
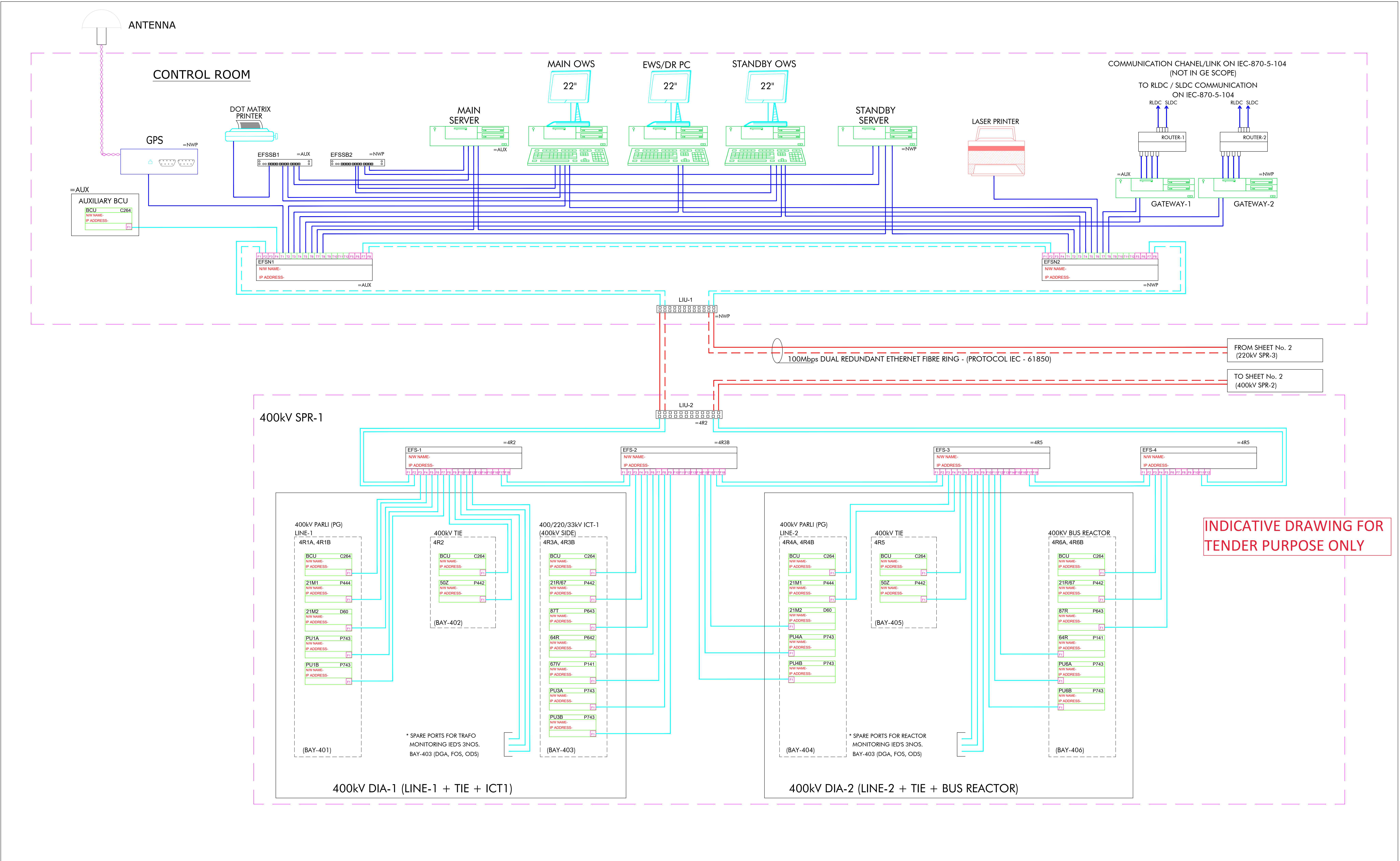


INDICATIVE DRAWING FOR
TENDER PURPOSE ONLY

		Name			Name			Name			
		Date			Date			Date			
B	SECOND ISSUE	Name	MP		Name	ACS		Name	SSS		
		Date	24.08.2022		Date	24.08.2022		Date	24.08.2022		
A	FIRST ISSUE	Name	DY		Name	ACS		Name	SSS		
		Date	22.06.2022		Date	22.06.2022		Date	22.06.2022		
REV.	DESCRIPTION	DRAWN		SIGN.	CHECKED	SIGN.	APPROVED	SIGN.	STATUS		
CLIENT : KALLAM TRANSMISSION LIMITED											
CONTRACTOR : KEC INTERNATIONAL LIMITED											
PROJECT : 2X500MVA 400/220kV AIS SS AT KALLAM											
PO.NO : LOA/KPTCL/OSMANABAD/22-23/CRP/006 DATE: 23.03.2022											
<div><div><div>GE T&D India Ltd.</div><div>Grid Automation-Pallavaram India</div></div></div>				TITLE : SYSTEM ARCHITECTURE FOR 2X500MVA 400/220kV AIS SS AT KALLAM							
				DRAWING NO.				TOTAL SH 05	SH.NO.	REV.	
				KZ7F-SA1				SCALE 1:1	00	B	



INDICATIVE DRAWING FOR
TENDER PURPOSE ONLY

LEGEND :-


	COAXIAL CABLE
	ETHERNET COPPER PATCH CORD
	6-CORE FIBEROPTIC CABLE MAIN RING
	6-CORE FIBEROPTIC CABLE REDUNDANT RING
	ETHERNET FIBER PATCH CORD
	SERIAL LINK CABLE
	MOUNTING LOCATION WITH PANEL REFERENCE

Sl.No.	ETHERNET SWITCH	USED PORTS	SPARE PORTS	TOTAL PORTS
1	EFSN1	5-FX, 8-TX	3-FX, 4-TX	8FX + 12TX
2	EFSN2	4-FX, 8-TX	4-FX, 4-TX	8FX + 12TX
3	EFSSB1	5-TX	2-FX, 1-TX	2FX + 6TX
4	EFSSB2	4-TX	2-FX, 2-TX	2FX + 6TX
5	EFS-1	14-FX	4-FX	18FX
6	EFS-2	14-FX	4-FX	18FX
7	EFS-3	14-FX	4-FX	18FX
8	EFS-4	7-FX	5-FX	12FX
9				
10				

NOTE:

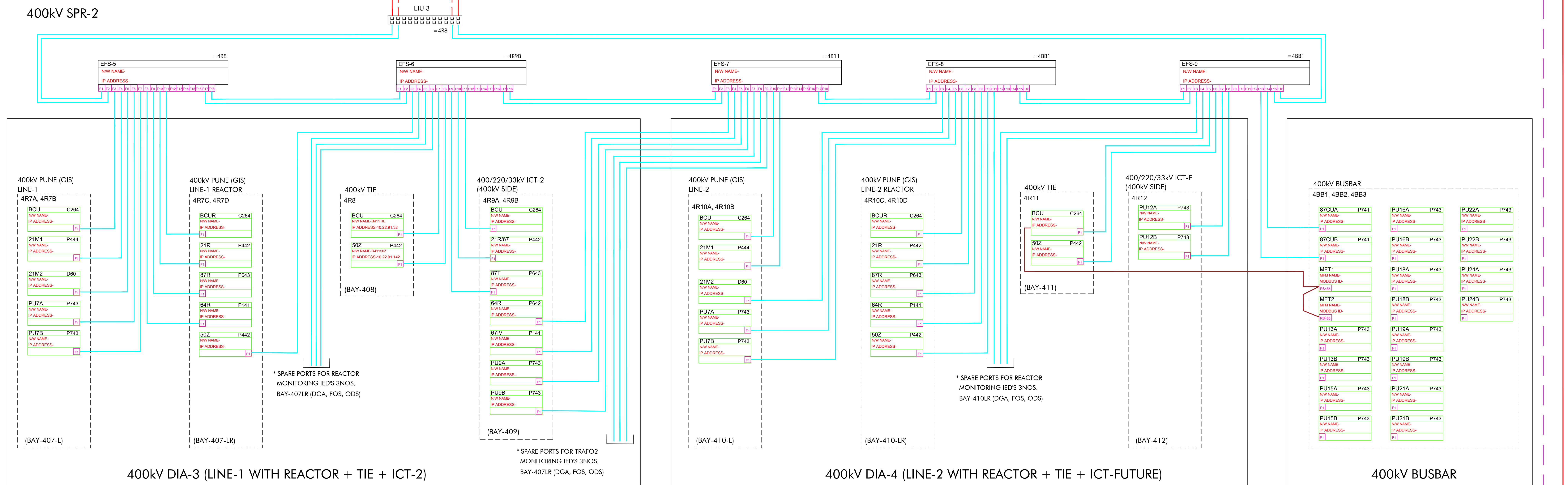
- IN 400/220kV, BUSBAR PROTECTION CENTRAL UNIT (P741) WILL COMMUNICATE TO ITS PERIPHERAL UNITS (P743) DIRECTLY ON OPTICAL FIBER IN STAR TOPOLOGY (REFER BUSBAR ARCHITECTURE) & IS BASED ON A PROPRIETARY PROTOCOL.
- BUSBAR PROTECTION CENTRAL UNIT (P741) AND PERIPHERAL UNITS (P743) ARE CONNECTED TO SAS ON IEC 61850 PROTOCOL.
- ADDITIONAL PUs MOUNTED IN BUSBAR PANEL FOR FUTURE USE AND ARE NOT CONNECTED TO SAS/CENTRAL UNIT.
- * INTEGRATION OF TRAF0 & REACTOR MONITORING IED'S 3NOS (DGA, FOS, ODS) TO SAS ON IEC 61850 PROTOCOL IS IN GE SCOPE. SPARE PORTS ARE BEING PROVIDED FOR INTEGRATION OF TRAF0/REACTOR MONITORING IED'S. CONNECTIVITY & SUPPLY OF TRAF0/REACTOR MONITORING IED'S, EFS, LIU, FO PATCH CORDS, IS IN TRAF0/REACTOR SUPPLIER SCOPE.
- IP ADDRESS & N/W NAME OF BCU/RELAYS SHALL BE PROVIDED DURING FAT.

B	SECOND ISSUE	24.08.2022
A	FIRST ISSUE	22.06.2022
REV	DESCRIPTION	DATE
ENGG.REF.NO.	KZ7FSA1	PNL TYPE : -
SCH.REF.	-	SCH.REF. : -
SALES ORDER NO.	3269060189	FILE : KZ7FSA1

CUSTOMER :	KALLAM TRANSMISSION LIMITED		
CONTRACTOR :	KEC INTERNATIONAL LIMITED		
PROJECT :	Design, Engineering, Procurement, Construction, Testing and Commissioning of 2X 500MVA 400/220kV AIS SS AT Kallam and 400kV Multi circuit & 400kV Double Circuit Transmission Lines associated with Kallam Transmission Limited.		
PO NO. :	LOA/KPTCL/OSMANABAD/22-23/CRP/006		
DATED :	23.03.2022		
SYSTEM ARCHITECTURE DRAWING			
TITLE :	OVERALL SYSTEM ARCHITECTURE		
<div><div></div><div><div>GE T&D India Ltd.</div><div>Grid Automation-Pallavaram India</div></div></div>			
PREPARED BY : MP	SCALE : -	DRG. REF.: KZ7FSA1	
CHECKED BY : ACS	(F) SHT 1 OF 5	DATE: 24.08.2022	REV: B
APPROVED BY : SSS			

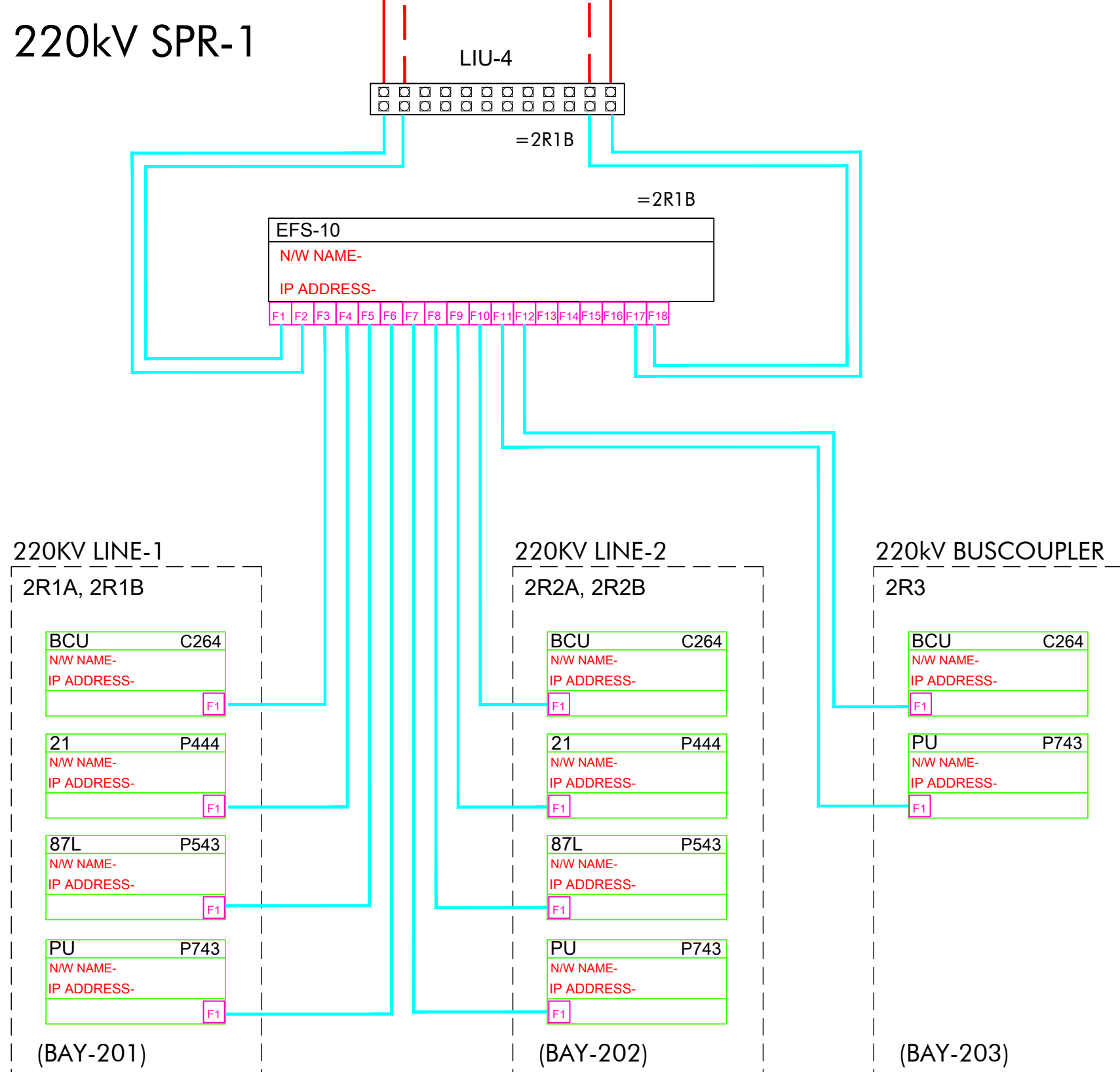
FROM SHEET No. 1
(400kV SPR-1)

400kV SPR-2

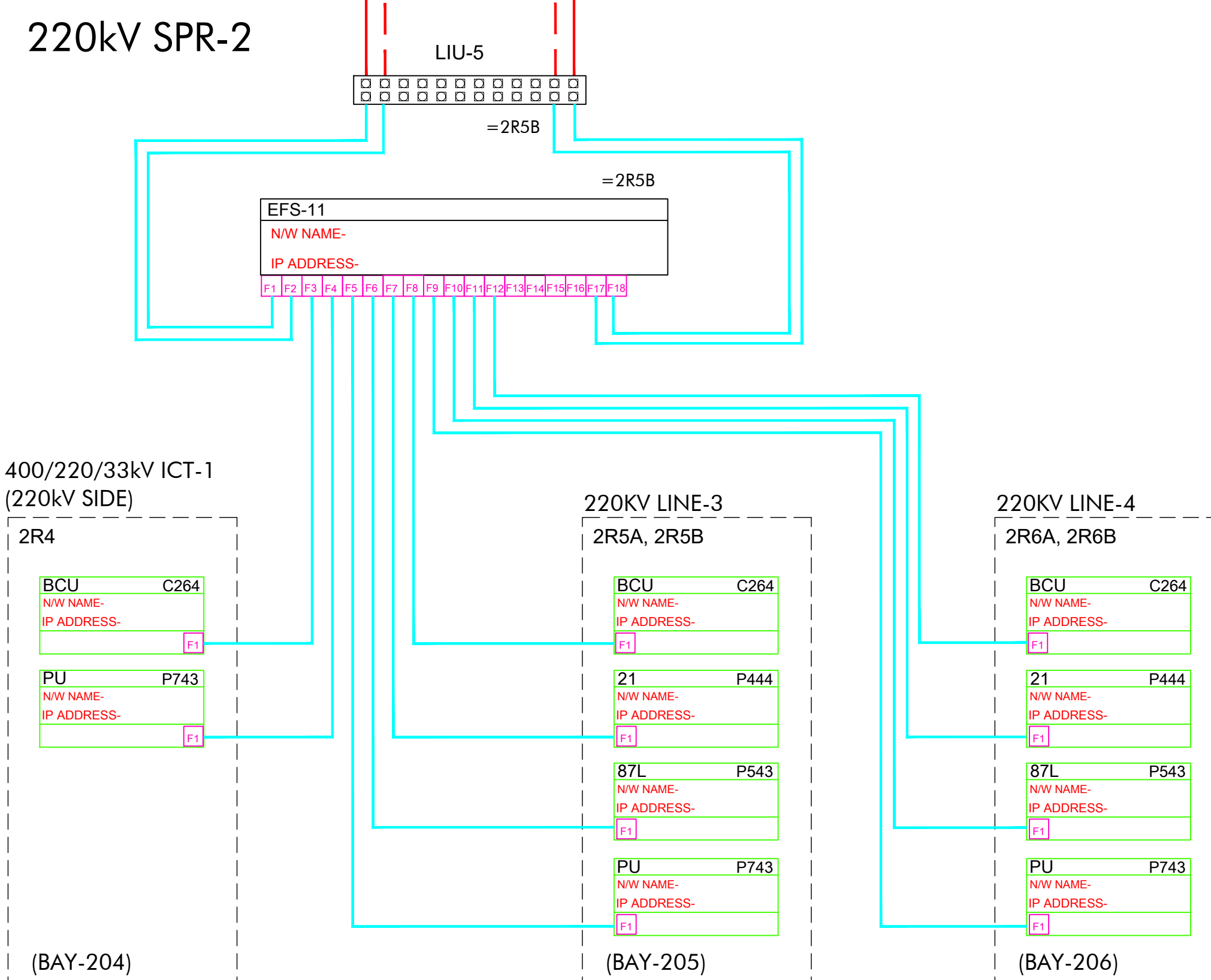


TO SHEET No. 1
(CONTROL ROOM)

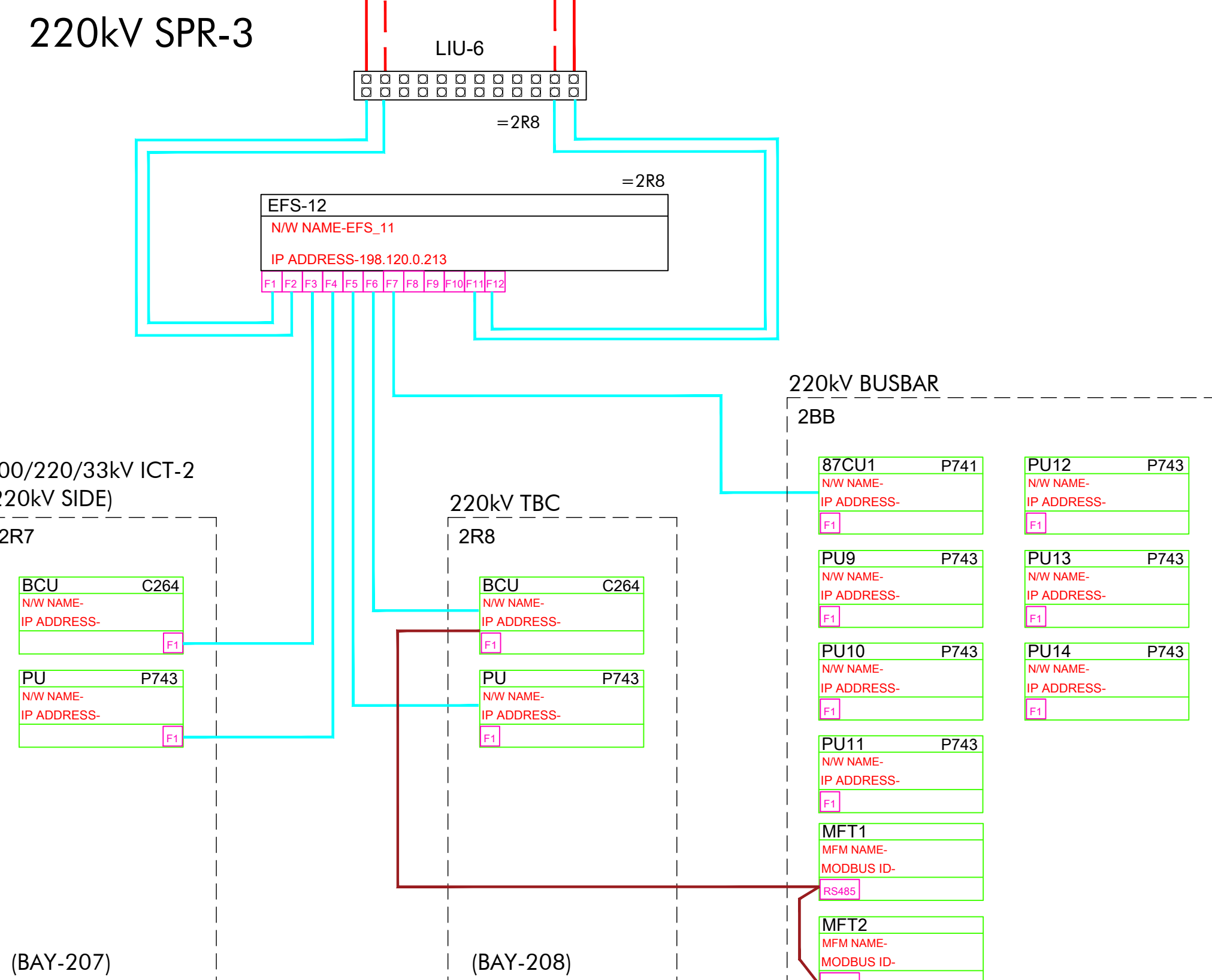
220kV SPR-1



220kV SPR-2



220kV SPR-3



INDICATIVE DRAWING FOR
TENDER PURPOSE ONLY

LEGEND :-

	COAXIAL CABLE
	ETHERNET COPPER PATCH CORD
	6-CORE FIBEROPTIC CABLE MAIN RING
	6-CORE FIBEROPTIC CABLE REDUNDANT RING
	ETHERNET FIBER PATCH CORD
	SERIAL LINK CABLE
	RS485 LINK CABLE
	MOUNTING LOCATION WITH PANEL REFERENCE


Sl. No.	ETHERNET SWITCH	USED PORTS	SPARE PORTS	TOTAL PORTS
1	EFS-5	13-FX	5-FX	18FX
2	EFS-6	13-FX	5-FX	18FX
3	EFS-7	13-FX	5-FX	18FX
4	EFS-8	13-FX	3-FX	16FX
5	EFS-9	12-FX	4-FX	16FX
6	EFS-10	14-FX	4-FX	18FX
7	EFS-11	14-FX	4-FX	18FX
8	EFS-12	9-FX	3-FX	12FX
9				
10				

NOTE:

- IN 400/220kV, BUSBAR PROTECTION CENTRAL UNIT (P741) WILL COMMUNICATE TO ITS PERIPHERAL UNITS (P743) DIRECTLY ON OPTICAL FIBER IN STAR TOPOLOGY (REFER BUSBAR ARCHITECTURE) & IS BASED ON A PROPRIETARY PROTOCOL.
- BUSBAR PROTECTION CENTRAL UNIT (P741) AND PERIPHERAL UNITS (P743) ARE CONNECTED TO SAS ON IEC 61850 PROTOCOL.
- ADDITIONAL PUs MOUNTED IN BUSBAR PANEL FOR FUTURE USE AND ARE NOT CONNECTED TO SAS/CENTRAL UNIT.
- * INTEGRATION OF TRAF0 & REACTOR MONITORING IED'S 3NOS (DGA, FOS, ODS) TO SAS ON IEC 61850 PROTOCOL IS IN GE SCOPE. SPARE PORTS ARE BEING PROVIDED FOR INTEGRATION OF TRAF0/REACTOR MONITORING IEDS. CONNECTIVITY & SUPPLY OF TRAF0/REACTOR MONITORING IEDS, EFS, LIU, FO PATCH CORDS, IS IN TRAF0/REACTOR SUPPLIER SCOPE.
- IP ADDRESS & N/W NAME OF BCU/RELAYS SHALL BE PROVIDED DURING FAT.

CUSTOMER :	KALLAM TRANSMISSION LIMITED
CONTRACTOR :	KEC INTERNATIONAL LIMITED
PROJECT :	Design, Engineering, Procurement, Construction, Testing and Commissioning of 2X 500MVA 400/220kV AIS SS AT Kallam and 400kV Multi circuit & 400kV Double Circuit Transmission Lines associated with Kallam Transmission Limited.
PO NO :	LOA/KPTCL/OSMANABAD/22-23/CRP/006
DATE :	23.03.2022
SYSTEM ARCHITECTURE DRAWING TITLE :	OVERALL SYSTEM ARCHITECTURE

B	SECOND ISSUE	24.08.2022
A	FIRST ISSUE	22.06.2022
REV	DESCRIPTION	DATE
ENGG.REF.NO. :	KZ7FSA1	PNL. TYPE : -
SALES ORDER NO. :	3269060189	SCH. REF. : -
FILE :	KZ7FSA1	CHECKED BY : ACS
		APPROVED BY: SSS

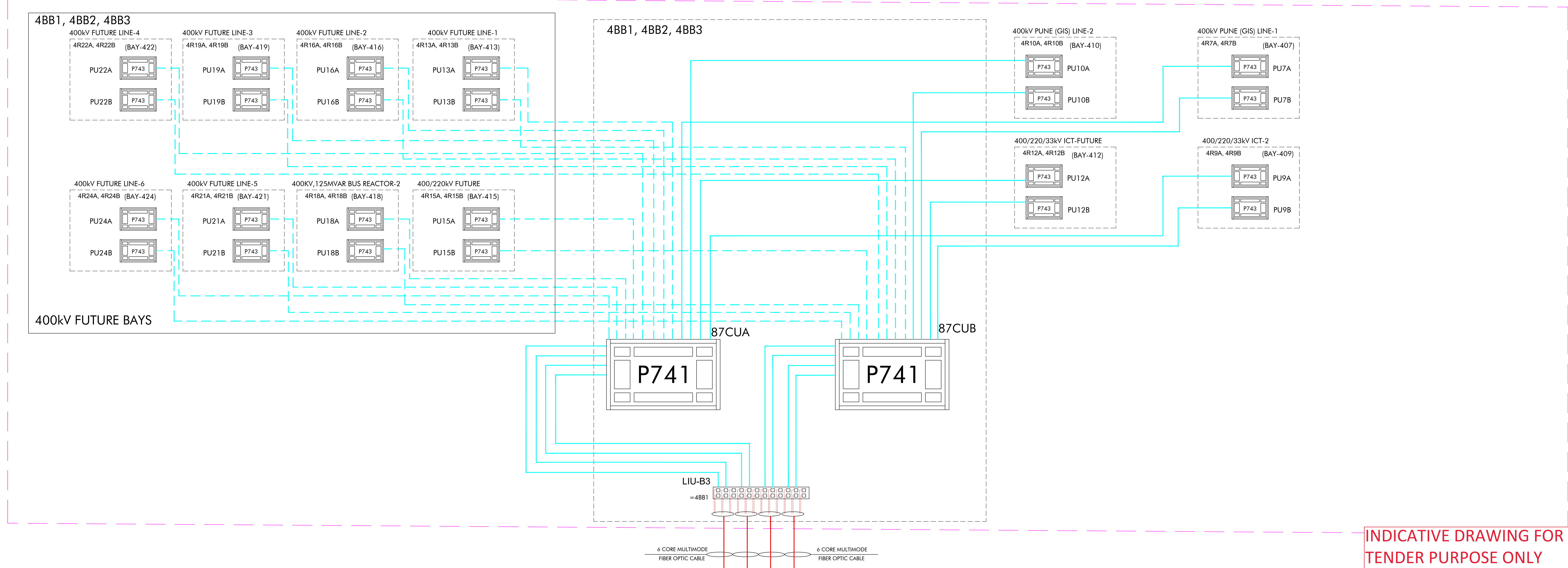
		GE T&D India Ltd. Grid Automation-Pallavaram India	
PREPARED BY : MP	SCALE : -	DRG. REF.: KZ7FSA1	
CHECKED BY : ACS	(F) SHT 2 OF 5	DATE: 24.08.2022	REV: B
APPROVED BY: SSS			

400kV BUSBAR

400kV SPR-2

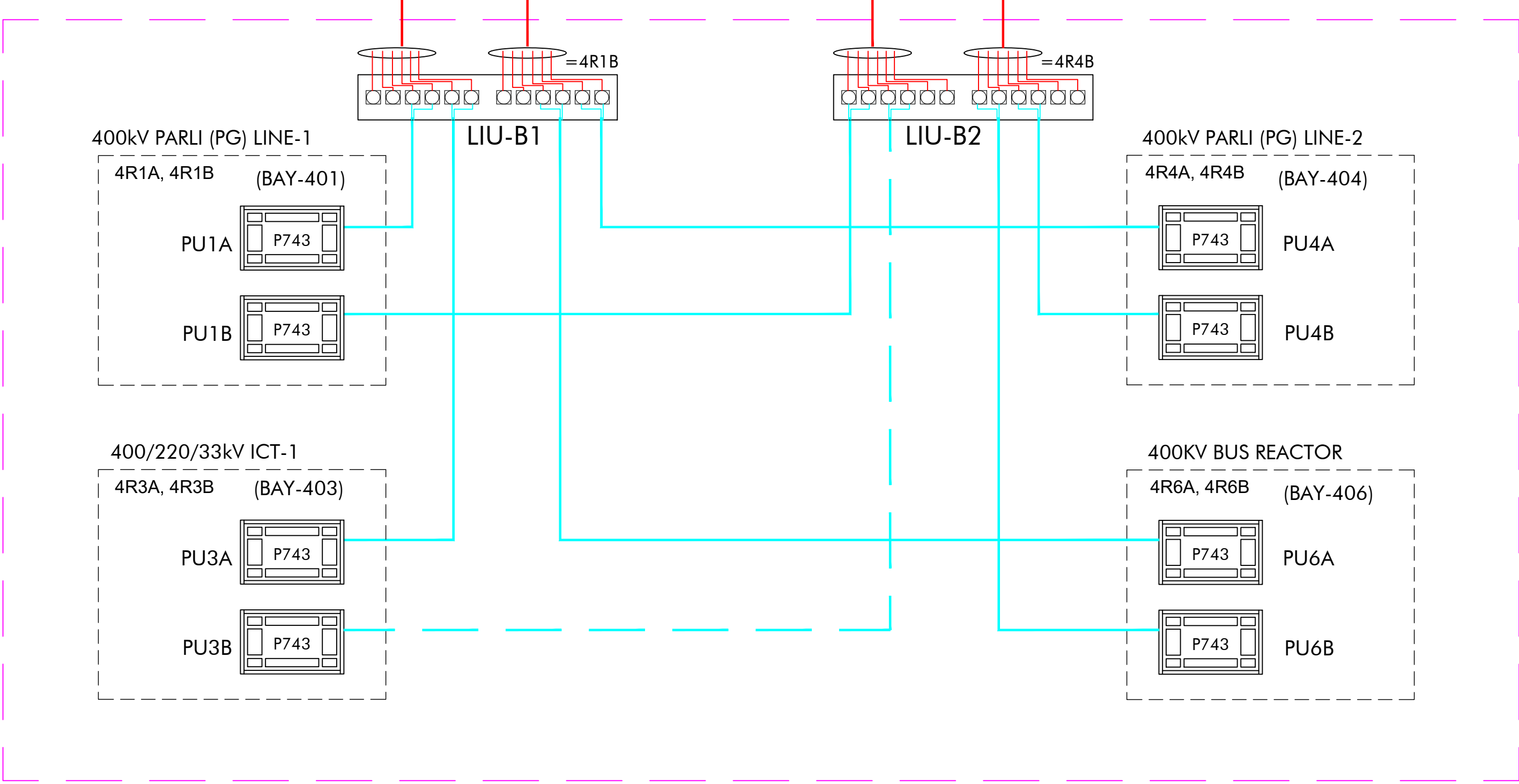
4BB1, 4BB2, 4BB3

4BB1, 4BB2, 4BB3



INDICATIVE DRAWING FOR
TENDER PURPOSE ONLY

400kV SPR-1



LEGEND :-

- COAXIAL CABLE
- ETHERNET COPPER PATCH CORD
- 6-CORE FIBEROPTIC CABLE MAIN RING
- 6-CORE FIBEROPTIC CABLE REDUNDANT RING
- ETHERNET FIBER PATCH CORD
- SERIAL LINK CABLE
- MOUNTING LOCATION WITH PANEL REFERENCE

Sl. No.	EQUIPMENT	DESCRIPTION
1	LIU-B1	LIU WITH 12 ST PORTS
2	LIU-B2	LIU WITH 12 ST PORTS
3	LIU-B3	LIU WITH 24 ST PORTS
4		
5		
6		
7		
8		
9		
10		

NOTE:

- COMMUNICATION BETWEEN CU & PU SHALL BE ESTABLISHED USING A ST-ST MULTIMODE FIBER OPTIC LINK.
- IN 400/220kV, BUSBAR PROTECTION CENTRAL UNIT (P741) WILL COMMUNICATE TO ITS PERIPHERAL UNITS (P743) DIRECTLY ON OPTICAL FIBER IN STAR TOPOLOGY (REFER BUSBAR ARCHITECTURE) & IS BASED ON A PROPRIETARY PROTOCOL.

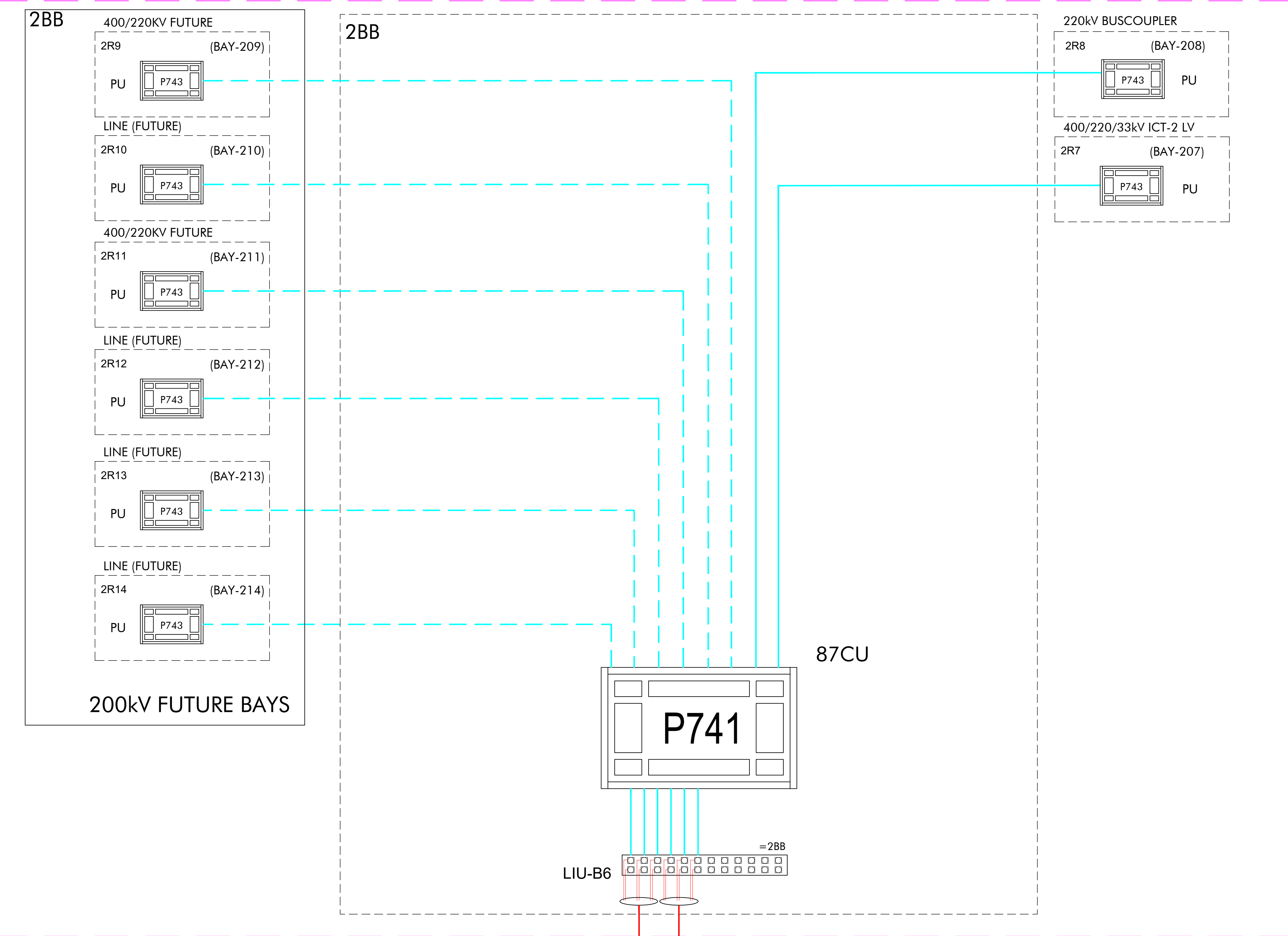
B	SECOND ISSUE	24.08.2022
A	FIRST ISSUE	22.06.2022
REV	DESCRIPTION	DATE
PNL. TYPE : -		
ENGG. REF. NO. : KZ7FSA1	SCH. REF. : -	PREPARED BY : MP
SALES ORDER NO. : 3269060189	FILE : KZ7FSA1	CHECKED BY : ACS
APPROVED BY : SSS		
SCALE : -		
DRG. REF.: KZ7FSA1		
(F) SHT 3 OF 5		
DATE: 24.08.2022		
REV: B		

CUSTOMER :	KALLAM TRANSMISSION LIMITED
CONTRACTOR :	KEC INTERNATIONAL LIMITED
PROJECT :	Design, Engineering, Procurement, Construction, Testing and Commissioning of 2X 500MVA 400/220kV AIS SS AT Kallam and 400kV Multi circuit & 400kV Double Circuit Transmission Lines associated with Kallam Transmission Limited.
PO NO. :	LOA/KPTCL/OSMANABAD/22-23/CRP/006
DATED :	23.03.2022
SYSTEM ARCHITECTURE DRAWING	
TITLE :	OVERALL SYSTEM ARCHITECTURE

GE	GE T&D India Ltd.
Grid Automation-Pallavaram India	

220kV SPR-3

220kV BUSBAR



INDICATIVE DRAWING FOR
TENDER PURPOSE ONLY

LEGEND :-

	COAXIAL CABLE
	ETHERNET COPPER PATCH CORD
	6-CORE FIBEROPTIC CABLE MAIN RING
	6-CORE FIBEROPTIC CABLE REDUNDANT RING
	ETHERNET FIBER PATCH CORD
	SERIAL LINK CABLE
	MOUNTING LOCATION WITH PANEL REFERENCE

Sl. No.	EQUIPMENT	DESCRIPTION
1	LIU-B4	LIU WITH 12 ST PORTS
2	LIU-B5	LIU WITH 12 ST PORTS
3	LIU-B6	LIU WITH 24 ST PORTS
4		
5		
6		
7		
8		
9		
10		

NOTE:

- 1) COMMUNICATION BETWEEN CU & PU SHALL BE ESTABLISHED USING A ST-ST MULTIMODE FIBER OPTIC LINK.
- 2) IN 400/220kV, BUSBAR PROTECTION CENTRAL UNIT (P741) WILL COMMUNICATE TO ITS PERIPHERAL UNITs (P743) DIRECTLY ON OPTICAL FIBER IN STAR TOPOLOGY (REFER BUSBAR ARCHITECTURE) & IS BASED ON A PROPERETARY PROTOCOL.

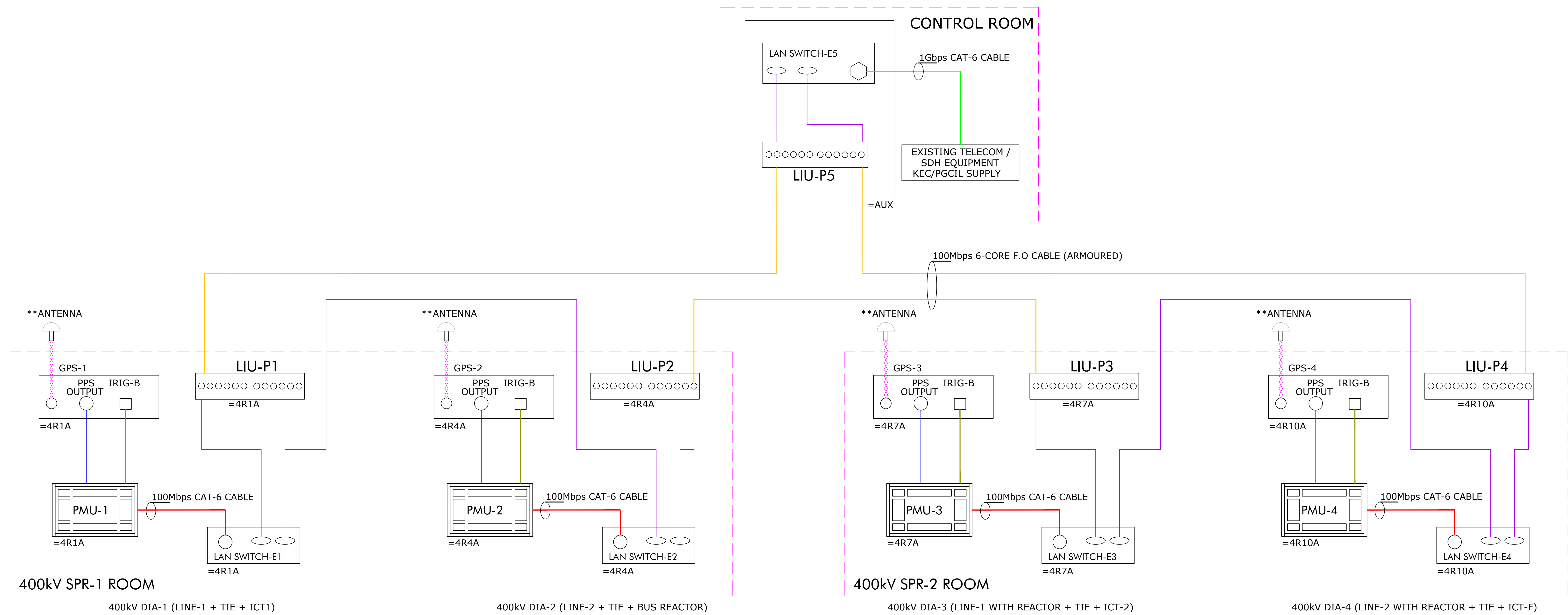
CUSTOMER :	KALLAM TRANSMISSION LIMITED
CONTRACTOR :	KEC INTERNATIONAL LIMITED
PROJECT :	Design, Engineering, Procurement, Construction, Testing and Commissioning of 2X 500MVA 400/220kV AIS SS AT Kallam and 400kV Multi circuit & 400kV Double Circuit Transmission Lines associated with Kallam Transmission Limited.
PO NO :	LOA/KPTCL/OSMANABAD/22-23/CRP/006
DATED :	23.03.2022
SYSTEM ARCHITECTURE DRAWING	
TITLE :	OVERALL SYSTEM ARCHITECTURE

B	SECOND ISSUE	24.08.2022
A	FIRST ISSUE	22.06.2022
REV	DESCRIPTION	DATE

ENGG.REF.NO. :	KZ7FSA1	SCH.REF. :	-	PREPARED BY : MP	SCALE : -	DRG. REF.:	KZ7FSA1
SALES ORDER NO. :	3269060189	FILE :	KZ7FSA1	CHECKED BY : ACS	(F) SHT 4 OF 5	DATE :	24.08.2022
				APPROVED BY : SSS		REV :	B

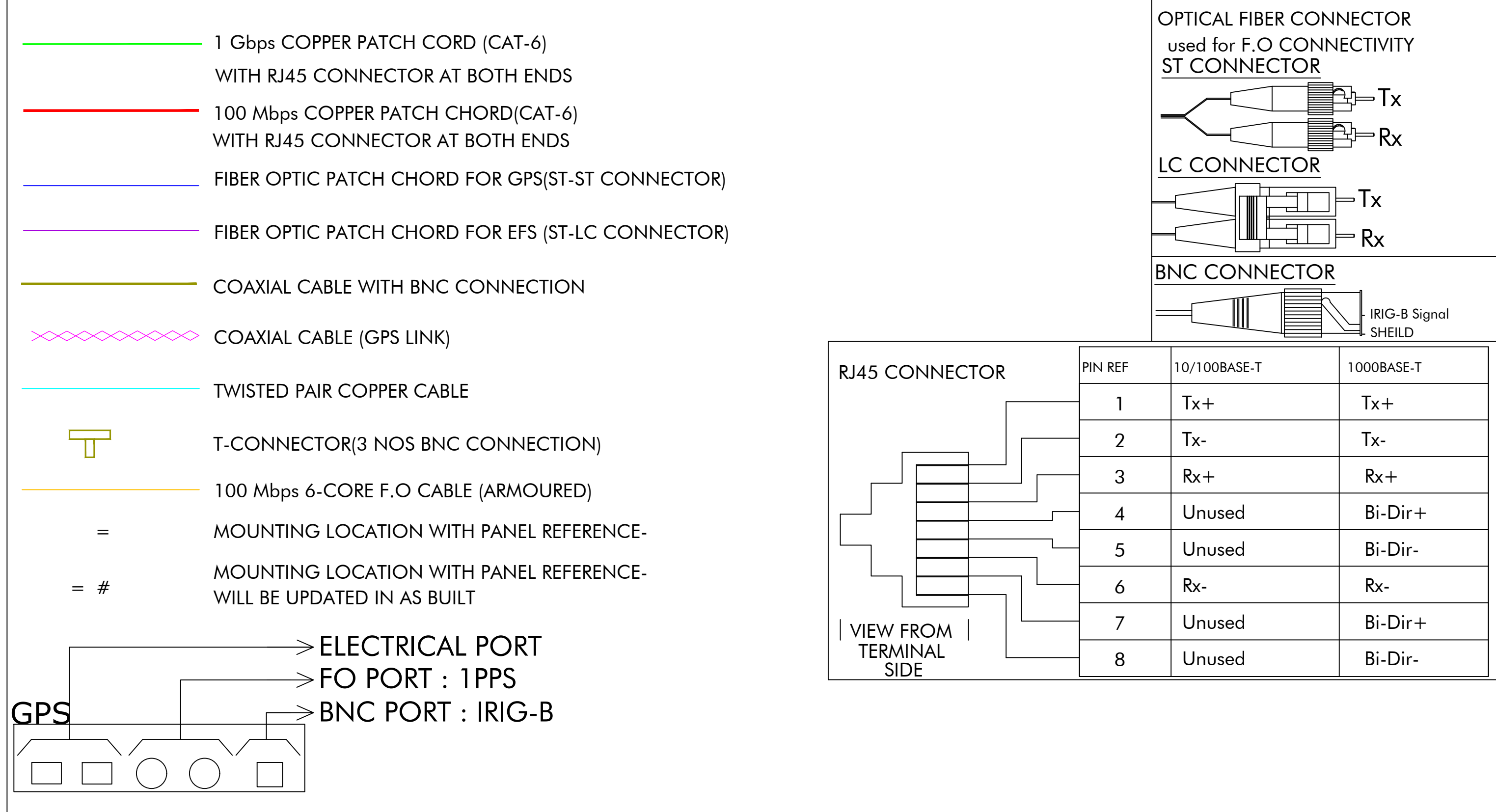


GE T&D India Ltd.
Grid Automation-Pallavaram India



INDICATIVE DRAWING FOR
TENDER PURPOSE ONLY

LEGEND:-



NOTE:

- ** THE POSITIONING OF ANTENNA AT SITE SHALL BE AS PER IEEE C37.242.2013 INCLUDING ANTENNA OPEN TO GPS SATELLITES SHALL HAVE A CLEAR SKY VIEW ABOUT 10deg ELEVATION THE ANTENNA MUST BE MOUNTED WITH A CLEAR VIEW TO THE SOUTH.

B	SECOND ISSUE	24.08.2022
A	FIRST ISSUE	22.06.2022
REV	DESCRIPTION	DATE
PNL TYPE : -		
ENGG.REF.NO. : KZ7FSA1	SCH REF. : -	PREPARED BY : MP
SALES ORDER NO. : 3269060189	FILE : KZ7FSA1	CHECKED BY : ACS
		APPROVED BY : SSS
SCALE : -		
(F) SHT 5 OF 5		
DRG. REF.: KZ7FSA1		
DATE: 24.08.2022		
REV: B		

GE T&D India Ltd.
Grid Automation-Pallavaram India

CUSTOMER : KALLAM TRANSMISSION LIMITED

CONTRACTOR : KEC INTERNATIONAL LIMITED

PROJECT : Design, Engineering, Procurement, Construction, Testing and Commissioning of 2X 500MVA 400/220kV AIS SS AT Kallam and 400kV Multi circuit & 400kV Double Circuit Transmission Lines associated with Kallam Transmission Limited.

PO NO : LOA/KPTCL/OSMANABAD/22-23/CRP/006

DATED : 23.03.2022

SYSTEM ARCHITECTURE DRAWING

TITLE : OVERALL SYSTEM ARCHITECTURE