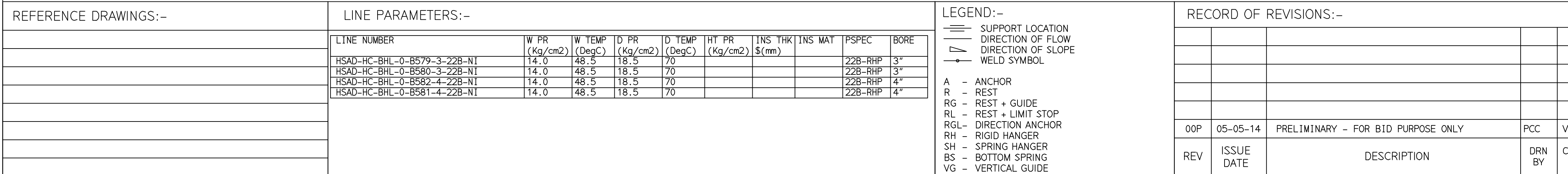


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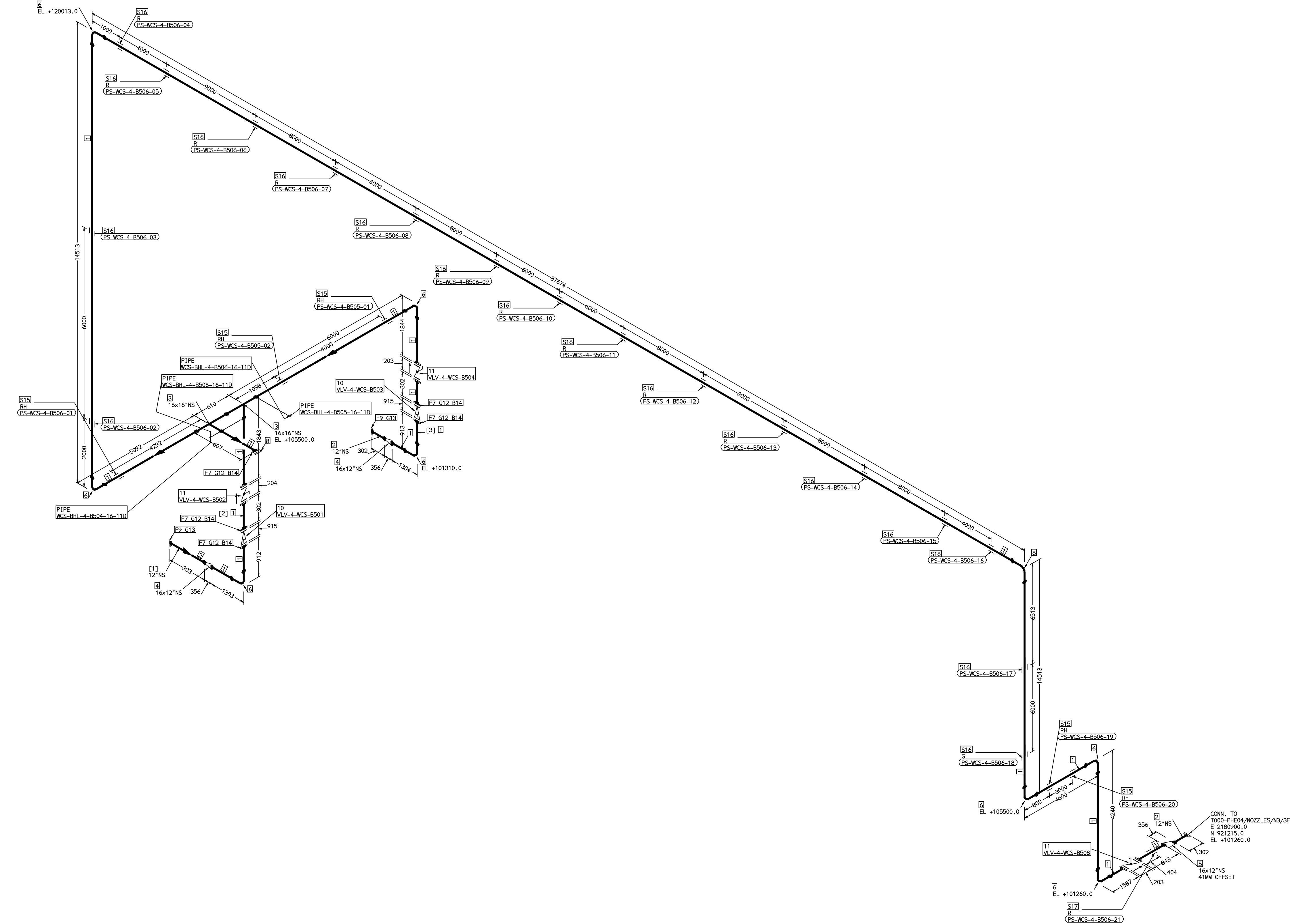
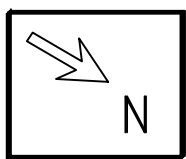


PRELIMINARY – FOR BID PURPOSE ONLY	
CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELiance INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

	BHARAT HEAVY ELECTRICALS LTD		NAME		SIGN	DATE
	PROJECT ENGINEERING & SYSTEMS DIVISION		DRN.	PCC	-SD-	05-05-14
	R. C. PURAM, HYDERABAD-502032.		CHKD.	VUK	-SD-	05-05-14
	PE&SD LAYOUTS & PIPING ENGINEERING		APPRD.	GS	-SD-	05-05-14
			SCALE: NTS			
TITLE: 0-SPRAY-WATER-PPG-T0-BSS-DS			DRAWING NO: 1-381-01-05990			REV 00P
			SHT. No. 1		NO. OF SHTS. 3	

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

COMPUTER FILE NAME:



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
WCS-BHL-4-B504-16-11D								11D-RHP	14"
WCS-BHL-4-B506-16-11D								11D-RHP	14"
WCS-BHL-4-B505-16-11D								11D-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
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS

FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW IS-3589 PE	IS3589GRFE3 30	16	T6		136181M	59.25		
2	PIPE ERW/SAW IS-3589 PE	IS3589GRFE3 30	12	T6		M 900MM	47.02		
3	TEE STRT ASME B16.9 BW	A234GRWPB	16 x 16	S10		2	90.8	HY7242511429	
4	ROCR CONC ASME B16.9 BW	A234GRWPB	16 x 12	S10XS20		2	22.65	AA7242530636	
5	ROCR ECC ASME B16.9 BW	A234GRWPB	16 x 12	S10XS20		1	22.65		
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	16	S10		9	59.59	AA7242502420	
7	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	16		CL150	5	54	AA7246101179	
8	FLANGE BLIND ASME B16.5 CL150 RF	A105	16		CL150	1	82	HY7246166173	
9	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	12		CL150	2	29	AA7246101152	
10	SWING CHECK VALVE ASME B16.10 CL150 RF(B16.5)	A216GRWCB	16		CL150	2	1123.2	AA7541408174	
11	BFLV GO AWWA C504 PN10 DFLGD (FF-C207D)	A216GRWCB	16		PN10	3	160		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
12	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	16		CL150	5	2.1	HY7240362094	
13	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	12		CL150	2	1.41	HY7240362078	
14	140 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	1	M27X140	CL150	80	0.92	HY7142198648	
15	RIGID HANGER		16			5	0		
16	PIPE SUPPORT		16			17	0		
17	PIPE REST		16			1	0		

[1] [2] [3]

NOTES:-

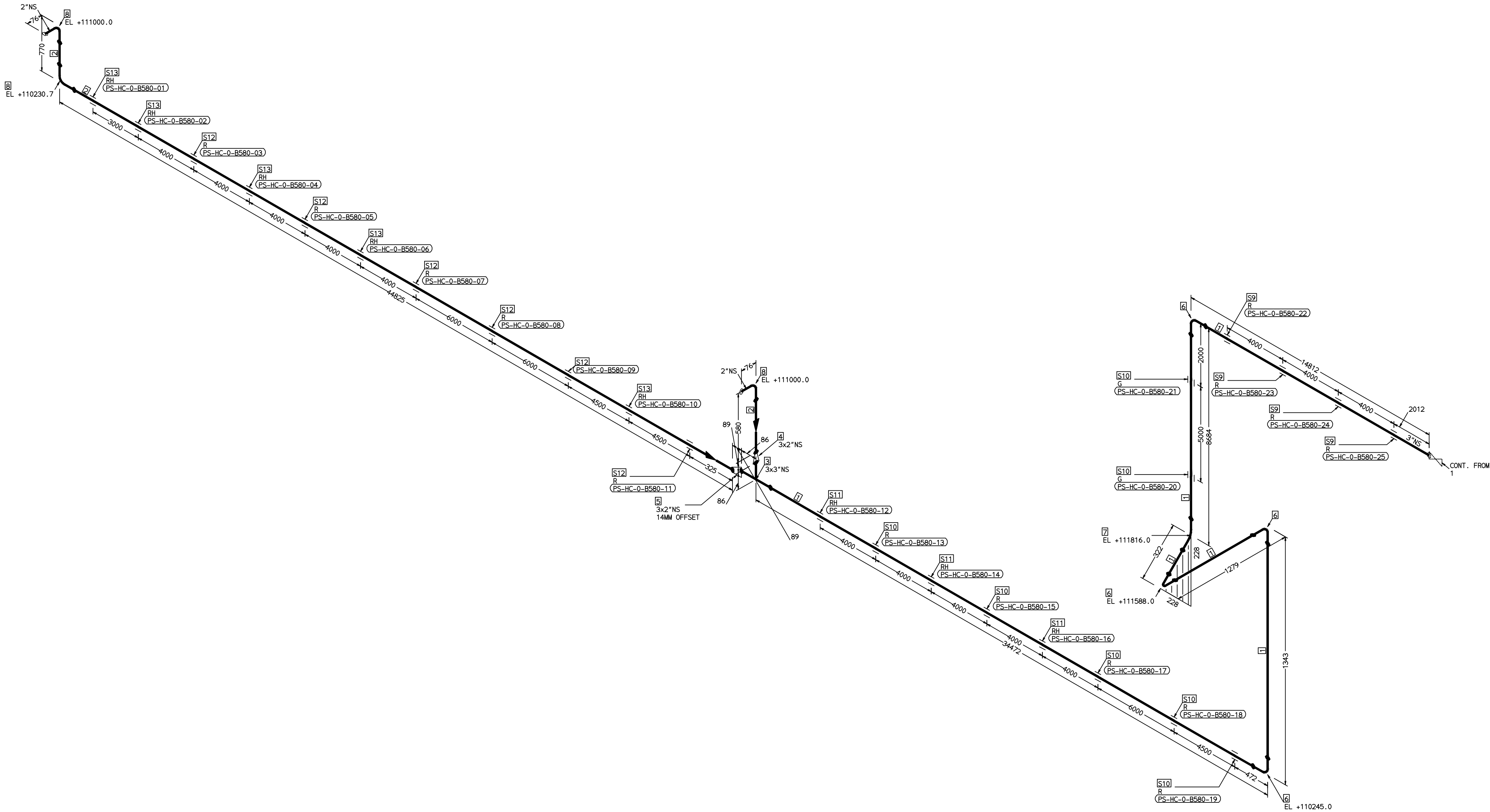
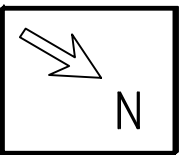
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
- PIPE FABRICATOR TO CONFIRM 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

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.	VUK	-SD- 05-05-14
	APPRD.	GS	-SD- 05-05-14
SCALE: NTS			
TITLE: 4-ACW-PUMP-DISCH-UPTO-PHE		DRAWING NO: 1-381-01-06078	
		SHT. No. 1	NO. OF SHTS. 1
		REV OOP	

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FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	3			59812MM	0	
2	PIPE SMLS ASME B36.10 PE	A403GRWP304	2	S40S		45871MM	5.44	
3	TEE STRT ASME B16.9 BW	A403GRWP304	3 x 3	S10S		1	1.8	
4	RDCR CONC ASME B16.9 BW	A403GRWP304	3 x 2	S10SX540S		1	1	
5	RDCR ECC ASME B16.9 BW	A403GRWP304	3 x 2	S10SX540S		1	1	
6	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	3	S10S		4	1.33	
7	ELBOW LR 45 DEG ASME B16.9 BW	A403GRWP304	3	S10S		1	0.665	
8	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	2	S40S		3	0.75	

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
9	PIPE REST		3			4	0	
10	PIPE SUPPORT		3			7	0	
11	RIGID HANGER		3			3	0	
12	PIPE SUPPORT		2			6	0	
13	RIGID HANGER		2			5	0	

- NOTES:-
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 - 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

 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.	VUK	-SD- 05-05-14
	APPRD.	GS	-SD- 05-05-14
SCALE: NTS			
TITLE: 0-SPRAY-WATER-PPG-TO-BSS-DS		DRAWING NO: 1-381-01-05990	
SHT. No. 2		NO. OF SHTS. 3	
REV		OOP	

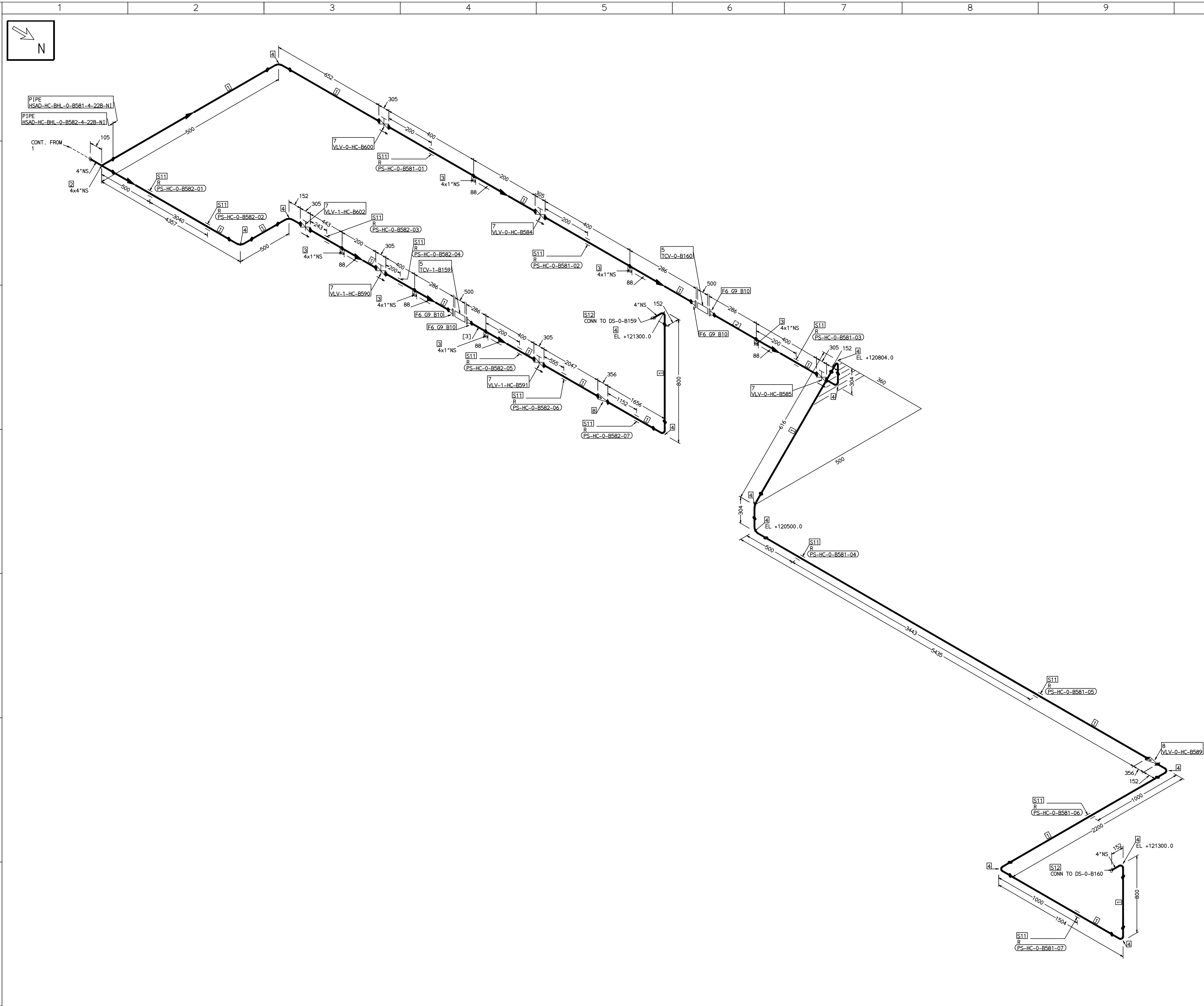
REFERENCE DRAWINGS:-		LINE PARAMETERS:-								
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC
		HSAD-HC-BHL-0-B579-3-22B-NI	14.0	48.5	18.5	70				22B-RHP 3"
		HSAD-HC-BHL-0-B580-3-22B-NI	14.0	48.5	18.5	70				22B-RHP 3"
		HSAD-HC-BHL-0-B582-4-22B-NI	14.0	48.5	18.5	70				22B-RHP 4"
		HSAD-HC-BHL-0-B581-4-22B-NI	14.0	48.5	18.5	70				22B-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:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

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COMPUTER FILE NAME:



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 \$(mm)	INS MAT	PSPEC	BORE
HSAD-HC-BHL-0-B579-3-22B-NI	14.0	48.5	18.5	70				22B-RHP	3"
HSAD-HC-BHL-0-B580-3-22B-NI	14.0	48.5	18.5	70				22B-RHP	3"
HSAD-HC-BHL-0-B582-4-22B-NI	14.0	48.5	18.5	70				22B-RHP	4"
HSAD-HC-BHL-0-B581-4-22B-NI	14.0	48.5	18.5	70				22B-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:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

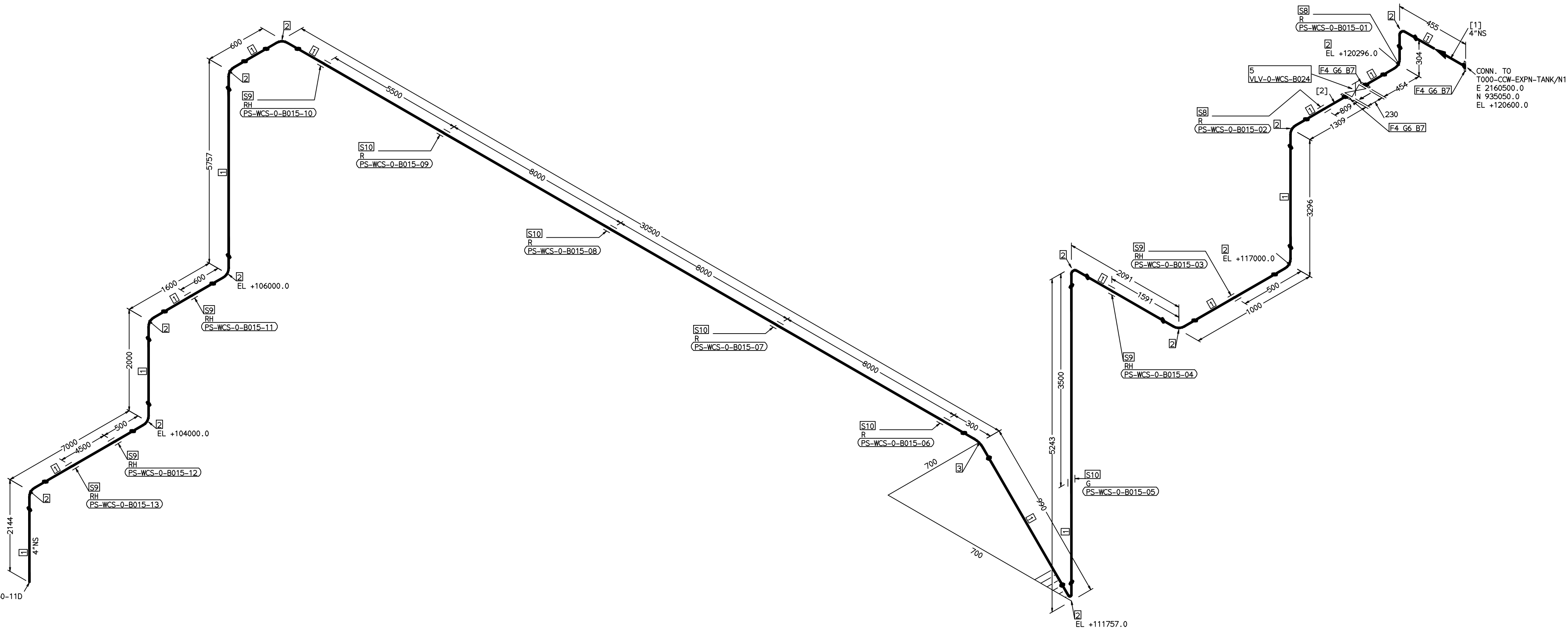
FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A3120RTP304	4	S105		21916MM	8.37
2	TEE STRT ASME B16.9 BW	A403GRWP304	4 x 4	S105		1	3.5
3	HALF COUPLING ASME B16.11 CL3000	A182GRF304	4 x 1	CL3000		6	0.34
4	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	4	S105		13	2.23
5	PIPING COMPONENT (USER DEFINED) CL300 RF(B16.5)	A403GRWP304	4	CL300		2	0
6	FLANGE WELD NECK ASME B16.5 CL300	A182GRF304	4	CL300		4	11
7	GATE VALVE HO ASME B16.10 CL300 BW	A351GRCP8	4	CL300		6	88
8	SWING CHECK VALVE ASME B16.10 CL300 BW	A351GRCP8	4	CL300		2	70.79
ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	BHEL MATCODE
9	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	4	CL300		4	0.32
10	120 STUD WITH 2 NUTS ASME B18.2	A193GRB8/A194GR8	3/4	M20X120		32	0.41
11	PIPE REST		4			14	0
12	GENERAL ATTACHMENT		4			2	0

[2] [3]

NOTES:-			
1.	ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.		
2.	ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.		
3.	SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.		
4.	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.		
5.	DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.		
6.	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	
		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	
TITLE:		0-SPRAY-WATER-PPG-TO-BSS-DS	
		DRAWING NO:	REV
		1-381-01-05990	OOP
		SHT. No. 3	NO. OF SHTS. 3

COMPUTER FILE NAME: _____



ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNIT/TWT (Kg)	BHEL MATCODE
6	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	3	0.32	HY7240362035
7	100 STD STUD WITH 2 NUTS ASME B16.2	A193GR87/A194GR2H	5/8	M16X100	CL150	24	0.21	HY7142198060
8	PIPE REST					2	0	
9	RIGID HANGER					6	0	
10	PIPE SUPPORT					5	0	

NOTES:-

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5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. 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

 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.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS

TITLE:	DRAWING NO:	REV
0-CCW-EXPN-TANK-TO-CCW-HEADER	1-381-01-05991	00P

SHT. No. 1	NO. OF SHTS. 1
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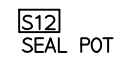
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LEGEND:-

	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:-					
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

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LEGEND:-

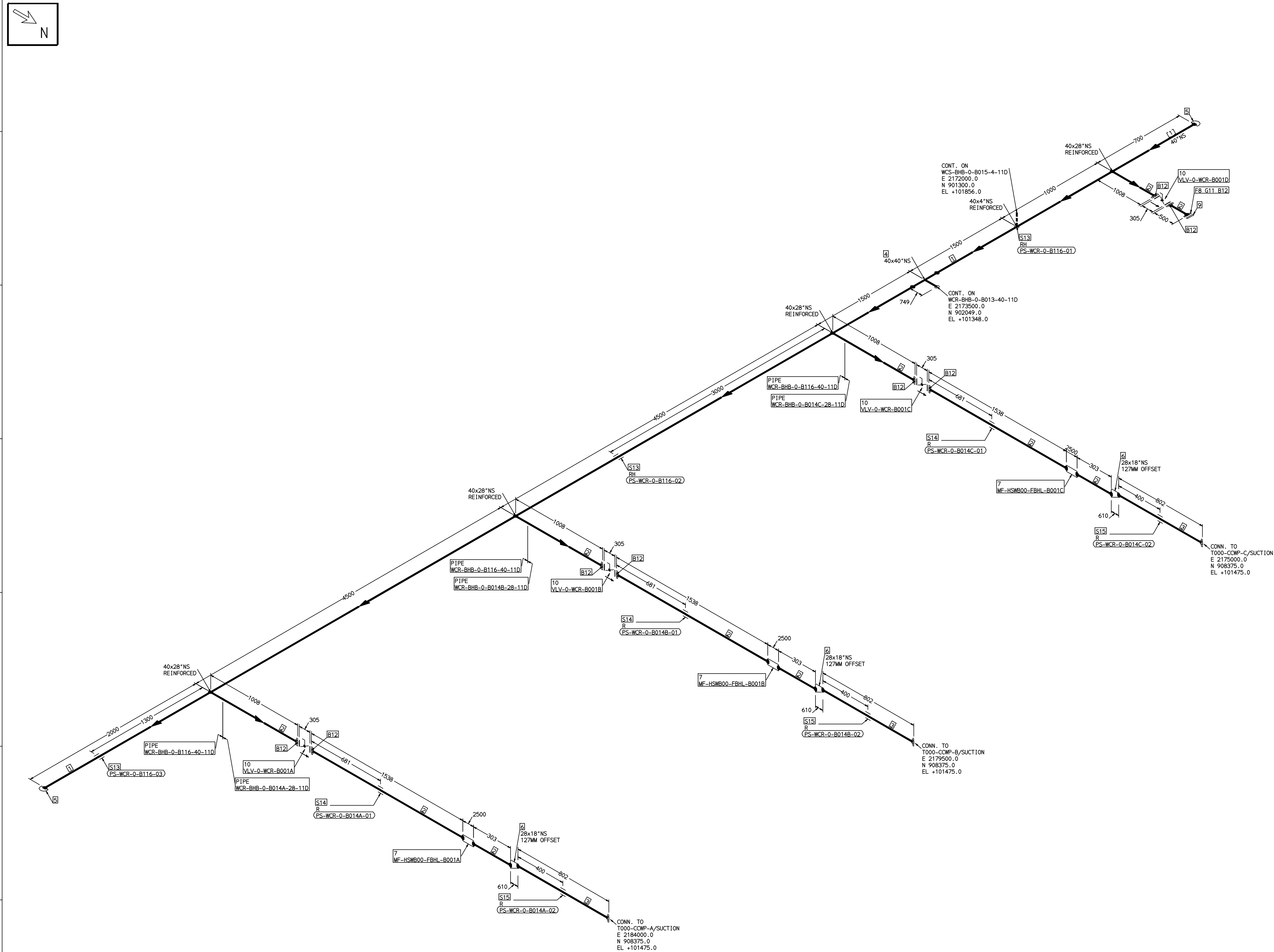
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

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

	BHARAT HEAVY ELECTRICALS LTD			NAME	SIGN	DATE
	PROJECT ENGINEERING & SYSTEMS DIVISION		DRN.	PCC	-SD-	05-05-14
	R.C.PURAM, HYDERABAD-502032.		CHKD.	VUK	-SD-	05-05-14
	PE&SD LAYOUTS & PIPING ENGINEERING		APPRD.	GS	-SD-	05-05-14
						SCALE: NTS
TITLE: 0-CCW-EXPN-TANK-OVERFLOW-DRAIN			DRAWING NO: 1-381-01-05992			REV 00P
			SHT. No. 1		NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW 1S-3589 PE 30	1S3589GRFE3	40	T10		14202MM	248.09		
2	PIPE ERW/SAW 1S-3589 PE 30	1S3589GRFE3	28	T8		8603MM	138.7		
3	PIPE ERW/SAW 1S-3589 PE 30	1S3589GRFE3	18	T6		2400MM	66.73		
4	TEE STRT ASME B16.9 BW	A234GRWPB	40 x 40	XS		1	894		
5	CAP ASME B16.9 BW	A234GRWPB	40	STD		2	95		
6	RDCR ECC ASME B16.9 BW	A234GRWPB	28 x 18	STDXS10		3	95		
7	PIPING COMPONENT (USER DEFINED) BW	A234GRWPB	28			3	0		
8	FLANGE STEEL-RING ANMA C207-D FF	1S2062GRB	28		PN10	1	0		
9	FLANGE BLIND ANMA C504 PN10 DFLGD (FF-C207D)	1S2062GRB	28		PN10	1	0		
10	BFLV GO ANMA C504 PN10 DFLGD (FF-C207D)	A216GRWCB	28		PN10	4	490		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
11	GASKET NAB FLAT RING (FF-C207D)	PTFE	28		PN10	1	0		
12	120 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	1.1/4	M33X140	PN10	1260	1.47		
13	PIPE REST		40			3	0		
14	PIPE REST		28			3	0		
15	PIPE REST		18			3	0		

[1]

NOTES:-

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- 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

	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.	VUK	-SD- 05-05-14
		APPRD.	GS	-SD- 05-05-14
				SCALE: NTS

TITLE: 0-CWP-PUMP-SUCTION	DRAWING NO: 1-381-01-05993	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 \$(mm)	INS MAT	PSPEC	BORE
		WCR-BHB-0-B116-40-11D								11D-RHP	40"
		WCR-BHB-0-B014C-28-11D								11D-RHP	28"
		WCR-BHB-0-B014B-28-11D								11D-RHP	28"
		WCR-BHB-0-B014A-28-11D								11D-RHP	28"

LEGEND:-

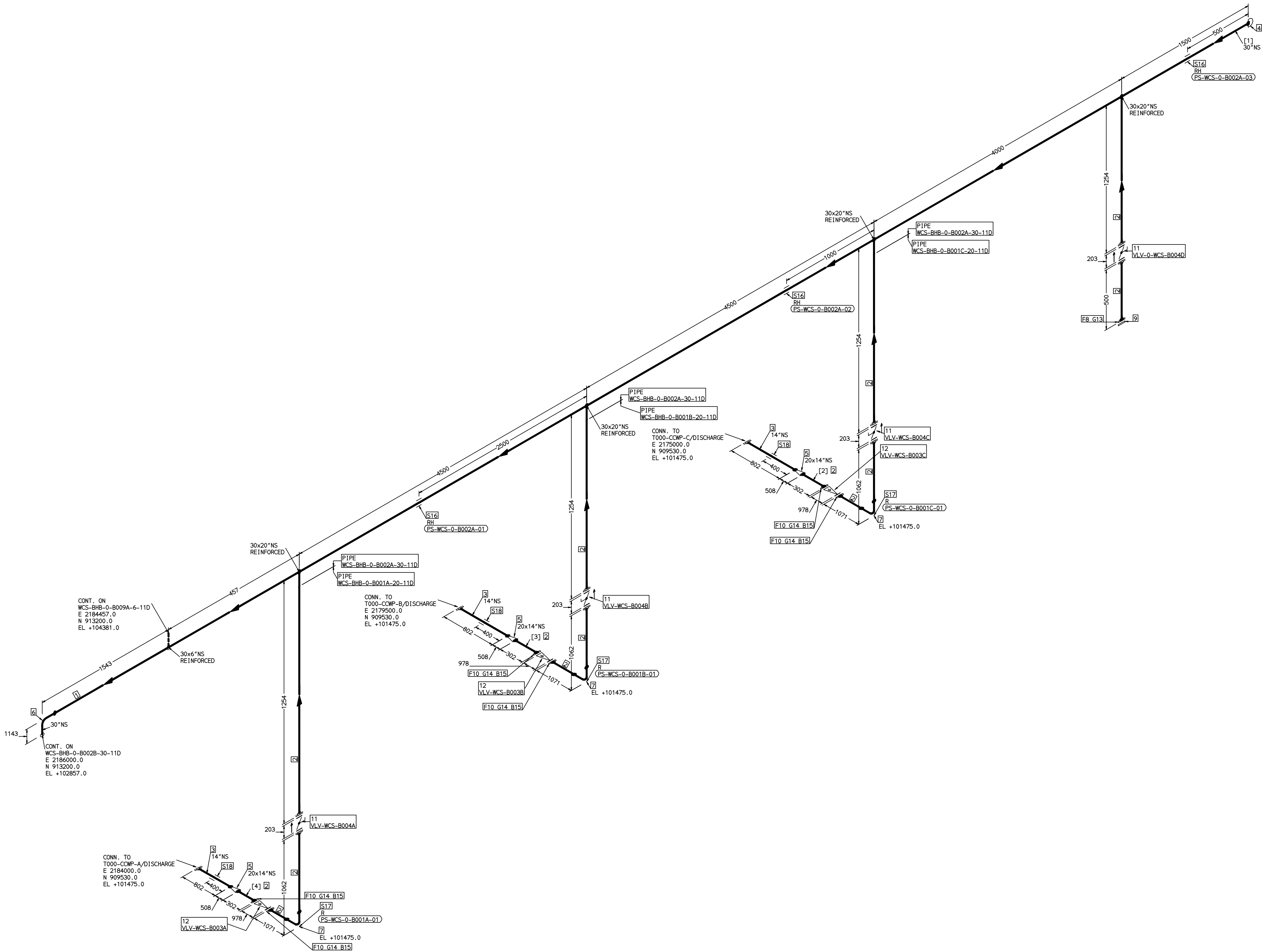
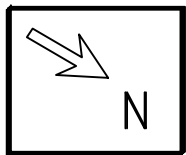
- SUPPORT LOCATION
- DIRECTION OF FLOW
- DIRECTION OF SLOPE
- WELD SYMBOL

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

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	30	T8		15357MM	148.76		
2	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	20	T6		7101MM	74.28		
3	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	14	T6		2400MM	51.73		
4	CAP ASME B16.9 BW	A234GRWPB	30	STD		1	62		
5	RODR CONC ASME B16.9 BW	A234GRWPB	20 x 14	S10XS10		3	50		
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	30	STD		1	315.83		
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	20	S10		3	93.53		HY7242502446
8	FLANGE STEEL-RING AWWA C207-D FF	IS2062GRB	20		PN10	1	0		
9	FLANGE BLIND AWWA C207-D FF	IS2062GRB	20		PN10	1	0		
10	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	20		CL150	6	75		AA7246101195
11	BLV GO AWWA C504 PN10 DFLGD (FF-C207D)	A216GRWCB	20		PN10	4	230		
12	SWING CHECK VALVE ASME B16.10 CL150 RF(B16.5)	A216GRWCB	20		CL150	3	1760.4		AA7541408190

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
13	GASKET NAB FULL FACE (FF-C207D)	PTFE	20		PN10	1	0		
14	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	20		CL150	6	2.87		HY7240362116
15	170 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	1.1/8	M30X170	CL150	120	1.3		HY7142299037
16	RIGID HANGER		30			3	0		
17	PIPE REST		20			3	0		
18	PIPE REST		14			3	0		

[1] [2] [3] [4]

NOTES:-

- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
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- 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 \$(mm)	INS MAT
		WCS-BHB-0-B002A-30-11D							11D-RHP 30"
		WCS-BHB-0-B001C-20-11D							11D-RHP 24"
		WCS-BHB-0-B001B-20-11D							11D-RHP 24"
		WCS-BHB-0-B001A-20-11D							11D-RHP 24"

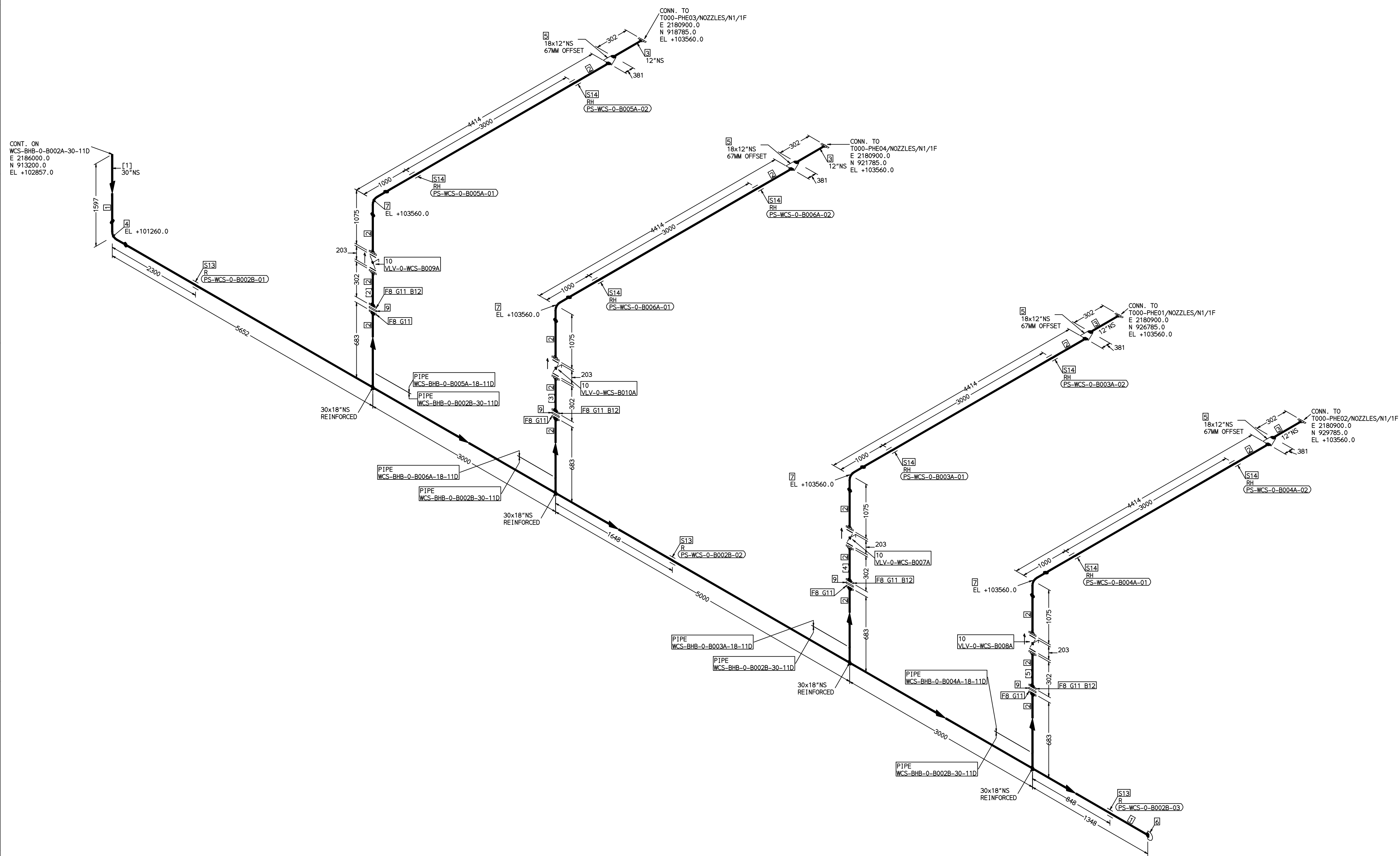
- LEGEND:-
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	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.	VUK	-SD-		05-05-14
APPRD.	GS	-SD-		05-05-14
SCALE: NTS				
TITLE: 0-CW-PUMP-DISCHARGE		DRAWING NO: 1-381-01-05994		REV OOP
SHT. No. 1		NO. OF SHTS. 1		

COMPUTER FILE NAME: _____



[1] [2] [3] [4] [5]

PRELIMINARY – FOR BID PURPOSE ONLY

 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.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
			SCALE: NTS	
TITLE: 0-CCW-SUPPLY-TO-PHES		DRAWING NO: 1-381-01-05995		REV 00P
		SHT. No. 1	NO. OF SHTS. 1	

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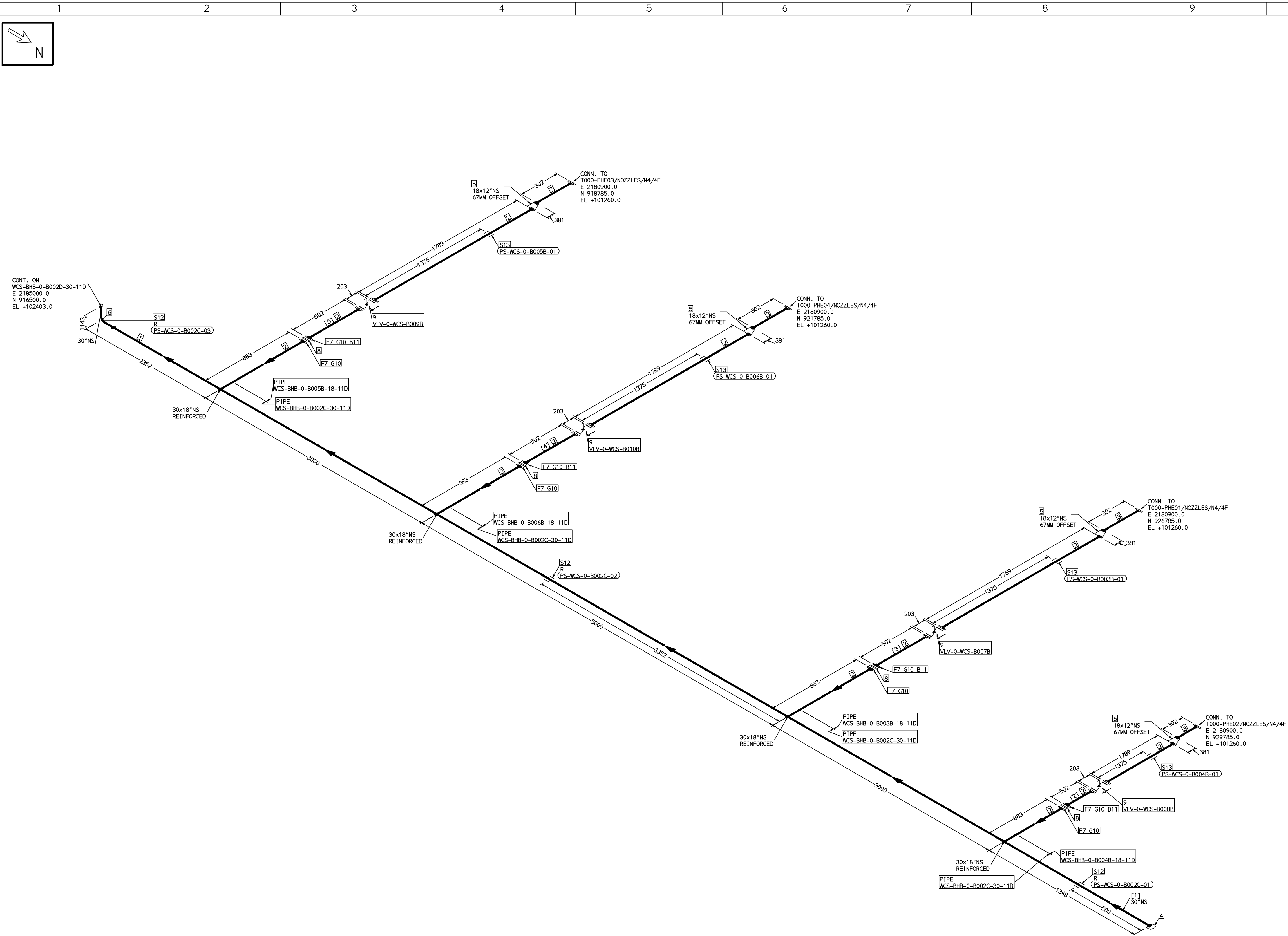
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

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

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

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW 1S-3589 PE 30	IS3589GRFE3 30	30	T8		13557MM	148.76		
2	PIPE ERW/SAW 1S-3589 PE 30	IS3589GRFE3 30	18	T6		11460MM	66.73		
3	PIPE ERW/SAW 1S-3589 PE 30	IS3589GRFE3 30	12	T6		1200MM	47.02		
4	CAP ASME B16.9 BW	A234GRWPB	30	STD		1	62		
5	ROCR ECC ASME B16.9 BW	A234GRWPB	18 x 12	S10XS20		4	26.42		
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	30	STD		1	315.83		
7	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	18		CL150	8	59		AA7246101187
8	SPACER & BLANK ASME B16.48 CL150 FF (B16.5)	A105	18		CL150	4	45.58		GT9757083143
9	BFLV GO ANNA C504 PN10 DFLGD (FF-C207D)	A216GRWCB	18		PN10	4	190		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
10	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	18		CL150	8	2.31		HY7240362108
11	180 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	1.1/8	M30X150	CL150	64	1.21		HY7142299010
12	PIPE REST		30			3	0		
13	PIPE REST		18			4	0		

[1] [2] [3] [4] [5]

NOTES:-

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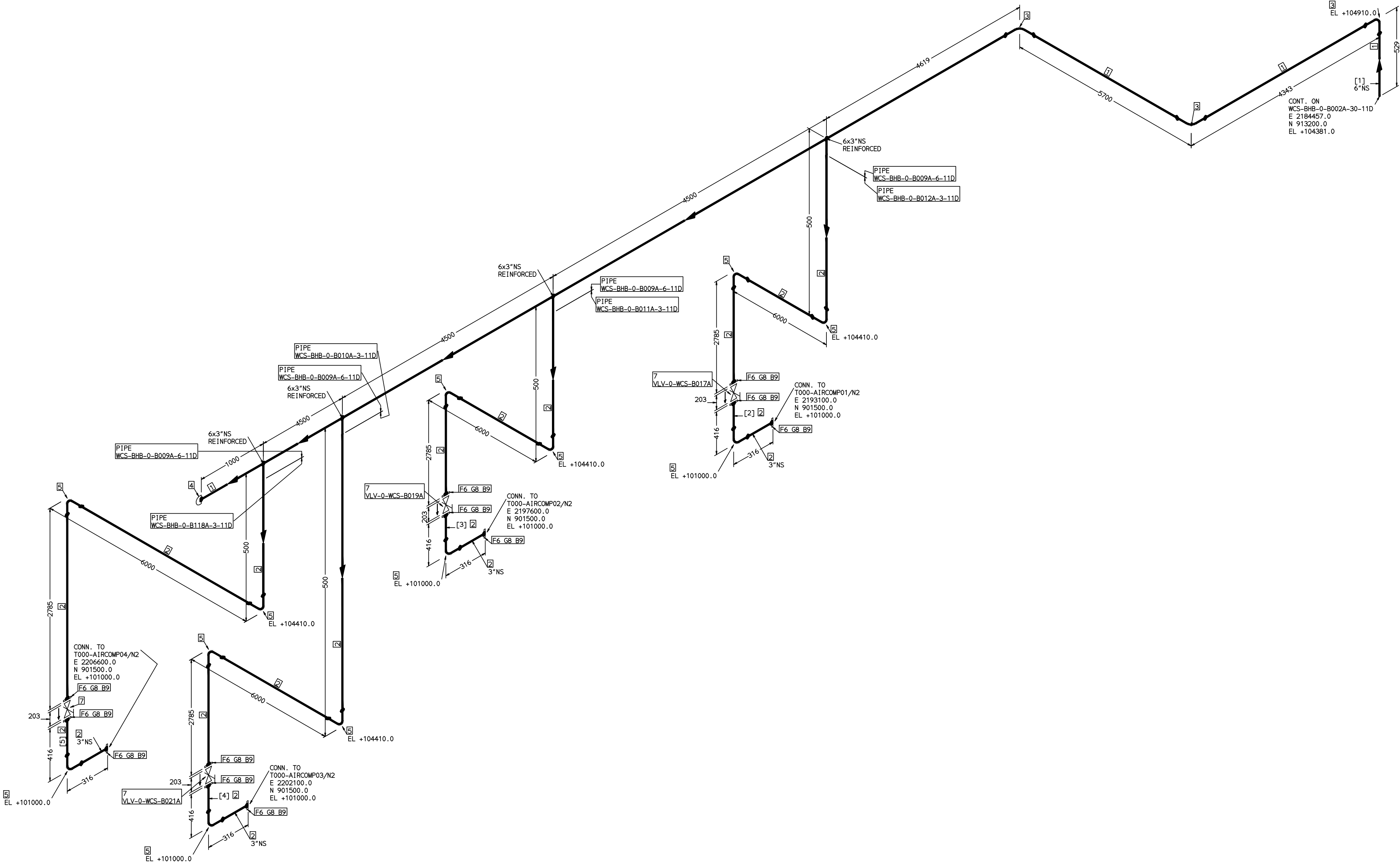
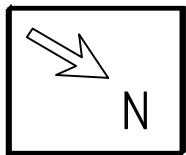
PRELIMINARY - FOR BID PURPOSE ONLY

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

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

TITLE: 0-CW-RETURN-FROM-PHES		DRAWING NO: 1-381-01-05996		REV OOP
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)	BHEL MATCODE	
1	PIPE ERW/SAW IS-1239 (PART 1) PE K)	IS1239(BLAC K)	6	HVY		28317MM	21.3		
2	PIPE ERW/SAW IS-1239 (PART 1) PE K)	IS1239(BLAC K)	3	HVY		37024MM	9.9	AA1011052601	
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	STD		3	11.01	AA7242502276	
4	CAP ASME B16.9 BW	A234GRWPB	6	STD		1	3.6	HY7242570565	
5	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	3	STD		12	2.3	AA7242502160	
6	FLANGE SLIP-ON ASME B16.5 CL150 RF A105	A234GRWPB	3		CL150	12	3.7	AA72445101080	
7	GATE VALVE HO ASME B16.10 CL150 RF(16.5)	A216GRWCB	3		CL150	4	29.94	AA7521408080	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
8	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	3		CL150	12	0.19	HY7240362027	
9	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	5/8	M16X100	CL150	48	0.21	HY7142198060	

[1] [2] [3] [4] [5]

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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

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.	VUK	-SD- 05-05-14
	APPRD.	GS	-SD- 05-05-14

TITLE: 0-CW-SUPPLY-TO-IAPA-PCKG	DRAWING NO: 1-381-01-05997		REV OOP
	SHT. No. 1	NO. OF SHTS. 1	

REFERENCE DRAWINGS:-

LINE PARAMETERS:-

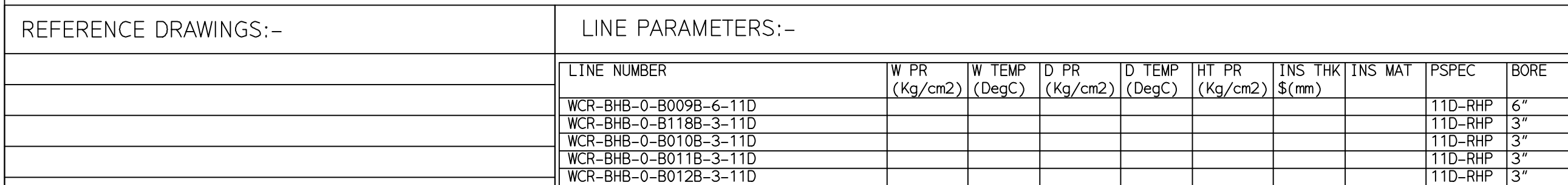
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC	BORE
WCS-BHB-0-B009A-6-11D								11D-RHP	6"
WCS-BHB-0-B012A-3-11D								11D-RHP	3"
WCS-BHB-0-B011A-3-11D								11D-RHP	3"
WCS-BHB-0-B010A-3-11D								11D-RHP	3"
WCS-BHB-0-B118A-3-11D								11D-RHP	3"

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	VUK	GS



LEGEND:-

	SUPPORT LOCATION
	DIRECTION OF FLOW
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OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY		PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION		DRN BY	CHKD BY	APPR BY

[1] [2] [3] [4] [5]

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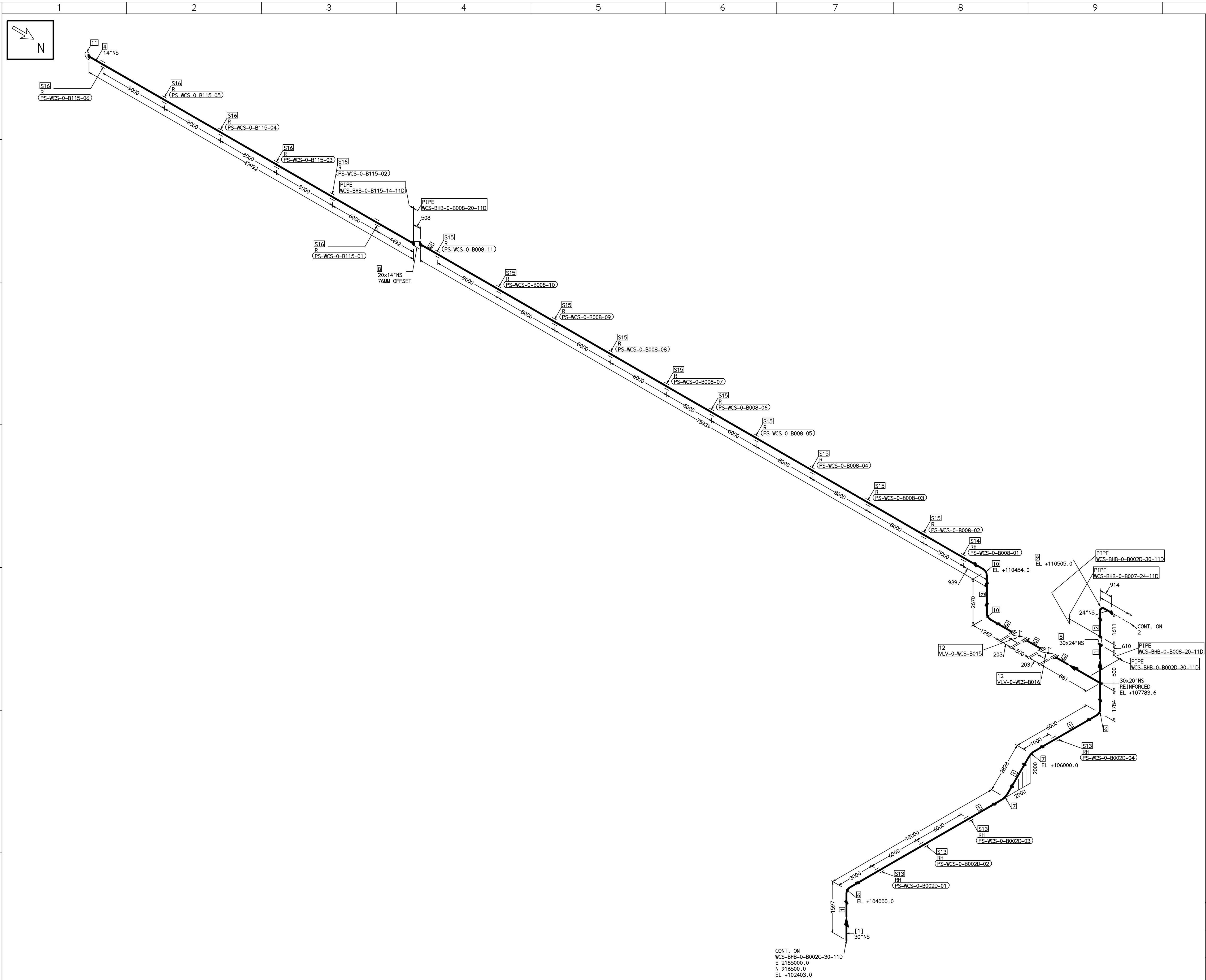
PRELIMINARY – FOR BID PURPOSE ONLY

CONSULTANT:	 BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
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RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

	BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R. C. PURAM, HYDERABAD-502032.			NAME	SIGN	DATE
	PE&SD LAYOUTS & PIPING ENGINEERING		DRN.	PCC	-SD-	05-05-14
			CHKD.	VUK	-SD-	05-05-14
			APPRD.	GS	-SD-	05-05-14
			SCALE: NTS			
TITLE: 0-CW-RETURN-FROM-IAPA-PCKG			DRAWING NO: 1-381-01-05998			REV OOP
			SHT. No. 1		NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3	30	T8		24257MM	148.76		
2	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3	24	T8		697MM	118.77		
3	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3	20	T6		77920MM	74.28		
4	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3	14			43992MM	0		
5	RDCR CONC ASME B16.9 BW	A234GRWPB	30 x 24	STDSTD		1	100	HY7242682223	
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	30	STD		2	315.83		
7	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	30	STD		2	157.91		
8	RDCR ECC ASME B16.9 BW	A234GRWPB	20 x 14	S10XS10		1	50		
9	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	24	STD		1	201.49	HY7242502942	
10	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	20	S10		2	93.53	HY7242502446	
11	CAP ASME B16.9 BW	A234GRWPB	14	S10		1	15.5	HY7242570867	
12	BFLV GO ANWA C504 FN10 DFLGD (FF-C207D)	A216GRWCB	20		PN10	2	230		

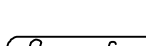
ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
13	RIGID HANGER		30			4	0		
14	RIGID HANGER		20			1	0		
15	PIPE SUPPORT		20			10	0		
16	PIPE SUPPORT		14			6	0		

[1]

- NOTES:-
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 - 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

 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.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
			SCALE: NTS	

TITLE:	0-CCW-SUPPLY-HEADER-PIPING	DRAWING NO:	1-381-01-05999	REV	OOP
		SHT. No. 1	NO. OF SHTS. 2		

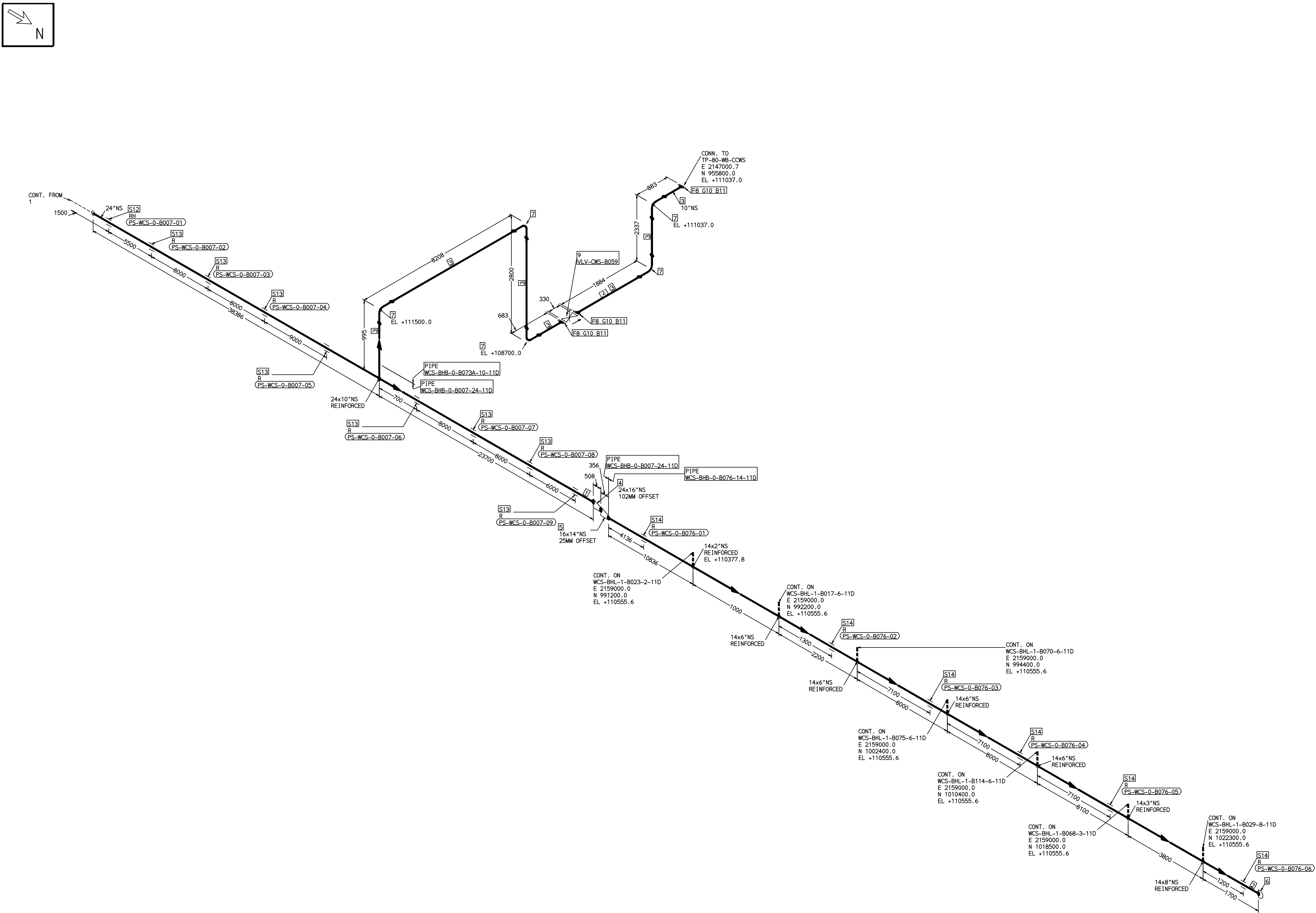
REFERENCE DRAWINGS:-		LINE PARAMETERS:-									
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC	BORE
		WCS-BHB-0-B002D-30-11D								11D-RHP	"
		WCS-BHB-0-B008-20-11D								11D-RHP	20"
		WCS-BHB-0-B115-14-11D								11D-RHP	14"
		WCS-BHB-0-B007-24-11D								11D-RHP	24"
		WCS-BHB-0-B073A-10-11D								11D-RHP	10"
		WCS-BHB-0-B076-14-11D								11D-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:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	24	T8		62086MM	118.77		
2	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 10	14	T6		43636MM	0		
3	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	24	T8		13700MM	39.51		
4	RDCR ECC ASME B16.9 BW	A234GRWPB	24 x 16	STDXS10		1	72		
5	RDCR ECC ASME B16.9 BW	A234GRWPB	16 x 14	S10XS10		1	28		
6	CAP ASME B16.9 BW	A234GRWPB	14	S10		1	15.5		HY7242570867
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		5	26.6		AA7242502349
8	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	10		CL150	3	19.5		AA7246101144
9	GATE VALVE HO ASME B16.10 CL150 RF(16.5)	A216GRWCB	10		CL150	1	203.91		AA7521408144

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
10	GASKET N.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	10		CL150	3	1.14		HY7240362060
11	120 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	7/8	M24X120	CL150	36	0.6		HY7142198460
12	RIGID HANGER		24			1	0		
13	PIPE SUPPORT		24			8	0		
14	PIPE SUPPORT		14			6	0		

[2]

NOTES:-

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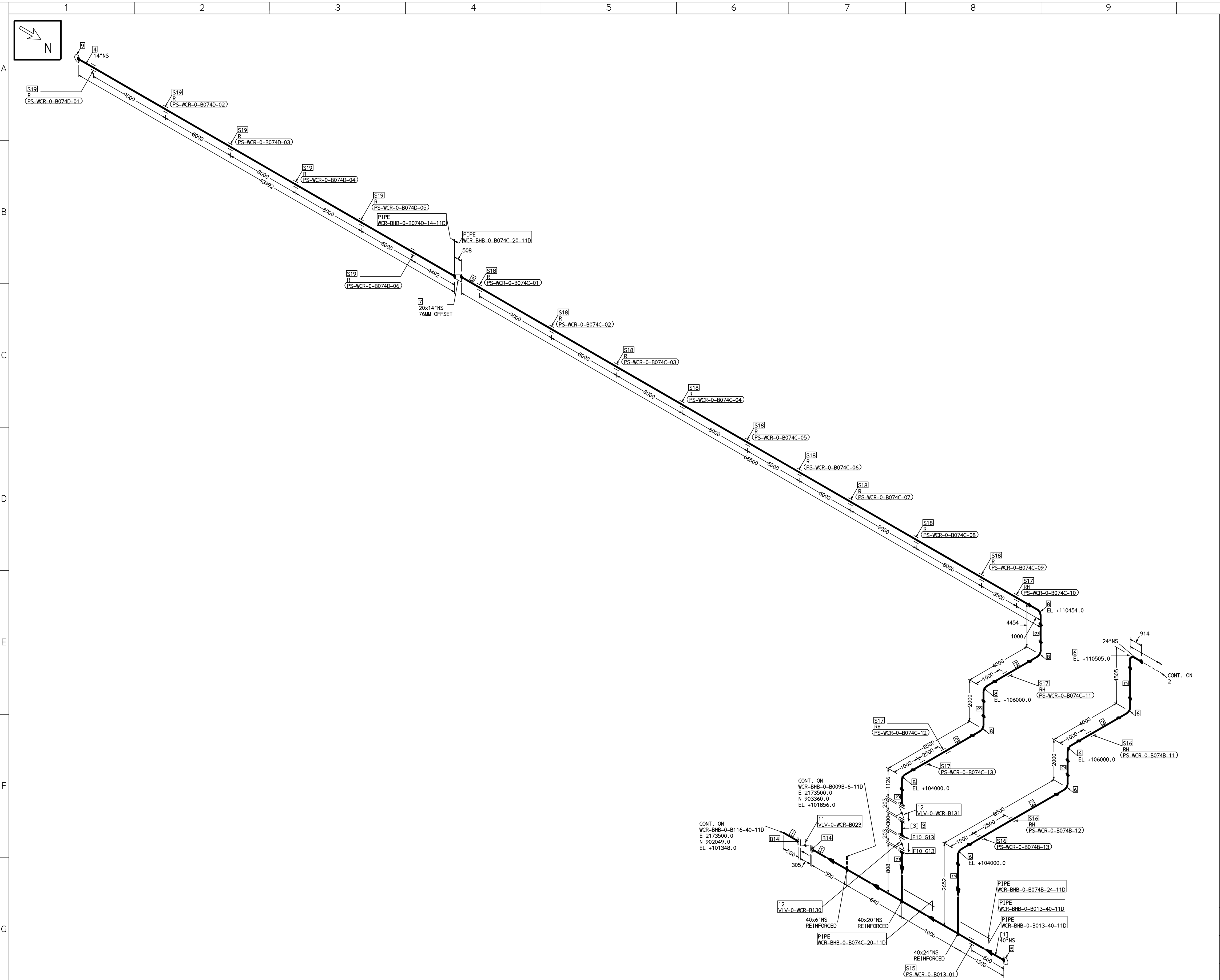
PRELIMINARY - FOR BID PURPOSE ONLY

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

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

TITLE:	0-CW-SUPPLY-HEADER-PIPING	DRAWING NO:	1-381-01-05999	REV	OOP
		SHT. No.	2	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



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 \$(mm)	INS MAT	PSPEC	BORE
WCR-BHB-0-B013-40-11D								11D-RHP	"
WCR-BHB-0-B074B-24-11D								11D-RHP	24"
WCR-BHB-0-B073B-10-11D								11D-RHP	10"
WCR-BHB-0-B074A-14-11D								11D-RHP	14"
WCR-BHB-0-B074C-20-11D								11D-RHP	20"
WCR-BHB-0-B074D-14-11D								11D-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	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY

FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	40	T10		3940MM	248.09		
2	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	24	T8		13025MM	118.77		
3	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	20	T6		79628MM	74.28		
4	PIPE ERW/SAW 1S-3589 PE	IS3589GRFE3 30	14			43992MM	0		
5	CAP ASME B16.9 BW	A234GRWPB	40	STD		1	95		
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	24	STD		5	201.49		HY7242502942
7	RDCR ECC ASME B16.9 BW	A234GRWPB	20 x 14	S10XS10		1	50		
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	20	S10		5	93.53		HY7242502446
9	CAP ASME B16.9 BW	A234GRWPB	14			1	15.5		HY7242570867
10	FLANGE STEEL-RING ANMA C207-D FF	IS2062GRB	20			2	0		
11	BFLV GO ANMA C504 PN10 DFLGD (FF-C207D)	A216GRWCB	40		PN10	2	1160		
12	BFLV GO ANMA C504 PN10 DFLGD (FF-C207D)	A216GRWCB	20		PN10	2	230		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
13	GASKET NAB FULL FACE (FF-C207D)	PTFE	20		PN10	2	0		
14	140 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	1.1/2	M39X170	PN10	340	2.53		
15	PIPE REST		40			1	0		
16	RIGID HANGER		24			3	0		
17	RIGID HANGER		20			4	0		
18	PIPE SUPPORT		20			9	0		
19	PIPE SUPPORT		14			6	0		

[1] [3]

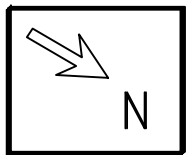
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PRELIMINARY - FOR BID PURPOSE ONLY

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

 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.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
			SCALE: NTS	
TITLE: 0-CCW-RETURN-HEADER-PIPING	DRAWING NO: 1-381-01-06000			REV OOP
SHT. No. 1		NO. OF SHTS. 2		

ERECTION MATERIALS

PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNIT/WT	BHEL MATCODE
10	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	10		CL150	3	1.14	HY7240362060
11	120 STUD WITH 2 NUTS ASME B18.2	A193GB7/8 94GR2H	7/8	M24X120	CL150	36	0.6	HY7142198460
12	PIPE SUPPORT		24			10	0	
13	PIPE SUPPORT		14			6	0	

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

CONSULTANT: 

PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
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CUSTOMER:	 Reliance Industries Limited	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
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RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX
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BHEL

TITLE:	0-CCW-RETURN-HEADER-PIPING
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TITLE:	DRAWING NO:		REV
0-CCW-RETURN-HEADER-PIPING	1-381-01-06000		00P
	SHT. No. 2	NO. OF SHTS. 2	

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LEGEND:-



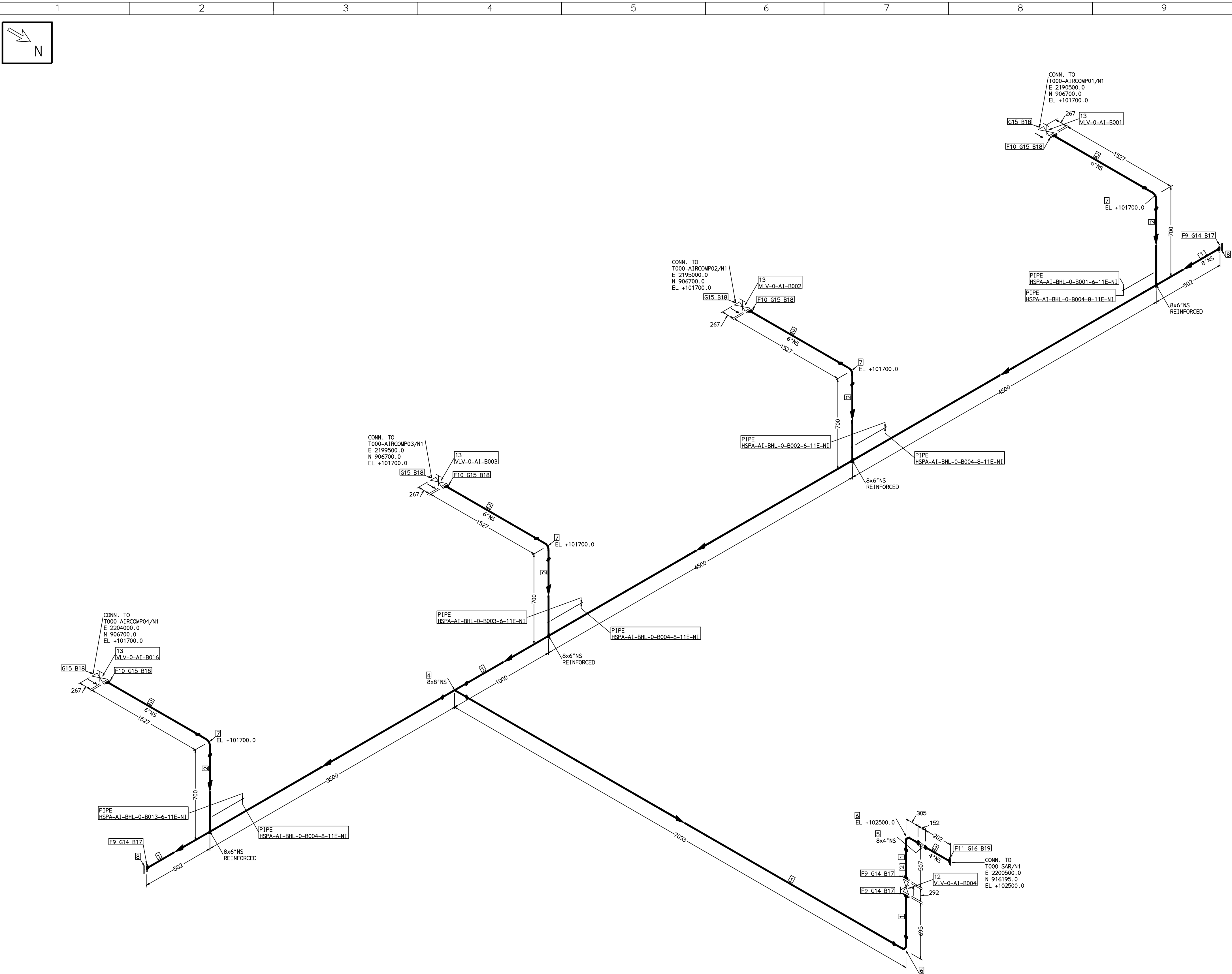
A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL- DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

00P	05-05
REV	ISSU DAT

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE ERW/SAW IS-3589 PE	IS3589GRF330	8	T6		21282MM	31.53		
2	PIPE ERW/SAW IS-1239 (PART 1) PE	IS1239(BLAC K)	6	HVY		6788MM	21.3		
3	PIPE ERW/SAW IS-1239 (PART 1) PE	IS1239(BLAC K)	4	HVY		200MM	14.5		
4	TEE STRT ASME B16.9 BW	A234GRWPB	8 x 8	S20		1	29	AA7242511313	
5	REDUC CONC ASME B16.9 BW	A234GRWPB	8 x 4	S20STD		1	6.5	AA7242533393	
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		2	16.99	AA7242502314	
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	STD		4	11.01	AA7242502276	
8	FLANGE BLIND ASME B16.5 CL150 RF	A105	8		CL150	2	20.5	HY7246166130	
9	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	8		CL150	4	13.7	AA7246101136	
10	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	6		CL150	4	8.6	AA7246101128	
11	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	4		CL150	1	5.9	AA7246101101	
12	GATE VALVE HO ASME B16.10 CL150 RF(16.5)	A216GRWCB	8		CL150	1	127.72	AA7521408136	
13	GATE VALVE HO ASME B16.10 CL150 RF(16.5)	A216GRWCB	6		CL150	4	76.81	AA7521408128	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
14	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	8		CL150	4	0.73	HY7240362051	
15	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	6		CL150	8	0.56	HY7240362043	
16	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	1	0.32	HY7240362035	
17	120 STUD WITH 2 NUTS ASME B18.2 94GR2H	A193GRB7/A1 94GR2H	3/4	M20X120	CL150	32	0.41	HY7142198184	
18	110 STUD WITH 2 NUTS ASME B18.2 94GR2H	A193GRB7/A1 94GR2H	3/4	M20X110	CL150	64	0.39	HY7142198176	
19	100 STUD WITH 2 NUTS ASME B18.2 94GR2H	A193GRB7/A1 94GR2H	5/8	M16X100	CL150	8	0.21	HY7142198060	

[1] [2]

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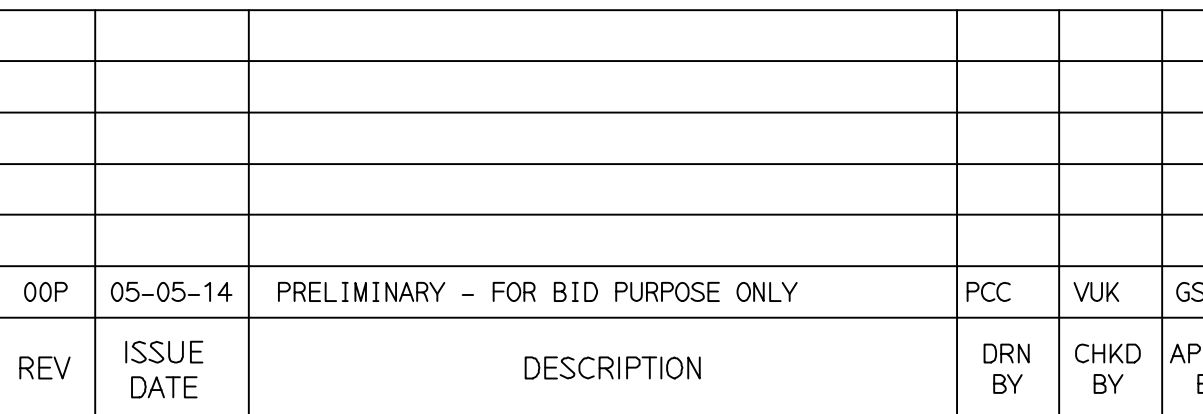
PRELIMINARY - FOR BID PURPOSE ONLY

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

 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.	VUK	-SD- 05-05-14
	APPRD.	GS	-SD- 05-05-14

TITLE: 0-IAPA-PPG-COMPR-TO-RECEIVER	DRAWING NO: 1-381-01-06001	REV OOP
SHT. No. 1	NO. OF SHTS. 1	

COMPUTER FILE NAME: _____



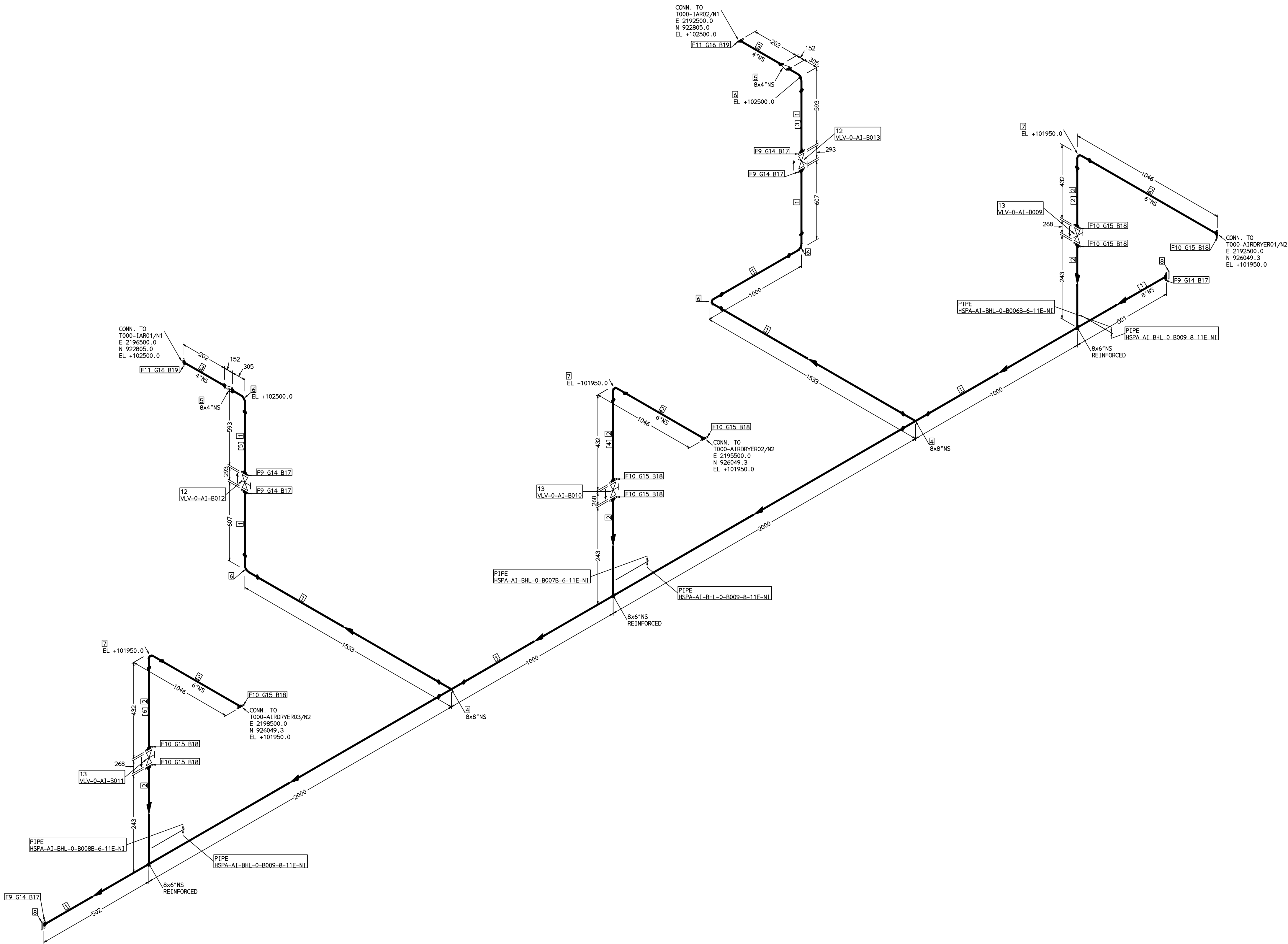
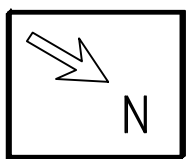
[1] [2] [3] [4] [5]

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DRAWING NO: 1-381-01-06002		REV OOP
SHT. No. 1	NO. OF SHTS. 1	

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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 ERW/SAW IS-3589 PE	IS3589GRFE330	8	T6		9948MM	31.53		
2	PIPE ERW/SAW IS-1239 (PART 1) PE	IS1239(BLACK)	6	HVY		3558MM	21.3		
3	PIPE ERW/SAW IS-1239 (PART 1) PE	IS1239(BLACK)	4	HVY		400MM	14.5		
4	TEE STRT ASME B16.9 BW	A234GRWPB	8 x 8	S20		2	29	AA7242511313	
5	REDUC CONC ASME B16.9 BW	A234GRWPB	8 x 4	S20XSTD		2	6.5	AA7242533393	
6	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		5	16.99	AA7242502314	
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	STD		3	11.01	AA7242502276	
8	FLANGE BLIND ASME B16.5 CL150 RF	A105	8		CL150	2	20.5	HY7246166130	
9	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	8		CL150	6	13.7	AA7246101136	
10	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	6		CL150	9	8.6	AA7246101128	
11	FLANGE SLIP-ON ASME B16.5 CL150 RF	A105	4		CL150	2	5.9	AA7246101101	
12	GATE VALVE HO ASME B16.10 CL150 RF(16.5)	A216GRWCB	8		CL150	2	127.72	AA7521408136	
13	GATE VALVE HO ASME B16.10 CL150 RF(16.5)	A216GRWCB	6		CL150	3	76.81	AA7521408128	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
14	GASKET M.S.W ASME B16.20 PTFE	SS304+PTFE	8		CL150	6	0.73	HY7240362051	
15	GASKET M.S.W ASME B16.20 PTFE	SS304+PTFE	6		CL150	9	0.56	HY7240362043	
16	GASKET M.S.W ASME B16.20 PTFE	SS304+PTFE	4		CL150	2	0.32	HY7240362035	
17	120 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	3/4	M20X120	CL150	48	0.41	HY7142198184	
18	110 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	3/4	M20X110	CL150	72	0.39	HY7142198176	
19	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A1 94GR2H	5/8	M16X100	CL150	16	0.21	HY7142198060	

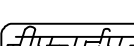
[1] [2] [3] [4] [5] [6]

NOTES:-

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

PRELIMINARY - FOR BID PURPOSE ONLY

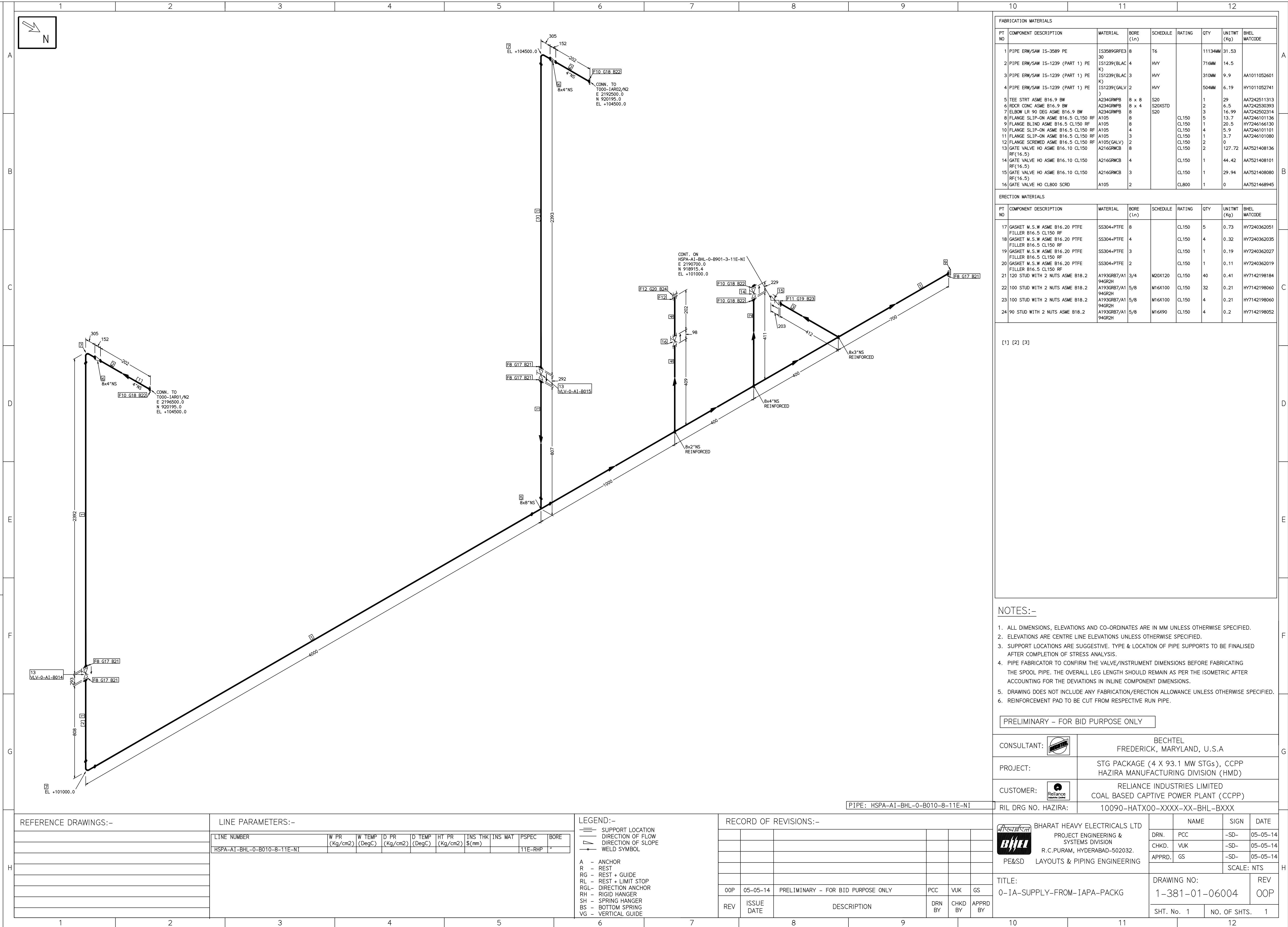
CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)	
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX	

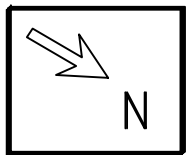
	BHARAT HEAVY ELECTRICALS LTD			NAME	SIGN	DATE
	PROJECT ENGINEERING & SYSTEMS DIVISION			DRN.	PCC	-SD- 05-05-14
	R. C. PURAM, HYDERABAD-502032.			CHKD.	VUK	-SD- 05-05-14
	PE&SD LAYOUTS & PIPING ENGINEERING			APPRD.	GS	-SD- 05-05-14
				SCALE: NTS		

TITLE: 0-IA-PPG-DRYER-TO-RECEIVER		DRAWING NO: 1-381-01-06003		REV OOP
SHT. No. 1		NO. OF SHTS. 1		

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

COMPUTER FILE NAME:





ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
14	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	10	0.32	HY7240362035
15	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	4		CL300	2	0.32	HY7240363074
16	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	2		CL150	3	0.11	HY7240362019
17	120 STUD WITH 2 NUTS ASME B18.2	A193GB7/A1 94GR28	3/4	M20X120	CL300	16	0.41	HY7142198184
18	100 STUD WITH 2 NUTS ASME B18.2	A193GB7/A1 94GR28	5/8	M16X100	CL150	80	0.21	HY7142198060
19	90 STUD WITH 2 NUTS ASME B18.2	A193GB7/A1 94GR28	5/8	M16X90	CL150	12	0.2	HY7142198052

[1] [2] [3] [4] [5]

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5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. 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

	BHARAT HEAVY ELECTRICALS LTD		NAME	SIGN	DATE
	PROJECT ENGINEERING & SYSTEMS DIVISION		DRN.	PCC	-SD- 05-05-14
	R. C. PURAM, HYDERABAD-502032.		CHKD.	VUK	-SD- 05-05-14
	PE&SD LAYOUTS & PIPING ENGINEERING		APPRD.	GS	-SD- 05-05-14
			SCALE: NTS		
TITLE: 0-PA-SUPPLY-FROM-IAPA-PACKG			DRAWING NO: 1-381-01-06005		REV OOP
			SHT. No. 1		NO. OF SHTS. 1

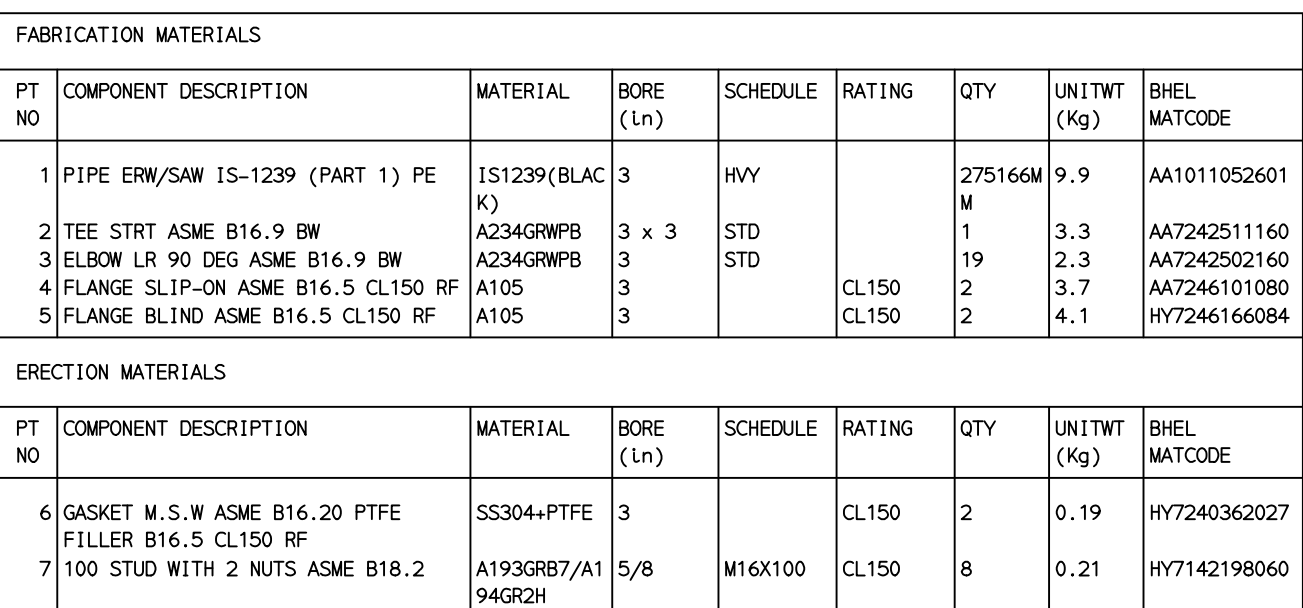
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LEGEND:-

-  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 + RIGID HANGER
 RH - RIGID HANGER
 SH - SPRING HANGER
 SG - BOTTOM SPRING
 VS - VERTICAL GUIDE

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



NOTES:-

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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-BBXX

 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.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS
TITLE:		DRAWING NO:		REV
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SHT. No. 1		NO. OF SHTS.		1

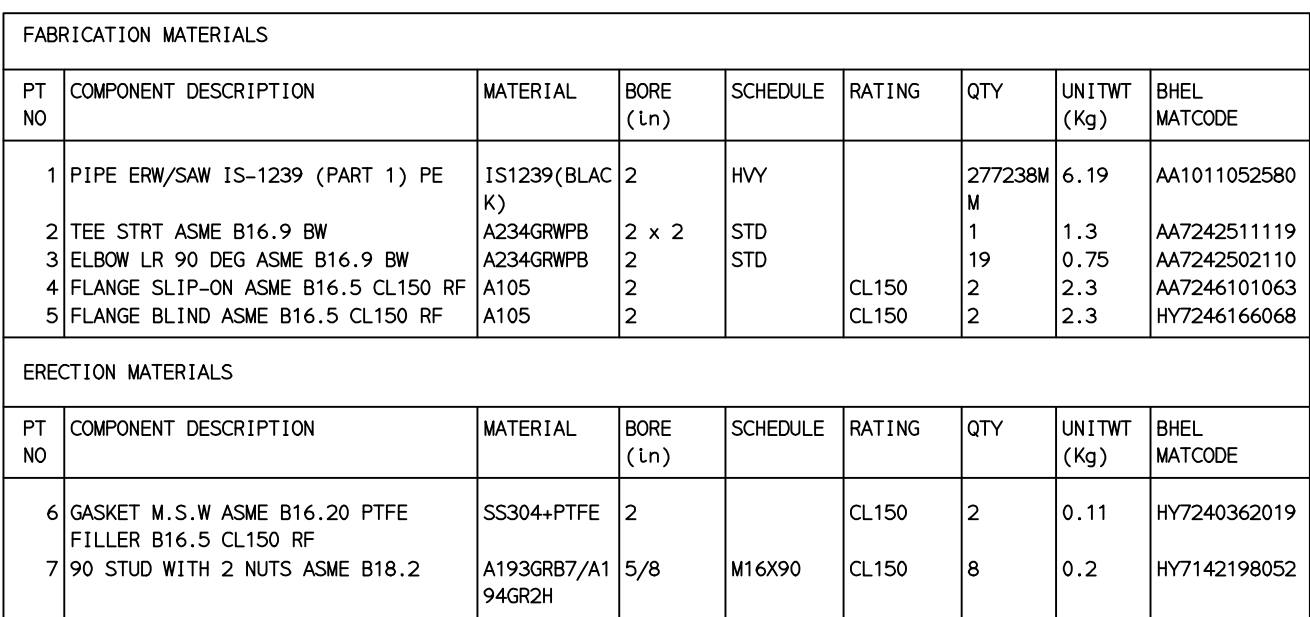
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LEGEND:-

	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:-					
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APR BY



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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

LEGEND:-

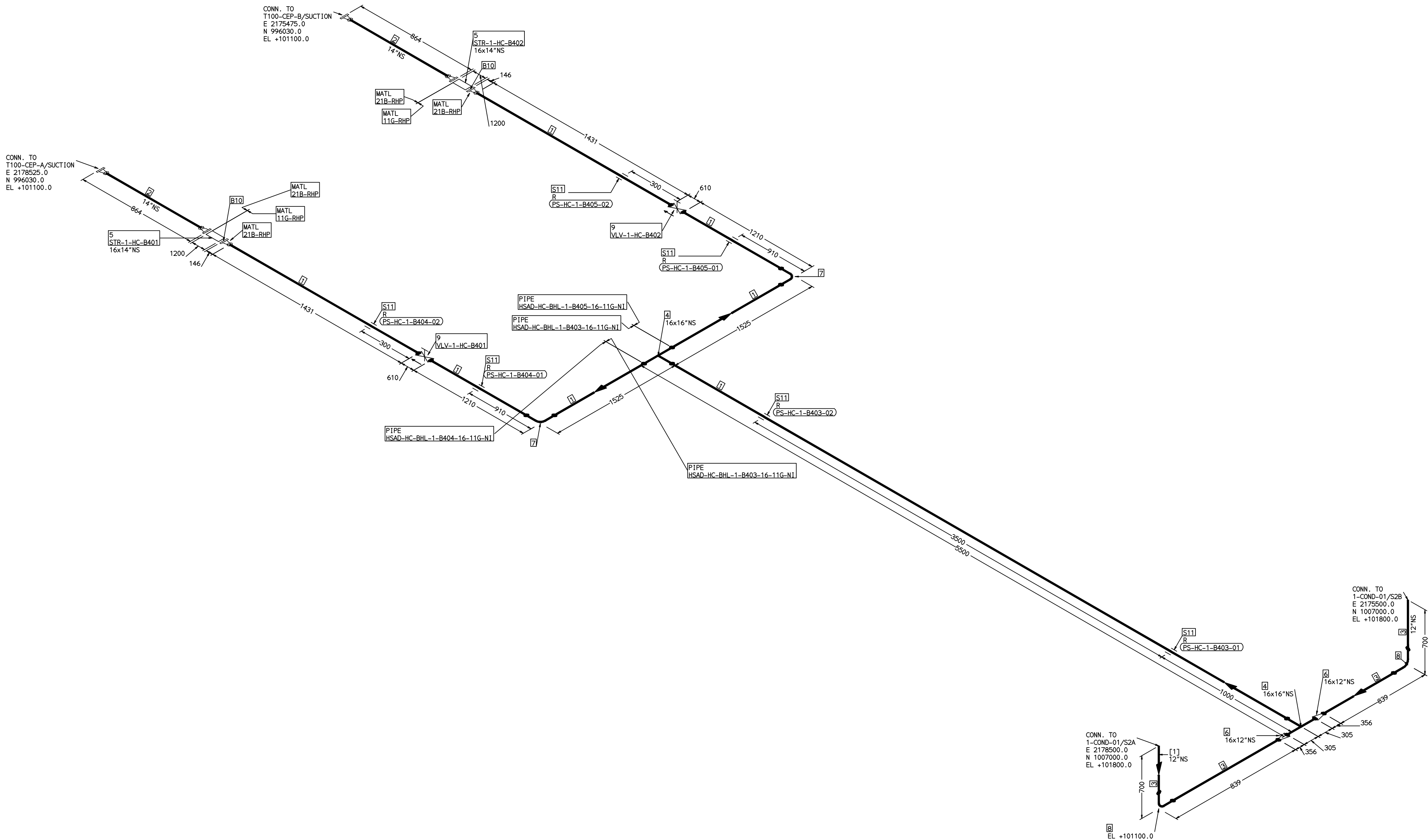
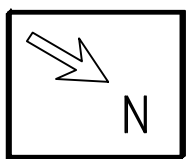
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

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

	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: 0-PA-SUPPLY-HEADER-PIPING		DRAWING NO: 1-381-01-06007			REV 00P
		SHT. No. 1		NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE EFSW ASME B36.10 PE	A672GRB60	16	S10		10172MM	62.65	AA1049457145
2	PIPE SMLS ASME B36.10 PE	A106GRB	14	S40		1156MM	94.55	AA1049355725
3	PIPE SMLS ASME B36.10 PE	A106GRB	12	S20		1250MM	49.71	AA1049355725
4	TEE STRT ASME B16.9 BW	A234GRWPB	16 x 16	S10		2	90.8	HY7242511429
5	STRAINER BASKET TYPE CL300 RF(B16.5)	A234GRWPB	16 x 14		CL300	2	0	
6	ROGR CONC ASME B16.9 BW	A234GRWPB	16 x 12	S10XS20		2	22.65	AA7242530636
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	16	S10		2	59.59	AA7242502420
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	12	S20		2	37.61	AA7242502381
9	GATE VALVE G0 CL150 BW	A216GRWCB	16		CL150	2	580	AA7521408756

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
10	200 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	1.1/4	M3X200	CL300	40	1.82	HY7142299215
11	PIPE REST					6	0	

[1]

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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

	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.	VUK	-SD- 05-05-14
				APPRD.	GS	-SD- 05-05-14

TITLE: 1-CEP-SUCTION	DRAWING NO: 1-381-01-06008		REV OOP
	SHT. No. 1	NO. OF SHTS. 1	

REFERENCE DRAWINGS:-	

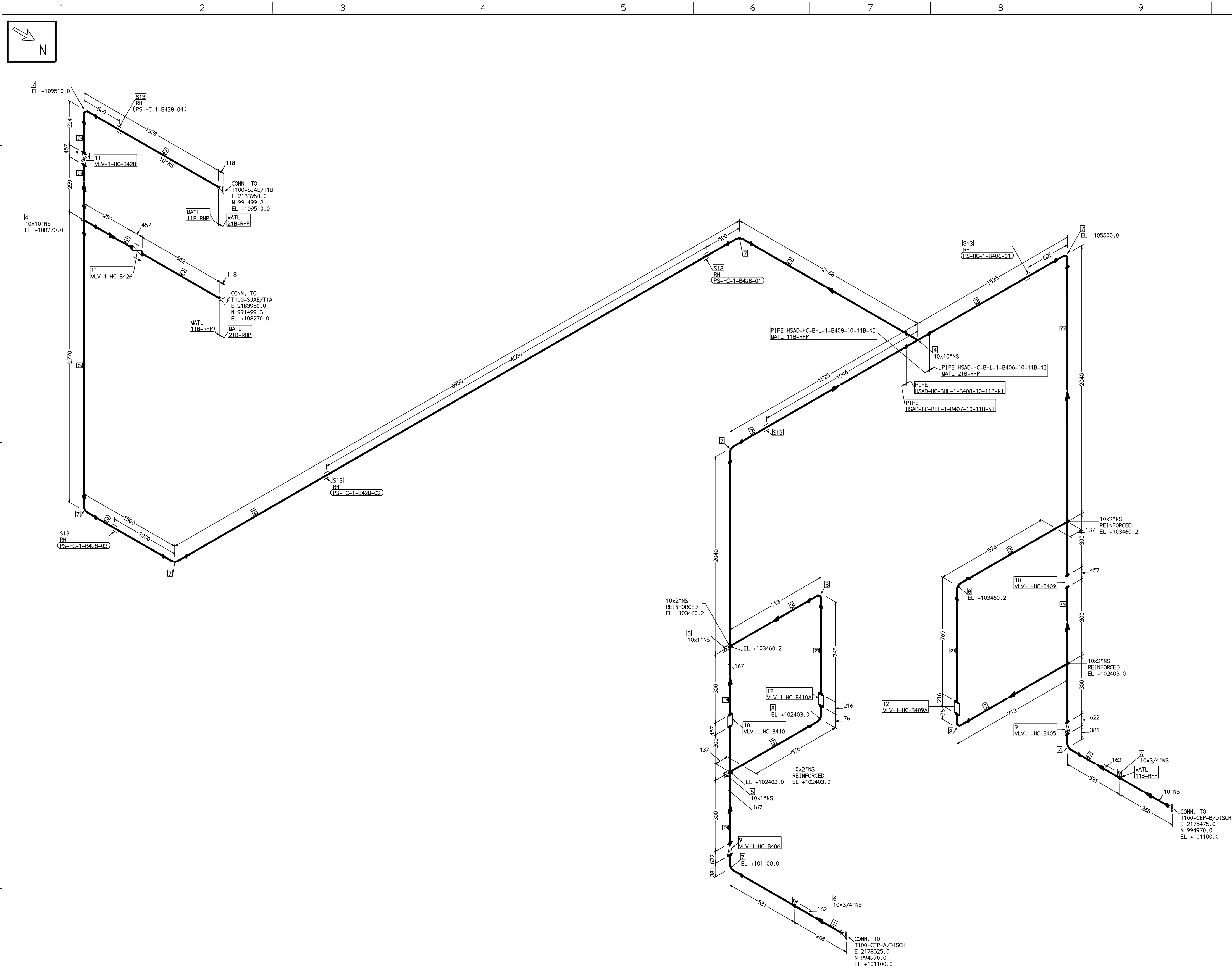
LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$ (mm)	INS MAT	PSPEC	BORE
HSAD-HC-BHL-1-B403-16-11G-NI	VAC	47.3	1.0	70				11G-RHP	16"
HSAD-HC-BHL-1-B405-16-11G-NI	VAC	47.3	1.0	70				11G-RHP	16"
HSAD-HC-BHL-1-B404-16-11G-NI	VAC	47.3	1.0	70				11G-RHP	16"

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
SH	- SPRING HANGER
BS	- BOTTOM SPRING
VG	- VERTICAL GUIDE

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

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S40		300MM	60.29	AA1049355687	
2	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20		203332MM	41.76	AA1049355660	
3	PIPE SMLS ASME B36.10 PE	A106GRB	2	S40		3394MM	5.44	AA1049355270	
4	TEE STRT ASME B16.9 BW	A234GRWPB	10 x 10	S20			34.7	AA7242511348	
5	HALF COUPLING ASME B16.11 CL3000 SW	A105	10 x 1		CL3000	2	0.34	HY7242586062	
6	HALF COUPLING ASME B16.11 CL3000 SW	A105	10 x 3/4		CL3000	2	0.2	HY7242586054	
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20			26.6	AA7242502349	
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	2	S40			0.75	AA7242502110	
9	SWING CHECK VALVE ASME B16.10 CL150 BW	A216GRWCB	10		CL150	2	312.49	AA7541408727	
10	GATE VALVE MO ASME B16.10 CL150 BW	A216GRWCB	10		CL150	2	375		
11	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	10		CL150	2	225		
12	GATE VALVE MO ASME B16.10 CL150 BW	A216GRWCB	2		CL150	2	0	AA7521408721	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
13	RIGID HANGER		10			6	0		

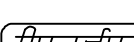
[1]

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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

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

TITLE: 1-CEP-DISCH-UPTO-SJAE	DRAWING NO: 1-381-01-06009	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 \$ (mm)	INS MAT	PSPEC	BORE
HSAD-HC-BHL-1-B406-10-11B-NI	4.75	47.3	6.1	70				11B-RHP	10"
HSAD-HC-BHL-1-B408-10-11B-NI	4.75	47.3	6.1	70				11B-RHP	10"
HSAD-HC-BHL-1-B407-10-11B-NI	4.75	47.3	6.1	70				11B-RHP	10"

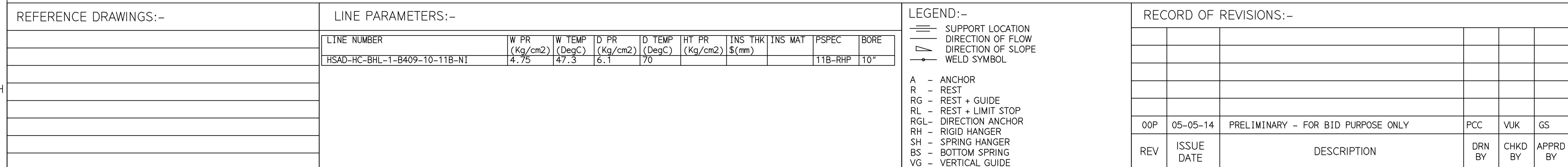
LEGEND:-

- 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
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- VG - VERTICAL GUIDE

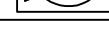
RECORD OF REVISIONS:-

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

COMPUTER FILE NAME: _____



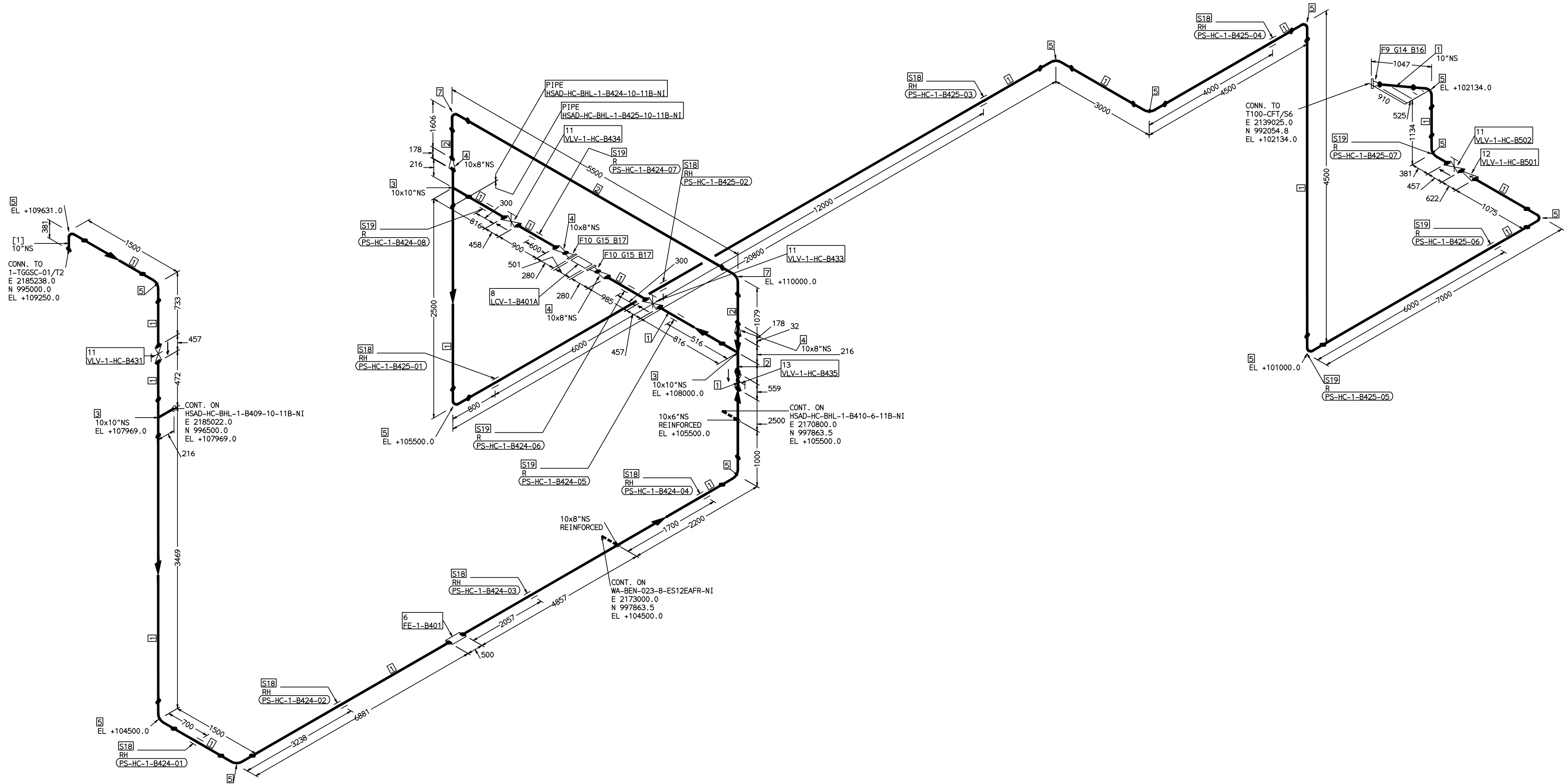
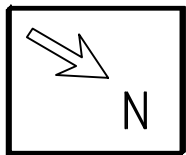
[1]

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

 BHTEL	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.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
		SCALE: NTS			
TITLE: 1-CONDENSATE-PIPING-SJAE-GSC		DRAWING NO: 1-381-01-06010			REV OOP
		SHT. No. 1		NO. OF SHTS. 1	

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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		63643MM	41.76	AA1049355660	
2	PIPE SMLS ASME B36.10 PE	A106GRB	8	S20		6997MM	33.32	AA1049355663	
3	TEE STRT ASME B16.9 BW	A234GRWPB	10 x 10	S20			34.7	AA7242511348	
4	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 8	S20XS20			7.5	AA7242530482	
5	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		13	26.6	AA7242502349	
6	PIPING COMPONENT (USER DEFINED) BW	A234GRWPB	10			1	0		
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		2	16.99	AA7242502314	
8	PIPING COMPONENT (USER DEFINED) CL150 RF(B16.5)	A234GRWPB	8		CL150	1	0		
9	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	10	S20	CL150	1	22.63	HY7246361677	
10	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	8	S20	CL150	2	17.3	HY7246361219	
11	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	10		CL150	4	225	AA7521408721	
12	SWING CHECK VALVE ASME B16.10 CL150 BW	A216GRWCB	10		CL150	1	312.49	AA7541408727	
13	REG GLOBE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	8		CL300	1	247.03	AA7511428711	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
14	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	10		CL150	1	1.14	HY7240362060	
15	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	8		CL150	2	0.73	HY7240362051	
16	120 STUD WITH 2 NUTS ASME B18.2 94GRH	A193GRB7/A1 94GRH	7/8	M24X120	CL150	12	0.6	HY7142198460	
17	120 STUD WITH 2 NUTS ASME B18.2 94GRH	A193GRB7/A1 94GRH	3/4	M20X120	CL150	16	0.41	HY7142198184	
18	RIGID HANGER					8	0		
19	PIPE REST					7	0		

[1]

NOTES:-

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- 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 \$ (mm)	INS MAT	PSPEC	BORE
HSAD-HC-BHL-1-B424-10-11B-NI	3.45	49.2	6.1	75				11B-RHP	10"
HSAD-HC-BHL-1-B425-10-11B-NI								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

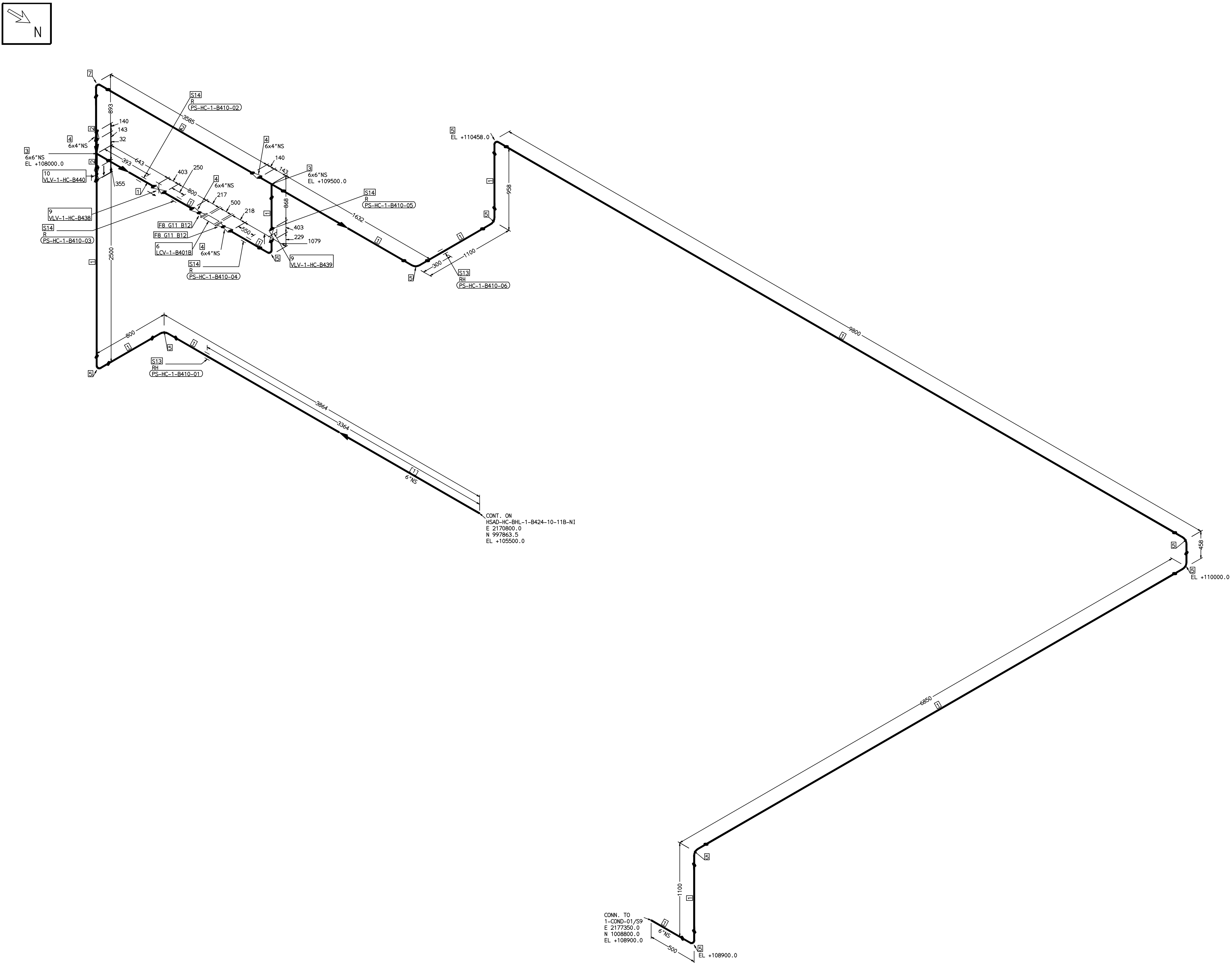
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	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.	VUK	-SD- 05-05-14
		APPRD.	GS	-SD- 05-05-14
		SCALE: NTS		
TITLE: 1-CONDENSATE-PIPING-GSC-CFT		DRAWING NO: 1-381-01-06011		REV OOP
		SHT. No. 1	NO. OF SHTS. 1	

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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		28029MM	28.26	AA104935512	
2	PIPE SMLS ASME B36.10 PE	A106GRB	4	S40		4206MM	16.08	AA1049355415	
3	TEE STRT ASME B16.9 BW	A234GRWPB	6 x 6	S40		2	11	AA7242511275	
4	ROCR CONC ASME B16.9 BW	A234GRWPB	6 x 4	S40XS40		4	3.9	AA7242530350	
5	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6 x 4	S40		10	11.01	AA7242502276	
6	PIPING COMPONENT (USER DEFINED) CL150 RF (B16.5)	A234GRWPB	4		CL150	1	0		
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	4	S40		1	4.23	AA7242502217	
8	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	4	S40	CL150	2	7.11	HY7246361103	
9	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	6		CL150	2	91.5	AA7521408705	
10	REG GLOBE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	4		CL300	1	70.79	AA7511428681	

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	4		CL150	2	0.32	HY7240362035	
12	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	5/8	M16X100	CL150	16	0.21	HY7142198060	
13	RIGID HANGER	6				2	0		
14	PIPE REST	6				4	0		

[1]

NOTES:-

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- 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 \$(mm)	INS MAT
		HSAD-HC-BHL-1-B410-6-11B-NI	3.45	49.2	6.1	75			11B-RHP
									3"

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

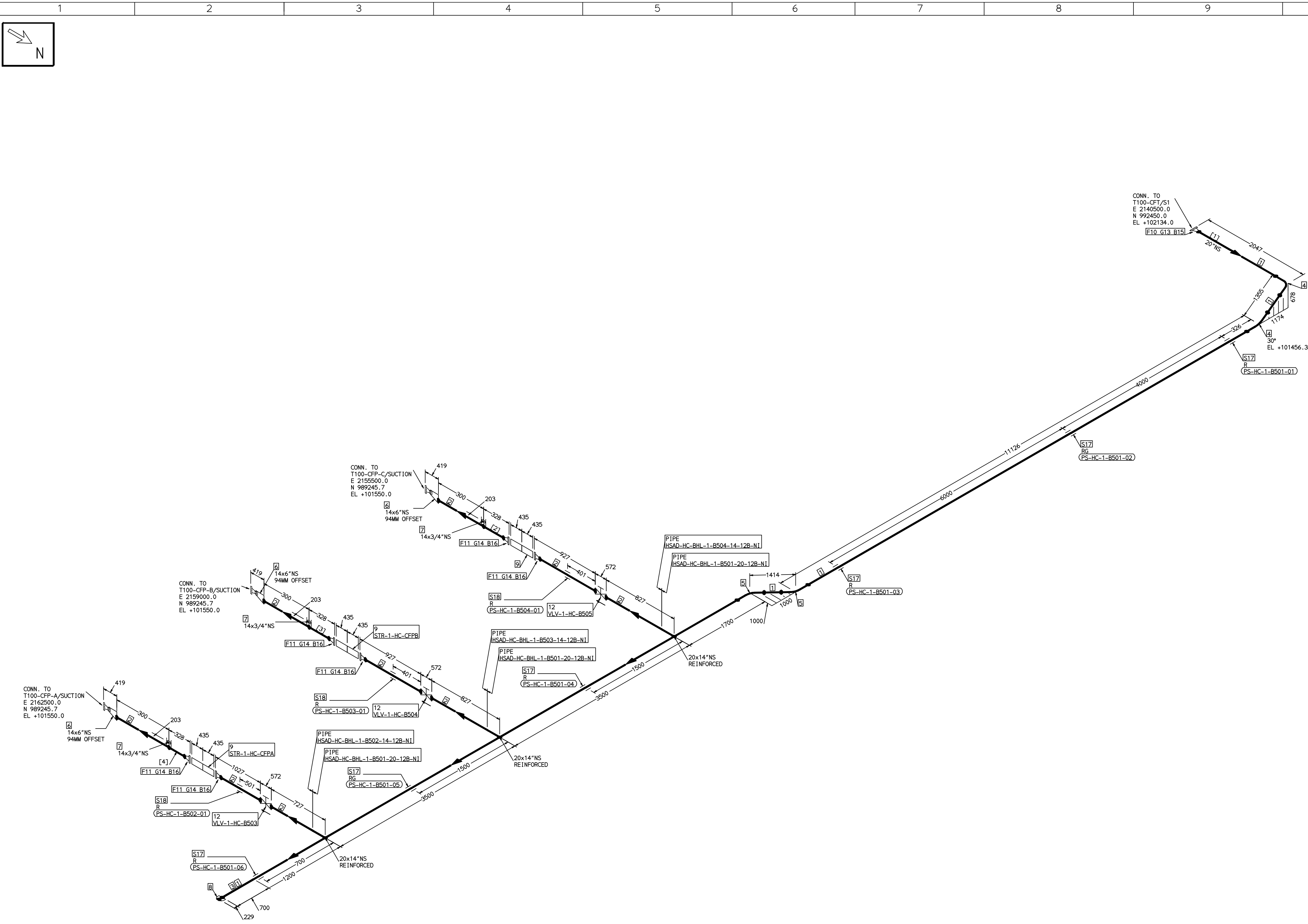
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

 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.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
					SCALE: NTS
TITLE: 1-COND-MIN-RECIRCULATION		DRAWING NO: 1-381-01-06012			REV OOP
		SHT. No. 1		NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	20	S10S		22493MM	68.65		
2	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		5838MM	41.36		
3	PIPE SMLS ASME B36.10 PE	A312GRTP304		S10S		700MM	68.65		
4	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	20	S10S		2	81.79		
5	ELBOW LR 45 DEG ASME B16.9 BW	A403GRWP304	20	S10S		2	40.895		
6	ROCR ECC ASME B16.9 BW	A403GRWP304	14 x 6	S10SXS10S		3	13.1		
7	HALF COUPLING ASME B16.11 CL3000	A182GRF304	14 x 3/4		CL3000	3	0.2		
8	CAP ASME B16.9 BW	A403GRWP304	20	S10S		1	27.5		
9	STRAINER Y-TYPE ASME B16.10 CL150 RF(B16.5)	A403GRWP304	14		CL150	3	0		
10	FLANGE WELD NECK ASME B16.5 CL150 RF	A182GRF304	20	S10S	CL150	1	80.76		
11	FLANGE WELD NECK ASME B16.5 CL150 RF	A182GRF304	14	S10S	CL150	6	45.49		
12	GATE VALVE G0 CL150 BW	A351GRCF8	14		CL150	3	492		

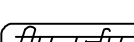
ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
13	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	20		CL150	1	2.87	HY7240362116	
14	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	14		CL150	6	1.57	HY7240362086	
15	170 STUD WITH 2 NUTS ASME B18.2	A193GRB8/A1 94GR8	1.1/8	M30X170	CL150	20	1.3		
16	140 STUD WITH 2 NUTS ASME B18.2	A193GRB8/A1 94GR8	1	M27X140	CL150	72	0.92		
17	PIPE REST		20			6	0		
18	PIPE REST		14			3	0		

[1] [2] [3] [4]

- NOTES:-
1. ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
 2. ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
 3. SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
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 6. 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

 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.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS

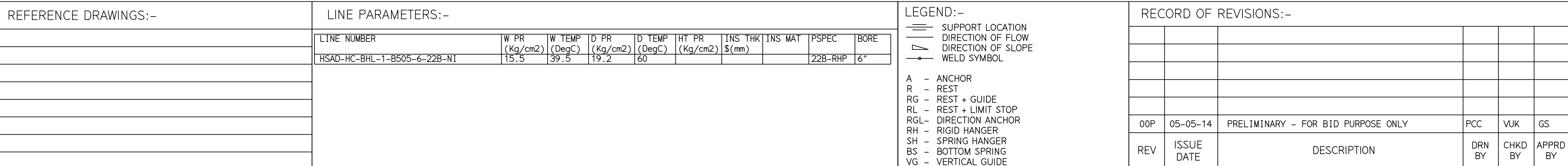
TITLE: 1-CFP-SUCTION	DRAWING NO: 1-381-01-06013	REV OOP
SHT. No. 1	NO. OF SHTS. 1	

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2) (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC BORE
		HSAD-HC-BHL-1-B501-20-12B-NI	ATM	39.5	1.0	60			12B-RHP 20"
		HSAD-HC-BHL-1-B504-14-12B-NI	ATM	39.5	1.0	60			12B-RHP 14"
		HSAD-HC-BHL-1-B503-14-12B-NI	ATM	39.5	1.0	60			12B-RHP 14"
		HSAD-HC-BHL-1-B502-14-12B-NI	ATM	39.5	1.0	60			12B-RHP 14"

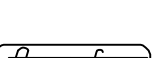
- LEGEND:-
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - ↘ DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

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

COMPUTER FILE NAME: _____



- | | |
|------------------------------------|---|
| 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 |

 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.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS
TITLE: 1-CFP-A-RECIRCULATION		DRAWING NO: 1-381-01-06014		REV OOP
		SHT. No. 1	NO. OF SHTS. 1	