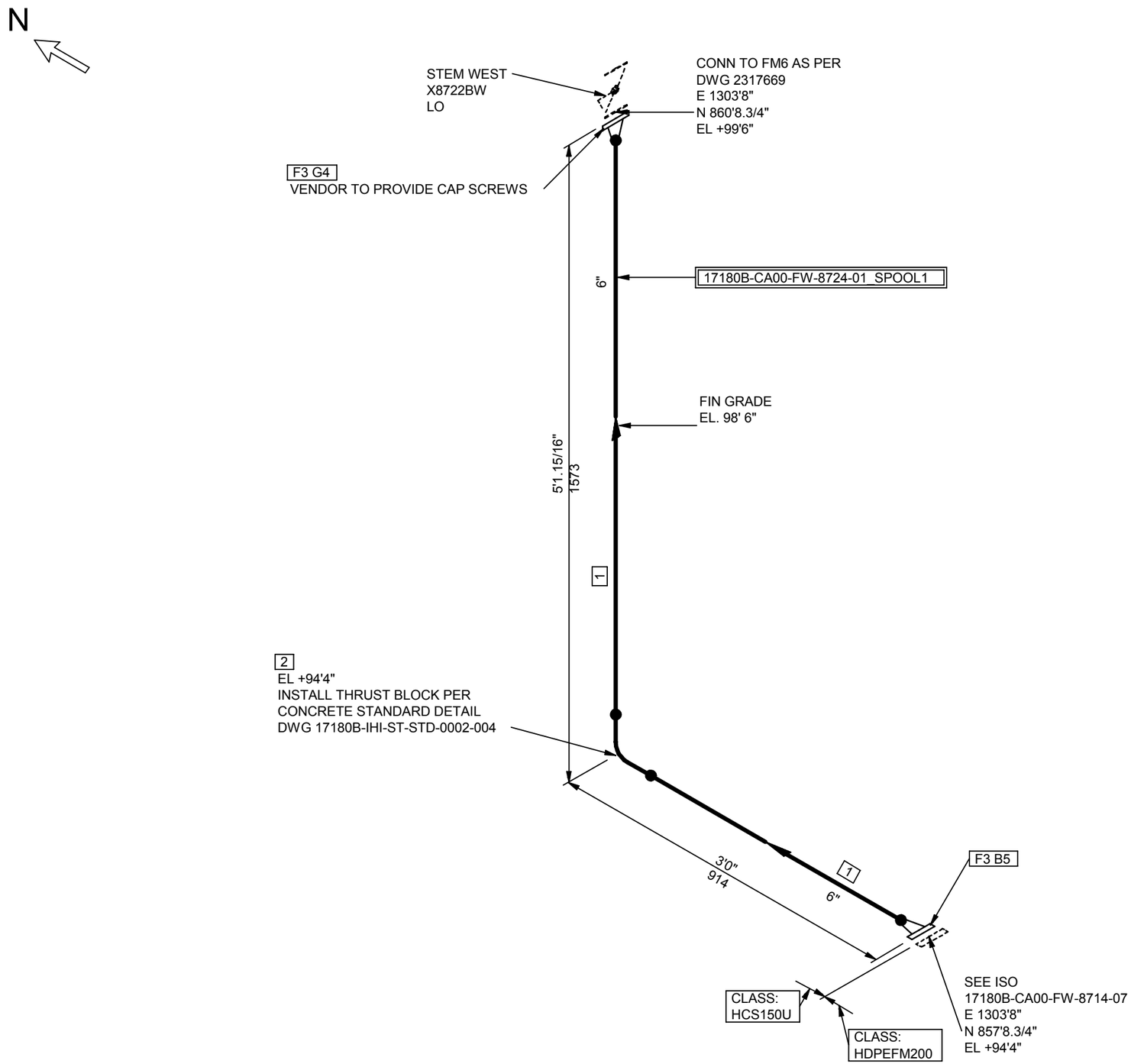

MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	6.1'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 5 in. Length	3/4	8

17180B-CA00-FW-8724-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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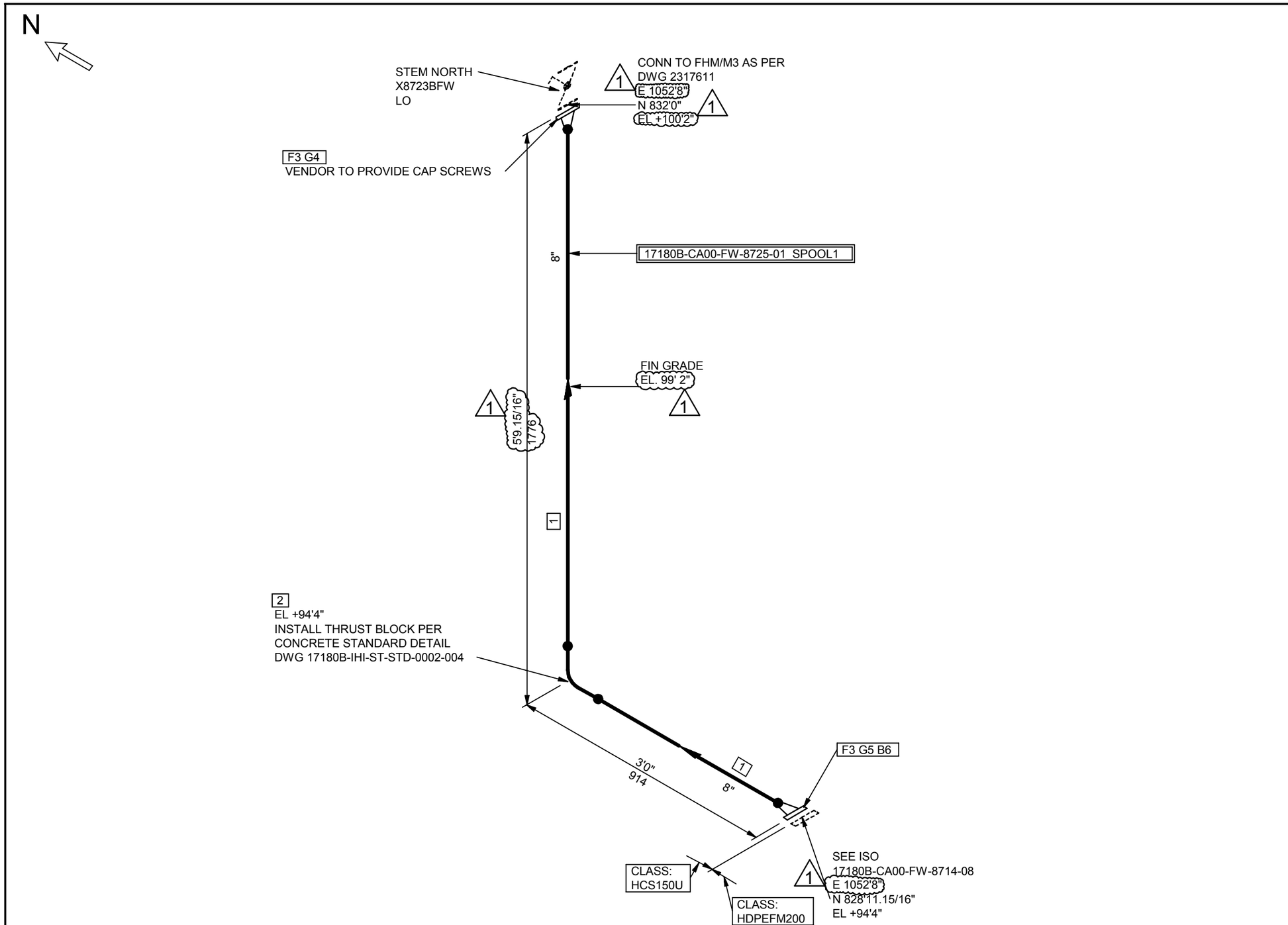
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8724-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	6.2
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	8	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	3/4	8

17180B-CA00-FW-8725-01_SPOOL1

LEGEND:

- ● = SHOP WELL
- ⊠ = FIELD WELL
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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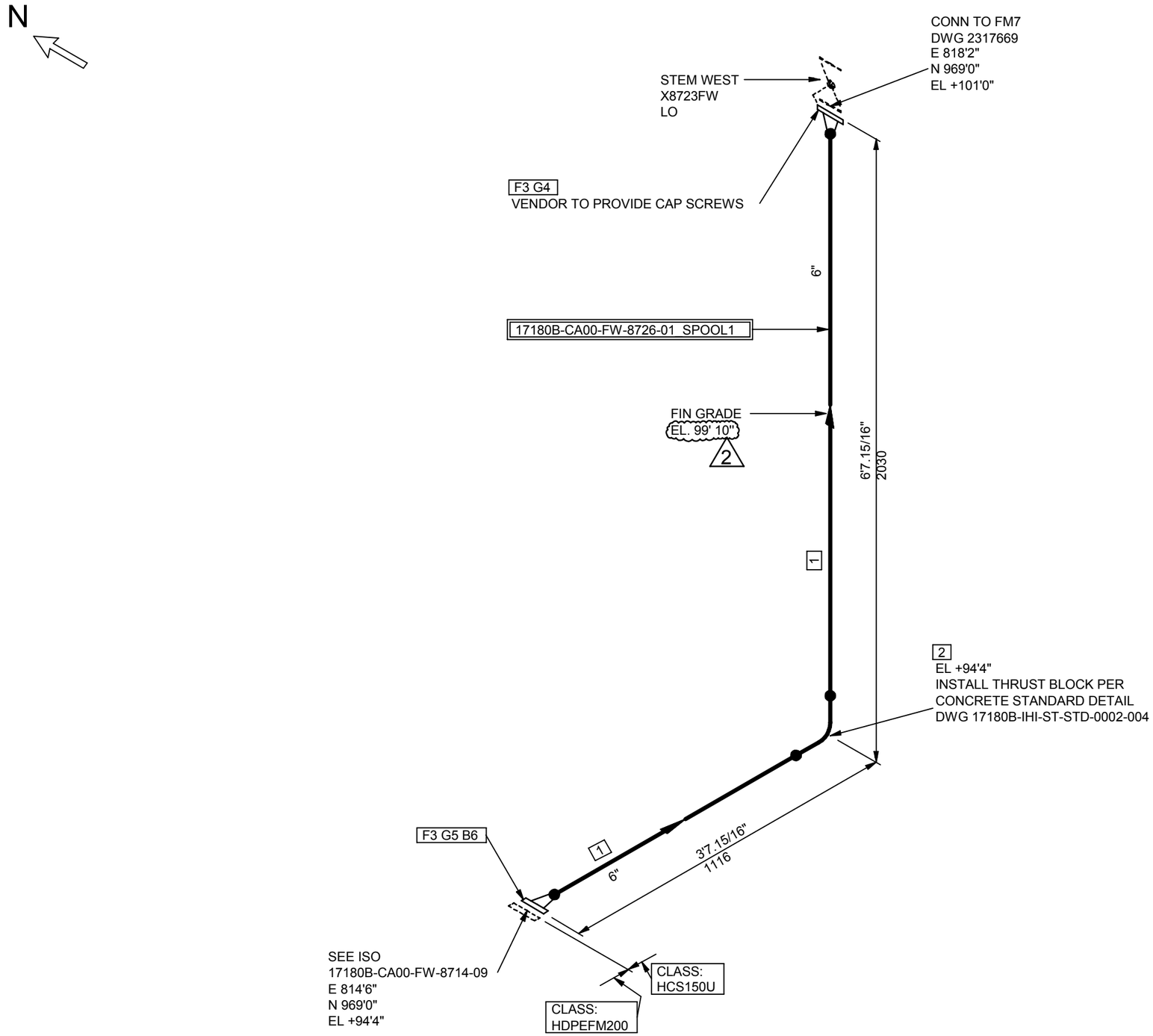
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8725-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	8.3'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	8

17180B-CA00-FW-8726-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	08/06/2019	ISSUED AS MARKED	VT	PVK	MLO
1	08/01/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/27/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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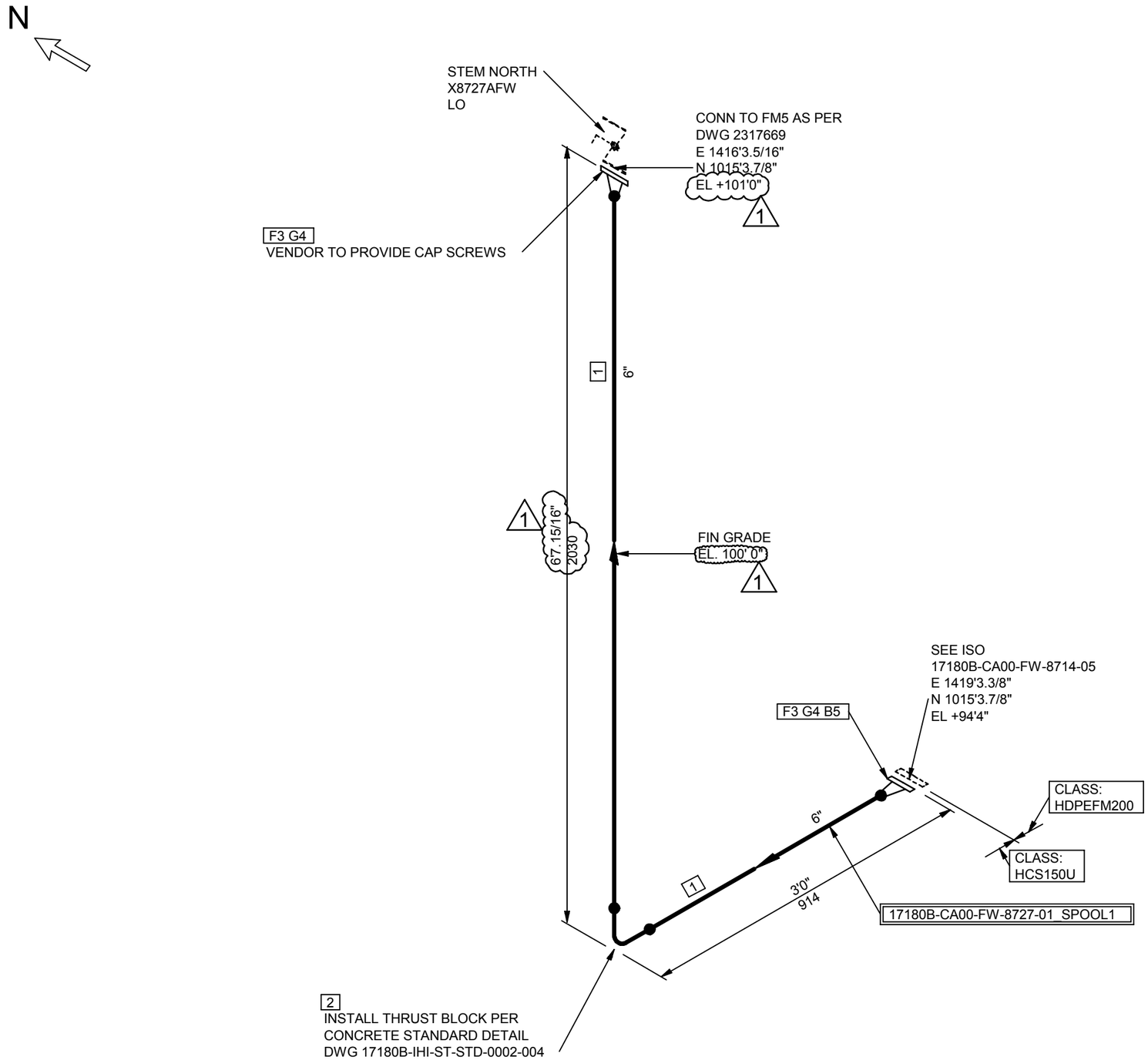
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8726-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	7.6'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	8

17180B-CA00-FW-8727-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Coating and wrapping requirements as per "Underground piping specifications-coating and wrapping",DWGS 02600-010

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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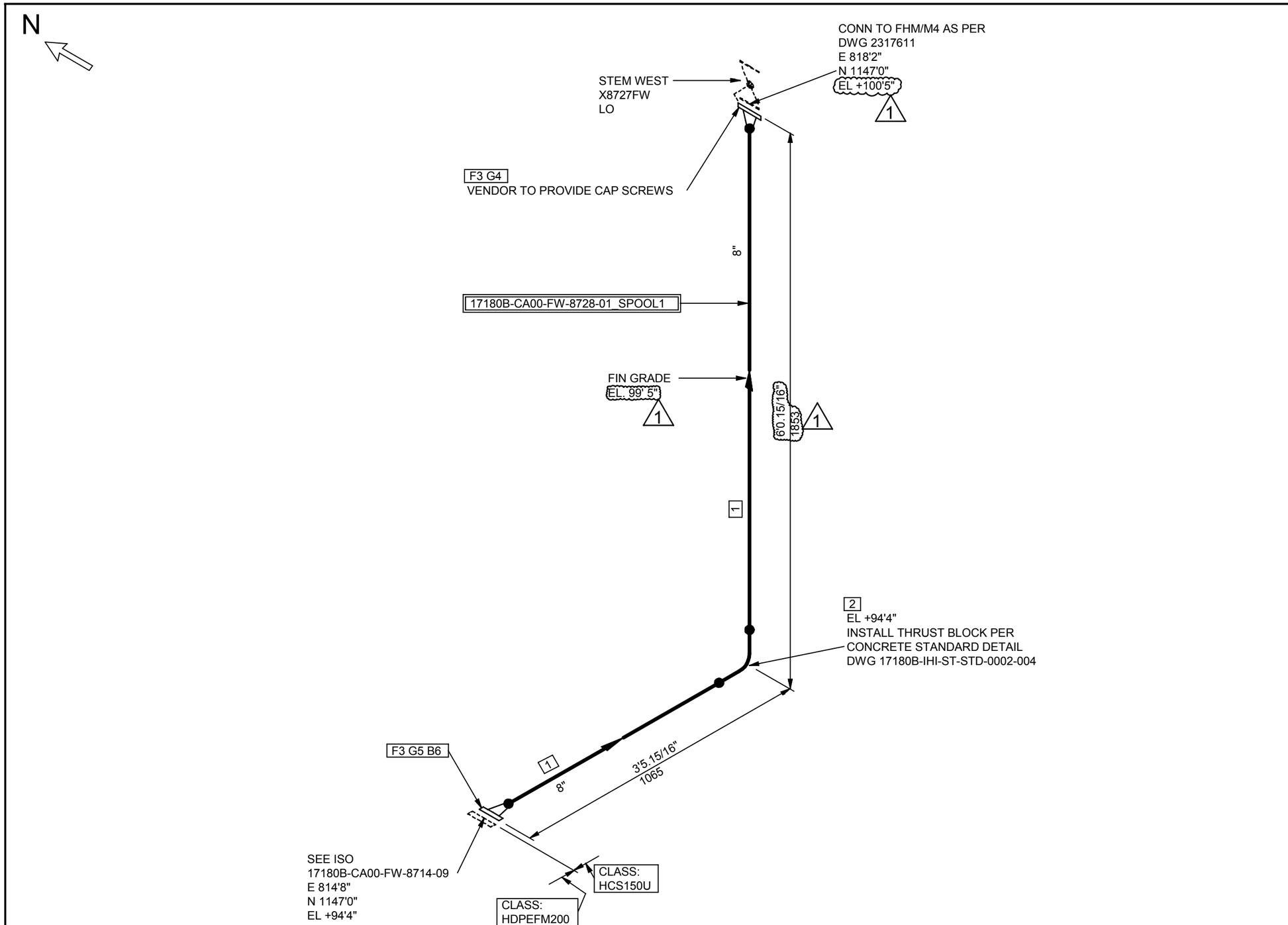
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8727-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	7.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	8	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 6 in. Length	3/4	8

17180B-CA00-FW-8728-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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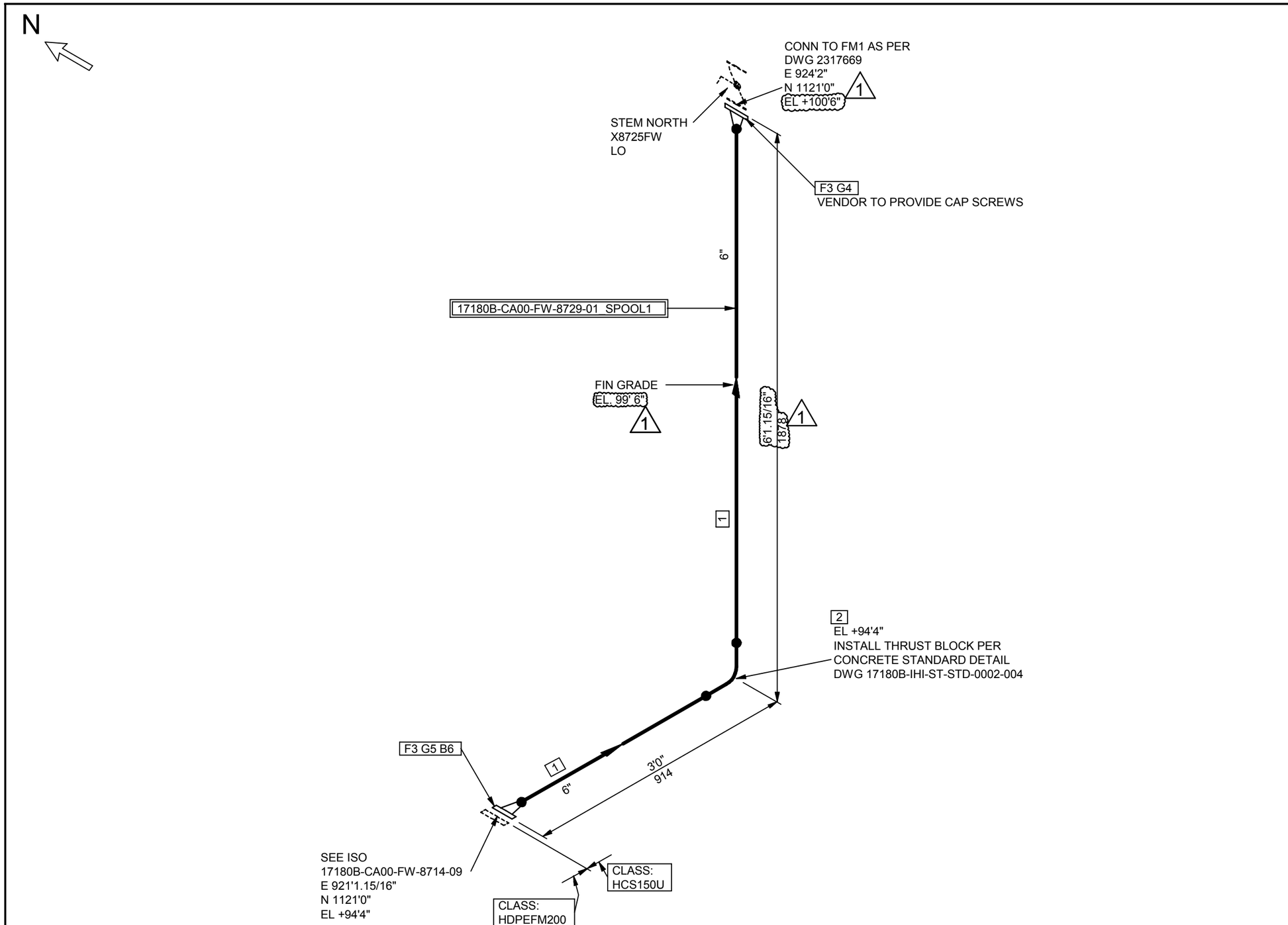
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8728-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	7.1'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	8

17180B-CA00-FW-8729-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/27/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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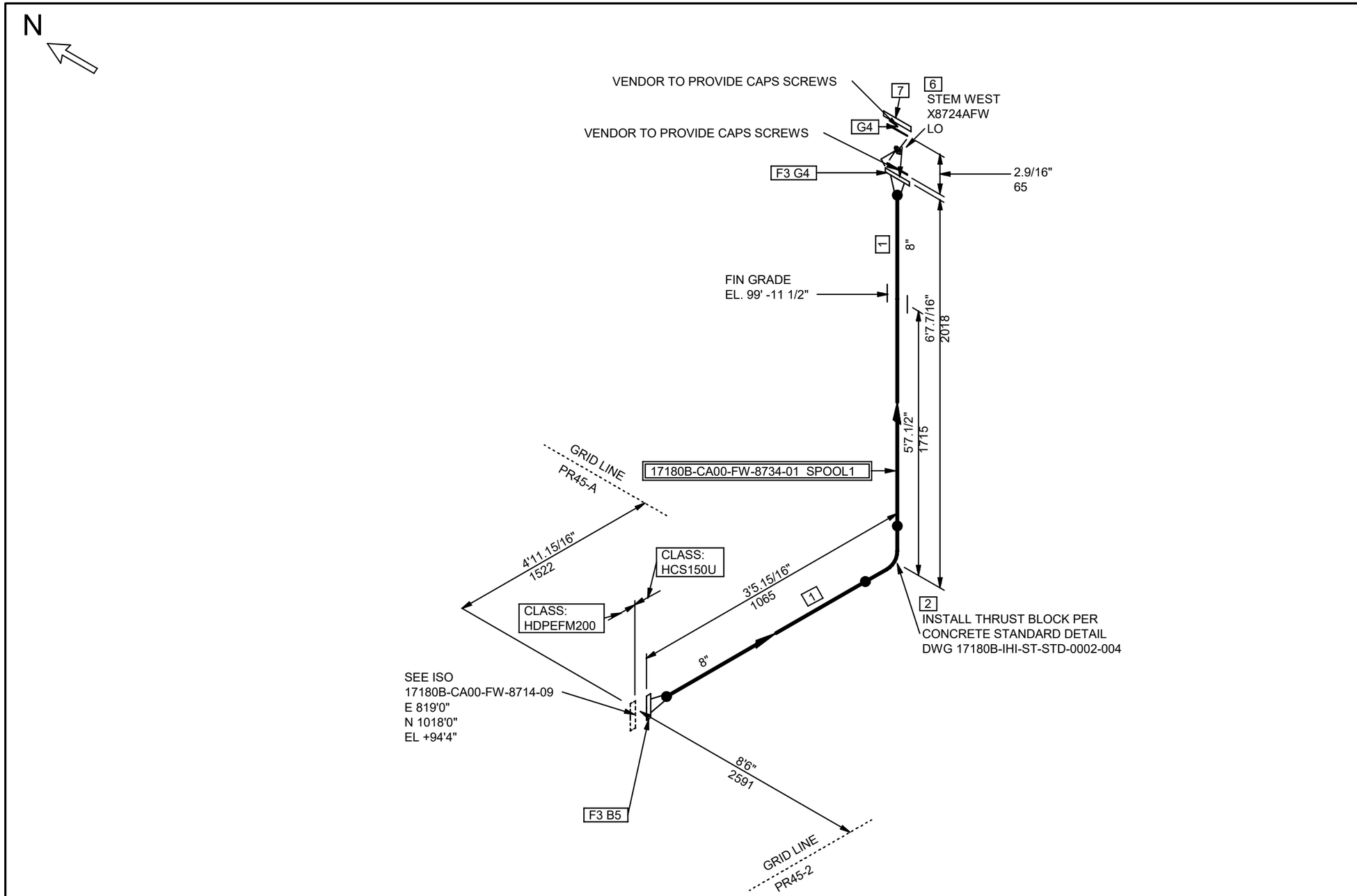
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8729-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	7.5'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	3/4	8
6	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , RTFE seal, 316SS trim, fire safe , DOUBLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAA	8	1
7	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	8	1

17180B-CA00-FW-8734-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/30/2016	ISSUED FOR CONSTRUCTION	RR	AA	MLO

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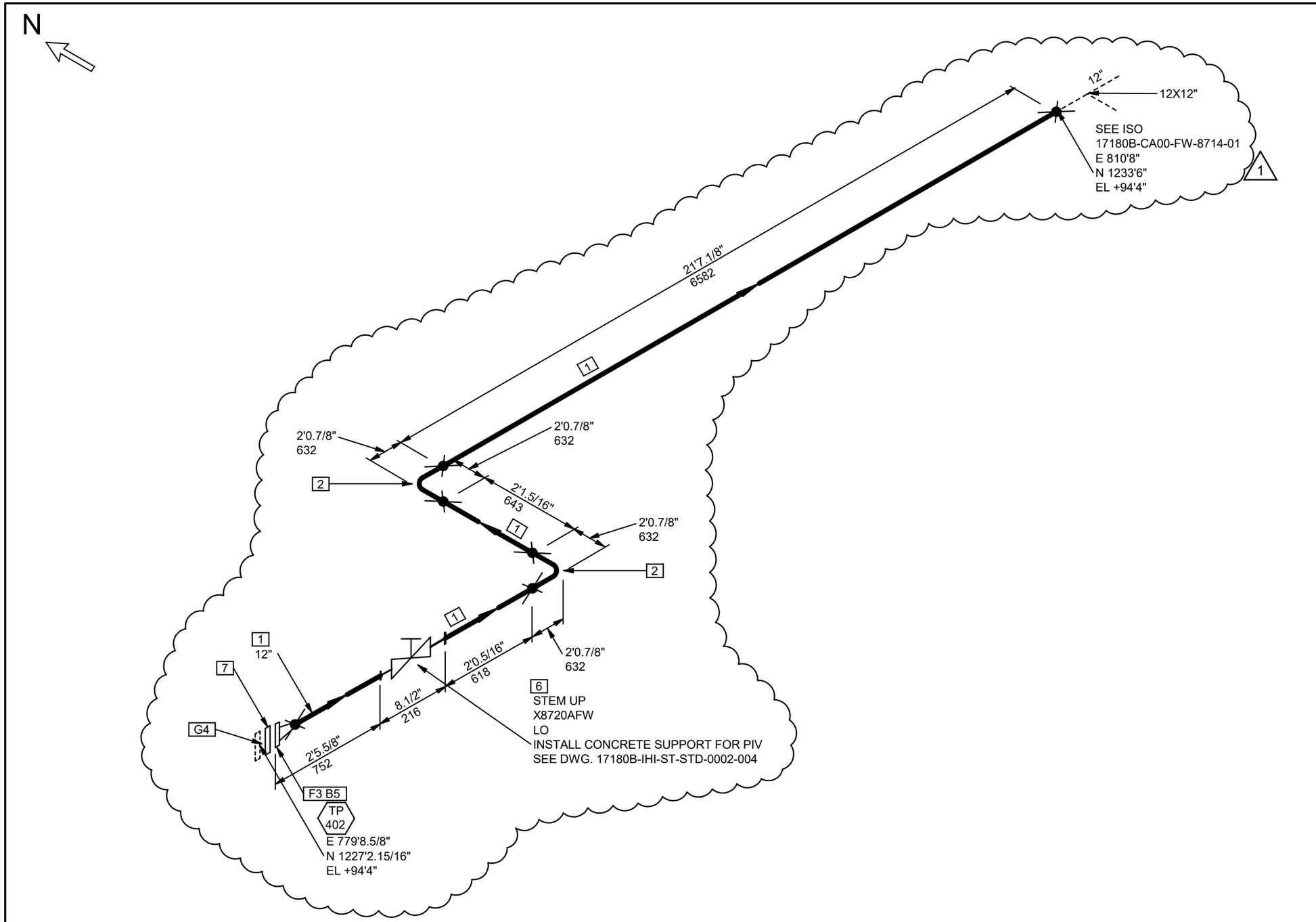
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8734-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	27.3'
2	90 Deg Miter Bend-5S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12	2
3	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	12	1
4	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	12	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 10 in. Length	7/8	12
6	Gate Vlv , AWWA C515 , 250 PSI , MJBLE , Bltd Bonnet , Indicator post , Ductile Iron , Bronze trim , UL/FM approved , GA13DF930	12	1
7	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	12	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/07/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

PRAXAIR

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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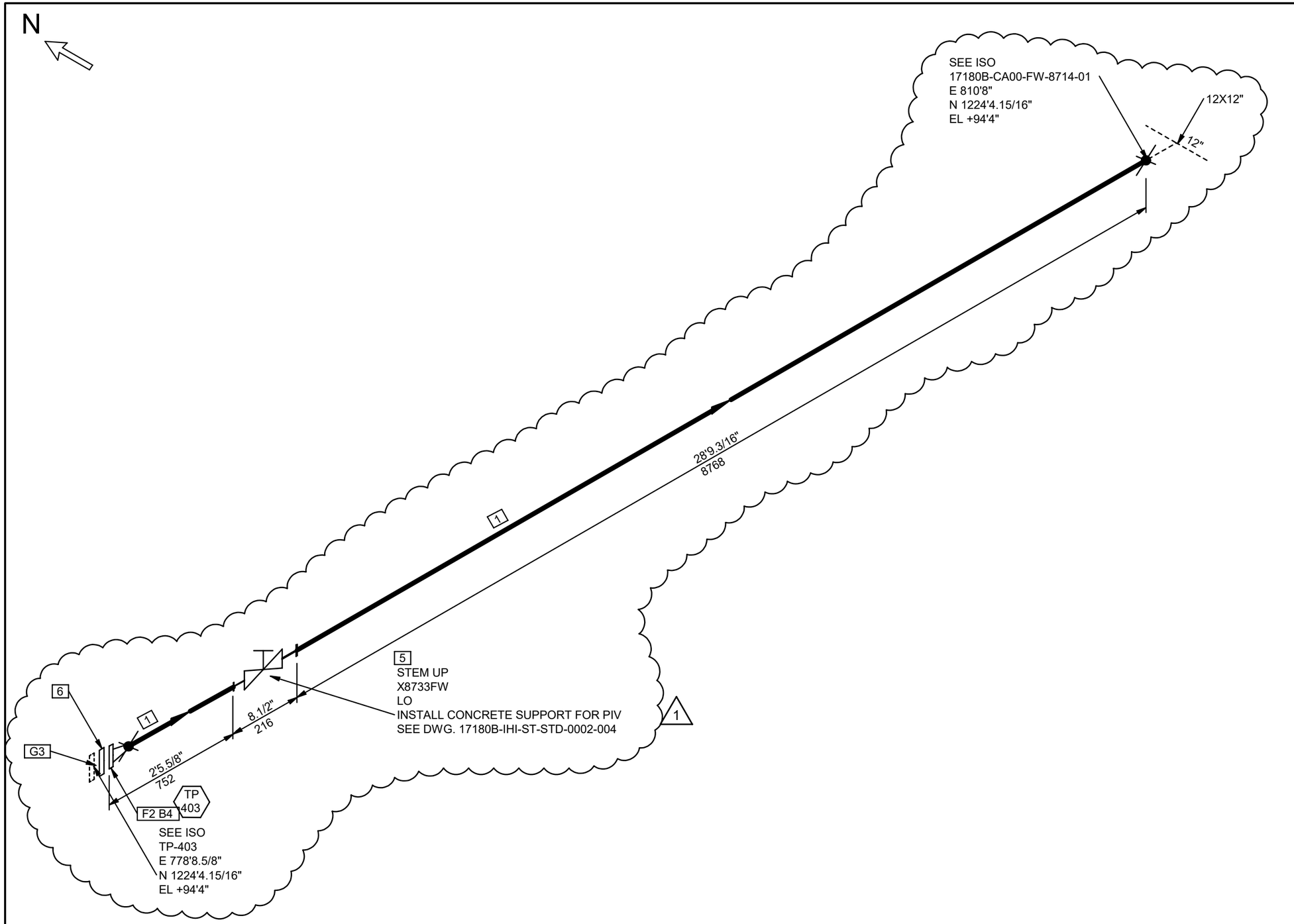
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-0112-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	30.4' 1
2	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	12	1
3	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	12	1
4	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 10 in. Length	7/8	12
5	Gate Vlv , AWWA C515 , 250 PSI , MJBLE , Bltd Bonnet , Indicator post , Ductile Iron , Bronze trim , UL/FM approved , GA13DF930	12	1
6	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	12	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021. 1

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/07/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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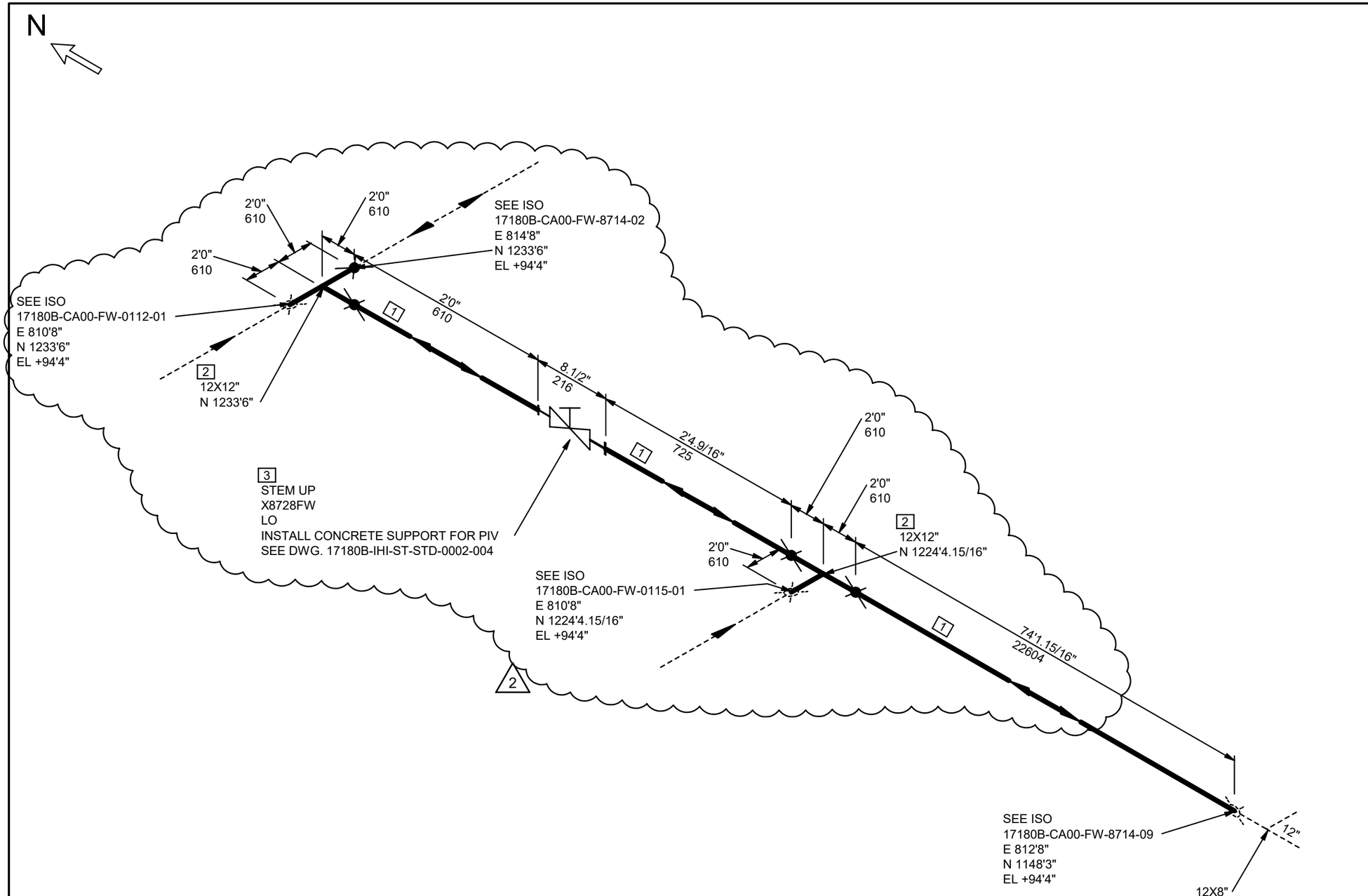
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-0115-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	78.6'
2	Tee , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X12	2
3	Gate Vlv , AWWA C515 , 250 PSI , MJBLE , Bltd Bonnet , Indicator post , Ductile Iron , Bronze trim , UL/FM approved , GA13DF930	12	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	10/08/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
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- — — = HEAT TRACING

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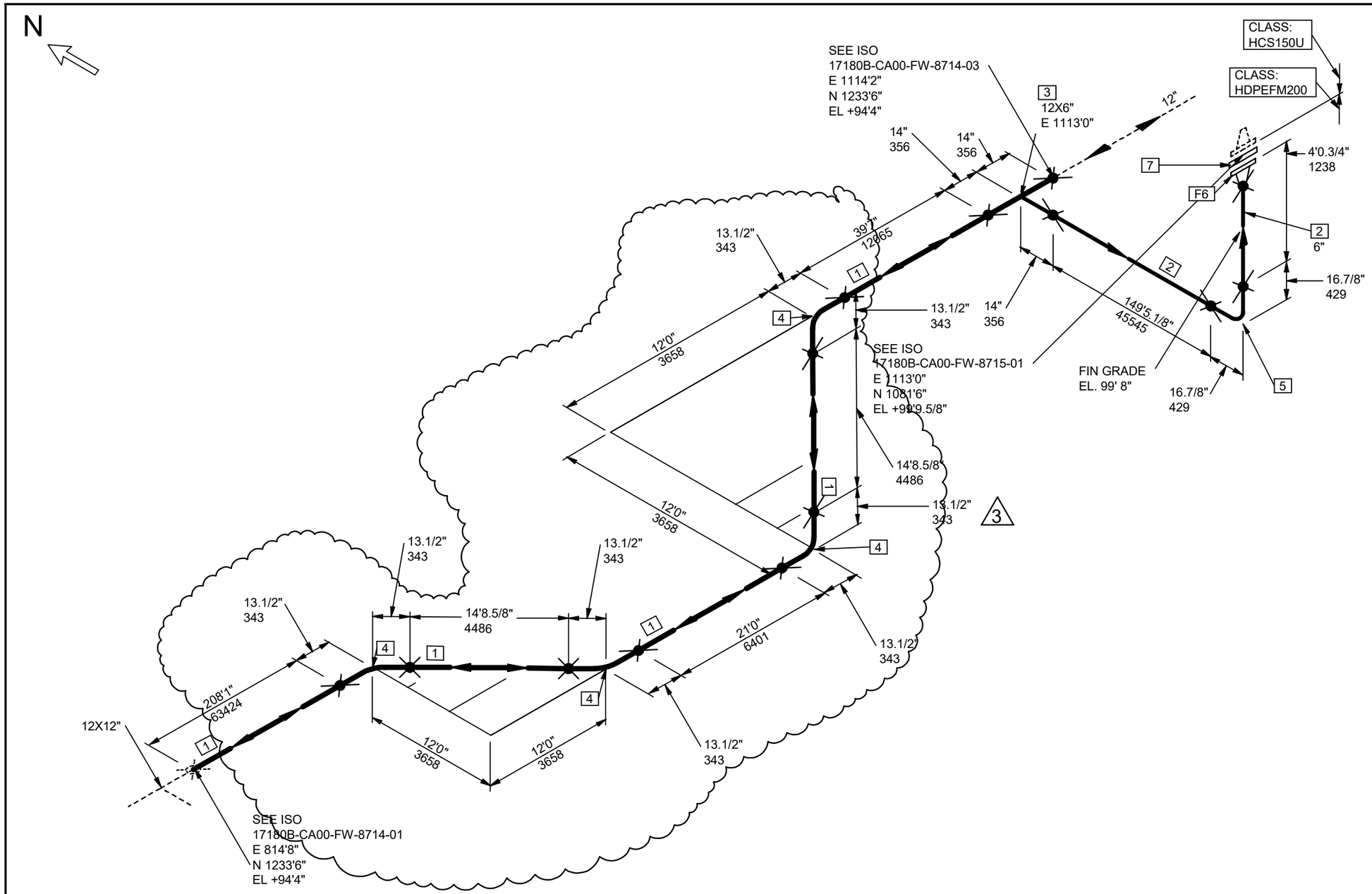
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8714-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	298.2'
2	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	6	152.9'
3	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X6	1
4	45 Deg Miter Bend-3S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12	4
5	90 Deg Miter Bend-5S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	6	1
6	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	6	1
7	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	6	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 .

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	10/17/2019	REVISED AS NOTED	TKS	AA	MLO
2	10/08/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
1	07/26/2019	REVISED AS NOTED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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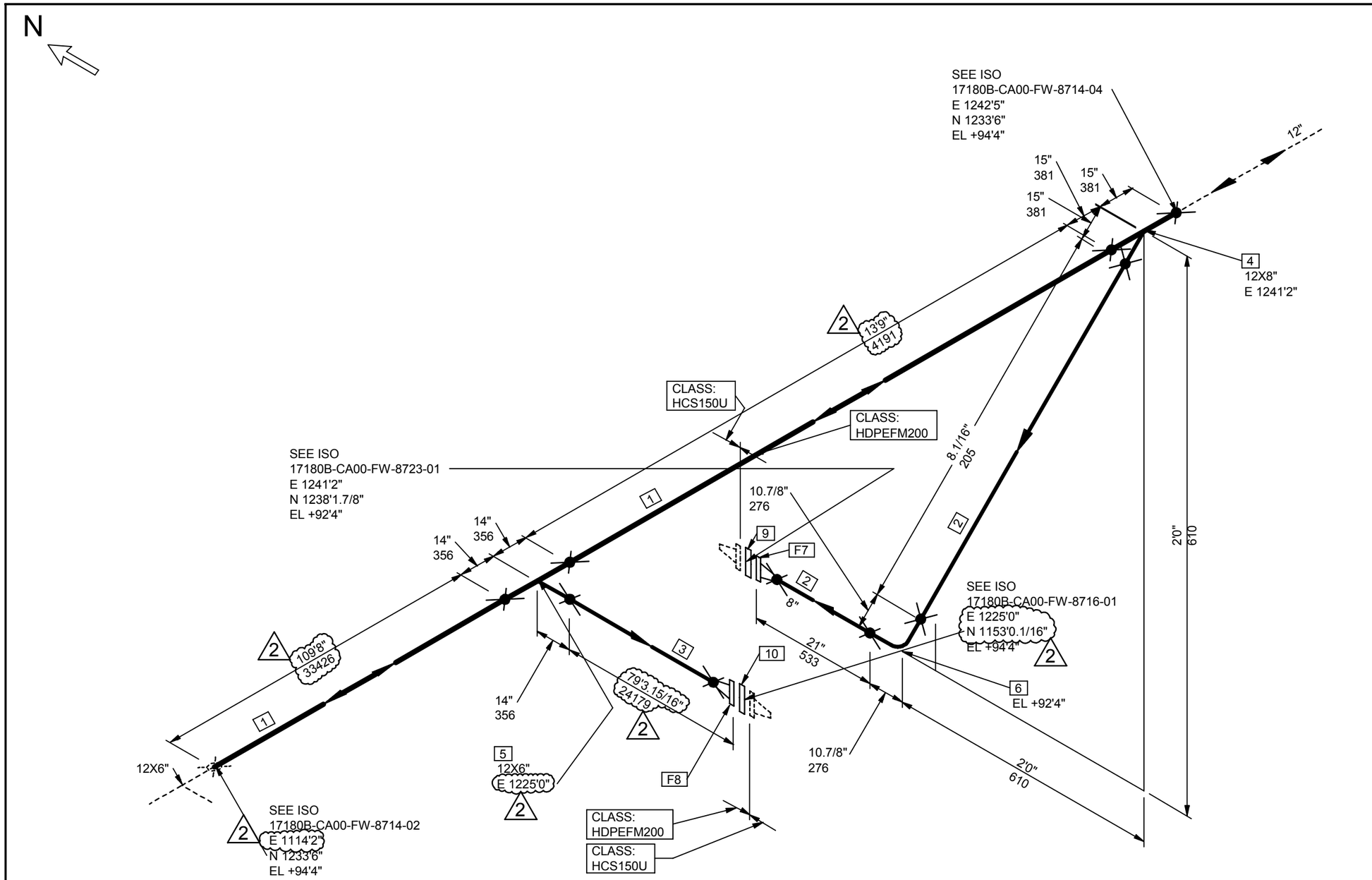
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8714-02	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	2 (123.5')
2	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	8	1.7'
3	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	6	2 (78.7')
4	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X8	1
5	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X6	1
6	45 Deg Miter Bend-3S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	8	1
7	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	8	1
8	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	6	1
9	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	8	1
10	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	6	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	08/06/2019	ISSUED AS MARKED	VT	PVK	MLO
1	07/27/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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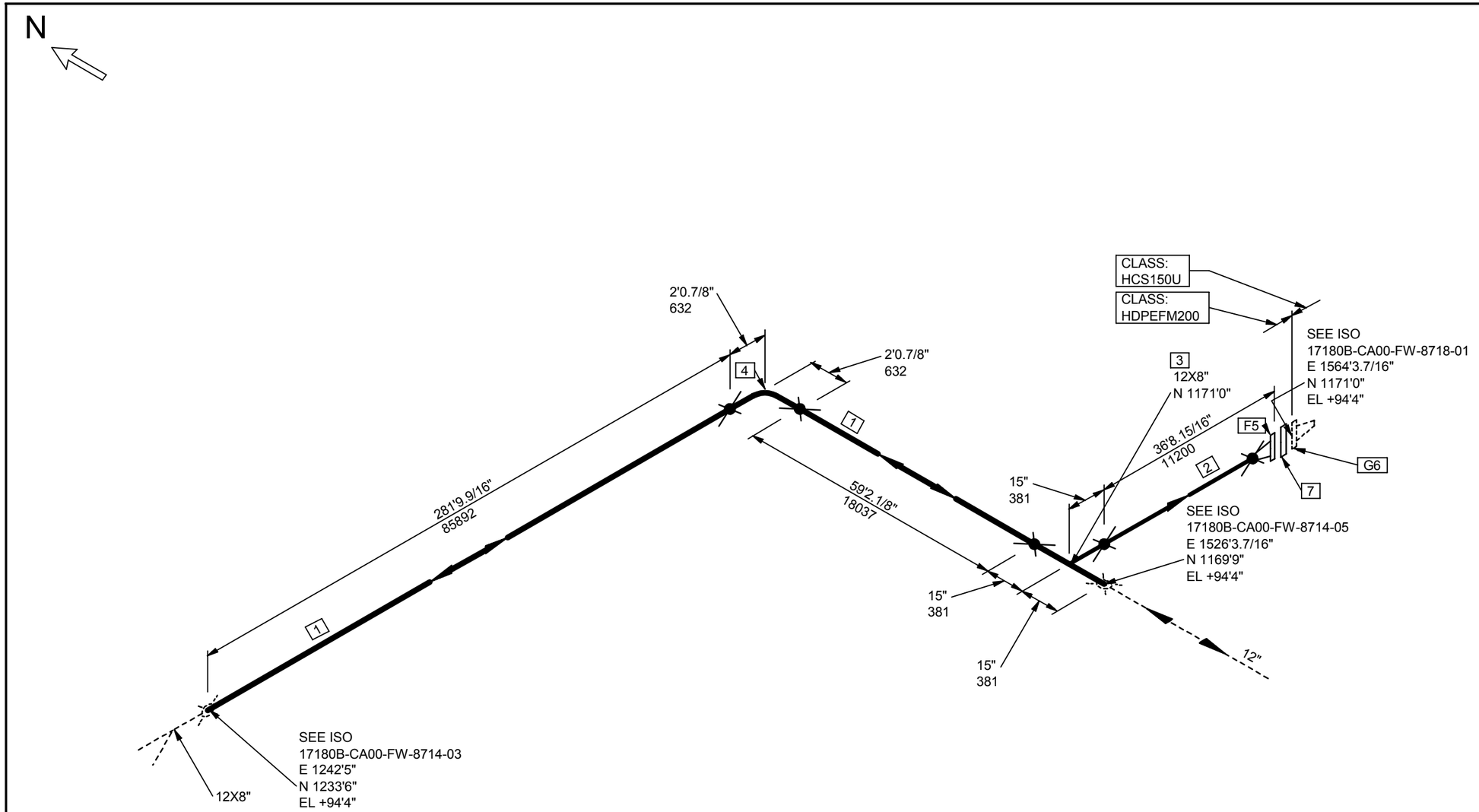
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8714-03	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	341.0'
2	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	8	36.0'
3	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X8	1
4	90 Deg Miter Bend-5S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12	1
5	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	8	1
6	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	8	1
7	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	8	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	06/22/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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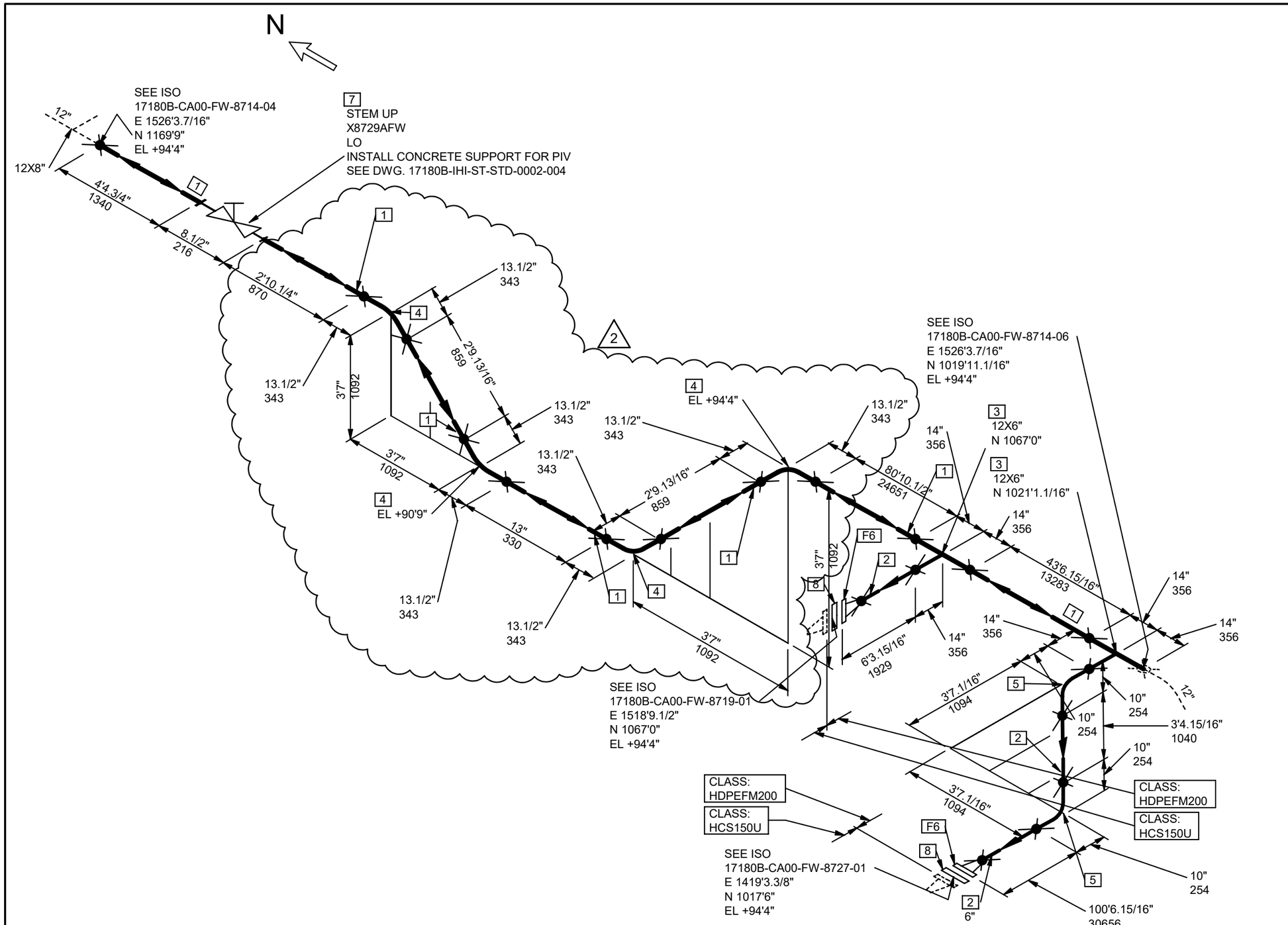
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8714-04	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	138.5'
2	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	6	109.0'
3	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X6	2
4	45 Deg Miter Bend-3S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12	4
5	45 Deg Miter Bend-3S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	6	2
6	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	6	2
7	Gate Vlv , AWWA C515 , 250 PSI , MJBLE , Bltd Bonnet , Indicator post , Ductile Iron , Bronze trim , UL/FM approved , GA13DF930	12	1
8	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	6	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/14/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	02/25/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	06/20/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

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- — — = HEAT TRACING

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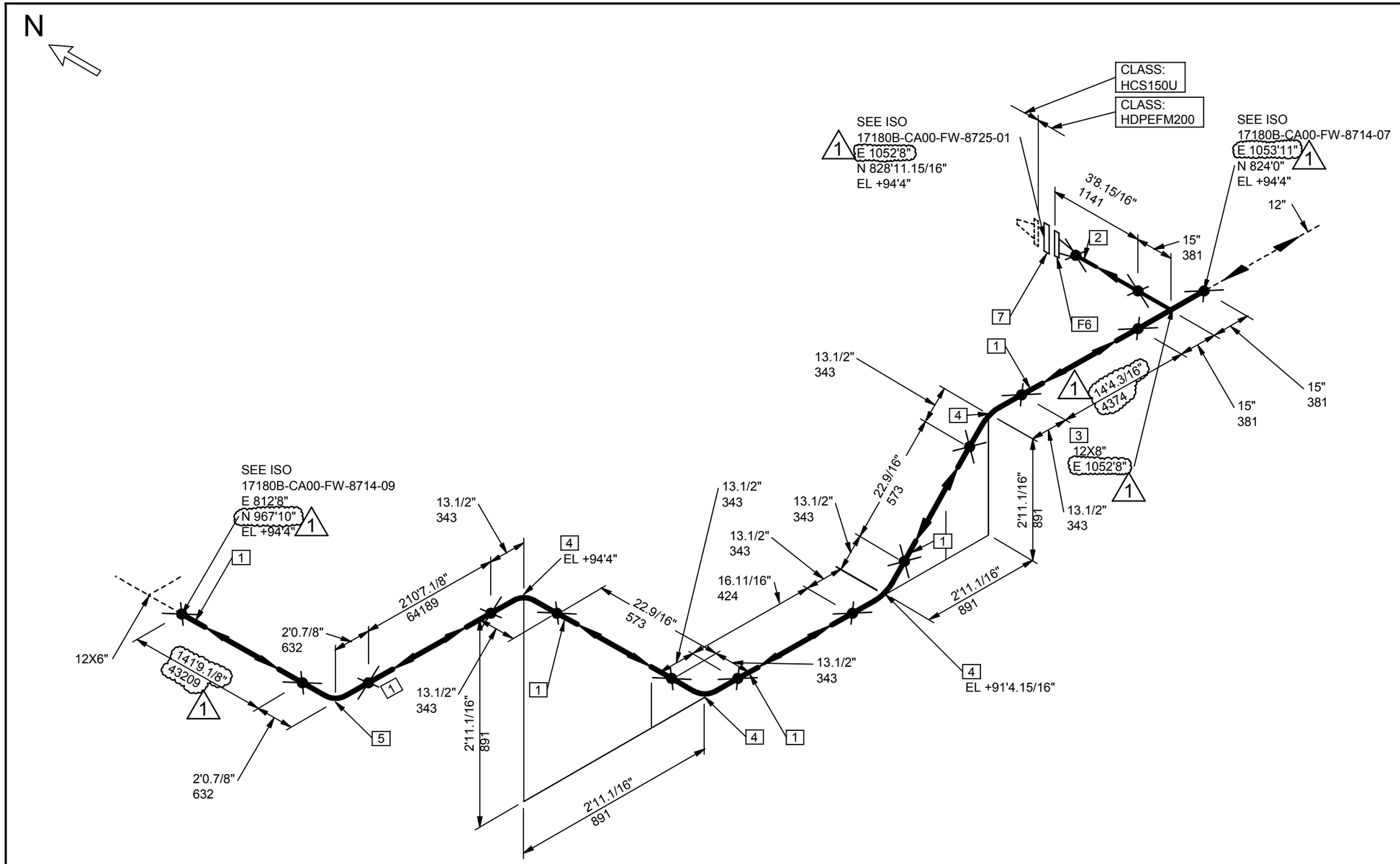
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8714-05	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	371.9'
2	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	8	3.0'
3	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X8	1
4	45 Deg Miter Bend-3S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12	4
5	90 Deg Miter Bend-5S , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12	1
6	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	8	1
7	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	8	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/19/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

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- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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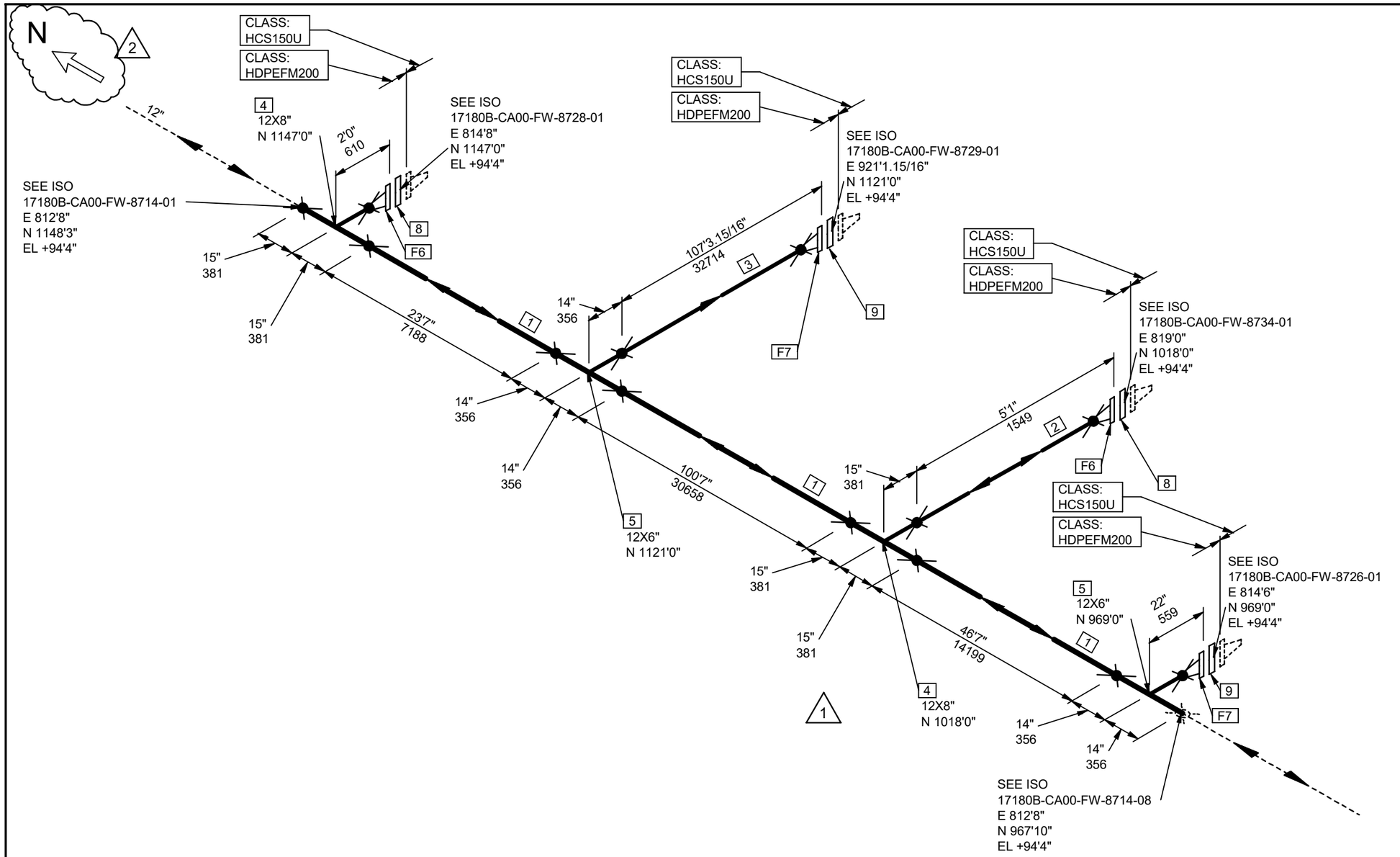
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8714-08	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	12	170.8'
2	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	8	4.4'
3	Pipe , IPS, ASTM F714, FM , CL200 , HDPE, ASTM D3350, PE4710 , TF	6	106.7'
4	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X8	2
5	Tee Redu. Branch , IPS, ASTM F2206, FM , CL200 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends	12X6	2
6	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	8	2
7	Flg Face Adapter , IPS, ASTM F2880, FM , CL200 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710	6	2
8	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	8	2
9	Backup Ring , IPS, FM approved , CL200 , FFLFE x TF , ASTM A536-65/45/12 , Drilling as per ASME B16.1/B16.5 Class 125/150, epoxy coated	6	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 .

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HDPEFM200	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/26/2019	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	10/30/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	06/27/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELL
- ✕ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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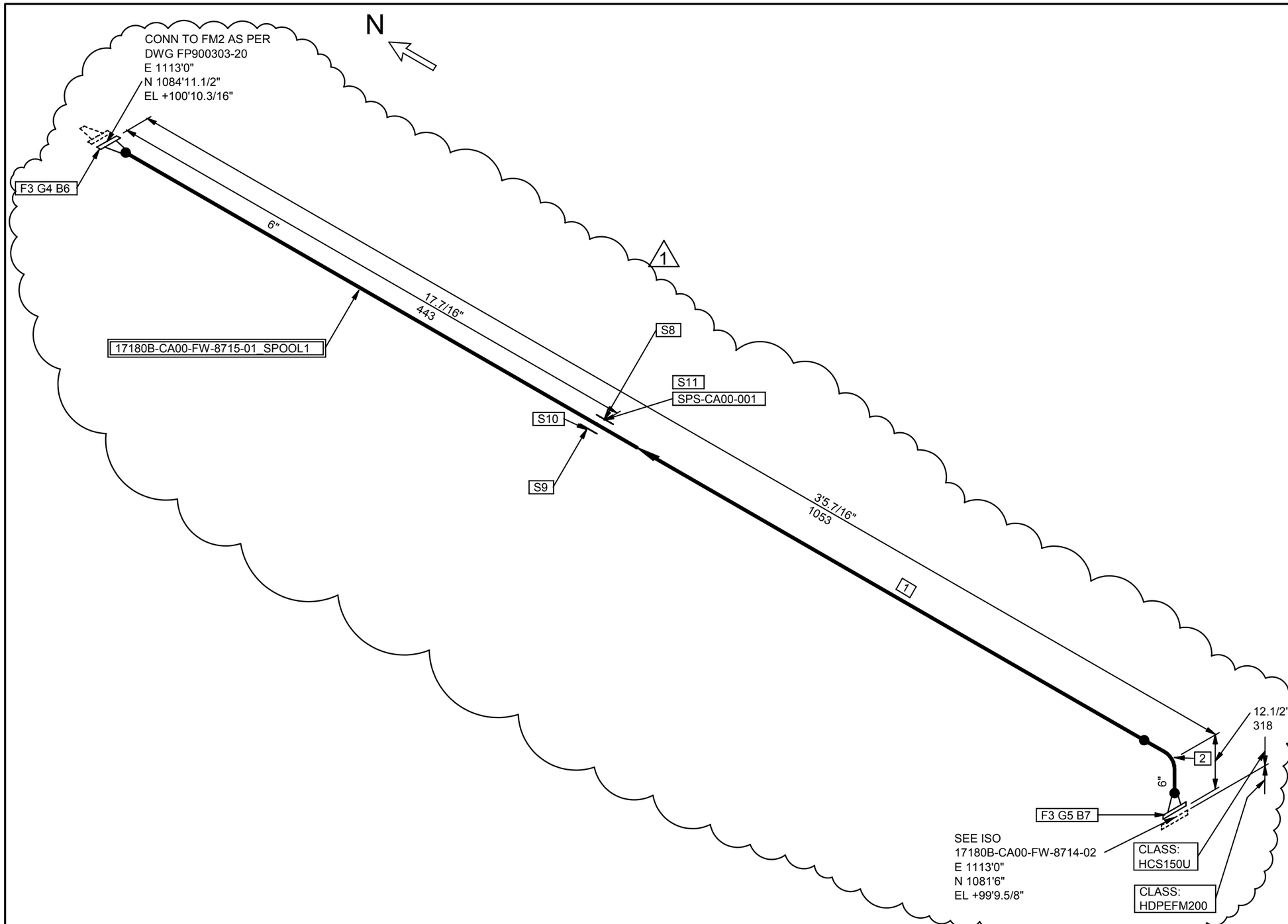
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8714-09	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	2.5'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500, THK 1/16 in (1.6 mm)	6	1
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 5 in. Length	3/4	8
	PIPE SUPPORTS		
8	IHI E&C Standard Pipe Support - Guide for Bare Pipe - GU1	6	1
9	SD2	6	1
10	BP1-A	6	1
11	SPS-CA00-001	6	1

17180B-CA00-FW-8715-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/31/2019	REVISED AS NOTED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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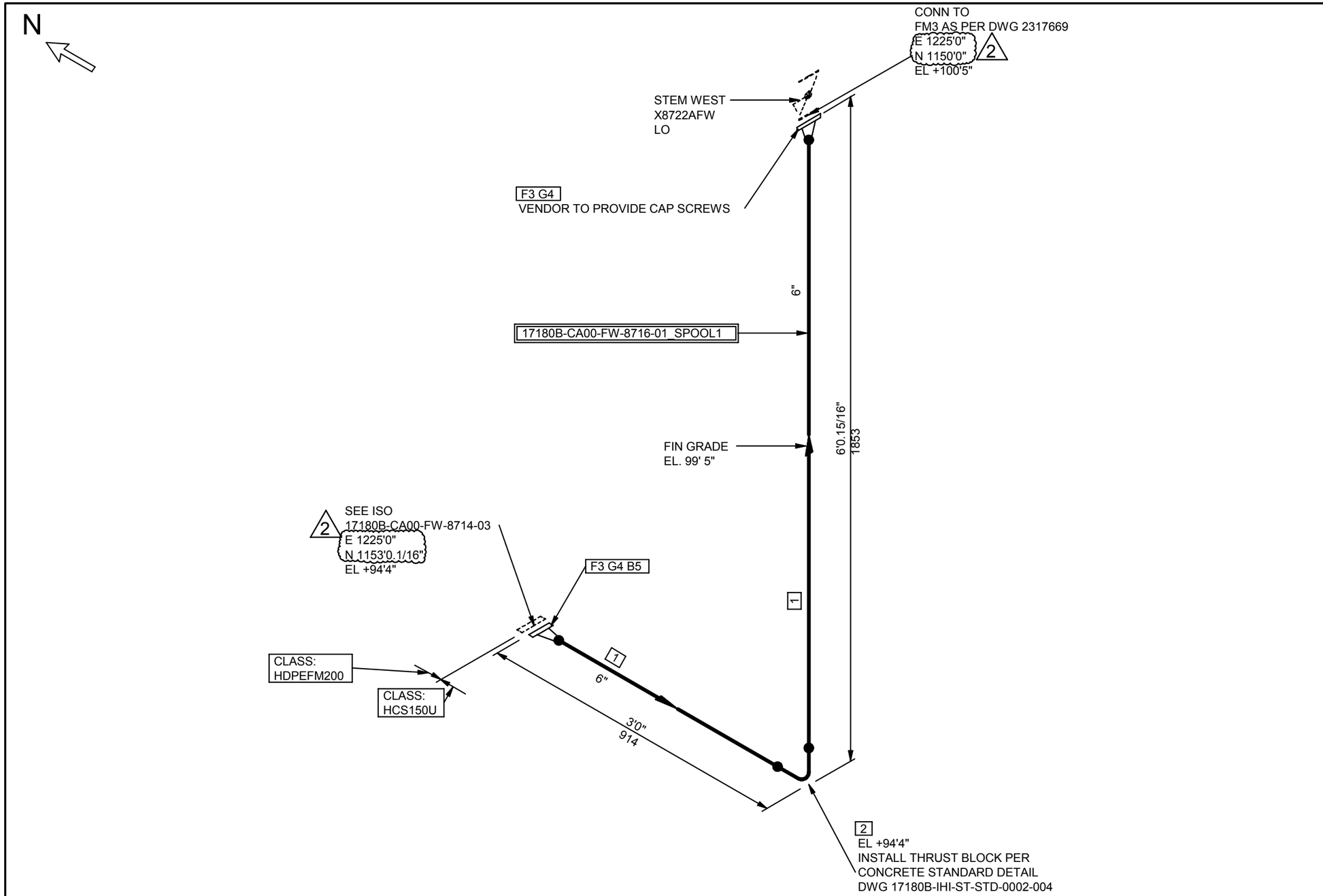
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8715-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	7.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 5 in. Length	3/4	8

17180B-CA00-FW-8716-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊠ = FIELD WELD
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021. 2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	09/23/2019	RE-ISSUED FOR CONSTRUCTION	AA	RR	MLO
1	07/27/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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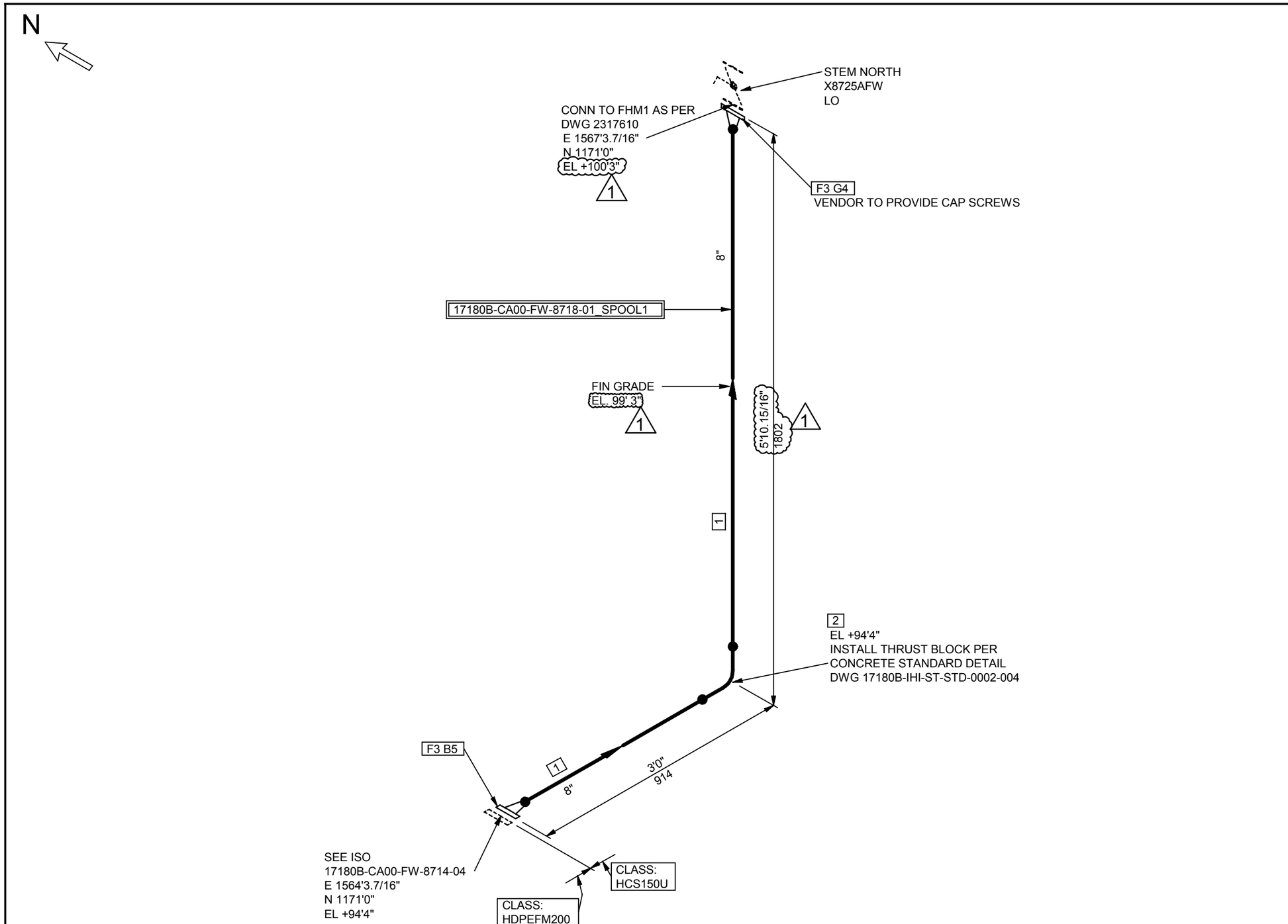
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8716-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	6.3'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 6 in. Length	3/4	8

17180B-CA00-FW-8718-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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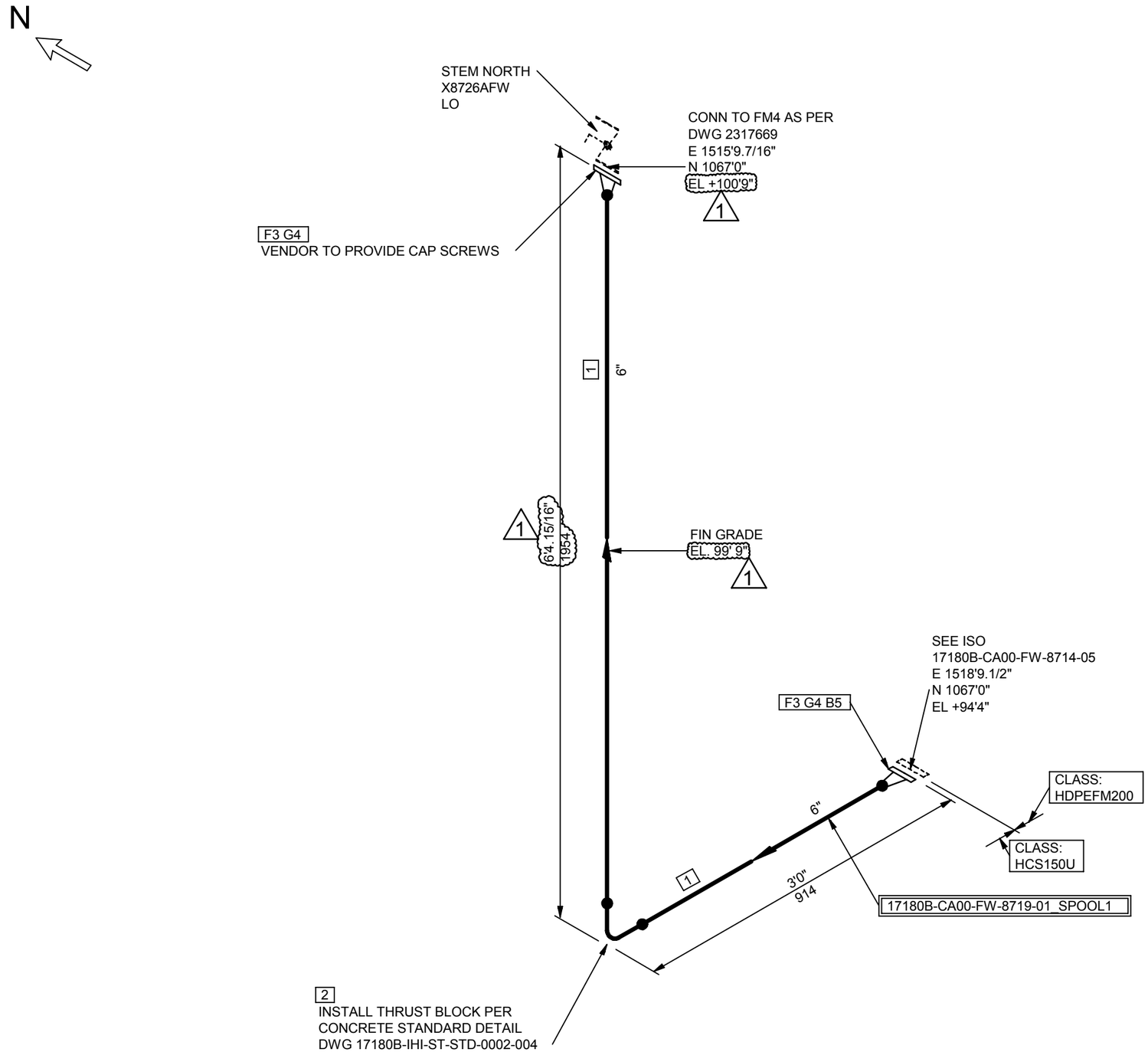
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8718-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	7.4'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 5 in. Length	3/4	8

17180B-CA00-FW-8719-01_SPOOL1

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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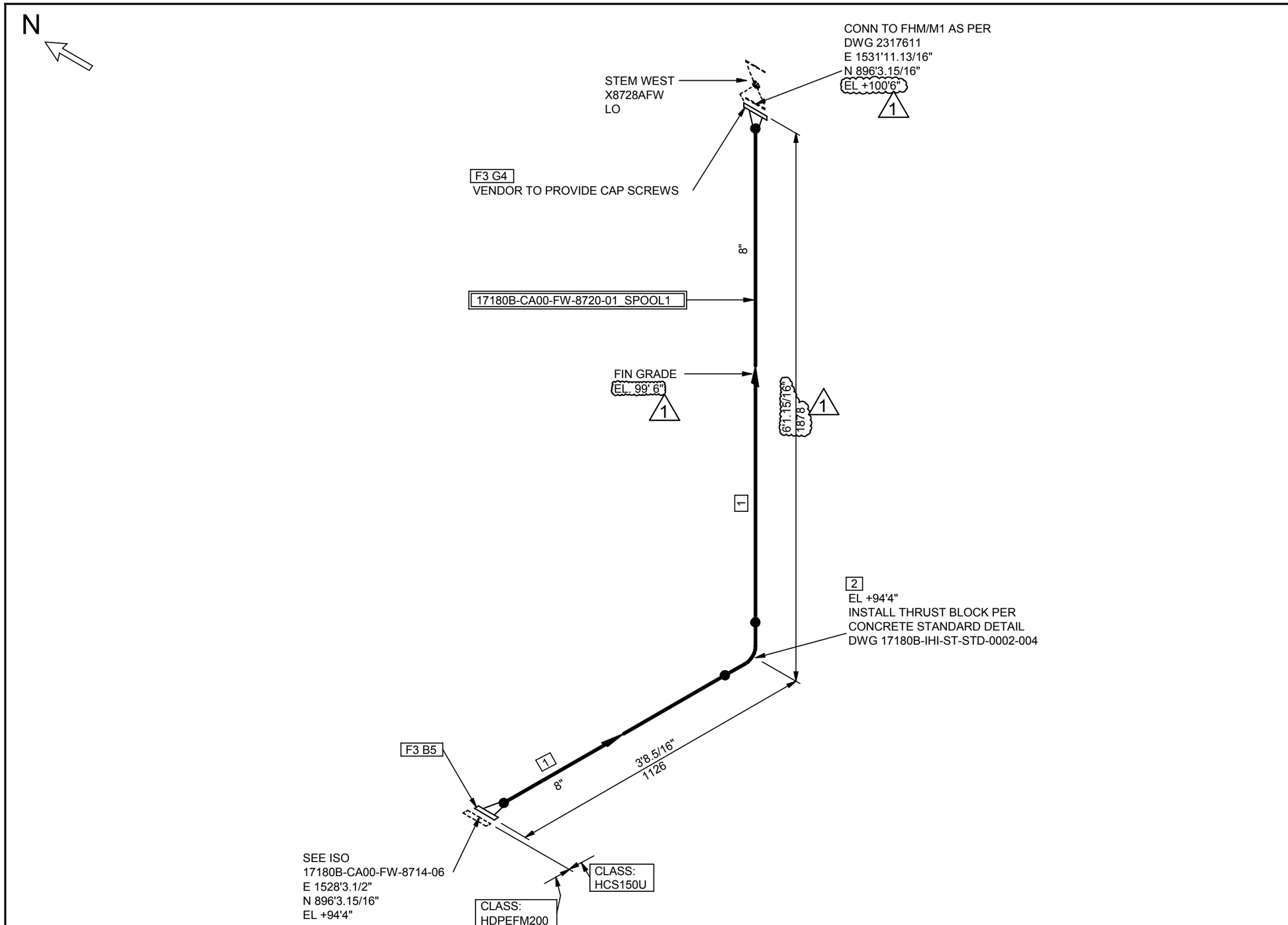
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8719-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	7.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 6 in. Length	3/4	8

17180B-CA00-FW-8720-01_SPOOL1

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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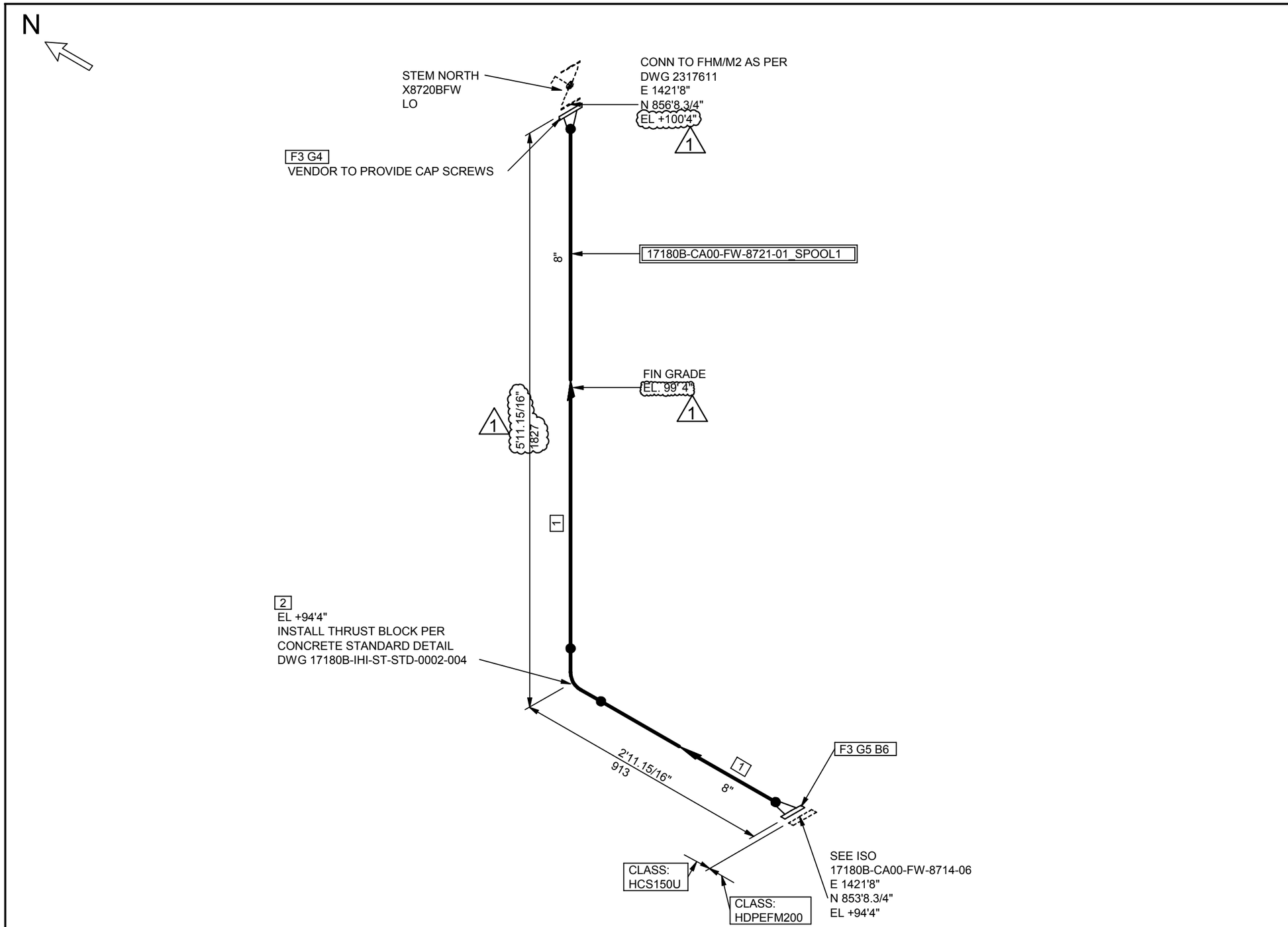
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8720-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	6'4"
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	8	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	3/4	8

17180B-CA00-FW-8721-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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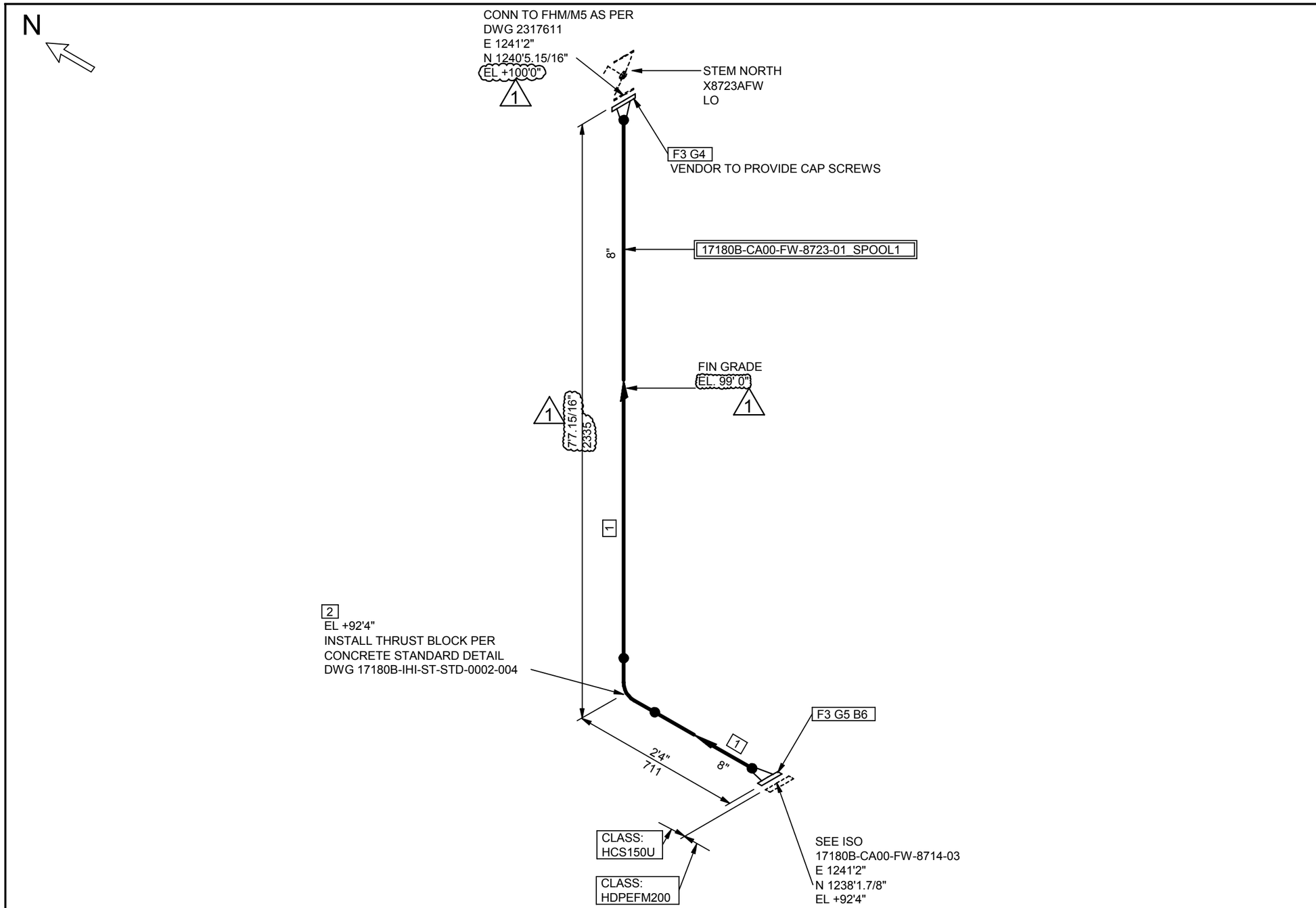
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8721-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	7.4'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/16in (1.6 mm)	8	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	3/4	8

17180B-CA00-FW-8723-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8702		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	07/25/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

PRAXAIR

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
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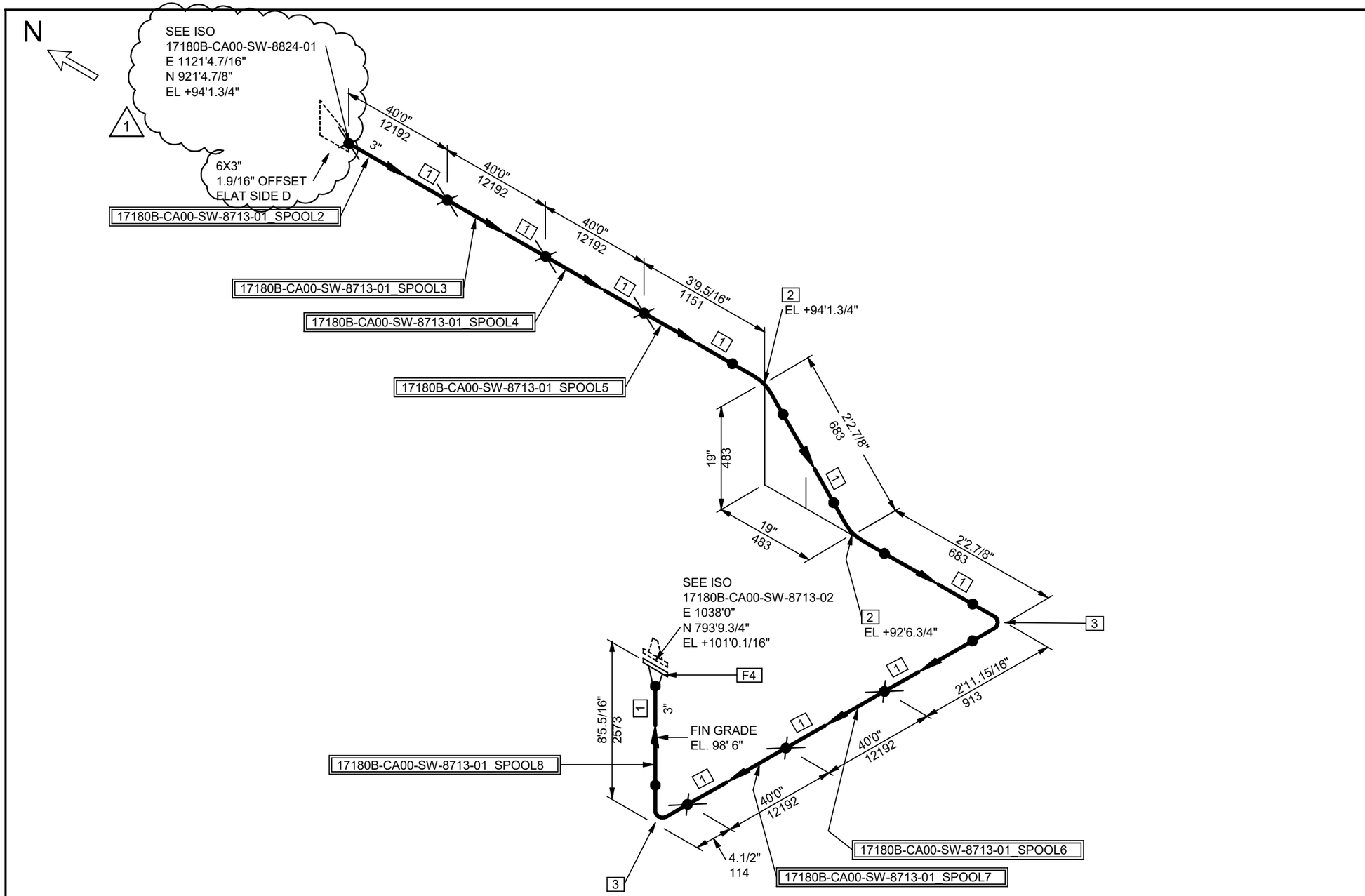
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-FW-8723-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	217.7'
2	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	2
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	2
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1

17180B-CA00-SW-8713-01_SPOOL2
17180B-CA00-SW-8713-01_SPOOL3
17180B-CA00-SW-8713-01_SPOOL4
17180B-CA00-SW-8713-01_SPOOL5
17180B-CA00-SW-8713-01_SPOOL6
17180B-CA00-SW-8713-01_SPOOL7
17180B-CA00-SW-8713-01_SPOOL8

LEGEND:

- ● = SHOP WELL
- ⋇ = FIELD WELL
- ⋇ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	06/12/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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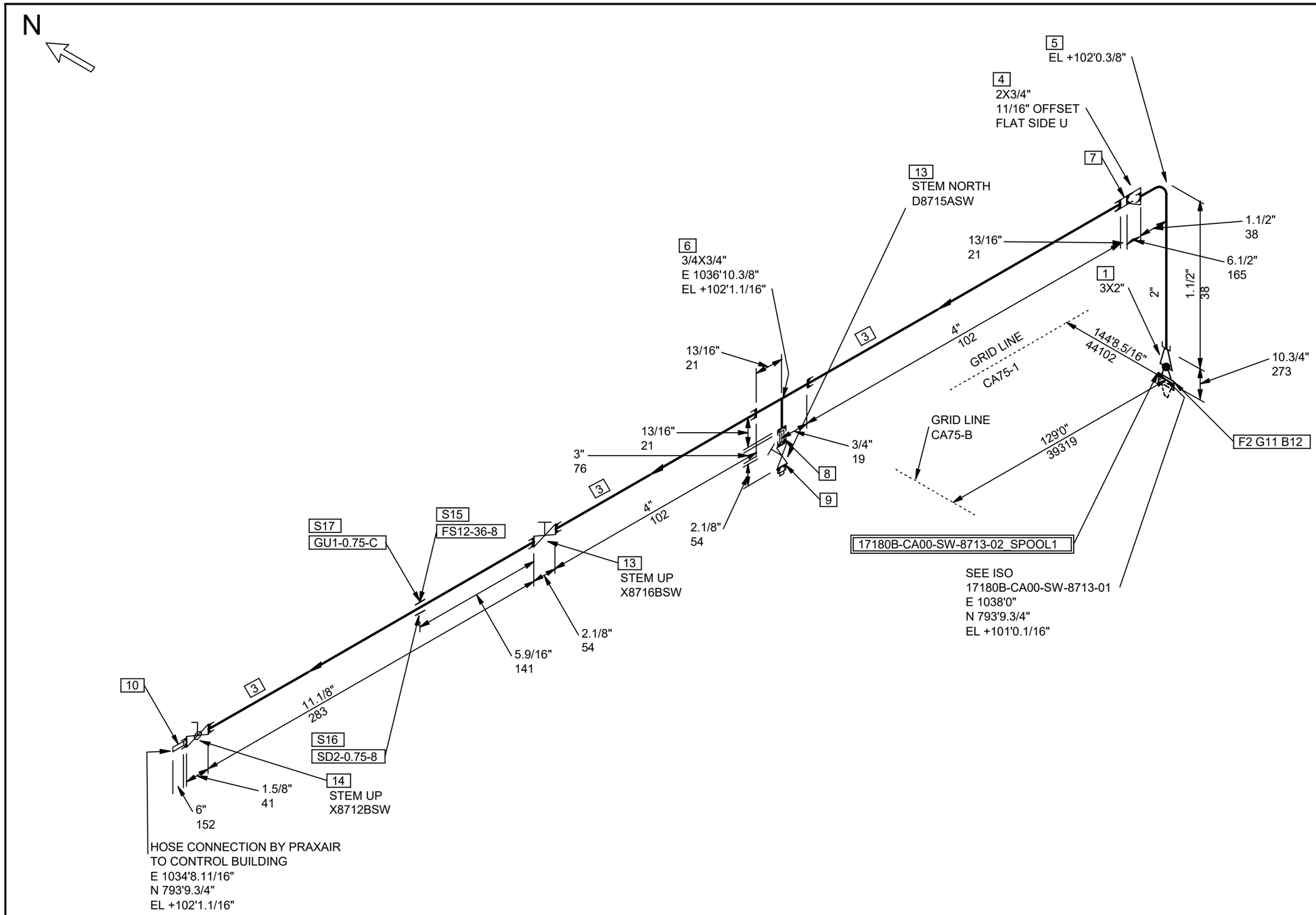
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-SW-8713-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Conc Swage , MSS SP-95 , BE x MTE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X2	1
2	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	ERECTION		
3	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	1.6'
4	Ecc Swage , MSS SP-95 , MTE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
5	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	1
6	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
7	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
9	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
10	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	3/4	1
11	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	3	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
13	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
14	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
	PIPE SUPPORTS		
15	FS12-36-8	3/4	1
16	SD2-0.75-8	3/4	1
17	GU1-0.75-C	3/4	1

17180B-CA00-SW-8713-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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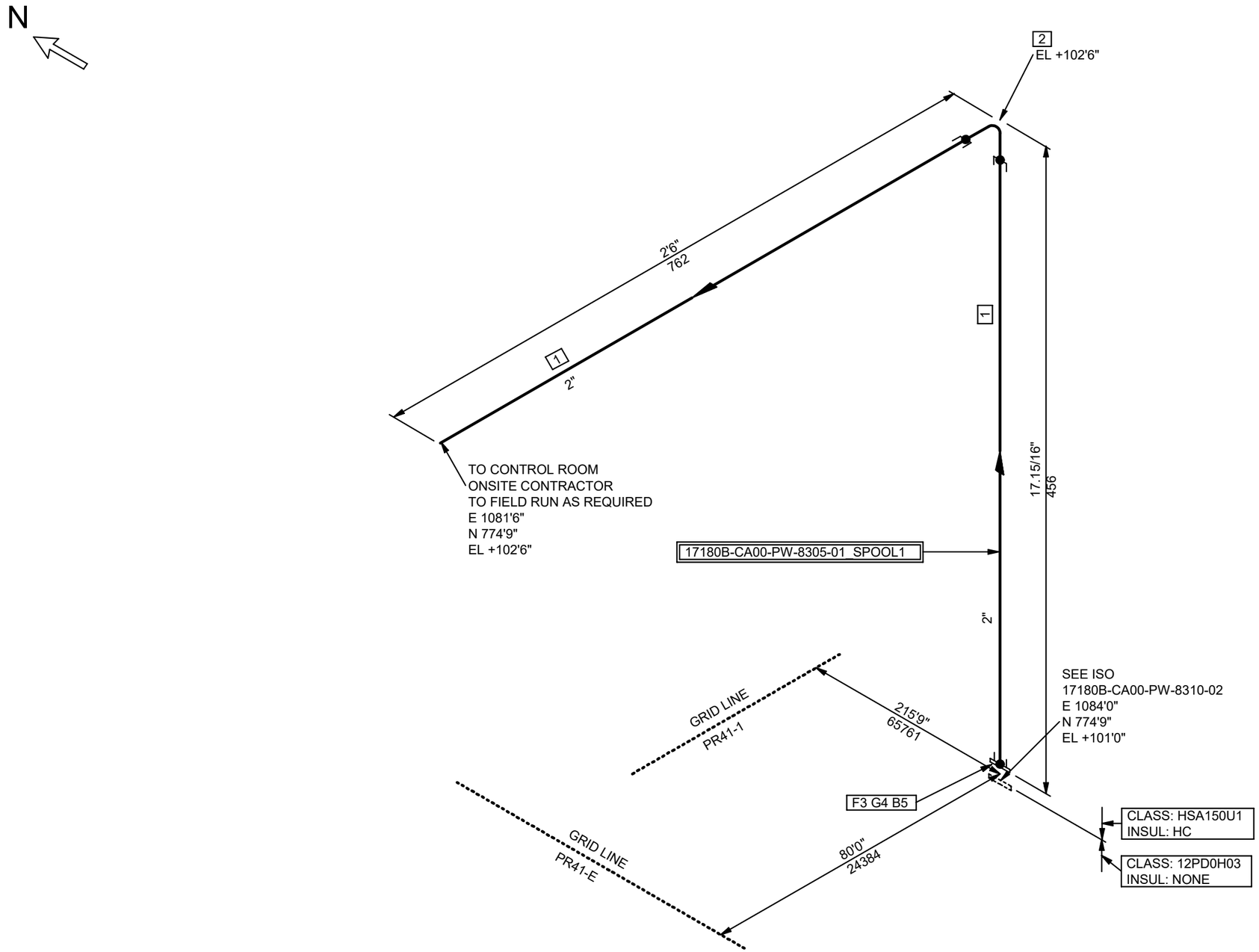
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-SW-8713-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	3.8'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 3.75 in. Length	5/8	4

17180B-CA00-PW-8305-01_SPOOL1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/23/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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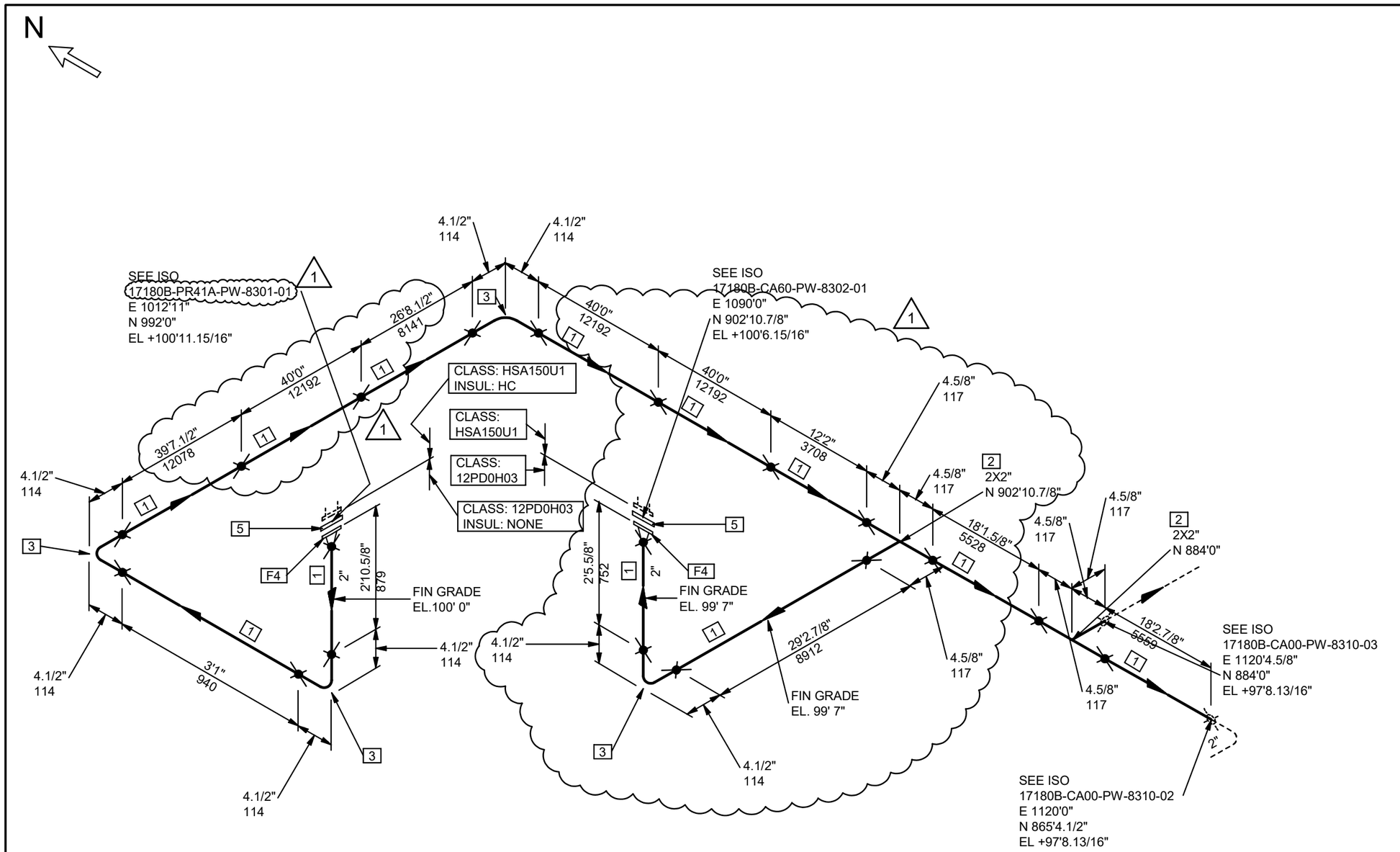
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-PW-8305-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM D3035 - , HDPE, ASTM D3350, PE4710 , TF , NSF 61	2	271.6'
2	Tee Molded , IPS, ASTM D3261 , TF , HDPE, ASTM D3350, PE4710 , NSF 61 , SDR 13.5 , SDR 13.5	2X2	2
3	90 Deg Elbow Molded , IPS, ASTM D3261 , TF , HDPE, ASTM D3350, PE4710 , NSF 61 , SDR 13.5 , SDR 13.5	2	4
4	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , NSF 61 , SDR 13.5 , SDR 13.5	2	2
5	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A536-65/45/12 , Convoluted, Drilling as per ASME B16.1/B16.5	2	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	12PD0H03	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/18/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	07/31/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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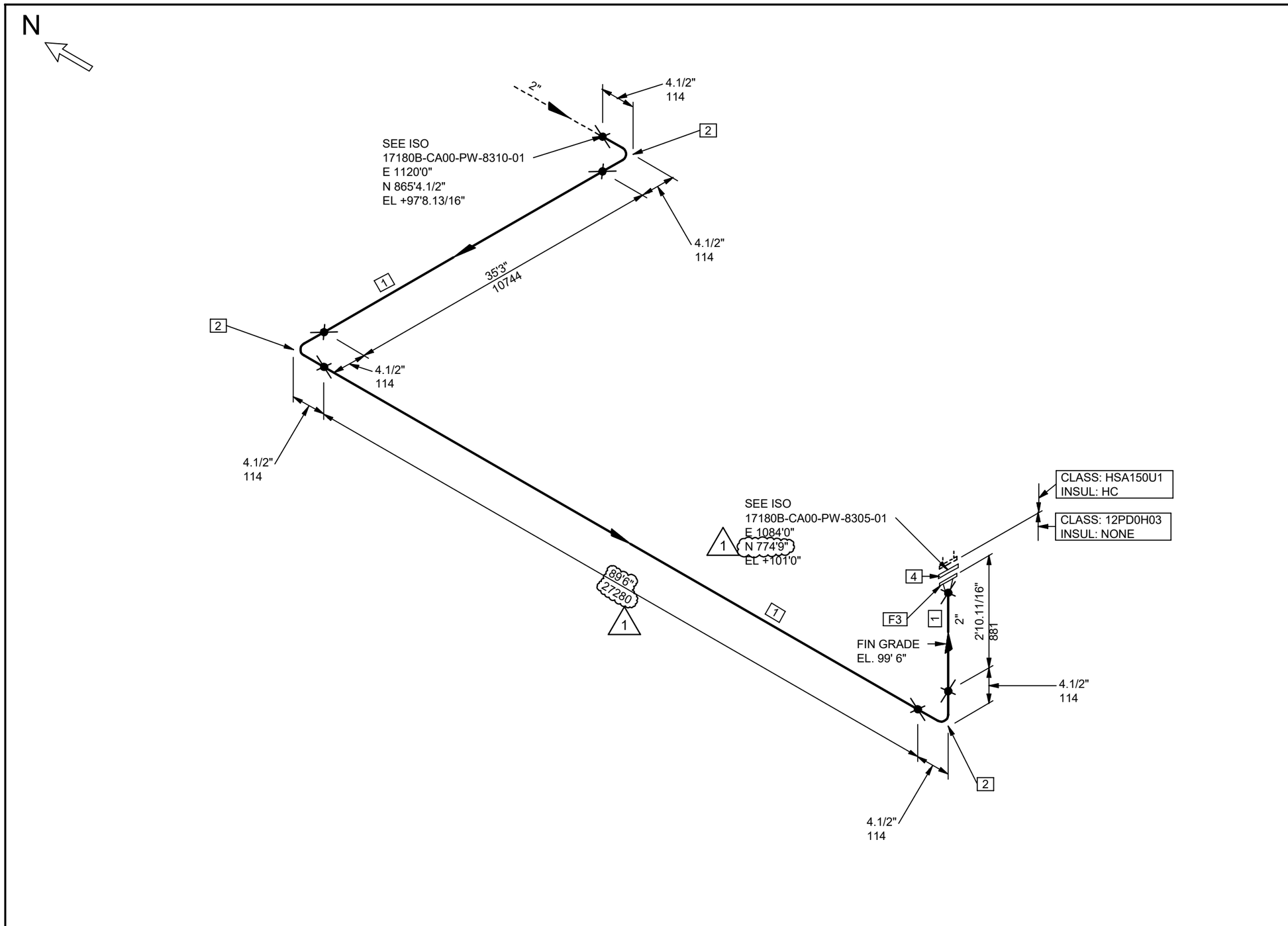
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-PW-8310-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM D3035 - , HDPE, ASTM D3350, PE4710 , TF , NSF 61	2	127.2'
2	90 Deg Elbow Molded , IPS, ASTM D3261 , TF , HDPE, ASTM D3350, PE4710 , NSF 61 , SDR 13.5 , SDR 13.5	2	3
3	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , NSF 61 , SDR 13.5 , SDR 13.5	2	1
4	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A536-65/45/12 , Convoluted, Drilling as per ASME B16.1/B16.5	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	12PD0H03	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/06/2019	ISSUED AS MARKED	VT	PVK	MLO
0	07/31/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

- ● = SHOP WELD
- ✱ = FIELD WELD
- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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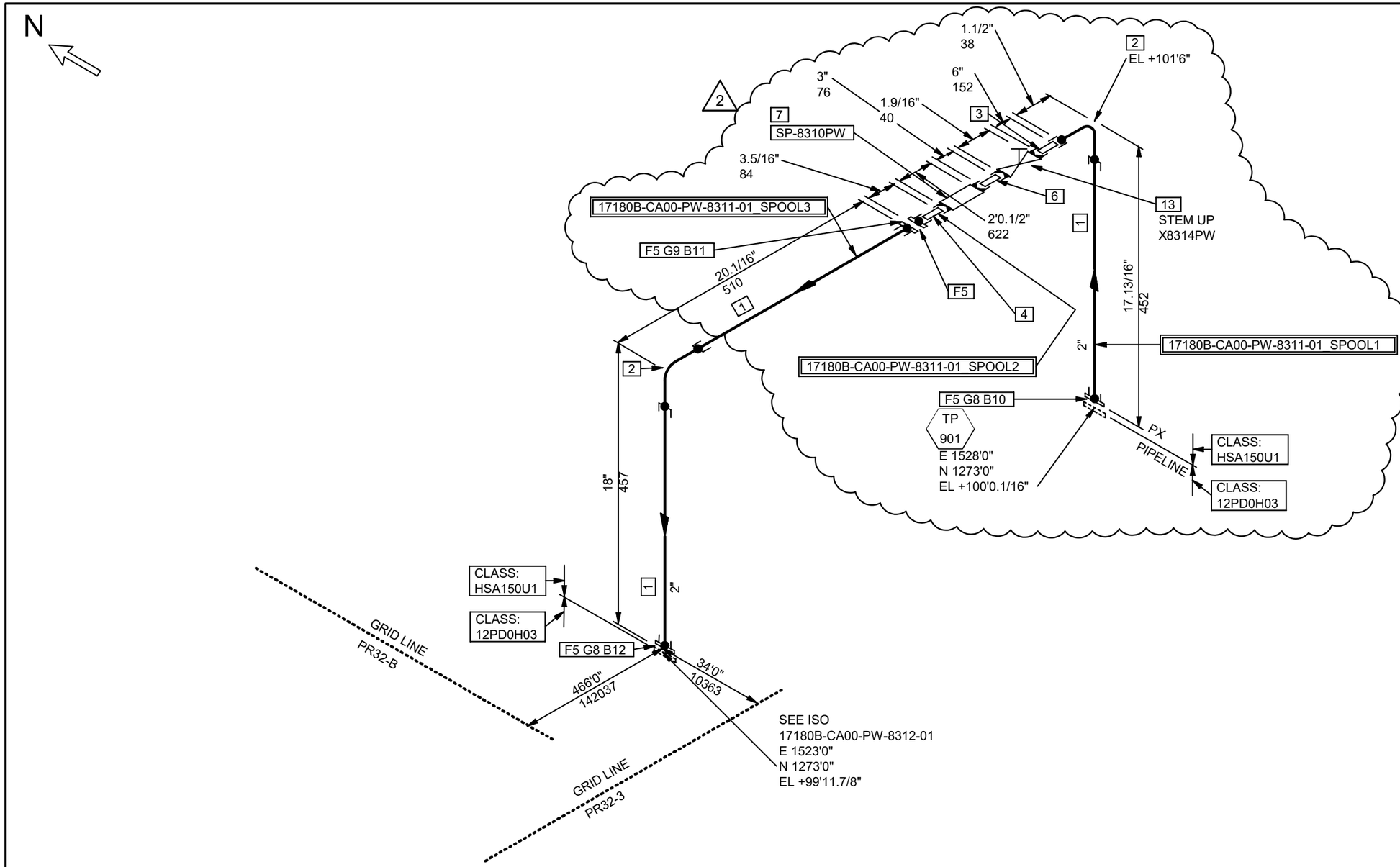
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-PW-8310-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	4.3'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
3	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 6in Long , SMLS , S-80S , S-80S	2	1
4	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	1
5	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	4
	ERECTION		
6	Nipple , ASME B36.19 , MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	1
7	SP-8310PW	2	1
8	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/8in (3.2 mm), NSF 61 Certified	2	2
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 3.75 in. Length	5/8	4
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
13	Gate Viv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	2	1

17180B-CA00-PW-8311-01_SPOOL1 17180B-CA00-PW-8311-01_SPOOL2
17180B-CA00-PW-8311-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	180269100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	06/08/2020	SAME AS REV1. RE-ISSUED TO MATCH PX CURRENT REVISION	JY	AA	MLO
1	05/28/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/07/2019	ISSUED FOR CONSTRUCTION	TKS	AA	MLO

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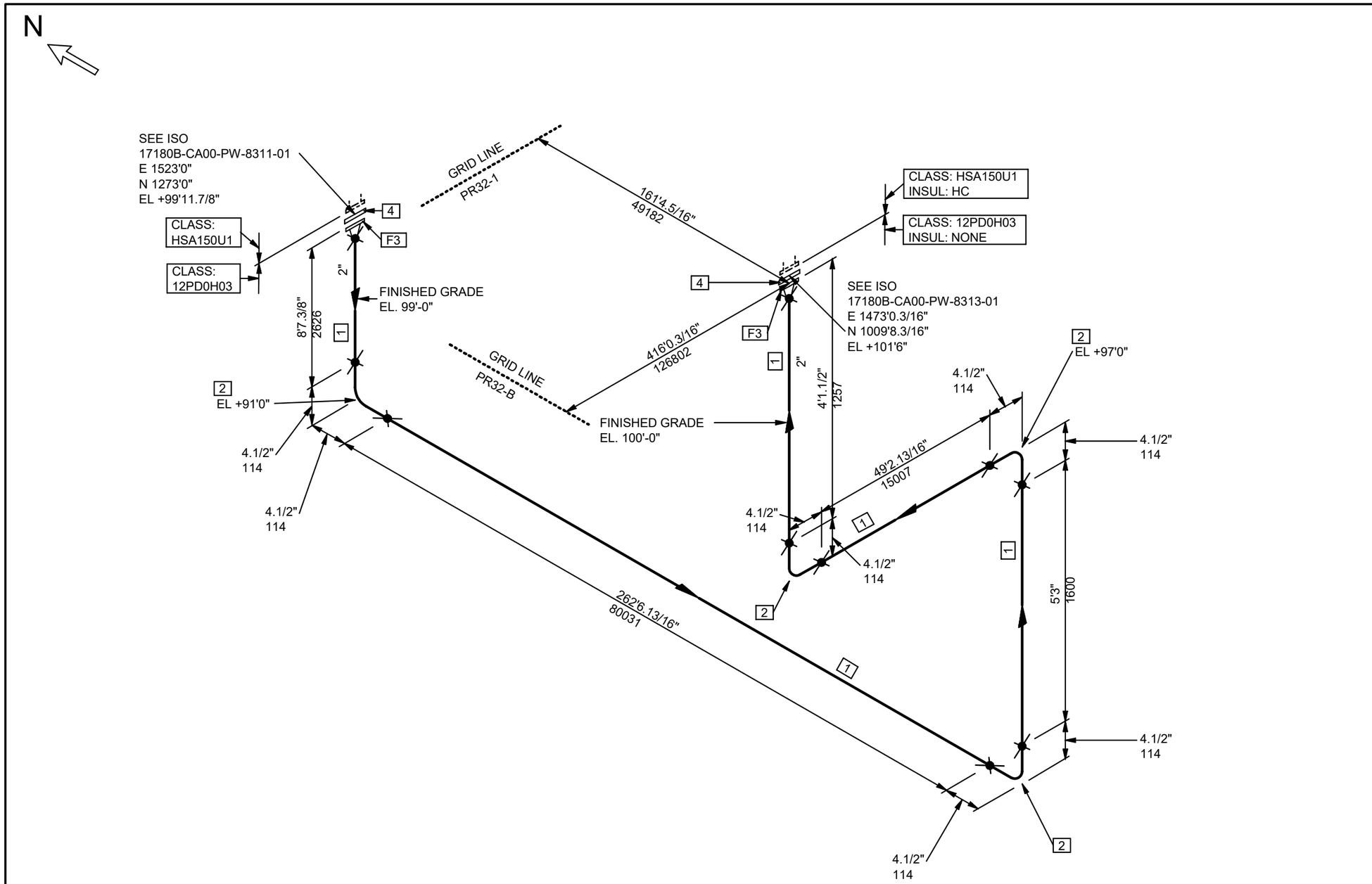
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-PW-8311-01 REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM D3035 - , HDPE, ASTM D3350, PE4710 , TF , NSF 61	2	328.8'
2	90 Deg Elbow Molded , IPS, ASTM D3261 , TF , HDPE, ASTM D3350, PE4710 , NSF 61 , SDR 13.5 , SDR 13.5	2	4
3	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , NSF 61 , SDR 13.5 , SDR 13.5	2	2
4	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A536-65/45/12 , Convoluted, Drilling as per ASME B16.1/B16.5	2	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 .

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	12PD0H03	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/07/2019	ISSUED FOR CONSTRUCTION	TKS	AA	MLO

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West Memorial Place II
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Houston, Texas 77079
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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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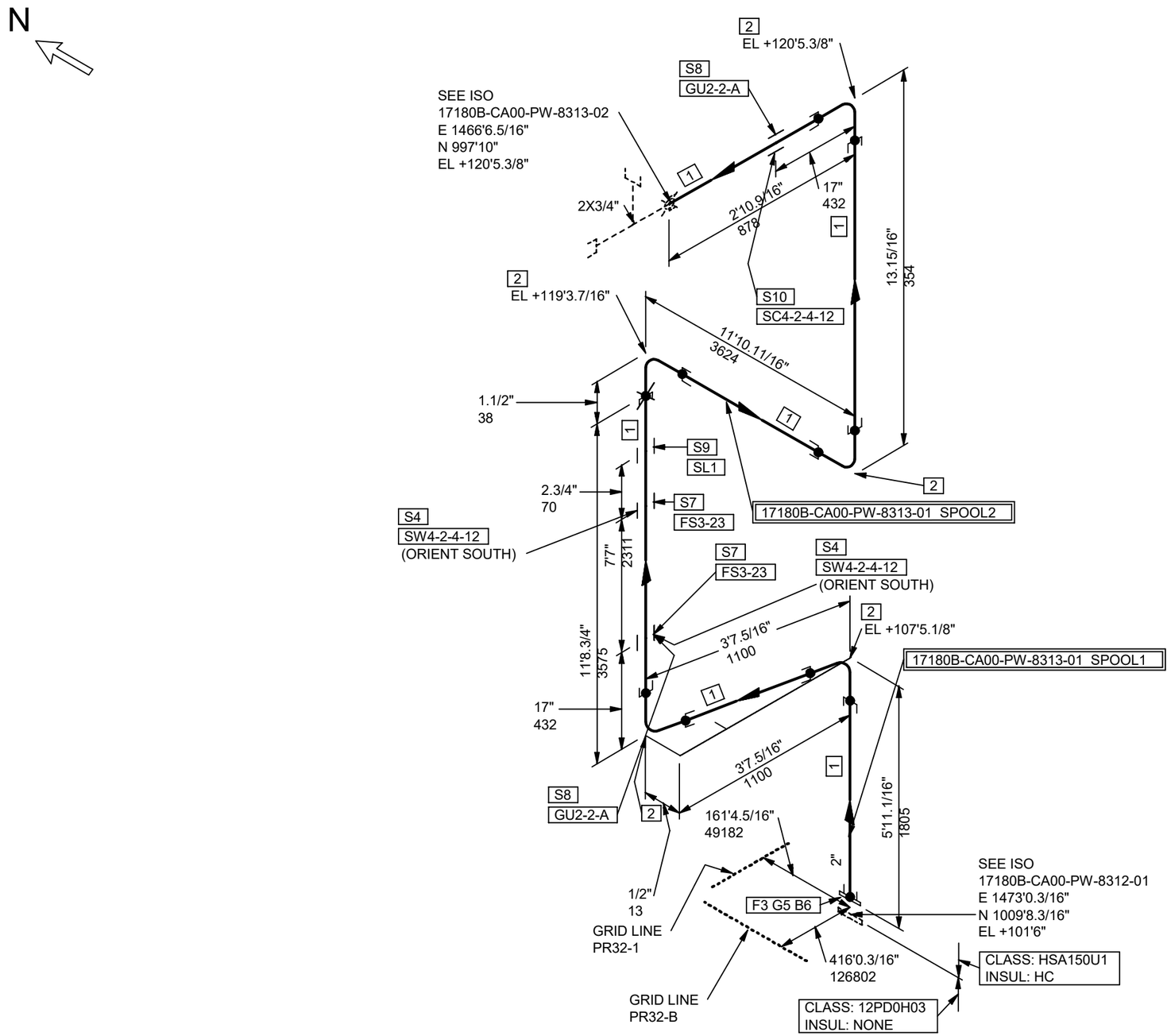
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-PW-8312-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	36.1'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	5
3	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	PIPE SUPPORTS		
4	SW4-2-4-12	2	2
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/8in (3.2 mm), NSF 61 Certified	2	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 3.75 in. Length	5/8	4
	PIPE SUPPORTS		
7	FS3-23	2	2
8	GU2-2-A	2	2
9	SL1	2	1
10	SC4-2-4-12	2	1

17180B-CA00-PW-8313-01_SPOOL1 17180B-CA00-PW-8313-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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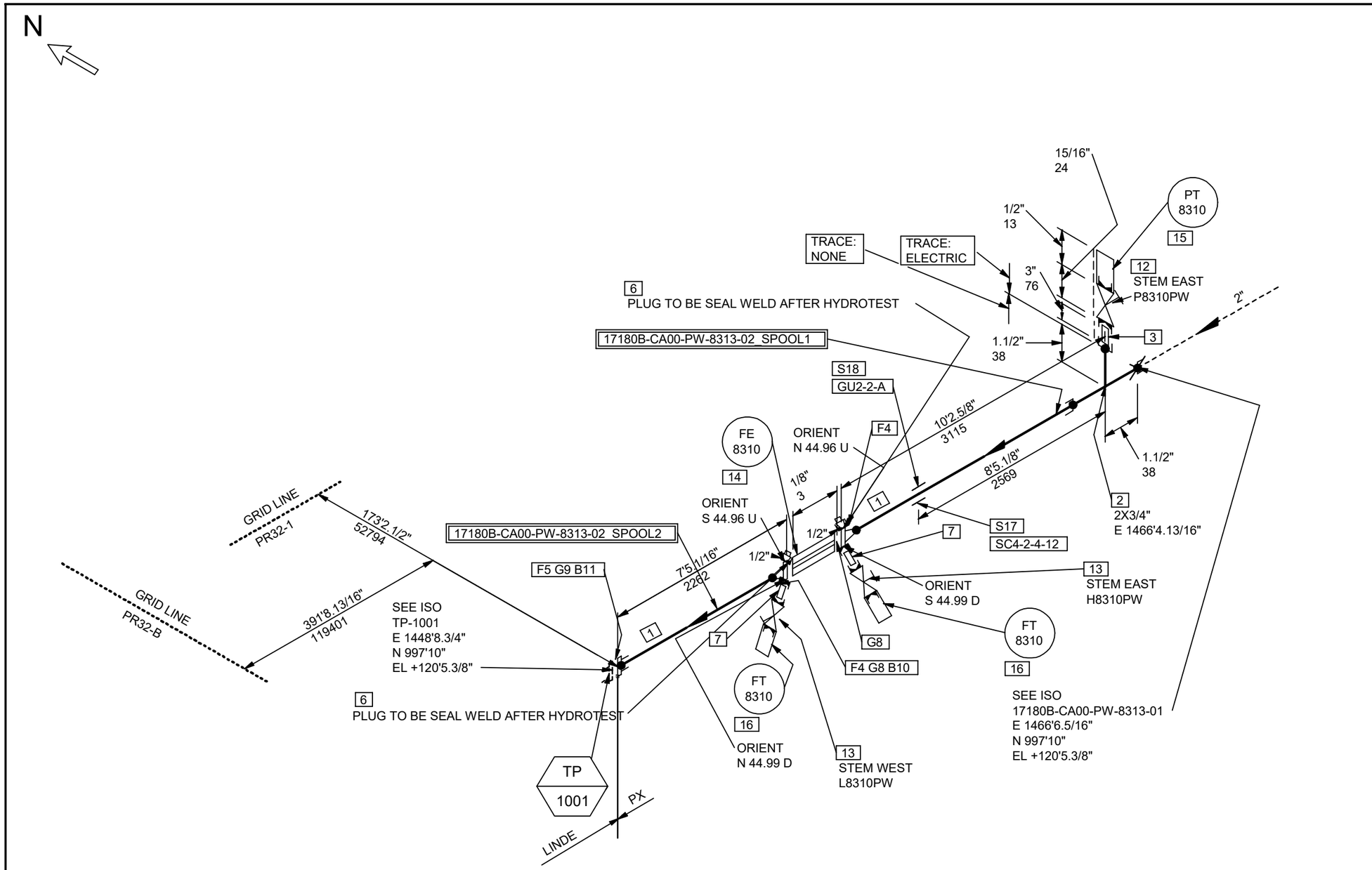
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-PW-8313-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	17.0'
2	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X3/4	1
3	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
4	ORF WN 1/2" THD TAP , ASME B16.36 , CL300 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	2
5	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1/2	2
7	Nipple , ASME B36.19 , MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	1/2	2
8	Non Metal Flat Gskt , ASME B16.21 , CL300 , RF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	2
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 5 in. Length	5/8	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
12	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	3/4	1
13	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	1/2	2
	INSTRUMENTS		
14	FE-8310	2	1
15	PT-8310	3/4	1
16	FT-8310	1/2	2
	PIPE SUPPORTS		
17	SC4-2-4-12	2	1
18	GU2-2-A	2	1

17180B-CA00-PW-8313-02_SPOOL1 17180B-CA00-PW-8313-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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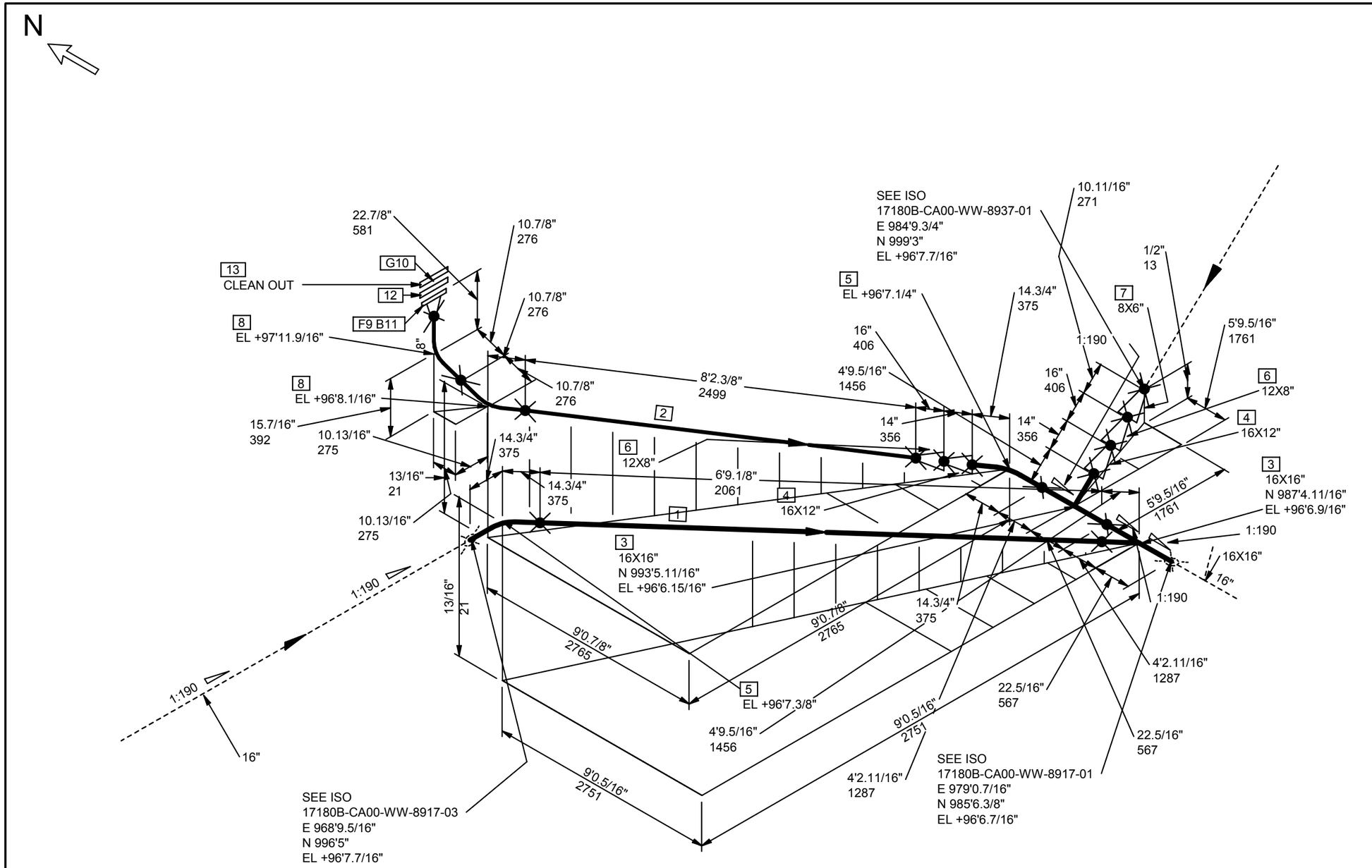
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-PW-8313-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	16	6.8'
2	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	8	8.2'
3	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X16	2
4	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X12	2
5	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16	2
6	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	12X8	2
7	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	1
8	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	2
9	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , SDR 17 , SDR 17	8	1
10	Non Metal Flat Gskt , ASME B16.21/B16.5 , CL150 , FF , Neoprene, 55 – 75 Durometer, Shore “A” , Garlock Style 7986, THK 1/16in (1.6 mm)	8	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 5.25 in. Length	3/4	8
12	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A395 Grade 60-40-18 , Convoluted, Drilling as per ASME B16.1/B16.5, Epoxy Coated	8	1
13	Blind Flg , ASME B16.42 , CL150 , FF , ASTM A395 Grade 60-40-18 , w/ 1/4" HDPE Liner	8	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/14/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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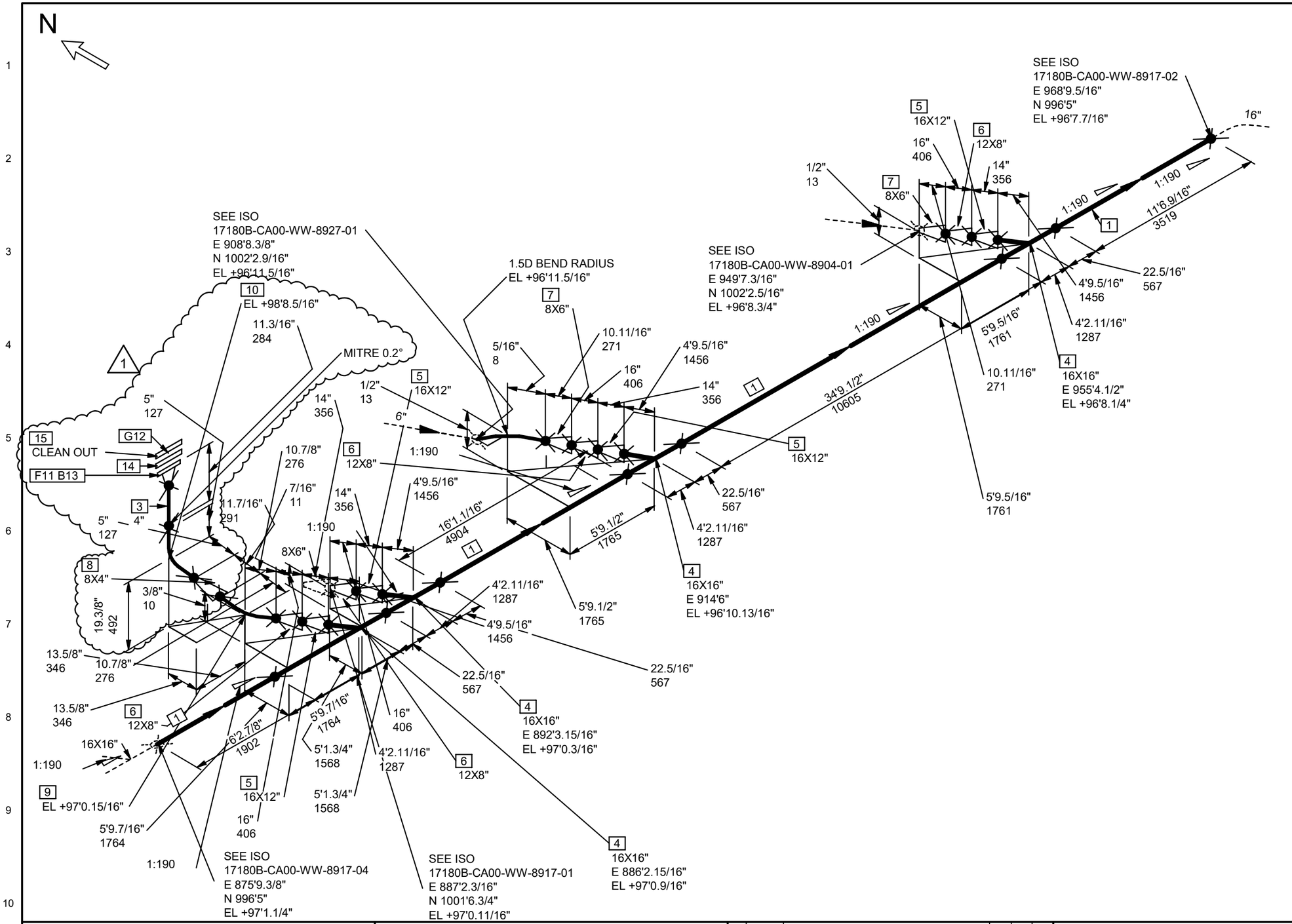
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8917-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	16	68.7'
2	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	0.1'
3	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	4	0.3'
4	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X16	4
5	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X12	4
6	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	12X8	4
7	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	2
8	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X4	1
9	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	1
10	45 Deg Elbow Molded , IPS, ASTM D3261 , TF , HDPE, ASTM D3350, PE4710 , SDR 17 , SDR 17	4	1
11	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , SDR 17 , SDR 17	4	1
12	Non Metal Flat Gskt , ASME B16.21/B16.5 , CL150 , FF , Neoprene, 55 – 75 Durometer, Shore "A" , Garlock Style 7986, THK 1/16in (1.6 mm)	4	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 4.25 in. Length	5/8	8
14	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A395 Grade 60-40-18 , Convoluted, Drilling as per ASME B16.1/B16.5, Epoxy Coated	4	1
15	Blind Flg , ASME B16.42 , CL150 , FF , ASTM A395 Grade 60-40-18 , w/ 1/4" HDPE Liner	4	1

LEGEND:

- ● = SHOP WELD
- ✱ = FIELD WELD
- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021. 1

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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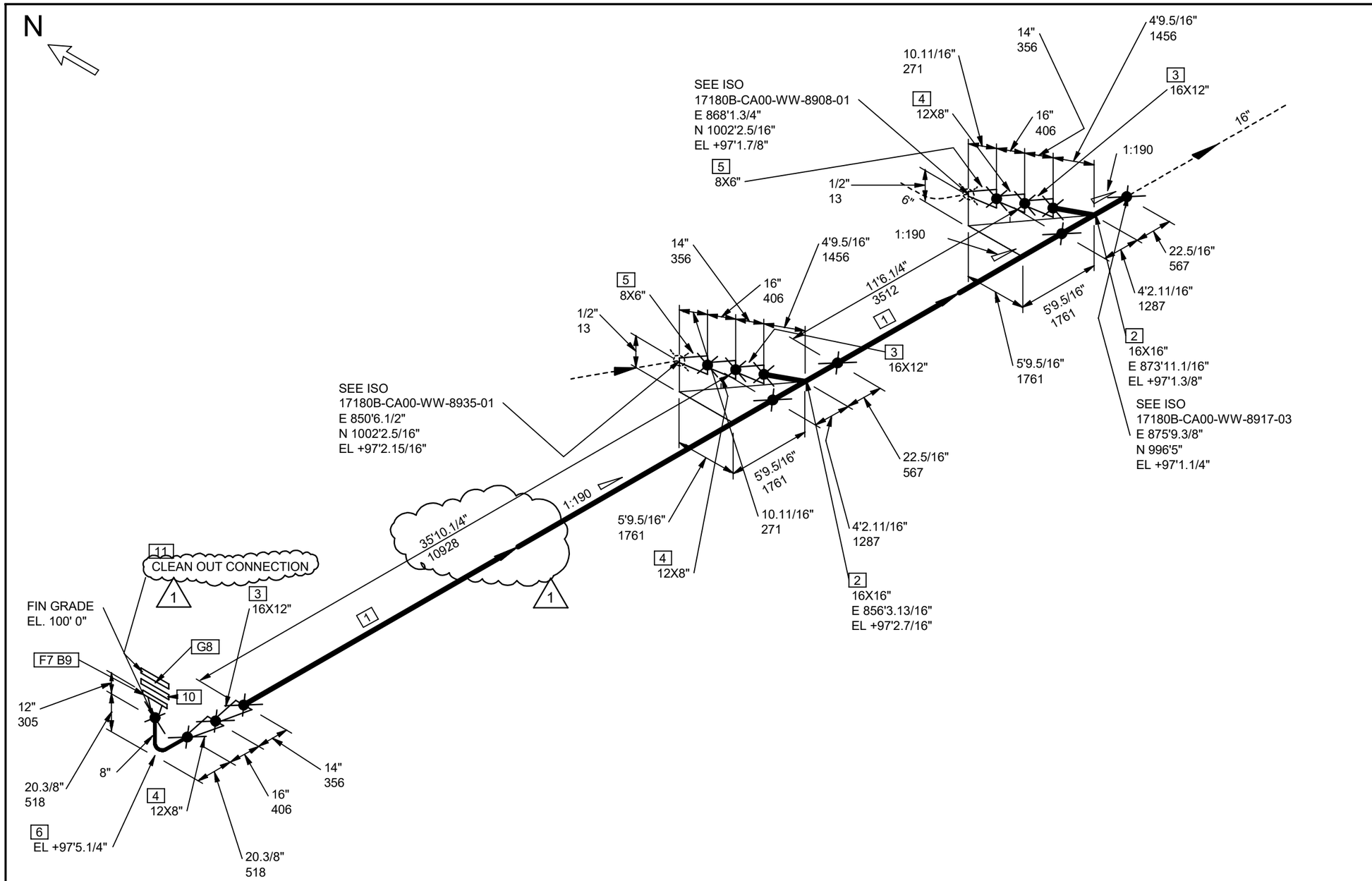
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8917-03	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	16	47.4'
2	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X16	2
3	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X12	3
4	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	12X8	3
5	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	2
6	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	1
7	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , SDR 17 , SDR 17	8	1
8	Non Metal Flat Gskt , ASME B16.21/B16.5 , CL150 , FF , Neoprene, 55 – 75 Durometer, Shore “A” , Garlock Style 7986, THK 1/16in (1.6 mm)	8	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 5.25 in. Length	3/4	8
10	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A395 Grade 60-40-18 , Convoluted, Drilling as per ASME B16.1/B16.5, Epoxy Coated	8	1
11	Blind Flg , ASME B16.42 , CL150 , FF , ASTM A395 Grade 60-40-18 , w/ 1/4" HDPE Liner	8	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/06/2019	ISSUED AS MARKED	VT	PVK	MLO
0	08/10/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

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- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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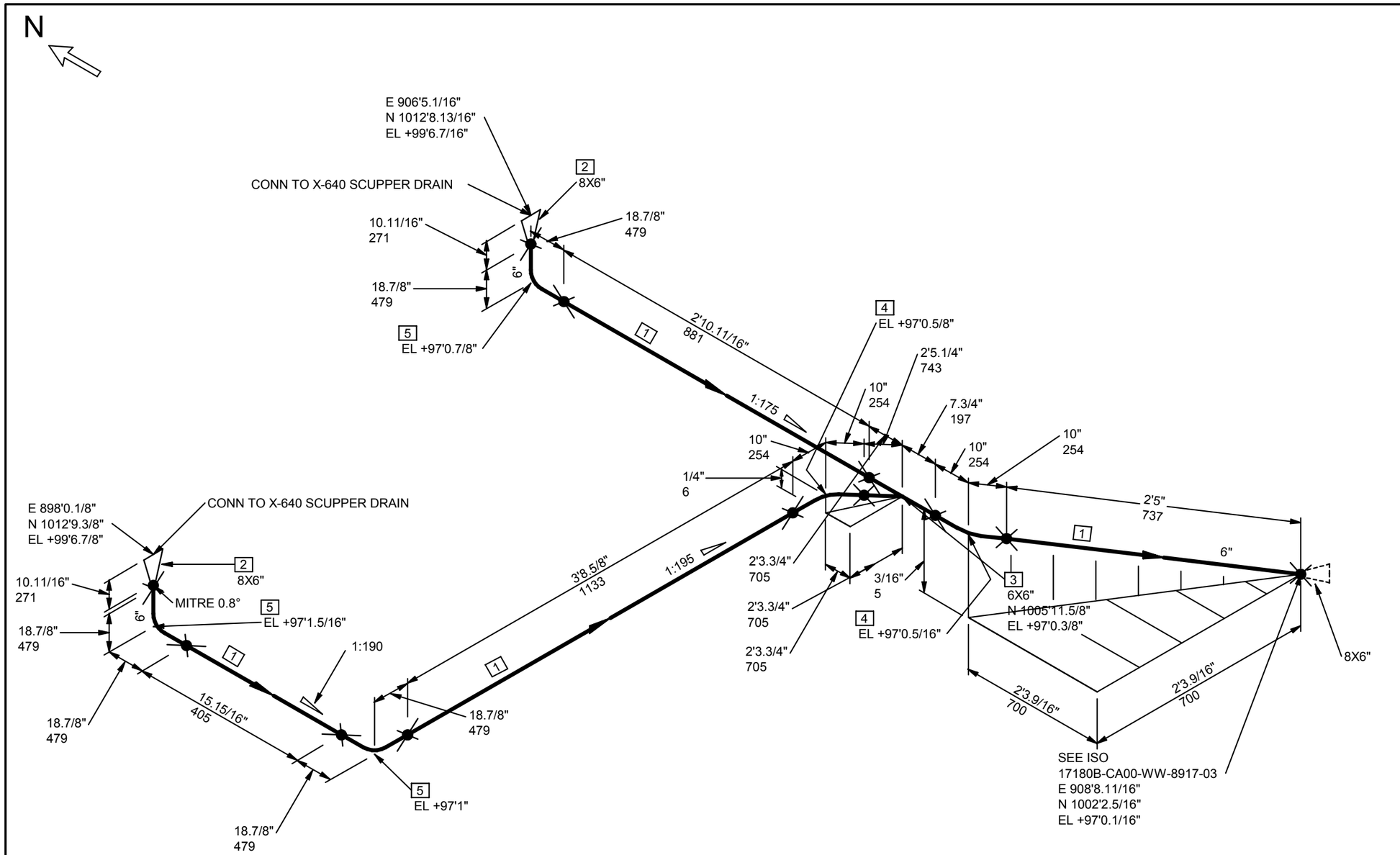
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8917-04	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	10.4'
2	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	2
3	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6X6	1
4	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	2
5	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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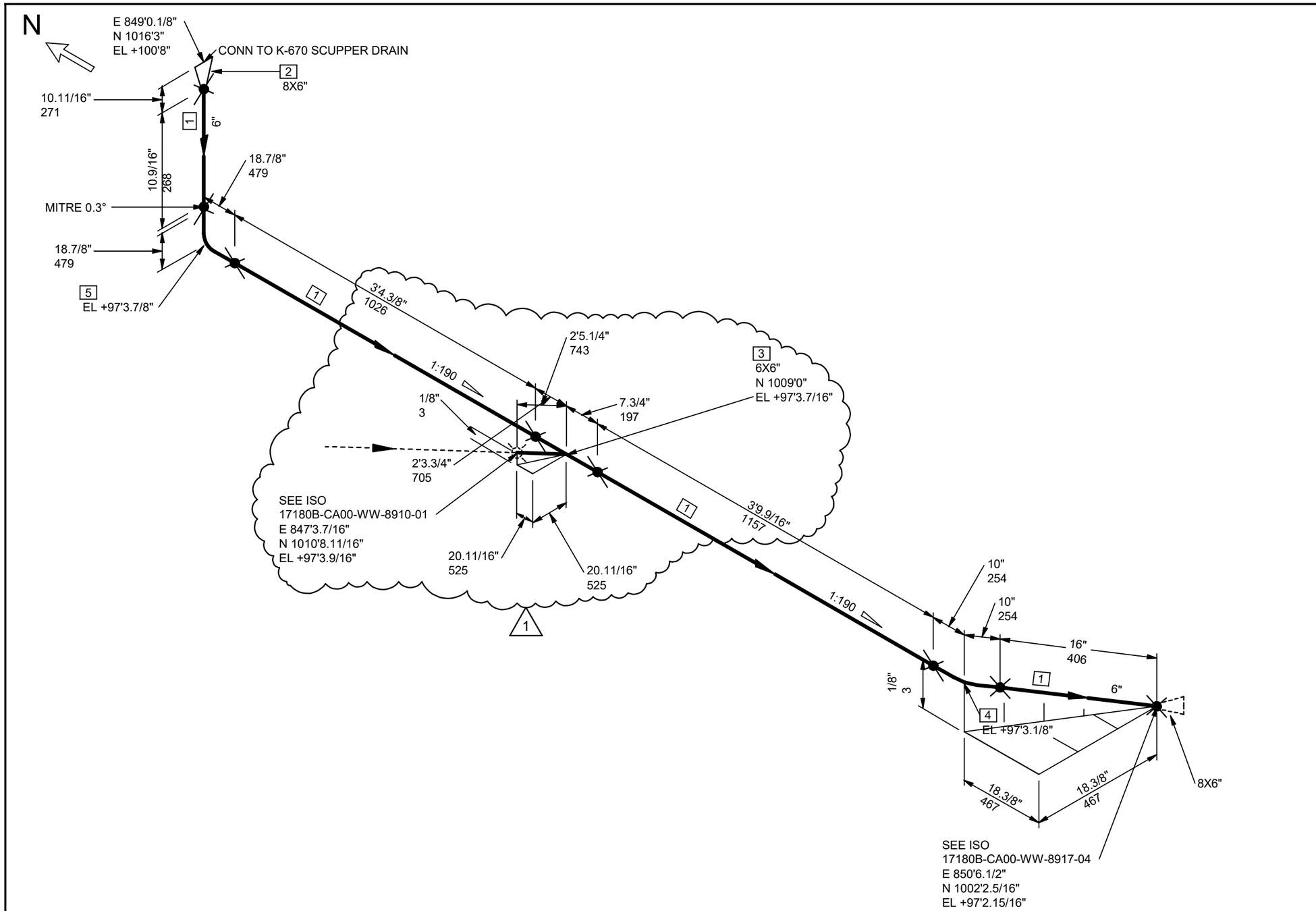
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8927-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	9.4'
2	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	1
3	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6X6	1
4	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	1
5	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021. (1)

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/06/2019	ISSUED AS MARKED	VT	PVK	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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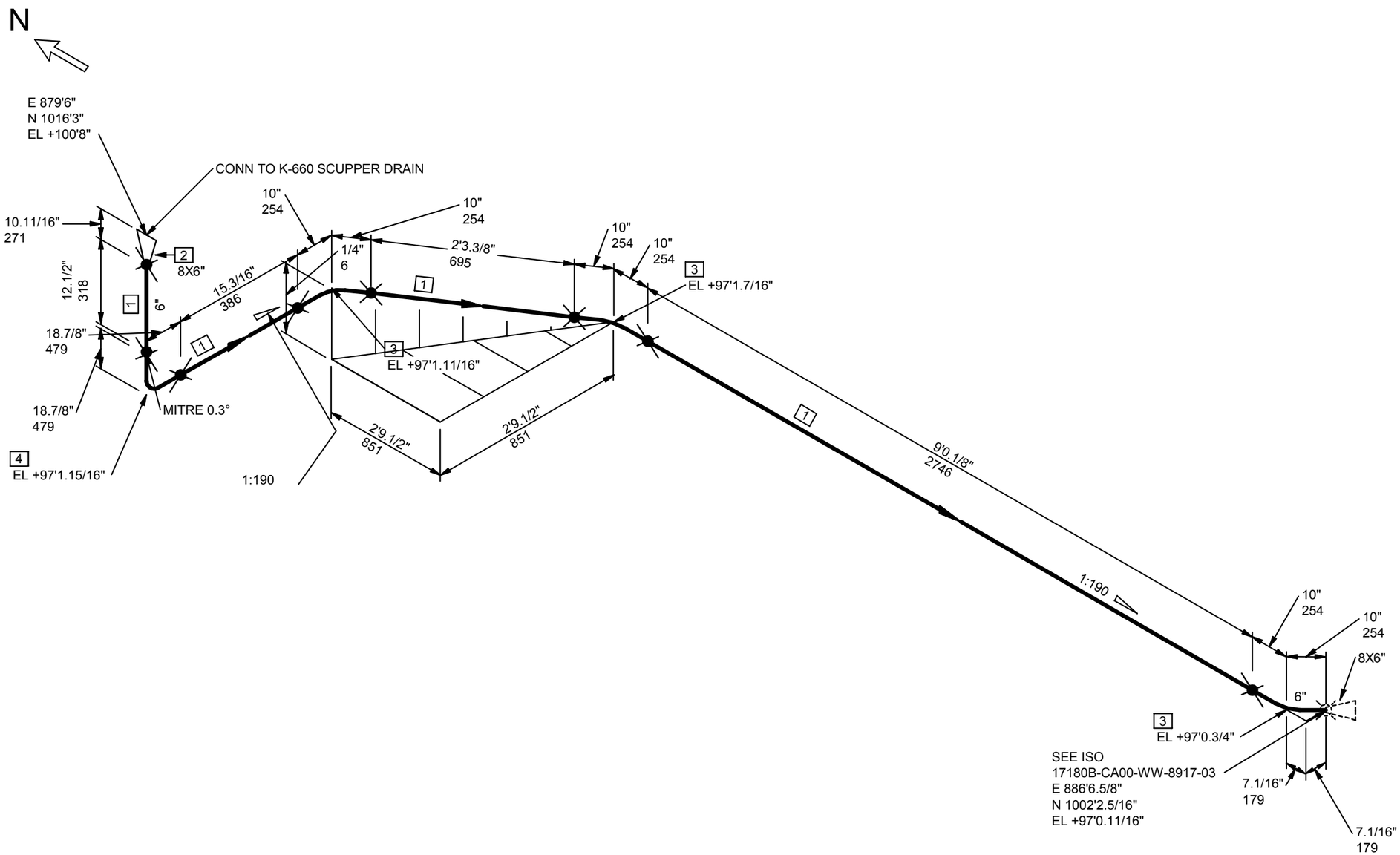
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8935-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	13.6'
2	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	1
3	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	3
4	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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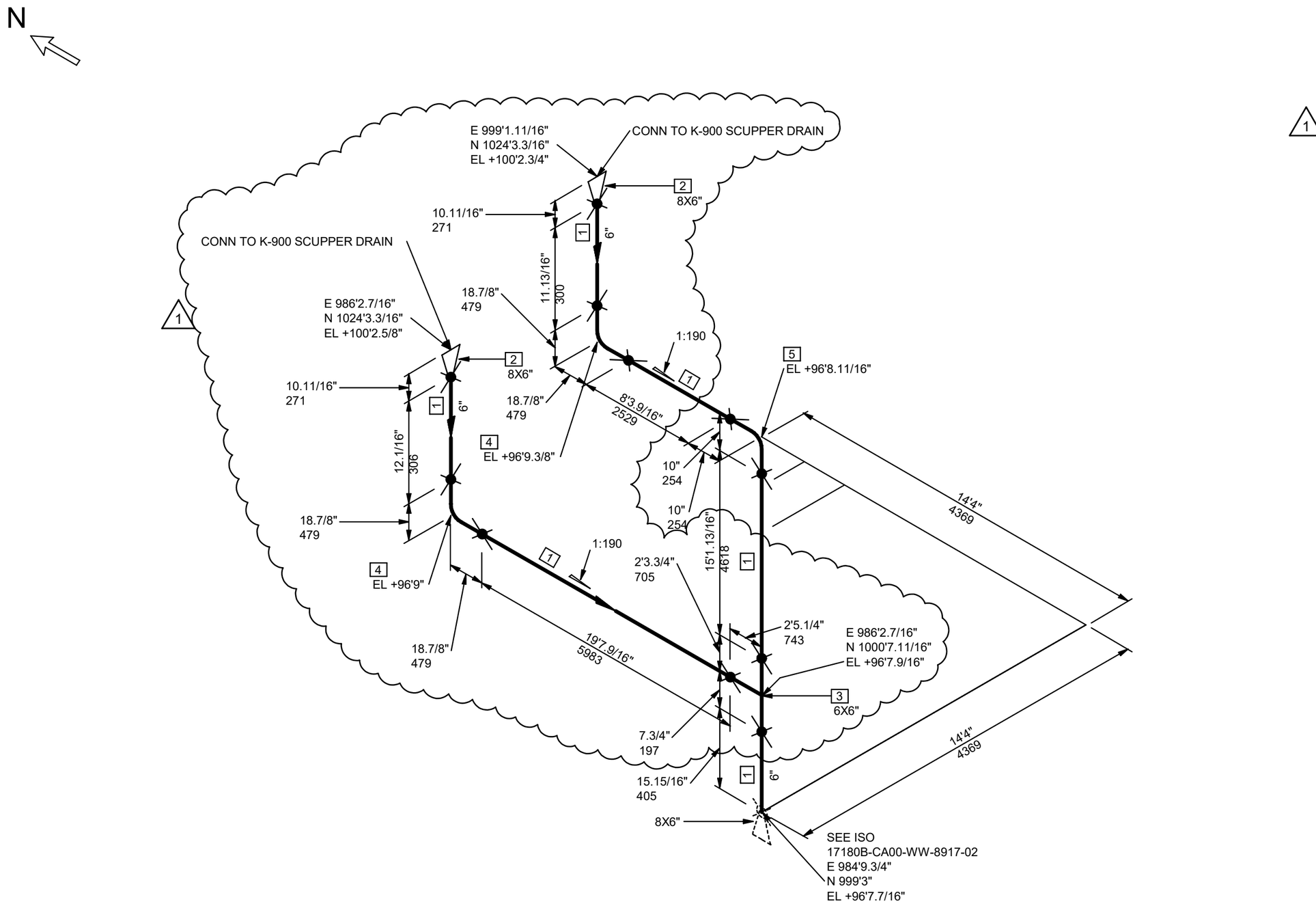
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8936-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	46.4'
2	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	2
3	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6X6	1
4	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	2
5	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	01/15/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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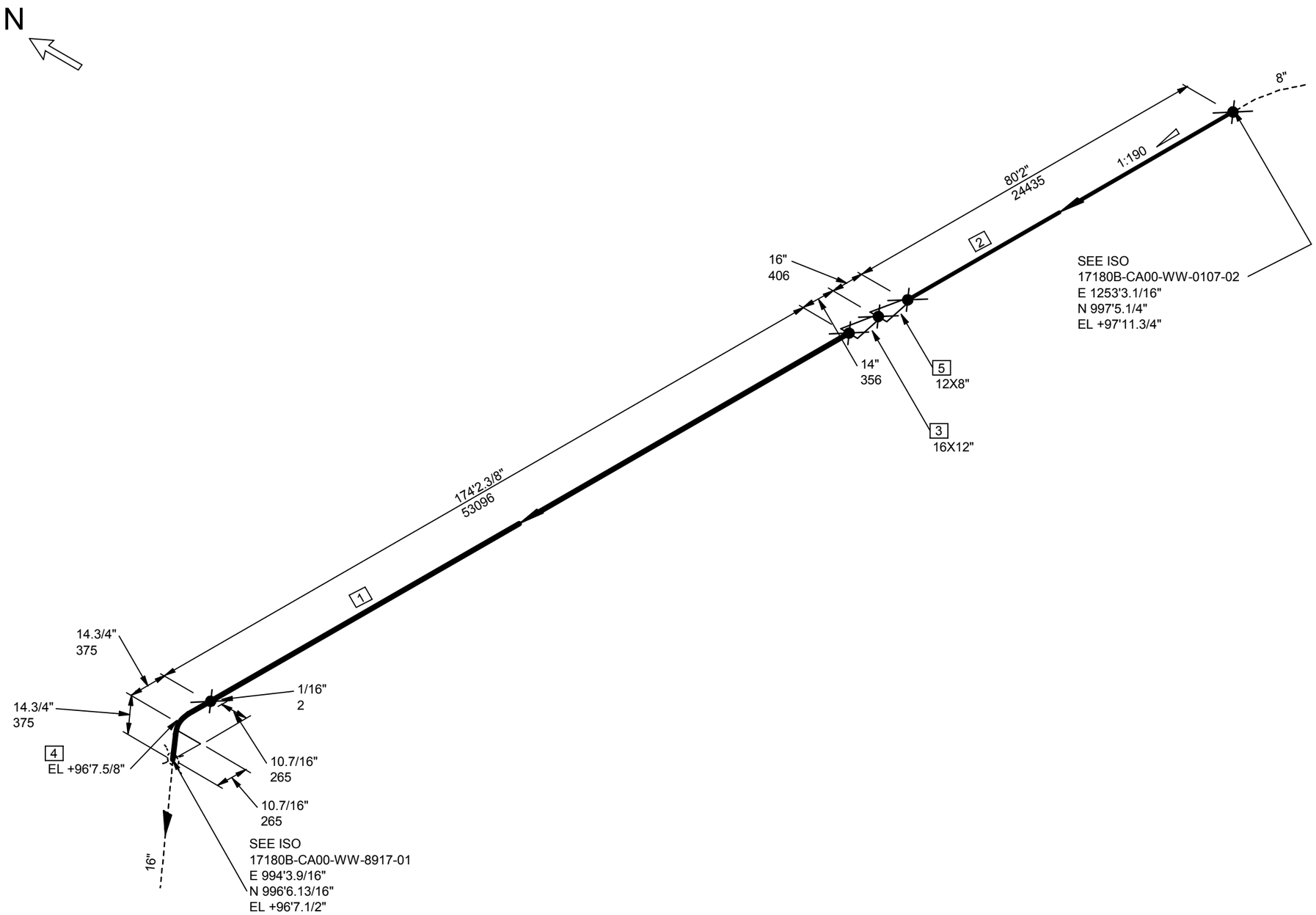
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8937-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	16	174.2'
2	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	8	80.2'
3	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X12	1
4	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16	1
5	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	12X8	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/14/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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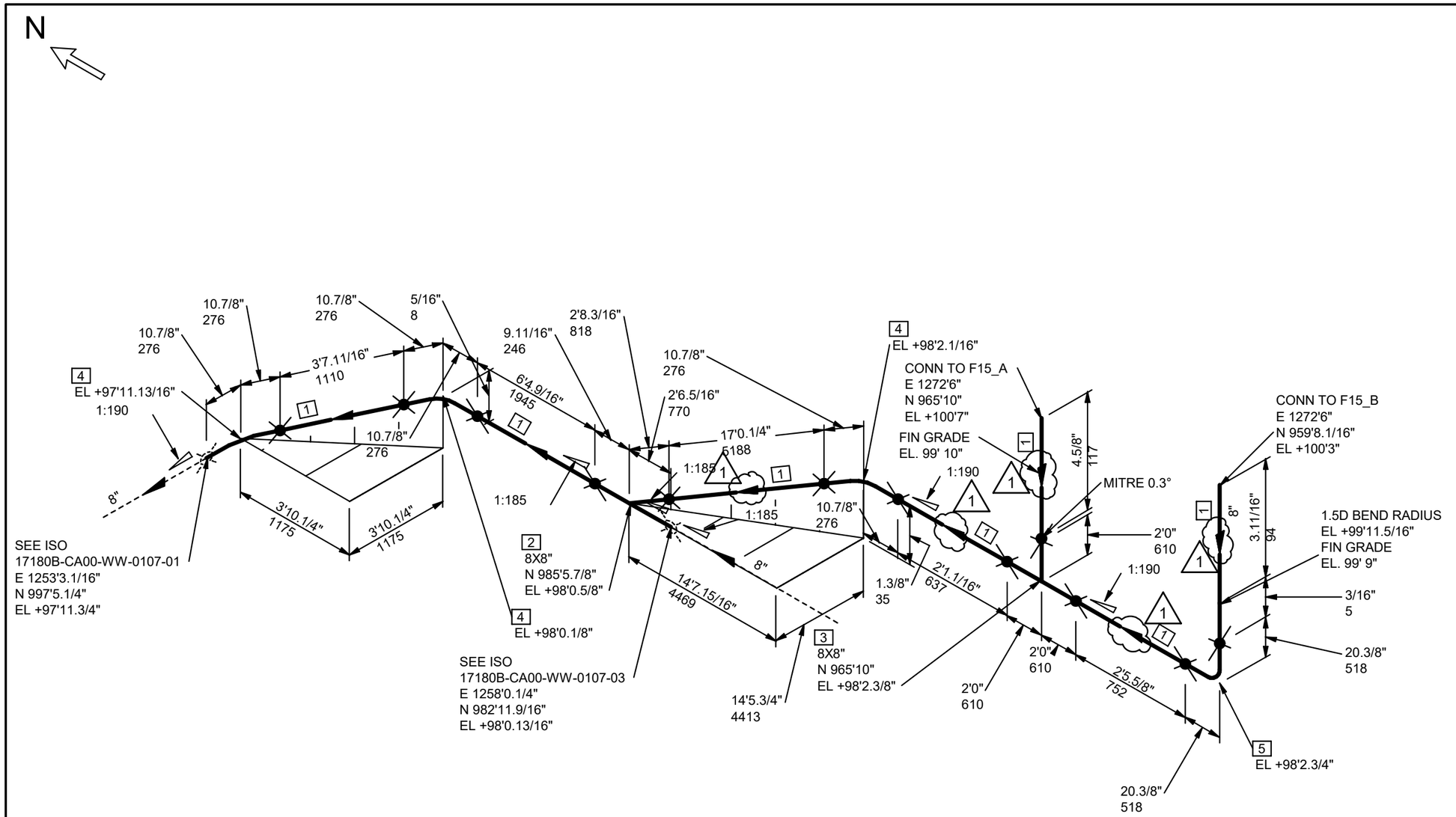
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-0107-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	8	32.4'
2	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X8	1
3	Tee , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X8	1
4	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	3
5	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021. 1

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1001-8902 1		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-0107-02	REV: 1

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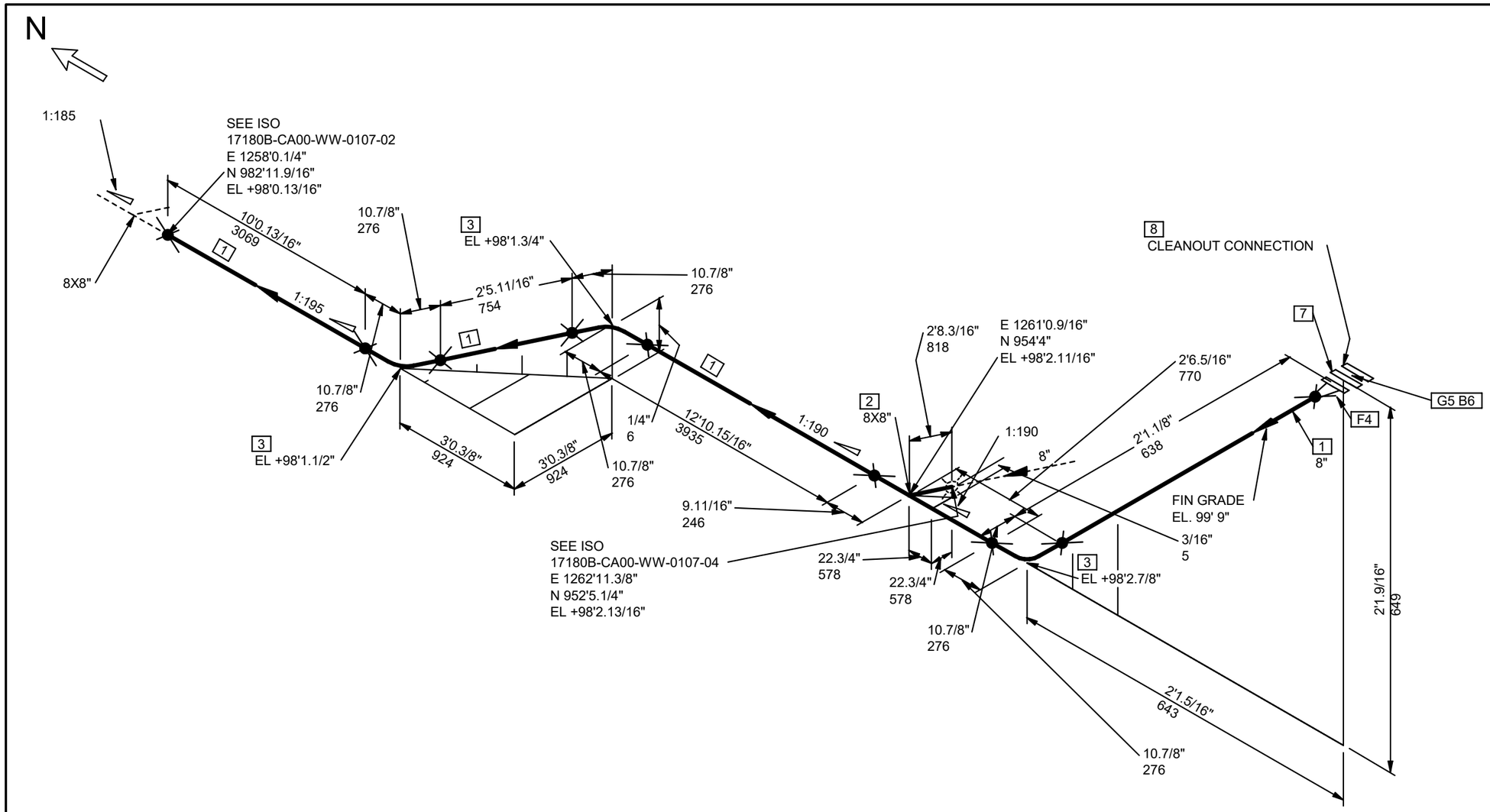

MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	8	26.6'
2	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X8	1
3	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	3
4	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , SDR 17 , SDR 17	8	1
5	Non Metal Flat Gskt , ASME B16.21/B16.5 , CL150 , FF , Neoprene, 55 – 75 Durometer, Shore “A” , Garlock Style 7986, THK 1/16in (1.6 mm)	8	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 5.25 in. Length	3/4	8
7	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A395 Grade 60-40-18 , Convoluted, Drilling as per ASME B16.1/B16.5, Epoxy Coated	8	1
8	Blind Flg , ASME B16.42 , CL150 , FF , ASTM A395 Grade 60-40-18 , w/ 1/4" HDPE Liner	8	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 1

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-10038902 1		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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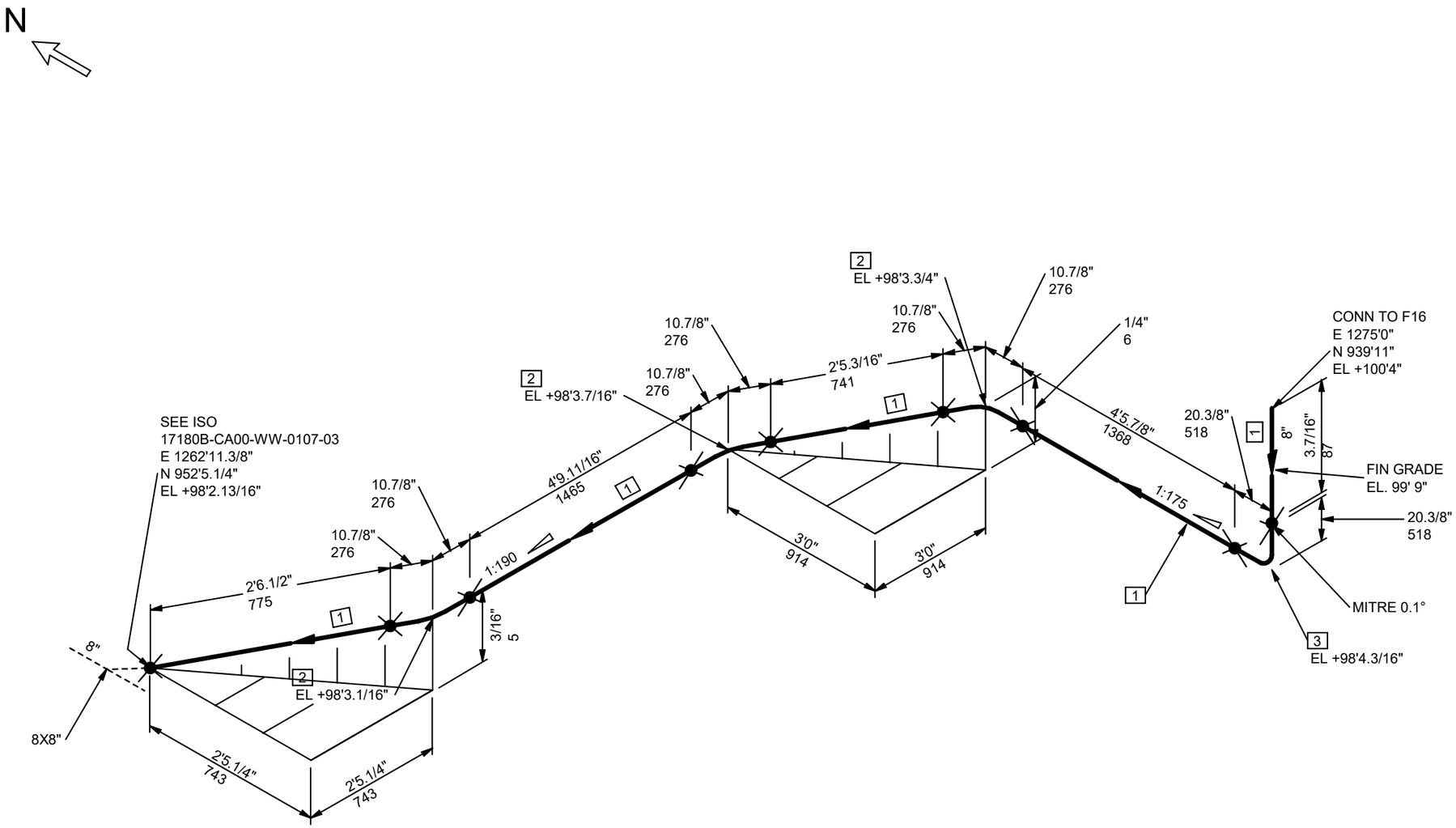
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-0107-03	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	8	14.6'
2	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	3
3	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021. 1

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902 1		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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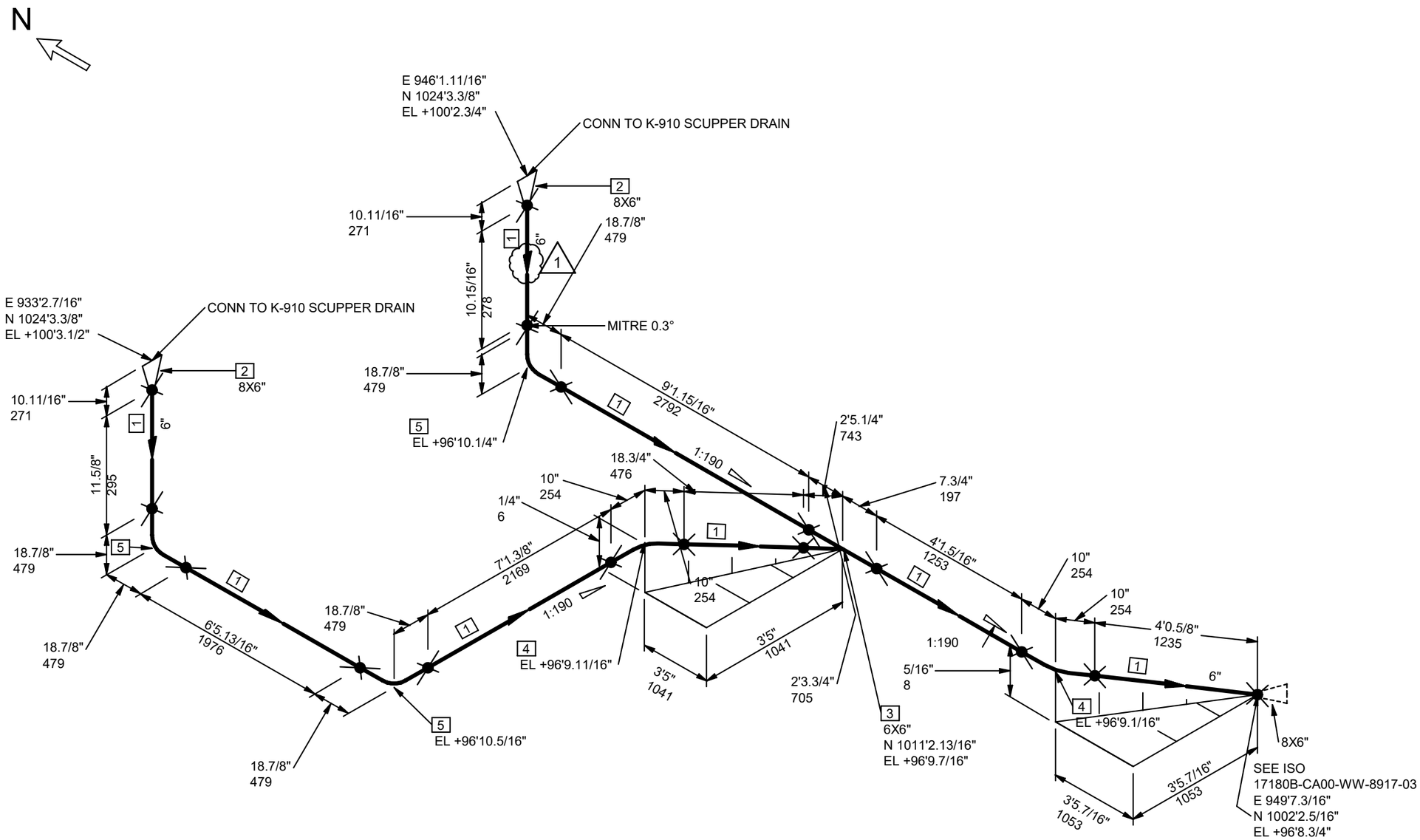
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-0107-04	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	34.4'
2	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	2
3	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6X6	1
4	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	2
5	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

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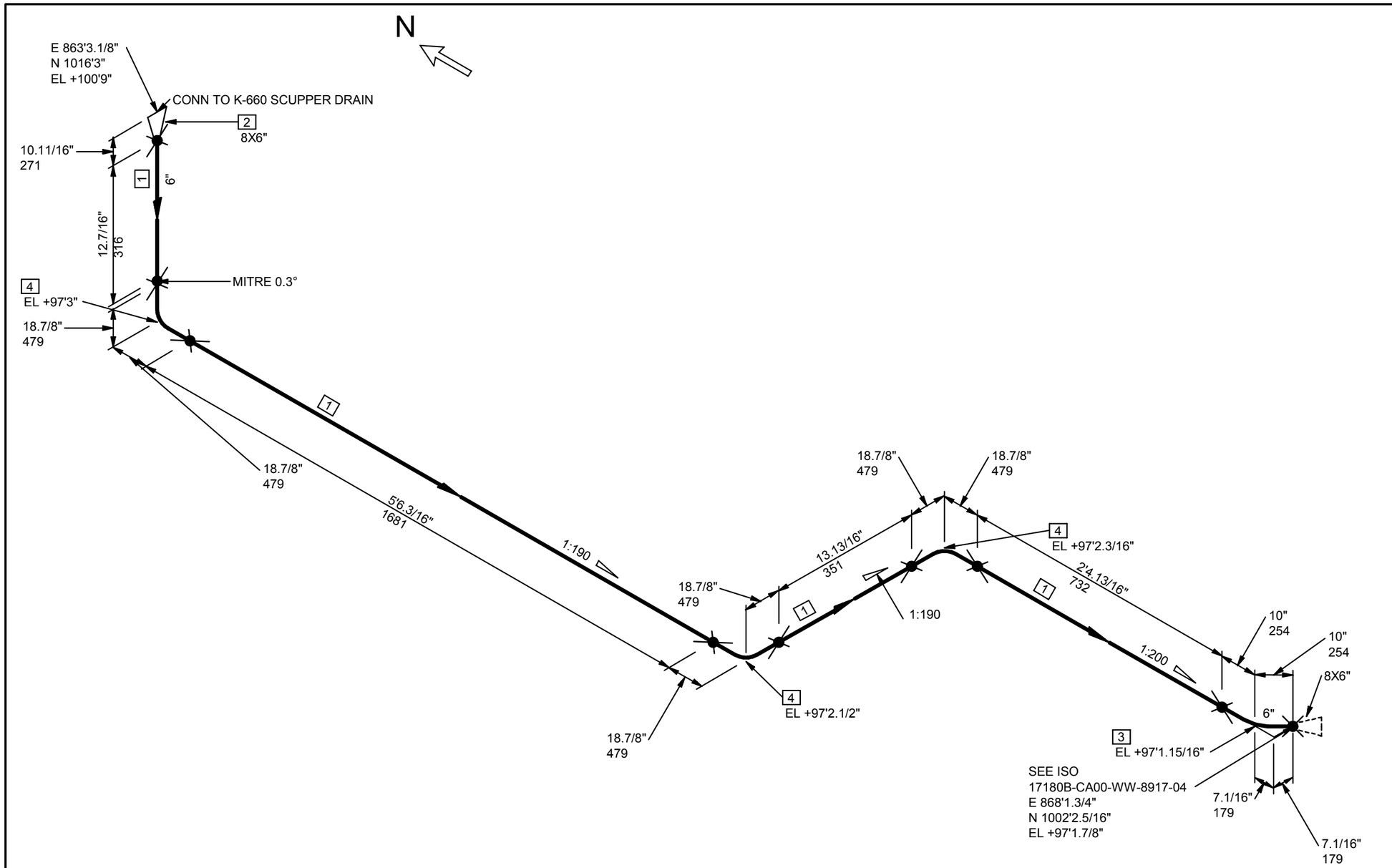
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8904-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	10.2'
2	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	1
3	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	1
4	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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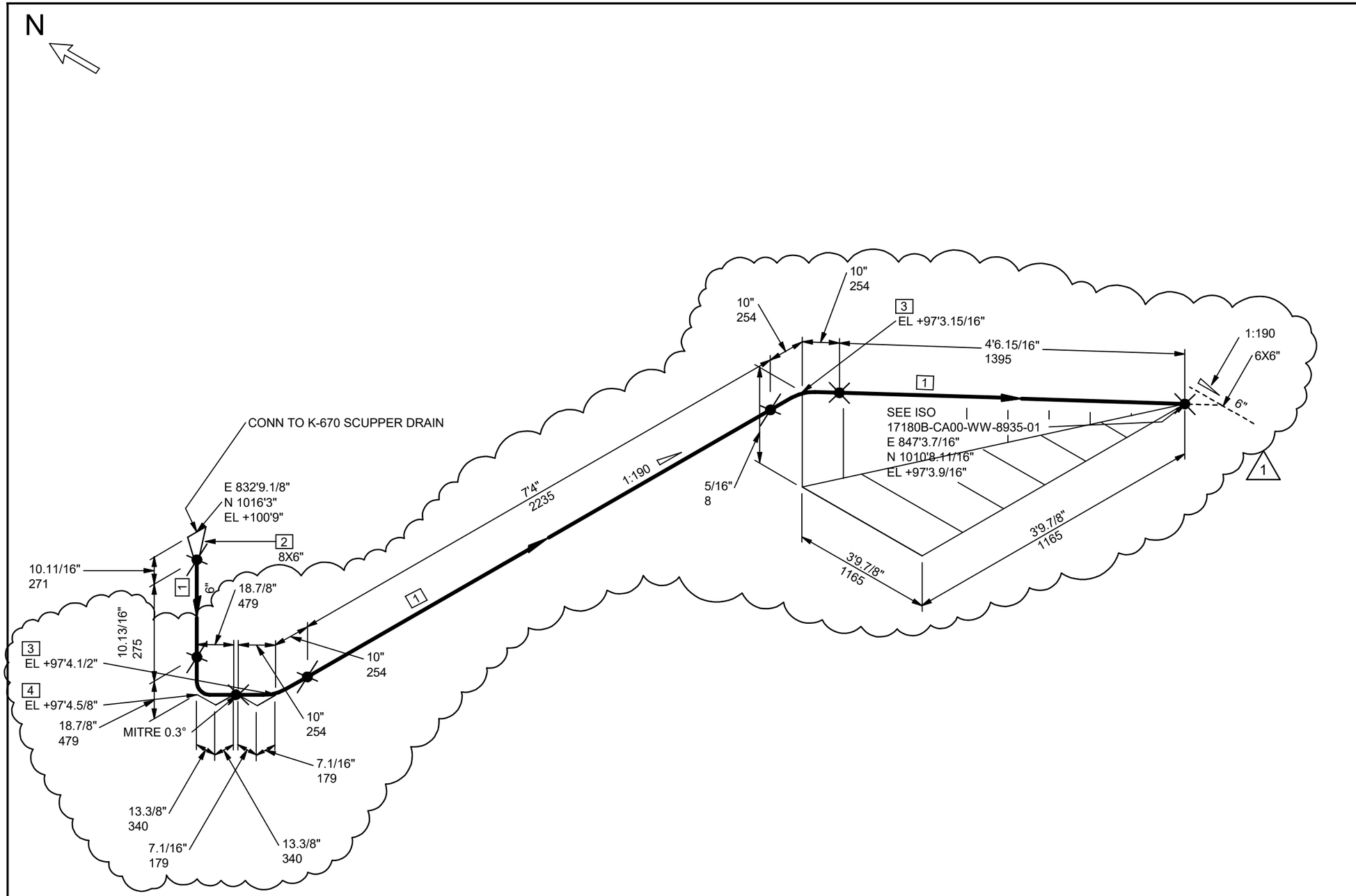
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8908-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	6	12.9'
2	Concentric Reducer , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	8X6	1
3	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	2
4	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	6	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/06/2019	ISSUED AS MARKED	VT	PVK	MLO
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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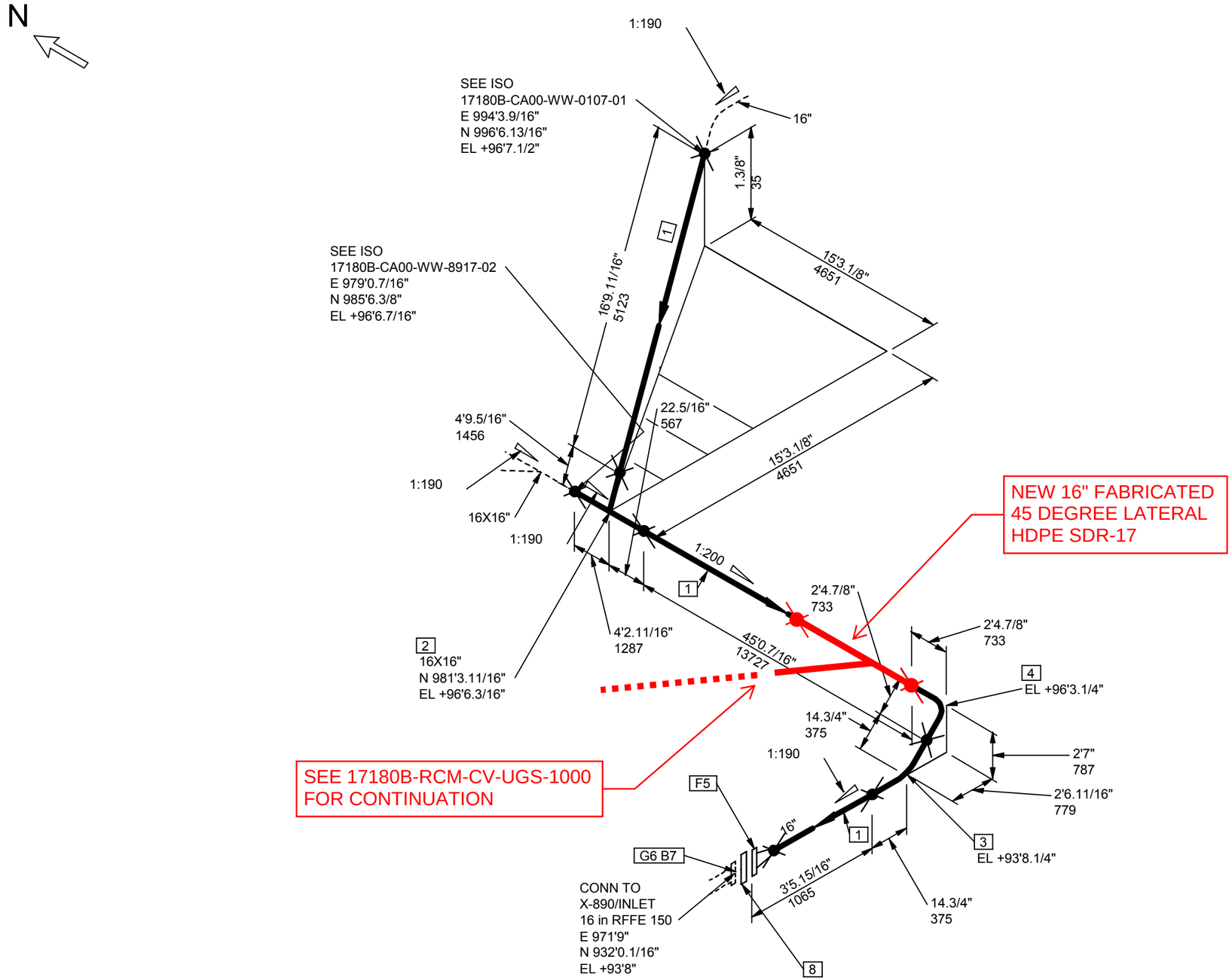
PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8910-01		REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , IPS, ASTM F714 - , HDPE, ASTM D3350, PE4710 , TF	16	64.4'
2	Lateral , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16X16	1
3	45 Deg Miter Bend-3S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16	1
4	90 Deg Miter Bend-5S , IPS, ASTM F2206 , TF , HDPE, ASTM D3350, PE4710 , Fabricated, Tapered Ends , SDR 17 , SDR 17	16	1
5	Flg Face Adapter , IPS, ASTM F2880 , Flared end, lap joint x TF , HDPE, ASTM D3350, PE4710 , SDR 17 , SDR 17	16	1
6	Non Metal Flat Gskt , ASME B16.21/B16.5 , CL150 , FF , Neoprene, 55 – 75 Durometer, Shore "A" , Garlock Style 7986, THK 1/16in (1.6 mm)	16	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 7.25 in. Length	1	16
8	Backup Ring , IPS , CL150 , FFLFE x TF , ASTM A395 Grade 60-40-18 , Convoluted, Drilling as per ASME B16.1/B16.5, Epoxy Coated	16	1

RCM TECHNOLOGIES MARKUP
A. SWIERSKI
3/13/2020

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELL
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 18026-9120-2206-001.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HDPEDRAIN	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	03/13/20	ISSUED FOR CONSTRUCTION	AFS	AFS	LAJ
0	08/14/2019	ISSUED FOR CONSTRUCTION	KJ	PVK	MLO

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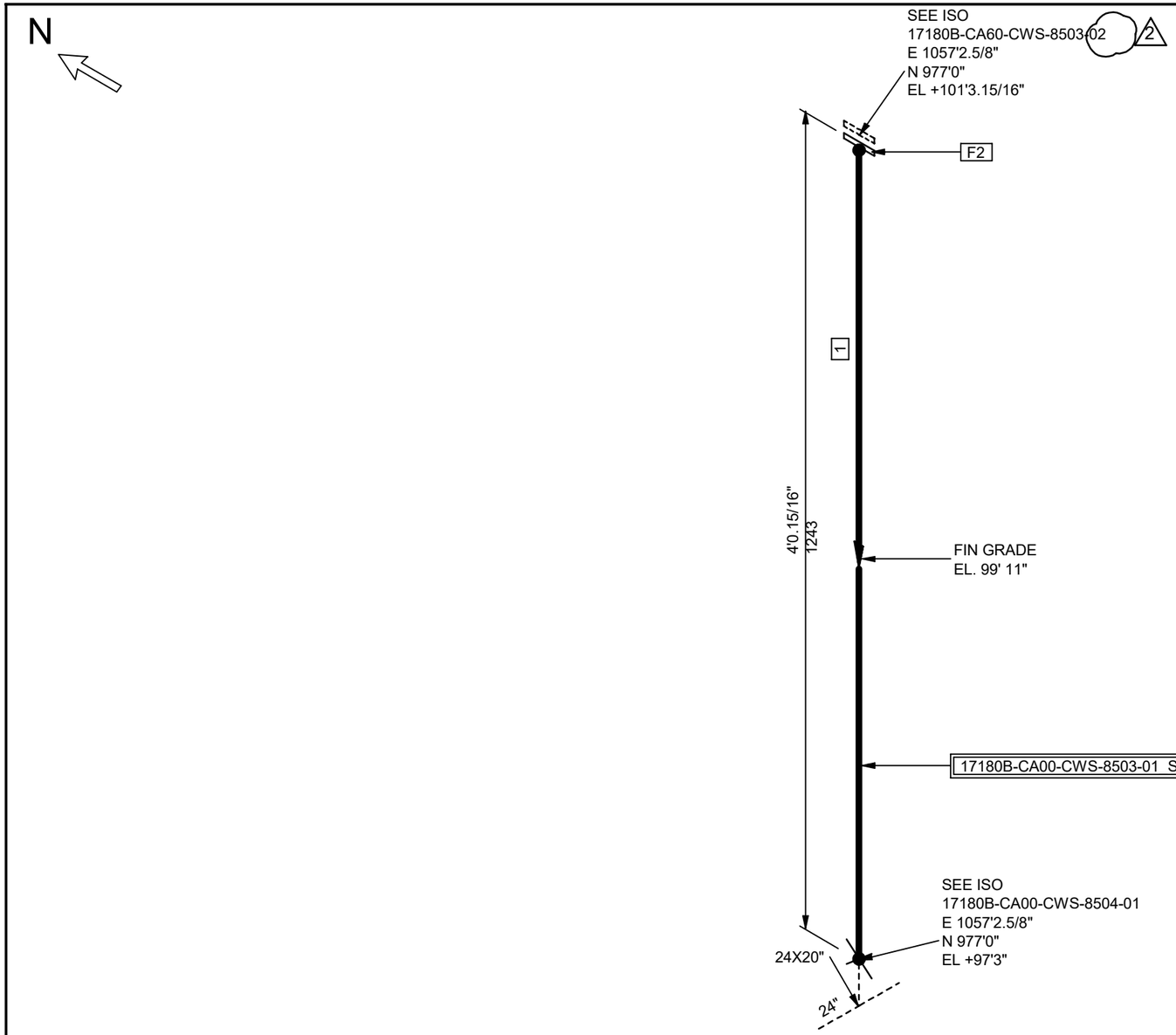
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-WW-8917-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	4.1'
2	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1

17180B-CA00-CWS-8503-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 .

2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/25/2019	ISSUED AS MARKED	TKS	AA	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/12/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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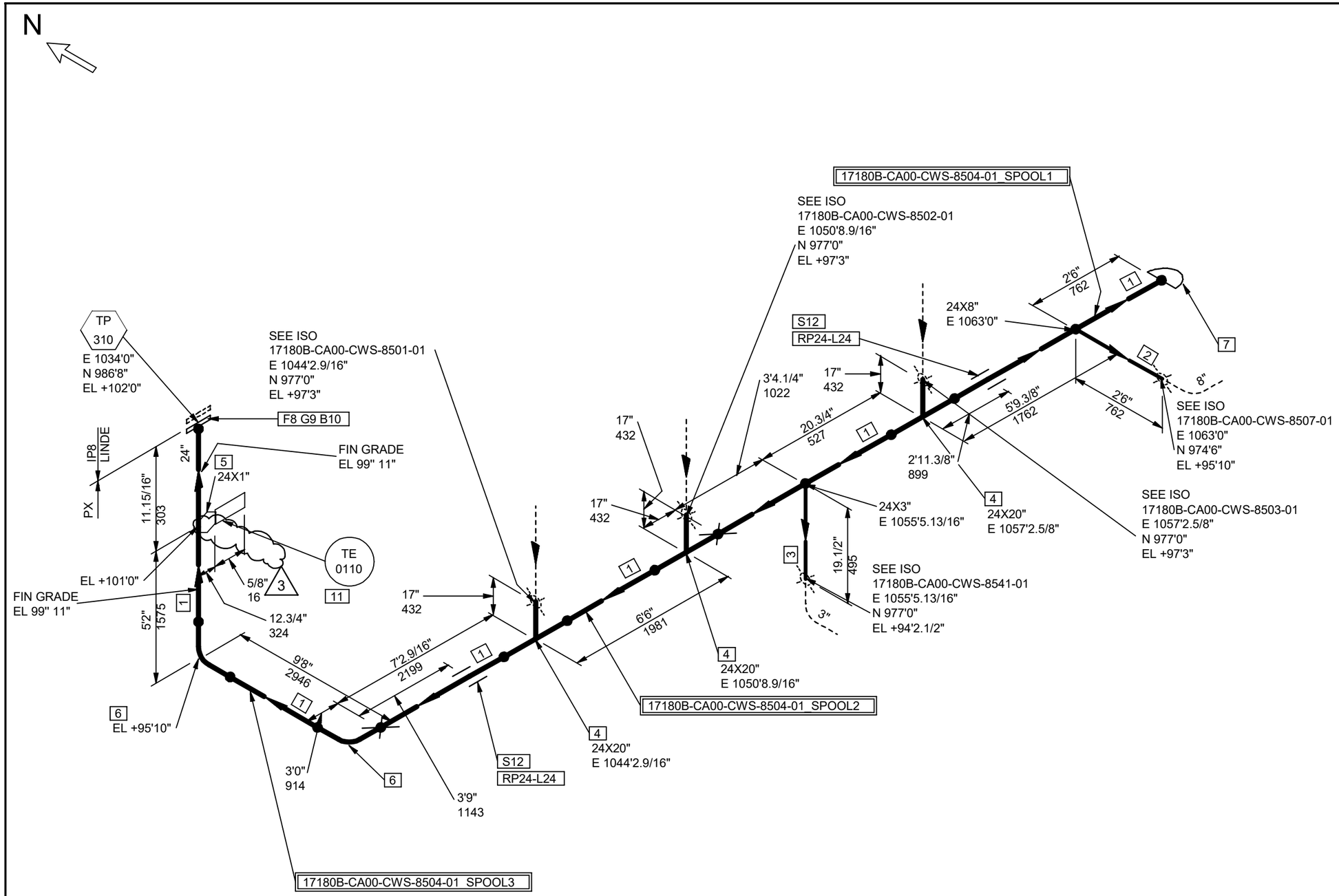
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8503-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	24	26.8'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	1.6'
3	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	0.7'
4	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X20	3
5	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	24X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24	2
7	Cap , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD	24	1
8	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	24	1
	ERECTION		
9	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	24	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1.1/4	20
	INSTRUMENTS		
11	TE-0110	1	1
	PIPE SUPPORTS		
12	RP24-L24	24	2

17180B-CA00-CWS-8504-01_SPOOL1 17180B-CA00-CWS-8504-01_SPOOL2
17180B-CA00-CWS-8504-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	11/22/2019	ISSUED AS MARKED	VT	NNR	MLO
2	09/19/2019	ISSUED AS MARKED	VT	PVK	MLO
1	08/01/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/24/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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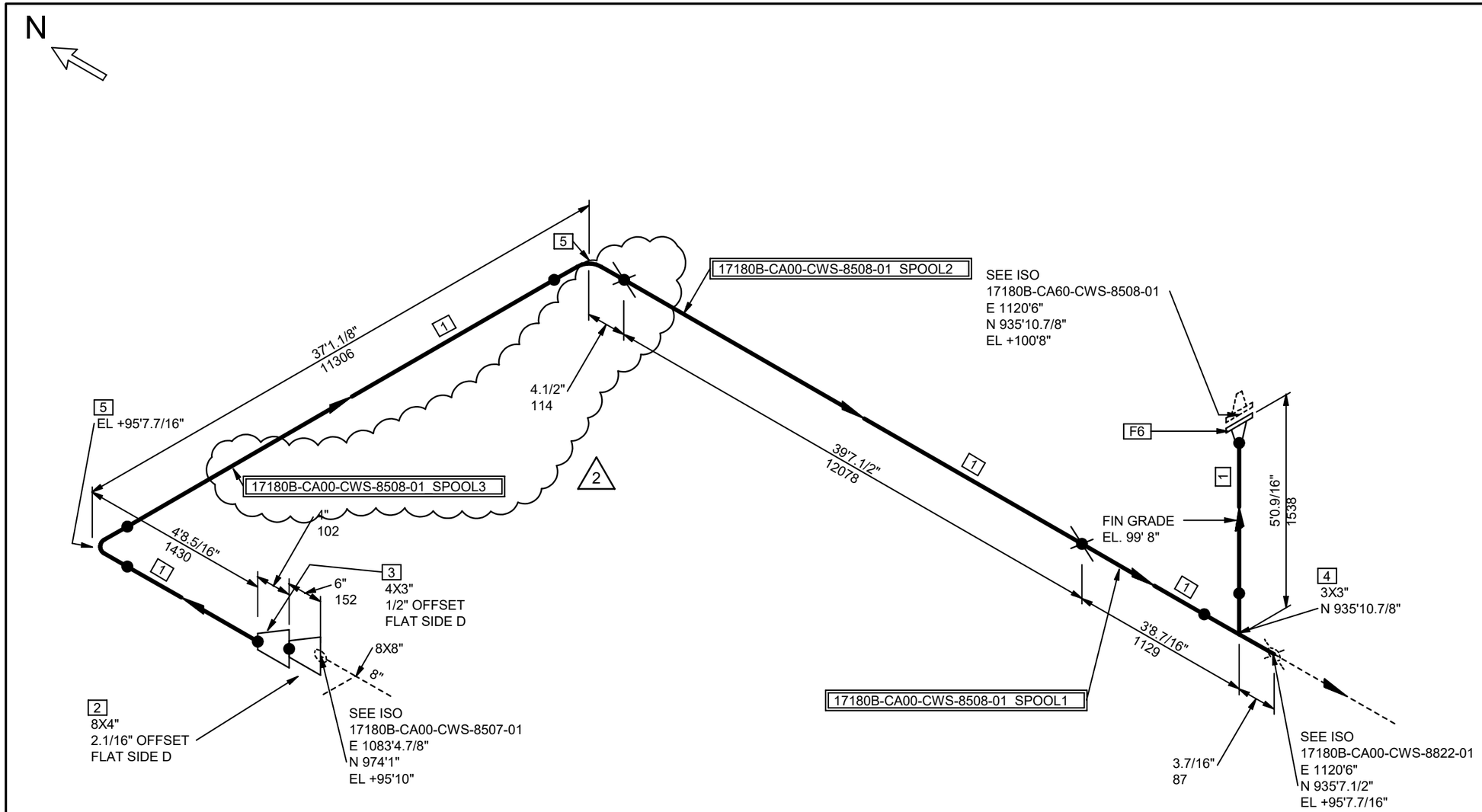
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8504-01	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	88.3'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X4	1
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4X3	1
4	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3X3	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	2
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1

17180B-CA00-CWS-8508-01_SPOOL1
17180B-CA00-CWS-8508-01_SPOOL3
17180B-CA00-CWS-8508-01_SPOOL2
2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/15/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
1	10/30/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	08/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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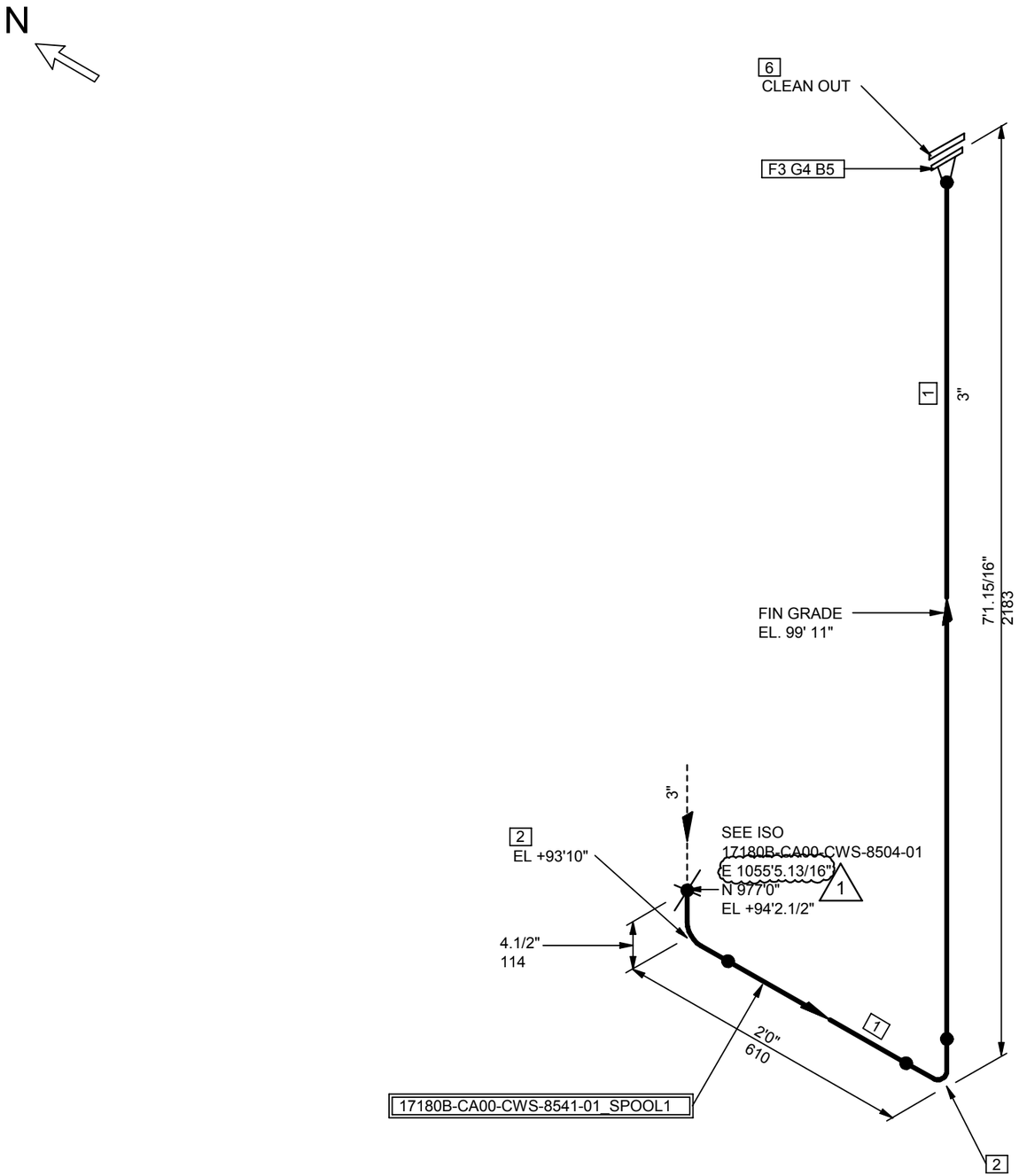
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8508-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	7.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	2
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
6	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3	1

17180B-CA00-CWS-8541-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/09/2019	ISSUED AS MARKED	KJ	PVK	MLO
0	07/23/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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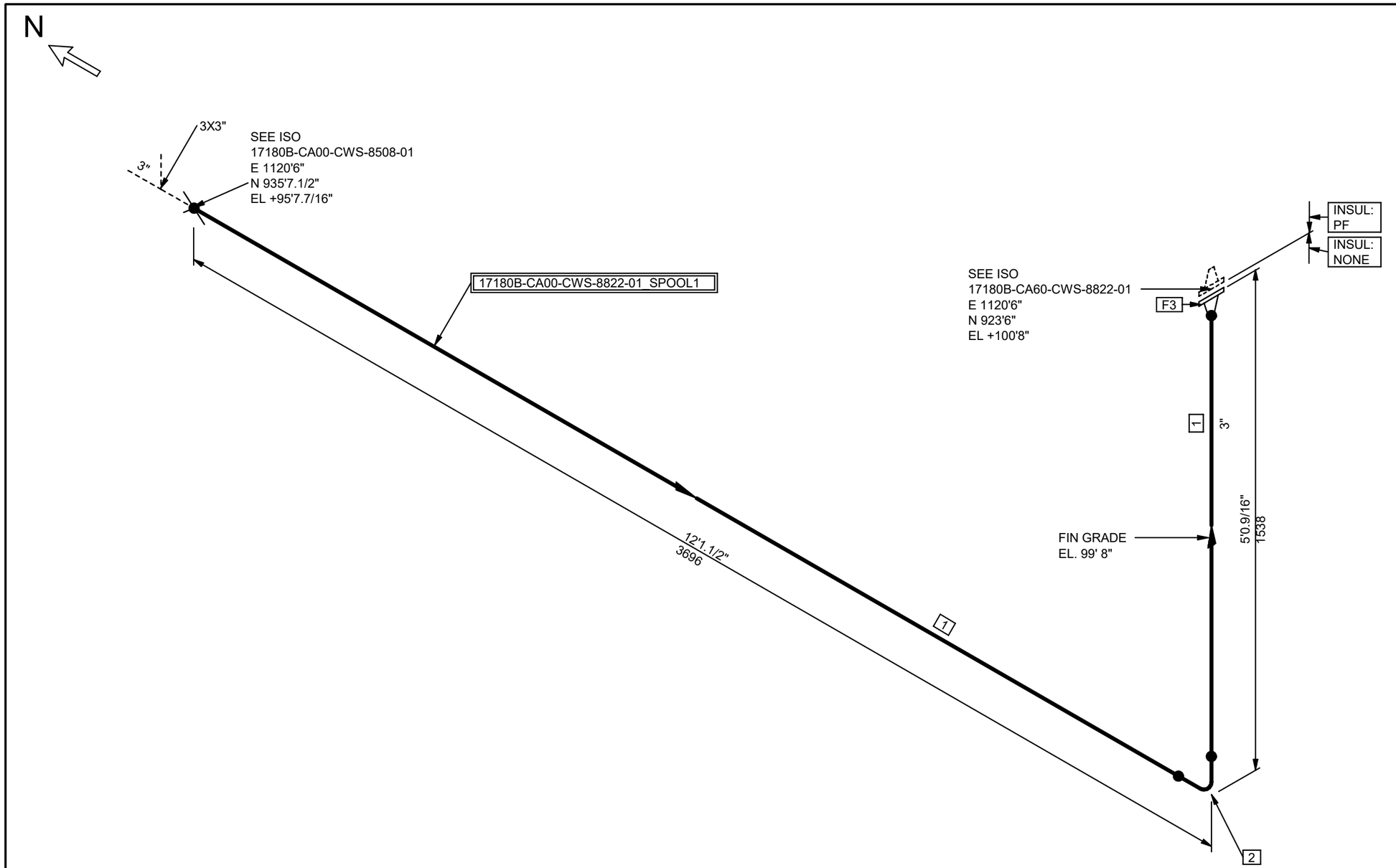
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8541-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	16.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1

17180B-CA00-CWS-8822-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/30/2019	ISSUED FOR CONSTRUCTION	RR	AA	MLO

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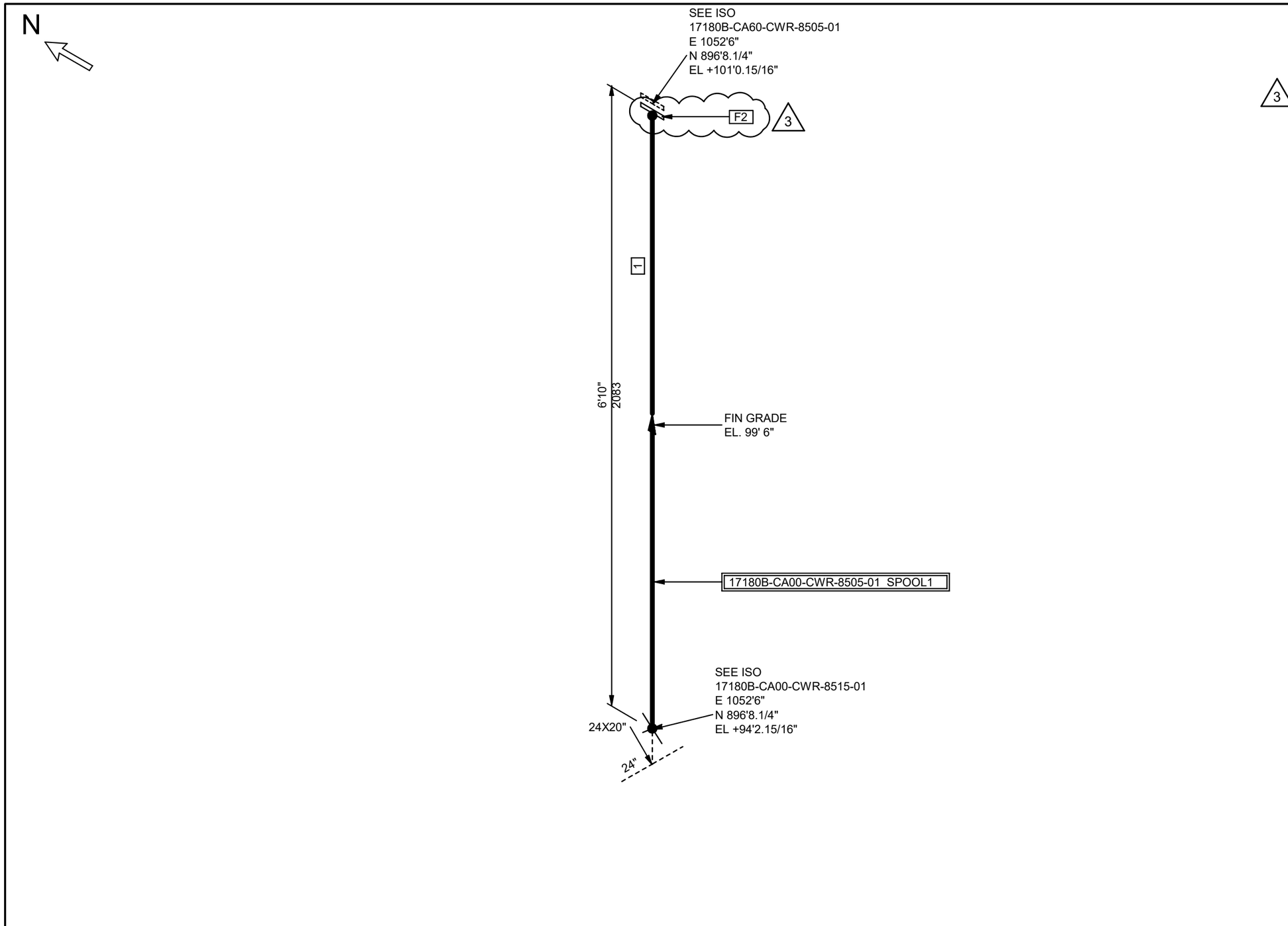
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8822-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	6.8'
2	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	1

3

17180B-CA00-CWR-8505-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	11/13/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
2	09/09/2019	ISSUED AS MARKED	KJ	PVK	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/19/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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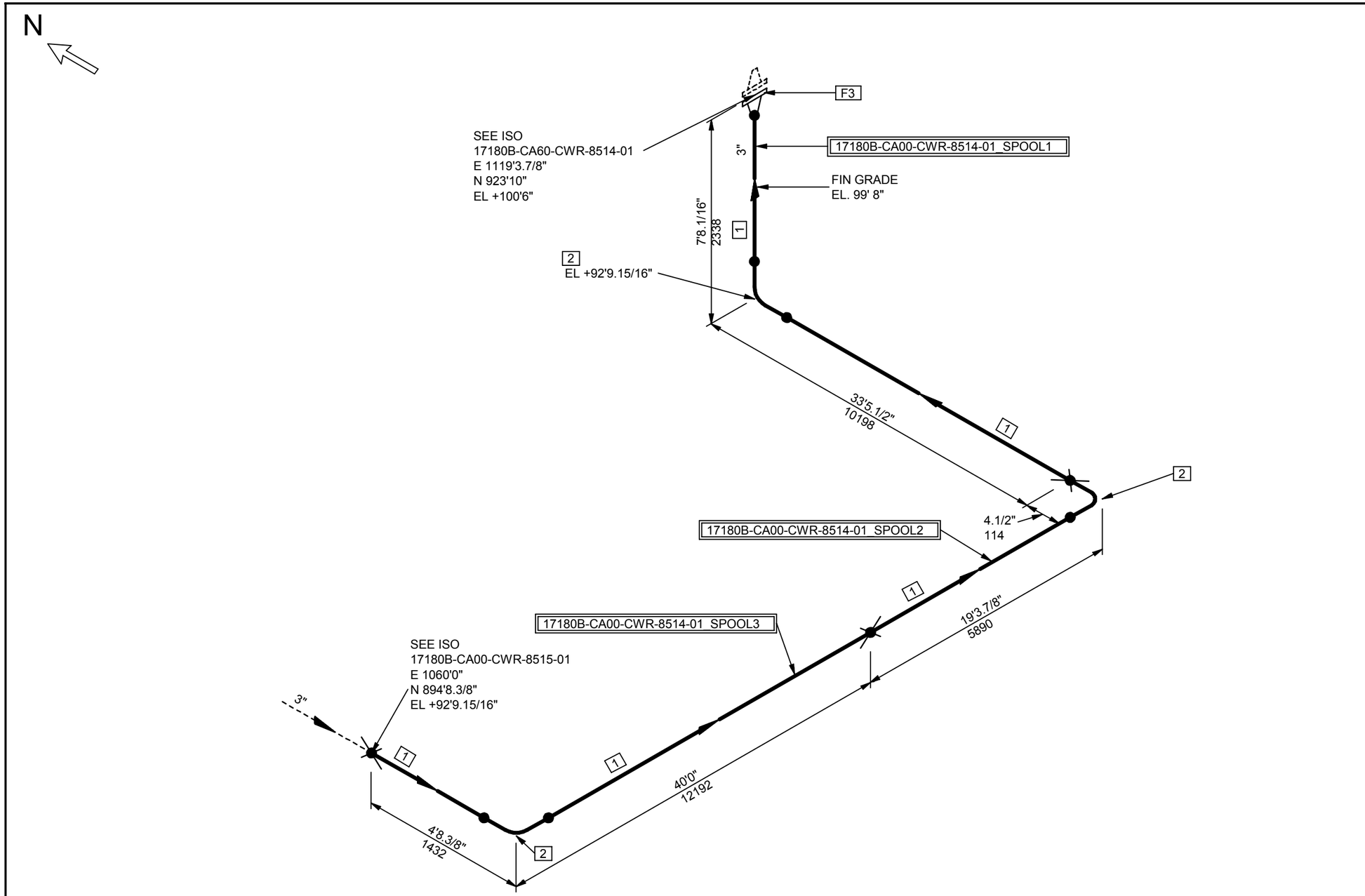
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWR-8505-01		REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	103.1'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1

17180B-CA00-CWR-8514-01_SPOOL1 17180B-CA00-CWR-8514-01_SPOOL2
17180B-CA00-CWR-8514-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/19/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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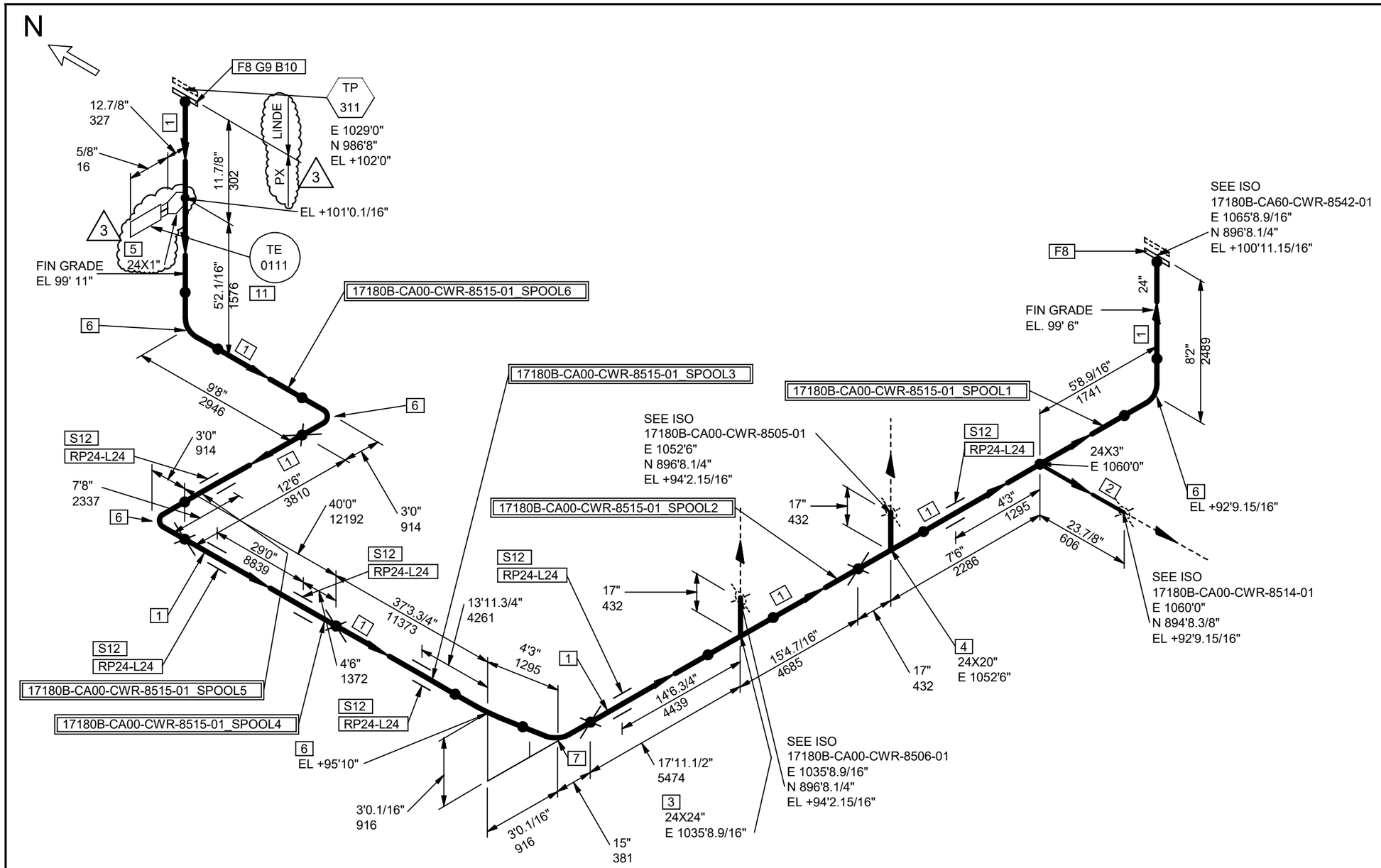
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWR-8514-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	24	135.0'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	1.0'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X24	1
4	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X20	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	24X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24	5
7	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24	1
8	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	24	2
	ERECTION		
9	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	24	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1.1/4	20
	INSTRUMENTS		
11	TE-0111	1	1
	PIPE SUPPORTS		
12	RP24-L24	24	6

17180B-CA00-CWR-8515-01_SPOOL1 17180B-CA00-CWR-8515-01_SPOOL2
17180B-CA00-CWR-8515-01_SPOOL3 17180B-CA00-CWR-8515-01_SPOOL4
17180B-CA00-CWR-8515-01_SPOOL5 17180B-CA00-CWR-8515-01_SPOOL6

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	11/21/2019	ISSUED AS MARKED	VT	PVK	MLO
2	09/19/2019	ISSUED AS MARKED	VT	PVK	MLO
1	08/01/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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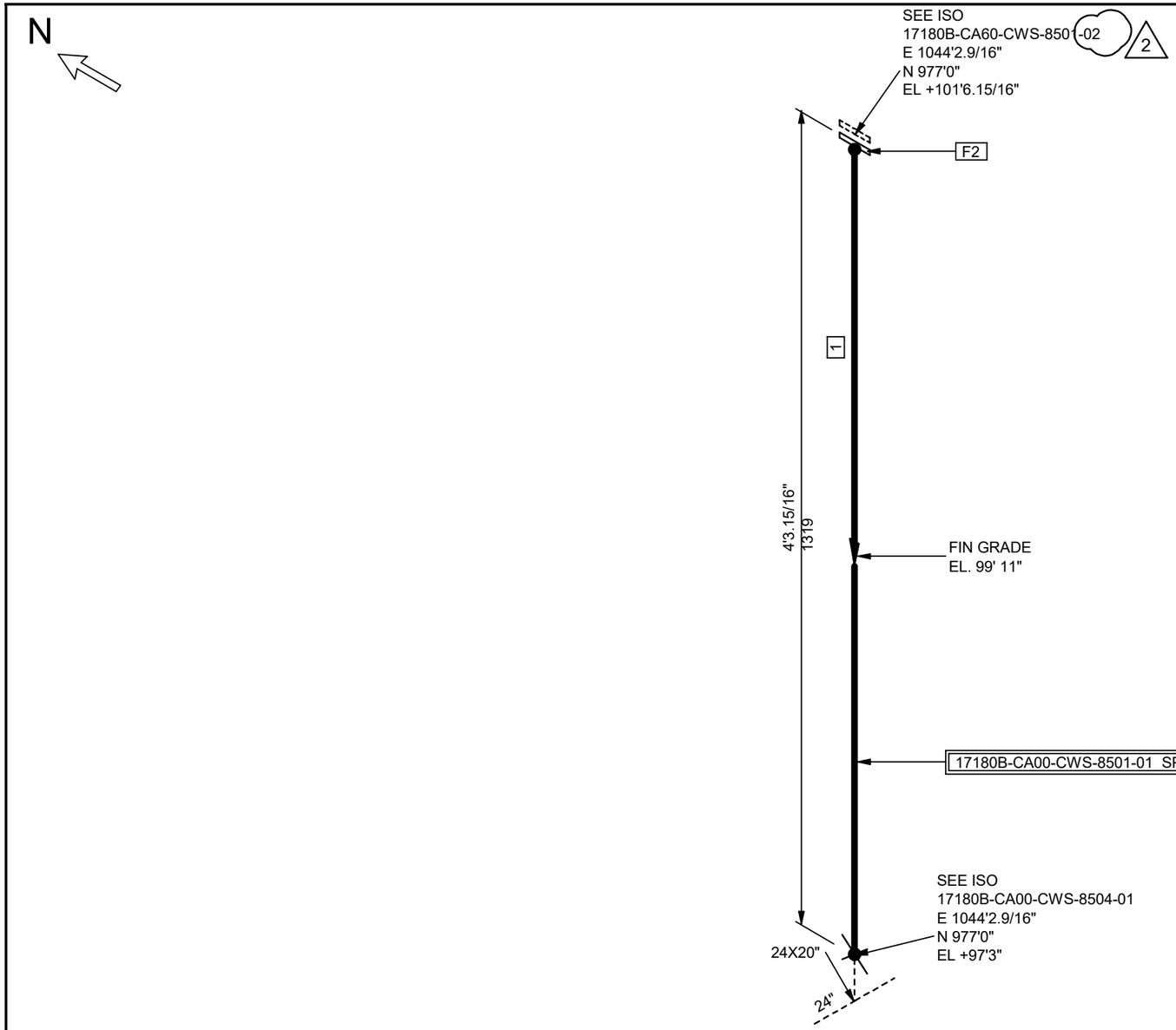
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWR-8515-01	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	4.3'
2	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1

17180B-CA00-CWS-8501-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 . 2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/25/2019	ISSUED AS MARKED	TKS	AA	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/19/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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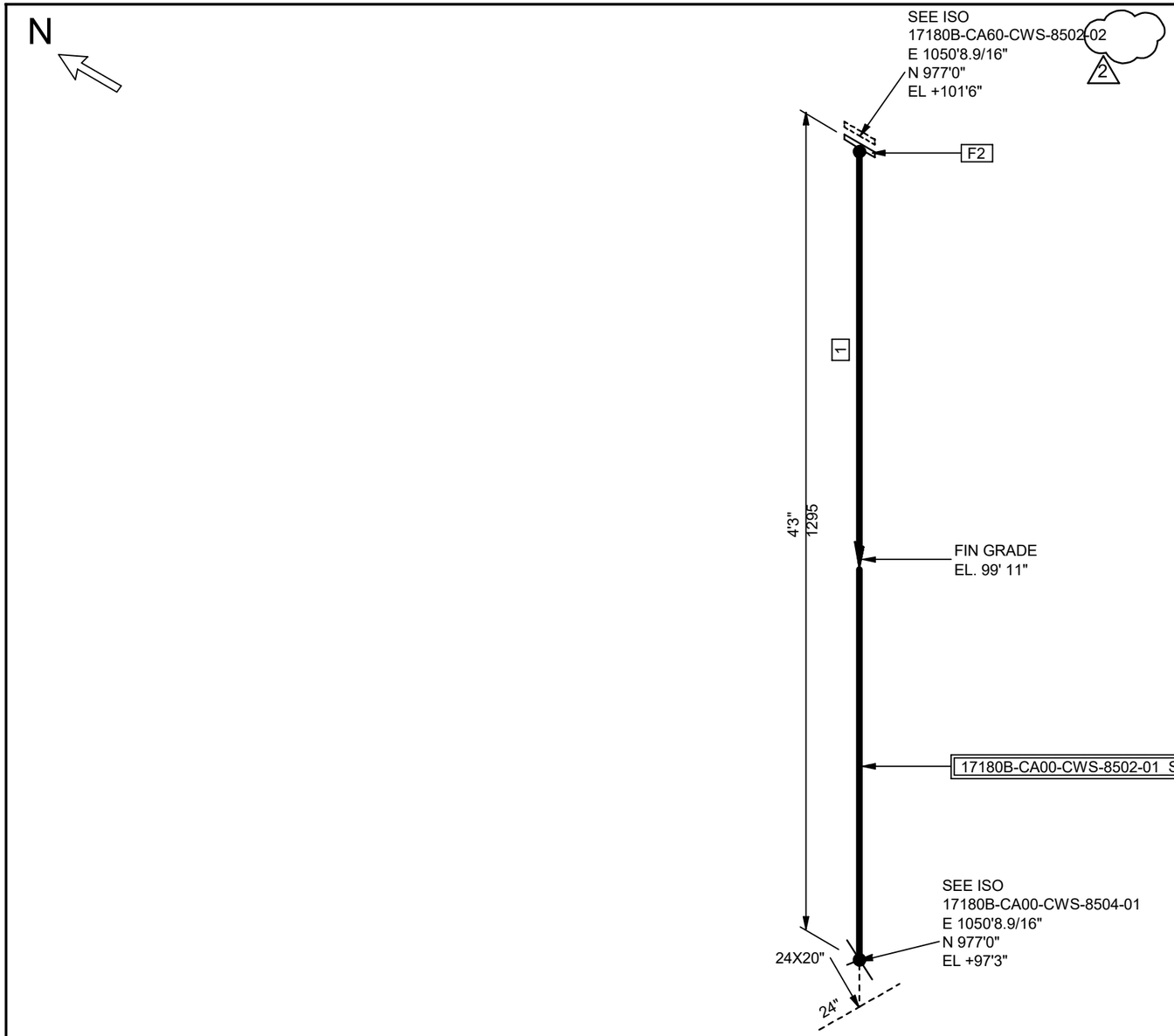
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8501-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	4.2'
2	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1

17180B-CA00-CWS-8502-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 .

2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/25/2019	ISSUED AS MARKED	TKS	AA	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/12/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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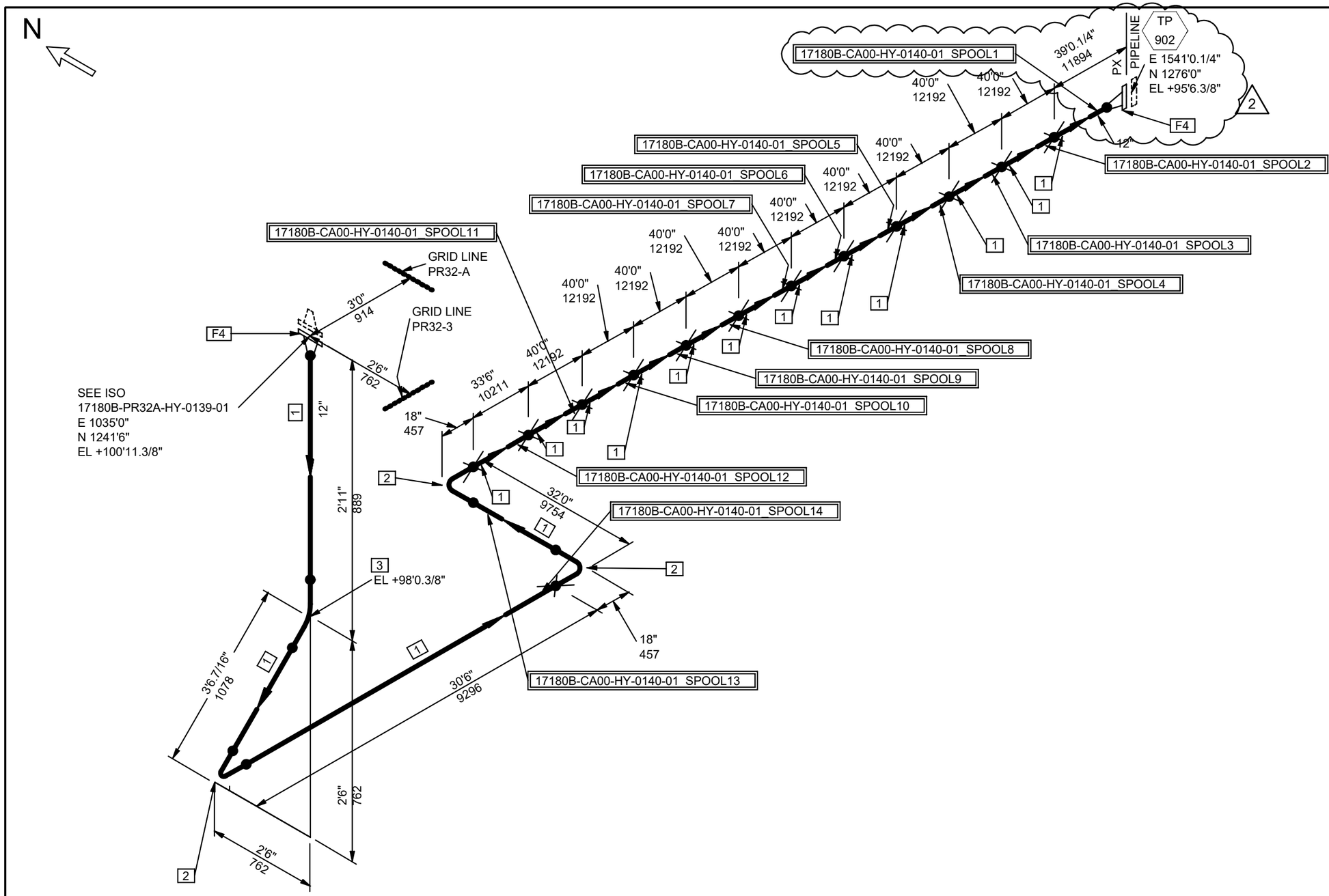
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8502-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-60	12	533.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-60 , S-60	12	3
3	45 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-60 , S-60	12	1
4	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	12	2

17180B-CA00-HY-0140-01_SPOOL1 17180B-CA00-HY-0140-01_SPOOL2
17180B-CA00-HY-0140-01_SPOOL3 17180B-CA00-HY-0140-01_SPOOL4
17180B-CA00-HY-0140-01_SPOOL5 17180B-CA00-HY-0140-01_SPOOL6
17180B-CA00-HY-0140-01_SPOOL7 17180B-CA00-HY-0140-01_SPOOL8
17180B-CA00-HY-0140-01_SPOOL9 17180B-CA00-HY-0140-01_SPOOL10
17180B-CA00-HY-0140-01_SPOOL11 17180B-CA00-HY-0140-01_SPOOL12
17180B-CA00-HY-0140-01_SPOOL13 17180B-CA00-HY-0140-01_SPOOL14

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	07/01/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	01/21/2020	RE-ISSUED FOR CONSTRUCTION	MPO	GS	EO
0	11/12/2019	ISSUED FOR CONSTRUCTION	TKS	AA	MLO

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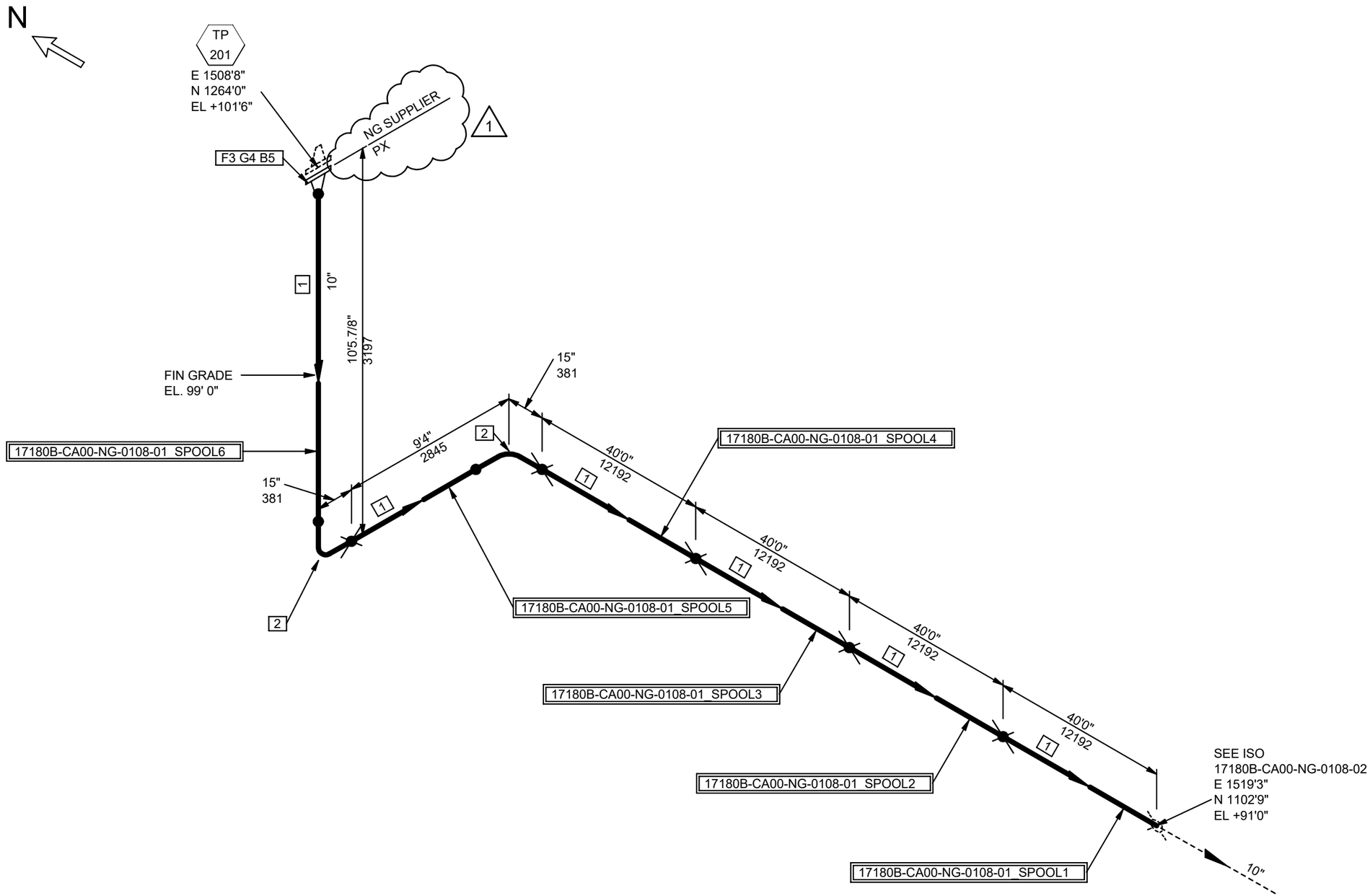
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-HY-0140-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-80	10	176.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	10	2
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	10	1
ERECTION			
4	Isolation Kit , ASME-B16.5 , CL600 , RF , G-7 Sleeve/Gskt Mat, PTFE Seal , Ins Gskt Kit per Detail # HMP-116	10	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 8.75 in. Length	1.1/4	16

17180B-CA00-NG-0108-01_SPOOL1
17180B-CA00-NG-0108-01_SPOOL2
17180B-CA00-NG-0108-01_SPOOL3
17180B-CA00-NG-0108-01_SPOOL4
17180B-CA00-NG-0108-01_SPOOL5
17180B-CA00-NG-0108-01_SPOOL6

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

1

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/16/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	06/26/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

PRAXAIR

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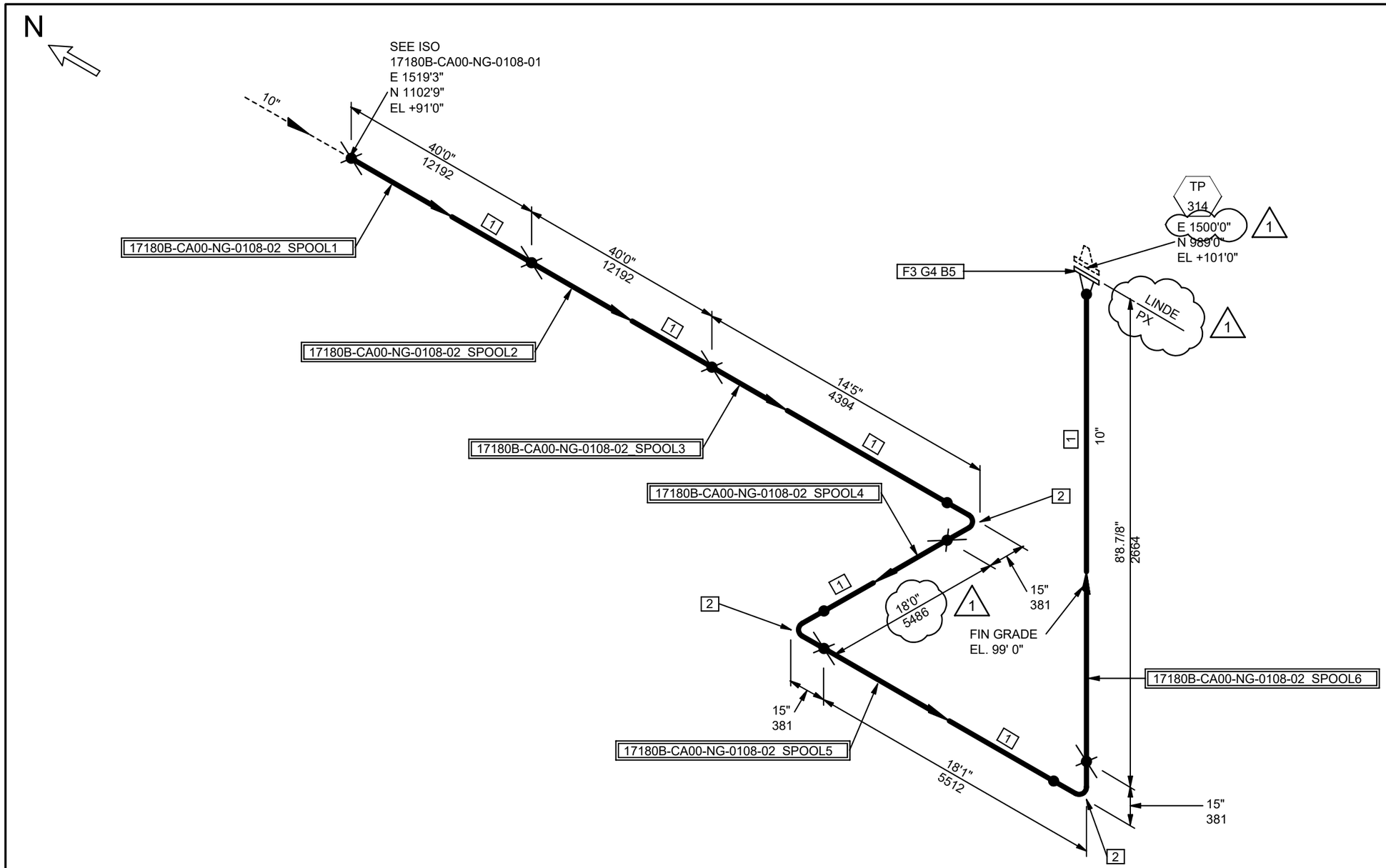
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-NG-0108-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-80	10	135.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	10	3
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	10	1
	ERECTION		
4	Isolation Kit , ASME-B16.5 , CL600 , RF , G-7 Sleeve/Gskt Mat, PTFE Seal , Ins Gskt Kit per Detail # HMP-116	10	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 8.75 in. Length	1.1/4	16

17180B-CA00-NG-0108-02_SPOOL1
17180B-CA00-NG-0108-02_SPOOL2
17180B-CA00-NG-0108-02_SPOOL3
17180B-CA00-NG-0108-02_SPOOL4
17180B-CA00-NG-0108-02_SPOOL5
17180B-CA00-NG-0108-02_SPOOL6

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/16/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	06/26/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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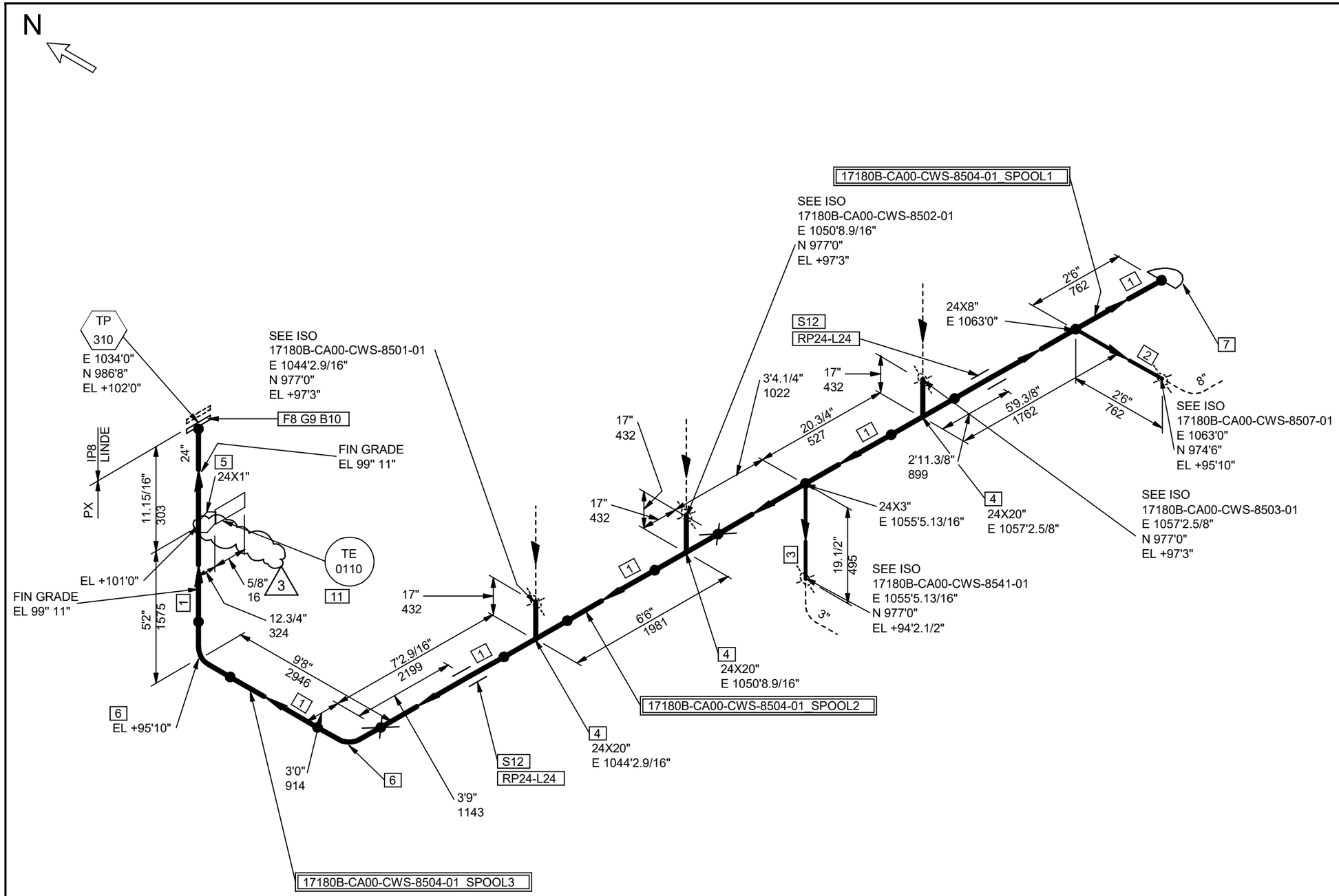
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-NG-0108-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	24	26.8'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	1.6'
3	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	0.7'
4	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X20	3
5	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	24X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24	2
7	Cap , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD	24	1
8	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	24	1
	ERECTION		
9	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	24	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1.1/4	20
	INSTRUMENTS		
11	TE-0110	1	1
	PIPE SUPPORTS		
12	RP24-L24	24	2

17180B-CA00-CWS-8504-01_SPOOL1 17180B-CA00-CWS-8504-01_SPOOL2
17180B-CA00-CWS-8504-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	11/22/2019	ISSUED AS MARKED	VT	NNR	MLO
2	09/19/2019	ISSUED AS MARKED	VT	PVK	MLO
1	08/01/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/24/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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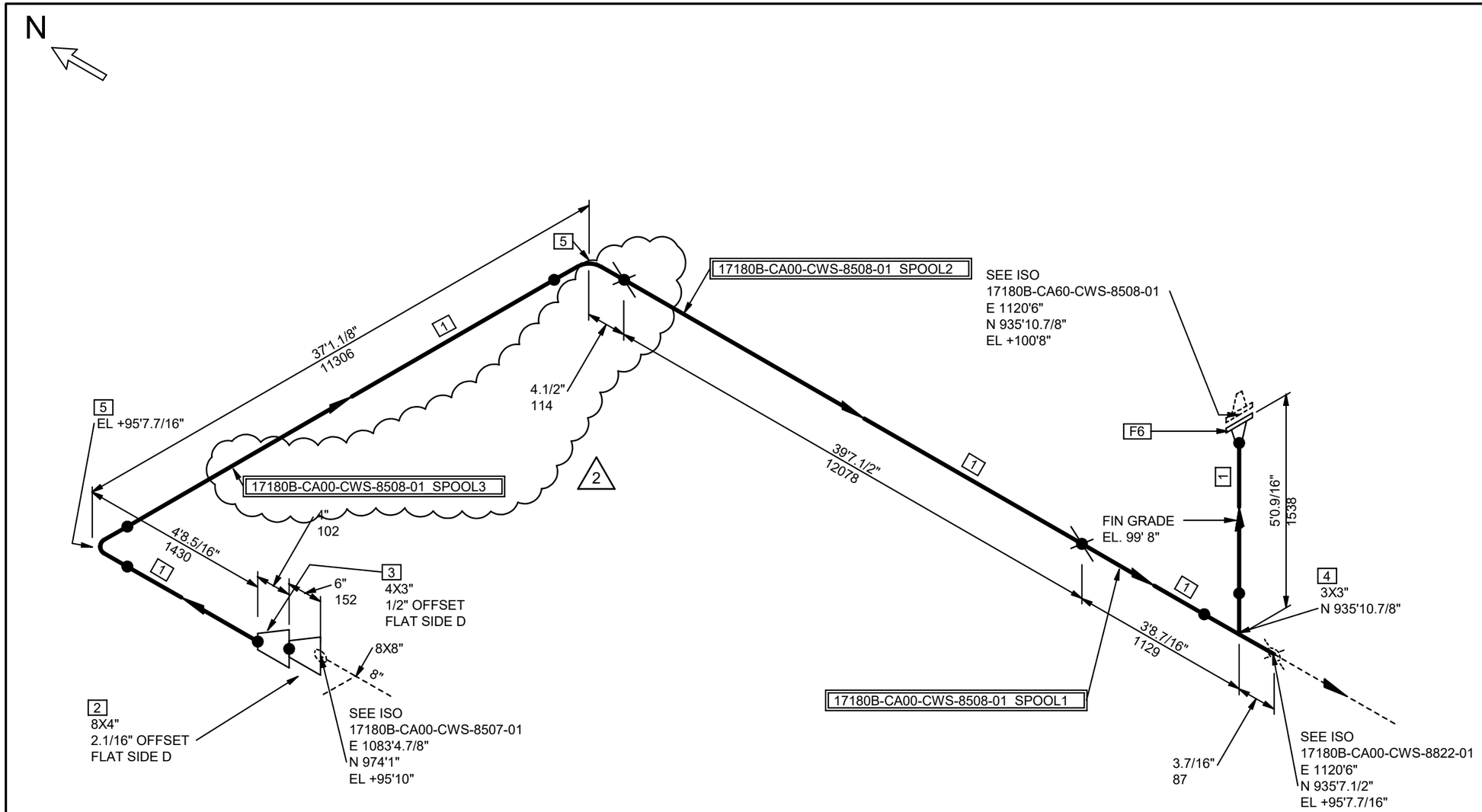
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8504-01	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	88.3'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X4	1
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4X3	1
4	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3X3	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	2
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1

17180B-CA00-CWS-8508-01_SPOOL1
17180B-CA00-CWS-8508-01_SPOOL3
17180B-CA00-CWS-8508-01_SPOOL2
2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/15/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
1	10/30/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	08/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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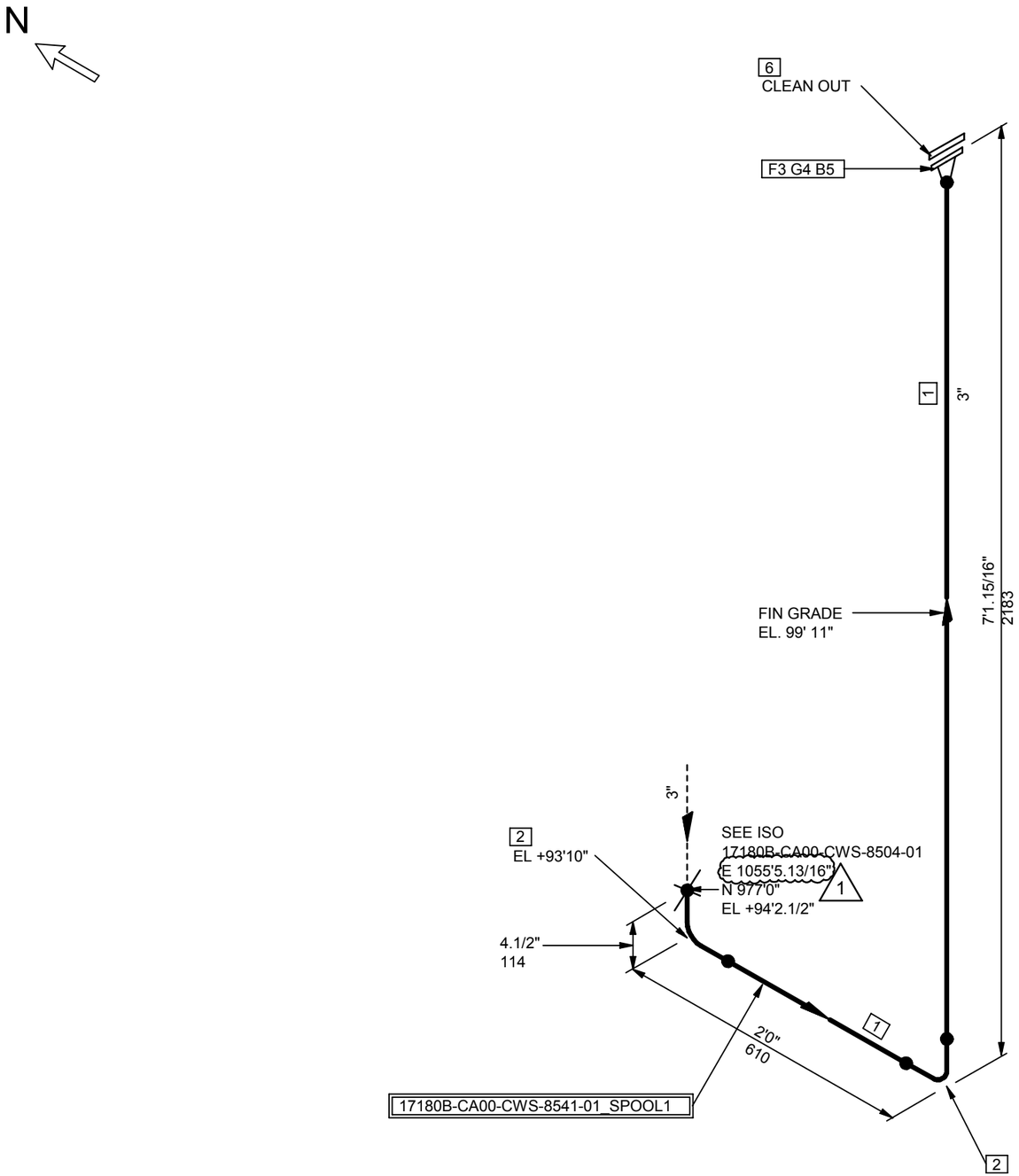
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8508-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	7.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	2
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
6	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3	1

17180B-CA00-CWS-8541-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/09/2019	ISSUED AS MARKED	KJ	PVK	MLO
0	07/23/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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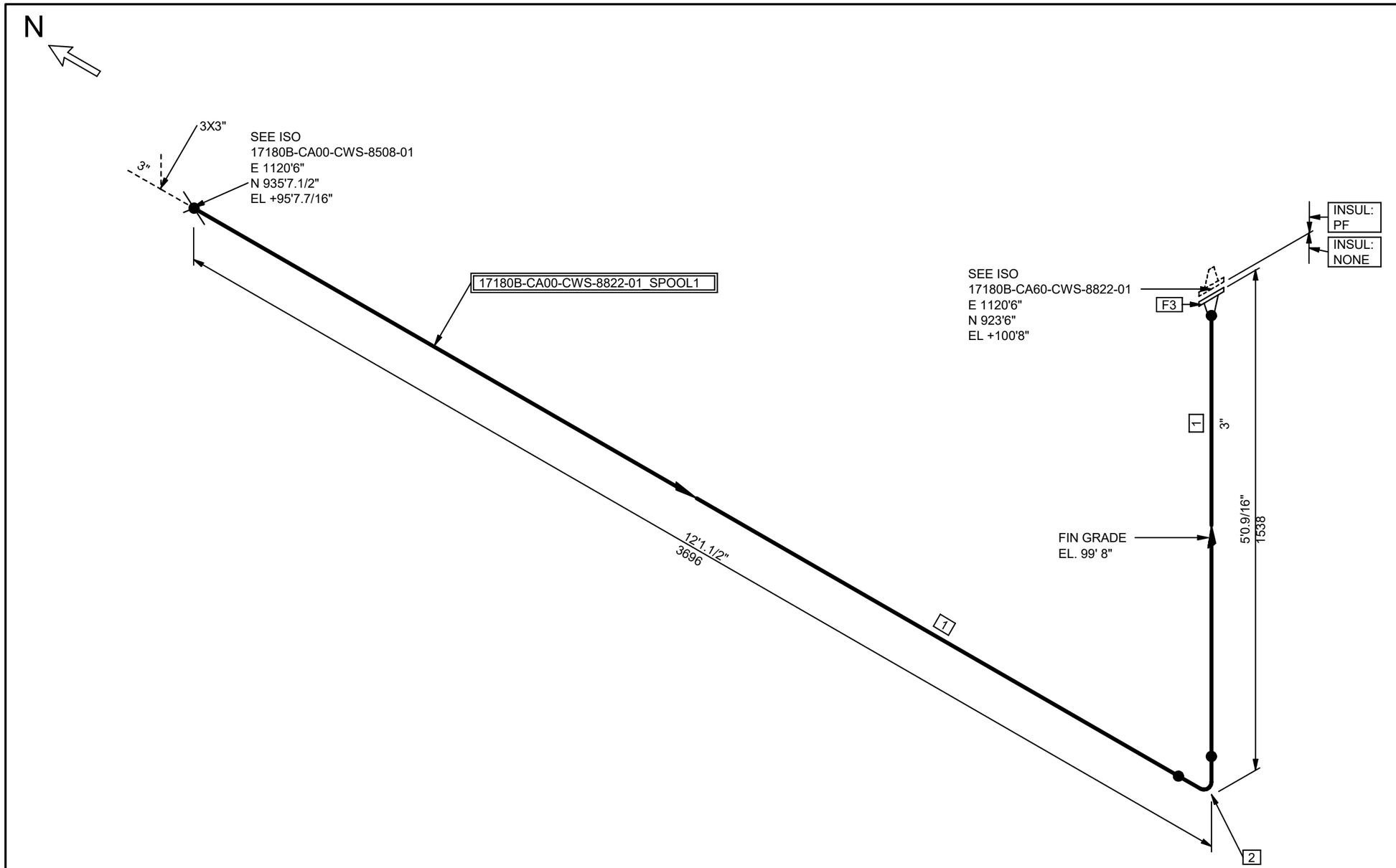
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8541-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	16.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1

17180B-CA00-CWS-8822-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/30/2019	ISSUED FOR CONSTRUCTION	RR	AA	MLO

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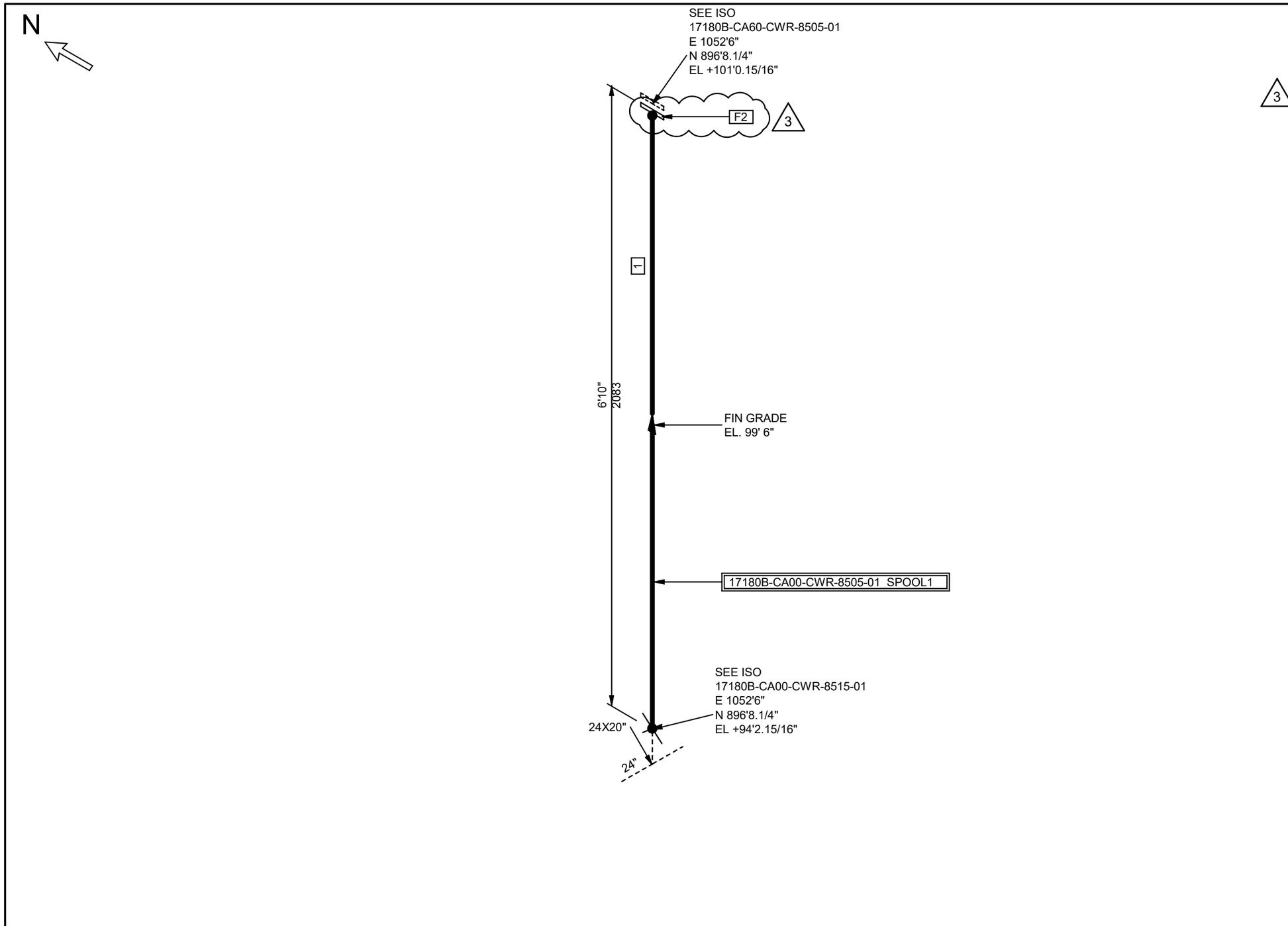
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8822-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	6.8'
2	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	1

3

17180B-CA00-CWR-8505-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	11/13/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
2	09/09/2019	ISSUED AS MARKED	KJ	PVK	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/19/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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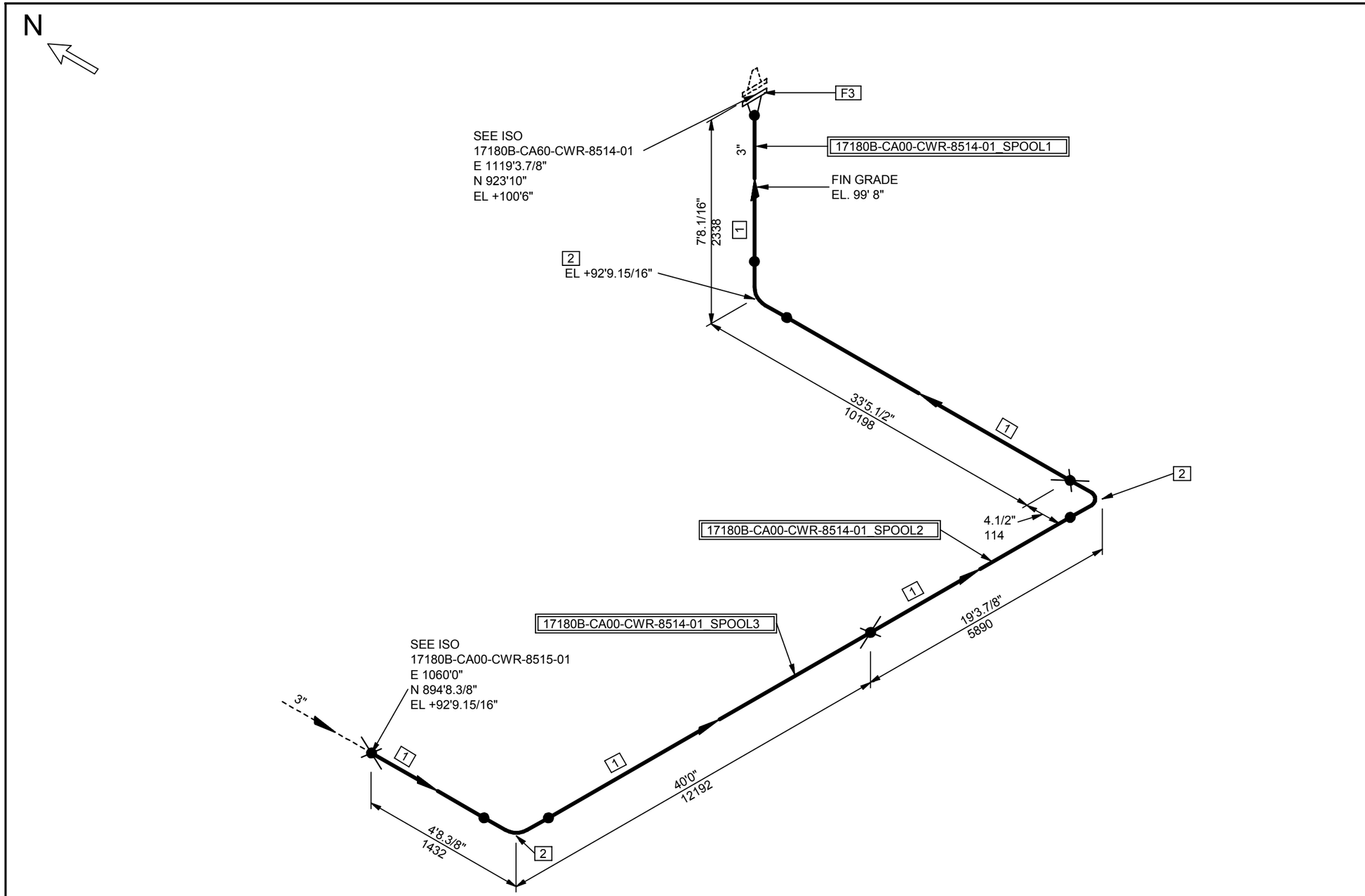
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWR-8505-01		REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	103.1'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1

17180B-CA00-CWR-8514-01_SPOOL1 17180B-CA00-CWR-8514-01_SPOOL2
17180B-CA00-CWR-8514-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/19/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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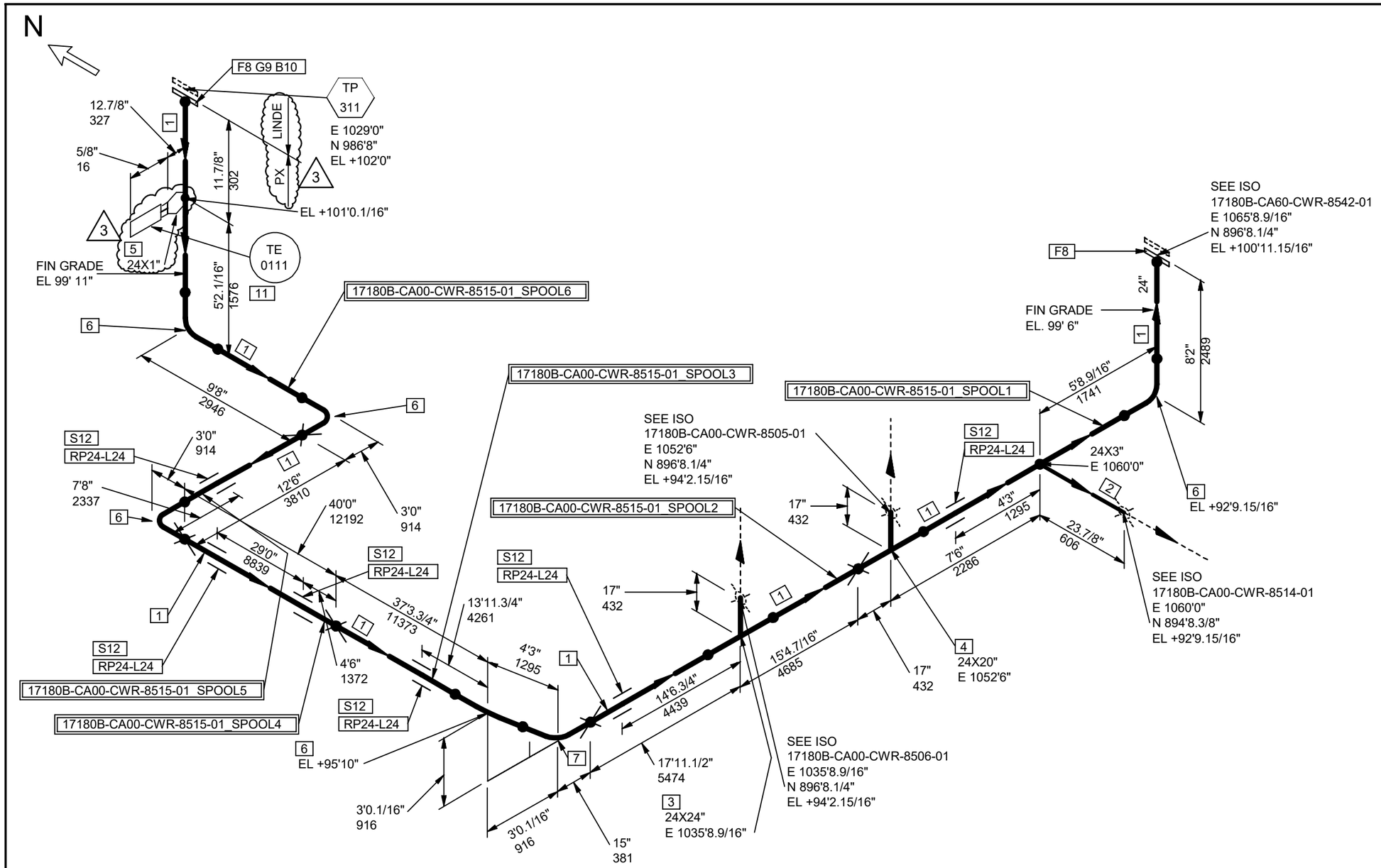
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWR-8514-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	24	135.0'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	1.0'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X24	1
4	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X20	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	24X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24	5
7	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24	1
8	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	24	2
	ERECTION		
9	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	24	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1.1/4	20
	INSTRUMENTS		
11	TE-0111	1	1
	PIPE SUPPORTS		
12	RP24-L24	24	6

17180B-CA00-CWR-8515-01_SPOOL1 17180B-CA00-CWR-8515-01_SPOOL2
17180B-CA00-CWR-8515-01_SPOOL3 17180B-CA00-CWR-8515-01_SPOOL4
17180B-CA00-CWR-8515-01_SPOOL5 17180B-CA00-CWR-8515-01_SPOOL6

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	11/21/2019	ISSUED AS MARKED	VT	PVK	MLO
2	09/19/2019	ISSUED AS MARKED	VT	PVK	MLO
1	08/01/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/21/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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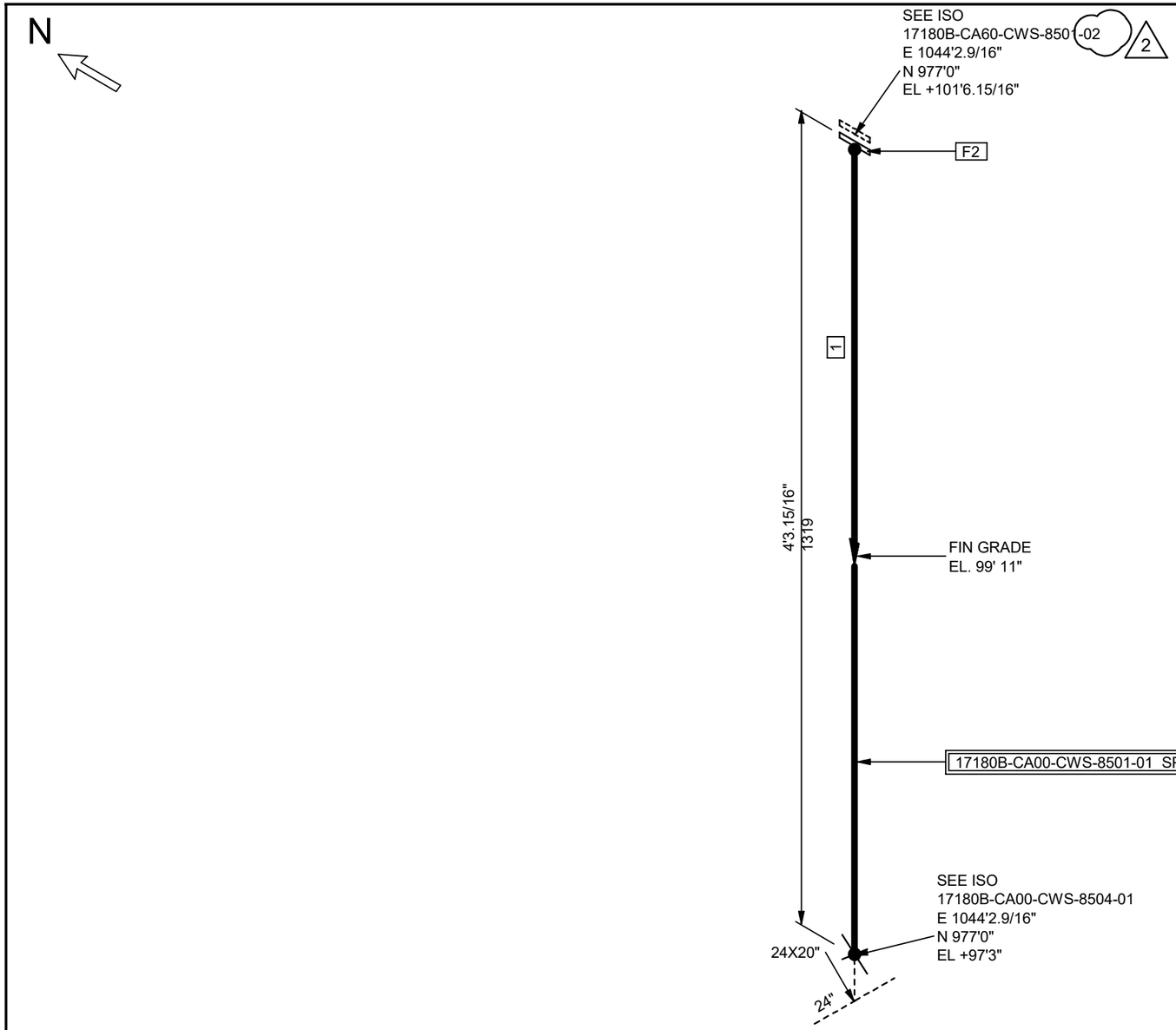
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWR-8515-01	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	4.3'
2	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1

17180B-CA00-CWS-8501-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 . 2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/25/2019	ISSUED AS MARKED	TKS	AA	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/19/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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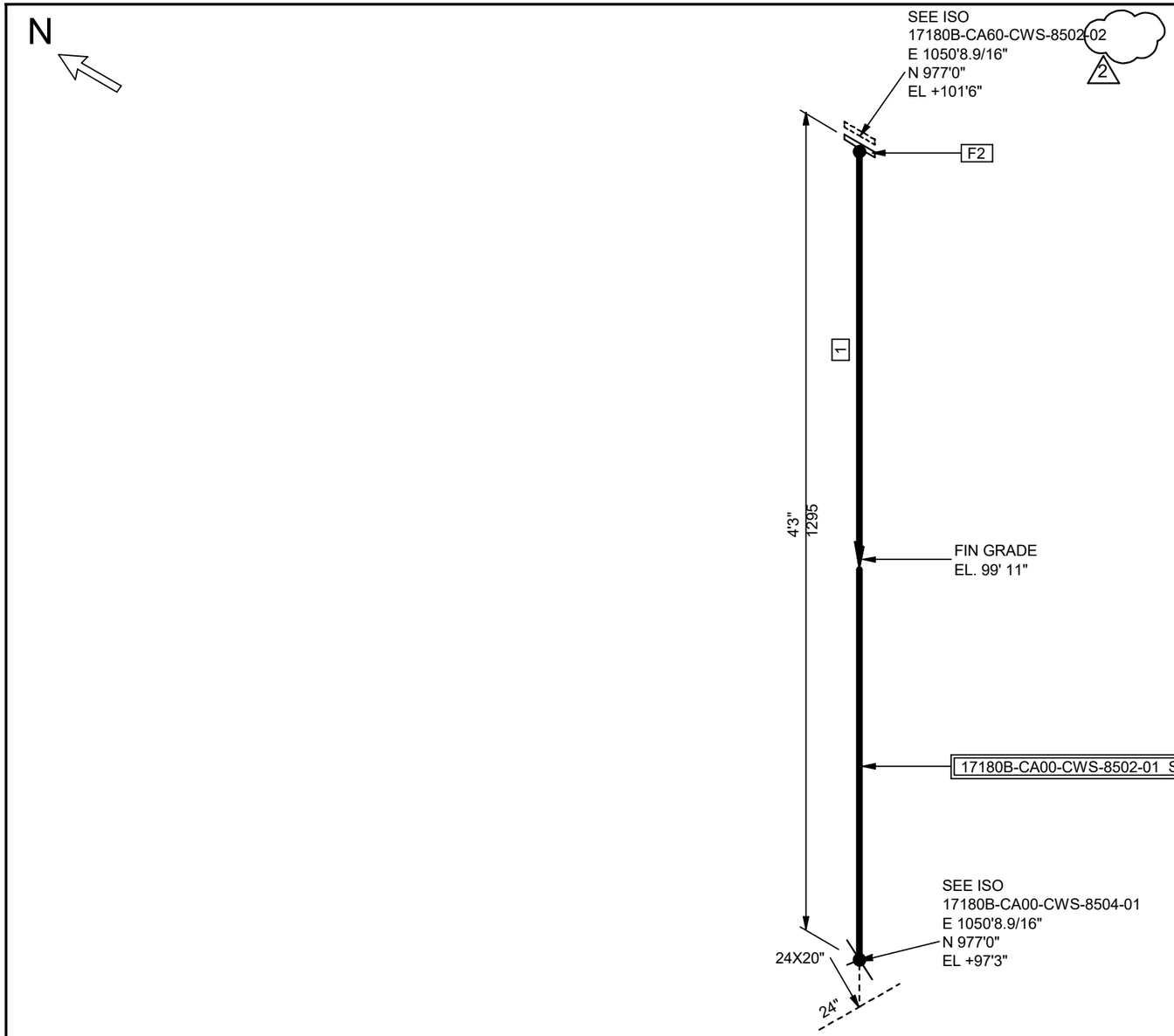
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8501-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	4.2'
2	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1

17180B-CA00-CWS-8502-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 .

2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/25/2019	ISSUED AS MARKED	TKS	AA	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/12/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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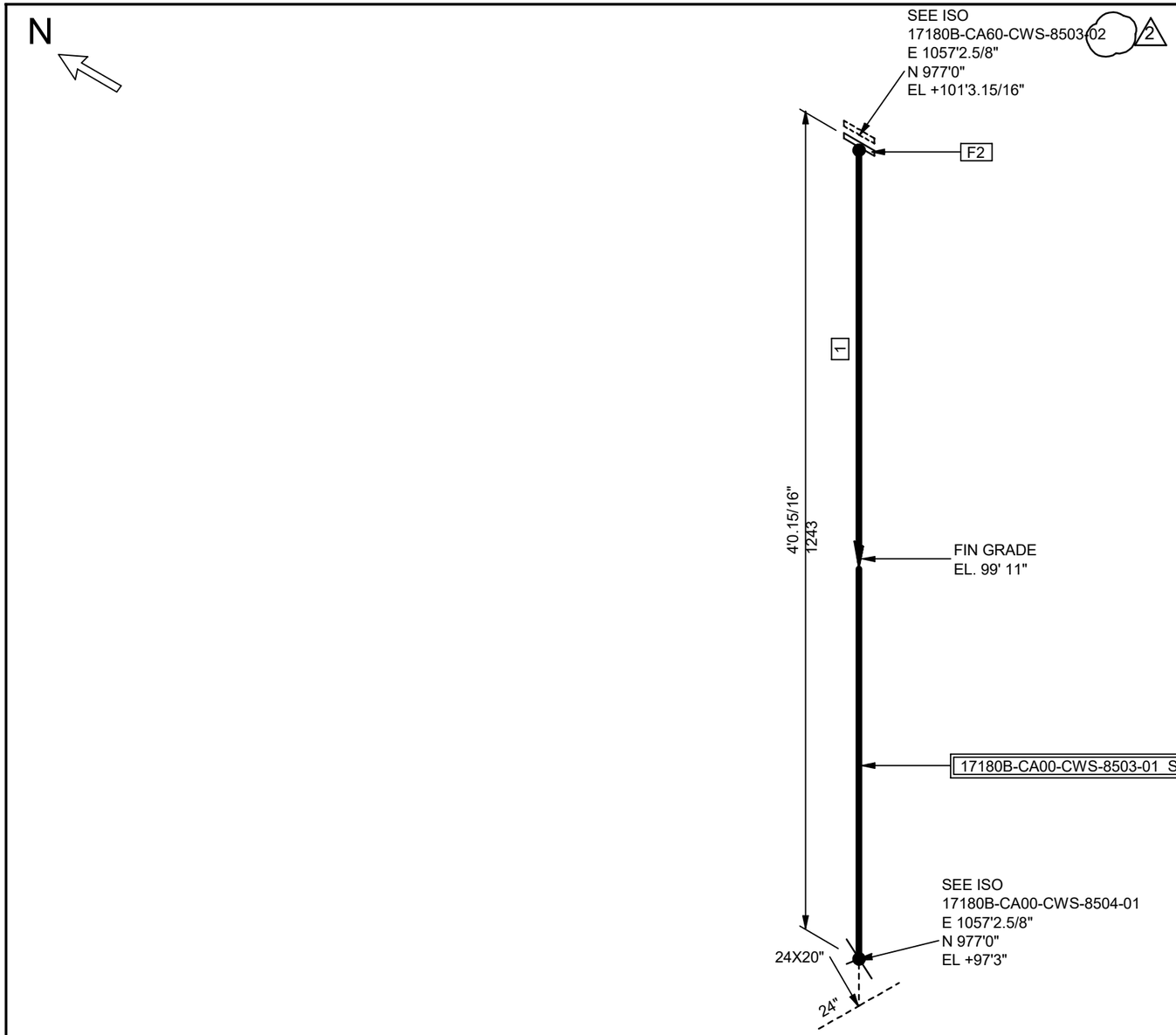
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8502-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	4.1'
2	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1

17180B-CA00-CWS-8503-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021 .

2

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/25/2019	ISSUED AS MARKED	TKS	AA	MLO
1	07/20/2019	ISSUED AS MARKED	VT	PVK	MLO
0	06/12/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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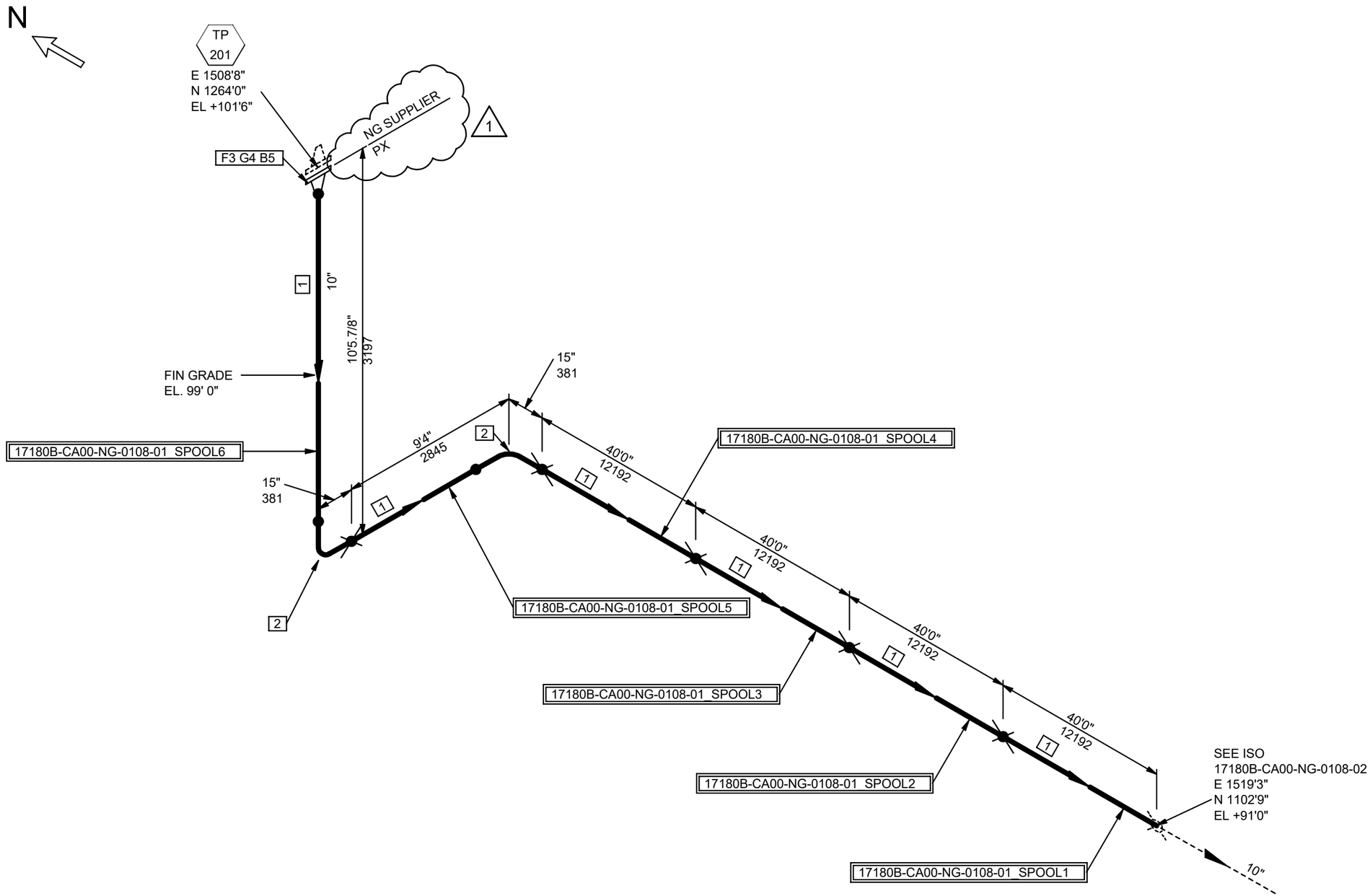
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-CWS-8503-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-80	10	176.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	10	2
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	10	1
ERECTION			
4	Isolation Kit , ASME-B16.5 , CL600 , RF , G-7 Sleeve/Gskt Mat, PTFE Seal , Ins Gskt Kit per Detail # HMP-116	10	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 8.75 in. Length	1.1/4	16

17180B-CA00-NG-0108-01_SPOOL1
17180B-CA00-NG-0108-01_SPOOL2
17180B-CA00-NG-0108-01_SPOOL3
17180B-CA00-NG-0108-01_SPOOL4
17180B-CA00-NG-0108-01_SPOOL5
17180B-CA00-NG-0108-01_SPOOL6

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

1

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/16/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	06/26/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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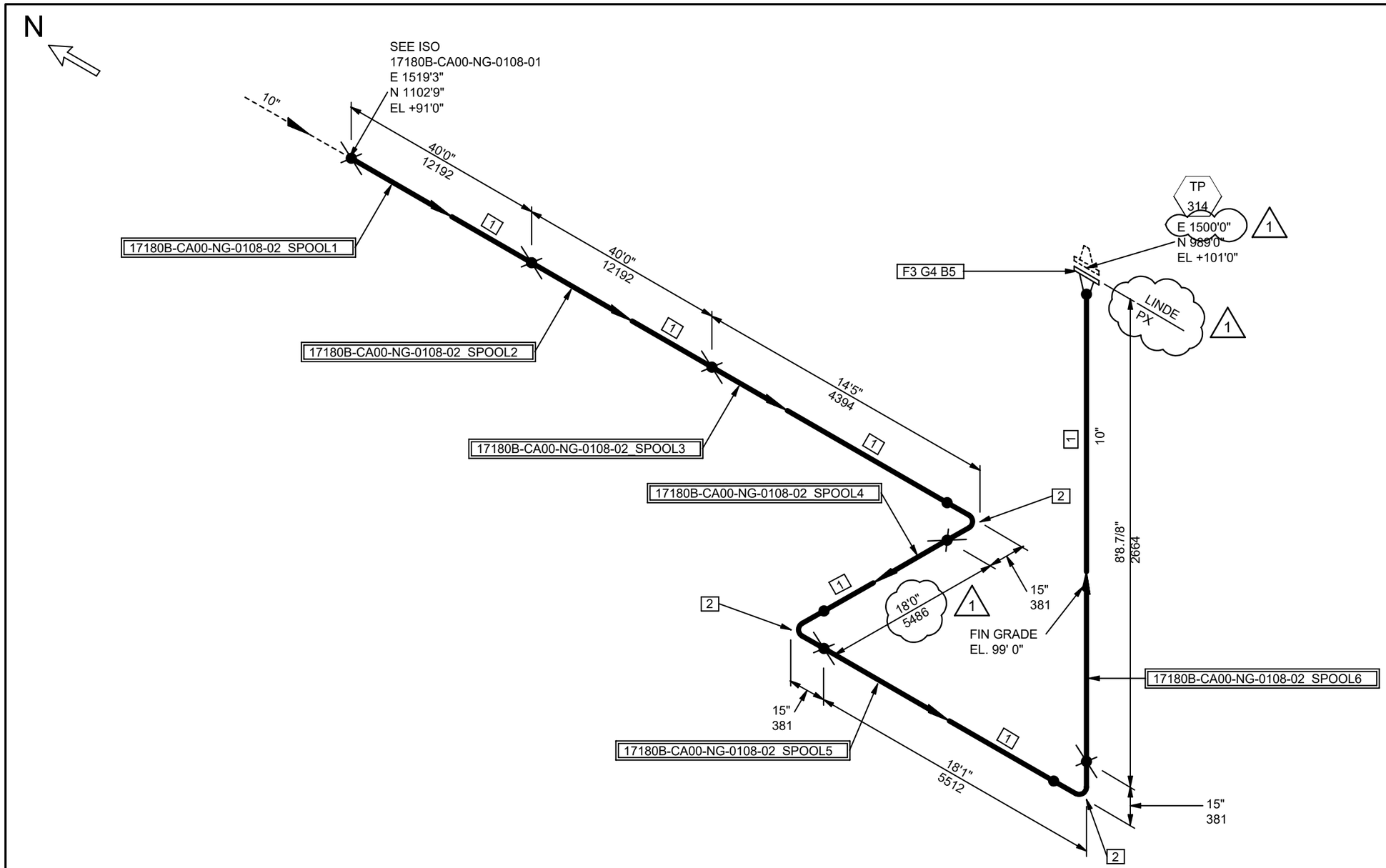
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-NG-0108-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-80	10	135.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	10	3
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	10	1
	ERECTION		
4	Isolation Kit , ASME-B16.5 , CL600 , RF , G-7 Sleeve/Gskt Mat, PTFE Seal , Ins Gskt Kit per Detail # HMP-116	10	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 8.75 in. Length	1.1/4	16

17180B-CA00-NG-0108-02_SPOOL1
17180B-CA00-NG-0108-02_SPOOL2
17180B-CA00-NG-0108-02_SPOOL3
17180B-CA00-NG-0108-02_SPOOL4
17180B-CA00-NG-0108-02_SPOOL5
17180B-CA00-NG-0108-02_SPOOL6

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Underground metallic piping and piping components to be coated and cathodically protected per specification 17180B-IHI-PI-SPE-0021.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/16/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	06/26/2019	ISSUED FOR CONSTRUCTION	VT	PVK	MLO

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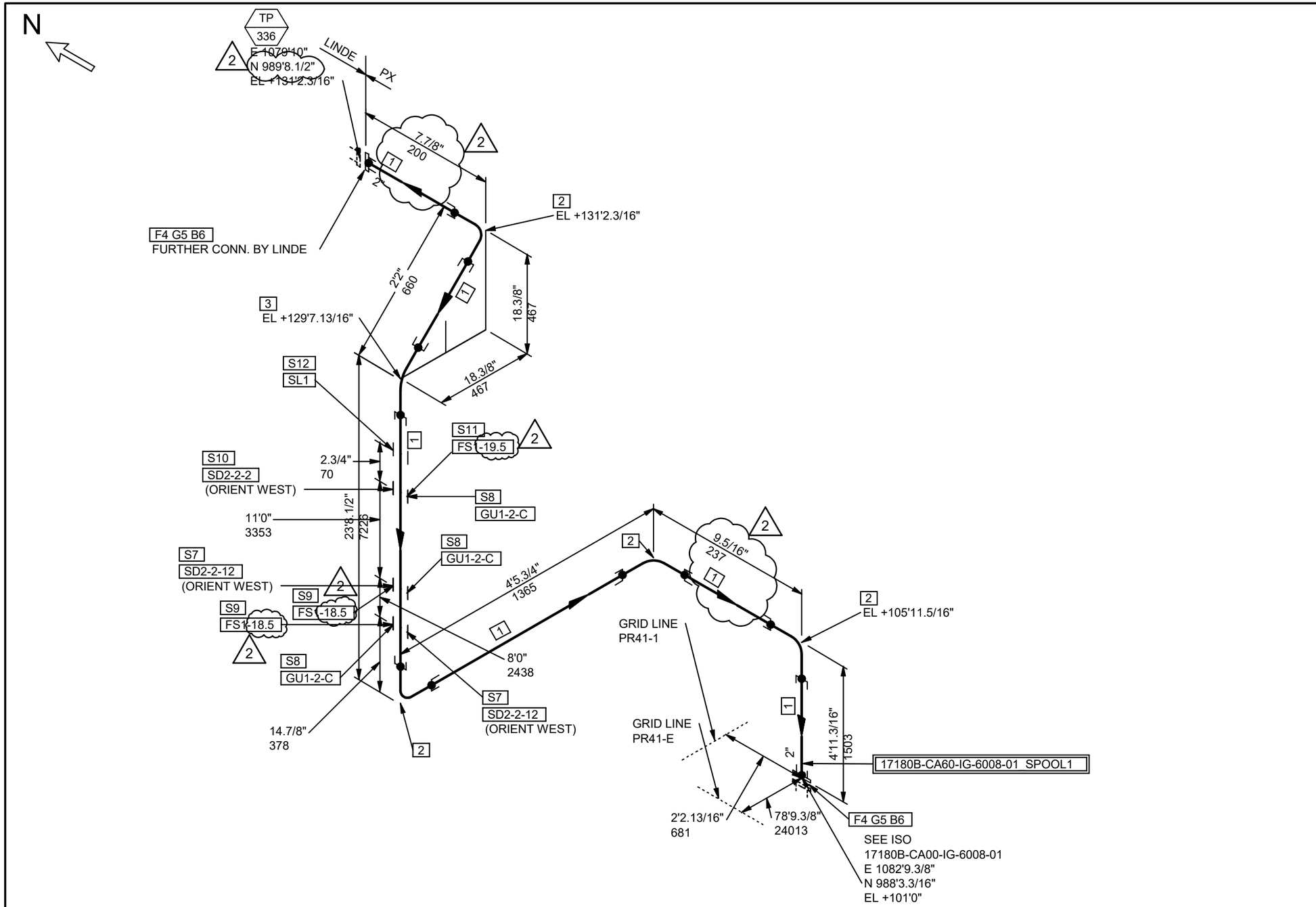
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA00-NG-0108-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	35.5'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	4
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	2
	ERECTION		
5	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
	PIPE SUPPORTS		
7	SD2-2-12	2	2
8	GU1-2-C	2	3
9	FS1-18.5	2	2
10	SD2-2-2	2	1
11	FS1-19.5	2	1
12	SL1	2	1

17180B-CA60-IG-6008-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/08/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	03/02/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/14/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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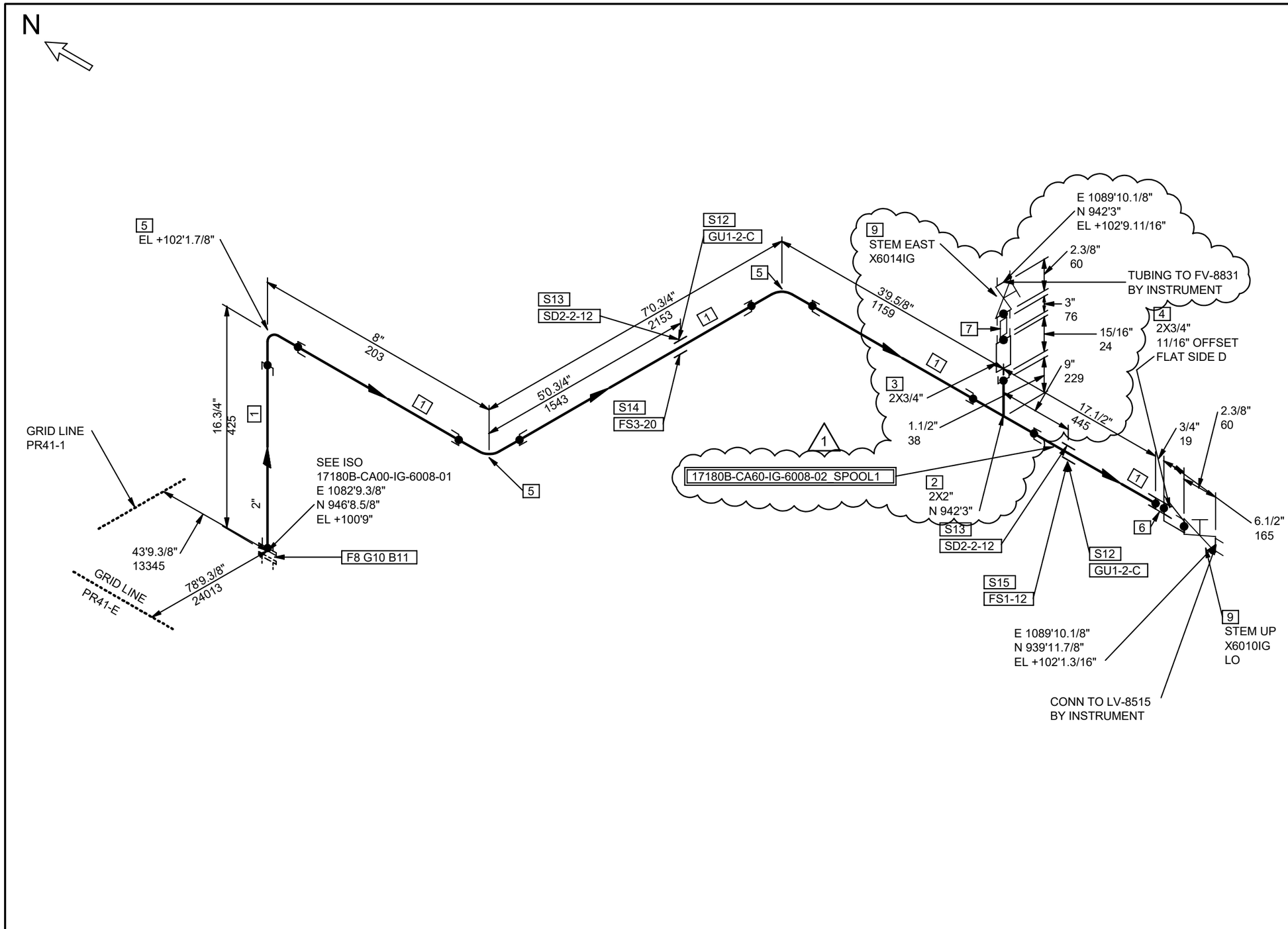
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-IG-6008-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	13.4'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	1
3	Red. Insert , MSS-SP-79, Type 2 , CL3000 , SWE x MPE , ASTM A182 Grade F 304/F 304L	2X3/4	1
4	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X3/4	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
7	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
9	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	2
	ERECTION		
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
12	GU1-2-C	2	2
13	SD2-2-12	2	2
14	FS3-20	2	1
15	FS1-12	2	1

17180B-CA60-IG-6008-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	06/24/2020	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	11/14/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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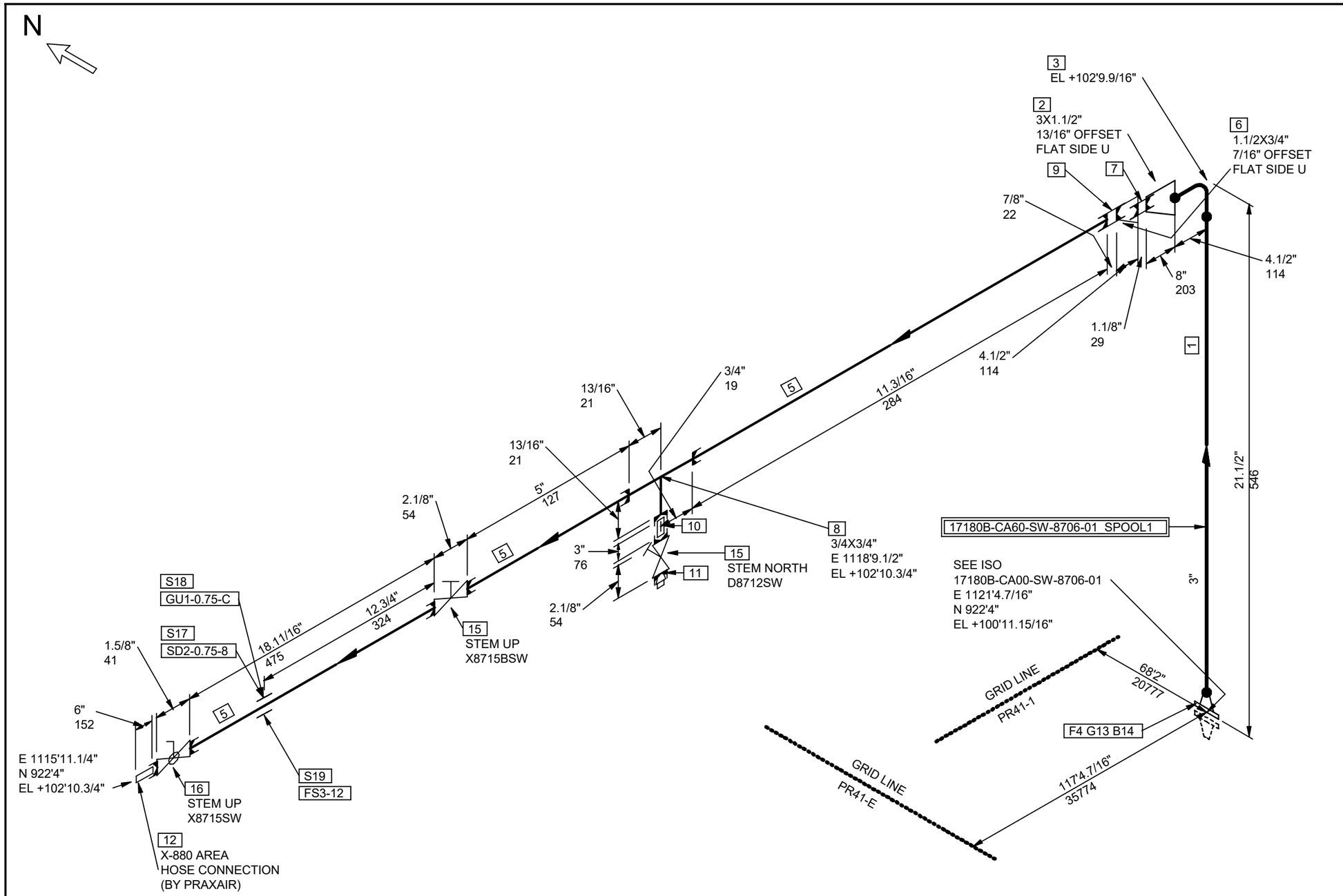
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-IG-6008-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	1.2'
2	Ecc Swage , MSS SP-95 , BE x MTE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X1.1/2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	ERECTION		
5	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	3.0'
6	Ecc Swage , MSS SP-95 , MTE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1.1/2X3/4	1
7	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	1.1/2	1
8	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
9	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
10	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
11	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
12	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	3/4	1
13	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	3	1
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
15	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
16	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
	PIPE SUPPORTS		
17	SD2-0.75-8	3/4	1
18	GU1-0.75-C	3/4	1
19	FS3-12	3/4	1

17180B-CA60-SW-8706-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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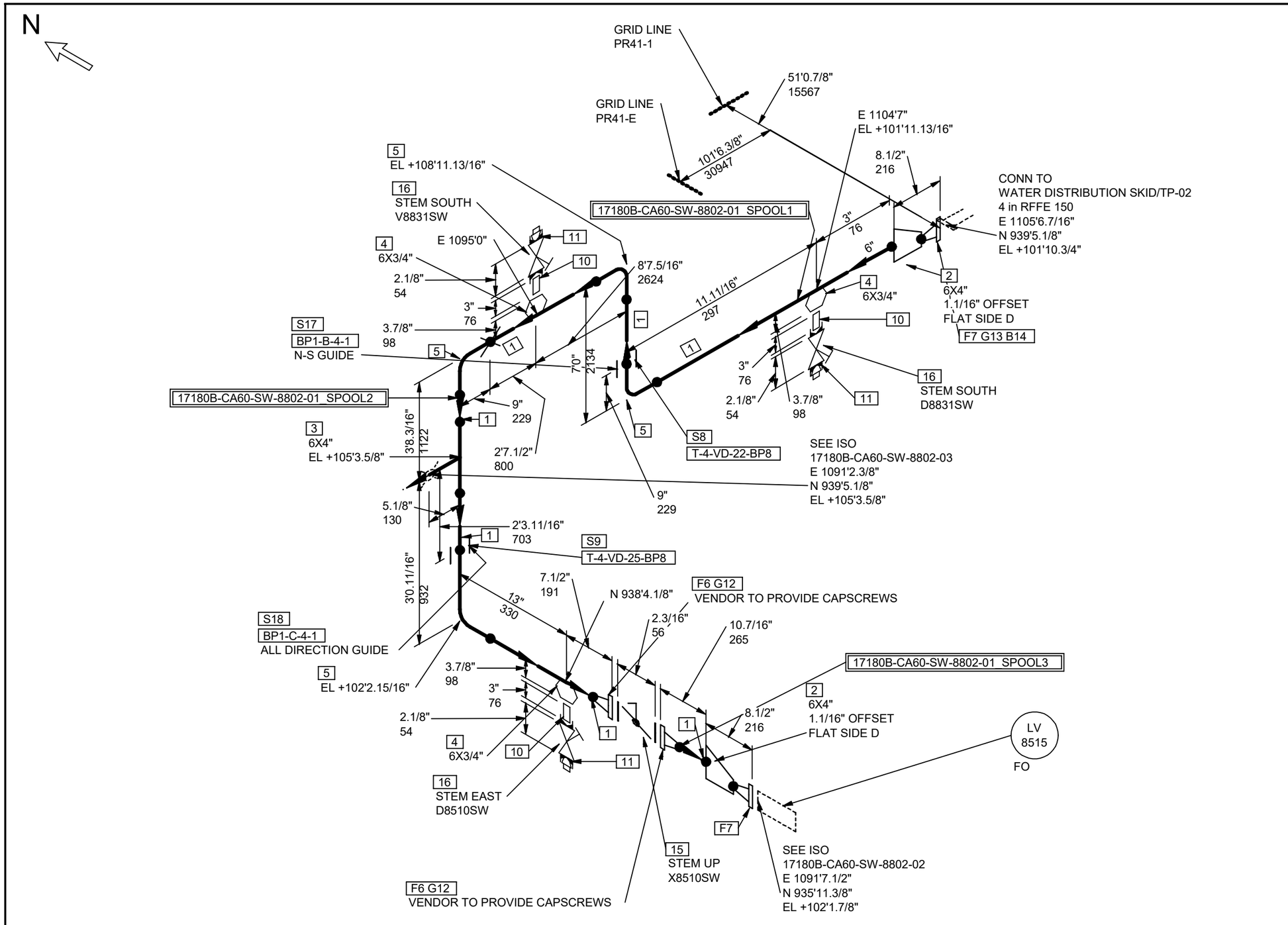
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8706-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	22.1'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	2
3	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X3/4	3
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	4
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	2
	PIPE SUPPORTS		
8	T-4-VD-22-BP8	6	1
9	T-4-VD-25-BP8	6	1
	ERECTION		
10	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	3
11	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	3
12	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	2
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
15	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	6	1
16	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	3
	PIPE SUPPORTS		
17	BP1-B-4-1	6	1
18	BP1-C-4-1	6	1

17180B-CA60-SW-8802-01_SPOOL1 17180B-CA60-SW-8802-01_SPOOL2
17180B-CA60-SW-8802-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18022-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/12/2019	ISSUED FOR CONSTRUCTION	RBL	NNR	MLO

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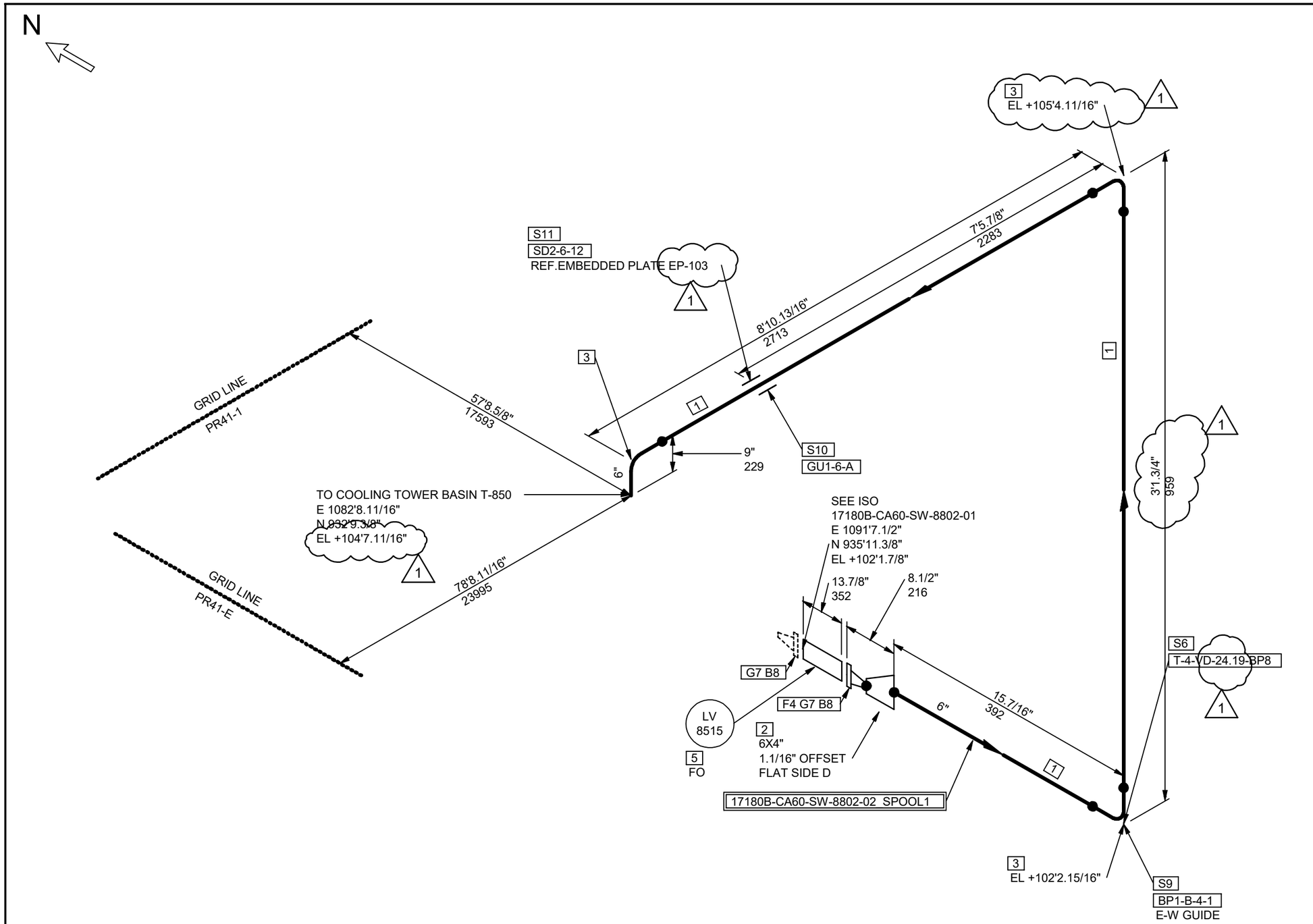
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8802-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	9.6'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	3
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
	INSTRUMENTS		
5	LV-8515	4	1
	PIPE SUPPORTS		
6	T-4-VD-24.19-BP8	6	1
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
	PIPE SUPPORTS		
9	BP1-B-4-1	6	1
10	GU1-6-A	6	1
11	SD2-6-12	6	1

17180B-CA60-SW-8802-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/15/2019	RE-ISSUED FOR CONSTRUCTION	KJN	NNR	MLO
0	11/07/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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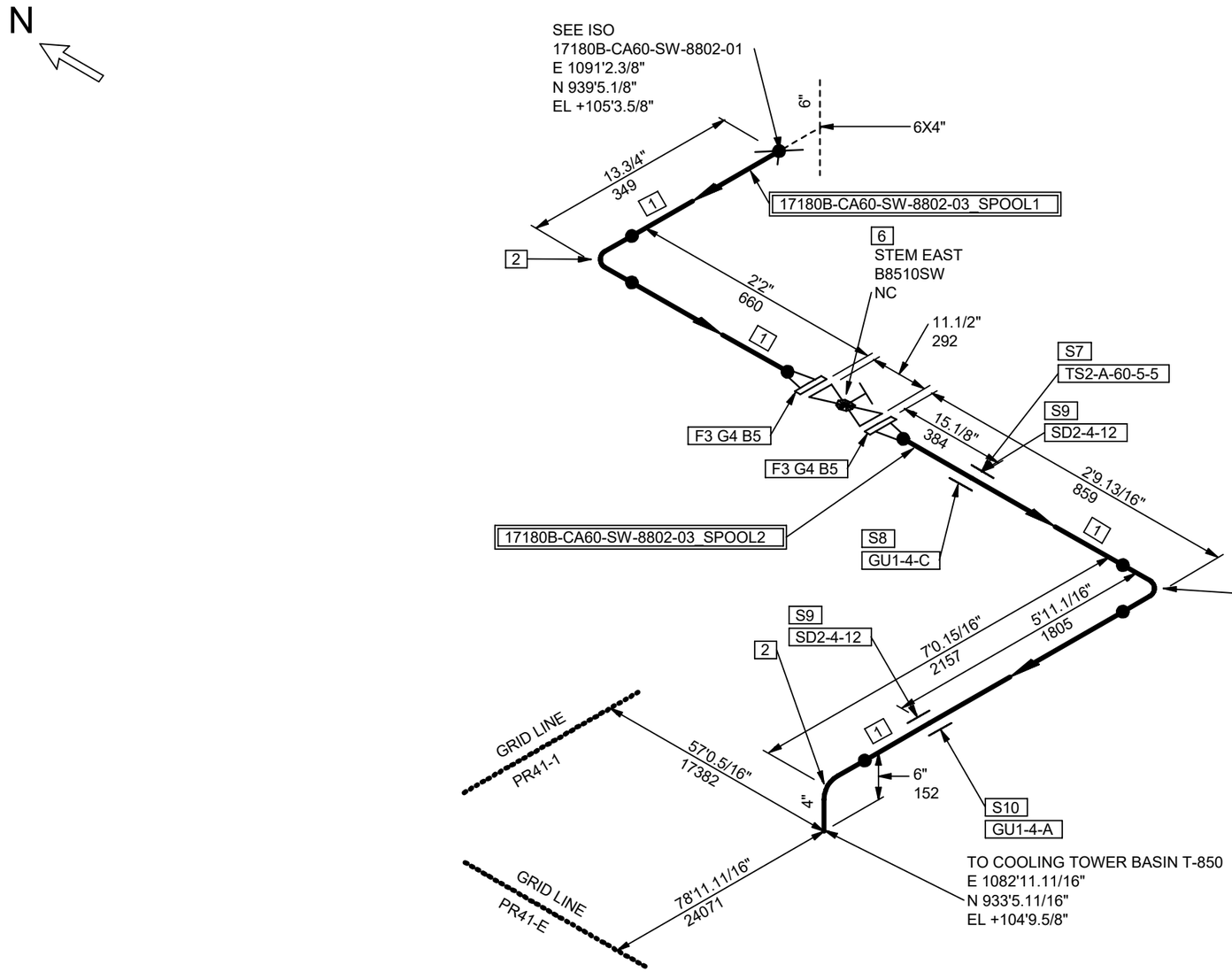
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8802-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	10.3'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
6	Globe Vlv , ASME B16.34 , CL150 , RFFE - , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T1FAE	4	1
	PIPE SUPPORTS		
7	TS2-A-60-5-5	4	1
8	GU1-4-C	4	1
9	SD2-4-12	4	2
10	GU1-4-A	4	1

17180B-CA60-SW-8802-03_SPOOL1 17180B-CA60-SW-8802-03_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/12/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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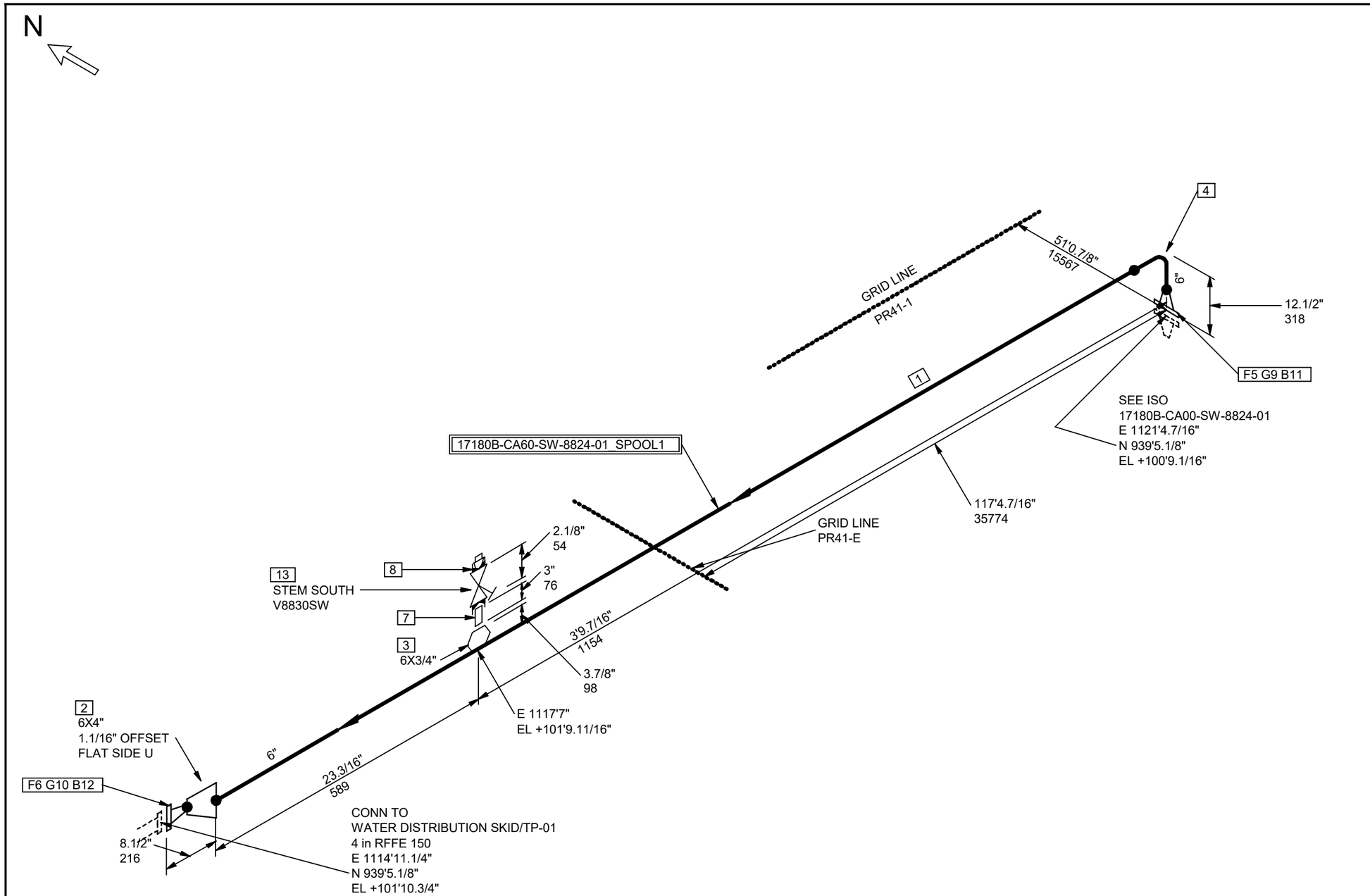
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8802-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	5.0'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
	ERECTION		
7	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
8	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
9	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	6	1
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
13	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1

17180B-CA60-SW-8824-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/12/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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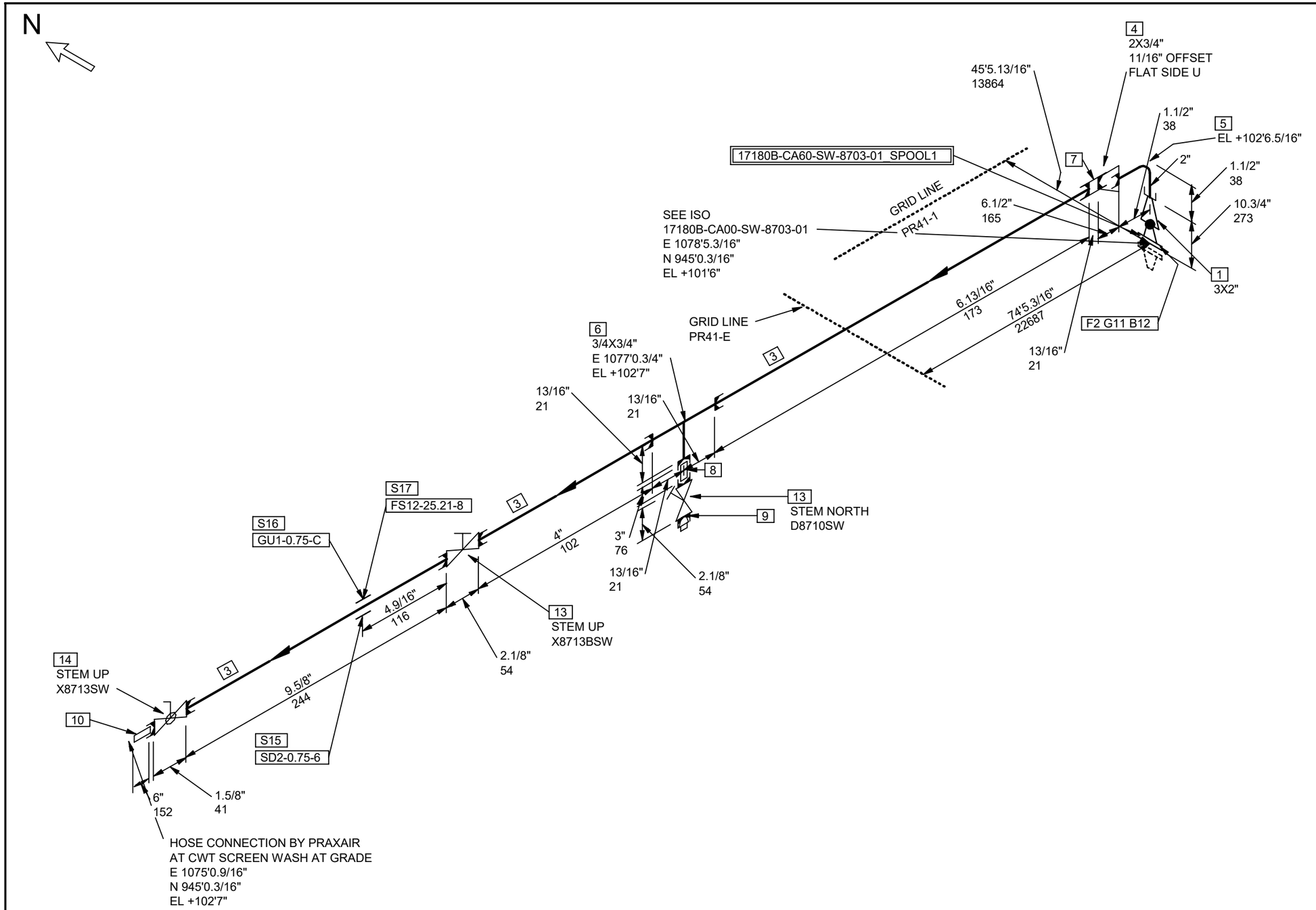
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8824-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Conc Swage , MSS SP-95 , BE x MTE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X2	1
2	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	ERECTION		
3	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	1.8'
4	Ecc Swage , MSS SP-95 , MTE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
5	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	1
6	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
7	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
9	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
10	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	3/4	1
11	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	3	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
13	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
14	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
	PIPE SUPPORTS		
15	SD2-0.75-6	3/4	1
16	GU1-0.75-C	3/4	1
17	FS12-25.21-8	3/4	1

17180B-CA60-SW-8703-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/25/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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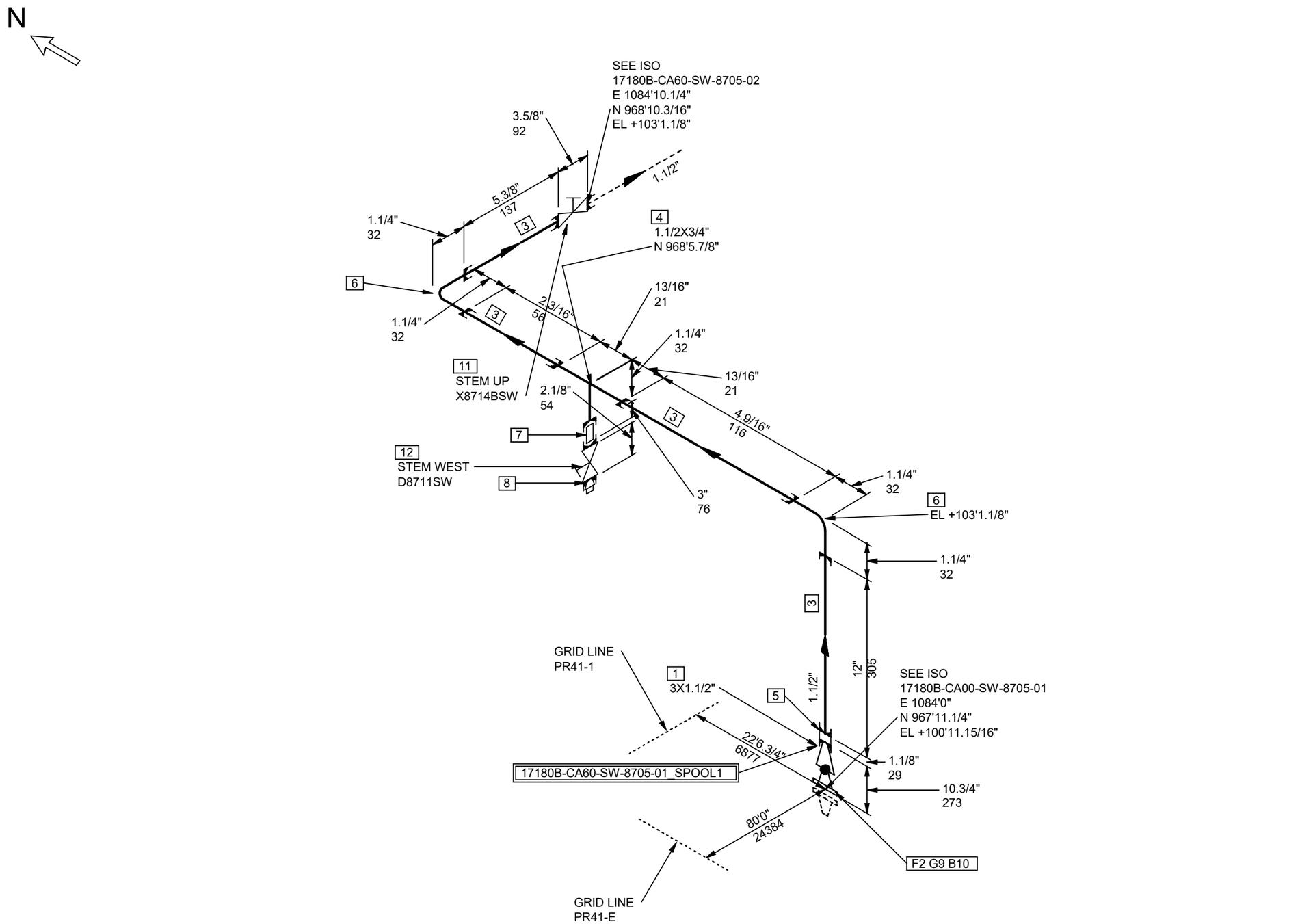
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8703-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Conc Swage , MSS SP-95 , BE x MTE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X1.1/2	1
2	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	ERECTION		
3	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	1.1/2	2.1'
4	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	1.1/2X3/4	1
5	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	1.1/2	1
6	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	1.1/2	2
7	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
8	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
9	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	3	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
11	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	1.1/2	1
12	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1

17180B-CA60-SW-8705-01_SPOOL1

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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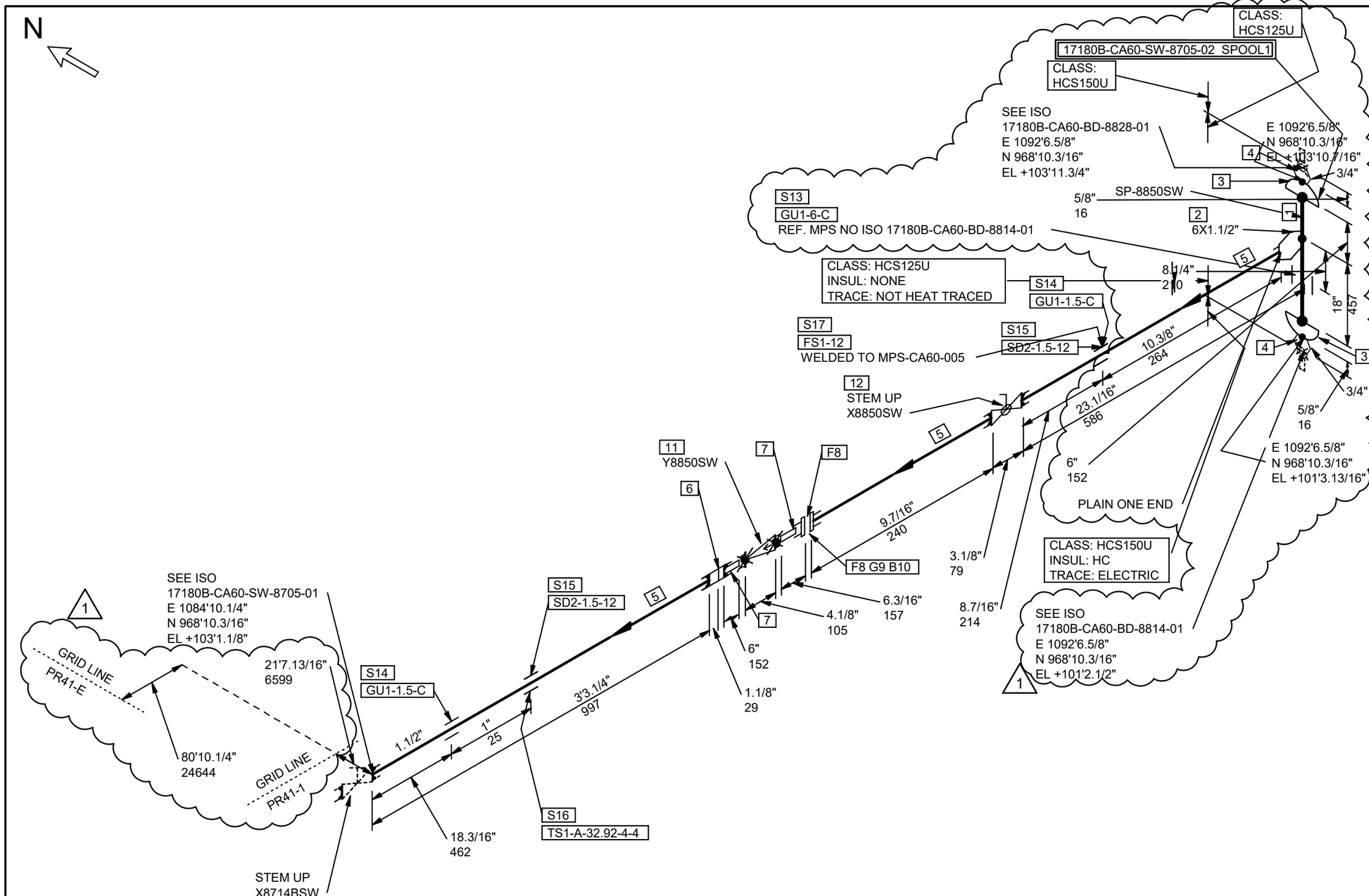
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8705-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	2.0'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X1.1/2	1
3	Cap , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD	6	2
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3/4	2
	ERECTION		
5	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	1.1/2	5.7'
6	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	1.1/2	1
7	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	1.1/2	2
8	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	1.1/2	2
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	1.1/2	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3 in. Length	1/2	4
11	Check Vlv Swing , API 602 , CL800 , SWE , Bolted Cover , ASTM A105N , Full Stellite Trim , C8SAC	1.1/2	1
12	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	1.1/2	1
	PIPE SUPPORTS		
13	GU1-6-C	6	1
14	GU1-1.5-C	1.1/2	2
15	SD2-1.5-12	1.1/2	2
16	TS1-A-32.92-4-4	1.1/2	1
17	FS1-12	1.1/2	1

17180B-CA60-SW-8705-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8805		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	05/07/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/25/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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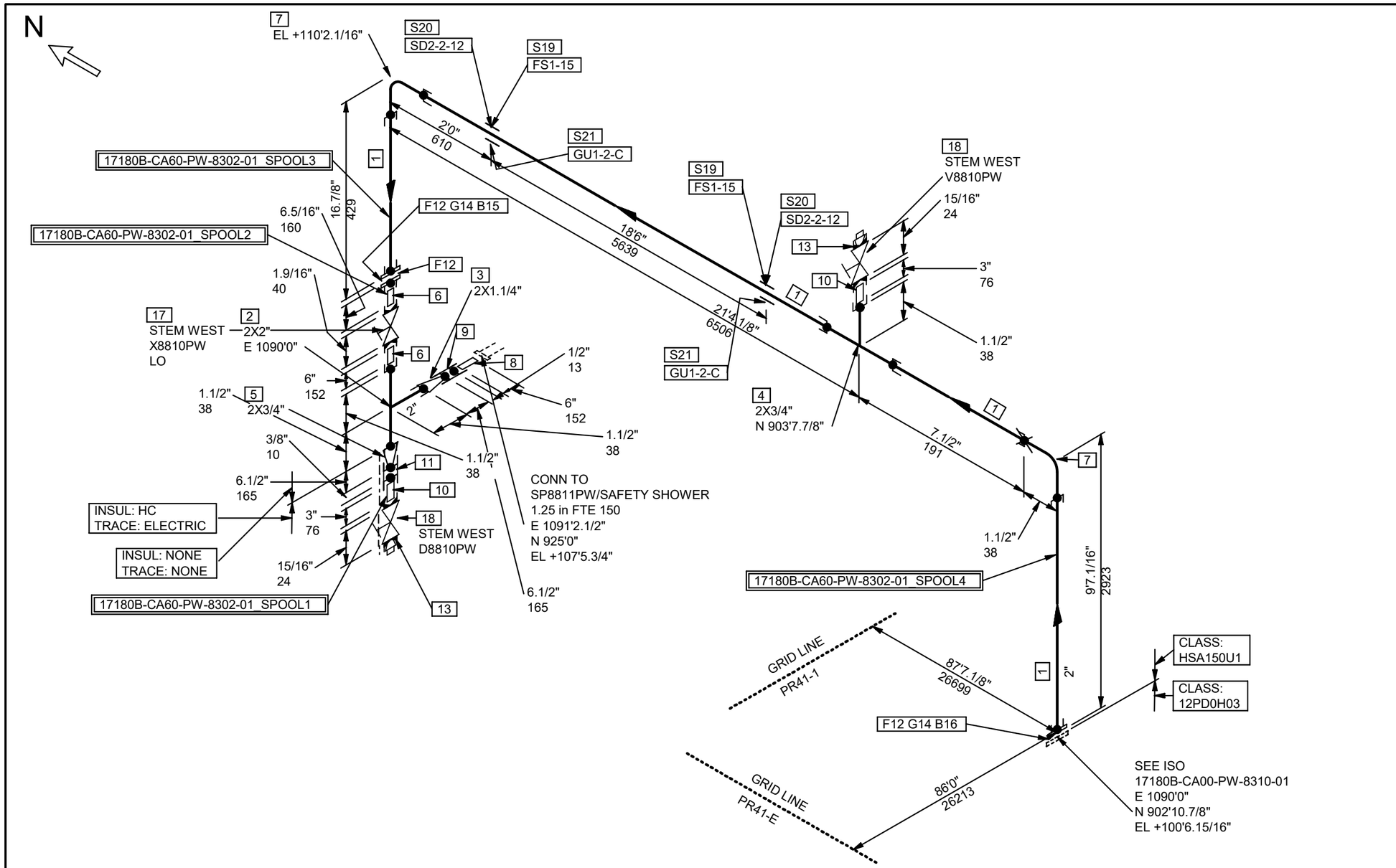
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-SW-8705-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	32.3'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-40S , S-80S	2X1.1/4	1
4	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X3/4	1
5	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-40S , S-80S	2X3/4	1
6	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 6in Long , SMLS , S-80S , S-80S	2	2
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
8	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 6in Long , SMLS , S-80S , S-80S	1.1/4	1
9	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	1.1/4	1
10	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	2
11	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3/4	1
12	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	3
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	2
14	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	2
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 3.75 in. Length	5/8	4
17	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	2	1
18	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	3/4	2
	PIPE SUPPORTS		
19	FS1-15	2	2
20	SD2-2-12	2	2
21	GU1-2-C	2	2

17180B-CA60-PW-8302-01_SPOOL1 17180B-CA60-PW-8302-01_SPOOL2
17180B-CA60-PW-8302-01_SPOOL3 17180B-CA60-PW-8302-01_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⋇ = FIELD WELD
- ⋇ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/23/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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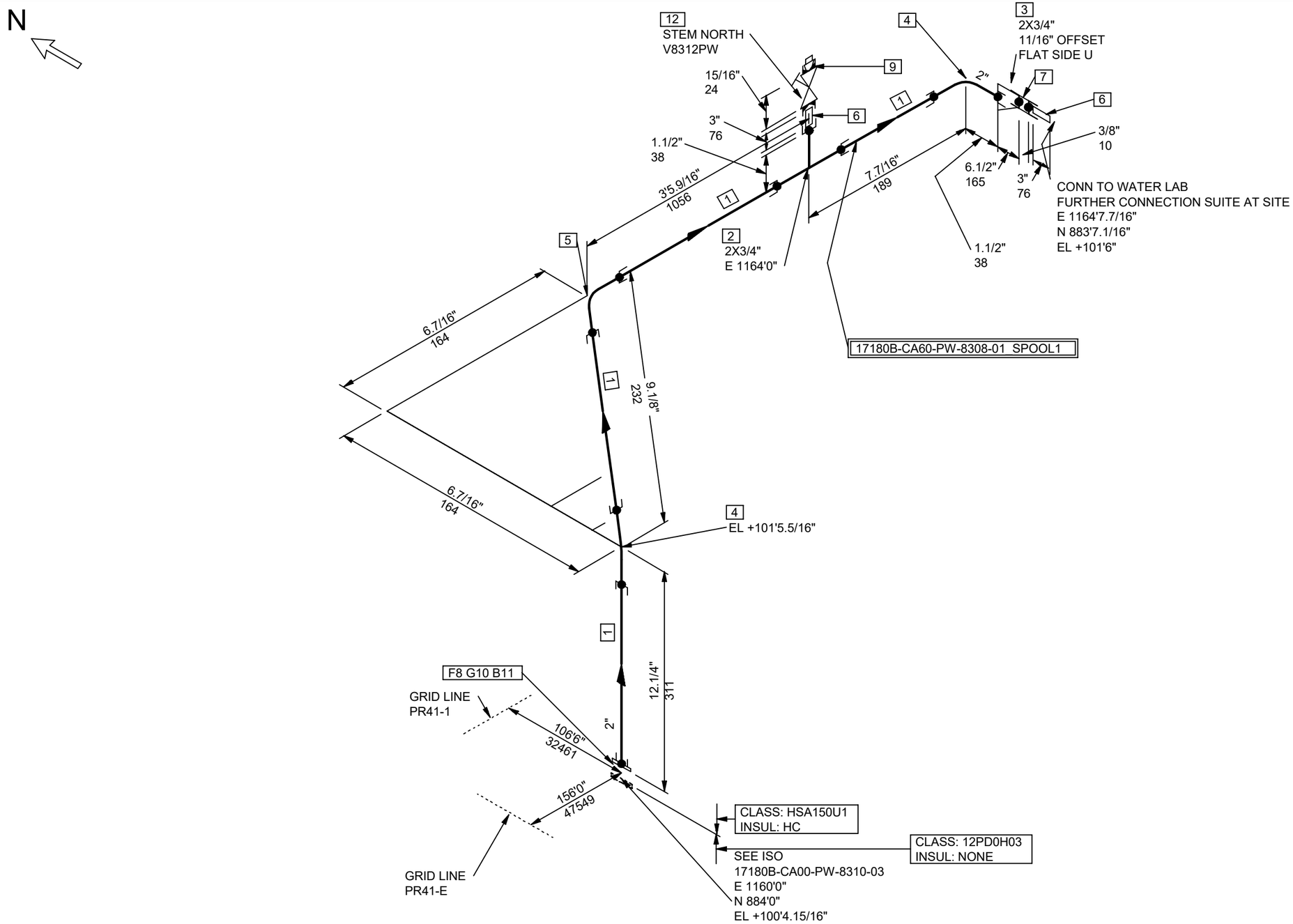
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-PW-8302-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	5.1'
2	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X3/4	1
3	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-40S , S-80S	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
5	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
6	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	2
7	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3/4	1
8	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
10	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/8in (3.2 mm), NSF 61 Certified	2	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 3.75 in. Length	5/8	4
12	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	3/4	1

17180B-CA60-PW-8308-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⋇ = FIELD WELD
- ⋇ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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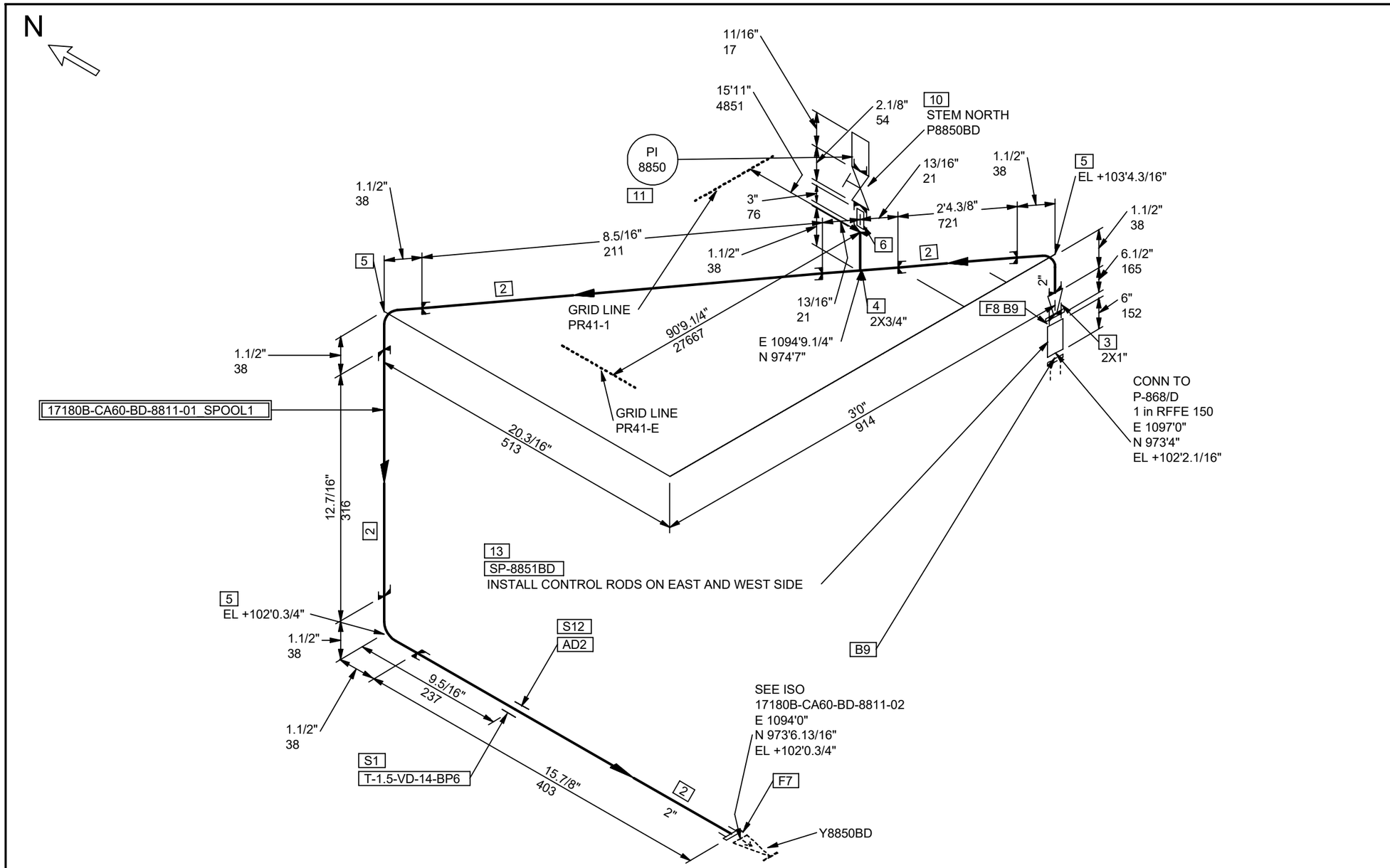
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-PW-8308-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
	PIPE SUPPORTS		
1	T-1.5-VD-14-BP6	2	1
	ERECTION		
2	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	5.4'
3	Conc Swage , MSS SP-95 , MTE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
4	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	2X3/4	1
5	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	3
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	1	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	8
10	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	INSTRUMENTS		
11	PI-8850	3/4	1
	PIPE SUPPORTS		
12	AD2	2	1
	SPECIALTY ITEMS		
13	SP-8851BD	1	1

17180B-CA60-BD-8811-01_SPOOL1

LEGEND:

- ● = SHOP WELD
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- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8805		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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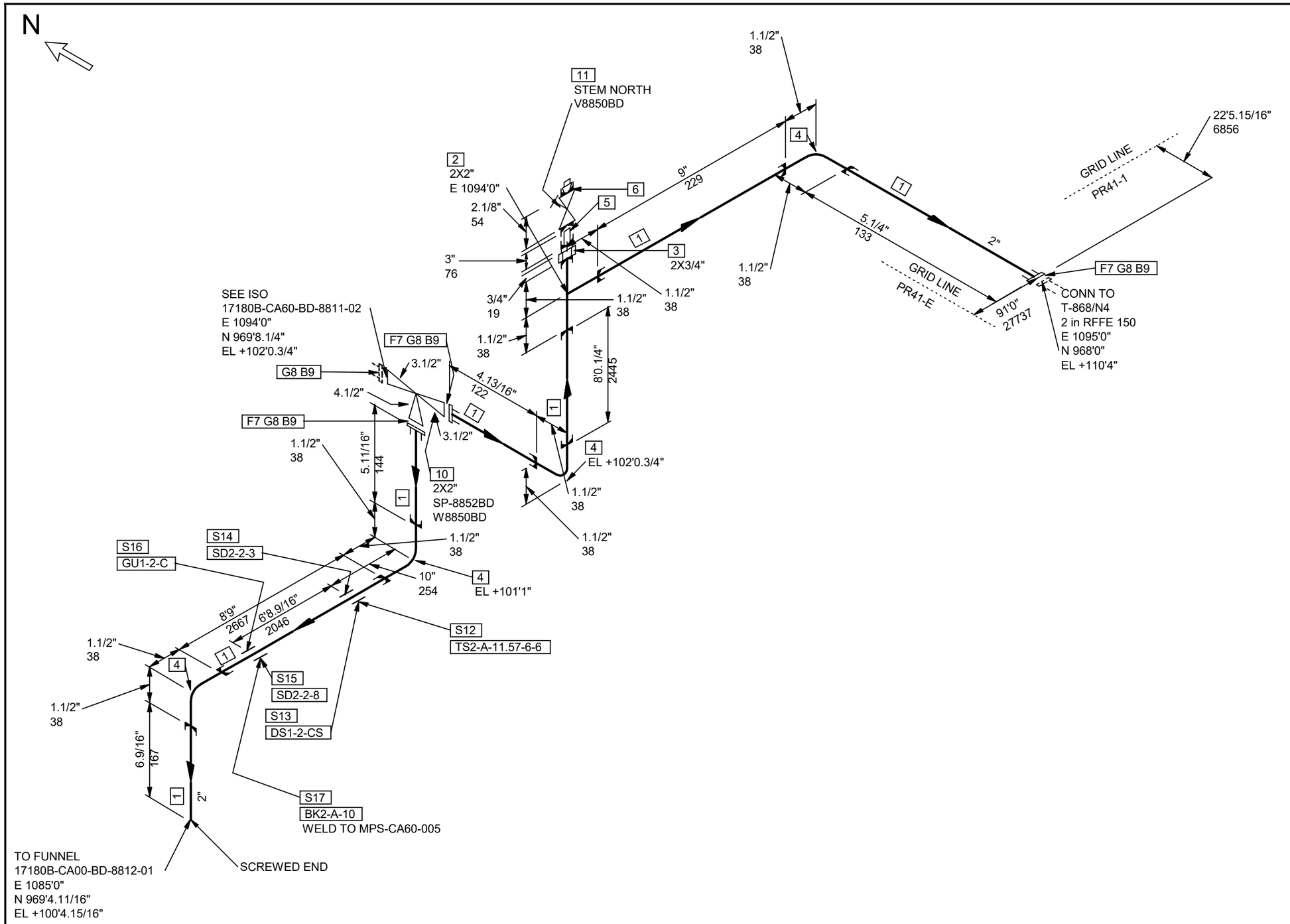
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-BD-8811-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	19.4'
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	2X2	1
3	Hex Head Bushing , ASME B16.14 , FTE x MTE , ASTM A197	2X3/4	1
4	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	4
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
6	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	3
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	4
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	16
10	SP-8852BD	2X2	1
11	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
12	TS2-A-11.57-6-6	2	1
13	DS1-2-CS	2	1
14	SD2-2-3	2	1
15	SD2-2-8	2	1
16	GU1-2-C	2	1
17	BK2-A-10	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8805		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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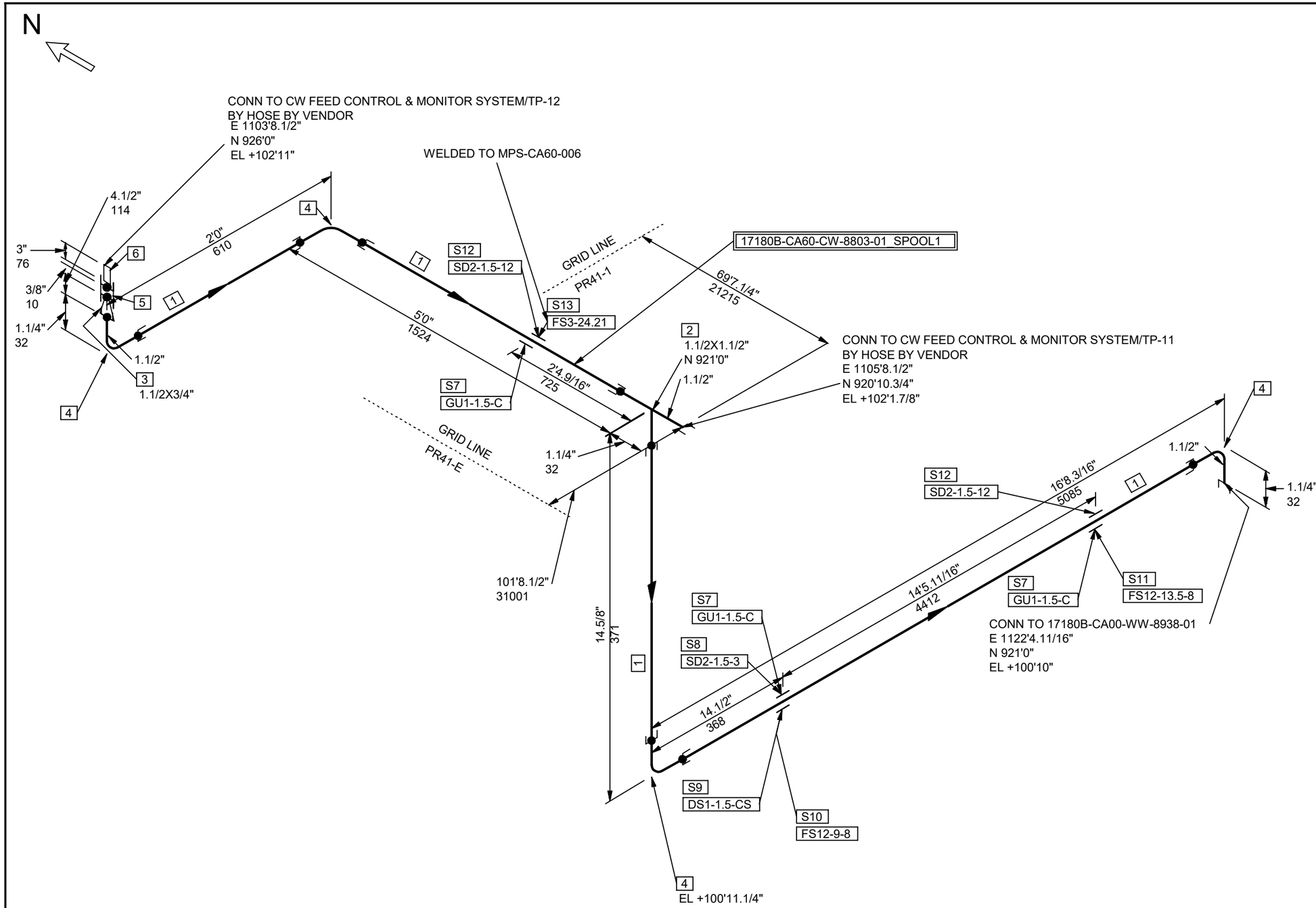
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-BD-8829-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1.1/2	24.1'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	1.1/2X1.1/2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1.1/2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1.1/2	4
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	3/4	1
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
ERECTION			
PIPE SUPPORTS			
7	GU1-1.5-C	1.1/2	3
8	SD2-1.5-3	1.1/2	1
9	DS1-1.5-CS	1.1/2	1
10	FS12-9-8	1.1/2	1
11	FS12-13.5-8	1.1/2	1
12	SD2-1.5-12	1.1/2	2
13	FS3-24.21	1.1/2	1

17180B-CA60-CW-8803-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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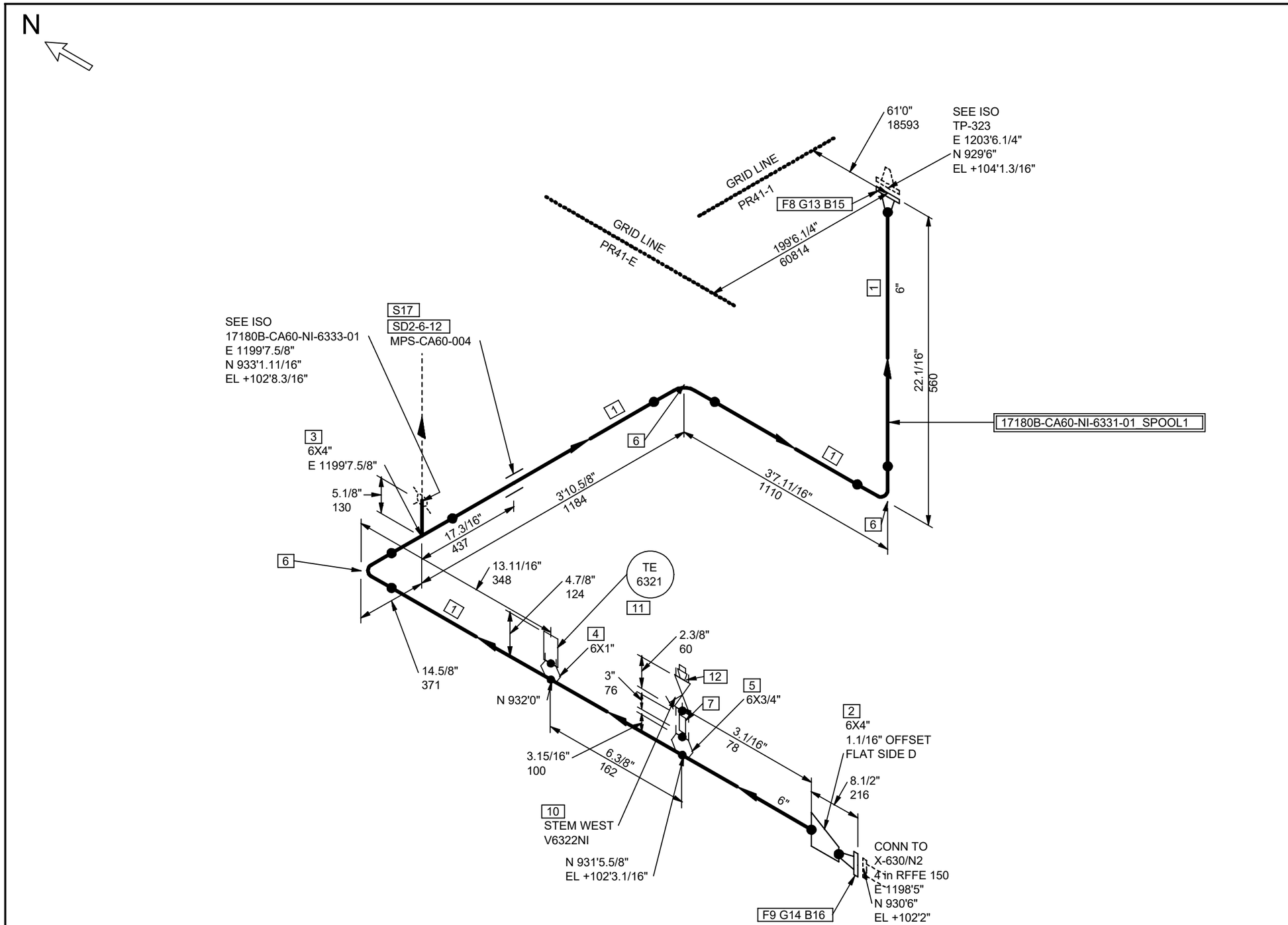
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CW-8803-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	6.8'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
3	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X1	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	3
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	INSTRUMENTS		
11	TE-6321	1	1
	ERECTION		
12	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
14	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
	PIPE SUPPORTS		
17	SD2-6-12	6	1

17180B-CA60-NI-6331-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6302		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/23/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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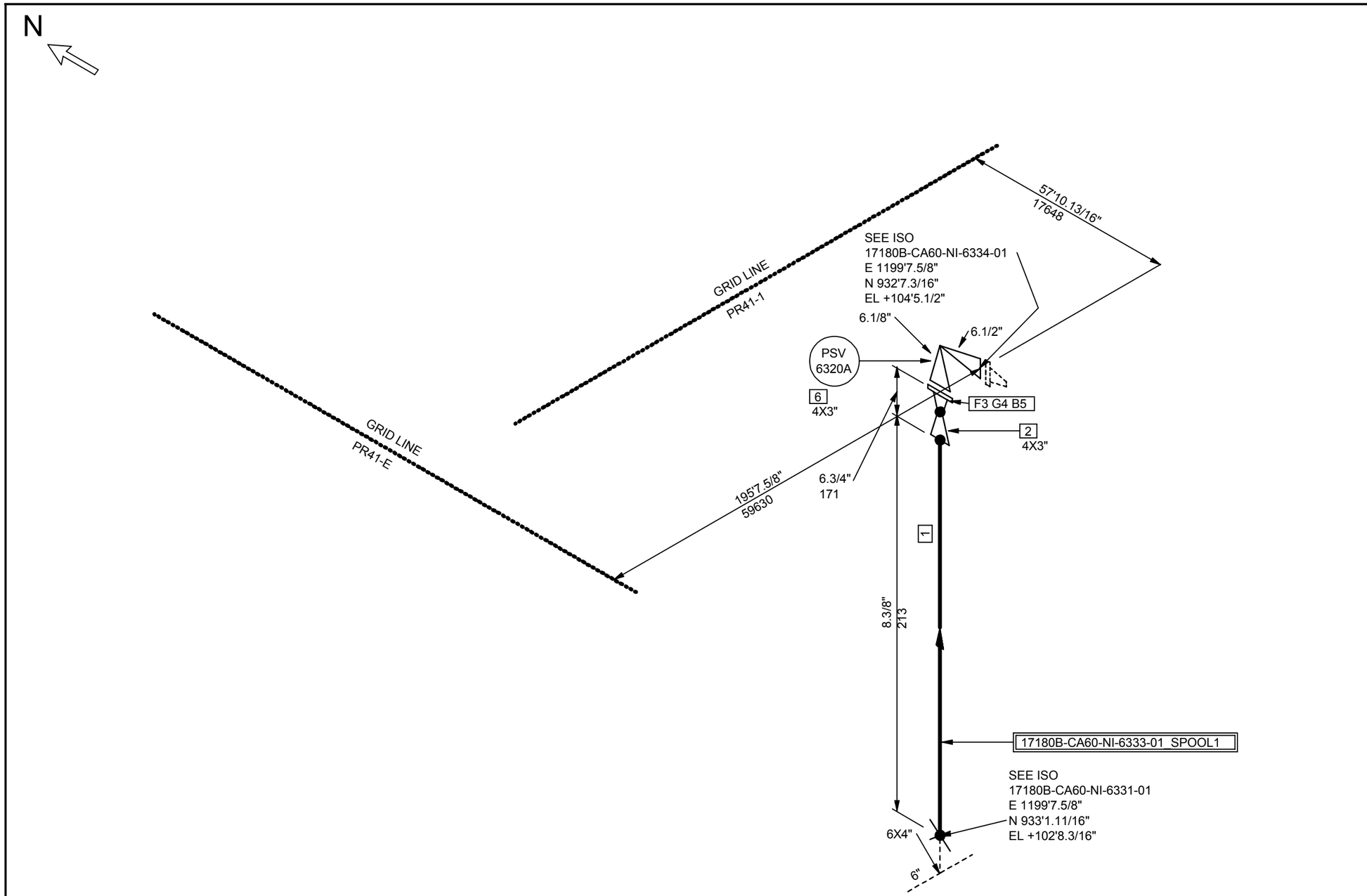
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-NI-6331-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	0.7'
2	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4X3	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	5/8	4
INSTRUMENTS			
6	PSV-6320A	4X3	1

17180B-CA60-NI-6333-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6302		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/13/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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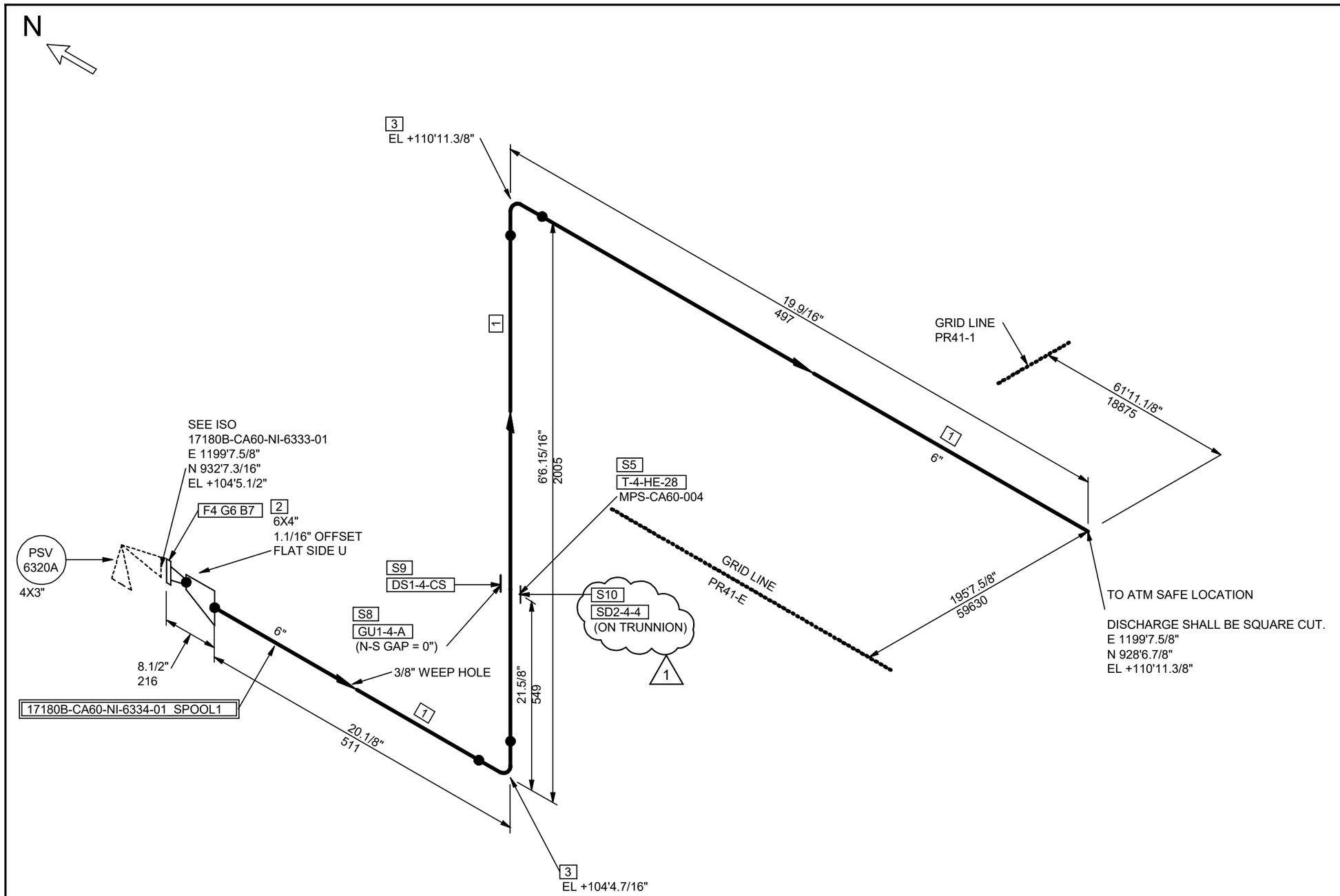
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-NI-6333-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	6.9'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	2
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
	PIPE SUPPORTS		
5	T-4-HE-28	6	1
	ERECTION		
6	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
	PIPE SUPPORTS		
8	GU1-4-A	6	1
9	DS1-4-CS	6	1
10	SD2-4-4	6	1

17180B-CA60-NI-6334-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6302		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/14/2019	ISSUED AS MARKED	RBK	NNR	MLO
0	10/22/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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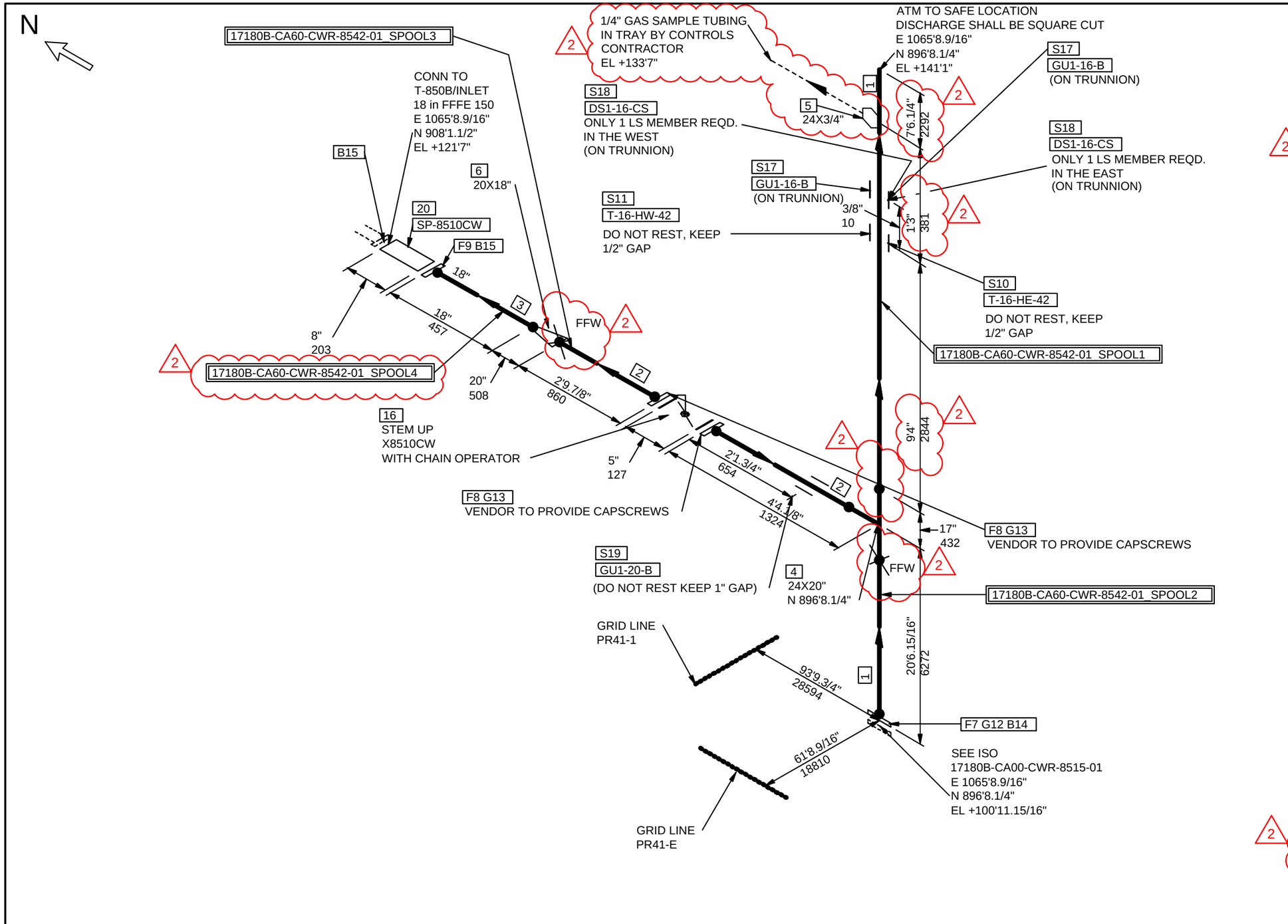
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-NI-6334-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	24	37.2'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	5.7'
3	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	18	1.5'
4	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X20	1
5	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	24X3/4	1
6	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X18	1
7	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	24	1
8	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	2
9	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	18	1
	PIPE SUPPORTS		
10	T-16-HE-42	24	1
11	T-16-HW-42	24	1
	ERECTION		
12	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	24	1
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1.1/4	20
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	1.1/8	32
16	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	20	1
	PIPE SUPPORTS		
17	GU1-16-B	24	2
18	DS1-16-CS	24	2
19	GU1-20-B	20	1
	SPECIALTY ITEMS		
20	SP-8510CW	18	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

05/19/2020

17180B-CA60-CWR-8542-01_SPOOL1 17180B-CA60-CWR-8542-01_SPOOL2
17180B-CA60-CWR-8542-01_SPOOL3 17180B-CA60-CWR-8542-01_SPOOL4

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	05/19/2020	ISSUED FOR CONSTRUCTION REVISED, MOVED WOL	GS	MPO	JAM
1	11/13/2019	ISSUED AS MARKED	RBK	NNR	MLO
0	10/07/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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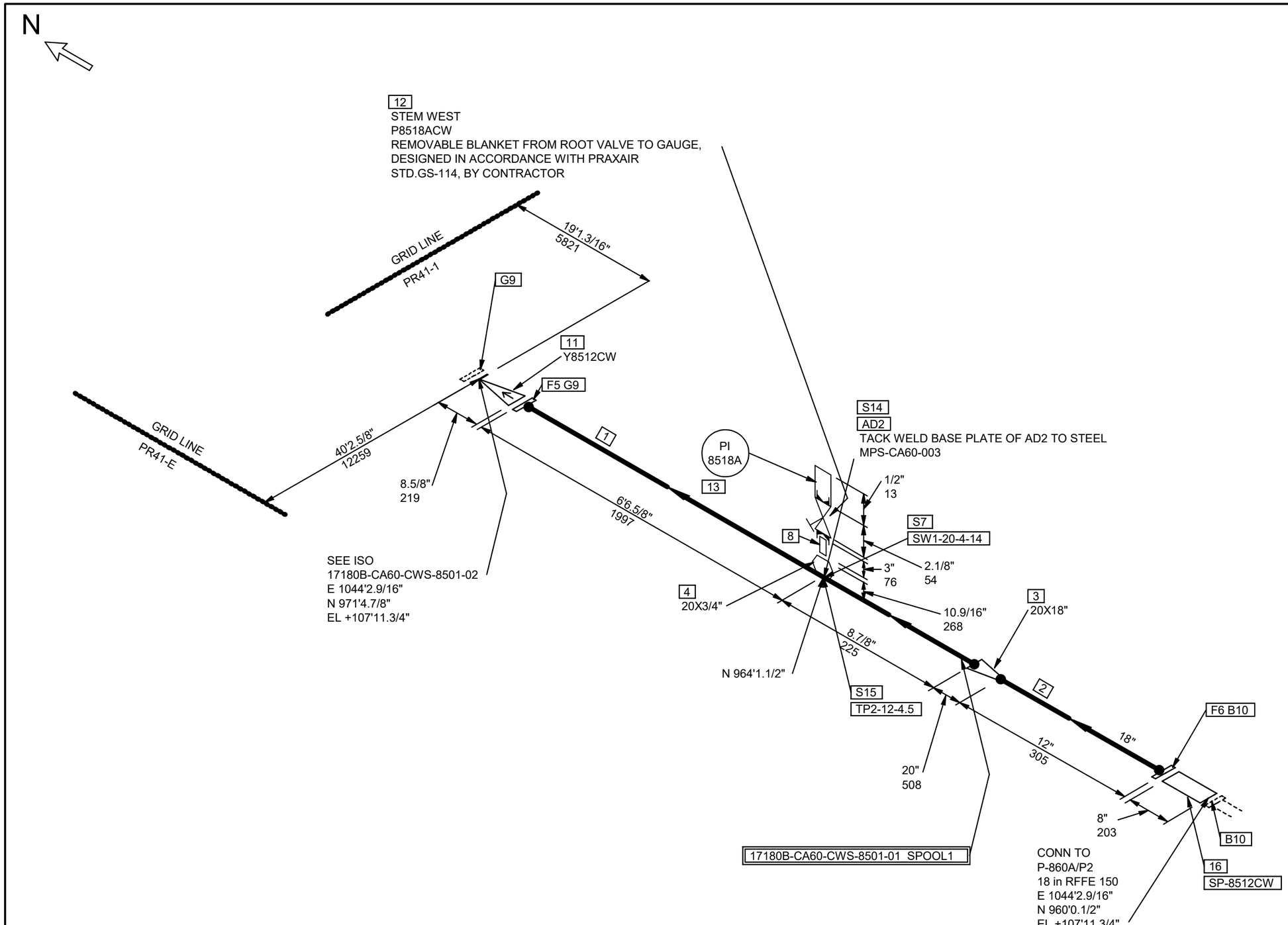
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWR-8542-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	7.3'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	18	1.0'
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X18	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X3/4	1
5	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	1
6	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	18	1
	PIPE SUPPORTS		
7	SW1-20-4-14	20	1
	ERECTION		
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	1.1/8	32
11	Swing Chk Vlv Wafer , API 594 , CL150 , RFTBE , Wafer , ASTM A126-B , B148-952 Al-Br PLATE, VITON SEAL, 316 SS PINS & SPRING , PRAXAIR GUIDELINE V-G1 , C1WMJ	20	1
12	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	INSTRUMENTS		
13	PI-8518A	3/4	1
	PIPE SUPPORTS		
14	AD2	20	1
15	TP2-12-4.5	20	1
	SPECIALTY ITEMS		
16	SP-8512CW	18	1

17180B-CA60-CWS-8501-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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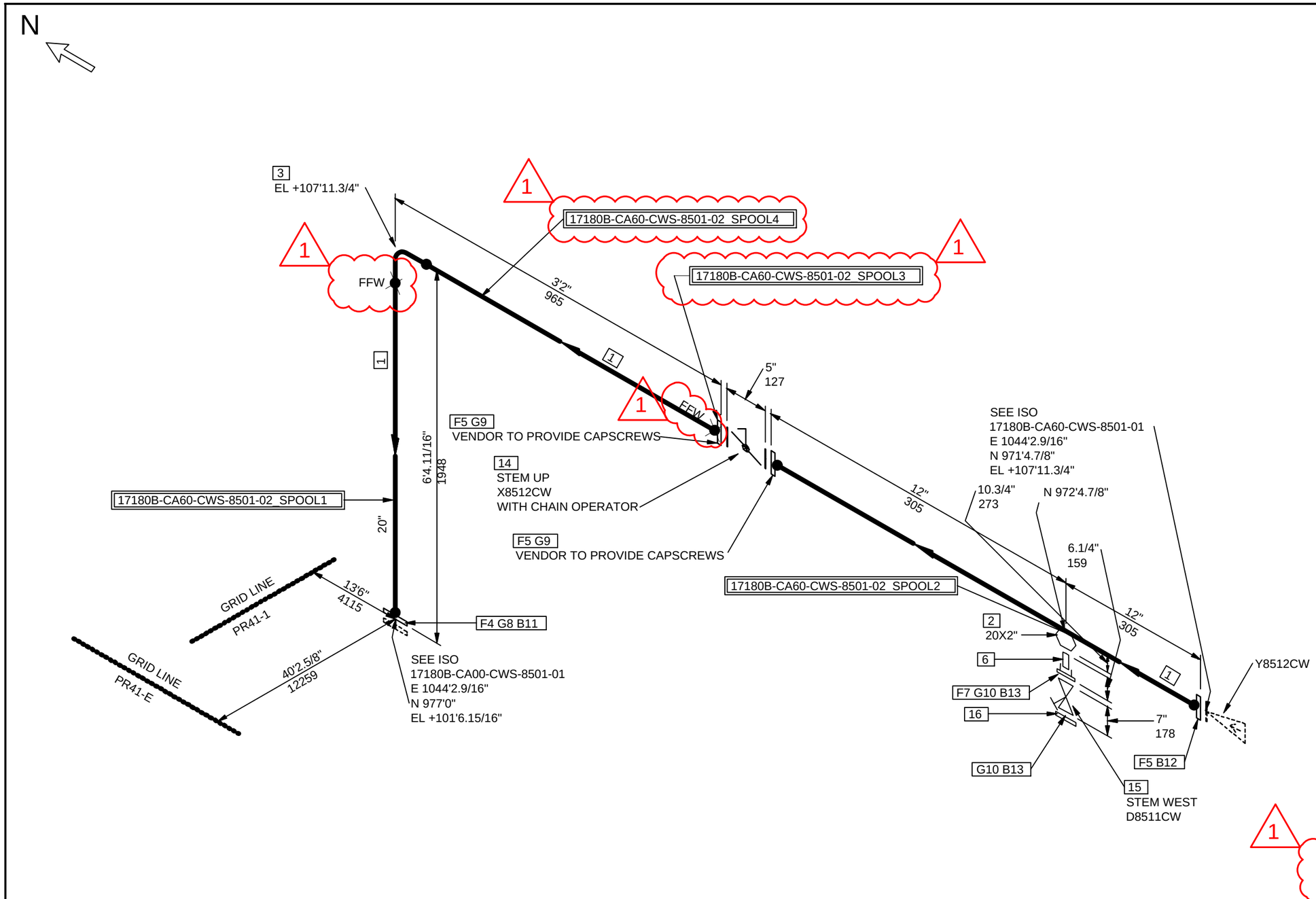
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8501-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	6.4'
2 Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X2	1
3 90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	1
4 SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1
5 SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	3
ERECTION		
6 Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7 Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8 Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	20	1
9 Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
10 Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
11 Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1.1/8	20
12 Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 15 in. Length	1.1/8	20
13 Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
14 Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	20	1
15 Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
16 Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

05/19/2020

1

17180B-CA60-CWS-8501-02_SPOOL1 17180B-CA60-CWS-8501-02_SPOOL2
17180B-CA60-CWS-8501-02_SPOOL3 17180B-CA60-CWS-8501-02_SPOOL4

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	05/19/2020	ISSUED FOR CONSTRUCTION REVISED, ADDED FFW	GS	MPO	JAM
0	10/17/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	ML

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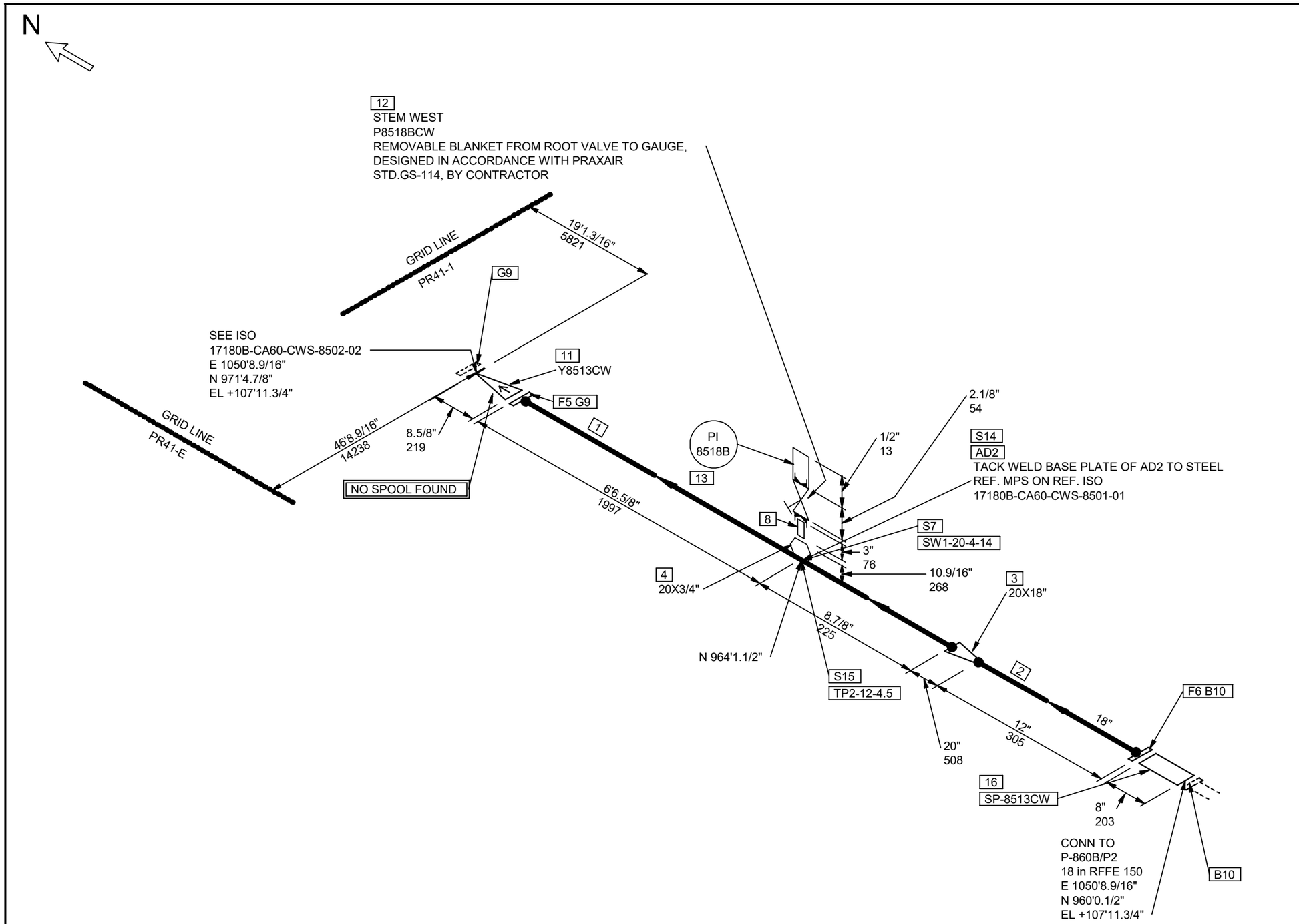
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8501-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	7.3'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	18	1.0'
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X18	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X3/4	1
5	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	1
6	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	18	1
	PIPE SUPPORTS		
7	SW1-20-4-14	20	1
	ERECTION		
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	1.1/8	32
11	Swing Chk Vlv Wafer , API 594 , CL150 , RFTBE , Wafer , ASTM A126-B , B148-952 Al-Br PLATE, VITON SEAL, 316 SS PINS & SPRING , PRAXAIR GUIDELINE V-G1 , C1WMJ	20	1
12	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	INSTRUMENTS		
13	PI-8518B	3/4	1
	PIPE SUPPORTS		
14	AD2	20	1
15	TP2-12-4.5	20	1
	SPECIALTY ITEMS		
16	SP-8513CW	18	1

NO SPOOL FOUND

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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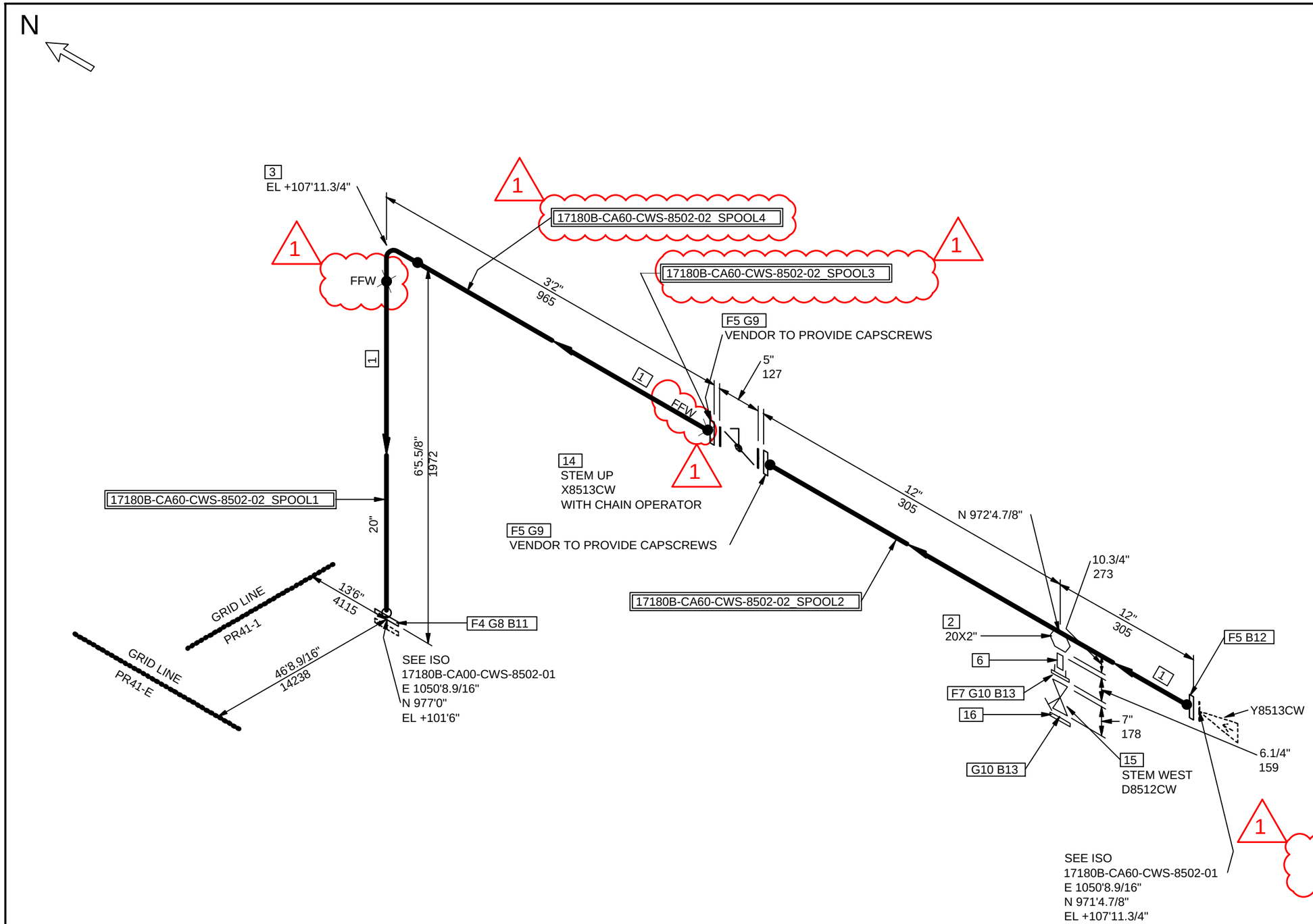
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8502-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	6.5'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	1
4	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1
5	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	3
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	20	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1.1/8	20
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 15 in. Length	1.1/8	20
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
14	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	20	1
15	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
16	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

05/19/2020

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	05/15/2020	ISSUED FOR CONSTRUCTION REVISED, ADDED FFW	GS	MPO	JAM
0	10/17/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	ML

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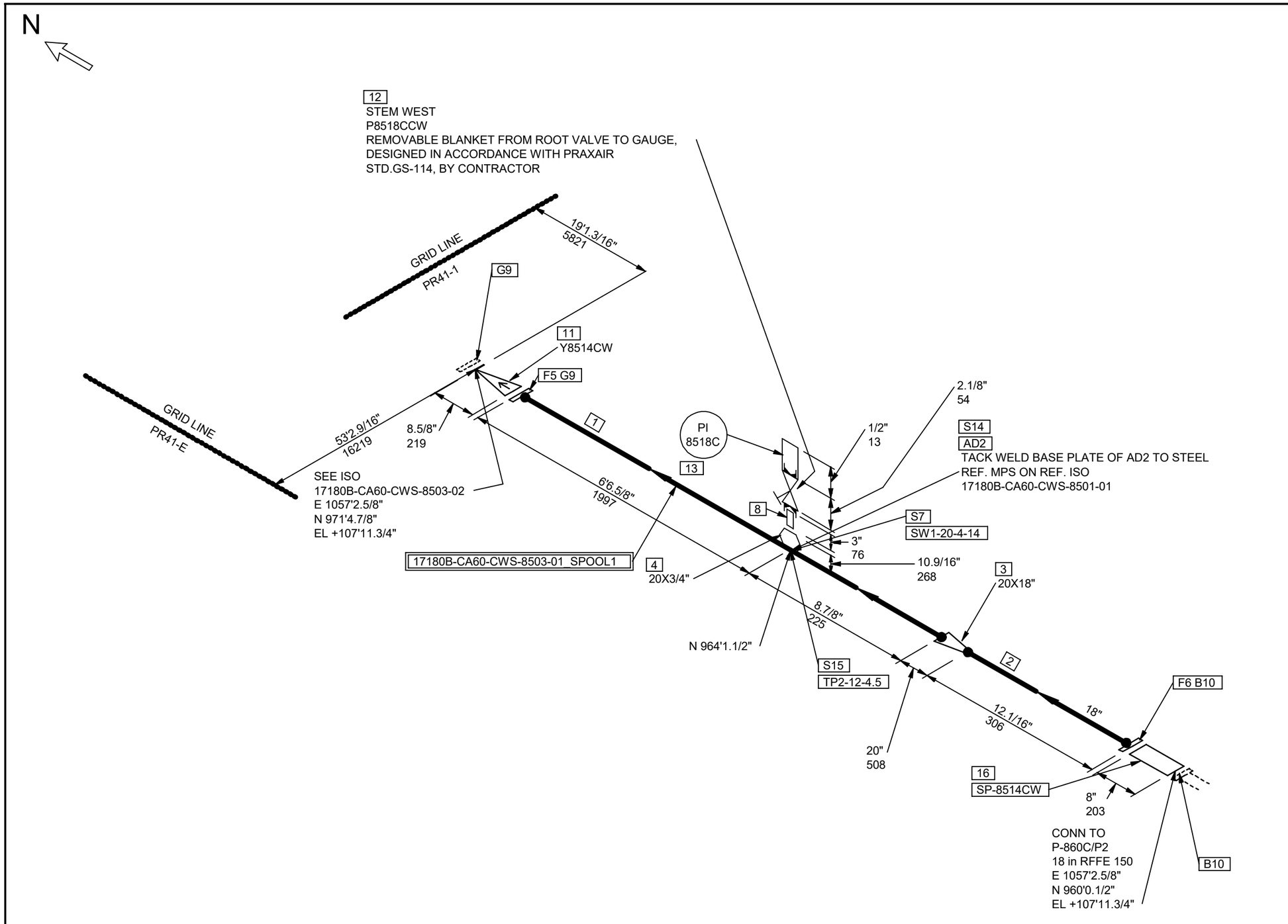
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8502-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	7.3'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	18	1.0'
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X18	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X3/4	1
5	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	1
6	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	18	1
	PIPE SUPPORTS		
7	SW1-20-4-14	20	1
	ERECTION		
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	1.1/8	32
11	Swing Chk Vlv Wafer , API 594 , CL150 , RFTBE , Wafer , ASTM A126-B , B148-952 Al-Br PLATE, VITON SEAL, 316 SS PINS & SPRING , PRAXAIR GUIDELINE V-G1 , C1WMJ	20	1
12	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	INSTRUMENTS		
13	PI-8518C	3/4	1
	PIPE SUPPORTS		
14	AD2	20	1
15	TP2-12-4.5	20	1
	SPECIALTY ITEMS		
16	SP-8514CW	18	1

17180B-CA60-CWS-8503-01_SPOOL1

LEGEND:

- ● = SHOP WELL
- ⊗ = FIELD WELL
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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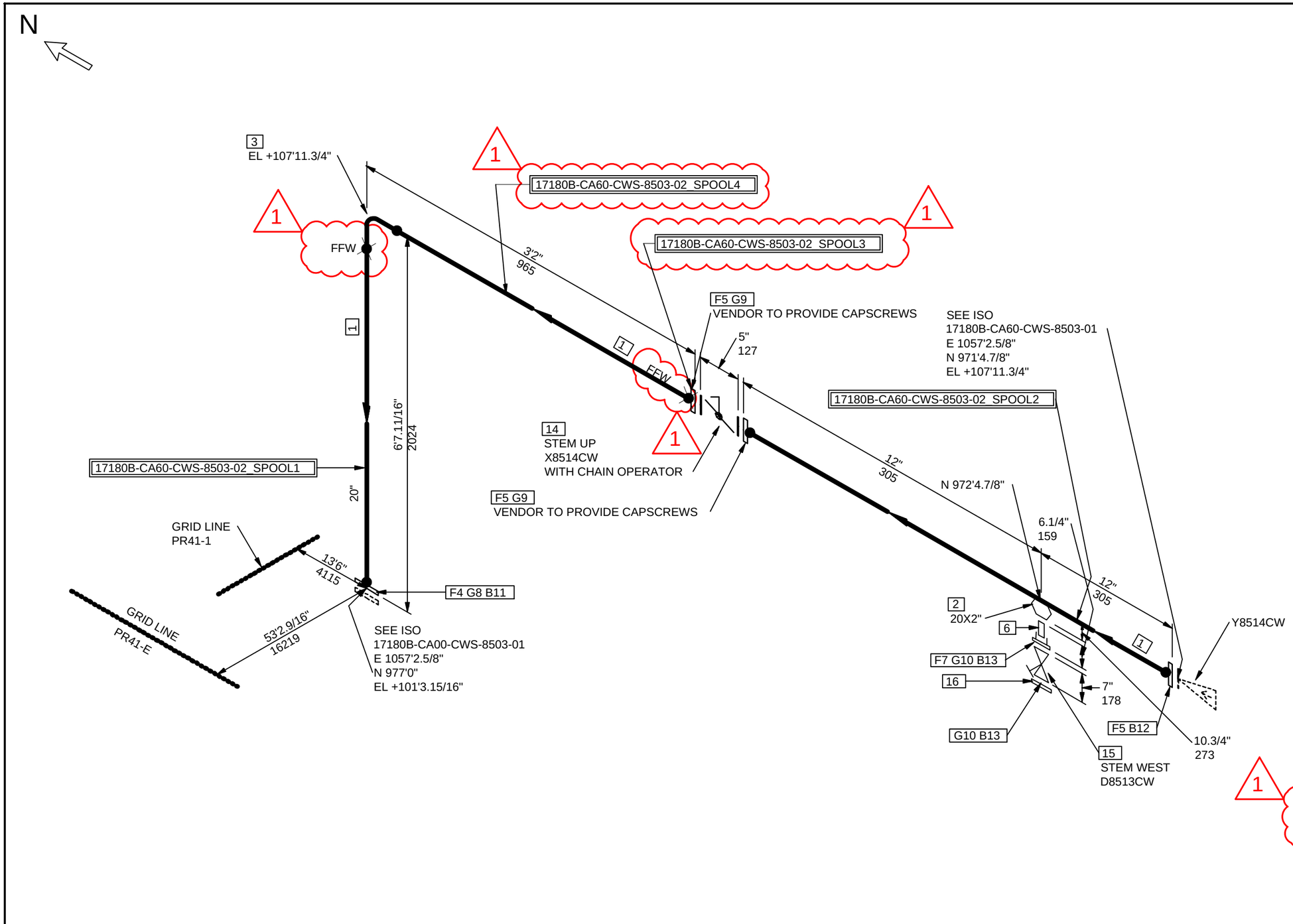
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8503-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	6.6'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	1
4	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1
5	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	3
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	20	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1.1/8	20
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 15 in. Length	1.1/8	20
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
14	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	20	1
15	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
16	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

05/19/2020

LEGEND:

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- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	05/19/2020	ISSUED FOR CONSTRUCTION REVISED, ADDED FFW	GS	MPO	JAM
0	10/17/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	ML

PRAXAIR

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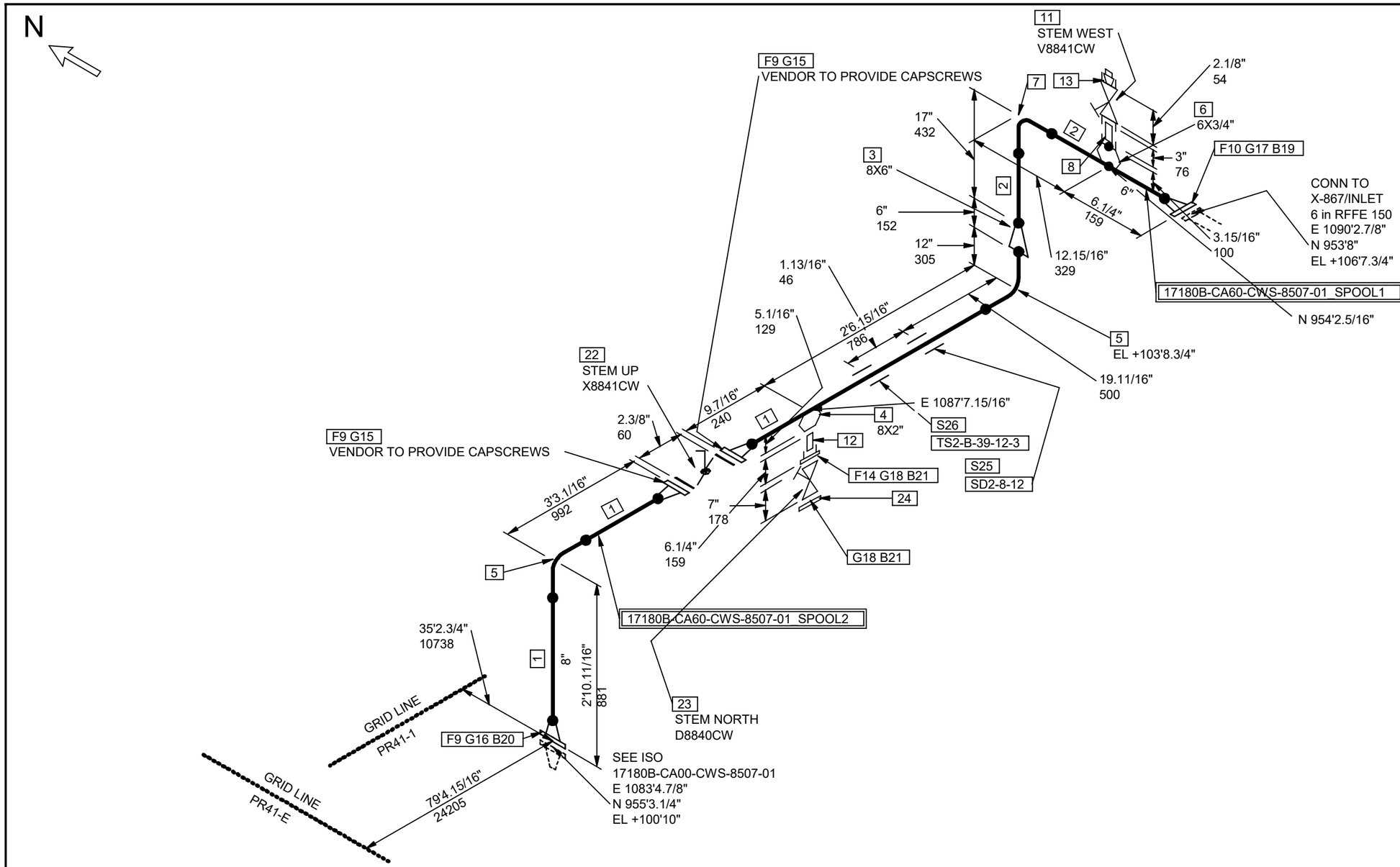
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8503-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	5.6'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	1.3'
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X6	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	8X2	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	2
6	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
7	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
8	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 3in Long , SMLS , S-80 , S-80	3/4	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	3
10	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
11	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	ERECTION		
12	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
13	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
14	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
15	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	2
16	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	8	1
17	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
18	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
19	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
20	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
21	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
22	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	8	1
23	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
24	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
25	SD2-8-12	8	1
26	TS2-B-39-12-3	8	1

17180B-CA60-CWS-8507-01_SPOOL1 17180B-CA60-CWS-8507-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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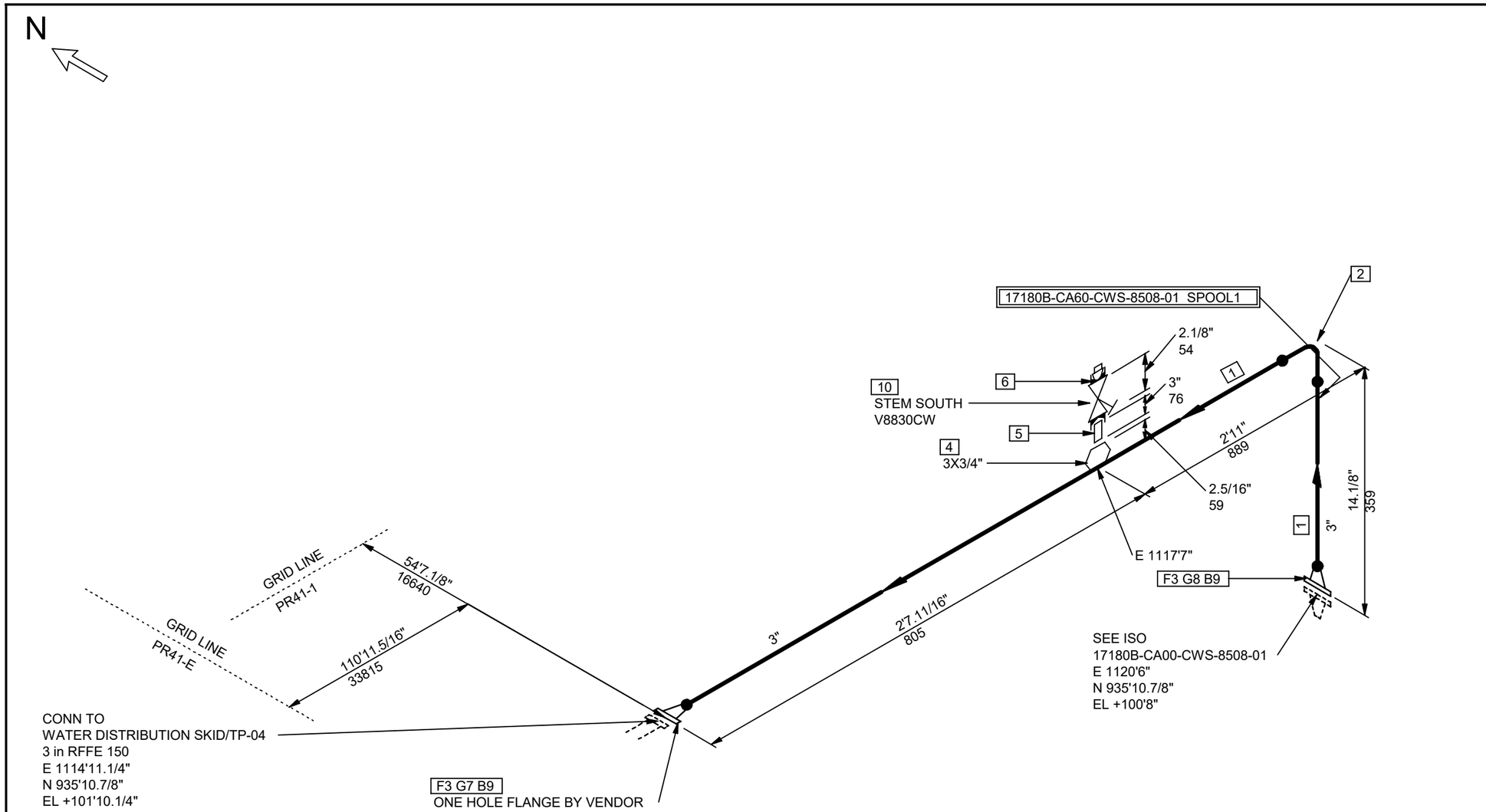
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8507-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	5.6'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	2
	ERECTION		
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	3X3/4	1
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
6	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
8	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	3	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
10	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1

17180B-CA60-CWS-8508-01_SPOOL1

LEGEND:

- ● = SHOP WELL
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/22/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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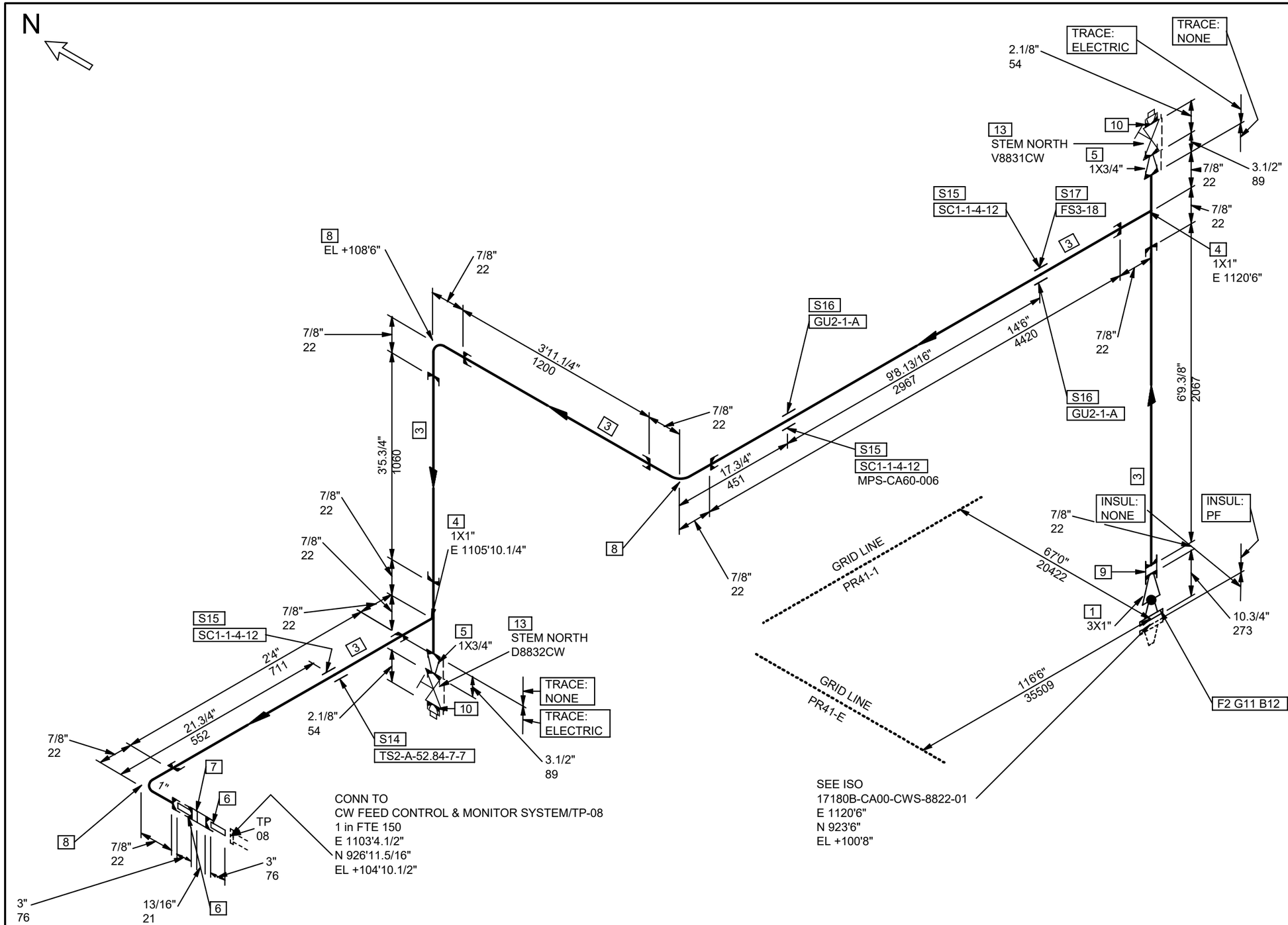
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8508-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Conc Swage , MSS SP-95 , BE x MTE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X1	1
2	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	ERECTION		
3	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	1	31.1'
4	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	1X1	2
5	Conc Swage , MSS SP-95 , MTE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1X3/4	2
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	1	2
7	Union , ASME B16.39 , CL300 , FTE , ASTM A197	1	1
8	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	1	3
9	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	1	1
10	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	2
11	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	3	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
13	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
	PIPE SUPPORTS		
14	TS2-A-52.84-7-7	1	1
15	SC1-1-4-12	1	3
16	GU2-1-A	1	2
17	FS3-18	1	1

NO SPOOL FOUND

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	PF	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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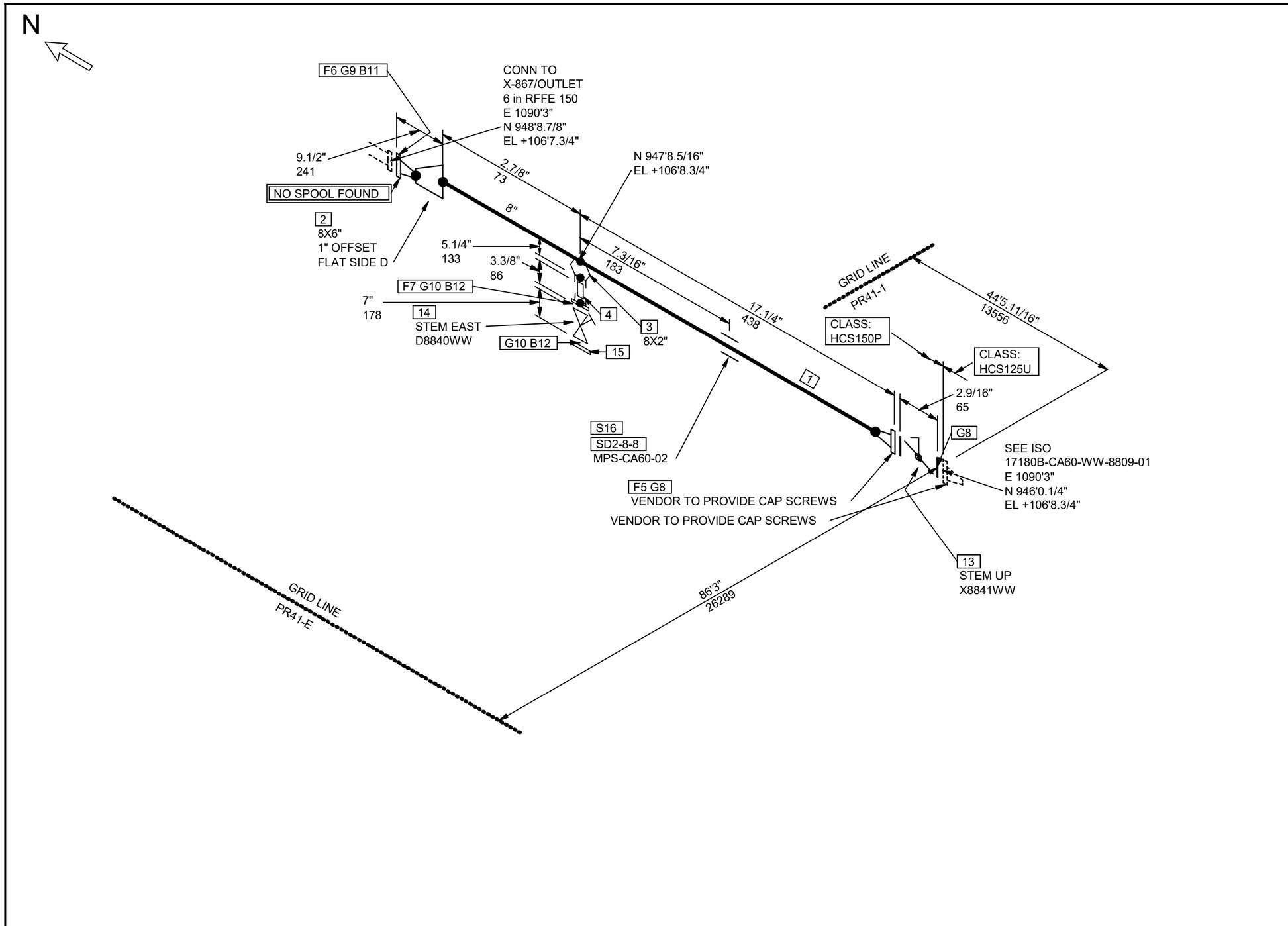
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWS-8822-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	1.4'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X6	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	8X2	1
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
7	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	2
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
13	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , 316 SS/GRAPHITE SEAL , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAB	8	1
14	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
15	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
16	SD2-8-8	8	1

NO SPOOL FOUND

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8804		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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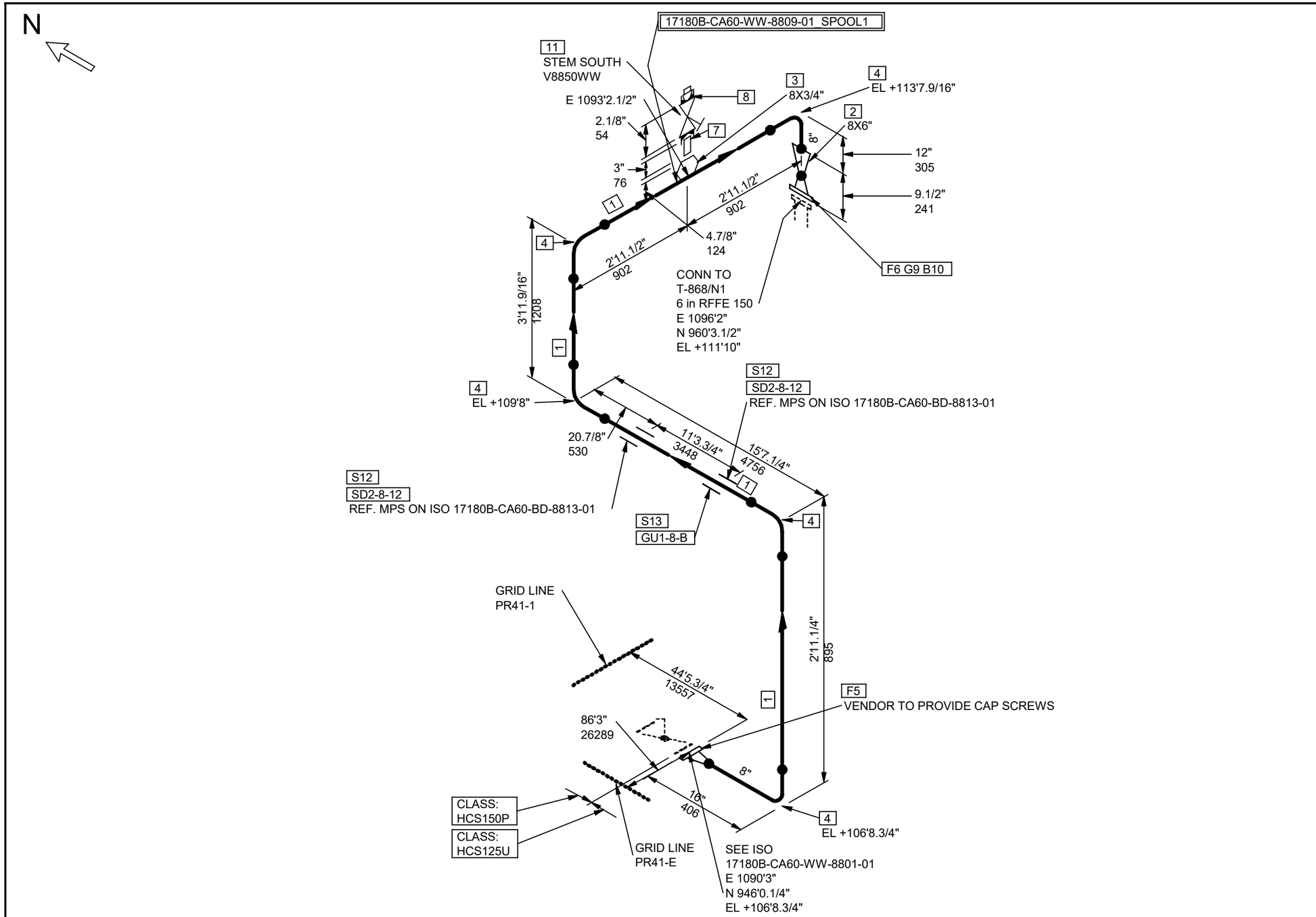
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-WW-8801-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	20.5'
2	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X6	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	8X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	5
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
7	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
8	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
11	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
12	SD2-8-12	8	2
13	GU1-8-B	8	1

17180B-CA60-WW-8809-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8804		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/12/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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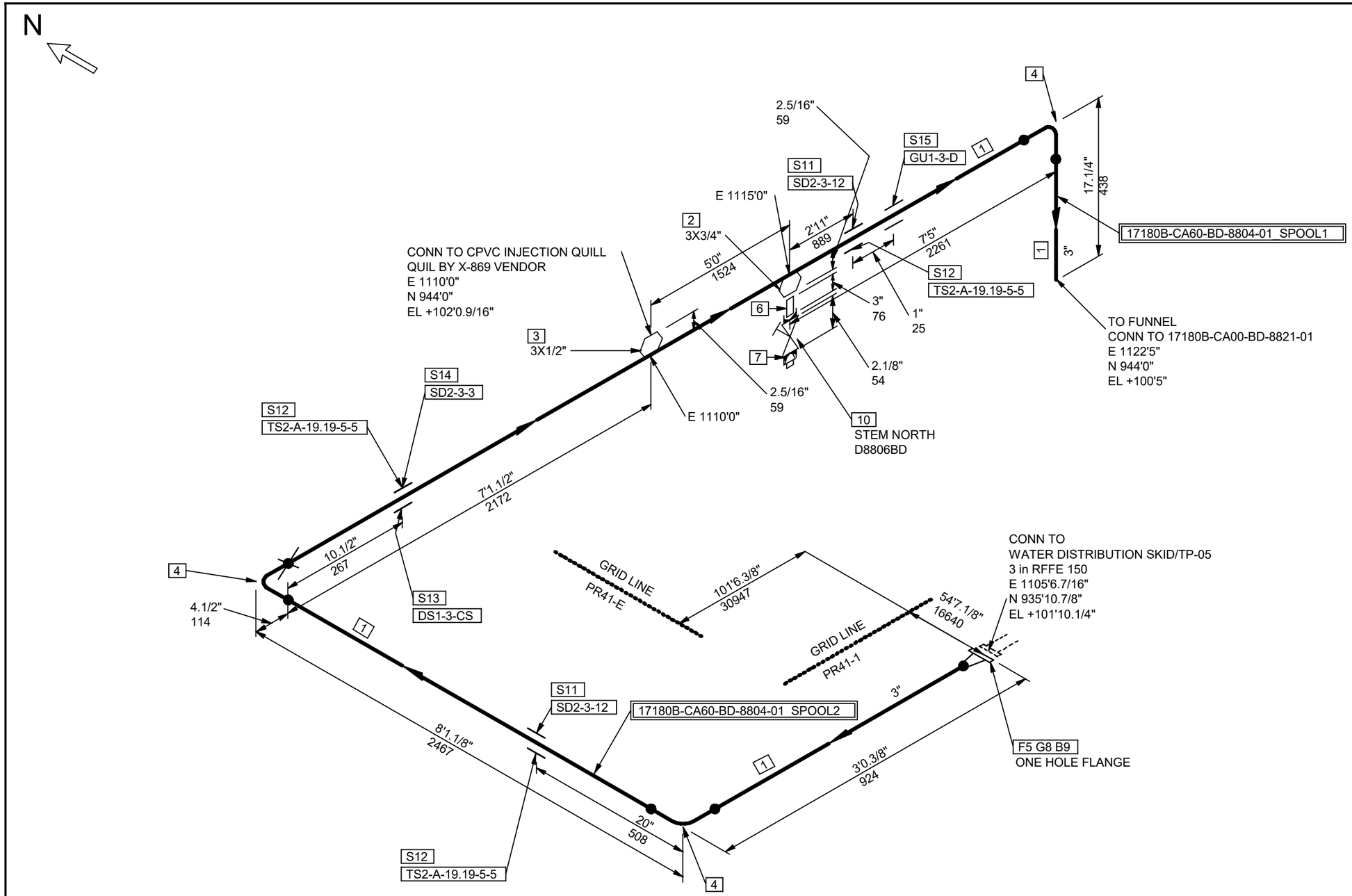
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-WW-8809-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	30.0'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	3X3/4	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	3X1/2	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
7	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
10	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
11	SD2-3-12	3	2
12	TS2-A-19.19-5-5	3	3
13	DS1-3-CS	3	1
14	SD2-3-3	3	1
15	GU1-3-D	3	1

17180B-CA60-BD-8804-01_SPOOL1 17180B-CA60-BD-8804-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8803		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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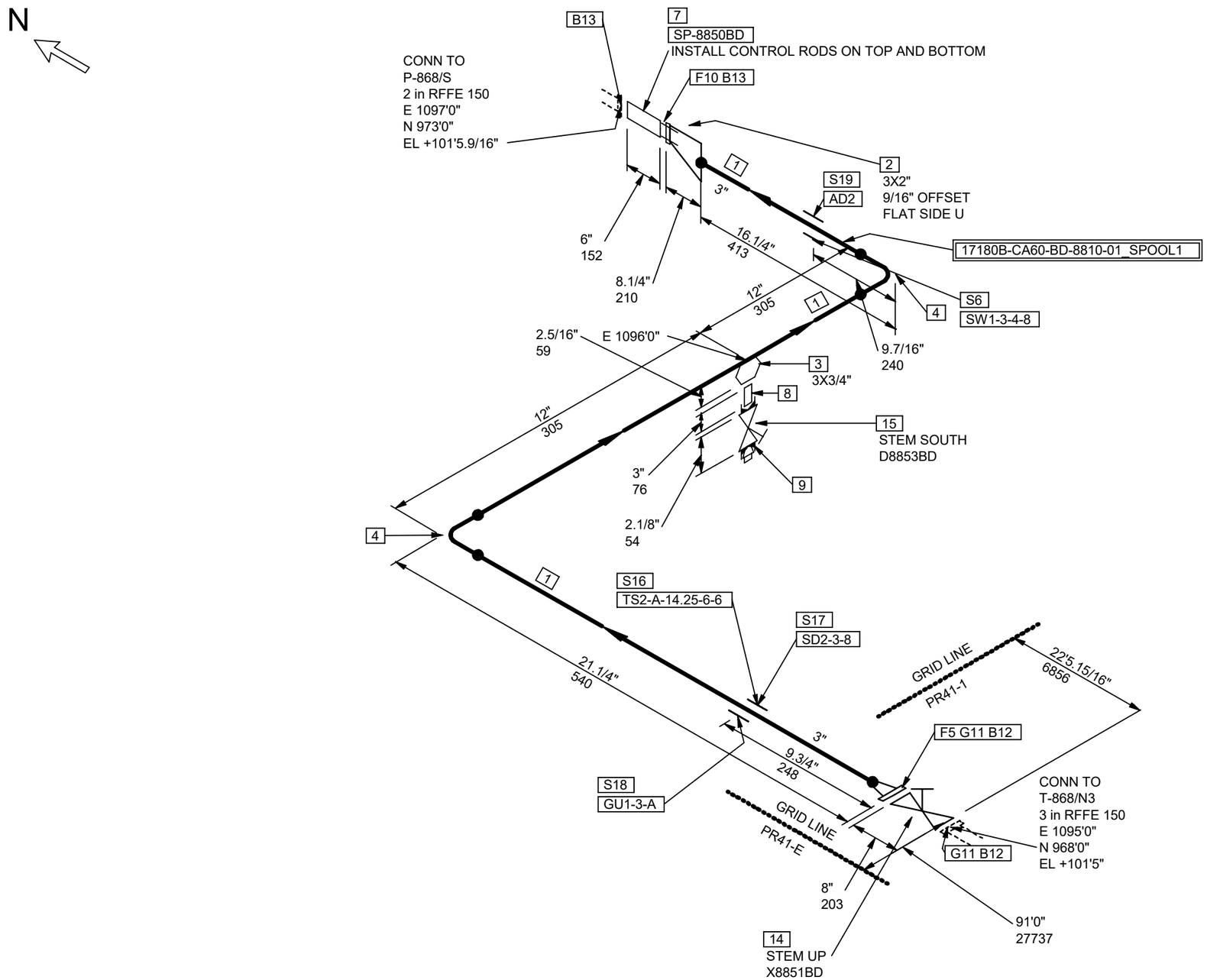
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-BD-8804-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	3.4'
2	Ecc Swage , MSS SP-95 , BE x MTE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X2	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	3X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	2
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	PIPE SUPPORTS		
6	SW1-3-4-8	3	1
	SPECIALTY ITEMS		
7	SP-8850BD	2	1
	ERECTION		
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
9	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
10	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	2
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
14	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	3	1
15	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
16	TS2-A-14.25-6-6	3	1
17	SD2-3-8	3	1
18	GU1-3-A	3	1
19	AD2	3	1

17180B-CA60-BD-8810-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8805		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/31/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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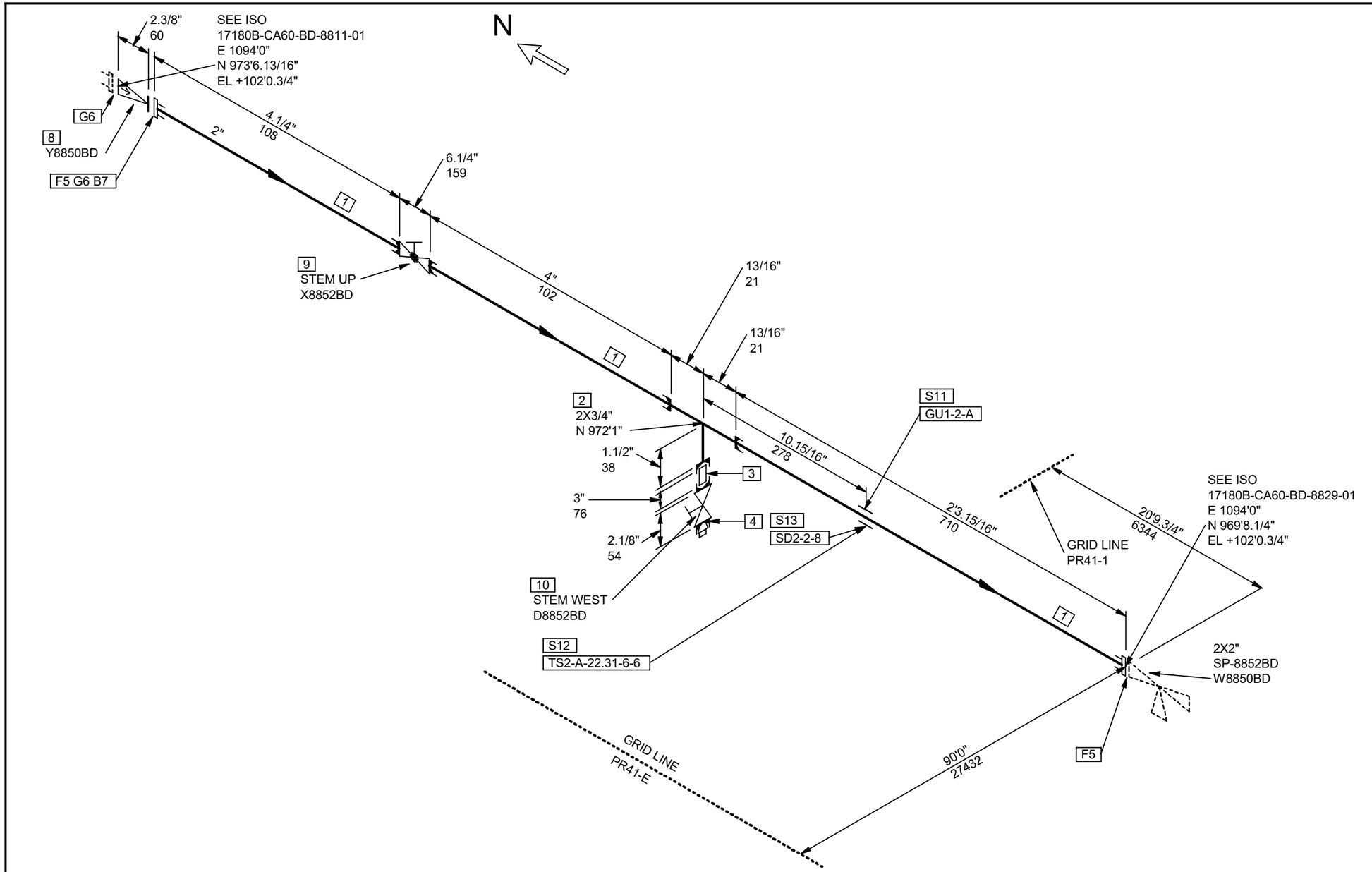
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-BD-8810-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	3.0'
2	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	2X3/4	1
3	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
4	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
5	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
6	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.75 in. Length	5/8	4
8	Swing Chk Vlv Wafer , API 594 , CL150 , RFTBE , Wafer , ASTM A126-B , B148-952 Al-Br PLATE, VITON SEAL, 316 SS PINS & SPRING , PRAXAIR GUIDELINE V-G1 , C1WMJ	2	1
9	Globe Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T8NAE	2	1
10	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
PIPE SUPPORTS			
11	GU1-2-A	2	1
12	TS2-A-22.31-6-6	2	1
13	SD2-2-8	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8805		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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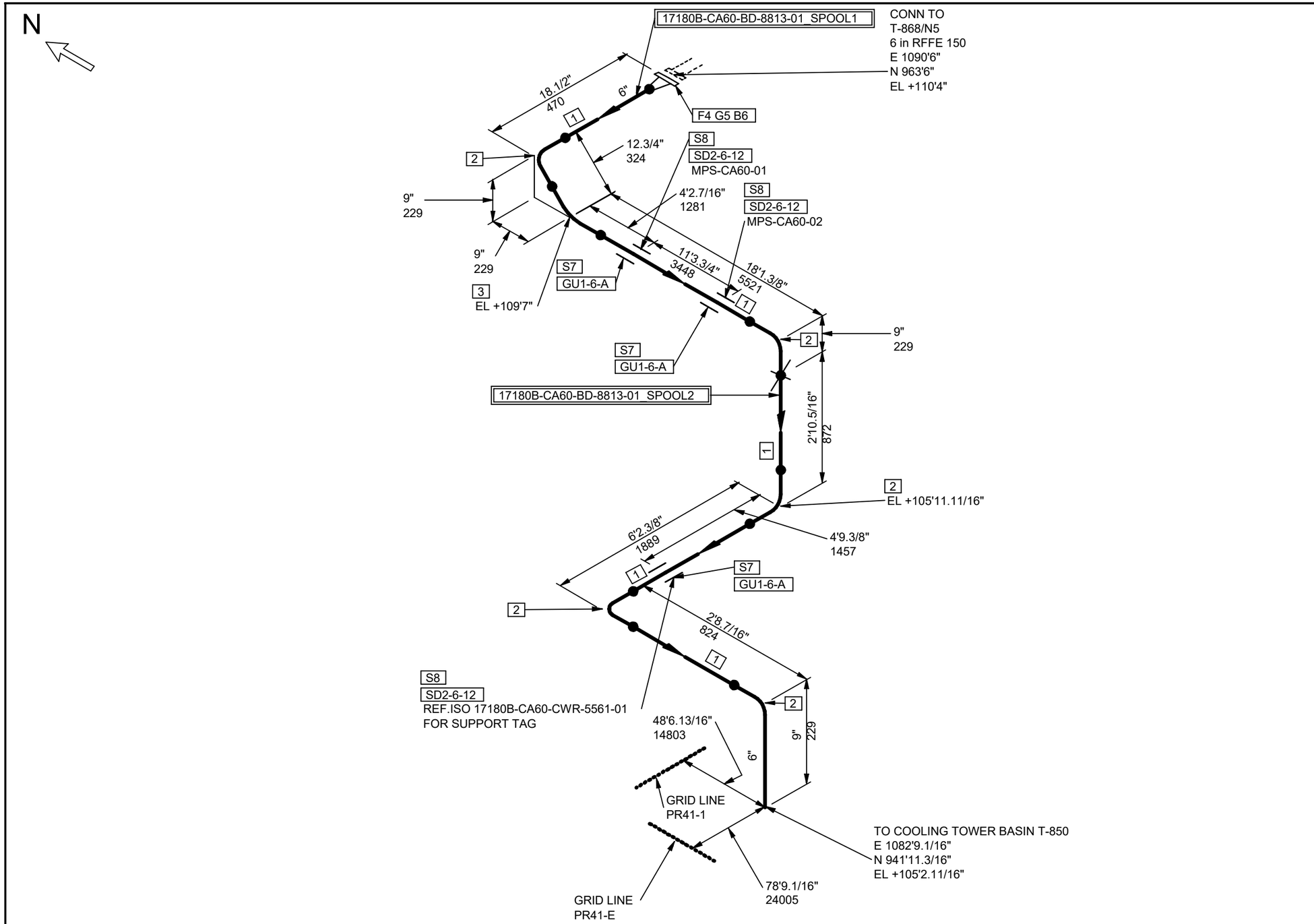
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-BD-8811-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	25.6'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	5
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
	PIPE SUPPORTS		
7	GU1-6-A	6	3
8	SD2-6-12	6	3

17180B-CA60-BD-8813-01_SPOOL1 17180B-CA60-BD-8813-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8805		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/12/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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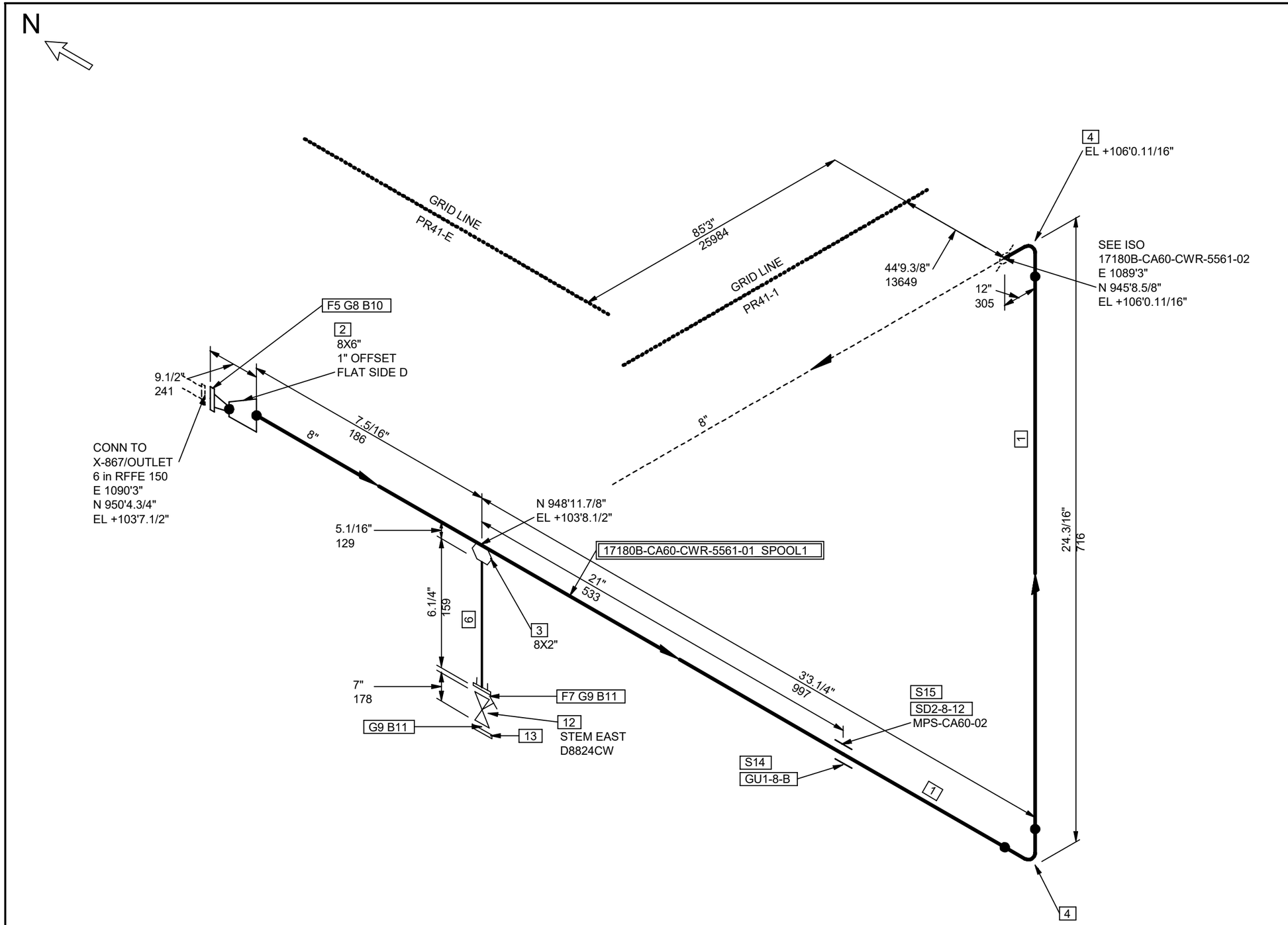
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-BD-8813-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	3.3'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X6	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	8X2	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	2
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
6	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	0.5'
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
12	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
13	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
14	GU1-8-B	8	1
15	SD2-8-12	8	1

17180B-CA60-CWR-5561-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8804		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/12/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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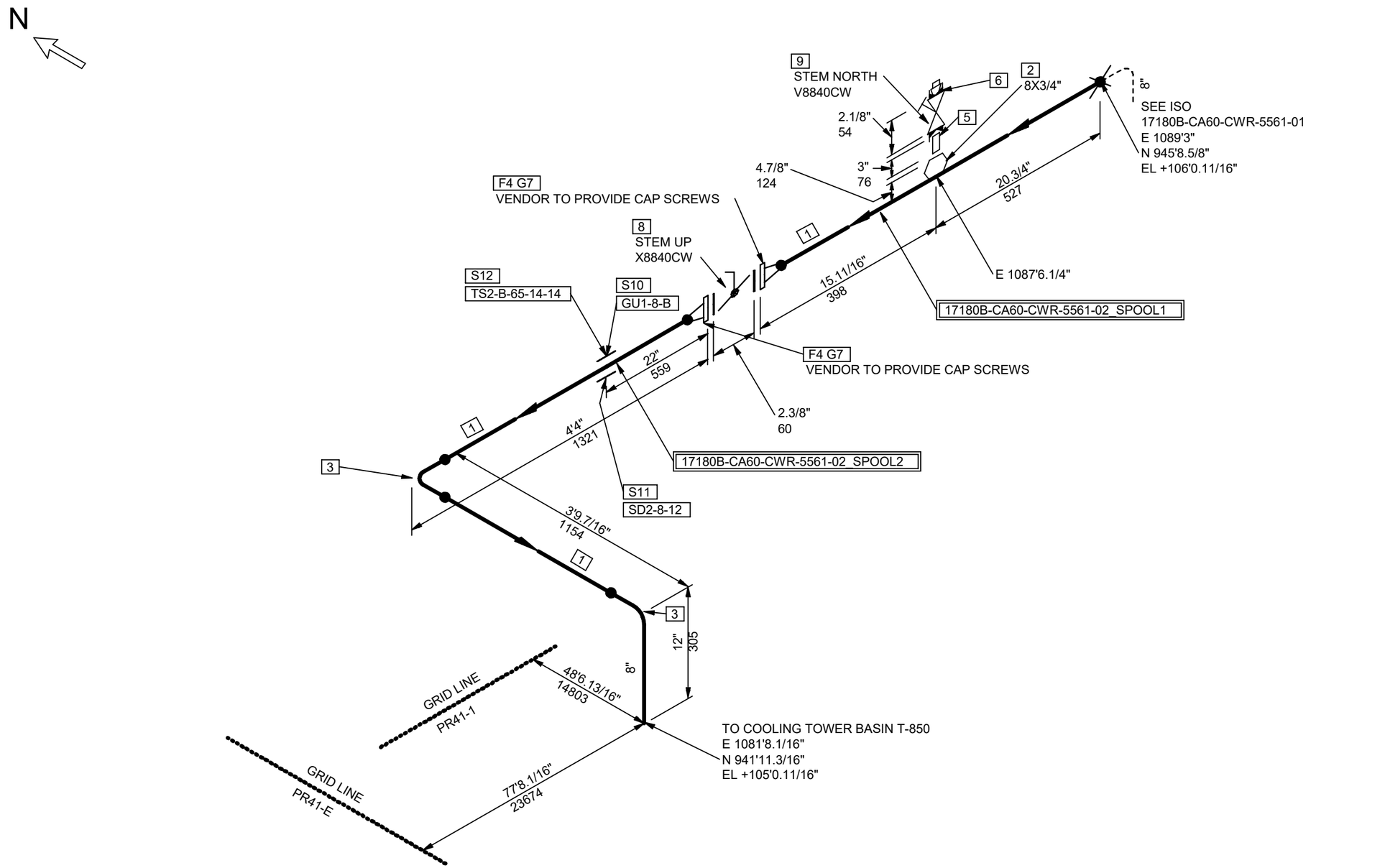
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWR-5561-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	7.5'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	8X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	2
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
6	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	2
8	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	8	1
9	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
10	GU1-8-B	8	1
11	SD2-8-12	8	1
12	TS2-B-65-14-14	8	1

17180B-CA60-CWR-5561-02_SPOOL1 17180B-CA60-CWR-5561-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8804		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/12/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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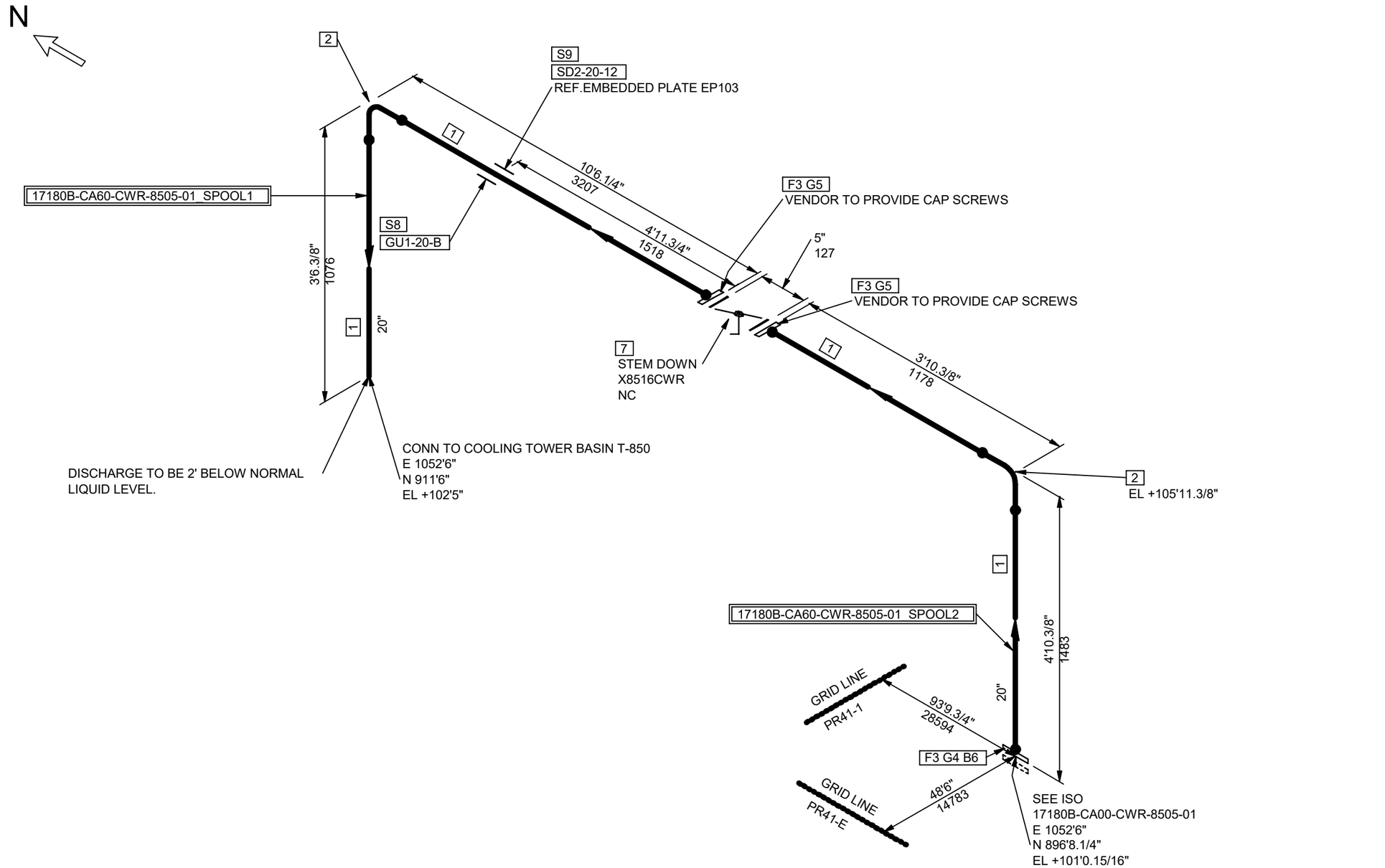
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWR-5561-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	12.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	2
3	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	3
	ERECTION		
4	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	20	1
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.25 in. Length	1.1/8	20
7	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	20	1
	PIPE SUPPORTS		
8	GU1-20-B	20	1
9	SD2-20-12	20	1

17180B-CA60-CWR-8505-01_SPOOL1 17180B-CA60-CWR-8505-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

PRAXAIR

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Tel 713.270.3100

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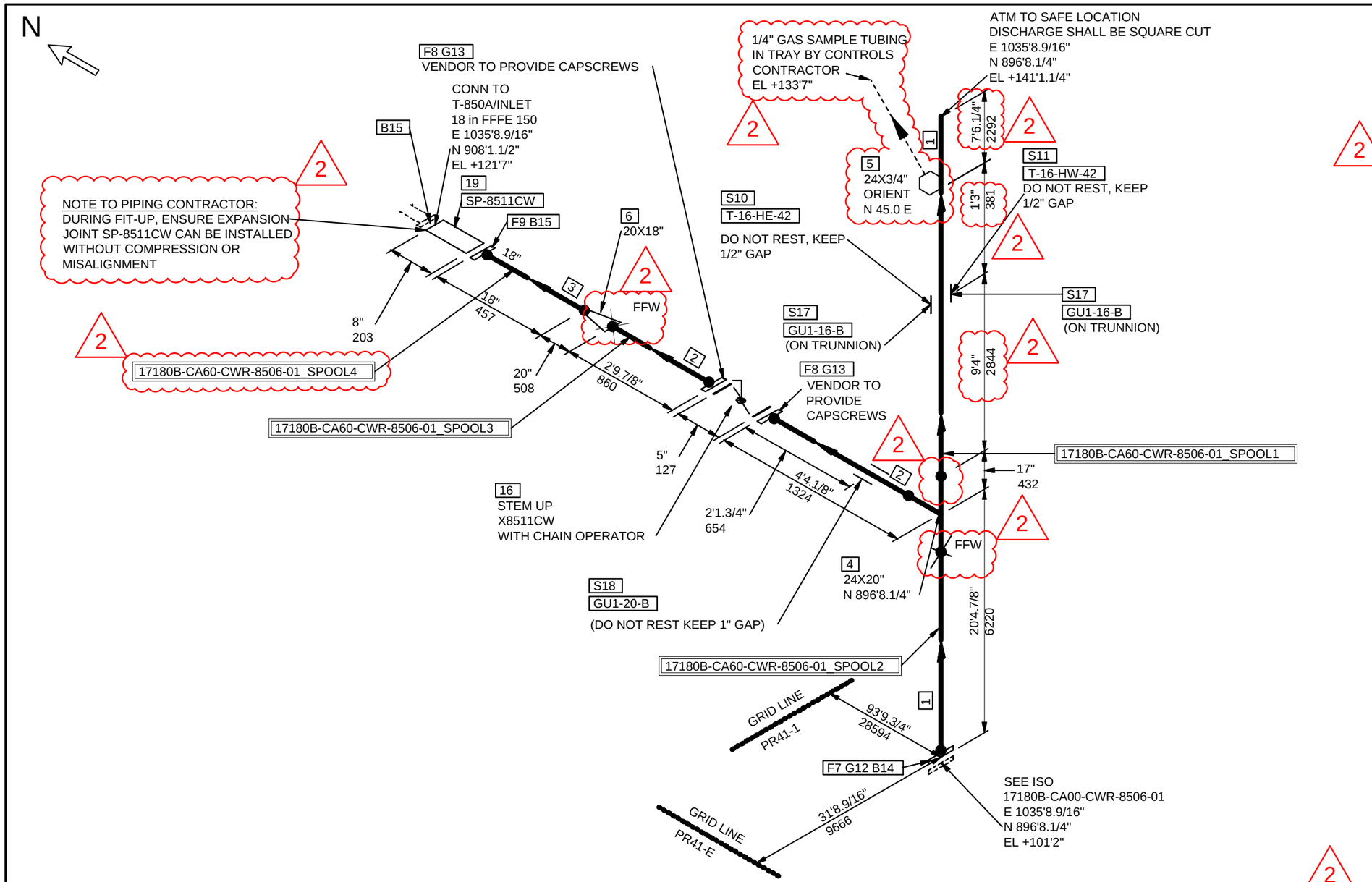
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWR-8505-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	24	37.1'
2 Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	5.7'
3 Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	18	1.5'
4 Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X20	1
5 Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	24X3/4	1
6 Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X18	1
7 SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	24	1
8 SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	2
9 SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	18	1
PIPE SUPPORTS		
10 T-16-HE-42	24	1
11 T-16-HW-42	24	1
ERECTION		
12 Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	24	1
13 Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
14 Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1.1/4	20
15 Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	1.1/8	32
16 Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	20	1
PIPE SUPPORTS		
17 GU1-16-B	24	2
18 GU1-20-B	20	1
SPECIALTY ITEMS		
19 SP-8511CW	18	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

05/19/2020

17180B-CA60-CWR-8506-01_SPOOL1 17180B-CA60-CWR-8506-01_SPOOL2
17180B-CA60-CWR-8506-01_SPOOL3 17180B-CA60-CWR-8506-01_SPOOL4

LEGEND:
- ○ = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	5/15/2020	ISSUED FOR CONSTRUCTION REVISED, MOVED WOL	GS	MPO	JAM
1	11/13/2019	ISSUED AS MARKED	RBK	NNR	MLO
0	10/07/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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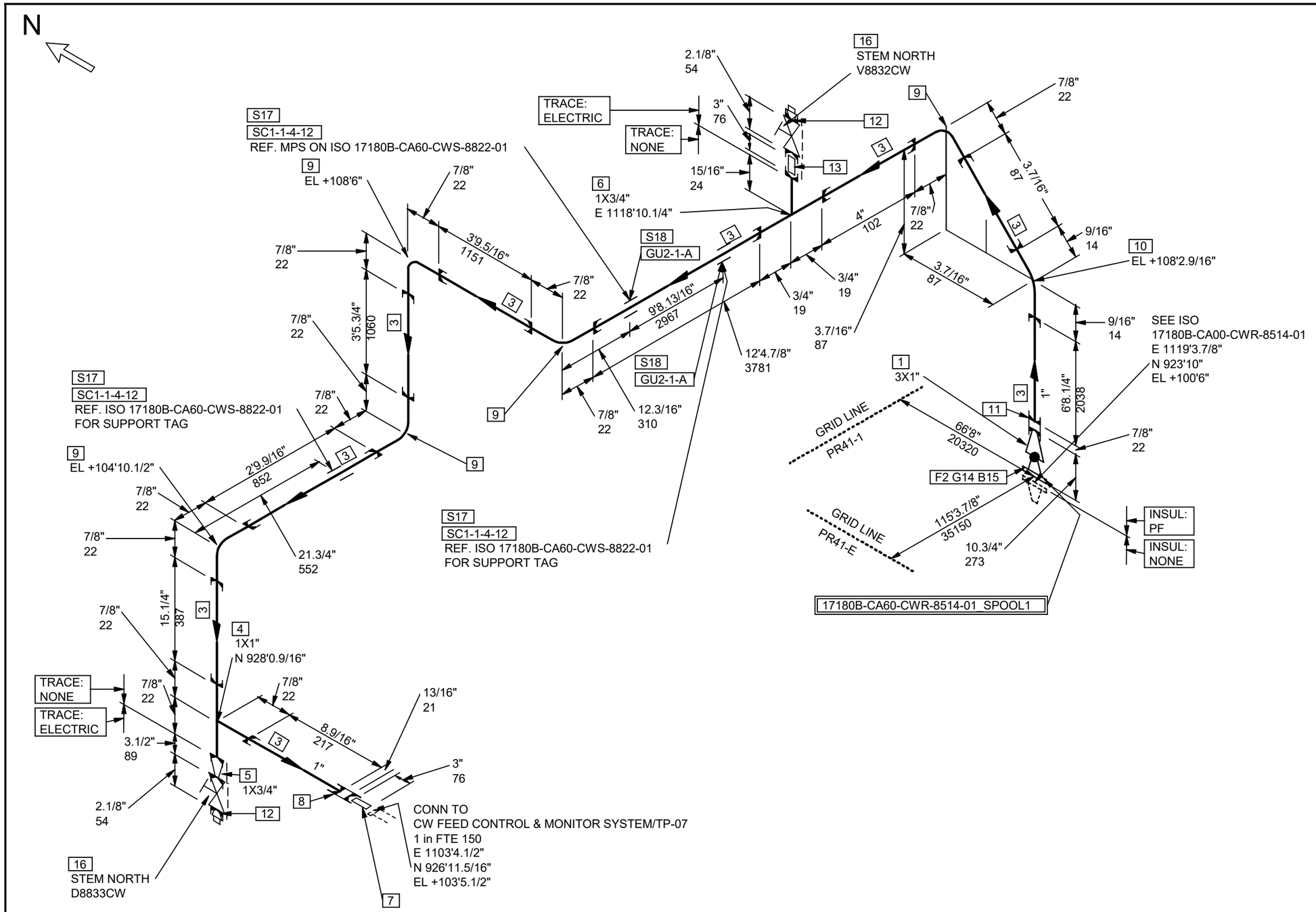
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWR-8506-01	REV: 2

LOUISIANA REG. NO. EF.0005116

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Conc Swage , MSS SP-95 , BE x MTE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X1	1
2	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
	ERECTION		
3	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	1	31.8'
4	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	1X1	1
5	Conc Swage , MSS SP-95 , MTE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1X3/4	1
6	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	1X3/4	1
7	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	1	1
8	Union , ASME B16.39 , CL300 , FTE , ASTM A197	1	1
9	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	1	5
10	45 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	1	1
11	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	1	1
12	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	2
13	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
14	Isolation Kit , ASME-B16.5 , CL150 , RF , G-10 Sleeve/Gskt Mat, VITON Seal , Ins Gskt Kit per Detail # HMP-116	3	1
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
16	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
	PIPE SUPPORTS		
17	SC1-1-4-12	1	3
18	GU2-1-A	1	2

17180B-CA60-CWR-8514-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8501		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	PF	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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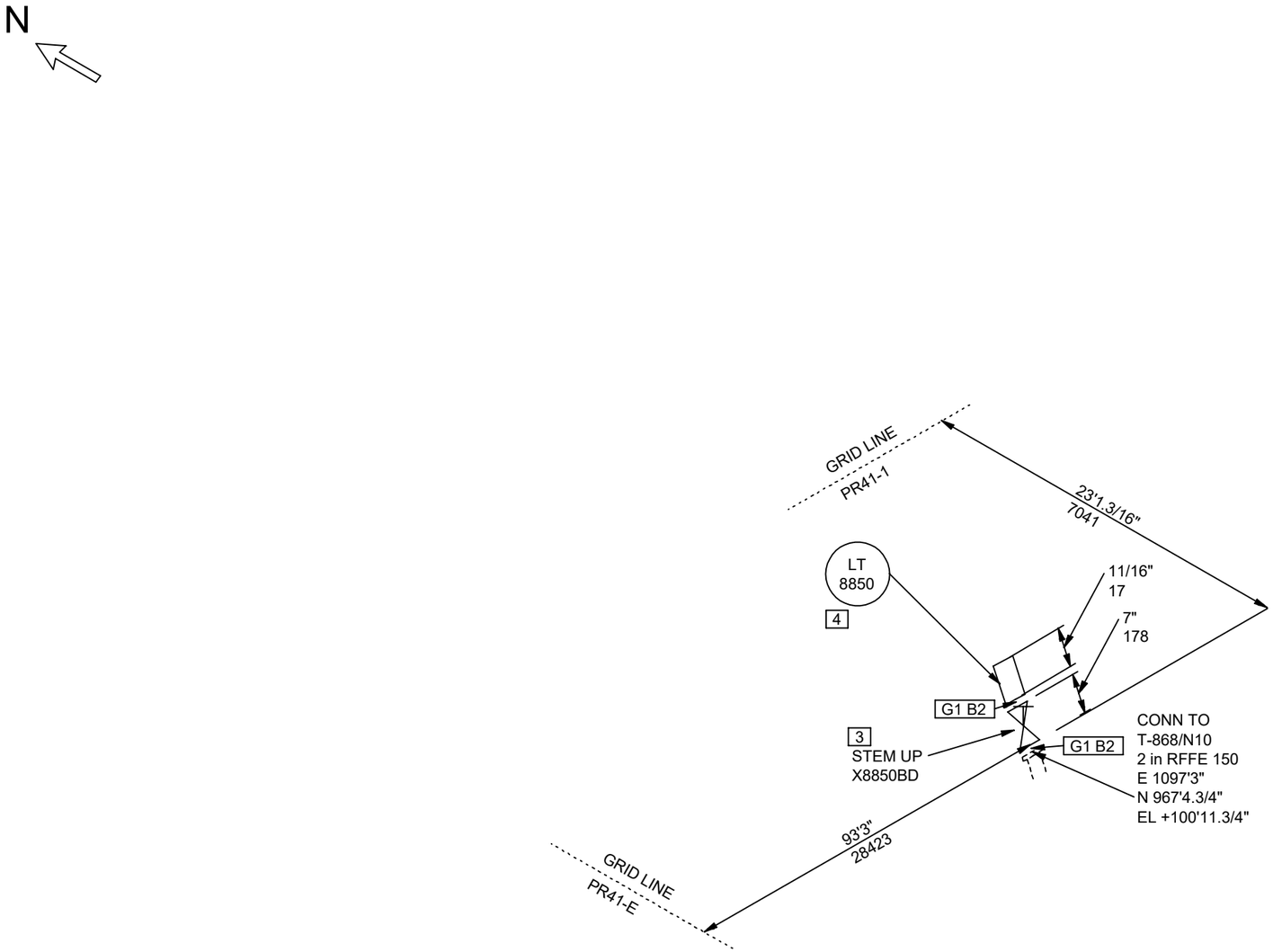
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-CWR-8514-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-8850	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8805		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

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- ✖ = FIELD WELD
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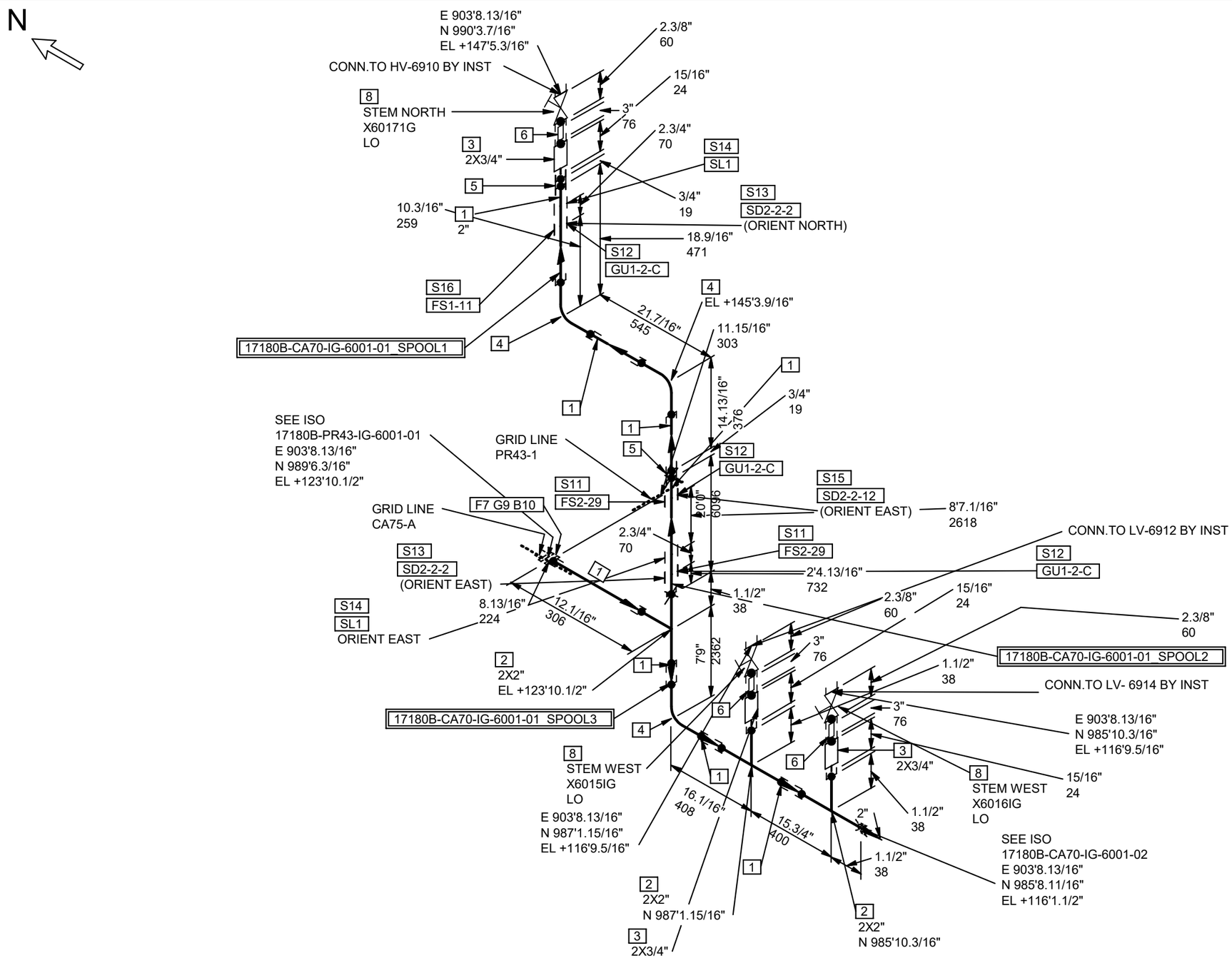
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA60-BD-T868-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	34.6'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	3
3	Red. Insert , MSS-SP-79, Type 2 , CL3000 , SWE x MPE , ASTM A182 Grade F 304/F 304L	2X3/4	3
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
6	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	3
7	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	3
	ERECTION		
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
11	FS2-29	2	2
12	GU1-2-C	2	3
13	SD2-2-2	2	2
14	SL1	2	2
15	SD2-2-12	2	1
16	FS1-11	2	1

17180B-CA70-IG-6001-01_SPOOL1 17180B-CA70-IG-6001-01_SPOOL2
17180B-CA70-IG-6001-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- ── ── = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/13/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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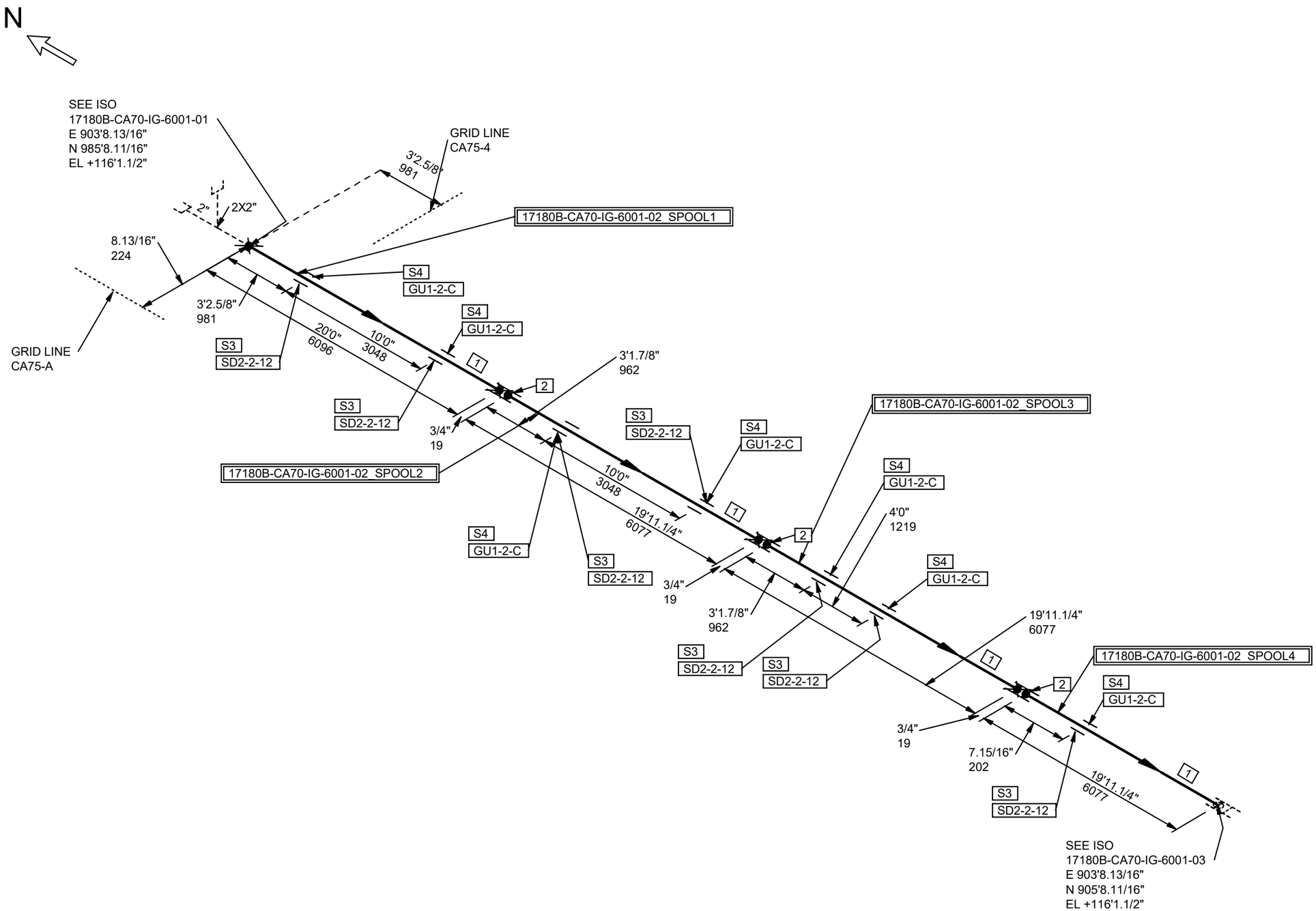
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-IG-6001-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	79.9'
2 Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
ERECTION		
PIPE SUPPORTS		
3 SD2-2-12	2	7
4 GU1-2-C	2	7

17180B-CA70-IG-6001-02_SPOOL1
17180B-CA70-IG-6001-02_SPOOL2
17180B-CA70-IG-6001-02_SPOOL3
17180B-CA70-IG-6001-02_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/13/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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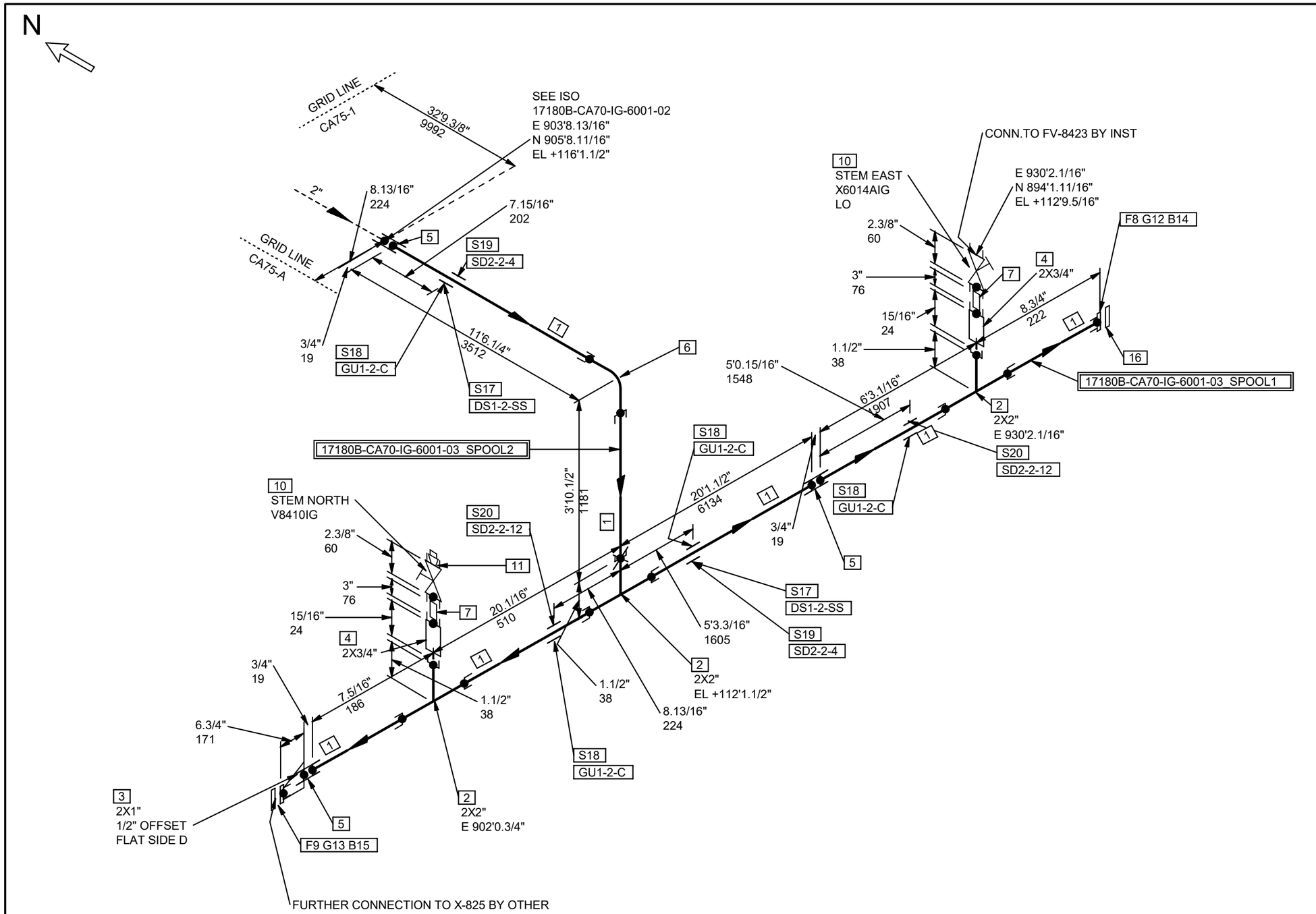
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-IG-6001-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	43.8'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	3
3	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	1
4	Red. Insert , MSS-SP-79, Type 2 , CL3000 , SWE x MPE , ASTM A182 Grade F 304/F 304L	2X3/4	2
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
7	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	2
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
9	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-80S	1	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	2
	ERECTION		
11	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
12	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
13	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	4
16	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	2	1
	PIPE SUPPORTS		
17	DS1-2-SS	2	2
18	GU1-2-C	2	4
19	SD2-2-4	2	2
20	SD2-2-12	2	2

17180B-CA70-IG-6001-03_SPOOL1 17180B-CA70-IG-6001-03_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/13/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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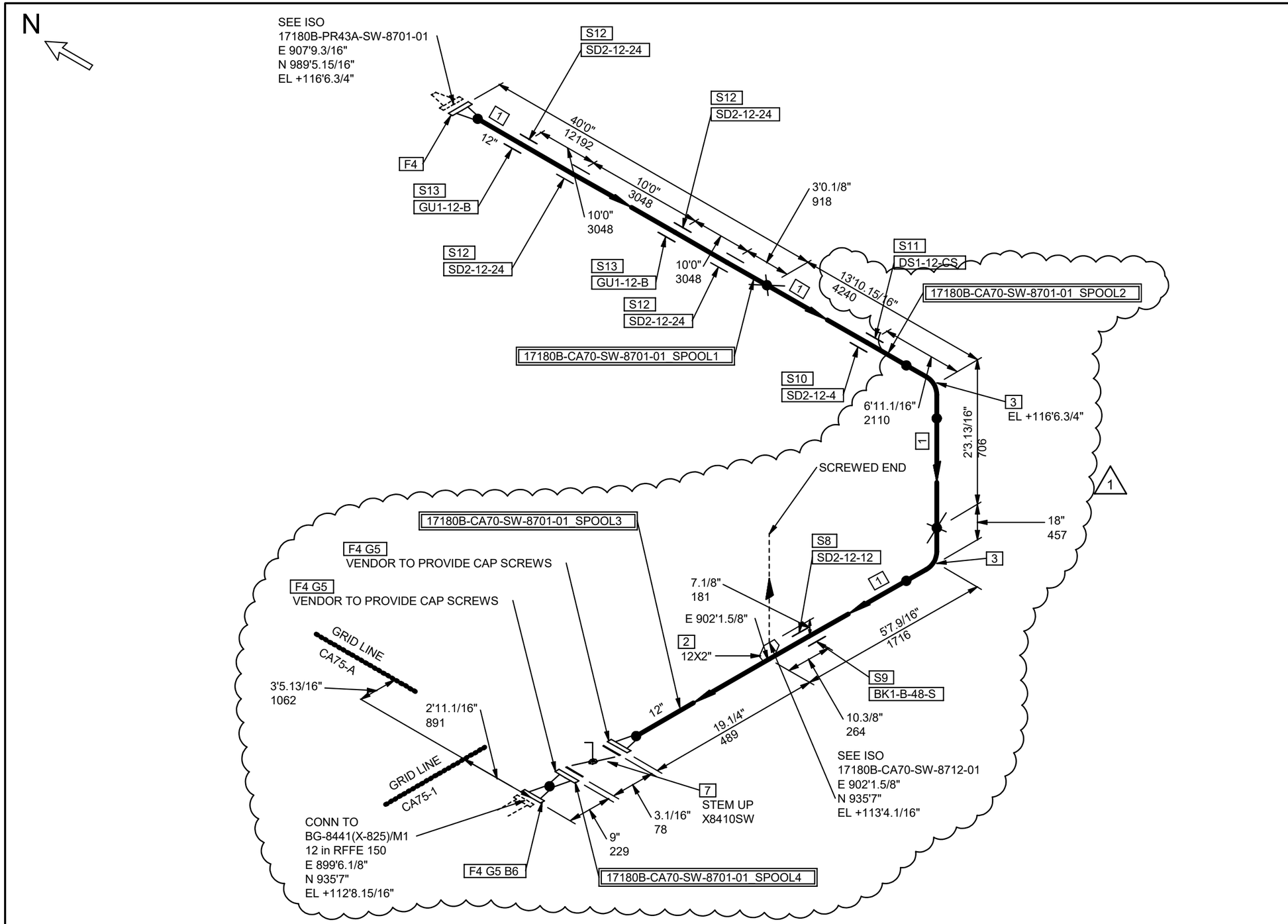
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-IG-6001-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	58.3'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	4
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	3
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
7	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	12	1
	PIPE SUPPORTS		
8	SD2-12-12	12	1
9	BK1-B-48-S	12	1
10	SD2-12-4	12	1
11	DS1-12-CS	12	1
12	SD2-12-24	12	4
13	GU1-12-B	12	2

17180B-CA70-SW-8701-01_SPOOL1 17180B-CA70-SW-8701-01_SPOOL2
17180B-CA70-SW-8701-01_SPOOL3 17180B-CA70-SW-8701-01_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/03/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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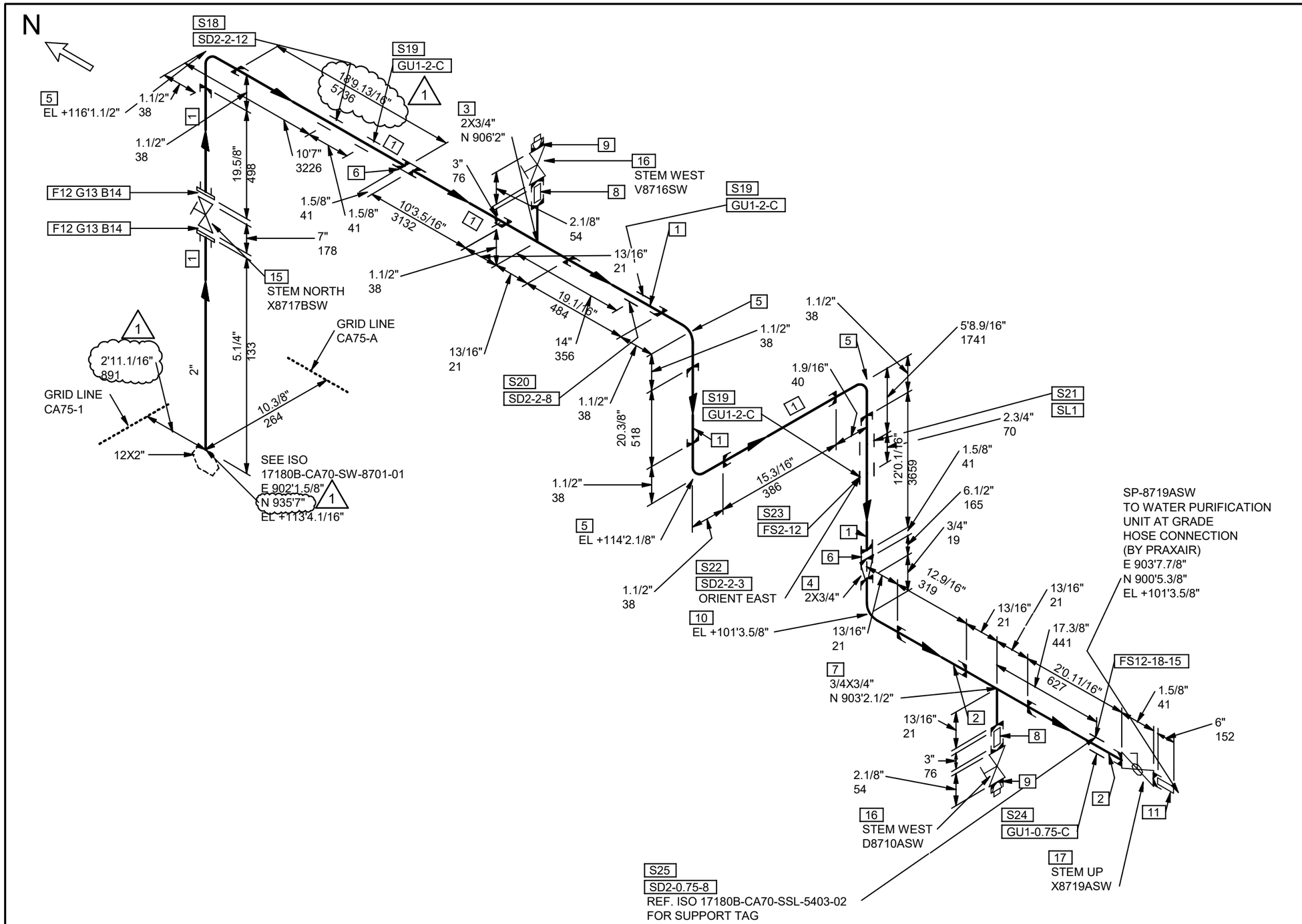
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-SW-8701-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	47.7'
2	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	3.2'
3	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	2X3/4	1
4	Conc Swage , MSS SP-95 , MTE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
5	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	4
6	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
7	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	2
9	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	2
10	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
11	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
12	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
15	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
16	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
17	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
	PIPE SUPPORTS		
18	SD2-2-12	2	1
19	GU1-2-C	2	3
20	SD2-2-8	2	1
21	SL1	2	1
22	SD2-2-3	2	1
23	FS2-12	2	1
24	GU1-0.75-C	3/4	1
25	SD2-0.75-8	3/4	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/03/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/01/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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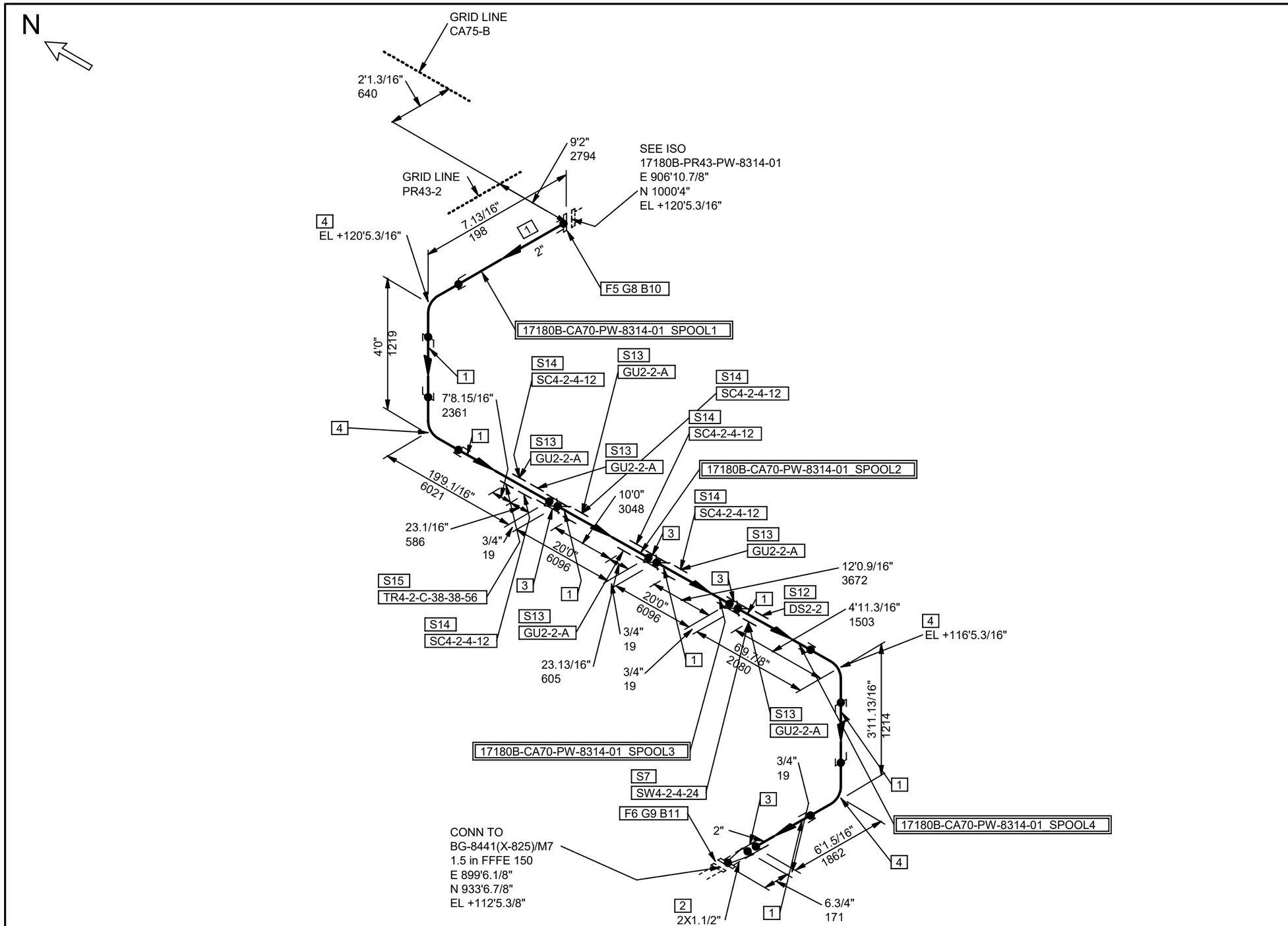
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-SW-8712-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	80.3'
2	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-40S , S-80S	2X1.1/2	1
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	4
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	4
5	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
6	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-80S	1.1/2	1
	PIPE SUPPORTS		
7	SW4-2-4-24	2	1
	ERECTION		
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	1.1/2	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	4
	PIPE SUPPORTS		
12	DS2-2	2	1
13	GU2-2-A	2	6
14	SC4-2-4-12	2	5
15	TR4-2-C-38-38-56	2	1

17180B-CA70-PW-8314-01_SPOOL1 17180B-CA70-PW-8314-01_SPOOL2
17180B-CA70-PW-8314-01_SPOOL3 17180B-CA70-PW-8314-01_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	04/02/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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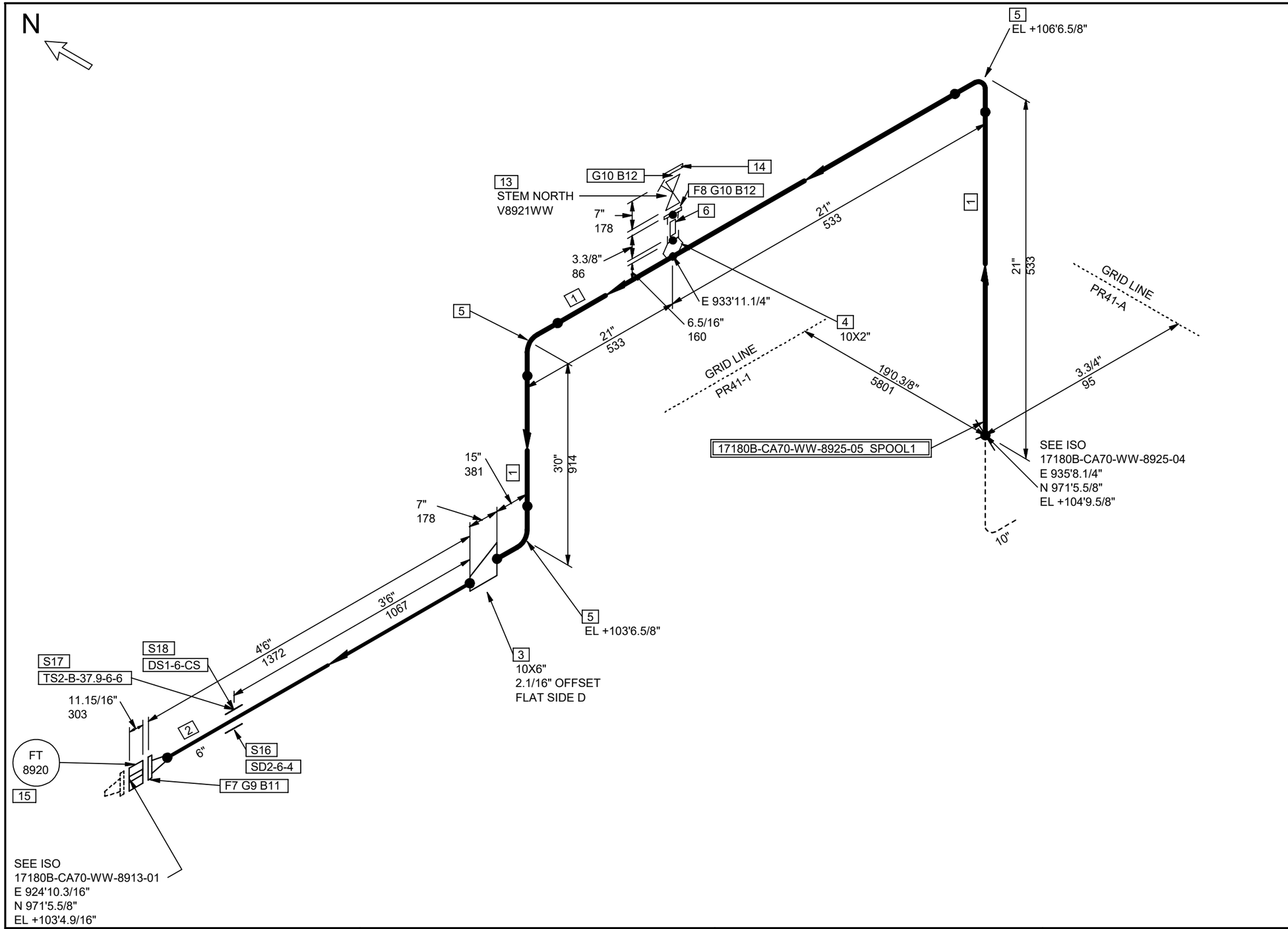
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-PW-8314-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	2.0'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	4.3'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X6	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X2	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	3
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
13	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
14	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	INSTRUMENTS		
15	FT-8920	6	1
	PIPE SUPPORTS		
16	SD2-6-4	6	1
17	TS2-B-37.9-6-6	6	1
18	DS1-6-CS	6	1

17180B-CA70-WW-8925-05_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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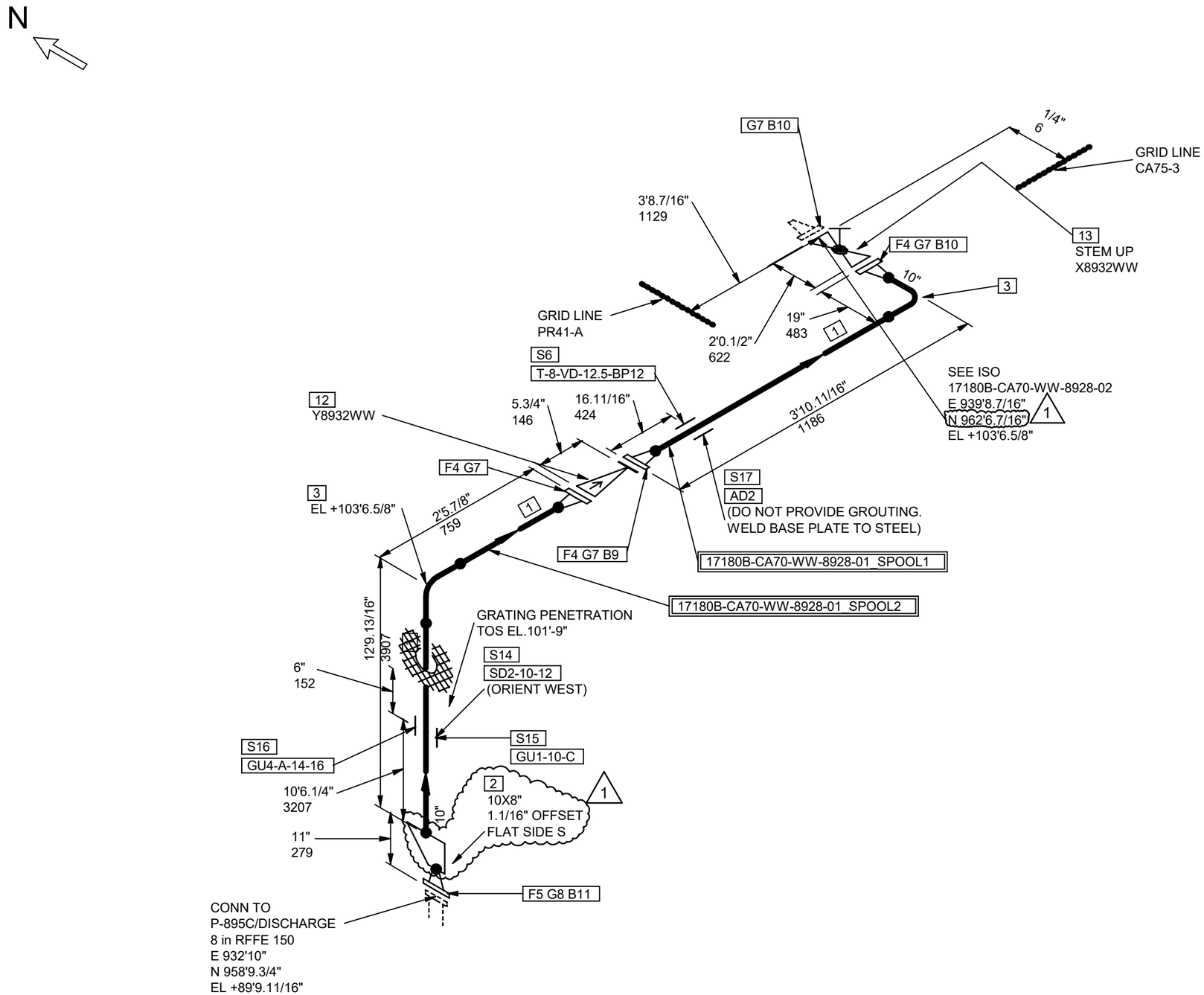
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8925-05	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	14.8'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X8	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	2
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	3
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
	PIPE SUPPORTS		
6	T-8-VD-12.5-BP12	10	1
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	10	4
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 10.5 in. Length	7/8	12
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	24
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
12	Check Vlv Swing , API 594 , CL150 , RFTBE , Wafer , ASTM A216-WCB , VITON SEAL, 316SS TRIM , PRAXAIR GUIDELINE V-G1 , C1WAP	10	1
13	Globe Vlv , ASME B16.34 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T1FAC	10	1
	PIPE SUPPORTS		
14	SD2-10-12	10	1
15	GU1-10-C	10	1
16	GU4-A-14-16	10	1
17	AD2	10	1

17180B-CA70-WW-8928-01_SPOOL1 17180B-CA70-WW-8928-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/18/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	11/07/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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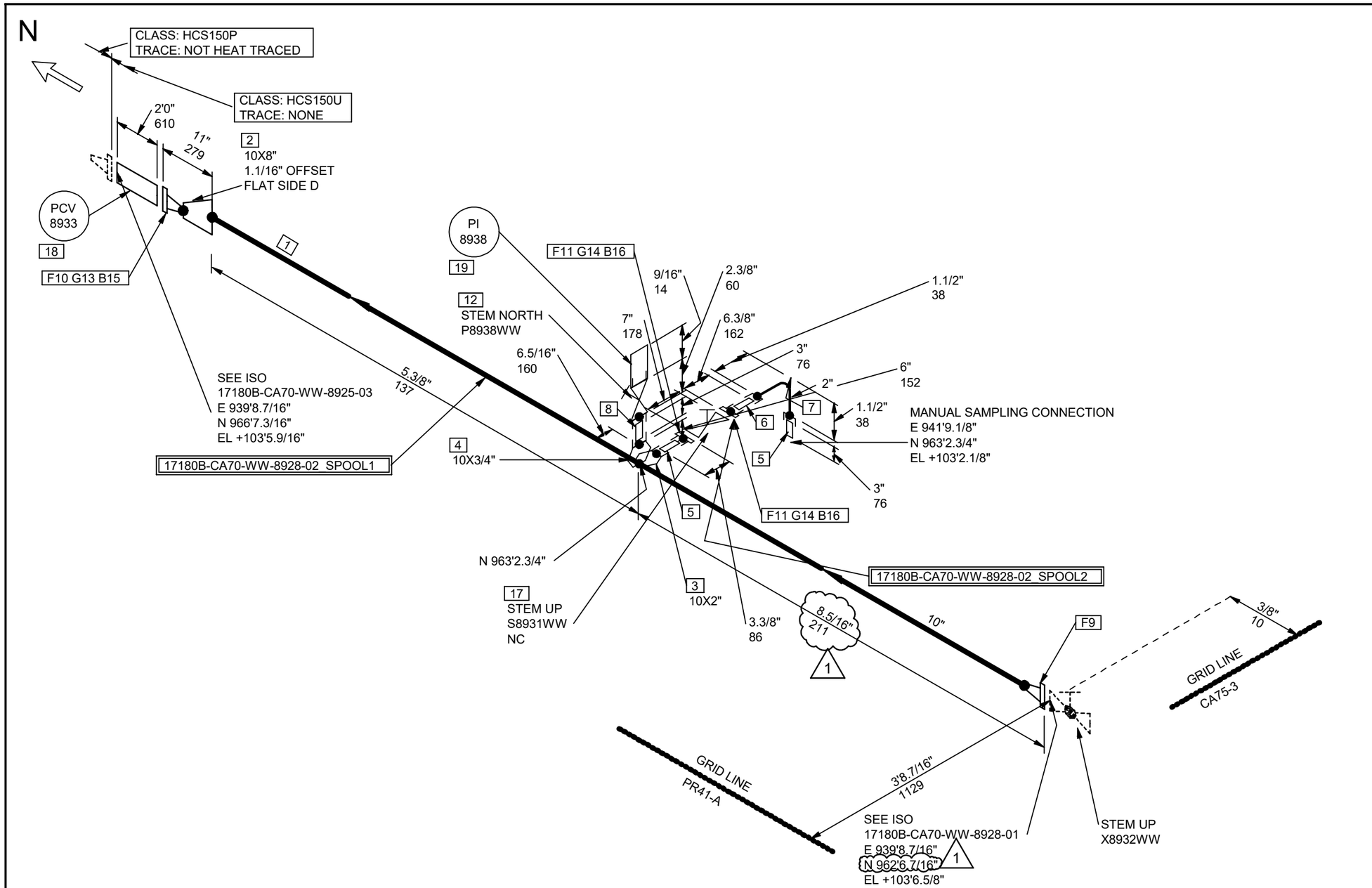
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8928-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	0.9'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	1
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	2
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	1
10	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
11	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
12	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
14	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
17	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
18	PCV-8933	8	1
19	PI-8938	3/4	1

17180B-CA70-WW-8928-02_SPOOL1 17180B-CA70-WW-8928-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/18/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	11/07/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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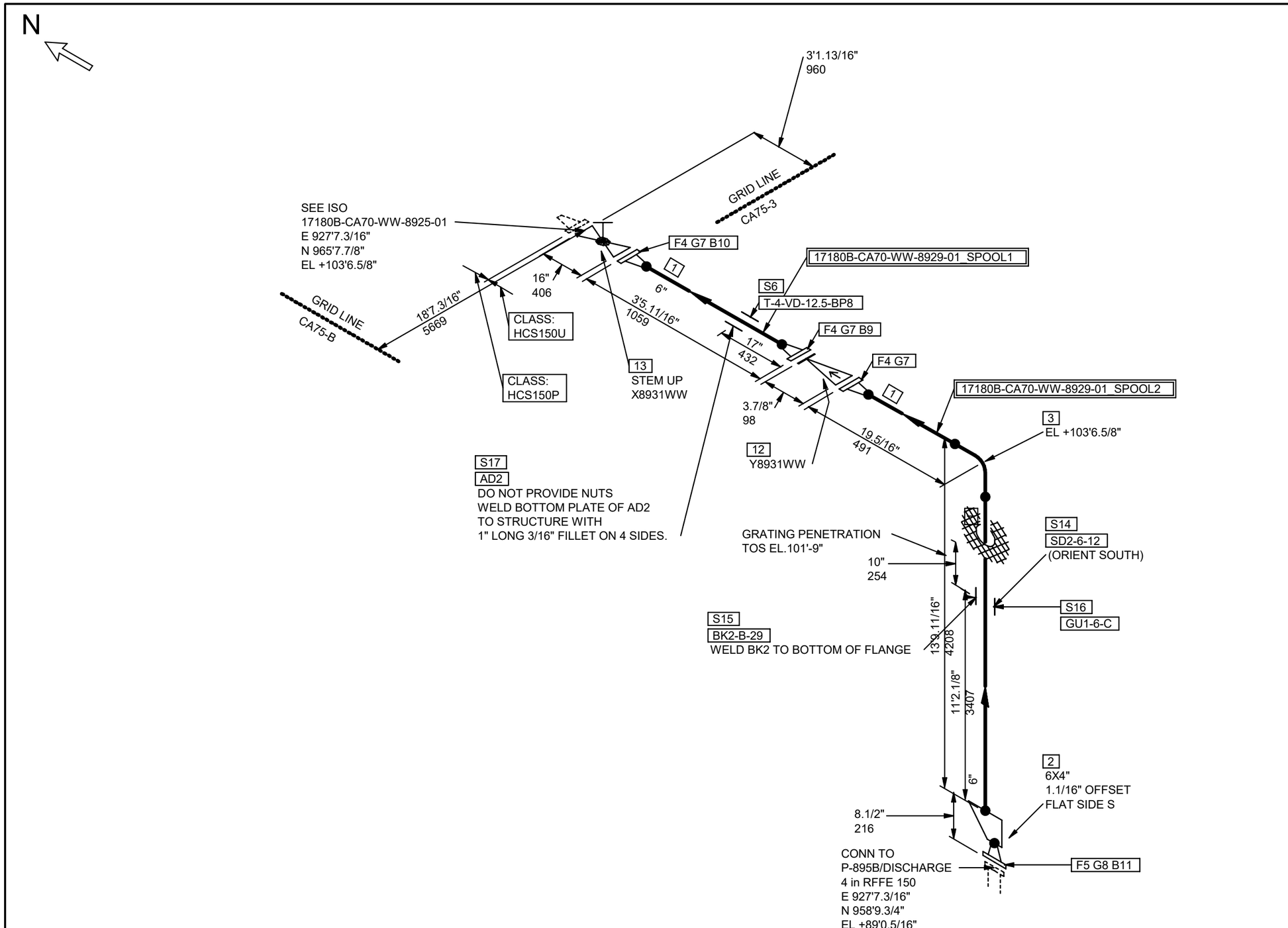
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8928-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	16.6'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	3
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
	PIPE SUPPORTS		
6	T-4-VD-12.5-BP8	6	1
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	3
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 8 in. Length	3/4	8
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
12	Check Vlv Swing , API 594 , CL150 , RFTBE , Wafer , ASTM A216-WCB , VITON SEAL, 316SS TRIM , PRAXAIR GUIDELINE V-G1 , C1WAP	6	1
13	Globe Vlv , ASME B16.34 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T1FAC	6	1
	PIPE SUPPORTS		
14	SD2-6-12	6	1
15	BK2-B-29	6	1
16	GU1-6-C	6	1
17	AD2	6	1

17180B-CA70-WW-8929-01_SPOOL1 17180B-CA70-WW-8929-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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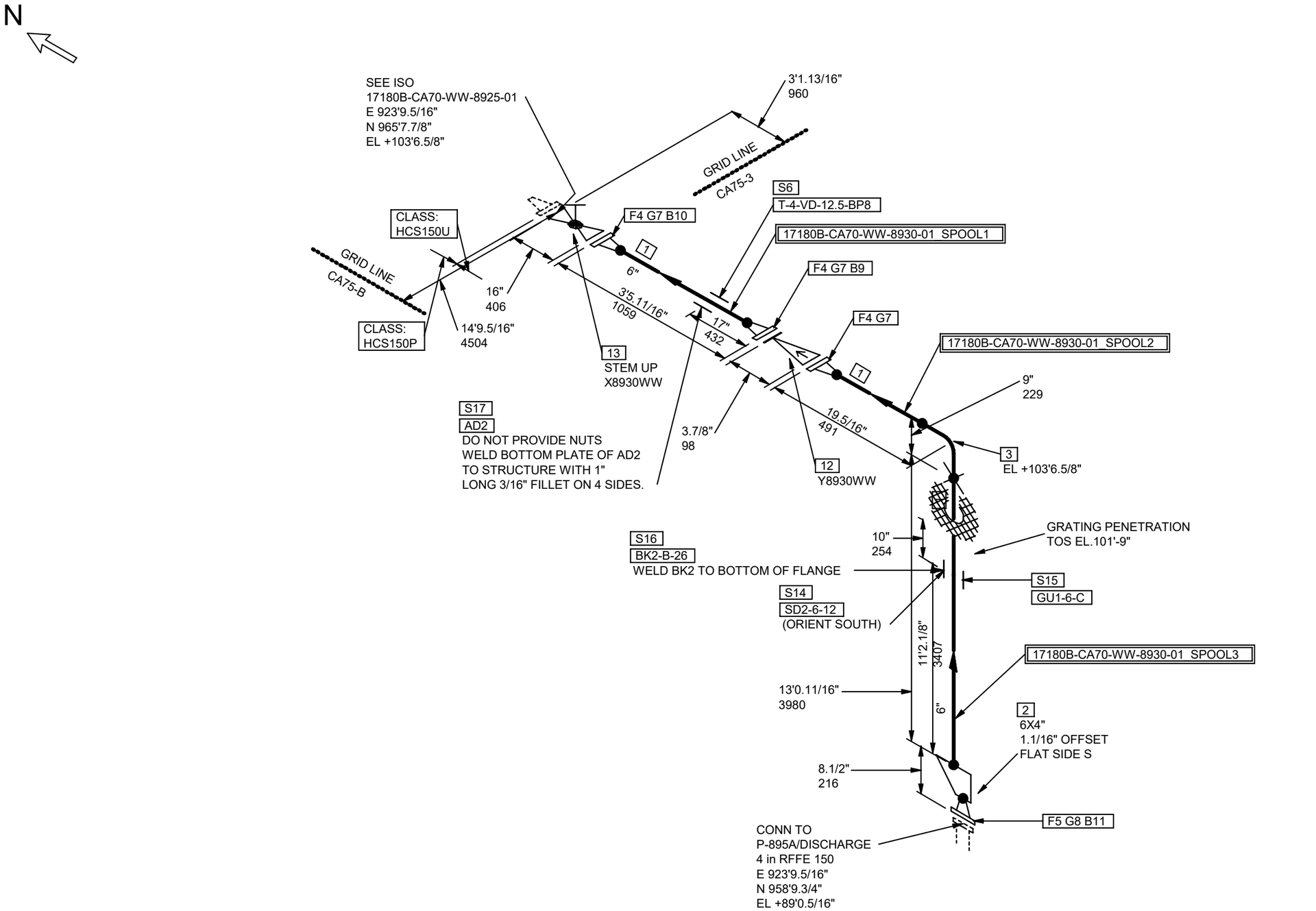
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8929-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	16.6'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6X4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	3
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
	PIPE SUPPORTS		
6	T-4-VD-12.5-BP8	6	1
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	3
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 8 in. Length	3/4	8
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
12	Check Vlv Swing , API 594 , CL150 , RFTBE , Wafer , ASTM A216-WCB , VITON SEAL, 316SS TRIM , PRAXAIR GUIDELINE V-G1 , C1WAP	6	1
13	Globe Vlv , ASME B16.34 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T1FAC	6	1
	PIPE SUPPORTS		
14	SD2-6-12	6	1
15	GU1-6-C	6	1
16	BK2-B-26	6	1
17	AD2	6	1

17180B-CA70-WW-8930-01_SPOOL1 17180B-CA70-WW-8930-01_SPOOL2
17180B-CA70-WW-8930-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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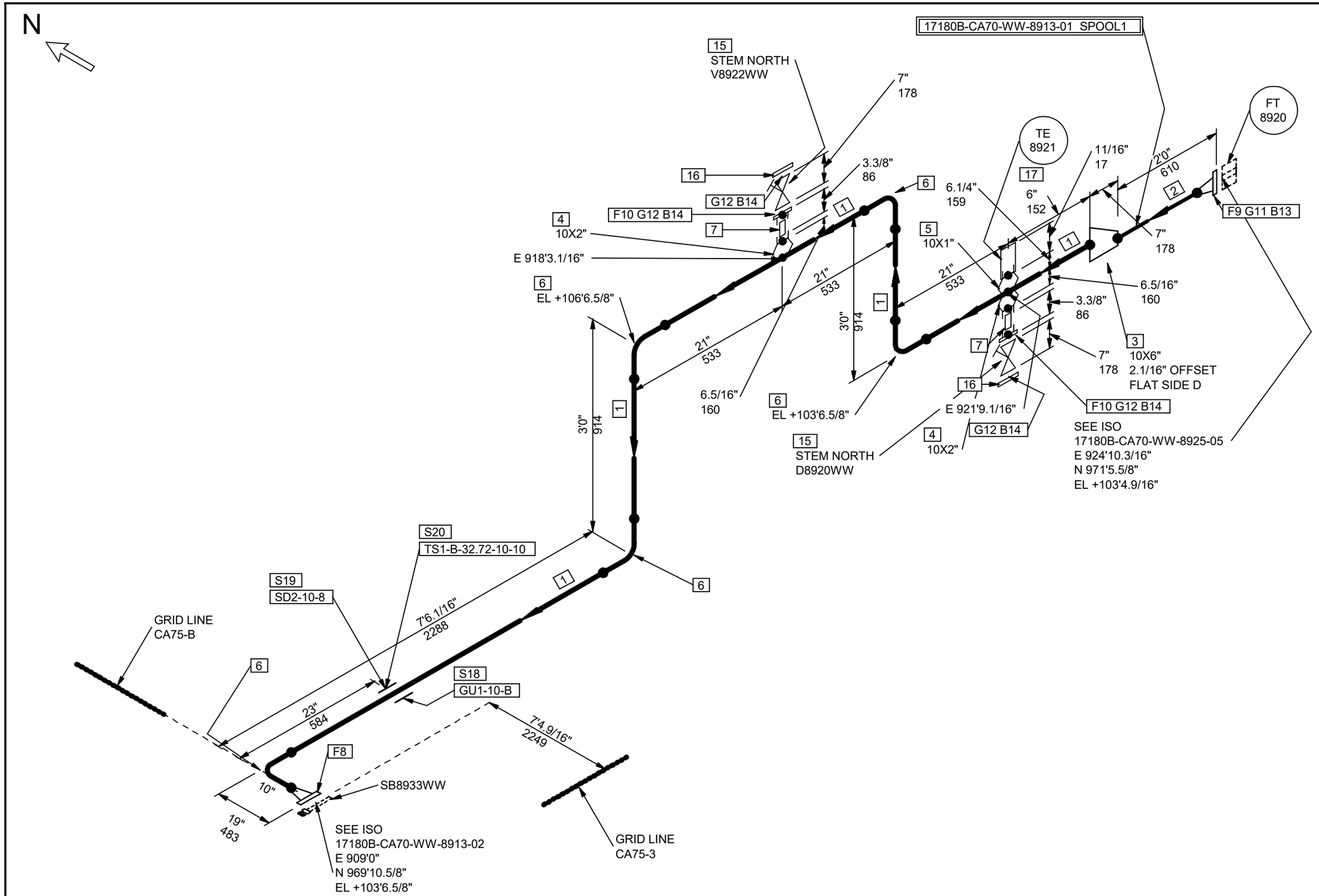
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8930-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	8.1'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	1.8'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X6	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X2	2
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	5
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	2
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
11	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
12	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	4
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	16
15	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	2
16	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
	INSTRUMENTS		
17	TE-8921	1	1
	PIPE SUPPORTS		
18	GU1-10-B	10	1
19	SD2-10-8	10	1
20	TS1-B-32.72-10-10	10	1

17180B-CA70-WW-8913-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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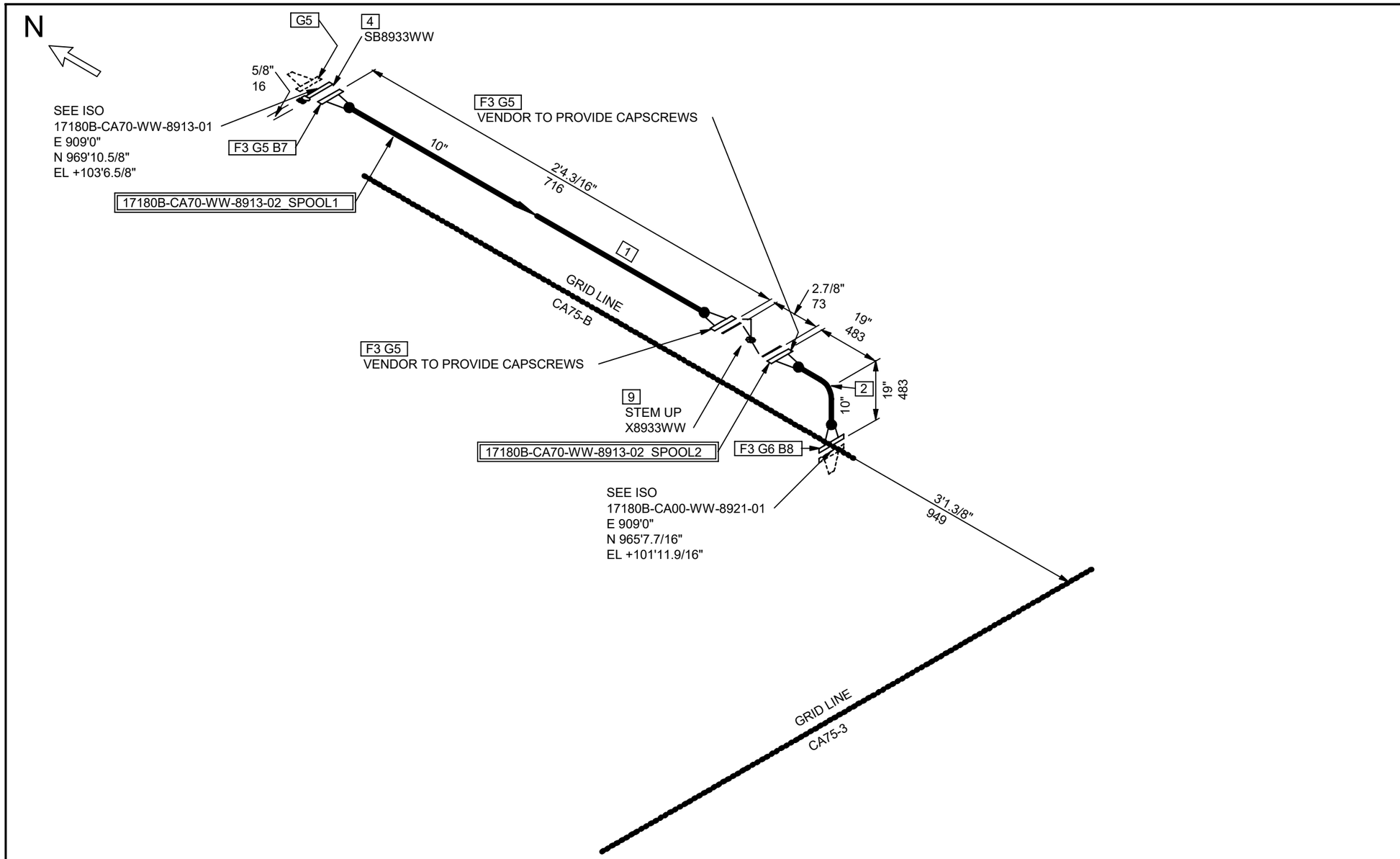
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8913-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	1.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	4
	ERECTION		
4	Fig-8 Blank , ASME B16.48 , CL150 , FFTBE , ASTM A516 Grade 70	10	1
5	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	4
6	Isolation Kit , ASME-B16.5 , CL150 , RF , G-7 Sleeve/Gskt Mat, PTFE Seal , Ins Gskt Kit per Detail # HMP-116	10	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.5 in. Length	7/8	12
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
9	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , 316 SS/GRAPHITE SEAL , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAB	10	1

17180B-CA70-WW-8913-02_SPOOL1 17180B-CA70-WW-8913-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8902		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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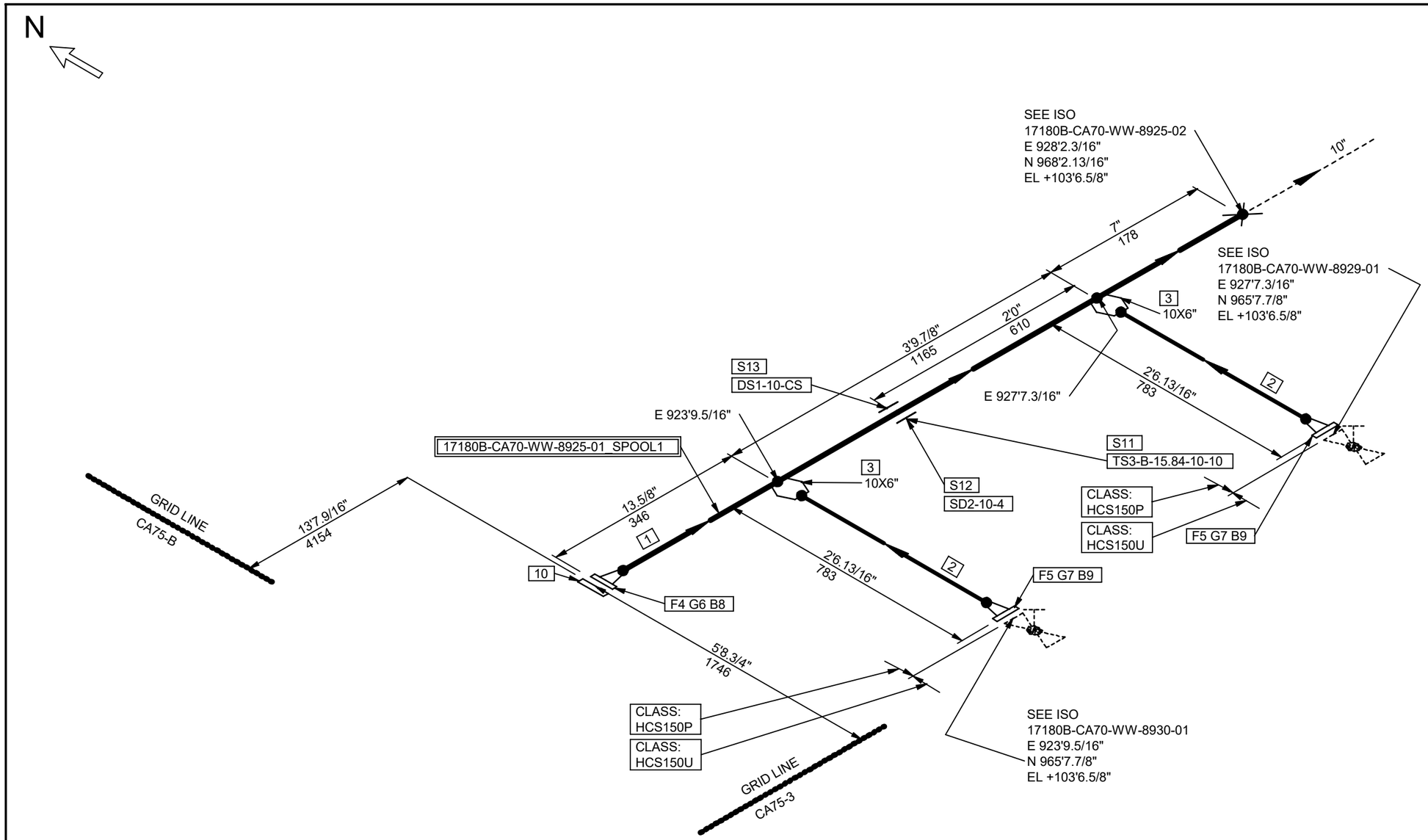
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8913-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	5.3'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	3.3'
3	Weldolet , MSS SP-97 , BE , ASTM A105N , S-STD , S-STD	10X6	2
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	2
	ERECTION		
6	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
7	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	16
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	10	1
	PIPE SUPPORTS		
11	TS3-B-15.84-10-10	10	1
12	SD2-10-4	10	1
13	DS1-10-CS	10	1

17180B-CA70-WW-8925-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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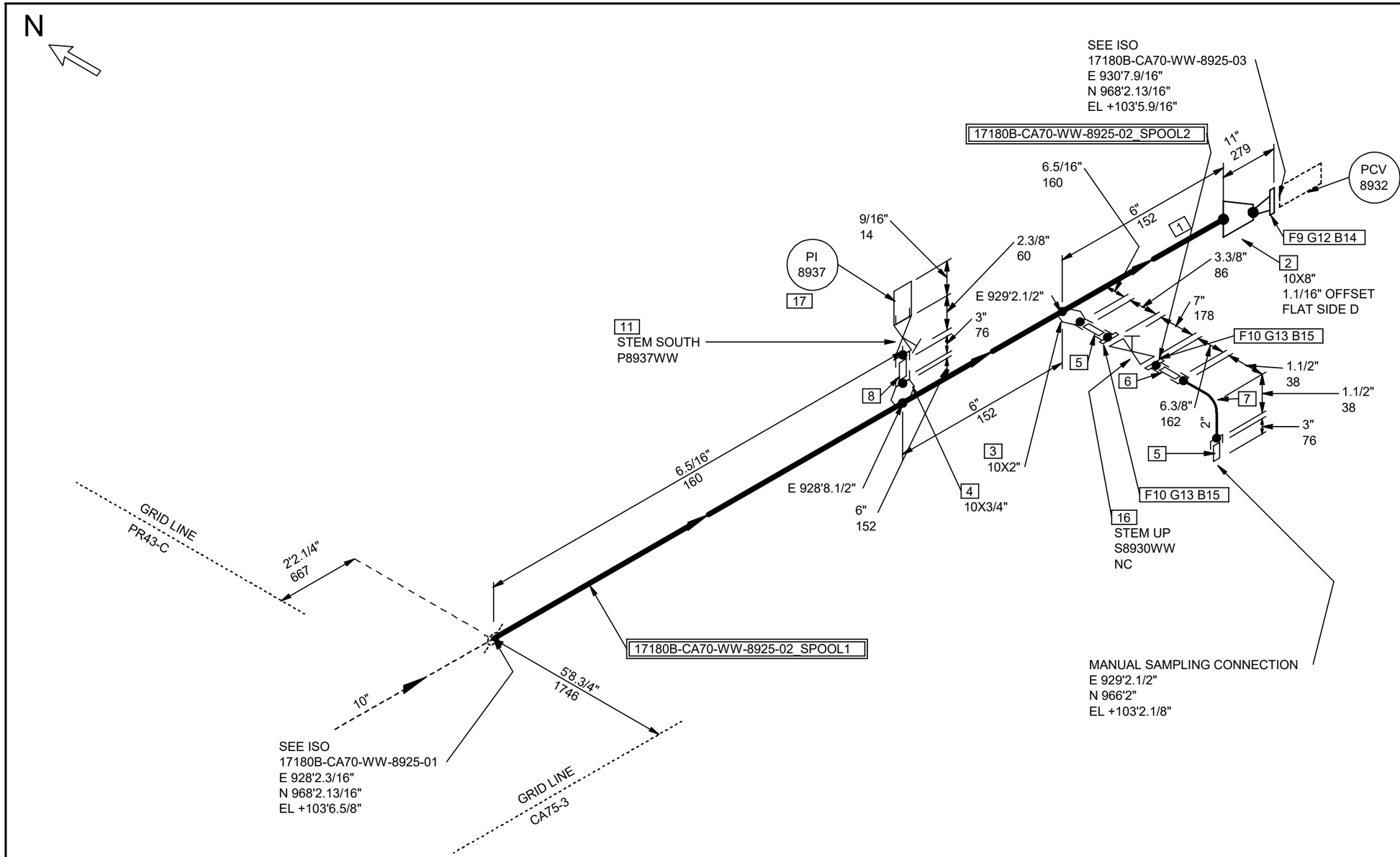
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8925-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	1.6'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	1
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	2
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
12	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	1
13	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	8
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
16	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
17	PI-8937	3/4	1

17180B-CA70-WW-8925-02_SPOOL1 17180B-CA70-WW-8925-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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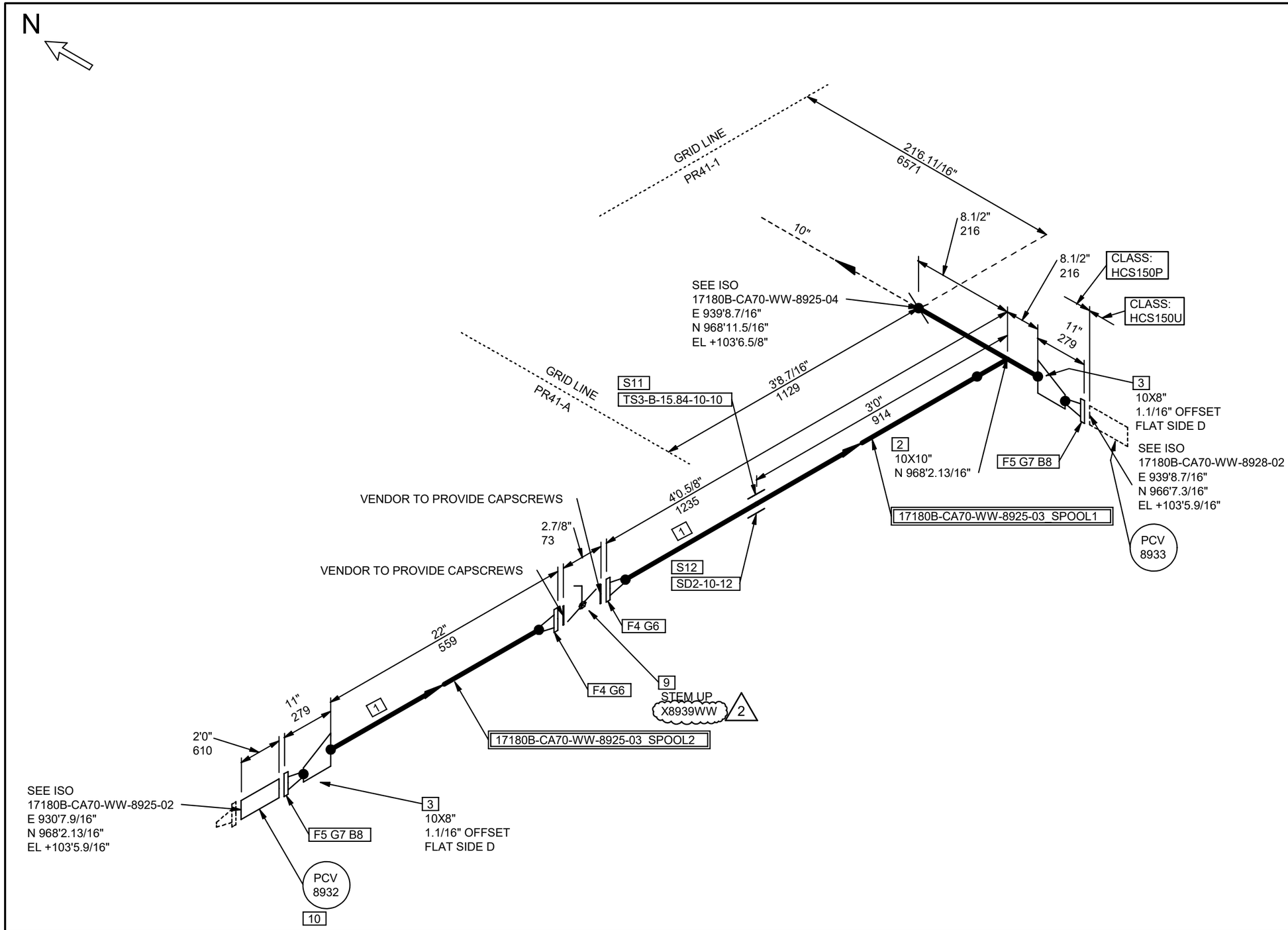
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8925-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	4.6'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X10	1
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X8	2
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	2
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	2
	ERECTION		
6	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	2
7	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	16
9	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , 316 SS/GRAPHITE SEAL , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAB	10	1
	INSTRUMENTS		
10	PCV-8932	8	1
	PIPE SUPPORTS		
11	TS3-B-15.84-10-10	10	1
12	SD2-10-12	10	1

17180B-CA70-WW-8925-03_SPOOL1 17180B-CA70-WW-8925-03_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/23/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	04/14/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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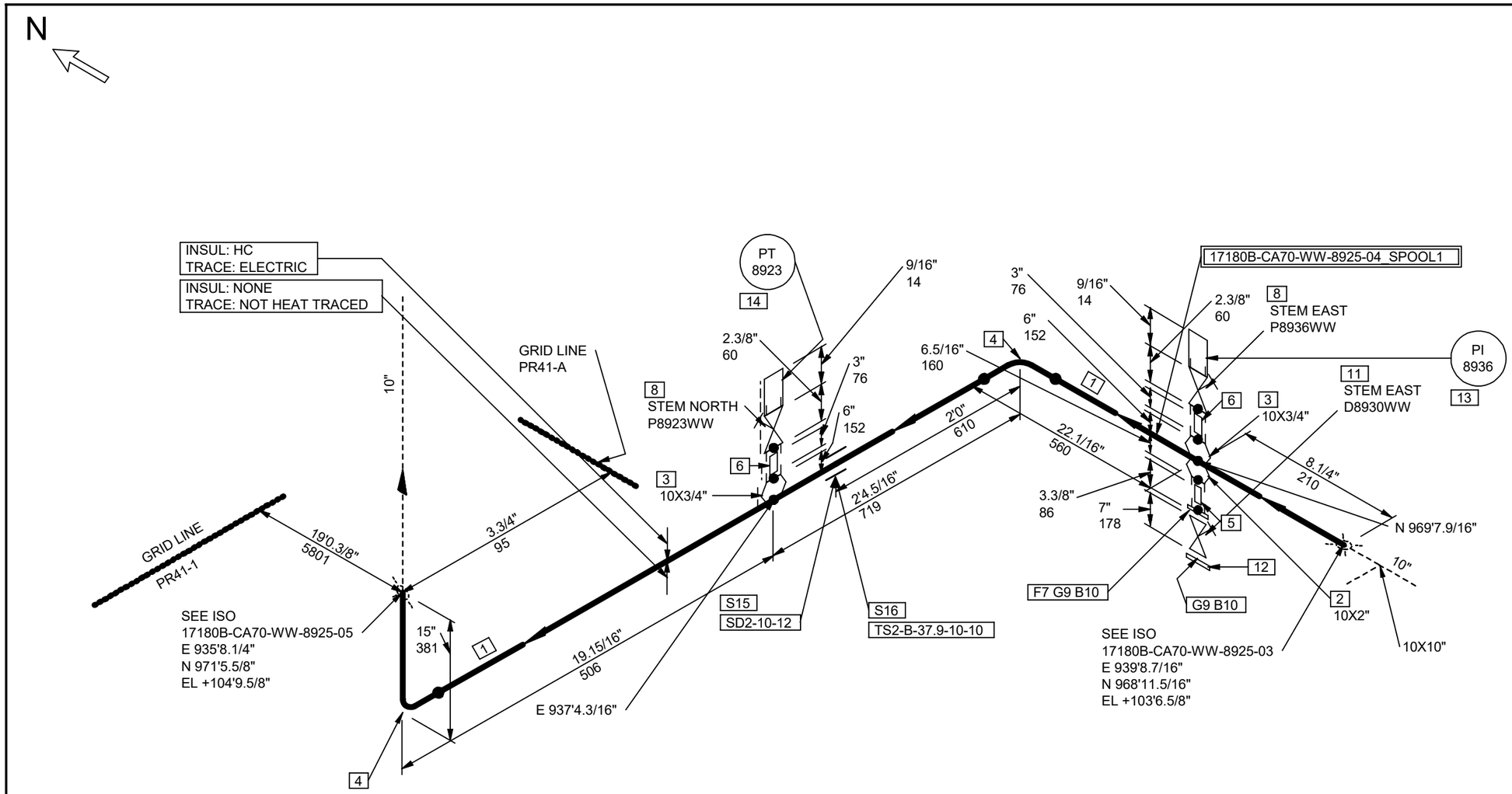
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8925-03	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	2.8'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X2	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	2
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
7	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	ERECTION		
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
11	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
12	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	INSTRUMENTS		
13	PI-8936	3/4	1
14	PT-8923	3/4	1
	PIPE SUPPORTS		
15	SD2-10-12	10	1
16	TS2-B-37.9-10-10	10	1

17180B-CA70-WW-8925-04_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8903		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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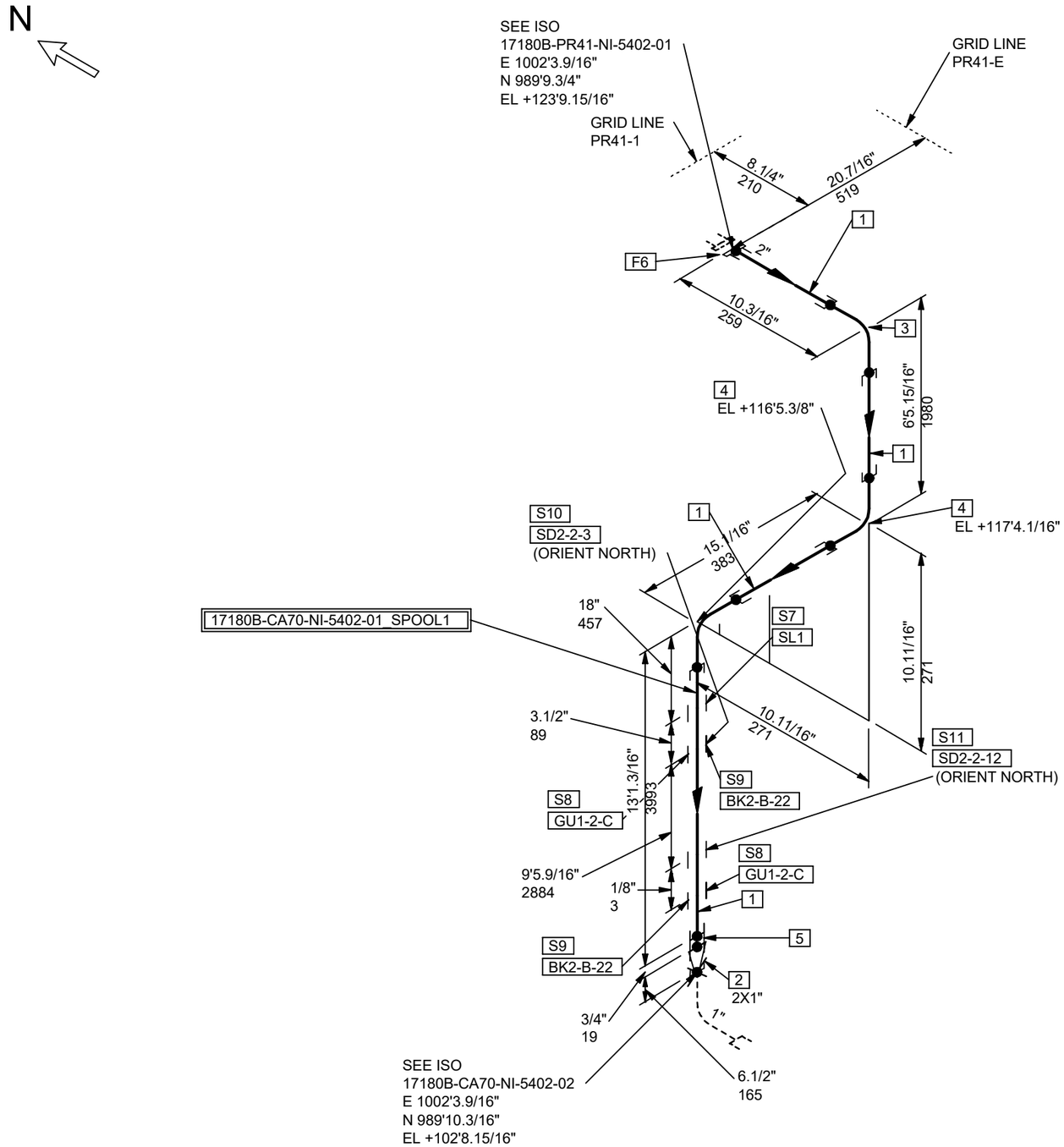
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-WW-8925-04	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	21.1'
2	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
7	SL1	2	1
8	GU1-2-C	2	2
9	BK2-B-22	2	2
10	SD2-2-3	2	1
11	SD2-2-12	2	1

17180B-CA70-NI-5402-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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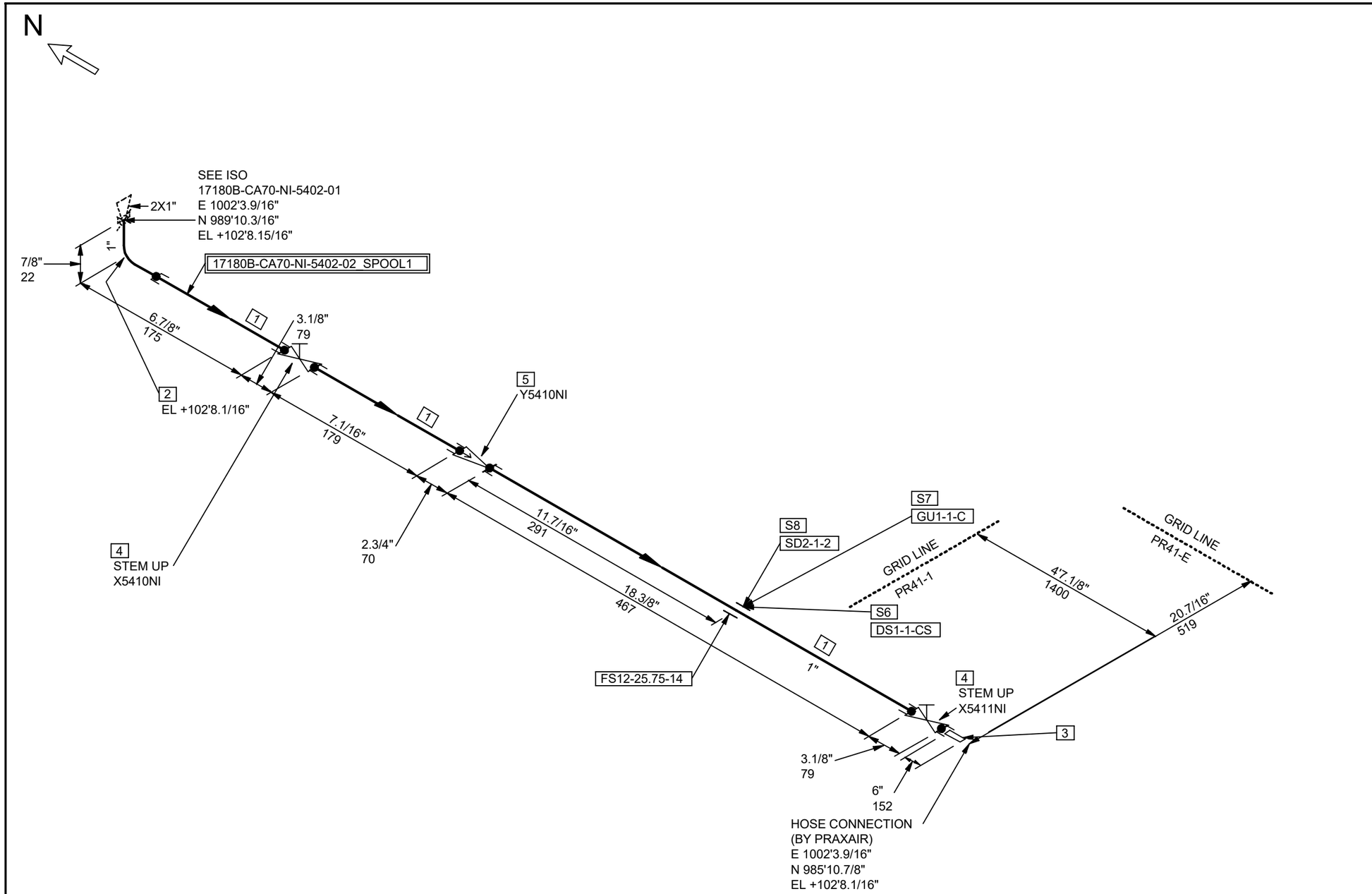
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-NI-5402-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	2.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
3	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
4	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	1	2
5	Check Vlv Ball , Manuf. Std. Dims , CL800 , SWE , 1 PC, IN-LINE, NON-SLAM, AXIAL CHECK VLV , 316 SS , 316 SS SPRING , PRAXAIR GUIDELINE V-G1 , C8SIO	1	1
	ERECTION		
	PIPE SUPPORTS		
6	DS1-1-CS	1	1
7	GU1-1-C	1	1
8	SD2-1-2	1	1

17180B-CA70-NI-5402-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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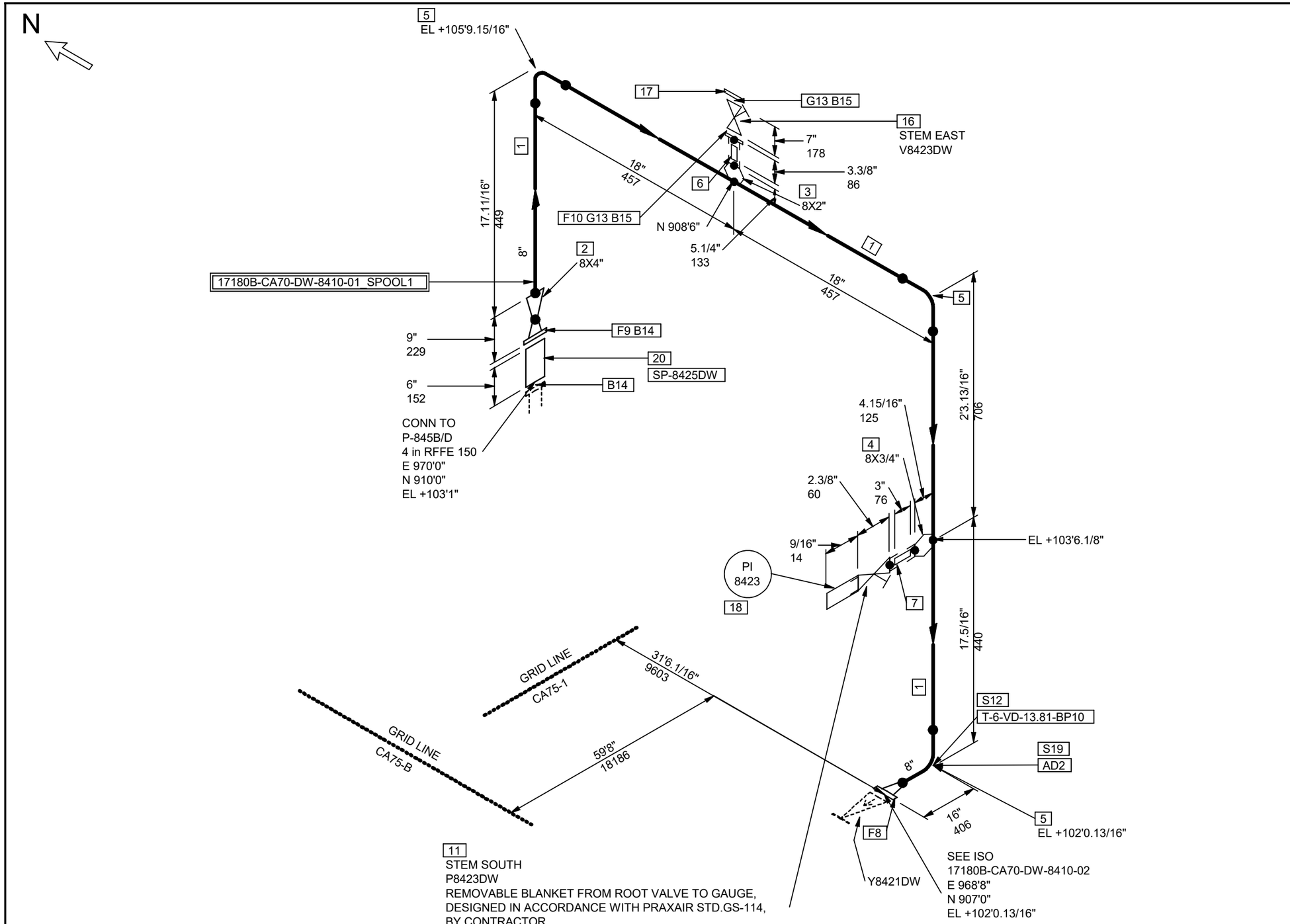
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-NI-5402-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	8	3.3'
2	Conc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8X4	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8	3
6	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	1
7	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	4	1
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
12	T-6-VD-13.81-BP10	8	1
	ERECTION		
13	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
16	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	2	1
17	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	2	1
	INSTRUMENTS		
18	PI-8423	3/4	1
	PIPE SUPPORTS		
19	AD2	8	1
	SPECIALTY ITEMS		
20	SP-8425DW	4	1

17180B-CA70-DW-8410-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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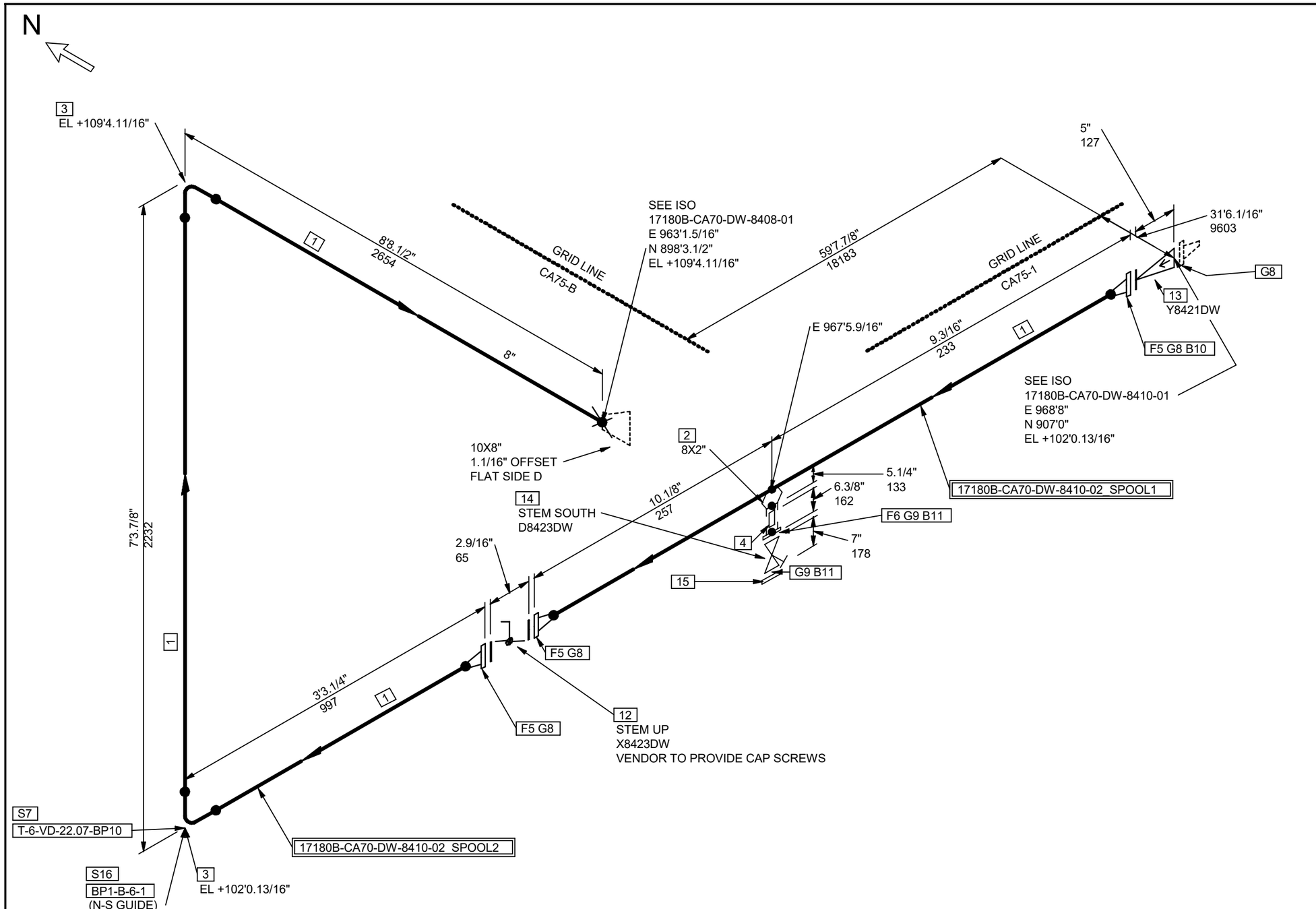
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8410-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	8	16.0'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8	2
4	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP316/TP316L , 6in Long , SMLS , S-80S , S-80S	2	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	3
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	PIPE SUPPORTS		
7	T-6-VD-22.07-BP10	8	1
	ERECTION		
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	4
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 9.5 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
12	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A351-CF8M , RTFE seal, 316SS trim, fire safe , DOUBLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LIA	8	1
13	Check Vlv Swing , API 594 , CL150 , RFTBE , Wafer , ASTM A351-CF8M , METAL/METAL SEAL, 316SS TRIM , RETAINERLESS, PRAXAIR GUIDELINE V-G1 , C1WIA	8	1
14	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	2	1
15	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	2	1
	PIPE SUPPORTS		
16	BP1-B-6-1	8	1

17180B-CA70-DW-8410-02_SPOOL1 17180B-CA70-DW-8410-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/06/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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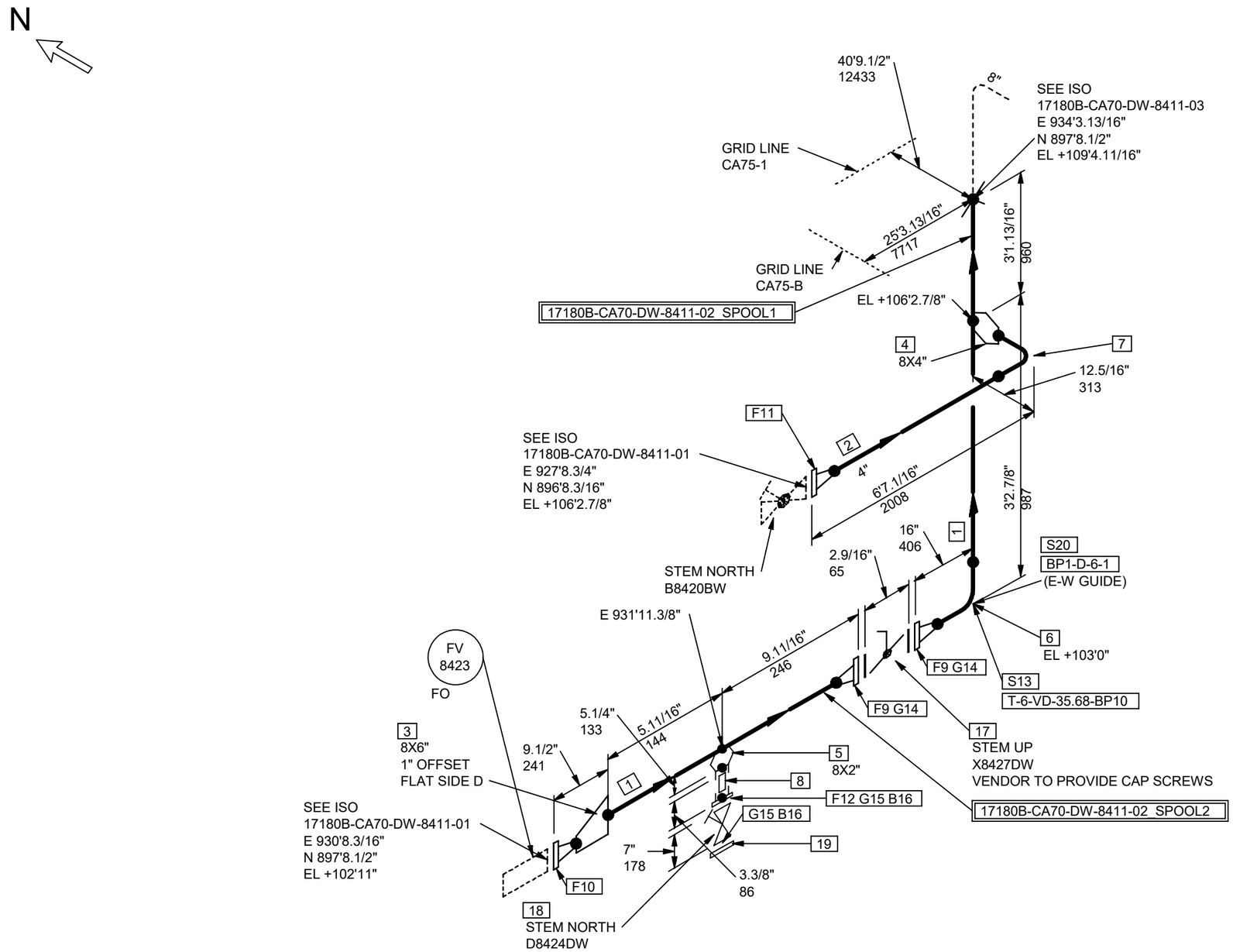
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8410-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	8	6.4'
2	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	4	5.9'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8X6	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 304/F 304L , S-10S , S-10S	8X4	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X2	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8	1
7	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	4	1
8	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	2
10	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	6	1
11	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	4	1
12	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	PIPE SUPPORTS		
13	T-6-VD-35.68-BP10	8	1
	ERECTION		
14	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	2
15	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
17	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A351-CF8M , RTFE seal, 316SS trim, fire safe , DOUBLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LIA	8	1
18	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	2	1
19	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	2	1
	PIPE SUPPORTS		
20	BP1-D-6-1	8	1

17180B-CA70-DW-8411-02_SPOOL1 17180B-CA70-DW-8411-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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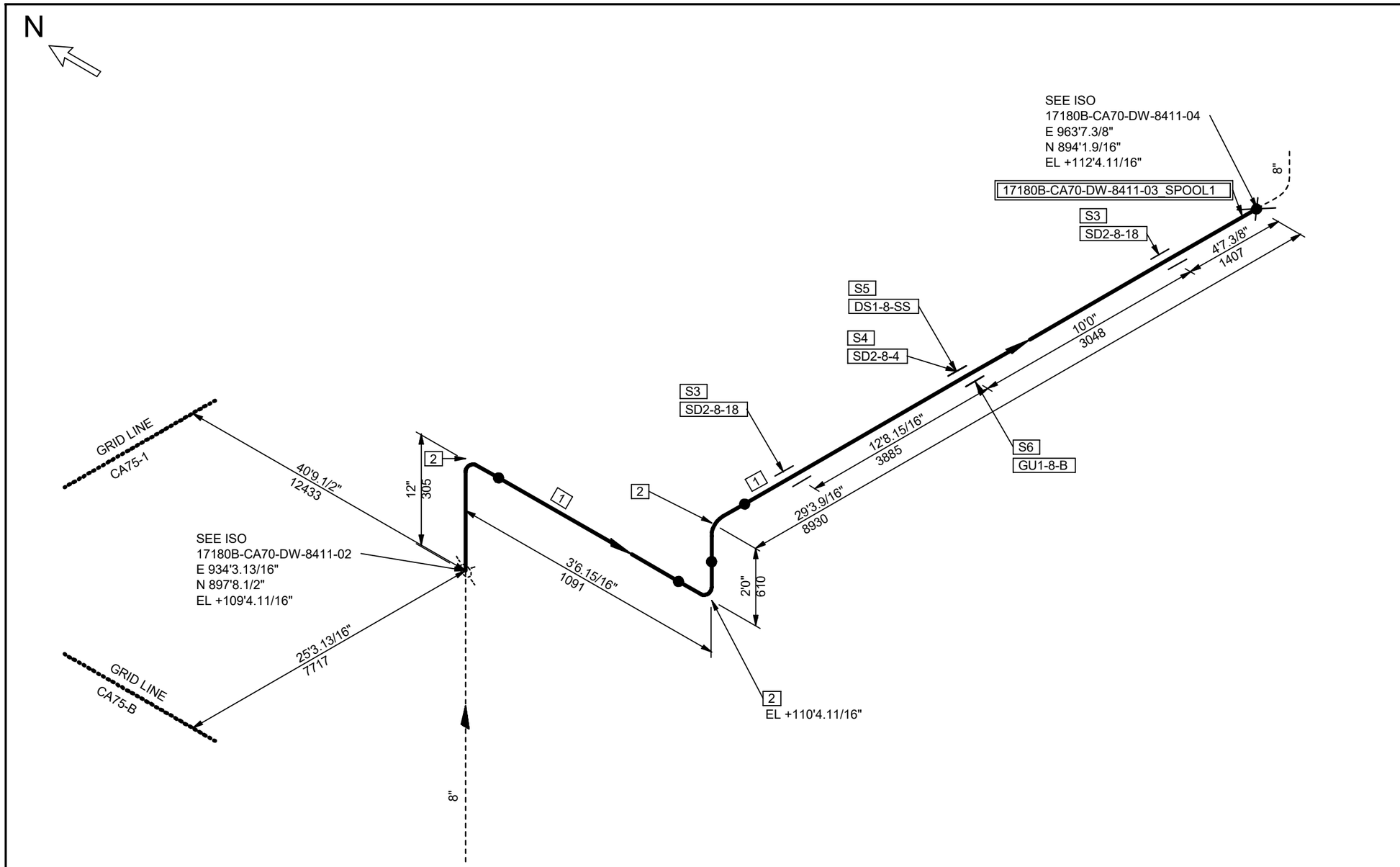
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA70-DW-8411-02
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	8	29.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8	3
	ERECTION		
	PIPE SUPPORTS		
3	SD2-8-18	8	2
4	SD2-8-4	8	1
5	DS1-8-SS	8	1
6	GU1-8-B	8	1

17180B-CA70-DW-8411-03_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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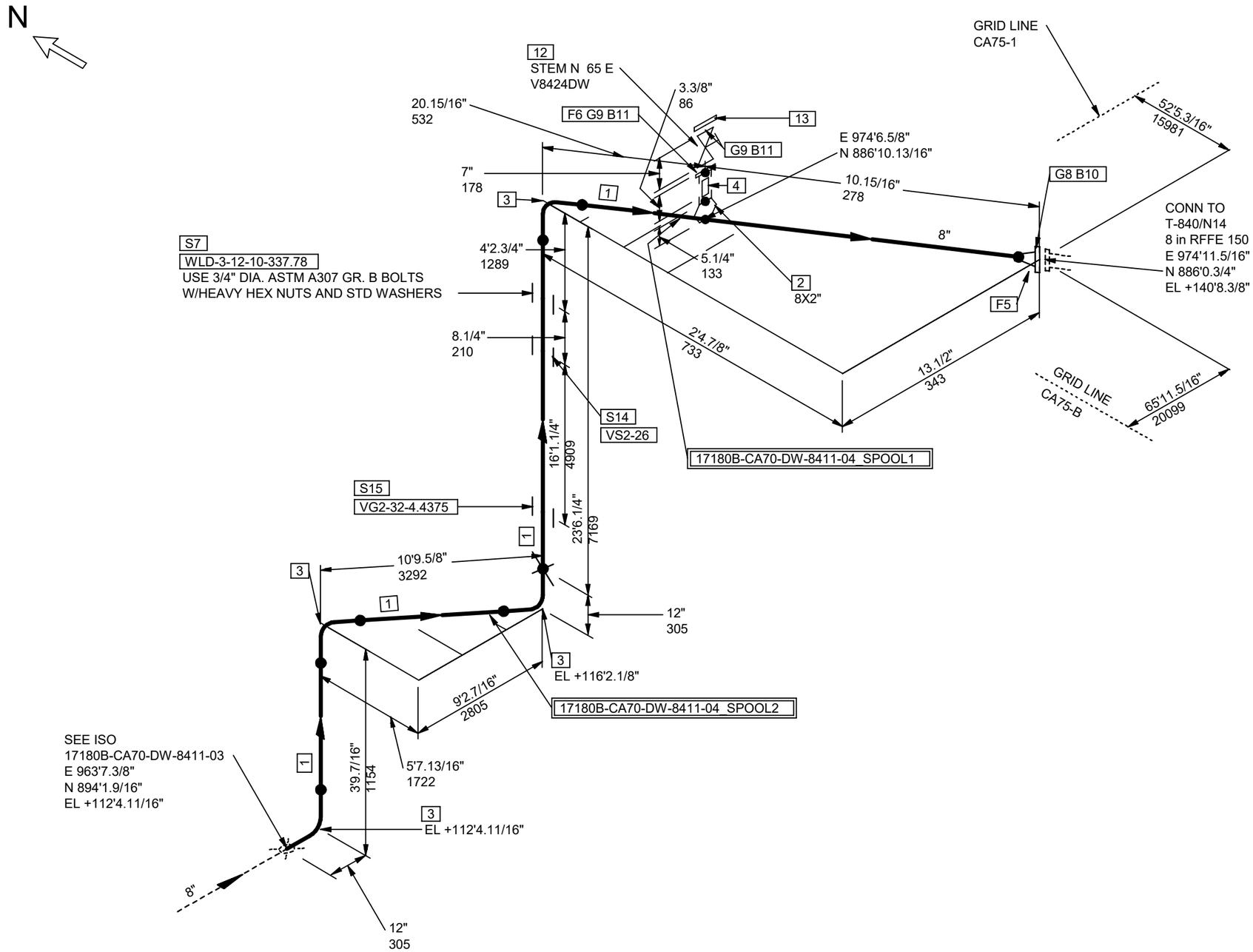
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8411-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	8	34.5'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8	4
4	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	PIPE SUPPORTS		
7	WLD-3-12-10-337.78	8	1
	ERECTION		
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	1
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
12	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	2	1
13	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	2	1
	PIPE SUPPORTS		
14	VS2-26	8	1
15	VG2-32-4.4375	8	1

17180B-CA70-DW-8411-04_SPOOL1 17180B-CA70-DW-8411-04_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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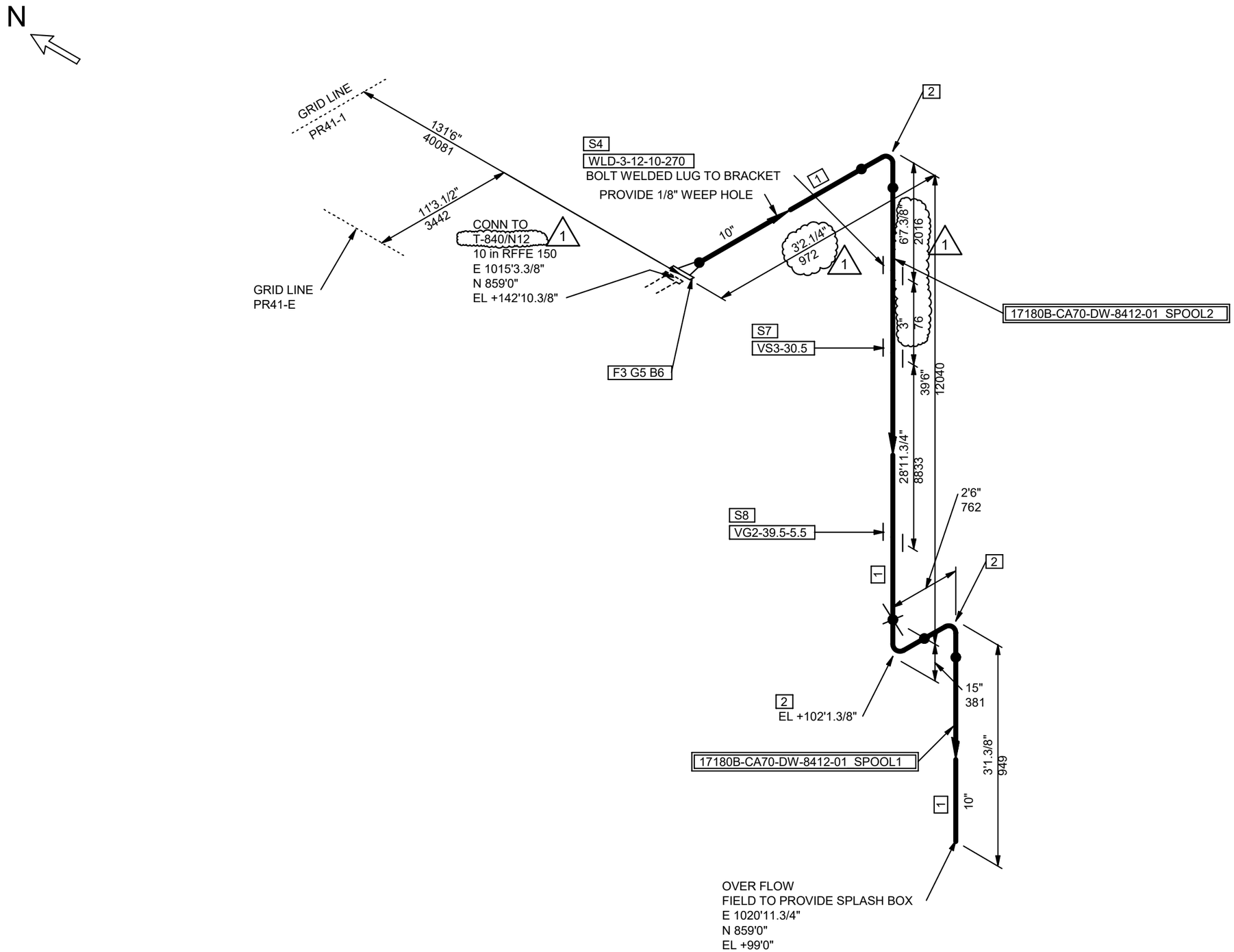
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8411-04	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	41.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	10	1
	PIPE SUPPORTS		
4	WLD-3-12-10-270	10	1
	ERECTION		
5	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
	PIPE SUPPORTS		
7	VS3-30.5	10	1
8	VG2-39.5-5.5	10	1

17180B-CA70-DW-8412-01_SPOOL1 17180B-CA70-DW-8412-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	11/15/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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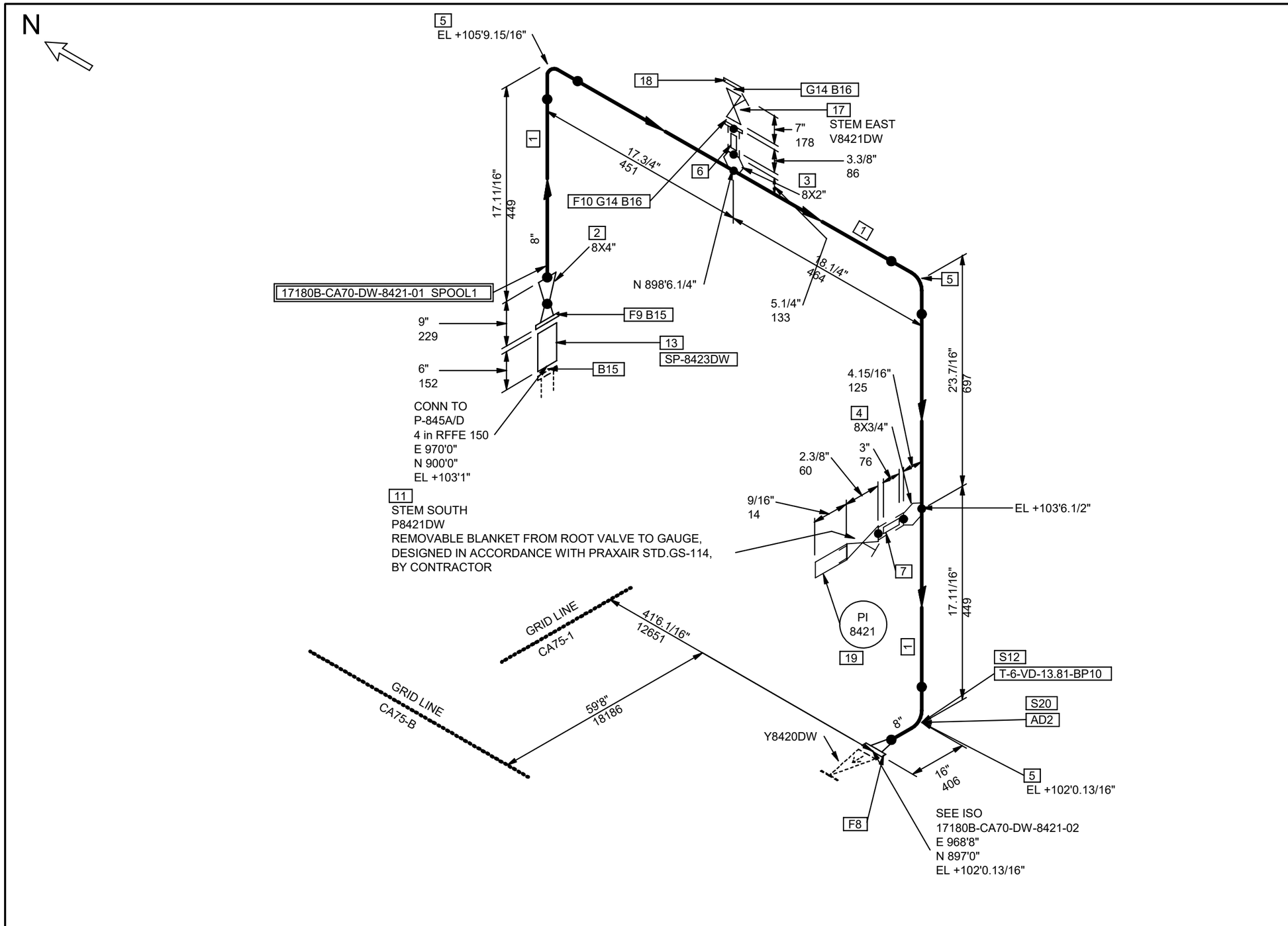
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8412-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	8	3.3'
2	Conc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8X4	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8	3
6	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	1
7	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	4	1
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
12	T-6-VD-13.81-BP10	8	1
	SPECIALTY ITEMS		
13	SP-8423DW	4	1
	ERECTION		
14	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
17	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	2	1
18	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	2	1
	INSTRUMENTS		
19	PI-8421	3/4	1
	PIPE SUPPORTS		
20	AD2	8	1

17180B-CA70-DW-8421-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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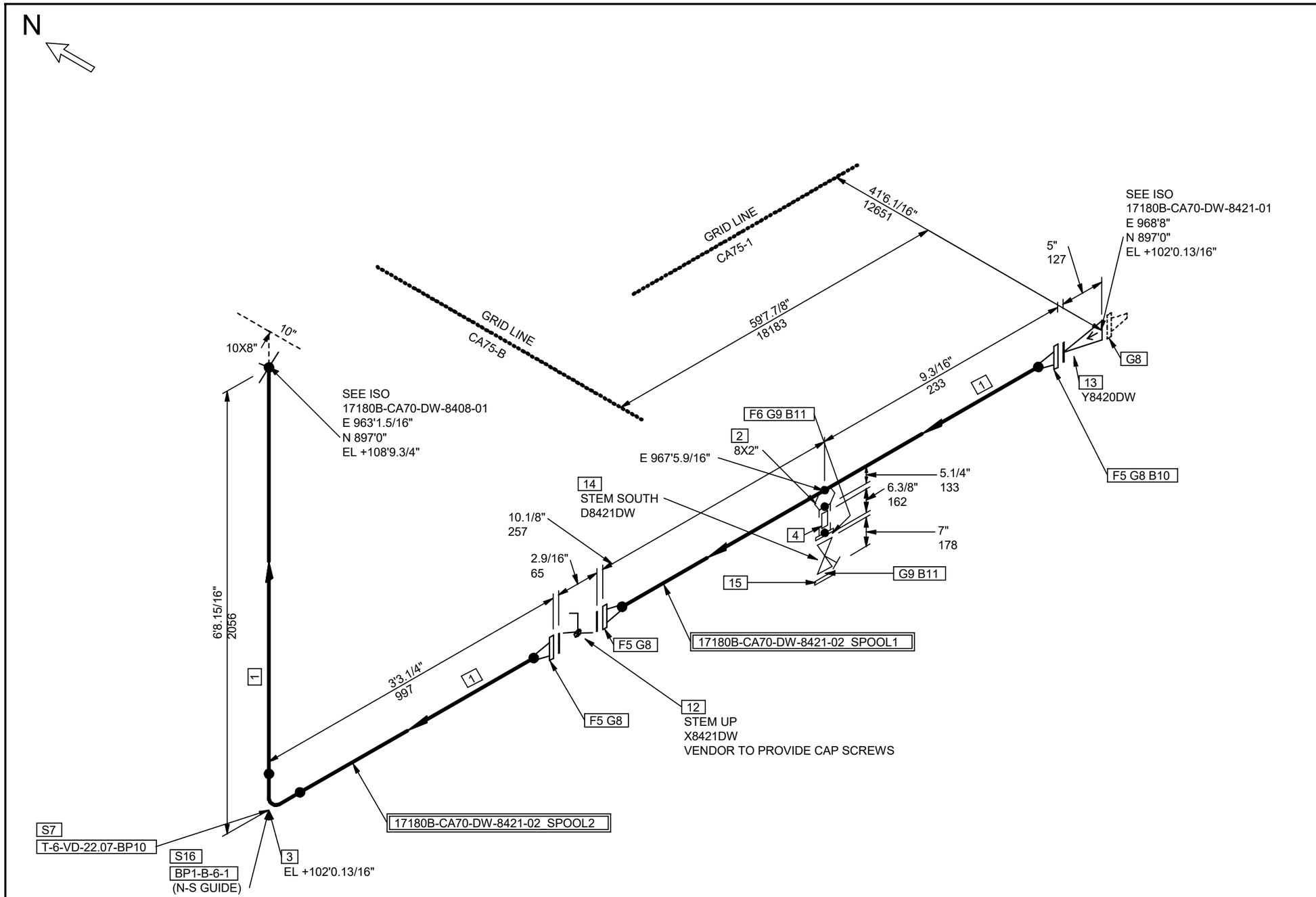
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8421-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	8	8.7'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	8X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	8	1
4	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP316/TP316L , 6in Long , SMLS , S-80S , S-80S	2	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	3
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	PIPE SUPPORTS		
7	T-6-VD-22.07-BP10	8	1
	ERECTION		
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	4
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 9.5 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
12	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A351-CF8M , RTFE seal, 316SS trim, fire safe , DOUBLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LIA	8	1
13	Check Vlv Swing , API 594 , CL150 , RFTBE , Wafer , ASTM A351-CF8M , METAL/METAL SEAL, 316SS TRIM , RETAINERLESS, PRAXAIR GUIDELINE V-G1 , C1WIA	8	1
14	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	2	1
15	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	2	1
	PIPE SUPPORTS		
16	BP1-B-6-1	8	1

17180B-CA70-DW-8421-02_SPOOL1 17180B-CA70-DW-8421-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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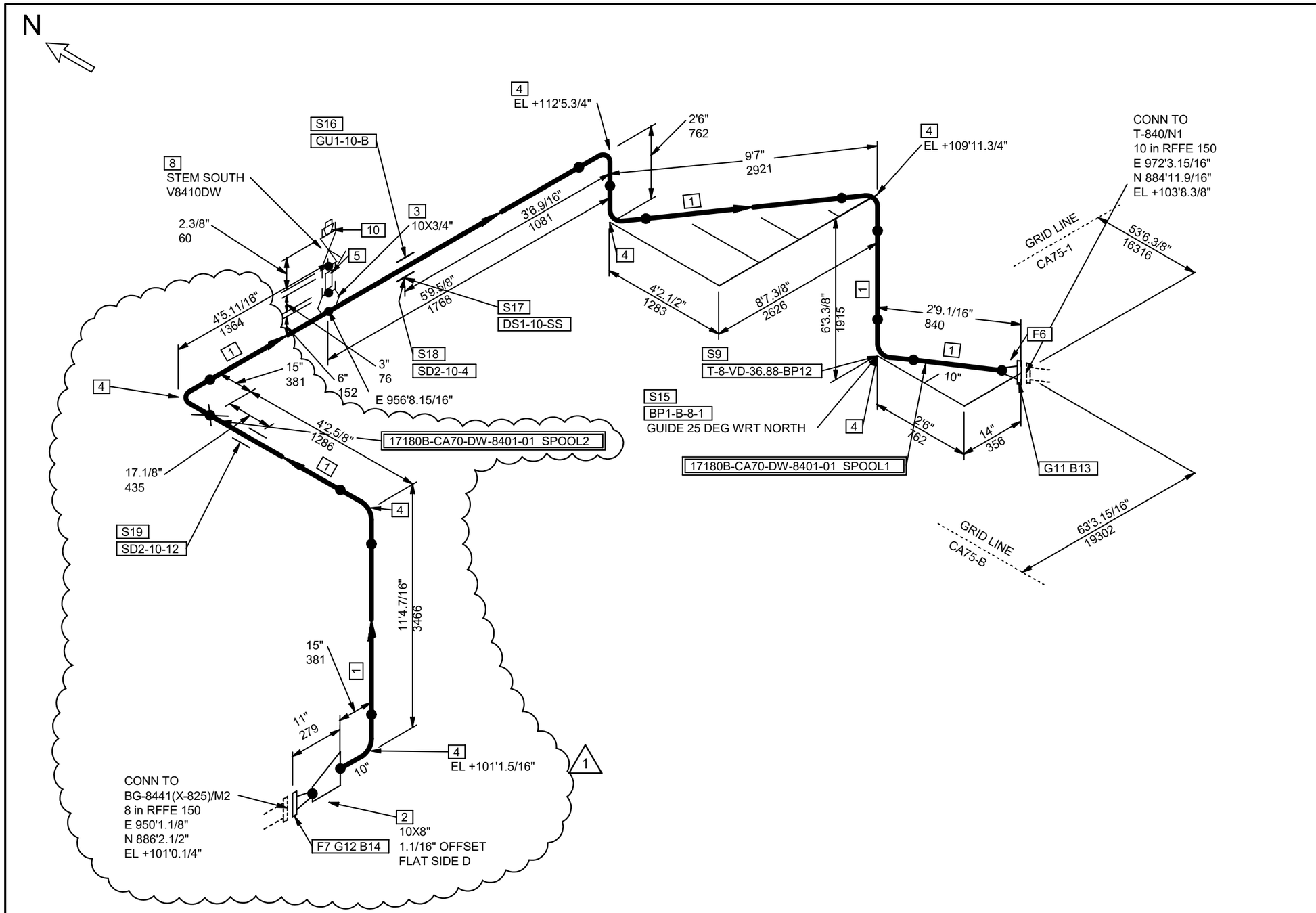
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8421-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	31.7'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	10X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10	7
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	10	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
9	T-8-VD-36.88-BP12	10	1
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
11	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
12	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	8
	PIPE SUPPORTS		
15	BP1-B-8-1	10	1
16	GU1-10-B	10	1
17	DS1-10-SS	10	1
18	SD2-10-4	10	1
19	SD2-10-12	10	1

17180B-CA70-DW-8401-01_SPOOL1 17180B-CA70-DW-8401-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8401		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/03/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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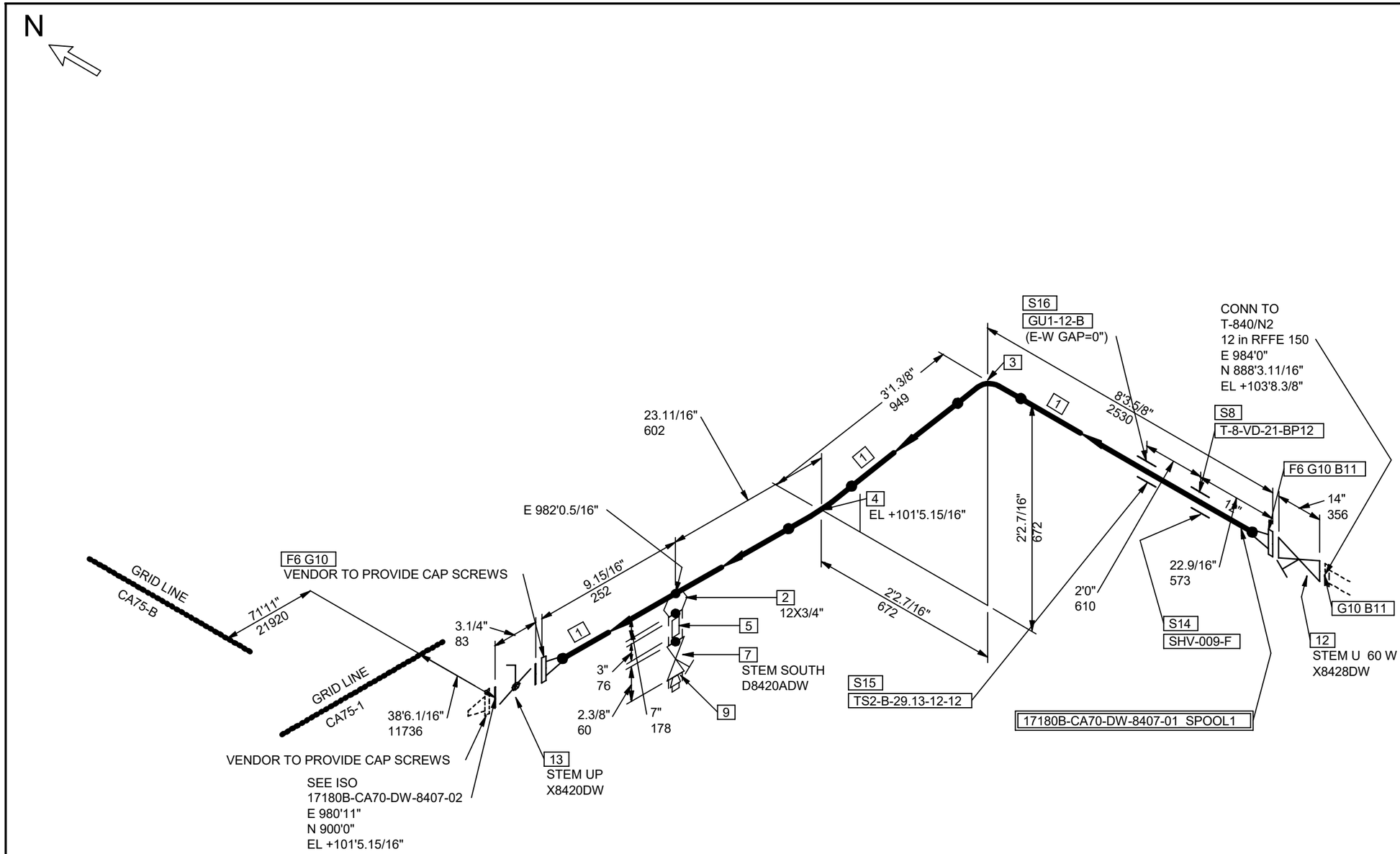
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8401-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	12	9.3'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	12X3/4	1
3	45 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	12	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	12	1
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	12	2
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
8	T-8-VD-21-BP12	12	1
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	12	3
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	7/8	24
12	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	12	1
13	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A351-CF8M , RTFE seal, 316SS trim, fire safe , DOUBLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LIA	12	1
	PIPE SUPPORTS		
14	SHV-009-F	12	1
15	TS2-B-29.13-12-12	12	1
16	GU1-12-B	12	1

17180B-CA70-DW-8407-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/12/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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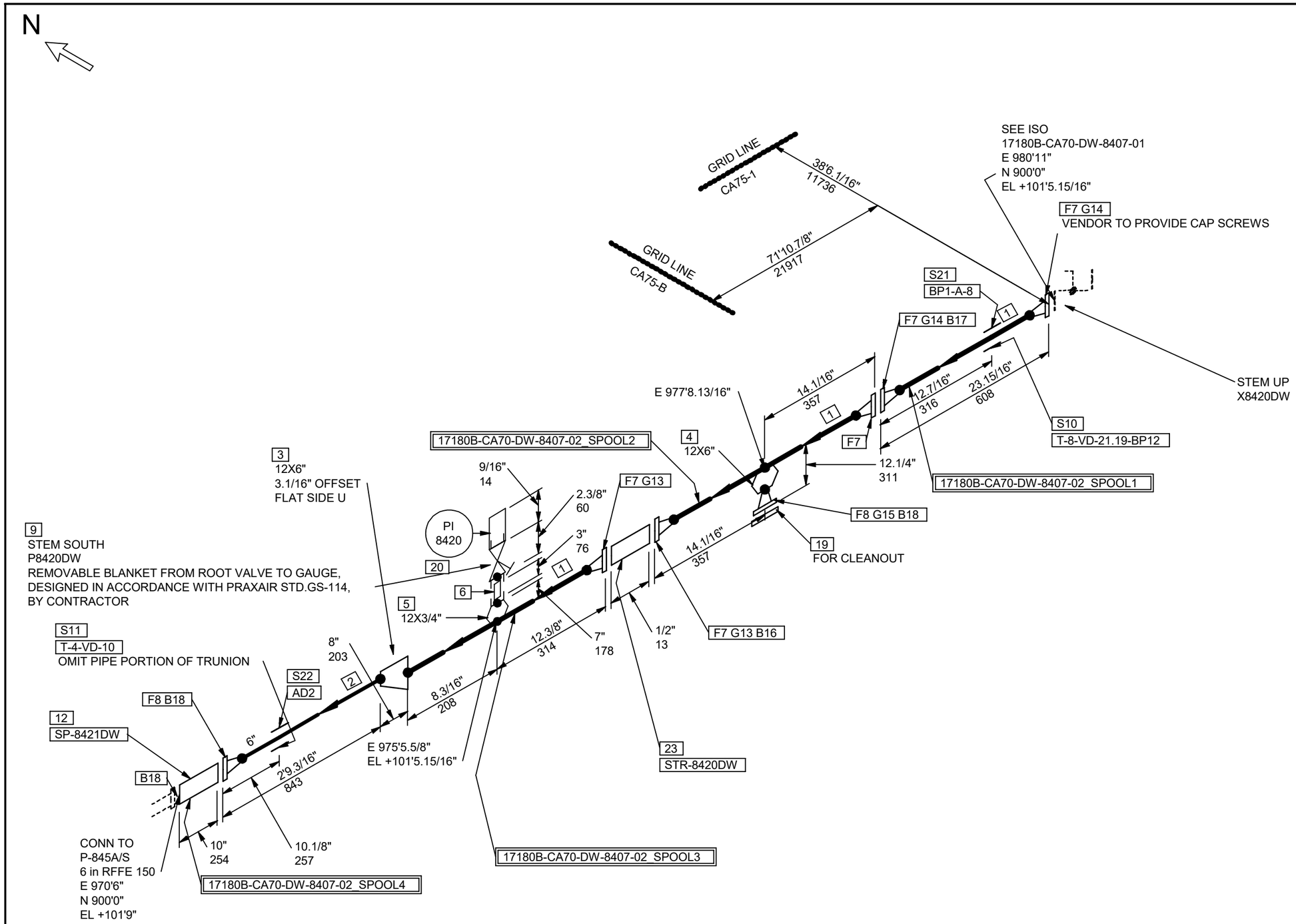
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8407-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	12	4.2'
2	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	6	2.5'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	12X6	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 304/F 304L , S-10S , S-10S	12X6	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	12X3/4	1
6	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	12	5
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	6	2
9	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
10	T-8-VD-21.19-BP12	12	1
11	T-4-VD-10	6	1
	SPECIALTY ITEMS		
12	SP-8421DW	6	1
	ERECTION		
13	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	12	2
14	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	12	2
15	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.5 in. Length	7/8	12
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	7/8	12
18	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	24
19	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	6	1
	INSTRUMENTS		
20	PI-8420	3/4	1
	PIPE SUPPORTS		
21	BP1-A-8	12	1
22	AD2	6	1
	SPECIALTY ITEMS		
23	STR-8420DW	12	1

17180B-CA70-DW-8407-02_SPOOL1 17180B-CA70-DW-8407-02_SPOOL2
17180B-CA70-DW-8407-02_SPOOL3 17180B-CA70-DW-8407-02_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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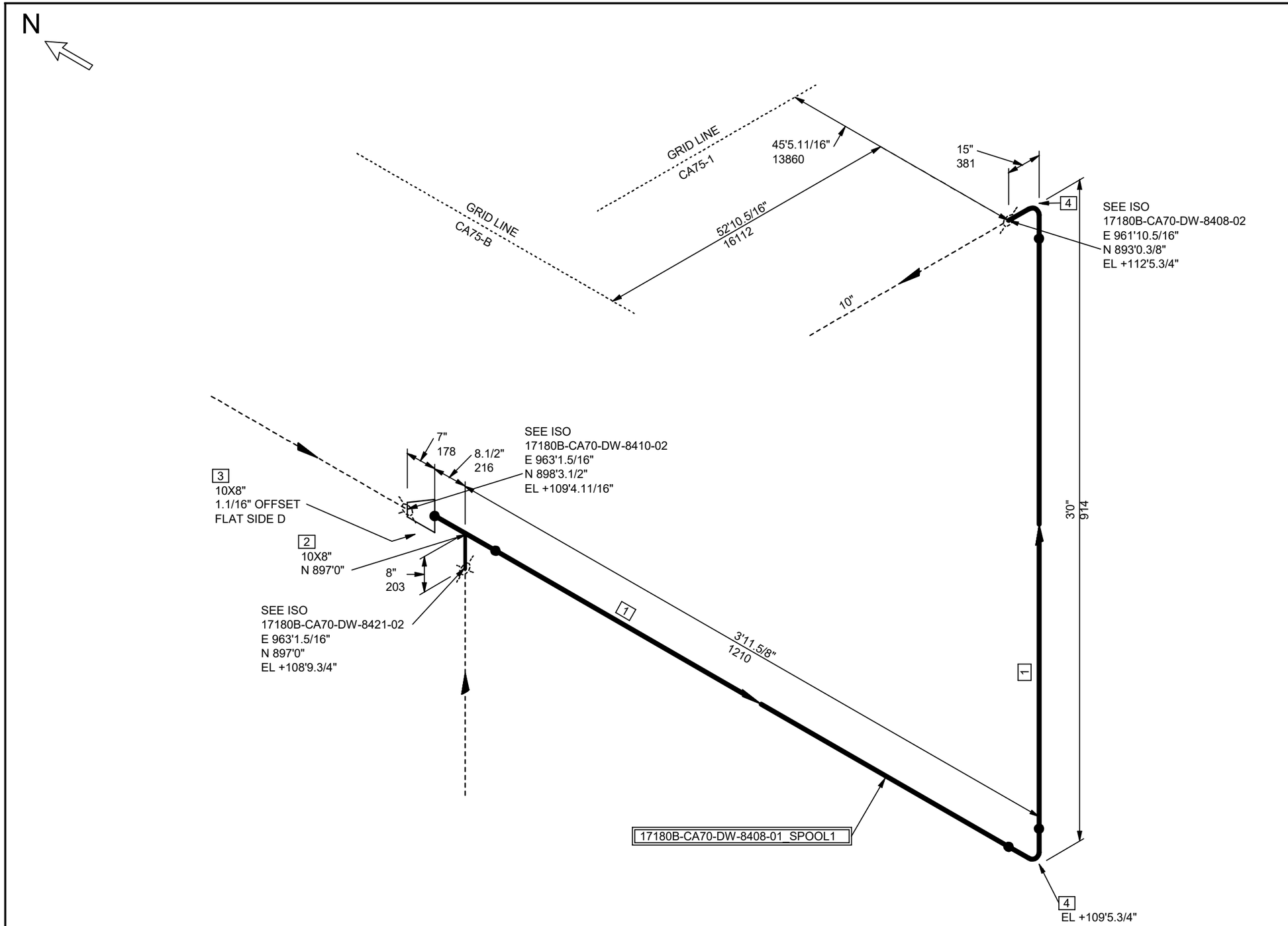
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8407-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	2.6'
2	Red. Tee , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10X8	1
3	Ecc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10X8	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10	2

17180B-CA70-DW-8408-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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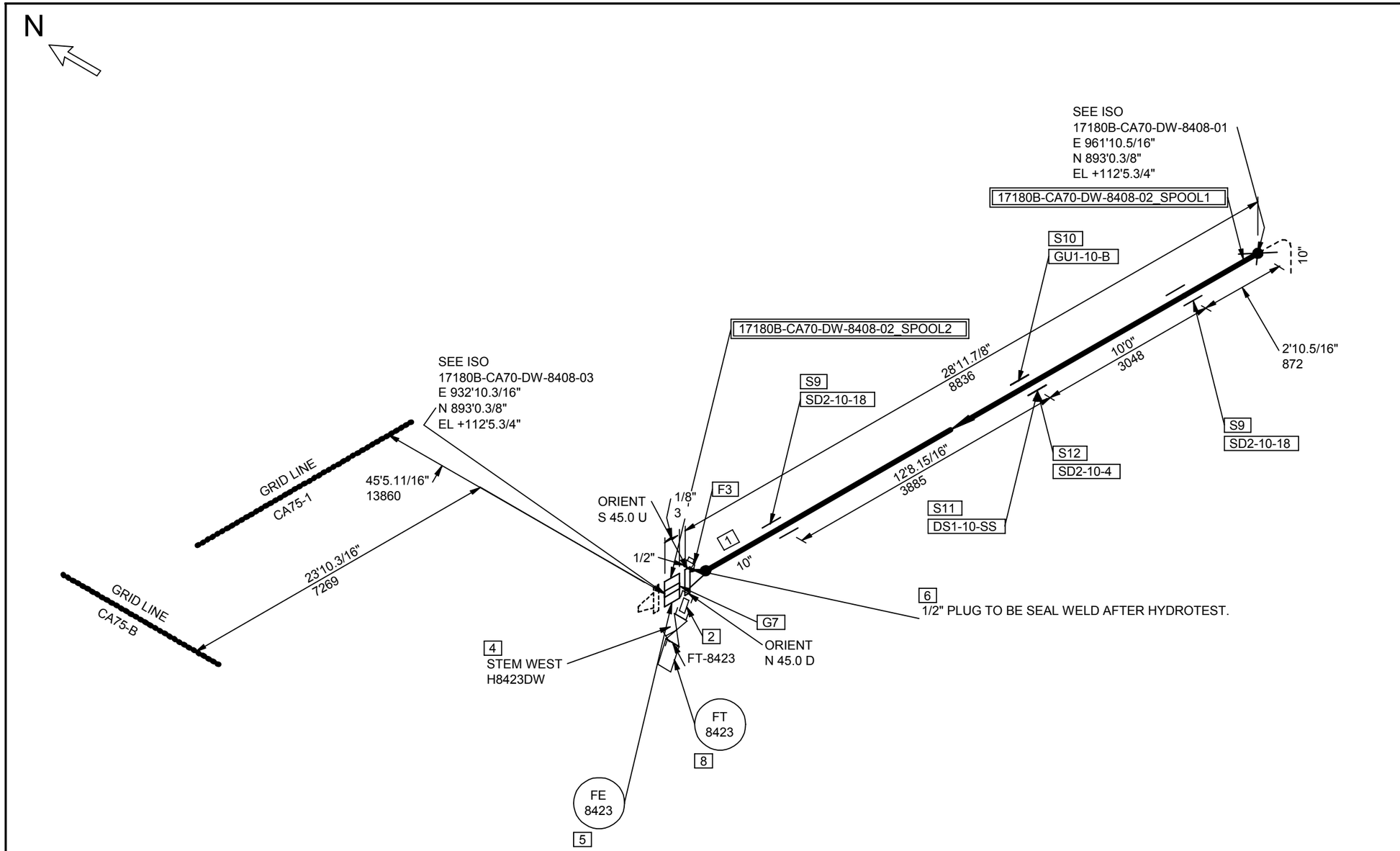
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8408-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	28.7'
2	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	1/2	1
3	ORF WN 1/2" THD TAP , ASME B16.36 , CL300 , RF , ASTM A182 Grade F 304/F 304L , S-10S	10	1
4	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1/2	1
	INSTRUMENTS		
5	FE-8423	10	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1/2	1
7	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
	INSTRUMENTS		
8	FT-8423	1/2	1
	PIPE SUPPORTS		
9	SD2-10-18	10	2
10	GU1-10-B	10	1
11	DS1-10-SS	10	1
12	SD2-10-4	10	1

17180B-CA70-DW-8408-02_SPOOL1 17180B-CA70-DW-8408-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⋈ = FIELD WELD
- ⋈ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/20/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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15377 Memorial Drive
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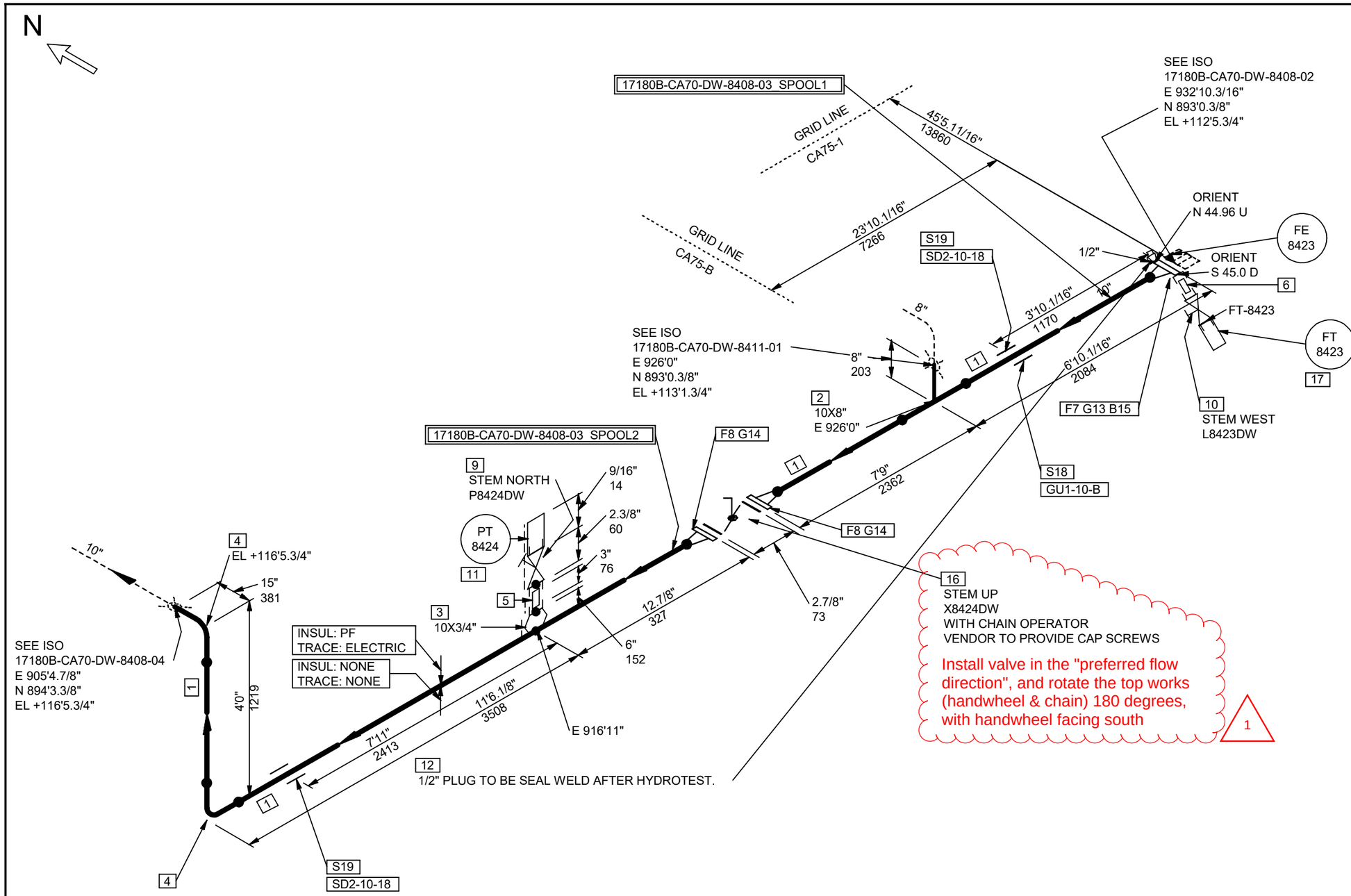
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8408-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	25.0'
2	Red. Tee , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	10X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10	2
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
6	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	1/2	1
7	ORF WN 1/2" THD TAP , ASME B16.36 , CL300 , RF , ASTM A182 Grade F 304/F 304L , S-10S	10	1
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	10	2
9	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1/2	1
	INSTRUMENTS		
11	PT-8424	3/4	1
	ERECTION		
12	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1/2	1
13	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
14	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	2
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.75 in. Length	1	16
16	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A351-CF8M , RTFE seal, 316SS trim, fire safe , DOUBLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LIA	10	1
	INSTRUMENTS		
17	FT-8423	1/2	1
	PIPE SUPPORTS		
18	GU1-10-B	10	1
19	SD2-10-18	10	2

17180B-CA70-DW-8408-03_SPOOL1 17180B-CA70-DW-8408-03_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/03/2020	ISSUED FOR CONSTRUCTION	FR	EBO	JAM
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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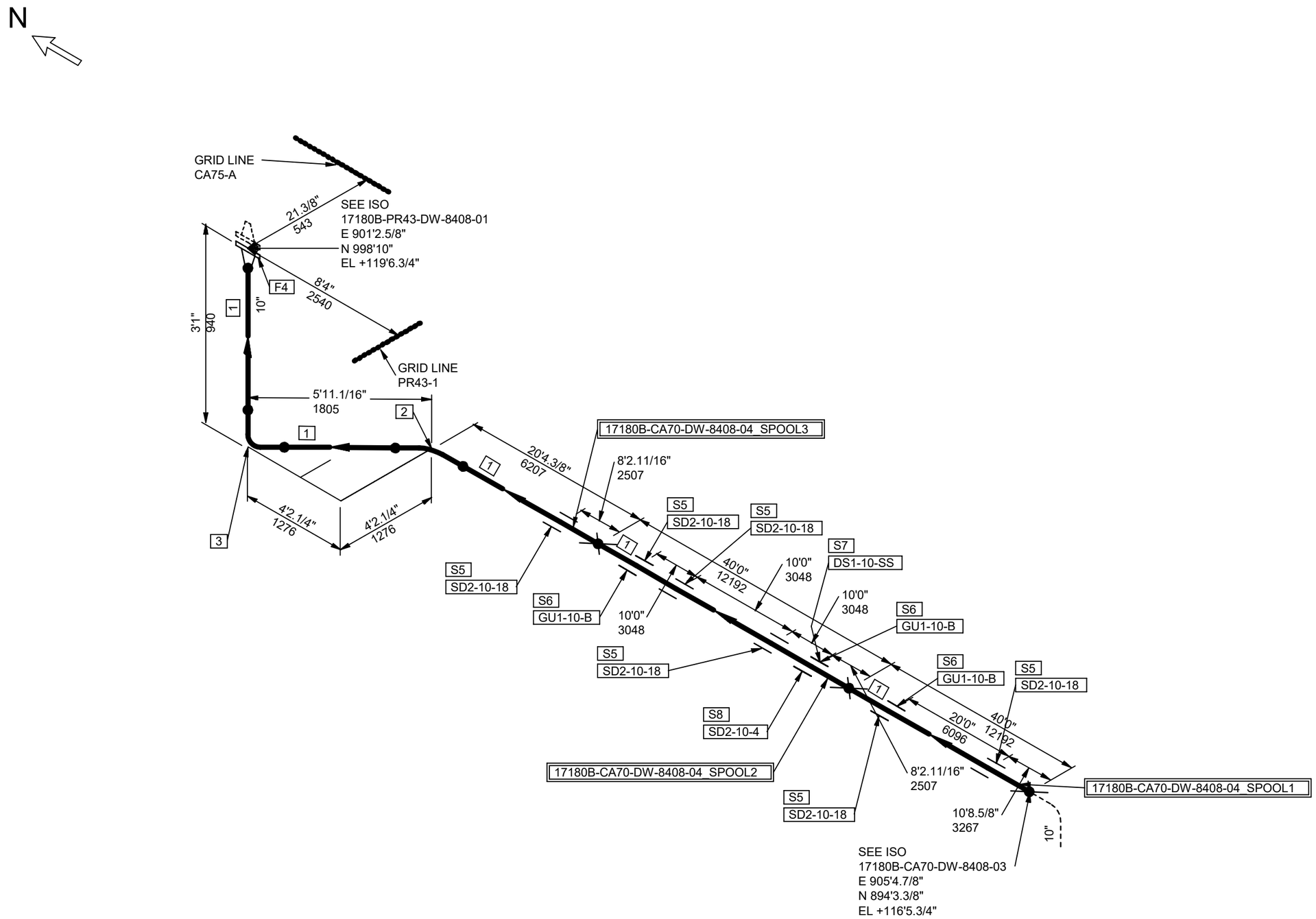
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8408-03	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	105.5'
2	45 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	10	1
ERECTION			
PIPE SUPPORTS			
5	SD2-10-18	10	6
6	GU1-10-B	10	3
7	DS1-10-SS	10	1
8	SD2-10-4	10	1

17180B-CA70-DW-8408-04_SPOOL1 17180B-CA70-DW-8408-04_SPOOL2
17180B-CA70-DW-8408-04_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/07/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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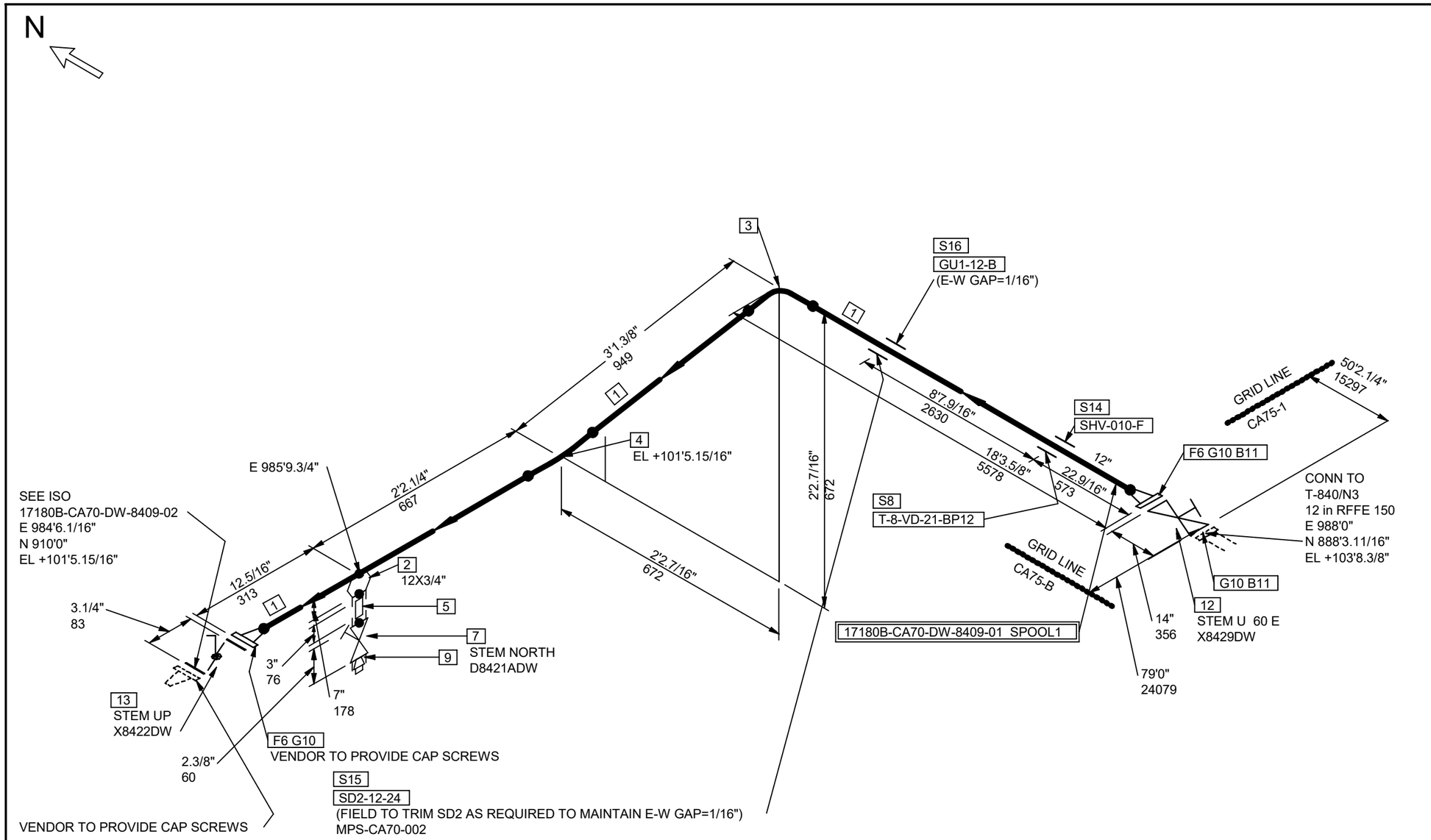
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8408-04	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	12	19.7'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	12X3/4	1
3	45 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	12	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	12	1
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	12	2
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
8	T-8-VD-21-BP12	12	1
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	12	3
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	7/8	24
12	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	12	1
13	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A351-CF8M , RTFE seal, 316SS trim, fire safe , DOUBLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LIA	12	1
	PIPE SUPPORTS		
14	SHV-010-F	12	1
15	SD2-12-24	12	1
16	GU1-12-B	12	1

17180B-CA70-DW-8409-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/12/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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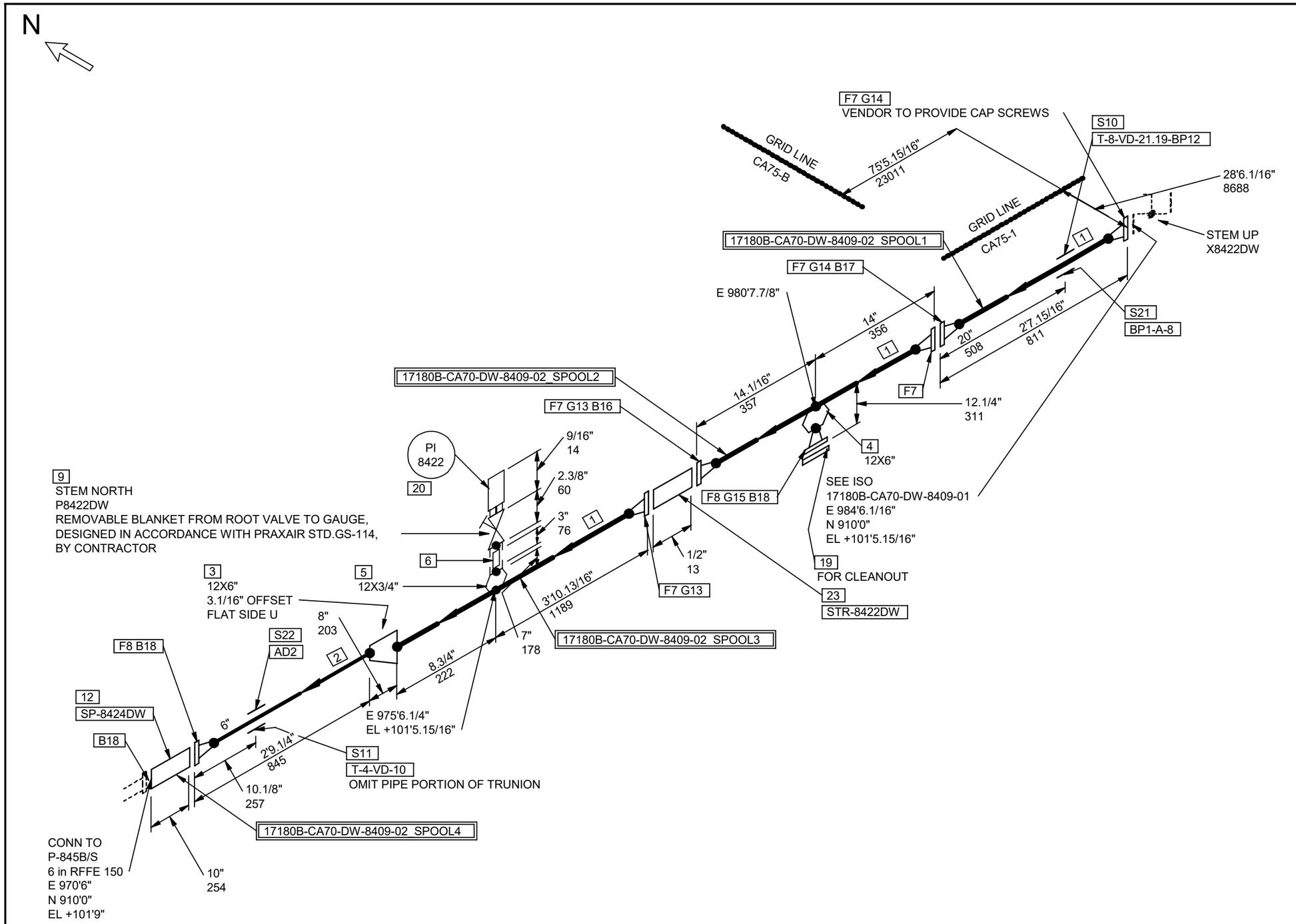
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8409-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	12	7.8'
2	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	6	2.5'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	12X6	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 304/F 304L , S-10S , S-10S	12X6	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	12X3/4	1
6	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	12	5
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	6	2
9	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
10	T-8-VD-21.19-BP12	12	1
11	T-4-VD-10	6	1
	SPECIALTY ITEMS		
12	SP-8424DW	6	1
	ERECTION		
13	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	12	2
14	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	12	2
15	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.5 in. Length	7/8	12
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	7/8	12
18	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	24
19	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	6	1
	INSTRUMENTS		
20	PI-8422	3/4	1
	PIPE SUPPORTS		
21	BP1-A-8	12	1
22	AD2	6	1
	SPECIALTY ITEMS		
23	STR-8422DW	12	1

17180B-CA70-DW-8409-02_SPOOL1 17180B-CA70-DW-8409-02_SPOOL2
17180B-CA70-DW-8409-02_SPOOL3 17180B-CA70-DW-8409-02_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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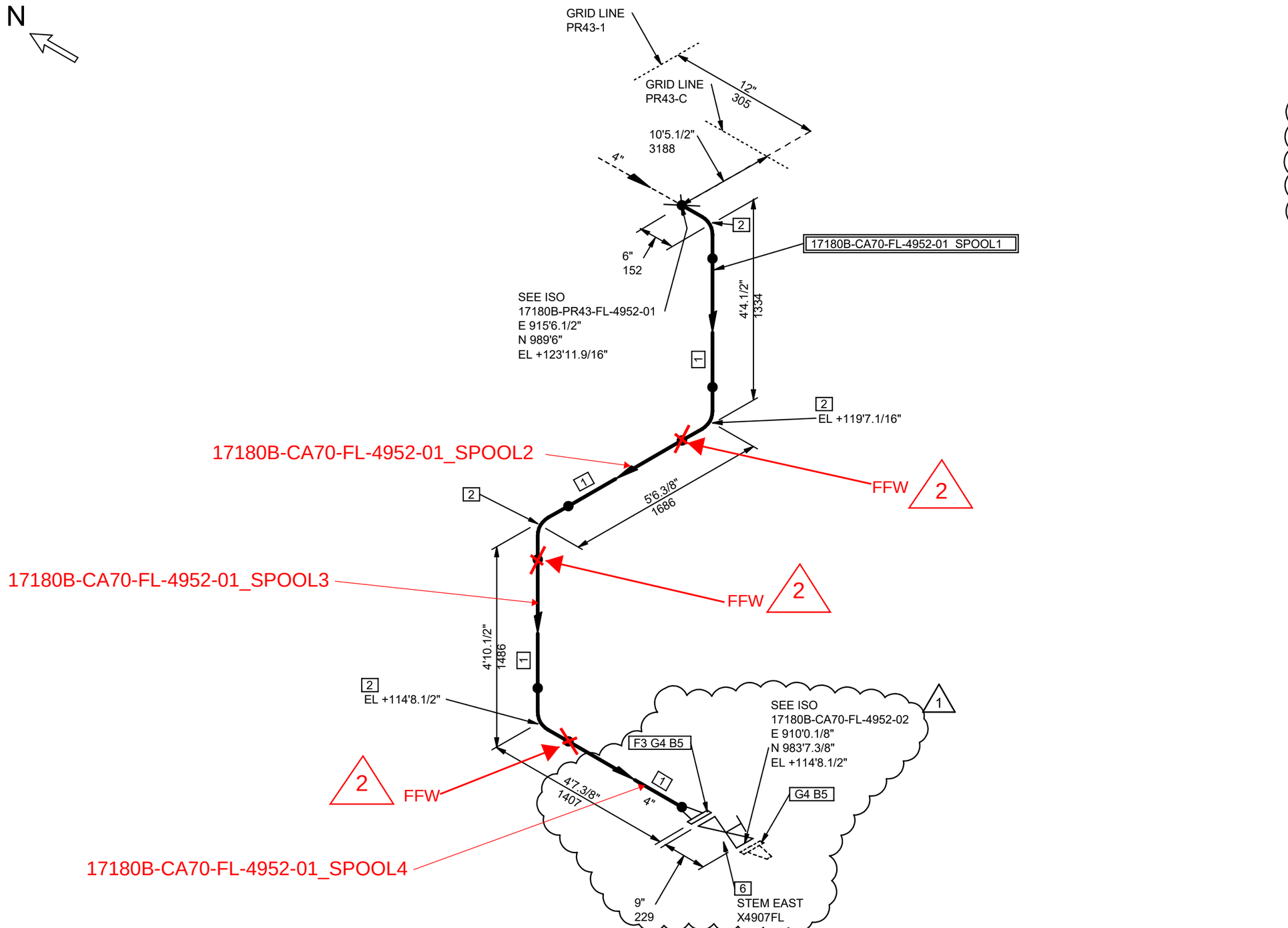
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-DW-8409-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	15.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	4
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
	ERECTION		
4	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
6	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	4	1

1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA70-FL-4952-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/08/2020	ADDED FFW			
1	03/13/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/23/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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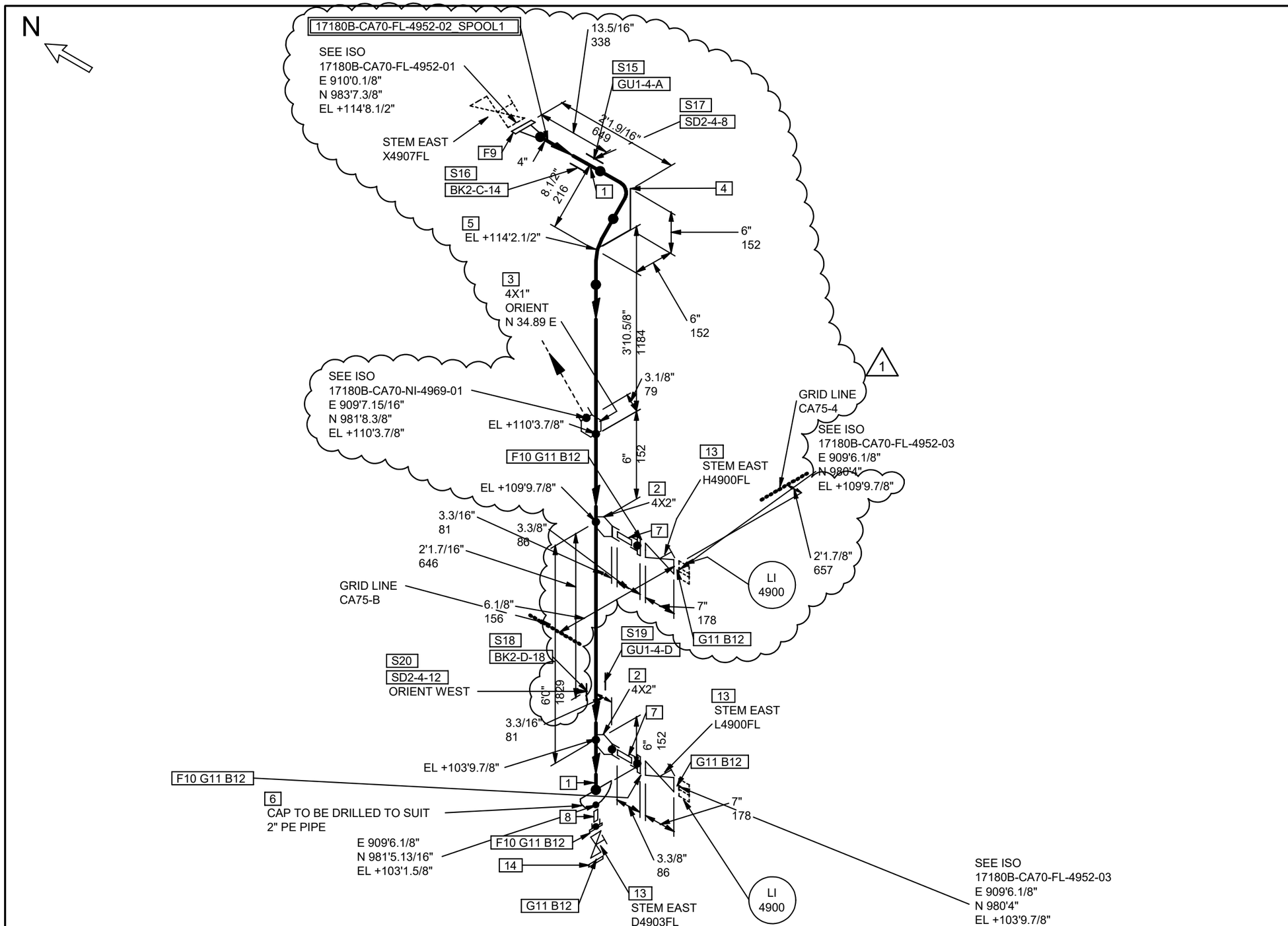
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-FL-4952-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	12.1'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X2	2
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X1	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	1
5	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	1
6	Cap , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD	4	1
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	2
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	3
	ERECTION		
11	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	6
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	24
13	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	3
14	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
15	GU1-4-A	4	1
16	BK2-C-14	4	1
17	SD2-4-8	4	1
18	BK2-D-18	4	1
19	GU1-4-D	4	1
20	SD2-4-12	4	1

17180B-CA70-FL-4952-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	03/13/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/16/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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15377 Memorial Drive
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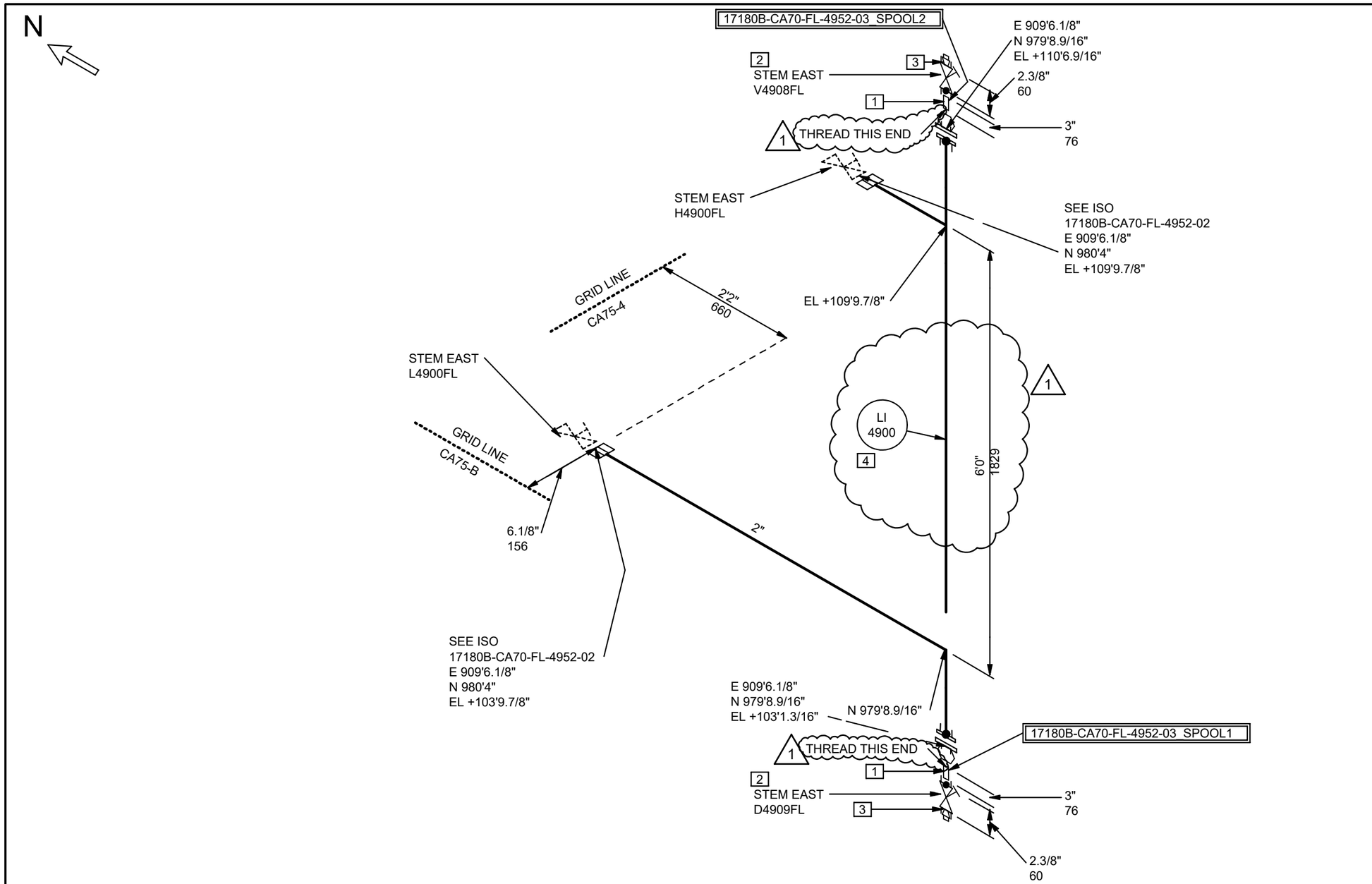
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-FL-4952-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
2	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
ERECTION			
3	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
INSTRUMENTS			
4	LI-4900	2	1

17180B-CA70-FL-4952-03_SPOOL1 17180B-CA70-FL-4952-03_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	03/13/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/18/2019	ISSUED FOR CONSTRUCTION	AA	TKS	MLO

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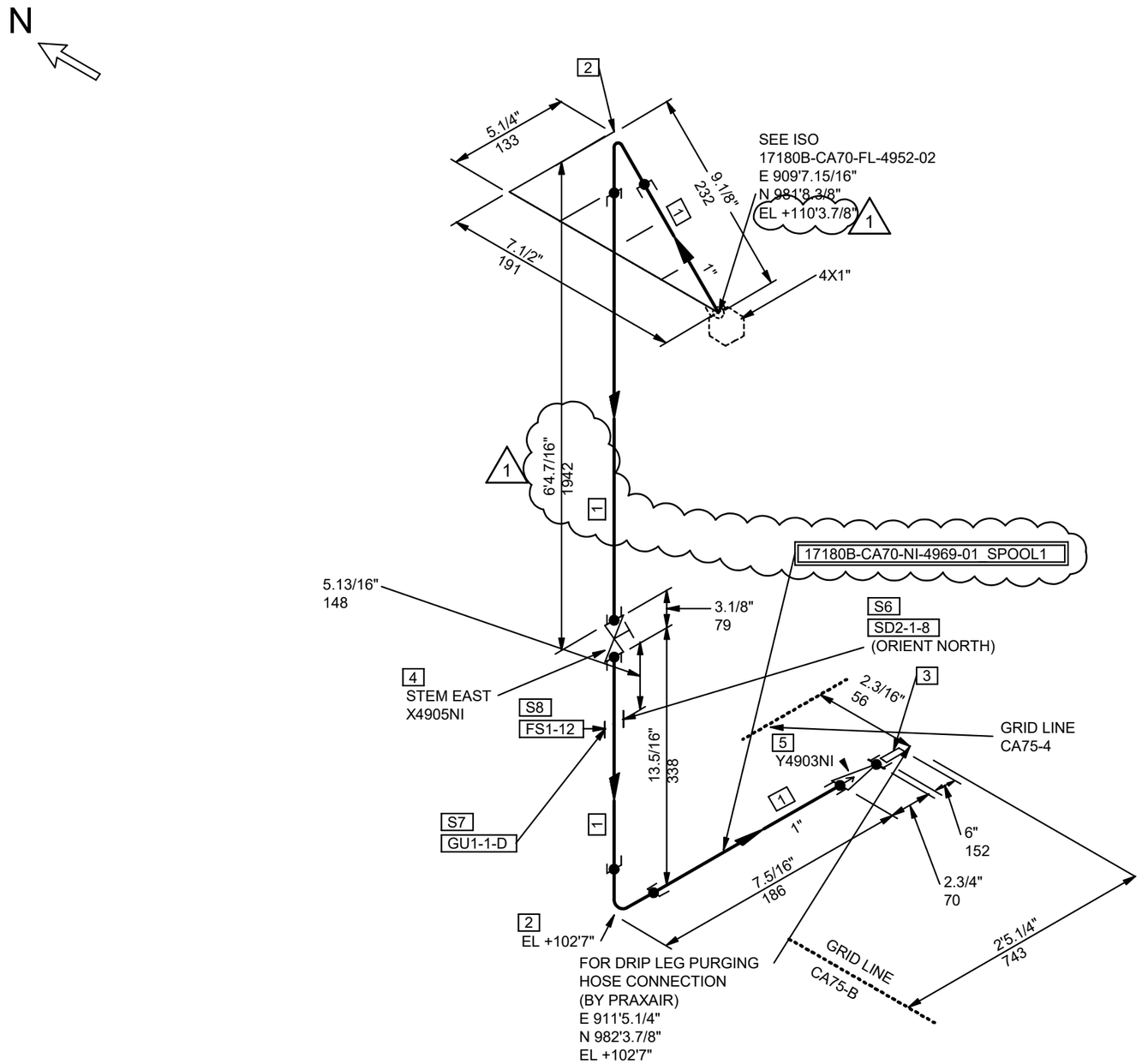
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-FL-4952-03
REV: 1	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	8.6' 1
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	2
3	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
4	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	1	1
5	Check Vlv Ball , Manuf. Std. Dims , CL800 , SWE , 1 PC, IN-LINE, NON-SLAM, AXIAL CHECK VLV , 316 SS , 316 SS SPRING , PRAXAIR GUIDELINE V-G1 , C8SIO	1	1
	ERECTION		
	PIPE SUPPORTS		
6	SD2-1-8	1	1
7	GU1-1-D	1	1
8	FS1-12	1	1

17180B-CA70-NI-4969-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	03/16/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/04/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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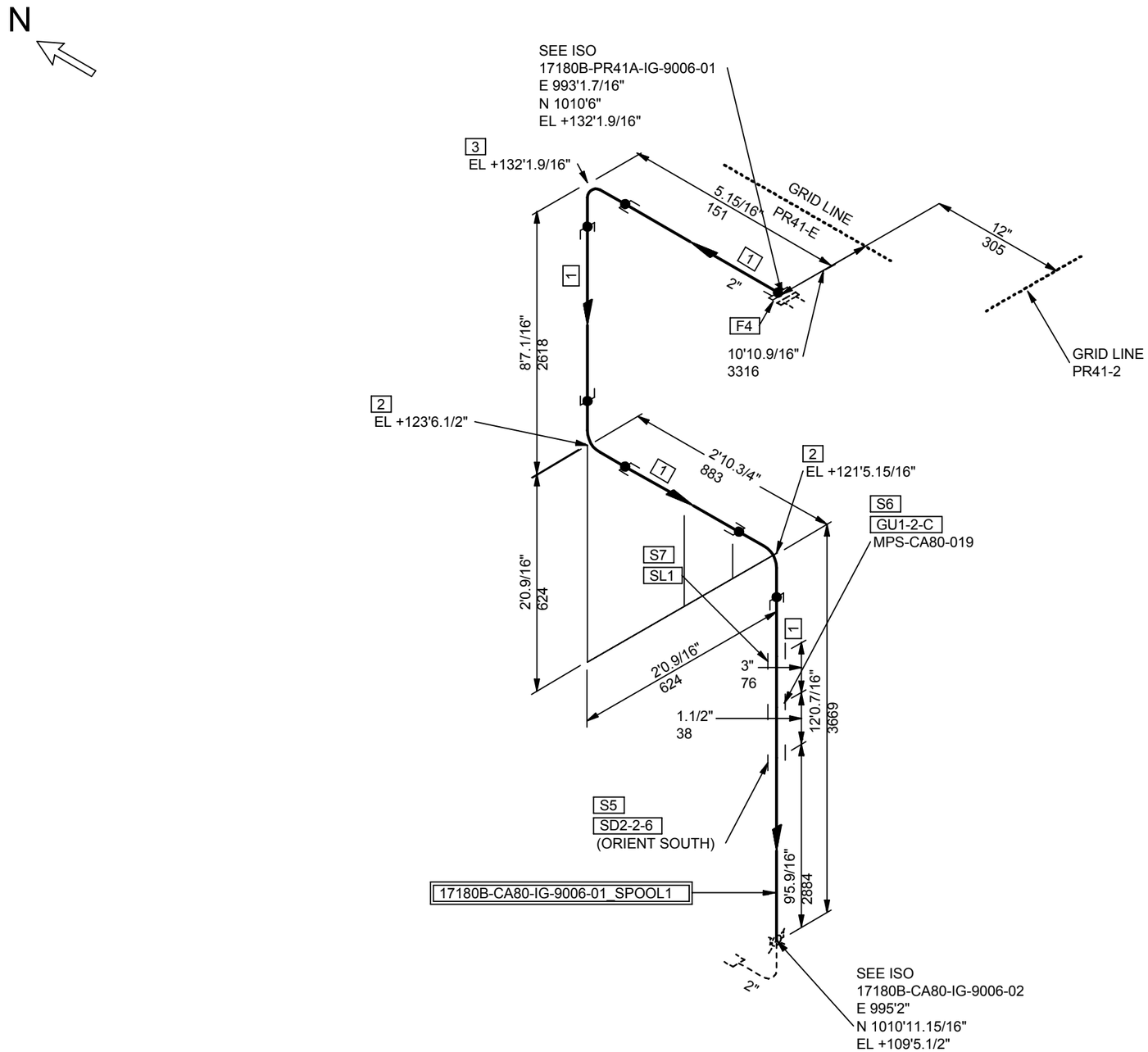
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA70-NI-4969-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	23.5'
2	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
PIPE SUPPORTS			
5	SD2-2-6	2	1
6	GU1-2-C	2	1
7	SL1	2	1

17180B-CA80-IG-9006-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/29/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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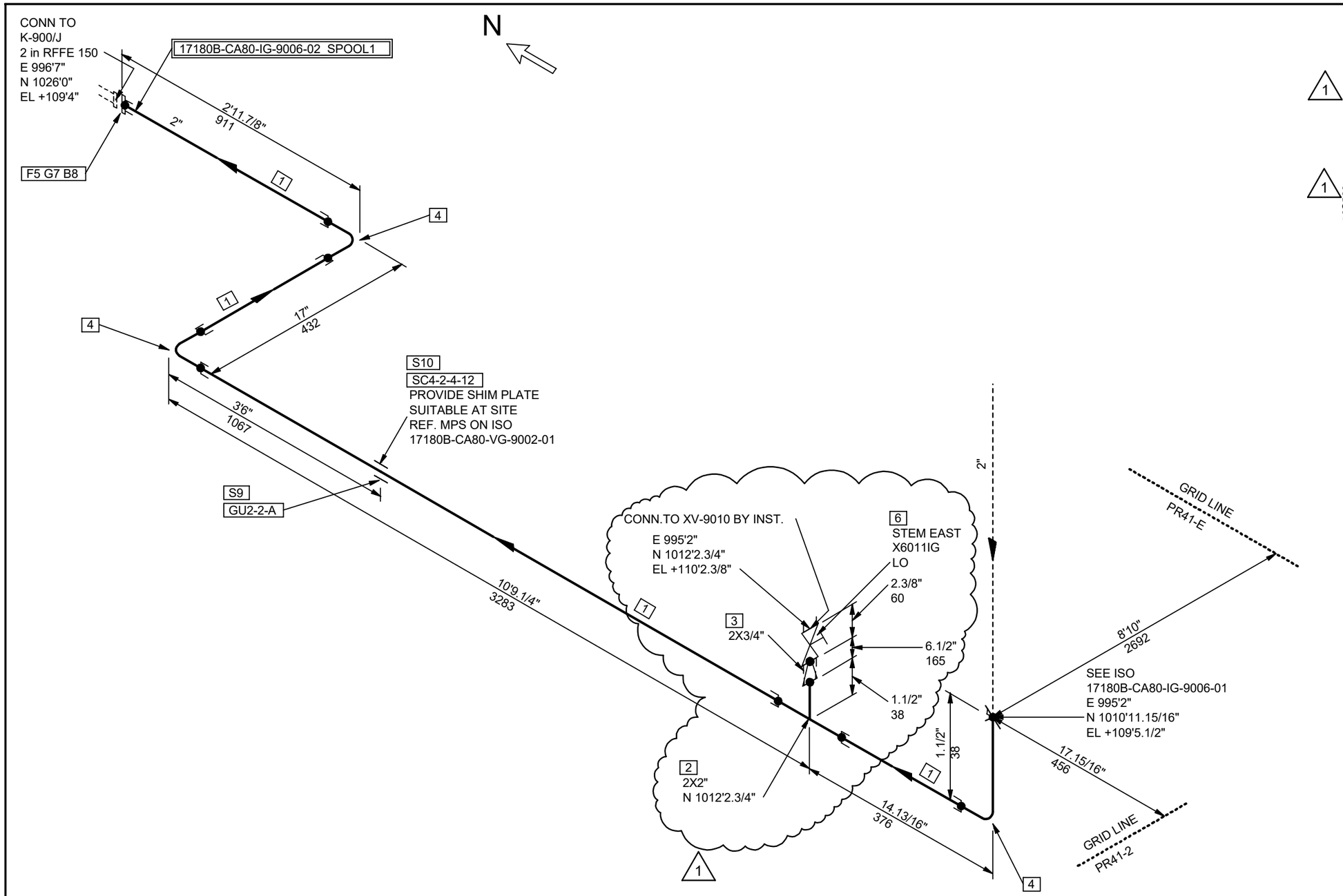
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-IG-9006-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	15.6'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	ERECTION		
7	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
9	GU2-2-A	2	1
10	SC4-2-4-12	2	1

17180B-CA80-IG-9006-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
0	08/30/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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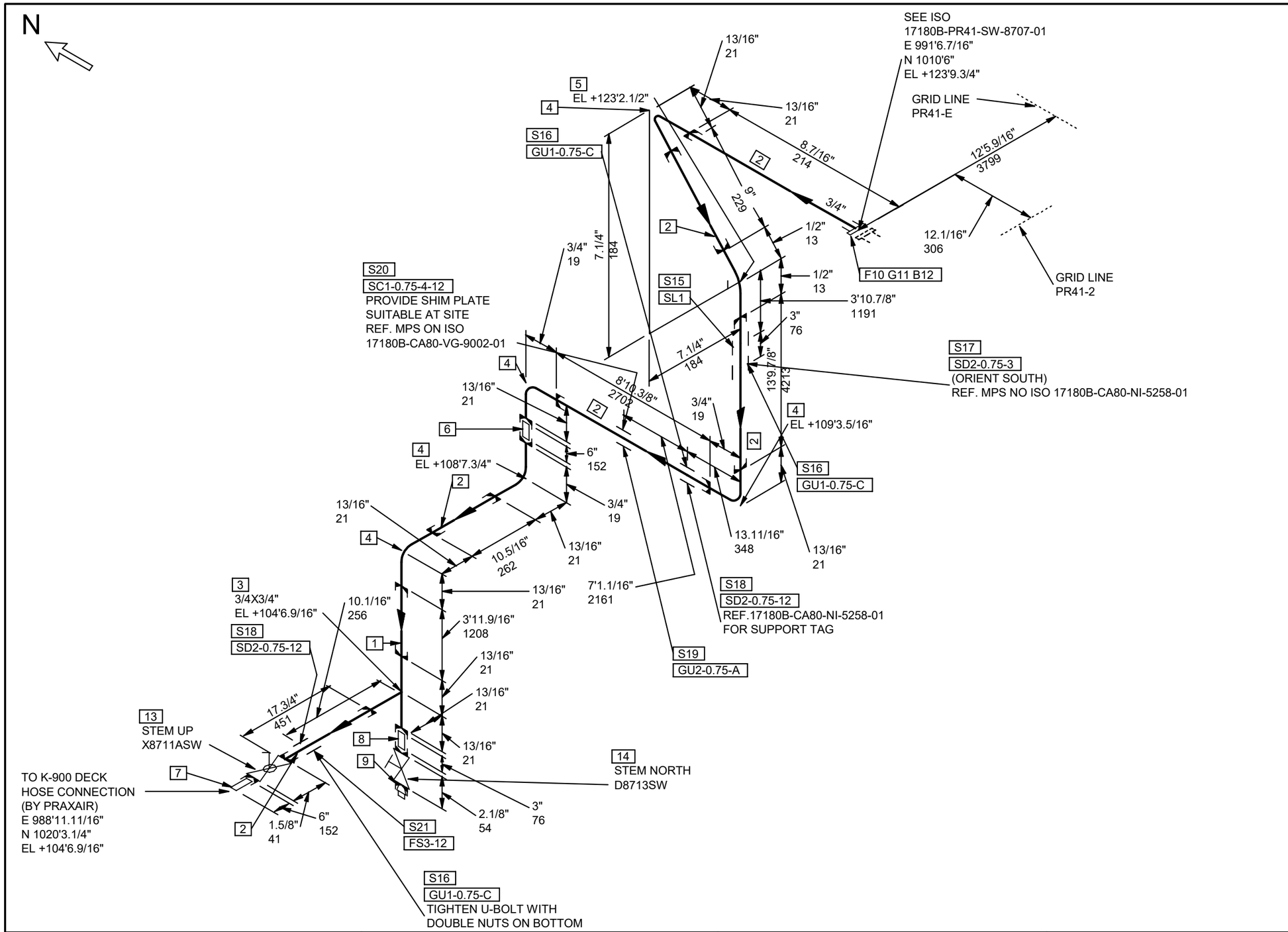
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-IG-9006-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	4.0'
	ERECTION		
2	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	26.5'
3	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
4	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	5
5	45 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
7	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	3/4	1
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
9	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
10	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3/4	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.5 in. Length	1/2	4
13	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
14	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
15	SL1	3/4	1
16	GU1-0.75-C	3/4	3
17	SD2-0.75-3	3/4	1
18	SD2-0.75-12	3/4	2
19	GU2-0.75-A	3/4	1
20	SC1-0.75-4-12	3/4	1
21	FS3-12	3/4	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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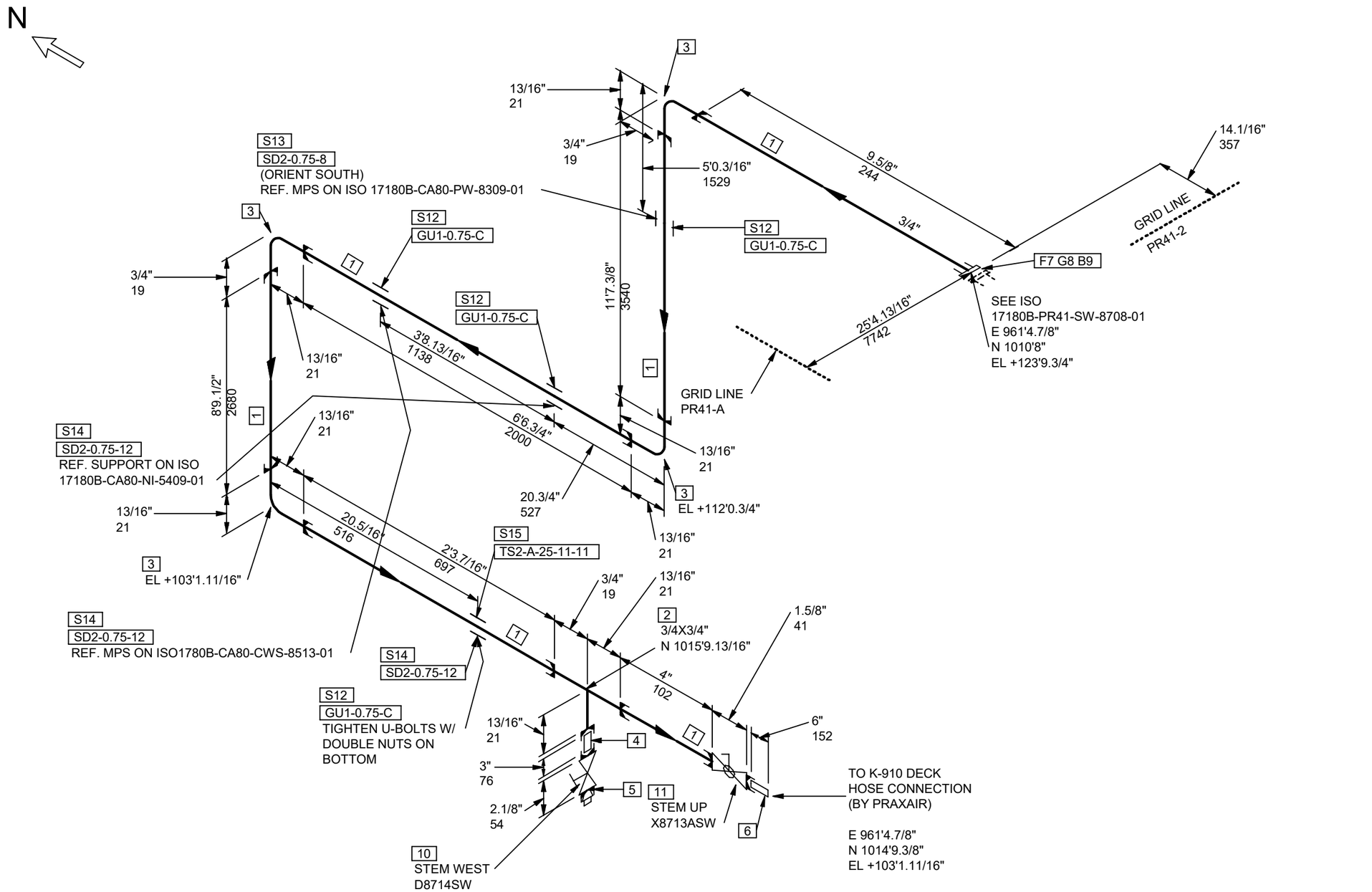
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-SW-8707-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	30.4'
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
3	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	4
4	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
5	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
6	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	3/4	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3/4	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.5 in. Length	1/2	4
10	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
11	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
	PIPE SUPPORTS		
12	GU1-0.75-C	3/4	4
13	SD2-0.75-8	3/4	1
14	SD2-0.75-12	3/4	3
15	TS2-A-25-11-11	3/4	1

LEGEND:

- ● = SHOP WELL
- ⊗ = FIELD WELL
- ⊗ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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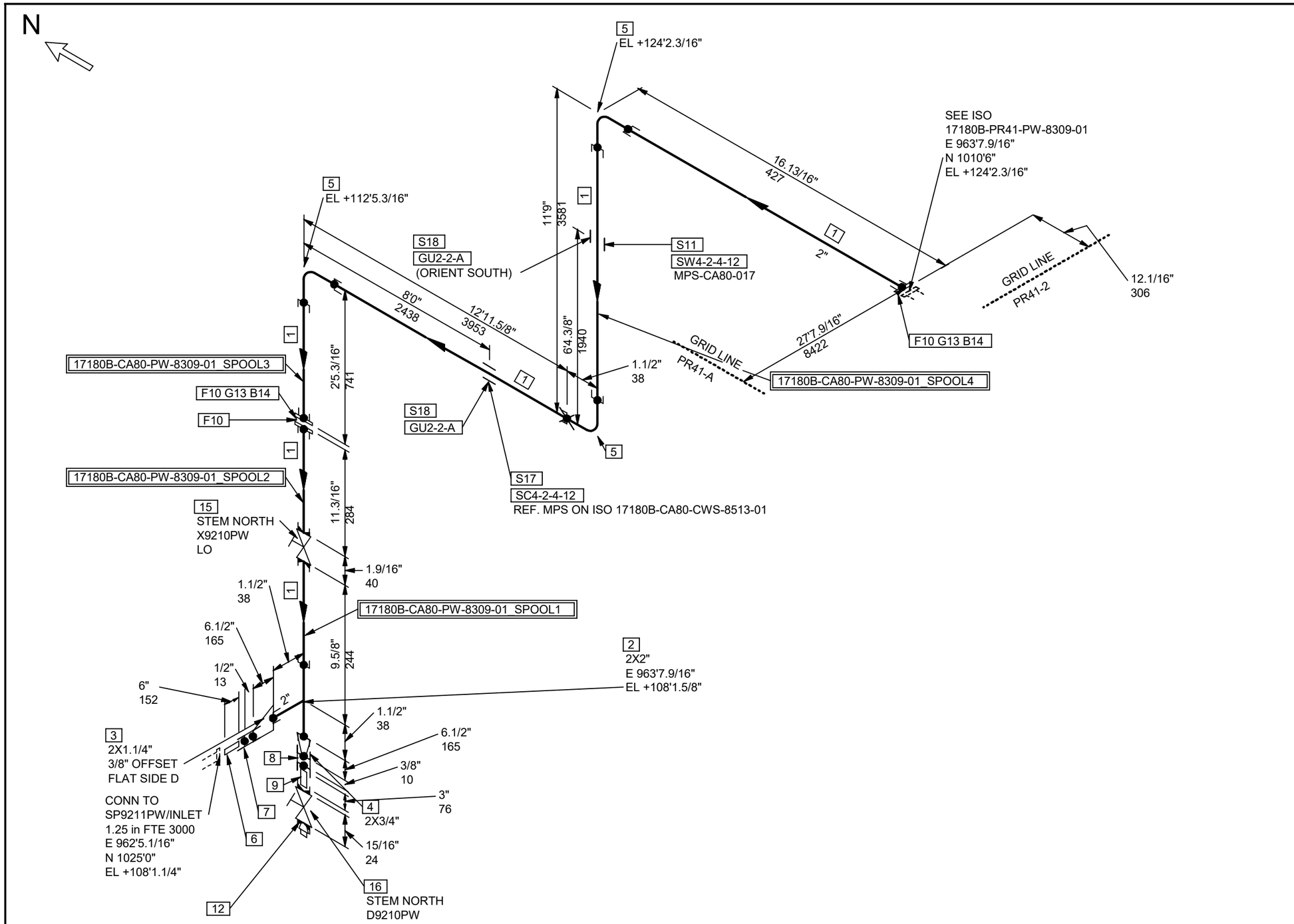
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-SW-8708-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	29.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	1
3	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-40S , S-80S	2X1.1/4	1
4	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-40S , S-80S	2X3/4	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
6	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 6in Long , SMLS , S-80S , S-80S	1.1/4	1
7	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	1.1/4	1
8	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3/4	1
9	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
10	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	3
	PIPE SUPPORTS		
11	SW4-2-4-12	2	1
	ERECTION		
12	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	2
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
15	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	2	1
16	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	3/4	1
	PIPE SUPPORTS		
17	SC4-2-4-12	2	1
18	GU2-2-A	2	2

17180B-CA80-PW-8309-01_SPOOL1 17180B-CA80-PW-8309-01_SPOOL2
17180B-CA80-PW-8309-01_SPOOL3 17180B-CA80-PW-8309-01_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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15377 Memorial Drive
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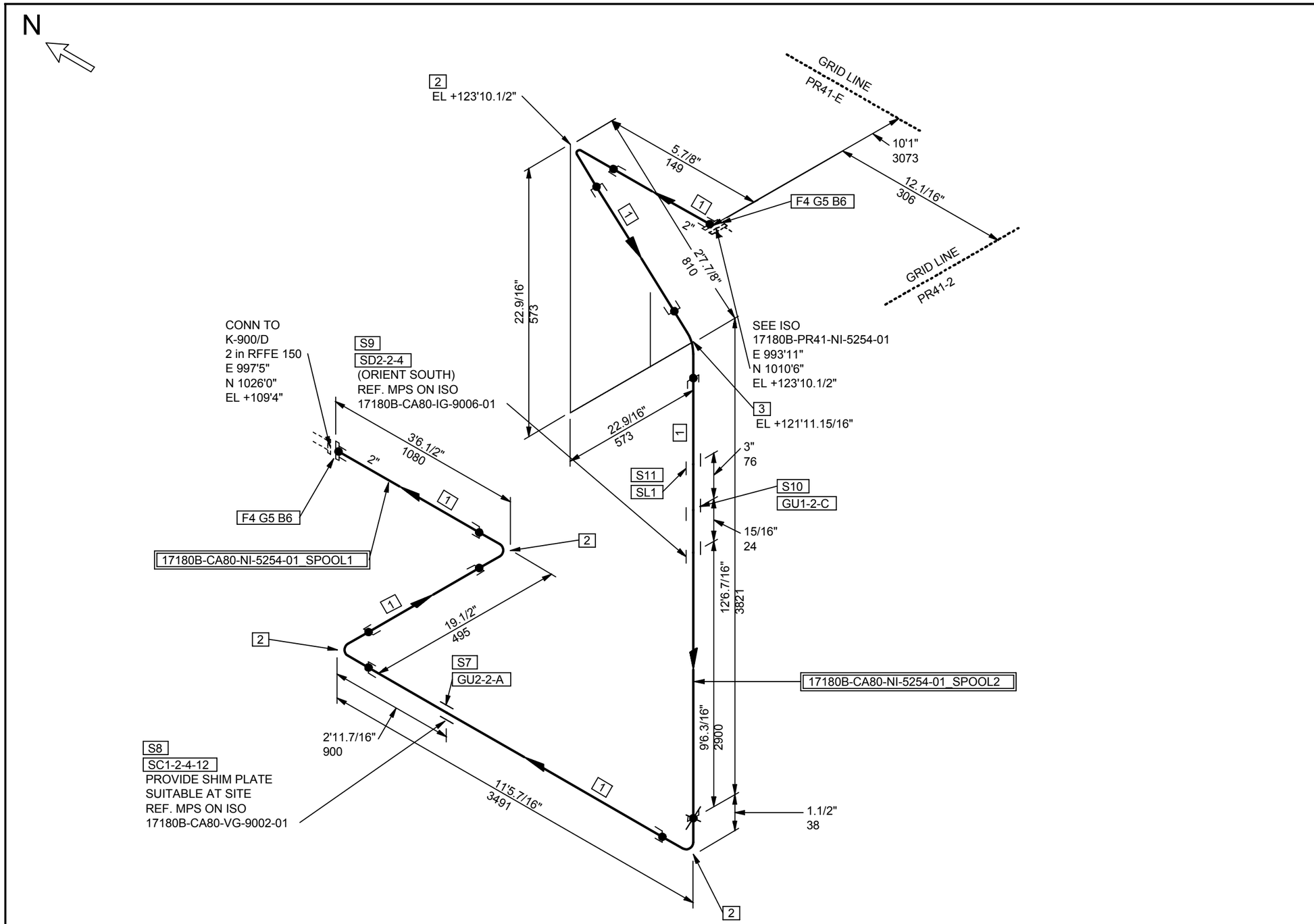
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-PW-8309-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	31.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
	PIPE SUPPORTS		
7	GU2-2-A	2	1
8	SC1-2-4-12	2	1
9	SD2-2-4	2	1
10	GU1-2-C	2	1
11	SL1	2	1

17180B-CA80-NI-5254-01_SPOOL1 17180B-CA80-NI-5254-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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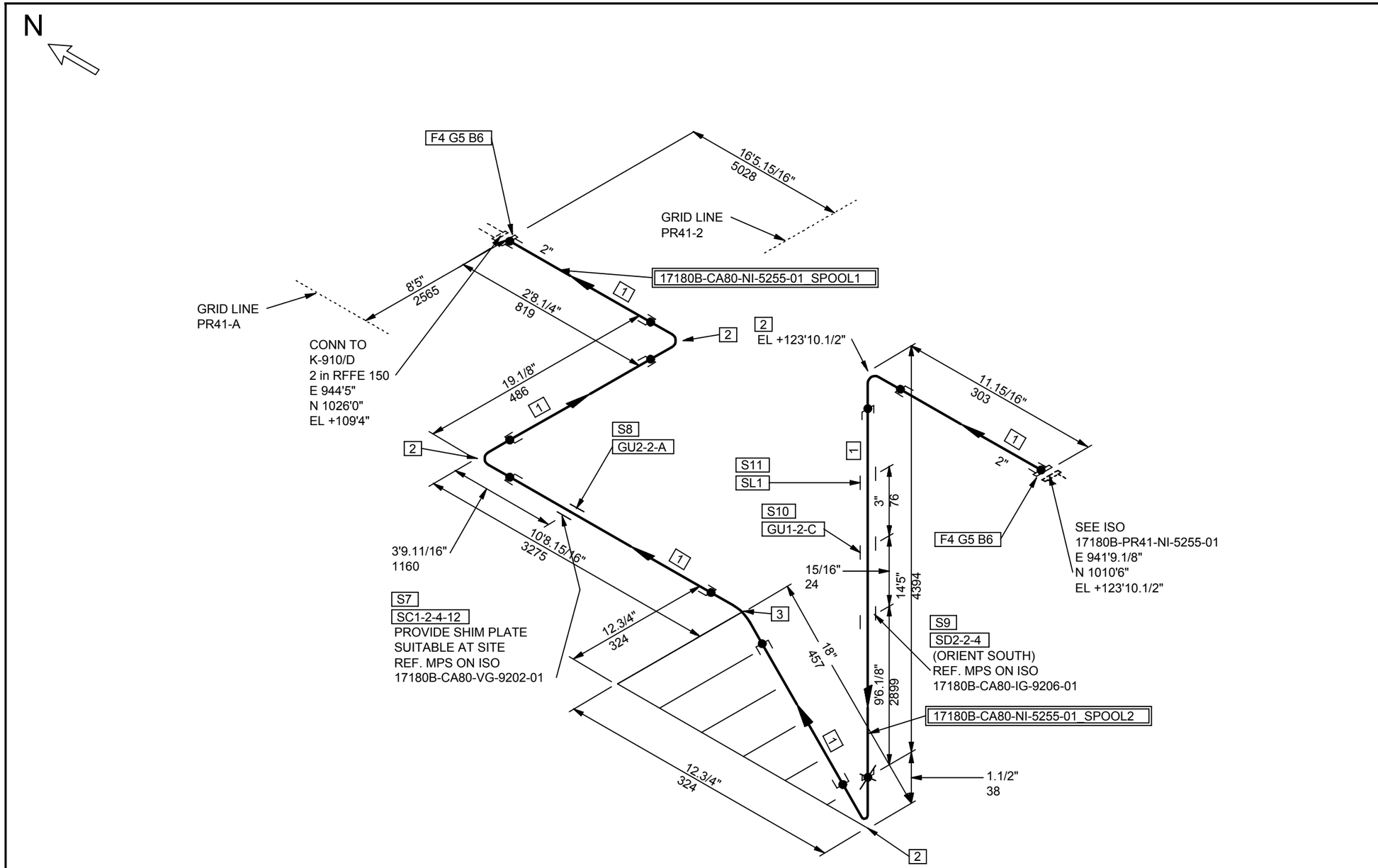
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-NI-5254-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	30.9'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
	PIPE SUPPORTS		
7	SC1-2-4-12	2	1
8	GU2-2-A	2	1
9	SD2-2-4	2	1
10	GU1-2-C	2	1
11	SL1	2	1

17180B-CA80-NI-5255-01_SPOOL1 17180B-CA80-NI-5255-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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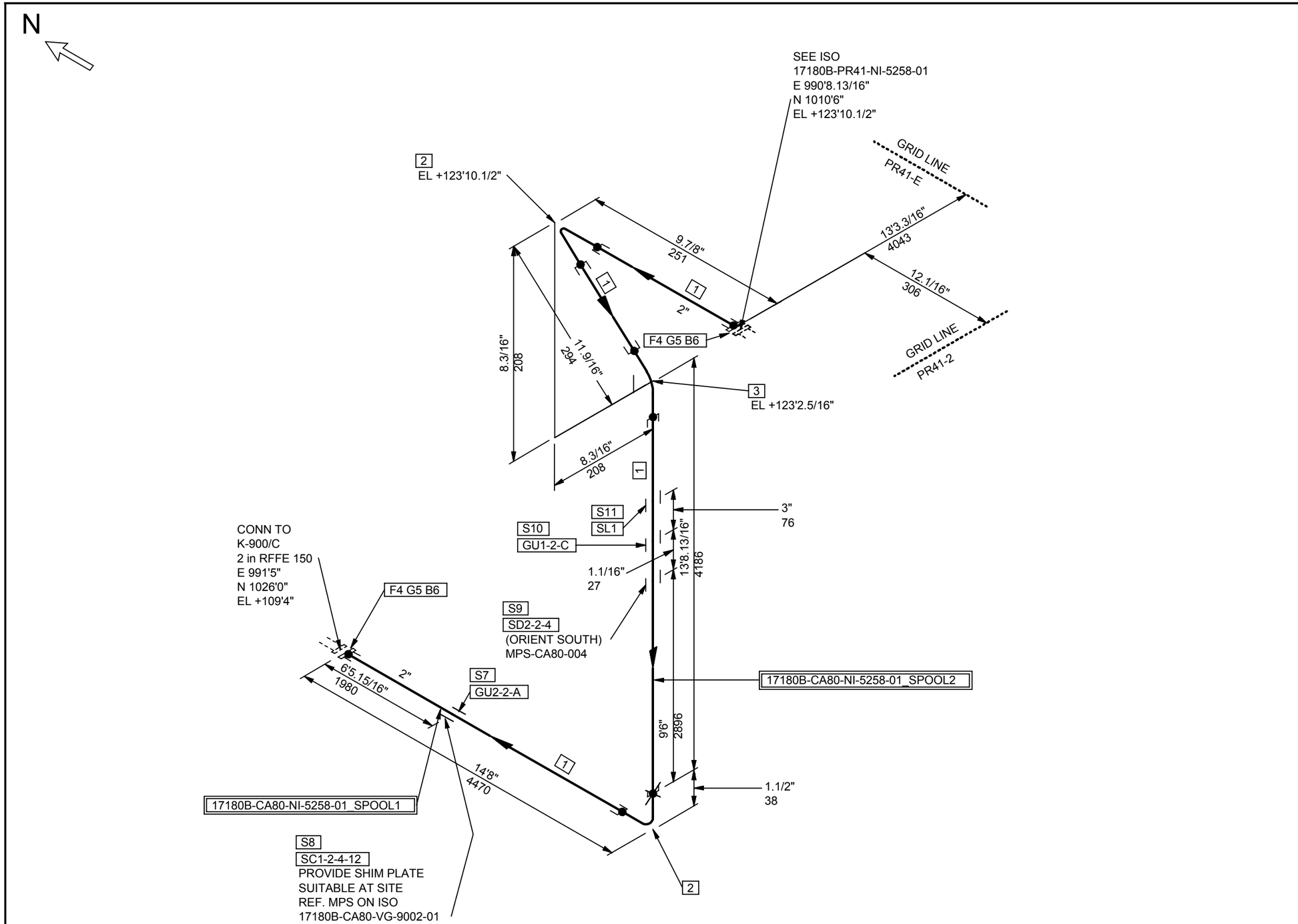
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-NI-5255-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	29.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
	PIPE SUPPORTS		
7	GU2-2-A	2	1
8	SC1-2-4-12	2	1
9	SD2-2-4	2	1
10	GU1-2-C	2	1
11	SL1	2	1

17180B-CA80-NI-5258-01_SPOOL1 17180B-CA80-NI-5258-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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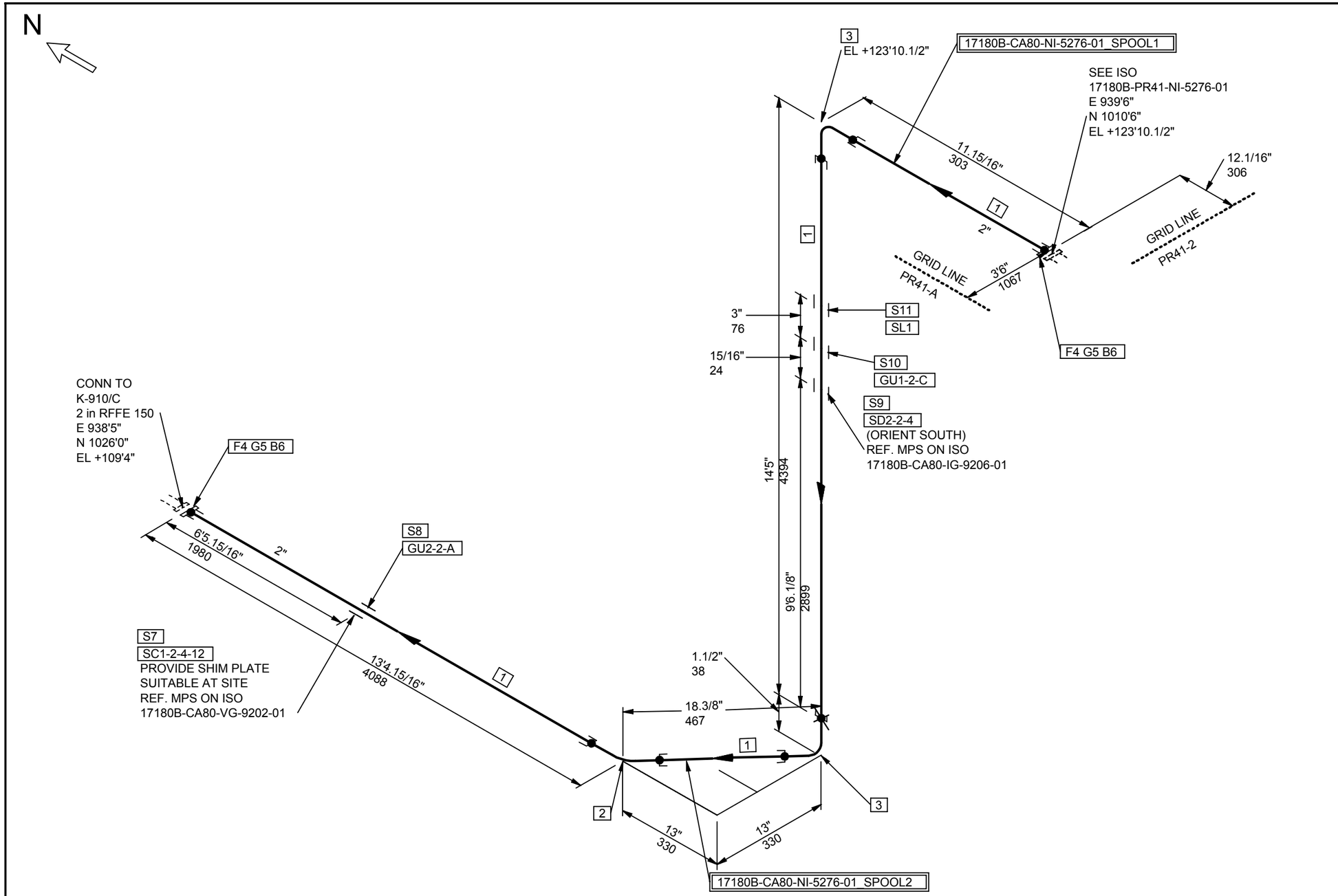
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-NI-5258-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	29.8'
2	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
ERECTION			
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
PIPE SUPPORTS			
7	SC1-2-4-12	2	1
8	GU2-2-A	2	1
9	SD2-2-4	2	1
10	GU1-2-C	2	1
11	SL1	2	1

17180B-CA80-NI-5276-01_SPOOL1 17180B-CA80-NI-5276-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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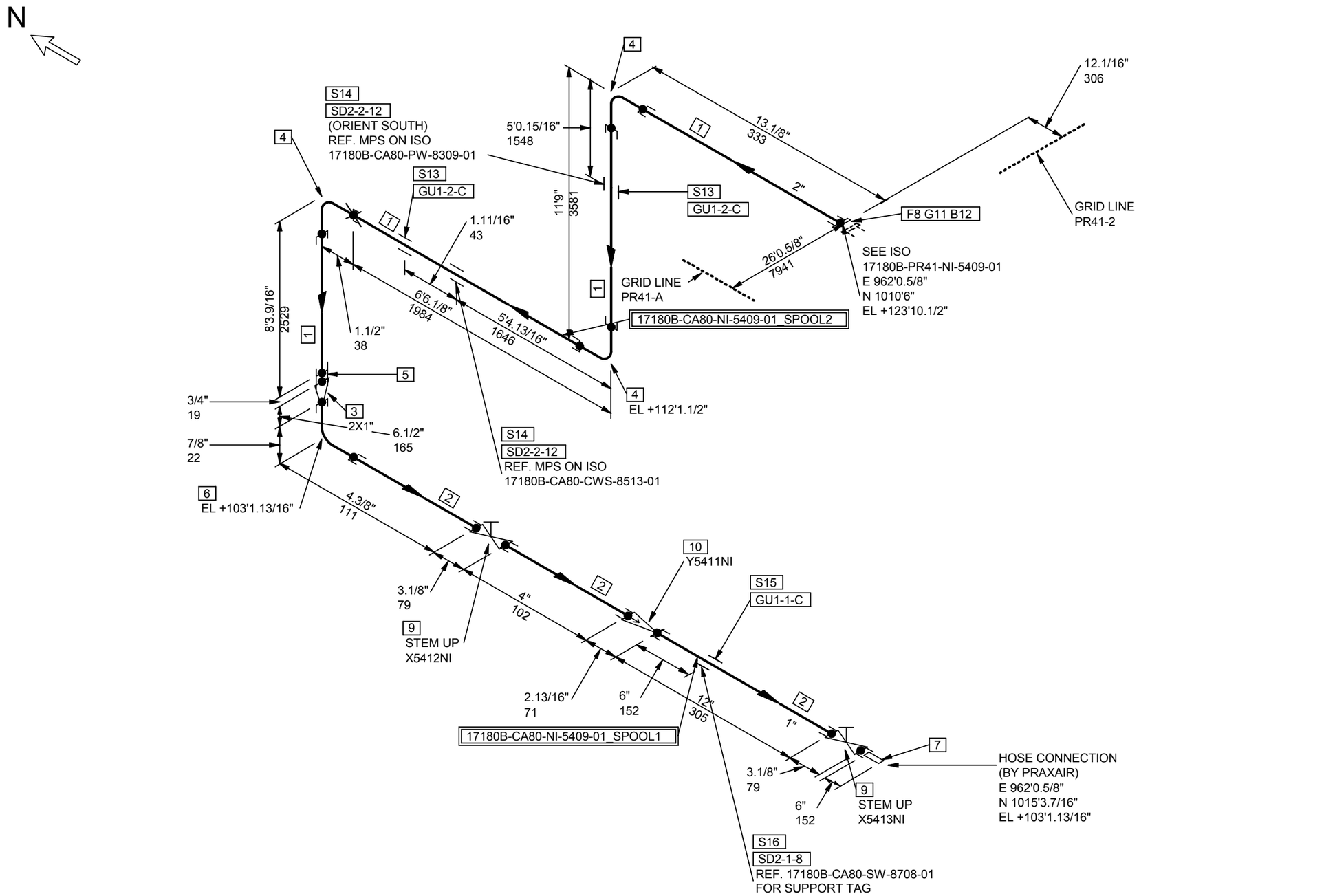
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE: N.T.S.	
PROJECT NO:	17180B
DRAWING NO:	17180B-CA80-NI-5276-01
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	27.0'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.7'
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
9	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	1	2
10	Check Vlv Ball , Manuf. Std. Dims , CL800 , SWE , 1 PC, IN-LINE, NON-SLAM, AXIAL CHECK VLV , 316 SS , 316 SS SPRING , PRAXAIR GUIDELINE V-G1 , C8SIO	1	1
	ERECTION		
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
	PIPE SUPPORTS		
13	GU1-2-C	2	2
14	SD2-2-12	2	2
15	GU1-1-C	1	1
16	SD2-1-8	1	1

17180B-CA80-NI-5409-01_SPOOL1 17180B-CA80-NI-5409-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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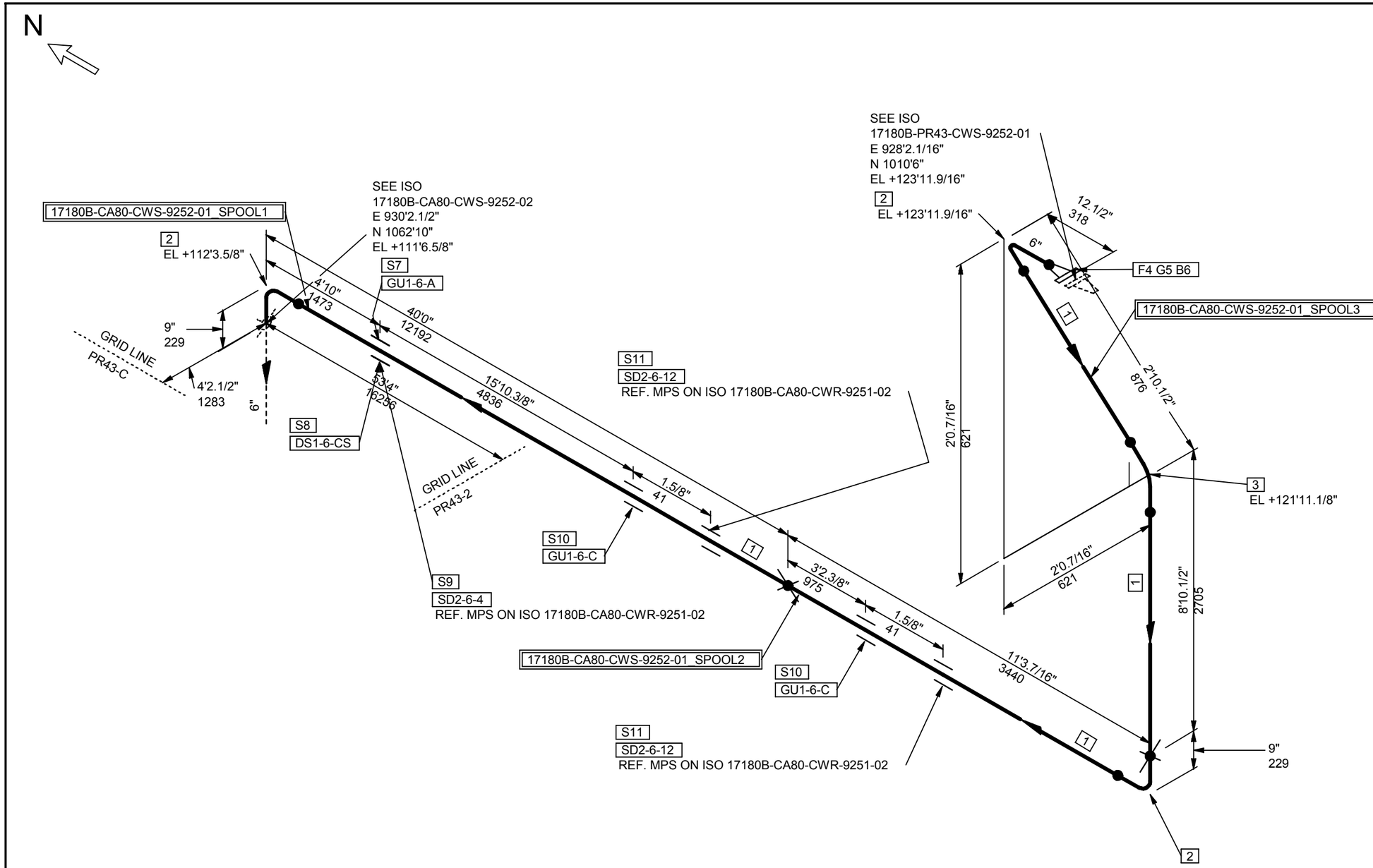
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-NI-5409-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	60.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	3
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
	PIPE SUPPORTS		
7	GU1-6-A	6	1
8	DS1-6-CS	6	1
9	SD2-6-4	6	1
10	GU1-6-C	6	2
11	SD2-6-12	6	2

17180B-CA80-CWS-9252-01_SPOOL1 17180B-CA80-CWS-9252-01_SPOOL2
17180B-CA80-CWS-9252-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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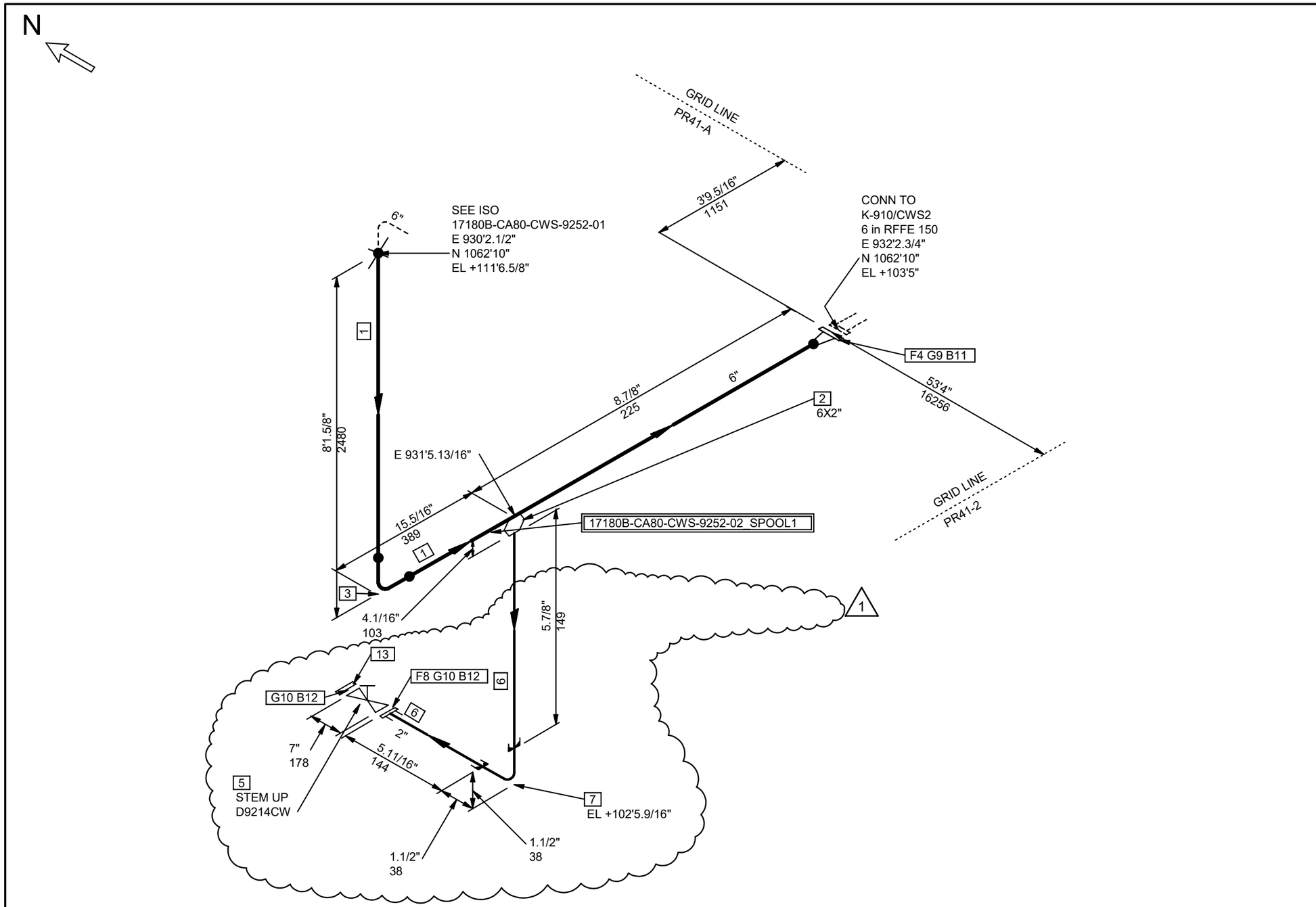
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWS-9252-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	8.4'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
5	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	ERECTION		
6	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	1.0'
7	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	1
8	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
13	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

17180B-CA80-CWS-9252-02_SPOOL1 1

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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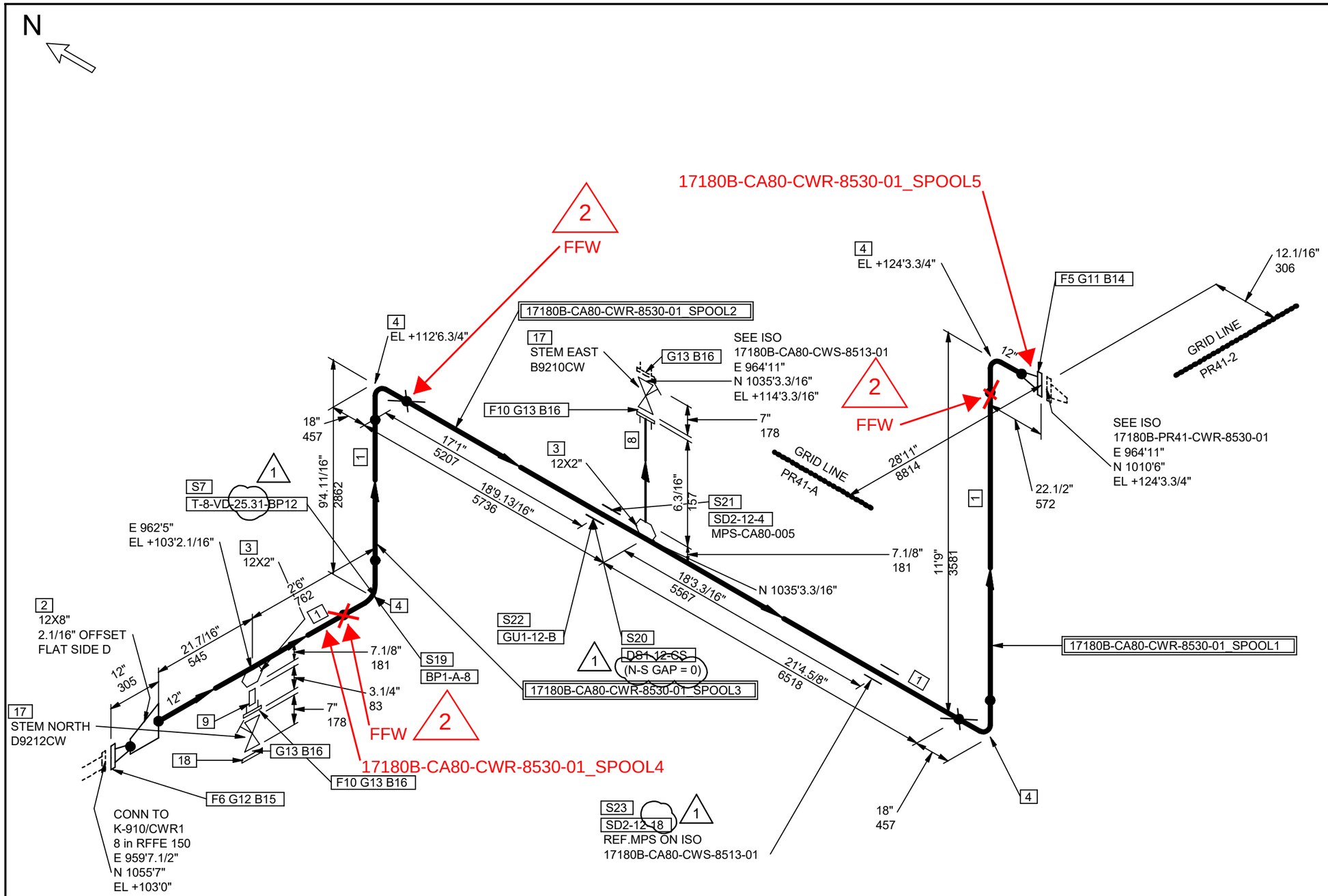
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWS-9252-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	58.2'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12X8	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	4
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
	PIPE SUPPORTS		
7	T-8-VD-25.31-BP12	12	1
	ERECTION		
8	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	0.5'
9	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
10	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
12	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	4
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	16
17	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	2
18	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
19	BP1-A-8	12	1
20	DS1-12-CS	12	1
21	SD2-12-4	12	1
22	GU1-12-B	12	1
23	SD2-12-18	12	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-CWR-8530-01_SPOOL1 17180B-CA80-CWR-8530-01_SPOOL2
17180B-CA80-CWR-8530-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/08/2020	ADDED FFW			
1	11/18/5019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	09/23/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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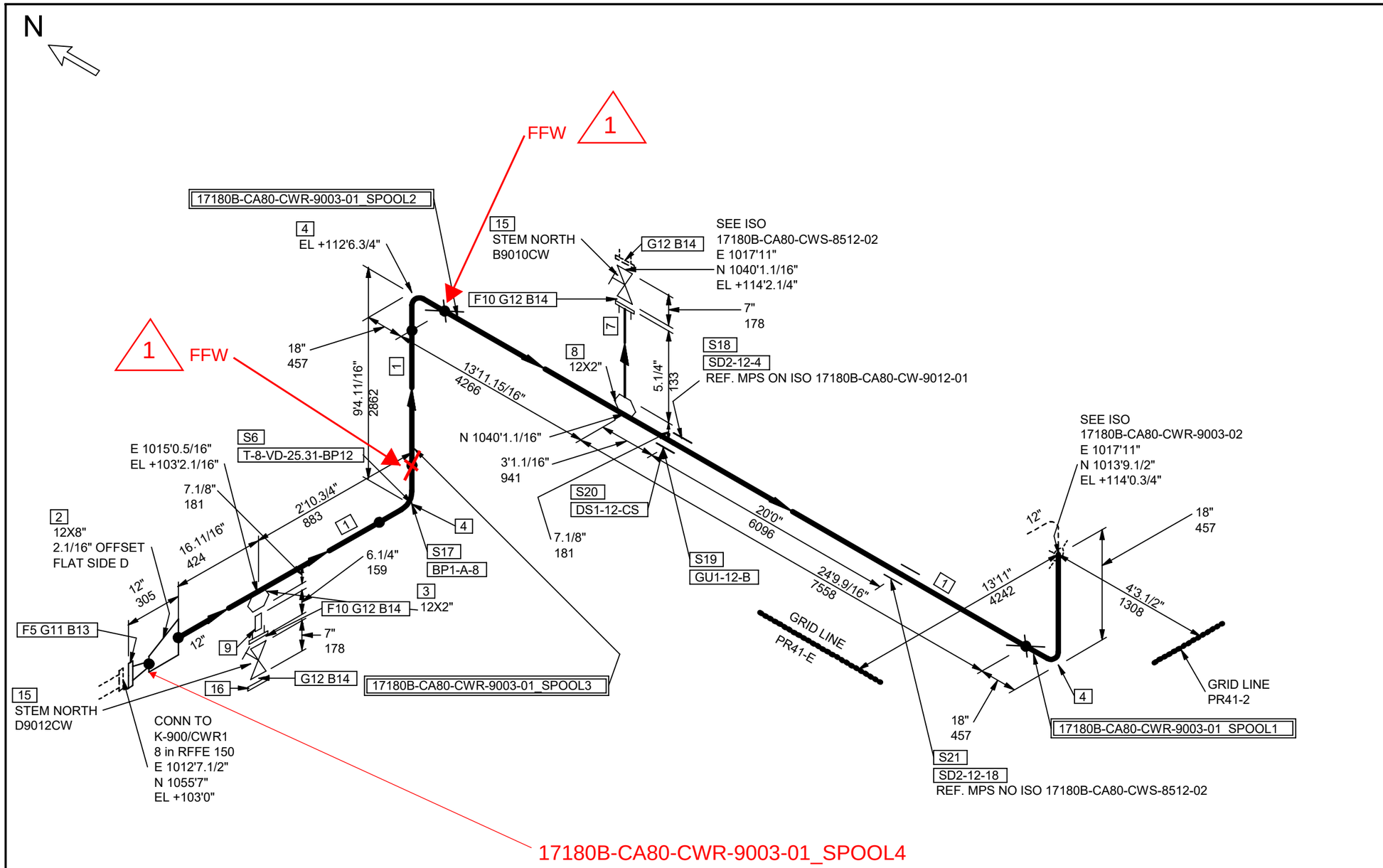
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWR-8530-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	48.0'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12X8	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	3
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
	PIPE SUPPORTS		
6	T-8-VD-25.31-BP12	12	1
	ERECTION		
7	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	0.5'
8	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
9	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
10	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
12	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	4
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	16
15	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	2
16	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
17	BP1-A-8	12	1
18	SD2-12-4	12	1
19	GU1-12-B	12	1
20	DS1-12-CS	12	1
21	SD2-12-18	12	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-CWR-9003-01_SPOOL1 17180B-CA80-CWR-9003-01_SPOOL2
17180B-CA80-CWR-9003-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	11/04/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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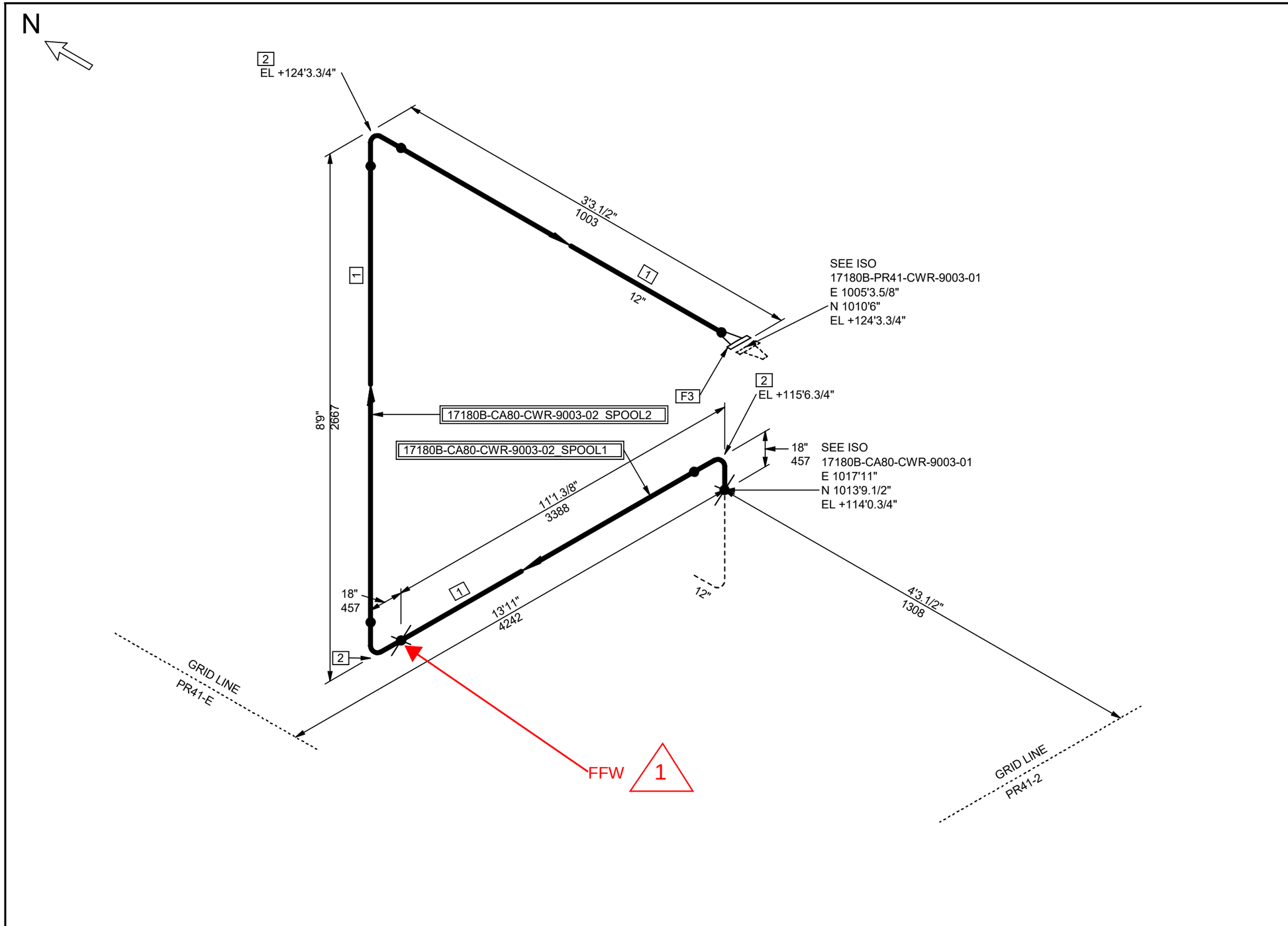
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWR-9003-01	REV: 1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	16.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1

Revision Notification

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04/02/2020 1:25:08 PM

17180B-CA80-CWR-9003-02_SPOOL1 17180B-CA80-CWR-9003-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	11/04/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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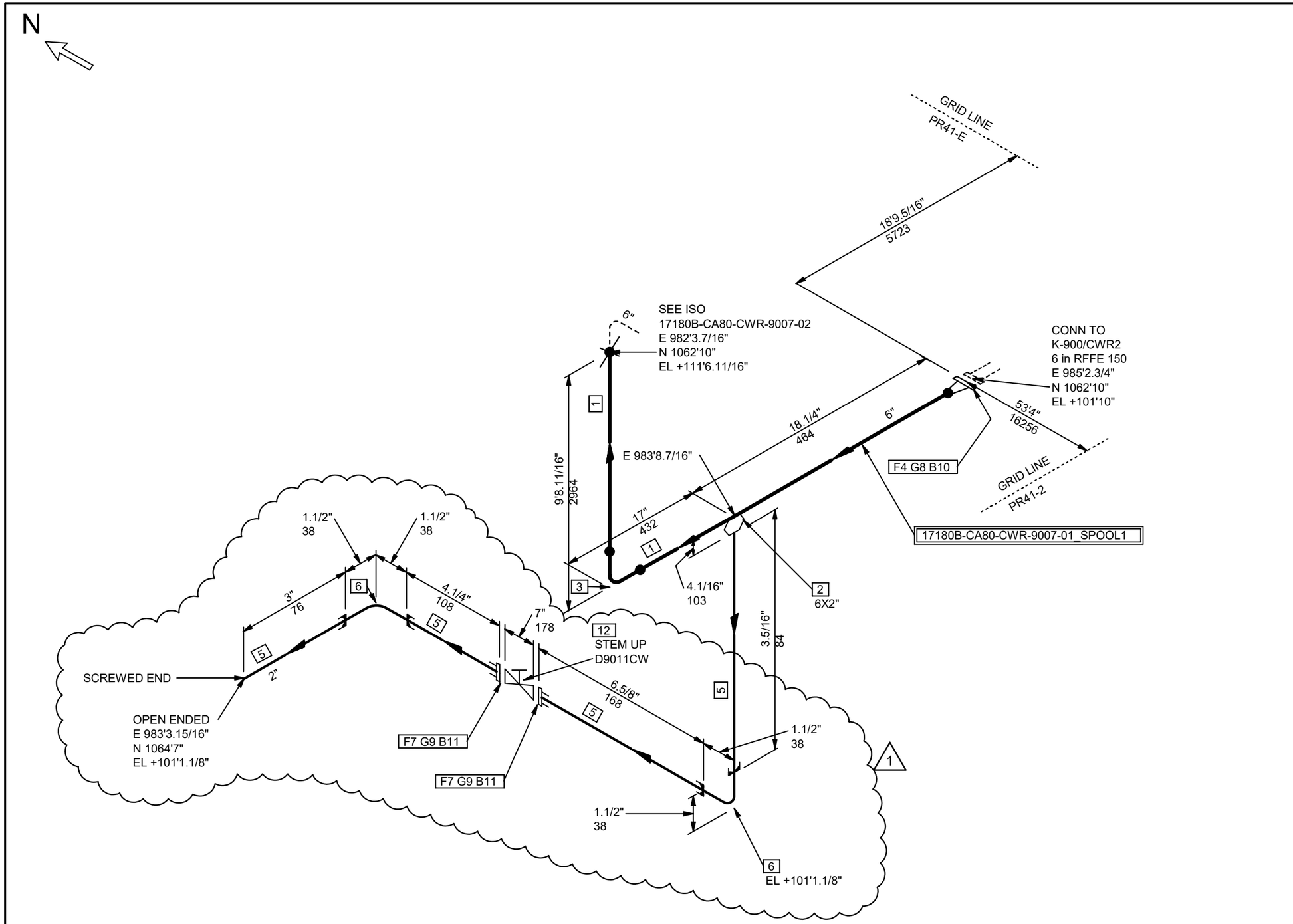
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWR-9003-02	REV: 1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	10.9'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	1.4'
6	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
12	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1

17180B-CA80-CWR-9007-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/24/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	09/06/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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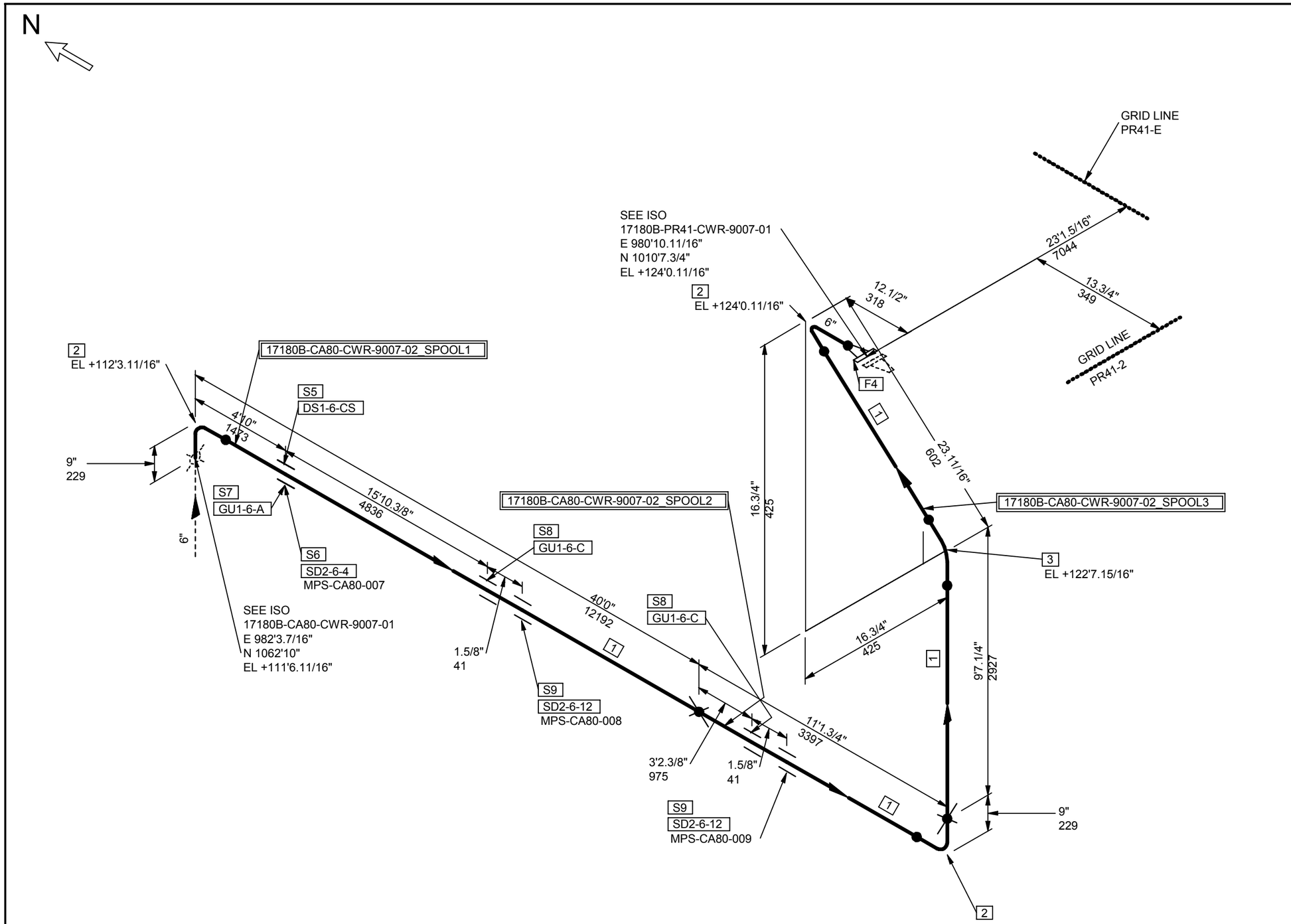
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWR-9007-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	59.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	3
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
ERECTION			
PIPE SUPPORTS			
5	DS1-6-CS	6	1
6	SD2-6-4	6	1
7	GU1-6-A	6	1
8	GU1-6-C	6	2
9	SD2-6-12	6	2

17180B-CA80-CWR-9007-02_SPOOL1 17180B-CA80-CWR-9007-02_SPOOL2
17180B-CA80-CWR-9007-02_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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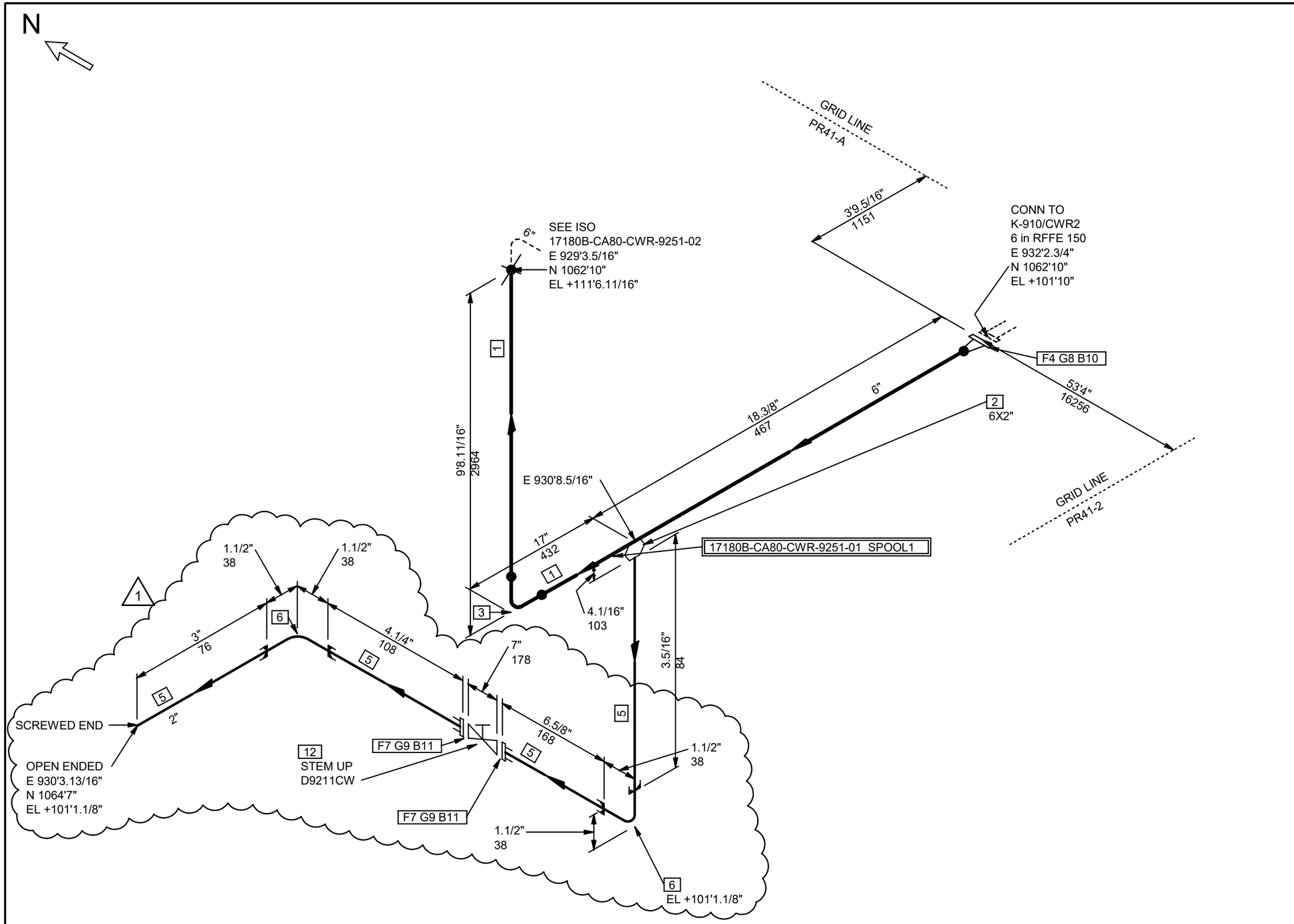
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWR-9007-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	10.9'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	1.4'
6	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
12	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1

17180B-CA80-CWR-9251-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/24/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	09/06/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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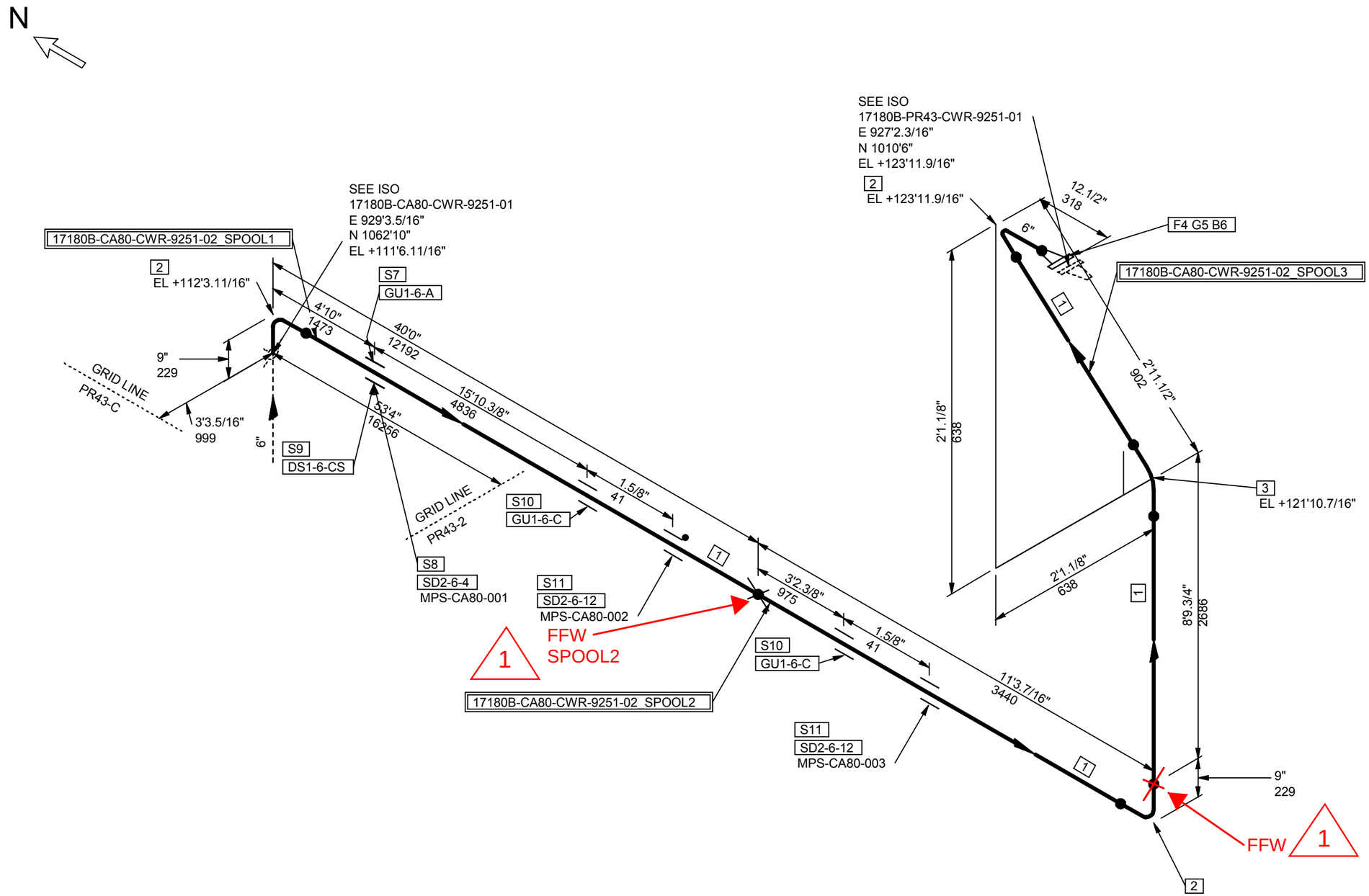
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWR-9251-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	60.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	3
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
	PIPE SUPPORTS		
7	GU1-6-A	6	1
8	SD2-6-4	6	1
9	DS1-6-CS	6	1
10	GU1-6-C	6	2
11	SD2-6-12	6	2

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-CWR-9251-02_SPOOL1 17180B-CA80-CWR-9251-02_SPOOL2
17180B-CA80-CWR-9251-02_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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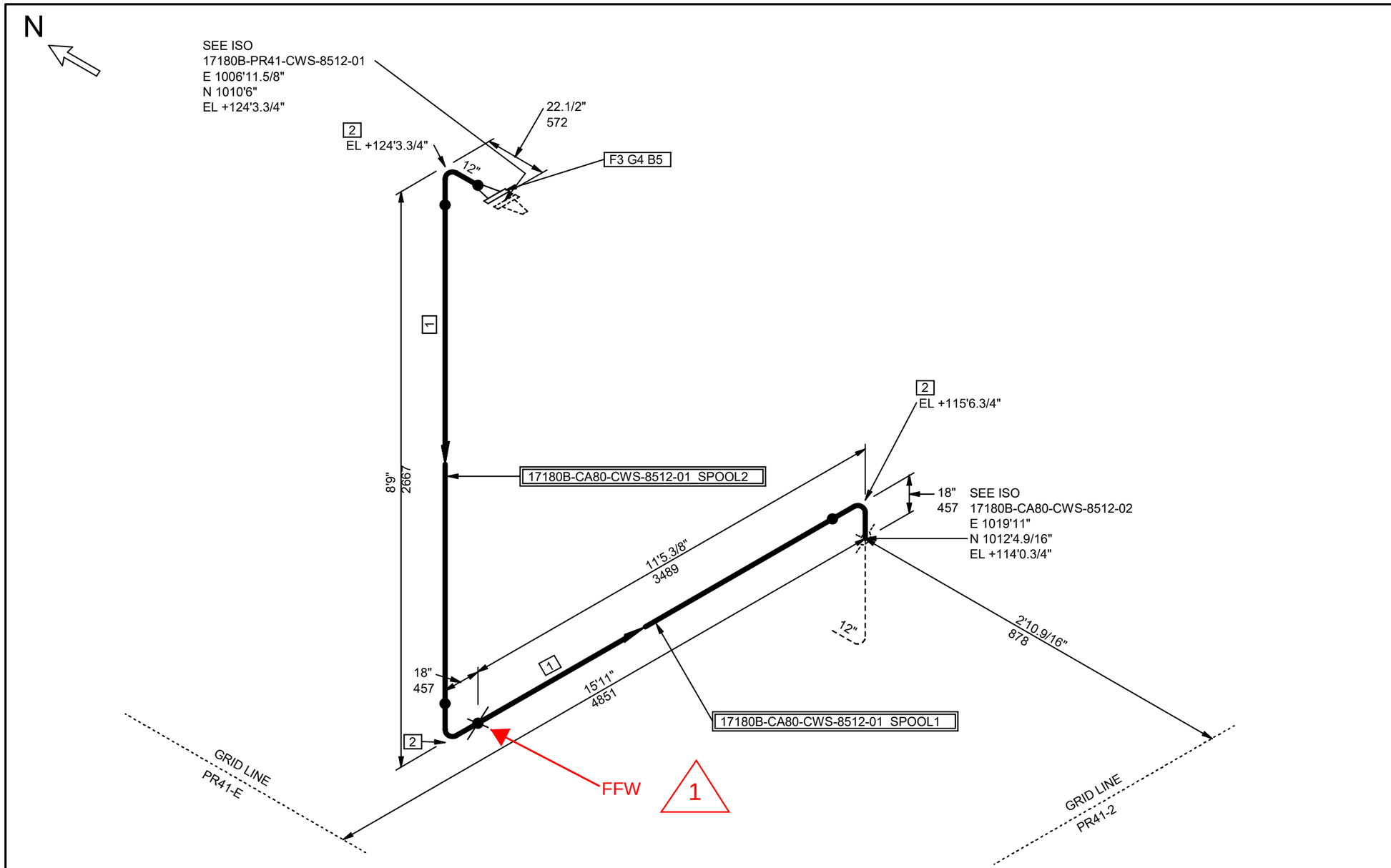
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWR-9251-02	REV: 1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	15.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-CWS-8512-01_SPOOL1 17180B-CA80-CWS-8512-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	11/05/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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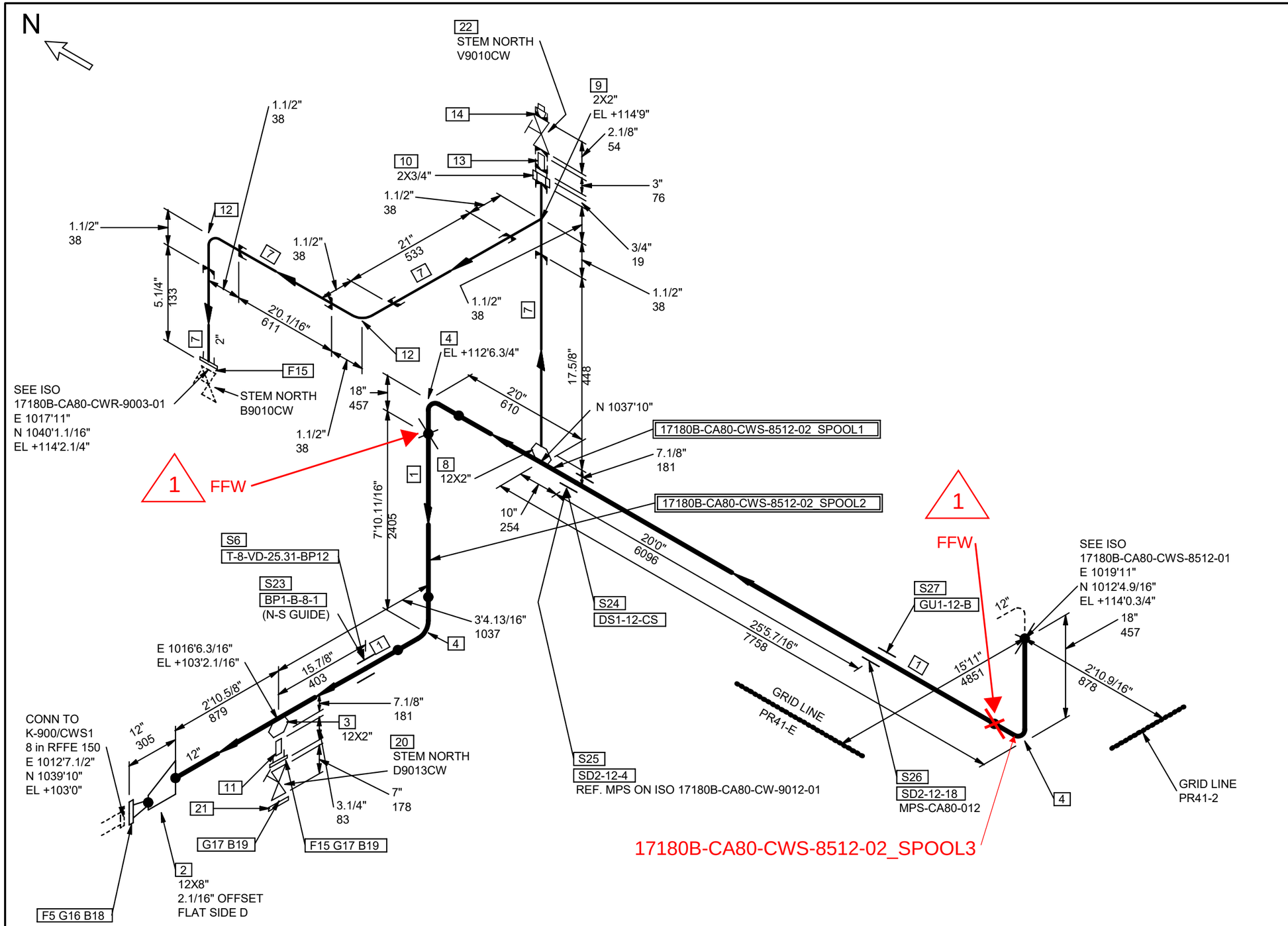
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA80-CWS-8512-01
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	35.7'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12X8	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	3
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
	PIPE SUPPORTS		
6	T-8-VD-25.31-BP12	12	1
	ERECTION		
7	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	5.7'
8	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
9	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	2X2	1
10	Hex Head Bushing , ASME B16.14 , FTE x MTE , ASTM A197	2X3/4	1
11	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
12	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
13	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
14	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
15	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
16	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
17	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
18	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
19	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
20	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
21	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
22	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
23	BP1-B-8-1	12	1
24	DS1-12-CS	12	1
25	SD2-12-4	12	1
26	SD2-12-18	12	1
27	GU1-12-B	12	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-CWS-8512-02_SPOOL1 17180B-CA80-CWS-8512-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✱ = FIELD WELD
- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/09/2020	ADDED FFW			
0	11/07/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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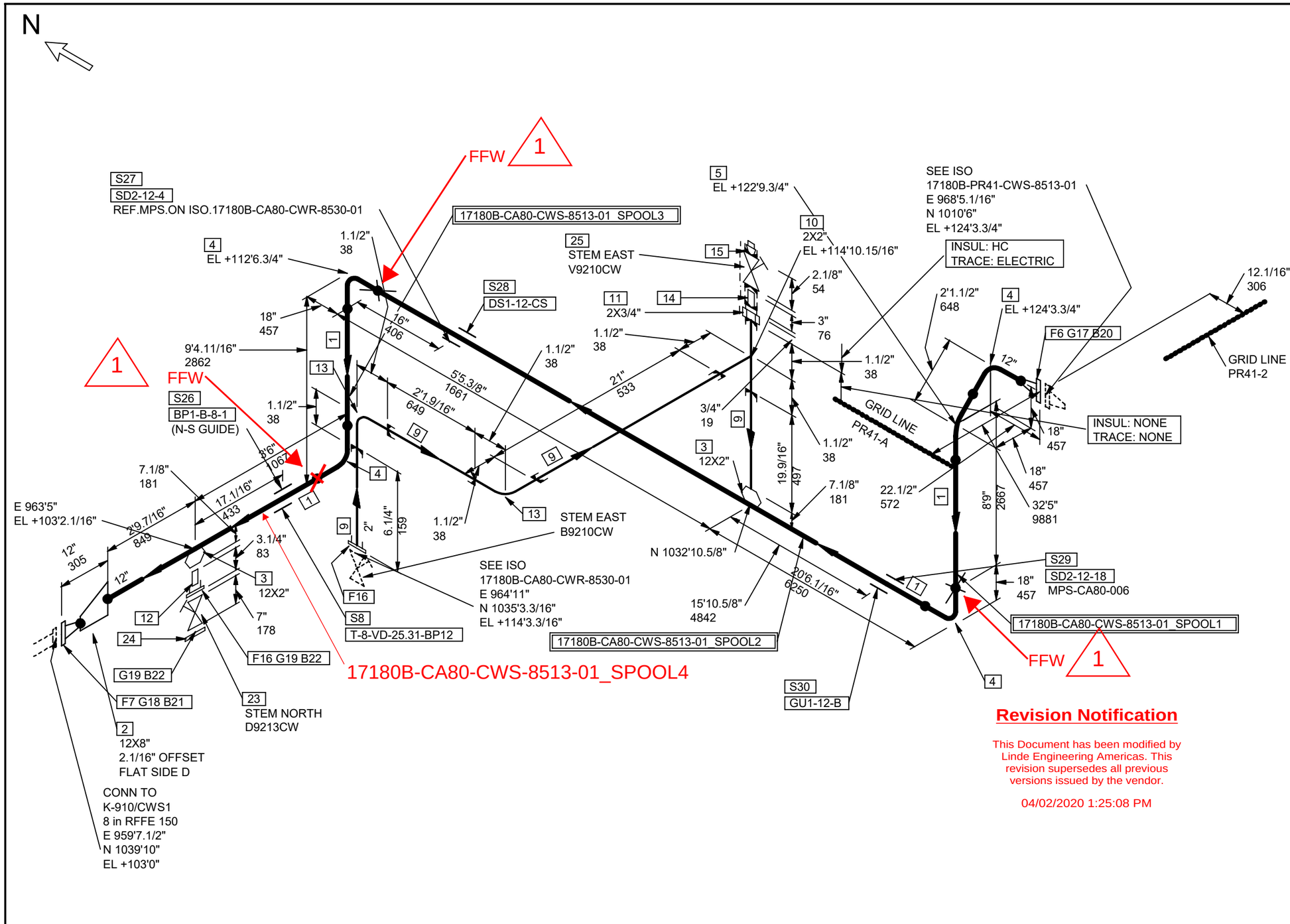
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWS-8512-02	REV: 1

TEMPLATE: GE-215B ISO



Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	43.8'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12X8	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	4
5	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
	PIPE SUPPORTS		
8	T-8-VD-25.31-BP12	12	1
	ERECTION		
9	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	6.1'
10	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	2X2	1
11	Hex Head Bushing , ASME B16.14 , FTE x MTE , ASTM A197	2X3/4	1
12	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
13	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
14	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
15	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
16	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
17	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
18	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
19	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
20	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
21	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
22	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
23	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
24	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
25	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
26	BP1-B-8-1	12	1
27	SD2-12-4	12	1
28	DS1-12-CS	12	1
29	SD2-12-18	12	1
30	GU1-12-B	12	1

17180B-CA80-CWS-8513-01_SPOOL1 17180B-CA80-CWS-8513-01_SPOOL2
17180B-CA80-CWS-8513-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	11/05/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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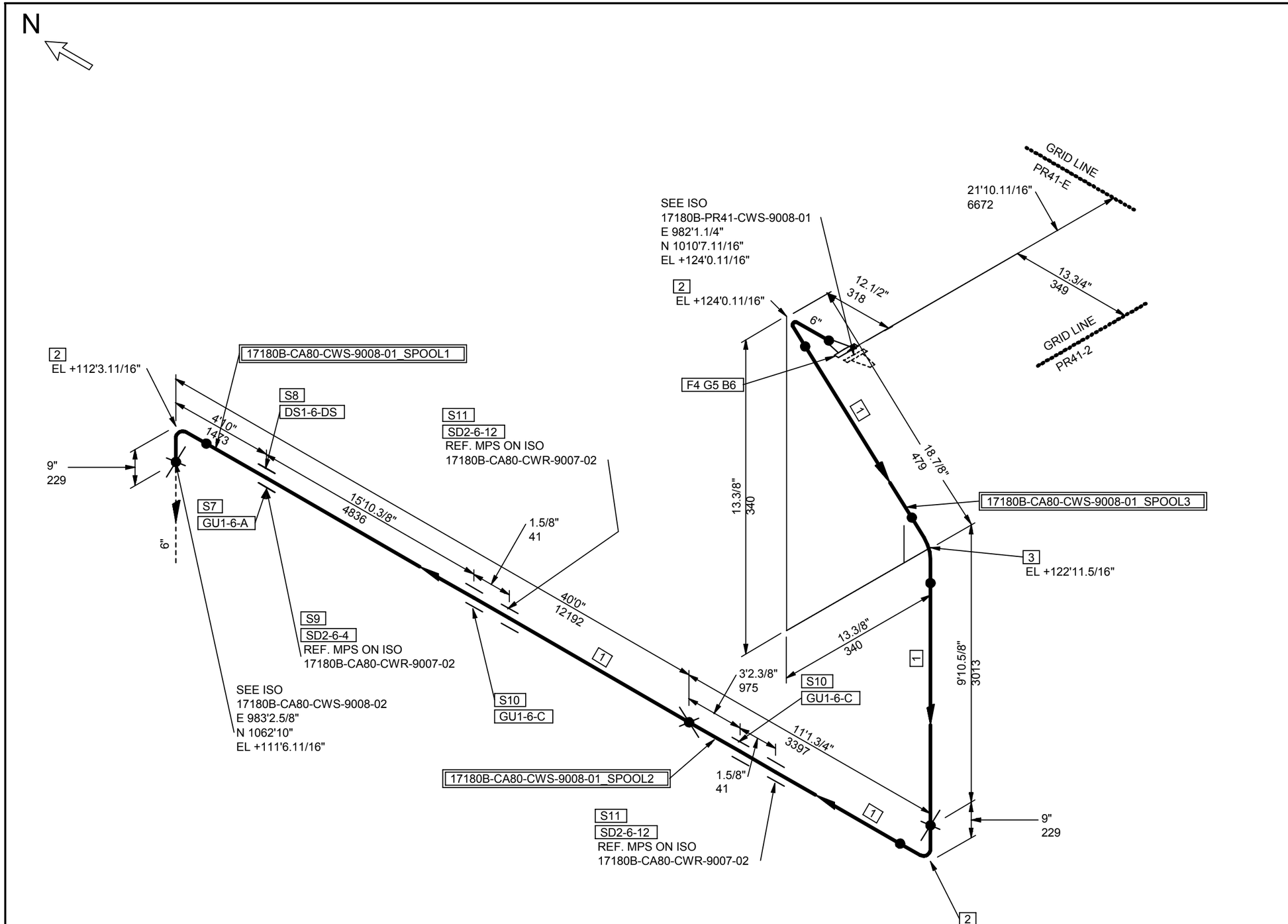
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWS-8513-01	REV: 1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	59.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	3
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
	PIPE SUPPORTS		
7	GU1-6-A	6	1
8	DS1-6-DS	6	1
9	SD2-6-4	6	1
10	GU1-6-C	6	2
11	SD2-6-12	6	2

17180B-CA80-CWS-9008-01_SPOOL1 17180B-CA80-CWS-9008-01_SPOOL2
17180B-CA80-CWS-9008-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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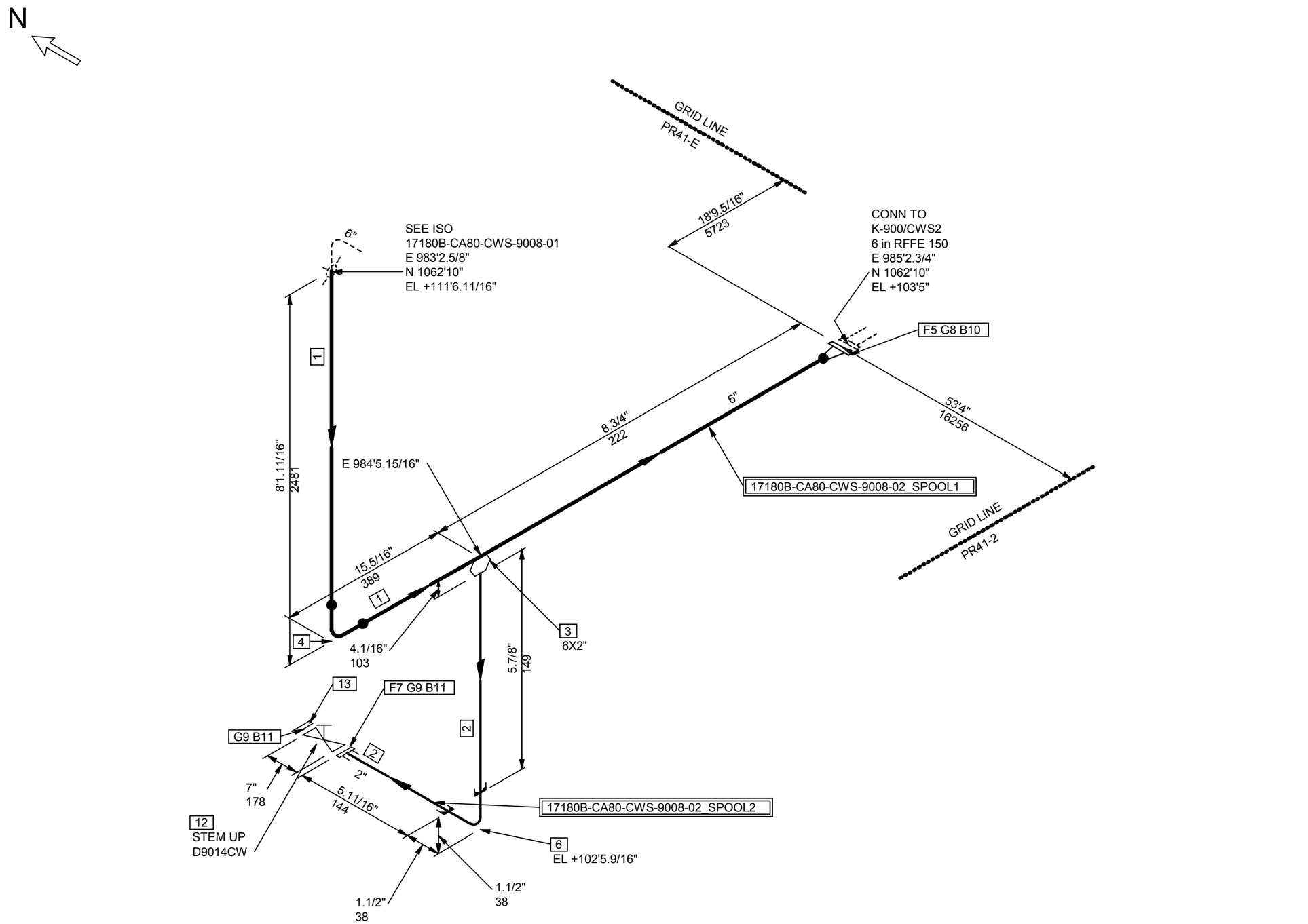
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWS-9008-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	8.4'
2	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	1.0'
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
6	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
12	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
13	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

17180B-CA80-CWS-9008-02_SPOOL1 17180B-CA80-CWS-9008-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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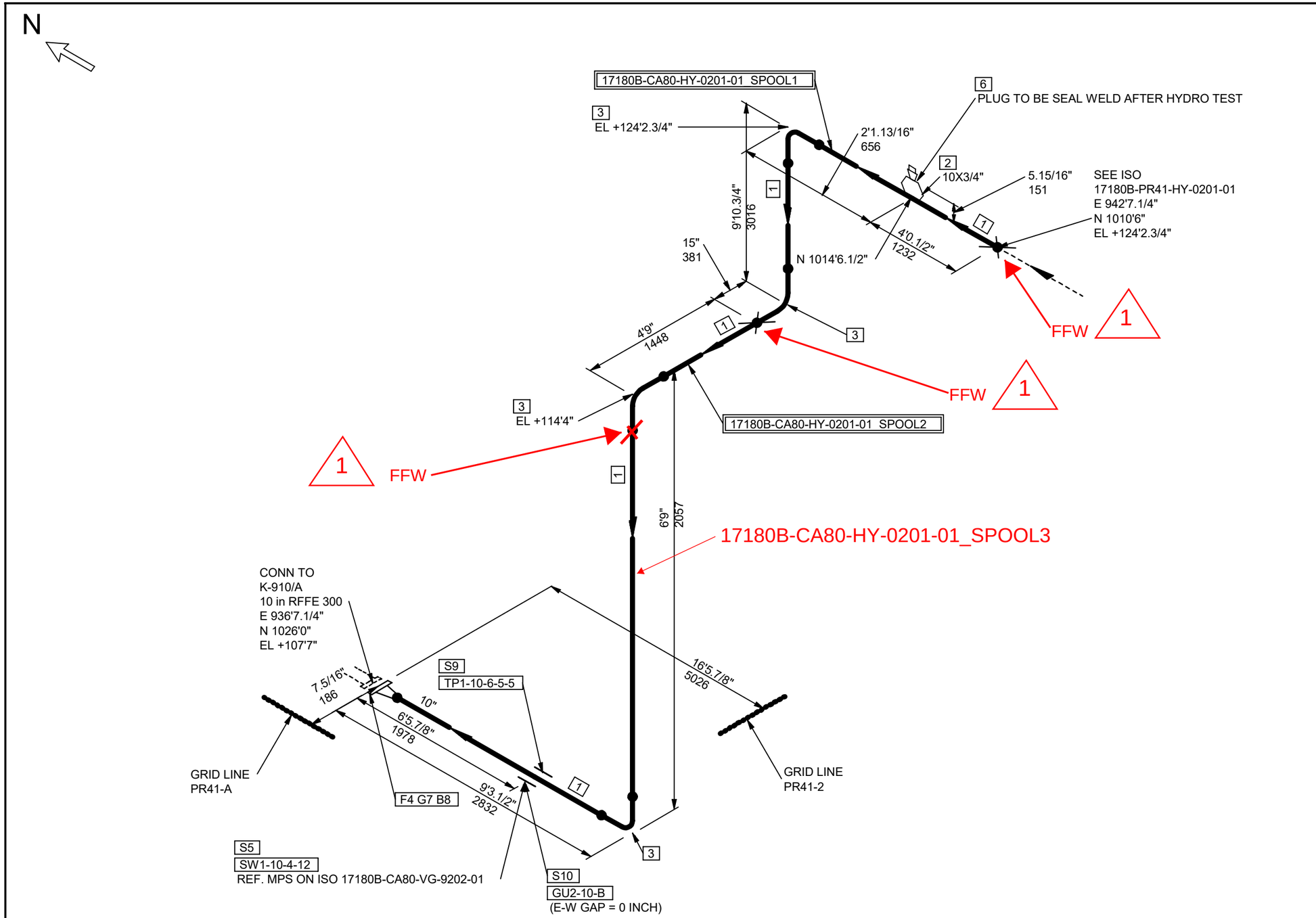
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-CWS-9008-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	10	27.8'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	10X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	10	4
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	10	1
	PIPE SUPPORTS		
5	SW1-10-4-12	10	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
7	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1	16
	PIPE SUPPORTS		
9	TP1-10-6-5-5	10	1
10	GU2-10-B	10	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-HY-0201-01_SPOOL1 17180B-CA80-HY-0201-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0201		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	11/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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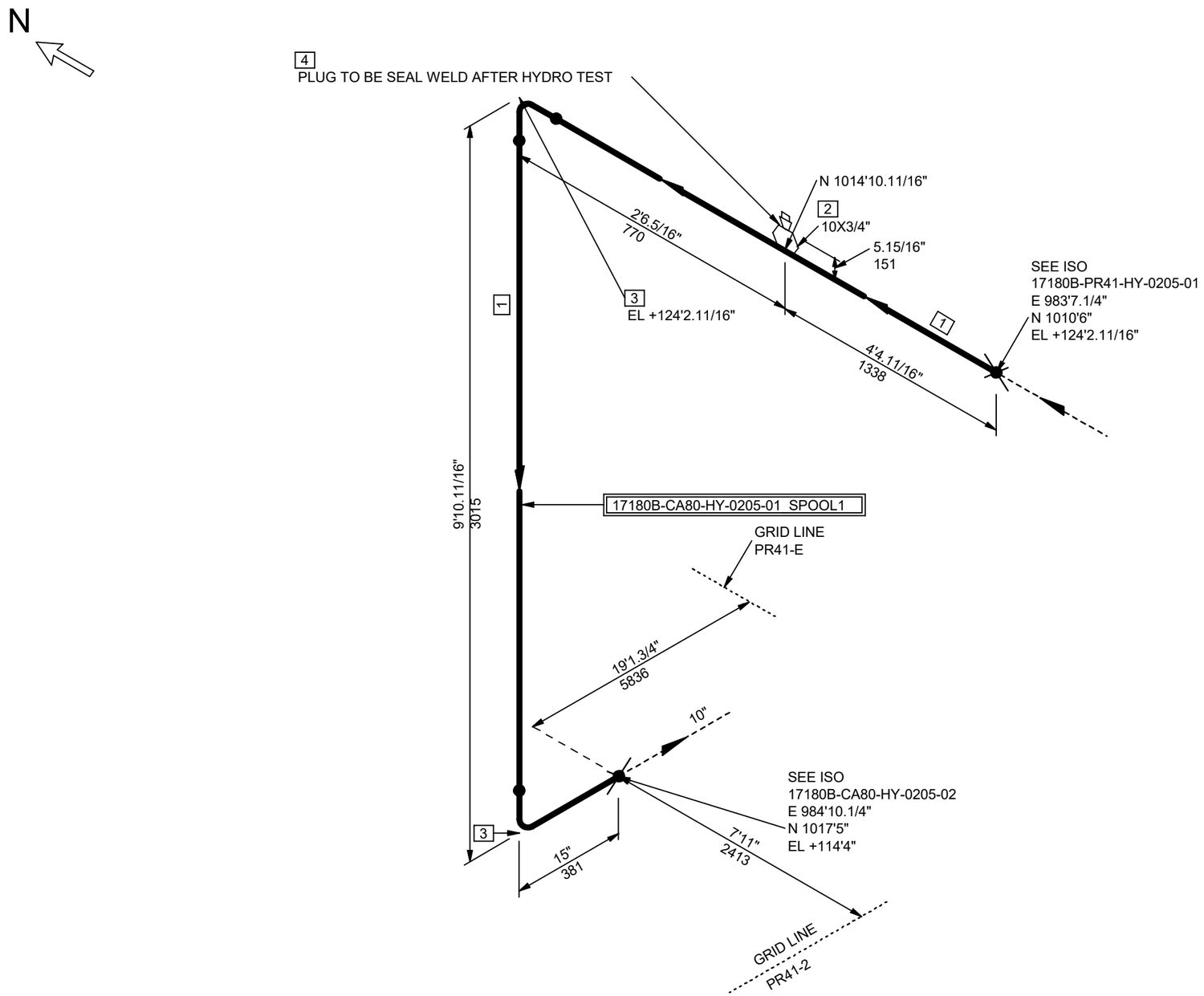
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-HY-0201-01	REV: 1.0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	10	13.1'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	10X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	10	2
ERECTION			
4	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1

17180B-CA80-HY-0205-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0201		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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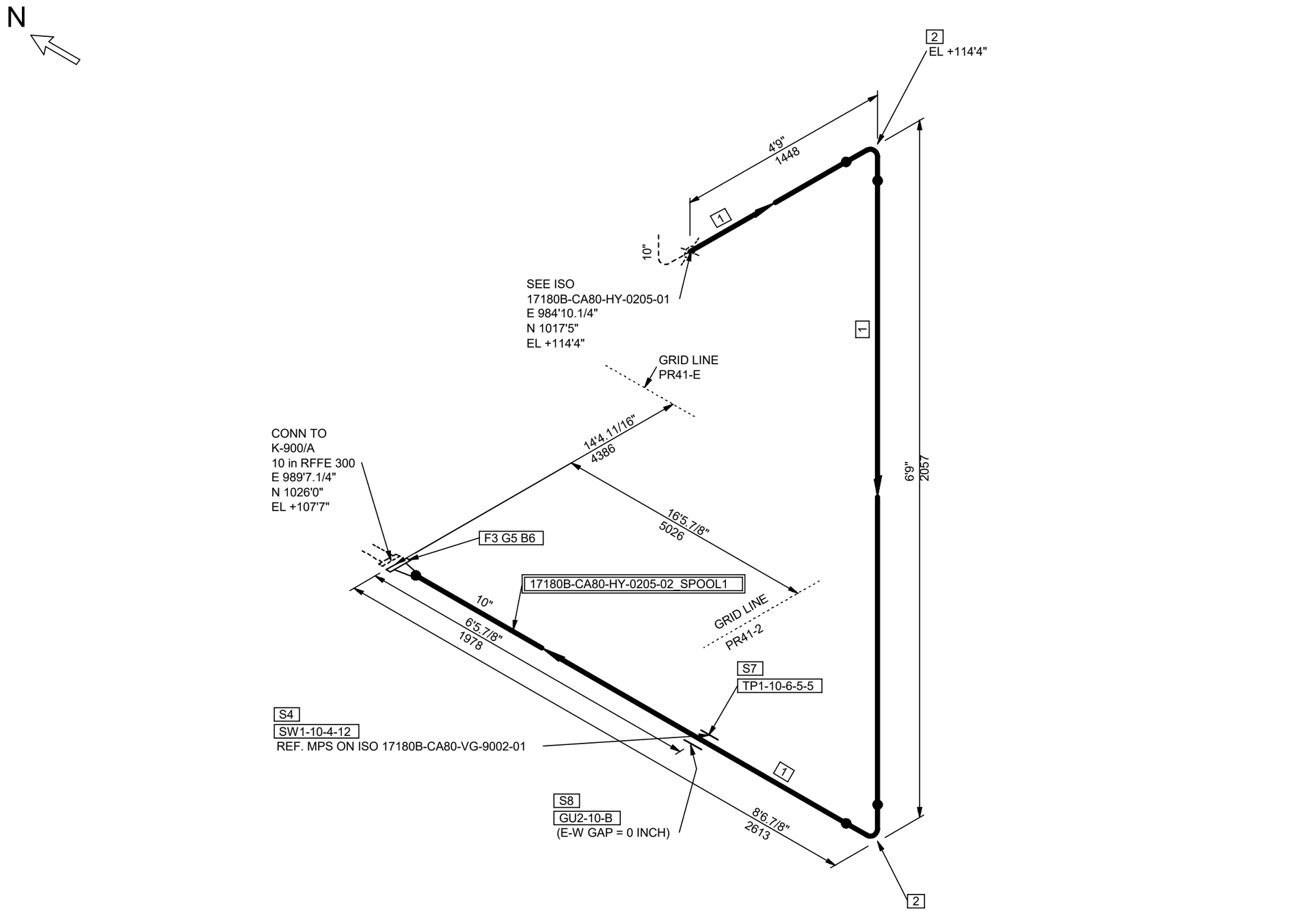
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-HY-0205-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	10	14.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	10	2
3	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	10	1
	PIPE SUPPORTS		
4	SW1-10-4-12	10	1
	ERECTION		
5	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1	16
	PIPE SUPPORTS		
7	TP1-10-6-5-5	10	1
8	GU2-10-B	10	1

17180B-CA80-HY-0205-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0201		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	

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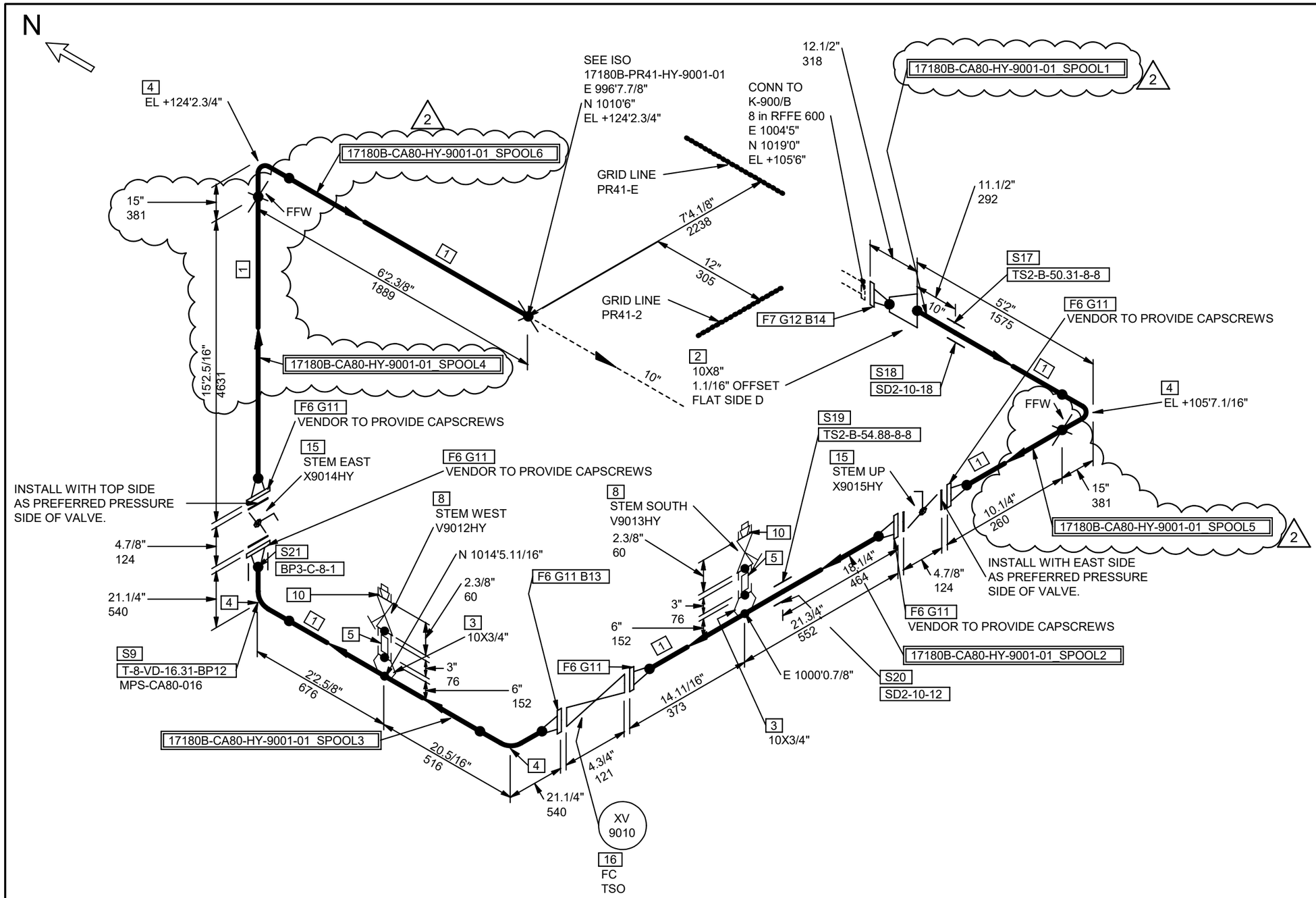
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-HY-0205-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-60	10	28.0'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	10X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	10	4
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	10	6
7	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	8	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	PIPE SUPPORTS		
9	T-8-VD-16.31-BP12	10	1
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	10	6
12	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 13.5 in. Length	1.1/4	16
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.75 in. Length	1.1/8	12
15	Bfly Vlv Lugged , API 609 Category B , CL600 , RFLUG , Drive, gear operator , ASTM A216-WCB , AISI 316 SS Trim , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W6LAB	10	2
	INSTRUMENTS		
16	XV-9010	10	1
	PIPE SUPPORTS		
17	TS2-B-50.31-8-8	10	1
18	SD2-10-18	10	1
19	TS2-B-54.88-8-8	10	1
20	SD2-10-12	10	1
21	BP3-C-8-1	10	1

17180B-CA80-HY-9001-01_SPOOL1
17180B-CA80-HY-9001-01_SPOOL2
17180B-CA80-HY-9001-01_SPOOL3
17180B-CA80-HY-9001-01_SPOOL4
17180B-CA80-HY-9001-01_SPOOL5
17180B-CA80-HY-9001-01_SPOOL6

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	05/05/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	04/23/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/07/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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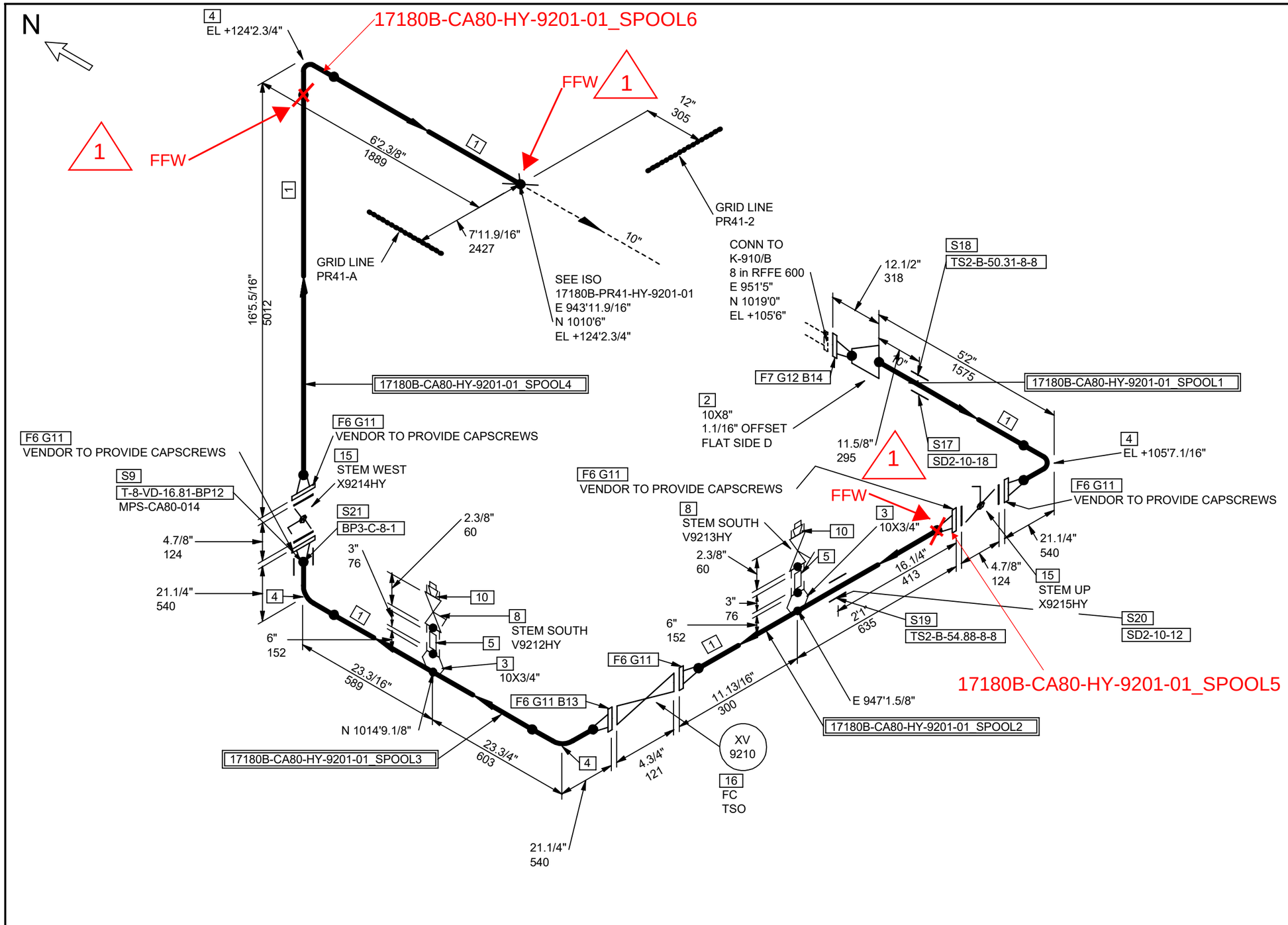
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-HY-9001-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-60	10	27.0'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	10X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	10	4
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	10	6
7	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	8	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	PIPE SUPPORTS		
9	T-8-VD-16.81-BP12	10	1
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	10	6
12	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 13.5 in. Length	1.1/4	16
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.75 in. Length	1.1/8	12
15	Bfly Vlv Lugged , API 609 Category B , CL600 , RFLUG , Drive, gear operator , ASTM A216-WCB , AISI 316 SS Trim , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W6LAB	10	2
	INSTRUMENTS		
16	XV-9210	10	1
	PIPE SUPPORTS		
17	SD2-10-18	10	1
18	TS2-B-50.31-8-8	10	1
19	TS2-B-54.88-8-8	10	1
20	SD2-10-12	10	1
21	BP3-C-8-1	10	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-HY-9201-01_SPOOL1
17180B-CA80-HY-9201-01_SPOOL2
17180B-CA80-HY-9201-01_SPOOL3
17180B-CA80-HY-9201-01_SPOOL4

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	11/07/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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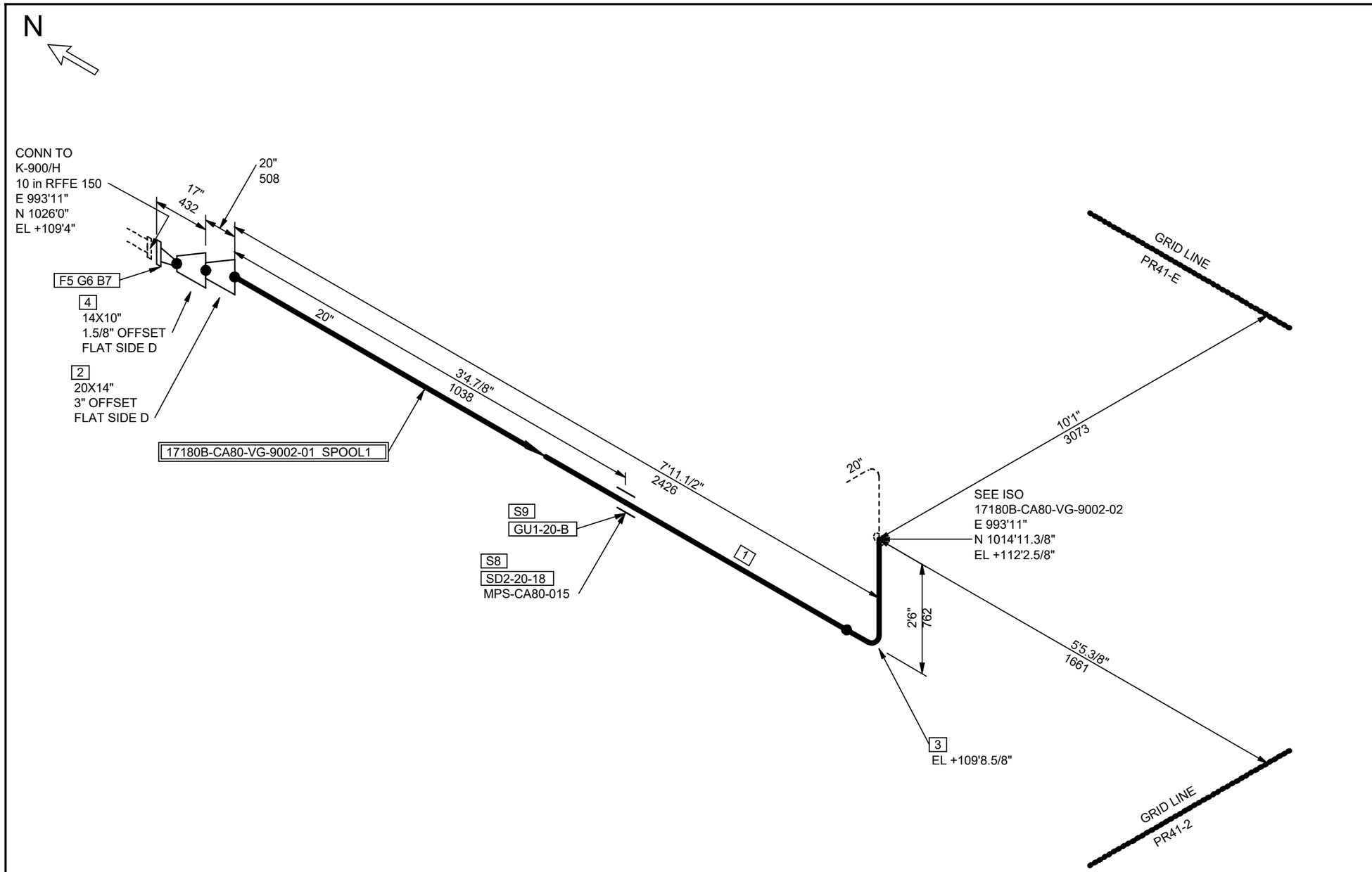
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-HY-9201-01
REV: 1 0	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	5.5'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X14	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	1
4	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	14X10	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	1
ERECTION			
6	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
PIPE SUPPORTS			
8	SD2-20-18	20	1
9	GU1-20-B	20	1

17180B-CA80-VG-9002-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✱ = FIELD WELD
- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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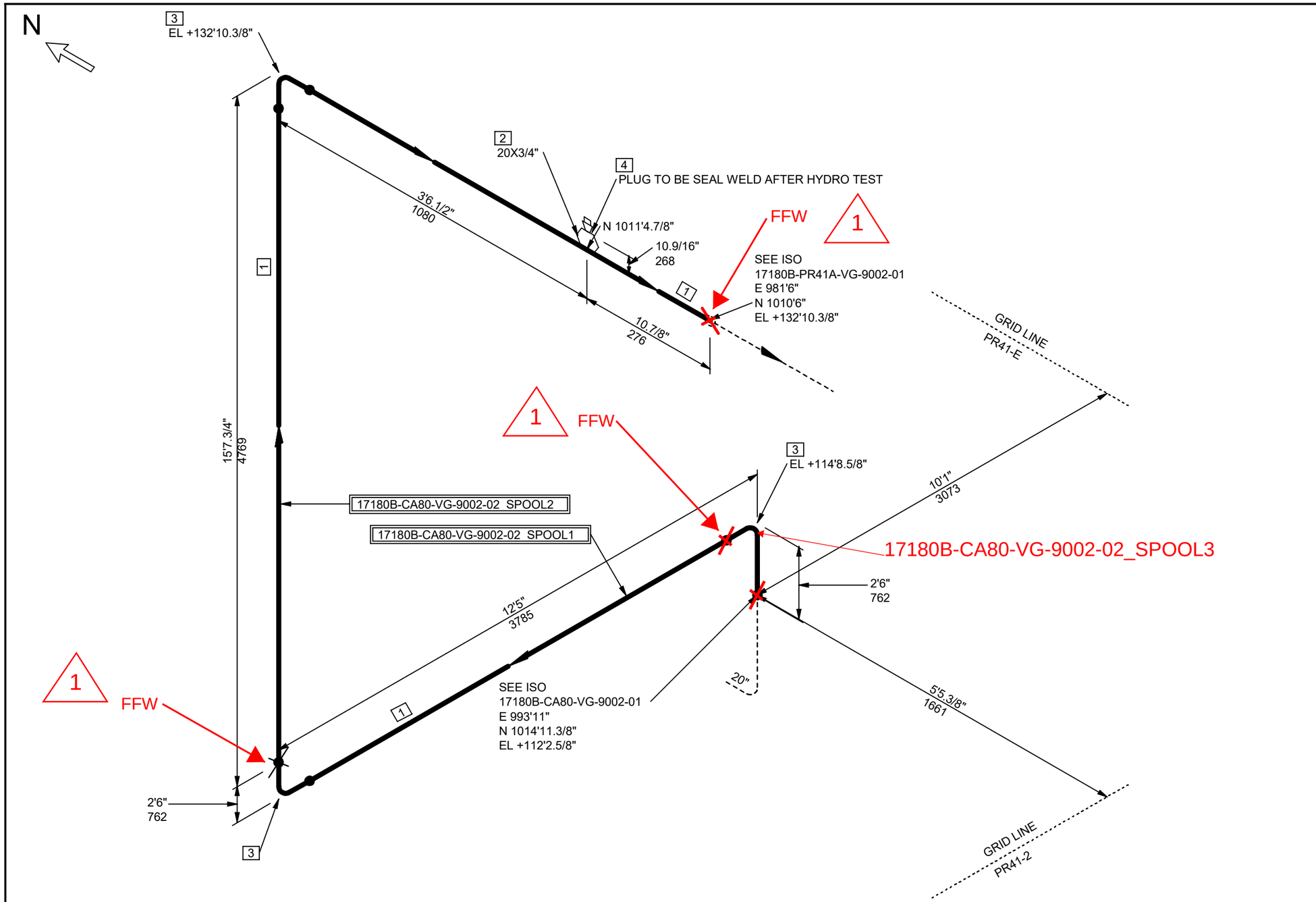
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-VG-9002-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	22.6'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	3
ERECTION			
4	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-VG-9002-02_SPOOL1 17180B-CA80-VG-9002-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	10/11/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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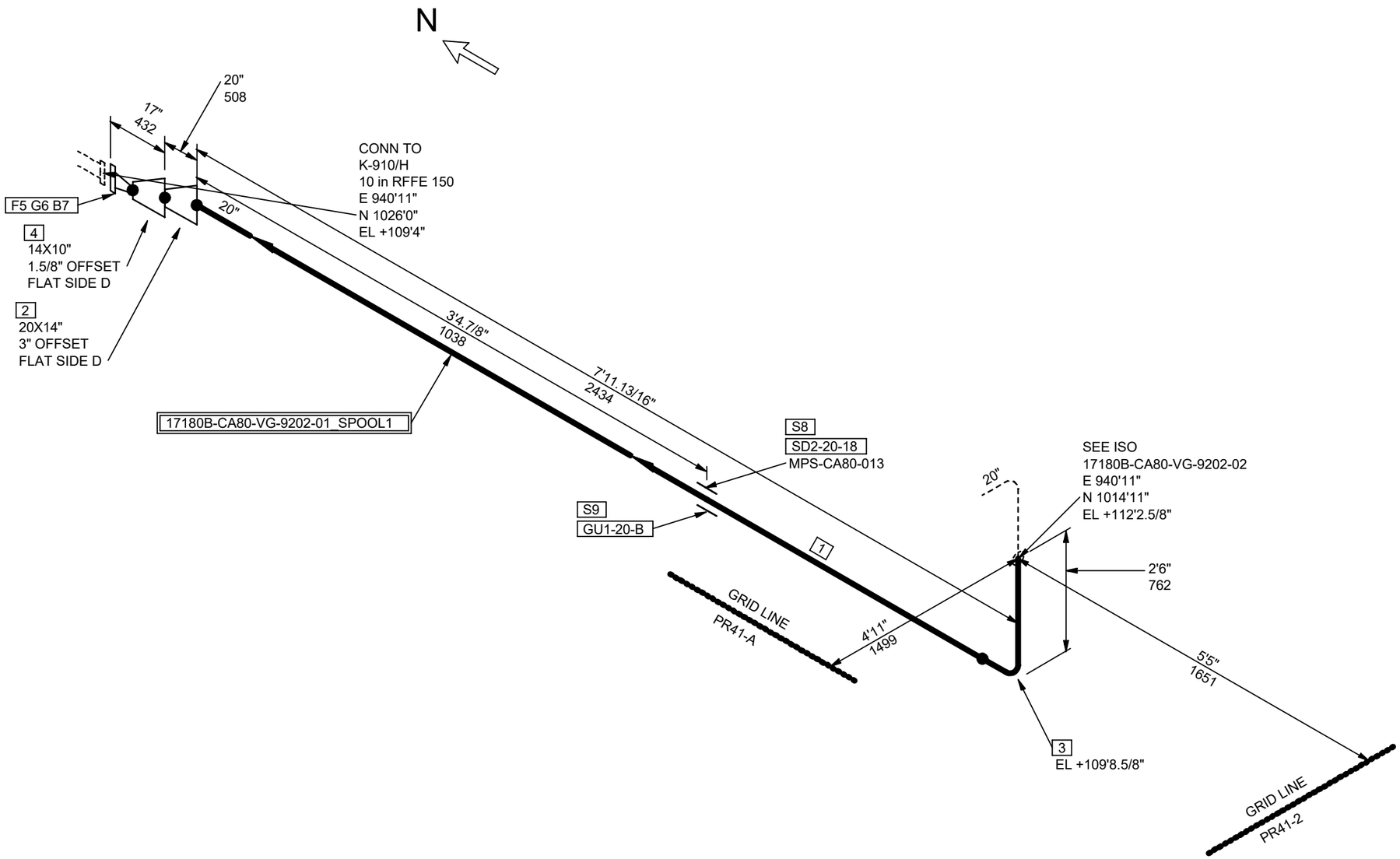
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-VG-9002-02	REV: 1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	5.5'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X14	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	1
4	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	14X10	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	1
ERECTION			
6	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
PIPE SUPPORTS			
8	SD2-20-18	20	1
9	GU1-20-B	20	1

17180B-CA80-VG-9202-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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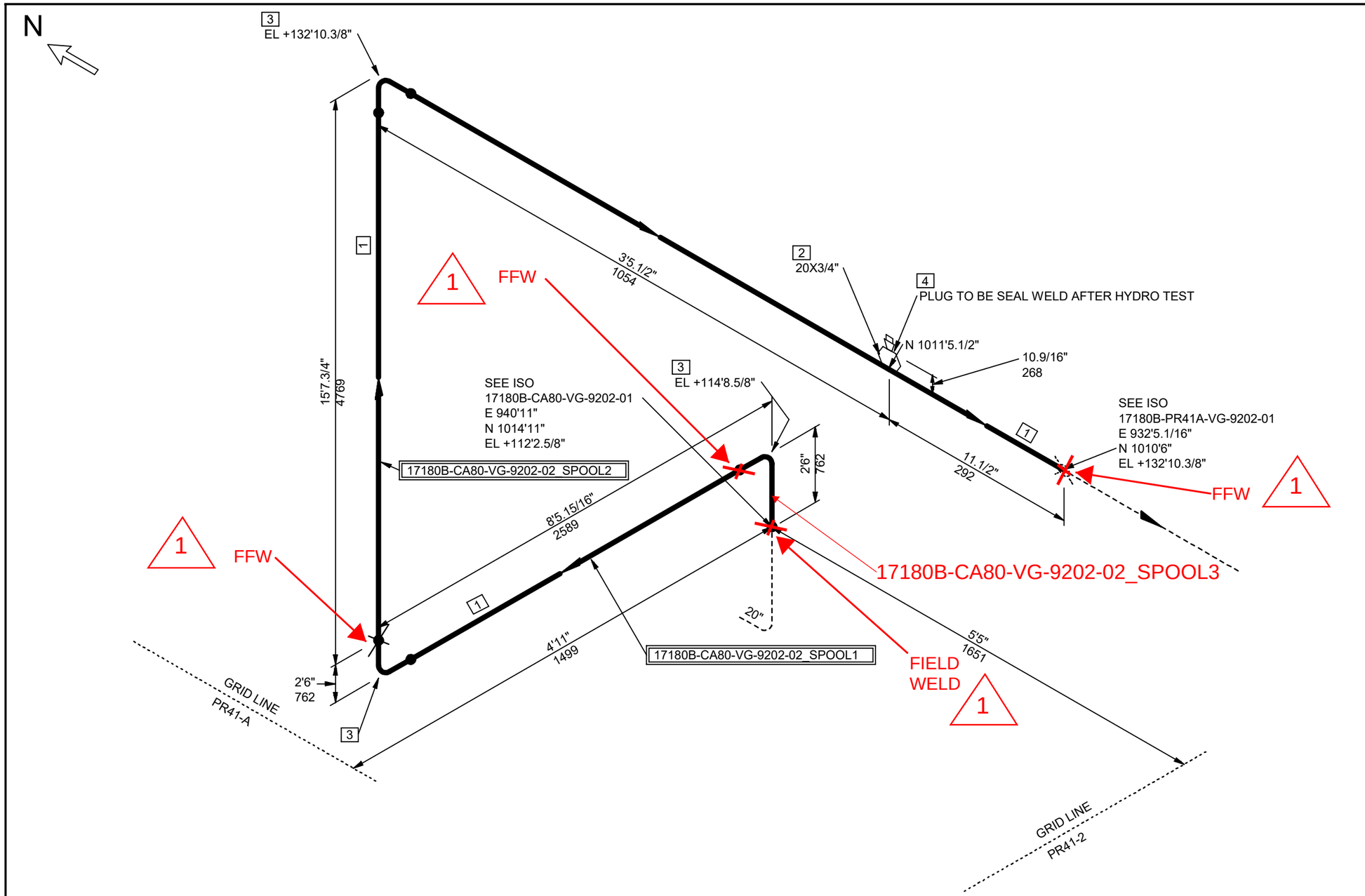
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA80-VG-9202-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	18.6'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	3
ERECTION			
4	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA80-VG-9202-02_SPOOL1 17180B-CA80-VG-9202-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/08/2020	ADDED FFW			
0	10/11/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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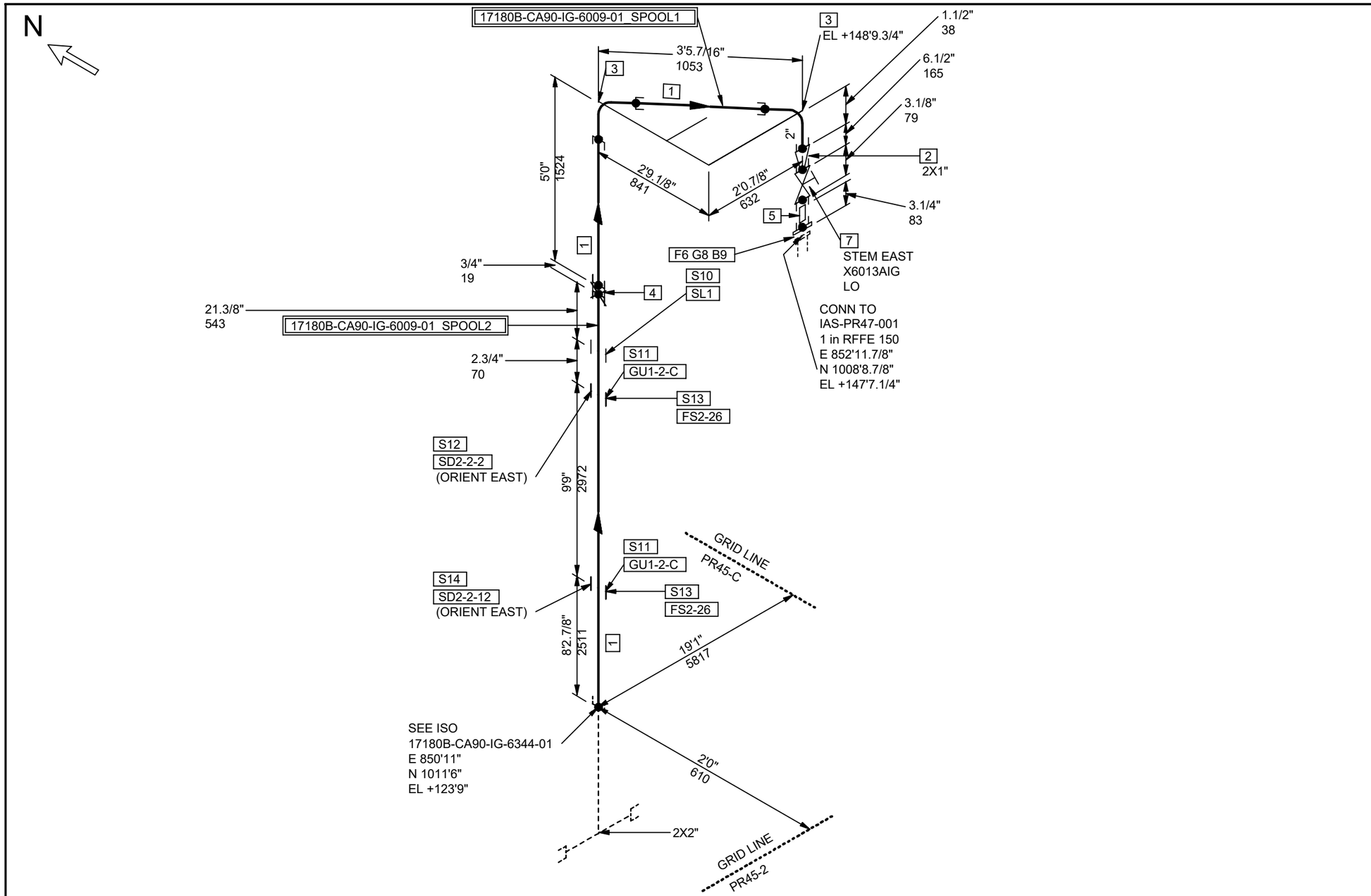
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA80-VG-9202-02
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	28.1'
2	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	1	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-80S	1	1
7	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316 (UNS S31600) , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SIJ	1	1
	ERECTION		
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	4
	PIPE SUPPORTS		
10	SL1	2	1
11	GU1-2-C	2	2
12	SD2-2-2	2	1
13	FS2-26	2	2
14	SD2-2-12	2	1

17180B-CA90-IG-6009-01_SPOOL1 17180B-CA90-IG-6009-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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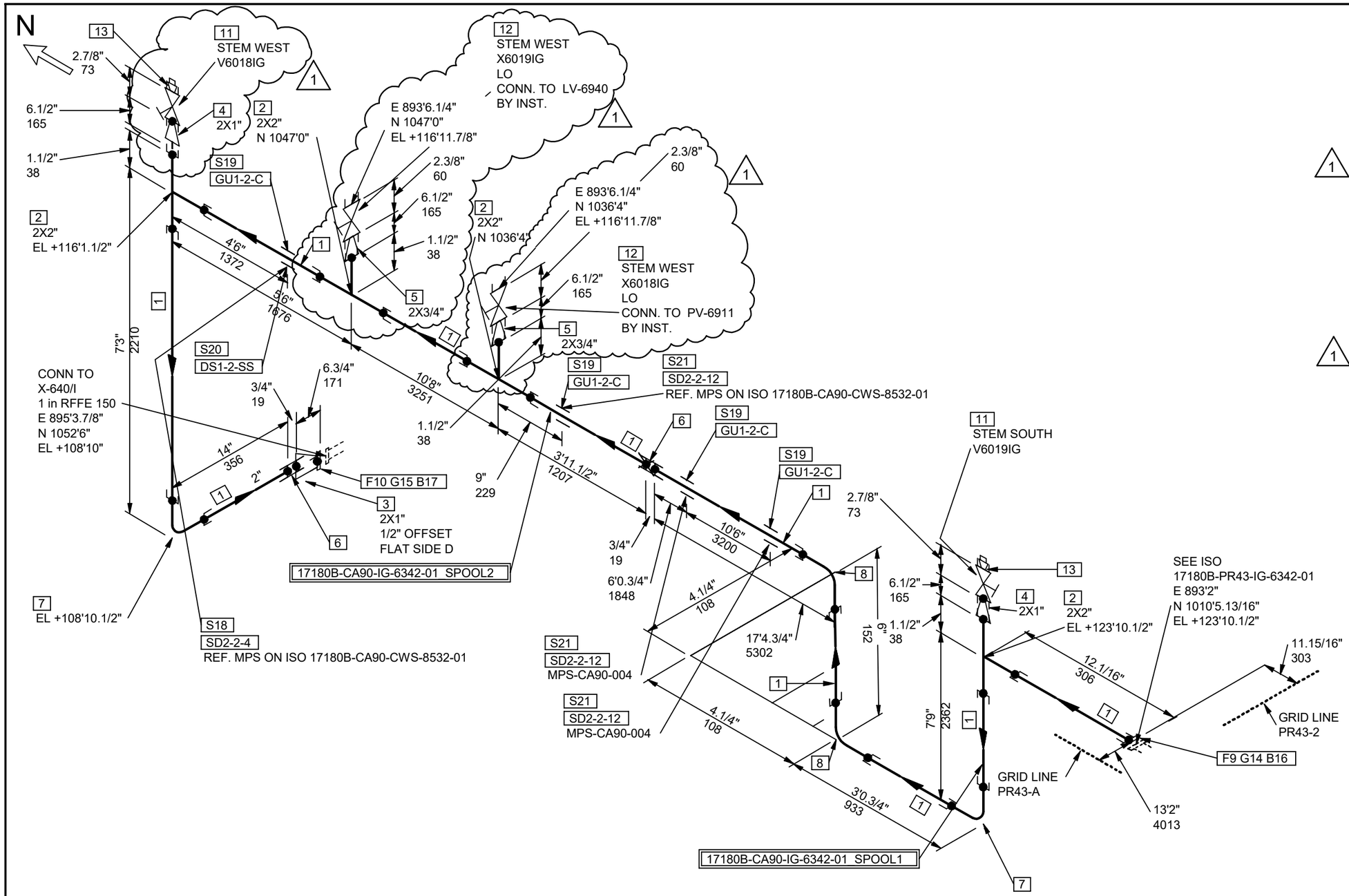
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-IG-6009-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	56.4'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	4
3	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	1
4	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	2
5	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X3/4	2
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
8	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
9	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-80S	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1	2
12	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	2
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1	2
14	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
15	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	4
	PIPE SUPPORTS		
18	SD2-2-4	2	1
19	GU1-2-C	2	4
20	DS1-2-SS	2	1
21	SD2-2-12	2	3

17180B-CA90-IG-6342-01_SPOOL1 17180B-CA90-IG-6342-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SRS	NNR	MLO
0	11/15/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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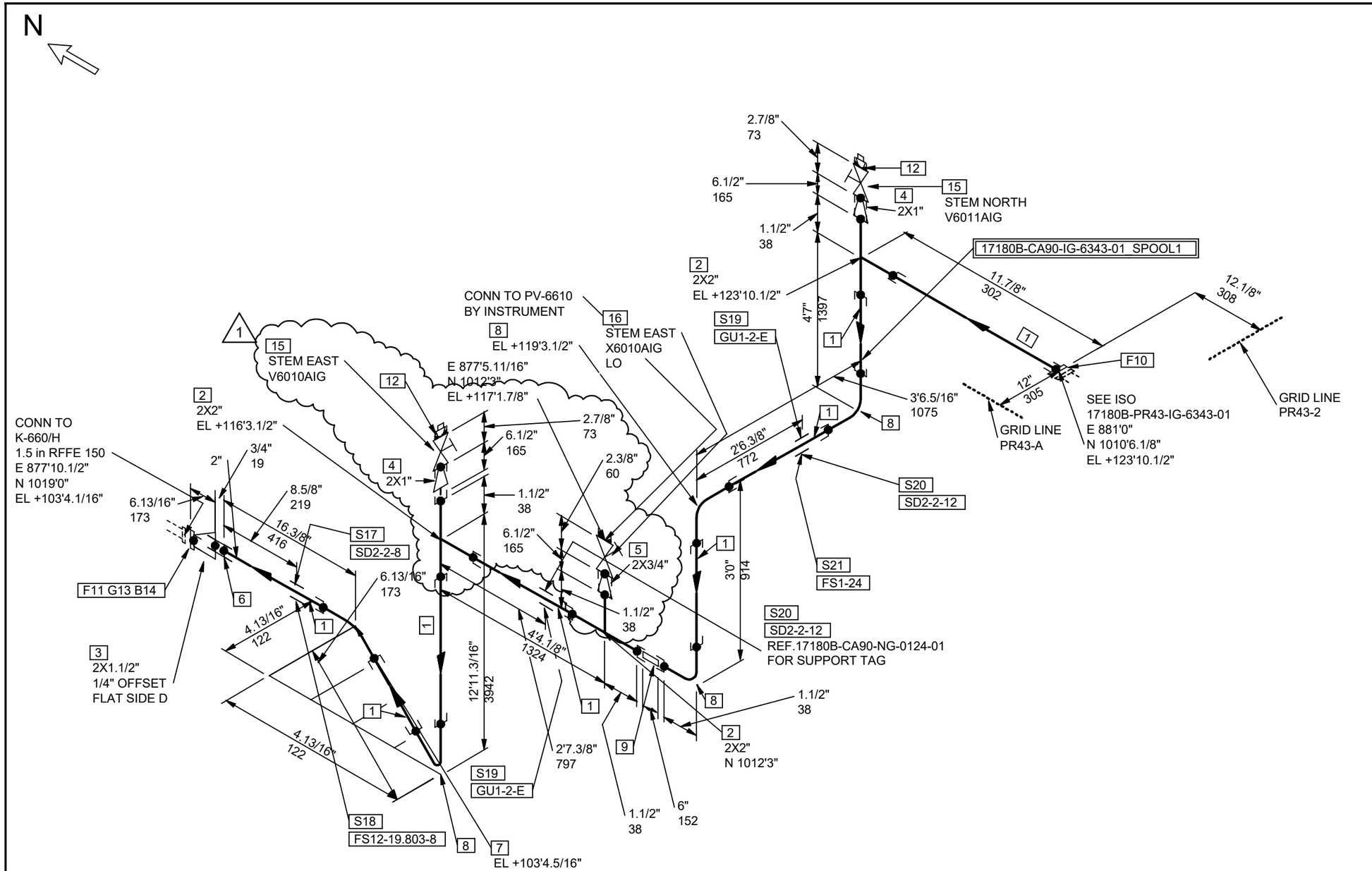
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-IG-6342-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	29.7'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	
3	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1.1/2	1
4	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	2
5	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X3/4	1
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
7	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
8	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	
9	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP316/TP316L , 6in Long , SMLS , S-80S , S-80S	2	1
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
11	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	1.1/2	1
	ERECTION		
12	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1	
13	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1.1/2	1
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3 in. Length	1/2	4
15	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1	
16	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	PIPE SUPPORTS		
17	SD2-2-8	2	1
18	FS12-19.803-8	2	1
19	GU1-2-E	2	2
20	SD2-2-12	2	2
21	FS1-24	2	1

17180B-CA90-IG-6343-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✱ = FIELD WELD
- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
0	11/14/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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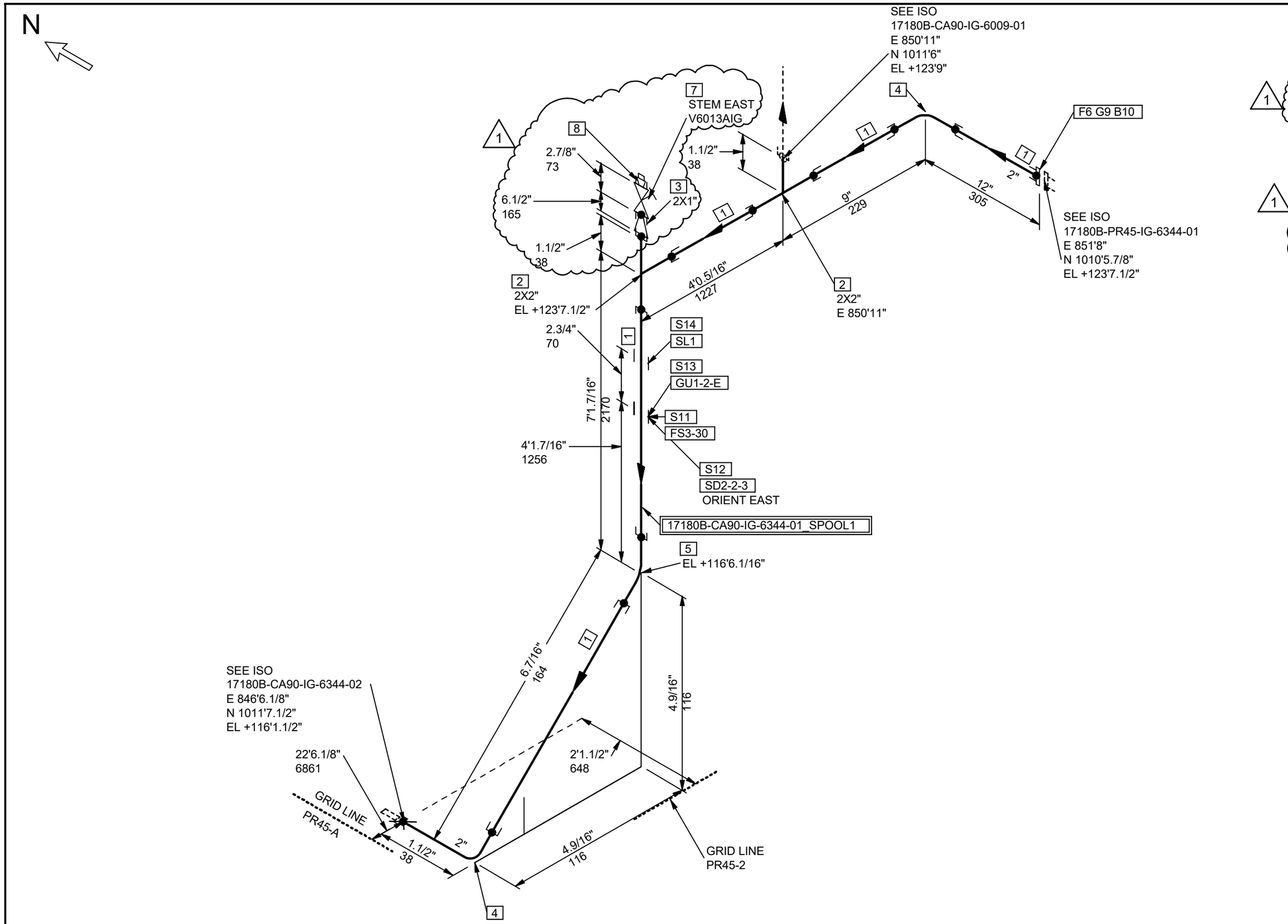
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-IG-6343-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	12.4'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	2
3	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
5	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1	1
	ERECTION		
8	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1	1
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
11	FS3-30	2	1
12	SD2-2-3	2	1
13	GU1-2-E	2	1
14	SL1	2	1

17180B-CA90-IG-6344-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	10/23/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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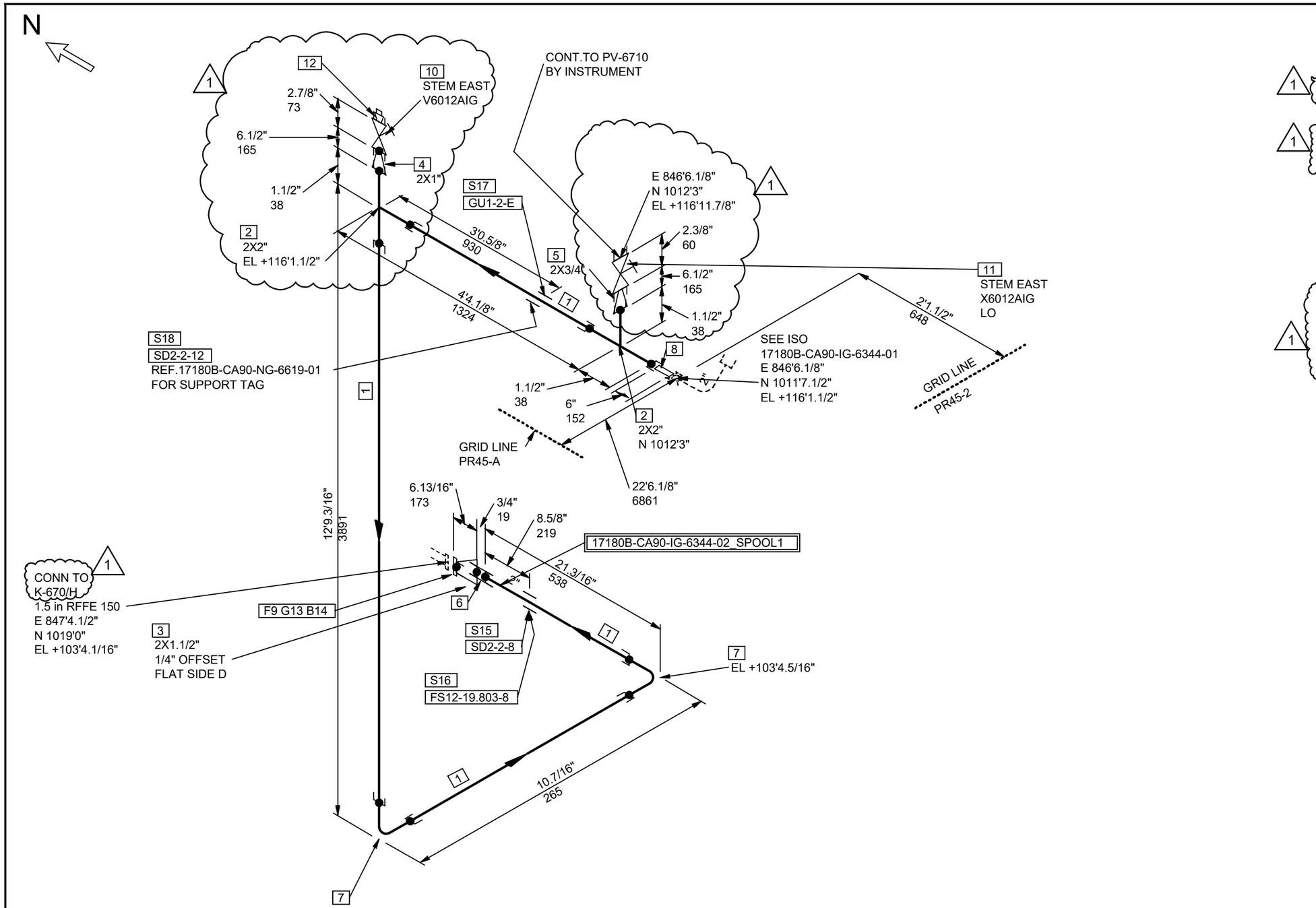
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-IG-6344-01
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	18.9'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	2
3	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1.1/2	1
4	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	1
5	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X3/4	1
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
8	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP316/TP316L , 6in Long , SMLS , S-80S , S-80S	2	1
9	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	1.1/2	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	ERECTION		
12	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1	1
13	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1.1/2	1
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3 in. Length	1/2	4
	PIPE SUPPORTS		
15	SD2-2-8	2	1
16	FS12-19.803-8	2	1
17	GU1-2-E	2	1
18	SD2-2-12	2	1

17180B-CA90-IG-6344-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	10/23/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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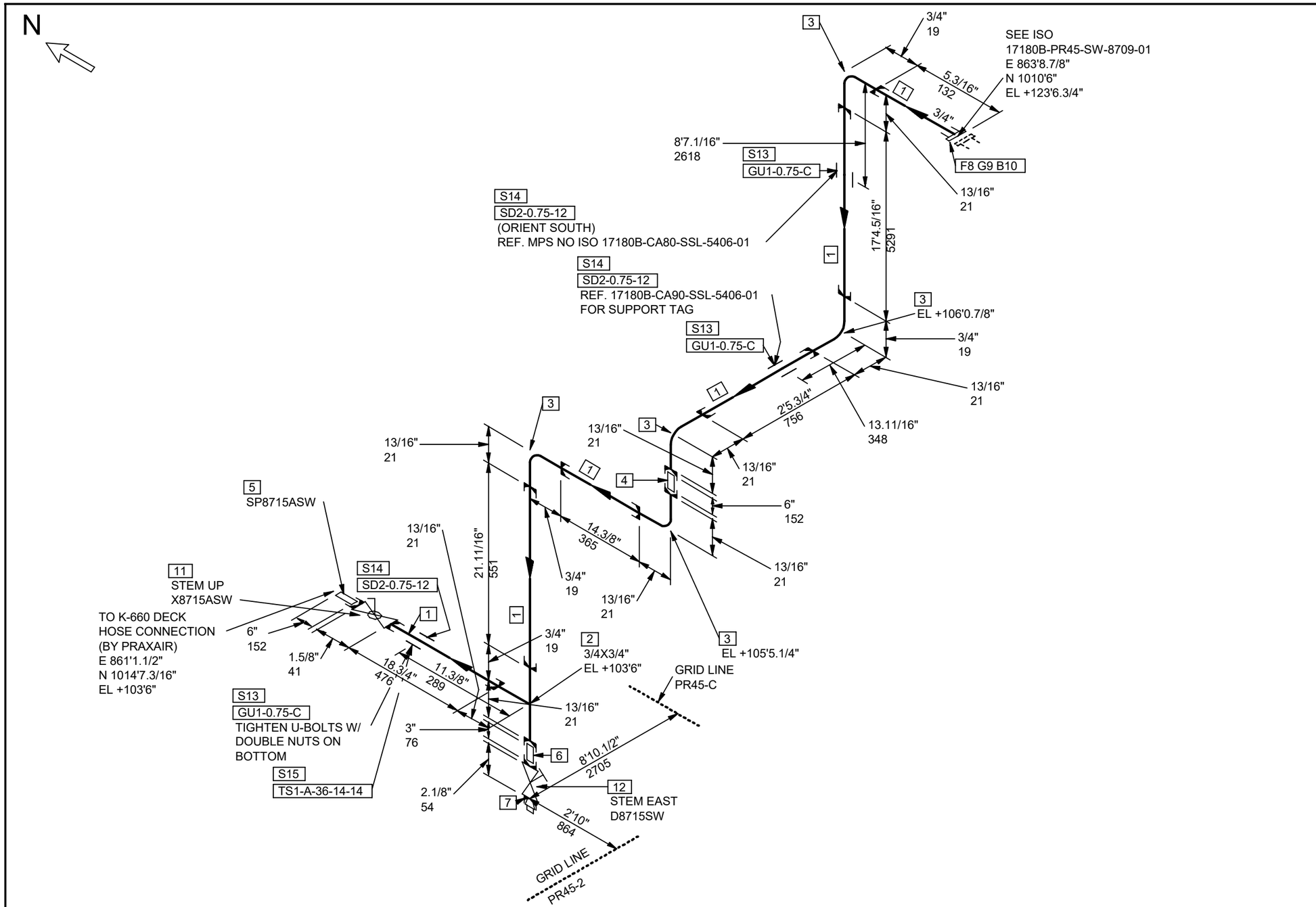
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-IG-6344-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	24.9'
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
3	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	5
4	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
5	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	3/4	1
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
7	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
8	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3/4	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.5 in. Length	1/2	4
11	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
12	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
13	GU1-0.75-C	3/4	3
14	SD2-0.75-12	3/4	3
15	TS1-A-36-14-14	3/4	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/05/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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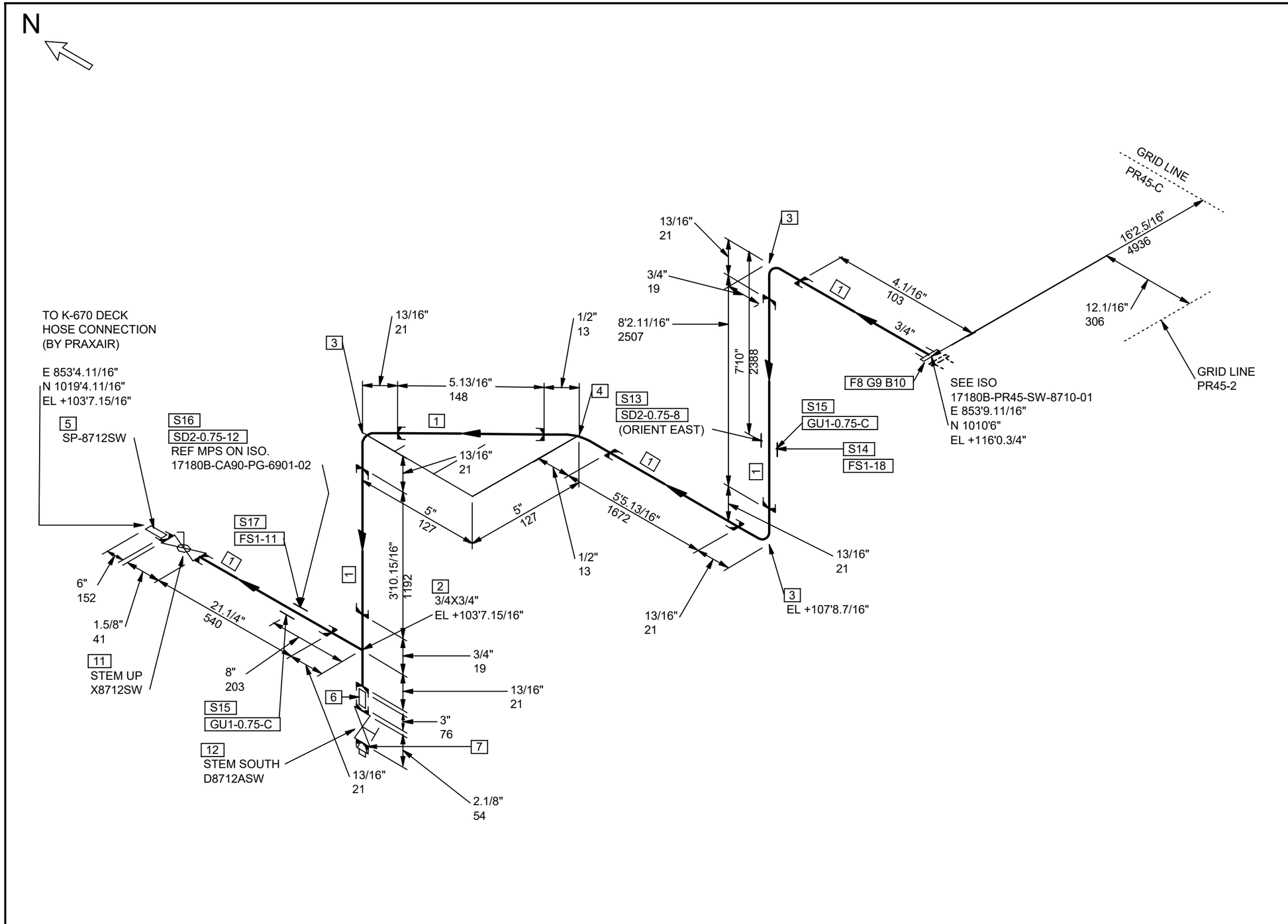
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-SW-8709-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	20.3'
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
3	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	3
4	45 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
5	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 6in Long , SMLS , S-80 , S-80	3/4	1
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
7	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
8	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3/4	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.5 in. Length	1/2	4
11	Ball Vlv Floating , API 608 , CL800 , FTE , 3 Piece Bolted , Locking Lever Handle , ASTM A351-CF8M , AISI 316 SS Trim, PTFE SEAT, PTFE/GRAPHITE PACKING , REDUCED PORT, FIRE TESTED, PRAXAIR GUIDELINE V-G1 , B8NIA	3/4	1
12	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
13	SD2-0.75-8	3/4	1
14	FS1-18	3/4	1
15	GU1-0.75-C	3/4	2
16	SD2-0.75-12	3/4	1
17	FS1-11	3/4	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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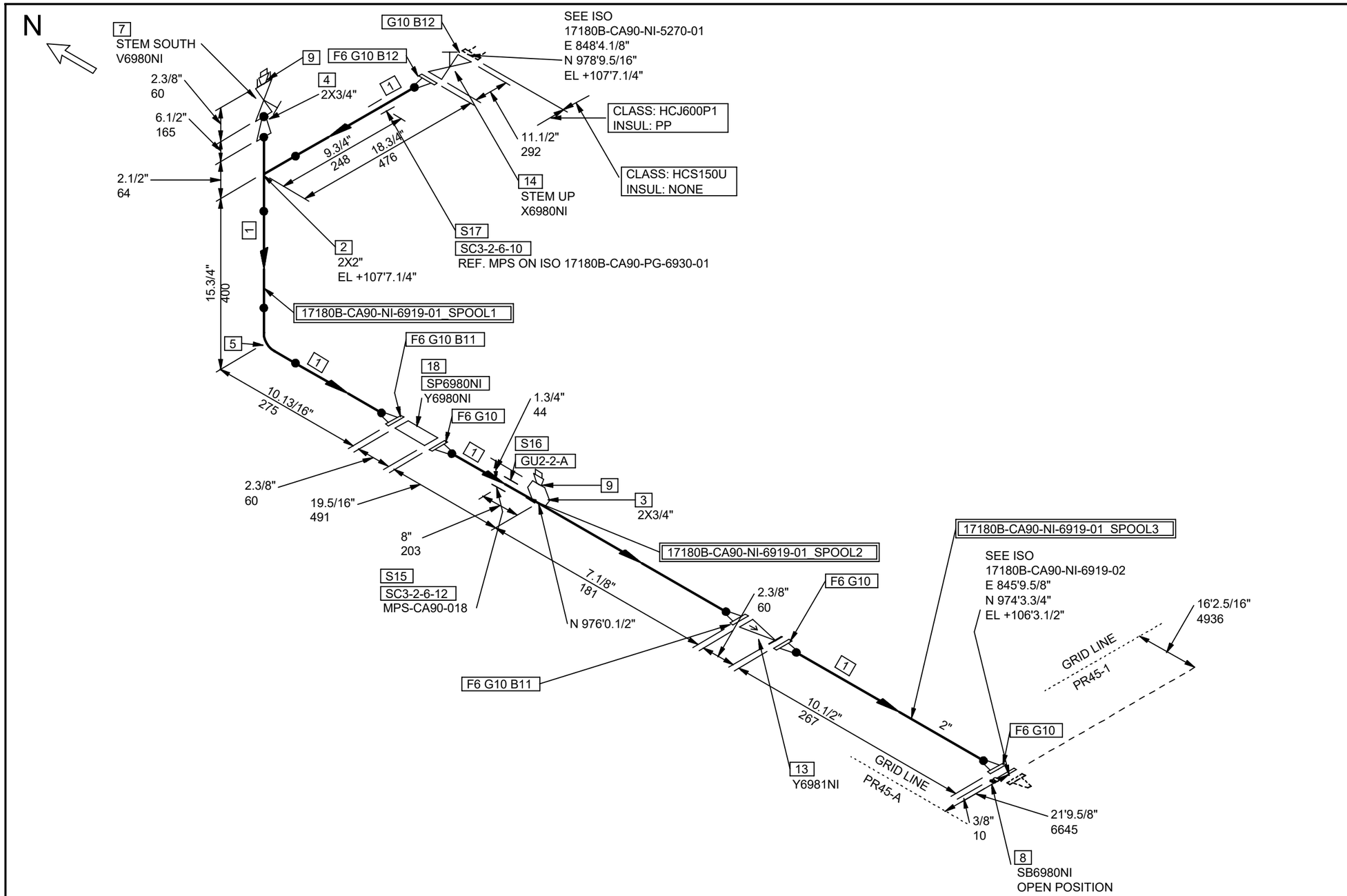
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-SW-8710-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	4.4'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2X2	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
4	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-160	2X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	6
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	ERECTION		
8	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	2	1
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	2
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	7
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7 in. Length	5/8	16
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
13	Check Vlv Swing , API 594 , CL600 , RFTBE , Wafer , ASTM A217-WC6 (UNS J12072) , Trim 12 , INCONEL X-750 SPRING, PRAXAIR V-G1, SEAL WELDED PLUGS , C6WFI	2	1
14	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
	PIPE SUPPORTS		
15	SC3-2-6-12	2	1
16	GU2-2-A	2	1
17	SC3-2-6-10	2	1
	SPECIALTY ITEMS		
18	SP6980NI	2	1

17180B-CA90-NI-6919-01_SPOOL1 17180B-CA90-NI-6919-01_SPOOL2
17180B-CA90-NI-6919-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/12/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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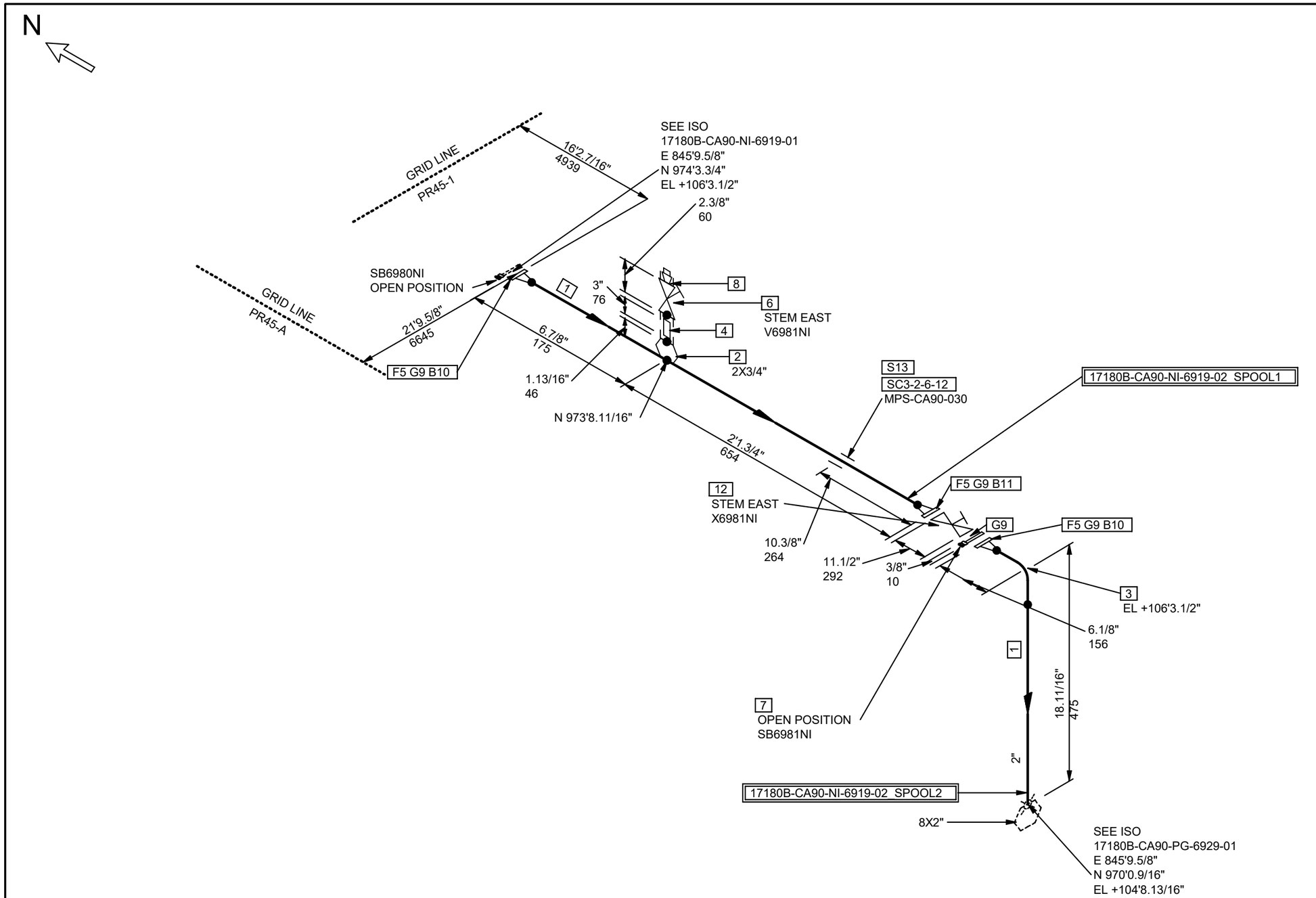
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-6919-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	3.6'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
4	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	3
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	ERECTION		
7	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	2	1
8	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	4
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 5 in. Length	5/8	16
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	8
12	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
	PIPE SUPPORTS		
13	SC3-2-6-12	2	1

17180B-CA90-NI-6919-02_SPOOL1 17180B-CA90-NI-6919-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	AA	TKS	MLO

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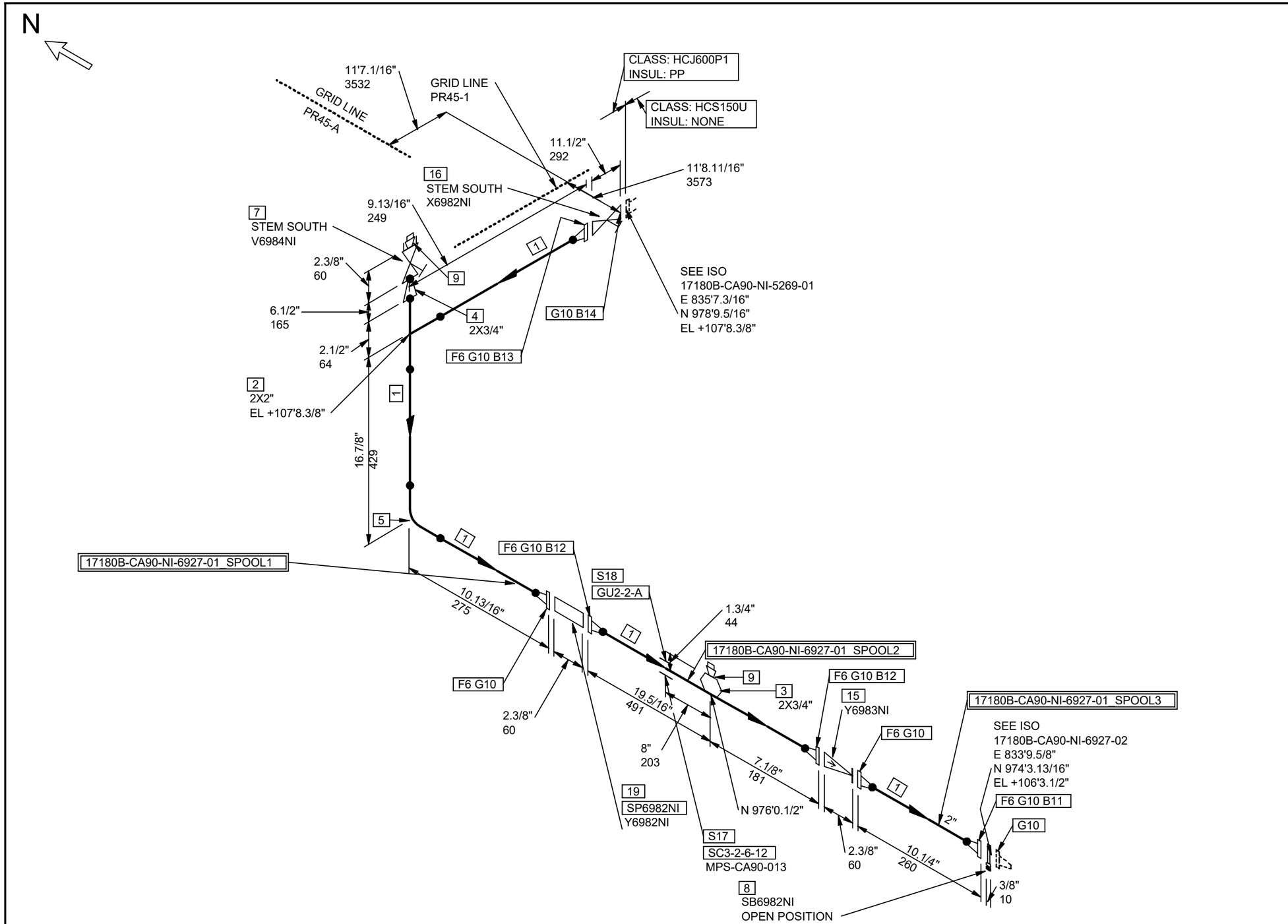
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-6919-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	3.8'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2X2	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
4	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-160	2X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	6
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	ERECTION		
8	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	2	1
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	2
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	8
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 5 in. Length	5/8	8
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7 in. Length	5/8	16
13	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	8
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	8
15	Check Vlv Swing , API 594 , CL600 , RFTBE , Wafer , ASTM A217-WC6 (UNS J12072) , Trim 12 , INCONEL X-750 SPRING, PRAXAIR V-G1, SEAL WELDED PLUGS , C6WFI	2	1
16	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
	PIPE SUPPORTS		
17	SC3-2-6-12	2	1
18	GU2-2-A	2	1
	SPECIALTY ITEMS		
19	SP6982NI	2	1

17180B-CA90-NI-6927-01_SPOOL1 17180B-CA90-NI-6927-01_SPOOL2
17180B-CA90-NI-6927-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/12/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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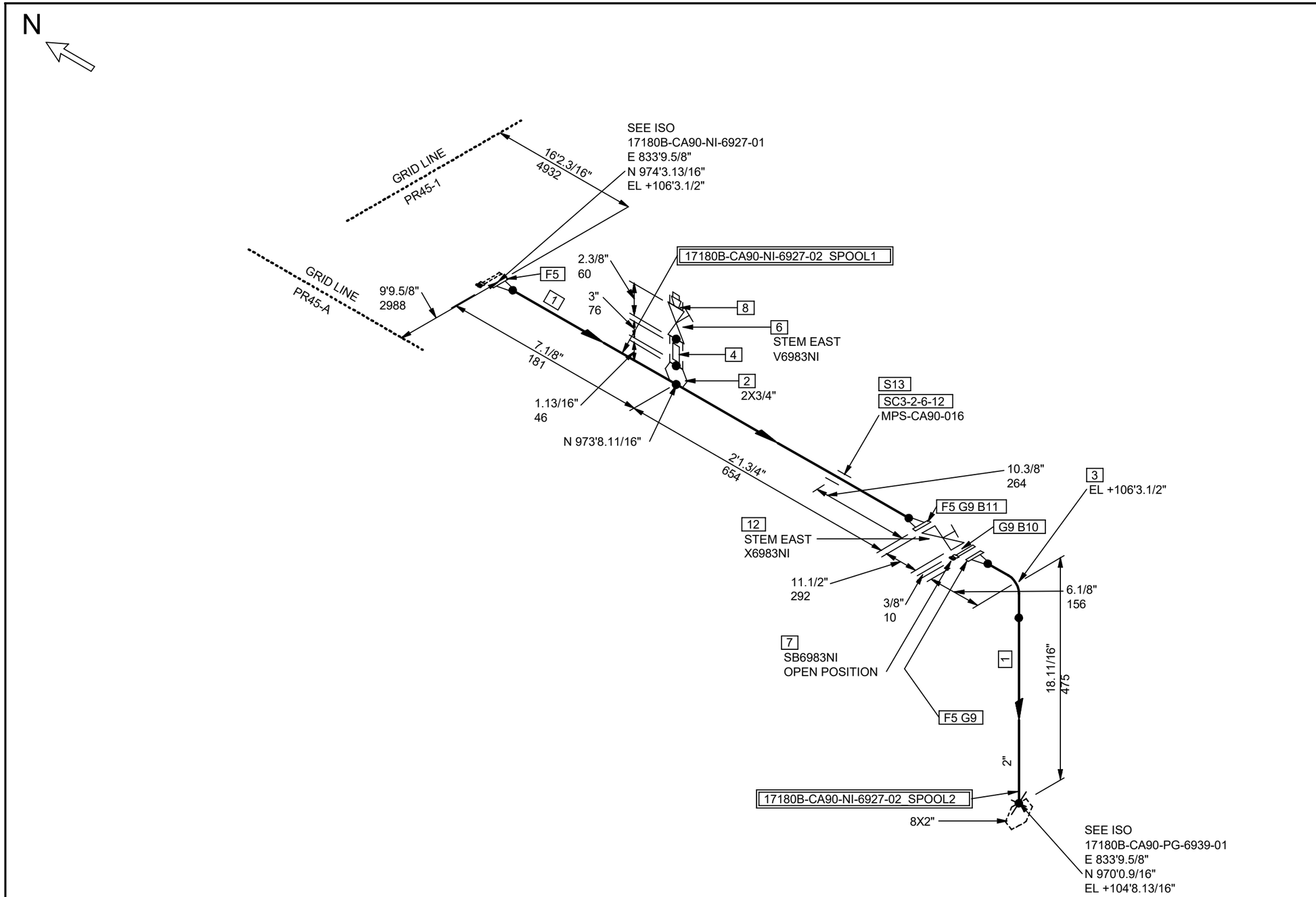
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-6927-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	3.6'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
4	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	3
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	ERECTION		
7	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	2	1
8	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	3
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 5 in. Length	5/8	8
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	8
12	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
	PIPE SUPPORTS		
13	SC3-2-6-12	2	1

17180B-CA90-NI-6927-02_SPOOL1 17180B-CA90-NI-6927-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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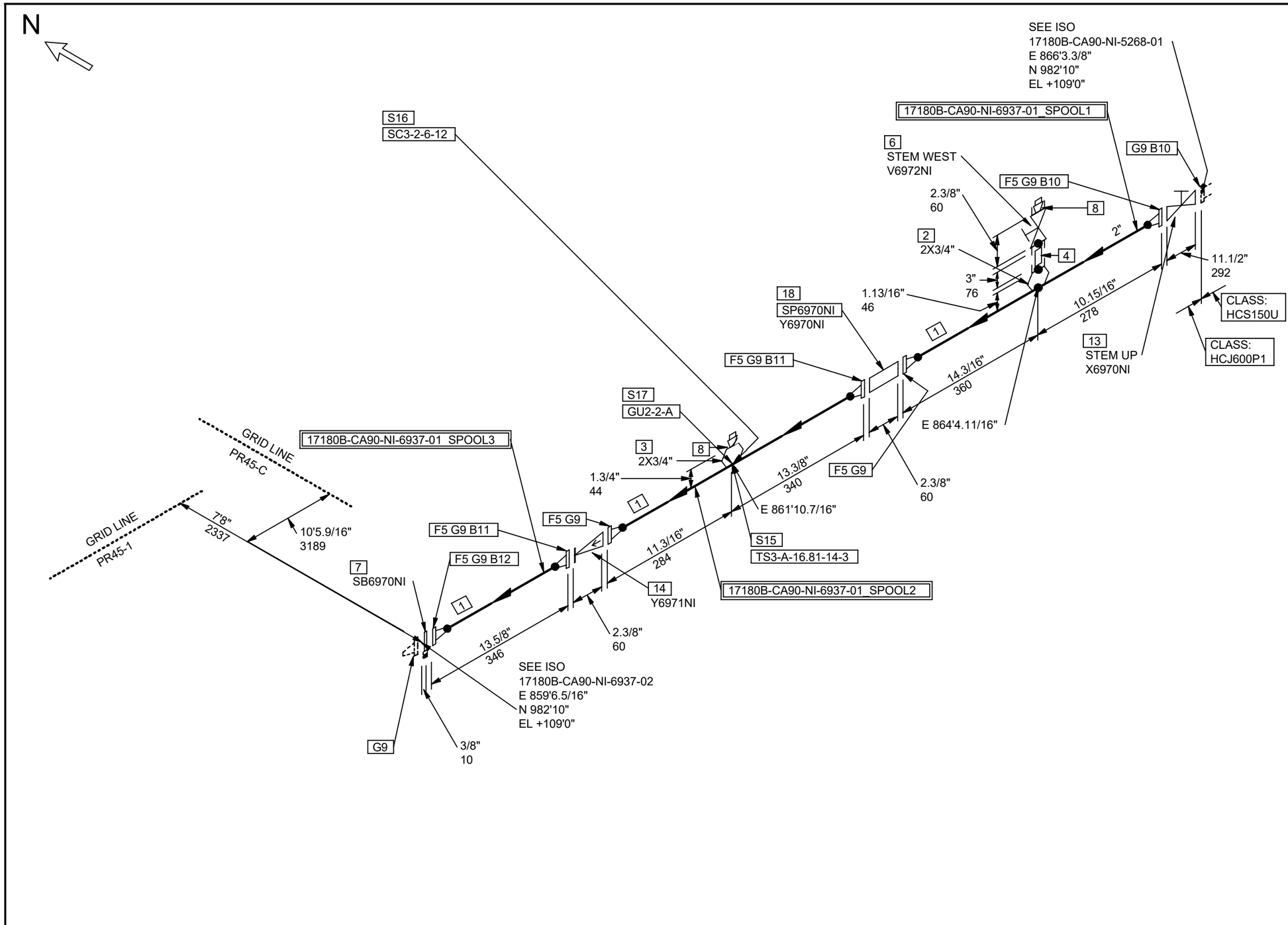
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-6927-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	3.8'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
4	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	6
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	ERECTION		
7	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	2	1
8	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	2
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	8
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7 in. Length	5/8	16
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 5 in. Length	5/8	8
13	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
14	Check Vlv Swing , API 594 , CL600 , RFTBE , Wafer , ASTM A217-WC6 (UNS J12072) , Trim 12 , INCONEL X-750 SPRING, PRAXAIR V-G1, SEAL WELDED PLUGS , C6WFI	2	1
	PIPE SUPPORTS		
15	TS3-A-16.81-14-3	2	1
16	SC3-2-6-12	2	1
17	GU2-2-A	2	1
	SPECIALTY ITEMS		
18	SP6970NI	2	1

17180B-CA90-NI-6937-01_SPOOL1 17180B-CA90-NI-6937-01_SPOOL2
17180B-CA90-NI-6937-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/12/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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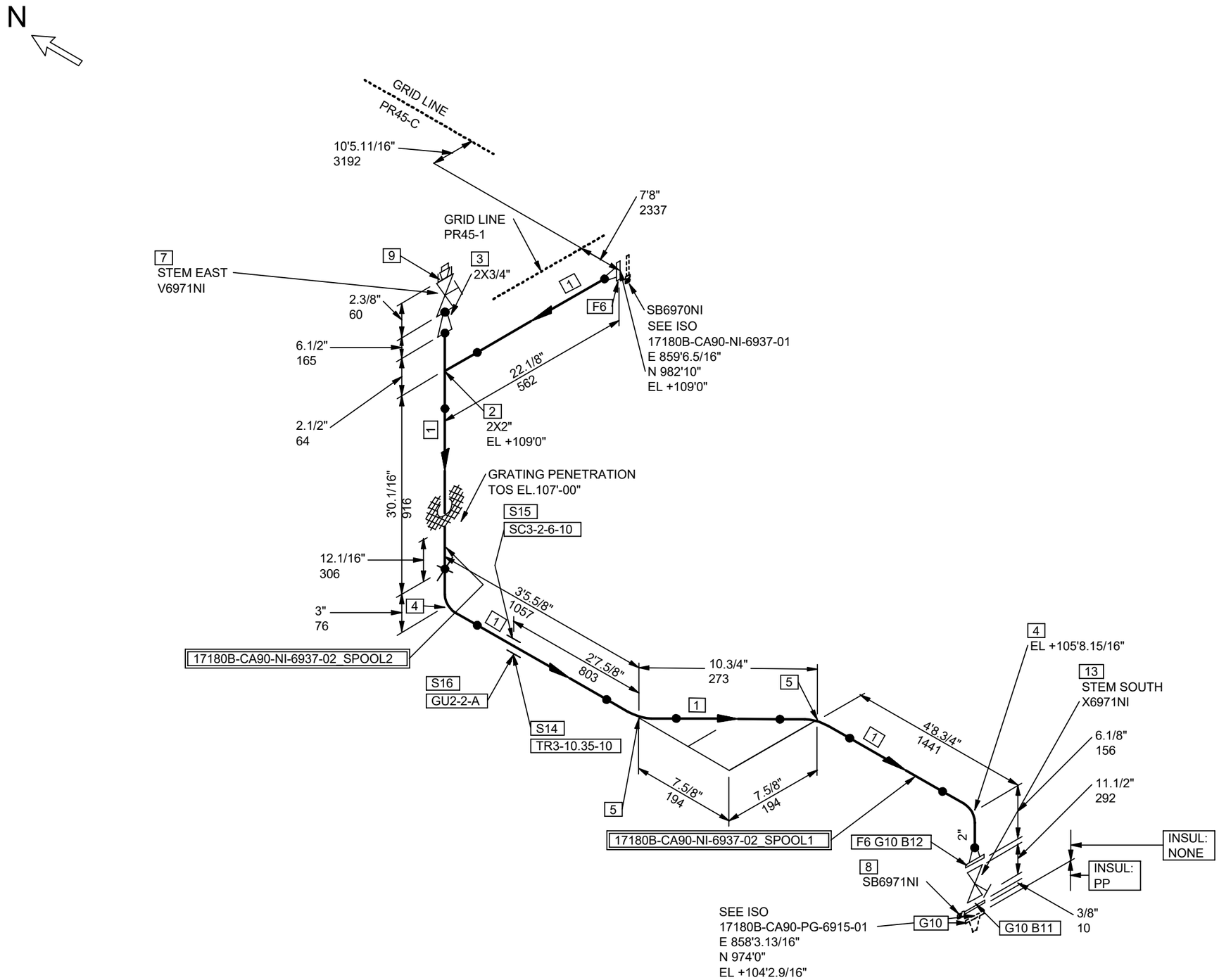
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-6937-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	12.4'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2X2	1
3	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-160	2X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	2
5	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	2
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	2
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	ERECTION		
8	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	2	1
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	3
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 5 in. Length	5/8	8
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	8
13	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
	PIPE SUPPORTS		
14	TR3-10.35-10	2	1
15	SC3-2-6-10	2	1
16	GU2-2-A	2	1

17180B-CA90-NI-6937-02_SPOOL1 17180B-CA90-NI-6937-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/23/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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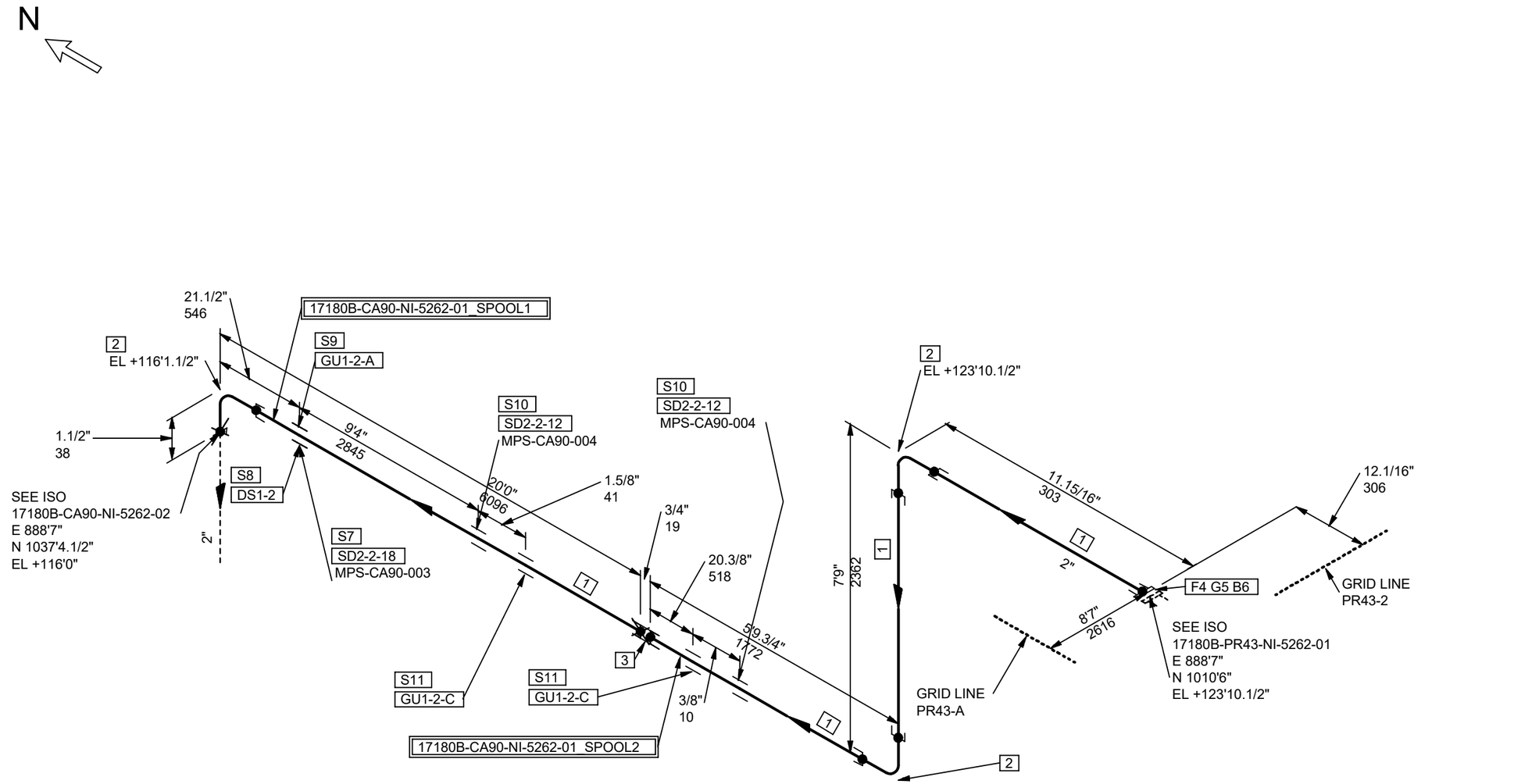
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-6937-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	34.0'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
PIPE SUPPORTS			
7	SD2-2-18	2	1
8	DS1-2	2	1
9	GU1-2-A	2	1
10	SD2-2-12	2	2
11	GU1-2-C	2	2

17180B-CA90-NI-5262-01_SPOOL1 17180B-CA90-NI-5262-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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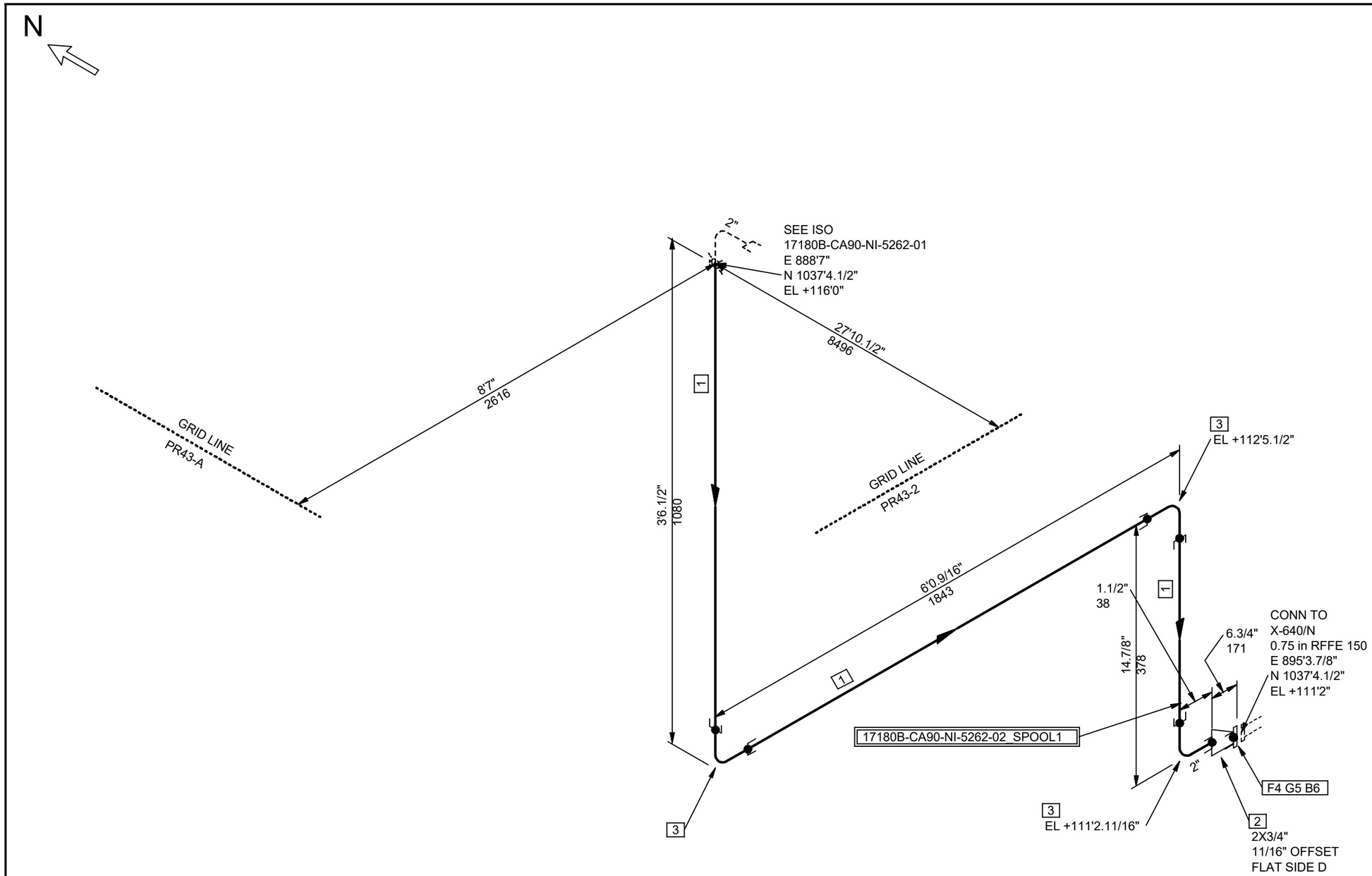
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5262-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.3'
2	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	3/4	1
ERECTION			
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3/4	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.5 in. Length	1/2	4

17180B-CA90-NI-5262-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/22/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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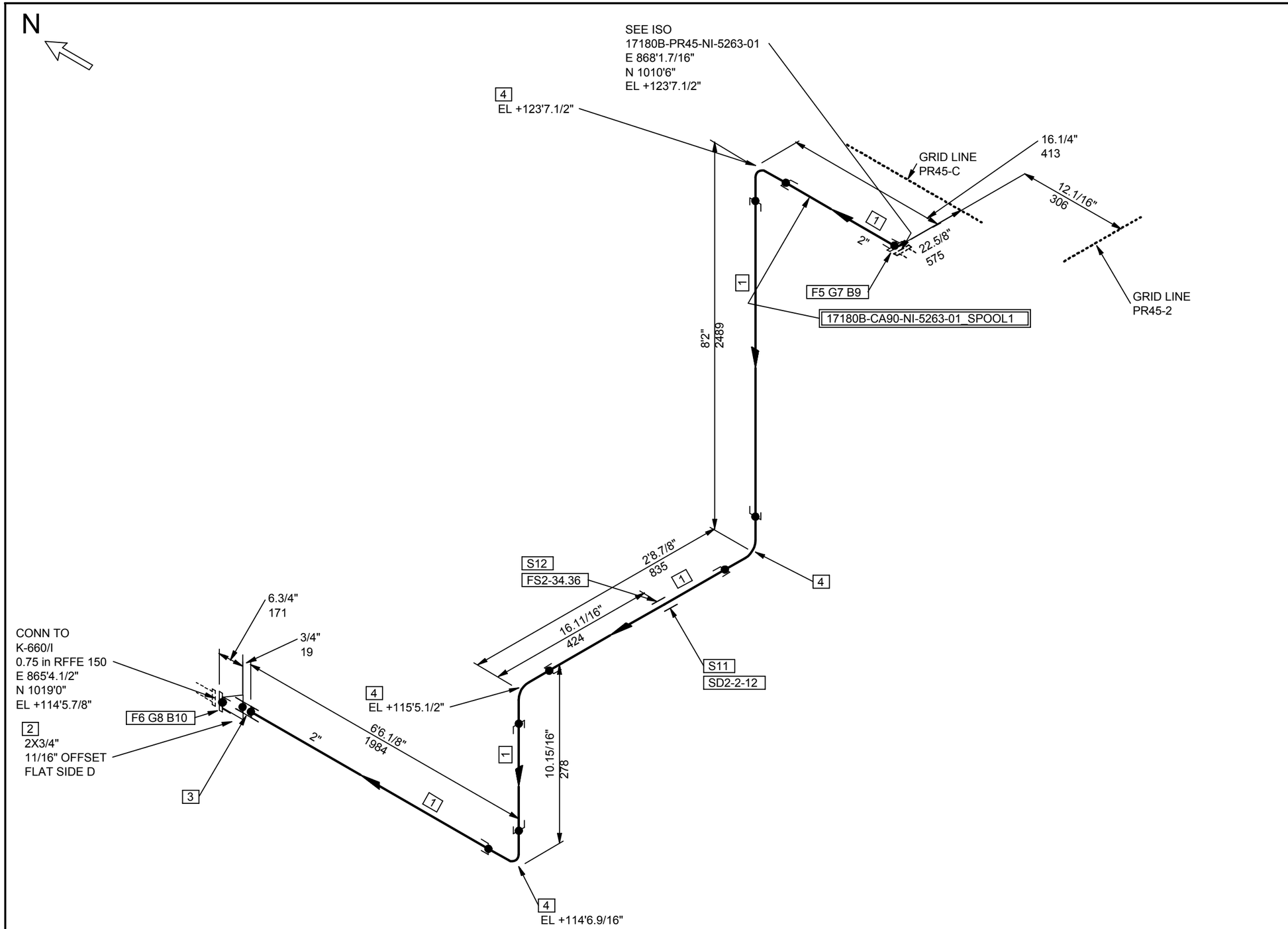
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5262-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	18.7'
2	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	3/4	1
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3/4	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.5 in. Length	1/2	4
	PIPE SUPPORTS		
11	SD2-2-12	2	1
12	FS2-34.36	2	1

17180B-CA90-NI-5263-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/07/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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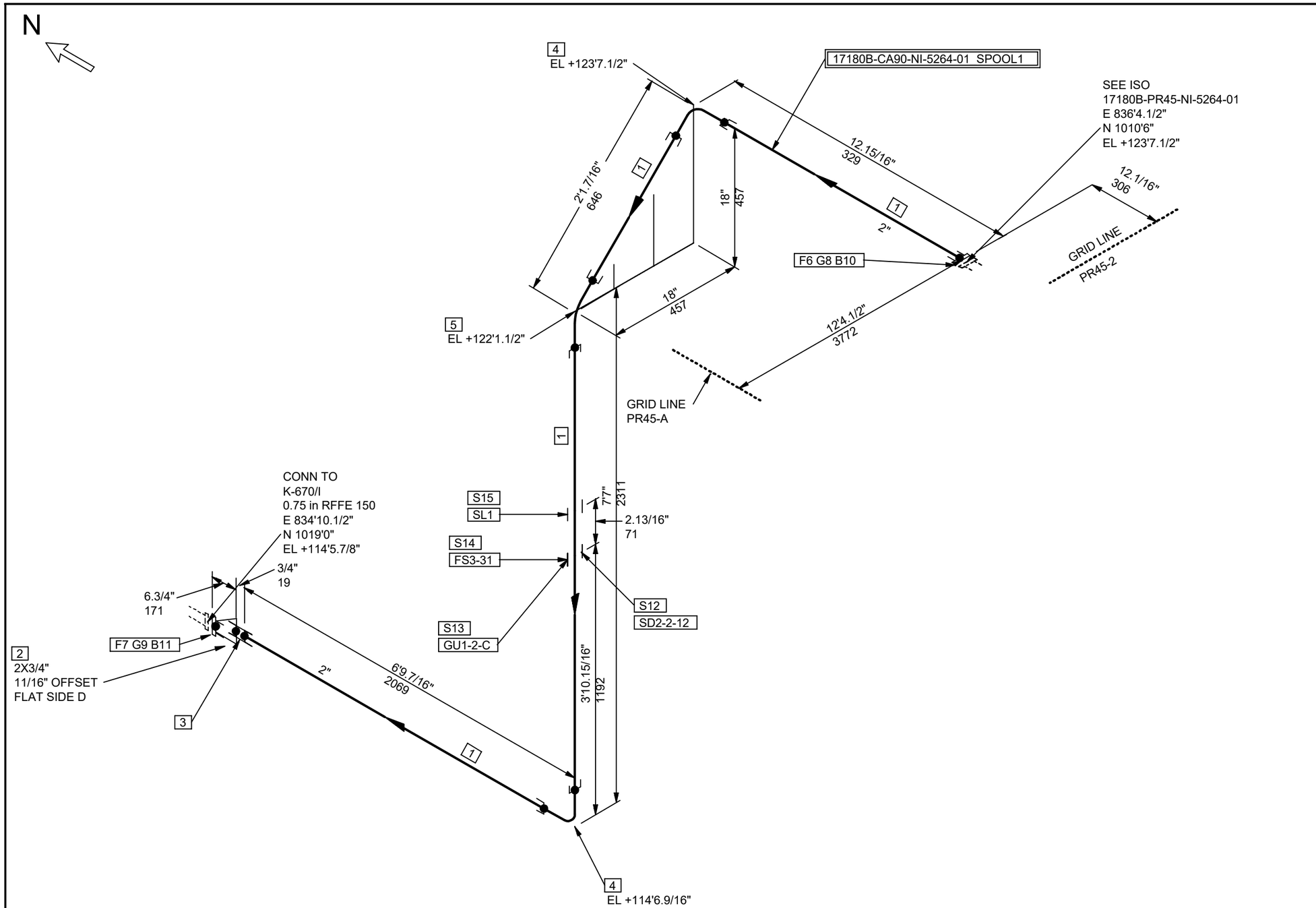
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5263-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.9'
2	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
7	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	3/4	1
	ERECTION		
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3/4	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.5 in. Length	1/2	4
	PIPE SUPPORTS		
12	SD2-2-12	2	1
13	GU1-2-C	2	1
14	FS3-31	2	1
15	SL1	2	1

17180B-CA90-NI-5264-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/23/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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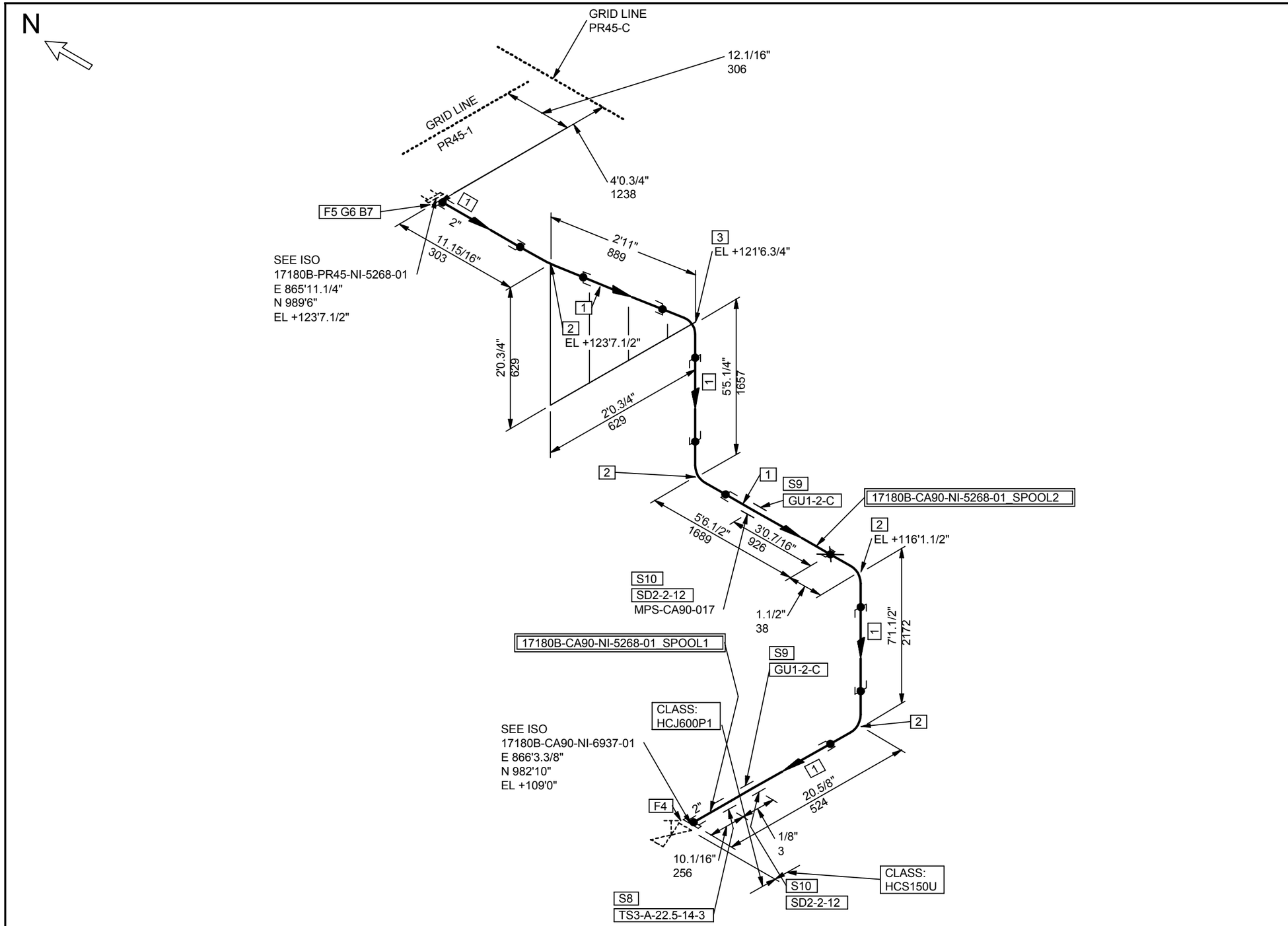
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5264-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	22.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	1
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
6	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
PIPE SUPPORTS			
8	TS3-A-22.5-14-3	2	1
9	GU1-2-C	2	2
10	SD2-2-12	2	2

17180B-CA90-NI-5268-01_SPOOL1 17180B-CA90-NI-5268-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/20/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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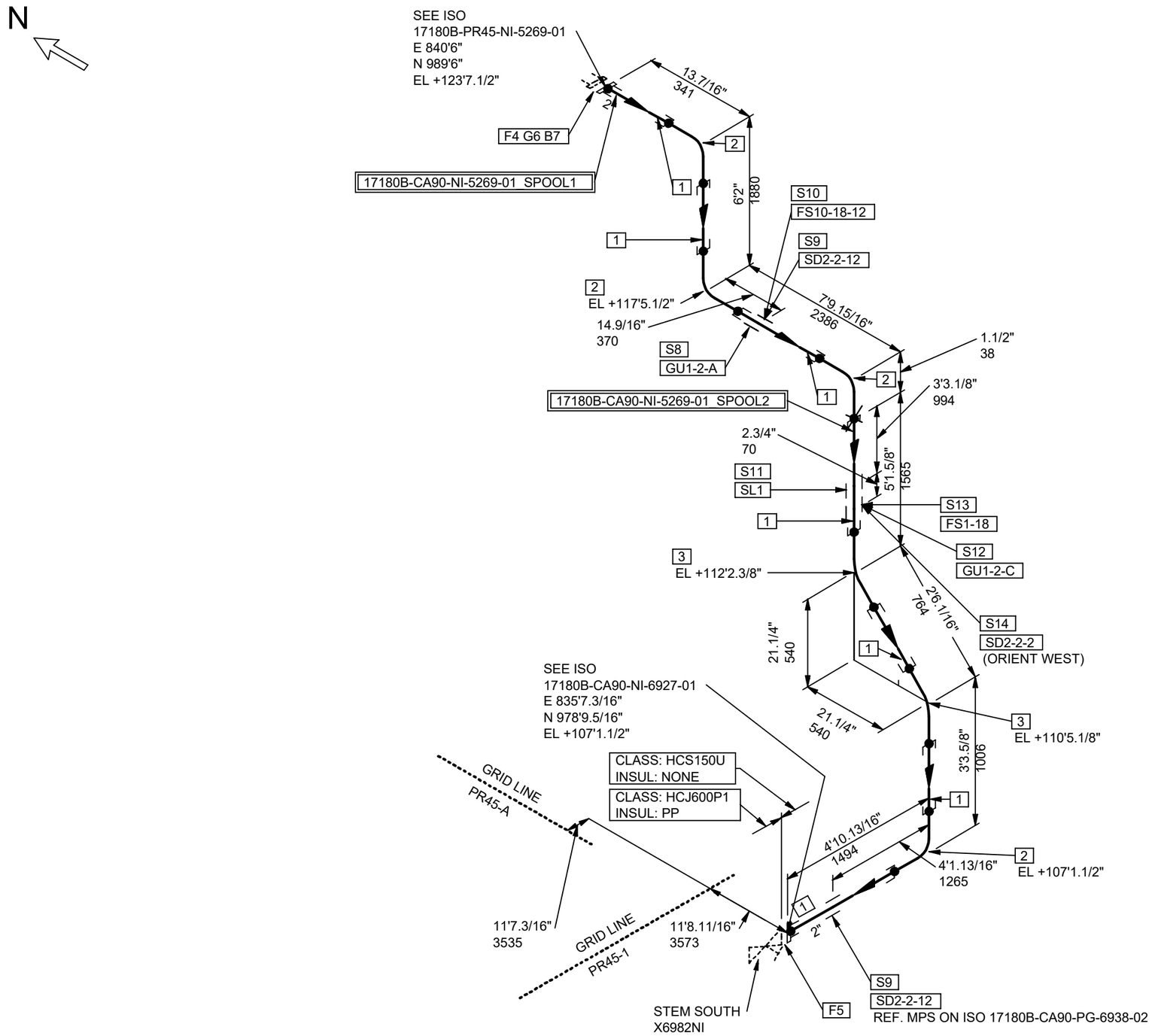
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5268-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	29.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
5	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	1
ERECTION			
6	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
PIPE SUPPORTS			
8	GU1-2-A	2	1
9	SD2-2-12	2	2
10	FS10-18-12	2	1
11	SL1	2	1
12	GU1-2-C	2	1
13	FS1-18	2	1
14	SD2-2-2	2	1

17180B-CA90-NI-5269-01_SPOOL1 17180B-CA90-NI-5269-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/04/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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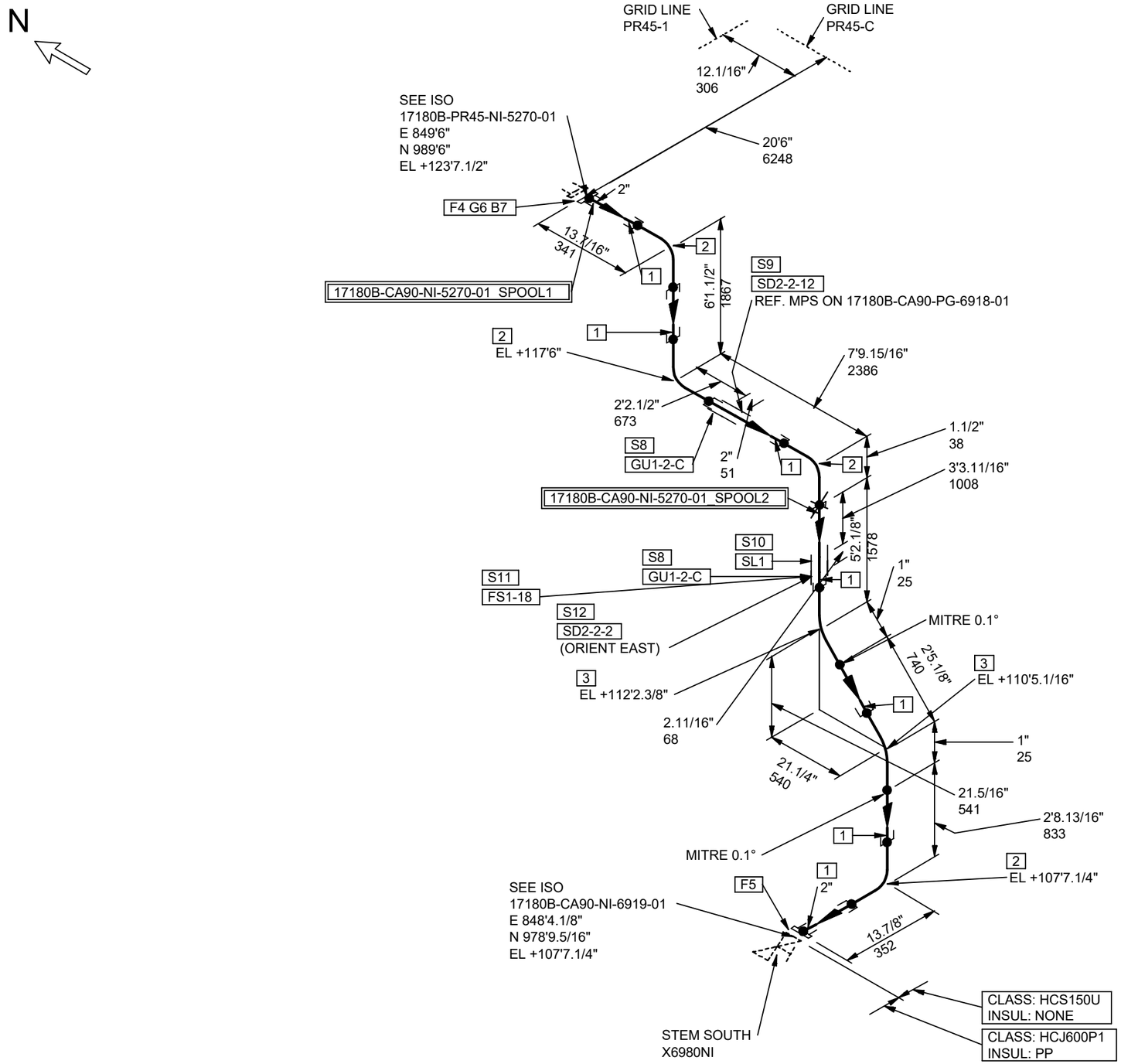
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5269-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	25.5'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
5	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	1
ERECTION			
6	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
PIPE SUPPORTS			
8	GU1-2-C	2	2
9	SD2-2-12	2	1
10	SL1	2	1
11	FS1-18	2	1
12	SD2-2-2	2	1

17180B-CA90-NI-5270-01_SPOOL1 17180B-CA90-NI-5270-01_SPOOL2

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELL
- ✕ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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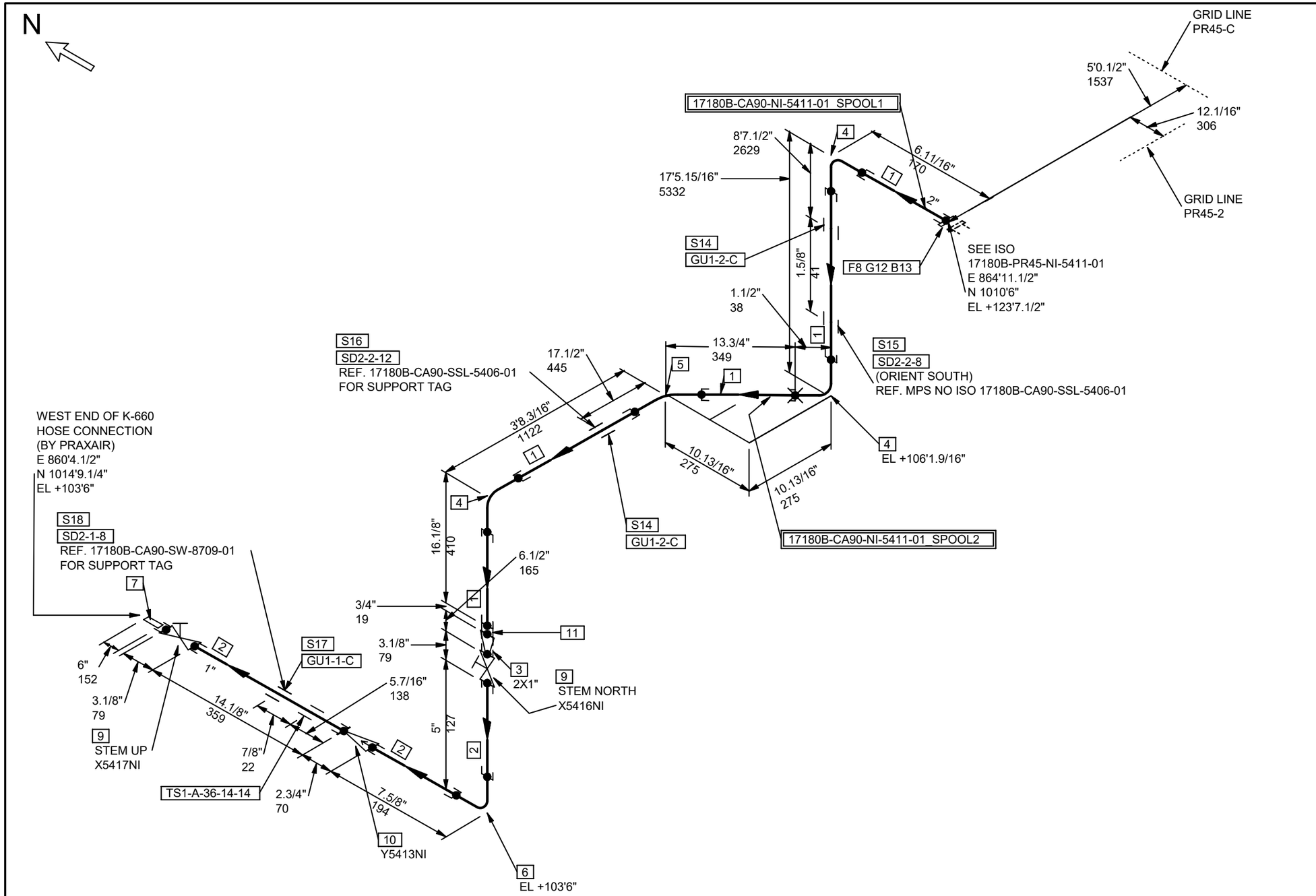
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5270-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	23.5'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	2.1'
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
5	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
9	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	1	2
10	Check Vlv Ball , Manuf. Std. Dims , CL800 , SWE , 1 PC, IN-LINE, NON-SLAM, AXIAL CHECK VLV , 316 SS , 316 SS SPRING , PRAXAIR GUIDELINE V-G1 , C8SIO	1	1
	ERECTION		
11	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
12	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
	PIPE SUPPORTS		
14	GU1-2-C	2	2
15	SD2-2-8	2	1
16	SD2-2-12	2	1
17	GU1-1-C	1	1
18	SD2-1-8	1	1

17180B-CA90-NI-5411-01_SPOOL1 17180B-CA90-NI-5411-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/01/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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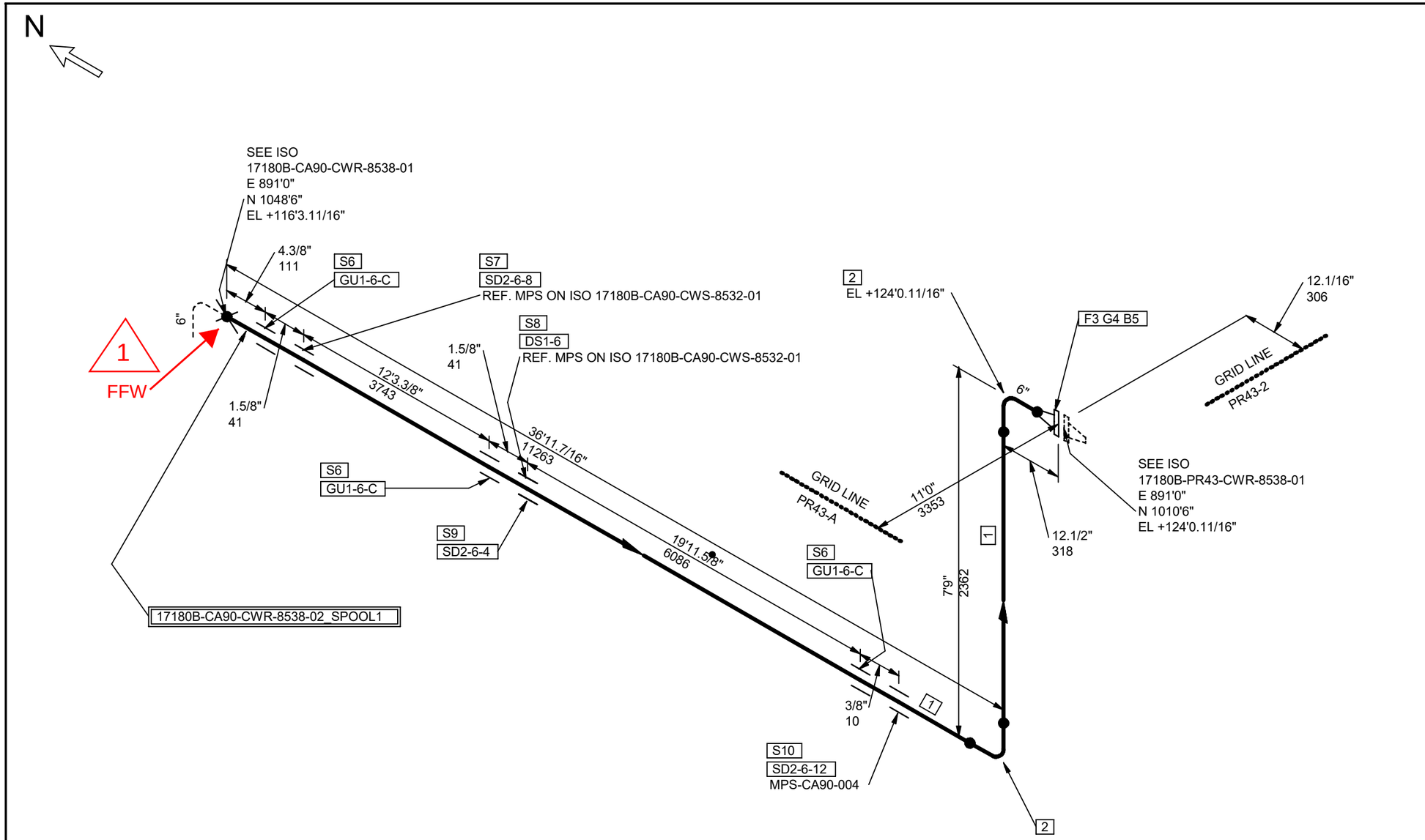
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NI-5411-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	42.5'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	2
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
	PIPE SUPPORTS		
6	GU1-6-C	6	3
7	SD2-6-8	6	1
8	DS1-6	6	1
9	SD2-6-4	6	1
10	SD2-6-12	6	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-CWR-8538-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6401		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	09/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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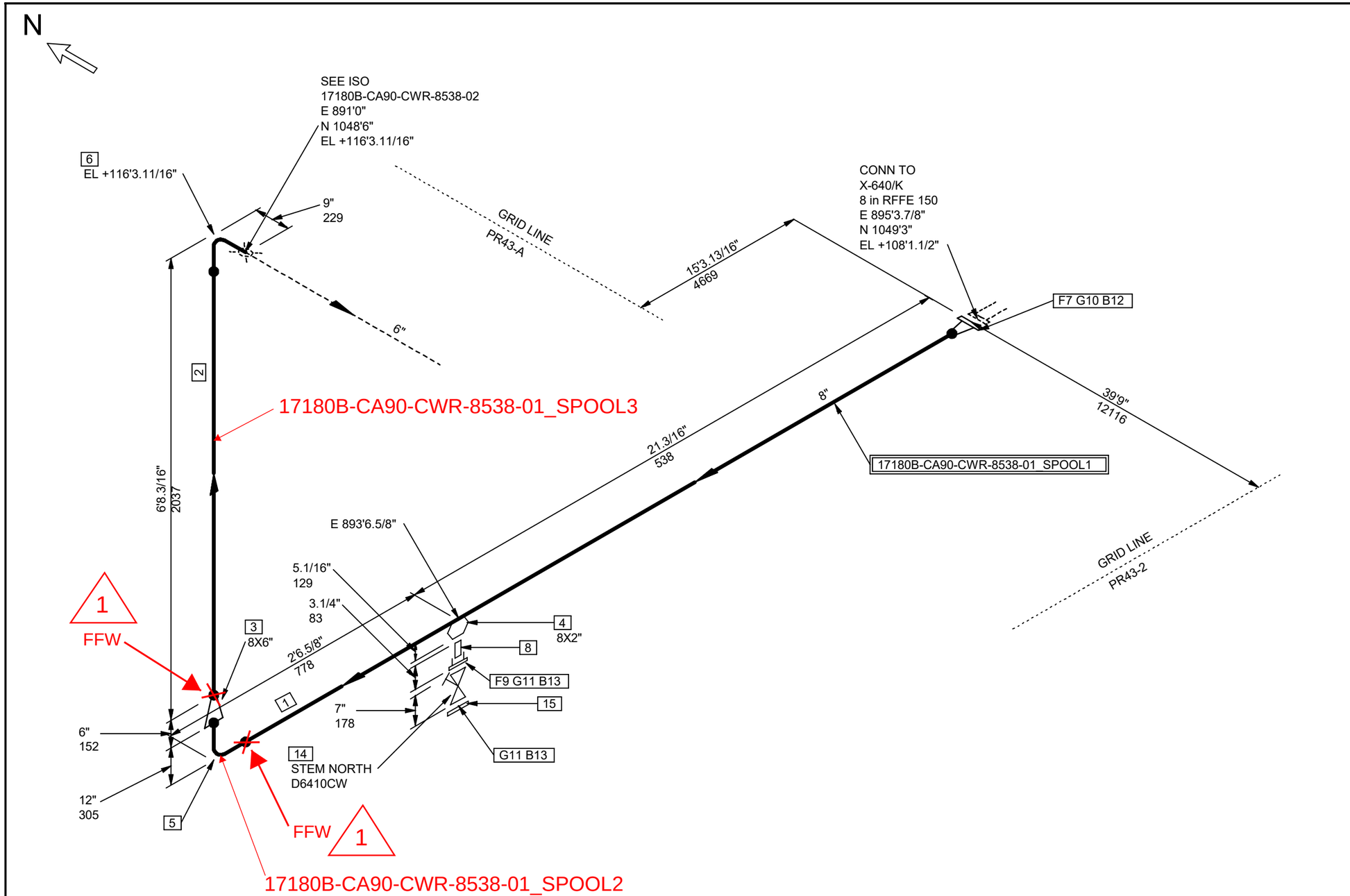
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWR-8538-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	3.0'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	6.0'
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X6	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	8X2	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
	ERECTION		
8	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 3in Long , SMLS , S-80 , S-80	2	1
9	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
14	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
15	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

Revision Notification

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17180B-CA90-CWR-8538-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6401		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	10/22/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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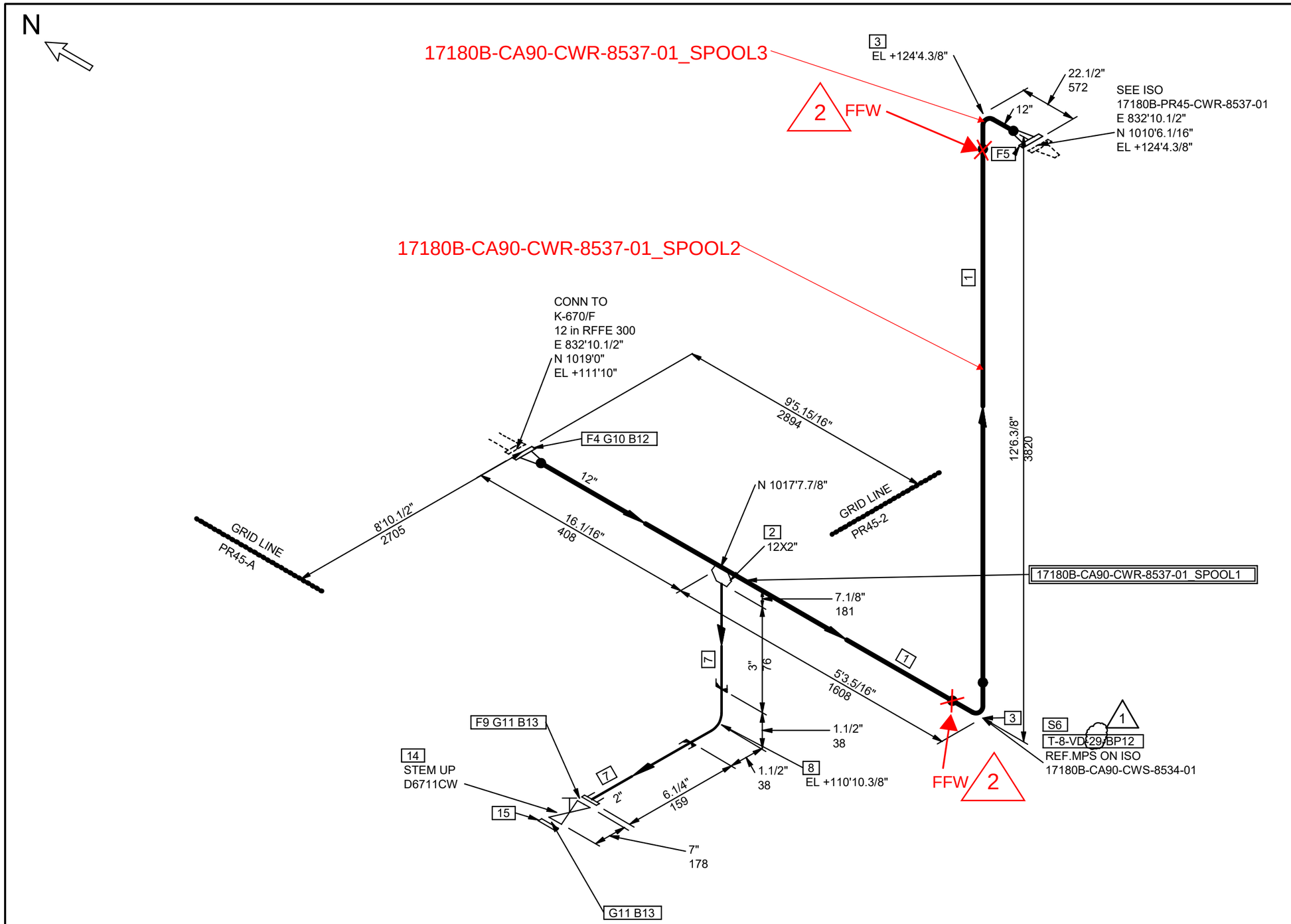
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA90-CWR-8538-01
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	14.3'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-STD	12	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	PIPE SUPPORTS		
6	T-8-VD-29-BP12 (1)	12	1
	ERECTION		
7	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	0.8'
8	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	1
9	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
10	Non Metal Flat Gskt , ASME B16.21 , CL300 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.75 in. Length	1.1/8	16
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
14	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
15	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-CWR-8537-01_SPOOL1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/02/2020	ADDED FFW			
1	04/02/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/06/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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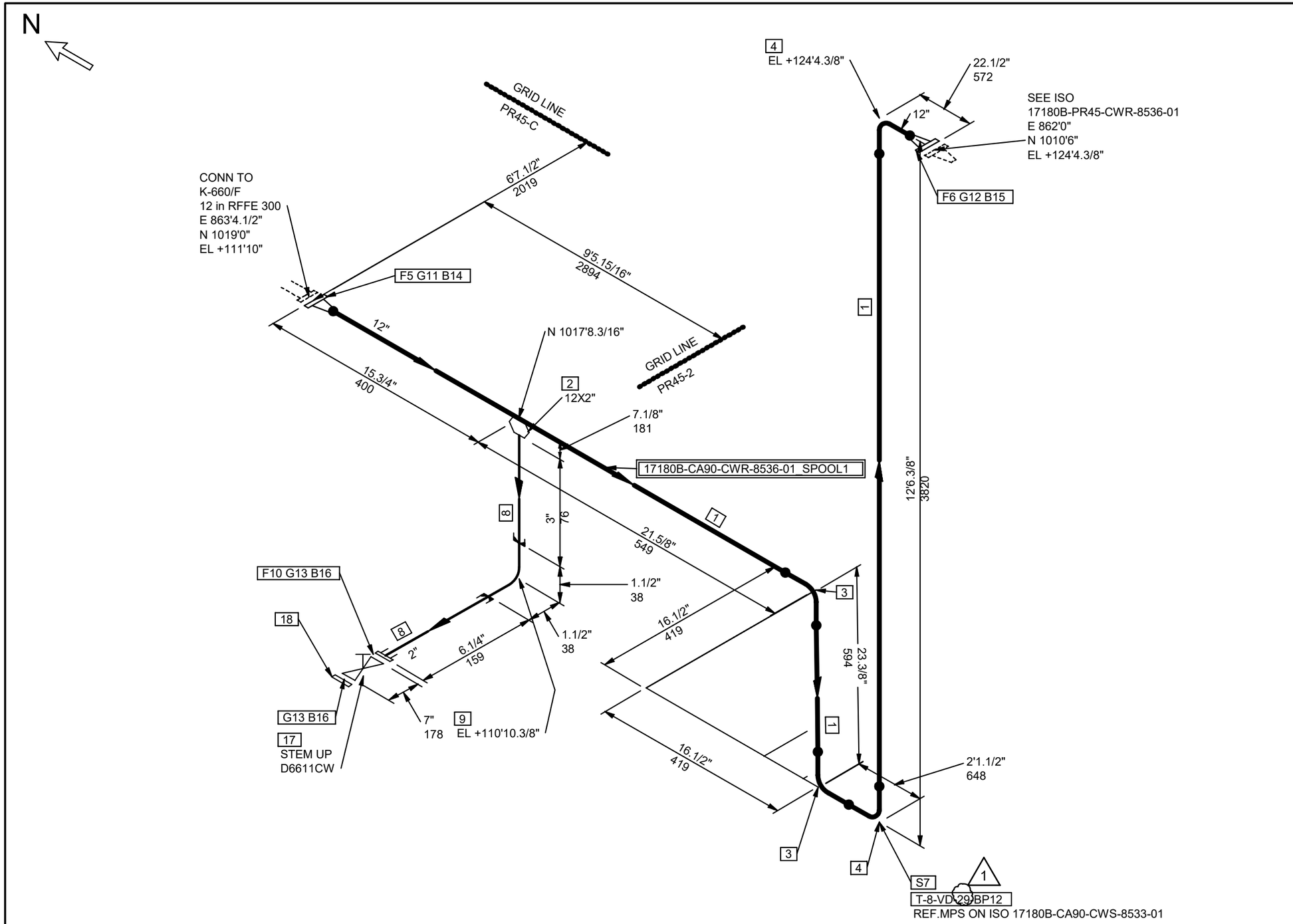
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWR-8537-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	12.3'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
5	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-STD	12	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	PIPE SUPPORTS		
7	T-8-VD-29-BP12	12	1
	ERECTION		
8	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	0.8'
9	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	1
10	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
11	Non Metal Flat Gskt , ASME B16.21 , CL300 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
12	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.75 in. Length	1.1/8	16
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
17	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
18	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

17180B-CA90-CWR-8536-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/05/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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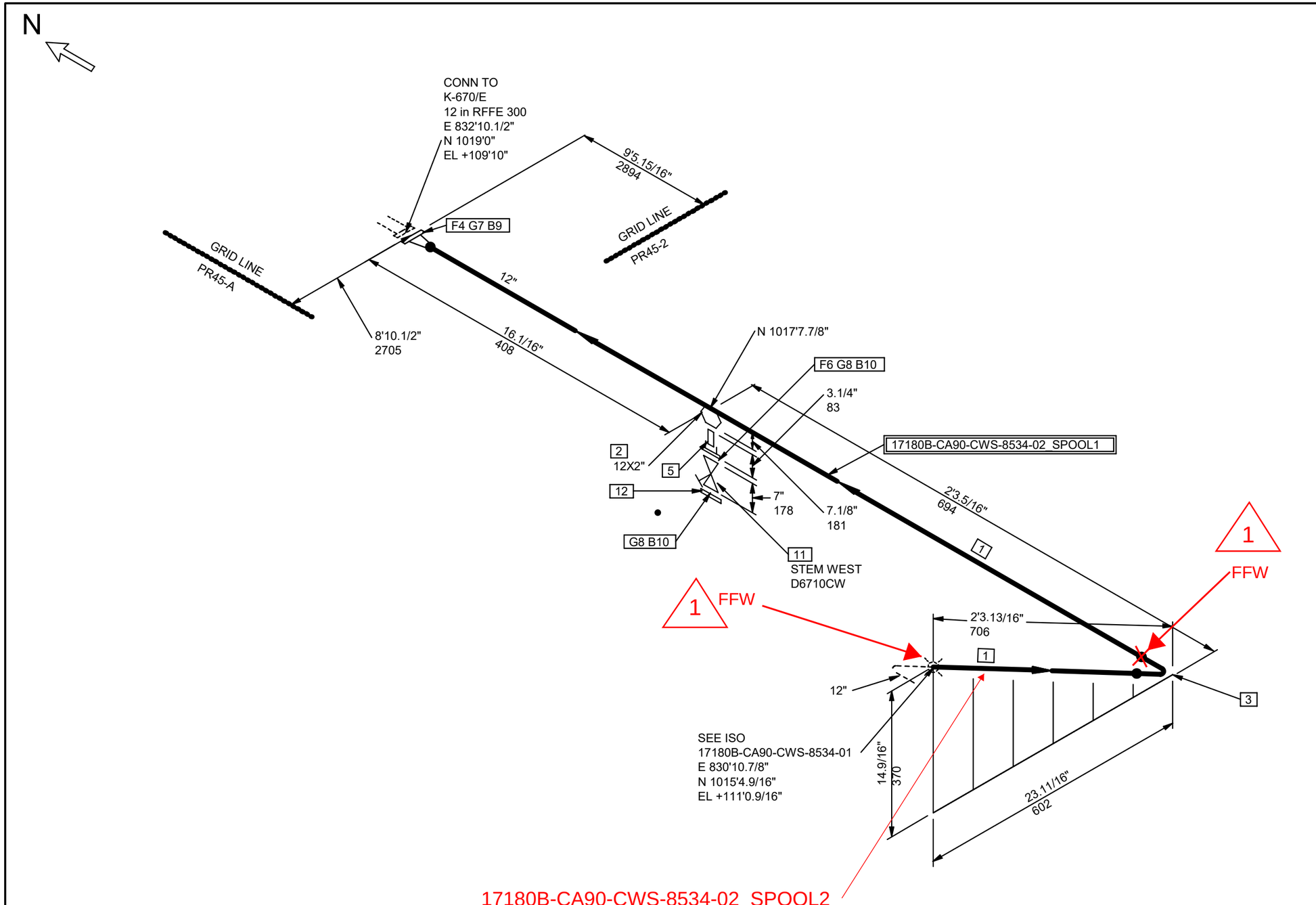
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWR-8536-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	2.6'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-STD	12	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL300 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.75 in. Length	1.1/8	16
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
11	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
12	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

Revision Notification

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04/02/2020 1:25:08 PM

17180B-CA90-CWS-8534-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	11/05/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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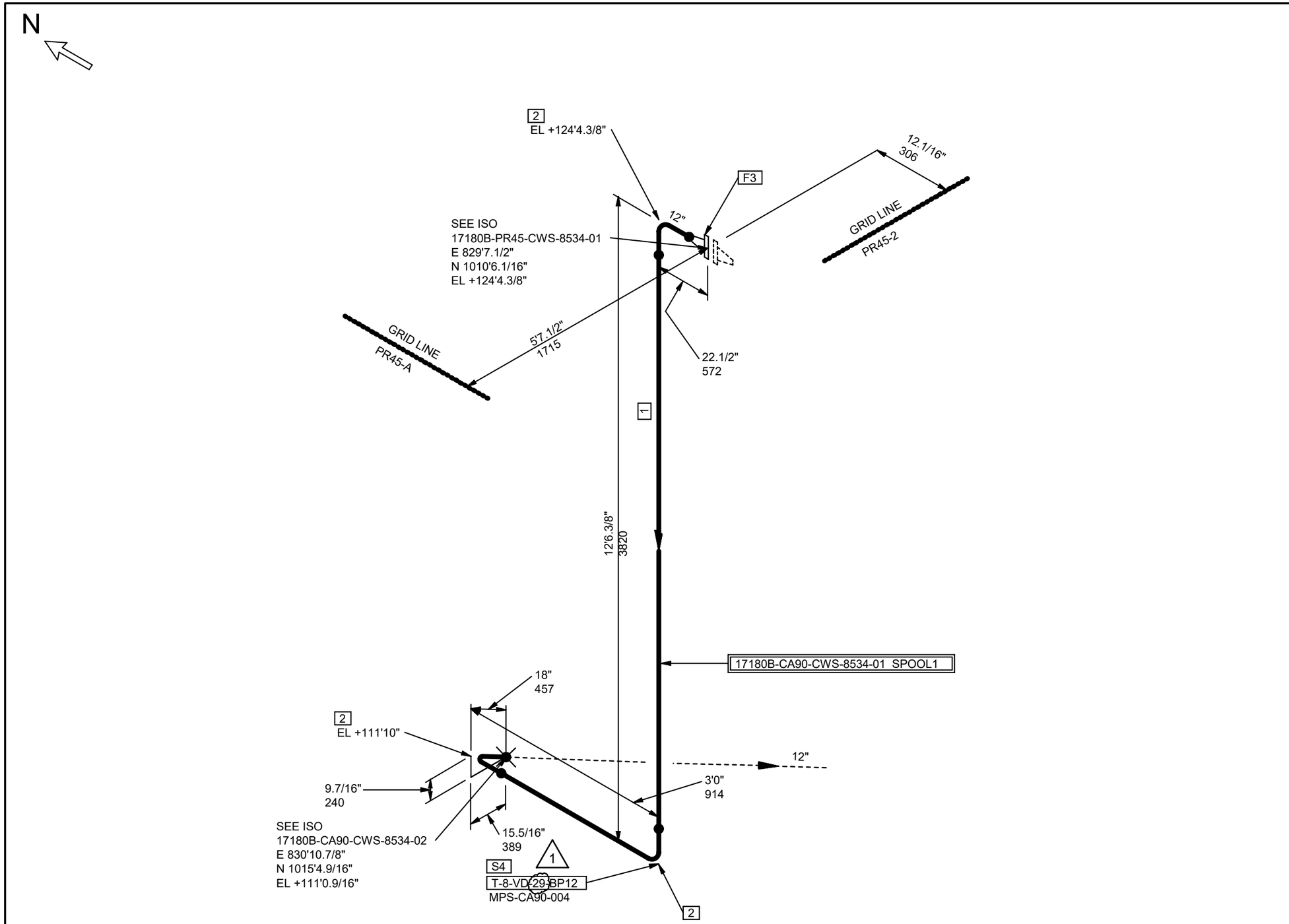
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWS-8534-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	9.6'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
PIPE SUPPORTS			
4	T-8-VD-29-BP12	12	1

1

17180B-CA90-CWS-8534-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/06/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

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15377 Memorial Drive
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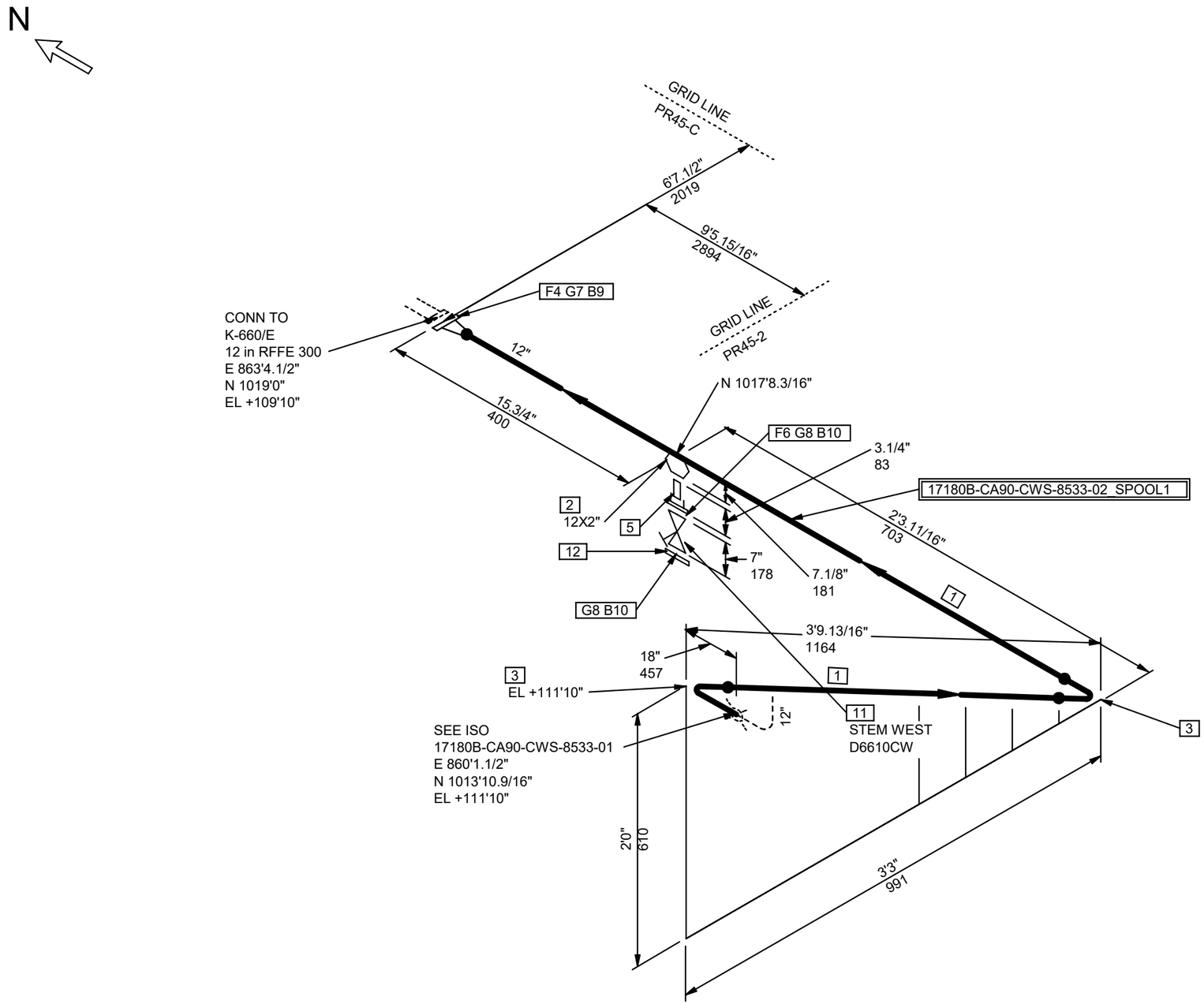
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWS-8534-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	2.6'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-STD	12	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL300 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.75 in. Length	1.1/8	16
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
11	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
12	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

17180B-CA90-CWS-8533-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/05/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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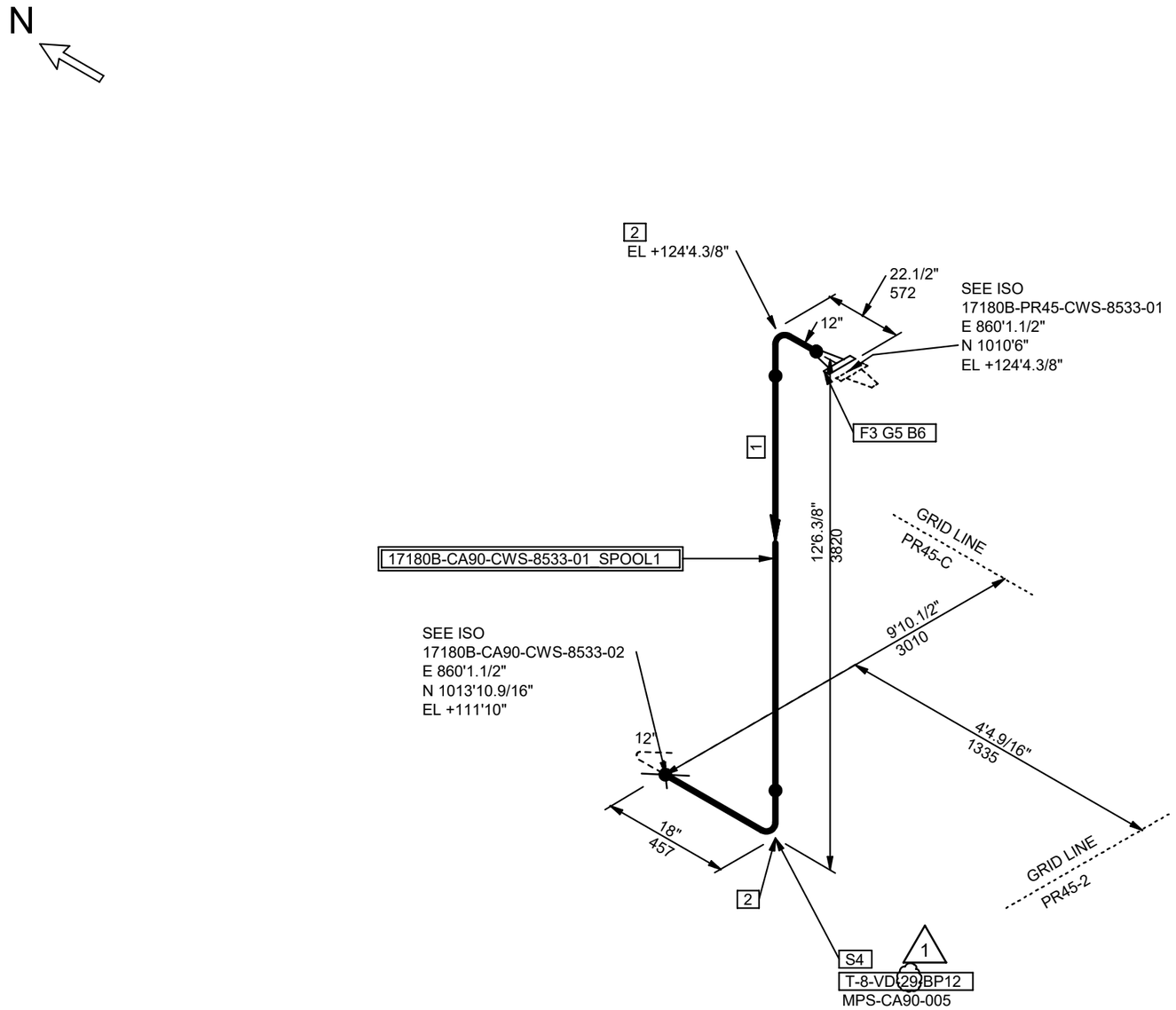
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWS-8533-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	9.6'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	PIPE SUPPORTS		
4	T-8-VD29-BP12	12	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12

17180B-CA90-CWS-8533-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/05/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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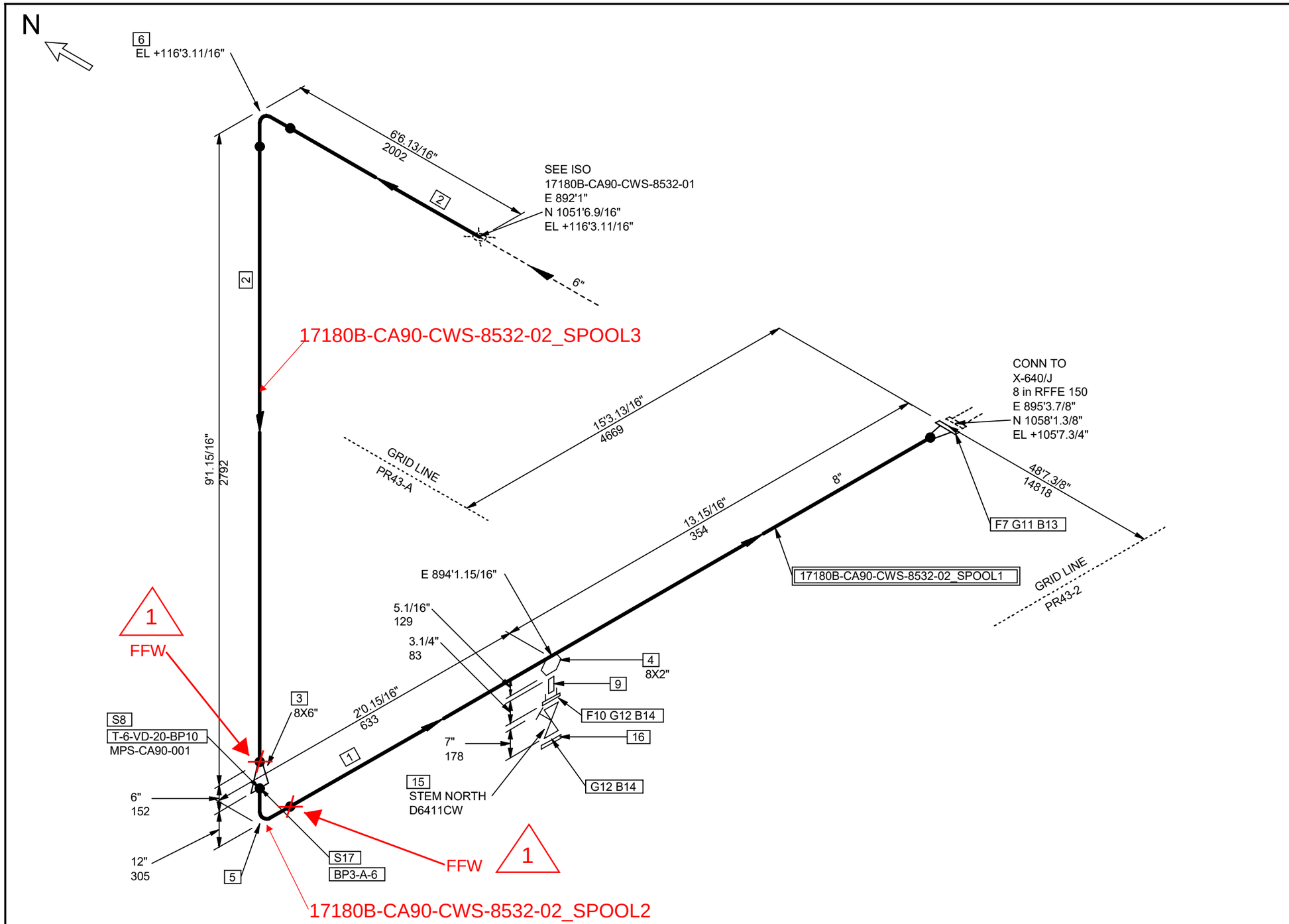
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWS-8533-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	2.0'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	14.3'
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X6	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	8X2	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
	PIPE SUPPORTS		
8	T-6-VD-20-BP10	8	1
	ERECTION		
9	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 3in Long , SMLS , S-80 , S-80	2	1
10	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	8	1
12	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
15	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
16	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
17	BP3-A-6	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-CWS-8532-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	10/22/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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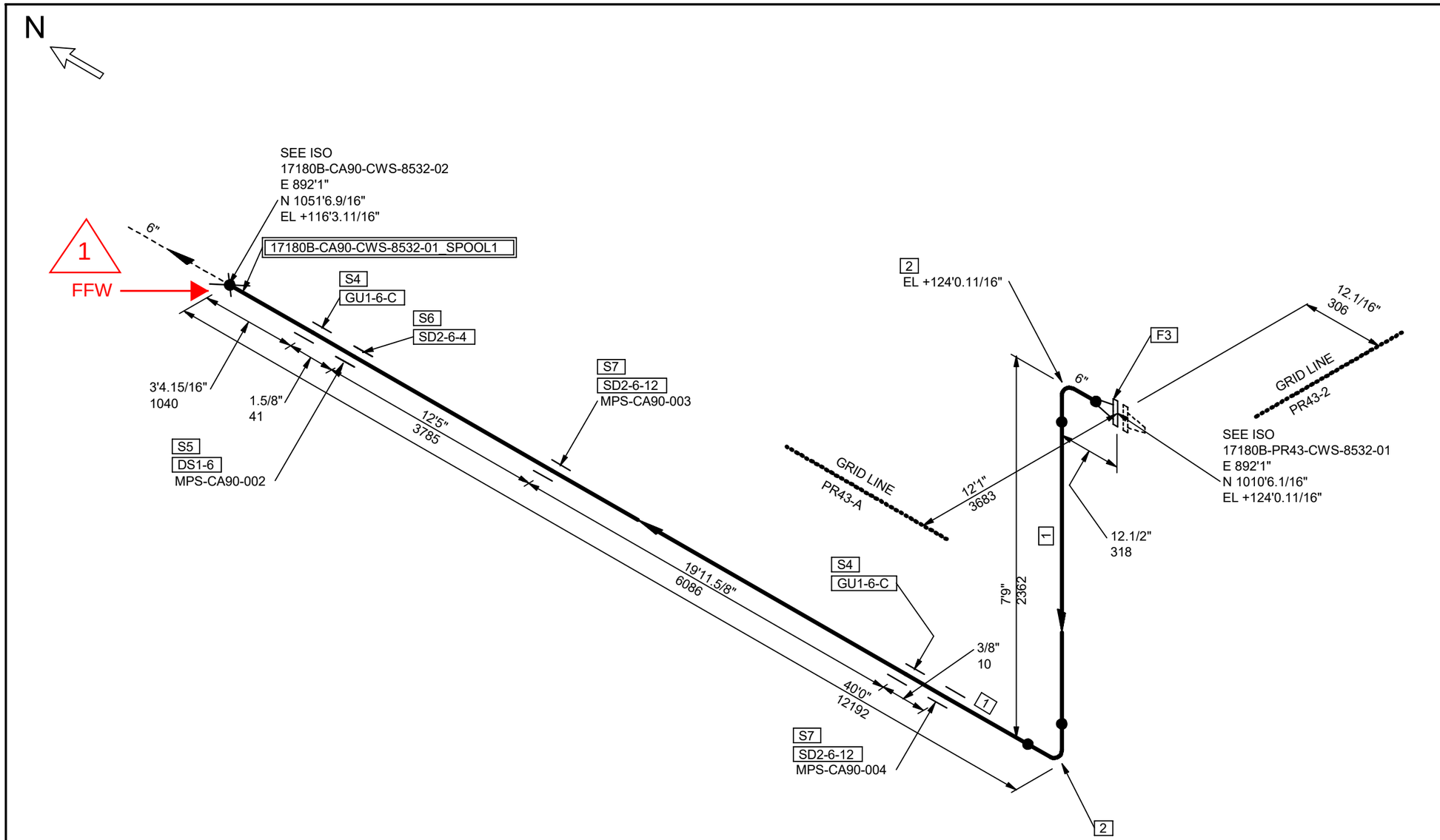
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWS-8532-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	45.5'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	2
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
	PIPE SUPPORTS		
4	GU1-6-C	6	2
5	DS1-6	6	1
6	SD2-6-4	6	1
7	SD2-6-12	6	2

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-CWS-8532-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	09/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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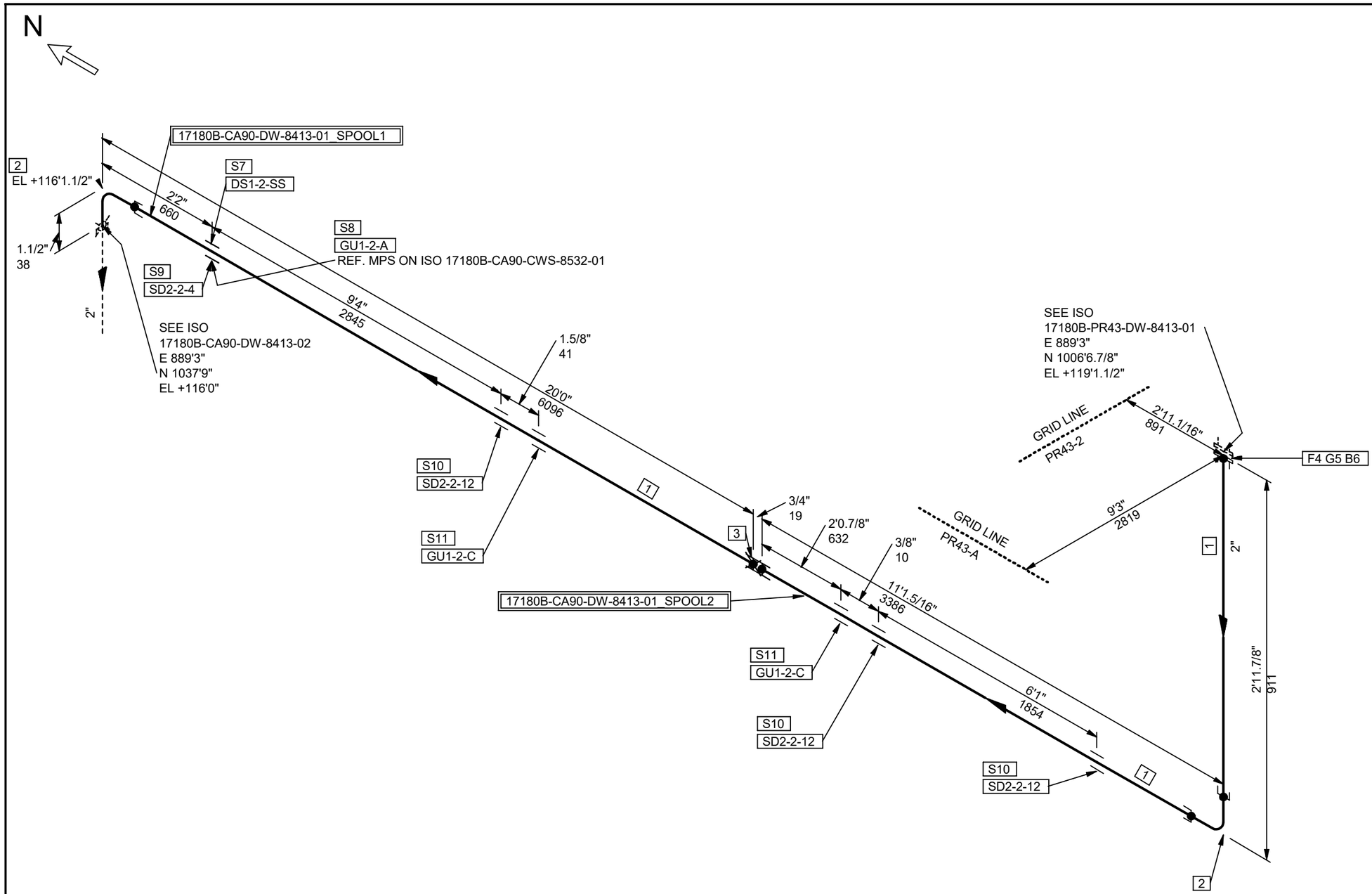
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-CWS-8532-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	33.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
5	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
PIPE SUPPORTS			
7	DS1-2-SS	2	1
8	GU1-2-A	2	1
9	SD2-2-4	2	1
10	SD2-2-12	2	3
11	GU1-2-C	2	2

17180B-CA90-DW-8413-01_SPOOL1 17180B-CA90-DW-8413-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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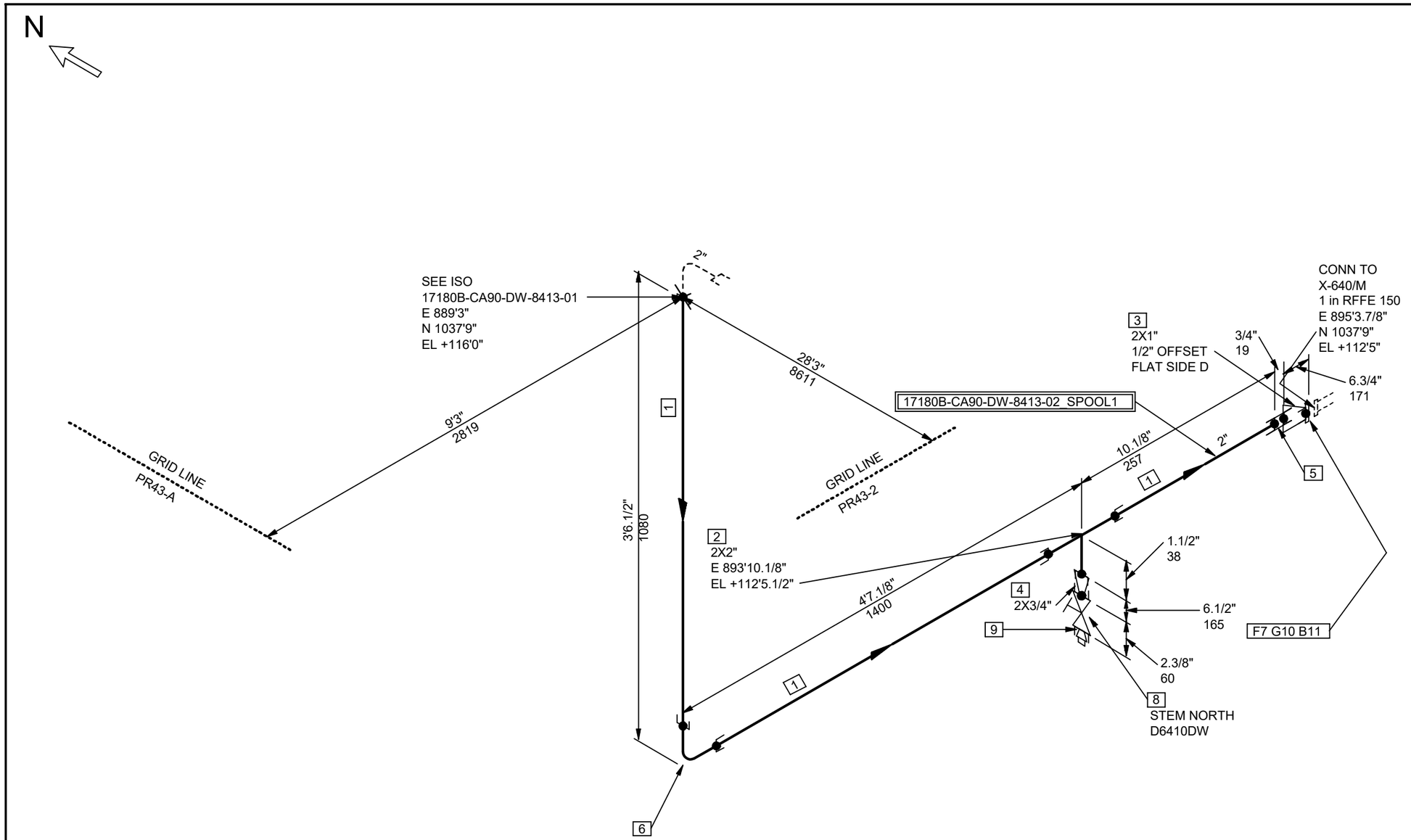
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-DW-8413-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	8.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	1
3	Ecc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X1	1
4	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X3/4	1
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
7	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-80S	1	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	4

17180B-CA90-DW-8413-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/22/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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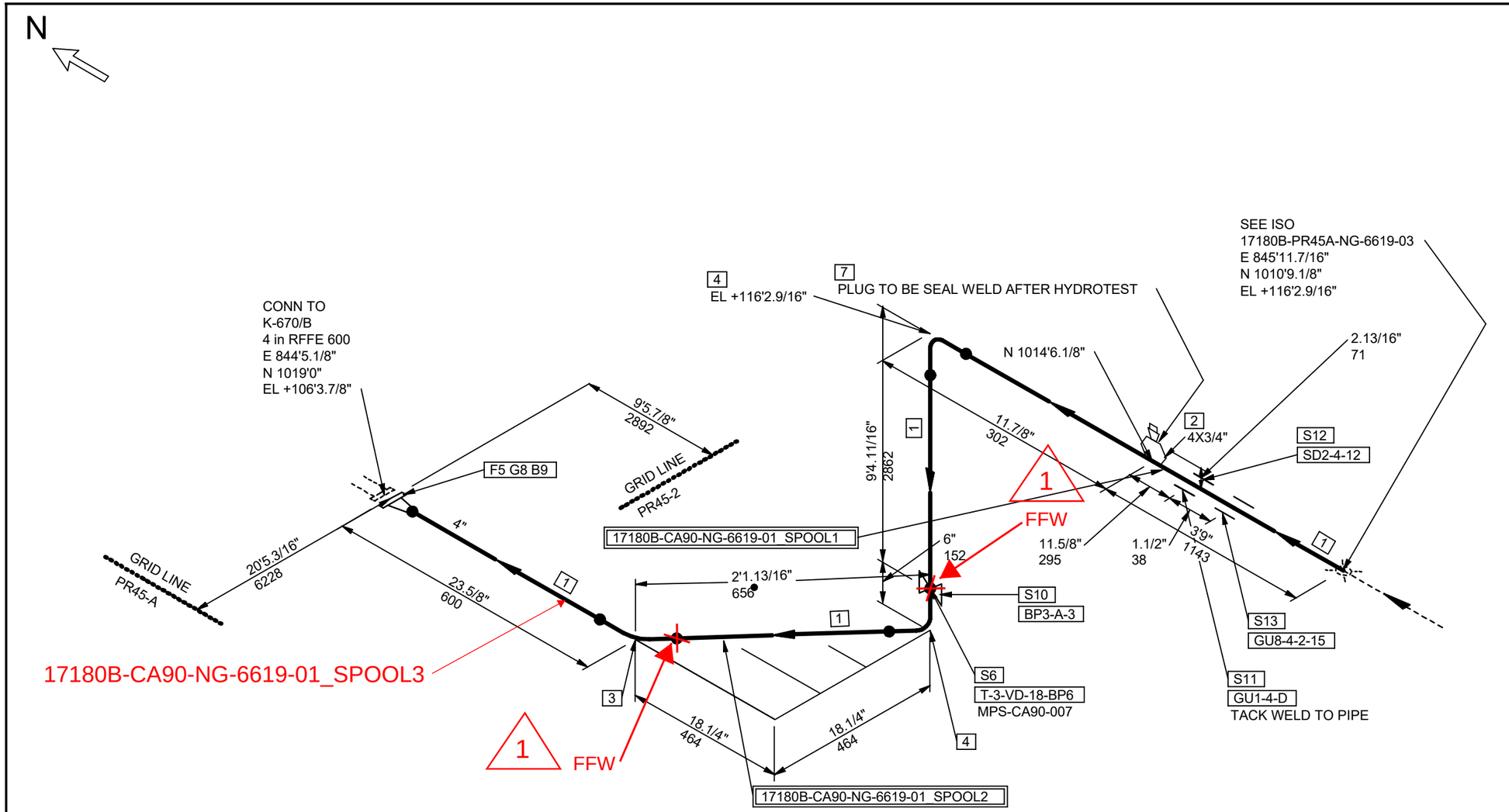
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-DW-8413-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-80	4	16.0'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	4X3/4	1
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-80 , S-80	4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-80 , S-80	4	2
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	4	1
	PIPE SUPPORTS		
6	T-3-VD-18-BP6	4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	4	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 6 in. Length	7/8	8
	PIPE SUPPORTS		
10	BP3-A-3	4	1
11	GU1-4-D	4	1
12	SD2-4-12	4	1
13	GU8-4-2-15	4	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-NG-6619-01_SPOOL1 17180B-CA90-NG-6619-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	09/12/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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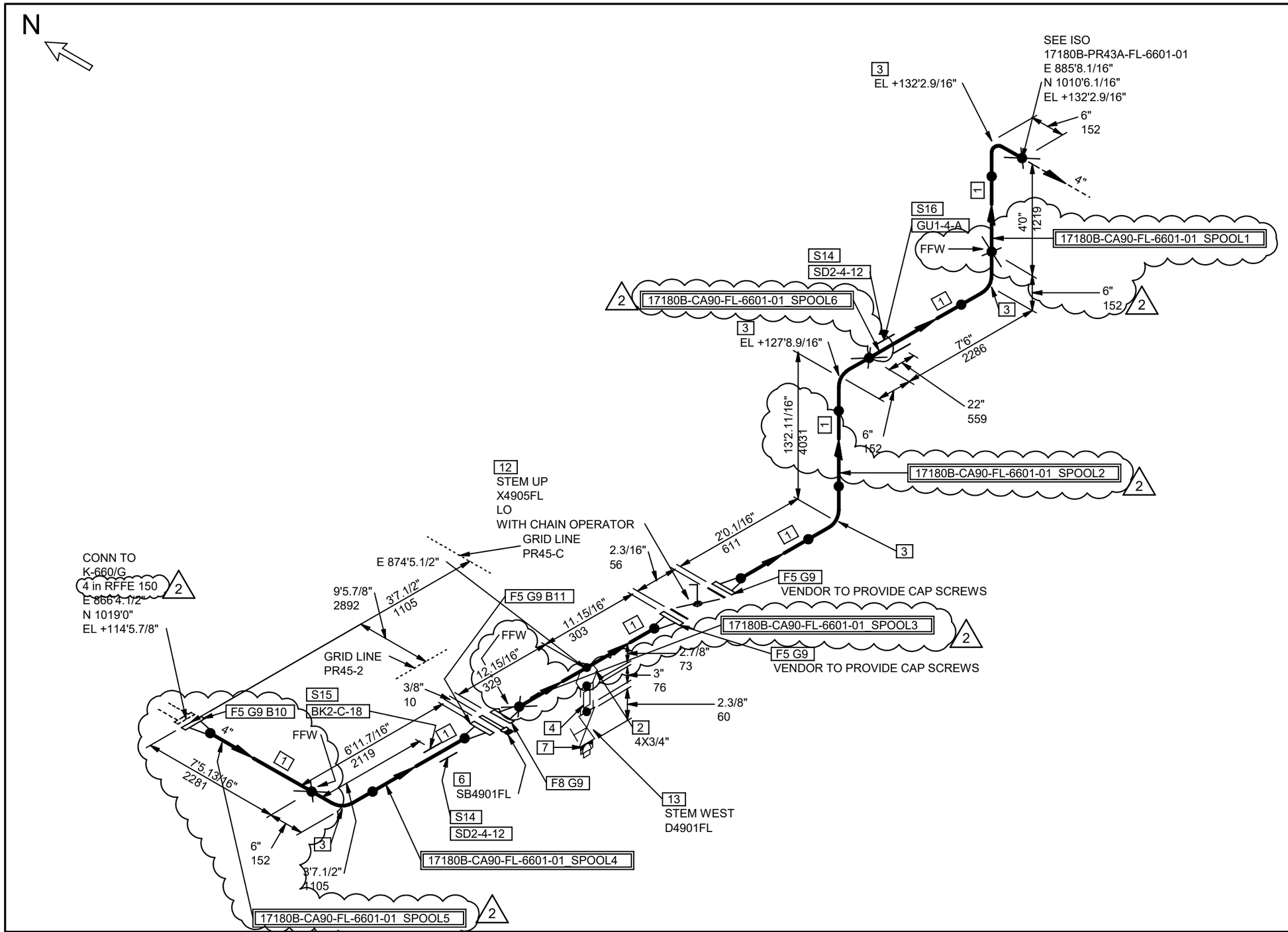
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-NG-6619-01	REV: 1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	40.0'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	5
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	4
	ERECTION		
6	Fig-8 Blank , ASME B16.48 , CL150 , FFTBE , ASTM A516 Grade 70	4	1
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	5
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	5/8	8
12	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , 316 SS/GRAPHITE SEAL , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAB	4	1
13	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
14	SD2-4-12	4	2
15	BK2-C-18	4	1
16	GU1-4-A	4	1

17180B-CA90-FL-6601-01_SPOOL1 17180B-CA90-FL-6601-01_SPOOL2
17180B-CA90-FL-6601-01_SPOOL3 17180B-CA90-FL-6601-01_SPOOL4
17180B-CA90-FL-6601-01_SPOOL5 17180B-CA90-FL-6601-01_SPOOL6

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	06/22/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	11/22/2019	RE-ISSUED FOR CONSTRUCTION	VT	NNR	MLO
0	11/04/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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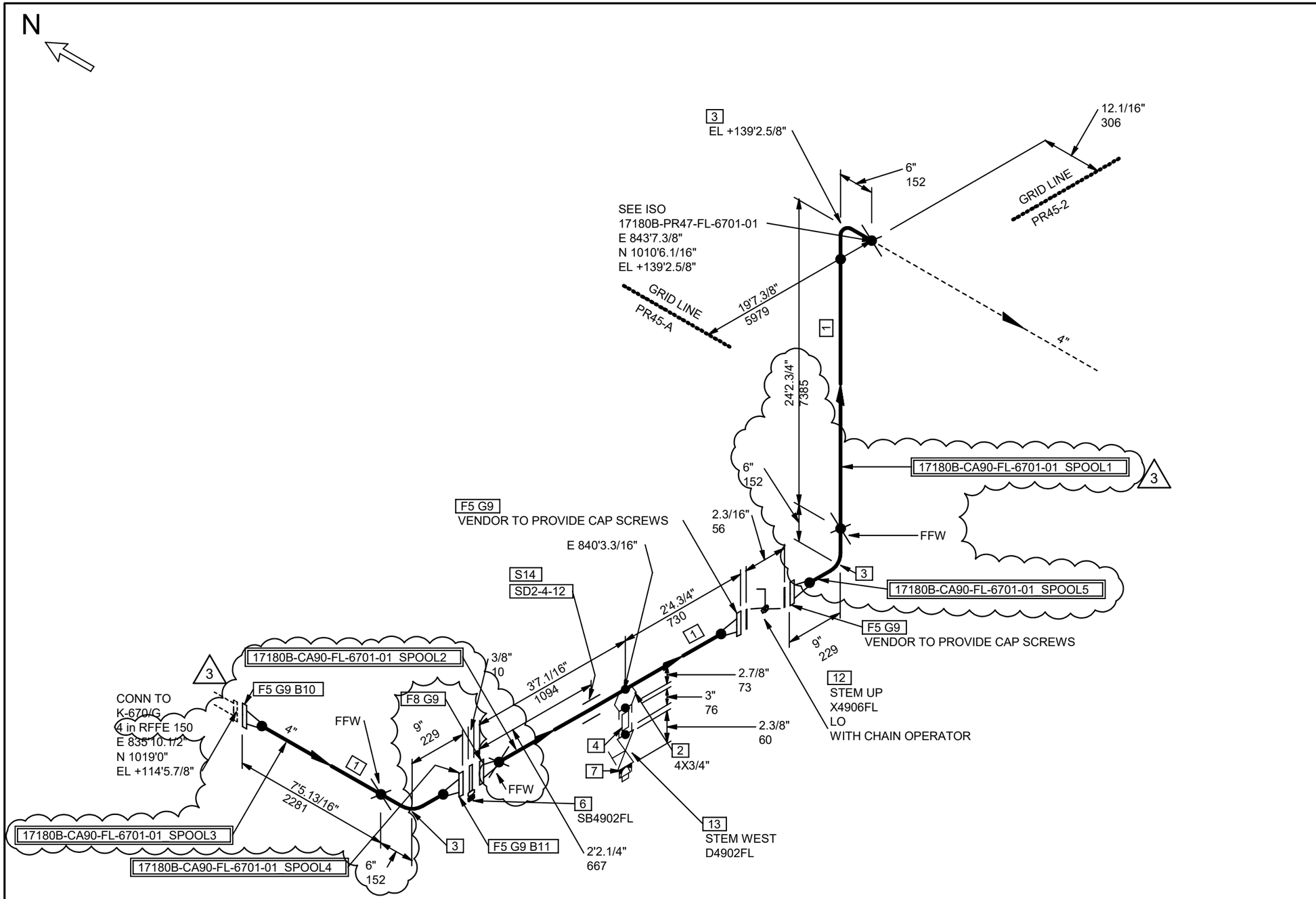
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-FL-6601-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	37.5'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	3
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	4
	ERECTION		
6	Fig-8 Blank , ASME B16.48 , CL150 , FFTBE , ASTM A516 Grade 70	4	1
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	1
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	5
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	5/8	8
12	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , 316 SS/GRAPHITE SEAL , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAB	4	1
13	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
14	SD2-4-12	4	1

17180B-CA90-FL-6701-01_SPOOL1
17180B-CA90-FL-6701-01_SPOOL2
17180B-CA90-FL-6701-01_SPOOL3
17180B-CA90-FL-6701-01_SPOOL4
17180B-CA90-FL-6701-01_SPOOL5
3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	06/22/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
2	04/02/2020	RE-ISSUED FOR CONSTRUCTION - ADDED FW BY PX	JY	AA	MLO
1	11/22/2019	RE-ISSUED FOR CONSTRUCTION	VT	NNR	MLO
0	11/04/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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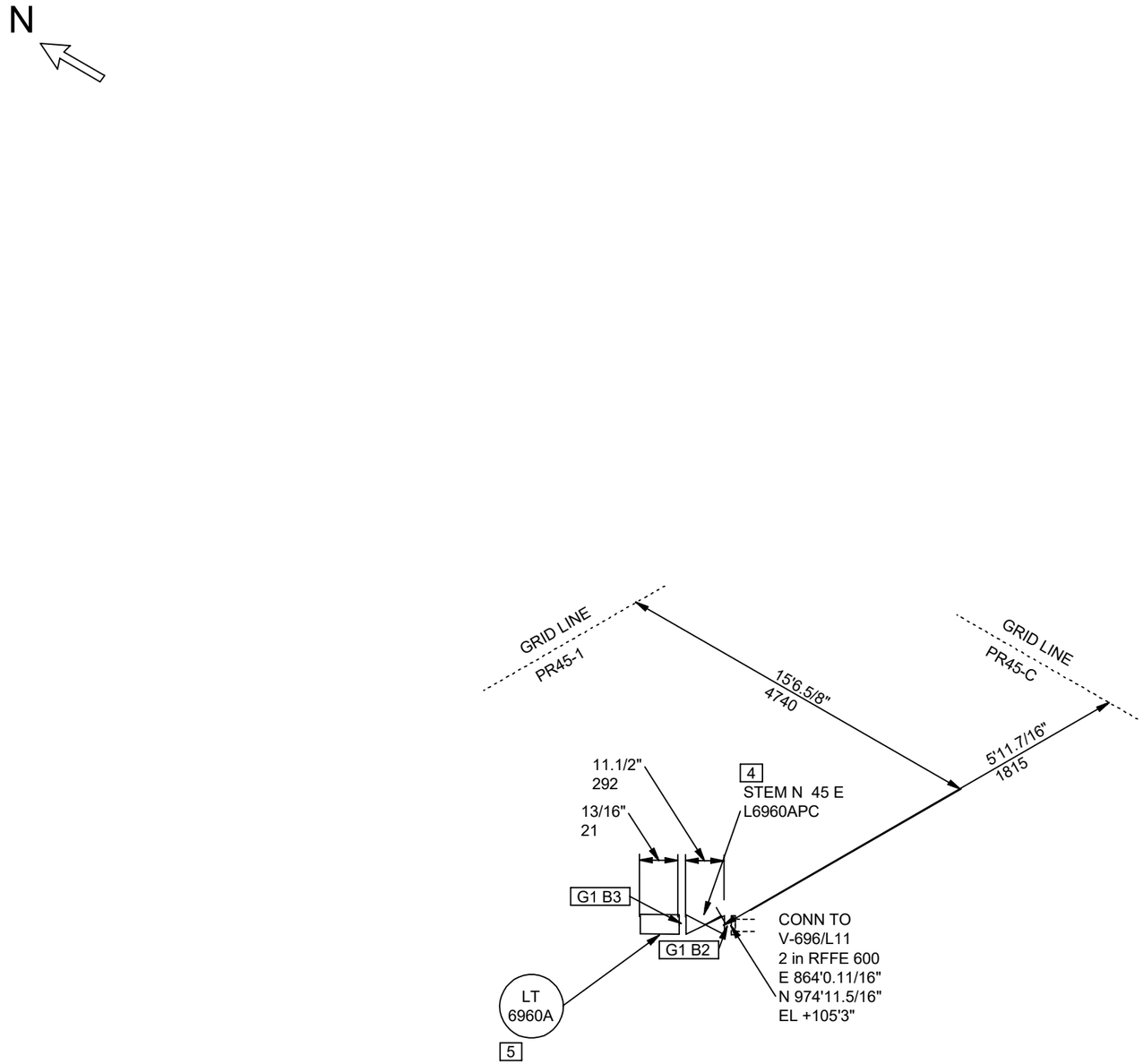
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-FL-6701-01	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	8
3	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	5/8	8
4	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	1
	INSTRUMENTS		
5	LT-6960A	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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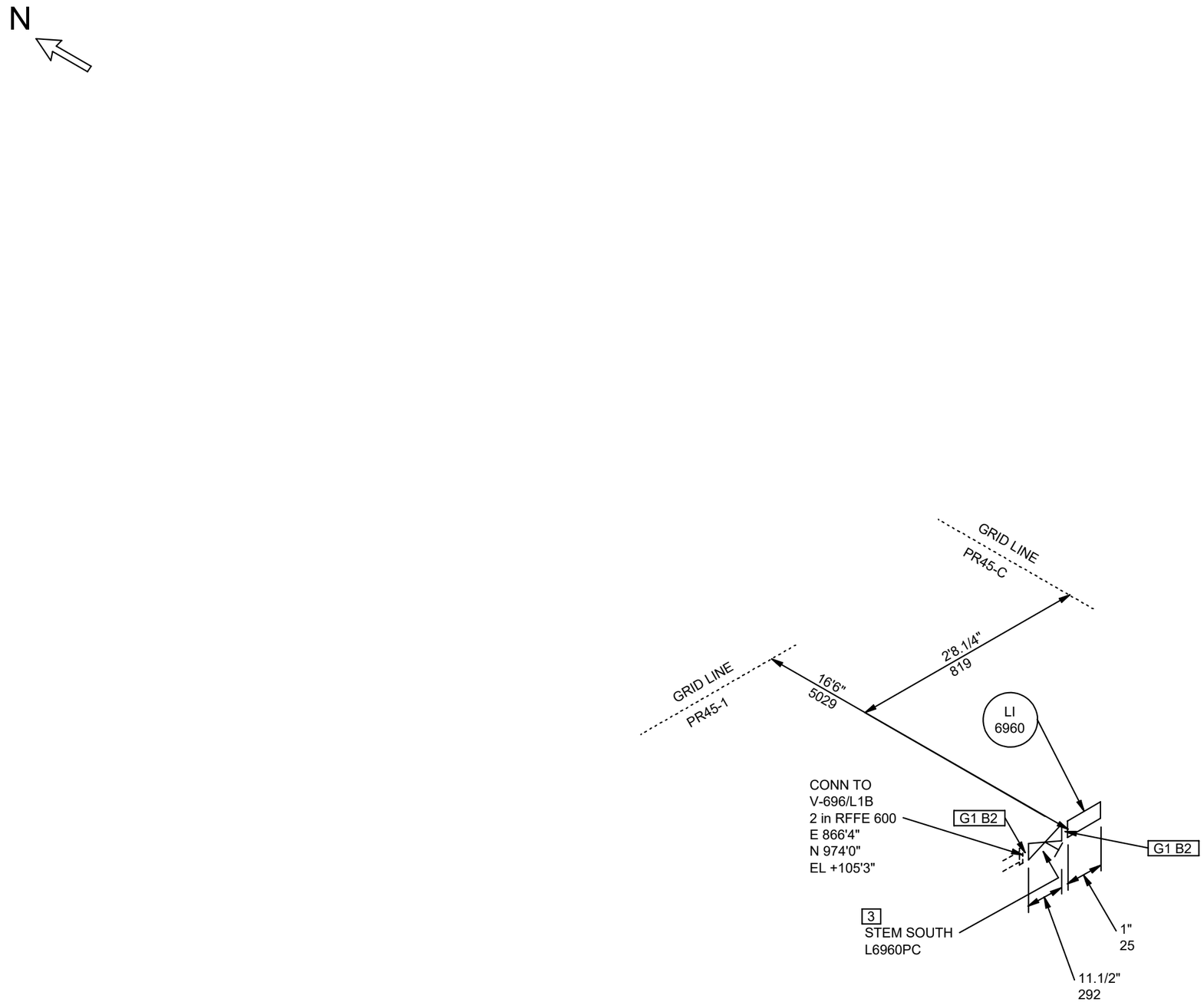
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-04	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	16
3	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELL
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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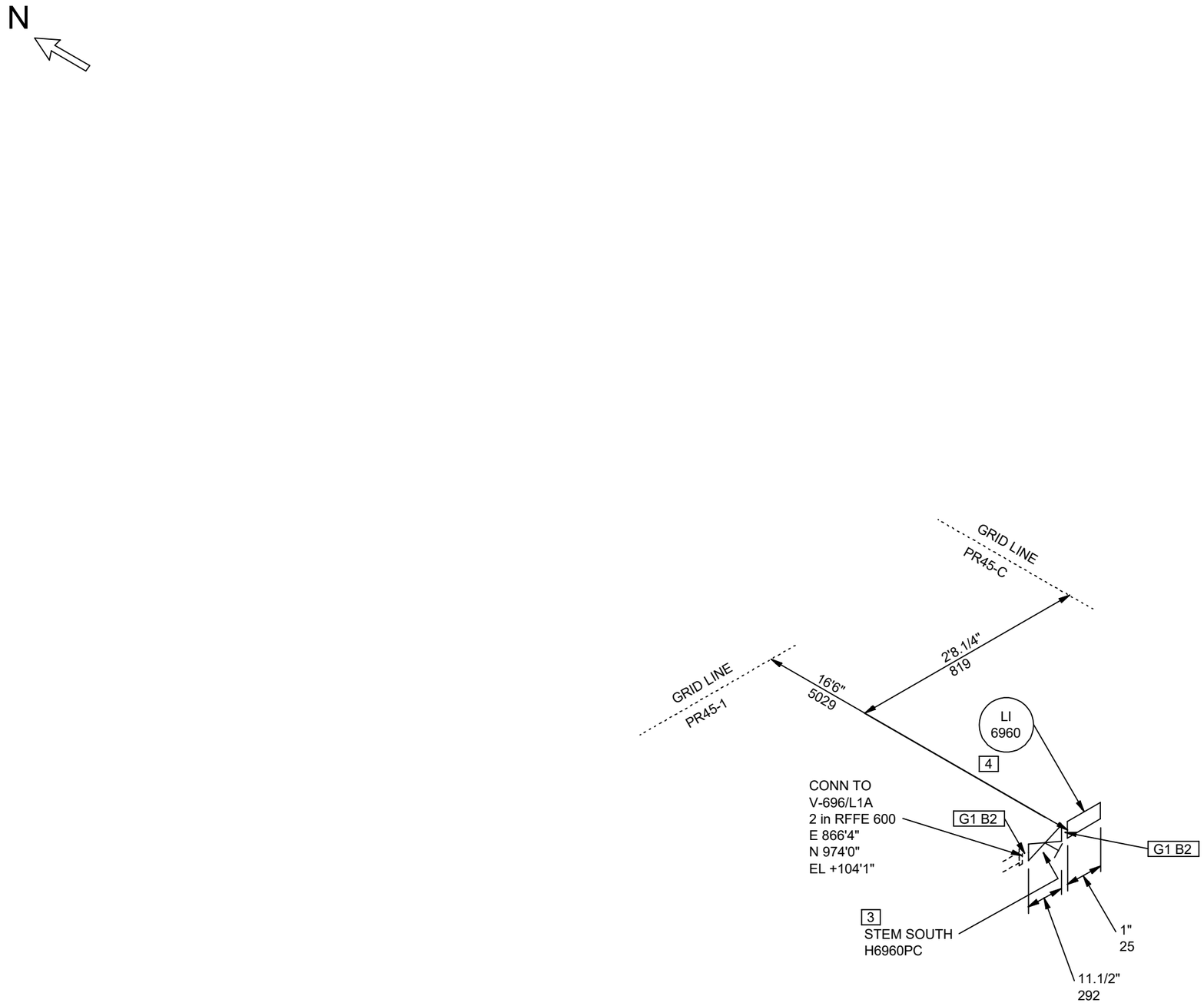
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-05	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	16
3	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	1
	INSTRUMENTS		
4	LI-6960	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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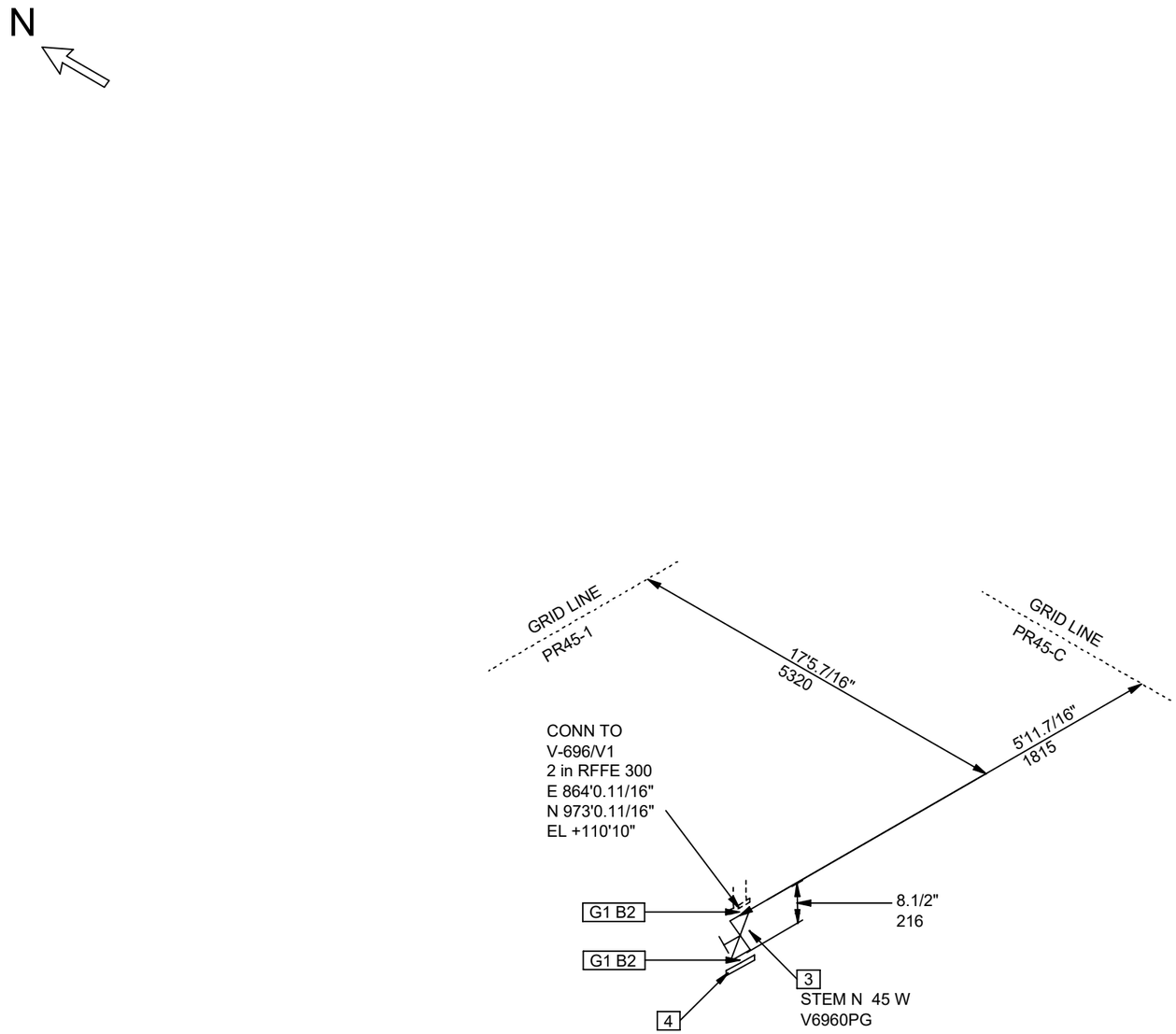
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-06	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
3	Gate Vlv , API 602 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	2	1
4	Blind Flg , ASME B16.5 , CL300 , RF , ASTM A105N	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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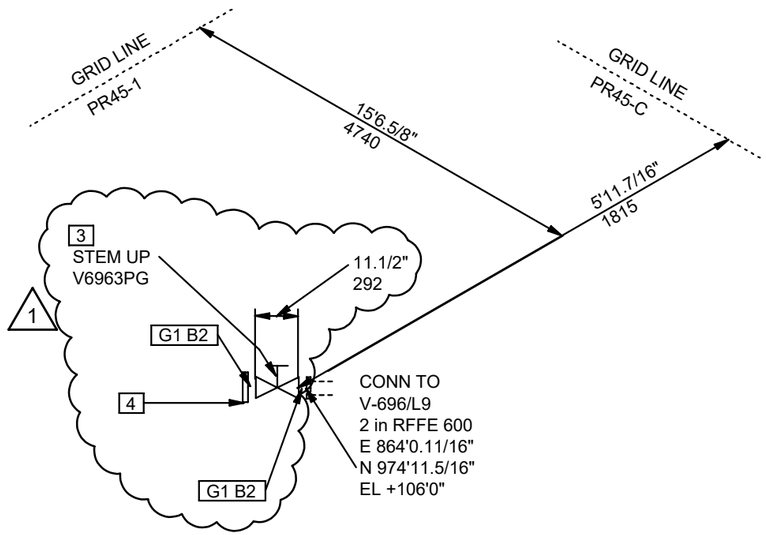
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-07	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	16
3	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	1
4	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A105N	2	1

1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	06/10/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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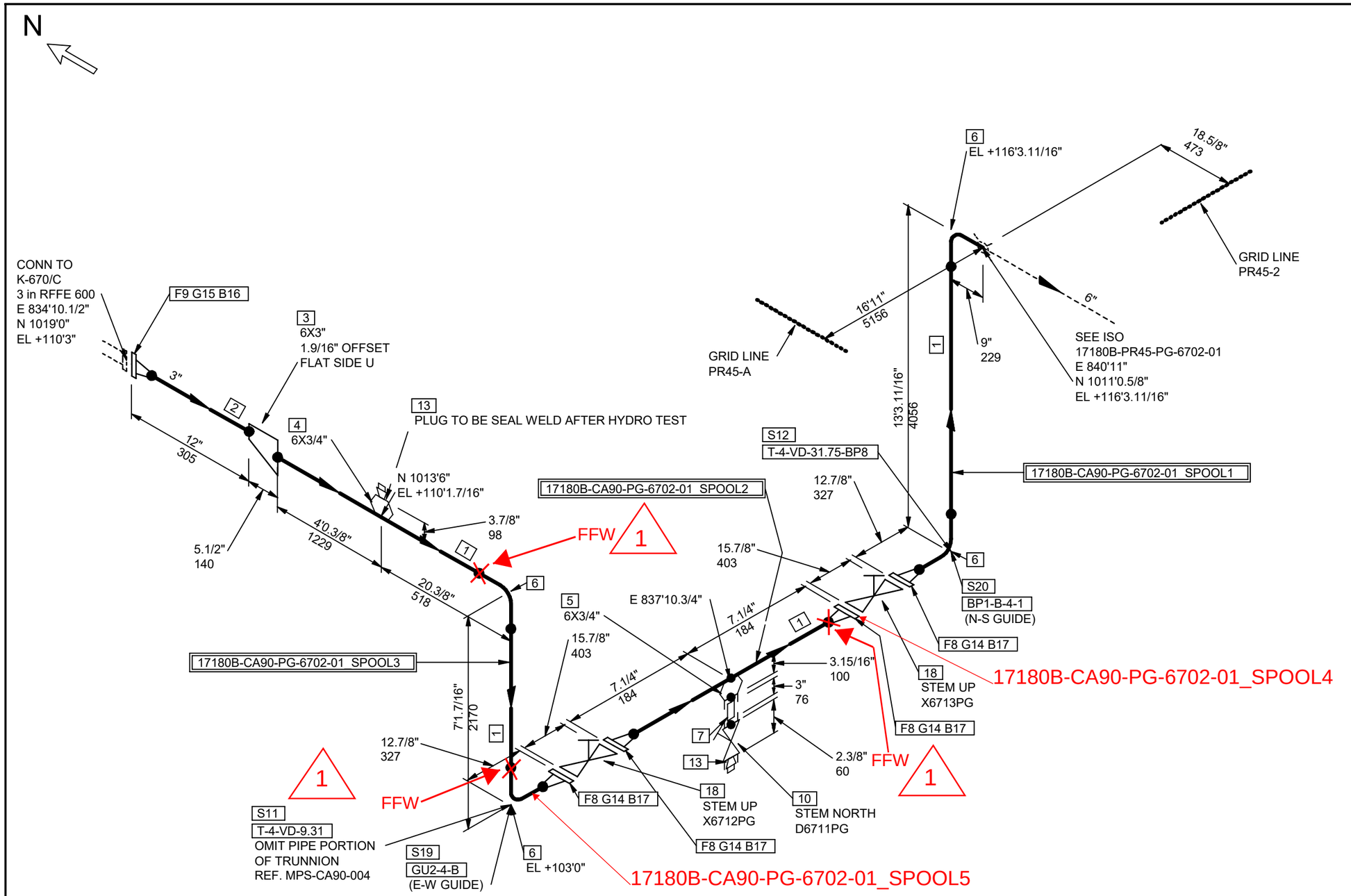
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-08	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	23.0'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	3	0.8'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X3	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X3/4	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	4
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	4
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-40	3	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
11	T-4-VD-9.31	6	1
12	T-4-VD-31.75-BP8	6	1
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
14	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	4
15	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	3	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.25 in. Length	3/4	8
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	48
18	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	2
	PIPE SUPPORTS		
19	GU2-4-B	6	1
20	BP1-B-4-1	6	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-PG-6702-01_SPOOL1 17180B-CA90-PG-6702-01_SPOOL2
17180B-CA90-PG-6702-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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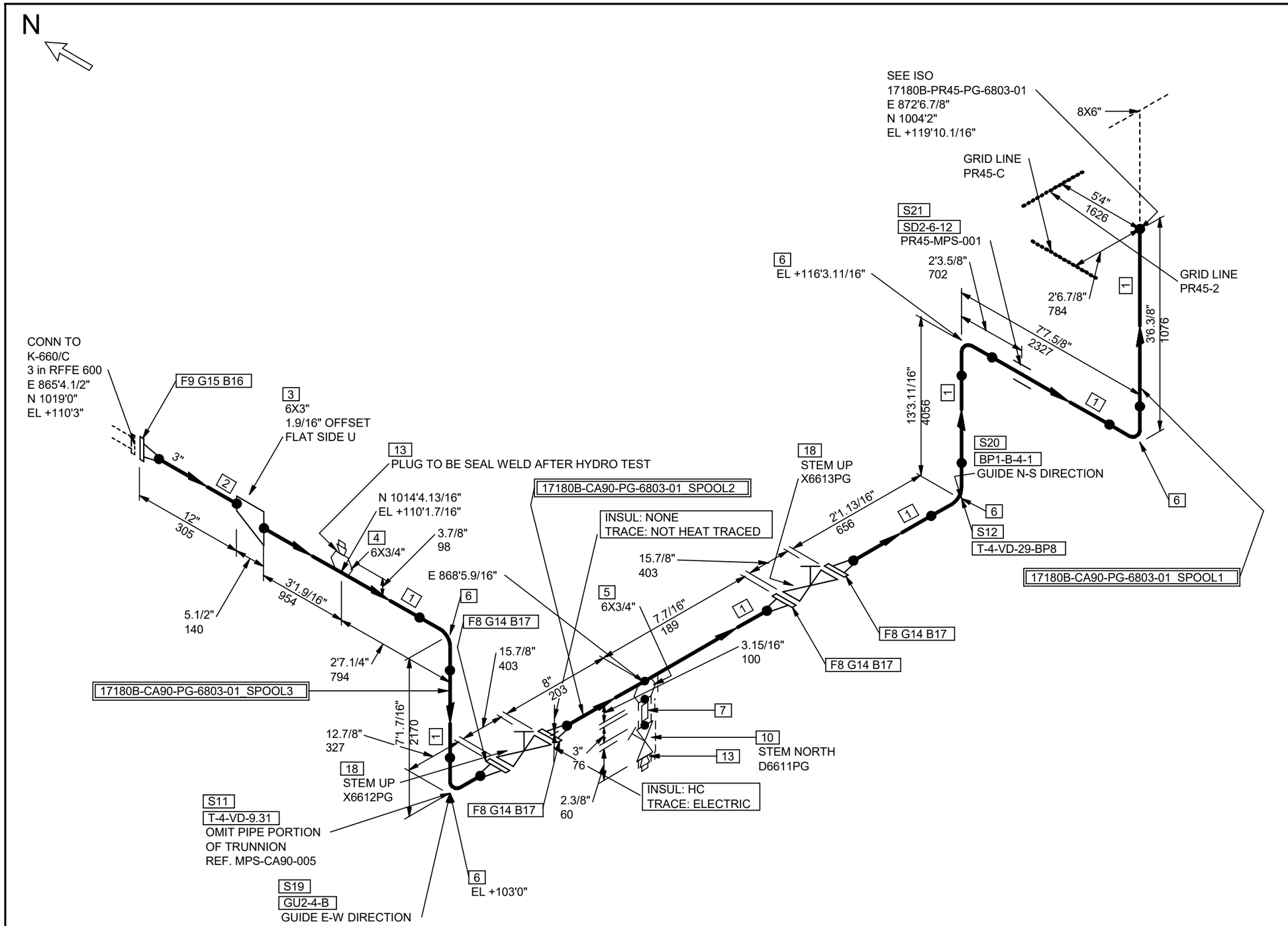
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6702-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	33.1'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	3	0.8'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X3	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X3/4	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	5
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	4
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-40	3	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
11	T-4-VD-9.31	6	1
12	T-4-VD-29-BP8	6	1
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
14	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	4
15	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	3	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.25 in. Length	3/4	8
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	48
18	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	2
	PIPE SUPPORTS		
19	GU2-4-B	6	1
20	BP1-B-4-1	6	1
21	SD2-6-12	6	1

17180B-CA90-PG-6803-01_SPOOL1 17180B-CA90-PG-6803-01_SPOOL2
17180B-CA90-PG-6803-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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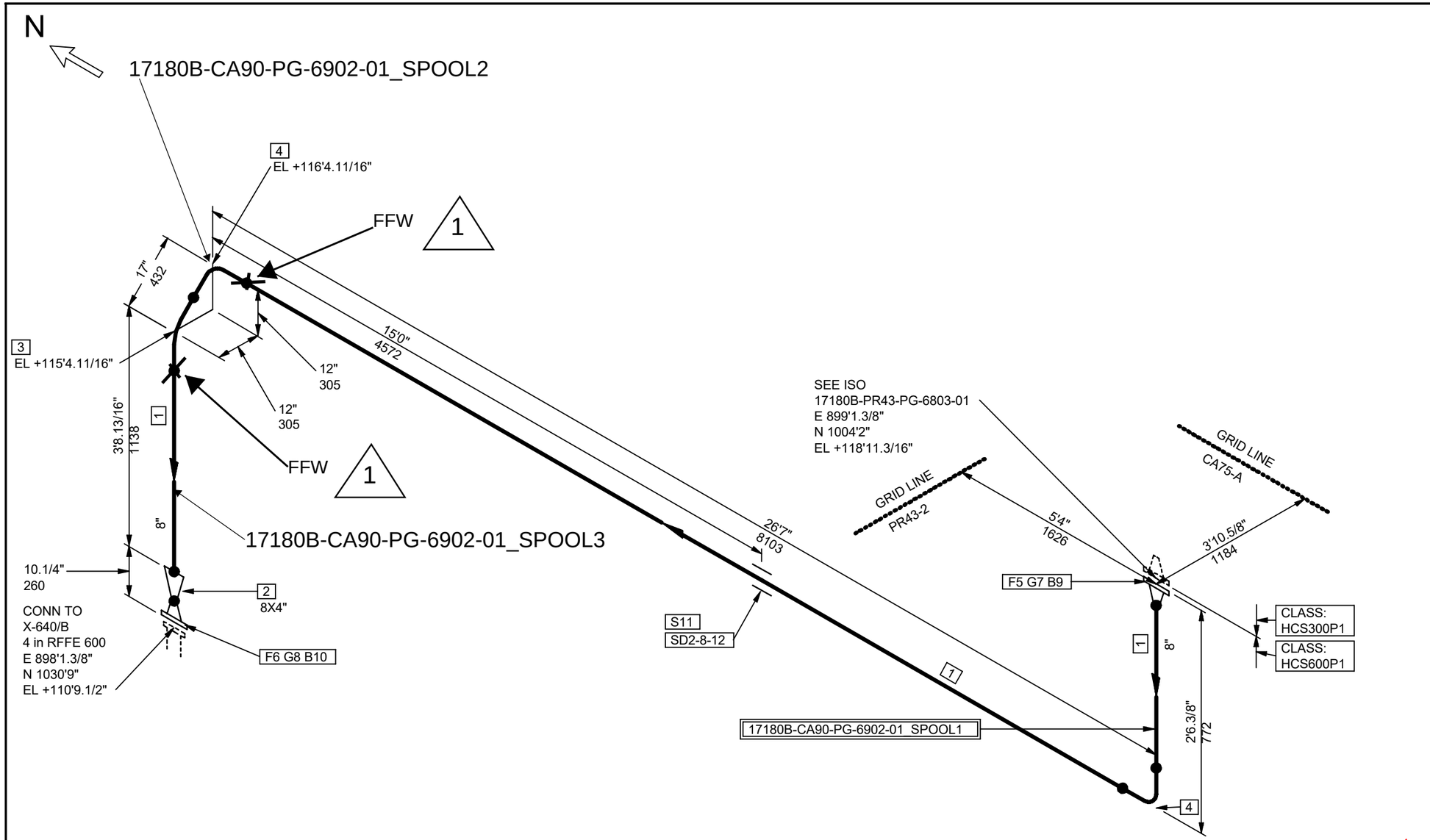
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6803-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-60	8	29.0'
2	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-80	8X4	1
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	8	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	8	2
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	8	1
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	4	1
	ERECTION		
7	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
8	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	4	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.75 in. Length	1.1/8	12
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6 in. Length	7/8	8
	PIPE SUPPORTS		
11	SD2-8-12	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

4/28/2020

2

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6902-01_SPOOL1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/02/2020	ADDED FFW			
0	11/15/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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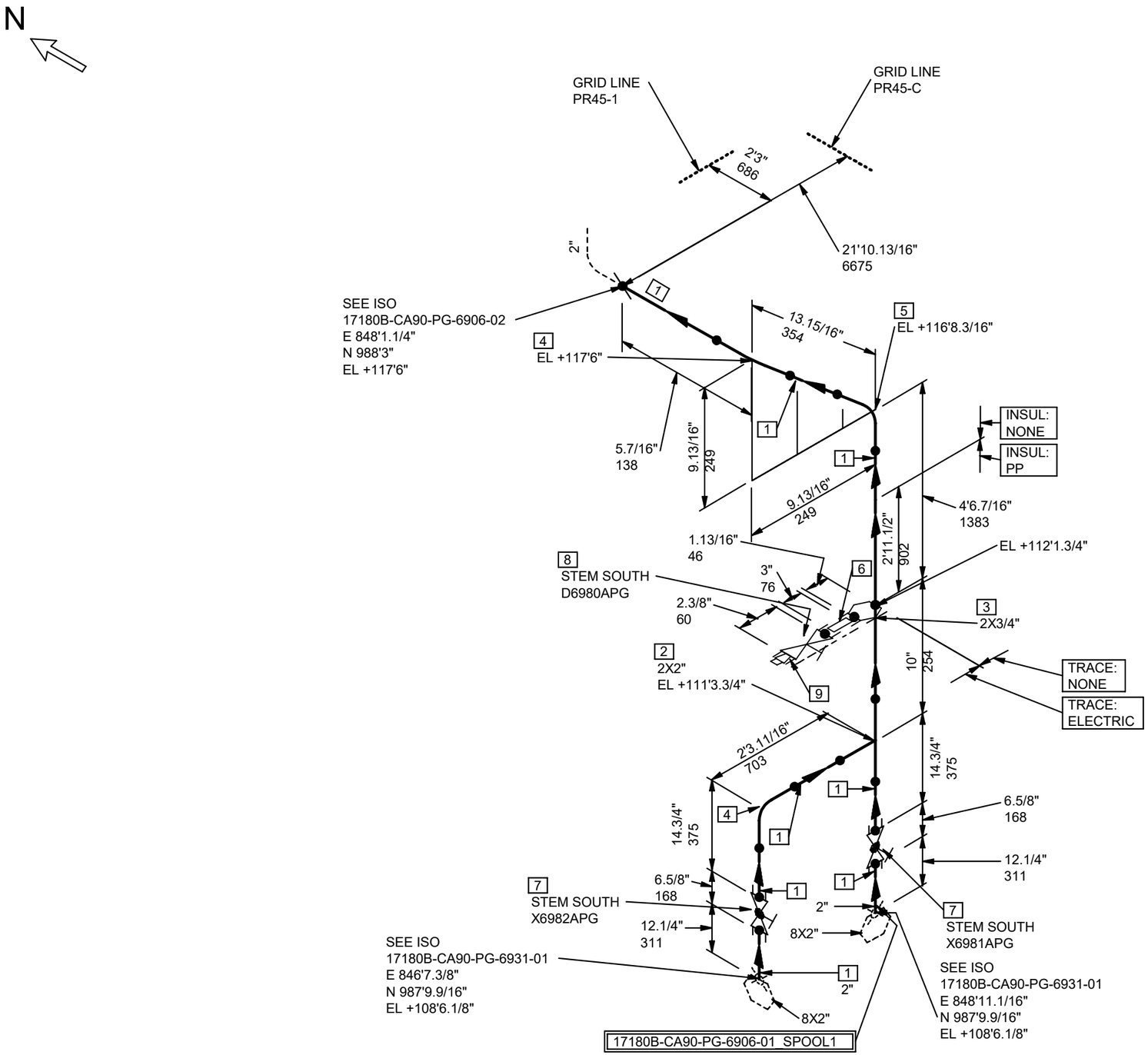
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR	
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6902-01
REV: 2	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	12.0'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2X2	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	2
5	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
6	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
7	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , live loaded F.G. packing, F.G. gasket, NACE , T8SFC	2	2
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
ERECTION			
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1

17180B-CA90-PG-6906-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/05/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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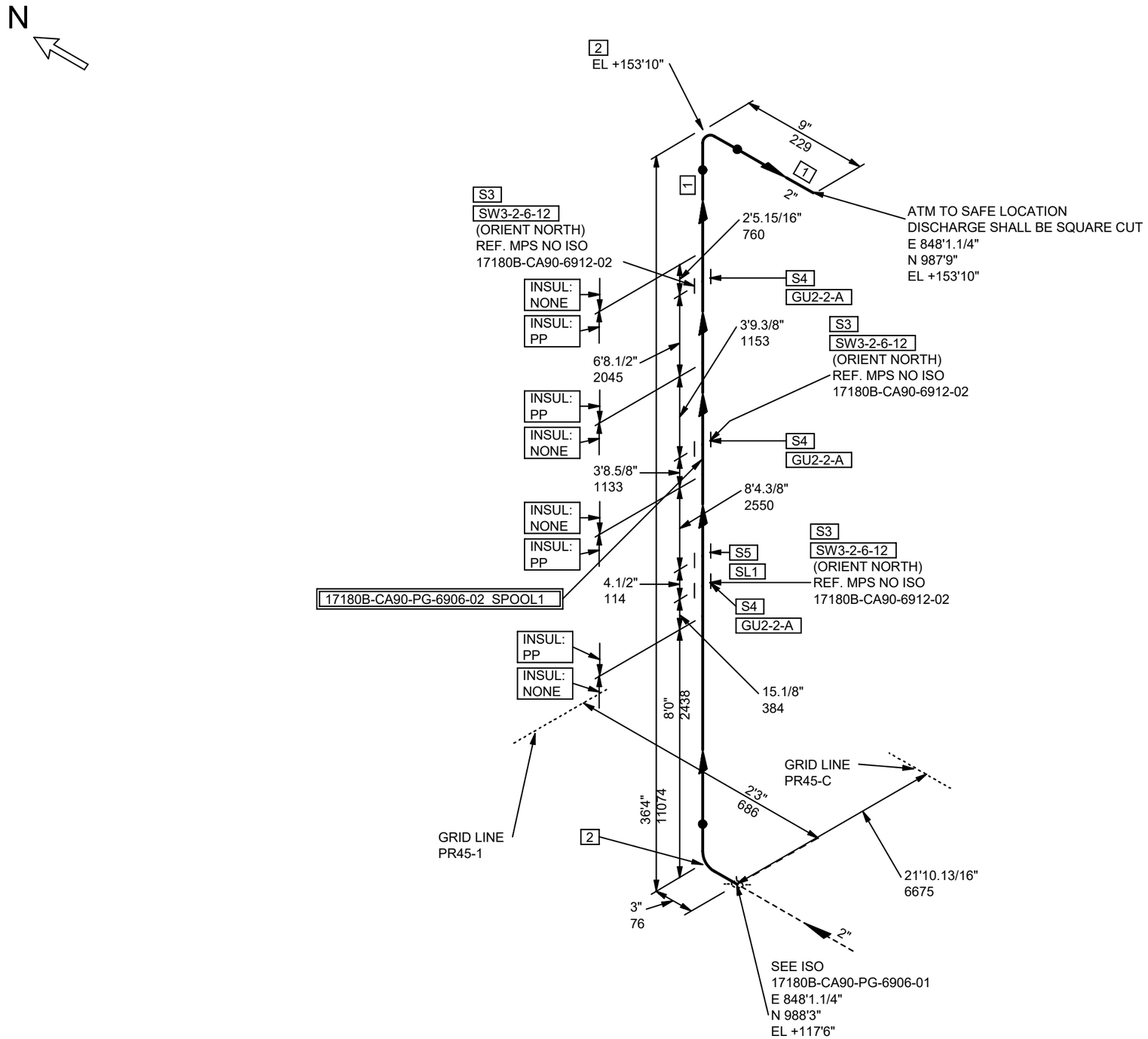
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6906-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	36.4'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	2
	PIPE SUPPORTS		
3	SW3-2-6-12	2	3
	ERECTION		
	PIPE SUPPORTS		
4	GU2-2-A	2	3
5	SL1	2	1

17180B-CA90-PG-6906-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊠ = FIELD WELD
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/05/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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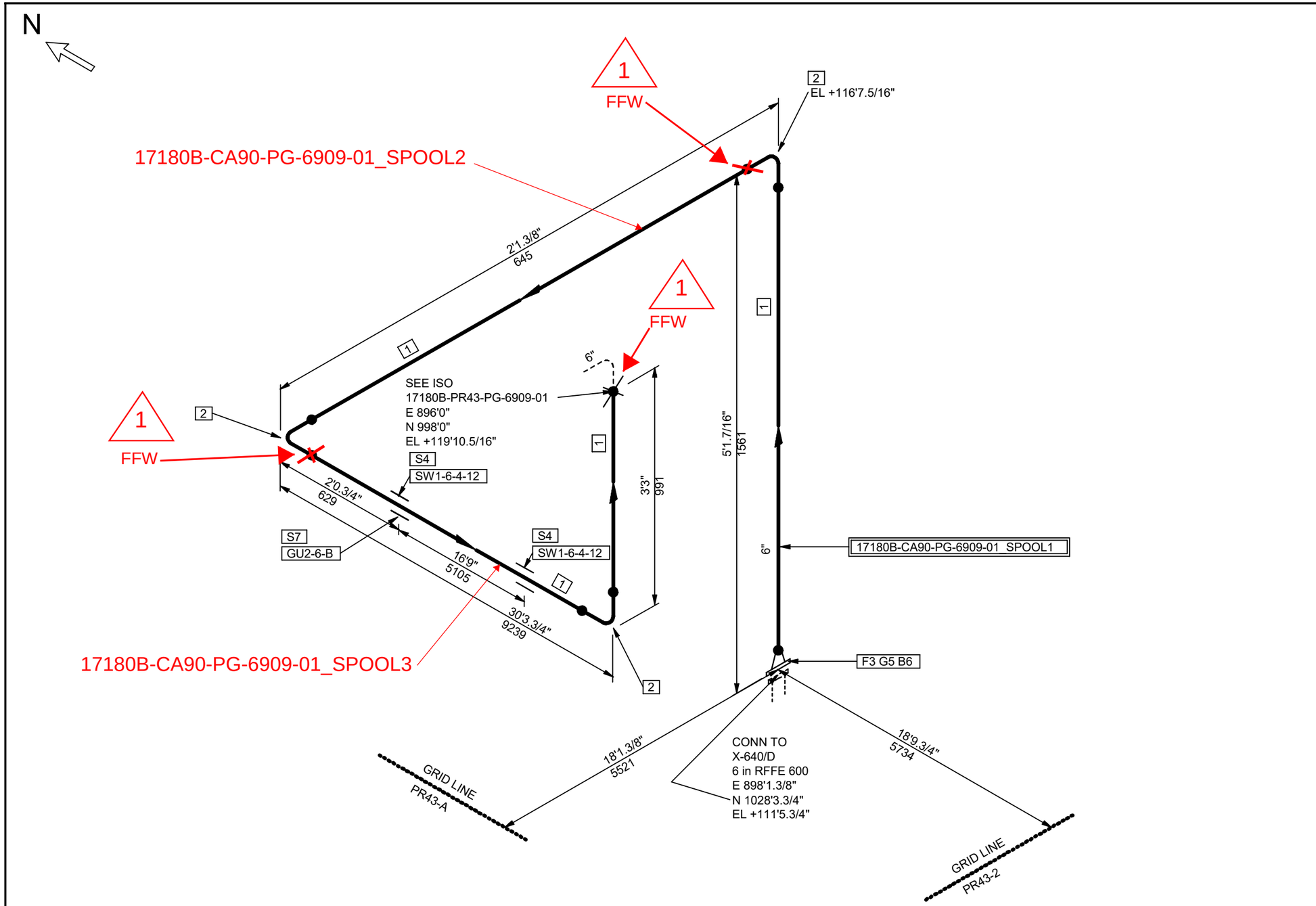
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6906-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	35.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	3
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-40	6	1
	PIPE SUPPORTS		
4	SW1-6-4-12	6	2
	ERECTION		
5	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	6	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1	12
	PIPE SUPPORTS		
7	GU2-6-B	6	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-PG-6909-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED FFW			
0	11/06/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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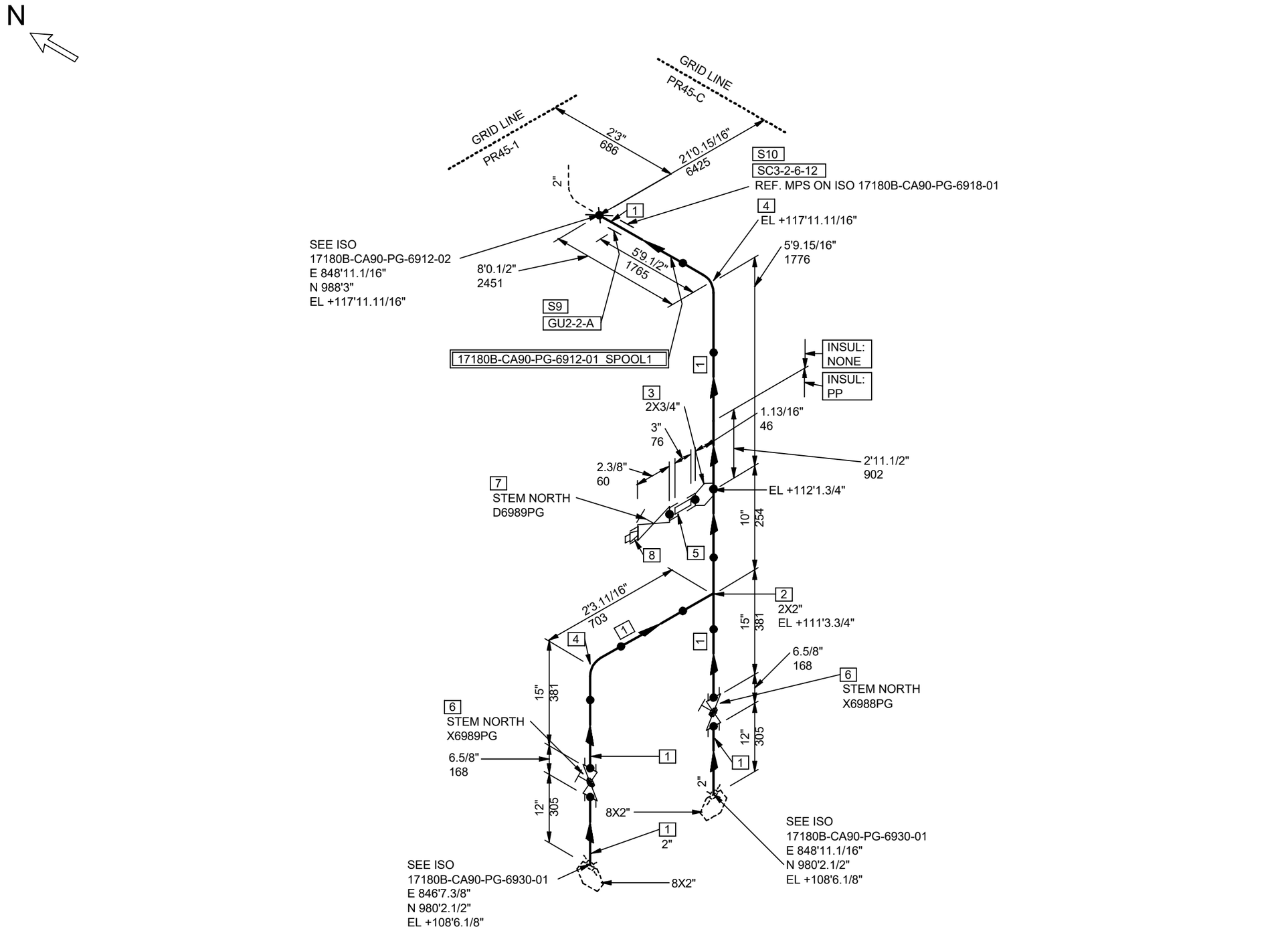
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6909-01	REV: 1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	19.9'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2X2	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	2
5	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , live loaded F.G. packing, F.G. gasket, NACE , T8SFC	2	2
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	ERECTION		
8	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1
	PIPE SUPPORTS		
9	GU2-2-A	2	1
10	SC3-2-6-12	2	1

17180B-CA90-PG-6912-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/05/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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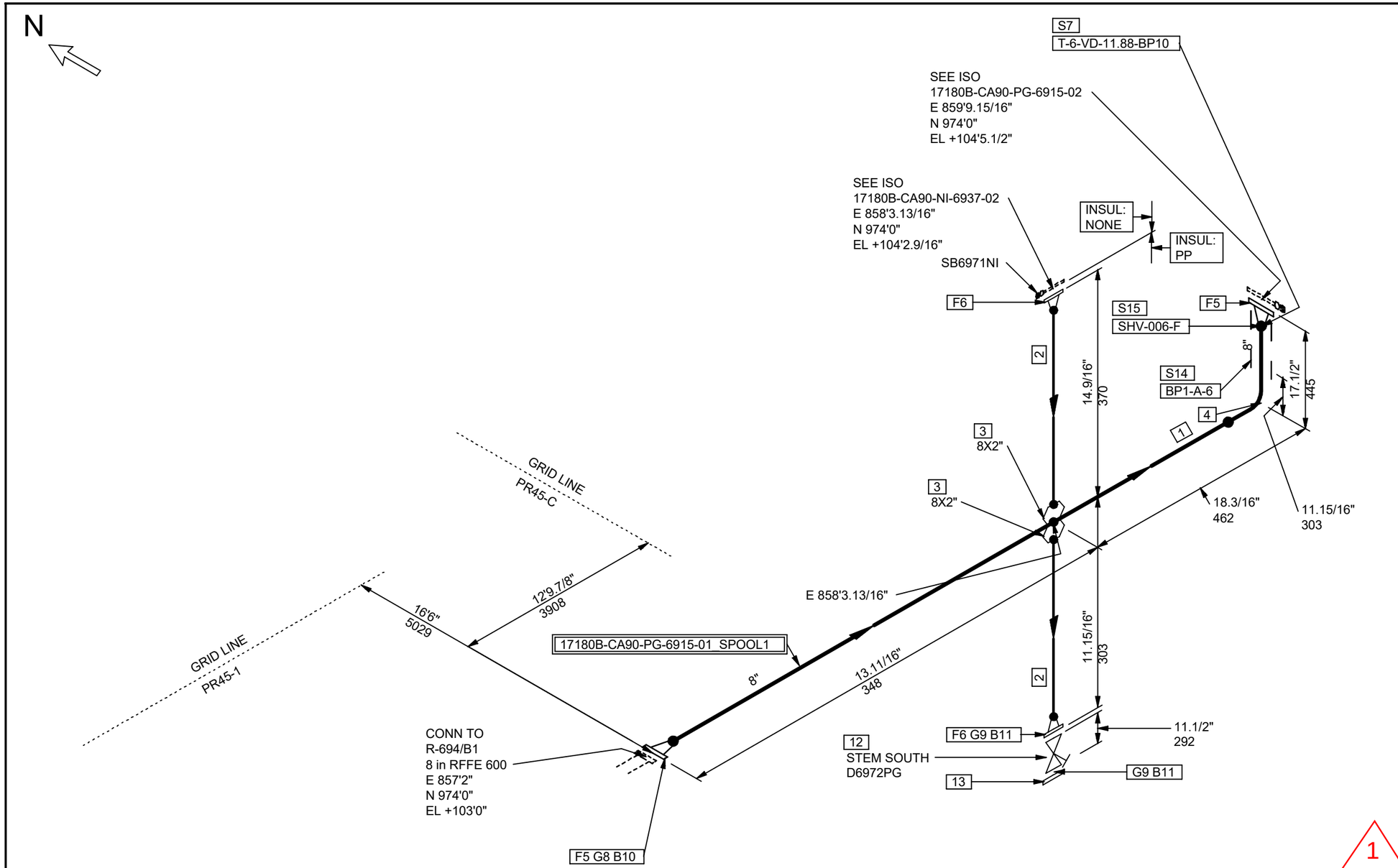
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6912-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	1.2'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	0.8'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	2
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	2
	PIPE SUPPORTS		
7	T-6-VD-11.88-BP10	8	1
	ERECTION		
8	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
12	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
13	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1
	PIPE SUPPORTS		
14	BP1-A-6	8	1
15	SHV-006-F	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

4/28/2020

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6915-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✱ = FIELD WELD
- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- ── ── = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	11/06/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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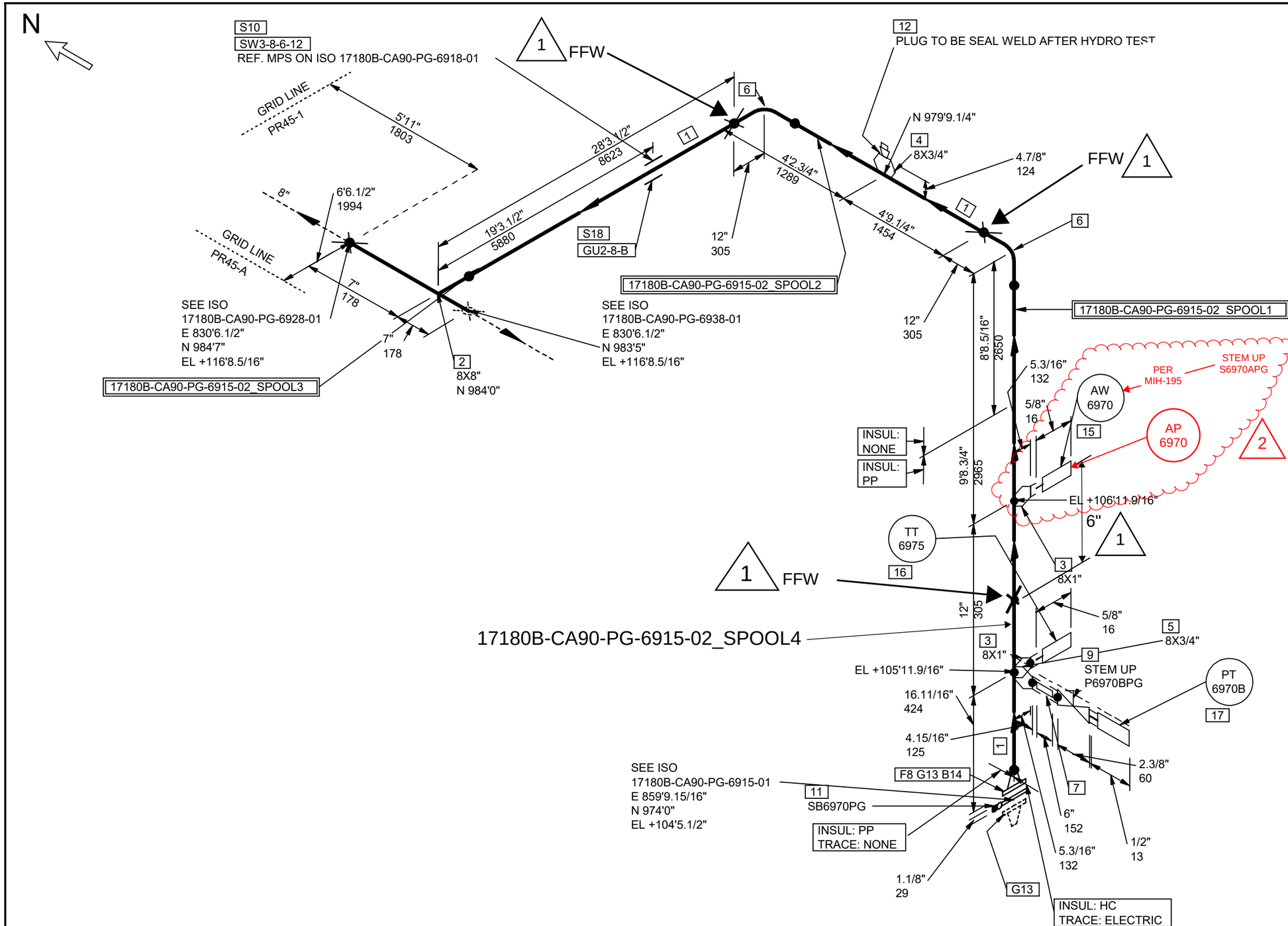
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR	
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6915-01
REV: 1	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	43.5'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X1	2
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
7	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	1
9	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	PIPE SUPPORTS		
10	SW3-8-6-12	8	1
	ERECTION		
11	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
12	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1
13	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
14	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
	INSTRUMENTS		
15	AW-6970	1	1
16	TT-6975	1	1
17	PT-6970B	3/4	1
	PIPE SUPPORTS		
18	GU2-8-B	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

06/30/2020

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)
JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6915-02_SPOOL1 17180B-CA90-PG-6915-02_SPOOL2
17180B-CA90-PG-6915-02_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	06/30/2020	ADDED AW-6970, SAMPLE VALVE STEM ORIENTATION			
1	04/08/2020	ADDED FFW AND REV TO PIPE CLASS PER RFI 002			
0	11/06/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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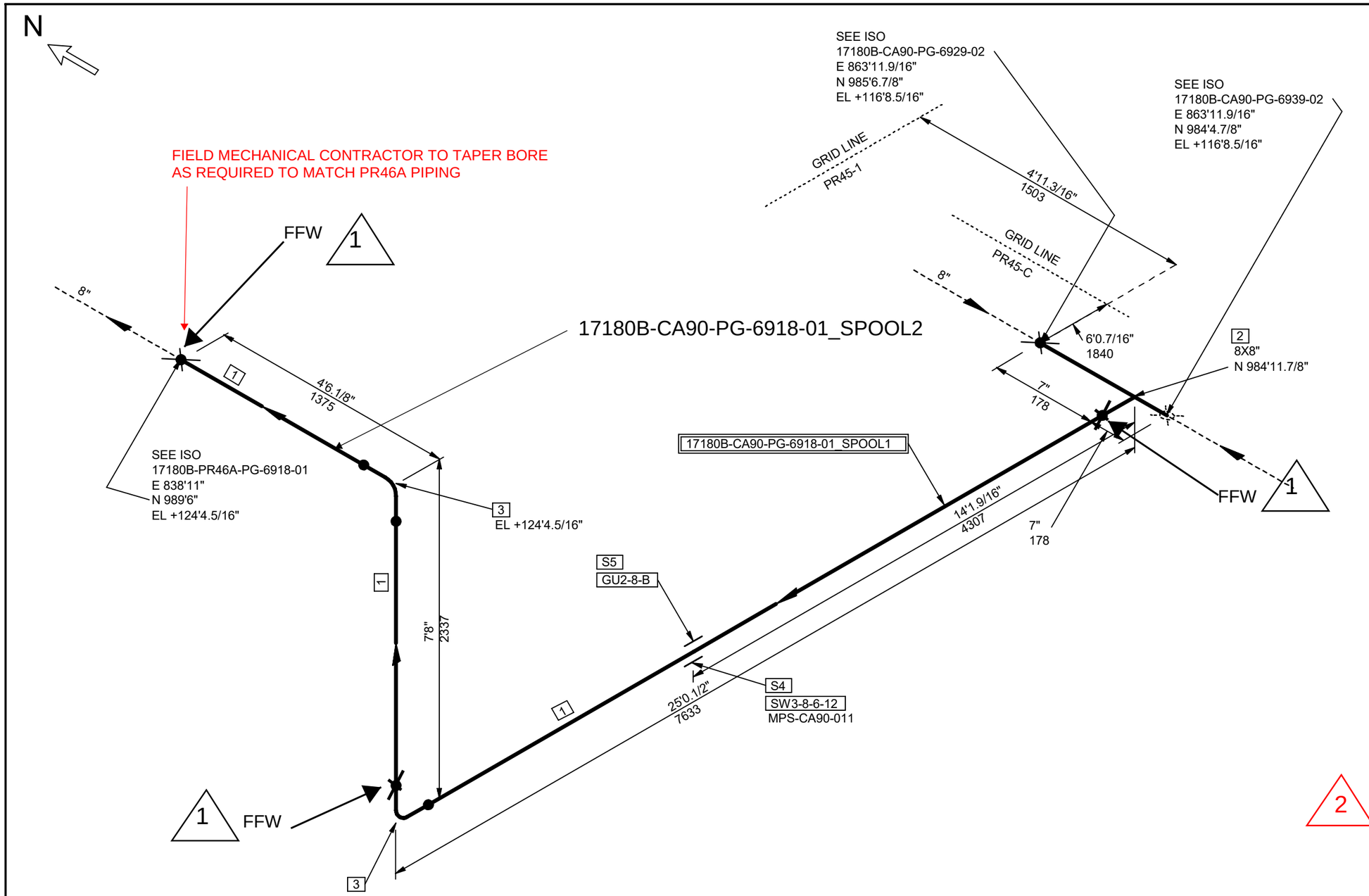
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6915-02	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	32.7'
2 Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8X8	1
3 90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
PIPE SUPPORTS		
4 SW3-8-6-12	8	1
ERECTION		
PIPE SUPPORTS		
5 GU2-8-B	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6918-01_SPOOL1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/08/2020	ADDED FFW			
0	11/07/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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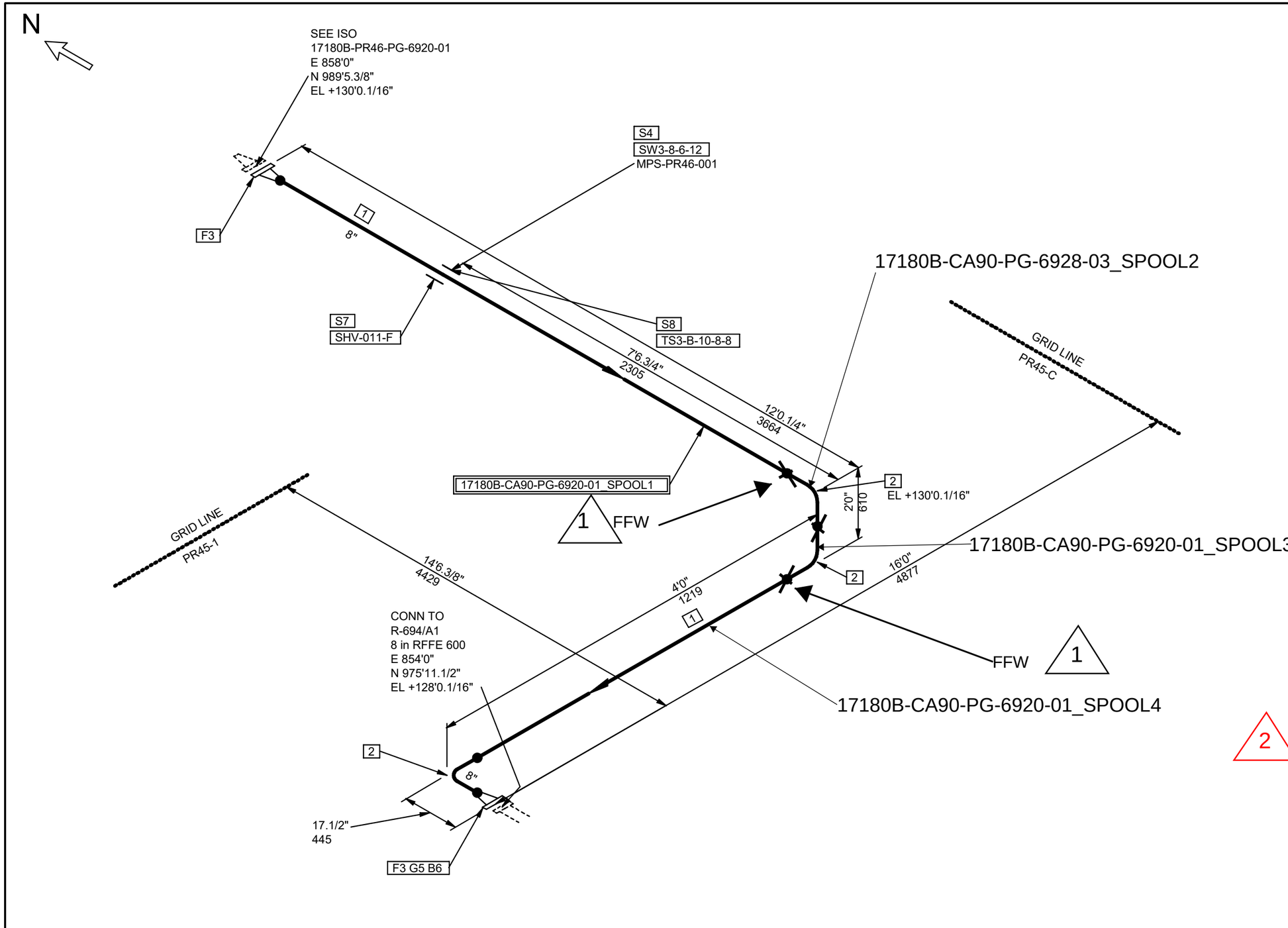
PROJECT NAME: PRAXAIR CONVENT SMR	
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6918-01
REV: 2	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	12.6'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	3
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	2
PIPE SUPPORTS			
4	SW3-8-6-12	8	1
ERECTION			
5	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
6	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
PIPE SUPPORTS			
7	SHV-011-F	8	1
8	TS3-B-10-8-8	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

2

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6920-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/08/2020	ADDED FFW			
0	11/14/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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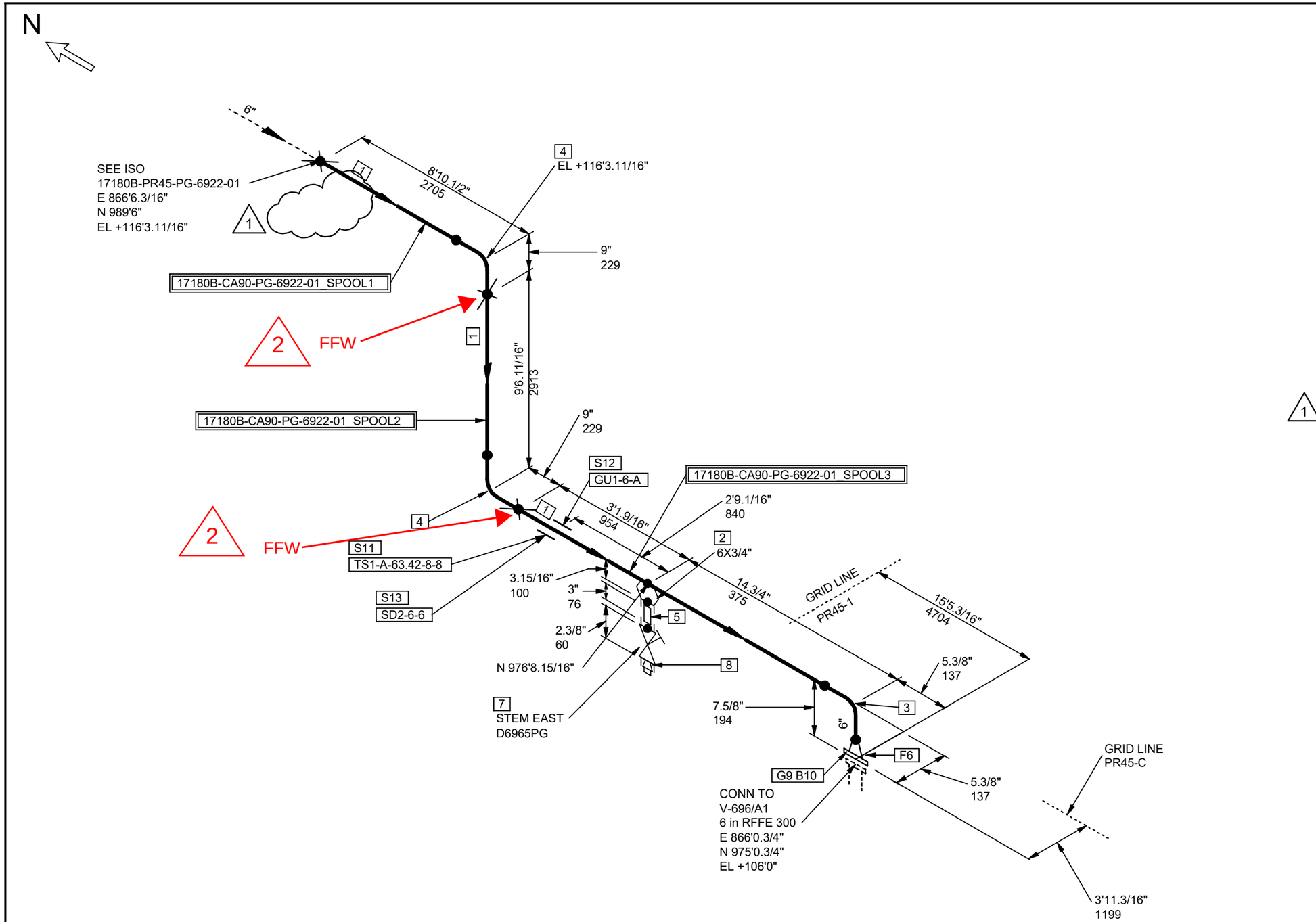
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR	
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6920-01
REV: 2	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	21.0'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	2
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	1
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
8	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
9	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	12
	PIPE SUPPORTS		
11	TS1-A-63.42-8-8	6	1
12	GU1-6-A	6	1
13	SD2-6-6	6	1

1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

17180B-CA90-PG-6922-01_SPOOL1 17180B-CA90-PG-6922-01_SPOOL2
17180B-CA90-PG-6922-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/08/2020	ADDED FFW			
1	11/20/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	09/20/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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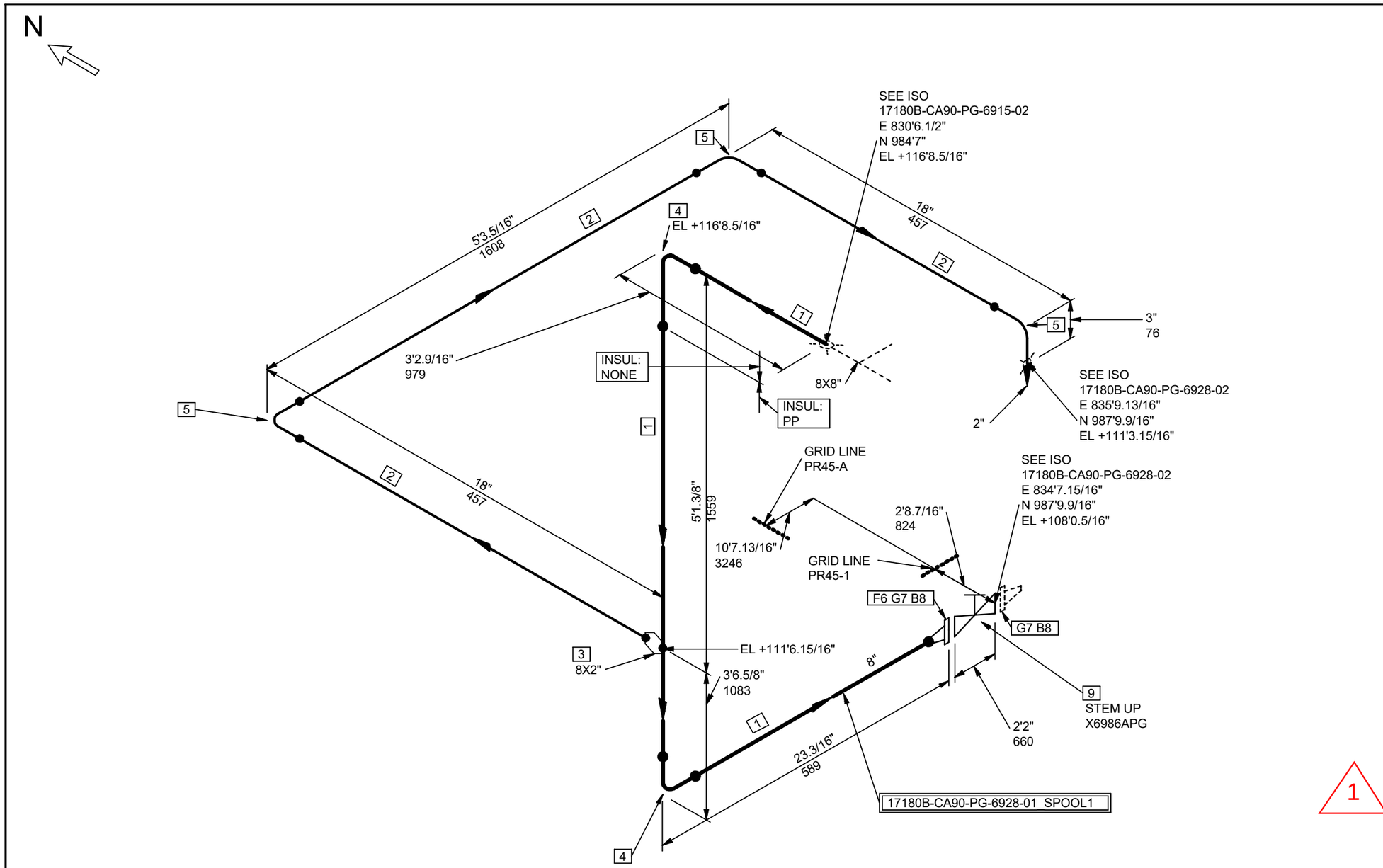
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA90-PG-6922-01
REV:	2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	9.4'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	6.6'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	3
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	1
	ERECTION		
7	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
8	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	24
9	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6928-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	10/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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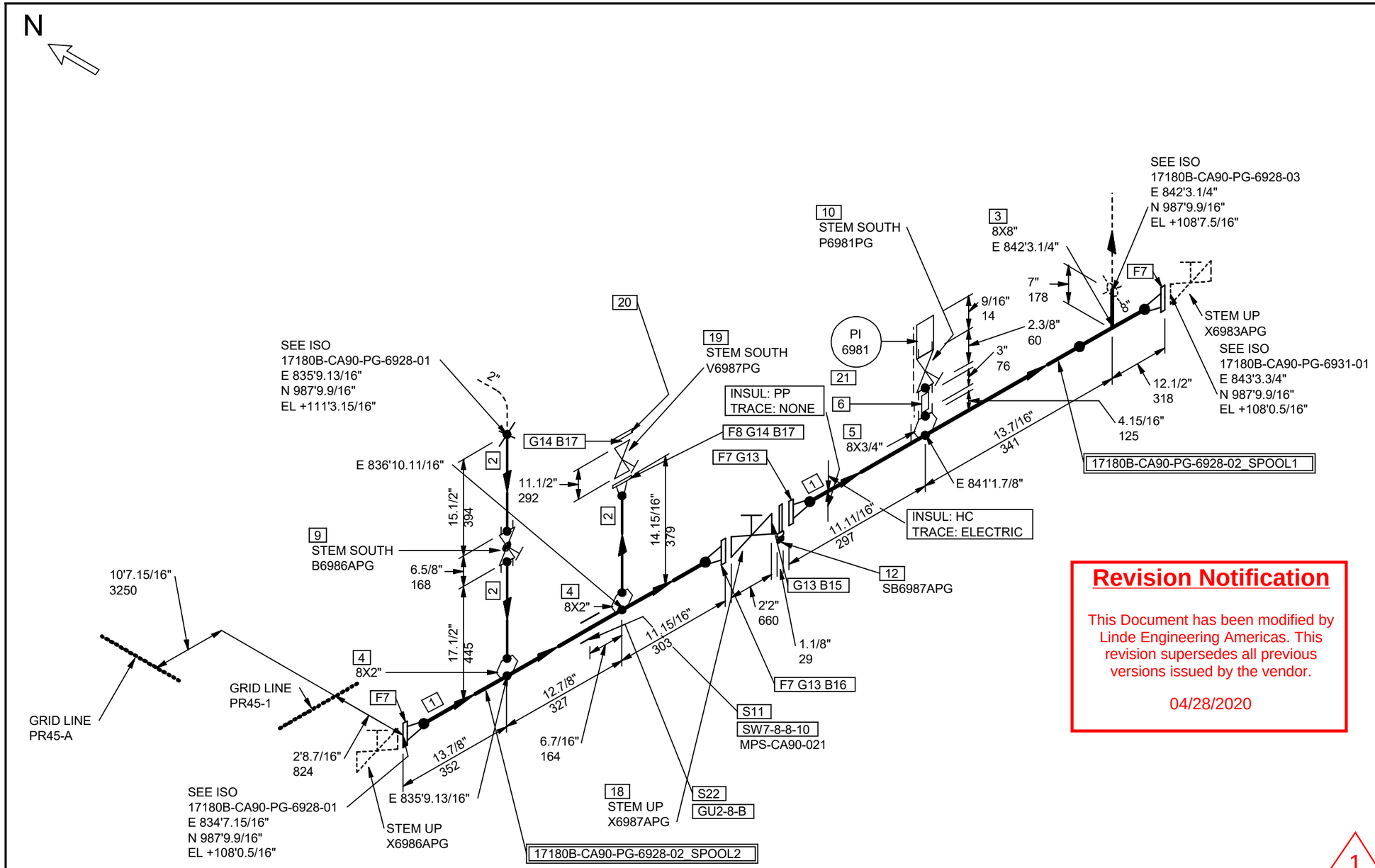
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6928-01
REV: 1	0

TEMPLATE: GE-215B ISO



Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	3.4'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	2.8'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8X8	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
6	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
7	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	4
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
9	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , live loaded F.G. packing, F.G. gasket, NACE , T8SFC	2	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	PIPE SUPPORTS		
11	SW7-8-8-10	8	1
	ERECTION		
12	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
13	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	3
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
15	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
16	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
17	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
18	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	1
19	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
20	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1
	INSTRUMENTS		
21	PI-6981	3/4	1
	PIPE SUPPORTS		
22	GU2-8-B	8	1

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6928-02_SPOOL1 17180B-CA90-PG-6928-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	10/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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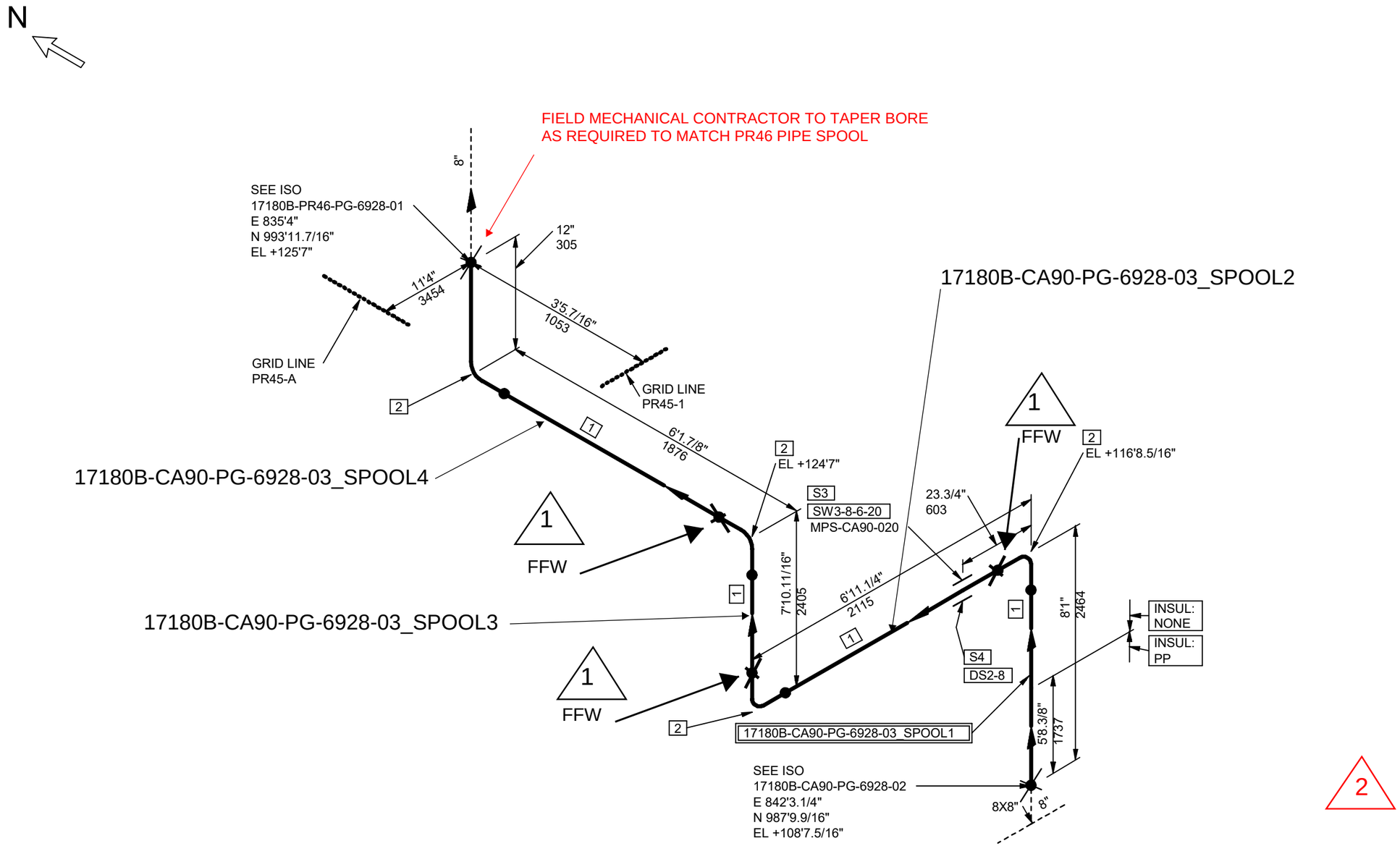
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6928-02	REV: 0

1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	22.1'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	4
	PIPE SUPPORTS		
3	SW3-8-6-20	8	1
	ERECTION		
	PIPE SUPPORTS		
4	DS2-8	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6928-03_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/08/2020	ADDED FFW			
0	10/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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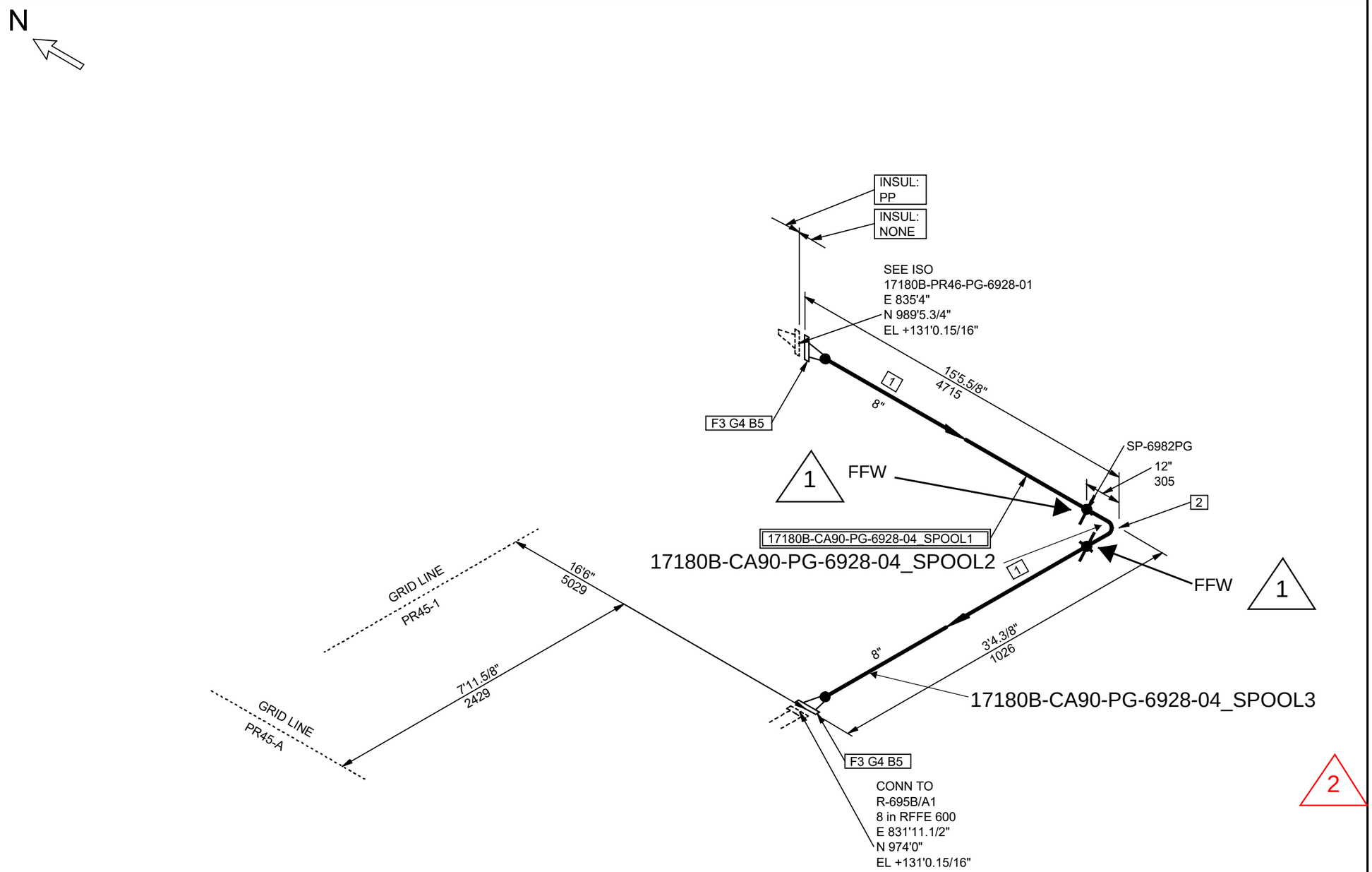
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6928-03
REV: 2	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	16.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	1
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	2
	ERECTION		
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
5	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	24

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6928-04_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/08/2020	ADDED FFW			
0	10/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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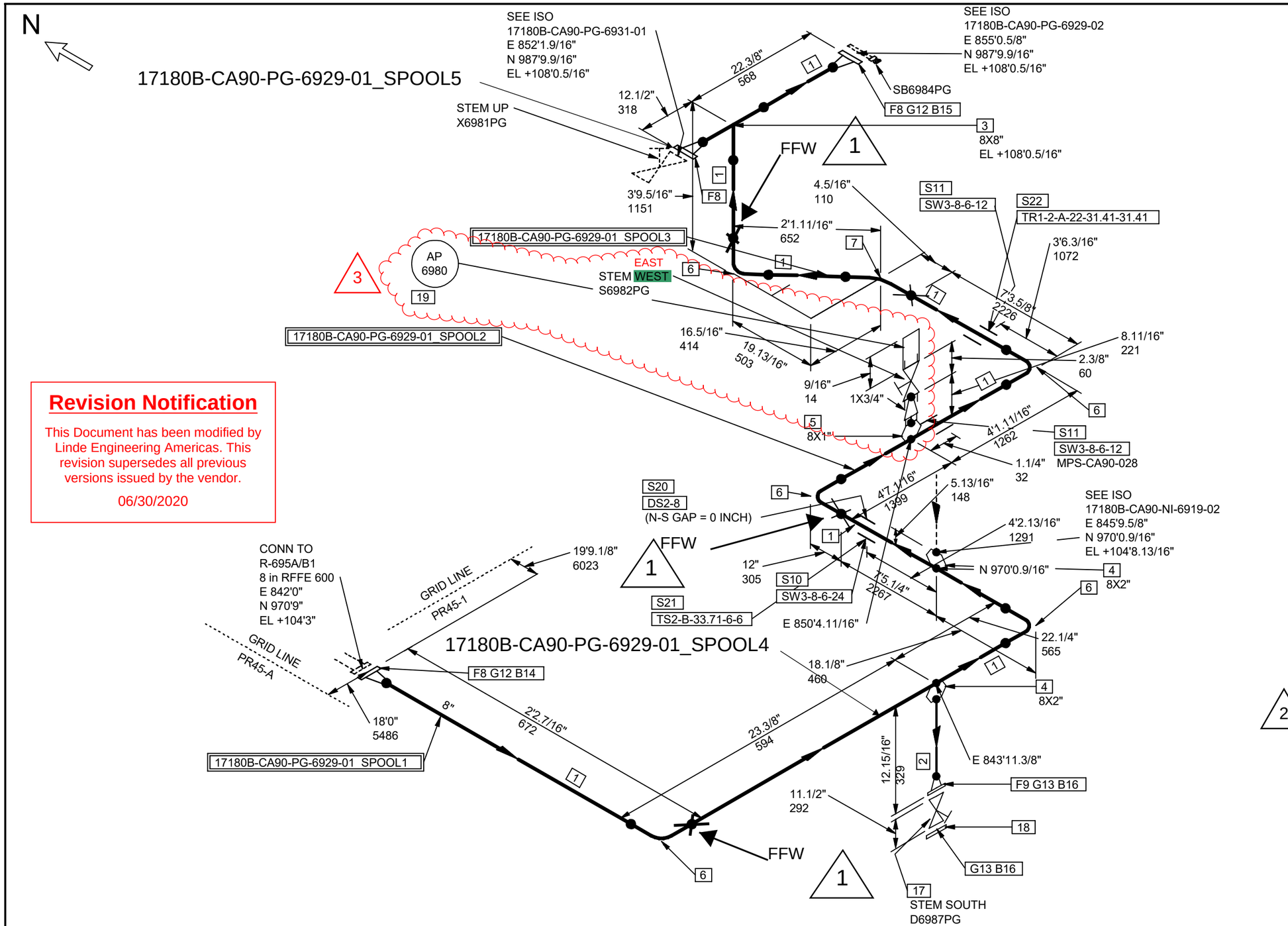
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR	
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6928-04
REV: 2	

TEMPLATE: GE-215B ISO



Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

06/30/2020

MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	27.4'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	0.4'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8X8	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	5
7	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	1
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	3
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
	PIPE SUPPORTS		
10	SW3-8-6-24	8	1
11	SW3-8-6-12	8	2
	ERECTION		
12	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
13	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
14	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
15	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
16	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
17	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
18	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1
	INSTRUMENTS		
19	AP-6980	3/4	1
	PIPE SUPPORTS		
20	DS2-8	8	1
21	TS2-B-33.71-6-6	8	1
22	TR1-2-A-22-31.41-31.41	8	1

2

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL) JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6929-01_SPOOL1 17180B-CA90-PG-6929-01_SPOOL2
17180B-CA90-PG-6929-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	06/30/2020	REV S6982PG VALVE STEM ORIENTATION			
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/08/2020	ADDED FFW			
0	11/07/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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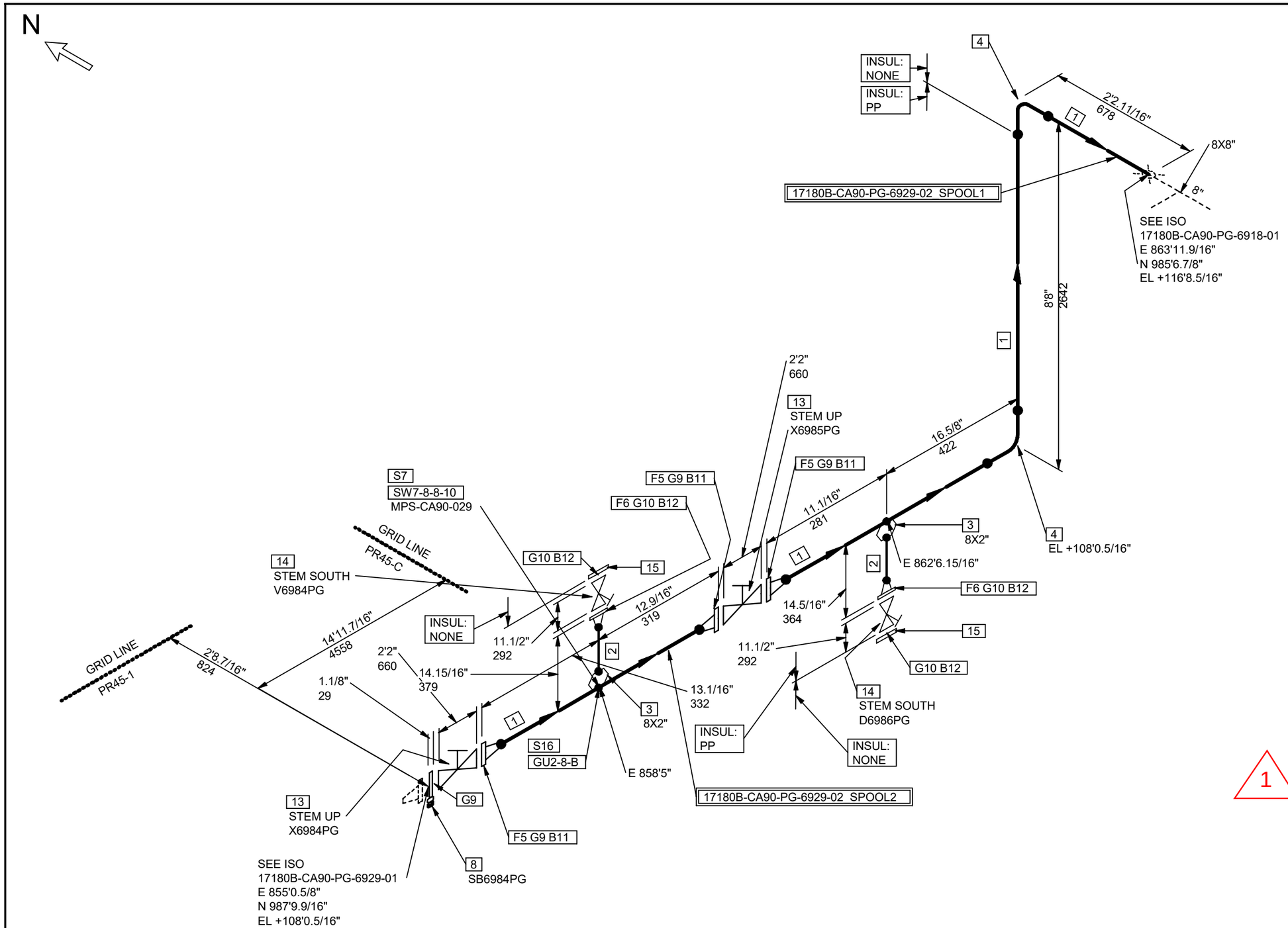
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6929-01	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	10.0'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	1.0'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	3
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	2
	PIPE SUPPORTS		
7	SW7-8-8-10	8	1
	ERECTION		
8	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	4
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	4
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	36
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	32
13	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	2
14	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	2
15	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	2
	PIPE SUPPORTS		
16	GU2-8-B	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6929-02_SPOOL1 17180B-CA90-PG-6929-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	11/05/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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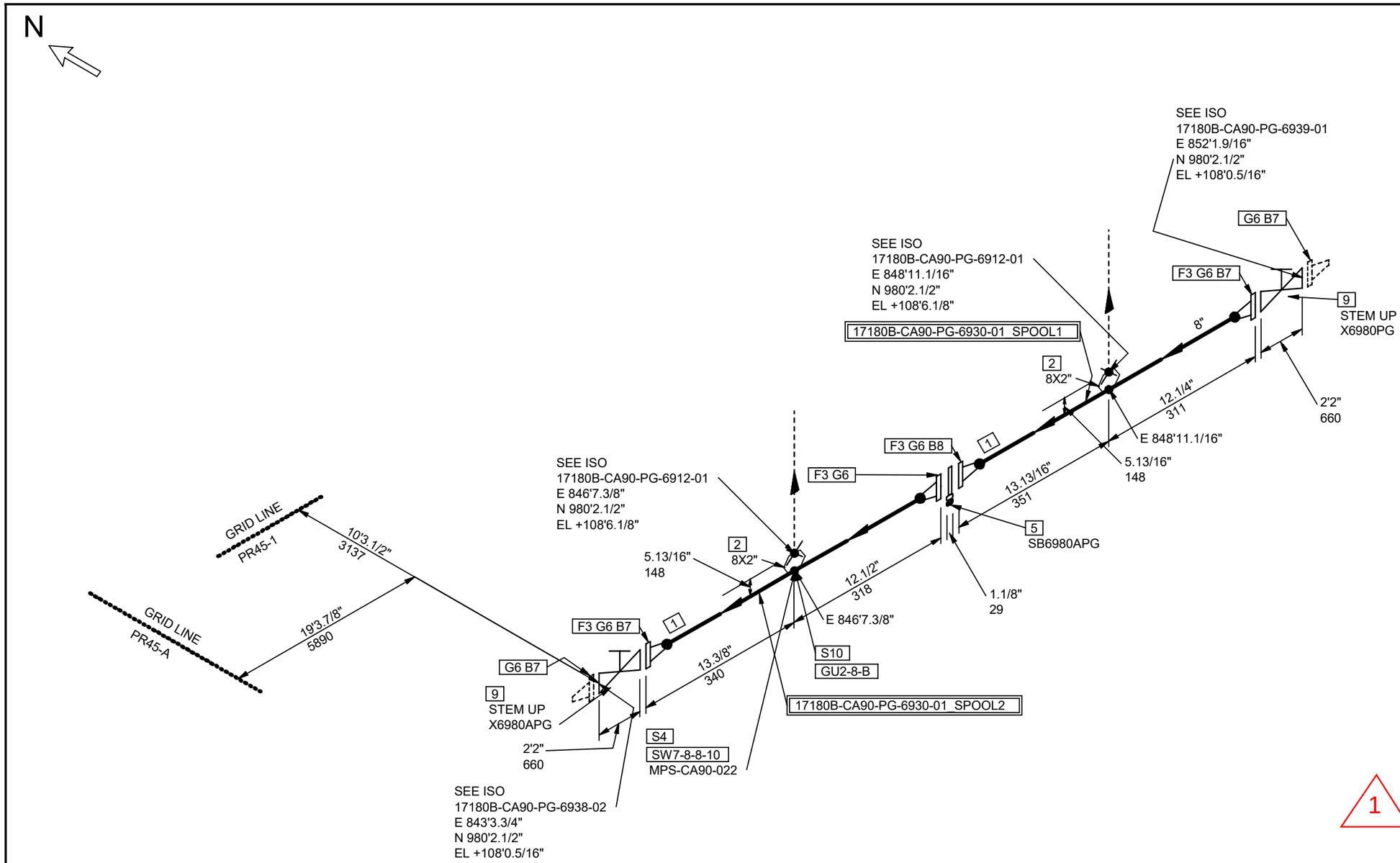
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6929-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	2.5'
2	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	4
	PIPE SUPPORTS		
4	SW7-8-8-10	8	1
	ERECTION		
5	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
6	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	6
7	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	48
8	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
9	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	2
	PIPE SUPPORTS		
10	GU2-8-B	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6930-01_SPOOL1 17180B-CA90-PG-6930-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	11/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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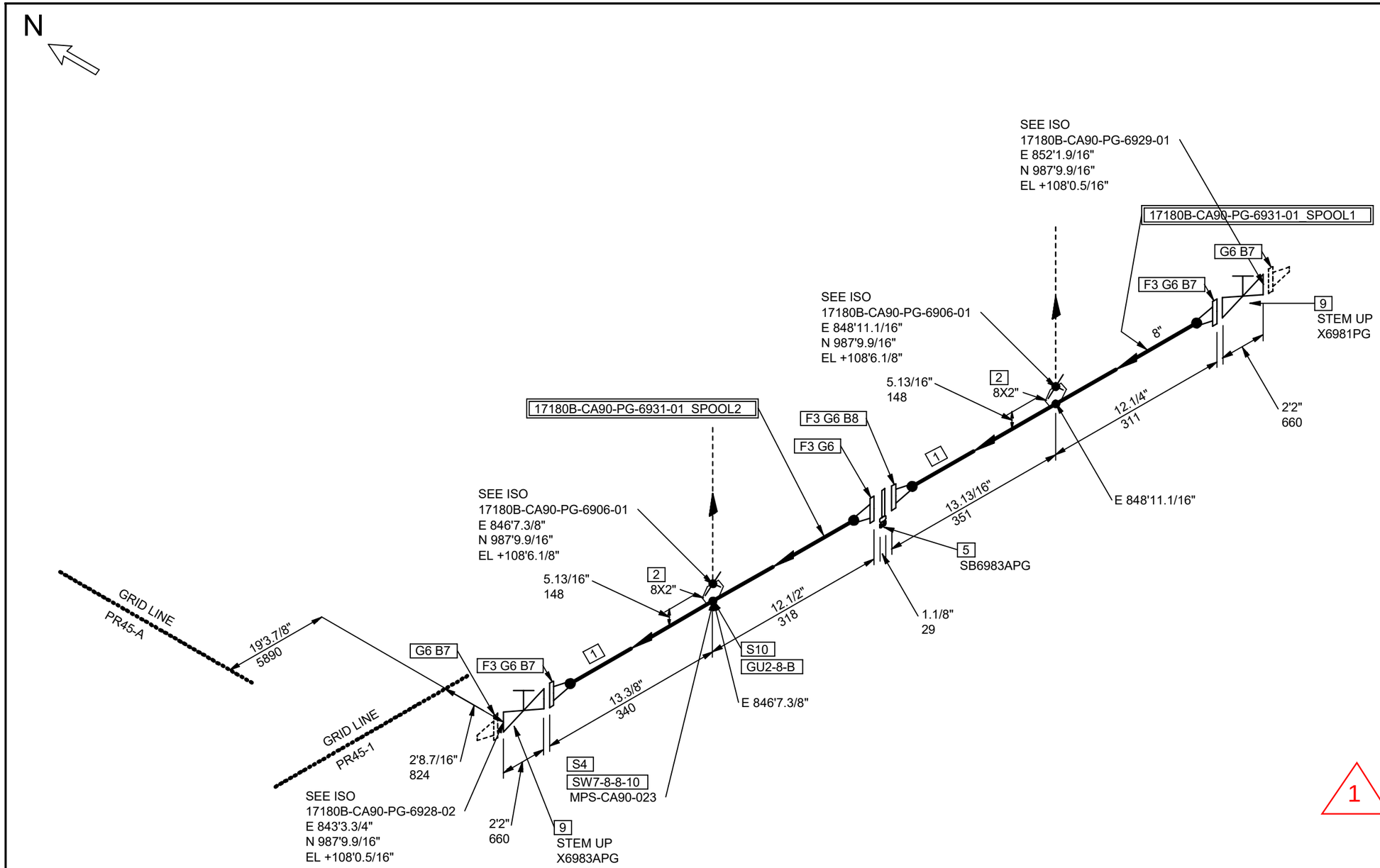
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR	
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6930-01
REV: 1 0	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	2.5'
2	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	4
	PIPE SUPPORTS		
4	SW7-8-8-10	8	1
	ERECTION		
5	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
6	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	6
7	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	48
8	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
9	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	2
	PIPE SUPPORTS		
10	GU2-8-B	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6931-01_SPOOL1 17180B-CA90-PG-6931-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	11/05/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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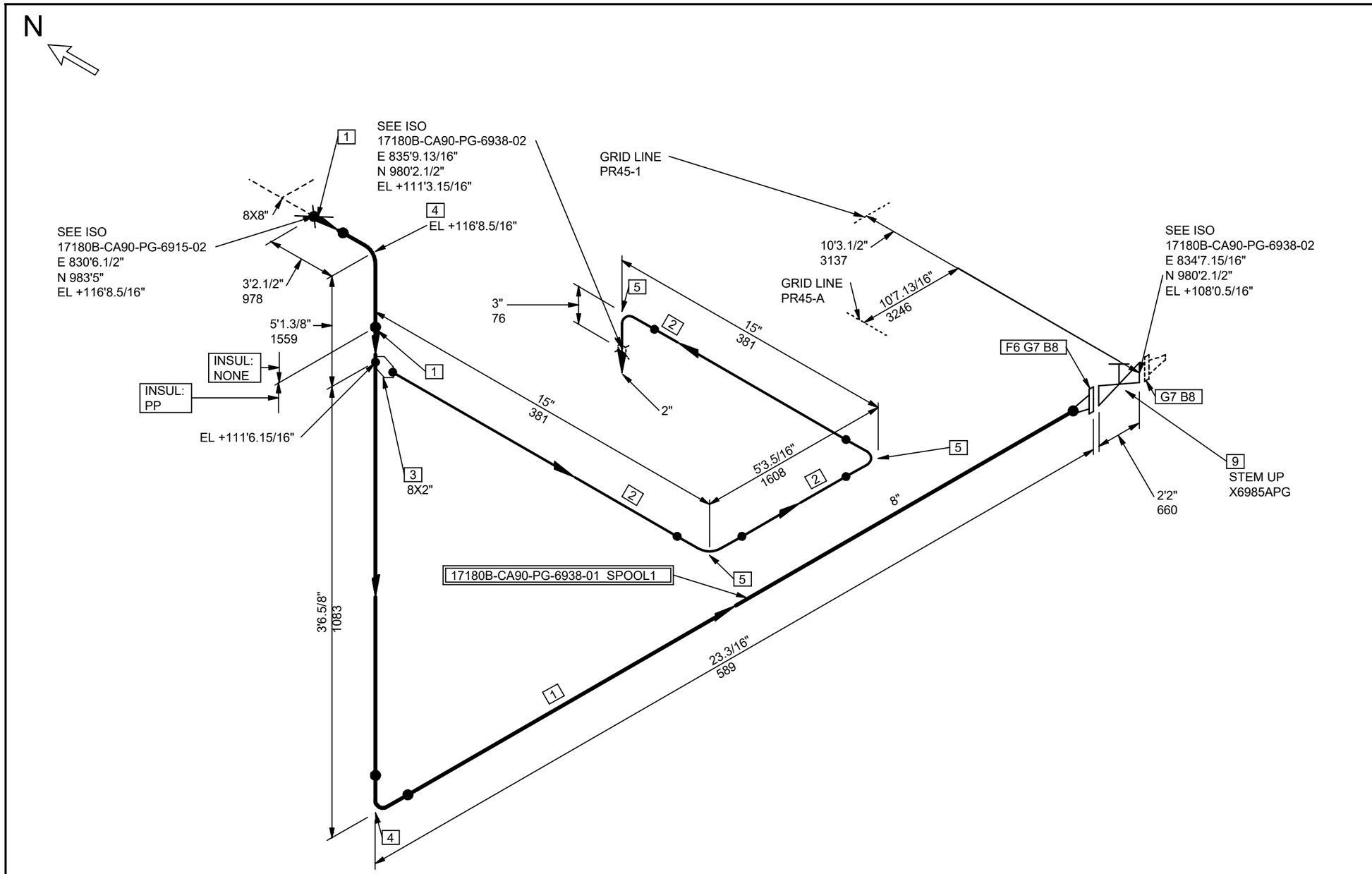
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA90-PG-6931-01
REV:	1.0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	9.4'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	6.1'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	3
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	1
ERECTION			
7	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
8	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	24
9	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	1

17180B-CA90-PG-6938-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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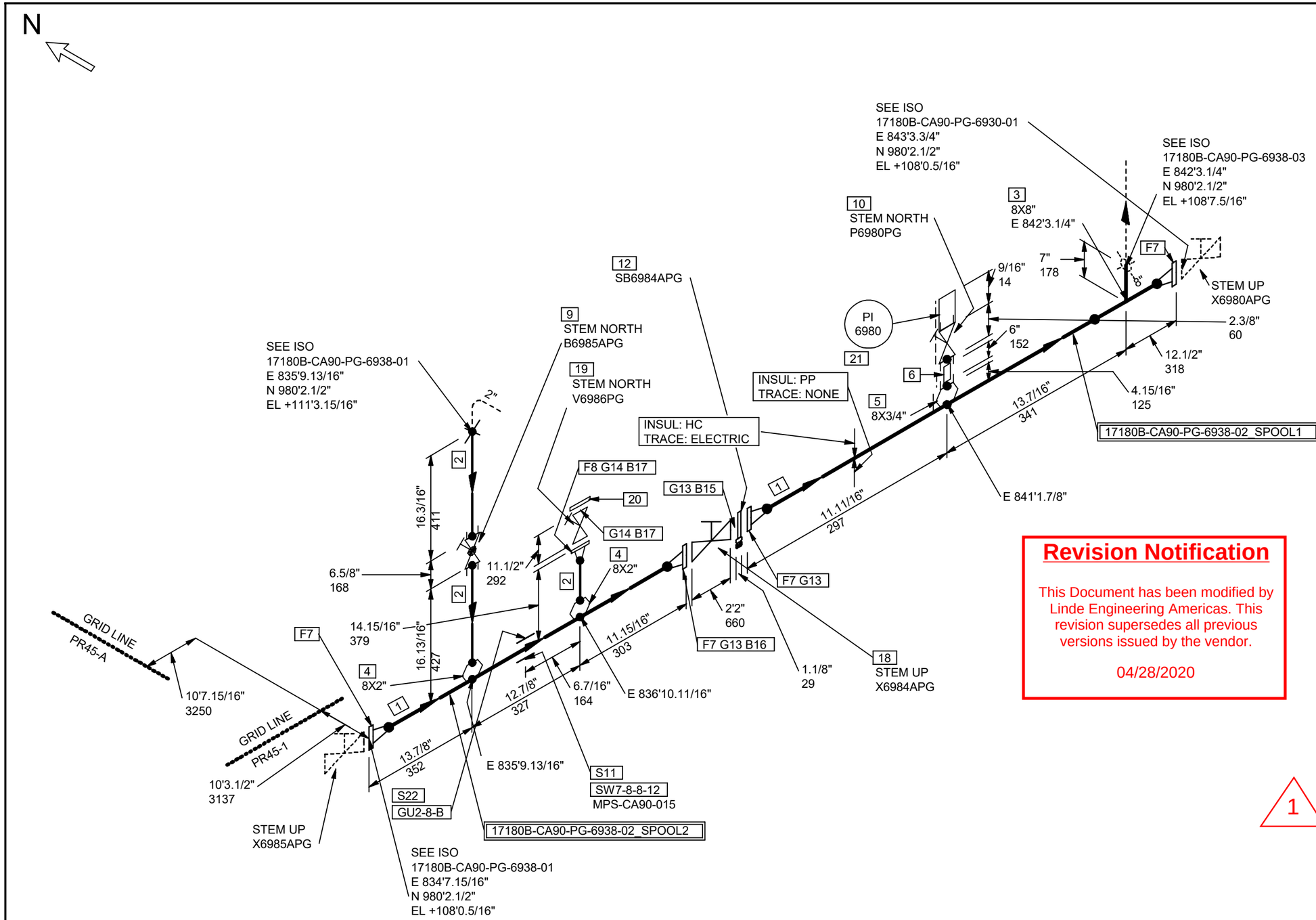
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA90-PG-6938-01
REV:	0

TEMPLATE: GE-215B ISO



Revision Notification

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04/28/2020

MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	3.4'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	2.8'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8X8	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
6	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
7	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	4
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
9	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , live loaded F.G. packing, F.G. gasket, NACE , T8SFC	2	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	PIPE SUPPORTS		
11	SW7-8-8-12	8	1
	ERECTION		
12	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
13	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	3
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
15	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
16	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
17	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
18	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	1
19	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
20	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1
	INSTRUMENTS		
21	PI-6980	3/4	1
	PIPE SUPPORTS		
22	GU2-8-B	8	1

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6938-02_SPOOL1 17180B-CA90-PG-6938-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	11/07/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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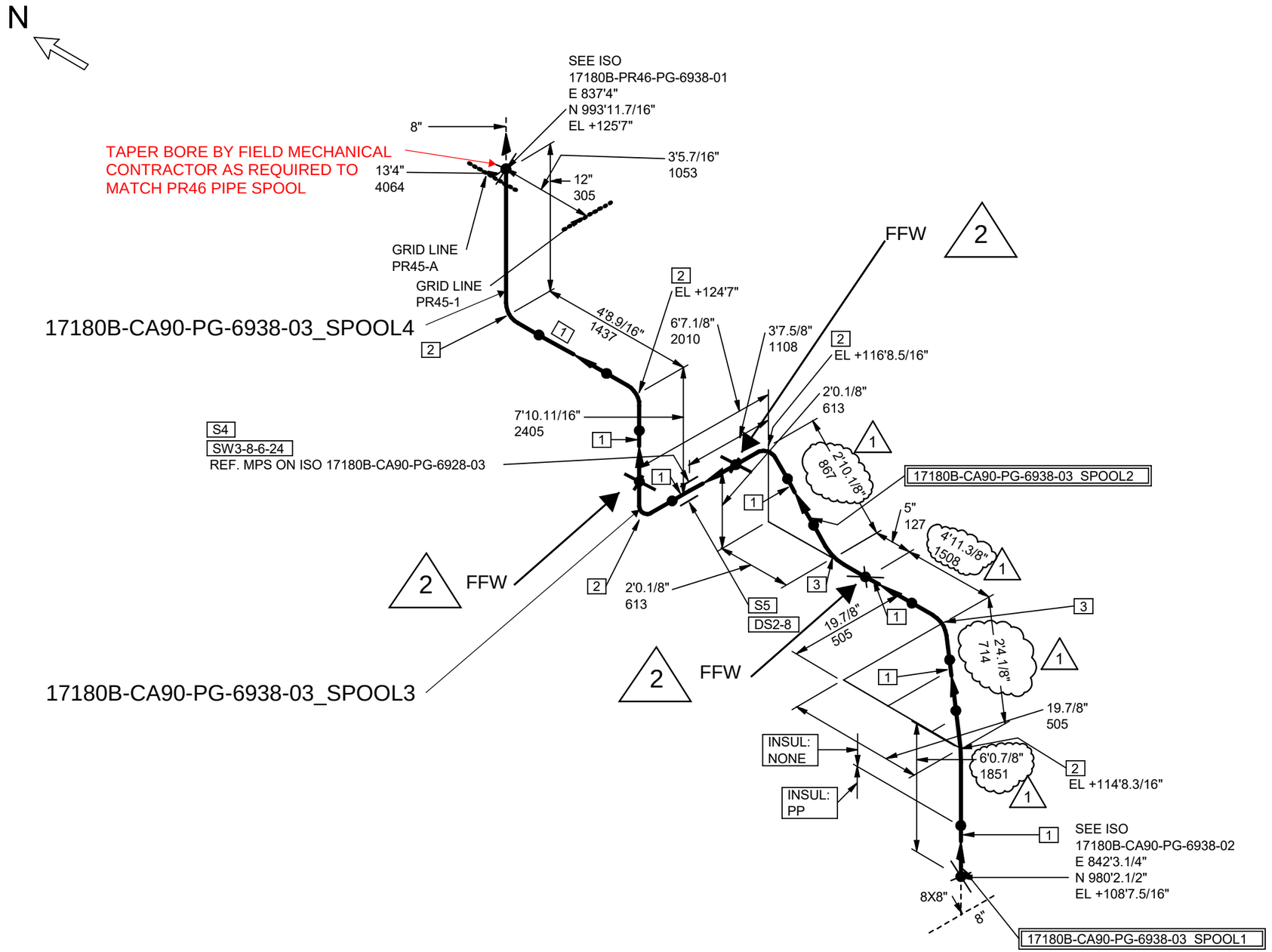
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA90-PG-6938-02
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	25.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	5
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
	PIPE SUPPORTS		
4	SW3-8-6-24	8	1
	ERECTION		
	PIPE SUPPORTS		
5	DS2-8	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

3

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6938-03_SPOOL1 17180B-CA90-PG-6938-03_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	04/28/2020	REV TO PIPE CLASS PER RFI 002			
2	04/08/2020	ADDED FFW			
1	11/20/2019	ISSUED AS MARKED	SRS	NNR	MLO
0	11/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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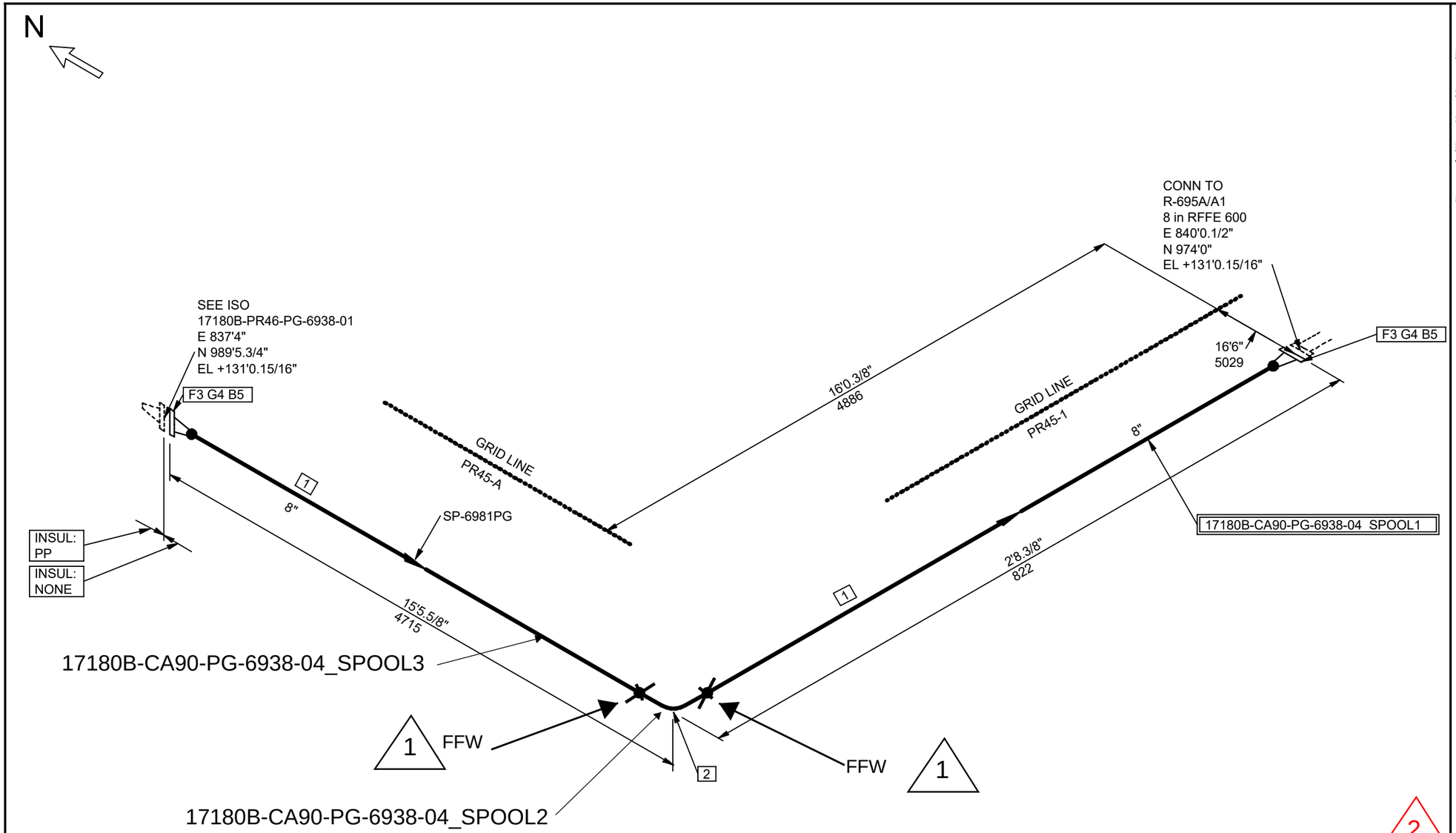
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA90-PG-6938-03
REV:	3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	15.3'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	1
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	2
ERECTION			
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
5	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	24

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

2

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6938-04_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/08/2020	ADDED FFW			
0	10/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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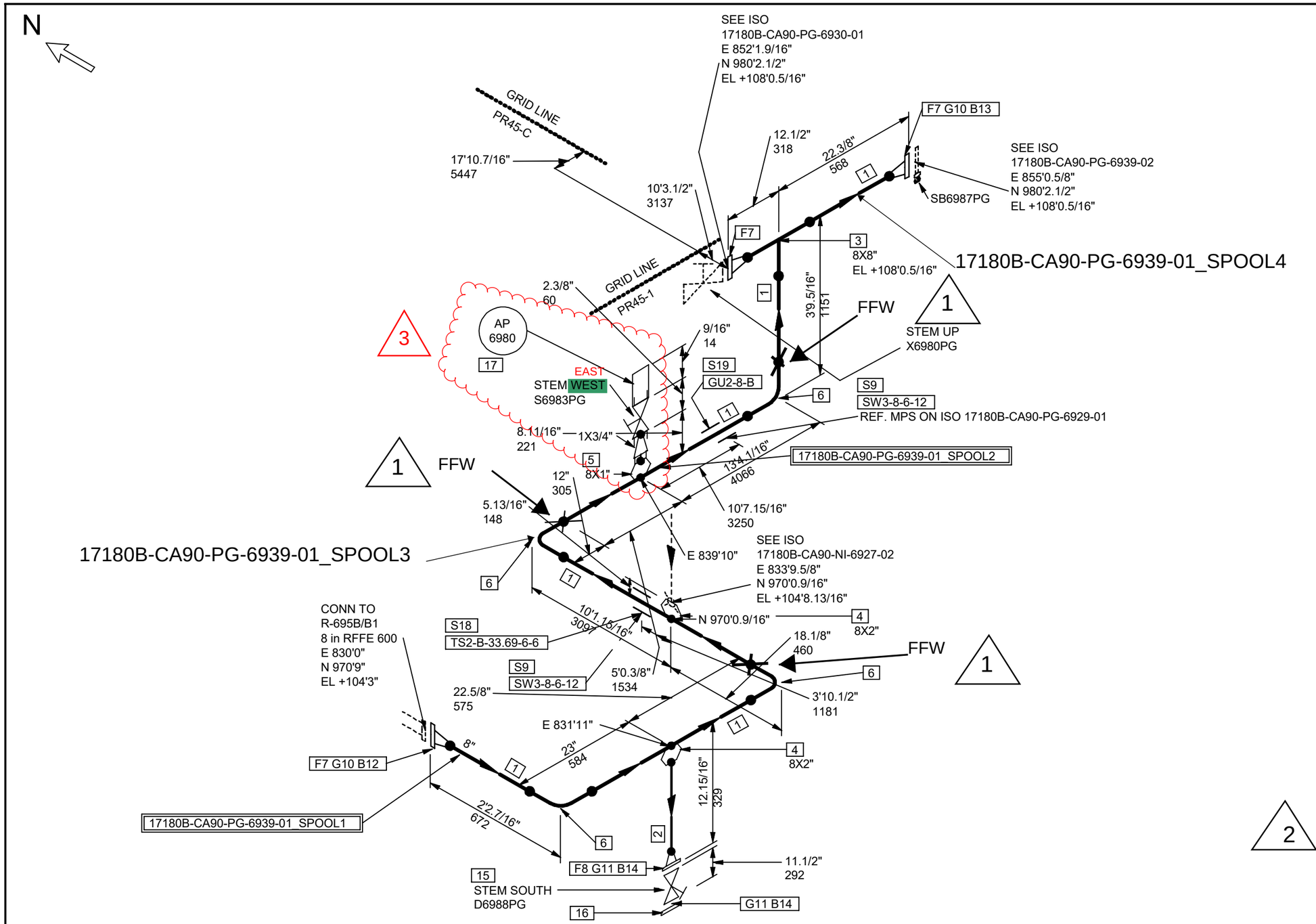
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR	
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6938-04
REV: 2	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	32.7'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	0.4'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8X8	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	4
7	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	3
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
	PIPE SUPPORTS		
9	SW3-8-6-12	8	2
	ERECTION		
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
13	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
14	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
15	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
16	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1
	INSTRUMENTS		
17	AP-6980	3/4	1
	PIPE SUPPORTS		
18	TS2-B-33.69-6-6	8	1
19	GU2-8-B	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

06/30/2020

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL) JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6939-01_SPOOL1 17180B-CA90-PG-6939-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⋇ = FIELD WELD
- ⋇ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
3	06/30/2020	REV S6983PG VALVE STEM ORIENTATION			
2	04/28/2020	REV TO PIPE CLASS PER RFI 002			
1	04/08/2020	ADDED FFW			
0	11/14/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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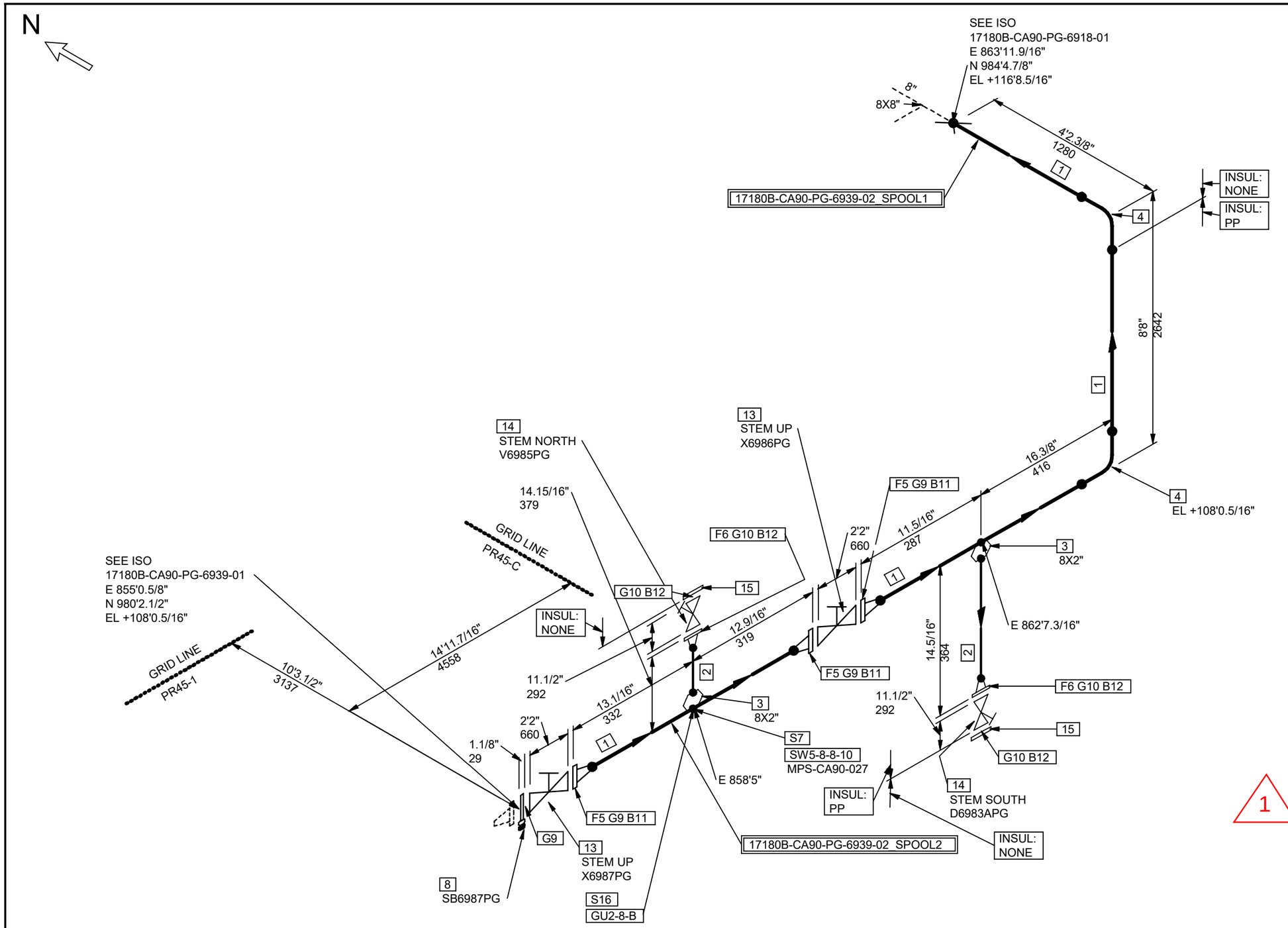
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6939-01	REV: 3

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	12.0'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	1.0'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	3
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	2
	PIPE SUPPORTS		
7	SW5-8-8-10	8	1
	ERECTION		
8	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	4
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	4
11	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	36
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	32
13	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	8	2
14	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	2
15	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	2
	PIPE SUPPORTS		
16	GU2-8-B	8	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/28/2020

1

ALL 8" PIPE AND FITTINGS CHANGED FROM SCH 60 TO XS (0.500" WALL)JAM - RFI-002 DATED 04/23/2020

17180B-CA90-PG-6939-02_SPOOL1 17180B-CA90-PG-6939-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/28/2020	REV TO PIPE CLASS PER RFI 002			
0	10/11/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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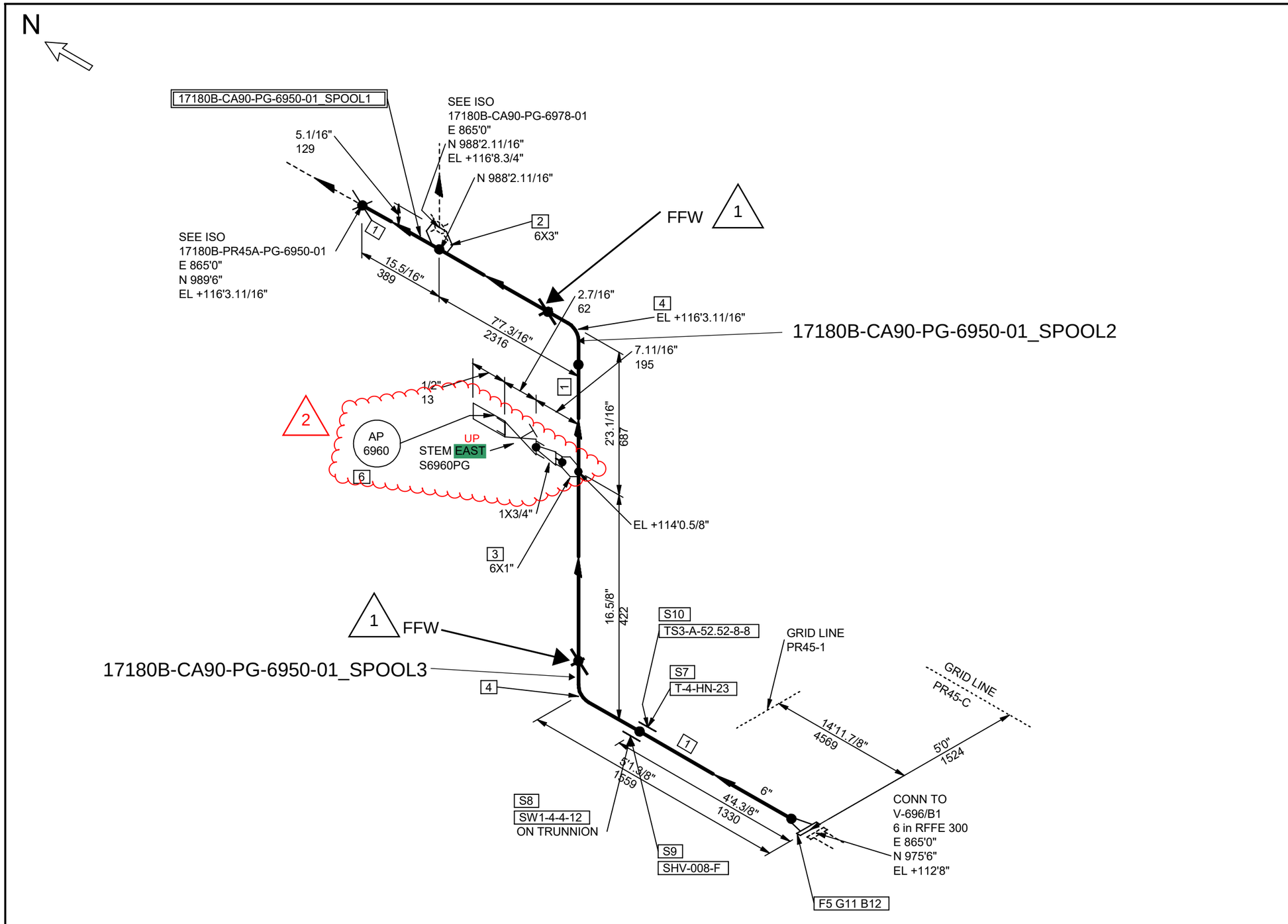
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-CA90-PG-6939-02
REV:	1 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	14.4'
2	Weldolet , MSS SP-97 , BE , ASTM A105N , S-40 , S-40	6X3	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X1	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	2
5	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	1
	INSTRUMENTS		
6	AP-6960	3/4	1
	PIPE SUPPORTS		
7	T-4-HN-23	6	1
8	SW1-4-4-12	6	1
9	SHV-008-F	6	1
10	TS3-A-52.52-8-8	6	1
	ERECTION		
11	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	12

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

06/30/2020

17180B-CA90-PG-6950-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	06/30/2020	REVISED VALVE STEM ORIENTATION OF S6960PG			
1	04/08/2020	ADDED FFW			
0	11/08/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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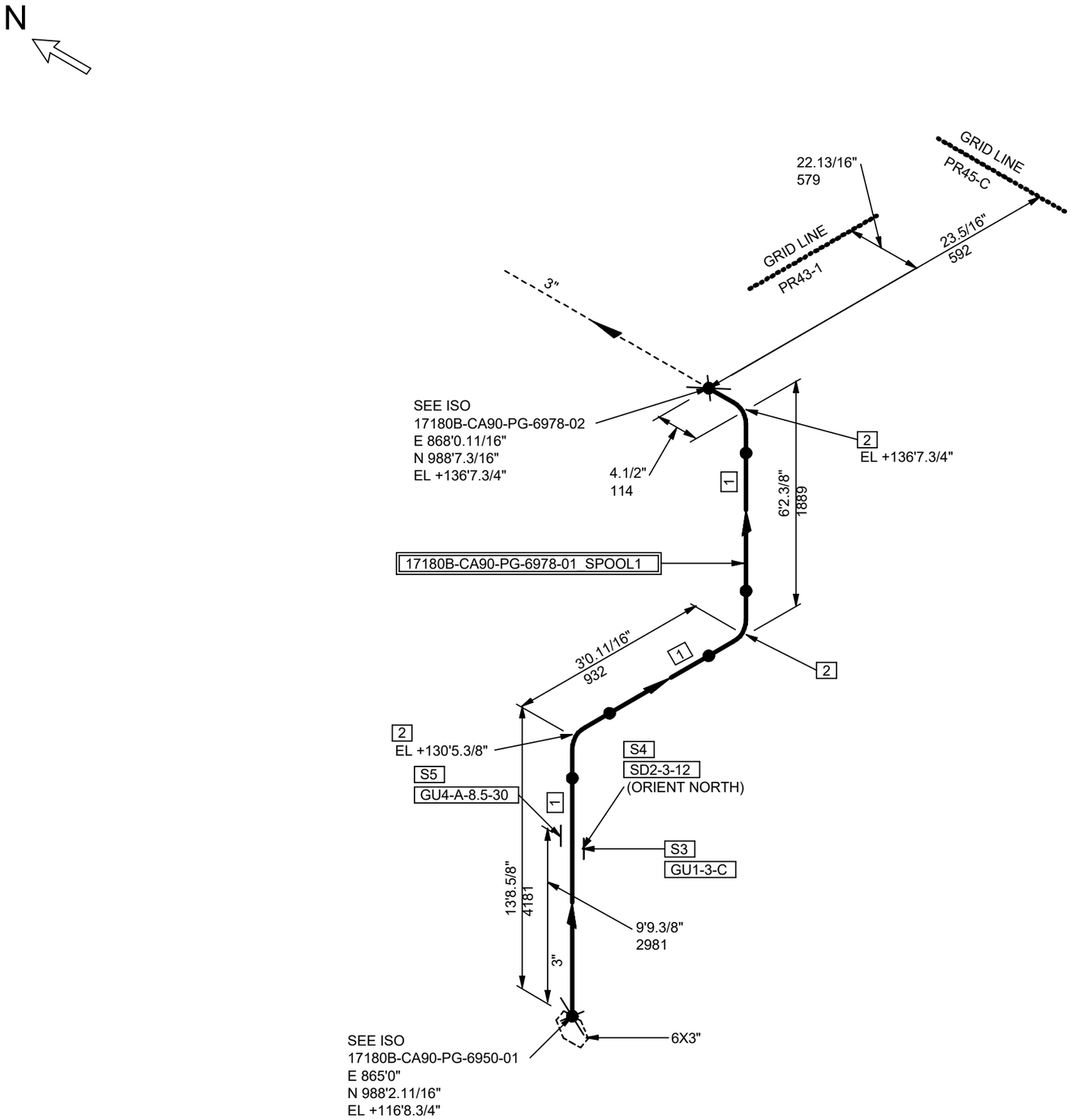
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6950-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	3	21.1'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	3	3
	ERECTION		
	PIPE SUPPORTS		
3	GU1-3-C	3	1
4	SD2-3-12	3	1
5	GU4-A-8.5-30	3	1

17180B-CA90-PG-6978-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/06/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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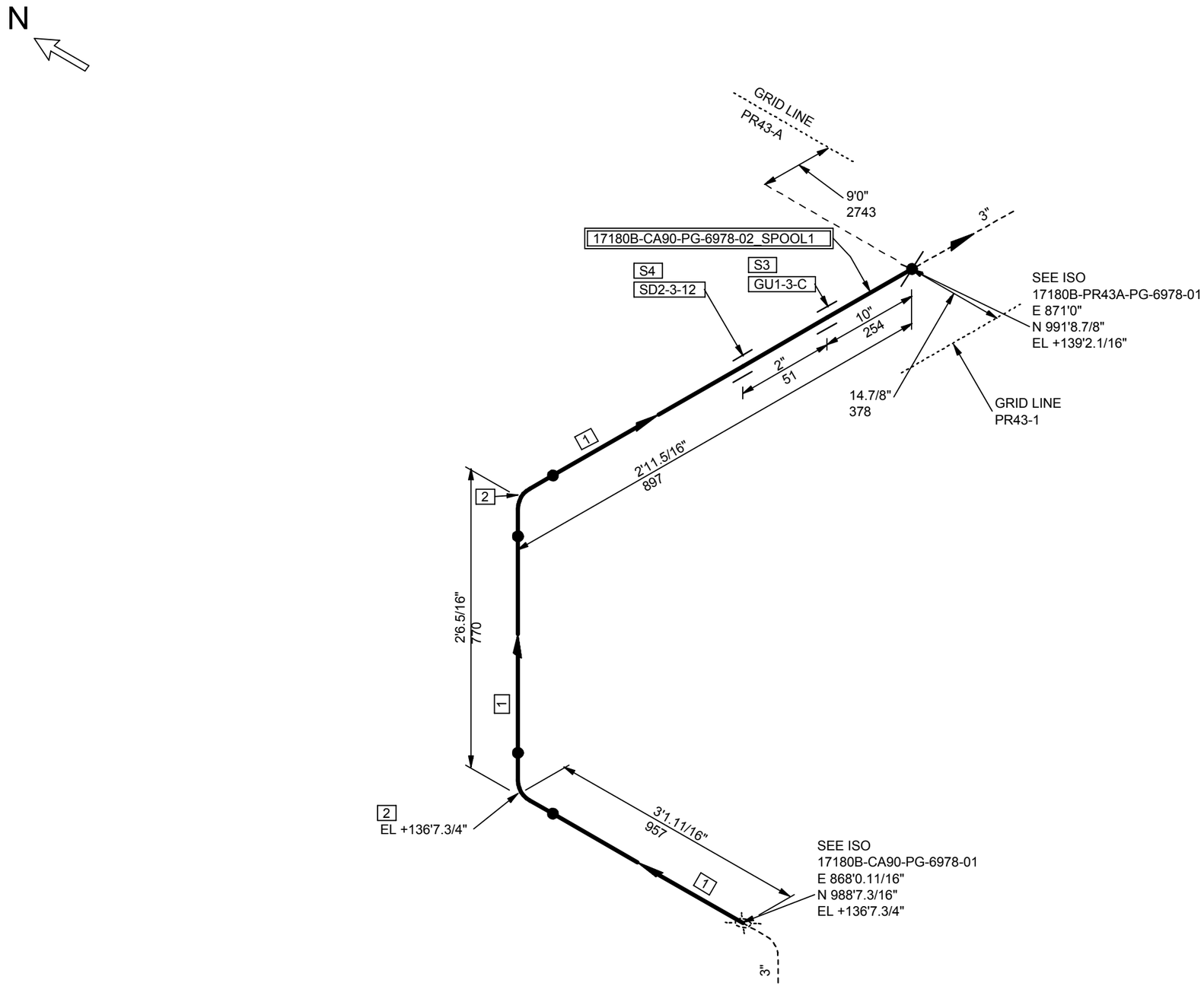
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6978-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	3	7.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	3	2
ERECTION			
PIPE SUPPORTS			
3	GU1-3-C	3	1
4	SD2-3-12	3	1

17180B-CA90-PG-6978-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/01/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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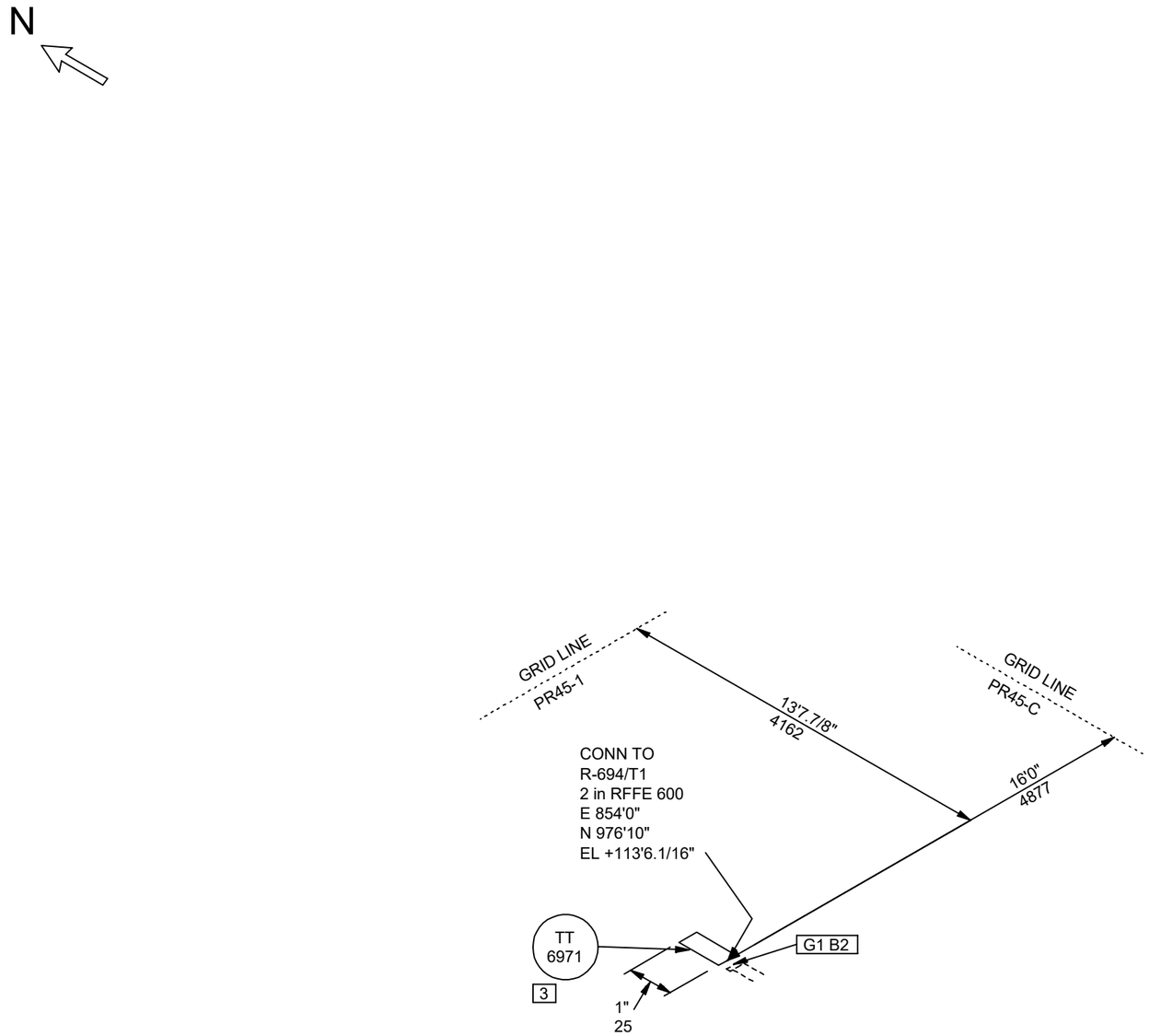
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-6978-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	1
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	8
	INSTRUMENTS		
3	TT-6971	2	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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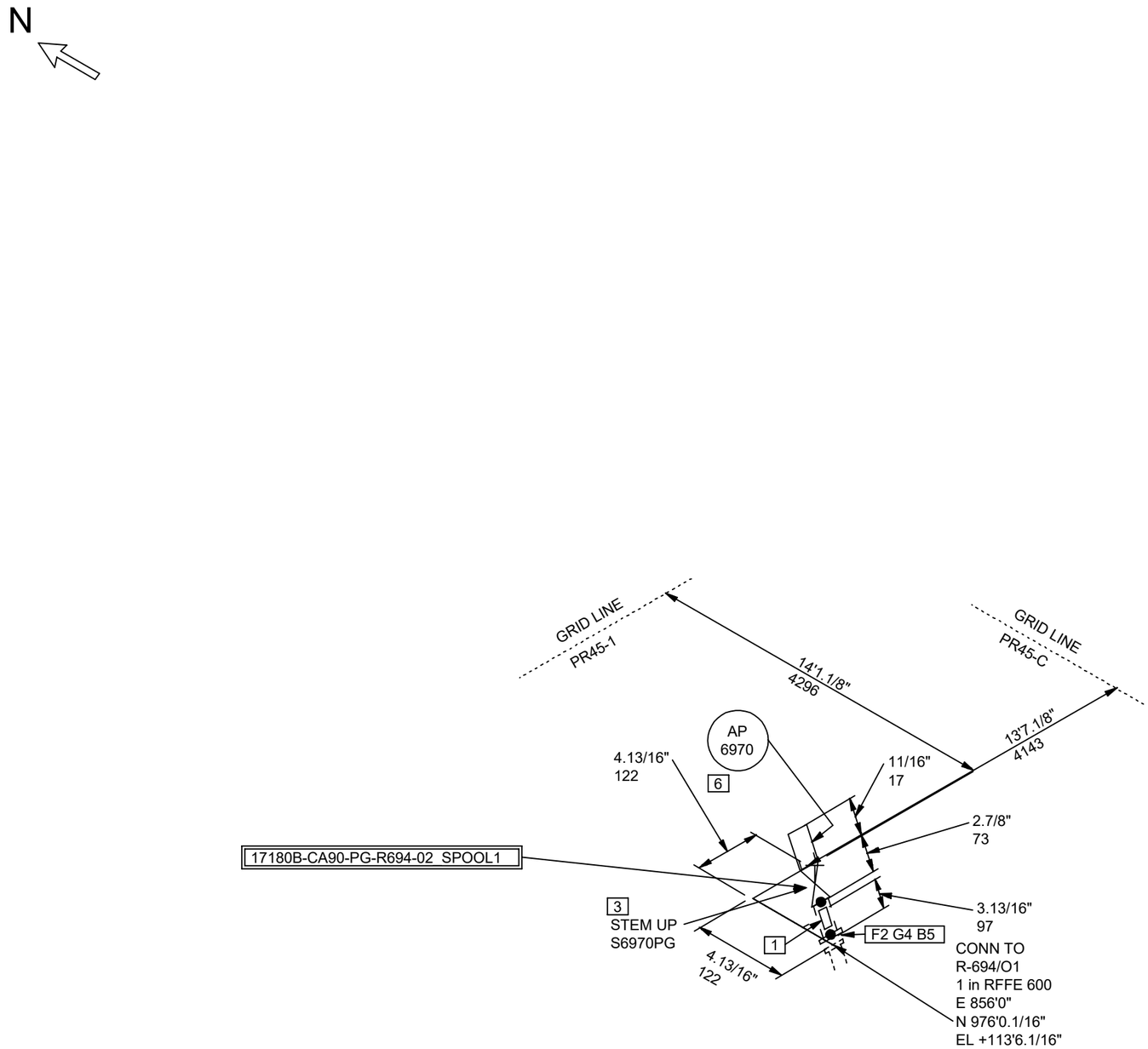
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-R694-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
2	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
3	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	1	1
ERECTION			
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
INSTRUMENTS			
6	AP-6970	1	1

17180B-CA90-PG-R694-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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15377 Memorial Drive
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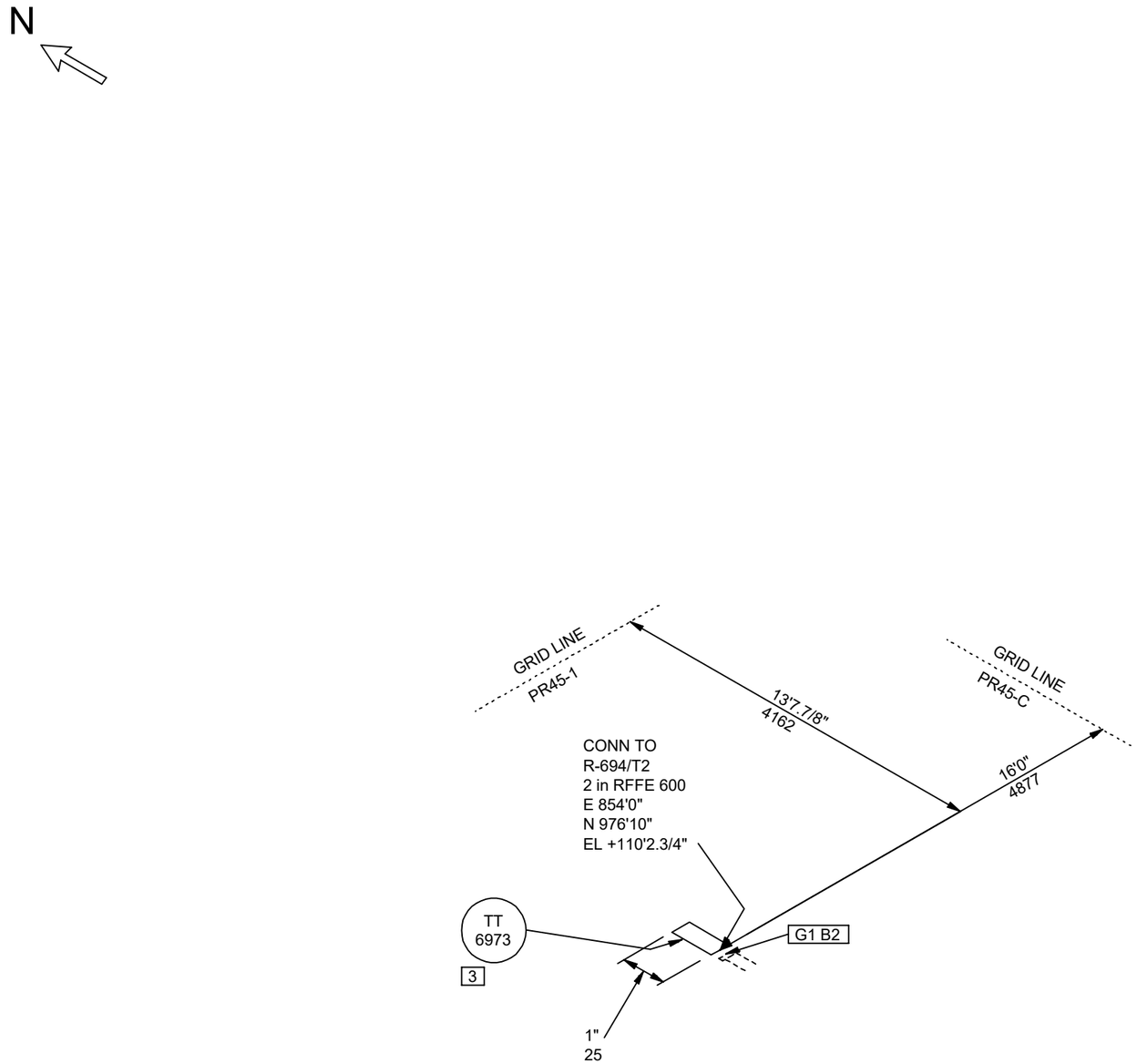
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-R694-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	1
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	8
	INSTRUMENTS		
3	TT-6973	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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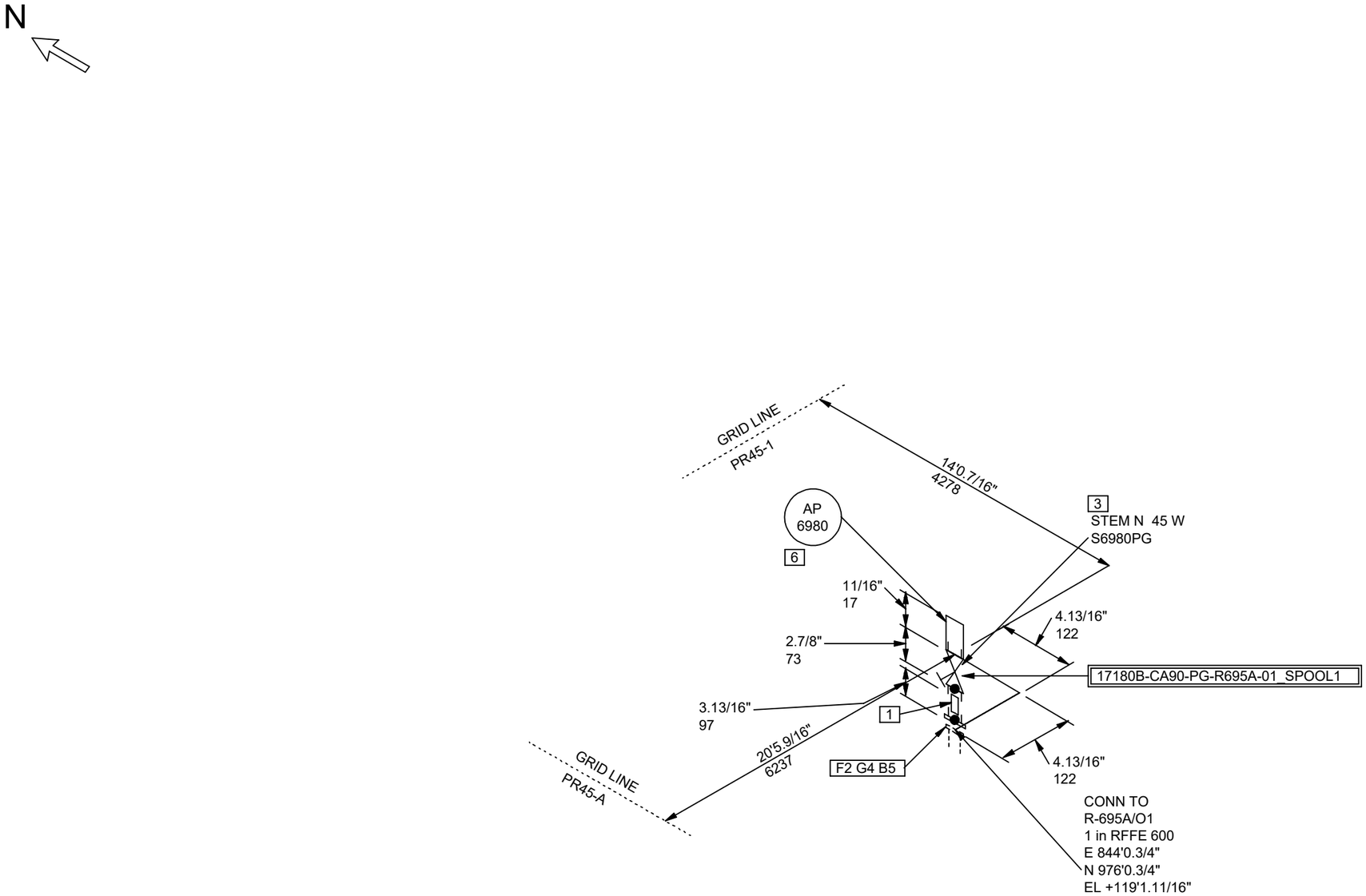
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-R694-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
2	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
3	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	1	1
	ERECTION		
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
	INSTRUMENTS		
6	AP-6980	1	1

17180B-CA90-PG-R695A-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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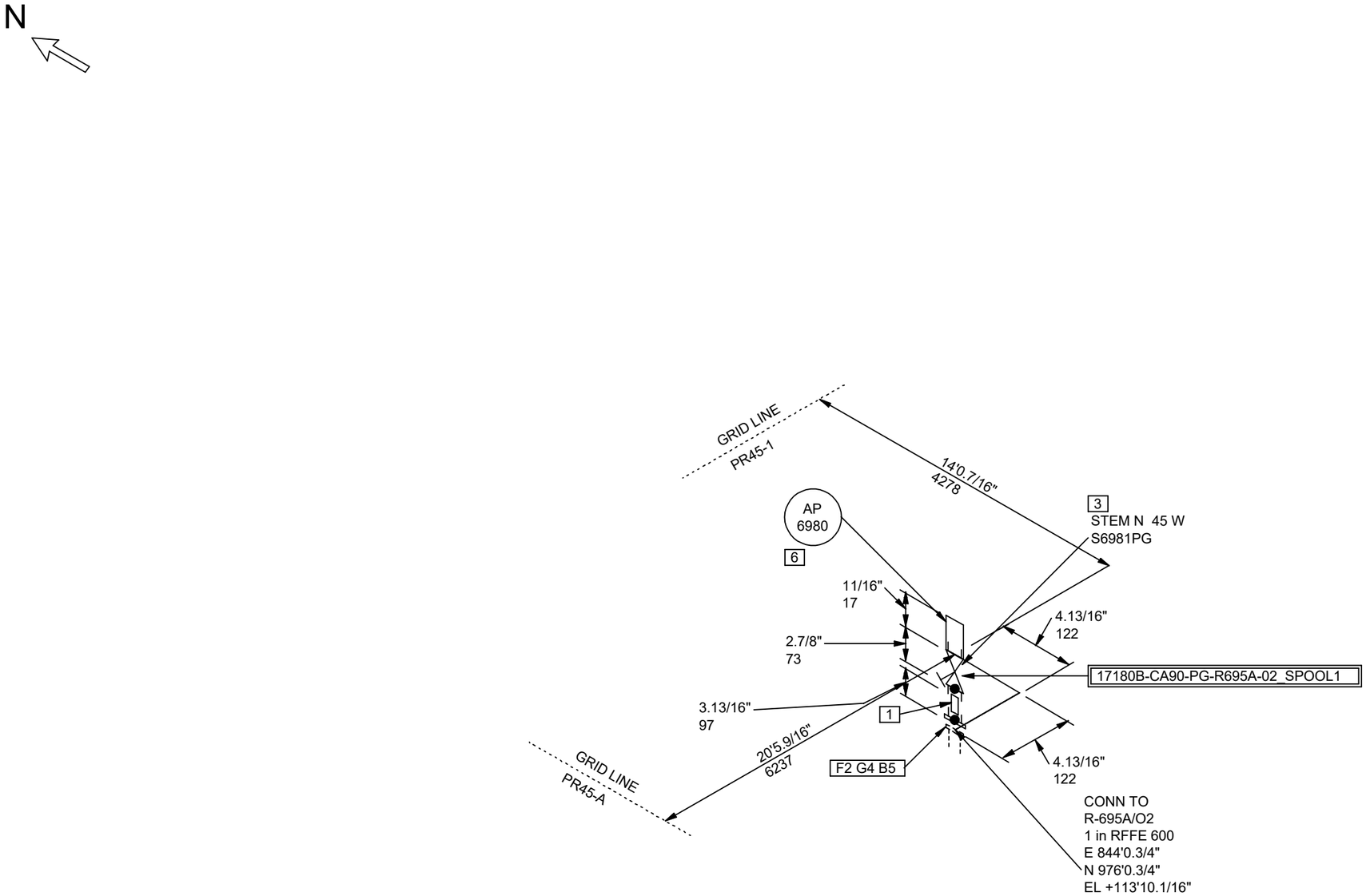
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-R695A-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
2	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
3	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	1	1
	ERECTION		
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
	INSTRUMENTS		
6	AP-6980	1	1

17180B-CA90-PG-R695A-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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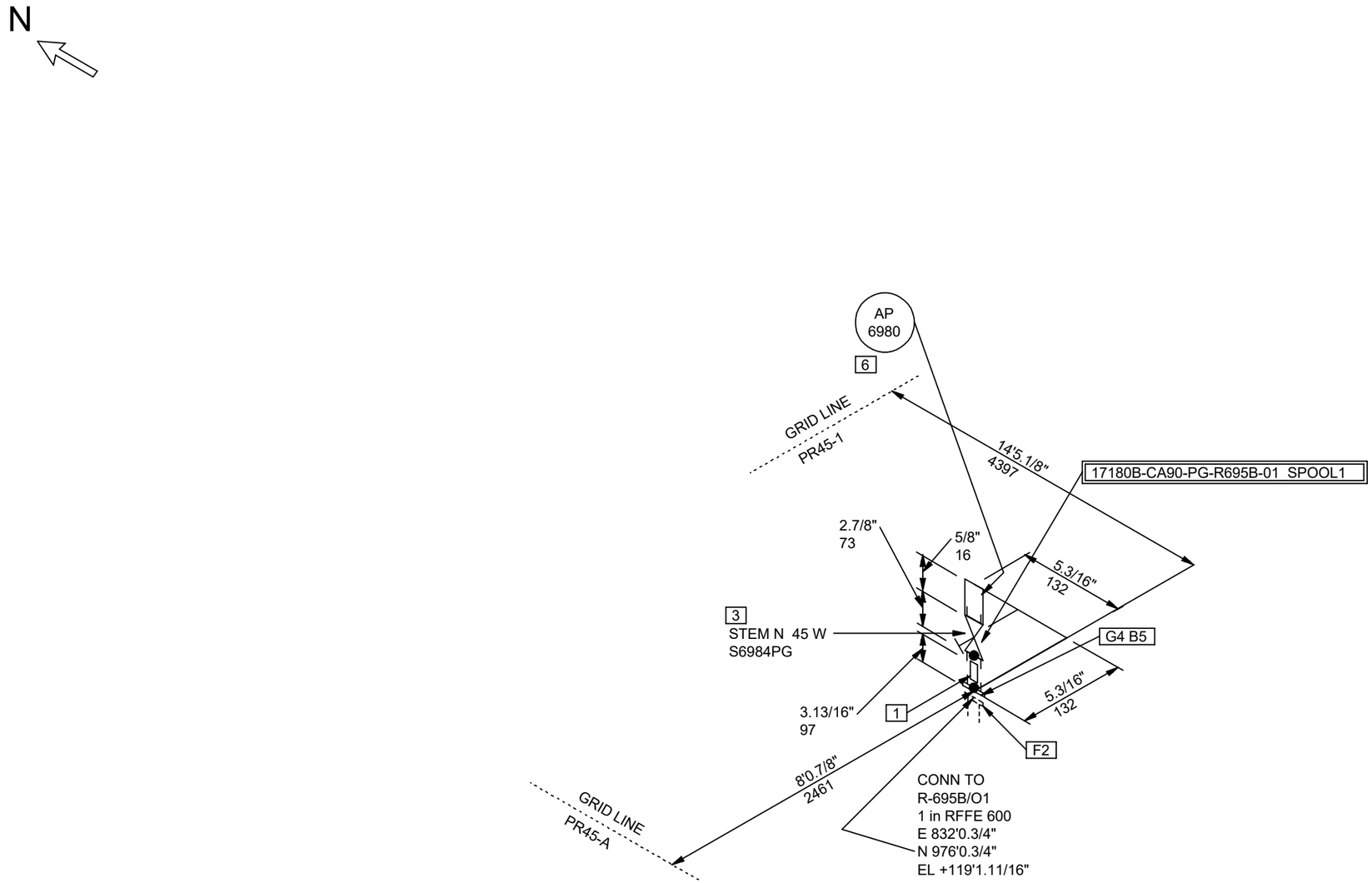
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-R695A-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
2	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
3	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	1	1
ERECTION			
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
INSTRUMENTS			
6	AP-6980	1	1

17180B-CA90-PG-R695B-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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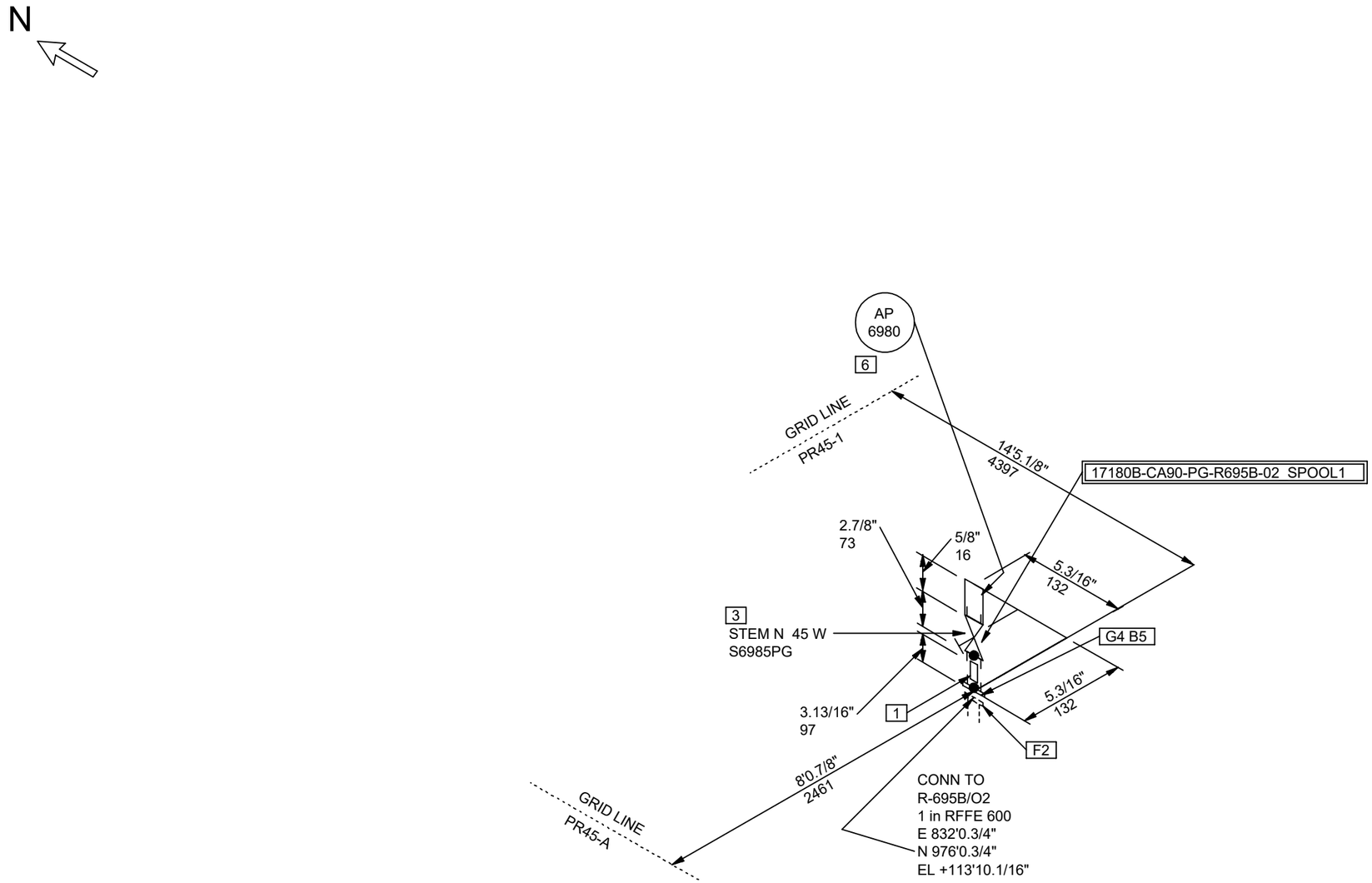
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-R695B-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
2	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
3	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	1	1
ERECTION			
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
INSTRUMENTS			
6	AP-6980	1	1

17180B-CA90-PG-R695B-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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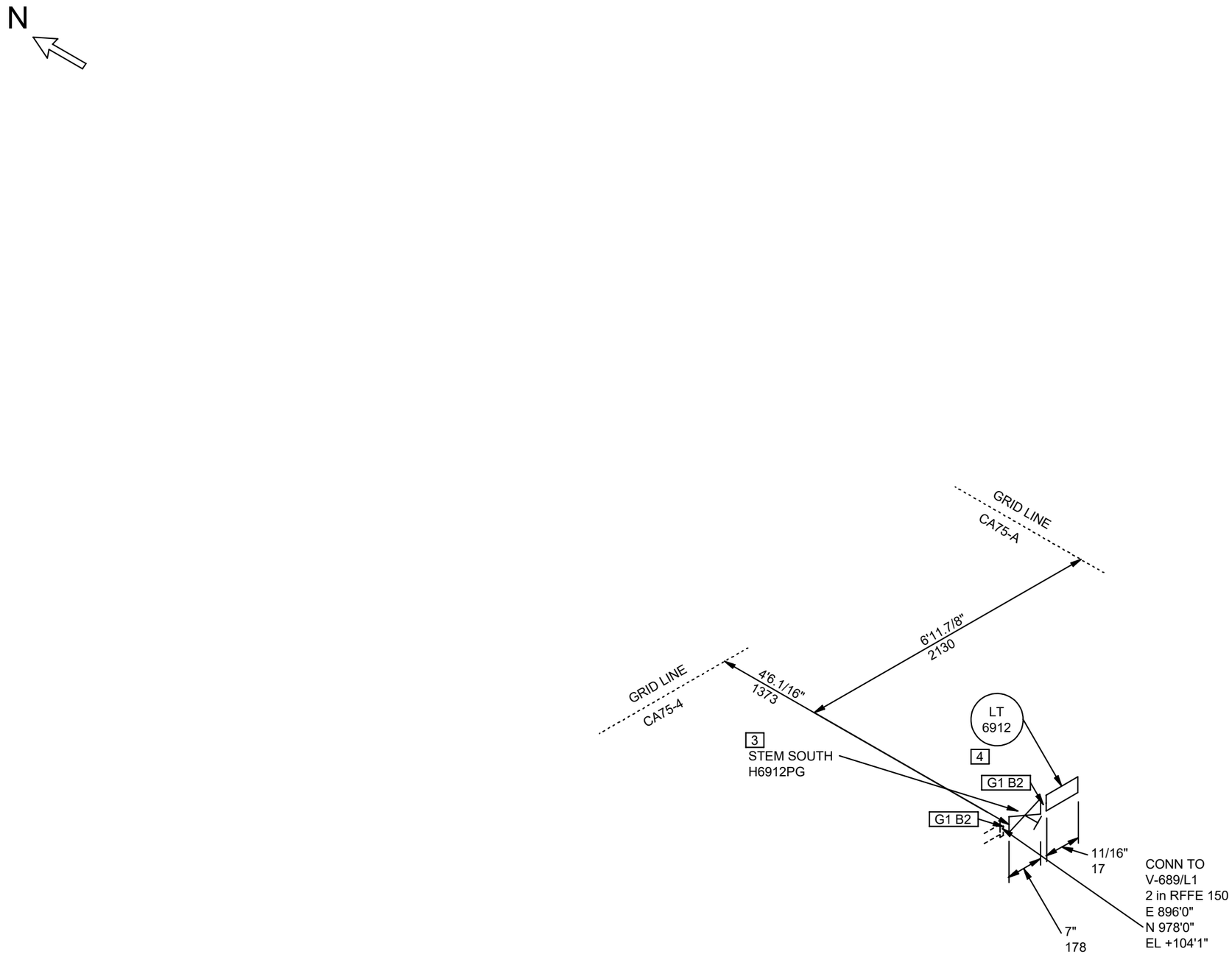
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-R695B-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-6912	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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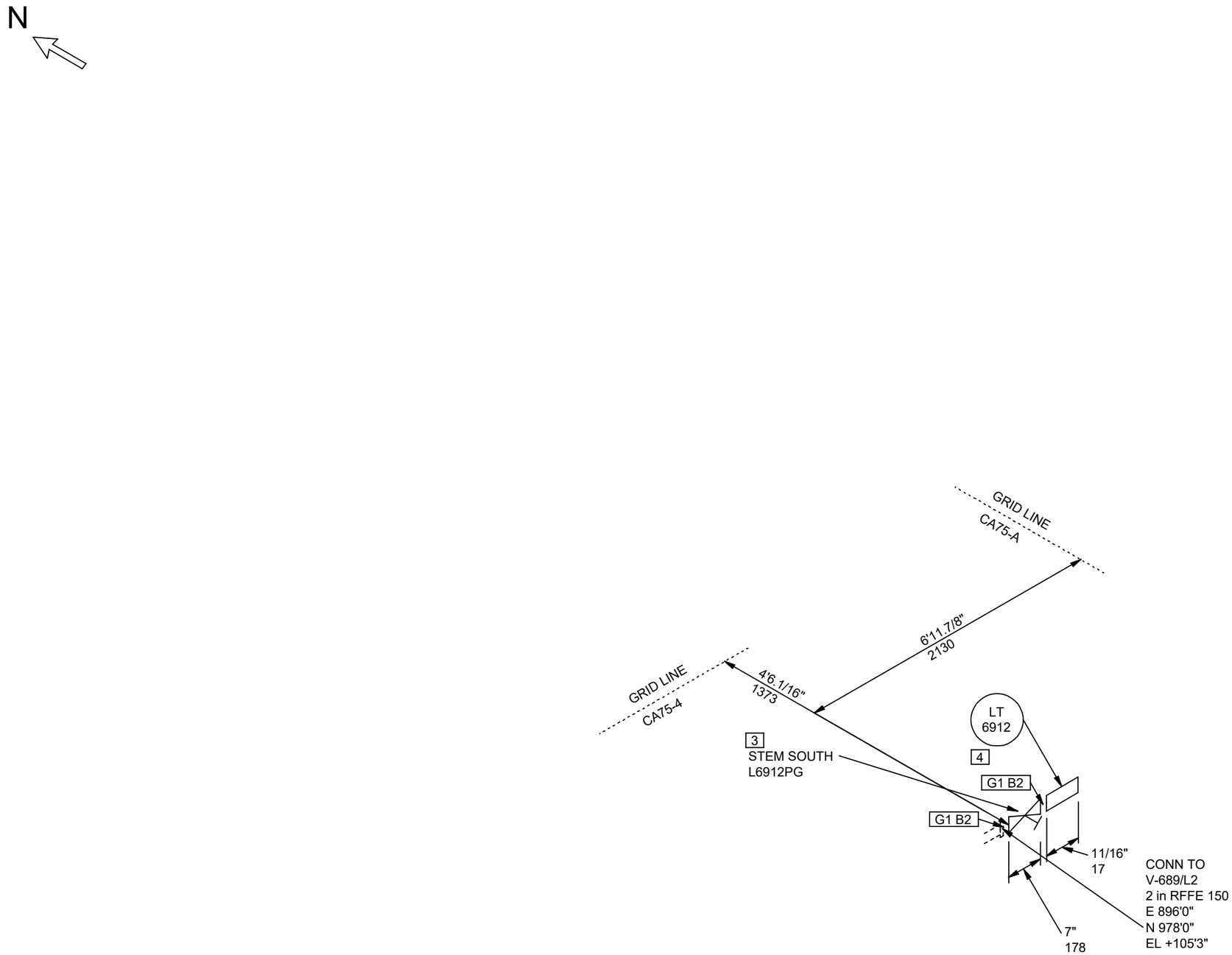
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-6912	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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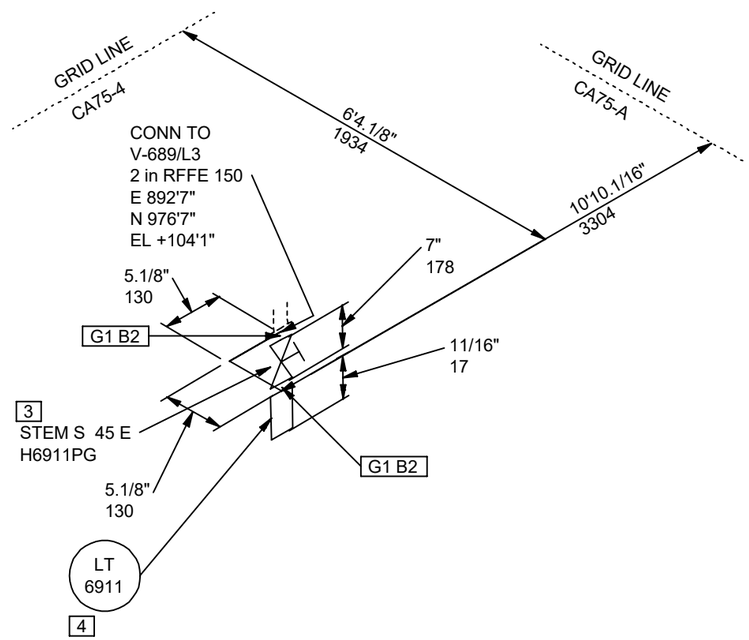
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-6911	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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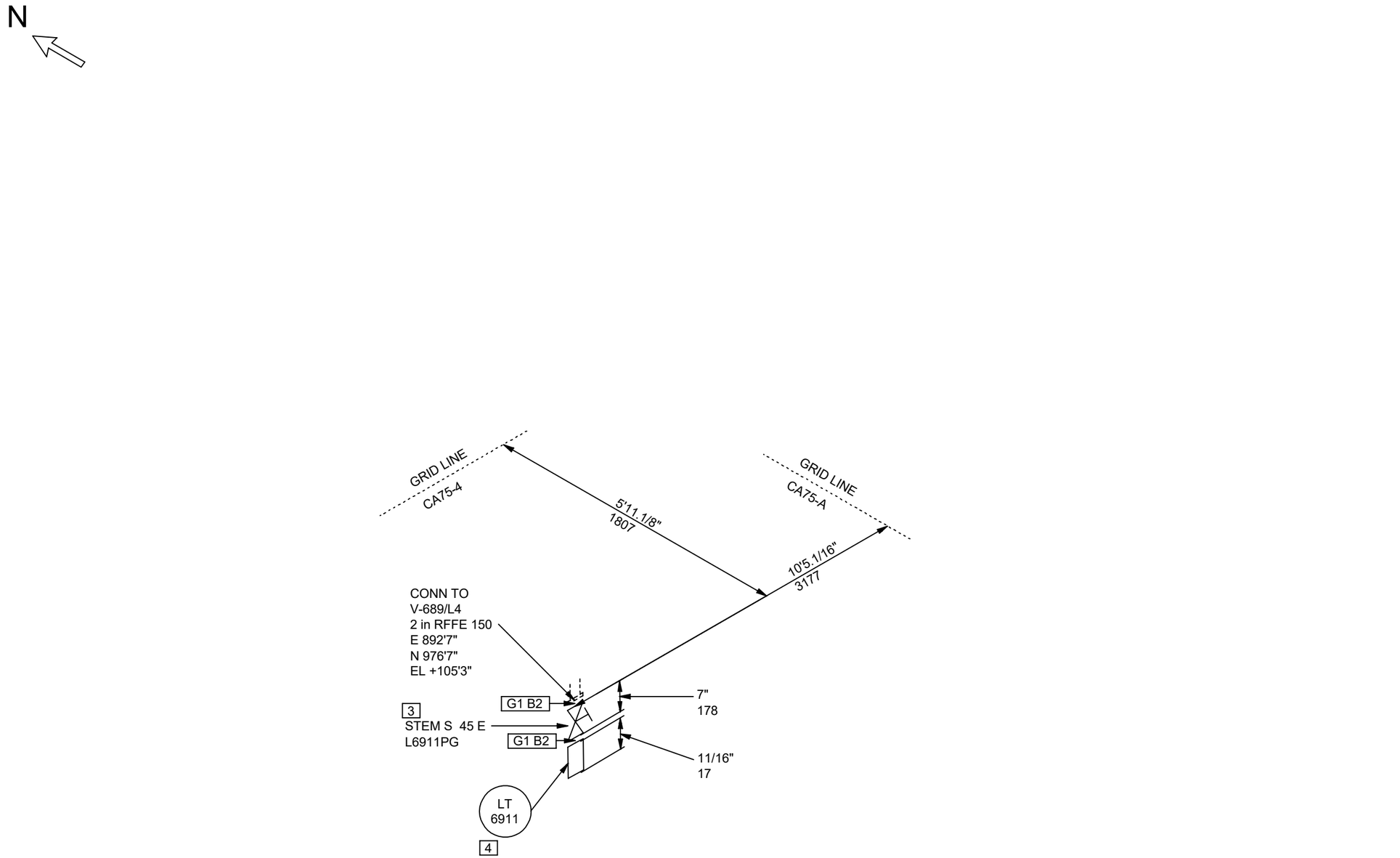
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-6911	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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Tel 713.270.3100

LEGEND:

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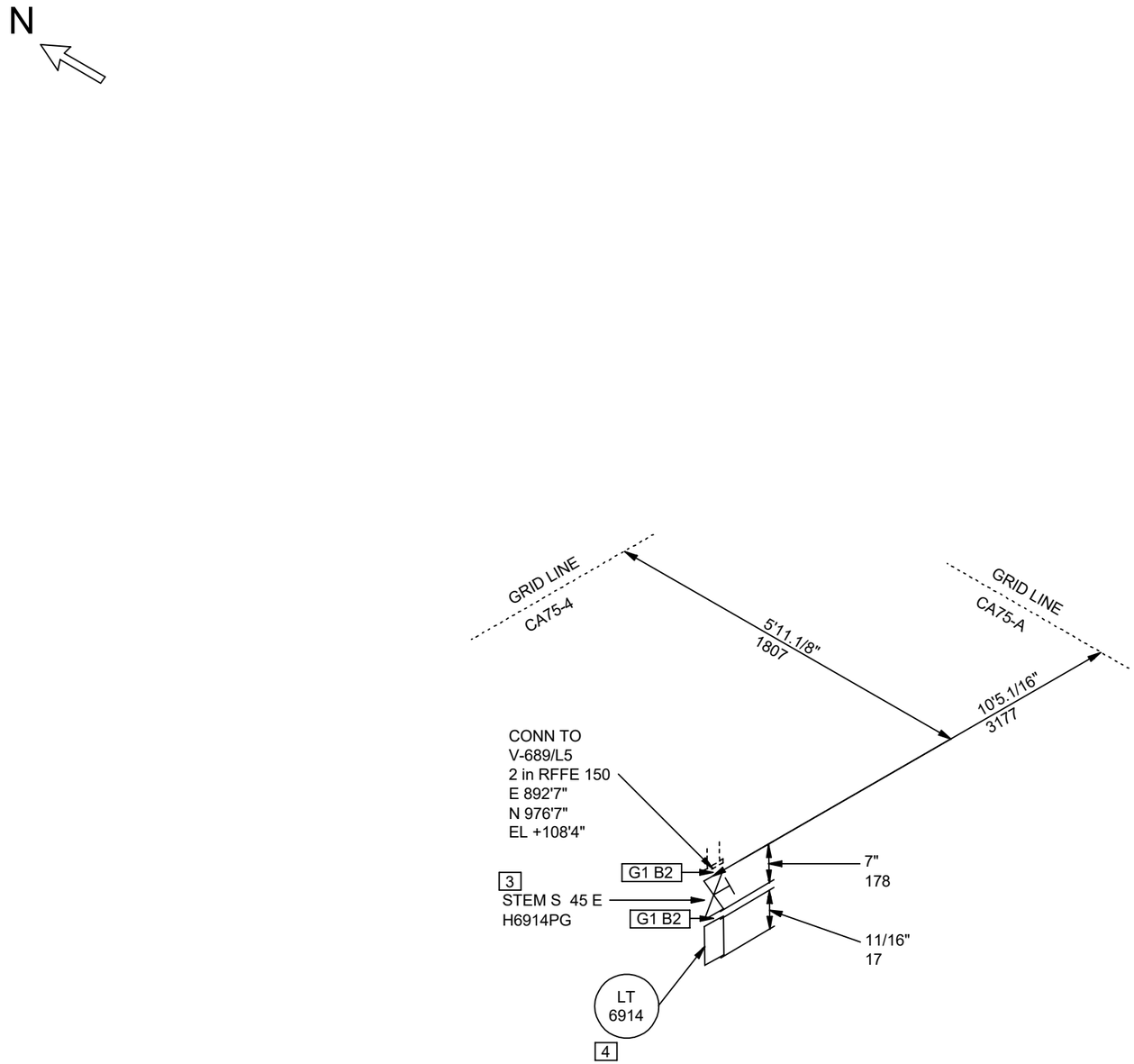
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-04	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-6914	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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- — — = HEAT TRACING

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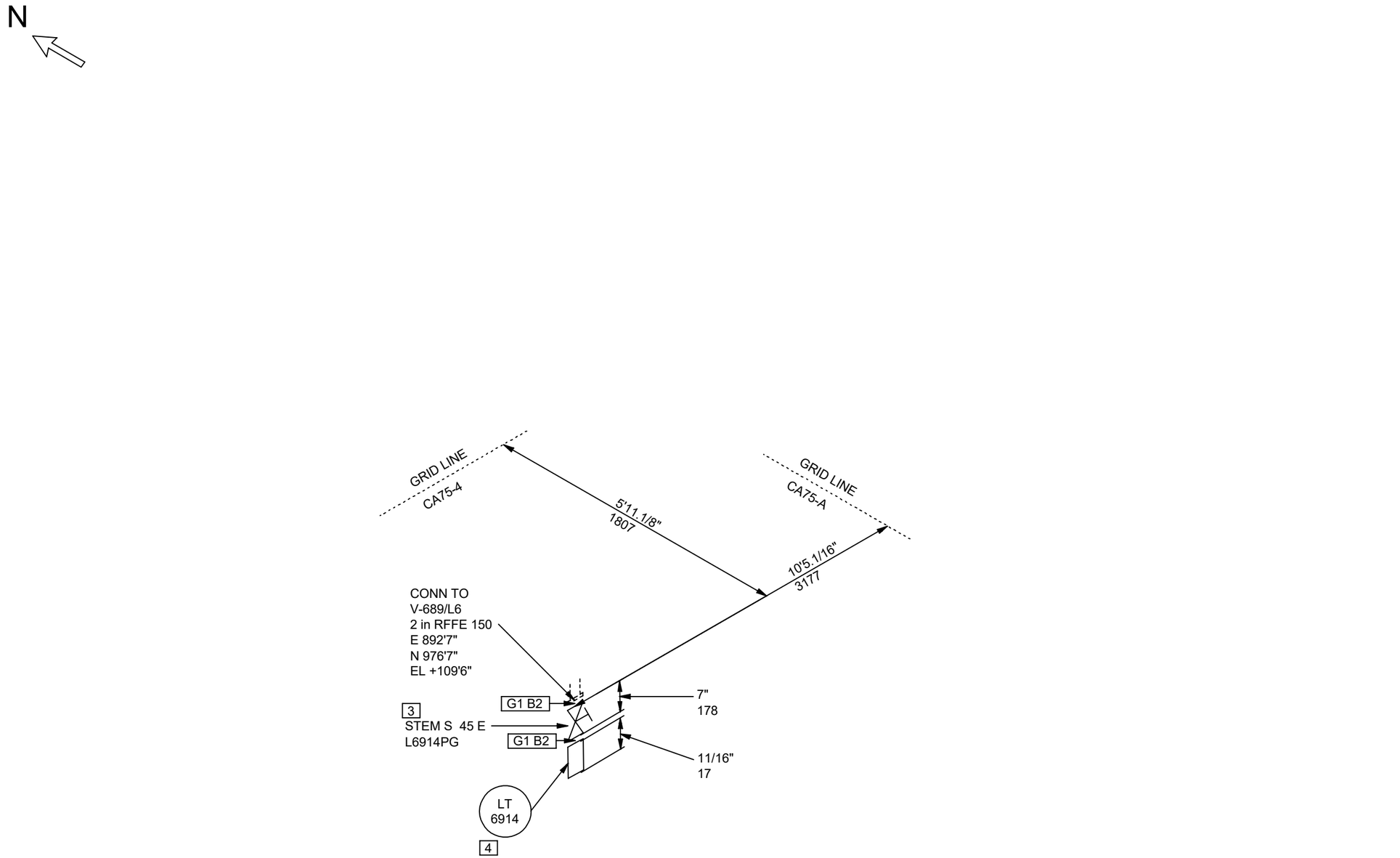
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-05	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-6914	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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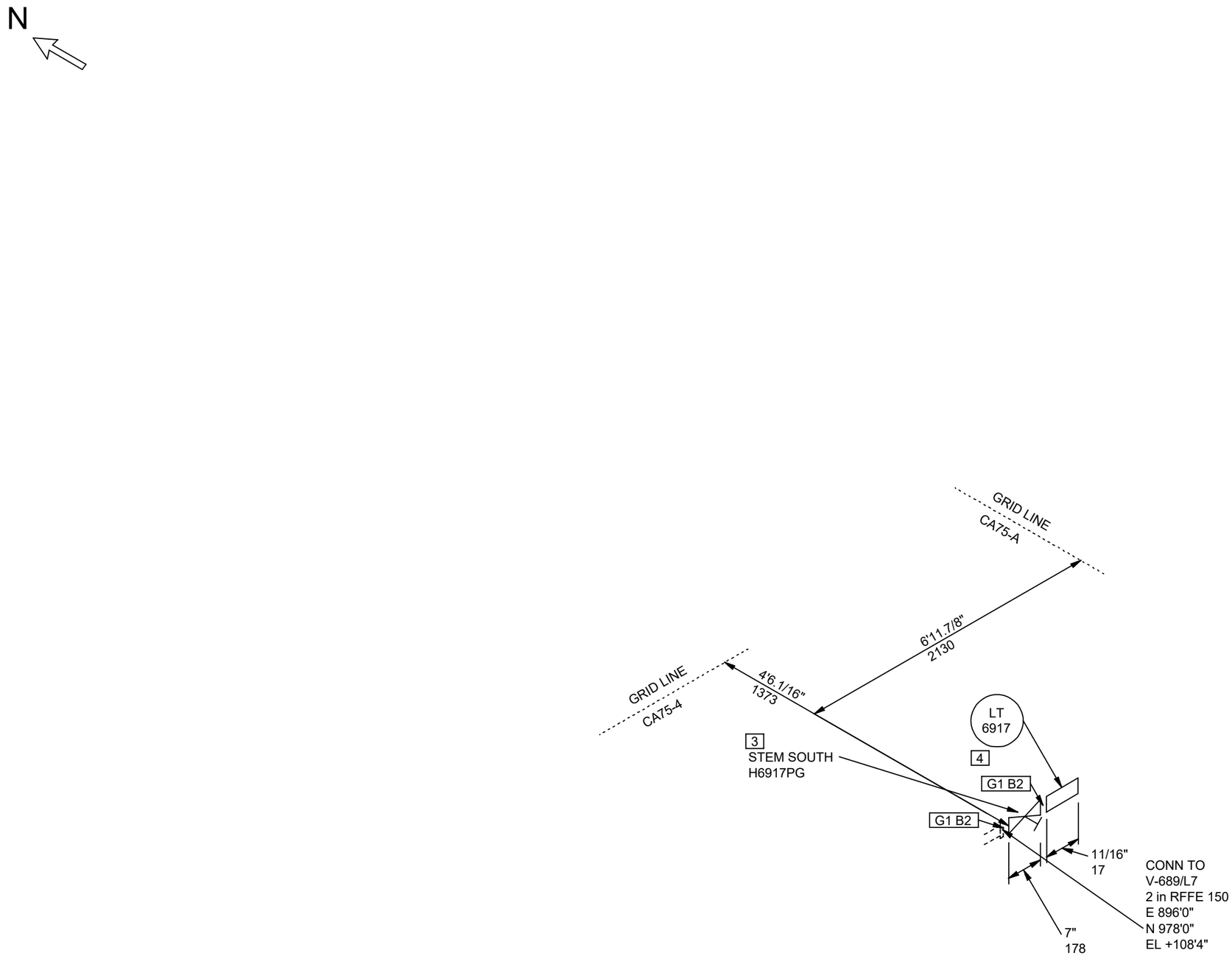
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-06	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
INSTRUMENTS			
4	LT-6917	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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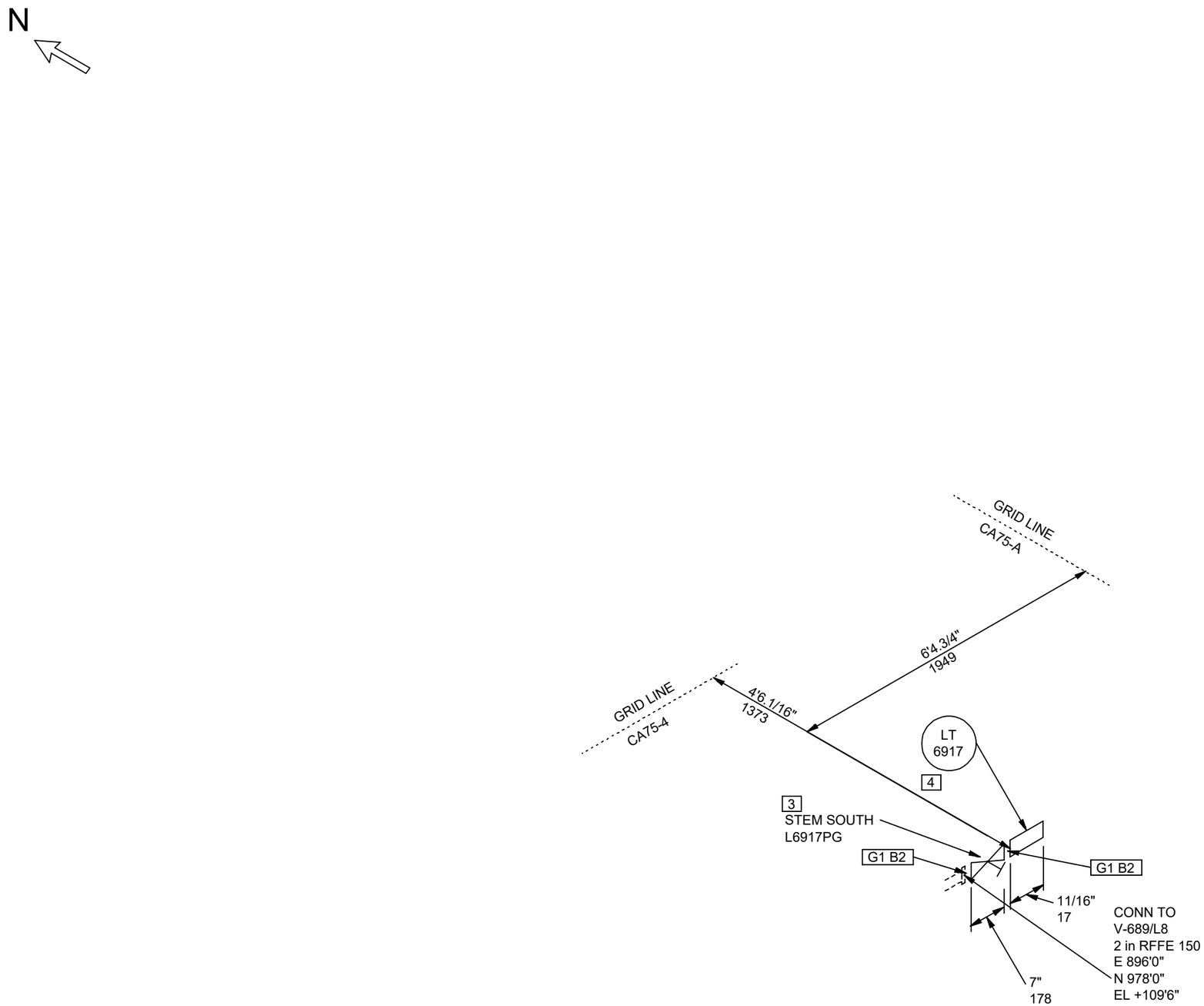
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-07	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LT-6917	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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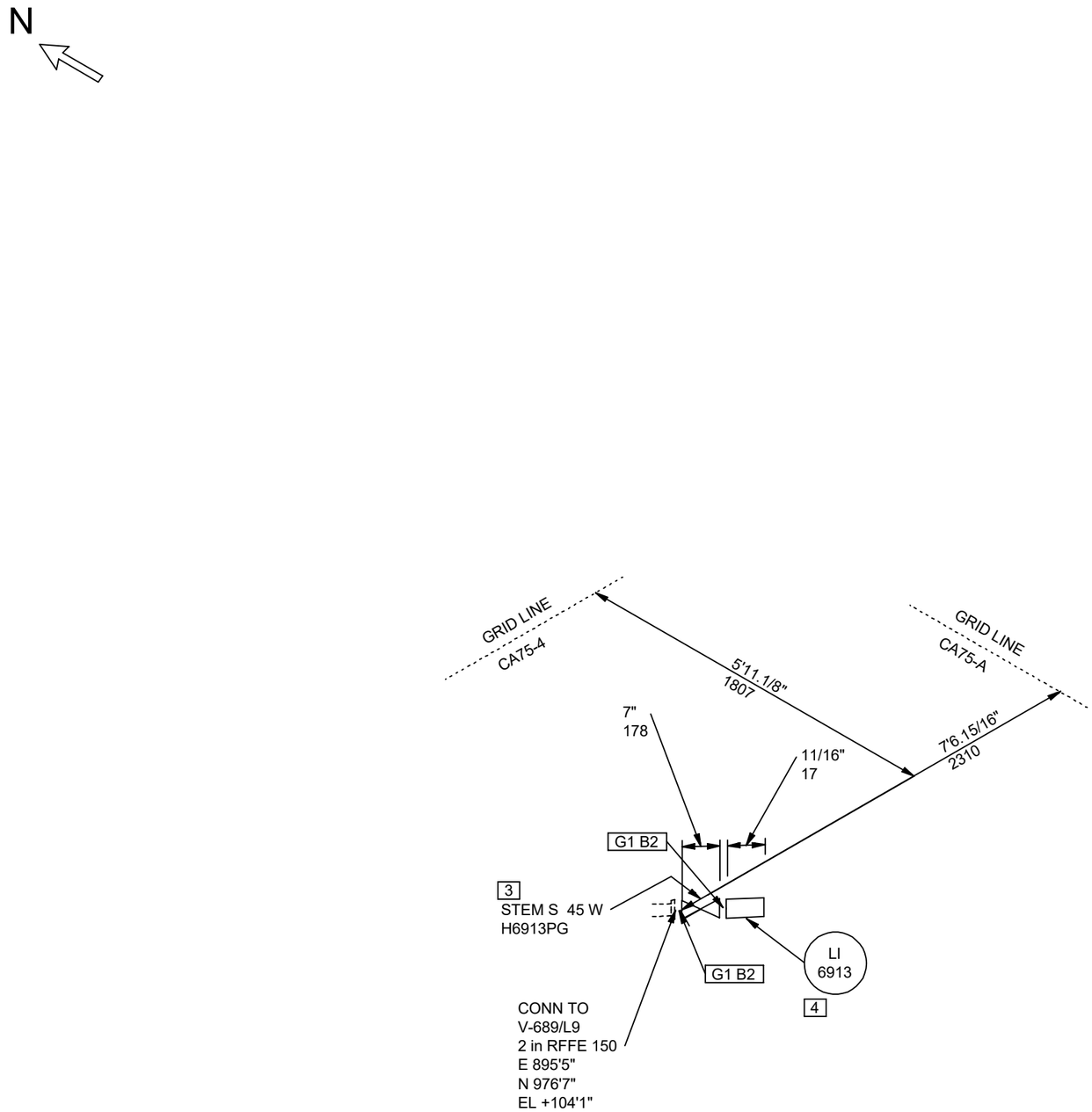
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-08	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LI-6913	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

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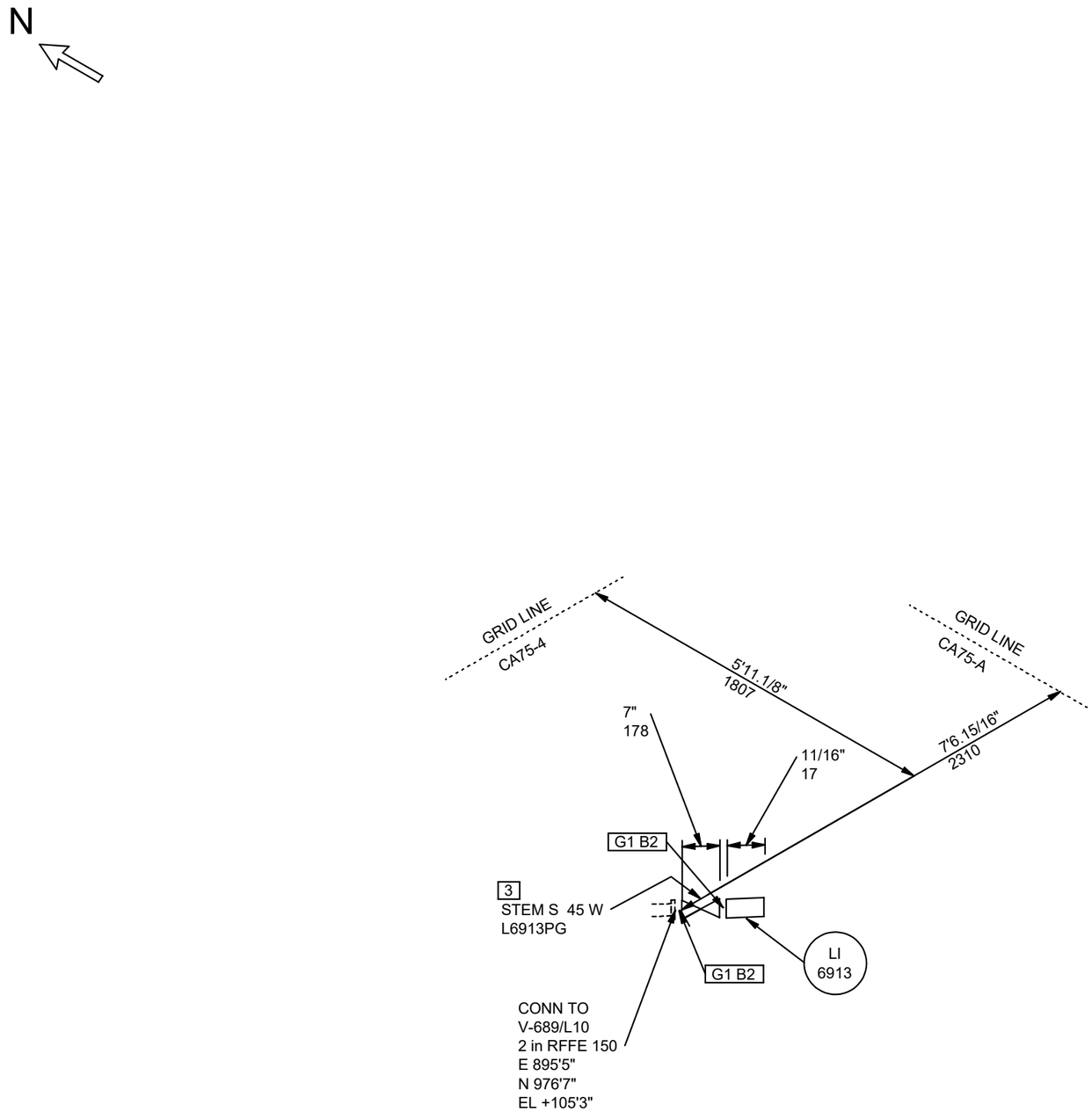
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-09	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

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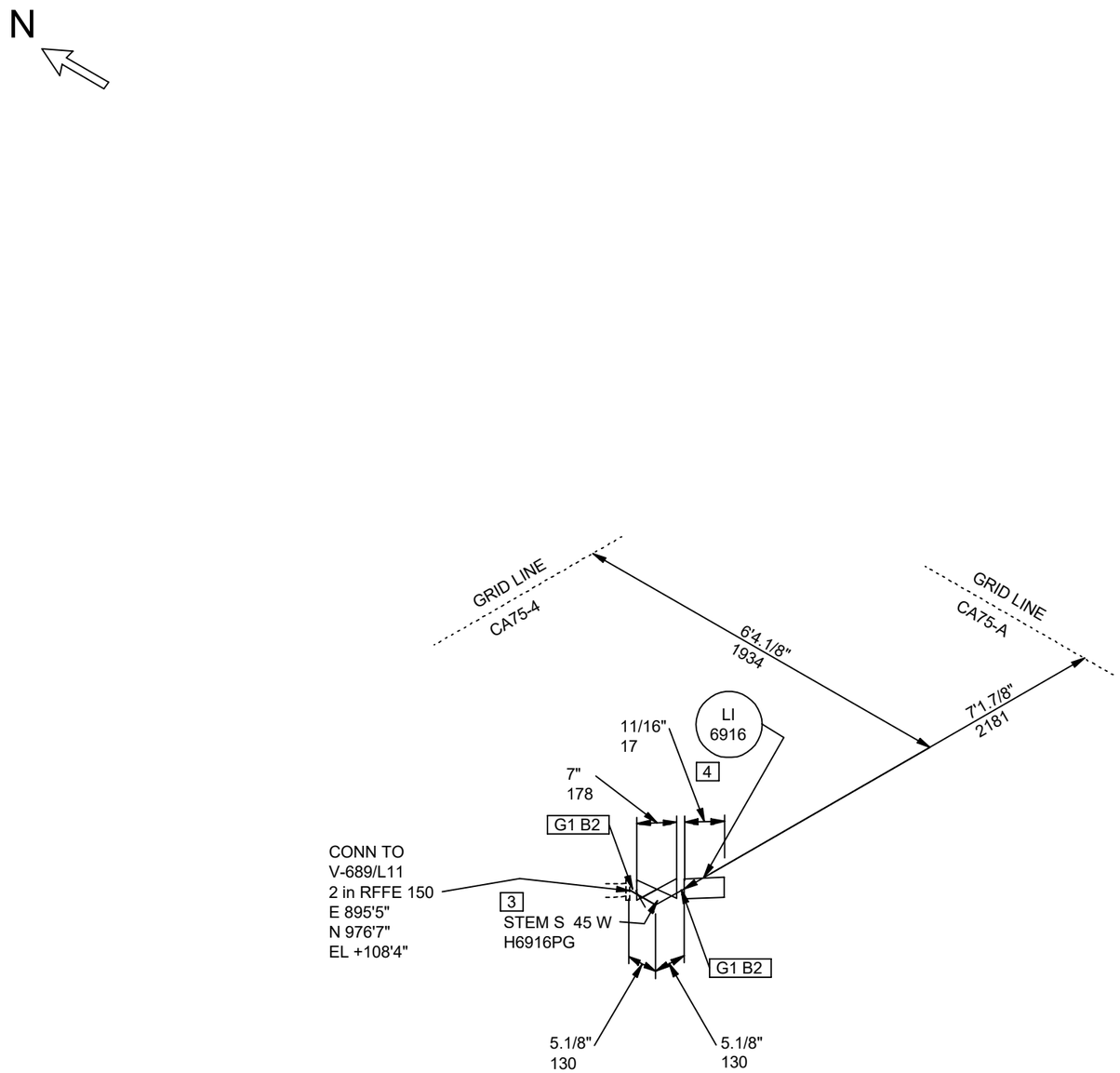
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-10	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
4	LI-6916	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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Tel 713.270.3100

LEGEND:

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- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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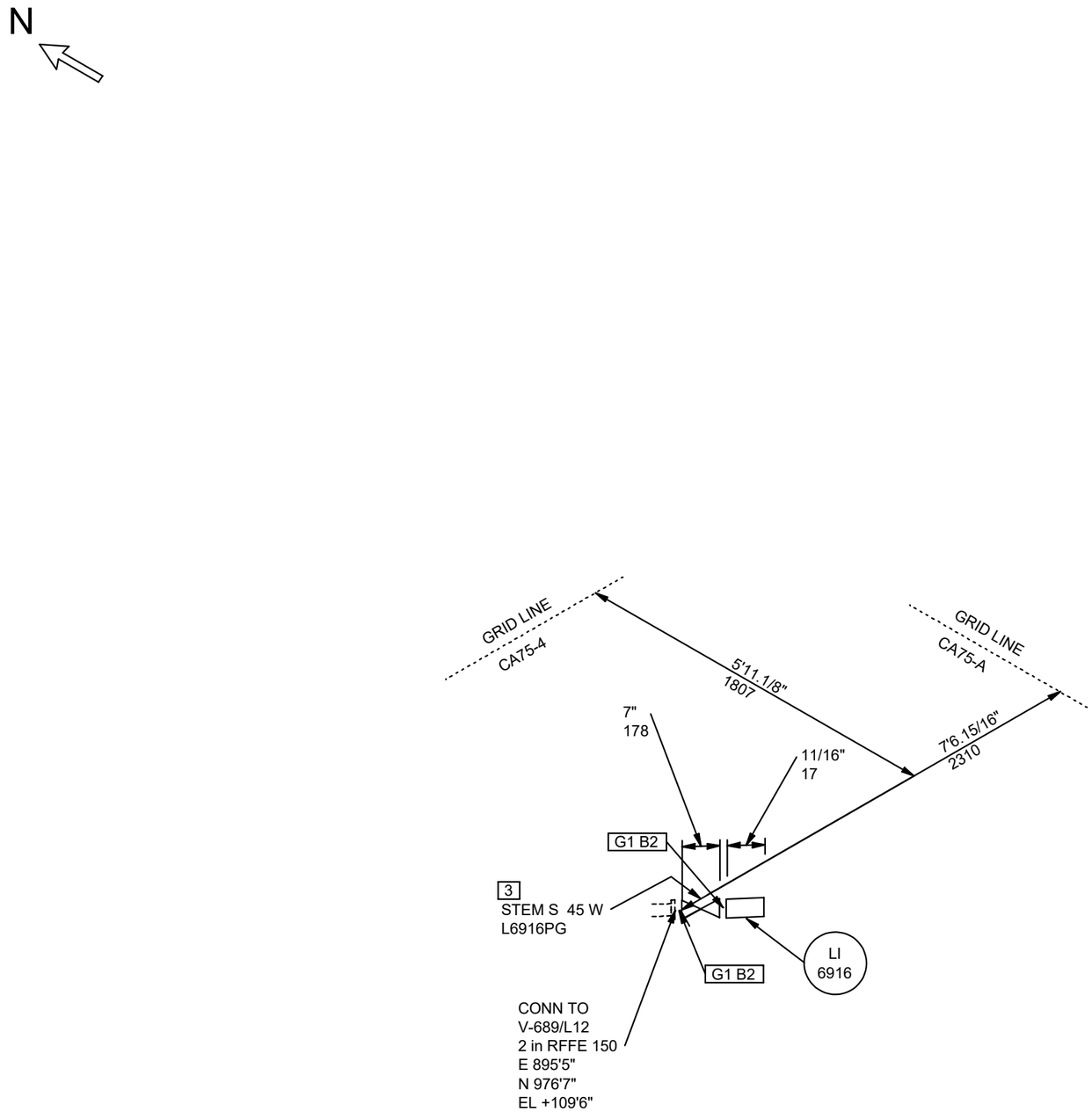
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-11	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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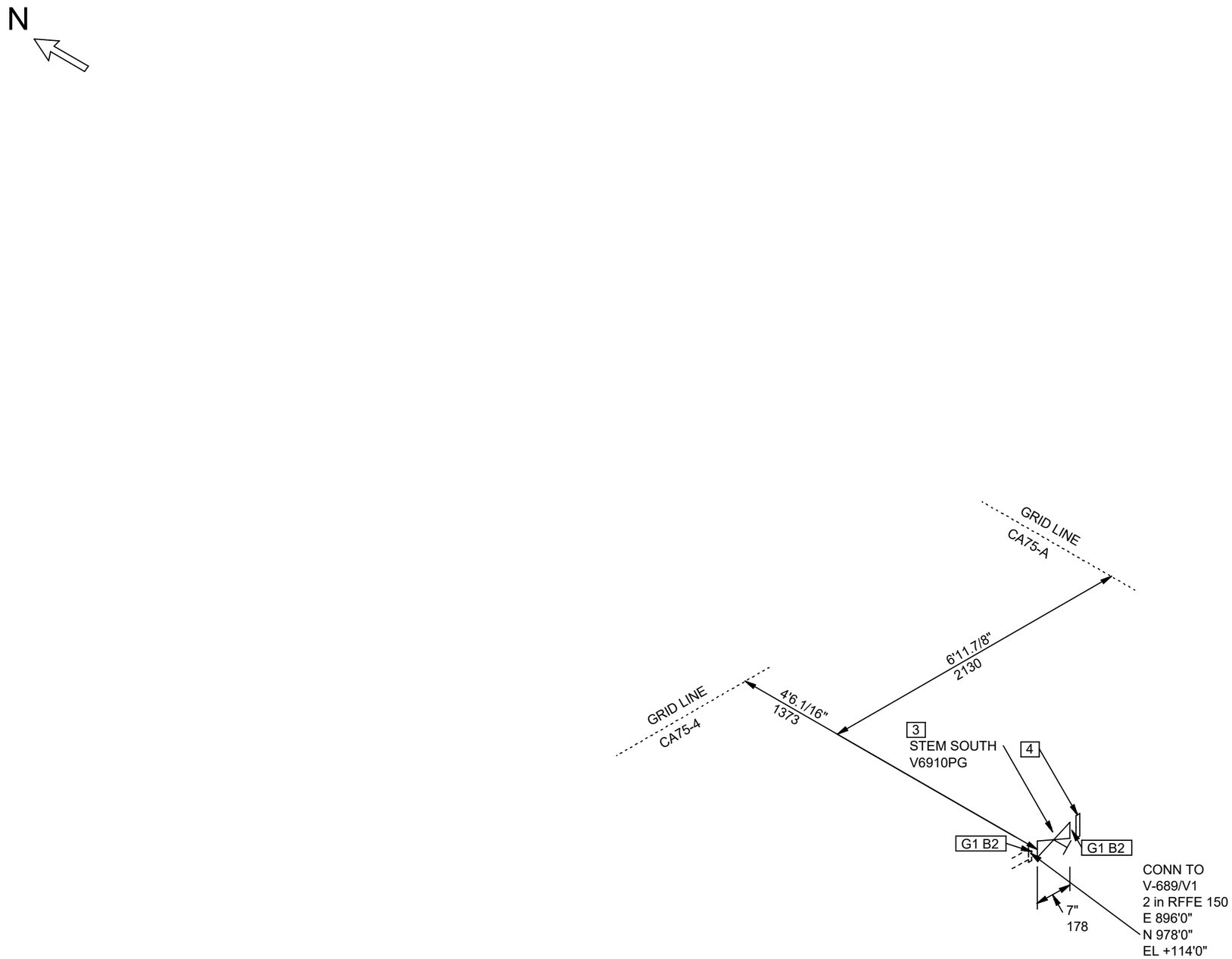
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-12	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
3	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
4	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- ── ── = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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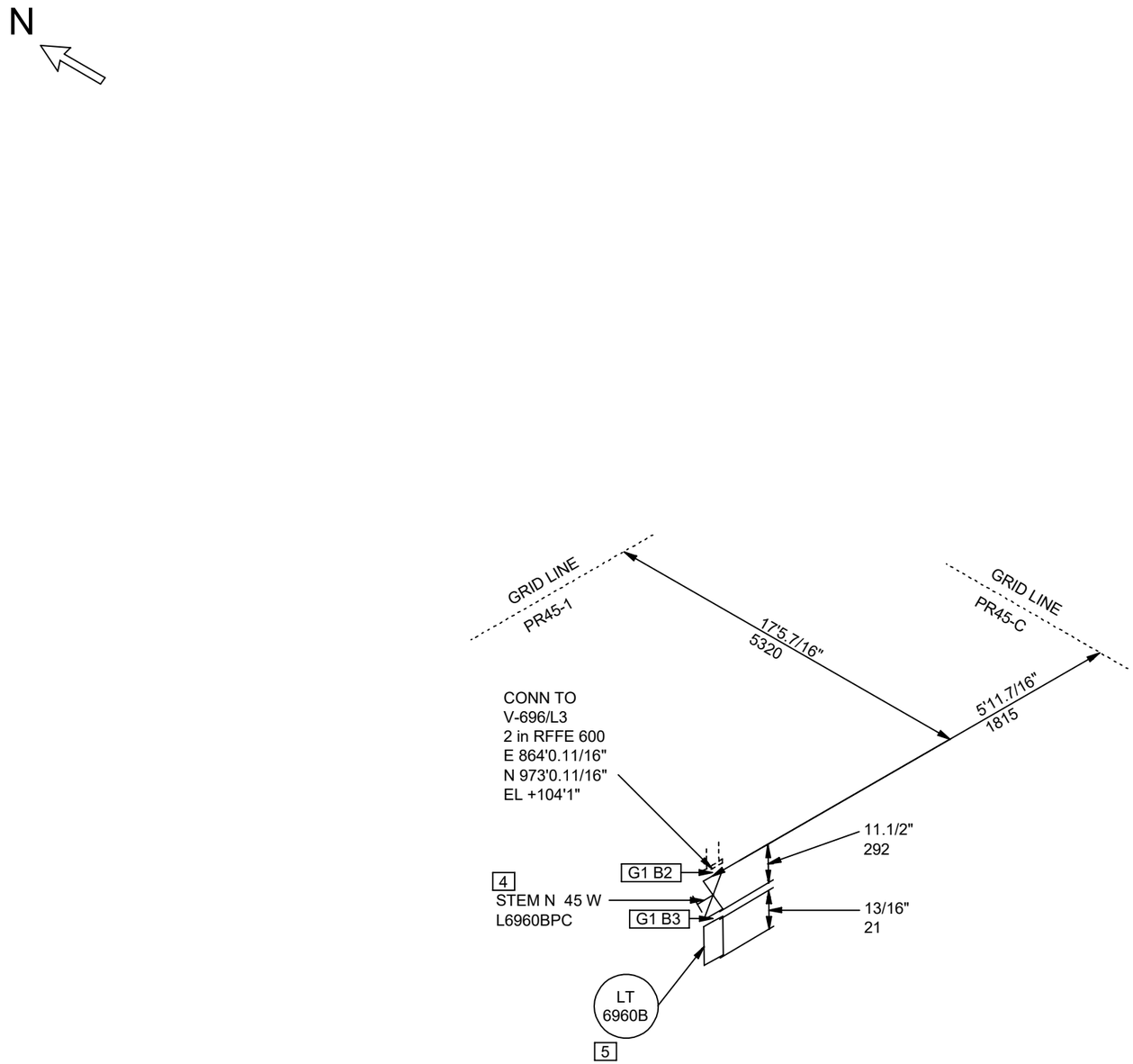
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V689-13	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	8
3	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	5/8	8
4	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	1
	INSTRUMENTS		
5	LT-6960B	2	1

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELL
- ✖ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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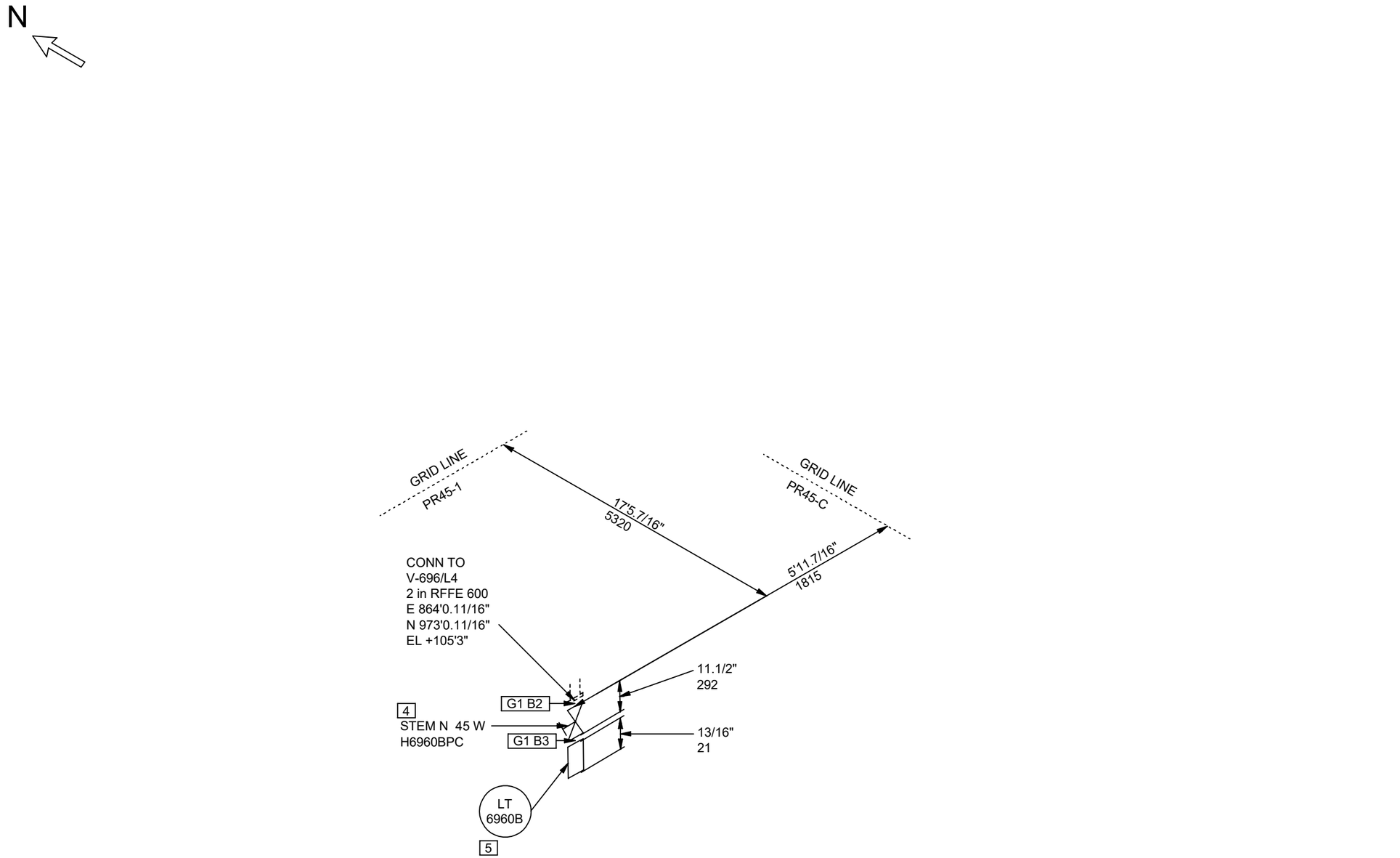
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	8
3	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	5/8	8
4	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	1
	INSTRUMENTS		
5	LT-6960B	2	1

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELL
- ✖ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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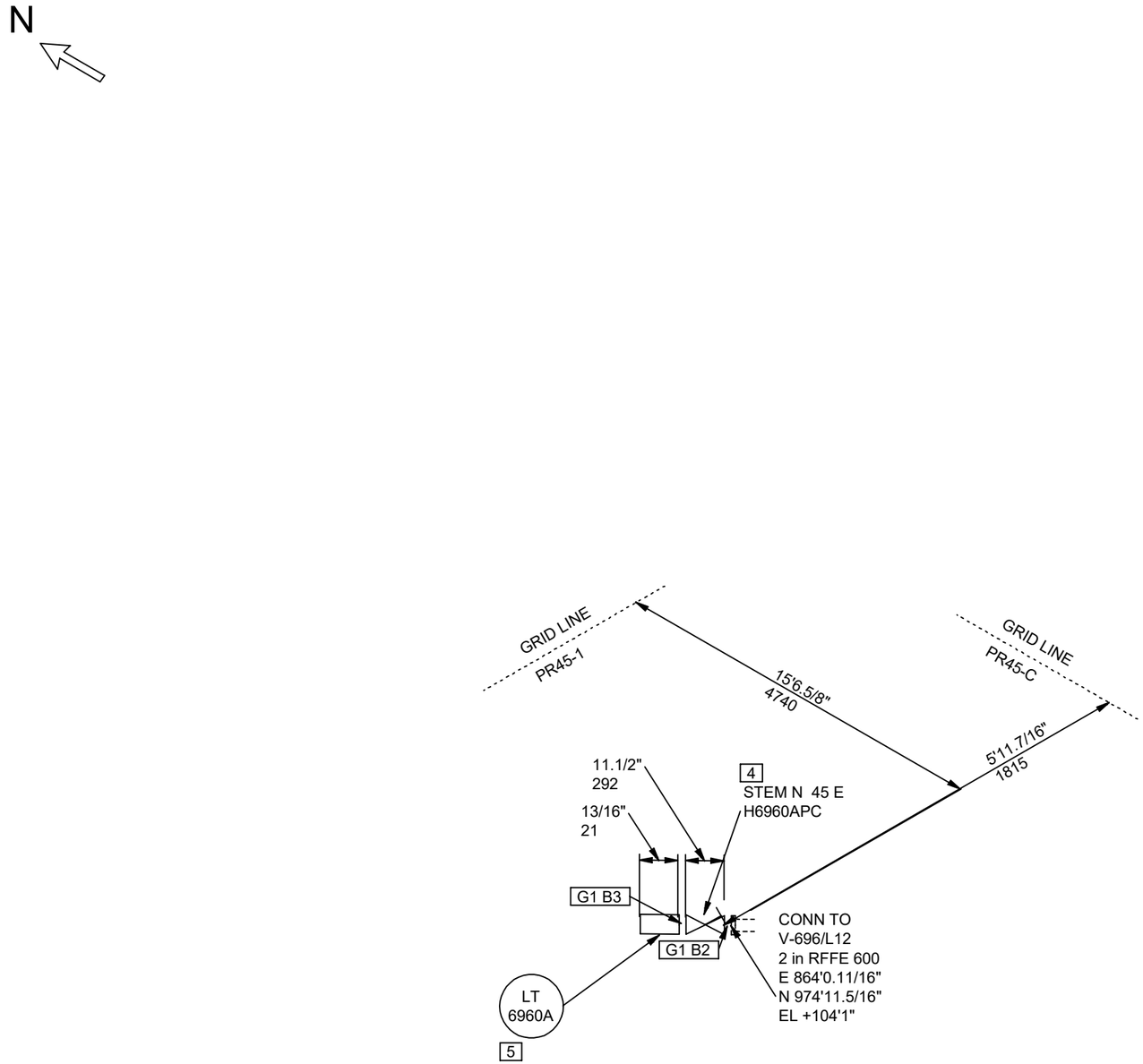
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
2	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	8
3	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	5/8	8
4	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	1
	INSTRUMENTS		
5	LT-6960A	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	11/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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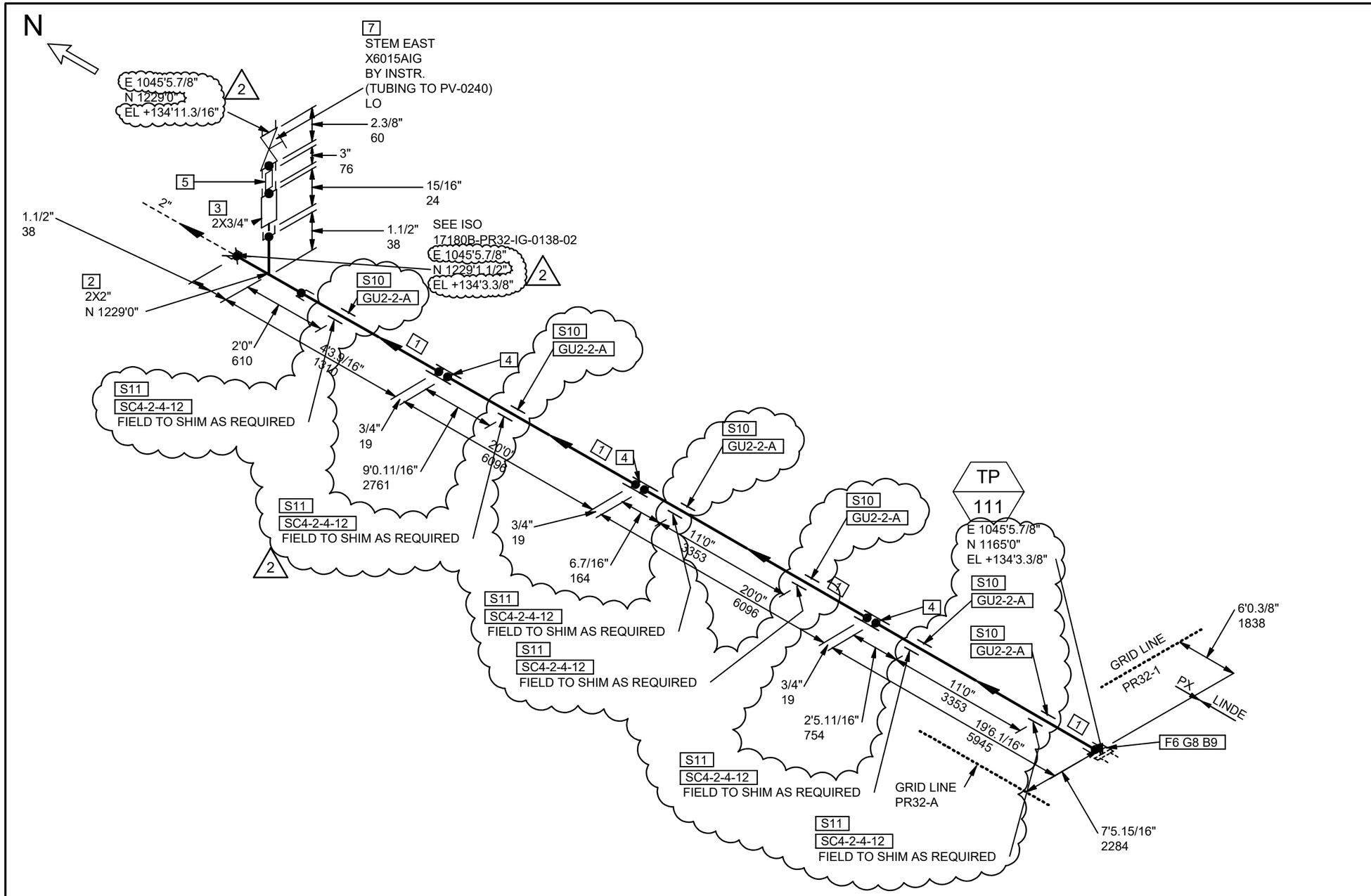
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-CA90-PG-V696-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	63.7'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	1
3	Red. Insert , MSS-SP-79, Type 2 , CL3000 , SWE x MPE , ASTM A182 Grade F 304/F 304L	2X3/4	1
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
ERECTION			
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
PIPE SUPPORTS			
10	GU2-2-A	2	6
11	SC4-2-4-12	2	6

2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	02/26/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	11/13/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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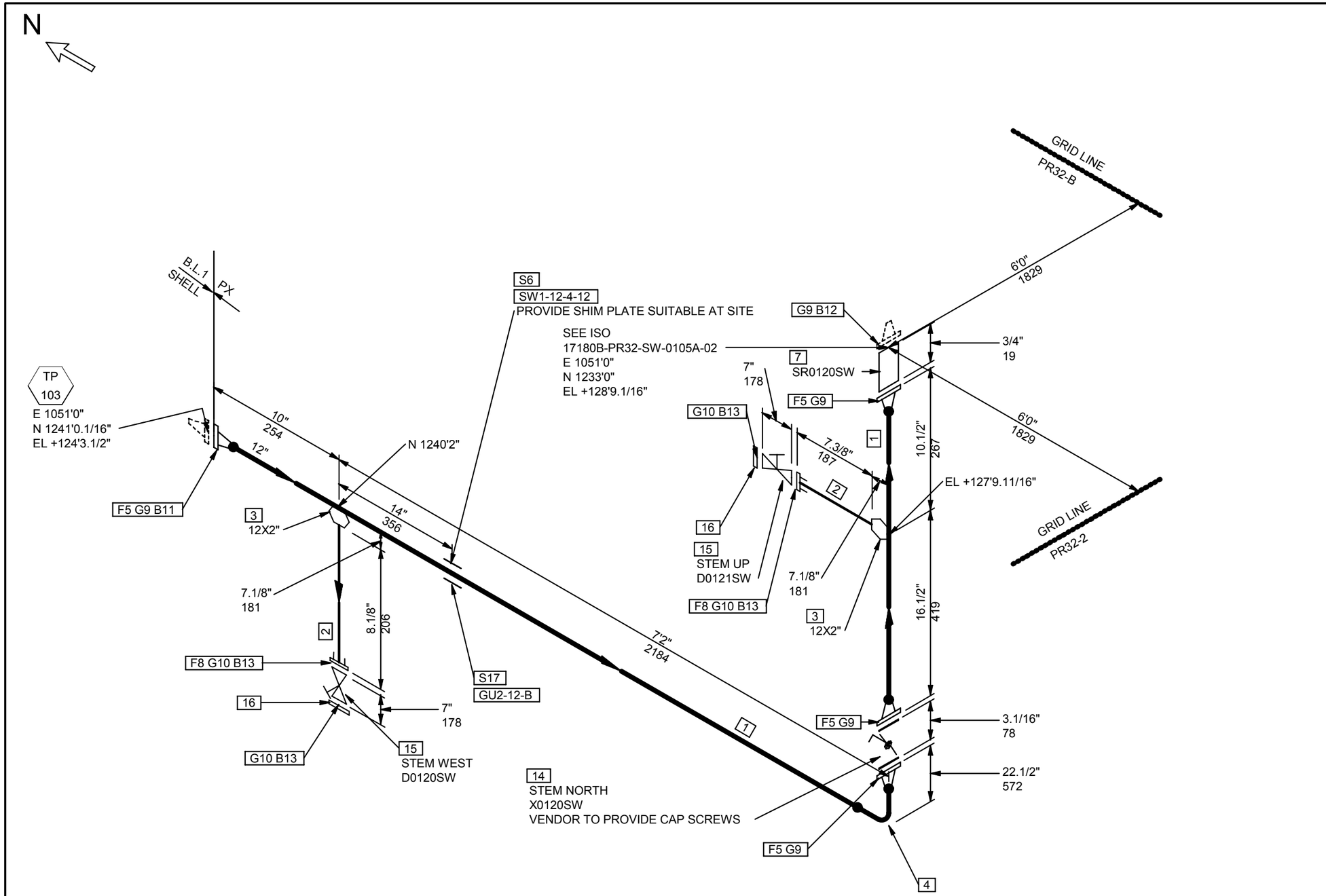
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-IG-0138-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	7.7'
2	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	1.3'
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	4
	PIPE SUPPORTS		
6	SW1-12-4-12	12	1
	ERECTION		
7	Paddle Spacer , ASME B16.48 , CL150 , FFTBE , ASTM A516 Grade 70	12	1
8	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	5
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	4
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.75 in. Length	7/8	12
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	16
14	Bfly Vlv Lugged , API 609 Category A , CL150 , RFLUG , Drive, gear operator , ASTM A126-B , NYLON COATED D.I. DISC, EPDM SEAT, SS STEM, NITRILE PACKING , PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LMC	12	1
15	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	2
16	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
	PIPE SUPPORTS		
17	GU2-12-B	12	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	HC 1	INSULATION THICKNESS	1 1/2 in 1
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
0	09/28/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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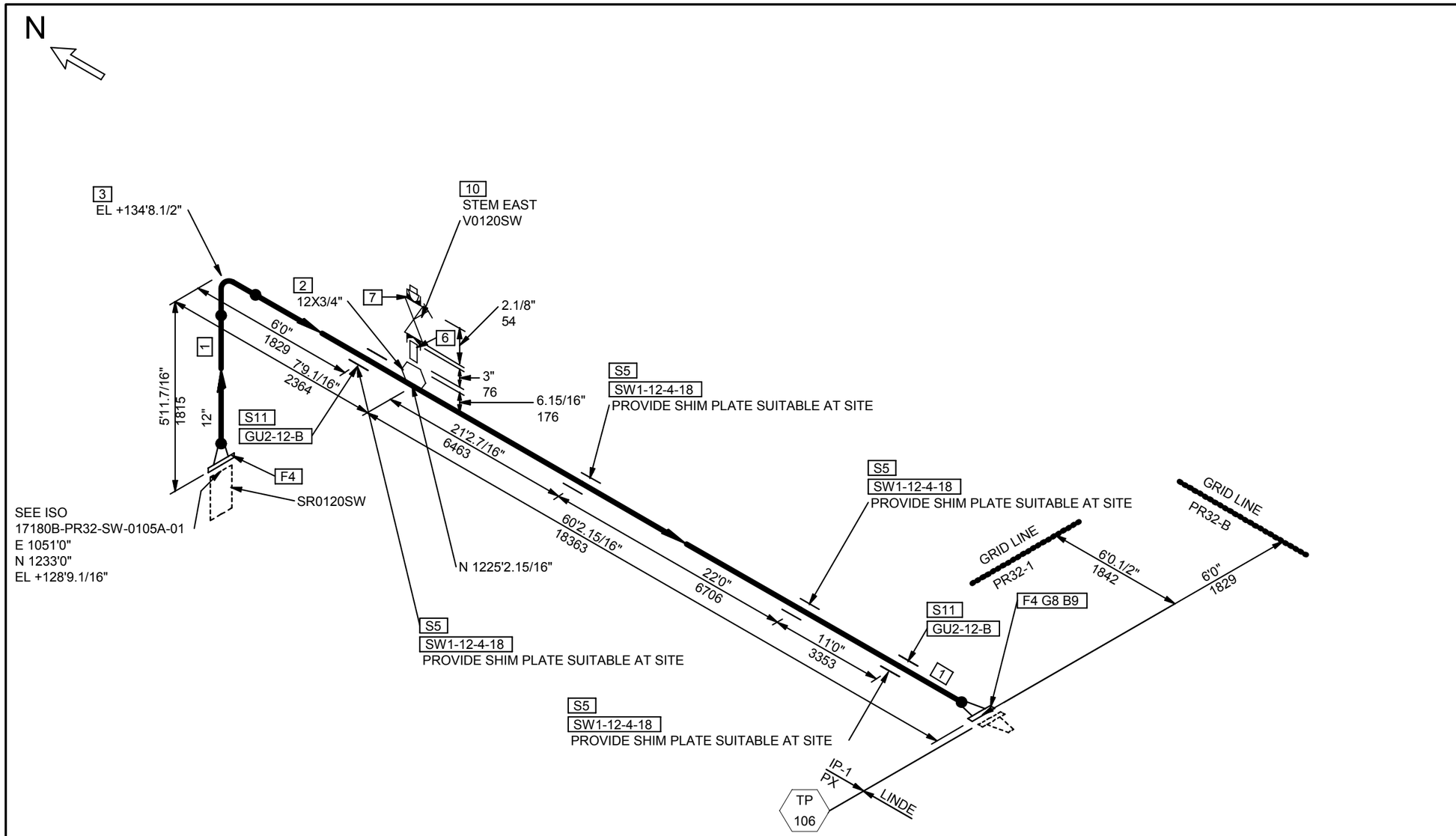
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-SW-0105A-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	70.3'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	2
	PIPE SUPPORTS		
5	SW1-12-4-18	12	4
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
7	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
10	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
11	GU2-12-B	12	2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	1 HCS125U	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 1/2 in 1
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	VT	NNR	MLO
0	09/28/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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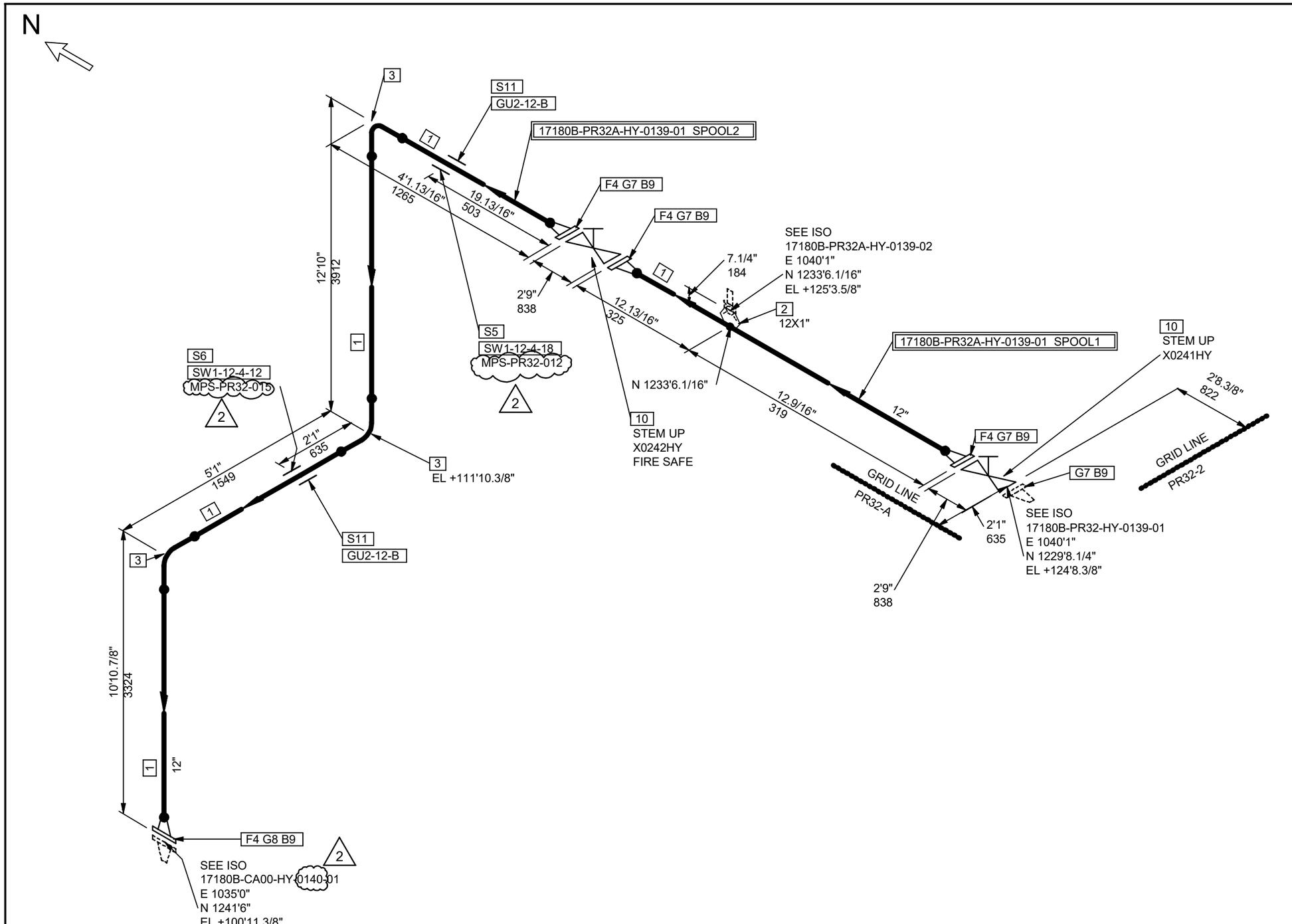
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-SW-0105A-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-60	12	24.0'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	12X1	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-60 , S-60	12	3
4	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	12	4
	PIPE SUPPORTS		
5	SW1-12-4-18	12	1
6	SW1-12-4-12	12	1
	ERECTION		
7	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	12	4
8	Isolation Kit , ASME-B16.5 , CL600 , RF , G-7 Sleeve/Gskt Mat, PTFE Seal , Ins Gskt Kit per Detail # HMP-116	12	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 9 in. Length	1.1/4	100
10	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Bevel Gear Operator , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	12	2
	PIPE SUPPORTS		
11	GU2-12-B	12	2

17180B-PR32A-HY-0139-01_SPOOL1 17180B-PR32A-HY-0139-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
1	10/23/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	10/19/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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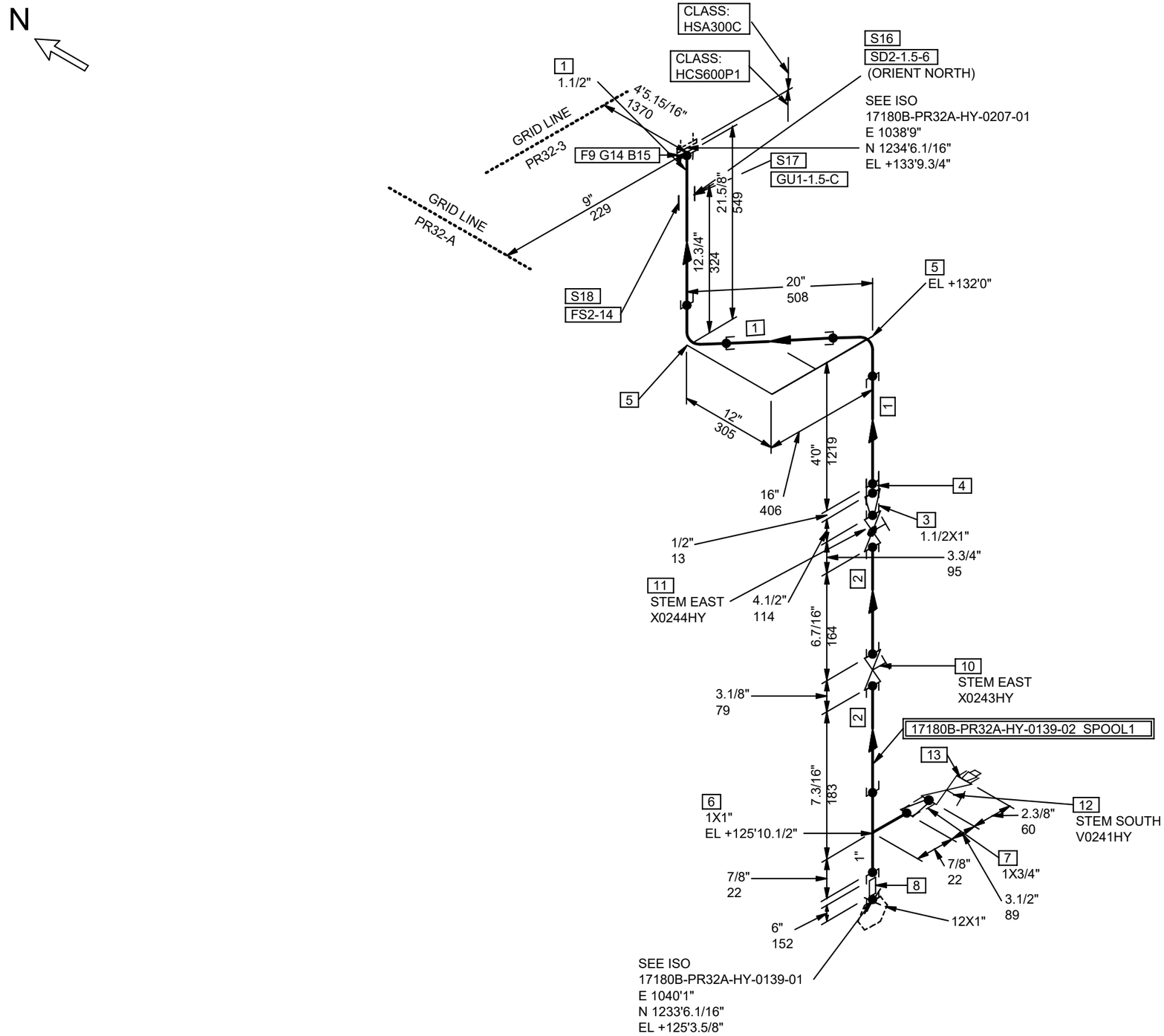
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32A-HY-0139-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1.1/2	7.0'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.1'
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1.1/2X1	1
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	1.1/2	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1.1/2	2
6	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	1X1	1
7	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1X3/4	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
9	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1.1/2	1
10	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAD	1	1
11	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T8SAD	1	1
12	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1.1/2	1
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	4
	PIPE SUPPORTS		
16	SD2-1.5-6	1.1/2	1
17	GU1-1.5-C	1.1/2	1
18	FS2-14	1.1/2	1

17180B-PR32A-HY-0139-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/23/2019	ISSUED FOR CONSTRUCTION	RR	AA	MLO

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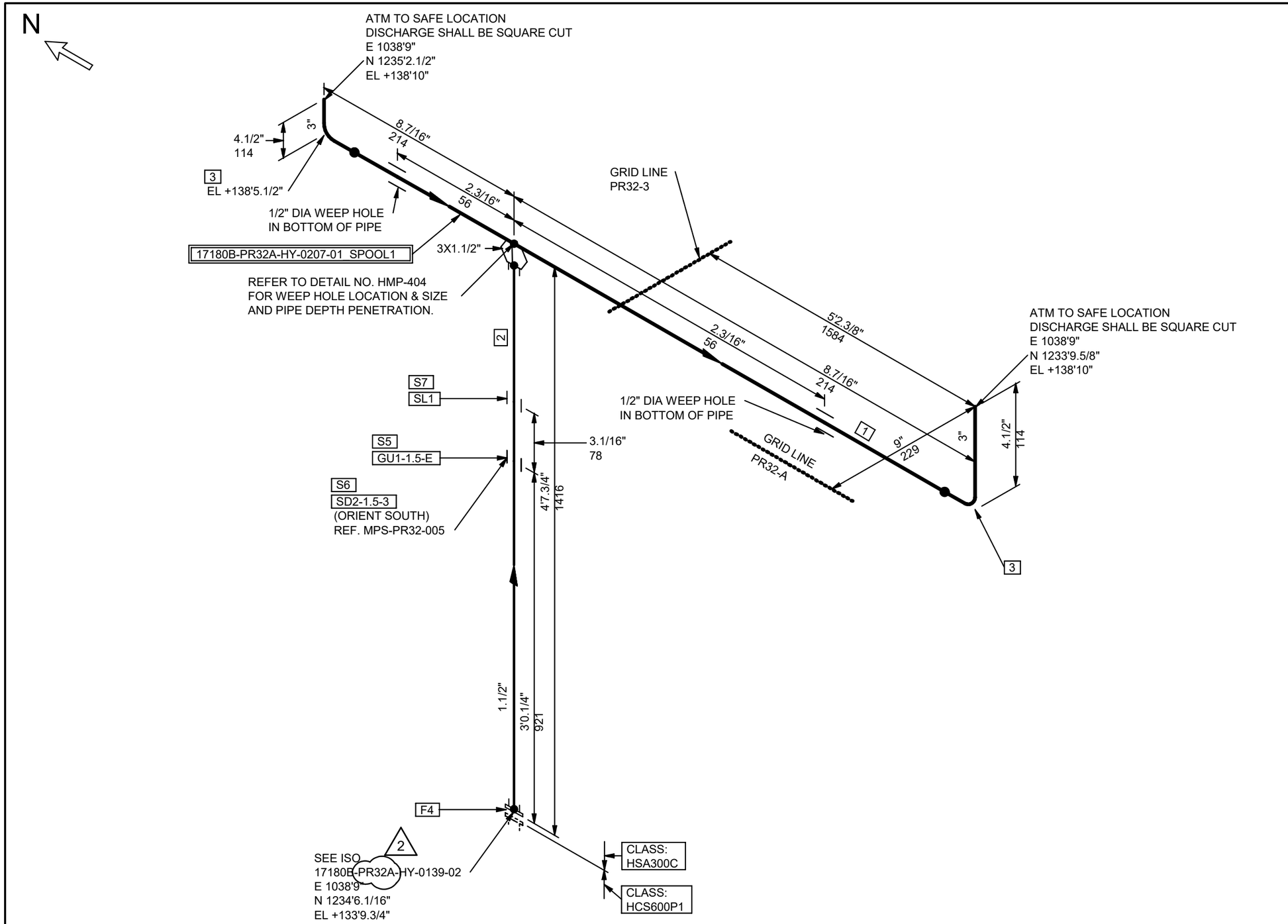
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32A-HY-0139-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-40S	3	0.7'
2	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	1.1/2	4.4'
3	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-40S , S-40S	3	2
4	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 304/F 304L , S-40S	1.1/2	1
ERECTION			
PIPE SUPPORTS			
5	GU1-1.5-E	1.1/2	1
6	SD2-1.5-3	1.1/2	1
7	SL1	1.1/2	1

17180B-PR32A-HY-0207-01_SPOOL1

LEGEND:

- ● = SHOP WELD
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- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0204		
PIPE SPEC	HSA300C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	10/23/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
1	10/19/2019	ISSUED AS MARKED	SRS	NNR	MLO
0	09/25/2019	ISSUED FOR CONSTUCTION	SST	NNR	MLO

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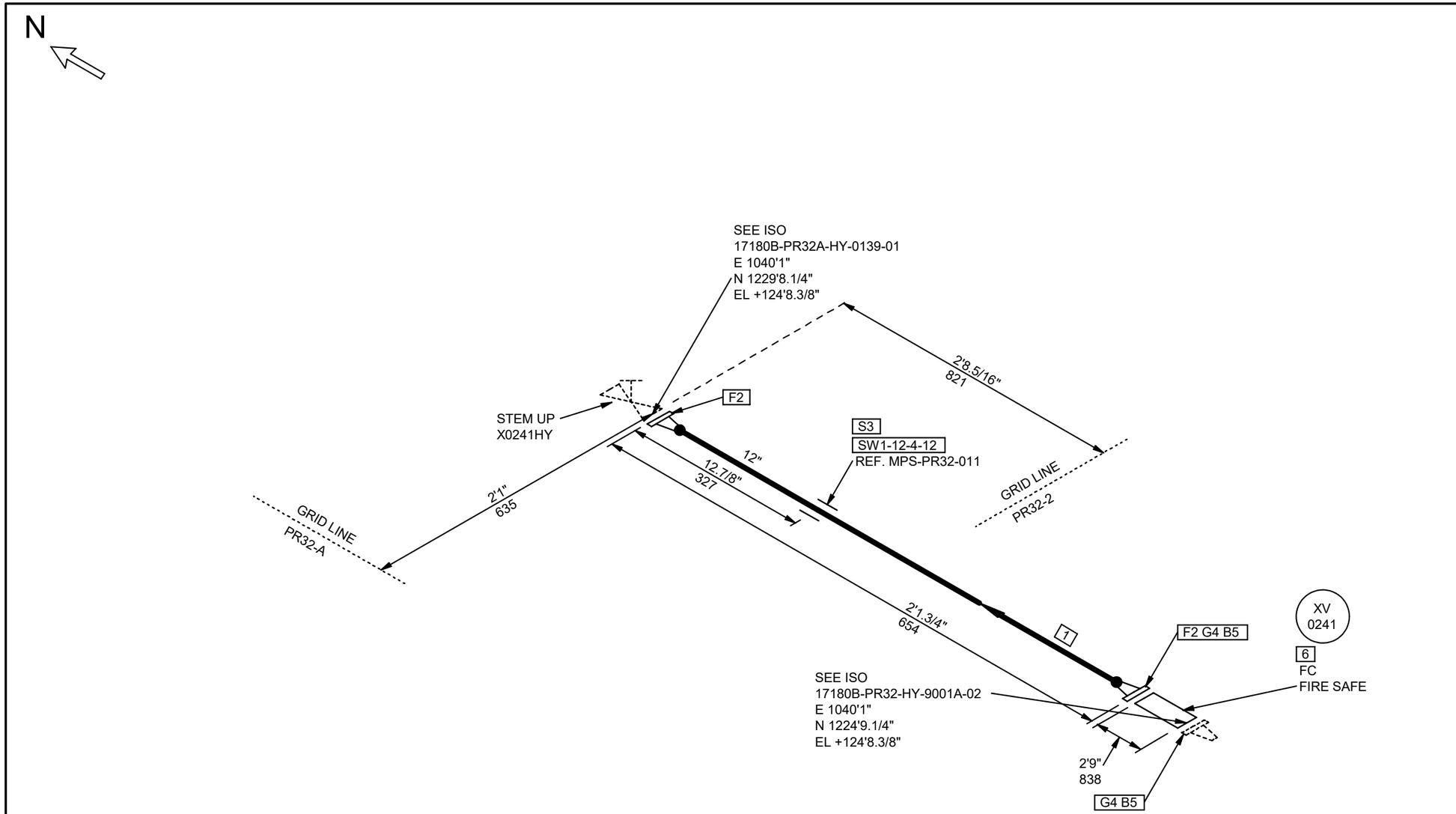
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32A-HY-0207-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-60	12	1.1'
2	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	12	2
	PIPE SUPPORTS		
3	SW1-12-4-12	12	1
	ERECTION		
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	12	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 9 in. Length	1.1/4	40
	INSTRUMENTS		
6	XV-0241	12	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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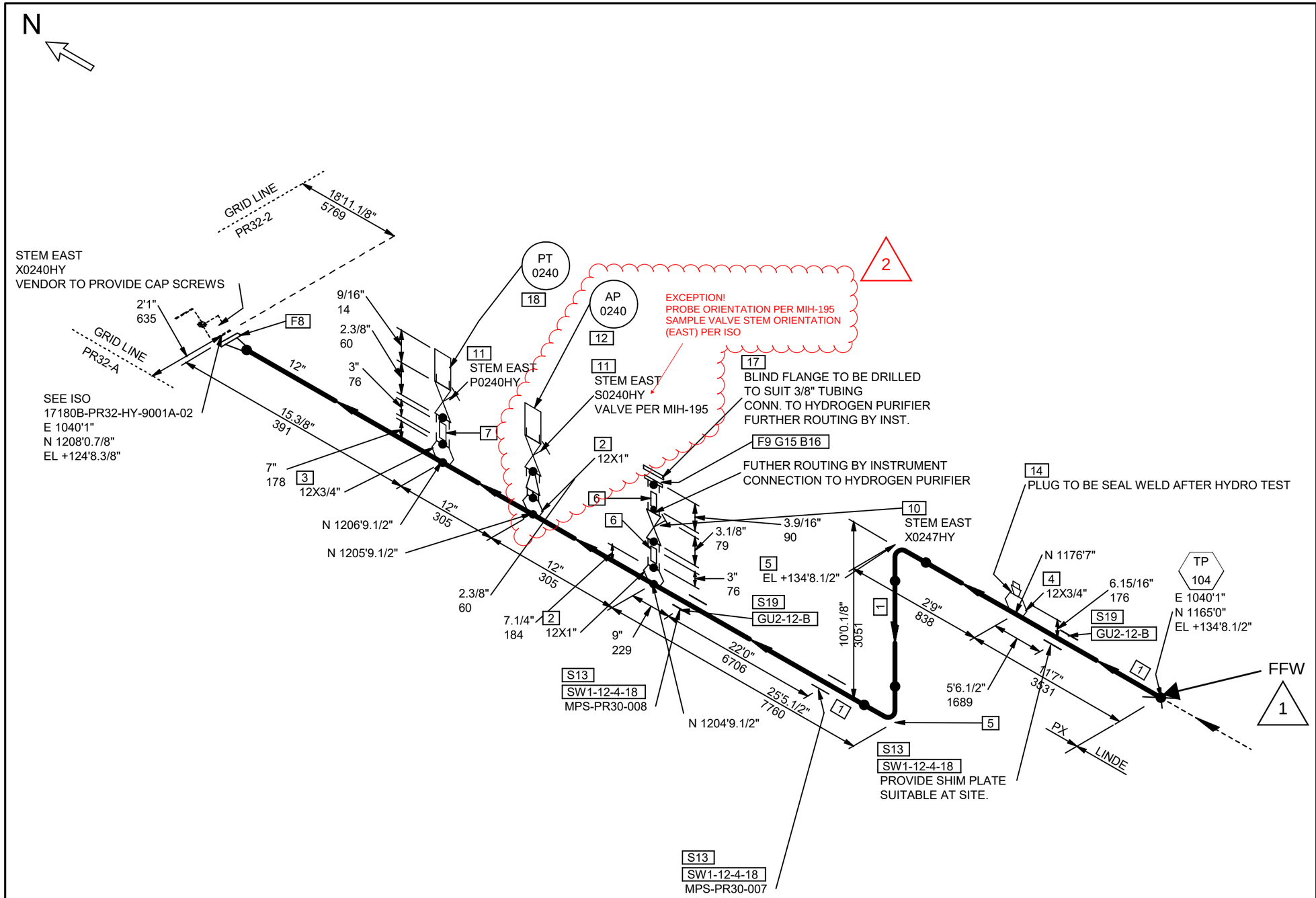
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR32-HY-0139-01
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-60	12	46.6'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	12X1	2
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	12X3/4	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-60 , S-60	12	2
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	1	2
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	12	1
9	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
10	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAD	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	INSTRUMENTS		
12	AP-0240	3/4	1
	PIPE SUPPORTS		
13	SW1-12-4-18	12	3
	ERECTION		
14	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
15	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
17	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A105N	1	1
	INSTRUMENTS		
18	PT-0240	3/4	1
	PIPE SUPPORTS		
19	GU2-12-B	12	2

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

06/30/2020

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	06/30/2020	ADDED NOTE TO SAMPLE VALVE S0240HY			
1	04/02/2020	ADDED FFW			
0	10/19/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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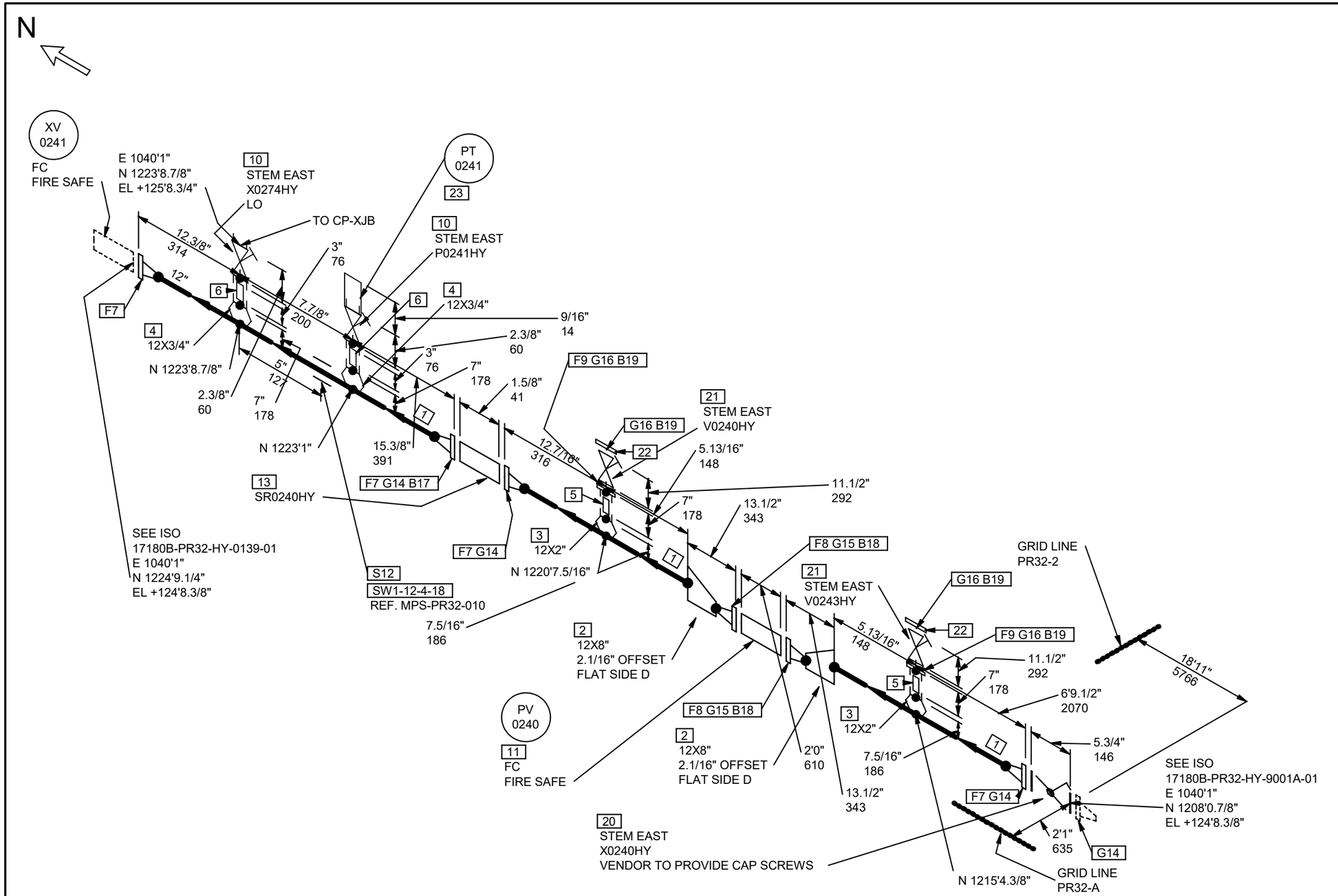
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-HY-9001A-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-60	12	9.7'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-60 , S-60	12X8	2
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	12X2	2
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	12X3/4	2
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	2	2
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
7	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	12	4
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	8	2
9	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	2
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	INSTRUMENTS		
11	PV-0240	8	1
	PIPE SUPPORTS		
12	SW1-12-4-18	12	1
	ERECTION		
13	Paddle Spacer , ASME B16.48 , CL600 , FFTBE , ASTM A516 Grade 70	12	1
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	12	4
15	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	2
16	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	4
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 10.75 in. Length	1.1/4	20
18	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.5 in. Length	1.1/8	24
19	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	32
20	Bfly Vlv Lugged , API 609 Category B , CL600 , RFLUG , Drive, gear operator , ASTM A216-WCB , AISI 316 SS Trim , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W6LAB	12	1
21	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	2
22	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A105N	2	2
	INSTRUMENTS		
23	PT-0241	3/4	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0204		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/19/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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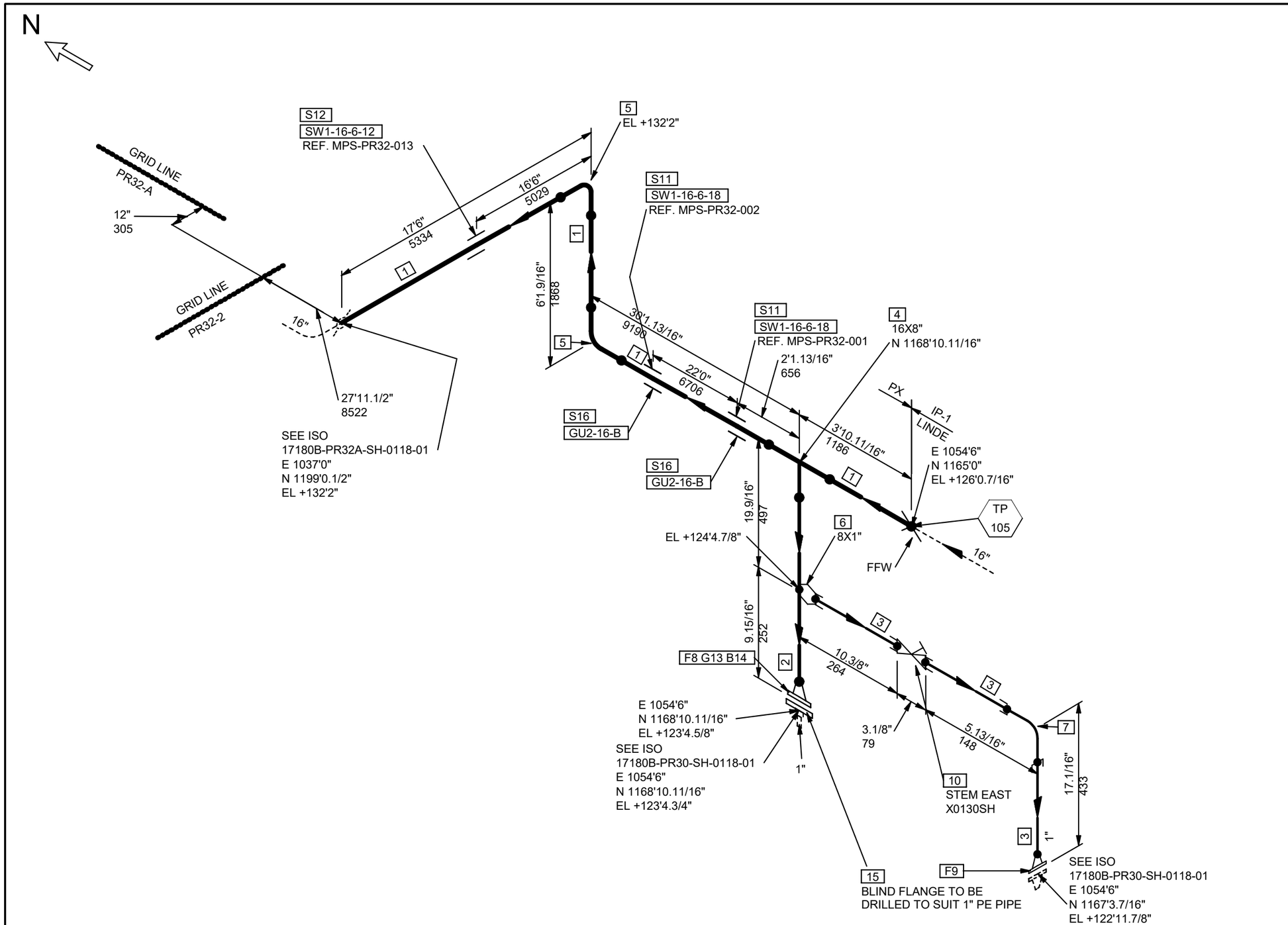
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-HY-9001A-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-80	16	48.0'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-80	8	1.2'
3	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	2.0'
4	Red. Tee , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	16X8	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	16	2
6	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	8X1	1
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	8	1
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
10	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAD	1	1
	PIPE SUPPORTS		
11	SW1-16-6-18	16	2
12	SW1-16-6-12	16	1
	ERECTION		
13	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
14	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
15	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A105N	8	1
	PIPE SUPPORTS		
16	GU2-16-B	16	2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS600P4X	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	4 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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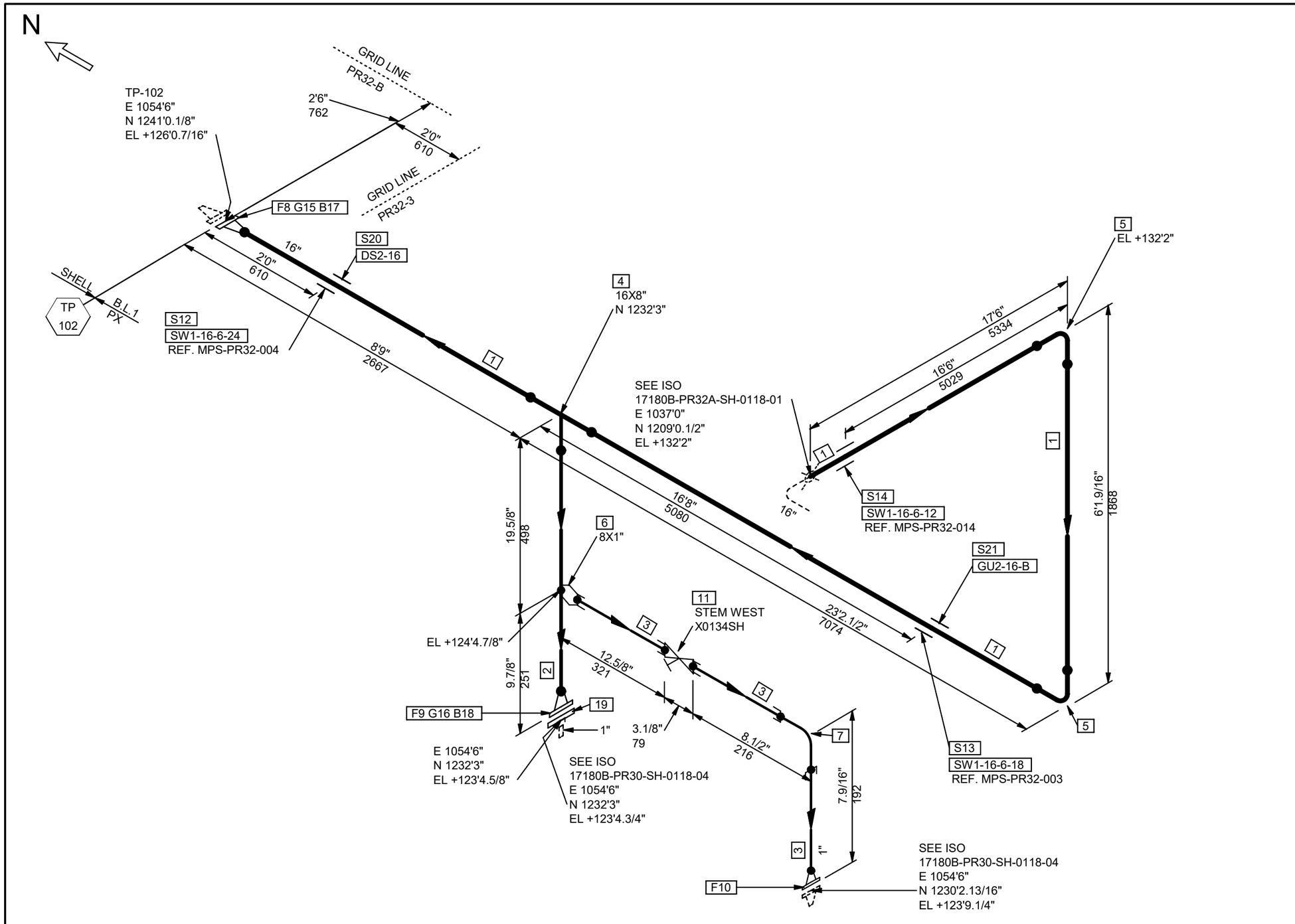
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-SH-0118-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-80	16	45.0'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-80	8	1.2'
3	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.6'
4	Red. Tee , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	16X8	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-80 , S-80	16	2
6	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	8X1	1
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A350 Grade LF2 Class 1 , S-80	16	1
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	8	1
10	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
11	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAD	1	1
	PIPE SUPPORTS		
12	SW1-16-6-24	16	1
13	SW1-16-6-18	16	1
14	SW1-16-6-12	16	1
	ERECTION		
15	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	16	1
16	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
17	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 10.25 in. Length	1.1/2	20
18	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
19	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A105N	8	1
	PIPE SUPPORTS		
20	DS2-16	16	1
21	GU2-16-B	16	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS600P4X	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	4 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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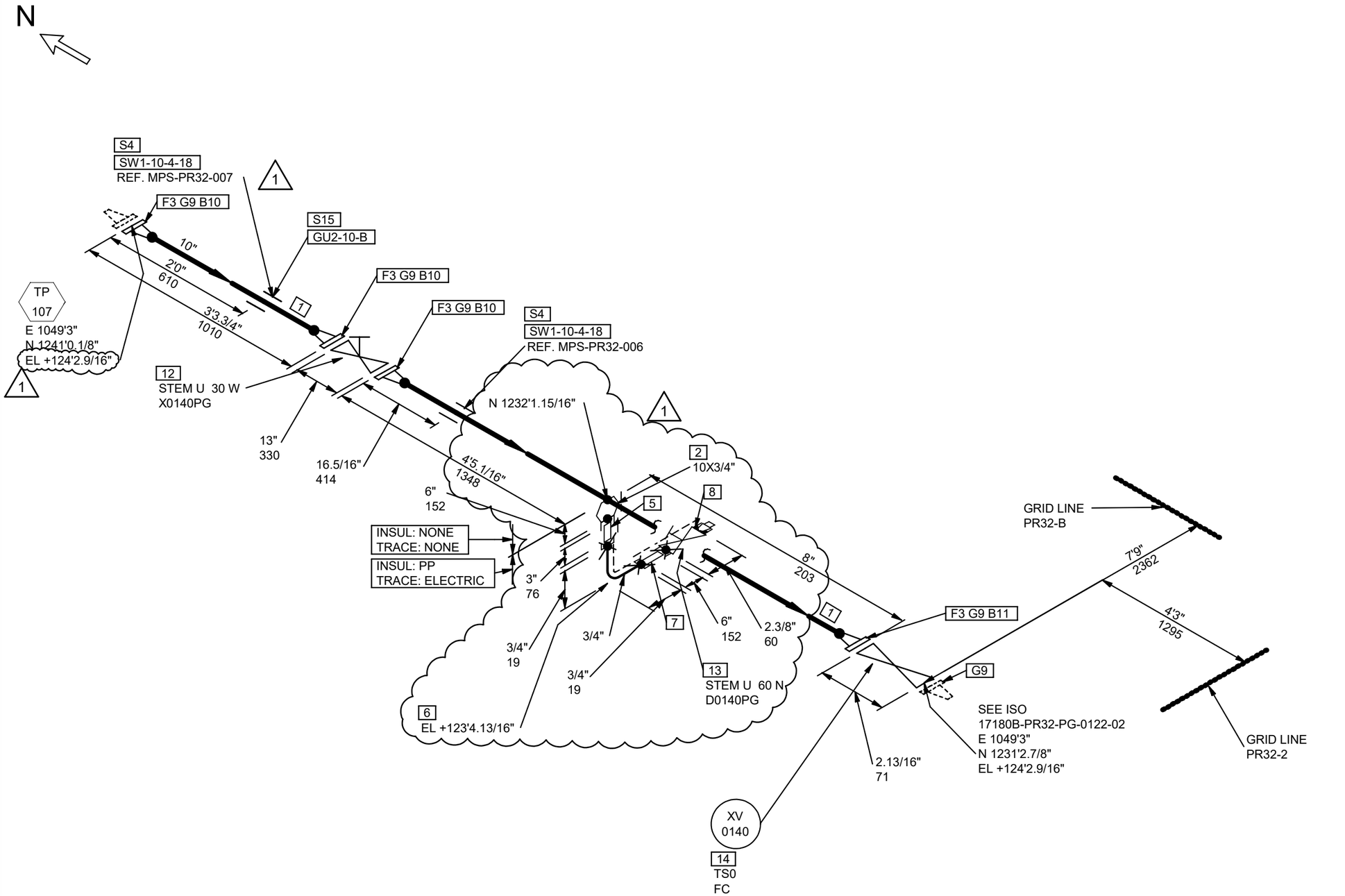
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-SH-0118-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-STD	10	7.1'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	4
	PIPE SUPPORTS		
4	SW1-10-4-18	10	2
	ERECTION		
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	3/4	1
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
9	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	5
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	36
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.75 in. Length	7/8	12
12	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	10	1
13	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	INSTRUMENTS		
14	XV-0140	10	1
	PIPE SUPPORTS		
15	GU2-10-B	10	1

LEGEND:

- ● = SHOP WELD
- ⊠ = FIELD WELD
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/20/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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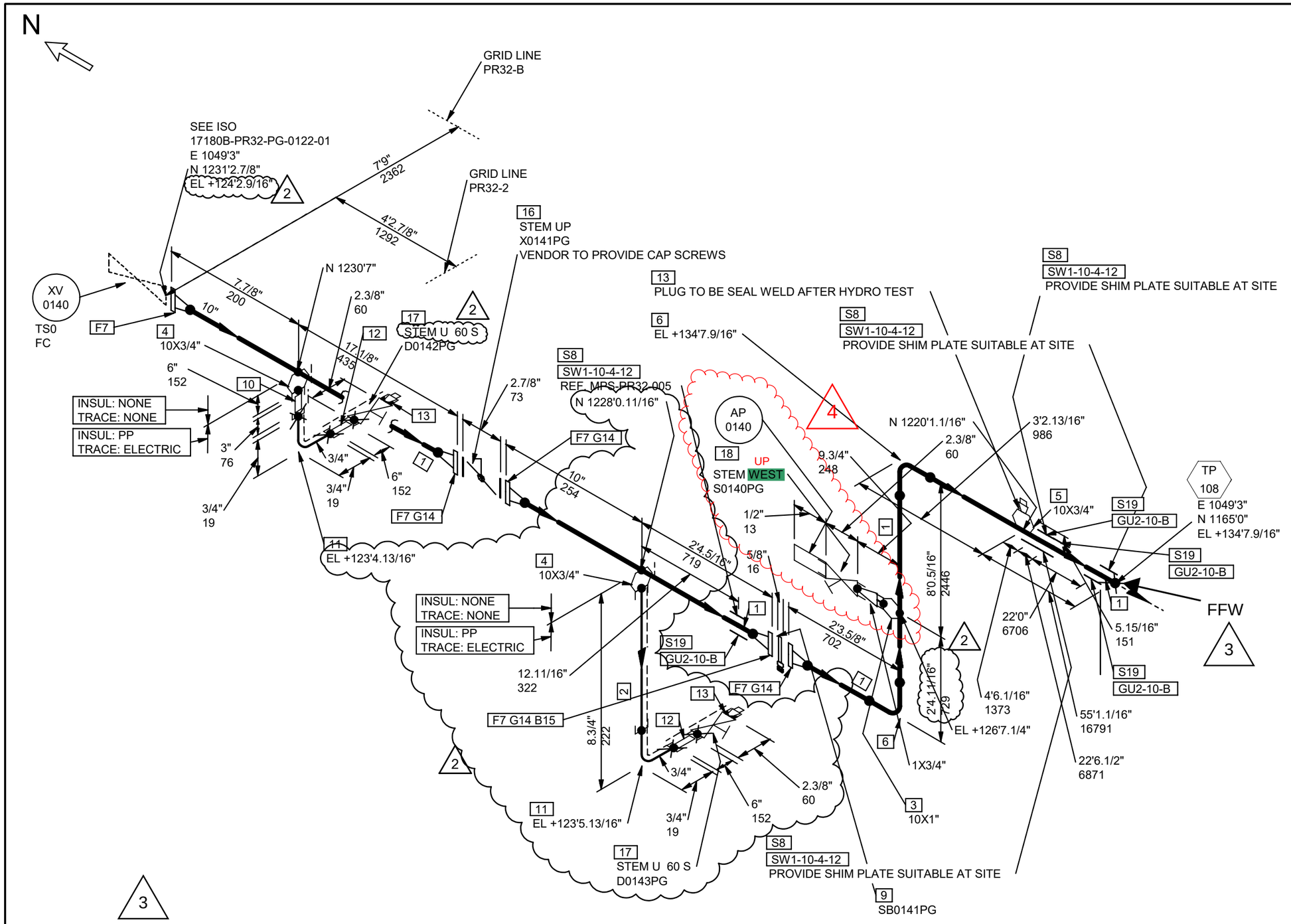
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-PG-0122-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS Ej=1.00 , S-STD	10	69.7'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS Ej=1.00 , S-80	3/4	0.2'
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X1	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	2
5	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	10X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD , S-STD	10	2
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	10	5
	PIPE SUPPORTS		
8	SW1-10-4-12	10	4
	ERECTION		
9	Fig-8 Blank , ASME B16.48 , CL150 , FFTBE , ASTM A516 Grade 70	10	1
10	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
11	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	3/4	2
12	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	3
14	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	4
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.5 in. Length	7/8	12
16	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , 316 SS/GRAPHITE SEAL , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAB	10	1
17	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	INSTRUMENTS		
18	AP-0140	3/4	1
	PIPE SUPPORTS		
19	GU2-10-B	10	4

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

06/30/2020

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Contractor to confirm pipe schedules at tie-in points and taper bore as required.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
4	06/30/2020	REVISED S0140PG VALVE STEM ORIENTATION			
3	04/02/2020	ADDED TAPER BORE REQUIREMENT AND FFW			
2	02/20/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	10/22/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	10/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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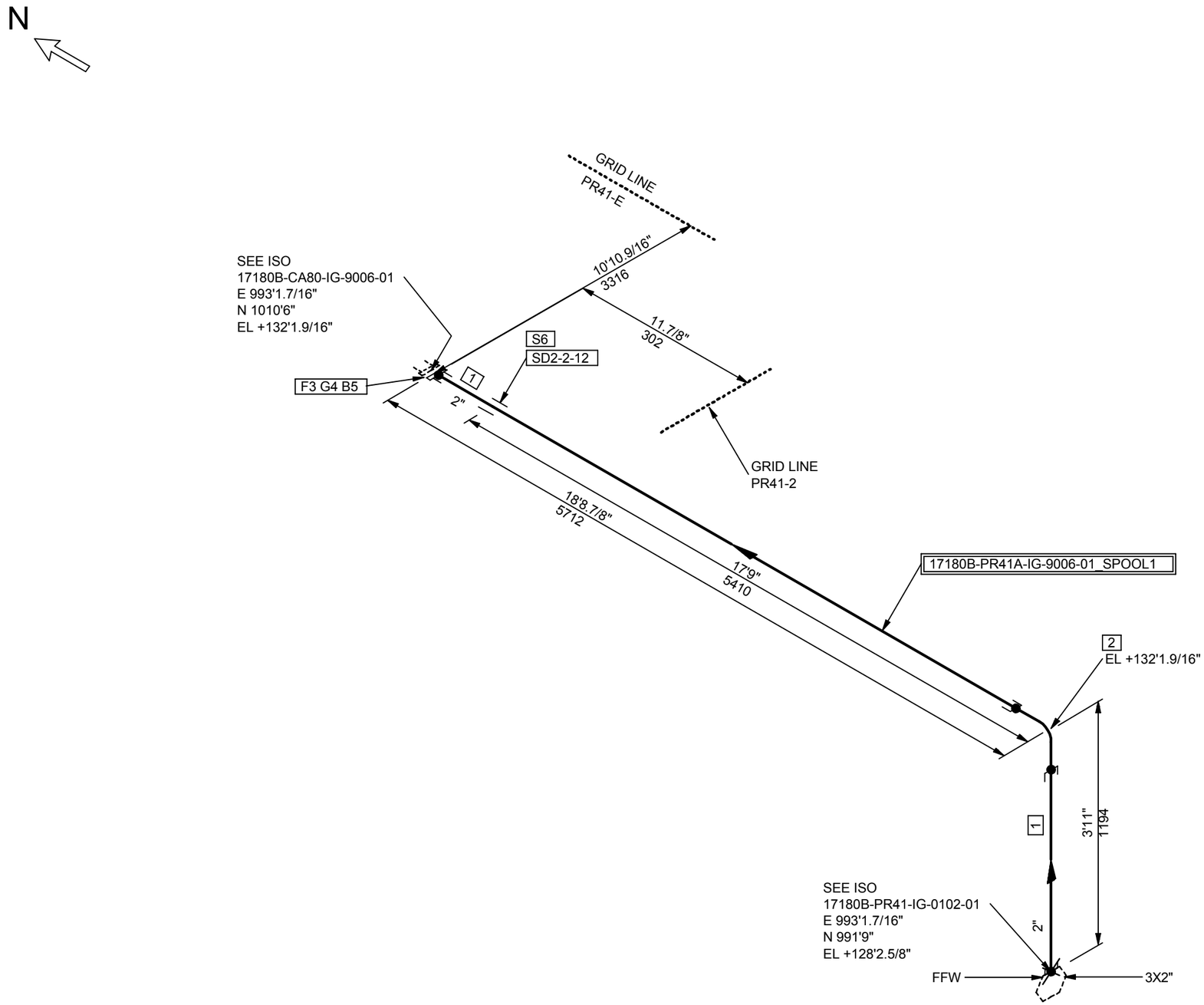
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR32-PG-0122-02	REV: 4

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	22.8'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
4	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
PIPE SUPPORTS			
6	SD2-2-12	2	1

17180B-PR41A-IG-9006-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/25/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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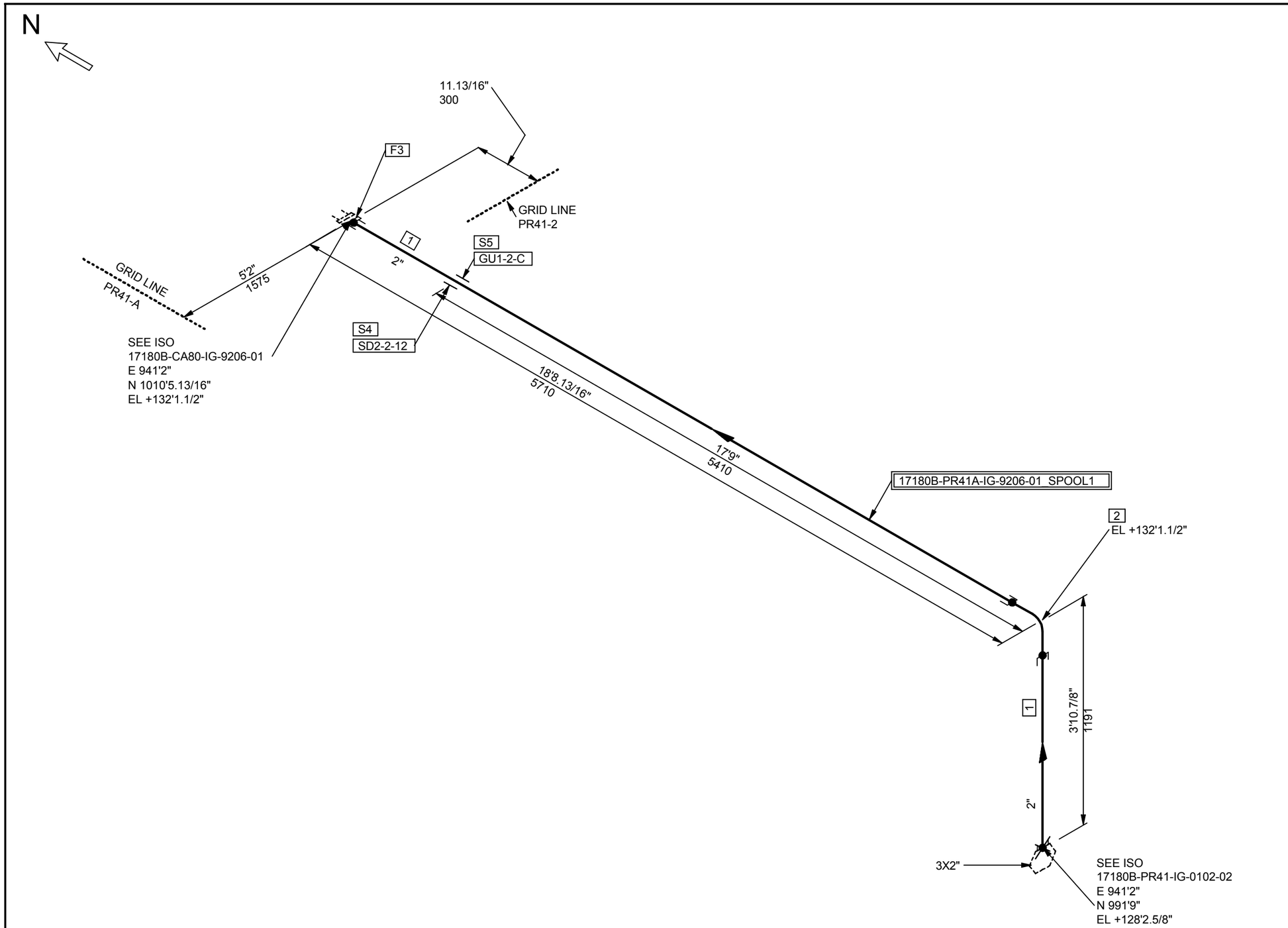
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-IG-9006-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	22.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1
5	GU1-2-C	2	1

17180B-PR41A-IG-9206-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

IHI

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15377 Memorial Drive
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Tel 713.270.3100

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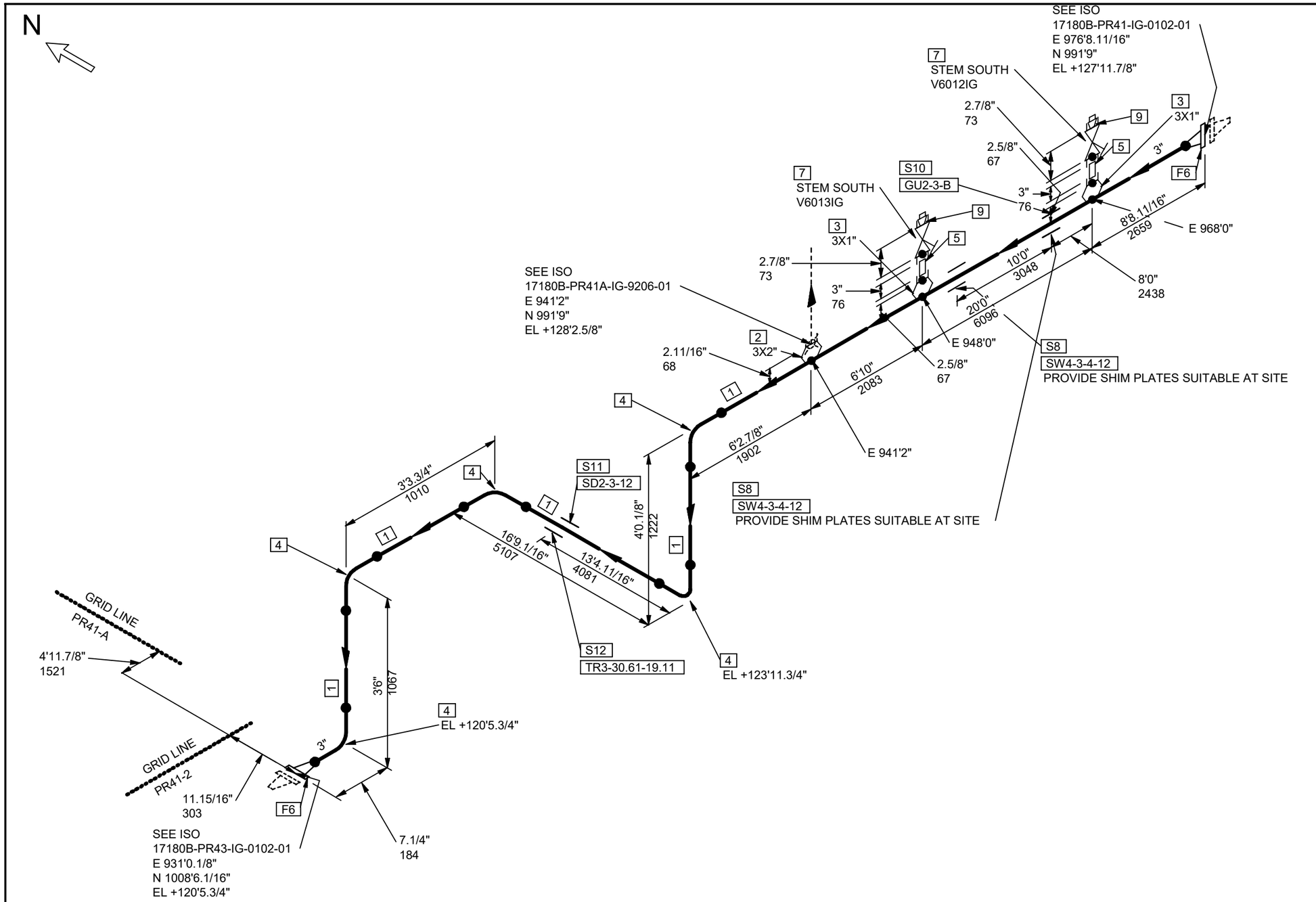
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-IG-9206-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	3	65.8'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3X2	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3X1	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	3	5
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	1	2
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	3	2
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1	2
	PIPE SUPPORTS		
8	SW4-3-4-12	3	2
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1	2
	PIPE SUPPORTS		
10	GU2-3-B	3	1
11	SD2-3-12	3	1
12	TR3-30.61-19.11	3	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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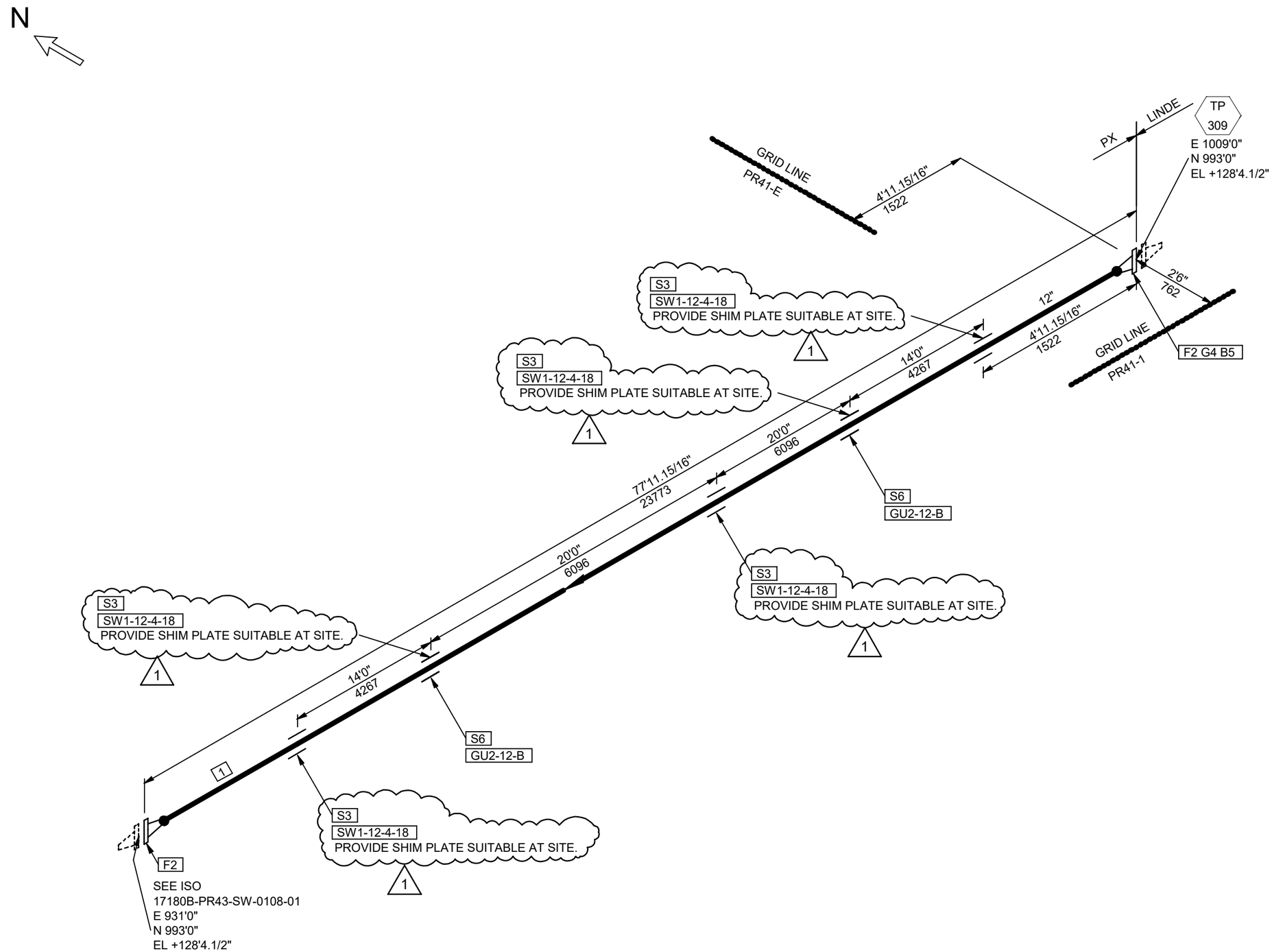
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-IG-0102-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	77.3'
2	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	2
	PIPE SUPPORTS		
3	SW1-12-4-18	12	5
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
	PIPE SUPPORTS		
6	GU2-12-B	12	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	MMD	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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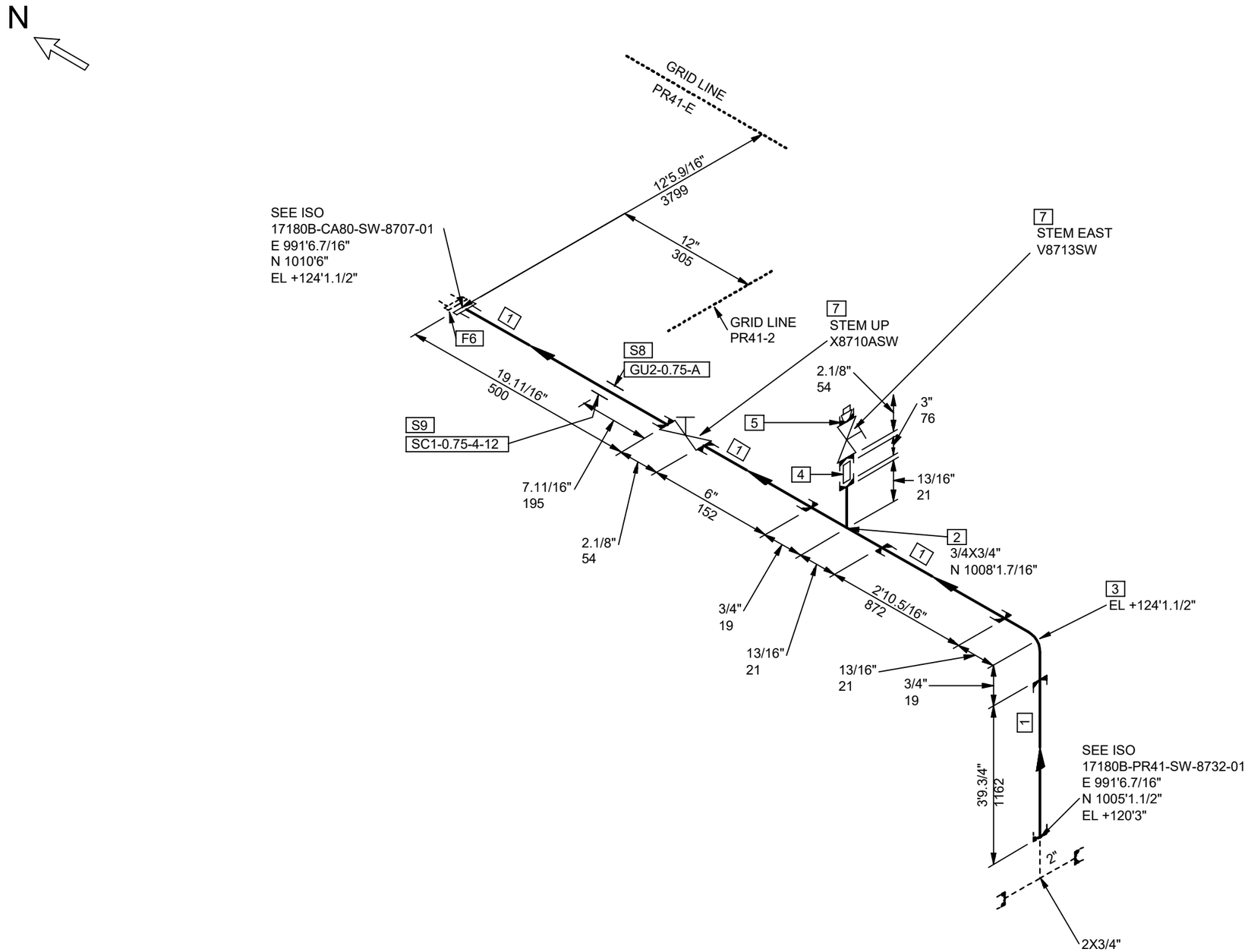
PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SW-0108-01		REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	8.9'
	ERECTION		
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
3	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
4	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
5	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
7	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
	PIPE SUPPORTS		
8	GU2-0.75-A	3/4	1
9	SC1-0.75-4-12	3/4	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/17/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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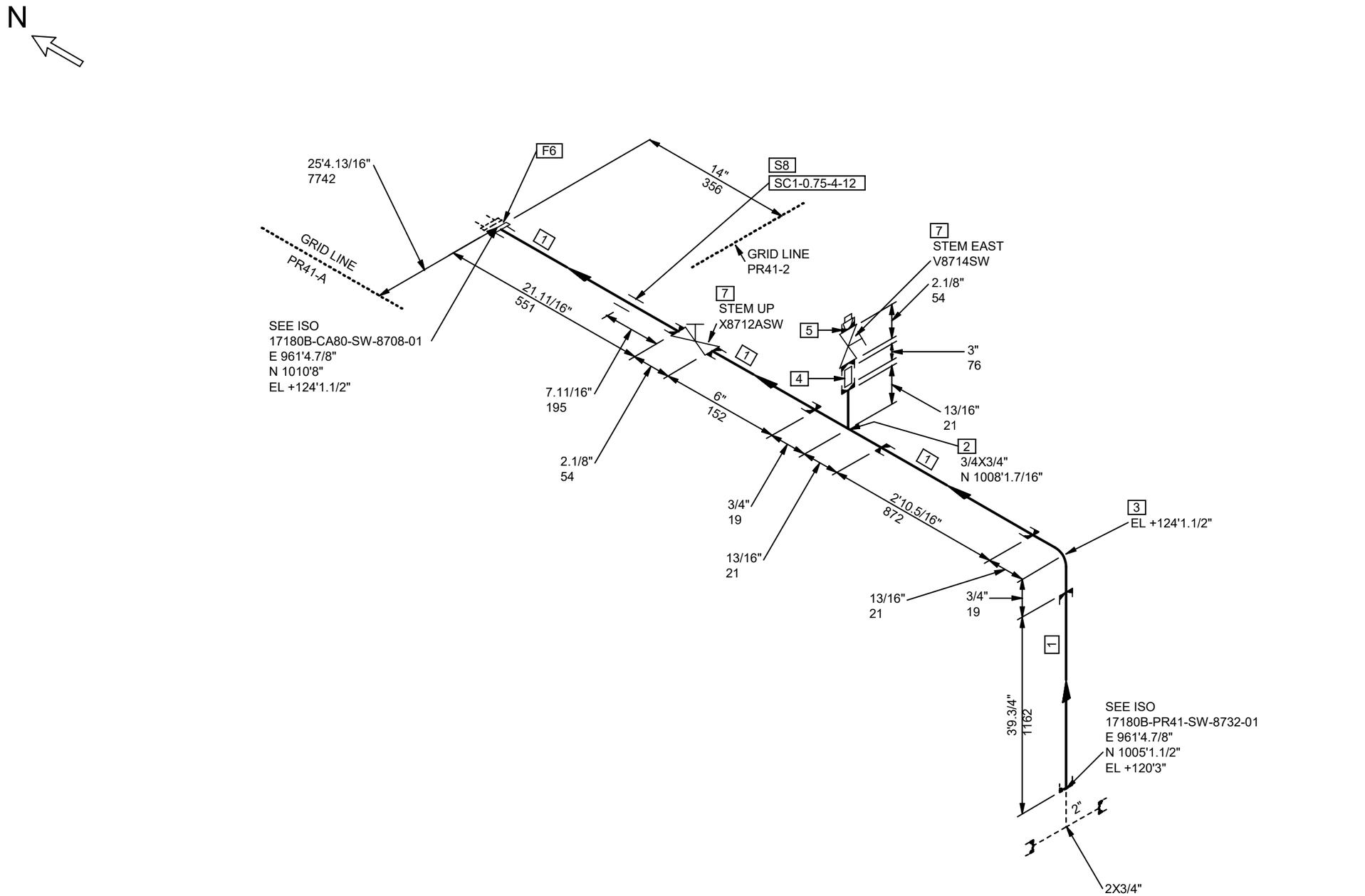
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SW-8707-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	9.0'
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
3	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
4	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
5	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
7	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
	PIPE SUPPORTS		
8	SC1-0.75-4-12	3/4	1

LEGEND:

- ● = SHOP WELD
- ⋇ = FIELD WELD
- ⋇ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/02/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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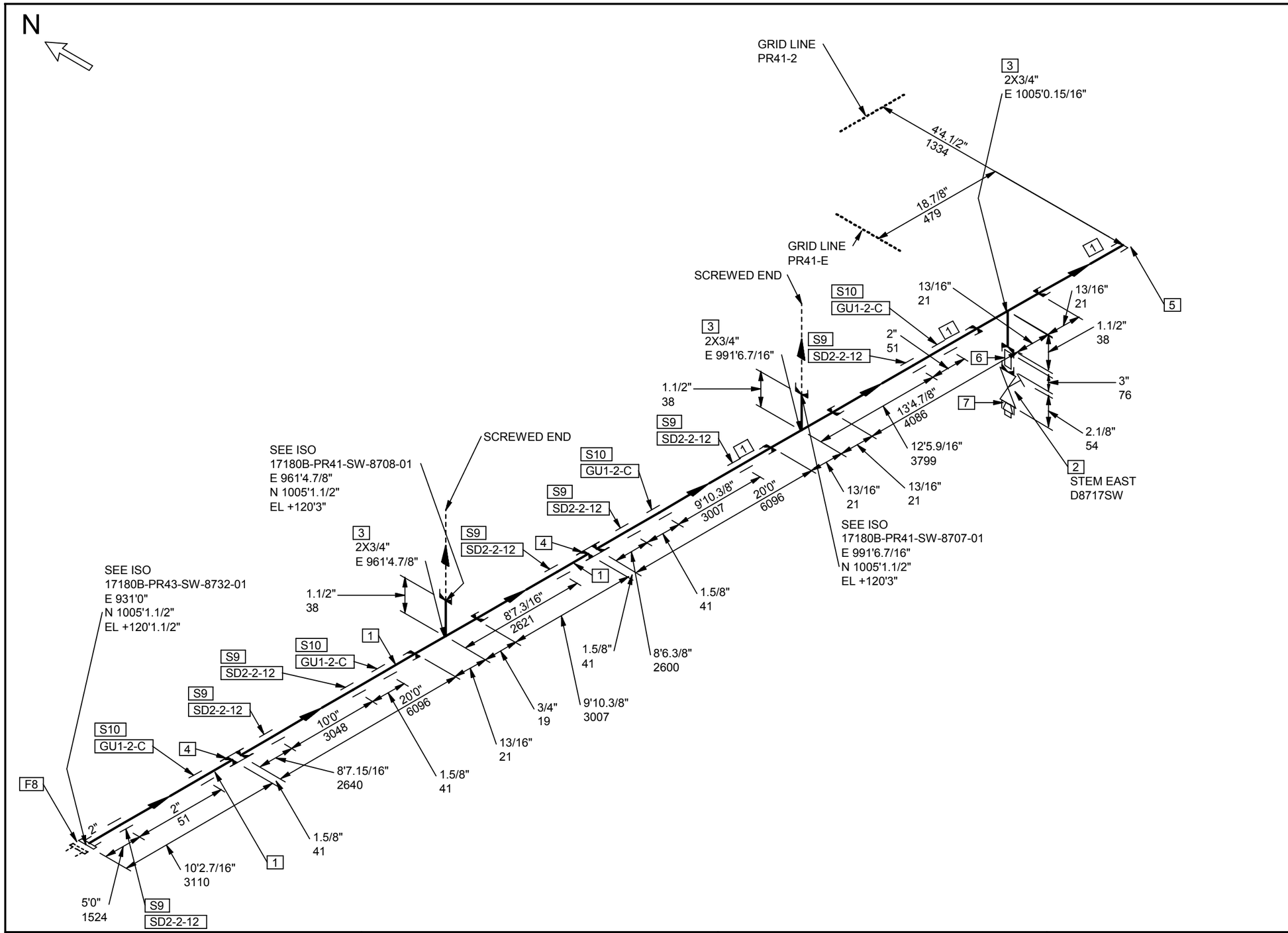
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SW-8708-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	73.9'
2	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	ERECTION		
3	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	2X3/4	3
4	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
5	Cap , ASME B16.3 , CL300 , FTE , ASTM A197 -	2	1
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
7	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
8	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
9	SD2-2-12	2	7
10	GU1-2-C	2	4

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-3001-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/06/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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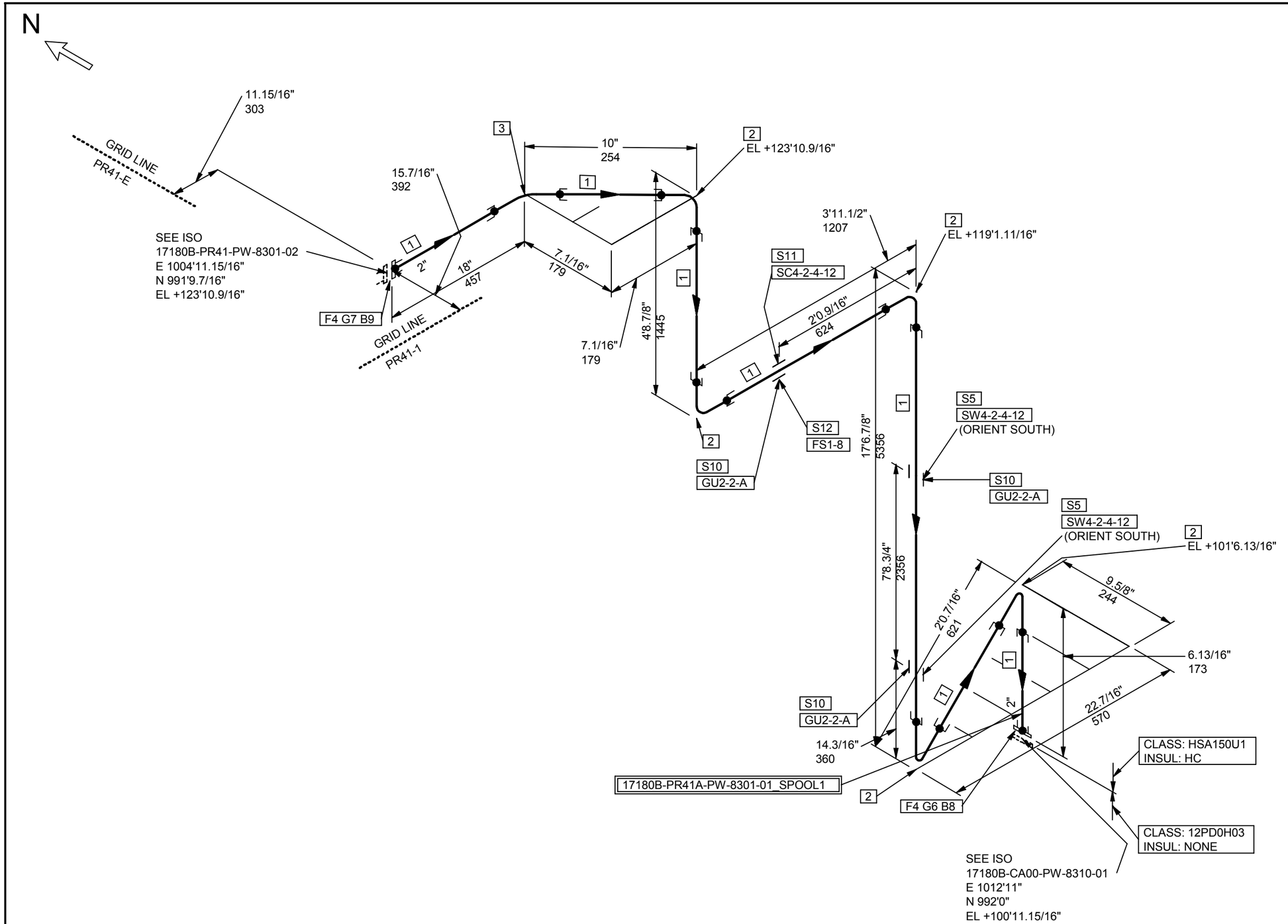
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SW-8732-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	29.8'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	5
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
4	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	2
	PIPE SUPPORTS		
5	SW4-2-4-12	2	2
	ERECTION		
6	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Polytetrafluoroethylene (PTFE) , Garlock Gylon Style 3545, THK 1/8in (3.2 mm), NSF 61 Certified	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts & washers, Xylan 1014 - 3.75 in. Length	5/8	4
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
	PIPE SUPPORTS		
10	GU2-2-A	2	3
11	SC4-2-4-12	2	1
12	FS1-8	2	1

17180B-PR41A-PW-8301-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/23/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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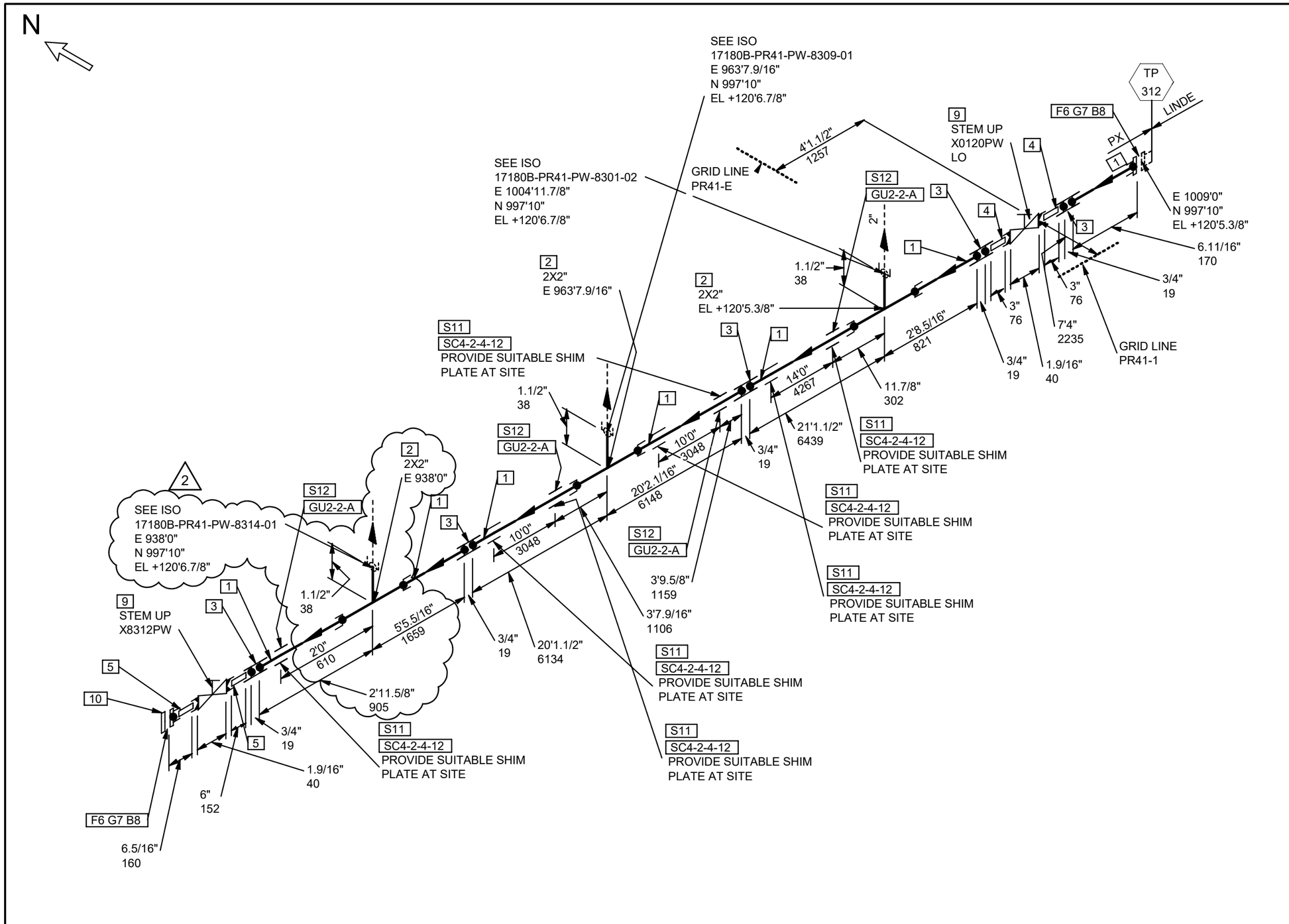
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-PW-8301-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	72.4'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	3
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	5
4	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	2
5	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 6in Long , SMLS , S-80S , S-80S	2	2
6	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	2
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
9	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	2	2
10	Blind Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L	2	1
	PIPE SUPPORTS		
11	SC4-2-4-12	2	7
12	GU2-2-A	2	4

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELL
- ✕ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/02/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	11/12/2019	RE-ISSUED FOR CONSTRUCTION	RBK	NNR	MLO
0	09/23/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

PRAXAIR

IHI

IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LOUISIANA REG. NO. EF.0005116

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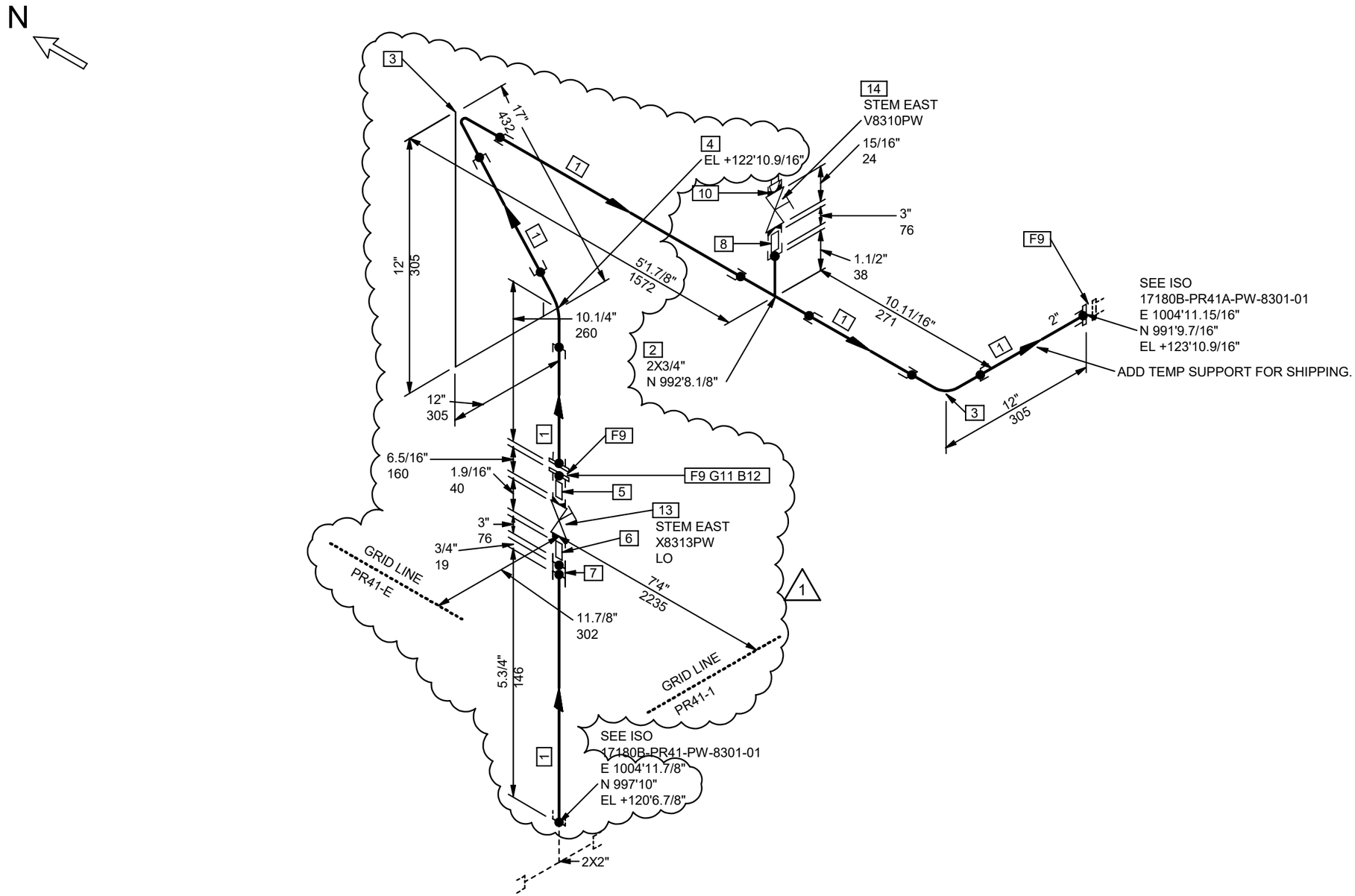
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-PW-8301-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	8.9'
2	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X3/4	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
4	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
5	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 6in Long , SMLS , S-80S , S-80S	2	1
6	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	1
7	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
8	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
9	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	3
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
11	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
13	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	2	1
14	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	3/4	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/23/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	08/02/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

PRAXAIR

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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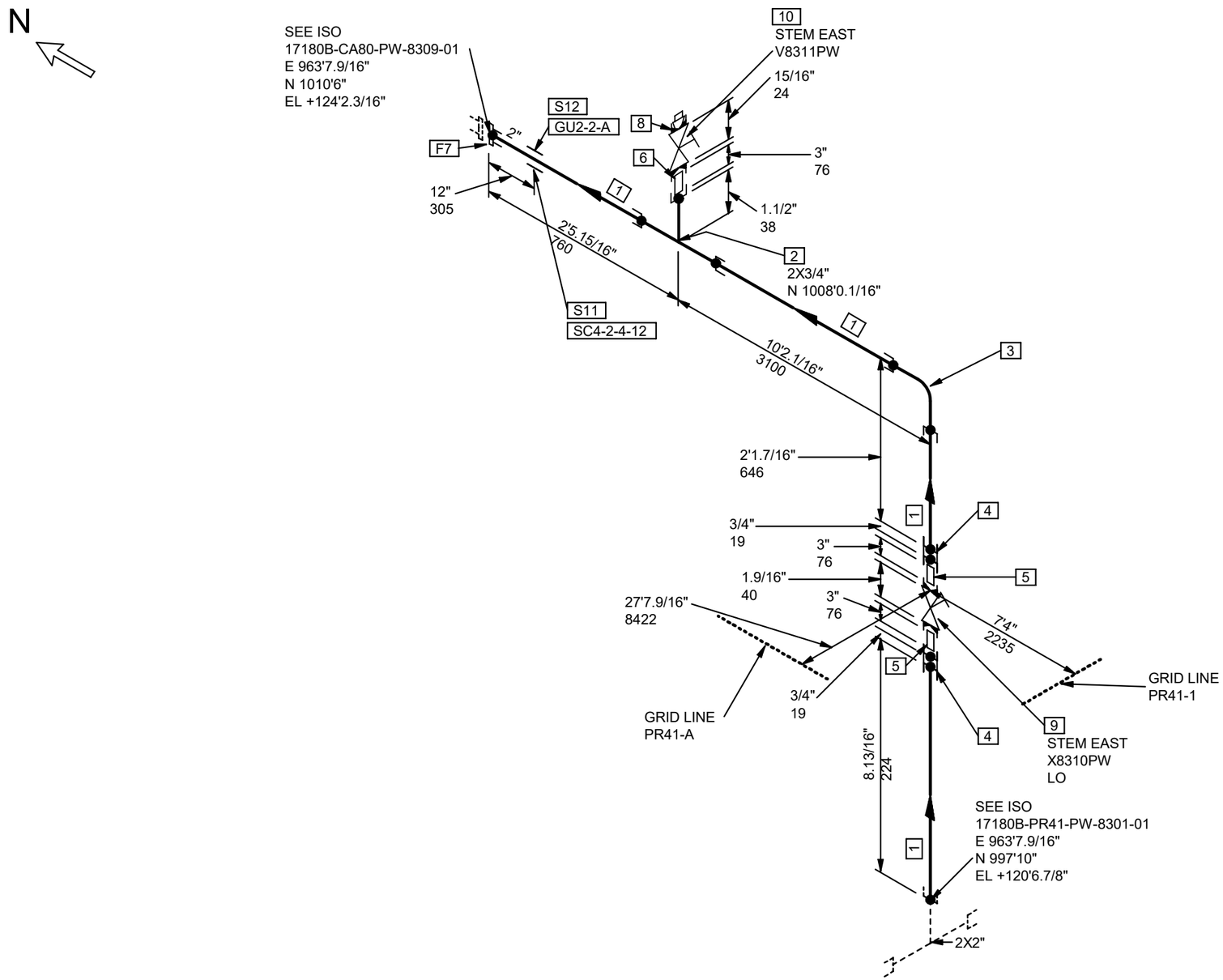
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-PW-8301-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	15.0'
2	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X3/4	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	2
5	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	2	2
6	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
7	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
8	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
9	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	2	1
10	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	3/4	1
PIPE SUPPORTS			
11	SC4-2-4-12	2	1
12	GU2-2-A	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/02/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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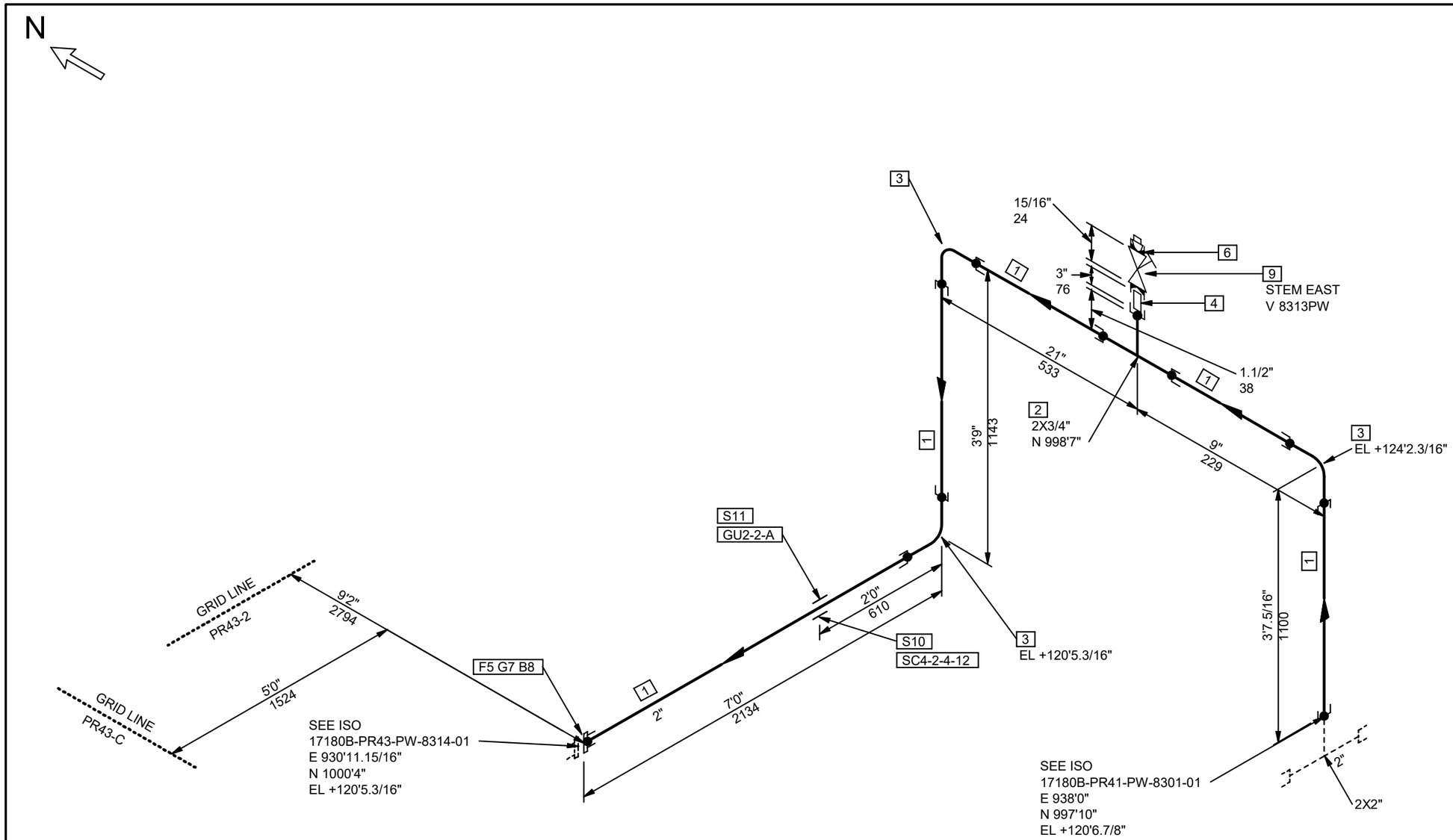
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-PW-8309-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	15.9'
2	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X3/4	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	3
4	Nipple , ASME B36.19 , PE x MTE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
5	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
6	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , FF , GARLOCK 98206, EPDM SHEET, NSF 61 , THK 1/16 in (1.6 mm)	2	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A320 Grade B8 Class 1 (UNS S30400) , w/ (2) A194-8 heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
9	Gate Vlv , MSS SP-139 , 300 PSI , FTE , Screw-in Bonnet , Handwheel , ASTM B584 Cl.C87850 , SILICON BRONZE WEDGE & BONNET, BRONZE PACKING GLAND , NSF 61 COMPLIANT, LEAD FREE , NIBCO # T-111-LF	3/4	1
PIPE SUPPORTS			
10	SC4-2-4-12	2	1
11	GU2-2-A	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	04/02/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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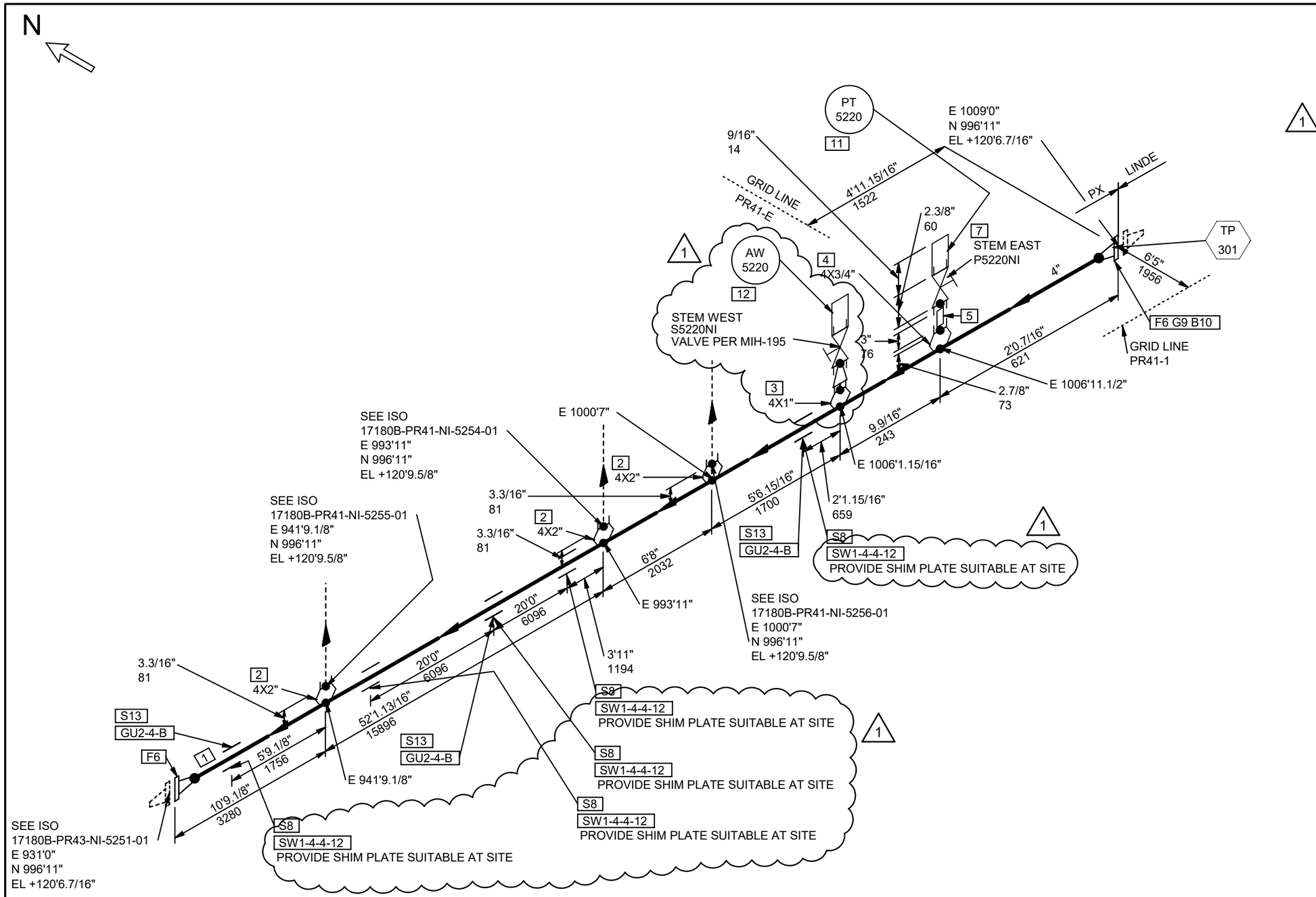
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-PW-8314-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	77.5'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X2	3
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X1	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X3/4	1
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	2
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	PIPE SUPPORTS		
8	SW1-4-4-12	4	5
	ERECTION		
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
	INSTRUMENTS		
11	PT-5220	3/4	1
12	AW-5220	3/4	1
	PIPE SUPPORTS		
13	GU2-4-B	4	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/11/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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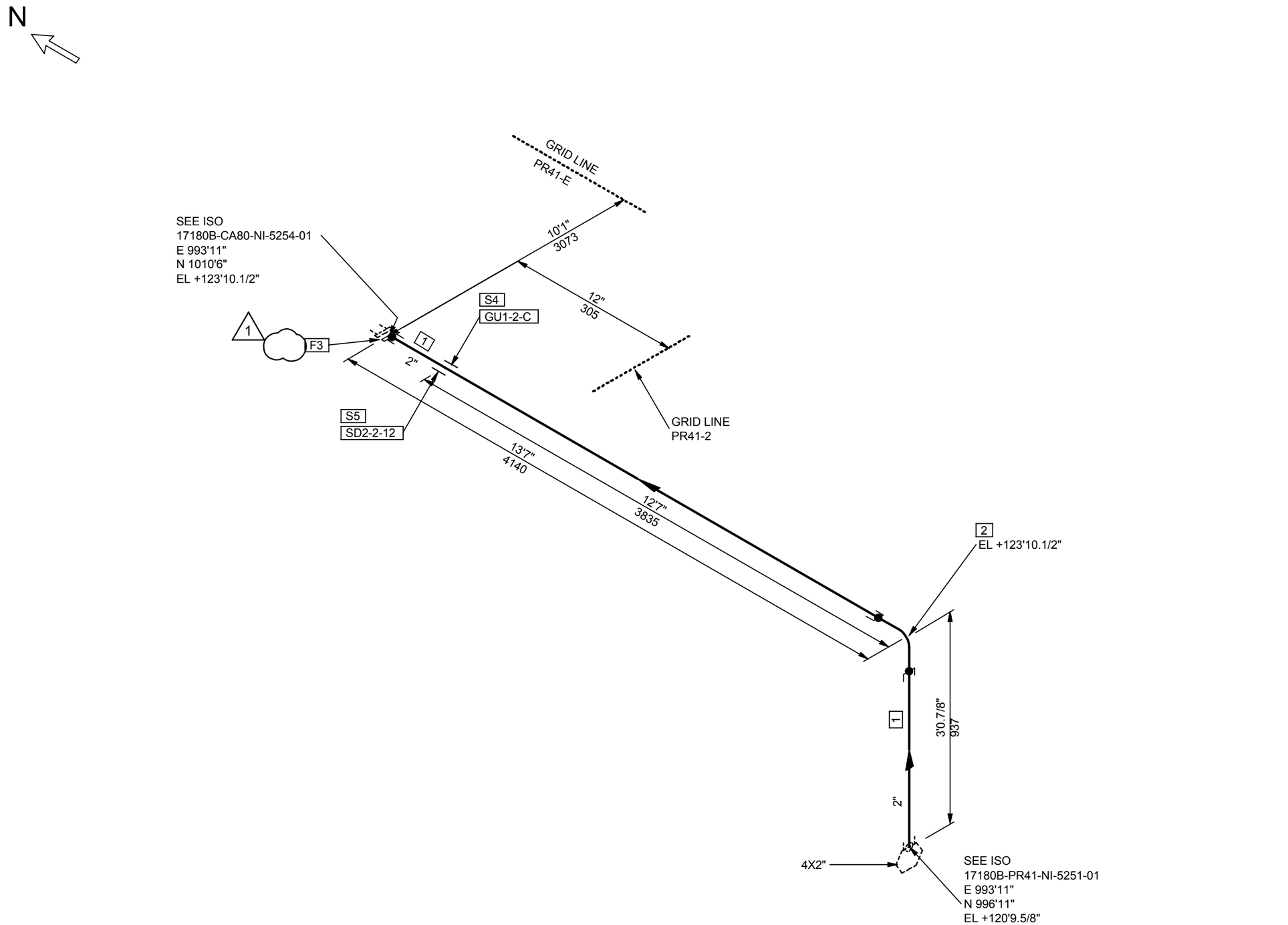
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5251-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	GU1-2-C	2	1
5	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/24/2019	ISSUED AS MARKED	KJN	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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Tel 713.270.3100

LEGEND:

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- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
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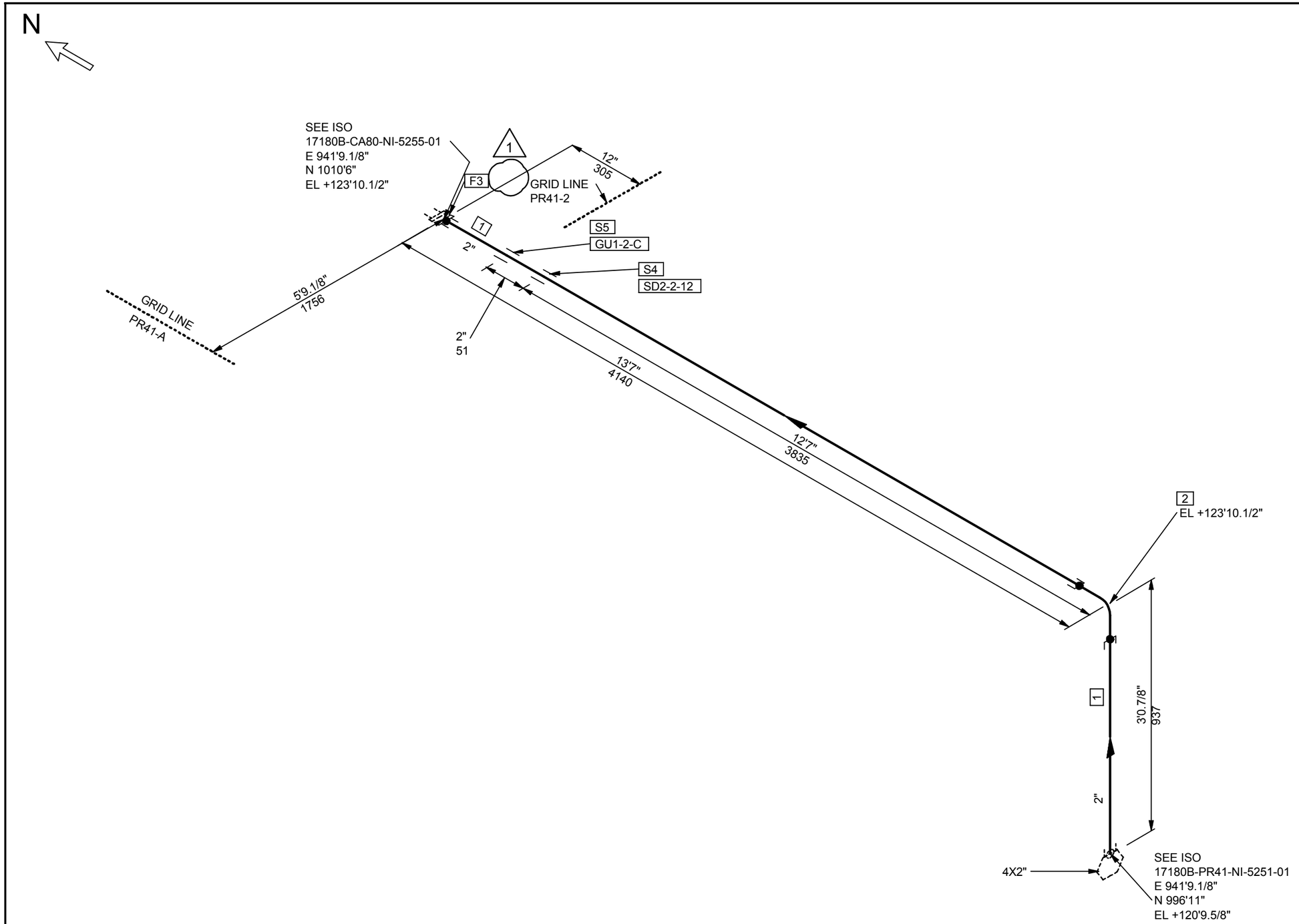
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5254-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1
5	GU1-2-C	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/24/2019	ISSUED AS MARKED	KJN	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

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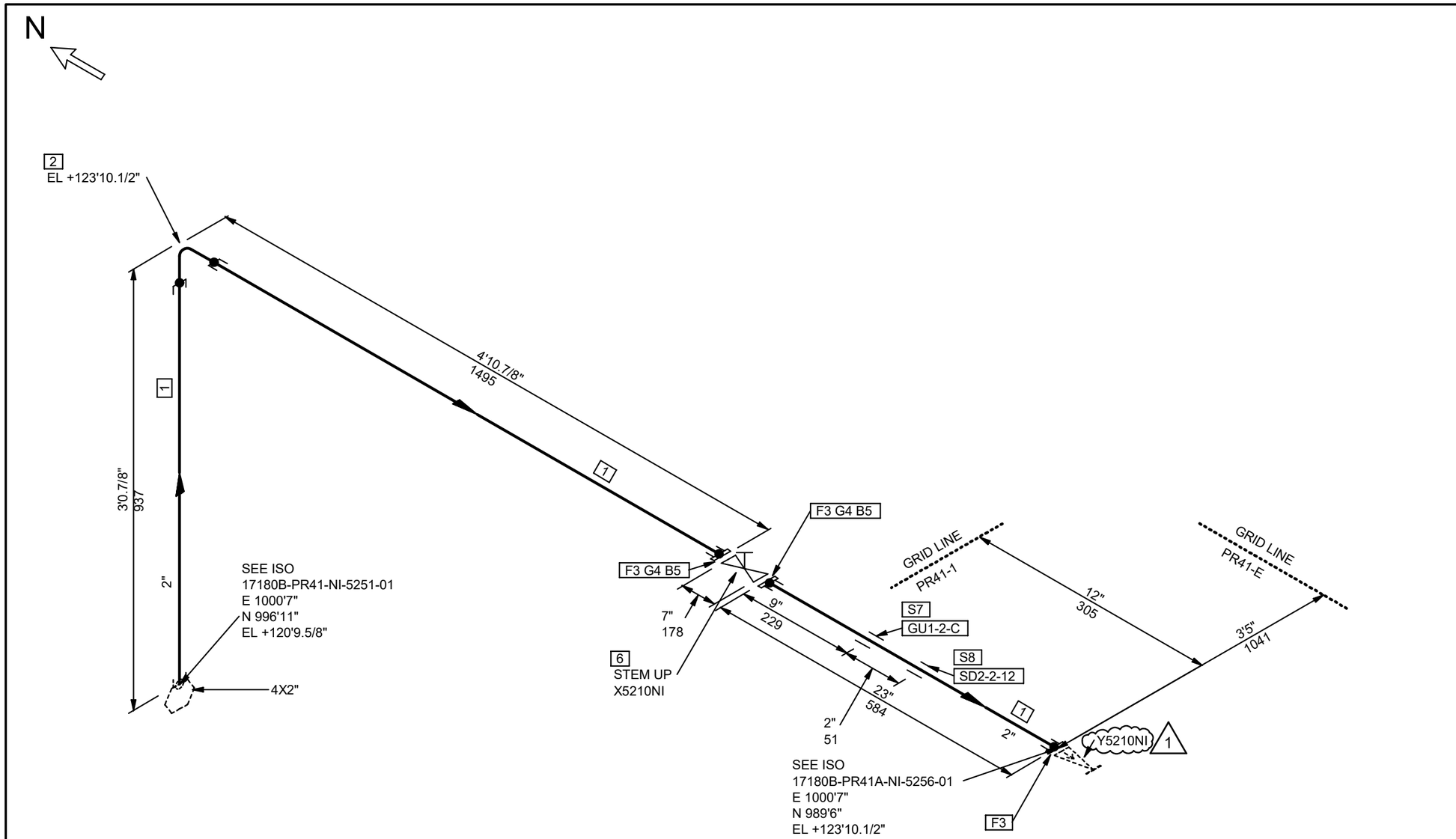
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5255-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	9.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	3
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
6	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
PIPE SUPPORTS			
7	GU1-2-C	2	1
8	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252 1		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

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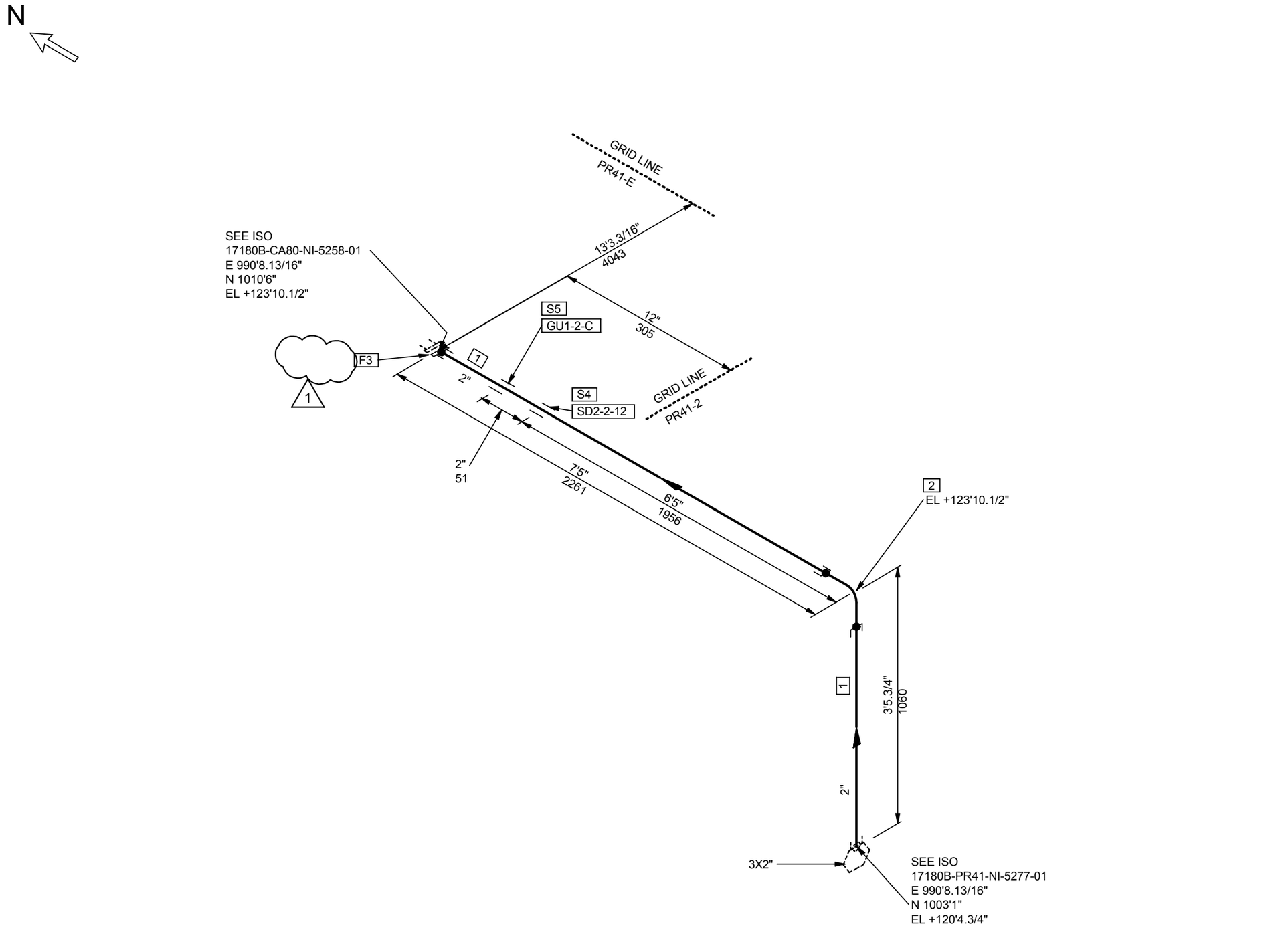
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5256-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1
5	GU1-2-C	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/24/2019	ISSUED AS MARKED	KJN	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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Tel 713.270.3100

LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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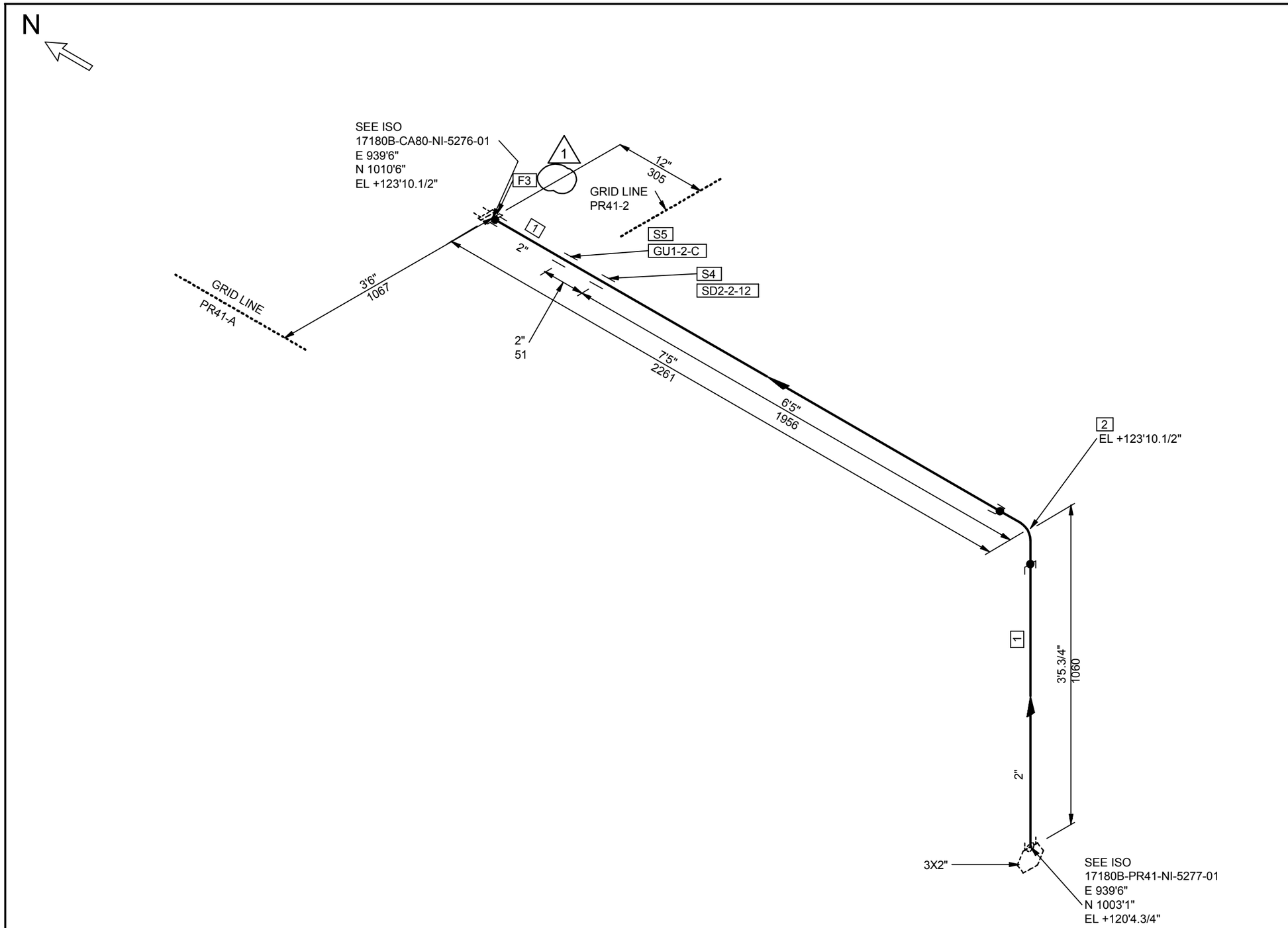
PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5258-01		REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1
5	GU1-2-C	2	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/24/2019	ISSUED AS MARKED	KJN	NNR	MLO
0	08/29/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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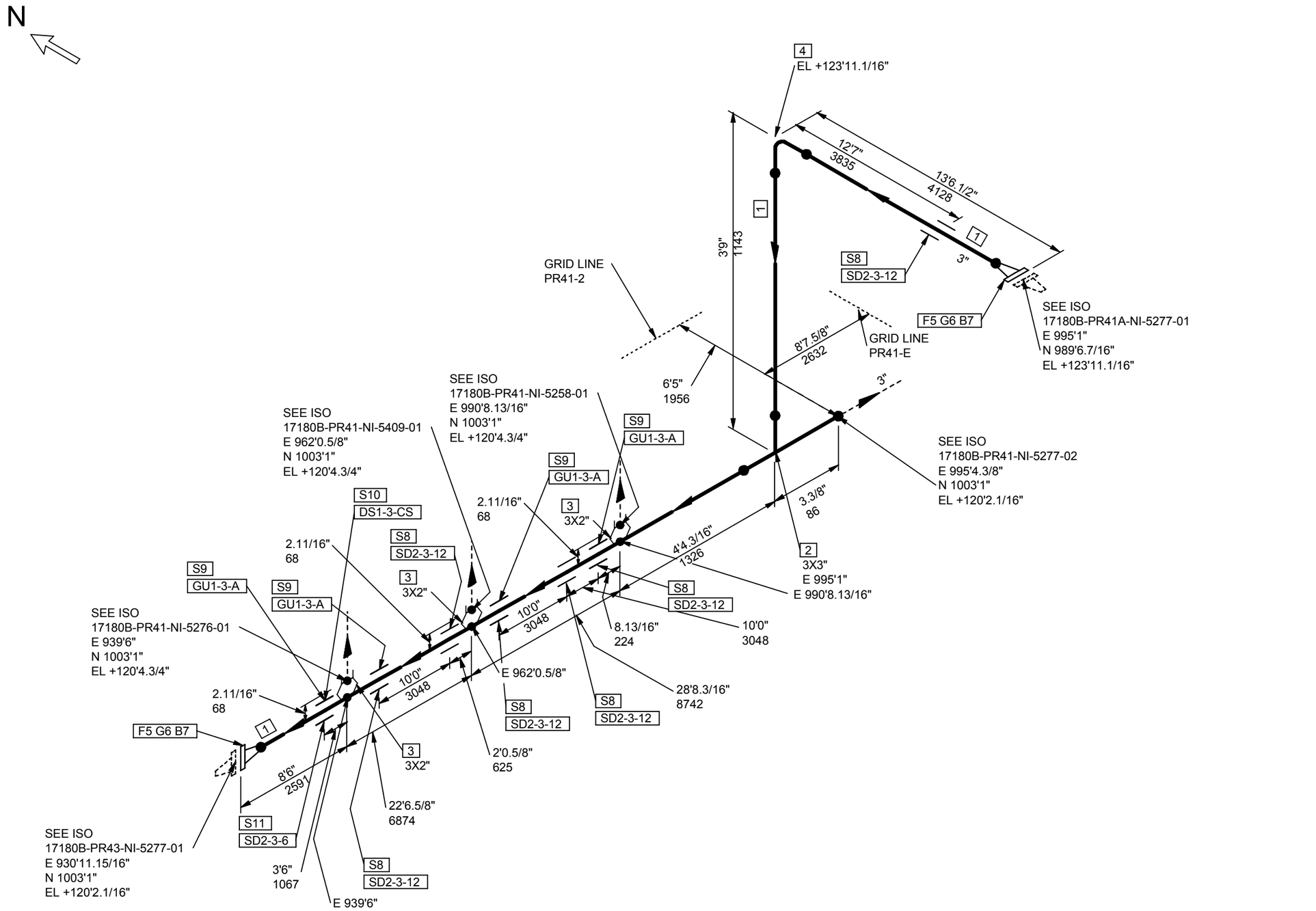
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5276-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	79.7'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3X3	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X2	3
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	2
	ERECTION		
6	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	2
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
	PIPE SUPPORTS		
8	SD2-3-12	3	6
9	GU1-3-A	3	4
10	DS1-3-CS	3	1
11	SD2-3-6	3	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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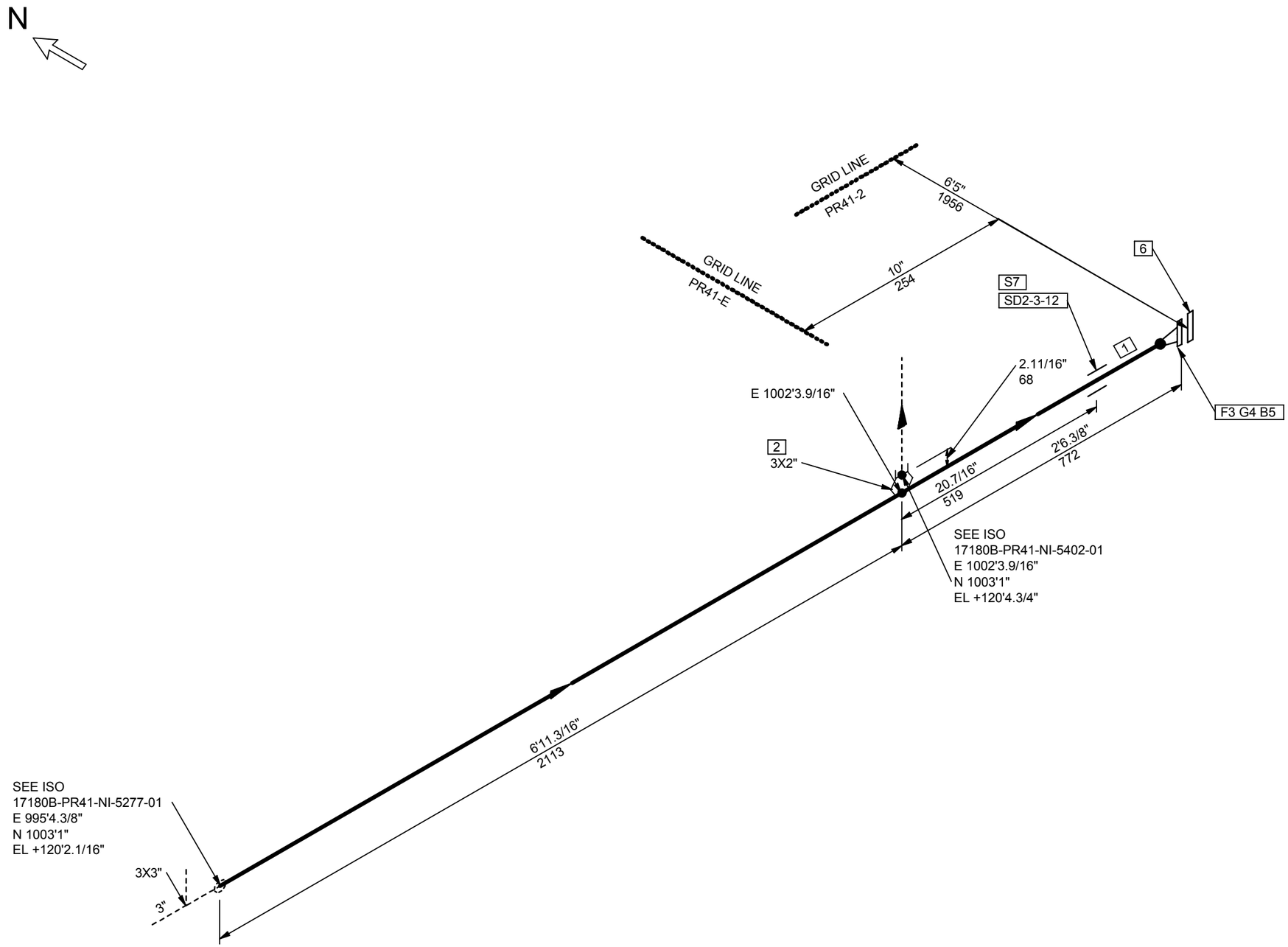
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5277-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	9.3'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X2	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	1
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
6	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3	1
PIPE SUPPORTS			
7	SD2-3-12	3	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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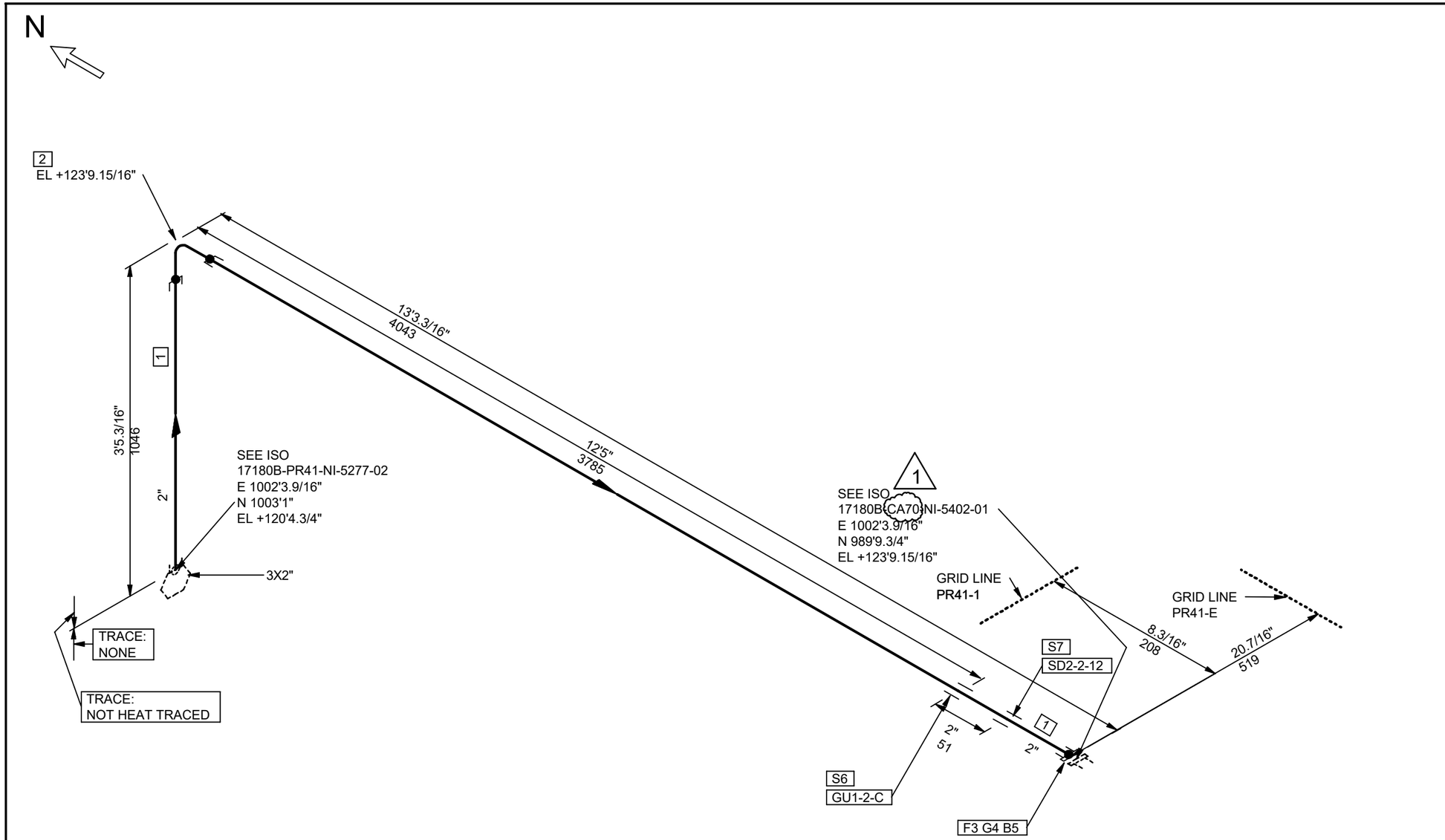
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5277-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.5'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
	PIPE SUPPORTS		
6	GU1-2-C	2	1
7	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/23/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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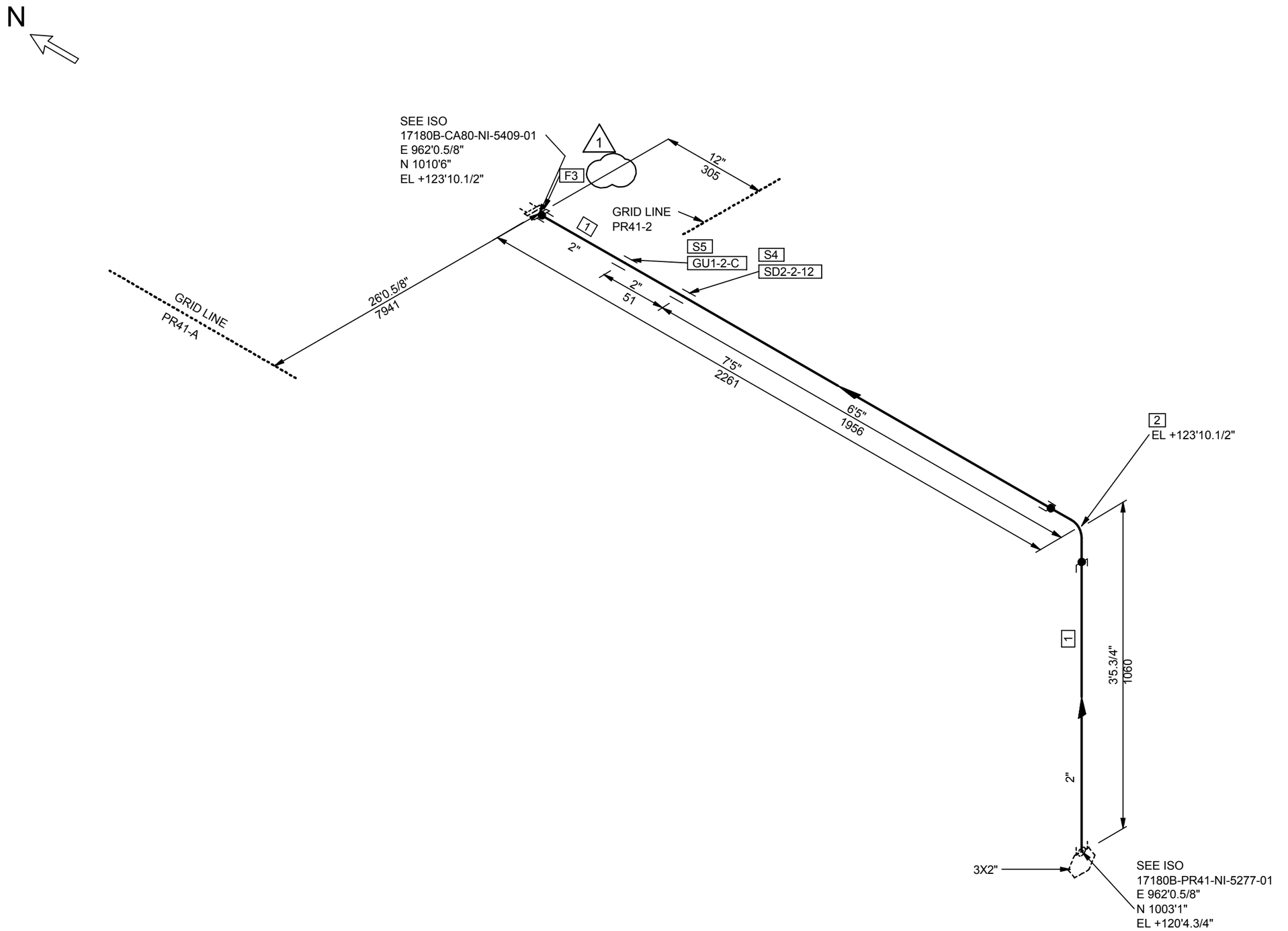
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5402-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1
5	GU1-2-C	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/24/2019	ISSUED AS MARKED	KJN	NNR	MLO
0	09/24/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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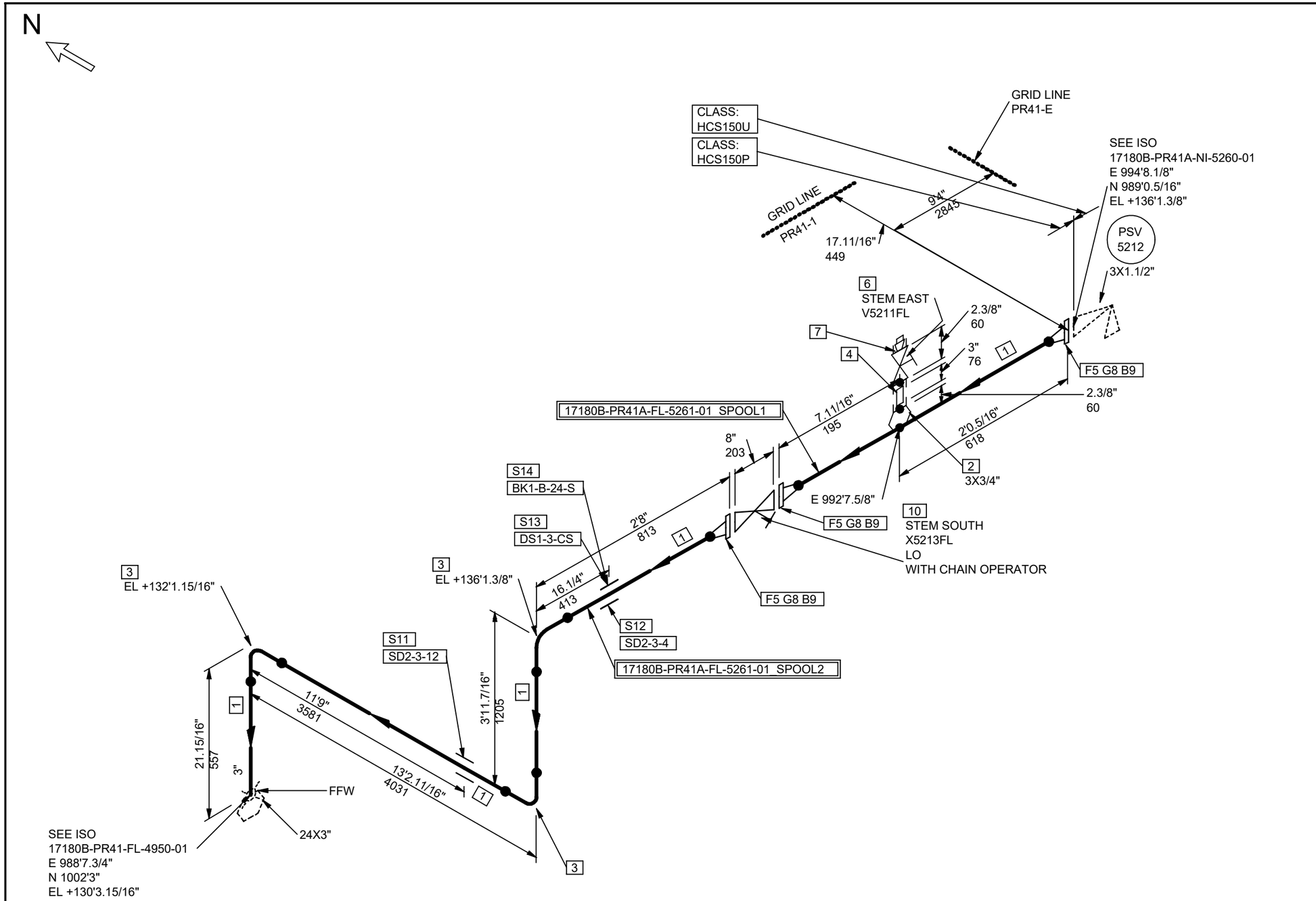
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NI-5409-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	21.8'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	3
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3	3
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	12
10	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	3	1
	PIPE SUPPORTS		
11	SD2-3-12	3	1
12	SD2-3-4	3	1
13	DS1-3-CS	3	1
14	BK1-B-24-S	3	1

17180B-PR41A-FL-5261-01_SPOOL1 17180B-PR41A-FL-5261-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/28/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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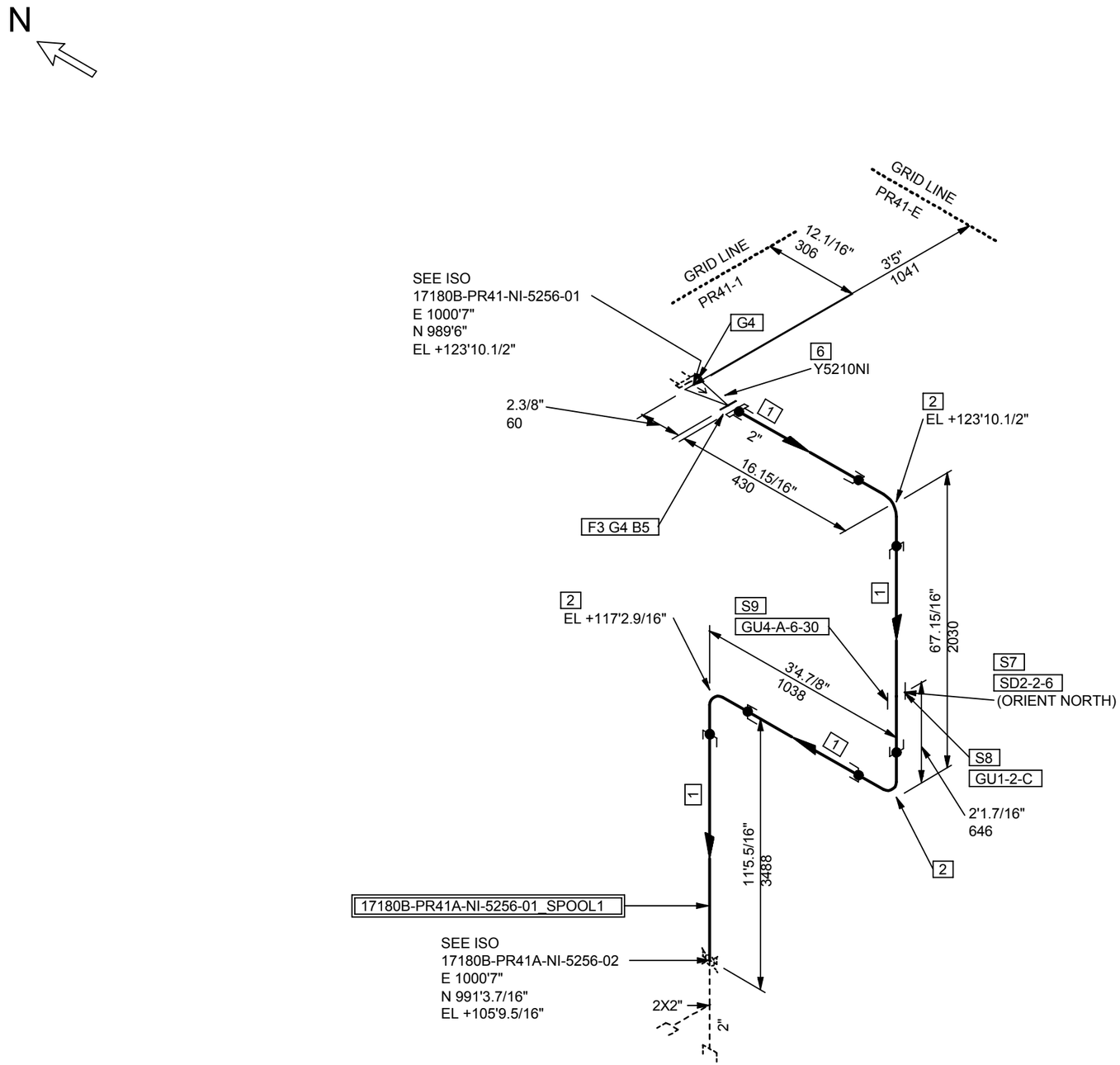
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-FL-5261-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	22.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.75 in. Length	5/8	4
6	Check Vlv Swing , API 594 , CL150 , RFTBE , Wafer , ASTM A216-WCB , VITON SEAL, 316SS TRIM , PRAXAIR GUIDELINE V-G1 , C1WAP	2	1
PIPE SUPPORTS			
7	SD2-2-6	2	1
8	GU1-2-C	2	1
9	GU4-A-6-30	2	1

17180B-PR41A-NI-5256-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/01/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

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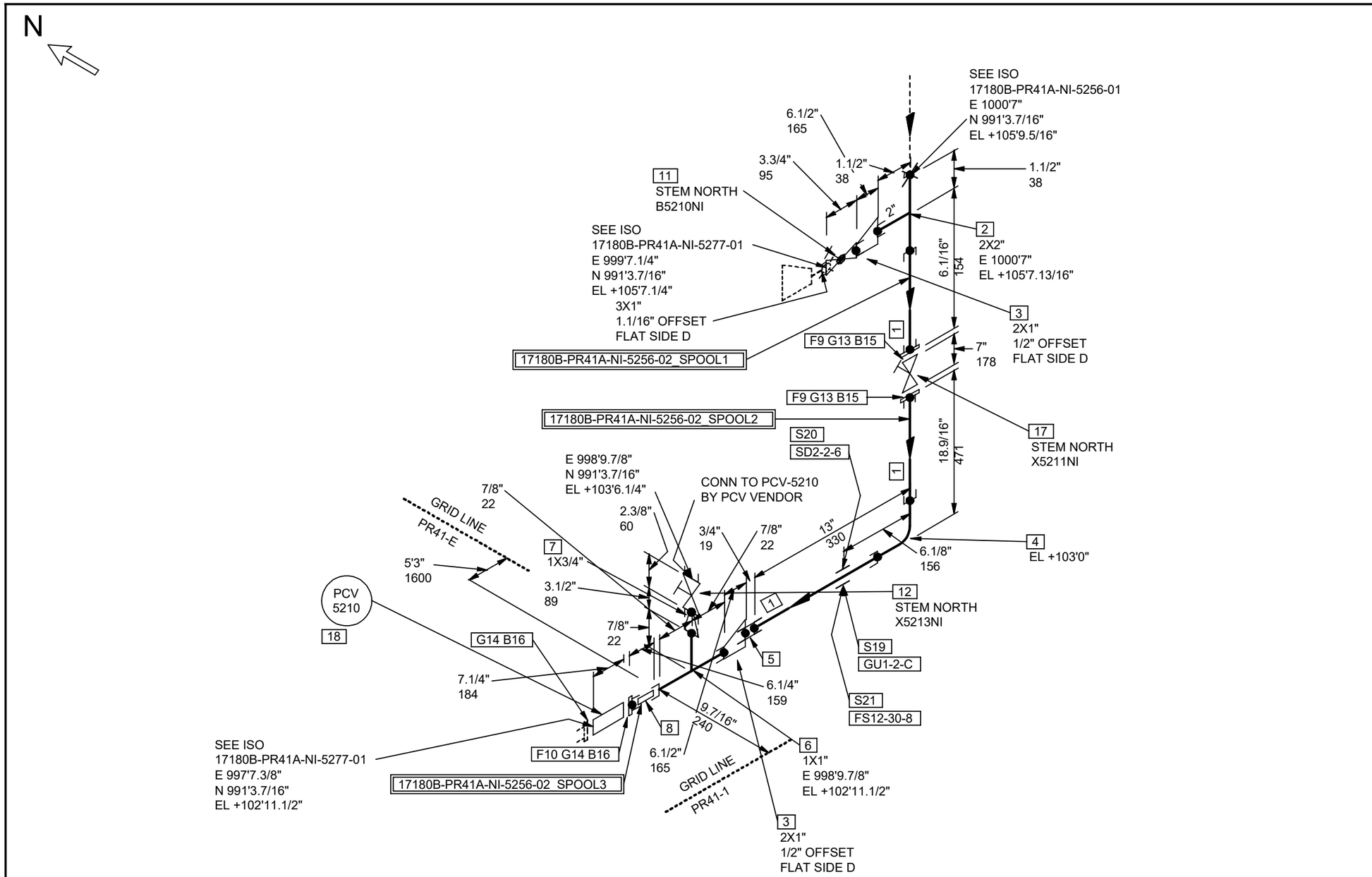
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-NI-5256-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	2.7'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	2
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	1X1	1
7	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1X3/4	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
9	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1	1
11	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T8SAE	1	1
12	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
13	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
14	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	1	2
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	8
17	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	INSTRUMENTS		
18	PCV-5210	1	1
	PIPE SUPPORTS		
19	GU1-2-C	2	1
20	SD2-2-6	2	1
21	FS12-30-8	2	1

17180B-PR41A-NI-5256-02_SPOOL1 17180B-PR41A-NI-5256-02_SPOOL2
17180B-PR41A-NI-5256-02_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/17/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

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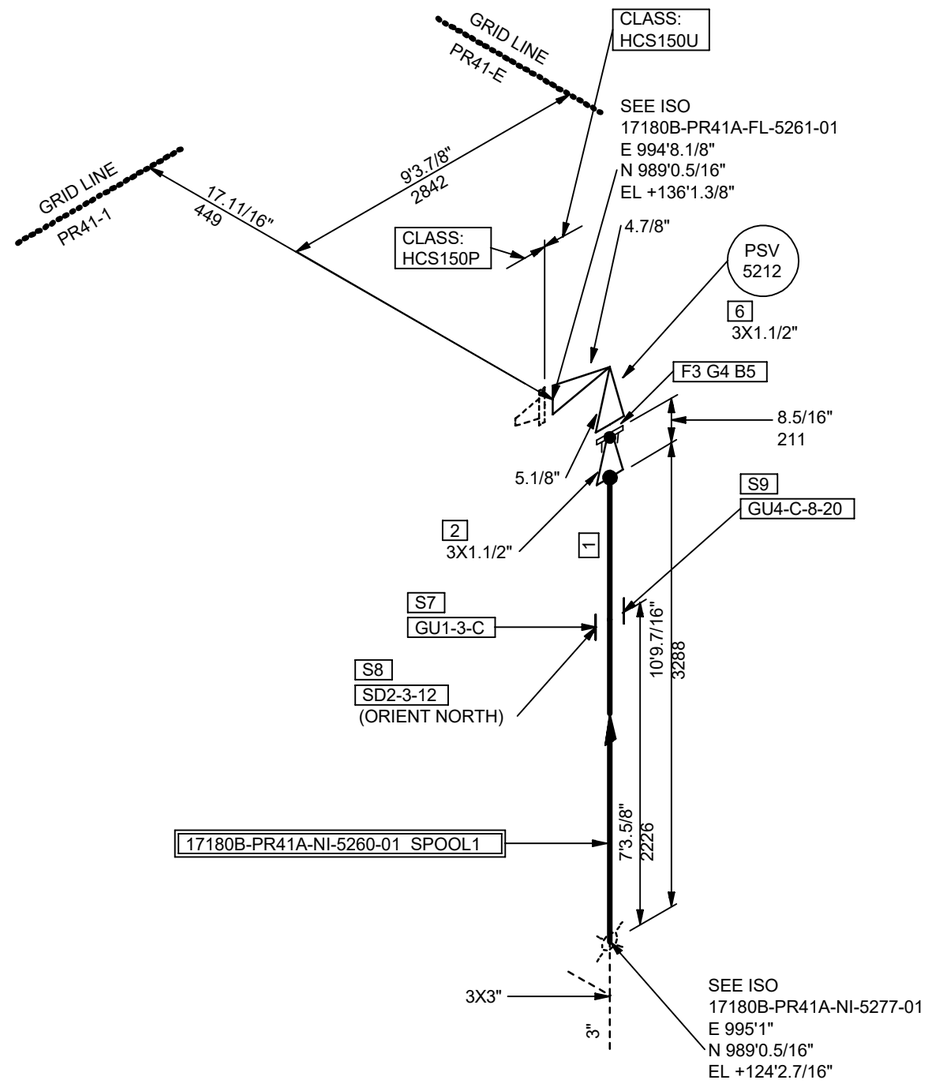
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-NI-5256-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	10.8'
2	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X1.1/2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1.1/2	1
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	1.1/2	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	1/2	4
	INSTRUMENTS		
6	PSV-5212	3X1.1/2	1
	PIPE SUPPORTS		
7	GU1-3-C	3	1
8	SD2-3-12	3	1
9	GU4-C-8-20	3	1

17180B-PR41A-NI-5260-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/04/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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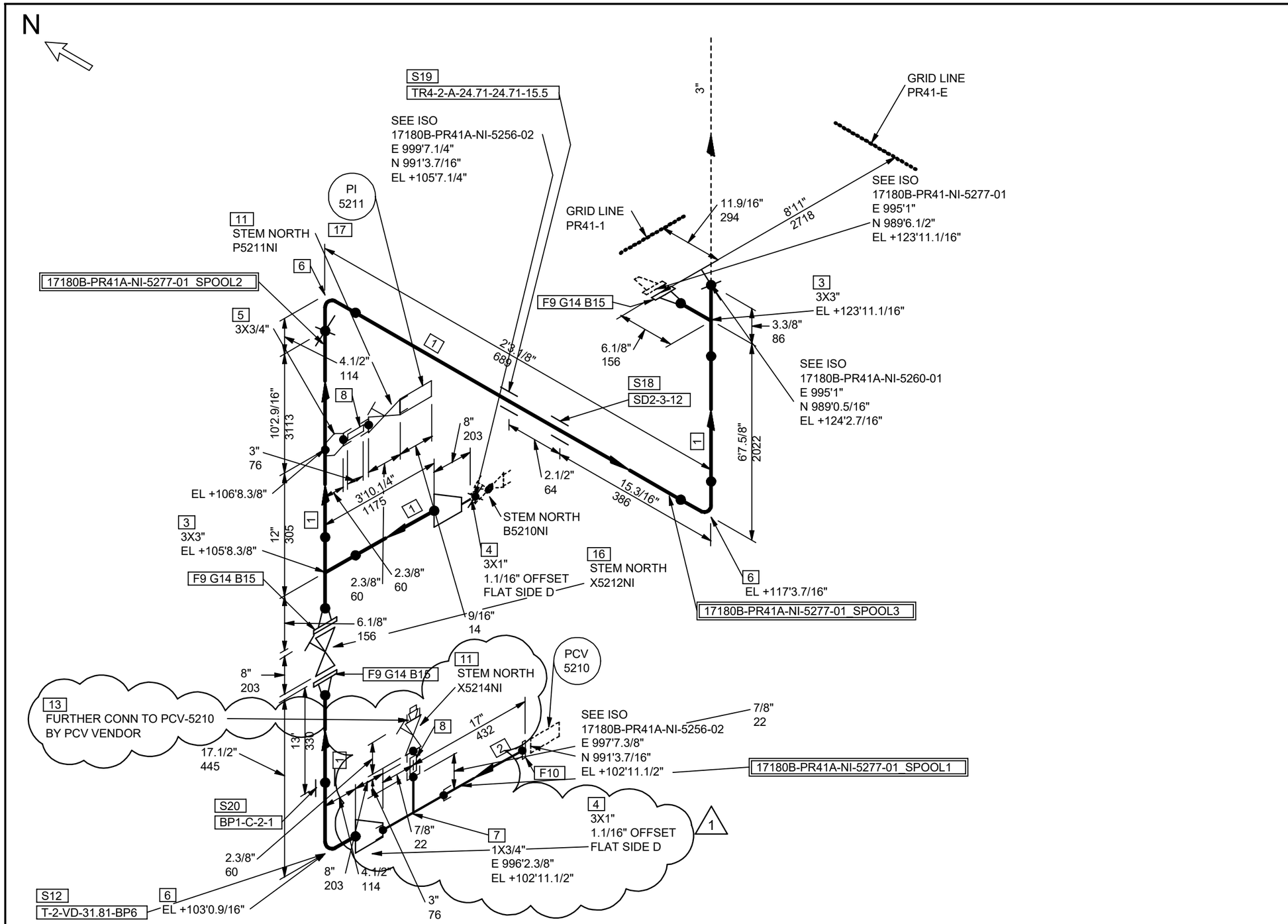
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR41A-NI-5260-01
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	22.9'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.4'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3X3	2
4	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X1	2
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
7	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	1X3/4	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
9	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	3
10	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	2
	PIPE SUPPORTS		
12	T-2-VD-31.81-BP6	3	1
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
14	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	3
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	12
16	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	3	1
	INSTRUMENTS		
17	PI-5211	3/4	1
	PIPE SUPPORTS		
18	SD2-3-12	3	1
19	TR4-2-A-24.71-24.71-15.5	3	1
20	BP1-C-2-1	3	1

17180B-PR41A-NI-5277-01_SPOOL1 17180B-PR41A-NI-5277-01_SPOOL2
17180B-PR41A-NI-5277-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/12/2019	ISSUED AS MARKED	RBK	NNR	MLO
0	10/04/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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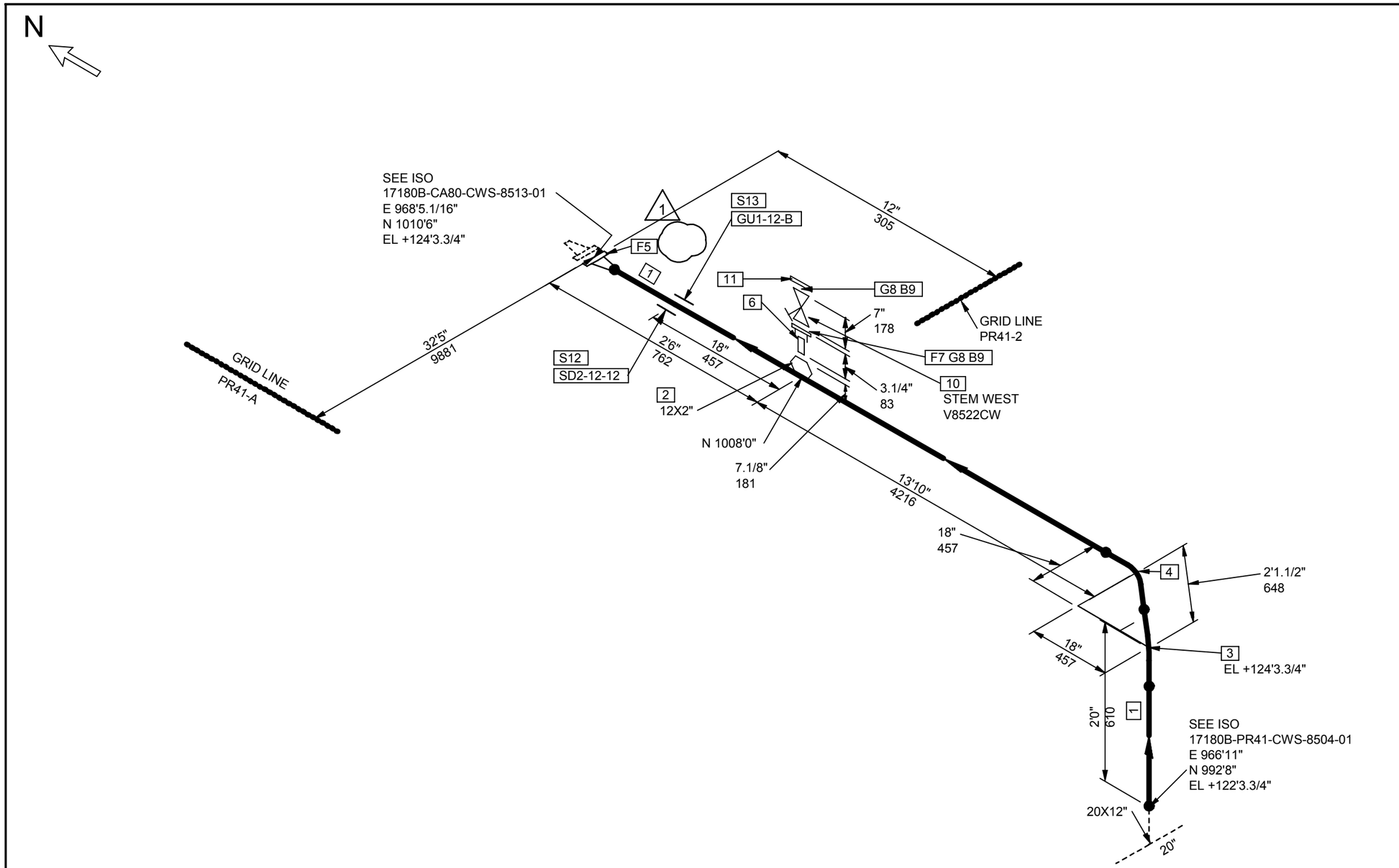
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-NI-5277-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	15.9'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
ERECTION			
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
10	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
11	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
PIPE SUPPORTS			
12	SD2-12-12	12	1
13	GU1-12-B	12	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/24/2019	ISSUED AS MARKED	KJN	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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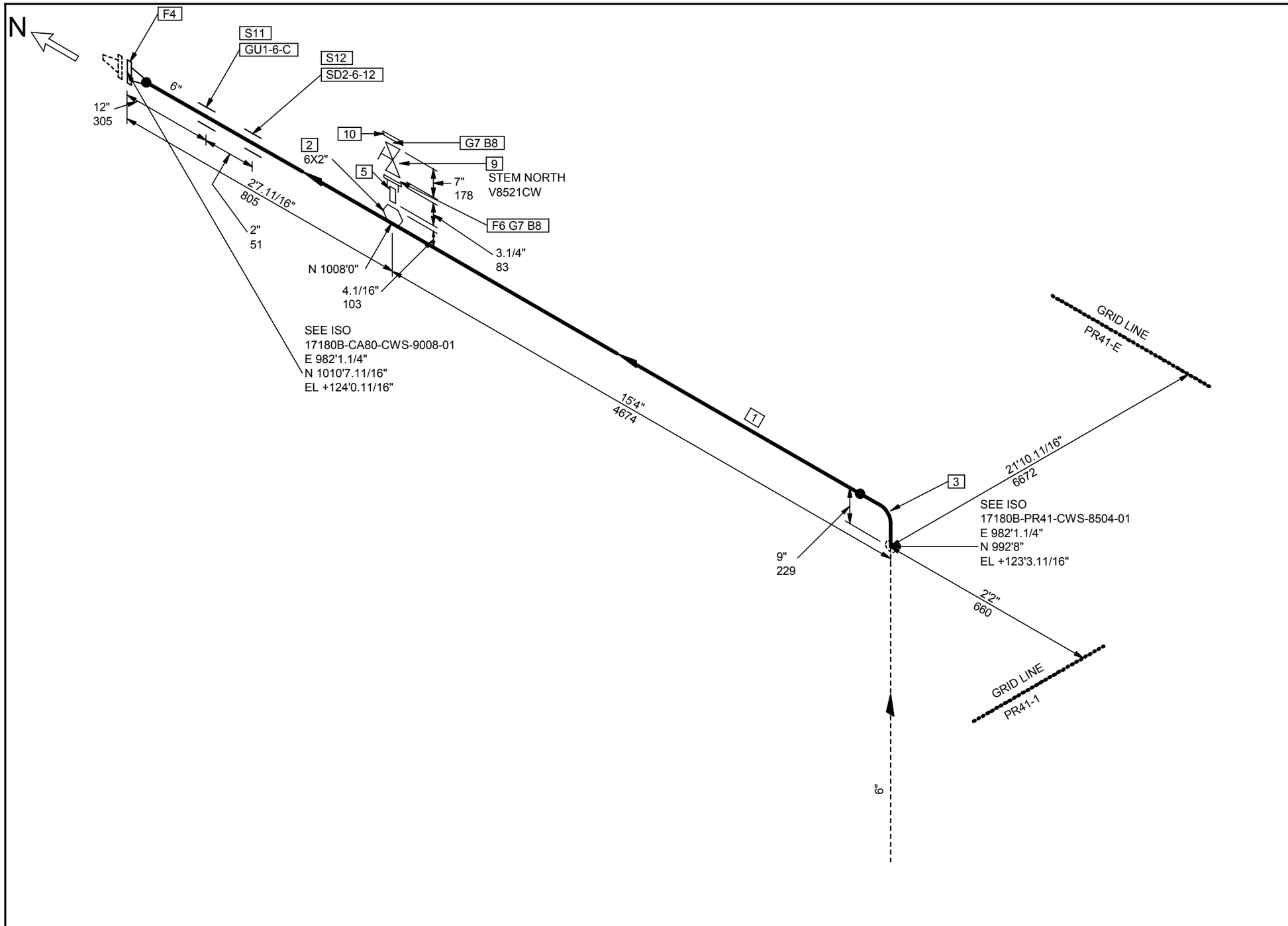
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWS-8513-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	17.0'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
11	GU1-6-C	6	1
12	SD2-6-12	6	1

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELL
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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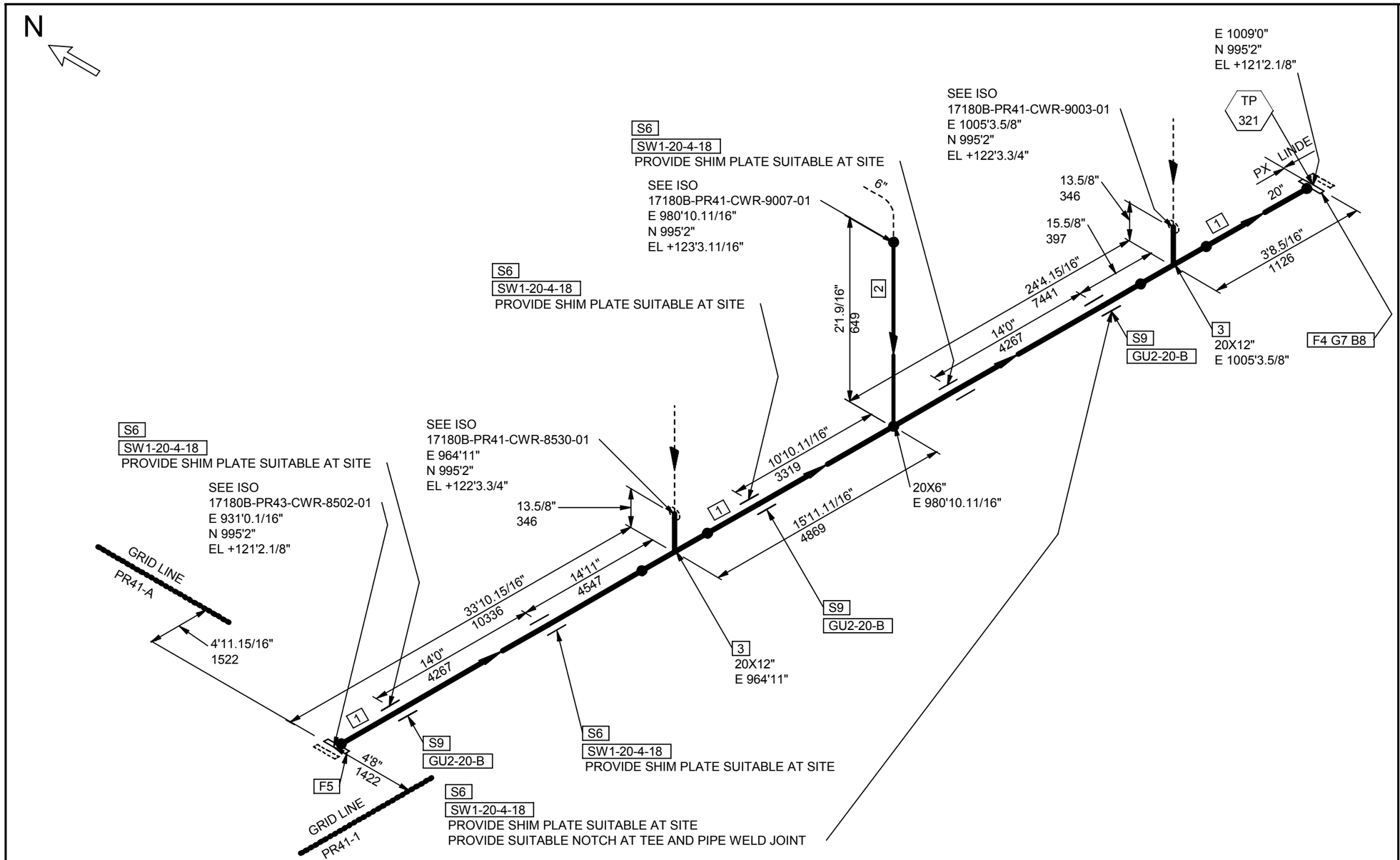
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWS-9008-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	72.9'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	1.4'
3	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X12	2
4	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	1
5	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1
	PIPE SUPPORTS		
6	SW1-20-4-18	20	5
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.25 in. Length	1.1/8	20
	PIPE SUPPORTS		
9	GU2-20-B	20	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8503		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/28/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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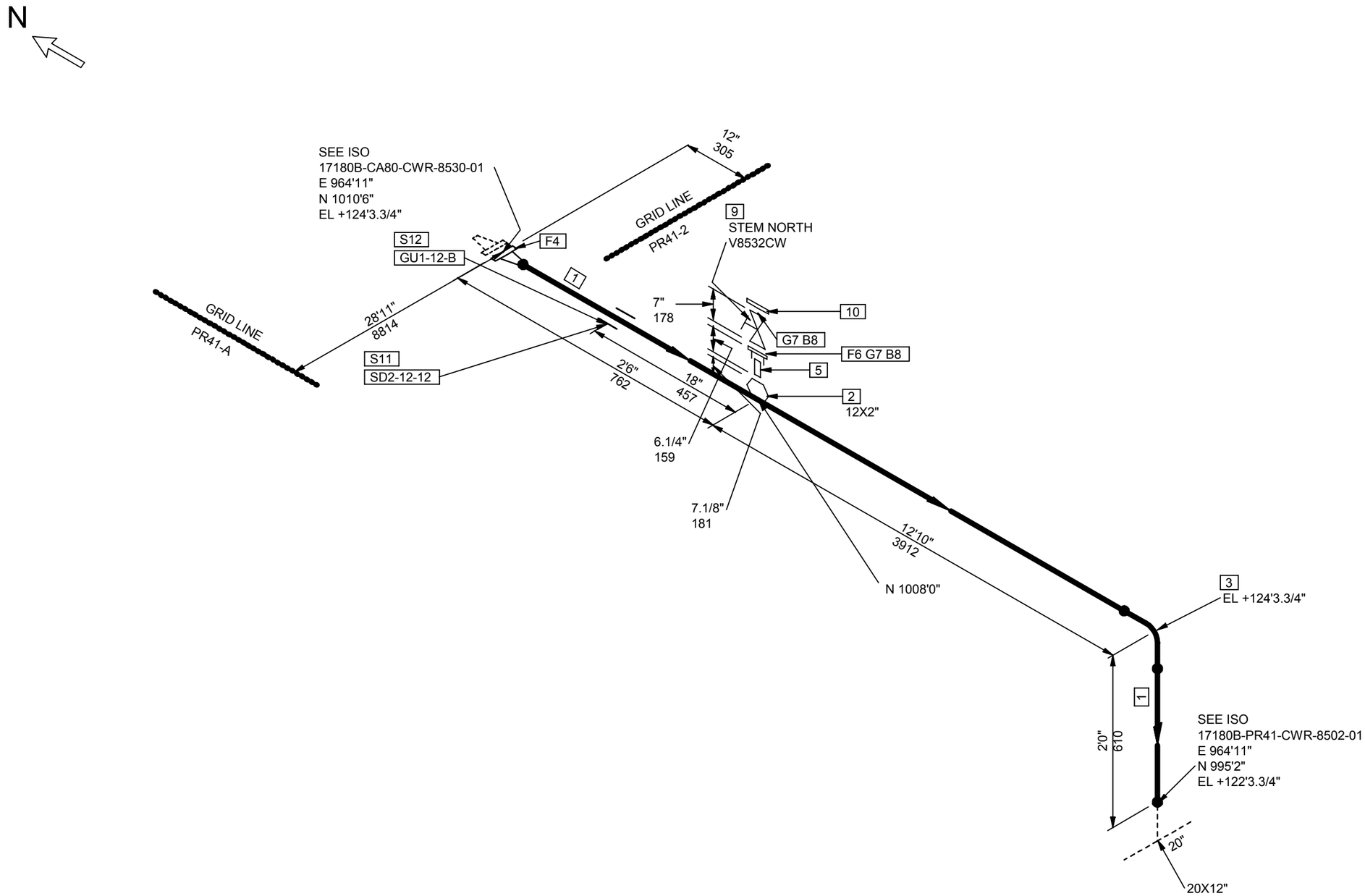
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWR-8502-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	14.0'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
11	SD2-12-12	12	1
12	GU1-12-B	12	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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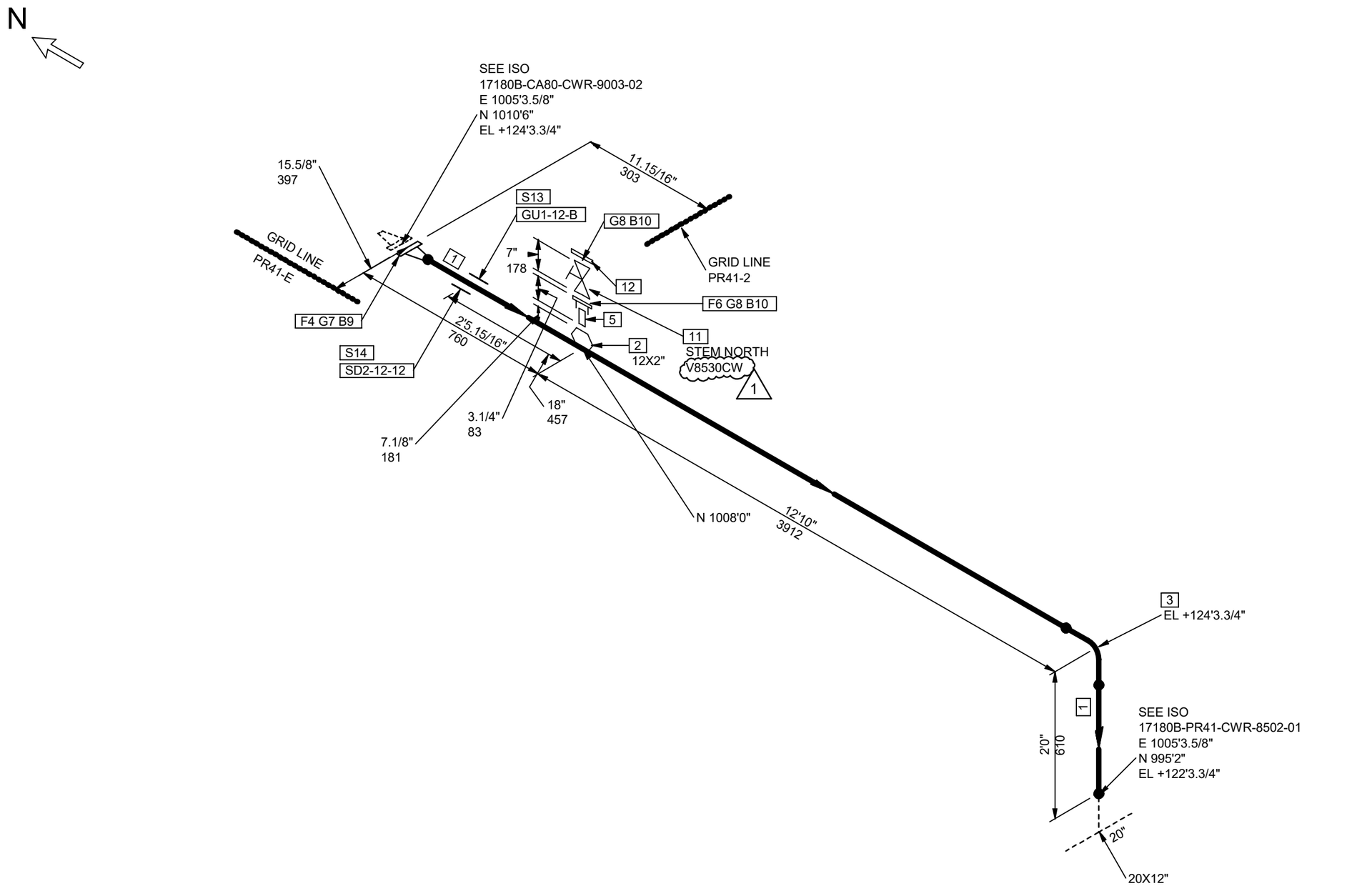
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWR-8530-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	14.0'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
11	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
12	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
13	GU1-12-B	12	1
14	SD2-12-12	12	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	09/28/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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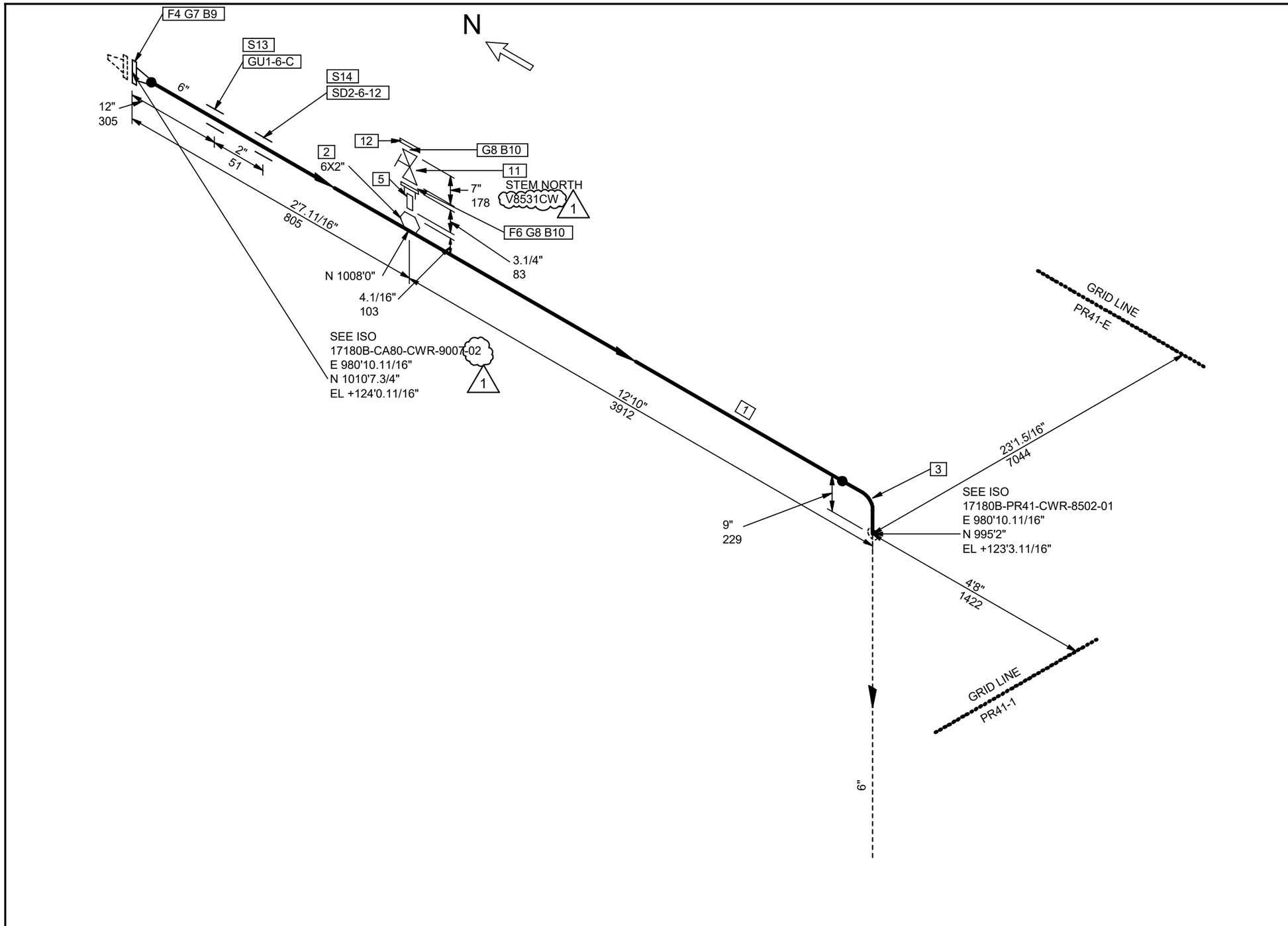
PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWR-9003-01		REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	14.5'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
11	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
12	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
13	GU1-6-C	6	1
14	SD2-6-12	6	1

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELL
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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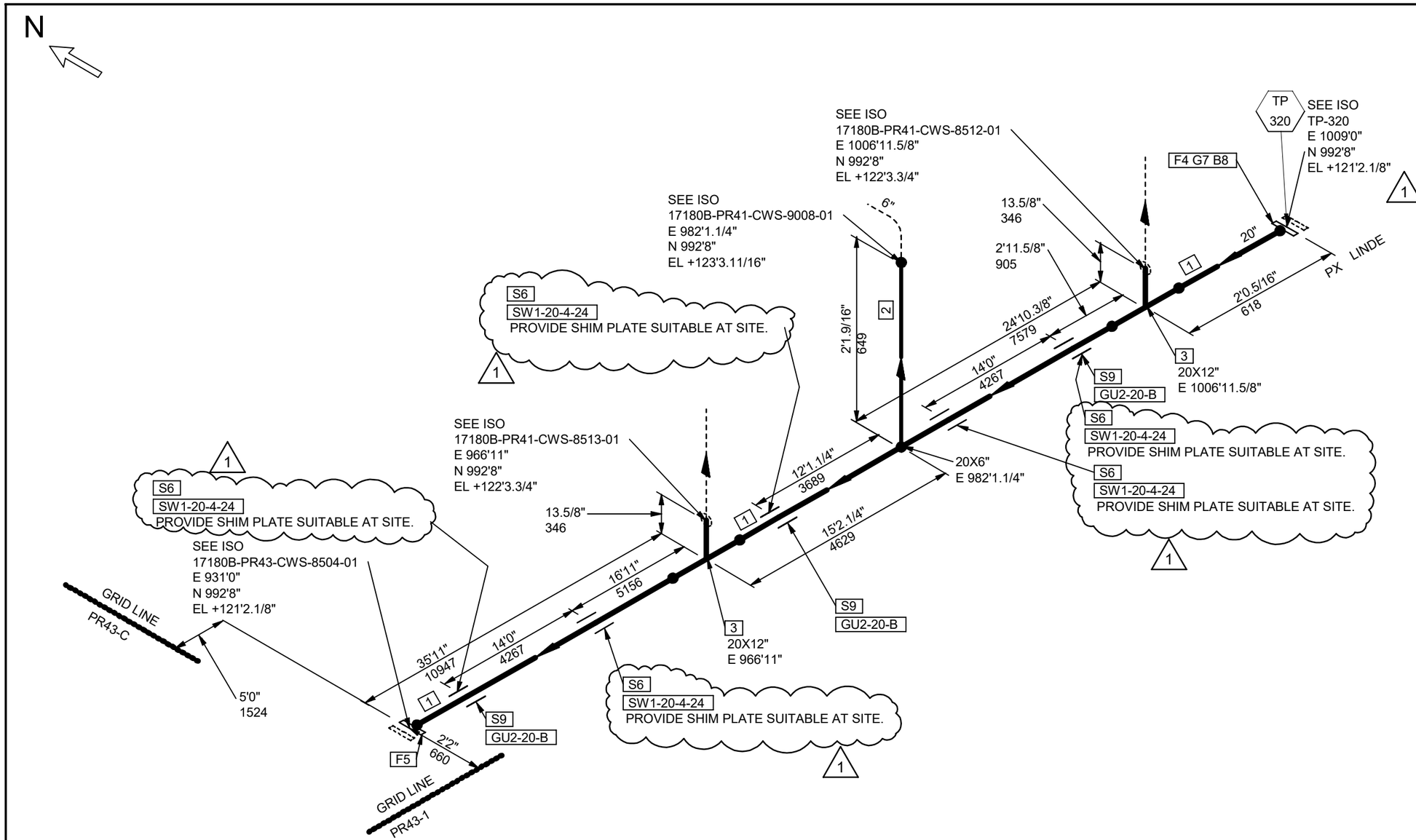
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWR-9007-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	72.9'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	1.4'
3	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X12	2
4	SO Flg , ASME B16.5 , CL150 , RF , ASTM A105N	20	1
5	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1
	PIPE SUPPORTS		
6	SW1-20-4-24	20	5
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.25 in. Length	1.1/8	20
	PIPE SUPPORTS		
9	GU2-20-B	20	3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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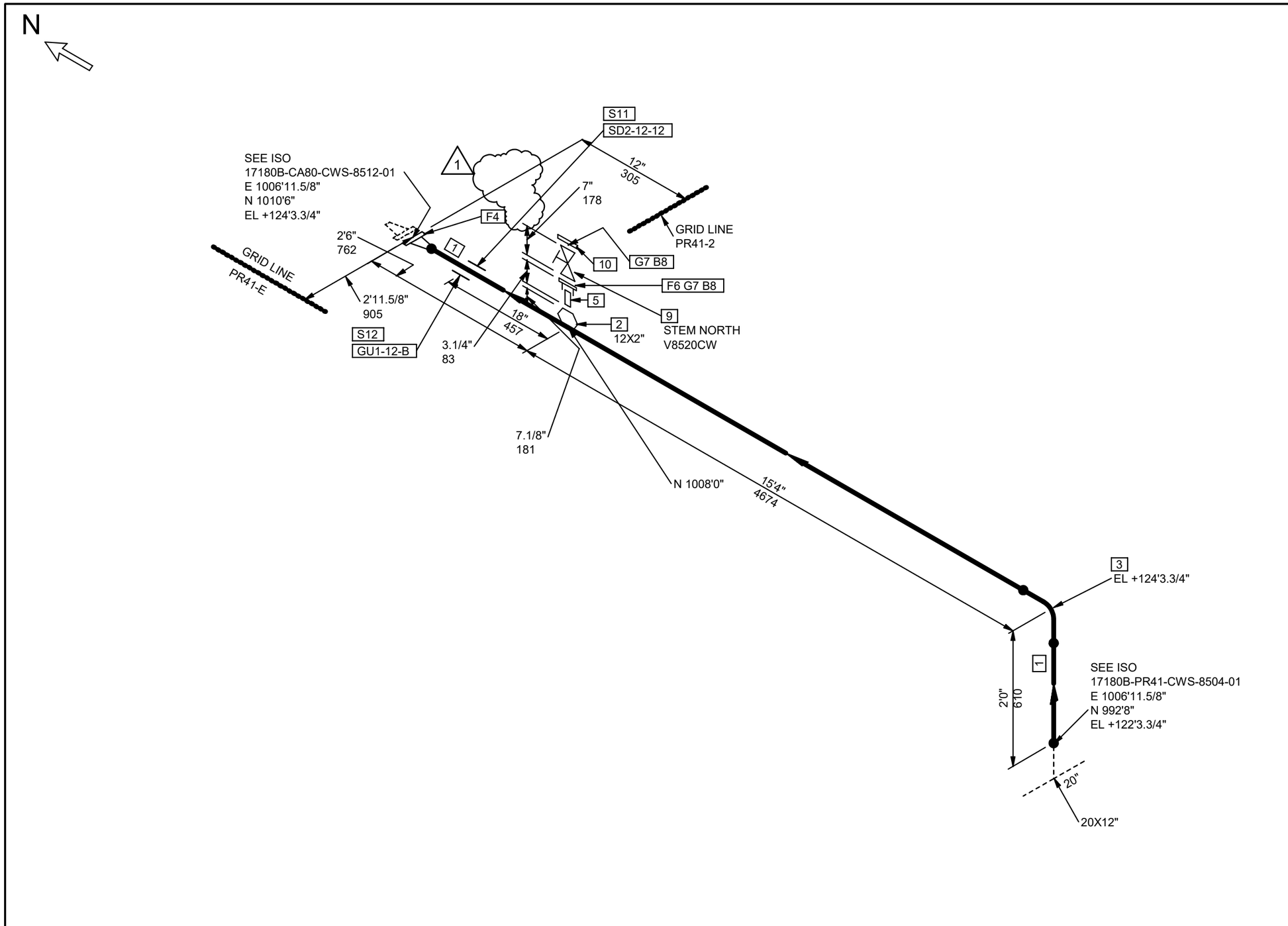
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWS-8504-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	16.5'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
11	SD2-12-12	12	1
12	GU1-12-B	12	1

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELL
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/05/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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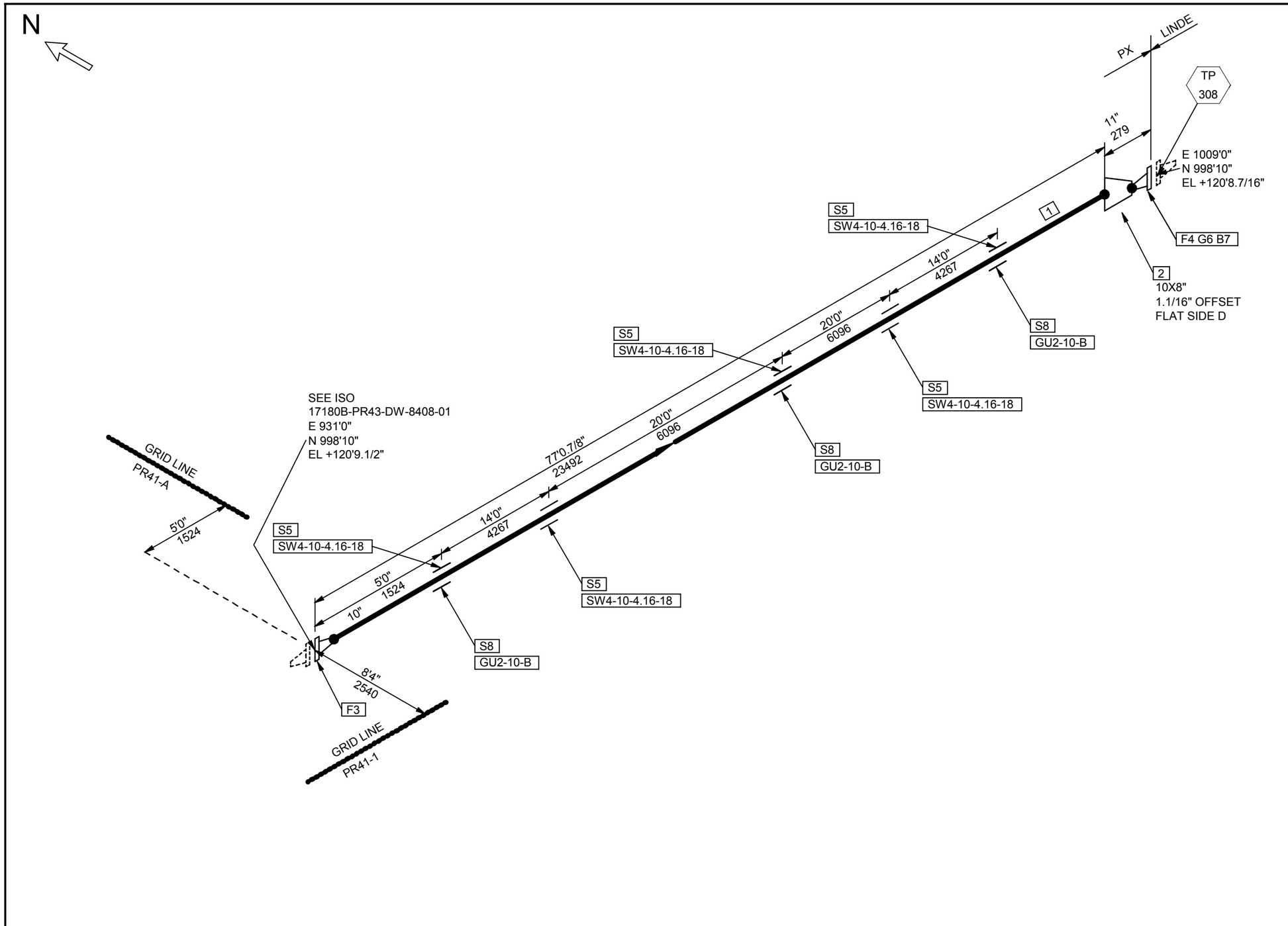
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-CWS-8512-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	76.8'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10X8	1
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	10	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	8	1
	PIPE SUPPORTS		
5	SW4-10-4.16-18	10	5
	ERECTION		
6	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	8
	PIPE SUPPORTS		
8	GU2-10-B	10	3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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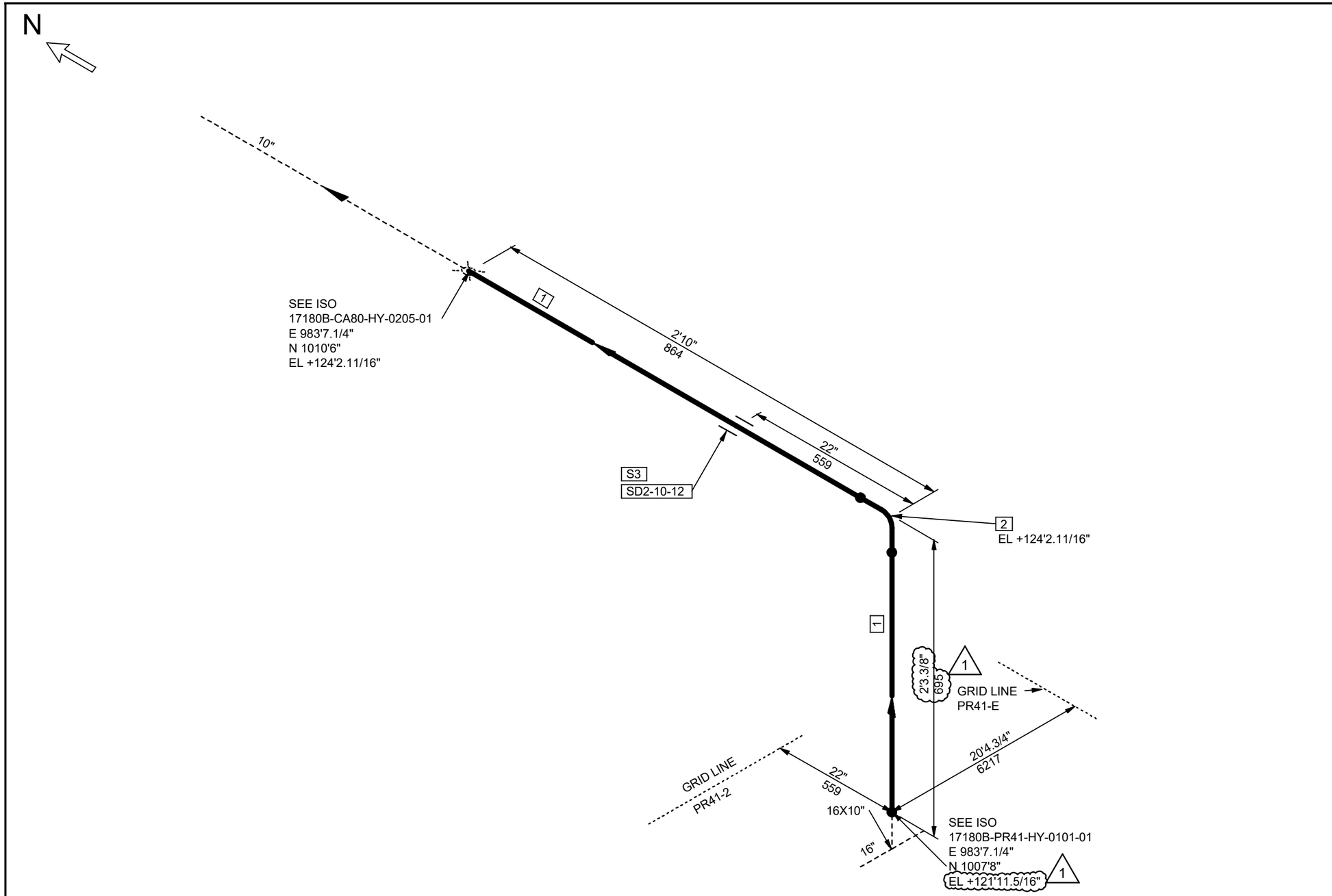
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-DW-8408-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	10	2.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	10	1
	ERECTION		
	PIPE SUPPORTS		
3	SD2-10-12	10	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0201		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/21/2019	ISSUED AS MARKED	VT	NNR	MLO
0	09/21/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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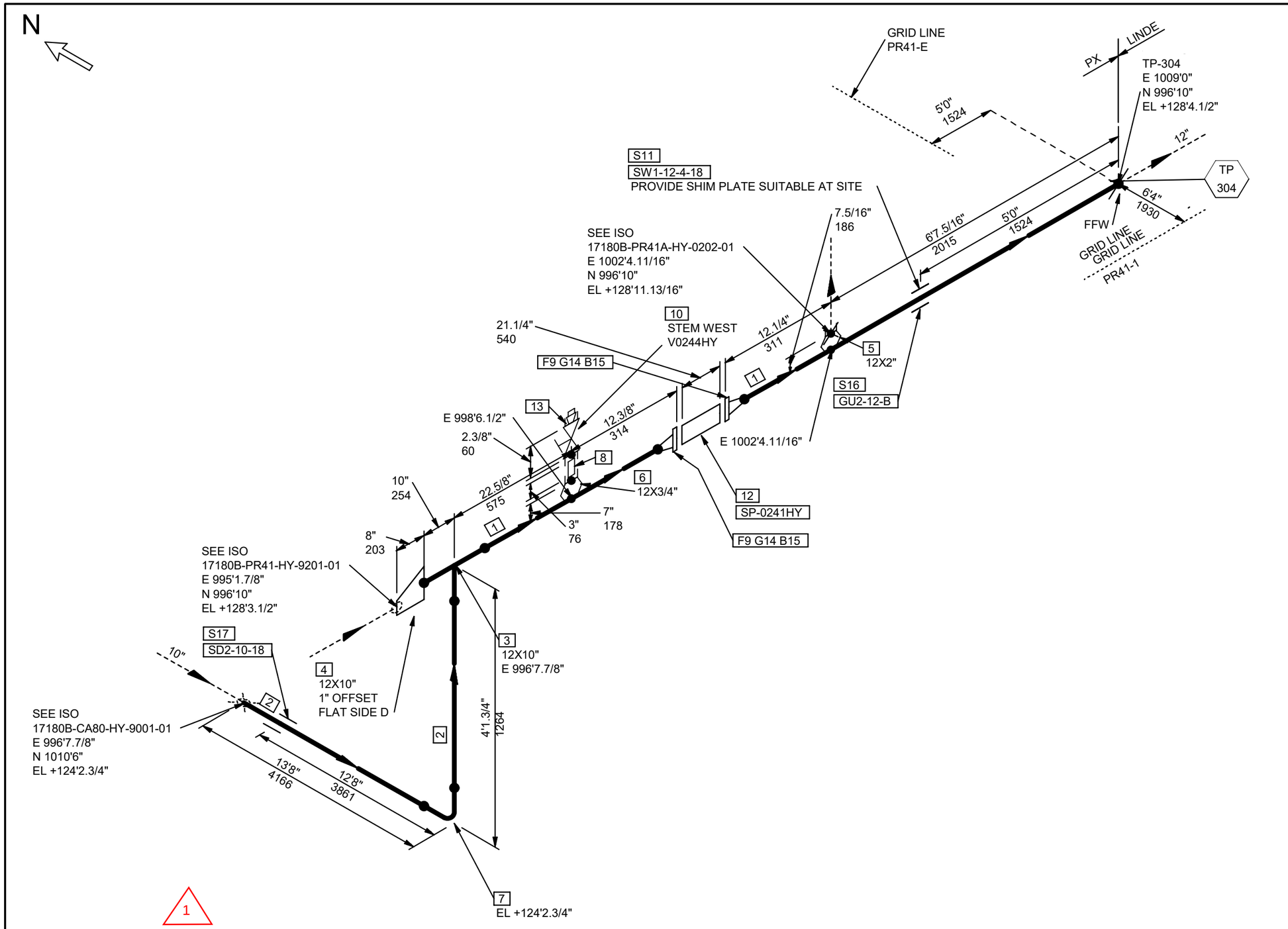
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-HY-0205-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A333-6 , SMLS , Ej=1.00 , S-60	12	9.0'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-60	10	14.6'
3	Red. Tee , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-60 , S-60	12X10	1
4	Ecc Reducer , ASME B16.9 , BE , ASTM A420 Grade WPL6 , Seamless , S-60 , S-60	12X10	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	12X2	1
6	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	12X3/4	1
7	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	10	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-60	12	2
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
11	SW1-12-4-18	12	1
	SPECIALTY ITEMS		
12	SP-0241HY	12	1
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	12	2
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 9 in. Length	1.1/4	40
	PIPE SUPPORTS		
16	GU2-12-B	12	1
17	SD2-10-18	10	1

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Contractor to confirm pipe schedules at tie-in points and taper bore as required.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED TAPER BORE REQUIREMENT			
0	10/19/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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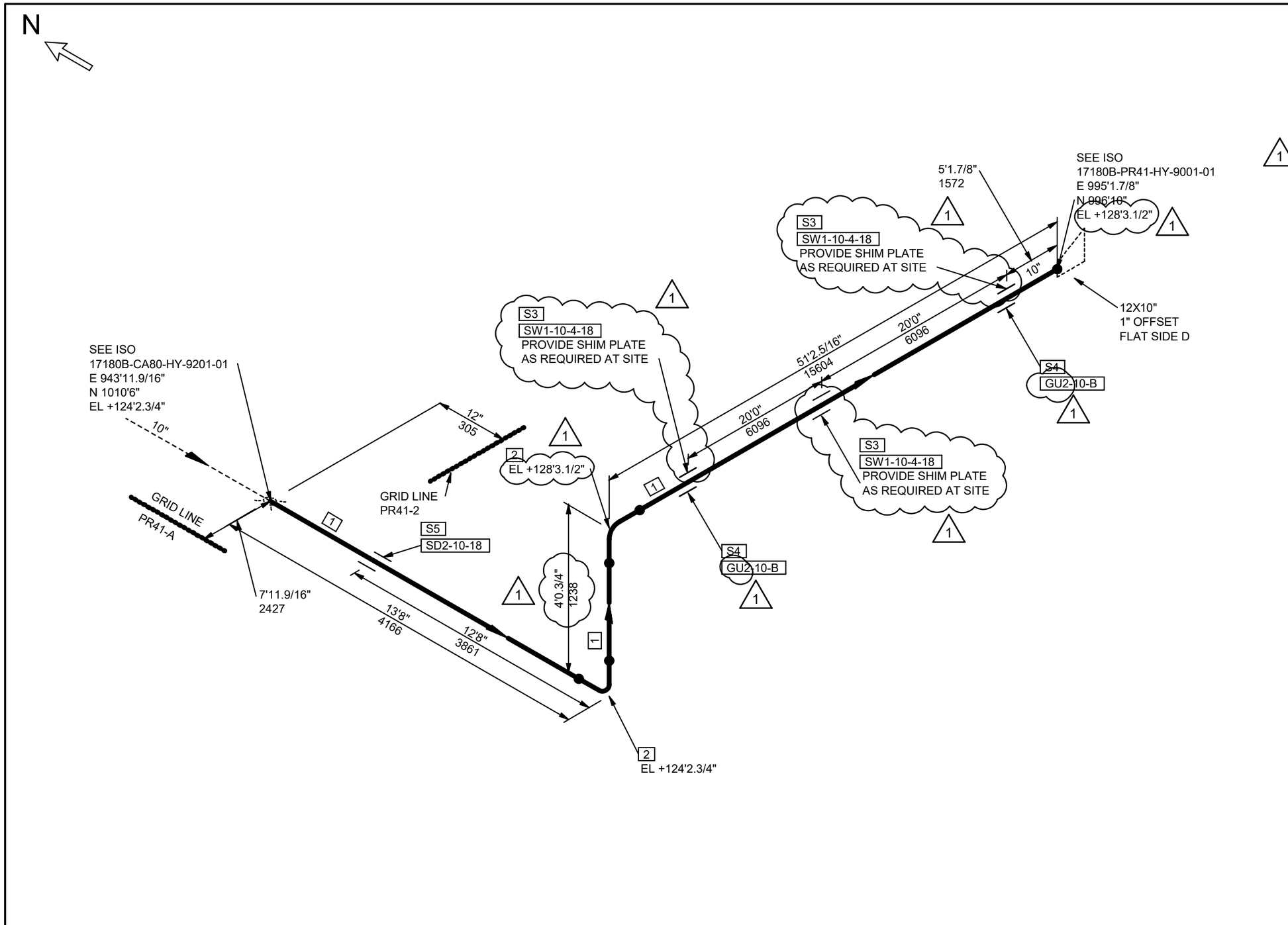
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-HY-9001-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-60	10	64.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-60 , S-60	10	2
	PIPE SUPPORTS		
3	SW1-10-4-18	10	3
	ERECTION		
	PIPE SUPPORTS		
4	GU2-10-B	10	2
5	SD2-10-18	10	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/16/2019	REVISED TO MATCH TIE-IN ELEV.	ABH	NNR	MLO
0	10/03/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
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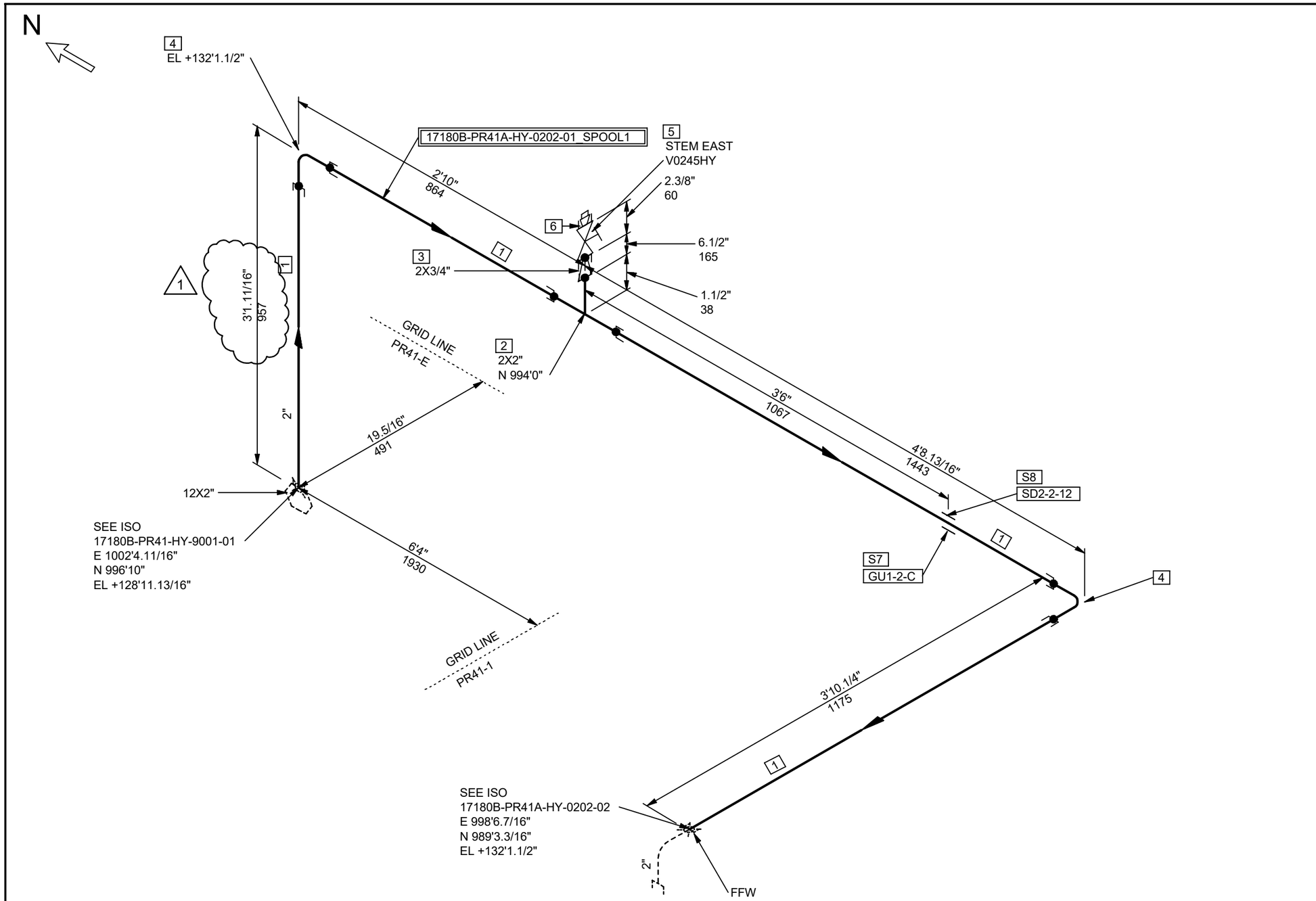
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-HY-9201-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	14.2'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
	PIPE SUPPORTS		
7	GU1-2-C	2	1
8	SD2-2-12	2	1

17180B-PR41A-HY-0202-01_SPOOL1

LEGEND:

- ● = SHOP WELD
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- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0204		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/18/2019	REVISED AS NOTED	TKS	AA	MLO
0	09/23/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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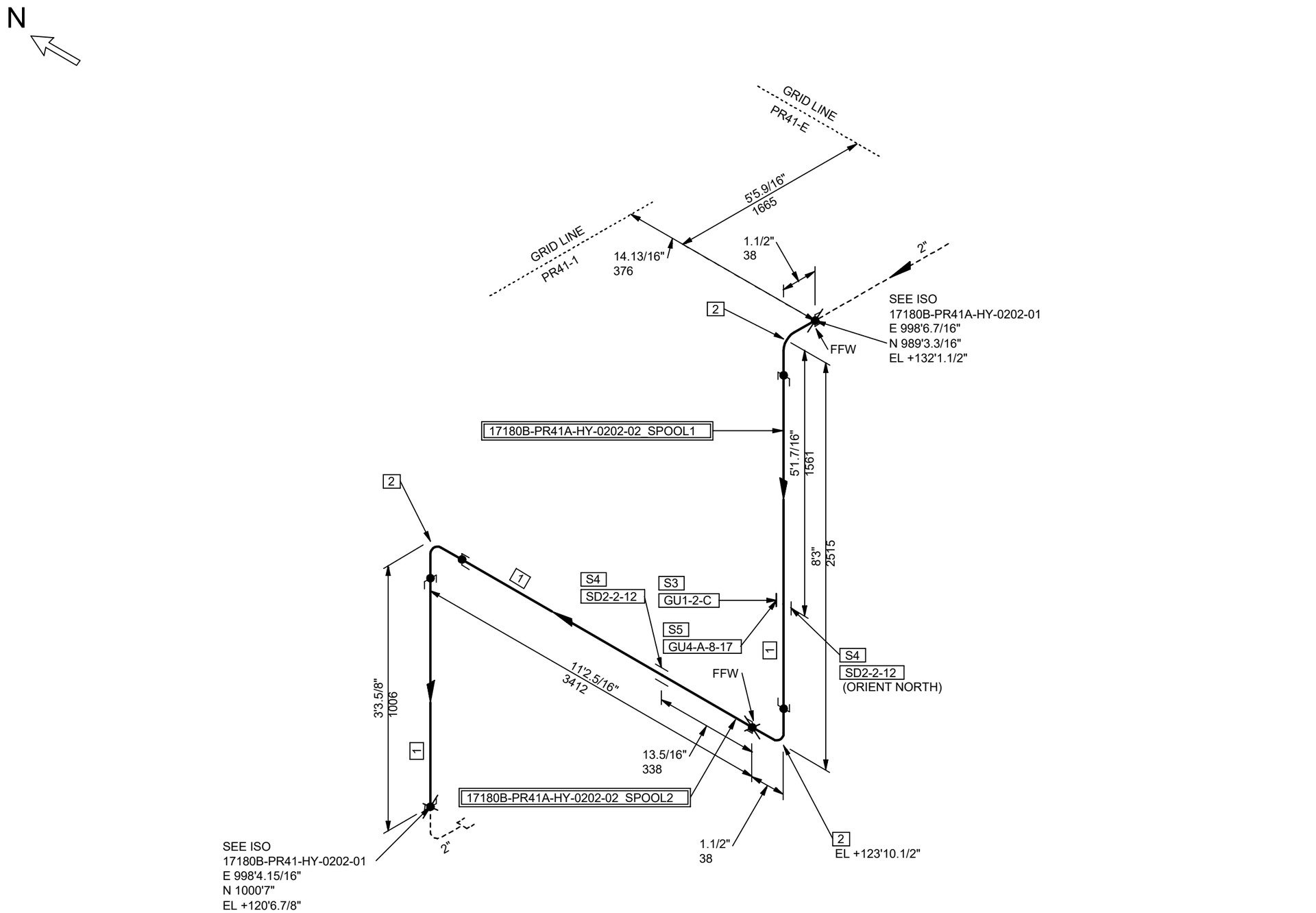
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-HY-0202-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	22.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
ERECTION			
PIPE SUPPORTS			
3	GU1-2-C	2	1
4	SD2-2-12	2	2
5	GU4-A-8-17	2	1

17180B-PR41A-HY-0202-02_SPOOL1 17180B-PR41A-HY-0202-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0204		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/26/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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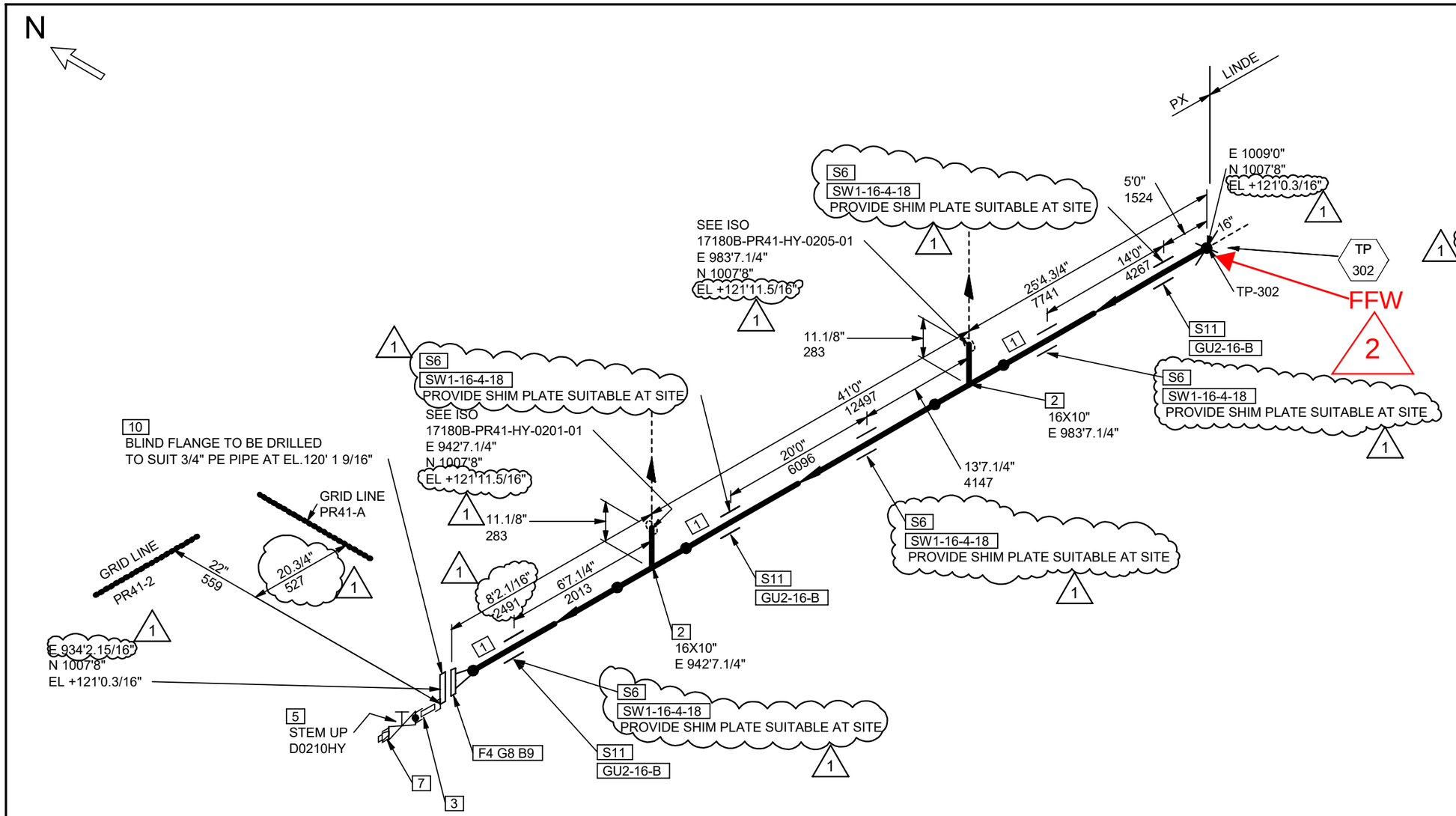
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-HY-0202-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	16	70.1'
2	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	16X10	2
3	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	16	1
5	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
6	SW1-16-4-18	16	5
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	16	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.75 in. Length	1.1/4	20
10	Blind Flg , ASME B16.5 , CL300 , RF , ASTM A105N	16	1
	PIPE SUPPORTS		
11	GU2-16-B	16	3

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0103		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/02/2020	ADDED FFW			
1	11/22/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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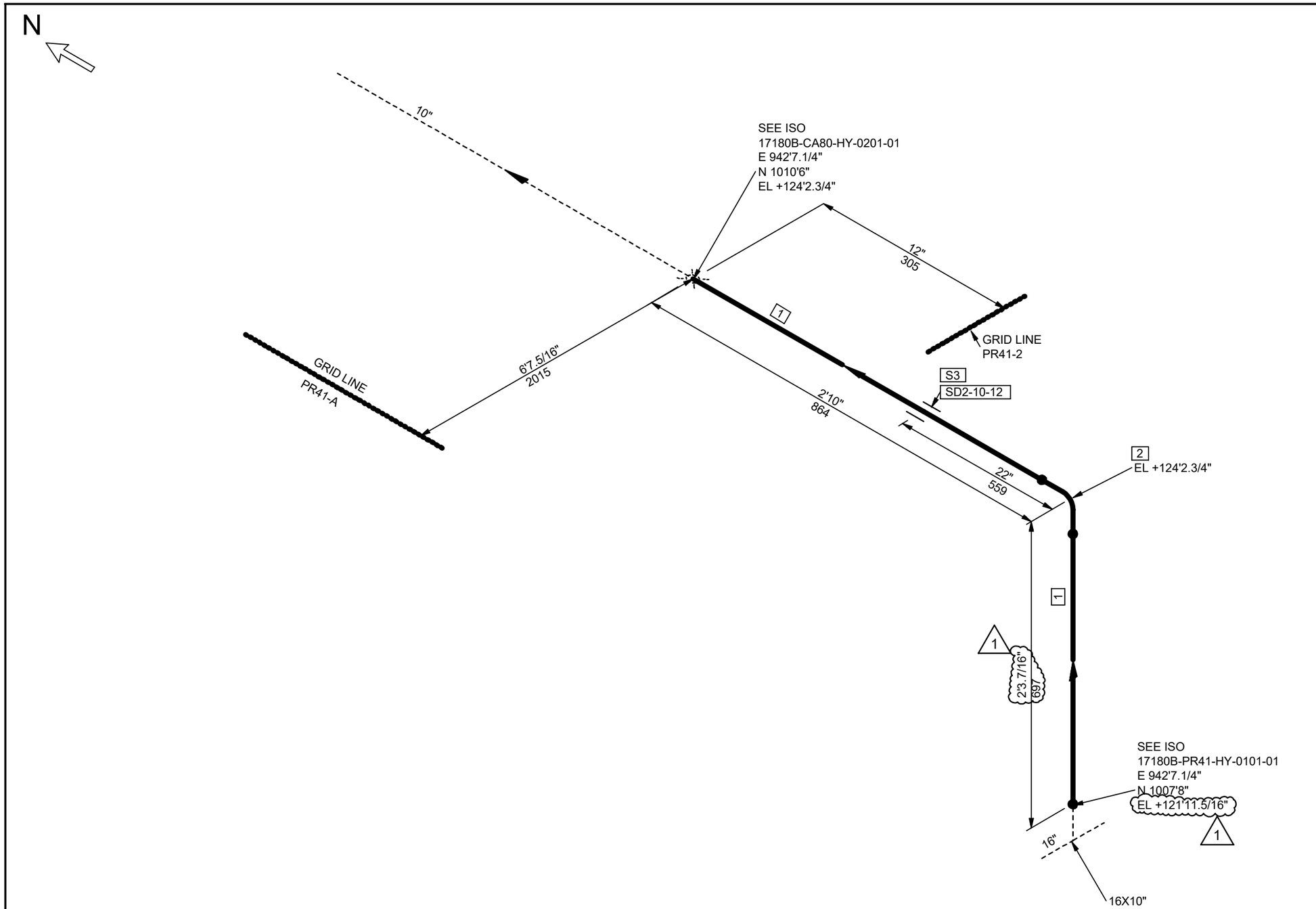
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-HY-0101-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	10	2.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	10	1
	ERECTION		
	PIPE SUPPORTS		
3	SD2-10-12	10	1

LEGEND:

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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

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2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0201		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/21/2019	ISSUED AS MARKED	VT	NNR	MLO
0	09/21/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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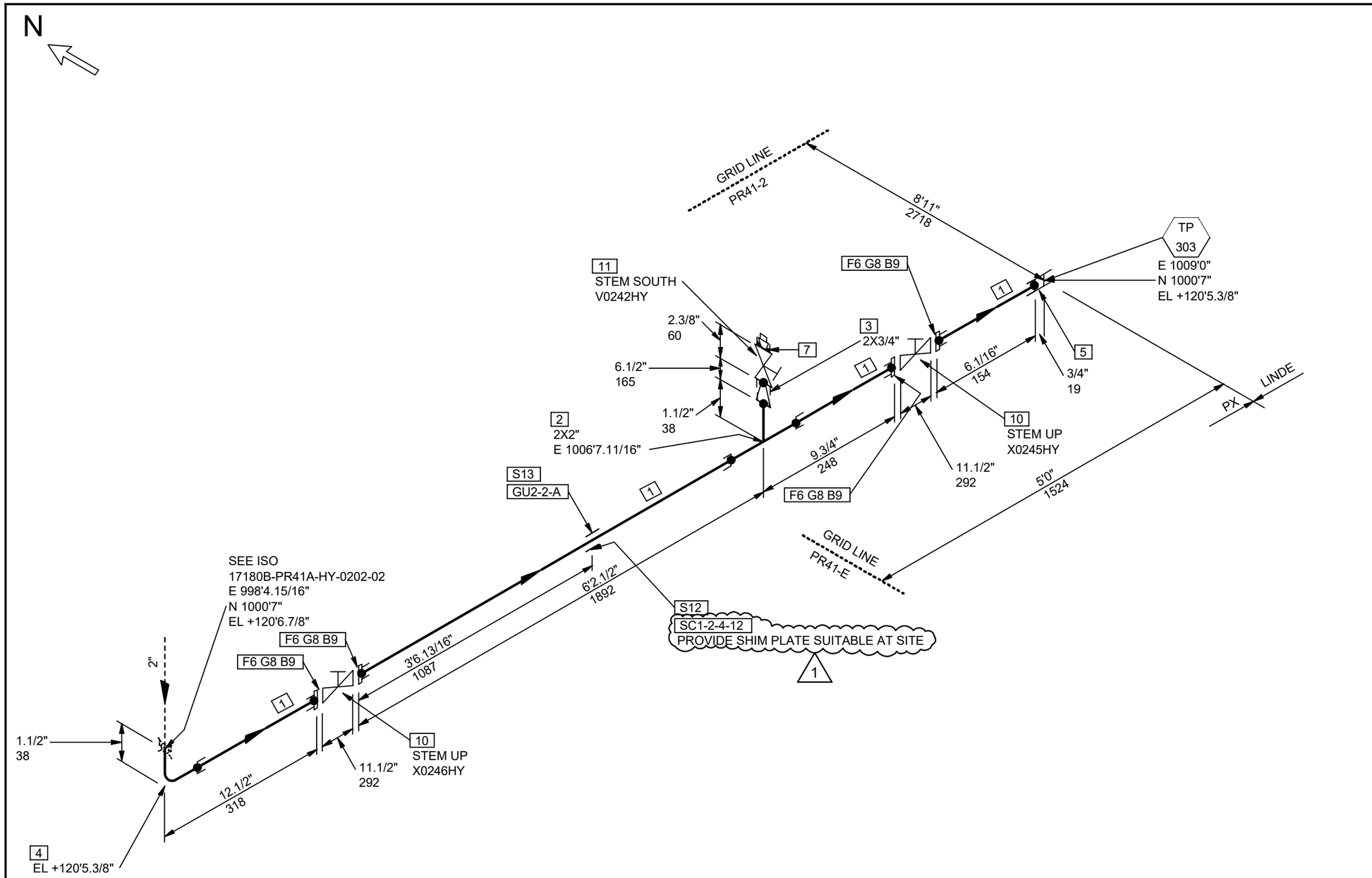
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-HY-0201-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	7.9'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	4
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	4
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	5/8	32
10	Gate Vlv , API 602 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAD	2	2
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
12	SC1-2-4-12	2	1
13	GU2-2-A 1	2	1

LEGEND:

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- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0204		
PIPE SPEC	HCS600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/21/2019	ISSUED AS MARKED	VT	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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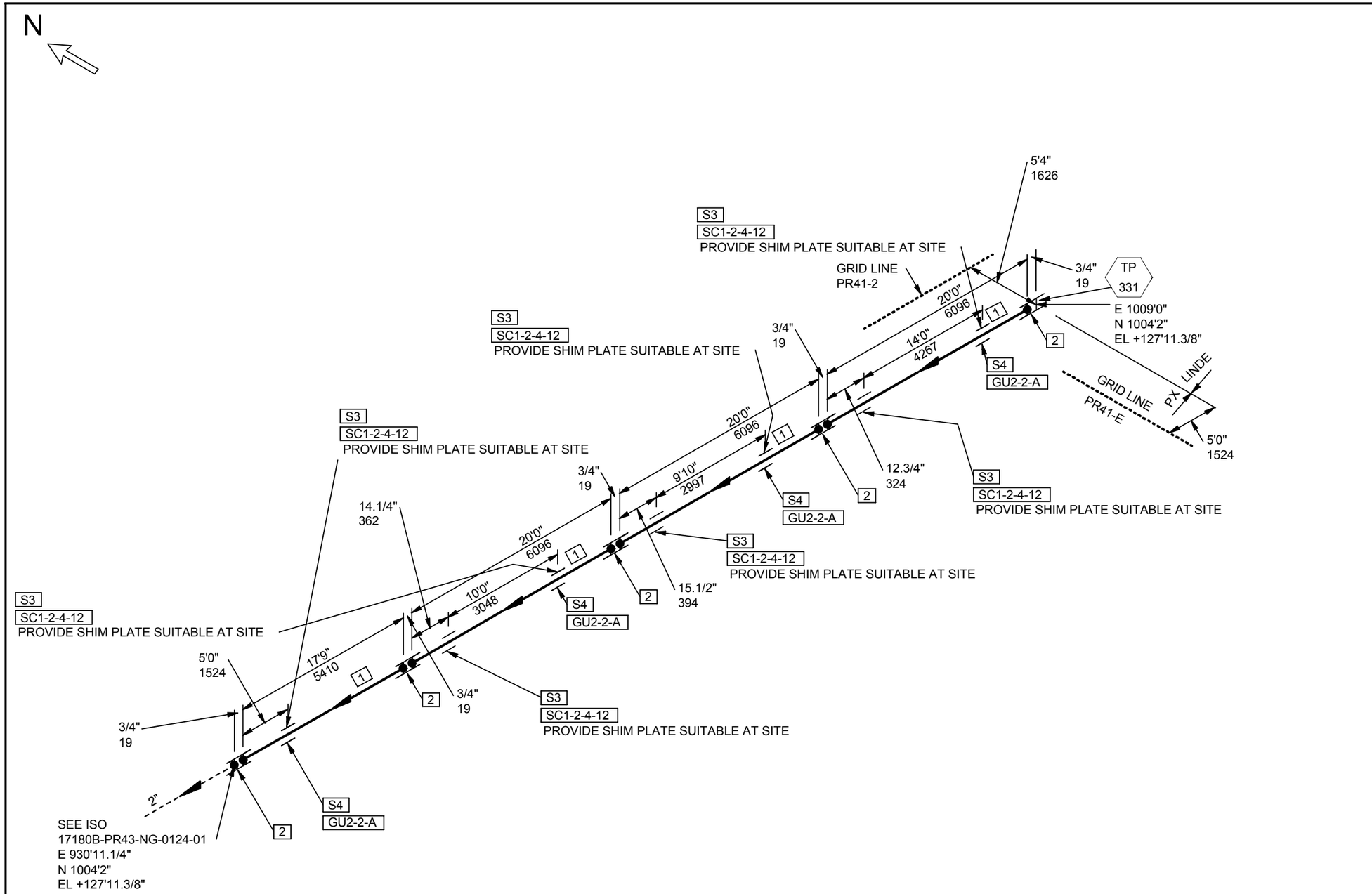
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-HY-0202-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	77.8'
2	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	5
	ERECTION		
	PIPE SUPPORTS		
3	SC1-2-4-12	2	7
4	GU2-2-A	2	4

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/17/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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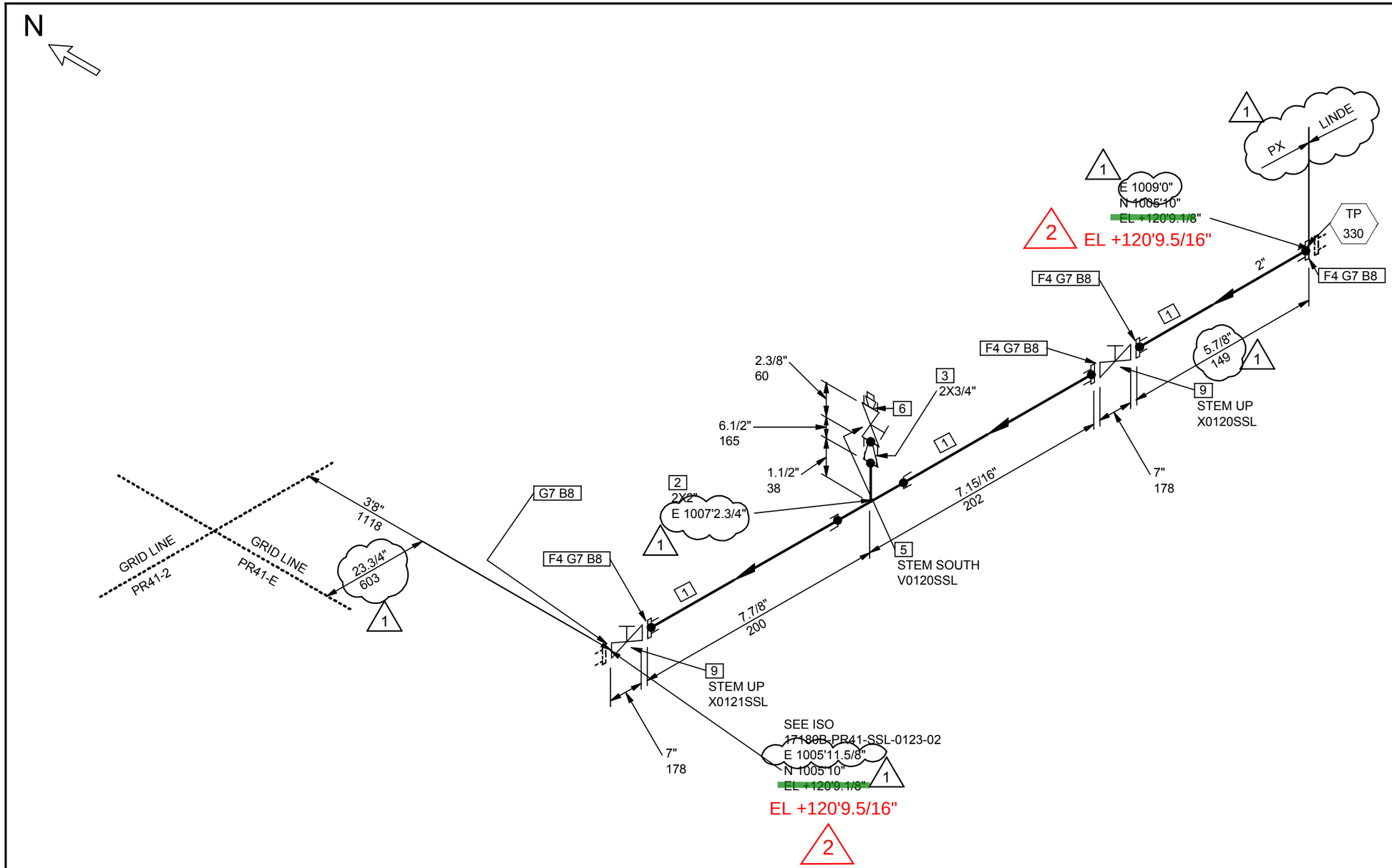
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-NG-0124-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	1.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	4
5	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
7	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	5
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	20
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	2

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/02/2020	CORRECTED ELEVATION TO MATCH MODEL			
1	10/03/2019	ISSUED AS MARKED	SRS	NNR	MLO
0	10/01/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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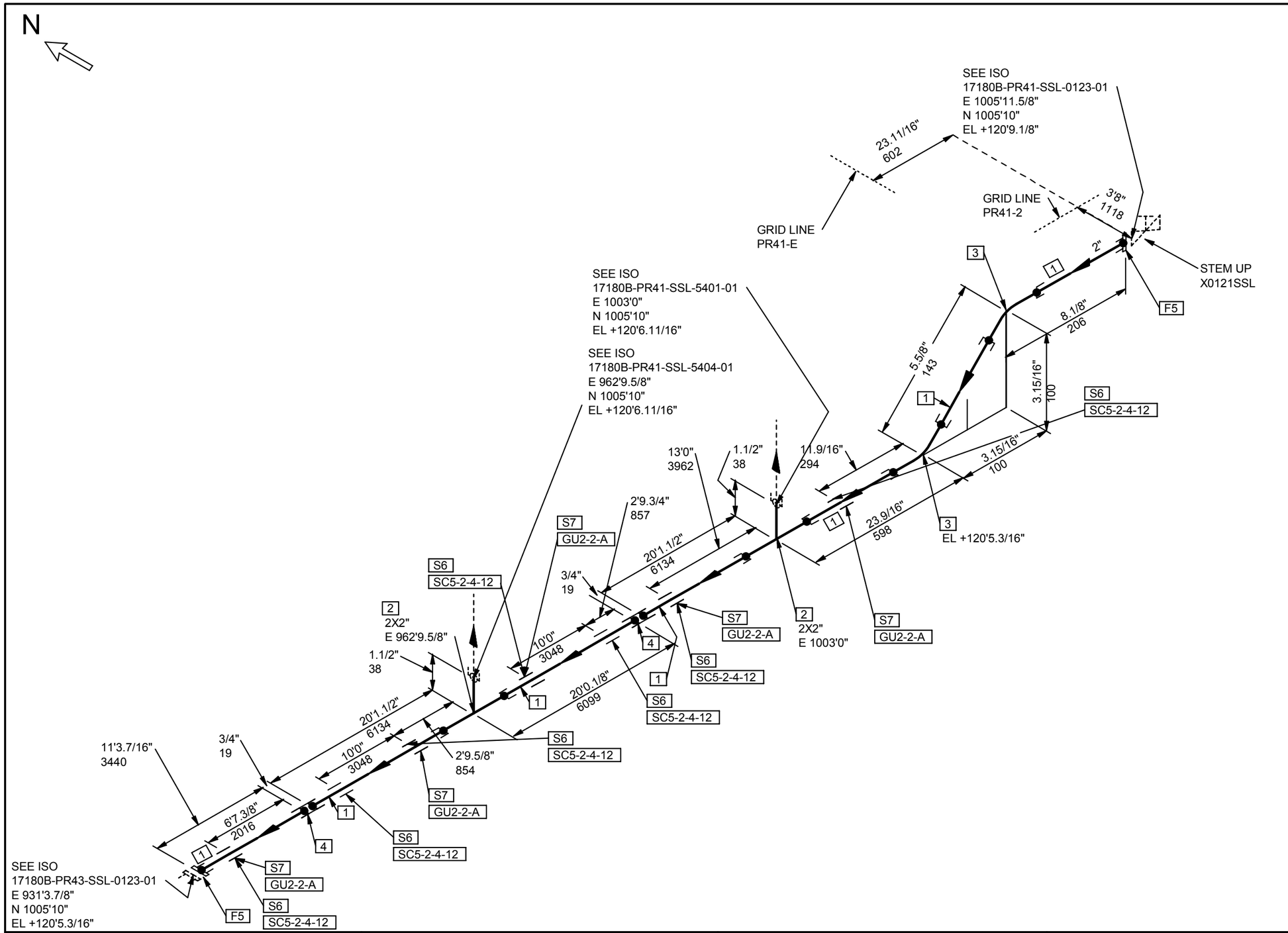
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SSL-0123-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	73.8'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	2
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
	PIPE SUPPORTS		
6	SC5-2-4-12	2	7
7	GU2-2-A	2	5

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ⊠ = FIELD WELD
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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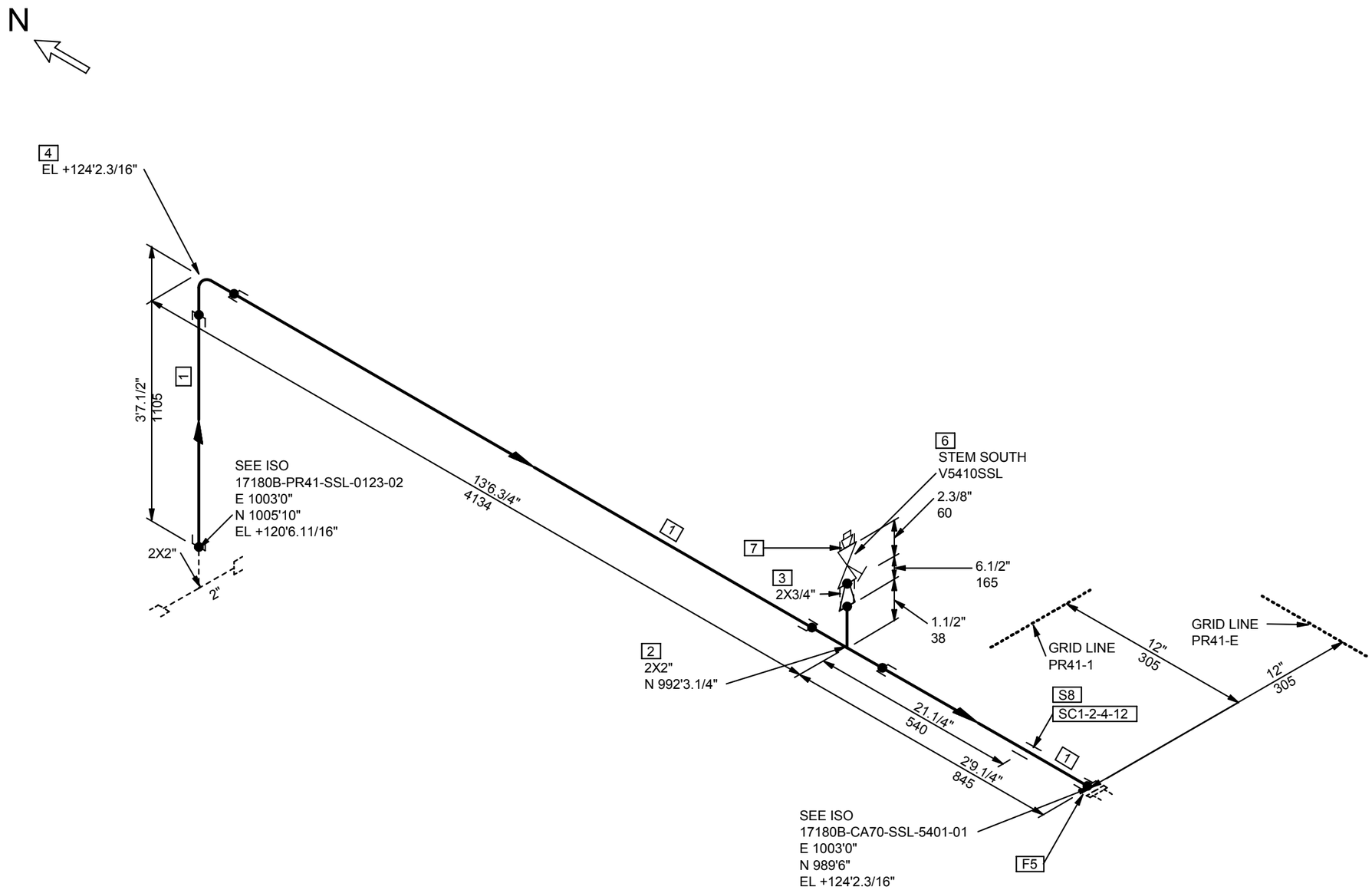
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SSL-0123-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	19.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
ERECTION			
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
PIPE SUPPORTS			
8	SC1-2-4-12	2	1

LEGEND:

- ● = SHOP WELD
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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5401		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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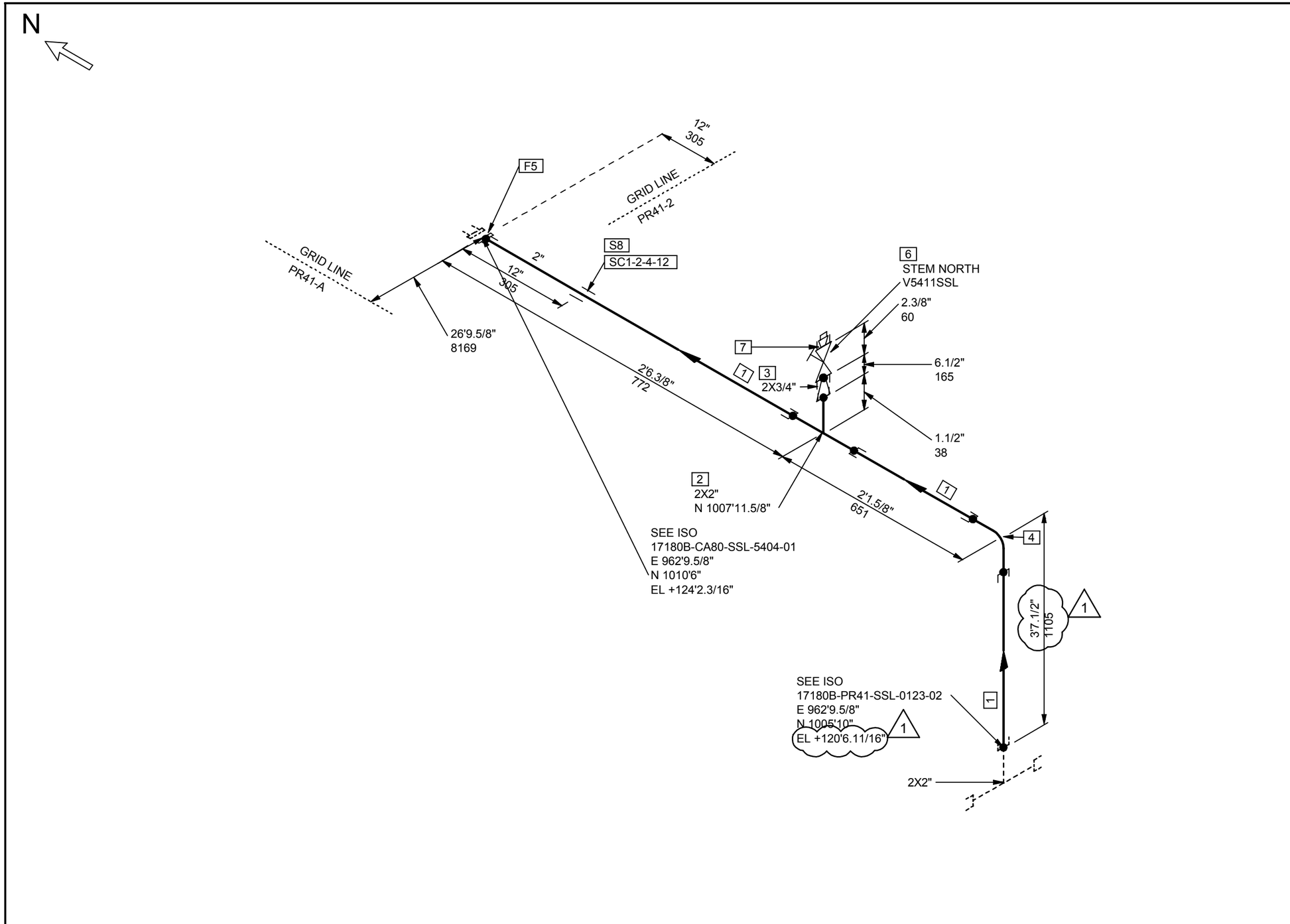
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SSL-5401-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	7.8'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
	PIPE SUPPORTS		
8	SC1-2-4-12	2	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5401		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	09/18/2019	ISSUED AS MARKED	KJ	NNR	MLO
0	09/17/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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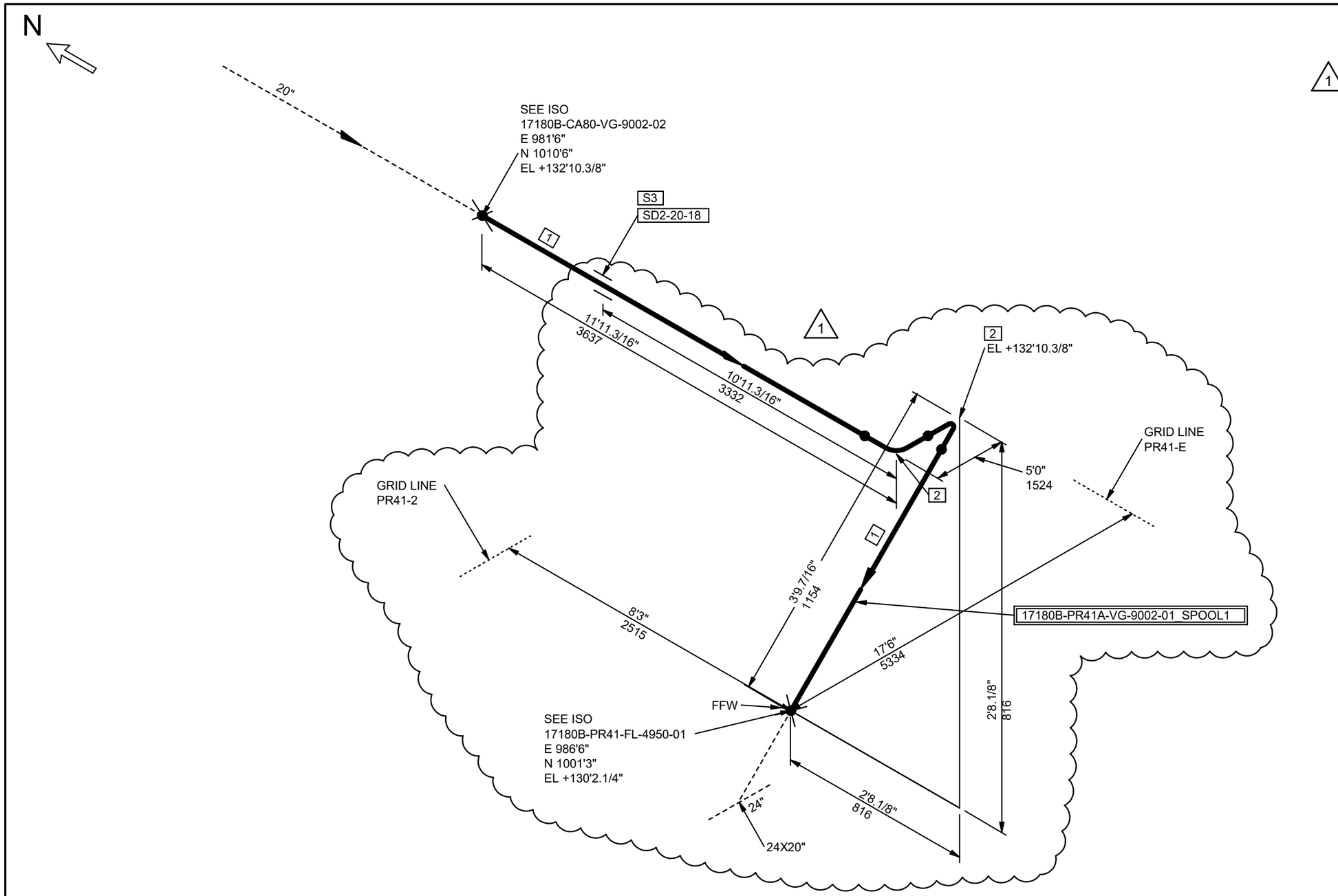
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-SSL-5404-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	11.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	2
	ERECTION		
	PIPE SUPPORTS		
3	SD2-20-18	20	1

17180B-PR41A-VG-9002-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9001		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/17/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	08/02/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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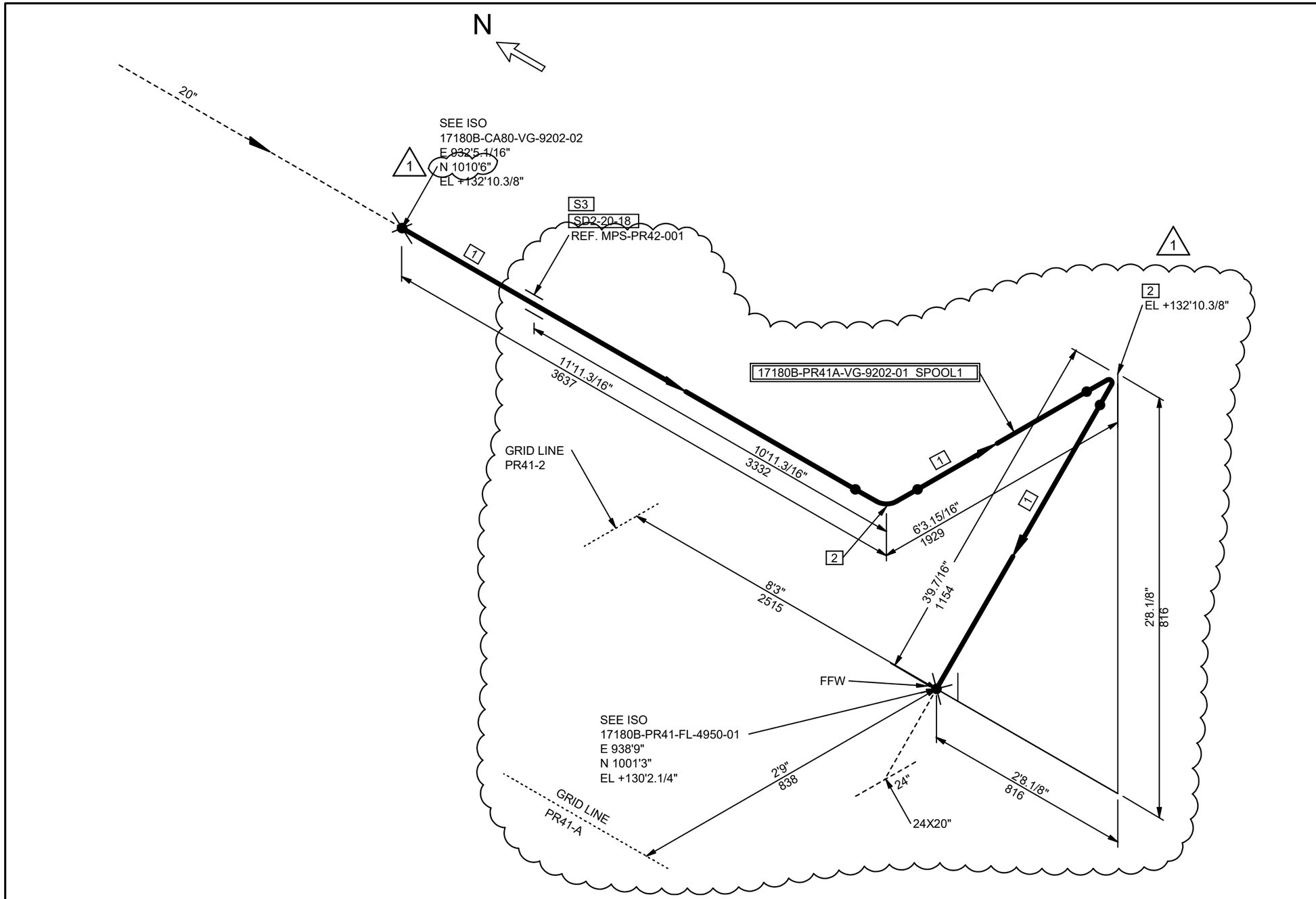
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-VG-9002-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	12.3'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20	2
ERECTION			
PIPE SUPPORTS			
3	SD2-20-18	20	1

17180B-PR41A-VG-9202-01_SPOOL1

LEGEND:

- ● = SHOP WELD
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- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-9201		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/11/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	09/09/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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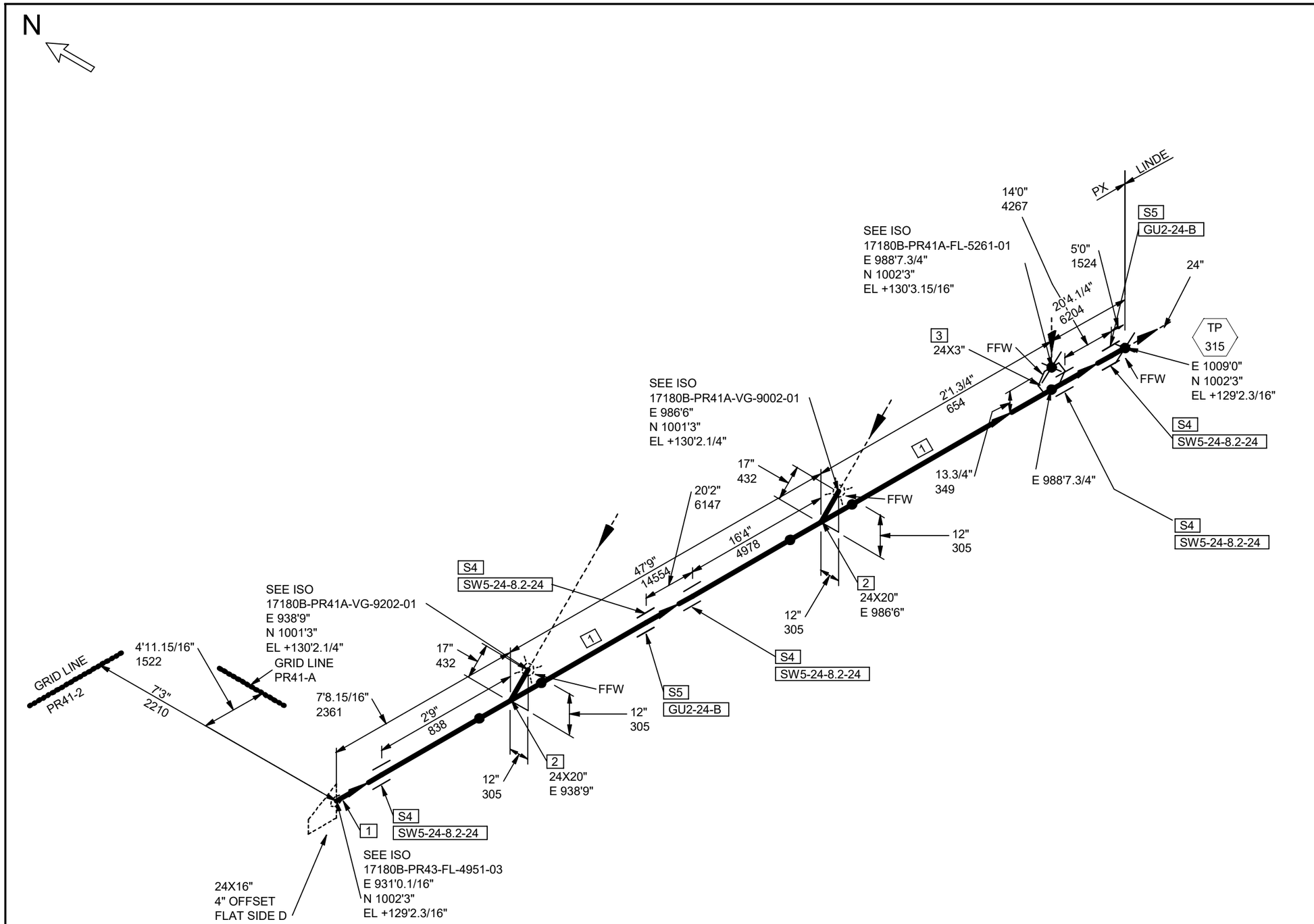
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41A-VG-9202-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	24	72.6'
2	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X20	2
3	Weldolet , MSS SP-97 , BE , ASTM A105N , S-STD , S-STD	24X3	1
	PIPE SUPPORTS		
4	SW5-24-8.2-24	24	5
	ERECTION		
	PIPE SUPPORTS		
5	GU2-24-B	24	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/17/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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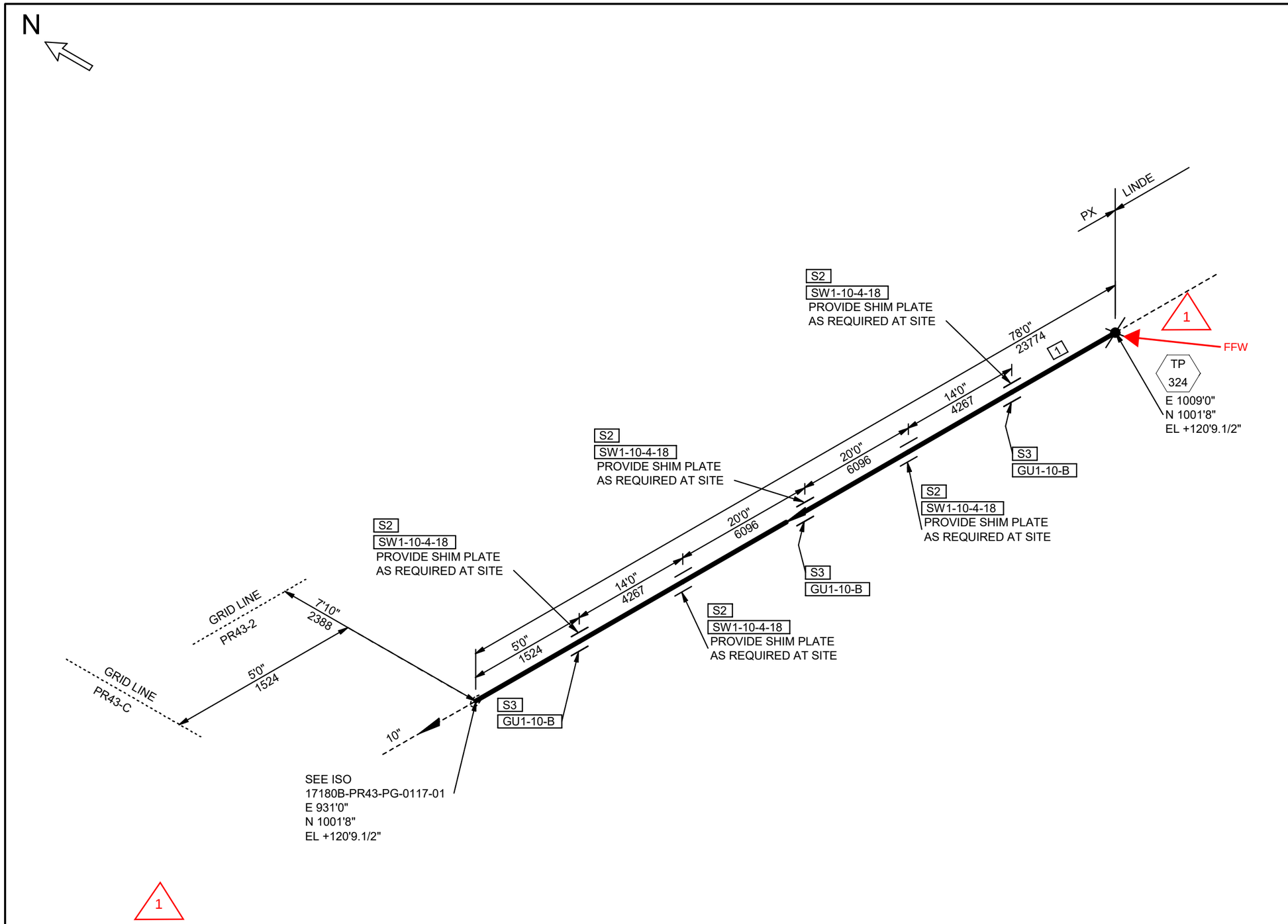
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-FL-4950-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-STD	10	78.0'
PIPE SUPPORTS		
2 SW1-10-4-18	10	5
ERECTION		
PIPE SUPPORTS		
3 GU1-10-B	10	3

Revision Notification

This Document has been modified by Linde Engineering Americas. This revision supersedes all previous versions issued by the vendor.

04/02/2020 1:25:08 PM

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.
3. Contractor to confirm pipe schedules at tie-in points and taper bore as required.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/02/2020	ADDED TAPER BORE REQUIREMENT & FFW			
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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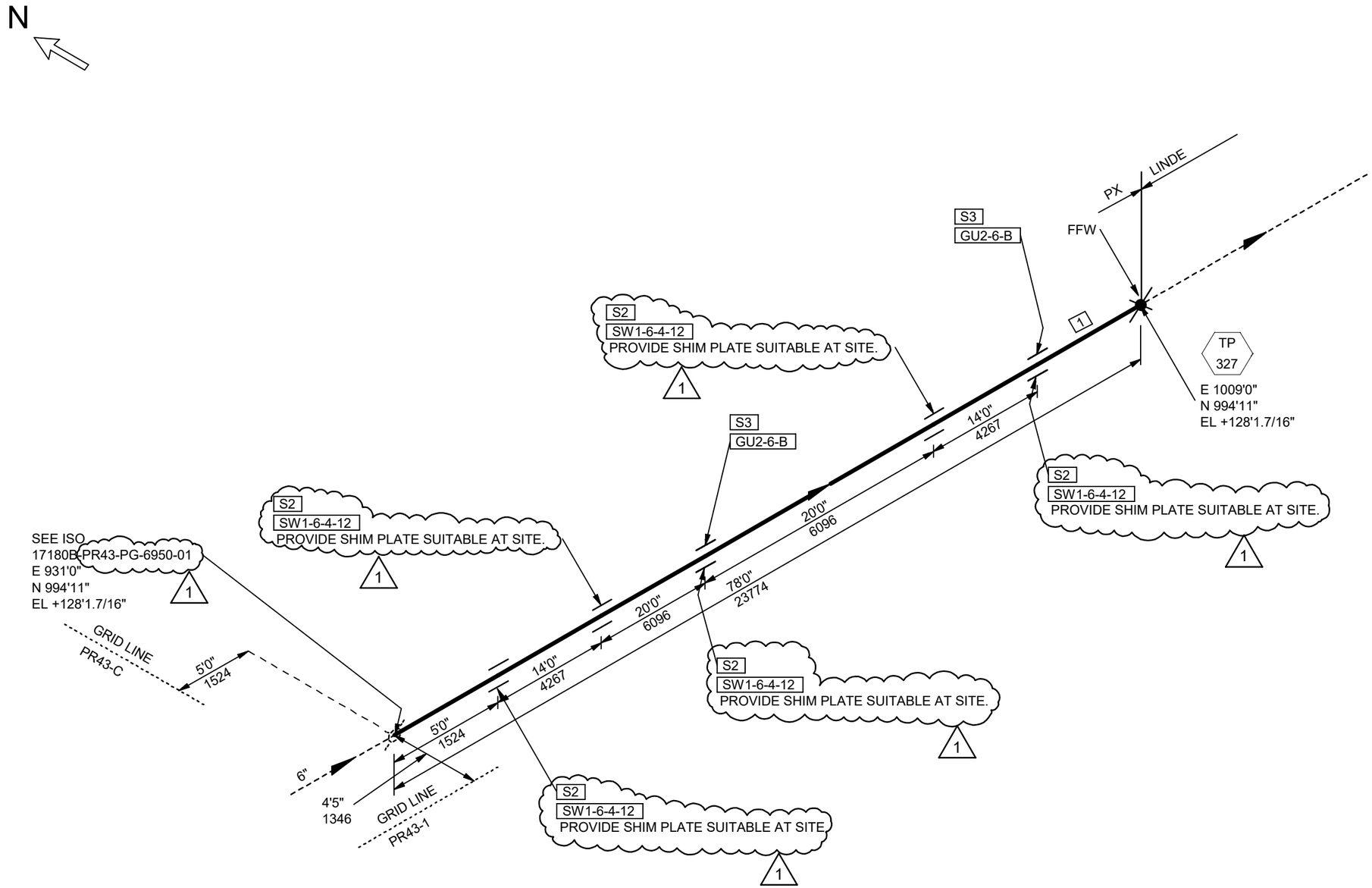
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-PG-0117-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	78.4'
PIPE SUPPORTS		
2 SW1-6-4-12	6	5
ERECTION		
PIPE SUPPORTS		
3 GU2-6-B	6	2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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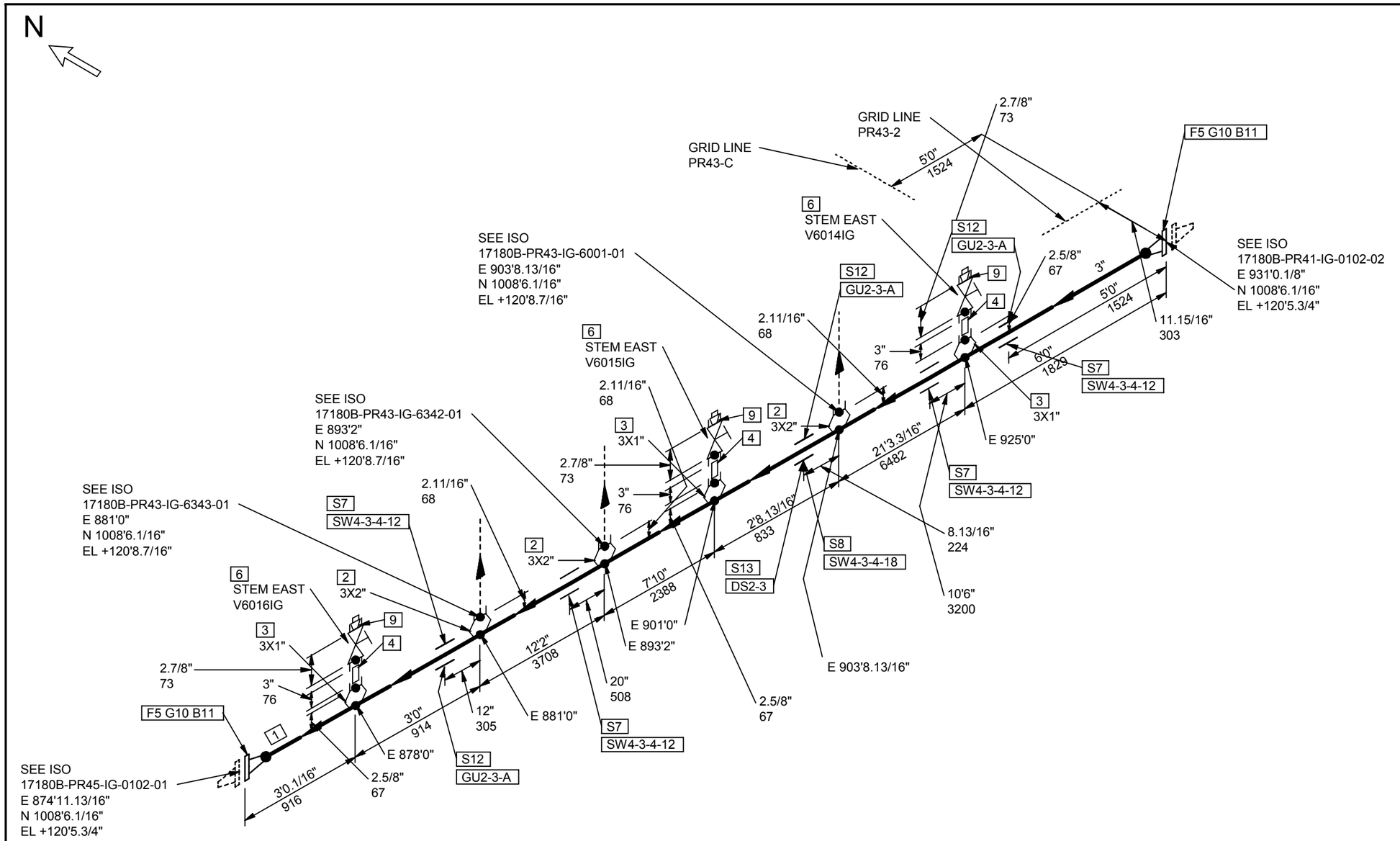
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR41-PG-6950-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	3	55.6'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3X2	3
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3X1	3
4	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	1	3
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	3	2
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1	3
	PIPE SUPPORTS		
7	SW4-3-4-12	3	4
8	SW4-3-4-18	3	1
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1	3
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
	PIPE SUPPORTS		
12	GU2-3-A	3	3
13	DS2-3	3	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/02/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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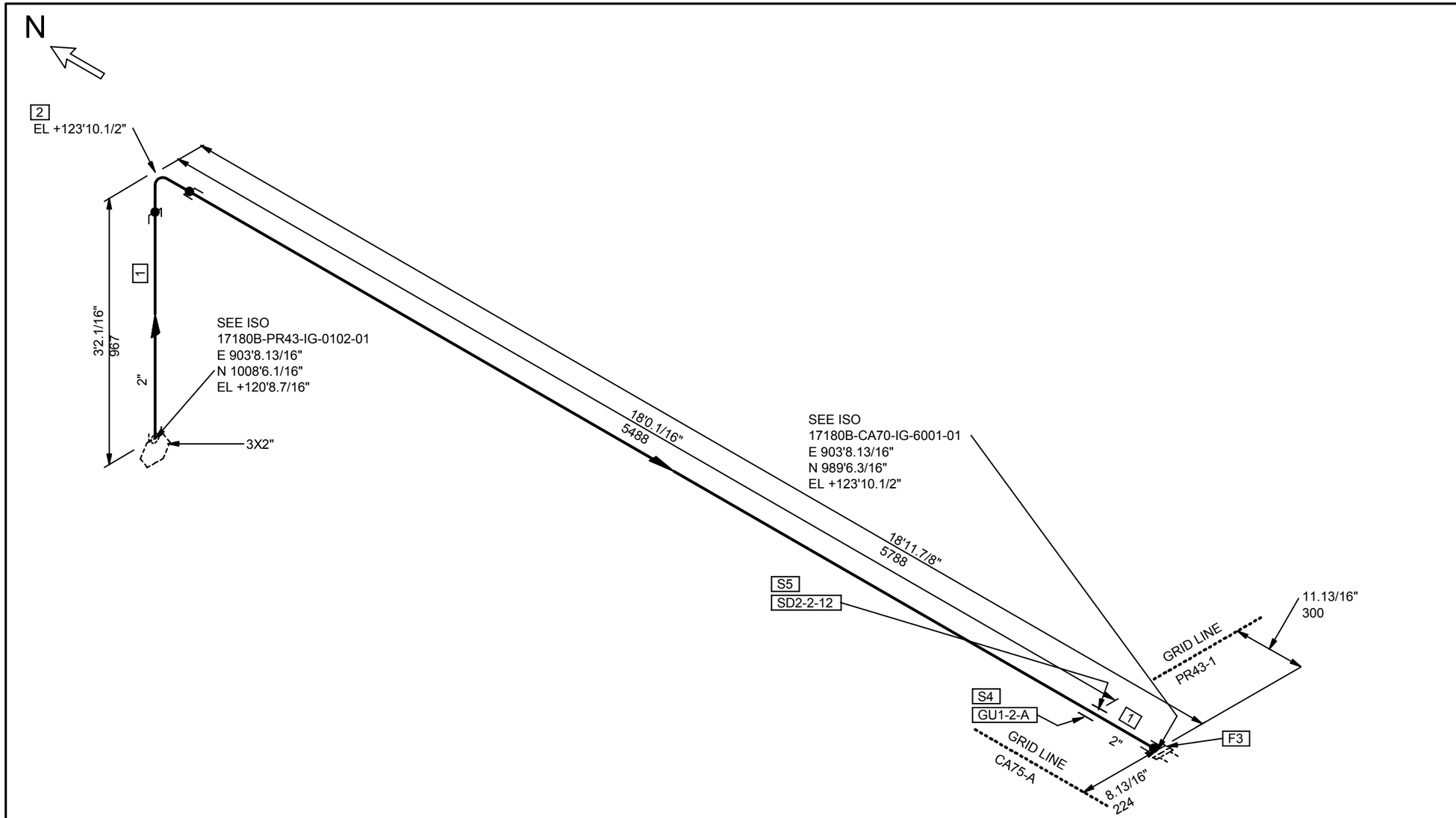
PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-IG-0102-01		REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	21.9'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
PIPE SUPPORTS			
4	GU1-2-A	2	1
5	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELL
- ⊗ = FIELD WELL
- ⊗ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/02/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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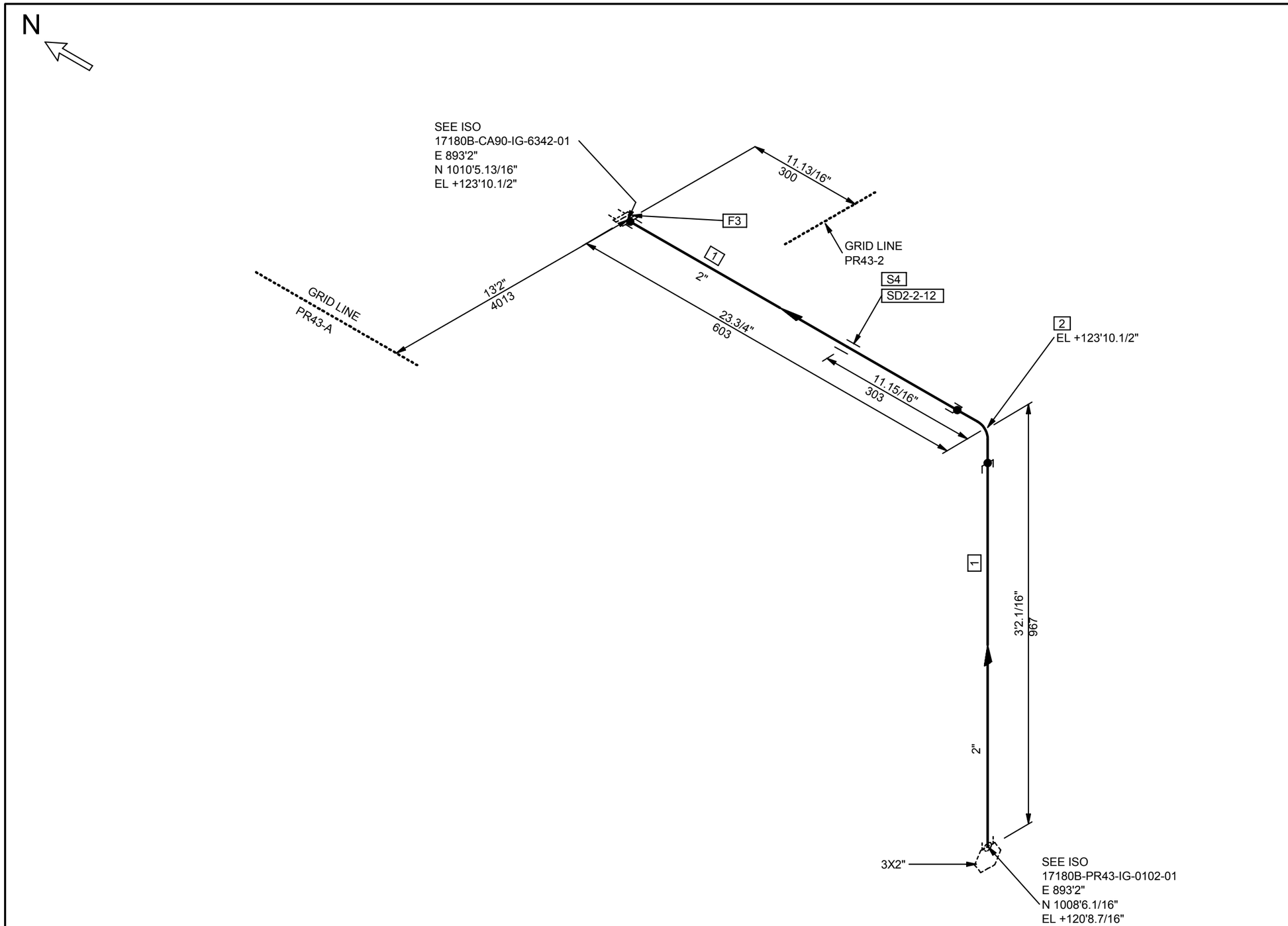
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-IG-6001-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	4.9'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/02/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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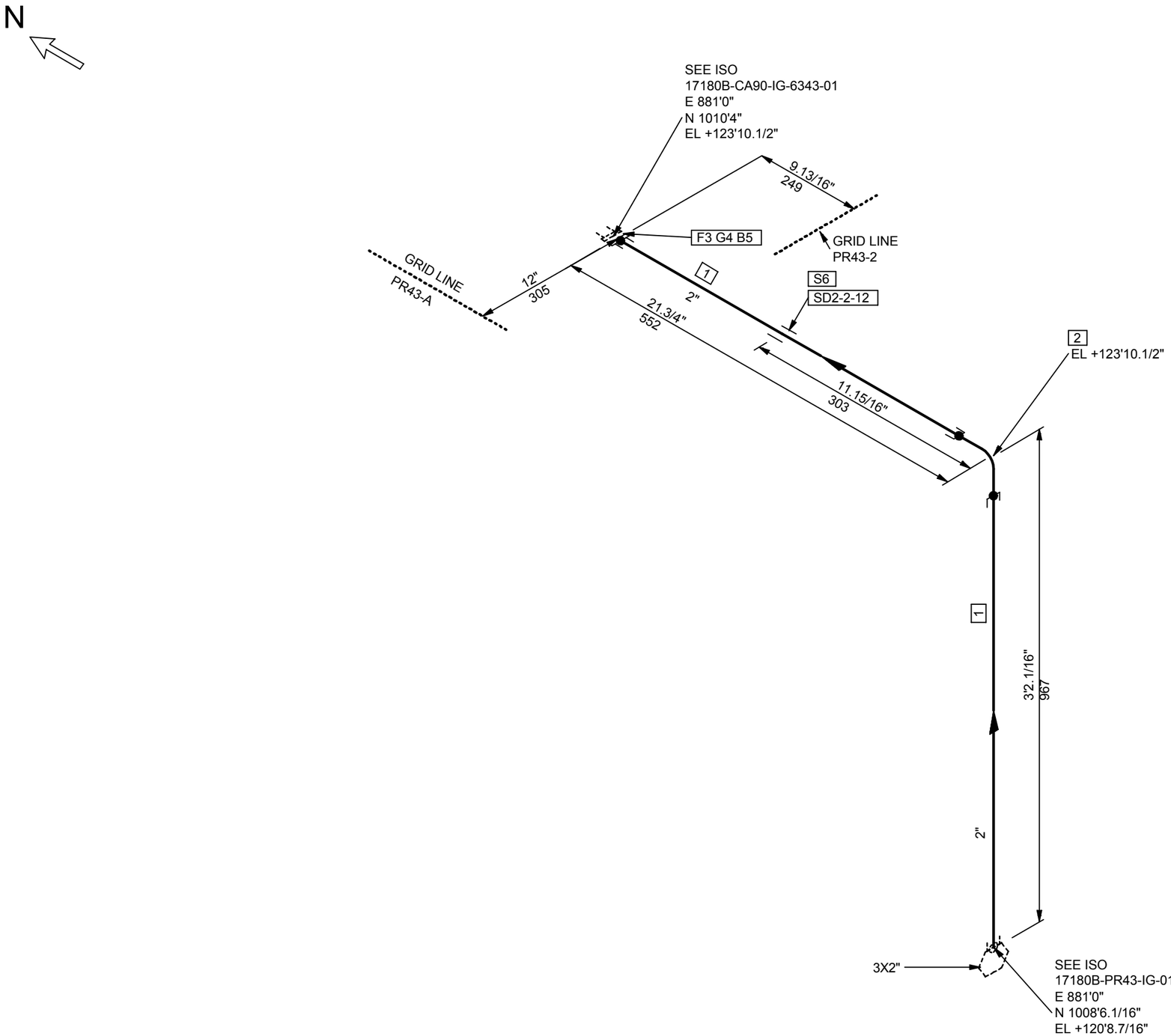
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-IG-6342-01		REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	4.8'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	ERECTION		
4	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
6	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-3001-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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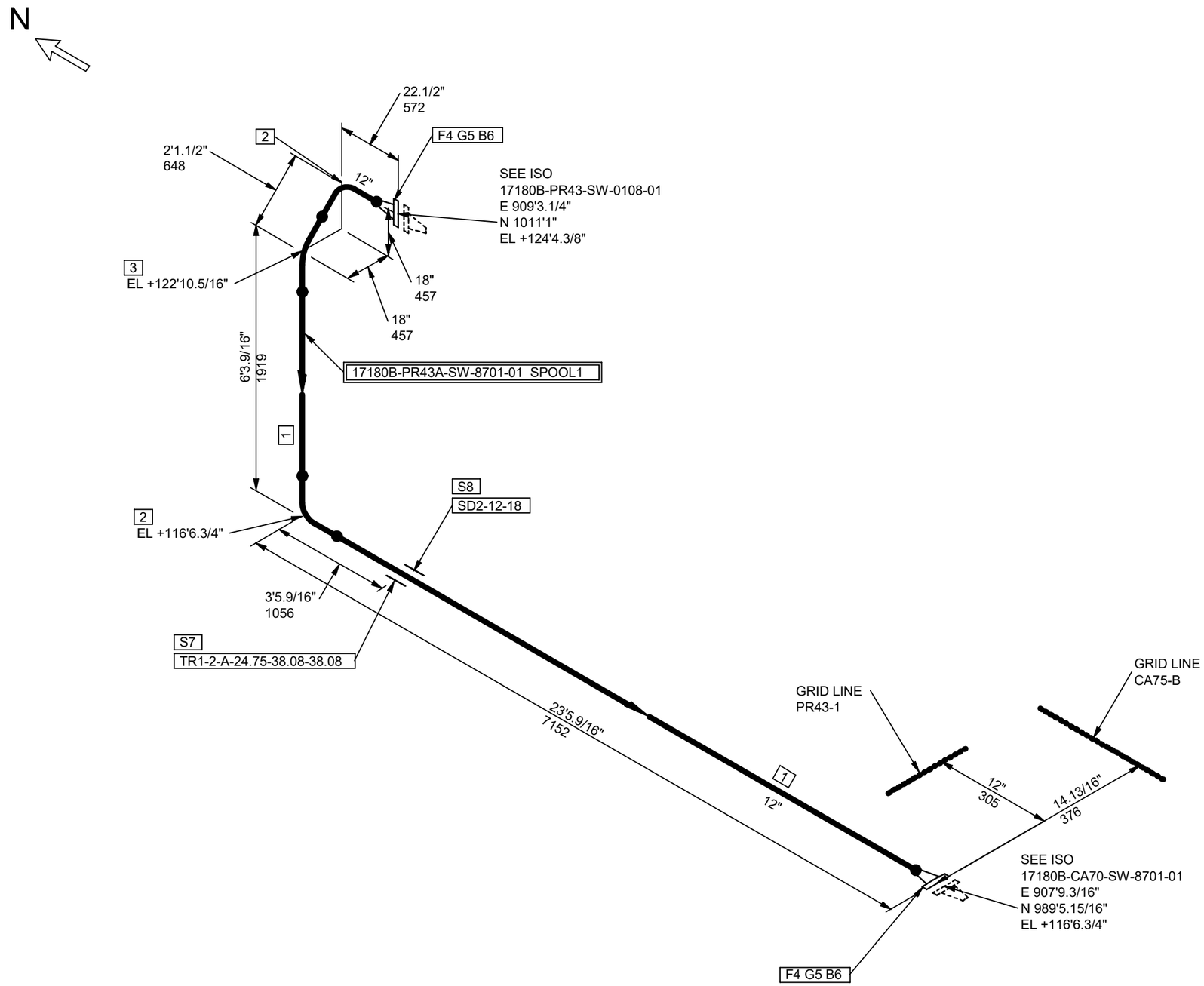
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-IG-6343-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	25.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	2
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	24
	PIPE SUPPORTS		
7	TR1-2-A-24.75-38.08-38.08	12	1
8	SD2-12-18	12	1

17180B-PR43A-SW-8701-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/17/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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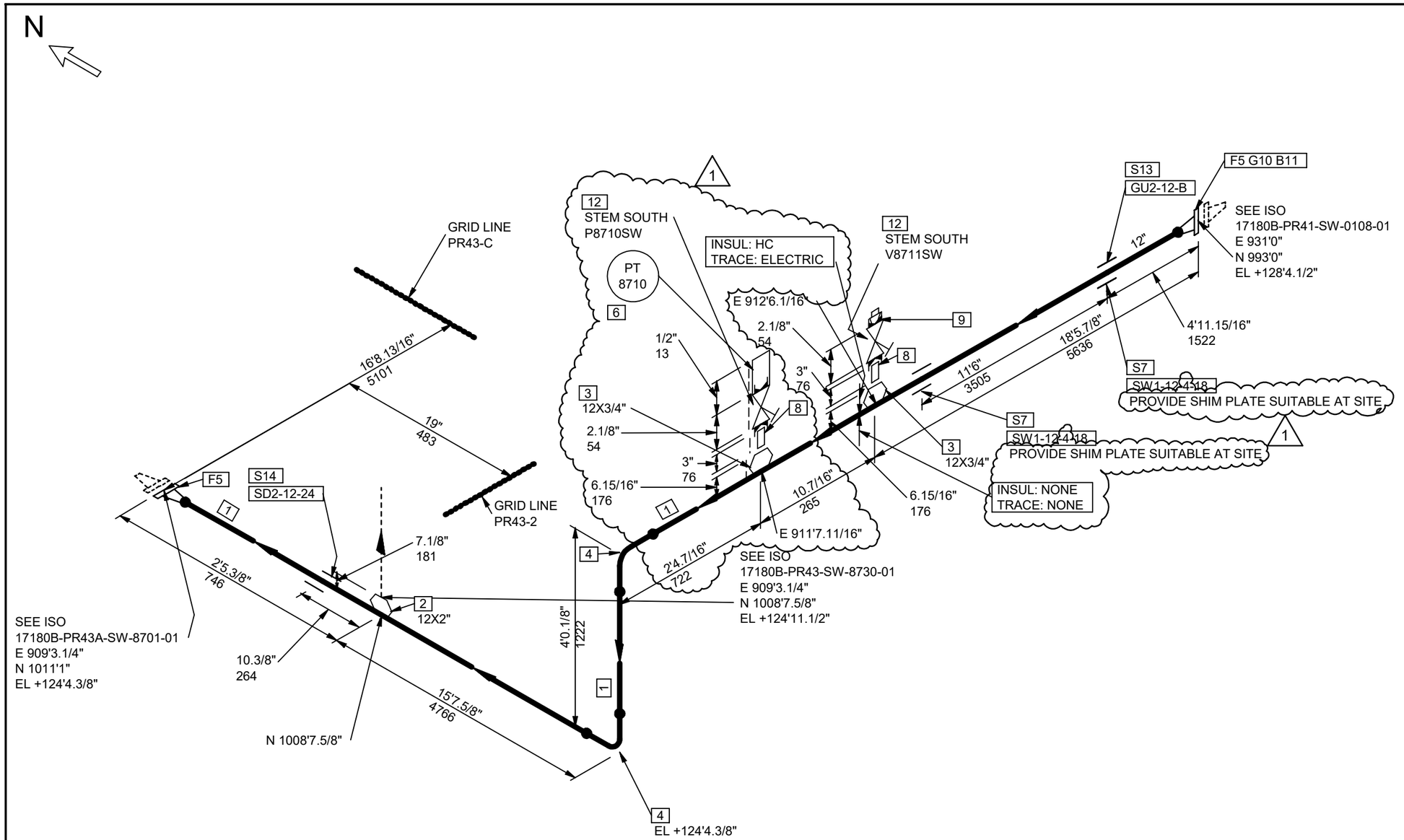
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-SW-8701-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	37.1'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X3/4	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	2
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	2
	INSTRUMENTS		
6	PT-8710	3/4	1
	PIPE SUPPORTS		
7	SW1-12-4-18	12	2
	ERECTION		
8	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	2
9	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
12	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
	PIPE SUPPORTS		
13	GU2-12-B	12	1
14	SD2-12-24	12	1

LEGEND:

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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/21/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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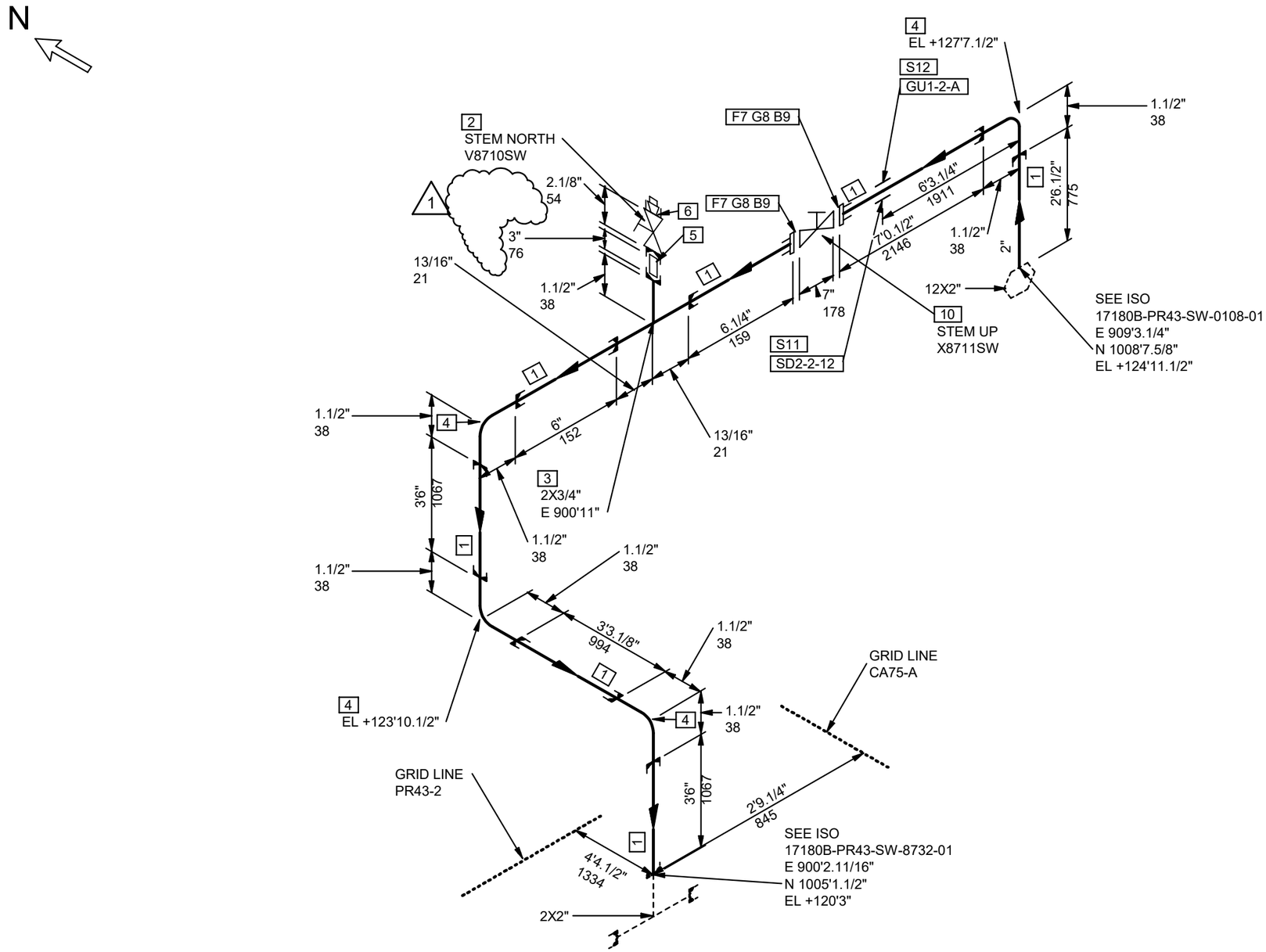
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-SW-0108-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	20.9'
2	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	ERECTION		
3	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	2X3/4	1
4	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	4
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
6	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
10	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
	PIPE SUPPORTS		
11	SD2-2-12	2	1
12	GU1-2-A	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/26/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

PRAXAIR

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IHI E&C International Corporation
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15377 Memorial Drive
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Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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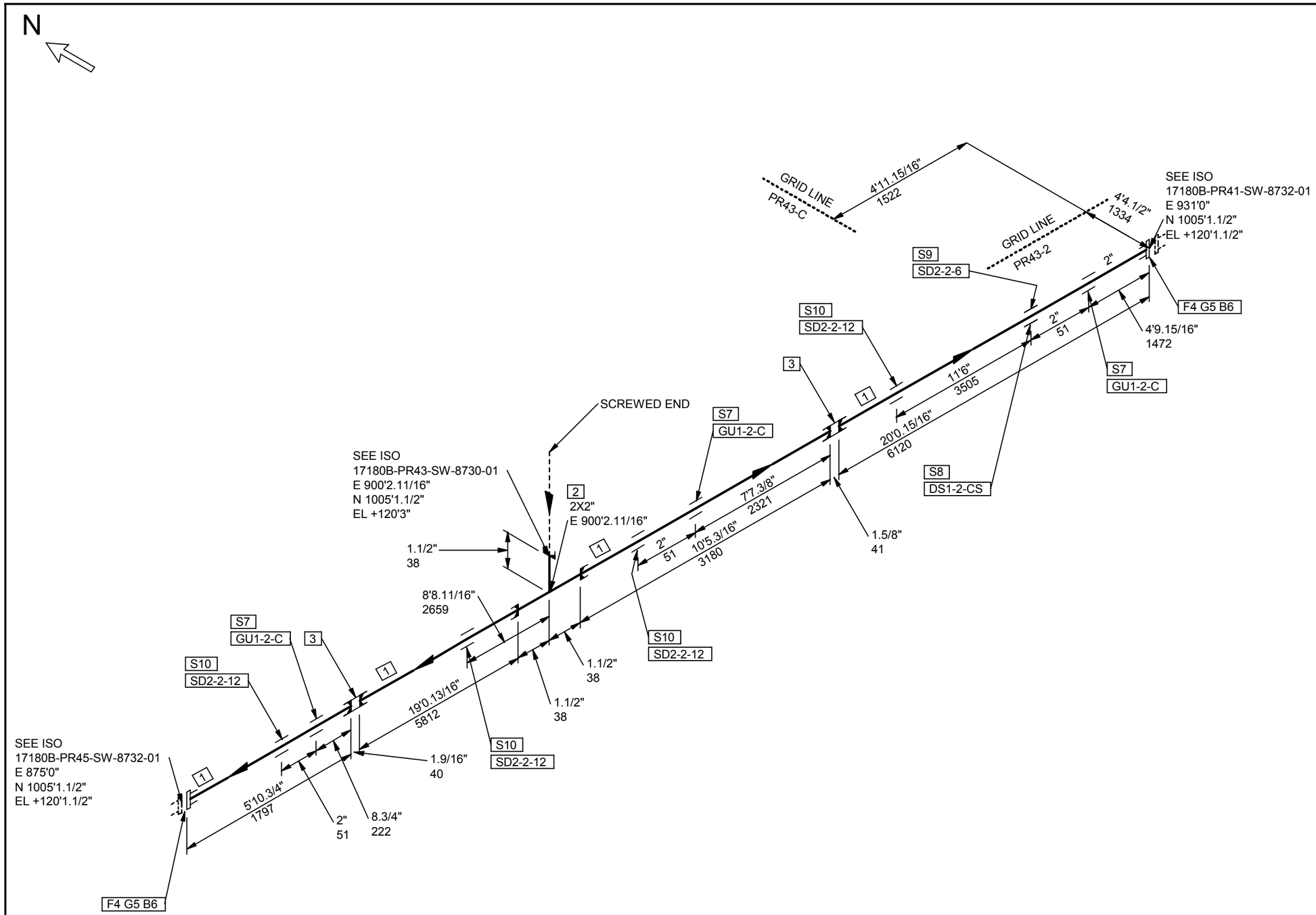
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-SW-8730-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	55.5'
	ERECTION		
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	2X2	1
3	Coupling/Connector , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
4	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
	PIPE SUPPORTS		
7	GU1-2-C	2	3
8	DS1-2-CS	2	1
9	SD2-2-6	2	1
10	SD2-2-12	2	4

LEGEND:

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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/02/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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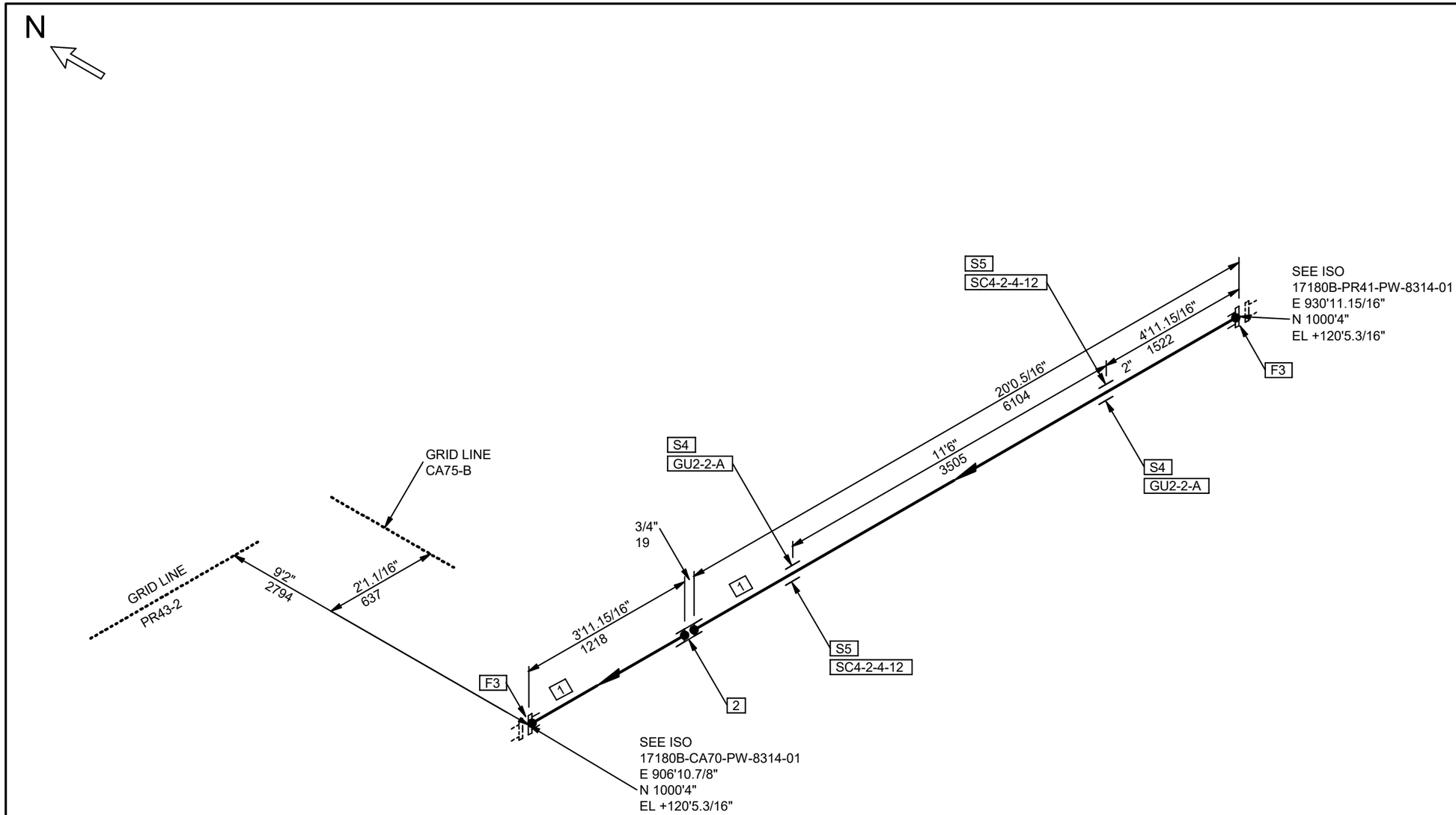
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-SW-8732-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	24.0'
2	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , FF , ASTM A182 Grade F 304/F 304L , S-40S	2	2
ERECTION			
PIPE SUPPORTS			
4	GU2-2-A	2	2
5	SC4-2-4-12	2	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8301		
PIPE SPEC	HSA150U1	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	04/02/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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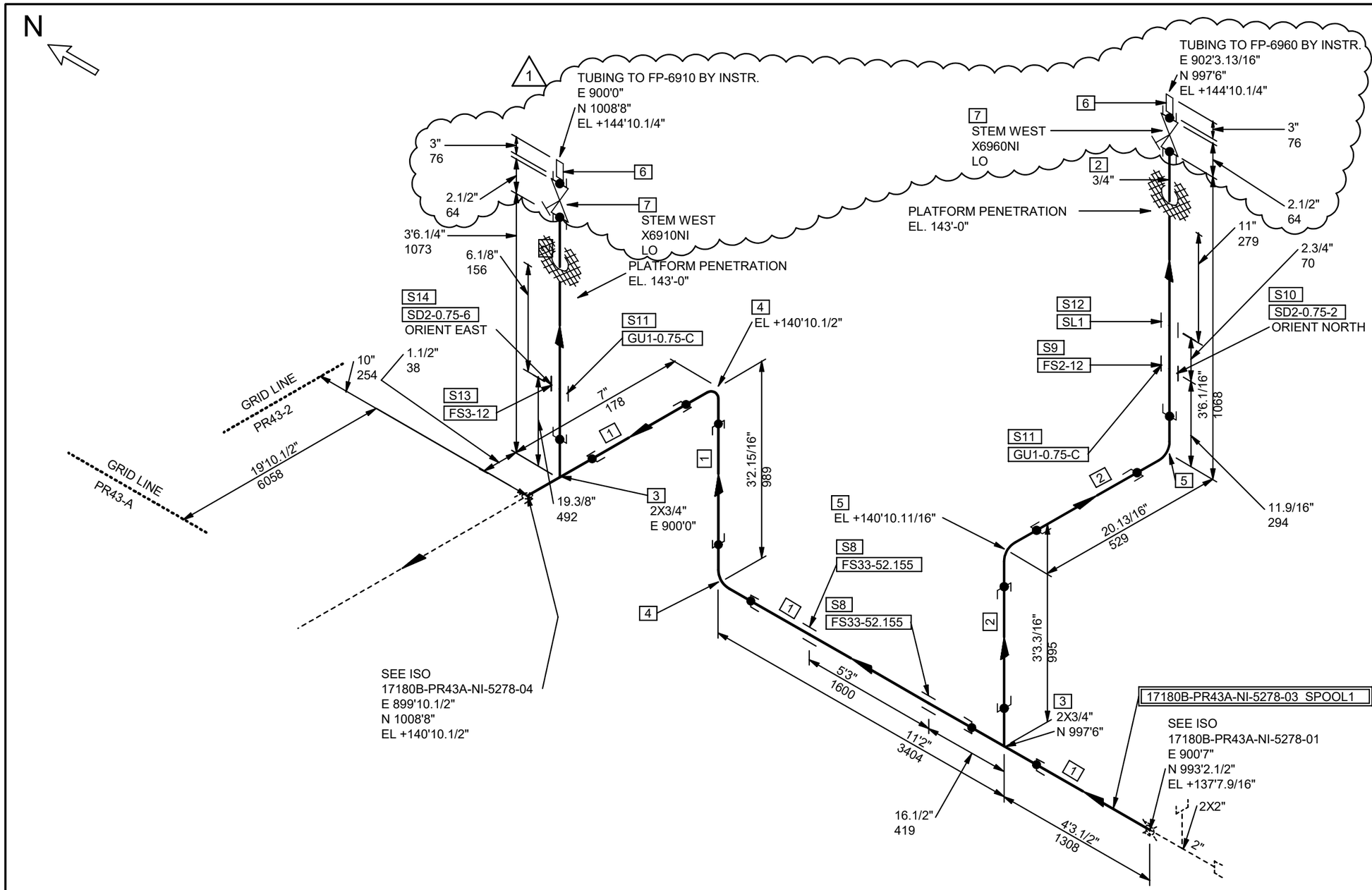
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PW-8314-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	18.5'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	3/4	11.6'
3	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X3/4	2
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	3/4	2
6	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 3in Long , SMLS , S-160 , S-160	3/4	2
7	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	3/4	2
	ERECTION		
	PIPE SUPPORTS		
8	FS33-52.155	2	2
9	FS2-12	3/4	1
10	SD2-0.75-2	3/4	1
11	GU1-0.75-C	3/4	2
12	SL1	3/4	1
13	FS3-12	3/4	1
14	SD2-0.75-6	3/4	1

17180B-PR43A-NI-5278-03_SPOOL1

LEGEND:

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- ✱ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/26/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	02/14/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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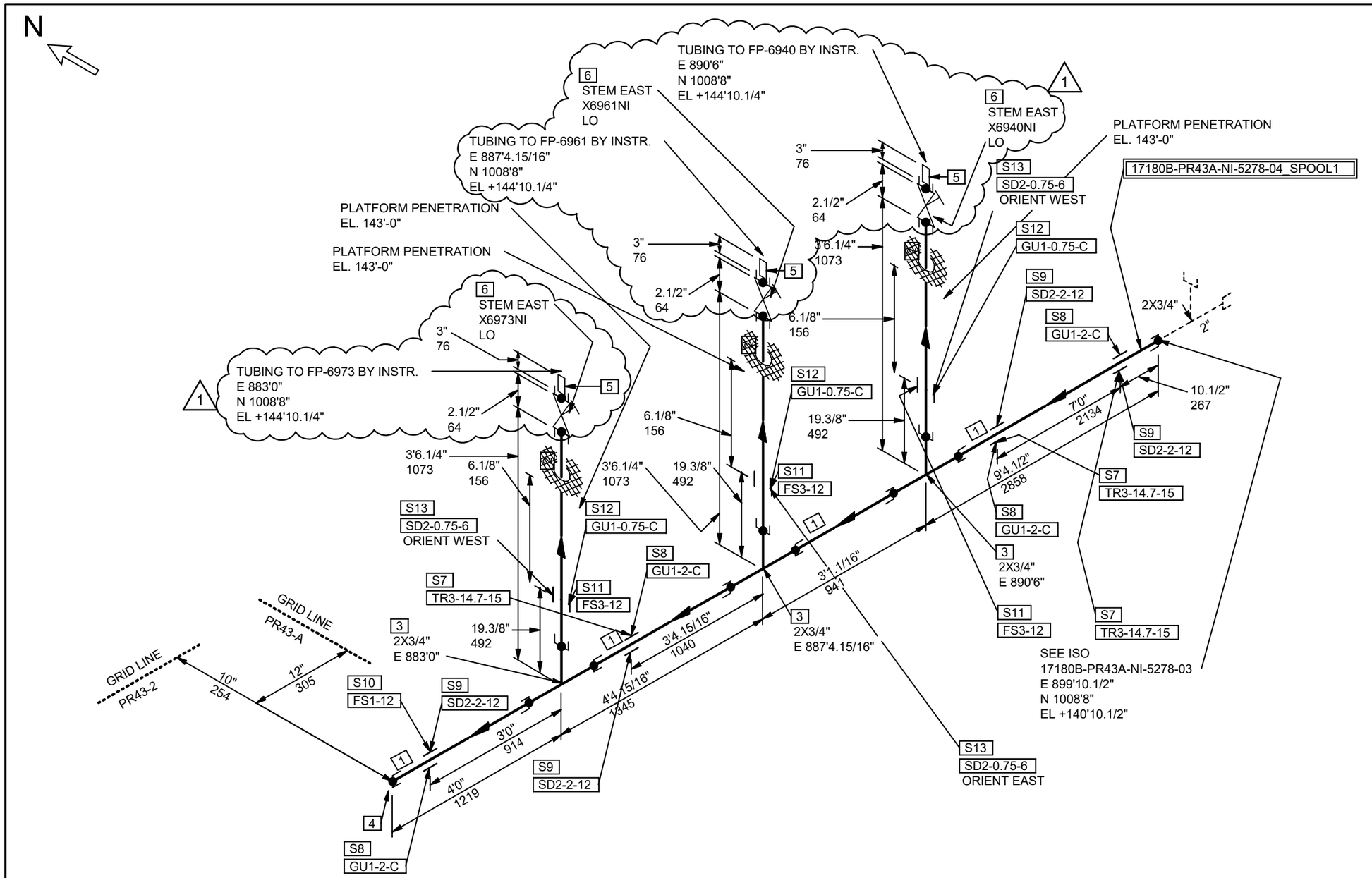
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-5278-03	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	20.2'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	3/4	10.2'
3	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X3/4	3
4	Cap , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 3in Long , SMLS , S-160 , S-160	3/4	3
6	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	3/4	3
ERECTION			
PIPE SUPPORTS			
7	TR3-14.7-15	2	3
8	GU1-2-C	2	4
9	SD2-2-12	2	4
10	FS1-12	2	1
11	FS3-12	3/4	3
12	GU1-0.75-C	3/4	3
13	SD2-0.75-6	3/4	3

17180B-PR43A-NI-5278-04_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/26/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	02/14/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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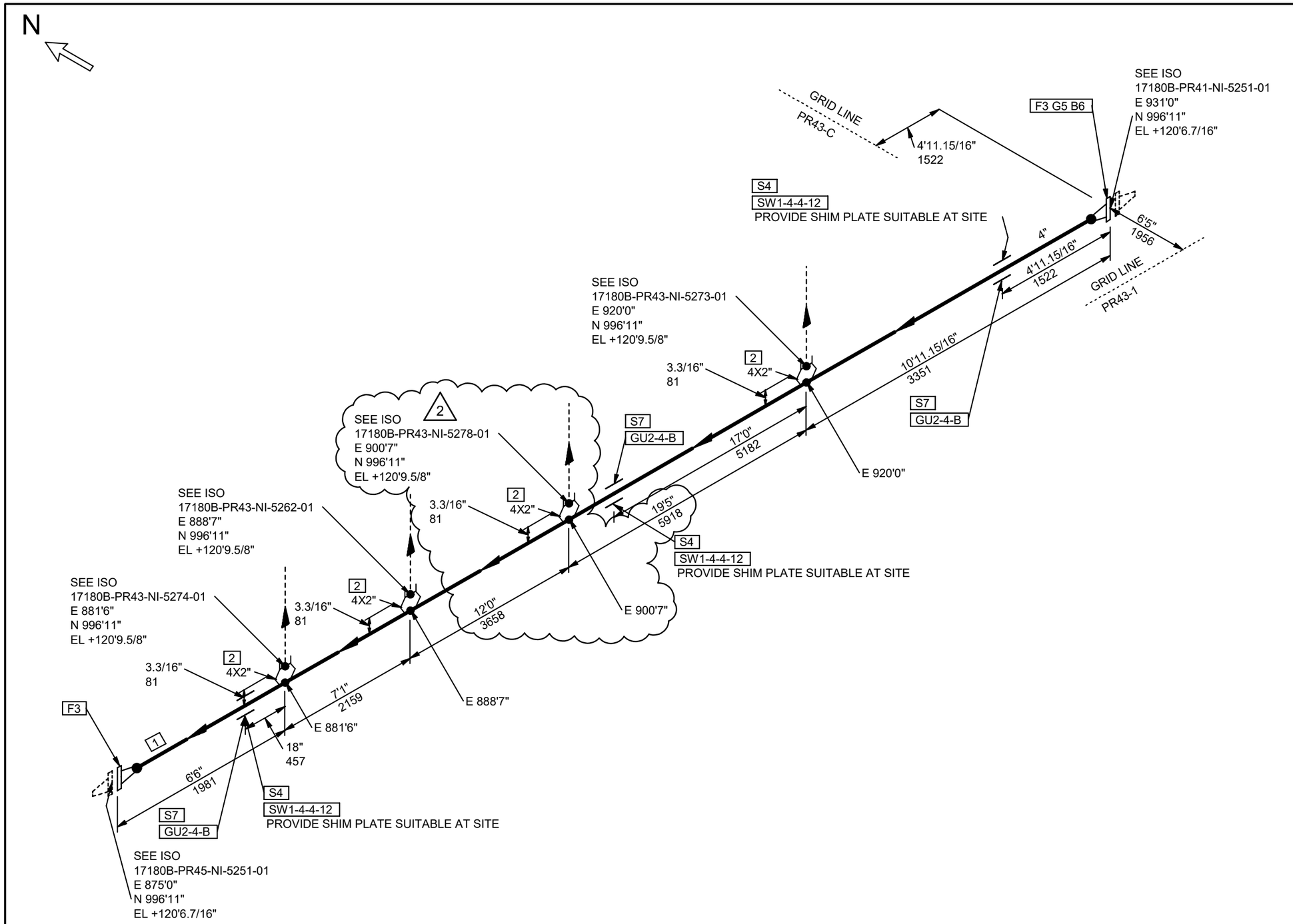
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-5278-04	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	55.5'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X2	4
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	2
	PIPE SUPPORTS		
4	SW1-4-4-12	4	3
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	8
	PIPE SUPPORTS		
7	GU2-4-B	4	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	02/14/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	10/17/2019	RE-ISSUED FOR CONSTRUCTION	SBD	NNR	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
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- — — = HEAT TRACING

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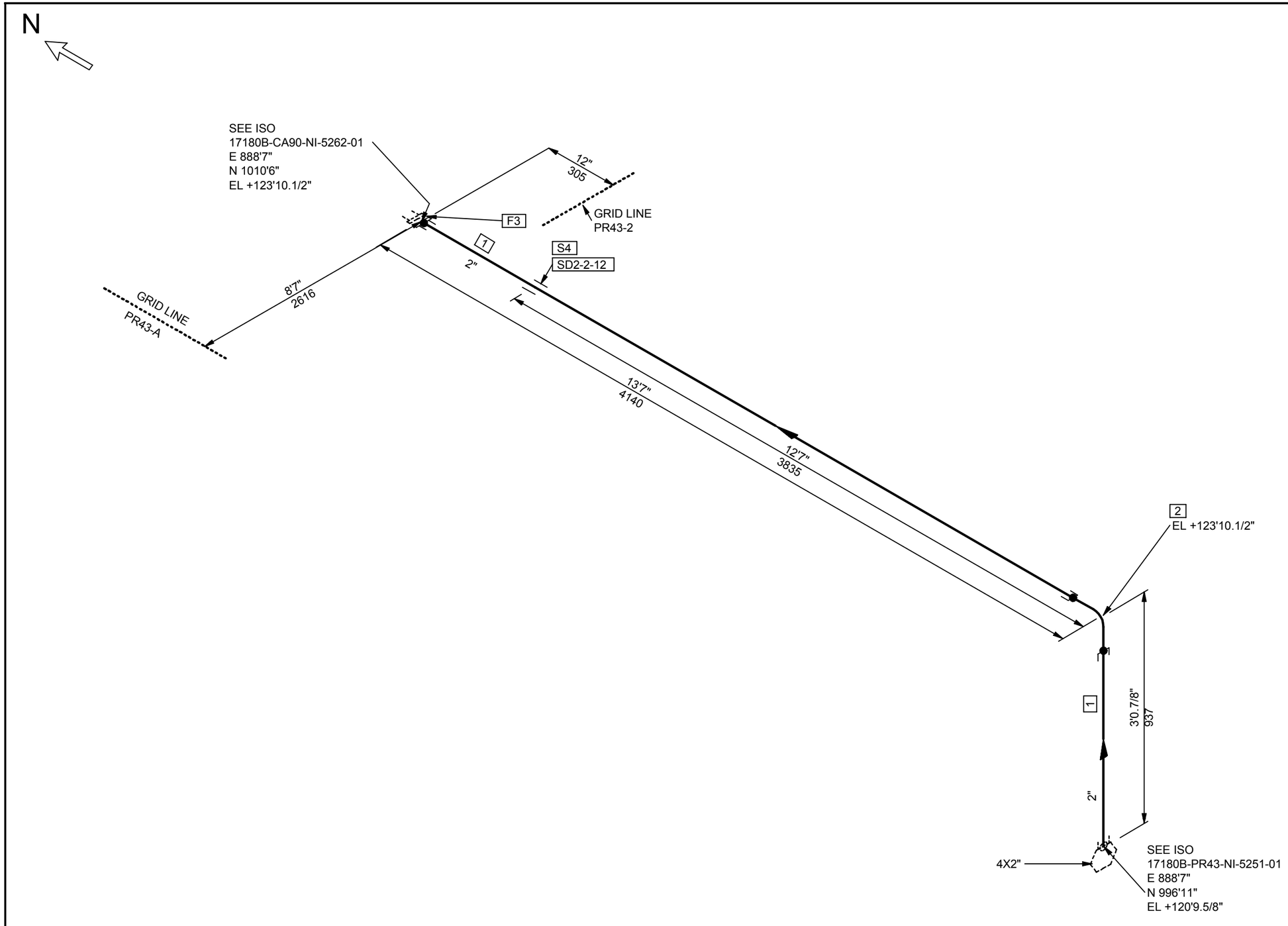
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NI-5251-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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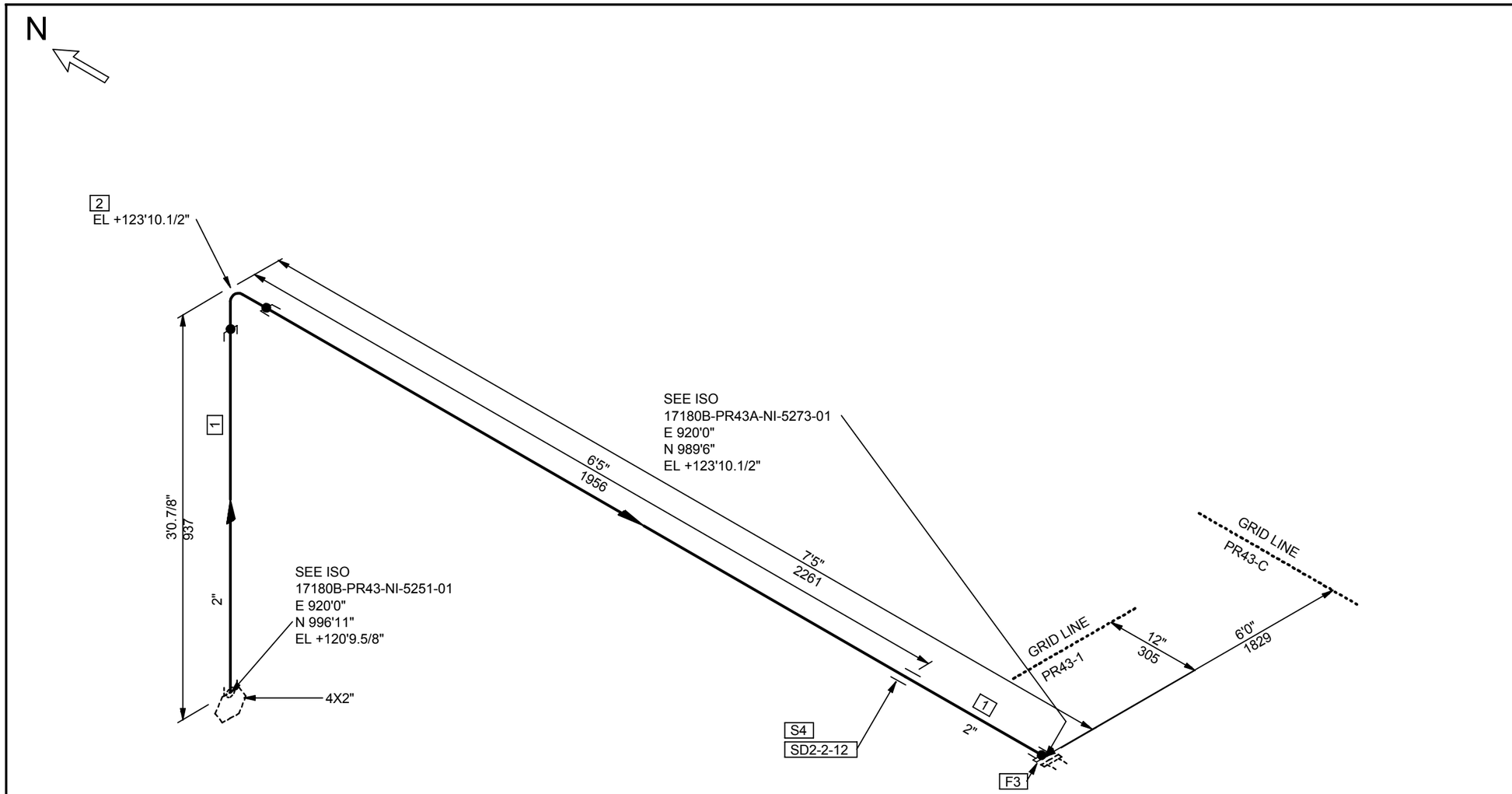
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NI-5262-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.3'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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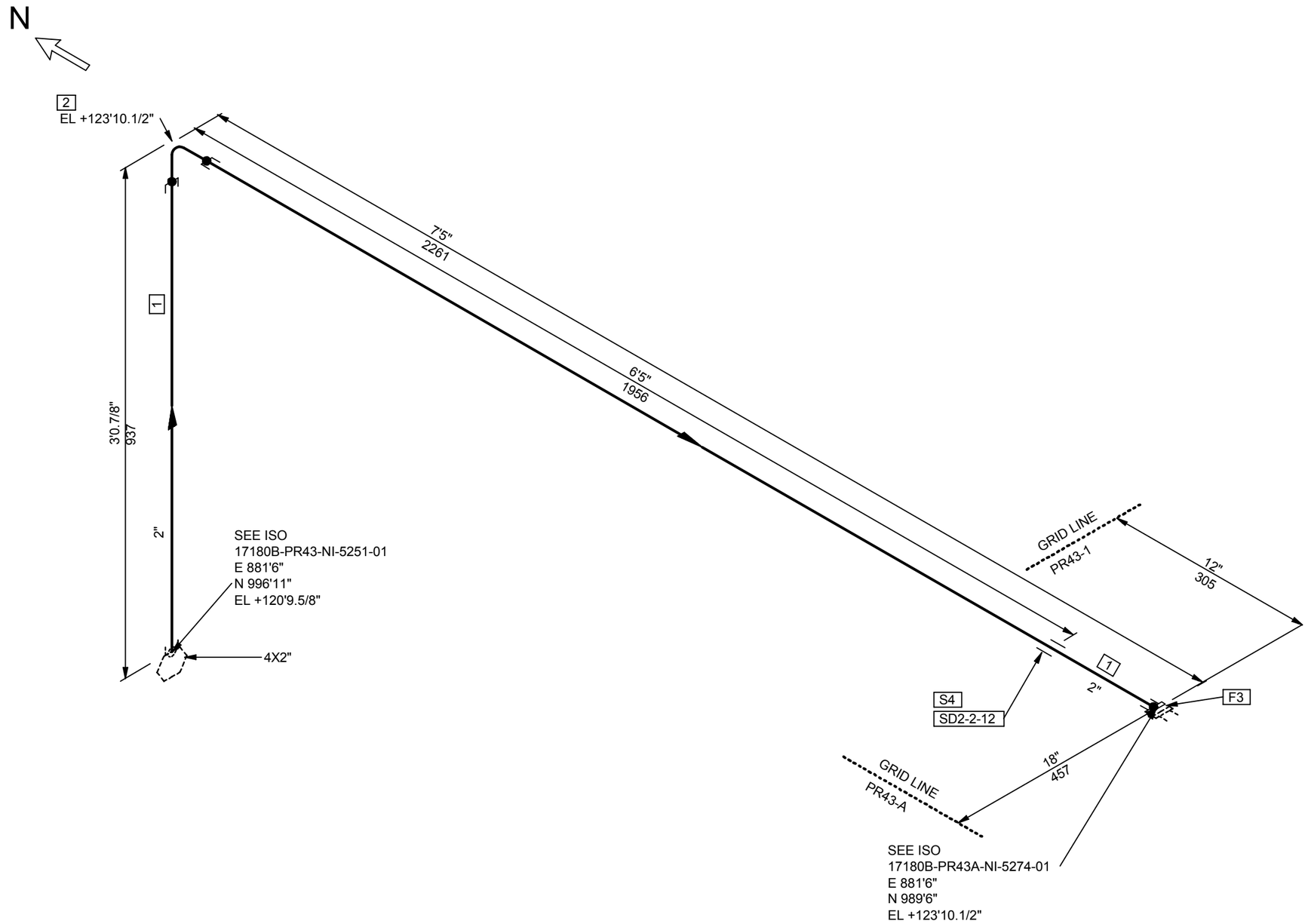
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NI-5273-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.3'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELL
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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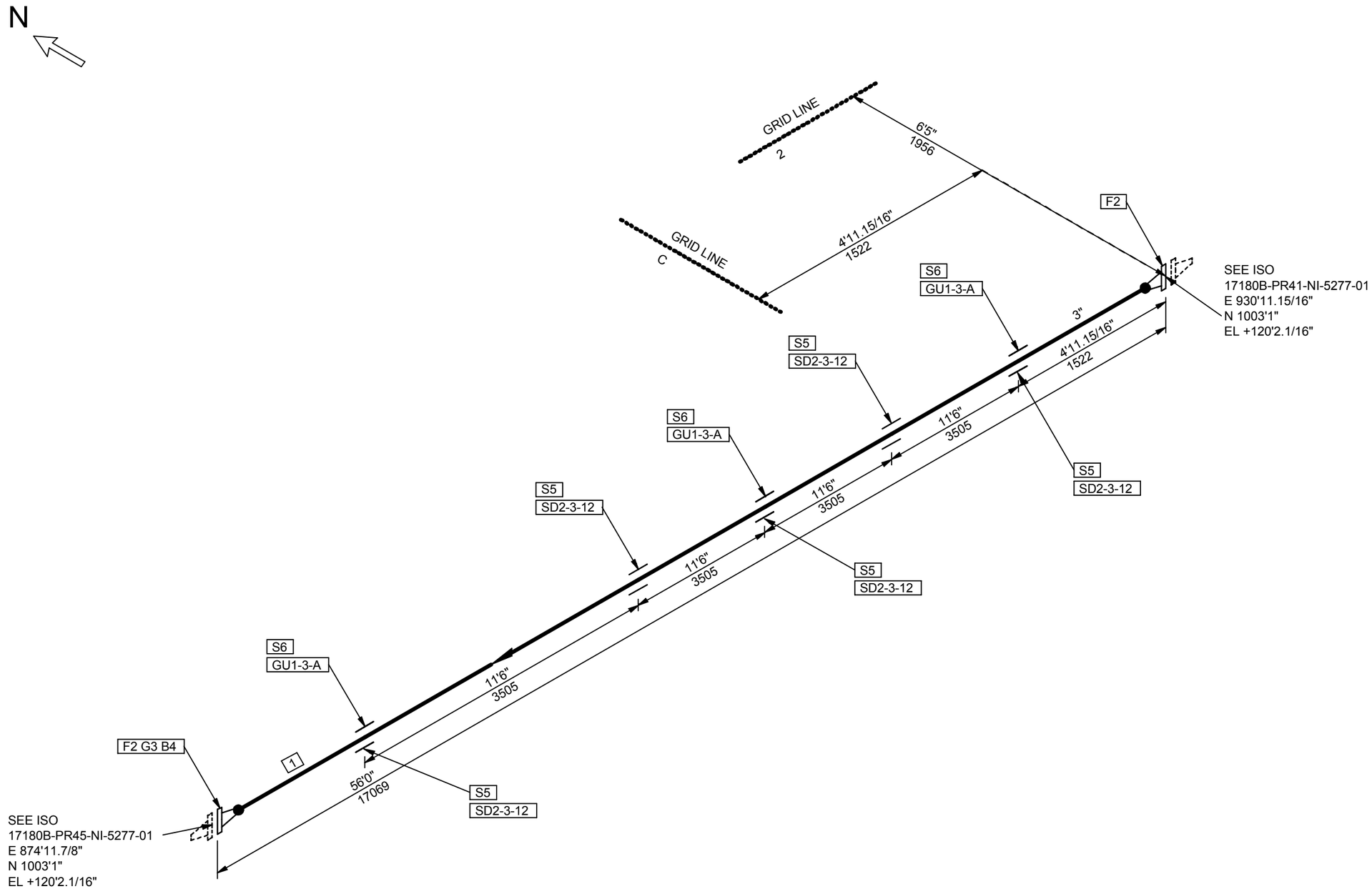
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NI-5274-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	55.6'
2	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	2
	ERECTION		
3	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
4	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
	PIPE SUPPORTS		
5	SD2-3-12	3	5
6	GU1-3-A	3	3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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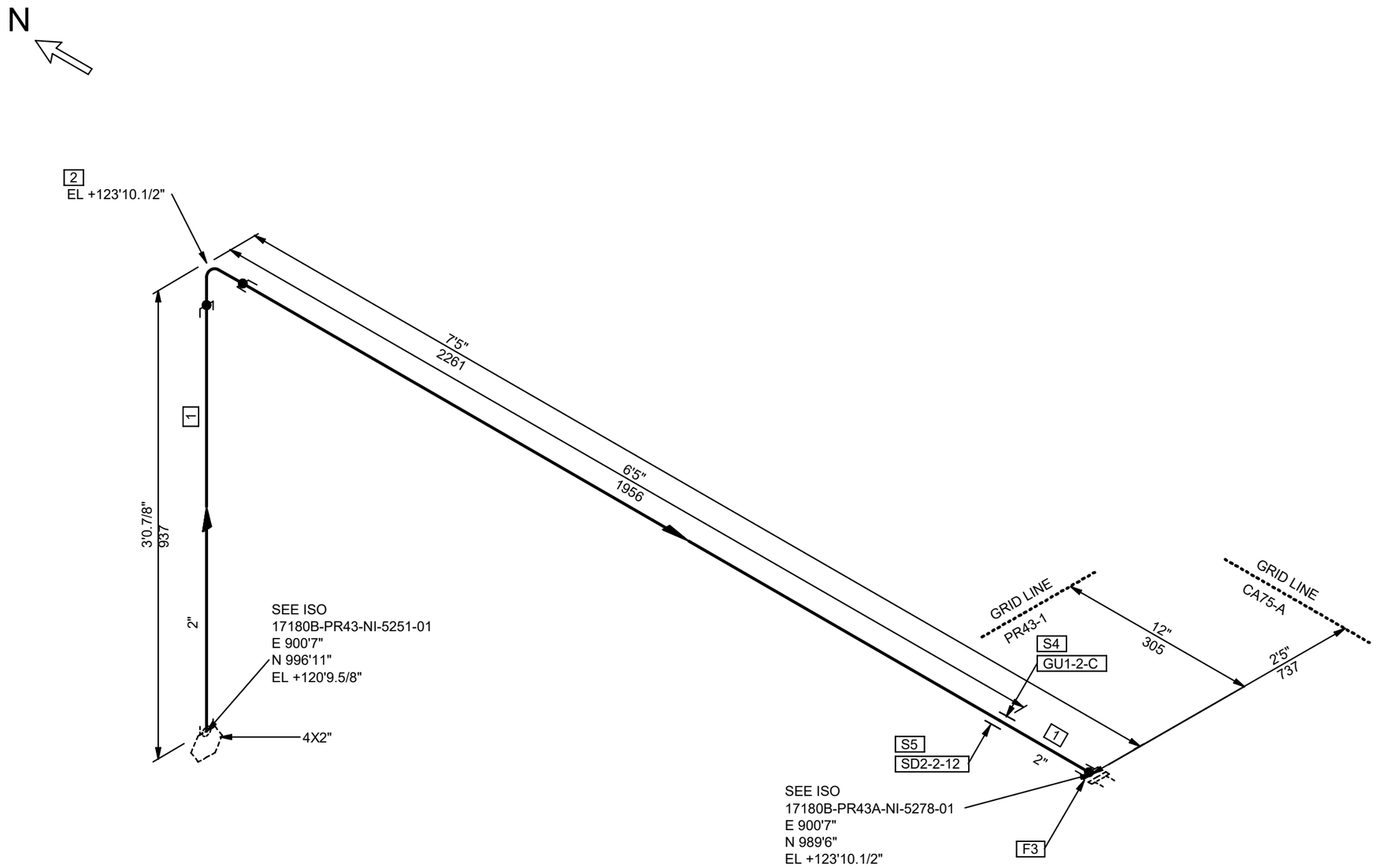
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NI-5277-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.3'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	GU1-2-C	2	1
5	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	02/14/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
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- — — = HEAT TRACING

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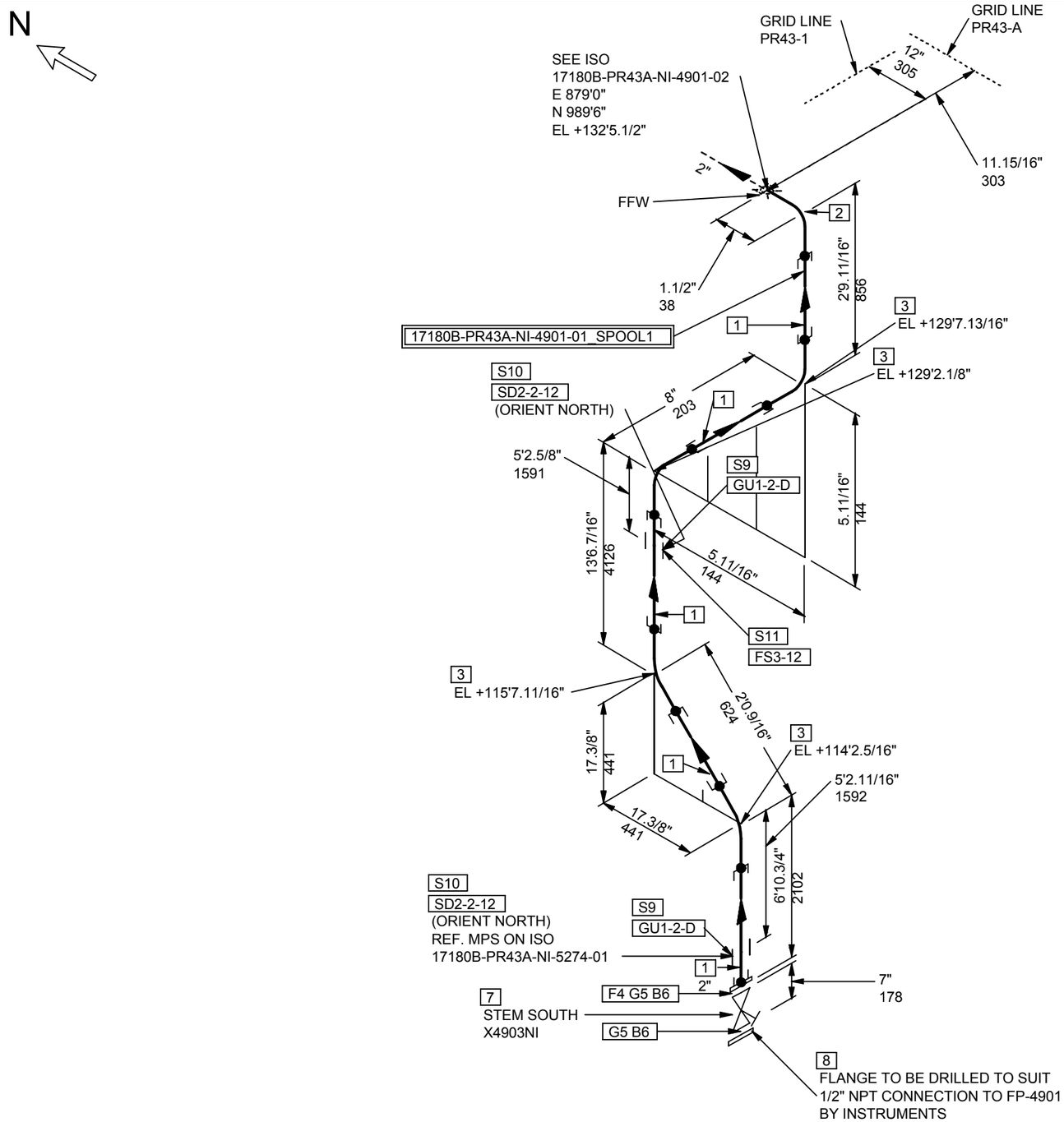
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NI-5278-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	25.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
7	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
8	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
9	GU1-2-D	2	2
10	SD2-2-12	2	2
11	FS3-12	2	1

17180B-PR43A-NI-4901-01_SPOOL1

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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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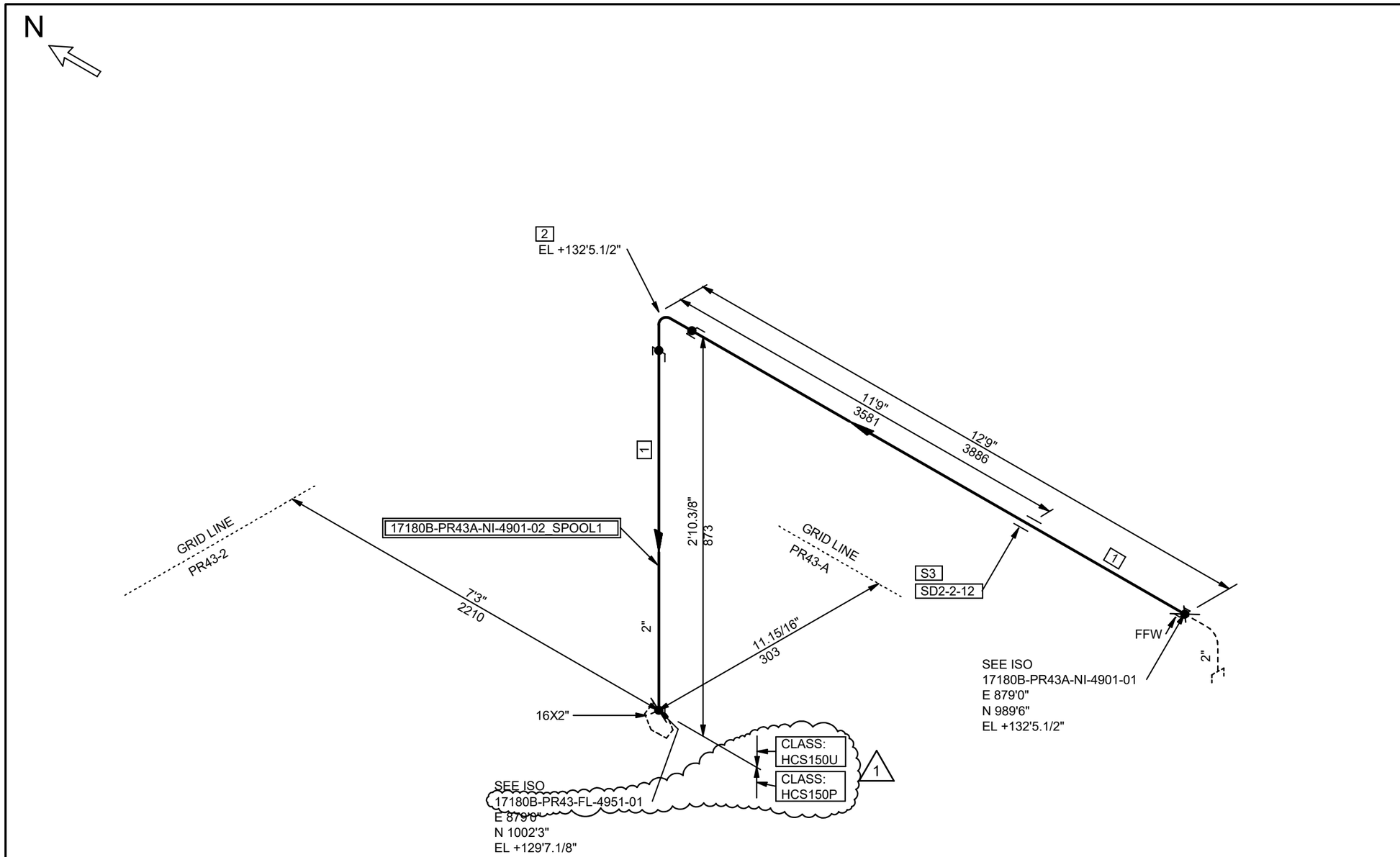
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-4901-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	15.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
	ERECTION		
	PIPE SUPPORTS		
3	SD2-2-12	2	1

17180B-PR43A-NI-4901-02_SPOOL1

LEGEND:

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FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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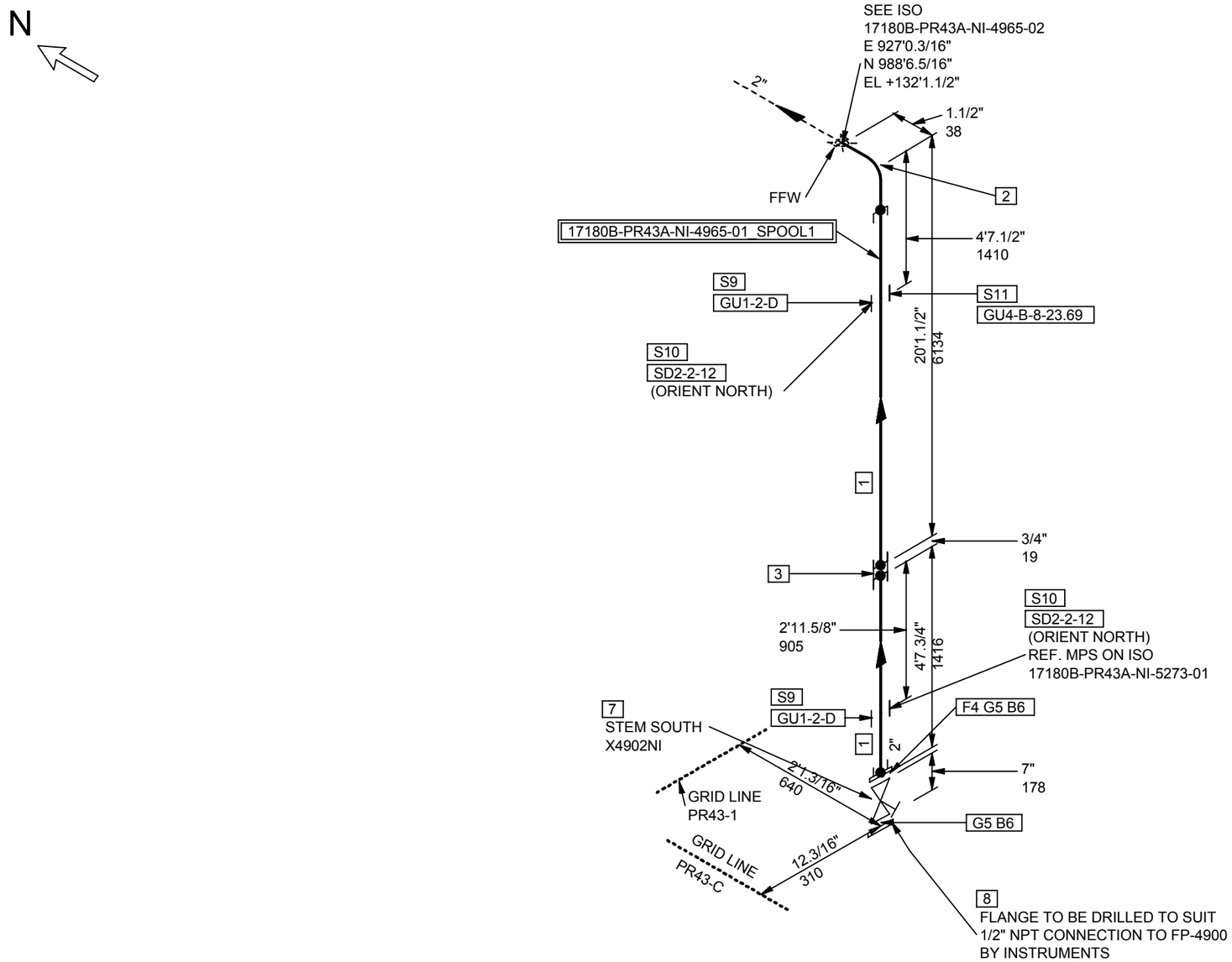
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-4901-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	24.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
7	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
8	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
PIPE SUPPORTS			
9	GU1-2-D	2	2
10	SD2-2-12	2	2
11	GU4-B-8-23.69	2	1

17180B-PR43A-NI-4965-01_SPOOL1

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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

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2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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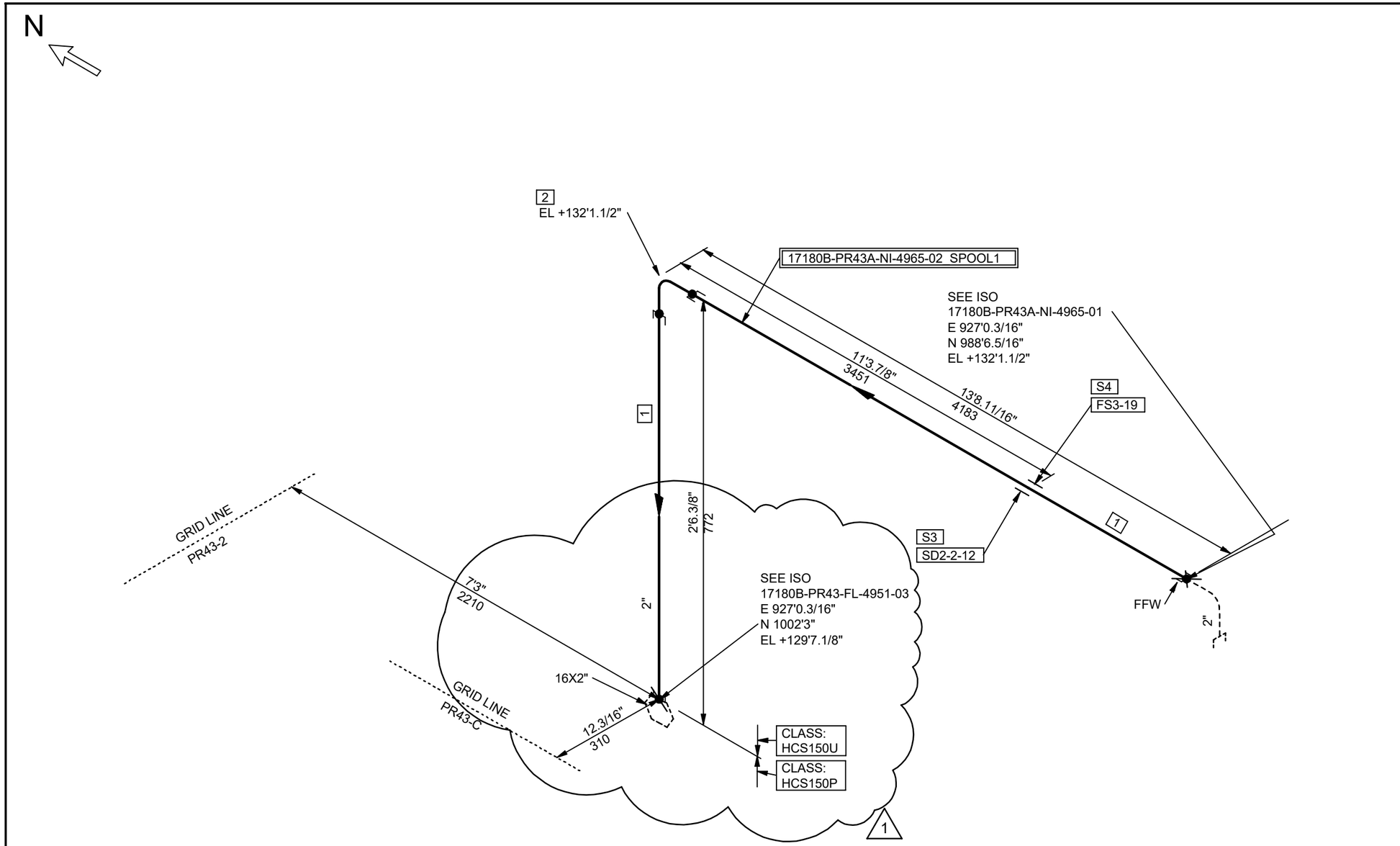
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-4965-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
	ERECTION		
	PIPE SUPPORTS		
3	SD2-2-12	2	1
4	FS3-19	2	1

17180B-PR43A-NI-4965-02_SPOOL1

LEGEND:

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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/11/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	08/30/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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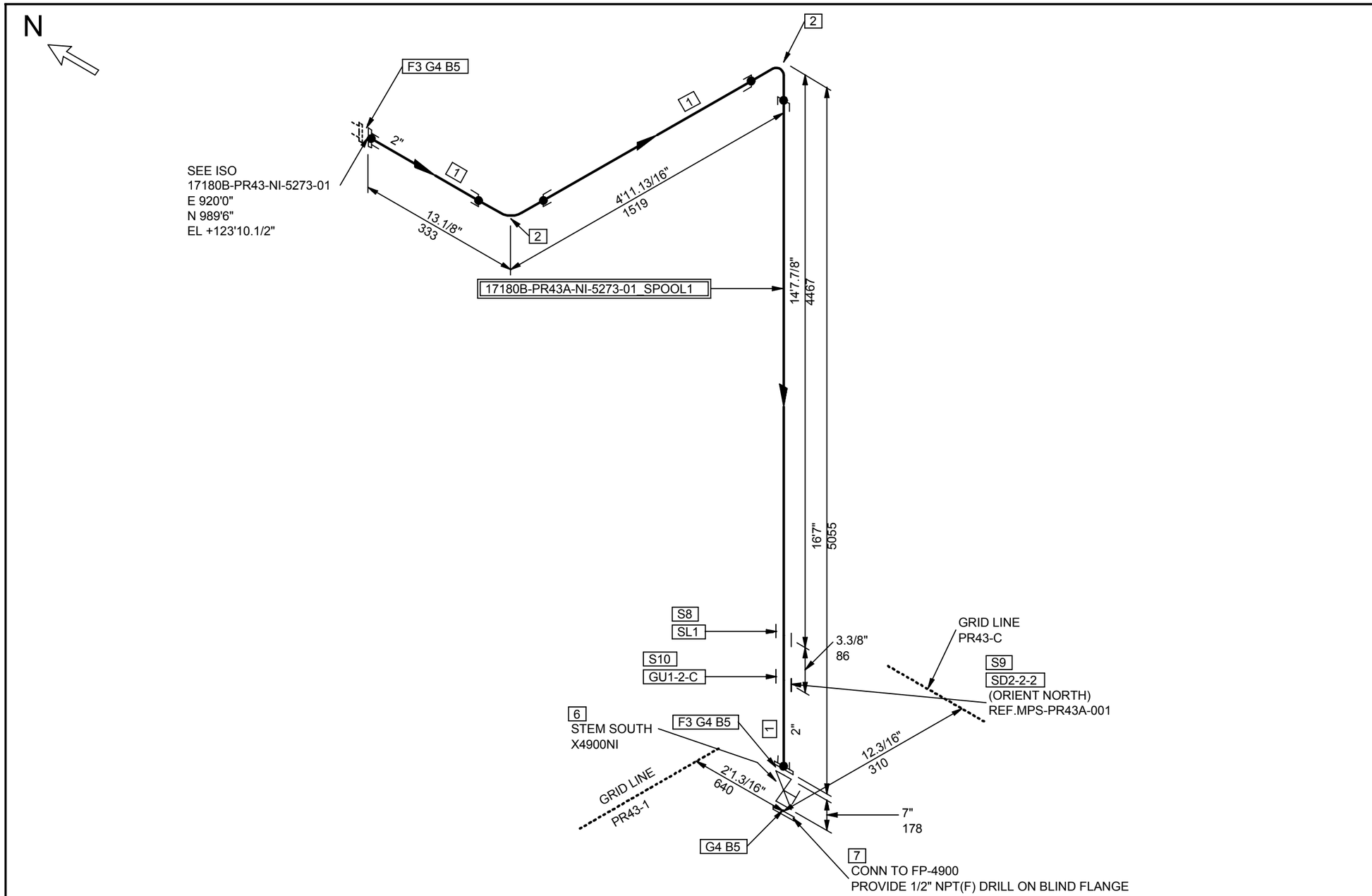
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-4965-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	22.1'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	3
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	12
6	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
7	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
8	SL1	2	1
9	SD2-2-2	2	1
10	GU1-2-C	2	1

17180B-PR43A-NI-5273-01_SPOOL1

LEGEND:

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FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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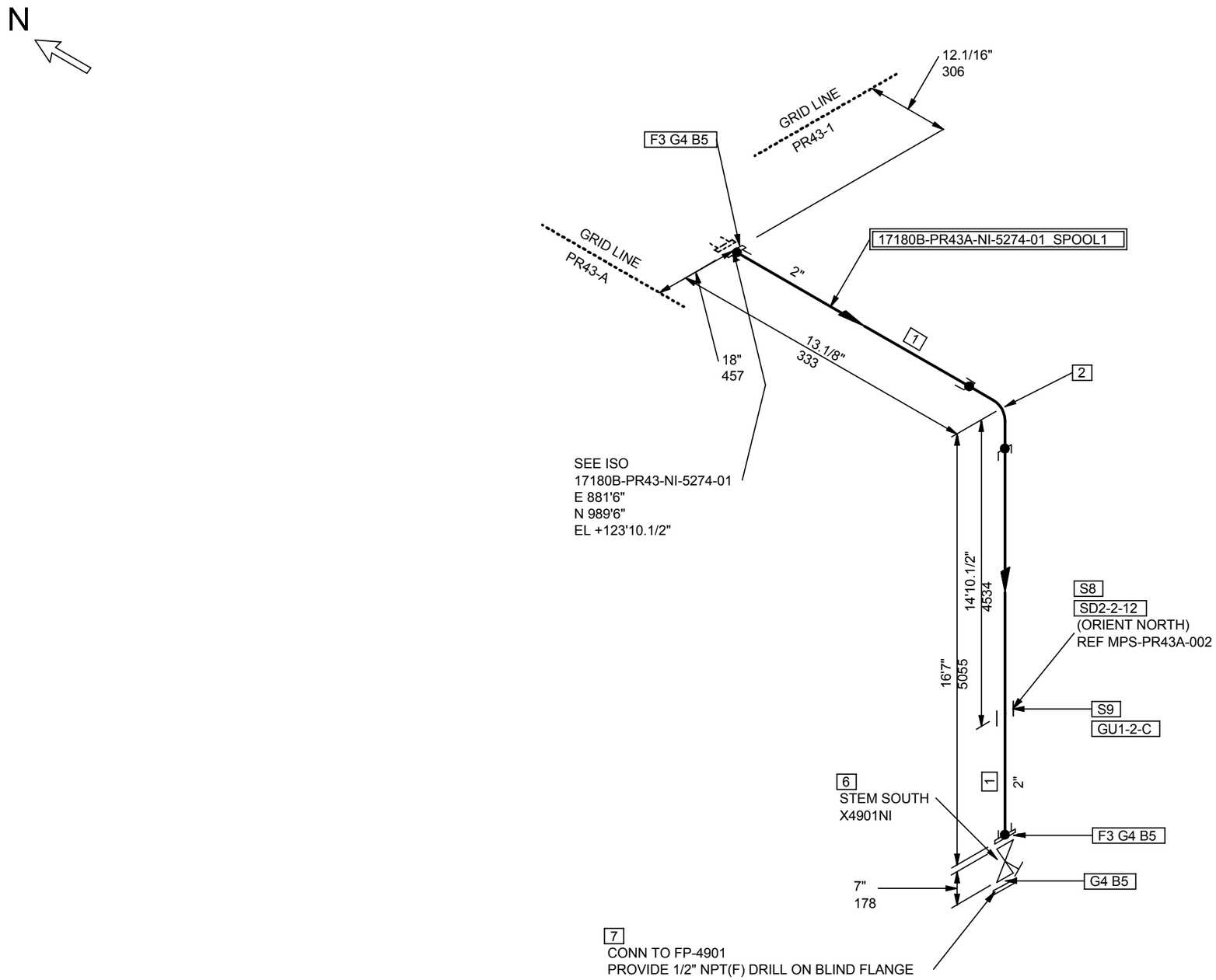
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-5273-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	17.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	3
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	12
6	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
7	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
8	SD2-2-12	2	1
9	GU1-2-C	2	1

17180B-PR43A-NI-5274-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

PRAXAIR

IHI

IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

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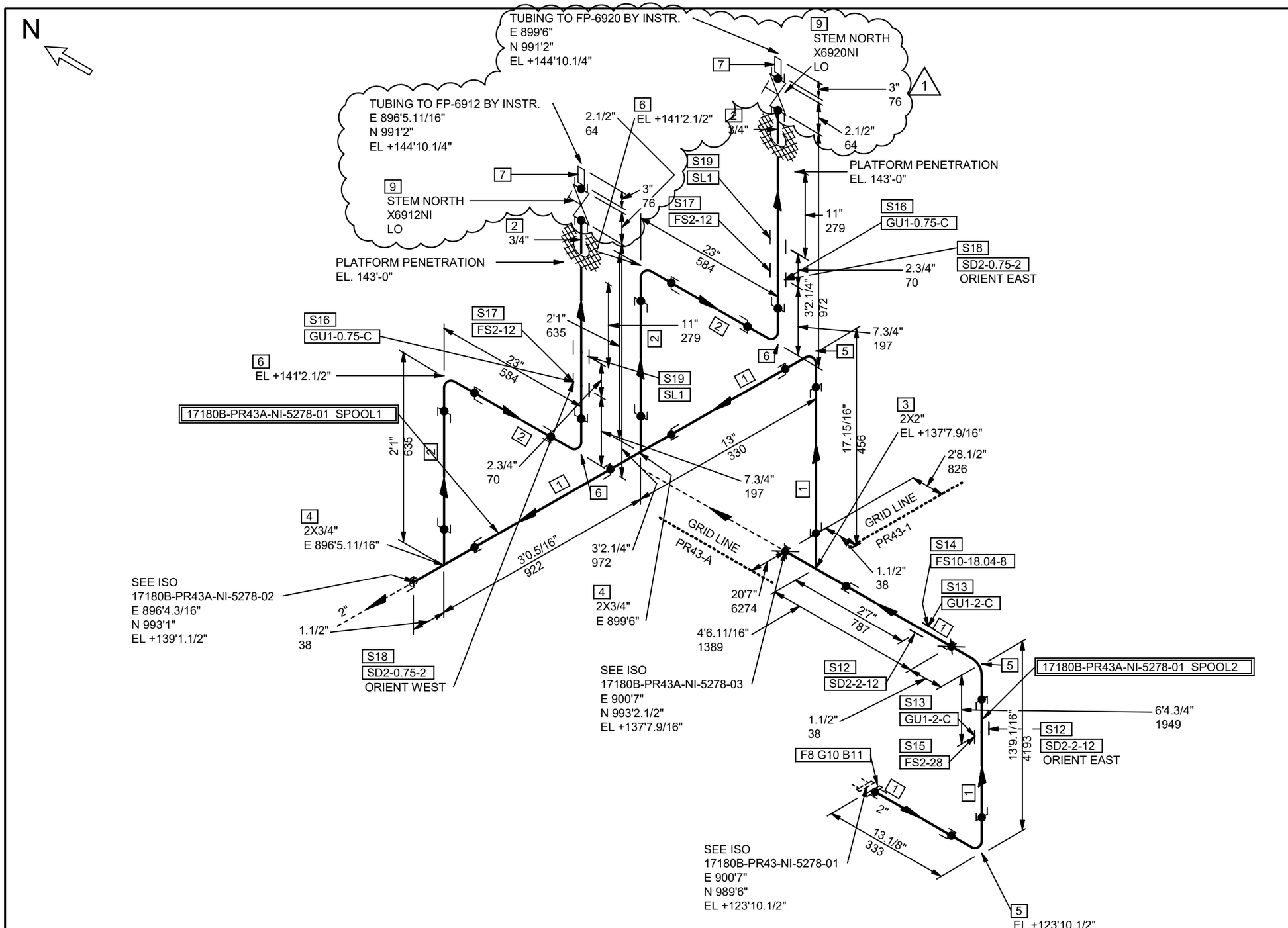
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-5274-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	23.8'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	3/4	13.7'
3	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
4	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X3/4	2
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	3/4	4
7	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B 3in Long , SMLS , S-160 , S-160	3/4	2
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N S-80	2	1
9	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	3/4	2
ERECTION			
10	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
PIPE SUPPORTS			
12	SD2-2-12	2	2
13	GU1-2-C	2	2
14	FS10-18.04-8	2	1
15	FS2-28	2	1
16	GU1-0.75-C	3/4	2
17	FS2-12	3/4	2
18	SD2-0.75-2	3/4	2
19	SL1	3/4	2

17180B-PR43A-NI-5278-01_SPOOL1 17180B-PR43A-NI-5278-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/26/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	02/14/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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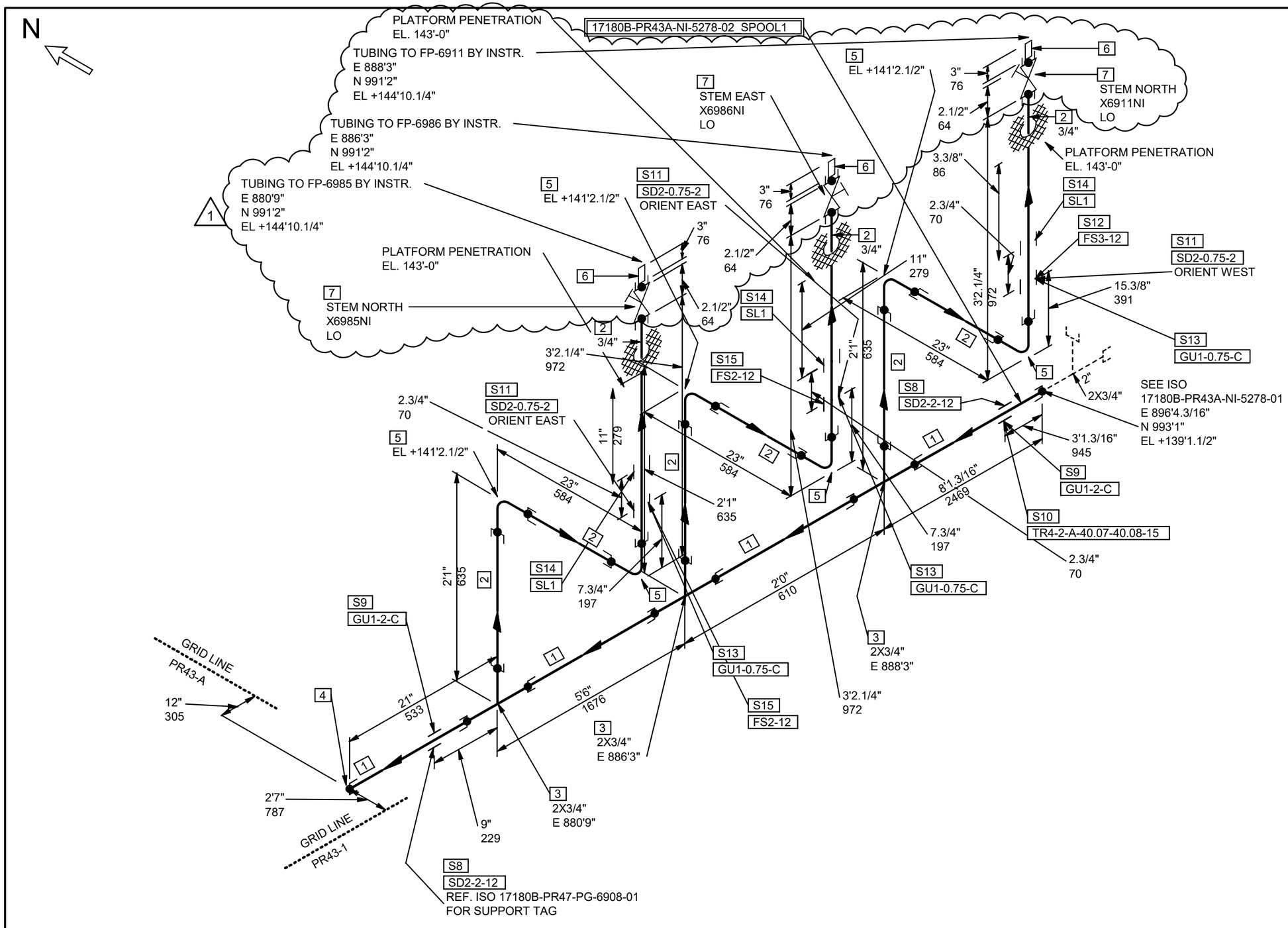
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-5278-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.6'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	3/4	20.5'
3	Red. Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X3/4	3
4	Cap , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	3/4	6
6	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 3in Long , SMLS , S-160 , S-160	3/4	3
7	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	3/4	3
ERECTION			
PIPE SUPPORTS			
8	SD2-2-12	2	2
9	GU1-2-C	2	2
10	TR4-2-A-40.07-40.08-15	2	1
11	SD2-0.75-2	3/4	3
12	FS3-12	3/4	1
13	GU1-0.75-C	3/4	3
14	SL1	3/4	3
15	FS2-12	3/4	2

17180B-PR43A-NI-5278-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/26/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	02/14/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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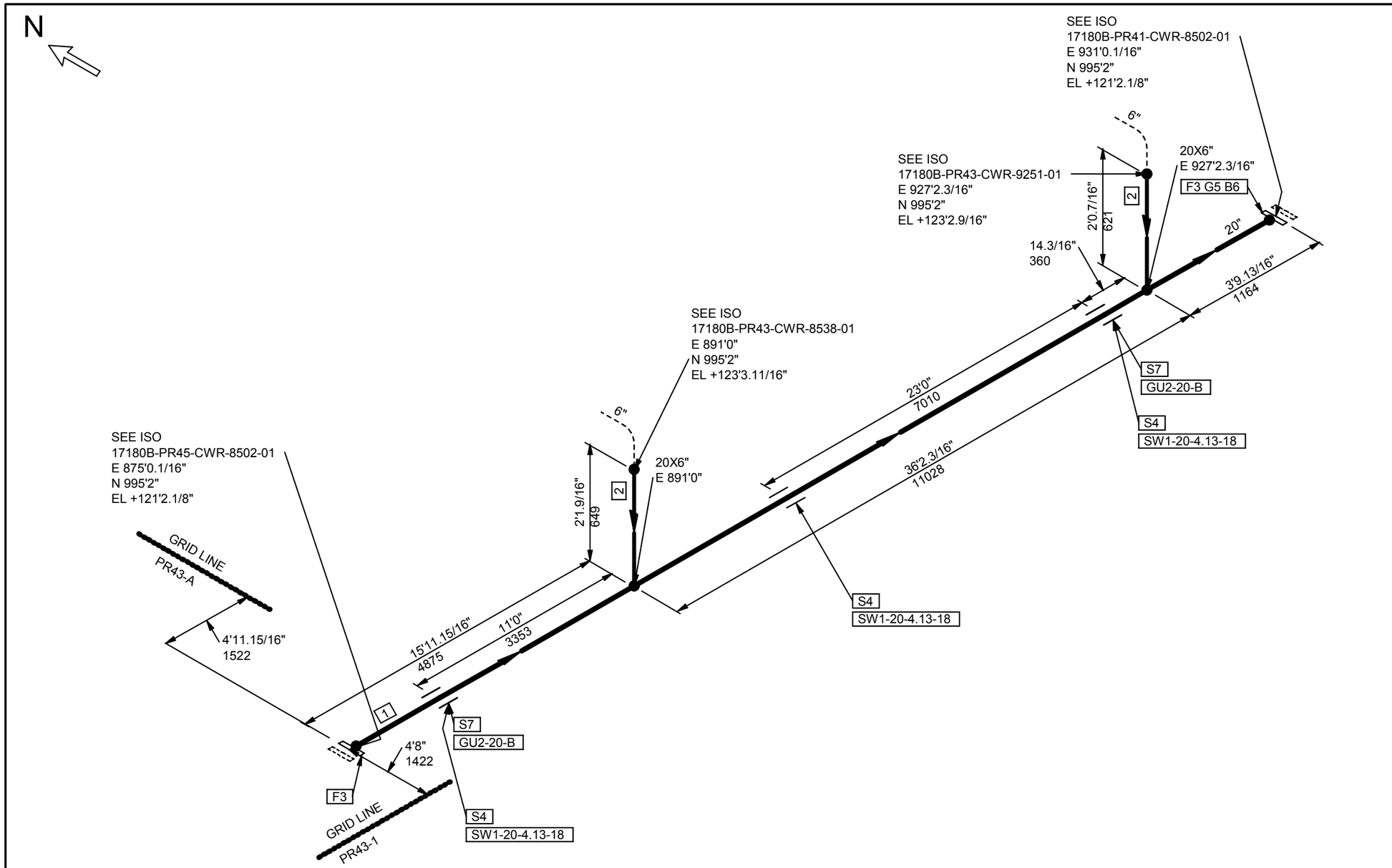
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NI-5278-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	55.9'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	2.6'
3	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	2
PIPE SUPPORTS			
4	SW1-20-4.13-18	20	3
ERECTION			
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1.1/8	20
PIPE SUPPORTS			
7	GU2-20-B	20	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8503		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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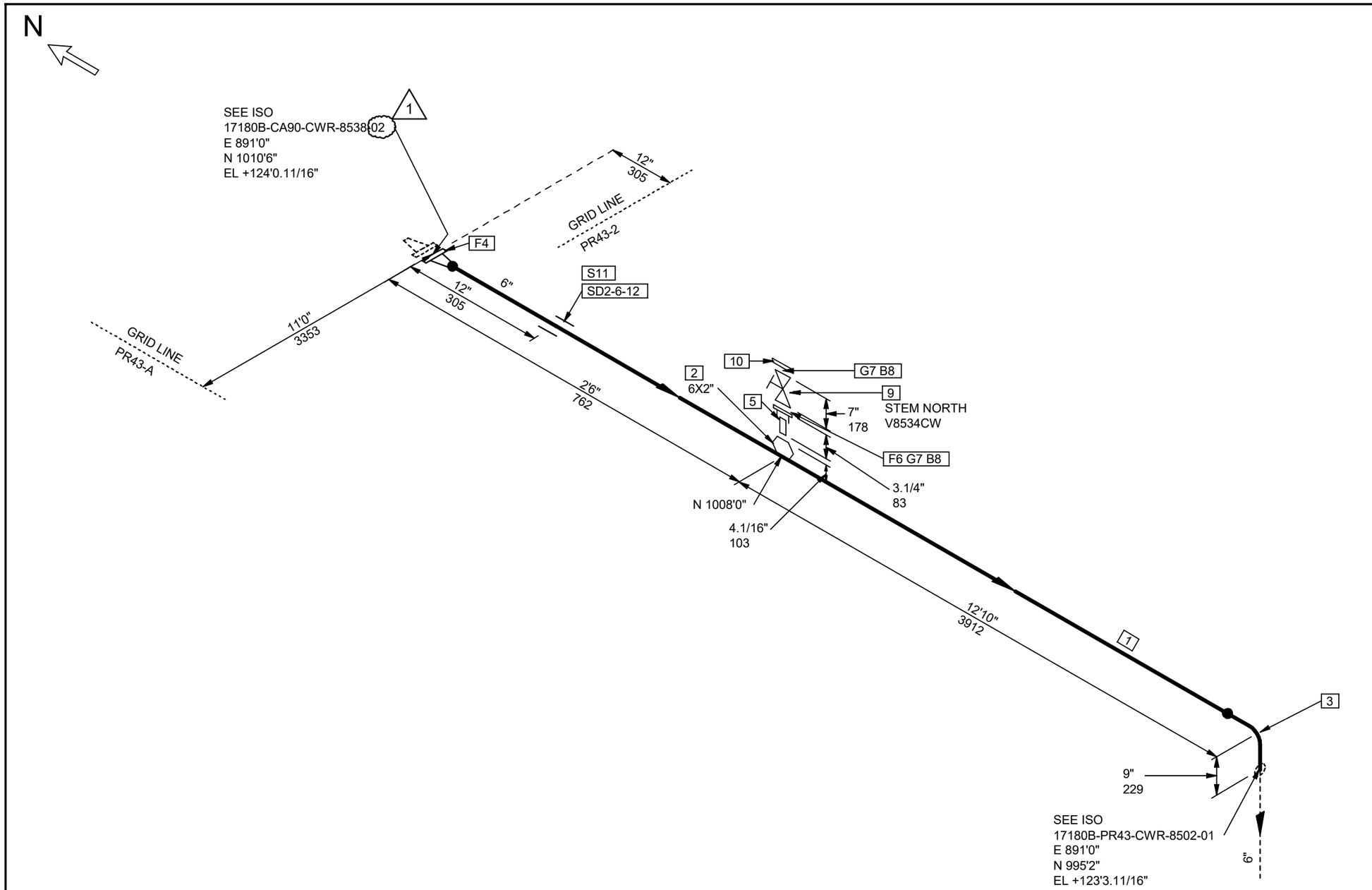
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-CWR-8502-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	14.3'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
11	SD2-6-12	6	1

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
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REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8503		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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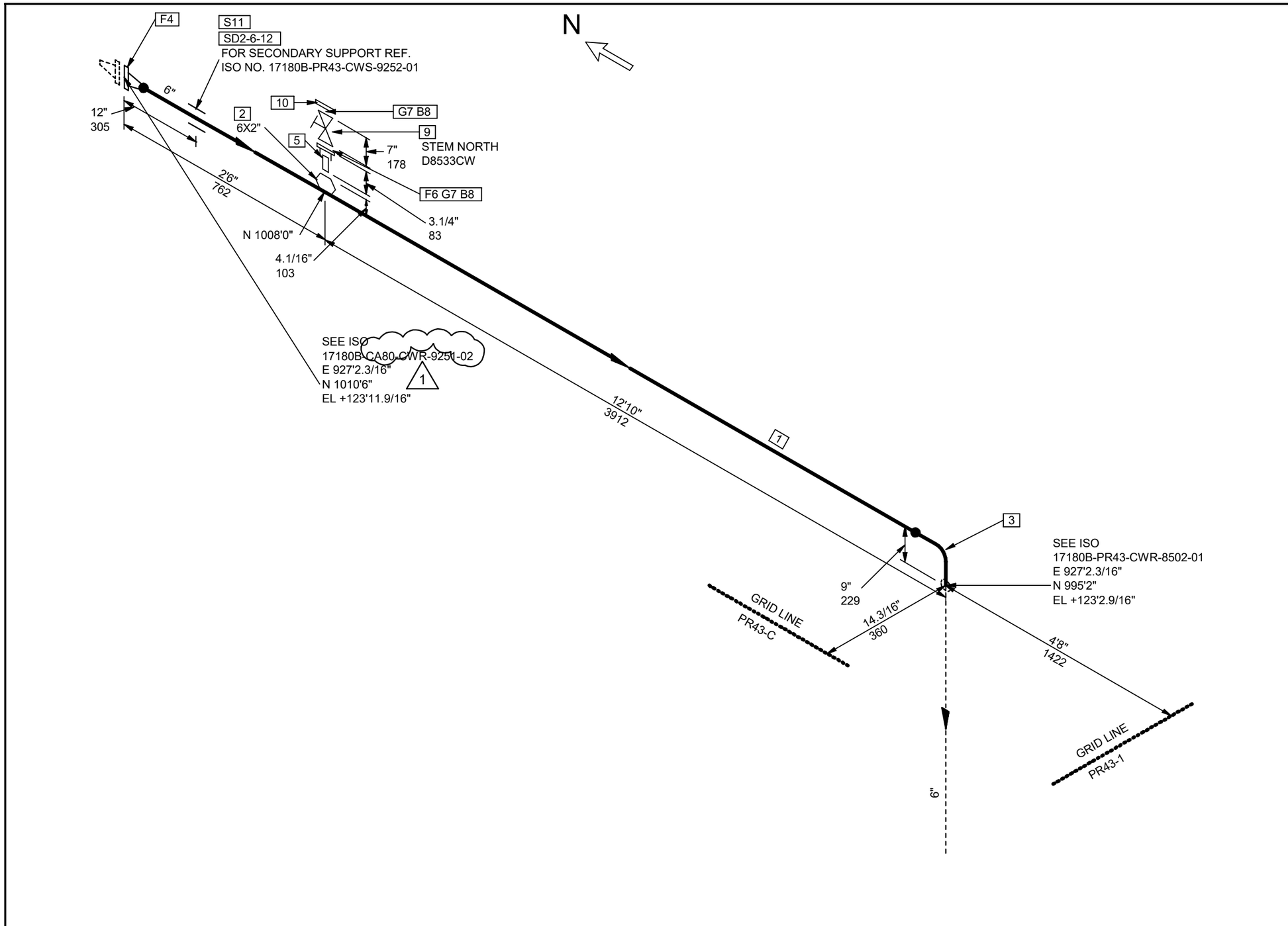
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-CWR-8538-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	14.3'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
11	SD2-6-12	6	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8503		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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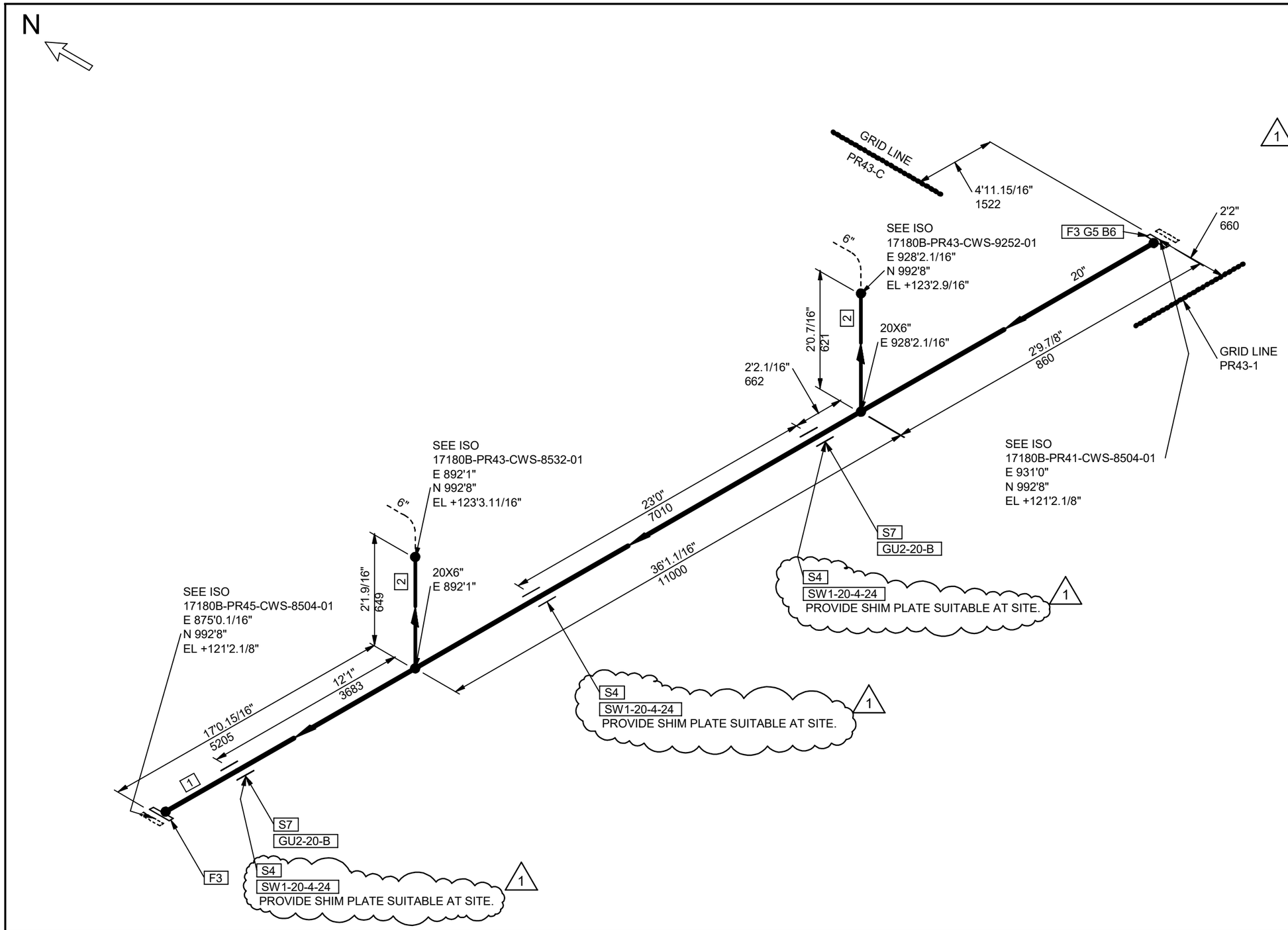
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-CWR-9251-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	55.9'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	2.6'
3	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	2
	PIPE SUPPORTS		
4	SW1-20-4-24	20	3
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1.1/8	20
	PIPE SUPPORTS		
7	GU2-20-B	20	2

1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	SST	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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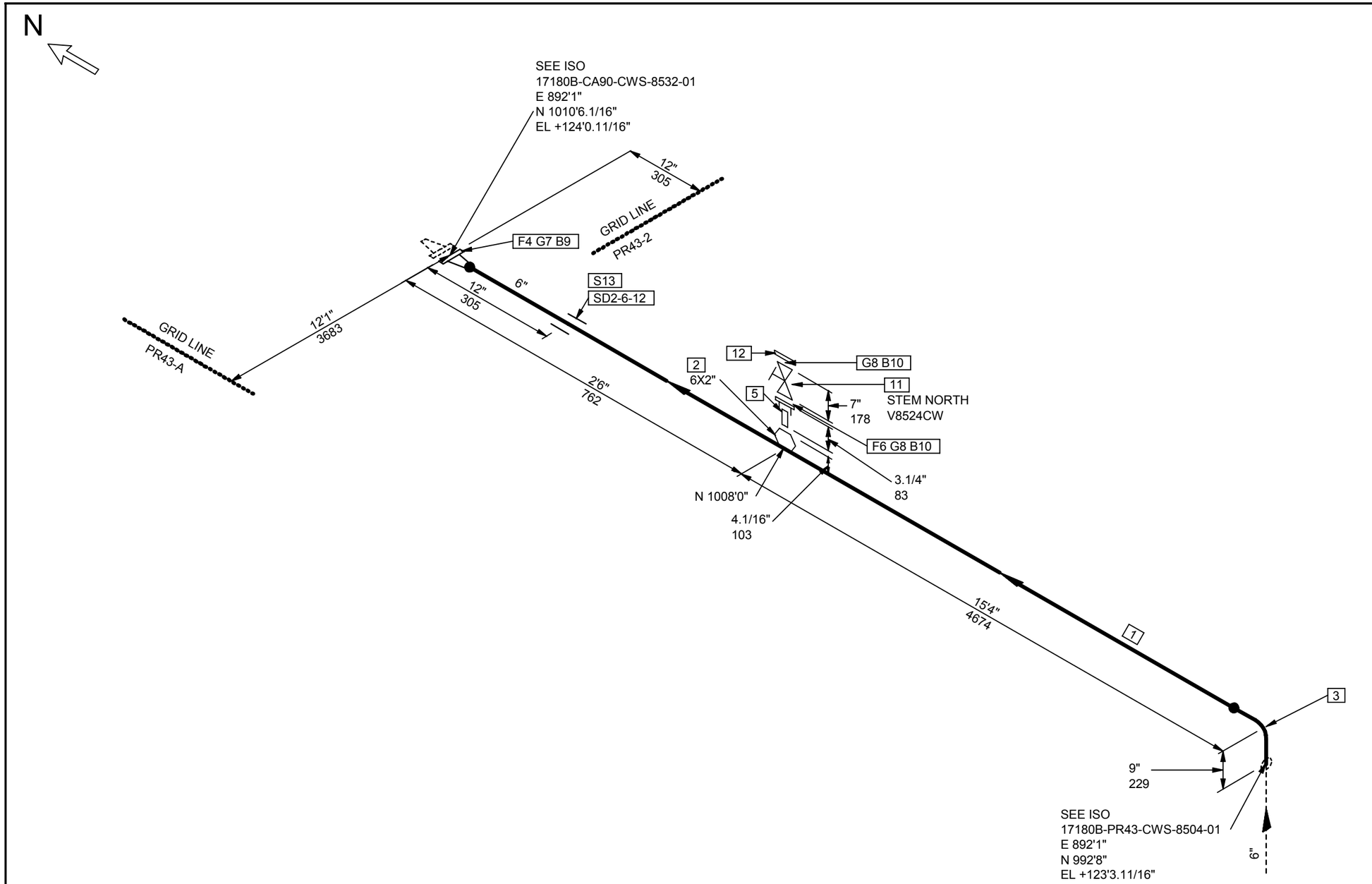
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-CWS-8504-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	16.8'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
	ERECTION		
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	6	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	3/4	8
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
11	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1	2	1
12	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
13	SD2-6-12	6	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

IHI

IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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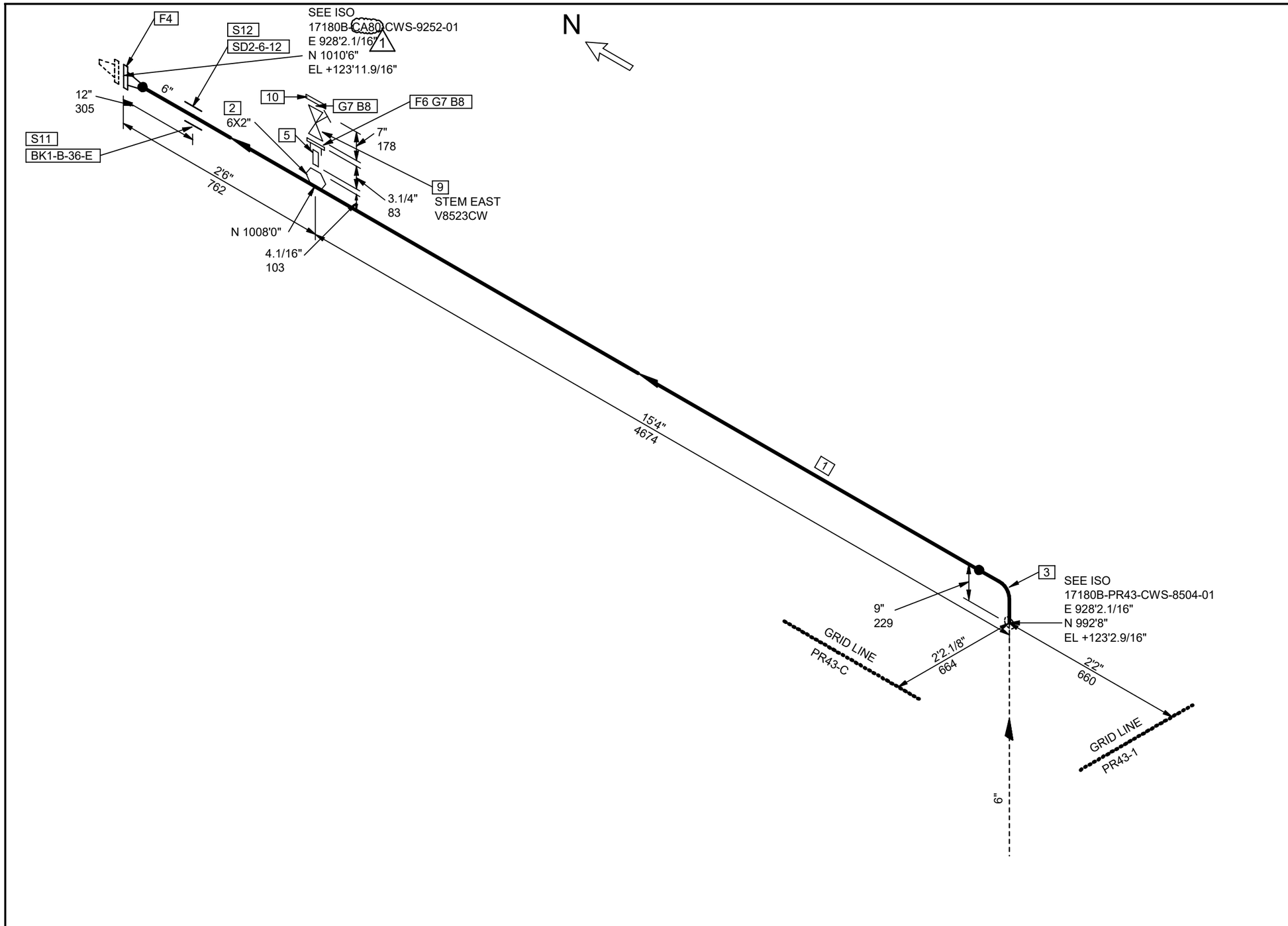
PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-CWS-8532-01		REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	16.8'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	6	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
ERECTION			
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
7	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
PIPE SUPPORTS			
11	BK1-B-36-E	6	1
12	SD2-6-12	6	1

LEGEND:

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- ⊠ = FIELD WELL
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/26/2019	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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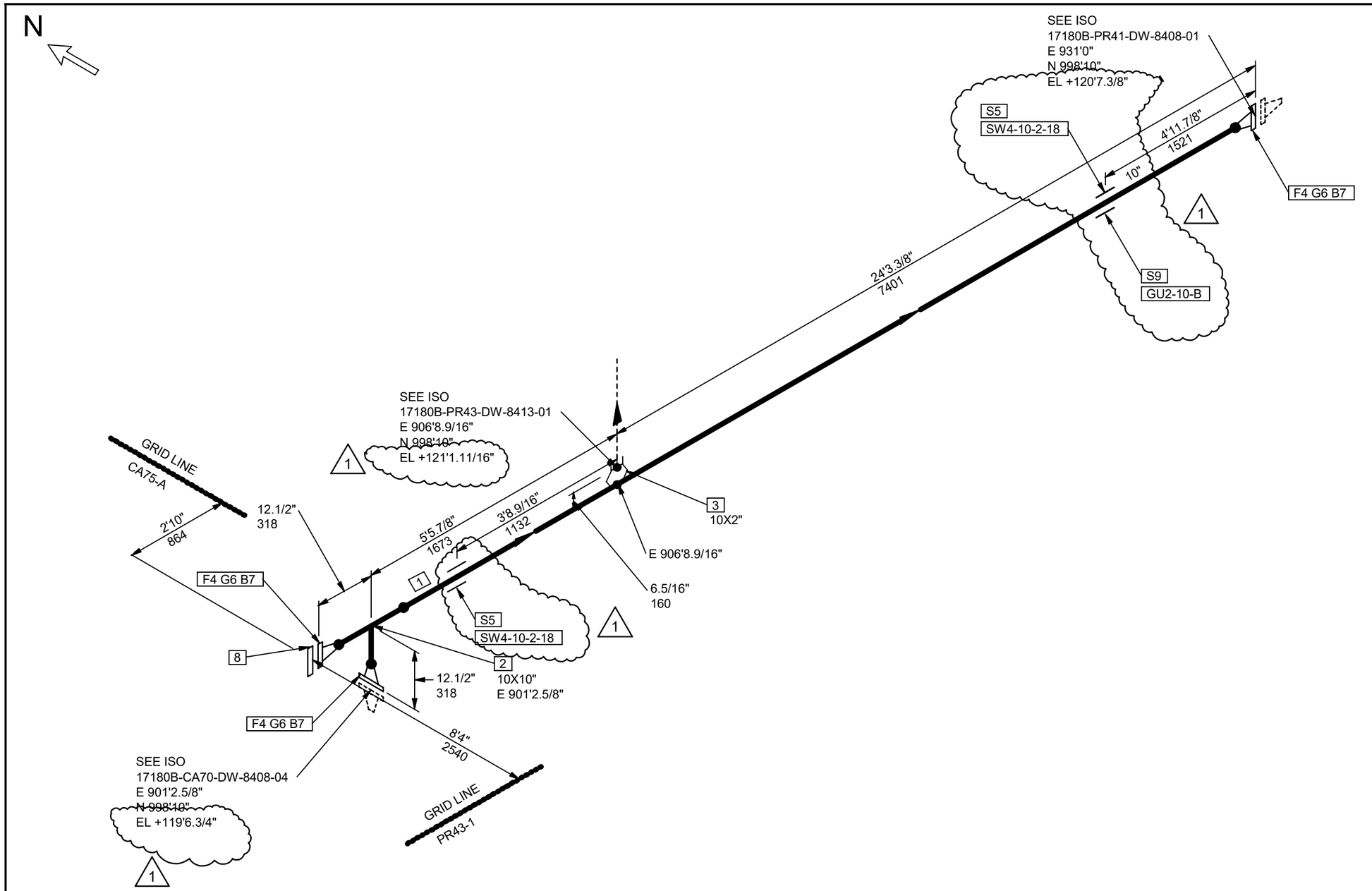
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-CWS-9252-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	10	28.8'
2	Tee , ASME B16.9 , BE , ASTM A403 Grade WP304/WP304L , Welded , S-10S , S-10S	10X10	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	10X2	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	10	3
	PIPE SUPPORTS		
5	SW4-10-2-18	10	2
	ERECTION		
6	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	10	3
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	36
8	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	10	1
	PIPE SUPPORTS		
9	GU2-10-B	10	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/04/2019	ISSUED AS MARKED	SRS	NNR	MLO
0	09/24/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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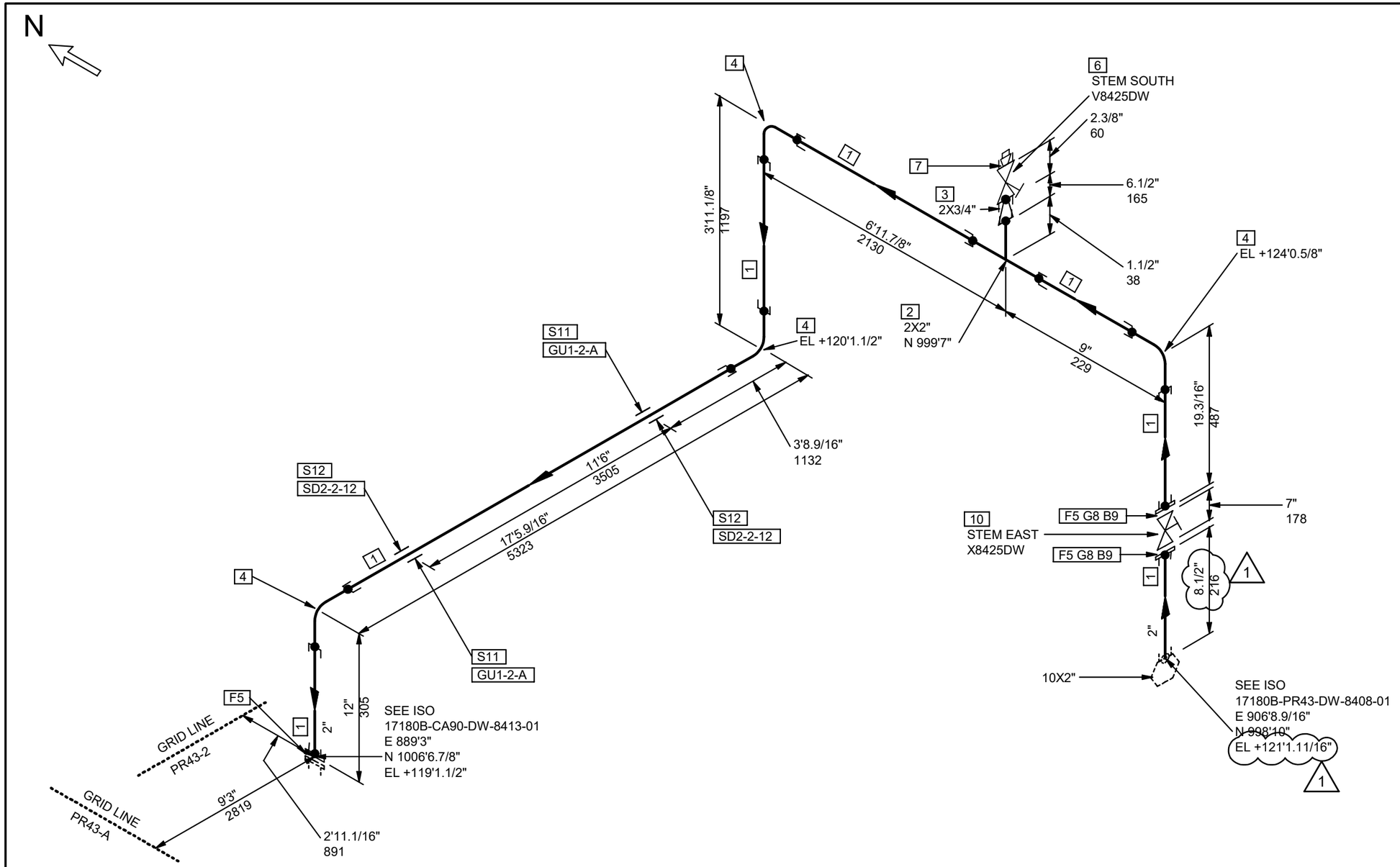
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-DW-8408-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	31.1'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A403 Grade WP304/WP304L , SMLS , S-80S , S-80S	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	4
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	3
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	3/4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	3/4	1
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
10	Gate Vlv , API 600 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A351-CF8M , Trim 12 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FIO	2	1
	PIPE SUPPORTS		
11	GU1-2-A	2	2
12	SD2-2-12	2	2

LEGEND:

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- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8402		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/17/2019	ISSUED AS MARKED	SRS	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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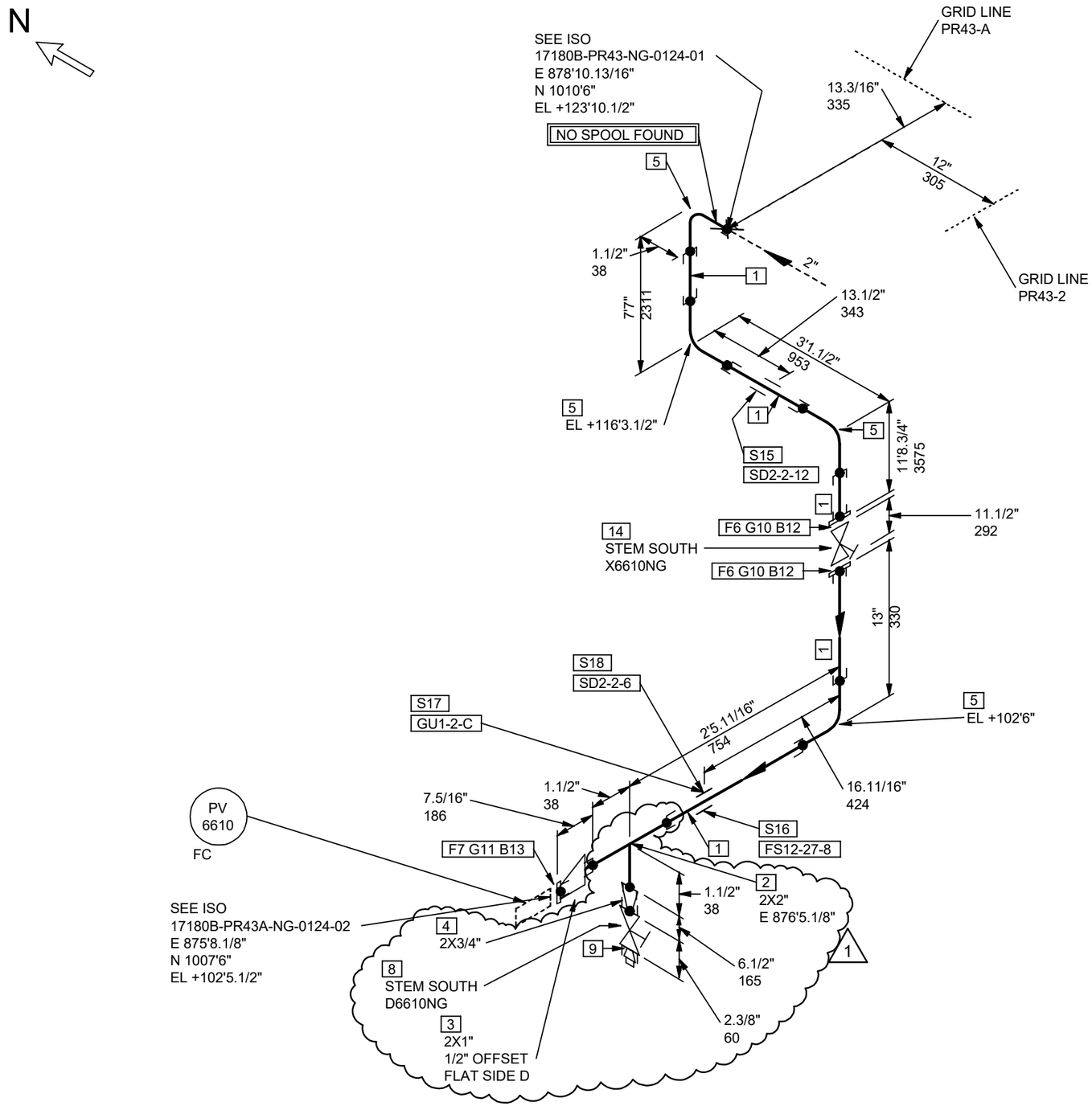
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-DW-8413-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	24.9'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
4	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
6	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	2
7	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	5/8	16
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 3.75 in. Length	5/8	4
14	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	2	1
	PIPE SUPPORTS		
15	SD2-2-12	2	1
16	FS12-27-8	2	1
17	GU1-2-C	2	1
18	SD2-2-6	2	1

NO SPOOL FOUND

LEGEND:

- ● = SHOP WELL
- ✕ = FIELD WELL
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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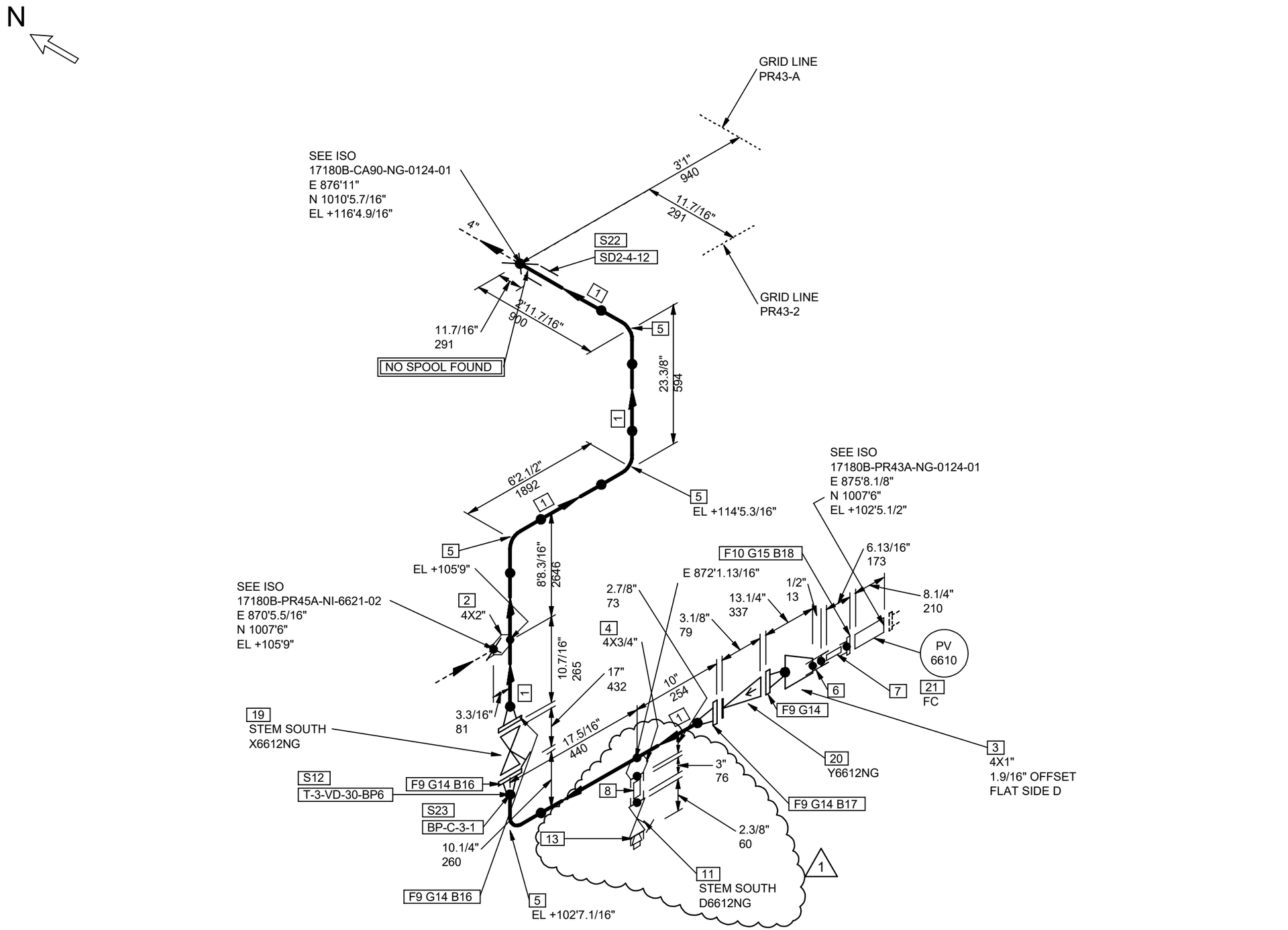
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NG-0124-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-80	4	18.8'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X2	1
3	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-80 , S-160	4X1	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-80 , S-80	4	4
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	4	4
10	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	PIPE SUPPORTS		
12	T-3-VD-30-BP6	4	1
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	4	4
15	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 6 in. Length	7/8	16
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 9.25 in. Length	7/8	8
18	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 3.75 in. Length	5/8	4
19	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	4	1
20	Check Vlv Swing , API 594 , CL600 , RFTBE , Wafer , ASTM A216-WCB , Trim 12 , INCONEL X-750 SPRING, PRAXAIR V-G1, SEAL WELDED PLUGS , C6WAH	4	1
	INSTRUMENTS		
21	PV-6610	1	1
	PIPE SUPPORTS		
22	SD2-4-12	4	1
23	BP-C-3-1	4	1

NO SPOOL FOUND

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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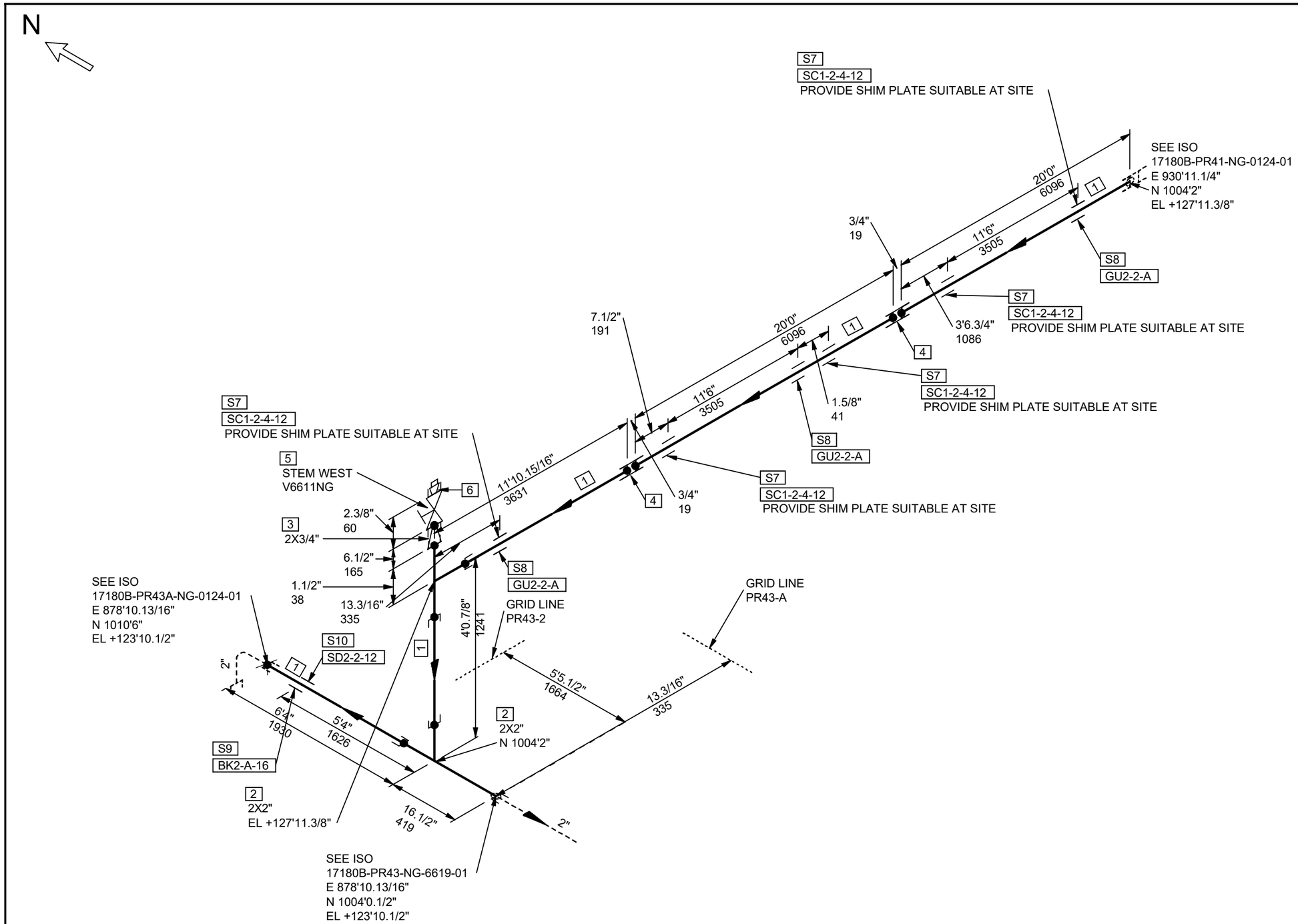
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-NG-0124-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	61.9'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	2
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
	PIPE SUPPORTS		
7	SC1-2-4-12	2	5
8	GU2-2-A	2	3
9	BK2-A-16	2	1
10	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/14/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

PRAXAIR

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IHI E&C International Corporation
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15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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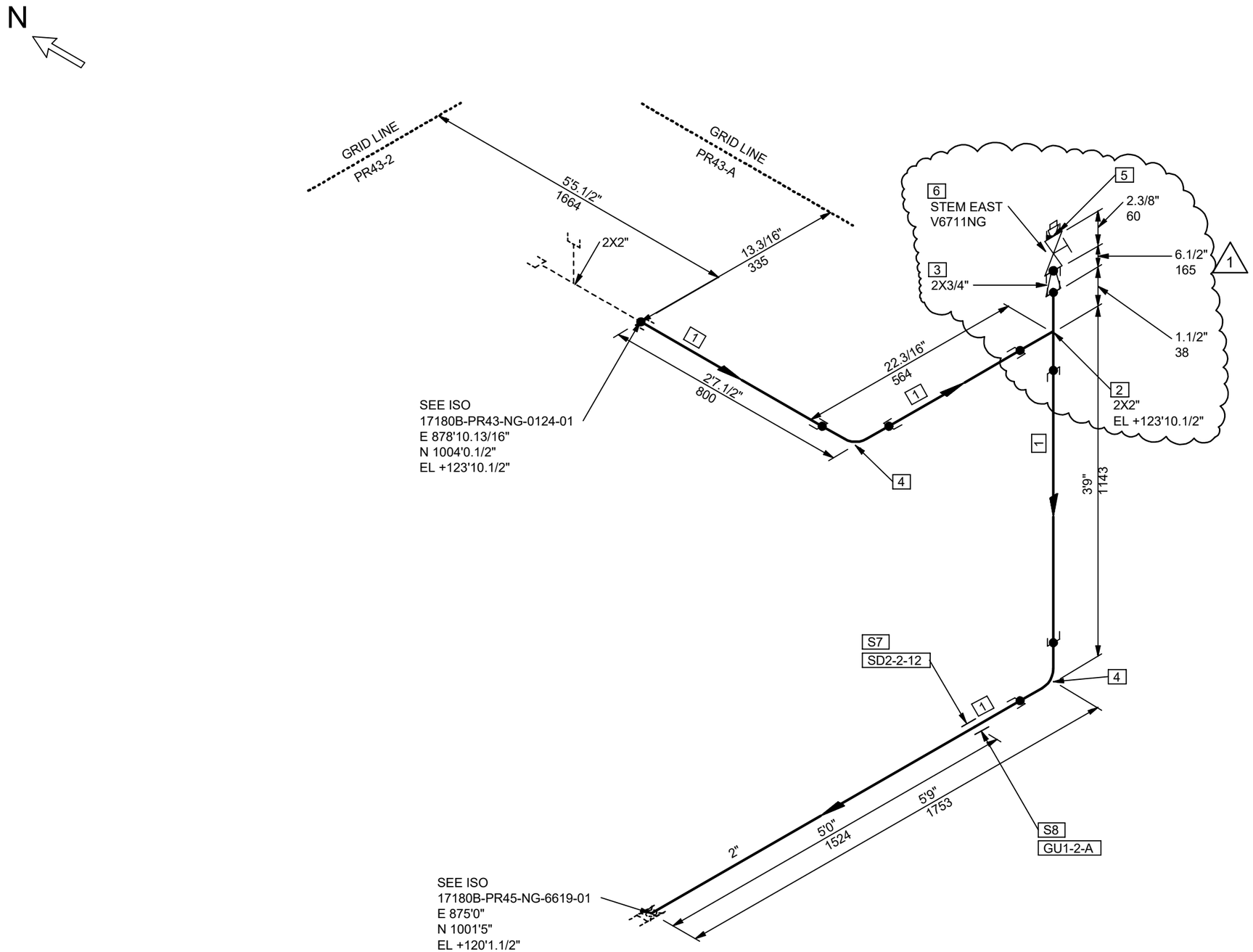
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NG-0124-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS Fig1.00 , S-80	2	13.3'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
	ERECTION		
5	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	PIPE SUPPORTS		
7	SD2-2-12	2	1
8	GU1-2-A	2	1

1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	VT	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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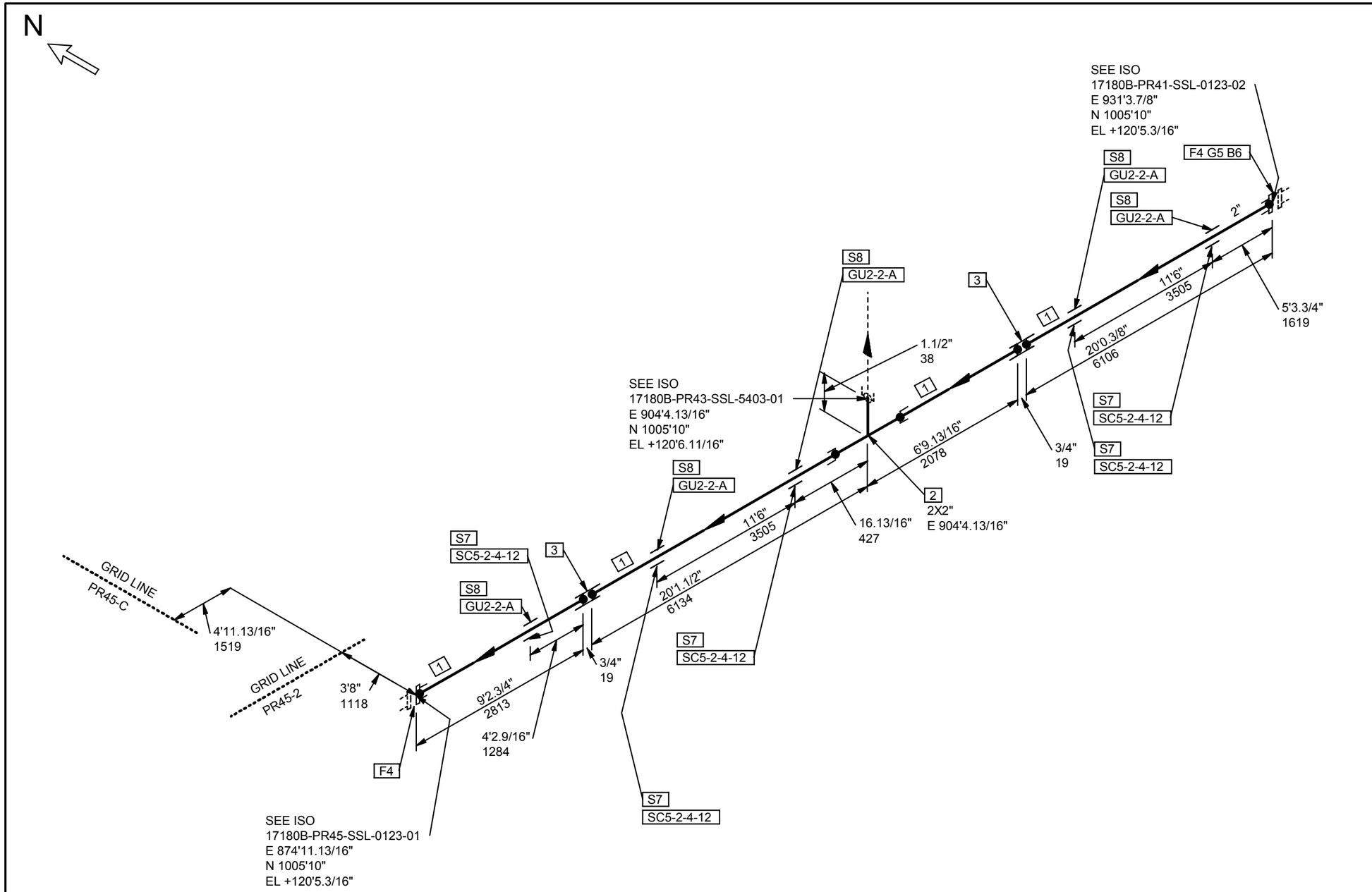
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-NG-6619-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	55.9'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
5	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
7	SC5-2-4-12	2	5
8	GU2-2-A	2	5

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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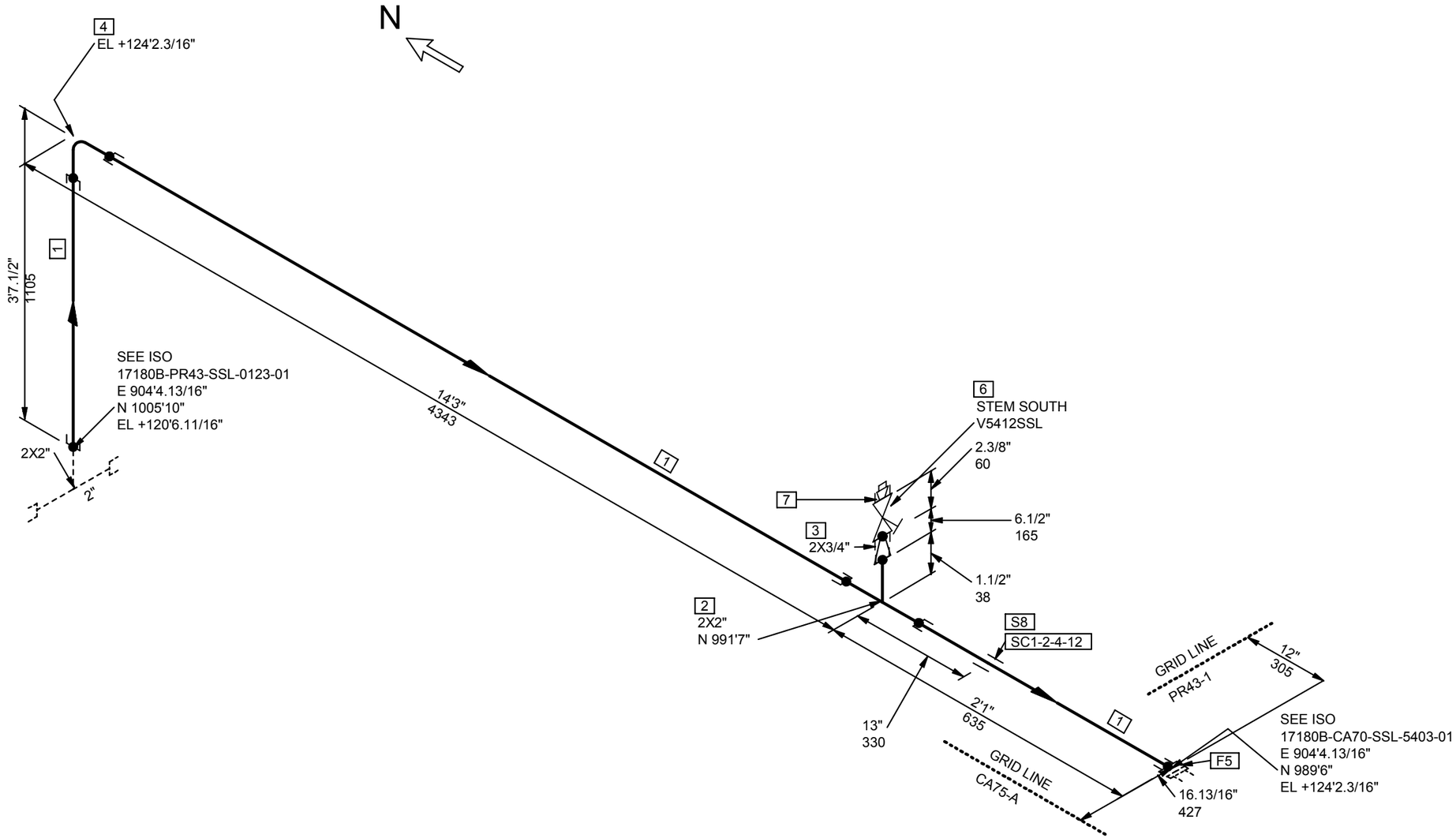
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-SSL-0123-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	19.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
	PIPE SUPPORTS		
8	SC1-2-4-12	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5401		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	08/02/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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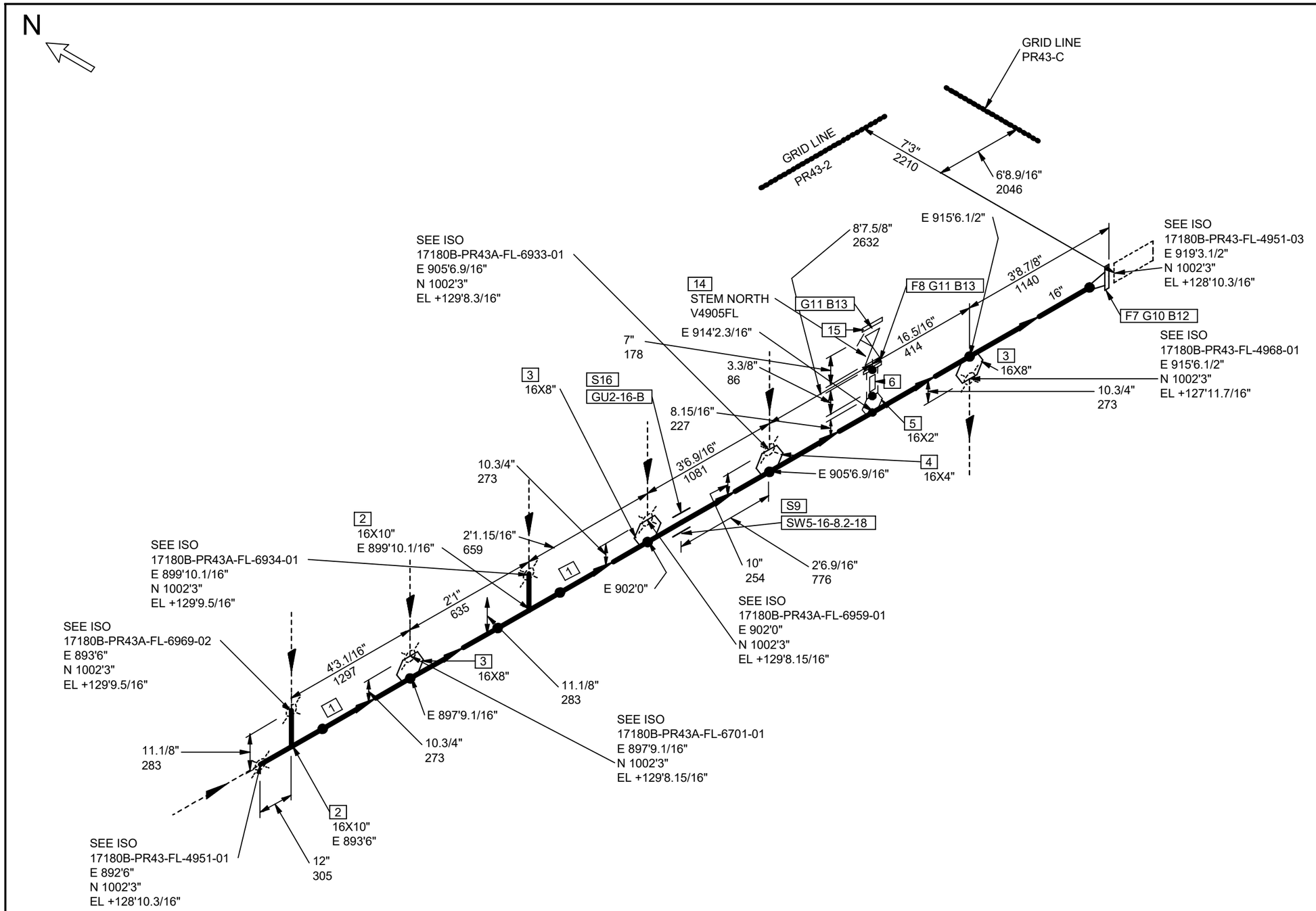
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-SSL-5403-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	16	22.4'
2	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	16X10	2
3	Weldolet , MSS SP-97 , BE , ASTM A105N , S-STD , S-STD	16X8	3
4	Weldolet , MSS SP-97 , BE , ASTM A105N , S-STD , S-STD	16X4	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	16X2	1
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	16	1
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	PIPE SUPPORTS		
9	SW5-16-8.2-18	16	1
	ERECTION		
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	16	1
11	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1	16
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
14	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
15	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
16	GU2-16-B	16	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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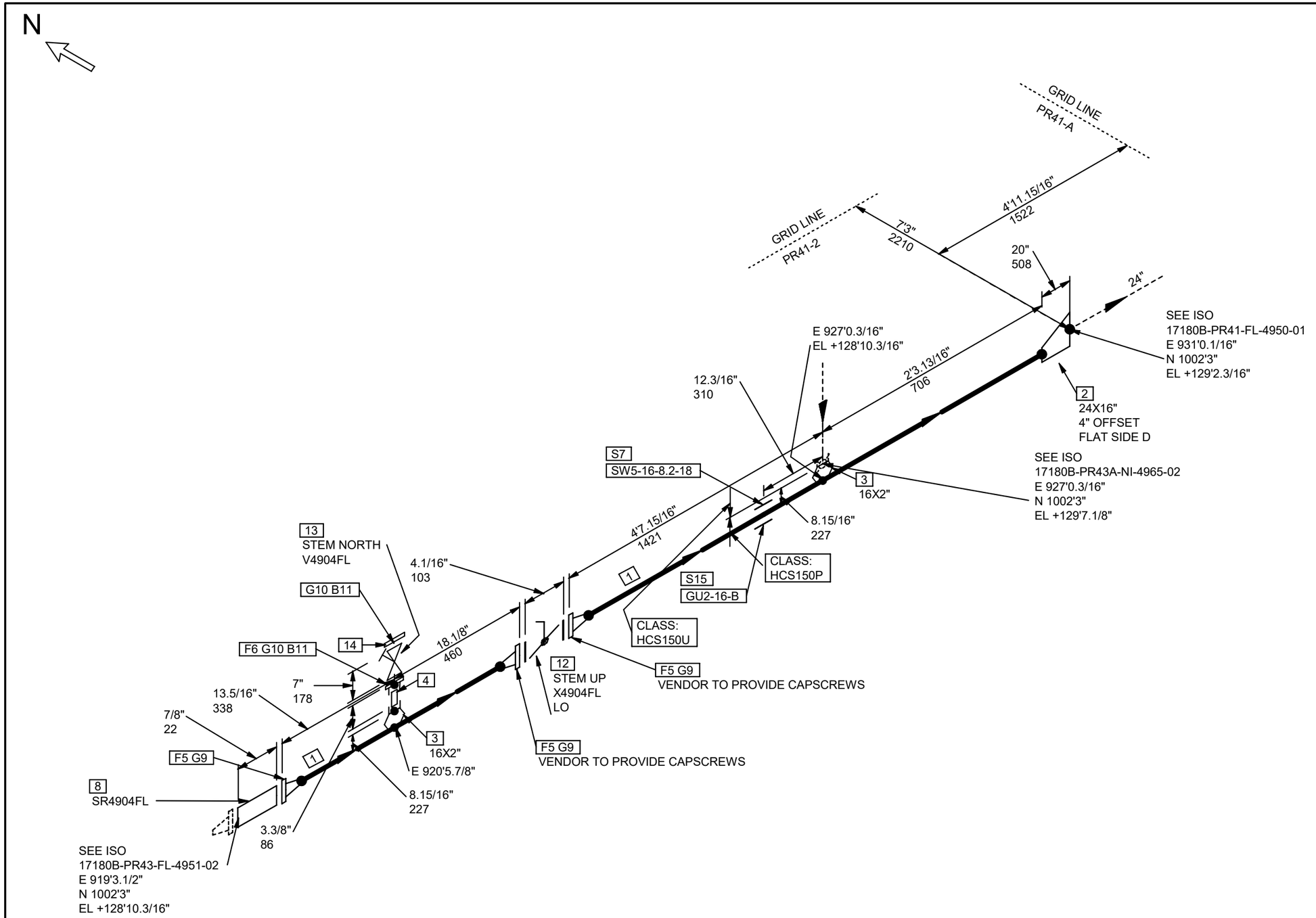
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-FL-4951-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	16	8.4'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	24X16	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	16X2	2
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
5	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	16	3
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	PIPE SUPPORTS		
7	SW5-16-8.2-18	16	1
	ERECTION		
8	Paddle Spacer , ASME B16.48 , CL150 , FFTBE , ASTM A516 Grade 70	16	1
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	16	3
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
12	Bfly Vlv Lugged , API 609 Category B , CL150 , RFLUG , Drive, gear operator , ASTM A216-WCB , 316 SS/GRAPHITE SEAL , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W1LAB	16	1
13	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
14	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
15	GU2-16-B	16	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/04/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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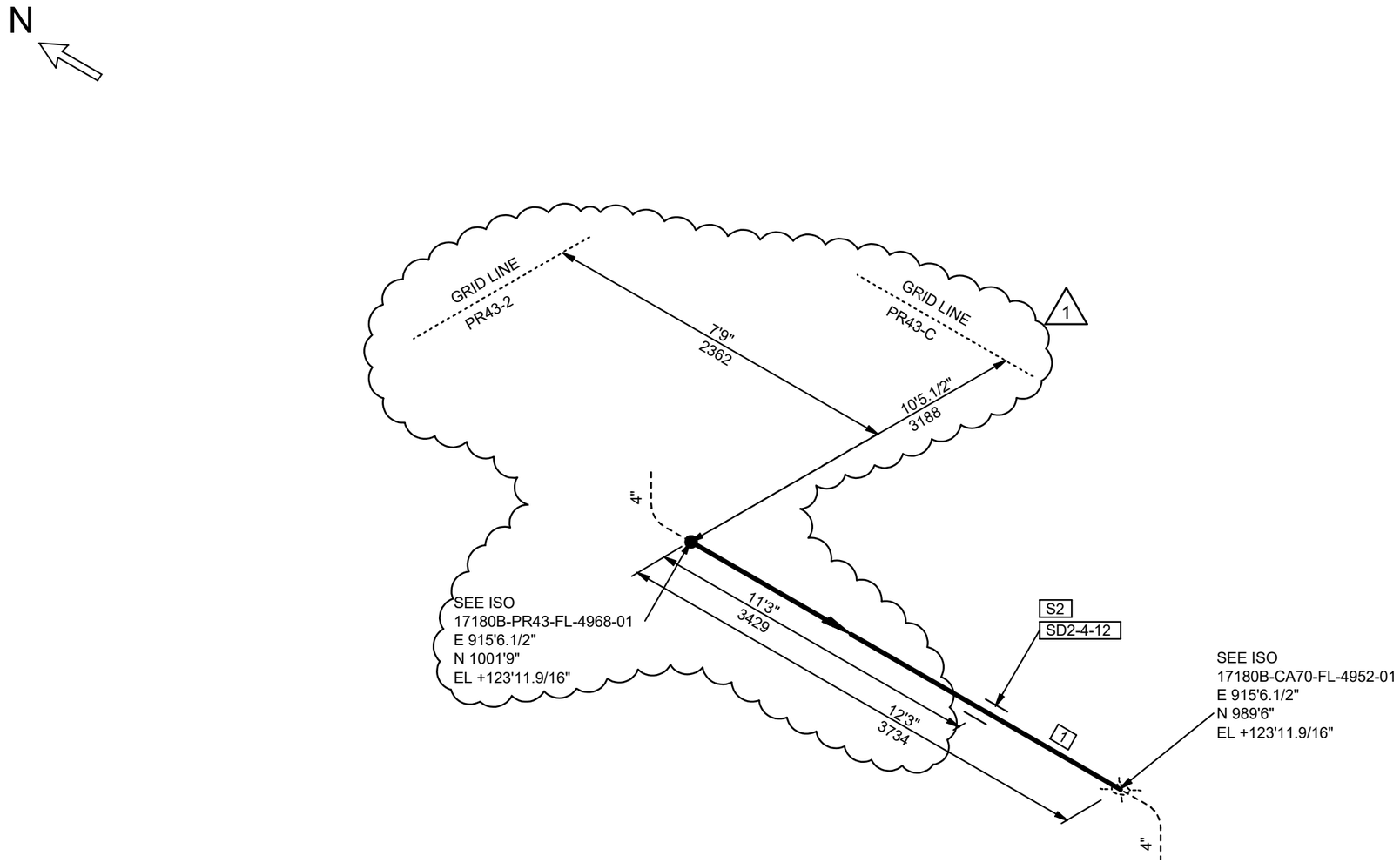
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-FL-4951-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	12.3'
ERECTION		
PIPE SUPPORTS		
2 SD2-4-12	4	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	03/13/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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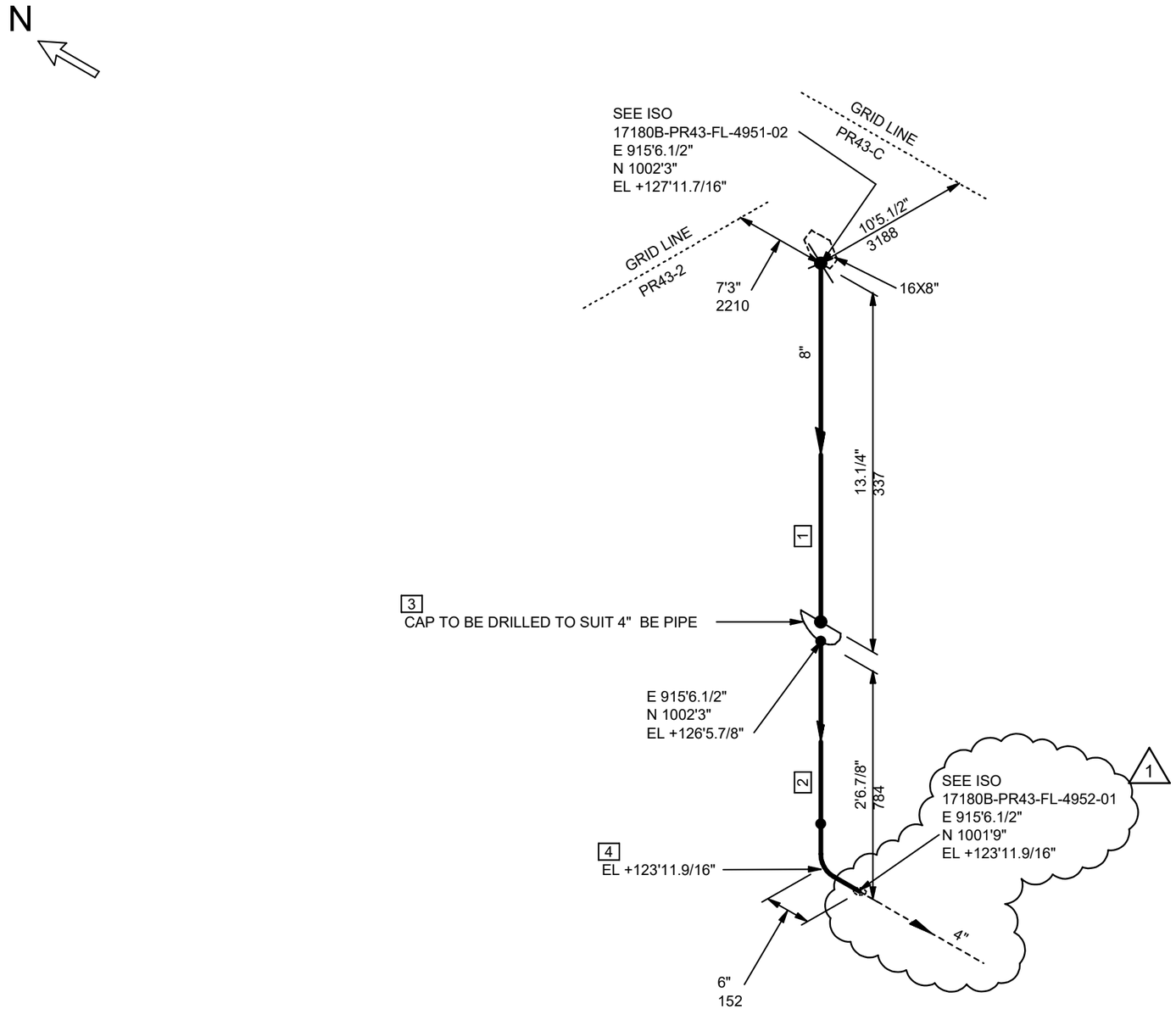
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-FL-4952-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	1.2'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	2.1'
3	Cap , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD	8	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	1

1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	03/13/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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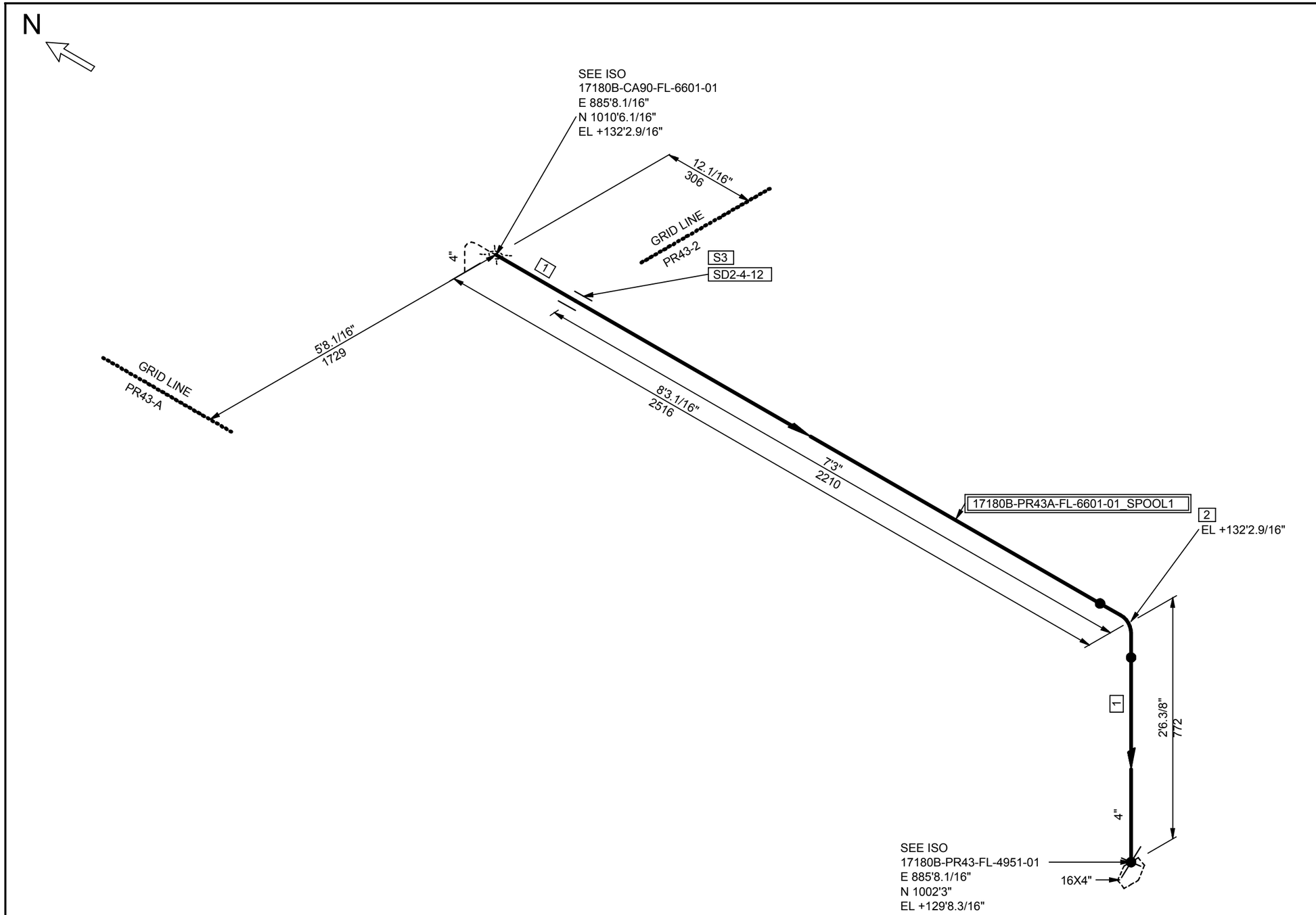
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-FL-4968-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	9.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	1
	ERECTION		
	PIPE SUPPORTS		
3	SD2-4-12	4	1

17180B-PR43A-FL-6601-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/26/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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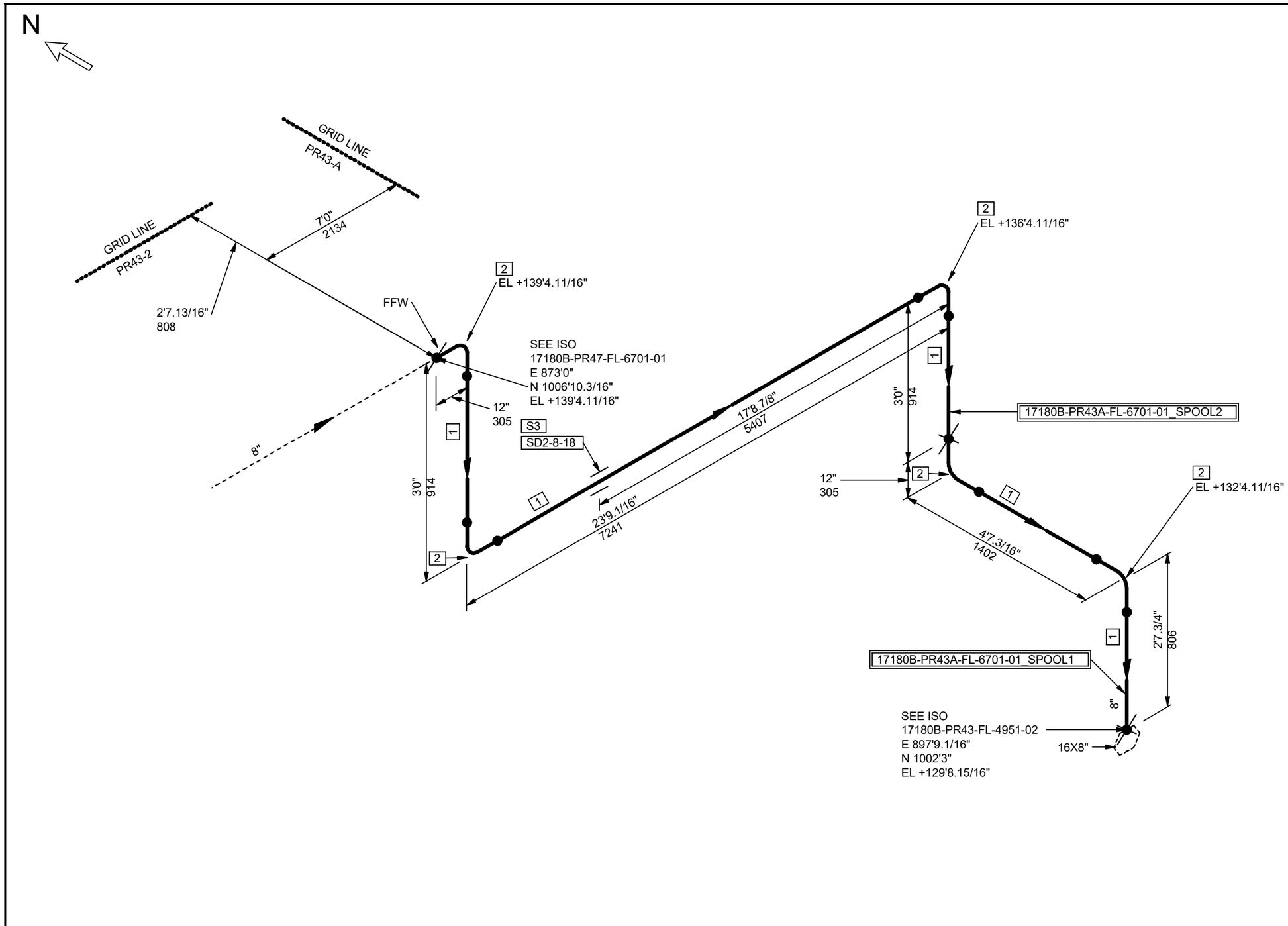
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6601-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	29.0'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	5
	ERECTION		
	PIPE SUPPORTS		
3	SD2-8-18	8	1

17180B-PR43A-FL-6701-01_SPOOL1
17180B-PR43A-FL-6701-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/17/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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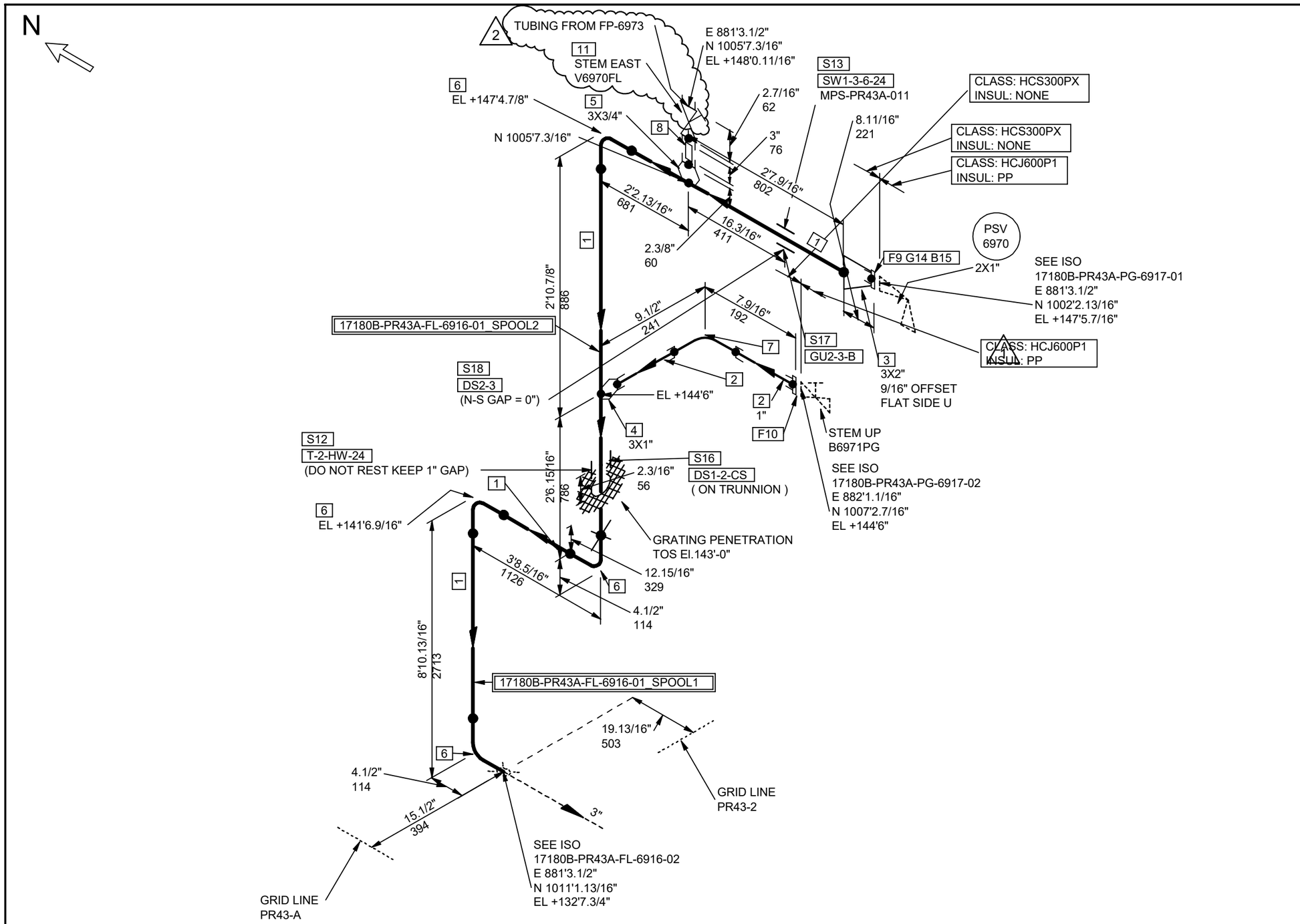
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6701-01
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	20.7'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.0'
3	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X1	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	4
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
10	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAE	3/4	1
	PIPE SUPPORTS		
12	T-2-HW-24	3	1
13	SW1-3-6-24	3	1
	ERECTION		
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	1
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4 in. Length	5/8	8
	PIPE SUPPORTS		
16	DS1-2-CS	3	1
17	GU2-3-B	3	1
18	DS2-3	3	1

17180B-PR43A-FL-6916-01_SPOOL1 17180B-PR43A-FL-6916-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCS300PX	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
1	11/01/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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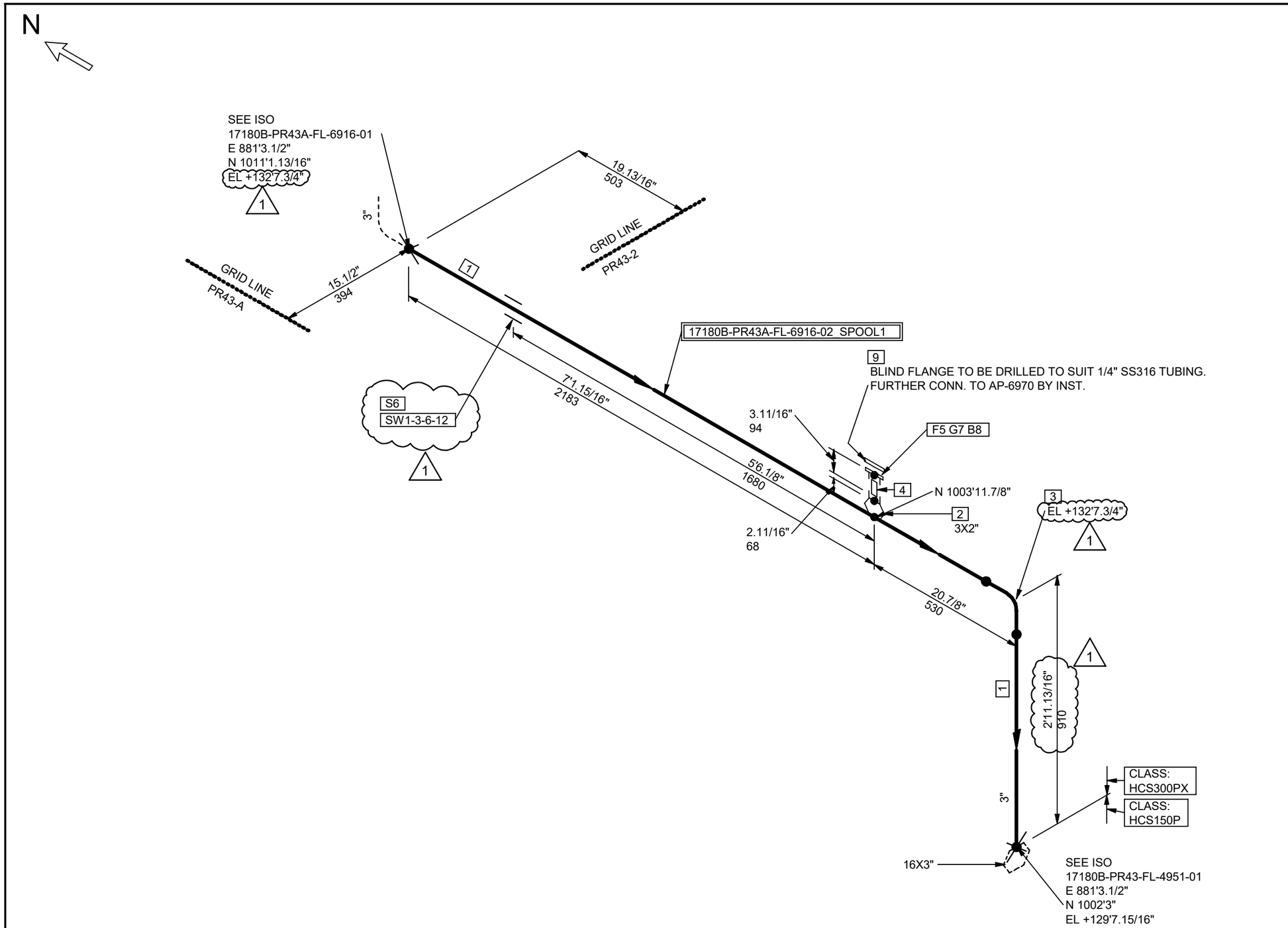
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6916-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	11.2'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	1
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
5	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
	PIPE SUPPORTS		
6	SW1-3-6-12	3	1
	ERECTION		
7	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 3.75 in. Length	5/8	8
9	Blind Flg , ASME B16.5 , CL300 , RF , ASTM A105N	2	1

17180B-PR43A-FL-6916-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCS300PX	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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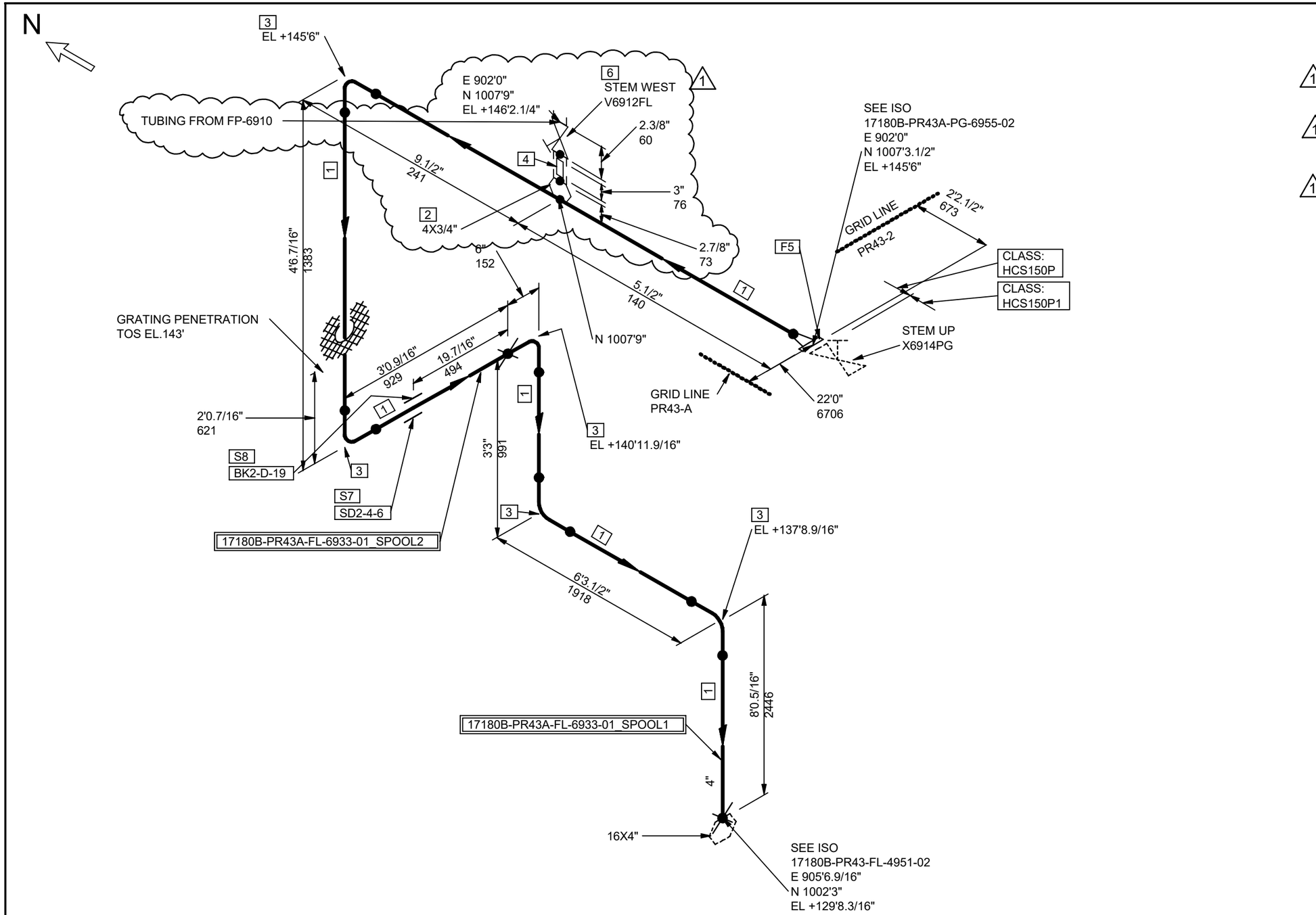
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6916-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
	1 Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	21.7'
1	2 Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X3/4	1
	3 90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	5
1	4 Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
	5 WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N S-STD	4	1
1	6 Gate Viv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
	PIPE SUPPORTS		
	7 SD2-4-6	4	1
	8 BK2-D-19	4	1

17180B-PR43A-FL-6933-01_SPOOL1 17180B-PR43A-FL-6933-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
0	09/30/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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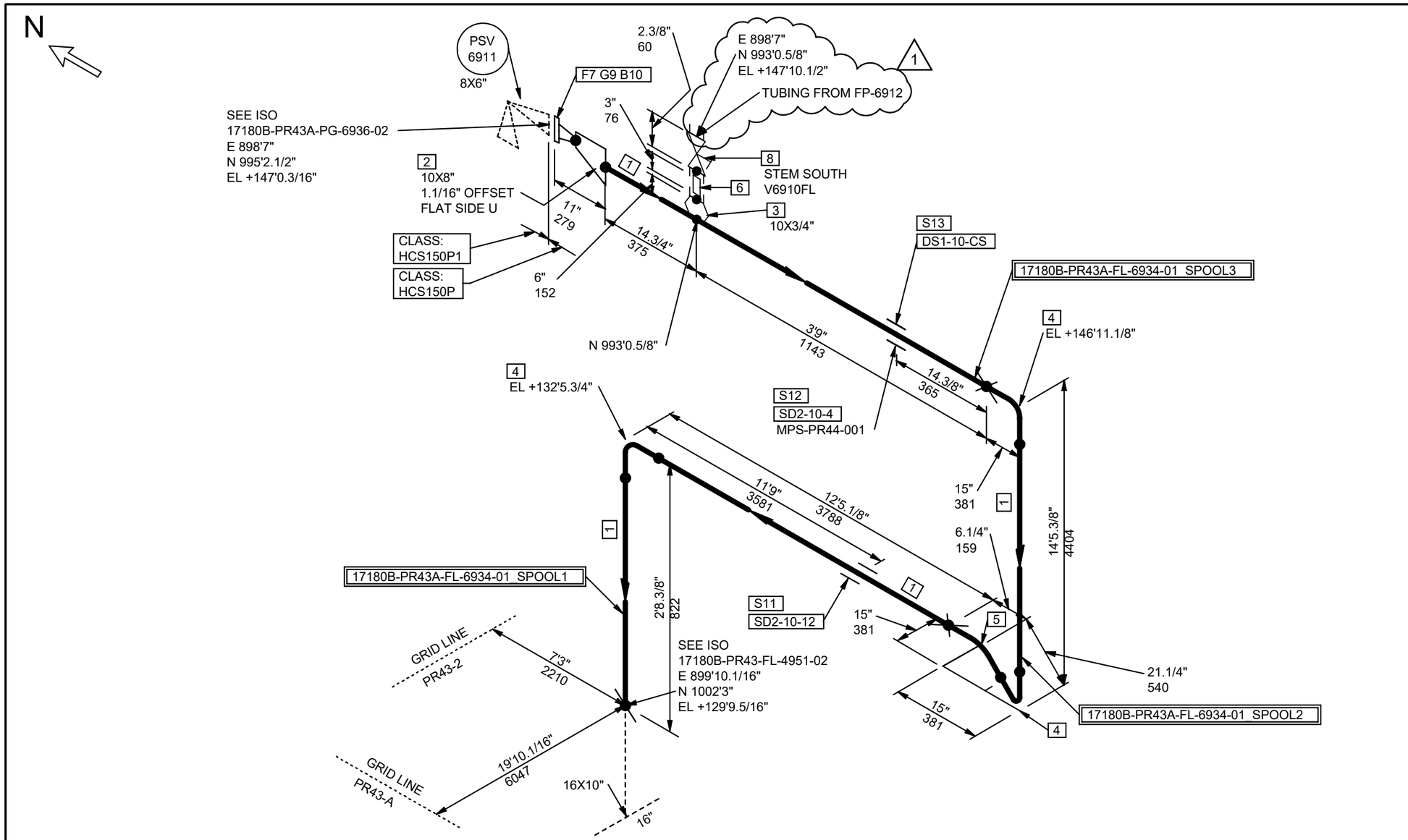
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6933-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	29.6'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X8	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	3
5	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	1
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	8	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	1
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	8
	PIPE SUPPORTS		
11	SD2-10-12	10	1
12	SD2-10-4	10	1
13	DS1-10-CS	10	1

17180B-PR43A-FL-6934-01_SPOOL1 17180B-PR43A-FL-6934-01_SPOOL2
17180B-PR43A-FL-6934-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/12/2019	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	09/24/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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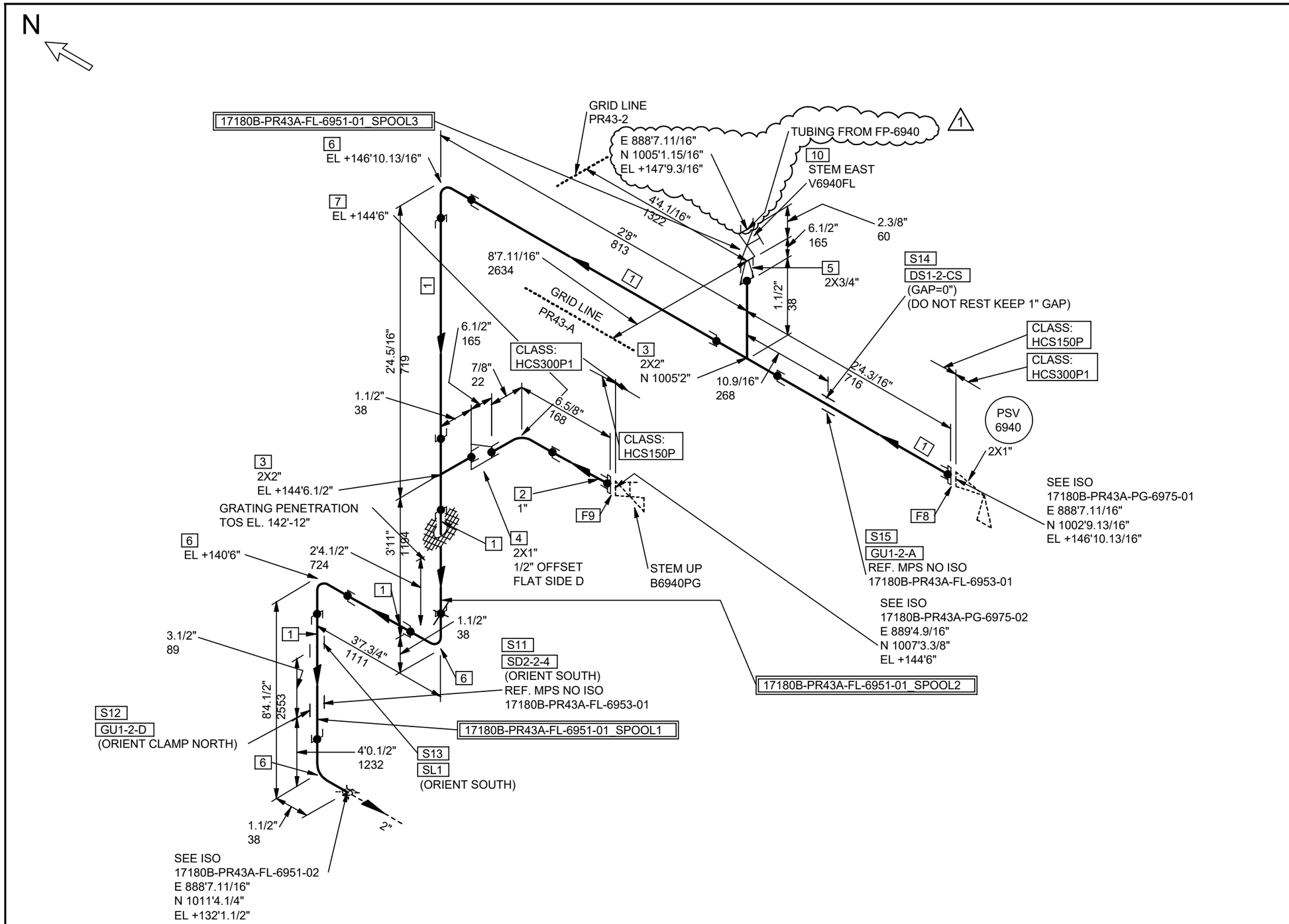
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6934-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	22.1'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	0.5'
3	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	2
4	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
5	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
9	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	1	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
ERECTION			
PIPE SUPPORTS			
11	SD2-2-4	2	1
12	GU1-2-D	2	1
13	SL1	2	1
14	DS1-2-CS	2	1
15	GU1-2-A	2	1

17180B-PR43A-FL-6951-01_SPOOL1 17180B-PR43A-FL-6951-01_SPOOL2
17180B-PR43A-FL-6951-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
0	10/14/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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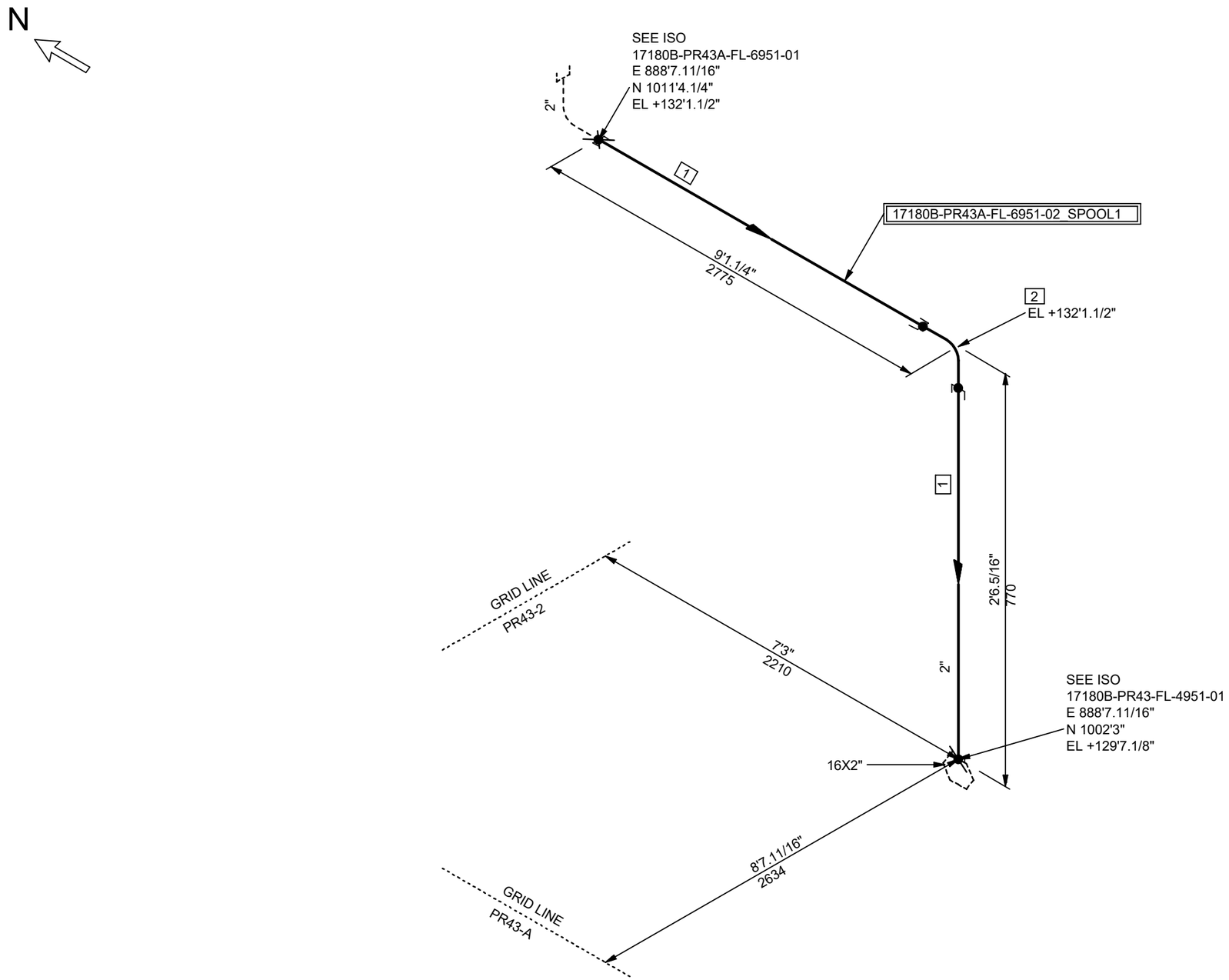
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6951-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	11.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1

17180B-PR43A-FL-6951-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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West Memorial Place II
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Tel 713.270.3100

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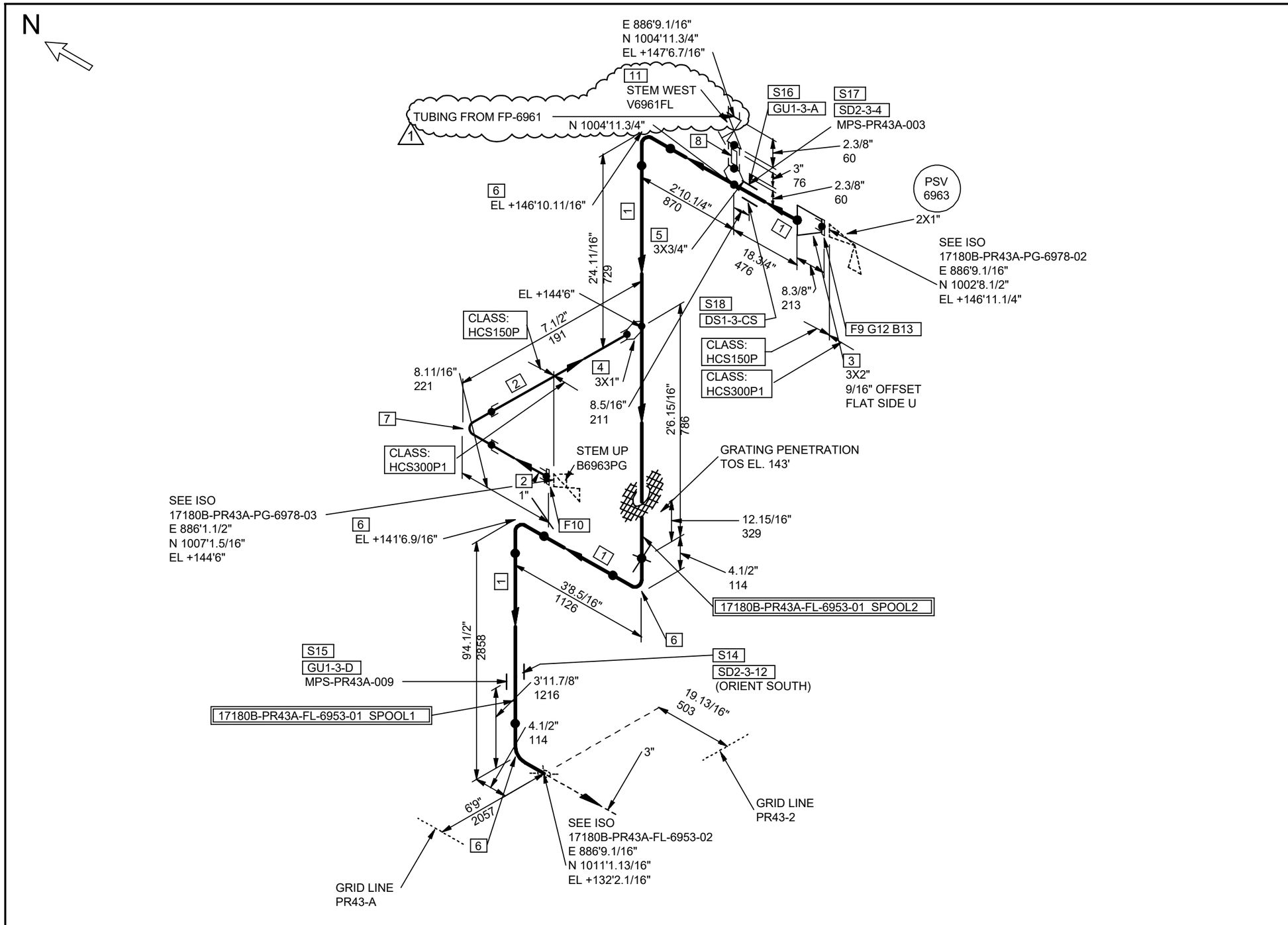
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6951-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	20.3'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.0'
3	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X1	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	4
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
10	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
12	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
14	SD2-3-12	3	1
15	GU1-3-D	3	1
16	GU1-3-A	3	1
17	SD2-3-4	3	1
18	DS1-3-CS	3	1

17180B-PR43A-FL-6953-01_SPOOL1 17180B-PR43A-FL-6953-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
0	10/01/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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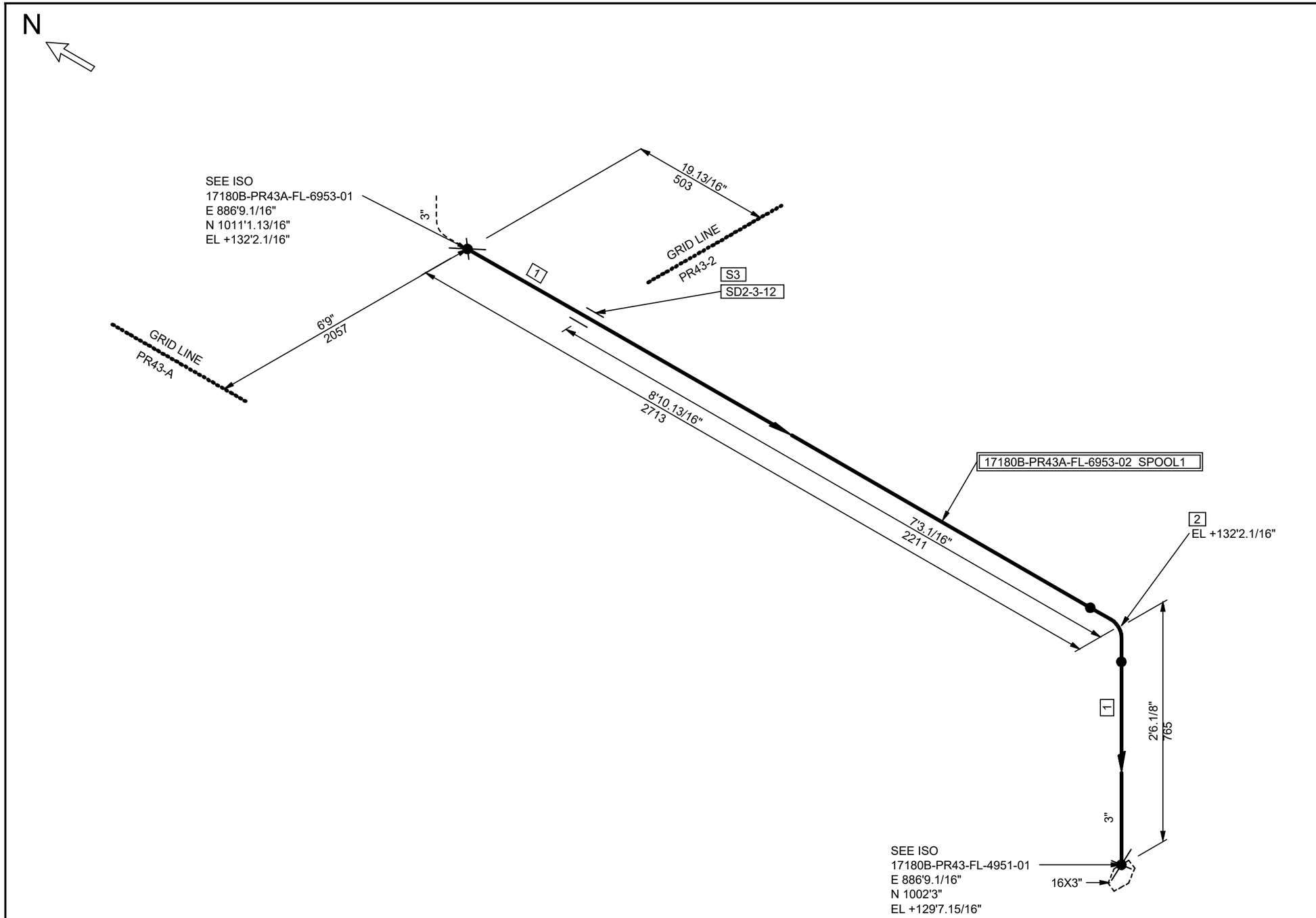
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6953-01
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	10.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	1
	ERECTION		
	PIPE SUPPORTS		
3	SD2-3-12	3	1

17180B-PR43A-FL-6953-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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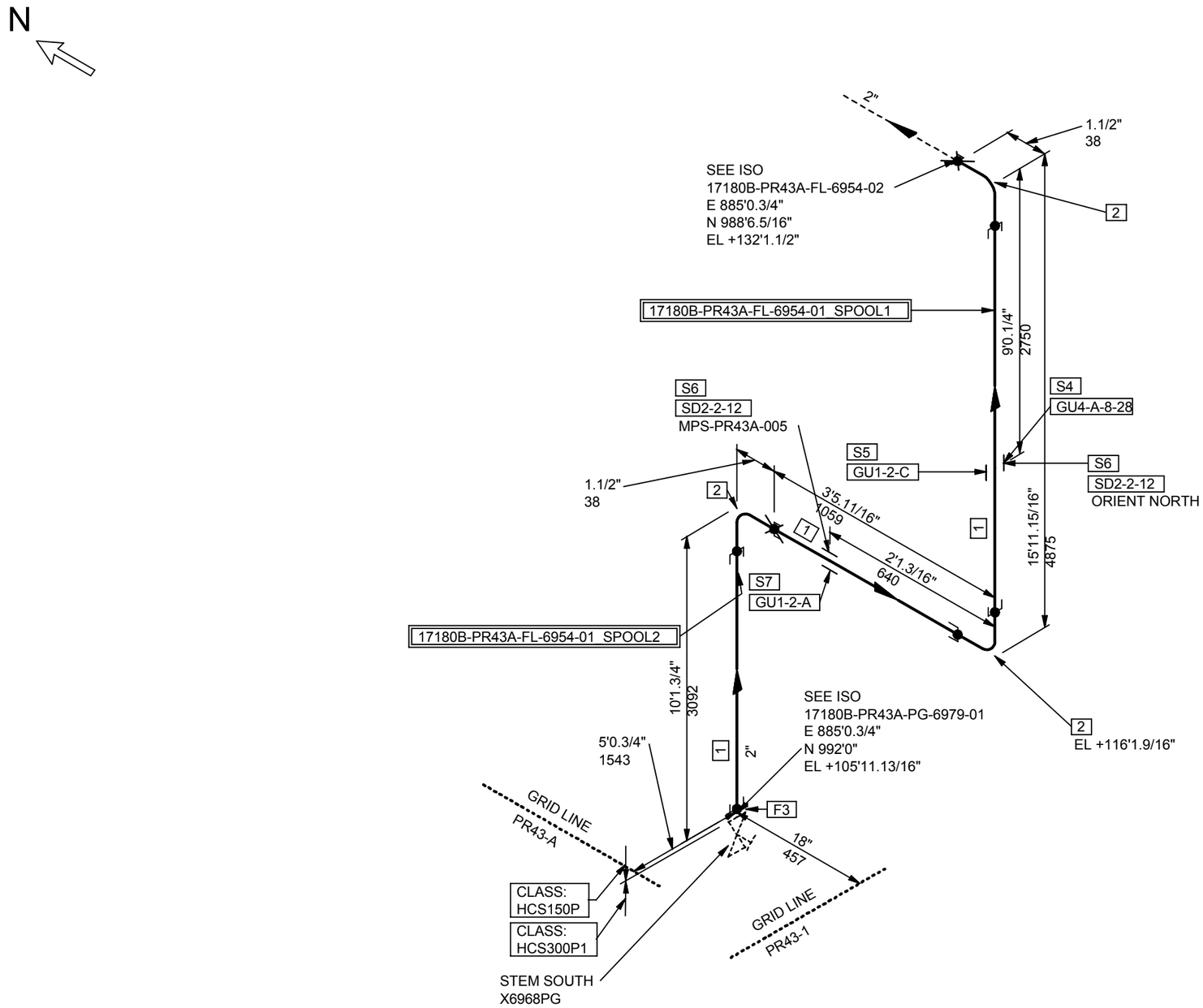
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6953-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	29.1'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
3	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	GU4--8-28	2	1
5	GU1-2-C	2	1
6	SD2-2-12	2	2
7	GU1-2-A	2	1

17180B-PR43A-FL-6954-01_SPOOL1 17180B-PR43A-FL-6954-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
			REX	NNR	
0	09/26/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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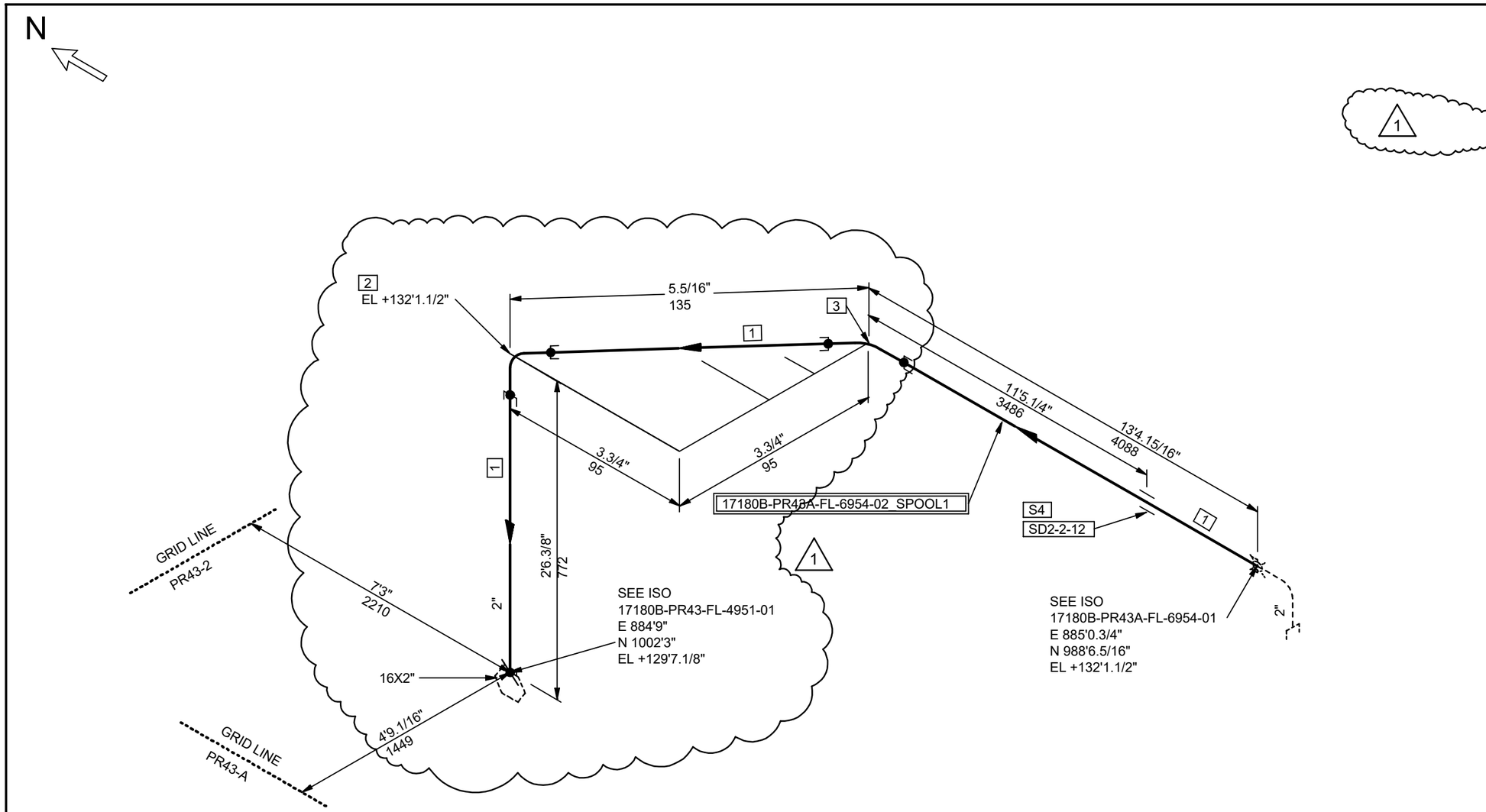
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6954-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.0'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

17180B-PR43A-FL-6954-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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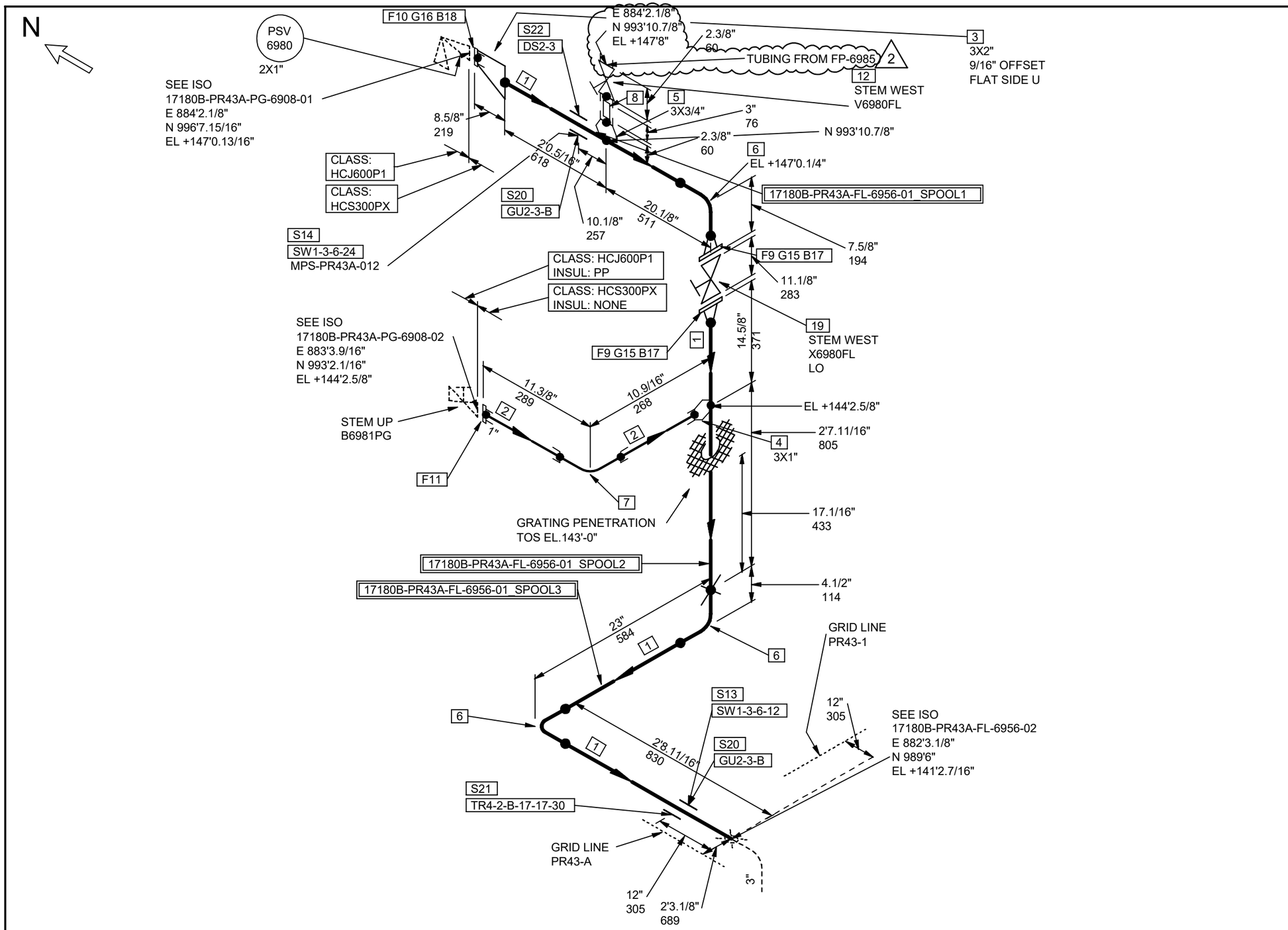
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR43A-FL-6954-02
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	10.5'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.4'
3	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X1	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-STD	3	2
10	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
11	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
12	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAE	3/4	1
	PIPE SUPPORTS		
13	SW1-3-6-12	3	1
14	SW1-3-6-24	3	1
	ERECTION		
15	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3	2
16	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	3/4	16
18	- 3.75 in. Length	5/8	8
19	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAE	3	1
	PIPE SUPPORTS		
20	GU2-3-B	3	2
21	TR4-2-B-17-17-30	3	1
22	DS2-3	3	1

17180B-PR43A-FL-6956-01_SPOOL1 17180B-PR43A-FL-6956-01_SPOOL2
17180B-PR43A-FL-6956-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS300PX	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
1	11/01/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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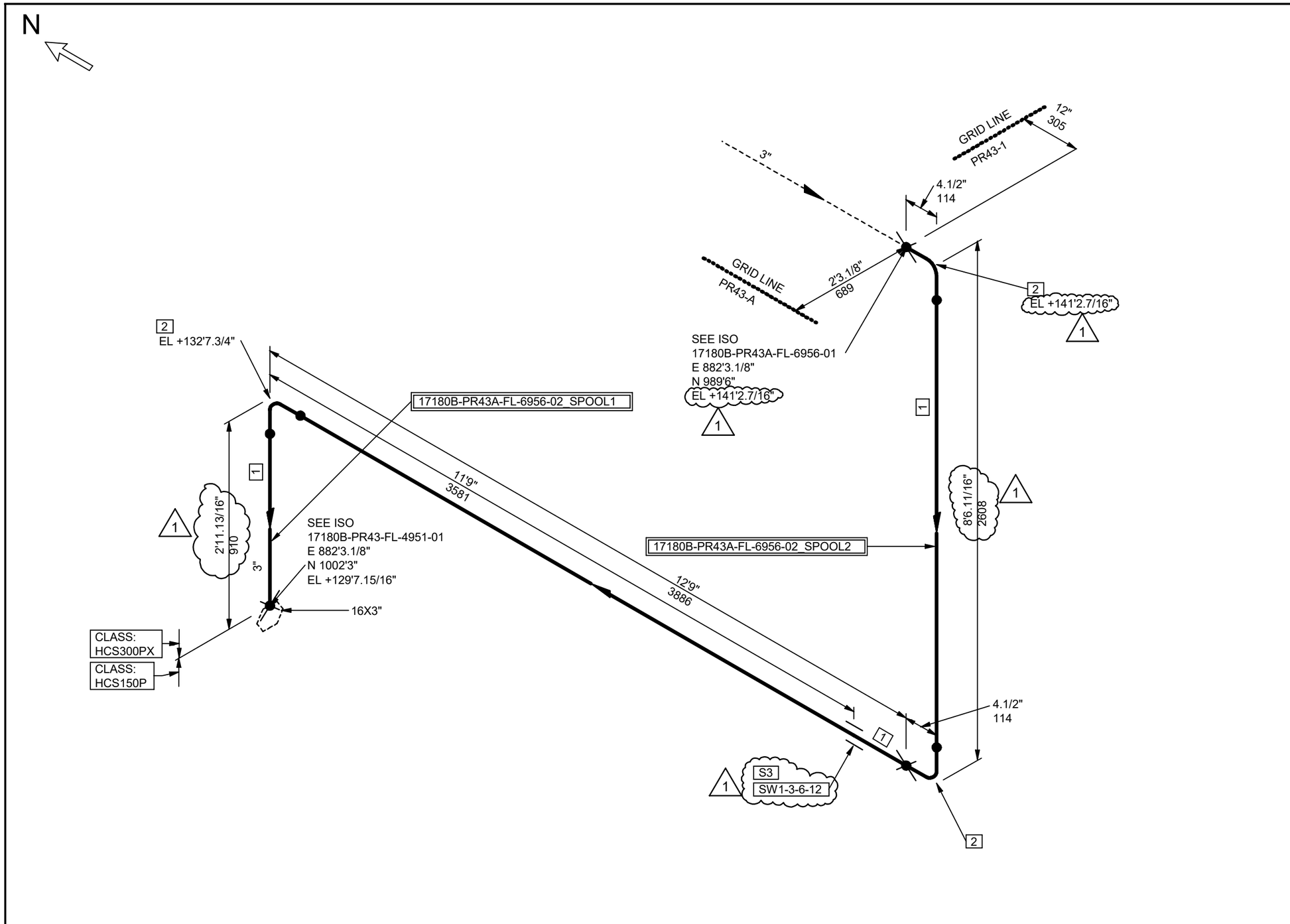
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6956-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	22.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
	PIPE SUPPORTS		
3	SW1-3-6-12	3	1

17180B-PR43A-FL-6956-02_SPOOL1 17180B-PR43A-FL-6956-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS300PX	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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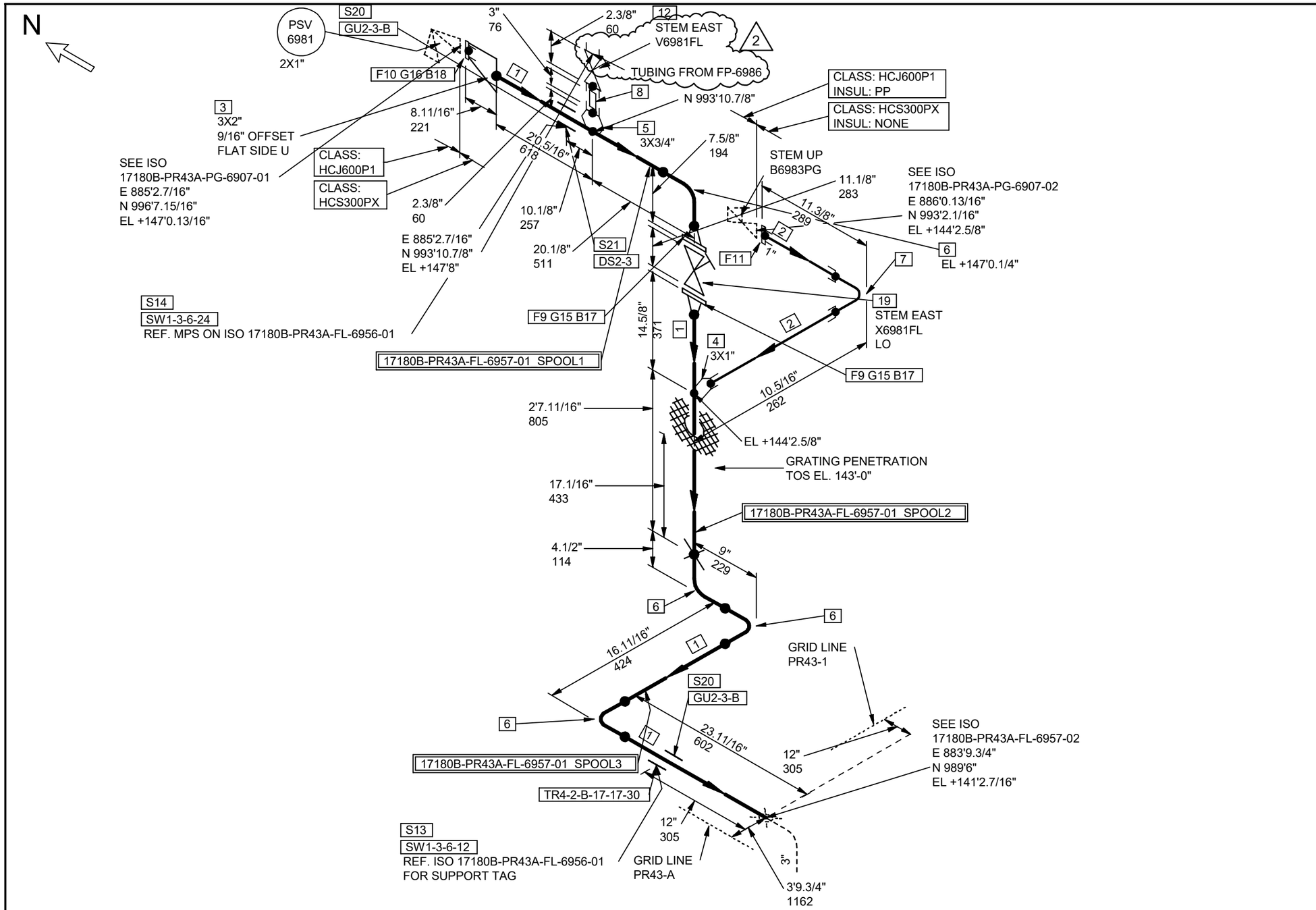
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6956-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	9.2'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.4'
3	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-STD , S-160	3X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X1	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	4
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-STD	3	2
10	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
11	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
12	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAE	3/4	1
	PIPE SUPPORTS		
13	SW1-3-6-12	3	1
14	SW1-3-6-24	3	1
	ERECTION		
15	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3	2
16	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	3/4	16
18	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 3.75 in. Length	5/8	8
19	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAE	3	1
	PIPE SUPPORTS		
20	GU2-3-B	3	2
21	DS2-3	3	1

17180B-PR43A-FL-6957-01_SPOOL1 17180B-PR43A-FL-6957-01_SPOOL2
17180B-PR43A-FL-6957-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS300PX	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
1	10/25/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	10/19/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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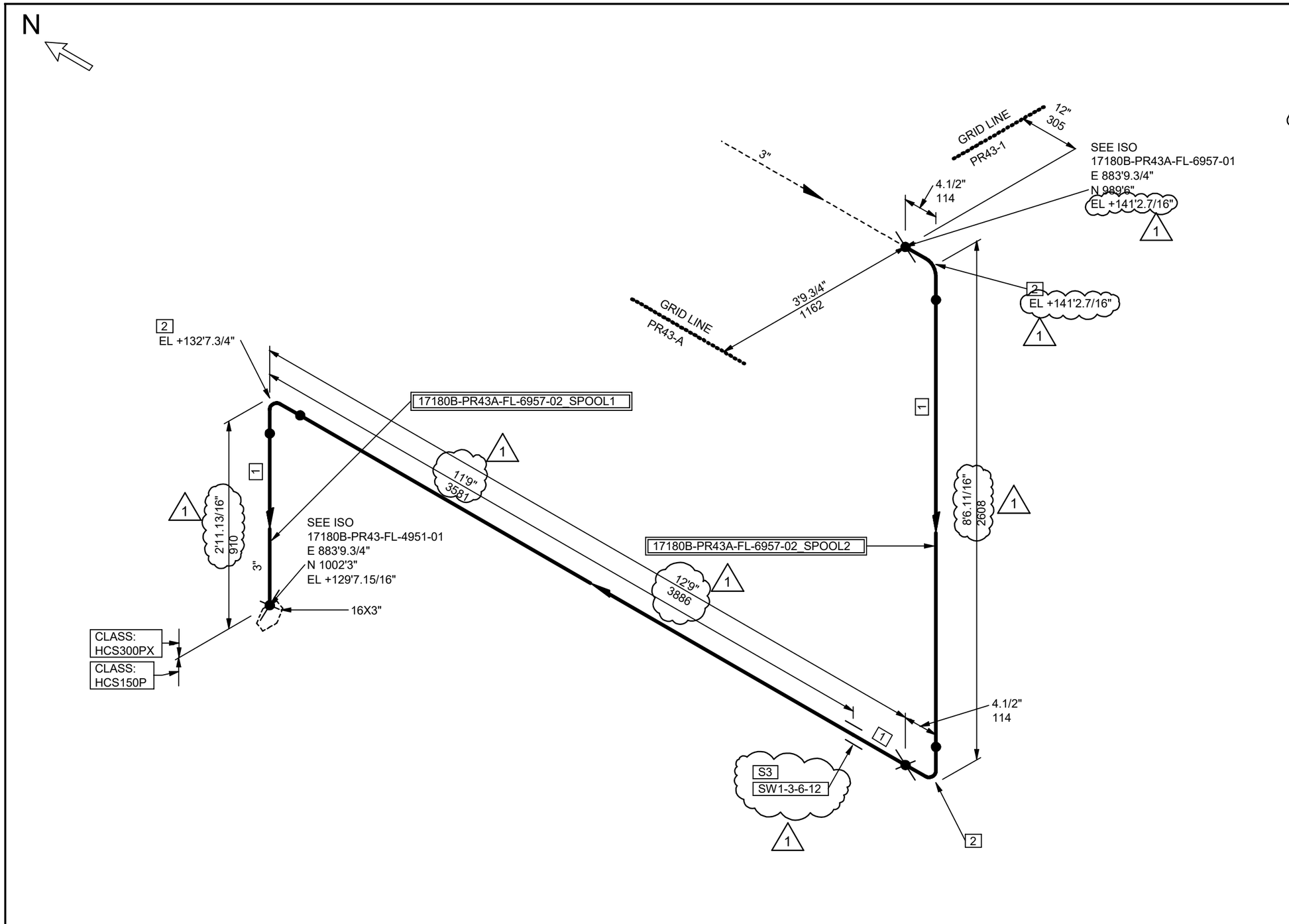
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6957-01
REV: 2	

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	22.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	3	3
	PIPE SUPPORTS		
3	SW1-3-6-12	3	1

17180B-PR43A-FL-6957-02_SPOOL1 17180B-PR43A-FL-6957-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCS300PX	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2015	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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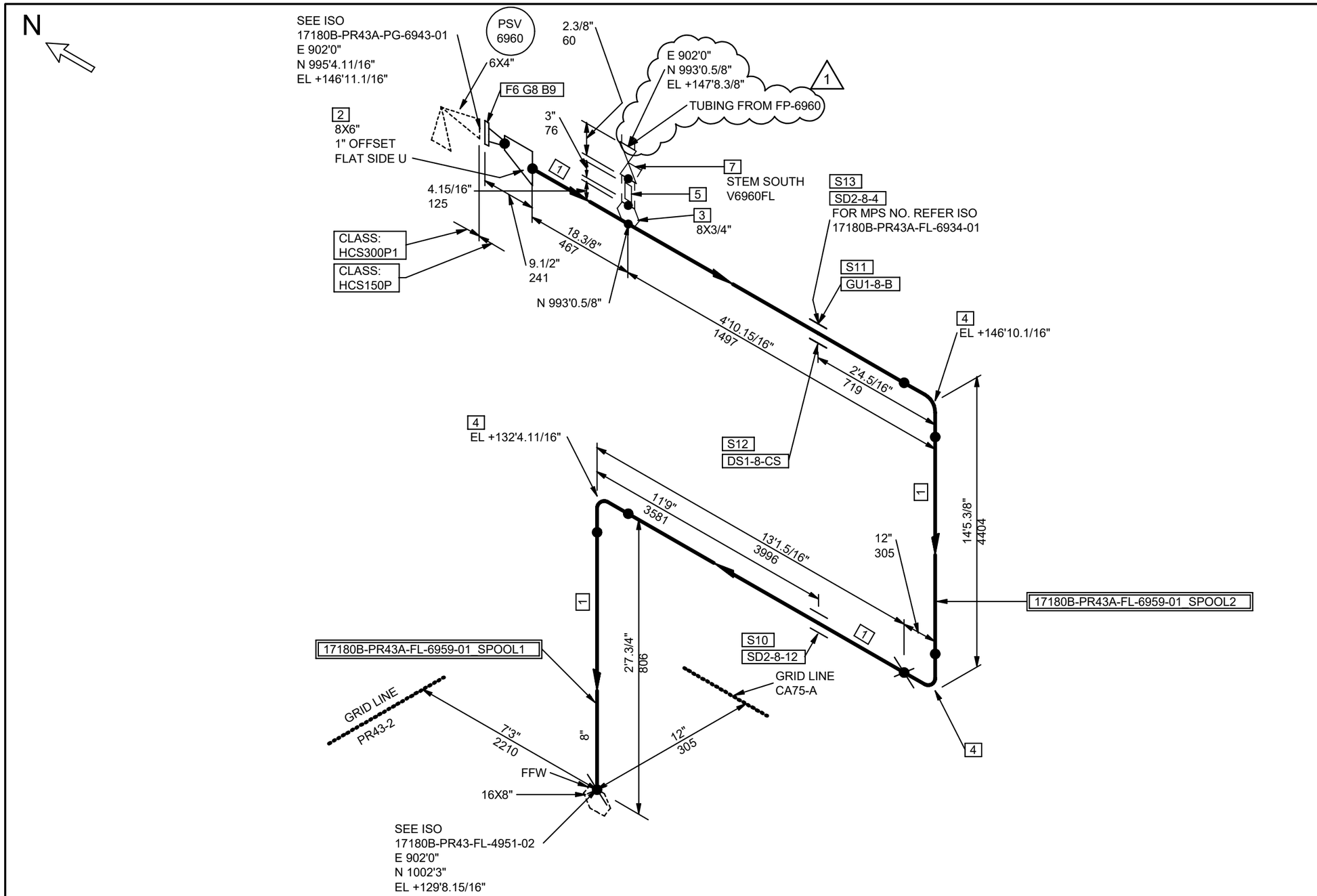
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR43A-FL-6957-02
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	32.0'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X6	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	8X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	3
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
ERECTION			
8	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
PIPE SUPPORTS			
10	SD2-8-12	8	1
11	GU1-8-B	8	1
12	DS1-8-CS	8	1
13	SD2-8-4	8	1

17180B-PR43A-FL-6959-01_SPOOL1 17180B-PR43A-FL-6959-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/12/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/17/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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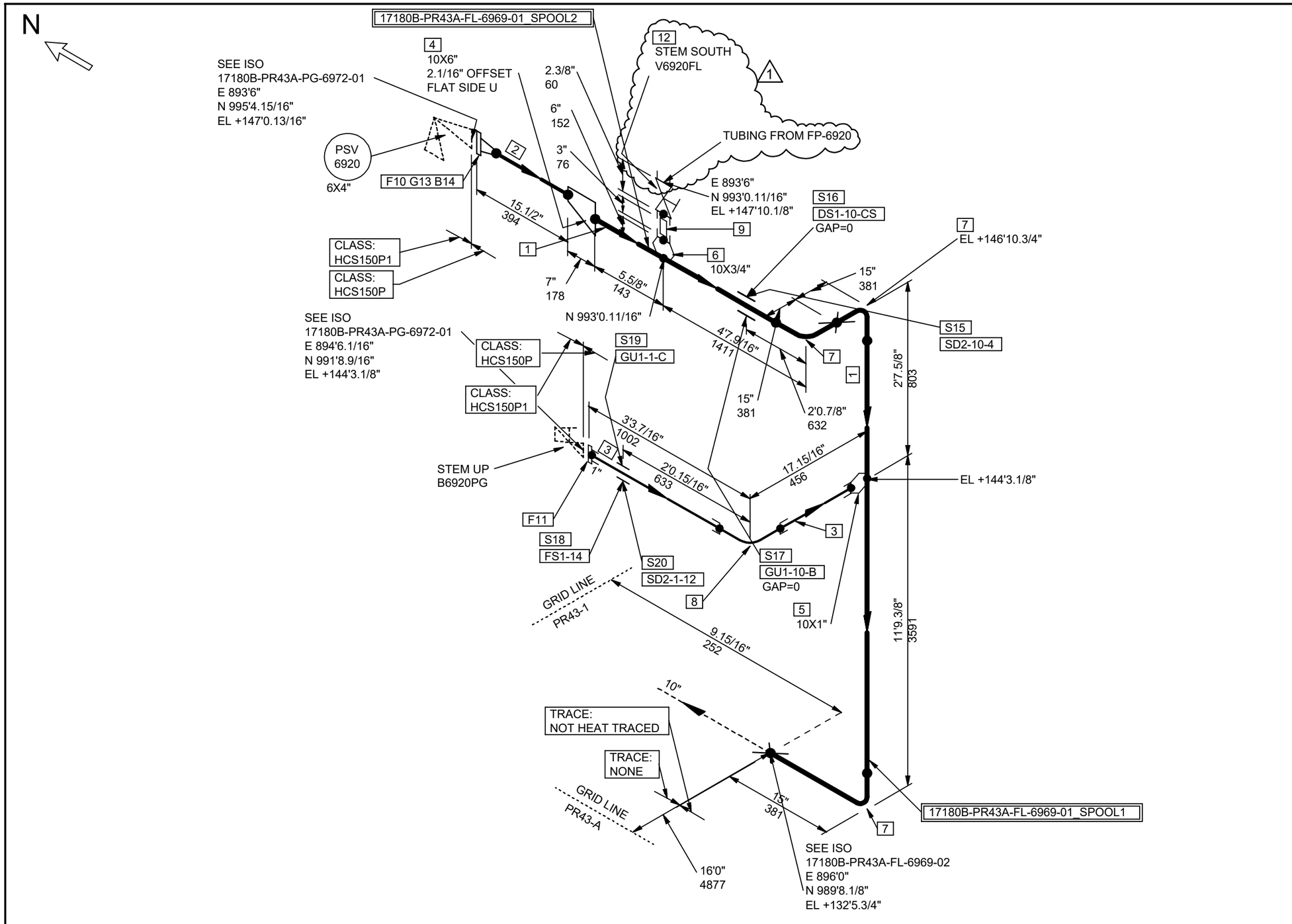
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6959-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	15.8'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	6	1.0'
3	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	4.1'
4	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10X6	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X1	1
6	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X3/4	1
7	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	3
8	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
9	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
10	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	6	1
11	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1	1
12	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
ERECTION			
13	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.25 in. Length	3/4	8
PIPE SUPPORTS			
15	SD2-10-4	10	1
16	DS1-10-CS	10	1
17	GU1-10-B	10	1
18	FS1-14	1	1
19	GU1-1-C	1	1
20	SD2-1-12	1	1

17180B-PR43A-FL-6969-01_SPOOL1 17180B-PR43A-FL-6969-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6902		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
0	10/05/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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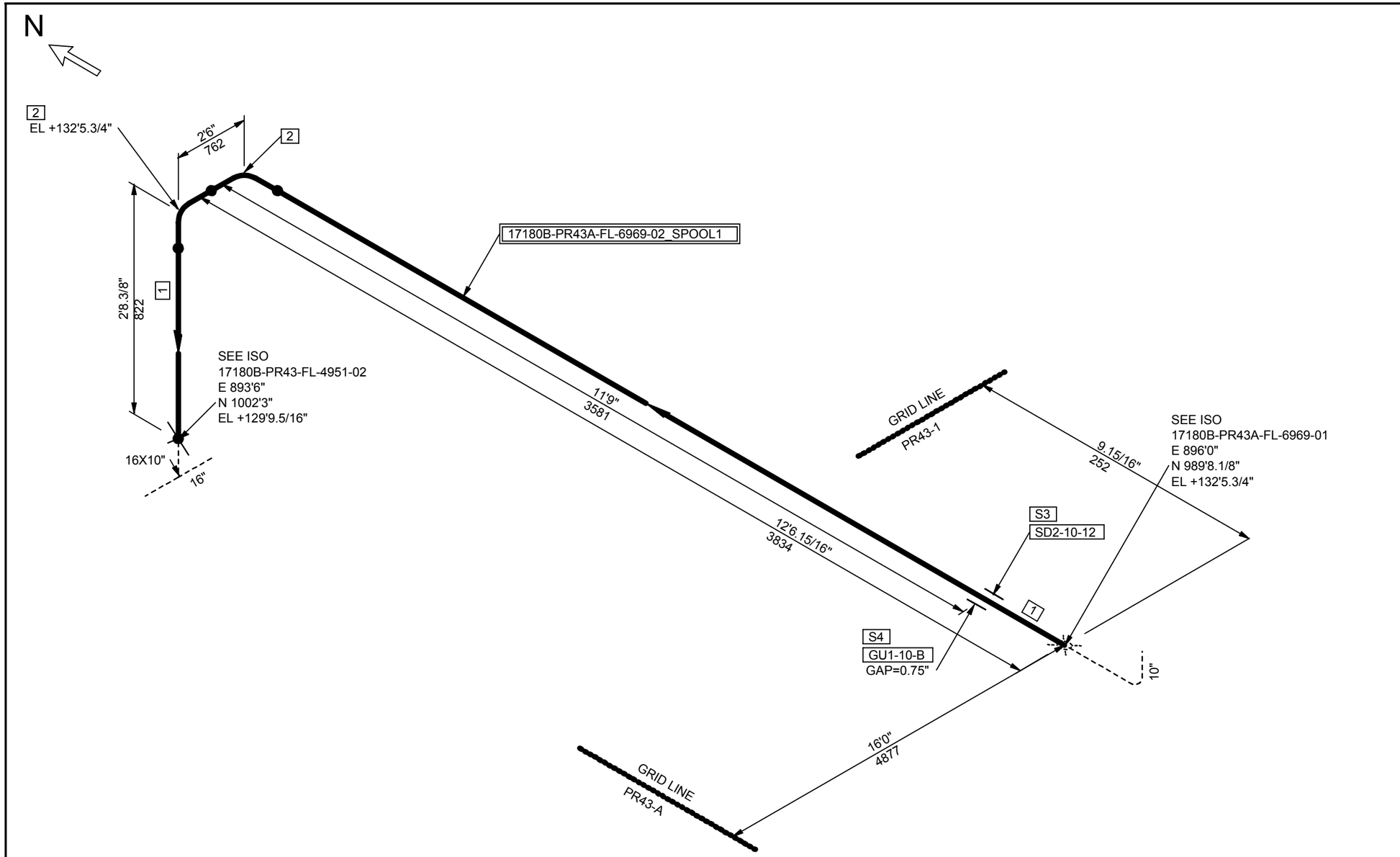
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6969-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	10	12.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	10	2
ERECTION			
PIPE SUPPORTS			
3	SD2-10-12	10	1
4	GU1-10-B	10	1

17180B-PR43A-FL-6969-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6902		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/24/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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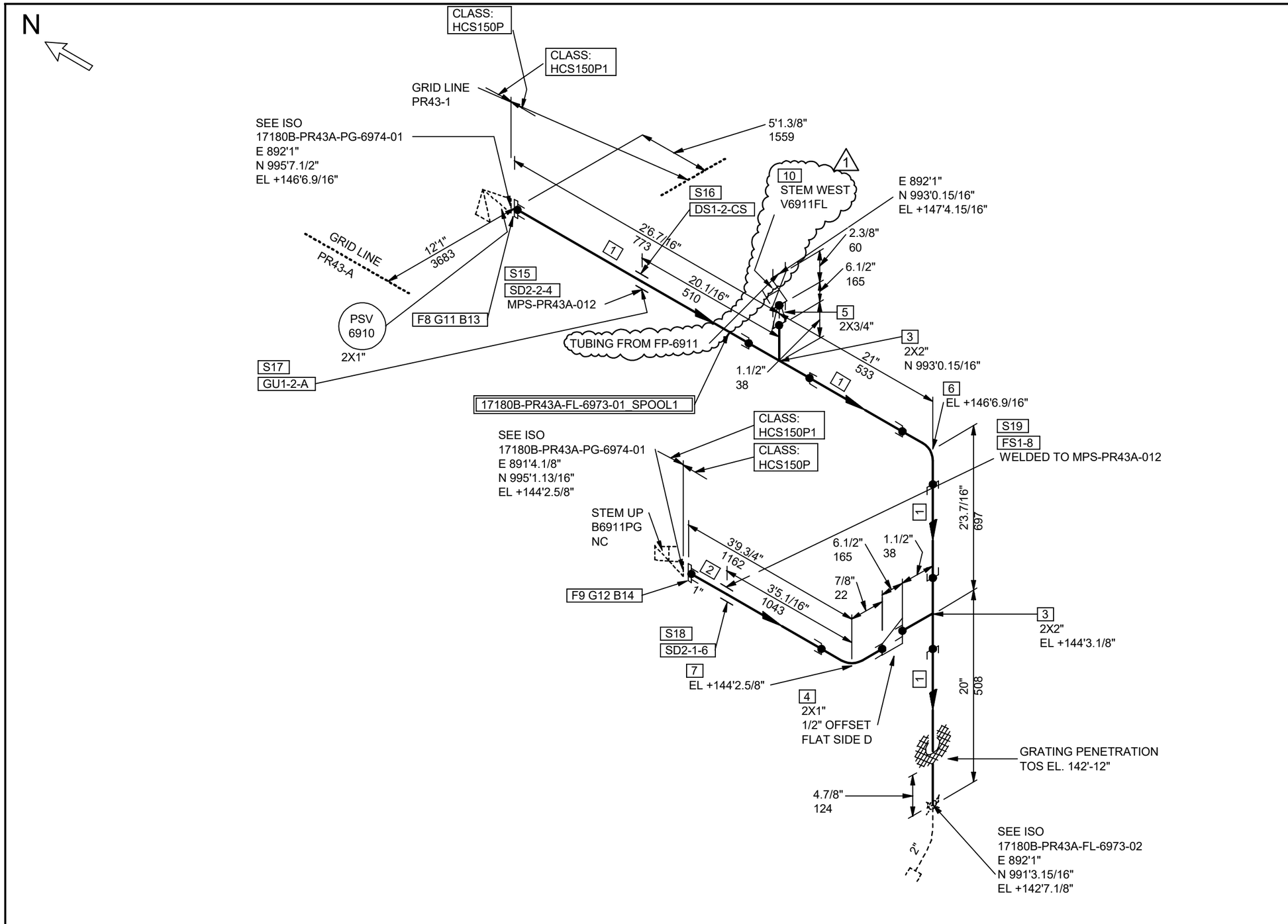
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR43A-FL-6969-02
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	7.5'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	3.8'
3	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	2
4	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
5	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
7	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
8	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
9	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
11	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
12	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	4
	PIPE SUPPORTS		
15	SD2-2-4	2	1
16	DS1-2-CS	2	1
17	GU1-2-A	2	1
18	SD2-1-6	1	1
19	FS1-8	1	1

17180B-PR43A-FL-6973-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/12/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
0	09/16/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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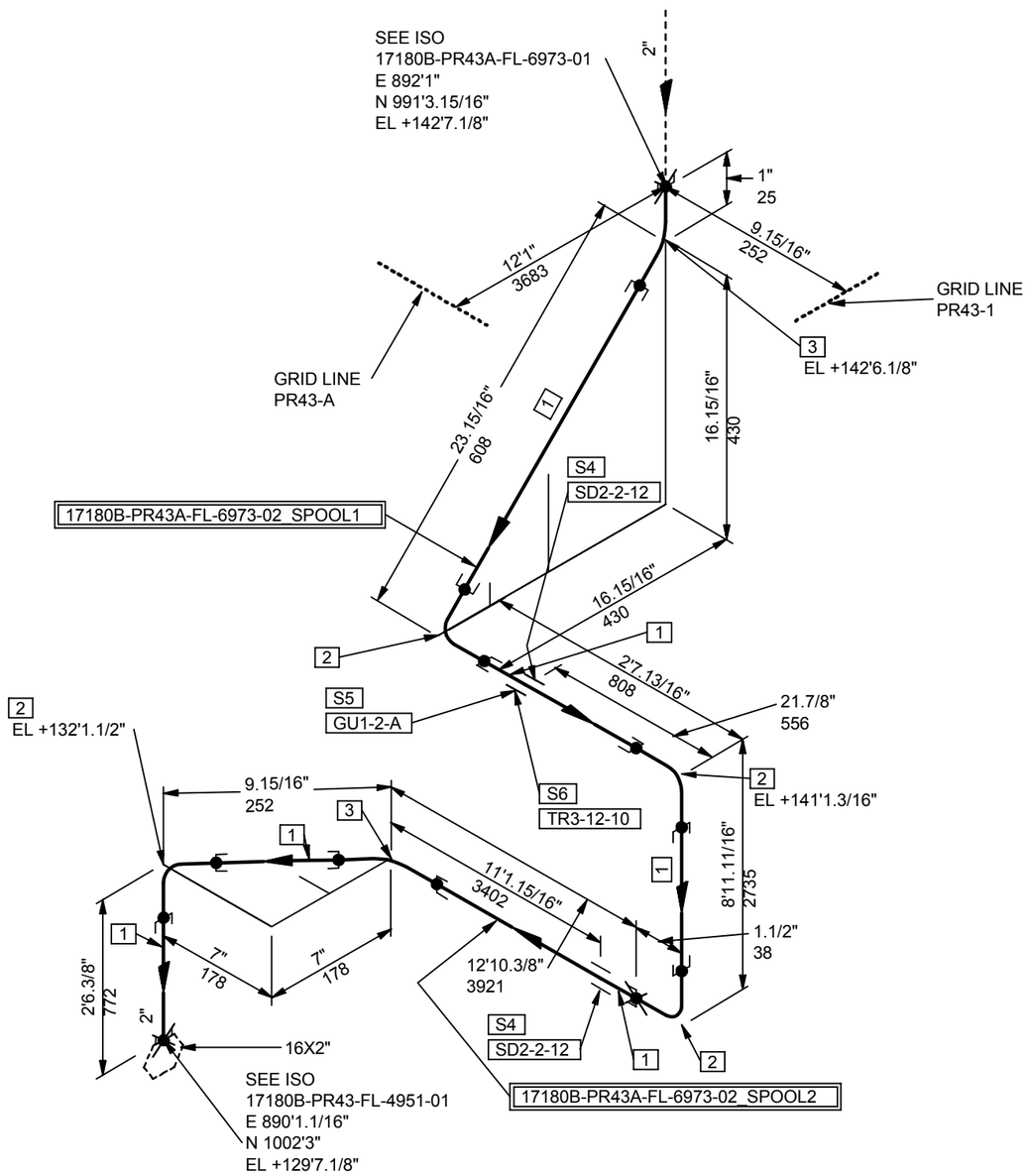
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6973-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	28.8'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	2
5	GU1-2-A	2	1
6	TR3-12-10	2	1

17180B-PR43A-FL-6973-02_SPOOL1 17180B-PR43A-FL-6973-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6901		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/30/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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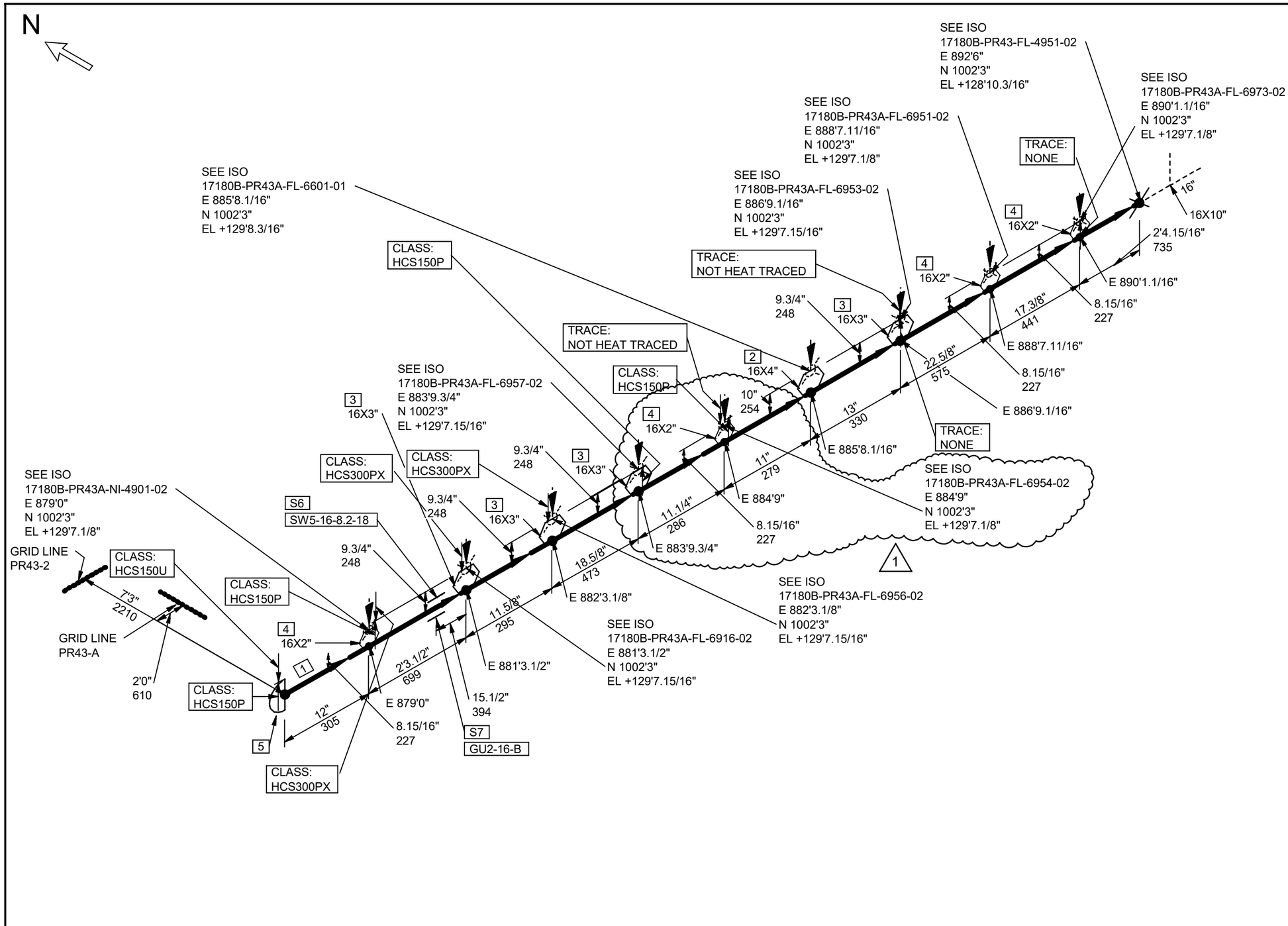
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-FL-6973-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	16	14.5'
2	Weldolet , MSS SP-97 , BE , ASTM A105N , S-STD , S-STD	16X4	1
3	Weldolet , MSS SP-97 , BE , ASTM A105N , S-STD , S-STD	16X3	4
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	16X2	4
5	Cap , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD	16	1
	PIPE SUPPORTS		
6	SW5-16-8.2-18	16	1
	ERECTION		
	PIPE SUPPORTS		
7	GU2-16-B	16	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-4950		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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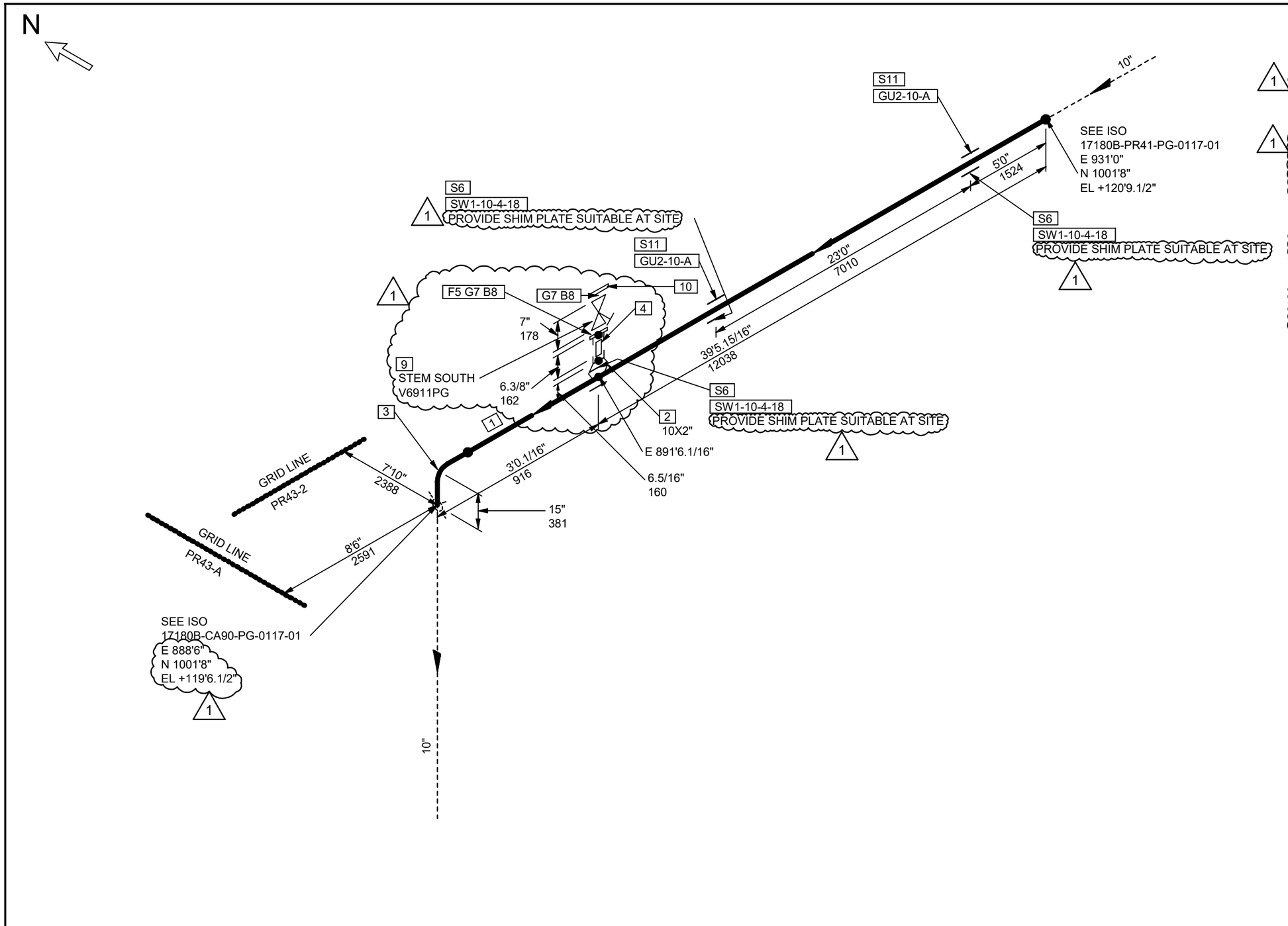
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-FL-4951-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS Ej=1.00 , S-STD	10	41.3'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	10X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD , S-STD	10	1
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	PIPE SUPPORTS		
6	SW1-10-4-18	10	3
	ERECTION		
7	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
9	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
10	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
11	GU2-10-A	10	2

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELL
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0104		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/21/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	07/08/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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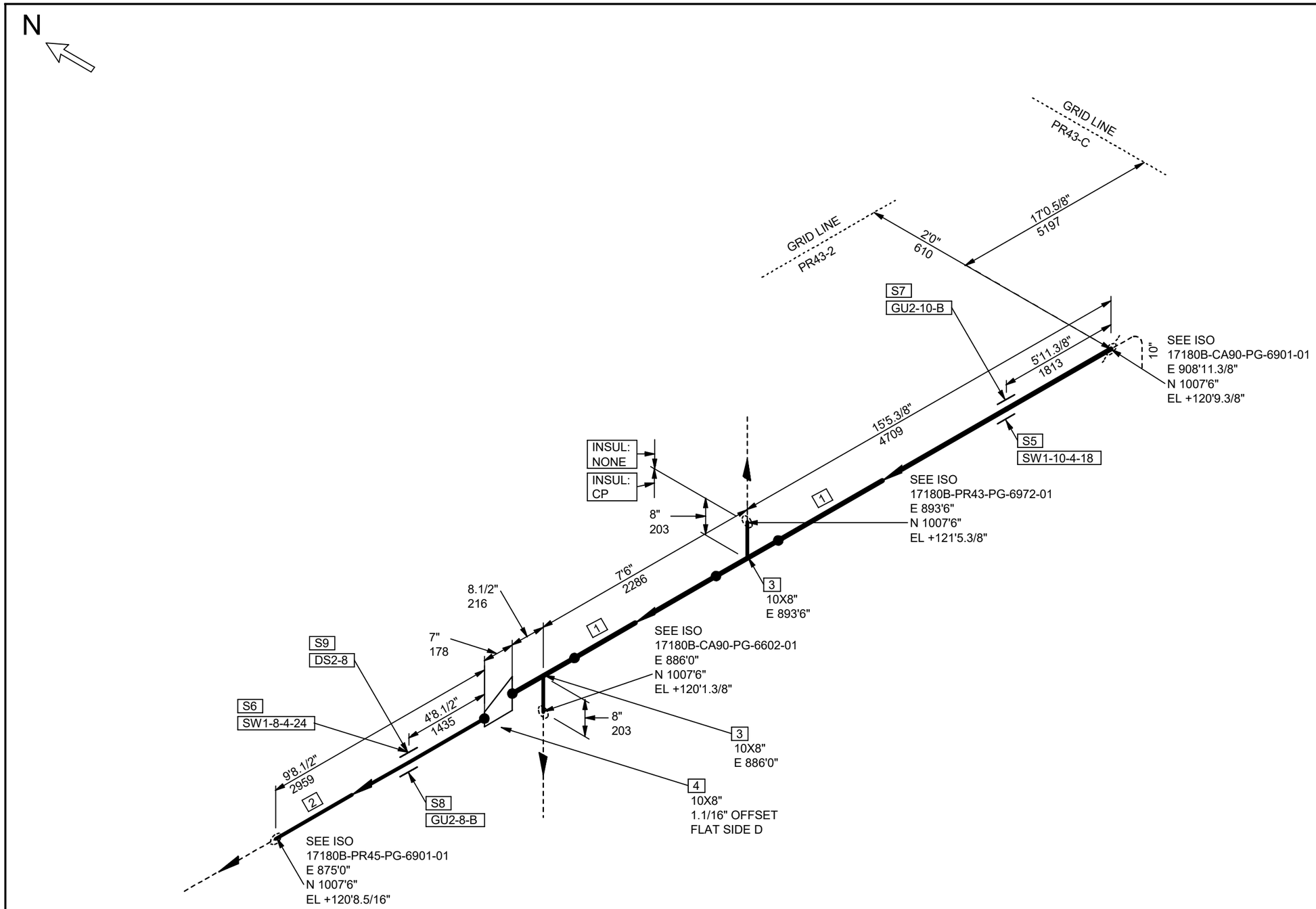
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PG-0117-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-STD	10	20.9'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-STD	8	9.8'
3	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD , S-STD	10X8	2
4	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD , S-STD	10X8	1
	PIPE SUPPORTS		
5	SW1-10-4-18	10	1
6	SW1-8-4-24	8	1
	ERECTION		
	PIPE SUPPORTS		
7	GU2-10-B	10	1
8	GU2-8-B	8	1
9	DS2-8	8	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6902		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/05/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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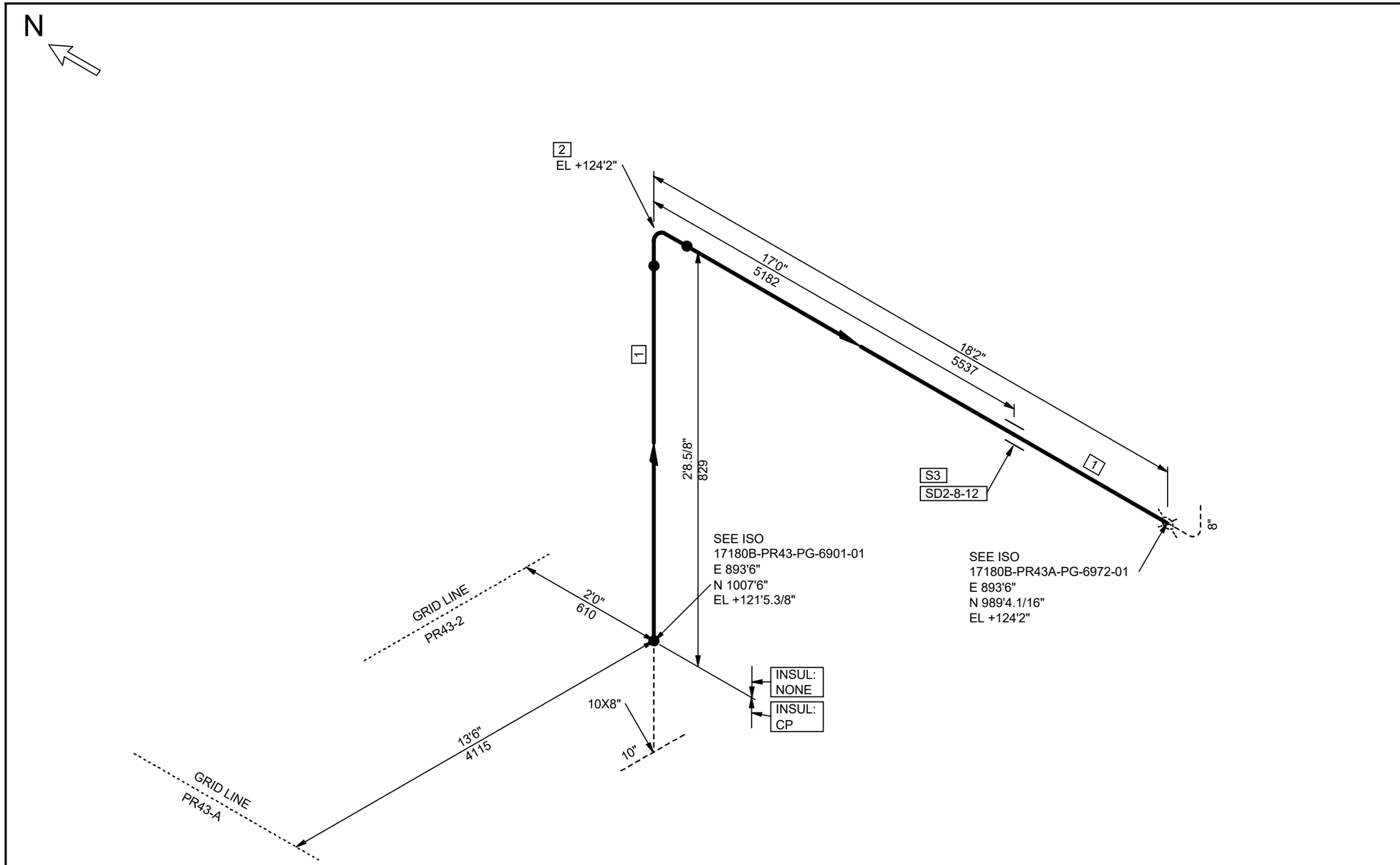
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PG-6901-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-STD	8	18.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD , S-STD	8	1
	ERECTION		
	PIPE SUPPORTS		
3	SD2-8-12	8	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6902		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/03/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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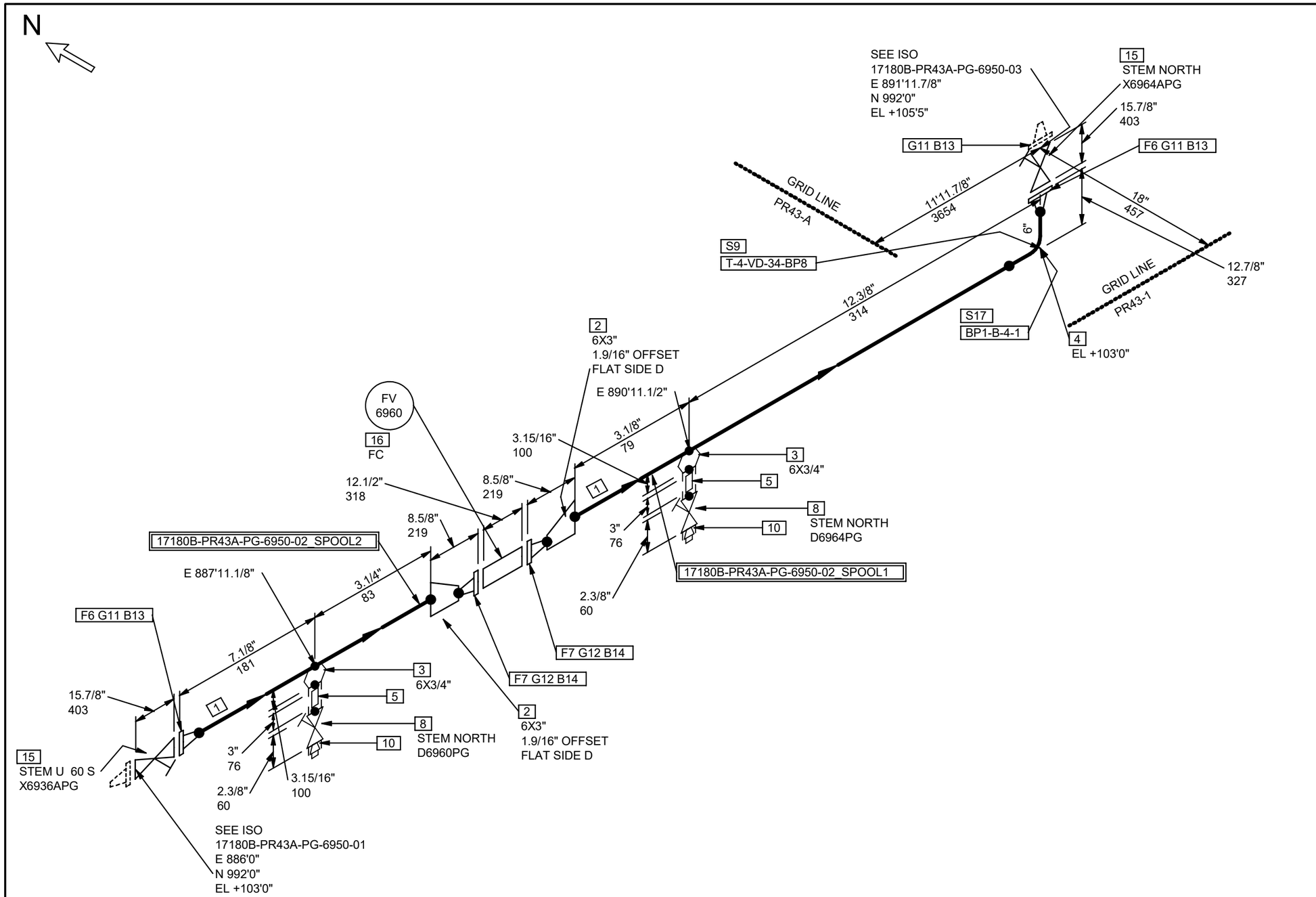
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PG-6972-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	1.1'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X3	2
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	1
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
6	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	2
7	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	3	2
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	PIPE SUPPORTS		
9	T-4-VD-34-BP8	6	1
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
11	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	3
12	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3	2
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	36
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	16
15	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	2
	INSTRUMENTS		
16	FV-6960	3	1
	PIPE SUPPORTS		
17	BP1-B-4-1	6	1

17180B-PR43A-PG-6950-02_SPOOL1 17180B-PR43A-PG-6950-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/07/2019	ISSUED FOR CONSTRUCTION	SRS	PVK	MLO

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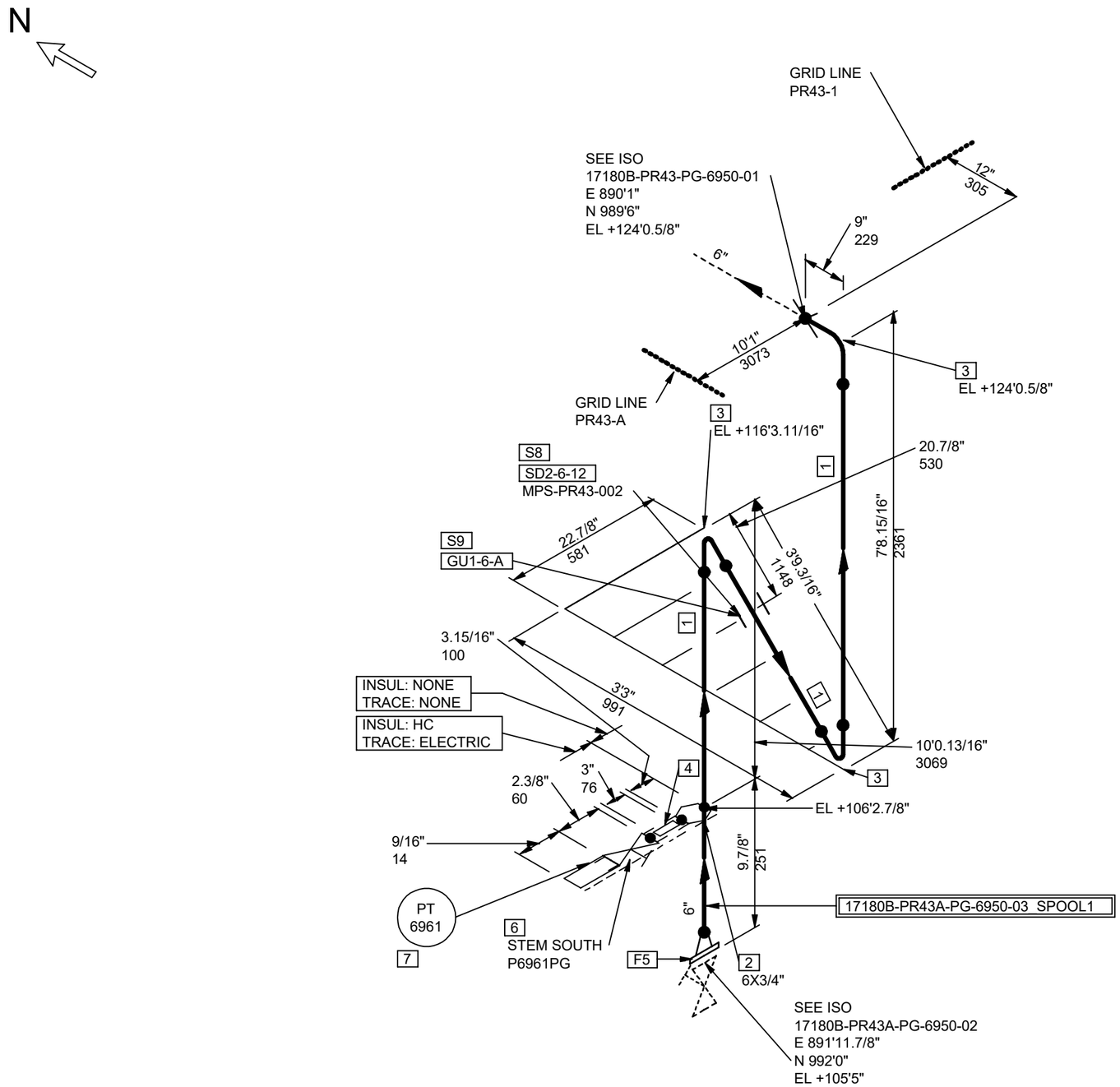
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6950-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	18.4'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	3
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
	INSTRUMENTS		
7	PT-6961	3/4	1
	PIPE SUPPORTS		
8	SD2-6-12	6	1
9	GU1-6-A	6	1

17180B-PR43A-PG-6950-03_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/05/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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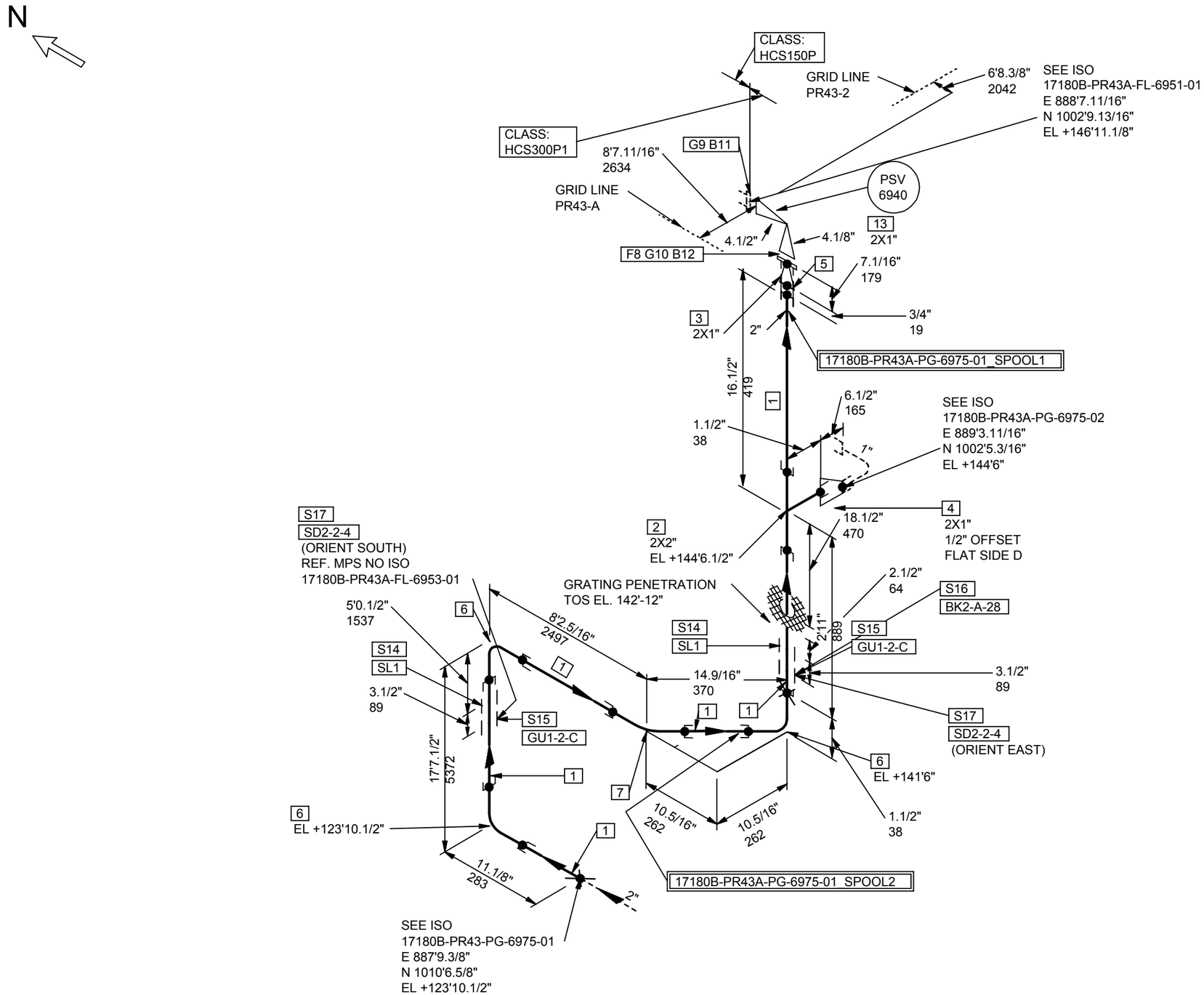
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6950-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	31.3'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
4	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
7	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
8	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	1	1
	ERECTION		
9	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
10	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	5/8	4
	INSTRUMENTS		
13	PSV-6940	2X1	1
	PIPE SUPPORTS		
14	SL1	2	2
15	GU1-2-C	2	2
16	BK2-A-28	2	1
17	SD2-2-4	2	2

17180B-PR43A-PG-6975-01_SPOOL1 17180B-PR43A-PG-6975-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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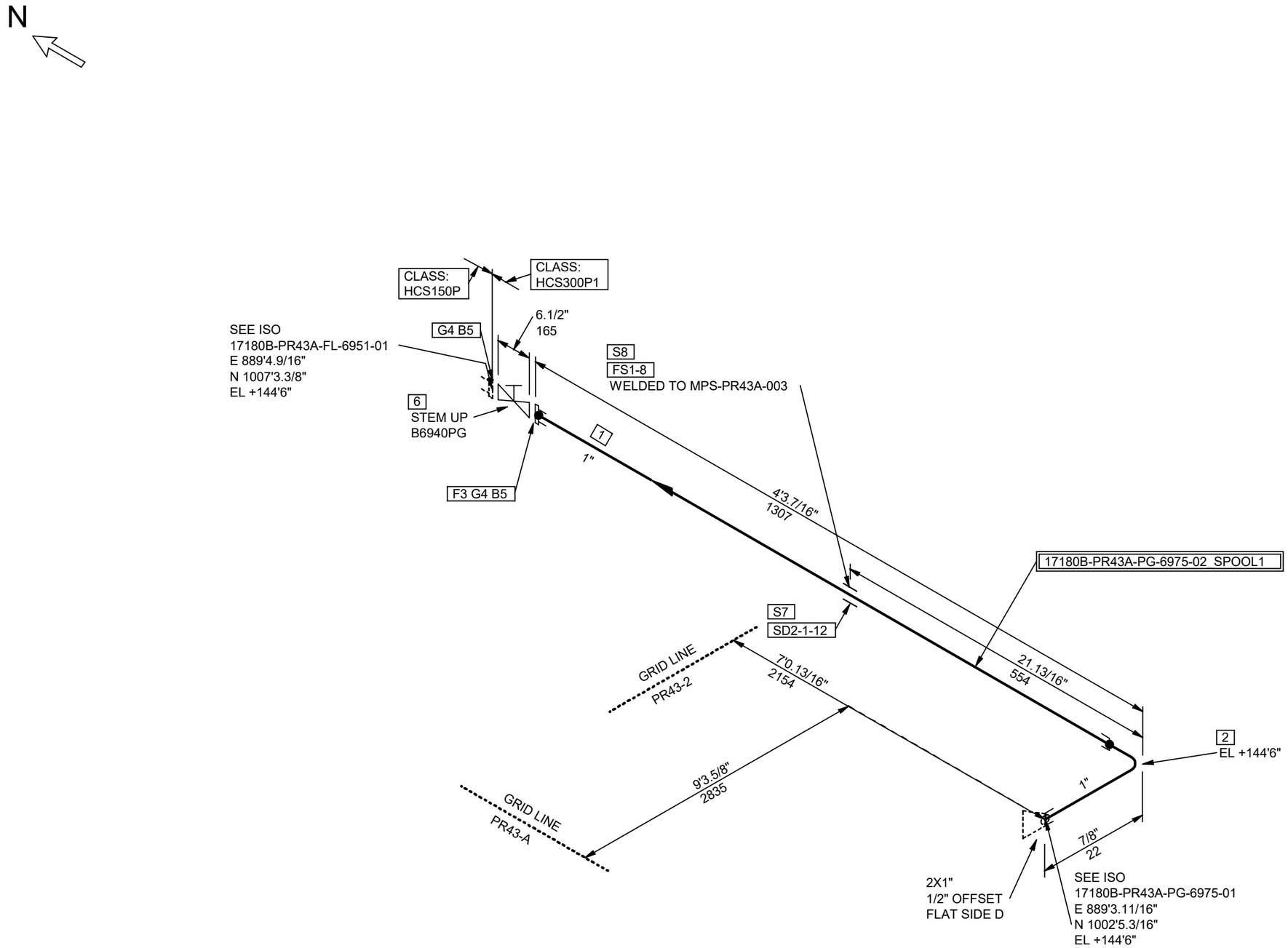
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6975-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	4.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
3	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	1	1
	ERECTION		
4	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	2
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
6	Gate Vlv , API 602 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	1	1
	PIPE SUPPORTS		
7	SD2-1-12	1	1
8	FS1-8	1	1

17180B-PR43A-PG-6975-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/14/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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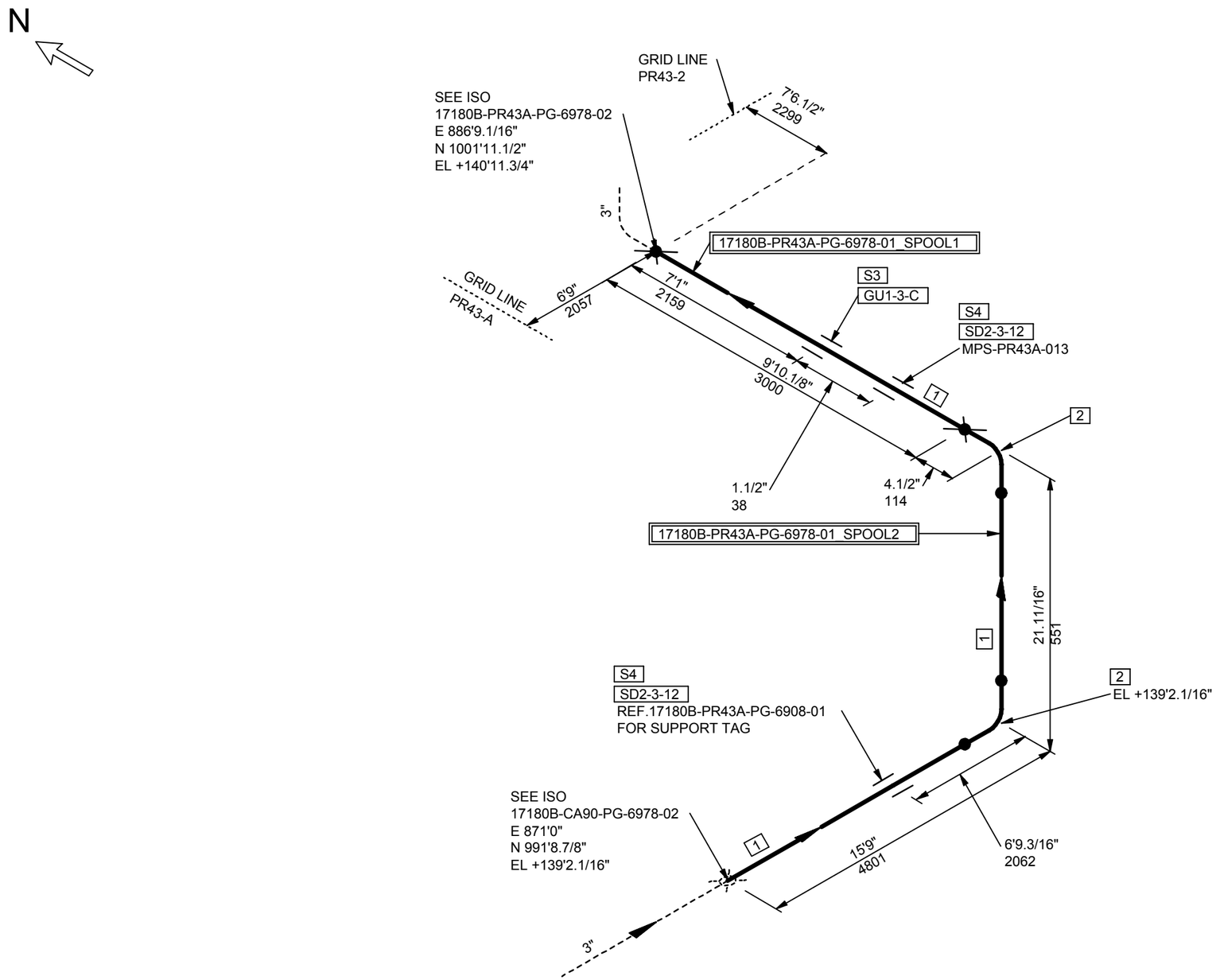
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6975-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	3	26.3'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	3	2
ERECTION			
PIPE SUPPORTS			
3	GU1-3-C	3	1
4	SD2-3-12	3	2

17180B-PR43A-PG-6978-01_SPOOL1 17180B-PR43A-PG-6978-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⋇ = FIELD WELD
- ⋇ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- ── ── = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/30/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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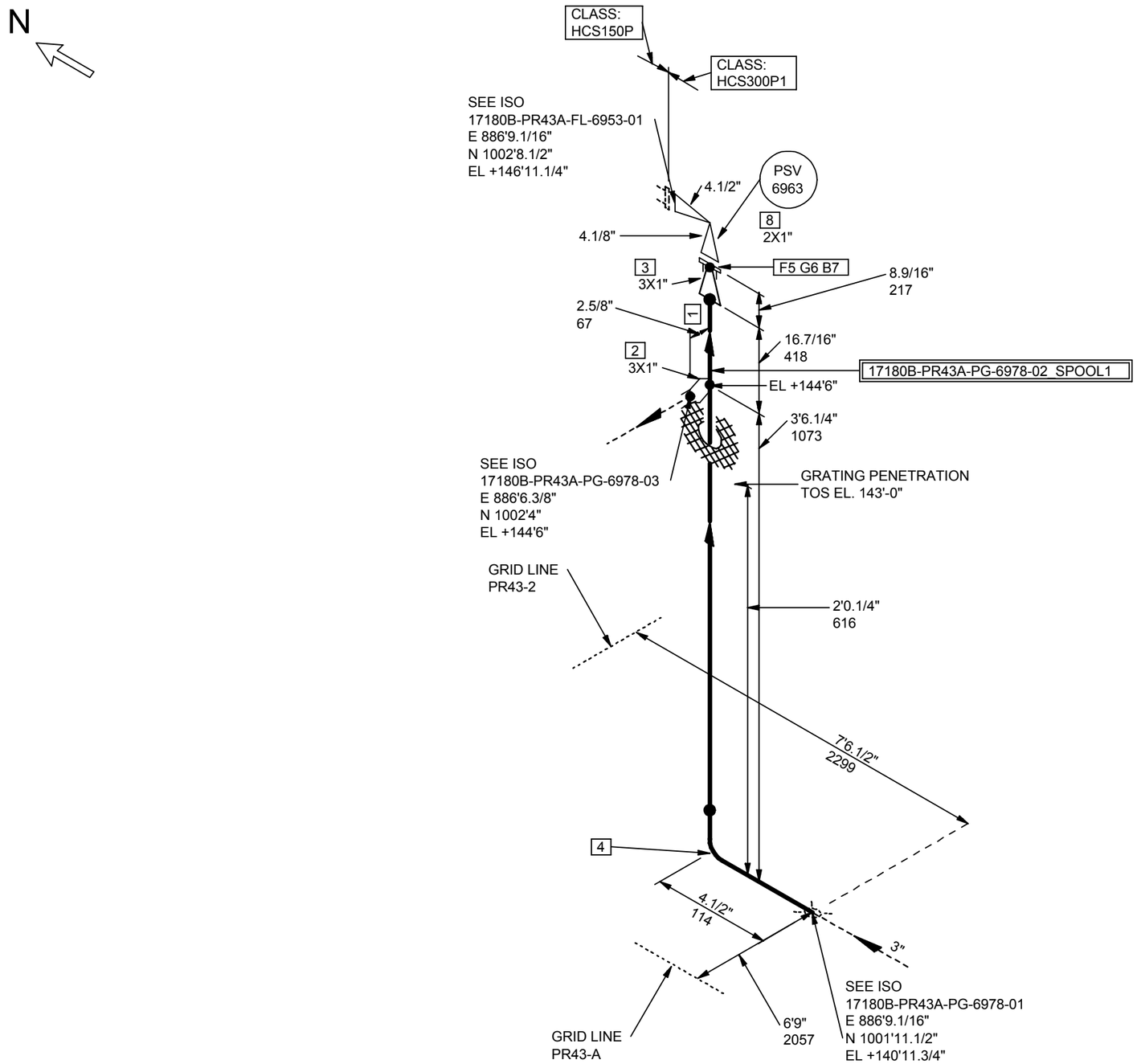
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6978-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	3	4.6'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X1	1
3	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-40 , S-160	3X1	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	3	1
5	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	1	1
ERECTION			
6	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4 in. Length	5/8	4
INSTRUMENTS			
8	PSV-6963	2X1	1

17180B-PR43A-PG-6978-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/30/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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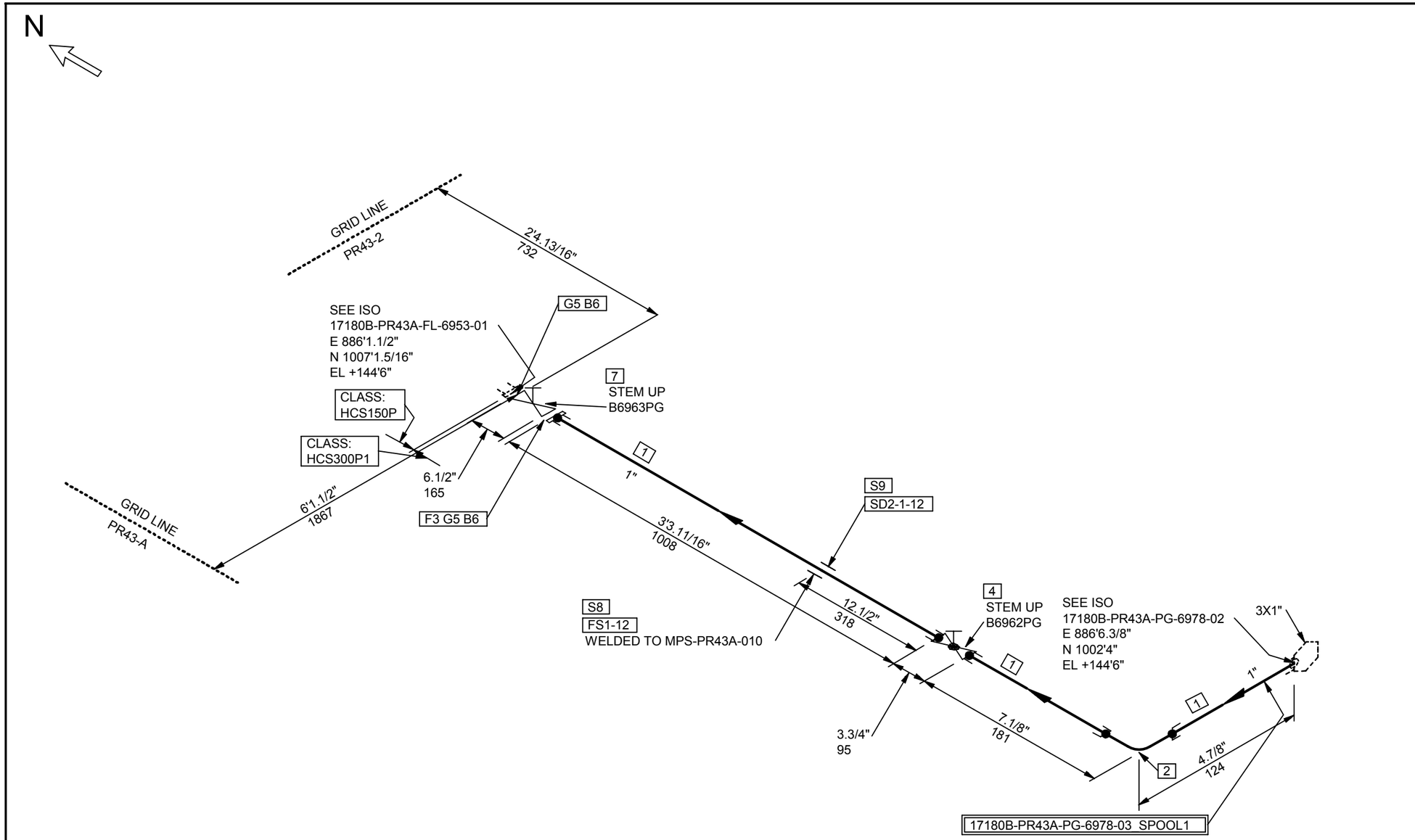
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6978-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	4.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
3	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	1	1
4	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, PRAXAIR GUIDELINE V-G1 , T8SAD	1	1
	ERECTION		
5	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
7	Gate Vlv , API 602 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	1	1
	PIPE SUPPORTS		
8	FS1-12	1	1
9	SD2-1-12	1	1

17180B-PR43A-PG-6978-03_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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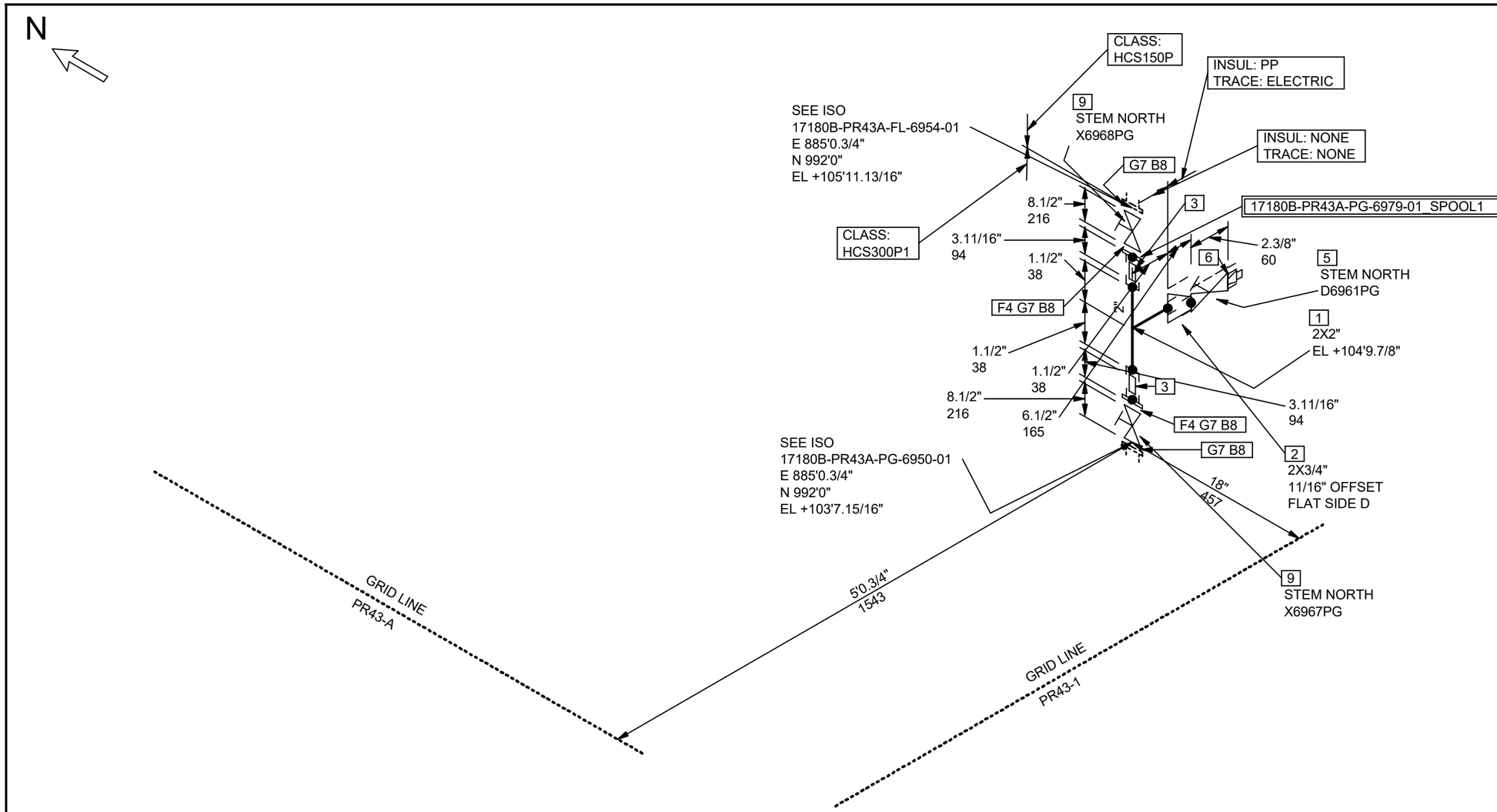
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6978-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
2	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
3	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	2
4	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	2
5	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
7	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	4
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	32
9	Gate Vlv , API 602 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	2	2

17180B-PR43A-PG-6979-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/09/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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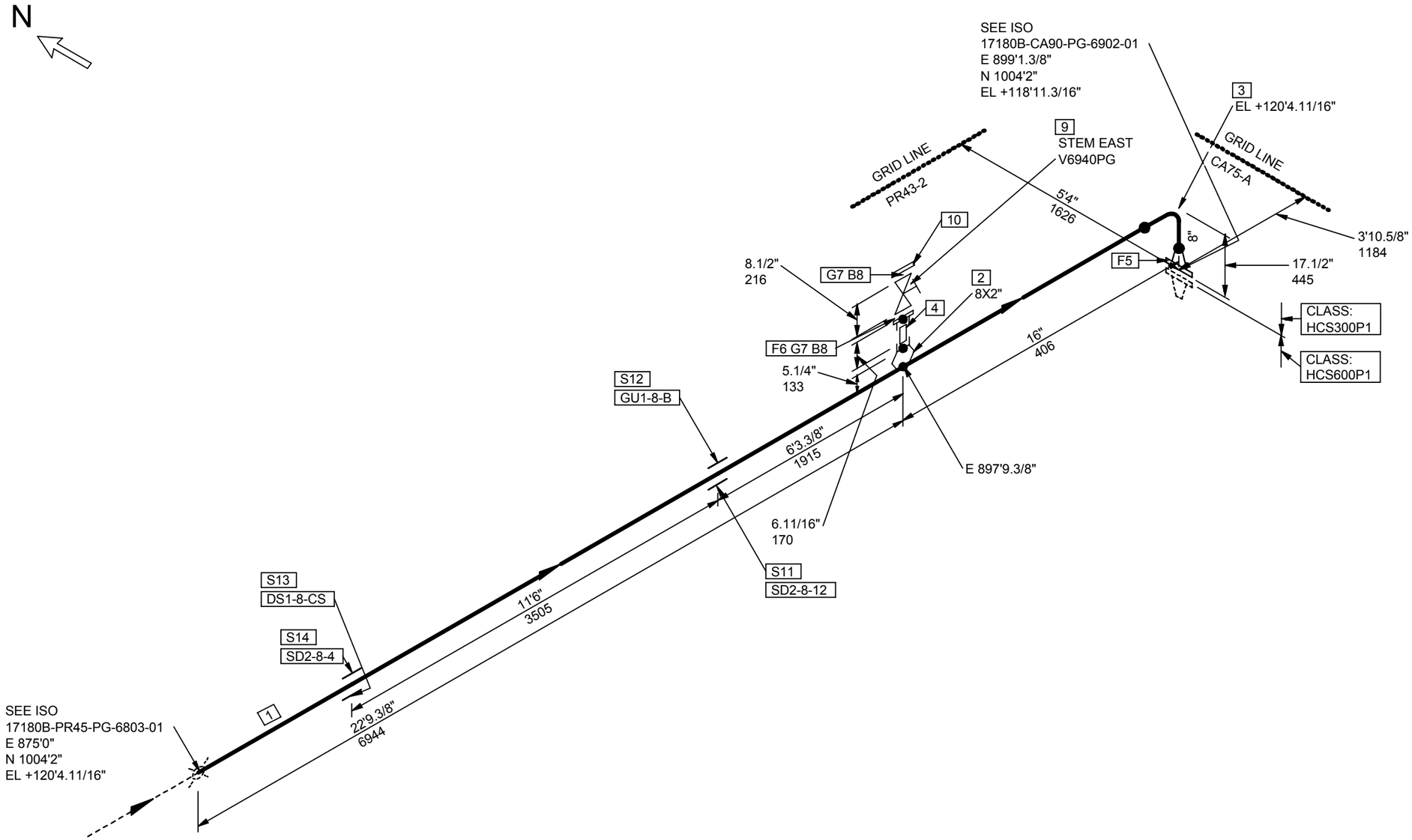
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6979-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	8	23.2'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	8X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	8	1
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-40	8	1
6	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
ERECTION			
7	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
9	Gate Vlv , API 602 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	2	1
10	Blind Flg , ASME B16.5 , CL300 , RF , ASTM A105N	2	1
PIPE SUPPORTS			
11	SD2-8-12	8	1
12	GU1-8-B	8	1
13	DS1-8-CS	8	1
14	SD2-8-4	8	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/28/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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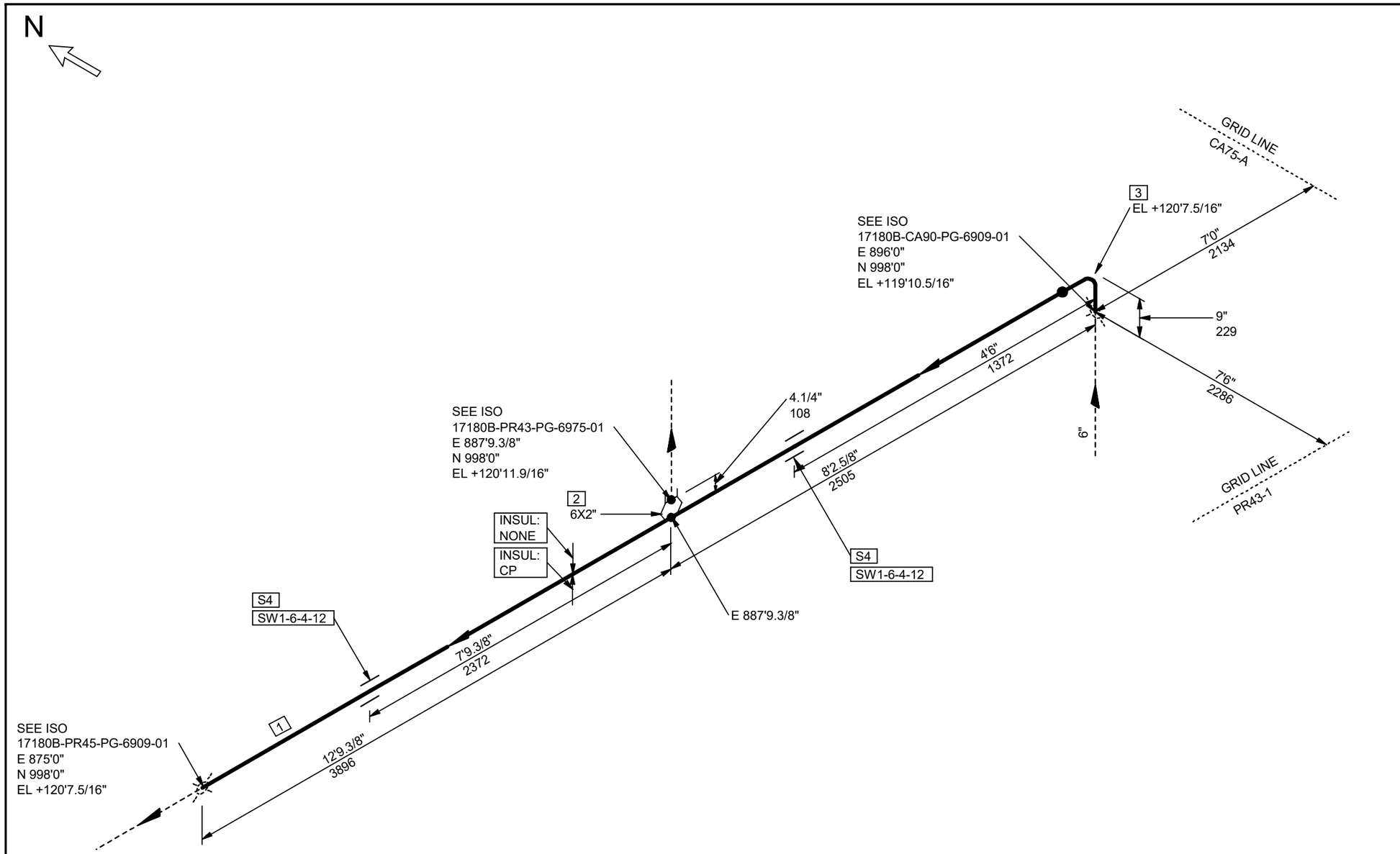
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PG-6803-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	20.3'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	1
PIPE SUPPORTS			
4	SW1-6-4-12	6	2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/04/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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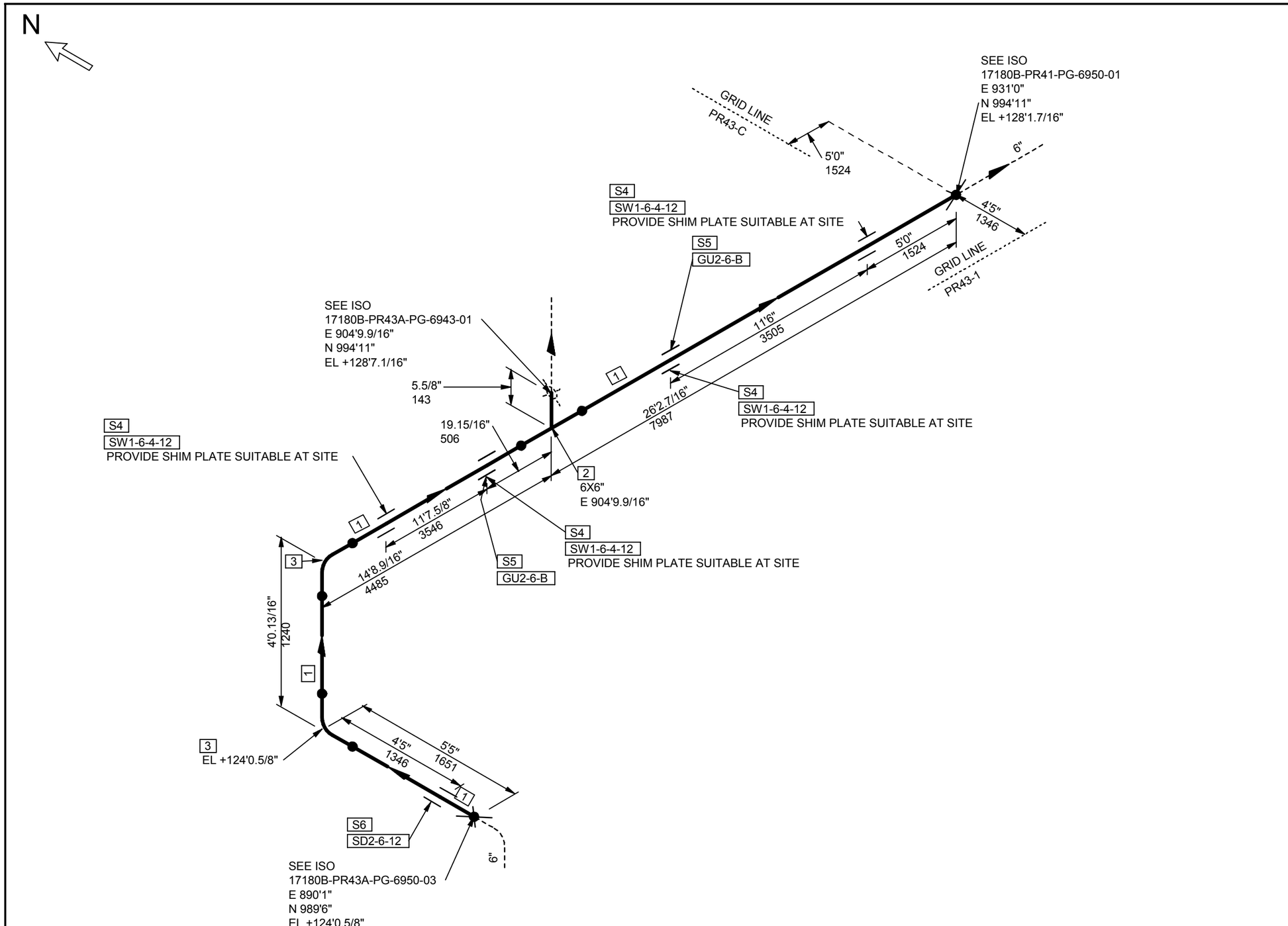
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PG-6909-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	46.5'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X6	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	2
	PIPE SUPPORTS		
4	SW1-6-4-12	6	4
	ERECTION		
	PIPE SUPPORTS		
5	GU2-6-B	6	2
6	SD2-6-12	6	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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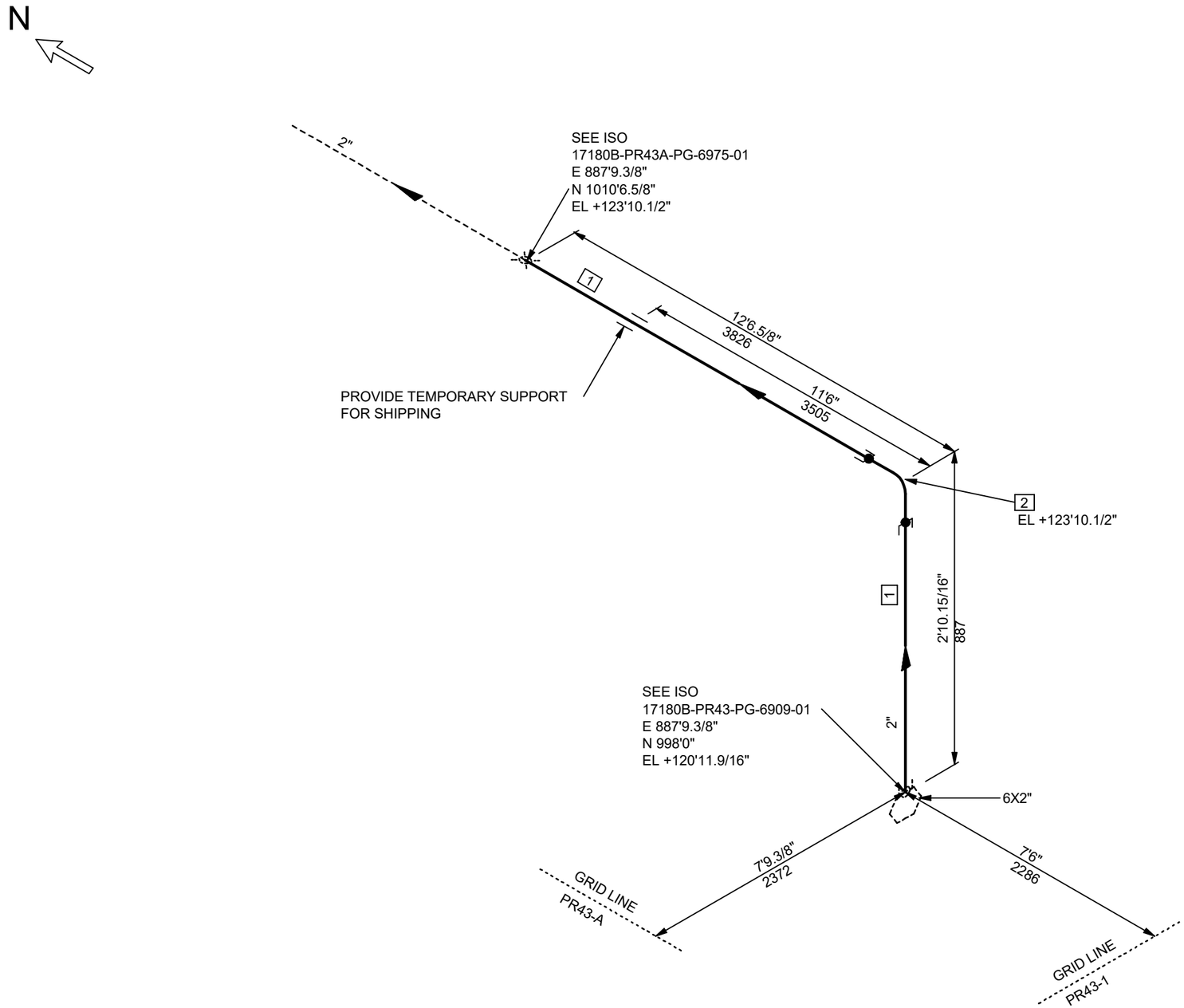
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PG-6950-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	15.3'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/07/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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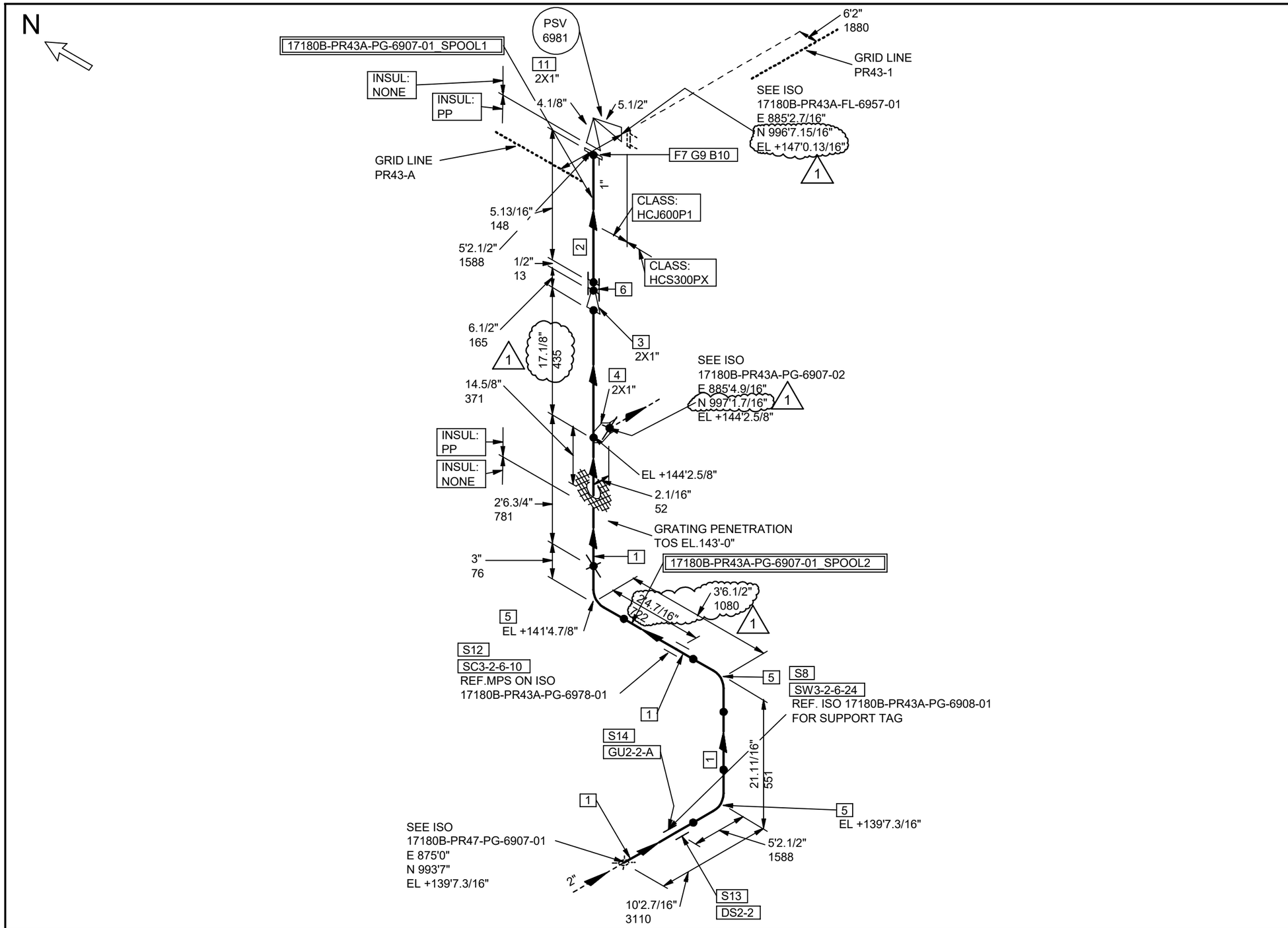
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-IHI-PR43-PG-6975-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	18.3'
2	Pipe , ASME B36.10 , PE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	1	0.5'
3	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-160	2X1	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X1	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	3
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	1	1
7	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	1	1
	PIPE SUPPORTS		
8	SW3-2-6-24	2	1
	ERECTION		
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.25 in. Length	5/8	4
	INSTRUMENTS		
11	PSV-6981	2X1	1
	PIPE SUPPORTS		
12	SC3-2-6-10	2	1
13	DS2-2	2	1
14	GU2-2-A	2	1

17180B-PR43A-PG-6907-01_SPOOL1 17180B-PR43A-PG-6907-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	10/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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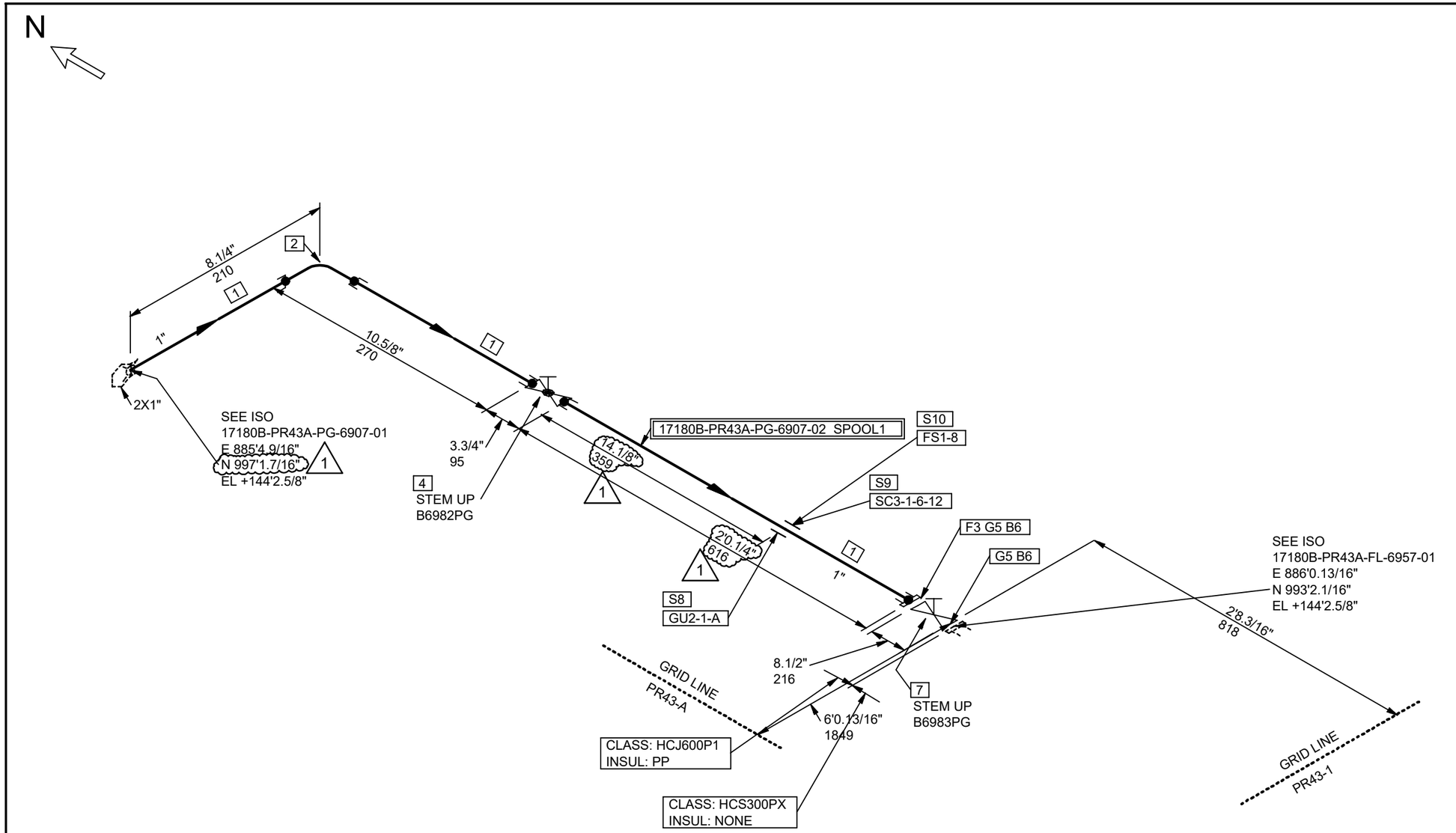
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6907-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	1	3.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	1	1
3	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	1	1
4	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , live loaded F.G. packing, F.G. gasket, NACE , T8SFC	1	1
	ERECTION		
5	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	2
6	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 3.75 in. Length	5/8	8
7	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	1	1
	PIPE SUPPORTS		
8	GU2-1-A	1	1
9	SC3-1-6-12	1	1
10	FS1-8	1	1

17180B-PR43A-PG-6907-02_SPOOL1

LEGEND:

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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE ISSUED FOR CONSRUCTION	SST	NNR	MLO
0	10/15/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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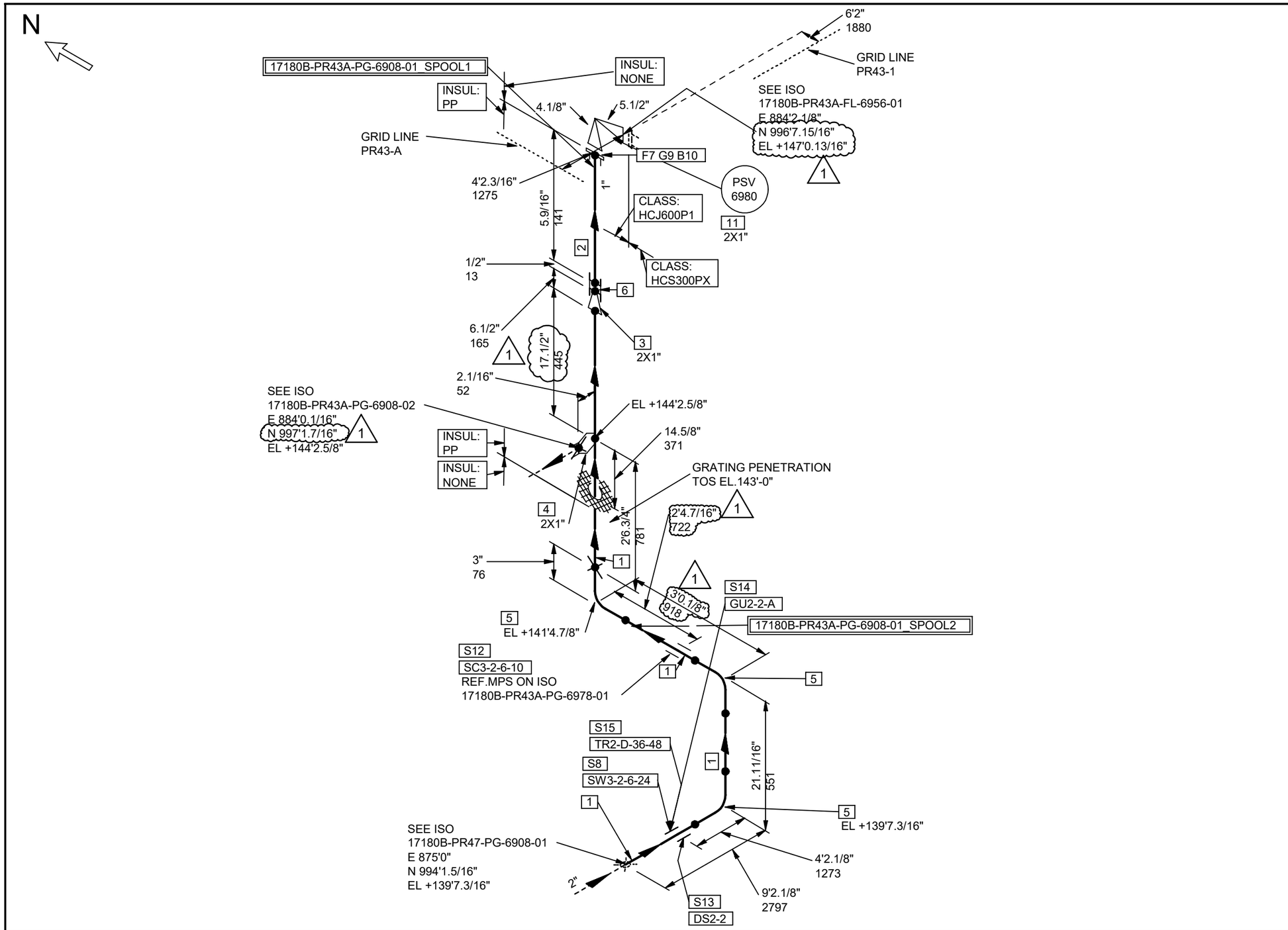
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6907-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	16.8'
2	Pipe , ASME B36.10 , PE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	1	0.4'
3	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-160	2X1	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X1	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	3
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	1	1
7	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	1	1
	PIPE SUPPORTS		
8	SW3-2-6-24	2	1
	ERECTION		
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.25 in. Length	5/8	4
	INSTRUMENTS		
11	PSV-6980	2X1	1
	PIPE SUPPORTS		
12	SC3-2-6-10	2	1
13	DS2-2	2	1
14	GU2-2-A	2	1
15	TR2-D-36-48	2	1

17180B-PR43A-PG-6908-01_SPOOL1 17180B-PR43A-PG-6908-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/15/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	10/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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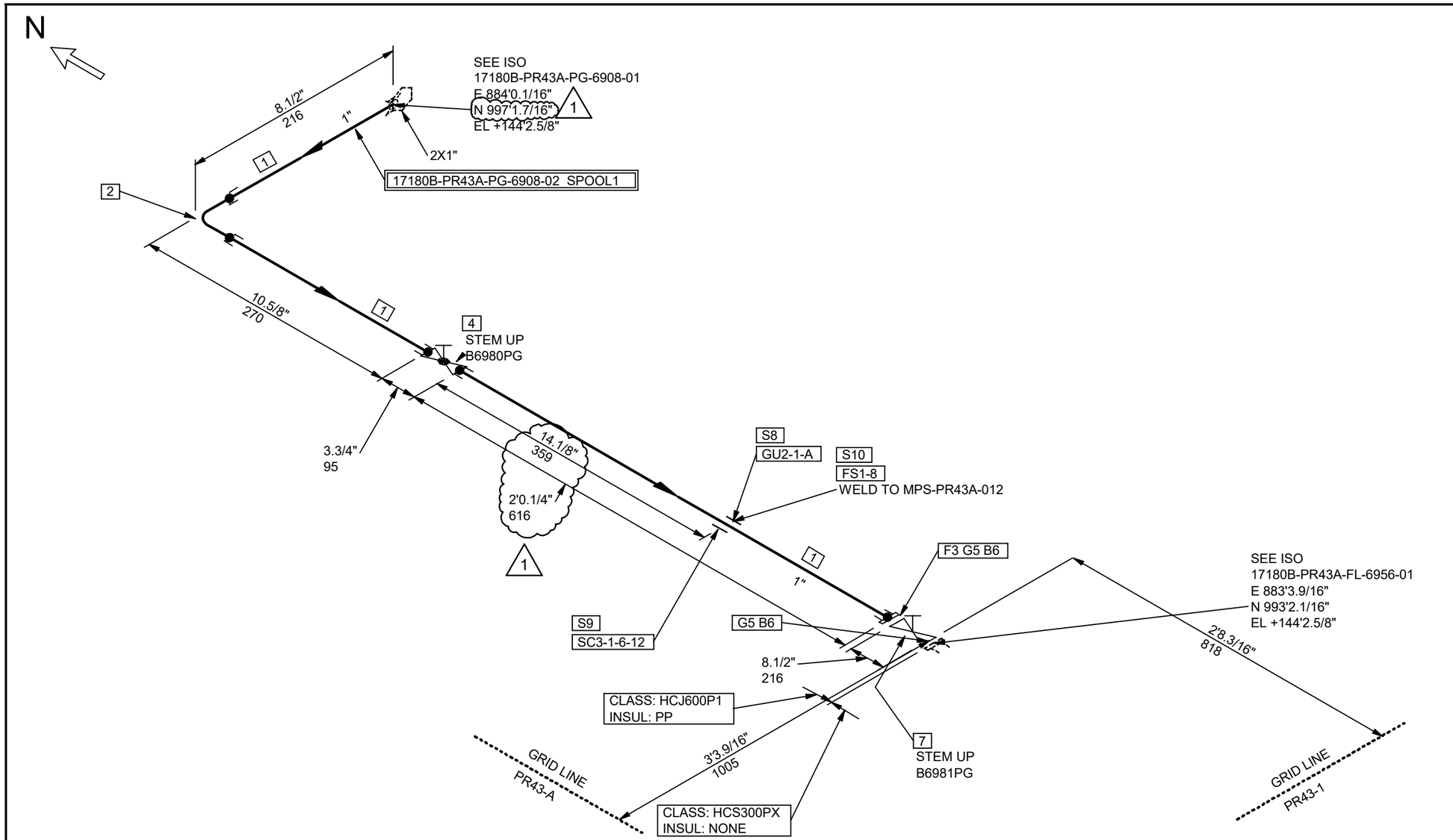
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6908-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	1	3.5'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	1	1
3	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	1	1
4	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , live loaded F.G. packing, F.G. gasket, NACE , T8SFC	1	1
	ERECTION		
5	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	2
6	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 3.75 in. Length	5/8	8
7	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	1	1
	PIPE SUPPORTS		
8	GU2-1-A	1	1
9	SC3-1-6-12	1	1
10	FS1-8	1	1

17180B-PR43A-PG-6908-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/15/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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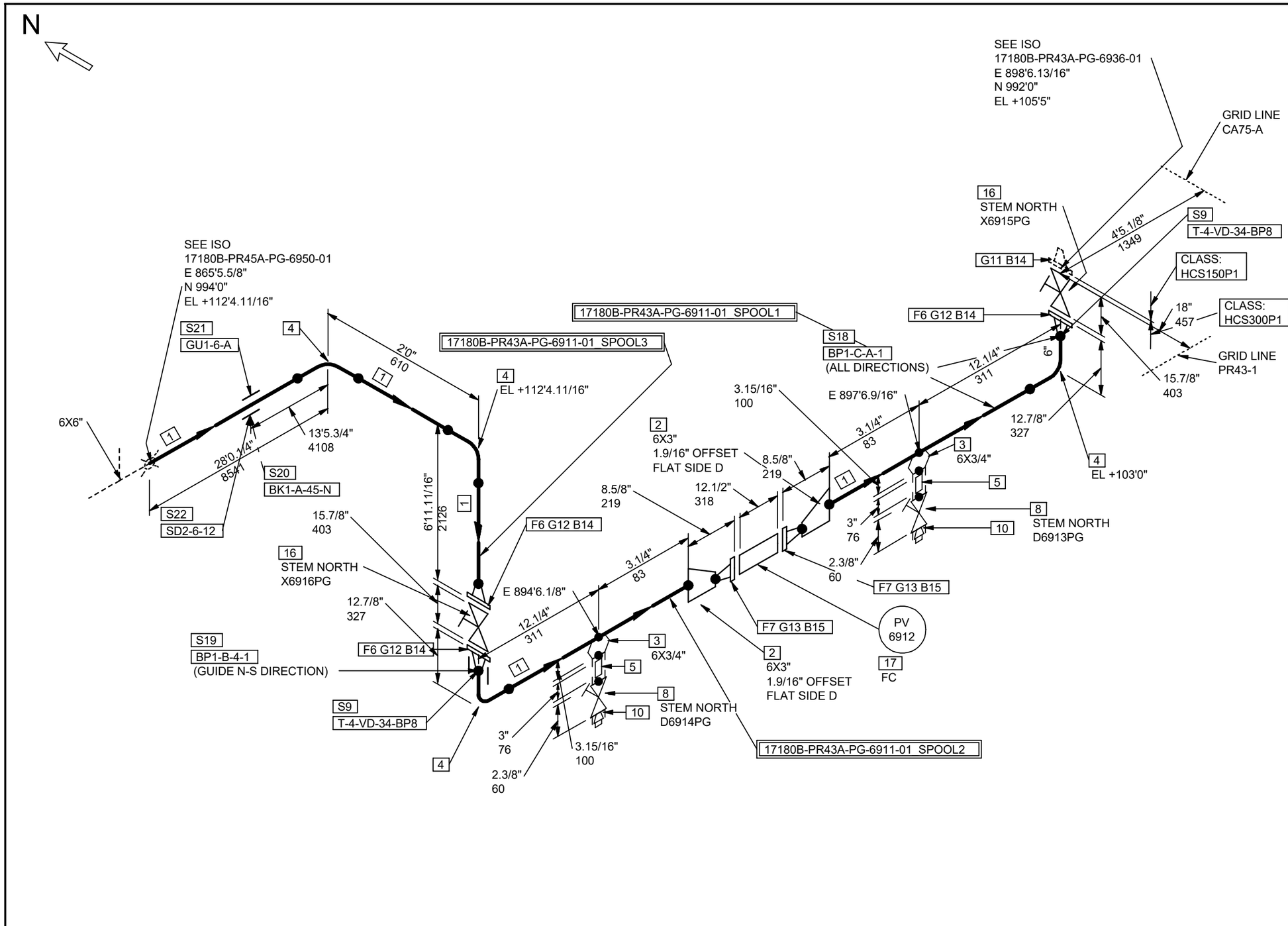
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6908-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	34.8'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X3	2
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	4
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
6	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	3
7	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	3	2
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	PIPE SUPPORTS		
9	T-4-VD-34-BP8	6	2
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
11	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
12	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	3
13	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3	2
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	48
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.5 in. Length	3/4	16
16	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	2
	INSTRUMENTS		
17	PV-6912	3	1
	PIPE SUPPORTS		
18	BP1-C-A-1	6	1
19	BP1-B-4-1	6	1
20	BK1-A-45-N	6	1
21	GU1-6-A	6	1
22	SD2-6-12	6	1

17180B-PR43A-PG-6911-01_SPOOL1 17180B-PR43A-PG-6911-01_SPOOL2
17180B-PR43A-PG-6911-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/14/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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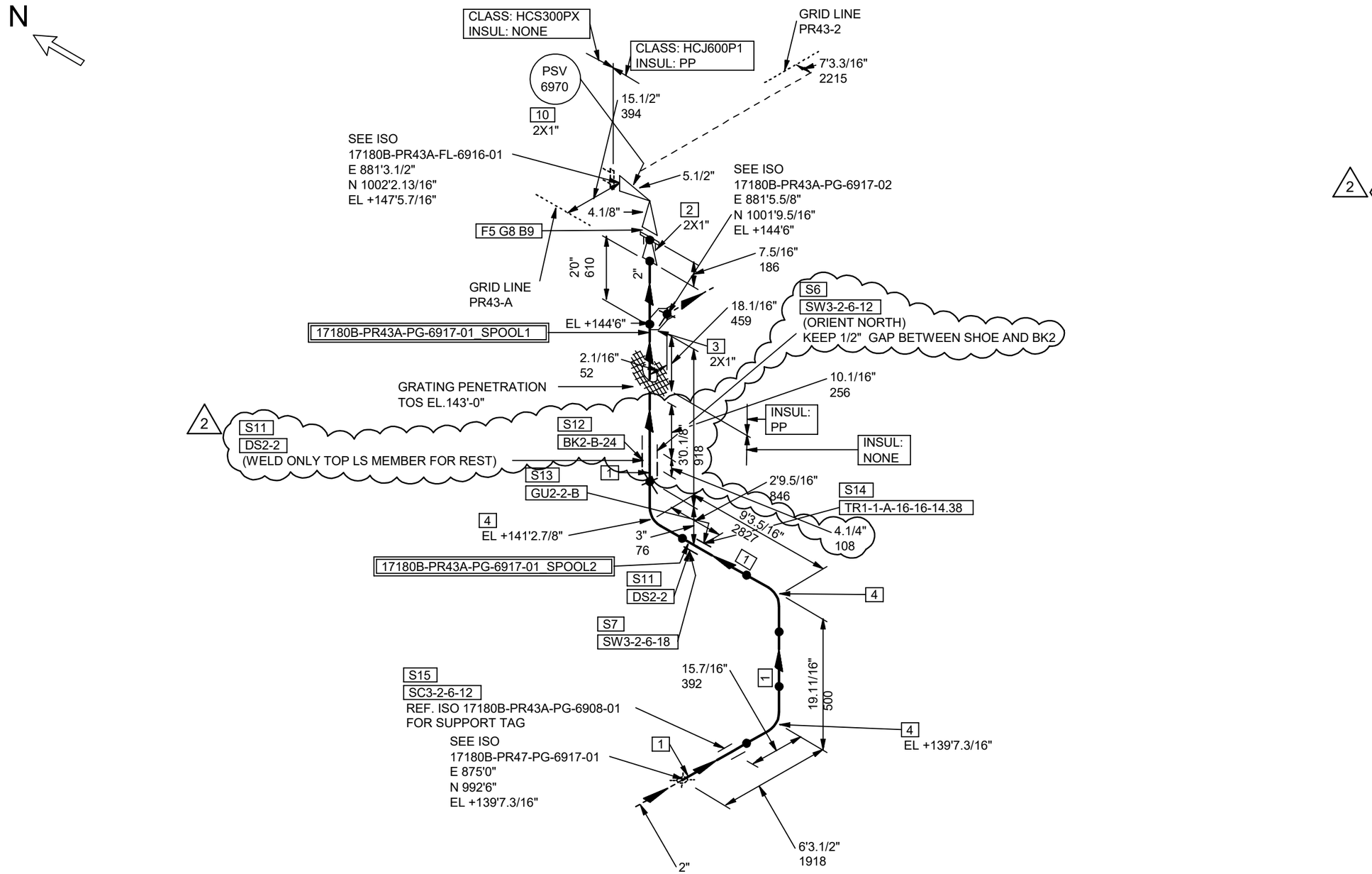
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR43A-PG-6911-01
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	21.0'
2	Conc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-160	2X1	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X1	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	3
5	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	1	1
	PIPE SUPPORTS		
6	SW3-2-6-12	2	1
7	SW3-2-6-18	2	1
	ERECTION		
8	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
9	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.25 in. Length	5/8	4
	INSTRUMENTS		
10	PSV-6970	2X1	1
	PIPE SUPPORTS		
11	DS2-2	2	2
12	BK2-B-24	2	1
13	GU2-2-B	2	1
14	TR1-1-A-16-16-14.38	2	1
15	SC3-2-6-12	2	1

17180B-PR43A-PG-6917-01_SPOOL1 17180B-PR43A-PG-6917-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/13/2019	ISSUED AS MARKED	RBK	NNR	MLO
1	10/25/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	10/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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15377 Memorial Drive
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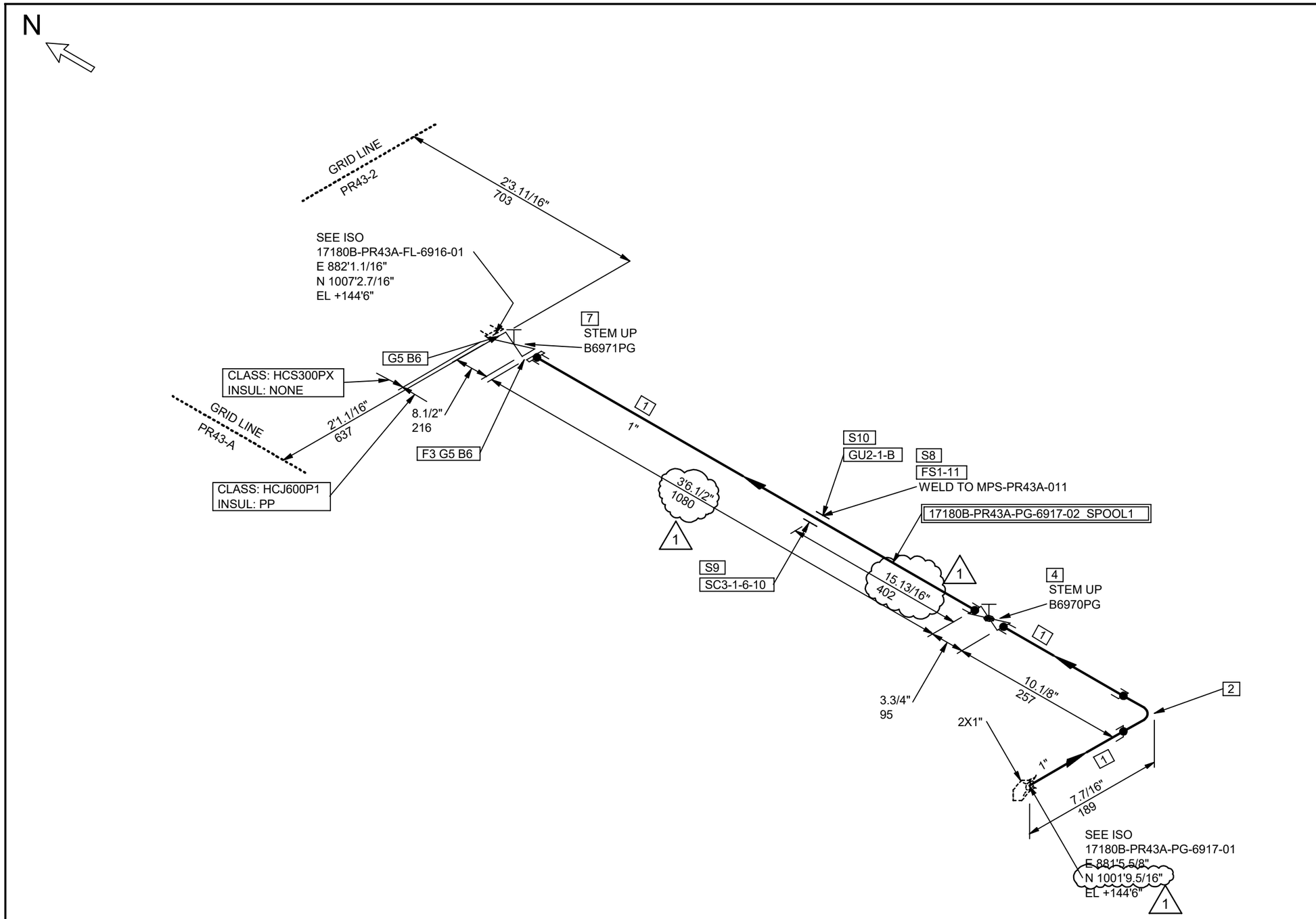
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO: H18026	SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6917-01
REV:	2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	1	4.8'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	1	1
3	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	1	1
4	Globe Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , live loaded F.G. packing, F.G. gasket, NACE , T8SFC	1	1
	ERECTION		
5	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	2
6	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 3.75 in. Length	5/8	8
7	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	1	1
	PIPE SUPPORTS		
8	FS1-11	1	1
9	SC3-1-6-10	1	1
10	GU2-1-B	1	1

17180B-PR43A-PG-6917-02_SPOOL1

LEGEND:

- ● = SHOP WELD
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- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE ISSUED FOR CONSTRUCTION	SST	NNR	MLO
0	10/18/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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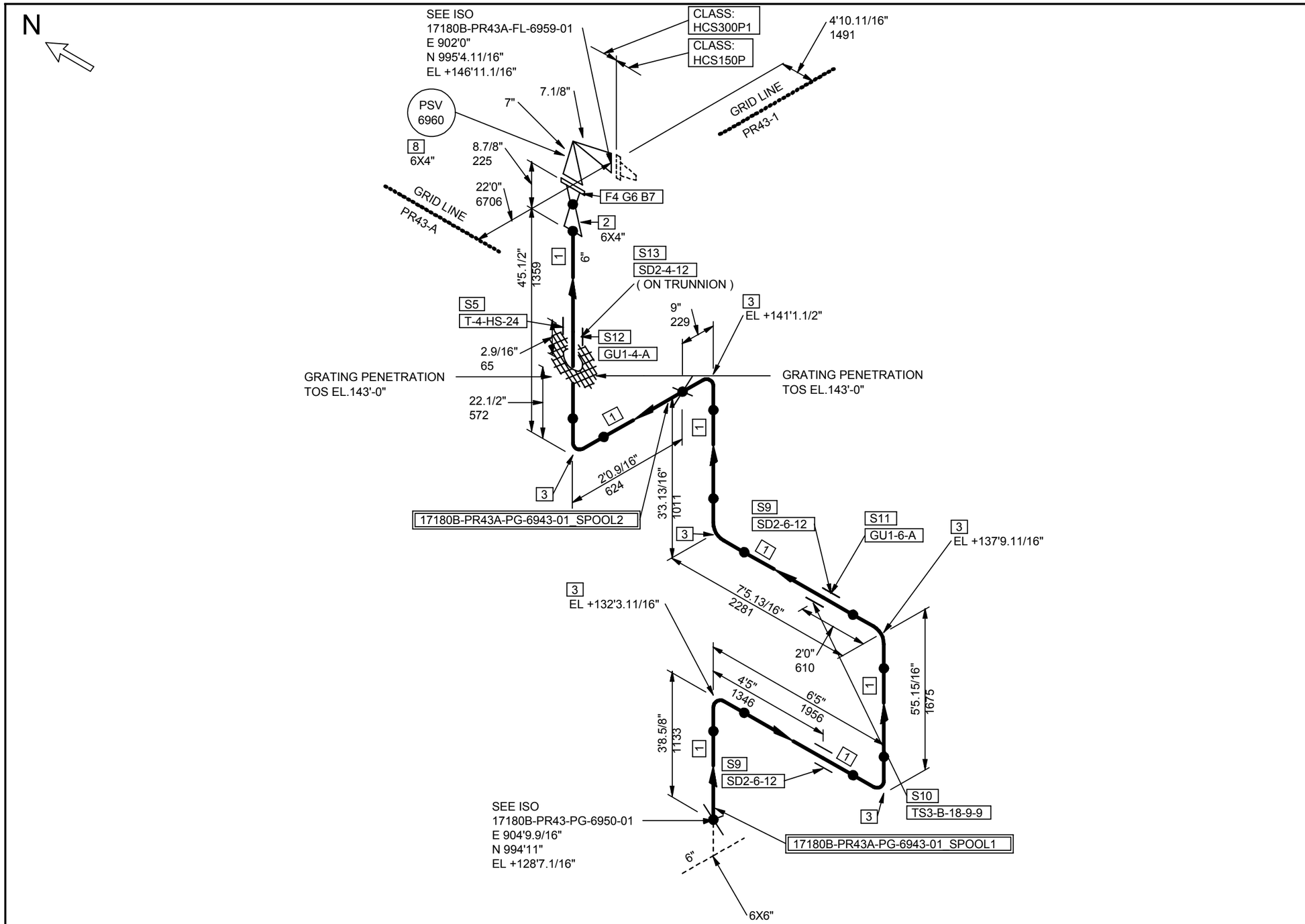
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6917-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	24.7'
2	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	6
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	4	1
	PIPE SUPPORTS		
5	T-4-HS-24	6	1
	ERECTION		
6	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5.5 in. Length	3/4	8
	INSTRUMENTS		
8	PSV-6960	6X4	1
	PIPE SUPPORTS		
9	SD2-6-12	6	2
10	TS3-B-18-9-9	6	1
11	GU1-6-A	6	1
12	GU1-4-A	6	1
13	SD2-4-12	6	1

17180B-PR43A-PG-6943-01_SPOOL1 17180B-PR43A-PG-6943-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/03/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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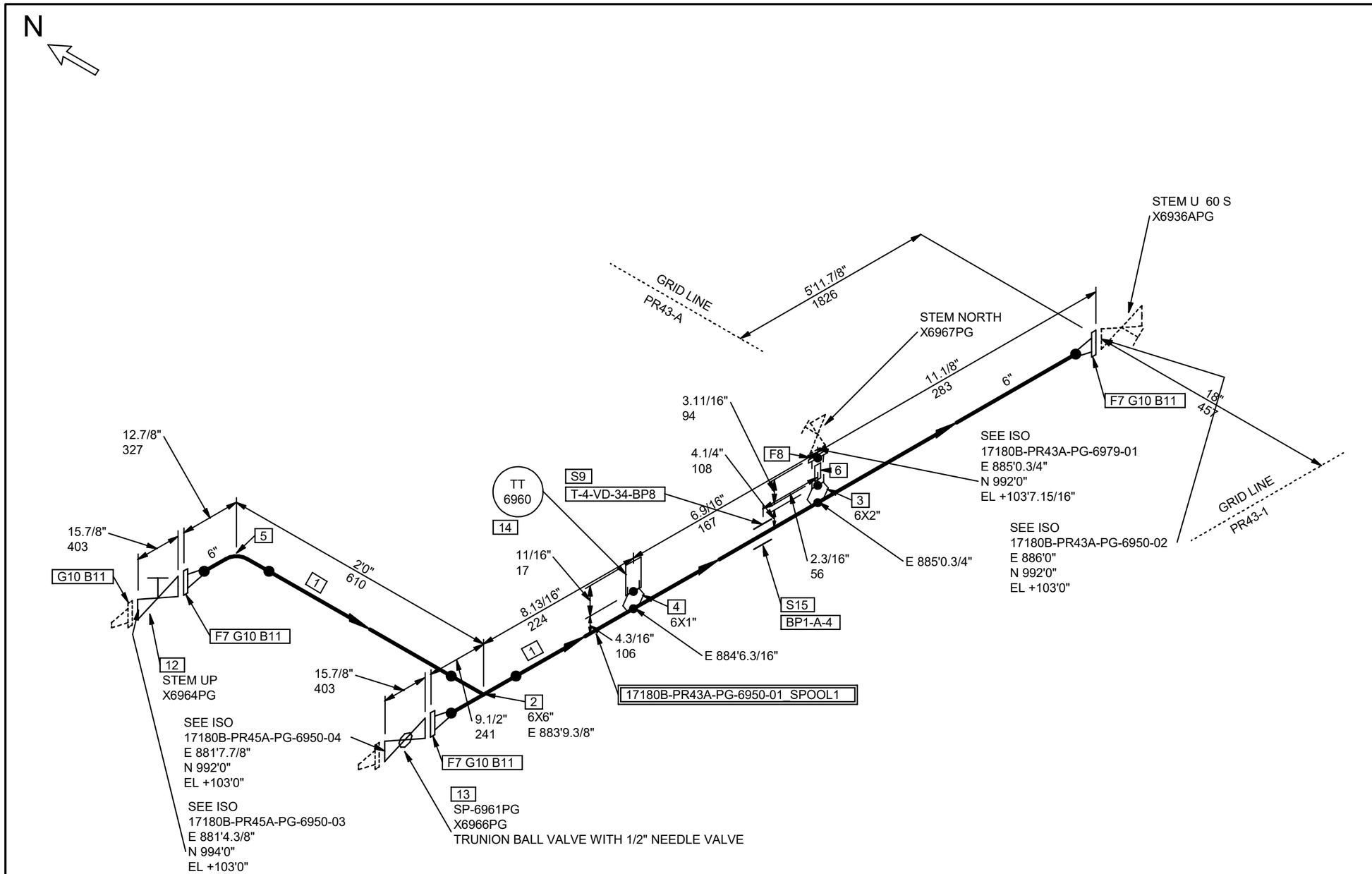
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6943-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	2.2'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X6	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X2	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X1	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	1
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	2	1
7	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	3
8	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
	PIPE SUPPORTS		
9	T-4-VD-34-BP8	6	1
	ERECTION		
10	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	4
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	48
12	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	1
13	Ball Vlv Trunnion , API 6D , CL300 , RFFE , 3 Piece Bolted , Bevel Gear Operator , ASTM A350 Grade LF2 Class 2 , GLASS REIN PTFE SEAT, VITON A SEAL, CSENP TRIM, FULL PORT , NACE, FIRE TESTED W/SEALS, W/ BLEED VALVE ASSY, PRAXAIR GUIDELINE V-G1	6	1
	INSTRUMENTS		
14	TT-6960	1	1
	PIPE SUPPORTS		
15	BP1-A-4	6	1

17180B-PR43A-PG-6950-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/09/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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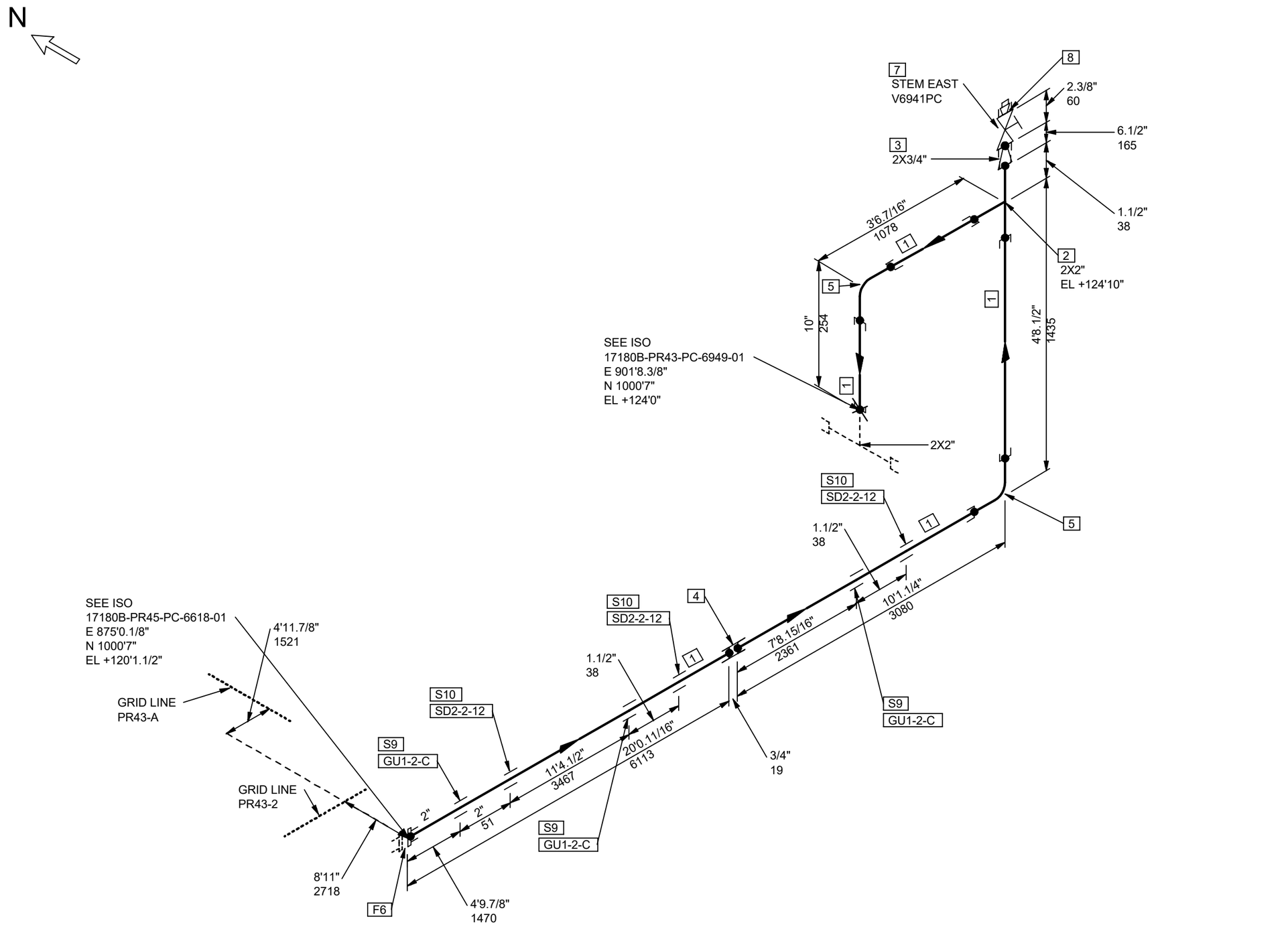
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43A-PG-6950-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	38.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
6	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAE	3/4	1
	ERECTION		
8	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
	PIPE SUPPORTS		
9	GU1-2-C	2	3
10	SD2-2-12	2	3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS300P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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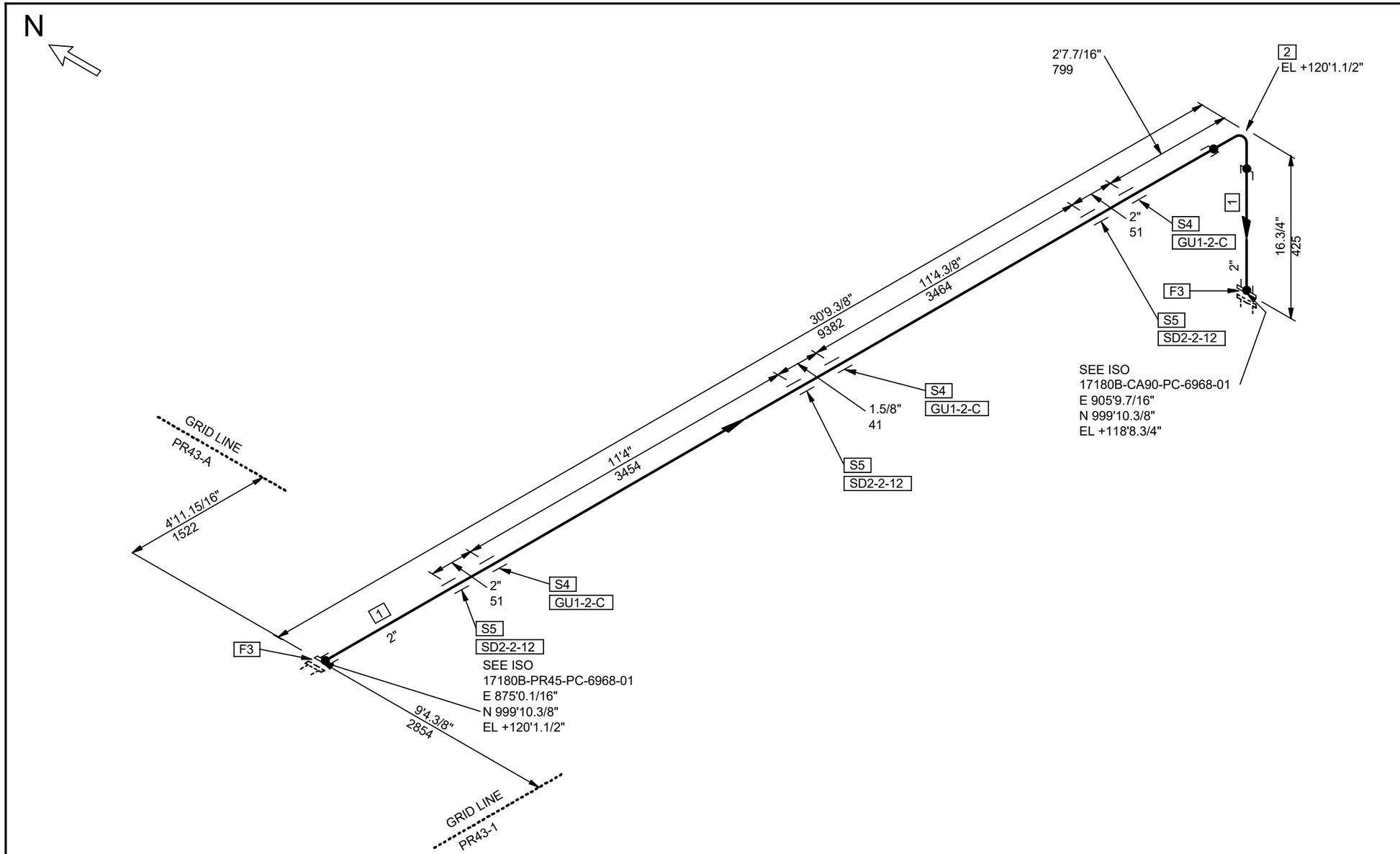
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PC-6618-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	31.9'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
	PIPE SUPPORTS		
4	GU1-2-C	2	3
5	SD2-2-12	2	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6902		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
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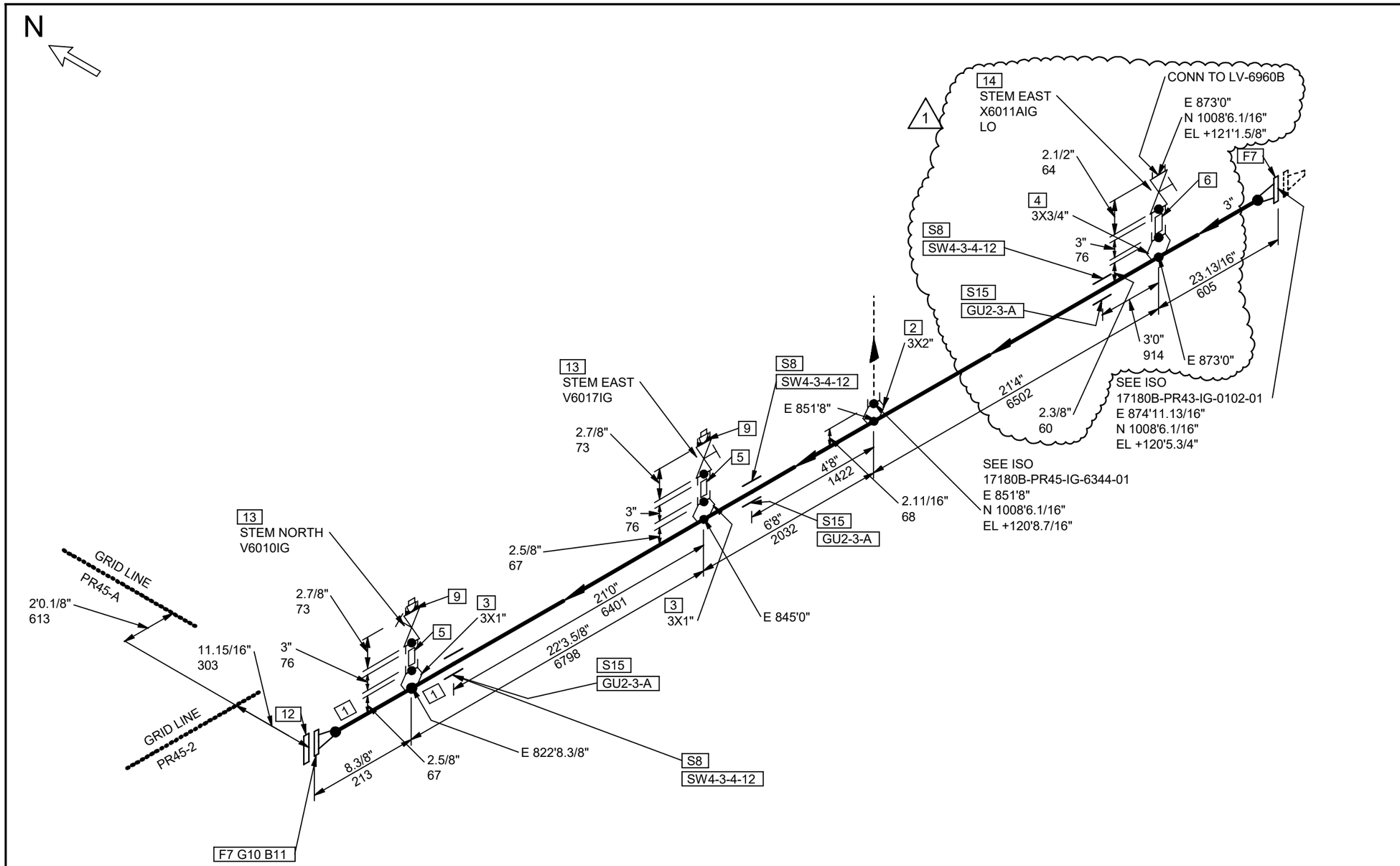
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR43-PC-6968-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , BE , ASTM A312 Grade TP304/TP304L , EFW (E = 0.80) , S-10S	3	52.6'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3X2	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3X1	2
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	3X3/4	1
5	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	1	2
6	Nipple , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , 3in Long , SMLS , S-80S , S-80S	3/4	1
7	WN Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L - , S-10S	3	2
	PIPE SUPPORTS		
8	SW4-3-4-12	3	3
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 304/F 304L	1	2
10	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3	1
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
12	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L	3	1
13	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316/F 316L , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CIB	1	2
14	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 316 (UNS S31600) , Trim 12 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SIJ	3/4	1
	PIPE SUPPORTS		
15	GU2-3-A	3	3

LEGEND:

- ● = SHOP WELD
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- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	VT	NNR	MLO
0	09/19/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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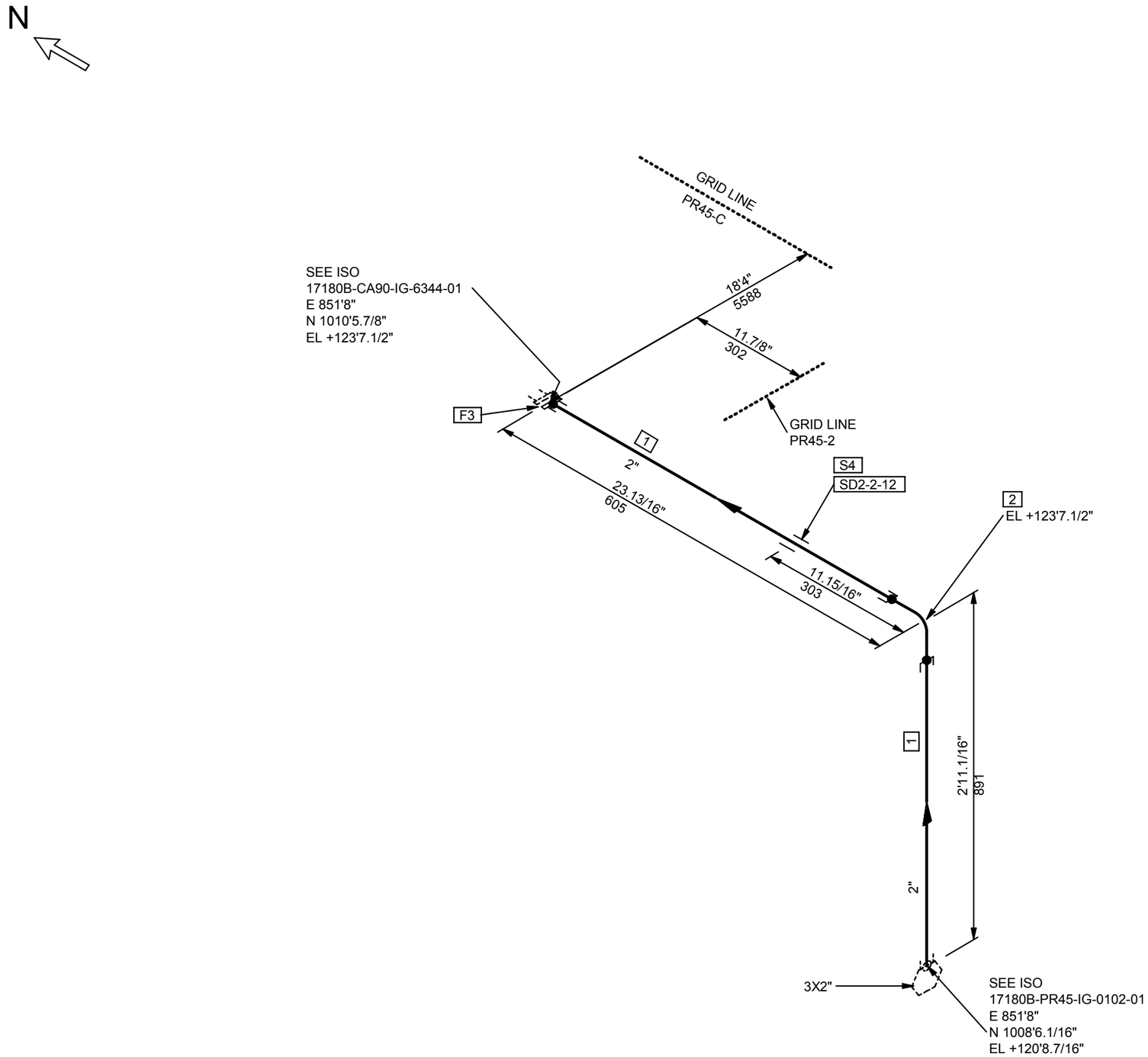
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-IG-0102-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.19 , PE , ASTM A312 Grade TP304/TP304L , SMLS , S-40S	2	4.7'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A182 Grade F 304/F 304L	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A182 Grade F 304/F 304L , S-40S	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6001		
PIPE SPEC	HSA150C	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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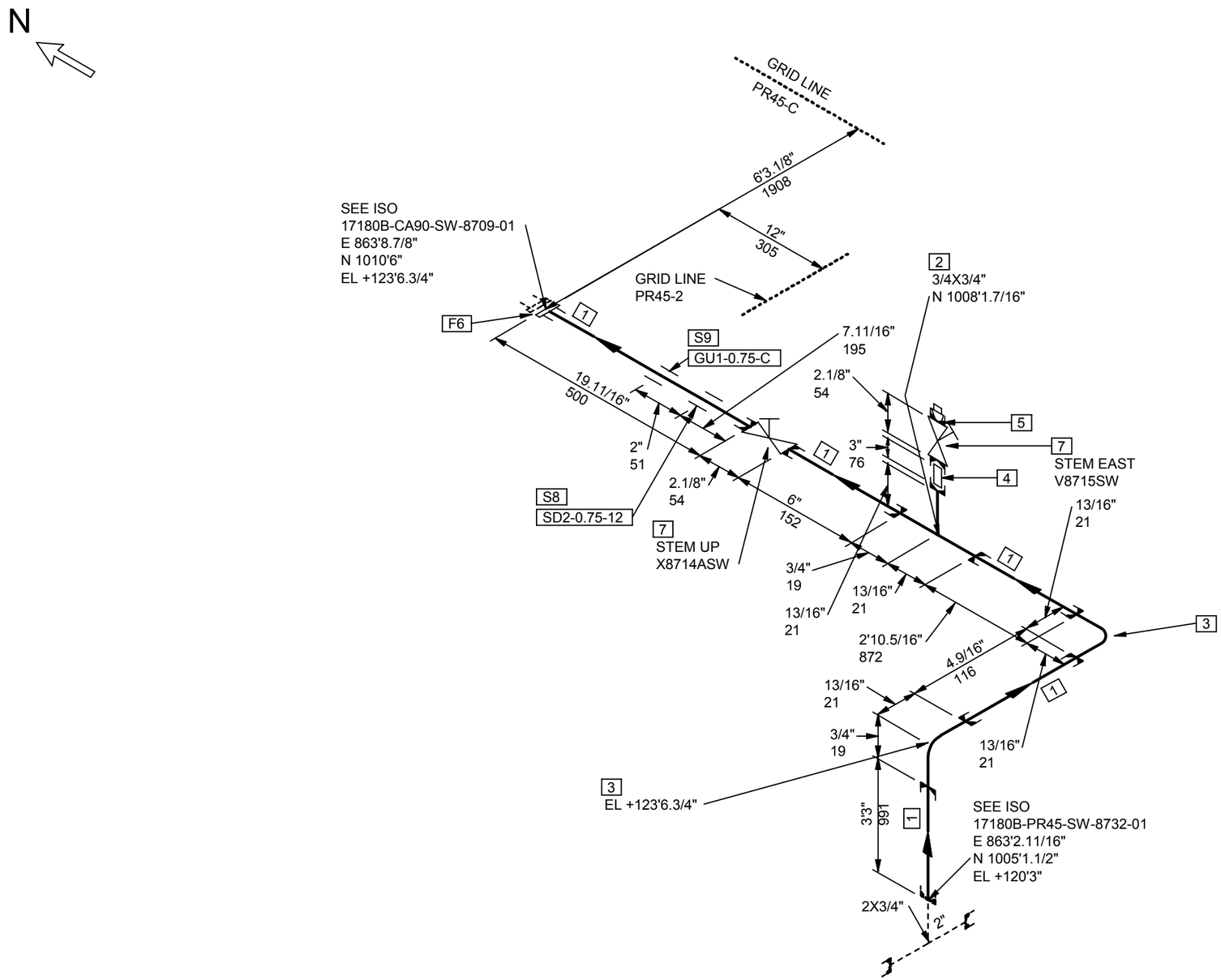
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-IG-6344-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	8.7'
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	3/4X3/4	1
3	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	2
4	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	3/4	1
5	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
6	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
7	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	2
	PIPE SUPPORTS		
8	SD2-0.75-12	3/4	1
9	GU1-0.75-C	3/4	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
			SBD	NNR	
0	09/23/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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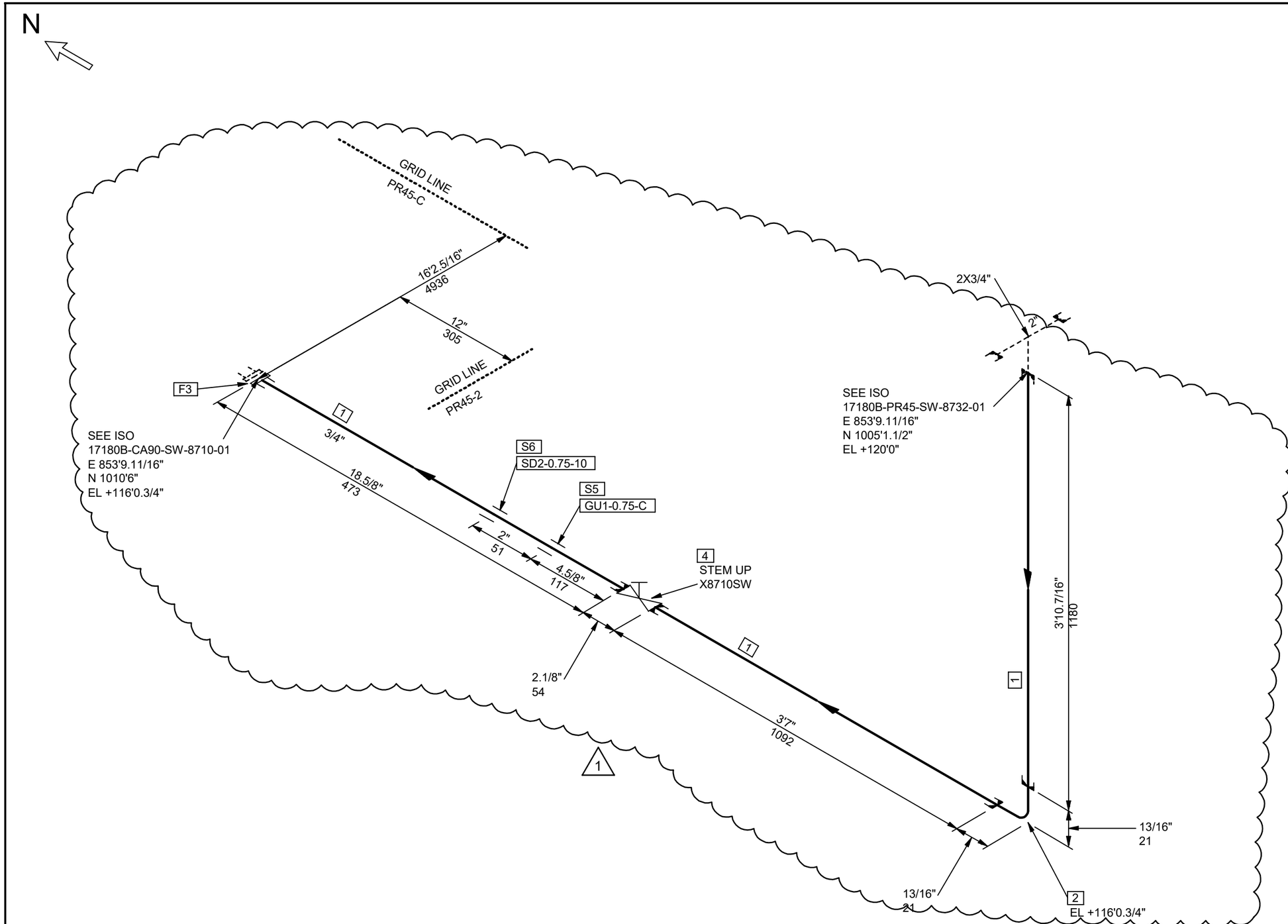
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-SW-8709-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	ERECTION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	3/4	9.0'
2	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	3/4	1
3	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3/4	1
4	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1
	PIPE SUPPORTS		
5	GU1-0.75-C	3/4	1
6	SD2-0.75-10	3/4	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/15/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	09/23/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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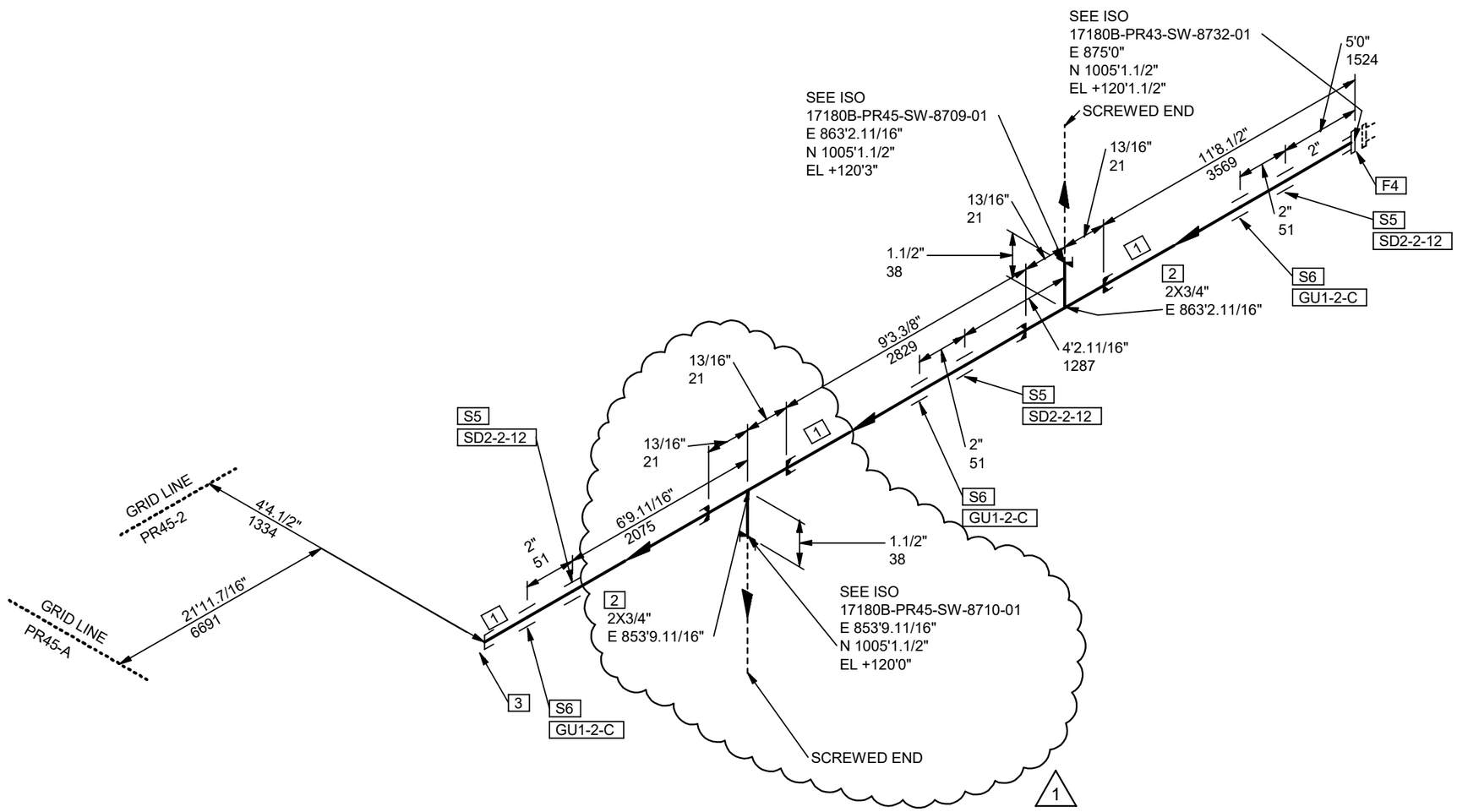
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-SW-8710-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
ERECTION			
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	28.8'
2	Tee Redu. Branch , ASME B16.3 , CL300 , FTE , ASTM A197	2X3/4	2
3	Cap , ASME B16.3 , CL300 , FTE , ASTM A197 -	2	1
4	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
PIPE SUPPORTS			
5	SD2-2-12	2	3
6	GU1-2-C	2	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8701		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/01/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	10/05/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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LEGEND:

- ● = SHOP WELD
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- — — = HEAT TRACING

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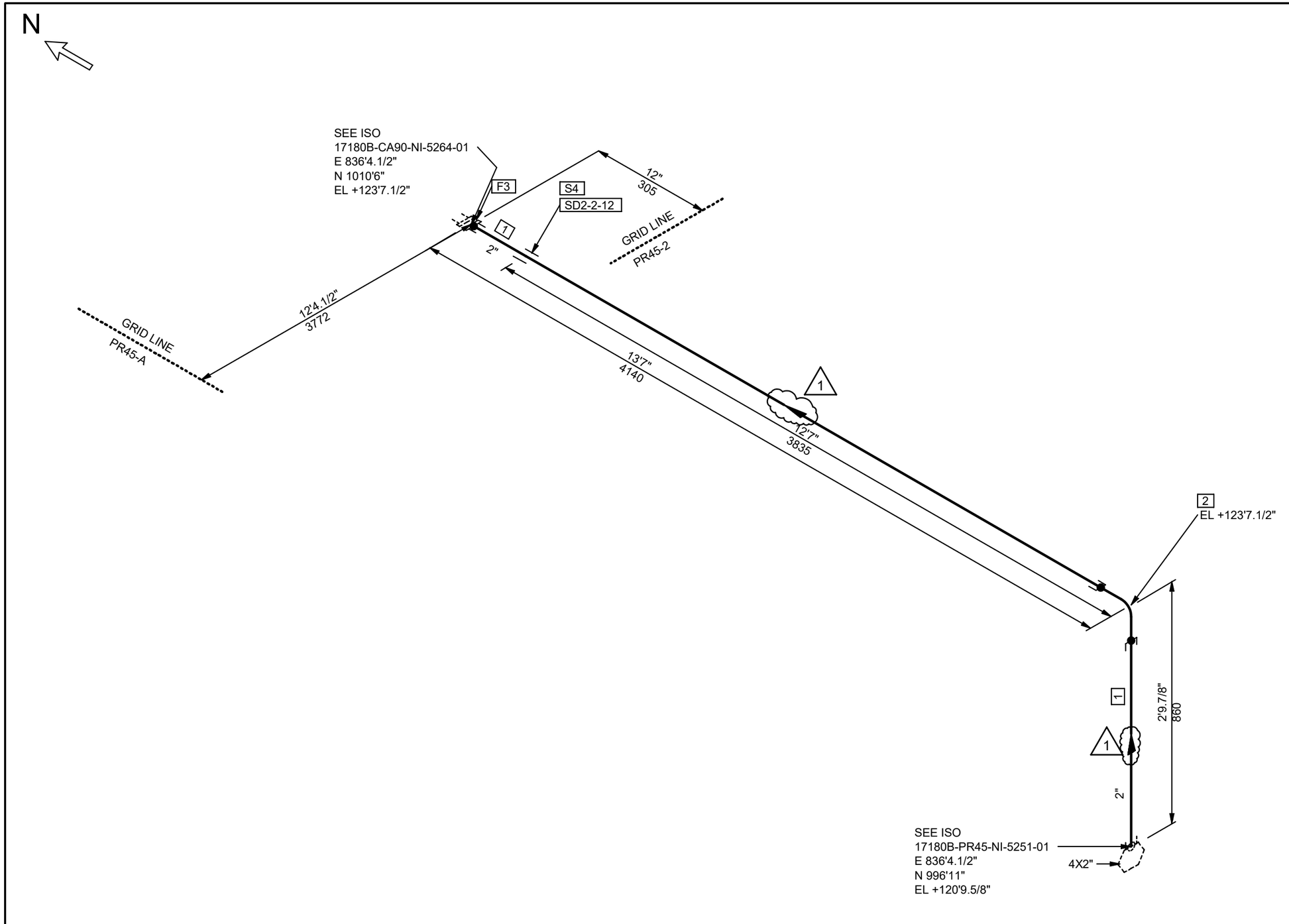
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-SW-8732-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELL
- ✖ FFW = FIELD FIT WELL (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/25/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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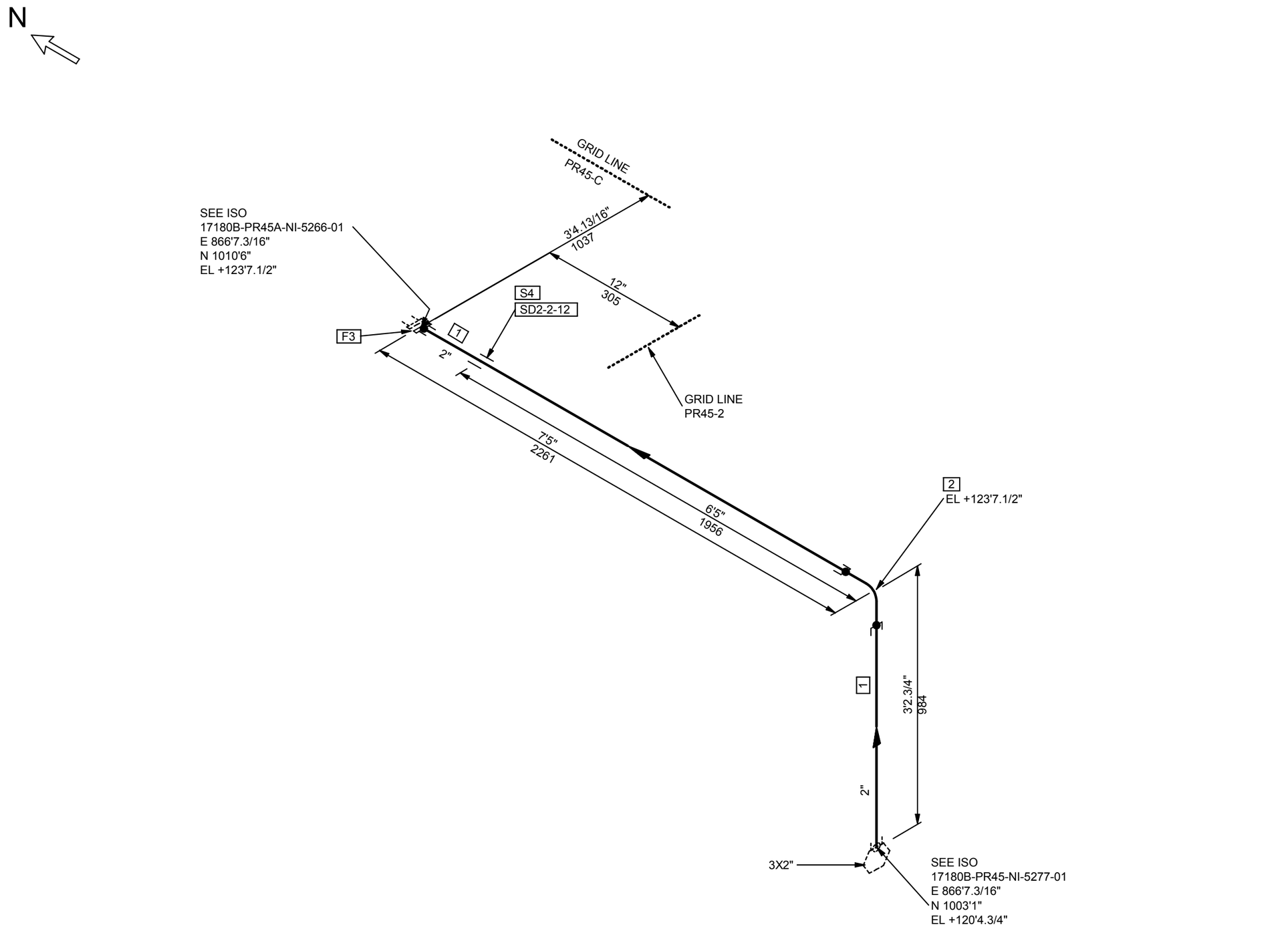
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5264-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
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- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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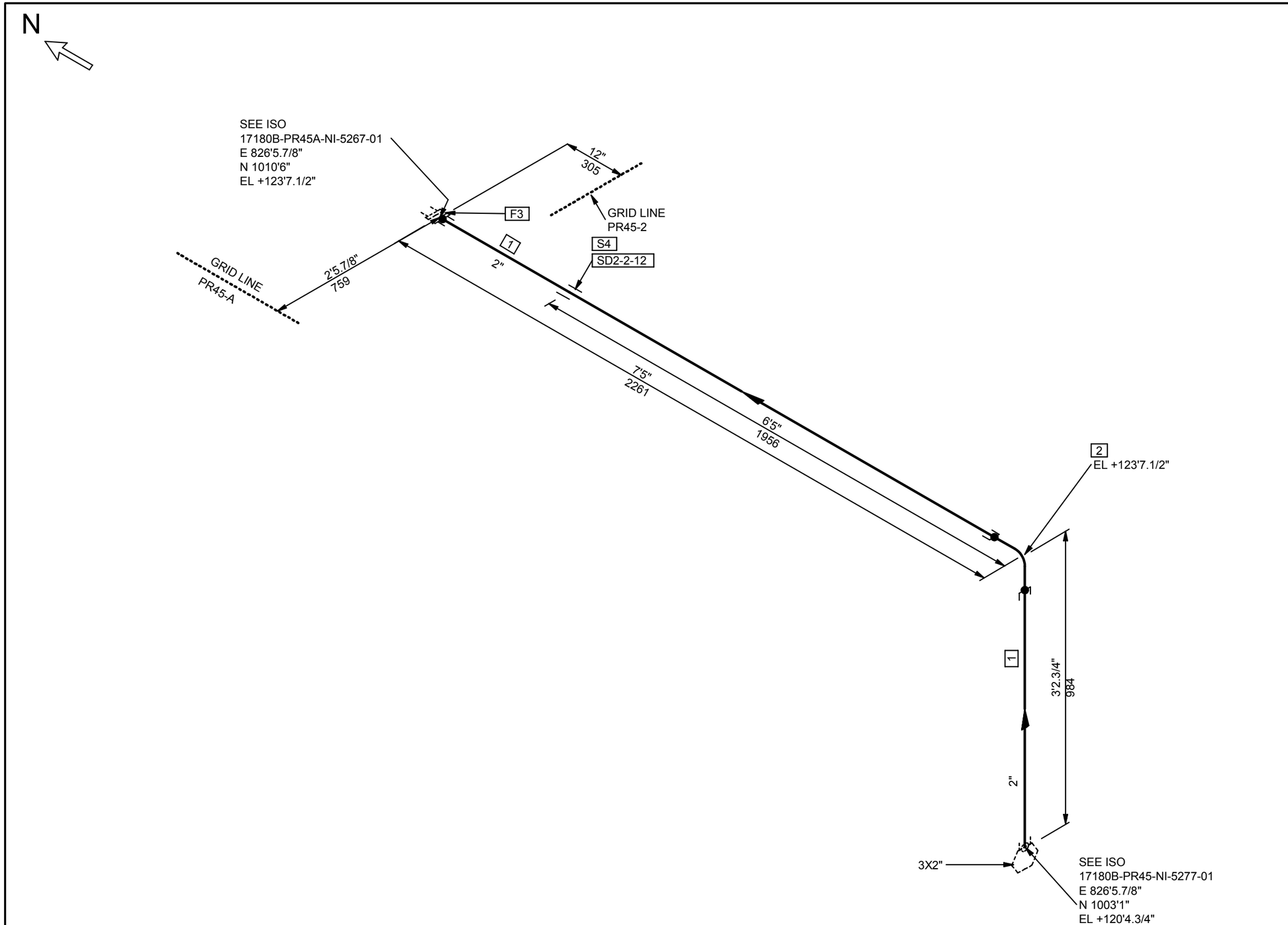
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5266-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELL
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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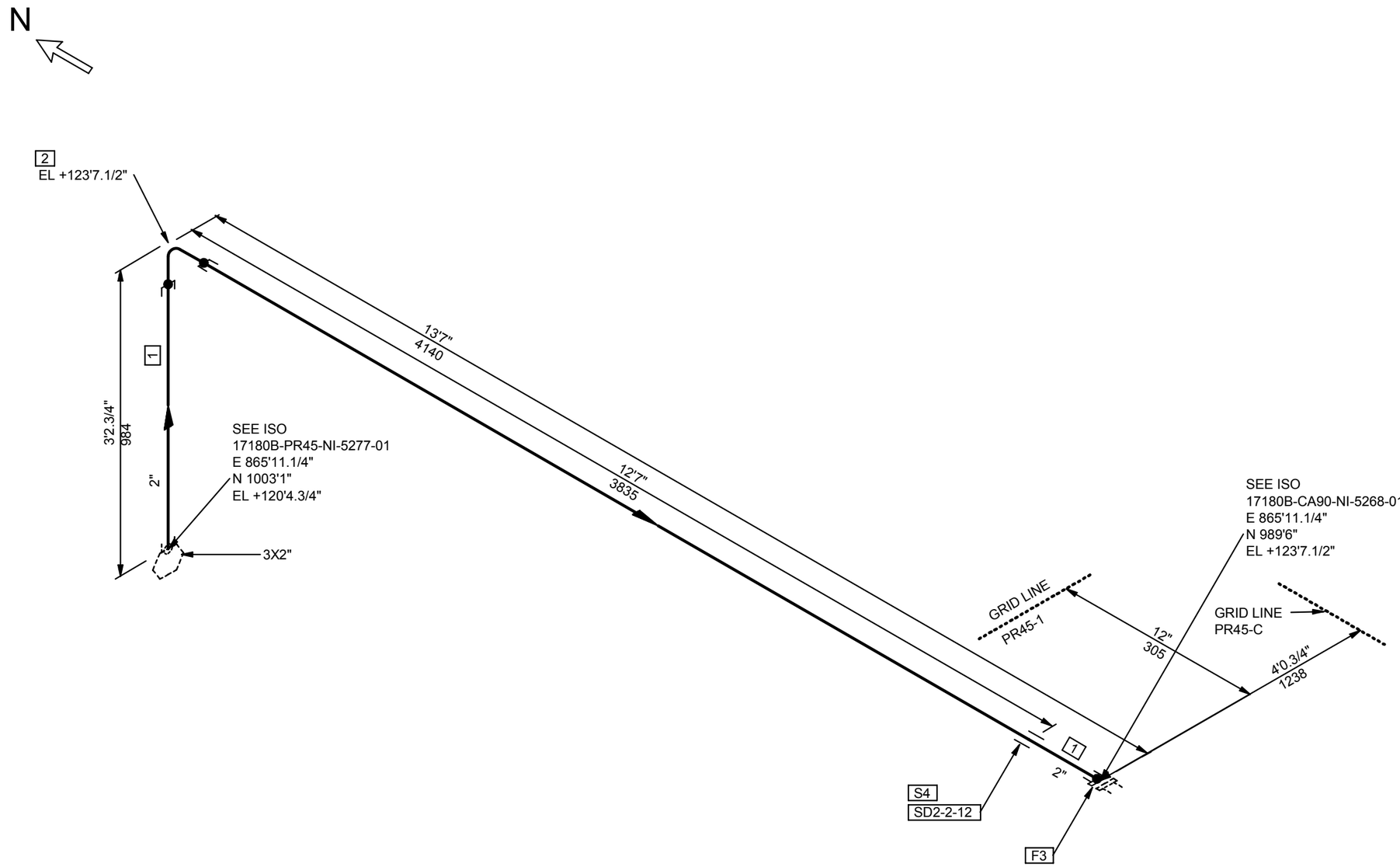
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5267-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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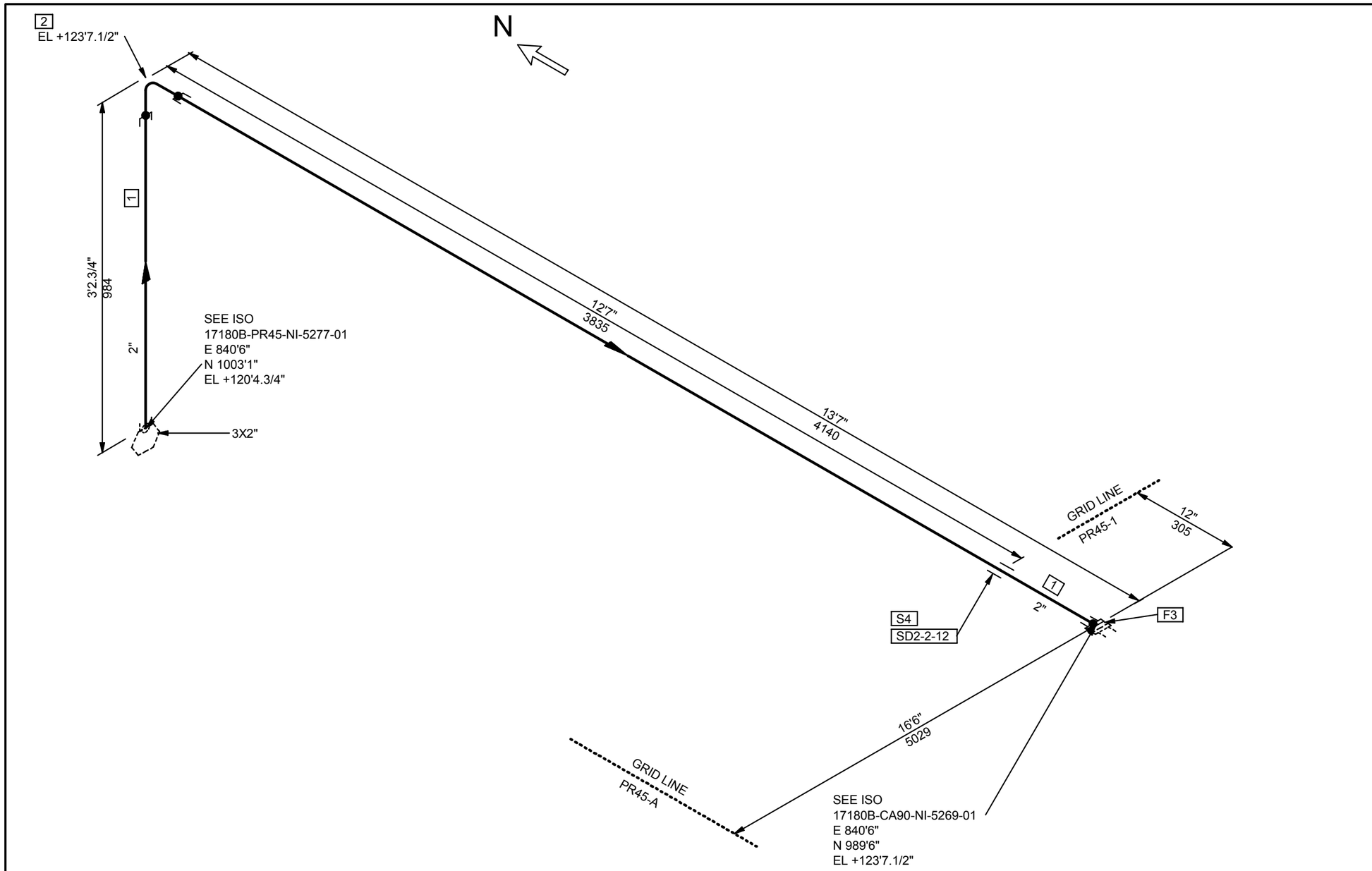
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5268-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

LEGEND:

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FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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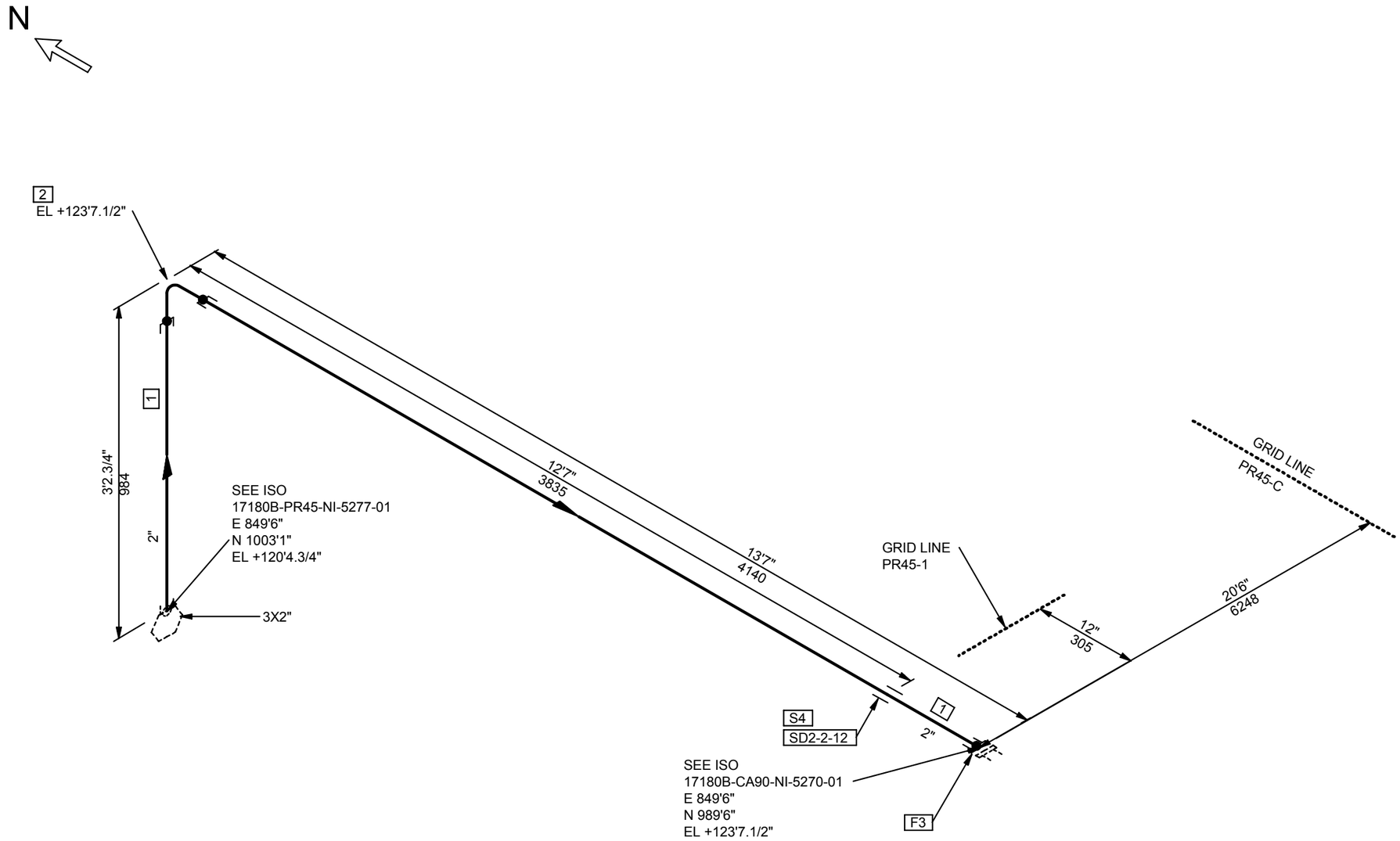
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5269-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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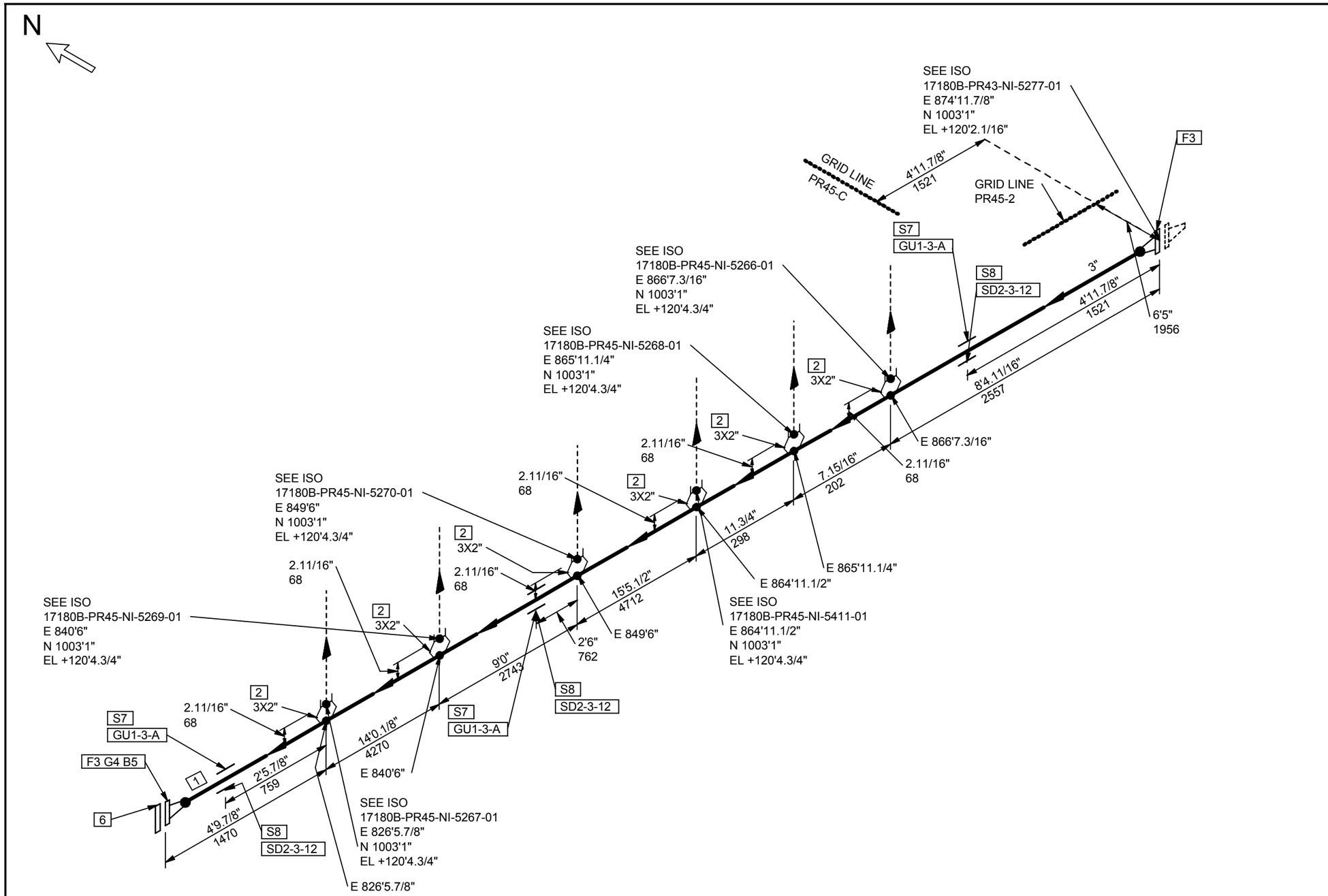
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5270-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	3	52.9'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	3X2	6
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	3	2
	ERECTION		
4	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	3	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	4
6	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	3	1
	PIPE SUPPORTS		
7	GU1-3-A	3	3
8	SD2-3-12	3	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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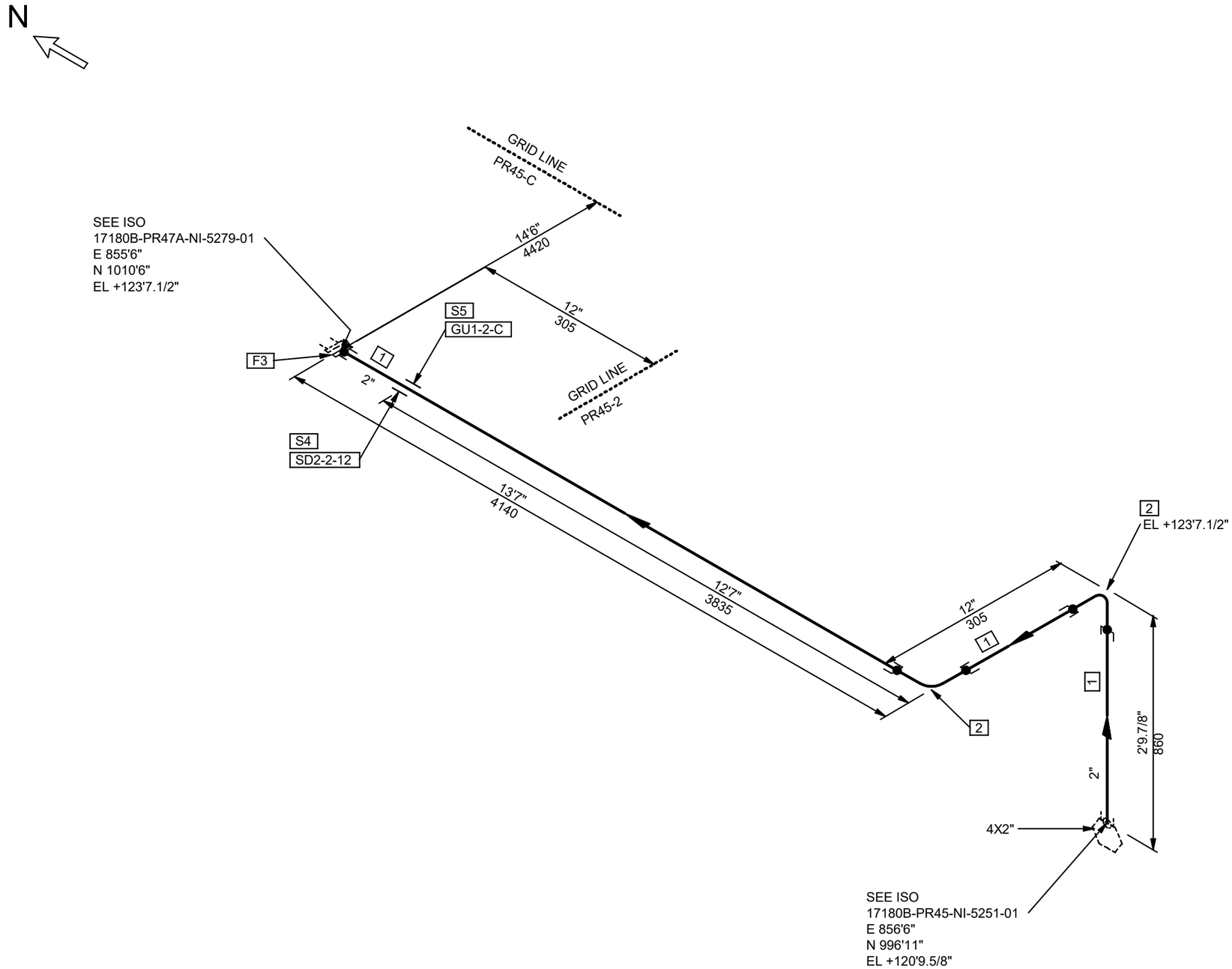
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5277-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.9'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1
5	GU1-2-C	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	02/14/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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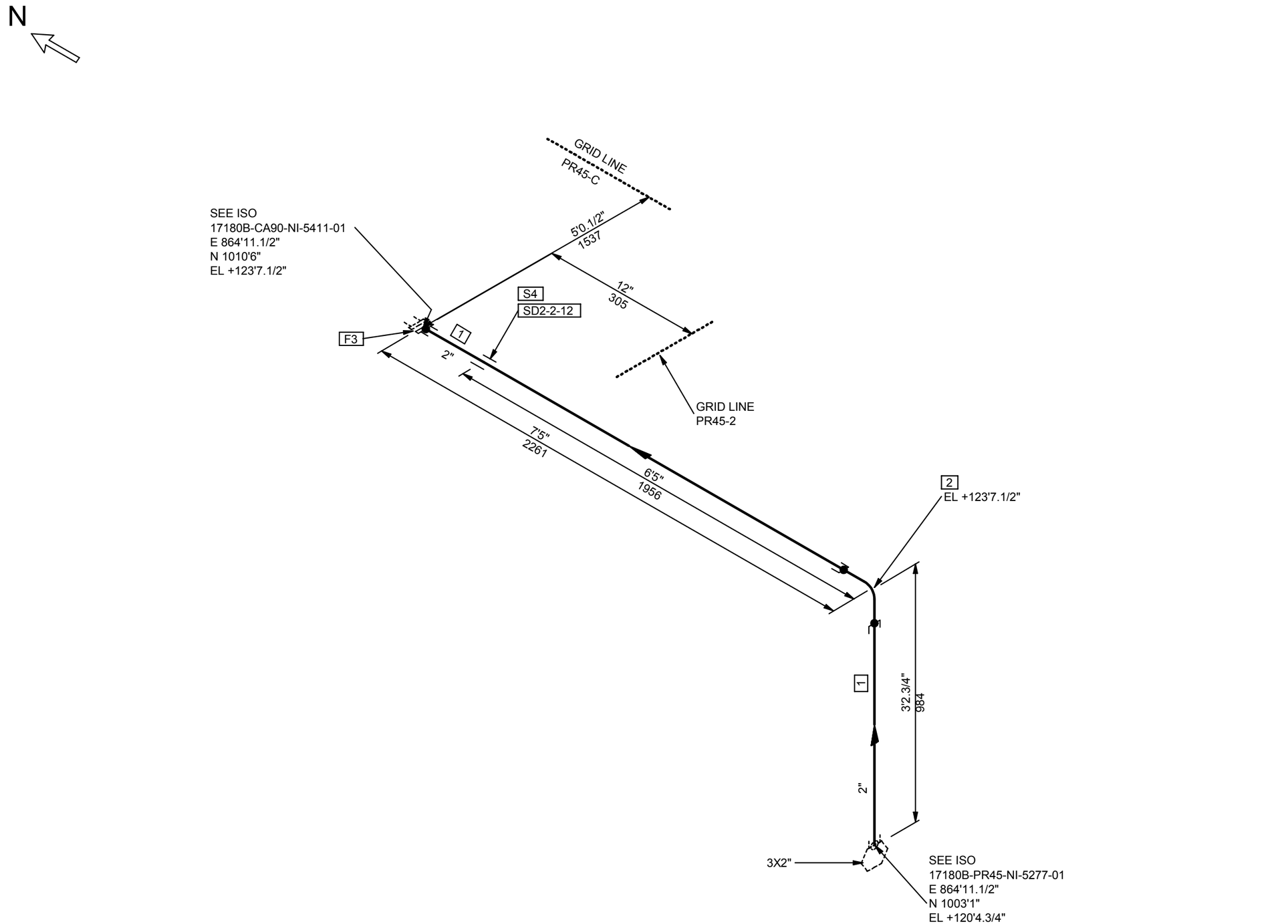
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5279-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	10.4'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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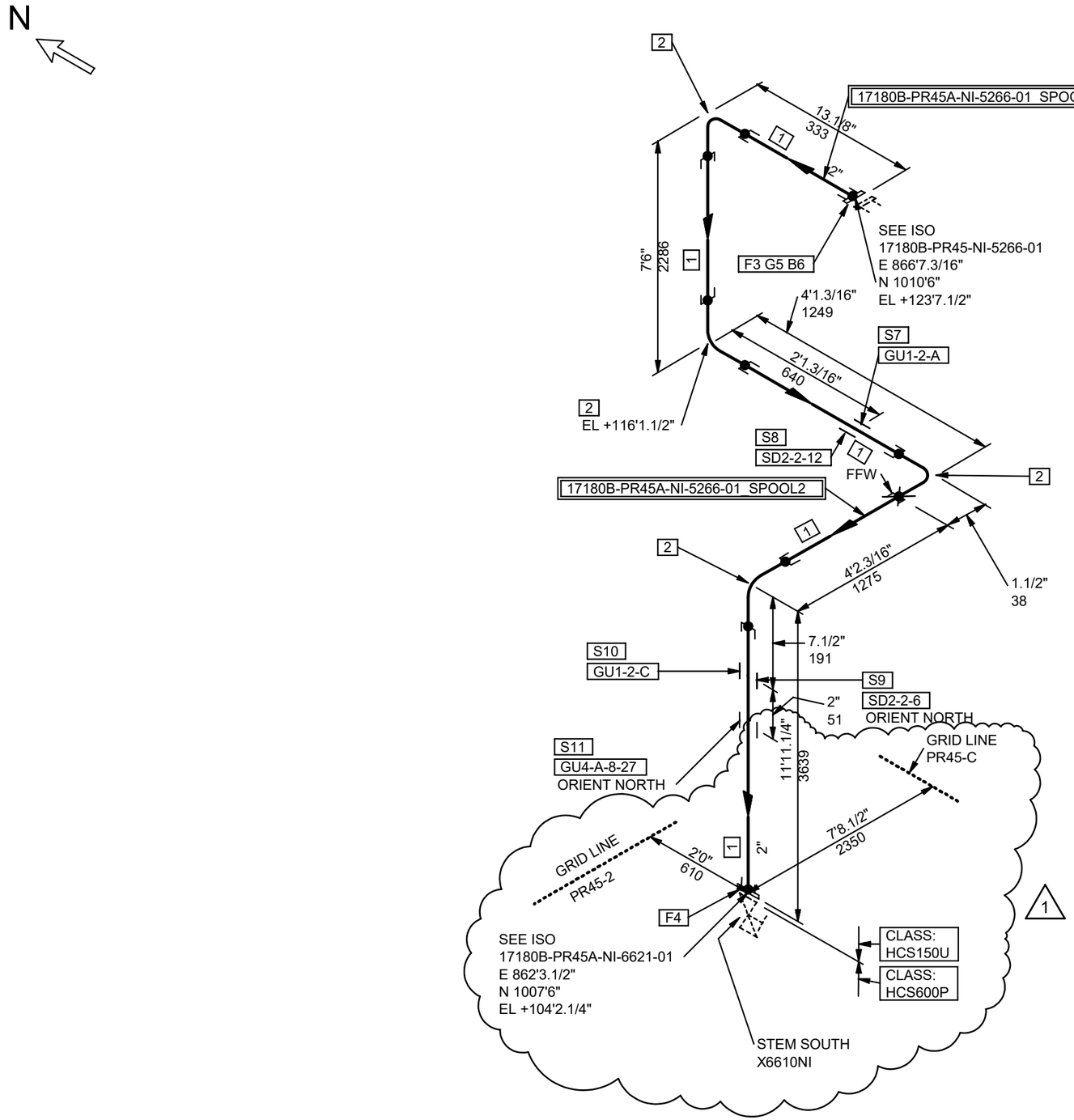
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5411-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	28.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
4	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
	PIPE SUPPORTS		
7	GU1-2-A	2	1
8	SD2-2-12	2	1
9	SD2-2-6	2	1
10	GU1-2-C	2	1
11	GU4-A-8-27	2	1

17180B-PR45A-NI-5266-01_SPOOL1 17180B-PR45A-NI-5266-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/22/2019	RE-ISSUED FOR CONSTRUCTION	SRS	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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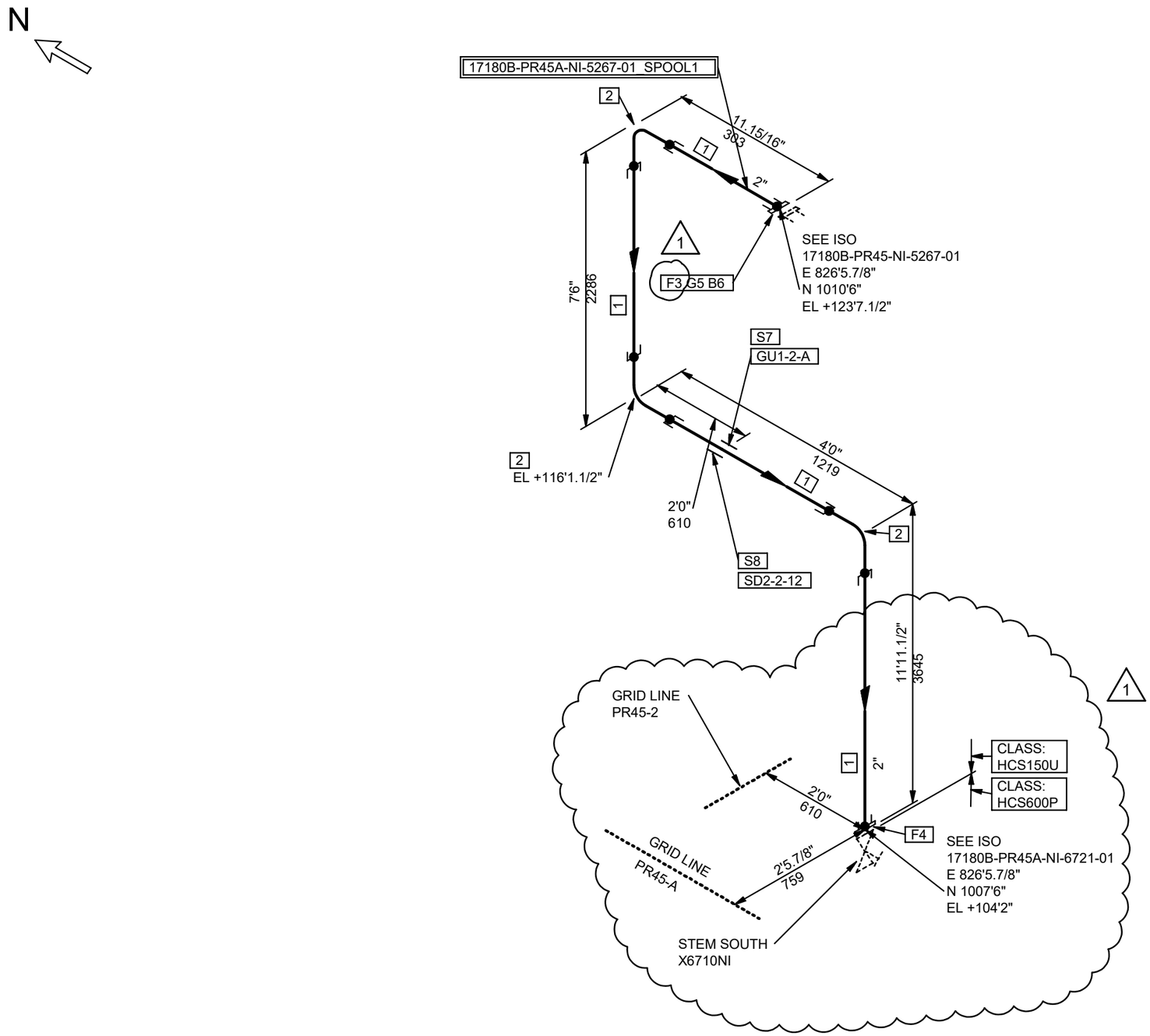
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NI-5266-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	23.6'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
4	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	1
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
	PIPE SUPPORTS		
7	GU1-2-A	2	1
8	SD2-2-12	2	1

17180B-PR45A-NI-5267-01_SPOOL1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5251		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/18/2019	RE-ISSUED FOR CONSTRUCTION	SBD	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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West Memorial Place II
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Houston, Texas 77079
Tel 713.270.3100

LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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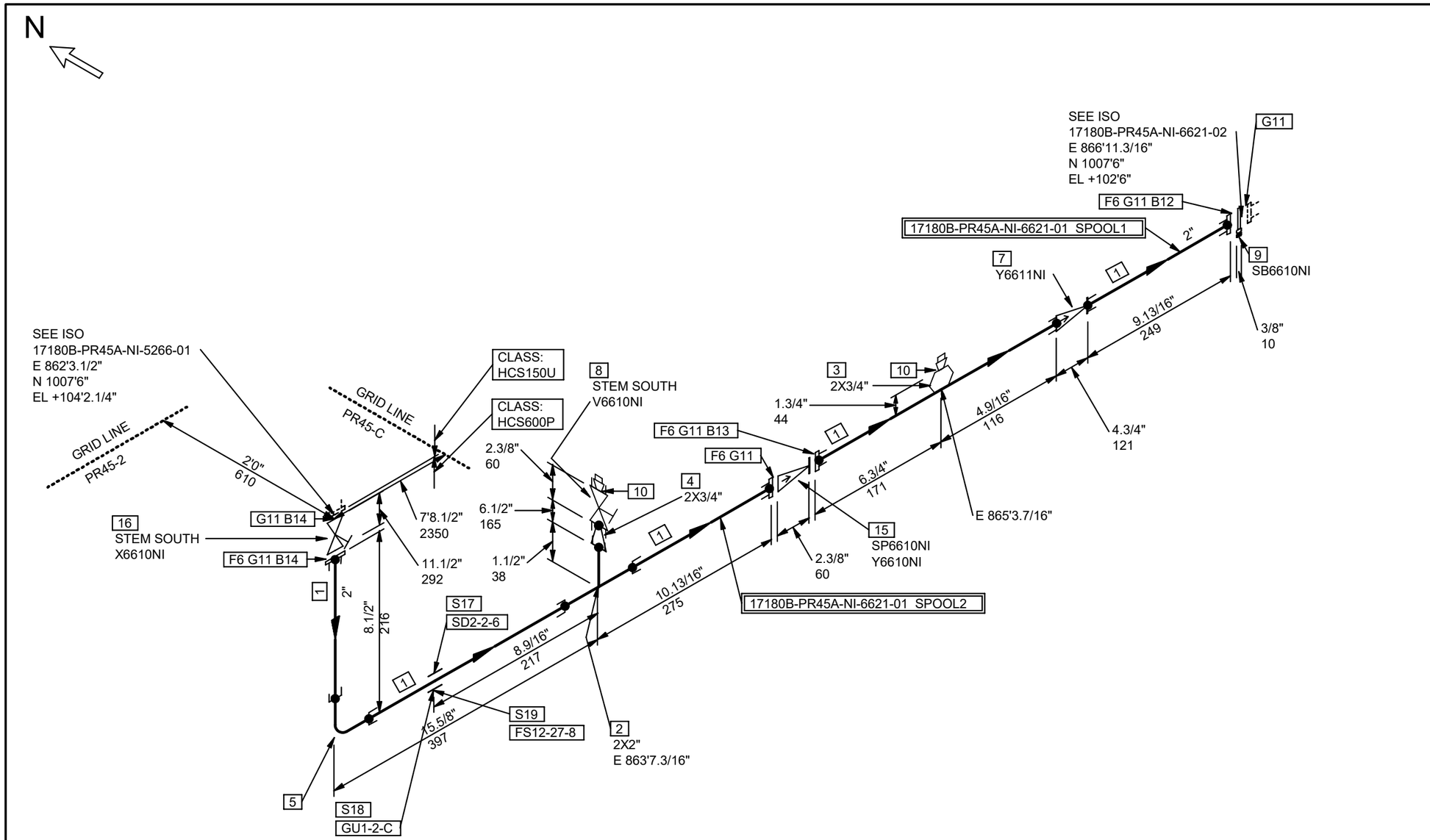
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NI-5267-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	3.9'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	2X3/4	1
4	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	4
7	Check Vlv Ball , Manuf. Std. Dims , CL800 , SWE , 1 PC, IN-LINE, NON-SLAM, AXIAL CHECK VLV , 316 SS , 316 SS SPRING , PRAXAIR GUIDELINE V-G1 , C8SIO	2	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
9	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A516 Grade 70	2	1
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	6
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 5 in. Length	5/8	8
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 7 in. Length	5/8	8
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	5/8	16
15	Check Vlv Swing , API 594 , CL600 , RFTBE , Wafer , ASTM A216-WCB , Trim 12 , INCONEL X-750 SPRING, PRAXAIR V-G1, SEAL WELDED PLUGS , C6WAH	2	1
16	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	2	1
	PIPE SUPPORTS		
17	SD2-2-6	2	1
18	GU1-2-C	2	1
19	FS12-27-8	2	1

17180B-PR45A-NI-6621-01_SPOOL1 17180B-PR45A-NI-6621-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/22/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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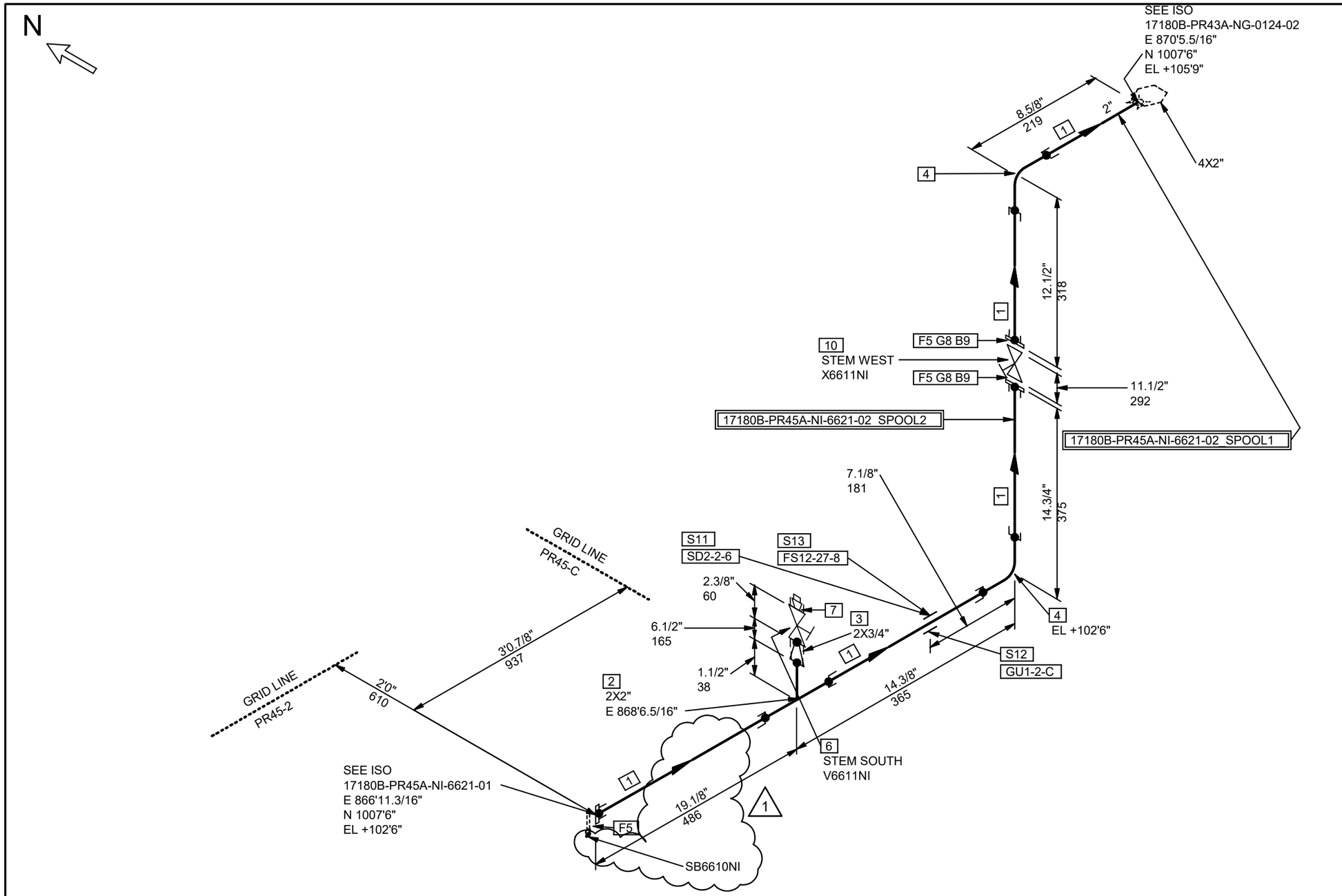
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NI-6621-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	4.8'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	3
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	5/8	16
10	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	2	1
	PIPE SUPPORTS		
11	SD2-2-6	2	1
12	GU1-2-C	2	1
13	FS12-27-8	2	1

17180B-PR45A-NI-6621-02_SPOOL1 17180B-PR45A-NI-6621-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/22/2019	RE-ISSUED FOR CONSTRUCTION	SRS	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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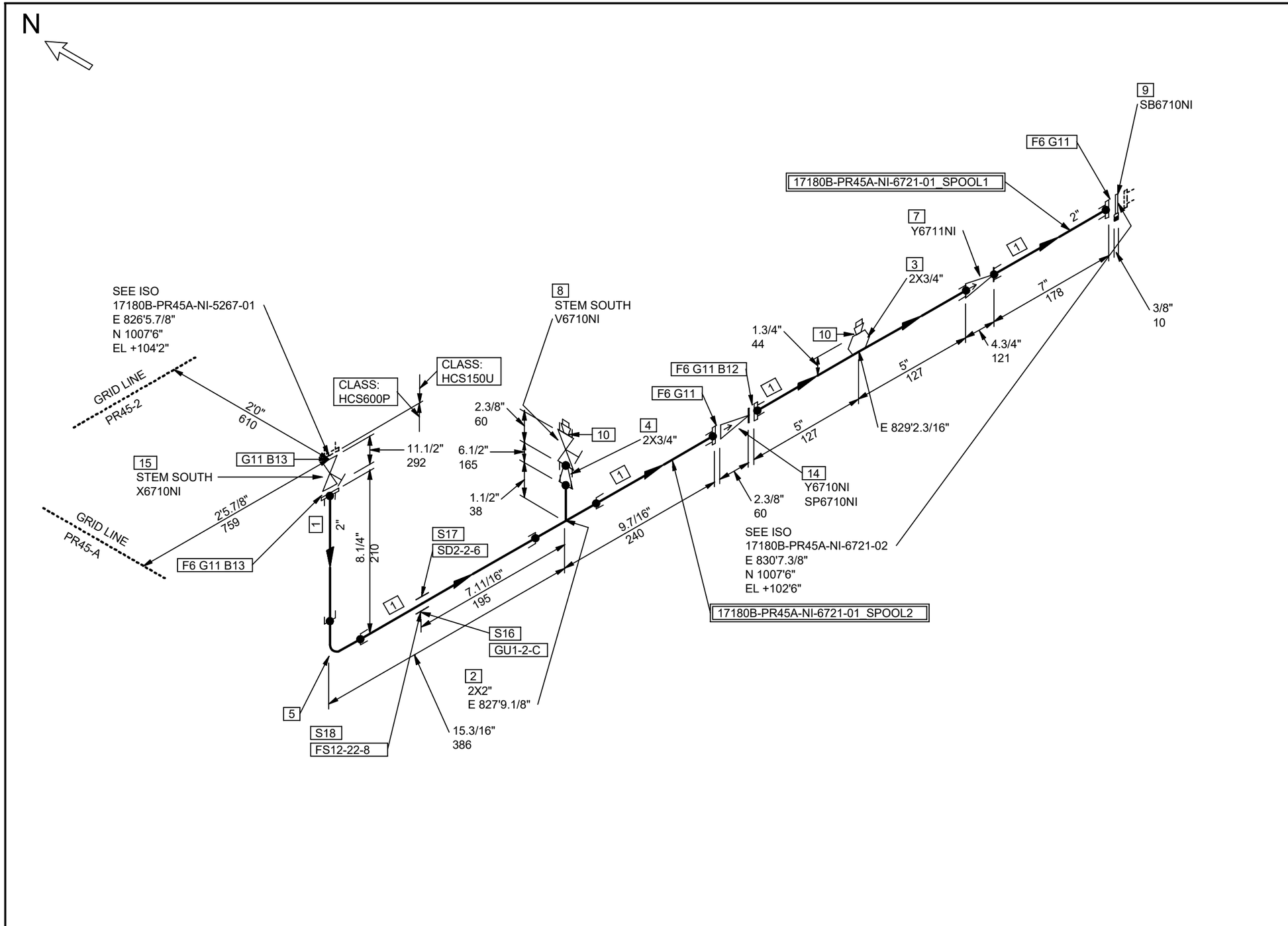
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR45A-NI-6621-02
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	3.4'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	2X3/4	1
4	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	4
7	Check Vlv Ball , Manuf. Std. Dims , CL800 , SWE , 1 PC, IN-LINE, NON-SLAM, AXIAL CHECK VLV , 316 SS , 316 SS SPRING , PRAXAIR GUIDELINE V-G1 , C8SIO	2	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
9	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A516 Grade 70	2	1
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	5
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 7 in. Length	5/8	8
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	5/8	16
14	Check Vlv Swing , API 594 , CL600 , RFTBE , Wafer , ASTM A216-WCB , Trim 12 , INCONEL X-750 SPRING, PRAXAIR V-G1, SEAL WELDED PLUGS , C6WAH	2	1
15	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	2	1
	PIPE SUPPORTS		
16	GU1-2-C	2	1
17	SD2-2-6	2	1
18	FS12-22-8.4	2	1

17180B-PR45A-NI-6721-01_SPOOL1 17180B-PR45A-NI-6721-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/22/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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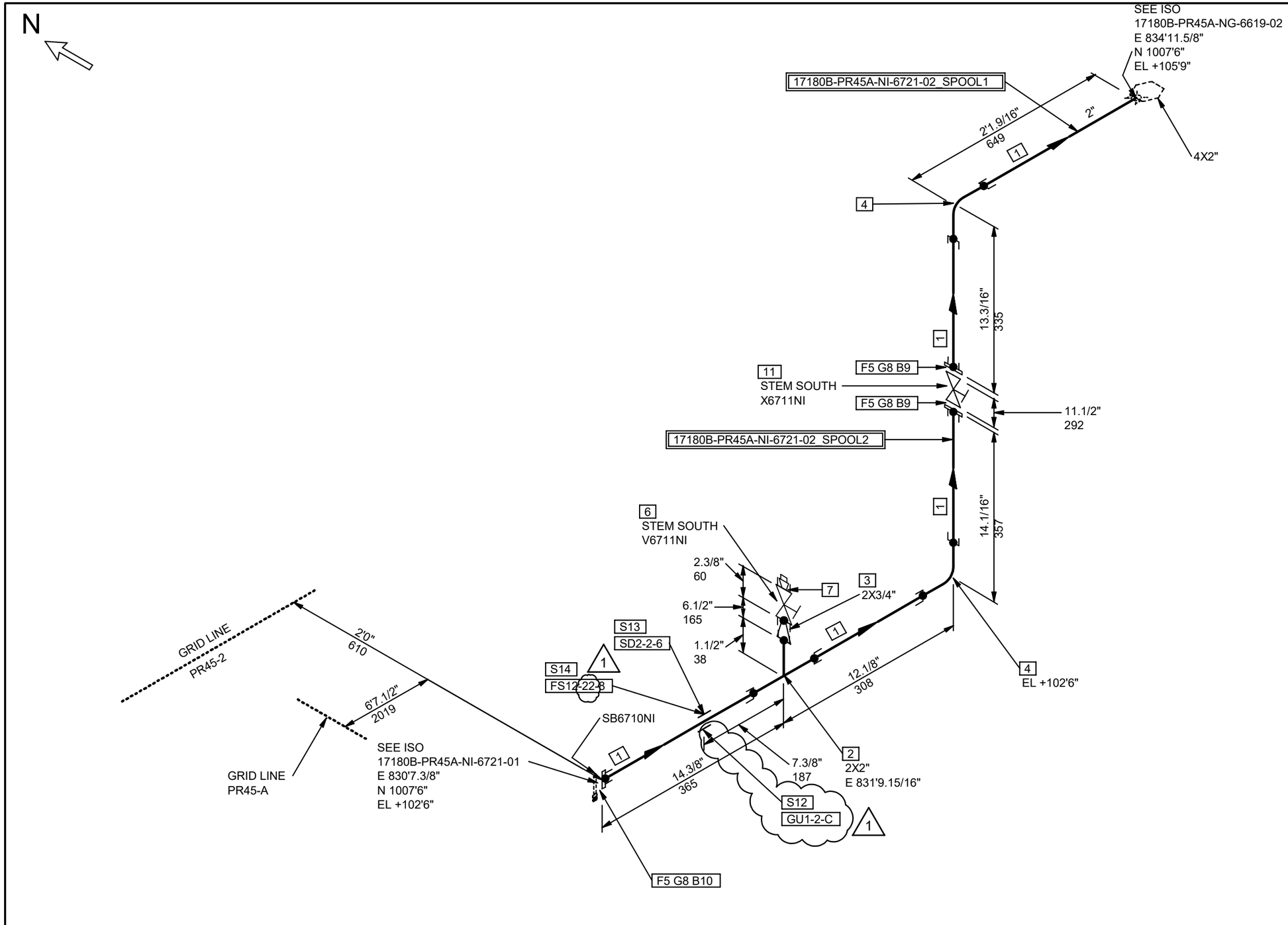
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NI-6721-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	5.7'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
5	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	3
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	3
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	5/8	16
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 5 in. Length	5/8	8
11	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	2	1
	PIPE SUPPORTS		
12	GU1-2-C	2	1
13	SD2-2-6	2	1
14	FS12-22-8	2	1

17180B-PR45A-NI-6721-02_SPOOL1 17180B-PR45A-NI-6721-02_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/22/2019	RE-ISSUED FOR CONSTRUCTION	SRS	NNR	MLO
0	09/30/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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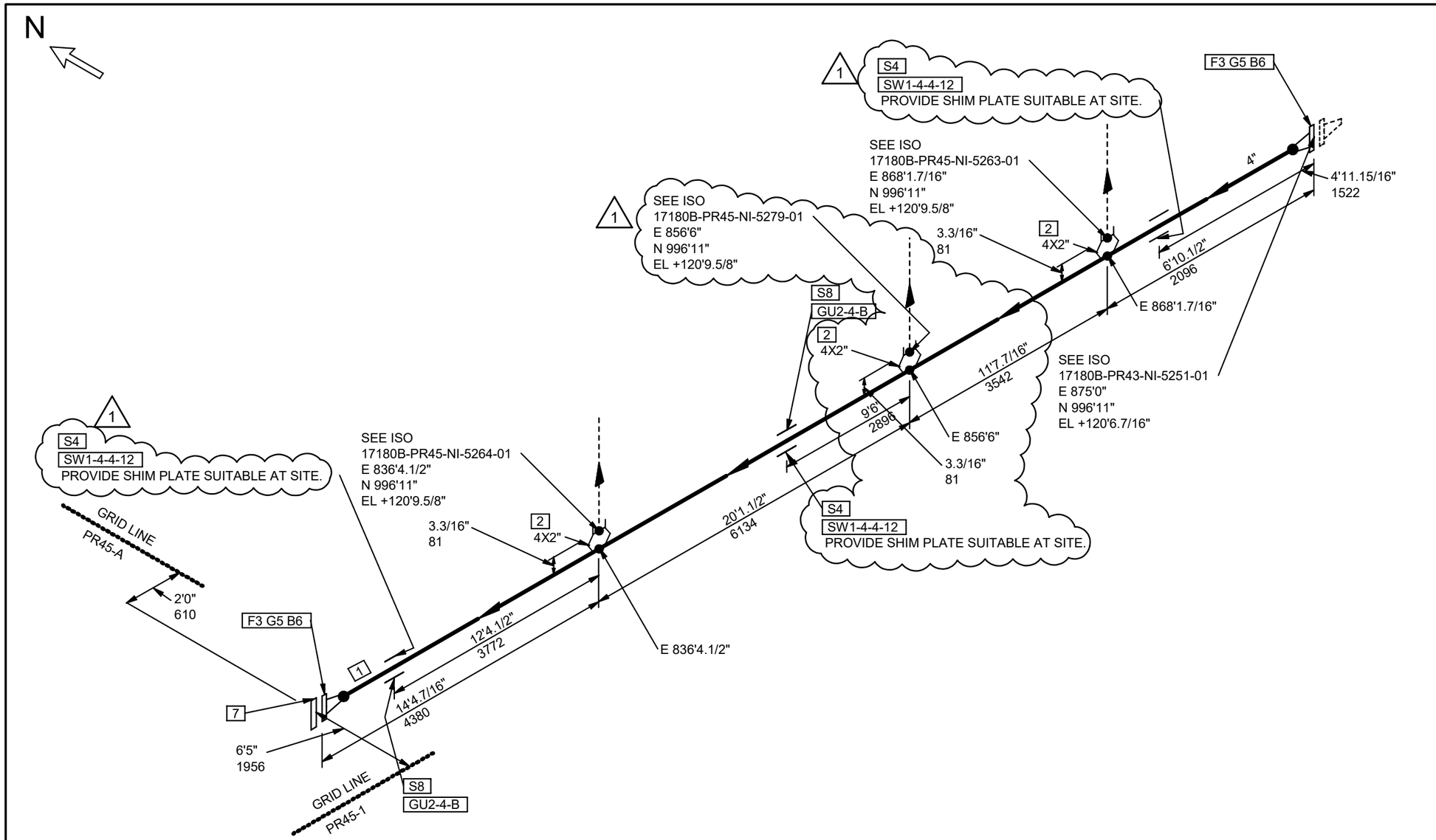
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NI-6721-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	52.5'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X2	3
3	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	4	2
	PIPE SUPPORTS		
4	SW1-4-4-12	4	3
	ERECTION		
5	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	4	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.75 in. Length	5/8	16
7	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	4	1
	PIPE SUPPORTS		
8	GU2-4-B	4	2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0101		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/14/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	07/18/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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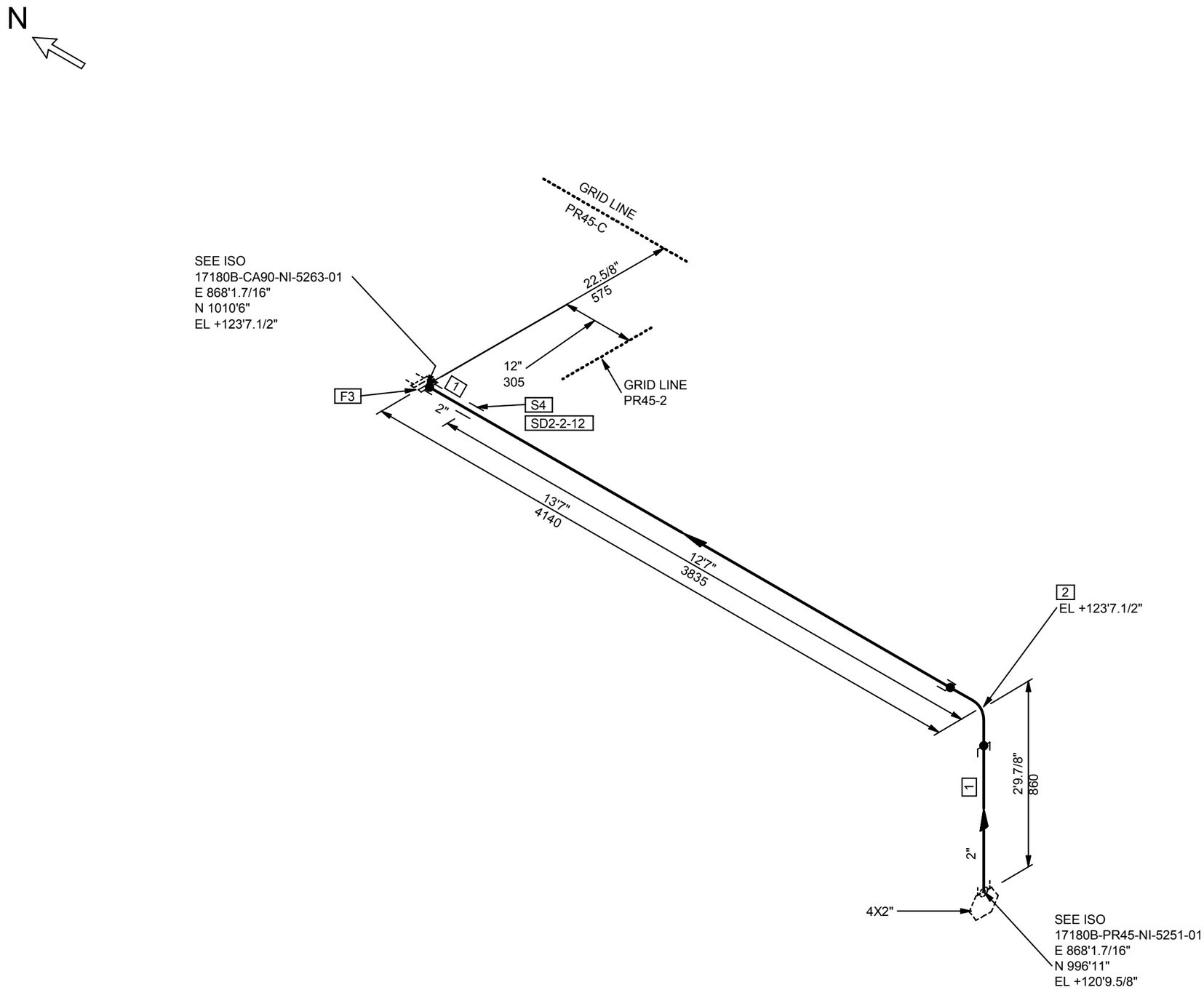
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5251-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	16.2'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	SD2-2-12	2	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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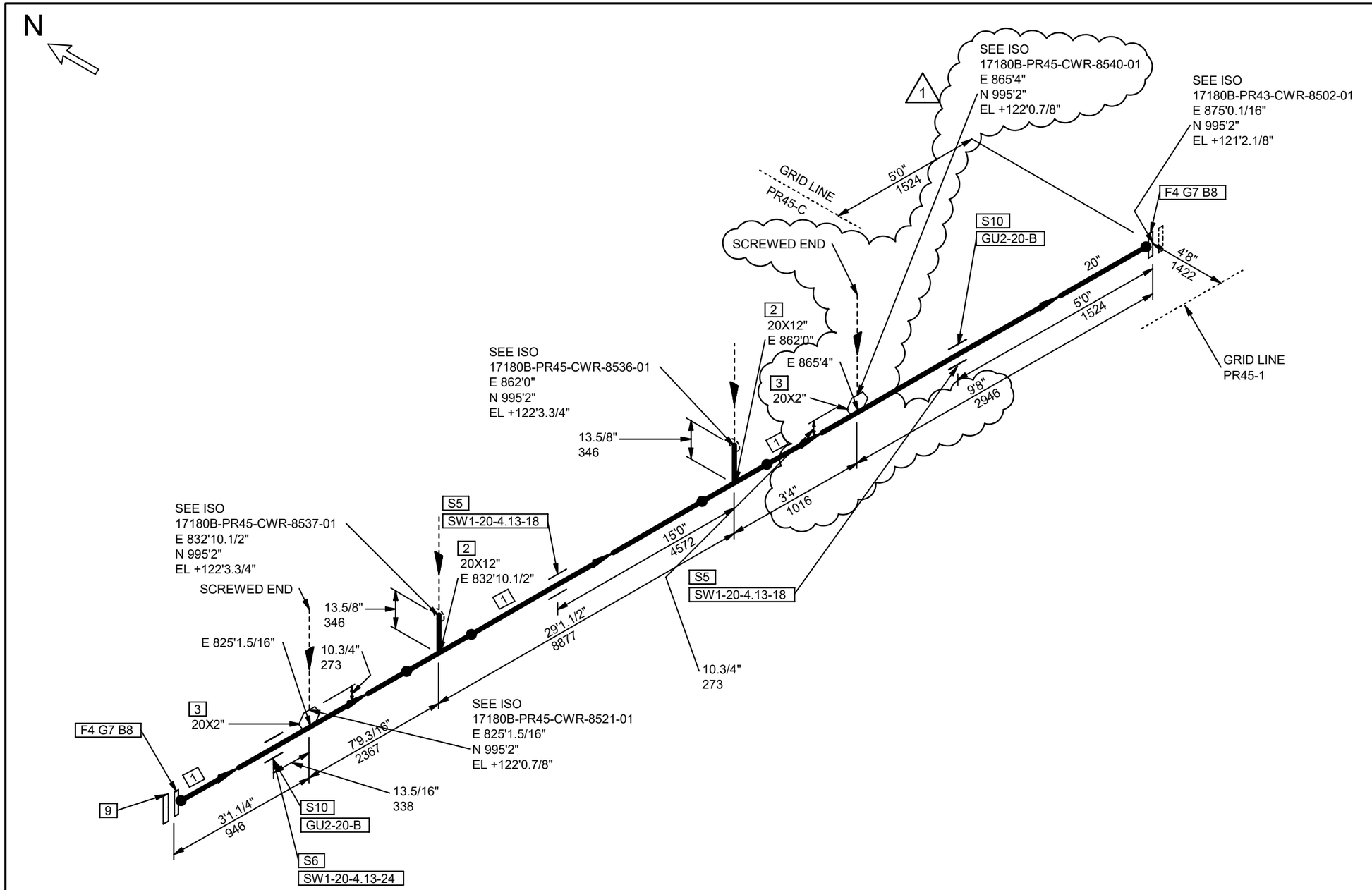
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NI-5263-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	20	47.9'
2	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	20X12	2
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	20X2	2
4	SO Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	2
	PIPE SUPPORTS		
5	SW1-20-4.13-18	20	2
6	SW1-20-4.13-24	20	1
	ERECTION		
7	Non Metal Flat Gskt , ASME B16.21/B16.1 , CL150 , FF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	20	2
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.5 in. Length	1.1/8	40
9	Blind Flg , AWWA C207 , CL125 , FF , ASTM A105N , Class D	20	1
	PIPE SUPPORTS		
10	GU2-20-B	20	2

1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8503		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	05/28/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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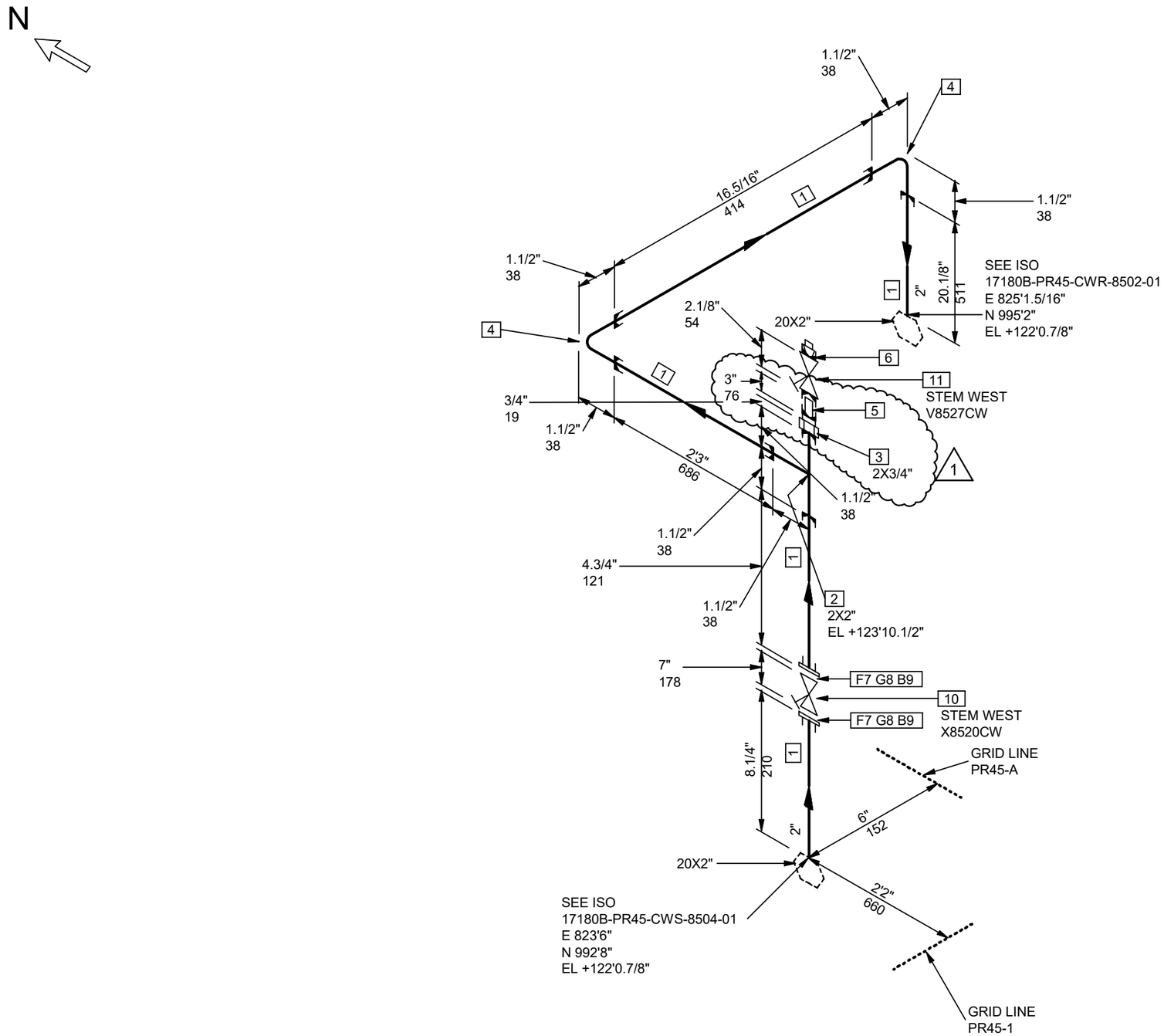
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR45-CWR-8502-01
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , MTE , ASTM A106-B , SMLS , S-80	2	6.4'
	ERECTION		
2	Tee , ASME B16.3 , CL300 , FTE , ASTM A197	2X2	1
3	Hex Head Bushing , ASME B16.14 , FTE x MTE , ASTM A197	2X3/4	1
4	90 Deg Elbow , ASME B16.3 , CL300 , FTE , ASTM A197	2	2
5	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ei=1.00 , S-80 , S-80	3/4	1
6	SQ Head Plug , ASME B16.14 , MTE , ASTM A197	3/4	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	2
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
10	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
11	Gate Vlv , API 602 , CL800 , FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8NAE	3/4	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/28/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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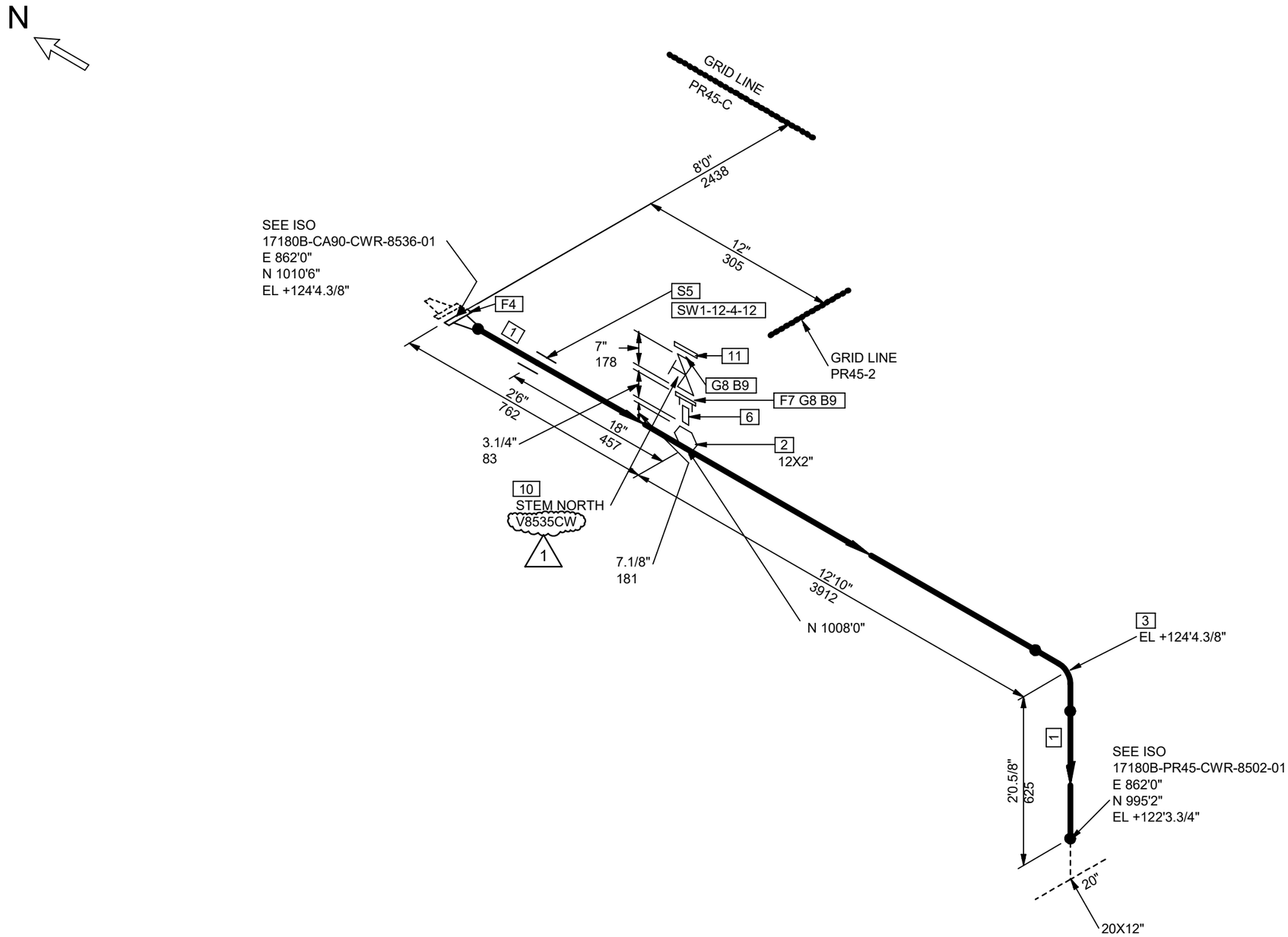
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-CWR-8521-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	14.1'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	PIPE SUPPORTS		
5	SW1-12-4-12	12	1
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
10	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
11	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8503		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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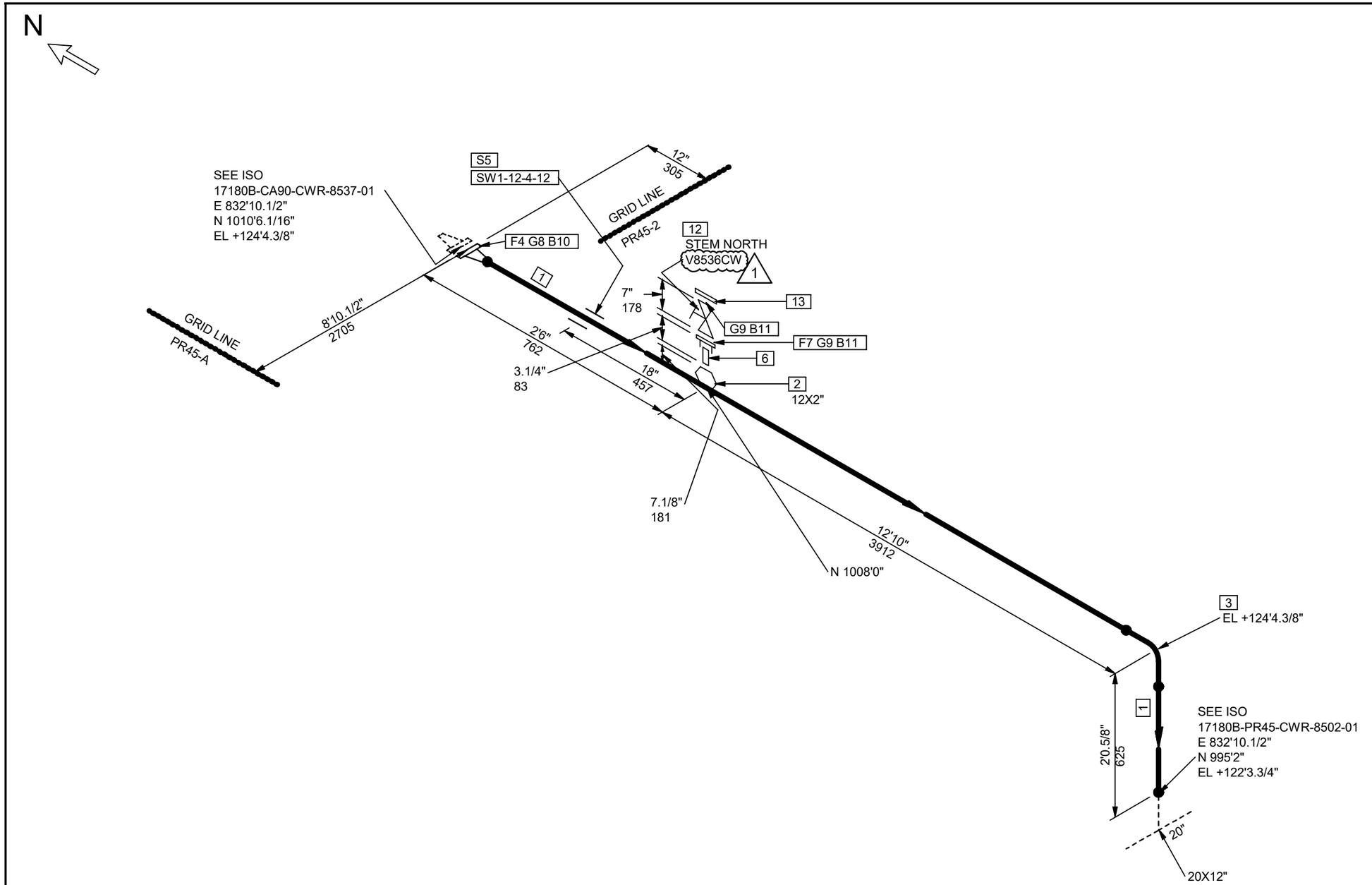
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-CWR-8536-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	14.1'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	PIPE SUPPORTS		
5	SW1-12-4-12	12	1
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
12	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
13	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8503		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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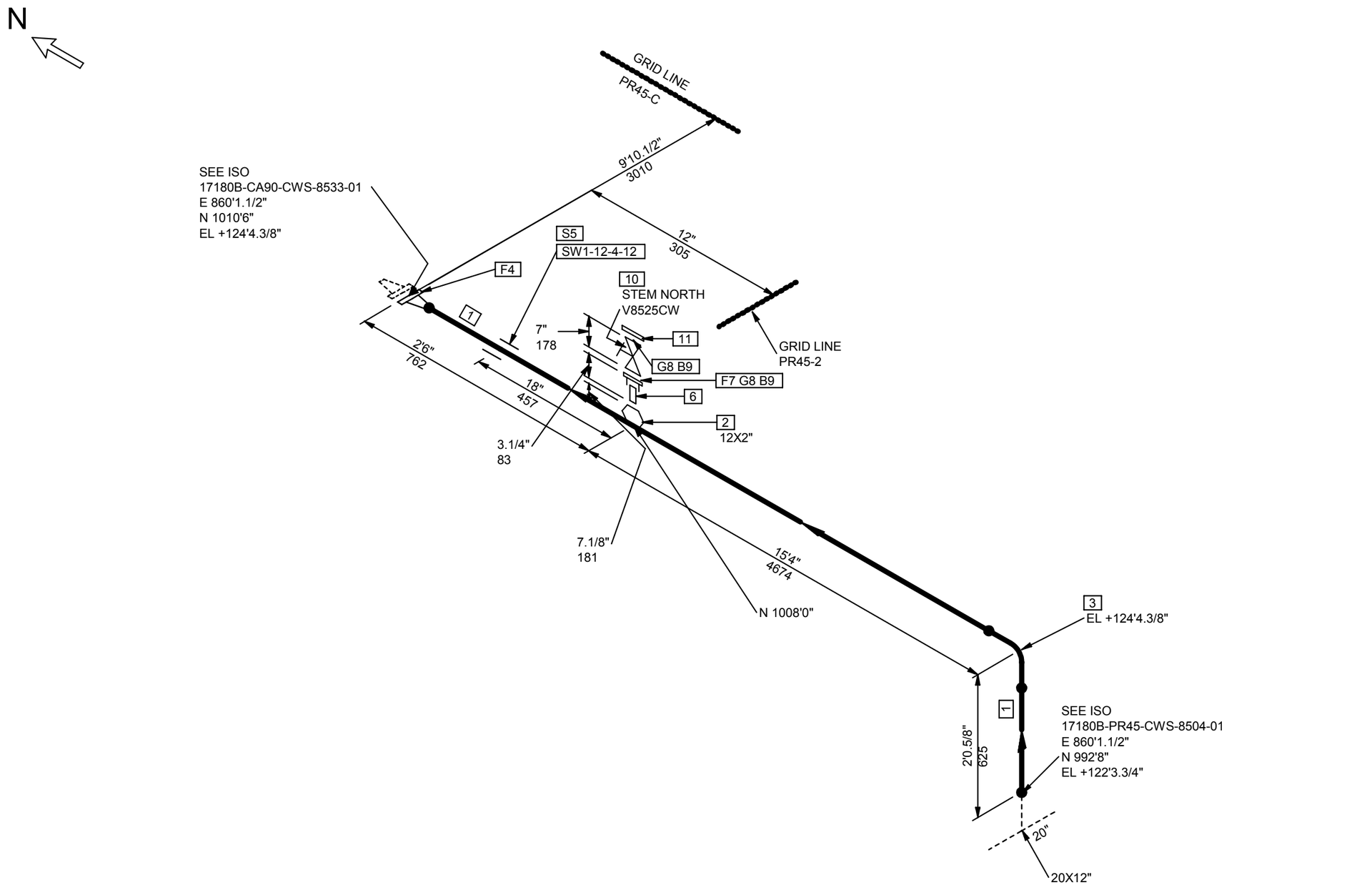
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-CWR-8537-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	16.6'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	PIPE SUPPORTS		
5	SW1-12-4-12	12	1
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
10	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
11	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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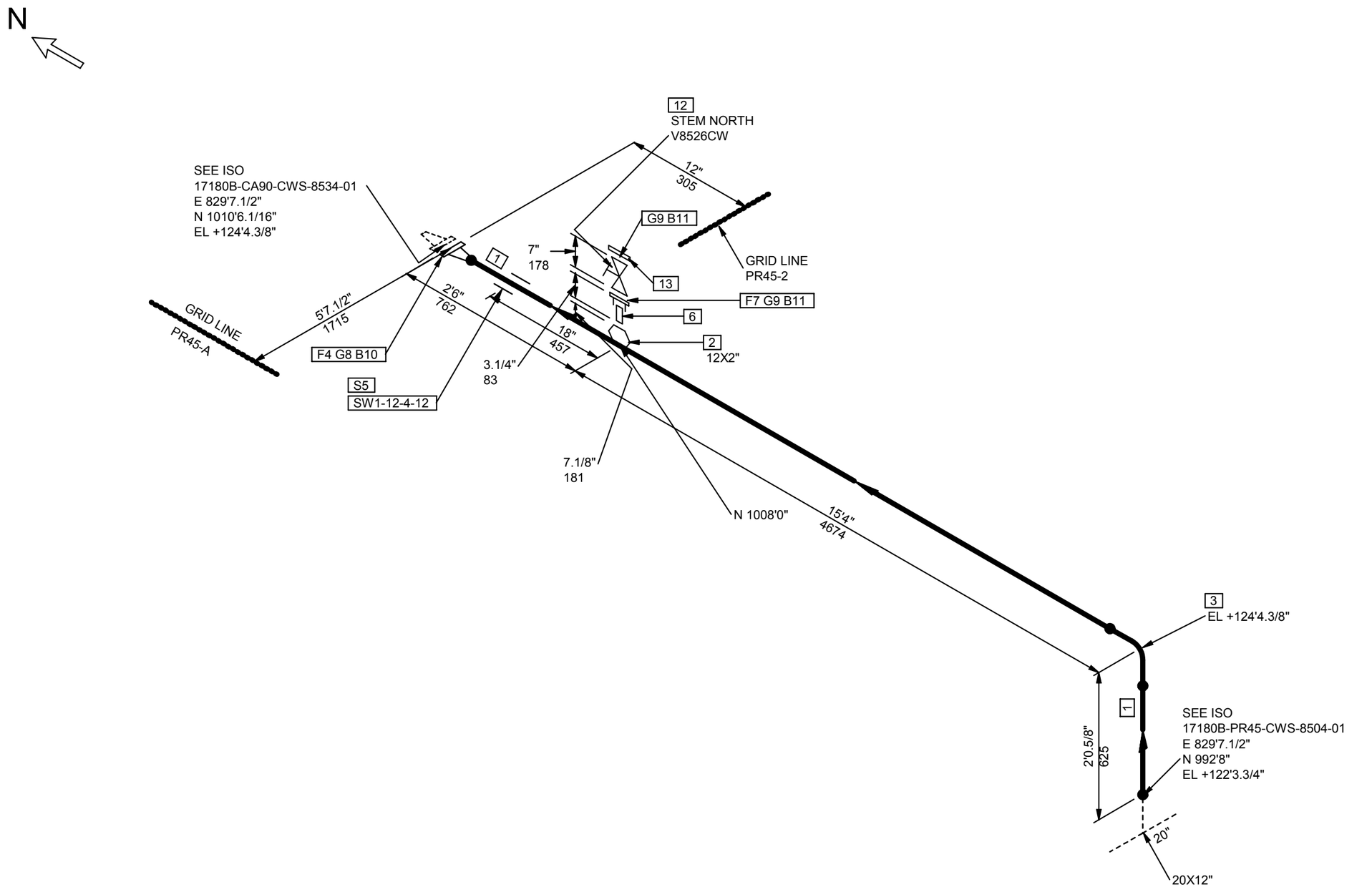
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-CWS-8533-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	12	16.6'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	12X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	12	1
4	WN Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-STD	12	1
	PIPE SUPPORTS		
5	SW1-12-4-12	12	1
	ERECTION		
6	Nipple , ASME B36.10 , MTE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-80 , S-80	2	1
7	Thrd Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	12	1
9	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	2
10	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	7/8	12
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	8
12	Gate Vlv , API 602 , CL150 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G1FAE	2	1
13	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-8502		
PIPE SPEC	HCS125U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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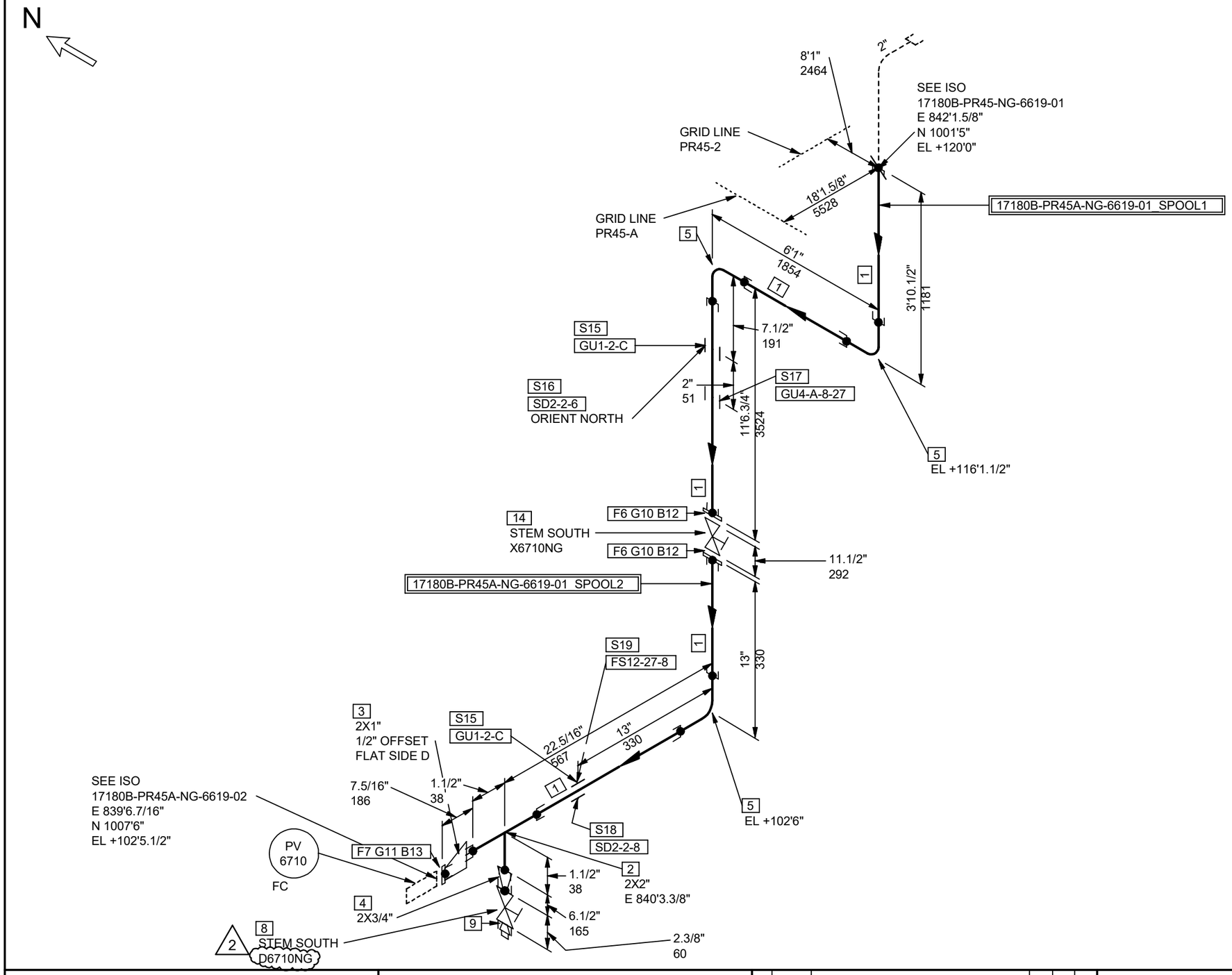
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-CWS-8534-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	23.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
4	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
6	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	2	2
7	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
10	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 4.5 in. Length	5/8	16
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 3.75 in. Length	5/8	4
14	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	2	1
	PIPE SUPPORTS		
15	GU1-2-C	2	2
16	SD2-2-6	2	1
17	GU4-A-8-27	2	1
18	SD2-2-8	2	1
19	FS12-27-8	2	1

17180B-PR45A-NG-6619-01_SPOOL1 17180B-PR45A-NG-6619-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
1	10/22/2019	RE-ISSUED FOR CONSTRUCTION	KJN	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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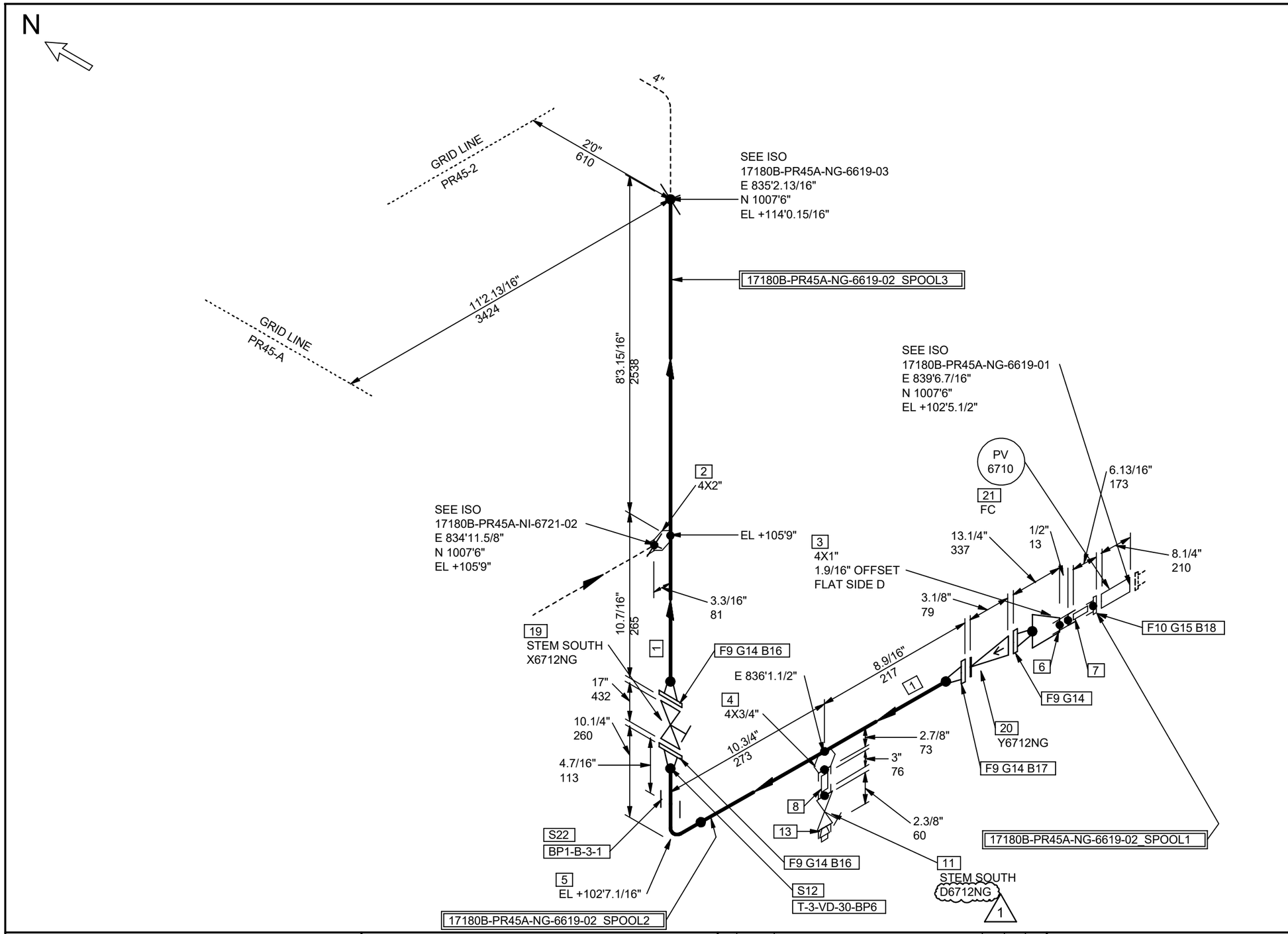
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NG-6619-01	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-80	4	9.6'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X2	1
3	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WPB , SMLS , S-80 , S-160	4X1	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-80 , S-80	4	1
6	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
8	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	4	4
10	SW Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-80	1	1
11	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	PIPE SUPPORTS		
12	T-3-VD-30-BP6	4	1
	ERECTION		
13	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
14	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	4	4
15	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1	1
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 6 in. Length	7/8	16
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 9.25 in. Length	7/8	8
18	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 3.75 in. Length	5/8	4
19	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 8 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FAE	4	1
20	Check Vlv Swing , API 594 , CL600 , RFTBE , Wafer , ASTM A216-WCB , Trim 12 , INCONEL X-750 SPRING, PRAXAIR V-G1, SEAL WELDED PLUGS , C6WAH	4	1
	INSTRUMENTS		
21	PV-6710	1	1
	PIPE SUPPORTS		
22	BP1-B-3-1	4	1

17180B-PR45A-NG-6619-02_SPOOL1 17180B-PR45A-NG-6619-02_SPOOL2
17180B-PR45A-NG-6619-02_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	ABH	NNR	MLO
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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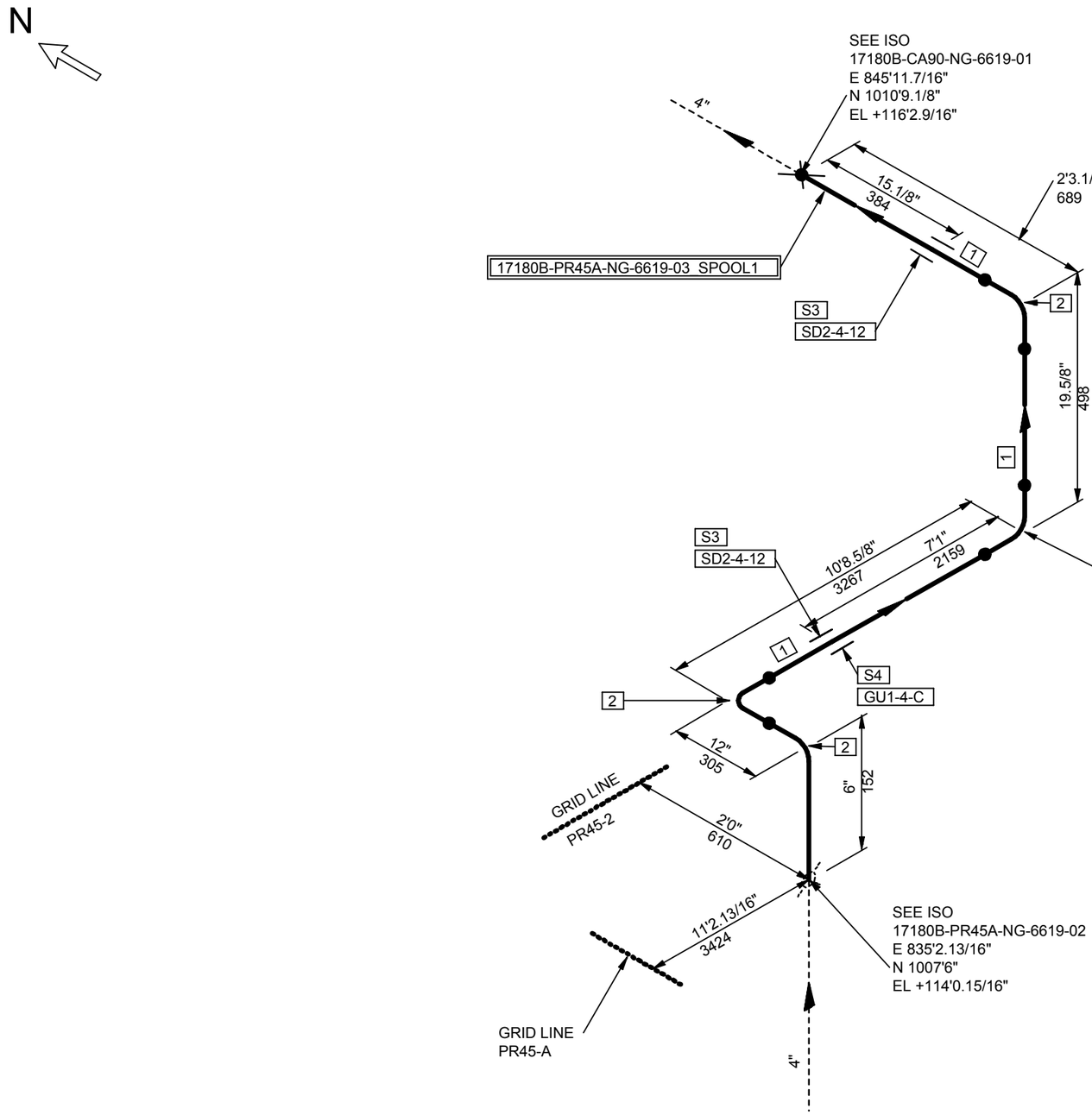
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NG-6619-02	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-80	4	12.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-80 , S-80	4	4
ERECTION			
PIPE SUPPORTS			
3	SD2-4-12	4	2
4	GU1-4-C	4	1

17180B-PR45A-NG-6619-03_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

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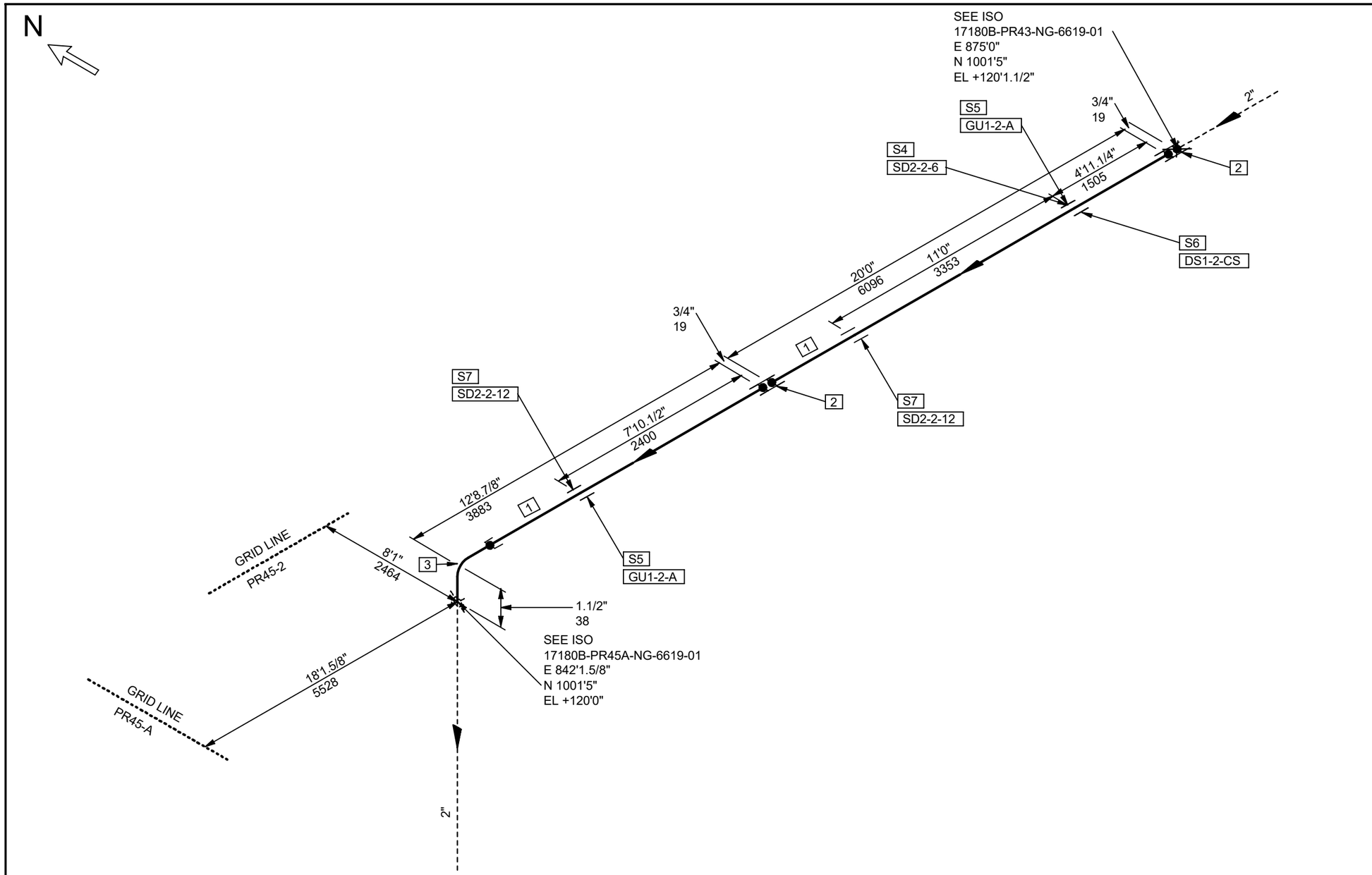
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-NG-6619-03	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	32.7'
2	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
	ERECTION		
	PIPE SUPPORTS		
4	SD2-2-6	2	1
5	GU1-2-A	2	2
6	DS1-2-CS	2	1
7	SD2-2-12	2	2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS600P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/22/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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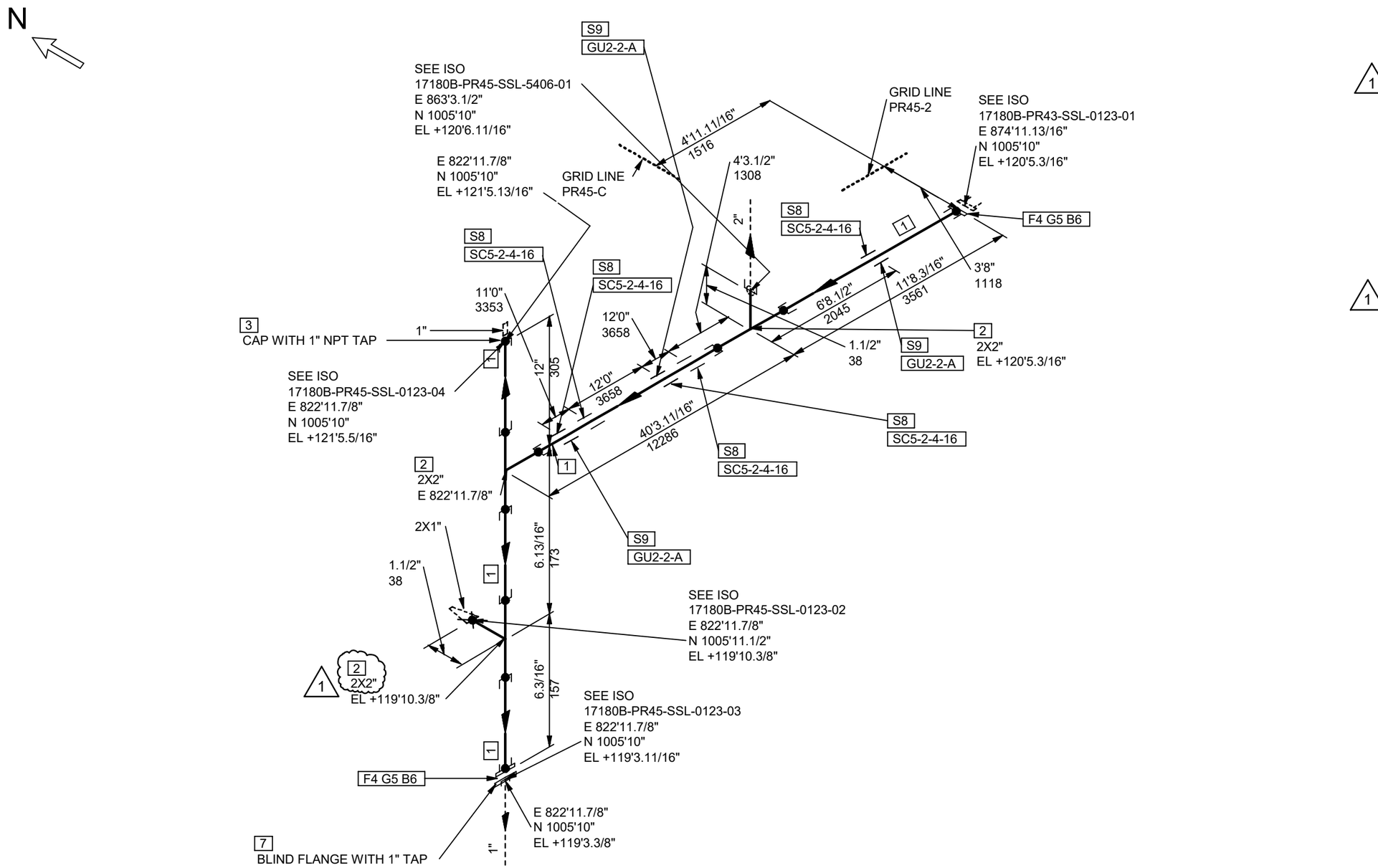
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-NG-6619-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	53.2'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	3
3	Cap , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
5	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	8
7	Blind Flg , ASME B16.5 , CL150 , RF , ASTM A105N	2	1
	PIPE SUPPORTS		
8	SC5-2-4-16	2	5
9	GU2-2-A	2	3

1

1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/21/2019	ISSUED AS MARKED	SRS	NNR	MLO
0	08/02/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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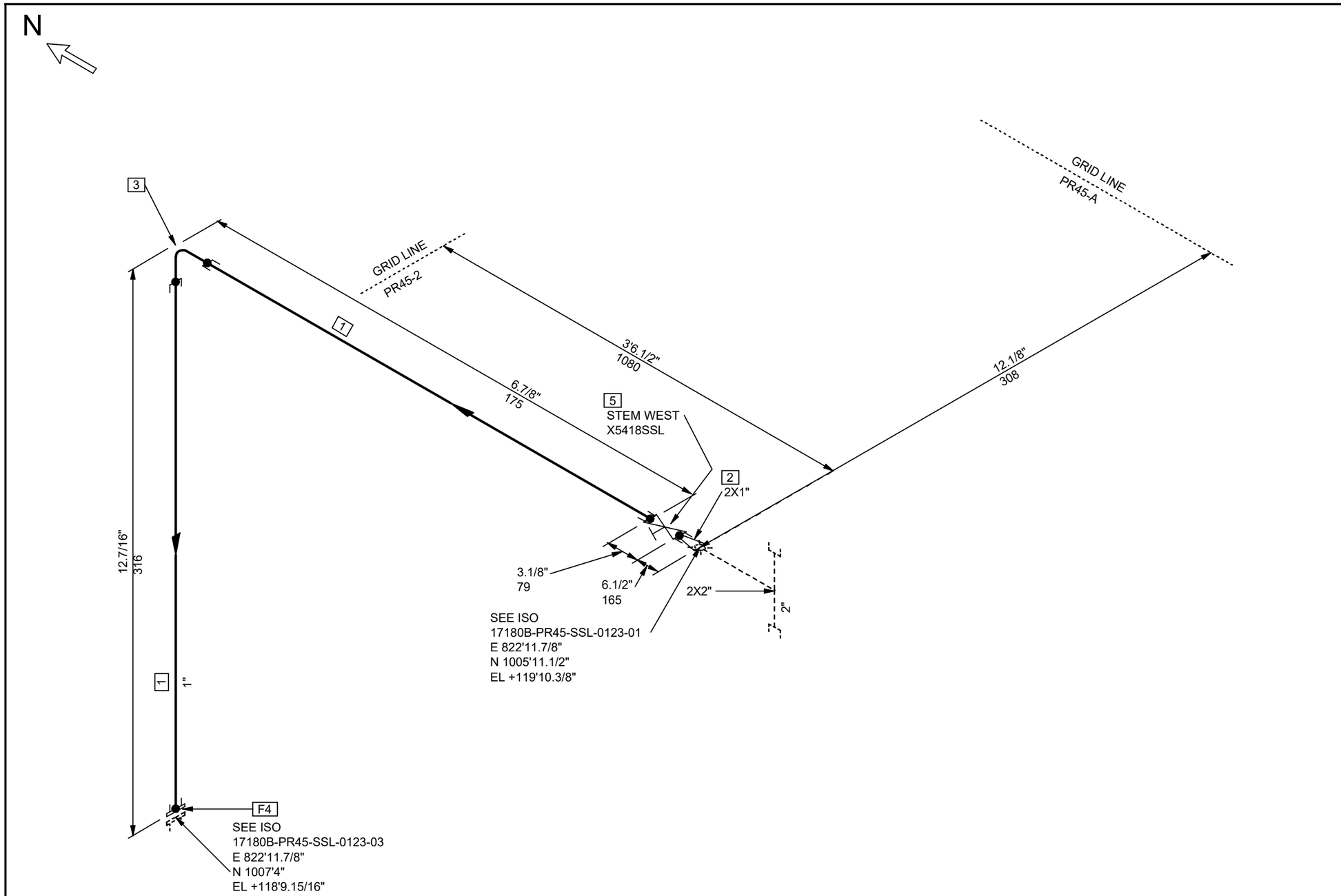
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-SSL-0123-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	1.5'
2	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X1	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1	1
5	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	1	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/20/2019	ISSUED FOR CONSTRUCTION	KJN	PVK	MLO

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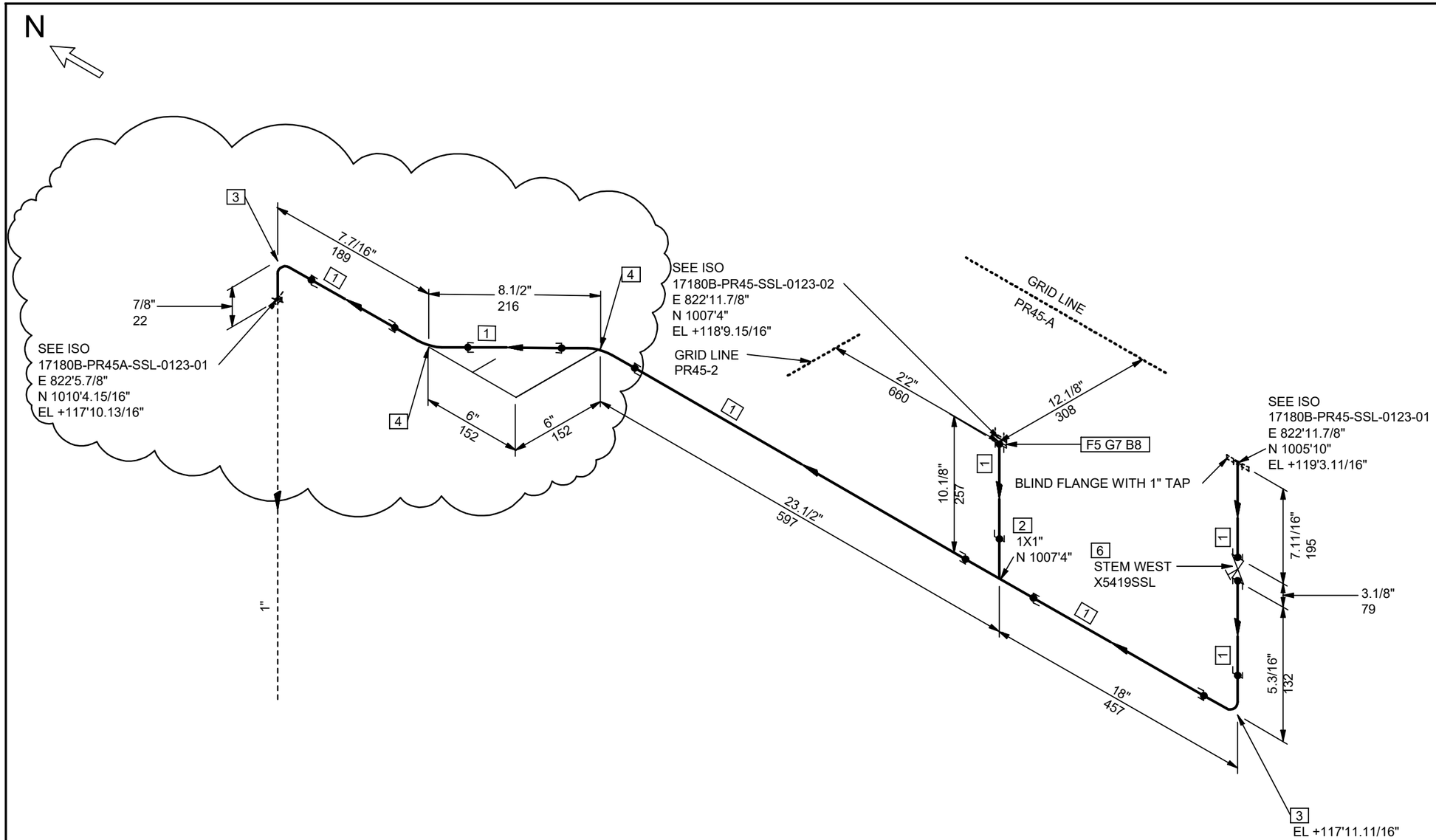
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-SSL-0123-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	6.1'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	1X1	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	2
4	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	2
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1	1
6	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	1	1
	ERECTION		
7	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	4

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/18/2019	ISSUED AS MARKED	SBD	NNR	MLO
0	09/20/2019	ISSUED FOR CONSTRUCTION	KJN	NNR	MLO

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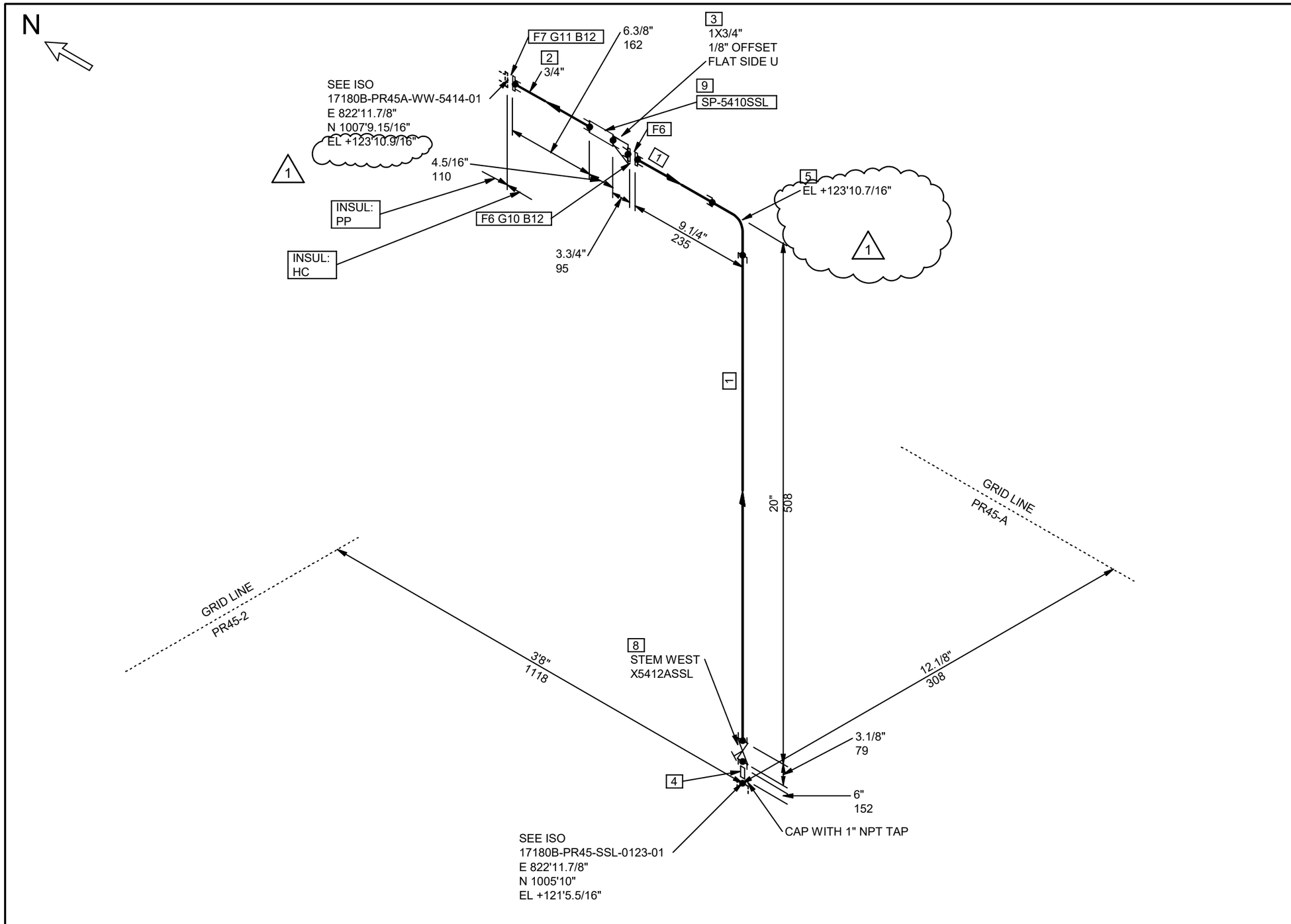
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR45-SSL-0123-03
REV:	1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	1	2.3'
2	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	3/4	0.6'
3	Ecc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	1X3/4	1
4	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	1	1
5	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	1	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	1	2
7	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	3/4	1
8	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	1	1
	SPECIALTY ITEMS		
9	SP-5410SSL	3/4	1
	ERECTION		
10	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	1	1
11	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	3/4	1
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 2.75 in. Length	1/2	8

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-0102		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/25/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	10/11/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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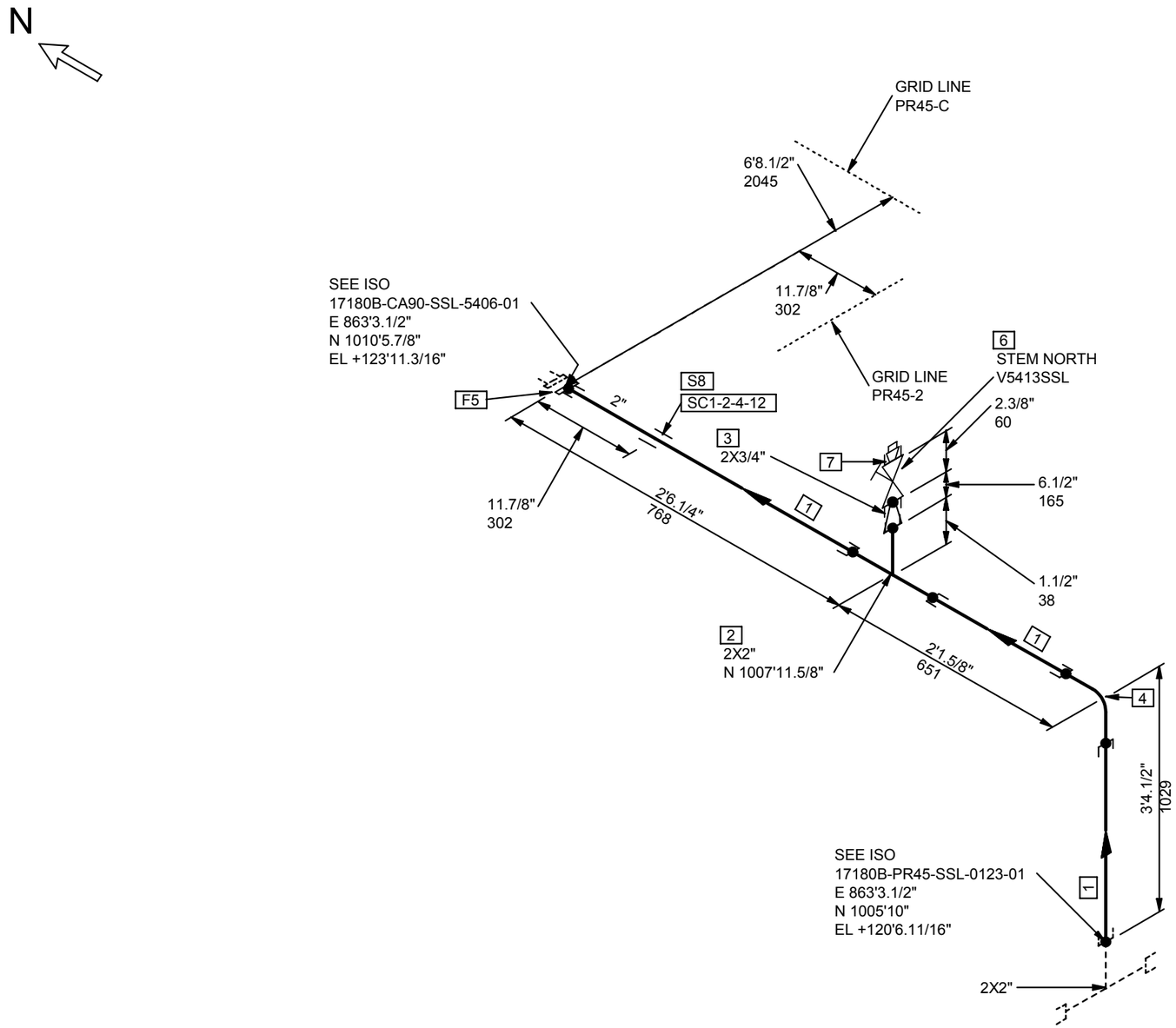
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-SSL-0123-04	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	7.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAC	3/4	1
	ERECTION		
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
	PIPE SUPPORTS		
8	SC1-2-4-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5401		
PIPE SPEC	HCS150P2	HEAT TRACE	N
INSULATION TYPE	HC	INSULATION THICKNESS	1 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	07/25/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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Houston, Texas 77079
Tel 713.270.3100

LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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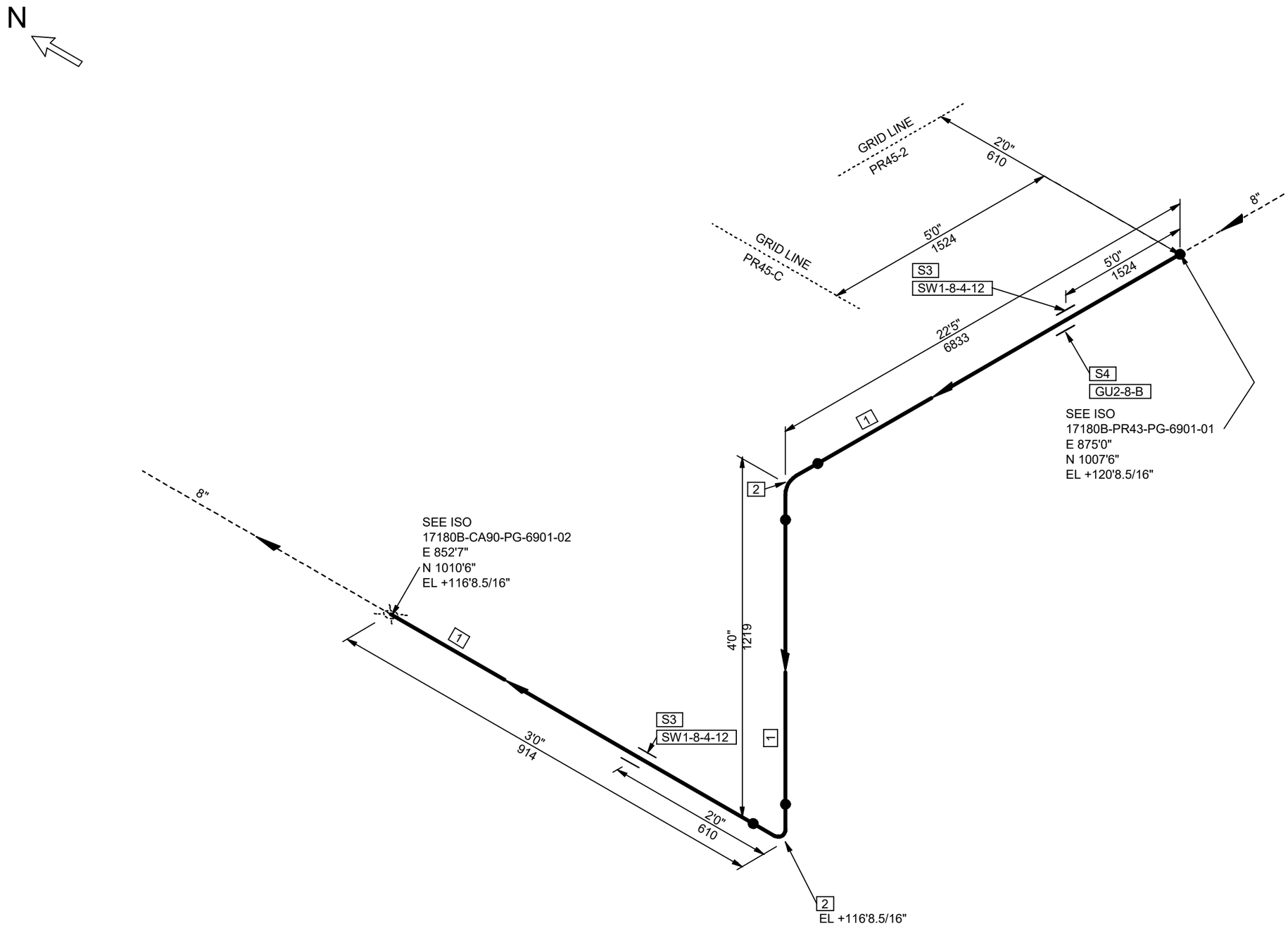
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-SSL-5406-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-STD	8	25.5'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-STD , S-STD	8	2
	PIPE SUPPORTS		
3	SW1-8-4-12	8	2
	ERECTION		
	PIPE SUPPORTS		
4	GU2-8-B	8	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6902		
PIPE SPEC	HCS150P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/04/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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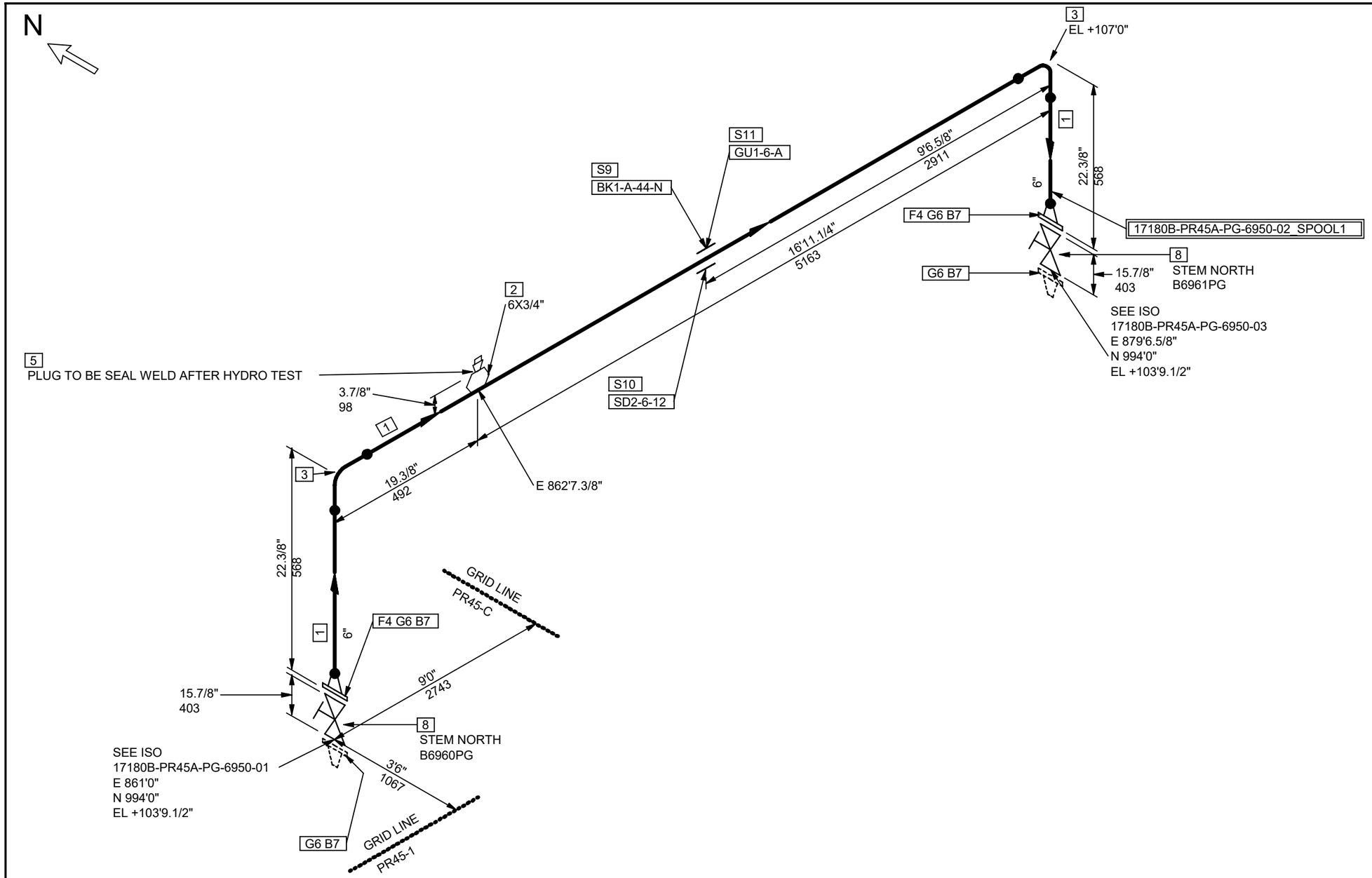
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PG-6901-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	18.7'
2	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	2
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	2
	ERECTION		
5	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
6	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	4
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	48
8	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	2
	PIPE SUPPORTS		
9	BK1-A-44-N	6	1
10	SD2-6-12	6	1
11	GU1-6-A	6	1

17180B-PR45A-PG-6950-02_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/0112019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

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Tel 713.270.3100

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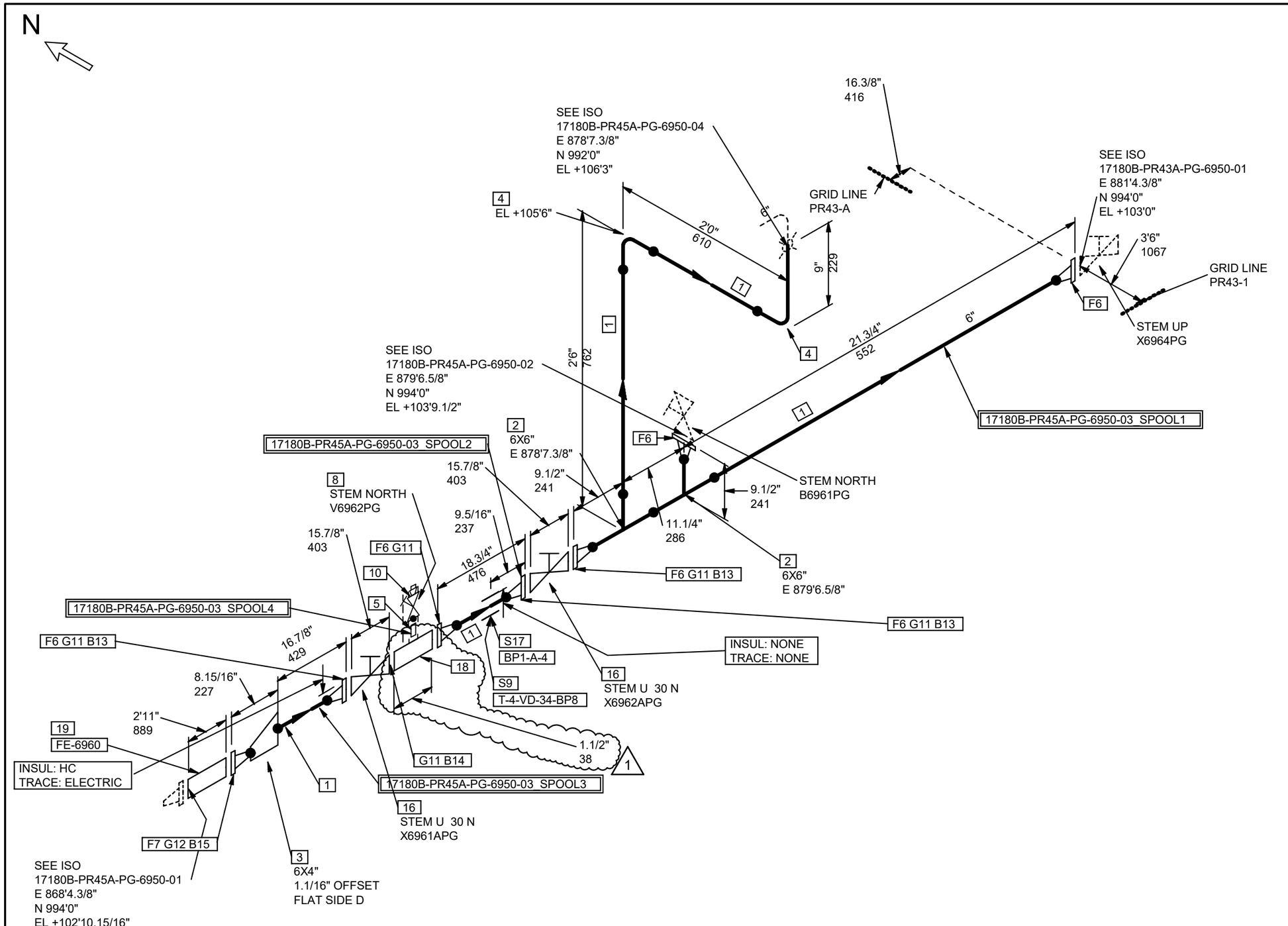
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6950-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	4.9'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X6	2
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	2
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	6
7	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	4	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
9	T-4-VD-34-BP8	6	1
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
11	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	5
12	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	36
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.75 in. Length	3/4	12
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	3/4	8
16	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	2
	PIPE SUPPORTS		
17	BP1-A-4	6	1
	SPECIALTY ITEMS		
18	Bleed Ring 0.75" SW , Welding Outlets Inc. , CL300 , FFTBE , ASTM A516 Grade 70	6	1
19	FE-6960	4	1

17180B-PR45A-PG-6950-03_SPOOL1 17180B-PR45A-PG-6950-03_SPOOL2
17180B-PR45A-PG-6950-03_SPOOL3 17180B-PR45A-PG-6950-03_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	06/23/2020	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	10/11/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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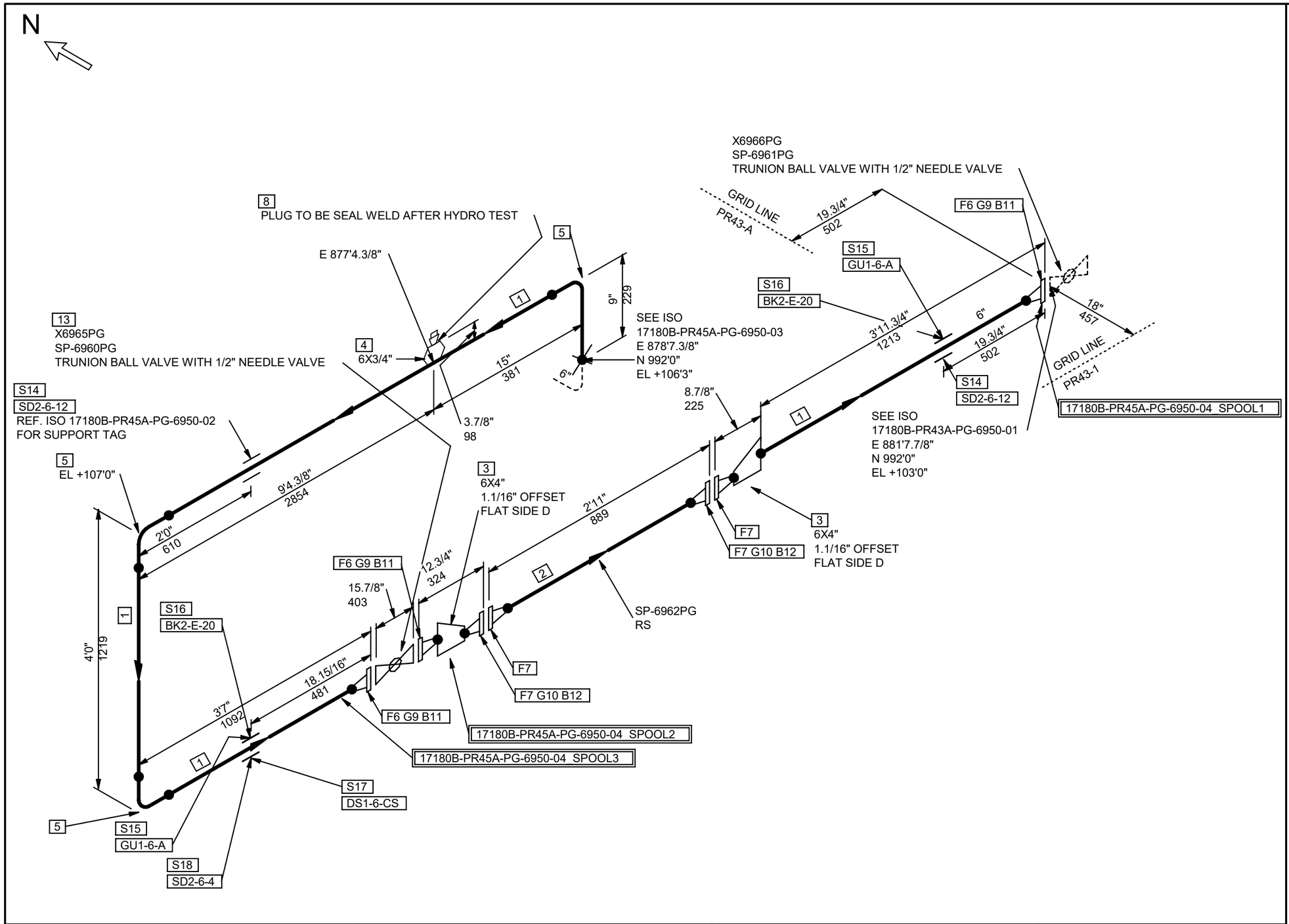
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6950-03	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	17.8'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	4	2.4'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X4	2
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	6X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	3
6	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	3
7	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	4	4
	ERECTION		
8	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
9	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	3
10	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	2
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	36
12	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	3/4	16
13	Ball Vlv Trunnion , API 6D , CL300 , RFFE , 3 Piece Bolted , Bevel Gear Operator , ASTM A350 Grade LF2 Class 2 , GLASS REIN PTFE SEAT, VITON A SEAL, CSENP TRIM, FULL PORT , NACE, FIRE TESTED W/SEALS, W/ BLEED VALVE ASSY, PRAXAIR GUIDELINE V-G1	6	1
	PIPE SUPPORTS		
14	SD2-6-12	6	2
15	GU1-6-A	6	2
16	BK2-E-20	6	2
17	DS1-6-CS	6	1
18	SD2-6-4	6	1

17180B-PR45A-PG-6950-04_SPOOL1 17180B-PR45A-PG-6950-04_SPOOL2
17180B-PR45A-PG-6950-04_SPOOL3

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/04/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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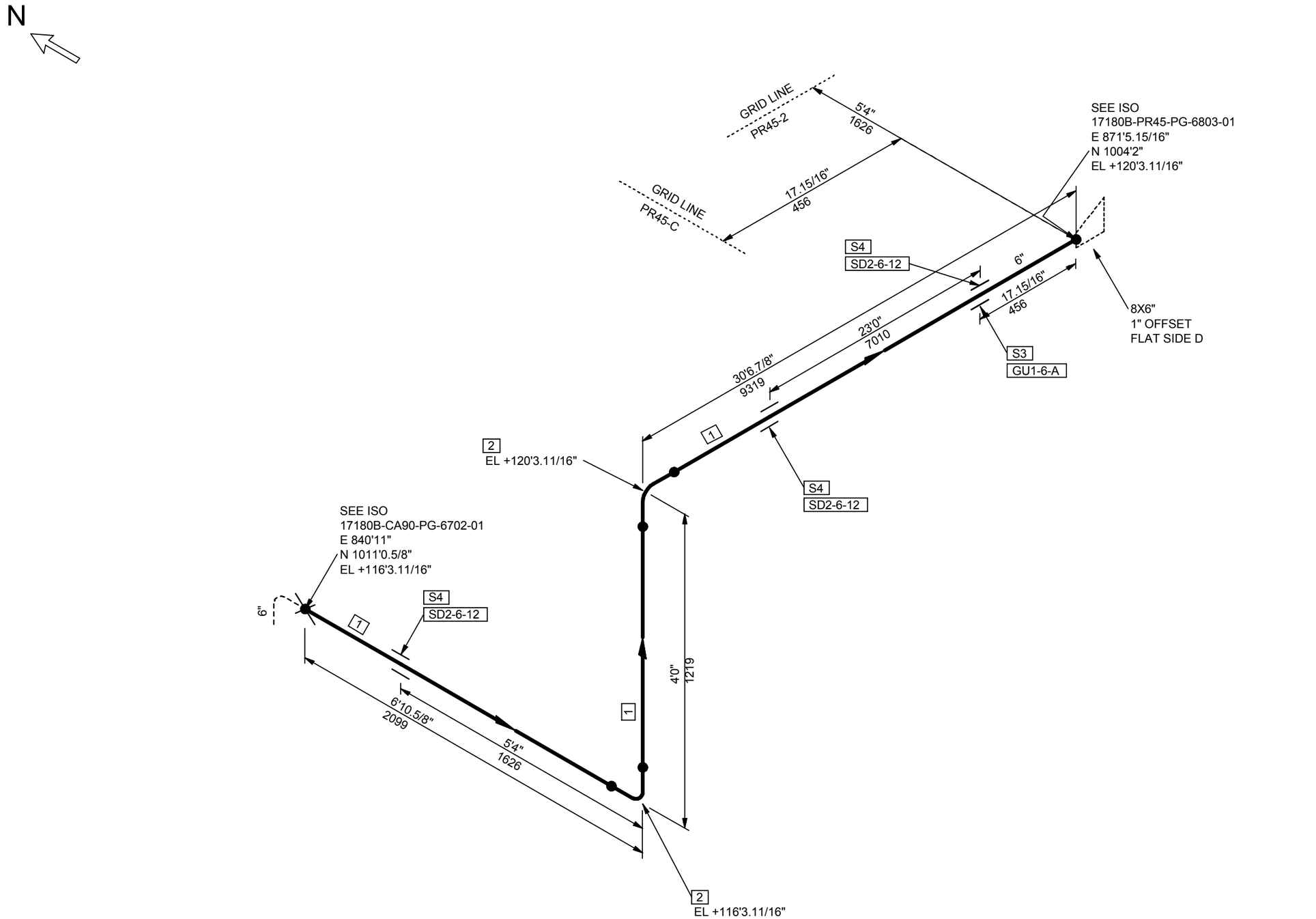
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6950-04	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	38.5'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	2
	ERECTION		
	PIPE SUPPORTS		
3	GU1-6-A	6	1
4	SD2-6-12	6	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/20/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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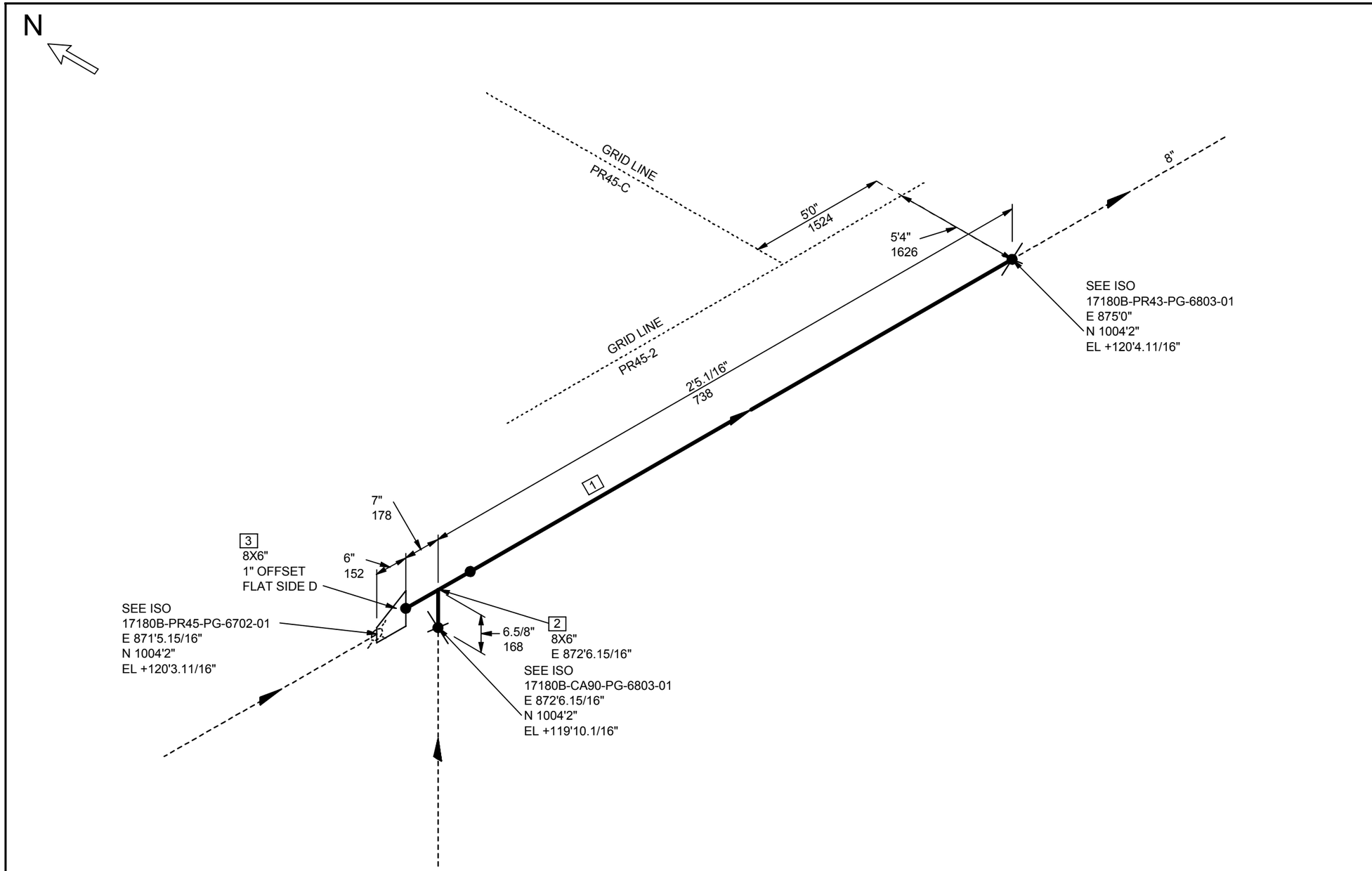
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PG-6702-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	8	1.9'
2	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	8X6	1
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	8X6	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/28/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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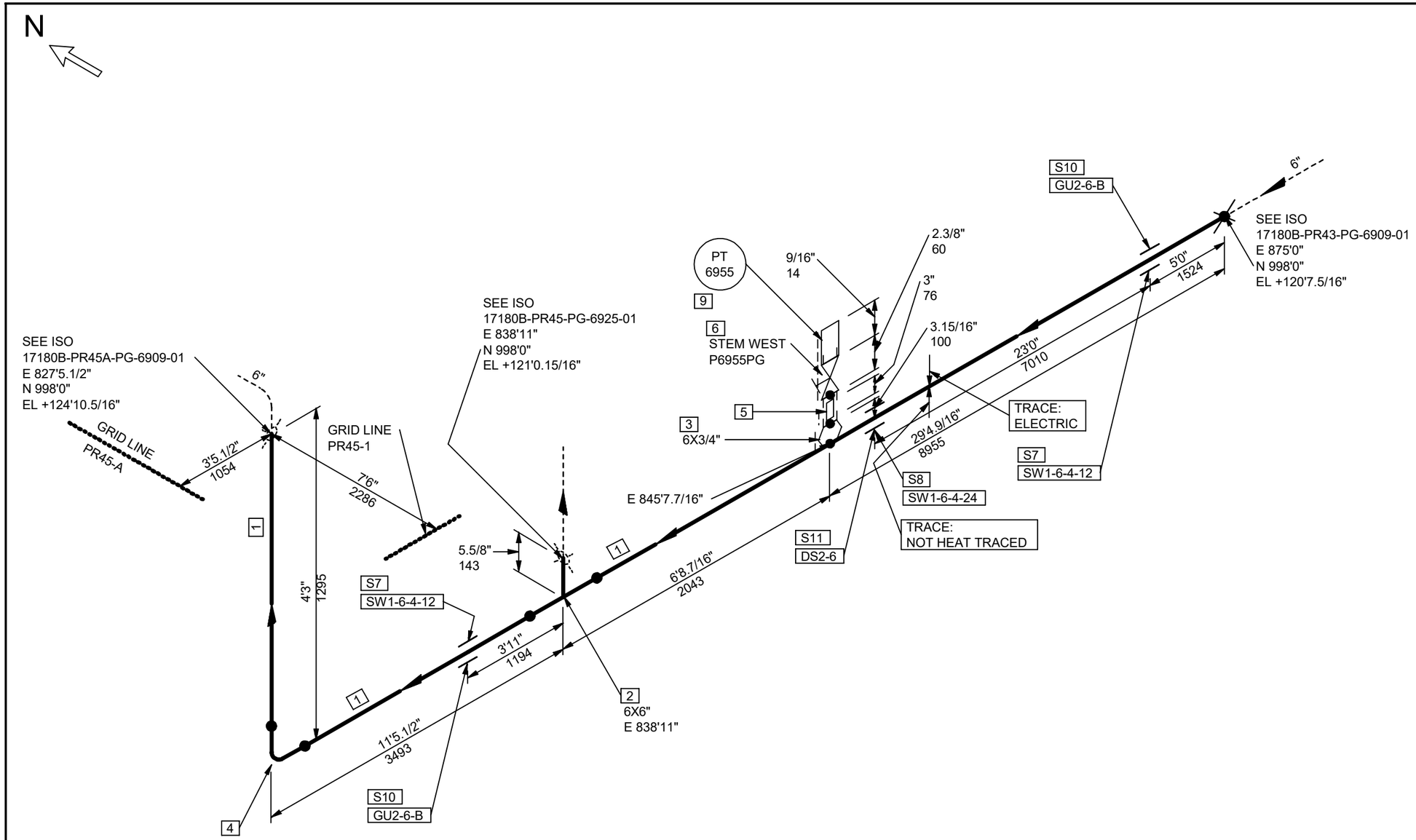
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PG-6803-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	49.4'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X6	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	1
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
7	SW1-6-4-12	6	2
8	SW1-6-4-24	6	1
	ERECTION		
	INSTRUMENTS		
9	PT-6955	3/4	1
	PIPE SUPPORTS		
10	GU2-6-B	6	2
11	DS2-6	6	1

LEGEND:

- ● = SHOP WELD
- ⊠ = FIELD WELD
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/04/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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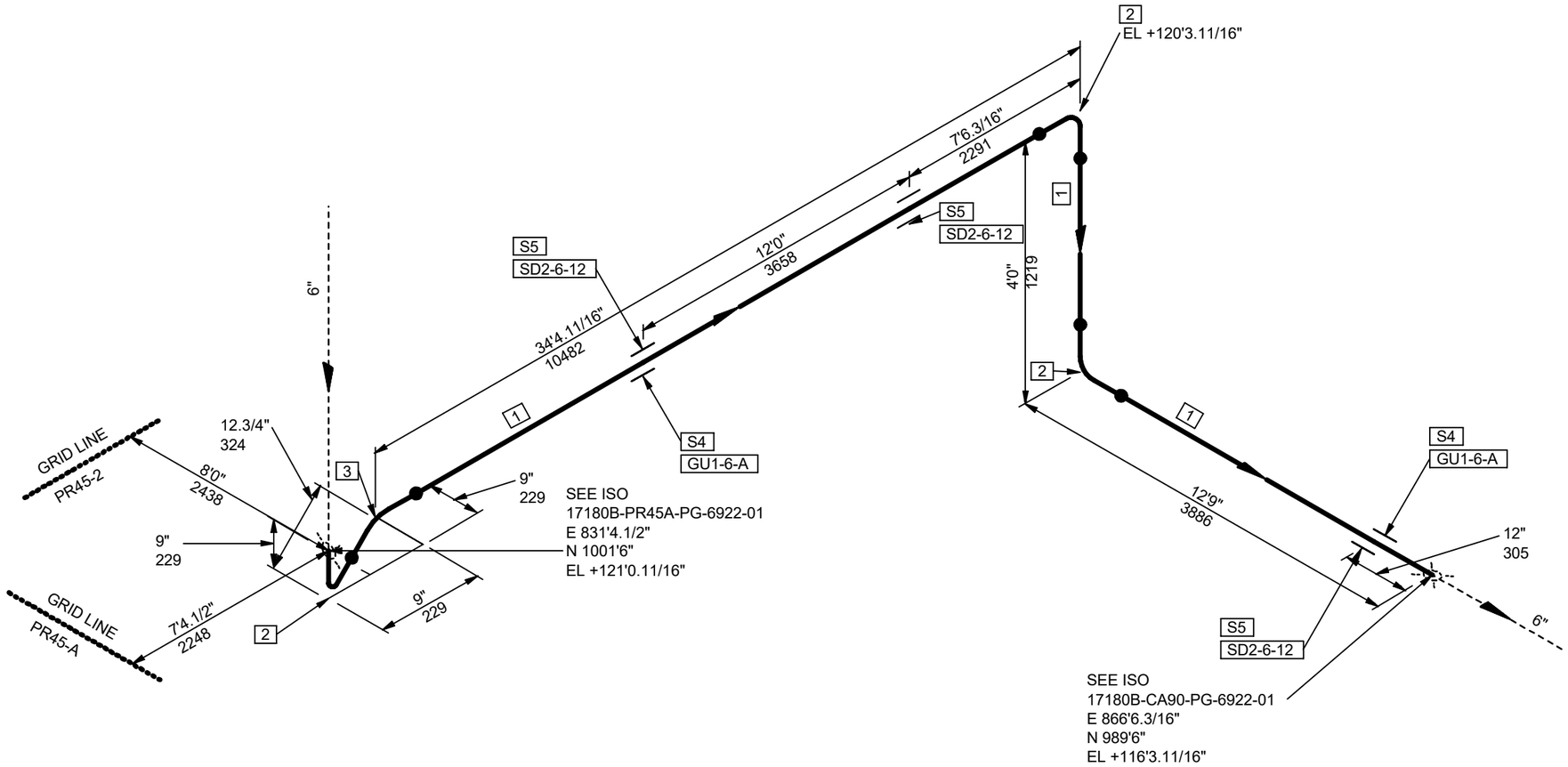
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PG-6909-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	47.9'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	3
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	1
ERECTION			
PIPE SUPPORTS			
4	GU1-6-A	6	2
5	SD2-6-12	6	3

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/20/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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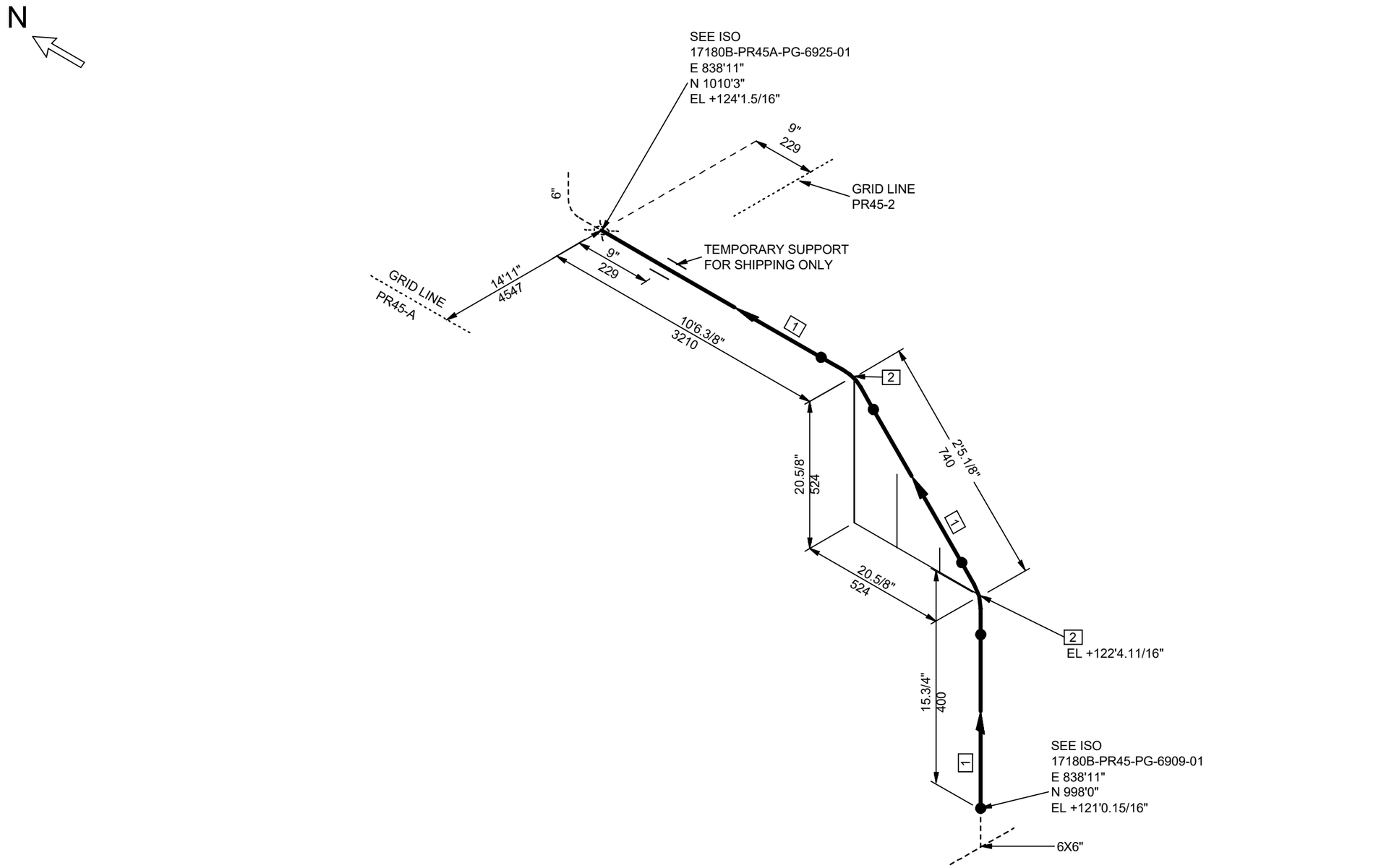
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PG-6922-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	13.1'
2	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/10/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

PRAXAIR

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IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

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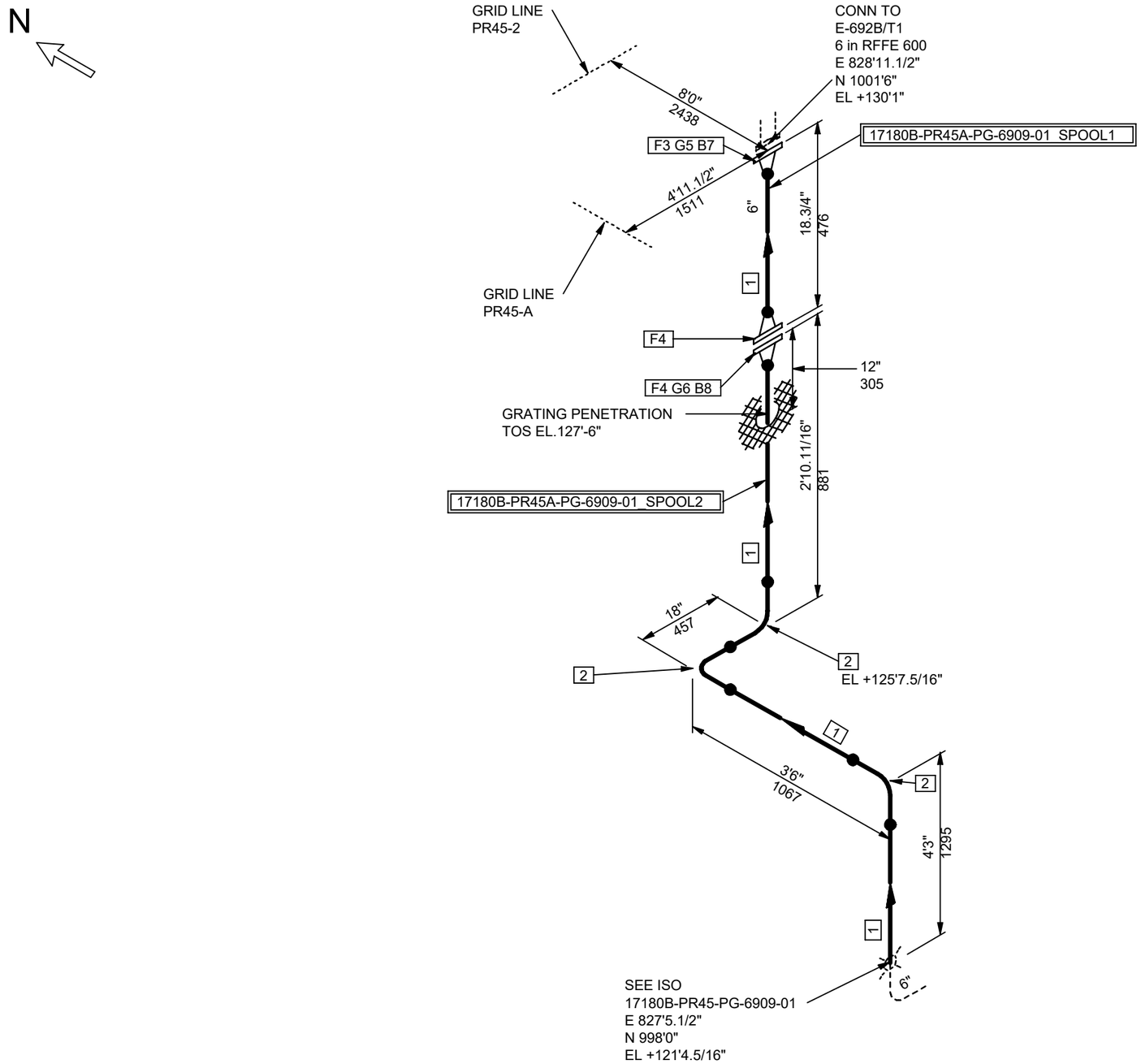
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PG-6925-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	8.2'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	3
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-40	6	1
4	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	2
ERECTION			
5	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	6	1
6	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	1
7	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7 in. Length	1	12
8	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	12

17180B-PR45A-PG-6909-01_SPOOL1 17180B-PR45A-PG-6909-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6904		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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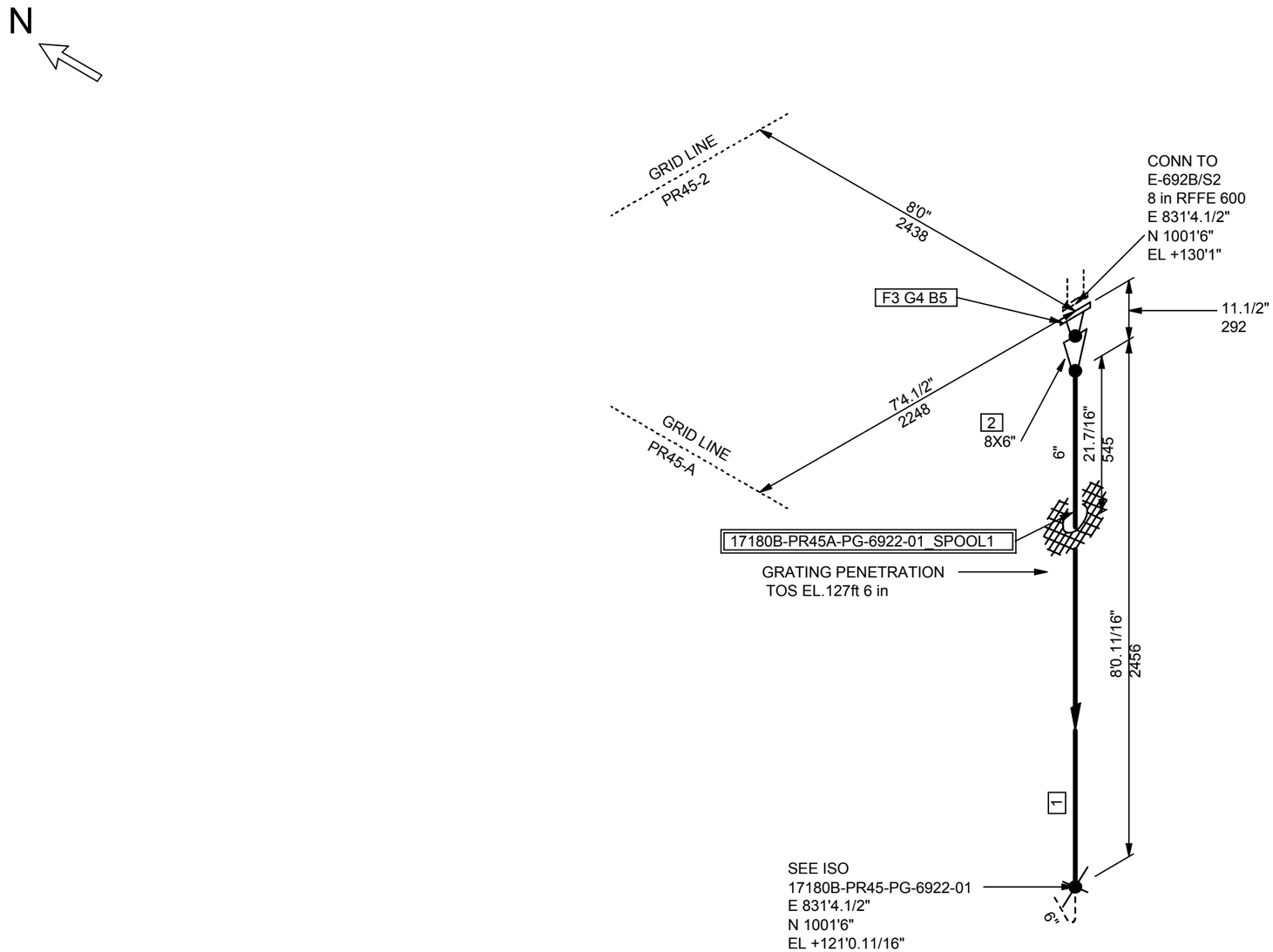
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6909-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	8.1'
2	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	8X6	1
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-40	8	1
ERECTION			
4	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
5	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.75 in. Length	1.1/8	12

17180B-PR45A-PG-6922-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/20/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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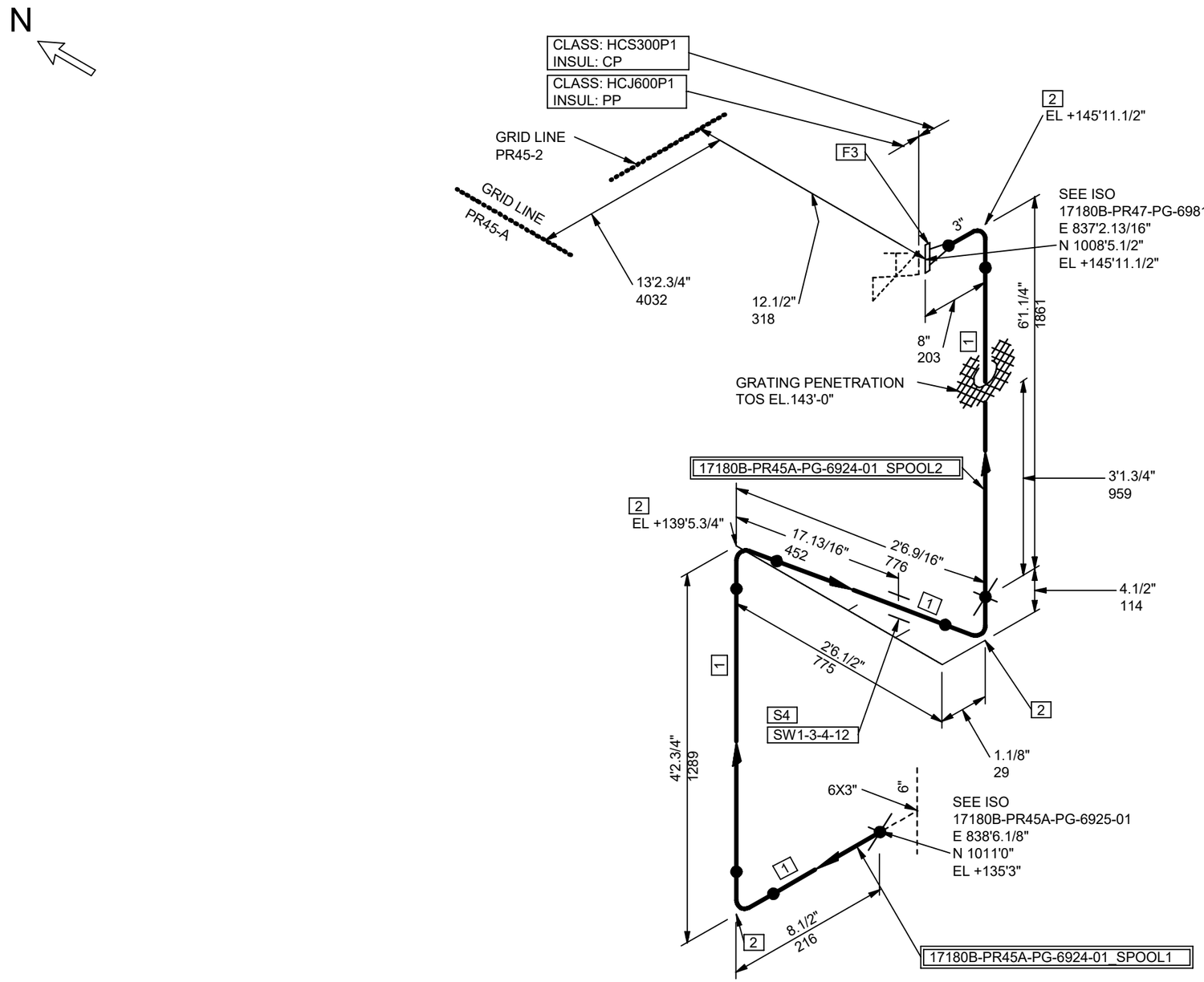
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6922-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	3	11.4'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	3	4
3	WN Flg , ASME B16.5 , CL600 , RF , ASTM A105N , S-40	3	1
PIPE SUPPORTS			
4	SW1-3-4-12	3	1

17180B-PR45A-PG-6924-01_SPOOL1 17180B-PR45A-PG-6924-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/15/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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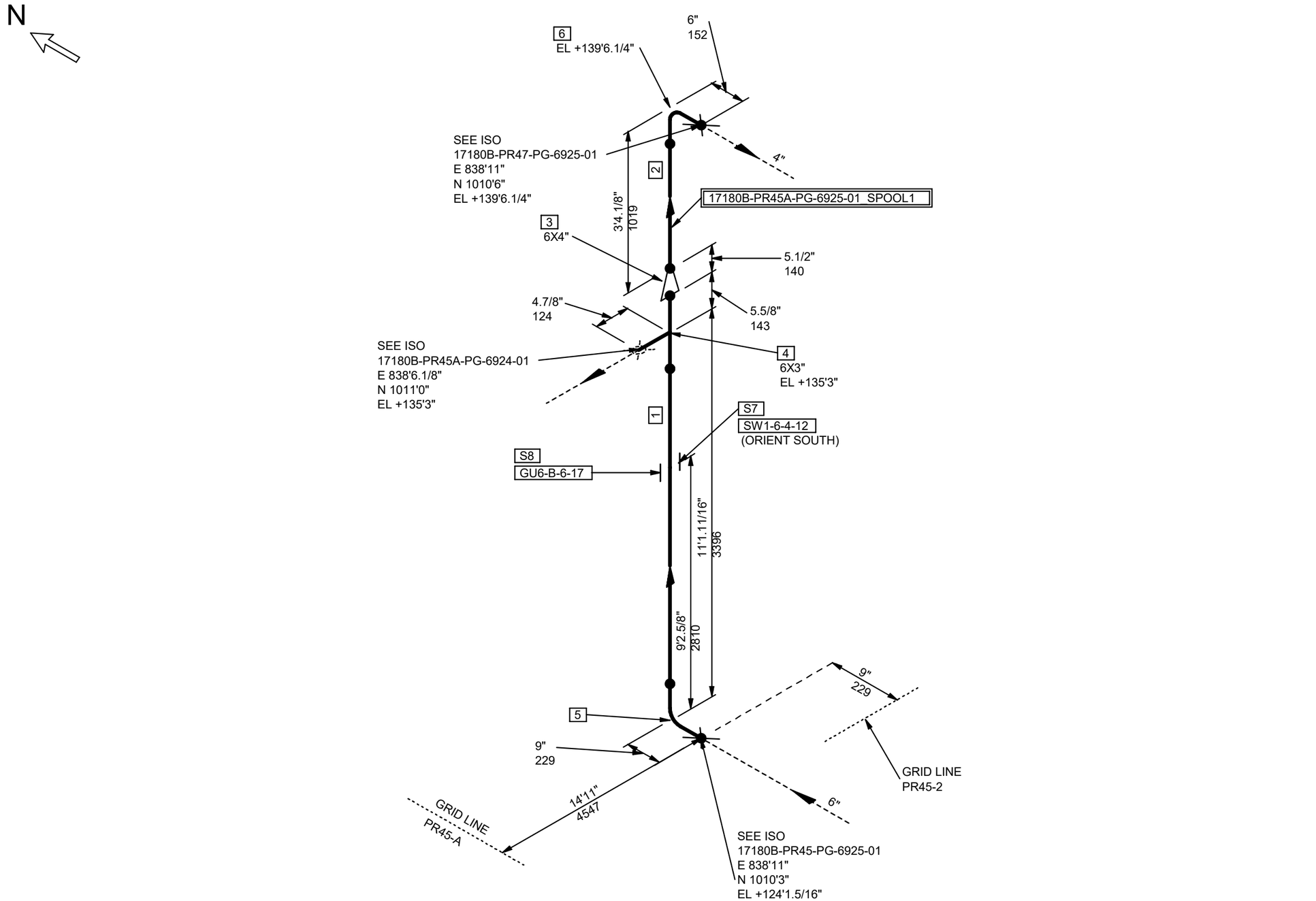
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6924-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	10.0'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	4	2.9'
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X4	1
4	Red. Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X3	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	4	1
PIPE SUPPORTS			
7	SW1-6-4-12	6	1
ERECTION			
PIPE SUPPORTS			
8	GU6-B-6-17	6	1

17180B-PR45A-PG-6925-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/18/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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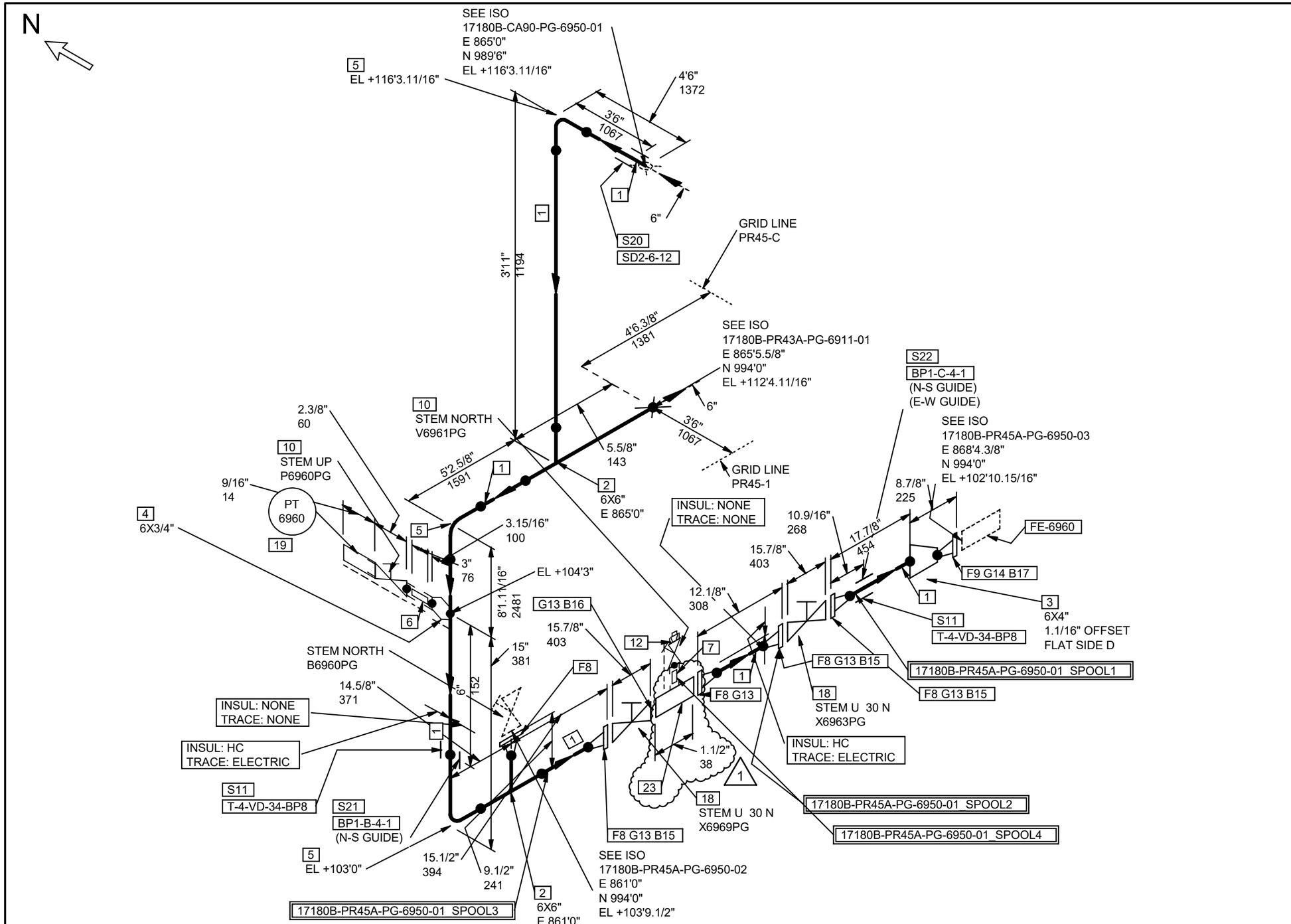
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026		SCALE: N.T.S.
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6925-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	6	20.4'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X6	2
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6X4	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	6X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	6	3
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
7	Nipple , ASME B36.10 , PE , ASTM A106-B , 6in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	6	5
9	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	4	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	2
	PIPE SUPPORTS		
11	T-4-VD-34-BP8	6	2
	ERECTION		
12	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
13	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	6	5
14	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	1
15	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 5 in. Length	3/4	36
16	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 6.75 in. Length	3/4	12
17	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	3/4	8
18	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	6	2
	INSTRUMENTS		
19	PT-6960	3/4	1
	PIPE SUPPORTS		
20	SD2-6-12	6	1
21	BP1-B-4-1	6	1
22	BP1-C-4-1	6	1
	SPECIALTY ITEMS		
23	Bleed Ring 0.75" SW , Welding Outlets Inc. , CL300 , FFTBE , ASTM A516 Grade 70	6	1

1

17180B-PR45A-PG-6950-01_SPOOL1
17180B-PR45A-PG-6950-01_SPOOL2
17180B-PR45A-PG-6950-01_SPOOL3
17180B-PR45A-PG-6950-01_SPOOL4

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	06/23/2020	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	10/11/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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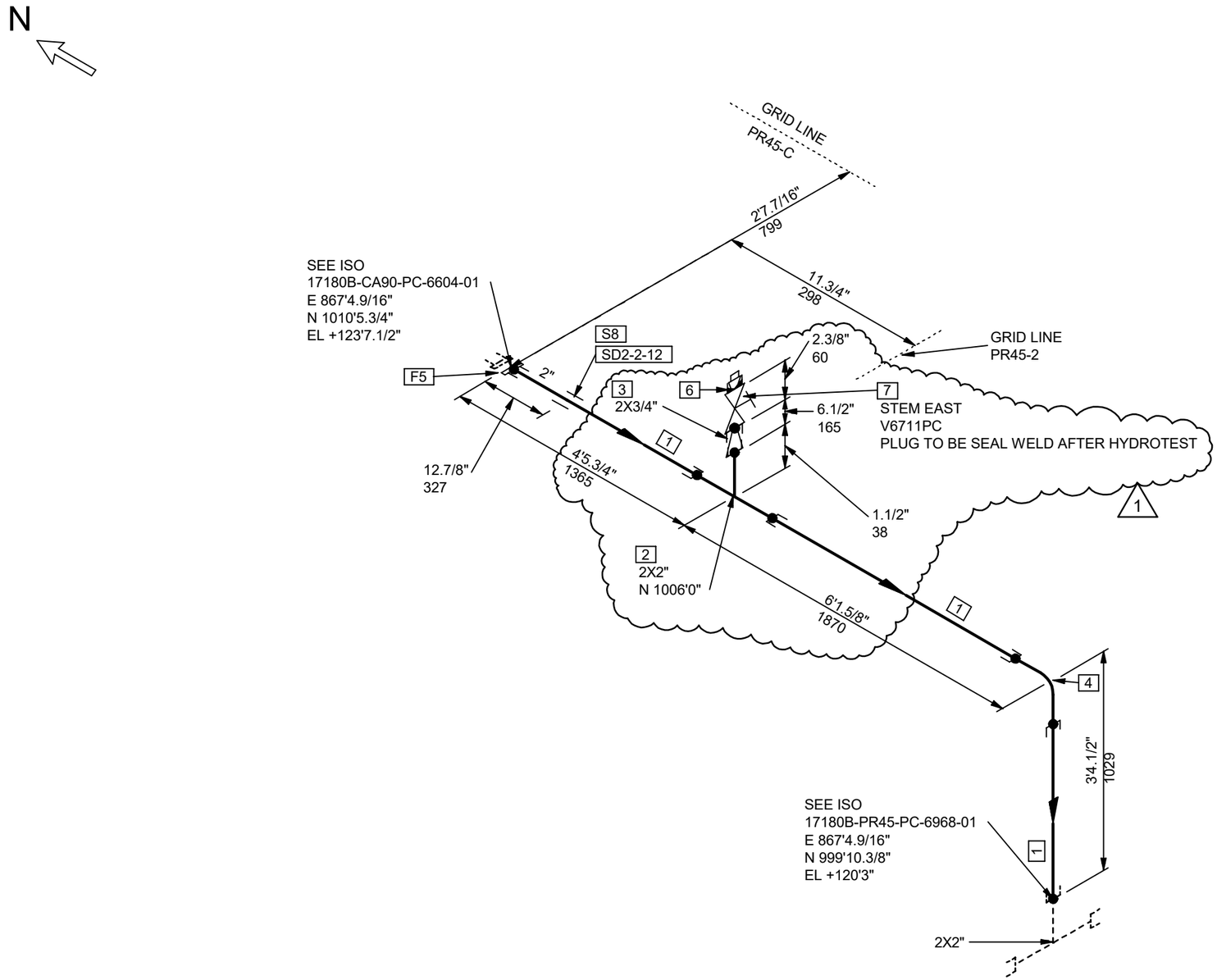
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45A-PG-6950-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS Fi=1.00 , S-80	2	13.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	1
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
	ERECTION		
6	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
8	SD2-2-12	2	1

1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	VT	NNR	MLO
0	10/15/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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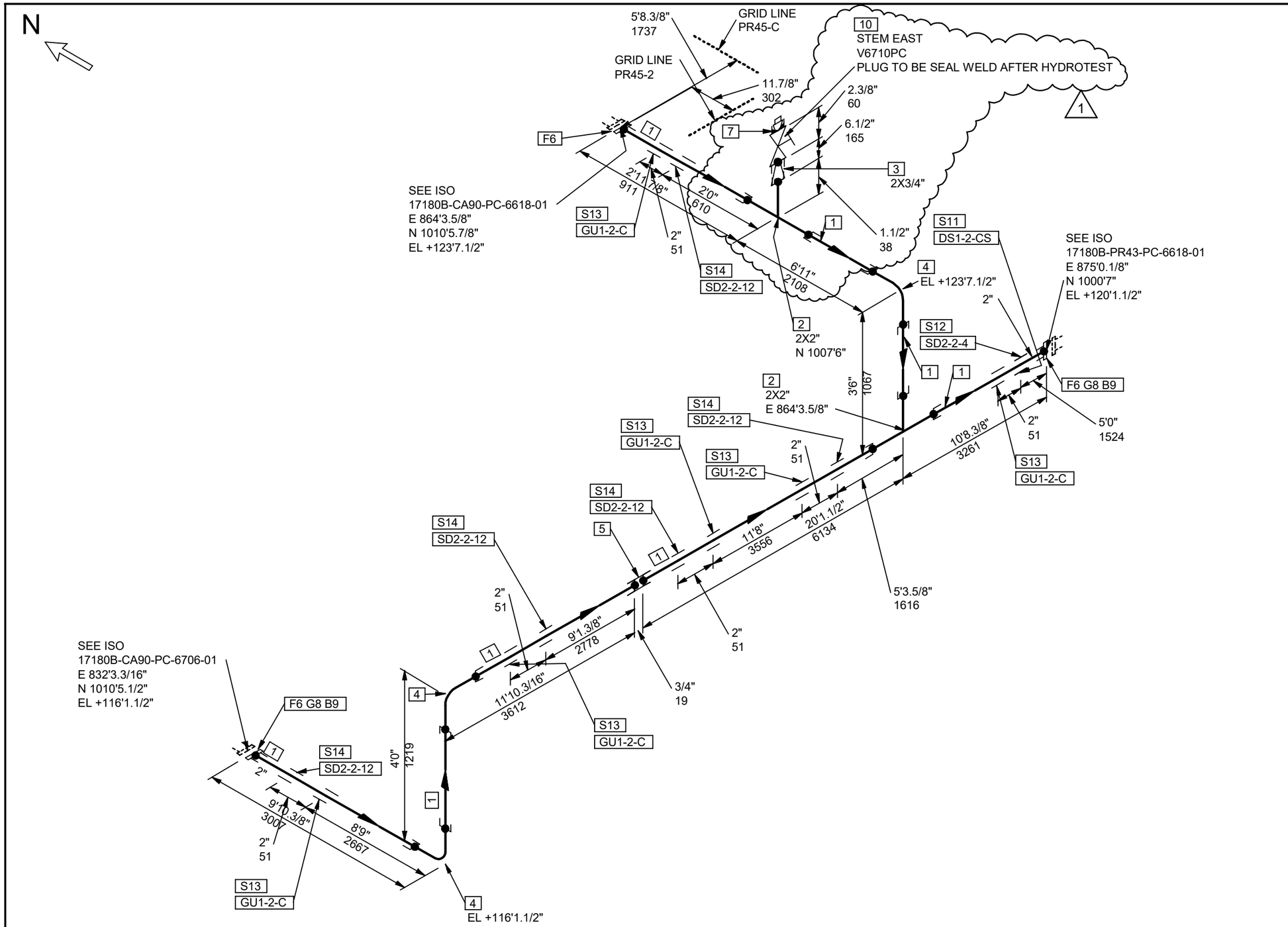
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PC-6604-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	68.4'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	2
3	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
4	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	3
5	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
6	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	3
ERECTION			
7	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
8	SP WND Gskt , ASME B16.20, for ASME B16.5 Flanges , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	2
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts - 3.75 in. Length	5/8	16
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAE	3/4	1
PIPE SUPPORTS			
11	DS1-2-CS	2	1
12	SD2-2-4	2	1
13	GU1-2-C	2	6
14	SD2-2-12	2	5

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6601		
PIPE SPEC	HCS300P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/22/2019	ISSUED AS MARKED	VT	NNR	MLO
0	10/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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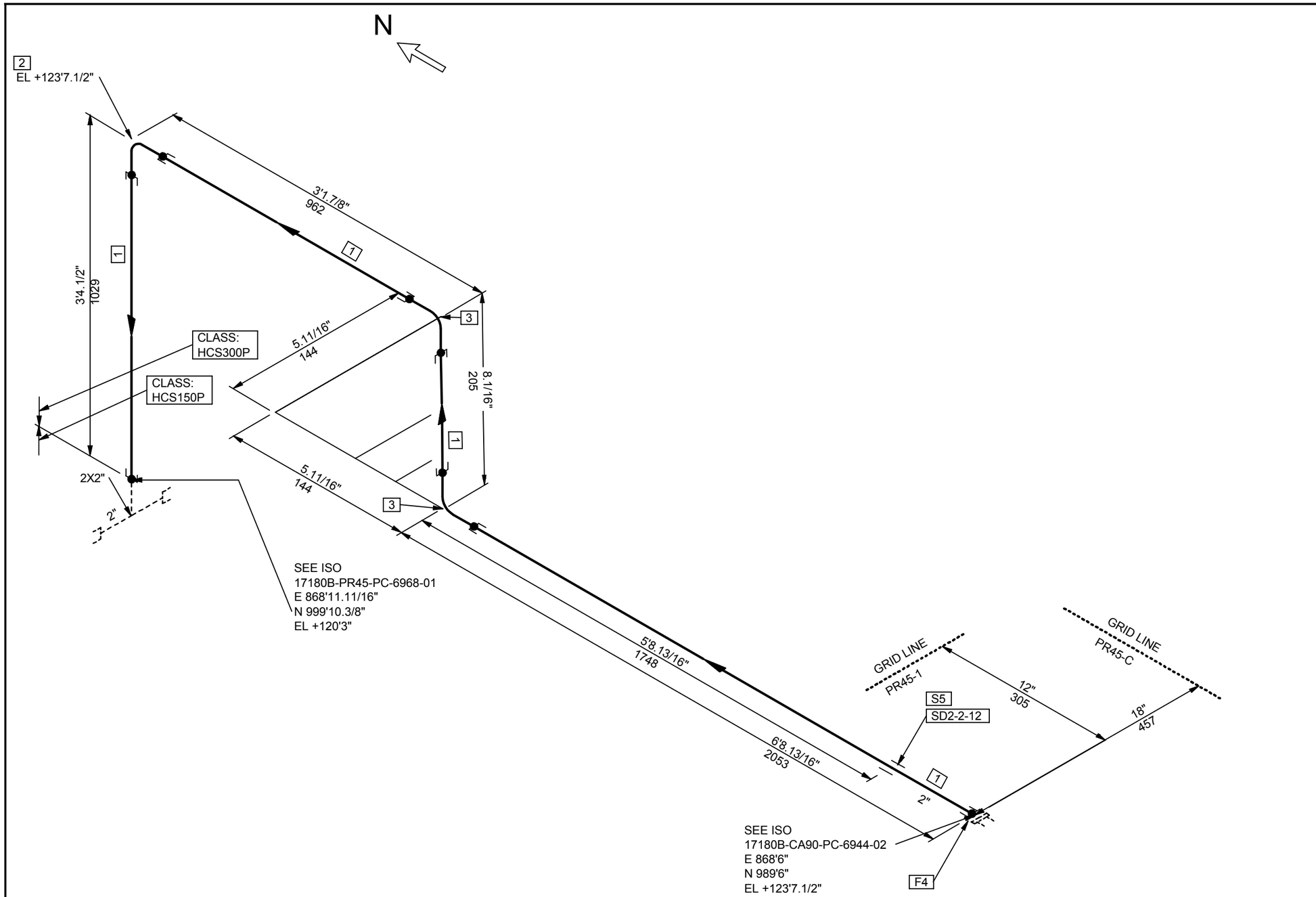
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PC-6618-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	13.3'
2	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
3	45 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
4	SW Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-80	2	1
	ERECTION		
	PIPE SUPPORTS		
5	SD2-2-12	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6906		
PIPE SPEC	HCS300P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/01/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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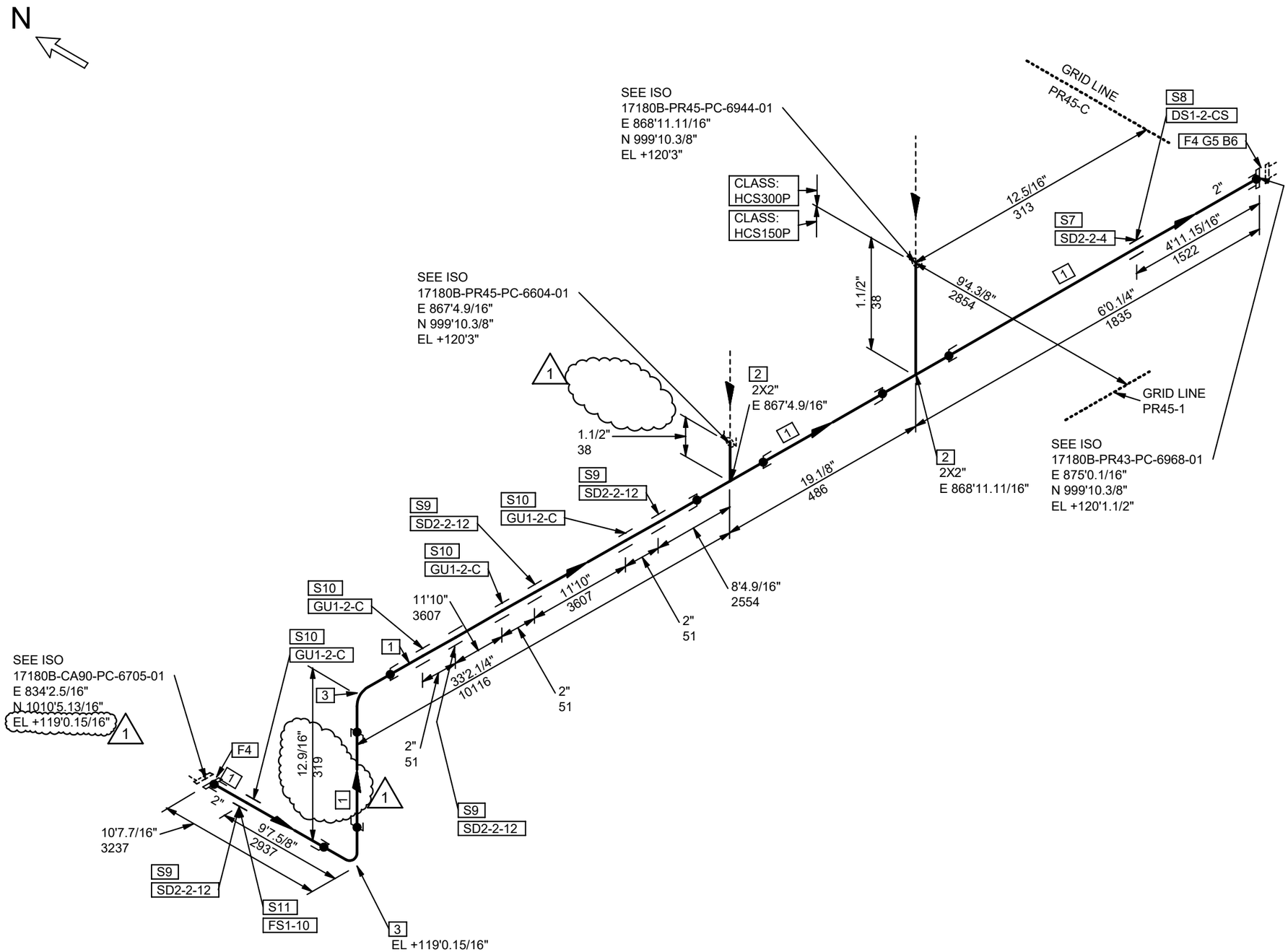
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PC-6944-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	51.5'
2	Tee , ASME B16.11 , CL3000 , SWE , ASTM A105N	2X2	2
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	2
4	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	2
	ERECTION		
5	SP WND Gskt , ASME B16.20 , CL150 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	2	1
6	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.5 in. Length	5/8	4
	PIPE SUPPORTS		
7	SD2-2-4	2	1
8	DS1-2-CS	2	1
9	SD2-2-12	2	4
10	GU1-2-C	2	4
11	FS1-10	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6902		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	03/19/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/15/2019	ISSUED FOR CONSTRUCTION	SST	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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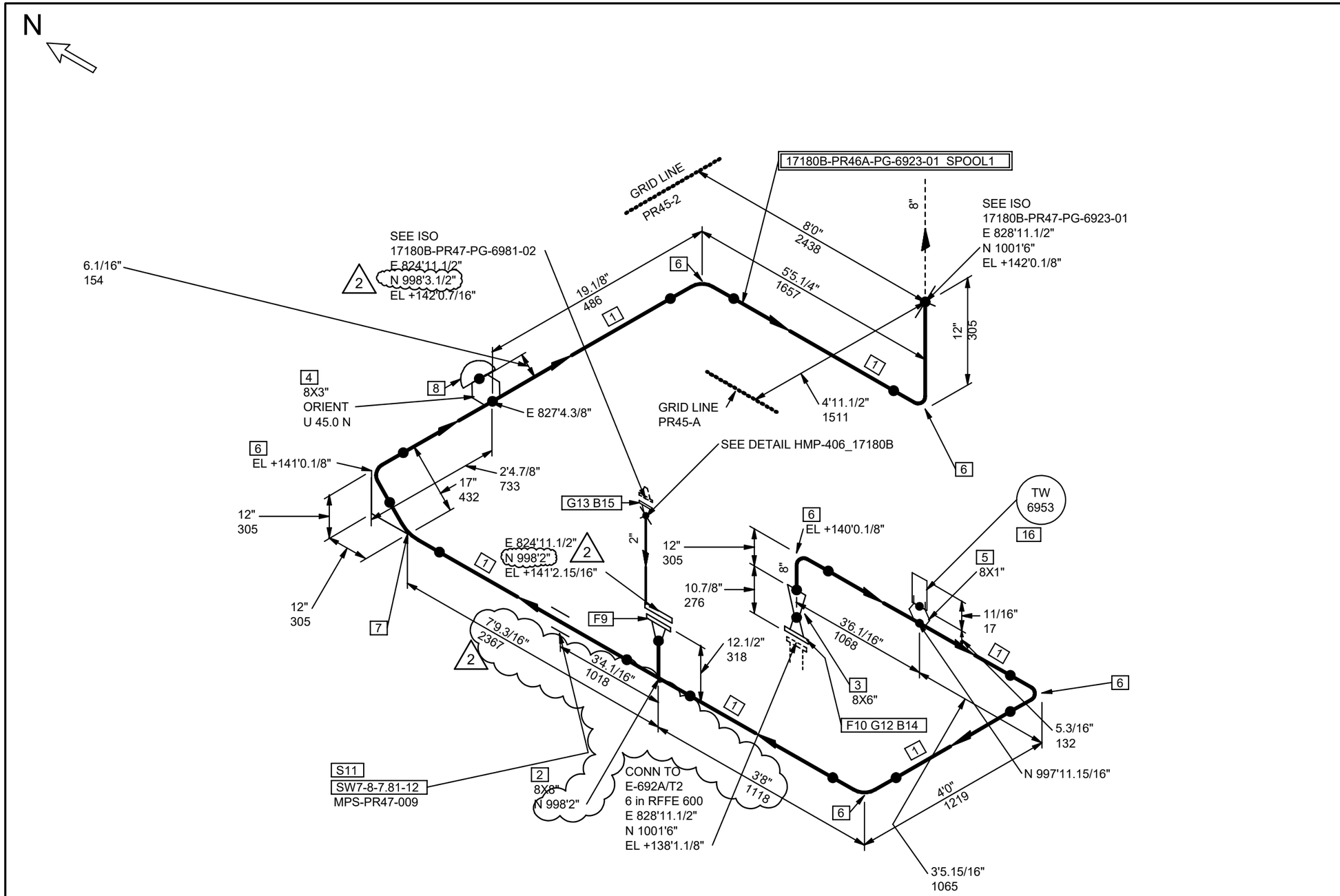
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR45-PC-6968-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	21.3'
2	Tee , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8X8	1
3	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-80	8X6	1
4	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X3	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X1	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	6
7	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	1
8	Cap , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80	3	1
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	1
10	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	6	1
	PIPE SUPPORTS		
11	SW7-8-7.81-12	8	1
	ERECTION		
12	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	6	1
13	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	1
14	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7 in. Length	1	12
15	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	8
	INSTRUMENTS		
16	TW-6953	1	1

17180B-PR46A-PG-6923-01_SPOOL1

LEGEND:

- ● = SHOP WELD
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- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/14/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	04/09/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/22/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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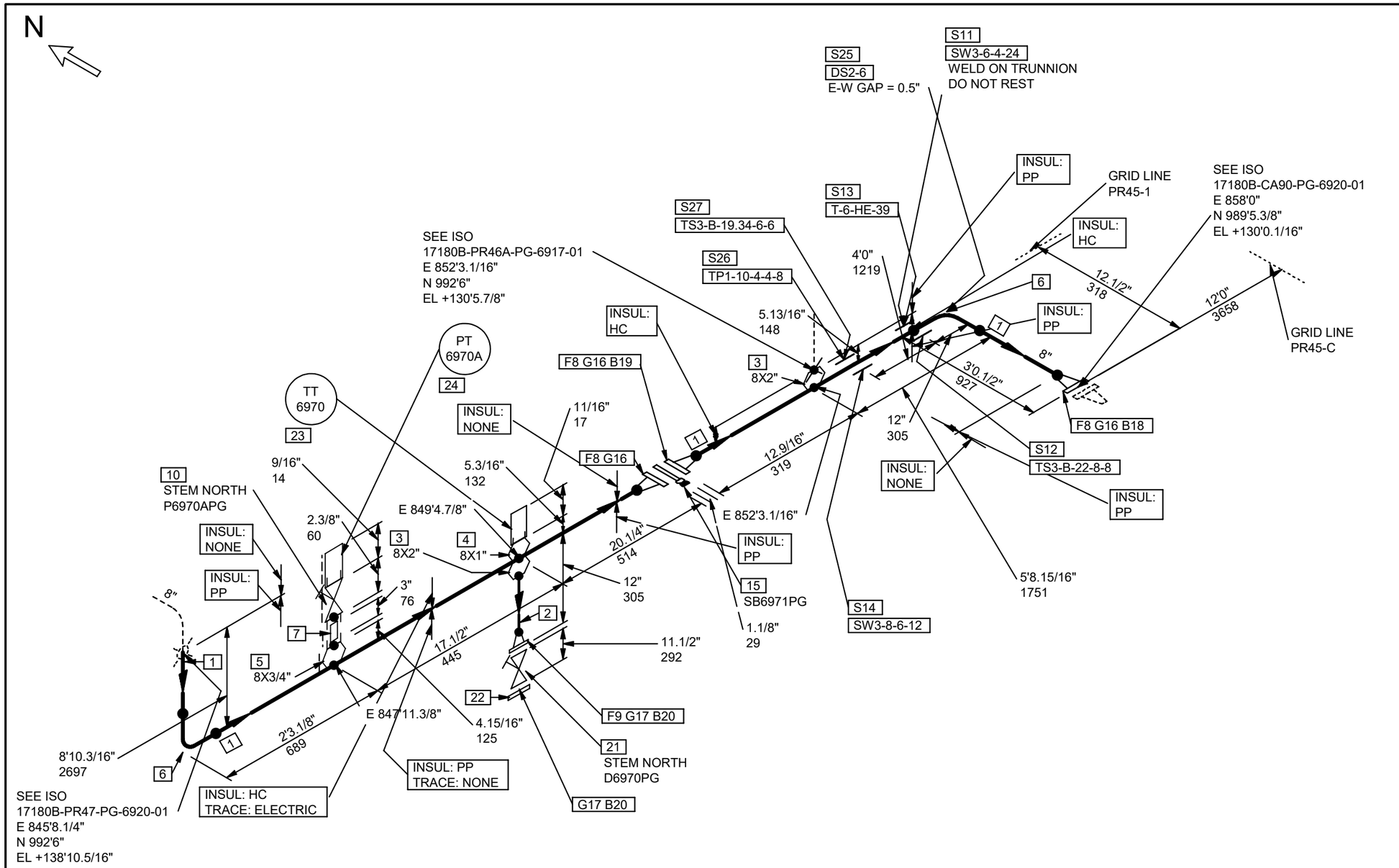
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR46A-PG-6923-01
REV:	2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	18.8'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	0.3'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X1	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
6	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	2
7	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
8	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	3
9	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
10	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	PIPE SUPPORTS		
11	SW3-6-4-24	8	1
12	TS3-B-22-8-8	8	1
13	T-6-HE-39	8	1
14	SW3-8-6-12	8	1
	ERECTION		
15	Fig-8 Blank , ASME B16.48 , CL600 , FFTBE , ASTM A387 Grade 11 Class 2 (UNS K11789)	8	1
16	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	3
17	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
18	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
19	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 9 in. Length	1.1/8	12
20	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
21	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
22	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1
	INSTRUMENTS		
23	TT-6970	1	1
24	PT-6970A	3/4	1
	PIPE SUPPORTS		
25	DS2-6	8	1
26	TP1-10-4-4-8	8	1
27	TS3-B-19.34-6-6	8	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/17/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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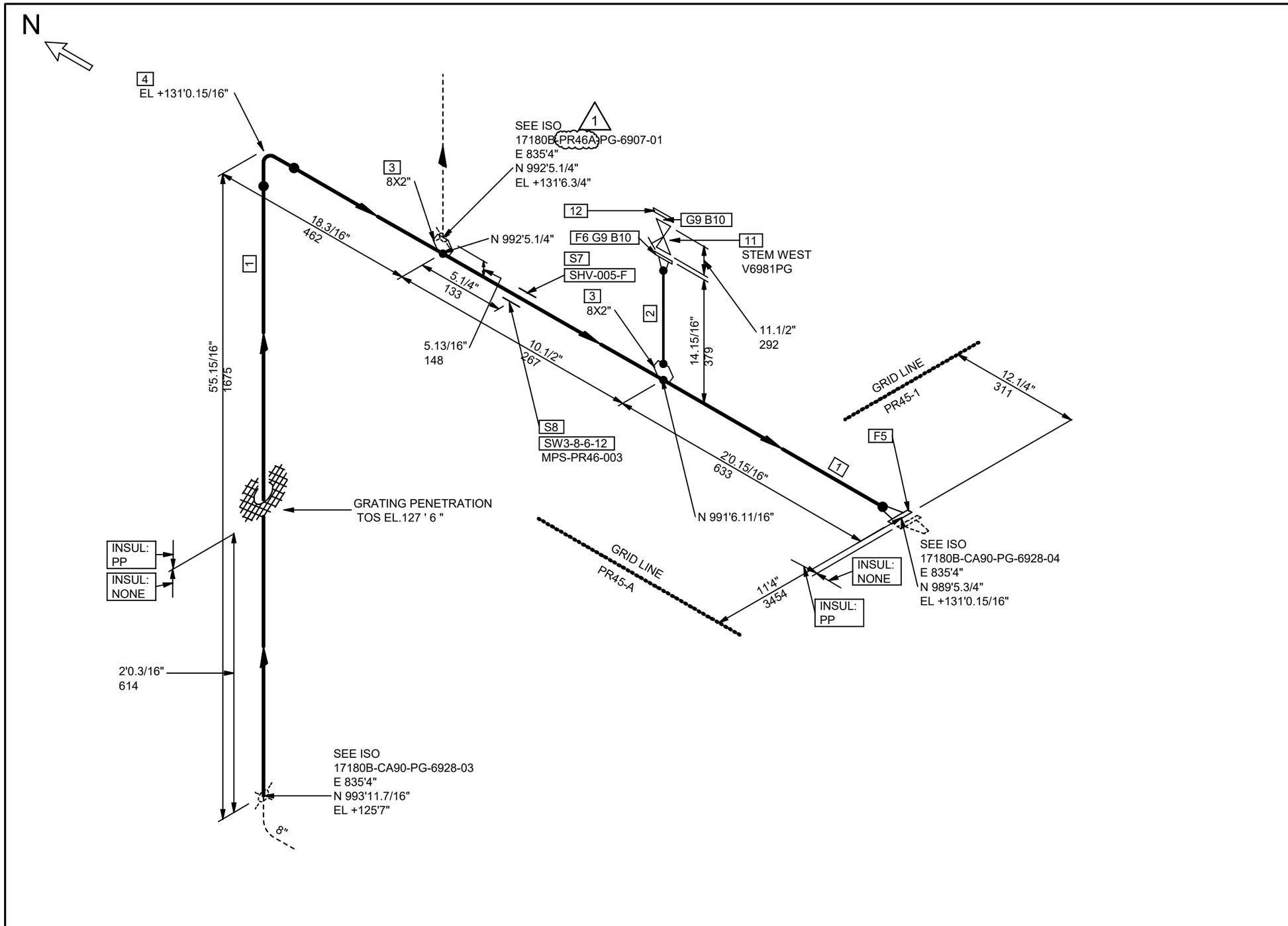
LOUISIANA REG. NO. EF.0005116

PROJECT NAME:	PRAXAIR CONVENT SMR
IHI PROJECT NO:	H18026
SCALE:	N.T.S.
PROJECT NO:	17180B
DRAWING NO:	17180B-PR46-PG-6920-01
REV:	0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	7.6'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	0.5'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	1
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
	PIPE SUPPORTS		
7	SHV-005-F	8	1
8	SW3-8-6-12	8	1
	ERECTION		
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
11	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
12	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/18/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	10/04/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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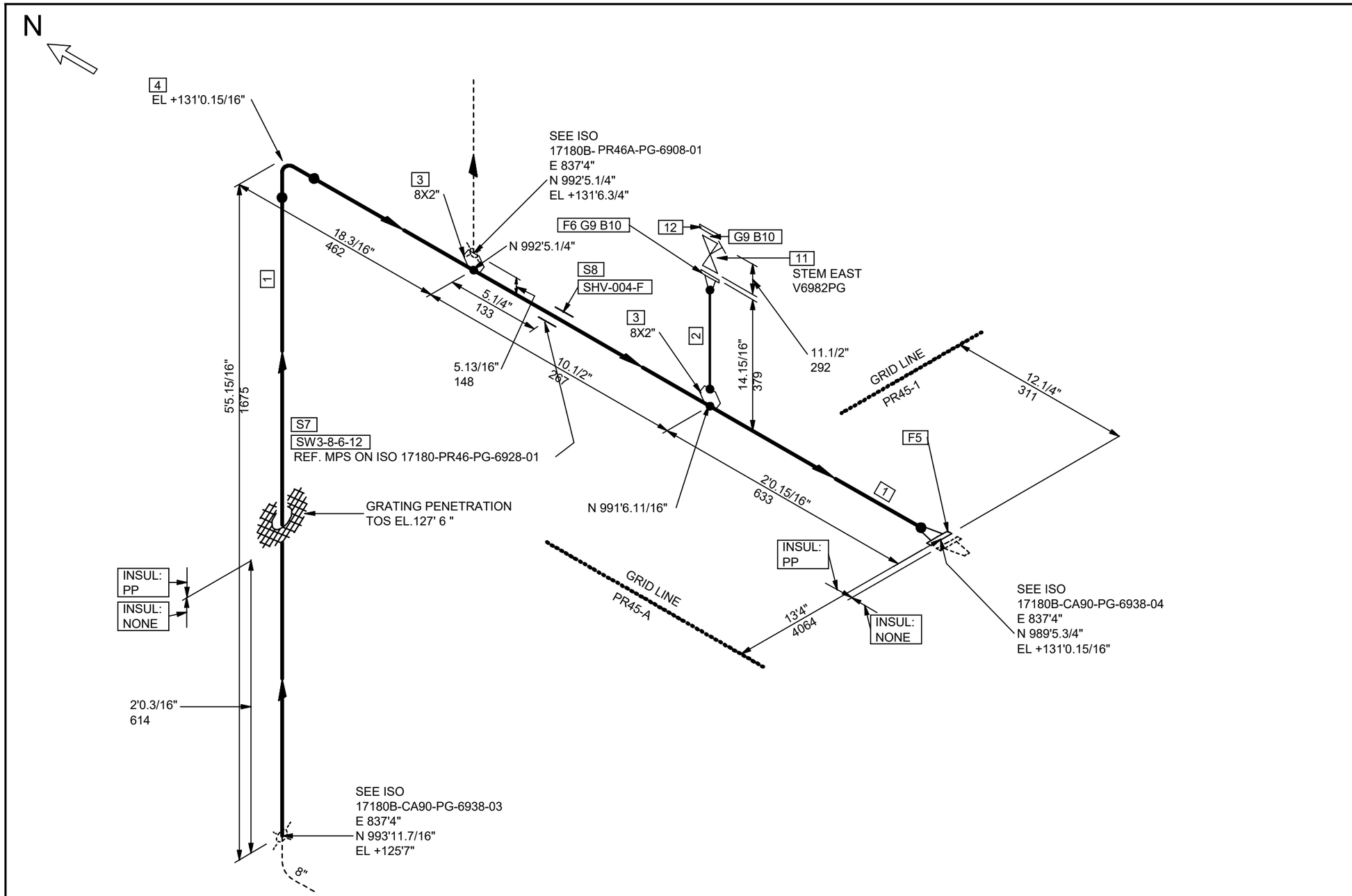
PROJECT NAME: PRAXAIR CONVENT SMR			
IHI PROJECT NO: H18026		SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR46-PG-6928-01		REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	7.6'
2	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	0.5'
3	Weldolet , MSS SP-97 , BE , ASTM A182 Grade F 11 Class 2 (UNS K11572) - , S-60 , S-80	8X2	2
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	1
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
	PIPE SUPPORTS		
7	SW3-8-6-12	8	1
8	SHV-004-F	8	1
	ERECTION		
9	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	2	2
10	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	5/8	16
11	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	2	1
12	Blind Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/15/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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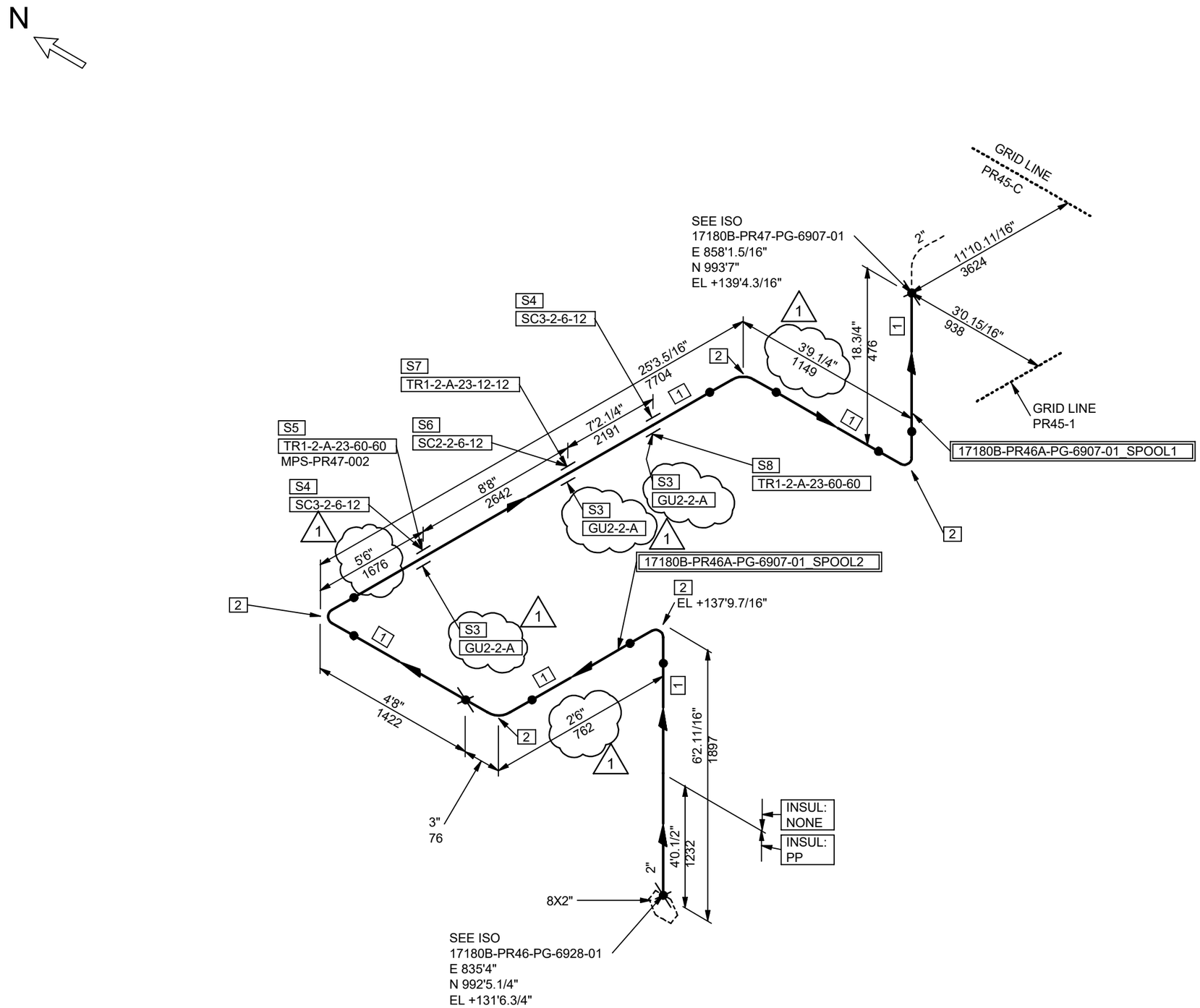
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR46-PG-6938-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	41.8'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	5
ERECTION			
PIPE SUPPORTS			
3	GU2-2-A	2	3
4	SC3-2-6-12	2	2
5	TR1-2-A-23-60-60	2	1
6	SC2-2-6-12	2	1
7	TR1-2-A-23-12-12	2	1
8	TR1-2-A-23-60-60	2	1

17180B-PR46A-PG-6907-01_SPOOL1 17180B-PR46A-PG-6907-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/20/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	10/18/2019	ISSUED FOR CONSTRUCTION	AA	TKS	MLO

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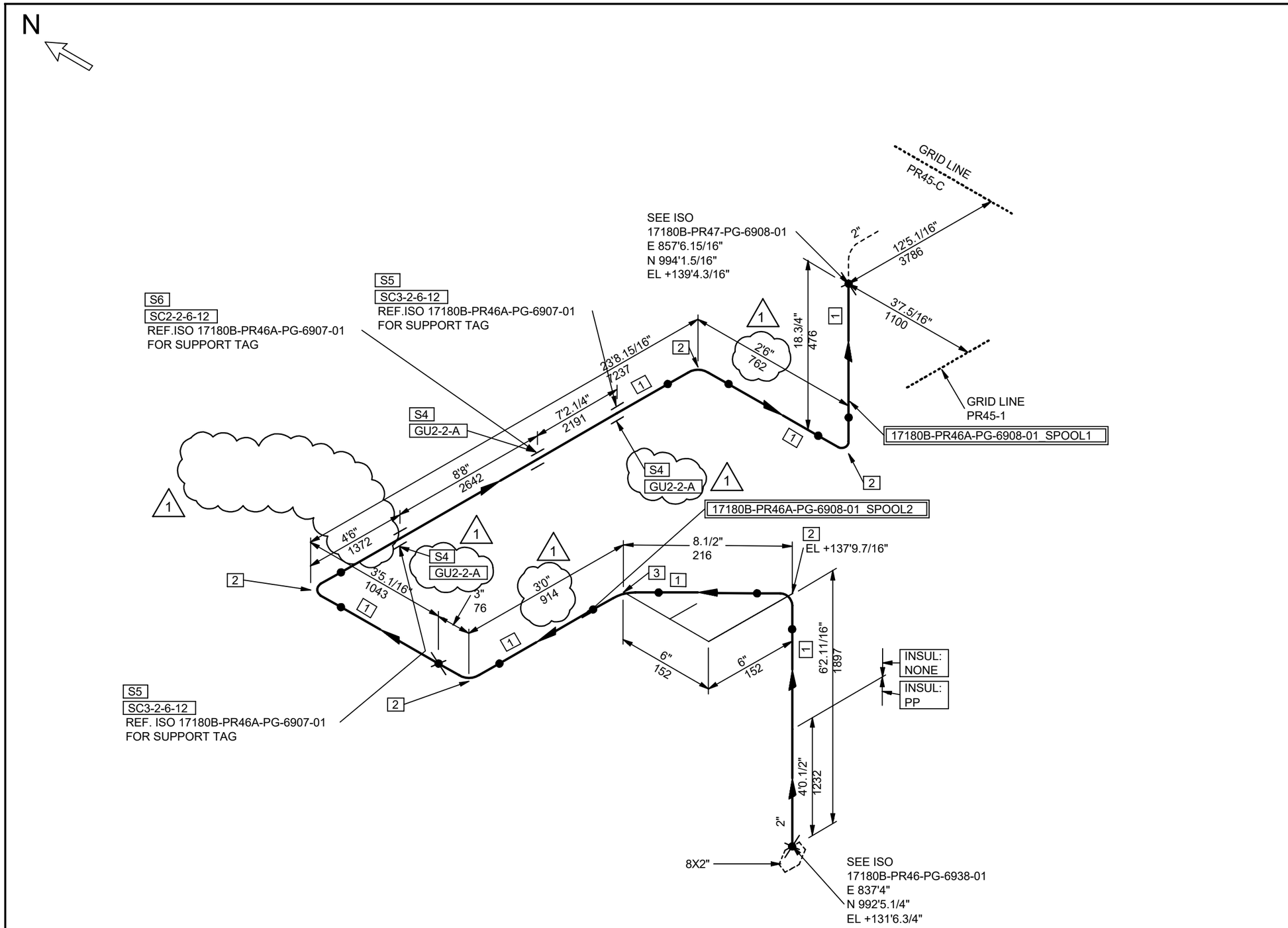
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR46A-PG-6907-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	38.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	5
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
ERECTION			
PIPE SUPPORTS			
4	GU2-2-A	2	3
5	SC3-2-6-12	2	2
6	SC2-2-6-12	2	1

17180B-PR46A-PG-6908-01_SPOOL1 17180B-PR46A-PG-6908-01_SPOOL2

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	11/20/2019	RE-ISSUED FOR CONSTRUCTION	TKS	AA	MLO
0	10/18/2019	ISSUED FOR CONSTRUCTION	AA	TKS	MLO

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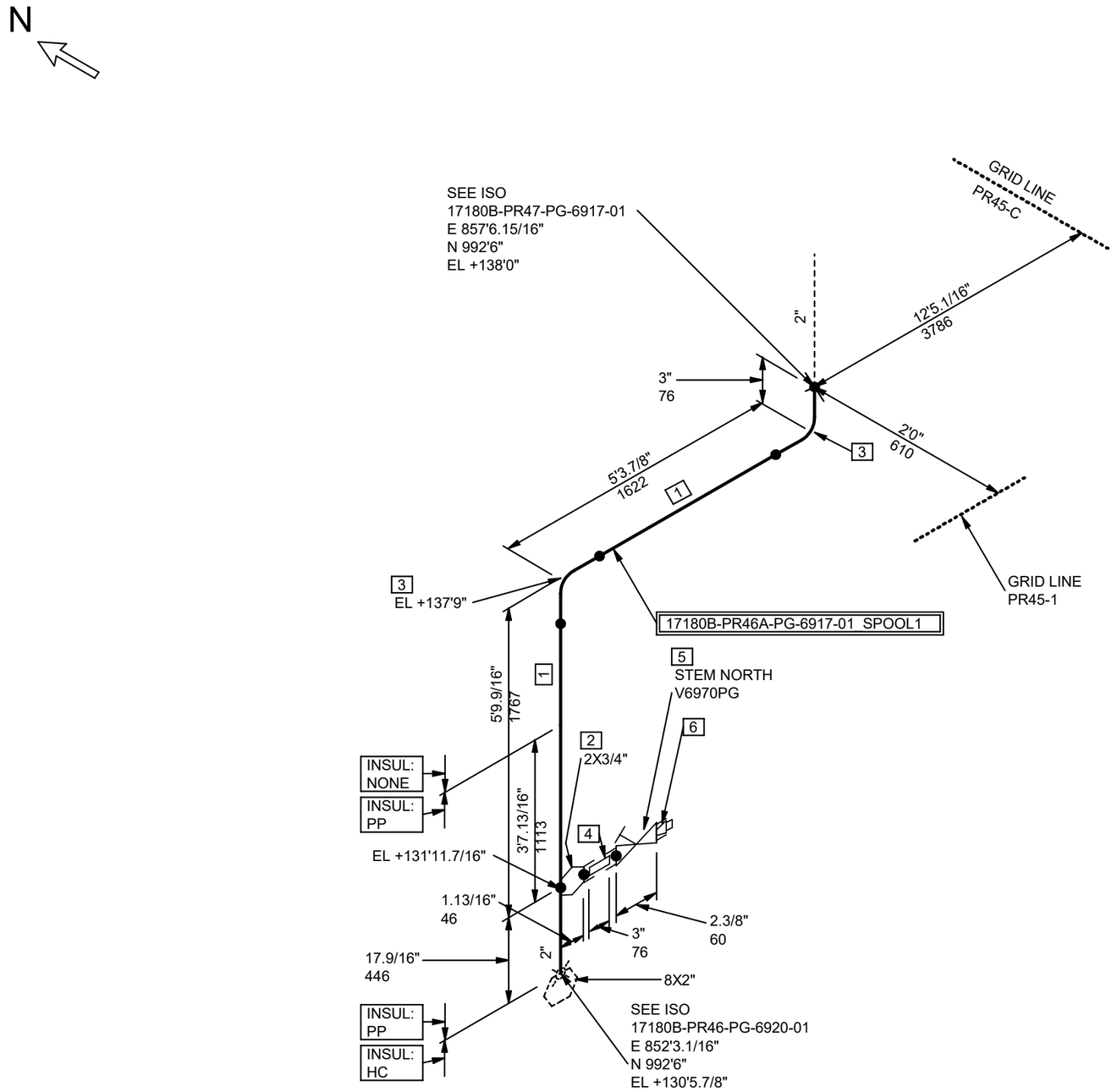
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR46A-PG-6908-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	11.9'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	2X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	2
4	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
5	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
ERECTION			
6	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1

17180B-PR46A-PG-6917-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/19/2019	ISSUED FOR CONSTRUCTION	RR	AA	MLO

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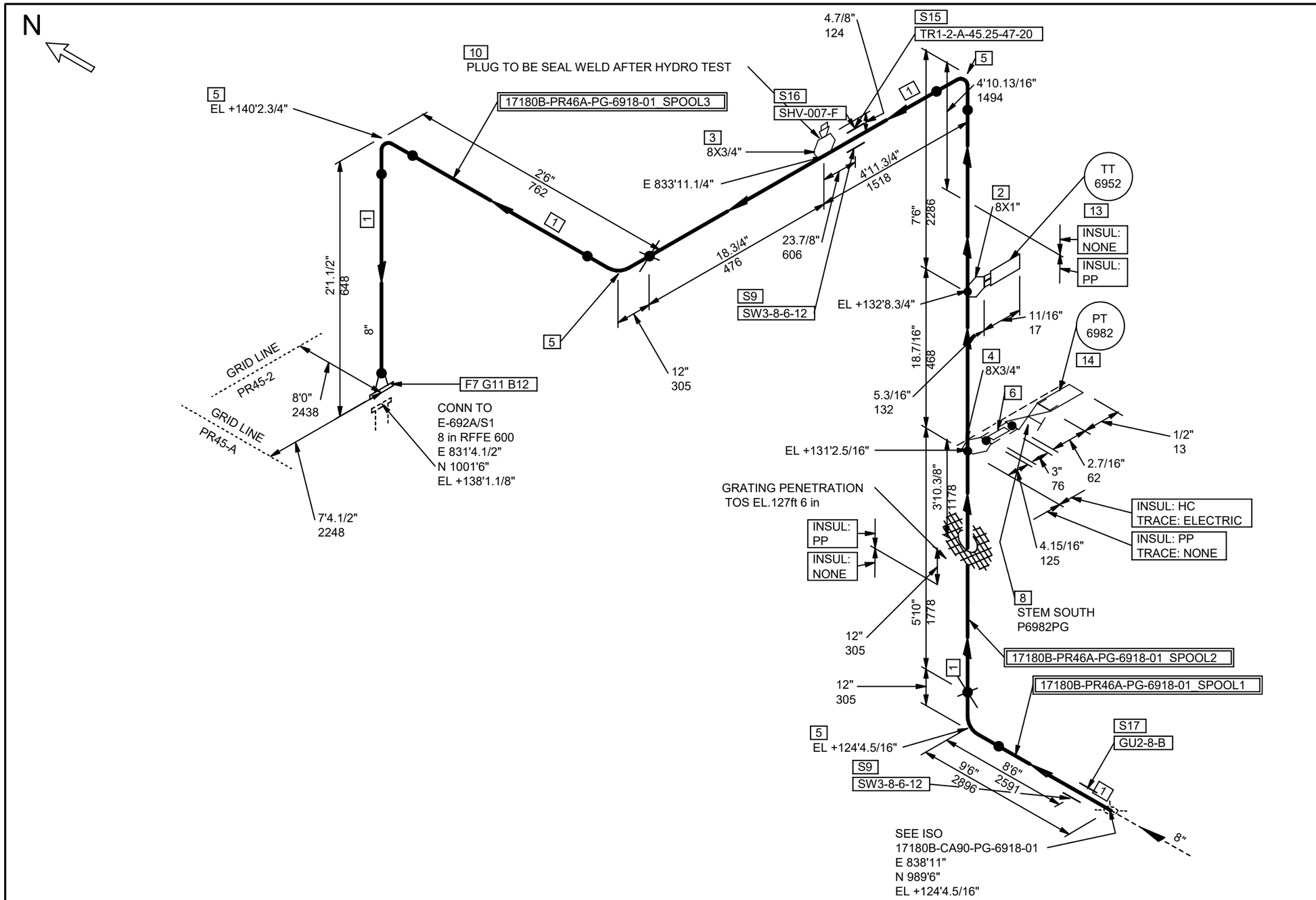
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR46A-PG-6917-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	29.1'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X1	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
4	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	4
6	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
7	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	1
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	1
	PIPE SUPPORTS		
9	SW3-8-6-12	8	2
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
12	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
	INSTRUMENTS		
13	TT-6952	1	1
14	PT-6982	3/4	1
	PIPE SUPPORTS		
15	TR1-2-A-45.25-47-20	8	1
16	SHV-007-F	8	1
17	GU2-8-B	8	1

17180B-PR46A-PG-6918-01_SPOOL1 17180B-PR46A-PG-6918-01_SPOOL2
17180B-PR46A-PG-6918-01_SPOOL3

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N / ET
INSULATION TYPE	PP / HC	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/21/2019	ISSUED FOR CONSTRUCTION	RR	AA	MLO

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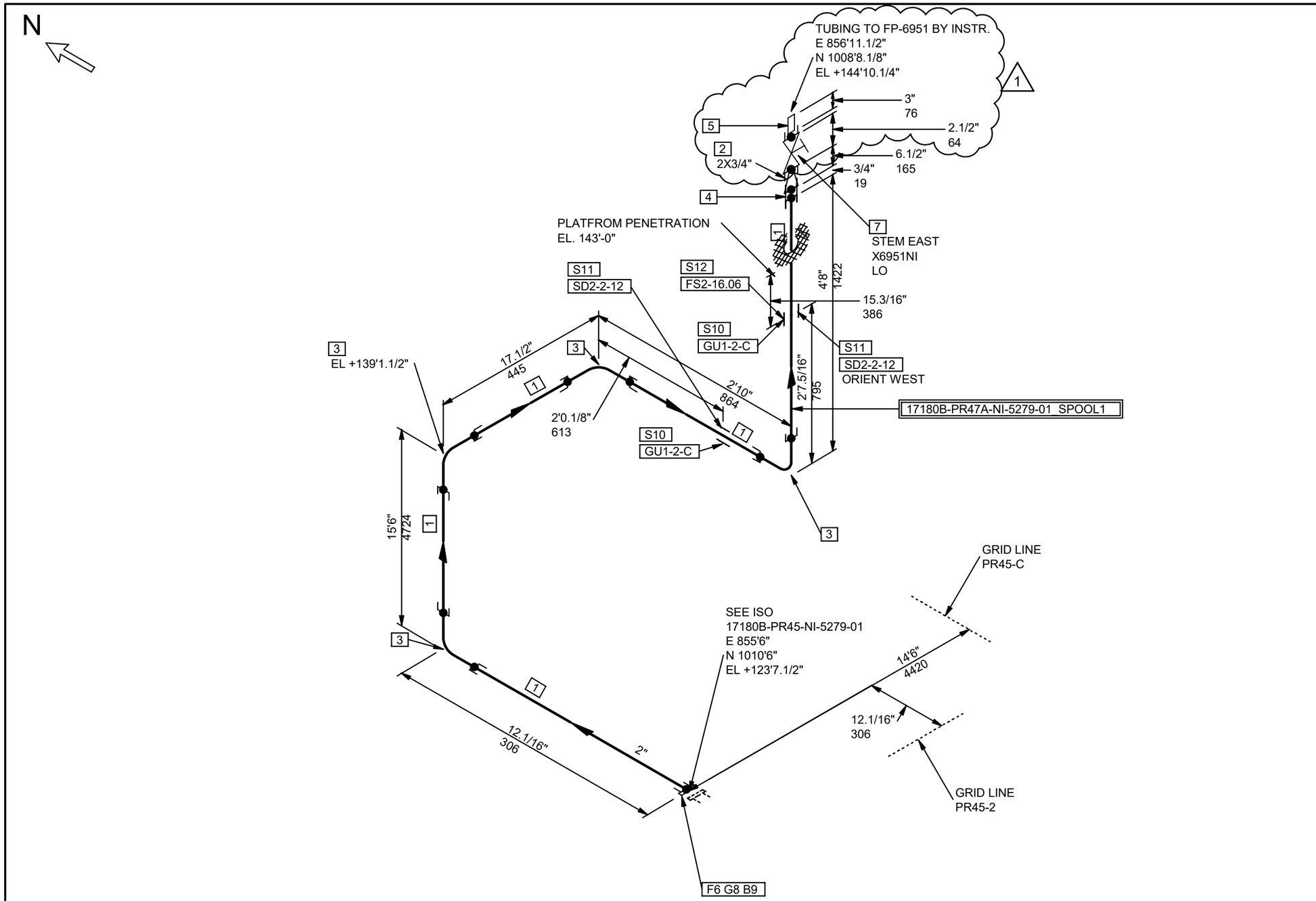
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR46A-PG-6918-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , PE , ASTM A106-B , SMLS , Ej=1.00 , S-80	2	24.5'
2	Conc Swage , MSS SP-95 , PE , ASTM A234 Grade WPB , SMLS , S-160 , S-160	2X3/4	1
3	90 Elbow , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	4
4	Coupling , ASME B16.11 , CL3000 , SWE , ASTM A105N	2	1
5	Nipple , ASME B36.10 , PE x MTE , ASTM A106-B , 3in Long , SMLS , S-160 , S-160	3/4	1
6	SW Flg , ASME B16.5 , CL150 , RF , ASTM A105N , S-80	2	1
7	Gate Vlv , API 602 , CL800 , SWE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 8 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8SAF	3/4	1
	ERECTION		
8	Non Metal Flat Gskt , ASME B16.21 , CL150 , RF , Garlock IFG® 5500 , THK 1/16 in (1.6 mm)	2	1
9	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 3.25 in. Length	5/8	4
	PIPE SUPPORTS		
10	GU1-2-C	2	2
11	SD2-2-12	2	2
12	FS2-16.06	2	1

17180B-PR47A-NI-5279-01_SPOOL1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-5252		
PIPE SPEC	HCS150U	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/26/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	02/14/2020	ISSUED FOR CONSTRUCTION	JY	AA	MLO

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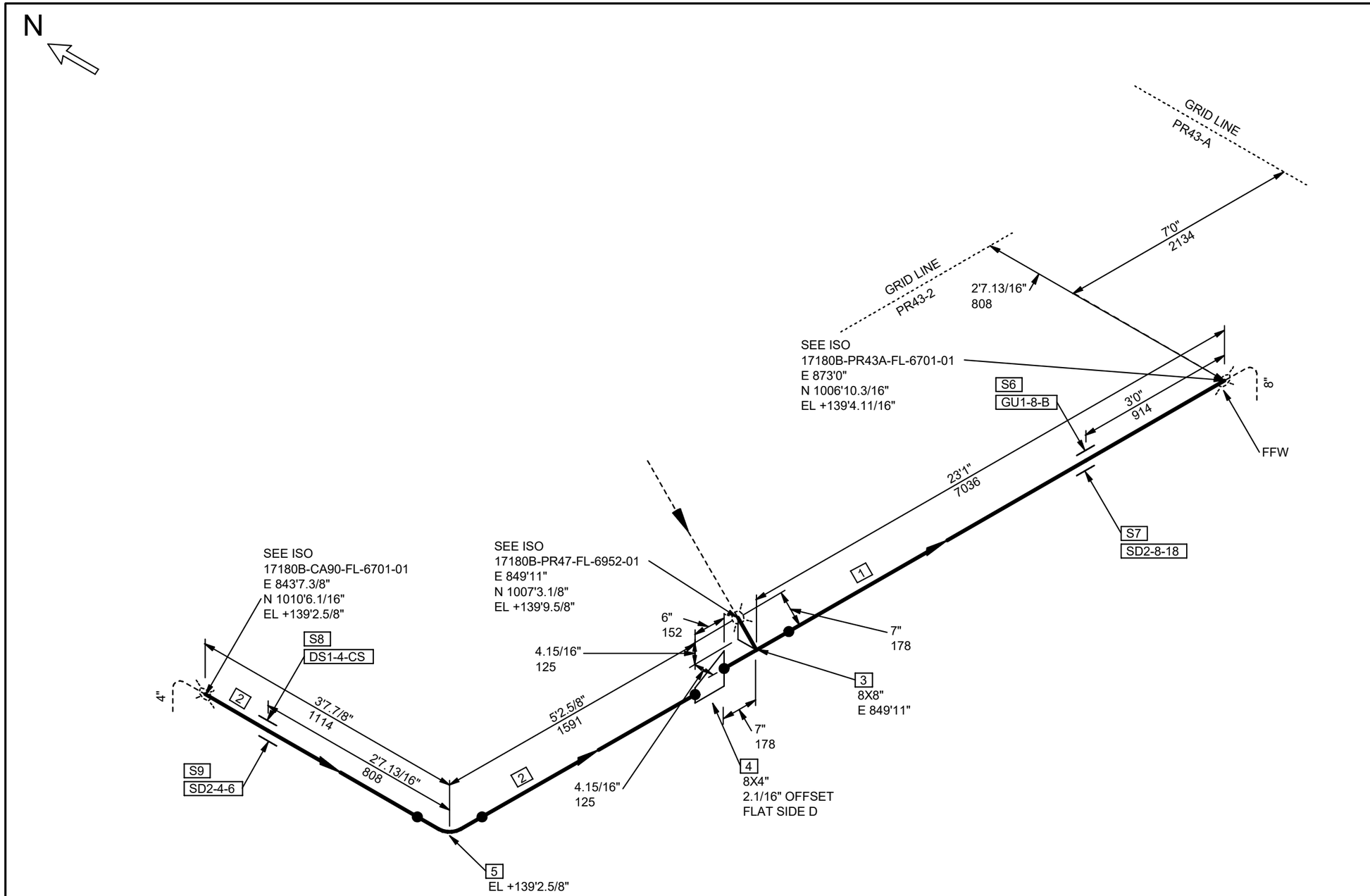
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47A-NI-5279-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	22.9'
2	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	4	7.9'
3	Tee , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X8	1
4	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8X4	1
5	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	4	1
ERECTION			
PIPE SUPPORTS			
6	GU1-8-B	8	1
7	SD2-8-18	8	1
8	DS1-4-CS	4	1
9	SD2-4-6	4	1

LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6701		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/15/2019	ISSUED FOR CONSTRUCTION	VT	NNR	MLO

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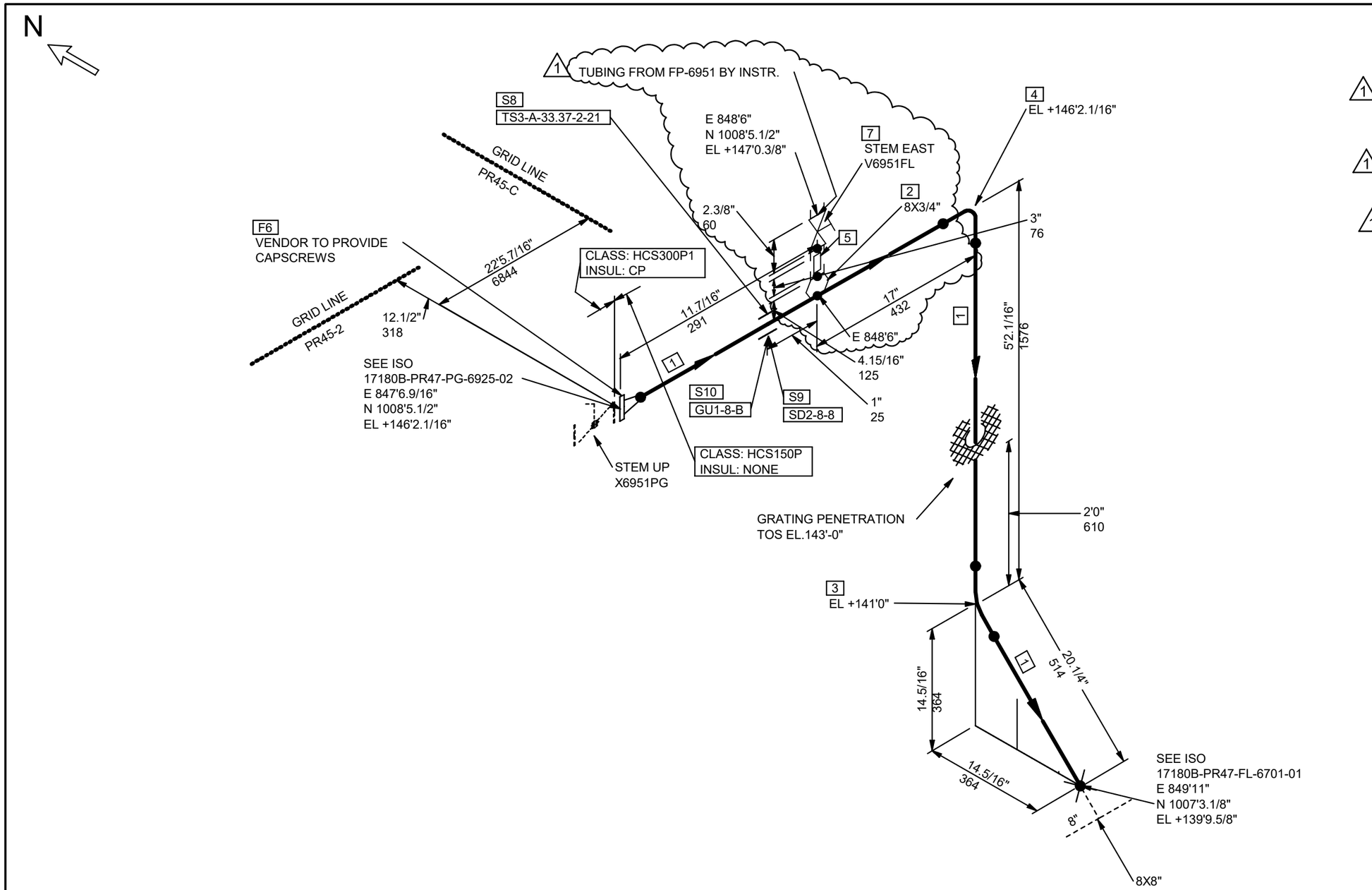
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-FL-6701-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A53-B , Welded (E = 0.85) , S-STD	8	6.1'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	8X3/4	1
3	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Welded , S-STD , S-STD	8	1
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N S-STD	8	1
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
	PIPE SUPPORTS		
8	TS3-A-33.37-2-21	8	1
9	SD2-8-8	8	1
10	GU1-8-B	8	1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS150P	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	02/14/2020	RE ISSUED FOR N2 PURGE CONNECTION	JY	AA	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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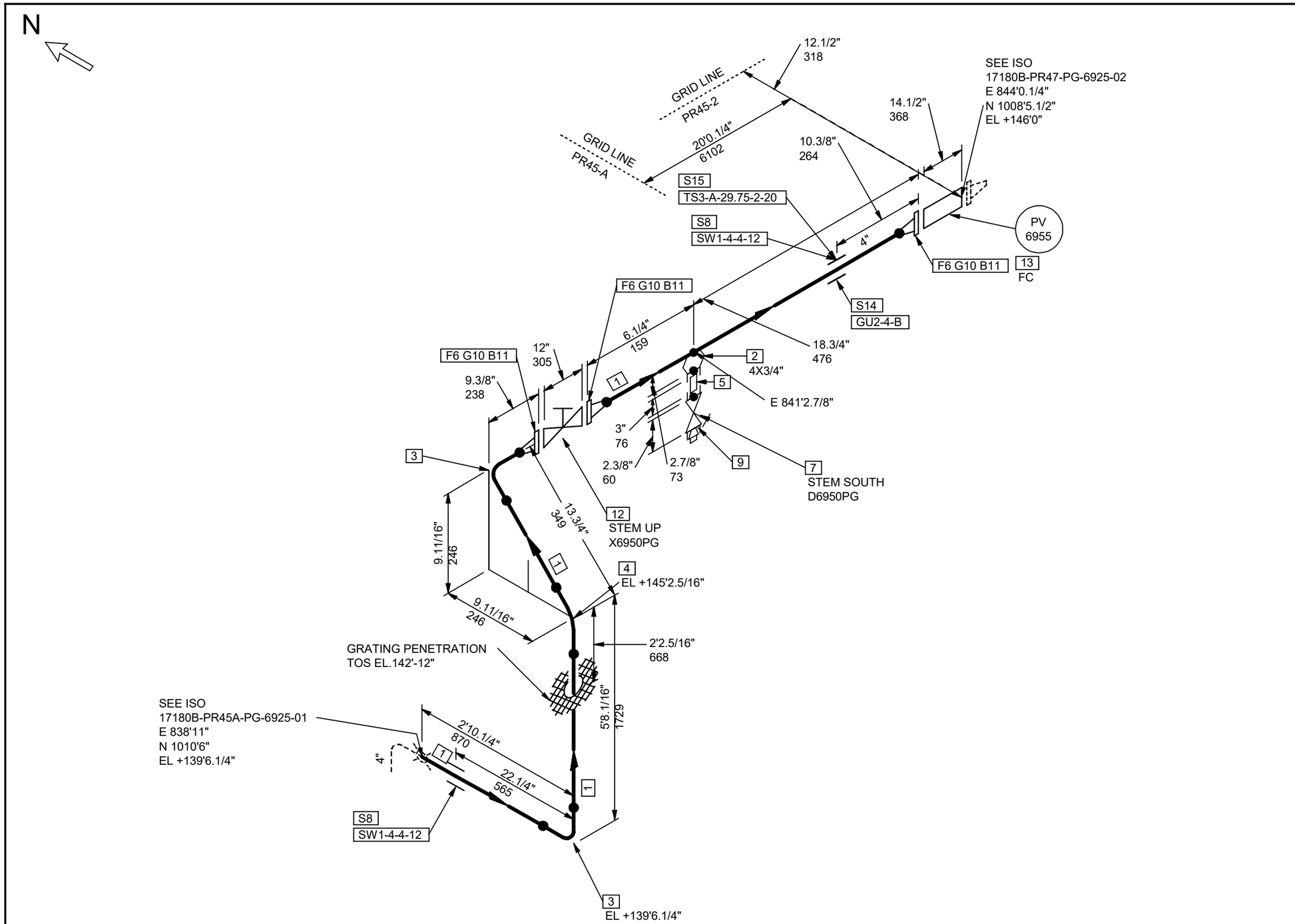
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-FL-6952-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	4	9.3'
2	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	4X3/4	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	4	2
4	45 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	4	1
5	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
6	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	4	3
7	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	PIPE SUPPORTS		
8	SW1-4-4-12	4	2
	ERECTION		
9	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	1
10	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	3
11	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	3/4	24
12	Gate Vlv , API 600 , CL300 , RFFE , Bltd Bonnet , Handwheel , ASTM A216-WCB , Trim 5 , FLEXIBLE GRAPHITE, FULL PORT, PRAXAIR GUIDELINE V-G1 , G3FAD	4	1
	INSTRUMENTS		
13	PV-6955	4	1
	PIPE SUPPORTS		
14	GU2-4-B	4	1
15	TS3-A-29.75-2-20	4	1

LEGEND:

- ● = SHOP WELD
- ⊠ = FIELD WELD
- ⊠ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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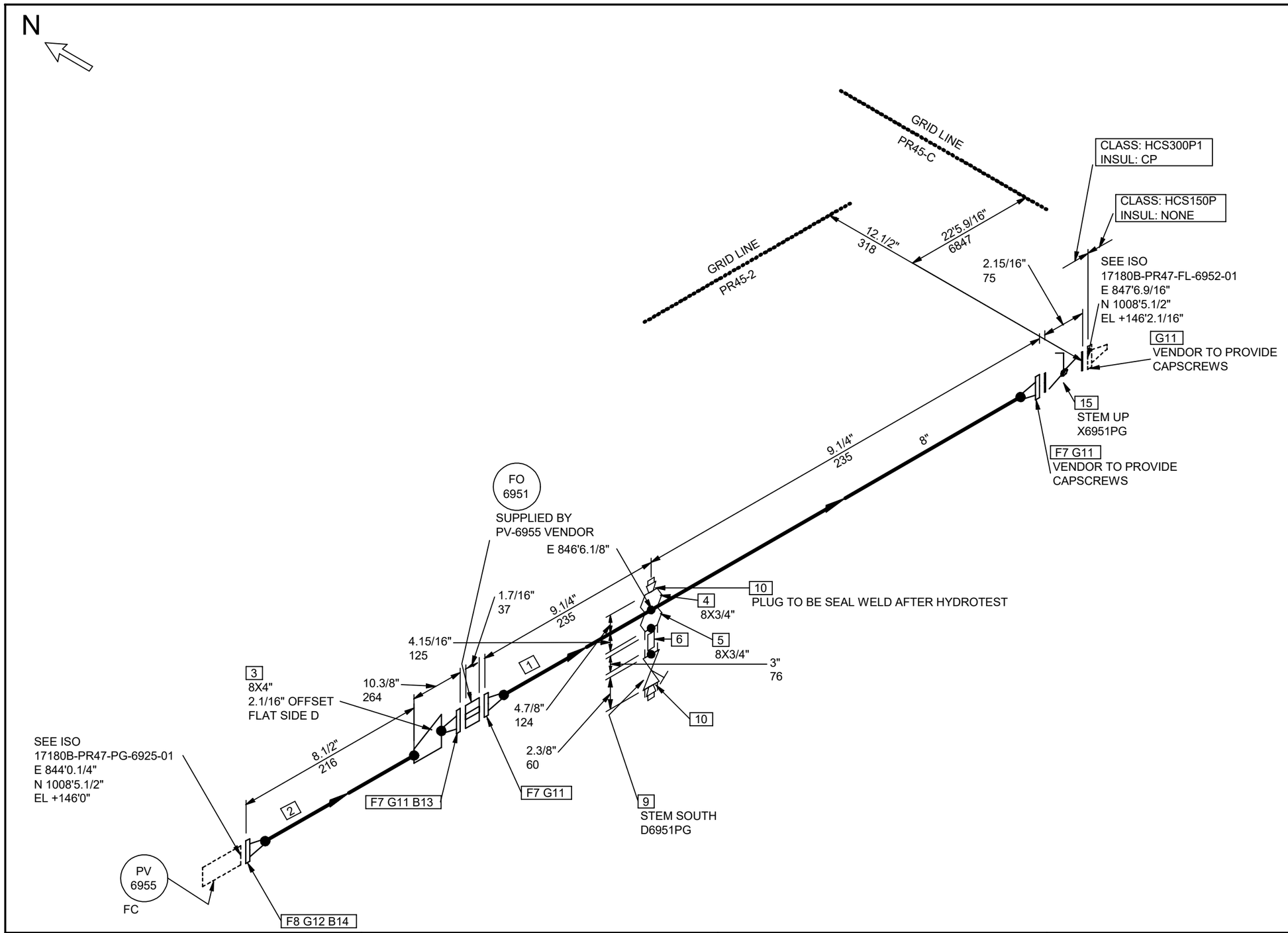
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6925-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	8	0.9'
2	Pipe , ASME B36.10 , BE , ASTM A106-B , SMLS , Ej=1.00 , S-40	4	0.5'
3	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WPB , Seamless , S-40 , S-40	8X4	1
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A105N	8X3/4	1
5	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A105N	8X3/4	1
6	Nipple , ASME B36.10 , PE , ASTM A106-B , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	1
7	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	8	3
8	WN Flg , ASME B16.5 , CL300 , RF , ASTM A105N , S-40	4	1
9	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A105N , Trim 5 , FLEXIBLE GRAPHITE, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CAD	3/4	1
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A105N	3/4	2
11	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	8	4
12	SP WND Gskt , ASME B16.20 , CL300 , RF , 316L Stainless Steel windings , F.G filler, 316L SS C.R. and I.R.	4	1
13	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 7.25 in. Length	7/8	12
14	Stud Bolt (IN-IN) , ASME B18.31.2 , ASTM A193 Grade B7 , w/ (2) A194-2H heavy hex nuts, Xylan 1014 - 4.75 in. Length	3/4	8
15	Bfly Vlv Lugged , API 609 Category B , CL300 , RFLUG , Drive, gear operator , ASTM A216-WCB , AISI 316 SS Trim , FIRE SAFE, TRIPLE OFFSET, PRAXAIR V-G1, (VENDOR TO PROVIDE CAPSCREWS) , W3LAB	8	1

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCS300P1	HEAT TRACE	N
INSULATION TYPE	CP	INSULATION THICKNESS	1 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/17/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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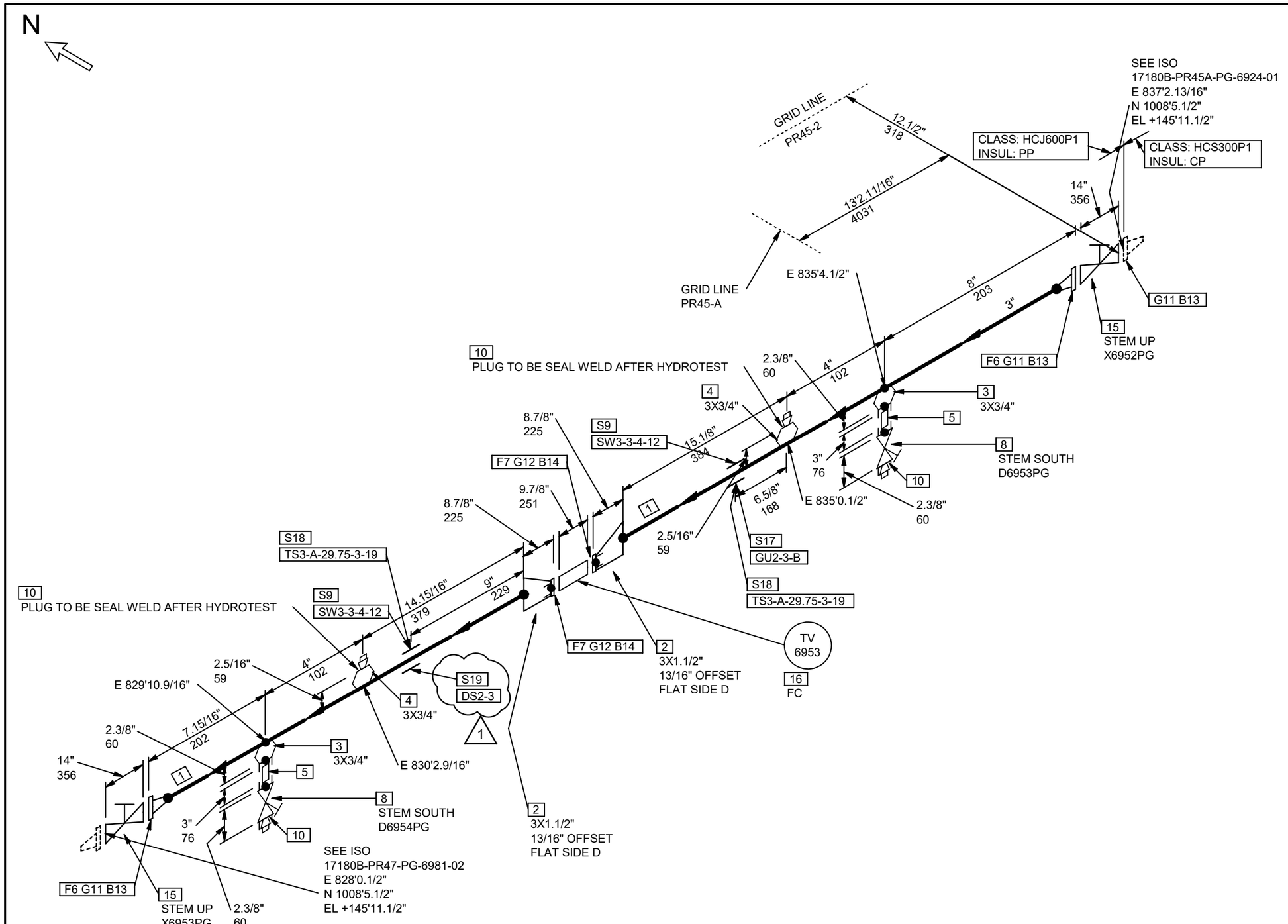
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6925-02	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	3	4.0'
2	Ecc Swage , MSS SP-95 , BE x PE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-160	3X1.1/2	2
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3X3/4	2
4	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3X3/4	2
5	Nipple , ASME B36.10 , PE , ASTM A335-P11 , 3in Long , SMLS , Ej=1.00 , S-160 , S-160	3/4	2
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	3	2
7	SW Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	1.1/2	2
8	Gate Vlv , API 602 , CL800 , SWE x FTE , Bltd Bonnet , Handwheel , ASTM A182 Grade F 11 Class 2 (UNS K11572) , Trim 12 , FLEXIBLE GRAPHITE, LIVE LOADED, RED. PORT, PRAXAIR GUIDELINE V-G1 , G8CFC	3/4	2
	PIPE SUPPORTS		
9	SW3-3-4-12	3	2
	ERECTION		
10	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	4
11	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	3	3
12	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	1.1/2	2
13	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 5.25 in. Length	3/4	24
14	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 4.5 in. Length	3/4	8
15	Gate Vlv , API 600 , CL600 , RFFE , Bltd Bonnet , Handwheel , ASTM A217-WC6 (UNS J12072) , Trim 5 , FLEXIBLE GRAPHITE, LIVE LOADED, FULL PORT, PRAXAIR GUIDELINE V-G1 , G6FFD	3	2
	INSTRUMENTS		
16	TV-6953	1.1/2	1
	PIPE SUPPORTS		
17	GU2-3-B	3	1
18	TS3-A-29.75-3-19	3	2
19	DS2-3	3	1

1

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	04/10/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	10/15/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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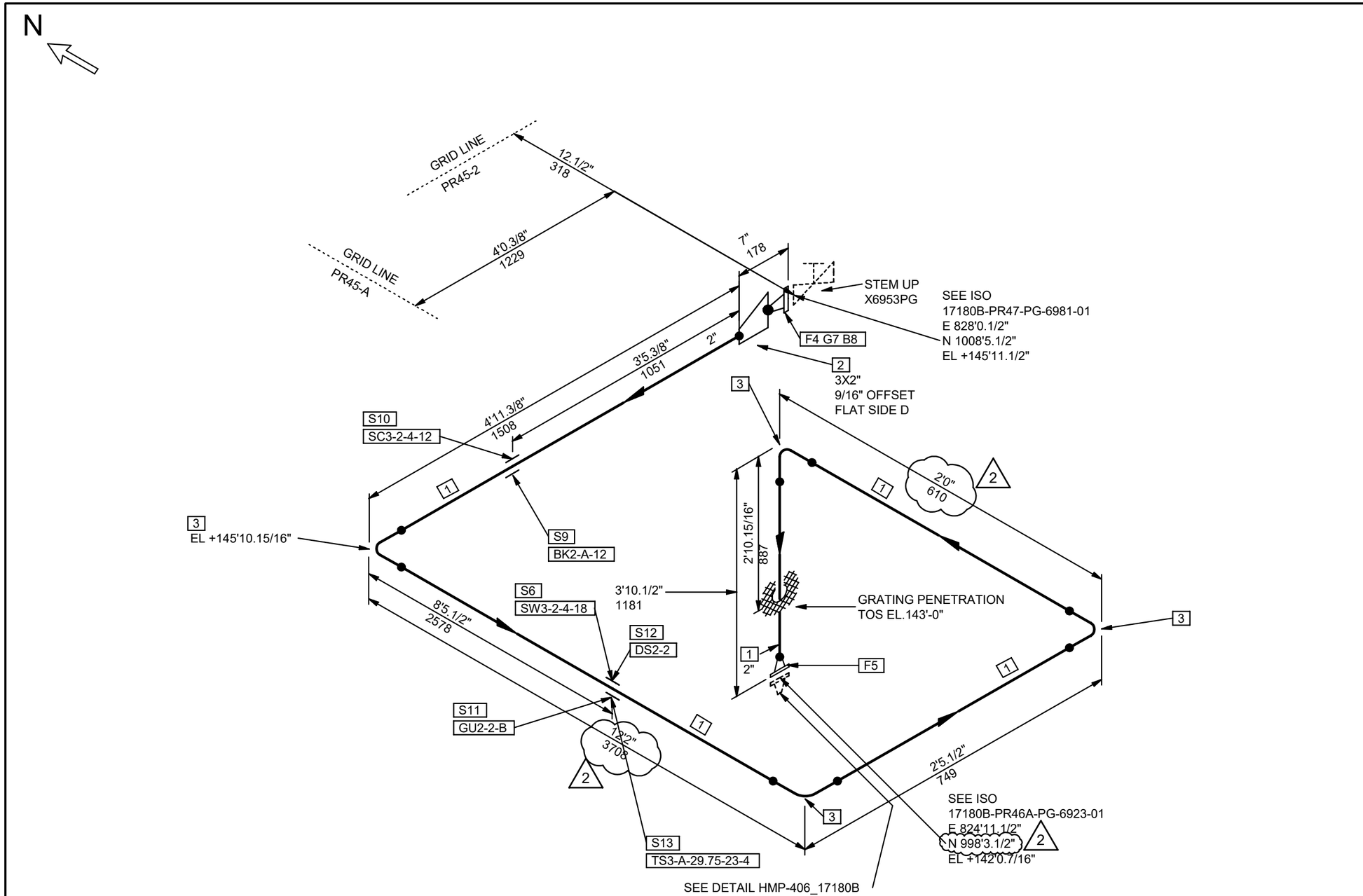
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6981-01	REV: 1

LOUISIANA REG. NO. EF.0005116

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	23.2'
2	Ecc Reducer , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	3X2	1
3	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	4
4	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	3	1
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	2	1
	PIPE SUPPORTS		
6	SW3-2-4-18	2	1
	ERECTION		
7	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	3	1
8	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 5.25 in. Length	3/4	8
	PIPE SUPPORTS		
9	BK2-A-12	2	1
10	SC3-2-4-12	2	1
11	GU2-2-B	2	1
12	DS2-2	2	1
13	TS3-A-29.75-23-4	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
2	04/14/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
1	04/09/2020	RE-ISSUED FOR CONSTRUCTION	JY	AA	MLO
0	09/26/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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LEGEND:

- ● = SHOP WELD
- ⊗ = FIELD WELD
- ⊗ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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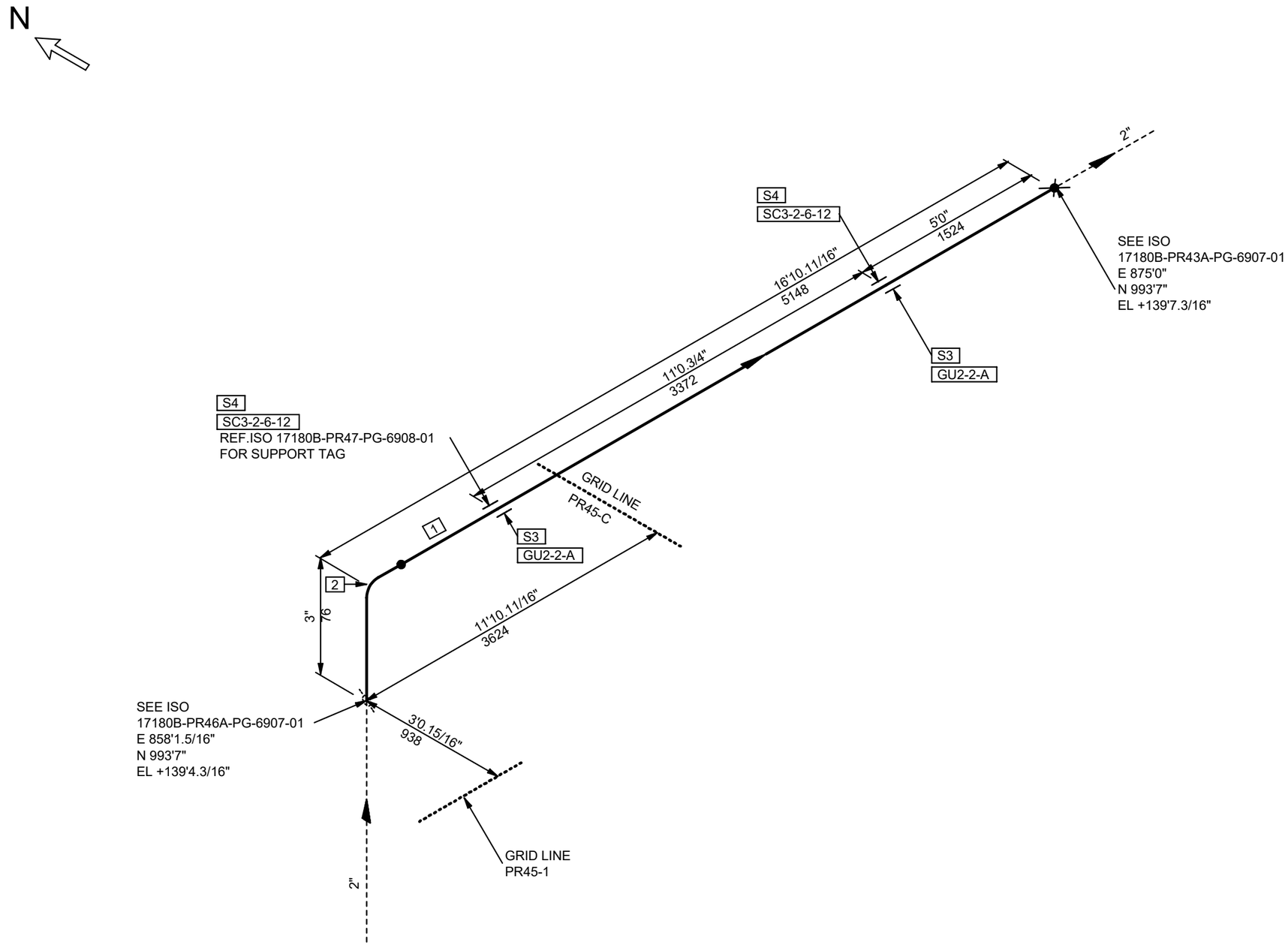
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6981-02	REV: 2

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	16.7'
2	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
ERECTION			
PIPE SUPPORTS			
3	GU2-2-A	2	2
4	SC3-2-6-12	2	2

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	N	INSULATION THICKNESS	0 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LEGEND:

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- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
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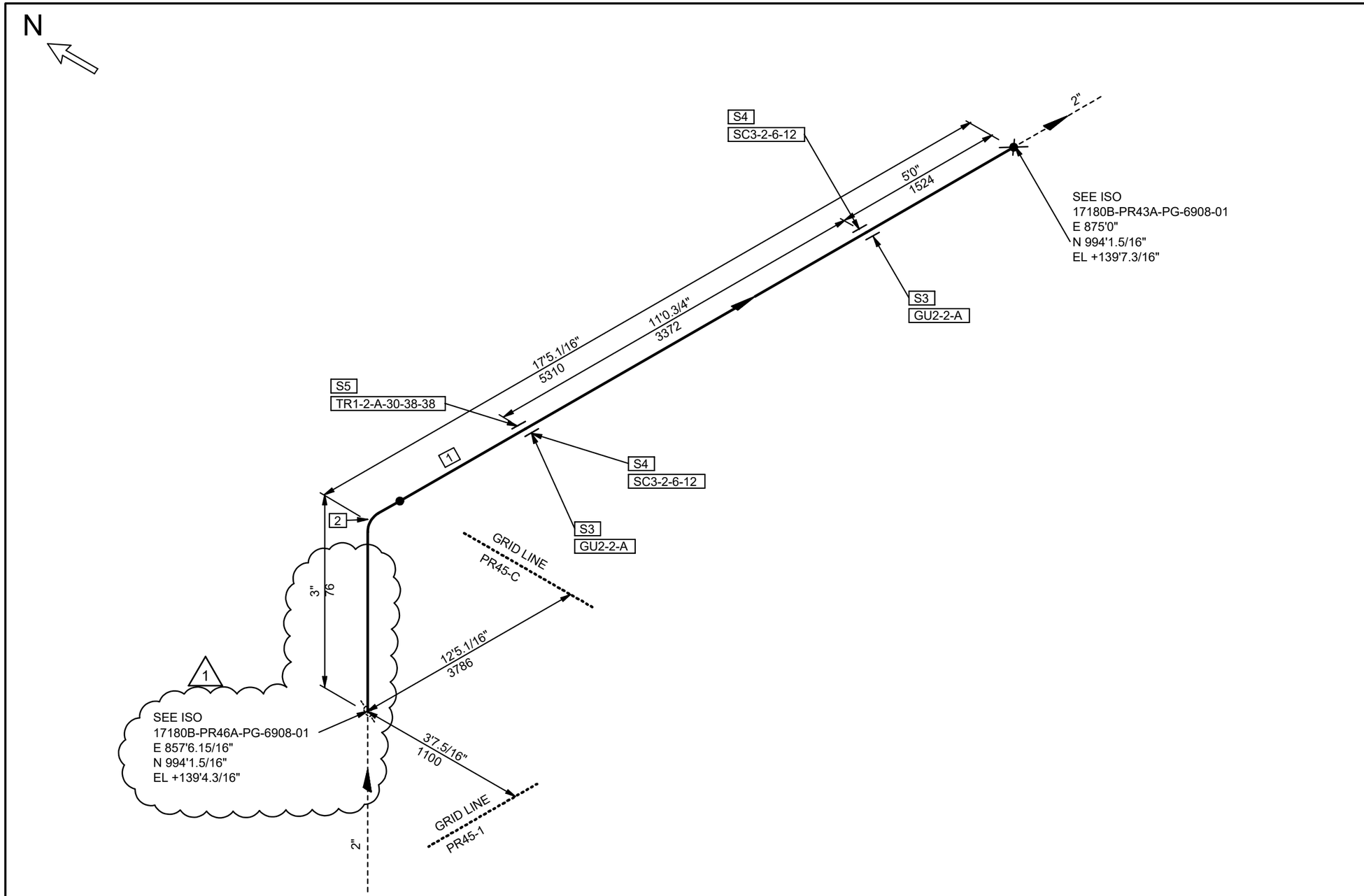
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6907-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	1 (17.2')
2 90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
ERECTION		
PIPE SUPPORTS		
3 GU2-2-A	2	2
4 SC3-2-6-12	2	2
5 TR1-2-A-30-38-38	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6908		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	N (1)	INSULATION THICKNESS	0 in (1)
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/18/2019	RE-ISSUED FOR CONSTRUCTION	AA	TKS	MLO
0	10/07/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

LEGEND:

- ● = SHOP WELD
- ✕ = FIELD WELD
- ✕ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- —— —— = HEAT TRACING

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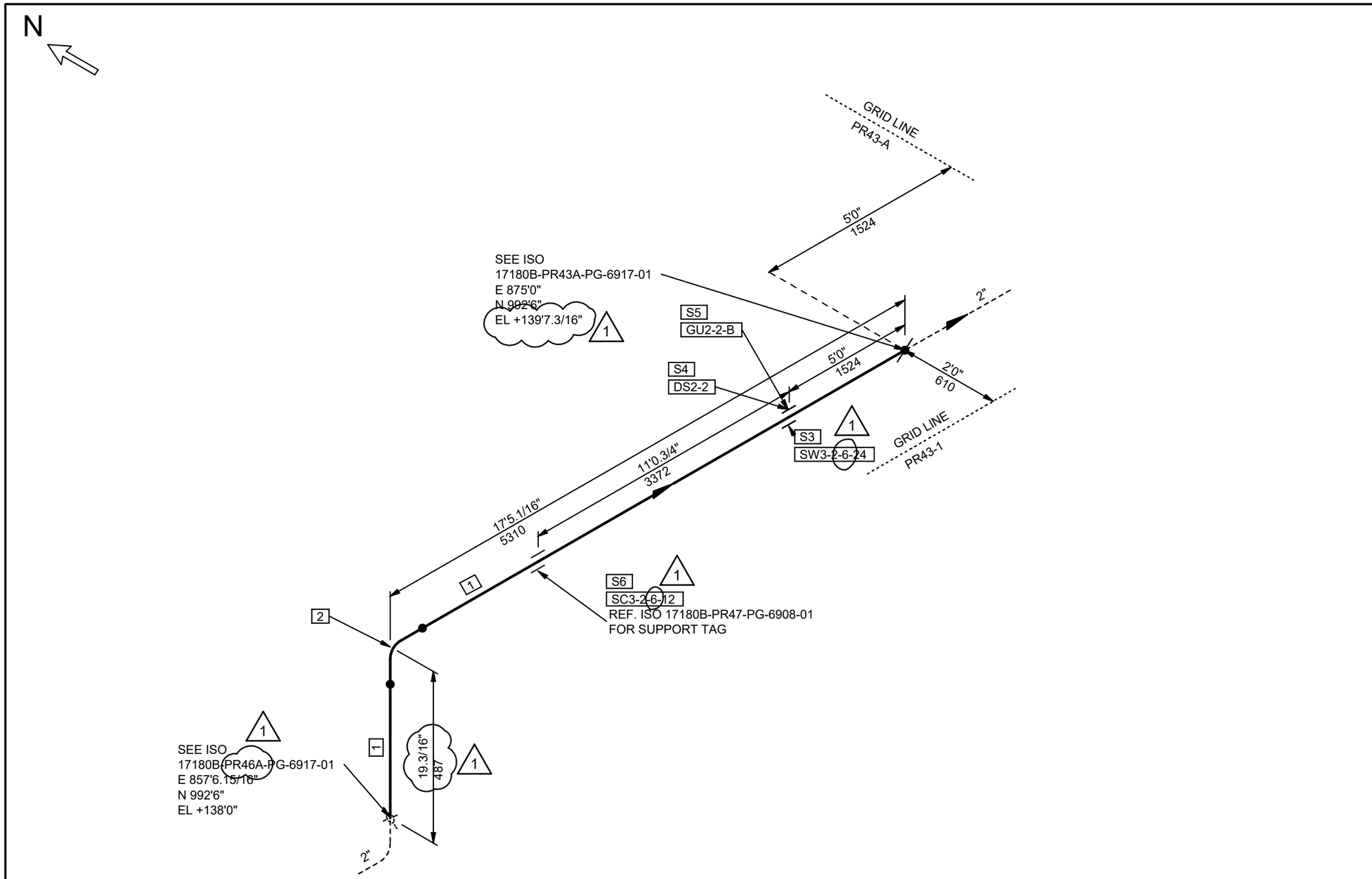
PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6908-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

DESCRIPTION	N.S. (IN)	QTY
FABRICATION		
1 Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-80	2	18.6'
2 90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-80 , S-80	2	1
PIPE SUPPORTS		
3 SW3-2-6-24	2	1
ERECTION		
PIPE SUPPORTS		
4 DS2-2	2	1
5 GU2-2-B	2	1
6 SC3-2-6-J2	2	1

FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6907		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	2 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
1	10/19/2019	RE-ISSUED FOR CONSTRUCTION	RR	AA	MLO
0	09/27/2019	ISSUED FOR CONSTRUCTION	SBD	NNR	MLO

PRAXAIR

IHI

IHI E&C International Corporation
West Memorial Place II
15377 Memorial Drive
Houston, Texas 77079
Tel 713.270.3100

LEGEND:

- ● = SHOP WELD
- ✖ = FIELD WELD
- ✖ FFW = FIELD FIT WELD (ADD 6 IN TO PIPE CUT LENGTH FOR FIELD ADJUSTMENT
- — — = HEAT TRACING

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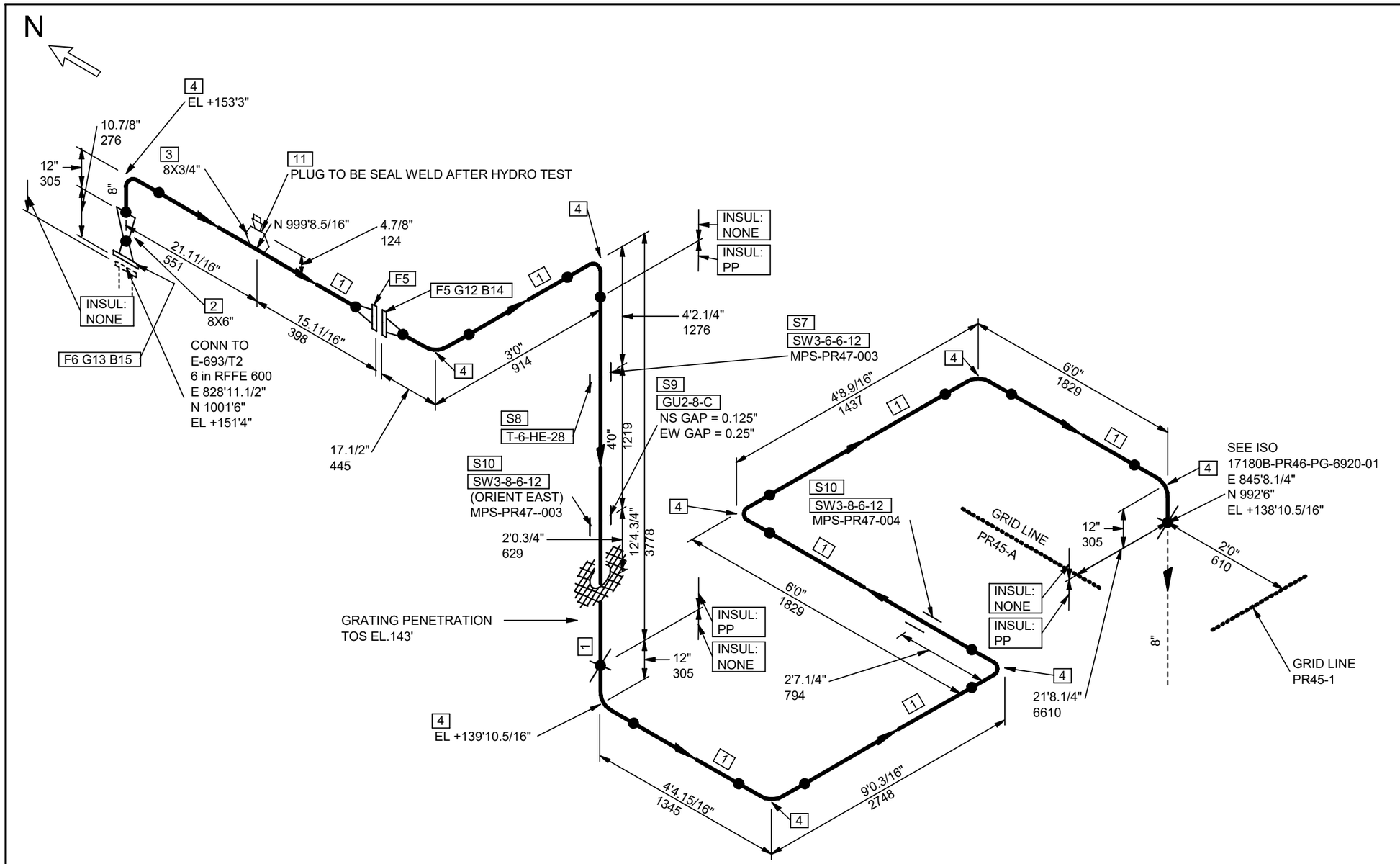
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6917-01	REV: 1

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
	FABRICATION		
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	34.2'
2	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-80	8X6	1
3	Thredolet , MSS SP-97 , CL3000 , FTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X3/4	1
4	90 LR Elbow , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-60	8	9
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	2
6	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	6	1
	PIPE SUPPORTS		
7	SW3-6-6-12	8	1
8	T-6-HE-28	8	1
9	GU2-8-C	8	1
10	SW3-8-6-12	8	2
	ERECTION		
11	Round Head Plug , ASME B16.11 , MTE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	3/4	1
12	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
13	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	6	1
14	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
15	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7 in. Length	1	12

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FABRICATION & GENERAL NOTES

1. Refer to "Line List" for design conditions, medium, weld specifications, cleaning, painting, insulation specification, vapor barrier, testing, and inspection requirements.
2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 1/2 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	10/22/2019	ISSUED FOR CONSTRUCTION	SRS	NNR	MLO

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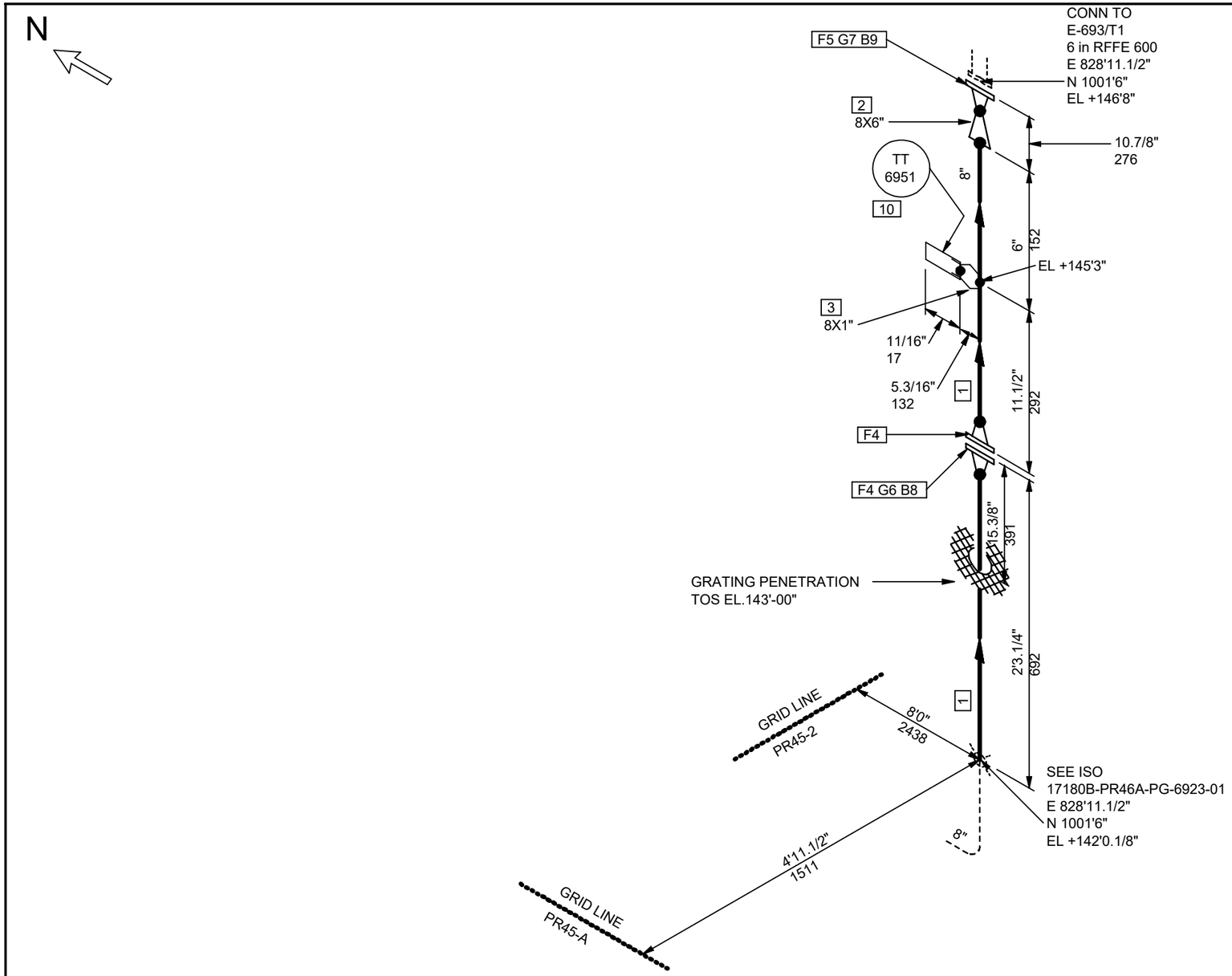
LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6920-01	REV: 0

TEMPLATE: GE-215B ISO



MATERIAL LIST

	DESCRIPTION	N.S. (IN)	QTY
FABRICATION			
1	Pipe , ASME B36.10 , BE , ASTM A335-P11 , SMLS , Ej=1.00 , S-60	8	2.9'
2	Conc Reducer , ASME B16.9 , BE , ASTM A234 Grade WP11 Class 2 , SMLS , S-60 , S-80	8X6	1
3	Sockolet , MSS SP-97 , CL3000 , SWE , ASTM A182 Grade F 11 Class 2 (UNS K11572)	8X1	1
4	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-60	8	2
5	WN Flg , ASME B16.5 , CL600 , RF , ASTM A182 Grade F 11 Class 2 (UNS K11572) , S-80	6	1
ERECTION			
6	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	8	1
7	Grooved Metal Gasket , ASME B16.20, for ASME B16.5 Flanges , CL600 , RF , FG Facing, 316L CR and Core	6	1
8	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7.75 in. Length	1.1/8	12
9	Stud Bolt (IN-IN) B18.31.2 , ASTM A193 Grade B16 , w/ (2) A194-7 heavy hex nuts - 7 in. Length	1	12
INSTRUMENTS			
10	TT-6951	1	1

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2. All centerline dimensions are to be verified at site. The number and location of field welds corresponding to adaptation lengths to be defined by the contractor.

REFERENCE INFORMATION

REFERENCE P&ID	18026-9100-1003-6905		
PIPE SPEC	HCJ600P1	HEAT TRACE	N
INSULATION TYPE	PP	INSULATION THICKNESS	3 in
PROCESS LINE LIST	17180B-IHI-PR-LLS-0001		

REV	DATE	REASON FOR ISSUE	BY	CHK	APPR
0	09/26/2019	ISSUED FOR CONSTRUCTION	RBK	NNR	MLO

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LOUISIANA REG. NO. EF.0005116

PROJECT NAME: PRAXAIR CONVENT SMR		
IHI PROJECT NO: H18026	SCALE: N.T.S.	
PROJECT NO: 17180B	DRAWING NO: 17180B-PR47-PG-6923-01	REV: 0

TEMPLATE: GE-215B ISO