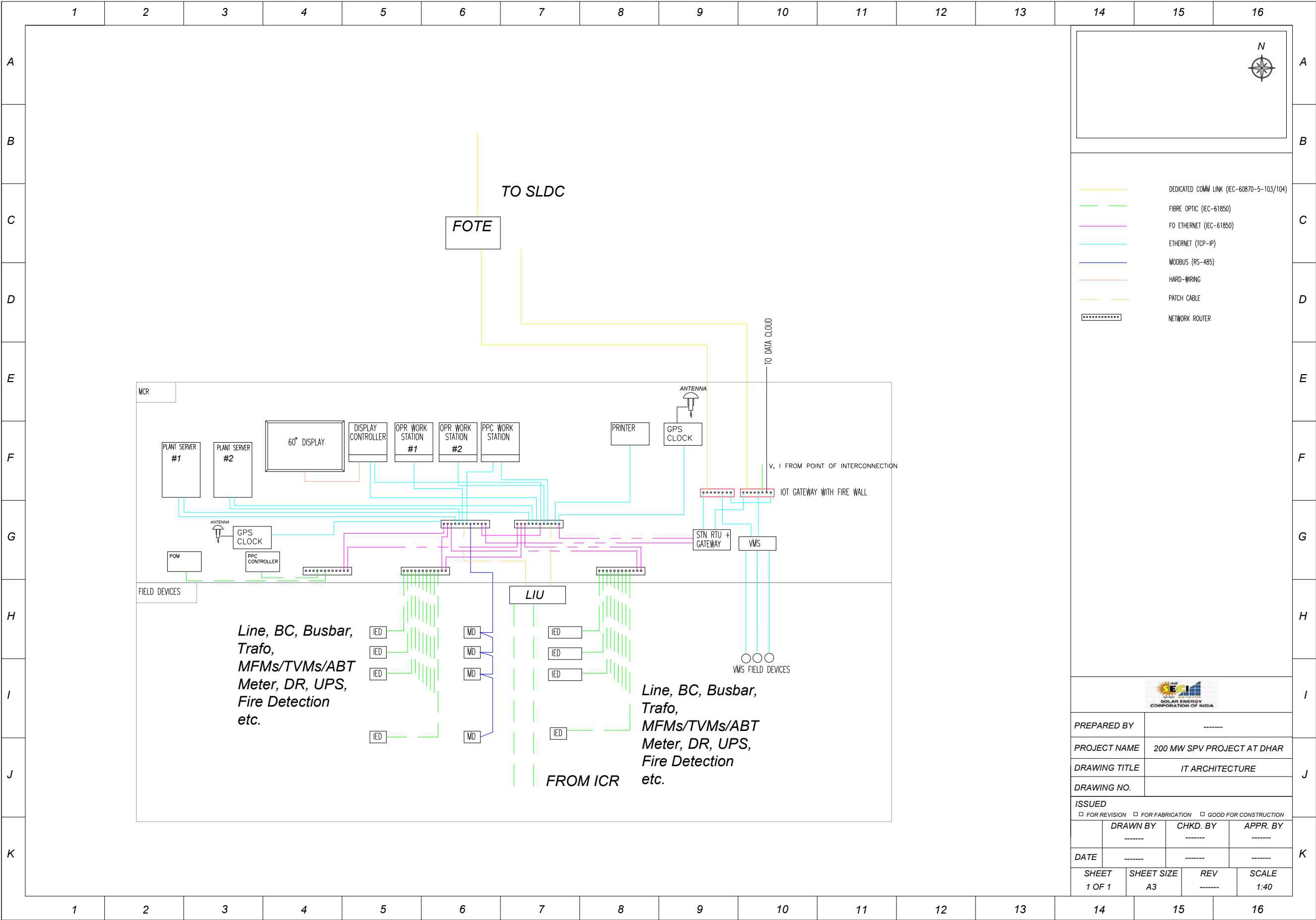


SUB-SECTION D

GENERAL ANNEXURE G

SCADA SCHEMATICS & I/O LIST **(Indicative)**



INDICATIVE SCADA IO LIST

S No	Description		Signal Type	Signal Level	Unit	Alarm	SOE	Trend	Report
	220 kV Line Bay								
1	SF6 CB	Open/Close	DI	PF			Y		
2	SF6 CB	Auto Trip Operated/ Not Operated	DI	PF			Y		
3	SF6 CB Gas Pressure Low	SF6 Gas Pressure Low	DI	PF		Y			
4	CB L/R SWITCH	CB Local/Remote Mode	DI	PF			Y		
5	CB TRIP CIRCUIT SUPERVISION RELAY	Operated/Not Operated	DI	PF			Y		
6	CB TRIP CIRCUIT	Healthy/ Not Healthy	DI	PF			Y		
7	CB SPRING CHARGE	Charged/ Uncharged	DI	PF			Y		
8	CB D.C SUPPLY	Fail/ Not Fail	DI	PF		Y			
9	MASTER TRIP RELAY (86 RLY)	Operated/Not Operated	DI	PF		Y	Y		
10	MASTER TRIP RELAY RESET	Operated/Not Operated	DI	PF		Y			
11	Main -1 TRIP	Operated/Not Operated	DI	PF		Y			
12	Main -2 TRIP	Operated/Not Operated	DI	PF		Y			
13	OVER CURRENT/ EARTH FAULT (51N/ 50 RLY)	Trip/ Not Trip	DI	PF		Y			
14	OVER VOLTAGE/UNDER VOLTAGE (59/27 RLY)	Operated/Not Operated	DI	PF		Y			
15	DISTANCE RLY (21 RLY)	Operated/Not Operated	DI	PF		Y			
16	SYNCHRONISING RLY (25 RLY)	Fail/ Not Fail	DI	PF		Y			
17	BREAKER FAILURE RLY (50BF RLY)	Fail/ Not Fail	DI	PF		Y			
18	AC RECLOSING RELAY/AUTO RECLOSE RELAY (79 RLY)	Operated/Not Operated	DI	PF					
19	ISOLATOR	Open/Close	DI	PF			Y		
20	EARTH SWITCH	Open/Close	DI	PF			Y		
	220 kV - Transformer Bay	Signal							
1	Tr. BUCHHOLZ RLY	Alarm - Bucchoz Relay Operation	DI	PF		Y			
2	Tr. PR REL VLV	Alarm - Pressure Release Valve	DI	PF		Y			
3	Tr. LO OIL LVL	Alarm - Low Transformer Oil	DI	PF		Y			
4	Tr. WNDG TEMP	Alarm - Transformer Winding Temperature High	DI	PF		Y			
5	Tr. WNDG TEMP	Alarm - Transformer Winding Temperature Breach/Trip	DI	PF					
6	Tr. OIL TEMP	Alarm - Transformer Oil Temperature High	DI	PF		Y			
7	Tr. OIL TEMP	Alarm - Transformer Oil Temperature Breach/Trip	DI	PF					
8	Tr. WNDG TEMP	Transformer Winding Temperature	AI	4-20MA	DegC				
9	Tr. OIL TEMP	Transformer Oil Temperature	AI	4-20MA	DegC				
10	Tr. TAP POSITION	Transformer Tap Position	AI	4-20MA					
11	TAP	Increase Tap Position	DO	110V DC			Y		
12	TAP	Decrease Tap Position	DO	110V DC			Y		
13	DIFFERENTIAL RELAY(87T)	Operated/Not Operated	DI	PF					
14	GROUND PROTECTIVE RELAY (64 HV)	Operated/Not Operated	DI	PF					
15	GROUND PROTECTIVE RELAY (64 LV)	Operated/Not Operated	DI	PF					
16	R PH VOLTAGE	R Phase Voltage	SOFT AI		KV			Y	
17	Y PH VOLTAGE	Y Phase Voltage	SOFT AI		KV			Y	
18	B PH VOLTAGE	B Phase Voltage	SOFT AI		KV			Y	
19	R PH CURRENT	R Phase Current	SOFT AI		A			Y	
20	Y PH CURRENT	Y Phase Current	SOFT AI		A			Y	
21	B PH CURRENT	B Phase Current	SOFT AI		A			Y	

S No	Description		Signal Type	Signal Level	Unit	Alarm	SOE	Trend	Report
	220 kV - Bus Bar and Bus Coupler Bay								
1	ACTIVE POWER	Active Power Generated	SOFT AI		KW			Y	
2	REACTIVE POWER	Reactive Power Generated	SOFT AI		KVAR			Y	
3	ENERGY	Energy Injected	SOFT AI		KWH			Y	
4	SF6 CB CMD	Close Command	DO	110V DC			Y		
5	SF6 CB ICMD	Open Command	DO	110V DC			Y		
6	ISOLATOR	Open/Close	DI	PF			Y		
7	EARTH SWITCH	Open/Close	DI	PF			Y		
	Energy Meters								
1	Energy Exported in 15 min to GRID	Plant End ABT Meter	SOFT AI	RS485	MWh				Y
	33 kV CB PANEL INCOMER FEEDER (FROM INVERTER TRANSFORMER)								
1	CB OPEN/CLOSE	VCB Open/ Close	DI	PF			Y		
3	CB IN REMOTE	VCB in Remote Mode	DI	PF			Y		
4	CB IN SERVICE	VCB in Service Mode	DI	PF			Y		
5	CB 86 OPERATED	VCB Master Trip Operated	DI	PF			Y		
6	CB TRIP CKT UNHEALTHY	CB Trip Circuit Unhealthy	DI	PF			Y		
7	CB SPRING CHARGED	VCB Spring Charged	DI	PF			Y		
8	CB PROTECTION TRIP	Protection Trip Operated	DI	PF			Y		
9	CB CONTROL SUPPLY HEALTHY	Control Supply Healthy	DI	PF			Y		
10	CB IN LOCAL	CB in Lcal Mode	DI	PF			Y		
11	CB IN TEST	CB in Test Mode	DI	PF			Y		
12	Tr. WNDG TEMP TRIP	Transformer Winding Temperature Tripped	DI	PF			Y		
13	Tr. WNDG TEMP ALARM	Transformer Winding Temperature Alarm	DI	PF		Y			
14	Tr. OIL TEMP TRIP	Transformer Oil Temperature Tripped	DI	PF			Y		
15	Tr. OIL TEMP ALARM	Transformer Oil Temperature Alarm	DI	PF		Y			
16	Tr. PRV TRIP	Pressure Release Valve Tripped	DI	PF			Y		
17	Tr. PRV ALARM	Pressure Release Valve Alarm	DI	PF		Y			
18	Tr. BUCHHOLZ TRIP	Buccholz Relay Tripped	DI	PF			Y		
19	Tr. BUCHHOLZ ALARM	Buccholz Relay Alarm	DI	PF		Y			
20	Tr. MOG TRIP	Magnetic Oil Gauge Trip	DI	PF			Y		
21	Tr. MOG ALARM	Magnetic Oil Gauge Alarm	DI	PF		Y			
22	R PH CURRENT	R Phase Current	SOFT AI	RS485	A			Y	
23	Y PH CURRENT	Y Phase Current	SOFT AI	RS485	A			Y	
24	B PH CURRENT	B Phase Current	SOFT AI	RS485	A			Y	
25	ACTIVE POWER	Active Power	SOFT AI	RS485	KW			Y	
26	REACTIVE POWER	Reactive Power	SOFT AI	RS485	KVAR			Y	
27	ENERGY	Energy Export	SOFT AI	RS485	MWH			Y	
28	CB CMD	CB Clode Command	DO	110V DC			Y		
29	CB CMD	CB Open Command	DO	110V DC			Y		

S No	Description		Signal Type	Signal Level	Unit	Alarm	SOE	Trend	Report
	33 kV OUTDOOR SWITCHYARD								
1	CB OPEN/CLOSE	CB Open/ Close	DI	PF			Y		
2	CB IN REMOTE	CB in Remote Mode	DI	PF			Y		
3	CB IN SERVICE	CB in Service Mode	DI	PF			Y		
4	CB TRIP CKT UNHEALTHY	CB Trip Circuit Unhealthy	DI	PF			Y		
5	CB SPRING CHARGED	CB Spring Charged	DI	PF			Y		
6	CB PROTECTION TRIP	Protection Trip Operated	DI	PF			Y		
7	CB CONTROL SUPPLY HEALTHY	Control Supply Healthy	DI	PF			Y		
8	CB IN LOCAL	CB in Lcal Mode	DI	PF			Y		
9	CB IN TEST	CB in Test Mode	DI	PF			Y		
10	ISOLATOR	Open/Close	DI	PF			Y		
11	EARTH SWITCH	Open/Close	DI	PF			Y		
12	OVER CURRENT/ EARTH FAULT (51N/ 50 RLY)	Trip/ Not Trip	DI	PF		Y			
13	AC DIRECTIONAL OVERCURRENT RELAY(67 RLY)	Trip/ Not Trip	DI	PF		Y			
14	BREAKER FAILURE RLY (50BF/50LBB RLY)	Fail/ Not Fail	DI	PF		Y			
15	DIFFERENTIAL RELAY(87T)	Operated/Not Operated	DI	PF					
	33 kV CB PANEL OUTGOING FEEDERS								
1	CB CLOSE/OPEN	CB Open or Close	DI	PF			Y		
3	CB IN REMOTE	CB in Remote Mode	DI	PF			Y		
4	CB IN SERVICE	CB in Service Mode	DI	PF			Y		
5	CB 86 OPERATED	CB Master Trip Relay Operated	DI	PF			Y		
6	CB TRIP CKT UNHEALTHY	CB Circuit Healthy/Unhealthy	DI	PF			Y		
7	CB SPRING CHARGED	CB Spring Charged Status	DI	PF			Y		
8	CB PROTECTION TRIP	Protection Trip Operated	DI	PF			Y		
9	CB CONTROL SUPPLY HEALTHY	Control Supply Healthy	DI	PF			Y		
10	CB IN LOCAL	CB in Lcal Mode	DI	PF			Y		
11	CB IN TEST	CB in Test Mode	DI	PF			Y		
12	CB UV PROTECTION OPTD	CB Undervoltage Protection Operated	DI	PF			Y		
13	R PH CURRENT	R Phase Current	SOFT AI	RS485	A			Y	
14	Y PH CURRENT	Y Phase Current	SOFT AI	RS485	A			Y	
15	B PH CURRENT	B Phase Current	SOFT AI	RS485	A			Y	
16	ACTIVE POWER	Active Power	SOFT AI	RS485	KW			Y	
17	REACTIVE POWER	Reactive Power	SOFT AI	RS485	KVAR			Y	
18	ENERGY	Energy	SOFT AI	RS485	MWH			Y	
19	CB CMD	Breaker Close Command	DO	110V DC			Y		
20	CB CMD	Breaker Open Command	DO	110V DC			Y		
	INVERTER TRANSFORMER & AUXILIARY TRANSFORMER								
1	TR WNDG TEMP (HV side)	HV Winding Temperature	AI	4-20MA	DegC				
2	TR WNDG1 TEMP (LV side)	LV Winding Temperature	AI	4-20MA	DegC				
4	TR OIL TEMP	Transformer Oil Temperature	AI	4-20MA	DegC				
	415V PANEL FOR ACDB								
1	ACDB CB	Operated/Not Operated/Ready Status	DI	PF			Y		
2	ACDB Bus Voltage								
3	ACDB R PH VOLTAGE (P-P)		SOFT AI	RS485	V			Y	Y
4	ACDB Y PH VOLTAGE (P-P)		SOFT AI	RS485	V			Y	Y
5	ACDB B PH VOLTAGE (P-P)		SOFT AI	RS485	V			Y	Y
6	ACDB R PH CURRENT (Incomer)		SOFT AI	RS485	A			Y	Y
7	ACDB Y PH CURRENT (Incomer)		SOFT AI	RS485	A			Y	Y
8	ACDB B PH CURRENT (Incomer)		SOFT AI	RS485	A			Y	Y
9	ACDB ACDB ENERGY (Incomer)		SOFT AI	RS485	MWH			Y	
10	ACDB ACDB POWER (Incomer)		SOFT AI	RS485	MW			Y	
	LT Panel at different locations								
1	CB Status		DI	PF			Y		

[illegible]