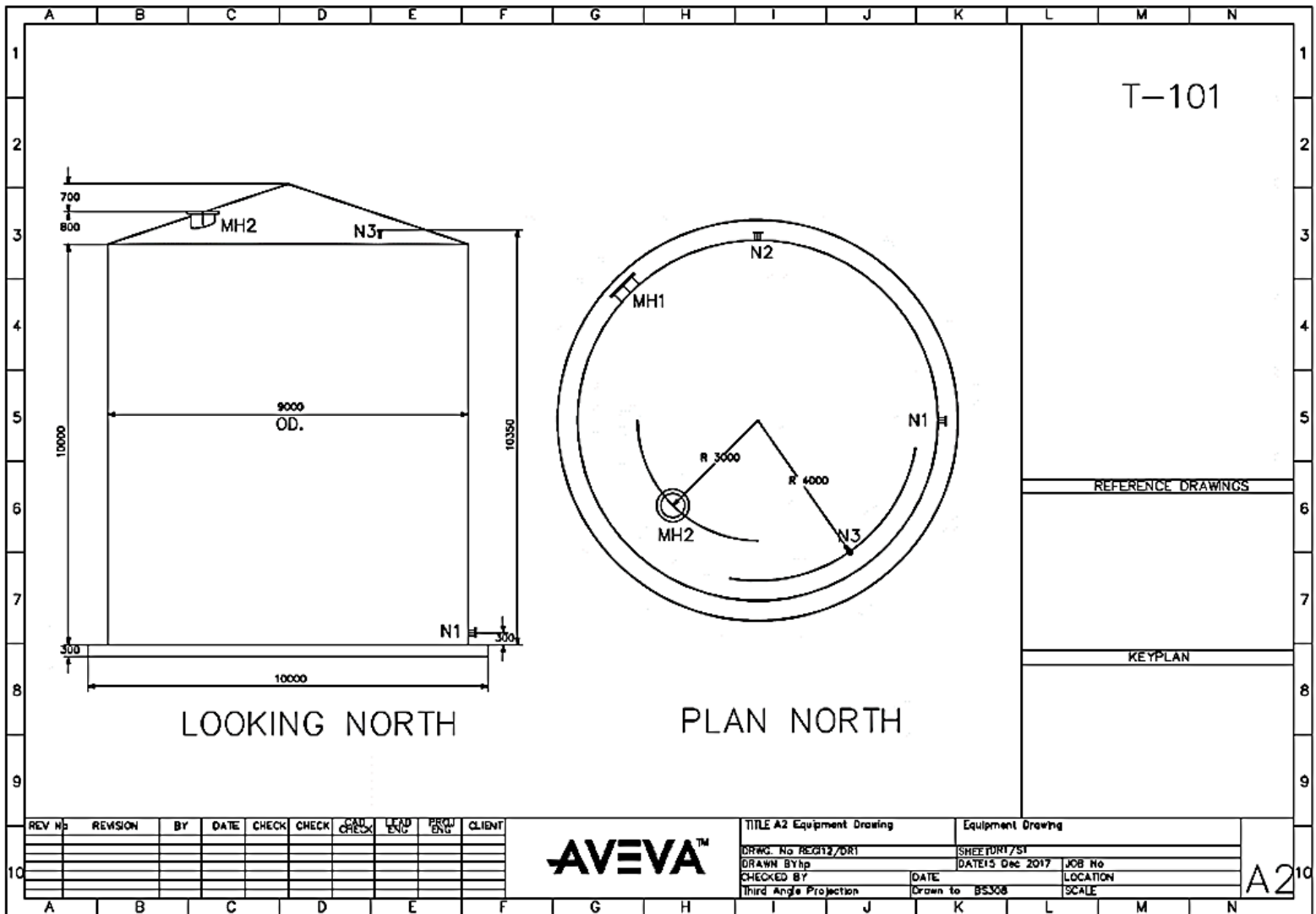
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	CAD CHECK	LEAD ENG	PROJ ENG	CLIENT



TITLE A2 Equipment Drawing		Equipment Drawing	
DRWG No REG8/DR1	SHEET DR1/S1	DATE 14 Dec 2017	JOB No
DRAWN BY np	CHECKED BY	DATE	LOCATION
Third Angle Projection	Drawn to BS308	SCALE	

A2



T-101

LOOKING NORTH

PLAN NORTH

REFERENCE DRAWINGS

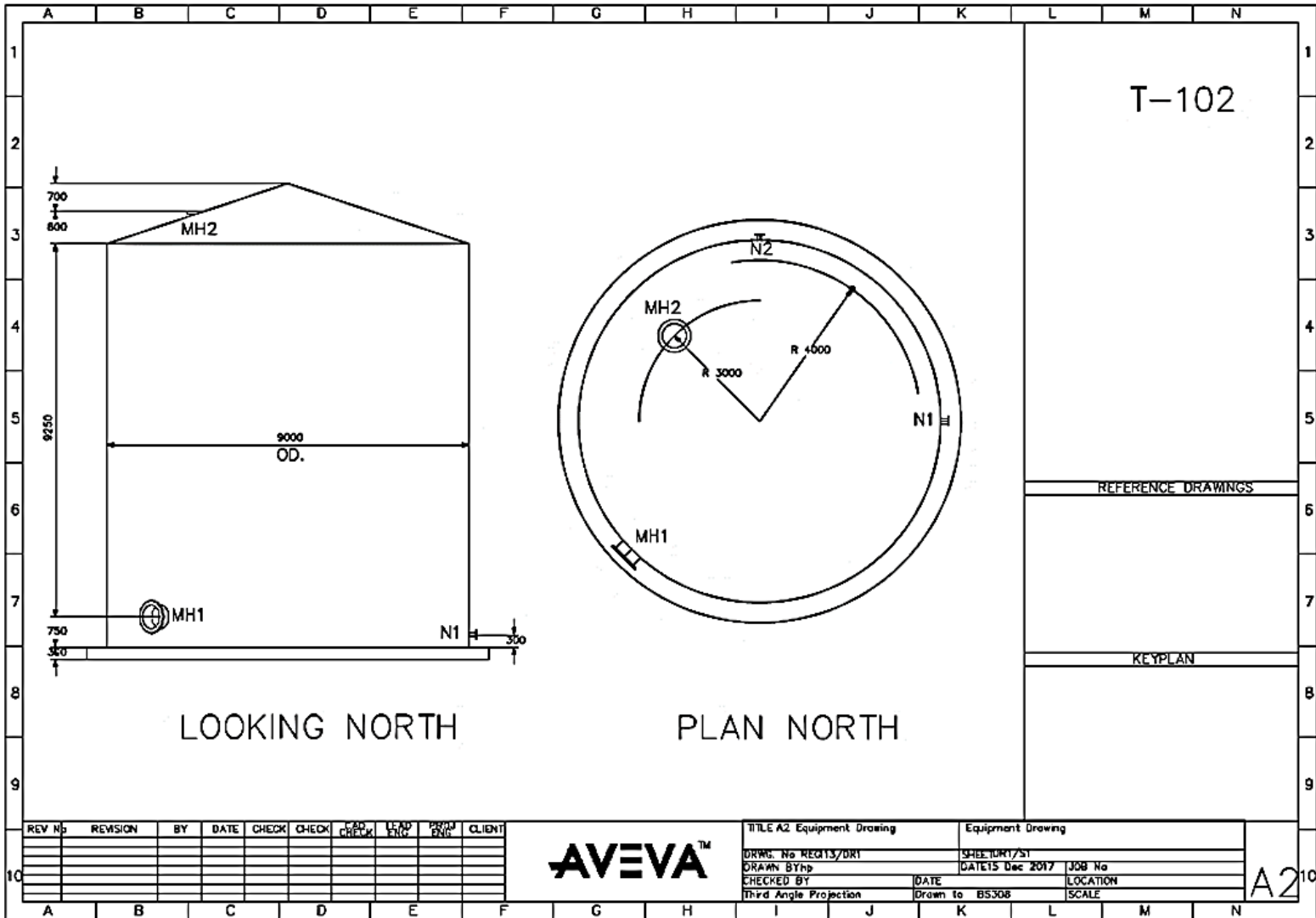
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	CAL CHECK	LEAD ENG	PROJ ENG	CLIENT



TITLE A2 Equipment Drawing	Equipment Drawing
DRWG No REG12/DR1	SHEET DR1/S1
DRAWN BY hp	DATE 15 Dec 2017
CHECKED BY	DATE
Third Angle Projection	Drawn to BS308
	LOCATION
	SCALE

A2



T-102

LOOKING NORTH

PLAN NORTH

REFERENCE DRAWINGS

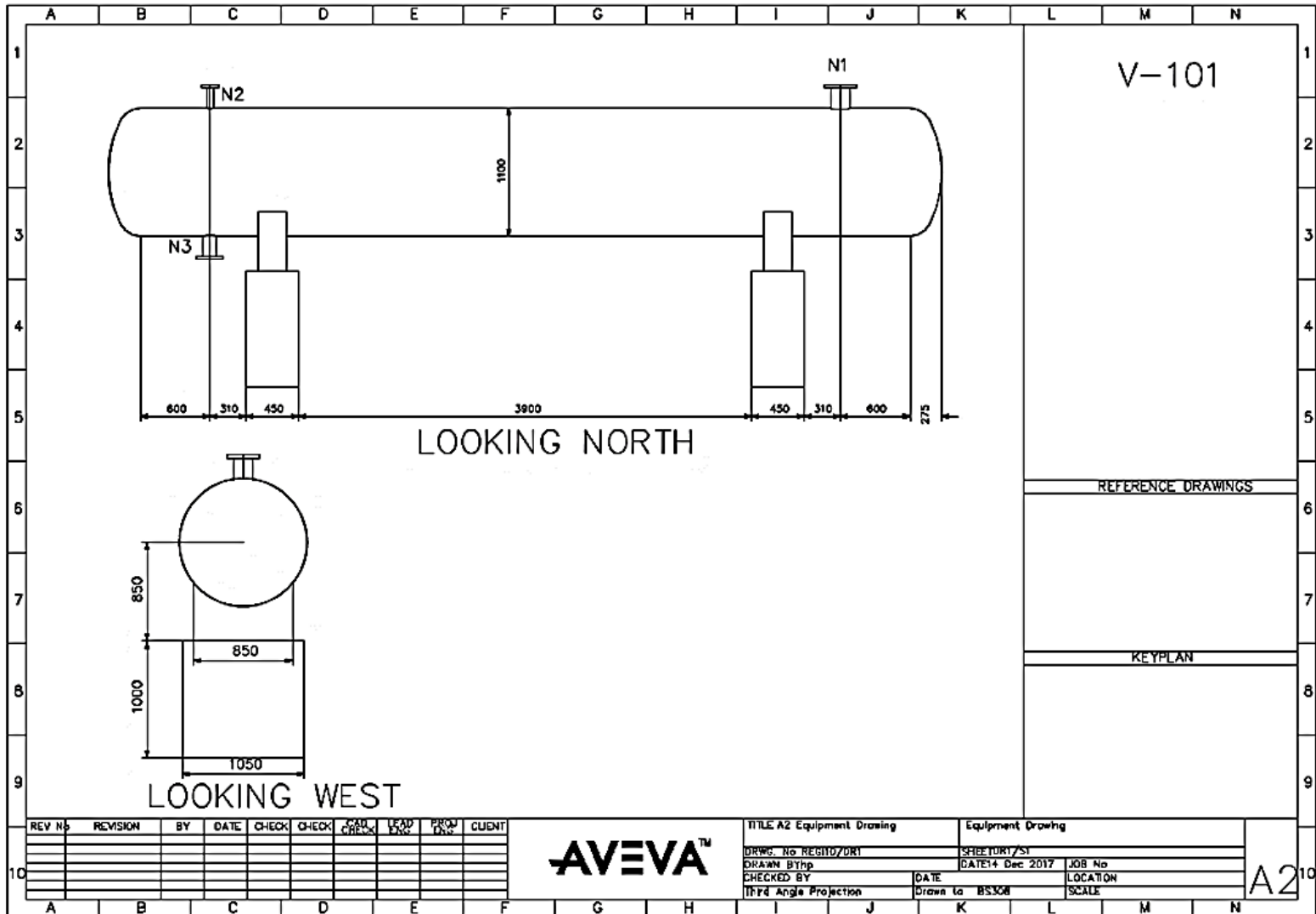
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	CAD CHECK	LEAD ENG	PRIM ENG	CLIENT



TITLE A2 Equipment Drawing		Equipment Drawing	
DRWG. No REG13/DR1	SHEET DR1/S1		
DRAWN BY: bhp	DATE: 15 Dec 2017	JOB No	
CHECKED BY	DATE	LOCATION	
Third Angle Projection	Drawn to BS308	SCALE	

A2



V-101

LOOKING NORTH

LOOKING WEST

REFERENCE DRAWINGS

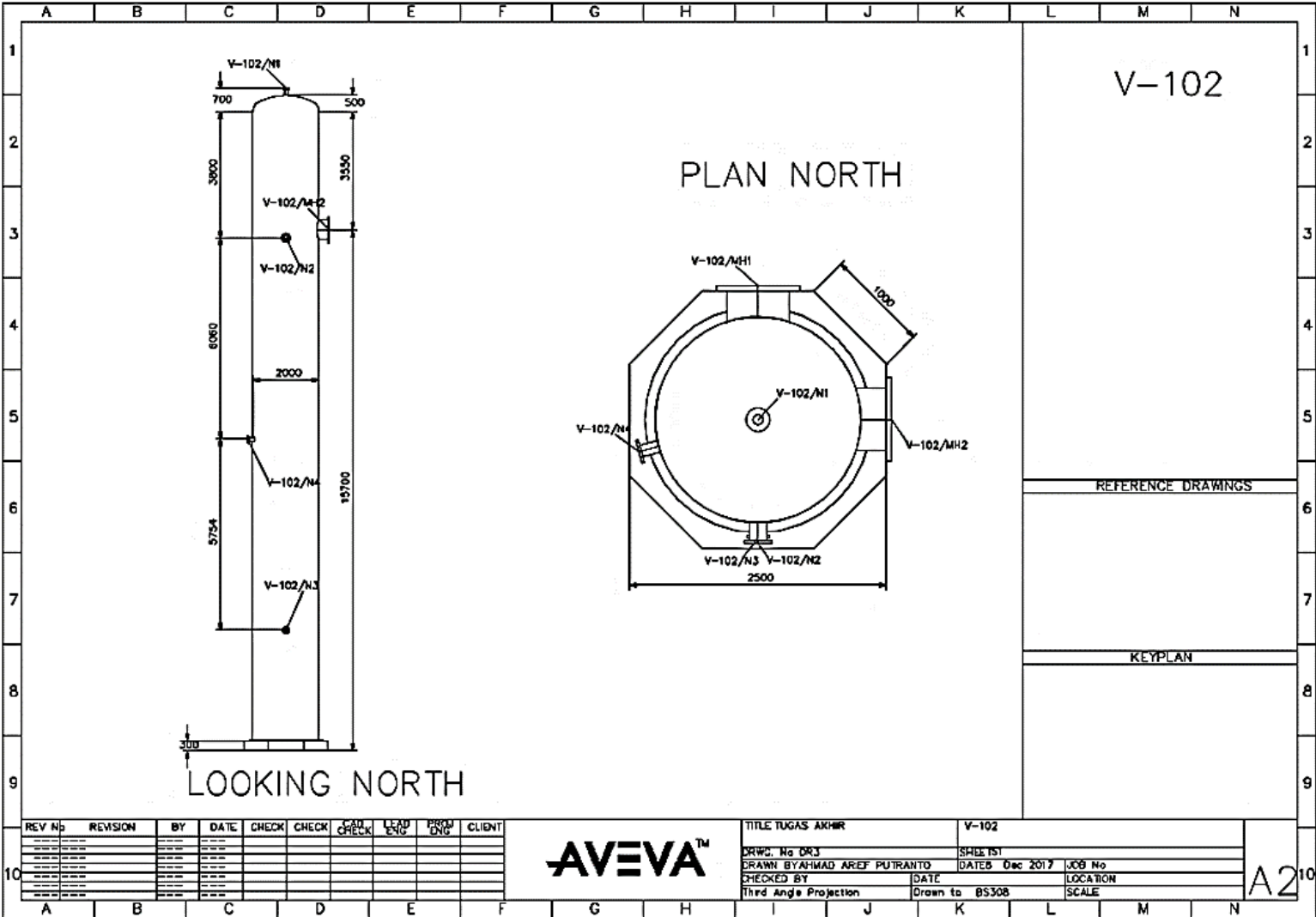
KEYPLAN

REV No	REVISION	BY	DATE	CHECK	CHECK	APP. CHECK	LEAD ENG	PROJ ENG	CUMENT



TITLE A2 Equipment Drawing		Equipment Drawing	
DRWG. No REG10/DR1	SHEET DR1/S1		
DRAWN BY the	DATE 14 Dec 2017	JOB No	
CHECKED BY	DATE	LOCATION	
Third Angle Projection	Drawn to BS308	SCALE	

A2



V-102

PLAN NORTH

LOOKING NORTH

REFERENCE DRAWINGS

KEYPLAN

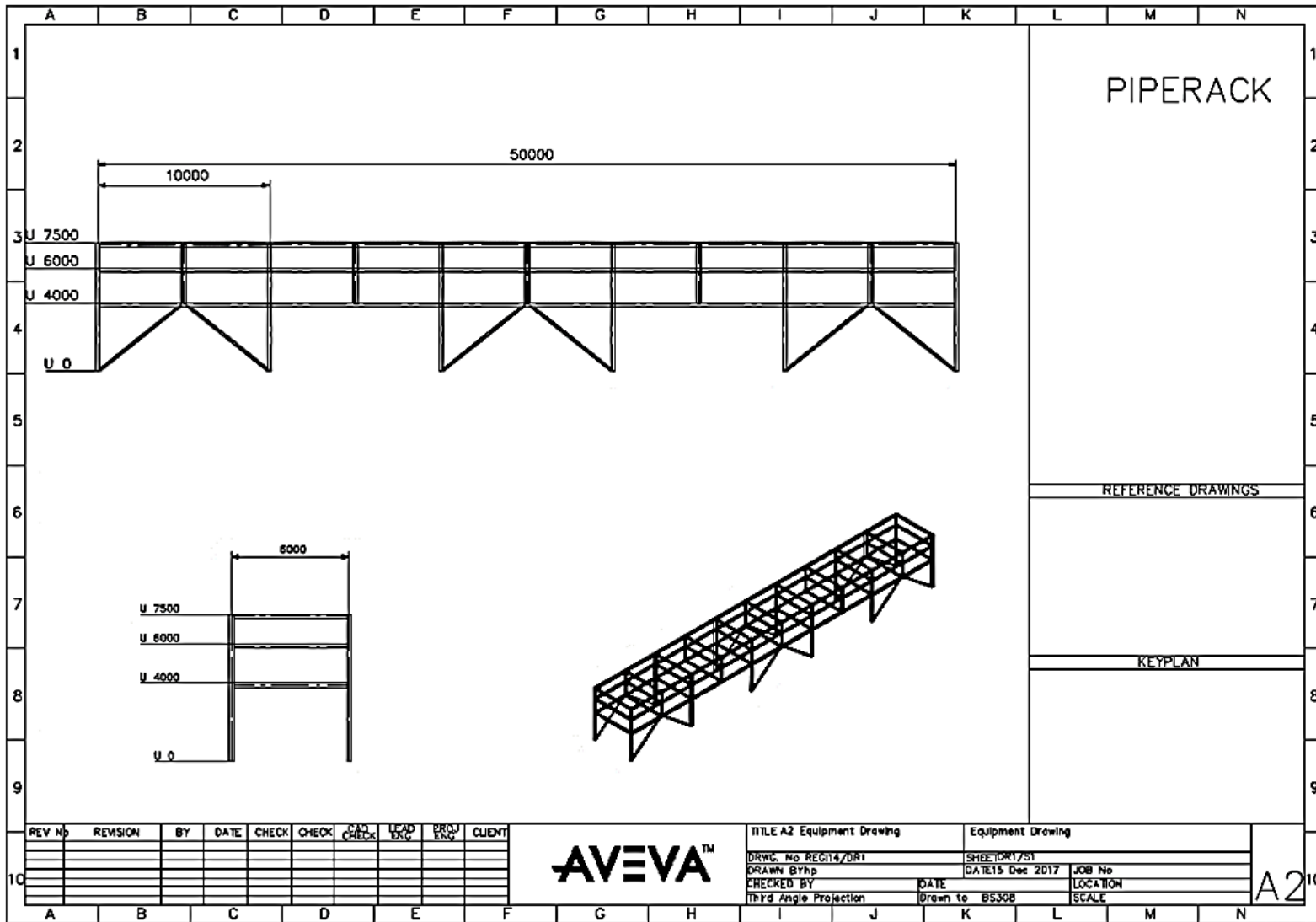
REV No	REVISION	BY	DATE	CHECK	CHECK	CAD CHECK	LEAD ENG	PROD ENG	CLIENT



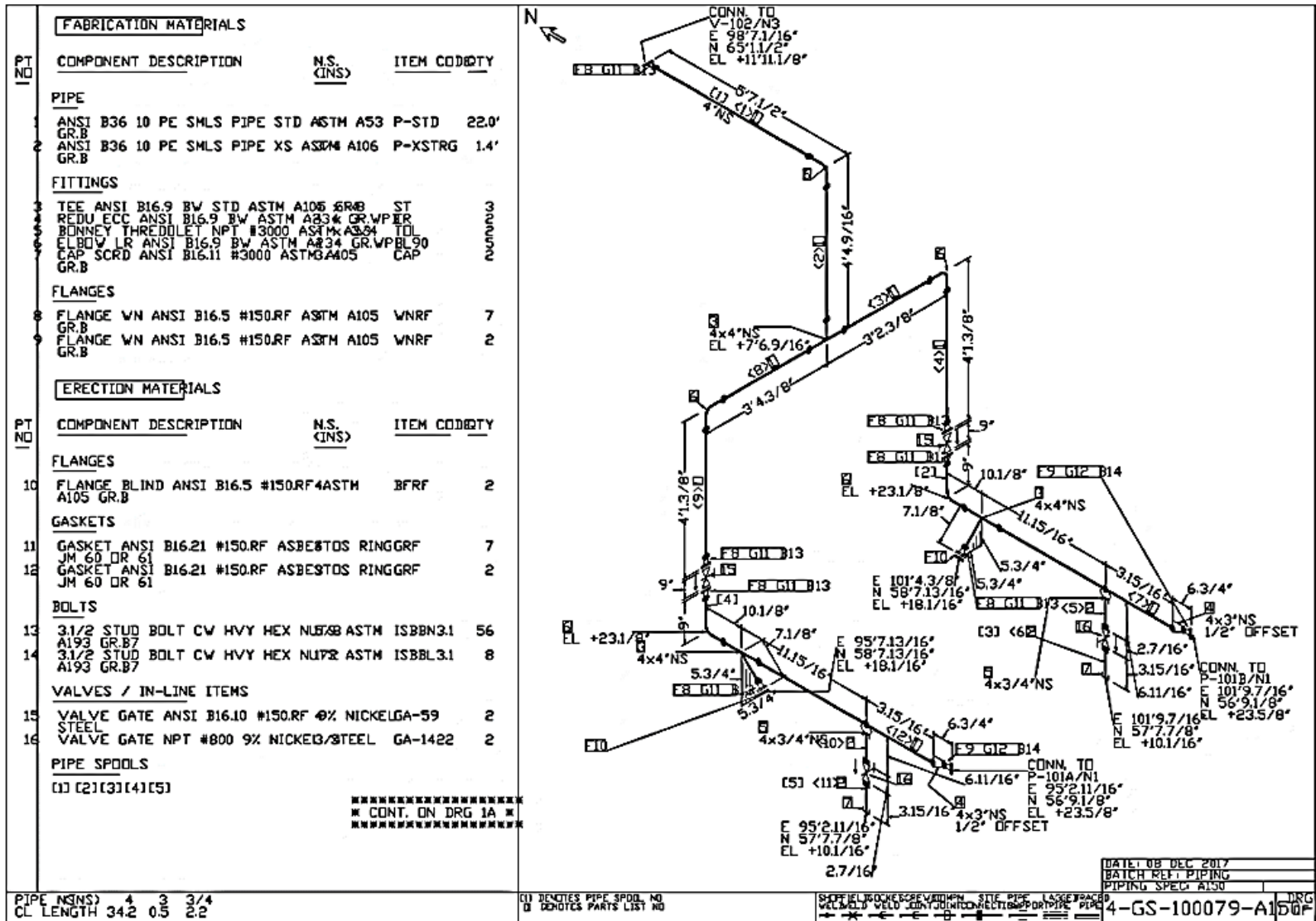
TITLE TUGAS AKHIR		V-102	
DRWG. No DR3	SHEET 1		
DRAWN BY AHMAD AREF PUTRANTO	DATE Dec 2017	JOB No	
CHECKED BY	DATE	LOCATION	
Third Angle Projection	Drawn to BS308	SCALE	

A2

3. Hasil 2D Piperack



5. Hasil gambar isometri pipa

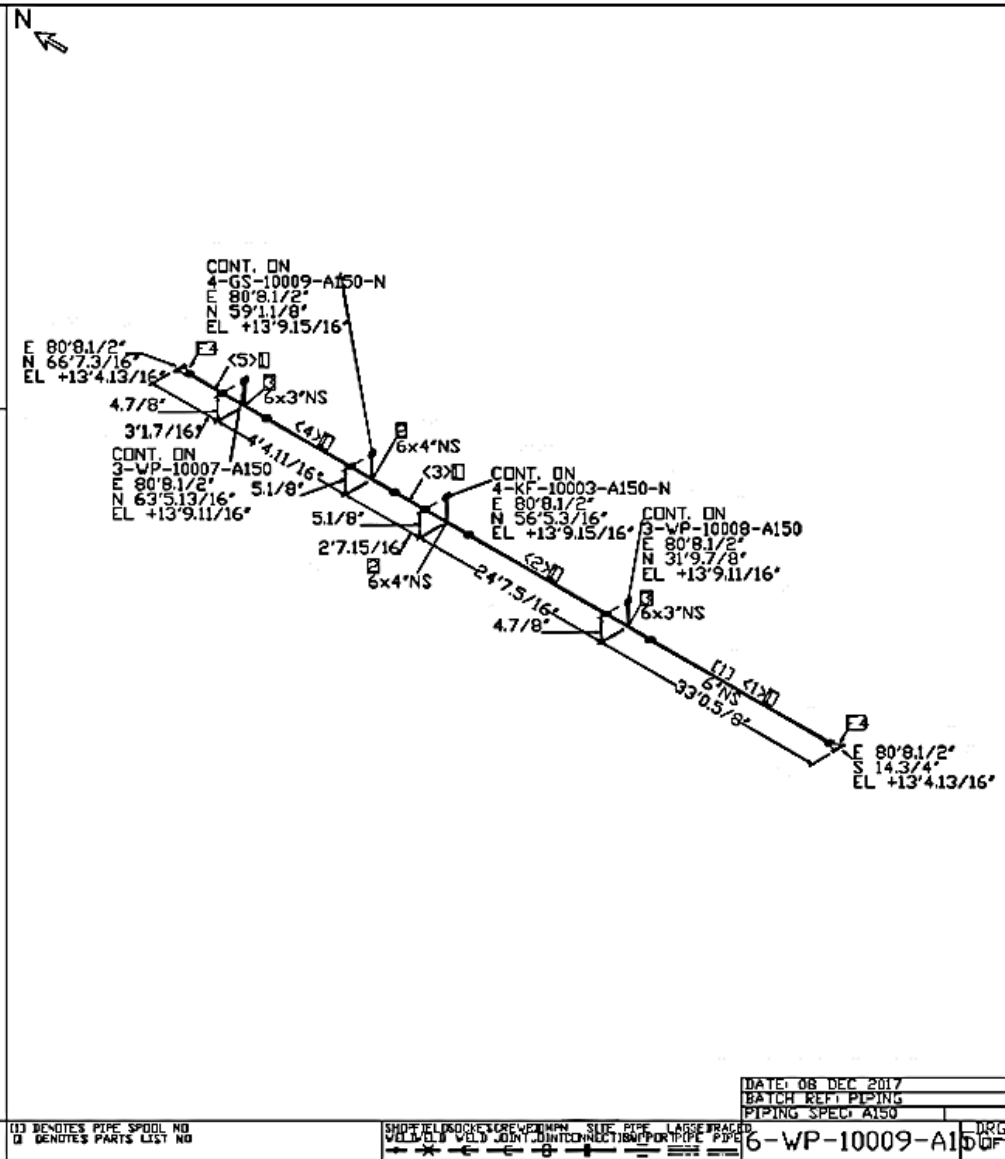




FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM QUANTITY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 P-STD GR.B	63.5'	
<b>FITTINGS</b>			
2	TEE ANSI B16.9 BW ASTM A105 GRB x 4	RT	2
3	TEE ANSI B16.9 BW ASTM A105 GRB x 3	RT	2
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 H150RF ASTM A105 WNRF GR.B		2
<b>PIPE SPOOLS</b>			
	(1)		

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(S)	N.S. (INCHES)	REMARKS	END PREP.
P-STD	<1>	32'3 1/2"	6		BE/BE
P-STD	<2>	23'8 1/16"	6		BE/BE
P-STD	<3>	20'11/16"	6		BE/BE
P-STD	<4>	3'5 7/16"	6		BE/BE
P-STD	<5>	2'4 5/16"	6		BE/BE

PIPE (N.S.)	6	4	3
CL LENGTH	67.9	0.9	0.9



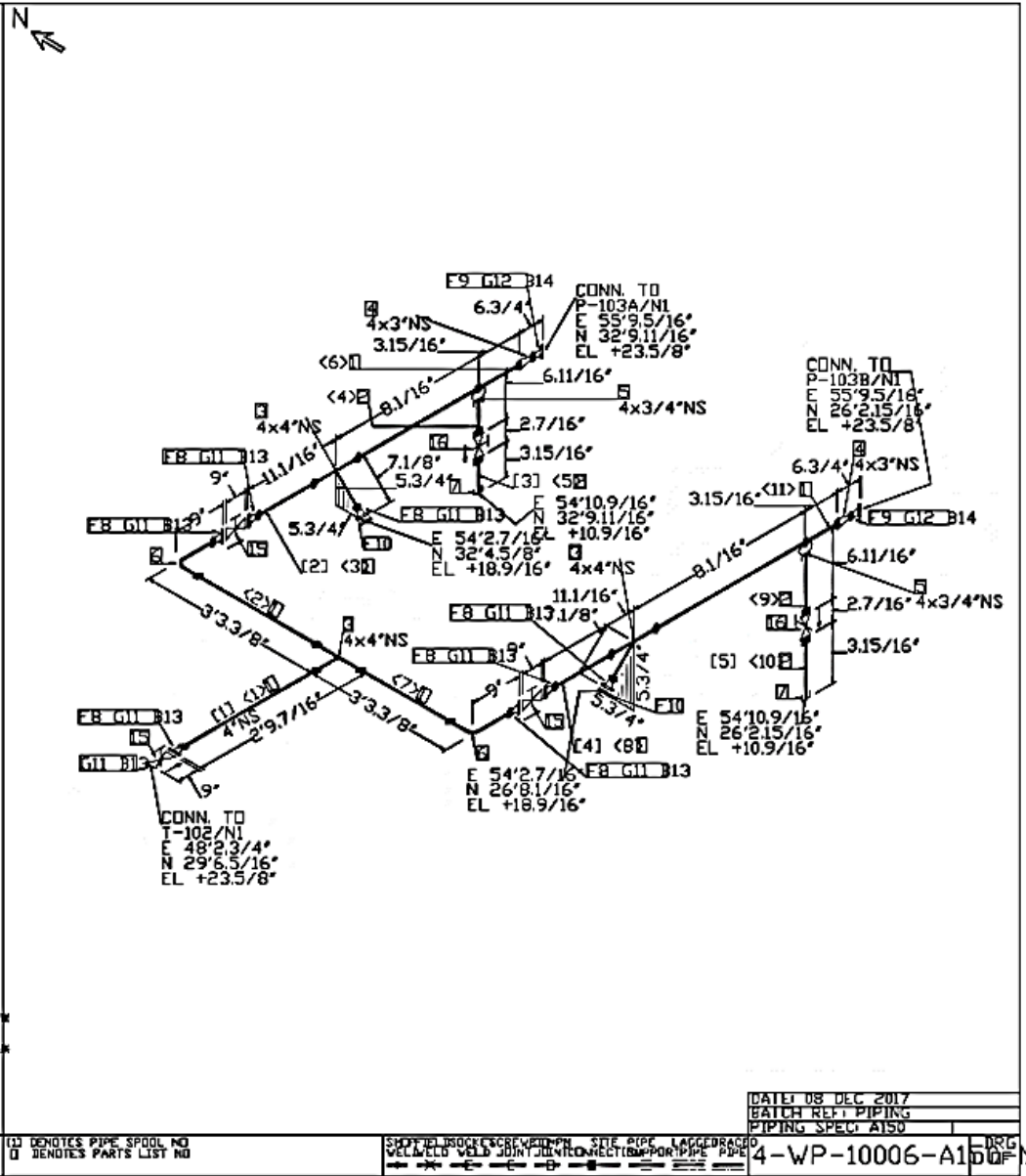
DATE: 08 DEC 2017  
 BATCH REPT PIPING  
 PIPING SPEC: A150

(1) DENOTES PIPE SPOOL NO  
 (2) DENOTES PARTS LIST NO

SHORTELDSOCKETS GREY W/WHIP. SLIP PIPE. LARGE FRAMES  
 W/1/4" VELD JOINT. DIRECTION FOR PIPE FLOW

6-WP-10009-A150 DCF N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 P-STD		9.1'
2	ANSI B36 10 PE SMLS PIPE XS ASTM A106 P-XSTRG		1.4'
<b>FITTINGS</b>			
3	TEE ANSI B16.9 BW STD ASTM A106 GR.B ST		3
4	REDU CONC ANSI B16.9 BW ASTM A234 GR.W/ER		2
5	BONNEY THREDDLET NPT #3000 ASTM A534 TOL		2
6	ELBOW LR ANSI B16.9 BW ASTM A234 GR.W/PBL90		2
7	CAP SCRD ANSI B16.11 #3000 ASTM A405 CAP		2
<b>FLANGES</b>			
8	FLANGE WN ANSI B16.5 #150.RF ASTM A105 WNRF		7
9	FLANGE WN ANSI B16.5 #150.RF ASTM A105 WNRF		2
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>FLANGES</b>			
10	FLANGE BLIND ANSI B16.5 #150.RF ASTM A105 GR.B		2
<b>GASKETS</b>			
11	GASKET ANSI B16.21 #150.RF ASBESTOS RINGGRF JM 60 DR 61		8
12	GASKET ANSI B16.21 #150.RF ASBESTOS RINGGRF JM 60 DR 61		2
<b>BOLTS</b>			
13	3/2 STUD BOLT CW HVY HEX NUTS ASTM ISBBN3.1		64
14	3/2 STUD BOLT CW HVY HEX NUTS ASTM ISBBL3.1		8
<b>VALVES / IN-LINE ITEMS</b>			
15	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL GA-59 STEEL		3
16	VALVE GATE NPT #800 9% NICKEL 3/4 STEEL GA-1422		2
<b>PIPE SPOOLS</b>			
	(1) (2) (3) (4) (5)		
***** * CONT. ON DRG IA * *****			
PIPE (N.S.) 4 3 3/4			
CL LENGTH 19.0 0.5 2.2			



DATE: 08 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150  
 4-WP-10006-A16 DRG

(1) DENOTES PIPE SPOOL NO  
 (2) DENOTES PARTS LIST NO

SPOT WELD BROCK SCREW DRUM SITE PIPE LAGGED RATCHO  
 WELDED WELD JOINT JOINT CONNECT (SUPPORT) PIPE PIPE

**FABRICATION MATERIALS**

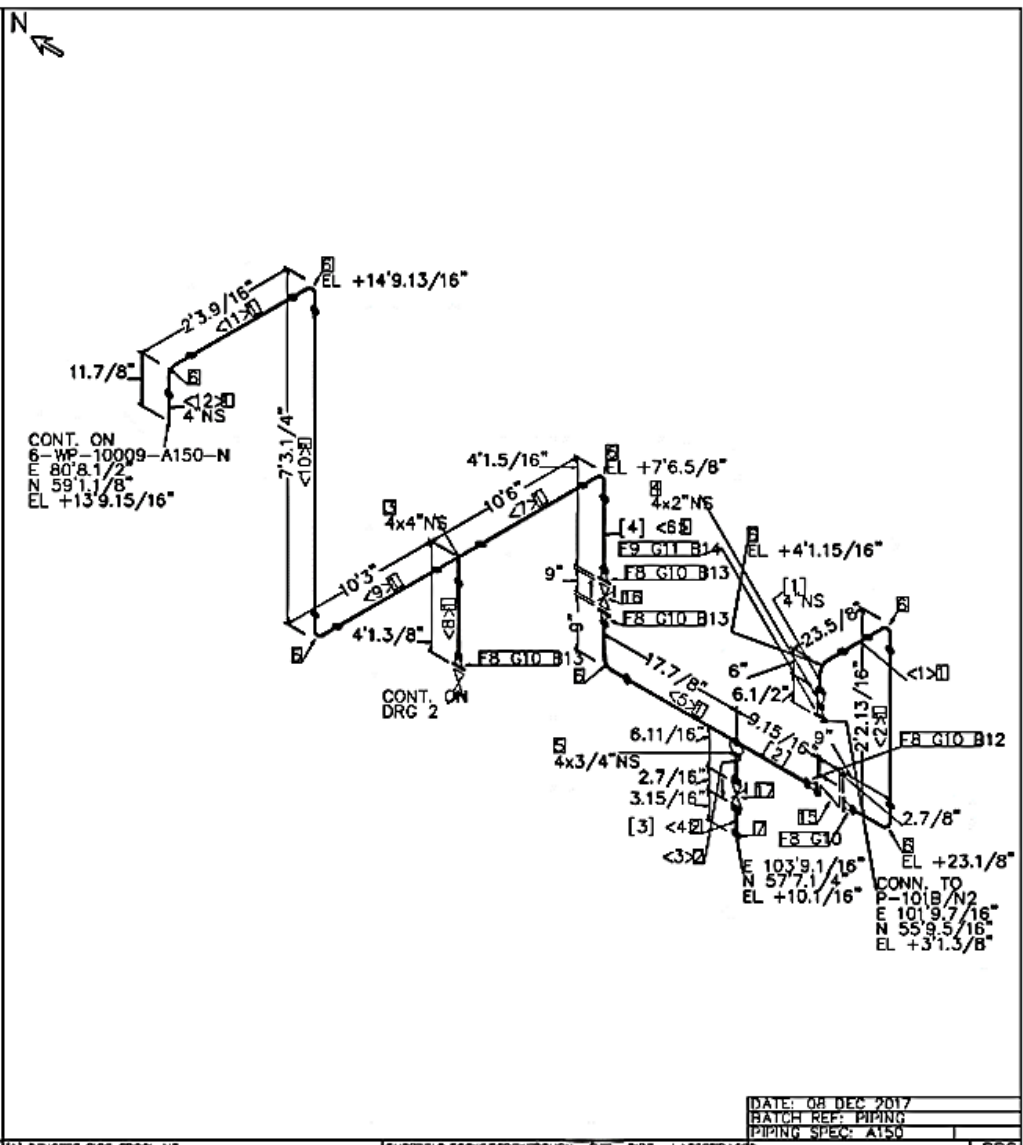
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<b>PIPE</b>				
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD	37.8'
2	ANSI B36 10 PE SMLS PIPE XS ASTM/A106 GR.B		P-XSTRG	0.7'
<b>FITTINGS</b>				
3	TEE ANSI B16.9 BW STD ASTM A1054GR.B		ST	1
4	REDUC CONC ANSI B16.9 BW ASTM A234 GR WP ER		ER	1
5	BONNEY THREDOLET NPT #3000 ASTM A534		TOL	1
6	ELBOW LR ANSI B16.9 BW ASTM A234 GR WP B EL90		EL90	8
7	CAP SCRD ANSI B16.11 #3000 ASTM A405 GR.B		CAP	1
<b>FLANGES</b>				
8	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	5
9	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	1

**ERECTION MATERIALS**

PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<b>GASKETS</b>				
10	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	5
11	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	1
<b>BOLTS</b>				
12	6.7/16 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBN6.7	8
13	3.1/2 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBN3.1	24
14	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3	4
<b>VALVES / IN-LINE ITEMS</b>				
15	VALVE WFR CHK MISSION K #150.RF 49% NICKEL STEEL		CK-1436	1
16	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59	1
17	VALVE GATE NPT #800 9% NICKEL STEEL		GA-1422	1

PIPE SPOOLS  
[1] [2] [3] [4]

\*\*\*\*\*  
\* CONT. ON DRG 1A \*  
\*\*\*\*\*



PIPE N(S)	4	2	3/4
CL LENGTH	49.4	0.3	1.1

(1) DENOTES PIPE SPOOL NO  
□ DENOTES PARTS LIST NO

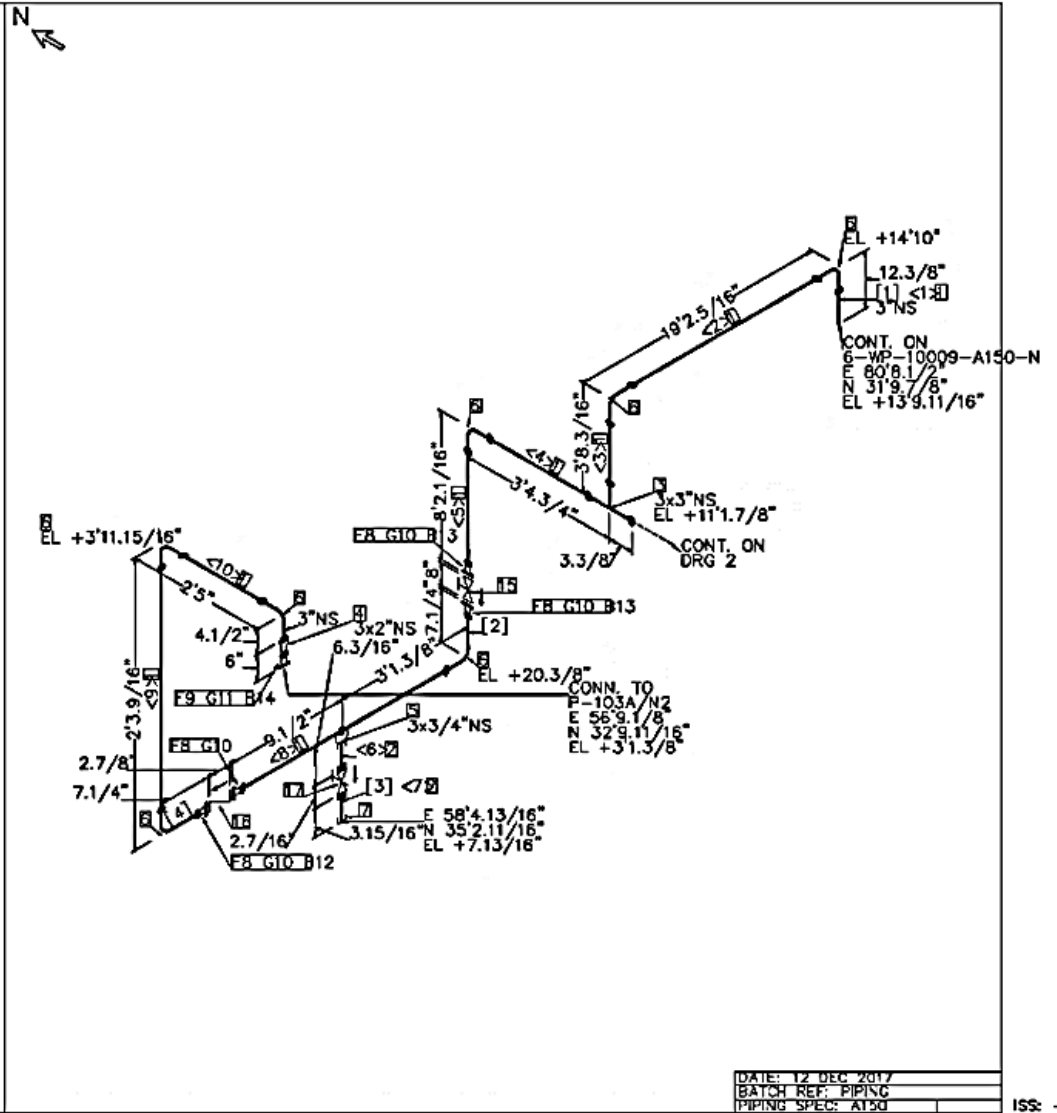
SHORFIELD SOCKET SCREW DOWN STE PIPE LAGGED RACE  
WELDED WELD JOINT JOINT CONNECTION SUPPORT PIPE

DATE: 08 DEC 2017  
MATCH REF: PIPING  
PIPING SPEC: A150

4-GS-10009-A150 2

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 39.0'
2	ANSI B36 10 PE SMLS PIPE XS ASTM/A106 GR.B		P-XSTRG 0.7'
<b>FITTINGS</b>			
3	TEE ANSI B16.9 BW STD ASTM A1053GR.B		ST 1
4	REDU CONC ANSI B16.9 BW ASTM A234 WP BR		1
5	BONNEY THREDOLET NPT #3000 ASTM A534 TOL		1
6	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		7
7	CAP SCRD ANSI B16.11 #3000 ASTM A405 GR.B		CAP 1
<b>FLANGES</b>			
8	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 4
9	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
10	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 4
11	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 1
<b>BOLTS</b>			
12	6.7/16 STUD BOLT CW HVY HEX NUTS/2ASTM A193 GR.B7		ISBBL6.7 4
13	3.1/2 STUD BOLT CW HVY HEX NUTS/2ASTM A193 GR.B7		ISBBL3.1 8
14	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3 4
<b>VALVES / IN-LINE ITEMS</b>			
15	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
16	VALVE WFR CHK MISSION K #150.RF 9% NICKEL STEEL		CK-1436 1
17	VALVE GATE NPT #800 9% NICKEL STEEL		GA-1422 1
<b>PIPE SPOOLS</b>			
	[1] [2] [3] [4]		

.....  
 • CONT. ON DRG 1A •  
 .....



PIPE N(S)	3	2	3/4
CL LENGTH	47.2	0.3	1.1

(1) DENOTES PIPE SPOOL NO  
 U DENOTES PARTS LIST NO

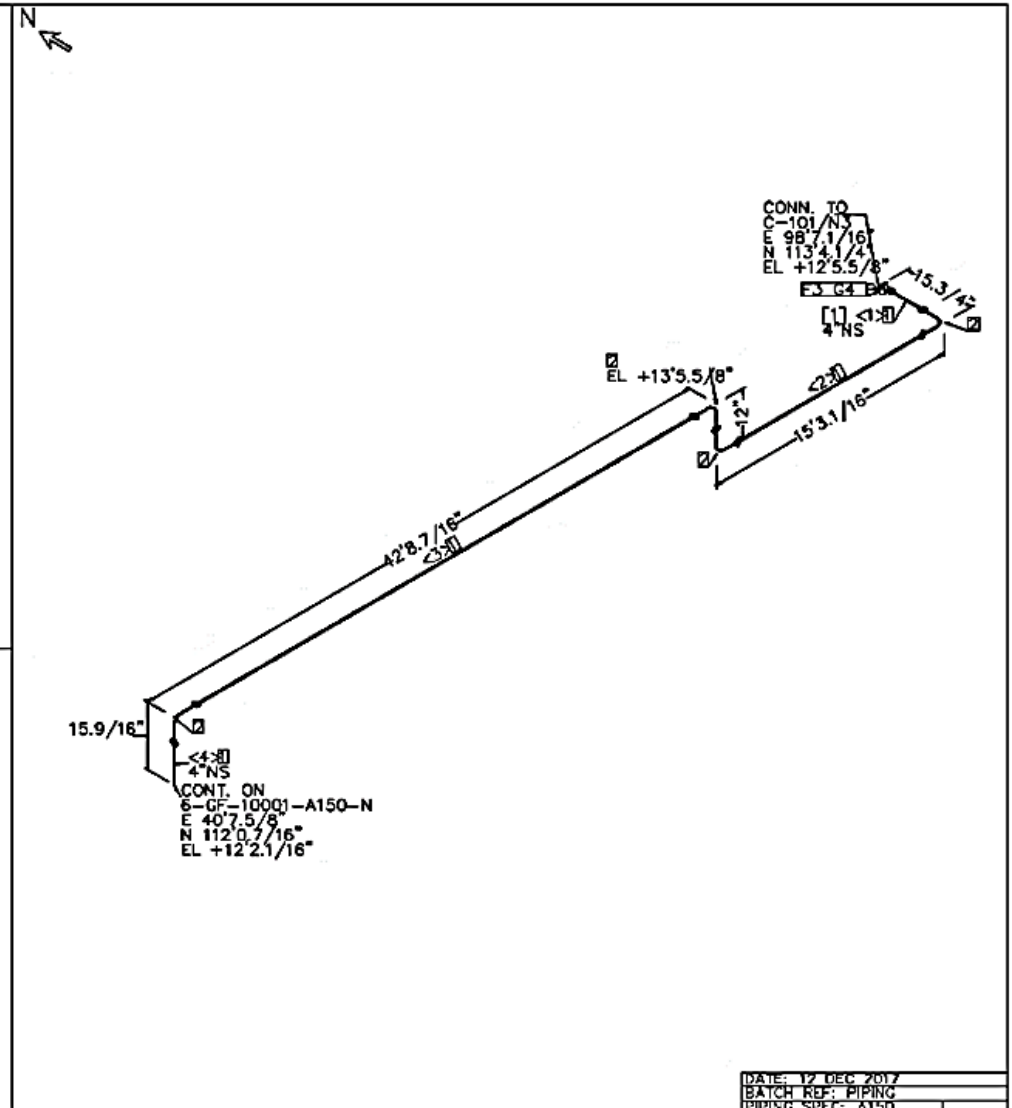
SHOULDER BOLTS FOR DOWNHILL SITE PIPE LAGGING  
 WELDED WELD JOINT CONNECTIONS FOR PIPE

DATE: 12 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150

3-WP-10008-A1 DC 2

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 57.4'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		4
<b>FLANGES</b>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
ERECTION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 50 OR 61		GRF 1
<b>BOLTS</b>			
5	3.1/2 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBN3.1 8
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S.	REMARKS	END PREP
P-STD	<1>	6.3/4	4		BE/BE
P-STD	<2>	14.3.1/16	4		BE/BE
P-STD	<3>	41.8.7/16	4		BE/BE
P-STD	<4>	9.9/16	4		BE/PE



PIPE N(S) 4  
CL LENGTH 61.6

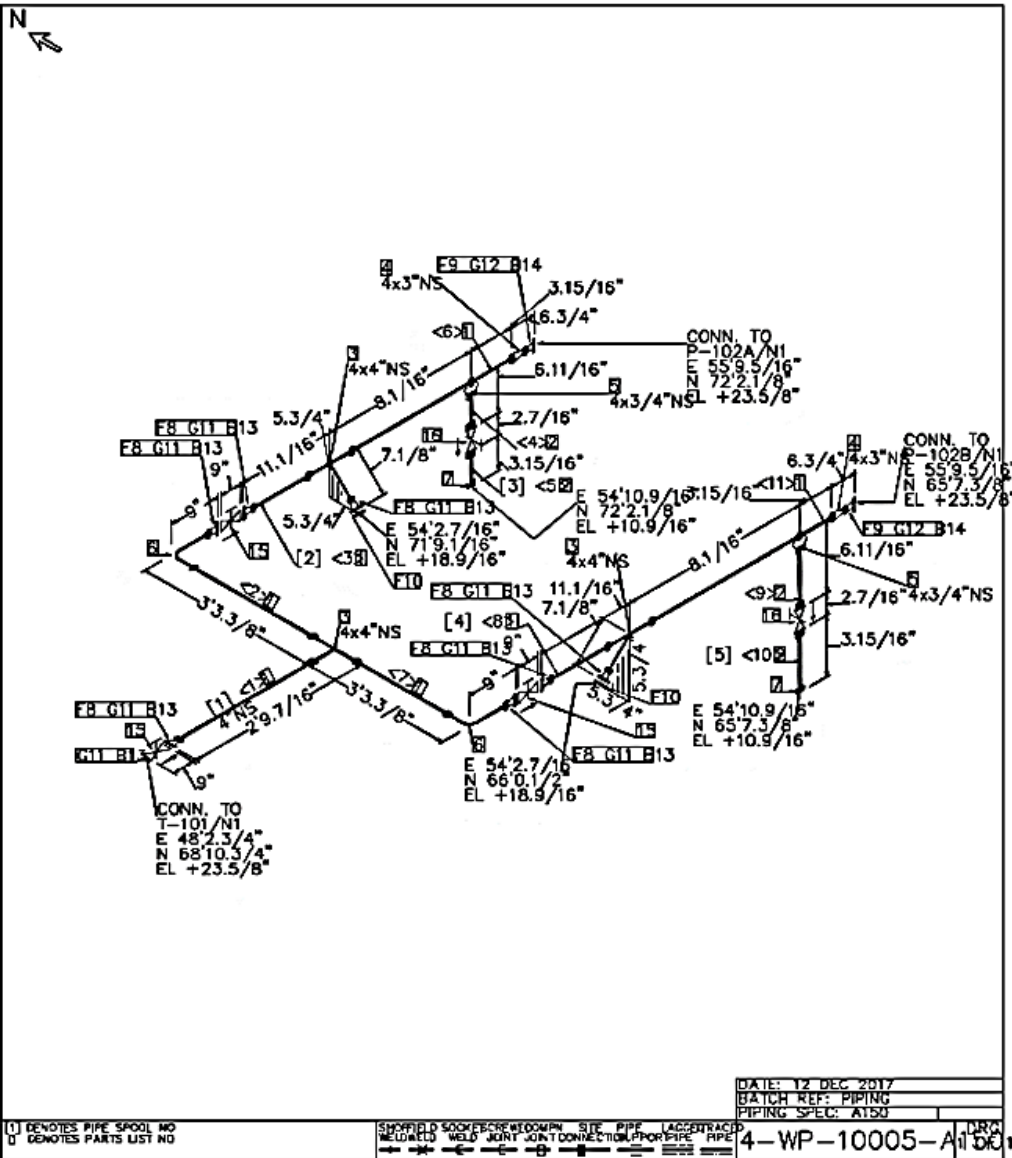
[1] DENOTES PIPE SPOOL NO  
[2] DENOTES PARTS LIST NO

SHOEFIELD SOOKEBROOK WOODMOPH SITE PIPE LARGEDRAGES  
WELDED WELD JOINT JOINT CONNECTION SUPPORT PIPE

DATE: 12 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: ATSD

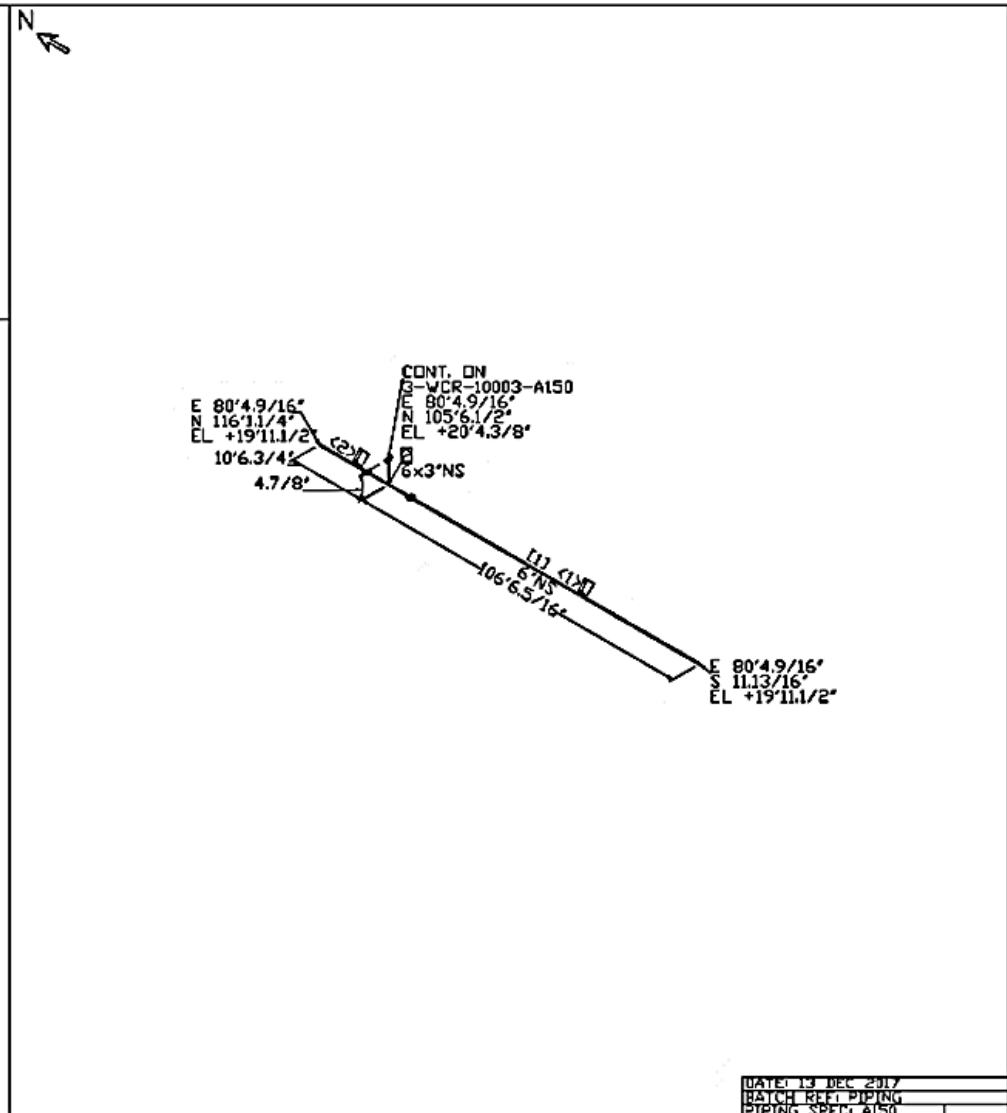
4-KF-10002-A1

FABRICATION MATERIALS				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<b>PIPE</b>				
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD	9.1'
2	ANSI B36 10 PE SMLS PIPE XS ASTM/A106 GR.B		P-XSTRG	1.4'
<b>FITTINGS</b>				
3	TEE ANSI B16.9 BW STD ASTM A1054GR.B		ST	3
4	REDUC CONC ANSI B16.9 BW ASTM A234 DR.WPBR		TOL	1
5	BONNEY THRODLET NPT #3000 ASTM A374		EL90	2
6	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB		CAP	2
7	CAP SCRD ANSI B16.11 #3000 ASTM3/A405		GR.B	2
<b>FLANGES</b>				
8	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	7
9	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	2
<b>ERECTION MATERIALS</b>				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<b>FLANGES</b>				
10	FLANGE BLIND ANSI B16.5 #150.RF ASTM A105 GR.B		BFRF	2
<b>GASKETS</b>				
11	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	8
12	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	2
<b>BOLTS</b>				
13	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1	64
14	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBL3.1	8
<b>VALVES / IN-LINE ITEMS</b>				
15	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59	3
16	VALVE GATE NPT #800 9% NICKEL STEEL		GA-1422	2
<b>PIPE SPOOLS</b>				
	[1][2][3][4][5]			
			***** * CONT. ON DRG 1A * *****	
PIPE N(S)	4 3 3/4			
CL LENGTH	19.0 0.5 2.2			



FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
	<u>PIPE</u>		
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 P-STD GR.B	116.2'	
	<u>FITTINGS</u>		
2	TEE ANSI B16.9 BW ASTM A105 GRB x 3	RT	1
	<u>PIPE SPOOLS</u>		
	[1]		

CUT PIPE LENGTH				REMARKS	END PREP.
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. (INS)		
P-STD	<1>	106'0.11/16"	6		PE/BE
P-STD	<2>	10'1.1/8"	6		BE/PE



PIPE (NS) 6 3  
CL LENGTH 117.1 0.5

[1] DENOTES PIPE SPOOL NO  
[2] DENOTES PARTS LIST NO

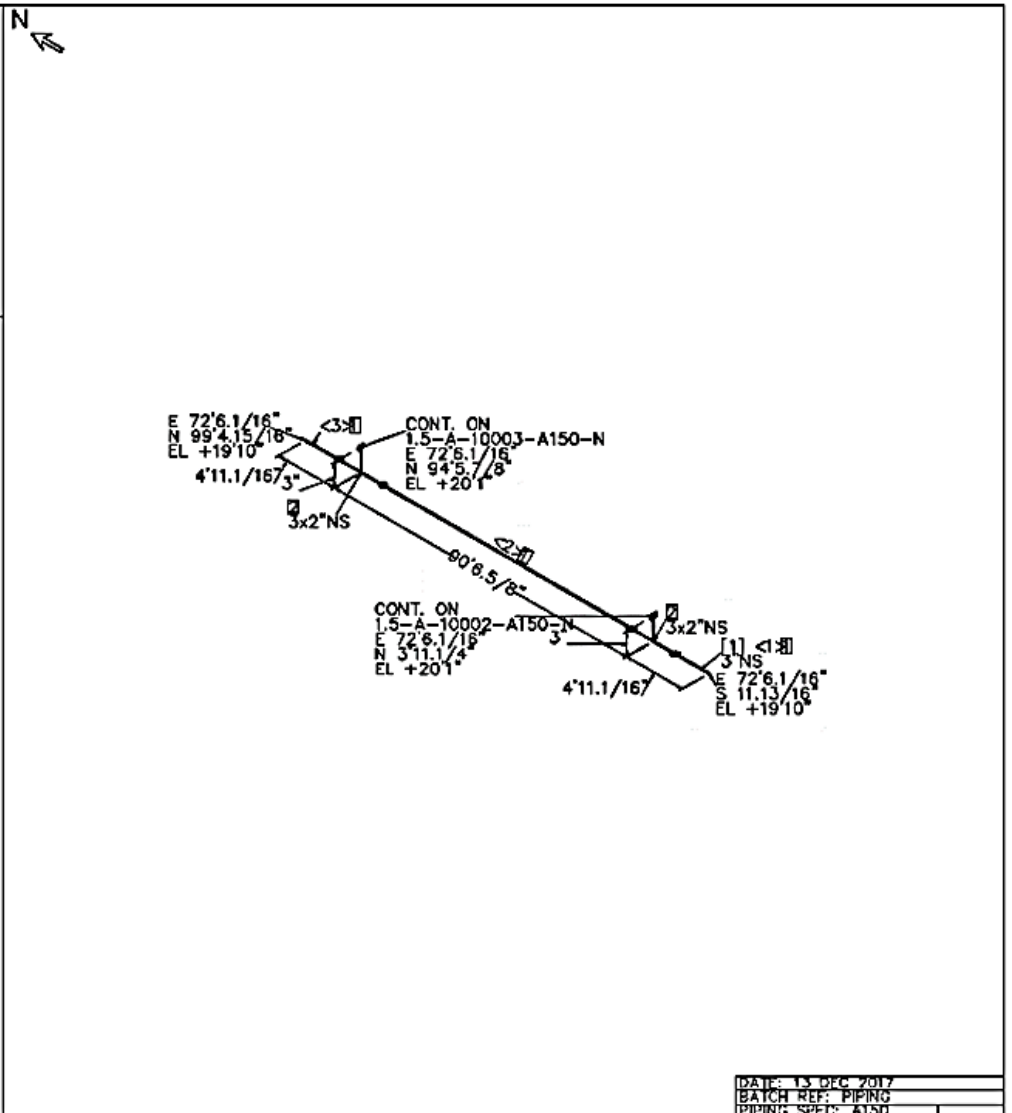
SHIPPED TO: [ ] SCHEDULE 40 [ ] SITE PIPE LARGE BRANCH  
WELDED WELD JOINT CONNECTION ON PIPE

DATE: 13 DEC 2017  
MATCH REF: PIPING  
PIPING SPEC: A150  
6-WCR-10001-A150



FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B	P-STD	99.3'
<b>FITTINGS</b>			
2	TEE ANSI B16.9 BW ASTM A105 GR.B x 2	RT	2
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS
P-STD	<1>	47.11/16	3	
P-STD	<2>	69'11.7/8	3	
P-STD	<3>	47.11/16	3	



PIPE N(S) 3 2  
CL LENGTH 100.4 0.3

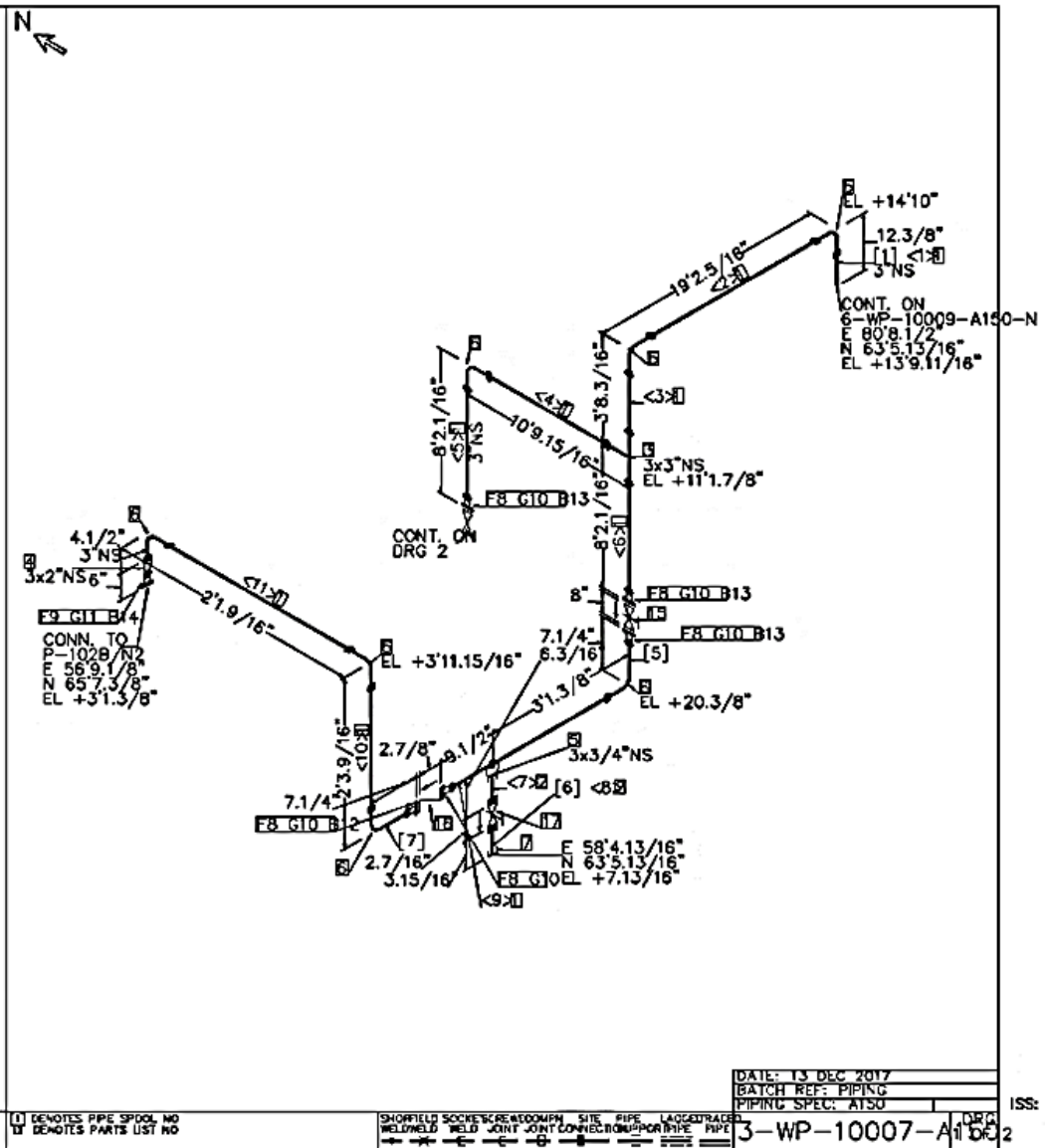
[1] DENOTES PIPE SPOOL NO  
T DENOTES PARTS LIST NO

SHORFIELD SOCKET WRO WED OMPN SITE PIPE LACED TRACED  
BELD WELD JOINT JOINT CONNECTION FOR PIPE PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: AT50  
3-A-10001-A150

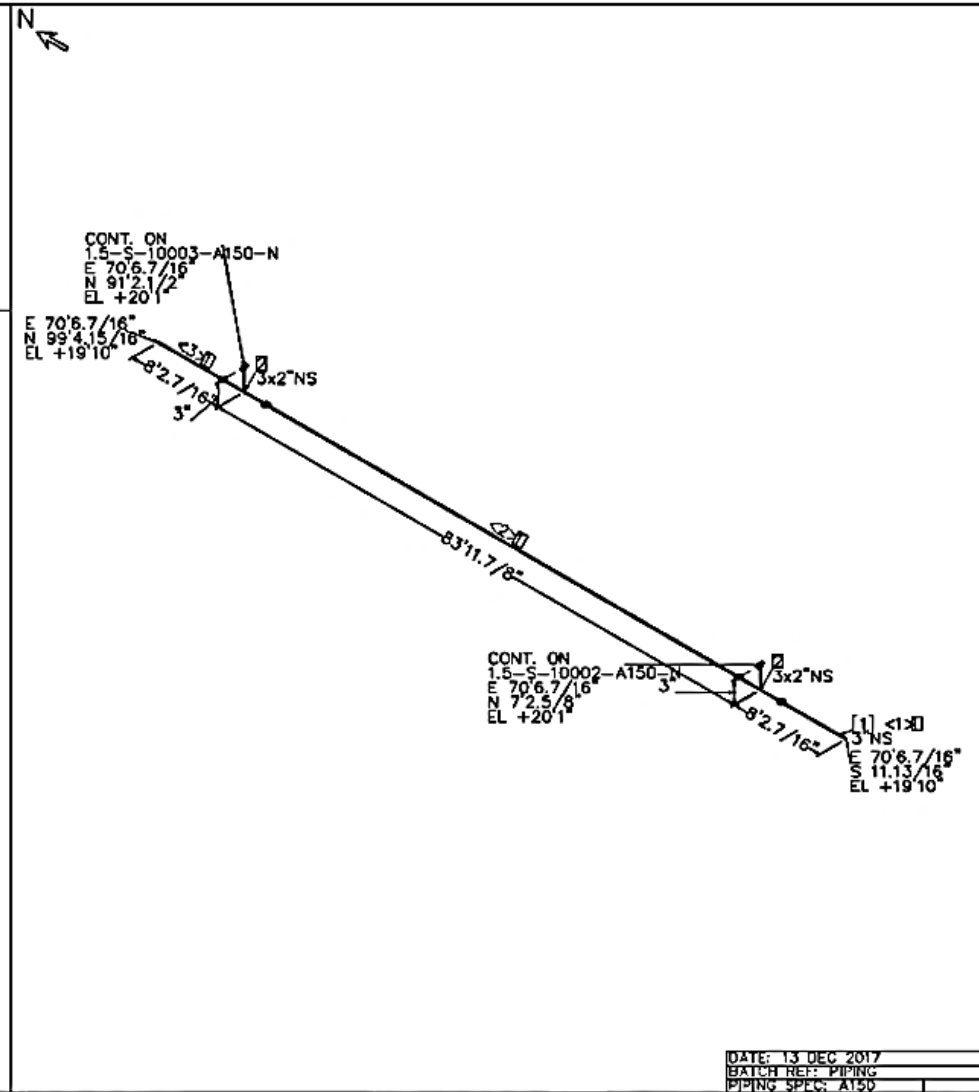


FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 53.8'
2	ANSI B36 10 PE SMLS PIPE XS ASTM/A106 GR.B		P-XSTRG 0.7'
<b>FITTINGS</b>			
3	TEE ANSI B16.9 BW STD ASTM A1053GR.B	ST	1
4	REDUC CONC ANSI B16.9 BW ASTM A234 WP/ER		1
5	BONNEY THREDOLET NPT #3000 ASTM A534 TOL		1
6	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB	EL90	7
7	CAP SCRD ANSI B16.11 #3000 ASTM/A105 GR.B	CAP	1
<b>FLANGES</b>			
8	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B	WNRF	5
9	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B	WNRF	1
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
10	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61	GRF	5
11	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61	GRF	1
<b>BOLTS</b>			
12	6.7/16 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7	ISBBL6.7	4
13	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7	ISBBL3.1	12
14	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7	ISBBJ3	4
<b>VALVES / IN-LINE ITEMS</b>			
15	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL	GA-59	1
16	VALVE WFR CHK MISSION K #150.RF 3% NICKEL STEEL	CK-1436	1
17	VALVE GATE NPT #800 9% NICKEL STEEL	GA-1422	1
<b>PIPE SPOOLS</b>			
	[1][5][6][7]		
		*****	
		* CONT. ON DRG 1A *	
		*****	
PIPE N(S) 3 2 3/4			
CL LENGTH 62.3 0.3 1.1			



FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD AS3M A53 GR.B		P-STD 99.3'
<b>FITTINGS</b>			
2	TEE ANSI B16.9 BW ASTM A105 GR.B x 2	RT	2
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH (INS)	REMARKS	END PREP
P-STD	<1>	7'11.1/16"		PE/BE
P-STD	<2>	83'5.1/8"		BE/BE
P-STD	<3>	7'11.1/16"		BE/PE



PIPE N(S) 3 2  
CL LENGTH 100.4 0.5

(1) DENOTES PIPE SPOOL NO  
(2) DENOTES PARTS LIST NO

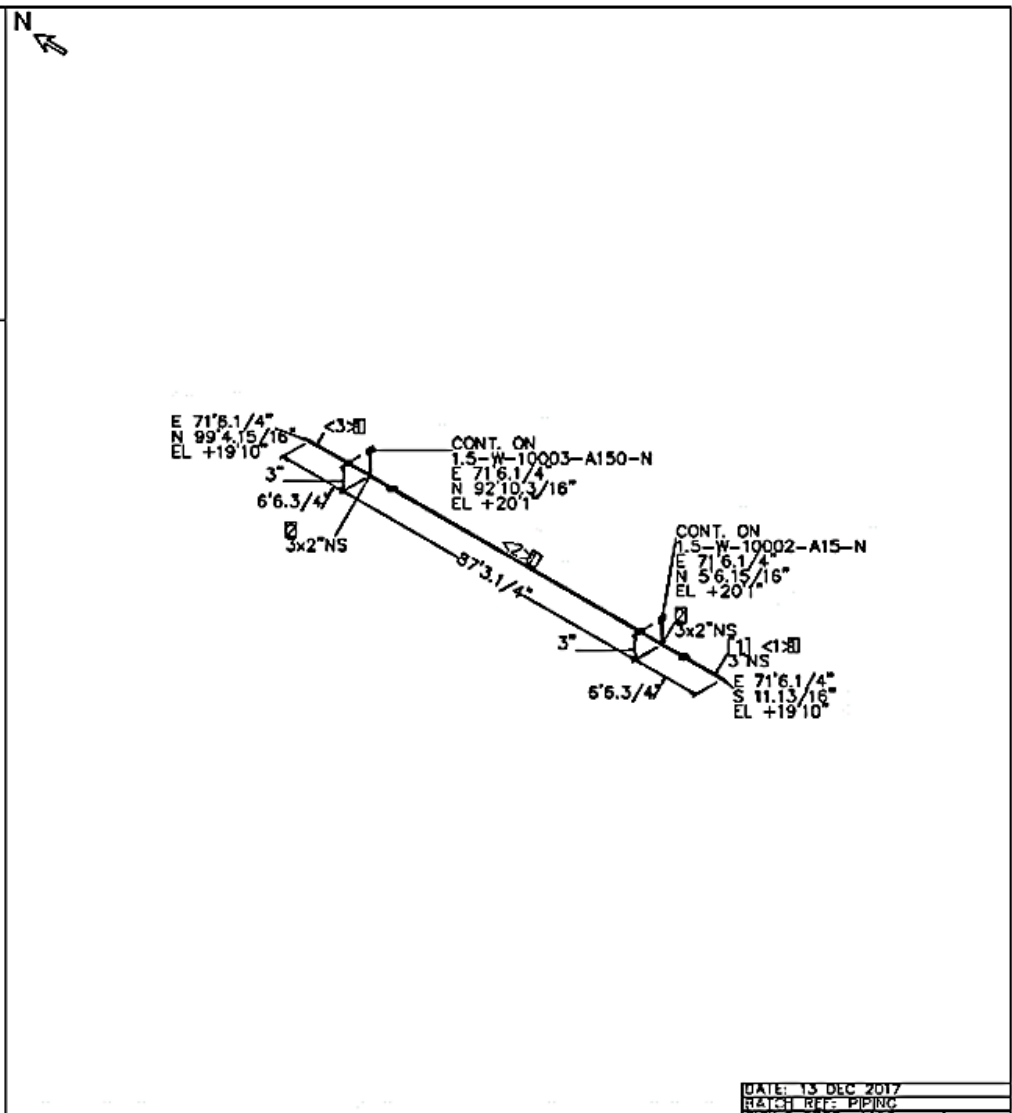
SHORFIELD SOCIETY BREEDDOWN SITE PIPE LAGGED TRACHE  
WELDED WELD JOINT CONNECTION SUPPORT PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150

3-S-10001-A150

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
	PIPE		
1	ANSI B36 10 PE SMLS PIPE STD AS3M A53 GR.B		P-STD 99.3'
	FITTINGS		
2	TEE ANSI B16.9 BW ASTM A105 GR.B x 2		RT 2
	PIPE SPOOLS		
	[1]		

CUT PIPE LENGTH				REMARKS	END PREP
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. (INS)		
P-STD	<1>	6'3.3/8"	3		PE/BE
P-STD	<2>	86'8.1/2"	3		BE/BE
P-STD	<3>	6'3.3/8"	3		BE/PE



PIPE N(S)	3	2
CL LENGTH	100.4	0.5

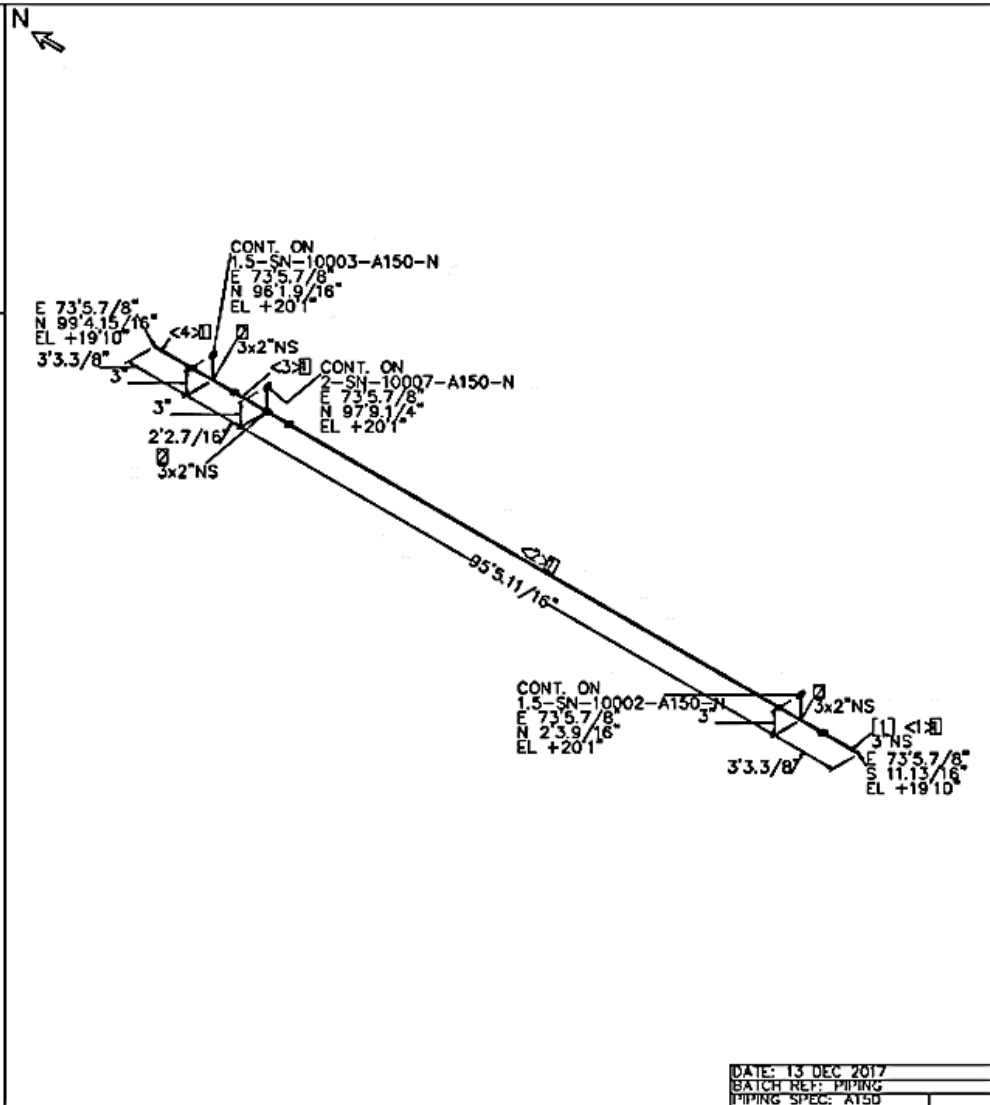
(1) DENOTES PIPE SPOOL NO  
 (2) DENOTES PARTS LIST NO

SHOWFIELD SMOKE BOREHOLE DOWN SITE PIPE LAGERS  
 RELIABLE WELD JOINT CONNECTION FOR PIPE

DATE: 13 DEC 2017  
 MATCH REF: PIPING  
 PIPING SPEC: A150  
 3-W-10001-A150  
 DRG 1 OF 1

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 103.2'
<b>FITTINGS</b>			
2	TEE ANSI B16.9 BW ASTM A105 GR.B x 2	RT	3
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH				REMARKS	END PREP.
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S. LENGTH(INS)		
P-STD	<1>	3	3		PE/BE
P-STD	<2>	84'10.15/16	3		BE/BE
P-STD	<3>	2'2.7/16	3		BE/BE
P-STD	<4>	3	3		BE/PE



PIPE N(S) 3 2  
CL LENGTH 104.3 0.8

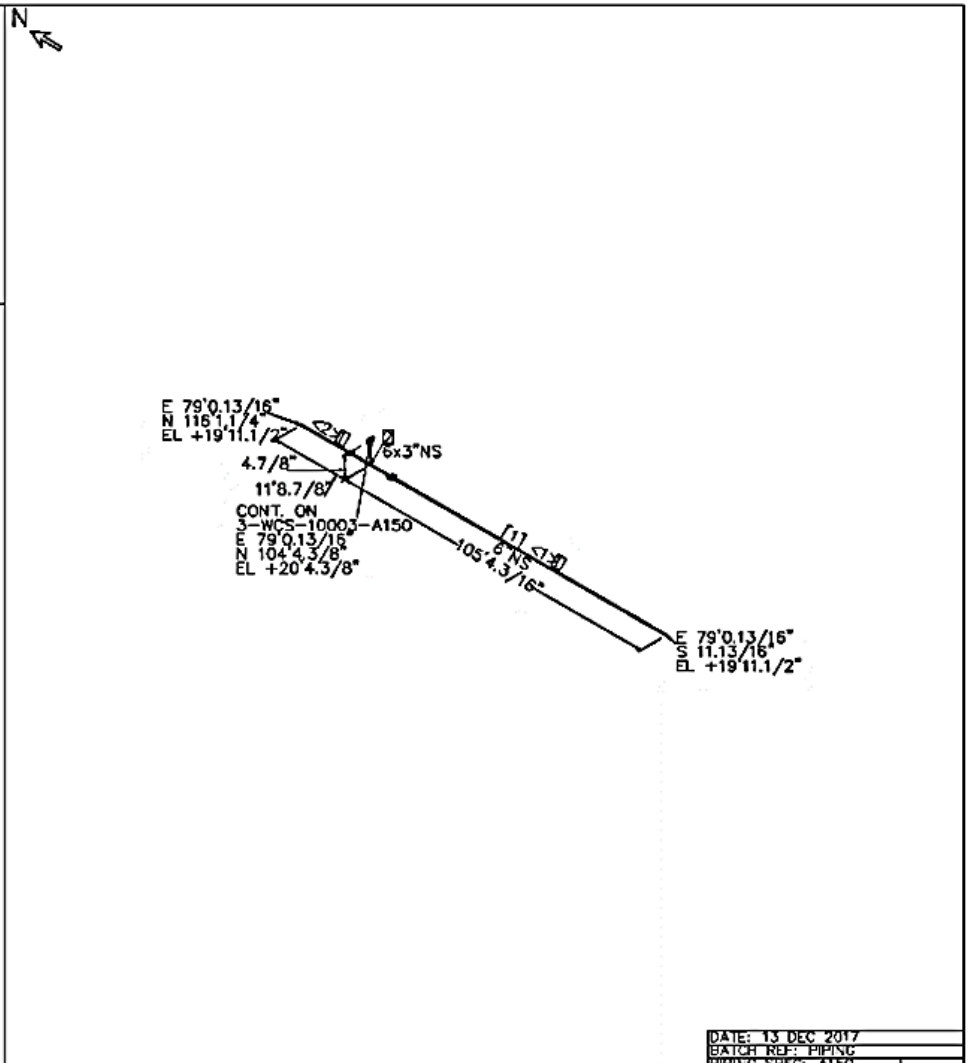
(1) DENOTES PIPE SPOOL NO  
U DENOTES PARTS LIST NO

SHOFFIELD SOCKET WELDED JOINT  
WELDED JOINT CONNECTION FOR PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: ATSD  
3-SN-1001-A

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD AS5M A53 GR.B		P-STD 116.2'
<u>FITTINGS</u>			
2	TEE ANSI B16.9 BW ASTM A105 GR.B x 3		RT 1
<u>PIPE SPOOLS</u>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. (INS)	REMARKS	END PREP
P-STD	<1>	10.9/16	6		PE/BE
P-STD	<2>	11.3.1/4	6		BE/PE



PIPE (N.S.) 6 3  
CL LENGTH 117.1 0.5

Q) DENOTES PIPE SPOOL NO  
U) DENOTES PARTS LIST NO

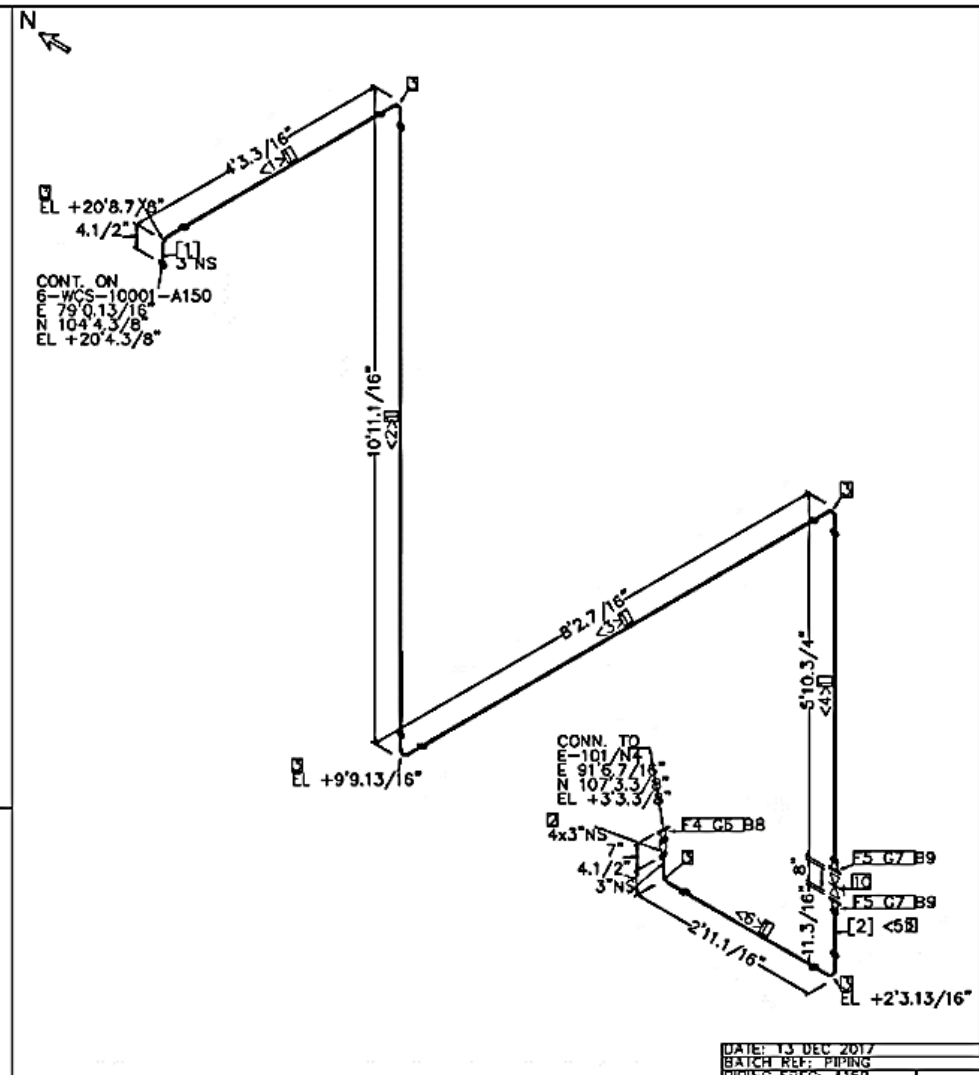
SHOULDER SOCKET/BORNE/END/MPH SITE PIPE LAGGED/TRACED  
WELDED WELD JOINT JOINT CONNECTION/PP/PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
6-WCS-10001-A 050

ISS: -1

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 P-STD GR.B		29.0'
<b>FITTINGS</b>			
2	REDUC CONC ANSI B16.9 BW ASTM A234 BR.WPBR		1
3	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		6
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 WNRF GR.B		1
5	FLANGE WN ANSI B16.5 #150.RF ASTM A105 WNRF GR.B		2
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
6	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61		1
7	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61		2
<b>BOLTS</b>			
8	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		8
9	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		8
<b>VALVES / IN-LINE ITEMS</b>			
10	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		1
<b>PIPE SPOOLS</b>			
[1] [2]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP
P-STD	<1>	36.3/16			BE/BE
P-STD	<2>	10.2.1/16			BE/BE
P-STD	<3>	7.5.7/16			BE/BE
P-STD	<4>	5.3.1/2			BE/BE
P-STD	<5>	3.15/16			BE/BE
P-STD	<6>	2.2.1/16			BE/BE



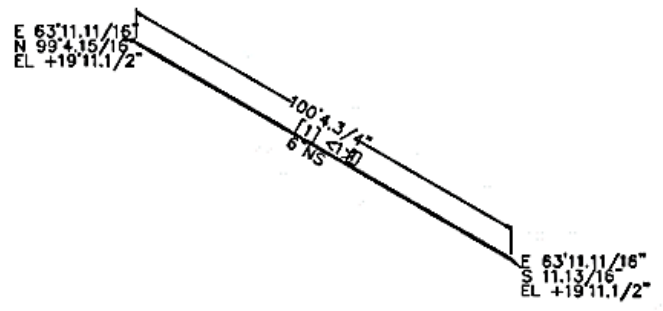
PIPE (NONS) 4 3  
CL LENGTH 0.6 34.6

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
ISS: -1  
3-WCS-10003-A060

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
	PIPE		
1	ANSI B36 10 PE SMLS PIPE STD AS6M A53 GR.B		P-STD 100.4'
	PIPE SPOOLS		
	[1]		



CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP
P-STD	<1>	100'4.3/4"	6		PE/PE



PIPE N(S) 6  
CL LENGTH 100.4

(1) DENOTES PIPE SPOOL NO  
01 DENOTES PARTS LIST NO

SHO/FIELD SOCKET/CR/RED/WHY/SH/ST/PIPE LEGS/DRAGS  
WELDED WELD JOINT JOINT CONNECTIONS FOR PIPE PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: AT50  
6-SX-10001-A 1538 1

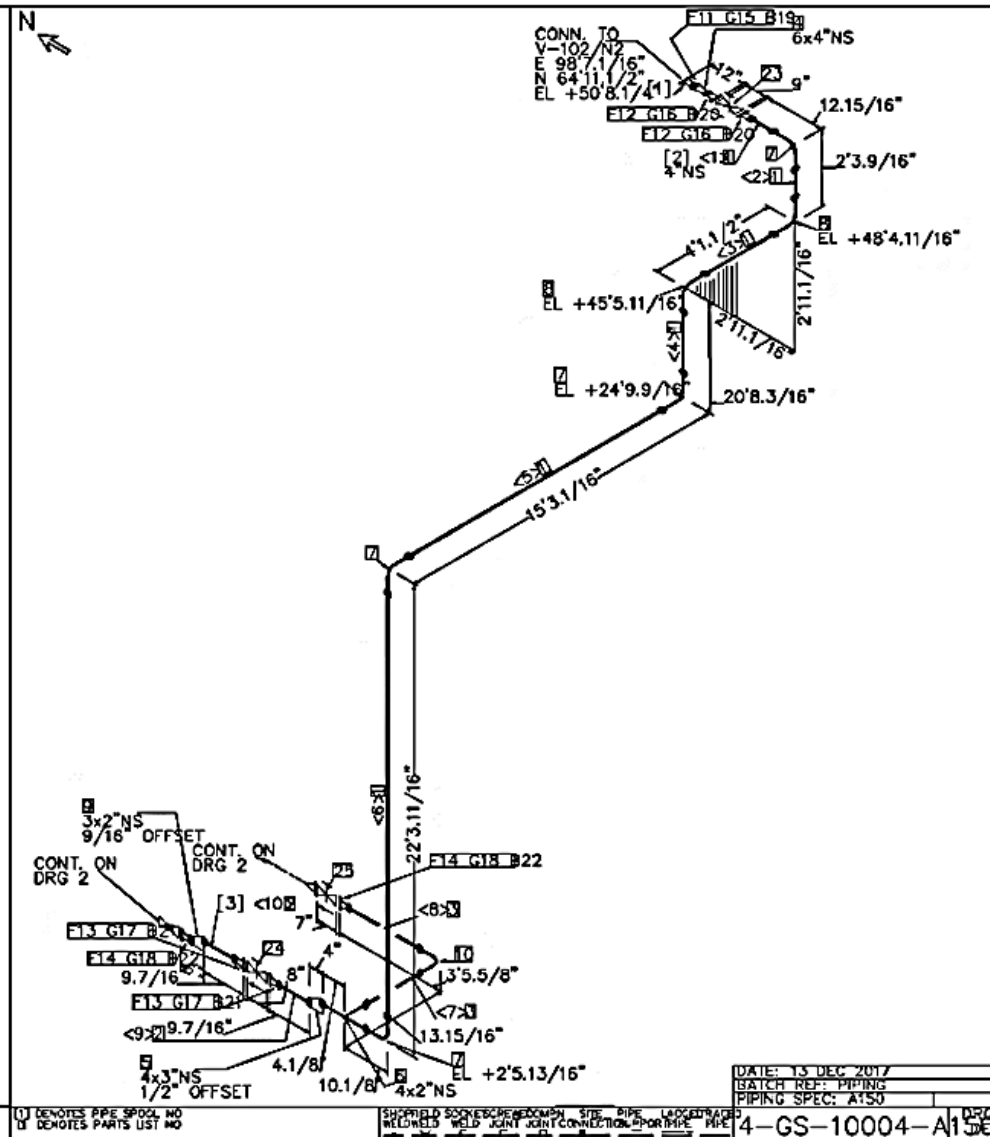
**FABRICATION MATERIALS**

PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<b>PIPE</b>				
1	ANSI B36 10 PE SMLS PIPE STD AS4M A53 GR.B		P-STD	61.2'
2	ANSI B36 10 PE SMLS PIPE STD AS3M A53 GR.B		P-STD	1.2'
3	ANSI B38 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD	3.7'
<b>FITTINGS</b>				
4	REDU CONC ANSI B16.9 BW ASTM A834 GR.WPB ER			1
5	REDU ECC ANSI B16.9 BW ASTM A234xGR.WPB ER			1
6	TEE ANSI B16.9 BW ASTM A105 GR.B x 2 RT			1
7	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90			4
8	ELBOW 45DEG ANSI B16.9 BW ASTM A234 GR.WPB EL45			2
9	REDU ECC ANSI B16.9 BW ASTM A234xGR.WPB ER			1
10	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90			1
<b>FLANGES</b>				
11	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	1
12	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	2
13	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	2
14	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	2

**ERECTION MATERIALS**

PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<b>GASKETS</b>				
15	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	1
16	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	2
17	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	2
18	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	2
<b>BOLTS</b>				
19	3/4 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBR3.3	8
20	3/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1	16
21	3/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBL3.1	8
22	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3	8
<b>VALVES / IN-LINE ITEMS</b>				
23	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59	1

\*\*\*\*\*  
\* CONT. ON DRG 1A \*  
\*\*\*\*\*



ISS: -1

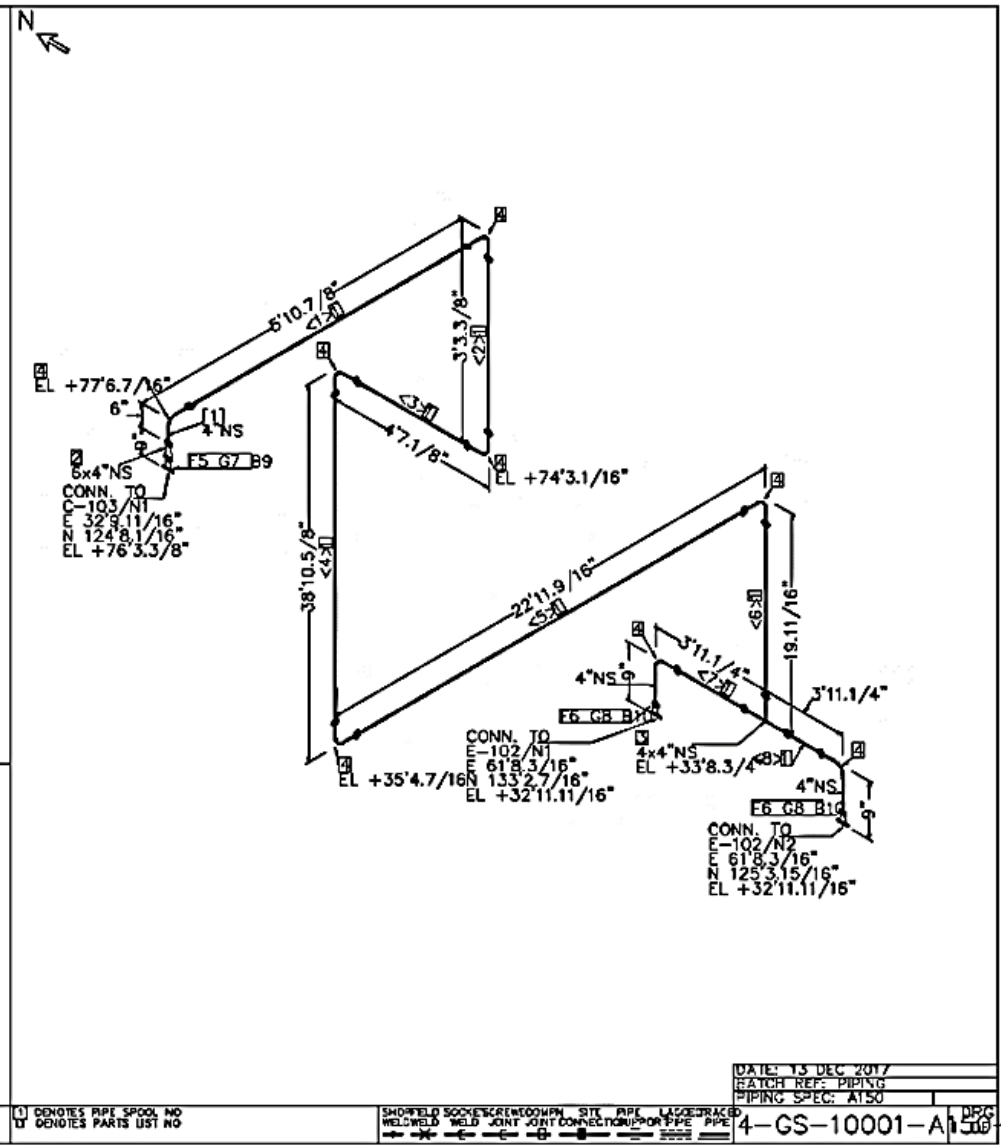
DATE: 13 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150  
 4-GS-10004-A15  
 DRG 2



FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 77.7'
<b>FITTINGS</b>			
2	REDU CONC ANSI B16.9 BW ASTM A834 GR.WPBR		1
3	TEE ANSI B16.9 BW STD ASTM A1054GR.B		ST 1
4	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		8
<b>FLANGES</b>			
5	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
6	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 2
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
7	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 1
8	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<b>BOLTS</b>			
9	3/4 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBR3.3 8
10	3/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1 16
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP.
P-STD	<1>	4'10.7/8"	4		BE/BE
P-STD	<2>	2'3.3/8"	4		BE/BE
P-STD	<3>	3'7.1/8"	4		BE/BE
P-STD	<4>	3'10.5/8"	4		BE/BE
P-STD	<5>	21'11.9/16"	4		BE/BE
P-STD	<6>	3'9.9/8"	4		BE/BE
P-STD	<7>	3'1.1/8"	4		BE/BE
P-STD	<8>	3'1.1/8"	4		BE/BE

PIPE N(S) 6 4  
CL LENGTH 0.8 87.2



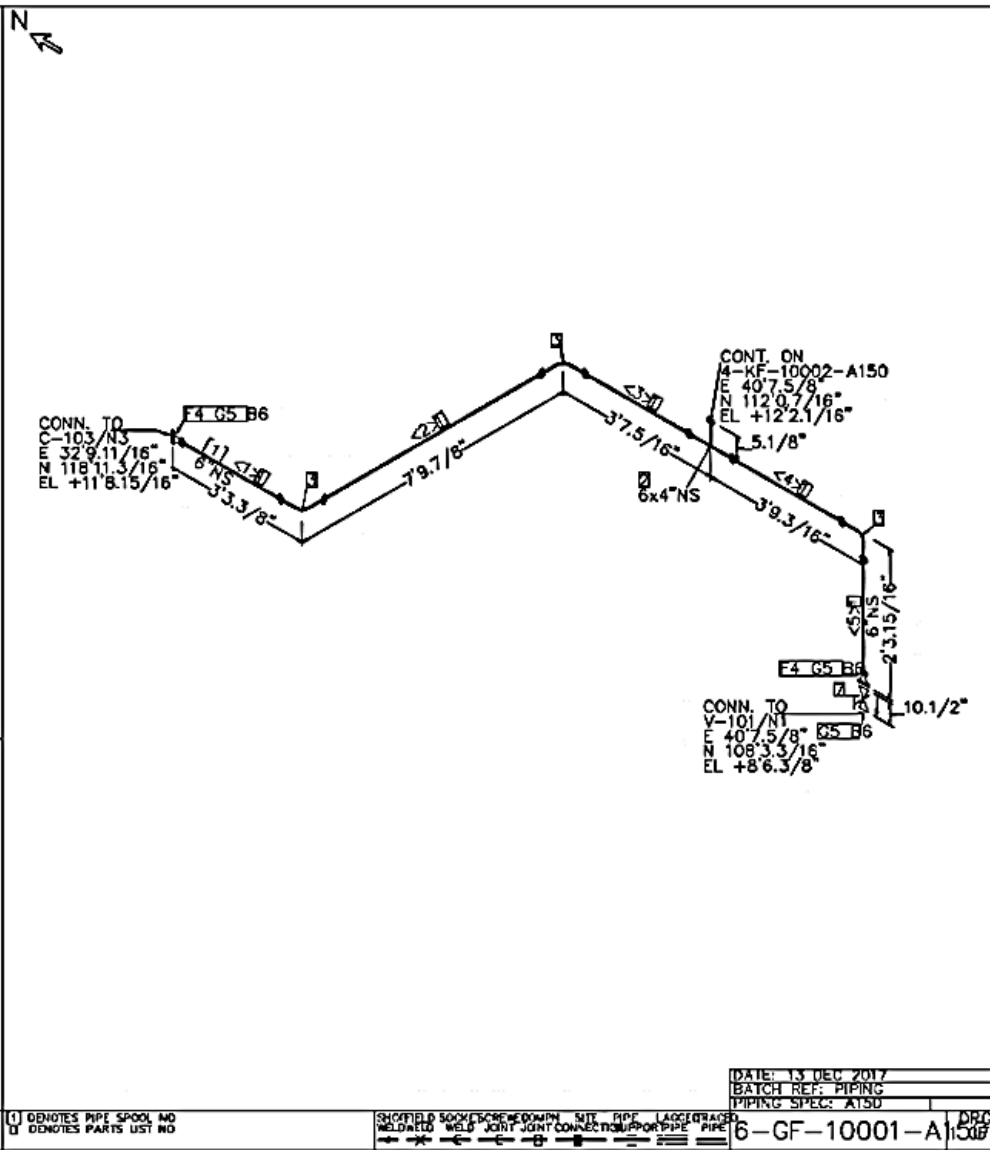
(1) DENOTES PIPE SPOOL NO  
BY DENOTES PARTS LIST NO

SHOW FIELD SOCKETS SCREW DOWN ON SITE PIPE LAGS OR RACED WELDED WELD JOINT JOINT CONNECTIONS ON PIPE PIPE

DATE: 13 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: AT50  
 4-GS-10001-A1500+N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD AS8M A53 GR.B		P-STD 14.8'
<b>FITTINGS</b>			
2	TEE ANSI B16.9 BW ASTM A105 GR.B x 4		RT 1
3	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		3
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRFL 2
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61		GRF 3
<b>BOLTS</b>			
6	3.3/4 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBR3.3 24
<b>VALVES / IN-LINE ITEMS</b>			
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S. (INS)	REMARKS	END PREP.
P-STD	<1>	2'2.7/8"	6		BE/BE
P-STD	<2>	6'3.7/8"	6		BE/BE
P-STD	<3>	2'4.11/16"	6		BE/BE
P-STD	<4>	2'6.9/16"	6		BE/BE
P-STD	<5>	15.7/16"	6		BE/BE



PIPE (NS) 6 4  
CL LENGTH 21.7 0.5

(1) DENOTES PIPE SPOOL NO  
Q DENOTES PARTS LIST NO

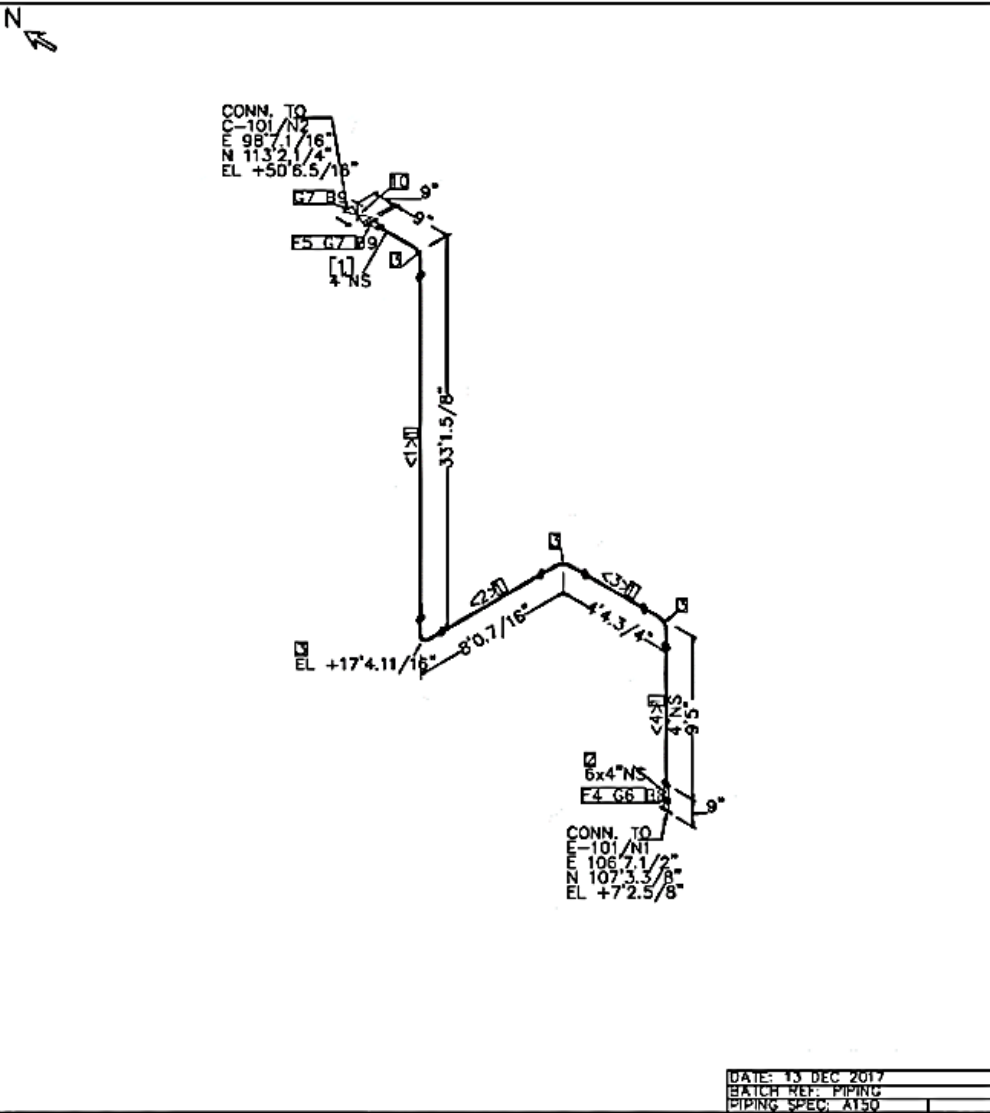
SHO/FIELD SOCKS/SCREW/DOWN SHT PIPE LAGG/GRABED  
WELD/WELD WELD JOINT CONNECTION/POR PIPE PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: ATSO  
6-GF-10001-A150

ISS: -  
+N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 51.5'
<b>FITTINGS</b>			
2	REDU CONC ANSI B16.9 BW ASTM A834 GR.WPBR		1
3	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPBR		4
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNR F 1
5	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNR F 1
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
6	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 1
7	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<b>BOLTS</b>			
8	3/3/4 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBR3.3 8
9	3/1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1 16
<b>VALVES / IN-LINE ITEMS</b>			
10	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP.
P-STD	<1>	32'1.5/8"	4		BE/BE
P-STD	<2>	7'0.7/16"	4		BE/BE
P-STD	<3>	3'4.3/4"	4		BE/BE
P-STD	<4>	8'11"	4		BE/BE



PIPE N(QNS) 6 4  
CL LENGTH 0.8 56.5

1 DENOTES PIPE SPOOL NO  
[ ] DENOTES PARTS LIST NO

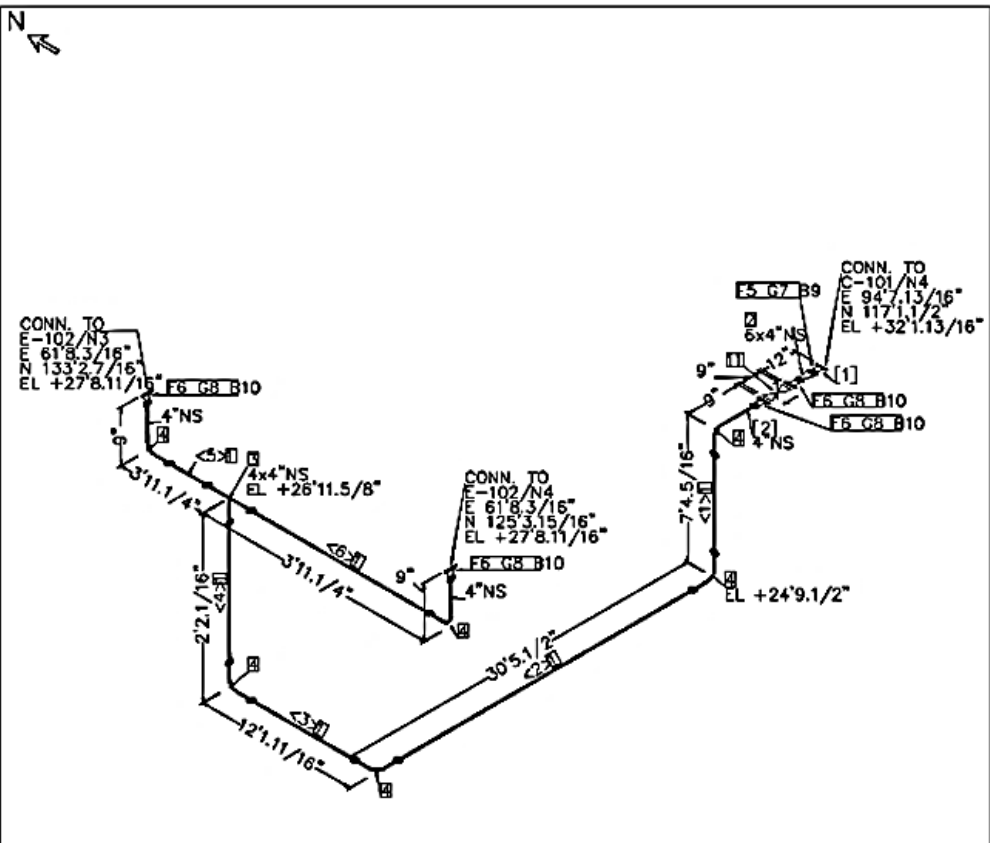
SHORTELDED SOOVED CREWED DOWN PIPE WELDED WELD JOINT CONNECTION PIPE PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150

4-GS-10003-A150

ISS: -1  
+N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B	P-STD	54.5'
<b>FITTINGS</b>			
2	REDU CONC ANSI B16.9 BW ASTM A834 GR.WP BR		1
3	TEE ANSI B16.9 BW STD ASTM A105 GR.B	ST	1
4	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WP B EL90		6
<b>FLANGES</b>			
5	FLANGE WN ANSI B16.5 #150.RF ASTM A105 WNRF GR.B	WNRF	1
6	FLANGE WN ANSI B16.5 #150.RF ASTM A105 WNRF GR.B	WNRF	4
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
7	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61	GRF	1
8	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61	GRF	4
<b>BOLTS</b>			
9	3/4 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7	ISBBR3.5	8
10	3/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7	ISBBN3.1	32
<b>VALVES / IN-LINE ITEMS</b>			
11	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL	GA-59	1
<b>PIPE SPOOLS</b>			
	[1] [2]		



CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS
P-STD	<1>	6'4.5/16"	4	
P-STD	<2>	29'5.1/2"	4	
P-STD	<3>	11'1.11/16"	4	
P-STD	<4>	15'15/16"	4	
P-STD	<5>	3'1.1/8"	4	
P-STD	<6>	3'1.1/8"	4	

PIPE N(S) 6 4  
 CL LENGTH 0.8 63.3

[1] DENOTES PIPE SPOOL NO  
 [2] DENOTES PARTS LIST NO

SHIELD SCHEMATIC SYMBOLS: WELDED JOINT, WELD JOINT, FLANGE, VALVE, PIPE, ASSEMBLED PIPE, UNASSEMBLED PIPE

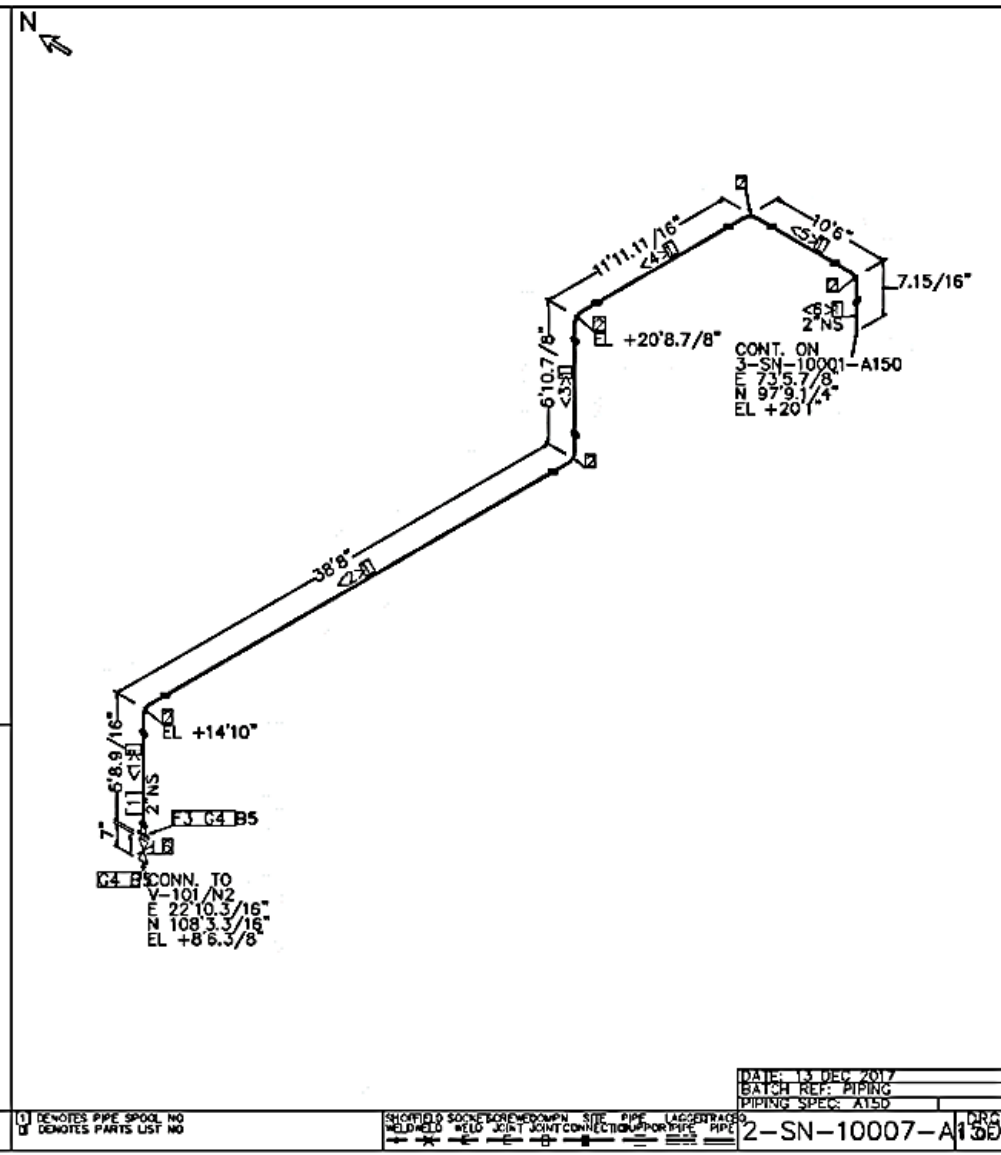
DATE: 13 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150

4-GS-10002-A150-N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD 70.8'
<u>FITTINGS</u>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		5
<u>FLANGES</u>			
3	FLANGE WN ANSI B16.5 #150.RF AS2M A105 GR.B		WNRF 1
<u>ERECTION MATERIALS</u>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>GASKETS</u>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61		2
<u>BOLTS</u>			
5	3 STUD BOLT CW HVY HEX NUTS ASTM A193 ISBBJ3 GR.B7		8
<u>VALVES / IN-LINE ITEMS</u>			
6	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<u>PIPE SPOOLS</u>			
[1]			

CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS
P.L.	<1>	53.1/16	2	
P.L.	<2>	38.7/8	2	
P.L.	<3>	54.7/8	2	
P.L.	<4>	115.1/16	2	
P.L.	<5>	10	2	
P.L.	<6>	4.15/16	2	

PIPE N(S) 2  
CL LENGTH 74.1



(1) DENOTES PIPE SPOOL NO  
U DENOTES PARTS LIST NO

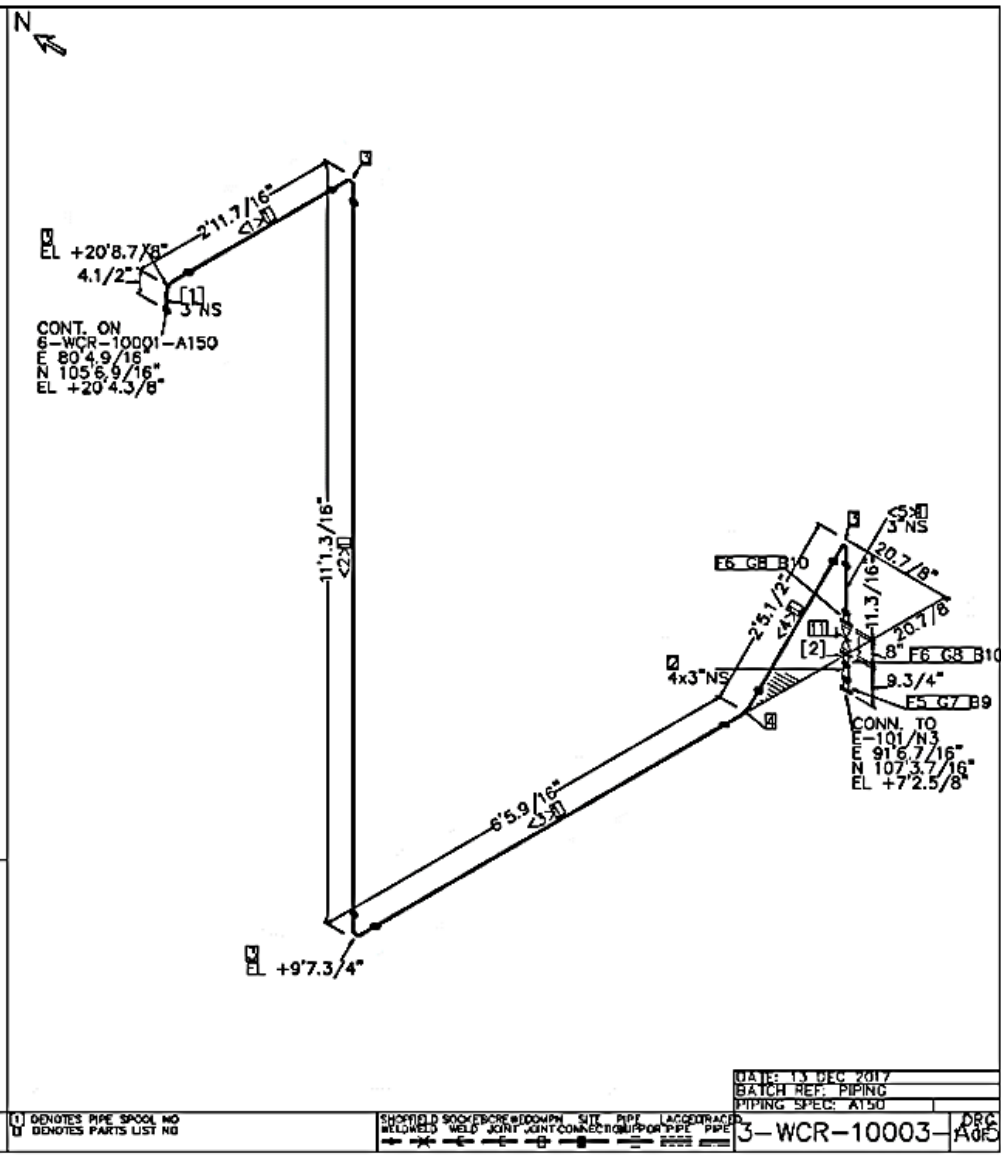
SHOPIED & SOFTENED W/COMP. SITE PIPE ASSEMBLY  
WELD FIELD WELD JOINT JOINT CONNECTION FOR PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
2-SN-10007-A150

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 20.8'
<b>FITTINGS</b>			
3	REDU CONC ANSI B16.9 BW ASTM A234 SR.WPB		1
4	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		4
4	ELBOW 45DEG ANSI B16.9 BW ASTM 34234 GR.WPB		EL45 1
<b>FLANGES</b>			
5	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
6	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 2
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
7	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 1
8	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<b>BOLTS</b>			
9	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1 8
10	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBL3.1 8
<b>VALVES / IN-LINE ITEMS</b>			
11	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<b>PIPE SPOOLS</b>			
[1] [2]			

CUT PIPE LENGTH			
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. REMARKS
P-STD	<1>	22.7/16	3
P-STD	<2>	10.4.3/16	3
P-STD	<3>	5.11.1/16	3
P-STD	<4>	23	3
P-STD	<5>	3.15/16	3

PIPE N(INS)	4	3
CL LENGTH	0.8	25.2



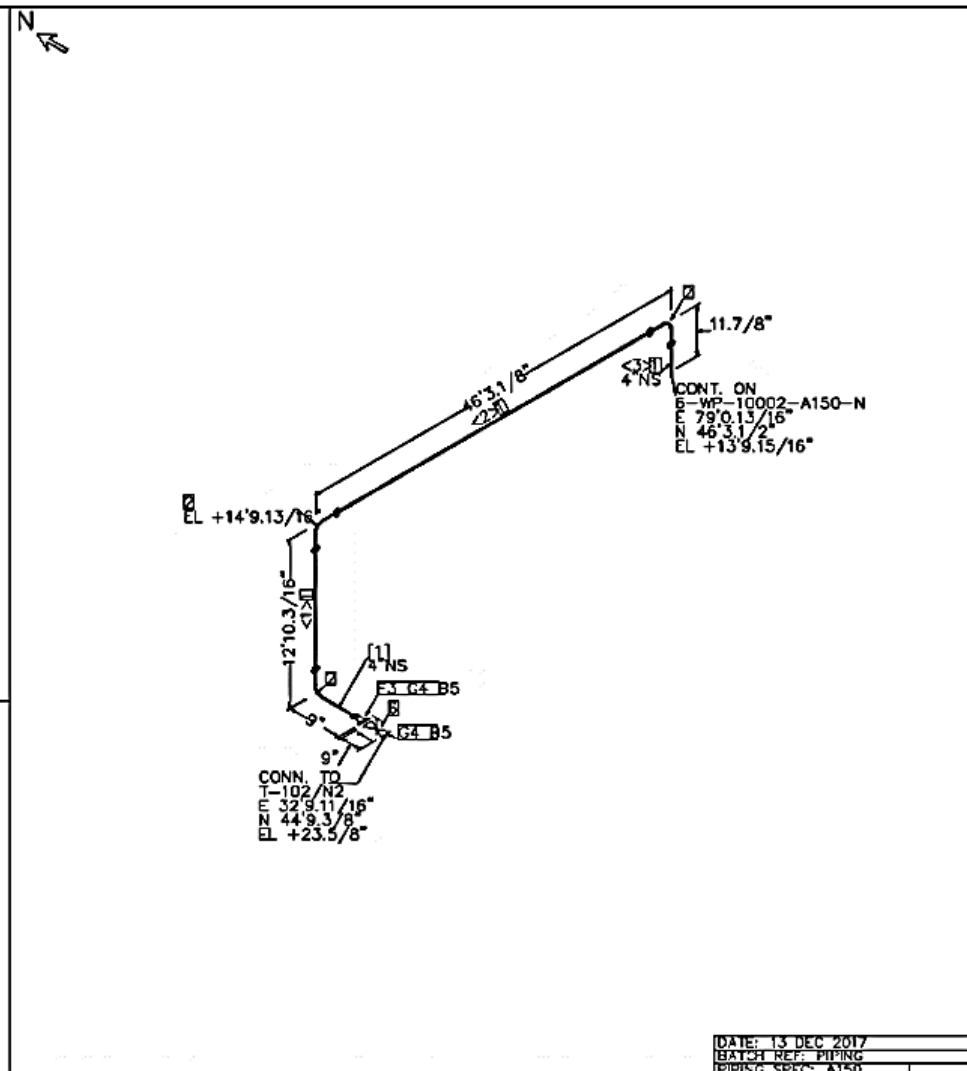
1 DENOTES PIPE SPOOL NO  
2 DENOTES PARTS LIST NO

SHIELD SOCKET BORE DOWN SITE PIPE LAGGED TRACED  
WELDED WELD JOINT JOINT CONNECTION W/PIPE PIPE

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B	P-STD	57.6'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		3
<b>FLANGES</b>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B	WNRF	1
ERECTION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 50 OR 51	GRF	2
<b>BOLTS</b>			
5	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7	ISBBN3.1	16
<b>VALVES / IN-LINE ITEMS</b>			
6	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL	GA-59	1
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH			
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. (INS)
P-STD	<1>	11'10.3/16"	4
P-STD	<2>	45'3.1/8"	4
P-STD	<3>	5.7/8"	4

PIPE N(S) 4  
CL LENGTH 61.7



CONT. ON  
E-WP-10002-A150-N  
E 79'0.13/16"  
N 46'3.1/2"  
EL +13'9.15/16"

CONN. TO  
T-102/N2  
ELEV 32'9.11/16"  
44'9.3/8"  
ELEV +23.5/8"

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150

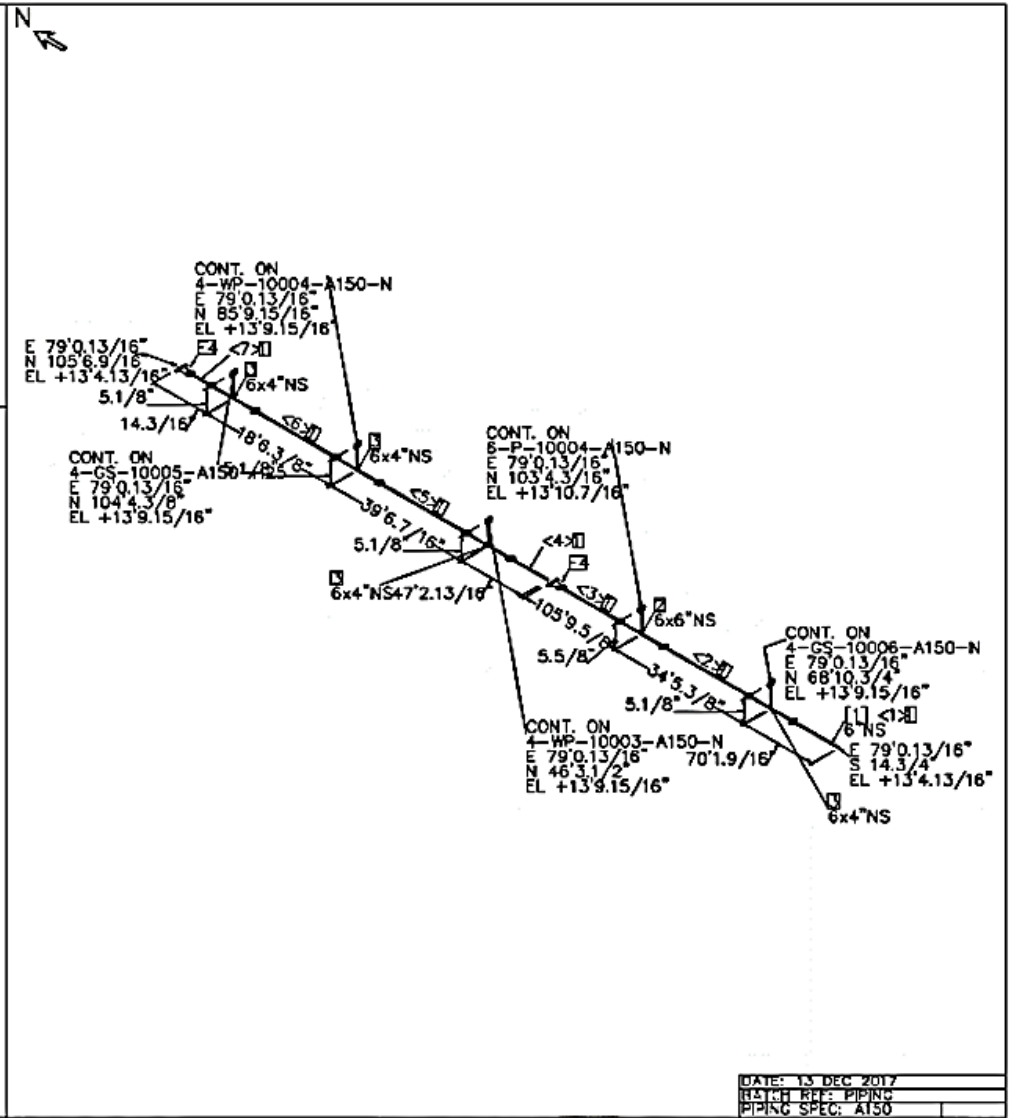
U DENOTES PIPE SPOOL NO  
D DENOTES PARTS LIST NO

SHIELD SOCK W/BEAD DOWN SITE PIPE LAGGED BACK  
REWELDED WELD JOINT CONNECTIONS FOR PIPE

4-WP-10003-A150-N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD A56M A53 GR.B		P-STD 311.6'
<b>FITTINGS</b>			
2	TEE ANSI B16.9 BW STD ASTM A1056 GR.B	ST	1
3	TEE ANSI B16.9 BW ASTM A105 GR.B x 4	RT	4
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B	WNRF	2
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. LENGTH (INS)	REMARKS	END PREP
P-STD	<1>	69'7.15/16"	6		PE/BE
P-STD	<2>	33'6.1/8"	6		BE/BE
P-STD	<3>	105'0.1/2"	6		BE/BE
P-STD	<4>	46'9.3/16"	6		BE/BE
P-STD	<5>	38'7.3/16"	6		BE/BE
P-STD	<6>	17'7.1/8"	6		BE/BE
P-STD	<7>	5.1/16"	6		BE/BE



PIPE N(S) 6 4  
CL LENGTH 317.4 1.8

□ DENOTES PIPE SPOOL NO  
○ DENOTES PARTS LIST NO

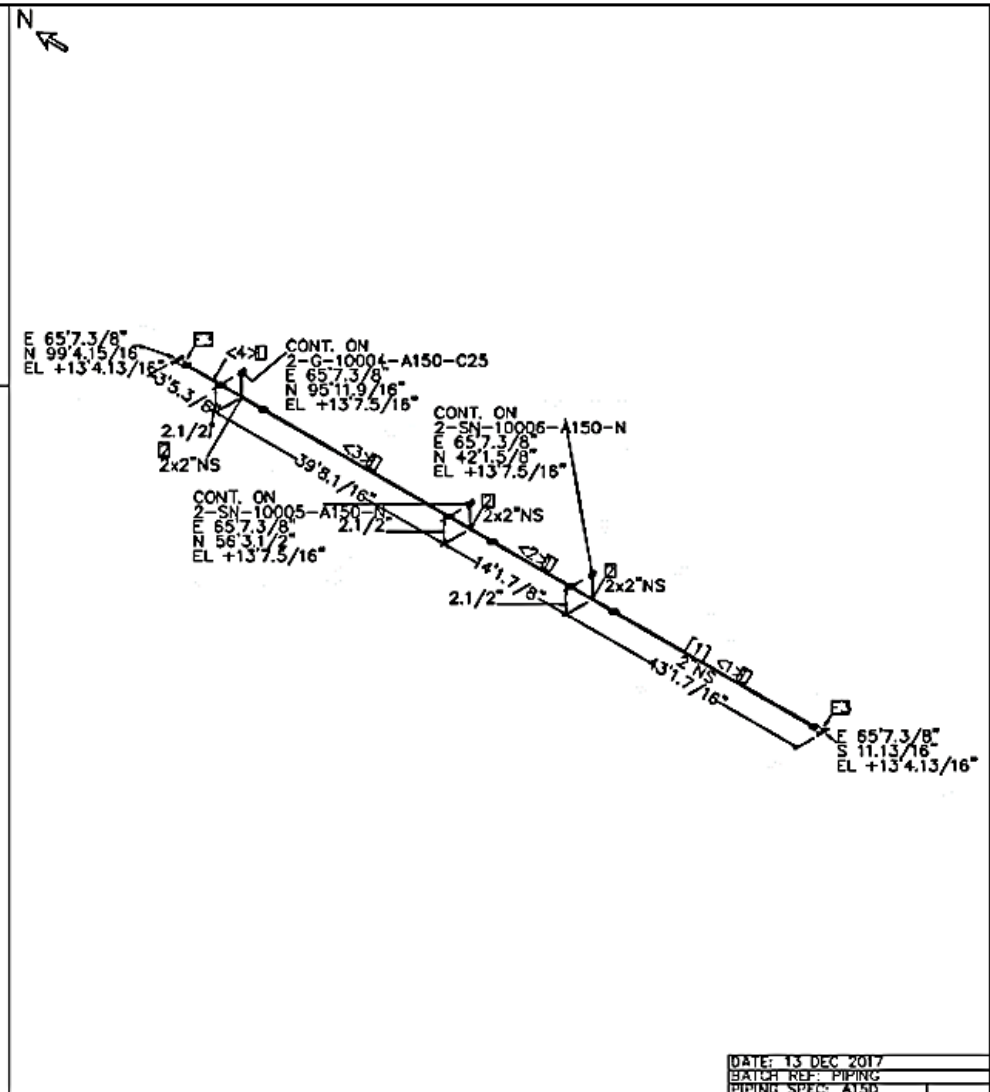
SHEFFIELD SOCKET WELD JOINT CONNECTION PIPE  
WELDED WELD JOINT CONNECTION PIPE

DATE: 13 DEC 2017  
ISSUED BY: PIPING  
PIPING SPEC: A150  
6-WP-10002-A150-N



FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 98.8'
<u>FITTINGS</u>			
2	TEE ANSI B16.9 BW STD ASTM A1052GR.B		ST 3
<u>FLANGES</u>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 2
<u>PIPE SPOOLS</u>			
	[1]		

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S.	REMARKS	END PREP.
P-STD	<1>	42.67/8	2		BE/BE
P-STD	<2>	13.87/8	2		BE/BE
P-STD	<3>	39.31/16	2		BE/BE
P-STD	<4>	30.3/8	2		BE/BE



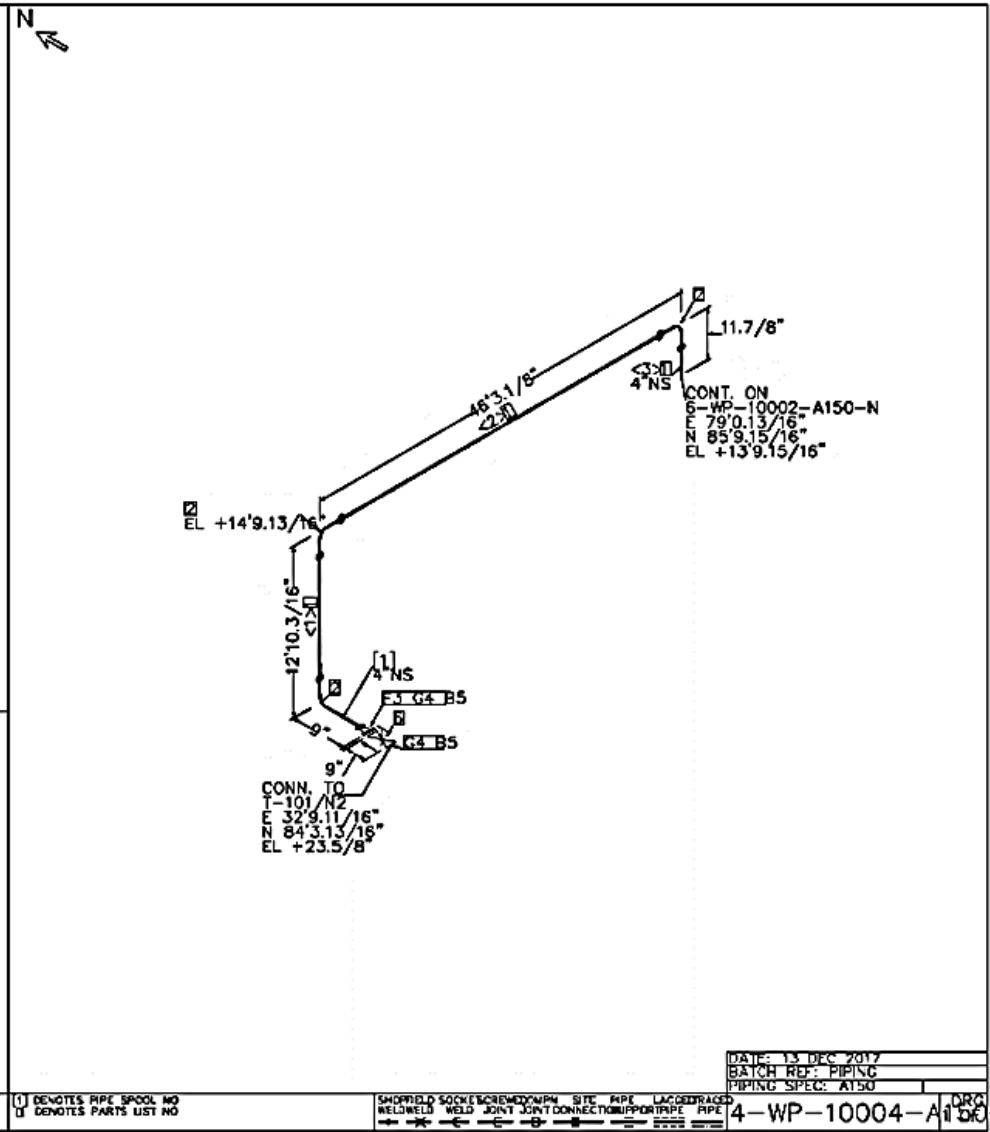
PIPE N(S) 2  
CL LENGTH 101.1

1) DENOTES PIPE SPOOL NO  
2) DENOTES PARTS LIST NO

SHOPIELD SOCKLE SCREW COMP. SITE PIPE LAGGED DRAG  
WELDED WELD JOINT CONNECTIONS FOR PIPE PIPE  
DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
2-S-10004-A150

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 57.6'
<u>FITTINGS</u>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		3
<u>FLANGES</u>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
ERECTION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>GASKETS</u>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<u>BOLTS</u>			
5	3/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1 16
<u>VALVES / IN-LINE ITEMS</u>			
6	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<u>PIPE SPOOLS</u>			
	[1]		

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. (INS)	REMARKS	END PREP
P-STD	<1>	11'10.3/16"	4		BE/BE
P-STD	<2>	45'3.1/8"	4		BE/BE
P-STD	<3>	5.7/8"	4		BE/PE



DATE: 13 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150

PIPE N(S) 4  
 CL LENGTH 61.7

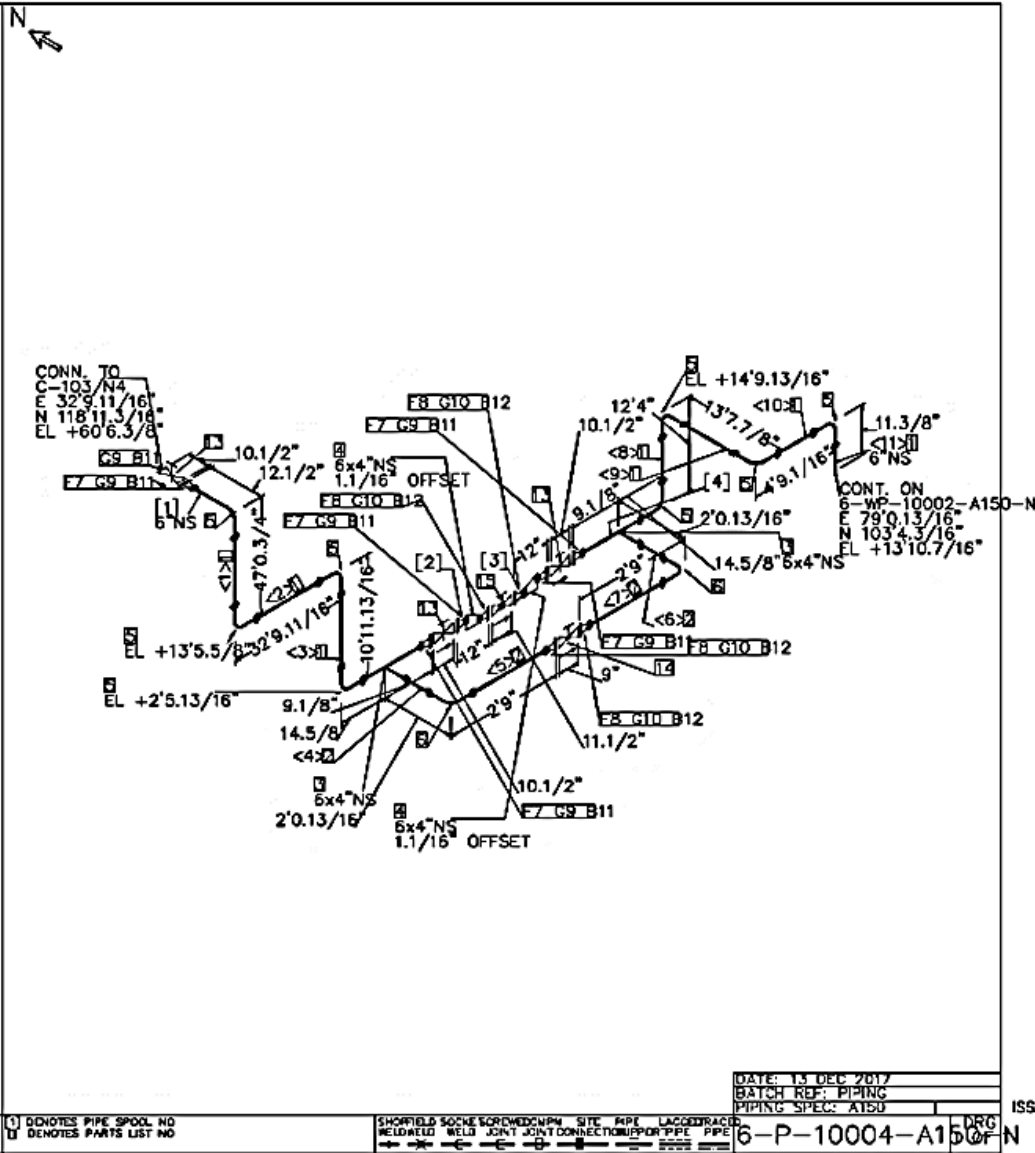
[1] DENOTES PIPE SPOOL NO  
 [2] DENOTES PARTS LIST NO

SHORFIELD SOCKET WELD JOINT WELD JOINT CONNECTION SUPPORT PIPE PIPE  
 WELD WELD JOINT JOINT CONNECTION SUPPORT PIPE PIPE

4-WP-10004-A150-N

ISS: -1

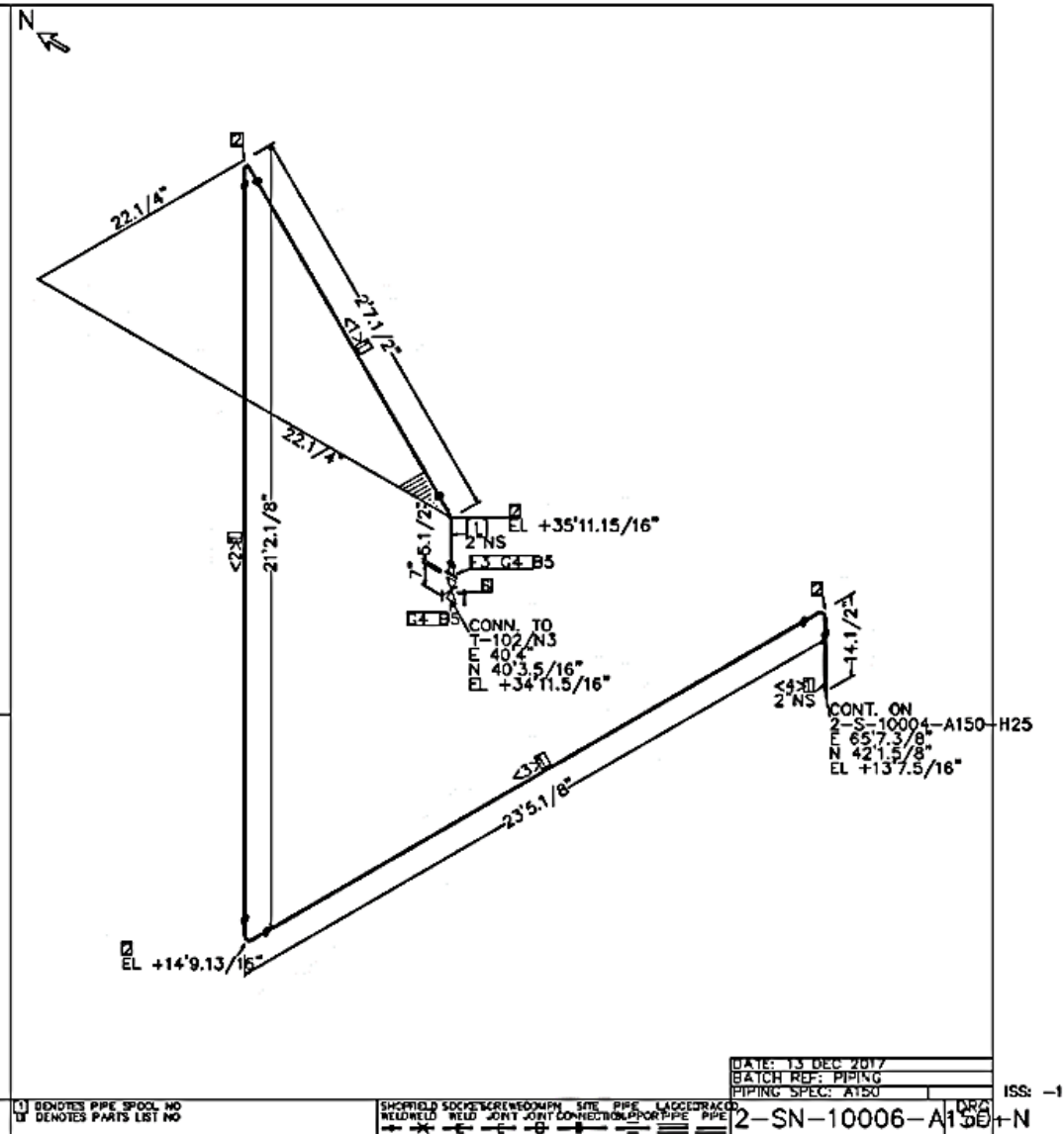
FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 112.8'
2	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 6.3'
<b>FITTINGS</b>			
3	TEE ANSI B16.9 BW ASTM A105 GR.B x 4		RT 2
4	REDUC ECC ANSI B16.9 BW ASTM A234 GR.WPB ER		2
5	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		6
6	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		2
<b>FLANGES</b>			
7	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 5
8	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 4
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
9	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 6
10	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 4
<b>BOLTS</b>			
11	3/4 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBR3.3 48
12	3/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1 32
<b>VALVES / IN-LINE ITEMS</b>			
13	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 3
14	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
15	VALVE GLOBE ANSI B16.10 #150.RF 9% NICKEL STEEL		GL-143 1
<b>PIPE SPOOLS</b>			
	[1][2][3][4]		
***** CONT. ON DRG 1A *****			
PIPE (NONS)		6	4
CL LENGTH		131.8	11.9



DATE: 15 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD 46.7
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		4
<b>FLANGES</b>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
ERECTION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<b>BOLTS</b>			
5	3 STUD BOLT CW HVY HEX NUTS A3742 A193 ISBBJ3 GR.B7		8
<b>VALVES / IN-LINE ITEMS</b>			
6	VALVE GATE ANSI B16.10 #150.RF 92 NICKEL STEEL		GA-59 1
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP.
P-STD	<1>	21.1/2	2		BE/BE
P-STD	<2>	20'8.1/8	2		BE/BE
P-STD	<3>	22'11.1/8	2		BE/BE
P-STD	<4>	11.1/2	2		BE/PE



PIPE N(S) 2  
CL LENGTH 49.3

1) DENOTES PIPE SPOOL NO  
17 DENOTES PARTS LIST NO

SHORFIELD SOCKE SCREW COMPANY SITE PIPE LAGGED RACK  
WELDED WELD JOINT CONNECTION PORT PIPE PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150

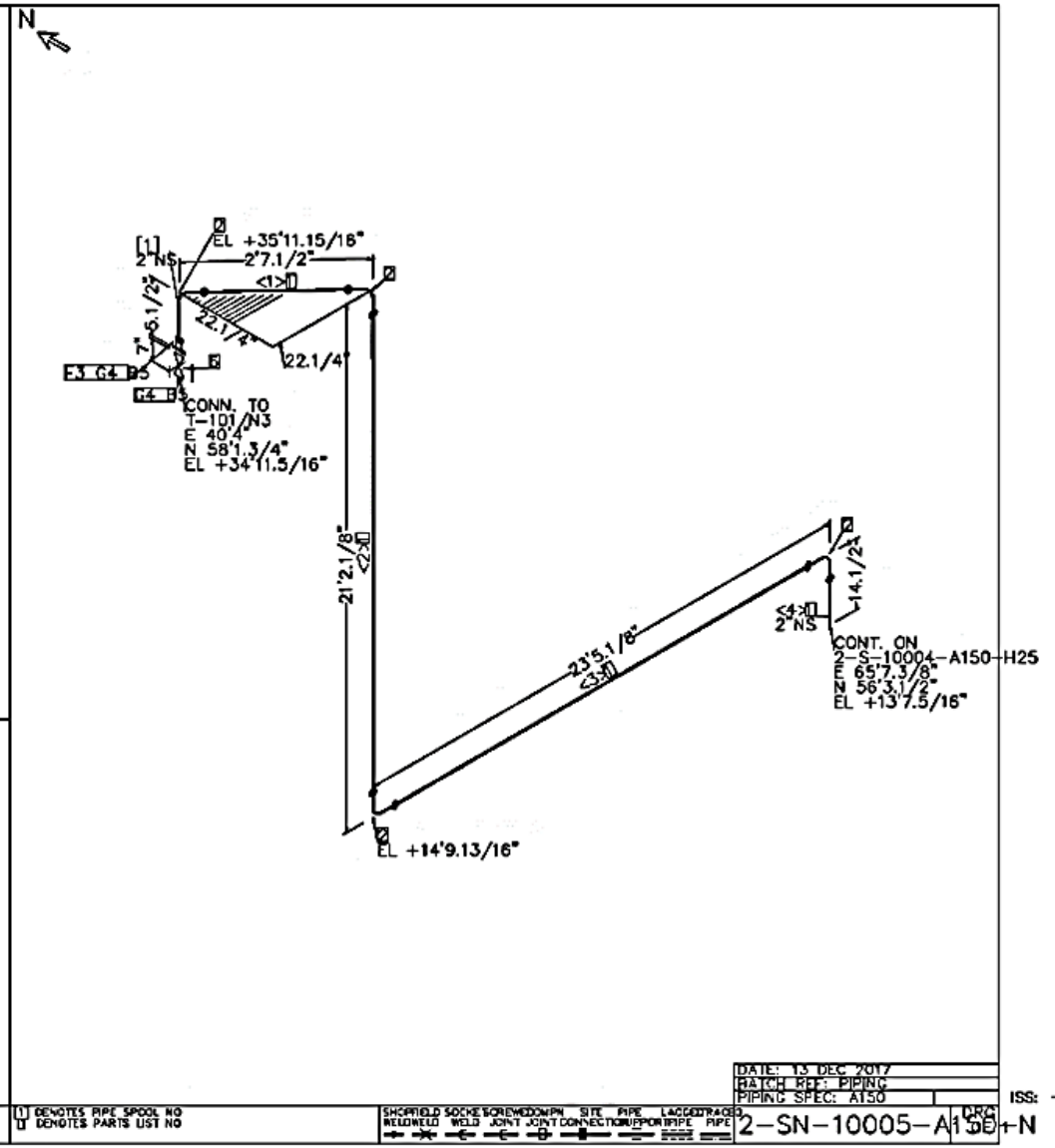
2-SN-10006-A150-H25

ISS: -1

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 46.7'
<u>FITTINGS</u>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		4
<u>FLANGES</u>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
ERECTION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>GASKETS</u>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<u>BOLTS</u>			
5	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3 8
<u>VALVES / IN-LINE ITEMS</u>			
6	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<u>PIPE SPOOLS</u>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP.
P-STD	<1>	21.1/2	2		BE/BE
P-STD	<2>	20.8.1/8	2		BE/BE
P-STD	<3>	22.11.1/8	2		BE/BE
P-STD	<4>	11.1/2	2		BE/PE

PIPE N(S) 2  
CL LENGTH 49.5



[1] DENOTES PIPE SPOOL NO  
U DENOTES PARTS LIST NO

SHOPFIELD SOCKET WELDED WELD JOINT LAGGED TRACES  
WELDED WELD JOINT CONNECTIONS FOR PIPE

DATE: 13 DEC 2017  
MATCH REF: PIPING  
PIPING SPEC: ATSO

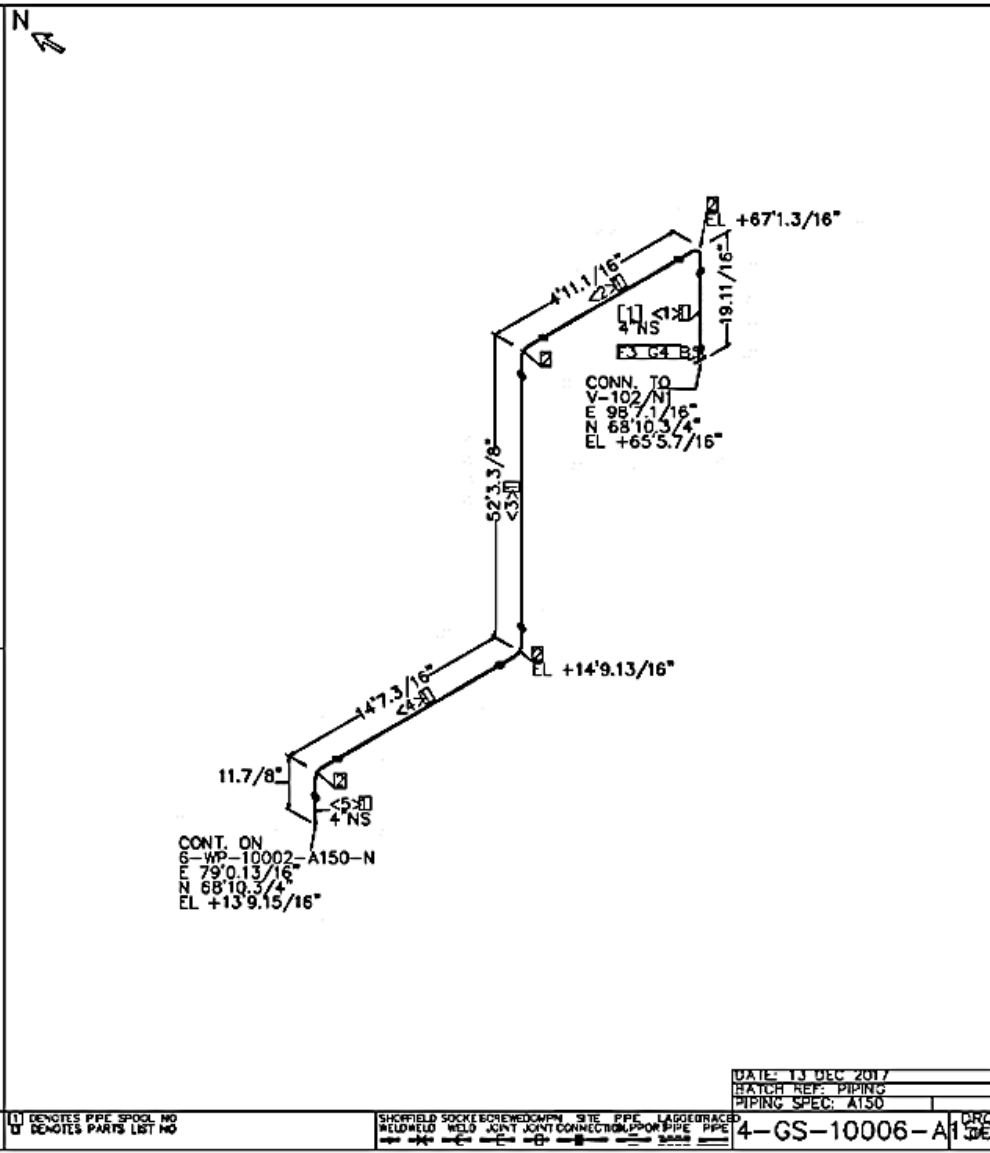
2-SN-10005-A150

ISS: -1

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 70.2'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		4
<b>FLANGES</b>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61		1
<b>BOLTS</b>			
5	3/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7		ISBBN3.1 8
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS
P-STD	<1>	10.11/16	4	
P-STD	<2>	11.1/16	4	
P-STD	<3>	51.3/8	4	
P-STD	<4>	13.7.3/16	4	
P-STD	<5>	5.7/8	4	

PIPE N(S) 4  
CL LENGTH 74.5



[1] DENOTES PIPE SPOOL NO  
U DENOTES PARTS LIST NO

SHORFIELD SOCKET WELDED WELD JOINT CONNECTION PIPE LARGE RACE

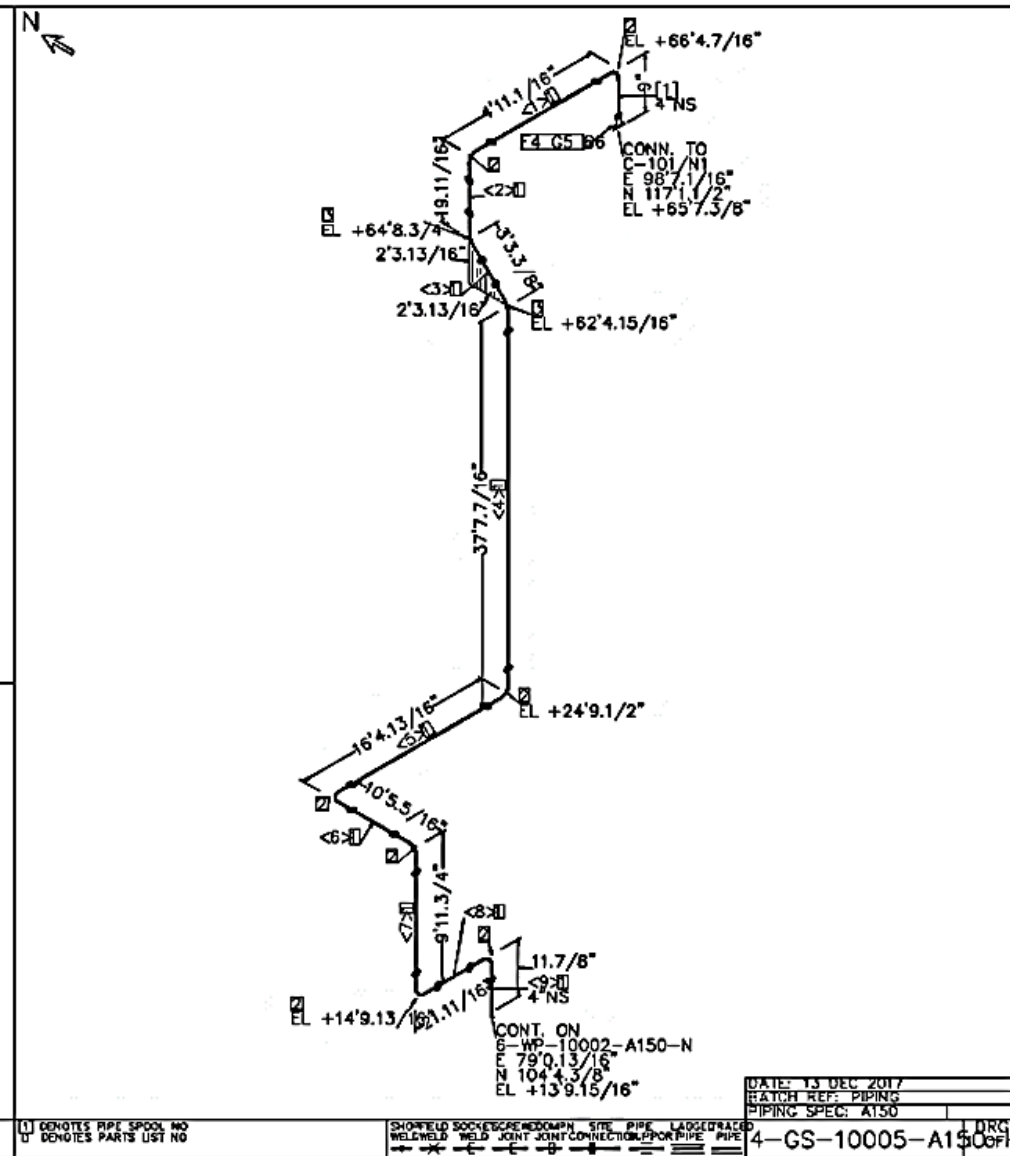
DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
4-GS-10006-A150-N

ISS: -1

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B	P-STD	79.8'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90	EL90	7
3	ELBOW 45DEG ANSI B16.9 BW ASTM A234 GR.WPB	EL45	2
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B	WNRF	1
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61	GRF	1
<b>BOLTS</b>			
6	3.1/2 STUD BOLT CW HVY HEX NUTS/ASTM A193 GR.B7	ISBBN3.1	8
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S.	REMARKS
P-STD	<1>	3'11.1/16"	4	
P-STD	<2>	1'3/16"	4	
P-STD	<3>	2'10.3/8"	4	
P-STD	<4>	10'15/16"	4	
P-STD	<5>	15'4.13/16"	4	
P-STD	<6>	9'5.5/16"	4	
P-STD	<7>	8'11.3/4"	4	
P-STD	<8>	9'11/16"	4	
P-STD	<9>	5'7/8"	4	

PIPE N(S) 4  
CL LENGTH 87.9



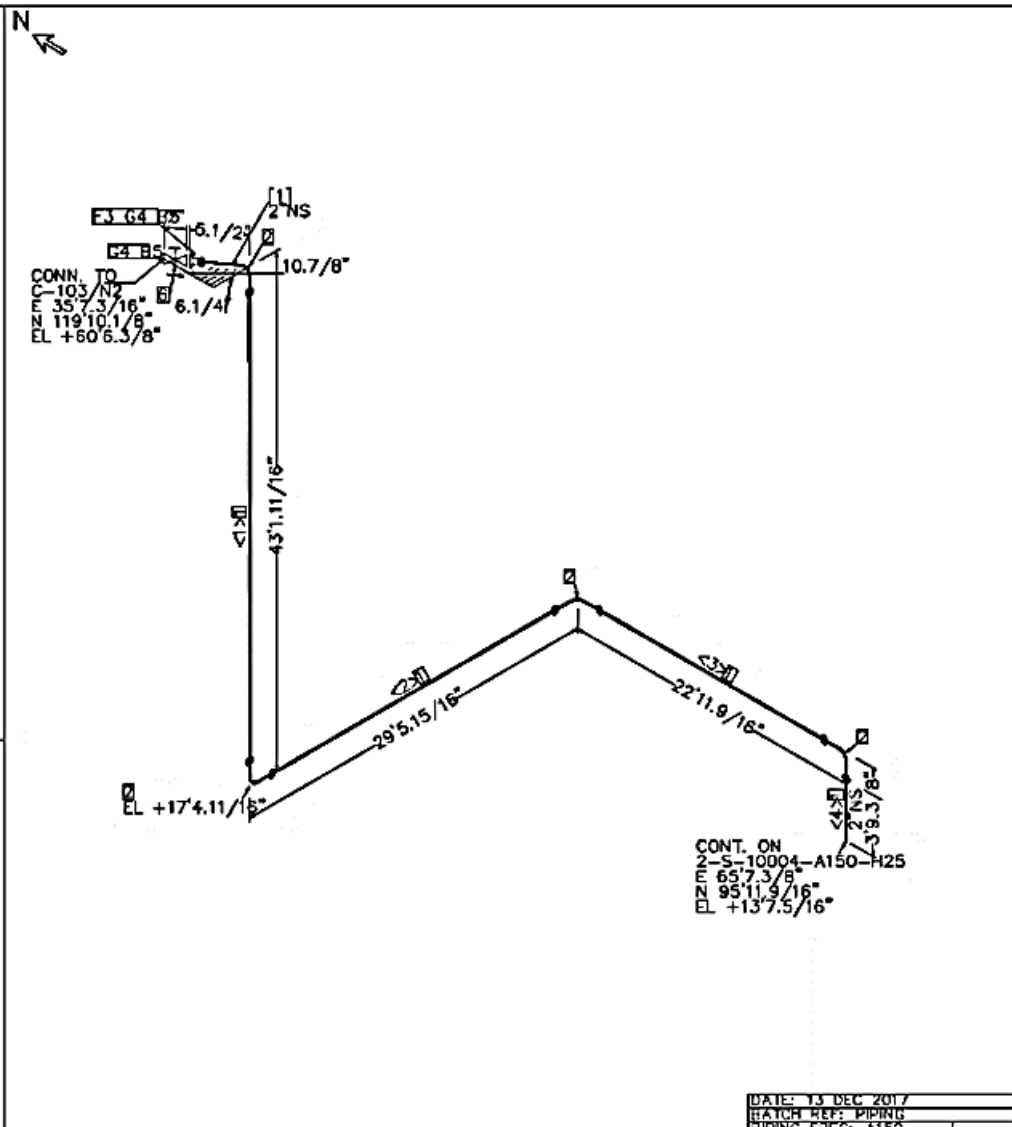
U DENOTES PIPE SPOOL NO  
D DENOTES PARTS LIST NO

SHOW FIELD SOCKET, GROUND, DRAIN, SITE, PIPE, LADGE, TRACED  
WELDED, WELD JOINT, CONNECTION, PIPE, PIPE

DATE: 13 DEC 2017  
MATCH REF: PIPING  
PIPING SPEC: A150  
4-GS-10005-A150

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD 97.7'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		4
<b>FLANGES</b>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61		2
<b>BOLTS</b>			
5	3 STUD BOLT CW HVY HEX NUTS A193 GR.B7		ISBBJ3 8
<b>VALVES / IN-LINE ITEMS</b>			
6	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH (INS)	REMARKS	END PREP
P-STD	<1>	427.11/16"		BE/BE
P-STD	<2>	2811.15/16"		BE/BE
P-STD	<3>	225.9/16"		BE/BE
P-STD	<4>	36.3/8"		BE/BE



CONT. ON  
 2-S-10004-A150-H25  
 E 65'7.3/8"  
 N 95'11.9/16"  
 EL +13'7.5/16"

PIPE N(S) 2  
 CL LENGTH 100.5

(1) DENOTES PIPE SPOOL NO  
 (2) DENOTES PARTS LIST NO

SHOPIELD SOCKE BOREWEDCOMP SITE PIPE LAOGE RACED  
 WELDED WELD JOINT JOINT CONNECTION PORT PIPE PIPE

DATE: 13 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150

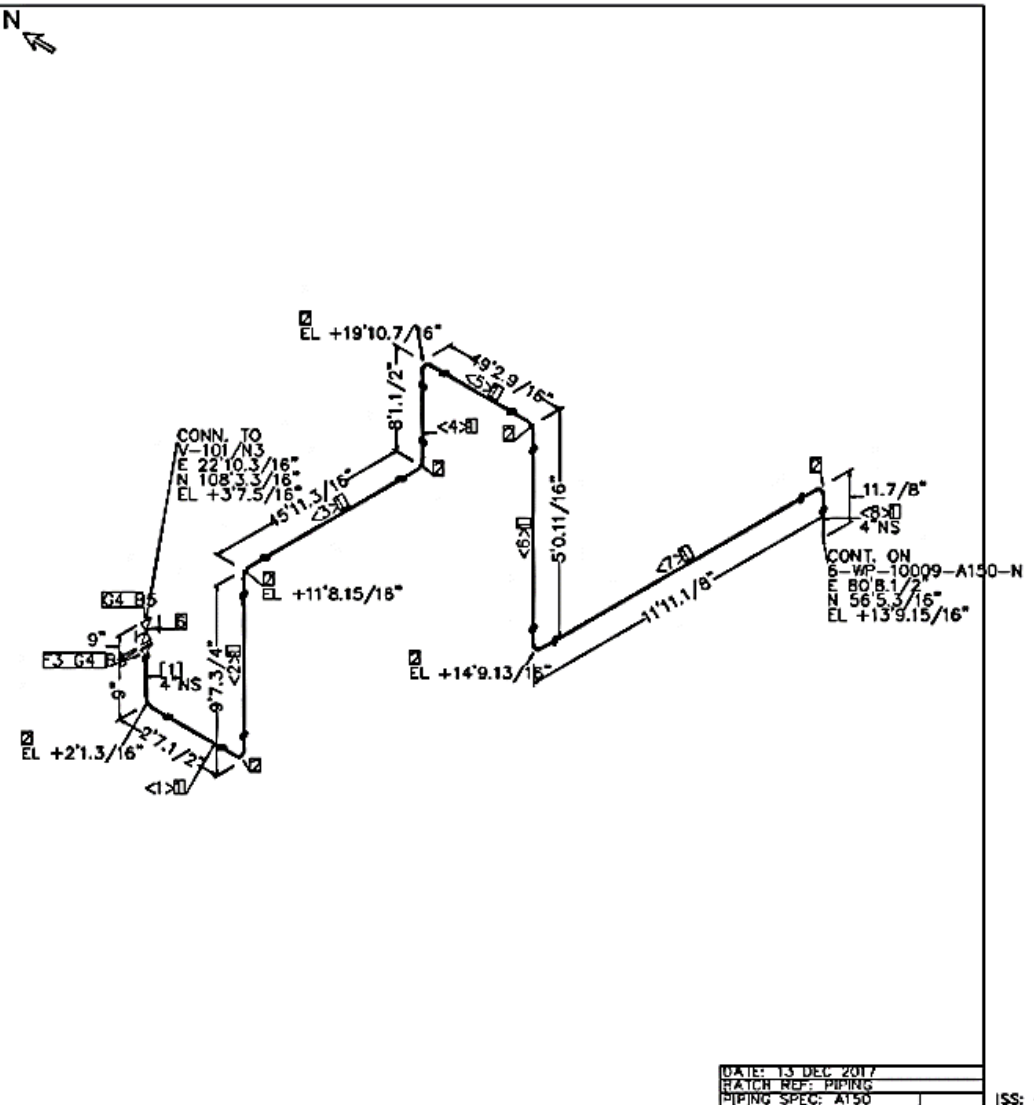
2-G-10004-A150

ISS: -1  
 025



FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD 126.1'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		8
<b>FLANGES</b>			
3	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 1
ERECTION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
4	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		CRF 2
<b>BOLTS</b>			
5	3.1/2 STUD BOLT CW Hvy HEX NUTS/ASTM A193 GR.B7		ISBBN3.1 16
<b>VALVES / IN-LINE ITEMS</b>			
6	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<b>PIPE SPOOLS</b>			
[1]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S.	REMARKS	END PREP
P-STD	<1>	19.1/2	4		BE/BE
P-STD	<2>	8.7.3/4	4		BE/BE
P-STD	<3>	44.11.3/16	4		BE/BE
P-STD	<4>	7.1.1/2	4		BE/BE
P-STD	<5>	48.2.9/16	4		BE/BE
P-STD	<6>	4.0.11/16	4		BE/BE
P-STD	<7>	10.11.1/8	4		BE/BE
P-STD	<8>	5.7/8	4		BE/PE



PIPE N(S) 4  
CL LENGTH 135.1

U DENOTES PIPE SPOOL NO  
V DENOTES PARTS LIST NO

SHOULDER SOCKET WELD ON PIPE PPF LAGS EXPOSED  
WELDED JOINT CONNECTION SUPPORT PIPE

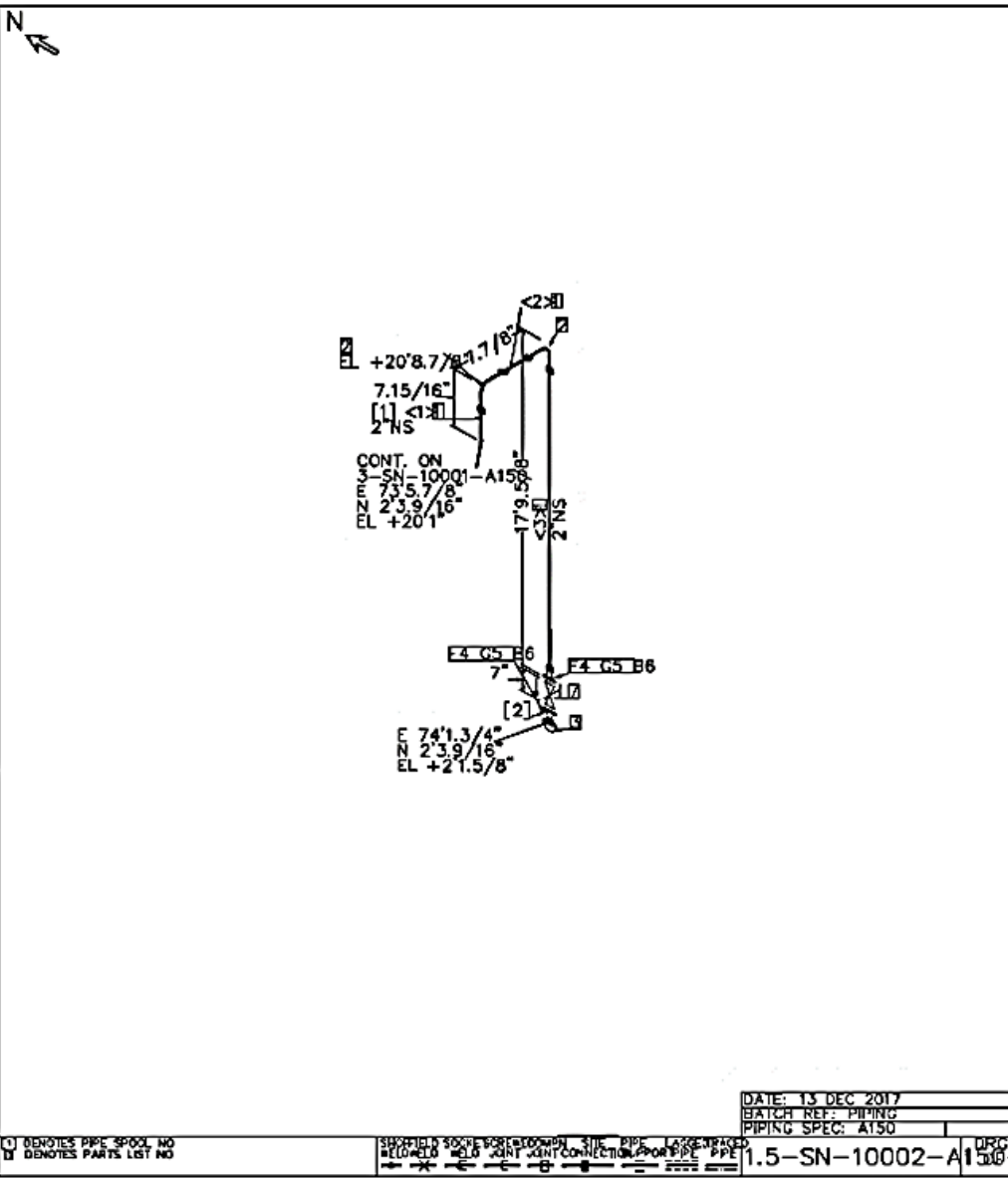
DATE: 13 DEC 2017  
HATCH REF: PIPING  
PIPING SPEC: ATSO

4-KF-10003-A136-N

ISS: -1

FABRICATION MATERIALS				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<u>PIPE</u>				
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD	18.0'
<u>FITTINGS</u>				
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90			2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB		CAP	1
<u>FLANGES</u>				
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	2
<u>ERECTION MATERIALS</u>				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<u>GASKETS</u>				
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	2
<u>BOLTS</u>				
6	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3	8
<u>VALVES / IN-LINE ITEMS</u>				
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		CA-59	1
<u>PIPE SPOOLS</u>				
	[1] [2]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. (INS)	REMARKS	END PREP.
P-STD	<1>	4.15/16"	2		PE/BE
P-STD	<2>	1.7/8"	2		BE/BE
P-STD	<3>	17'4.1/8"	2		BE/BE



DATE: 13 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150

PIPE NOS) 2  
 CL LENGTH 20.1

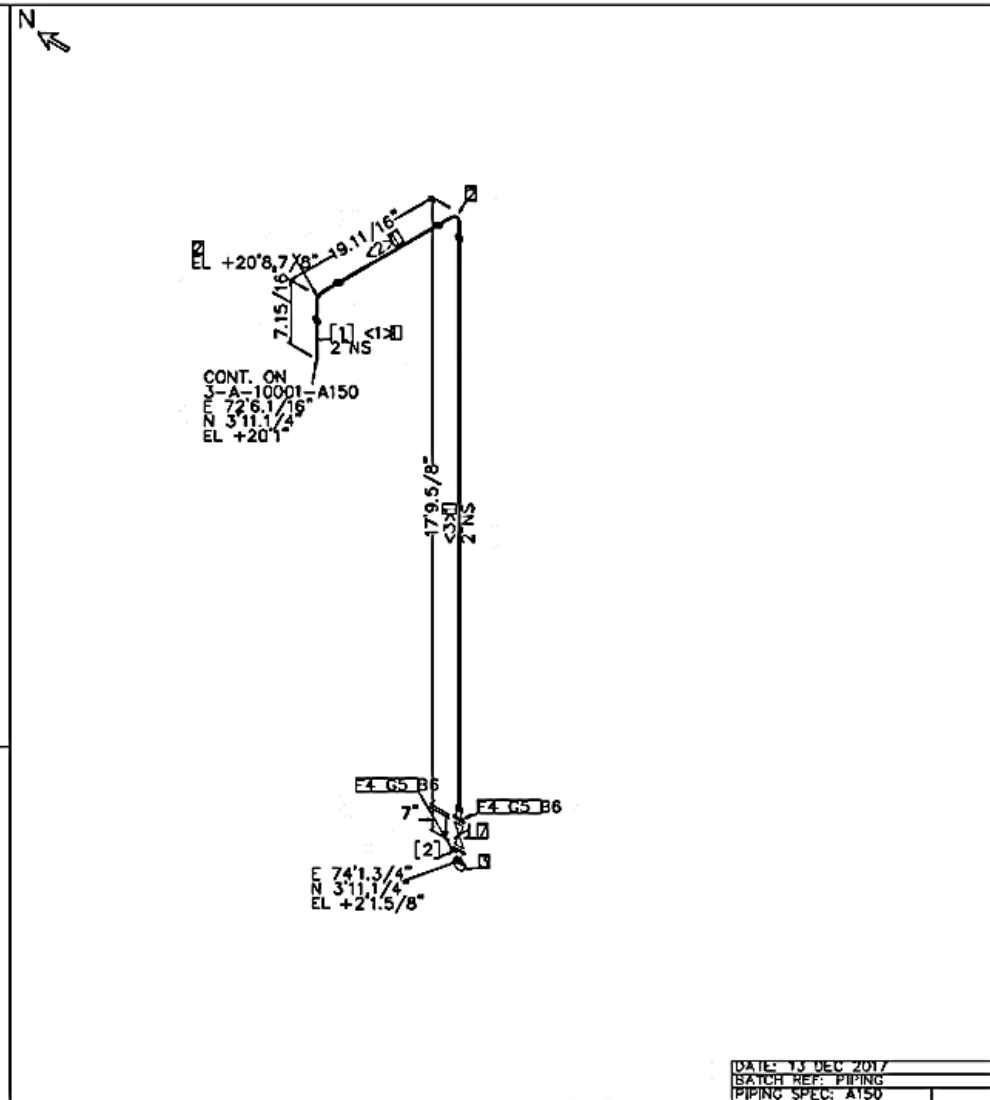
(1) DENOTES PIPE SPOOL NO  
 (2) DENOTES PARTS LIST NO

SHOWN IN SPOOL NO. 10002-A150  
 WELDED JOINT CONNECTION FOR PIPE

1.5-SN-10002-A150

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD 18.9'
<u>FITTINGS</u>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB		1
<u>FLANGES</u>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 2
<u>ERECTION MATERIALS</u>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>GASKETS</u>			
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<u>BOLTS</u>			
6	3 STUD BOLT CW HVY HEX NUTS ASTM A193 ISBBJ3 GR.B7		A193 8
<u>VALVES / IN-LINE ITEMS</u>			
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<u>PIPE SPOOLS</u>			
	[1][2]		

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S.	REMARKS	END PREP
P-STD	<1>	4.15/16	2		PE/BE
P-STD	<2>	13.1/16	2		BE/BE
P-STD	<3>	17.4.1/8	2		BE/BE



PIPE N(S) 2  
CL LENGTH 21.1

U DENOTES PIPE SPOOL NO  
Q DENOTES PARTS LIST NO

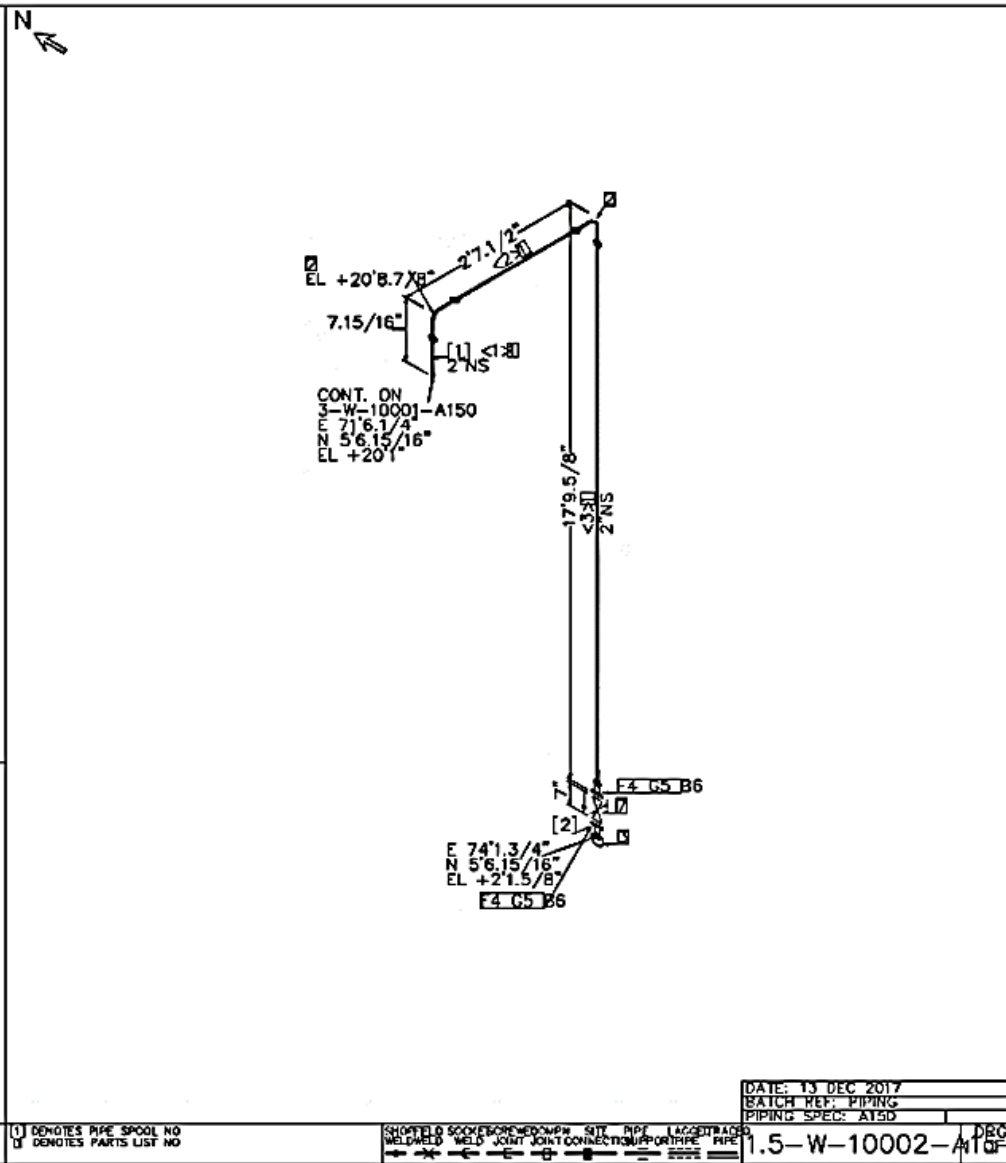
SHOW FIELD WORK DONE WITH SITE PIPE LAGGED BRACKETS  
WELDED WELLS AT JOINT CONNECTIONS FOR PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
1.5-A-10002-A1502-1N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD 19.9'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB		CAP 1
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRFL 2
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<b>BOLTS</b>			
6	3 STUD BOLT CW HVY HEX NUTS ASTM A193 ISBBJ3 GR.B7		8
<b>VALVES / IN-LINE ITEMS</b>			
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<b>PIPE SPOOLS</b>			
	[1] [2]		

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP.
P-STD	<1>	4' 15/16"	2		PE/BE
P-STD	<2>	2' 1 1/2"	2		BE/BE
P-STD	<3>	17' 4 1/8"	2		BE/BE

PIPE N(S) 2  
CL LENGTH 22.1

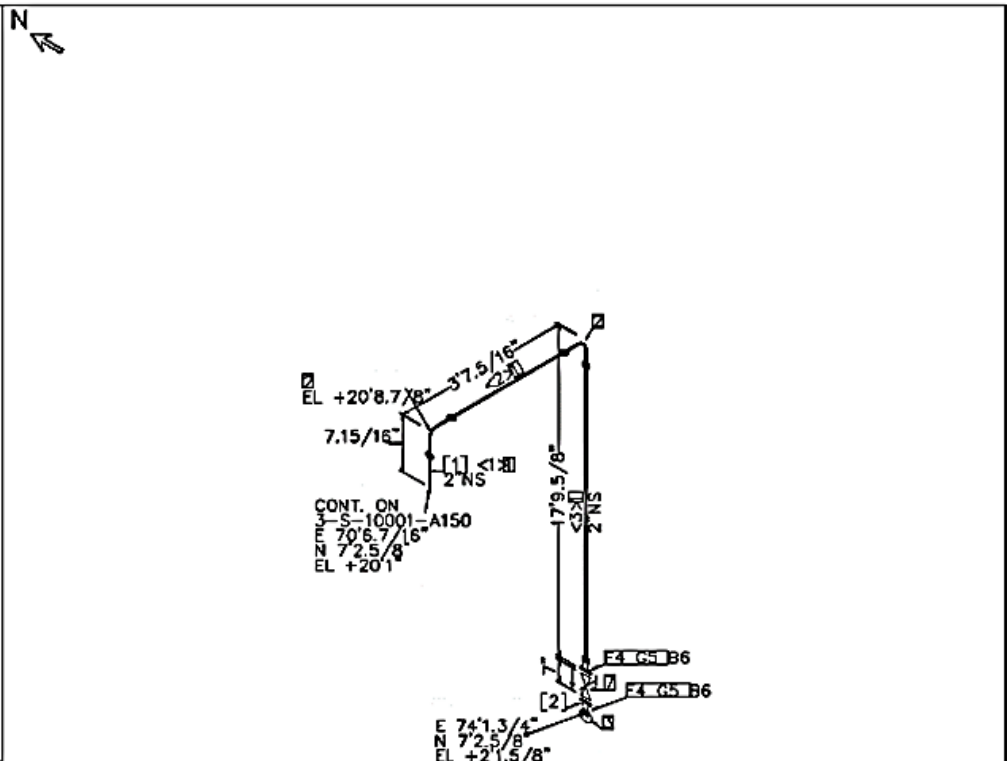


[1] DENOTES PIPE SPOOL NO  
[2] DENOTES PARTS LIST NO

ISOFFSET SOCKET WROTHEN DOWN 45° 45° 45° 45° 45° 45° 45° 45°  
WELDED WELD JOINT JOINT CONNECTION PORT PIPE PIPE

DATE: 13 DEC 2017  
DRAFT: PIPING  
PIPING SPECS: A150  
1.5-W-10002-A150-N

FABRICATION MATERIALS				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<u>PIPE</u>				
1	ANSI B36 10 PE SMLS PIPE STD ASTM A53 GR.B		P-STD	20.9'
<u>FITTINGS</u>				
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90			2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB		CAP	1
<u>FLANGES</u>				
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	2
<u>ERECTION MATERIALS</u>				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<u>GASKETS</u>				
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	2
<u>BOLTS</u>				
6	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3	8
<u>VALVES / IN-LINE ITEMS</u>				
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59	1
<u>PIPE SPOOLS</u>				
	[1] [2]			



CUT PIPE LENGTH				
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. (INS)	REMARKS
P-STD	<1>	4.15/16	2	END PREP
P-STD	<2>	3.15/16	2	BE/BE
P-STD	<3>	17.4.1/8	2	BE/BE

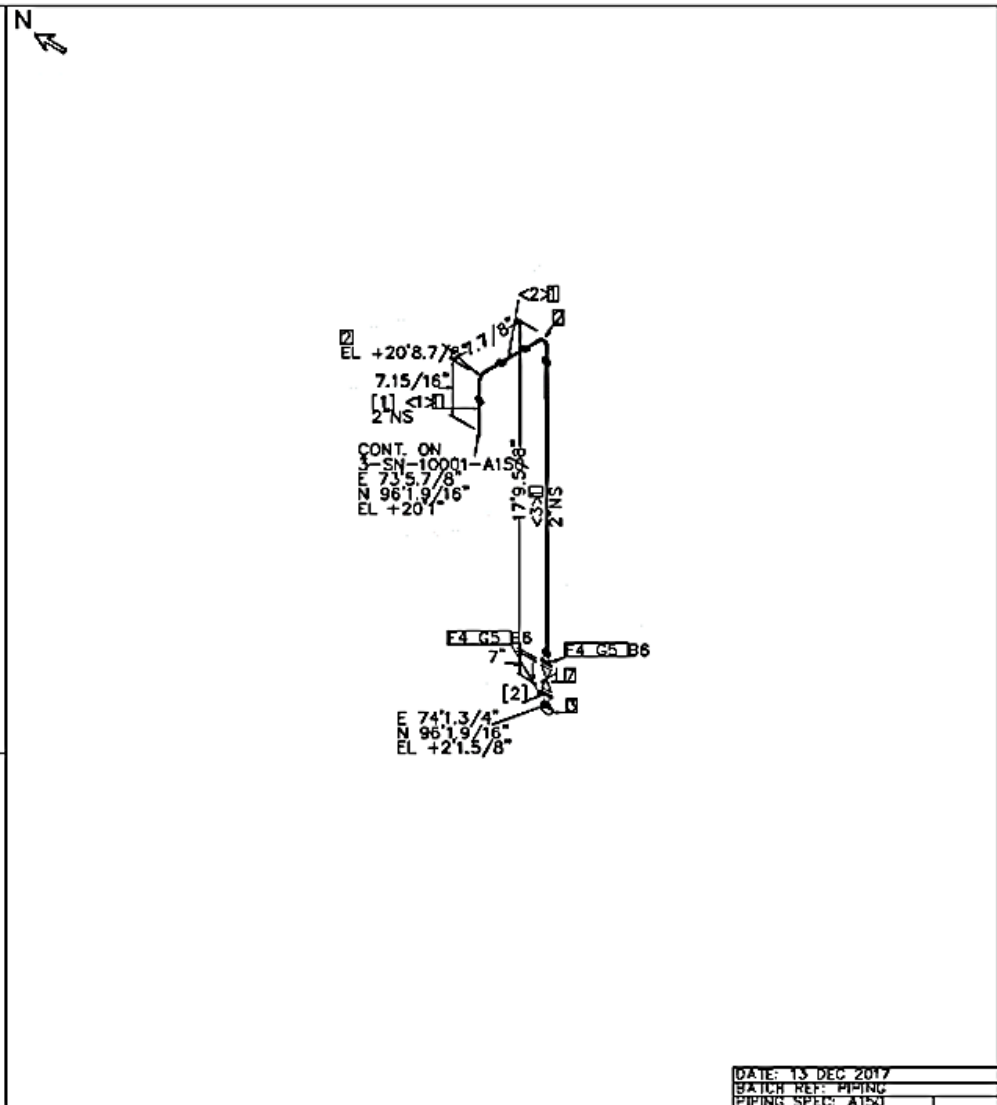
PIPE N(S) 2  
CL LENGTH 23.1

[1] DENOTES PIPE SPOOL NO  
[2] DENOTES PARTS LIST NO

SHOFIELD SOCKE SCREWED DOWN SITE PIPE LAGS TRACED  
WELD FIELD WELD JOINT JOINT CONNECTION UPPER PIPE PIPE  
DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
1.5-S-10002-A150-4N

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD 18.0'
<u>FITTINGS</u>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB		1
<u>FLANGES</u>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 2
<u>ERECTION MATERIALS</u>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>GASKETS</u>			
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING GRF JM 60 OR 61		2
<u>BOLTS</u>			
6	3 STUD BOLT CW HVY HEX NUTS A372 A193 ISBBJ3 GR.B7		8
<u>VALVES / IN-LINE ITEMS</u>			
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<u>PIPE SPOOLS</u>			
	[1] [2]		

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S. LENGTH(INS)	REMARKS	END PREP
P-STD	<1>	4.15/16	2		PE/BE
P-STD	<2>	1.7/8	2		BE/BE
P-STD	<3>	17.4.1/8	2		BE/BE



PIPE N(S) 2  
CL LENGTH 20.1

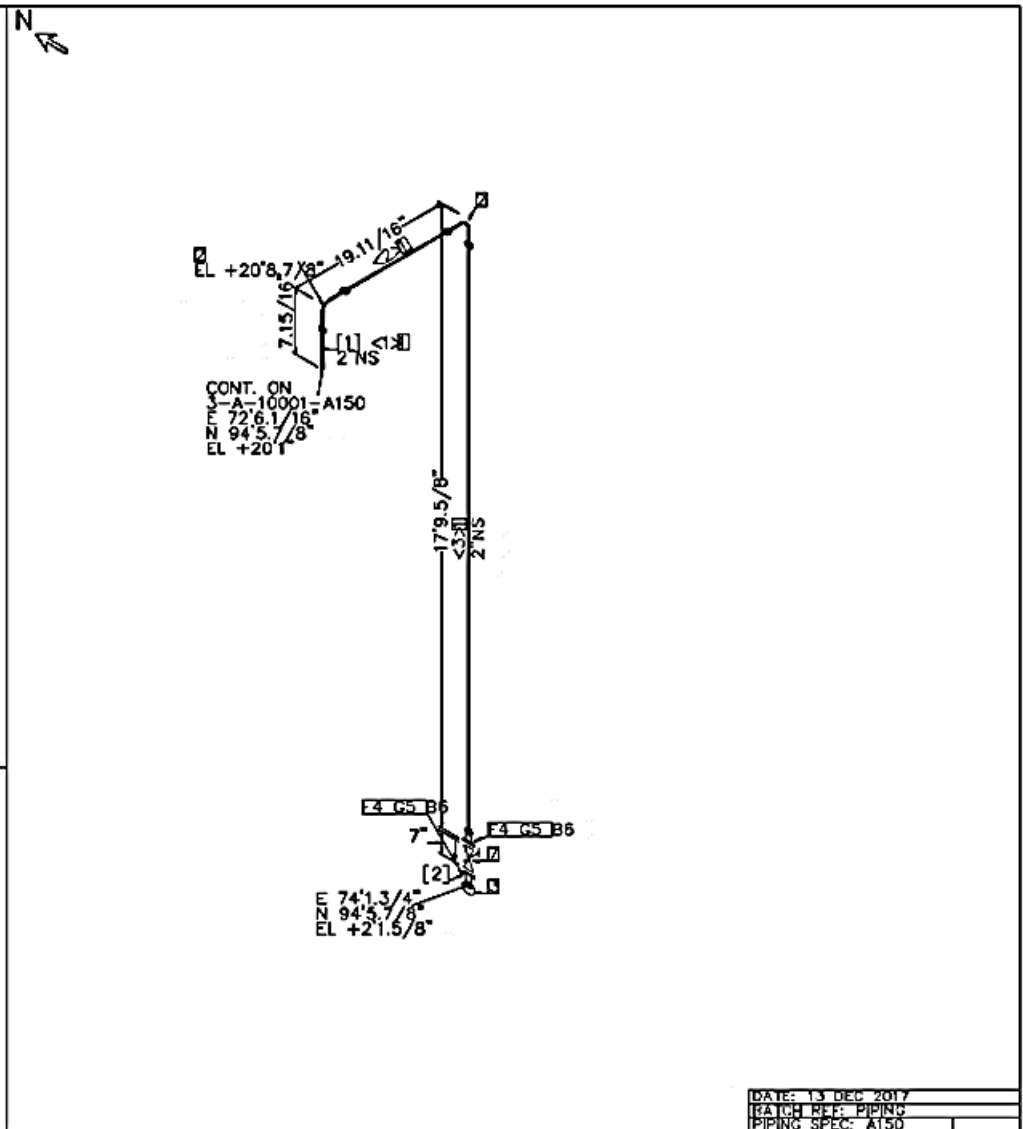
[1] DENOTES PIPE SPOOL NO  
[2] DENOTES PARTS LIST NO

SHORFIELD SOCKE BORE WELD ON PIPE LAGGED RACE  
WELD WELD JOINT CONNECTOR PIPE PIPE

DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: A150  
1.5-SN-10003-A150

FABRICATION MATERIALS				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<u>PIPE</u>				
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD	18.9'
<u>FITTINGS</u>				
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90			2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB		CAP	1
<u>FLANGES</u>				
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF	2
<u>ERECTION MATERIALS</u>				
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE	QTY
<u>GASKETS</u>				
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF	2
<u>BOLTS</u>				
6	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3	8
<u>VALVES / IN-LINE ITEMS</u>				
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59	1
<u>PIPE SPOOLS</u>				
	[1] [2]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S. LENGTH (INS)	REMARKS	END PREP
P-STD	<1>	4.15/16	2		PE/BE
P-STD	<2>	13.11/16	2		BE/BE
P-STD	<3>	17.4.1/8	2		BE/BE



PIPE N(S) 2  
CL LENGTH 21.1

[1] DENOTES PIPE SPOOL NO  
[2] DENOTES PARTS LIST NO

SHOVELD SOCIETY DOWNHOLE SUE PIPE LAYOUT  
WELD WELD WELD JOINT JOINT CONNECTION PIPE PIPE  
1.5-A-10003-A150

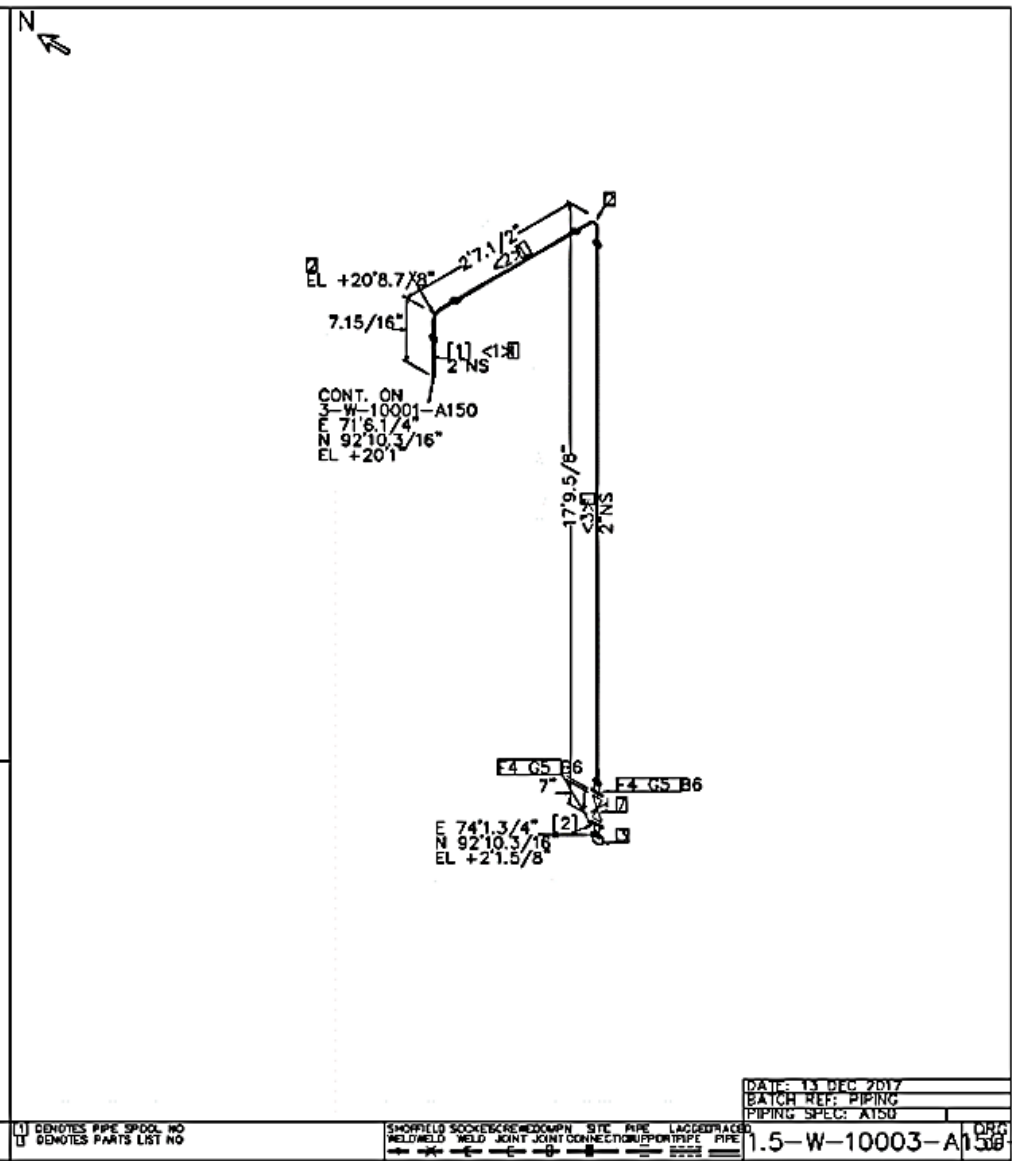
DATE: 13 DEC 2017  
DRAUGHT: PIPING  
PIPING SPEC: A150

ISS: -1

FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>PIPE</u>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B		P-STD 19.9'
<u>FITTINGS</u>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90		2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB		1
<u>FLANGES</u>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B		WNRF 2
<u>ERECTION MATERIALS</u>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<u>GASKETS</u>			
5	GASKET ANSI B18.21 #150.RF ASBESTOS RING JM 60 OR 61		GRF 2
<u>BOLTS</u>			
6	3 STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7		ISBBJ3 8
<u>VALVES / IN-LINE ITEMS</u>			
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL		GA-59 1
<u>PIPE SPOOLS</u>			
	[1] [2]		

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH(INS)	N.S. (INS)	REMARKS	END PREP
P-STD	<1>	4.15/16	2		PE/BE
P-STD	<2>	21.1/2	2		BE/BE
P-STD	<3>	174.1/8	2		BE/BE

PIPE N(S) 2  
CL LENGTH 22.1



(1) DENOTES PIPE SPOOL NO  
(2) DENOTES PARTS LIST NO

SHORFIELD SCREW DOWN SITE PIPE LAGGED TRACES  
WELDED WELD JOINT JOINT CONNECTION PORT PIPE PIPE

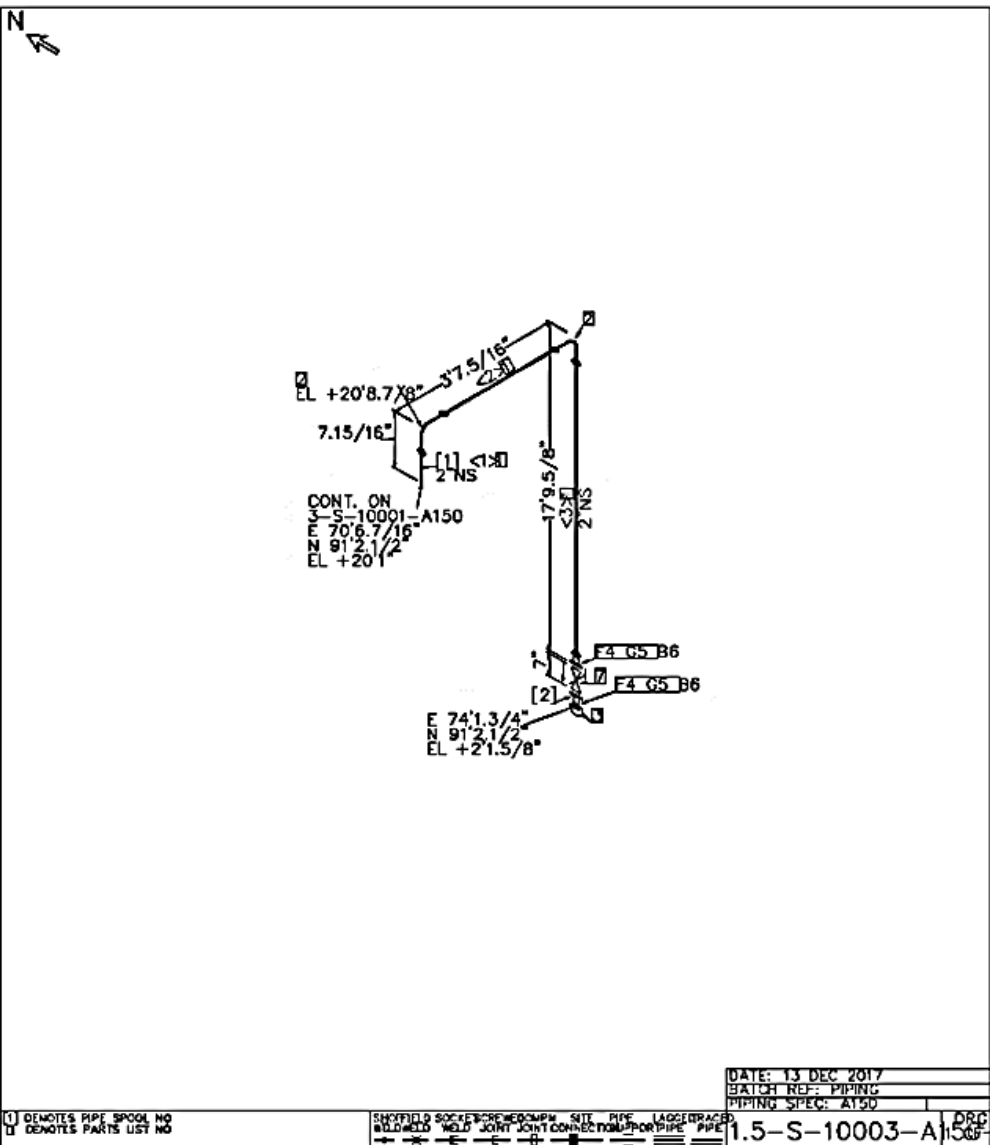
DATE: 13 DEC 2017  
BATCH REF: PIPING  
PIPING SPEC: ATSD

1.5-W-10003-A1.36



FABRICATION MATERIALS			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>PIPE</b>			
1	ANSI B36 10 PE SMLS PIPE STD AS2M A53 GR.B	P-STD	20.9'
<b>FITTINGS</b>			
2	ELBOW LR ANSI B16.9 BW ASTM A234 GR.WPB EL90	EL90	2
3	CAP LONG ANSI B16.9 BW STD ASTM A234 GR.WPB	CAP	1
<b>FLANGES</b>			
4	FLANGE WN ANSI B16.5 #150.RF ASTM A105 GR.B	WNRF	2
<b>ERECTION MATERIALS</b>			
PT NO	COMPONENT DESCRIPTION	N.S. (INS)	ITEM CODE QTY
<b>GASKETS</b>			
5	GASKET ANSI B16.21 #150.RF ASBESTOS RING JM 60 OR 61	GRF	2
<b>BOLTS</b>			
6	3/4" STUD BOLT CW HVY HEX NUTS ASTM A193 GR.B7	ISBBJ3	8
<b>VALVES / IN-LINE ITEMS</b>			
7	VALVE GATE ANSI B16.10 #150.RF 9% NICKEL STEEL	GA-59	1
<b>PIPE SPOOLS</b>			
[1] [2]			

CUT PIPE LENGTH					
ITEM CODE	PIECE NO	CUT LENGTH (INS)	N.S.	REMARKS	END PREP.
P-STD	<1>	4.15/16	2		PE/BE
P-STD	<2>	3.15/16	2		BE/BE
P-STD	<3>	17.4.1/8	2		BE/BE



DATE: 13 DEC 2017  
 BATCH REF: PIPING  
 PIPING SPEC: A150  
 1.5-S-10003-A150

6. Hasil *Material take-off* (MTO)

<b>TUGAS AKHIR</b>				
<b>Date: 5 Dec 2017 14:15</b>				
<b>AHMAD ARIEF PUTRANTO</b>				
<b>20130130296</b>				
<b>Pipework MTO for /PIPING</b>				
<b>TYPE</b>	<b>DESCRIPTION</b>	<b>MATERIAL</b>	<b>TUBE</b>	<b>PIPE</b>
CAP	CAP LONG ANSI B16.9 BW STD	ASTM A234 GR.WPB	0.00	8
CAP	CAP SCRD ANSI B16.11 #3000	ASTM A105 GR.B	0.00	12
ELBOW	ELBOW 45DEG ANSI B16.9 BW	ASTM A234 GR.WPB	0.00	5
ELBOW	ELBOW LR ANSI B16.9 BW	ASTM A234 GR.WPB	0.00	160
FLAN	FLANGE BLIND ANSI B16.5 #150.RF	ASTM A105 GR.B	0.00	6
FLAN	FLANGE WN ANSI B16.9 BW	ASTM A105 GR.B	0.00	128
GASK	GASKET ANSI B16.21 #150.RF	ASBESTOS RING JM 60 OR 61	0.00	134
REDU	REDU CONC ANSI B.16.9 BW	ASTM A234 GR.WPB	0.00	17
REDU	REDU ECC ANSI B16.9 BW	ASTM A234 GR.WPB	0.00	8
TEE	BONNEY THREDOLET NPT #3000	ASTM A53	0.00	12
TEE	TEE ANSI B16.9 BW	ASTM A105 GR.B	0.00	24
TEE	TEE ANSI B16.9 BW STD	ASTM A105 GR.B	0.00	18
TUBI	ANSI B36 10 PE SMLS PIPE STD	ASTM A53 GR.B	816868.79	243
TUBI	ANSI B36 10 PE SMLS PIPE XS	ASTM A016 GR.B	2400.00	24
VALV	VALVE GATE ANSI B16.10 #150.RF	9% NICKEL STEEL	0.00	42
VALV	VALVE GATE NPT #800	9% NICKEL STEEL	0.00	12
VALV	VALVE GLOBE ANSI B.16.10 #150.RF	9% NICKEL STEEL	0.00	2
VALV	VALVE WFR CHK MISSION K #150.RF	9% NICKEL STEEL	0.00	6