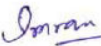


	Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION		PEMC-07415	
			JOB SPECIFICATION		Rev. No. 01	
			PRE FORMED CALCIUM SILICATE THERMAL INSULATION		Page 1 of 3	
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.		JOB SPECIFICATION FOR PRE FORMED CALCIUM SILICATE THERMAL INSULATION TCL-MITHAPUR, GUJARAT				
Refer Doc		LAYOUTS & PIPING ENGINEERING PROJECT ENGINEERING & SYSTEMS DIVISION	PREPARED	CHECKED	APPROVED	DATE
			 IMRAN	 G UDAY	 SRIKANTH G	13.06.19

Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PEMC-07415
		JOB SPECIFICATION	Rev. No. 01
		PRE FORMED CALCIUM SILICATE THERMAL INSULATION	Page 2 of 3

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1.0 GENERAL

- 1.1 This job specification document specifies the requirements of Pre formed Calcium Silicate thermal insulation applicable for TCL- Mithapur, Gujarat.
- 1.2 Bidder shall read this document in conjunction with ‘Technical Specification for Pre-formed calcium silicate thermal insulation (Doc.No.PY52036, Rev01), for the technical requirements, scope of supply & services, design criteria, requirements of quality, inspection & testing, documentation etc. Bidder shall also refer to all the enclosures listed at the end of this specification.
- 1.3 Bidder shall comply with all the requirements specified in the documents referred above.

2.0 LEGEND / GLOSSARY OF TERMS

Purchaser	: BHEL
Owner	: BHEL’s Customer
Bidder	: Eligible vendors from whom offers are received against the Enquiry
Vendor	: Successful Bidder of the Package on whom Order is placed

3.0 SCOPE OF SUPPLY

- 3.1 **Pre formed Calcium Silicate thermal insulation blocks** shall be supplied for the piping as per the Bill of Material (as per Annexure-A) and the Isometrics (as per Annexure-B) of this Job specification.
- 3.2 **Ancillaries required for application of Calcium silicate** Insulation on pipes shall be in bidder’s scope.
- 3.3 The detailed scope of supply for Calcium silicate Insulation shall be as specified in “Technical Specification for Pre-formed calcium silicate thermal insulation” (Doc.No. PY52036, Rev.01).

4.0 PROJECT SPECIFIC DATA AND REQUIREMENTS

- 4.1 Manufacturing, Physical & Chemical properties, Inspection and Testing of Calcium silicate preformed blocks, slabs and pipe sections to be supplied under this specification shall conform to the latest edition of the IS 8154 **with average bulk density of 250 Kg/m3 (with tolerance of +/- 10%)**.
- 4.2 The shape of the pre-formed blocks shall be as per Manufacturer’s standards as allowed by code.
- 4.3 The overall Insulation Thickness shall be as per the BOQ. However, the layer combination to achieve the required thickness shall be as per Manufacturer’s standard.

5.0 CHECK LIST FORMAT

A check list format is attached with this job specification. Bidder shall submit, along with the technical offer, duly filled-in checklist as per this format only. **No other format is acceptable.** Offers submitted without the duly filled in checklist is liable for rejection.

Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PEMC-07415
		JOB SPECIFICATION	Rev. No. 01
		PRE FORMED CALCIUM SILICATE THERMAL INSULATION	Page 3 of 3

6.0 LIST OF ENCLOSURES / ANNEXURES

Sl No	Doc Number	Description
1	PY52036, R01	Technical Specification for Pre-formed calcium silicate thermal insulation
2	Annexure-A	Piping Bill of Material along with Insulation thickness
3	Annexure-B	Engineering Isometrics
4	Annexure-C	Price Bid Format
5	Annexure-D	Checklist Format
6	Annexure-E	Format for Deviation Schedule
7	Annexure-F	Format for Pre-bid Queries

7.0 IMPORTANT INSTRUCTIONS TO BIDDER

Bidder shall mandatorily submit the following documents along-with Technical offer, failing which bidder's offer is liable for rejection.

- 7.1 Unpriced Price-bid Format
- 7.2 Filled-in Checklist.
- 7.3 Deviation Schedule ("NIL" to be mentioned, if no deviations)
- 7.4 Stamped & Signed copies of Technical Specification for Pre-formed calcium silicate thermal insulation (PY52036-R01) and job specification for Pre formed Calcium Silicate Thermal Insulation (PEMC-07415).
- 7.5 Stamped & Signed copies of all attached Annexures.
- 7.6 Pre-bid queries, if any (within 4 days of receipt of enquiry from purchaser, failing which it is presumed that bidder does not have any pre-bid queries)
- 7.7 In case of ambiguity of any technical requirement among the above referred documents, a clarification/ query shall be raised by the bidder and get clarified from Purchaser during pre-bid stage itself.

8.0 RECORD OF REVISIONS

Rev No	Date	Revision Detail	Revised by	Approved by
00	13.06.2019	FIRST ISSUE	 IMRAN	 SRIKANTH G
01	11.01.2020	REVISED SCOPE OF SUPPLY	 IMRAN	 SRIKANTH G



BHARAT HEAVY ELECTRICALS LIMITED

RAMACHANDRAPURAM, HYDERABAD-32

PROJECT ENGINEERING & SYSTEMS DIVISION

**BILL OF MATERIALS
RUBBER LINED PIPING PACKAGE**

**ANNEXURE-A TO PEMC-07415
JOB SPECIFICATION FOR RUBBER LINED PIPING PACKAGE
TCL MITHAPUR**

ANNEXURE-A
PACKAGE-A:BOQ FOR PRE FORMED PIPE SECTIONS OF CALCIUM SILICATE THERMAL INSULATION

PROJECT-TCL MITHAPUR-R02

PACKAGE A:BOQ FOR THERMAL INSULATION PACKAGE(PRE FORMED CALCIUM SILICATE PIPE SECTIONS)

SL NO	LINE NUMBER	OPER TEMP(DEG C)	SIZE 1	SIZE 2	INS THK	PIPE LEN(M)	ELBOW 90 DEG	ELBOW 45DEG	TEE	RDCR	CAP	FLANGE	OLET	VALVE	GAUGE 1/2"
1	12-MS-01-1101-55C-IH	510	12	10	200	115	25	2	1	1				2	10
2	12-MS-01-1101-55C-IH	510	12	8	200				1	1					
3	12-MS-01-1101-55C-IH	510	8	1.5	175	3					1	1			
4	12-MS-01-1101-55C-IH	510	10		200	6	1		1						
5	2-DR-01-1102-64C-IH	510	2		140	120	25							8	
6	1.5-DR-01-1103-64C-IH	510	1.5		25	50	15							2	
7	1-DR-11-1107-64C-IH/MISC	510	1		25	120	30							15	
8	2-MS-01-1104-64C-IH	510	2	1	140	15	7		1	1				2	
9	6-V-01-1105-14B-IS	-	6	3	25	28	6			1					
10	6-V-01-1105-14B-IS	-	3	2	25					1					
11	18-LS-01-1112-34C-IH	360	18	16	180	24	5			2					15
12	18-LS-01-1112-34C-IH	360	16	10	180					1				1	
13	18-LS-01-1112-34C-IH	360	10		180							1			
14	18-LS-01-1112-34C-IH	360	8		130	1					1		2		
15	18-LS-01-1116-24C-IH	360	18	16	180	50	6		1	1				1	
16	18-LS-01-1116-24C-IH	360	6		130	12	5							2	
17	18-LS-01-1116-24C-IH	360	8		130	1					1		2		
18	18-LS-01-1117-24C-IH	360	18		180	50	10		1					1	
19	18-LS-01-1117-24C-IH	360	18	14	180					2					
20	18-LS-01-1117-24C-IH	360	14		150	10									
21	18-LS-01-1117-24C-IH	360	8		130	2					1				
22	18-LS-01-1118-24C-IH	360	18	14	180	56	7	6		1				1	
23	18-LS-01-1118-24C-IH	360	8		130	2					1				
24	1.5-DR-11-6112-33C-IS	360	1.5		25	60	15							1	
25	1-DR-11-6110-33C-IS	360	1		25	150	40		10					15	
26	1-DR-11-1121,1124,1115-11B-IS	-	1		25	150	30								
27	4-LS-11-1108-34C-IH	442	4		125	8	5					1			2
28	4-LS-11-1108-34C-IH	442	1		80	50	10							1	
29	4-LS-01-1109-24C-IH	425	4	3	125	5		2		1					
30	4-LS-01-1109-24C-IH	425	3		125							1			
31	4-LS-01-1110-24C-IH	338	4	3	125	5	3			1					
32	4-LS-01-1110-24C-IH	338	3		125							1			
33	4-LS-01-1110-24C-IH	338	6	4	140	4	2		1	2					3
34	4-LS-01-1110-24C-IH	338	1		80	40	15		1					4	
35	6-LS-11-1111-21C-IH	375	6		140	36	8		2					2	5
36	6-LS-11-1111-21C-IH	375	1		80	50	10							4	
37	6-LS-11-1125-11C-IH	170	6		125	24	9		1				2		2
38	6-LS-01-1119/1122-33C-IH	360	6		140							2		2	
39	6-LS-01-1119/1122-33C-IH	360	8		25	1	2					2			
40	12-SV-01-1120/1123-11B-IS	-	12		25	60	10	4							
41	6-LS-01-1113-34C-IH	360	6		115	18	6					2		2	
42	12-V-01-1114-14B-IS	-	12	6	25	26	4			1					

ANNEXURE-A
PACKAGE-A:BOQ FOR PRE FORMED PIPE SECTIONS OF CALCIUM SILICATE THERMAL INSULATION

PROJECT-TCL MITHAPUR-R02

PACKAGE A:BOQ FOR THERMAL INSULATION PACKAGE(PRE FORMED CALCIUM SILICATE PIPE SECTIONS)

SL NO	LINE NUMBER	OPER TEMP(DEG C)	SIZE 1	SIZE 2	INS THK	PIPE LEN(M)	ELBOW 90 DEG	ELBOW 45DEG	TEE	RDCR	CAP	FLANGE	OLET	VALVE	GAUGE 1/2"
43	4-GS-11-6101-13B-IH	430	4	3	125	6				1					3
44	4-GS-11-6101-13B-IH	430	6	4	125					1					
45	4-GS-11-6101-13B-IH	430	3		125							1			
46	4-GS-11-6102-13B-IH	400	4	3	125	6	3	1		1					
47	4-GS-11-6102-13B-IH	400	6	4	125					1					
48	4-GS-11-6102-13B-IH	400	3		125							1			
49	6-GS-11-6103-13B-IH	430	6		125	3			1						
50	6-GS-11-6104/6106-11B-IH	400	6		125	15	7		3						3
51	6-GS-11-6104/6106-11B-IH	400	1		75	60	20							1	
52	6-GS-11-6105-11B-IH	400	6		25	20	5							1	
53	N4 & N5 drains to flash tank	450	1		90	100	40							4	
54	GSC	400	20		160	6						6			5
55	2-DR-11-1213-11B-IS	98	2		25	20	5							1	
56	2-DR-11-1201/1202/1203-11B-IS	98	2		25	15	4		1					4	
57	1.5-CD-11-1204/1205/1206-11B-IS	98	1.5		25	50	4							5	
58	4-V-11-1212-11B	100	4		25	10	6		1					2	
59	4-V-11-1212-11B	100	6	4	25					2		2			
60	6-V-11-1210/1211-11B	100	6		25	48	7	2							

Note :

1.Size 1 refers to the main pipe size and Size 2 refers to branch pipe/reducer size

ANNEXURE-A
PACKAGE-B: BOQ FOR INSULATION ANCILLARIES

Project:Tata Chemicals Ltd,Mithapur

PACKAGE-B: BOQ FOR INSULATION ANCILLARIES

S.NO	ITEM DESCRIPTION	UOM	Qty
1	Calcium silicate powder	Kgs	4000
2	Sodium silicate powder	Kgs	750
3	20SWG GI Wire	Kgs	120
4	20SWG SS Wire	Kgs	120
5	1/2"x24SWG SS Bands - Insulation-20 mm wide	Kgs	1260
6	1/2"x24SWG SS Bands - Cladding--20 mm wide	Kgs	360
7	Self Tapping Screws -Stainless Steel	Nos	31240
8	Quick Release toggles	Nos	710
9	Elastomeric Sealing compound	Kgs	170
10	Securing Seals	Nos	7580
11	Black Bituminous Paint	Ltrs	480



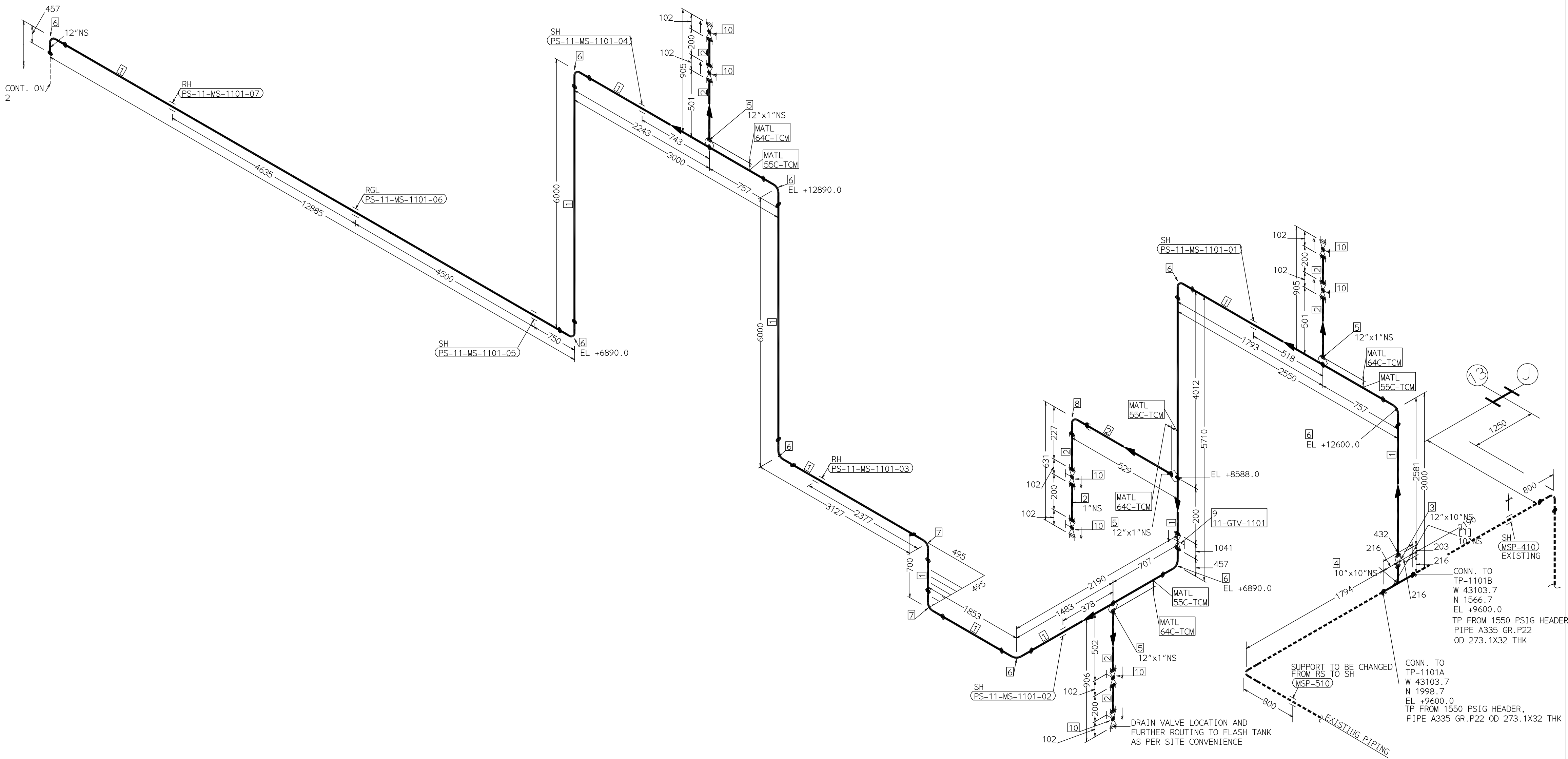
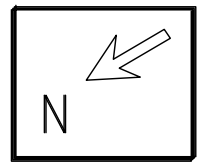
PIPING ISOMETRICS
PRE FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE

ANNEXURE-B TO PEMC-07415

JOB SPECIFICATION FOR PRE FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE

TCL MITHAPUR

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PIPE: 12-MS-11-1101-55C-IH

REFERENCE DRAWINGS:-

1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01

LINE PARAMETERS:-

LINE NUMBER	W PR (Kg/cm ²)	W TEMP (DegC)	D PR (Kg/cm ²)	D TEMP (DegC)	HT PR (Kg/cm ²)	INS THK (mm)	INS MAT	PSPEC	BORE
12-MS-11-1101-55C-IH	105	510	118	530	177	200	Ca. SLLT	55C-TCM	12"

LEGEND:-

— SUPPORT LOCATION
— DIRECTION OF FLOW
— DIRECTION OF SLOPE
— WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
04	11.01.20	PS-11-MS-1101-14 & 15 SUPPORT TYPE CHANGED	IH	GUK	GS
03	04.12.19	GENERALLY REVISED	IH	GUK	GS
02	25.06.19	GENERALLY REVISED	IH	GUK	GS
01	10.06.19	GENERALLY REVISED	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS

FABRICATION MATERIALS

PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A335GRP91	12	T31		37.1M	0
2	PIPE SMLS ASME B36.10 PE	A335GRP22	1	S160		2.2M	4.24
3	RDCR CONC ASME B16.9 BW	A234GRWP91	12 x 10	S160X S160		1	0
4	TEE STRT ASME B16.9 BW	A234GRWP22	10 x 10	T32		1	74
5	WELDOLET REDUCING (MSS-SP-97) XXS BW	A182GRF91	12 x 1		XXS	4	0.32
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP91	12	T31		9	0
7	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWP91	12	T31		2	0
8	ELBOW 90 DEG LR ASME B16.11 CL6000 SW	A182GRF22	1		CL6000	1	1.1
9	GATE VALVE GO CL2500 BW	A217GRWC9	12		CL2500	1	1600
10	GLOBE VALVE HO CL2500 SW	A182GRF22	1		CL2500	8	0

[1]

GENERAL NOTES:-

- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)

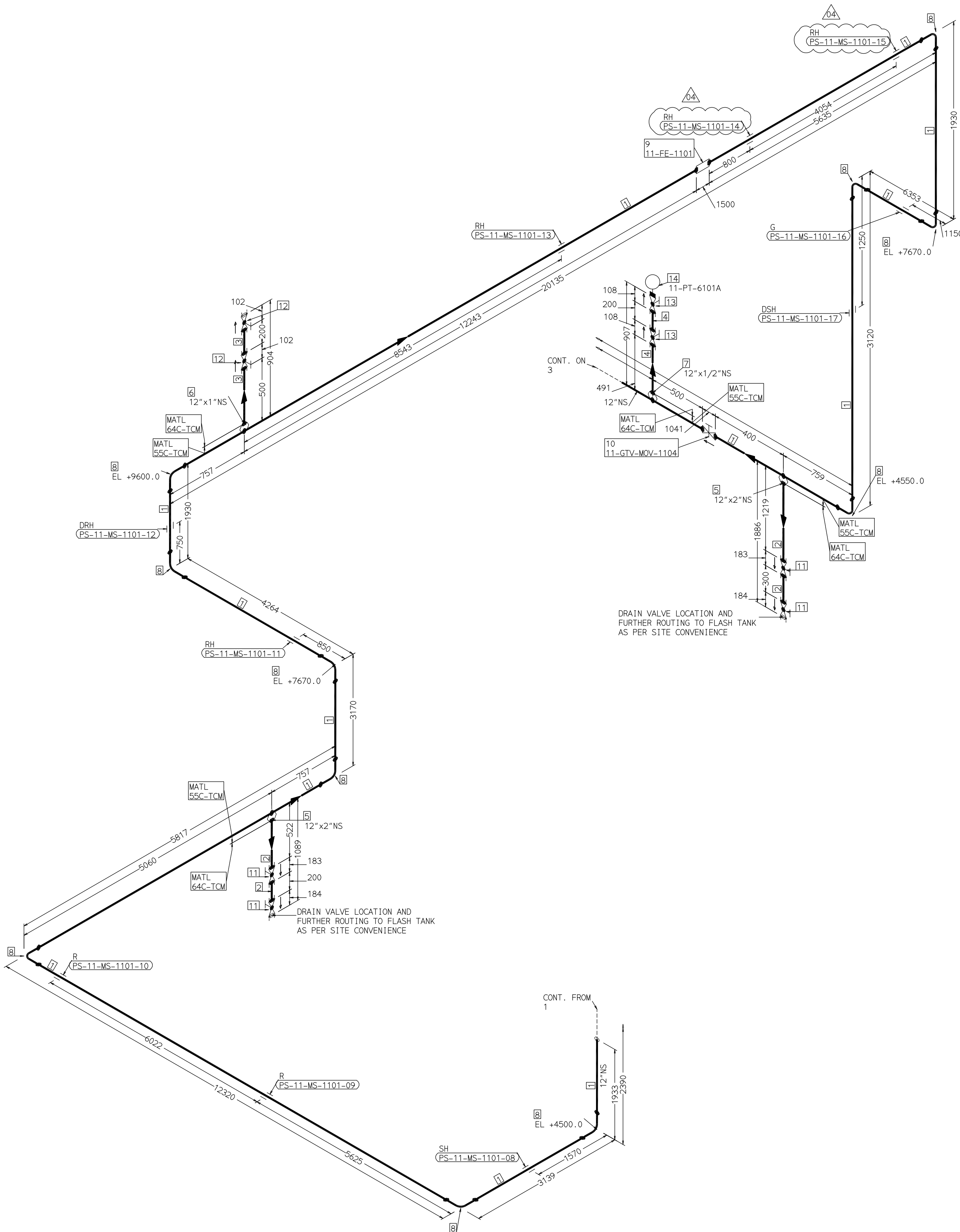
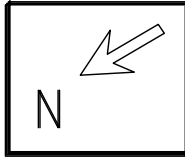
		BHARAT HEAVY ELECTRICALS LTD		NAME		SIGN	DATE
		PROJECT ENGINEERING & SYSTEMS DIVISION		DRN.	IH	-SD-	25-05-19
		R. C. PURAM, HYDERABAD-502032.		CHKD.	GUK	-SD-	25-05-19
		PE&SD LAYOUTS & PIPING ENGINEERING		APPRD.	GS	-SD-	25-05-19
				SCALE: NTS			
TITLE: MAIN STEAM TO TURBINE INLET				DRAWING NO: PY-DX-1-M117-1001-01			REV 04
				SHT. No. 1		NO. OF SHTS. 3	

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RESTRICTED USE
DRAWING FILE NAME:



REFERENCE DRAWINGS:-

1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01

LINE PARAMETERS:-

LINE NUMBER	W PR (Kg/cm ²)	W TEMP (DegC)	D PR (Kg/cm ²)	D TEMP (DegC)	HT PR (Kg/cm ²)	INS THK (mm)	INS MAT	PSPEC	BORE
12-MS-11-1101-55C-IH	105	510	118	530	177	200	Ca. SLLT	55C-TCM	12"

LEGEND:-

— SUPPORT LOCATION
— DIRECTION OF FLOW
— DIRECTION OF SLOPE
— WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
04	11.01.20	PS-11-MS-1101-14 & 15 SUPPORT TYPE CHANGED	IH	GUK	GS
03	04.12.19	GENERALLY REVISED	IH	GUK	GS
02	25.06.19	GENERALLY REVISED	IH	GUK	GS
01	10.06.19	GENERALLY REVISED	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS

FABRICATION MATERIALS

PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A335GRP91	12	T31		54.3M	0
2	PIPE SMLS ASME B36.10 PE	A335GRP22	2	S160		1.9M	11.11
3	PIPE SMLS ASME B36.10 PE	A335GRP22	1	S160		0.5M	4.24
4	PIPE SMLS ASME B36.10 PE	A335GRP22	1/2	S160		0.5M	1.95
5	Weldolet Reducing (MSS-SP-97) XXS BW	A182GRF91	12 x 2		XXS	2	0.97
6	Weldolet Reducing (MSS-SP-97) XXS BW	A182GRF91	12 x 1		XXS	1	0.32
7	Weldolet Reducing (MSS-SP-97) XXS BW	A182GRF91	12 x 1/2		XXS	1	0.11
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP91	12	T31		11	0
9	PIPING COMPONENT (USER DEFINED) BW	A234GRWP91	12			1	0
10	GATE VALVE G0 CL2500 BW	A217GRWC9	12		CL2500	1	1600
11	GLOBE VALVE HO CL2500 SW	A182GRF22	2		CL2500	4	0
12	GLOBE VALVE HO CL2500 SW	A182GRF22	1		CL2500	2	0
13	GLOBE VALVE HO CL2500 SW	A182GRF22	1/2		CL2500	2	0

ERECTION MATERIALS

PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
14	PRESSURE TRANSMITTER SW 11-PT-6101A		1/2			1	0

GENERAL NOTES:-

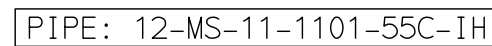
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ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. IH	-SD-	25-05-19
	CHKD. GUK	-SD-	25-05-19
	APPRD. GS	-SD-	25-05-19
SCALE: NTS			
TITLE: MAIN STEAM TO TURBINE INLET		DRAWING NO: PY-DX-1-M117-1001-01	
		REV 04	
		SHT. No. 2 NO. OF SHTS. 3	

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LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (mm)	INS MAT	PSPEC	BORE
12-MS-11-1101-55C-1H	105	510	118	530	177	200	Ca. SLLT	55C-TCM	12"

RECORD OF REVISIONS:-

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. IH	-SD-	25-05-19
	CHKD. GUK	-SD-	25-05-19
	APPRD. GS	-SD-	25-05-19
		SCALE: NTS	
TITLE: MAIN STEAM TO TURBINE INLET	DRAWING NO: PY-DX-1-M117-1001-01		REV 04
SHT. No. 3		NO. OF SHTS 3	

ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (in)	SCH	RATING	QTY	UNITWT (Kg)
22	TEMP TRANSMITTER SCRD (NP250) 11-TE-6102A		1		NP250	1	0
23	TEMP TRANSMITTER SCRD (NP250) 11-TE-6102B		1		NP250	1	0
24	TEMP TRANSMITTER SCRD (NP250) 11-TE-6102C		1		NP250	1	0
25	TEMP GAUGE SCRD (NP250) 11-TG-6104		1		NP250	1	0
26	PRESSURE TRANSMITTER SW 11-PT-6101B		1/2			1	0
27	PRESSURE TRANSMITTER SW 11-PT-6101C		1/2			1	0
28	PRESSURE GAUGE SW 11-PG-6103		1/2			1	0

GENERAL NOTES:-

1. ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
3. PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
4. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
5. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)



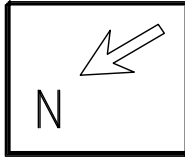
BHARAT HEAVY ELECTRICALS LTD
PROJECT ENGINEERING &
SYSTEMS DIVISION
R.C.PURAM, HYDERABAD-502032.
LAYOUTS & PIPING ENGINEERING

TITLE:
MAIN STEAM TO TURBINE INLET

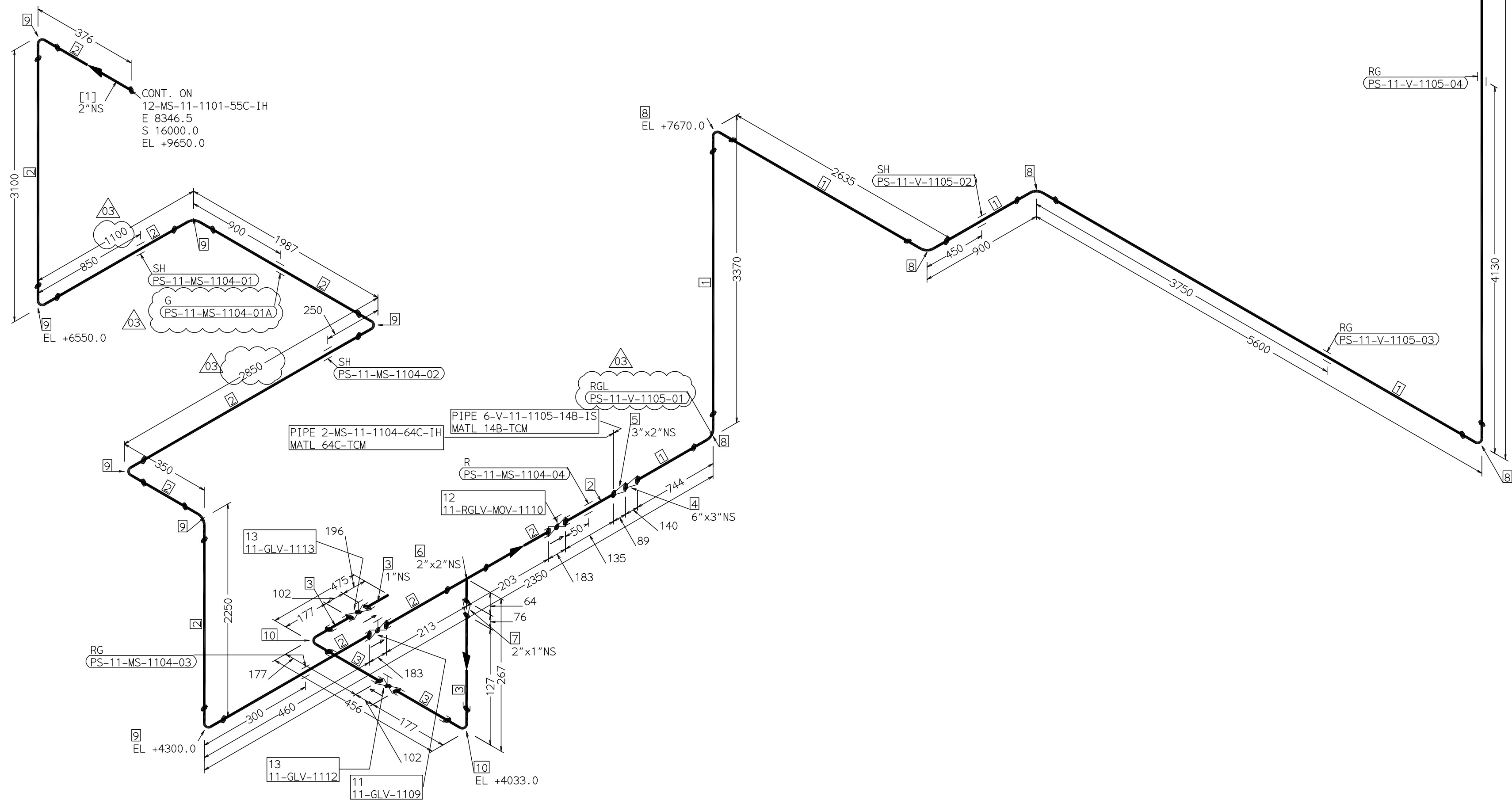
DRAWING NO:	REV
PY-DX-1-M117-1001-01	04

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TO VENT SILENCER INLET
11-LZ-1101
W 1850.0
S 17500.0
EL +22000.0



REFERENCE DRAWINGS:-

1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01

LINE PARAMETERS:-

LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (mm)	INS MAT	PSPEC	BORE
2-MS-11-1104-64C-IH	102	508	118	530	177	140	Ca. SILLL	64C-TCM	2"
6-V-11-1105-14B-IS			5	466	NA	25	Ca. SILLL	14B-TCM	6"

LEGEND:-

— SUPPORT LOCATION
— DIRECTION OF FLOW
— DIRECTION OF SLOPE
— WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL- DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
03	12-01-20	GENERALLY REVISED	IH	GUK	GS
02	08-11-19	REVISED DUE TO CHANGE IN VENT SILENCER HEIGHT	IH	GUK	GS
01	21-06-19	GENERALLY REVISED	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS

FABRICATION MATERIALS

PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A335GRF22	6	STD		25.3M	28.26
2	PIPE SMLS ASME B36.10 PE	A335GRF22	2	S160		11.9M	11.11
3	PIPE SMLS ASME B36.10 PE	A335GRF22	1	S160		0.8M	4.24
4	RDCR CONC ASME B16.9 BW	A234GRWP22	6 x 3	STDXS TD		1	3.9
5	RDCR CONC ASME B16.9 BW	A234GRWP22	3 x 2	STDXX S		1	1
6	TEE STRT ASME B16.9 BW	A234GRWP22	2 x 2	S160		1	2.25
7	RDCR CONC ASME B16.9 BW	A234GRWP22	2 x 1	S160X S160		1	0.84
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP22	6	STD		5	11.01
9	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP22	2	S160		7	1.48
10	ELBOW 90 DEG LR ASME B16.11 CL6000 SW	A182GRF22	1		CL6000	2	1.1
11	GLOBE VALVE HO CL2500 SW	A182GRF22	2		CL2500	1	0
12	REG GLOBE VALVE HO CL2500 SW	A182GRF22	2		CL2500	1	0
13	GLOBE VALVE HO CL2500 SW	A182GRF22	1		CL2500	2	0

[1]

GENERAL NOTES:-

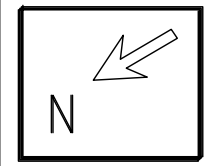
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. IH	-SD-	25-05-19
	CHKD. GUK	-SD-	25-05-19
	APPRD. GS	-SD-	25-05-19
SCALE: NTS			
TITLE: MAIN STEAM-WARMUP-VENT-PIPING		DRAWING NO: PY-DX-1-M117-1001-02	REV 03
		SHT. No. 1	NO. OF SHTS. 1

This Drawing is printed from Engineering Digital Archive System (EDAS).
Therefore signatures are not essentially required.



ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
13	TEMP GAUGE SCRD (NP40) 11-TG-6108		1		NP40	1	0
14	PRESSURE GAUGE SW 11-PG-6107		1/2			1	0
15	PRESSURE TRANSMITTER SW 11-PT-6113		1/2			1	0
16	PRESSURE TRANSMITTER SW 11-PT-6112A		1/2			1	0
17	PRESSURE TRANSMITTER SW 11-PT-6112B		1/2			1	0
18	PRESSURE TRANSMITTER SW 11-PT-6112C		1/2			1	0
19	PRESSURE GAUGE SW 11-PG-6110		1/2			1	0

GENERAL NOTES:-

1. ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
3. PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
4. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
5. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.



BHARAT HEAVY ELECTRICALS LTD
PROJECT ENGINEERING &
SYSTEMS DIVISION
R.C.PURAM, HYDERABAD-502032.

TITLE:
TURBINE EXHAUST-PIPING-COMMON
HEADER

DRAWING NO:	REV
PY-DX-1-M117-1006-02	03

This Drawing is printed from Engineering Digital Archive System (EDAS).
Therefore signatures are not essentially required.

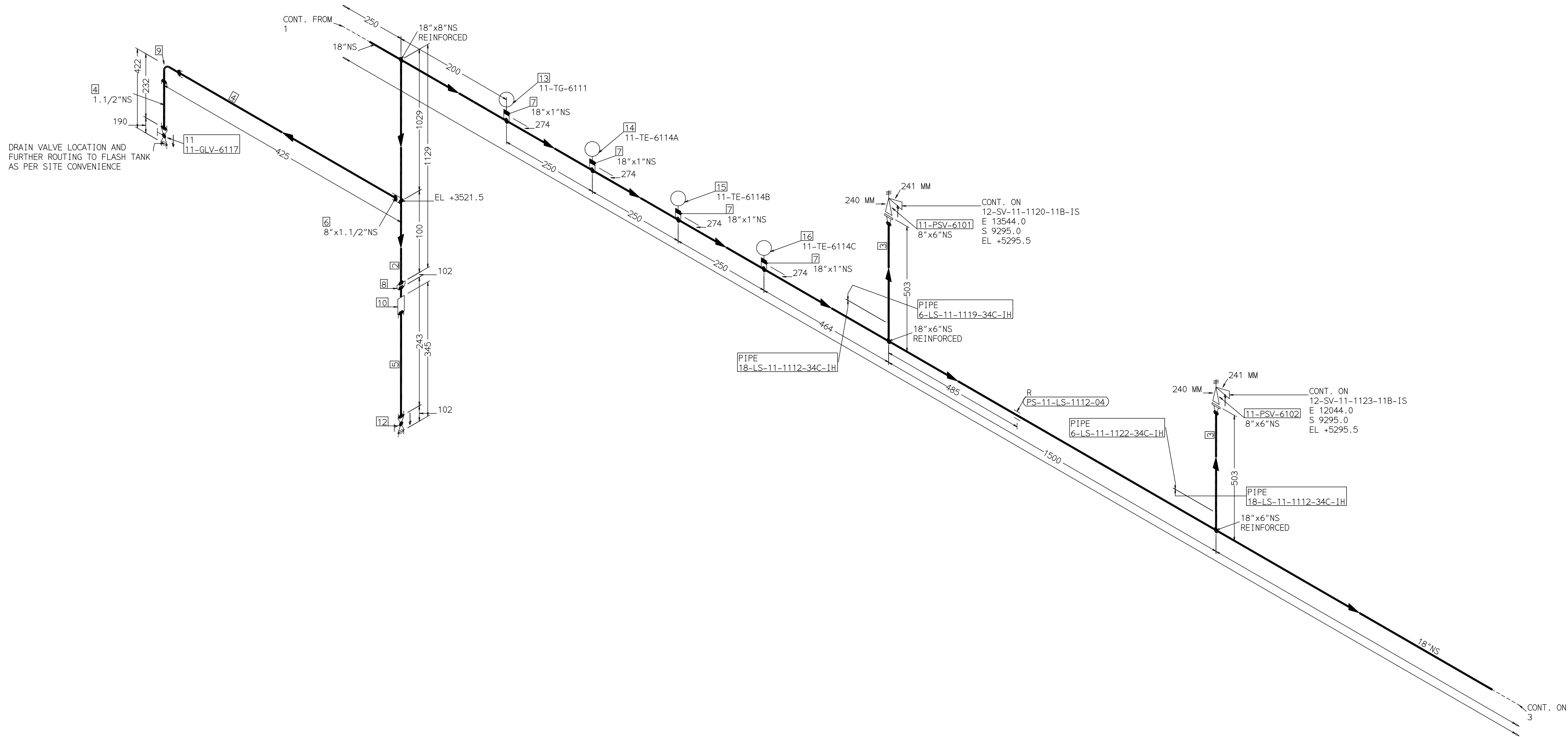
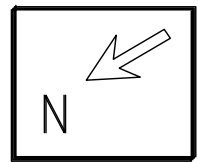
LEGEND:-

	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

A	-	ANCHOR
R	-	REST
RG	-	REST + GUIDE
RL	-	REST + LIMIT STOP
RG-L	-	DIRECTION ANCHOR
RH	-	RIGID HANGER
SH	-	SPRING HANGER
BS	-	BOTTOM SPRING
VG	-	VERTICAL GUIDE

RECORD OF REVISIONS:-						
03	12-01-20	REVISED BASED ON CUSTOMER COMMENTS	IH	GUK	GS	
02	06-11-19	SUPPORT LOCATIONS & INS. THICK. CHANGED	IH	GUK	GS	
01	25-06-19	GENERALLY REVISED	IH	GUK	GS	
00	25-05-19	FIRST ISSUE	IH	GUK	GS	
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY	

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY



FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCH	RATING	QTY	UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A335GRF22	18	XS		4.3M	139.16
2	PIPE SMLS ASME B36.10 PE	A335GRF22	8	STD		1.0M	42.55
3	PIPE SMLS ASME B36.10 PE	A335GRF22	6	XS		0.4M	42.56
4	PIPE SMLS ASME B36.10 PE	A335GRF22	1.1/2	XS		0.5M	5.41
5	PIPE SMLS ASME B36.10 PE	A335GRF22	1	XS		0.3M	3.24
6	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	8 x 1.1/2		CL3000	1	0.57
7	TEMP STUB STRT IMMERSION NP40	A182GRF22	18 x 1		NP40	4	0.28
8	CAP ASME B16.9 BW	A234GRWP22	8	STD		1	5.5
9	ELBOW 90 DEG LR ASME B16.11 CL3000 SW	A182GRF22	1.1/2		CL3000	1	1.05
10	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	1		CL3000	1	0.34
11	GLOBE VALVE HO CL1500 SW	A182GRF22	1.1/2		CL1500	1	15.2
12	GLOBE VALVE HO CL1500 SW	A182GRF22	1		CL1500	1	5.6

ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCH	RATING	QTY	UNITWT (Kg)
13	TEMP GAUGE SCRD (NP40) 11-TG-6111		1		NP40	1	0
14	TEMP TRANSMITTER SCRD (NP40) 11-TE-6114A		1		NP40	1	0
15	TEMP TRANSMITTER SCRD (NP40) 11-TE-6114B		1		NP40	1	0
16	TEMP TRANSMITTER SCRD (NP40) 11-TE-6114C		1		NP40	1	0

GENERAL NOTES:-

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- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)

	BHARAT HEAVY ELECTRICALS LTD		NAME	SIGN	DATE
	PROJECT ENGINEERING & SYSTEMS DIVISION		DRN.	IH	-SD- 25-05-19
	R.C.PURAM, HYDERABAD-502032.		CHKD.	GUK	-SD- 25-05-19
	PE&SD LAYOUTS & PIPING ENGINEERING		APPRD.	GS	-SD- 25-05-19
			SCALE: NTS		
TITLE:			DRAWING NO:		REV
TURBINE EXHAUST-PIPING-COMMON HEADER			PY-DX-1-M117-1006-02		03
This Drawing is printed from Engineering Drawings Software (EDAS)			SHT. No. 2	NO. OF SHTS. 4	

REFERENCE DRAWINGS:-									
1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01									

LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (mm)	INS MAT	PSPEC	BORE
18-LS-11-1112-34C-IH	31	359.3	36.6	470	54.9	180	Ca. SLLL	33C-TCM	18"
4-LS-11-1108-34C-IH	31	441.6	36.6	470	54.9	125	Ca. SLLL	33C-TCM	4"
6-LS-11-1119-34C-IH	31	359.3	36.6	470	54.9	115	Ca. SLLL	34C-TCM	6"
6-LS-11-1122-34C-IH	31	359.3	36.6	470	54.9	115	Ca. SLLL	34C-TCM	6"
6-LS-11-1113-34C-IH	31	359.3	36.6	470	54.9	115	Ca. SLLL	34C-TCM	6"
12-V-11-1114-14B-IS			5	450	NA	25	Ca. SLLL	14B-TCM	12"
18-LS-11-1116-24C-IH	31	359	36.6	417	54.9	180	Ca. SLLL	24C-TCM	18"

LEGEND:-									
— SUPPORT LOCATION									
— DIRECTION OF FLOW									
— DIRECTION OF SLOPE									
— WELD SYMBOL									
A - ANCHOR									
R - REST									
RG - REST + GUIDE									
RL - REST + LIMIT STOP									
RGL - DIRECTION ANCHOR									
RH - RIGID HANGER									
SH - SPRING HANGER									
BS - BOTTOM SPRING									
VG - VERTICAL GUIDE									

RECORD OF REVISIONS:-					
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
03	12-01-20	REVISED BASED ON CUSTOMER COMMENTS	IH	GUK	GS
02	06-11-19	SUPPORT LOCATIONS & INS. THICK. CHANGED	IH	GUK	GS
01	25-06-19	GENERALLY REVISED	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS

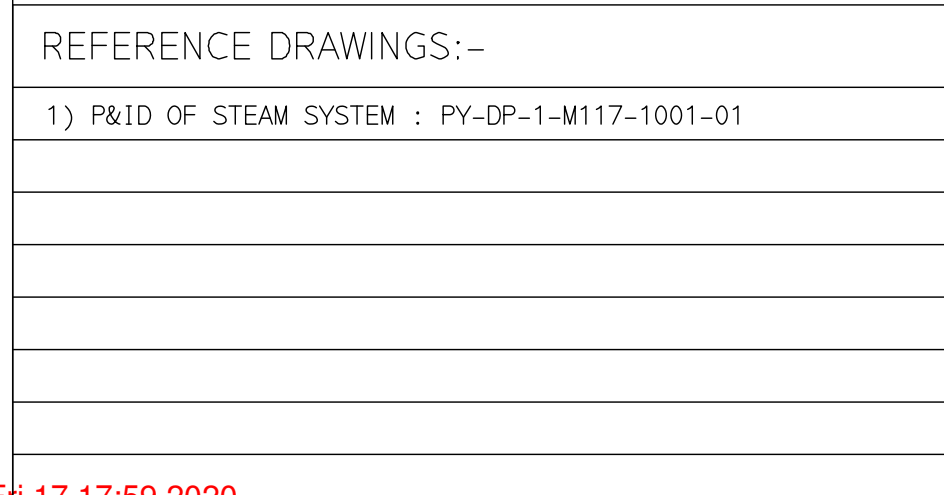
RESTRICTED USE

BEH-HEALTH

EMERGENCY

INFORMED CONSENT

PATIENT FILE NAME:



REFERENCE DRAWINGS:-	LINE PARAMETERS:-									
1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01										
	LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (mm)	INS MAT	PSPEC	BORE
	18-LS-11-1112-34C-IH	31	359.3	36.6	470	54.9	180	Ca. S.LLL	33C-TCM	18"
	4-LS-11-1108-34C-IH	31	441.6	36.6	470	54.9	125	Ca. S.LLL	33C-TCM	4"
	6-LS-11-1119-34C-IH	31	359.3	36.6	470	54.9	115	Ca. S.LLL	34C-TCM	6"
	6-LS-11-1122-34C-IH	31	359.3	36.6	470	54.9	115	Ca. S.LLL	34C-TCM	6"
	6-LS-11-1113-34C-IH	31	359.3	36.6	470	54.9	115	Ca. S.LLL	34C-TCM	6"
	12-V-11-1114-14B-IS			5	450	NA	25	Ca. S.LLL	14B-TCM	12"
	18-LS-11-1116-24C-IH	31	359.3	36.6	417	54.9	180	Ca. S.LLL	24C-TCM	18"

LEGEND:-

	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL- DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-					
03	12-01-20	REVISED BASED ON CUSTOMER COMMENTS	IH	GUK	GS
02	06-11-19	SUPPORT LOCATIONS & INS. THICK. CHANGED	IH	GUK	GS
01	25-06-19	GENERALLY REVISED	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

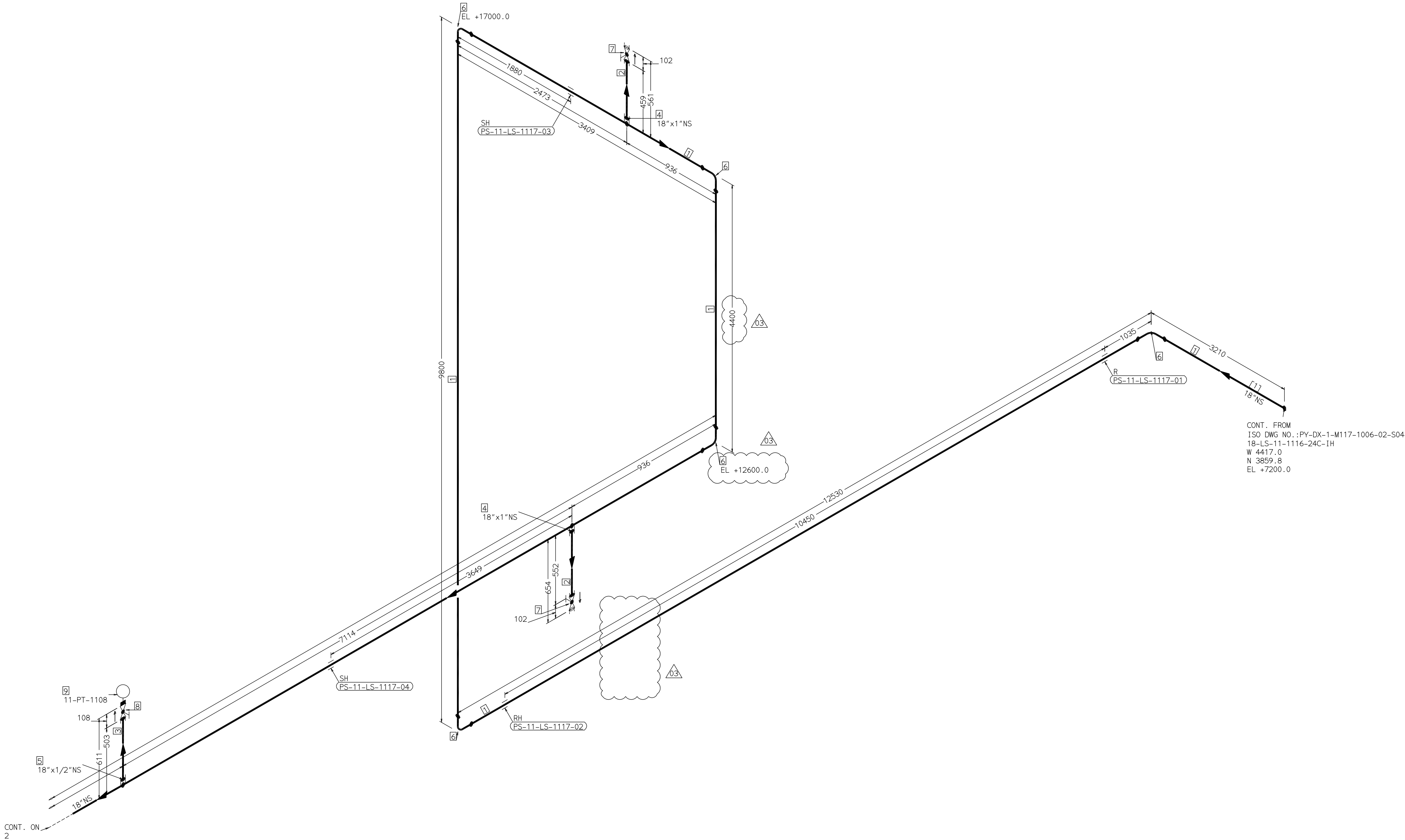
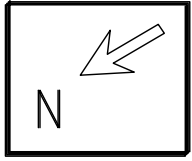
FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (in)	SCH	RATING	QTY	UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A335GRP22	18	XS		43.7M	139.16
2	PIPE SMLS ASME B36.10 PE	A335GRP22	8	STD		1.0M	42.55
3	PIPE SMLS ASME B36.10 PE	A335GRP22	6	XS		0.6M	42.56
4	PIPE SMLS ASME B36.10 PE	A335GRP22	1	XS		0.4M	3.24
5	TEE STRT ASME B16.9 BW	A234GRWP22	18 x 18	40		2	130
6	RDCR CONC ASME B16.9 BW	A234GRWP22	18 x 16	XSXS		1	44.9
7	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	18 x 1		CL3000	1	0.34
8	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	8 x 1		CL3000	1	0.34
9	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP22	18	XS		5	148.07
10	CAP ASME B16.9 BW	A234GRWP22	8	STD		1	5.5
11	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	1		CL3000	1	0.34
12	GATE VALVE GO CL300SPL BW	A217GWC9	18		CL300SPL	1	860
13	GLOBE VALVE HO CL1500 SW	A182GRF22	1		CL1500	2	5.6

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4. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
5. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR – INDIA				
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) – 1 MITHAPUR, GUJARAT				
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)				
 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R. C. PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING			NAME	SIGN	DATE
		DRN.	IH	-SD-	25-05-19
		CHKD.	GUK	-SD-	25-05-19
		APPRD.	GS	-SD-	25-05-19
					SCALE: NTS
TITLE:		DRAWING NO:			REV
TURBINE EXHAUST-PIPING-COMMON HEADER		PY-DX-1-M117-1006-02			03
		SHT. No. 4		NO. OF SHTS 4	

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY



PIPE: 18-LS-11-1117-24C-IH

REFERENCE DRAWINGS:-	
1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01	

LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm ²)	W TEMP (DegC)	D PR (Kg/cm ²)	D TEMP (DegC)	HT PR (Kg/cm ²)	INS THK (mm)	INS MAT	PSPEC	BORE
18-LS-11-1117-24C-IH	30	356	36.6	417	54.9	180	Ca. SLL	24C-TCM	18"

LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A - ANCHOR	
R - REST	
RG - REST + GUIDE	
RL - REST + LIMIT STOP	
RGL - DIRECTION ANCHOR	
RH - RIGID HANGER	
SH - SPRING HANGER	
BS - BOTTOM SPRING	
VG - VERTICAL GUIDE	

RECORD OF REVISIONS:-					
03	12-01-20	GENERALLY REVISED/ CUSTOMER COMMENTS	IH	GUK	GS
02	23-11-19	REVISED BASED ON CUSTOMER MAIL DTD 16.11.2019	IH	GUK	GS
01	21-06-19	GENERALLY REVISED	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	IH	-SD-	25-05-19
	CHKD.	GUK	-SD-	25-05-19
	APPRD.	GS	-SD-	25-05-19
		SCALE: NTS		
TITLE: TURBINE-EXHAUST-FROM-COMMON HEADER TO TP-1103		DRAWING NO: PY-DX-1-M117-1006-03		REV 03
		SHT. No. 1	NO. OF SHTS. 2	

FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
1	PIPE EFSW ASME B36.10 PE	A691GR2.25CR	18	XS		34.7M	139.16
2	PIPE SMLS ASME B36.10 PE	A335GRP22	1	XS		0.5M	3.24
3	PIPE SMLS ASME B36.10 PE	A335GRP22	1/2	XS		0.3M	1.62
4	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	18 x 1		CL3000	2	0.34
5	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	18 x 1/2		CL3000	1	0.14
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP22	18	XS		5	148.07
7	GLOBE VALVE HO CL1500 SW	A182GRF22	1		CL1500	2	5.6
8	GLOBE VALVE HO CL1500 SW	A182GRF22	1/2		CL1500	1	3.2

ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
9	PRESSURE TRANSMITTER SW 11-PT-1108		1/2			1	0

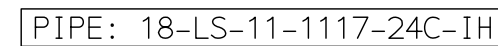
[1]							
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GENERAL NOTES:-

- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)



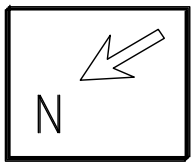
ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY	UNITWT (Kg)
19	TEMP GAUGE SCRD (NP40) 11-TG-1106		1		NP40	1	0
20	TEMP TRANSMITTER SCRD (NP40) 11-TE-1107		1		NP40	1	0
21	PRESSURE GAUGE SW 11-PG-1105		1/2			1	0

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4. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
5. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

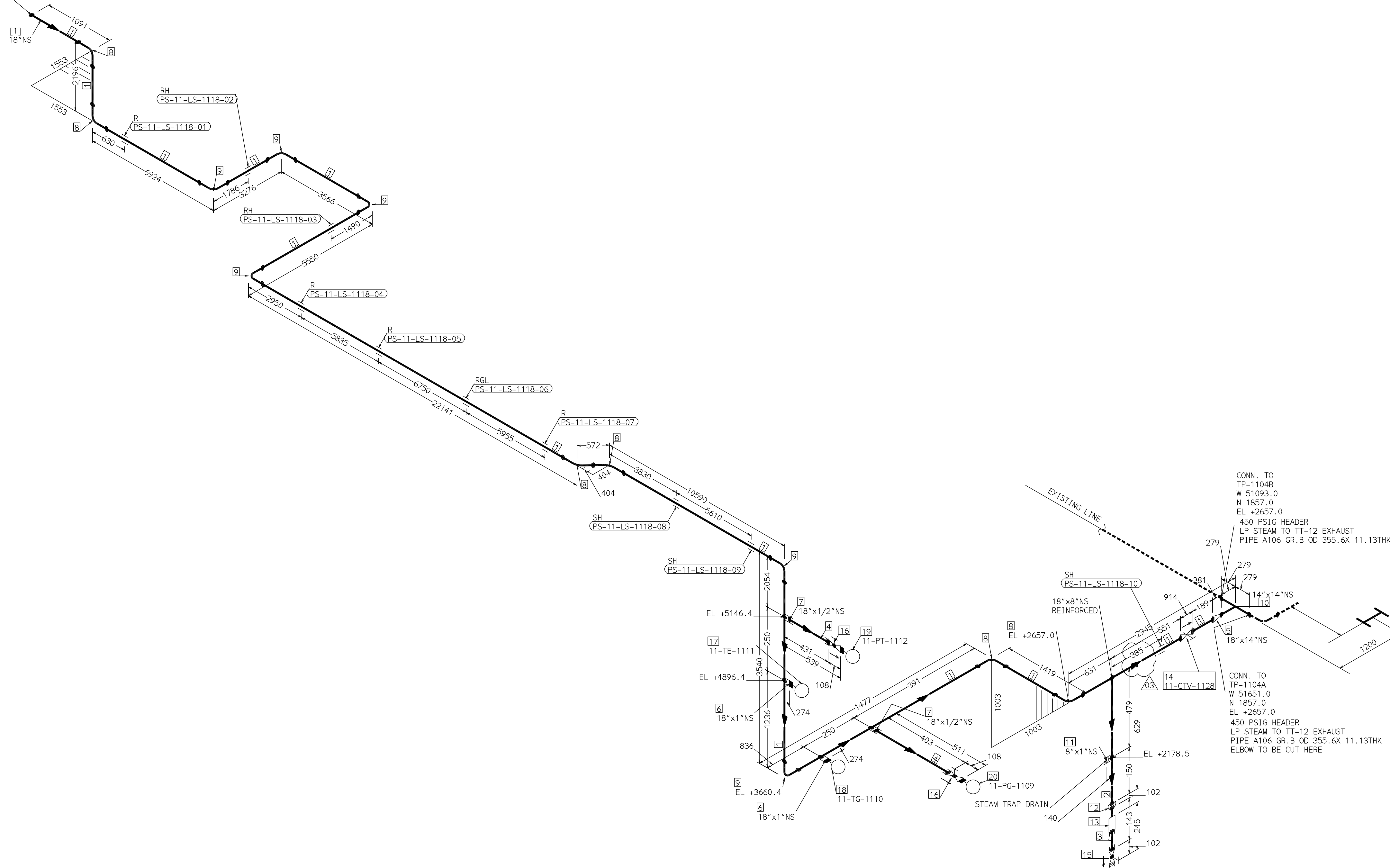
 **BHARAT HEAVY ELECTRICALS LTD**
PROJECT ENGINEERING &
SYSTEMS DIVISION
R.C.PURAM, HYDERABAD-502032.
PE&SD LAYOUTS & PIPING ENGINEERING

TITLE:
TURBINE-EXHAUST-FROM-COMMON
HEADER TO TP-1103

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CONT. ON
ISO DWG NO.: PY-DX-1-M117-1006-02-S04
18-LS-11-1116-24C-1H
W 5103.0
N 3859.8
EL +7200.0



PIPE: 18-LS-11-1118-24C-1H

REFERENCE DRAWINGS:-

1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01

LINE PARAMETERS:-

LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (mm)	INS MAT	PSPEC	BORE
18-LS-11-1118-24C-1H	30	356	36.6	417	54.9	180	Ca. SILL	24C-TCM	18"

LEGEND:-

— SUPPORT LOCATION
— DIRECTION OF FLOW
— DIRECTION OF SLOPE
— WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
BS - BOTTOM SPRINGER
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
03	12-01-20	GENERALLY REVISED	IH	GUK	GS
02	10-08-19	GENERALLY REVISED	IH	GUK	GS
01	21-06-19	GENERALLY REVISED	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS

GENERAL NOTES:-

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- PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

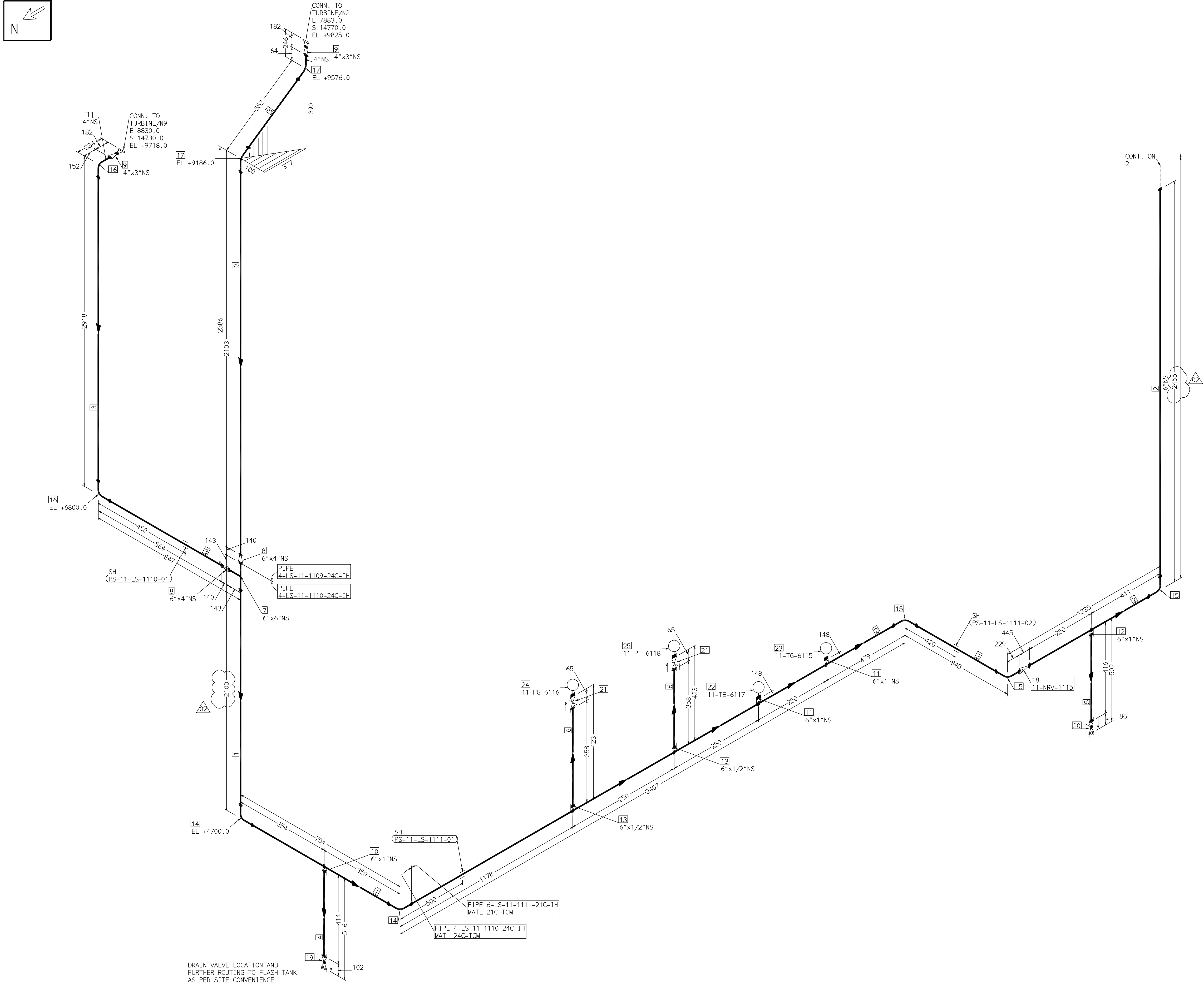
ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. IH	-SD-	25-05-19
	CHKD. GUK	-SD-	25-05-19
APPRD. GS		-SD-	25-05-19
		SCALE: NTS	
TITLE: TURBINE-EXHAUST-FROM-COMMON- HEADER TO TP-1104		DRAWING NO: PY-DX-1-M117-1006-04	
		REV 03	
		SHT. No. 1	NO. OF SHTS. 1

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REFERENCE DRAWINGS:-	
1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01	

LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm ²)	W TEMP (DegC)	D PR (Kg/cm ²)	D TEMP (DegC)	HT PR (Kg/cm ²)	INS THK (mm)	INS MAT	PSPEC	BORE
4-LS-11-1110-24C-IH	4.5	337.9	7	435	10.5	125	Ca. SLLL	24C-TCM	4"
4-LS-11-1109-24C-IH	4.5	424.8	7	435	10.5	125	Ca. SLLL	24C-TCM	4"
6-LS-11-1111-21C-IH	4	375	7	420	10.5	140	Ca. SLLL	21C-TCM	6"
4-LS-11-1127-21C-IH	4	375	7	415	10.5	130	Ca. SLLL	21C-TCM	4"
6-V-11-1128-11B-IS			5	420	7.5	25	Ca. SLLL	11B-TCM	6"
6-LS-11-1125-11C-IH	4	170	7	180	10.5	125	Ca. SLLL	11C-TCM	6"

LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A	- ANCHOR
R	- REST
RG	- REST + GUIDE
RL	- REST + LIMIT STOP
RGL	- RIGID HANGER
RH	- RIGID HANGER
SH	- SPRING HANGER
BS	- BOTTOM SPRINGER
VG	- VERTICAL GUIDE

RECORD OF REVISIONS:-					
02	11-01-20	REVISED DUE TO CUSTOMER COMMENTS	IH	GUK	GS
01	06-11-19	REVISED DUE TO ADDITION OF VENT LINE	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

FABRICATION MATERIALS						
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY
1	PIPE SMLS ASME B36.10 PE	A335GRF22	6	XS		2.0M
2	PIPE SMLS ASME B36.10 PE	A106GRB	6	STD		5.0M
3	PIPE SMLS ASME B36.10 PE	A335GRF22	4	STD		5.5M
4	PIPE SMLS ASME B36.10 PE	A335GRF22	1	XS		0.3M
5	PIPE SMLS ASME B36.10 PE	A106GRB	1	XS		0.4M
6	PIPE SMLS ASME B36.10 PE	A106GRB	1/2	XS		0.5M
7	TEE STRT ASME B16.9 BW	A234GRWP22	6 x 6	XS		1
8	RDCR CONC ASME B16.9 BW	A234GRWP22	6 x 4	XSXS		2
9	RDCR CONC ASME B16.9 BW	A234GRWP22	4 x 3	STDXS		2
10	HALF COUPLING ASME B16.11 CL3000 SW	A182GRF22	6 x 1		CL3000	1
11	TEMP STUB STRT IMMERSION NP40	A105	6 x 1		NP40	2
12	HALF COUPLING ASME B16.11 CL3000 SW	A105	6 x 1		CL3000	1
13	HALF COUPLING ASME B16.11 CL3000 SW	A105	6 x 1/2		CL3000	2
14	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP22	6	XS		2
15	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP8	6	STD		3
16	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP22	4	STD		2
17	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWP22	4	STD		2
18	SWING CHECK VALVE ASME B16.10 CL300 BW	A216GRWCB	6		CL300	1
19	GLOBE VALVE HO CL1500 SW	A182GRF22	1		CL1500	1
20	GLOBE VALVE HO CL800 SW	A105	1		CL800	1
21	GATE VALVE HO ASME B16.10 CL800 SW	A105	1/2		CL800	2

ERECTION MATERIALS						
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	QTY
22	TEMP TRANSMITTER SCRD (NP40) 11-TE-6117		1		NP40	1
23	TEMP GAUGE SCRD (NP40) 11-TG-6115		1		NP40	1
24	PRESSURE GAUGE SW 11-PG-6116		1/2			1
25	PRESSURE TRANSMITTER SW 11-PT-6118		1/2			1

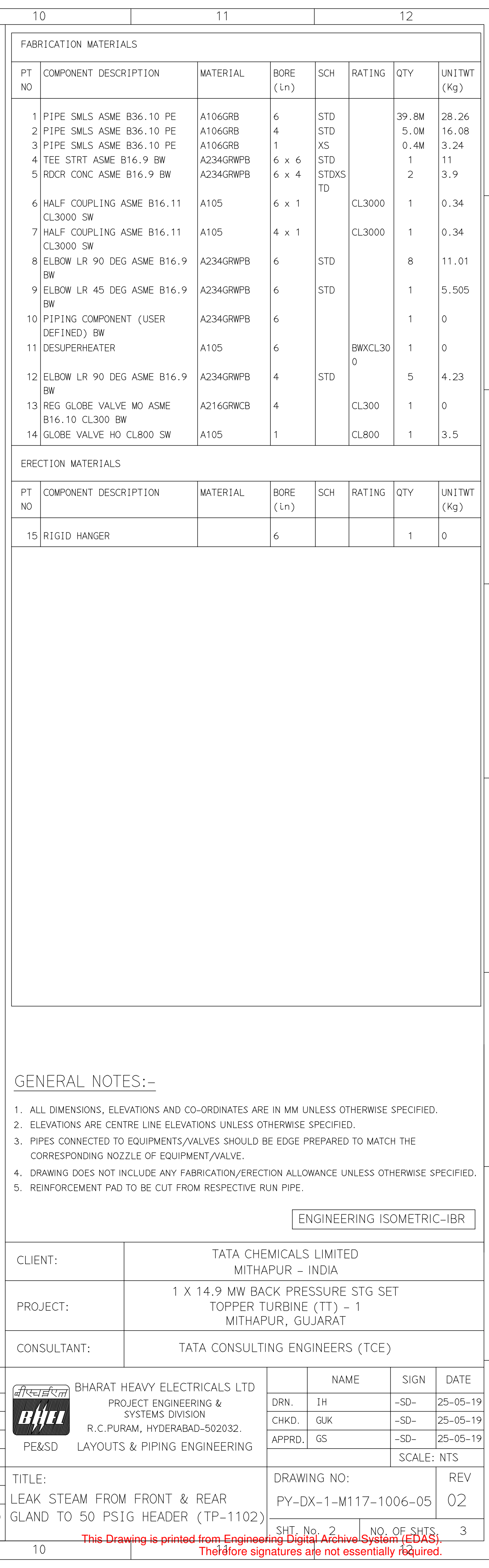
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GENERAL NOTES:-	
1.	ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
2.	ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
3.	PIPES CONNECTED TO EQUIPMENTS/VALVES SHOULD BE EDGE PREPARED TO MATCH THE CORRESPONDING NOZZLE OF EQUIPMENT/VALVE.
4.	DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
5.	REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.
ENGINEERING ISOMETRIC-IBR	

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)

	BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
		DRN.	IH	-SD-	25-05-19
		CHKD.	GUK	-SD-	25-05-19
		APPRD.	GS	-SD-	25-05-19
			SCALE: NTS		
TITLE: LEAK STEAM FROM FRONT & REAR GLAND TO 50 PSIG HEADER (TP-1102)		DRAWING NO: PY-DX-1-M117-1006-05			REV 02
		SHT. No. 1		NO. OF SHTS 3	

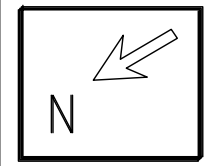
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EXCLUDED BATTERIES CO. 07-01-05



ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCH	RATING	QTY	UNITWT (Kg)
14	TEMP TRANSMITTER SCRD (NP40)		1		NP40	2	0
15	TEMP GAUGE SCRD (NP40)		1		NP40	1	0
16	TEMP GAUGE SCRD (NP40) 11-TG-1104		1		NP40	1	0
17	PRESSURE GAUGE SW 11-PG-1103		1/2			1	0

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5. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

 भारत भारती BHEL PE&SD	BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R. C. PURAM, HYDERABAD-502032. LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE	
			DRN.	IH	-SD-	25-05-19
			CHKD.	GJK	-SD-	25-05-19
			APPRD.	GS	-SD-	25-05-19
			SCALE: NTS			
TITLE: LEAK STEAM FROM FRONT & REAR GLAND TO 50 PSIG HEADER (TP-1102)			DRAWING NO: PY-DX-1-M117-1006-05		REV 02	
			SHT. No. 3 NO. OF SHTS		3	

LEGEND:-

 SUPPORT LOCATION

 DIRECTION OF FLOW

 DIRECTION OF SLOPE

 WELD SYMBOL

A - ANCHOR

R - REST

RG - REST + GUIDE

RL - REST + LIMIT STOP

RGL - RESTING ANCHOR

RH - RIGID HANGER

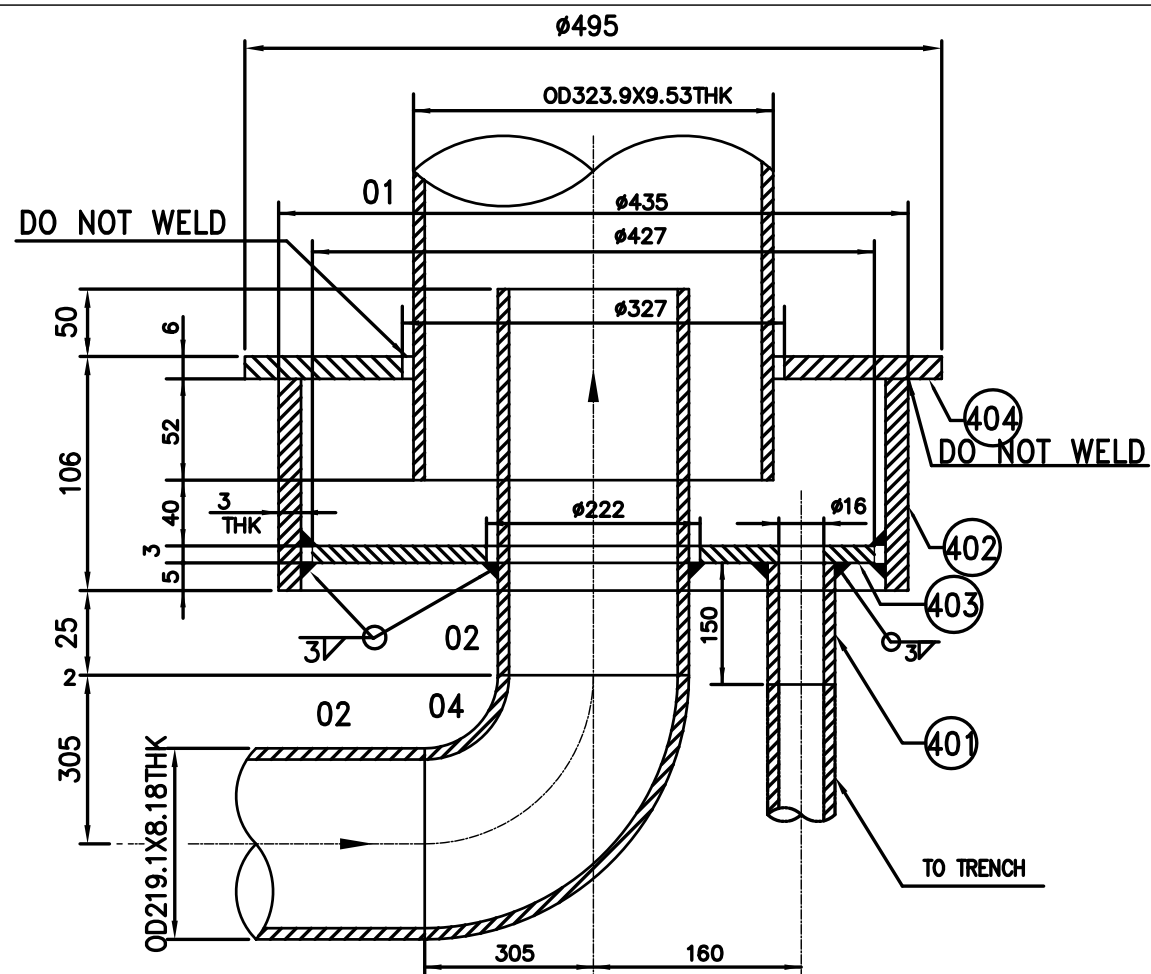
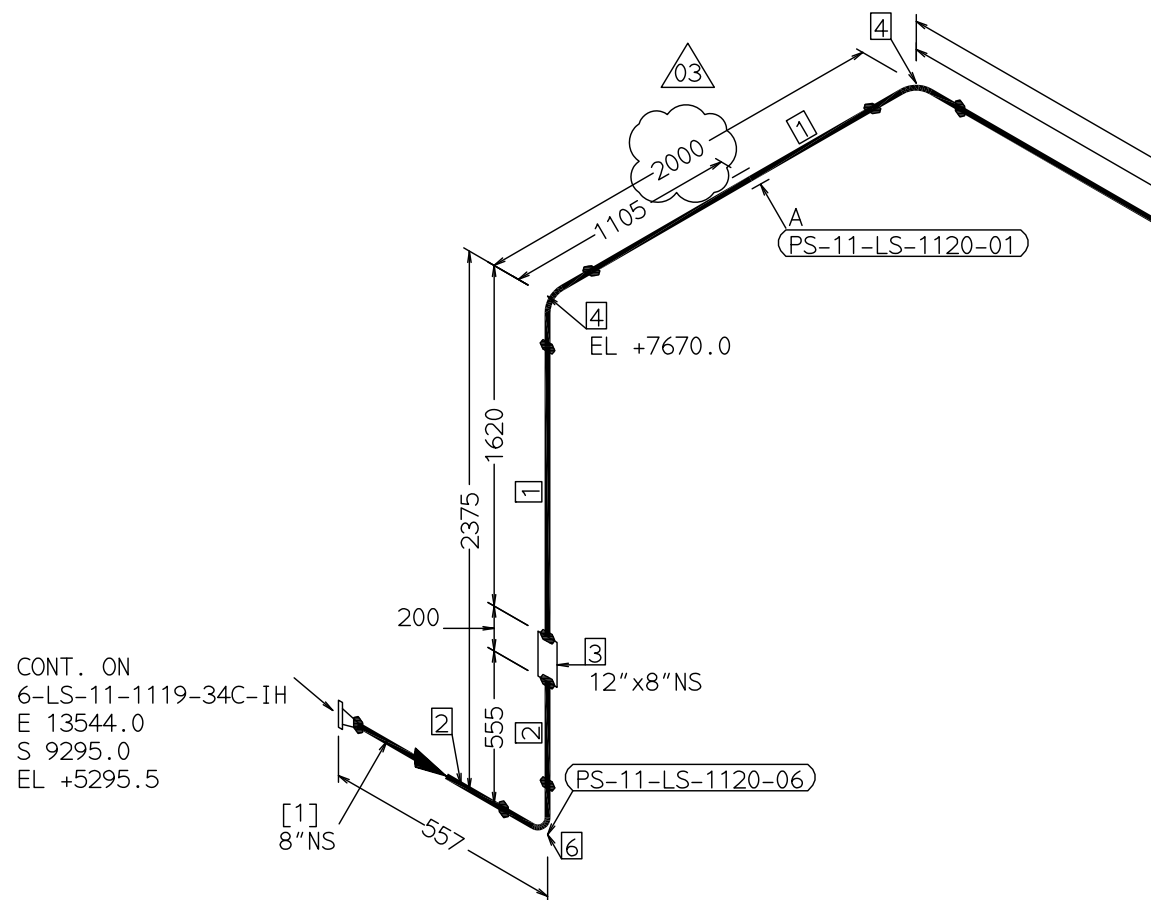
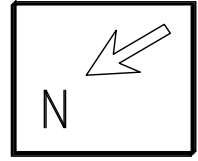
SH - SPRING HANGER

BS - BOTTOM SPRING

VG - VERTICAL GUIDE

RECORD OF REVISIONS:-					
02	11-01-20	REVISED DUE TO CUSTOMER COMMENTS	IH	GUK	GS
01	06-11-19	REVISED DUE TO ADDITION OF VENT LINE	IH	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

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TYP.DRIP PAN DETAIL

BILL OF MATERIAL FOR DRIP PAN ARRANGEMENT						
PART NO	COMPONENT DESCRIPTION	MATERIAL	BORE / SIZE	SCHEDULE	QTY	
401	PIPE SMLS ASME B36.10 PE	A106 GR B	12	STD	12 MTS	
402	PLATE 1366X100X3 THK	IS 2062	-	-	1	
403	PLATE 0142X10025X3 THK	IS 2062	-	-	1	
404	PLATE 01495X10327X6 THK	IS 2062	-	-	1	

REFERENCE DRAWINGS:-

1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01

LINE PARAMETERS:-

LINE NUMBER	W PR (Kg/cm ²)	W TEMP (DegC)	D PR (Kg/cm ²)	D TEMP (DegC)	HT PR (Kg/cm ²)	INS THK (mm)	INS MAT	PSPEC	BORE
12-SV-11-1120-11B-IS	2	331.6	5	400	NA	25	Ca. SILL	11B-TCM	12"

LEGEND:-

— SUPPORT LOCATION
— DIRECTION OF FLOW
— DIRECTION OF SLOPE
— WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
03	12-01-20	GENERALLY REVISED	AK	GUK	GS
02	08-11-19	REVISED DUE TO PIPING CLASH WITH STRUCTURAL	AK	GUK	GS
01	27-07-19	GENERALLY REVISED	AK	GUK	GS
00	25-05-19	FIRST ISSUE	IH	GUK	GS

FABRICATION MATERIALS						
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCH	RATING	UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A106GRB	12	STD		28.4M
2	PIPE SMLS ASME B36.10 PE	A106GRB	8	STD		0.4M
3	DRIP PAN IN PSV OUTLET	A106GRB	12 x 8			1
4	ELBOW LR 90 DEG ASME B16.9	A234GRWPB	12	STD		5
5	ELBOW LR 45 DEG ASME B16.9	A234GRWPB	12	STD		2
6	ELBOW LR 90 DEG ASME B16.9	A234GRWPB	8	STD		1

[1]

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- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

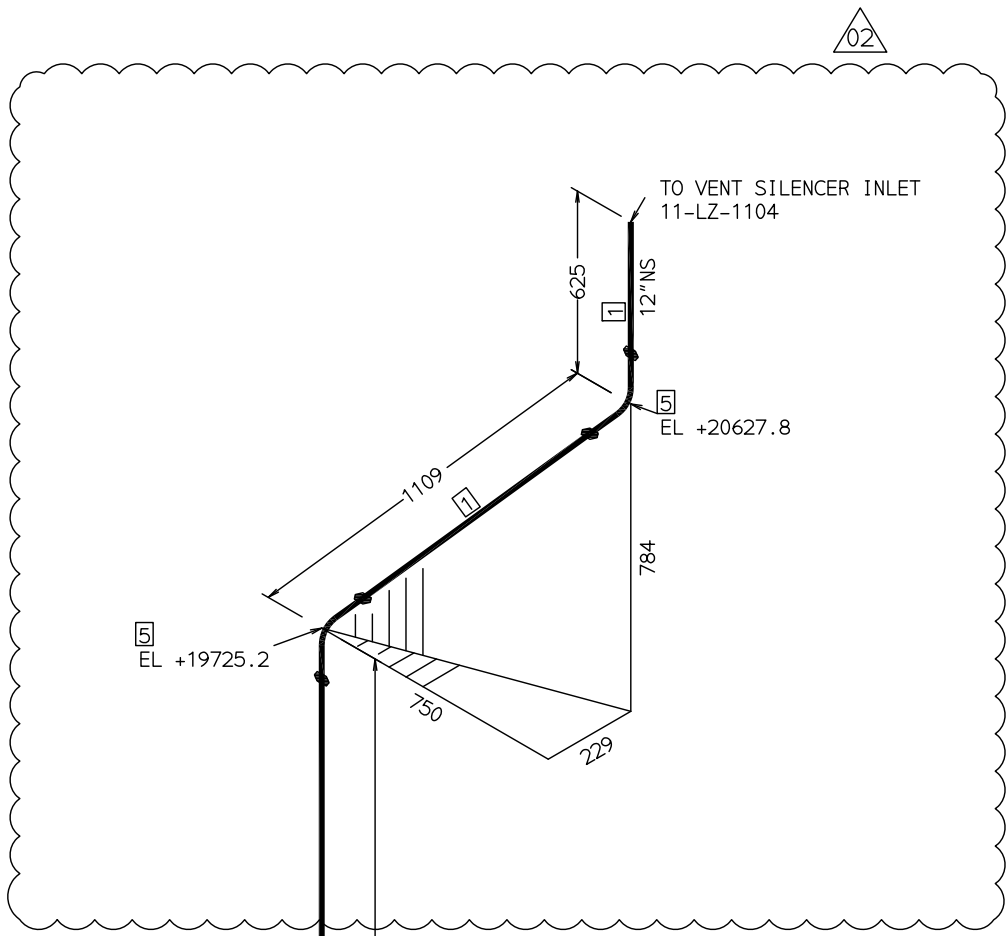
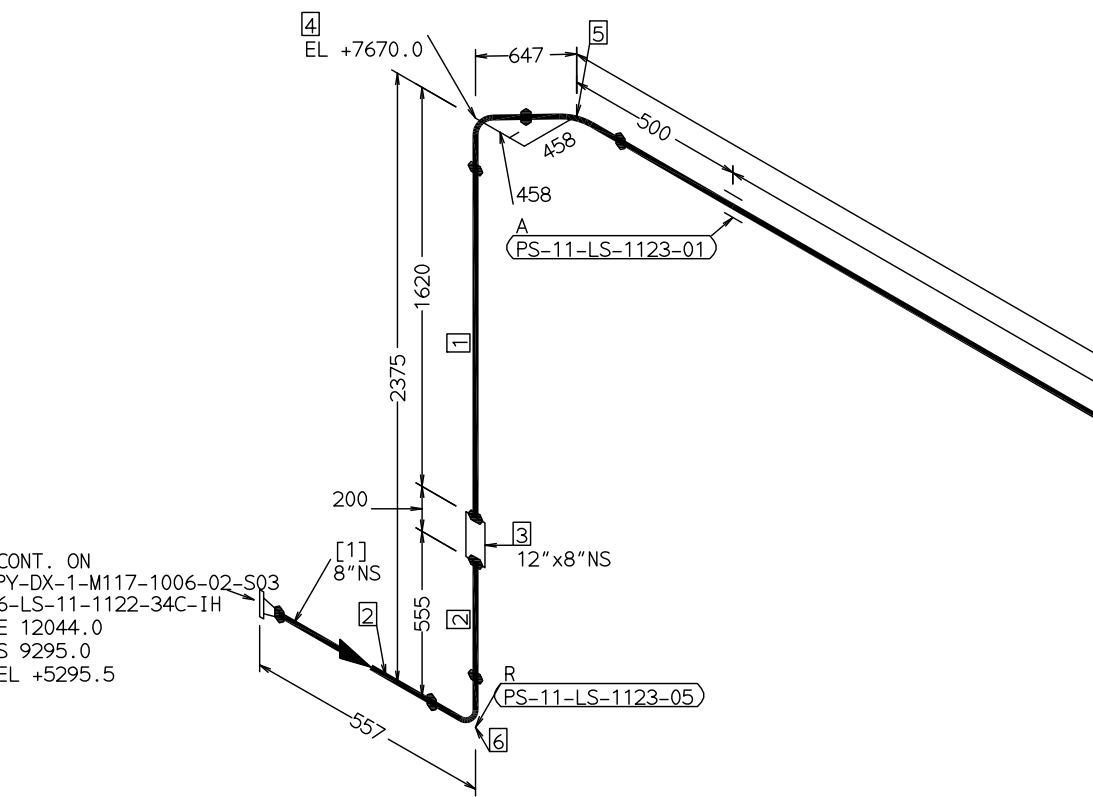
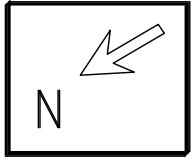
ENGINEERING ISOMETRIC-IBR

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING				NAME	SIGN	DATE
	DRN.	IH	-SD-			25-05-19
	CHKD.	GUK	-SD-			25-05-19
	APPRD.	GS	-SD-			25-05-19
				SCALE: NTS		
TITLE: 11-PSV-6101 SAFETY VALVE OUTLET LINE TO VENT SILENCER 11-LZ-1102				DRAWING NO: PY-DX-1-M117-1006-06		REV 03
				SHT. No. 1	NO. OF SHTS.	1

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FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	MATCODE	PART NO
1	PIPE SMLS ASME B36.10 PE	A106GRB	12	STD		25242MM	73.88	PY9752097138	
2	PIPE SMLS ASME B36.10 PE	A106GRB	8	STD		400MM	42.55	PY9752097111	
3	D RIP PAN IN PSV OUTLET	A106GRB	12 x 8			1	0		
4	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	12	STD		2	55.68	PY9752101135	
5	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	12	STD		5	27.84	PY9752112072	
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	STD		1	21.62	PY9752101119	

[1]

NOTES:-

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- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- DIRECTION OF VALVE HANDWHEEL SHALL BE CHECKED FOR INTERFERENCE BEFORE ERECTION.
- PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIEMENSIONS.
- FOR PIPE EDGE PREPARATION DETAIL, WELDING DETAILS OF PIPE TO PIPE, WELDING DETAILS OF STUBS/OLETS, REFER TO "STANDARD PIPING FABRICATION DETAILS" DRG.NO. 2-38101-04000 REV.00
- FOR WPS, TESTING AND INSPECTION REQUIREMENTS, REFER BHEL PE&SD STANDARD GT 57 124 REV 03.
- ROUTING OF LINES NB <= 1.5" CAN BE MODIFIED SUITABLY AS PER SITE CONDITIONS, IF REQUIRED.
- SUPPORT LOCATIONS TO BE ADJUSTED SUITABLY TO SUIT AS PER SITE CONDITIONS, IF REQUIRED.
- THE HIGH POINT VENTS & LOW POINT DRAINS SHOWN IN THIS DRG CAN BE RELOCATED TO SUIT TO SITE REQUIREMENT, IF REQUIRED.
- DRAWING DOES NOT INCLUDE ANY ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- PIPES ARE SENT LOOSE IN COMMERCIAL LENGTHS AND ARE TO BE CUT SUITABLY AND EDGE PREPARED AT SITE.
- PIPE FITTINGS, FLANGES AND VALVES ARE SENT LOOSE WITH EDGE PREPARATION.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CLIENT:	TATA CHEMICALS LIMITED MITHAPUR - INDIA		
PROJECT:	1 X 14.9 MW BACK PRESSURE STG SET TOPPER TURBINE (TT) - 1 MITHAPUR, GUJARAT		
CONSULTANT:	TATA CONSULTING ENGINEERS (TCE)		

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME		SIGN	DATE
	DRN.	IH	-SD-	25-05-19
	CHKD.	GUK	-SD-	25-05-19
	APPRD.	GS	-SD-	25-05-19
SCALE: NTS				
TITLE:		DRAWING NO:		REV
11-PSV-6102 SAFETY VALVE OUTLET LINE TO VENT SILENCER 11-LZ-1104		PY-DX-1-M117-1006-07		02
SHT. No. 1		NO. OF SHTS.		1

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Therefore signatures are not essentially required.

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
1) P&ID OF STEAM SYSTEM : PY-DP-1-M117-1001-01		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK S(mm)	INS MAT PSPEC BORE
		12-SV-11-1123-11B-IS	2	331.6	5	400	NA	25	Ca. SLLL 11B-TCM 12"

LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A - ANCHOR	
R - REST	
RG - REST + GUIDE	
RL - REST + LIMIT STOP	
RGL- DIRECTION ANCHOR	
RH - RIGID HANGER	
SH - SPRING HANGER	
BS - BOTTOM SPRING	
VG - VERTICAL GUIDE	

RECORD OF REVISIONS:-				
02	08-11-19	REVISED DUE TO PIPING CLASH WITH STRUCTURAL	AK	GUK GS
01	27-07-19	GENERALLY REVISED	AK	GUK GS
00	25-05-19	FIRST ISSUE	IH	GUK GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY APPRD BY

Rev Sat 9 13:14 2019



PRICE BID FORMAT
PRE FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE

ANNEXURE-C TO PEMC-07415
JOB SPECIFICATION FOR PRE FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE
TCL MITHAPUR

BHEL's Enquiry No & Date : Bidder to Specify
Bidder's Name : Bidder to Specify
Bidder's Offer No & Date : Bidder to Specify
Bidder's Ref No & Date : Bidder to Specify

S.No	Item Description	Unit Price Fixing factor	Bidder confirmation (Quoted)
1	Package-A: Pre Formed Calcium Silicate Thermal Insulation	0.85	
2	Package-B: Insulation Ancillaries	0.15	

NOTES:

- 1. Vendor to Quote Lump sum Price for the Total Package.**
- 2. Unit Rates of the individual packages shall be derived by multiplying the "Unit Price Fixing Factor" with the Lump sum Price quoted.**
- Unit Rates of the Individual items thus arrived shall be binding on the bidder, in case of any repeat order as per BHEL policies.
- Observations / Objections, if any, of the Bidder, to the "Unit Price Fixing Factor" shall be brought to the notice of BHEL, during Pre-Bid Stage. No Observations / Objections shall be entertained after the Techno-Commercial Bid is opened.
- Bidder to indicate "Quoted" in the column "Bidder's Confirmation" as a confirmation of their bid to the respective item.
- 6. The Bid Evaluation is on Overall L1 Basis. The bidder shall quote each item of the Package. Partial offers will not be considered for evaluation and the same are liable for rejection.**
- The Total Lump price quoted shall be INCLUSIVE of Freight, Packing & Forwarding and Testing Charges.
- The Total Lump price quoted shall be EXCLUSIVE of GST, Third party inspection (TPI) & Insurance Charges.



CHECKLIST FORMAT
PRE-FORMED CALCIUM SILICATE INSULATION

ANNEXURE-D TO PEMC-07415
JOB SPECIFICATION FOR PRE-FORMED CALCIUM SILICATE INSULATION
TCL MITHAPUR

BHEL's Enquiry No & Date : Bidder to Specify
Bidder's Name : Bidder to Specify
Bidder's Offer No & Date : Bidder to Specify
Bidder's Ref No & Date : Bidder to Specify

Sl No	Description	Yes / No
1	Bidder to confirm that ALL THE DOCUMENTS SPECIFIED in Clause No 7.0 of purchaser's Job Specification (Doc.No. PEMC-07415) are submitted along with the technical offer.	
	Unpriced Price Bid Format	YES
	Deviation Schedule	YES
	Stamped & Signed copy of PEMC-07415 and PY52036-R01	YES
	Stamped & Signed copy of Engineering Isometrics	YES
	Stamped & Signed copy of Bill of Material	YES



DEVIATION SCHEDULE
PRE-FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE

ANNEXURE-E TO PEMC-07415
JOB SPECIFICATION FOR PRE-FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE
TCL MITHAPUR

BHEL's Enquiry No & Date : Bidder to Specify
Bidder's Name : Bidder to Specify
Bidder's Offer No & Date : Bidder to Specify
Bidder's Ref No & Date : Bidder to Specify

SI No	Reference			BHEL Specification's Requirement	Deviation sought by Bidder
	Doc No	Page No	Clause No		

A. INSTRUCTIONS TO BIDDERS

1. All of bidder's deviations to the BHEL specification shall be intimated to BHEL in a consolidated manner in this document only. Deviations listed elsewhere will be summarily rejected and shall be ignored.
2. BHEL will clarify in writing to the bidder regarding the acceptance / non acceptance of the deviations sought by bidder.
3. In case no deviations are raised by bidder, it will be assumed that the bidder has accepted and confirmed to all the requirements of BHEL's specification in totality without any deviation.
4. No deviations other than those that have been specifically mentioned in this document and have been accepted by BHEL during the post-bid stage, will be accepted or allowed during the offer execution stage.
5. Additional sheets, if necessary for bidder's deviations, may be enclosed.

B. BIDDER'S DECLARATION.

1. We confirm that all our deviations to BHEL's specifications and its annexures are listed in this document only.
2. We confirm that except for those deviations, covered in this document, it will be our responsibility to fully meet the intent and the requirements of the specifications and all its annexures within the quoted price, without any deviation.

Bidder's Authorised Signature:

Date:

Bidder's Name:

Bidder's Seal:



PRE-BID QUERY FORMAT
PRE-FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE

ANNEXURE-F TO PEMC-07415
JOB SPECIFICATION FOR PRE-FORMED CALCIUM SILICATE THERMAL INSULATION PACKAGE
TCL MITHAPUR

BHEL's Enquiry No & Date : Bidder to Specify
Bidder's Name : Bidder to Specify
Bidder's Offer No & Date : Bidder to Specify
Bidder's Ref No & Date : Bidder to Specify

SI No	Reference			BHEL Specification’s Requirement	Bidder’s Query / Observation	BHEL’s Clarification
	Doc No	Page No	Clause No			
(To be filled by the Bidder)						(To be filled by BHEL)

A. INSTRUCTIONS TO BIDDERS

1. All of bidder's queries / clarifications / observations to the BHEL specification shall be intimated to BHEL in a consolidated manner in this document only.
2. BHEL will clarify in writing to the bidder all such queries / clarifications / observations raised by the bidder.
3. Decision of BHEL on all such queries / clarifications / observations raised by bidder will be final and binding on bidder.
4. In case no pre-bid query is raised by bidder, it will be assumed that the bidder has accepted and confirmed to all the requirements of BHEL's specification in totally without any deviation.
5. None of the bidder's queries / clarifications / observations (except those that have been specifically mentioned in this document and have been accepted by BHEL during the pre-bid stage) will be accepted or allowed during post bid stage / offer execution stage.
6. Additional sheets, if necessary for bidder's queries / clarifications / observations, may be enclosed.

B. BIDDER'S DECLARATION.

1. We confirm that all our queries / clarifications / observations to the BHEL's Specifications and its annexures are listed in this document only.
2. We confirm that except for those queries / clarifications / observations covered in this document, it will be our responsibility to fully meet the intent and the requirements of the specifications and all its annexures within the quoted price, without any deviation.

Bidder's Authorised Signature:

Date:

Bidder's Name:

Bidder's Seal: