

**Bharat Heavy Electricals Limited
Ramachandrapuram :: Hyderabad – 32**

Tender Notice No : ES/K/2016/WC/01

Date : 08.01.2016

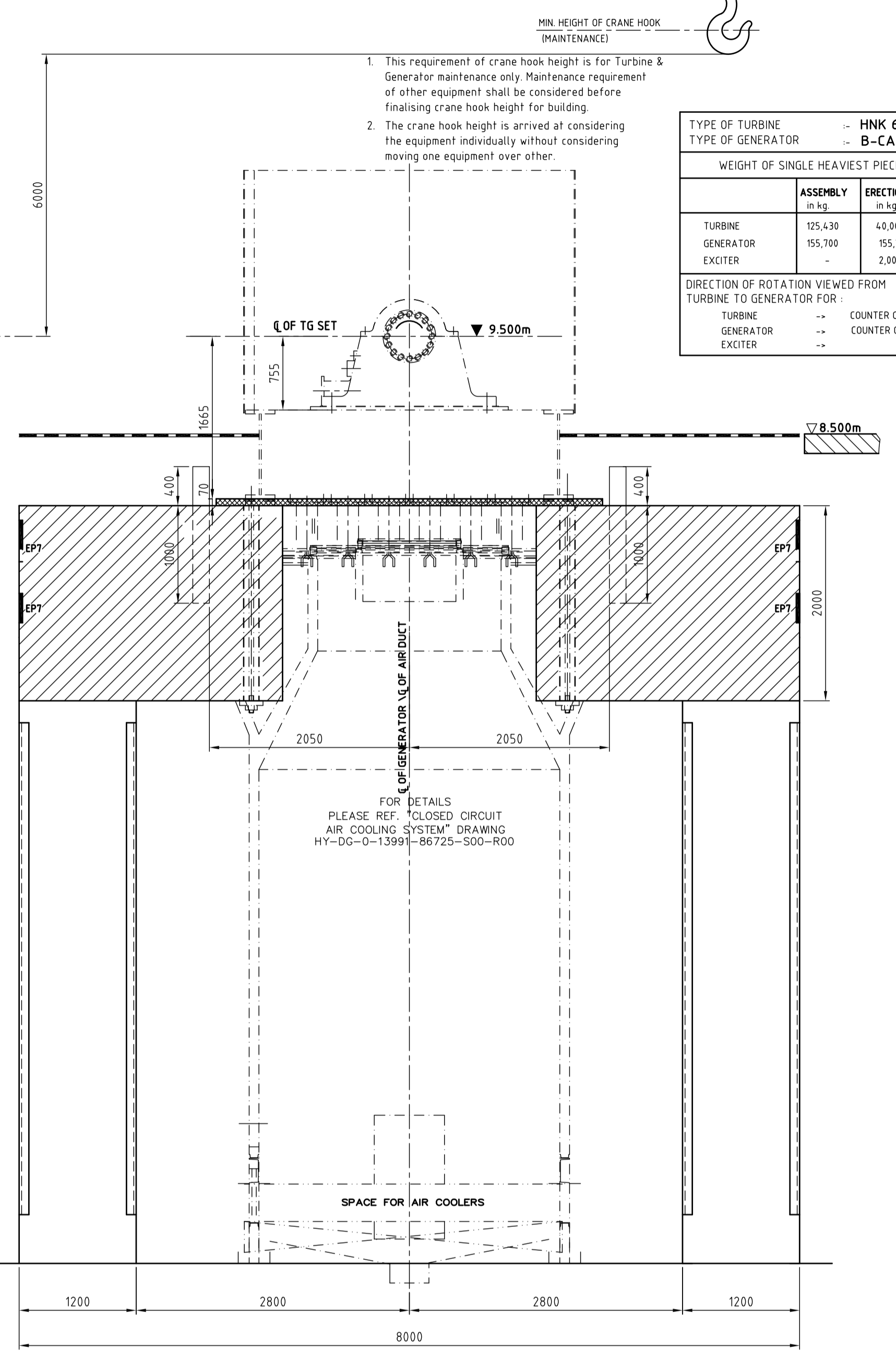
Work: Material Unloading & Storing, Mechanical Erection, testing, Pre Commissioning and commissioning of 1x60 MW STG at M/s SACL, Bharuch, Gujarat.

List of Drawings

Sl. No / Annexure	Description/ Document Name	Drawing Number	Rev No	No of sheets
1	Layout Showing Expansion of Power plant	SAC-TSD-S1053	02	01
2	Machinery Arrangement and Foundation	1-313-01-14135	00	4
3	Layout of Generator	HY-DG-0-139-71-86721	04	1
4	Condensate Flow P&ID diagram	HY-DG-1-31701-14176	02	1
5	Turbine integral steam & drain flow diagram	HY-DG-1-31701- 14161	02	1
6	Lube oil P&ID	HY-DG-1-31701-14162	01	1
7	Integral Piping Layout	HY-DG-0-31301-14143	00	4



SECTION A-A



SECTION B-B

MIN. HEIGHT OF CRANE HOOK (MAINTENANCE)

- This requirement of crane hook height is for Turbine & Generator maintenance only. Maintenance requirement of other equipment shall be considered before finalising crane hook height for building.
- The crane hook height is arrived at considering the equipment individually without considering moving one equipment over other.

WEIGHT OF SINGLE HEAVIEST PIECE FOR			
TYPE OF TURBINE	ASSEMBLY in kg	ERECTION in kg	MAINTENANCE in kg
TURBINE	125,430	40,000	34,000
GENERATOR	155,700	155,700	21,000
EXCITER	-	2,800	2,000

DIRECTION OF ROTATION VIEWED FROM TURBINE TO GENERATOR FOR:

- TURBINE -- COUNTER CLOCKWISE
- GENERATOR -- COUNTER CLOCKWISE
- EXCITER -- COUNTER CLOCKWISE

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 GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY02020261
 SIGN AND DATE
 REF. DRG. NO.
 INVENTORY NO.

FOR CUTOUT IN CEP PIPING, CONDENSER HOTWELL & COOLING WATER TRENCH REFER TG EQUIPMENT LAYOUT DRAWING

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED			
04	03.10.15	CHD/APPD S.J.H/M.A.H	03	16.09.15	CHD/APPD S.J.H/M.A.H	02	24.08.15	CHD/APPD S.J.H/M.A.H	01	31.07.15	CHD/APPD S.J.H/M.A.H	04	03.10.15	CHD/APPD S.J.H/M.A.H	03	16.09.15	CHD/APPD S.J.H/M.A.H	02	24.08.15	CHD/APPD S.J.H/M.A.H	01	31.07.15	CHD/APPD S.J.H/M.A.H
- REVISED AS PER CUSTOMER CIVIL DRAWING FOR GENERATOR TRENCHES & MARKED AS Δ & AS MARKED Δ				- REVISED AS PER CUSTOMER COMMENTS, GENERATOR DETAIL & EP'S FOR ENCLOSURE & OTHER DIMENSIONS & AS MARKED Δ				- REVISED FOR DECK THICKNESS ON GENERATOR DETAIL & TRENCHES. MARKED AS Δ				- REVISED FOR 1. CASING STEAM AND DRAIN FLANGE CONNECTIONS IN SH.3 OF 4. 2. CUSTOMER COMMENTS & MARKED AS Δ											

STATUS: FINAL

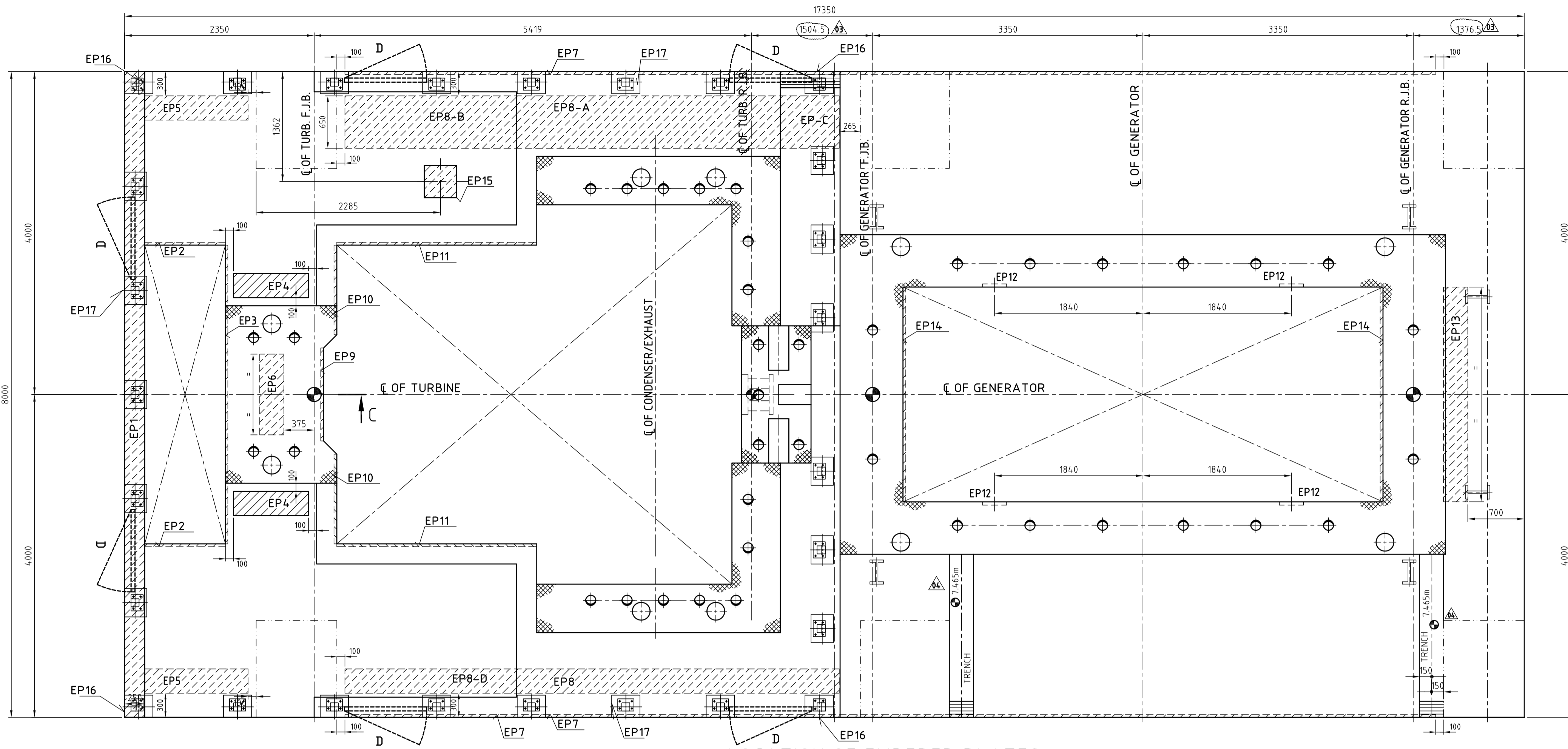
CLIENT: 1x 60 MW STG SET
DCM SHRIRAM LIMITED
UNIT: SHRIRAM ALKALI AND CHEMICALS
Bharuch, Gujarat

DRN.	NAME	SIGN.	DATE	NO OF VAR.
CHD.	C.BALAJI	[Signature]	27.06.15	
APPD.	S.J.HUSSAIN	[Signature]	27.06.15	-N.A.-
	M.A.HASEEB	[Signature]	27.06.15	-N.A.-

DEPT. TCEP
UNTOLO DIMS. GR. C/M/AF
SCALE 1:4.0
WEIGHT (KG) -N.A.-
REF. TO ASSY. DRG. -N.A.-
ITEM NO. -N.A.-
NO OF ITEMS -N.A.-

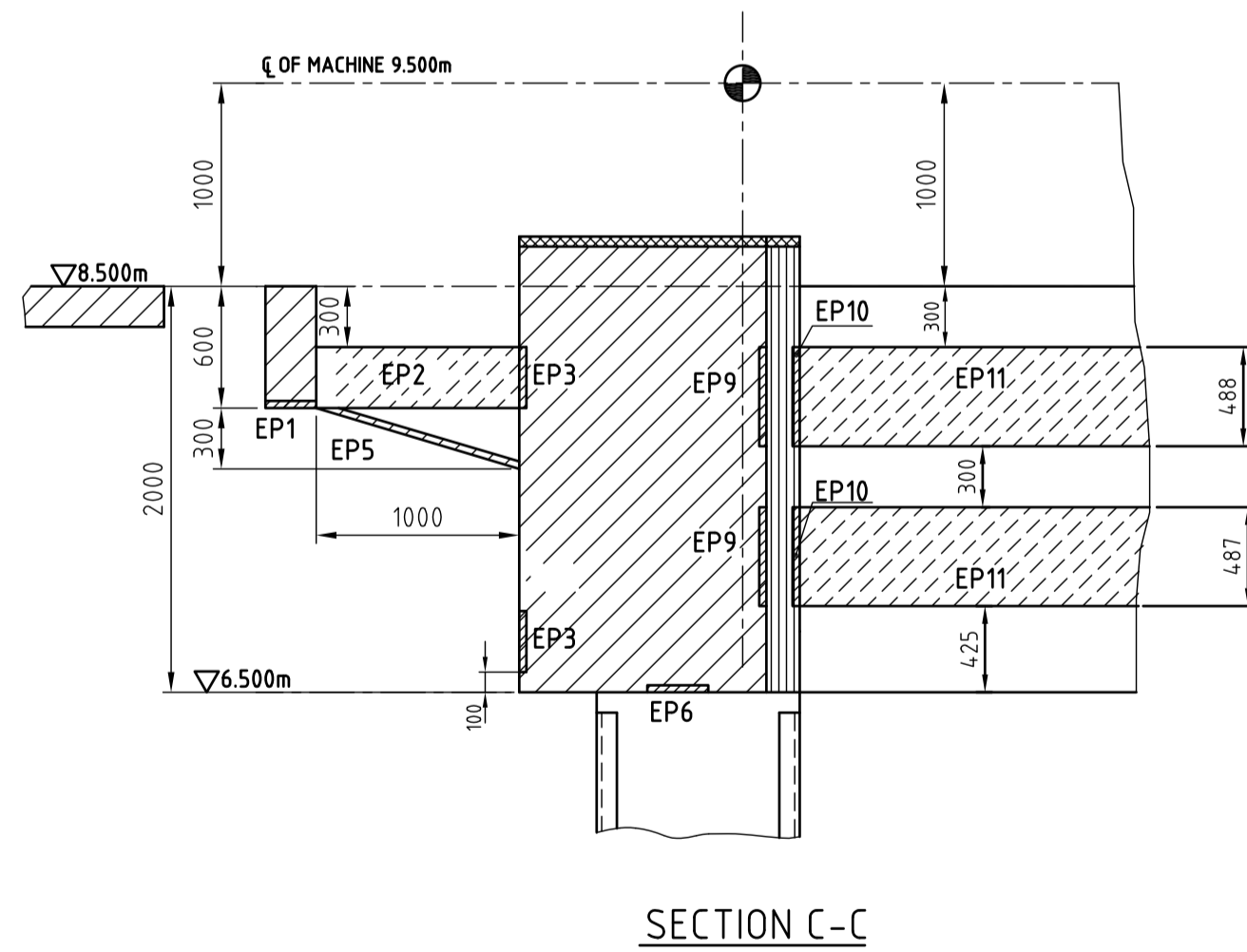
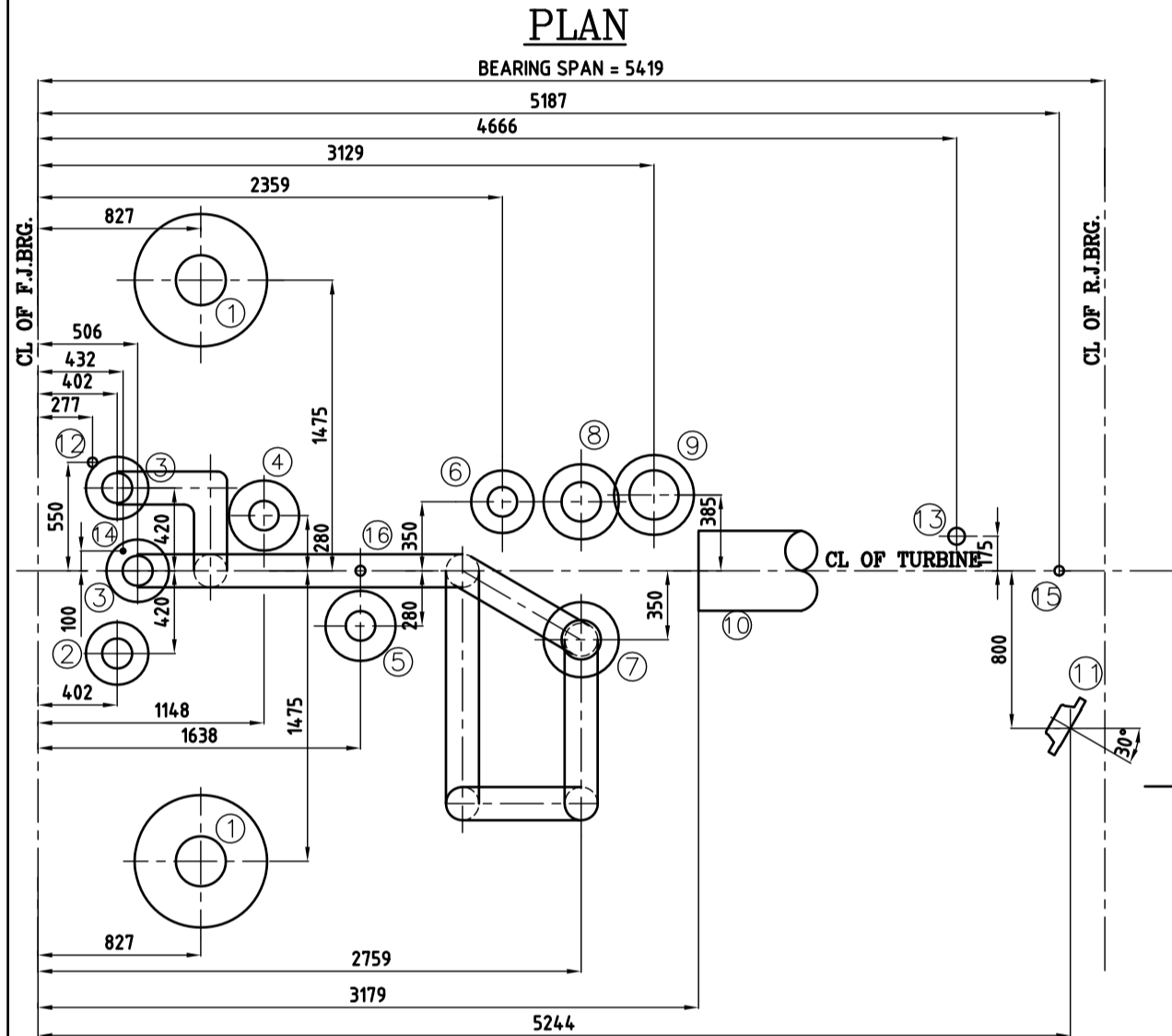
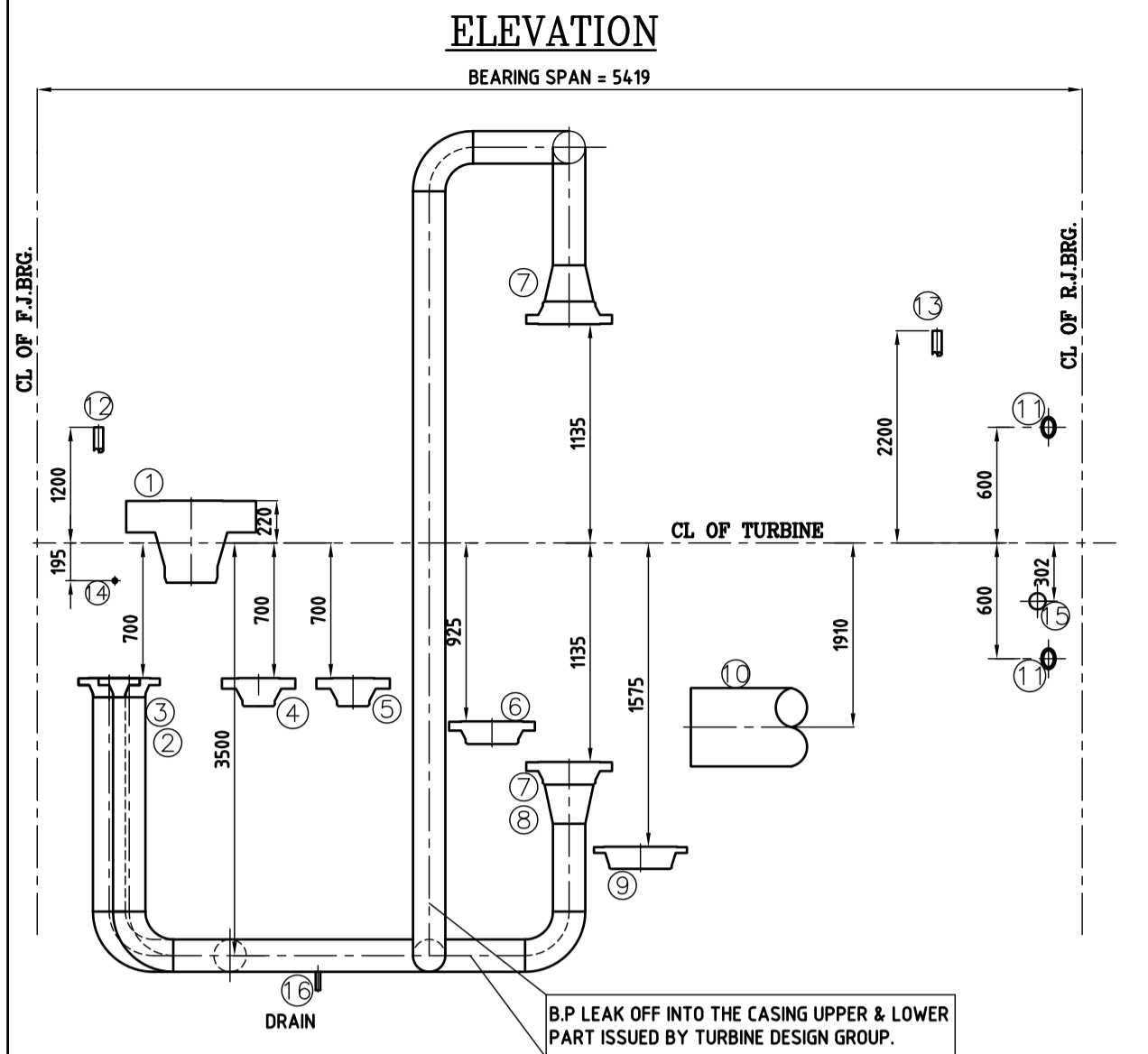
TITLE: TEAM TURBO GENERATOR MACHINERY ARRANGEMENT AND FOUNDATION
BHEL DRG. NO. (1-313-01-14135)
HY-DG-1-31301-14135
N.A. SHT. No. 02 NO. OF SHT. 04

DRG NO. 1-31301-14135



LOCATION OF EMBEDDED PLATES

(NOT IN B.H.E.L SCOPE OF SUPPLY)



SECTION C-C

EMBEDDED PLATE DETAILS

PLATE	SIZE	LOAD (IN Kg/M)	LOCATION	QTY.
EP1	PL 12x300x8000	1000	BOTTOM OF DECK	1
EP2	PL 12x300x1000	2000	CL OF PLATE EL. 8.050m	2
EP3	PL 12x300x3700	2000	TURBINE FRONT CUTOUT	2
EP4	PL 12x300x931	2000	TOP OF DECK	2
EP5	PL 12x300x1281	2000	BOTTOM OF CANTILEVER	2
EP6	PL 12x300x1000	2000	BOTTOM OF DECK	1
EP7	PL 12x300x13520	2000	CL OF PLATE EL. 7.465m/6.840m	4
EP8	PL 12x300x4000	2000	TOP AND BOTTOM OF DECK	1
EP8-A	PL 12x650x3270	2000	TOP AND BOTTOM OF DECK	1
EP8-B	PL 12x650x2128	2000	TOP AND BOTTOM OF DECK	1
EP8-C	PL 12x650x740	2000	TOP AND BOTTOM OF DECK	1
EP8-D	PL 12x300x2128	2000	TOP AND BOTTOM OF DECK	1
EP9	PL 12x300x1152	2000	TURBINE CUTOUT	2
EP10	PL 12x300x1110	2000	TURBINE CUTOUT	4
EP11	PL 12x300x2478	3000	TURBINE CUTOUT	4
EP12	PL 12x300x300	600 Kg EACH	GENERATOR CUT OUT EL. 7.510 /m	4
EP13	PL 12x300x2660	1000	BOTTOM OF DECK	1
EP14	PL 12x300x2660	1000	CL OF PLATE EL. 7.150m	2
EP15	PL 12x400x400	4500 for Each	Bottom of the Deck	1
EP16	PL 12x350x275	400 for Each	TOP OF THE DECK	4
EP17	PL 12x350x275	250 for Each	TOP OF THE DECK	23

SL. NO.	DESCRIPTION	QTY	TYPE OF FLANGE	REMARKS
1.	MAIN STEAM INLET FLANGE	2	10" #2500 WNRF, NON-STD 34MM THK	SA182F22
2.	FRONT GLAND INLET CONN	1	6" #300 WNRF, SCH=40	SA182F11
3.	B.P. GLAND CONN	2	6" #300 WNRF, SCH=40	SA182F11
4.	UNCONTROLLED EXTRACTION TO PROCESS	1	6" #900 WNRF, SCH=80	SA182F11
5.	UNCONTROLLED EXTRACTION (HPH-2)	1	6" #600 WNRF, SCH=80	SA182F11
6.	UNCONTROLLED EXTRACTION (HPH-1)	1	8" #300 WNRF, SCH=40	SA 105
7.	B.P. GLAND LEAK OFF INTO THE CASING	2	6" #300 WNRF, SCH=40	SA182F11
8.	UNCONTROLLED EXTRACTION (DEA)	1	8" #300 WNRF, SCH=20	SA182F11
9.	UNCONTROLLED EXTRACTION (LPH-2)	1	10" #150 WNRF, SCH=20	SA 105
10.	PIPE DIA 406.4x6.35 (LPH-1)	1	PIPE DIA 406.4x6.35	SA 105
11.	REAR STEAM GLAND INLET	2	3" #300 WNRF SCH=40	SA 105
12.	FRONT STEAM VENT	1	PIPE DIA 48.3x5.08	CS
13.	REAR STEAM VENT	1	PIPE DIA 48.3x5.08	CS
14.	FRONT STEAM GLAND DRAIN	1	PIPE DIA 10.2x2	CS
15.	REAR STEAM GLAND DRAIN	1	G 1/4" DILO UNION	CS
16.	B.P. PIPING DRAIN	1	1" SOCKET	SS

STATUS: FINAL

CLIENT: 1x 60 MW STG SET
DCM SHRIRAM LIMITED
UNIT: SHRIRAM ALKALI AND CHEMICALS
Bharuch, Gujarat

DEPT.	UNTOLO DIMS. GR. C/M/F	SCALE	WEIGHT (KGI)	REF. TO ASSY. DRG.	ITEM NO.	NO OF ITEMS
TCEP		1:35	-NA-	-NA-	-NA-	-NA-

DRN.	NAME	SIGN.	DATE	NO OF VAR.
C.BALAJI	C.BALAJI		27.06.15	
S.J.HUSSAIN	S.J.HUSSAIN		27.06.15	-NA-
M.A.HASEEB	M.A.HASEEB		27.06.15	-NA-

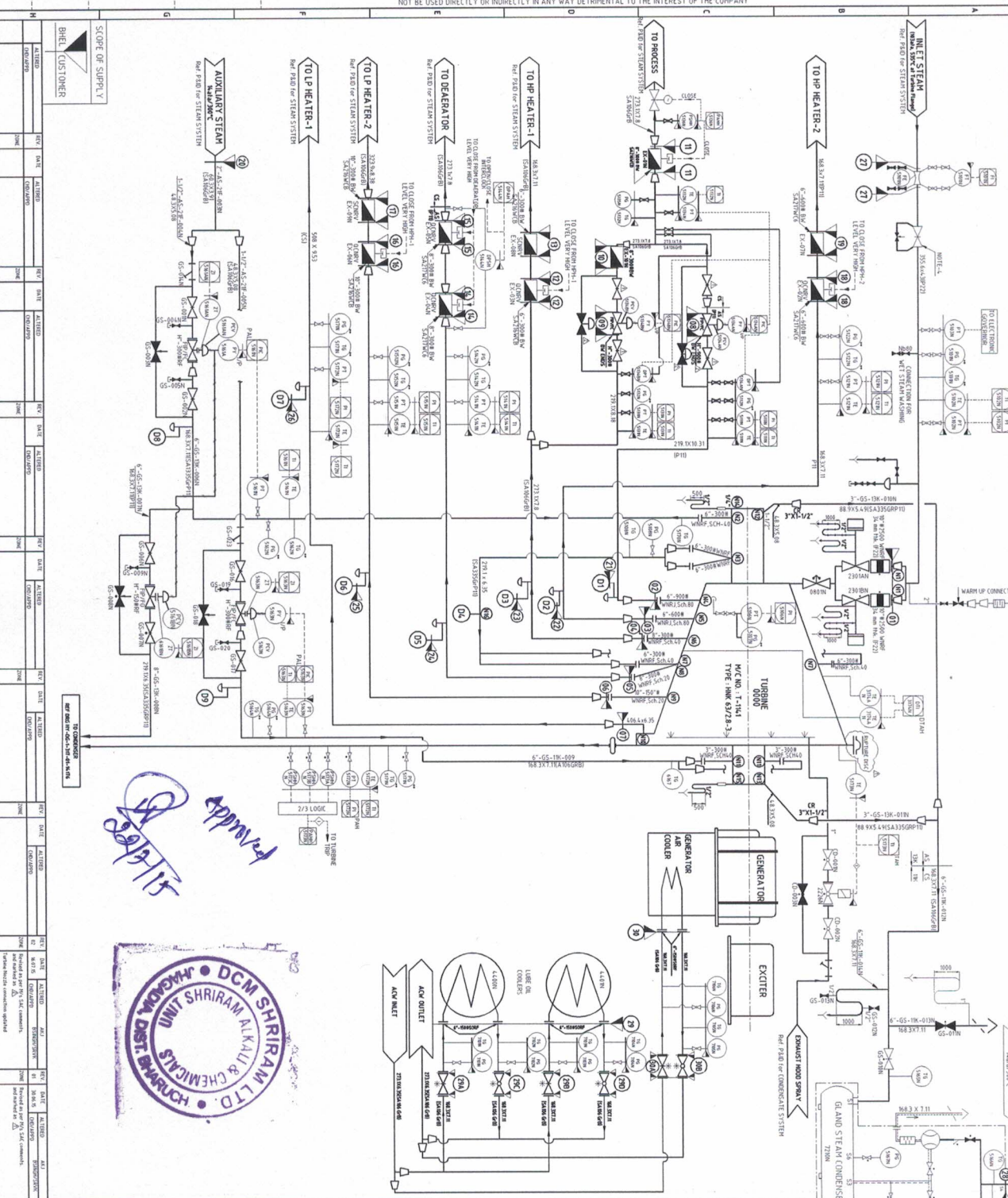
TITLE: STEAM TURBO GENERATOR MACHINERY ARRANGEMENT AND FOUNDATION
BHEL DRG NO. (1-313-01-14135)
HY-DG-1-31301-14135 04

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GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

FIRST ANGLE PROJECTION

101HP-101LLE-1-DG-AH-0M-3989



Approved
2019/11/15



REV	DATE	BY	CHKD	DESCRIPTION
01				ISSUED FOR APPROVAL
02				ISSUED FOR APPROVAL
03				ISSUED FOR APPROVAL
04				ISSUED FOR APPROVAL
05				ISSUED FOR APPROVAL
06				ISSUED FOR APPROVAL
07				ISSUED FOR APPROVAL
08				ISSUED FOR APPROVAL
09				ISSUED FOR APPROVAL
10				ISSUED FOR APPROVAL
11				ISSUED FOR APPROVAL
12				ISSUED FOR APPROVAL

SCOPE OF SUPPLY
 BHEL CUSTOMER

PROJECT
 1x60MW S/C SET
 DCM SHIRAM LIMITED
 UNIT SHIRAM ALKALI AND CHEMICALS
 BHARATPUR, GUJARAT

STATUTORY DRAWING NO.
 HY-06-1-3170-1-1
 & DRAIN FLOW P&ID DIAGRAM

DATE: 11/15/2019
 DRAWING NO. HY-06-1-3170-1-1
 SHEET NO. 1 OF 1

LEGEND
 * ITEM SUPPLIED ALONG WITH RESPECTIVE EQUIPMENT
 ◊ INTERLOCK & PROTECTION REALISED IN DCS
 ○ DCS (CUSTOMER SCOPE)
 ○ INSTRUMENTS MOUNTED ON LOCAL GAUGE RACK

NOTES:-
 1) REFERENCED DRAWINGS:-
 a) LEGEND FOR SCHEMES
 b) GOVERNING SCHEME
 c) P&ID FOR STEAM SYSTEM
 d) P&ID FOR CONDENSATE SYSTEM
 2) ALL BRANS & VENTS SIZES SHALL BE OF "UNLESS OTHERWISE SPECIFIED"
 3) DRAINS SHALL BE PROVIDED AT ALL LOWEST POINTS
 4) BASED ON LAYOUT TO BE LOCATED AS CLOSE AS POSSIBLE TO TURBINE TO PERMIT THE LONGEST LENGTH OF PIPING TO BE WASHED UP
 5) THE WASH UP VENT CONNECTION SHALL BE WITHIN 1 METER FROM ROTOR/HEAVY STEEL VALVE
 6) OCTOBER'S ARE TO BE LOCKED AS CLOSE AS POSSIBLE TO TURBINE
 7) END CONNECTIONS FOR TAP OFFETS TO BE PROVIDED ON PIPING FOR INSTRUMENTS SHALL BE AS FOLLOWS
 -ROOT VALVE ENDING WITH I/2" SW FOR PRESSURE
 -STUB ENDING WITH M33x2 FOR TEMPERATURE



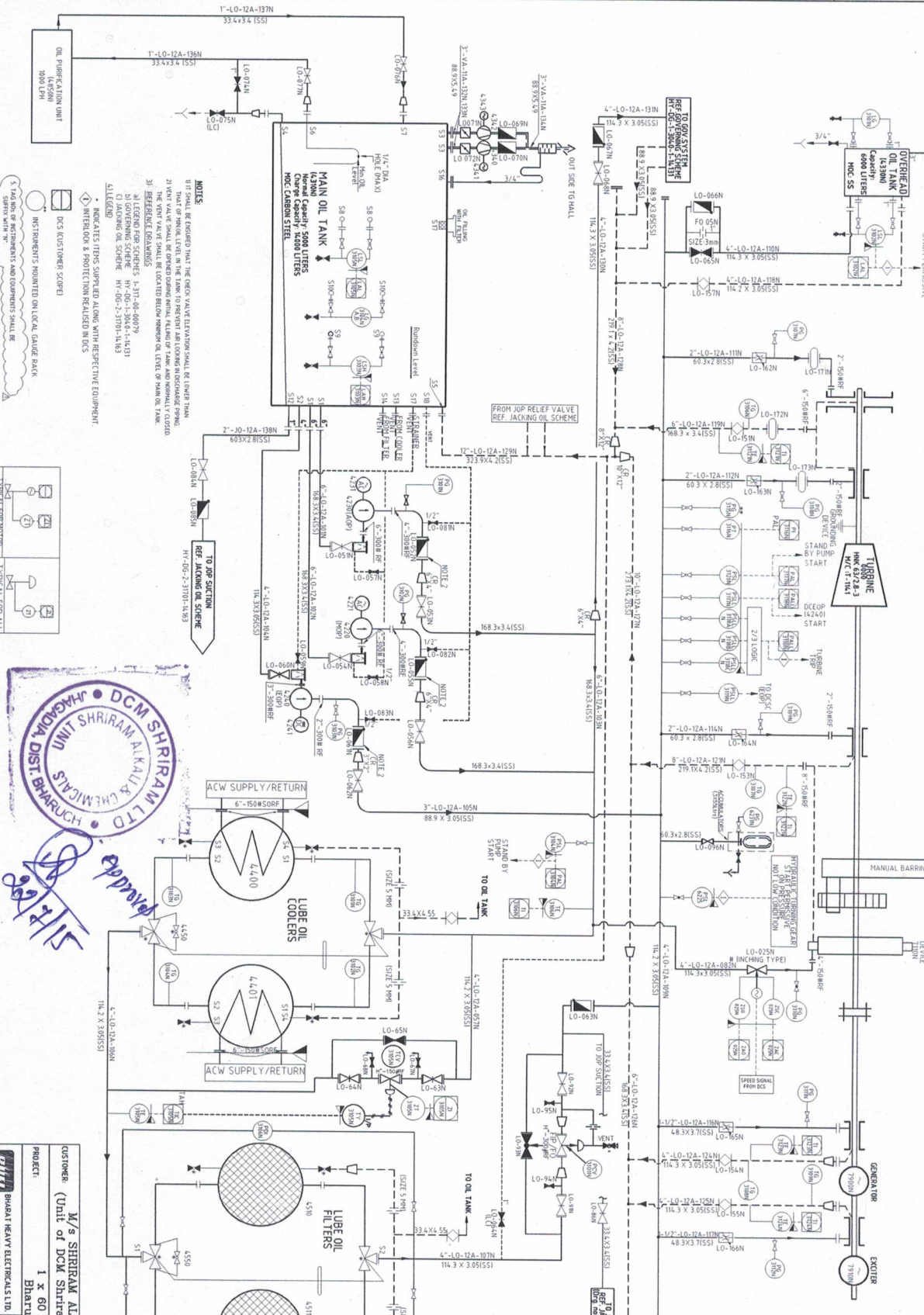
REVISED DATE: 14/07/2019

This Drawing is prepared from Engineering Digital Archive System
 The drawing signature and the DCS connection



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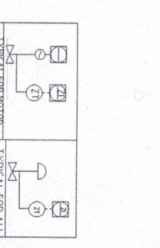
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 2. 3011 NS
 3. 4011 NS
 4. 5011 NS
 5. 6011 NS
 6. 7011 NS
 7. 8011 NS
 8. 9011 NS
 9. 10011 NS
 10. 11011 NS
 11. 12011 NS



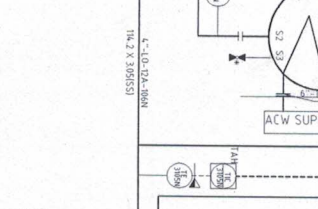
NOTES:

- 1) IT SHALL BE ENSURED THAT THE CHECK VALVE ELEVATION SHALL BE LOWER THAN THAT OF MIN. LEVEL IN THE TANK TO PREVENT AIR LOCKING IN DISCHARGE PIPING.
- 2) VERY VALVE SHALL BE OPERATED DURING INITIAL FILLING OF TANK AND NORMALLY CLOSED.
- 3) PRESENT VALVE SHALL BE LOCATED BELOW MINIMUM OIL LEVEL OF MAIN OIL TANK.
- 4) REFERRED CONNECTIONS: 1. 3170-1-14.101
- 5) GOVERNING SCHEME: HY-06-1-3170-1-14.101
- 6) JACKING OIL SCHEME: HY-06-2-3170-1-14.101

◆ INDICATES ITEMS SUPPLIED ALONG WITH RESPECTIVE EQUIPMENT.
 ◇ INTERLOCK & PROTECTION RELATED IN DCS.



Approved
 [Signature]



REV	DATE	BY	CHKD	DESCRIPTION
1	15/07/2015
2
3
4
5
6
7
8
9
10
11

PROJECT: M/s SHIRAM ALKALIES & CHEMICALS (Unit of DCM Shiram Consolidated Ltd. Bhanuach, Gujarat)

SCALE: 1 x 60 MW STG SET

TITLE: LUBE OIL P&I DIAGRAM

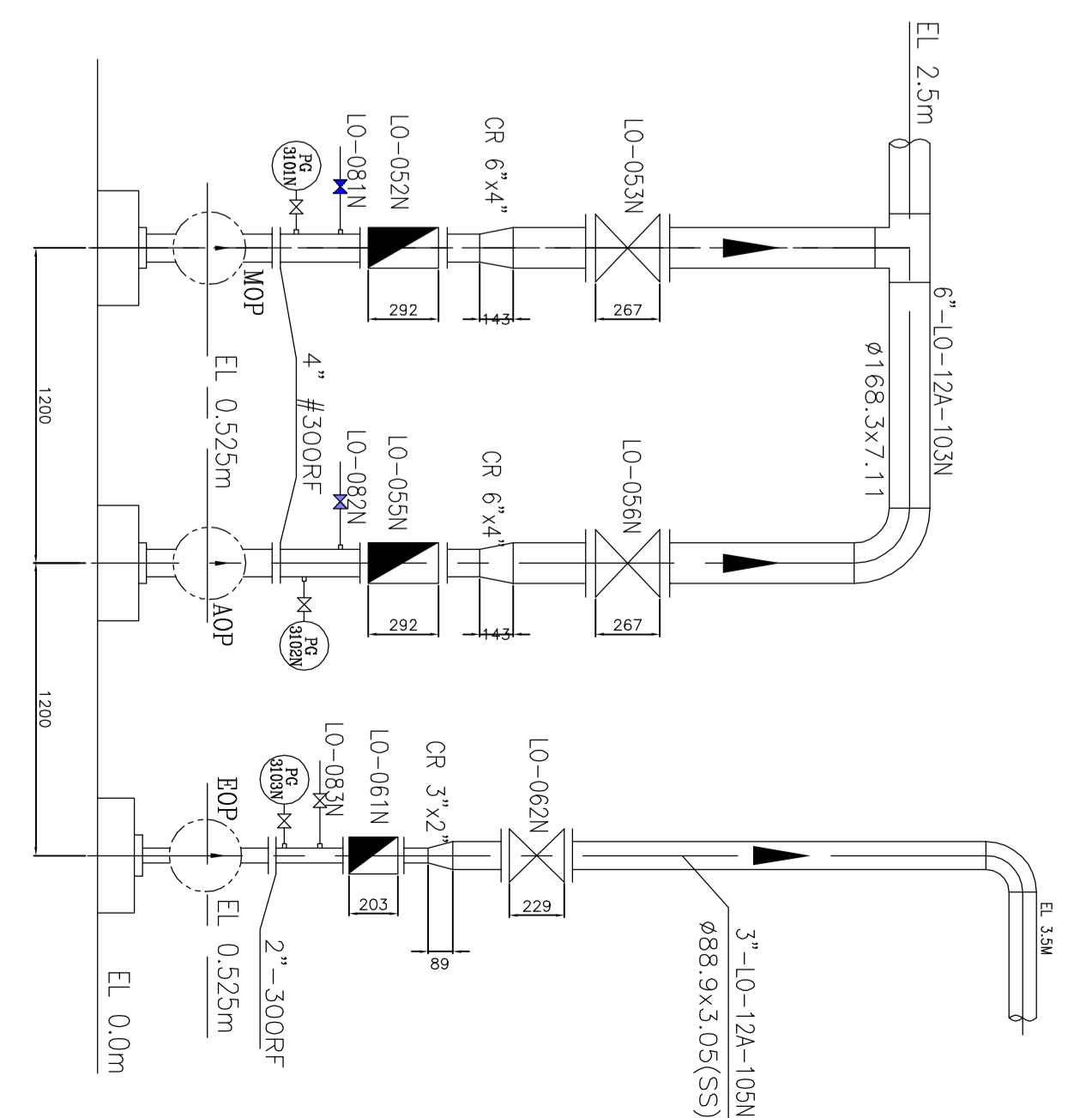
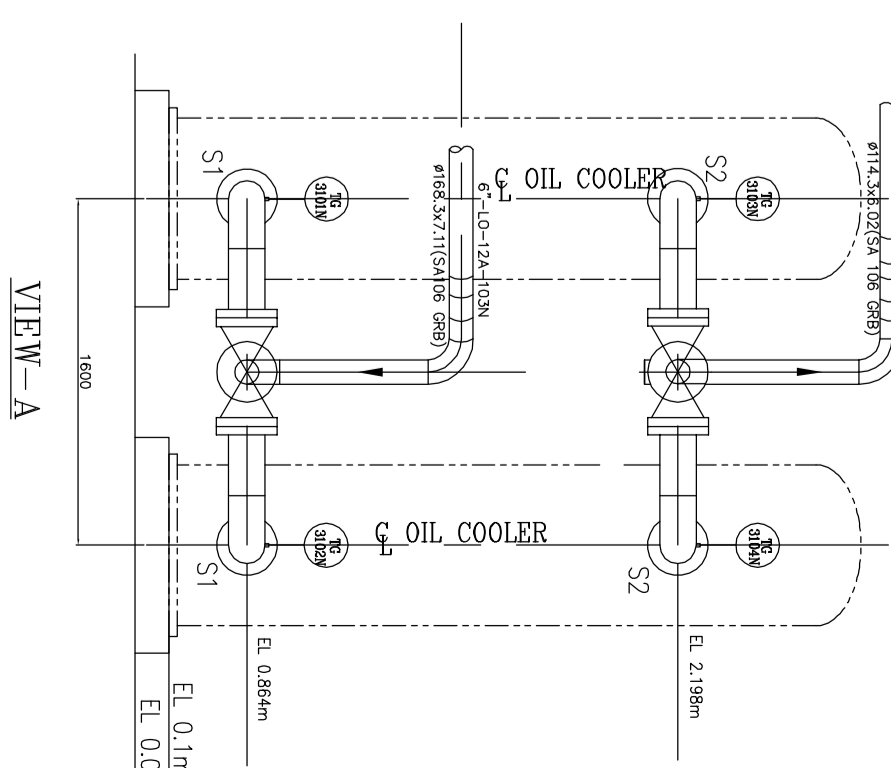
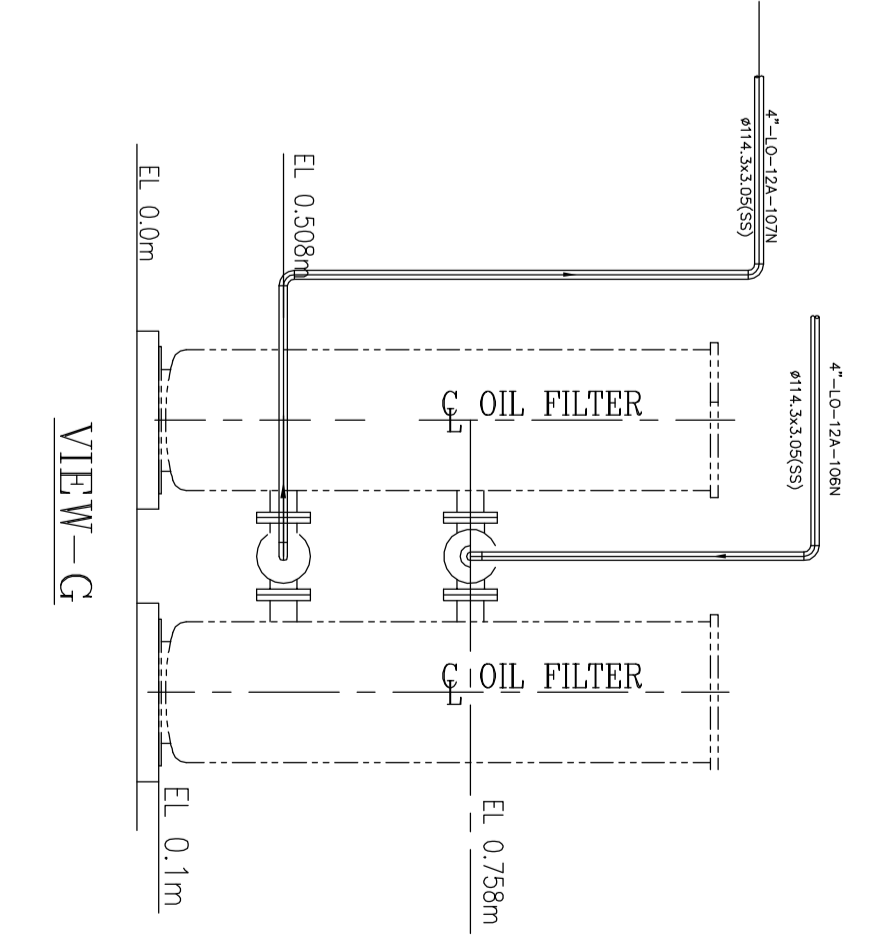
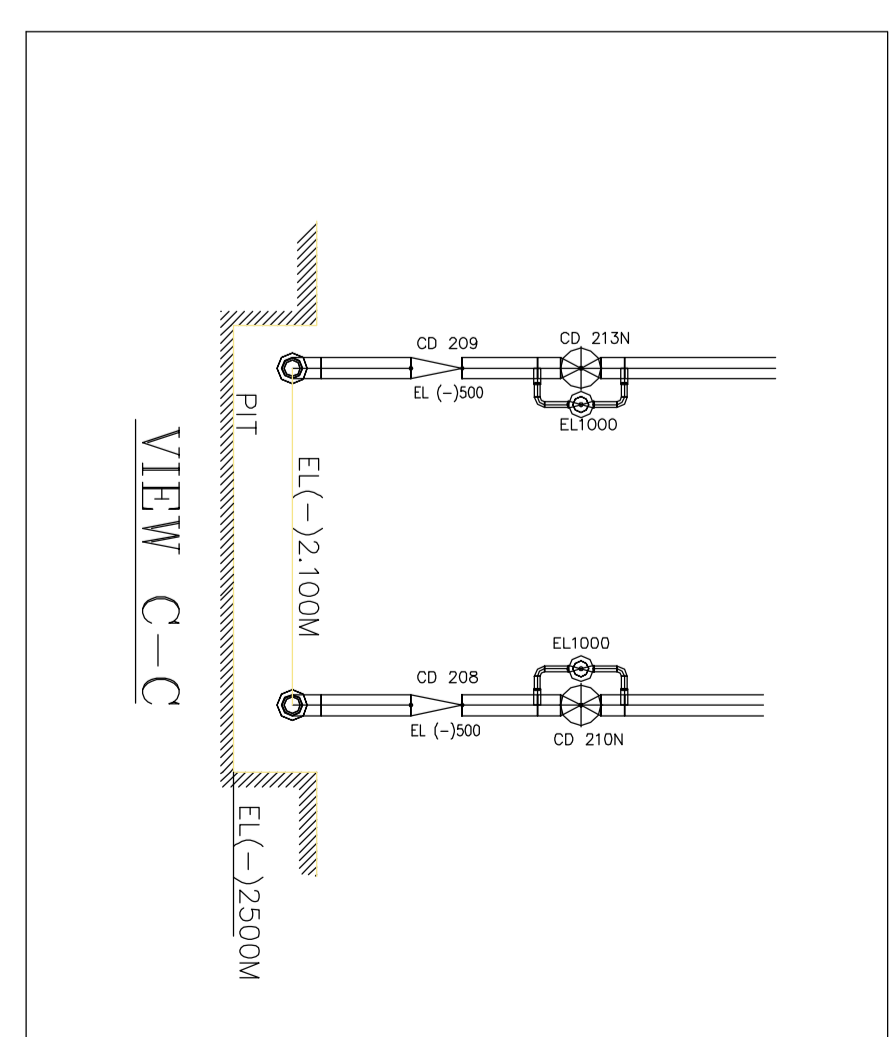
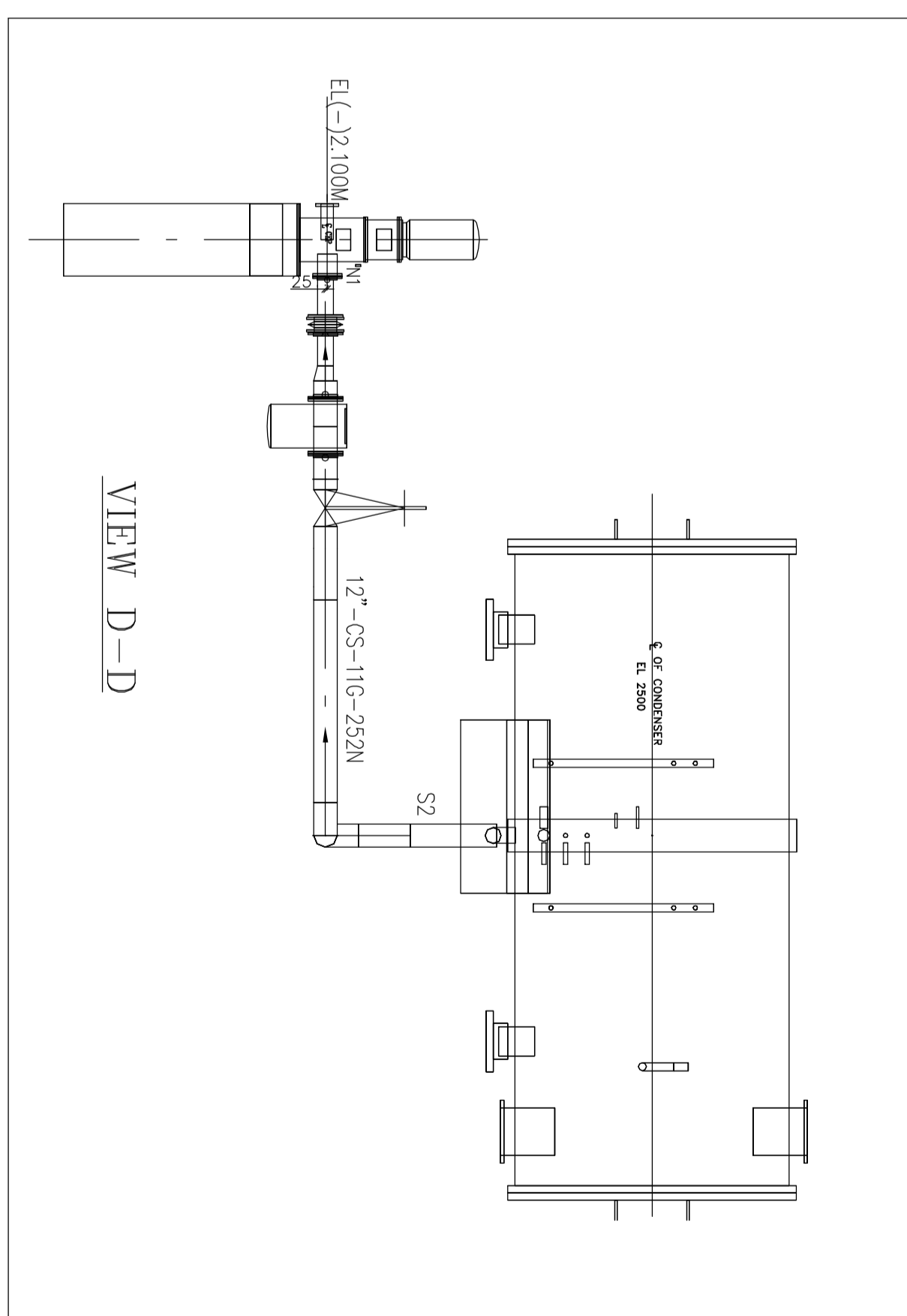
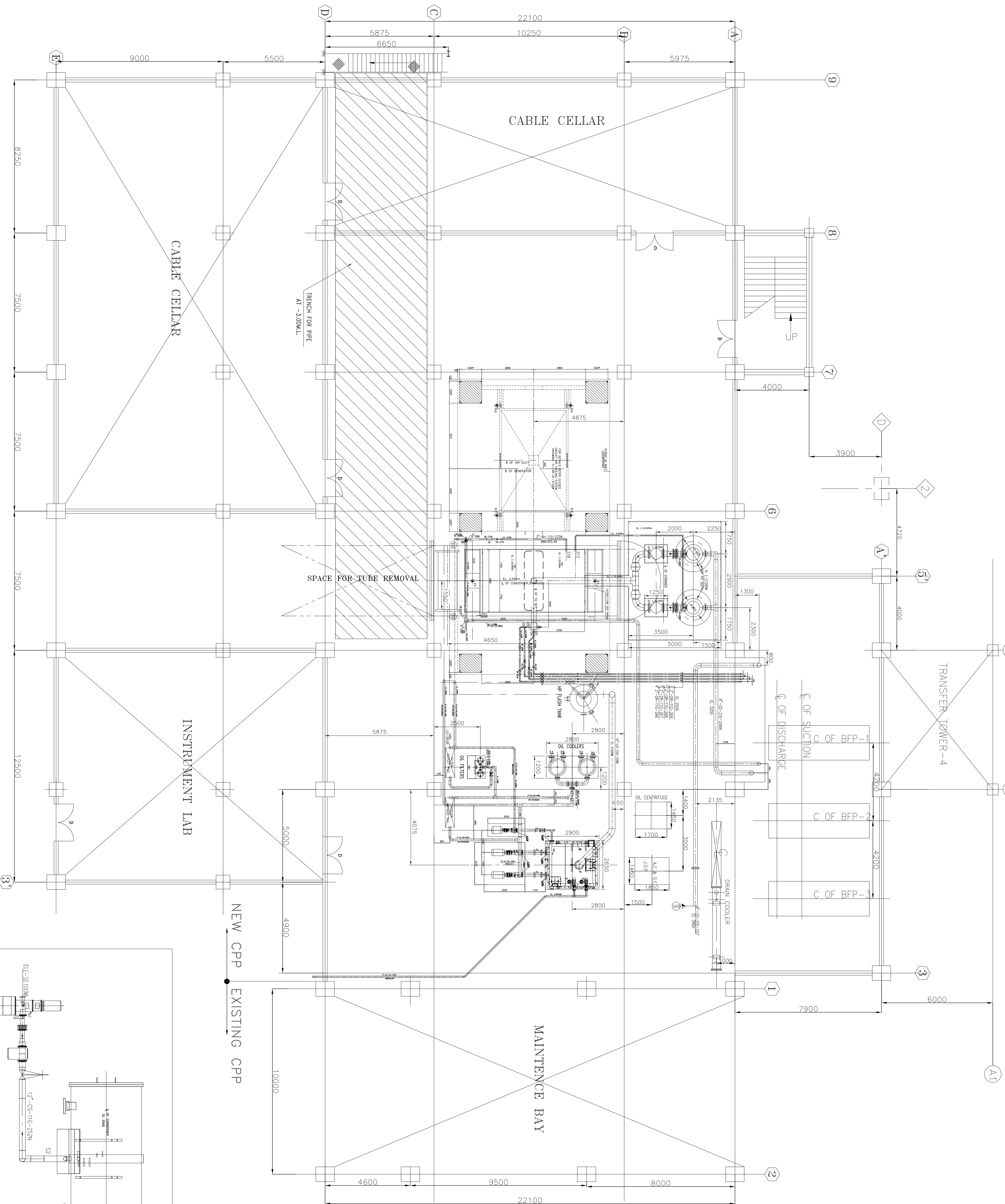
DRAWING NO: HY-DG-1-3170-1-14.101

This Drawing is prepared from Engineering Digital Archive System. Theoretical signature are not necessarily.

(ALL DIMENSIONS ARE IN MM)

INVENTORY NO	0-313-00-71841			
SIGN AND DATE				
REF. DRG. NO.				
COMPUTER FILE NAME				
GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261				
REV. NO.	DATE	BY	CHKD.	DESCRIPTION
1				ISSUED FOR PERMIT
2				REVISED
3				REVISED
4				REVISED
5				REVISED
6				REVISED
7				REVISED
8				REVISED
9				REVISED
10				REVISED
11				REVISED
12				REVISED
13				REVISED
14				REVISED
15				REVISED
16				REVISED

TG BUILDING FLOOR PLAN AT +0.000MM IFL



- NOTES:**
- 1) ALL DIMENSIONS ARE IN MM AND ELEVATIONS ARE IN METERS
 - 2) FLOOR ELEVATIONS: GROUND FLOOR 0.00 MTRS, 1ST FLOOR 4.50 MTRS, OPENING FLOOR 8.50 MTRS
 - 3) ALL INSTRUMENT TAPOFF WILL BE SHOWN IN ISOMETRICS RESPECTIVELY

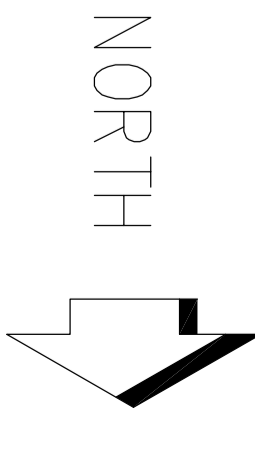
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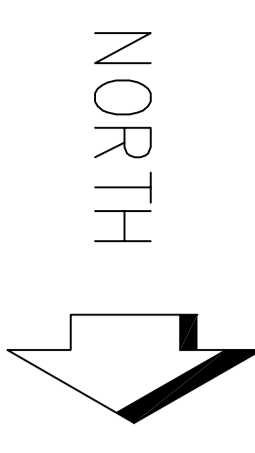
MACHINE ARRANGEMENT AND FOUNDATION 1-313-01-14135

TURBINE INTEGRAL STEAM & DRAIN P&ID 1-317-01-14161

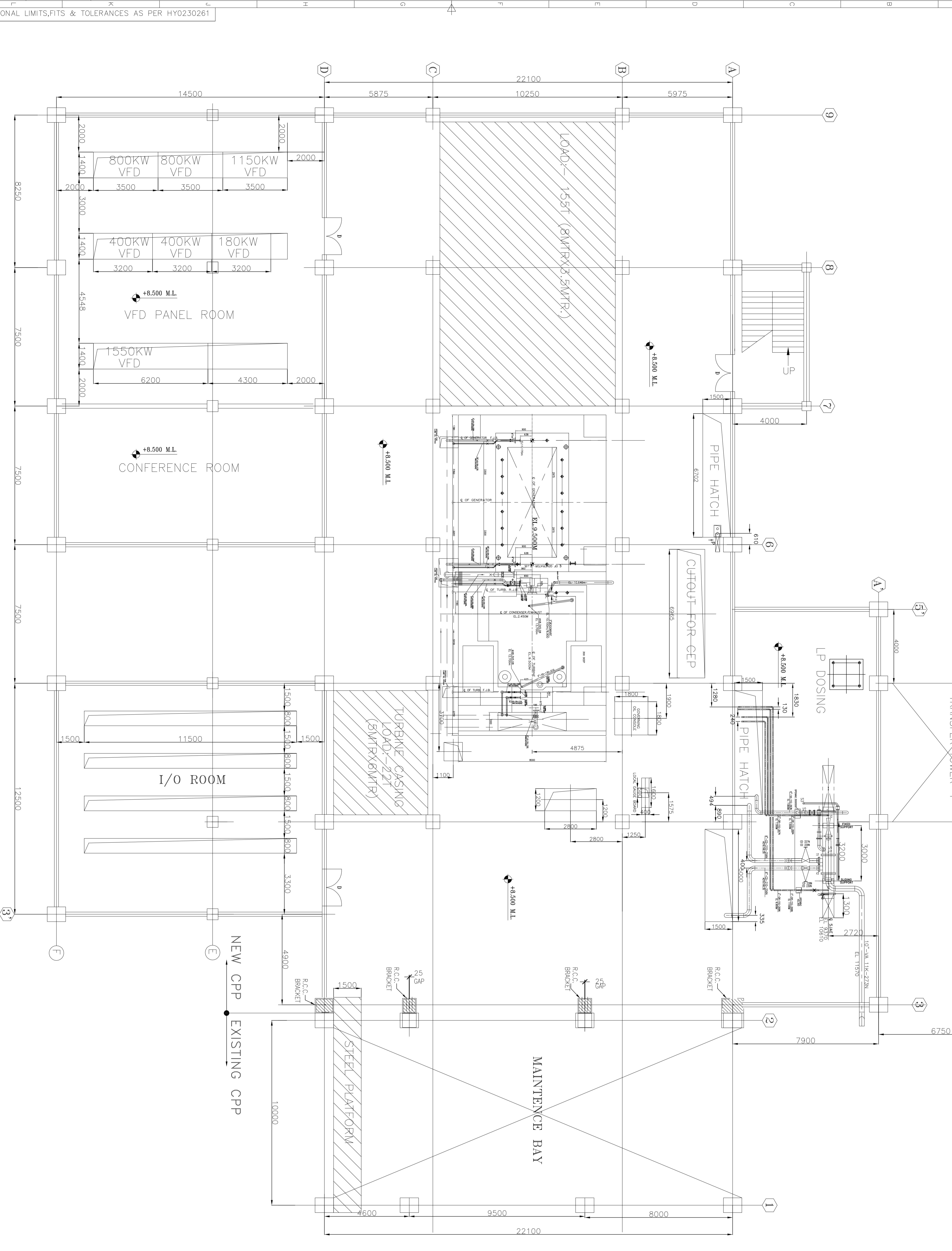
LUBE OIL P&ID DIAGRAM 1-317-01-14162

TYPE OF PRODUCT	1X 60 MW STG SER.
NAME OF CUSTOMER	STATE POWER CORP. AND POWERCO
NAME OF ENGINEER	U.N.P. SHARMA
NAME OF DESIGNER	Bhambhani, Guphal
DATE	03/09/15
SCALE	1:40
TITLE	INTEGRAL PIPING LAYOUT
DRAWING NO.	00
PROJECT NO.	00





FIRST ANGLE PROJECTION
CALL DIMENSIONS ARE IN mm



TG BUILDING FLOOR PLAN AT +8.500m LVL

REV	DATE	ALTERED	BY	CHKD	APPD	ZONE
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

TYPE OF PRODUCT		NAME OF CUSTOMER	
BHARAT HEAVY ELECTRICALS LTD		UHV, SHRIHARI AKAJI AND CHEMICALS	
HYDRABAD		Bharath, Coimbatore	
UNTL. DMS:	SCALE	DATE	NO. OF SHEETS
01/11/2015	1:40	15/07/15	01
GEN. CODE	UNTL. DMS	SCALE	DATE
000	01/11/2015	1:40	15/07/15
TITLE		DRAWING NO.	
INTEGRAL PIPING LAYOUT		HY-00-0-3120-14143 00	
LAYOUT PLAN AT EL(+8.500m)		REV	
		NO. OF SHEETS	
		NO. OF SHEETS	

- NOTES:**
- 1) ALL DIMENSIONS ARE IN mm AND ELEVATIONS ARE IN METERS
 - 2) FLOOR ELEVATIONS: GROUND FLOOR 0.00 METERS, MAZ FLOOR 4.50 METERS, OPERATING FLOOR 8.50 METERS
 - 3) ALL INSTRUMENT TAPOFF WILL BE SHOWN IN ISOMETRICS RESPECTIVELY

- REFERENCE DRAWINGS:**
- MACHINERY ARRANGEMENT AND FOUNDATION 1-313-01-14135
 - TURBINE INTEGRAL STEAM & DRAIN P&I 1-317-01-14161
 - LUBE OIL P&I DIAGRAM 1-317-01-14162

VIEW-P

