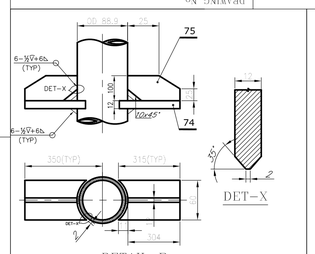
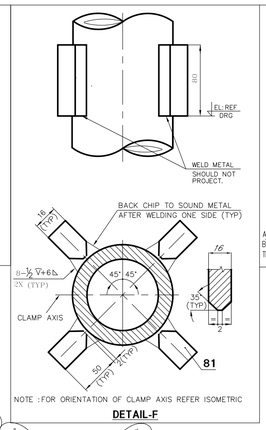
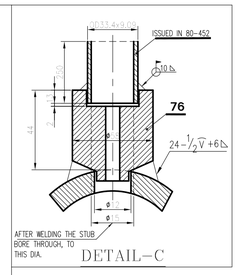
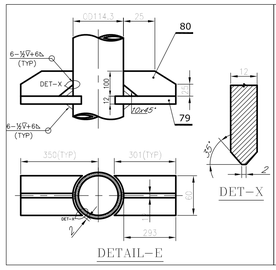
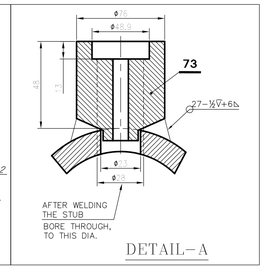
DRAWING No. 1-80-433-20009

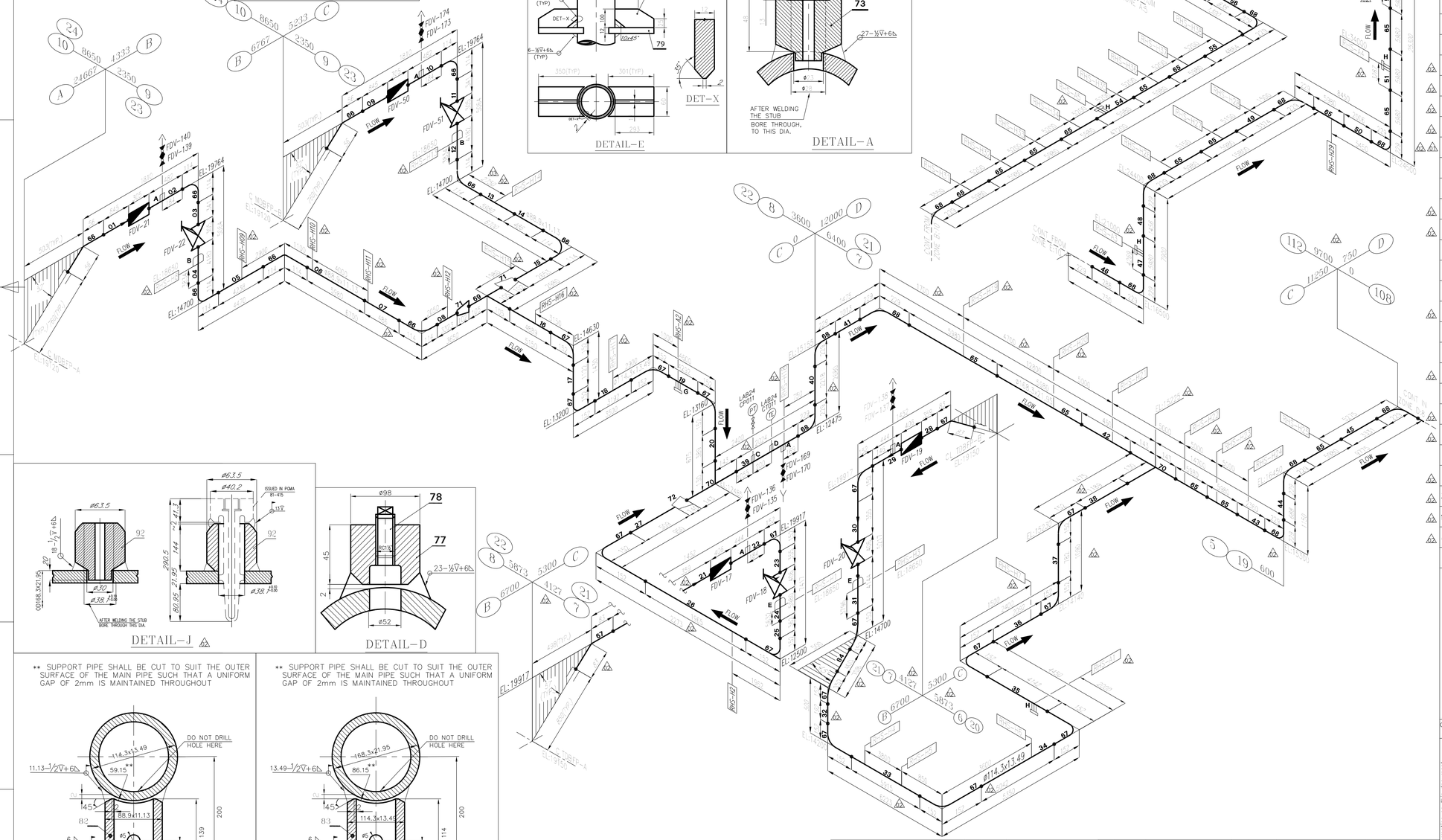












NOTES: –

ALL DIMENSIONS ARE IN MILLIMETRES

01 DESIGN PRESSURE : 200 Kg/Cm^2 (g)
02 DESIGN TEMPERATURE : 200°C
03 WORKING MEDIUM : STEAM
04 HYDRAULIC TEST PRESSURE AT SITE : 300 Kg/Cm^2 (g)
05 FOR STANDARD NOTES OF PRODUCTION & ERECTION OF PIPES AND TOLERANCE ON FITTINGS REFER DRG.No.4-80-001-37654 & 4-80-301-26192 RESPECTIVELY
06 FOR ERECTION WELDING SCHEDULE REFER DRG No. 4-80-433-78174.
07 FOLLOW QP No. 7219 ; QPC ; 01
08 ALL UNMARKED BEND / ELBOW ARE 90°
09 WHEREVER HANGER FALLS ON WELD JOINT,THE JOINT HAS TO BE MADE FIRST ,GROUND AND THEN HANGER IS TO BE ASSEMBLED AT SITE.
10 ● INDICATES 2mm WELD GAP,WELD AT SITE.
11 PIPE EDGE PREPARATION & ELECTRODE DATA

PIPE SIZE ODxT	MATERIAL SPECN. (ATT)	WT. Kg/M	EP AS PER 3-80-300-19825 STY	EP AS PER 3-80-300-19825 d1	RADIUS OF BEND	WELD SPECN.	ELECTRODE DATA ROOT RUN	ELECTRODE DATA FURTHER RUN	INSULATION DATA MATERIAL	INSULATION DATA THICKNESS mm
OD114.3X13.49	SA106GRC	33.54	D	89.6	1.5D	13.49$\hat{V}$	ER70SA1	E7018A1	–	50
OD88.9X11.13	SA106GRC	21.35	D	69.2	1.5D	11.13$\hat{V}$	ER70SA1	E7018A1	–	40
OD168.3X21.95	SA106GRC	79.22	P	128.7	1.5D	21.95$\hat{V}$	ER70SA1	E7018A1	–	50

12 FABRICATION, ERECTION & TESTING SHALL BE AS PER IBR 1950
13 LENGTH OF PIPES BELOW 100mm OD = 40 M, ABOVE 100mm OD = 263 M
14 STRESS RELIEVING SHALL BE AS PER IBR.
15 ASME B16.11 CALLS FOR SCHEDULE 80 (9.09mm FOR NB25, 10.15mm FOR NB40) FOR CLASS 9000 AS MATCHING PIPE THICKNESS.
16 IMPULSE PIPE IS RELEASED IN RUNNING METRE VIDE PGMA 80-453. TO BE SUITABLY CUT AND WELDED AT SITE & IF ANY MISMATCH IN EP SAME TO DONE AT SITE SUITABILY.
17 DEPOSIT WELD MATERIAL , IF REQUIRED FOR EDGE PREPARATION.

ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO. / VAR NO.	MATERIAL CODE / MATERIAL SPEC.	A / C	UNIT WT. / QTY.
92	THERMOWELL STUB (WELDED) L=144 CS	4-80-433-78247/00		15 339 144 0000 / SA 105	A	3 169 / 2
89-91	PIPE OD168.3X21.95 L=5092	1-80-433-20009		15 083 188 6000 / SA 106 GRC	A	134 462 / 3
88	SPARE PIPE OD168.3X21.95 L=6000	1-80-433-20009		15 983 434 0000 / SA 106 GRC	A	475 320 / 1
87	SPARE PIPE OD114.3X13.49 L=3000	1-80-433-20009		15 983 430 0000 / SA 106 GRC	A	100 620 / 1
86	SPARE PIPE OD88.9X11.13 L=3000	1-80-433-20009		15 983 427 0000 / SA 106 GRC	A	64 050 / 1
85	SUPPORT PLATE 10THK 1000X1000	1-80-433-20009		15 942 109 0000 / SA 515 GR70	C	78 500 / 1
84	PIPE OD114.3X13.49 L=400	1-80-433-20009		15 983 430 0000 / SA 106 GRC	C	13 416 / 1
83	SUPPORT PLATE OD114.3X13.49 L=2000	1-80-433-20009		15 983 430 0000 / SA 106 GRC	C	67 080 / 1
82	SUPPORT PIPE OD88.9X11.13 L=1000	1-80-433-20009		15 983 427 0000 / SA 106 GRC	C	21 350 / 1
81	CARRIER PLATE 16THK 50x80	4-80-999-93179/00		84CARPL48099993179 / SA 515 GR70	C	0 480 / 12
80	PLATE 12 THK 100 x 293	1-80-433-20009		15 942 110 0000 / SA 515 Gr.70	C	2 300 / 4
79	PLATE 12 THK 60 x 301	1-80-433-20009		15 942 110 0000 / SA 515 Gr.70	C	1 701 / 4
78	SCREW PLUG R 1½"	4-80-999-93138/00		84TPLUN48099993138 / SA 105	A	0 500 / 1
77	TEMPERATURE STUB RC1½" L=45 (CS)	4-80-999-93134/00		84TSTUN48099993134 / SA 105	A	1 700 / 1
76	ASME B16.11 SW STUB NB25 CL:9000	4-80-999-97622/03		84SWSCN48099997622 / SA 105	A	0 810 / 2
75	PLATE 12 THK 100 x 304	1-80-433-20009		15 942 110 0000 / SA 515 Gr.70	C	2 863 / 4
74	PLATE 12 THK 60 x 315	1-80-433-20009		15 942 110 0000 / SA 515 Gr.70	C	1 780 / 4
73	ASME B16.11 SW STUB NB40 CL 9000	4-80-999-97625/04		84SWSCN48099997625 / SA 105	A	1 460 / 6
72	ASME B16.9 BW RED OD168.3X21.95/OD114.3X13.49	1-80-433-20009		92 117 736 0000 / SA 234 WPC	A	9 000 / 2
71	ASME B16.9 BW RED OD114.3X13.49/OD88.9X11.13	1-80-433-20009		92 527 332 0000 / SA 234 WPC	A	4 400 / 2
70	ASME B16.9 BW UEQT OD168.3X21.95/OD114.3X13.49	1-80-433-20009		92 525 383 0000 / SA 234 WPC	A	8 000 / 2
69	ASME B16.9 BW EQT OD114.3X13.49	1-80-433-20009		92 525 303 0000 / SA 234 WPC	A	12 000 / 1
68	ASME B16.9 BW 900EG LR EL OD168.3X21.95	1-80-433-20009		92 504 672 0000 / SA 234 WPC	A	29 900 / 20
67	ASME B16.9 BW 900EG LR EL OD114.3X13.49	1-80-433-20009		92 504 671 0000 / SA 234 WPC	A	7 800 / 18
66	ASME B16.9 BW 900EG LR EL OD88.9X11.13	1-80-433-20009		92 524 313 0000 / SA 234 WPC	A	4 000 / 9
65	PIPE OD168.3X21.95 L=5980	1-80-433-20009		15 983 434 0000 / SA 106 GRC	A	36 441 / 19
39-64	PIPE OD168.3X21.95 L=84175	1-80-433-20009		15 083 188 6000 / SA 106 GRC	A	256 500 / 26
16-38	PIPE OD114.3X13.49 L=48514	1-80-433-20009		15 983 430 0000 / SA 106 GRC	A	70 746 / 23
01-15	PIPE OD88.9X11.13 L=34846	1-80-433-20009		15 983 427 0000 / SA 106 GRC	A	49 597 / 15

SPACE FOR IBR APPL.

CUST NO. 7219 7220 REL NO.

CUSTOMER
NTPC LIMITED

NAME OF PROJECT.
GADARWARA SUPER THERMAL POWER PROJECT
STAGE I, (2x800 MW) UNIT# 1 & 2
STEAM TURBINE GENERATOR PACKAGE

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGN	DATE
DRN	SASIDHARAN		18.07.14
CHD	KONDAPA		18.07.14
APPD	R.SESHAGIRI		18.07.14

DEPT ENGG. CODE | GRADE OF UNTOL. DIM C/M/F | SCALE N.T.S | WEIGHT (KG) – | REFER PEM's DRG No. PE-DG-394-141-M406/R01 | ITEM No. | NO OF VAR.

TITLE: **SPRAY WATER PIPING TO RE-HEATER ATTEMPERATION**

CARD CODE U 01

PC DRAWING NO. **1-80-433-20009** REV **03**

Size A1

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company

REV	DATE	ALTERED	APPROVED
04			
03	14.7.15	S.ARUN SHARMA	R.SESHAGIRI
02	10.09.14	S.ARUN SHARMA	R.SESHAGIRI
01	31.07.14	MANOJ	SESHAGIRI.R

ZONE 03: DRAWING REVISED BASED ON PEM REVISION. ALL REVISIONS MARKED AS △3

ZONE 02: PIPE ROUTING REVISED BASED ON PEM REVISION. ITEM NO 89 TO 92 ADDED. DETAIL J REVISED. QTY REVISED FOR ITEM NO 65,67 & 68. ALL REVISIONS MARKED AS △2

ZONE 01: MATERIAL CODE FOR ITEM NO.81 CHANGED AS PER OP&C MAIL DT:30.07.14. ALL REVISIONS MARKED AS △1

NORTH (-Z) (-X)