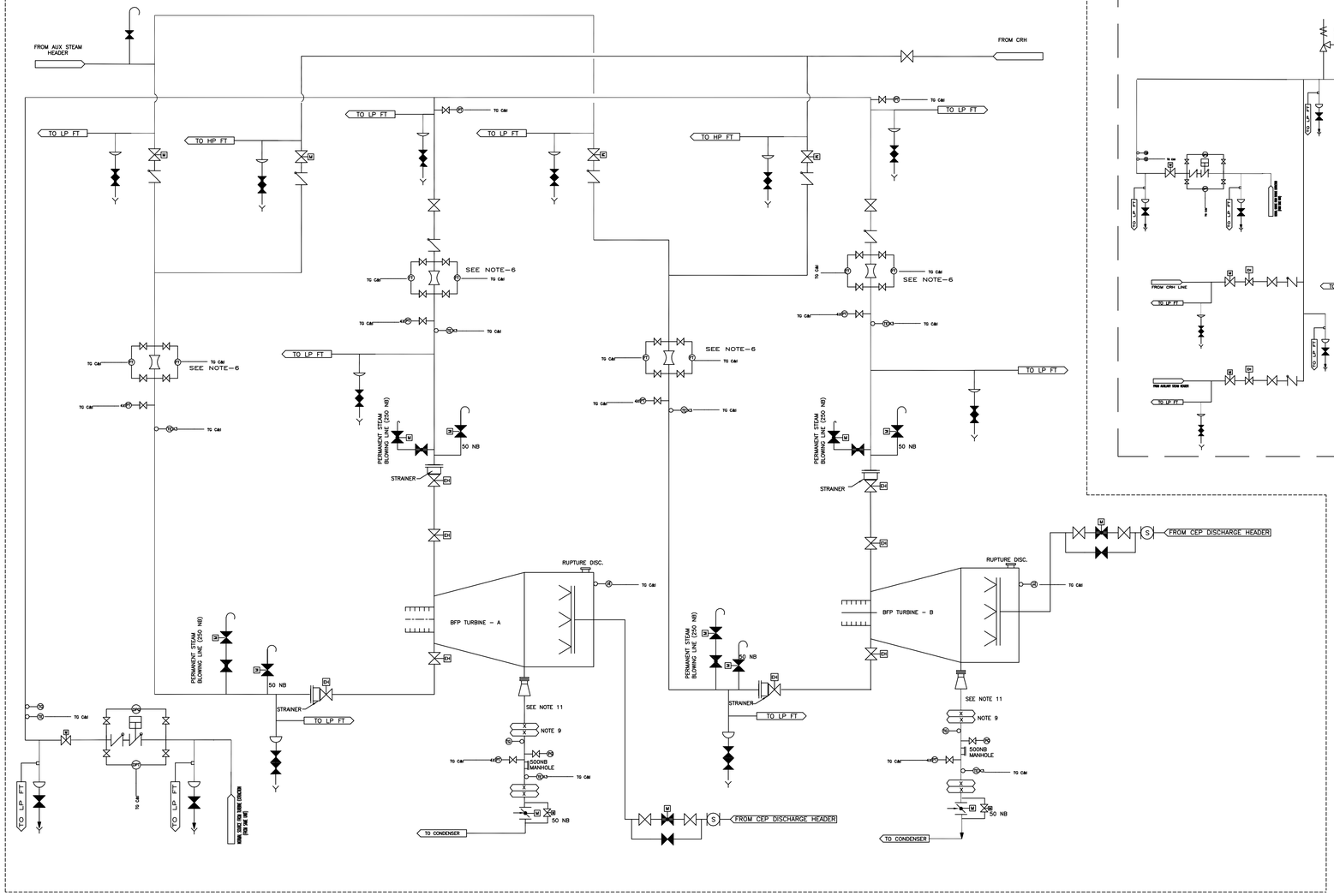
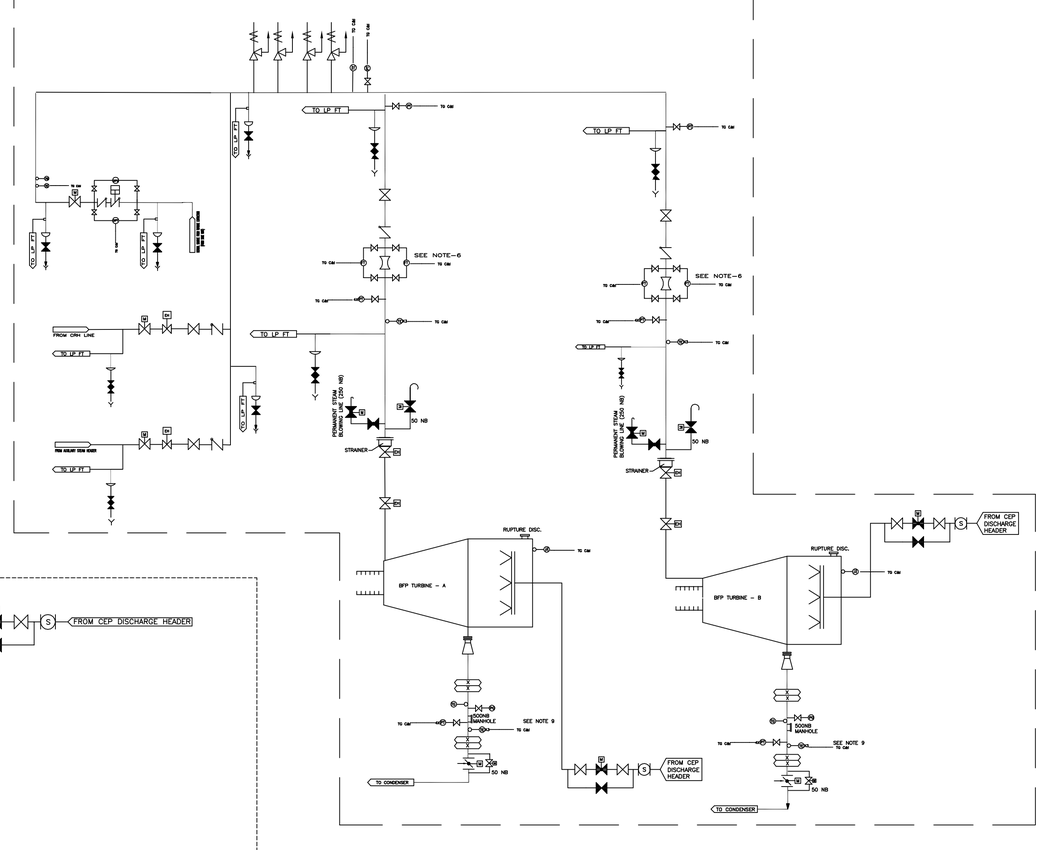
BOX-A



BOX-B



NOTE:

1. TWO TYPE OF ARRANGEMENT HAS BEEN SHOWN IN BOX-A AND B FOR EXTRACTION STEAM SYSTEM TO BFPT. BOTH OF THE ARRANGEMENTS ARE ACCEPTABLE IF IT IS THE STANDARD AND PROVEN PRACTICE OF THE BIDDER.
2. PIPING AND EQUIPMENT DRAINS SHOWN ARE INDICATIVE REQUIREMENT SHALL BE FINALISED BASED ON PROCESS/LAYOUT AS WELL AS ASME TDP REQUIREMENTS.
3. ALSO REFER DRG: MAIN STEAM,HOT REHEAT AND COLD REHEAT P&ID
4. IN CASE RELIEF DIAPHRAGM IS PROVIDED ON EXHAUST PIPE, THEN THE VENT PIPING INCLUDING HANGERS, SUPPORTS TO VENT THE STEAM RELEASED DUE TO RUPTURE OF RELIEF DIAPHRAGM SHALL BE LED SUITABLY OUTSIDE THE TURBINE HALL BY THE BIDDER.
5. PROPER TURBINE DRIVE GLAND SEALING ARRANGEMENT COMPLETE WITHVALVES, PIPING, FITTINGS ETC. SHALL BE PROVIDED BY BIDDER EITHER FROM MAIN TG GLAND SEALING HEADER OR ANY STEAM HEADER AS PER THEIR STANDARD PRACTICE
6. IN CASE OF SINGLE ADMISSION BFP TURBINE, A SINGLE FLOW MEASURING ELEMENT MAY BE PROVIDED FOR MEASURING STEAM FLOW.
7. BIDDER SHALL PROVIDE STUBS & TAPPING FOR PG TEST OF EQUIPMENT/SYSTEM UNDER HIS SCOPE OF SUPPLY AND FOR SAMPLING WHEREVER REQUIRED.
8. NO. AND LOCATION OF METALLIC EXPANSION JOINTS SHALL BE BASED ON STRESS ANALYSIS.
9. THE BIDDER MAY OFFER SEPARATE CONDENSER FOR EACH BFP DRIVE TURBINE, IN WHICH CASE, THE ITEMS SHOWN ON THE EXHAUST LINE WILL NOT BE APPLICABLE.
10. VENTURI TYPE OF FLOW EEMENT IS SHOWN HERE, HOWEVER ,BIDDER MAY OFFER NOZZLE TYPE OF FLOW ELEMENT BASED ON HIS STANDARD PRATICE OR AS PER THE RANGE OF REYNOLDS NO AS MENTIONED IN ISO-5167.
11. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF BIDDER.THE MEASURING INSTRUMENTS INDICATED IN THE TENDER P&ID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER.IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF BIDDER, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.
12. SG-C&I, TG-C&I & BOP-C&I PART OF DDCMIS ARE IN CONTRACTORS SCOPE OF SUPPLY.

FOR TENDER PURPOSE ONLY

NTPC Ltd.
(A Government of India Enterprise)
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW)
(EPC PACKAGE)

TITLE: EXTRACTION STEAM P&ID FOR BFP TURBINE

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.		APPD.	DATE
A	RELEASED FOR TENDER	AS	AS	PKD	M / CLEARED BY C&I	AA	15/06/22

SIZE	SCALE	DRG NO.	REV. NO.
A-1	NTS	CW-21244-999-POM-A-008	A

THIS DRG
DEAERATOR FILLING BY BOILER FILL PUMP

DEAERATOR

FEED WATER STORAGE TANK

Min. 150NB Drain Line

TO LP FLASH TANK

DRAIN COOLER

L.P. FEED WATER HEATER-4

L.P.FEED WATER HEATER-3

SAMPLE PH CONDUCTIVITY

THIS DRG.
DEAERATOR FILLING

FROM BLR FILLING PUMP

BLR FILLING

TO BFPSF APPLICABLE

L.P.FEED WATER HEATER -1 (TYP.)

L.P.FEED WATER HEATER - 2 (TYP.)

RINSE OUTLET FROM CONDENSATE POLISHER

O2 DOSING

AMMONIA

CONDENSER - HP

CONDENSER - LP

FROM CONDENSATE STORAGE TANK (EMERGENCY MAKE-UP)

EMERGENCY SUPPLY TO LP DOZING SYSTEM

EMERGENCY MAKE-UP TO ECW TANK(SG)

EMERGENCY MAKE-UP TO ECW TANK(TG)

EMERGENCY CEP SEALING

EMERGENCY VALVE SEALING

EMERGENCY MAKE-UP

DIVIDED HOT WELL

DIVIDED HOT WELL

NOTE 11

NOTE 11

Min. 100 NB DRAIN LINE ##

Min. 100 NB DRAIN LINE ##

Min. 100 NB DRAIN LINE ##

Min. 100 NB DRAIN LINE ##

NORMAL MAKE-UP

NORMAL MAKE-UP TO ECW TANK(TG)

NORMAL MAKE-UP TO ECW TANK(SG)

FROM DM PLANT

CONDENSATE FROM ATMOSPHERIC FLASH TANK OF BOILER START-UP RECIRCULATION AND DRAIN SYSTEM (PSEE NOTE-4)

NOTE 10 (TYPICAL)

(TYPICAL)

TURBINE DRAIN FLASH TANK SPRAY

WET STEAM WASHING

SPARE

TO LP DOZING SYSTEM

TO AUX PRDS SPRAY

VALVE GLAND SEALING

SPARE

SPARE

SPARE

SYSTEM TAP-OFF FOR TG

TO LPT EXHAUST HOOD SPRAY

TO BFPT EXHAUST HOOD SPRAY

TO COND. STORAGE TANK

CONDENSATE SPILL

CONTAMINATED CONDENSATE

LP BYPASS SPRAY

TO HOT WELL

CONDENSATE POLISHING UNIT

P.W.MAKE UP

M.U. TO COND. AIR EXT. SYSTEM

GLAND STEAM COND.

TO FLASH TANK

CEP SEALING

SAMPLING

CEP A

CEP B

CEP C

SUCTION VENT TO CONDENSER (TYP)

DISCHARGE VENT TO CONDENSER (TYP)

SUCTION VENT TO CONDENSER (TYP)

DISCHARGE VENT TO CONDENSER (TYP)

SUCTION VENT TO CONDENSER (TYP)

DISCHARGE VENT TO CONDENSER (TYP)

NOTES:

1. ALSO REFER DRG. MAIN STEAM,HOT REHEAT AND COLD REHEAT P&ID
2. MANIFOLD ON THE CONDENSER SHALL NOT BE ACCEPTABLE.
3. CONNECTIONS ON CONDENSER ARE NOT CONCLUSIVE. NECESSARY STUBS ON CONDENSER SHALL BE PROVIDED BY THE BIDDER TO MEET CYCLE REQUIREMENTS.
4. IN CASE OF TWO TURBIBE CONDENSERS,BIDDER SHALL CONNECT THIS LINE TO BOTH THE CONDENSERS OR SINGLE CONDENSER.HOWEVER, BIDDER SHALL OPTIMIZE THE CONDENSER FOR HEAT & MASS LOAD OF SUCH DRAIN ACCORDINGLY.BIDDER CAN ALSO OPT TO ROUTE THIS CONDENSATE TO TURBINE CONDENSER THROUGH FLASH TANK.
5. BIDDER SHALL PROVIDE STUBS & TAPPING POINTS FOR PG TESTS OF EQUIPMENT/SYSTEM UNDER HIS SCOPE OF SUPPLY AND FOR SAMPLING WHEREVER REQUIRED.
6. SUITABLE FITTING/TAPPING LIKE FLANGE, COUNTER FLANGE ALONG WITH FASTNERS OF SUITABLE PRESSURE CLASS AFTER EACH STAND PIPE SHALL BE PROVIDED FOR RADAR TYPE LEVEL TRANSMITTER'S (LT##).
7. DRAIN COOLER SHOWN HERE IS SEPERATE FROM LPH-1, HOWEVER BIDDER MAY OFFER IT INTEGRAL WITH LPH-1.
8. ## TYPICAL FOR EACH HOTWELL.
9. VENTURI TYPE OF FLOW EEMENT IS SHOWN HERE; HOWEVER ,BIDDER MAY OFFER NOZZLE TYPE OF FLOW ELEMENT BASED ON HIS STANDARD PRATICE OR AS PER THE RANGE OF REYNOLDS NO AS MENTIONED IN ISO-5167.
10. CEP RECIRCULATION LINES UPTO CONTROL VALVES SHALL BE LOCATED IN SUCH A WAY THAT IT SHALL REMAIN IN FLOODED CONDITION ALWAYS.
11. NO. AND LOCATION OF METALLIC EXPANSION JOINTS SHALL BE BASED ON STRESS ANALYSIS.
12. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF BIDDER.THE MEASURING INSTRUMENTS INDICATED IN THE TENDER P&ID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER.IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF BIDDER, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.
13. SG-C&I,TG-C&I AND BOP-C&I PART OF IDCMIS ARE IN CONTRACTORS SCOPE OF SUPPLY.

FOR TENDER PURPOSE ONLY

एन टी पी सी NTPC

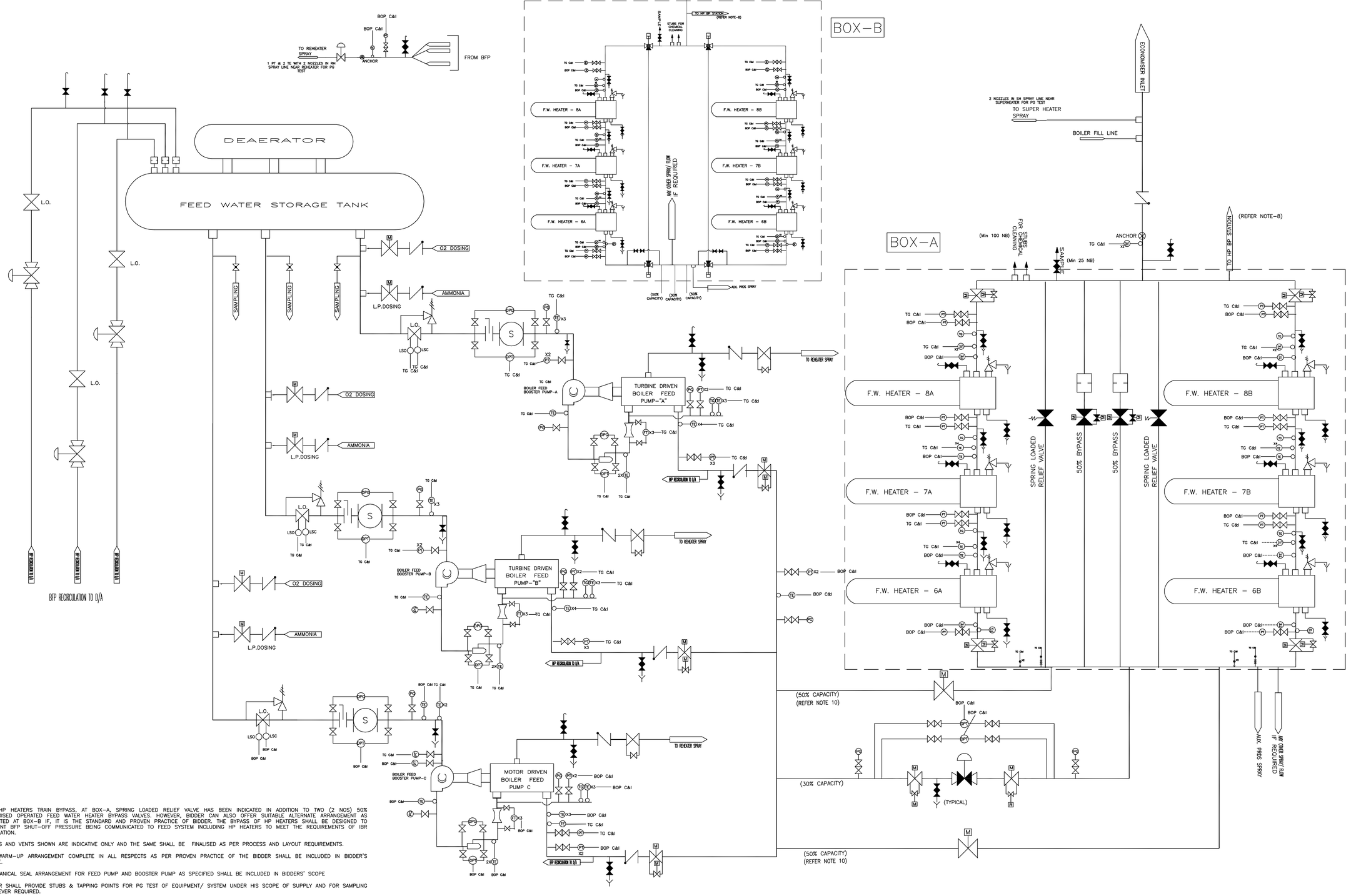
NTPC Ltd.
(A Government of India Enterprise)
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW) (EPC PACKAGE)

TITLE: CONDENSATE P&ID

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.			APPD.	DATE	SIZE	SCALE	DRG NO.	REV. NO.
A	RELEASED FOR TENDER	AS	AS	PKD	M	C&I	AA	15/06/22	A-1	NTS	CW-21244-999-P0M-A-009	A

CLEARED BY



NOTES :

1. FOR HP HEATERS TRAIN BYPASS, AT BOX–A, SPRING LOADED RELIEF VALVE HAS BEEN INDICATED IN ADDITION TO TWO (2 NOS) 50% MOTORISED OPERATED FEED WATER HEATER BYPASS VALVES. HOWEVER, BIDDER CAN ALSO OFFER SUITABLE ALTERNATE ARRANGEMENT AS INDICATED AT BOX–B IF, IT IS THE STANDARD AND PROVEN PRACTICE OF BIDDER. THE BYPASS OF HP HEATERS SHALL BE DESIGNED TO PREVENT BFP SHUT–OFF PRESSURE BEING COMMUNICATED TO FEED SYSTEM INCLUDING HP HEATERS TO MEET THE REQUIREMENTS OF IBR REGULATION.
2. DRAINS AND VENTS SHOWN ARE INDICATIVE ONLY AND THE SAME SHALL BE FINALISED AS PER PROCESS AND LAYOUT REQUIREMENTS.
3. BFP WARM–UP ARRANGEMENT COMPLETE IN ALL RESPECTS AS PER PROVEN PRACTICE OF THE BIDDER SHALL BE INCLUDED IN BIDDER'S SCOPE.
4. MECHANICAL SEAL ARRANGEMENT FOR FEED PUMP AND BOOSTER PUMP AS SPECIFIED SHALL BE INCLUDED IN BIDDERS' SCOPE
5. BIDDER SHALL PROVIDE STUBS & TAPPING POINTS FOR PG TEST OF EQUIPMENT/ SYSTEM UNDER HIS SCOPE OF SUPPLY AND FOR SAMPLING WHEREVER REQUIRED.
6. 2X50% LINE IS SHOWN HERE ALONG WITH 30% CAPACITY FEED CONTROL VALVE. HOWEVER INSTEAD OF 2X50% LINE ,BIDDER MAY OFFER 1X100% LINE ALONG WITH 30% CAPACITY FEED CONTROL VALVE.
7. VENTURI TYPE OF FLOW ELEMENT IS SHOWN HERE, HOWEVER ,BIDDER MAY OFFER NOZZLE TYPE OF FLOW ELEMENT BASED ON HIS STANDARD PRACTICE OR AS PER THE RANGE OF REYNOLDS NO AS MENTIONED IN ISO–5167.
8. TAPPING FOR HP BYPASS SPRAY HAS BEEN SHOWN DOWNSTREAM OF HP HEATERS. HOWEVER, BIDDER MAY TAKE THIS TAPPING UPSTREAM OF HP HEATER AS PER THEIR STANDARD PRACTICE.
9. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF BIDDER.THE MEASURING INSTRUMENTS INDICATED IN THE TENDER P&ID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER.IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF BIDDER, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.
10. SG–C&I,TG–C&I AND BOP–C&I PART OF DDCMIS ARE IN THE CONTRACTOR'S SCOPE OF SUPPLY.
11. THE SIZE OF DRAIN LINES SHALL NOT BE LESS THAN 50 NB.

FOR TENDER PURPOSE ONLY

NTPC Ltd.
(A Government of India Enterprise)
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW)
(EPC PACKAGE)

TITLE: FEED WATER P&ID

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.			APPD.	DATE
A	RELEASED FOR TENDER	AS	AS	PKD	M / CLEARED BY	C&I	AA	15/06/22

SIZE	SCALE	DRG NO.	REV. NO.
A–1	NTS	CW–21244–999–POM–A–010	A

TO HP FLASH TANK
THIS DRG.
H.P. FEED WATER HEATER – 8A
H.P. FEED WATER HEATER – 7A
H.P. FEED WATER HEATER – 6A
H.P. FEED WATER HEATER – 8B
H.P. FEED WATER HEATER – 7B
H.P. FEED WATER HEATER – 6B
TO LP FLASH TANK
TO CONDENSER
DEAERATOR
FEED WATER STORAGE TANK
L.P. FEED WATER HEATER – 4
L.P. FEED WATER HEATER – 3
L.P. FEED WATER HEATER – 2 (TYP.)
L.P. FEED WATER HEATER – 1 (TYP.)
DRAIN COOLER
CONDENSER – HP
CONDENSER –LP
HOTWELL
HP FLASH TANK (TYP.)
LP FLASH TANK (TYP.)
VENT CONNECTION FROM HP HEATERS
HP HEATERS DRIP CONNECTION TO HP FLASH TANK
FROM LP HEATER NO. 1
FROM LP HEATER NO. 2
BOP C&I
TG C&I
2X
4X

NOTES:

1. SIZES AND NUMBER OF STARTING/OPERATING VENTS ON HEATERS/DEARATOR SHALL BE AS PER MANUFACTURER'S RECOMMENDATION. NUMBER SHOWN IS INDICATIVE ONLY.
2. NUMBER OF HEATERS SHOWN IS THE MINIMUM TO BE SUPPLIED BY THE BIDDER.
3. FOR DETAILS OF THE DRAINS CONNECTED TO HP & LP FLASH TANKS, REFER DRG: STEAM DRAIN SYSTEM P&ID.
4. MANIFOLD ON THE CONDENSER SHALL NOT BE ACCEPTABLE.
5. BIDDER SHALL PROVIDE STUBS & TAPPING POINTS FOR PG TEST OF EQUIPMENT/ SYSTEM UNDER HIS SCOPE OF SUPPLY AND FOR SAMPLING WHEREVER REQUIRED.
6. SUITABLE FITTINGS/TAPPINGS LIKE FLANGE, COUNTER FLANGE ALONGWITH FASTNER'S OF SUITABLE PR CLASS AFTER EACH STAND PIPE SHALL BE PROVIDED BY THE BIDDER FOR MOUNTING RADAR TYPE LEVEL TRANSMITTER'S (LT##) FOR LEVEL MEASUREMENT OF LPH–1,2& 3.
7. VENTURI TYPE OF FLOW EEMENT IS SHOWN HERE, HOWEVER ,BIDDER MAY OFFER NOZZLE TYPE OF FLOW ELEMENT BASED ON HIS STANDARD PRATICE OR AS PER THE RANGE OF REYNOLDS NO AS MENTIONED IN ISO–5167.
8. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF BIDDER.THE MEASURING INSTRUMENTS INDICATED IN THE TENDER P&ID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER.IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF BIDDER, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.
9. SG–C&I, TG–C&I AND BOP–C&I PART OF DDCMIS ARE IN THE CONTRACTOR SCOPE OF SUPPLY.

FOR TENDER PURPOSE ONLY

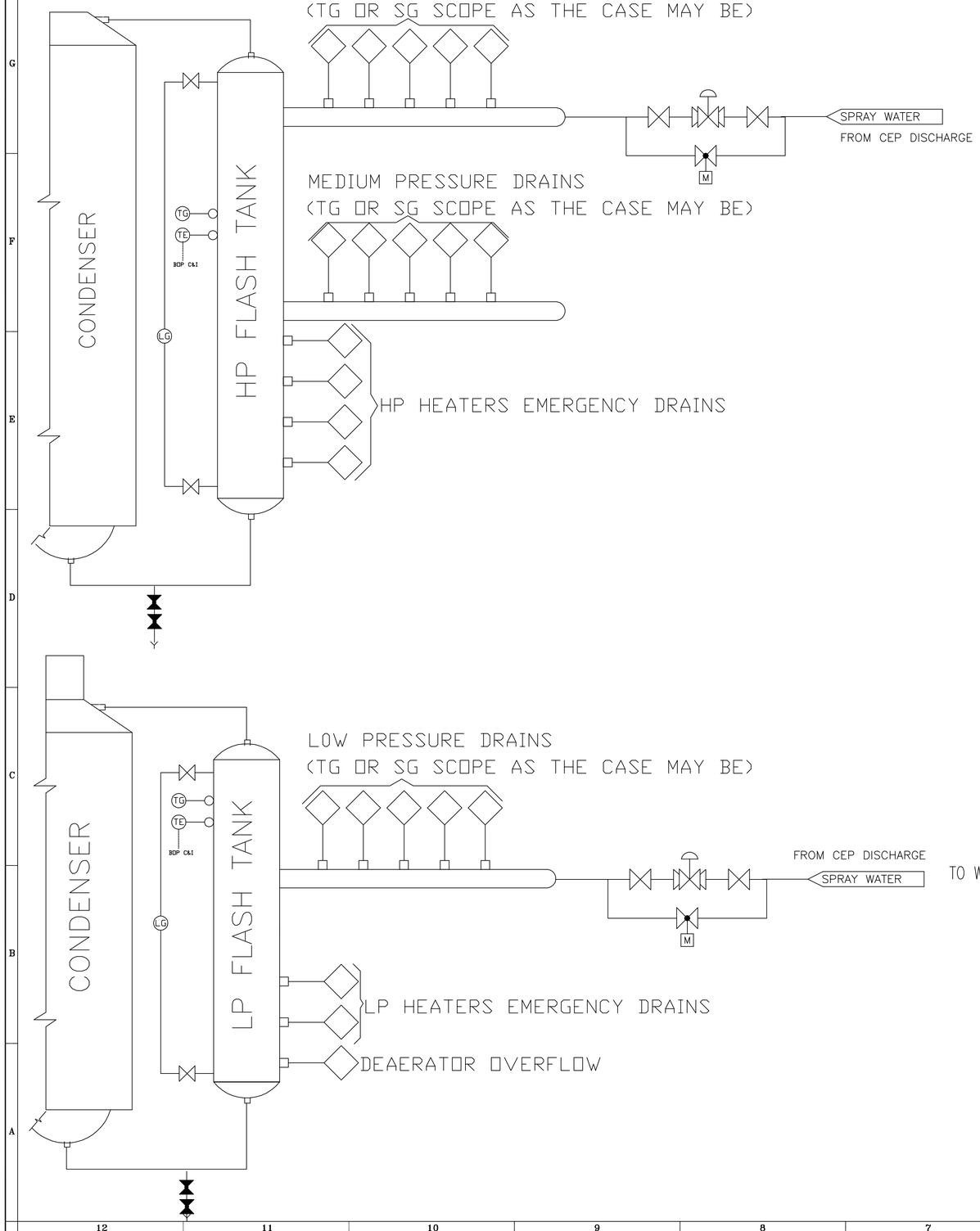
NTPC Ltd.
(A Government of India Enterprise)
ENGINEERING DIVISION

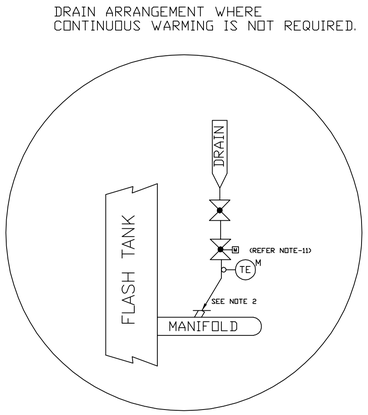
PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW)
(EPC PACKAGE)

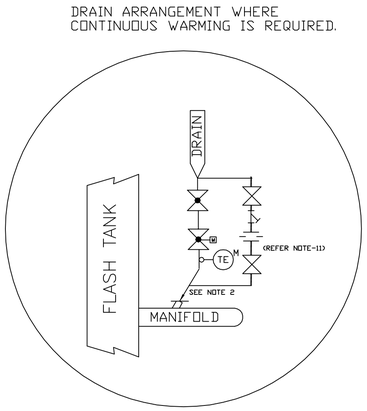
TITLE: HEATER VENT AND DRAINS P&ID

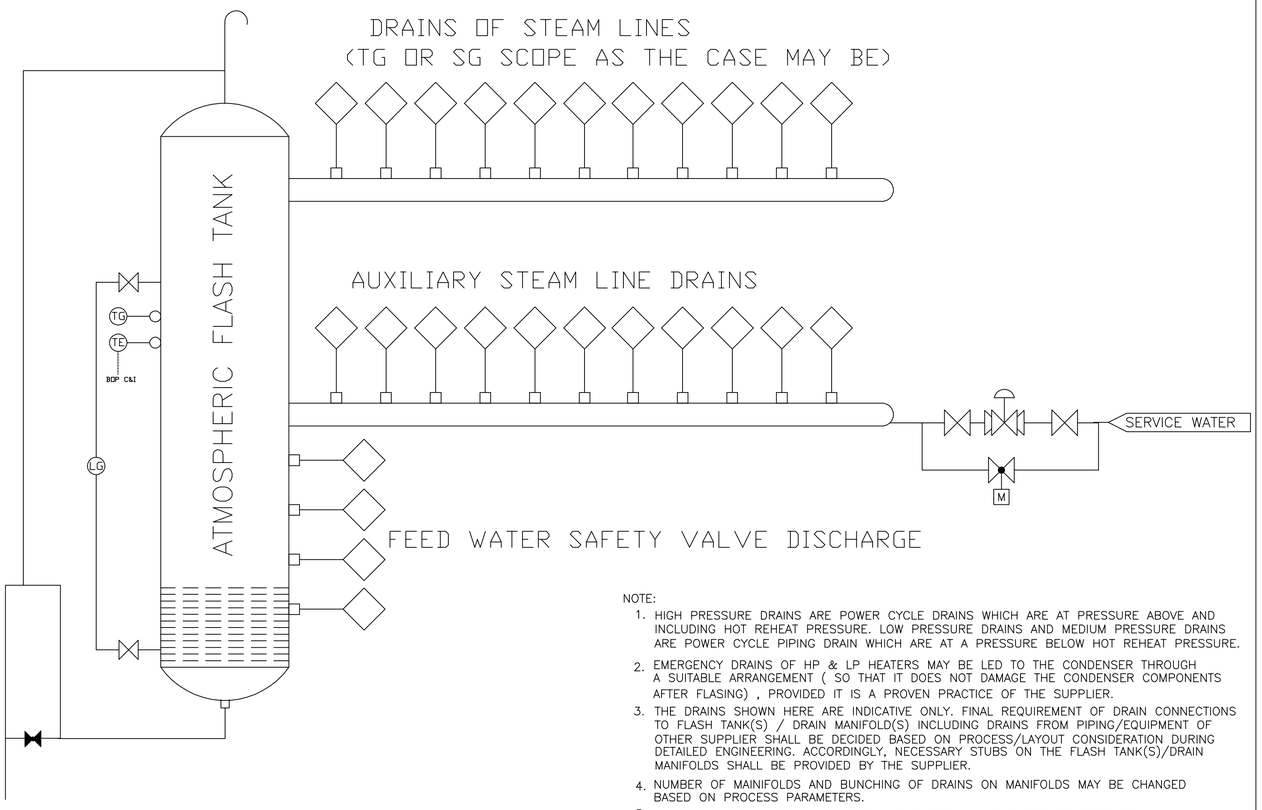
REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.		APPD.	DATE	SIZE	SCALE	DRG NO.	REV. NO.
A	RELEASED FOR TENDER	AS	AS	PKD	M / CLEARED BY C&I	AA	15/06/22	A–1	NTS	CW–21244–999–P0M–A–011	A

AUTOCAD DRG. NO.MJA1SYS08









NOTE:

1. HIGH PRESSURE DRAINS ARE POWER CYCLE DRAINS WHICH ARE AT PRESSURE ABOVE AND INCLUDING HOT REHEAT PRESSURE. LOW PRESSURE DRAINS AND MEDIUM PRESSURE DRAINS ARE POWER CYCLE PIPING DRAIN WHICH ARE AT A PRESSURE BELOW HOT REHEAT PRESSURE.
2. EMERGENCY DRAINS OF HP & LP HEATERS MAY BE LED TO THE CONDENSER THROUGH A SUITABLE ARRANGEMENT (SO THAT IT DOES NOT DAMAGE THE CONDENSER COMPONENTS AFTER FLASING) , PROVIDED IT IS A PROVEN PRACTICE OF THE SUPPLIER.
3. THE DRAINS SHOWN HERE ARE INDICATIVE ONLY. FINAL REQUIREMENT OF DRAIN CONNECTIONS TO FLASH TANK(S) / DRAIN MANIFOLD(S) INCLUDING DRAINS FROM PIPING/EQUIPMENT OF OTHER SUPPLIER SHALL BE DECIDED BASED ON PROCESS/LAYOUT CONSIDERATION DURING DETAILED ENGINEERING. ACCORDINGLY, NECESSARY STUBS ON THE FLASH TANK(S)/DRAIN MANIFOLDS SHALL BE PROVIDED BY THE SUPPLIER.
4. NUMBER OF MAINIFOLDS AND BUNCHING OF DRAINS ON MANIFOLDS MAY BE CHANGED BASED ON PROCESS PARAMETERS.
5. IN ADDITION TO WHAT IS INDICATED IN THIS DRG. ALL THE REQUIREMENTS OF ASME-TDP (LATEST) SHALL BE DULY MET BY THE BIDDER. IN ADDITION, THE SUPPLIER SHALL INCLUDE THE SUPPLIES WHICH ARE AS PER SUPPLIERS STANDARD PRACTICE.
6. MINIMUM TWO NOS. OF STUBS ON EACH MANIFOLD ON EACH FLASH TANK SHALL BE PROVIDED BY THE SUPPLIER AS SPARE , AFTER FINALISATION OF TOTAL REQUIREMENT.
7. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF BIDDER.THE MEASURING INSTRUMENTS INDICATED IN THE TENDER P&ID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER.IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF BIDDER, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.
8. ALSO REFER DRG. NO. CW-21244-999-POM-A-004 TO CW-21244-999-POM-A-011.
9. IN LIEU OF HP & LP FLASH TANKS, BIDDER MAY ALSO OFFER FLASH BOXES ATTACHED TO CONDENSER, IF IT IS A STANDARD AND PROVEN PRACTICE OF THE BIDDER. HOWEVER, NUMBER OF FLASH TANKS/ FLASH BOXES SHALL BE AS INDICATED IN THIS TENDER P&ID.
10. TEMPRATURE ELEMENTS TE TO BE PROVIDED AT THE DOWNSTREAM OF ALL REMOTE CONTROLLED ON/OFF DRAIN VALVES. TEMPERATURE ELEMENT IS TO BE CONNECTED TO CONTROL SYSTEM WHEREIN UPSTREAM DRAIN VALVE IS BEING CONNECTED.
11. SG-C&I,TG-C&I AND BOP-C&I PART OF DDCMIS ARE IN CONTRACTORS SCOPE OF SUPPLY.
12. THE MOTORISED VALVE IN DRAIN LINES HAVE BEEN SHOWN IN THIS P&ID. HOWEVER, BIDDER MAY OFFER PNEUMATIC VALVES IN DRAIN LINES, IF IT IS A STANDARD & PROVEN PRACTICE OF THE BIDDER.
13. SIZING OF ATMOSPHERIC FLASH TANK AND SPRAY WATER TO IT, SHALL BE DONE BY THE BIDDER SUCH THAT WASTE WATER,IF DRAINED TO OPEN PIT,ITS TEMPERATURE SHOULD NOT BE MORE THAN 60 DEG C.
14. THE SIZE OF DRAIN LINES SHALL NOT BE LESS THAN 40 NB.

FOR TENDER PURPOSE ONLY

NTPC Ltd.
(A Government of India Enterprise)
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW)
(EPC PACKAGE)

TITLE: STEAM DRAIN SYSTEM P&ID

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	APPD.	DATE
A	RELEASED FOR TENDER PURPOSE	AS	AS	PKD	M / CLEARED BY C&I	AA 15/06/22

SIZE	SCALE	DRG NO.	REV. NO.
A-1	NTS	CW-21244-999-POM-A-012	A

AUTOCAD DRG. NO.MJA1SYS12

VALVES

NORMALLY OPEN	NORMALLY CLOSED	TYPE
		GATE
		GLOBE/INCHING
		PLUG
		QUICK OPENING (LEVER OPERATED)
		BUTTERFLY
		BALL
		CHECK
		STOP CHECK
		3 WAY
		VALVES WITH WATER GLAND SEALING
		4 WAY
		ANGLE STOP CHECK
		ANGLE
		VACUUM RELIEF
		ANGLE SAFETY OR RELIEF.
		EXTRACTION STEAM NON RETURN WITH PISTON AND CYLINDER
		ANGLE CHECK
		SLIDE GATE
		SAUNDERS (WEIR)
		AIR RELEASE VALVE
		CONTROL VALVE
		VALVE WITH SILENCER
		VALVE WITH STRAINER

SOURCE/IN-LINE INSTRUMENT DEVICES

- TEST WELL
- THERMO WELL
- FLOW THROUGH DEVICE
- LOCAL INSTRUMENT
- ORIFICE PLATE WITH FLANGE TAPS
- ORIFICE PLATE WITH PIPE TAPS
- FLOW NOZZLE WITH D&D/2 TAPS
- VENTURI VENA CONTRACTA WITH PIPE TAPS.
- PITOT TUBE OR TARGET TYPE
- ROTAMETER
- SIGHT FLOW INDICATOR
- ORIFICE

PIPING SPECIALITIES

SYMBOL	DESCRIPTION
	VALVE BOX (TO GRADE)
	DELUGE VALVE
	ALARM CHECK VALVE
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
	BLIND FLANGE
	SPRAY NOZZLE
	SPARGER
T	TRAP WITH INTEGRAL STRAINER
	STRAINER (WYE-TYPE)
	TEMPORARY STRAINER
S	STRAINER (SIMPLEX)
S S	STRAINER (DUPLEX)
	CONICAL STRAINER
X X	EJ-EXPANSION JOINT FC-FLEXIBLE COUPLING
	RUPTURE DISC
	DESUPERHEATER OR ATTEMPERATOR
	RESTRICTING ORIFICE
	LOOP SEAL
F	FILTER
	REHEATER ISOLATOR
	REDUCER
	INSULATING FLANGE
	THREADED OR SOCKET WELDED CAP
	WELDED CAP
	ATMOSPHERIC VENT
	OPEN DRAIN
	OPEN VENT ON RELIEF VALVE DISCHARGE WITH DRIP PAN
	PRIMARY VALVE PROVIDED WITH INTERGRAL BYPASS
	FLANGE CONNECTION
NO	SPECTACLE FLANGE NORMALLY OPEN (NC MEANS NORMALLY CLOSED)
	DRAIN POT

- (LSO) LEVEL SWITCH OPEN
- (LSC) LEVEL SWITCH CLOSED
- (LT)** RADAR TYPE LEVEL TRANSMITTER
- (FI) FLOW INDICATOR(LOCAL)
- (FS) FLOW SWITCH
- (FT) FLOW TRANSMITTER
- (FE) FLOW ELEMENT

SYMBOL	DESCRIPTION
	ELECTROMATIC RELIEF VALVE/POWER OPERATED IMPULSE SAFTEY VALVE
M S	ELECTRIC MOTOR
S	SOLENOID (SPRING OPPOSED)
G	GEAR MANUAL/AIR WRENCH
EH	ELECTRO-HYDRAULIC
	PISTON & CYLINDER
	DIAPHRAGM (SPRING OPPOSED)
	SELF CONTAINED PRESSURE REGULATOR
	MANUAL (SPECIAL CASE USE-ONLY)
	FLOAT OPERATED
	THIS SYMBOL REPRESENTS TERMINAL POINTS AND THE DIRECTION OF ARROW INDICATES RESPECTIVE BIDDER'S SCOPE OF SUPPLY.
XXXXXXX	LINE CONTINUATION FLAG
	REFERENCE DRG. NUMBER

NOTE:- WHEN NOT DEFINED OTHERWISE, THE DRG. NOS.REFERRED HEREIN SHALL BE NTPC"S DRG. NOS.

ABBREVIATIONS:-

SG: STEAM GENERATOR PACKAGE
TG: TURBINE GENERATOR PACKAGE
BOP: BALANCE OF PLANT PACKAGE
LPP: LOW PRESSURE PIPING PACKAGE
LT** GUIDED WAVE RADAR TYPE LEVEL TRANSMITTER

- BOP C&I — CONTROL SCOPE IN SG ISLAND PACKAGE
- TG C&I — CONTROL SCOPE IN STG ISLAND PACKAGE
- SG C&I — CONTROL SCOPE IN SG ISLAND PACKAGE
- BOP- C&I- TG — CONTROL SCOPE IN STG ISLAND PACKAGE

- (DPI) DIFFERENTIAL PRESSURE INDICATOR (LOCAL)
- (DPT) DIFFERENTIAL PRESSURE TRANSMITTER
- (DPS) DIFFERENTIAL PRESSURE SWITCH

- (LS) LEVEL SWITCH
- (LT) LEVEL TRANSMITTER
- (PS) PRESSURE SWITCH
- (PT) PRESSURE TRANSMITTER
- (SP) SMART POSITIONER
- (TE) TEMPERATURE ELEMENT
- (TS) TEMPERATURE SWITCH
- (FI) TEMPERATURE TRANSMITTER
- (TG) TEMPERATURE GUAGE
- (PG) PRESSURE GUAGE
- (TE)M TEMPERATURE ELEMENT (METAL)
- (AE-CEc) CONDUCTIVITY ANALYSER (CAT)
- (AE-CE) CONDUCTIVITY ANALYSER (SP)
- (AE-PH) PH ANALYSER
- (AE-SA) SODIUM ANALYSER
- (AE-SI) SILICA ANALYSER
- (LG) (LIR) LEVEL INDICATOR(LOCAL) FLOAT TYPE/REFLEX TYPE
- ($AE-DO_2$) DISSOLVE OXYGEN ANALYSER
- INSTRUMENT WITH DIAPHRAGM

- (LG) LEVEL GAUGE (LOCAL)
- (LGF) LEVEL INDICATOR (LOCAL) FLOAT TYPE
- (LGR) LEVEL INDICATOR (LOCAL) REFLEX TYPE
- SOV SOLENOID VALVE
- (TI) TEMPERATURE INDICATOR (LOCAL)
- (TT) TEMPERATURE TRANSMITTER
- (VG) VACUUM GAUGE
- (VS) VACUUM SWITCH
- (LSO) LIMIT SWITCH OPEN
- (LSC) LIMIT SWITCH CLOSED
- (AE-RC) RESIDUAL CHLORINE ANALYSER
- (AE-TU) TURBIDITY ANALYSER
- ANCHOR POINT
- STRAINER

NOTES:

1. THE SYMBOLS AS INDICATED HEREIN ARE APPLICABLE FOR THE P&I DIAGRAMS:-CW-21244-999-POM-A-004 TO CW-21244-999-POM-A-013
2. ALL THE ABOVE DIAGRAMS ARE INDICATIVE ONLY AND DO NOT DEFINE THE FULL EXTENT OF SUPPLY. IT SHALL BE BIDDERS' RESPONSIBILITY TO ENSURE THAT THE SYSTEMS ARE COMPLETE IN ALL RESPECTS AND FOR THIS IF ANY ADDITIONAL EQUIPMENTS/PIPING/VALVES/ INSTRUMENTATION ETC. ARE REQUIRED, THE SAME SHALL BE CONSIDERED INCLUDED IN THE BIDDER'S SCOPE OF WORK.
3. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF BIDDER.THE MEASURING INSTRUMENTS INDICATED IN THE TENDER P&ID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER.IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF BIDDER, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.
4. SG-C&I,TG-C&I AND BOP-C&I PART OF DDCMIS ARE IN CONTRACTORS SCOPE OF SUPPLY.
5. IN THE DIRECTION OF FLOW PRESSURE STUB FOLLOWED BY TEMPERATURE STUB TO BE PROVIDED.
6. TAPPINGS SHOWN ON DIFFERENT P&IDs ARE INDICATIVE ONLY.HOWEVER BIDDER TO PROVIDE ADDITIONAL STUBS(IF REQUIRED) AS PER SYSTEM REQUIREMENT DURING DETAIL ENGINEERING.

FOR TENDER PURPOSE ONLY

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NTPC Ltd.
(A Government of India Enterprise)
ENGINEERING DIVISION

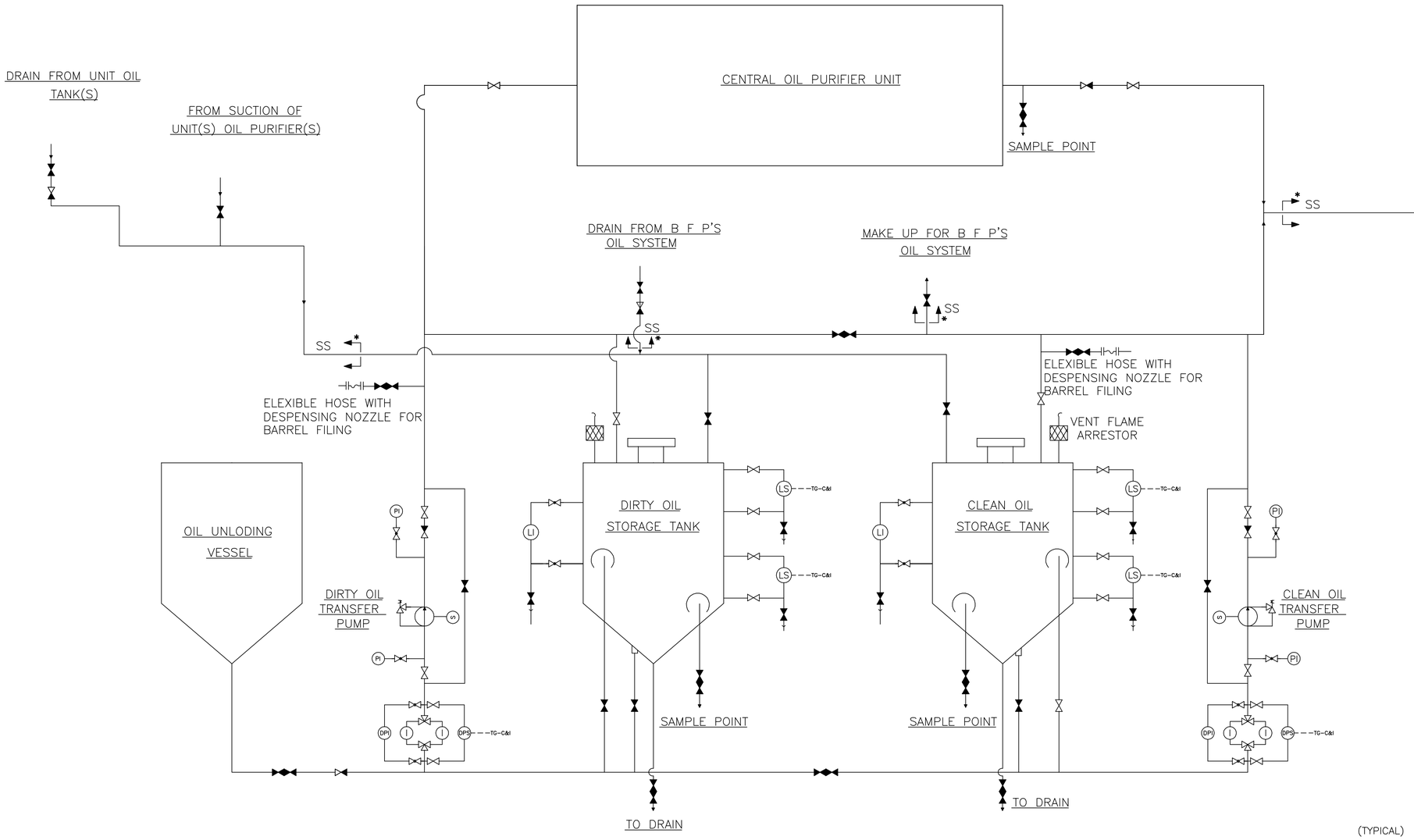
REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.			APPD.	DATE
A	RELEASED FOR TENDER	AS	AS	PKD	M / CLEARED BY	C&I	AA	15/06/22

PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW) (EPC PACKAGE)

TITLE: SYMBOL/LEGENDS

SIZE	SCALE	DRG NO.	REV. NO.
A-1	NTS	CW-21244-999-POM-A-013	A

AUTOCAD DRG. NO. MJA1SYS010



(TYPICAL)

LEGEND

SYMBOL	DESCRIPTION
	DUPLEX STRAINER
	FLAME ARRESTER
	RELIEF VALVE
	NON RETURN VALVE
	GATE VALVE
	ELECTRICAL DRIVE
	GLOBE VALVE
	THREE WAY VALVE

NOTES

1. THE DRAWING IS INDICATIVE AND DOES NOT DEFINE THE FULL EXTENT OF SUPPLY.
2. SUITABLE HANDLING ARRANGEMENT FOR UNLOADING FROM BARREL AND ALSO FROM TANKER INTO UNLOADING VESSEL TO BE PROVIDED BY THE SUCCESSFUL BIDDER.
3. THE SYSTEM IS COMMON FOR ALL TG SETS.
4. ALL THE LOCAL DRAINS FROM THE EQUIPMENT SHALL BE LED TO THE DRAIN OIL PIT BY THE SUCCESSFUL BIDDER.
5. THE DRAINS, MAKE UP AND SUPPLY IS SHOWN TYPICALY FOR ONE UNIT.
6. ALL CONTROLS ARE IN THE SCOPE OF SUCCESSFUL BIDDER
7. ALL THE INSTRUMENT SHALL BE IN THE SCOPE OF BIDDER. THE MEASUERING INSTRUMENTS INDICATED IN THE TENDER PID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER. IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF THE BIDDER/SUB-VENDOR, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.

* TERMINAL POINT FOR SS OIL PIPING SHALL BE AT THE ENTRY TO COPU ROOM

FOR TENDER PURPOSE ONLY

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPD.	DATE
A	RELEASED FOR TENDER	PK	PK	AA	CLEARED BY						

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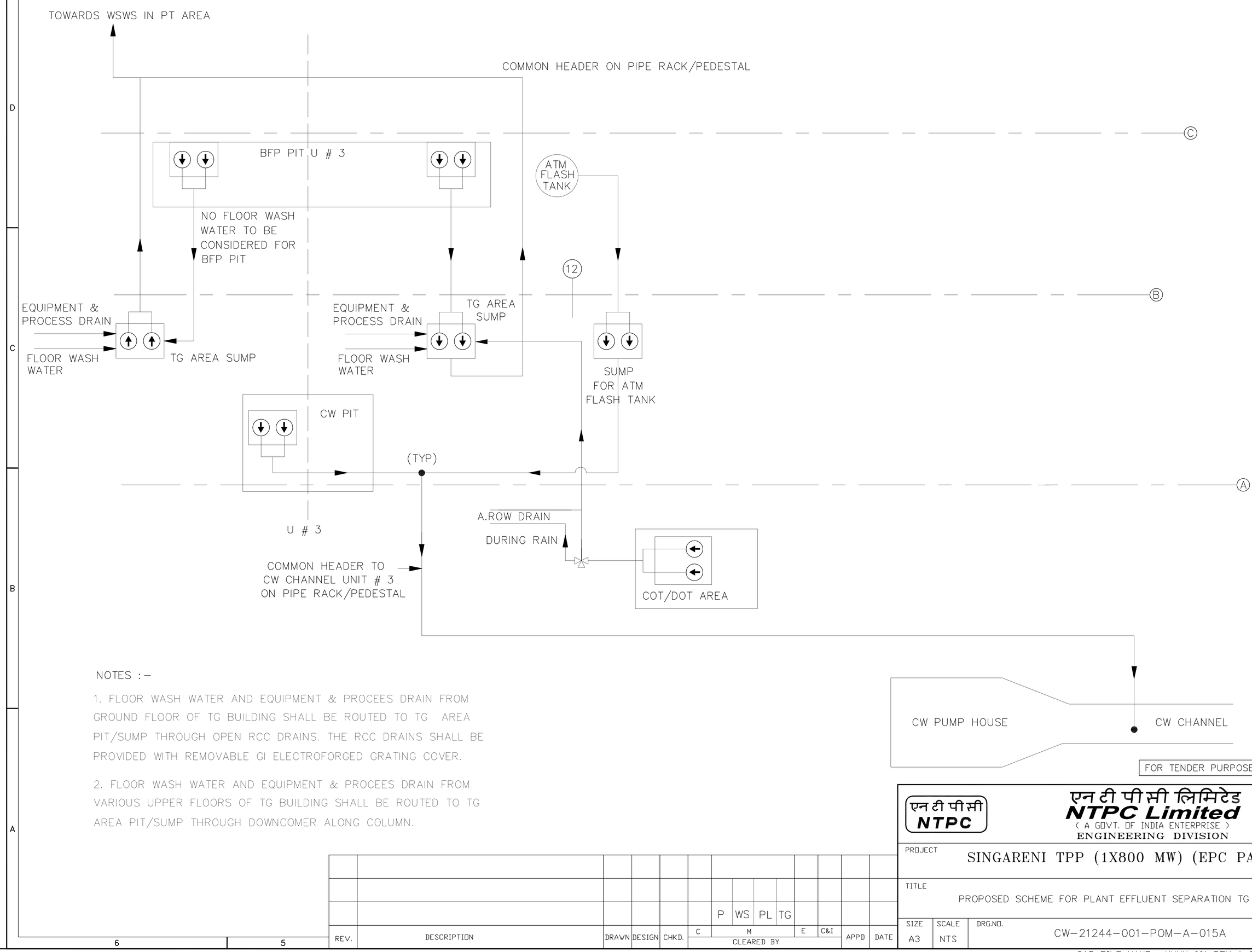
PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW)

TITLE: CENTRAL LUBE OIL STORAGE & PURIFICATION SYSTEM

SIZE	SCALE	DRAWING No.	REV.
A-2	NTS	CW-21244-001-POM-A-015	A

CAD FILE NAME :XXXX-001-POM-A-015



NOTES :–

1. FLOOR WASH WATER AND EQUIPMENT & PROCEES DRAIN FROM GROUND FLOOR OF TG BUILDING SHALL BE ROUTED TO TG AREA PIT/SUMP THROUGH OPEN RCC DRAINS. THE RCC DRAINS SHALL BE PROVIDED WITH REMOVABLE GI ELECTROFORGED GRATING COVER.

2. FLOOR WASH WATER AND EQUIPMENT & PROCEES DRAIN FROM VARIOUS UPPER FLOORS OF TG BUILDING SHALL BE ROUTED TO TG AREA PIT/SUMP THROUGH DOWNCOMER ALONG COLUMN.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	P	WS	PL	TG	M	E	C&I	APPD	DATE
					CLEARED BY									

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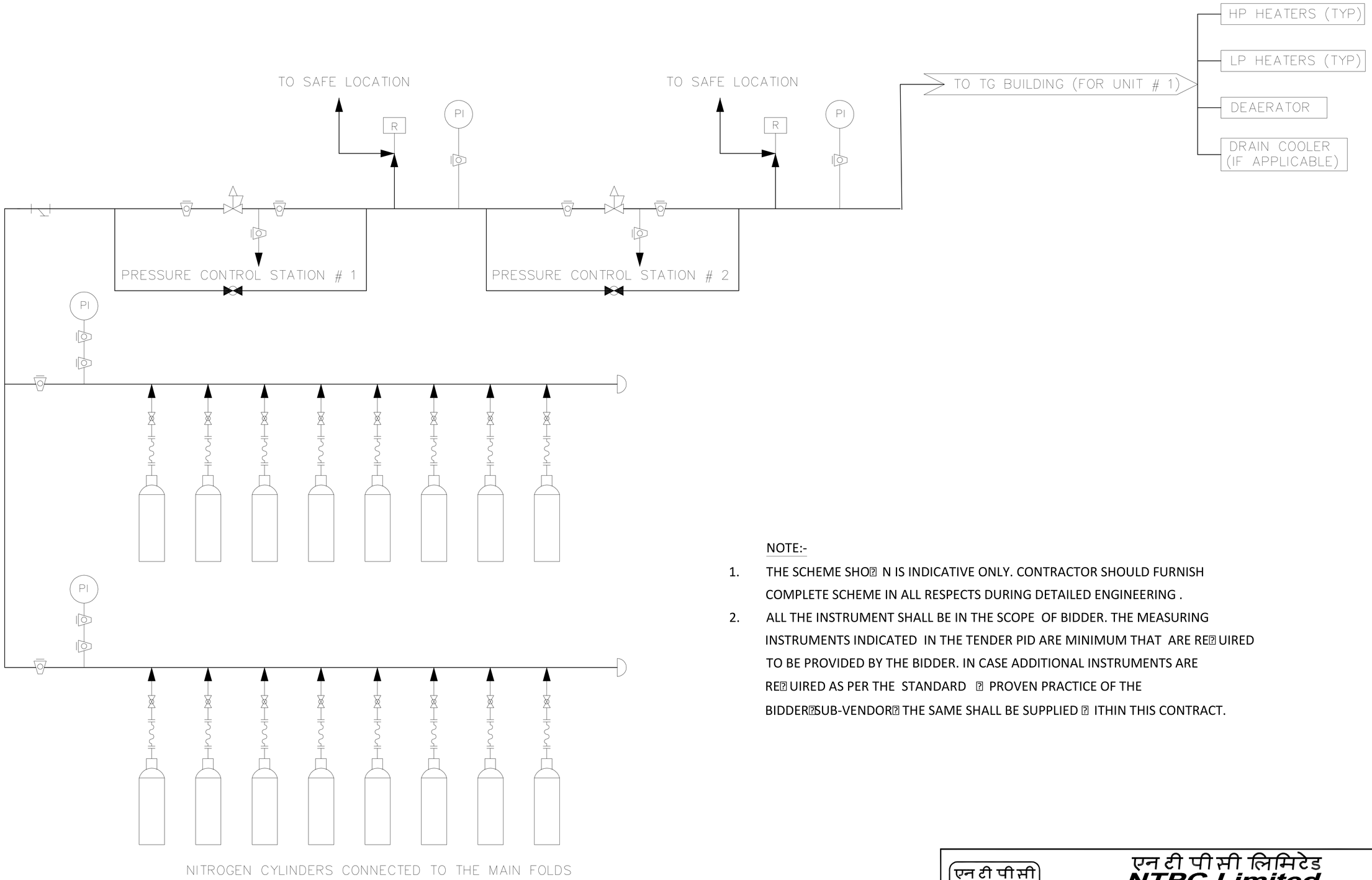
ENGINEERING DIVISION

PROJECT: SINGARENI TPP (1X800 MW) (EPC PACKAGE)

TITLE: PROPOSED SCHEME FOR PLANT EFFLUENT SEPARATION TG AREA

SIZE	SCALE	DRG.NO.	REV.
A3	NTS	CW–21244–001–POM–A–015A	A

CAD FILE NAME : XXXX-001-POM-A-015A



NOTE:-

1. THE SCHEME SHO□ N IS INDICATIVE ONLY. CONTRACTOR SHOULD FURNISH COMPLETE SCHEME IN ALL RESPECTS DURING DETAILED ENGINEERING .
2. ALL THE INSTRUMENT SHALL BE IN THE SCOPE OF BIDDER. THE MEASURING INSTRUMENTS INDICATED IN THE TENDER PID ARE MINIMUM THAT ARE RE□ UIRED TO BE PROVIDED BY THE BIDDER. IN CASE ADDITIONAL INSTRUMENTS ARE RE□ UIRED AS PER THE STANDARD □ PROVEN PRACTICE OF THE BIDDER□SUB-VENDOR□ THE SAME SHALL BE SUPPLIED □ ITHIN THIS CONTRACT.

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					

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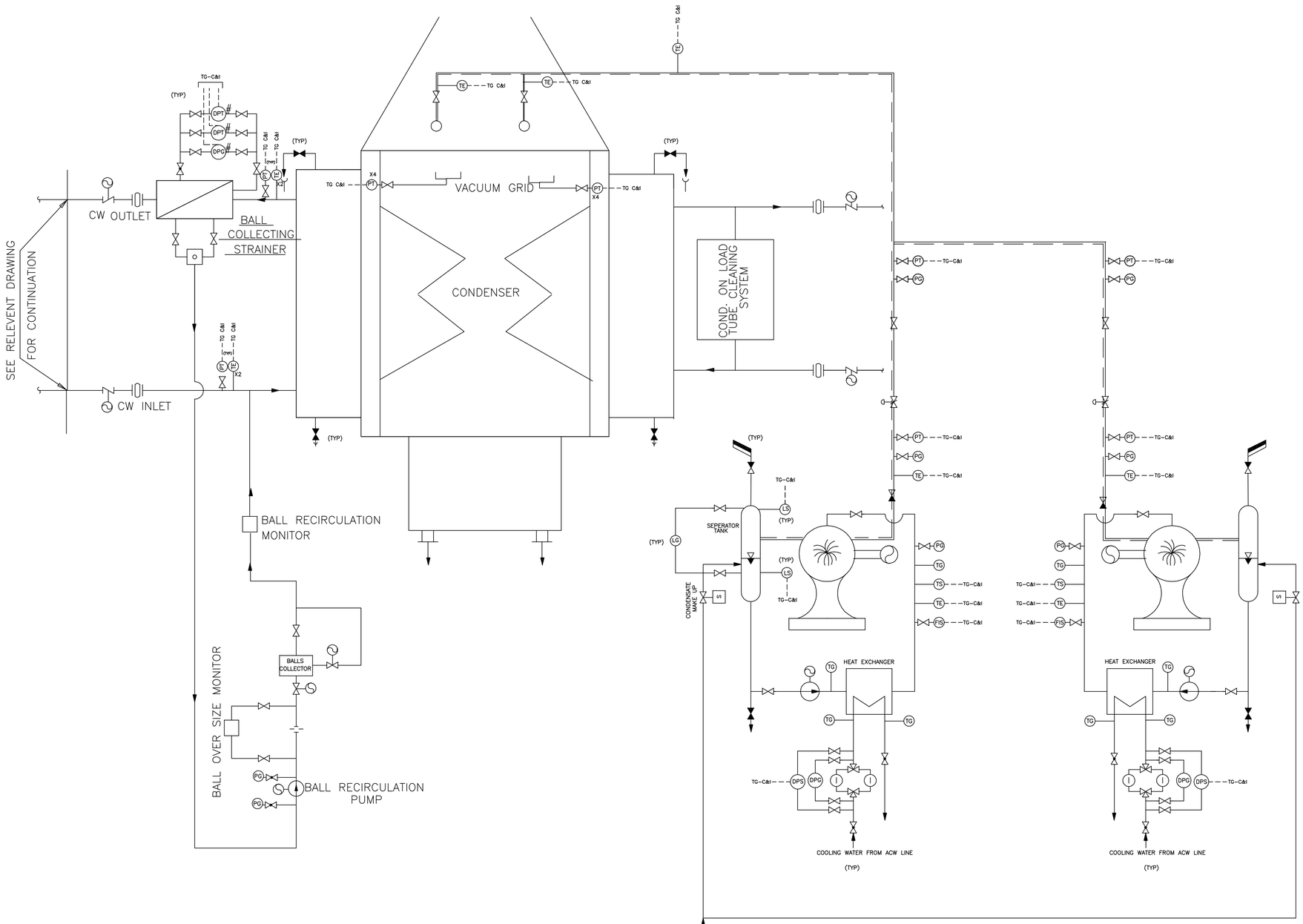
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL P□WER PLANT (1X800 MW)

TITLE: **CENTRALISED NITROGEN FILLING S□STEM**

SIZE	SCALE	DRG.NO.	REV.
A1	NTS	**CW□212□□001□POM□A□015□**	

CAD FILE NAME : XXXX-001-P□M-A-015B



LEGEND

SYMBOL	DESCRIPTION
	DUPLEX STRAINER
	PNEUMATICALLY OPEARATED
S	SOLENOID OPERATED
	ELECTRICAL DRIVE
	BUTTERFLY VALVE
	CENTRIFUGAL PUMP
	EXPANSION JOINT
	VENT TO ATMOSPHERE TO BE SUITABLY LED OUTSIDE THE BUILDING.
	ISOLATING VALVE
	ORIFICE
	NON RETURN VALVE
	THREE WAY VALVE

NOTES

1. THE DRWING IS INDICATIVE AND DOES NOT DEFINE THE FULL EXTENT OF SUPPLY.
2. ALL VALVES SUBJECTED TO VACUUM SHALL BE PROVIDED WITH PROPER GLAND SEALING ARRANGEMENT.
3. ALL EQUIPMENT AND PIPING SHALL BE PROVIDED WITH PROPER DRAINAGE AND VENTING ARRANGEMENT . THE DRAINS SHALL BE LED TO THE NEAREST AVAILABLE DRAIN HEADER BY THE SUPPLIER AND THE VENTS SHALL BE SUITABLY LED TO OUTSIDE THE MAIN PLANT BUILDING.
4. ALL THE INSTRUMENT SHALL BE IN THE SCOPE OF BIDDER. THE MEASUERING INSTRUMENTS INDICATED IN THE TENDER PID ARE MINIMUM THAT ARE REQUIRED TO BE PROVIDED BY THE BIDDER. IN CASE ADDITIONAL INSTRUMENTS ARE REQUIRED AS PER THE STANDARD & PROVEN PRACTICE OF THE BIDDER/SUB-VENDOR, THE SAME SHALL BE SUPPLIED WITHIN THIS CONTRACT.
5. DETAILS OF CONDENSER ON LOAD TUBE CLEANING SYSTEM IS SHOWN FOR ONE HALF OF DIVIDED WATER BOX CONDENSER.
6. # THESE SHALL BE REMOTE SEAL TYPE.
7. DEWATERING PUMP SHALL BE PROVIDED FOR CW PIT.
8. THE DRAWING IS TYPICAL, NO. OF CONDENSER SHALL BE AS PER SPECIFCATION.
9. THE BALL COLLECTION SYSTEM SHOWN ARE INDICATIVE. BIDDER MAY OFFER THE SYSTEM AS PER THEIR PROVEN PRACTICE MEETING INTENT AND OBJECTIVE OF SPECIFICATION AND PROCESS.

FOR TENDER PURPOSE ONLY

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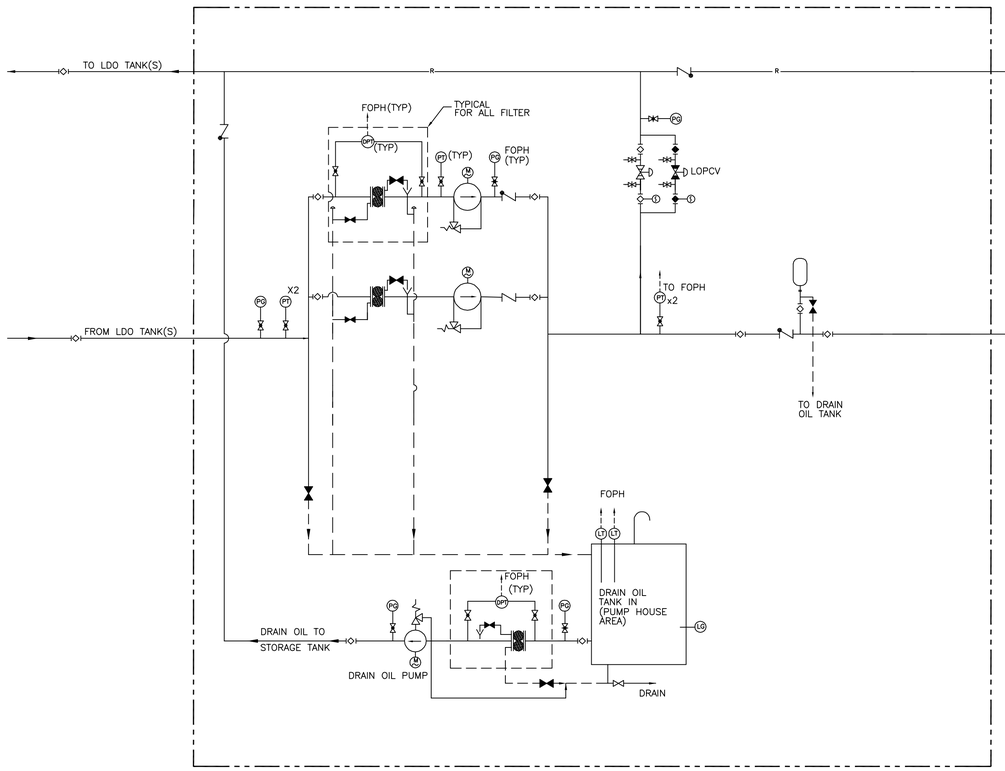
PROJECT: SINGARENI THERMAL POWER PLANT (1X800 MW)

TITLE: AIR EXTRACTION SYSTEM AND CONDENSER ON LOAD TUBE CLEANING SYSTEM

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH.	APPD.	DATE
A	RELEASED FOR TENDER	P K	P K	A A	CLEARED BY						

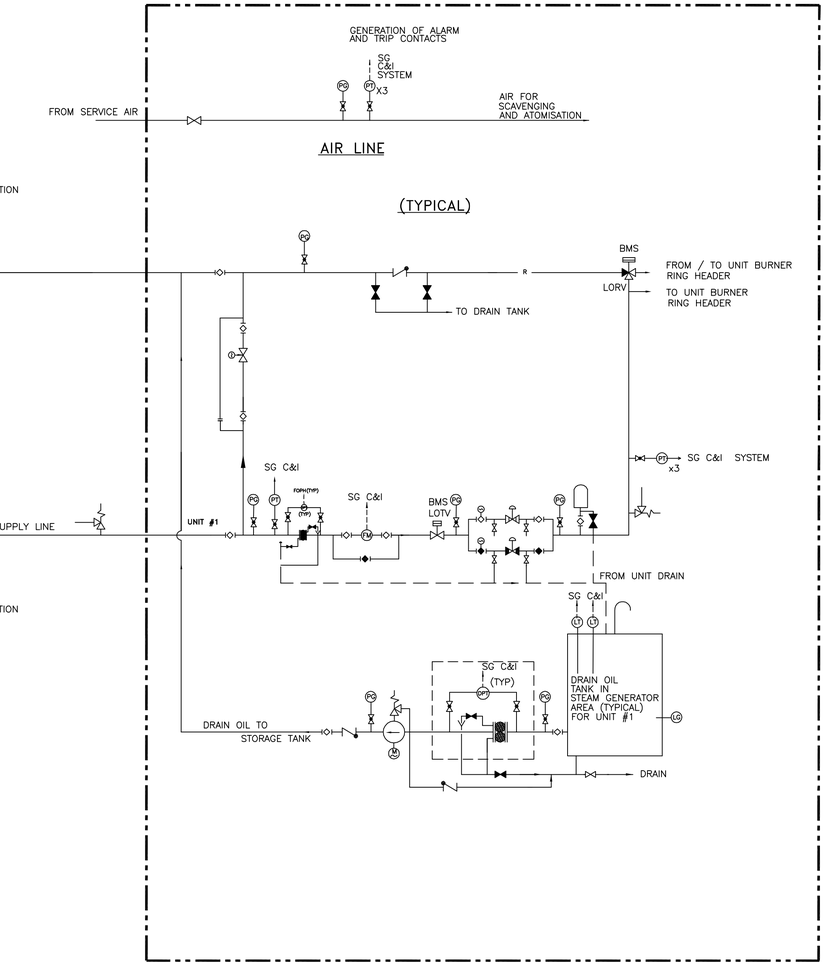
SIZE	SCALE	DRAWING No.	REV.
A-2	NTS	CW-21244-001-POM-A-016	A

CAD FILE NAME :XXXX-001-POM-A-016



PUMP HOUSE AREA

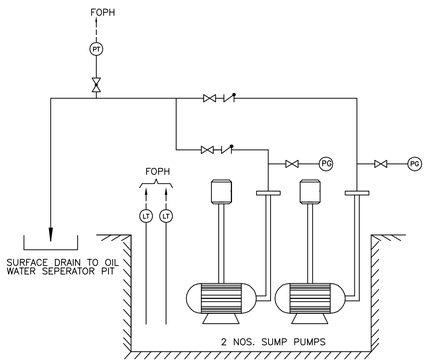
LDO SCHEME



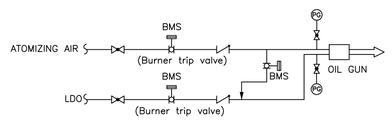
TYPICAL FOR ONE BOILER AREA

LEGEND

PG	PRESSURE GAUGE
TG	TEMPERATURE GAUGE
	DIAPHRAGM SEAL
	GATE VALVE FOR ISOLATION
	PLUG VALVE
	GLOBE VALVE
TE	TEMPERATURE ELEMENT
TT	TEMPERATURE TRANSMITTER
FM	FLOW METER(CORIOLIS TYPE MASS FLOW METER)
LT	RADAR/ULTRASONIC TYPE LEVEL TRANSMITTER
FQI	FLOW TOTALISER
	DC OPERATED PNEUMATIC ON/OFF VALVE
	CONTROL VALVE
	NORMALLY CLOSED CONTROL VALVE
	ON–OFF TYPE MOTORISED VALVE, AC
	MOTORISED INCHING VALVE
	MOTORISED PLUG VALVE.
	NORMALLY CLOSED MOTORISED PLUG VALVE.
	SIMPLEX FILTER
DPG	DIFFERENTIAL PRESSURE GAUGE
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
	MANUAL INCHING VALVE
	THREE WAY VALVE
PT	PRESSURE TRANSMITTER
	MANUAL DUPLEX FILTER
	POSITIVE DISPLACEMENT PUMP
	NON RETURN VALVE
	ACCUMULATOR
	RELIEF VALVE
	NORMALLY CLOSED VALVE
	DRAIN LINE
	LDO LINE
BOP (C&I)	BALANCE OF PLANT (C&I)



SUMP IN PUMP HOUSE



BURNER DETAIL

NOTES

1. THE SCHEME SHOWN IS INDICATIVE ONLY AND THE SAME SHALL BE FINALISED DURING DETIALED ENGG. BASED ON TECHNICAL SPECIFICATIONS AND SYSTEM REQUIRMENTS.
2. INSTRUMENTS SHOWN HERE ARE THE INDICATIVE REQUIRMENT, ALL ADDITIONAL INSTRUMENTS NEEDED AS PER SYSTEM/DESIGN REQUIRMRNT SHALL BE PROVIDED BY THE CONTRACTOR.
3. IN ADDITION TO THE INSTRUMENTS INDICATED IN THE TENDER PID, ANY OTHER INSTRUMENT WHICH ARE REQUIRED FOR CONTROL, INTERLOCKS AND PROTECTIONS OF BIDDER SUPPLIED BINARY AND MODULATING DRIVES AND MONITORING OF CRITICAL PARAMETERS SHALL BE IN THE SCOPE OF BIDDER.
4. ALL HIGHER POINTS SHALL BE PROVIDED WITH VENTS ALONG WITH ISOLATING VALVES. THE LOW POINT SHALL BE PROVIDED WITH DRAINS ALONG WITH ISOLATING VALVES.
5. ALL VALVES IN OIL LINE SHALL BE PLUG TYPE.
6. PRESSURE RELIEF VALVE SHALL BE PROVIDED,WHEREVER NECESSARY.
7. EXPANSION LOOPS (IF REQUIRED) SHALL BE PROVIDED FOR FUEL OIL.
8. ALL INSTRUMENTATION SHOWN HERE ARE TYPICAL FOR ONE SET OF EQPT./STREAM AND TO BE PROVIDED FOR ALL SIMILAR APPLICATIONS.
9. UNIT DRAIN TANK INSTRUMENTS ARE TO BE CONNECTED TO SG–C&I PART OF DDCMIS AND THE COMPLETE CONTROL SHALL BE IMPLEMENTED IN SG–C&I SYSTEM.
10. FOPH DRAIN OIL SYSTEM IS TO BE CONTROLLED FROM FUEL OIL CONTROL SYSTEM.
11. ARRANGEMENT FOR FLUSHING OF LDO SYSTEM TO BE PROVIDED AS PER CONTRACTOR'S PROVEN PRACTICE.
12. CONTROL OF THE COMPLETE SYSTEM IS IN THE SCOPE OF CONTRACTOR.
13. FOPH, SG (C&I) & BOP (C&I) PART OF DDCMIS ARE IN THE SCOPE OF CONTRACTOR.

SYSTEM CONFIGURATION	
NO OF BOILER	LDO PUMP
1	2 (1W+1S)

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD	L/O	TG	SG	LP	MH	WS	E	C	C&I	APPD	DATE
A	RELEASED FOR TENDER PURPOSE	Tejabar	AKS	AKS	AK									SM	14.02.18

CLEARED BY

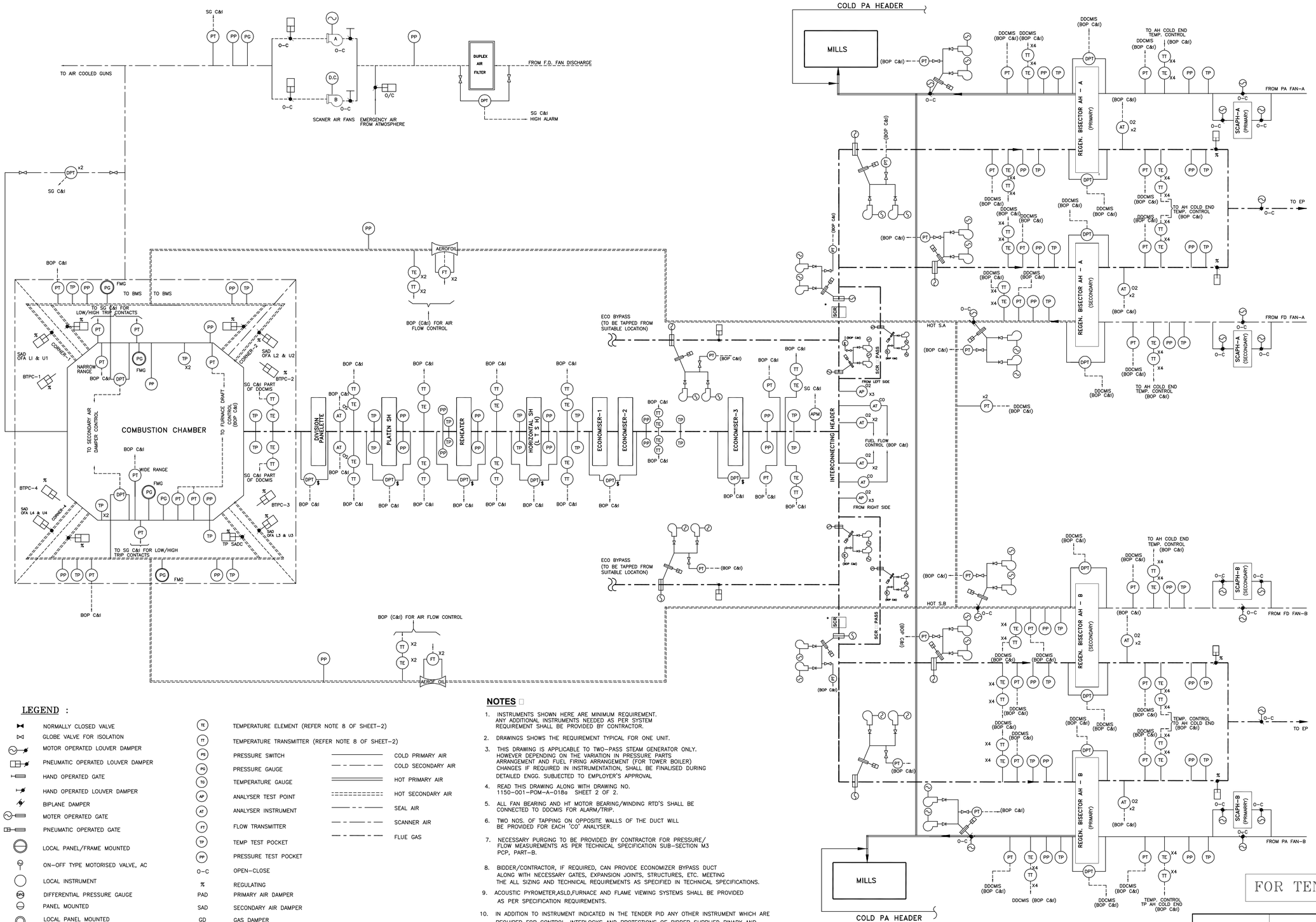
CONSULTANT: एनटीपीसी NTPC

NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
CONSULTANCY WING

PROJECT: SINGRENI THERMAL POWER PROJECT STAGE–II (1x800MW)

TITLE: FUEL OIL SCHEME

SIZE	SCALE	DRG.NO.	REV.
A1		CW□212□□□70□POM□A□017	A



LEGEND :

NORMALLY CLOSED VALVE	TE	TEMPERATURE ELEMENT (REFER NOTE 8 OF SHEET–2)	
GLOBE VALVE FOR ISOLATION	TT	TEMPERATURE TRANSMITTER (REFER NOTE 8 OF SHEET–2)	
MOTOR OPERATED LOUVER DAMPER	PS	PRESSURE SWITCH	COLD PRIMARY AIR
PNEUMATIC OPERATED LOUVER DAMPER	PG	PRESSURE GAUGE	COLD SECONDARY AIR
HAND OPERATED GATE	TG	TEMPERATURE GAUGE	HOT PRIMARY AIR
HAND OPERATED LOUVER DAMPER	AP	ANALYSER TEST POINT	HOT SECONDARY AIR
BIPLANE DAMPER	AT	ANALYSER INSTRUMENT	SEAL AIR
MOTER OPERATED GATE	FT	FLOW TRANSMITTER	SCANNER AIR
PNEUMATIC OPERATED GATE	TP	TEMP TEST POCKET	FLUE GAS
LOCAL PANEL/FRAME MOUNTED	PP	PRESSURE TEST POCKET	
ON–OFF TYPE MOTORISED VALVE, AC	O–C	OPEN–CLOSE	
LOCAL INSTRUMENT	%	REGULATING	
DIFFERENTIAL PRESSURE GAUGE	PAD	PRIMARY AIR DAMPER	
PANEL MOUNTED	SAD	SECONDARY AIR DAMPER	
LOCAL PANEL MOUNTED	GD	GAS DAMPER	
DIFFERENTIAL PRESSURE TRANSMITTER	CD	COAL DAMPER	
PRESSURE TRANSMITTER	(BOP C&I)	BALANCE OF PLANT C&I	
FLOW ELEMENT	SLD	SEAL AIR DAMPER	
ACOUSTIC PYROMETER	SCAD	SCANNER AIR DAMPER	
	BTPC	BURNER TILT POWER CYLINDER	
	SCR	SELECTIVE CATALYTIC REDUCTION	

NOTES

1. INSTRUMENTS SHOWN HERE ARE MINIMUM REQUIREMENT. ANY ADDITIONAL INSTRUMENTS NEEDED AS PER SYSTEM REQUIREMENT SHALL BE PROVIDED BY CONTRACTOR.
2. DRAWINGS SHOWS THE REQUIREMENT TYPICAL FOR ONE UNIT.
3. THIS DRAWING IS APPLICABLE TO TWO–PASS STEAM GENERATOR ONLY. HOWEVER DEPENDING ON THE VARIATION IN PRESSURE PARTS ARRANGEMENT AND FUEL FIRING ARRANGEMENT (FOR TOWER BOILER) CHANGES IF REQUIRED IN INSTRUMENTATION, SHALL BE FINALISED DURING DETAILED ENGG. SUBJECTED TO EMPLOYER'S APPROVAL
4. READ THIS DRAWING ALONG WITH DRAWING NO. 1150–001–POM–A–018a SHEET 2 OF 2.
5. ALL FAN BEARING AND HT MOTOR BEARING/WINDING RTD'S SHALL BE CONNECTED TO DDCMIS FOR ALARM/TRIP.
6. TWO NOS. OF TAPPING ON OPPOSITE WALLS OF THE DUCT WILL BE PROVIDED FOR EACH 'CO' ANALYSER.
7. NECESSARY PURGING TO BE PROVIDED BY CONTRACTOR FOR PRESSURE/ FLOW MEASUREMENTS AS PER TECHNICAL SPECIFICATION SUB–SECTION M3 PCP, PART–B.
8. BIDDER/CONTRACTOR, IF REQUIRED, CAN PROVIDE ECONOMIZER BYPASS DUCT ALONG WITH NECESSARY GATES, EXPANSION JOINTS, STRUCTURES, ETC. MEETING THE ALL SIZING AND TECHNICAL REQUIREMENTS AS SPECIFIED IN TECHNICAL SPECIFICATIONS.
9. ACOUSTIC PYROMETER,ASLD,FURNACE AND FLAME VIEWING SYSTEMS SHALL BE PROVIDED AS PER SPECIFICATION REQUIREMENTS.
10. IN ADDITION TO INSTRUMENT INDICATED IN THE TENDER PID ANY OTHER INSTRUMENT WHICH ARE REQUIRED FOR CONTROL, INTERLOCKS AND PROTECTIONS OF BIDDER SUPPLIED BINARY AND MODULATING DRIVES AND MONITORING OF CRITICAL PARAMETERS SHALL BE IN THE SCOPE OF BIDDER.
11. SG (C&I) & BOP (C&I) PART OF DDCIMS ARE IN THE SCOPE OF CONTRACTOR. HOWEVER, CONNECTIONS OF INSTRUMENTS TO SG (C&I) & BOP(C&I) ARE INDICATIVE ONLY AND SHALL BE FINALISED DURING DETAILED ENGG. SUBJECT TO EMPLOYER'S APPROVAL.
12. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF CONTRACTOR.

$: Separate PTs are also acceptable at inlet and outlet of SH & RH heating zone instead of DPT indicated in this drawing.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD	L/O	TG	SG	LP	MH	WS	E	C	C&I	APPD	DATE
A	RELEASED FOR TENDER PURPOSE	Tejabar	AKS	AKS	AK									SM	14.02.18

CLEARED BY

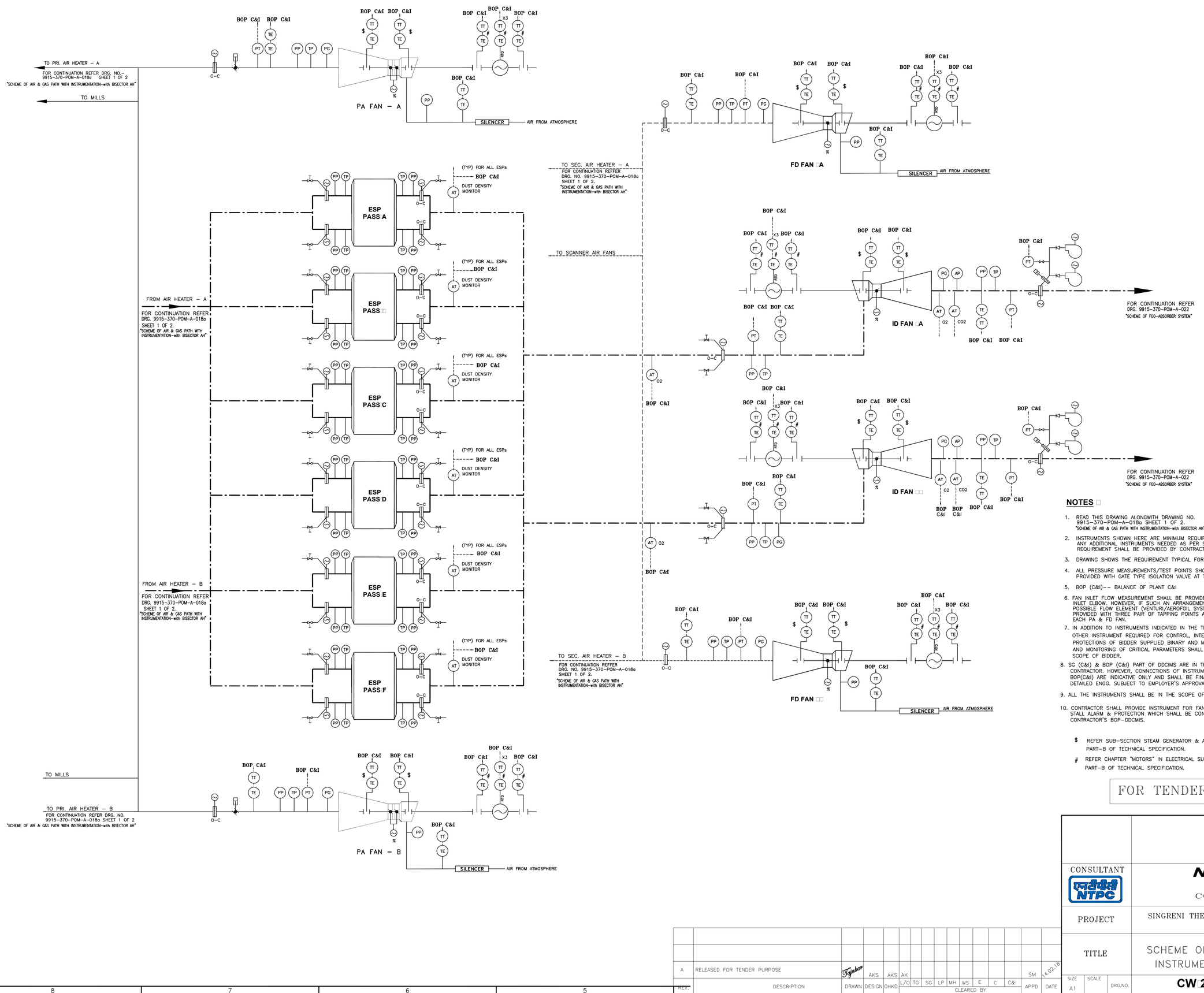
CONSULTANT: NTPC Limited (A GOVT. OF INDIA ENTERPRISE) CONSULTANCY WING

PROJECT: SINGRENI THERMAL POWER PROJECT ST–II (1x800MW)

TITLE: SCHEME OF AIR & FLUE GAS PATH WITH INSTRUMENTATION (WITH BISECTOR AH)

SIZE: A1 | SCALE | DRG.NO.: CW212□□□70□POM□A□01□□ | REV.: A

SHEET 1 OF 2



NOTES

1. READ THIS DRAWING ALONGWITH DRAWING NO. 9915–370–POM–A–018a SHEET 1 OF 2. "SCHEME OF AIR & GAS PATH WITH INSTRUMENTATION–with BISECTOR AH"
2. INSTRUMENTS SHOWN HERE ARE MINIMUM REQUIREMENT. ANY ADDITIONAL INSTRUMENTS NEEDED AS PER SYSTEM REQUIREMENT SHALL BE PROVIDED BY CONTRACTOR.
3. DRAWING SHOWS THE REQUIREMENT TYPICAL FOR ONE UNIT.
4. ALL PRESSURE MEASUREMENTS/TEST POINTS SHOULD BE PROVIDED WITH GATE TYPE ISOLATION VALVE AT TAPPING END.
5. BOP (C&I)–– BALANCE OF PLANT C&I
6. FAN INLET FLOW MEASUREMENT SHALL BE PROVIDED USING FAN INLET ELBOW. HOWEVER, IF SUCH AN ARRANGEMENT IS NOT POSSIBLE FLOW ELEMENT (VENTURI/AEROFOIL SYSTEM) SHALL BE PROVIDED WITH THREE PAIR OF TAPPING POINTS AT SUCTION OF EACH PA & FD FAN.
7. IN ADDITION TO INSTRUMENTS INDICATED IN THE TENDER PID, ANY OTHER INSTRUMENT REQUIRED FOR CONTROL, INTERLOCKS AND PROTECTIONS OF BIDDER SUPPLIED BINARY AND MODULATING DRIVES AND MONITORING OF CRITICAL PARAMETERS SHALL BE IN THE SCOPE OF BIDDER.
8. SG (C&I) & BOP (C&I) PART OF DDCIMS ARE IN THE SCOPE OF CONTRACTOR. HOWEVER, CONNECTIONS OF INSTRUMENTS TO SG (C&I) & BOP(C&I) ARE INDICATIVE ONLY AND SHALL BE FINALISED DURING DETAILED ENGG. SUBJECT TO EMPLOYER'S APPROVAL.
9. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF CONTRACTOR.
10. CONTRACTOR SHALL PROVIDE INSTRUMENT FOR FAN SUCTION FLOW AND STALL ALARM & PROTECTION WHICH SHALL BE CONNECTED TO CONTRACTOR'S BOP–DDCMIS.

$ REFER SUB–SECTION STEAM GENERATOR & AUXILIARIES PART–B OF TECHNICAL SPECIFICATION.

REFER CHAPTER "MOTORS" IN ELECTRICAL SUB–SECTION; PART–B OF TECHNICAL SPECIFICATION.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD	L/O	TG	SG	LP	MH	WS	E	C	C&I	APPD	DATE
A	RELEASED FOR TENDER PURPOSE	Tejabase	AKS	AKS	AK									SM	14.02.18

CLEARED BY

CONSULTANT: एनटीपीसी NTPC

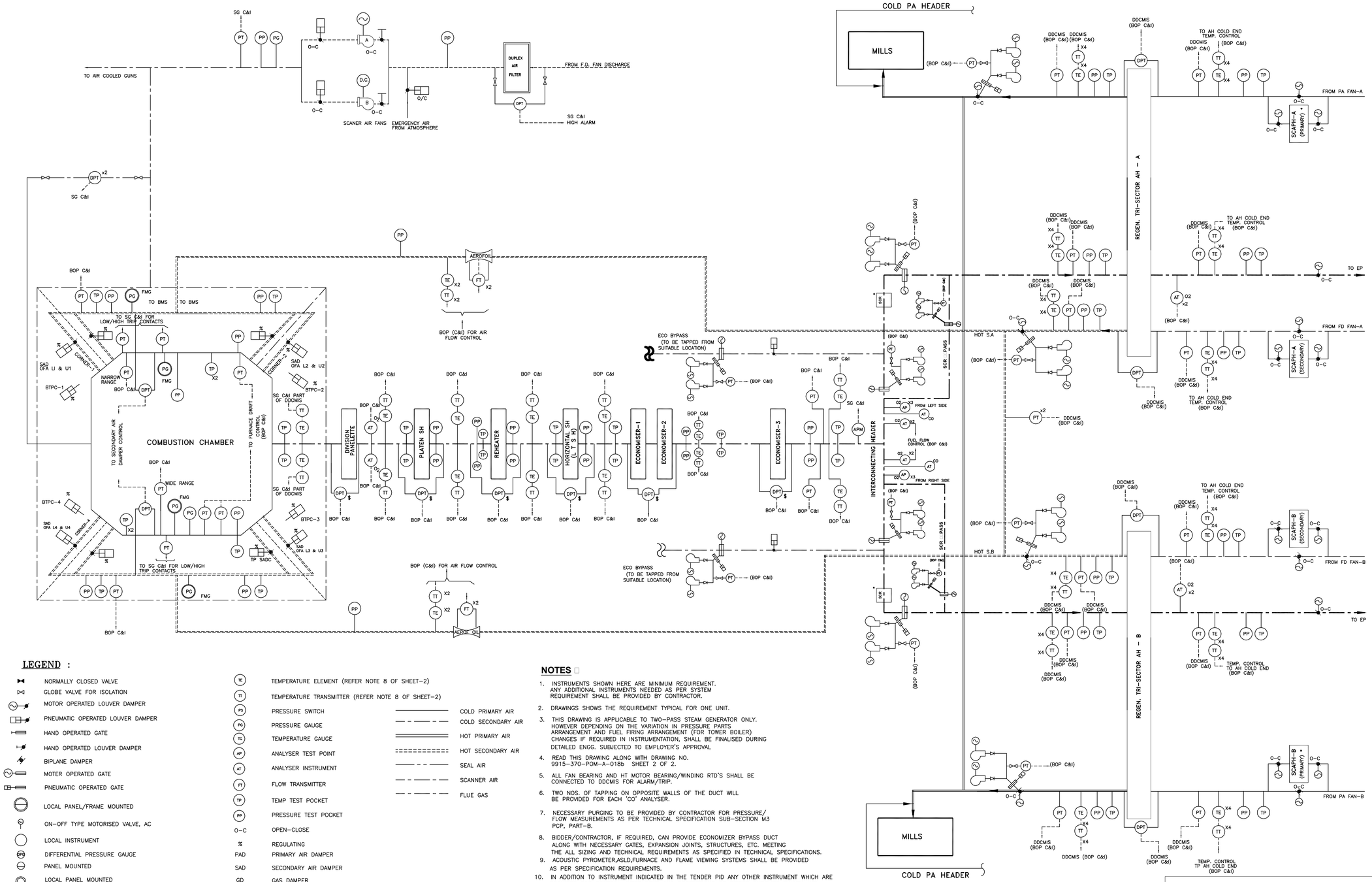
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
CONSULTANCY WING

PROJECT: SINGRENI THERMAL POWER PROJECT ST–II (1x800MW)

TITLE: SCHEME OF AIR & FLUE GAS PATH WITH INSTRUMENTATION (WITH BISECTOR AH)

SIZE	SCALE	DRG.NO.	REV.
A1		CW212□□□70POMA01□□	A

SHEET 2 OF 2



LEGEND :

	NORMALLY CLOSED VALVE
	GLOBE VALVE FOR ISOLATION
	MOTOR OPERATED LOUVER DAMPER
	PNEUMATIC OPERATED LOUVER DAMPER
	HAND OPERATED GATE
	HAND OPERATED LOUVER DAMPER
	BIPLANE DAMPER
	MOTER OPERATED GATE
	PNEUMATIC OPERATED GATE
	LOCAL PANEL/FRAME MOUNTED
	ON-OFF TYPE MOTORISED VALVE, AC
	LOCAL INSTRUMENT
DPG	DIFFERENTIAL PRESSURE GAUGE
	PANEL MOUNTED
	LOCAL PANEL MOUNTED
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
PT	PRESSURE TRANSMITTER
FE	FLOW ELEMENT
APM	ACOUSTIC PYROMETER

TE	TEMPERATURE ELEMENT (REFER NOTE 8 OF SHEET-2)
TT	TEMPERATURE TRANSMITTER (REFER NOTE 8 OF SHEET-2)
PS	PRESSURE SWITCH
PG	PRESSURE GAUGE
TG	TEMPERATURE GAUGE
AP	ANALYSER TEST POINT
AT	ANALYSER INSTRUMENT
FT	FLOW TRANSMITTER
TP	TEMP TEST POCKET
PP	PRESSURE TEST POCKET
O-C	OPEN-CLOSE
%	REGULATING
PAD	PRIMARY AIR DAMPER
SAD	SECONDARY AIR DAMPER
GD	GAS DAMPER
CD	COAL DAMPER
(BOP C&I)	BALANCE OF PLANT C&I
SLD	SEAL AIR DAMPER
SCAD	SCANNER AIR DAMPER
BTPC	BURNER TILT POWER CYLINDER
SCR	SELECTIVE CATALYTIC REDUCTION

	COLD PRIMARY AIR
	COLD SECONDARY AIR
	HOT PRIMARY AIR
	HOT SECONDARY AIR
	SEAL AIR
	SCANNER AIR
	FLUE GAS

NOTES

1. INSTRUMENTS SHOWN HERE ARE MINIMUM REQUIREMENT. ANY ADDITIONAL INSTRUMENTS NEEDED AS PER SYSTEM REQUIREMENT SHALL BE PROVIDED BY CONTRACTOR.
2. DRAWINGS SHOWS THE REQUIREMENT TYPICAL FOR ONE UNIT.
3. THIS DRAWING IS APPLICABLE TO TWO-PASS STEAM GENERATOR ONLY. HOWEVER DEPENDING ON THE VARIATION IN PRESSURE PARTS ARRANGEMENT AND FUEL FIRING ARRANGEMENT (FOR TOWER BOILER) CHANGES IF REQUIRED IN INSTRUMENTATION, SHALL BE FINALISED DURING DETAILED ENGG. SUBJECTED TO EMPLOYER'S APPROVAL
4. READ THIS DRAWING ALONG WITH DRAWING NO. 9915-370-POM-A-018b SHEET 2 OF 2.
5. ALL FAN BEARING AND HT MOTOR BEARING/WINDING RTD'S SHALL BE CONNECTED TO DDCMIS FOR ALARM/TRIP.
6. TWO NOS. OF TAPPING ON OPPOSITE WALLS OF THE DUCT WILL BE PROVIDED FOR EACH 'CO' ANALYSER.
7. NECESSARY PURGING TO BE PROVIDED BY CONTRACTOR FOR PRESSURE/ FLOW MEASUREMENTS AS PER TECHNICAL SPECIFICATION SUB-SECTION M3 PCP, PART-B.
8. BIDDER/CONTRACTOR, IF REQUIRED, CAN PROVIDE ECONOMIZER BYPASS DUCT ALONG WITH NECESSARY GATES, EXPANSION JOINTS, STRUCTURES, ETC. MEETING THE ALL SIZING AND TECHNICAL REQUIREMENTS AS SPECIFIED IN TECHNICAL SPECIFICATIONS.
9. ACOUSTIC PYROMETER,ASLD,FURNACE AND FLAME VIEWING SYSTEMS SHALL BE PROVIDED AS PER SPECIFICATION REQUIREMENTS.
10. IN ADDITION TO INSTRUMENT INDICATED IN THE TENDER PID ANY OTHER INSTRUMENT WHICH ARE REQUIRED FOR CONTROL, INTERLOCKS AND PROTECTIONS OF BIDDER SUPPLIED BINARY AND MODULATING DRIVES AND MONITORING OF CRITICAL PARAMETERS SHALL BE IN THE SCOPE OF BIDDER.
11. SG (C&I) & BOP (C&I) PART OF DDCIMS ARE IN THE SCOPE OF CONTRACTOR. HOWEVER, CONNECTIONS OF INSTRUMENTS TO SG (C&I) & BOP(C&I) ARE INDICATIVE ONLY AND SHALL BE FINALISED DURING DETAILED ENGG. SUBJECT TO EMPLOYER'S APPROVAL.
12. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF CONTRACTOR.

* REFER DRAWING NO. 9915-370-POM-A-035 SHEET 3 OF 4 FOR SCR SYSTEM INSTRUMENTATION

$:Separate PTs are also acceptable at inlet and outlet of SH & RH heating zone instead of DPT indicated in this drawing.

IN CASE BIDDER OFFERS TRI-SECTOR AIR PREHEATER, BIDDER AT HIS OPTION MAY OR MAY NOT PROVIDE THE SCAPH IN PRIMARY AIR SIDE IF BIDDER CAN MEET THE SPECIFICATION FOR PREVENTING COLD END CORROSION WITH SIZING OF SCAPH IN SECONDARY AIR SIDE

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD	L/O	TG	SG	LP	MH	WS	E	C	C&I	APPD	DATE
A	RELEASED FOR TENDER PURPOSE	Tejabar	AKS	AKS	AK									SM	14.02.18

CLEARED BY

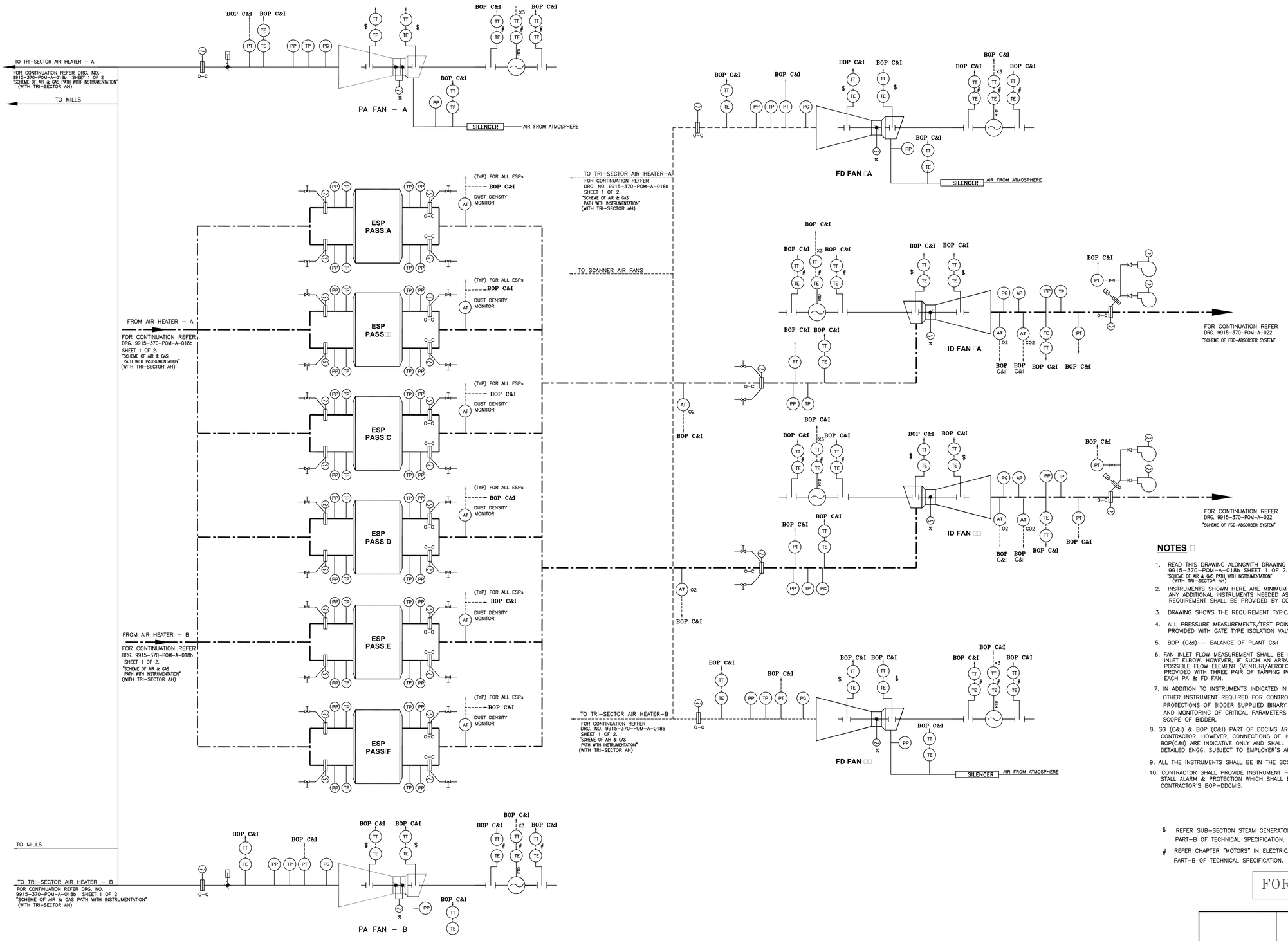
CONSULTANT: NTPC

NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
CONSULTANCY WING

PROJECT: SINGRENI THERMAL POWER PROJECT ST-1(1x800MW)

TITLE: **SCHEME OF AIR & FLUE GAS PATH WITH INSTRUMENTATION WITH TRI SECTOR AH**

SIZE	SCALE	DRG.NO.	REV.
A1		CW212□□POMA01□□ SHEET 1 OF 2	A



NOTES □

1. READ THIS DRAWING ALONGWITH DRAWING NO. 9915-370-POM-A-018b SHEET 1 OF 2. "SCHEME OF AIR & GAS PATH WITH INSTRUMENTATION" (WITH TRI-SECTOR AH)
2. INSTRUMENTS SHOWN HERE ARE MINIMUM REQUIREMENT. ANY ADDITIONAL INSTRUMENTS NEEDED AS PER SYSTEM REQUIREMENT SHALL BE PROVIDED BY CONTRACTOR.
3. DRAWING SHOWS THE REQUIREMENT TYPICAL FOR ONE UNIT.
4. ALL PRESSURE MEASUREMENTS/TEST POINTS SHOULD BE PROVIDED WITH GATE TYPE ISOLATION VALVE AT TAPPING END.
5. BOP (C&I)-- BALANCE OF PLANT C&I
6. FAN INLET FLOW MEASUREMENT SHALL BE PROVIDED USING FAN INLET ELBOW. HOWEVER, IF SUCH AN ARRANGEMENT IS NOT POSSIBLE FLOW ELEMENT (VENTURI/AEROFOIL SYSTEM) SHALL BE PROVIDED WITH THREE PAIR OF TAPPING POINTS AT SUCTION OF EACH PA & FD FAN.
7. IN ADDITION TO INSTRUMENTS INDICATED IN THE TENDER PID, ANY OTHER INSTRUMENT REQUIRED FOR CONTROL, INTERLOCKS AND PROTECTIONS OF BIDDER SUPPLIED BINARY AND MODULATING DRIVES AND MONITORING OF CRITICAL PARAMETERS SHALL BE IN THE SCOPE OF BIDDER.
8. SG (C&I) & BOP (C&I) PART OF DDCIMS ARE IN THE SCOPE OF CONTRACTOR. HOWEVER, CONNECTIONS OF INSTRUMENTS TO SG (C&I) & BOP(C&I) ARE INDICATIVE ONLY AND SHALL BE FINALISED DURING DETAILED ENGG. SUBJECT TO EMPLOYER'S APPROVAL.
9. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF CONTRACTOR.
10. CONTRACTOR SHALL PROVIDE INSTRUMENT FOR FAN SUCTION FLOW AND STALL ALARM & PROTECTION WHICH SHALL BE CONNECTED TO CONTRACTOR'S BOP-DDCMIS.

$ REFER SUB-SECTION STEAM GENERATOR & AUXILIARIES PART-B OF TECHNICAL SPECIFICATION.

REFER CHAPTER "MOTORS" IN ELECTRICAL SUB-SECTION; PART-B OF TECHNICAL SPECIFICATION.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD	L/O	TG	SG	LP	MH	WS	E	C	C&I	APPD	DATE
A	RELEASED FOR TENDER PURPOSE	Tejabar	AKS	AKS	AK									SM	14.02.18

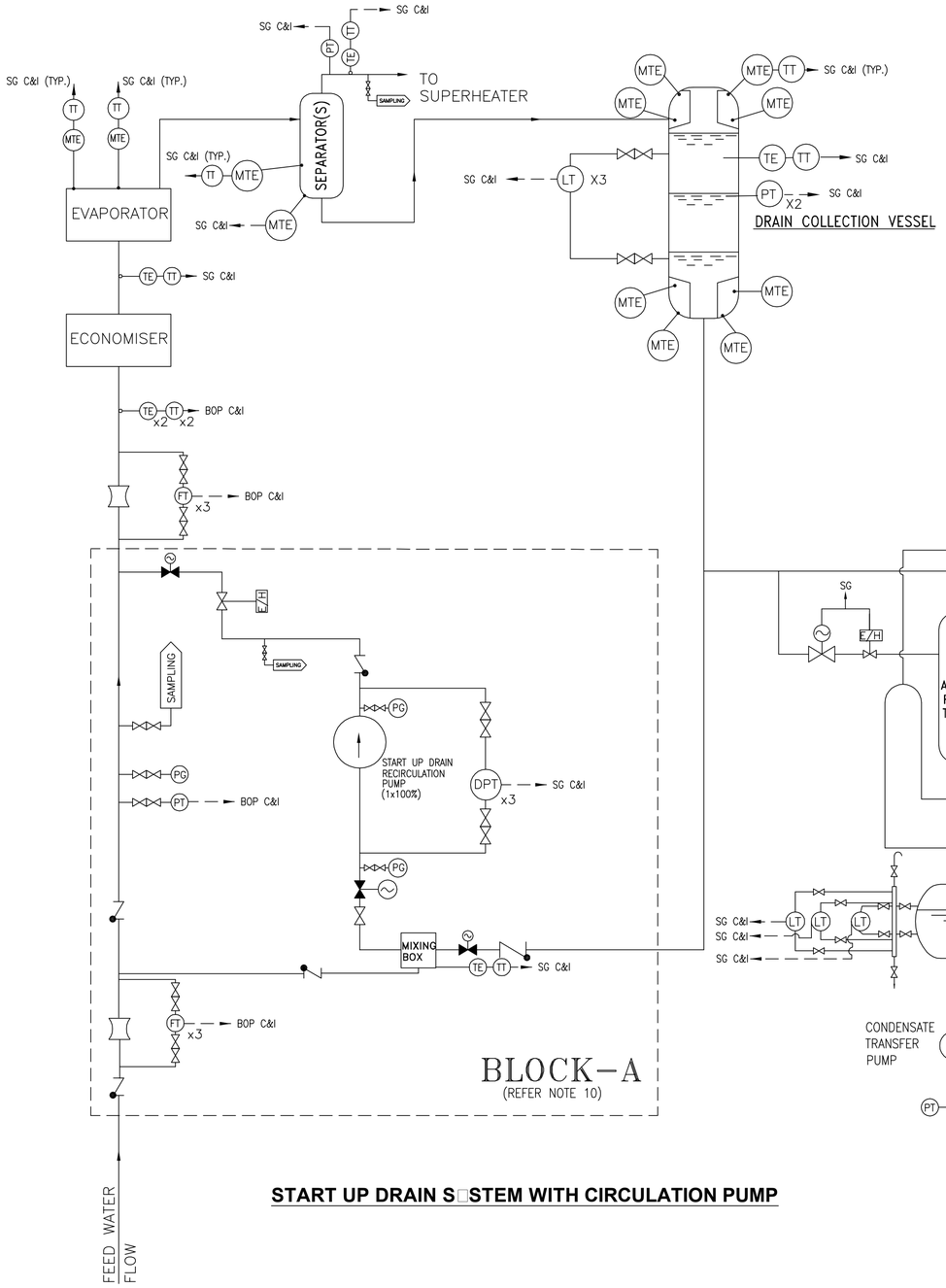
CLEARED BY

CONSULTANT: NTPC Limited (A GOVT. OF INDIA ENTERPRISE) CONSULTANCY WING

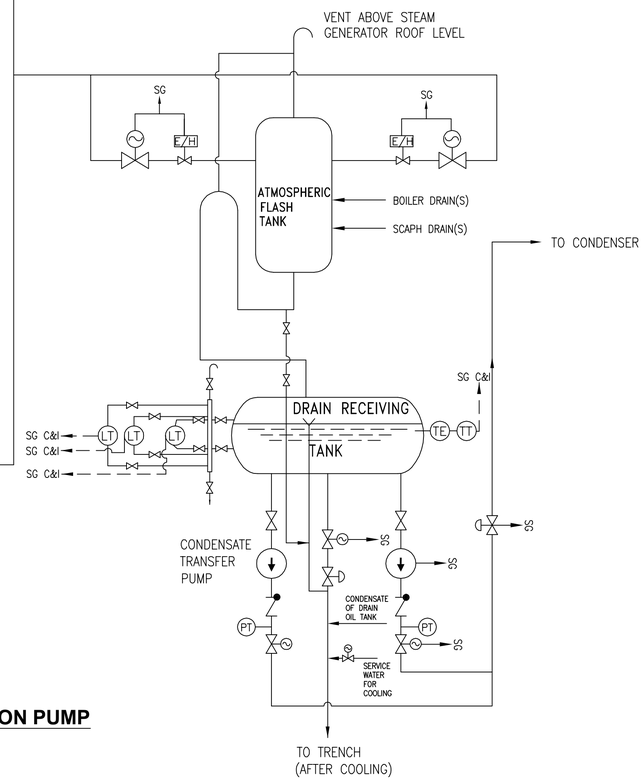
PROJECT

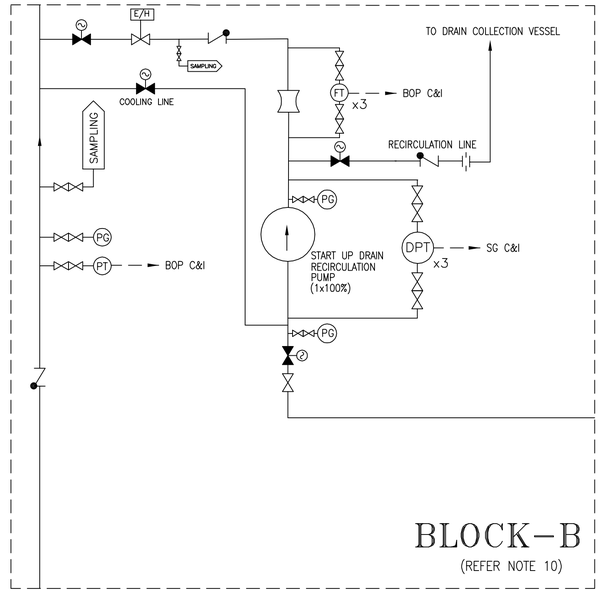
TITLE: SCHEME OF AIR □ FLUE GAS PATH WITH INSTRUMENTATION □WITH TRI SECTOR AH□

SIZE	SCALE	DRG.NO.	REV.
A1		CW□212□□□70□POM□A□01□□ SHEET 2 OF 2	A



START UP DRAIN S□STEM WITH CIRCULATION PUMP





LEGEND

PG	PRESSURE GAUGE
TG	TEMPERATURE GAUGE
TE	TEMPERATURE ELEMENT
TT	TEMPERATURE TRANSMITTER
PS	PRESSURE SWITCH
	FLOW ELEMENT
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
LT	LEVEL TRANSMITTER
DPG	DIFFERENTIAL PRESSURE GAUGE
PT	PRESSURE TRANSMITTER
FT	FLOW TRANSMITTER
MTE	METAL TEMP ELEMENT
	MOTORISED REGULATING VALVE
	CONTROL VALVE
	MOTOR OPERATED VALVE
	PUMP
	NON RETURN VALVE
	MANUAL VALVE
E/H	ELECTRIC/HYDRAULIC OPERATED FAST ACTING VALVE WITH SAFETY FEATURES
	NORMALLY CLOSED VALVE
	ORIFICE
BOP C&I	BALANCE OF PLANT (C&I)

NOTES :

1. INSTRUMENTS SHOWN HERE ARE INDICATIVE REQUIREMENT. ALL INSTRUMENTS NEEDED AS PER SYSTEM/DESIGN REQUIREMENT SHALL BE PROVIDED BY THE CONTRACTOR.
2. DRAWING SHOWS THE REQUIREMENT TYPICAL FOR ONE STEAM GENERATOR.
3. SEPARATOR DRAIN CONTROL SYSTEM (SDC) SHALL BE PART OF SG C&I DDCMIS.
4. ALL DRAINS LINES, WARMUP LINES, SAMPLING LINE SHALL BE IN THE SCOPE OF SG PACKAGE.
5. "SEPARATOR DRAIN FLASH TANK" DRAIN AND VENT PIPE IN THE SCOPE OF SG PACKAGE.
6. IN CASE OF TWO CONDENSERS, DRAINS OF START UP (DRAIN) FLASH TANK SHALL BE CONNECTED TO BOTH THE CONDENSERS.
7. BOILER DRAIN i.e. SH, RH, WATER WALL SYSTEM, SEPARATOR, SOOT BLOWER ETC.
8. FOR THE SCOPE OF INSTRUMENTS REFER SECTION–VI, SUB–SECTION–III:C, CONTROL & INSTRUMENTATION SYSTEM, PART–A OF TECHNICAL SPECIFICATION.
9. IN ADDITION TO INSTRUMENTS INDICATED IN THE TENDER PID, ANY OTHER INSTRUMENT WHICH ARE REQUIRED FOR CONTROL, INTERLOCKS AND PROTECTIONS OF BIDDER SUPPLIED BINARY AND MODULATING DRIVES AND MONITORING OF CRITICAL PARAMETERS SHALL BE IN THE SCOPE OF BIDDER.
10. BIDDER MAY ADOPT ALTERNATE SYSTEM INDICATED IN BLOCK–B IN PLACE OF BLOCK–A AS PER THEIR STANDARD PRACTICE.
11. SG (C&I) & BOP (C&I) PART OF DDCIMS ARE IN THE SCOPE OF CONTRACTOR. HOWEVER, CONNECTIONS OF INSTRUMENTS TO SG (C&I) & BOP(C&I) ARE INDICATIVE ONLY AND SHALL BE FINALISED DURING DETAILED ENGG. SUBJECT TO EMPLOYER'S APPROVAL.
12. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF CONTRACTOR.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	L/O	TG	SG	LP	MH	WS	E	C	C&I	APPD	DATE
A	RELEASED FOR TENDER PURPOSE	Tejabar	AKS	AKS	AK									SM	14.02.18

CLEARED BY

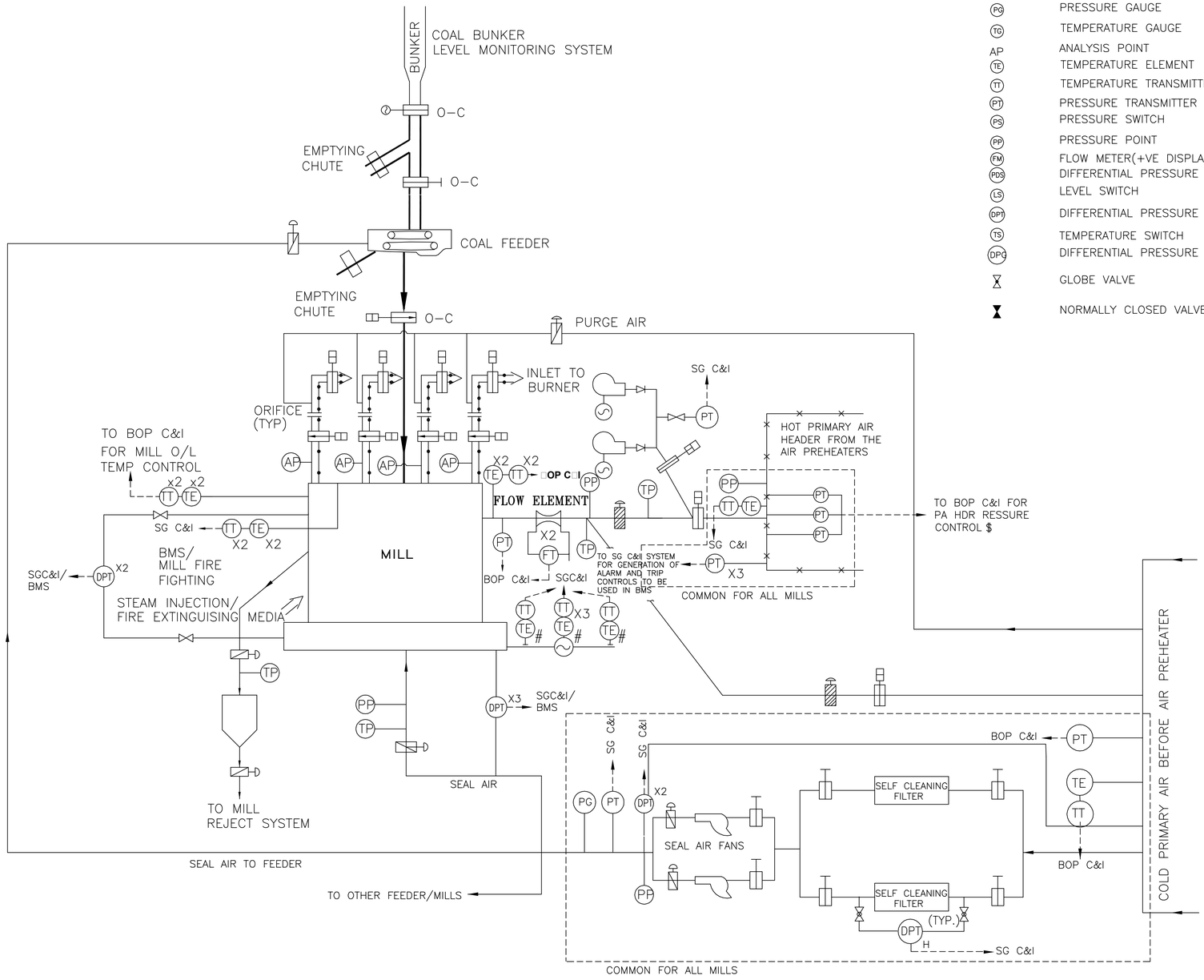
CONSULTANT

NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
CONSULTANCY WING

PROJECT: SINGRENI THERMAL POWER PROJECT ST–II (1x800MW)

TITLE: START UP DRAIN SYSTEM

SIZE	SCALE	DRG.NO.	REV.
A1		CW212□□□70□POM□A□019	A



LEGEND

PG	PRESSURE GAUGE
TG	TEMPERATURE GAUGE
AP	ANALYSIS POINT
TE	TEMPERATURE ELEMENT
TT	TEMPERATURE TRANSMITTER
PT	PRESSURE TRANSMITTER
PS	PRESSURE SWITCH
PP	PRESSURE POINT
FM	FLOW METER(+VE DISPLACEMENT TYPE)
PDS	DIFFERENTIAL PRESSURE SWITCH
LS	LEVEL SWITCH
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
TS	TEMPERATURE SWITCH
DPG	DIFFERENTIAL PRESSURE GAUGE
	GLOBE VALVE
	NORMALLY CLOSED VALVE
	THREE WAY VALVE
	PNEUMATICALLY OPEATED CONTROL DAMPER
	GUILLOTINE TYPE ISOLATION DAMPER PNEUMATICALLY OPERATION
	PNEUMATICALLY OPERATED ISOLATION VALVE KNIFE EDGE TYPE
	MOTORISED ISOLATION DAMPER
	PNEUMATICALLY OPERATED ISOLATION DAMPER
	COAL AIR MIXTURE
	COLD PRIMARY AIR
	HOT PRIMARY AIR
	ORIFICE
	MANUAL ISOLATION DAMPER
BOP C&I	BALANCE OF PLANT (C&I)
SG C&I	STEAM GENERATOR (C&I)
#	REFER CHAPTER "MOTORS" OF ELECTRICAL SUB-SECTION, PART-B OF TECHNICAL SPECIFICATION.

NOTES

1. THE SCHEME IS INDICATED TYPICALLY FOR ONE MILL.
2. INSTRUMENTS SHOWN HERE ARE MINIMUM REQUIREMENT. ANY ADDITIONAL INSTRUMENTS NEEDED AS PER SYSTEM REQUIREMENTS SHALL BE PROVIDED BY THE CONTRACTOR.
3. FOR SELF CLEANING FILTER INSTRUMENT NEEDED AS PER SYSTEM REQUIREMENT SHALL BE PROVIDED
4. FEEDER INLET GATE ARE TO BE CONTROLLED LOCALLY FROM FEEDER FLOOR.
5. SEAL AIR HAS BEEN SHOWN FROM COLD PRIMARY AIR HEADER ALTERNATIVELY BIDDER MAY DRAW THE AIR FROM ATMOSPHERE ALSO.
6. SG (C&I) & BOP (C&I) PART OF DDCMIS ARE IN THE SCOPE OF CONTRACTOR. HOWEVER CONNECTION OF INSTRUMENTS TO SG (C&I) & BOP(C&I) ARE INDICATIVE ONLY L AND SHALL BE FINALISED DURING DETAIL ENGINEERING SUBJECT TO THE EMPLOYERS APPROVAL
7. IN ADDITION TO INSTRUMENTS INDICATED IN THE TENDER PID, ANY OTHER INSTRUMENT WHICH ARE REQUIRED FOR CONTROL, INTERLOCKS AND PROTECTIONS OF BIDDER SUPPLIED BINARY AND MODULATING DRIVES AND MONITORING OF CRITICAL PARAMETERS SHALL BE IN THE SCOPE OF BIDDER.
8. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF CONTRACTOR.
9. IN CASE, MILL IS TO BE TRIPPED WITH MILL INLET PA FLOW, THEN 3 NOS. OF FLOW TRANSMITTERS ARE TO BE PROVIDED FOR EACH MILL.

$: Furnace to PA HDR DP is also acceptable for PA fan blade pitch control, if it is standard and proven practice of Contractor.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	CLEARED BY	APPD	DATE
A	RELEASED FOR TENDER PURPOSE						

CONSULTANT: एनटीपीसी NTPC

NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
CONSULTANCY WING

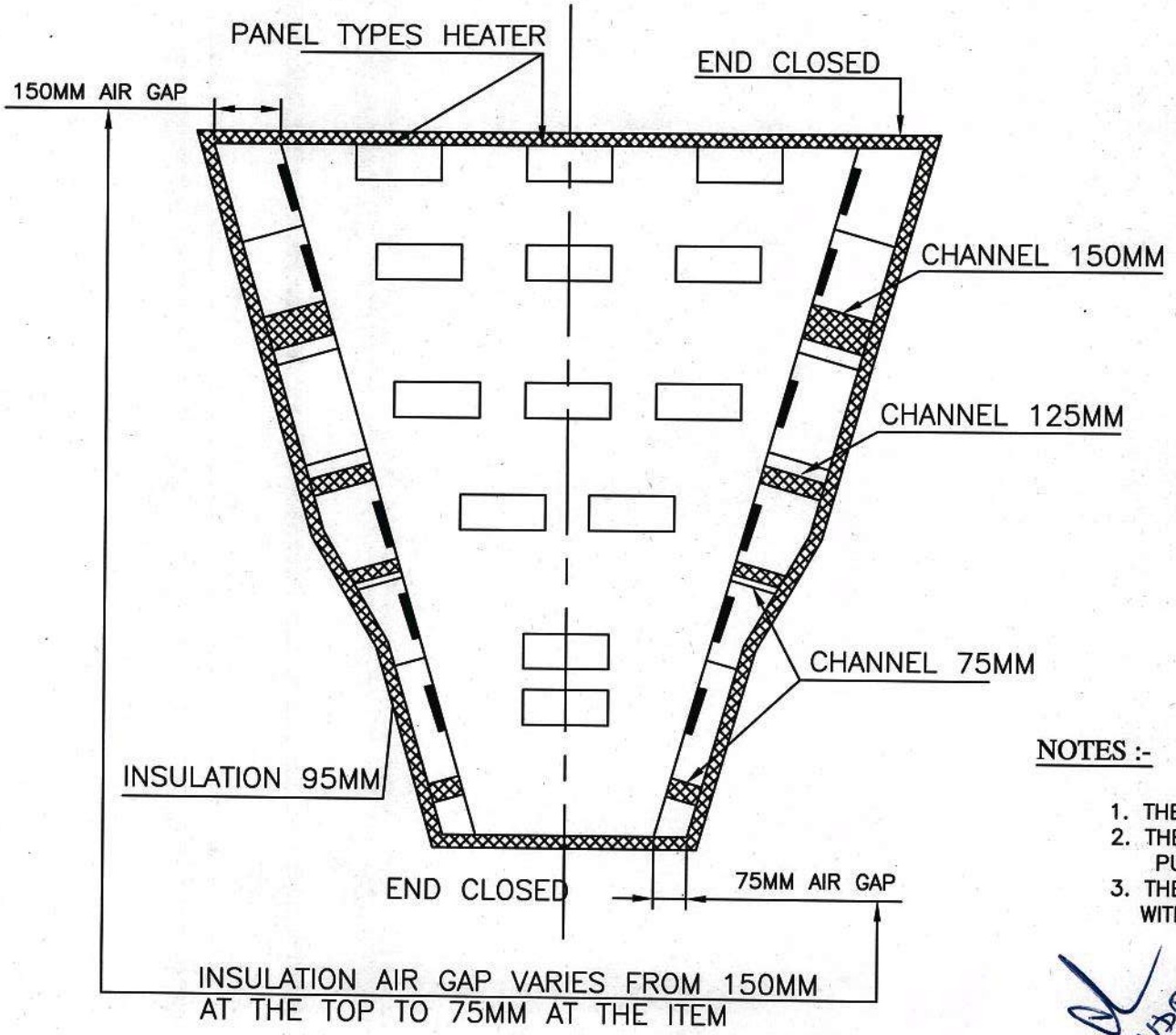
PROJECT: SINGRENI THERMAL POWER PROJECT ST-II
1□□00 MW □

TITLE: SCHEME FOR PULVERISER (VERTICAL MILL)

SIZE	SCALE	DRG.NO.	REV.
A1		CW□212□□□70□POM□A□020	A

CW-21244-370-POM-A-020

SKETCH FOR INSTALLATION OF INSULATION ON ESP HOPPER WITH PANEL HEATERS



NOTES :-

1. THE DIMENSIONS ARE IN MM.
2. THE SKETCH IS INDICATIVE & FOR GUIDANCE PURPOSE.
3. THE SKETCH IS APPLICABLE FOR HOPPER SECTION WITH PANEL HEATERS.

VADIYAD KUMAR

एन टी पी सी लिमिटेड
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT: STANDARD THERMAL POWER PROJECT

TITLE: SECTION OF ESP HOPPER

SIZE: A1 | SCALE: 1:1000 | DRG.NO.: 0000-104-POM-A-003 | REV.: 00

FROM GYPSUM BLEED PUMPS
(REFER DRG. NO. 0240-109-POM-A-001

PRIMARY HYDROCYCLONE FEED TANK (EMPLOYER SCOPE)

TO OTHER HYDROCYCLONE / BELT FILTERS

To Auxiliary Absorbent/Emergency Tank

PRIMARY HYDROCYCLONE

TO FILTRATE WATER TANK ALTERNETIVELY TO ABSORBER

SECONDARY HYDROCYCLONE FEED TANK

SECONDARY WASTE WATER HYDROCYCLONE X2

LIME FEEDING SYSTEM

PROCESS WATER LINE

LIME SOLUTION TANK

RECIRULATION CUM MIXING

WASTE WATER TANK

Waste water Treatment system

REFER SPECIFICATION FOR TERMINAL POINTS & EXCLUSIONS FOR EACH PROJECT

SEE NOTE-2

VACUUM BELT FILTERS

CLARIFIED WATER

CAKE WASH WATER TANK

TO GYPSUM HANDLING SYSTEM

AIR DISCHARGE

VACUUM PUMP SEAL

VACUUM PUMP

RECEIVER TANK

TYPICAL ARRANGEMENT FOR ONE VACUUM BELT FILTER

BOOSTER PUMPS (if required) (2x100%)

LEVEL CONTROL STATION FOR TANK

PROCESS WATER TANK-2

CW BLOWDOWN

(REFER DRG. NO. 0240-109-POM-A-004)

Absorber process needs

To normal flue gas quenching system

Flushing system header & other process needs

PROCESS WATER PUMPS

WATER

PROCESS WATER TANK-1

To Mist Eliminator Washing System (REFER DRG. NO. 0240-109-POM-A-001)

Mist Eliminator Wash Water Pump

TYPICAL FOR One Stream

EMPLOYER SCOPE

TO ABSORBERS
(REFER DRG. NO. 0240-109-POM-A-001)

FILTRATE TANK

FILTRATE WATER PUMPS (2x100%)

DRAINAGE

GYPSUM DEWATERING AREA SUMP

NOTES

1. FOR NOTES AND LEGEND SEE DRAWING NUMBER 0240-109-POM-A-001.
2. ARRANGEMENT FOR CAKE AND BELT/CLOTH WASHING SYSTEM INDICATED IS TYPICAL. CONTRACTOR MAY OFFER AN ALTERNATE SYSTEM AS PER HIS PROVEN PRACTICE.
3. FLUSHING SYSTEM FOR FILTRATE & WASTE WATER SYSTEM IF REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR.
4. LIME STORAGE AND FEEDING SYSTEM IS ALSO TO BE PROVIDED BY THE CONTRACTOR.
5. * AS PER BIDDER PROVEN PRACTICE PNEUMATIC CAN BE PROVIDED.

FOR TENDER PURPOSE ONLY

NTPC Limited (A Government of India Enterprise) ENGINEERING DIVISION

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	CLEARED BY: M	E	C	C&I	ARCH	APPD.	DATE
00	FOR TENDOR PURPOSE ONLY.	AA		DA			RS		UK		

PROJECT: SINGARENI STPP ST-II (1x800MW)

TITLE: SCHEME OF GYPSUM DEWATERING SYSTEM

SIZE	SCALE	DRG NO.	REV. NO.
A-1		CW-21244-001-POM-A-021	A

LEGEND :

	PUMP
	AIR COMPRESSOR
	NON RETURN VALVE
	MANUAL GATE VALVE(OPEN)
	MANUAL GATE VALVE(CLOSED)
	MOTORISED GATE VALVE(OPEN)
	MOTORISED GATE VALVE(CLOSED)
	MOTORISED GATE
	AGITATOR
	PNEUMATIC CONTROL VALVE
	PNEUMATIC OPERATED BI-PLANE DAMPER
	MOTOR OPERATED LOUVER DAMPER
	PNEUMATIC OPERATED LOUVER DAMPER
	PNEUMATIC OPERATED PINCH CONTROL VALVE
	KNIFE GATE/BUTTERFLY VALVE
	FAN
	HEATER
	PNEUMATIC GATE
	PNEUMATIC OPERATED
	MOTORIZED

- TG TEMPERATURE GAUGE
- TE TEMPERATURE ELEMENT
- PI PRESSURE INDICATOR
- PT PRESSURE TRANSMITTER
- DPT DIFFERENTIAL PRESSURE TRANSMITTER
- DPI DIFFERENTIAL PRESSURE INDICATOR
- FT FLOE TRANSMITTER
- LT LEVEL TRANSMITTER
- AT ANALYSER INSTRUMENT
- VT VIBRATION TRANSDUCER
- DM DENSITY MONITOR
- PH PH ANALYSER

———	PROCESS WATER
- - - - -	FILTRATE
----------	CRUSHED LIMESTONE
——·——·——	GYPSUM SLURRY
——·—·—·——	RECIRCULATION SLURRY
·—·—·—·—	AIR
———	GAS
.....	VACUUM

REFER P&ID OF AIR & FLUE GAS SYSTEM (XXXX-001-POM-A-018a/018b) FOR MORE DETAILS

ID FAN-B

ID FAN-A

EMERGENCY SPRAY

TYPICAL FOR ONE UNIT

CHIMNEY

CEMS ANALYSER

SEAL AIR SYSTEM

SEAL AIR SYSTEM

SEAL AIR SYSTEM

MIST ELIMINATORS

FROM MIST ELUMINATION WASH WATER PUMPS (FOR CONTINUATION SEE DRG. NO. XXXX-001-POM-A-024)

EMERGENCY WATER TANK

SLURRY PIPING & PUMPS FLUSHING SYSTEM

ABSORBER

FROM PROCESS WATER PUMP (FOR CONTINUATION SEE DRG. NO. XXXX-001-POM-A-024)

NORMAL QUENCH SYSTEM

FROM FILTRATE WATER PUMP (FOR CONTINUATION SEE DRG. NO. XXXX-001-POM-A-024)

FROM PROCESS WATER PUMP (FOR CONTINUATION SEE DRG. NO. XXXX-001-POM-A-024)

SLURRY RECIRCULATION PUMPS

SLURRY PIPING & PUMPS FLUSHING SYSTEM

OXIDATION TANK

FROM LIMESTONE SLURRY PUMP (FOR CONTINUATION SEE DRG. NO. XXXX-001-POM-A-023)

TYPICAL FOR EACH BLOWER/COMPRESSOR

TE X 2
VT X 2
VT X 2
TE X 2

TYPICAL FOR EACH PUMP

TO GYPSUM DEWATERING SYSTEM (FOR CONTINUATION SEE DRG. NO. XXXX-001-POM-A-024)

TO ABSORBER

FROM PROCESS WATER PUMP (FOR CONTINUATION SEE DRG. NO. XXXX-001-POM-A-024)

OXIDATION AIR BLOWER/COMPRESSOR

DRAINAGE

GYPSUM BLEED PUMPS (2x100%)

ABSORBER AREA SUMP

NOTES

1. THE SCHEME SHALL BE FINALIZED DURING DETAILED ENGINEERING BASED ON SPECIFICATION AND SYSTEM REQUIREMENT.
2. ANY EQUIPMENT / VALVE / PIPE NOT SHOWN IN THE DRAWING BUT REQUIRED FOR COMPLETION OF THE SYSTEM SHALL BE INCLUDED IN THE SCOPE OF THE CONTRACTOR.
3. NUMBER OF AGITATORS / SLURRY SPRAY LEVELS/PUMPS SHALL BE AS PER THE CONTRACTOR'S PROVEN PRACTICE WITH REDUNDANCIES AS STIPULATED IN THE SPECIFICATION.
4. UTILITES LIKE COOLING WATER, SERVICE WATER, INSTRUMENT AIR, SERVICE AIR, AUXILIARY STEAM SHALL BE PROVIDED TO THE CONTRACTOR AT EMPLOYER'S TERMINAL POINT AS ELABORATED IN SUB-SECTION:IV, PART-A, SECTION-VI OF THE SPECIFICATION. ALL PIPING/SYSTEM FROM THE TERMINAL POINT SHALL BE IN THE CONTRACTOR'S SCOPE.
5. ALL INSTRUMENTS SHALL BE PROVIDED WITH ISOLATION VALVES.
6. ALL INSTRUMENTS IN SLURRY LINES SHALL BE PROVIDED ISOLATION VALVES AND DIAPHRAGM.
7. ALL TEMPERTURE ELEMENTS (TEs) SHALL BE PROVIDED WITH TEMPERATURE TRANSMITERS.
8. ONLY ULTRASONIC/RADAR TYPE LEVEL TRANSMITTER SHALL BE PROVIDED FOR SLURRY TANK/SUMPS.
9. ALL MANUAL PUMP SUCTION VALVES SHALL BE PROVIDED WITH OPEN LIMIT SWITCHES.
10. ALL SLURRY TANKS SHALL BE PROVIDED WITH FIELD INDICATORS FOR LOCAL LEVEL INDICATION AND OTHER TANKS SHALL BE PROVIDED WITH LEVEL GAUGES FOR LOCAL LEVEL INDICATION.
11. PROPER DRAINAGE AND WATER WASHING ARRANGEMENT AS PER CONTRACTOR'S PROVEN PRACTICE SHALL BE PROVIDED.
12. PROVISION FOR FLUSHING OF SLURRY PIPING/VALVES/PUMPS & DRAIN SYSTEM ETC. SHALL BE PROVIDED.
13. FGD INLET, OUTLET AND BYPASS DAMPERS SHALL BE CONTROLLED FROM UNIT-BOP PART OF DDCMIS.
14. IN CASE THE CONTRACTOR OFFERS A CENTRIFUGAL TYPE COMPRESSOR A MOTORIZED VALVE/GATE SHELL BE PPROVIDED AT THE DISCHARGE OF EACH COMPRESSOR.
15. CONTRACTOR SHALL ENSURE THE SIGNALS TO BE EXCHANGED WITH SG/BOP-DDCMIS FOR SAFE AND SATISFACTORY OPERATION OF FGD SYSTEM.
16. * AS PER THE BIDDER'S PROVEN PRACTICE, PNEUMATIC CAN BE PROVIDED.
17. BIDDER CAN OFFER A PNEUMATIC/MOTORIZED KNIFE GATE OF LEAKAGE CLASS VI ALONG WITH MANUAL KNIFE GATE AS AN ALTERNATE ARRANGEMENT TO THE INDICATED SCHEME.

FOR TENDER PURPOSE ONLY

NTPC LTD.
(A Government of India Enterprise)
ENGINEERING DIVISION

PROJECT: SINGRENI THERMAL POWER PROJECT
ST-II (1x800)

TITLE: SCHEME OF FGD-ABSORBER SYSTEM

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ARCH	APPD.	DATE
		DA			CLEARED BY						

SIZE	SCALE	DRG NO.	REV. NO.
A-1		XXXX-001-POM-A-022	A

FROM FILTRATE WATER PUMPS (FOR CONTINUATION SEE DRG. NO. 0240-109-POM-A-003)

CRUSHED LIMESTONE FROM LIMESTONE HANDLING PLANT (BY BIDDER)

LIMESTONE STORAGE SILO - A ++

LIMESTONE STORAGE SILO - B ++

LIMESTONE TO MILL-B

LIMESTONE MILLING SYSTEM

FEEDER-A

LIMESTONE BALL MILL - A along with LOS

MAIN MOTOR

GEAR BOX

AUXILIARY MOTOR

MILL SEPARATOR TANK

MILL HYDROCYCLONE - A

MILL CIRCUIT PUMP (2x100%)

FROM PROCESS WATER PUMPS (FOR CONTINUATION SEE DRG. NO. 0240-109-POM-A-003)

FROM MILL-A

FROM MILL-B

LIMESTONE SLURRY STORAGE TANK

LIMESTONE SLURRY PUMP (nx100%)
n= nos. of units

TO ABSORBER
REFER DRG. NO. 0240-109-POM-A-001

TYPICAL FOR ONE LIMESTONE SLURRY STORAGE TANK (1x100% stream)

SLURRY PIPING & PUMP FLUSHING SYSTEM

EMPLOYER SCOPE

DRAINAGE

LIMESTONE GRINDING AREA SUMP

TYPICAL ARRANGEMENT ONE LIMESTONE MILL

NOTES

1. FOR NOTES AND LEGENDS SEE DRAWING NO. 0240-109-POM-A-001. LOS-LUBE OIL SYSTEM AS DETAILED IN TECHNICAL SPECIFICATION.
2. FACILITIES SHALL BE PROVIDED FOR UNLOADING THE BUNKER THROUGH FEEDER.

++ EACH SILO SHALL BE PROVIDED WITH SS LINING IN CONICAL PORTION, LEVEL TRANSMITTERS, AIR CANONS, BAG FILTER SYSTEM, ETC. AS DETAILED IN PART-B, SECTION-IV OF TECHNICAL SPECIFICATIONS.

FOR TENDER PURPOSE ONLY

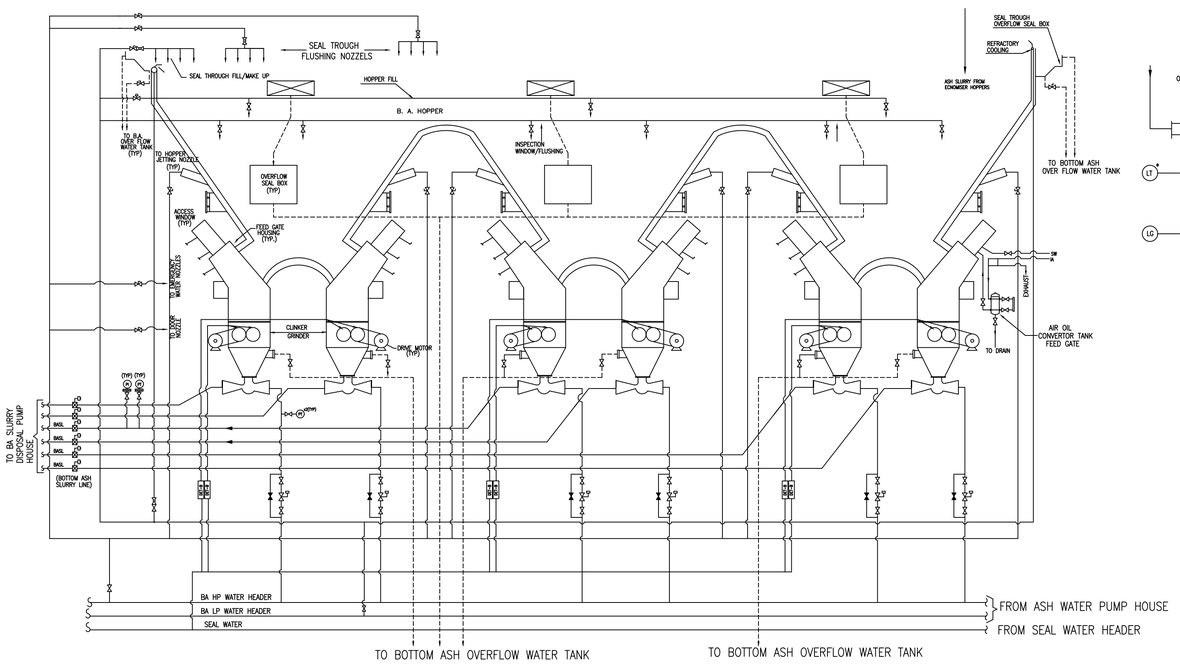
NTPC LTD.
(A Government of India Enterprise)
ENGINEERING DIVISION

PROJECT: SINGRENI THERMAL POWER PROJECT ST-II (1x800MW)

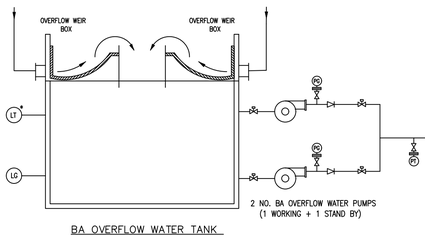
TITLE: SCHEME OF FGD MILLING SYSTEM

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	CLEARED BY	APPD.	DATE
			AA	DA	M E C C&I ARCH RS UK		

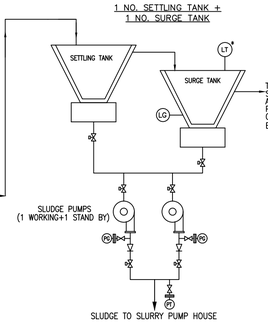
SIZE	SCALE	DRG NO.	REV. NO.
A-1		CW-21244-001-POM-A-023	A

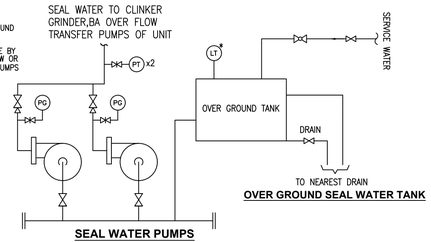


JET PUMP SYSTEM



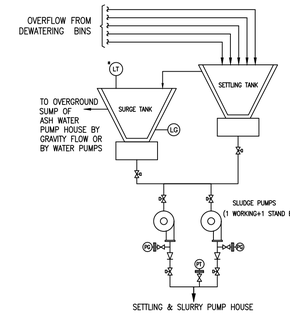
BA OVERFLOW WATER TANK



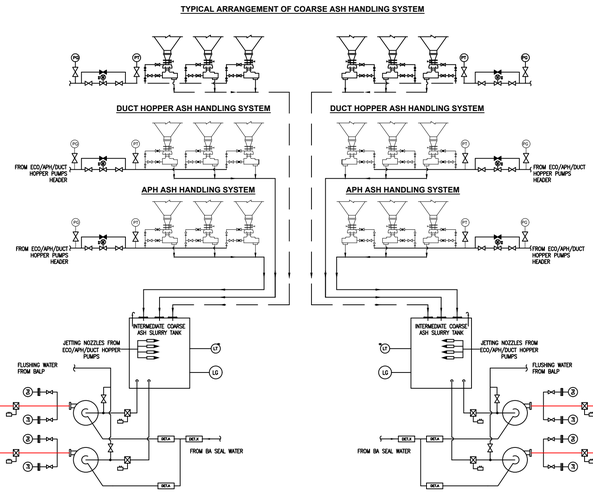


SEAL WATER PUMPS
(1 WORKING + 1 STANDBY)

OVER GROUND SEAL WATER TANK



SETTLING & SLURRY PUMP HOUSE



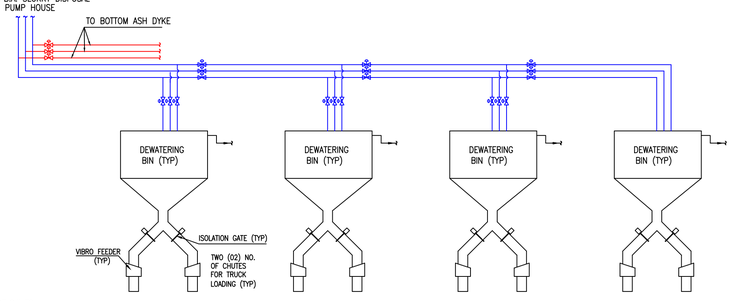
COARSE ASH SLURRY PUMP (1W+1S)

COARSE ASH SLURRY PUMP (1W+1S)

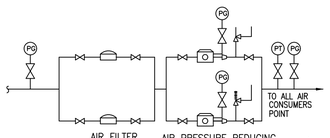
NOTES

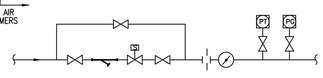
1. BOTTOM ASH / ECO ASH / APH ASH / DUCT HOPPER (AS APPLICABLE) ASH HANDLING SYSTEM SHOWN IS INDICATIVE. COMPLETE ASH HANDLING SYSTEM SHALL BE DESIGNED & SUPPLIED MEETING FUNCTIONAL REQUIREMENTS. THE NOS. OF ECONOMISER AND AIR PREHEATER HOPPERS SHALL BE DECIDED BY BIDDER.
2. THE SCHEME & NO. OF PUMPS/EQUIPMENT SHALL BE FINALISED BASED ON STIPULATIONS OF TECHNICAL SPECIFICATION & SYSTEM REQUIREMENTS.
3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH TECH.SPECS. AND OTHER TENDER DOCUMENTS. BIDDER MAY OPTIMIZE THE LAYOUT MEETING THE FUNCTIONAL AND TECHNICAL REQUIREMENTS.
4. INSTRUMENTS SHOWN ARE INDICATIVE ONLY. COMPLETE INSTRUMENTATION SHALL BE PROVIDED AS PER SYSTEM & FUNCTIONAL REQUIREMENTS SPECIFIED.
5. THE BOTTOM ASH HOPPER OVERFLOW WATER SHALL BE LED TO AN OVERFLOW TANK. BOTTOM ASH OVERFLOW WATER PUMP SHALL TAKE SUCTION FROM THIS OVERFLOW TANK AND PUMP THE WATER TO THE REQUIRED TREATMENT FACILITIES. SUITABLE CHEMICAL TREATMENT / FILTRATION / CLARIFICATION ETC. SHALL BE PROVIDED SO THAT TSS OF OUTLET WATER AT DISCHARGE OF SETTLING TANK/SURGE TANK SHALL NOT BE MORE THAN 100 PPM BEFORE THE WATER IS BEING DISCHARGED TO THE SUMP OF ASH WATER PUMP HOUSE.
6. OVER FLOW FROM DEWATERING BINS SHALL BE TAKEN TO SETTLING TANK.SUITABLE CHEMICAL TREATMENT/ FILTRATION/ CLARIFICATION ETC. SHALL BE PROVIDED SO THAT TSS OF OUTLET WATER AT DISCHARGE OF SETTLING TANK/SURGE TANK SHALL NOT BE MORE THAN 100 PPM BEFORE THE WATER IS BEING DISCHARGED TO THE SUMP OF ASH WATER PUMP HOUSE.
7. THE ASH SLURRY PIPING FROM THE DISCHARGE OF JET PUMP UP TO BA SLURRY TRANSPORTATION PUMP HOUSE SHALL BE BASALT LINED.
8. FOR MEETING THE FLUSHING APPARATUS WATER REQUIREMENT OF ECO HOPPERS. TWO(2) NOS. (ONE WORKING AND ONE STANDBY) ECONOMISER ASH WATER PUMPS ALONG WITH VALVES, PIPES & FITTINGS SHALL BE PROVIDED. ED THESE PUMPS SHALL BE LOCATED IN ASH WATER PUMP HOUSE.
9. FOR SEALING OF BA COOLING WATER OVERFLOW PUMPS, COOLING OF BA OVERFLOW PUMP FLUID COUPLING, SEALING OF CLINKER GRINDERS ETC, BIDDER SHALL PROVIDE TWO (2) NOS. (1 WORKING + 1 STANDBY) SEAL WATER PUMPS.
10. LIMIT SWITCHES ARE TO BE PROVIDED FOR MANUAL VALVES AS PER SYSTEM REQUIREMENTS & CONTROL PHILOSOPHY.
11. FOR ALL INSTRUMENTS AND DRIVES, SUPPLIER TO ASSIGN UNIQUE TAG NUMBERS FOR IDENTIFICATION. THIS TAG NUMBERS SHALL BE INDICATED ON DOCUMENTS/DRAWINGS/DATA SHEETS APPLICABLE FOR THE RESPECTIVE INSTRUMENT/DRIVE.
12. FOR SEALING OF BA SLURRY DISPOSAL PUMPS, BIDDER SHALL PROVIDE TWO (2) NOS. (1 WORKING + 1 STANDBY) BA SEAL WATER PUMPS. THESE PUMPS SHALL BE LOCATED IN THE BA SLURRY TRANSPORTATION PUMP HOUSE.
13. RECIRCULATION LINE ALONG WITH VALVES AND INSTRUMENTATION IN ASH WATER PUMPS SHALL BE PROVIDED.
14. ALL ACCESSORIES, ITEMS OF WORK, THOUGH NOT INDICATED BUT REQUIRED TO MAKE THE SYSTEM COMPLETE FOR ITS SAFE, EFFECIENT, RELIABLE AND TROUBLE FREE OPERATION AND MAINTENANCE SHALL ALSO BE INCLUDED IN BIDDER'S SCOPE UNLESS SPECIFICALLY EXCLUDED.

B.A. SLURRY DISPOSAL PUMP HOUSE

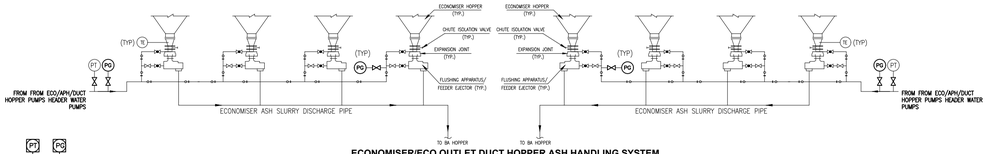


BA DEWATERING AND CONVEYING SYSTEM

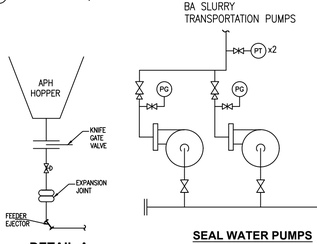




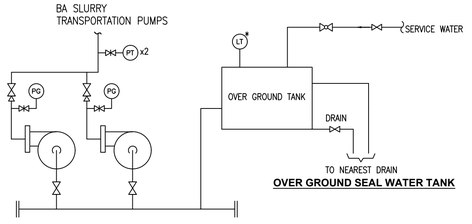
DETAIL-B



ECONOMISER/ECO OUTLET DUCT HOPPER ASH HANDLING SYSTEM
TYPICAL ARRANGEMENT



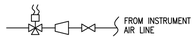
DETAIL-A



SEAL WATER PUMPS
(1 WORKING + 1 STANDBY)

OVER GROUND SEAL WATER TANK

ASH WATER PUMP HOUSE



TYPICAL INSTRUMENT AIR CONNECTION

LEGEND :

	PLUG VALVE		SOLENOID VALVE
	GLOBE VALVE		MOTORISED VALVE
	NON RETURN VALVE		ASH SLURRY DUTY VALVE (PNEUMATICALLY OPERATED)
	ISOLATION VALVE	PT	PRESSURE TRANSMITTER
	ISOLATION VALVE (PNEUMATICALLY OPERATED)	LT*	LEVEL TRANSMITTER (ULTRASONIC TYPE)
	RELIEF VALVE	LG	LEVEL GAUGE
	PUMP		INSTRUMENT VALVE
PS	PRESSURE SWITCH	IA	INSTRUMENT AIR LINE
PG	PRESSURE GAUGE	BASL	BOTTOM ASH SLURRY LINE
DPG	DIFFERENTIAL PRESSURE GUAGE		DIAPHRAGM SEAL
	STRAINER		FLOW INDICATOR
LG	LEVEL INDICATOR	LS	LEVEL SWITCH
			PNEUMATIC VALVE

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
B	RELEASED FOR TENDER	PRIYANKA	MK							
A	RELEASED FOR TENDER									

CLEARED BY

CONSULTANT: एनटीपीसी NTPC

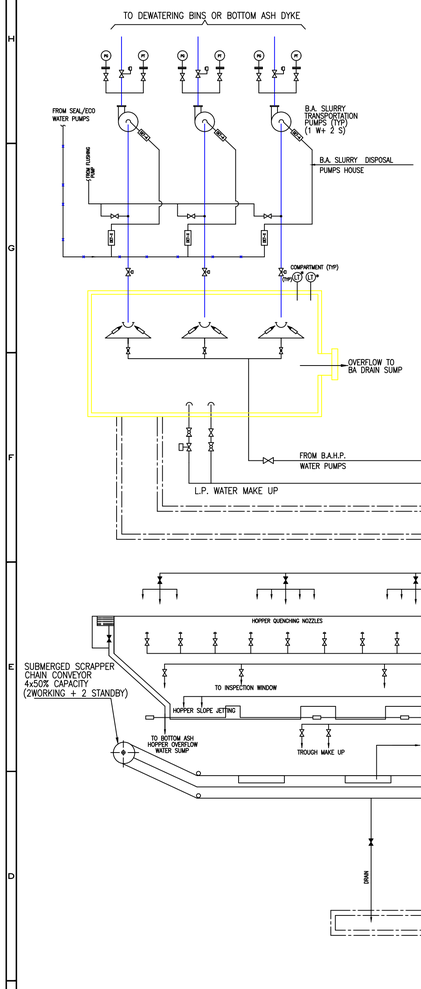
एन टी पी सी लिमिटेड
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT: **SINGARANI SUPER THERMAL POWER PROJECT**
STAGE – II (1x800MW)

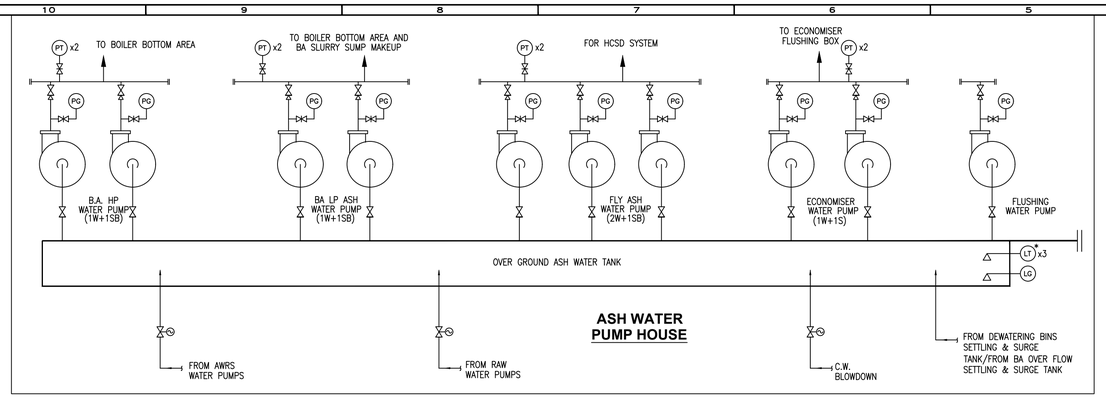
TITLE: EPC PACKAGE
SINGLE LINE FLOW DIAGRAM OF BOTTOM ASH HANDLING SYSTEM (JET PUMP SYSTEM) ASH DISPOSAL & ASH WATER SYSTEM

SIZE	SCALE	DRG.NO.	REV.
A0		9596-155-POM-A-025	B

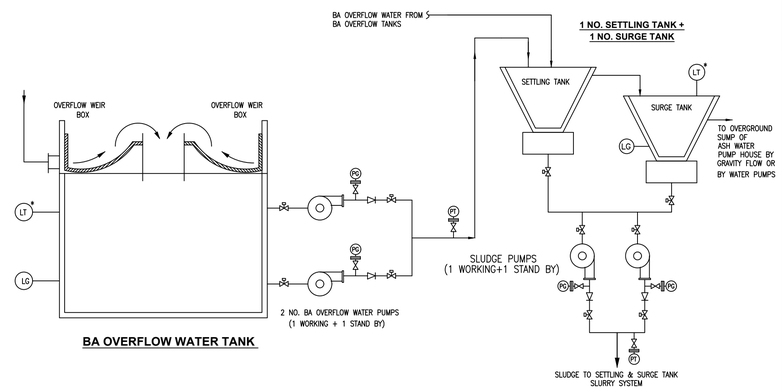
cad file name : 9596-155-POM-A-025.dwg



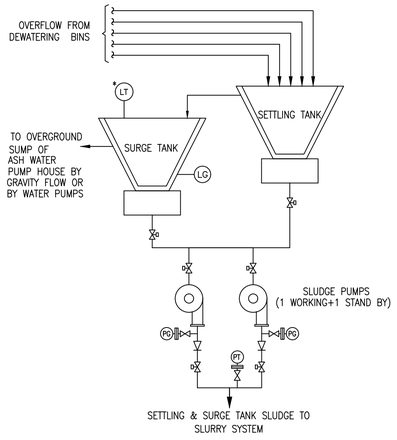
DRY BOTTOM ASH HOPPER AND SUBMERGED SCRAPPER CHAIN CONVEYOR (4x50%)



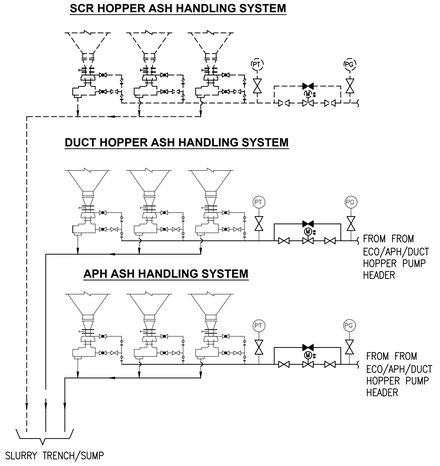
ASH WATER PUMP HOUSE

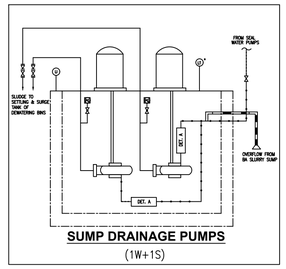


BA OVERFLOW WATER TANK



TYPICAL ARRANGEMENT OF COARSE ASH HANDLING SYSTEM





SUMP DRAINAGE PUMPS
(1W+1S)

NOTES

1. BOTTOM ASH / ECO ASH / APH ASH / DUCT HOPPER (AS APPLICABLE) ASH HANDLING SYSTEM SHOWN IS INDICATIVE. COMPLETE ASH HANDLING SYSTEM SHALL BE DESIGNED & SUPPLIED MEETING FUNCTIONAL REQUIREMENTS.
2. THE SCHEME & NO. OF PUMPS/EQUIPMENT SHALL BE FINALISED BASED ON STIPULATIONS OF TECHNICAL SPECIFICATION & SYSTEM REQUIREMENTS.
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6. FOR MEETING THE FLUSHING APPARATUS WATER REQUIREMENT OF ECO HOPPERS. TWO(2) NOS. (ONE WORKING AND ONE STANDBY) ECONOMISER ASH WATER PUMPS ALONG WITH VALVES, PIPES & FITTINGS SHALL BE PROVIDED. THESE PUMPS SHALL BE LOCATED IN ASH WATER PUMP HOUSE.
7. FOR SEALING OF BA COOLING WATER OVERFLOW PUMPS, COOLING OF BA OVERFLOW PUMP FLUID COUPLING, SEALING OF CLINKER GRINDERS ETC, BIDDER SHALL PROVIDE TWO (2) NOS. (1 WORKING + 1 STANDBY) SEAL WATER PUMPS. THESE PUMPS SHALL BE LOCATED IN THE BOILER AREA.
8. LIMIT SWITCHES ARE TO BE PROVIDED FOR MANUAL VALVES AS PER SYSTE REQUIREMENTS & CONTROL PHILOSOPHY.
11. FOR ALL INSTRUMENTS AND DRIVES, SUPPLIER TO ASSIGN UNIQUE TAG NUMBERS FOR IDENTIFICATION. THIS TAG NUMBERS SHALL BE INDICATED ON DOCUMENTS/DRAWINGS/DATA SHEETS APPLICABLE FOR THE RESPECTIVE INSTRUMENT/DRIVE.
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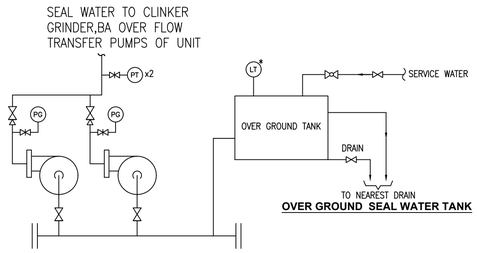
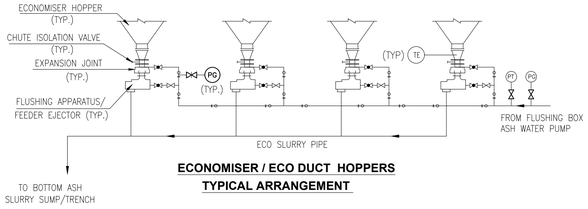
13. RECIRCULATION LINE ALONG WITH VALVES AND INSTRUMENTATION IN ASH WATER PUMPS SHALL BE PROVIDED.
14. ALL ACCESSORIES, ITEMS OF WORK, THOUGH NOT INDICATED BUT REQUIRED TO MAKE THE SYSTEM COMPLETE FOR ITS SAFE, EFFECIENT, RELIABLE AND TROUBLE FREE OPERATION AND MAINTENANCE SHALL ALSO BE INCLUDED IN BIDDER'S SCOPE UNLESS SPECIFICALLY EXCLUDED.

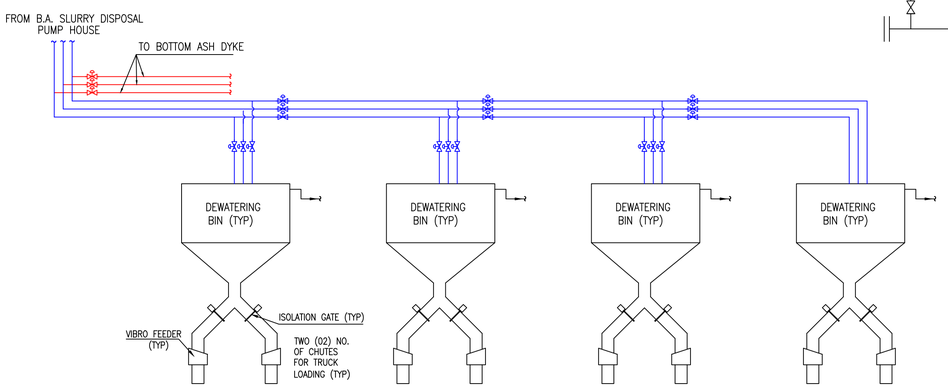


SEAL WATER PUMPS
(1 WORKING + 1 STANDBY)

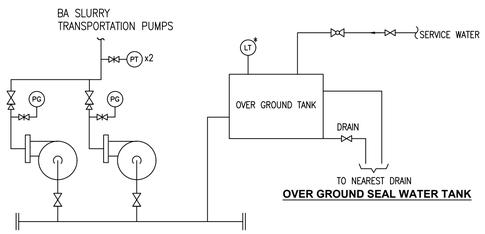
OVER GROUND SEAL WATER TANK



ECONOMISER / ECO DUCT HOPPERS
TYPICAL ARRANGEMENT



BA DEWATERING AND CONVEYING SYSTEM



SEAL WATER PUMPS
(1 WORKING + 1 STANDBY)

OVER GROUND SEAL WATER TANK

LEGEND :

- PLUG VALVE
- GLOBE VALVE
- NON RETURN VALVE
- ISOLATION VALVE
- ISOLATION VALVE (PNEUMATICALLY OPERATED)
- RELIEF VALVE
- PUMP
- PS — PRESSURE SWITCH
- PG — PRESSURE GAUGE
- DPG — DIFFERENTIAL PRESSURE GUAGE
- STRAINER
- SOLENOID VALVE (PNEUMATICALLY OPERATED)
- MOTORISED VALVE
- PRESSURE TRANSMITTER
- ASH SLURRY VALVE
- PT — PRESSURE TRANSMITTER
- LT* — LEVEL TRANSMITTER (ULTRASONIC TYPE)
- LG — LEVEL GAUGE
- INSTRUMENT VALVE
- DIAPHRAGM SEAL
- PNEUMATIC VALVE
- LG — LEVEL INDICATOR

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
B	RELEASED FOR TENDER	priyanka	MK							
A	RELEASED FOR TENDER									

CLEARED BY

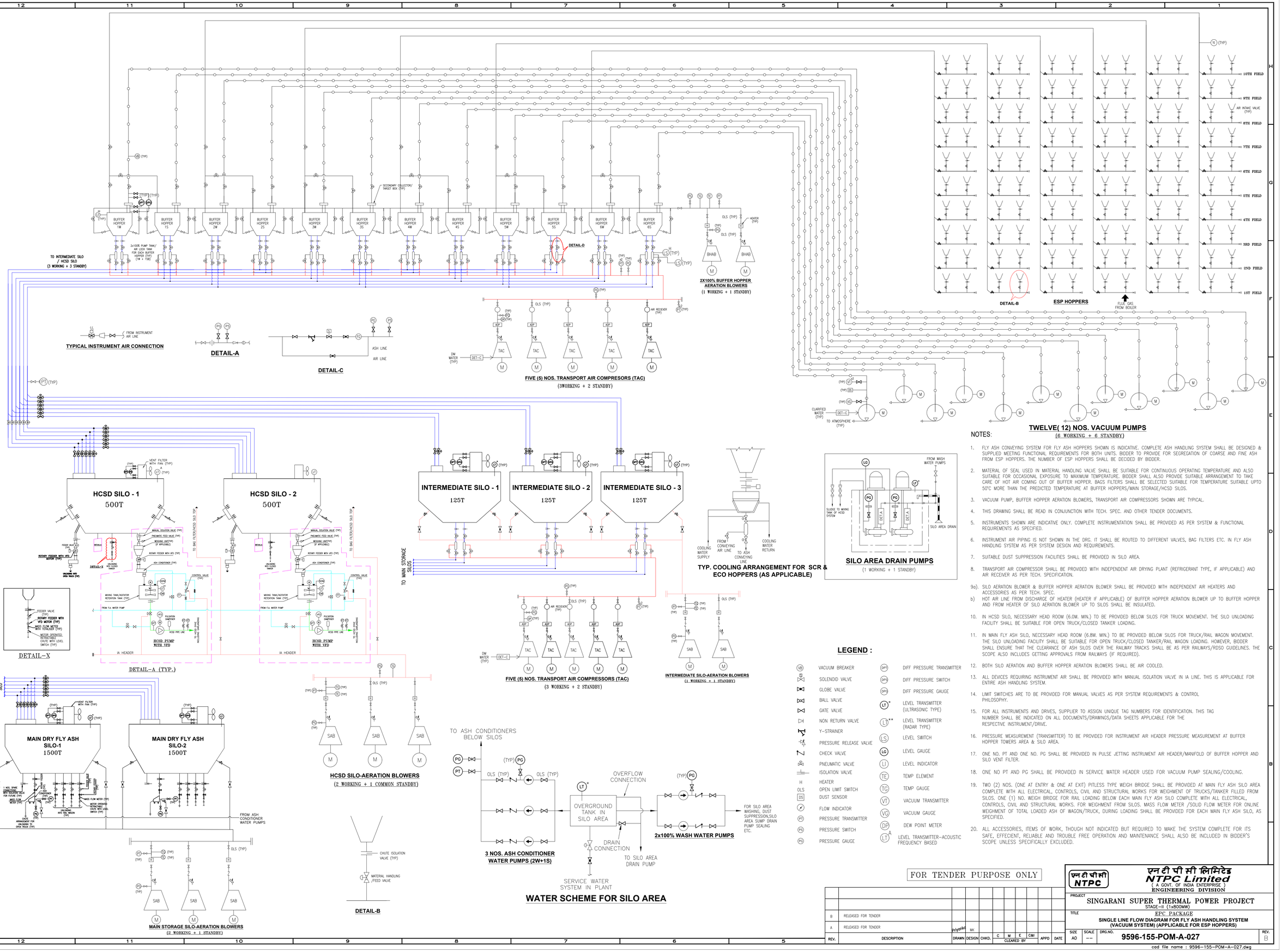
CONSULTANT: एनटीपीसी लिमिटेड NTPC Limited (A GOVT. OF INDIA ENTERPRISE) ENGINEERING DIVISION

PROJECT: SINGARANI SUPER THERMAL POWER PROJECT
STAGE–II (1x800MW)

TITLE: EPC PACKAGE
SINGLE LINE FLOW DIAGRAM OF BOTTOM ASH HANDLING SYSTEM (SUBMERGED SCRAPER CHAIN CONVEYOR) ASH DISPOSAL & ASH WATER SYSTEM)

SIZE	SCALE	DRG.NO.	REV.
A0		9596-155-POM-A-026	B

cad file name : 9596–155–POM–A–026.dwg



LEGEND :

VB	VACUUM BREAKER	DPT	DIFF PRESSURE TRANSMITTER
SV	SOLENOID VALVE	DPS	DIFF PRESSURE SWITCH
GV	GLOBE VALVE	DPG	DIFF PRESSURE GAUGE
BV	BALL VALVE	LT*	LEVEL TRANSMITTER (ULTRASONIC TYPE)
GV	GATE VALVE	LT**	LEVEL TRANSMITTER (RADAR TYPE)
NRV	NON RETURN VALVE	LS	LEVEL SWITCH
Y	Y-STRAINER	LG	LEVEL GAUGE
PRV	PRESSURE RELEASE VALVE	LI	LEVEL INDICATOR
CV	CHECK VALVE	TE	TEMP ELEMENT
PV	PNEUMATIC VALVE	TG	TEMP GAUGE
IV	ISOLATION VALVE	VT	VACUUM TRANSMITTER
H	HEATER	VG	VACUUM GAUGE
OLS	OPEN LIMIT SWITCH	DP	DEW POINT METER
DS	DUST SENSOR	LT(A)	LEVEL TRANSMITTER-ACOUSTIC FREQUENCY BASED
FI	FLOW INDICATOR		
PT	PRESSURE TRANSMITTER		
PS	PRESSURE SWITCH		
PG	PRESSURE GAUGE		

NOTES:

1. FLY ASH CONVEYING SYSTEM FOR FLY ASH HOPPERS SHOWN IS INDICATIVE, COMPLETE ASH HANDLING SYSTEM SHALL BE DESIGNED & SUPPLIED MEETING FUNCTIONAL REQUIREMENTS FOR BOTH UNITS. BIDDER TO PROVIDE FOR SEGREGATION OF COARSE AND FINE ASH FROM ESP HOPPERS. THE NUMBER OF ESP HOPPERS SHALL BE DECIDED BY BIDDER.
2. MATERIAL OF SEAL USED IN MATERIAL HANDLING VALVE SHALL BE SUITABLE FOR CONTINUOUS OPERATING TEMPERATURE AND ALSO SUITABLE FOR OCCASIONAL EXPOSURE TO MAXIMUM TEMPERATURE. BIDDER SHALL ALSO PROVIDE SUITABLE ARRANGEMENT TO TAKE CARE OF HOT AIR COMING OUT OF BUFFER HOPPER. BAGS FILTERS SHALL BE SELECTED SUITABLE FOR TEMPERATURE SUITABLE UPTO 50°C MORE THAN THE PREDICTED TEMPERATURE AT BUFFER HOPPERS/MAIN STORAGE/HCSD SILOS.
3. VACUUM PUMP, BUFFER HOPPER AERATION BLOWERS, TRANSPORT AIR COMPRESSORS SHOWN ARE TYPICAL.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECH. SPEC. AND OTHER TENDER DOCUMENTS.
5. INSTRUMENTS SHOWN ARE INDICATIVE ONLY. COMPLETE INSTRUMENTATION SHALL BE PROVIDED AS PER SYSTEM & FUNCTIONAL REQUIREMENTS AS SPECIFIED.
6. INSTRUMENT AIR PIPING IS NOT SHOWN IN THE DRG. IT SHALL BE ROUTED TO DIFFERENT VALVES, BAG FILTERS ETC. IN FLY ASH HANDLING SYSTEM AS PER SYSTEM DESIGN AND REQUIREMENTS.
7. SUITABLE DUST SUPPRESSION FACILITIES SHALL BE PROVIDED IN SILO AREA.
8. TRANSPORT AIR COMPRESSOR SHALL BE PROVIDED WITH INDEPENDENT AIR DRYING PLANT (REFRIGERANT TYPE, IF APPLICABLE) AND AIR RECEIVER AS PER TECH. SPECIFICATION.

9a). SILO AERATION BLOWER & BUFFER HOPPER AERATION BLOWER SHALL BE PROVIDED WITH INDEPENDENT AIR HEATERS AND ACCESSORIES AS PER TECH. SPEC.

b) HOT AIR LINE FROM DISCHARGE OF HEATER (HEATER IF APPLICABLE) OF BUFFER HOPPER AERATION BLOWER UP TO BUFFER HOPPER AND FROM HEATER OF SILO AERATION BLOWER UP TO SILOS SHALL BE INSULATED.

10. IN HCSD SILO, NECESSARY HEAD ROOM (6.0M. MIN.) TO BE PROVIDED BELOW SILOS FOR TRUCK MOVEMENT. THE SILO UNLOADING FACILITY SHALL BE SUITABLE FOR OPEN TRUCK/CLOSED TANKER LOADING.
11. IN MAIN FLY ASH SILO, NECESSARY HEAD ROOM (6.8M. MIN.) TO BE PROVIDED BELOW SILOS FOR TRUCK/RAIL WAGON MOVEMENT. THE SILO UNLOADING FACILITY SHALL BE SUITABLE FOR OPEN TRUCK/CLOSED TANKER/RAIL WAGON LOADING. HOWEVER, BIDDER SHALL ENSURE THAT THE CLEARANCE OF ASH SILOS OVER THE RAILWAY TRACKS SHALL BE AS PER RAILWAYS/RDSO GUIDELINES. THE SCOPE ALSO INCLUDES GETTING APPROVALS FROM RAILWAYS (IF REQUIRED).
12. BOTH SILO AERATION AND BUFFER HOPPER AERATION BLOWERS SHALL BE AIR COOLED.
13. ALL DEVICES REQUIRING INSTRUMENT AIR SHALL BE PROVIDED WITH MANUAL ISOLATION VALVE IN IA LINE. THIS IS APPLICABLE FOR ENTIRE ASH HANDLING SYSTEM.
14. LIMIT SWITCHES ARE TO BE PROVIDED FOR MANUAL VALVES AS PER SYSTEM REQUIREMENTS & CONTROL PHILOSOPHY.
15. FOR ALL INSTRUMENTS AND DRIVES, SUPPLIER TO ASSIGN UNIQUE TAG NUMBERS FOR IDENTIFICATION. THIS TAG NUMBER SHALL BE INDICATED ON ALL DOCUMENTS/DRAWINGS/DATA SHEETS APPLICABLE FOR THE RESPECTIVE INSTRUMENT/DRIVE.
16. PRESSURE MEASUREMENT (TRANSMITTER) TO BE PROVIDED FOR INSTRUMENT AIR HEADER PRESSURE MEASUREMENT AT BUFFER HOPPER TOWERS AREA & SILO AREA.
17. ONE NO. PT AND ONE NO. PG SHALL BE PROVIDED IN PULSE JETTING INSTRUMENT AIR HEADER/MANIFOLD OF BUFFER HOPPER AND SILO VENT FILTER.
18. ONE NO PT AND PG SHALL BE PROVIDED IN SERVICE WATER HEADER USED FOR VACUUM PUMP SEALING/COOLING.
19. TWO (2) NOS. (ONE AT ENTRY & ONE AT EXIT) PITLESS TYPE WEIGH BRIDGE SHALL BE PROVIDED AT MAIN FLY ASH SILO AREA COMPLETE WITH ALL ELECTRICAL, CONTROLS, CIVIL AND STRUCTURAL WORKS FOR WEIGHMENT OF TRUCKS/TANKER FILLED FROM SILOS. ONE (1) NO. WEIGH BRIDGE FOR RAIL LOADING BELOW EACH MAIN FLY ASH SILO COMPLETE WITH ALL ELECTRICAL, CONTROLS, CIVIL AND STRUCTURAL WORKS. FOR WEIGHMENT FROM SILOS. MASS FLOW METER /SOLID FLOW METER FOR ONLINE WEIGHMENT OF TOTAL LOADED ASH OF WAGON/TRUCK, DURING LOADING SHALL BE PROVIDED FOR EACH MAIN FLY ASH SILO, AS SPECIFIED.
20. ALL ACCESSORIES, ITEMS OF WORK, THOUGH NOT INDICATED BUT REQUIRED TO MAKE THE SYSTEM COMPLETE FOR ITS SAFE, EFFECIENT, RELIABLE AND TROUBLE FREE OPERATION AND MAINTENANCE SHALL ALSO BE INCLUDED IN BIDDER'S SCOPE UNLESS SPECIFICALLY EXCLUDED.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
B	RELEASED FOR TENDER	Priyanka	MK							
A	RELEASED FOR TENDER									

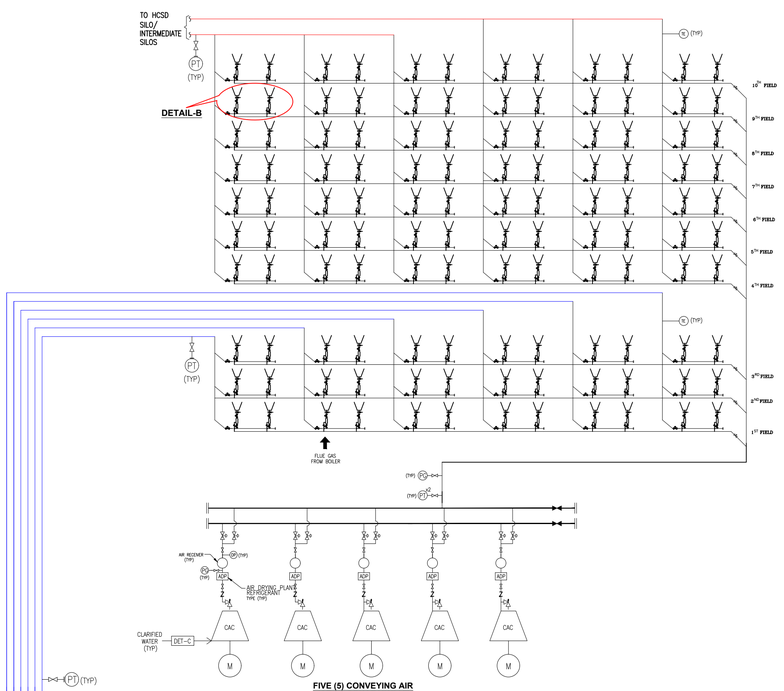
एन टी पी सी लिमिटेड
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

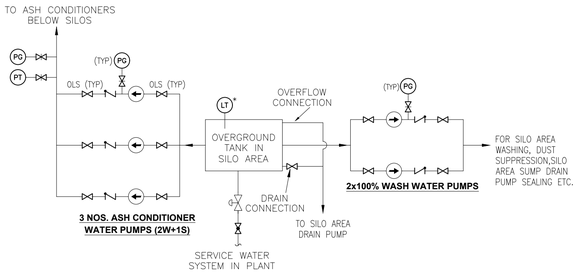
PROJECT: SINGARANI SUPER THERMAL POWER PROJECT
STAGE-II (1x800MW)

TITLE: EPC PACKAGE
SINGLE LINE FLOW DIAGRAM FOR FLY ASH HANDLING SYSTEM (VACUUM SYSTEM) (APPLICABLE FOR ESP HOPPERS)

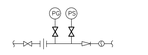
SIZE	SCALE	DRG.NO.	REV.
A0	--	9596-155-POM-A-027	B

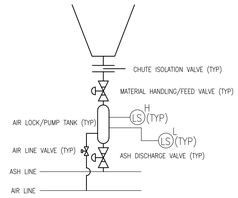
cad file name : 9596-155-POM-A-027.dwg

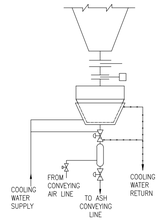




WATER SCHEME FOR SILO AREA



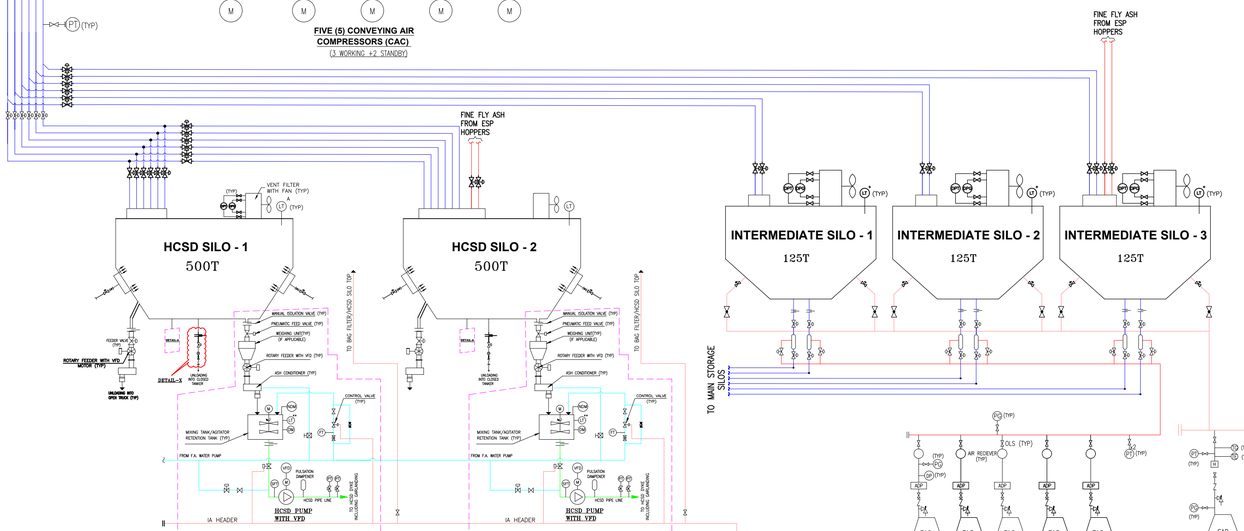


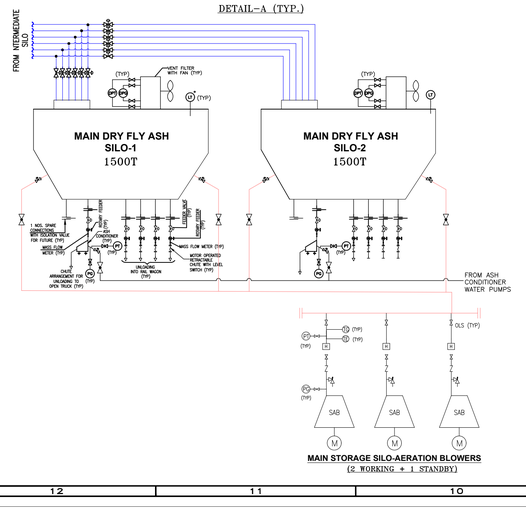


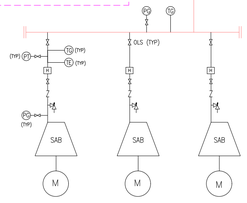
TYP. COOLING ARRANGEMENT FOR SCR & ECO HOPPERS (AS APPLICABLE)

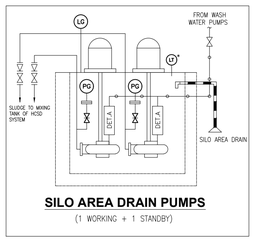
LEGEND :

VB	VACUUM BREAKER
SV	SOLENOID VALVE
	GLOBE VALVE
	BALL VALVE
	GATE VALVE
	NON RETURN VALVE
	Y-STRAINER
	PRESSURE RELEASE VALVE
	CHECK VALVE
PV	PNEUMATIC VALVE
	ISOLATION VALVE
H	HEATER
OLS	OPEN LIMIT SWITCH
DS	DUST SENSOR
FI	FLOW INDICATOR
PT	PRESSURE TRANSMITTER
PS	PRESSURE SWITCH
PG	PRESSURE GAUGE
DPT	DIFF PRESSURE TRANSMITTER
DPS	DIFF PRESSURE SWITCH
DPG	DIFF PRESSURE GAUGE
LT*	LEVEL TRANSMITTER (ULTRASONIC TYPE)
LT**	LEVEL TRANSMITTER (RADAR TYPE)
LS	LEVEL SWITCH
LG	LEVEL GAUGE
LI	LEVEL INDICATOR
TE	TEMP ELEMENT
TG	TEMP GAUGE
VT	VACUUM TRANSMITTER
VG	VACUUM GAUGE
DP	DEW POINT METER
LT A	LEVEL TRANSMITTER–ACOUSTIC FREQUENCY BASED









NOTES:

1. FLY ASH CONVEYING SYSTEM FOR FLY ASH HOPPERS SHOWN IS INDICATIVE. THE NUMBER OF ESP HOPPERS SHALL BE DECIDED BY BIDDER.
2. MATERIAL OF SEAL USED IN MATERIAL HANDLING VALVE SHALL BE SUITABLE FOR CONTINUOUS OPERATING TEMPERATURE AND ALSO SUITABLE FOR OCCASIONAL EXPOSURE TO MAXIMUM TEMPERATURE. BIDDER SHALL ALSO PROVIDE SUITABLE ARRANGEMENT TO TAKE CARE OF HOT AIR COMING OUT OF BUFFER HOPPER. BAGS FILTERS SHALL BE SELECTED SUITABLE FOR TEMPERATURE SUITABLE UPTO 50°C MORE THAN THE PREDICTED TEMPERATURE AT BUFFER HOPPERS/MAIN STORAGE/HCSD SILOS.
3. CONVEYING AIR COMPRESSORS & TRANSPORT AIR COMPRESSORS SHOWN ARE TYPICAL.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECH. SPEC. AND OTHER TENDER DOCUMENTS.
5. INSTRUMENTS SHOWN ARE INDICATIVE ONLY. COMPLETE INSTRUMENTATION SHALL BE PROVIDED AS PER SYSTEM & FUNCTIONAL REQUIREMENTS AS SPECIFIED.
6. INSTRUMENT AIR PIPING IS NOT SHOWN IN THE DRG. IT SHALL BE ROUTED TO DIFFERENT VALVES, BAG FILTERS ETC. IN FLY ASH HANDLING SYSTEM AS PER SYSTEM DESIGN AND REQUIREMENTS.
7. SUITABLE DUST SUPPRESSION FACILITIES SHALL BE PROVIDED IN SILO AREA.
8. EACH TRANSPORT AIR COMPRESSOR AND CONVEYING AIR COMPRESSOR SHALL BE PROVIDED WITH INDEPENDENT AIR DRYING PLANT (REFRIGERANT TYPE, IF APPLICABLE) AND AIR RECEIVER AS PER TECH. SPECIFICATION.

9a). EACH SILO AERATION BLOWER & BUFFER HOPPER AERATION BLOWER SHALL BE PROVIDED WITH INDEPENDENT AIR HEATERS AND ACCESSORIES AS PER TECH. SPEC.
b) HOT AIR LINE FROM DISCHARGE OF HEATER (HEATER IF APPLICABLE) OF SILO AERATION BLOWER UP TO SILOS SHALL BE INSULATED.

10. IN HCSD SILO, NECESSARY HEAD ROOM (6.0M. MIN.) TO BE PROVIDED BELOW SILOS FOR TRUCK. THE SILO UNLOADING FACILITY SHALL BE SUITABLE FOR OPEN TRUCK/CLOSED TANKER.
11. IN MAIN FLY ASH SILO, NECESSARY HEAD ROOM (6.8M. MIN.) TO BE PROVIDED BELOW SILOS FOR TRUCK/RAIL WAGON MOVEMENT. THE SILO UNLOADING FACILITY SHALL BE SUITABLE FOR OPEN TRUCK/CLOSED TANKER/RAIL WAGON LOADING. HOWEVER, BIDDER SHALL ENSURE THAT THE CLEARANCE OF ASH SILOS OVER THE RAILWAY TRACKS SHALL BE AS PER RAILWAYS/RDSO GUIDELINES. THE SCOPE ALSO INCLUDES GETTING APPROVALS FROM RAILWAYS.
12. BOTH SILO AERATION AND BUFFER HOPPER AERATION BLOWERS SHALL BE AIR COOLED.
13. ALL DEVICES REQUIRING INSTRUMENT AIR SHALL BE PROVIDED WITH MANUAL ISOLATION VALVE IN IA LINE. THIS IS APPLICABLE FOR ENTIRE ASH HANDLING SYSTEM.
14. LIMIT SWITCHES ARE TO BE PROVIDED FOR MANUAL VALVES AS PER SYSTEM REQUIREMENTS & CONTROL PHILOSOPHY.
15. FOR ALL INSTRUMENTS AND DRIVES, SUPPLIER TO ASSIGN UNIQUE TAG NUMBERS FOR IDENTIFICATION. THIS TAG NUMBER SHALL BE INDICATED ON ALL DOCUMENTS/ DRAWINGS/ DATA SHEETS APPLICABLE FOR THE RESPECTIVE INSTRUMENT/DRIVE.
16. PRESSURE MEASUREMENT (TRANSMITTER) TO BE PROVIDED FOR INSTRUMENT AIR HEADER PRESSURE MEASUREMENT IN SILO AREA.
17. ONE NO. PT AND ONE NO. PG SHALL BE PROVIDED IN PULSE JETTING INSTRUMENT AIR HEADER/MANIFOLD OF SILO VENT FILTER.
18. BIDDER TO FURNISH ALL INSTRUMENTS/CONTROLS AS PER SYSTEM REQUIREMENT. INSTRUMENT AND CONTROLS FOR AUTOMATIC OPERATION OF PUMPS & EQUIPMENTS ARE NOT SHOWN FOR CLARITY IN THIS DRG. THE SAME SHALL BE PROVIDED AS PER SYSTEM REQUIREMENT AND AS SPECIFIED IN TECH. SPECIFICATION.
19. TWO (2) NOS. (ONE AT ENTRY & ONE AT EXIT) PITLESS TYPE WEIGH BRIDGE SHALL BE PROVIDED AT MAIN FLY ASH SILO AREA COMPLETE WITH ALL ELECTRICAL, CONTROLS, CIVIL AND STRUCTURAL WORKS FOR WEIGHMENT OF TRUCKS/TANKER FILLED FROM SILOS. ONE (1) NO. WEIGH BRIDGE FOR RAIL LOADING BELOW EACH MAIN FLY ASH SILO COMPLETE WITH ALL ELECTRICAL, CONTROLS, CIVIL AND STRUCTURAL WORKS. FOR WEIGHMENT FROM SILOS. MASS FLOW METER /SOLID FLOW METER FOR ONLINE WEIGHMENT OF TOTAL LOADED ASH OF WAGON/TRUCK, DURING LOADING SHALL BE PROVIDED FOR MAIN FLY ASH SILO, AS SPECIFIED.
20. ALL ACCESSORIES, ITEMS OF WORK, THOUGH NOT INDICATED BUT REQUIRED TO MAKE THE SYSTEM COMPLETE FOR ITS SAFE, EFFECIENT, RELIABLE AND TROUBLE FREE OPERATION AND MAINTENANCE SHALL ALSO BE INCLUDED IN BIDDER'S SCOPE UNLESS SPECIFICALLY EXCLUDED.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
B	RELEASED FOR TENDER									
A	RELEASED FOR TENDER	Priyanka	MK							

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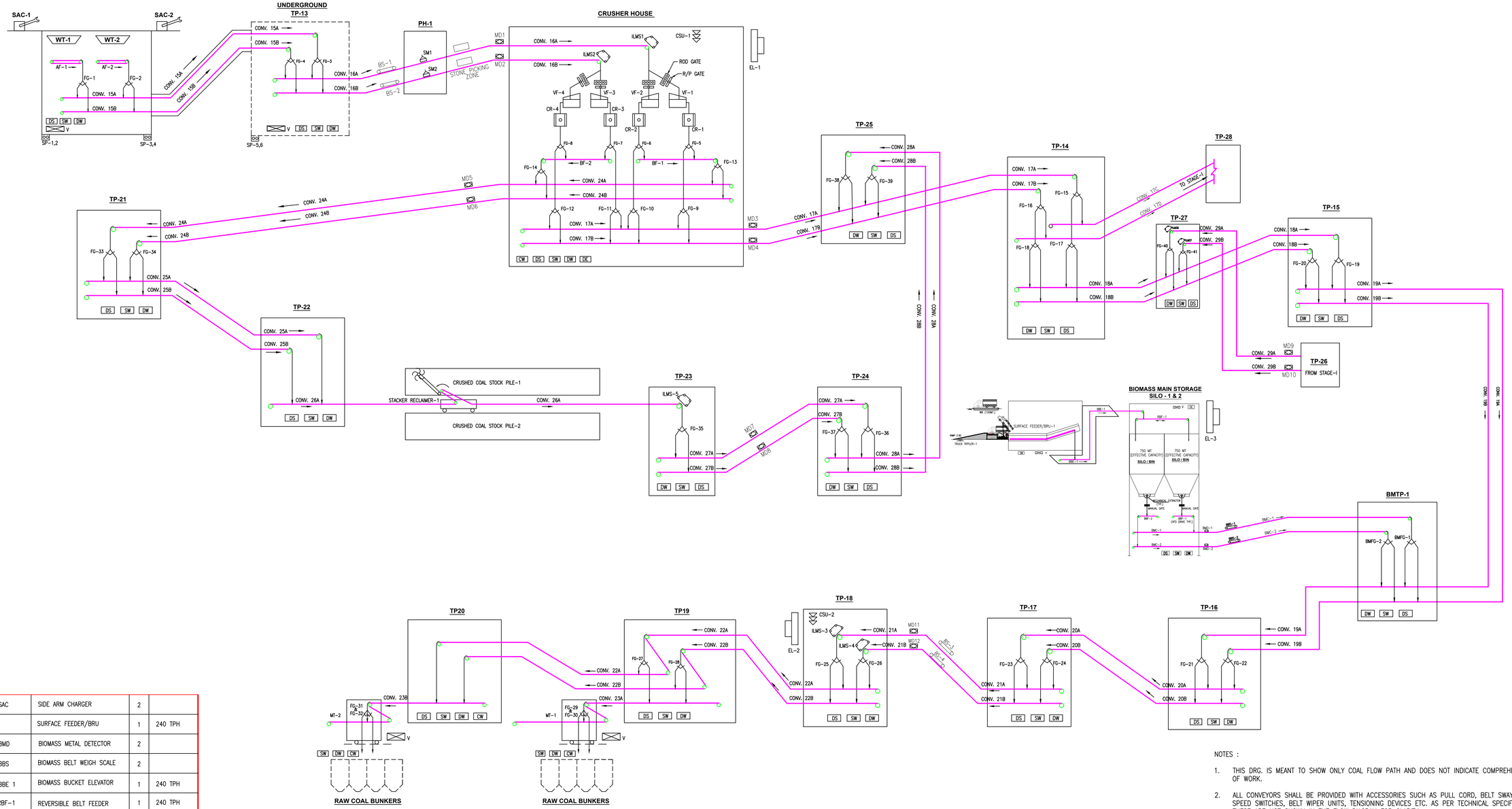
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT: SINGARANI SUPER THERMAL POWER PROJECT
STAGE–II (1x800MW)

TITLE: EPC PACKAGE
SINGLE LINE FLOW DIAGRAM FOR FLY ASH HANDLING SYSTEM (PRESSURE SYSTEM)

SIZE	SCALE	DRG.NO.	REV.
A0	--	9596-155-POM-A-028	B

cad file name : 9596-155-POM-A-028.dwg



SAC	SIDE ARM CHARGER	2	
	SURFACE FEEDER/BRU	1	240 TPH
BMD	BIOMASS METAL DETECTOR	2	
BBS	BIOMASS BELT WEIGH SCALE	2	
BBE 1	BIOMASS BUCKET ELEVATOR	1	240 TPH
RBF-1	REVERSIBLE BELT FEEDER	1	240 TPH
BMC1&2	BIOMASS CONVEYOR	2	240 TPH
BBF1&2	BIOMASS BELT FEEDER	2	240 TPH
MT1-2	MOBILE TRAVELLING TRIPPERS	2	1500 TPH
DS	DUST SUPPRESSION SYSTEM	LOT	
MD	METAL DETECTOR	12	
SM	SUSPENDED MAGNET	2	
VF 1-4	VIBRATING FEEDER	4	825 TPH
CSU	COAL SAMPLING UNIT	2	
CR 1-4	CRUSHER	4	825 TPH
FG	FLAP GATE	LOT	
BS 1-5	BELT WEIGH SCALE	5	INCL. OF S/R
RPG 1-4	RACK AND PINION GATE	4	
RG 1-4	ROD GATE	4	
ILMS	IN LINE MAGNETIC SEPARATOR ALONG WITH TRAMP IRON CHUTE	7	

EQPT. DESIGN.	EQUIPMENT	QTY.	CAPACITY
26 A	YARD CONVEYOR 1400 mm WIDE	1	1500 TPH
25A/25B	CONVEYOR 1400 mm WIDE	2	1500 TPH
24A/24B	CONVEYOR 1400 mm WIDE	2	1500 TPH
23A/23B	CONVEYOR 1400 mm WIDE	2	1500 TPH
22A/22B	CONVEYOR 1400 mm WIDE	2	1500 TPH
21A/21B	CONVEYOR 1400 mm WIDE	2	1500 TPH
20A/20B	CONVEYOR 1400 mm WIDE	2	1500 TPH
19A/19B	CONVEYOR 1400 mm WIDE	2	1500 TPH
18A/18B	CONVEYOR 1400 mm WIDE	2	1500 TPH
17C/17D	CONVEYOR 1400 mm WIDE	2	1500 TPH
17A/17B	CONVEYOR 1400 mm WIDE	2	1500 TPH
16A/16B	CONVEYOR 1400 mm WIDE	2	1500 TPH
15A/15B	CONVEYOR 1400 mm WIDE	2	1500 TPH

EQPT. DESIGN.	EQUIPMENT	QTY.	CAPACITY
–	–	–	–
–	–	–	–
SAC	SIDE ARM CHARGER	2	
WT	WAGON TIPPLER	2	25 TIPS
SP	SUMP PUMP	6	
AF	APPRON FEEDER WITH DRIBBLE CONV.	2	1500 TPH
BF	BELT FEEDER	2	1500 TPH
SR-1	STACKER CUM RECLAIMER	1	1500 TPH
EL	PASSENGER CUM GOODS ELEVATOR	3	1 TON
PH	PENT HOUSE	1	
29A/29B	CONVEYOR 1400 mm WIDE	2	1500 TPH
28A/28B	CONVEYOR 1400 mm WIDE	2	1500 TPH
27A/27B	CONVEYOR 1400 mm WIDE	2	1500 TPH

LEGEND

	BELT CONVEYOR		BELT FEEDER
BS	BELT SCALE	SW	SERVICE WATER SYSTEM
CSU	COAL SAMPLING UNIT	DW	DRINKING WATER SYSTEM
DS	DUST SUPPRESSION SYSTEM	DE	DUST EXTRACTION SYSTEM
ILMS	MAGNETIC SEPARATOR (IN LINE)		SUMP & SUMP DRAINAGE PUMP
MD	METAL DETECTOR	SAC	SIDE ARM CHARGER
V	VENTILATION		
FG	FLAP GATE		
	ROD GATE		
	RACK & PINION GATE		
CR	CRUSHER		
VSF	VIBRATING SCREENING FEEDER		
SM	SUSPENDED MAGNET		
EL	RACK & PINION ELEVATOR		

NOTES :

1. THIS DRG. IS MEANT TO SHOW ONLY COAL FLOW PATH AND DOES NOT INDICATE COMPREHENSIVE SCOPE OF WORK.
2. ALL CONVEYORS SHALL BE PROVIDED WITH ACCESSORIES SUCH AS PULL CORD, BELT SWAY AND ZERO SPEED SWITCHES, BELT WIPER UNITS, TENSIONING DEVICES ETC. AS PER TECHNICAL SPECIFICATION. THESE ARE NOT SHOWN IN THE FLOW DIAGRAM FOR CLARITY.
3. ALL ACCESSORIES, ITEMS OF WORK, THOUGH NOT INDICATED BUT REQUIRED TO MAKE THE SYSTEM COMPLETE FOR ITS SAFE, EFFICIENT, RELIABLE AND TROUBLE FREE OPERATION AND MAINTENANCE SHALL ALSO BE INCLUDED IN BIDDER'S SCOPE UNLESS SPECIFICALLY EXCLUDED.
4. DUST SUPPRESSION, SERVICE WATER, POTABLE WATER, COOLING WATER, DUST EXTRACTION & VENTILATION SHALL BE PROVIDED AS PER TECHNICAL SPECIFICATION REQUIREMENT.
5. BELT WEIGHER IN STACKER RECLAIMER MACHINE NOT SHOWN FOR CLARITY IS IN BIDDER'S SCOPE OF SUPPLY & SHALL BE AS PER TECH SPECIFICATION.
6. MINIMUM FOUR NOS. (4) SUMP PUMPS (SLUDGE DUTY) FOR WAGON TIPPLER COMPLEX, TWO (2) NOS. SUMP PUMPS IN EACH TP'S COMPLETELY OR PARTIALLY UNDERGROUND SHALL BE PROVIDED.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
B	RELEASED FOR TENDER	NAVEEN	HS							
A	RELEASED FOR TENDER	NAVEEN	MK							

CLEARED BY

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NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT: **SINGARENI SUPER THERMAL POWER PROJECT**
STAGE–II (1x800MW)

TITLE: COAL HANDLING PLANT PACKAGE
COAL FLOW DIAGRAM

SIZE	SCALE	DRG.NO.	REV.
A1	––	9596-155-POM-A-002	B

CAD FILE NAME : 9596–155–POM–A–002.dwg

EXISTING RESERVOIR
BIDDER
OWNER
RAW WATER PUMPS(PT)
RAW WATER PUMPS(ASH)
FT
CONNECTION WITH EXISTING FACILITY, MODIFICATION IN BIDDER'S SCOPE

PT CLARIFIER
CLARIFIED WATER TANK/ DISTRIBUTION CHAMBER
ANY OTHER REQUIREMENT
HVAC MAKEUP PUMPS
CW MAKEUP PUMPS
EVAP. LOSS/D.L
COOLING TOWER
FROM EXISTING ACW SYSTEM
ACW SYSTEM
CONDENSER
CW PUMPS
FT**
BLOW DOWN-CT
TO PT-RO CLARIFIER
TO FIRE SYSTEM
CHEMICAL TREATMENT PLANT
SERVICE WATER TANK
SERVICE WATER PUMP
CHP & DUST SUPP SYSTEM
FGD MAKE UP PUMPS
EXISTING WASTE WATER SYSTEM CLARIFIER
PLANT SERVICE WATER SYSTEM
AHS VACUUM PUMP SEALING (If Required)

STORM WATER PIT SUMP
TO EXISTING RAW WATER RESERVOIR
TO (PT-RO) CLARIFIER
FROM CW BLOW DOWN
FIRE WATER TANKS
TO FIRE WATER SYSTEM
FROM CW BLOWDOWN

CW MAKEUP PUMPS (IF REQUIRED)
SLUDGE PUMP
SLUDGE PIT
ASH WATER SUMP
ASH WATER TANK
AHP
ASH MOUND

EXISTING POTABLE WATER SYSTEM
EXISTING SYSTEM
TO UNIT #3
CONDENSATE TRANSFER PUMPS
FROM CONDENSATE STORAGE TANK

EXISTING FILTER WATER SUMP
FILTER WATER PUMP
DM PLANT
DM WATER STORAGE TANK 1 NOS
EXISTING DM WATER STORAGE TANK 2 NOS
EXISTING BOILER FILL PUMP
UNIT 1&2 (2X600MW)
UNIT 3 (1X800MW)
BOILER FILL PUMP
EXISTING DM MAKEUP PUMP HOUSE
EXISTING DM REGENERATION PUMP
FOR EXISTING STREAM
FOR NEW STREAM
CPU REGEN
DM MAKEUP
POWER CYCLE
BLOWDOWN TO CW SYSTEM
TO EXISTING SYSTEM

N.PIT
NEUTRALISED WASTE FROM DM REGEN SYSTEM
EXCESS CW BLOWDOWN/TREATED PLANT WATER/EFFLUENTS FROM DIFFERENT CLUSTERS IN PLANT ETC
EXISTING CENTRAL MONITORING BASIN
PT-RO CLARIFIER
WASTE WATER RO PLANT (UF+RO)
PERMEATE TO CW SYSTEM/DM PLANT (EXISTING FILTER WATER SUMP)
RO REJECT TO COAL HANDLING PLANT

NOTES

1. THE BIDDER SHALL INDICATE THE WATER USAGES IN CUM/HR TO AND FROM VARIOUS SYSTEMS IN THEIR SCOPE.
2. THE SCHEME SHOWN IS INDICATIVE ONLY. CONTRACTOR SHOULD FURNISH COMPLETE SCHEME IN ALL RESPECTS DURING DETAILED ENGINEERING BASED ON TECHNICAL SPECIFICATION AND SYSTEM REQUIREMENTS. CONTRACTOR SHOULD FURNISH COMPLETE SCHEME AN ALL RESPECTS INCLUDING ALL INSTRUMENTS, VALVES ETC. FOR SMOOTH, SAFE, EFFICIENT, TROUBLE FREE OPERATION OF PLANT.
3. THE INTERCONNECTION WITH THE EXISTING FACILITIES ARE IN THE SCOPE OF BIDDER.
4. BIDDER ARE ADVISED TO VISIT THE SITE BEFORE ESTABLISHING THE COMPLETE PLANT WATER SCHEME FOR BETTER UNDERSTANDING OF EXISTING SYSTEM.
5. MINIMUM CYCLES OF CONCENTRATION (C.O.C.) FOR CW SYSTEM SHALL BE 5.
6. FLOW MEASUREMENTS AS INDICATED IN THIS PLANT WATER SCHEME ARE TO BE SUPPLIED FOR ACHIEVING COMPLETE WATER ACCOUNTING.HOWEVER IT IS TO BE NOTED THAT REQUIREMENT OF SOME OF THESE FLOW MEASUREMENTS ARE ALREADY. INDICATED IN CORRESPONDING P&IDS/FLOW SCHEME/OTHER PARTS OF THE SPECIFICATION AND IN SUCH CASES, FLOW MEASUREMENTS NEED NOT BE SUPPLIED TWICE AND FLOW MEASUREMENT IS TO BE SUPPLIED ONLY ONCE.
7. INTER CONNECTION WITH EXISTING SYSTEMS (WHENEVER SHOWN) IS IN BIDDER"S SCOPE

SYMBOLS:

(FT) ELECTRONIC FLOW METER
(FT)** IMPACT FLOW METER

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
0	RELEASED FOR TENDER									20.5.22

FOR TENDER PURPOSE ONLY

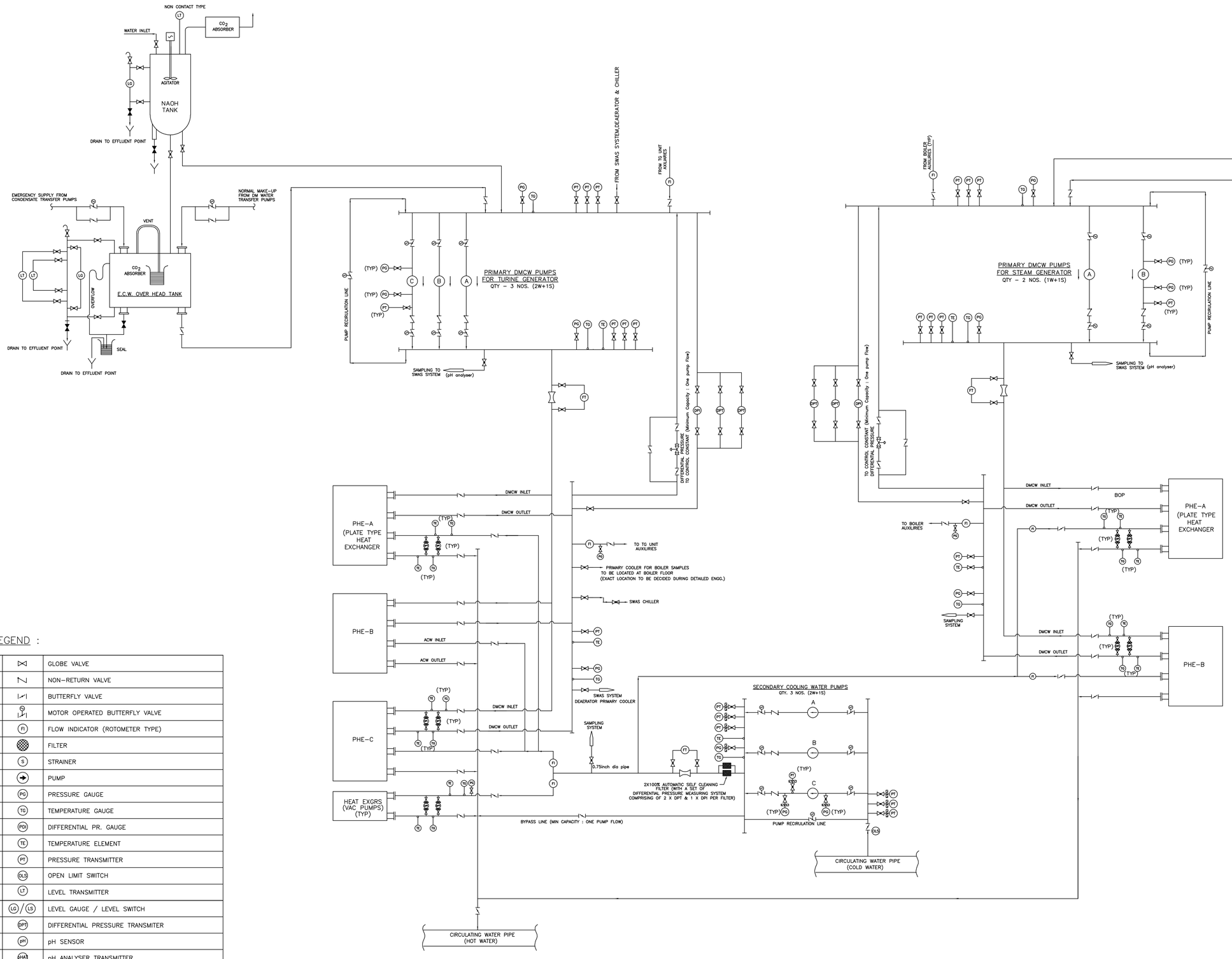
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: PLANT WATER SCHEME

SIZE	SCALE	DRG. NO.	REV. NO.
A3	NTS	9755-001-POM-A-001	0



LEGEND :

1.	⋈	GLOBE VALVE
2.	⋈	NON-RETURN VALVE
3.	⋈	BUTTERFLY VALVE
4.	⋈	MOTOR OPERATED BUTTERFLY VALVE
5.	FI	FLOW INDICATOR (ROTOMETER TYPE)
6.	▨	FILTER
7.	S	STRAINER
8.	P	PUMP
9.	PG	PRESSURE GAUGE
10.	TG	TEMPERATURE GAUGE
11.	PDI	DIFFERENTIAL PR. GAUGE
12.	TE	TEMPERATURE ELEMENT
13.	PT	PRESSURE TRANSMITTER
14.	OLS	OPEN LIMIT SWITCH
15.	LT	LEVEL TRANSMITTER
16.	LG / LS	LEVEL GAUGE / LEVEL SWITCH
17.	DPT	DIFFERENTIAL PRESSURE TRANSMITER
18.	pH	pH SENSOR
19.	pHAT	pH ANALYSER TRANSMITTER
20.	⋈	FLOW ELEMENT (ORIFICE)
21.	⋈	CONTROL VALVE (PNEUMATIC ACTUATOR)
22.	⋈	NORMALLY CLOSED VALVE
23.	FT	FLOW TRANSMITTER
24.	▭	DIAPHRAGM SEAL

GENERAL NOTES :

1. MINIMUM REQUIREMENTS ARE SHOWN IN THE P&ID DIAGRAM. ANY OTHER INSTRUMENT AND DEVICES REQUIRED FOR EFFICIENT OPERATION ARE TO BE SUPPLIED BY BIDDER.
2. ALL DRAIN AND VENT. CONNECTIONS SHALL BE PROVIDED WITH VALVES AT REQUIRED POINTS/LOCATIONS AS PER LAYOUT.
3. pH OF PRIMARY CIRCUIT DM WATER SHALL BE MAINTAINED AROUND 9.5.
4. INSTRUMENTS ARE SHOWN ONLY FOR ONE SET OF PUMP, PHE (PLATE HEAT EXCHANGER) OR ONE HEADER AS THE CASE MAY BE FOR CLARITY AND ARE TYPICAL. THE SAME SHALL BE PROVIDED FOR ALL THE EQUIPMENTS AND HEADERS.
5. ROOT VALVE, ISOLATION VALVES, THREE WAY MANIFOLD ETC. REQUIRED FOR VARIOUS INSTRUMENTS SHALL BE PROVIDED BY BIDDER.
6. EACH HEAT EXCHANGER/COOLER OF VARIOUS AUXILIARIES SHALL BE PROVIDED WITH TEMPERATRE GUAGE AT INLET AND OUTLET BY THE RESPECTIVE BIDDER (COOLER SUPPLIER).FURTHER FLOW GLASS AT INLET SHALL ALSO BE PROVIDED BY COOLER SUPPLIER.
7. WINDING & BEARINGS TEMP MEASUREMENTS OF PUMPS AND MOTORS TO BE PROVIDED AS PER SPECIFICATION.
8. COOLING WATER REQUIREMENT FOR SWAS SYSTEM (PRIMARY COOLERS & CHILLERS) ALONG WITH THE PIPING & ACCESSERIS SHALL BE UNDER CONTRACTORS SCOPE
9. ALL TAPPING FOR SWAS SHALL BE PROVIDED
10. ALL THE INSTRUMENTS SHALL BE IN THE SCOPE OF BIDDER MEASURING INSTRUMENTS INDICATED IN P& ID IS MINIMUM. IN CASE ADDITIONAL INSTRUMENTS ARE REQD. AS PER THE STANDARD AND PROVEN PRACTICE OF BIDDER THE SAME SHALL BE PROVIDED.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
0	RELEASED FOR TENDER									13.11.17

CLEARED BY

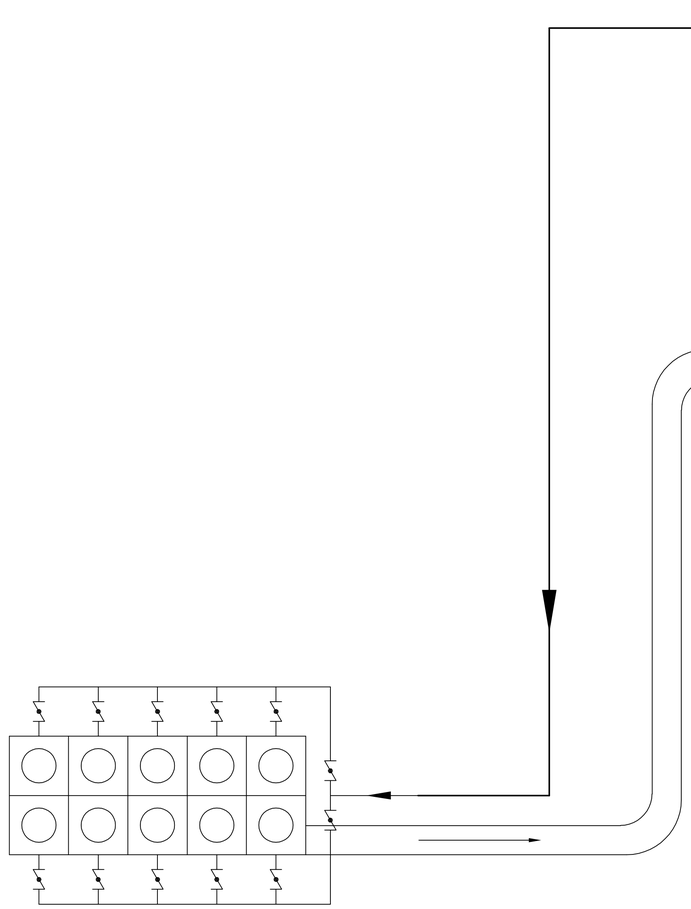
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P&ID OF EQUIPMENT COOLING WATER SYSTEM

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9755-001-POM-A-003	0



CIRCULATING WATER PUMP HOUSE

MAIN CW S□STEM COOLING TOWER□□

UNIT □□

□1□□00MW□

LEGEND □

- PUMPS
- ELECTRICALLY ACTUATED BUTTERFLY VALVE
- ELECTRO HYDRAUCALLY ACTUATED BUTTERFLY VALVE
- MANUALLY ACTUATED BUTTERFLY VALVE
- NON-RETURN (CHECK) VALVE
- EXPANSION JOINT
- ISOLATION VALVE
- FLOW MEASURING DEVICE (FT)

NOTES □

1. THIS DRG. SHOULD BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATIONS AND OTHER TENDER DRAWINGS.
2. ALL THE VALVES SHALL BE LAID OVERGROUND FOR EASY ACCESS/MAINTENANCE.
3. ARRANGEMENT AND NUMBER OF CELLS SHOWN IN THE COOLING TOWERS ARE INDICATIVE ONLY.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
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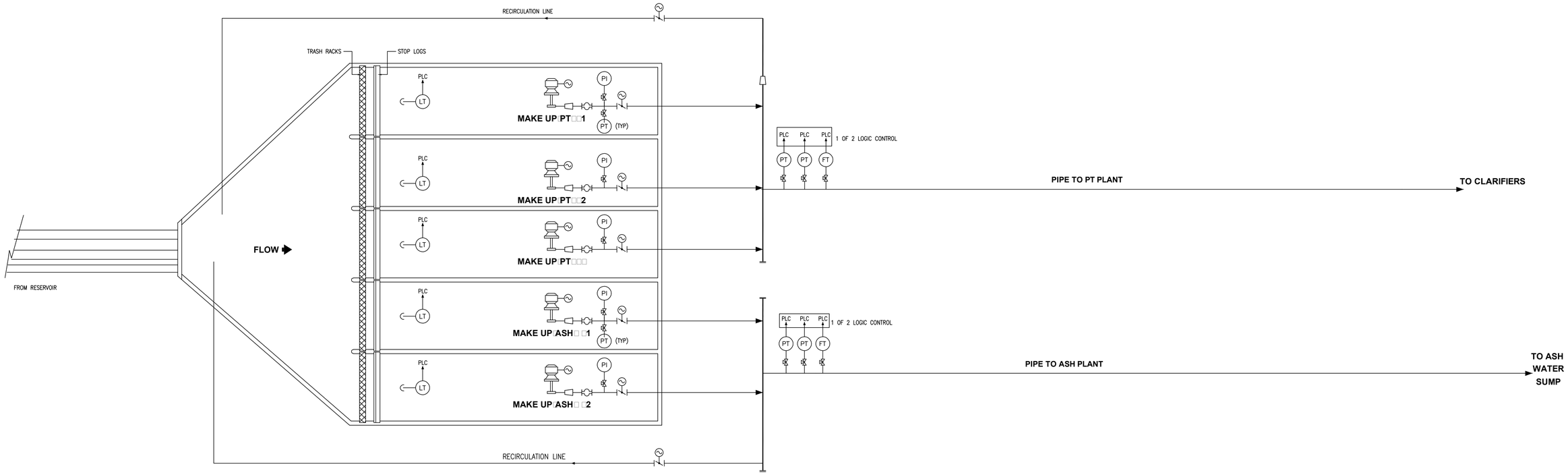
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: SCHEME OF CIRCULATING WATER SYSTEM

SIZE	SCALE	DRG. NO.	REV. NO.
A3	NTS	9755-133-POM-A-001	0



MAKE UP WATER PUMP HOUSE

LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	REDUCER/EXPANDER CONCENTRIC		DRIVE MOTOR
	REDUCER/EXPANDER ECCENTRIC	FT	FLOW TRANSMITTER (ULTRASONIC)
	FLANGES	FS	FLOW SWITCH
	BUTTERFLY VALVE	FI	FLOW INDICATOR (ROTAMETER TYPE)
	GATE VALVE	PT	PRESSURE TRANSMITTER
	GLOBE VALVE	PI	PRESSURE INDICATOR
	NON RETURN VALVE	DPI	DIFFERENTIAL PRESSURE INDICATOR
	EXPANSION JOINT	LI	LEVEL INDICATOR
	DRAIN	LT	LEVEL TRANSMITTER (ULTRASONIC)
	AIR RELEASE VALVE		SAFETY RELEASE VALVE
	HORIZONTAL PUMP		SOLENOID OPERATED VALVE
	VERTICAL PUMP		BASKET STRAINER
	LUB. WATER PIPING(IN BIDDER'S SCOPE)		

NOTES

1. INSTRUMENTS SHOWN ARE MINIMUM REQUIREMENT. ANY ADDITIONAL INSTRUMENTS TO MEET THE SYSTEM & CONTROL REQUIREMENT SHALL BE SUPPLIED & INSTALLED BY BIDDER AT NO ADDITIONAL COST TO EMPLOYER.
2. THE DRAWING SHALL BE READ IN CONJECUTION WITH THE TECHNICAL SPECIFICATIONS & OTHER. TENDER DRAWINGS.
3. FOR DETAILED SCOPE OF THE PACKAGE REFER PART–A OF TECHNICAL SPECIFICATION. ADDITIONAL VALVES IF ANY REQUIRED TO MEET THE SYSTEM REQUIREMENT AND SAFE OPERATION SHALL BE IN BIDDER'S SCOPE. ALL PIPING RELATED TO LUB. WATER SYSTEM SHALL BE SUPPLIED AND ERECTED BY BIDDER.
4. ALL INSTRUMENTS WILL BE SUPPLIED AND ERECTED BY BIDDER.
5. ALL THE FIELD INSTRUMENTS LIKE PI, FI, PT, FT, LT ETC. SHALL HAVE ADDITIONAL INSTRUMENT ISOLATION VALVES IN ADDITIONAL TO ROOT VALVES.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
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OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD.
(A GOVERNMENT OF INDIA ENTERPRISE)
(CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: SCHEME OF RAW WATER SYSTEM

SIZE	SCALE	DRG. NO.	REV. NO.
A3	NTS	9755–133–POM–A–002	0

P.E. DOSING PUMPS

P.E. DOSING TANKS

FeCl3 DOSING PUMPS

FeCl3 DOSING TANKS

LIME SOLUTION PREPARATION TANKS 2 NOS.

LIME DOSING PUMPS 2 NOS.

RCC LIME SLAKING TANKS 2 NOS.

LIME SLURR TRANSFER PUMPS 2 NOS.

OVER HEAD STORAGE TANK FILTERED WATER

FROM DMF DISCHARGE

OVERFLOW TO BACKWASH PIT

BLANKED CONNECTION

50NB

TO BACKWASH PIT

CLARIFIED WATER TRANSFER PUMPS (NOS 2 + 1S)

TELESCOPIC DEVICE

INLET CHAMBER

TO OWNER'S USE FOR FUTURE CONNECTION

FROM CHLORINATOR

CONTROL VALVE SYSTEM (TYP)

FE FT (TYP) FLOW MEASURING DEVICE

STILLING CHAMBER

TO CLARIFIER SLUDGE SUMP

BYPASS LINE WITH ISOLATION

CONTROL SYSTEM

FE FT DCS (ULTRASONIC)

TO NEAREST DRAIN

FROM CW BLOWDOWN

FROM EXISTING CMB

CLARIFIED WATER STORAGE TANK AND PUMP HOUSE

FROM DMF BACKWASH

INLET CHAMBER

NOZZLE

FILTER BACKWASH PIT I

FILTER BACKWASH PIT II

FILTER BACKWASH SUMP

FILTER BACKWASH PUMPS

FROM UP BACKWASH

FOR AGITATION OF PITS & SUMP

FILTER BACKWASH SYSTEM

AIR LINE

FILTER AIR BLOWER 2 NOS. (1W+1S)

DMF1

DMF2

DMF3

INLET

OUTLET

BACKWASH INLET

BACKWASH OUTLET

RINSE OUTLET

VENT

AIR INLET

TO PLC

TO UF SKID

TO OVERHEAD TANK ABOVE CHEMICAL HOUSE

COAGULANT STORAGE TANKS (2NOS.)

POLYPROPYLENE LINED MS

INTER CONNECTION (FUTURE)

COAGULANT UNLOADING PUMPS

NOTES

1. PIPE LINE SIZE INDICATED ARE IN mm (NB).
2. LIME SOLUTION RING HEADER SHALL ROUTED CLOSER TO THE CLARIFIERS AND RETURNS BACK TO THE LIME SOLUTION TANKS
3. ALL VARIABLE FREQUENCY DRIVES SHALL BE CONTROLLED FROM PLC.
4. ALL THE INSTRUMENTATIONS INDICATED IN THIS DRAWING ARE MINIMUM REQUIRED.
5. OPEN/CLOSE LIMIT SWITCH SHALL BE PROVIDED FOR MANNUAL VALVES/GATES AS PER REQUIREMENT
6. ALL PROCESS INSTRUMENTS IN ACID, ALKALI, COAGULANT, ANTIOXIDANT, ANTISCALANT SERVICES ARE TO BE PROVIDED WITH DIAPHRAGM SEALS/ COATED WITH SUITABLE RESISTANT MATERIAL.
7. ACID, ALKALI & COAGULANT BULK STORAGE TANKS ARE TO BE KEPT IN DYKE (500mm HEIGHT FROM FFL) WITH DRAIN CONNECTED TO SLUDGE PIT.
8. ALL RECIRCULATION LINES SHALL BE PROVIDED WITH SUITABLE ORIFICE PLATE.
9. WIDTH OF GATES SHALL BE SAME AS THAT OF CHANNEL WIDTH AND CHANNEL WIDTH SHALL BE INCREASED LOCALLY IF REQUIRED
10. BIDDER IS TO PROVIDE KKS CODE FOR INSTRUMENTS & DRIVES ALONG WITH THE TAG IN P & ID
11. ALL COUNTER FLANGES OF VALVES AND PIPE INTERCONNECTIONS SHALL BE PROVIDED BY BIDDER.
12. BULK ACID & COAGULANT STORAGE TANKS ARE TO BE LOCATED SUCH THAT THE BOTTOM OF TANK SHALL BE ABOVE THE RESPECTIVE MEASURING TANK SO THAT THE LIQUID FLOWS BY GRAVITY INTO THE MEASURING TANK.
13. THE CONNECTION FROM EXISTING CMB TO RO INPUT IS IN THE SCOPE OF BIDDER.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	CLEARED BY C	M	E	C&I	APPD	DATE
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CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P&ID OF RO SYSTEM

SIZE	SCALE	DRG.NO.	REV. NO.
A1	NTS	9755-136-POM-A-001 (Sheet 1of2)	0

FROM UF PERMEATE TRANSFER PUMP DISCHARGE

ALKALI DAY TANK

AC FILTER FOR ALKALI (1 NO.)

ALKALI PREP. TANK (2 NOS.)

ALKALI STORAGE TANK (2 NOS.)

TO SLUDGE PIT

TO SLUDGE PIT

ALKALI EJECTORS

TO SLUDGE PIT (TYP)

SS-304

TO SLUDGE PIT(TYP)

INTER CONNECTION (FUTURE) (2 NOS)

P10

ALKALI DOSING PUMPS

ALKALI TRANSFER CUM RECIRCULATION PUMPS

ALKALI UNLOADING PUMPS

ACID STORAGE TANKS (2NOS.)

FROM OVERHEAD TANK HEADER

POLYPROPYLENE LINED MS

TO SAFETY SHOWERS (2 NOS.)

ACID FUMES

INTER CONNECTION (FUTURE)

ACID UNLOADING PUMPS

ANTIOXIDANT DOSING PUMPS

ANTIOXIDANT DOSING TANKS

ACID DOSING PUMPS

ACID MEASURING TANKS

ANTISCALANT DOSING PUMPS

ANTISCALANT DOSING TANKS

TO SLUDGE PIT

CARTIDGE FILTERS NOS

CF1

HIGH PRESSURE PUMP

RO SKID 1

RO SKID 2

RO SKID 3

SUCK BACK TANK

AE-SIL

AE-pH

AE-ORP

AE-SDI

AE-COND

AE-TURB

TO PLC

DUMP LINE TO CLARIFIER

TO ASH HANDLING SYSTEM

CEB TANK & DOSING FACILITY

TO UF SYSTEM

TO RO PERMEATE

FROM DMF

BASKET STRAINER

UF SKID 1

UF SKID 2

UF SKID 3

UF PERMEATE TO CHEMICAL TANKS

FUTURE CONNECTION

OC LS

UF PERMEATE WATER STORAGE TANK

RECIRCULATION LINE UPTO DM STORAGE TANKS

UF PERMEATE TRANSFER PUMPS

UF BACKWASH PUMPS

TO FILTER BACKWASH SUMP

RO PERMEATE WATER STORAGE TANK

RECIRCULATION LINE UPTO RO PERMEATE STORAGE TANKS

TO FW RESERVOIR IN PT PLANT AREA

RO PERMEATE TRANSFER PUMPS - DM MAKEUP

TO CW CHANNEL

RO PERMEATE TRANSFER PUMPS - CW MAKEUP

OTHER DRAINS FROM VARIOUS FACILITIES

SLUDGE FROM CLARIFIERS

FROM CHEMICAL CLEANING OF UF & RO

COMMON SUMP

NOZZLE

SLUDGE PIT I

SLUDGE PIT II

SLUDGE DISPOSAL PUMPS

SLUDGE SUMP

TO SLUDGE PIT IN PT PLANT AREA

FOR AGITATION OF SLUDGE PITS & SUMP

SLUDGE DISPOSAL SYSTEM

AIR BLOWERS 2 NOS. (1W+1S)

FOR TENDER PURPOSE ONLY

LEGEND

PI	PRESSURE INDICATOR (Local)	SILENCER	DIAPHRAGM TYPE (SPRING TO CLOSE)
PT	PRESSURE TRANSMITTER	AIR FILTER	DIAPHRAGM TYPE (SPRING TO OPEN)
DPI	DIFFERENTIAL PRESSURE INDICATOR (Local)	EJECTOR	ELEC MOTOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	CO_2 ABSORBER	SLUICE VALVE
LG	LEVELINDICATOR(LOCAL) REFLEX TYPE/FLOOT TYPE	OVER FLOW SEAL	CHECK VALVE
LI	LEVELINDICATOR(LOCAL) REFLEX TYPE/FLOOT TYPE	RESIN TRAP	DIAPHRAGM VALVE
LT	ULTRASONIC TYPE LEVEL TRANSMITTER	DAMPER	GLOBE VALVE
FI	FLOW INDICATOR (Local)	DIAPHRAGM SEAL	BUTTERFLY VALVE
FT	FLOW TRANSMITTER	ELECTRO-PNEUMATIC CONNECTOR	PLUG VALVE
ZT	POSITION TRANSMITTER	CHANNEL	RELIEF VALVE
OC LS	OPEN & CLOSE LIMIT SWITCH	ORIFICE	M.S.GATE
FE	FLOW ELEMENT	SAMPLE VALVE	STRAINER
LGR	LEVEL GAUGE(REFLEX TYPE)	SOLENOID VALVE	FLOW MEASURING DEVICE
LGF	LEVEL GAUGE(FLOAT TYPE)	SPRING TO CLOSE	PUMPS
	METERING PUMP WITH MOTOR	SPRING TO OPEN	MOTORISED MODULATING VALVE
		ALKALI LINE	WEIR TYPE GATE
		ACID LINE	MOTORISED PLUG VALVE
		AIR LINE	FLOAT VALVE
			CHECK VALVE

AE-SIL	SILICA ANALYSER
AE-pH	pH ANALYSER
AE-ORP	ORP ANALYSER
AE-SDI	SDI ANALYSER
AE-COND	CONDUCTIVITY ANALYSER
AE-TURB	TURBIDITY ANALYSER

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
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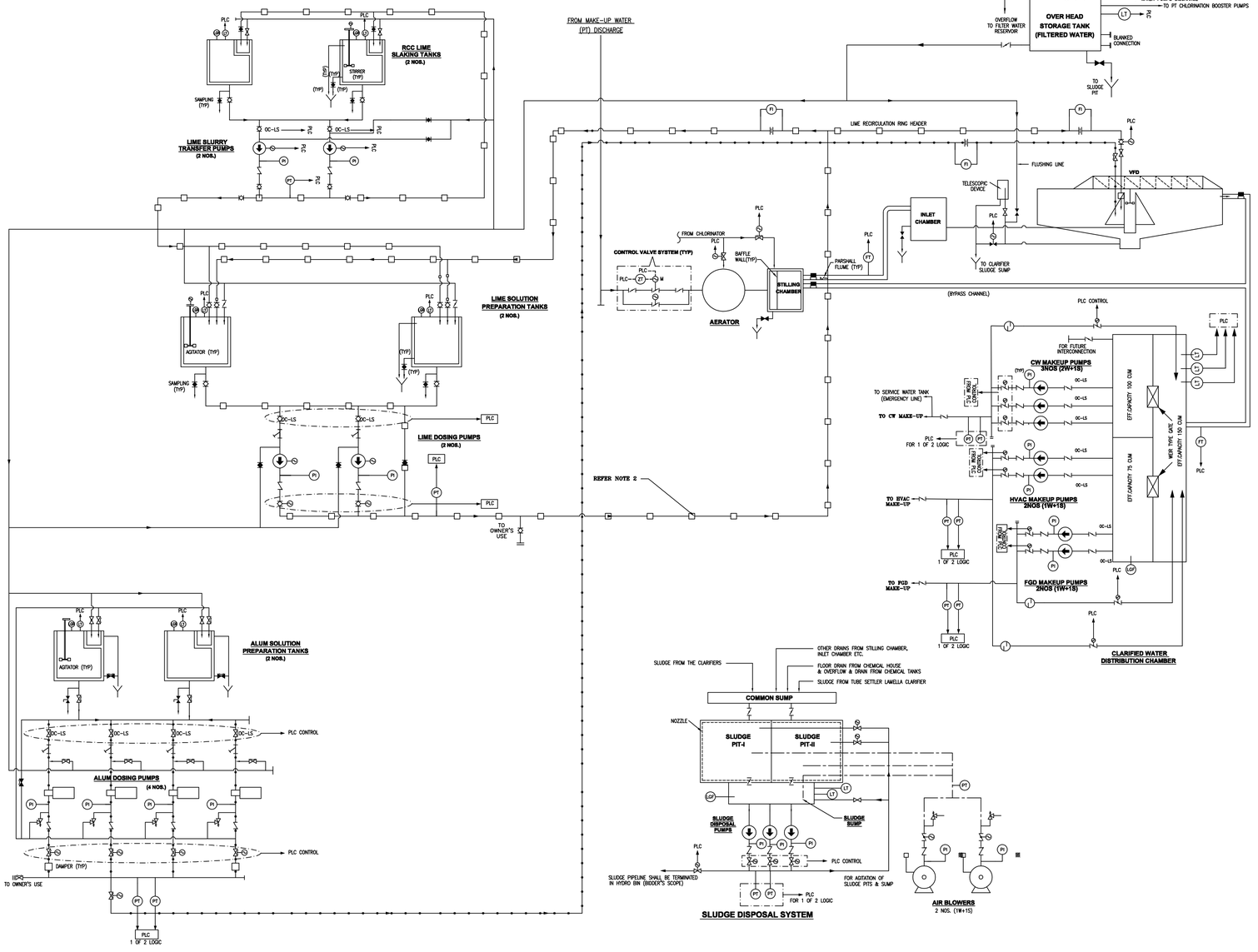
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

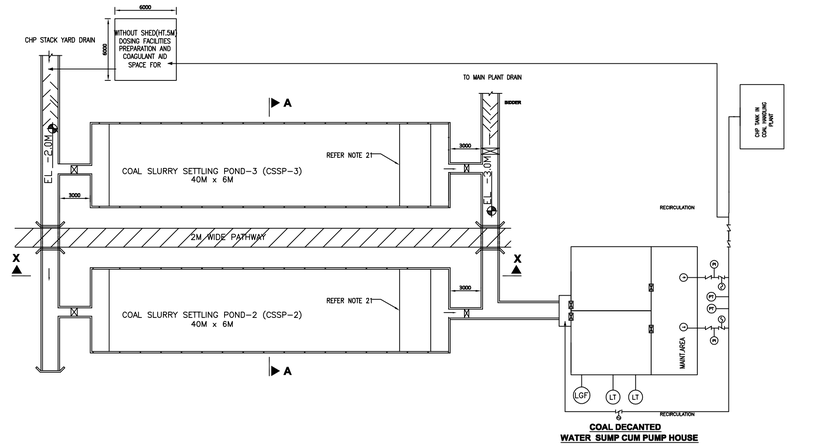
CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

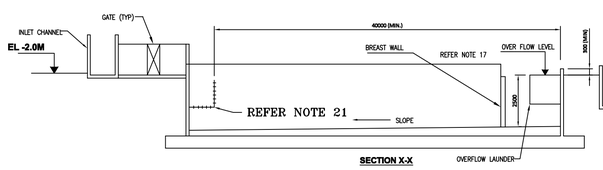
TITLE: P&ID OF RO SYSTEM

SIZE	SCALE	DRG.NO.	REV. NO.
A1	NTS	9755-136-POM-A-001 (Sheet 2of2)	0

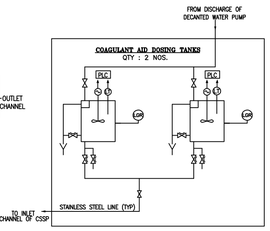




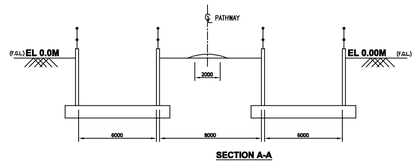
COAL DECANTED WATER SUMP CUM PUMP HOUSE



SECTION X-X



COVERED SPACE FOR COAGULANT AID PREPARATION AND DOSING FACILITIES



SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE IN mm AND ELEVATIONS ARE IN METRES.
2. DIMENSIONS INDICATED ARE MINIMUM CLEAR INSIDE DIMENSIONS EXCLUDING THICKNESS OF WALL/COLUMN/SLABS/BEAMS ETC.
3. DIMENSIONS & ELEVATIONS OF ALL BUILDINGS/STRUCTURES SHOWN HERE REPRESENT A MINIMUM REQUIREMENT. BIDDER SHALL CHECK THE SAME FOR EFFICIENT AND SAFE WORKING OF THE PLANT. BIDDER SHALL FURTHER DEVELOP THE SAME DURING DETAILED ENGINEERING AND GET IT APPROVED FROM OWNER BEFORE EXECUTION.
4. DRAINS, OVERFLOWS ETC. OF VARIOUS UNITS SHALL BE IN BIDDER'S SCOPE . THIS SHALL INCLUDE ALL PIPINGS, VALVES, MANHOLES, INTERCONNECTING CHAMBERS ETC.
5. ALL AREAS ARE TO BE PROPERLY VENTILATED.
6. A BREAST WALL SHALL BE CONSTRUCTED AT 5M BEFORE THE POND OUTLET TO EFFICIENTLY UTILISE THE POND VOLUME.
7. HAND RAILING, RUNGS ETC. SHALL BE PROVIDED ON ALL THE WATER SUMPS AND INLET CHAMBERS AND IN CSSP.
8. INLET AND OUTLET CHANNELS OF CSSP SHALL BE DESIGNED SUITABLY TO TAKE BOTH NORMAL (40DM/HR PER POND) FLOW AND STORM WATER FLOW CONDITIONS (1000M/HR PER POND).
9. STAIRS SHALL BE PROVIDED TO FACILITATE FOR TAKING OUT THE SETTLED COAL SLURRY MANUALLY FROM THE CSSP.
10. POND SIZES INDICATED HERE ARE THE MINIMUM DIMENSIONS. FURTHER I.L. OF POND (MIN. 2.5M FROM THE POND OVERFLOW LEVEL) SHALL BE FINALISED BY THE BIDDER. NECESSARY CALCULATIONS FOR JUSTIFYING THE LEVELS, POND SIZE ETC. SHALL BE FURNISHED ALONGWITH THE OFFER INCLUDING SAFETY AGAINST UPLIFT.
11. DESIGN SETTLING VELOCITY OF THE COAL PARTICLES = 5M/HR (MAX).
12. COAGULANT AID DOSING SHALL BE USED TO AID THE SETTLING OF COAL PARTICLES DURING THE STORM WATER FLOW CONDITIONS.
13. MAXIMUM WATER LEVEL IN CSSP-1&2 SHALL BE RL 0.00M(FGL).
14. TOTAL SUSPENDED SOLIDS AT THE INLET TO CSSP SHALL BE CONSIDERED AS 1800 PPM.
15. NECESSARY CROSS-OVERS SHALL BE PROVIDED BY THE BIDDER FOR EASY APPROACH TO THE VARIOUS AREAS OF THE CSSP.
16. OVERFLOW LEVEL OF CSP SHOULD BE LESS THAN OR EQUAL TO INVERT LEVEL OF INLET CHANNEL TO COAL SLURRY SETTLING PONDS.
17. A BREAST WALL SHALL BE CONSTRUCTED AT 5M BEFORE THE POND OUTLET TO EFFICIENTLY UTILISE THE POND VALUE.
18. FOR PROPPER DISTRIBUTION OF COAL SLURRY WATER INLET DISTRIBUTION CHAMBER OF 6Mx1.2M SHALL BE PROVIDED.
19. ALL PUMPS MOTOR & MOTORIZED DISCHARGE VALVE WILL BE CONTROLLED FROM PLC.
20. IN THE DISCHARGE HEADER OF PUMPS THERE SHALL BE TWO NOS. PRESSURE TRANSMITTER CONTROLLED FROM PLC IN 1OUT OF2 LOGIC.
21. ALL INSTRUMENTS LIKE PT, FT, LT, LS ETC. WILL BE CONTROLLED BY PLC.
22. FOR ALL THE INSTRUMENTS, IN LINE ONE OF INSTRUMENTS ISOLATION VALVE TO BE PROVIDED APART FROM MECH ROOT VALVE.
23. ALL INSTRUMENTS SHOWN IN TENDER DRAWING ARE OF MINIMUM REQUIREMENT. HOWEVER, ANY OTHER INSTRUMENTS, IF REQUIRED TO MEET THE TECHNICAL SPECIFICATION/ FINAL OPERATION PHILOSOPHY ARE TO BE PROVIDED BY CONTRACTOR .
24. ALL LEVELS ARE WRT FGL :-0.00. PLEASE REFER GLP FOR LOCAL RL.

NOTES

1. LIME SOLUTION HEADER SHALL COVER ALL THE CLARIFIERS BEFORE RETURNING TO THE PREPARATION TANKS. TAPPING FROM THIS HEADER SHALL BE TAKEN NEAR THE INDIVIDUAL CLARIFIER.
2. ALL VARIABLE FREQUENCY DRIVES(VFD) SHALL BE CONTROLLED FROM DDCMIS.
3. SUITABLE PERMANENT FLUSHING CONNECTION SHALL BE PROVIDED FOR ALL PIPELINES CARRYING SLUDG AND CHEMICAL LINES IN CASE, ADEQUATE PRESSURE IS NOT AVAILABLE, SEPARATE BOOSTER PUMPS (2x100%) SHALL BE PROVIDED FOR THE SAME.
4. ALL RECIRCULATION LINES SHALL BE PROVIDED WITH SUITABLE ORIFICE PLATE & SHALL BE DESIGNED BASED ON 50% OF EACH PUMP CAPACITY.
5. WIDTH OF GATES SHALL BE SAME AS THAT OF CHANNEL. CHANNEL WIDTH SHALL BE INCREASED LOCALLY, IF REQUIRED.
6. ALL THE PIPE AND VALVE SIZES AND ANY OTHER SIZES INDICATED IN THE DRAWING ARE MINIMUM REQUIREMENTS TO BE FURNISHED BY THE BIDDER. FOR OTHER NECESSARY DETAILS REFER TECHNICAL SPECIFICATION.
7. ALL THE FIELD INSTRUMENTS LIKE PI,FI,PT,FT, LT ETC. SHALL HAVE INDIVIDUAL INSTRUMENT ISOLATION VALVES IN ADDITIONAL TO ROOT VALVES.
8. ALL INSTRUMENTS SHOWN IN TENDER DRAWING ARE OF MINIMUM REQUIREMENT. HOWEVER, ANY OTHER INSTRUMENTS, IF REQUIRED TO MEET THE TECHNICAL SPECIFICATION/ FINAL OPERATION PHILOSOPHY ARE TO THE PROVIDED BY CONTRACTOR .

LEGEND :

	ORIFICE	SLUICE VALVE	(NORMALLY CLOSED)
SOV	SOLENOID VLV	DIAPHRAGM VALVE	(NORMALLY CLOSED)
	ELEC MOTOR	GLOBE VALVE	(NORMALLY CLOSED)
	PARSHALL FLUME	BUTTERFLY VALVE	(NORMALLY CLOSED)
	PUMPS	PLUG VALVE	(NORMALLY CLOSED)
M	MOTORISED MODULATING VALVE	LGR	LEVEL GAUGE REFLAX TYPE
	MOTORISED PLUG VALVE	LGF	LEVEL GAUGE FLOT TYPE
	CHECK VALVE		
	RELIEF VALVE		
	M.S.GATE		
	FLOAT VALVE		
	STRAINER		
	ALUM SOLUTION LINE		
	LIME SOLUTION LINE		
(FT)	POSITION TRANSMITTER		

FOR TENDER PURPOSE ONLY

OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

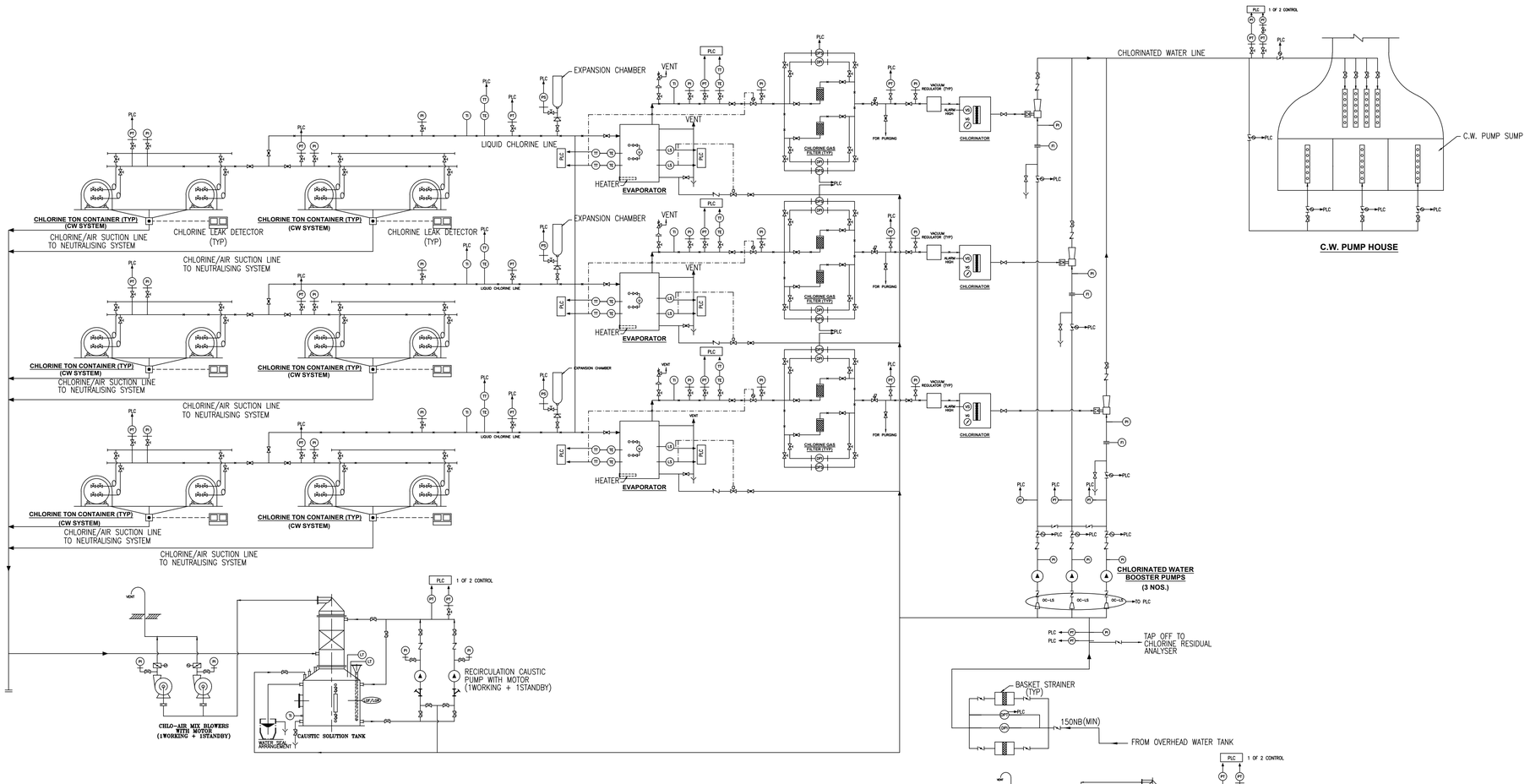
PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P&ID OF PRE-TREATMENT PLANT & CSSP

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
0	RELEASED FOR TENDER									13.11.17

CLEARED BY

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9755-137-POM-A-001	0

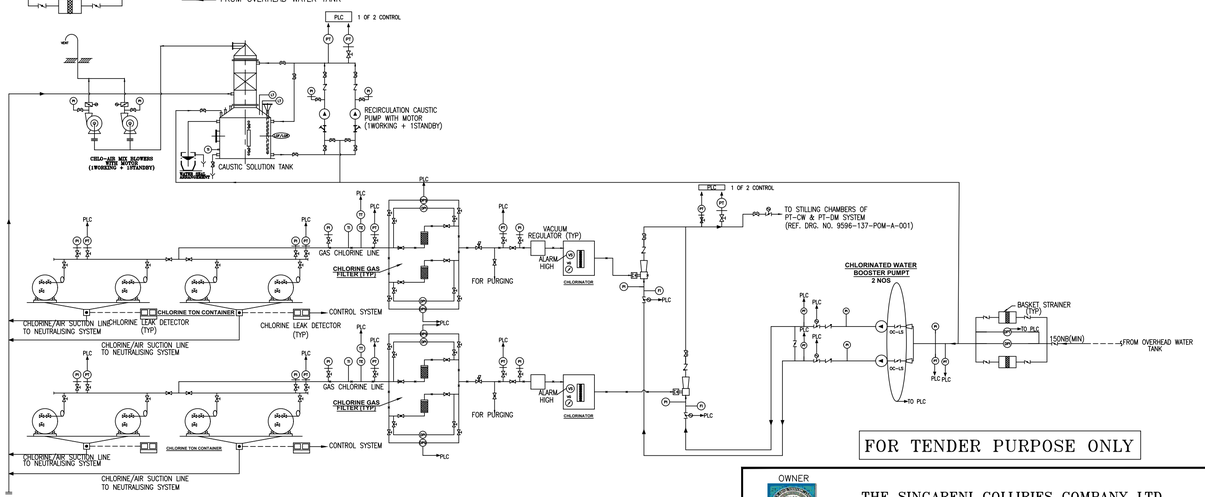


CW–CHLORINATION SYSTEM

3x120Kg/hr

NOTES :

1. THE CHLORINE DIFFUSER SHALL BE ARRANGED WELL BELOW MINIMUM WATER LEVEL.
2. INSTRUMENTS/EQUIPMENTS SHOWN ARE MINIMUM ONLY. INSTRUMENTS/EQUIPMENT REQUIRED TO MAKE THE SYSTEM COMPLETE & ANY OTHER INSTRUMENTS REQUIRED FOR THE SYSTEM ARE INCLUDED IN BIDDER'S SCOPE.
3. ALL THE FIELD INSTRUMENTS LIKE PI,FI,PT,FT, LT ETC. SHALL HAVE INDIVIDUAL INSTRUMENT ISOLATION VALVES IN ADDITIONAL TO ROOT VALVES.
4. ALL INSTRUMENTS SHOWN IN TENDER DRAWING ARE OF MINIMUM REQUIREMENT. HOWEVER, ANY OTHER INSTRUMENTS, IF REQUIRED TO MEET THE TECHNICAL SPECIFICATION/ FINAL OPERATION PHILOSOPHY ARE TO THE PROVIDED BY CONTRACTOR .



PT–CHLORINATION SYSTEM

2 x 30Kg/hr

FOR TENDER PURPOSE ONLY

LEGEND :

- NEEDLE VALVE
- ISOLATING VALVE
- GLOBE VALVE
- CHECK VALVE
- BALL VALVE
- DIAPHRAGM VALVE
- WATER LINE
- CHLORINE LINE
- BUTTERFLY VALVE
- PRESSURE REDUCING VALVE
- DAMPER
- ELECTRIC MOTER
- 3W — 3 WAY VALVE MOTOR OPERATED
- DIFFUSER
- DIAPHRACM SEAL

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
0	RELEASED FOR TENDER									13.11.17

OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

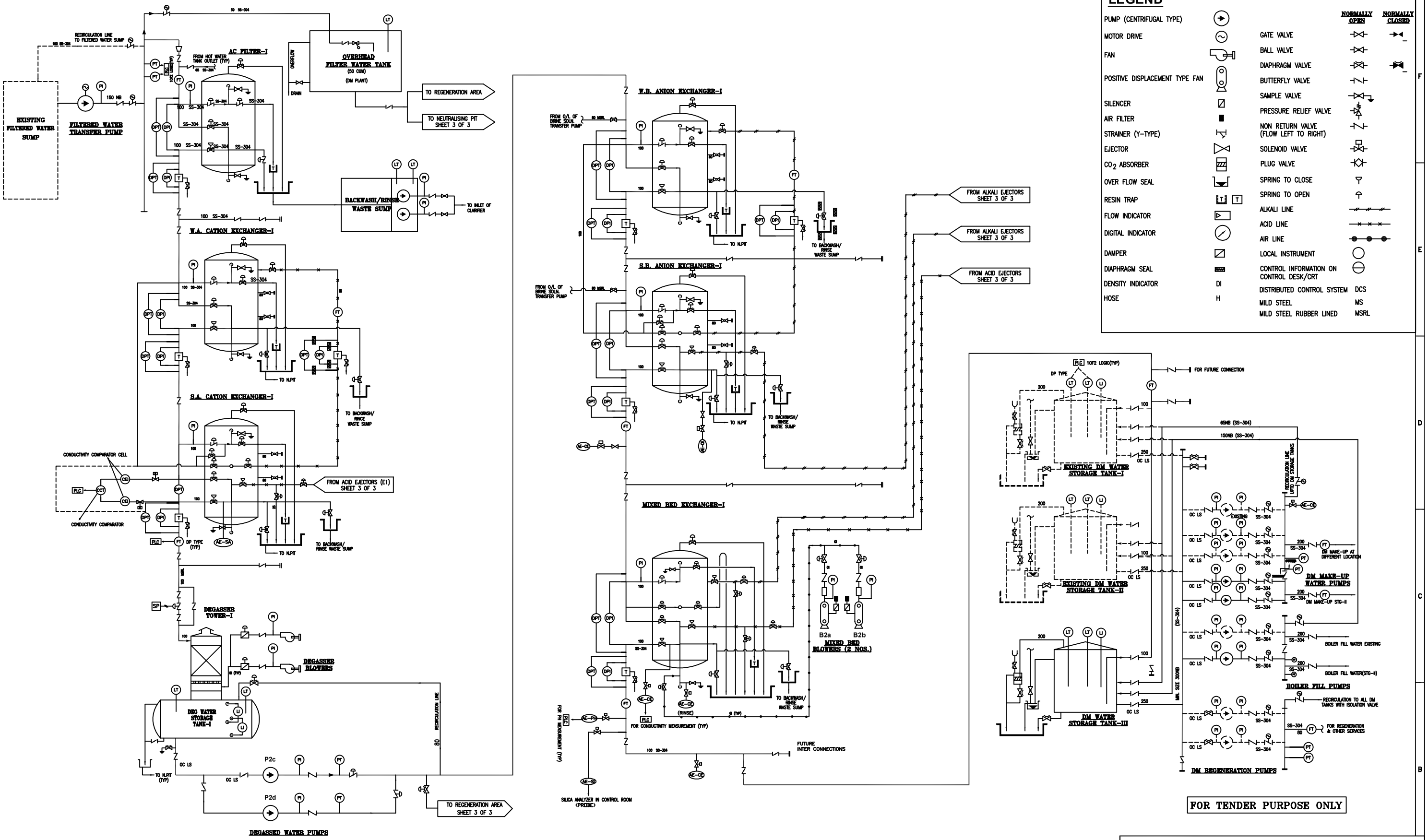
PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P&ID OF PT–CW CHLORINATION SYSTEM

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9755-137-POM-A-002	0

LEGEND

			NORMALLY OPEN	NORMALLY CLOSED
PUMP (CENTRIFUGAL TYPE)		GATE VALVE		
MOTOR DRIVE		BALL VALVE		
FAN		DIAPHRAGM VALVE		
POSITIVE DISPLACEMENT TYPE FAN		BUTTERFLY VALVE		
SILENCER		SAMPLE VALVE		
AIR FILTER		PRESSURE RELIEF VALVE		
STRAINER (Y-TYPE)		NON RETURN VALVE (FLOW LEFT TO RIGHT)		
EJECTOR		SOLENOID VALVE		
CO_2 ABSORBER		PLUG VALVE		
OVER FLOW SEAL		SPRING TO CLOSE		
RESIN TRAP		SPRING TO OPEN		
FLOW INDICATOR		ALKALI LINE		
DIGITAL INDICATOR		ACID LINE		
DAMPER		AIR LINE		
DIAPHRAGM SEAL		LOCAL INSTRUMENT		
DENSITY INDICATOR	DI	CONTROL INFORMATION ON CONTROL DESK/CRT		
HOSE	H	DISTRIBUTED CONTROL SYSTEM	DCS	
		MILD STEEL	MS	
		MILD STEEL RUBBER LINED	MSRL	



FOR TENDER PURPOSE ONLY

NOTES

1. THIS DRAWING IS ONLY SHOWING MINIMUM REQUIREMENTS OF PIPING, VALVES, INSTRMENTS ETC. THE CONTRACTOR SHALL SUPPLY ALL ADDITIONAL AND/OR NEW VALVES, EQUIPMENTS, INSTRUMENTS ETC. BASED ON SYSTEM REQUIREMENT.

   HOWEVER, BIDDER CAN SELECT THE DIFFERENT TYPE OF VALVES THAN SHOWN IN THIS DRG. IF OPTIONS ARE GIVEN IN THE SPECIFICATION FOR THOSE SERVICES.
2. BIDDER IS TO RETAIN THE VESSEL NOS. & TAG NOS. AS SHOWN IN THEIR TENDER DRGS ALSO. THE SAME WILL BE FOLLOWED DURING DETAIL ENGG. ALSO. IF ADDITIONAL VALVES ARE REQUIRED, TAG NOS. SHALL BE FOLLOWED AS PER THE SYSTEM INDICATED IN THIS DRGS.
3. LINE SIZES, MENTIONED FOR ONE VESSEL, ARE APPLICABLE FOR OTHER VESSEL(S) ALSO.
4. PIPE LINE SIZES & THICKNESS, WHEREVER MENTIONED, ARE IN mm AND THEY INDICATE THE MINIMUM REQUIREMENTS.
5. THIS DRAWING IS SHOWING MINIMUM REUIREMENTS CONSIDERING COUNTER-CURRENT REGENERATION TECHNIQUE FOR BOTH SAC & SBA WITH WATER HOLD DOWN FOR BED COMPACTION.
6. ALL MODIFICATION FOR INTER CONNECTION IN BIDDER'S SCOPE.
7. ALL PUMPS MOTOR / MOTORIZED VALVE/ SOLENOID OPERATED PNUEMATIC VALVES SHALL BE OPERATED FROM PLC.
8. TWO NOS. PRESSURE TRANSMITTER TO BE USED IN DISCHARGE HEADER OF PUMPS WILL WORK IN 1 OUT OF 2 LOGIC FROM PLC.
9. ALL INSTRUMENTS LIKE PT, LT, DPT,FT, SP & VALVE LIMIT SWITCH ETC. ARE BEING CONTROLLED FROM PLC.
10. FOR THE INSTRUMENTS, IN THEIR RESPECTIVE LINE INSTRUMENTS ISOLATION VALVE TO BE PROVIDED APART FROM ROOT VALVE.
11. FOR SAC EXCHANGER THERE SHALL BE ONE NO. CONDUCTIVITY COMPARATOR BETWEEN INLET & OUTLET LINE.
12. ALL INSTRUMENTS SHOWN IN TENDER DRAWING ARE OF MINIMUM REQUIREMENT. HOWEVER, ANY OTHER INSTRUMENTS, IF REQUIRED TO MEET THE TECHNICAL SPECIFICATION/ FINAL OPERATION PHILOSOPHY ARE TO BE PROVIDED BY CONTRACTOR .

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
0	RELEASED FOR TENDER									24.11.2022

CLEARED BY

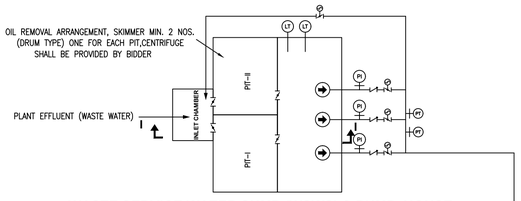
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

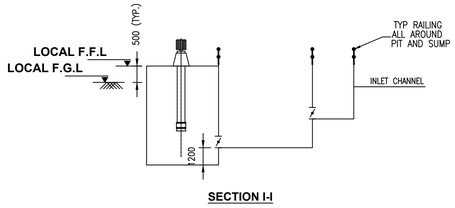
PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P&ID OF DEMINERALISING PLANT

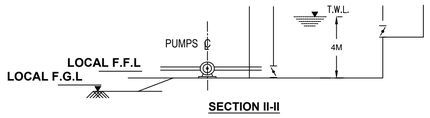
SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9755-154-POM-A-001	1



WASTE SERVICE WATER SUMP (WSWS) & PUMP HOUSE



SECTION I-I



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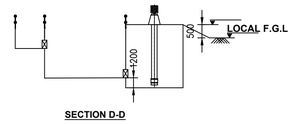

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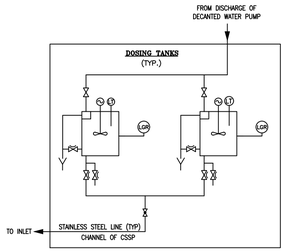
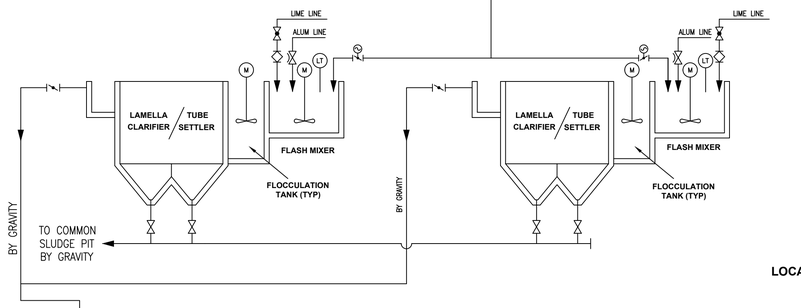
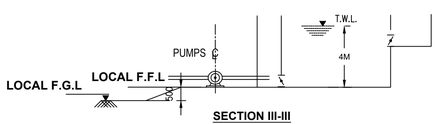


COVERED SPACE FOR PREPARATION AND DOSING FACILITIES (TYP)





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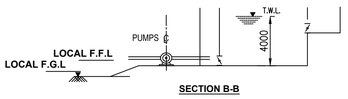

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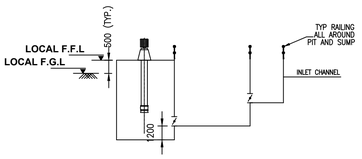

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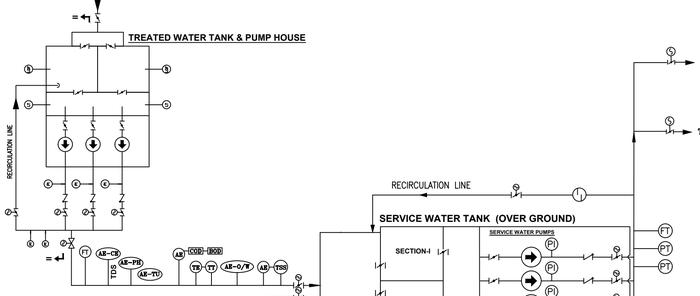
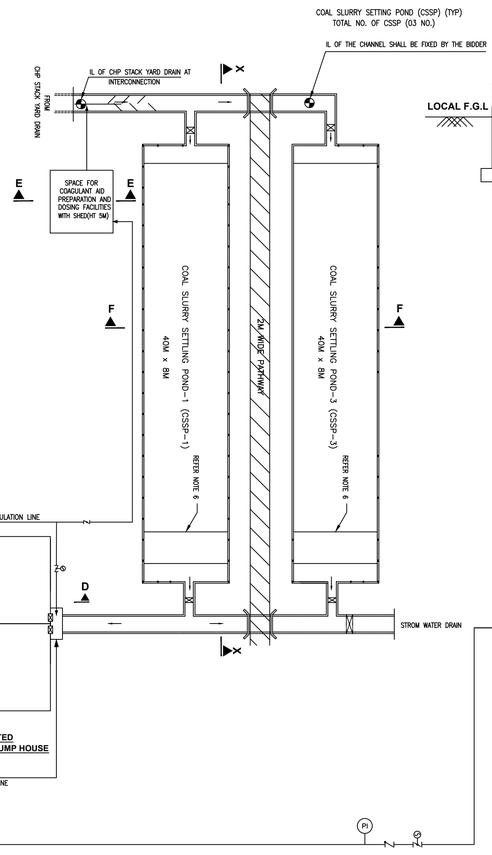
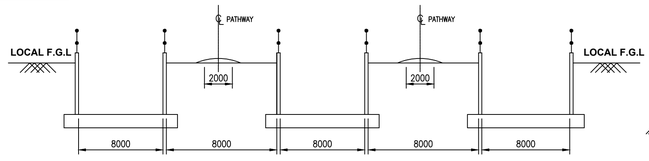
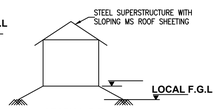


CLARIFIER WATER TANK AND P/H (OVER GROUND) TYP





SECTION F-F



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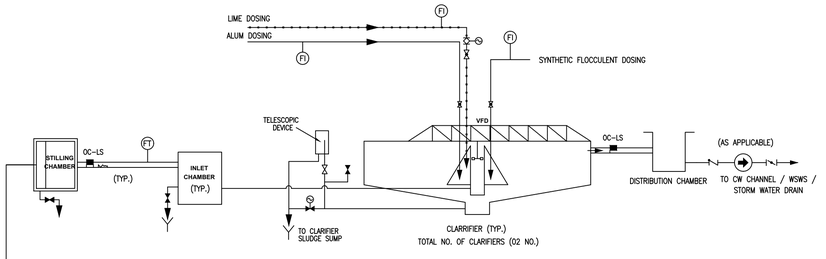


NOTES:

1. THE SCHEME SHOWN IS INDICATIVE ONLY. CONTRACTOR SHOULD FURNISH COMPLETE SCHEME IN ALL RESPECTS DURING DETAILED ENGINEERING BASED ON TECHNICAL SPECIFICATION AND SYSTEM REQUIREMENTS. CONTRACTOR SHOULD FURNISH COMPLETE SCHEME IN ALL RESPECTS INCLUDING ALL INSTRUMENTS, VALVES ETC. FOR SMOOTH, SAFE, EFFICIENT, TROUBLE FREE OPERATION OF PLANT
2. DIMENSIONS INDICATED ARE MINIMUM CLEAR INSIDE DIMENSIONS EXCLUDING THICKNESS OF 'WALL/COLUMN/SLABS/BEAMS ETC.
3. ALL AREAS ARE TO BE PROPERLY VENTILATED.
4. HAND RAILING, RUNGS ETC. SHALL BE PROVIDED ON ALL THE WATER SUMPS AND INLET CHAMBERS AND IN CSSP.
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATION.
6. FOR DETAILS REFER PLANT WATER SCHEME.
7. STAIRS(MINIMUM 2 FOR EACH SECTION) SHALL BE PROVIDED TO FACILITATE FOR TAKING OUT THE SETTLED COAL SLURRY MANUALLY FROM THE CSSP.
8. DESIGN SETTLING VELOCITY OF THE COAL PARTICLES = 5M/HR (MAX).
9. TOTAL SUSPENDED SOLIDS AT THE INLET TO CSSP SHALL BE CONSIDERED AS 1800 PPM.

LEGENDS:

FGL:– FINISHED GROUND LEVEL TO BE DECIDED BY THE BIDDER
FFL:– FINISHED FLOOR LEVEL.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
A	RELEASED FOR TENDER									

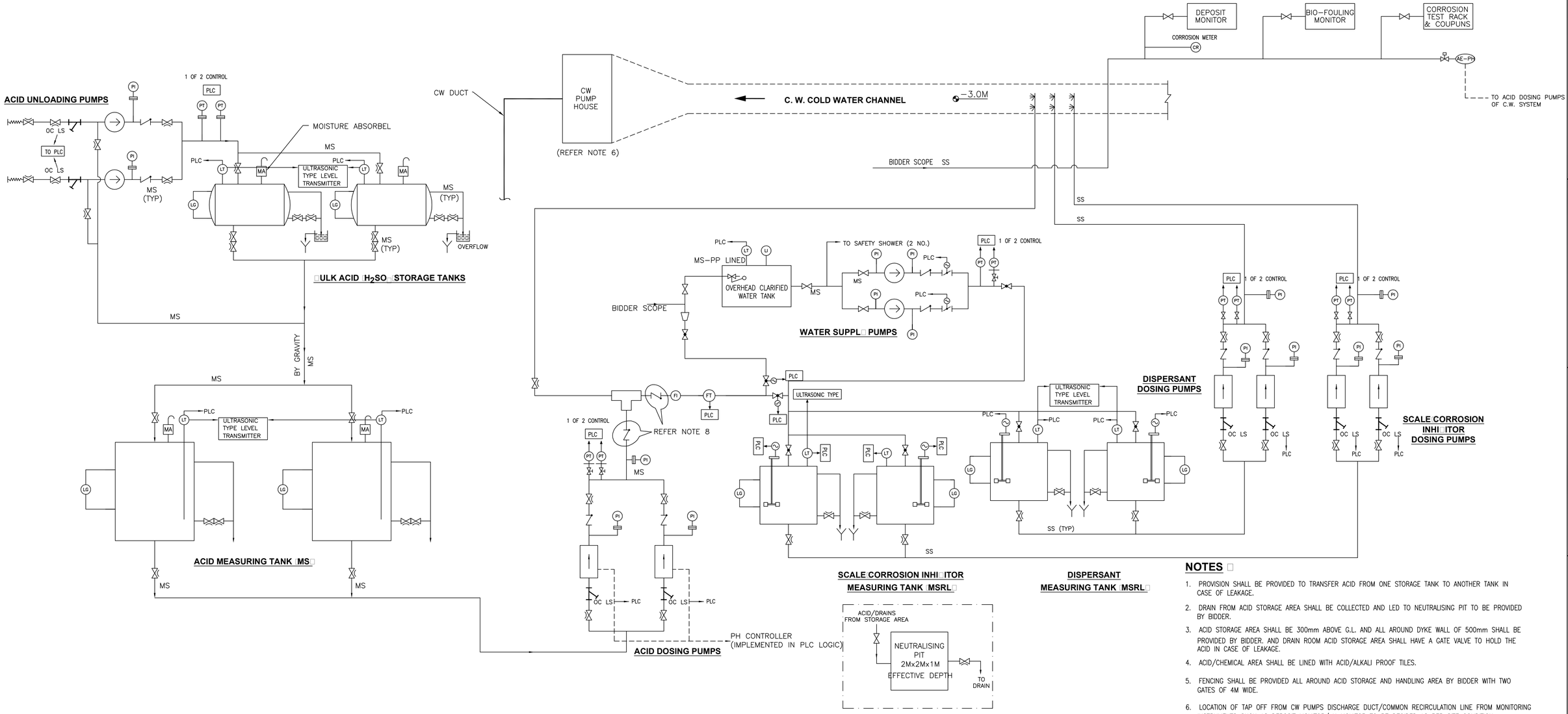
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P & ID & LAYOUT OF LIQUID EFFLUENT TREATMENT SYSTEM & CSSP

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9755-154-POM-A-001	A

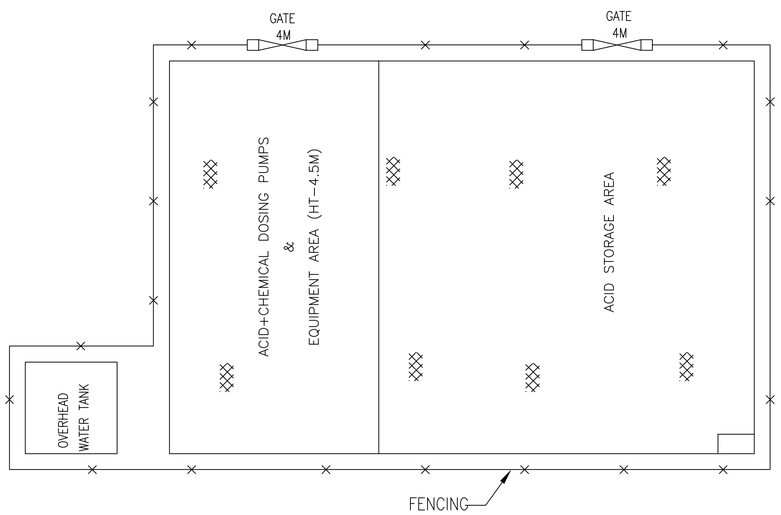


LEGEND

MA - MOISTURE ABSORBER

NOTES

1. PROVISION SHALL BE PROVIDED TO TRANSFER ACID FROM ONE STORAGE TANK TO ANOTHER TANK IN CASE OF LEAKAGE.
2. DRAIN FROM ACID STORAGE AREA SHALL BE COLLECTED AND LED TO NEUTRALISING PIT TO BE PROVIDED BY BIDDER.
3. ACID STORAGE AREA SHALL BE 300mm ABOVE G.L. AND ALL AROUND DYKE WALL OF 500mm SHALL BE PROVIDED BY BIDDER. AND DRAIN ROOM ACID STORAGE AREA SHALL HAVE A GATE VALVE TO HOLD THE ACID IN CASE OF LEAKAGE.
4. ACID/CHEMICAL AREA SHALL BE LINED WITH ACID/ALKALI PROOF TILES.
5. FENCING SHALL BE PROVIDED ALL AROUND ACID STORAGE AND HANDLING AREA BY BIDDER WITH TWO GATES OF 4M WIDE.
6. LOCATION OF TAP OFF FROM CW PUMPS DISCHARGE DUCT/COMMON RECIRCULATION LINE FROM MONITORING INSTRUMENTS SUCH AS DEPOSIT MONITOR/pH MONITOR TO BE DECIDED AS PER SITE CONDITION.
7. ACID MEASURING TANK, SCALE/CORROSION INHIBITOR MEASURING TANK AND DISPERSANT TANK SHALL BE LOCATED INSIDE THE CW TREATMENT BUILDING.
8. ACID AND WATER MIXING TEE WILL BE TEFLON LINED AND ALL THE PIPE UPTO 5 METRES FROM THE TEE WILL BE OF TEFLON LINED (ALL SIDES OF TEE). NRV SHALL BE TEFLON BASED.
9. ALL THE FIELD INSTRUMENTS LIKE PI,FI,PT,FT, LT,PG,LI,LG ETC. SHALL HAVE INDIVIDUAL INSTRUMENT ISOLATION VALVES IN ADDITIONAL TO ROOT VALVES.
10. THIS DRAWING IS ONLY SHOWING MINIMUM REQUIREMENTS OF PIPING, VALVES, INSTRMENTS ETC. THE CONTRACTOR SHALL SUPPLY ALL ADDITIONAL AND/OR NEW VALVES, EQUIPMENTS, INSTRUMENTS ETC.BASED ON SYSTEM REQUIREMENT AND TECHNICAL SPECIFICATION/ OPERATION PHILOSOPHY.
11. FGL CORRESPONDING TO EL 0.00M. FFL IS FGL+0.5M. FOR LOCAL RL PL. REFER GLP.



CW CHEMICAL TREATMENT PLANT

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
0	RELEASED FOR TENDER									13.11.17

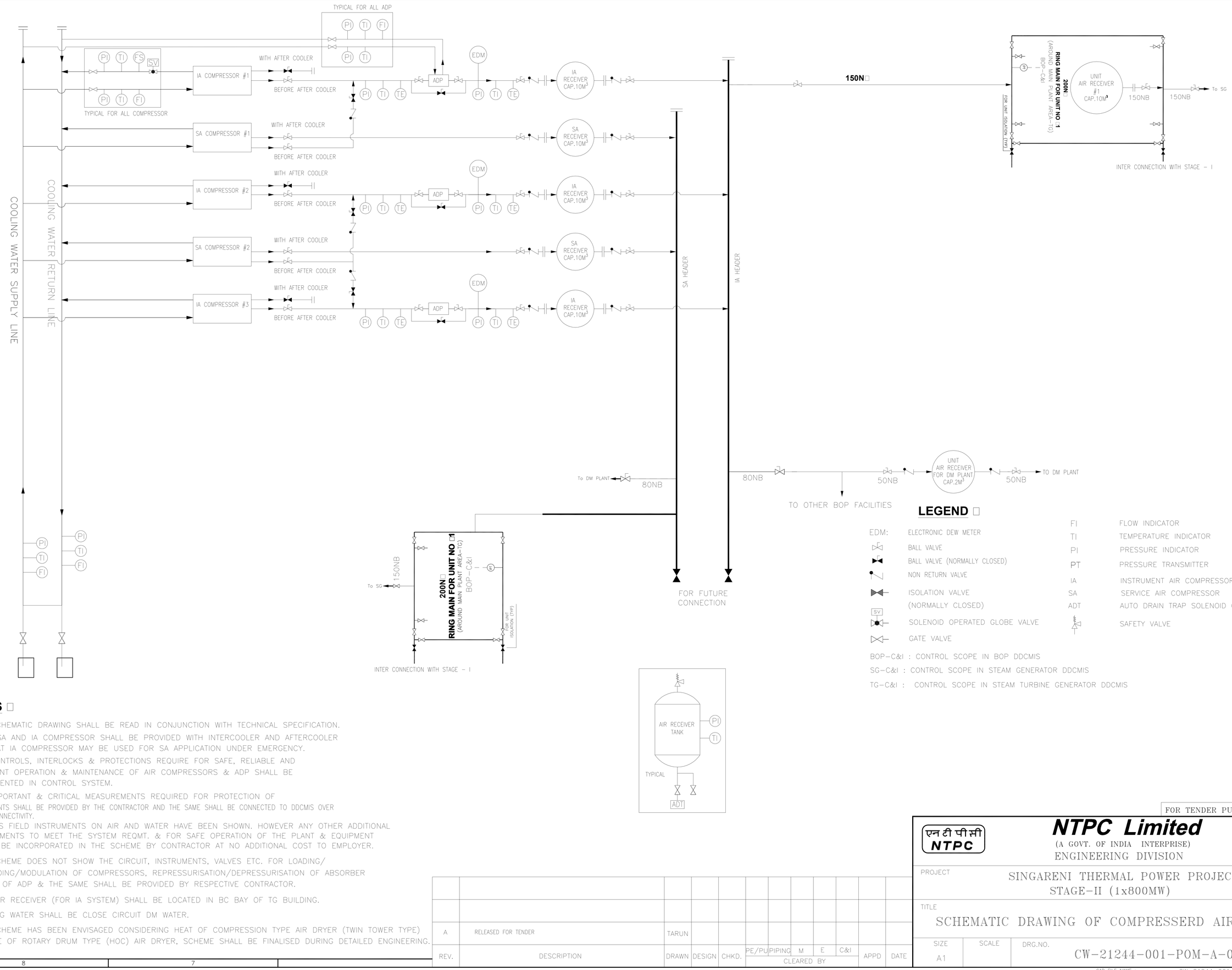
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P&ID OF CW CHEMICAL TREATMENT SYSTEM

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9755-154-POM-A-002	0



LEGEND □

EDM:	ELECTRONIC DEW METER	FI	FLOW INDICATOR
	BALL VALVE	TI	TEMPERATURE INDICATOR
	BALL VALVE (NORMALLY CLOSED)	PI	PRESSURE INDICATOR
	NON RETURN VALVE	PT	PRESSURE TRANSMITTER
	ISOLATION VALVE	IA	INSTRUMENT AIR COMPRESSOR
	(NORMALLY CLOSED)	SA	SERVICE AIR COMPRESSOR
SV	SOLENOID OPERATED GLOBE VALVE	ADT	AUTO DRAIN TRAP SOLENOID OPERATED
	GATE VALVE		SAFETY VALVE

BOP-C&I : CONTROL SCOPE IN BOP DDCMIS

SG-C&I : CONTROL SCOPE IN STEAM GENERATOR DDCMIS

TG-C&I : CONTROL SCOPE IN STEAM TURBINE GENERATOR DDCMIS

NOTES □

1. THE SCHEMATIC DRAWING SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATION.
2. EACH SA AND IA COMPRESSOR SHALL BE PROVIDED WITH INTERCOOLER AND AFTERCOOLER SO THAT IA COMPRESSOR MAY BE USED FOR SA APPLICATION UNDER EMERGENCY.
3. ALL CONTROLS, INTERLOCKS & PROTECTIONS REQUIRE FOR SAFE, RELIABLE AND EFFICIENT OPERATION & MAINTENANCE OF AIR COMPRESSORS & ADP SHALL BE IMPLEMENTED IN CONTROL SYSTEM.
4. ALL IMPORTANT & CRITICAL MEASUREMENTS REQUIRED FOR PROTECTION OF EQUIPMENTS SHALL BE PROVIDED BY THE CONTRACTOR AND THE SAME SHALL BE CONNECTED TO DDCMIS OVER SOFT CONNECTIVITY.
5. VARIOUS FIELD INSTRUMENTS ON AIR AND WATER HAVE BEEN SHOWN. HOWEVER ANY OTHER ADDITIONAL INSTRUMENTS TO MEET THE SYSTEM REQMT. & FOR SAFE OPERATION OF THE PLANT & EQUIPMENT SHALL BE INCORPORATED IN THE SCHEME BY CONTRACTOR AT NO ADDITIONAL COST TO EMPLOYER.
6. THE SCHEME DOES NOT SHOW THE CIRCUIT, INSTRUMENTS, VALVES ETC. FOR LOADING/ UNLOADING/MODULATION OF COMPRESSORS, REPRESSURISATION/DEPRESSURISATION OF ABSORBER TOWER OF ADP & THE SAME SHALL BE PROVIDED BY RESPECTIVE CONTRACTOR.
7. UNIT AIR RECEIVER (FOR IA SYSTEM) SHALL BE LOCATED IN BC BAY OF TG BUILDING.
8. COOLING WATER SHALL BE CLOSE CIRCUIT DM WATER.
9. THE SCHEME HAS BEEN ENVISAGED CONSIDERING HEAT OF COMPRESSION TYPE AIR DRYER (TWIN TOWER TYPE) IN CASE OF ROTARY DRUM TYPE (HOC) AIR DRYER, SCHEME SHALL BE FINALISED DURING DETAILED ENGINEERING.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	PE/PU	PIPING	M	E	C&I	APPD	DATE
					CLEARED BY						
A	RELEASED FOR TENDER	TARUN									

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NTPC Limited

(A GOVT. OF INDIA INTERPRISE)

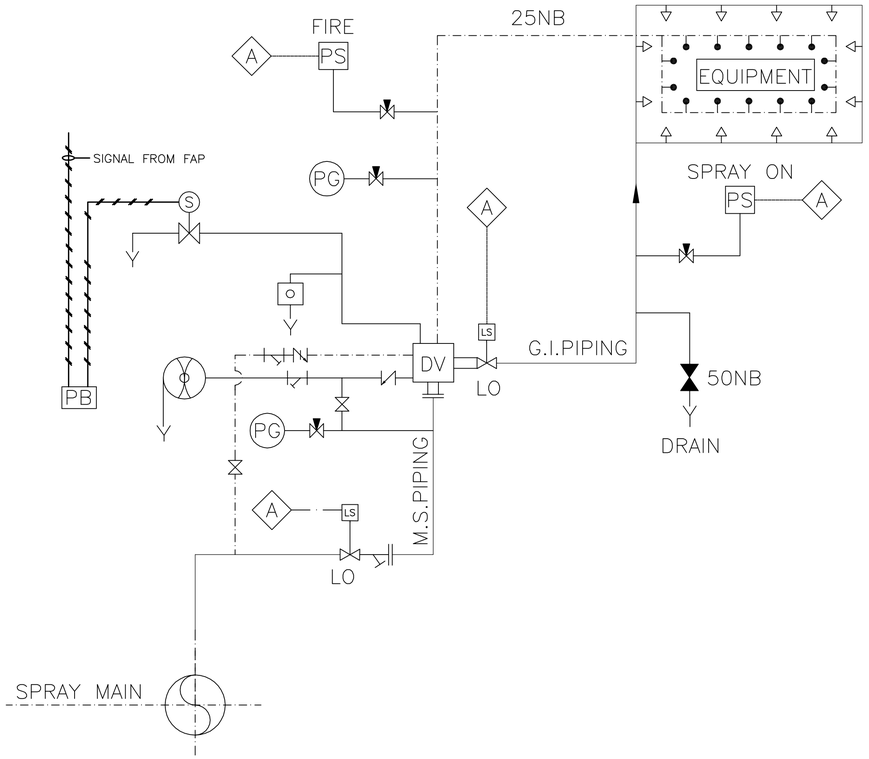
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL POWER PROJECT STAGE-II (1x800MW)

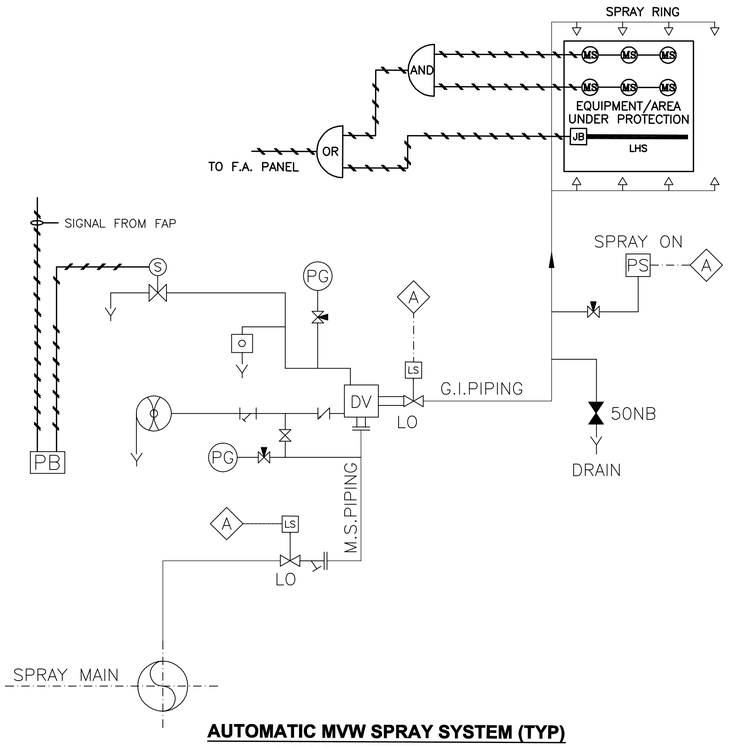
TITLE: SCHEMATIC DRAWING OF COMPRESSERD AIR SYSTEM

SIZE	SCALE	DRG.NO.	REV.
A1		CW-21244-001-POM-A-047	A

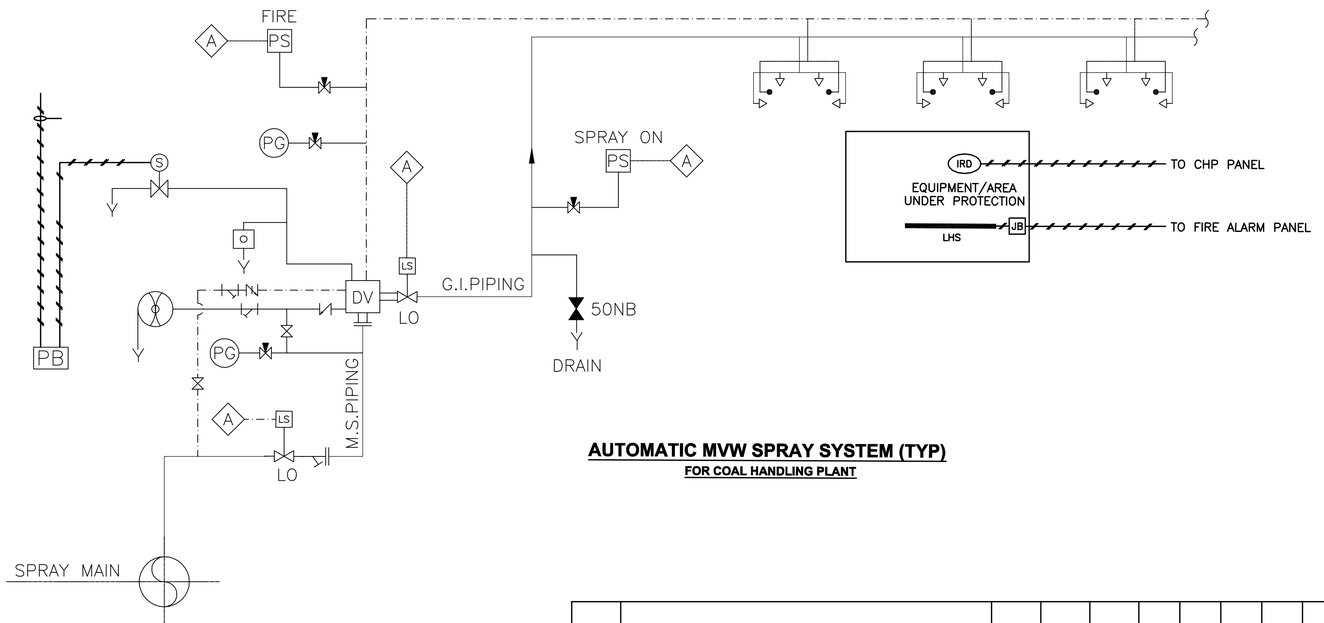
CAD FILE NAME : CW-21244-001-POM-A-047



AUTOMATIC HVW SPRAY SYSTEM (TYP)



AUTOMATIC MVW SPRAY SYSTEM (TYP)
FOR CABLE VAULT/CABLE GALLERIES



AUTOMATIC MVW SPRAY SYSTEM (TYP)
FOR COAL HANDLING PLANT

LEGEND :

- SPRAY LINE
- CONTROL CABLE
- WET DETECTION PIPE
- SOLENOID VALVE
- BUTTERFLY VALVE
- NON RETURN VALVE
- GATE VALVE WITH LIMIT SWITCH
- 'Y' TYPE STRAINER
- ANNUNCIATION IN FIRE ALARM PANEL
- WATER MOTOR GONG
- DRAIN
- PRESSURE SWITCH
- PRESSURE GAUGE
- MULTISENSOR DETECTOR
- LINEAR HEAT SENSER
- INFRA RED DETECTOR
- PUSH BUTTON STATION
- JUNCTION BOX
- LIMIT SWITCH
- QUARTZOID BULB DETECTORS

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	OS	C	M	E	C&I	APPD	DATE
A		TARUN			CLEARED BY						

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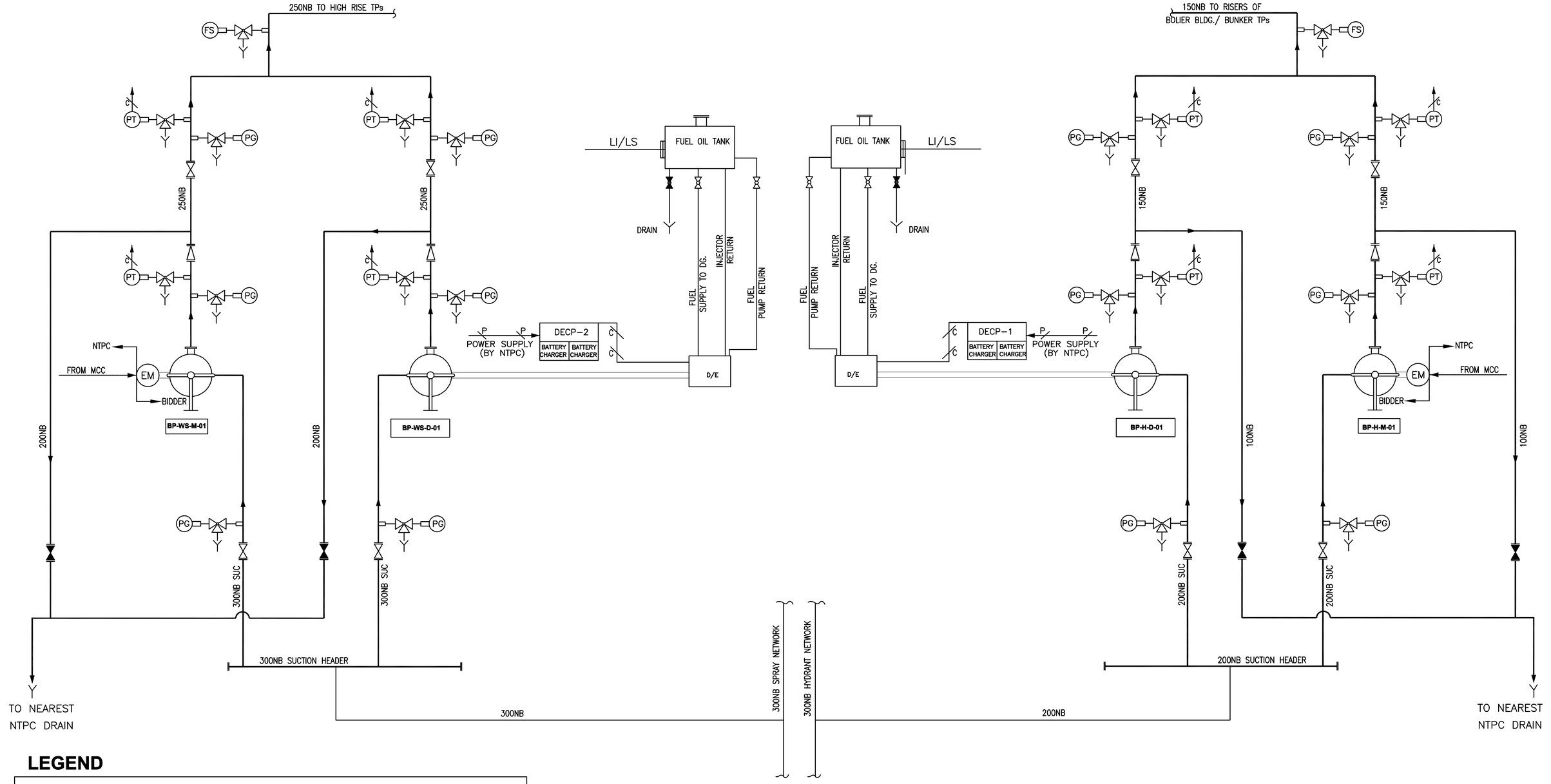
NTPC Limited
(A GOVT. OF INDIA INTERPRISE)
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL POWER PROJECT
STAGE-II (1x800MW)

TITLE: P&I DIAGRAM OF HVW/MVW SPRAY SYSTEM

SIZE	SCALE	DRG.NO.	REV.
A1	NTS	CW-21244-001-POM-A-048	A

CAD FILE NAME : CW-21244-001-POM-A-048



LEGEND

———	HYDRANT MAIN	(FS)	FLOW SWITCH
- - - - - -	CABLE	(LI)	LEVEL INDICATOR
	GATE VALVE (NORMALLY OPEN)	(LSG)	LEVEL GUAGE CUM SWITCH
	GATE VALVE (NORMALLY CLOSED)		Y–TYPE STRAINER
	NON RETURN VALVE	DECP	DIESEL ENGINE CONTROL PANEL
	BUTTERFLY VALVE	(M)	ELECTRIC MOTOR
NC	BUTTERFLY VALVE NORMALLY CLOSED	DE	DIESEL ENGINE
	THREE WAY VLVE		
	PRESSURE RELEIF VALVE		
(PG)	PRESSURE GAUGE		
(PT)	PRESSURE TRANSMITTER		

DETAIL OF BOOSTER PUMPS

	MOTOR DRIVEN (HYDRANT) BP–H–M–01	DIESEL ENGINE DRIVEN (HYDRANT) BP–H–D–01	MOTOR DRIVEN (SPRAY) BP–WS–M–01	DIESEL ENGINE DRIVEN (SPRAY) BP–WS–M–01
TYPE	HORIZONTAL SPLIT CASING	HORIZONTAL SPLIT CASING	HORIZONTAL SPLIT CASING	HORIZONTAL SPLIT CASING
CAPACITY (M^3/HR.)	171	171	410	410
TOTAL DYNAMIC HEAD(MINIMUM)	45MWC	45MWC	45MWC	45MWC

NOTE:

THIS P&ID IS FOR MAIN FIRE WATER BOOSTER PUMP HOUSE. INSTRUMENTS,VALVES,ETC. IN FIRE WATER BOOSTER PUMP HOUSE AT PLANT END OF EXTERNAL CHP SHALL GENERALLY BE IN LINE WITH THIS P&ID.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	CLEARED BY OS	C	M	E	C&I	APPD	DATE
A		TARUN									

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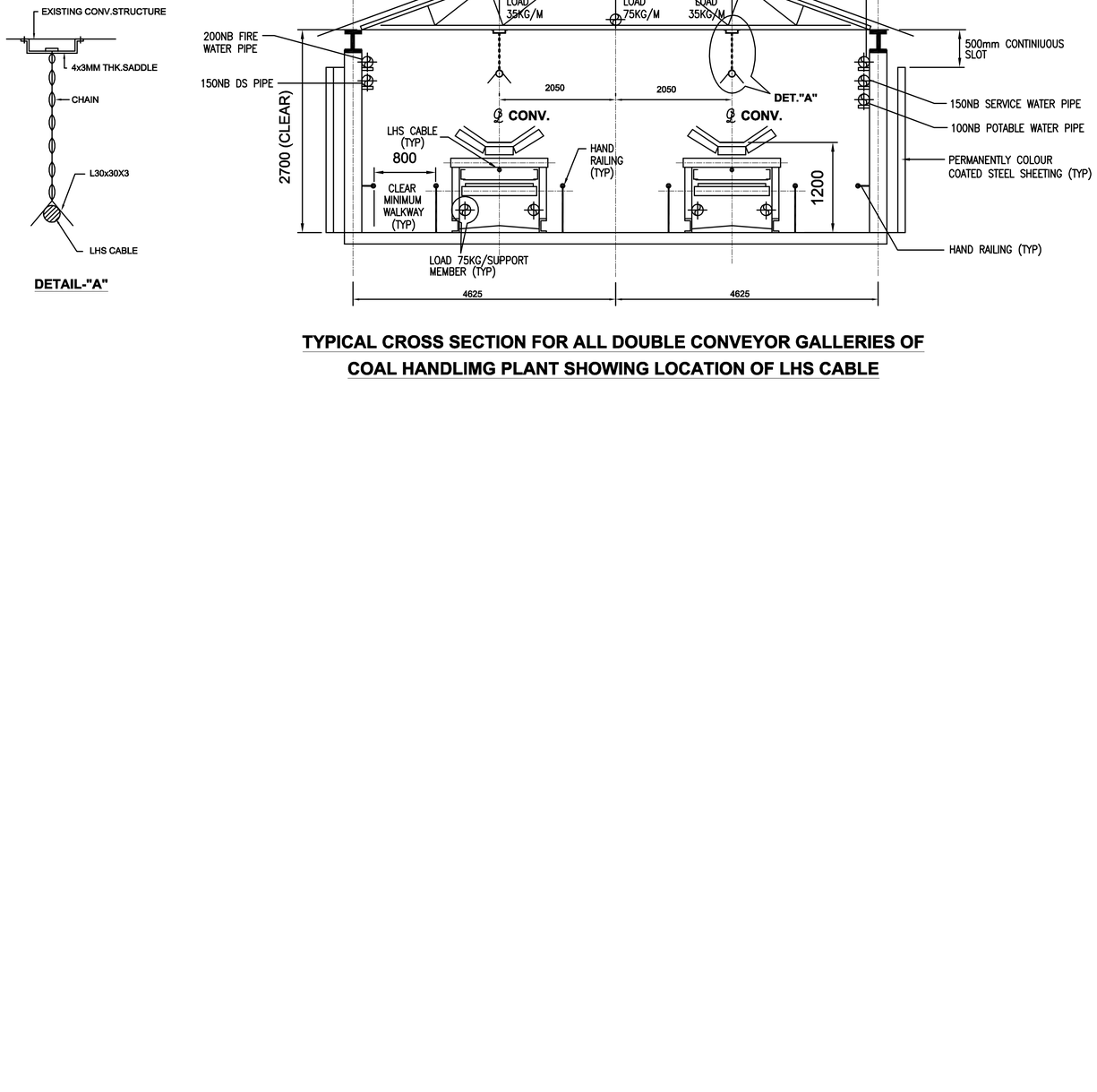
NTPC Limited
(A GOVT. OF INDIA INTERPRISE)
ENGINEERING DIVISION

PROJECT: SINGARENI THERMAL POWER PROJECT
STAGE–II (1x800MW)

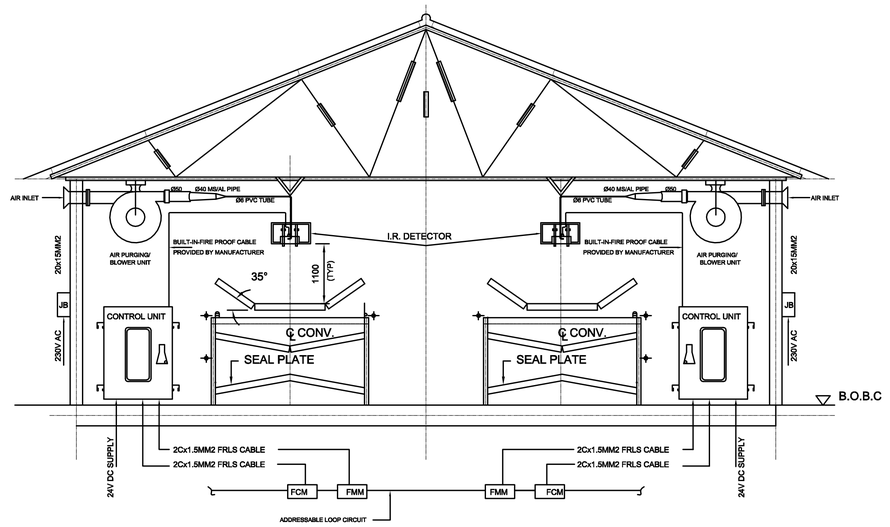
TITLE: P&I DIAGRAM OF FIRE WATER BOOSTER PUMP HOUSE

SIZE	SCALE	DRG.NO.	REV.
A1	NTS	CW–21244–001–POM–A–050	A

CAD FILE NAME : CW–21244–001–POM–A–050



TYPICAL CROSS SECTION FOR ALL DOUBLE CONVEYOR GALLERIES OF COAL HANDLIMG PLANT SHOWING LOCATION OF LHS CABLE



TYPICAL ARRGT.OF IRD IN COAL CONV.GALLERY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	OS	C	M	E	C&I	APPD	DATE
					CLEARED BY						
A		TARUN									

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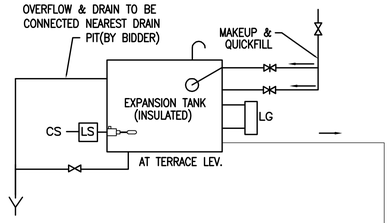
NTPC Limited
(A GOVT. OF INDIA INTERPRISE)
ENGINEERING DIVISION

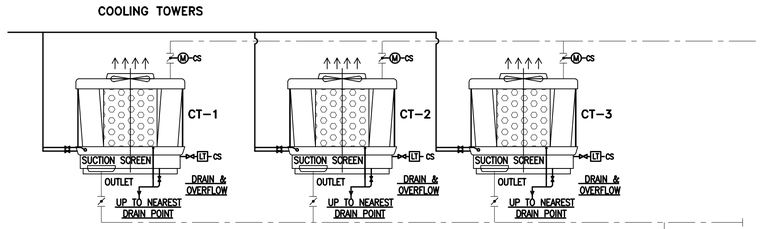
PROJECT: SINGARENI THERMAL POWER PROJECT
STAGE-II (1x800MW)

TITLE: MISCELLANEOUS DETAILS OF FIRE DETECTION SYSTEM

SIZE	SCALE	DRG.NO.	REV.
A1	NTS	CW-21244-001-POM-A-051	A

CAD FILE NAME : CW-21244-001-POM-A-051



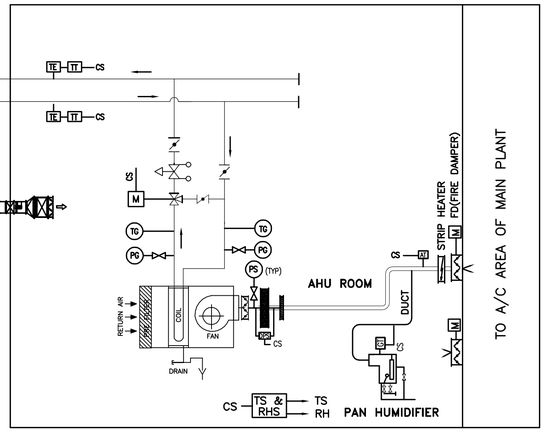


CHILLED WATER PUMP DETAIL	
NAME	QTY
CHWP-1 TO 3	3 NOS(2W+1S/B)

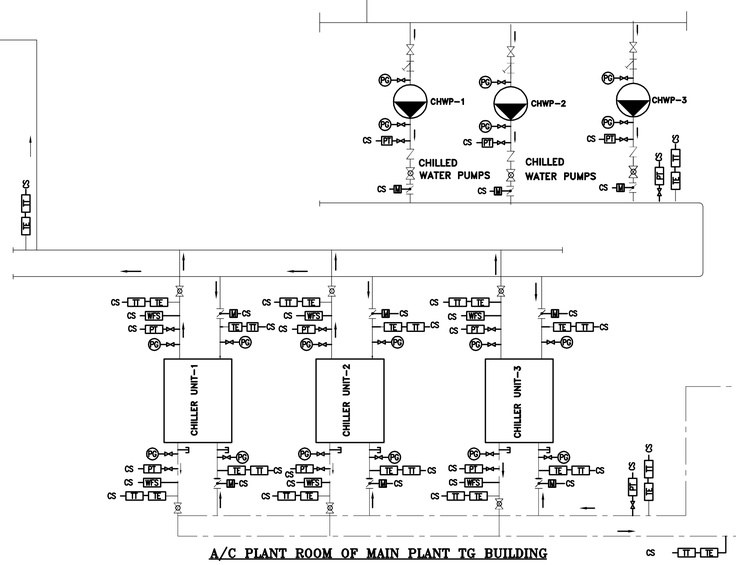
CONDENSER WATER PUMP DETAIL	
NAME	QTY
COND.WP-1 TO 3	3 NOS(2W+1S/B)

COOLING TOWER DETAILS	
NAME	QTY
CT-1 TO 3	3 NOS(2W+1S/B)

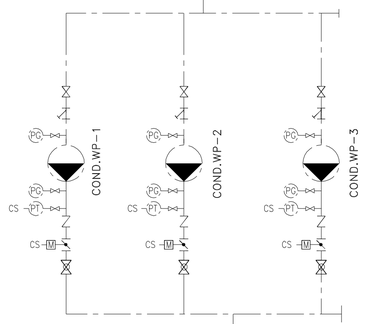
TO OTHER AHU ROOMS



TYPICAL CONNECTION DETAIL FOR AHU ROOM



A/C PLANT ROOM OF MAIN PLANT TG BUILDING



CONDENSER WATER PUMPS

CS	CONTROL SYSTEM
TE	TEMPERATURE TRANSMITTER)
	CH.WATER SUPPLY & RETURN PIPE
	COND.WATER SUPPLY & RETURN PIPE
	OPEN DRAIN PIT
	ATMOSPHERIC VENT
	DESCALING CONNECTION
	STRIP HEATER
	FRESH AIR FAN WITH PRE FILTER & FINE FILTER
	CENTRIFUGAL FAN
	PUMP
	PAN HUMIDIFIER WITH 25NB GATE VAVE(3 NOS EACH),1 NO EACH FLOAT VALVE. M-UP/Q.FILL & DRAIN CON.
TG	TEMPARATURE GAUGE
LG	LEVEL GAUGE
LT-CS	LEVEL TRANSMITER
LS-CS	LEVEL SWITCH
GT-CS	GEYSER STAT
AT-CS	AIR STAT
DPS-CS	DIFFERENTIAL PRESSURE SWITCH
WPS-CS	WATER FLOW SWITCH
CS TS & RHS TS RH	RH SENSOR &TEMP.SENSOR
TE-CS	TEMPARATURE ELEMENT(SENSOR)
PT-CS	PRESSURE TRANSMITTER
PG	PRESSORE GAUGE
	HEPA FILTER
	FINE FILTER
	PRE FILTER
FD M	ML TYPE FIRE DAMPER(MOTORISED)
VCD	VOLUME CONTROL DAMPER (ML TYPE)
NRD	NON RETURN DAMPER (ML TYPE)
	FLOW CONTROL VALVE
	GATE VALVE
	FLOAT VALVE
M	MOTORIZED GLOBE VALVE(INCHING TYPE)
	BALANCING VALVE
M	2 WAY VALVE (MODULATING WITH ACTUATOR)
	GLOBE VALVE
	CHECK VALVE
	'Y' STRAINER
M	BUTTERFLY VALVE(MOTORISED)
	BUTTERFLY VALVE
LEGEND	DESCRIPTION

NOTE

1) CAPACITY OF ALL THE A/C EQUIPMENTS SHALL BE FINALISED DURING DETAILED ENGINEERING BASED ON HEAT LOAD CALCULATION.
2) SIZE OF PIPES, VALVES ETC SHALL BE FINALIZED DURING DETAILED ENGINEERING
3) NUMBER OF AHU AND AHU CAPACITY SHALL BE FINALIZED DURING DETAILED ENGINEERING BASED ON THE FINALIZED ARCHITECTURAL DRAWINGS.
4) CHILLED WATER PUMPS, PIPING, VALVES,EXPANSION TANK, AHU-DRAIN ETC. SHALL BE INSULATED AS PER SPECIFICATION.
5) ALL PIPING & VALVES OF SIZE 40 NB & BELOW SHALL BE PROVIDED AS PER SYSTEM REQUIREMENT BY THE BIDDER.
6) FOR FLOW BALANCING, BALANCING VALVE AND ORIFICE PLATE SHALL BE PROVIDED BY BIDDER AS PER SYSTEM REQUIREMENT.
7) 1X100% CAPACITY FRESH AIR FAN SHALL BE PROVIDED IN EACH AHU ROOM
8) TEMPERATURE SENSOR (TS) & RELATIVE HUMIDITY SENSOR (RHS) SHALL BE PROVIDED IN EACH AHU ROOM.
9) AIR RELEASE VALVES AS PER SYSTEM REQUIREMENT SHALL BE PROVIDED AT SUITABLE LOCATIONS.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					

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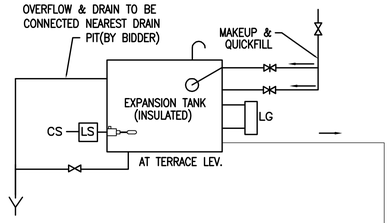
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

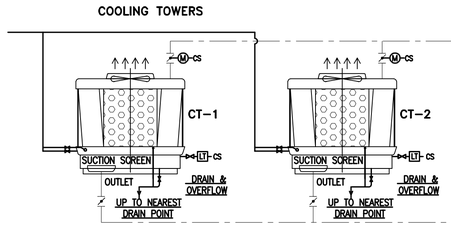
PROJECT: **SINGARENI SUPER THERMAL POWER PROJECT**
STAGE-II (1x800MW)

TITLE: SCHEMATIC DIAGRAM FOR A/C SYSTEM FOR MAIN PLANT TG BULDING

SIZE	SCALE	DRG.NO.	REV.
A1	NTS	CW-21244-001-POM-A-054	00

CAD FILE NAME : CW-21244-001-POM-A-054

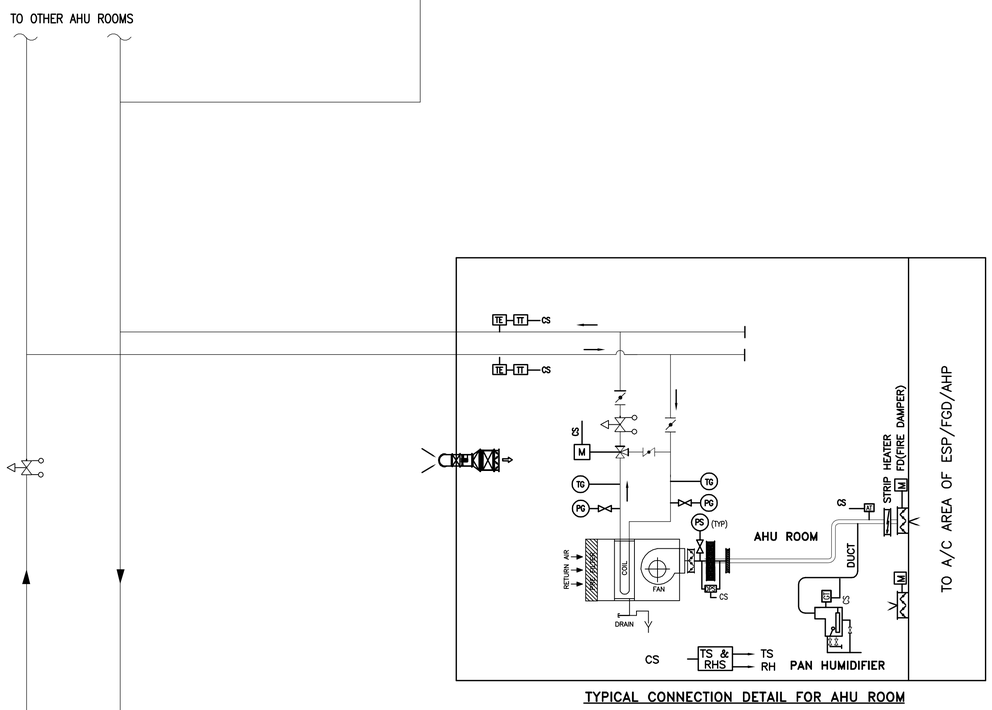




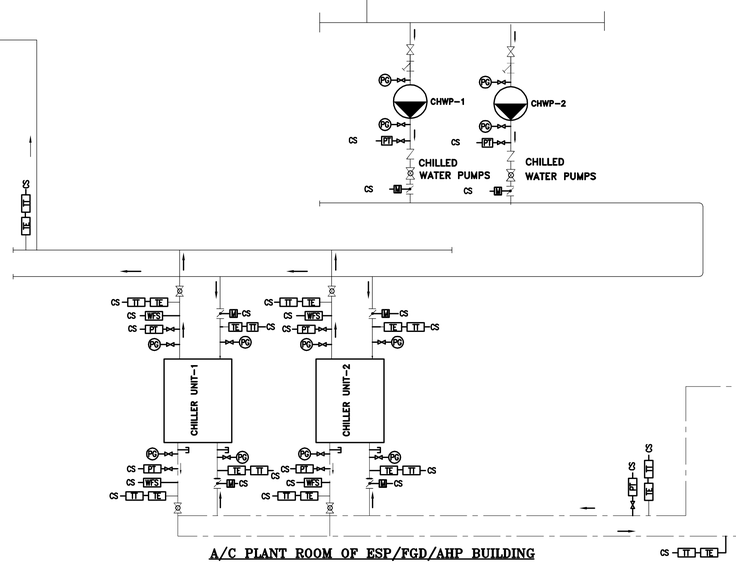
CHILLED WATER PUMP DETAIL	
NAME	QTY
CHWP-1 TO 3	3 NOS(2W+1S/B)

CONDENSER WATER PUMP DETAIL	
NAME	QTY
COND.WP-1 TO 3	3 NOS(2W+1S/B)

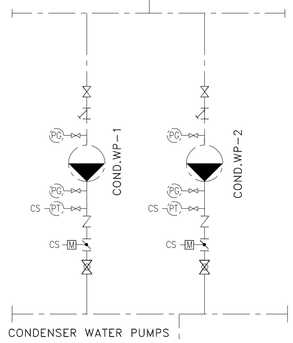
COOLING TOWER DETAILS	
NAME	QTY
CT-1 TO 3	3 NOS(2W+1S/B)



TYPICAL CONNECTION DETAIL FOR AHU ROOM



A/C PLANT ROOM OF ESP/FGD/AHP BUILDING



CONDENSER WATER PUMPS

CS	CONTROL SYSTEM
TE	TEMPERATURE TRANSMITTER)
	CH.WATER SUPPLY & RETURN PIPE
	COND.WATER SUPPLY & RETURN PIPE
	OPEN DRAIN PIT
	ATMOSPHERIC VENT
	DESCALING CONNECTION
	STRIP HEATER
	FRESH AIR FAN WITH PRE FILTER & FINE FILTER
	CENTRIFUGAL FAN
	PUMP
	PAN HUMIDIFIER WITH 25NB GATE VAVE(3 NOS EACH),1 NO EACH FLOAT VALVE, M-UP/Q.FILL & DRAIN CON.
TG	TEMPARATURE GAUGE
LG	LEVEL GAUGE
LT-CS	LEVEL TRANSMITER
LS-CS	LEVEL SWITCH
GT-CS	GEYSER STAT
AT-CS	AIR STAT
DPS-CS	DIFFERENTIAL PRESSURE SWITCH
WFS-CS	WATER FLOW SWITCH
CS-TS/RHS	TS RH, RH SENSOR &TEMP.SENSOR
TE-CS	TEMPARATURE ELEMENT(SENSOR)
PT-CS	PRESSURE TRANSMITTER
PG	PRESSORE GAUGE
	HEPA FILTER
	FINE FILTER
	PRE FILTER
FD	ML TYPE FIRE DAMPER(MOTORISED)
VCD	VOLUME CONTROL DAMPER (ML TYPE)
NRD	NON RETURN DAMPER (ML TYPE)
	FLOW CONTROL VALVE
	GATE VALVE
	FLOAT VALVE
M	MOTORIZED GLOBE VALVE(INCHING TYPE)
	BALANCING VALVE
M	2 WAY VALVE (MODULATING WITH ACTUATOR)
	GLOBE VALVE
	CHECK VALVE
	'Y' STRAINER
M	BUTTERFLY VALVE(MOTORISED)
	BUTTERFLY VALVE
LEGEND	DESCRIPTION

NOTE

1) CAPACITY OF ALL THE A/C EQUIPMENTS SHALL BE FINALIZED DURING DETAILED ENGINEERING BASED ON HEAT LOAD CALCULATION.
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9) AIR RELEASE VALVES AS PER SYSTEM REQUIREMENT SHALL BE PROVIDED AT SUITABLE LOCATIONS.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					

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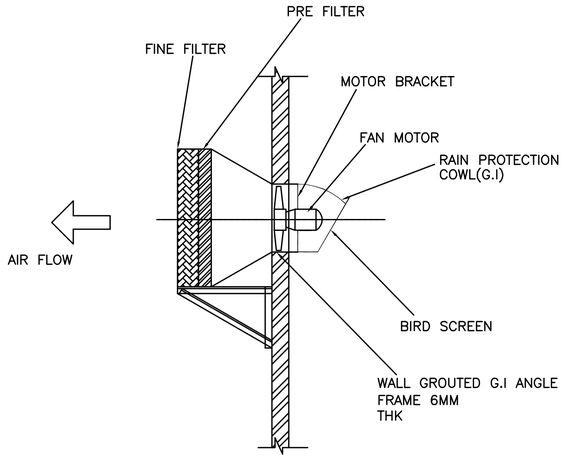
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT: SINGARENI SUPER THERMAL POWER PROJECT
STAGE-II (1x800MW)

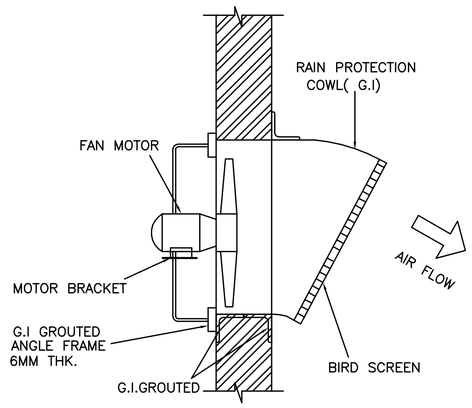
TITLE: SCHEMATIC DIAGRAM FOR A/C SYSTEM FOR ESP/FGD/AHP BUILDING

SIZE	SCALE	DRG.NO.	REV.
A1	NTS	CW-21244-001-POM-A-055	00

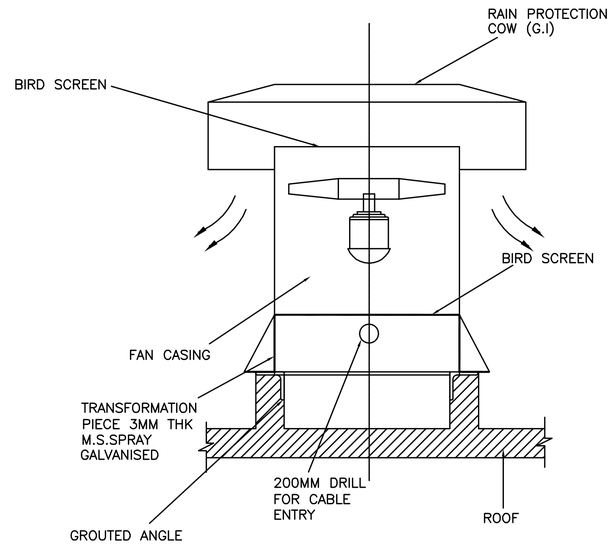
CAD FILE NAME : CW-21244-001-POM-A-055



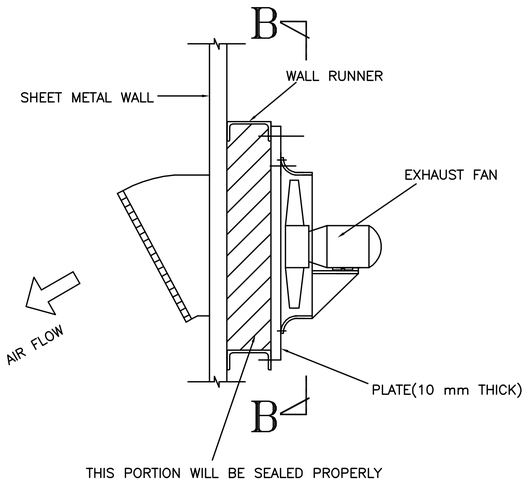
WALL MOUNTED SUPPL□ AIR FAN



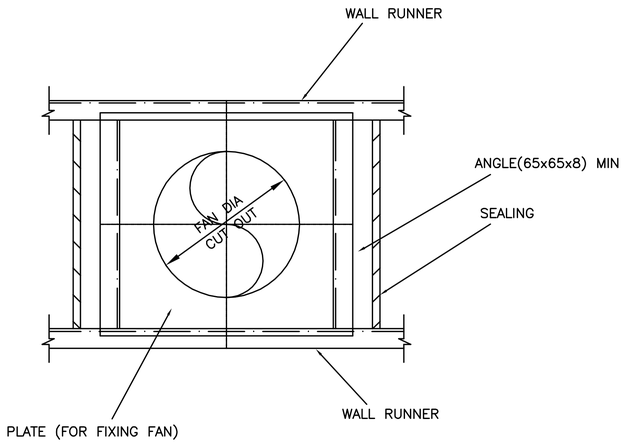
WALL MOUNTED E□HAUST AIR FAN



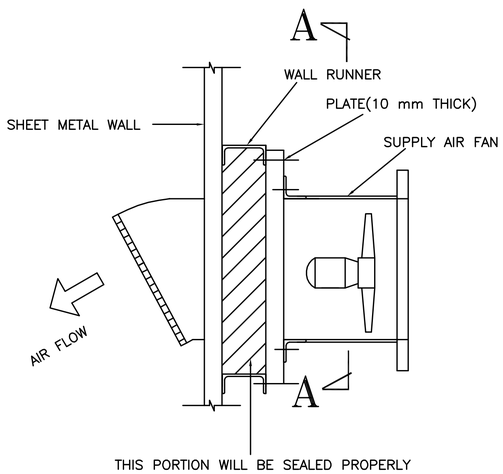
SECTION ELEVATION OF ROOF E□HAUSTER



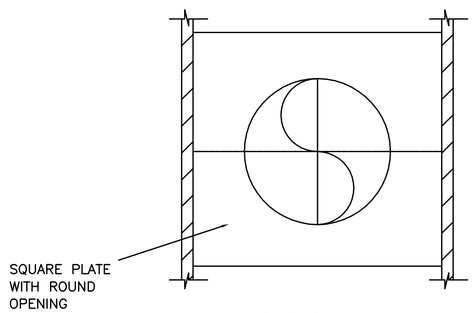
E□HAUST AIR FAN FI□ED ON METAL WALL□CLADDING



SECTION □□



SUPPL□ AIR FAN FI□ED ON METAL WALL□CLADDING



SECTION A□A

NOTES :

1. ALL DIMENSIONS ARE IN mm.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATION.

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NTPC Limited
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

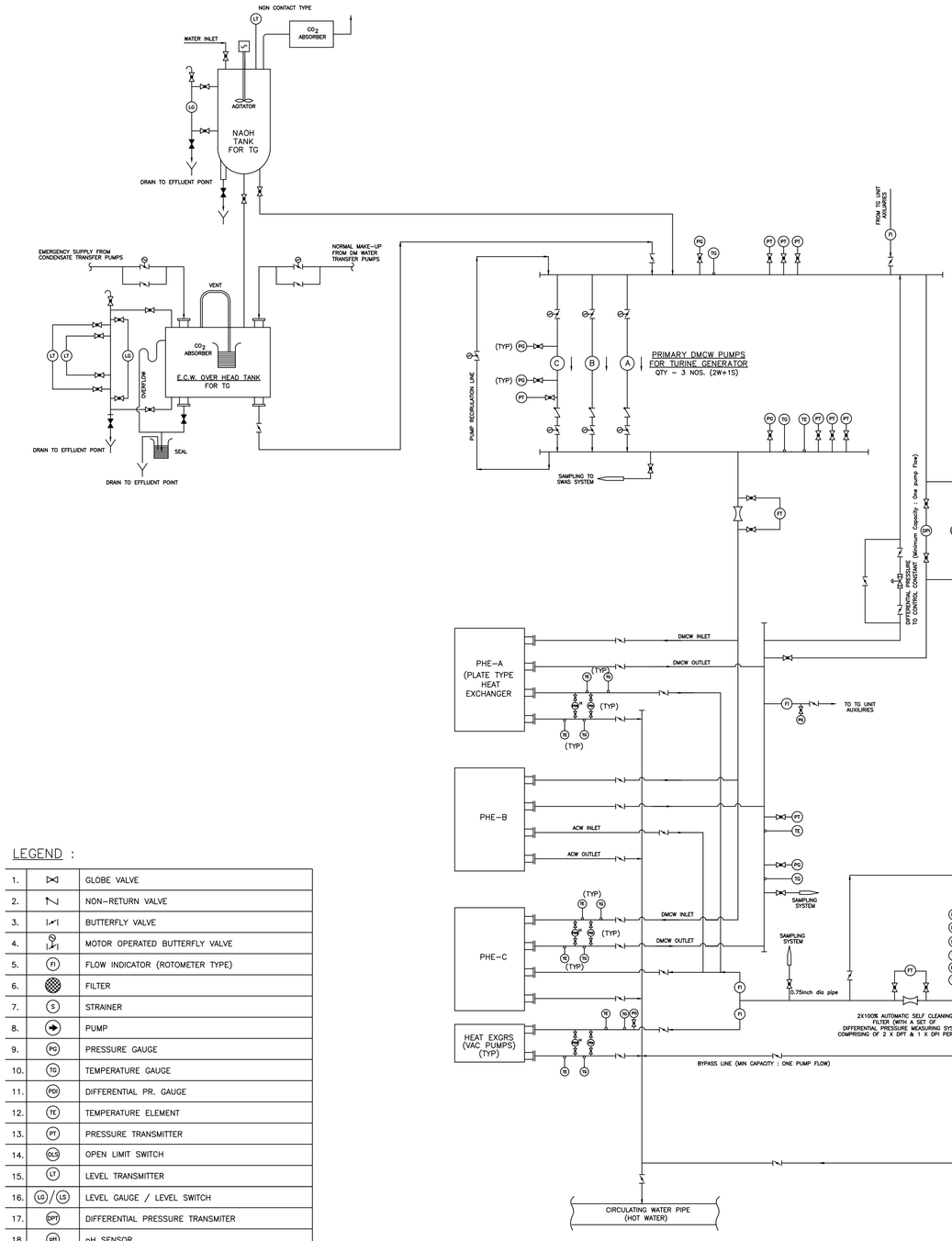
PROJECT: SINGARENI THERMAL POWER PROJECT
STAGE–II (1X800MW)

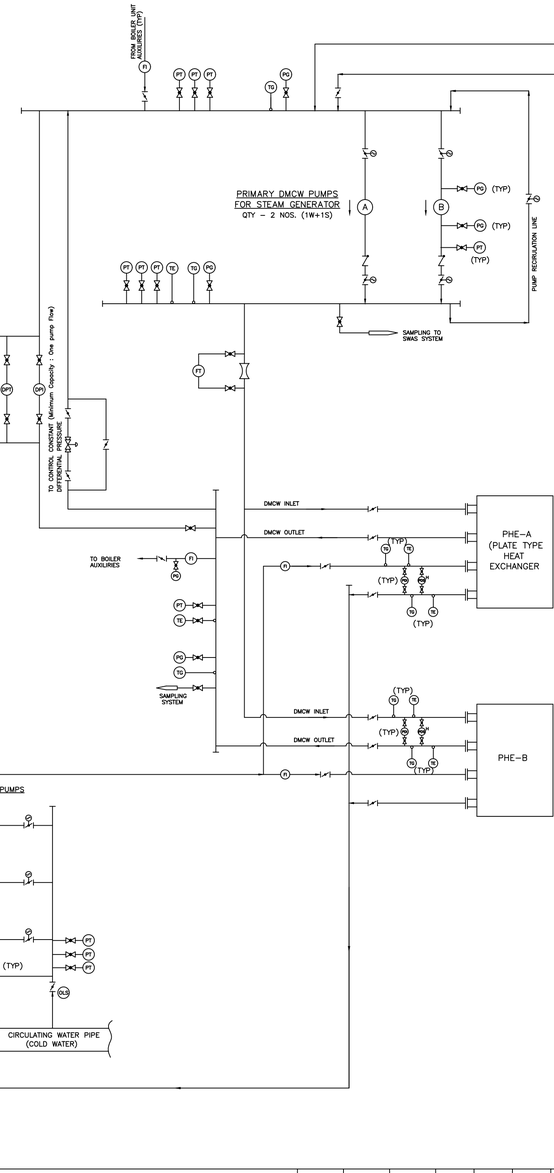
TITLE: FIXING DETAIL OF WALL MOUNTED AXIAL FANS AND ROOF EXTRACTOR FAN

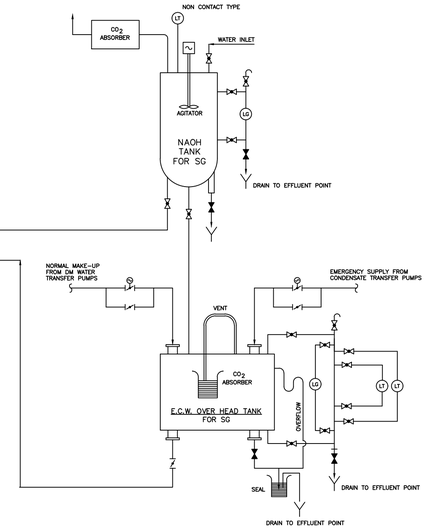
REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
A	RELEASED FOR TENDER									

SIZE	SCALE	DRG.NO.	REV.
A1	––	CW–21244–001–POM–A–058	A

CAD FILE NAME : CW–21244–001–POM–A–058







LEGEND :

1.		GLOBE VALVE
2.		NON-RETURN VALVE
3.		BUTTERFLY VALVE
4.		MOTOR OPERATED BUTTERFLY VALVE
5.	FI	FLOW INDICATOR (ROTOMETER TYPE)
6.		FILTER
7.	S	STRAINER
8.		PUMP
9.	PG	PRESSURE GAUGE
10.	TG	TEMPERATURE GAUGE
11.	PDI	DIFFERENTIAL PR. GAUGE
12.	TE	TEMPERATURE ELEMENT
13.	PT	PRESSURE TRANSMITTER
14.	OLS	OPEN LIMIT SWITCH
15.	LT	LEVEL TRANSMITTER
16.	LG / LS	LEVEL GAUGE / LEVEL SWITCH
17.	DPT	DIFFERENTIAL PRESSURE TRANSMITER
18.	pH	pH SENSOR
19.	pHA	pH ANALYSER TRANSMITTER
20.		FLOW ELEMENT (ORIFICE)
21.		CONTROL VALVE (PNEUMATIC ACTUATOR)
22.		NORMALLY CLOSED VALVE
23.	FT	FLOW TRANSMITTER

GENERAL NOTES :

1. SCHEME FOR ONE UNIT IS SHOWN AND FOR THE OTHER UNITS, IT SHALL BE IDENTICAL.
2. ALL DRAIN AND VENT. CONNECTIONS SHALL BE PROVIDED WITH VALVES AT REQUIRED POINTS/LOCATIONS AS PER LAYOUT.
3. pH OF PRIMARY CIRCUIT DM WATER SHALL BE MAINTAINED AROUND 9.5.
4. INSTRUMENTS ARE SHOWN ONLY FOR ONE SET OF PUMP, PHE (PLATE HEAT EXCHANGER) OR ONE HEADER AS THE CASE MAY BE FOR CLARITY AND ARE TYPICAL. THE SAME SHALL BE PROVIDED FOR ALL THE EQUIPMENTS AND HEADERS.
5. ROOT VALVE, ISOLATION VALVES, THREE WAY MANIFOLD ETC. REQUIRED FOR VARIOUS INSTRUMENTS SHALL BE PROVIDED BY BIDDER.
6. EACH HEAT EXCHANGER/COOLER OF VARIOUS AUXILIARIES SHALL BE PROVIDED WITH TEMPERATRE GUAGE AT INLET AND OUTLET BY THE RESPECTIVE BIDDER (COOLER SUPPLIER).FURTHER FLOW GLASS AT INLET SHALL ALSO BE PROVIDED BY COOLER SUPPLIER.
7. WINDING & BEARINGS TEMP MEASUREMENTS OF PUMPS AND MOTORS TO BE PROVIDED AS PER SPECIFICATION.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
A	RELEASED FOR TENDER									13.11.17

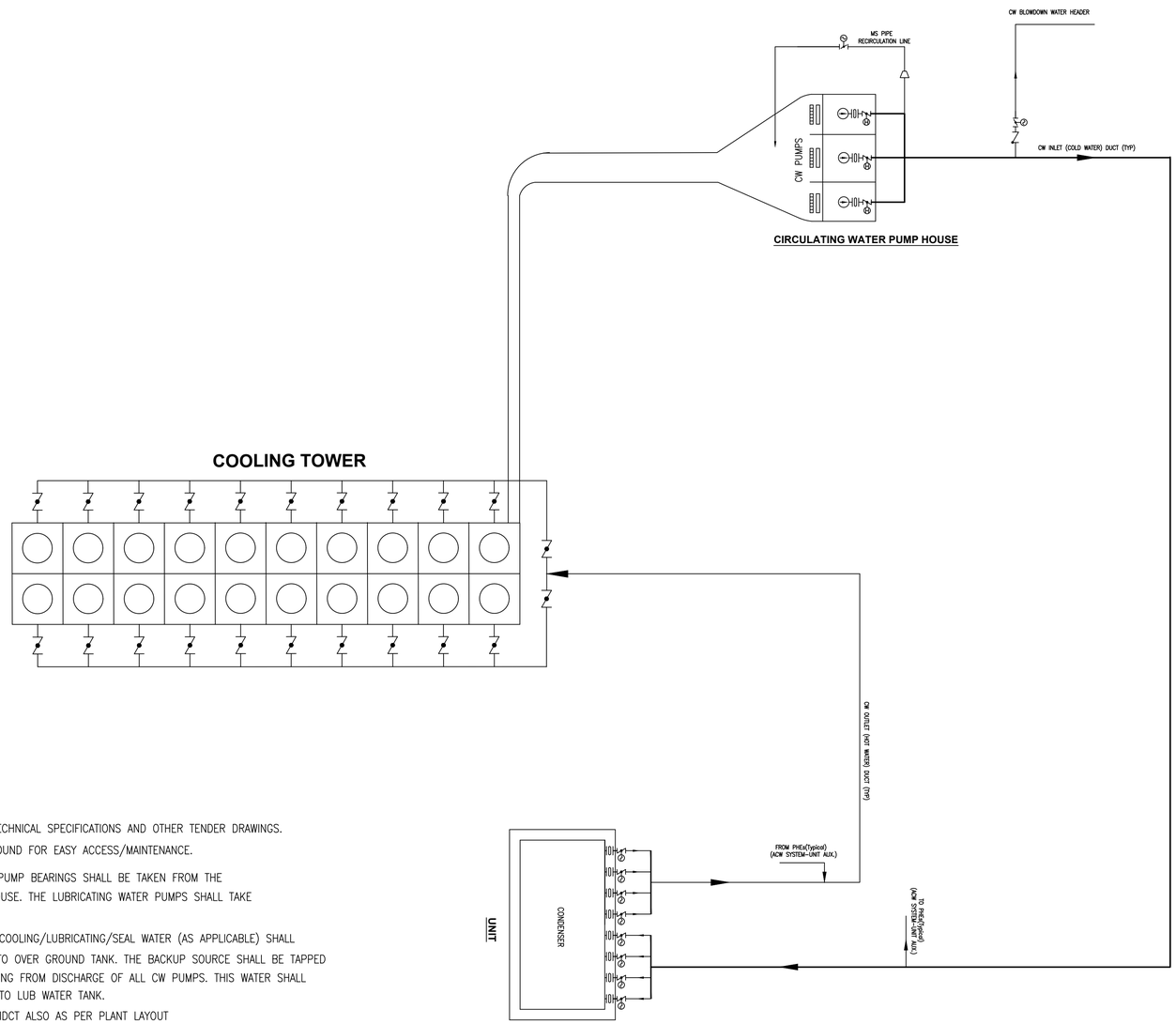
OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SCCL COAL BASED THERMAL POWER PLANT (1X800MW)

TITLE: P&I DIAGRAM OF EQUIPMENT COOLING WATER SYSTEM

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9755-154-POM-A-038	A



NOTES :

1. THIS DRG. SHOULD BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATIONS AND OTHER TENDER DRAWINGS.
2. ALL THE VALVES SHALL PREFERABLY BE LAID OVERGROUND FOR EASY ACCESS/MAINTENANCE.
3. THE LUBRICATING / SEAL WATER REQUIRED FOR THE PUMP BEARINGS SHALL BE TAKEN FROM THE STORAGE TANKS TO BE PROVIDED NEAR THE PUMP HOUSE. THE LUBRICATING WATER PUMPS SHALL TAKE SUCTION FROM OVERGROUND STORAGE TANK.
4. DURING INITIAL FILLING AND NORMAL OPERATION, THE COOLING/LUBRICATING/SEAL WATER (AS APPLICABLE) SHALL BE TAPPED FROM NEAREST WATER SOURCE AND FED TO OVER GROUND TANK. THE BACKUP SOURCE SHALL BE TAPPED FROM A COMMON HEADER FORMED BY TAKING A TAPPING FROM DISCHARGE OF ALL CW PUMPS. THIS WATER SHALL PASS THROUGH 2 X 100% DUPLEX FILTERS AND FED TO LUB WATER TANK.
5. DRAWING IS INDICATIVE, BIDDER MAY OPT FOR 2 NOS IDCT ALSO AS PER PLANT LAYOUT

LEGEND :

- PUMPS
- ELECTRICALLY ACTUATED BUTTERFLY VALVE
- ELECTRO HYDRAUCALLY ACTUATED BUTTERFLY VALVE
- MANUALLY ACTUATED BUTTERFLY VALVE
- NON-RETURN (CHECK) VALVE
- EXPANSION JOINT
- ISOLATION VALVE

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
0	RELEASED FOR TENDER									13.11.17

CLEARED BY

OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

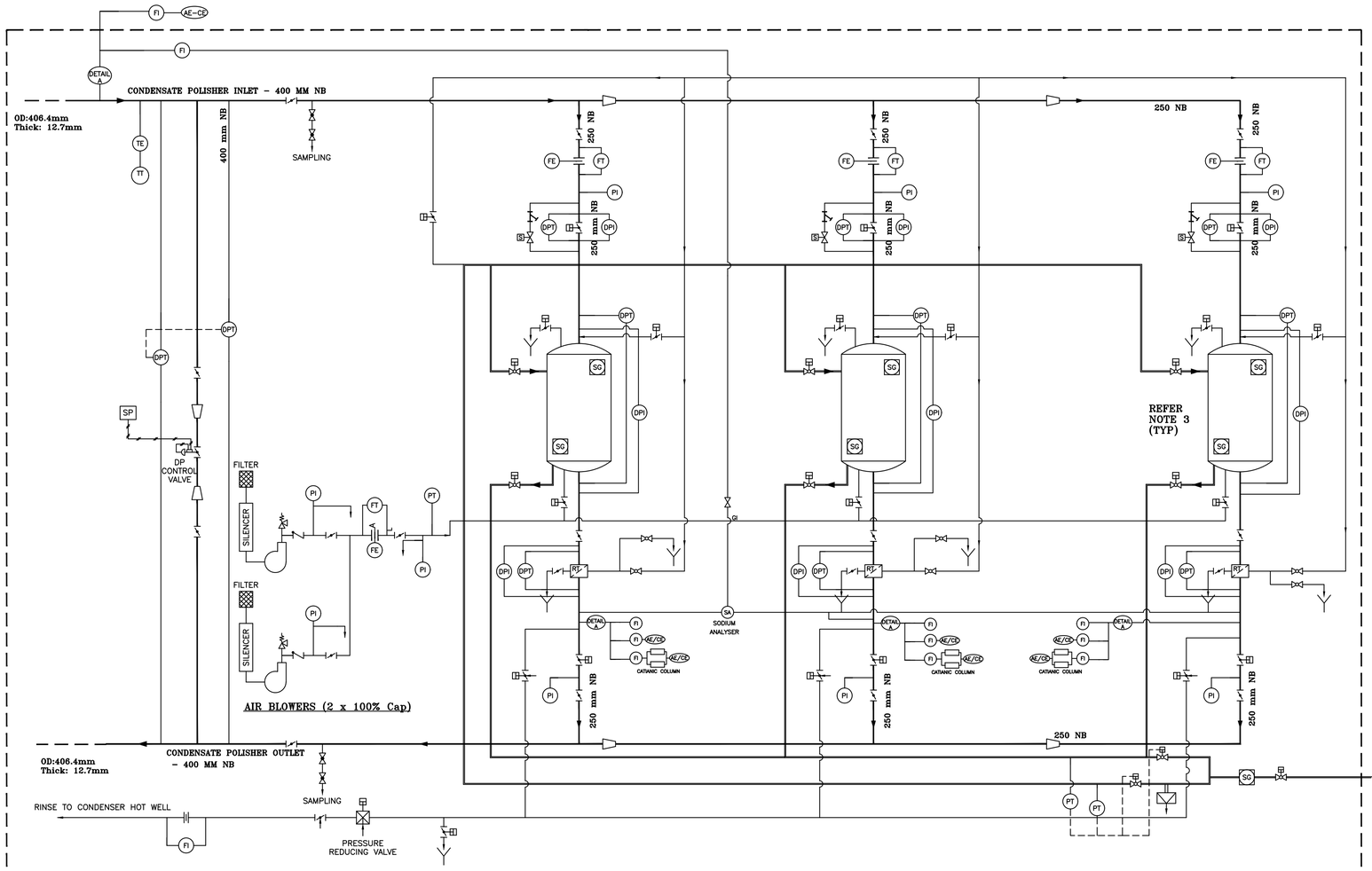
PROJECT: SINGARENI THERMAL POWER STATION (1 X 660MW)

TITLE: **SCHEME OF CIRCULATING WATER SYSTEM**

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	**XXXX-XXX-POM-A-059**	A

NOTES :

1. THE P&I DIAGRAM IS TENTATIVE AND ONLY MINIMUM REQUIREMENT OF VALVES, INSTRUMENTATION ETC. HAS BEEN SHOWN. BIDDER SHOULD FURNISH COMPLETE SCHEME IN ALL RESPECTS INCLUDING ALL INSTRUMENTS, VALVES ETC. FOR SMOOTH, SAFE, EFFICIENT, TROUBLE FREE OPERATION OF PLANT ALONGWITH TENDER.
2. ---→ INDICATES SCOPE/TERMINAL POINTS OF EMPLOYER/BIDDER
   EMPLOYER – SCOPE OF EMPLOYER TP (TERMINAL POINT)
   BIDDER – SCOPE OF BIDDER (TERMINAL POINT)
3. SERVICE VESSELS OF SPHERICAL DESIGN IS ALSO ACCEPTABLE.
4. CONTRACTOR TO INDICATE RECOMMENDED ALARM LIST ALONGWITH CONTROL PHILOSOPHY AND INTERLOCK/PROTECTION WRITE UP INLINE WITH TEHNICAL SPECIFICATION /PROCESS ADOPTED.
5. REFER SHEET 2 OF THIS DRAWING FOR ADDITIONAL NOTES
6. FOR DETAIL A & ALL ANALYSERS, ALL REQUIRED ACCESORIES & VALVES SUCH AS INSOLATION VALVES, PRESSURE REDUCING VALVES, BACK PRESS REDUCING VALVES ETC SHALL BE PROVIDED FOR IMPLEMENTING SAMPLE MEASUREMENT AS PER BIDERS STANDARD PRACTICE.
7. PIPELINE SIZE & THICKNESS,WHEREVER MENTIONED ARE IN MM & THEY ARE INDICATED AS MINIMUM REQUIREMENT.

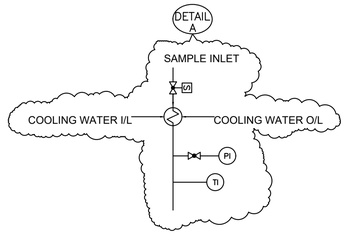


CONDENSATE POLISHING UNIT (TYPICAL)

(SERVICE VESSELS LOCATED IN TG BUILDING)

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PRIMING CHAMBER		BLOWER
	PUMP		ISOLATION GATE
	BALL VALVE / PLUG VALVE		DRAIN
	BUTTERFLY VALVE		OVERFLOW SEAL POT/CO_2 ABSORBER
	GLOBE VALVE		RUPTURE DISC
	DIAPHRAGM VALVE		PRESSURE REDUCING VALVE
	MOTORISED VALVE		CONDENSATE LINE
	PRESSURE RELIEF VALVE		D.M.WATER/DRAIN LINE
	NON RETURN VALVE		RINSE WATER LINE
	BUTTERFLY VALVE WITH GLAND SEALING		ACID SOLUTION LINE
	SOLENOID VALVE		ALKALI SOLUTION LINE
	RESIN TRAP		RESIN TRANSFER LINE
	SIGHT GLASS		
	DOUBLE ACTING PNU.CYLINDER OPERATOR		
	PNEUMATICALLY OPERATED CONTROL VALVE		
	'Y' TYPE STRAINER		



FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
0	RELEASED FOR TENDER									13.11.23

CLEARED BY

OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) (CONSULTANCY WING)

PROJECT: SINGARENI THERMAL POWER STATION (1 X 660MW)

TITLE: P&I DIAGRAM FOR CONDENSATE POLISHING PLANT

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	XXXX-XXX-POM-A-013 (Sheet 1 of 2)	0

FILTER
SILENCER
FILTER
SILENCER
TO THE REQUIRED REGENERATION VESSELS
AIR BLOWERS (2x100% Capacity)

TO THE REQUIRED REGENERATION VESSELS
OIL FILTER
INSTRUMENT AIR

FOR CONTINUATION REFER SHEET 1 OF THIS DRAWING
A
OVER PRESSURE PROTECTION DEVICE

RESIN SEPARATION AND CATION REGENERATION UNIT
ANION REGENERATION UNIT
MIXED RESIN STORAGE VESSEL
SAMPLING
REFER NOTE 1

RESIN MAKE UP HOPPER
EJECTOR
50NB
TO REGENERATION VESSEL
TO RESPECTIVE REGENERATION/ RESIN SEPARATION VESSELS

AIR BLOWERS (2x100% Capacity)
DM WATER FROM DM PLANT AT 10.0 M FROM THE FOUNDATION OF DM TANKS AT GROUND LEVEL
100 NB SS
Pump Recirculation (Typ)
100 NB
From Service Water Line
OVERFLOW SEAL (TYP)
DM WATER STORAGE TANK - 1
DM WATER STORAGE TANK - 2
CO_2 ABSORBER (TYP)
Pump Recirculation To DM Tanks
D.M. WATER PUMPS FOR RESIN TRNSFER
D.M. WATER PUMPS FOR REGENERATION SYS (CPU)
OC LS

1. TO DRAIN TRENCH LEADING TO NEAUTRALISATION PIT
2. REFER NOTE 3 IN THIS SHEET
MEASURING ORIFICE BOARD

SERVICE WATER

HOT WATER TANK
MIXING TEE
ALKALI DOSING PUMPS
DDCMIS

BULK ALKALI STORAGE TANK NO :1
BULK ALKALI STORAGE TANK NO :2
CO_2 ABSORBER (TYP)
ALKALI PREPARATION TANK
ALKALI TRSFR CUM RECIR PUMPS
AC FILTER (ALKALI)
ALKALI DAY TANK

To ASH HANDLING SYSTEM
AE–PH
SS 304
For flushing
OC LS
ALKALI UNLOADING PUMPS
FROM THE NEAREST SERVICE WATER LINE
LIME TANK FOR NEUTRALISATION
N.PIT I
N.PIT II
RECIRCULATION & AGITATAION
CPU REGENERATION WASTE FROM REGN. AREA
EFFLUENT NEUTRALISING SYSTEM

POLYPROPYLENE LINED MS
BULK ACID STORAGE TANK NO :1
BULK ACID STORAGE TANK NO :2
Fume Absorber (TYP)
Water
ACID MEASURING TANK No :1
ACID MEASURING TANK No :2
ACID DOSING PUMPS
Flushing Line (Typical)
ACID UNLOADING PUMPS

NOTES :

1) THE REGENERATION VESSELS ARRANGEMENT SHOWN HERE IS INDICATIVE ONLY. BIDDER SHOULD FURNISH THEIR SCHEME OF VESSEL ARRANGEMENT IN DETAIL ALONGWITH THE COMPLETE INSTRUMENTATION.
2) FOR OTHER NOTES & LEGENDS REFER SHEET 1 OF THIS DRAWING.
3) COLLECTON & DISPOSAL ARRNAGMENT OF DM WASTE WATER USED FOR RESIN TRANSFER FROM REGENERATION SYSTEM TO CPU SERVICE VESSELS AND CPU SERVICE VESSELS TO REGENERATION SYSTEM IS NOT SHOWN IN THIS DRAWING. THE SAME SHALL BE PROVIDED AS PER TECHNICAL SPECIFICATION. ADDITIONAL PNEUMATIC OPERATED VALVES AS REQUIRED SHALL BE PROVIDED IN SERVICE VESSEL & RENGENERATION AREA BY CONTRACTOR.
4) FLUSHING CONNECTIONS WITH VALVES SHALL BE PROVIDED FOR ALL ACID/ALKALAI PUMPS/ PIPELINES AS PER REQUIREMENT
5) PUMP RECIRULATION LINE WITH VALVES AT TANK END SHALL BE PROVIDED FOR EACH SET OF PUMPING SYSTEM BY BIDDER.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
0	RELEASED FOR TENDER									13.11.17

CLEARED BY

OWNER: THE SINGARENI COLLIRIES COMPANY LTD.

CONSULTANT: NTPC LTD.
(A GOVERNMENT OF INDIA ENTERPRISE)
(CONSULTANCY WING)

PROJECT: SINGARENI THERMAL POWER STATION
(1 X 660MW)

TITLE: P&I DIAGRAM FOR CONDENSATE POLISHING PLANT

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	CW-CM-11241-999-POM-A-013 (SH. 2 OF 2)	A