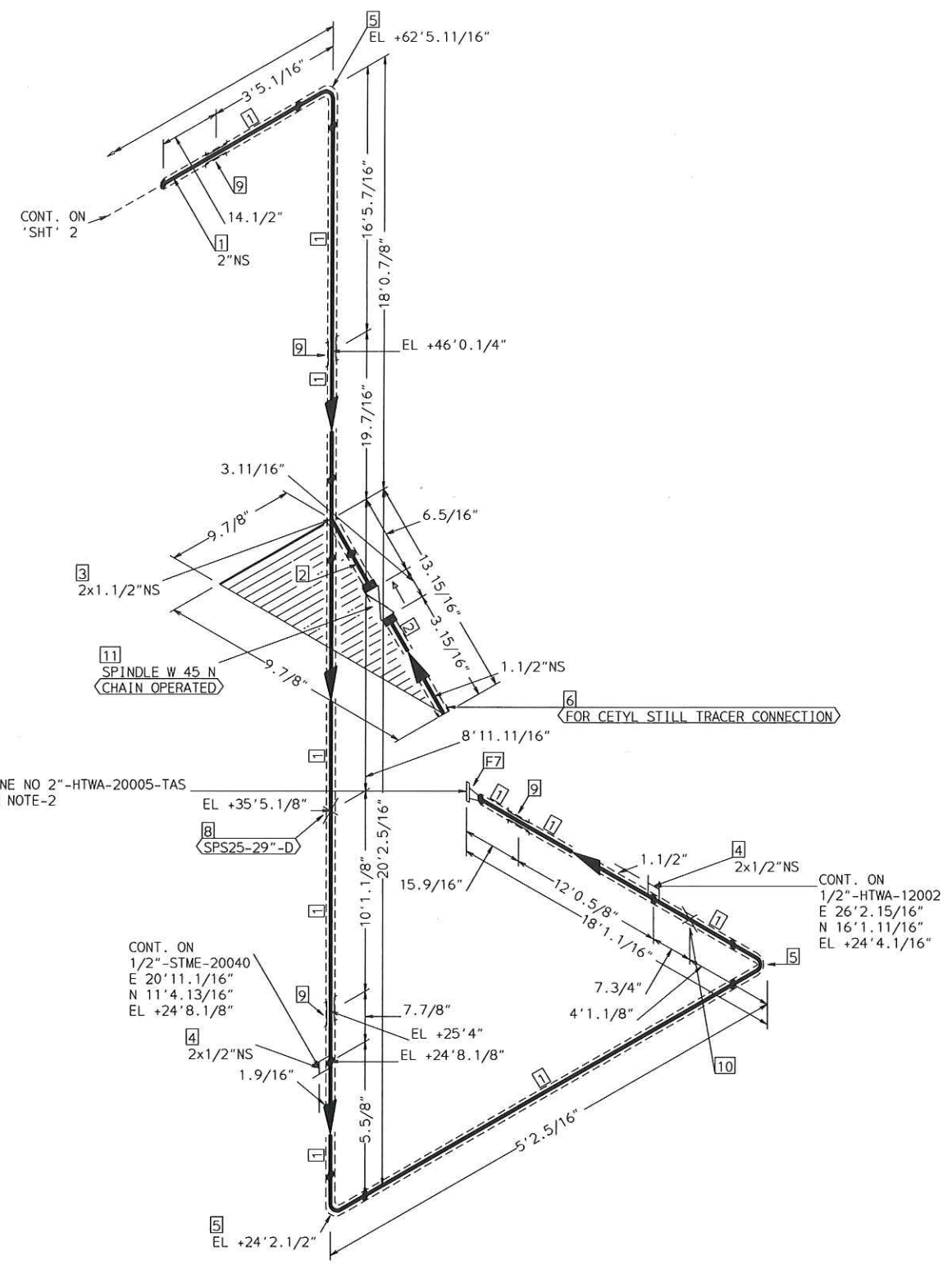


FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
PIPE				
1	HTWA	PIPE STD WT SMLS STL A106-B	2	20.6'
2	HTWA	PIPE SCH 80 SMLS STL A106-B	1/2	3.2'
FITTINGS				
3	HTWA	REDUCER CONC STD WT STL A234 WPB BW	3 x 2	1
4	HTWA	THREDOLET 3000# STL A105	2 x 1/2	1
5	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	2
6	HTWA	ELL 90 DEG 2000# SCRDL STL A105	1/2	2
7	HTWA	CAP 3000# SCRDL STL A105	1/2	1
FLANGES				
8	HTWA	FLG WN 150# RF STL STD BORE A105	3	1
9	HTWA	FLG WN 150# RF STL STD BORE A105	2	2

ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
FITTINGS				
10	SUPP	support SPS-68G	2	1
11	SUPP	SPS-2 RESTING SUPPORT	1/2	1
GASKETS				
12	HTWA	GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	3	1
13	HTWA	GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	2	2
BOLTS				
14	HTWA	3.9/16 x5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	11/16	4
15	HTWA	3.1/8 x5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	11/16	8
VALVES / IN-LINE ITEMS				
16	HTWA	GATE 150# RF FORGED STEEL F6 TRIM	2	1
17	HTWA	GATE 800#SCRDL F6/STL TRIM OS&Y ASTM A105	1/2	1

AREA: CETYL		2"-HTWA-20004	
PIPING GA NO: -	P&ID NO: 1020	STRESS CRITICAL: NA	
OP. TEMP: 212°F	OP. PRESS: 30 psig	TEST MEDIUM: Service	
DES. TEMP: 366°F	DES. PRESS: 150 psig	TEST PRESS: 225 psig	
SCALE: NONE	INSUL. TYPE: NS-CELLULAR	INSUL. THK: 1.5 inch	
LINE NO. / FILE NAME: 2"-HTWA-20004			ISSUE: R3



FOR CONT REFER LINE NO 2"-HTWA-20005-TAS
 MATCH PT-N, REFER NOTE-2
 E 26'2.15/16"
 N 29'5.7/8"
 EL +24'2.1/2"

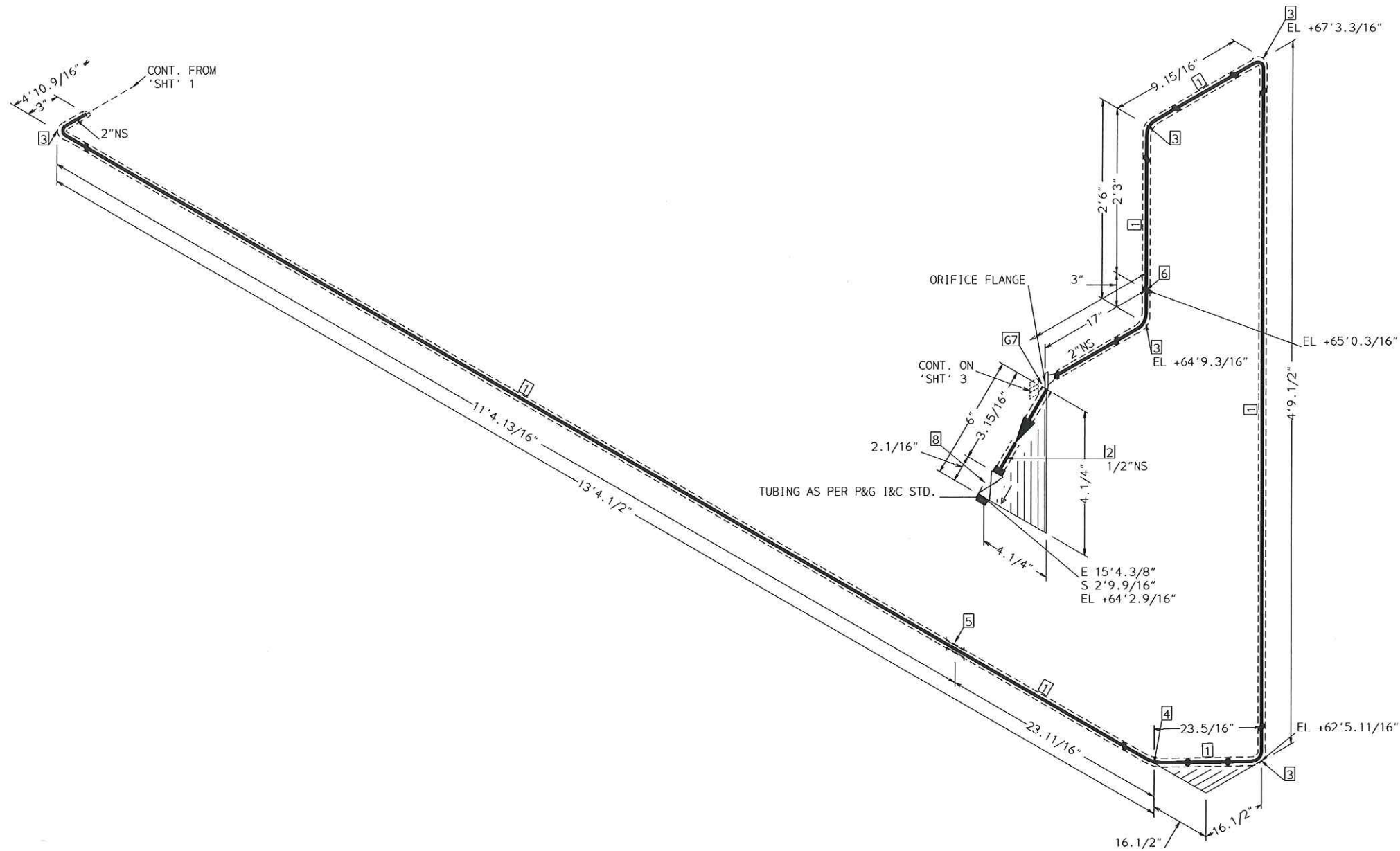
CONT. ON
 1/2"-STME-20040
 E 20'11.1/16"
 N 11'4.13/16"
 EL +24'8.1/8"

CONT. ON
 1/2"-HTWA-12002
 E 26'2.15/16"
 N 16'1.11/16"
 EL +24'4.1/16"

FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
PIPE				
1	HTWA	PIPE STD WT SMLS STL A106-B	2	64.1'
2	HTWA	PIPE SCH 80 SMLS STL A106-B	1.1/2	0.7'
FITTINGS				
3	HTWA	TEE STD WT STL A234 WPB BW	2 x 1.1/2	1
4	HTWA	HALF COUPLING 3000# SCRDL STL A105	2 x 1/2	2
5	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	3
6	HTWA	CAP 3000# SCRDL STL A105	1.1/2	1
FLANGES				
7	HTWA	FLG WN 150# RF STL STD BORE A105	2	1
ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
FITTINGS				
8	SUPP	SPS-25 TRUNNION SUPPORT	2	1
9	SUPP	SPS-2G GUIDE SUPPORT	2	4
10	SUPP	SPS-2 RESTING SUPPORT	2	1
VALVES / IN-LINE ITEMS				
11	HTWA	GATE 800#SCRDL F6/STL TRIM OS&Y ASTM A105	1.1/2	1

AREA: CETYL		2"-HTWA-20005	
PIPING GA NO: -	P&ID NO: 1020/1005	STRESS CRITICAL: NA	
OP.TEMP: 212°F	OP.PRESS: 30 psig	TEST MEDIUM: Service	
DES.TEMP: 366°F	DES.PRESS: 150 psig	TEST PRESS: 225 psig	
SCALE: NONE	INSUL.TYPE: NS-CELLULAR	INSUL.THK: 1 inch	
LINE NO. / FILE NAME: 2"-HTWA-20005			ISSUE: R4

SIZE-A3

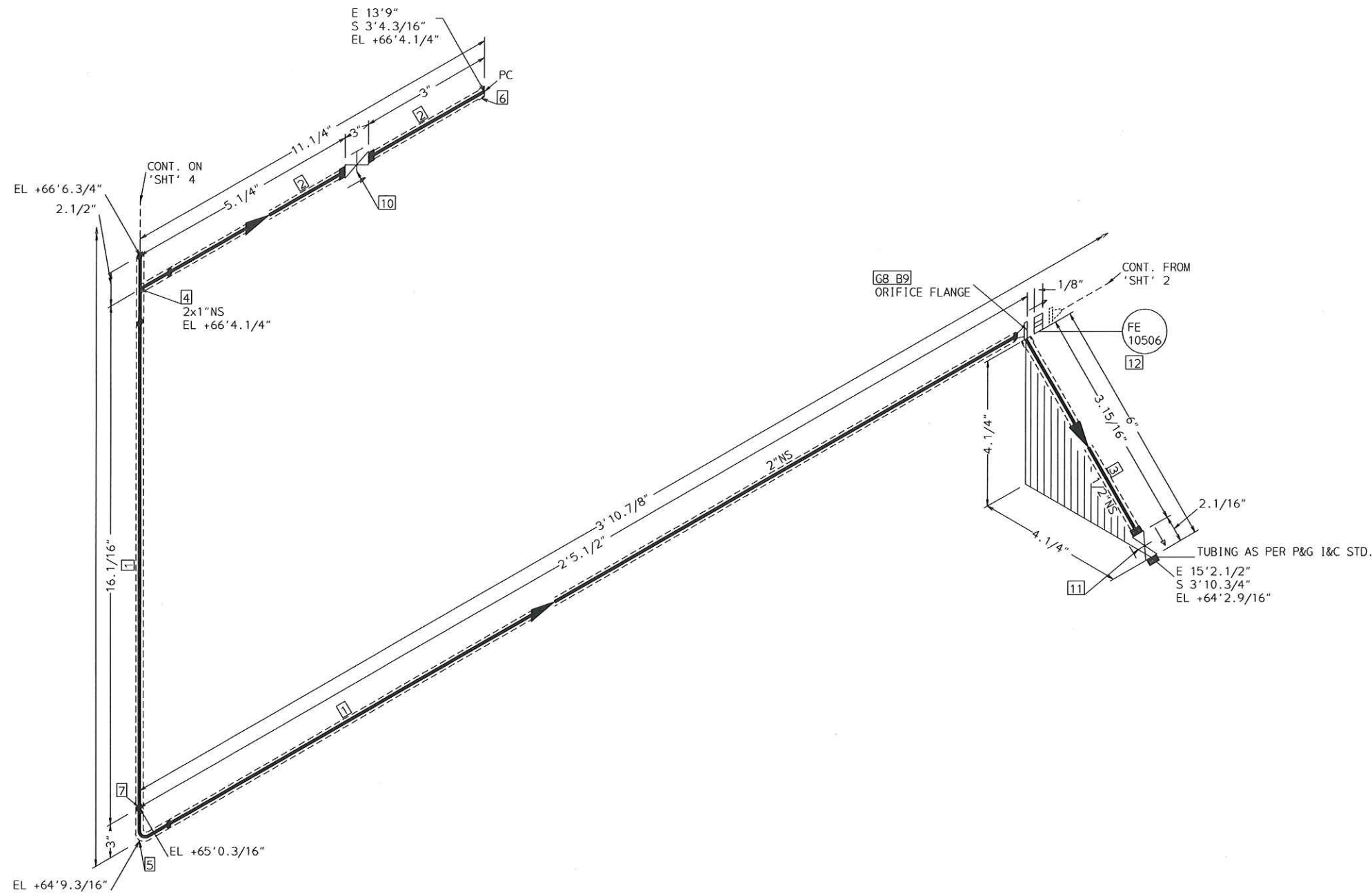


FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
PIPE				
1	HTWA	PIPE STD WT SMLS STL A106-B	2	22.1'
2	HTWA	PIPE SCH 80 SMLS STL A106-B	1/2	0.4'
FITTINGS				
3	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	5
4	HTWA	ELL 45 DEG STD WT STL A234 WPB BW	2	1

ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
FITTINGS				
5	SUPP	SPS-2G GUIDE SUPPORT	2	1
6	SUPP	SPS13A TRUNNION SUPPORT	2	1
GASKETS				
7	HTWA	GASKET 300# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	2	1
VALVES / IN-LINE ITEMS				
8	HTWA	GATE 800#SCRD F6/STL TRIM OS&Y ASTM A105	1/2	1

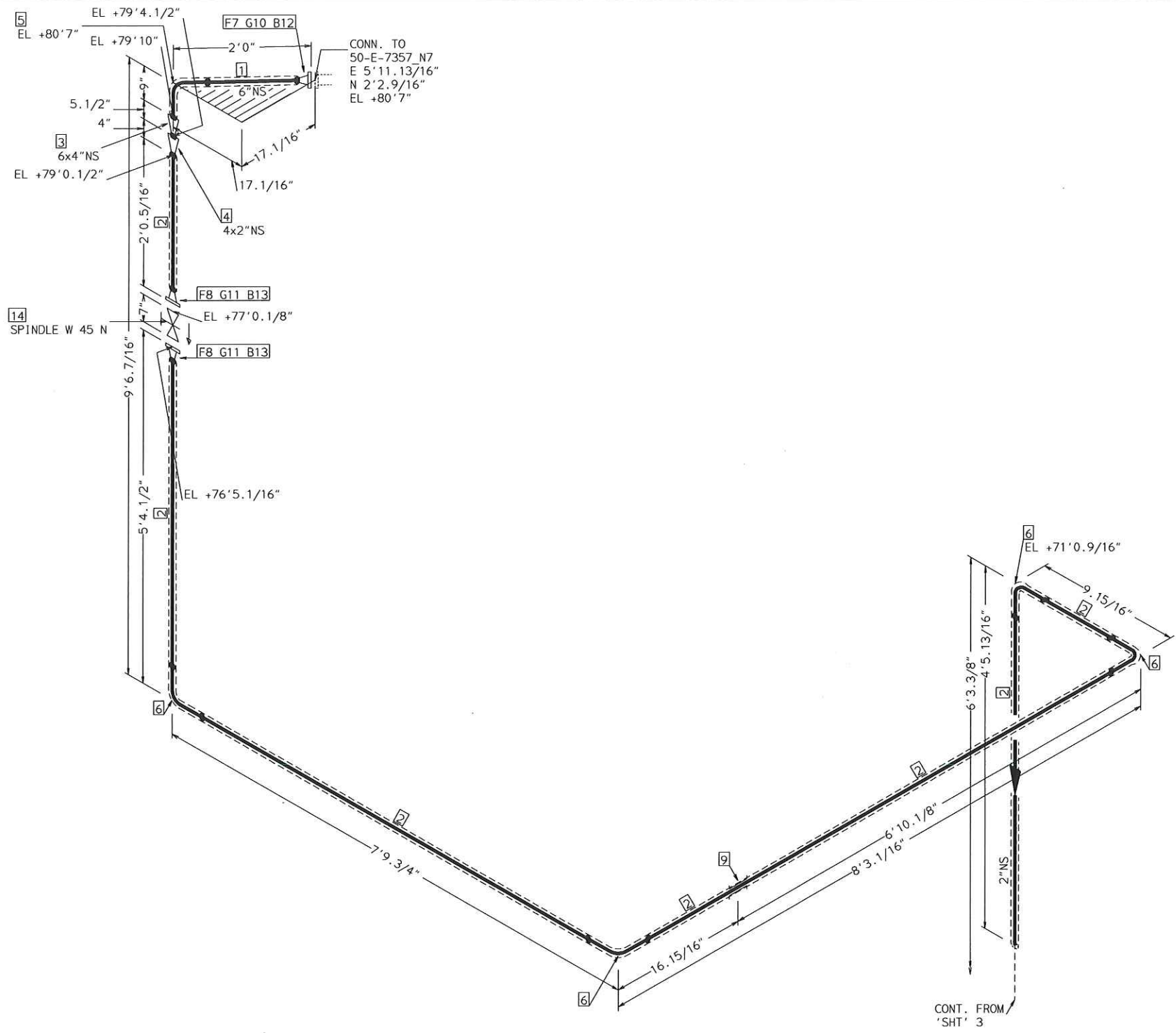
AREA: CETYL		2" - HTWA - 20005	
PIPING GA NO: -	P&ID NO: 1020/1005	STRESS CRITICAL: NA	
OP. TEMP: 212°F	OP. PRESS: 30 psig	TEST MEDIUM: Service	
DES. TEMP: 366°F	DES. PRESS: 150 psig	TEST PRESS: 225 psig	
SCALE: NONE	INSUL. TYPE: NS-CELLULAR	INSUL. THK: 1 inch	
LINE NO. / FILE NAME: 2" - HTWA - 20005			ISSUE: R4

SIZE-A3



FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
PIPE				
1	HTWA	PIPE STD WT SMLS STL A106-B	2	3.1'
2	HTWA	PIPE SCH 80 SMLS STL A106-B	1	0.6'
3	HTWA	PIPE SCH 80 SMLS STL A106-B	1/2	0.4'
FITTINGS				
4	HTWA	TEE STD WT STL A234 WPB BW	2 x 1	1
5	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	1
6	HTWA	CAP 3000# SCRDL STL A105	1	1
ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
FITTINGS				
7	SUPP	SPS13A TRUNNION SUPPORT	2	1
GASKETS				
8	HTWA	GASKET 300# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	2	1
BOLTS				
9	ALCF	3.15/16 x5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	11/16	8
VALVES / IN-LINE ITEMS				
10	HTWA	GATE 800#SCRDL F6/STL TRIM OS&Y ASTM A105	1	1
11	HTWA	GATE 800#SCRDL F6/STL TRIM OS&Y ASTM A105	1/2	1
INSTRUMENTS				
12		ORIFICE PLATE RF 300# FE 10506	2	1

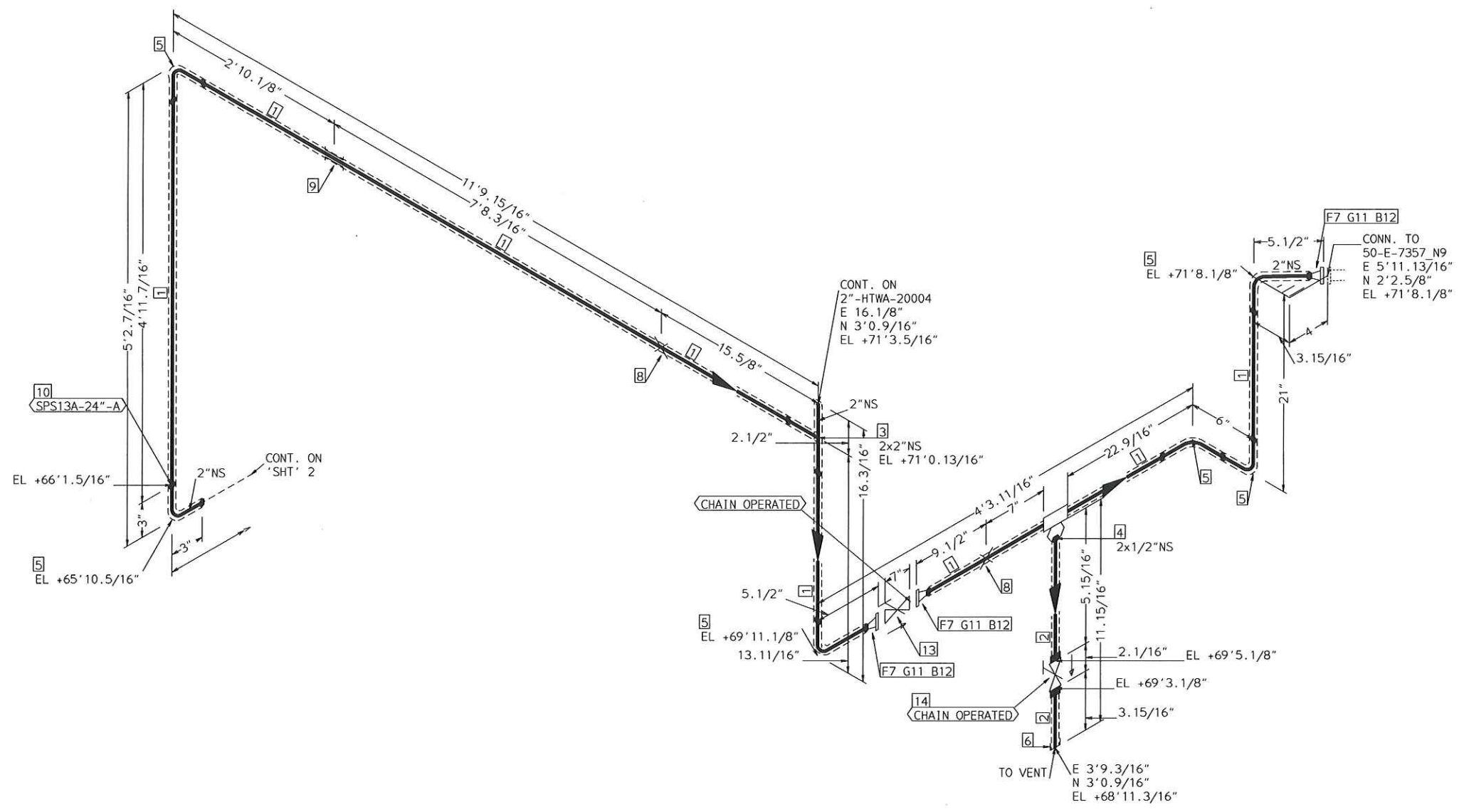
AREA: CETYL		2" -HTWA-20005	
PIPING GA NO: -	P&ID NO: 1020/1005	STRESS CRITICAL: NA	
OP.TEMP: 212°F	OP.PRESS: 30 psig	TEST MEDIUM: Service	
DES.TEMP: 366°F	DES.PRESS: 150 psig	TEST PRESS: 225 psig	
SCALE: NONE	INSUL.TYPE: NS-CELLULAR	INSUL.THK: 1 inch	
LINE NO. / FILE NAME: 2" -HTWA-20005			ISSUE: R4



FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
PIPE				
1	HTWA	PIPE STD WT SMLS STL A106-B	6	1.0'
2	HTWA	PIPE STD WT SMLS STL A106-B	2	26.4'
FITTINGS				
3	HTWA	REDUCER CONC STD WT STL A234 WPB BW	6 x 4	1
4	HTWA	REDUCER CONC STD WT STL A234 WPB BW	4 x 2	1
5	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	6	1
6	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	4
FLANGES				
7	HTWA	FLG WN 150# RF STL STD BORE A105	6	1
8	HTWA	FLG WN 150# RF STL STD BORE A105	2	2
ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
FITTINGS				
9	SUPP	SPS-2G GUIDE SUPPORT	2	1
GASKETS				
10	HTWA	GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	6	1
11	HTWA	GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	2	2
BOLTS				
12	HTWA	3.15/16 x3/4" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	7/8	8
13	HTWA	3.1/8 x5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	11/16	8
VALVES / IN-LINE ITEMS				
14	HTWA	GATE 150# RF FORGED STEEL F6 TRIM	2	1

AREA: CETYL		2" -HTWA-20005	
PIPING GA NO: -	P&ID NO: 1020/1005	STRESS CRITICAL: NA	
OP.TEMP: 212°F	OP.PRESS: 30 psig	TEST MEDIUM: Service	
DES.TEMP: 366°F	DES.PRESS: 150 psig	TEST PRESS: 225 psig	
SCALE: NONE	INSUL.TYPE: N5-CELLULAR	INSUL.THK: 1 inch	
LINE NO. / FILE NAME: 2" -HTWA-20005			ISSUE: R4

SIZE-A3

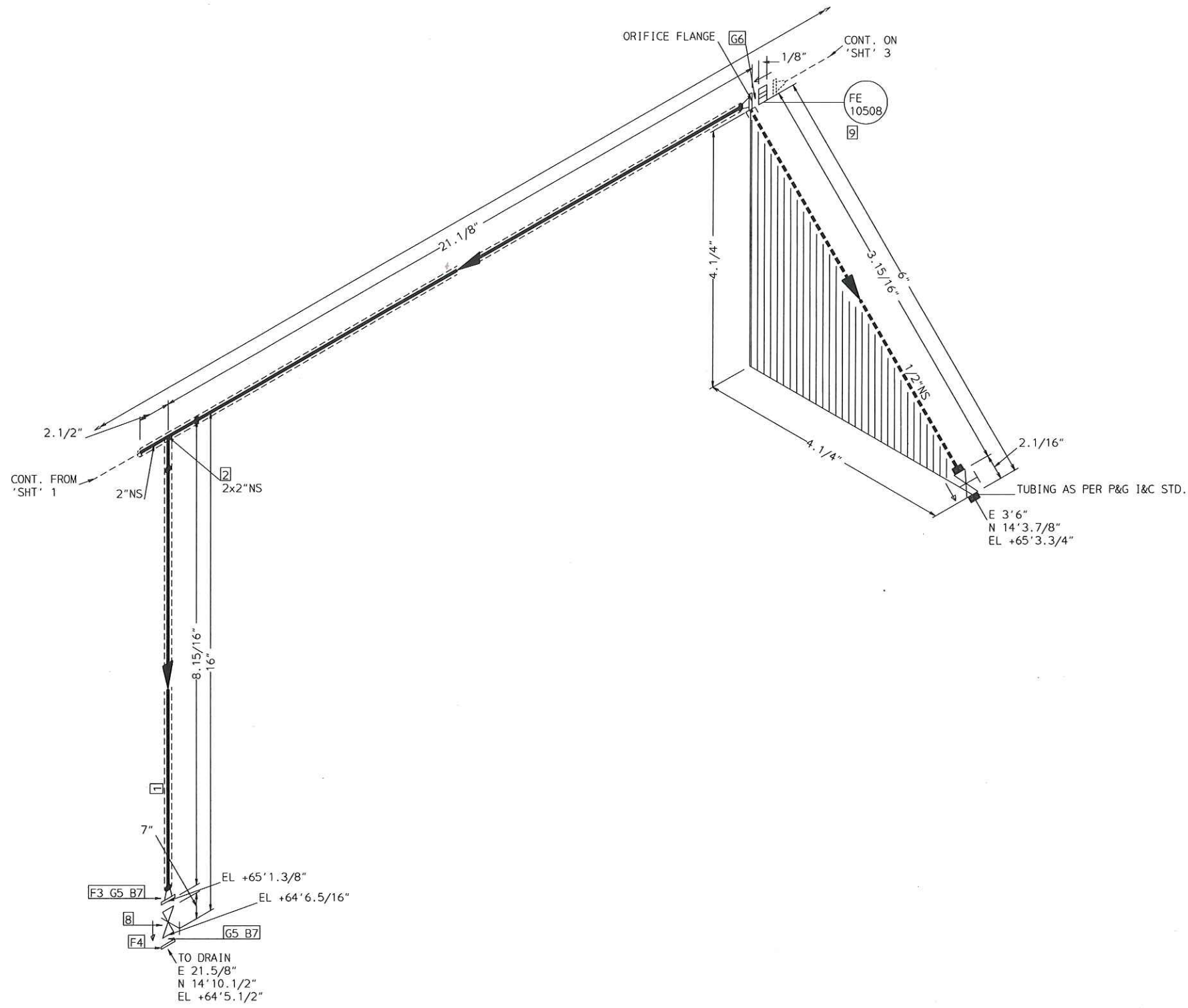


FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
PIPE				
1	HTWA	PIPE STD WT SMLS STL A106-B	2	20.9'
2	HTWA	PIPE SCH 80 SMLS STL A106-B	1/2	0.7'
FITTINGS				
3	HTWA	TEE STD WT STL A234 WPB BW	2 x 2	1
4	HTWA	WELDOLET STD WT STL A105	2 x 2	1
5	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	6
6	HTWA	CAP 3000# SCRDR STL A105	1/2	1
FLANGES				
7	HTWA	FLG WN 150# RF STL STD BORE A105	2	3

ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
FITTINGS				
8	SUPP	SPS-2 RESTING SUPPORT	2	2
9	SUPP	SPS-2G GUIDE SUPPORT	2	1
10	SUPP	SPS13A TRUNNION SUPPORT	2	1
GASKETS				
11	HTWA	GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	2	3
BOLTS				
12	HTWA	3.1/8 x 5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	11/16	12
VALVES / IN-LINE ITEMS				
13	HTWA	GATE 150# RF FORGED STEEL F6 TRIM	2	1
14	HTWA	GATE 800#SCRDR F6/STL TRIM OS&Y ASTM A105	1/2	1

AREA: CETYL		2"-HTWA-20014	
PIPING GA NO: -	P&ID NO: 1020	STRESS CRITICAL: NA	
OP. TEMP: 212	OP. PRESS: 30psig	TEST MEDIUM: Service	
DES. TEMP: 366	DES. PRESS: 150	TEST PRESS: 225	
SCALE: NONE	INSUL. TYPE: NS-CELLULAR	INSUL. THK: 1.5	
LINE NO. / FILE NAME: 2"-HTWA-20014			ISSUE: R3

SIZE-A3

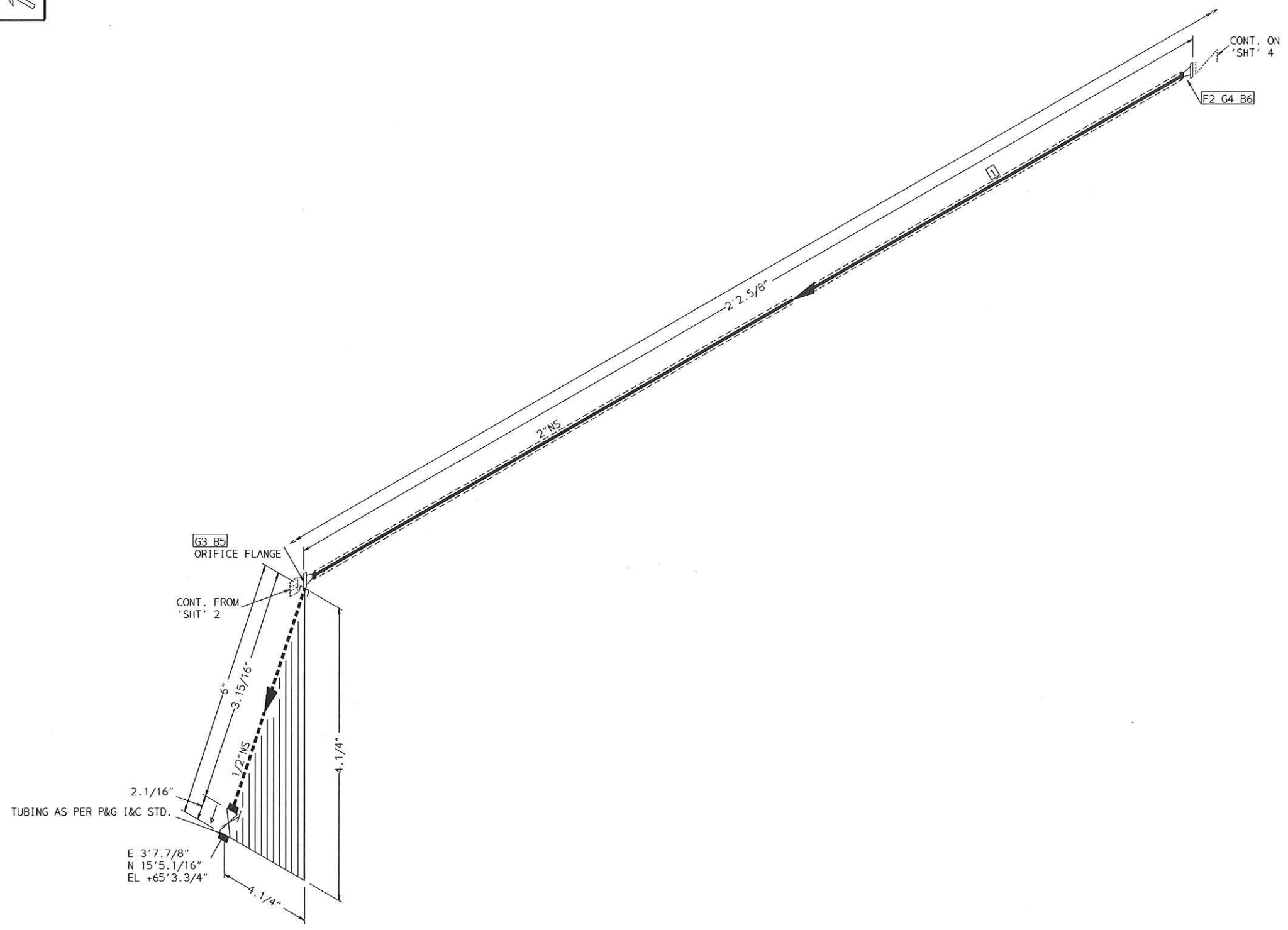


FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
1	HTWA	PIPE	2	1.6'
		PIPE STD WT SMLS STL A106-B		
2	HTWA	FITTINGS	2 x 2	1
		TEE STD WT STL A234 WPB BW		
3	HTWA	FLANGES	2	1
		FLG WN 150# RF STL STD BORE A105		
4	HTWA	FLG BLIND 150# RF STL A105	2	1

ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
5	HTWA	GASKETS	2	2
		GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG		
6	HTWA	GASKET 300# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	2	1
7	HTWA	BOLTS	11/16	8
		3.1/8 x 5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS		
8	HTWA	VALVES / IN-LINE ITEMS	2	1
		GATE 150# RF FORGED STEEL F6 TRIM		
9		INSTRUMENTS	2	1
		ORIFICE PLATE RF 300# FE 10508		

AREA: CETYL		2"-HTWA-20014	
PIPING GA NO: -	P&ID NO: 1020	STRESS CRITICAL: NA	
OP. TEMP: 212	OP. PRESS: 30psig	TEST MEDIUM: Service	
DES. TEMP: 366	DES. PRESS: 150	TEST PRESS: 225	
SCALE: NONE	INSUL. TYPE: NS-CELLULAR	INSUL. THK: 1.5	
LINE NO. / FILE NAME: 2"-HTWA-20014			ISSUE: R3

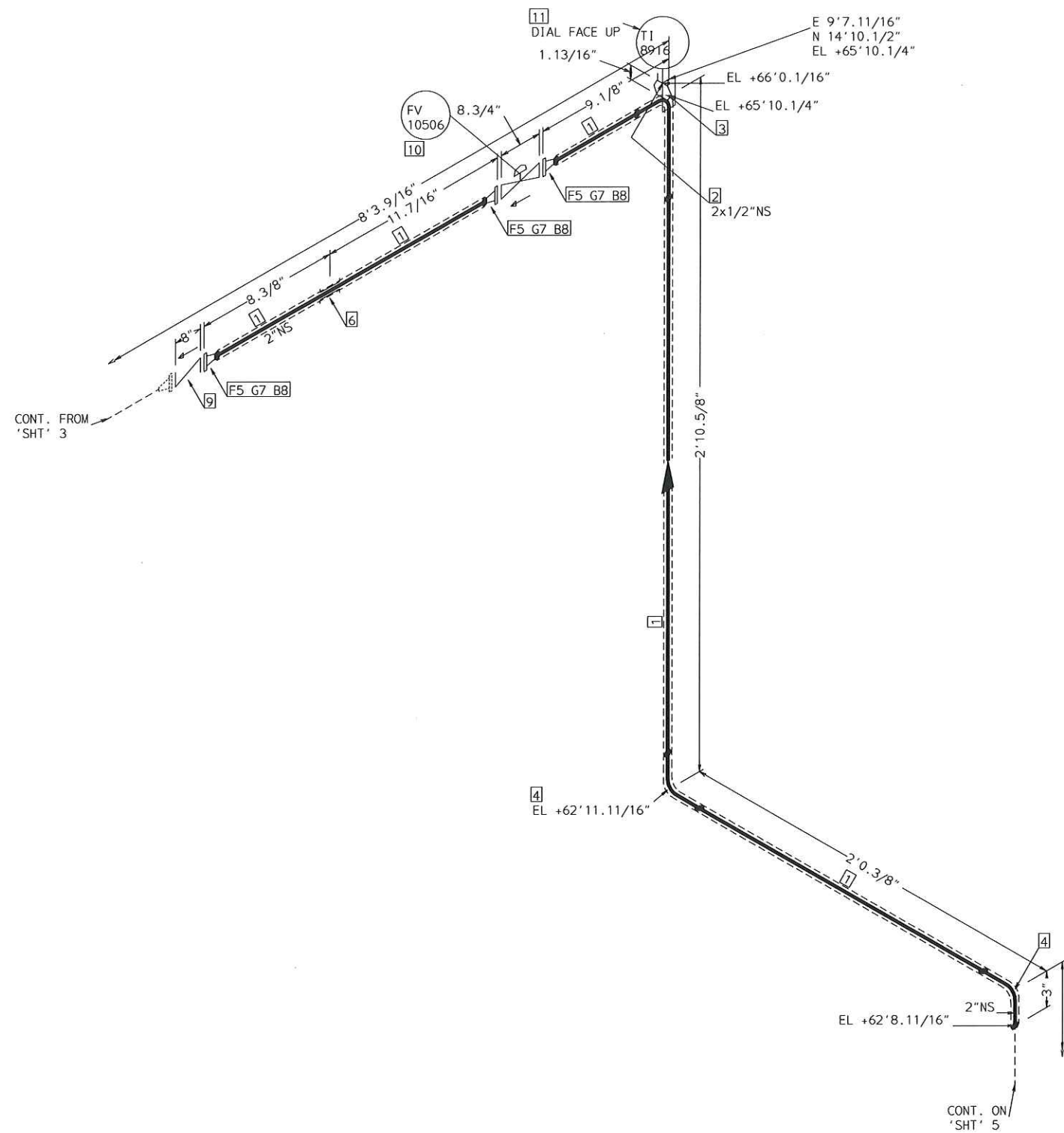
SIZE-A3



FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
1	HTWA	PIPE	2	1.8'
		PIPE STD WT SMLS STL A106-B		
2	HTWA	FLANGES	2	1
		FLG WN 150# RF STL STD BORE A105		
ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
3	HTWA	GASKETS	2	1
		GASKET 300# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG		
4	HTWA	GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG	2	1
5	ALCF	BOLTS	11/16	8
		3.15/16 x5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS		
6	HTWA	3.1/8 x5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	11/16	4

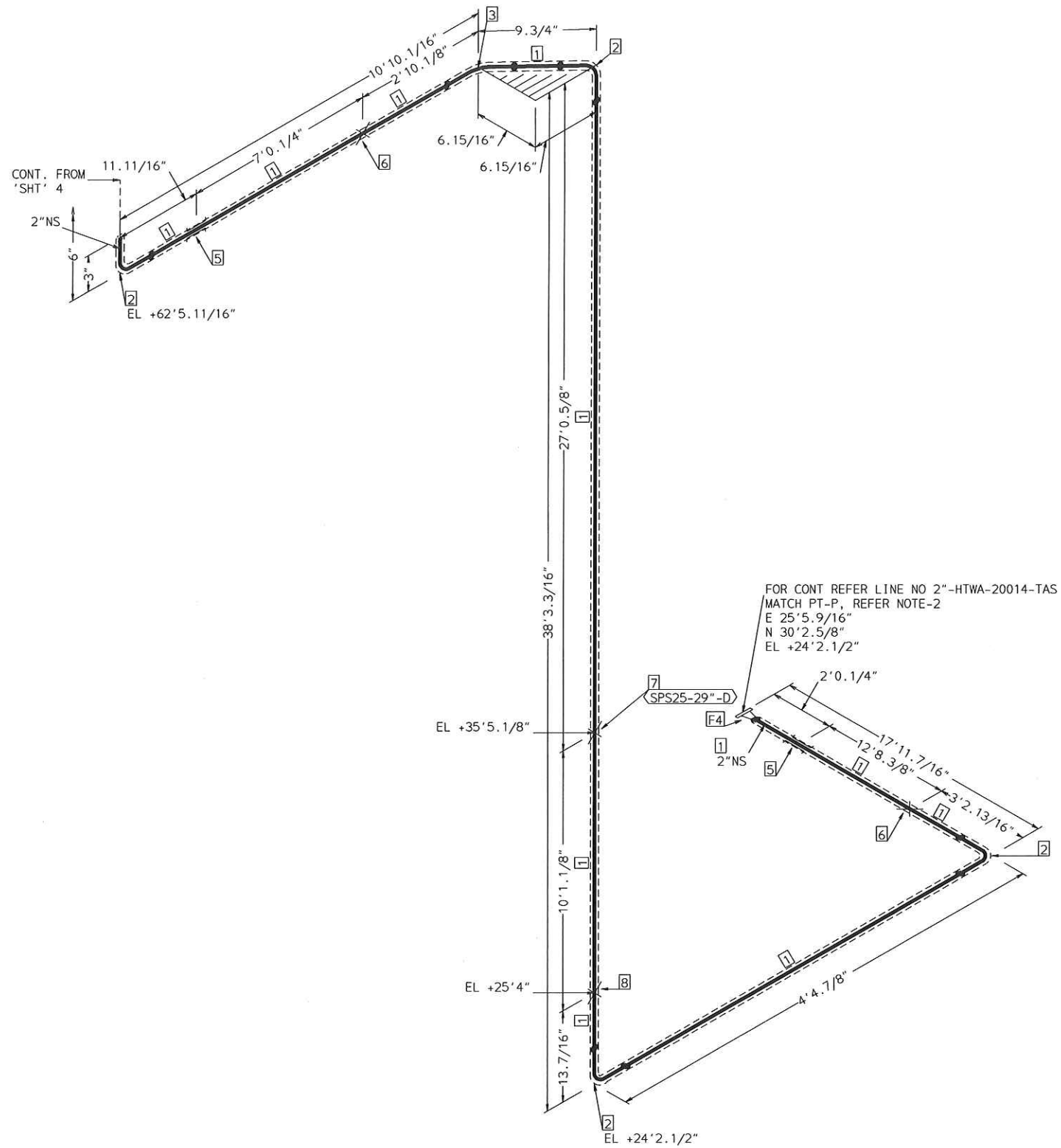
AREA: CETYL		2"-HTWA-20014	
PIPING GA NO: -	P&ID NO: 1020	STRESS CRITICAL: NA	
OP. TEMP: 212	OP. PRESS: 30psig	TEST MEDIUM: Service	
DES. TEMP: 366	DES. PRESS: 150	TEST PRESS: 225	
SCALE: NONE	INSUL. TYPE: NS-CELLULAR	INSUL. THK: 1.5	
LINE NO. / FILE NAME: 2"-HTWA-20014			ISSUE: R3

SIZE-A3



FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
1	HTWA	PIPE	2	5.5'
		PIPE STD WT SMLS STL A106-B		
2	HTWA	FITTINGS	2 x 1/2	1
		ELBOLET 3000# SCRDL STL A105		
3	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	1
4	HTWA	ELL 90 DEG LR STD WT STL A234 WPB BW	2	2
5	HTWA	FLANGES	2	3
		FLG WN 150# RF STL STD BORE A105		
ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
6	SUPP	FITTINGS	2	1
		SPS-2G GUIDE SUPPORT		
7	HTWA	GASKETS	2	3
		GASKET 150# 1/8" 316 SPRL WND W/FLEXICARB TYPE CG		
8	HTWA	BOLTS	11/16	12
		3.1/8 x5/8" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS		
9	HTWA	VALVES / IN-LINE ITEMS	2	1
		CHECK 150# FLGD RF C.STL SWING FULL PORT F6 TRIM		
10		INSTRUMENTS	2	1
		STANDARD CONTROL VALVE 150#.RF B16.10 FV 10506		
11		TEMPERATURE INDICATOR(TI) TI 8916	1/2	1

AREA: CETYL		2"-HTWA-20014	
PIPING GA NO: -	P&ID NO: 1020	STRESS CRITICAL: NA	
OP.TEMP: 212	OP.PRESS: 30psig	TEST MEDIUM: Service	
DES.TEMP: 366	DES.PRESS: 150	TEST PRESS: 225	
SCALE: NONE	INSUL.TYPE: NS-CELLULAR	INSUL.THK: 1.5	
LINE NO. / FILE NAME: 2"-HTWA-20014			ISSUE: R3



FABRICATION MATERIALS

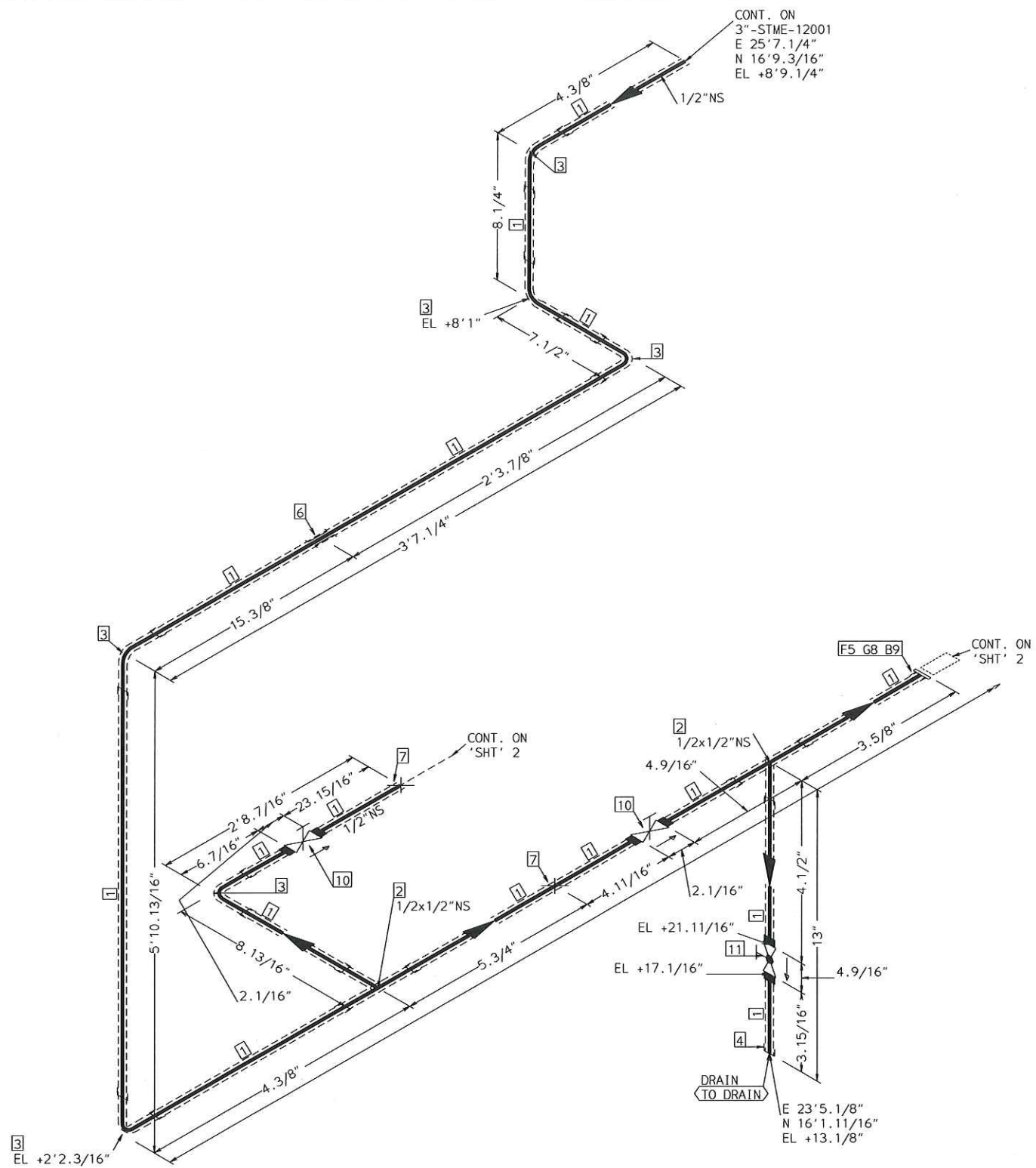
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
1	HTWA	PIPE	2	70.1'
		PIPE STD WT SMLS STL A106-B		
2	HTWA	FITTINGS	2	4
		ELL 90 DEG LR STD WT STL A234 WPB BW		
3	HTWA	FITTINGS	2	1
		ELL 45 DEG STD WT STL A234 WPB BW		
4	HTWA	FITTINGS	2	1
		FLG WN 150# RF STL STD BORE A105		

ERECTION MATERIALS

PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
5	SUPP	FITTINGS	2	2
		SPS-2G GUIDE SUPPORT		
		SPS-2 RESTING SUPPORT		
		SPS-25 TRUNNION SUPPORT		
6	SUPP	SPS-2 RESTING SUPPORT	2	2
7	SUPP	SPS-25 TRUNNION SUPPORT	2	1
8	SUPP	support SPS-68G	2	1

AREA: CETYL		2"-HTWA-20014	
PIPING GA NO: -	P&ID NO: 1020	STRESS CRITICAL: NA	
OP. TEMP: 212	OP. PRESS: 30psig	TEST MEDIUM: Service	
DES. TEMP: 366	DES. PRESS: 150	TEST PRESS: 225	
SCALE: NONE	INSUL. TYPE: N5-CELLULAR	INSUL. THK: 1.5	
LINE NO. / FILE NAME: 2"-HTWA-20014			ISSUE: R3

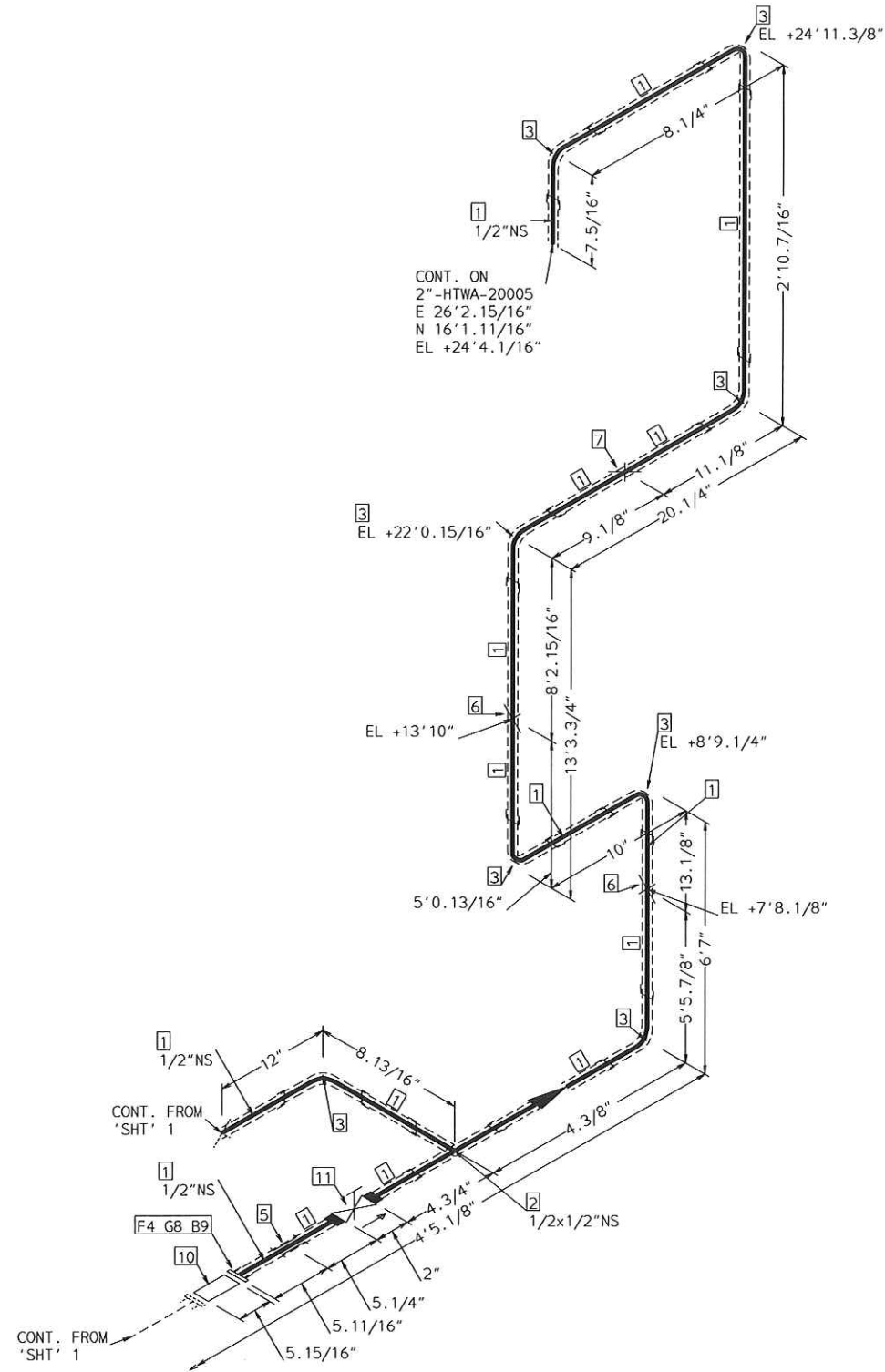
SIZE-A3



FABRICATION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
PIPE				
1	HTWA	PIPE SCH 80 SMLS STL A106-B	1/2	16.2'
FITTINGS				
2	HTWA	TEE 2000# SCRDL STL A105	1/2 x 1/2	2
3	HTWA	ELL 90 DEG 2000# SCRDL STL A105	1/2	6
4	HTWA	CAP 3000# SCRDL STL A105	1/2	1
FLANGES				
5	HTWA	FLG SCRDL 150# RF STL A105	1/2	1
ERECTION MATERIALS				
PT NO	SPEC	COMPONENT DESCRIPTION	N.S.	QTY
FITTINGS				
6	SUPP	SPS-2G GUIDE SUPPORT	1/2	1
7	SUPP	SPS-2 RESTING SUPPORT	1/2	2
GASKETS				
8	HTWA	GASKET 150# 1/8\" 316 SPRL WND W/FLEXICARB TYPE CG	1/2	1
BOLTS				
9	HTWA	2.3/8 x 1/2\" STUD BOLT A193 GR B7 W/2 A194 GR 2H NUTS	9/16	4
VALVES / IN-LINE ITEMS				
10	HTWA	GATE 800#SCRDL F6/STL TRIM OS&Y ASTM A105	1/2	2
11	HTWA	GLOBE 800# SCRDL A-105 C. STL STD PRT F6 TRIM ASTM A105	1/2	1

AREA: CETYL		1/2\"-HTWA-12002	
PIPING GA NO:	P&ID NO: 1012	STRESS CRITICAL: NA	
OP. TEMP: 180°F	OP. PRESS: 30psig	TEST MEDIUM: Hydro	
DES. TEMP: 365°F	DES. PRESS: 150psig	TEST PRESS: 225psig	
SCALE: NONE	INSUL. TYPE: NS-CELLULAR	INSUL. THK: 1"	
LINE NO. / FILE NAME: 1/2\"-HTWA-12002			ISSUE: R3

SIZE-A3



AREA: CETYL	1/2"-HTWA-12002	
PIPING GA NO:	P&ID NO: 1012	STRESS CRITICAL: NA
OP.TEMP: 180°F	OP.PRESS: 30psig	TEST MEDIUM: Hydro
DES.TEMP: 365°F	DES.PRESS: 150psig	TEST PRESS: 225psig
SCALE: NONE	INSUL.TYPE: NS-CELLULAR	INSUL.THK: 1"
LINE NO. / FILE NAME: 1/2"-HTWA-12002	ISSUE: R3	