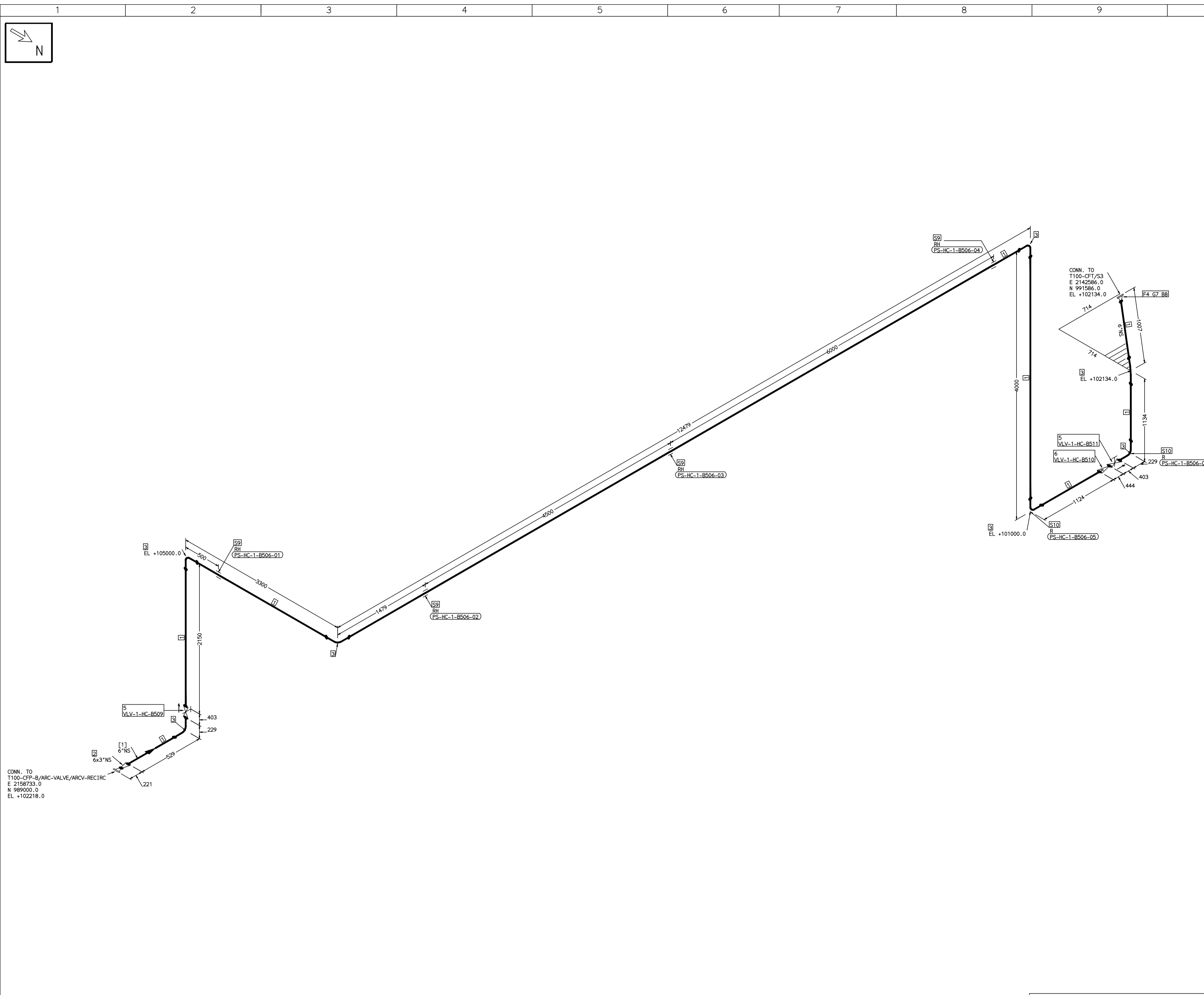


THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	6	S105		2287.00	13.83		
2	RDRR CONC ASME B16.9 BW	A403GRWP304	6 x 3	S105XS105		1	3.9		
3	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	6	S105		7	5.44		
4	FLANGE WELD NECK ASME B16.5 CL300	A182GRF304	6	CL300		1	18.73		
5	GATE VALVE HO ASME B16.10 CL300 BW	A351GRCFB	6	CL300		2	150		
6	SWING CHECK VALVE ASME B16.10 CL300 BW	A351GRCFB	6	CL300		1	139.34		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
7	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	6	CL300		1	0.56	HY7240363082	
8	130 STLD WITH 2 NUTS ASME B18.2	A193GRB8/A194GRB	3/4	M20X130		12	0.43		
9	RIGID HANGER		6			4	0		
10	PIPE REST		6			2	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAD-HC-BHL-1-B506-6-22B-NI	15.5	39.5	19.2	60				22B-RHP	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

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

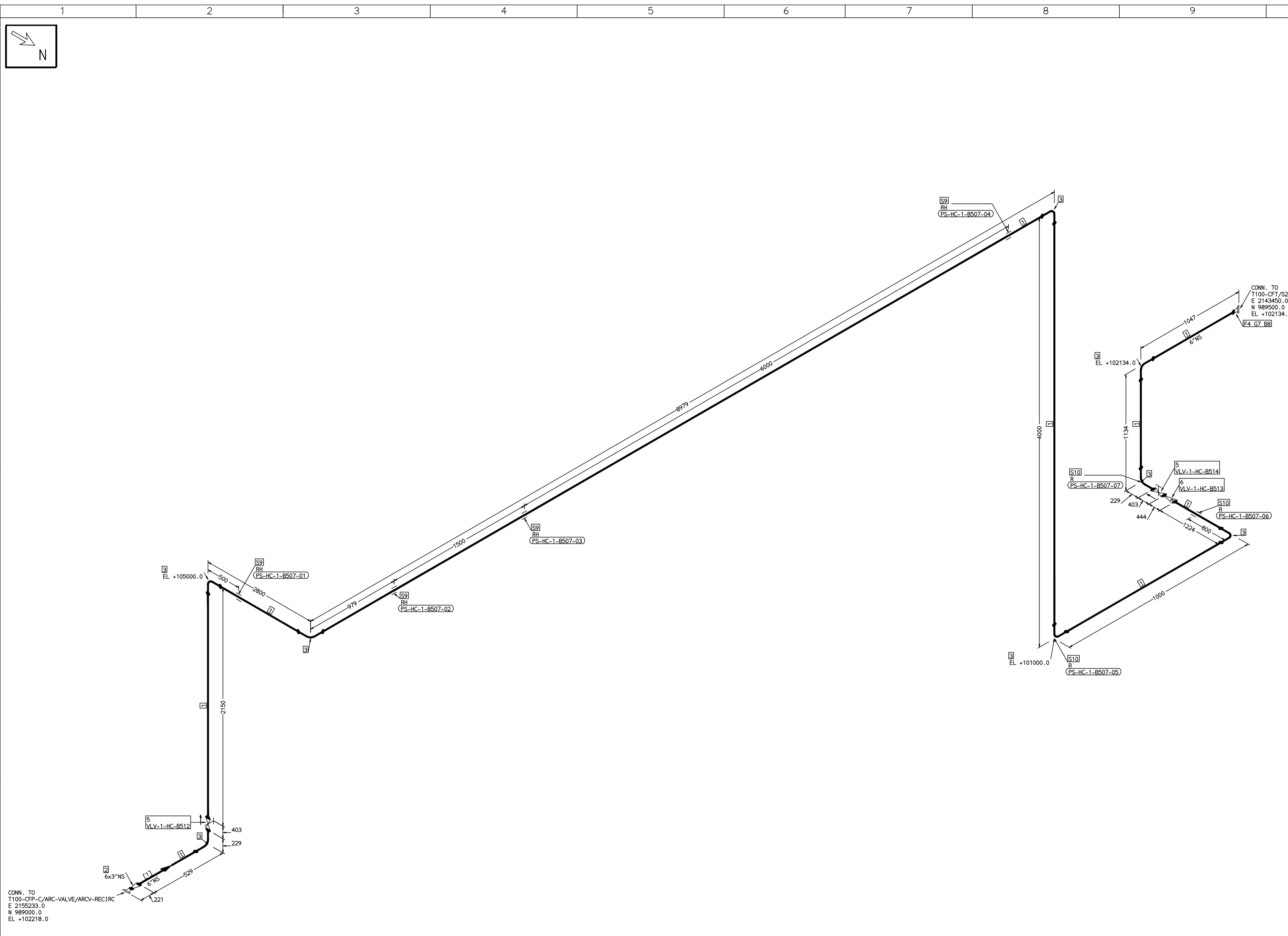
NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	1-CFP-B-RECIRCULATION	REV	OOP
DRAWING NO:	1-381-01-06015	SHT. No.	1
		NO. OF SHTS.	1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	6	S105		19558MM	13.83		
2	RDCR CONC ASME B16.9 BW	A403GRWP304	6 x 3	S105XS105		1	3.9		
3	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	6	S105		8	5.44		
4	FLANGE WELD NECK ASME B16.5 CL300	A182GRF304	6	CL300		1	18.73		
5	GATE VALVE HO ASME B16.10 CL300 BW	A351GRCF8	6	CL300		2	150		
6	SWING CHECK VALVE ASME B16.10 CL300 BW	A351GRCF8	6	CL300		1	139.34		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
7	GASKET M.S.W ASME B16.20 PTF	SS304+PTFE	6	CL300		1	0.56		HY7240363082
8	130 STD WITH 2 NUTS ASME B18.2	A193GRB8/A194GRB	3/4	M20X130		12	0.43		
9	RIGID HANGER		6			4	0		
10	PIPE REST		6			3	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAD-HC-BHL-1-B507-6-22B-NI	15.5	39.5	19.2	60				22B-RHP	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

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

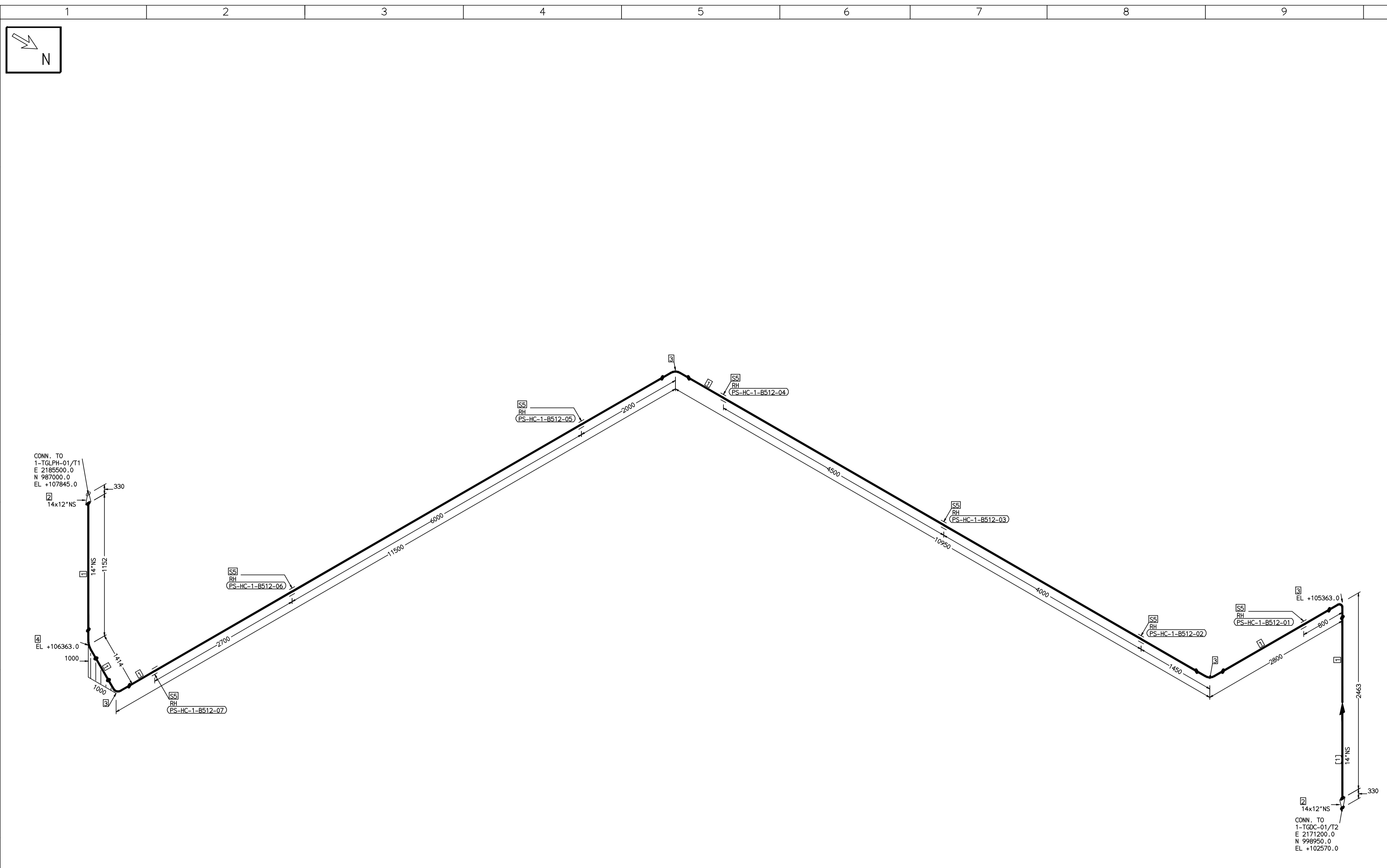
NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	1-CFP-C-RECIRCULATION	REV	OOP
DRAWING NO:	1-381-01-06016	SHT. No.	1
		NO. OF SHTS.	1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		25571MM	41.36		
2	RDCR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10SXS10S		15.3			
3	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		4	34.45		
4	ELBOW LR 45 DEG ASME B16.9 BW	A403GRWP304	14	S10S		1	17.225		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
5	RIGID HANGER		14			7	0		

[1]

NOTES:-

- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
- 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 DIMENSIONS.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAD-HC-BHL-1-B512-14-228-NI	14.6	45.6	19.2	65				228-RHP	14"

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

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

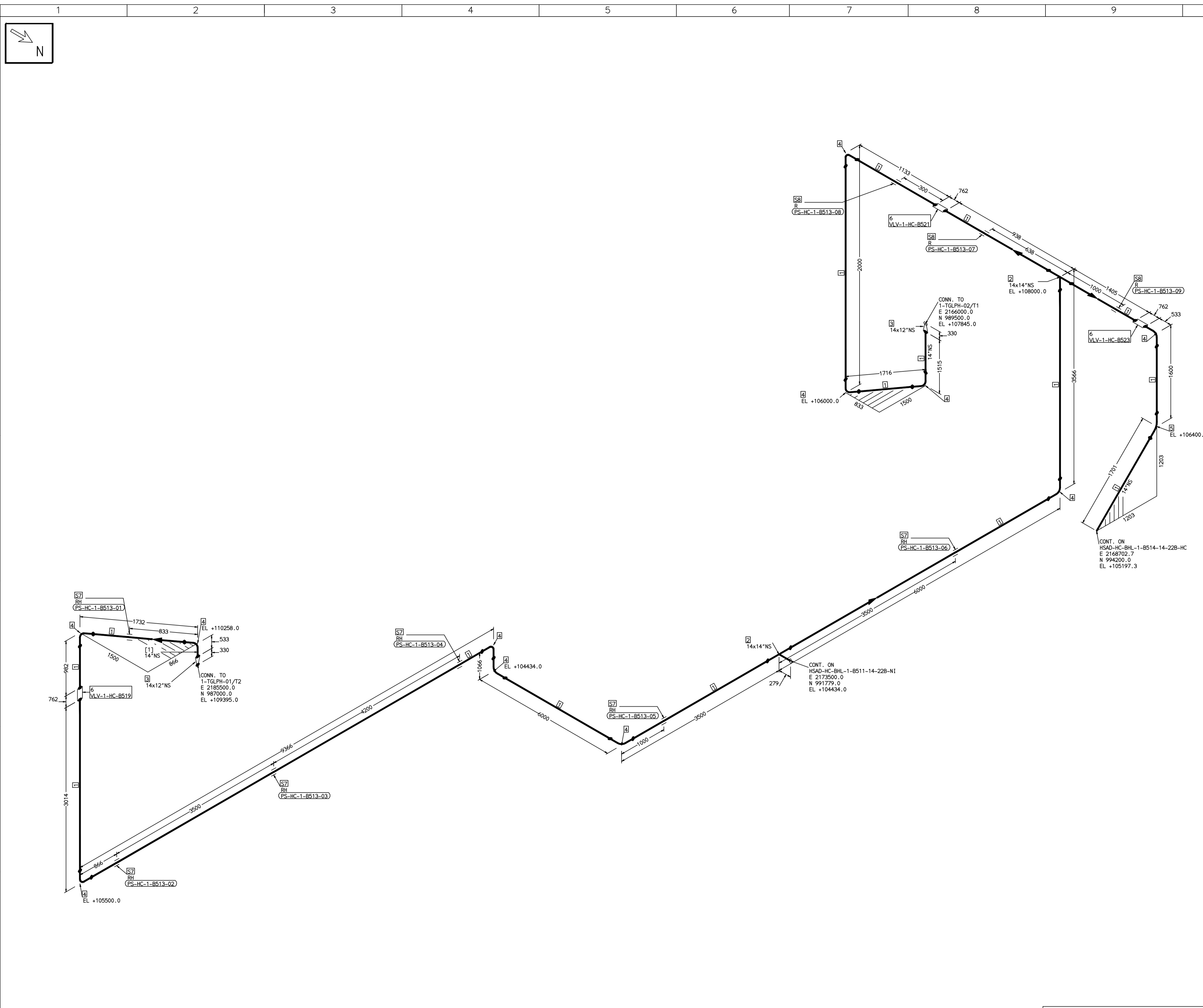
NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	1-CONDENSATE-PIPING-DC-LPH1
DRAWING NO:	1-381-01-06018
REV	OOP
SHT. No. 1	NO. OF SHTS. 1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		34735MM	41.36		
2	TEE STRT ASME B16.9 BW	A403GRWP304	14 x 14	S10S		2	48		
3	RDRR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10XS10S		2	15.3		
4	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		11	34.45		
5	ELBOW LR 45 DEG ASME B16.9 BW	A403GRWP304	14	S10S		1	17.225		
6	GATE VALVE MO ASME B16.10 CL300 BW	A351GRCF8	14	CL300		3	810		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
7	RIGID HANGER		14			6	0		
8	PIPE REST		14			3	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

LINE PARAMETERS:-

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
HSAD-HC-BHL-1-B513-14-228-HC	13.65	75.5	19.2	190		10/40	PGEL/MM	228-RHP	14"

- 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

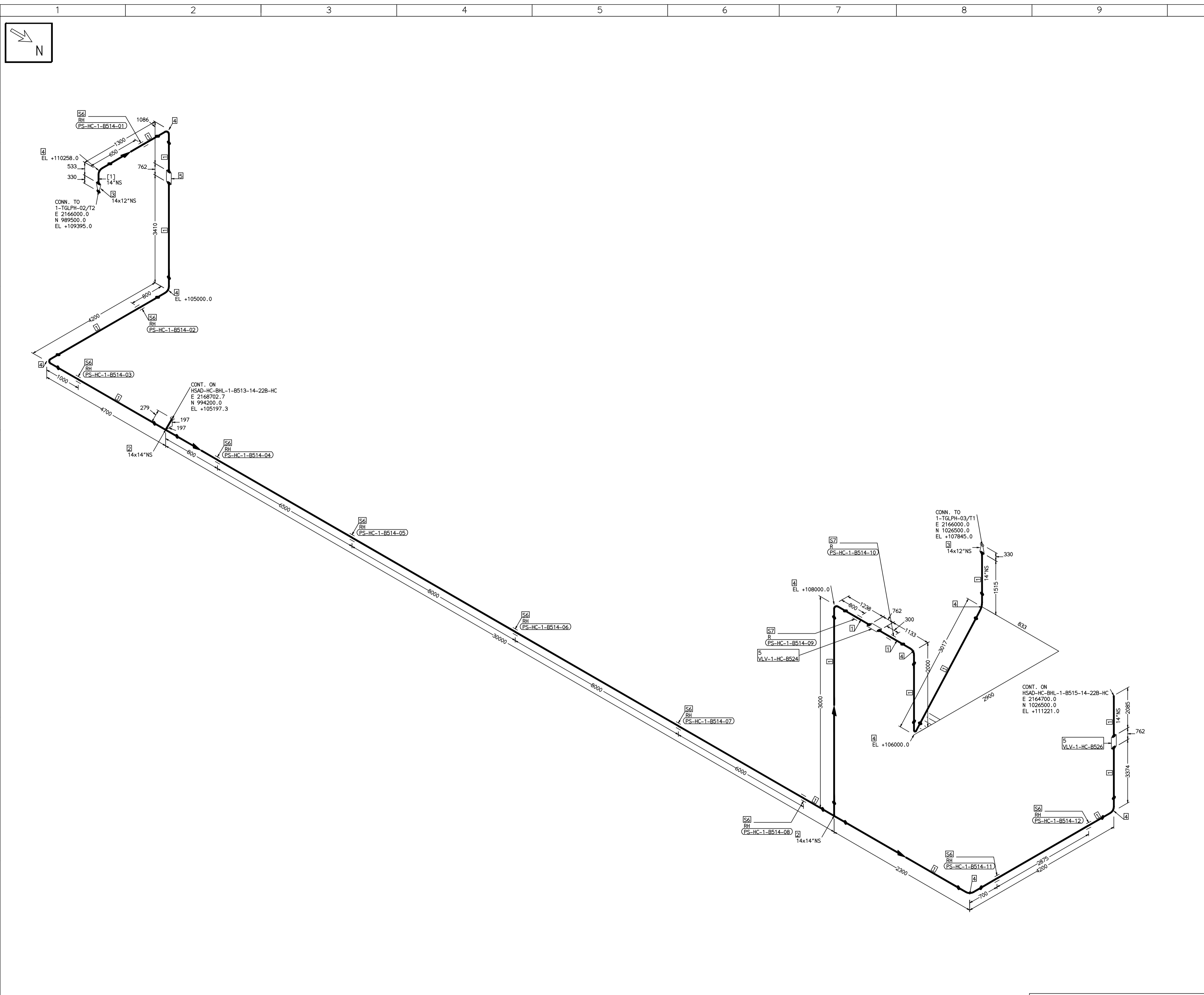
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE	
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VJK	-SD-	05-05-14
APPRD.	GS	-SD-	05-05-14	
TITLE:		SCALE: NTS		
1-CONDENSATE-PIPING-LPH1-LPH2		DRAWING NO:	REV	
SHT. No. 1		1-381-01-06019	OOP	
NO. OF SHTS. 1				

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		57030M	41.36	
2	TEE STRT ASME B16.9 BW	A403GRWP304	14 x 14	S10S		2	48	
3	RDRR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10SX10S		2	15.3	
4	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		10	34.45	
5	GATE VALVE MD ASME B16.10 CL300 BW	A351GRFCB	14	CL300		3	810	

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
6	RIGID HANGER		14			10	0	
7	PIPE REST		14			2	0	

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

LINE PARAMETERS:-

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
HSAD-HC-BHL-1-B514-14-22B-HC	12.8	104.7	19.2	115		10/40	PGEL/MM	22B-RHP	14"

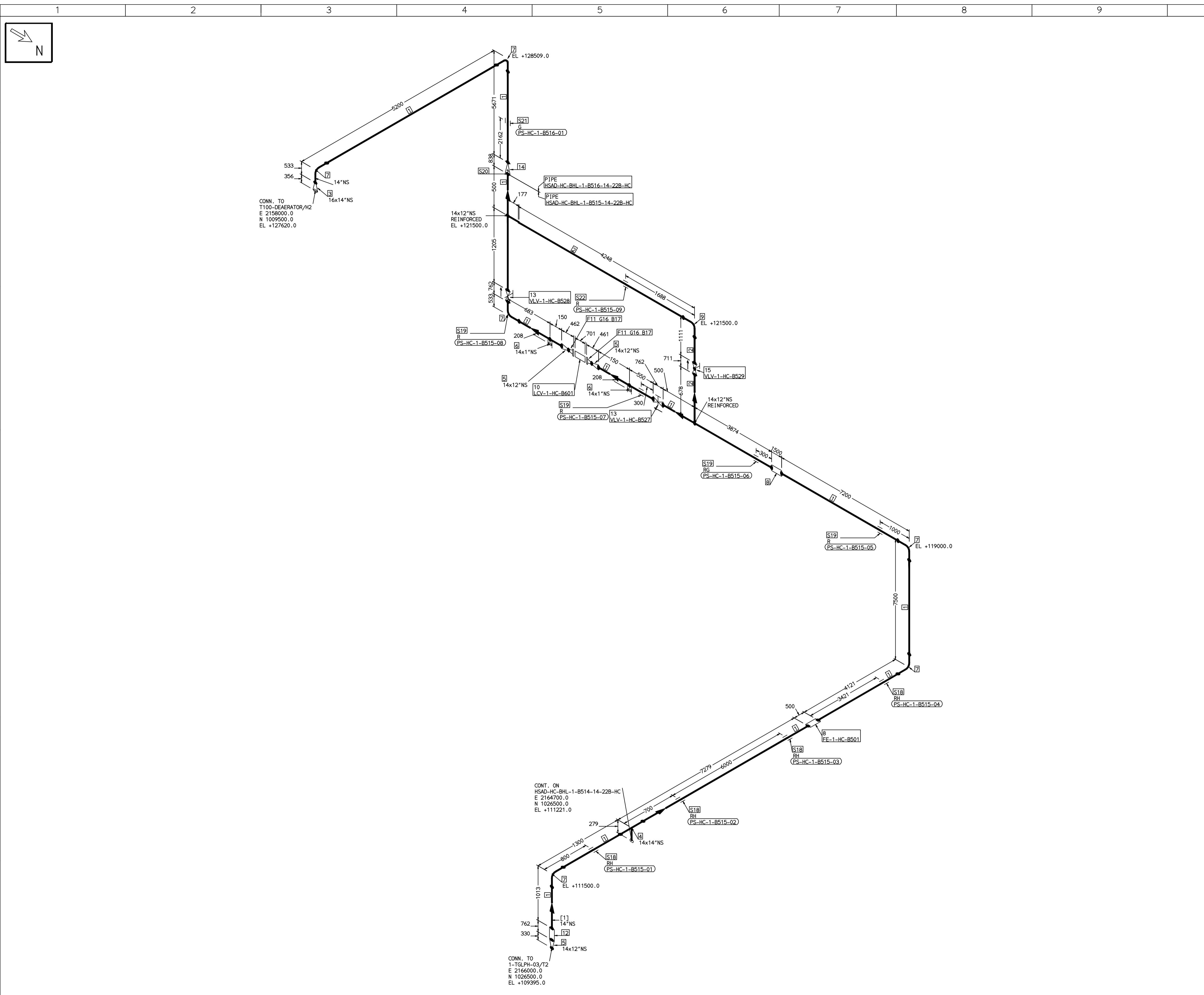
- LEGEND:-**
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. PCC	-SD-	05-05-14
	CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14	SCALE: NTS
TITLE: 1-CONDENSATE-PIPING-LPH2-LPH3	DRAWING NO: 1-381-01-06020	REV OOP	
SHT. No. 1	NO. OF SHTS. 1		

COMPUTER FILE NAME: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. 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)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		41008M	41.36		
2	PIPE SMLS ASME B36.10 PE	A312GRTP304	12	S10S		5154MM	35.98		
3	RDCR CONC ASME B16.9 BW	A403GRWP304	16 x 14	S10XS10S		1	18.8		
4	TEE STRT ASME B16.9 BW	A403GRWP304	14 x 14	S10S		1	48		
5	RDCR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10XS10S		3	15.3		
6	HALF COUPLING ASME B16.11 CL300 SW	A182GRF304	14 x 1	CL300		2	0.34		
7	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		6	34.45		
8	PIPING COMPONENT (USER DEFINED) BW	A403GRWP304	14			2	0		
9	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	12	S10S		1	27.28		
10	PIPING COMPONENT (USER DEFINED) CL300 RF(B16.5)	A403GRWP304	12	CL300		1	0		
11	FLANGE WELD NECK ASME B16.5 CL300 RF	A182GRF304	12	CL300		2	58.79		
12	GATE VALVE MO ASME B16.10 CL300 BW	A351GRCFB	14	CL300		1	810		
13	GATE VALVE GO CL300 BW	A351GRCFB	14	CL300		2	610		
14	SWING CHECK VALVE ASME B16.10 CL300 BW	A351GRCFB	14	CL300		1	878.2		
15	REG GLOBE VALVE HO ASME B16.10 CL300 BW	A351GRCFB	12	CL300		1	588.75		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
16	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	12	CL300		2	1.41		HY7240363112
17	180 STUD WITH 2 NUTS ASME B18.2 94GR8	A193GR8B/A194GR8	1.1/8	M30X180		32	1.35		
18	RIGID HANGER		14			4	0		
19	PIPE REST		14			4	0		
20	GENERAL ATTACHMENT		14			1	0		
21	PIPE SUPPORT		14			1	0		
22	PIPE REST		12			1	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAD-HC-BHL-1-B515-14-228-HC	12.0	140.1	19.2	150	110/40	PGEL/MM	228-RHP	14"	
HSAD-HC-BHL-1-B516-14-228-HC	12.0	140.1	19.2	150	110/40	PGEL/MM	228-RHP	14"	

- 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

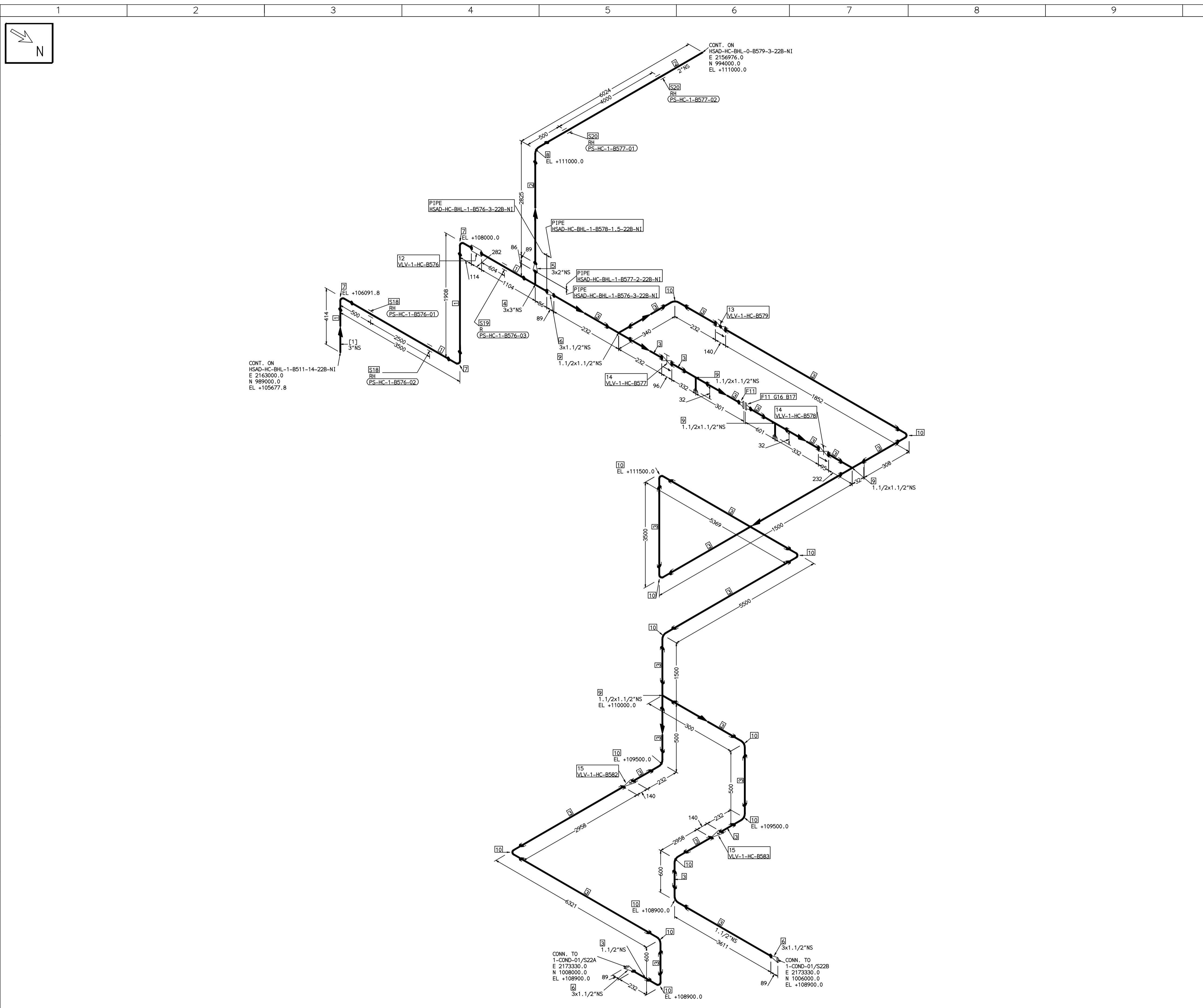
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	DRAWING NO:	REV
1-CONDENSATE-PIPING-LPH3-DEAERATOR	R1-381-01-06021	OOP
SHT. No. 1	NO. OF SHTS. 1	

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. 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)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	3	S105		6270MM	6.46			
2	PIPE SMLS ASME B36.10 PE	A312GRTP304	2	S405		8697MM	5.44			
3	PIPE SMLS ASME B36.10 PE	A312GRTP304	1.1/2	S405		39989MM	4.05			
4	TEE STRT ASME B16.9 BW	A403GRMP304	3 x 3	S105		1	1.8			
5	ROCR CONC ASME B16.9 BW	A403GRMP304	3 x 2	S105XS405		1	1			
6	ROCR CONC ASME B16.9 BW	A403GRMP304	3 x 3	S105XS405		3	1			
7	ELBOW LR 90 DEG ASME B16.9 BW	A403GRMP304	3	S105		3	1.33			
8	ELBOW LR 90 DEG ASME B16.9 BW	A403GRMP304	2	S405		1	0.75			
9	TEE STRT ASME B16.11 CL3000 SW	A182GRF304	1.1/2 x 1.1/2	CL3000		5	1.28			
10	ELBOW 90 DEG LR ASME B16.11 CL3000 SW	A182GRF304	1.1/2	CL3000		14	1.05			
11	FLANGE WELD NECK ASME B16.5 CL300 RF	A182GRF304	1.1/2	CL300		2	2.97			
12	GATE VALVE MO ASME B16.10 CL300 BW	A351GRFC8	3	CL300		1	0			
13	REG GLOBE VALVE HO CL800 SW	A182GRF304	1.1/2	CL800		1	9.5			
14	GATE VALVE HO ASME B16.10 CL800 SW	A182GRF304	1.1/2	CL800		2	6.2			
15	PISTON LIFT CHECK VALVE CL800 SW	A182GRF304	1.1/2	CL800		2	9.1			

ERECTION MATERIALS										
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
16	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	1.1/2	CL300		1	0.08		HY7240363040	
17	100 STUD WITH 2 NUTS ASME B18.2	A193GRB8/A194GRB	3/4	M20X100		4	0.37			
18	RIGID HANGER	3				2	0			
19	PIPE REST	3				1	0			
20	RIGID HANGER	2				2	0			

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

DRN.	PCC	SIGN	DATE
CHKD.	VJK	-SD-	05-05-14
APPRD.	GS	-SD-	05-05-14

SCALE: NTS

TITLE:	1-SPRAY-TO-BSS-DS-COND-DUMP	DRAWING NO:	1-381-01-06022	REV	OOP
SHT. No.	1	NO. OF SHTS.	1		

REFERENCE DRAWINGS:-

LINE PARAMETERS:-

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
HSAD-HC-BHL-1-B576-3-22B-N1	14.0	39.5	18.9	60			PGEL/MM	22B-RHP	3"
HSAD-HC-BHL-1-B577-2-22B-N1	14.0	39.5	18.9	60			PGEL/MM	22B-RHP	2"
HSAD-HC-BHL-1-B578-1.5-22B-N1	14.0	39.5	18.9	60			PGEL/MM	22B-RHP	1.1/2"

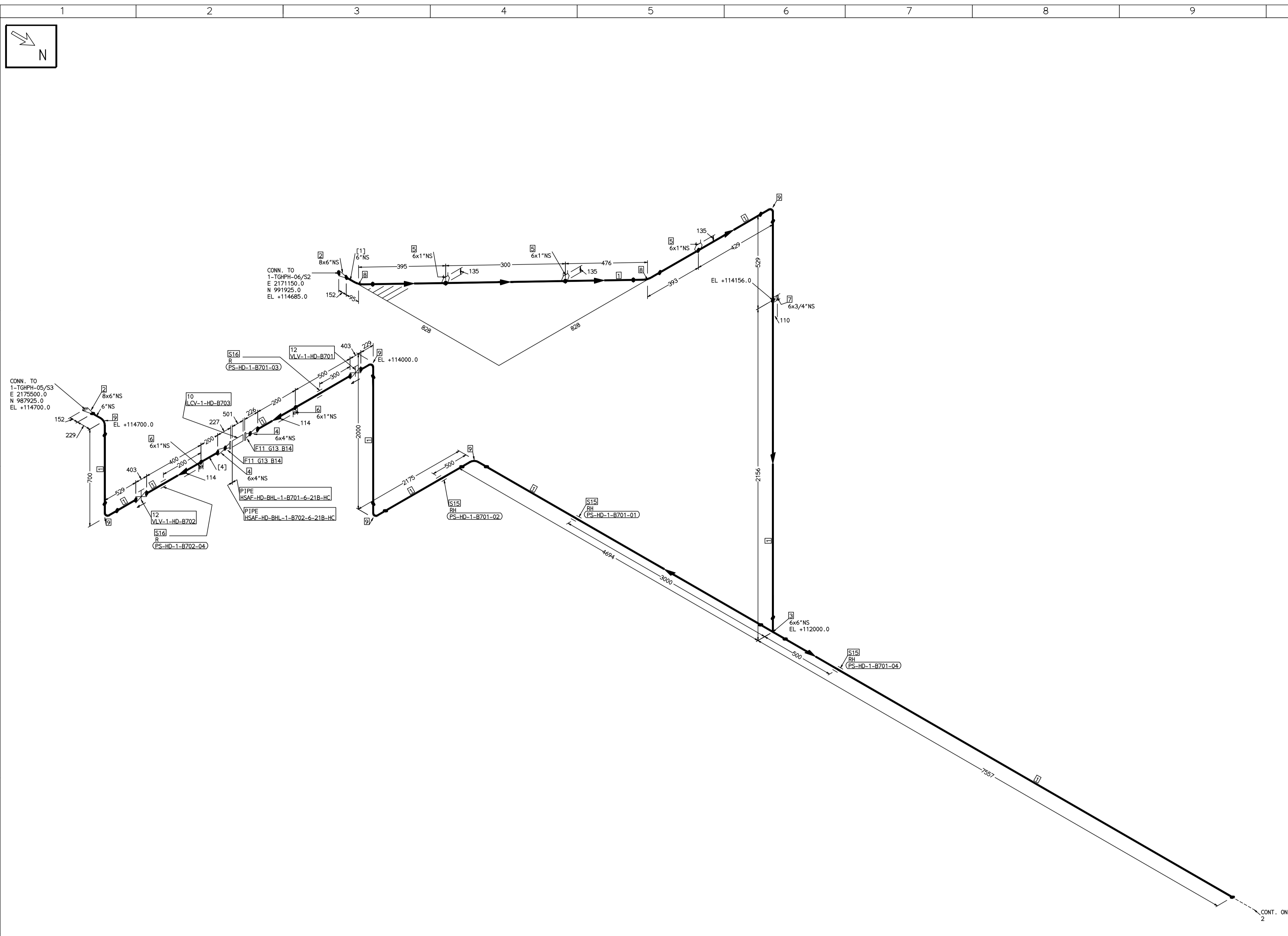
- LEGEND:-**
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

OOP	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
05-05-14		PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

COMPUTER FILE NAME:

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. 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)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
13	GASKET M.S.W ASME B16.20 GRAPHITE FILLER B16.5 CL300 RF	SS304+GRAPH	4		CL300		0.32	HY7240365077		
14	120 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X120	CL300		0.41	HY7142198184		
15	RIGID HANGER		6				0			
16	PIPE REST		6				0			

[1] [4]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

DRN.	PCC	NAME	SIGN	DATE
CHKD.	VJK		-SD-	05-05-14
APPRD.	GS		-SD-	05-05-14

TITLE:	1-HPH6-DRAIN-PIPING	DRAWING NO:	1-381-01-06023	REV	OOP
		SHT. No. 1	NO. OF SHTS. 2		

REFERENCE DRAWINGS:-

1	2	3	4	5	6	7
---	---	---	---	---	---	---

LINE PARAMETERS:-

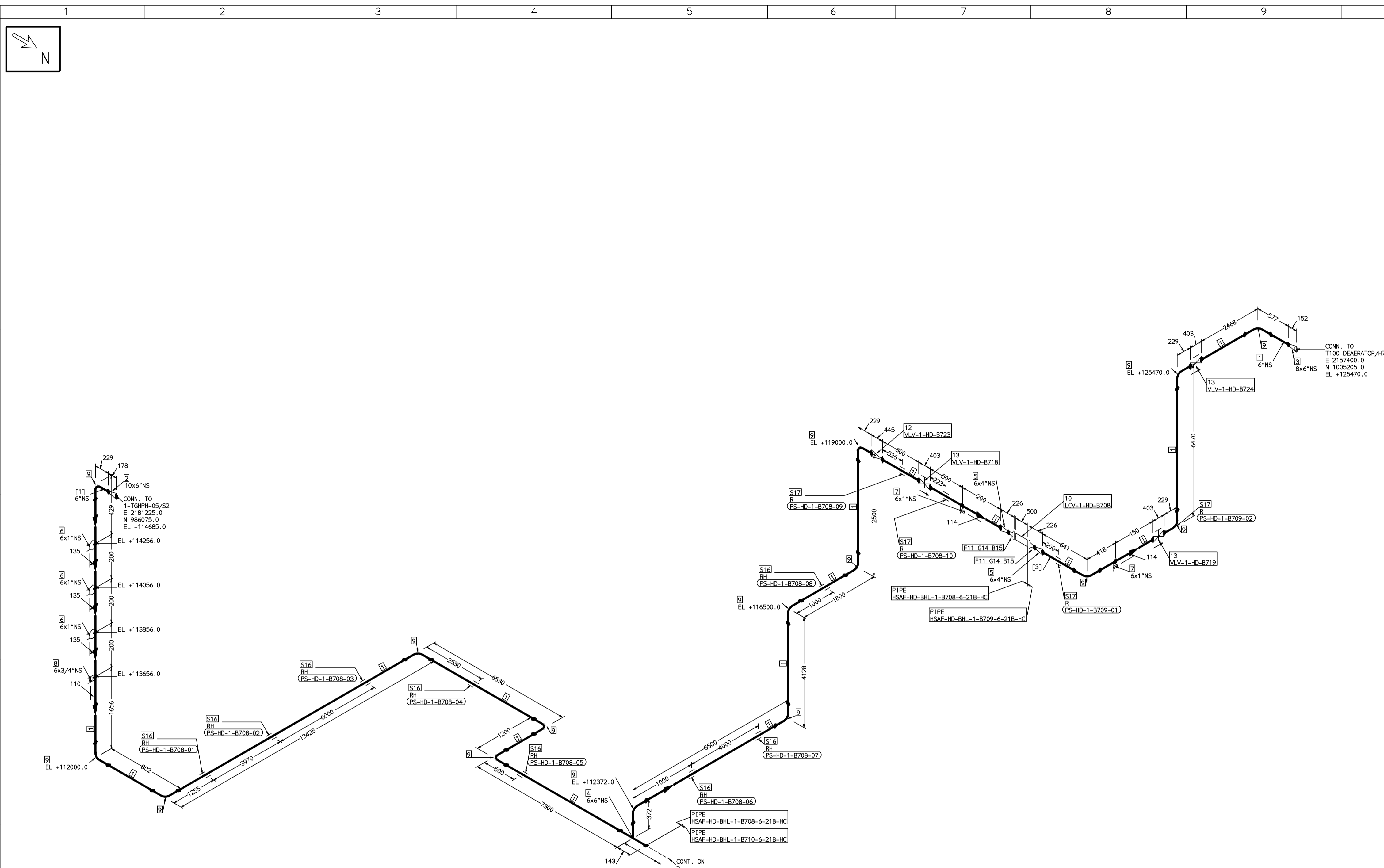
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK S(mm)	INS MAT	PSPEC	BORE
HSAF-HD-BHL-1-B701-6-21B-HC	30.52	208.8	34.0	220	207.65	20/65	PGEL/MM	21B-RHP	6"
HSAF-HD-BHL-1-B703-6-21B-HC	30.52	208.8	34.0	220	207.65	20/65	PGEL/MM	21B-RHP	6"
HSAF-HD-BHL-1-B704-6-21B-HC	7.5	170.4	9.0	190	20/40	20/40	PGEL/MM	21B-RHP	6"
HSAF-HD-BHL-1-B705-6-21B-HC	30.52	208.8	34.0	220	207.65	20/65	PGEL/MM	21B-RHP	6"
HSAF-HD-BHL-1-B706-6-21B-HC	180.4	204.3	19.0	220	207.65	20/65	PGEL/MM	21B-RHP	8"
HSAF-HD-BHL-1-B702-6-21B-HC	16.5	204.3	19.0	220	207.65	20/65	PGEL/MM	21B-RHP	6"

- LEGEND:-
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - ↘ DIRECTION OF SLOPE
 - W 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:-

OOP	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
05-05-14		PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. 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)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
1	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		52226MM	28.26	AA1049305512		
2	RDCR CONC ASME B16.9 BW	A234GRWP	10 x 6	S40XS40		1	10.7	HY7242592253		
3	RDCR CONC ASME B16.9 BW	A234GRWP	8 x 6	S40XS40		1	6.5	HY7242530636		
4	TEE STRT ASME B16.9 BW	A234GRWP	6 x 6	S40		1	11	AA7242511275		
5	RDCR CONC ASME B16.9 BW	A234GRWP	6 x 4	S40XS40		2	3.9	AA7242530350		
6	TEMP STUB BECHTEL TYPE-T 1" NPT TRD	A105	6 x 1			3	0			
7	HALF COUPLING ASME B16.11 CL3000 SW	A105	6 x 1		CL3000	2	0.34	HY7242586062		
8	HALF COUPLING ASME B16.11 CL3000 SW	A105	6 x 3/4		CL3000	1	0.2	HY7242586054		
9	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP	6	S40		15	11.01	AA7242502276		
10	PIPING COMPONENT (USER DEFINED) CL300 RF(B16.5)	A234GRWP	4		CL300	1	0			
11	FLANGE WELD NECK ASME B16.5 CL300 RF	A105	4	S40	CL300	2	11.65	AA7246306102		
12	SWING CHECK VALVE ASME B16.10 CL300 BW	A216GRWCB	6		CL300	1	139.34	AA7541428701		
13	GATE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	6		CL300	3	150	AA7521428706		

ERECTION MATERIALS										
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
14	GASKET M.S.W ASME B16.20 GRAPHITE FILLER B16.5 CL300 RF	SS304+GRAPH	4		CL300	2	0.32	HY7240365077		
15	120 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X120	CL300	16	0.41	HY7142198184		
16	RIGID HANGER					8	0			
17	PIPE REST					4	0			

[1] [3]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

1	2	3	4	5	6	7
---	---	---	---	---	---	---

LINE PARAMETERS:-

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
HSAF-HD-BHL-1-B708-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	
HSAF-HD-BHL-1-B710-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	
HSAF-HD-BHL-1-B711-10-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	8"	
HSAF-HD-BHL-1-B709-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	

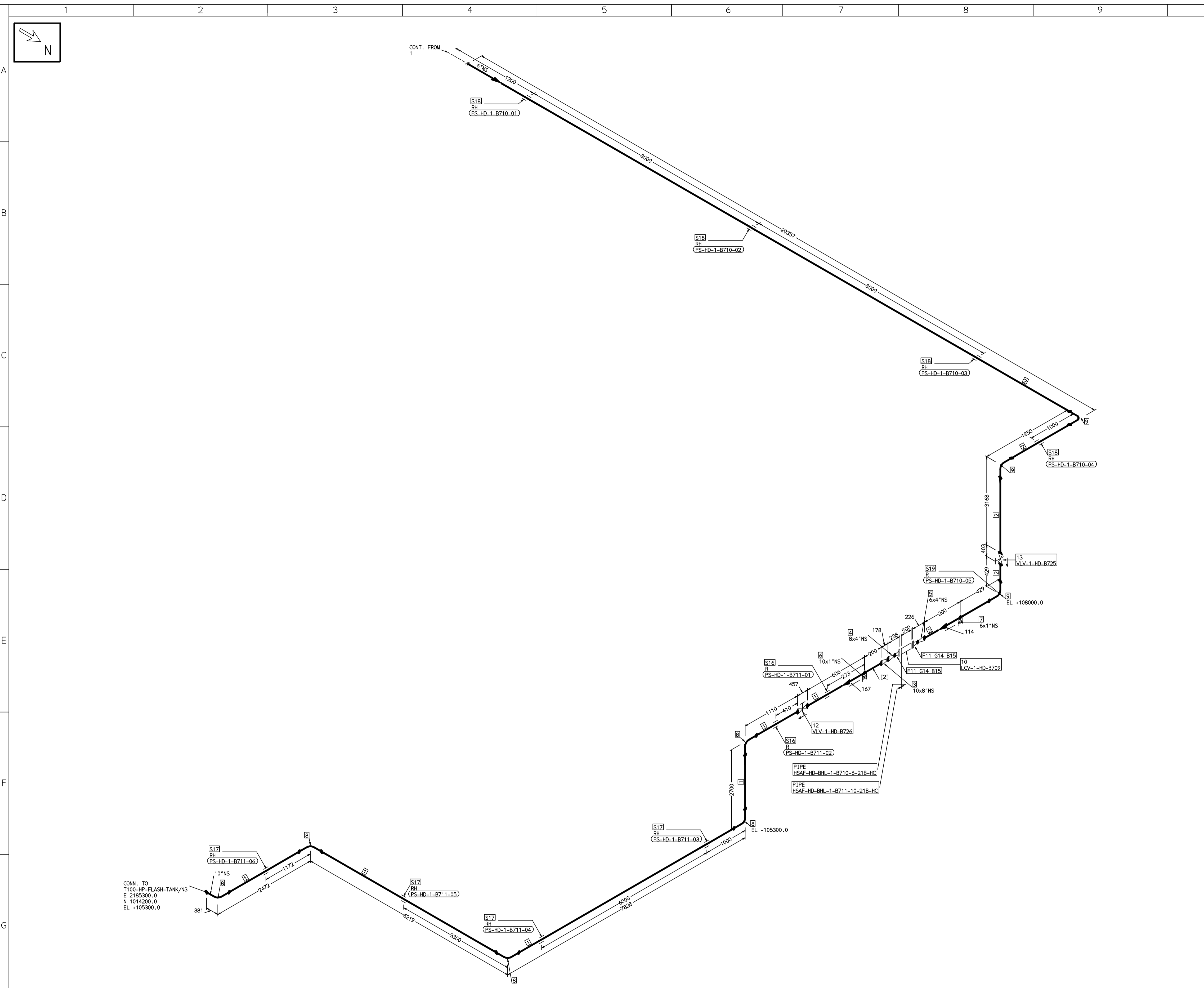
- LEGEND:-**
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE	
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VJK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
DRAWING NO:		REV		
1-381-01-06024		OOP		
SHT. No. 1	NO. OF SHTS. 2			

COMPUTER FILE NAME: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. 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)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S40		17706MM	60.29	AA1049355687		
2	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		25059MM	28.26	AA1049355512		
3	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 8	S40XS40		1	10.7	HY7242692121		
4	RDCR CONC ASME B16.9 BW	A234GRWPB	8 x 4	S40XS40		1	6.5	HY7242692245		
5	RDCR CONC ASME B16.9 BW	A234GRWPB	6 x 4	S40XS40		1	3.9	AA7242530350		
6	HALF COUPLING ASME B16.11 CL3000 SW	A105	10 x 1		CL3000	1	0.34	HY7242586062		
7	HALF COUPLING ASME B16.11 CL3000 SW	A105	6 x 1		CL3000	1	0.34	HY7242586062		
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S40		5	38.22	HY7242502527		
9	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		3	11.01	AA7242502276		
10	PIPING COMPONENT (USER DEFINED) CL300 RF (B16.5)	A234GRWPB	4		CL300	1	0			
11	FLANGE WELD NECK ASME B16.5 CL300 RF	A105	4	S40		2	11.65	AA7246306102		
12	GATE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	10		CL300	1	420	AA7521428722		
13	GATE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	6		CL300	1	150	AA7521428706		

ERECTION MATERIALS										
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
14	GASKET M.S.W ASME B16.20 GRAPHITE FILLER B16.5 CL300 RF	SS304-GRAPH	4		CL300	2	0.32	HY7240365077		
15	120 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X120	CL300	16	0.41	HY7142198184		
16	PIPE REST		10			2	0			
17	RIGID HANGER		10			4	0			
18	RIGID HANGER		6			4	0			
19	PIPE REST		6			1	0			

[2]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-		LINE PARAMETERS:-									
		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
		HSAF-HD-BHL-1-B708-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	
		HSAF-HD-BHL-1-B710-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	
		HSAF-HD-BHL-1-B711-10-21B-HC	19.0					PGEL/MM	21B-RHP	8"	
		HSAF-HD-BHL-1-B709-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	

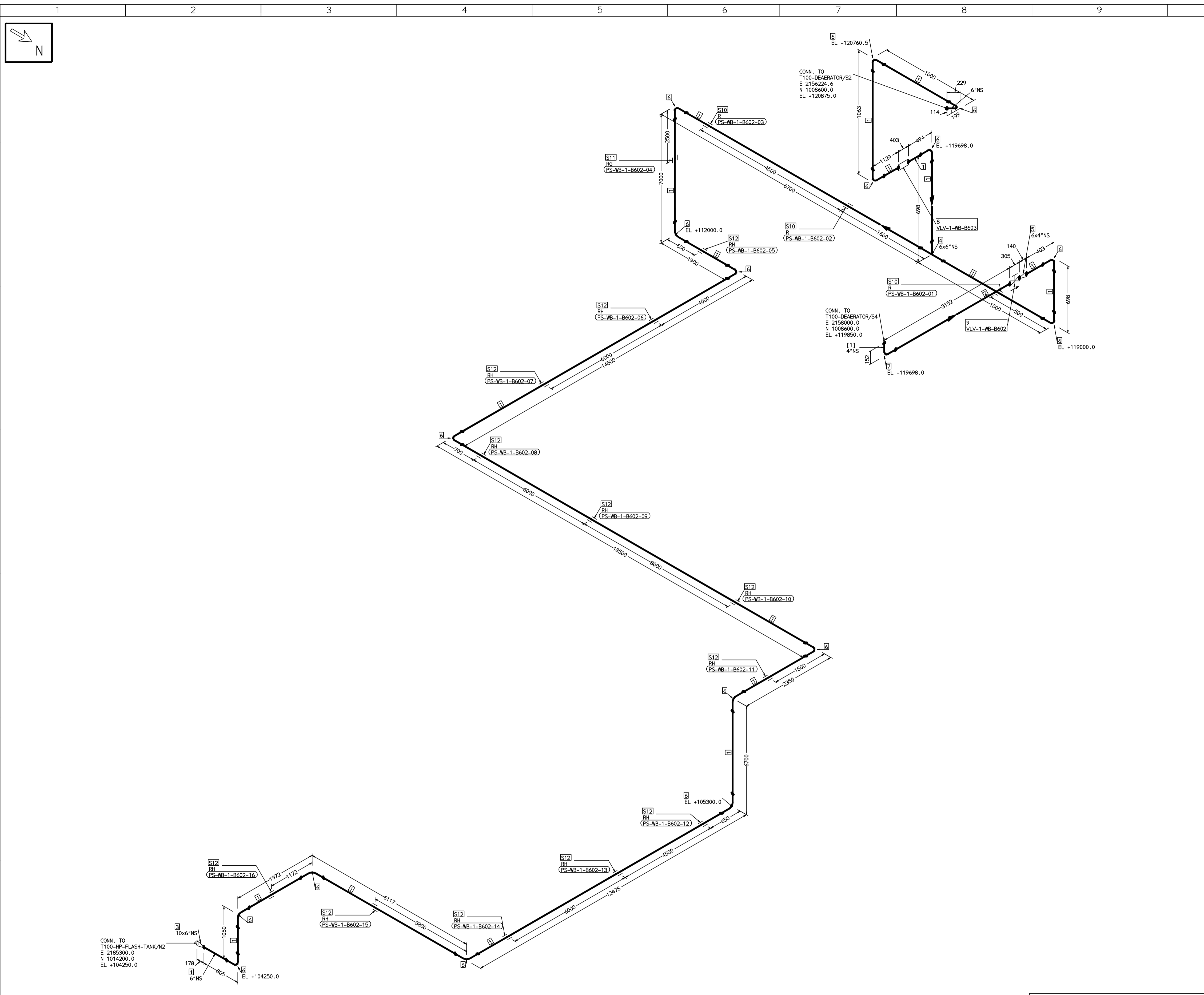
- LEGEND:-**
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
 - A - ANCHOR
 - R - REST
 - RG - REST + GUIDE
 - RL - REST + LIMIT STOP
 - RGL - DIRECTION ANCHOR
 - RH - RIGID HANGER
 - SH - SPRING HANGER
 - BS - BOTTOM SPRING
 - VG - VERTICAL GUIDE

RECORD OF REVISIONS:-					
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
DRN.	PCC	-SD-		05-05-14
CHKD.	VJK	-SD-		05-05-14
APPRD.	GS	-SD-		05-05-14
TITLE: 1-HPH5-DRAIN-PIPING		DRAWING NO: 1-381-01-06024	REV OOP	
SHT. No. 2		NO. OF SHTS. 2		

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS										
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
1	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		78571MM	28.26	AA104935512		
2	PIPE SMLS ASME B36.10 PE	A106GRB	4	S40		300MM	16.08	AA104935515		
3	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 6	S20XS40		1	0	AA7242530458		
4	TEE STRT ASME B16.9 BW	A234GRWPB	6 x 6	S40		1	11	AA7242511275		
5	RDCR CONC ASME B16.9 BW	A234GRWPB	6 x 4	S40XS40		1	3.9	AA7242530350		
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6 x 4	S40		17	11.01	AA7242502276		
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	4	S40		1	4.23	AA7242502217		
8	GATE VALVE MO ASME B16.10 CL150 BW	A216GRWCB	6		CL150	1	0			
9	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	4		CL150	1	58.1	AA7521408683		

ERECTION MATERIALS										
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
10	PIPE REST		6			3	0			
11	PIPE SUPPORT		6			1	0			
12	RIGID HANGER		6			12	0			

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
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 PGEL/MM	PSPEC 11B-RHP	BORE 6"
HSAE-WB-BHL-1-B602-6-11B-HC	7.14	170.4	9.0	185		20/40			

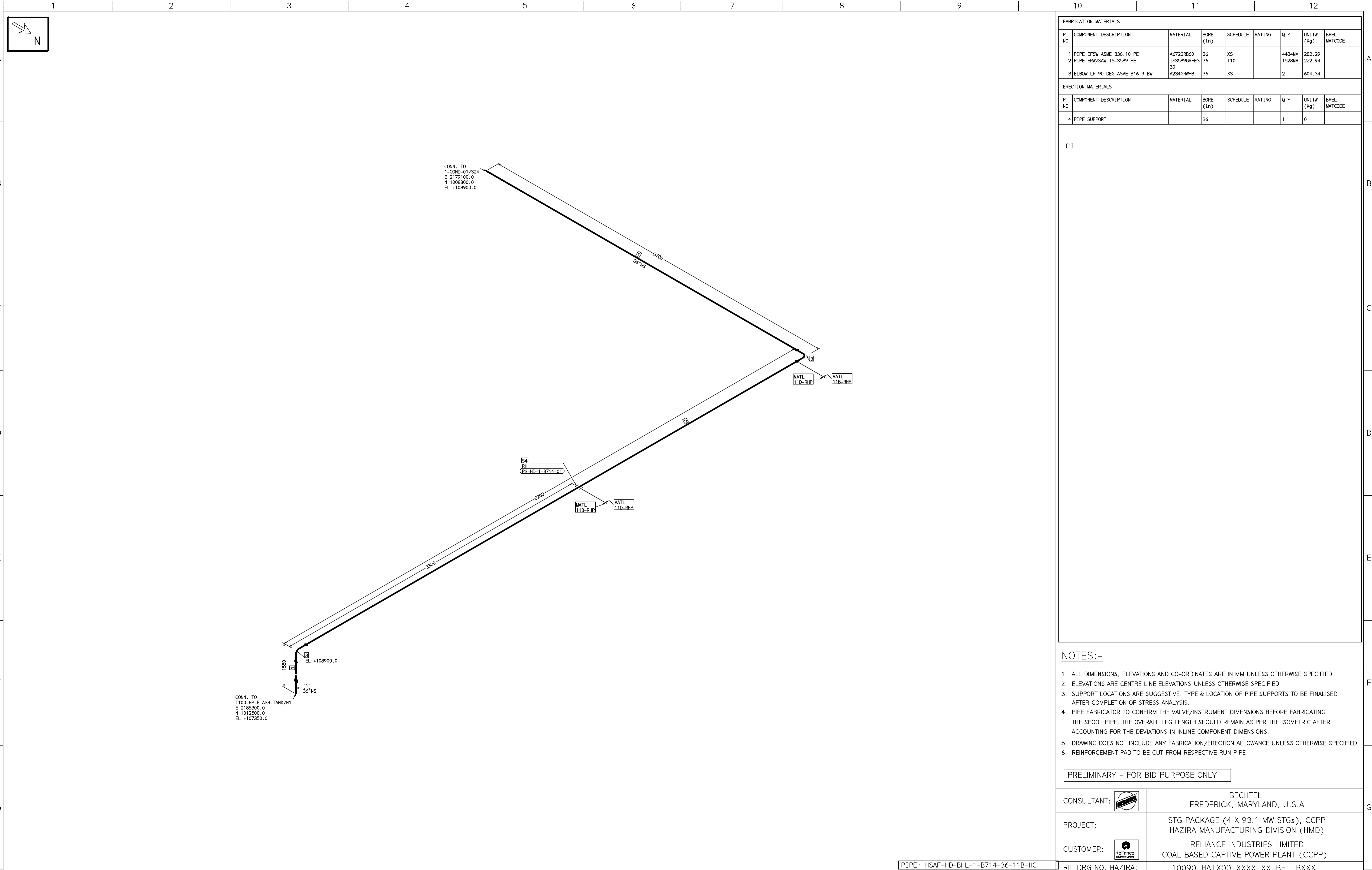
- LEGEND:-**
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
 - A - ANCHOR
 - R - REST
 - RG - REST + GUIDE
 - RL - REST + LIMIT STOP
 - RGL - DIRECTION ANCHOR
 - RH - RIGID HANGER
 - SH - SPRING HANGER
 - BS - BOTTOM SPRING
 - VG - VERTICAL GUIDE

RECORD OF REVISIONS:-					
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN.	PCC	-SD- 05-05-14
	CHKD.	VJK	-SD- 05-05-14
	APPRD.	GS	-SD- 05-05-14
DRAWING NO: 1-381-01-06025			REV OOP
SHT. No. 1		NO. OF SHTS. 1	

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE EFSW ASME B36.10 PE	A672GRB60	36	XS			4434MM	282.29
2	PIPE ERW/SAM 15-3589 PE	153589RPFES30	36	T10			1528MM	222.94
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	36	XS		2	604.34	

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
4	PIPE SUPPORT		36			1	0	

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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 PGEL/MM	PSPEC	BORE
HSAF-HD-BHL-1-B714-36-11B-HC								118-RHP	36"

- LEGEND:-**
- SUPPORT LOCATION
 - REST
 - REST + GUIDE
 - REST + LIMIT STOP
 - DIRECTION ANCHOR
 - RIGID HANGER
 - SPRING HANGER
 - BOTTOM SPRING
 - VERTICAL GUIDE

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

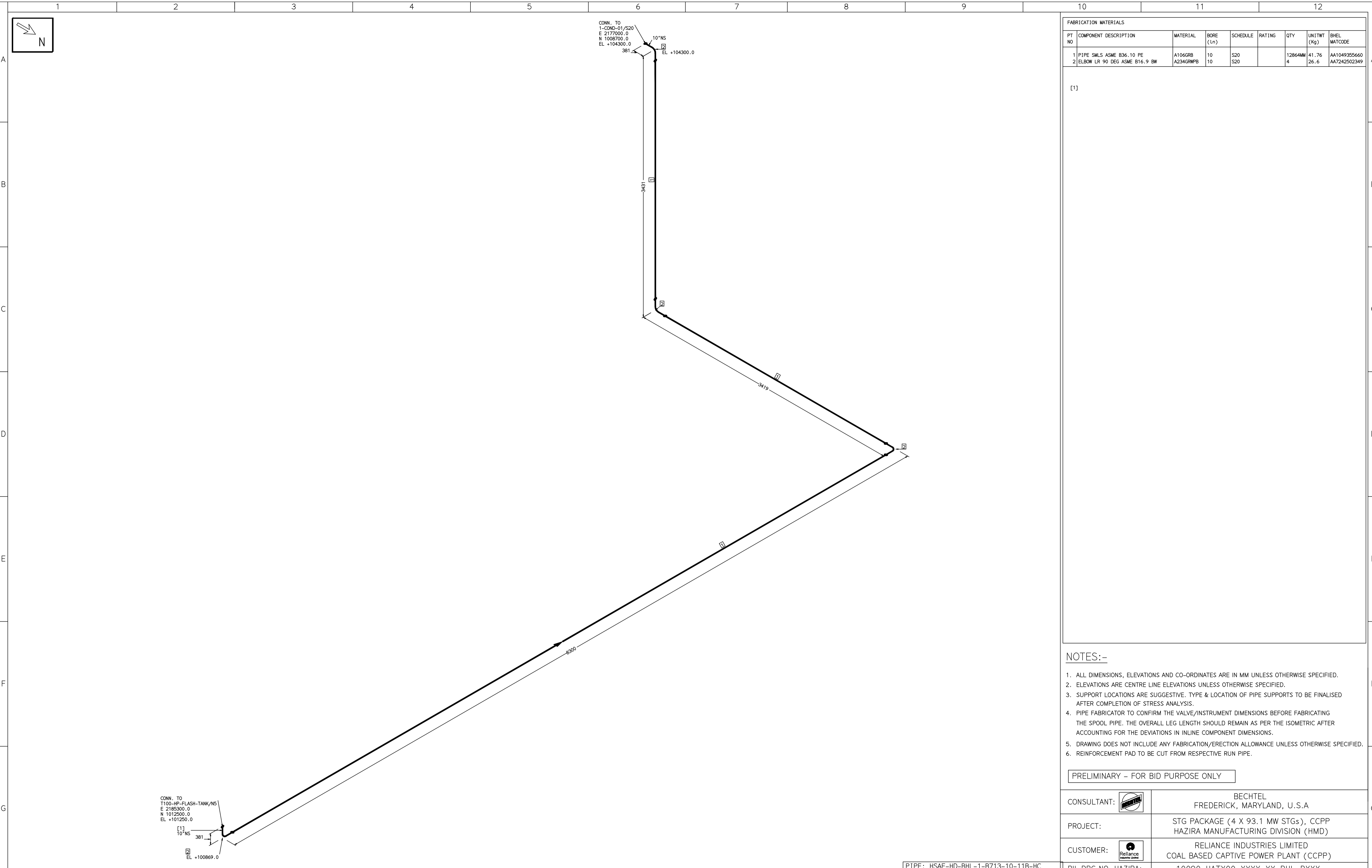
NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	1-HP-FLASH-TANK-VENT-PPG	REV	OOP
DRAWING NO:	1-381-01-06026	SHT. No.	1
		NO. OF SHTS.	1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20			12864MM	41.76	AA1049305660
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		4	26.6	AA7242502349	

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-		LINE PARAMETERS:-									
NO	DESCRIPTION	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
1		HSAF-HD-BHL-1-B713-10-11B-HC								11B-RHP	"

LEGEND:-

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

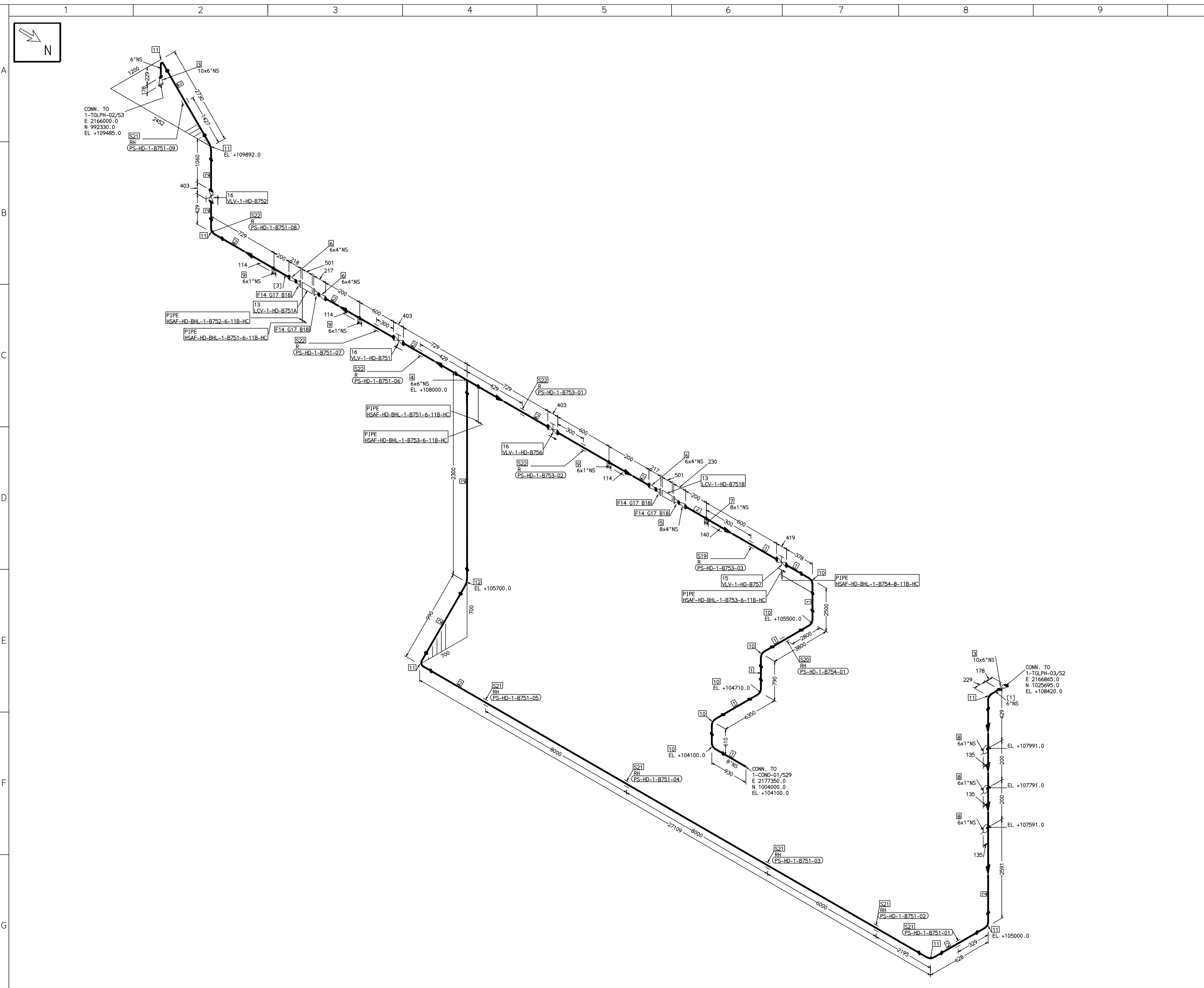
A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
DRN.	PCC	-SD-		05-05-14
CHKD.	VJK	-SD-		05-05-14
APPRD.	GS	-SD-		05-05-14
SCALE: NTS				
TITLE: 1-HP-FLASH-TANK-DRAIN-PPG		DRAWING NO: 1-381-01-06027	REV OOP	
SHT. No. 1	NO. OF SHTS. 1			

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. 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)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
1	PIPE SMLS ASME B36.10 PE	A106GRB	8	S20		12498MM	33.32	AA1049355563		
2	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		39286MM	28.26	AA1049355512		
3	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 6	S20XS40		2	0	AA7242530458		
4	TEE STRT ASME B16.9 BW	A234GRWPB	6 x 6	S40		1	11	AA7242511275		
5	RDCR CONC ASME B16.9 BW	A234GRWPB	8 x 4	S20XS40		1	6.5	AA7242530393		
6	RDCR CONC ASME B16.9 BW	A234GRWPB	6 x 4	S40XS40		3	3.9	AA7242530350		
7	HALF COUPLING ASME B16.11 CL3000 SW	A105	8 x 1		CL3000	1	0.34	HY7242586062		
8	TEMP STUB BECHTEL TYPE-T 1" NPT THRD	A105	6 x 1			3	0			
9	HALF COUPLING ASME B16.11 CL3000 SW	A105	6 x 1		CL3000	3	0.34	HY7242586062		
10	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		6	16.99	AA7242502314		
11	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		7	11.01	AA7242502276		
12	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	6	S40		1	5.505	HY7242566568		
13	PIPING COMPONENT (USER DEFINED) CL150 RF(B16.5)	A234GRWPB	4		CL150	2	0			
14	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	4	S40	CL150	4	7.11	HY7246361103		
15	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	8		CL150	1	141	AA7521408713		
16	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	6		CL150	3	91.5	AA7521408705		

ERECTION MATERIALS										
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE		
17	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	4	0.32	HY7240362035		
18	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	5/8	M16X100	CL150	32	0.21	HY7142198060		
19	PIPE REST		8			1	0			
20	RIGID HANGER		8			1	0			
21	RIGID HANGER		6			6	0			
22	PIPE REST		6			5	0			

[1] [2] [3]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

1	2	3	4	5	6	7
---	---	---	---	---	---	---

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
HSAF-HD-BHL-1-B751-6-11B-HC	2.74	110.3	3.5	125	10/40	PGEL/MM	11B-RHP	6"	
HSAF-HD-BHL-1-B753-6-11B-HC	2.74	110.3	3.5	125	10/40	PGEL/MM	11B-RHP	6"	
HSAF-HD-BHL-1-B754-8-11B-HC						PGEL/MM	11B-RHP	8"	
HSAF-HD-BHL-1-B752-6-11B-HC						PGEL/MM	11B-RHP	"	

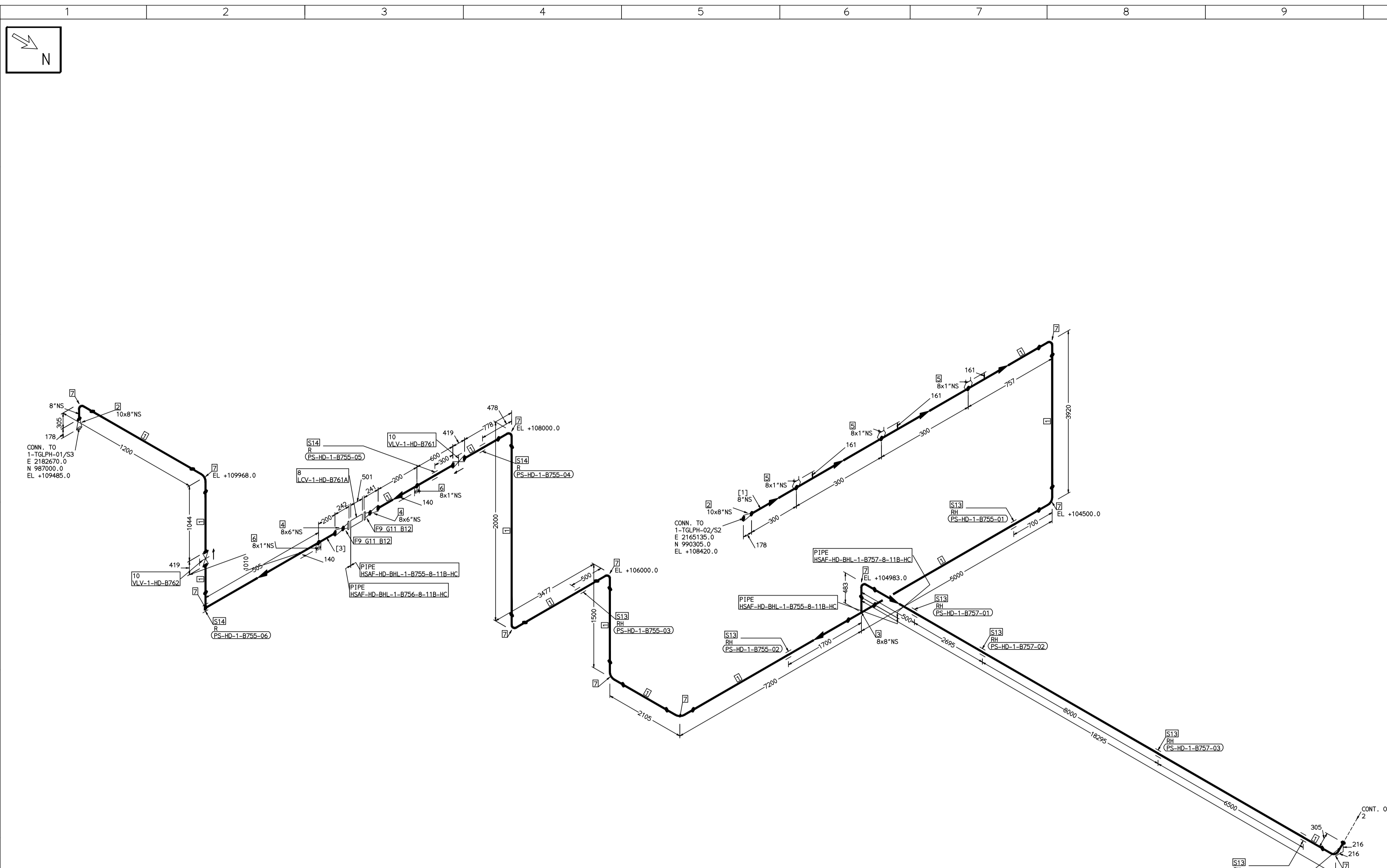
- LEGEND:-
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

OOP	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
05-05-14		PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN.	PCC	-SD- 05-05-14
	CHKD.	VJK	-SD- 05-05-14
	APPRD.	GS	-SD- 05-05-14
	SCALE: NTS		
TITLE: 1-LPH3-DRAIN-PIPING	DRAWING NO: 1-381-01-06028	REV OOP	
SHT. No. 1	NO. OF SHTS.	1	

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. 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)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	8	S20		43730MM	33.32	AA1049305563	
2	RDRR CONC ASME B16.9 BW	A234GRWPB	10 x 8	S20XS20		2	7.5	AA7242530482	
3	TEE STRT ASME B16.9 BW	A234GRWPB	8 x 8	S20		1	29	AA7242511313	
4	RDRR CONC ASME B16.9 BW	A234GRWPB	8 x 6	S20XS40		2	6.5	AA7242530423	
5	TEMP STUB BECHTEL TYPE-T 1 1/4" NPT THRD	A105	8 x 1			3	0		
6	HALF COUPLING ASME B16.11 CL3000 SW	A105	8 x 1		CL3000	2	0.34	HY7242586062	
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		12	16.99	AA7242502314	
8	PIPING COMPONENT (USER DEFINED) CL150 RF(B16.5)	A234GRWPB	6		CL150	1	0		
9	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	6	S40	CL150	2	10.91	HY7246361120	
10	GATE VALVE HO ASME B16.10 CL150 BW RF	A216GRWCB	8		CL150	2	141	AA7521408713	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
11	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	6		CL150	2	0.56	HY7240362043	
12	110 STUD WITH 2 NUTS ASME B18.2 94GR2H	A193GRB7/A194GR2H	3/4	M20X110	CL150	16	0.39	HY7142198176	
13	RIGID HANGER		8			7	0		
14	PIPE REST		8			3	0		

[1] [3]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY	
CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

LINE PARAMETERS:-

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
HSAF-HD-BHL-1-B755-8-11B-HC	VAC	81.1	3.0	100	10/40	PGEL/MM	11B-RHP	8"	
HSAF-HD-BHL-1-B757-8-11B-HC	VAC	81.1	3.0	100	10/40	PGEL/MM	11B-RHP	8"	
HSAF-HD-BHL-1-B758-10-11B-HC						PGEL/MM	11B-RHP	10"	
HSAF-HD-BHL-1-B756-8-11B-HC						PGEL/MM	11B-RHP	"	

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

RECORD OF REVISIONS:-

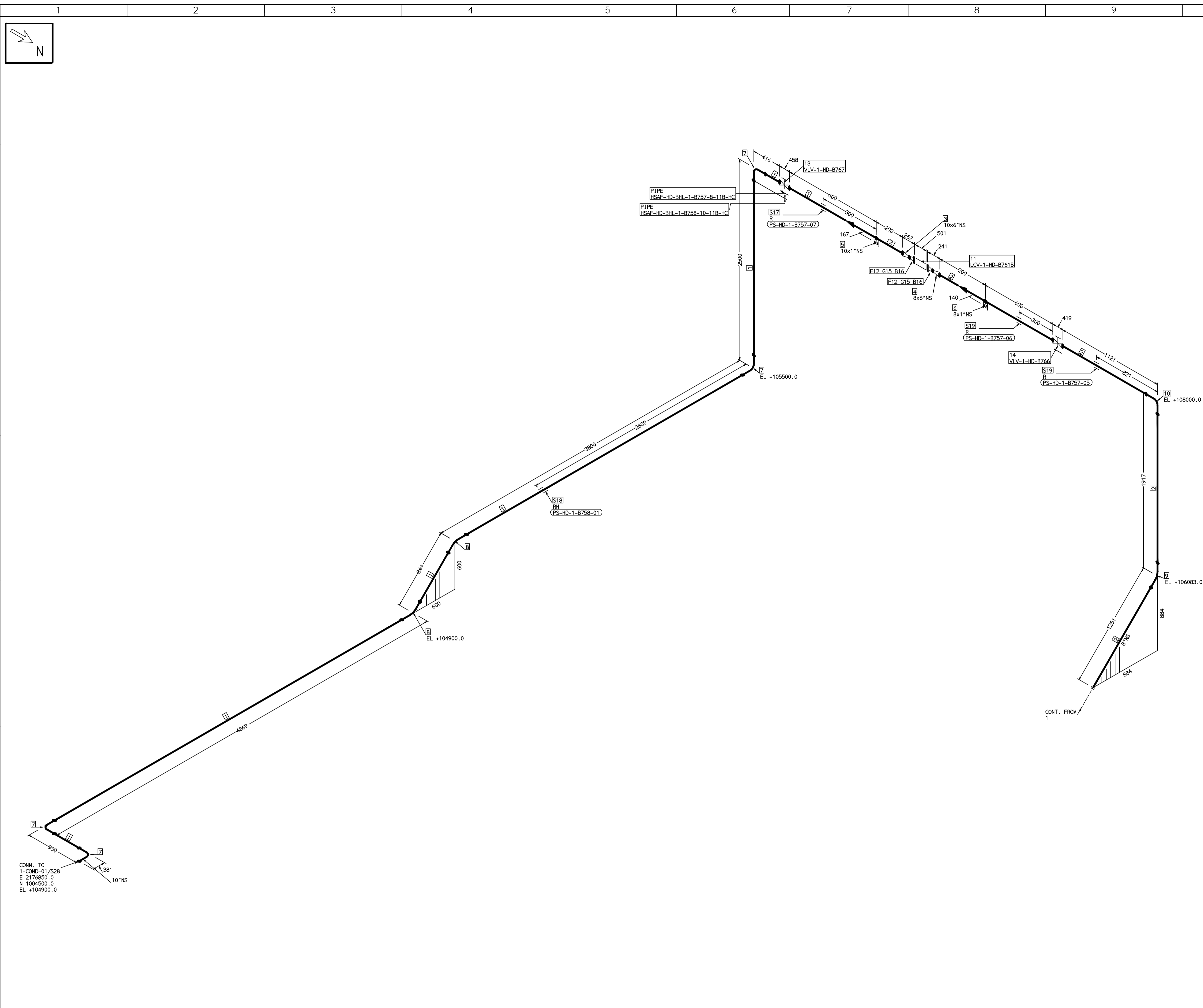
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE	
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VJK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
DRAWING NO:		REV		
1-381-01-06029		OOP		
SHT. No. 1	NO. OF SHTS. 2			

COMPUTER FILE NAME:

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20		10861MM	41.76	AA1049355660	
2	PIPE SMLS ASME B36.10 PE	A106GRB	8	S20		4225MM	33.32	AA1049355663	
3	RDRR CONC ASME B16.9 BW	A234GRWPB	10 x 6	S20XS40		1	0	AA7242530458	
4	RDRR CONC ASME B16.9 BW	A234GRWPB	8 x 6	S20XS40		1	6.5	AA7242530423	
5	HALF COUPLING ASME B16.11 CL3000 SW	A105	10 x 1		CL3000	1	0.34	HY7242586062	
6	HALF COUPLING ASME B16.11 CL3000 SW	A105	8 x 1		CL3000	1	0.34	HY7242586062	
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		4	26.6	AA7242502349	
8	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	10	S20		2	13.3	HY7242566681	
9	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	8	S20		1	8.495	HY7242566622	
10	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		1	16.99	AA7242502314	
11	PIPING COMPONENT (USER DEFINED) CL150 RF(B16.5)	A234GRWPB	6		CL150	1	0		
12	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	6	S40	CL150	2	10.91	HY7246361120	
13	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	10		CL150	1	225	AA7521408721	
14	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	8		CL150	1	141	AA7521408713	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
15	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	6		CL150	2	0.56	HY7240362043	
16	110 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X110	CL150	16	0.39	HY7142198176	
17	PIPE REST		10			1	0		
18	RIGID HANGER		10			1	0		
19	PIPE REST		8			2	0		

[2]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

1	
2	
3	
4	
5	
6	
7	

LINE PARAMETERS:-

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
HSAF-HD-BHL-1-B755-8-11B-HC	VAC	81.1	3.0	100		10/40	PGEL/MM	11B-RHP	8"
HSAF-HD-BHL-1-B757-8-11B-HC	VAC	81.1	3.0	100		10/40	PGEL/MM	11B-RHP	8"
HSAF-HD-BHL-1-B758-10-11B-HC							PGEL/MM	11B-RHP	10"
HSAF-HD-BHL-1-B756-8-11B-HC							PGEL/MM	11B-RHP	"

- 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

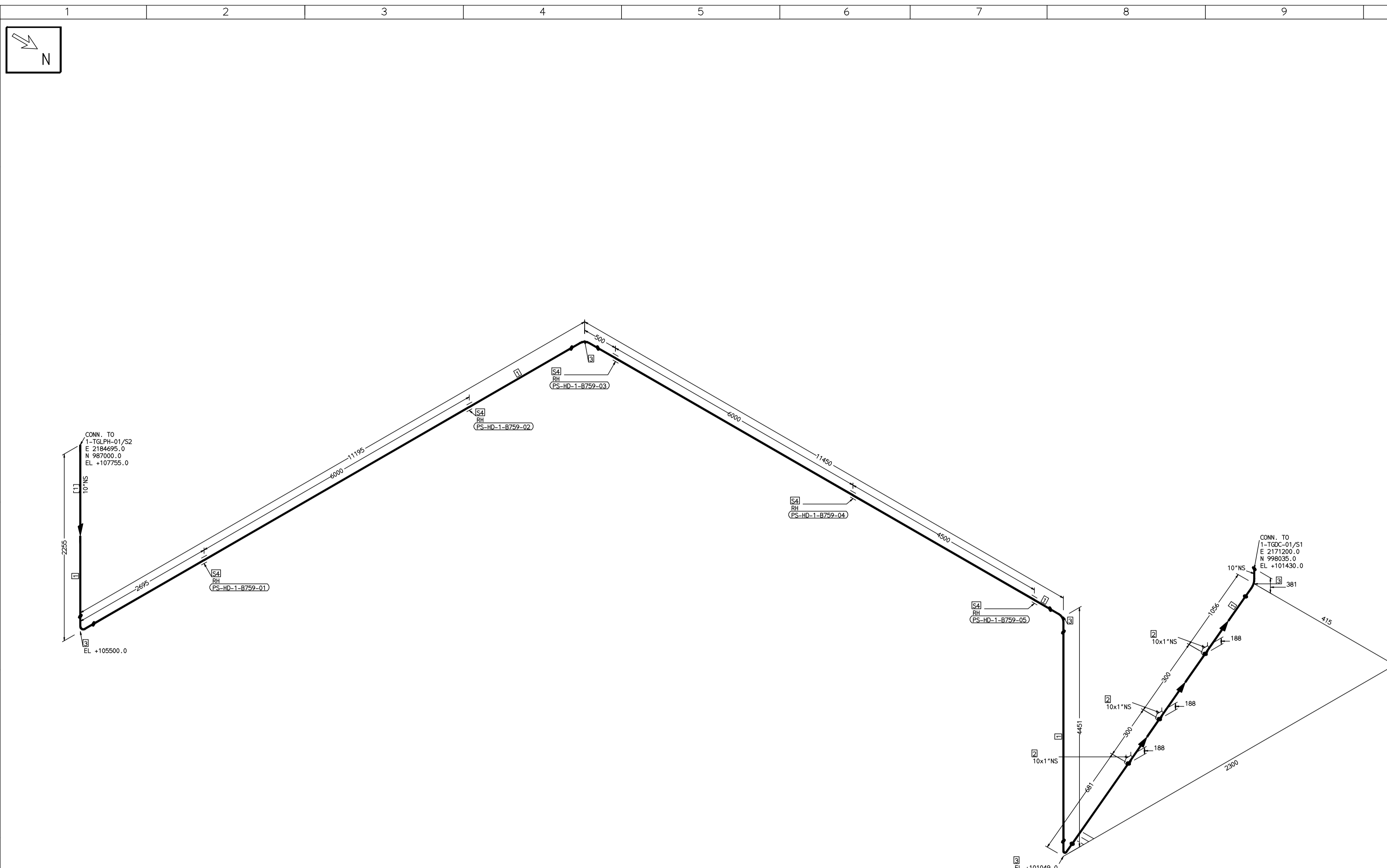
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS
REV					
REV					

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. PCC	-SD-	05-05-14
	CHKD. VJK	-SD-	05-05-14
	APPRD. GS	-SD-	05-05-14
DRAWING NO: 1-381-01-06029		REV OOP	
SHT. No. 2	NO. OF SHTS. 2		

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20		28259MM	41.76	AA1049355660	
2	TEMP STUB BECHTEL TYPE-T 1 1/4"	A105	10 x 1			3	0		
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		5	26.6	AA7242502349	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
4	RIGID HANGER		10			5	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

1	
2	
3	
4	
5	
6	
7	

LINE PARAMETERS:-

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
HSAF-HD-BHL-1-B759-10-11B-HC	VAC	78	3.0	100		10/40	PGEL/MW	11B-RHP	10"

- 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

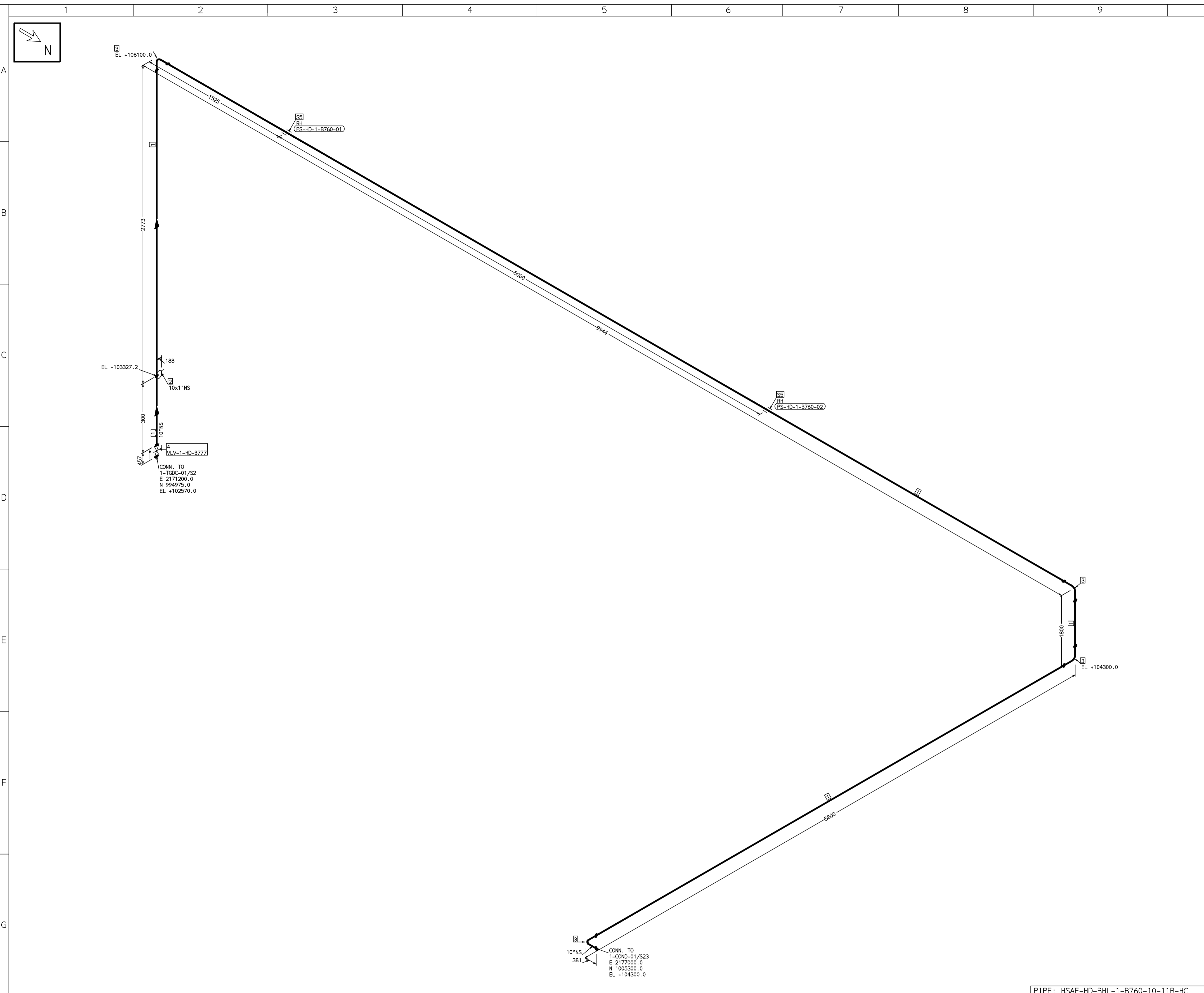
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. PCC	-SD-	05-05-14
	CHKD. VJK	-SD-	05-05-14
	APPRD. GS	-SD-	05-05-14
TITLE: 1-LPH1-DRAIN-PIPING		DRAWING NO: 1-381-01-06030	REV OOP
SHT. No. 1		NO. OF SHTS. 1	

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20		17950MM	41.76	AA1049355660	
2	TEMP STUB BECHTEL TYPE-T 1 1/4" NPT THRD	A105	10 x 1			1	0		
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		4	26.6	AA7242502349	
4	GATE VALVE HD ASME B16.10 CL150 BW	A216GRWCB	10		CL150	1	225	AA7521408721	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
5	RIGID HANGER		10			2	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-	
1	
2	
3	
4	
5	
6	
7	

LINE PARAMETERS:-									
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
HSAF-HD-BHL-1-B760-10-11B-HC	VAC	78	3.0	100		10/40	PGEL/MM	11B-RHP	10"

- 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

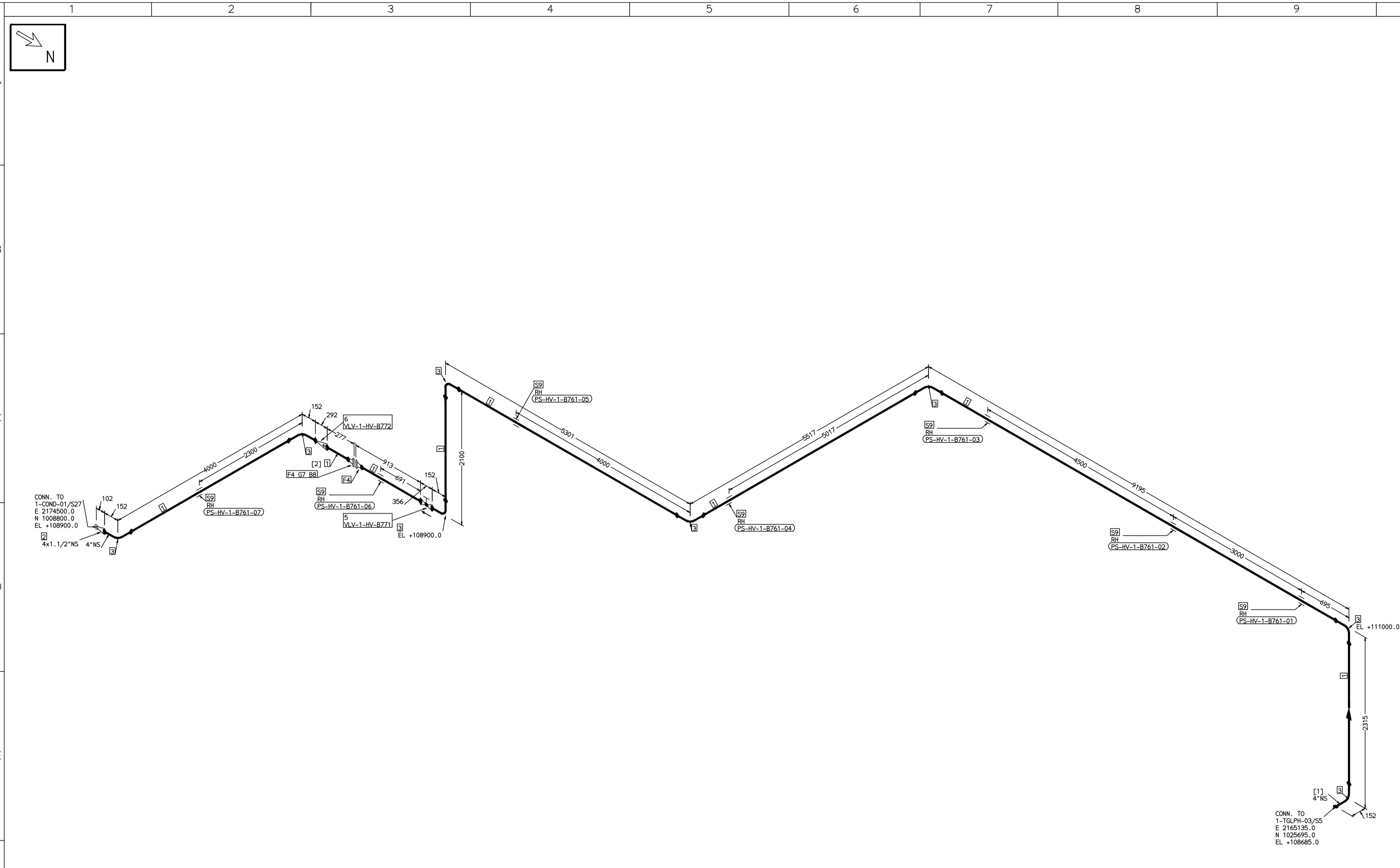
RECORD OF REVISIONS:-					
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
DRN.	PCC	-SD-		05-05-14
CHKD.	VJK	-SD-		05-05-14
APPRD.	GS	-SD-		05-05-14
				SCALE: NTS
DRAWING NO: 1-381-01-06031		REV OOP		
SHT. No. 1		NO. OF SHTS. 1		

TITLE:
1-DC-DRAIN-PIPING

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY.

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	4	S40		27640MM	16.08	AA1049355415	
2	RODR CONC ASME B16.9 BW	A234GRWPB	4 x	S40XS80		1	1.6		
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	1.1/2	S40		8	4.23	AA7242502217	
4	FLANGE WELD NECK ASME B16.5 CL150	A105	4	S40	CL150	2	7.11	HY7246361103	
5	GLOBE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	4		CL300	1	88	AA7501428689	
6	SWING CHECK VALVE ASME B16.10 CL150 BW	A216GRWCB	4		CL150	1	47.3	AA7541408689	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
7	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	1	0.32	HY7240362035	
8	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	5/8	M16X100	CL150	8	0.21	HY7142198060	
9	RIGID HANGER		4			7	0		

[1] [2]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY	
CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAF-HV-BHL-1-B761-4-11B-HC								11B-RHP	

- 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

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

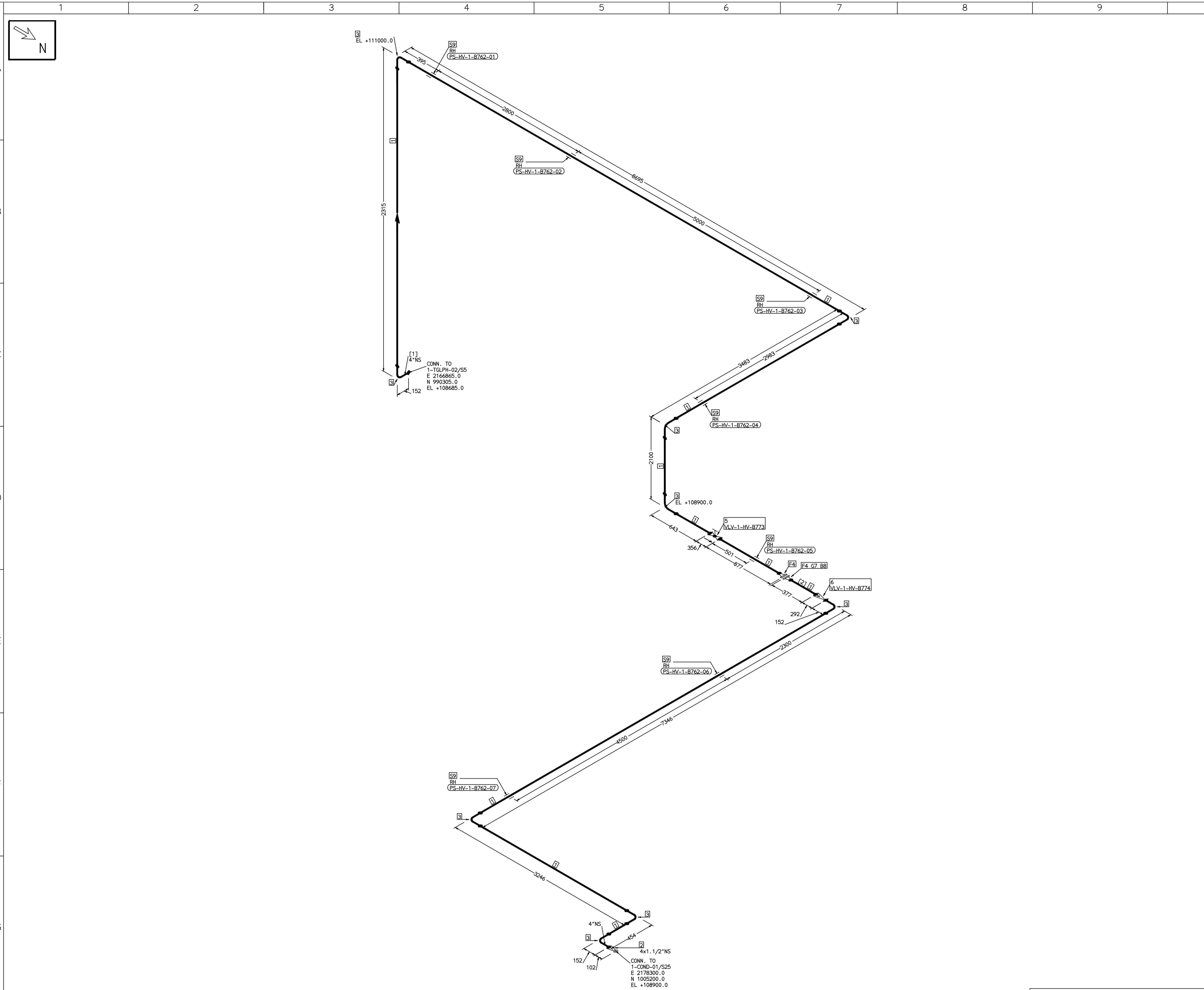
NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	DRAWING NO:	REV
1-LPH3-VENT-PIPING	1-381-01-06032	OOP
	SHT. No. 1	NO. OF SHTS. 1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	4	S40		27102MM	16.08	AA1049355415	
2	RODR CONC ASME B16.9 BW	A234GRWPB	4 x 1.1/2	S40X580		1	1.6		
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	4	S40		9	4.23	AA7242502217	
4	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	4	S40	CL150	2	7.11	HY7246361103	
5	GLOBE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	4		CL300	1	88	AA7501428689	
6	SWING CHECK VALVE ASME B16.10 CL150 BW	A216GRWCB	4		CL150	1	47.3	AA7541408689	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
7	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	1	0.32	HY7240362035	
8	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	5/8	M16X100	CL150	8	0.21	HY7142198060	
9	RIGID HANGER		4			7	0		

[1] [2]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-	

LINE PARAMETERS:-									
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
HSAF-HV-BHL-1-B762-4-11B-HC								11B-RHP	

- 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

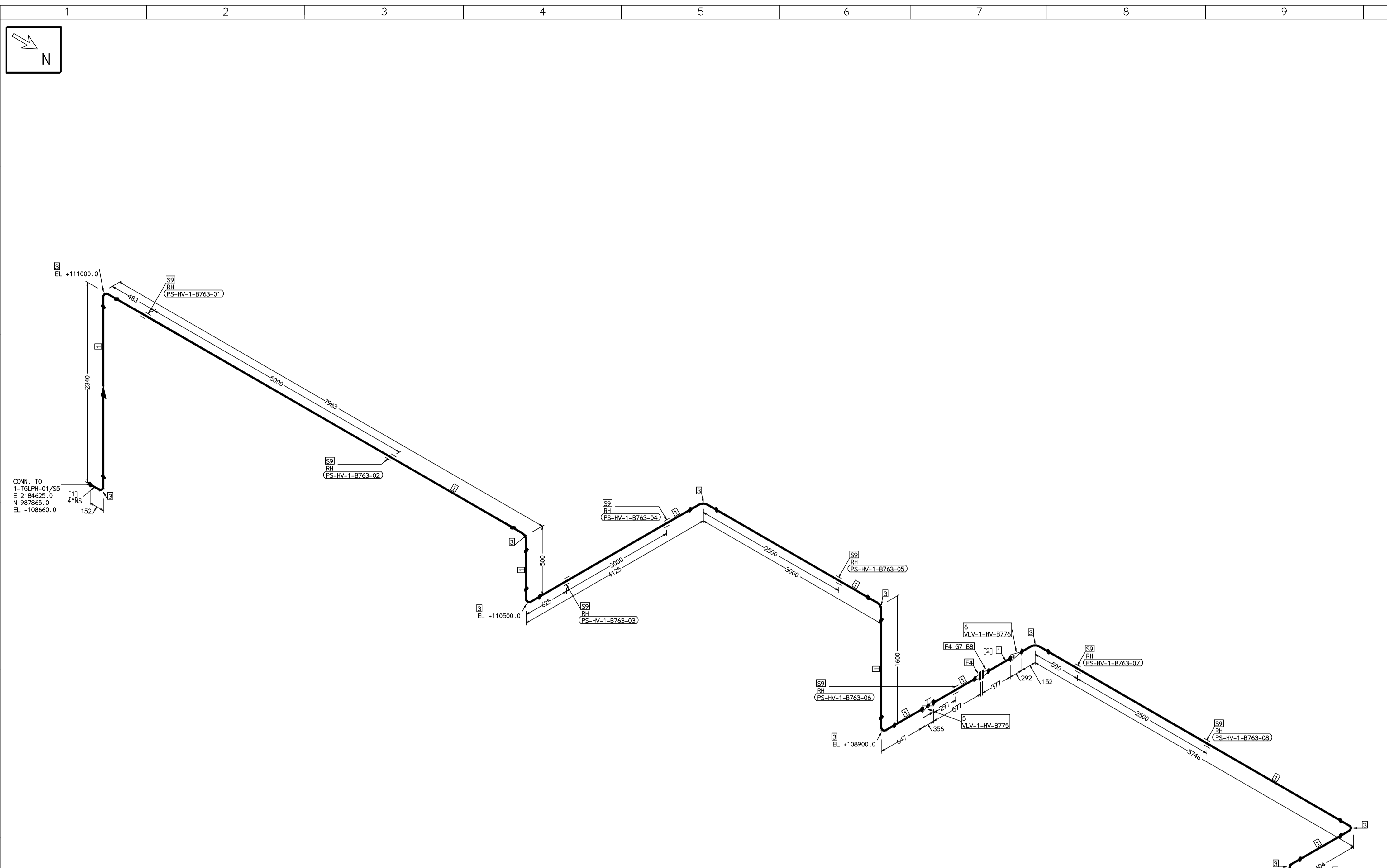
RECORD OF REVISIONS:-					
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING				NAME	SIGN	DATE
DRN.	PCC	-SD-	05-05-14			
CHKD.	VJK	-SD-	05-05-14			
APPRD.	GS	-SD-	05-05-14			
SCALE: NTS						
DRAWING NO: 1-381-01-06033			REV OOP			
SHT. No. 1		NO. OF SHTS. 1				

TITLE:
1-LPH2-VENT-PIPING

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	4	S40		24961MM	16.08	AA104935415	
2	ROCR CONC ASME B16.9 BW	A234GRWPB	4 x 1.1/2	S40X580		1	1.6		
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	4	S40		10	4.23	AA7242502217	
4	FLANGE WELD NECK ASME B16.5 CL150	A105	4	S40	CL150	2	7.11	HY7246361103	
5	GLOBE VALVE HO ASME B16.10 CL300 RF	A216GRWCB	4		CL300	1	88	AA7501428689	
6	SWING CHECK VALVE ASME B16.10 CL150 BW	A216GRWCB	4		CL150	1	47.3	AA7541408689	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
7	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	1	0.32	HY7240362035	
8	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	5/8	M16X100	CL150	8	0.21	HY7142198060	
9	RIGID HANGER		4			8	0		

[1] [2]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAF-HV-BHL-1-B763-4-11B-HC								11B-RHP	

- 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
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

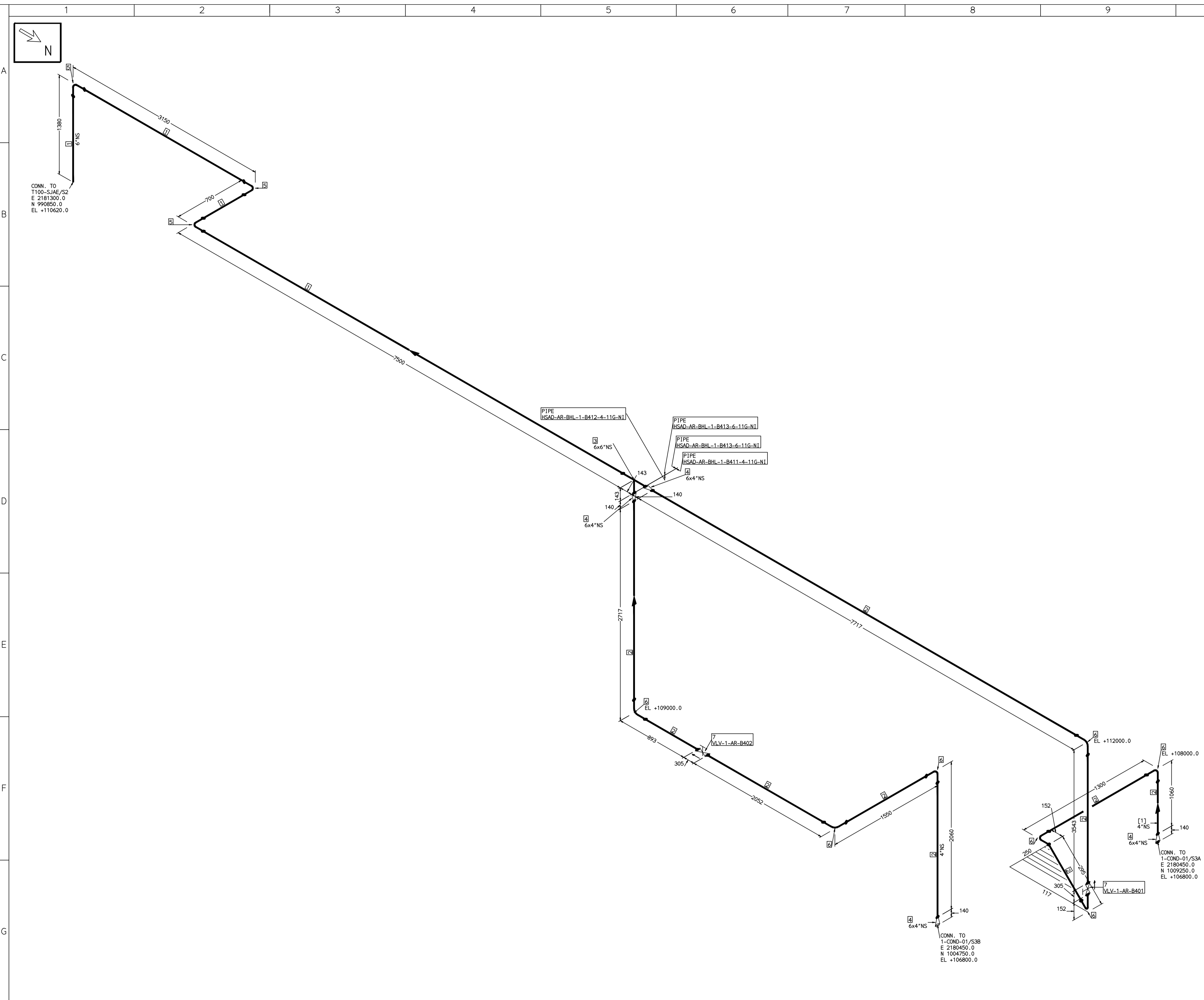
NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	1-LPH1-VENT-PIPING	REV	OOP
DRAWING NO:	1-381-01-06034	SHT. No.	1
		NO. OF SHTS.	1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 FE	A106GRB	6	S40		11213MM	28.26	AA104935512	
2	PIPE SMLS ASME B36.10 FE	A106GRB	4	S40		21363MM	16.08	AA104935515	
3	TEE STRT ASME B16.9 BW	A234GRWPB	6 x 6	S40		1	11	AA7242511275	
4	RDCR CONC ASME B16.9 BW	A234GRWPB	6 x 4	S40S40		4	3.9	AA7242530350	
5	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		3	11.01	AA7242502276	
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	4	S40		7	4.23	AA7242502217	
7	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	4		CL150	2	58.1	AA7521408683	

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY	
CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

1	2	3	4	5	6	7
---	---	---	---	---	---	---

LINE PARAMETERS:-

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
HSAD-AR-BHL-1-B411-4-11G-NI								11G-RHP	4"
HSAD-AR-BHL-1-B413-6-11G-NI								11G-RHP	6"
HSAD-AR-BHL-1-B412-4-11G-NI								11G-RHP	4"

- 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

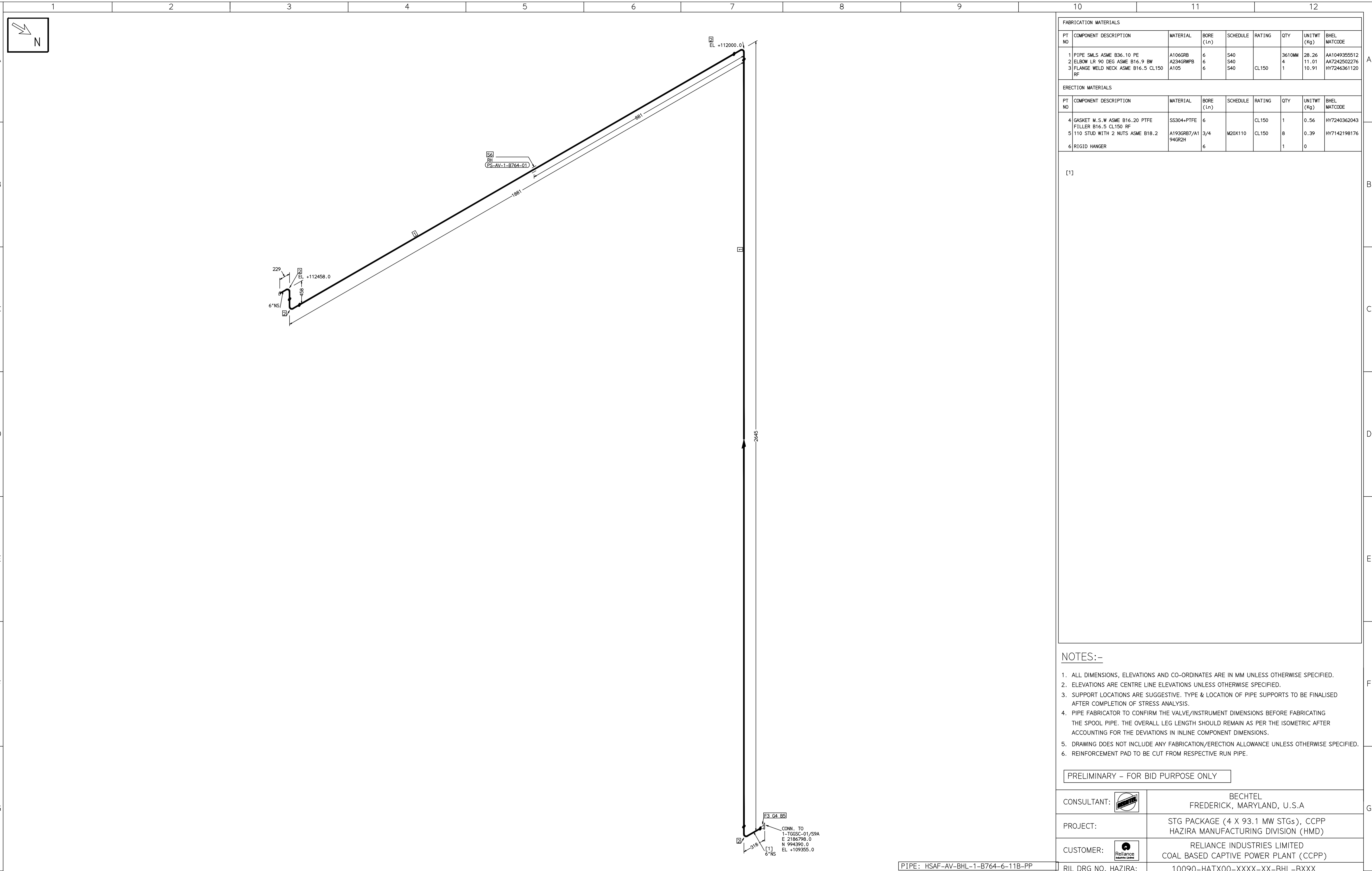
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE	
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VJK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
DRAWING NO:		REV		
1-381-01-06035		OOP		
SHT. No. 1	NO. OF SHTS. 1			

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		3610MM	28.26	AA1049355512	
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		4	11.01	AA7242502276	
3	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	6	S40	CL150	1	10.91	HY7246361120	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
4	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	6		CL150	1	0.56	HY7240362043	
5	110 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X110	CL150	8	0.39	HY7142198176	
6	RIGID HANGER		6			1	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAF-AV-BHL-1-B764-6-11B-PP								11B-RHP	

- 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

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

DRN.	PCC	NAME	SIGN	DATE
CHKD.	VJK	BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032.		05-05-14
APPRD.	GS	PE&SD LAYOUTS & PIPING ENGINEERING		05-05-14

TITLE: 1-GSC-EJECTOR-EXHAUST-1

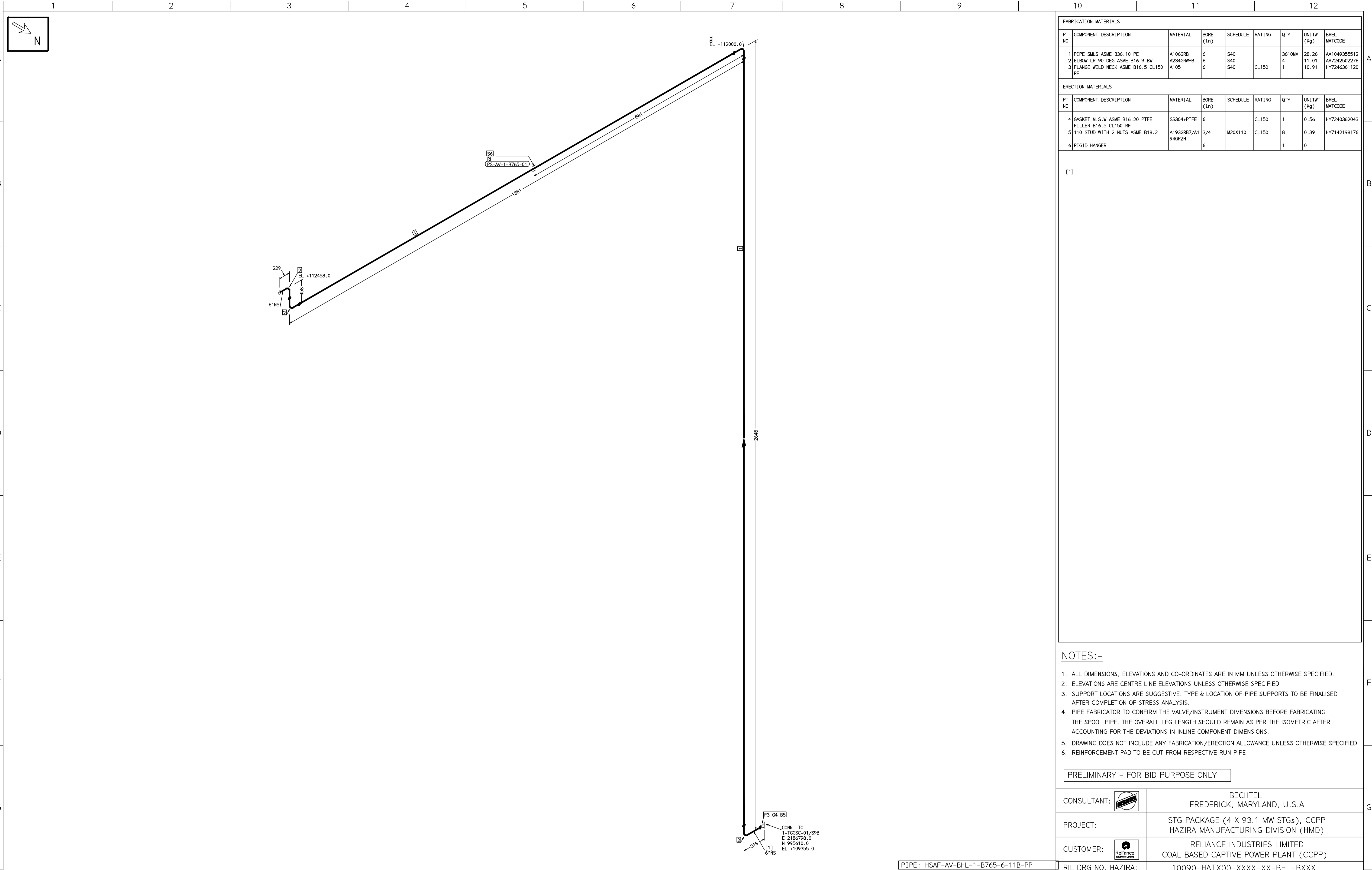
DRAWING NO: 1-381-01-06037

REV OOP

SHT. No. 1 NO. OF SHTS. 1

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		3610MM	28.26	AA1049355512	
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		4	11.01	AA7242502276	
3	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	6	S40	CL150	1	10.91	HY7246361120	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
4	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	6		CL150	1	0.56	HY7240362043	
5	110 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X110	CL150	8	0.39	HY7142198176	
6	RIGID HANGER		6			1	0		

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A	
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)	
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)	
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX	

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
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
HSAF-AV-BHL-1-B765-6-11B-PP								11B-RHP	

- 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

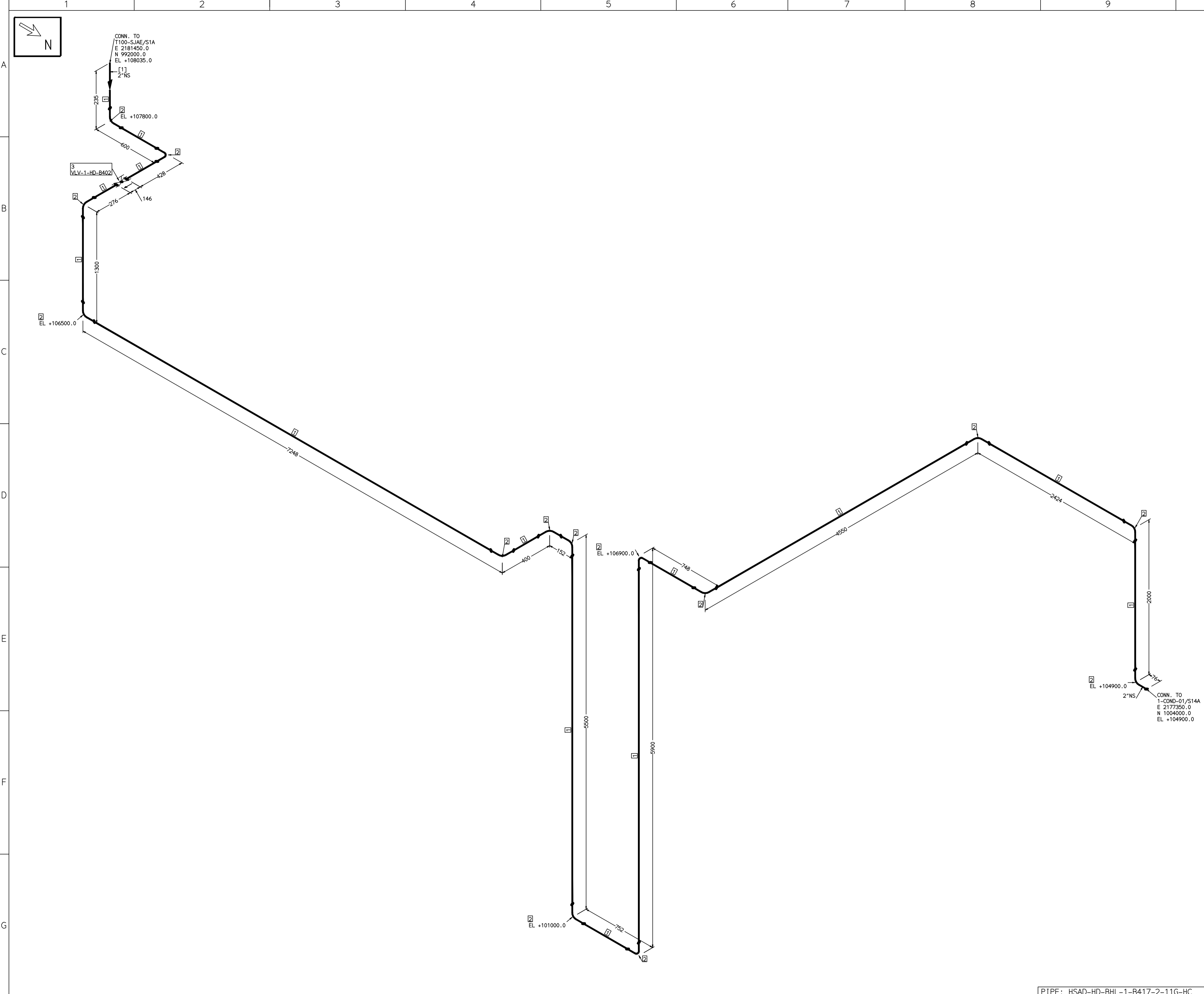
RECORD OF REVISIONS:-				
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK
GS				

BHARAT HEAVY ELECTRICALS LTD		PROJECT ENGINEERING & SYSTEMS DIVISION		R.C.PURAM, HYDERABAD-502032.	
DRN.	PCC	-SD-	05-05-14	NAME	SIGN
CHKD.	VJK	-SD-	05-05-14	SCALE:	NTS
APPRD.	GS	-SD-	05-05-14	DRAWING NO:	REV
				1-381-01-06038	OOP
SHT. No. 1		NO. OF SHTS. 1			

TITLE: 1-GSC-EJECTOR-EXHAUST-2

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	2	S40		30461MM	5.44	AA1049355270	
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	2	S40		14	0.75	AA17242502110	
3	GLOBE VALVE HD CL800 SW	A105	2	CL800		1	11.4	AA7501468630	

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-

LINE PARAMETERS:-

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
HSAD-HD-BHL-1-B417-2-11G-HC								11G-RHP	"

- LEGEND:-
- ANCHOR
 - REST
 - REST + GUIDE
 - REST + LIMIT STOP
 - DIRECTION ANCHOR
 - RIGID HANGER
 - SPRING HANGER
 - BOTTOM SPRING
 - VERTICAL GUIDE
 - SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL

RECORD OF REVISIONS:-

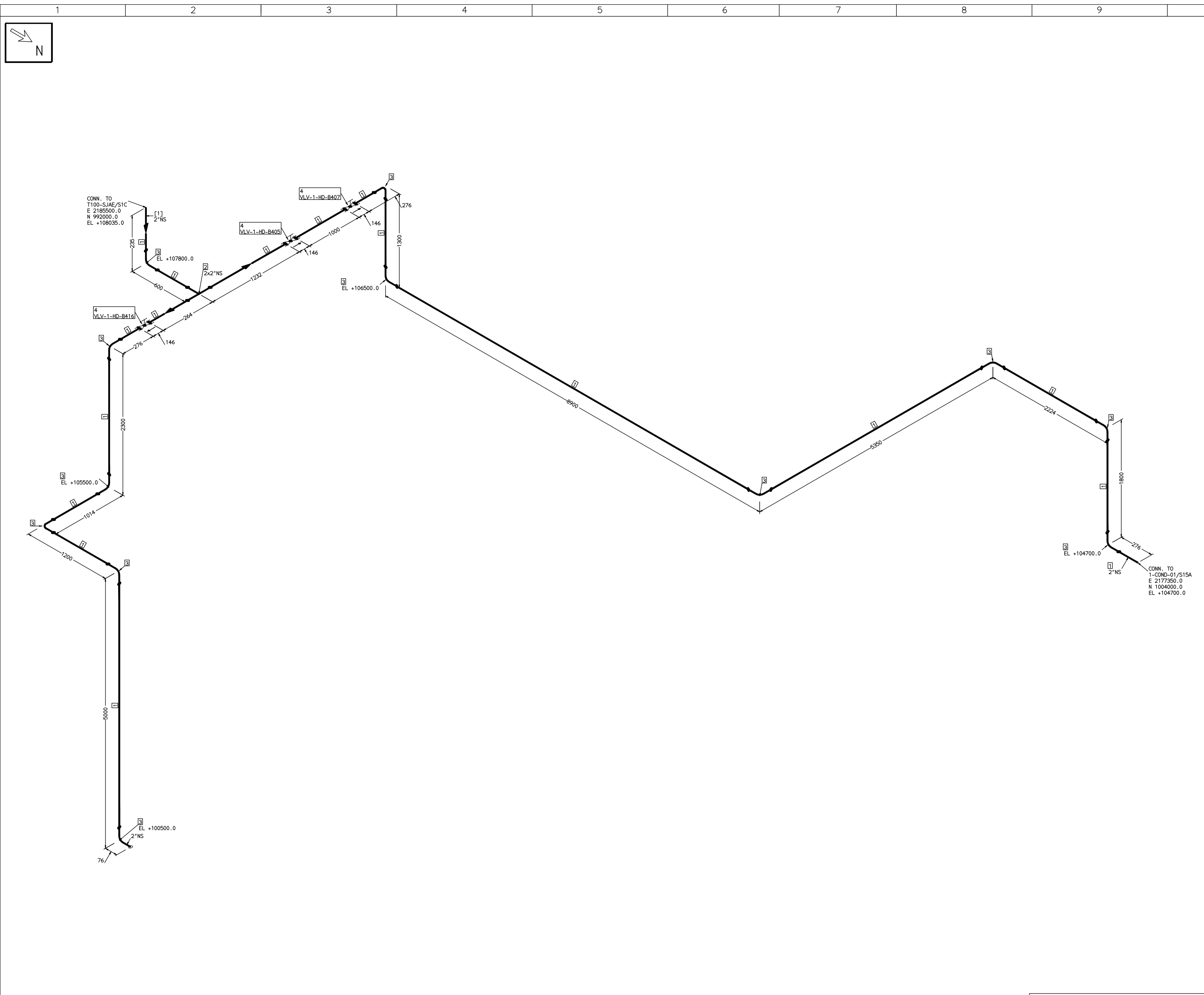
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN. PCC	-SD-	05-05-14
	CHKD. VJK	-SD-	05-05-14
	APPRD. GS	-SD-	05-05-14
DRAWING NO:			REV
1-381-01-06039			OOP
SHT. No. 1	NO. OF SHTS.		1

TITLE: 1-SJAE-A-INTER-COND-DRAIN-PPG

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	2	S40		31307MM	5.44	AA1049355270	
2	TEE STRT ASME B16.9 BW	A234GRWP	2 x 2	S40		1	1.3	AA7242511119	
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWP	2	S40		12	0.75	AA7242502110	
4	GLOBE VALVE HO CL800 SW	A105	2		CL800	3	11.4	AA7501468630	

[1]

- NOTES:-**
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 - ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 - SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
 - 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 DIMENSIONS.
 - DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

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
HSAD-HD-BHL-1-B419-2-11G-HC								11G-RHP	"

- LEGEND:-**
- ANCHOR
 - REST
 - REST + GUIDE
 - REST + LIMIT STOP
 - DIRECTION ANCHOR
 - RIGID HANGER
 - SPRING HANGER
 - BOTTOM SPRING
 - VERTICAL GUIDE

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK	GS

NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VJK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14

SCALE: NTS

TITLE:	DRAWING NO:	REV
1-SJAE-A-AFTER-COND-DRAIN-PPG	1-381-01-XXXXX	OOP
	SHT. No. 1	NO. OF SHTS. 1

