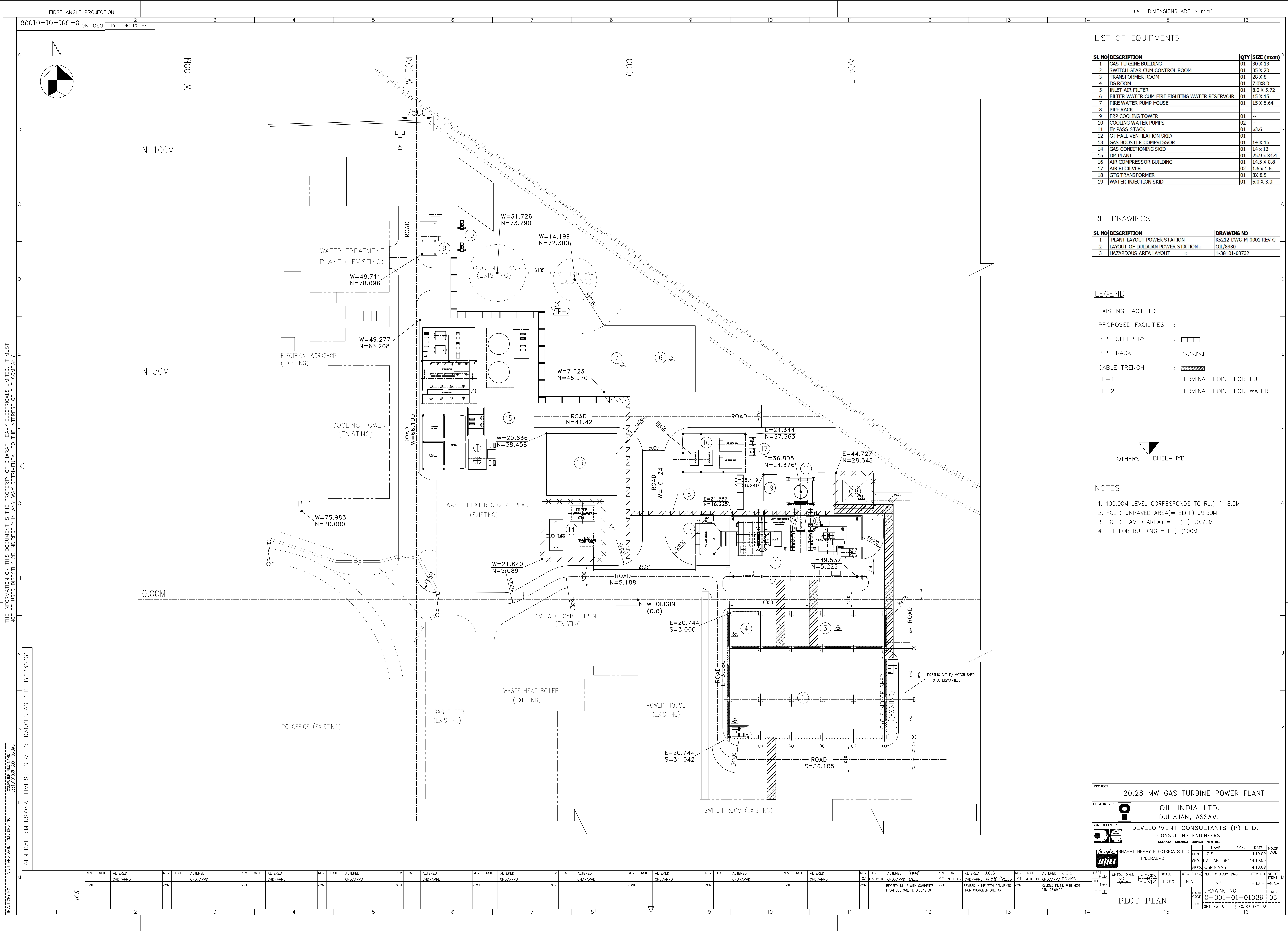




LIST OF EQUIPMENTS

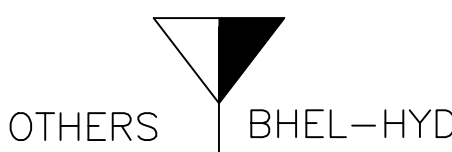
SL NO	DESCRIPTION	QTY	SIZE (mm)
1	GAS TURBINE BUILDING	01	30 X 13
2	SWITCH GEAR CUM CONTROL ROOM	01	35 X 20
3	TRANSFORMER ROOM	01	28 X 8
4	OG ROOM	01	7.0X8.0
5	INLET AIR FILTER	01	8.0 X 5.72
6	FILTER WATER CUM FIRE FIGHTING WATER RESERVOIR	01	15 X 15
7	FIRE WATER PUMP HOUSE	01	15 X 5.64
8	PIPE RACK	--	--
9	FRP COOLING TOWER	01	--
10	COOLING WATER PUMPS	02	--
11	BY PASS STACK	01	ø3.6
12	GT HALL VENTILATION SKID	01	--
13	GAS BOOSTER COMPRESSOR	01	14 X 16
14	GAS CONDITIONING SKID	01	14 x 13
15	DM PLANT	01	25.9 X 34.4
16	AIR COMPRESSOR BUILDING	01	14.5 X 8.8
17	AIR RECIEVER	02	1.6 x 1.6
18	GTG TRANSFORMER	01	8X 8.5
19	WATER INJECTION SKID	01	6.0 X 3.0

REF.DRAWINGS

SL NO	DESCRIPTION	DRAWING NO
1	PLANT LAYOUT POWER STATION	KS212-DWG-M-0001 REV C
2	LAYOUT OF DULIAJAN POWER STATION :	OIL/8980
3	HAZARDOUS AREA LAYOUT :	1-38101-03732

LEGEND

- EXISTING FACILITIES :
- PROPOSED FACILITIES :
- PIPE SLEEPERS :
- PIPE RACK :
- CABLE TRENCH :
- TP-1 : TERMINAL POINT FOR FUEL
- TP-2 : TERMINAL POINT FOR WATER



NOTES:

1. 100.00M LEVEL CORRESPONDS TO RL.(+)118.5M
2. FGL (UNPAVED AREA)= EL.(+) 99.50M
3. FGL (PAVED AREA) = EL.(+) 99.70M
4. FFL FOR BUILDING = EL.(+)100M

PROJECT : 20.28 MW GAS TURBINE POWER PLANT

CUSTOMER : OIL INDIA LTD.
DULIAJAN, ASSAM.

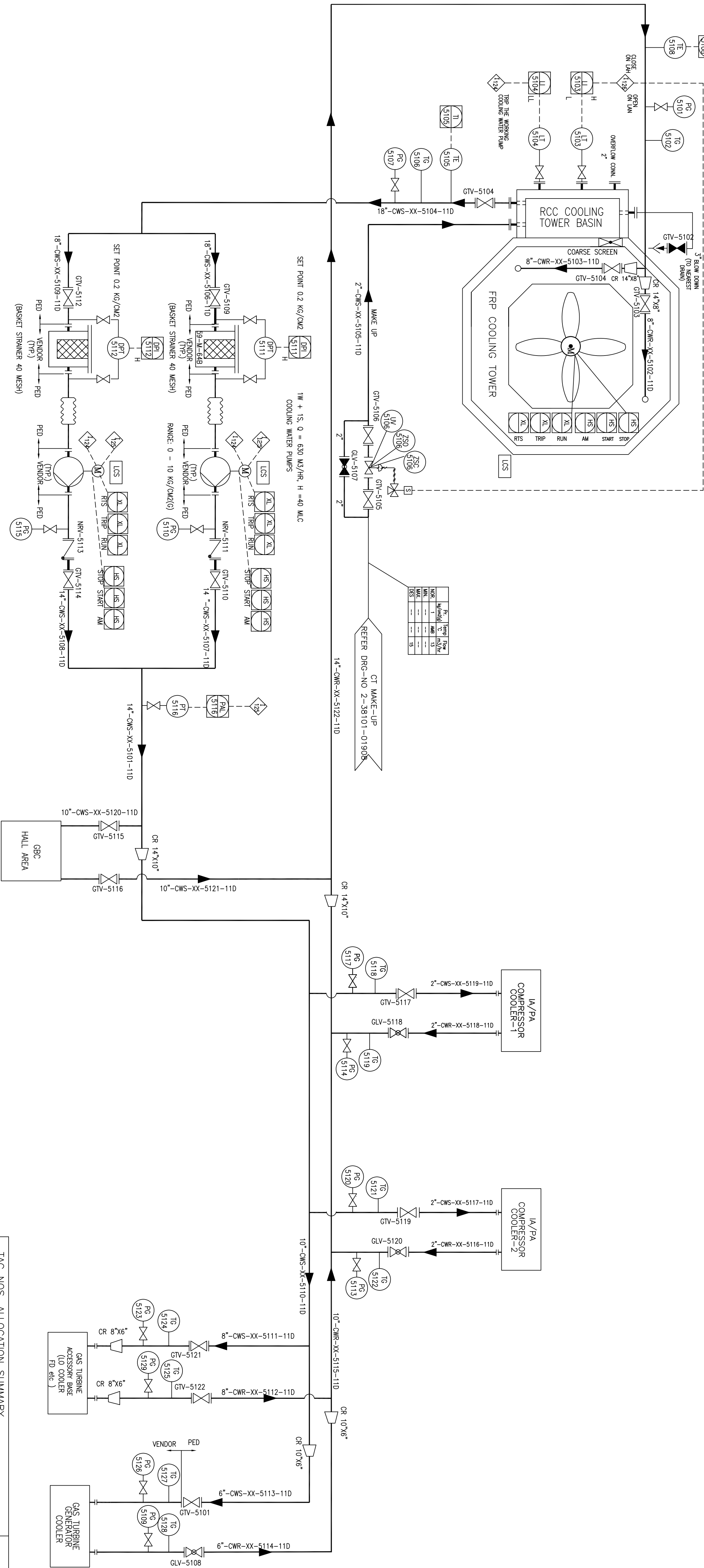
CONSULTANT : DEVELOPMENT CONSULTANTS (P) LTD.
CONSULTING ENGINEERS
KOLKATA CHENNAI MUMBAI NEW DELHI

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

NAME	SIGN.	DATE	NO OF VAR.
J.C.S		14.10.09	
PALLABI DEY		14.10.09	
K.SRINIVAS		14.10.09	

DEPT.	UNTO.	DIMS.	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO OF ITEMS
450	450	450	1:250	N.A	N.A	N.A	N.A
DRAWING NO. 0-381-01-01039							REV. 03
SHT. No 01							NO. OF SHT. 01

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



- NOTES :
1. ANY PROCESS REQUIRED VENTS/DRAINS HAVE BEEN INDICATED IN THIS P&ID. ALL OTHER HIGH POINTS, VENTS AND LOW POINT DRAINS SHALL BE PROVIDED AS PER PIPING LAYOUTS. SAME CAN BE USED AS SAMPLE POINTS, WHEREVER NECESSARY.
 2. UNLESS OTHERWISE SPECIFICALLY INDICATED IN THIS P&ID, THE END CONNECTION OF VALVES (FLANGED/NPT ETC.) SHALL BE AS PER APPLICABLE PIPING SPECIFICATION.

INTERLOCK SUMMARY:-			
TITLE OF LOGIC	LOGIC NO.	TAG NOS. INVOLVED	CONDITIONS FOR LOGIC EXECUTION
COOLING WATER PUMPS OF FRP	I-124	LAL-5104	WATER LEVEL IN CT BASIN LOW LOW
COOLING TOWER	I-125	PAL- 5116	DISCHARGE HEADER PRESSURE LOW
MAKE-UP TO BASIN OF FRP COOLING TOWER	I-126	LAL-5103	WATER LEVEL IN CT BASIN HIGH

TAG NOS. ALLOCATION SUMMARY		RANGE	USED IN THIS DRG. NO.
INSTRUMENTS		5101-5129	5101-5199
VALVES		5101-5122	5101-5199
PIPE LINES		5101-5122	5101-5199
INTERLOCKS			I-124-I-126

INVENTORY NO	SIGN. AND DATE	REF. DRG. NO.	COMPUTER FILE NAME
GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY02302621			
REV.	DATE	CHD/APPD	ZONE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

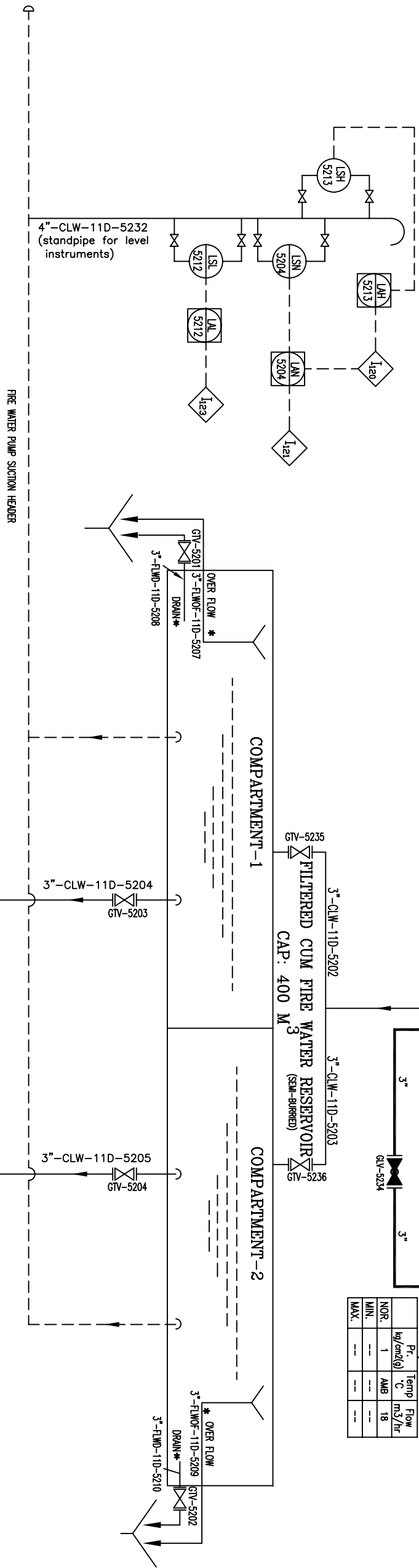
DEPT.	UNTD. DMS.	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO. NO. OF
CODE	OR	P/N/Y			ITEMS
TITLE					
P&ID DIAGRAM COOLING WATER SYSTEM					
DRG. NO. 1-38101-03727					
COST. DRG. NO. 03727-XX-1151					
SHT. NO. 01					

CUSTOMER:		OIL INDIA LTD.	
		DULAIAN, ASSAM.	
CONSULTANT:		DEVELOPMENT CONSULTANTS (P) LTD.	
		KOLKATA CHENNAI MUMBAI NEW DELHI	
PROJECT:			
20-24MW GAS TURBINE POWER PLANT			
(XFRS OF OPEN CYCLE POWER PLANT)			
BHARAT HEAVY ELECTRICALS LTD.			
HYDERABAD			
DRN.	RAMYA	Sd/-	19.12.09
CHD.	RAOHKA SIFA	Sd/-	19.12.09
APPD.	P.SUDHIR BABU	Sd/-	19.12.09

80610-10-18C-2 .ON.DRG 1 FO 1 HS

INTERLOCK SUMMARY

TYPE OF LOGIC	LOGIC NO.	TAG NOS. INVOLVED	CONDITION FOR LOGIC EXECUTION	REMARKS
MAKE UP TO FILTERED WATER RESERVOIR	I ₁₂₀	LAN-5204	FILTERED WATER RESERVOIR LEVEL NORMAL	OPEN UV-5205
START PERMISSIVE	I ₁₂₁	LAN-5204	FILTERED WATER RESERVOIR LEVEL HIGH	CLOSE UV-5205
PUMP TRIP	I ₁₂₃	LAL-5212	FILTERED WATER RESERVOIR LEVEL LOW	START PERMISSIVE FOR PUMPS
STAND BY PUMP	I ₁₂₄ I ₁₂₅ I ₁₂₂	PAL-5203 PAL-5206 PAL-5211	PUMP DISCHARGE HEADER PRESSURE LOW PUMP DISCHARGE HEADER PRESSURE LOW PUMP DISCHARGE HEADER PRESSURE LOW	TRIP RUNNING PUMPS START STAND BY PW PUMP START STAND BY SW PUMP START STAND BY DM PLANT FEED PUMP



- NOTES:-
1. ALL PIPE SIZES SHOWN IN THIS DRAWING ARE IN INCHES UNLESS NOTED OTHERWISE.
 2. NECESSARY DRAINS AND VENTS WILL BE PROVIDED AT LOW AND HIGH POINTS RESPECTIVELY AS REQUIRED BASED ON PIPING LAYOUTS.
 3. * PUDDLE PIPE TO BE PROVIDED BY CML.
- ** IN PUMP VENDOR SCOPE**

- FLW – FILTERED WATER
FLWD – FILTERED WATER DRAIN
FLWOF – FILTERED WATER OVER FLOW
DM PLANT PLC

TAG NO. INDEX:-

TAGS USED	RANGE	SPARE TAGS
INSTRUMENTATION TAG	5201-5213	5201-999
VALVE	5201-5236	5201-999
LINE NUMBERS	5201-5232	5201-999

SCOPE OF SUPPLY



OIL

PROJECT : 20-24MW GAS TURBINE POWER PLANT

(1XFS GT OPEN CYCLE POWER PLANT)

CUSTOMER : OIL INDIA LTD.
DULAJAN, ASSAM.

CONSULTANT : DEVELOPMENT CONSULTANTS (P) LTD.
CONSULTING ENGINEERS
KOLAKATA CHENNAI MUMBAI NEW DELHI

	BHARAT HEAVY ELECTRICALS LTD.		UNIT : ***	
	DRN.	NAME	SIGN.	DATE
	RAMYA		sd/-	11.03.10
	CHD.	RADHIKA SISTA	sd/-	11.03.10
	APPD.	P.SUDHIC BABU	sd/-	11.03.10

DEPT.	UNTDL.	DIMS.	SCALE	WEIGHT (KG)	REF.	TO ASSY.	DRG.	ITEM NO.	NO. OF
PD	GR.	q/m/y							
CODE									
450									
TITLE		P & I DIAGRAM		CARD		NO.		REV.	
		FILTERED WATER SYSTEM		CODE		2-38101-01908		00	
				SHT. No		01		NO. OF SHT.	
								01	

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

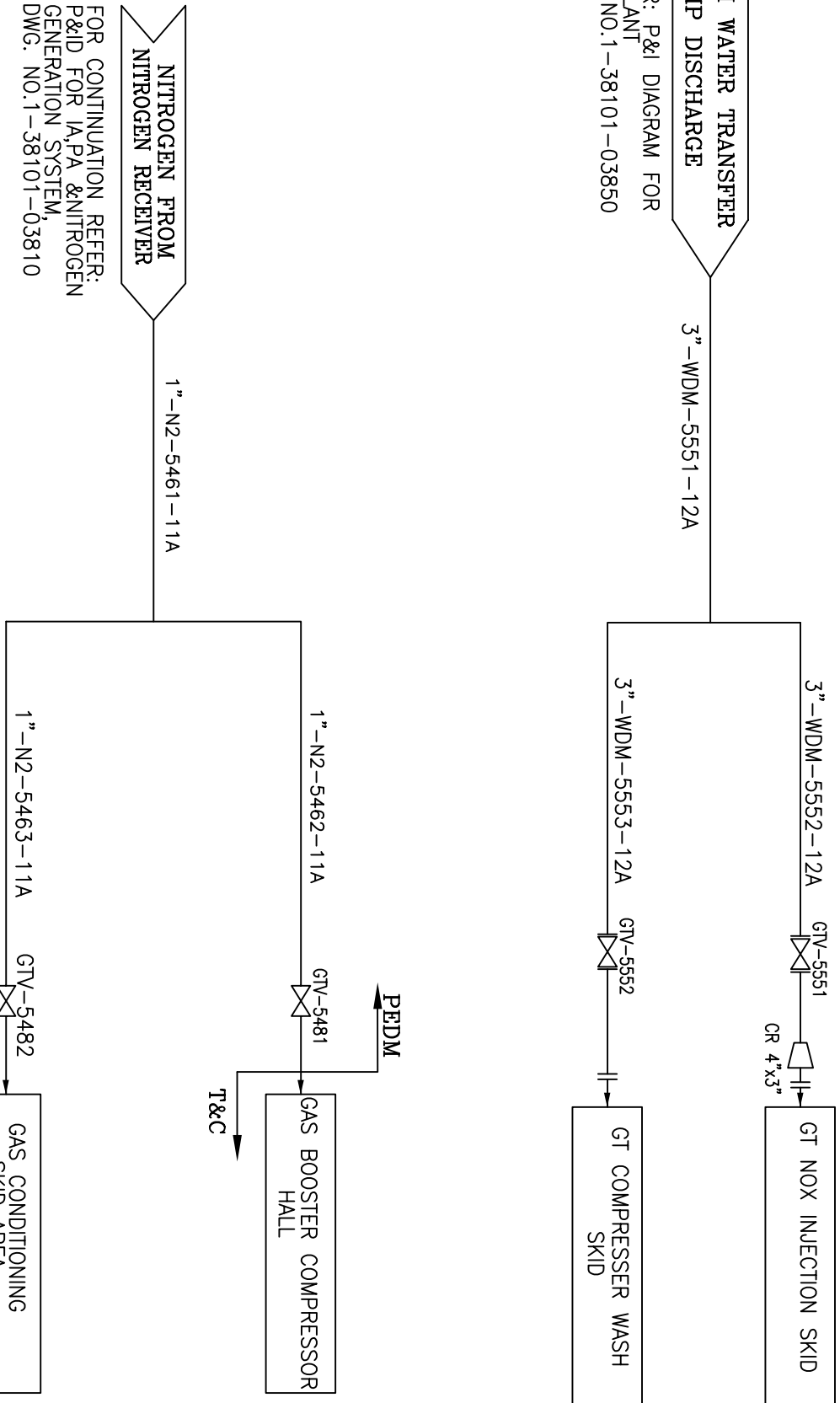
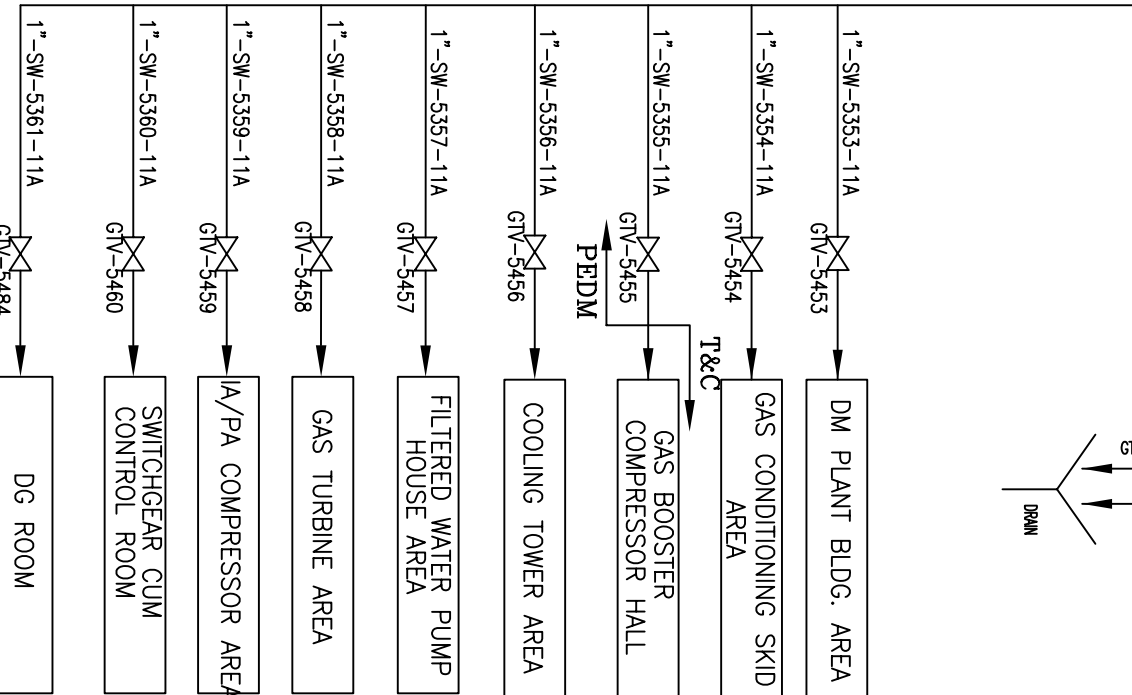
GENERAL DIMENSIONAL LIMITS,FITS & TOLERANCES AS PER HY0230261

	Pr.	Temp	Flow
	kg/cm2(g)	°C	m3/hr
NOR.	3.2	AMB	5
MIN.	--	--	--
MAX.	--	--	--
DES	4.5	--	6

	Pt. kg/cm2(g)	Temp °C	Flow m3/hr
NOR.	3.2	AMB	5
MIN.	--	--	--
MAX.	--	--	--
DES	4.5	--	6

	Pr. kg/cm2(g)	Temp °C	Flow m3/h
NOR.	5.0	AMB	6.6
MIN.	---	---	---
MAX.	---	---	---
DES	7.0	---	6

SHT. ON



	TASS USED	RANGE	UNUSED TASS
LINE NUMBERS	5351-5372 5451-5463 5551-5553	5351-5399 5451-5498 5551-5599	-----
VALVE TAG.	5351-5373 5451-5465 5551-5552	5351-5399 5451-5499 5551-5580	-----

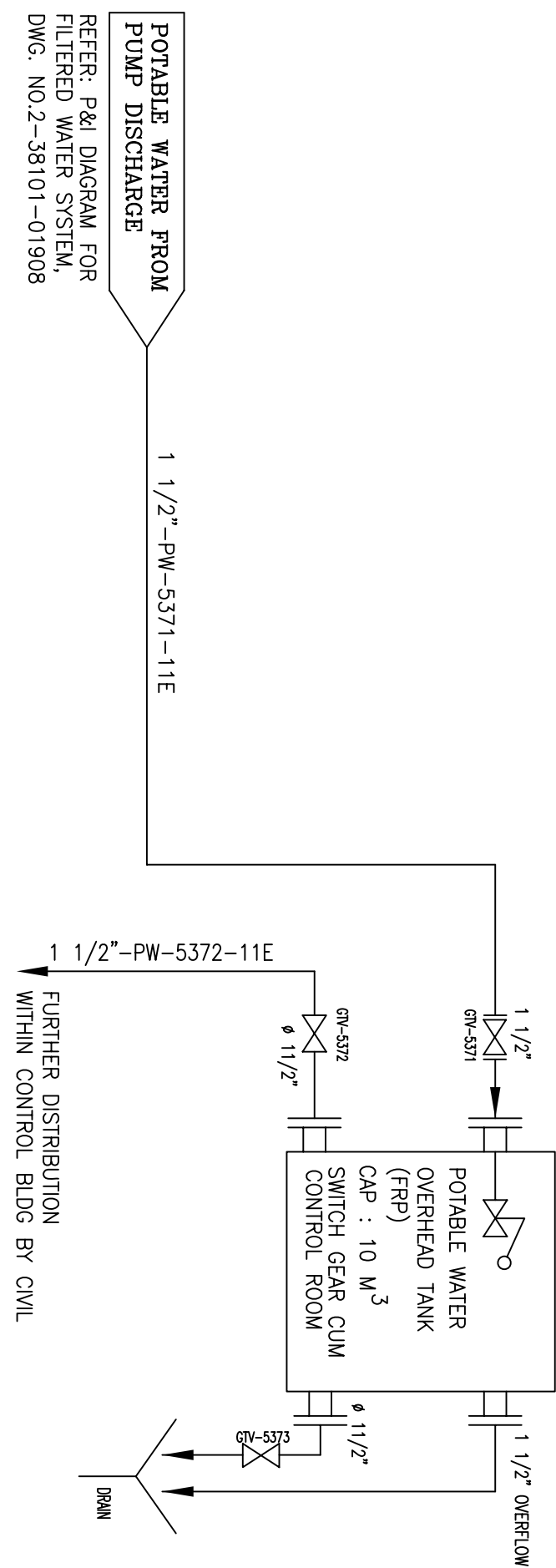
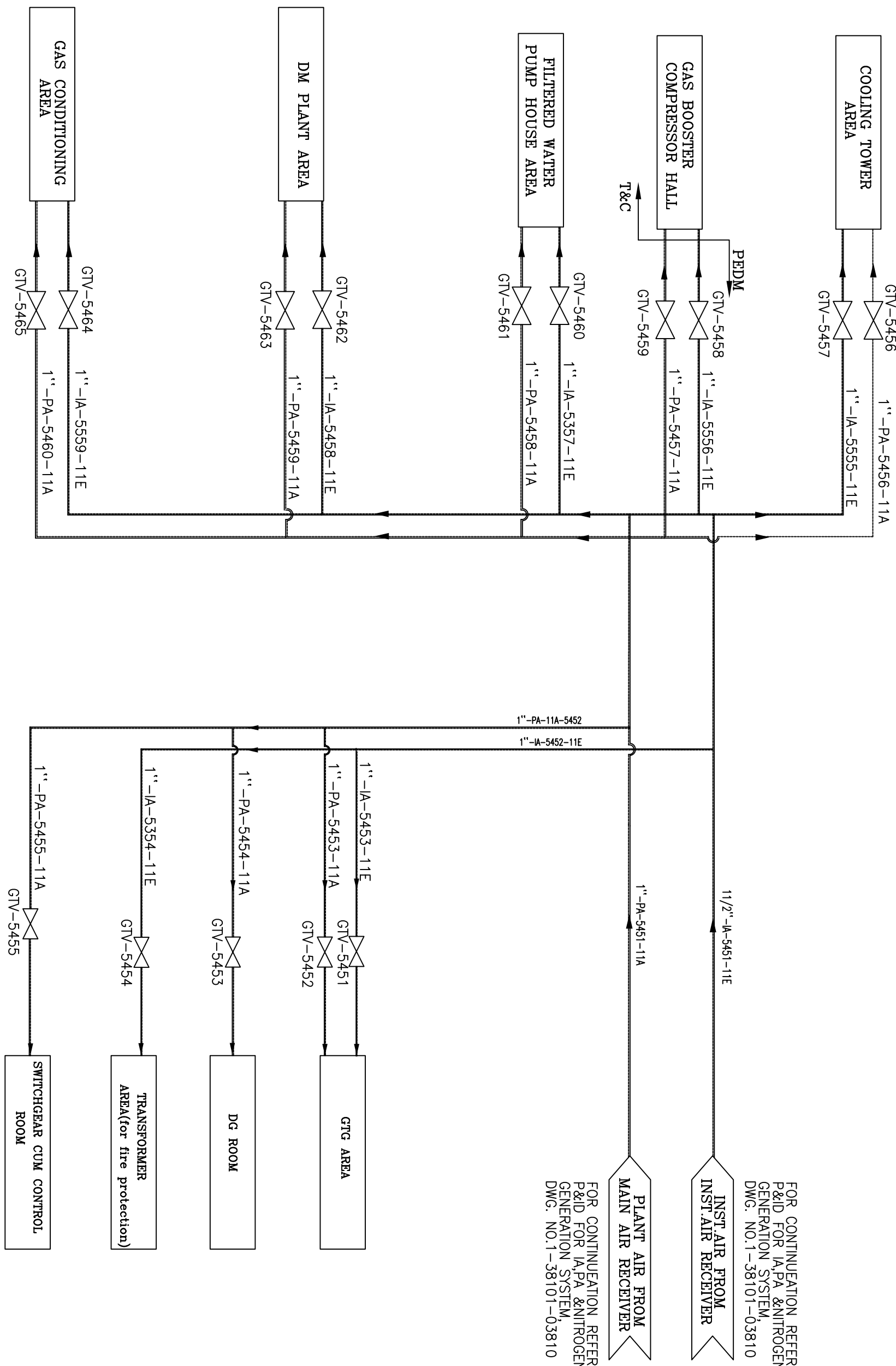
REFERENCE DRGS.:-

1. 2-38101-01908P&I DIAGRAM FILTERED WATER SYSTEM
2. 1-38101-XXXX P&I DIAGRAM DM WATER PLANT

LEGEND:—

- | | | |
|-----|---|---------------------|
| GT | - | GAS TURBINE |
| WDM | - | DIMENERALISED WATER |

- NOTES:-**
1. ALL PIPE SIZES SHOWN IN THIS DRAWING ARE IN INCH. UNLESS NOTED OTHERWISE.
 2. NECESSARY DRAINS AND VENTS WILL BE PROVIDED AT LOW AND HIGH POINTS RESPECTIVELY AS REQUIRED BASED ON PIPING LAYOUT.
 3. ALL OVERHEAD TANK DRAINS SHALL BE SITE ROUTED TO NEAREST DRAIN TRENCH.
 4. PIPING MATERIALS FOR INSTRUMENT AIR SHALL BE SUITABLY CONSIDERED AS PER THE NUMBER & LOCATION OF CONTROL VALVES

[illegible]