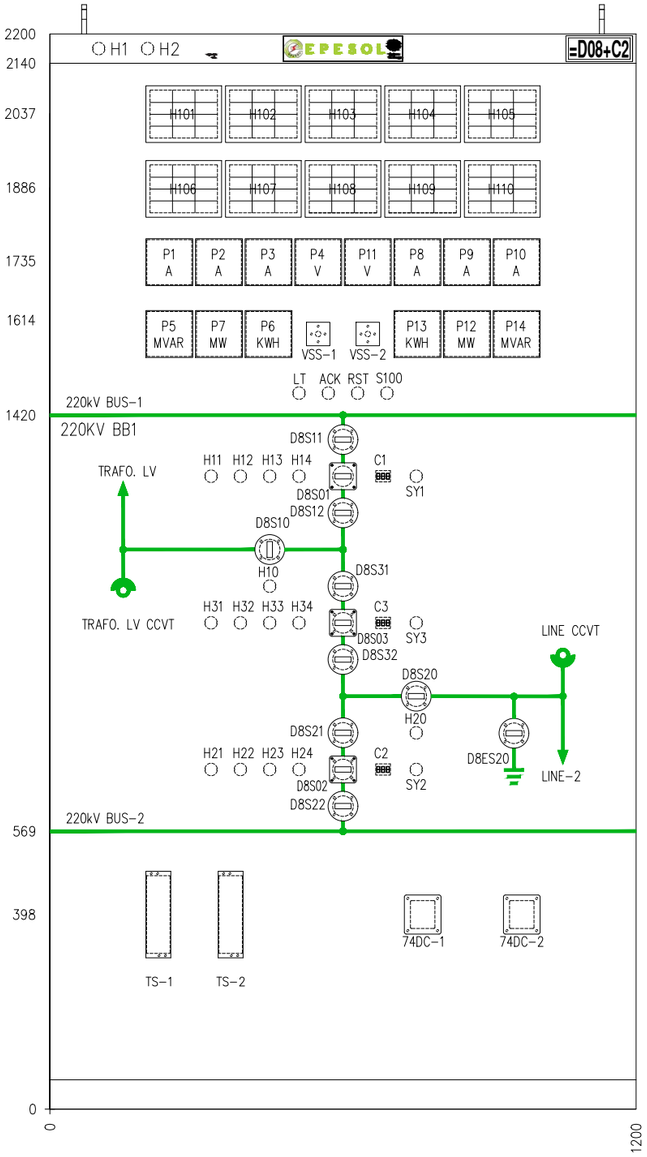
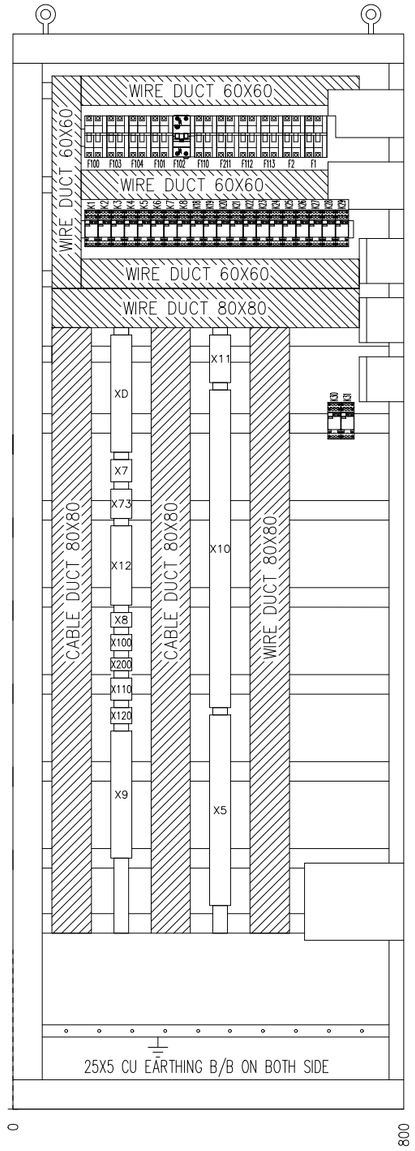
LAYOUT DIAGRAM OF 220kV CONTROL PANEL TYPE =D08+C2 (LINE + LINE)

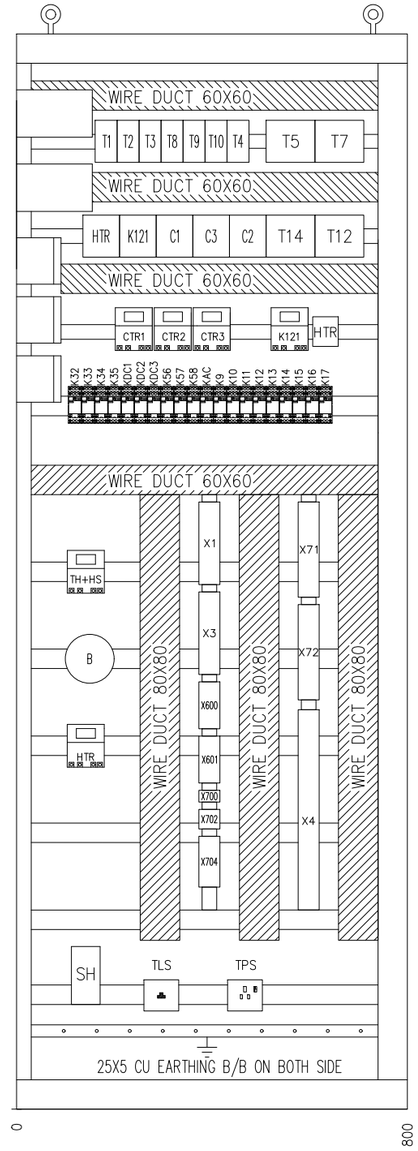
APPROVED	CHECKED	DRAWN	PROJECT:	TITLE:		DWG# EPE/ENU-18/D81576	SHT: 01OF 03
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	COVER SHEET 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0



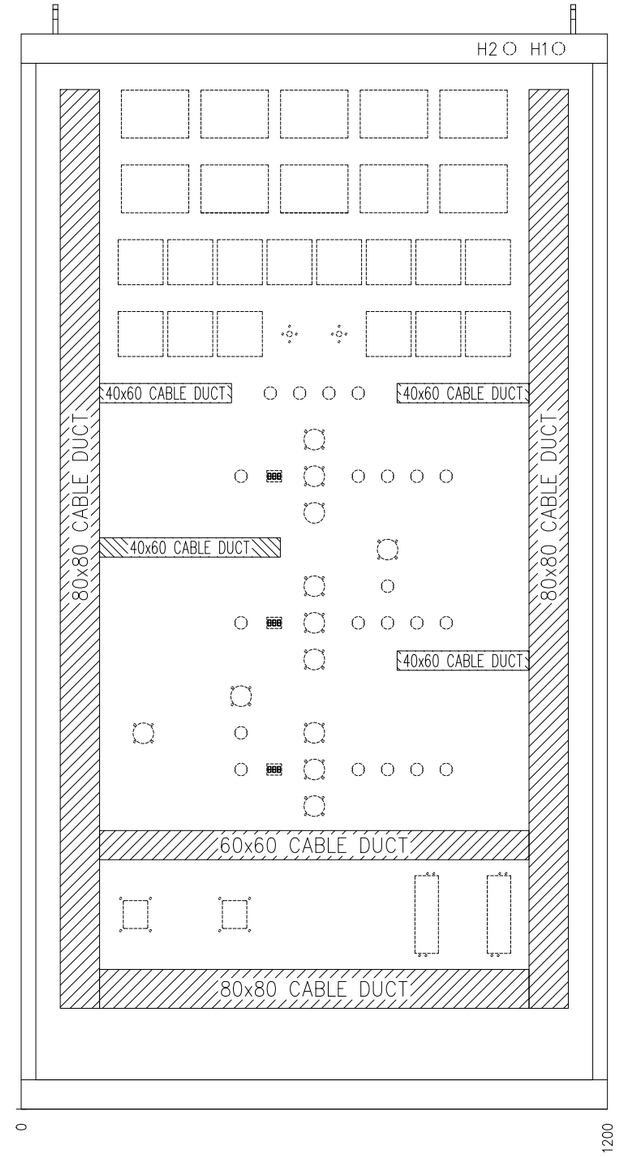
FRONT SIDE VIEW



LEFT SIDE VIEW



RIGHT SIDE VIEW

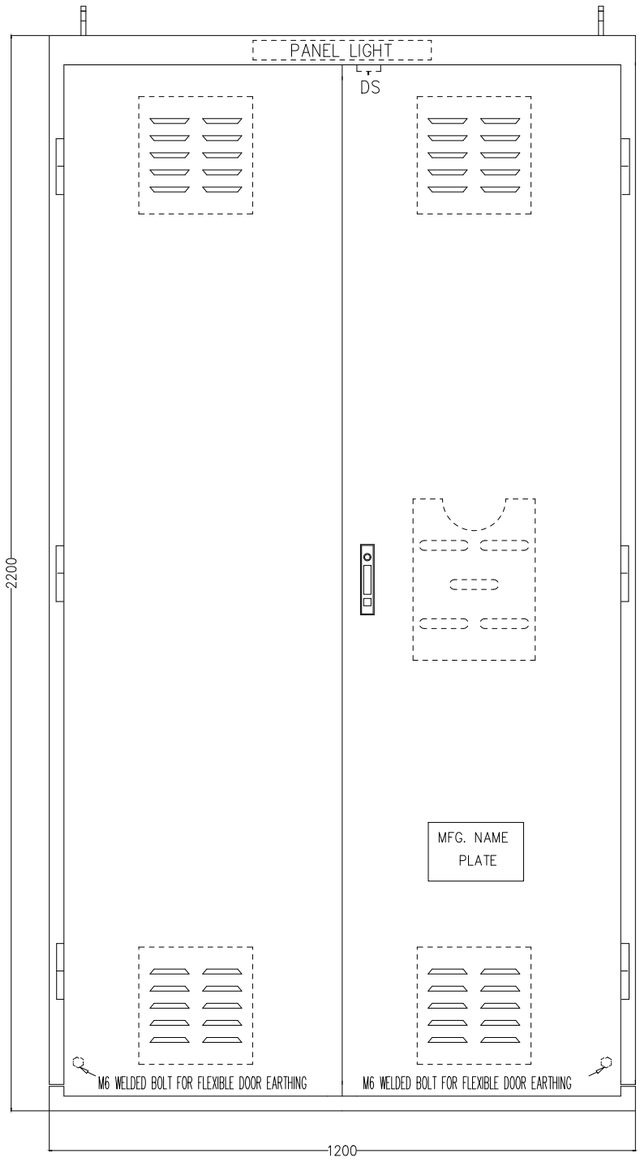


BACK SIDE VIEW
FOR FIXING OF CABLE DUCT

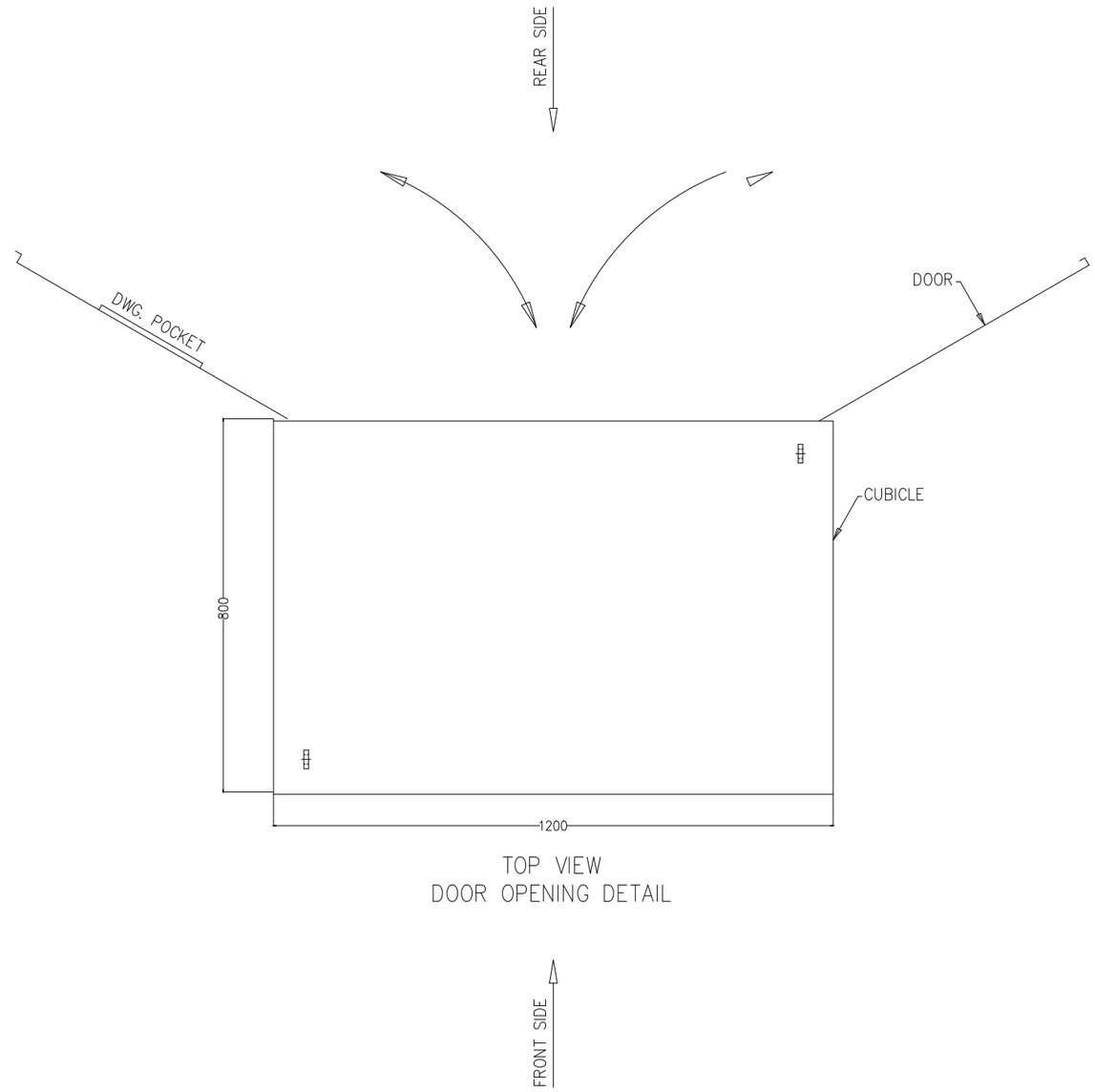
NOTES

1. CONTROL PANEL: 1200(W)x800(D)x2200(H) mm
2. FACE SHEET: 1200x2200 mm
3. EARTHING STRIP 25x5 mm
4. EARTHING STRAP 16mm²
5. COLOR: RAL7032
6. PROTECTION CLASS: IP51
7. APPLICABLE SPECS: P-204:2008
8. MIMIC COLOR: GREEN FOR 220kV

APPROVED	CHECKED	DRAWN	PROJECT:	TITLE:		DWG# EPE/ENU-18/D81576	SHT: 02OF 03
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	LAYOUT DIAGRAM 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0



BACK SIDE VIEW



TOP VIEW
DOOR OPENING DETAIL

APPROVED	CHECKED	DRAWN	PROJECT:	TITLE:		DWG# EPE/ENU-18/D81576	SHT: 03OF 03
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	LAYOUT DIAGRAM 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0

LIST OF APPARATUS
220kV CONTROL PANEL
TYPE C2 (LINE + LINE)

APPROVED	CHECKED	DRAWN	PROJECT:	TITLE:		DWG# EPE/ENU-18/D81577	SHT: 01 OF 05
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	COVER SHEET 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

SR.	ITEM DESIGNATION	DESCRIPTION	QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
1	D8S01, D8S02, D8S03	CONTROL DISCREPANCY SWITCH WITH LAMP ACCESSORIES (CB), SQUARE TYPE, 220 VDC	3	YS-IC-4456	YONGSUNG	SOUTH KOREA	YS-IC-4456-S4(49)-PM-K-G-D22-G	
2	D8S11, D8S12, D8S31,	CONTROL DISCREPANCY SWITCH WITH LAMP ACCESSORIES(ISO/ES), ROUND TYPE, 220 VDC	9	YS-IC-4456	YONGSUNG	SOUTH KOREA	YS-IC-4456-R4(49)-PM-K-G-D22-G	
	D8S32, D8S21, D8S22,							
	D8SE20, D8S10, D8S20							
3	H101, H102, H103, H104,	ANNUNCIATION MODULE, 12-WINDOWS, AM101, 220 VDC	8	AM101	E-LABS	PAKISTAN	–	
	H105, H106, H107, H108							
4	H109, H110	ANNUNCIATION MODULE, 12-WINDOWS, AM101, 240 VAC	2	AM101	E-LABS	PAKISTAN	–	
5	P1+T1, P3+T3,	METER (TRAFO-LV+LINE2): 240 DEGREE TRANSDUCER OPERATED ANALOGUE AMPERE METER, INPUT 0...20/30 mA,	4	A96MMA	FRER	ITALY	–	
	P8+T8, P10+T10	ACCURACY CLASS 1, SCALE_1: 0...600/900A, SCALE_2: 0...1200/1800A, SCALE_3: 0...2400/3600A.						
		CURRENT TRANSDUCER: NOMINAL INPUT CURRENT 5/7.5A, OUTPUT 0...20/30mA,	4	MCOEAQ	FRER	ITALY	–	
		AUXILIARY VOLTAGE 220VDC, ACCURACY CLASS 1, CT RATIO 600:1200:2400/5A.						
6	P2+T2, P9+T9	METER(TRAFO-LV+LINE2): TRANSDUCER OPERATED DIGITAL AMPERE METER,INPUT 0...20/30 mA, ACCURACY CLASS 1,	2	D96MMA	FRER	ITALY	–	
		SCALE_1: 0...600/900A, SCALE_2: 0...1200/1800A, SCALE_3: 0...2400/3600A, AUX. VOLTAGE 220 VDC.						
		CURRENT TRANSDUCER: NOMINAL INPUT CURRENT 5/7.5A, OUTPUT 0...20/30mA,	2	MCOEAQ	FRER	ITALY	–	
		AUXILIARY VOLTAGE 220VDC, ACCURACY CLASS 1, CT RATIO 600:1200:2400/5A.						
7	P11+T11	METER(LINE2): 240 DEGREE TRANSDUCER OPERATED ANALOGUE VOLT METER, INPUT 0...20/30mA,	1	A96MMA	FRER	ITALY	–	
		ACCURACY CLASS 1, SCALE 0...220/330 kV (MARKED RED AT 220 kV).						
		VOLTAGE TRANSDUCER: NOMINAL INPUT VOLTAGE, 0...110/165 VAC (L-L), OUTPUT 0...20/30 mA,	1	MCOEVQ	FRER	ITALY	–	
		AUXILIARY VOLTAGE 220 VDC, ACCURACY CLASS 1, PT RATIO: 220/0.11 kV (L-L).						
8	P14+T14	METER(LINE2): 240 DEGREE TRANSDUCER OPERATED ANALOGUE MVAR METER, INPUT -12.5/10...0...+10/12.5 mA,	1	A96MMA	FRER	ITALY	–	
		ACCURACY CLASS 1, SCALE_1: 300-0-300 MVAR (229 MVAR at 10mA), SCALE_2:						
		600-0-600 MVAR (457 MVAR at 10mA), SCALE_3: 1200-0-1200 MVAR (915 MVAR at 10mA).						
		MVAR TRANSDUCER: 3-PHASE, 4-WIRE BALANCED LOAD, NOMINAL INPUT VOLTAGE 110/137.5 VAC(L-L),	1	MCORT	FRER	ITALY	–	
		NOMINAL INPUT CURRENT 5/6.25A, AUXILIARY VOLTAGE 220 VDC, ACCURACY CLASS 1, OUTPUT1:						
		-12.5/10...0...+10/12.5 mA, PT RATIO: 220/0.11 kV (L-L), CT RATIO 2400:1200:600/5A.						
9	P12+T12	METER(LINE2): 240 DEGREE TRANSDUCER OPERATED ANALOGUE MW METER, INPUT -12.5/10...0...+10/12.5 mA,	1	A96MMA	FRER	ITALY	–	
		ACCURACY CLASS 1, SCALE_1: 300-0-300 MW (229 MW at 10mA), SCALE_2:						
		600-0-600 MW (457 MW at 10mA), SCALE_3: 1200-0-1200 MW (915 MW at 10mA).						
		MW TRANSDUCER: 3-PHASE, 4-WIRE BALANCED LOAD, NOMINAL INPUT VOLTAGE 110/137.5 VAC(L-L),	1	MCOWT	FRER	ITALY	–	
		NOMINAL INPUT CURRENT 5/6.25A, AUXILIARY VOLTAGE 220 VDC, ACCURACY CLASS 1, OUTPUT1:						
		-12.5/10...0...+10/12.5 mA, PT RATIO: 220/0.11 kV (L-L), CT RATIO 2400:1200:600/5A.						
10	VSS-1, VSS-2	7-POSITION VOLTAGE SELECTOR SWITCH	2	PO	GIOVENZANA	ITALY	PO-160023R001	

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE: LIST OF APPARATUS

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81577 | SHT: 02 OF 05
DATE: 07.03.2019 | AS BUILT | REV: 0

SR.	ITEM DESIGNATION	DESCRIPTION	QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
11	P6, P13	THREE PHASE DIGITAL POWER METER, ACCURACY CLASS 0.5s, INPUT NOMINAL CURRENT, 1/5A,	2	ENERIUM-150	ENERDIS	FRANCE	–	
		INPUT NOMINAL VOLTAGE 110 VAC (L-L), AUXILIARY VOLTAGE 110-375 VDC.						
12	P4+T4	METER(TRAFO-LV): 240 DEGREE TRANSDUCER OPERATED ANALOGUE VOLT METER, INPUT 0...20/30mA,	1	A96MMA	FRER	ITALY	–	
		ACCURACY CLASS 1, SCALE 0...220/330 kV (MARKED RED AT 220 kV).						
		VOLTAGE TRANSDUCER: NOMINAL INPUT VOLTAGE, 0...63.5/95.25 VAC (L-N), OUTPUT 0...20/30 mA,	1	MCOEVQ	FRER	ITALY	–	
		AUXILIARY VOLTAGE 220 VDC, ACCURACY CLASS 1, PT RATIO: 127/0.0635 kV (L-N).						
13	P5+T5	METER(TRAFO-LV): 240 DEGREE TRANSDUCER OPERATED ANALOGUE MVAR METER, INPUT -12.5/10...0...+10/12.5 mA,	1	A96MMA	FRER	ITALY	–	
		ACCURACY CLASS 1, SCALE_1: 300-0-300 MVAR (229 MVAR at 10mA), SCALE_2:						
		600-0-600 MVAR (457 MVAR at 10mA), SCALE_3: 1200-0-1200 MVAR (915 MVAR at 10mA).						
		MVAR TRANSDUCER: 3-PHASE, 4-WIRE BALANCED LOAD, NOMINAL INPUT VOLTAGE 63.5/79.4 VAC(L-N),	1	MCORN	FRER	ITALY	–	
		NOMINAL INPUT CURRENT 5/6.25A, AUXILIARY VOLTAGE 220 VDC, ACCURACY CLASS 1, OUTPUT1:						
		-12.5/10...0...+10/12.5 mA, PT RATIO: 127/0.0635 kV (L-N), CT RATIO 2400:1200:600/5A.						
14	P7+T7	METERLINE2): 240 DEGREE TRANSDUCER OPERATED ANALOGUE MW METER, INPUT -12.5/10...0...+10/12.5 mA,	1	A96MMA	FRER	ITALY	–	
		ACCURACY CLASS 1, SCALE_1: 300-0-300 MW (229 MW at 10mA), SCALE_2:						
		600-0-600 MW (457 MW at 10mA), SCALE_3: 1200-0-1200 MW (915 MW at 10mA).						
		MW TRANSDUCER: 3-PHASE, 4-WIRE BALANCED LOAD, NOMINAL INPUT VOLTAGE 63.5/79.4 VAC(L-N),	1	MCOWN	FRER	ITALY	–	
		NOMINAL INPUT CURRENT 5/6.25A, AUXILIARY VOLTAGE 220 VDC, ACCURACY CLASS 1, OUTPUT1:						
		-12.5/10...0...+10/12.5 mA, PT RATIO: 127/0.0635 kV (L-N), CT RATIO 2400:1200:600/5A.						
15	LT, ACK, RST	PUSH BUTTON FOR ANNUNCIATORS LAMP TEST, ACKNOWLEDGE AND RESET,	3	YSAP1	YONGSUNG	SOUTH KOREA	YS-AP1-2-40-R-D-W	
		FOUR NO CONTACTS EACH					YS-AP1-2-40-G-D-W	
							YS-AP1-2-40-Y-D-W	
16	S100	2-POSITION KEY OPERATED SWITCH FOR SCADA-LOCAL CONTROL	1	YS-AK	YONGSUNG	SOUTH KOREA	YS-AK-2-2-44-D	
17	K1 TO K8, K18 TO K35	AUXILIARY RELAY, 220VDC, WITH 4 C/O CONTACTS	29	PRC	GE	HUNGARY/POLAND	PRC4M40DCML	
	KDC1, KDC2, KDC3							
18	K56, K57, K58, KAC	AUXILIARY RELAY, 240 VAC, WITH 4 C/O CONTACTS	4	PRC	GE	HUNGARY/POLAND	PRC4M40ANL	
19	K9 TO K17	AUXILIARY RELAY, 48VDC, WITH 4 C/O CONTACTS	9	PRC	GE	HUNGARY/POLAND	PRC4M40DCGL	
20	74DC-1, 74DC-2	DC SUPPLY SUPERVISION RELAY, 220 VDC, WITH 2 C/O CONTACTS	2	VDF10	ARTECHE	SPAIN	VDF-10-OP2-220VDC	
21	K121	FLASHER RELAY, 220 VDC	1	FR101	E-LABS	PAKISTAN	–	
22	F100, F103, F104	AC MCB, DOUBLE POLE, 6A, 240 VAC, WITH 1 C/O CONTACT	3	G60	GE	HUNGARY/POLAND	G62C06+CAH(1)	
23	F102	ELCB, 2-POLE, RATINGS: 16A, 30mA, 230VAC, WITH 1 C/O CONTACT	1	DM100	GE	HUNGARY/POLAND	DM100C16/030+CAH(1)	

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE: LIST OF APPARATUS

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81577 | SHT: 03 OF 05
DATE: 07.03.2019 | AS BUILT | REV: 0

SR.	ITEM DESIGNATION	DESCRIPTION	QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
24	F110, F211, F212, F213	DC MCB, DOUBLE POLE, 10A, 220 VDC, WITH 1 C/O CONTACT	4	EP100	GE	HUNGARY/POLAND	EP102UCC10+CAH(1)	
25	F2	AC MCB, FOUR POLE, 2A, 240 VAC, WITH 1 C/O CONTACT	1	G60	GE	HUNGARY/POLAND	G64C02+CAH(1)	
26	F1	AC MCB, TWO POLE, 2A, 240 VAC, WITH 1 C/O CONTACT	1	G60	GE	HUNGARY/POLAND	G62C02+CAH(1)	
27	C1, C2, C3	CB OPERATION COUNTER, 220 VDC	3	CTR	E-LABS	PAKISTAN	–	
28	TS-1, TS-2	TEST SWITCH FOR METERING CIRCUIT, 14 FINGER	2	saTECH	ARTECHE	SPAIN	TSB-14-2222111111AAAB-V	
29	SH	SPACE HEATER	1	–	E-LABS	PAKISTAN	–	
30	TH+HS	THERMOSTAT & HUMIDISTAT	1	ELH-220	E-LABS	PAKISTAN	–	
31	IL	CUBICAL LIGHTING, 5W, 240 VAC	1	YS-T8	YONGSUNG	SOUTH KOREA	YS-T8-30-5W	
32	DS	DOOR SWITCH	1	YSP+YSMS-C	YONGSUNG	SOUTH KOREA	YSP3315GWB+YSMS-C	
33	TPS	THREE PIN SOCKET, 16A, 240 VAC	1		LEAR	CHINA	–	
34	TLS	TELPHONE SOCKET	1		LOCAL	PAKISTAN	–	
35	SY1, SY2, SY3	KEY OPERATED SWITCH FOR SYNCH.	3	YS-AK	YONGSUNG	SOUTH KOREA	YS-AK-2-2-44-D	
36	H11, H12, H21, H20 H22, H31, H32, H13, H23, H33, H10	INDICATION LAMP (TCS),AND LCC LOCAL MODE 220 VDC, GREEN	11	YS-PL	YONGSUNG	SOUTH KOREA	YS-PL-2-DL-22-G-W	
37	H14, H24, H34	INDICATION LAMP (RED) FOR MAINTENANCE, 220 VDC	3	YS-PL	YONGSUNG	SOUTH KOREA	YS-PL-2-DL-22-R-W	
38	H1, H2	INDICATION LAMP (GREEN), 240 VAC	2	YS-PL	YONGSUNG	SOUTH KOREA	YS-PL-2-AL-22-G-W	
39	HTR	HOOTER FOR ALARM FUNCTION, 220 VOLT DC	1	AH-101	E-LABS	PAKISTAN	–	
40	B	BELL FOR DC FAIL FUNCTION, 240 VOLT AC	1	YSMB	YONGSUNG	SOUTH KOREA	YSMB-722A	
41	X600	DISCONNECTING TERMINAL BLOCK (SCREW TYPE) FOR CT CIRCUIT WITH SHORTENING ARRANGMENT	12	SCB-6	CABUR	ITALY	–	
42	X601	DISCONNECTING TERMINAL BLOCK (SCREW TYPE) FOR CT CIRCUIT WITH SHORTENING ARRANGMENT	12	SCB-6	CABUR	ITALY	–	
43	X700	DISCONNECTING TERMINAL BLOCK (SCREW TYPE) FOR VT CIRCUIT	3	SCB-6	CABUR	ITALY	–	

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE: LIST OF APPARATUS

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81577 | SHT: 04 OF 05
DATE: 07.03.2019 | AS BUILT | REV: 0

SR.	ITEM DESIGNATION	DESCRIPTION	QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
44	X702	DISCONNECTING TERMINAL BLOCK (SCREW TYPE) FOR VT CIRCUIT	5	SCB-6	CABUR	ITALY	–	
45	X704	DISCONNECTING TERMINAL BLOCK (SCREW TYPE) FOR VT CIRCUIT	13	SCB-6	CABUR	ITALY	–	
46	X100	TERMINAL BLOCKS FOR AC SUPPLY DISTRIBUTION	5	CBD-4	CABUR	ITALY	–	
47	X200	TERMINAL BLOCKS FOR TELEPHONE CIRCUIT	4	CBD-4	CABUR	ITALY	–	
48	X110	TERMINAL BLOCKS FOR DC-1 DISTRIBUTION	7	CBD-4	CABUR	ITALY	–	
49	X120	TERMINAL BLOCKS FOR DC-2 DISTRIBUTION	5	CBD-4	CABUR	ITALY	–	
50	X1	TERMINAL BLOCKS FOR CB & DISCONNECTOR CONTROL CIRCUIT	26	CBD-4	CABUR	ITALY	–	
51	X3	TERMINAL BLOCKS FOR CB & DISCONNECTOR CONTROL CIRCUIT	26	CBD-4	CABUR	ITALY	–	
52	X71	TERMINAL BLOCKS FOR CB & DISCONNECTOR CONTROL SCADA	30	CBD-4	CABUR	ITALY	–	
53	X72	TERMINAL BLOCKS FOR CB & DISCONNECTOR CONTROL SCADA	30	CBD-4	CABUR	ITALY	–	
54	X8	TERMINAL BLOCKS FOR CB SYNCH. SELECTION CIRCUIT	5	CBD-4	CABUR	ITALY	–	
55	X5	TERMINAL BLOCKS FOR CB & DISCONNECTOR POSITION INDICATION CIRCUIT	60	CBD-4	CABUR	ITALY	–	
56	X4	TERMINAL BLOCKS FOR CONTROL OPERATION	63	CBD-4	CABUR	ITALY	–	
57	X9	TERMINAL BLOCKS FOR DC ANNUNCIATORS	40	CBD-4	CABUR	ITALY	–	
58	X10	TERMINAL BLOCKS FOR DC ANNUNCIATORS	100	CBD-4	CABUR	ITALY	–	
59	X11	TERMINAL BLOCKS FOR AC ANNUNCIATORS	15	CBD-4	CABUR	ITALY	–	
60	X12	TERMINAL BLOCKS FOR AC ANNUNCIATORS	25	CBD-4	CABUR	ITALY	–	
61	X73	TERMINAL BLOCKS FOR SCADA	10	CBD-4	CABUR	ITALY	–	
62	X7	TERMINAL BLOCKS FOR SYNCH. CIRCUIT	7	CBD-4	CABUR	ITALY	–	
63	XD	TERMINAL BLOCKS WITH DIODE TYPE IN-D4007, RATED MAXIMUM VOLTAGE 350VDC, RATED	40	DAS.4/6	CABUR	ITALY	–	

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE: LIST OF APPARATUS

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81577 | SHT: 05 OF 05
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEMETIC DIAGRAMS
220kV CONTROL PANEL TYPE
=D08+C2 (LINE + LINE)

APPROVED	CHECKED	DRAWN	PROJECT:				
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	COVER SHEET 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578 DATE: 07.03.2019	SHT: 01 OF 35 AS BUILT REV: 0

DESCRIPTION	SHEET NO
COVER SHEET	01
LIST OF CONTENTS	02
LIST OF SYMBOLS	03
SINGLE LINE DIAGRAM	04
COMPARTMENT HEATING CIRCUIT	05
TELE PHONE SOCKET	06
220 VOLT DC SUPPLY-1 & 2 DISTRIBUTION	07
AC & DC MCB TRIP ANNUNCIATION	08
CB & DISCONNECTORS REMOTE CONTROL	09
CB & DISCONNECTORS REMOTE CONTROL	10
CB & DISCONNECTORS REMOTE CONTROL	11
CB SELECTION FOR SYNCHRONIZING	12
220kV CB/DS DESCREPANCY INITIATION	13
220kV CB/DS DESCREPANCY INITIATION	14
220kV CB/DS DESCREPANCY INITIATION	15
TRIP SUPPLY HEALTHY INDICATIONS	16
TRIP SUPPLY HEALTHY INDICATIONS	17
ANNUCIATOR UNIT - 1	18
ANNUCIATOR UNIT - 2	19
ANNUCIATOR UNIT - 3	20
ANNUCIATOR UNIT - 4	21
ANNUCIATOR UNIT - 5	22
ANNUCIATOR UNIT - 6	23
ANNUCIATOR UNIT - 7	24
ANNUCIATOR UNIT - 8	25
ANNUNCIATOR UNIT - 9	26
ANNUNCIATOR UNIT - 10	27

DESCRIPTION	SHEET NO
SCADA SIGNALS	28
AC SCHEMATIC DIAGRAM FOR LINE-1 METERING	29
AC SCHEMATIC DIAGRAM FOR LINE-2 METERING	30
VOLTAGE SELECTION FOR 500kV CIRCUIT BREAKER	31
SYNC. RELAY INPUT	32
SYNC. RELAY SIGNALS	33
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APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

LIST OF CONTENTS

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 02 OF 35

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LIST OF SYMBOLS

	HV DISCONNECTOR		EQUIPMENT WITHIN PANEL
	HV CIRCUIT BREAKER		INDEPENDENT PANEL
	CURRENT TRANSFORMER		INDEPENDENT PANEL
	132/11 KV POWER TRANSFORMER	21	DISTANCE RELAY
	RELAY PANEL TERMINAL BLOCK	50/51	OVER CURRENT EARTH FAULT RELAY
	CONTROL PANEL TERMINAL BLOCK	TS	TEST BLOCK
	EARTH CONNECTION	74DC-X	DC SUPLY SUPERVISION RELAY
	TEST BLOCK TERMINAL	X	TERMINAL BLOCK
	NORMALLY CLOSED CONTACT	A	AMPERE METER
	NORMALLY OPEN CONTACT	V	VOLT METER
	CHANGE OVER CONTACT	WM	MEGA WATT METER
	MINIATURE CIRCUIT BREAKER	MVAR	MEGA VAR METER
	INDICATING BULB/LED	KWH	ENERGY METER
	220V SOCKET		
	SPACE HEATER		
VSS	VOLTAGE SELECTOR SWITCH		
	COIL		
	DC HOOTER		
	DC SIREN		
	AC BELL		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

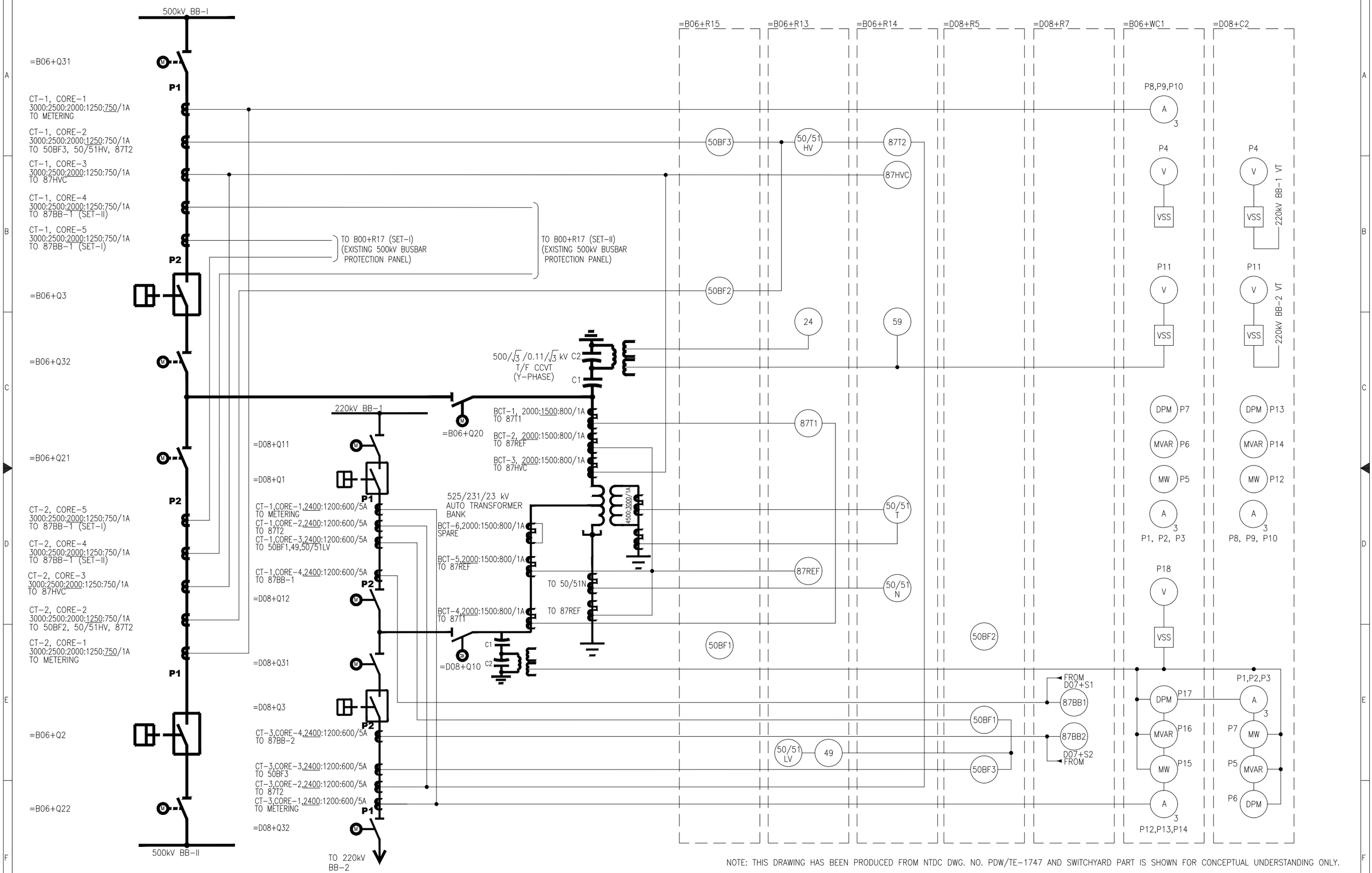
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

LIST OF SYMBOLS

220kV CONTROL PANEL TYPE =D08+C2

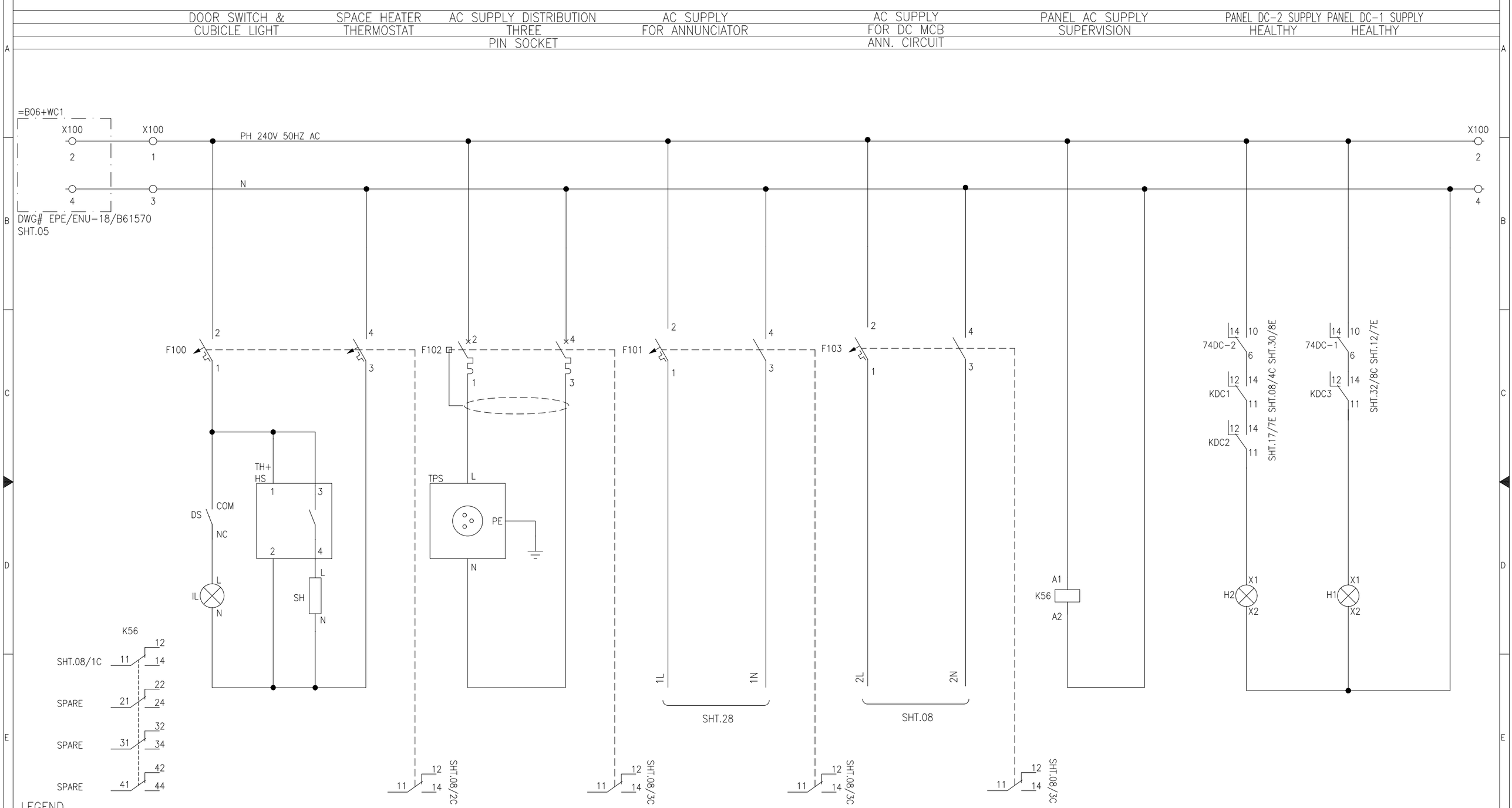
EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 03 OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0



NOTE: THIS DRAWING HAS BEEN PRODUCED FROM NTDC DWG. NO. PDW/TE-1747 AND SWITCHYARD PART IS SHOWN FOR CONCEPTUAL UNDERSTANDING ONLY.

APPROVED	CHECKED	DRAWN	PROJECT:			
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	SINGLE LINE DIAGRAM 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578 SHT: 04 OF 35
						DATE: 07.03.2019 AS BUILT REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
TPS	THREE PIN SOCKET	--	LEAR	IL	CUBICLE LIGHT, 5W, 240VAC	YST8	YONGSUNG	F102	ELCB	DM100	GE
SH	SPACE HEATER	ELH220	E-LABS	DS	DOOR SWITCH	YSP+YSMS-C	YONGSUNG	K56	AUX. RELAY 240VAC, 4 C/O	PRC	GE
TH+HS	THERMOSTAT	ELH220	E-LABS	F100,F101,F103	AC MCB 2 POLE, 6A, 240VAC	G60	GE	H1, H2	INDICATION LAMP, 240VAC, GREEN COLOR	YS-PL	YONGSUNG

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

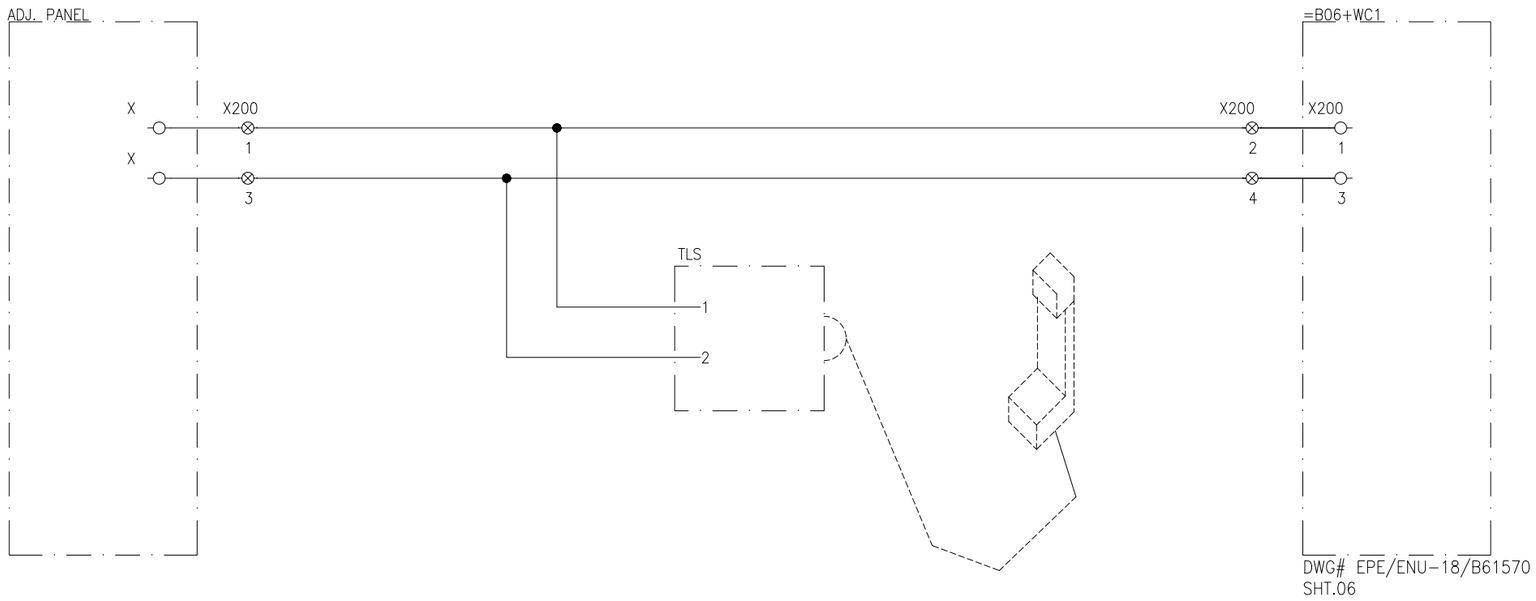
AC SUPPLY DISTRIBUTION

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 05 OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0

TELEPHONE SOCKET



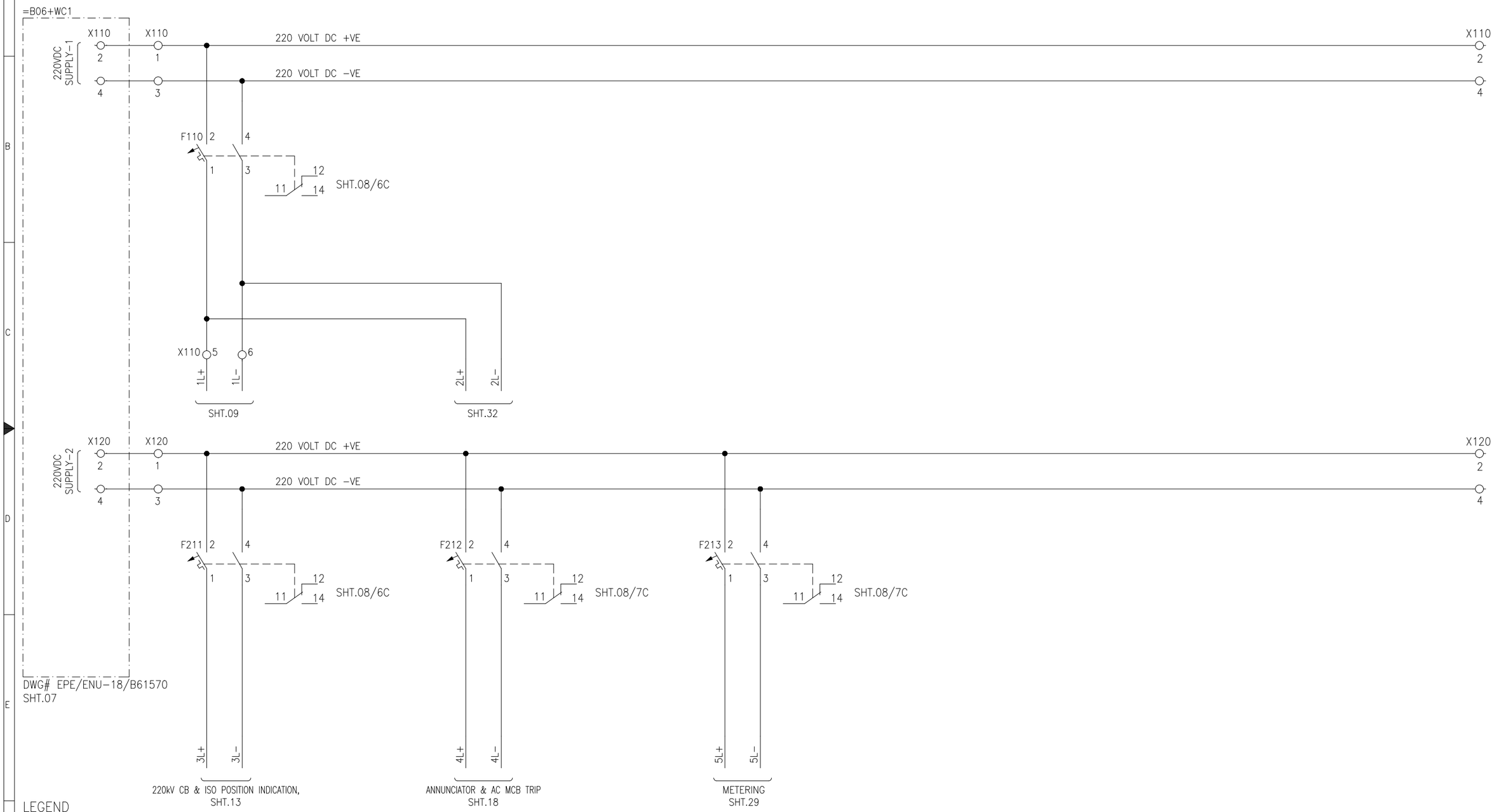
LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
TLS	TELEPHONE SOCKET	LOCAL	LOCAL								

APPROVED	CHECKED	DRAWN	PROJECT:				
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TELEPHONE SOCKET 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578 DATE: 07.03.2019	SHT: 06 OF 35 AS BUILT REV: 0

220kV CB & ISO CONTROL SUPPLY

SYNCH SELECTION SUPPLY



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
F110,F210, F212,F213	DC MCB 2-POLE 10A, 220VDC, 1 C/O	EP100 UC	GE								

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

220VDC SUPPLY DISTRIBUTION

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.

71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578

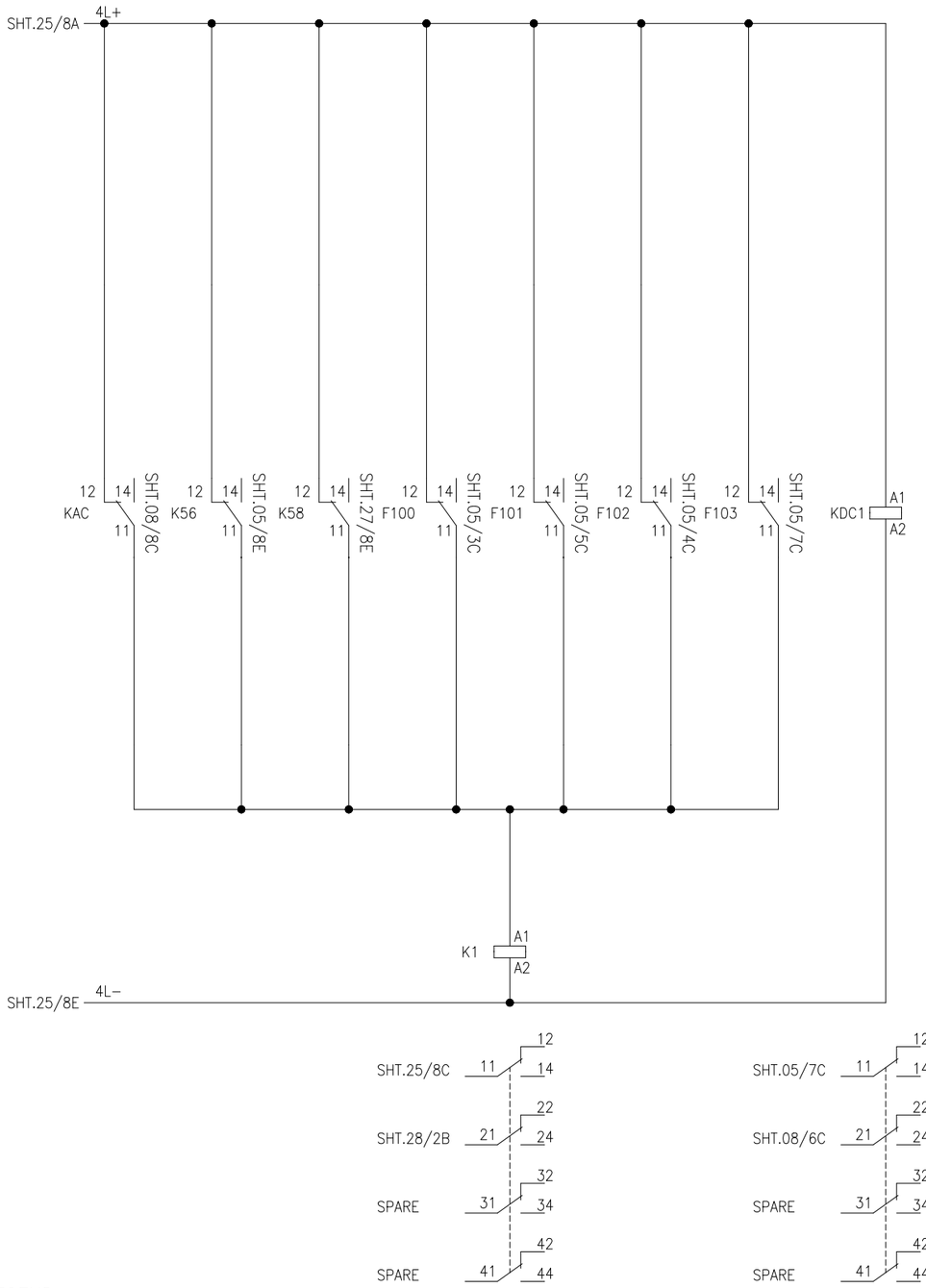
SHT: 07 OF 35

DATE: 07.03.2019

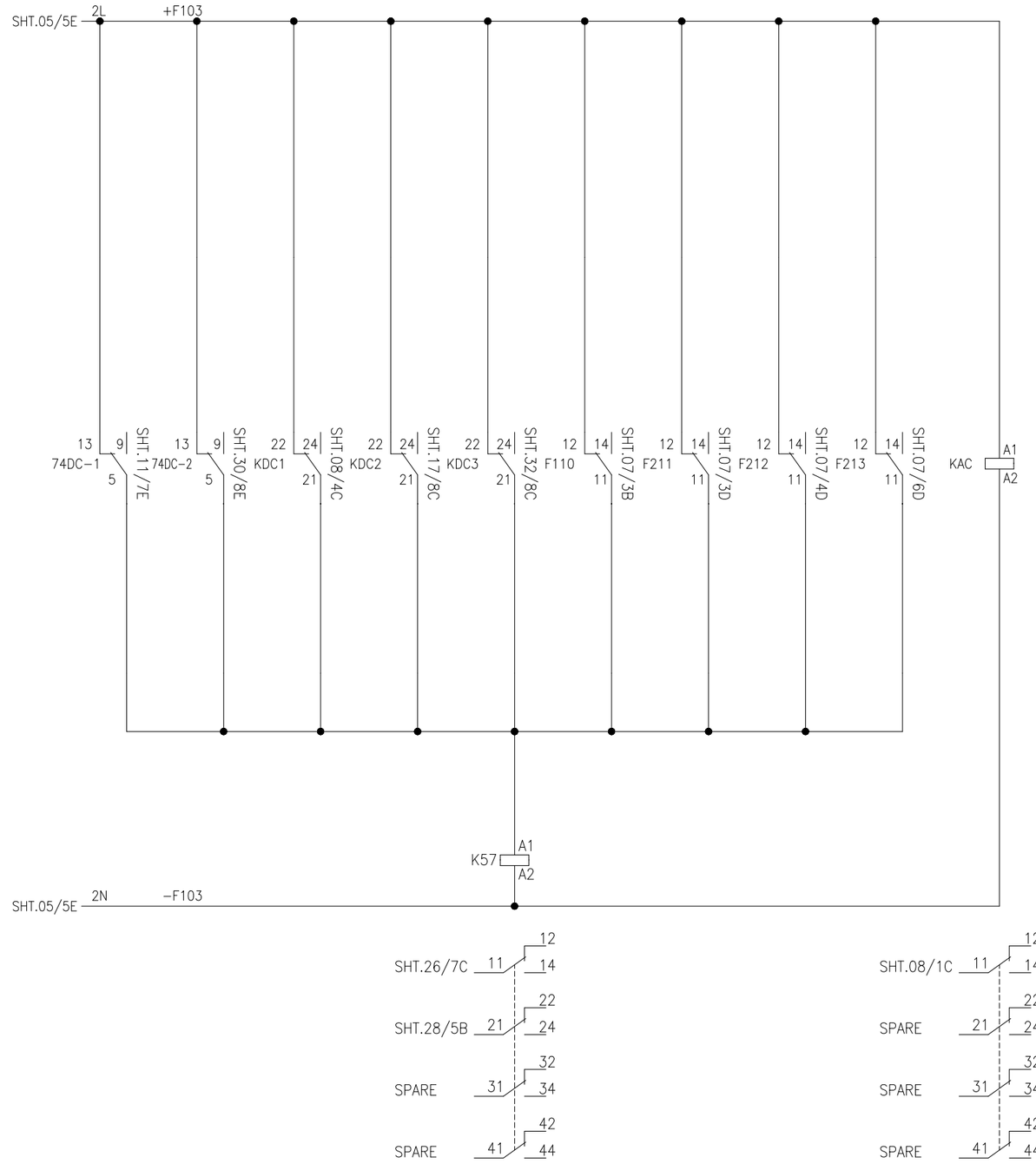
AS BUILT

REV: 0

AC MCB TRIP/SUPPLY FAIL ANN. CIRCUIT



DC MCB TRIP/SUPPLY FAIL ANN. CIRCUIT



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
F110,F211,F212,F213	DC MCB 2−POLE 10A, 220VDC, 1 C/O	EP100	GE	K1, KDC1	AUX. RELAY 220VDC, 4 C/O	PRC	GE				
F100,F101,F103	AC MCB 2 POLE, 6A, 240VAC	G60	GE	K57, KAC	AUX. RELAY 220VAC, 4 C/O	PRC	GE				

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM−VI/EO/9417−29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

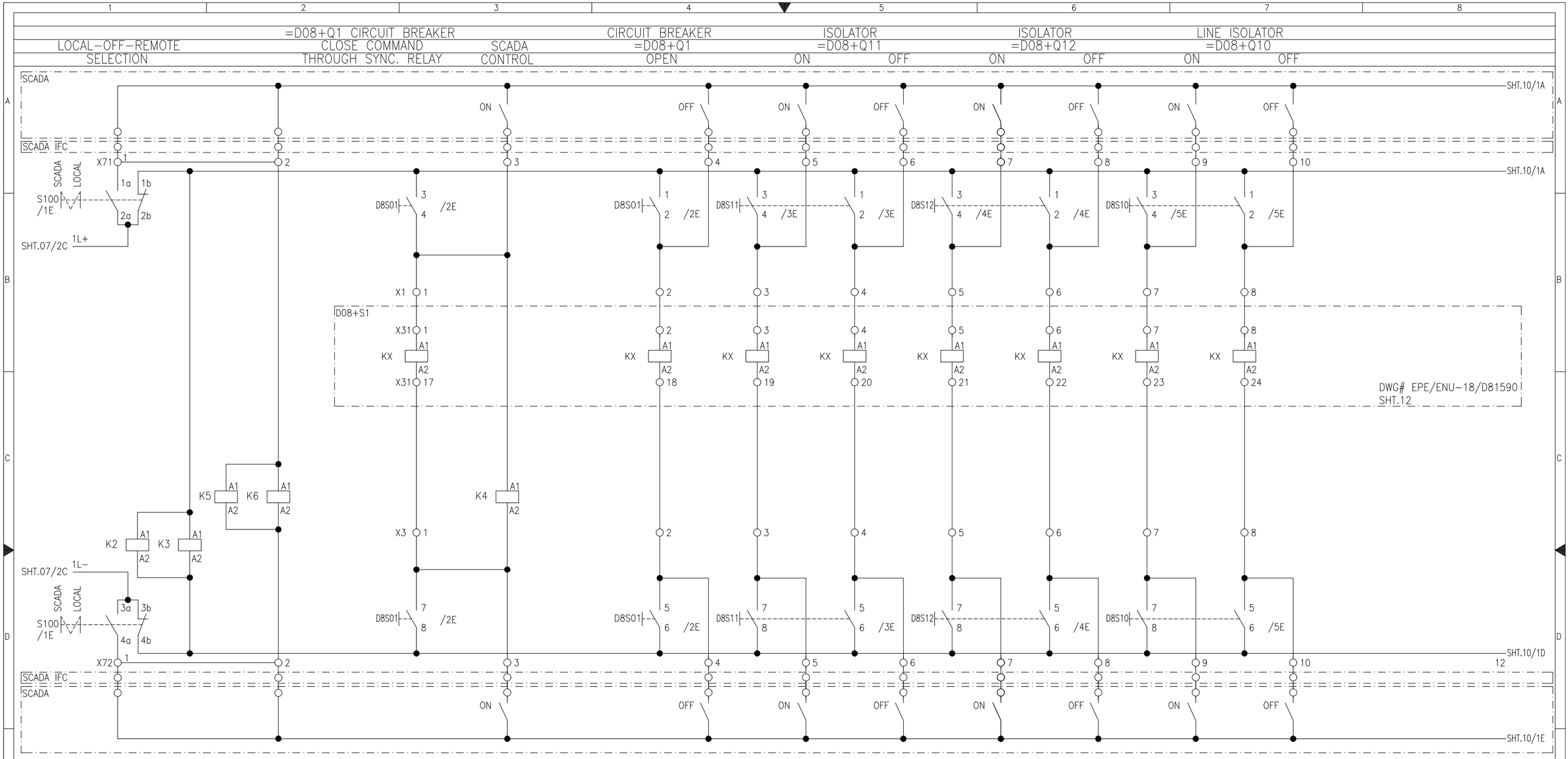
AC & DC MCB TRIP ANNUNCIATION

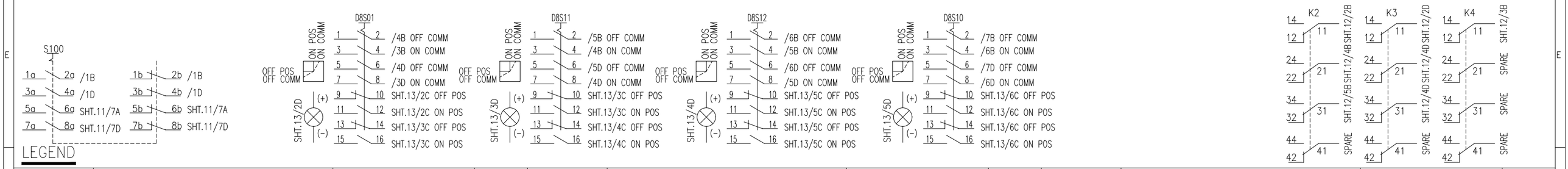
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU−18/D81578 | SHT: 08 OF 35

DATE: 07.03.2019 | AS BUILT | REV: 0





LEGEND

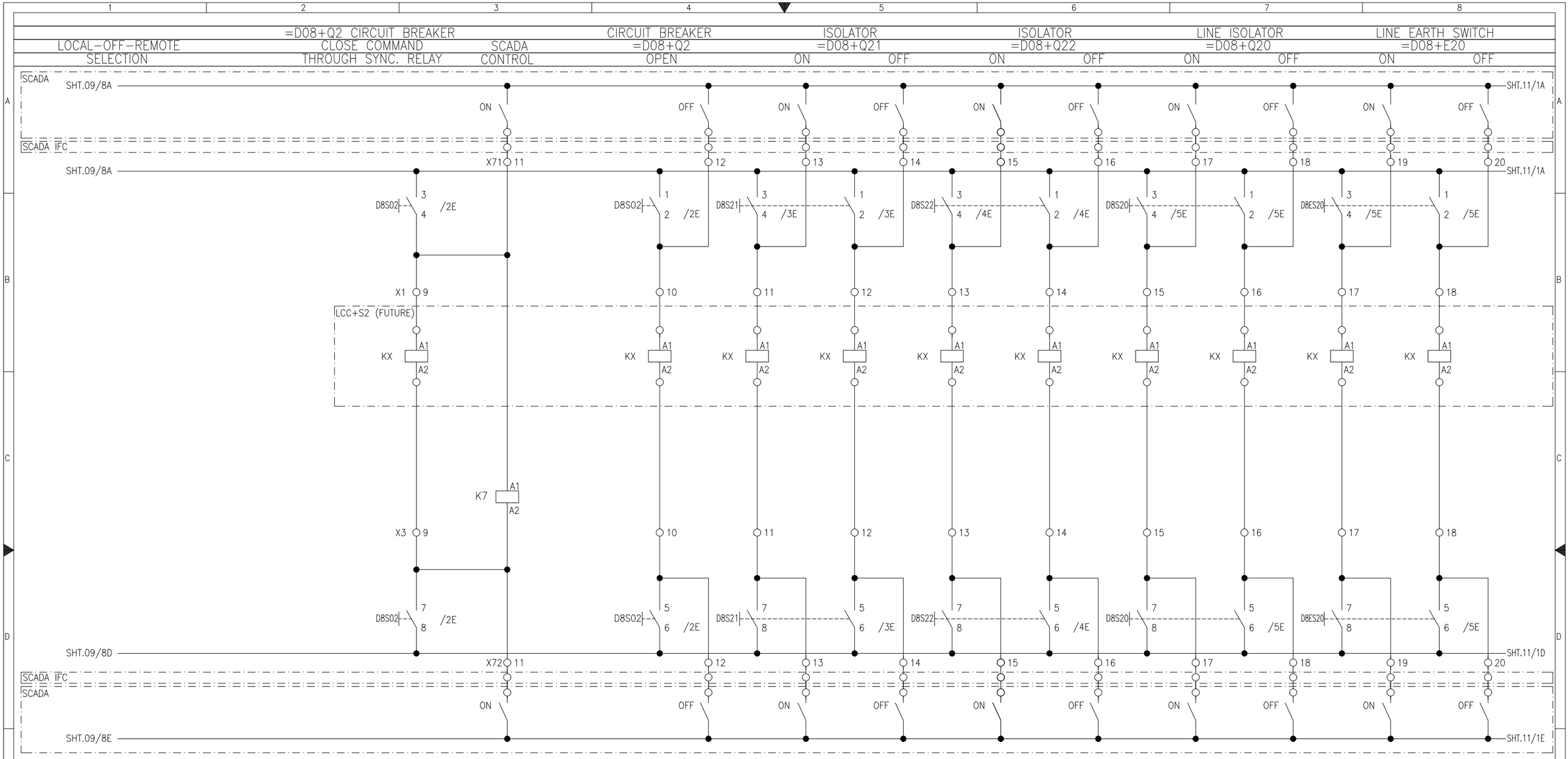
DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
D8S01	CONTROL & DISCREPANCY SWITCH FOR CB	YS-IC4456-S4(49)-PM-K-G-D22	YONGSUNG	S100	SCADA LOCAL, 2-POSITION SWITCH	YSAK	YONGSUNG				
D8S11,D8S12, D8S10,D8SE10	CONTROL & DISCREPANCY SWITCH FOR ISO	YS-IC4301-R4(49)-PM-K-G-D22	YONGSUNG	K2, K3, K4, K5, K6	CONTACTOR RELAY, 220VDC	PRC	GE				

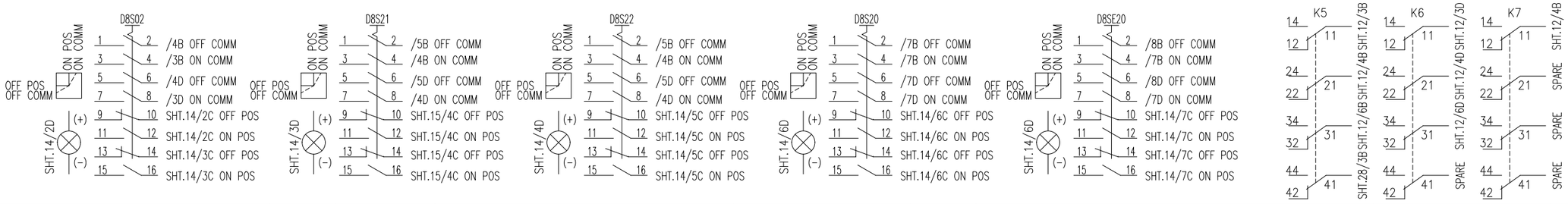
APPROVED	CHECKED	DRAWN	PROJECT:			
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	CB & DISCONNECTOR's REMOTE CONTROL 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578
						DATE: 07.03.2019

AS BUILT

SHT: 09 OF 35

REV: 0





LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
D8S02	CONTROL & DISCREPANCY SWITCH FOR CB	YS-IC4456-S4(49)-PM-K-G-D22	YONGSUNG	K7	CONTACTOR RELAY, 220VDC	PRC	GE				
D8S21,D8S22, D8S20	CONTROL & DISCREPANCY SWITCH FOR ISO	YS-IC4301-R4(49)-PM-K-G-D22	YONGSUNG								

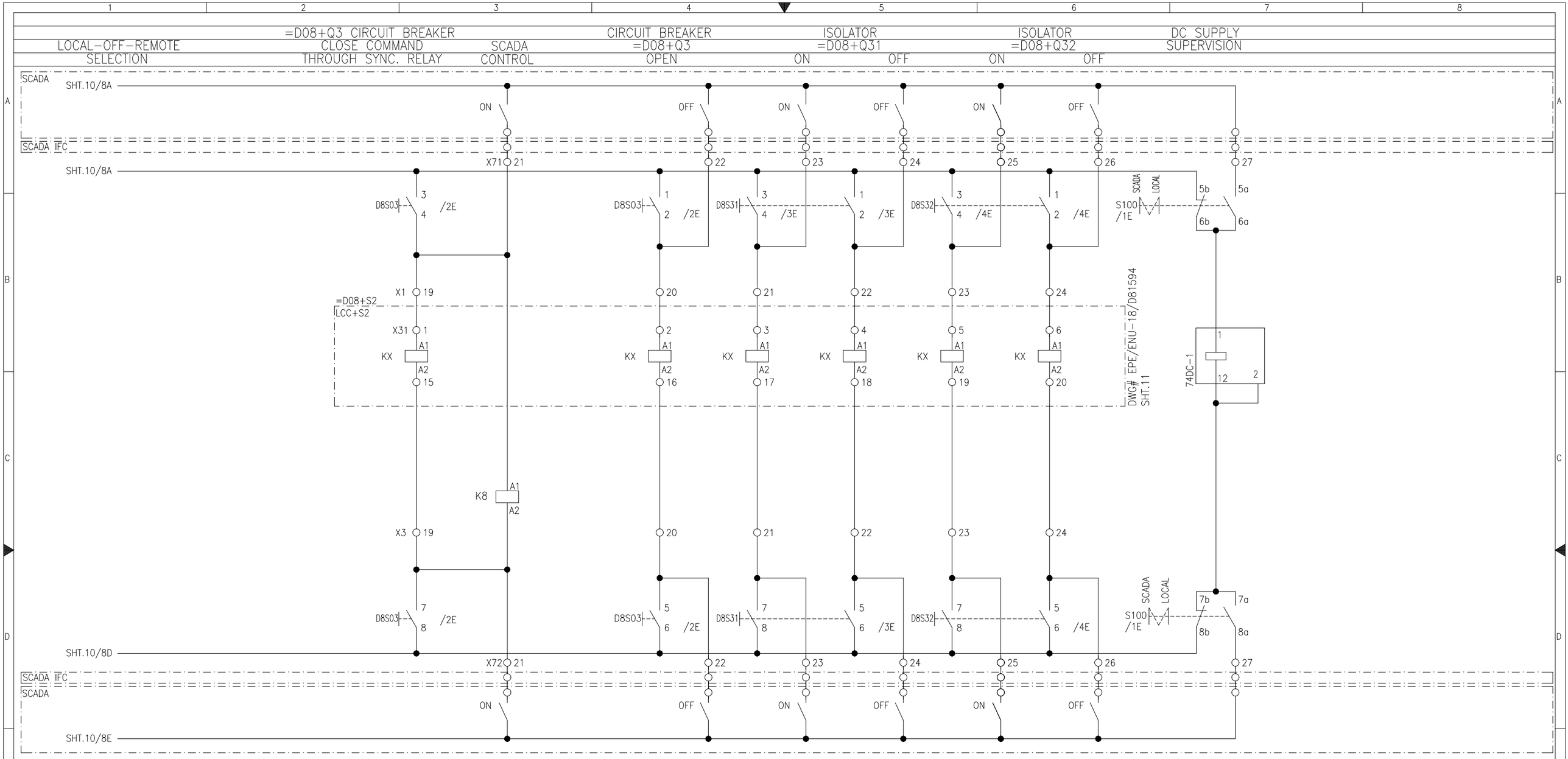
APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

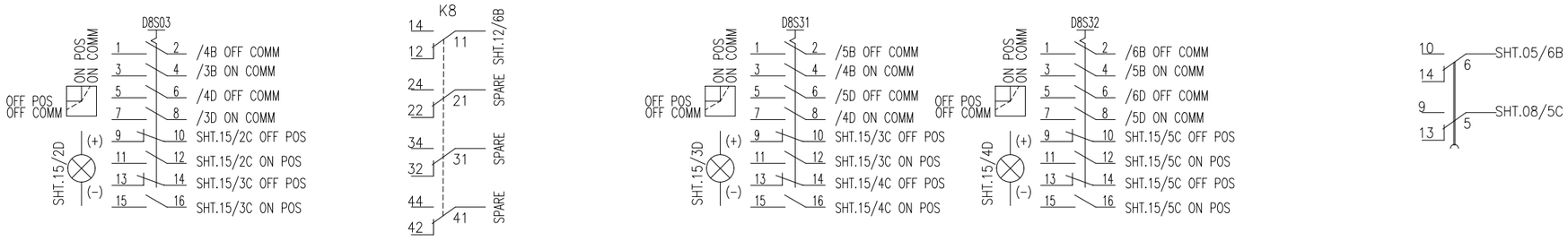
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

CB & DISCONNECTOR's
REMOTE CONTROL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 10 OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0





LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
D8S03	CONTROL & DISCREPANCY SWITCH FOR CB	YS-IC4456-S4(49)-PM-K-G-D22	YONGSUNG	K8	CONTACTOR RELAY, 220VDC	PRC	GE				
D8S31,D8S32	CONTROL & DISCREPANCY SWITCH FOR ISO	YS-IC4301-R4(49)-PM-K-G-D22	YONGSUNG	74DC–1	DC SUPPLY SUPERVISION RELAY, 220VDC	VDF10	ARTECHE				

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM–VI/EO/9417–29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

CB & DISCONNECTOR's REMOTE CONTROL

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

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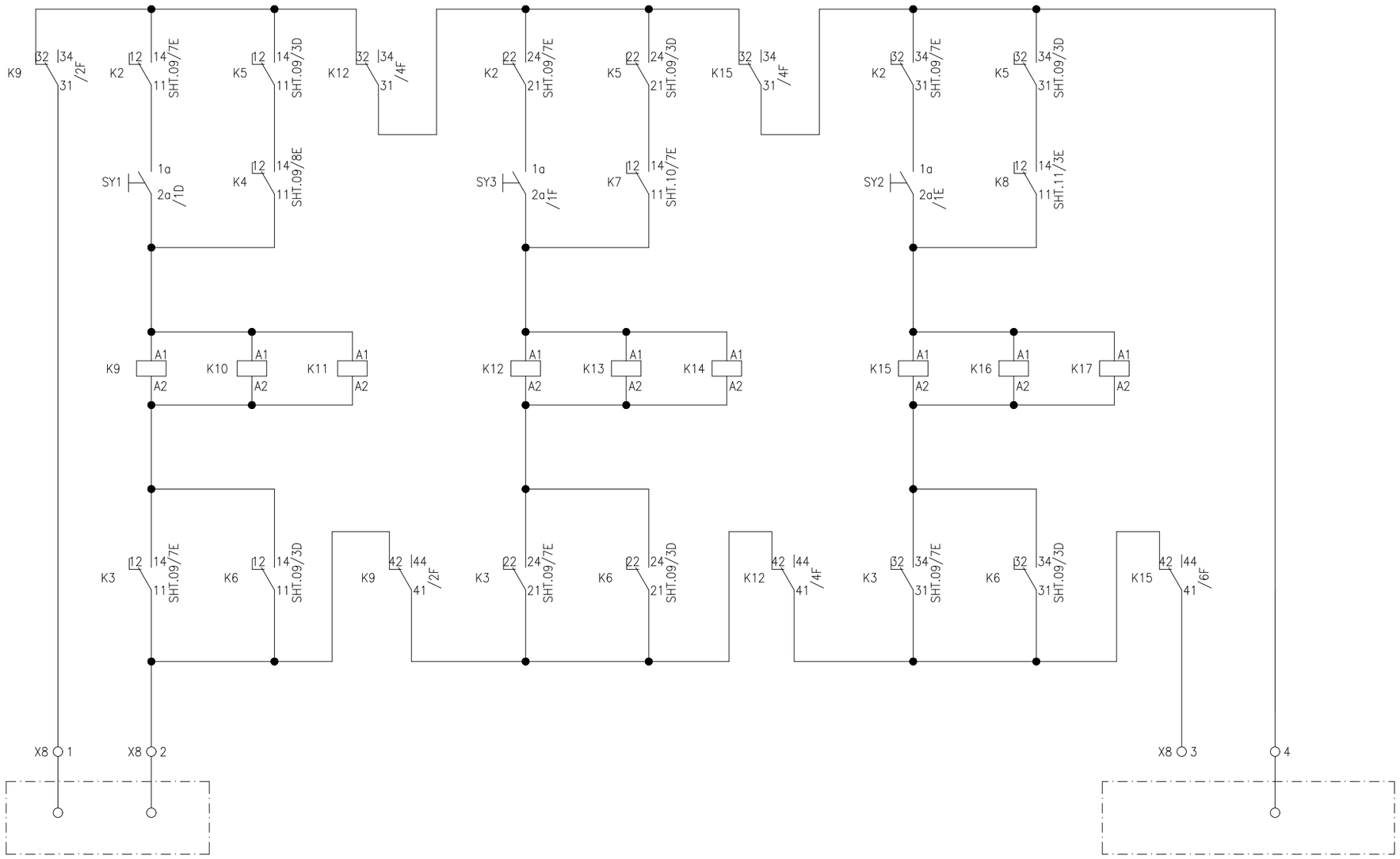
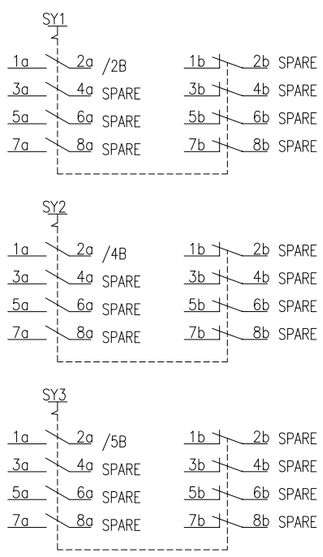
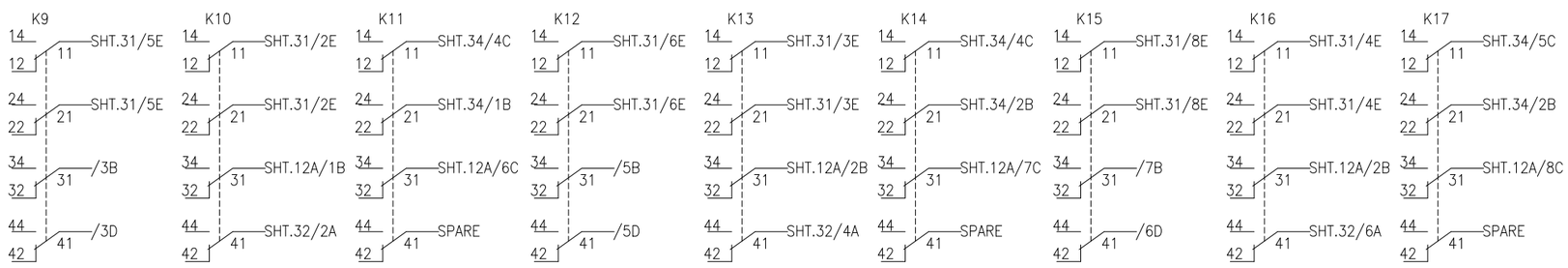
220kV CB =D08+Q1		220kV CB =D08+Q3		220kV CB =D08+Q2	
LOCAL SELECTION	REMOTE SELECTION	LOCAL SELECTION	REMOTE SELECTION	LOCAL SELECTION	REMOTE SELECTION







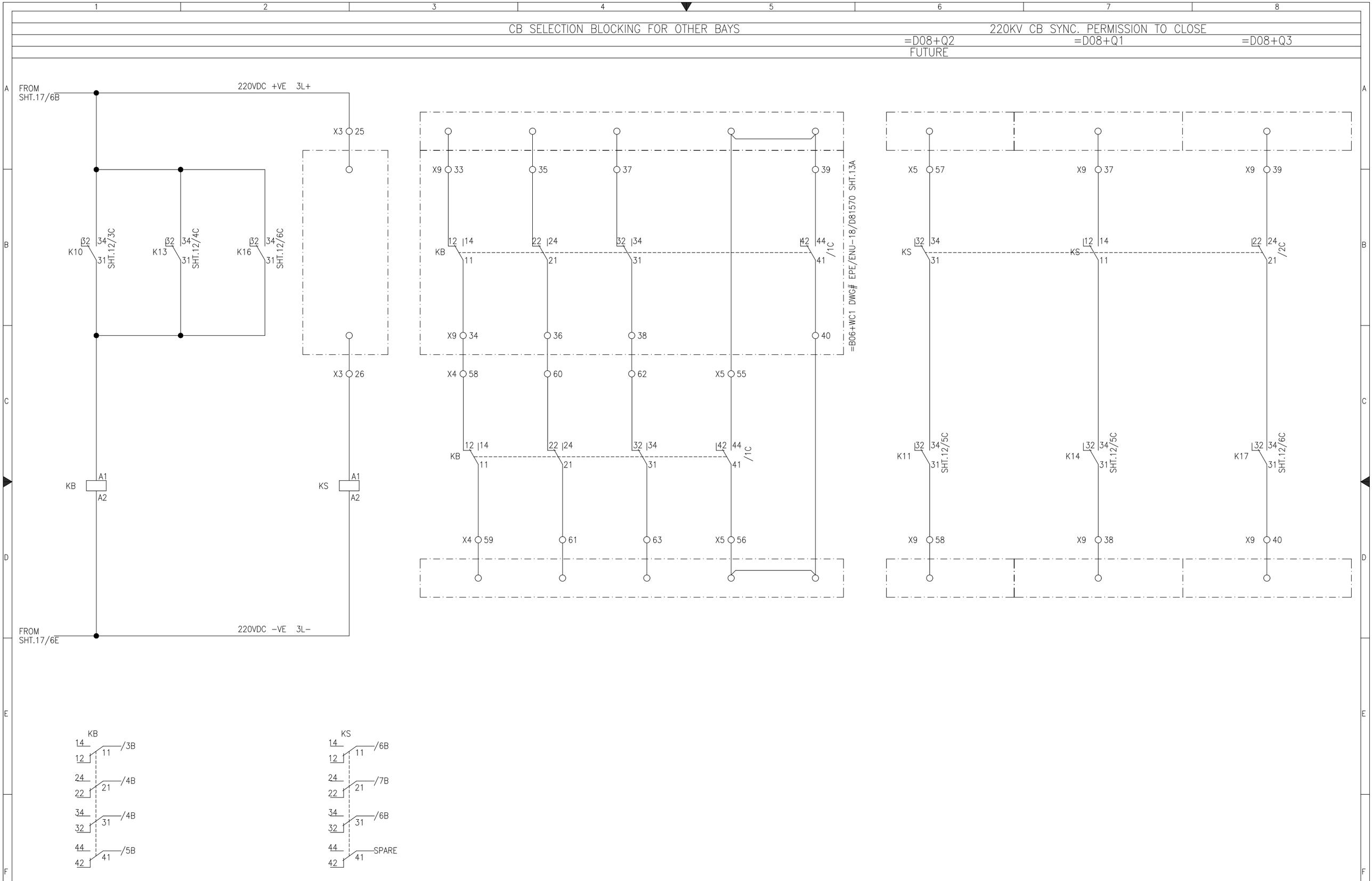
APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

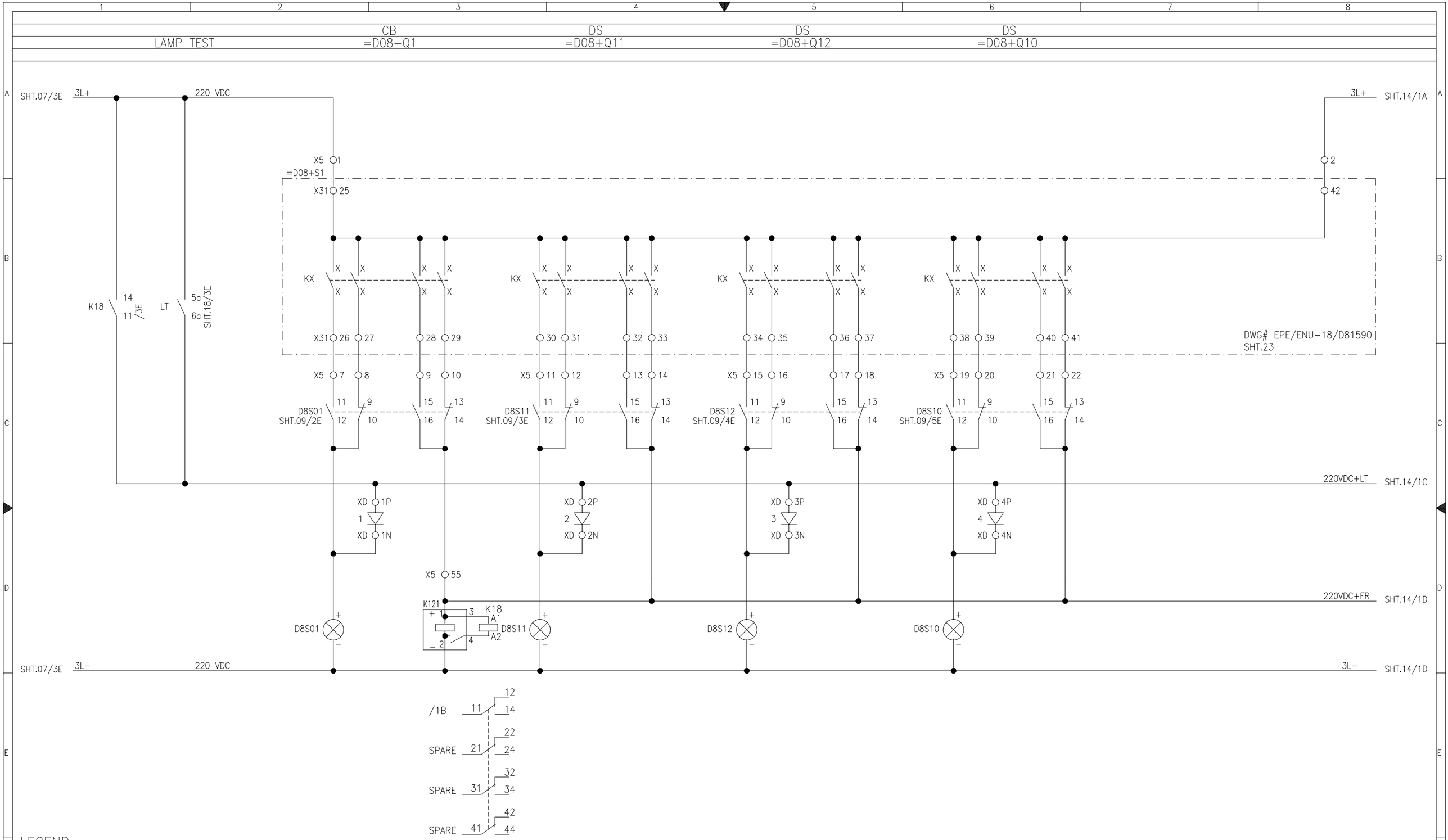
CB SELECTION
FOR SYNCHRONIZING
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578
DATE: 07.03.2019
AS BUILT
SHT: 12OF 35
REV: 0



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	CB SELECTION BLOCKING FOR SYNC. CIRCUIT 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578	SHT:12AOF 35
NAH	MSS	MUR				DATE: 07.03.2019 AS BUILT	REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
D8S01	CONTROL & DISCREPANCY SWITCH FOR CB	YS-IC4456-S(49)-PM-K-G-D22	YONGSUNG	LT	LAMP TEST	YSAP1	YONGSUNG	K18	AUX. RELAY, 220VDC WITH 4 C/O	PRC	GE
D8S11, D8S12 D8S10	CONTROL & DISCREPANCY SWITCH FOR DS	YS-IC4301-R(49)-PM-K-G-D22	YONGSUNG	K121	FLASHER RELAY	FR101	E-LABS				

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

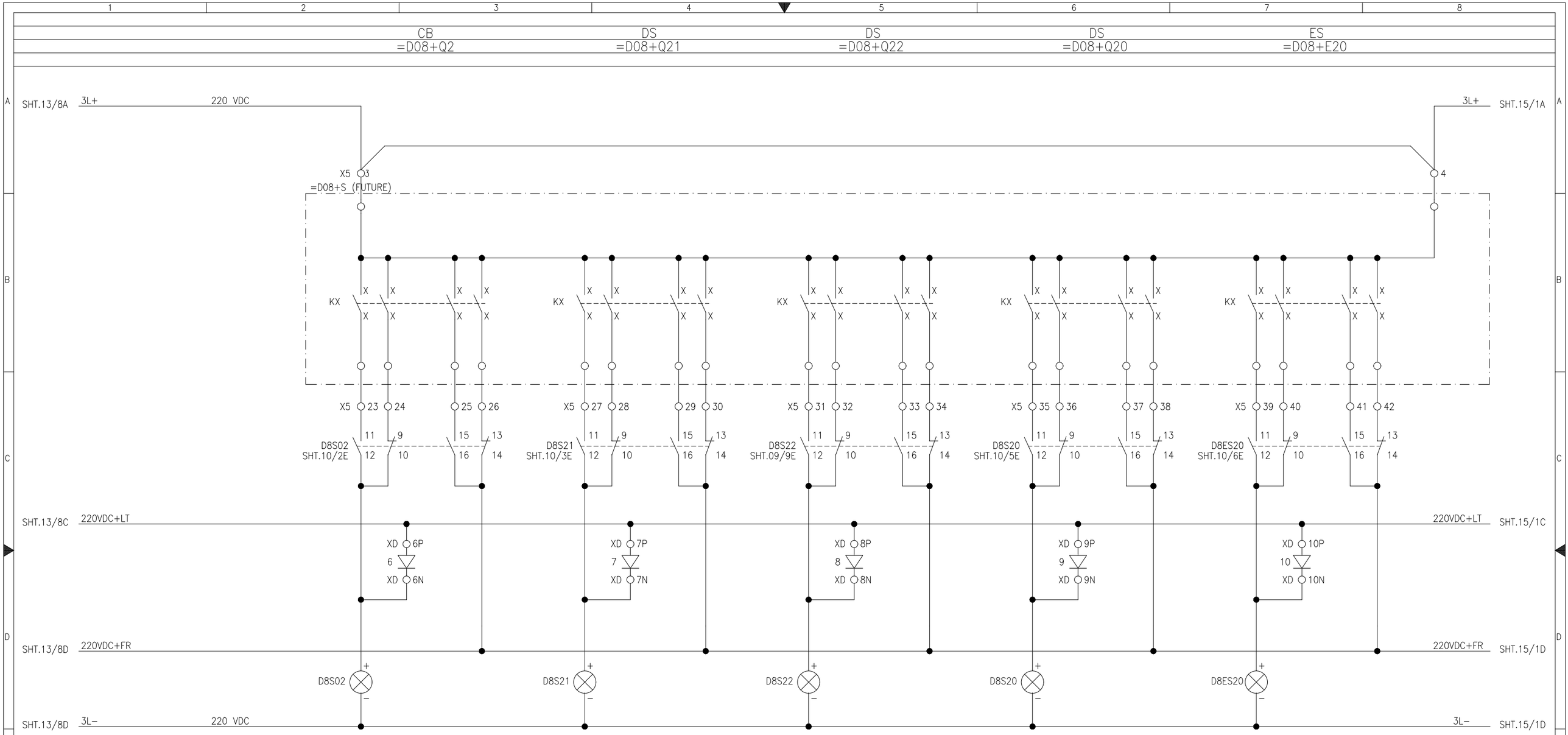
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

DESCREPANCY INITIATION

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 13OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
D8S02	CONTROL & DISCREPANCY SWITCH FOR CB	YS-IC4456-S(49)-PM-K-G-D22	YONGSUNG								
D8S21, D8S22 D8S20, D8SE20	CONTROL & DISCREPANCY SWITCH FOR DS	YS-IC4301-R(49)-PM-K-G-D22	YONGSUNG								

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

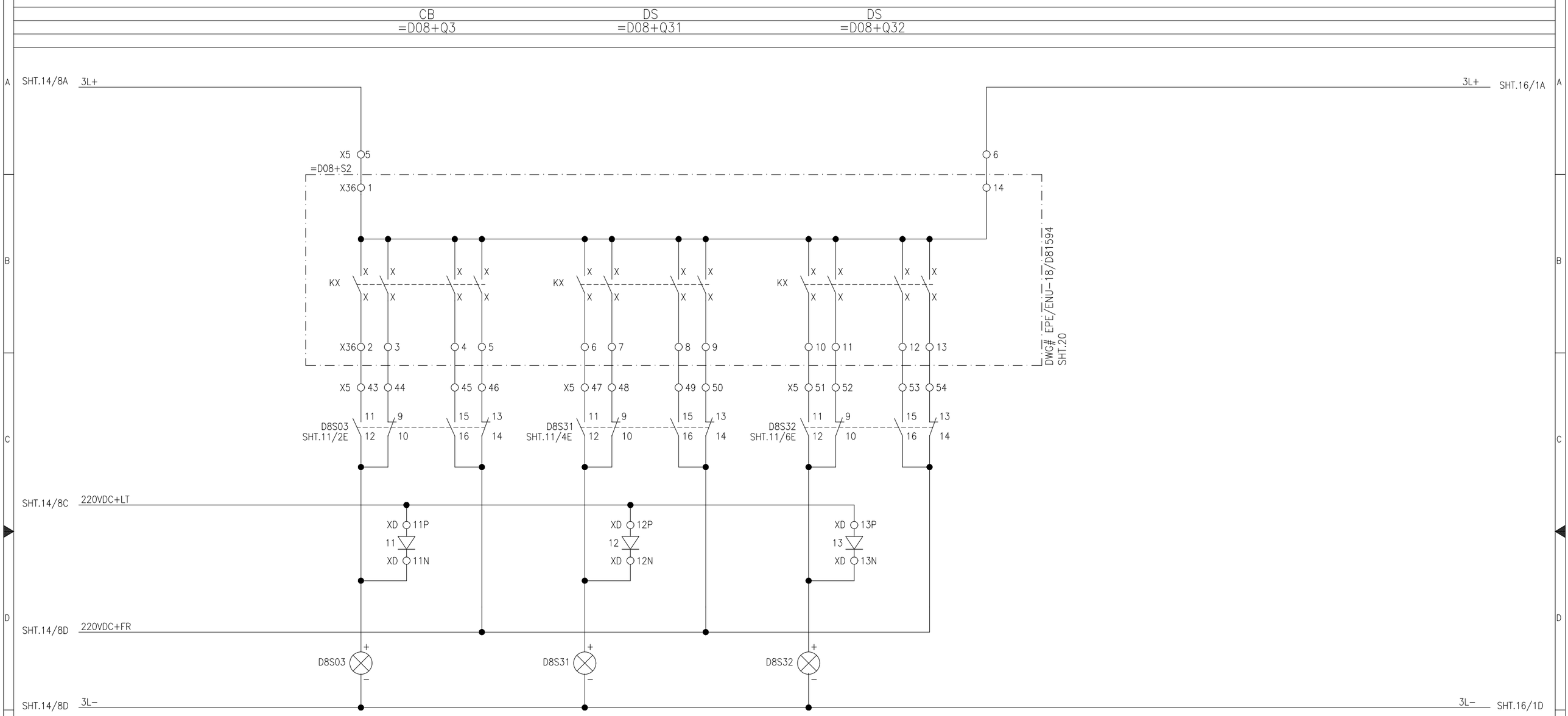
DESCREPANCY INITIATION

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 14OF 35

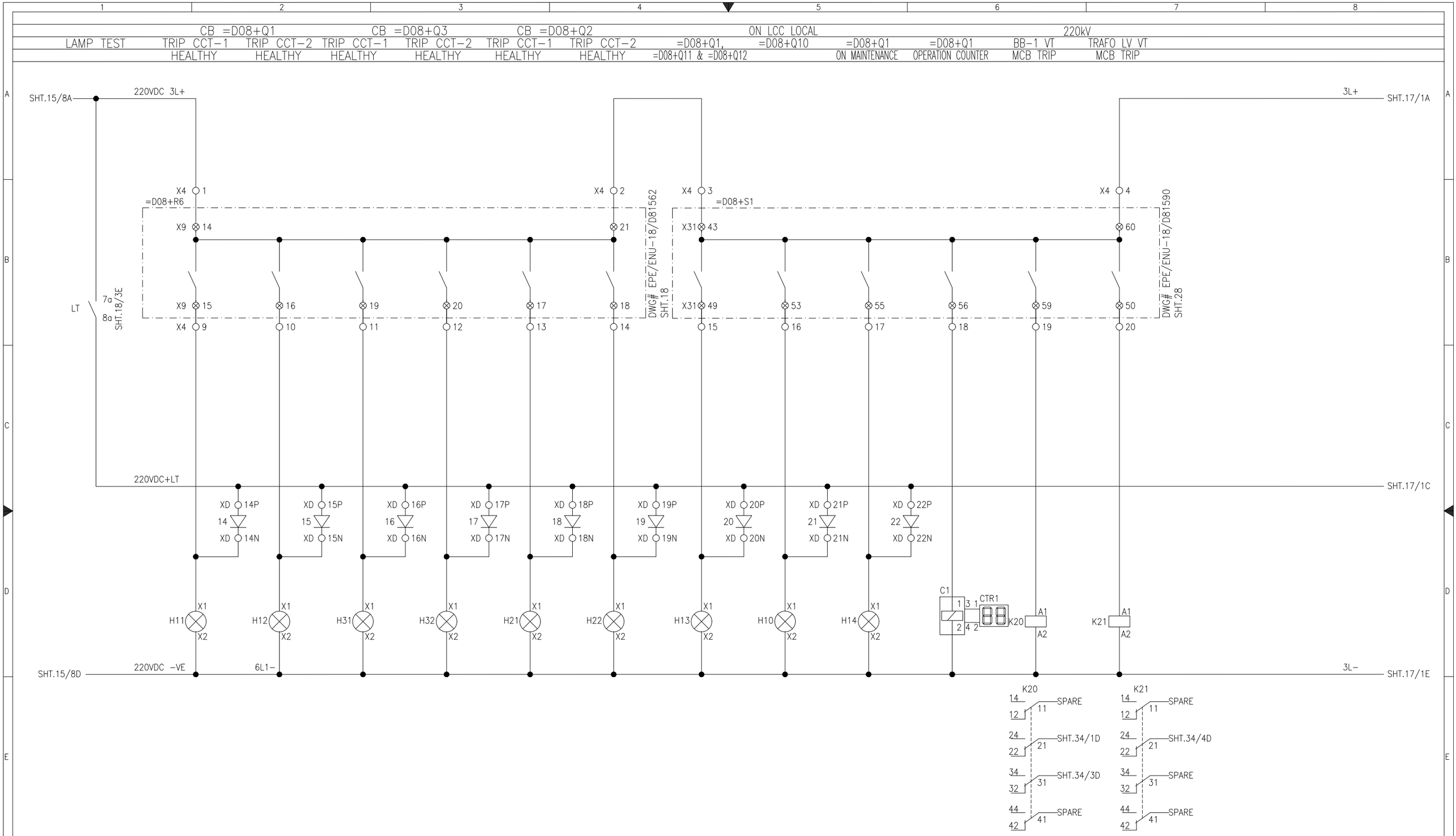
DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
D8S03	CONTROL & DISCREPANCY SWITCH FOR CB	YS-IC4456-S(49)-PM-K-G-D22	YONGSUNG								
D8S31, D8S32	CONTROL & DISCREPANCY SWITCH FOR DS	YS-IC4301-R(49)-PM-K-G-D22	YONGSUNG								

APPROVED	CHECKED	DRAWN	PROJECT:	DESCREPANCY INITIATION	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 15OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
K20, K21	AUX. RELAY, 220VDC WITH 4 C/O	PRC	GE	H11,H12,H31,H32 H21,H22	INDICATION LAMP FOR TRIP CKT HEALTHY	YS-PL	YONGSUNG	H14	INDICATION LAMP FOR MAINTENANCE RED COLOR	YS-PL	YONGSUNG
C1	OPERATION COUNTER, 220VDC	CTR	E-LAB	H13, H10	INDICATION LAMP FOR LCC LOCAL GREEN COLOR	YS-PL	YONGSUNG				

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

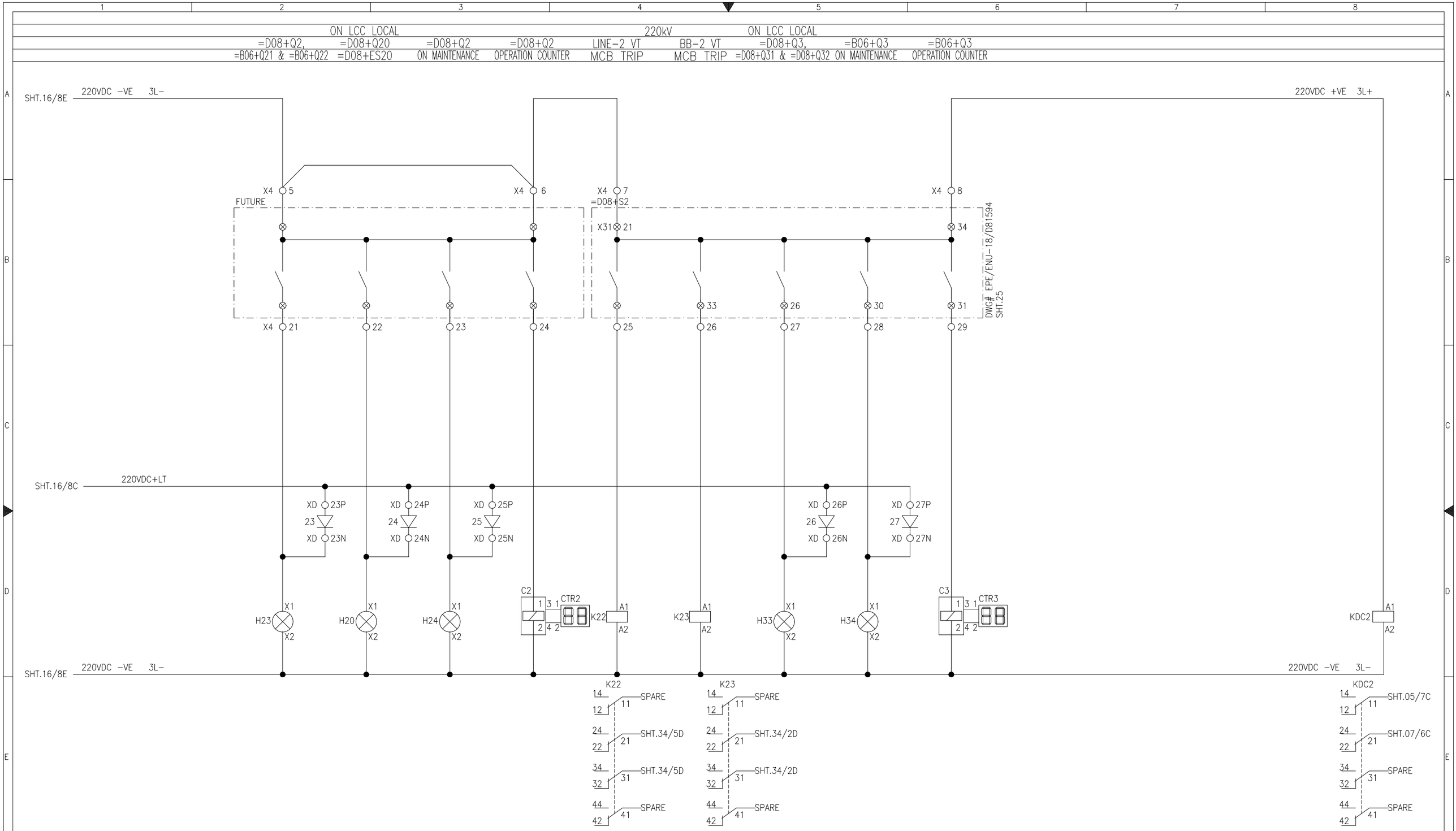
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TRIP SUPPLY HEALTHY INDICATIONS

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 16OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
K22, K23	AUX. RELAY, 220VDC WITH 4 C/O	PRC	GE	H24, H34	INDICATION LAMP FOR MAINTENANCE RED COLOR	YS-PL	YONGSUNG				
C2, C3	CB OPERATION COUNTER	CTR	E-LABS	H23, H20, H33	INDICATION LAMP FOR LCC LOCAL GREEN COLOR	YS-PL	YONGSUNG				

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

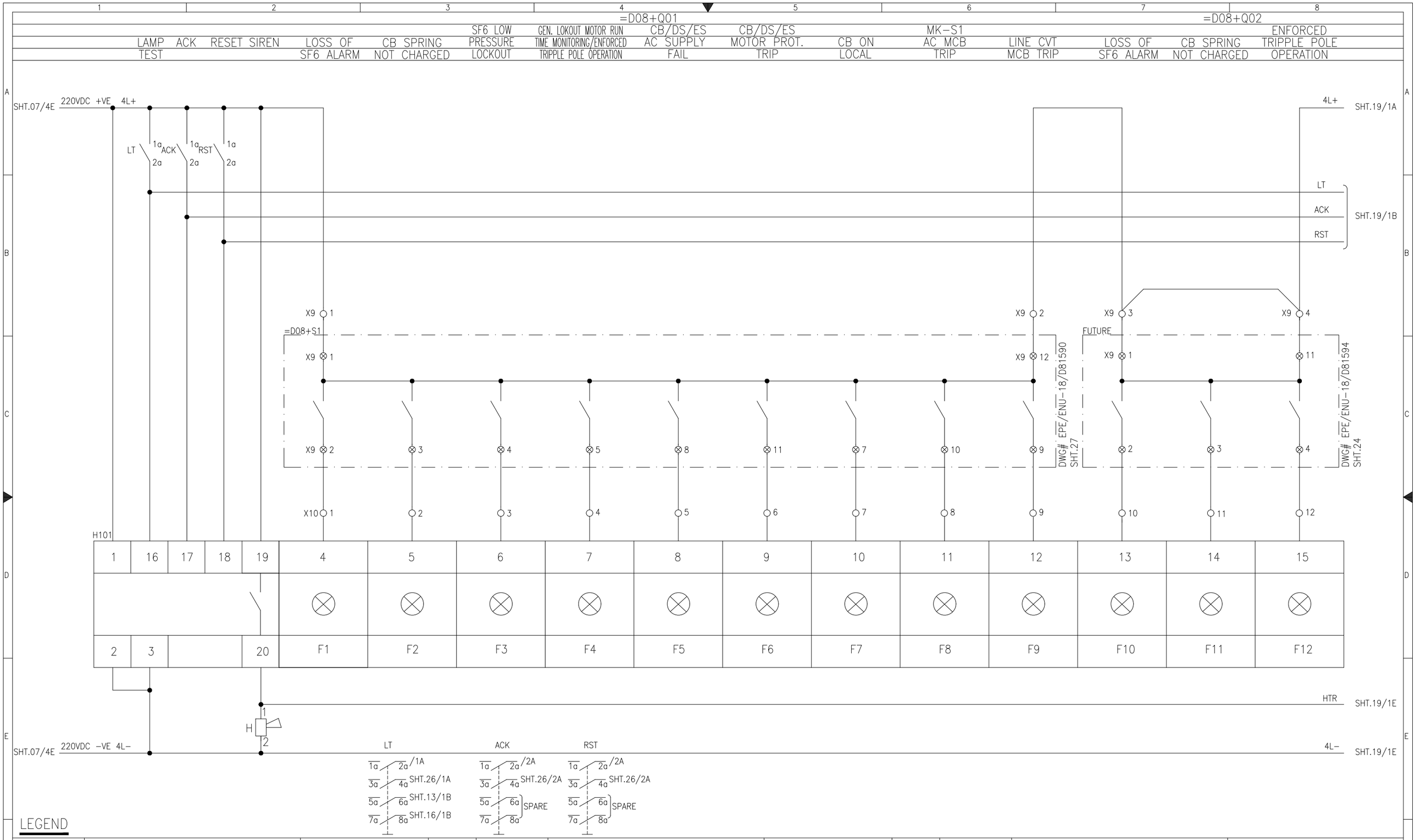
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M/M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TRIP SUPPLY HEALTHY INDICATIONS

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

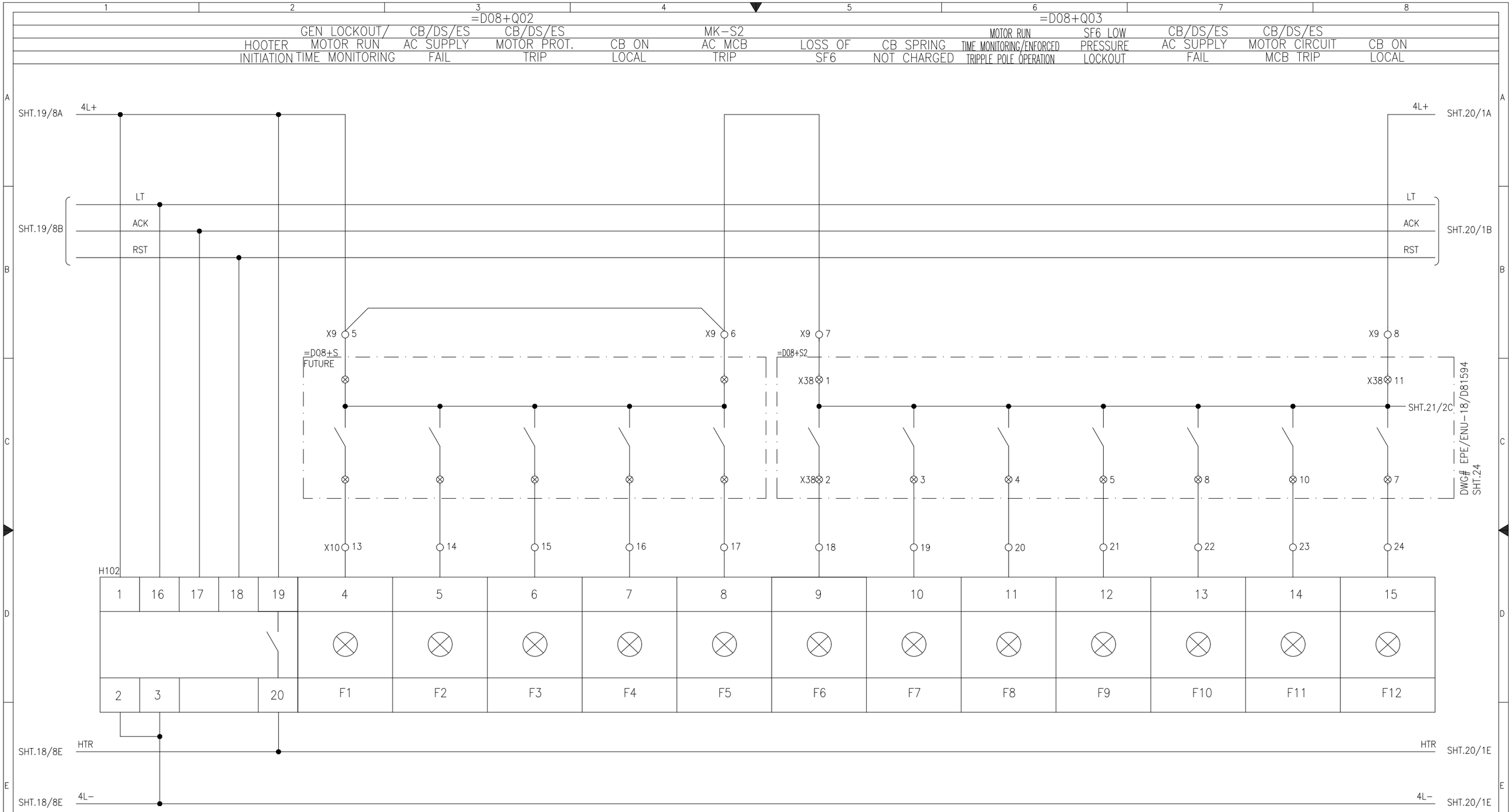
DWG# EPE/ENU-18/D81578 | SHT: 17OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE
H101	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB							
LT/ACK/RST	PUSH BUTTON	YSAP1	YONGSUNG							

APPROVED	CHECKED	DRAWN	PROJECT:			
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	ANNUNCIATOR UNIT-1 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578 SHT: 18OF 35 DATE: 07.03.2019 AS BUILT REV: 0



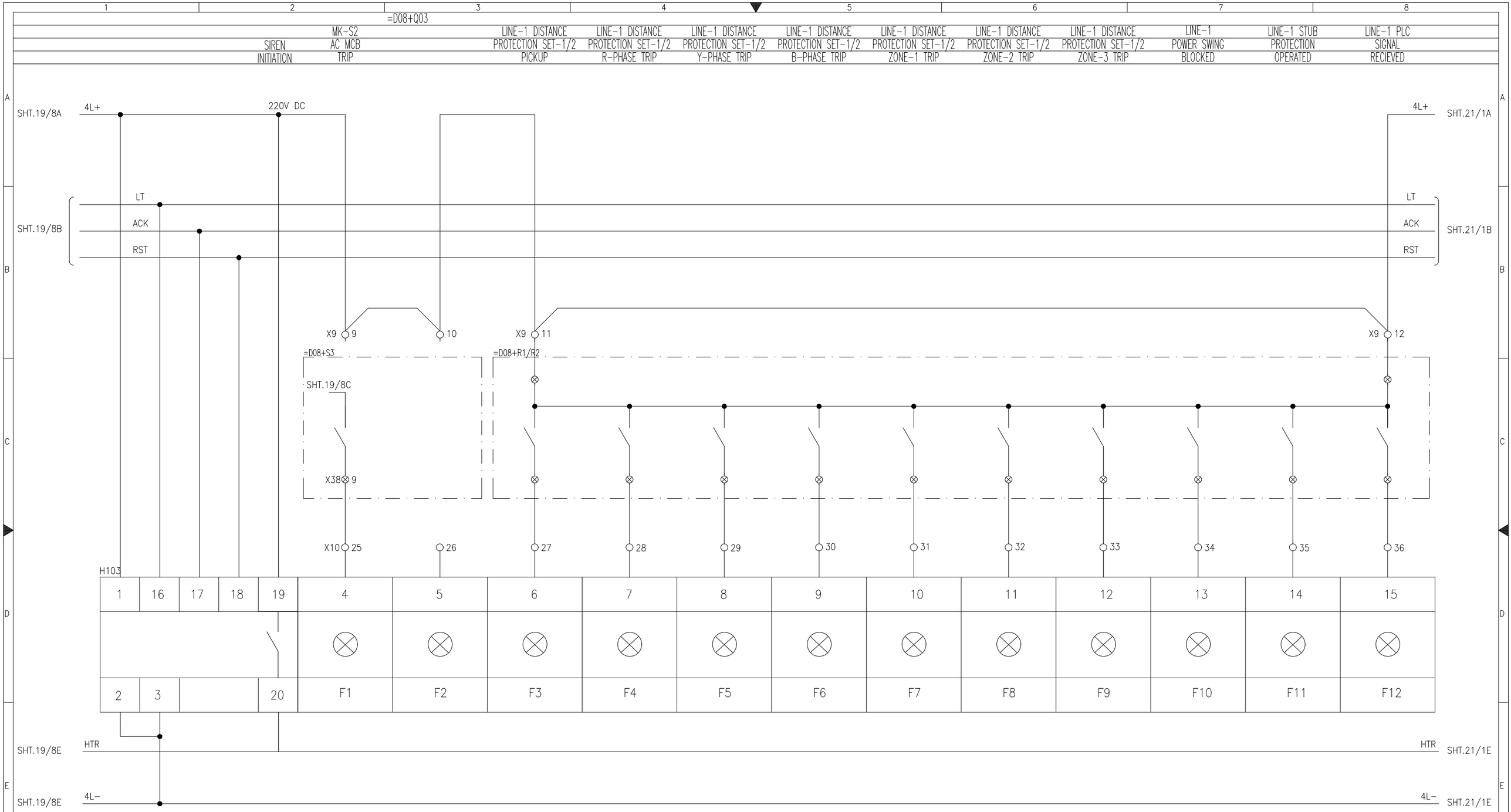
LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE
H102	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB							

APPROVED	CHECKED	DRAWN	PROJECT:			
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	ANNUNCIATOR UNIT-2 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578
						DATE: 07.03.2019 AS BUILT

SHT: 19 OF 35

REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE
H103	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB							

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

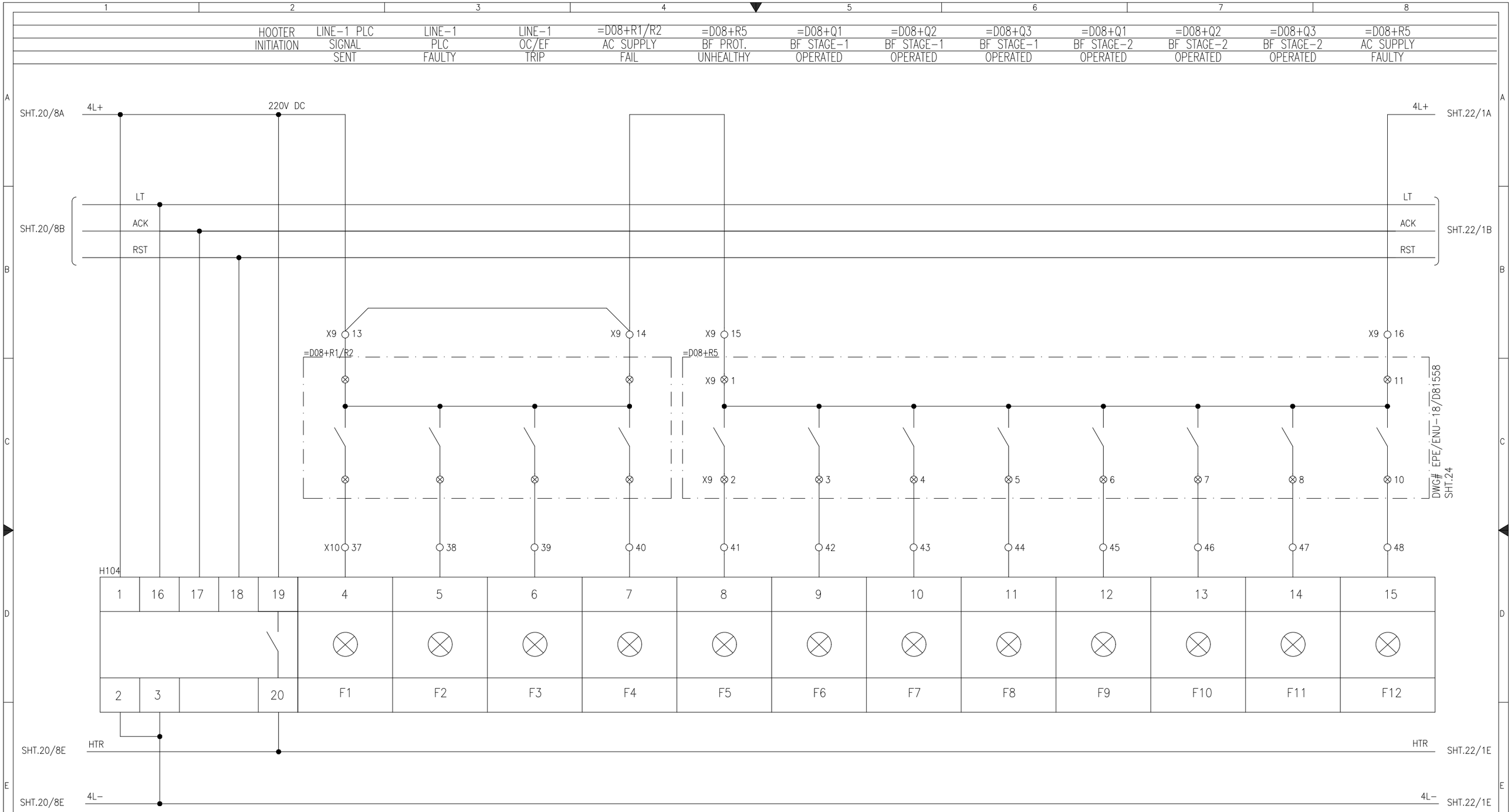
ANNUNCIATOR UNIT-3

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 20OF 35

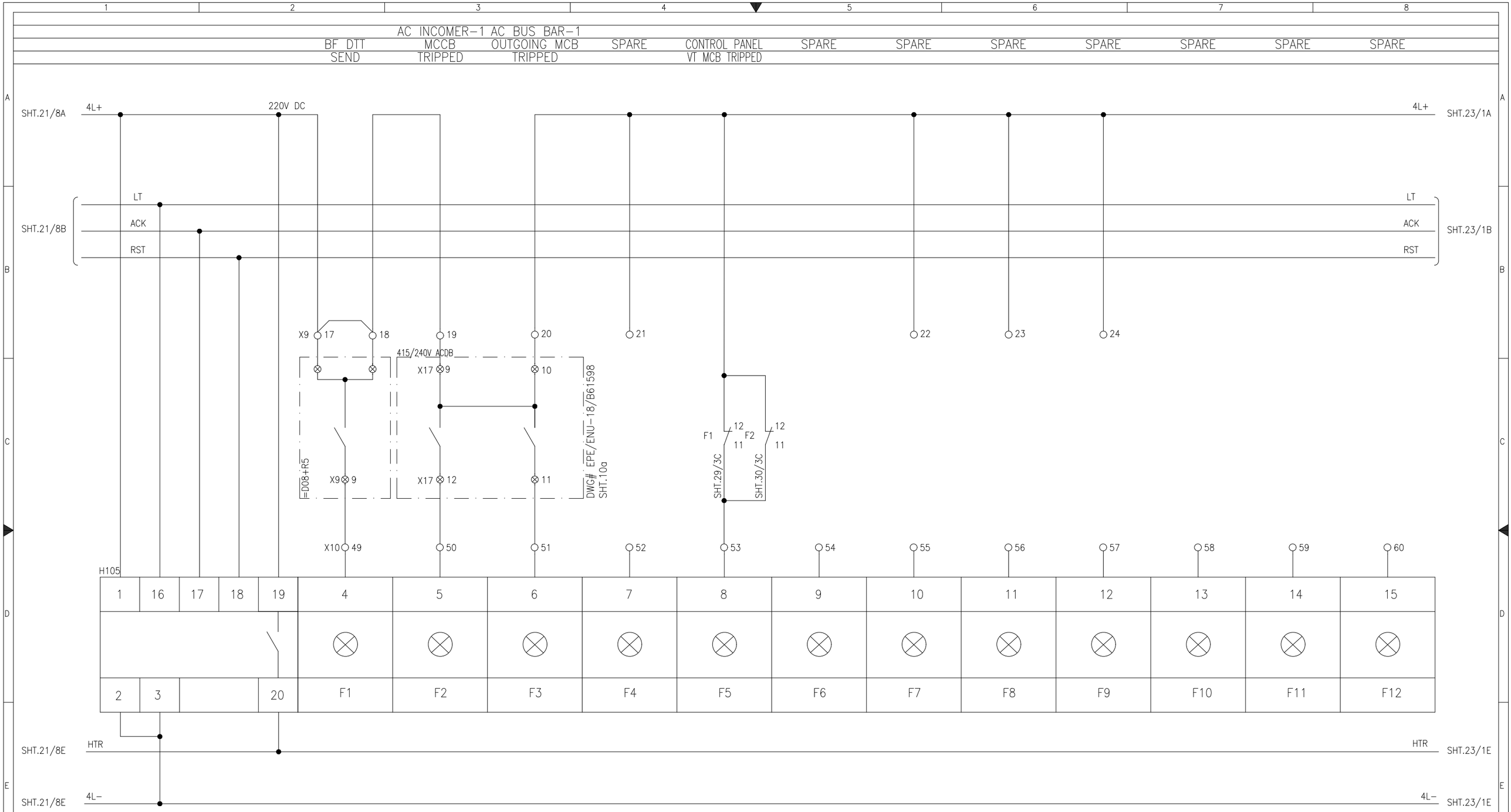
DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE
H104	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB							

APPROVED	CHECKED	DRAWN	PROJECT:				
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	ANNUNCIATOR UNIT-4 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578 DATE: 07.03.2019	SHT: 21 OF 35 AS BUILT REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE
H105	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB							

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

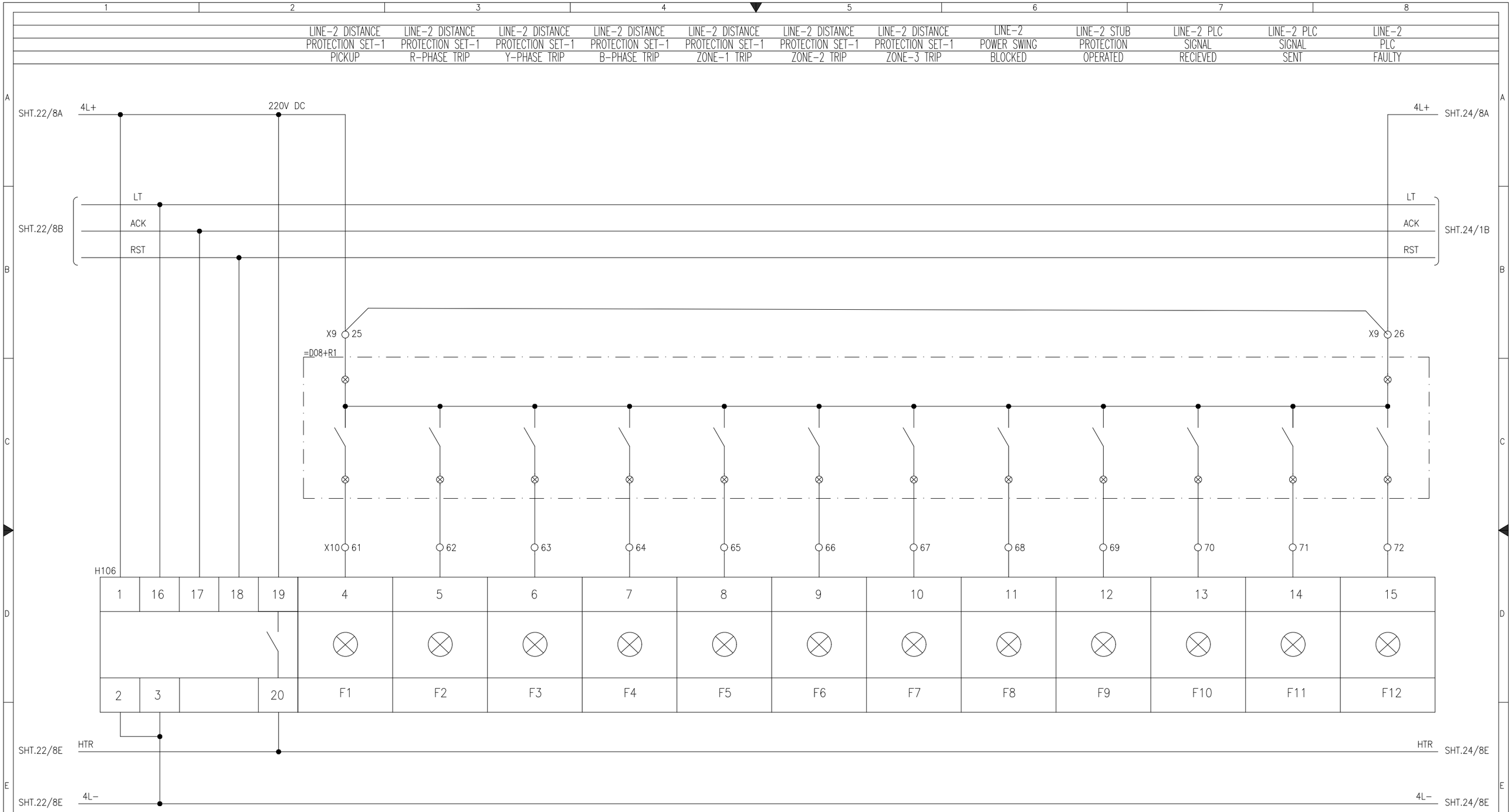
ANNUNCIATOR UNIT-5

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 22OF 35

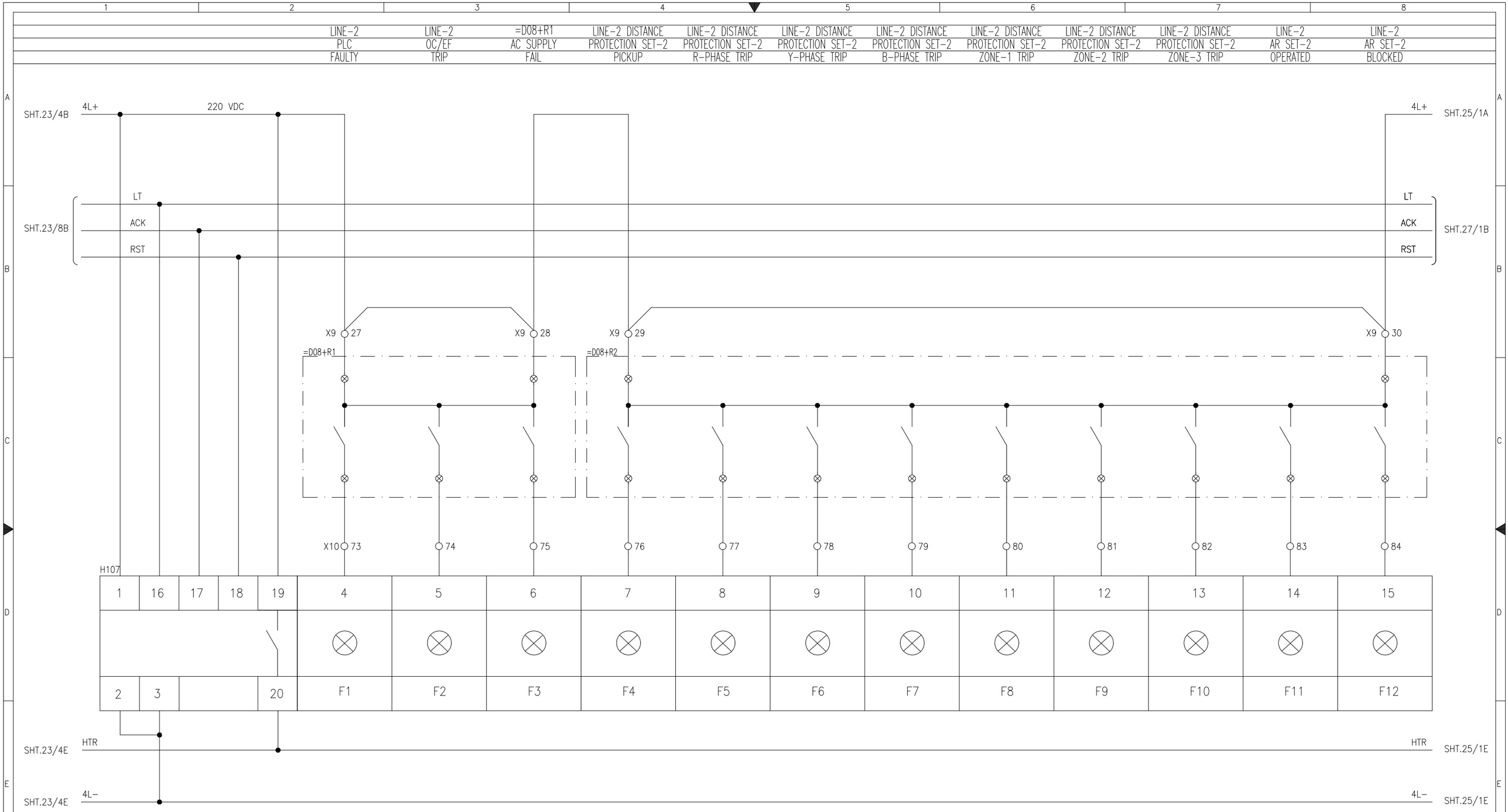
DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE
H106	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB							

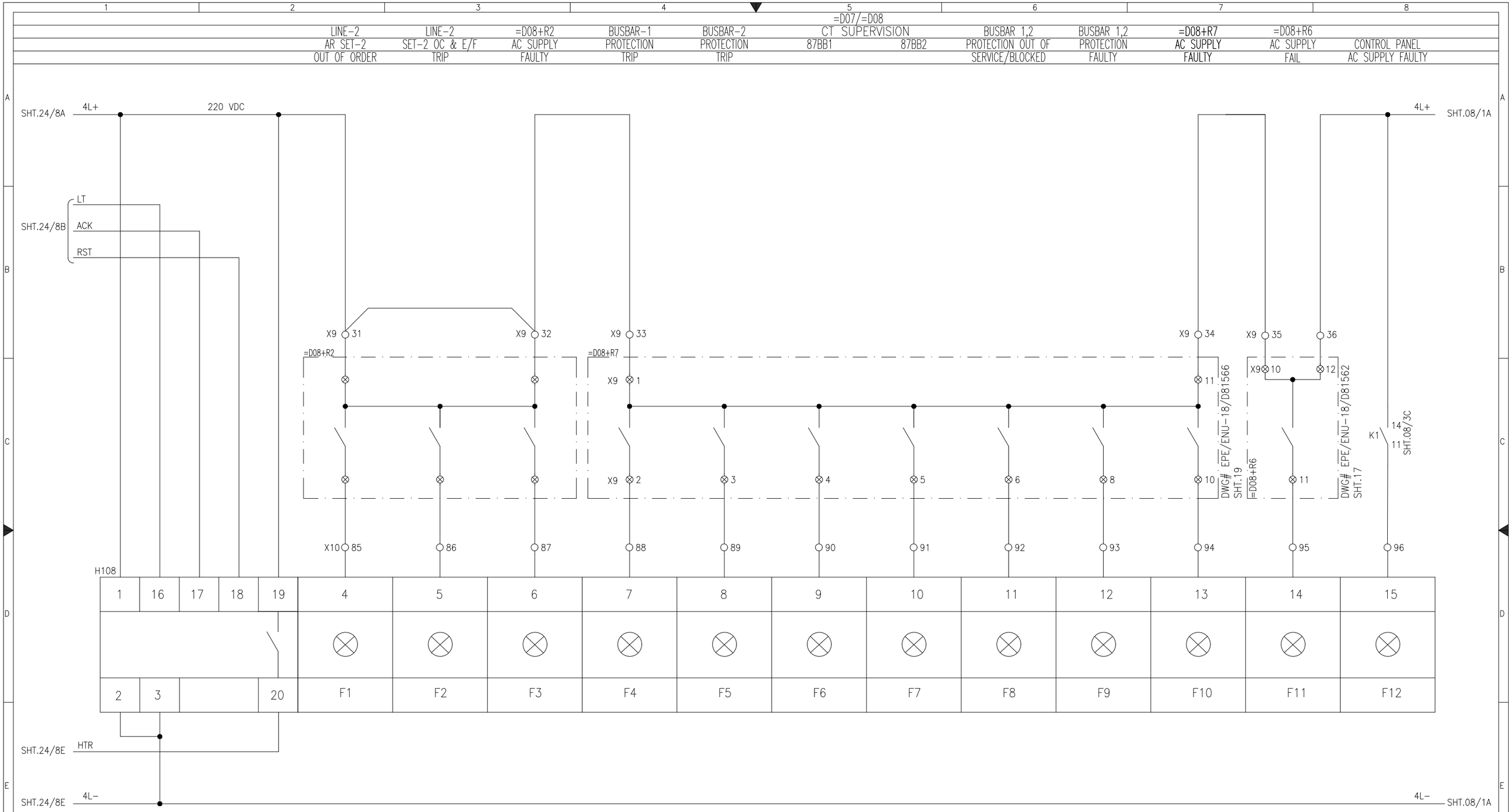
APPROVED	CHECKED	DRAWN	PROJECT:	ANNUNCIATOR UNIT-6	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 23OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE
H107	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB							

APPROVED	CHECKED	DRAWN	PROJECT:	ANNUNCIATOR UNIT-7	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 24OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
H108	ANNUNCIATOR TWELVE WINDOW, 220VDC	AM101	E-LAB								

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

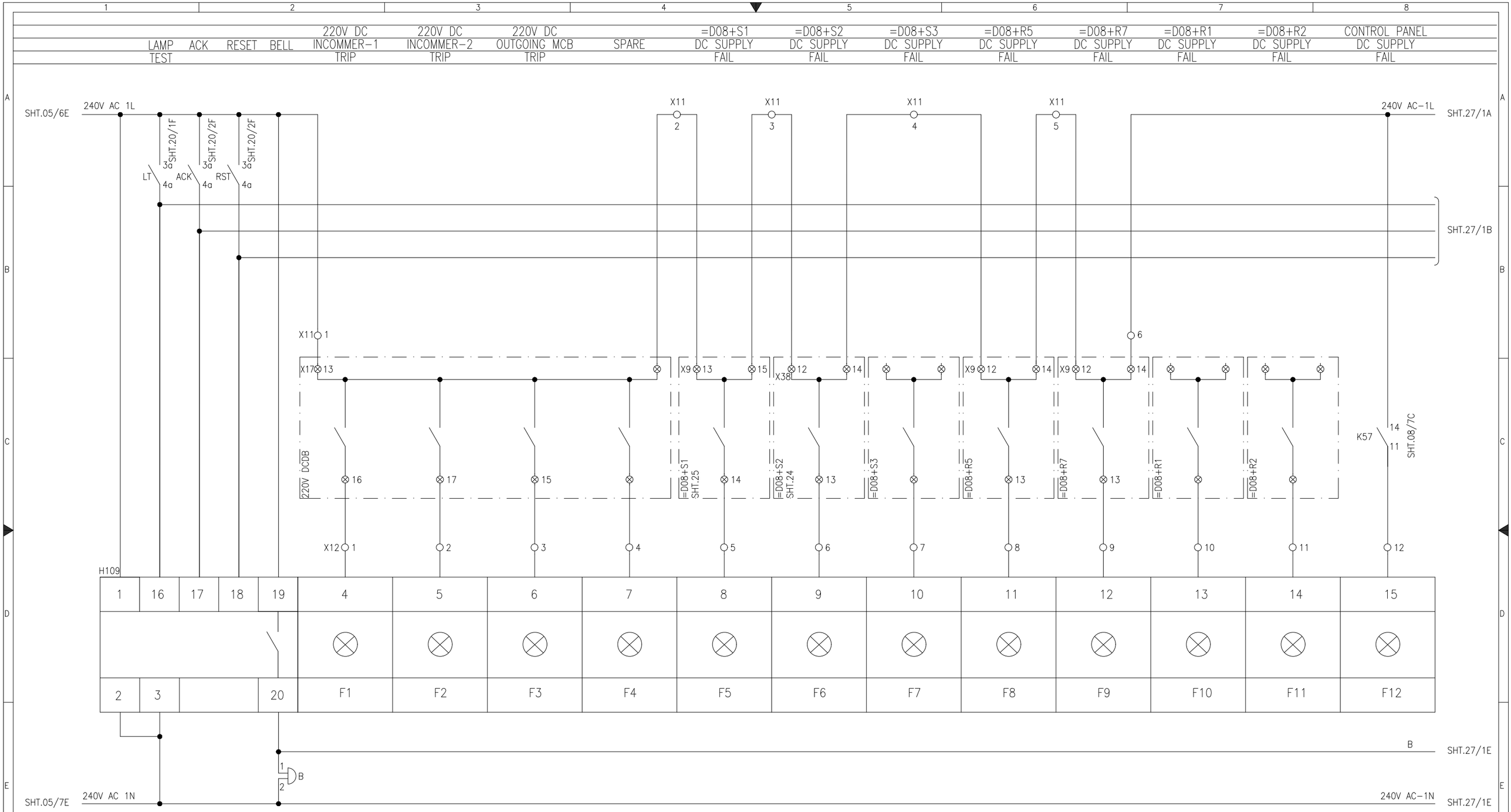
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

ANNUNCIATOR UNIT-8

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 25OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
H109	ANNUNCIATOR TWELVE WINDOW, 220VAC	AM101	E-LAB								
B	BELL FOR ALARM FUNCTION, 220VAC	YSMB	YONGSUNG								

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

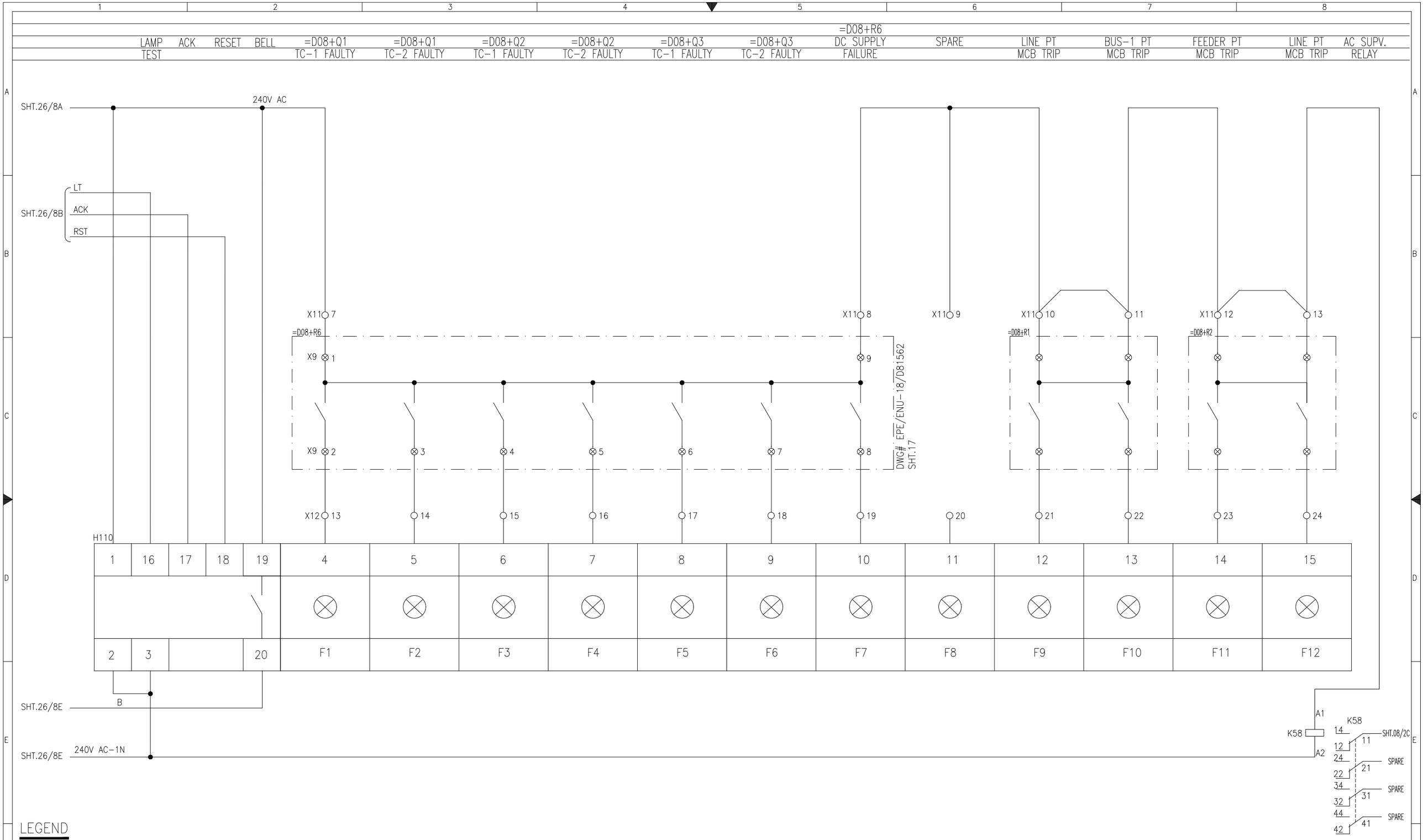
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

ANNUNCIATOR UNIT-9

220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

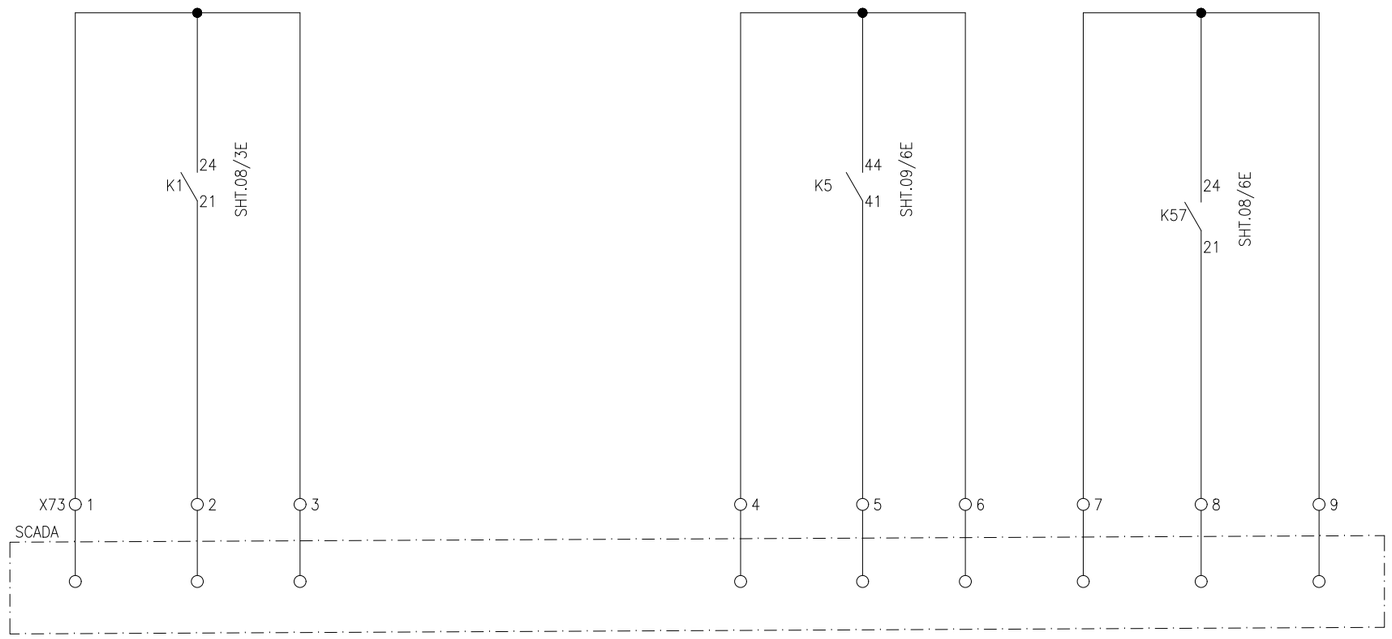
DWG# EPE/ENU-18/D81578 | SHT: 26OF 35
DATE: 07.03.2019 | AS BUILT | REV: 0



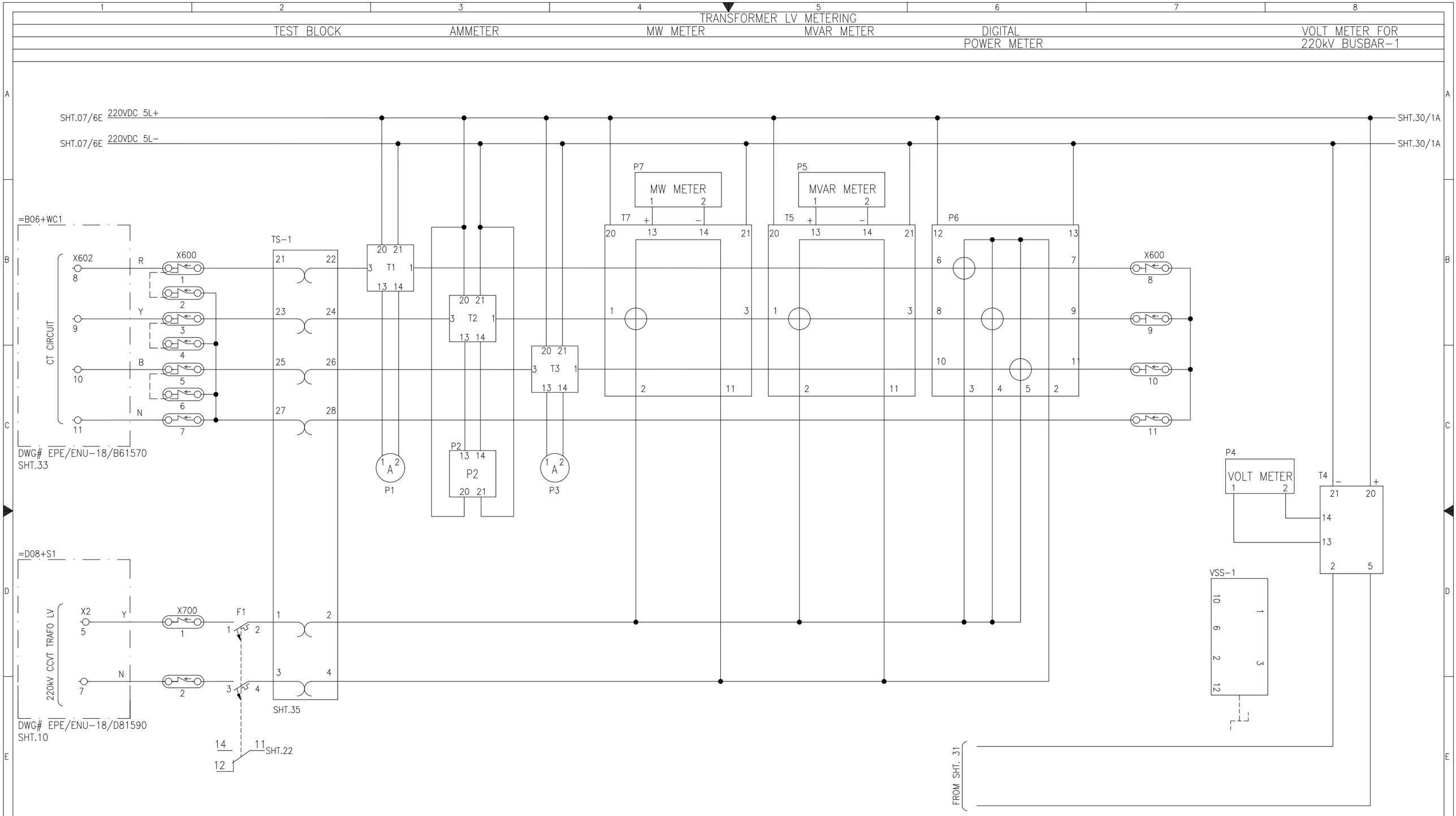
LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
H110	ANNUNCIATOR TWELVE WINDOW, 220VAC	AM101	E-LAB								
K58	AUX. RELAY, 220VAC WITH 4 C/O	PRC	GE								

APPROVED	CHECKED	DRAWN	PROJECT:				
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	ANNUNCIATOR UNIT-10 220kV CONTROL PANEL TYPE =D08+C2	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81578 DATE: 07.03.2019	SHT: 27OF 35 AS BUILT REV: 0



APPROVED	CHECKED	DRAWN	PROJECT:	SCADA SIGNAL	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 28OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
TS-1	TEST BLOCK	TSB-14-2222111111AAAB	ARTECHE	P7+T7	MW METER/TRANSDUCER	MCOWN/A96MMA	FRER	P6	DIGITAL POWER METER	ENERIUM-150	ENERDIS
P1+T1, P3+T3	AMPERE METER/TRANSDUCER	MCOEAQ/A96MMA	FRER	P5+T5	MVAR METER/TRANSDUCER	MCORN/A96MMA	FRER	VSS-1	VOLT METER SELECTOR SWITCH	PO	GGT
P2, T2	AMPERE METER/TRANSDUCER	MCOEAQ/D96MMA	FRER	P4+T4	VOLT METER/TRANSDUCER	MCOEVQ/A96MMA	FRER				

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M/M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

AC SCHEMATIC DIAGRAM

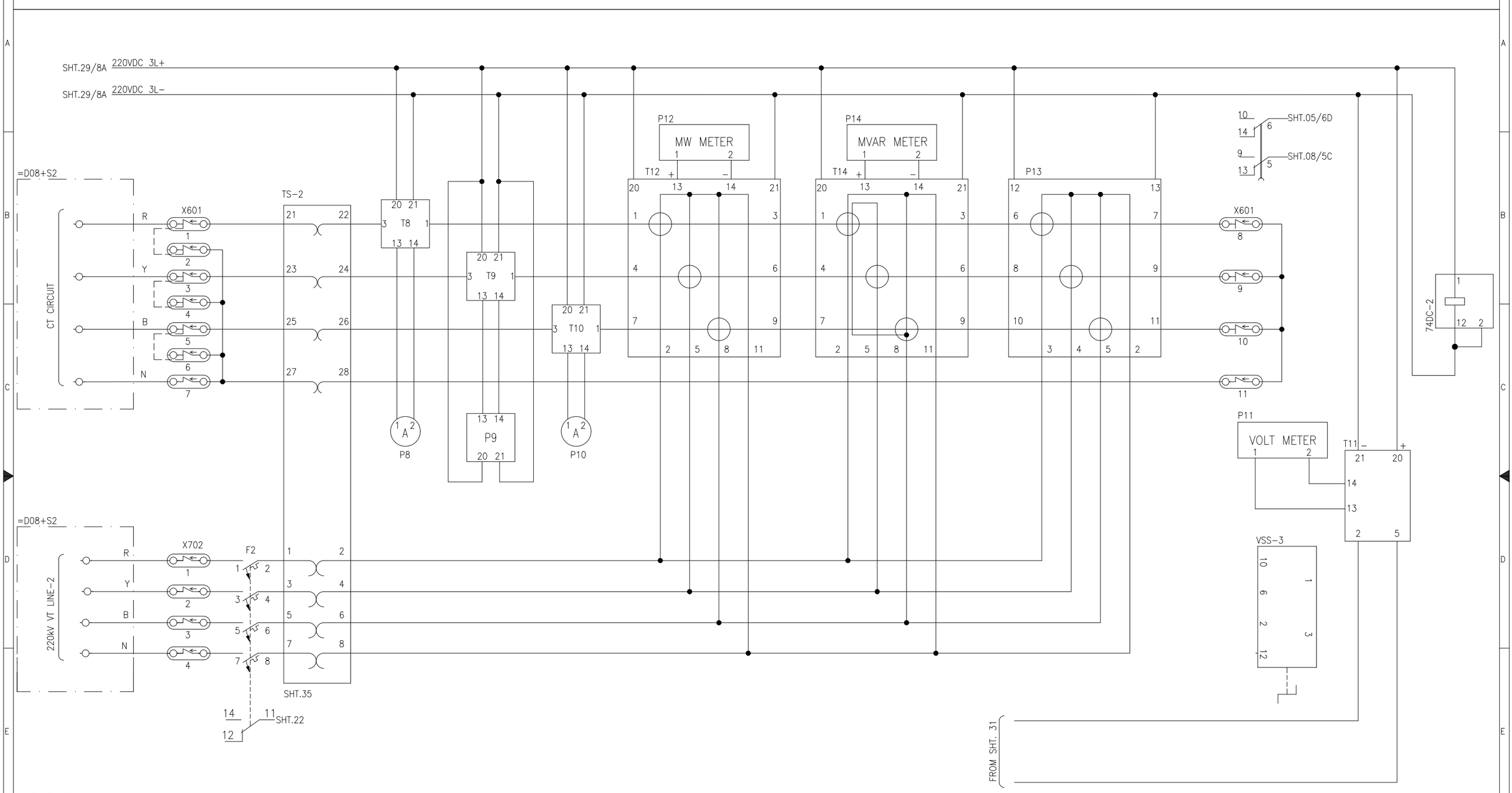
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.

71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 29OF 35

DATE: 07.03.2019 | AS BUILT | REV: 0



LEGEND

DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE	DES:	DESCRIPTION	TYPE	MAKE
TS-2	TEST BLOCK	TSB-14-2222111111AAAB	ARTECHE	P12+T12	MW METER/TRANSDUCER	MCOWT/A96MMA	FRER	P13	DIGITAL POWER METER	ENERIUM-150	ENERDIS
P8+T8,P10+T10	AMPERE METER/TRANSDUCER	MCOEAQ/A96MMA	FRER	P14+T14	MVAR METER/TRANSDUCER	MCORT/A96MMA	FRER	VSS-2	VOLT METER SELECTOR SWITCH	PO	GGT
P9, T9	AMPERE METER/TRANSDUCER	MCOEAQ/D96MMA	FRER	P11+T11	VOLT METER/TRANSDUCER	MCOEVQ/A96MMA	FRER	74DC-2	DC SUPPLY SUPERVISION RELAY, 220VDC	VDF10	ARTECHE

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M/M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

AC SCHEMATIC DIAGRAM

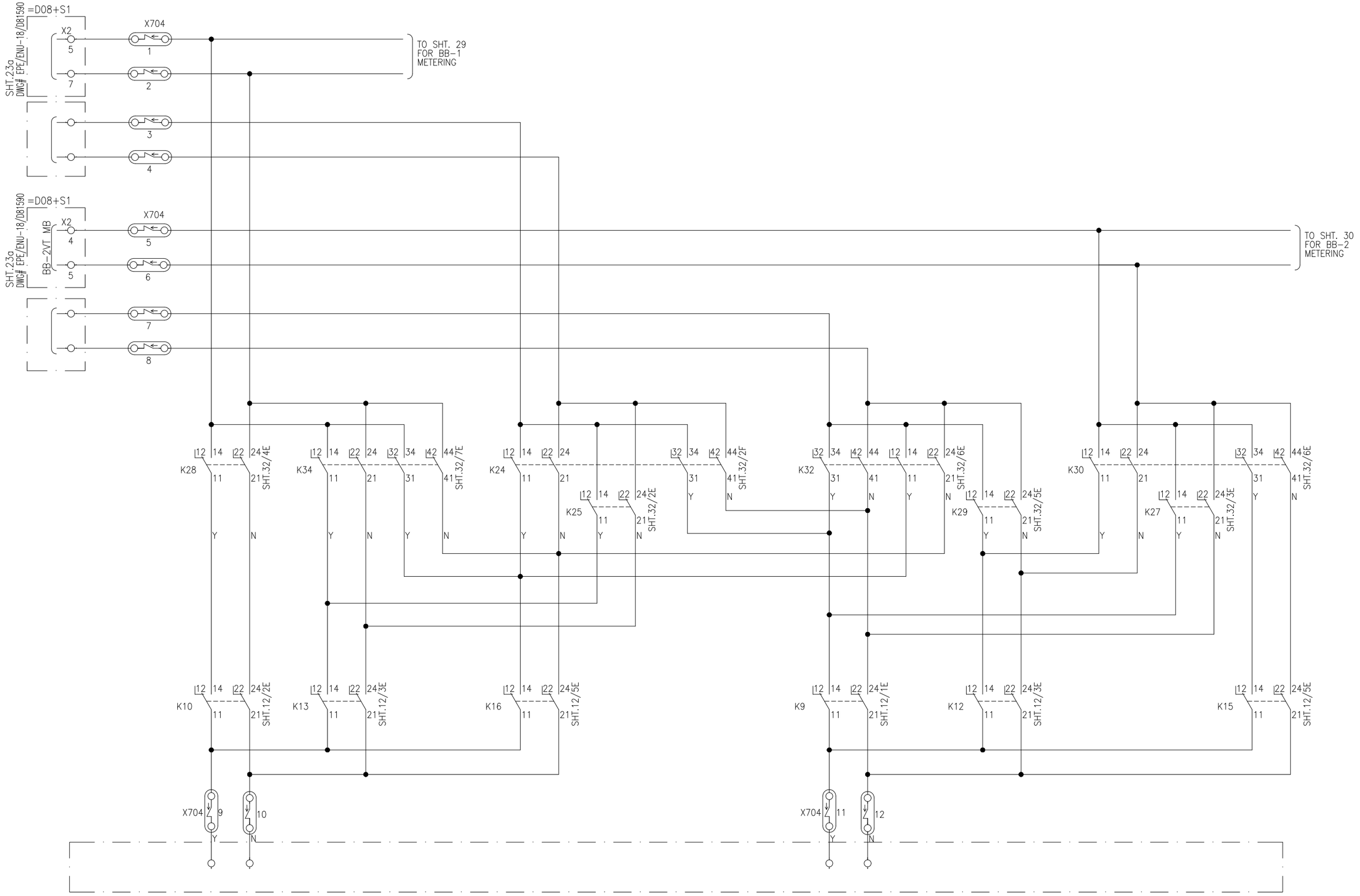
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81578 | SHT: 30OF 35

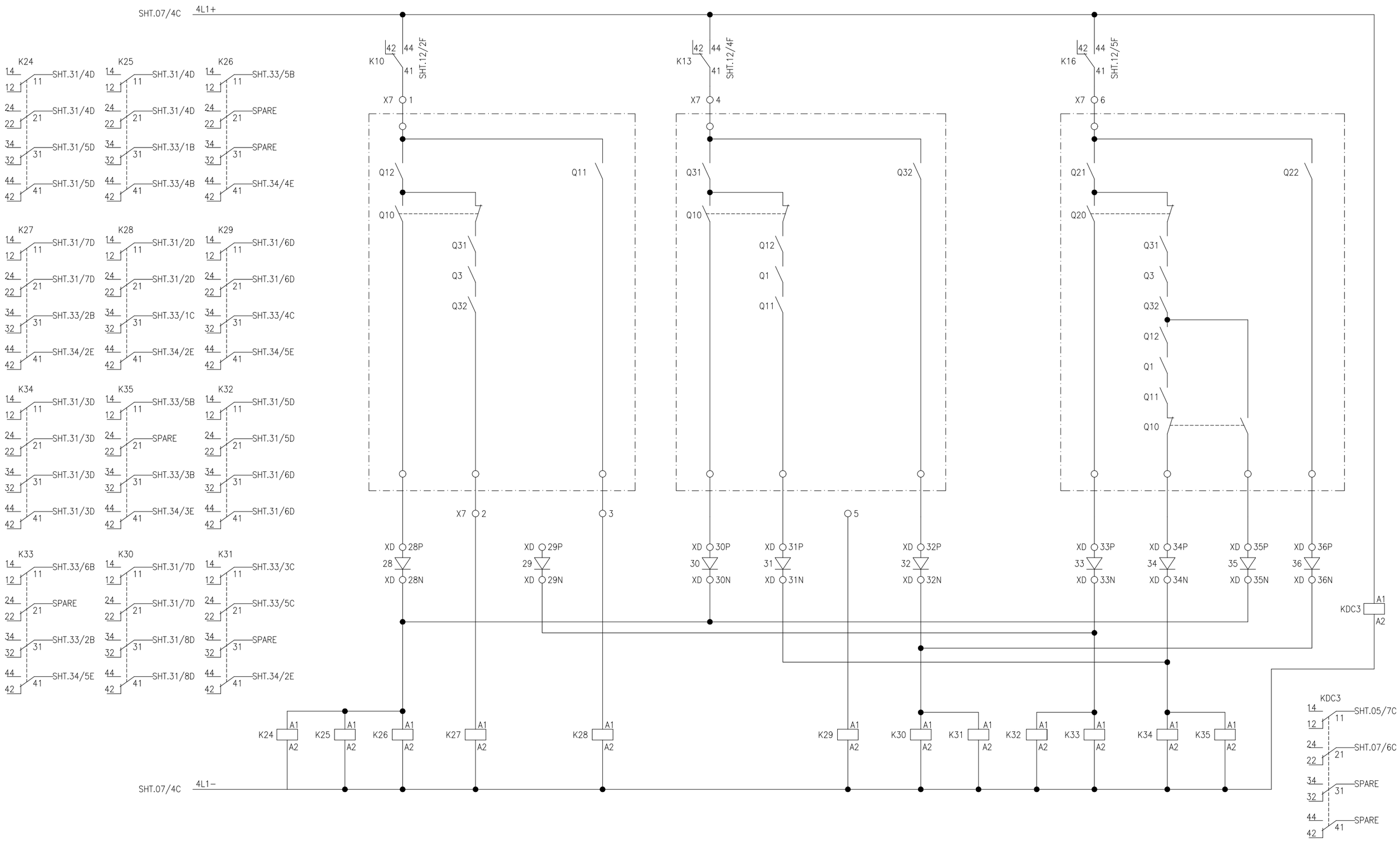
DATE: 07.03.2019 | AS BUILT | REV: 0

220kV VT SELECTION SCHEME

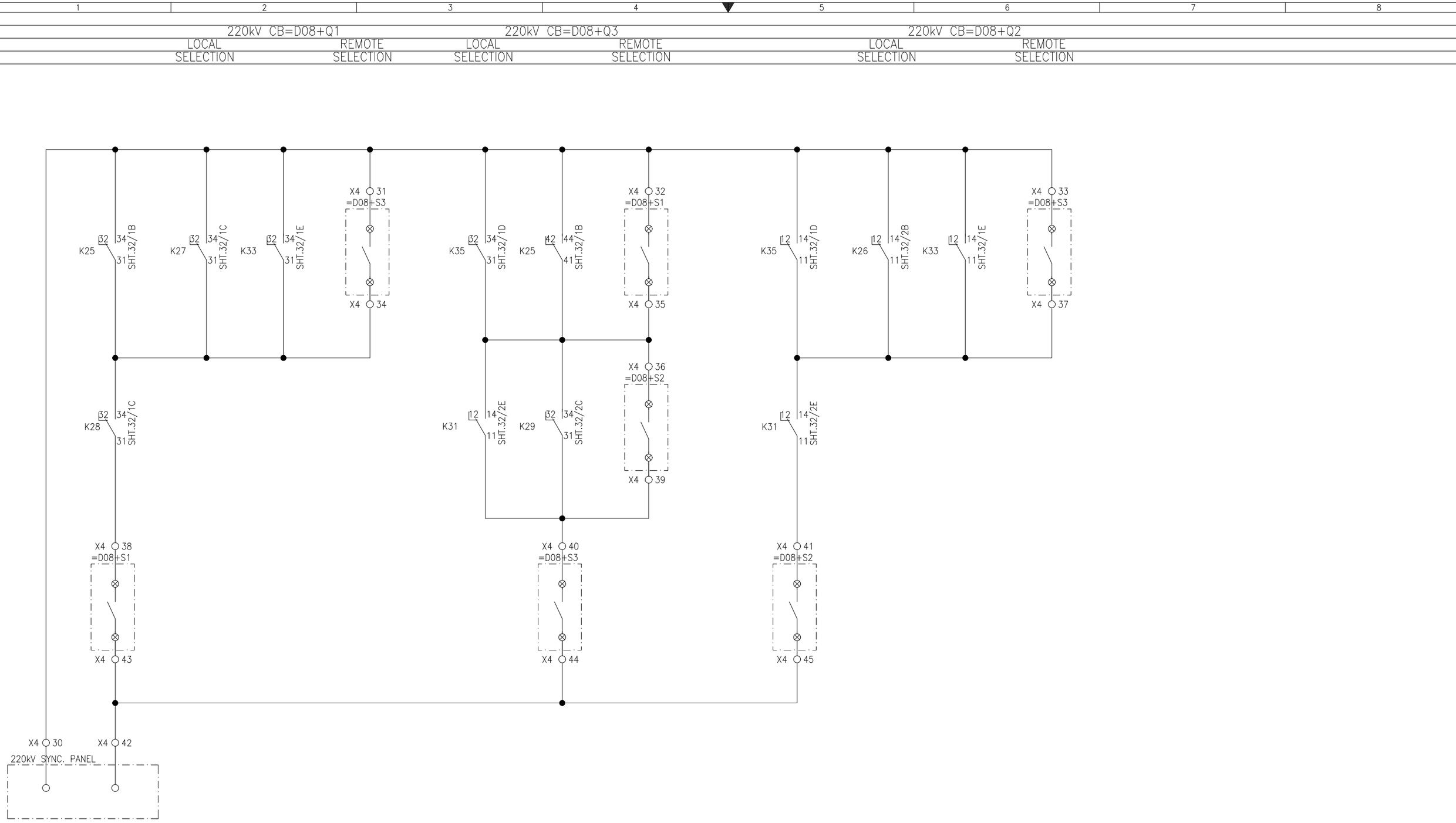


APPROVED	CHECKED	DRAWN	PROJECT:	VOLTAGE SELECTION FOR SYNCHROSCOPE	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 31 OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0

SYNCHRONIZING
SELECTION



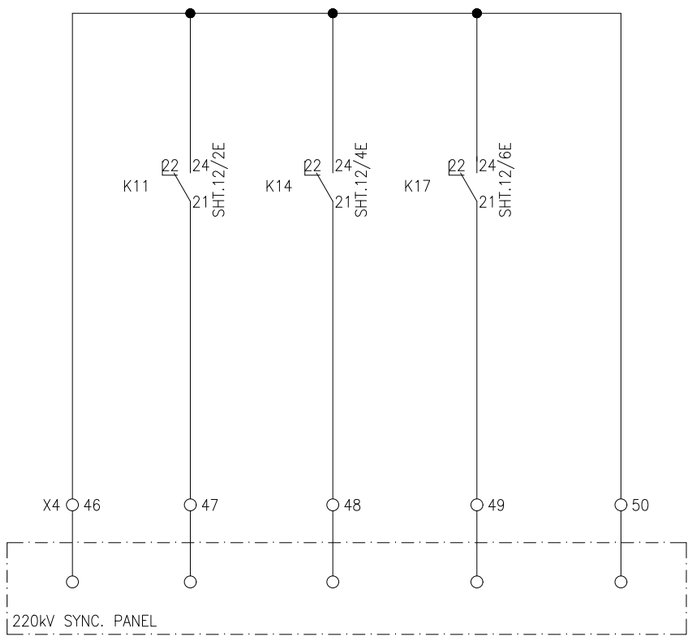
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	SYNCHRONIZING SELECTION	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 32OF 35
NAH	MSS	MUR		220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0



APPROVED	CHECKED	DRAWN	PROJECT:	SYNC. RELAY INPUT	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 33OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0

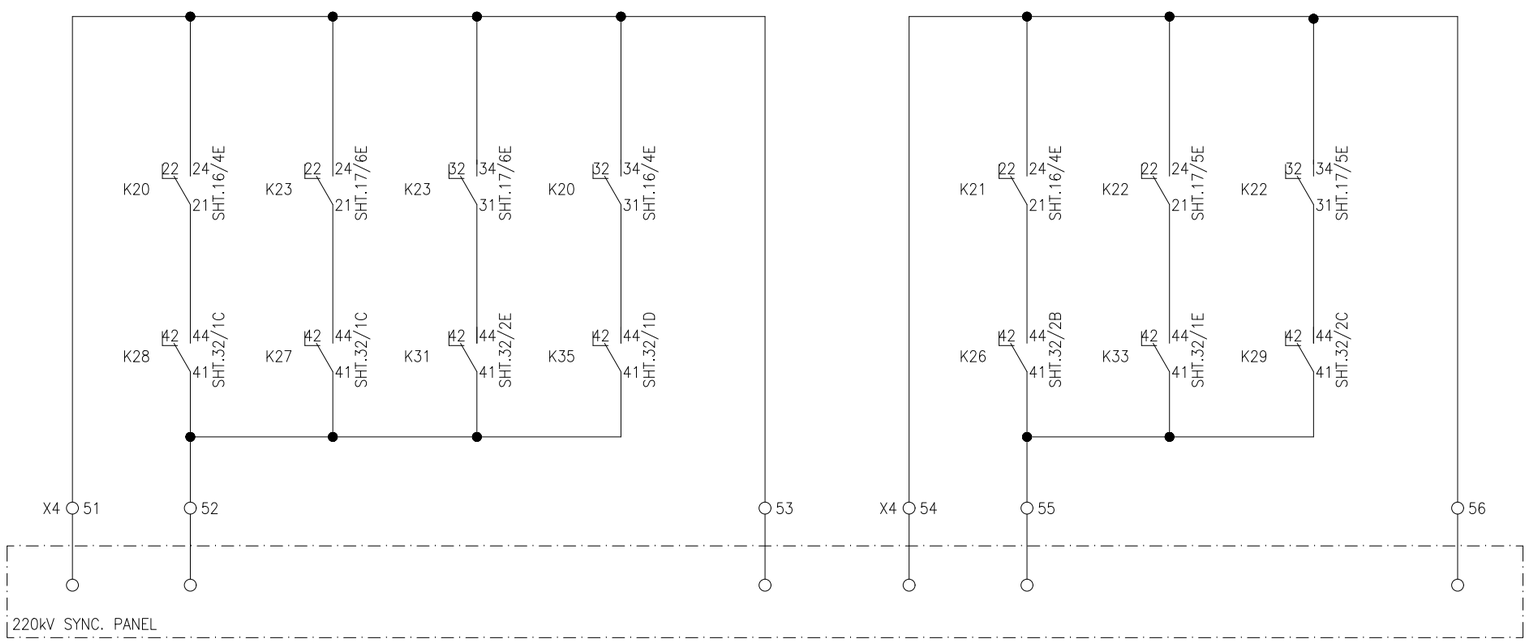
500kV CB

=B06+Q1 SELECTION | =B06+Q3 SELECTION | =B06+Q2 SELECTION



220kV SELECTED BUS VT MCB TRIP

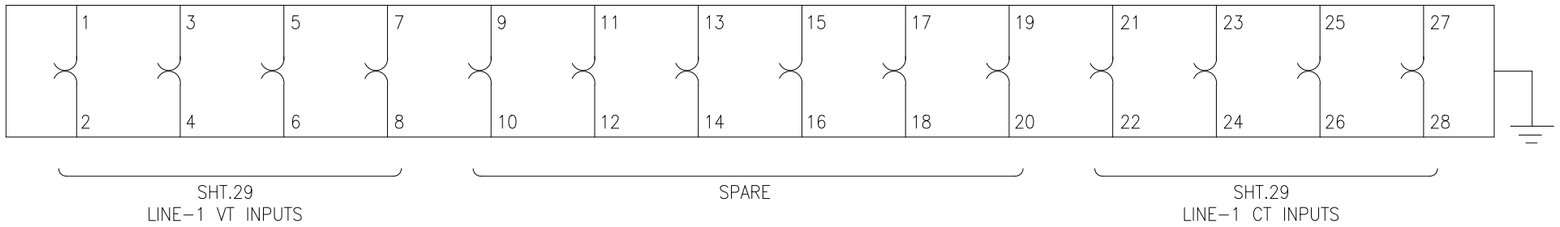
220kV SELECTED LINE VT MCB TRIP



APPROVED	CHECKED	DRAWN	PROJECT:	SYNCHRONIZING SIGNALS	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 34 OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0

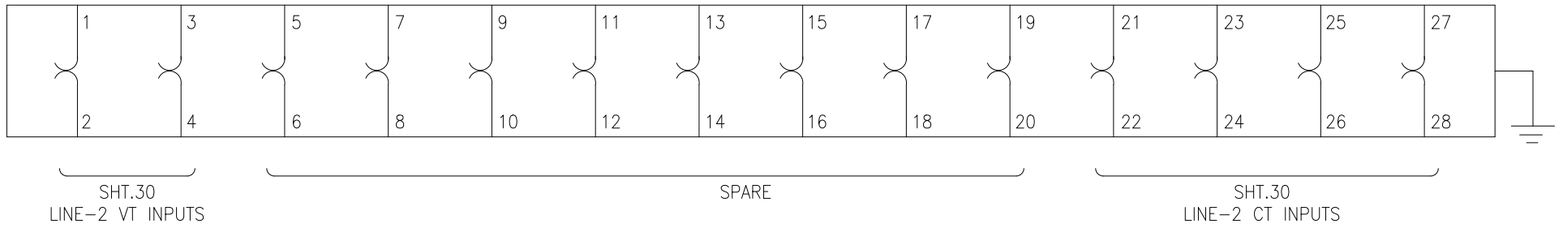
TS-1

TEST BLOCK TYPE TSB-14-2222111111AAAB-V



TS-2

TEST BLOCK TYPE TSB-14-2222111111AAAB-V



APPROVED	CHECKED	DRAWN	PROJECT:	TEST BLOCK DETAILS	EPESOL Pvt. Ltd.	DWG# EPE/ENU-18/D81578	SHT: 35OF 35
NAH	MSS	MUR	EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	220kV CONTROL PANEL TYPE =D08+C2	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 AS BUILT	REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	TERMINAL STRIP X600									TERMINATION B	
	LINK				REFERENCE			TERMINAL NO		ITEM DESIGNATION	TERMINAL NO
					SHT	/	REF				
	•				29	/	1B	1		TS-1	21
	•	•			29	/	1B	2			
	•				29	/	1B	3		TS-1	23
	•	•			29	/	1B	4			
	•				29	/	1C	5		TS-1	25
	•	•			29	/	1C	6			
		•			29	/	1C	7		TS-1	27
		•			29	/	7B	8		P6	7
		•			29	/	7B	9		P6	9
		•			29	/	7C	10		P6	11
		•			29	/	7C	11		TS-1	28
D-								12			

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 01 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

- TEMPORARY SHORTENING LINK
- PERMANENT LINK
- D- END COVER

| | TERMINAL STRIP X601 | | | | | | | | | | | | | |

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO		TERMINAL STRIP X700 LINK	REFERENCE SHT	/	REF	TERMINAL NO	TERMINATION B ITEM DESIGNATION	TERMINAL NO
						29	/	1D	1	F1	1
						29	/	1E	2	F1	3
				D-					3		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 03 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO		TERMINAL STRIP X702								TERMINATION B	
					LINK				REFERENCE			TERMINAL NO	ITEM DESIGNATION	TERMINAL NO
									SHT	/	REF			
									30	/	1D	1	F2	1
									30	/	1D	2	F2	3
									30	/	1D	3	F2	5
									30	/	1E	4	F2	7
				D-								5		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 04 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X704								TERMINATION B	
	LINK				REFERENCE			TERMINAL NO	ITEM DESIGNATION	TERMINAL NO
					SHT	/	REF			
					31	/	2A	1	K28	14
					31	/	2A	2	K28	24
					31	/	2A	3	K24	14
					31	/	2B	4	K24	24
					31	/	2B	5	K30	14
					31	/	2B	6	K30	24
					31	/	2C	7	K32	14
					31	/	2C	8	K32	24
					31	/	2F	9	K10	11
					31	/	2F	10	K10	21
					31	/	5F	11	K9	11
					31	/	5F	12	K9	21
D-								13		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 05 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	TERMINAL STRIP X100							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
	●				05	/	1B	1
	●				05	/	8B	2
	●				05	/	1B	3
	●				05	/	8B	4
D-								5

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
F100	2
74DC-1	10
F100	4
H1	X2

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 06 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	TERMINAL STRIP X200								
	LINK				REFERENCE			TERMINAL NO	TERMINATION B
					SHT	/	REF		ITEM DESIGNATION / TERMINAL NO
	●				06	/	1B	1	TLS 1
	●				06	/	8B	2	
	●				06	/	1B	3	TLS 2
D-	●				06	/	8B	4	

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 07 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	TERMINAL STRIP X110							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
	●				07	/	1A	1
	●				07	/	8A	2
	●				07	/	1B	3
	●				07	/	8B	4
					07	/	1C	5
					07	/	2C	6
D-								7

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
F110	2
F110	4
F110	1
F110	3

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 08 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	TERMINAL STRIP X120							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
	●				07	/	1D	1
	●				07	/	8D	2
	●				07	/	1D	3
	●				07	/	8D	4
D-								5

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
F211	2
F212	2

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 09 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X1						
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
					09	/	3B	1
					09	/	4B	2
					09	/	4B	3
					09	/	5B	4
					09	/	5B	5
					09	/	6B	6
					09	/	6B	7
					09	/	7B	8
					10	/	3B	9
					10	/	4B	10
					10	/	4B	11
					10	/	5B	12
					10	/	5B	13
					10	/	6B	14
					10	/	6B	15
					10	/	7B	16
					10	/	7B	17
					10	/	8B	18
					11	/	3B	19
					11	/	4B	20
					11	/	4B	21
					11	/	5B	22
					11	/	5B	23
					11	/	6B	24
								25
D-								26

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
D8S01	4
D8S01	2
D8S11	4
D8S11	2
D8S12	4
D8S12	2
D8S10	4
D8S10	2
D8S02	4
D8S02	2
D8S21	4
D8S21	2
D8S22	4
D8S22	2
D8S20	4
D8S20	2
D8ES20	4
D8ES20	2
D8S03	4
D8S03	2
D8S31	4
D8S31	2
D8S32	4
D8S32	2

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 10 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X3							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
					09	/	3C	1
					09	/	4C	2
					09	/	4C	3
					09	/	5C	4
					09	/	5C	5
					09	/	6C	6
					09	/	6C	7
					09	/	7C	8
					10	/	3C	9
					10	/	4C	10
					10	/	4C	11
					10	/	5C	12
					10	/	5C	13
					10	/	6C	14
					10	/	6C	15
					10	/	7C	16
					10	/	7C	17
					10	/	8C	18
					11	/	3C	19
					11	/	4C	20
					11	/	4C	21
					11	/	5C	22
					11	/	5C	23
					11	/	6C	24
								25
D-								26

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
D8S01	7
D8S01	5
D8S11	7
D8S11	5
D8S12	7
D8S12	5
D8S10	7
D8S10	5
D8S02	7
D8S02	5
D8S21	7
D8S21	5
D8S22	7
D8S22	5
D8S20	7
D8S20	5
D8ES20	7
D8ES20	5
D8S03	7
D8S03	5
D8S31	7
D8S31	5
D8S32	7
D8S32	5

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 11 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

TERMINAL STRIP X71

LINK	REFERENCE SHT	/	REF	TERMINAL NO
	09	/	1A	1
	09	/	2A	2
	09	/	3A	3
	09	/	4A	4
	09	/	5A	5
	09	/	5A	6
	09	/	6A	7
	09	/	6A	8
	09	/	7A	9
	09	/	7A	10
	10	/	3A	11
	10	/	4A	12
	10	/	5A	13
	10	/	5A	14
	10	/	6A	15
	10	/	6A	16
	10	/	7A	17
	10	/	7A	18
	11	/	8A	19
	11	/	8A	20
	11	/	3A	21
	11	/	4A	22
	11	/	5A	23
	11	/	5A	24
	11	/	6A	25
	11	/	6A	26
	11	/	7A	27
				28
				29
				30

D-

TERMINATION B

ITEM DESIGNATION	TERMINAL NO
S100	1
K6	A1
D8S01	4
D8S01	2
D8S11	4
D8S11	2
D8S12	4
D8S12	2
D8S10	4
D8S10	2
D8S02	4
D8S02	2
D8S21	4
D8S21	2
D8S22	4
D8S22	2
D8S20	4
D8S20	2
D8ES20	4
D8ES20	2
D8S03	4
D8S03	2
D8S31	4
D8S31	2
D8S32	4
D8S32	2
S100	5a

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 12 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

TERMINAL STRIP X72								
LINK				REFERENCE			TERMINAL NO	
				SHT	/	REF		
				09	/	1D	1	
				09	/	2D	2	
				09	/	3D	3	
				09	/	4D	4	
				09	/	5D	5	
				09	/	5D	6	
				09	/	6D	7	
				09	/	6D	8	
				09	/	7D	9	
				09	/	7D	10	
				10	/	3D	11	
				10	/	4D	12	
				10	/	5D	13	
				10	/	5D	14	
				10	/	6D	15	
				10	/	6D	16	
				10	/	7D	17	
				10	/	7D	18	
				11	/	8D	19	
				11	/	8D	20	
				11	/	3D	21	
				11	/	4D	22	
				11	/	5D	23	
				11	/	5D	24	
				11	/	6D	25	
				11	/	6D	26	
				11	/	7D	27	
							28	
							29	
							30	

D-

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
S100	4a
K6	A2
D8S01	7
D8S01	5
D8S11	7
D8S11	5
D8S12	7
D8S12	5
D8S10	7
D8S10	5
D8S02	7
D8S02	5
D8S21	7
D8S21	5
D8S22	7
D8S22	5
D8S20	7
D8S20	5
D8ES20	7
D8ES20	5
D8S03	7
D8S03	5
D8S31	7
D8S31	5
D8S32	7
D8S32	5
S100	8a

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL 220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 13 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X8								TERMINATION B	
	LINK				REFERENCE			TERMINAL NO	ITEM DESIGNATION	TERMINAL NO
					SHT	/	REF			
					12	/	2D	1	K9	31
					12	/	2D	2	K3	11
					12	/	6D	3	K15	41
					12	/	7D	4	K5	34
D-								5		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 14 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

TERMINAL STRIP X5							
LINK				REFERENCE			TERMINAL NO
				SHT	/	REF	
•				13	/	2A	1
•				13	/	8A	2
•				14	/	2A	3
•				14	/	8A	4
•				15	/	2A	5
				15	/	6A	6
				13	/	2C	7
				13	/	2C	8
				13	/	3C	9
				13	/	3C	10
				13	/	3C	11
				13	/	4C	12
				13	/	4C	13
				13	/	4C	14
				13	/	5C	15
				13	/	5C	16
				13	/	5C	17
				13	/	5C	18
				13	/	6C	19
				13	/	6C	20
				13	/	6C	21
				13	/	6C	22
				14	/	2C	23
				14	/	2C	24
				14	/	3C	25
				14	/	3C	26
				14	/	3C	27
				14	/	4C	28
				14	/	4C	29
				14	/	4C	30
				14	/	5C	31
				14	/	5C	32
				14	/	5C	33
				14	/	5C	34
				14	/	6C	35
				14	/	6C	36
				14	/	6C	37
				14	/	6C	38
				14	/	7C	39
				14	/	7C	40

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
D8S01	11
D8S01	9
D8S01	15
D8S01	13
D8S11	11
D8S11	9
D8S11	15
D8S11	13
D8S12	11
D8S12	9
D8S12	15
D8S12	13
D8S10	11
D8S10	9
D8S10	15
D8S10	13
D8S02	11
D8S02	9
D8S02	15
D8S02	13
D8S21	11
D8S21	9
D8S21	15
D8S21	13
D8S22	11
D8S22	9
D8S22	15
D8S22	13
D8S20	11
D8S20	9
D8S20	15
D8S20	13
D8ES20	11
D8ES20	9

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 15 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X5						
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
					14	/	7C	41
					14	/	8C	42
					15	/	2C	43
					15	/	2C	44
					15	/	3C	45
					15	/	3C	46
					15	/	3C	47
					15	/	4C	48
					15	/	4C	49
					15	/	4C	50
					15	/	5C	51
					15	/	5C	52
					15	/	5C	53
					15	/	5C	54
								55
								56
								57
								58
								59
D-								60

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
D8ES20	15
D8ES20	13
D8S03	11
D8S03	9
D8S03	15
D8S03	13
D8S31	11
D8S31	9
D8S31	15
D8S31	13
D8S32	11
D8S32	9
D8S32	15
D8S32	13

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 16 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

- TEMPORARY SHORTENING LINK
- PERMANENT LINK
- D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

TERMINAL STRIP X4									TERMINATION B	
LINK				REFERENCE			TERMINAL NO		ITEM DESIGNATION	TERMINAL NO
				SHT	/	REF				
				16	/	2B	1			
•				16	/	4B	2			
•				16	/	4B	3			
•				16	/	7B	4			
•				17	/	2B	5			
•				17	/	3B	6			
•				17	/	4B	7			
•				17	/	6B	8			
				16	/	2B	9		H11	X1
				16	/	2B	10		H12	X1
				16	/	2B	11		H31	X1
				16	/	3B	12		H32	X1
				16	/	3B	13		H21	X1
				16	/	4B	14		H22	X1
				16	/	4B	15		H13	X1
				16	/	5B	16		H10	X1
				16	/	5B	17		H14	X1
				16	/	6B	18		C1	1
				16	/	6B	19		K20	A1
				16	/	7B	20		K21	A1
				17	/	2B	21		H23	X1
				17	/	2B	22		H20	X1
				17	/	3B	23		H24	X1
				17	/	3B	24		C2	1
				17	/	4B	25		K22	A1
				17	/	4B	26		K23	A1
				17	/	5B	27		H33	X1
				17	/	5B	28		H34	X1
				17	/	6B	29		C3	1
•				33	/	1E	30		K25	34
•				33	/	3A	31		K35	34
•				33	/	4A	32		K35	14
•				33	/	6A	33		K33	14
				33	/	3B	34		K28	34
•				33	/	4B	35		K25	41
•				33	/	4C	36		K29	34
				33	/	6B	37		K33	11
				33	/	1D	38		K28	31
•				33	/	4C	39		K29	31
•				33	/	4D	40		K31	11

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 17 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

| | TERMINAL STRIP X4 | | | | | | | | | | | | | |

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X9							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
					18	/	2B	1
•					18	/	6B	2
•					18	/	7B	3
•					18	/	8B	4
•					19	/	2B	5
•					19	/	4B	6
•					19	/	5B	7
•					19	/	8B	8
•					20	/	2B	9
•					20	/	3B	10
•					20	/	3B	11
•					20	/	8B	12
•					21	/	2B	13
•					21	/	4B	14
•					21	/	4B	15
•					21	/	8B	16
•					22	/	2B	17
•					22	/	2B	18
•					22	/	3B	19
•					22	/	3B	20
•					22	/	4B	21
•					22	/	5B	22
•					22	/	6B	23
•					22	/	6B	24
•					23	/	2B	25
•					23	/	8B	26
•					24	/	2B	27
•					24	/	3B	28
•					24	/	4B	29
•					24	/	8B	30
•					25	/	2B	31
•					25	/	3B	32
•					25	/	4B	33
•					25	/	7B	34
•					25	/	7B	35
					25	/	8B	36
								37
								38
								39
D-								40

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
TL	1a

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 19 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

TERMINAL STRIP X10							
LINK				REFERENCE			TERMINAL NO
				SHT	/	REF	
				18	/	2D	1
				18	/	3D	2
				18	/	3D	3
				18	/	4D	4
				18	/	4D	5
				18	/	5D	6
				18	/	5D	7
				18	/	6D	8
				18	/	6D	9
				18	/	7D	10
				18	/	7D	11
				18	/	8D	12
				19	/	2D	13
				19	/	3D	14
				19	/	3D	15
				19	/	4D	16
				19	/	4D	17
				19	/	5D	18
				19	/	5D	19
				19	/	6D	20
				19	/	6D	21
				19	/	7D	22
				19	/	7D	23
				19	/	8D	24
				20	/	2D	25
				20	/	3D	26
				20	/	3D	27
				20	/	4D	28
				20	/	4D	29
				20	/	5D	30
				20	/	5D	31
				20	/	6D	32
				20	/	6D	33
				20	/	7D	34
				20	/	7D	35
				20	/	8D	36

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
H101	4
H101	5
H101	6
H101	7
H101	8
H101	9
H101	10
H101	11
H101	12
H101	13
H101	14
H101	15
H102	4
H102	5
H102	6
H102	7
H102	8
H102	9
H102	10
H102	11
H102	12
H102	13
H102	14
H102	15
H103	4
H103	5
H103	6
H103	7
H103	8
H103	9
H103	10
H103	11
H103	12
H103	13
H103	14
H103	15

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 20 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

TERMINAL STRIP X10							
LINK				REFERENCE			TERMINAL NO
				SHT	/	REF	
				21	/	2D	37
				21	/	3D	38
				21	/	3D	39
				21	/	4D	40
				21	/	4D	41
				21	/	5D	42
				21	/	5D	43
				21	/	6D	44
				21	/	6D	45
				21	/	7D	46
				21	/	7D	47
				21	/	8D	48
				22	/	2D	49
				22	/	3D	50
				22	/	3D	51
				22	/	4D	52
				22	/	4D	53
				22	/	5D	54
				22	/	5D	55
				22	/	6D	56
				22	/	6D	57
				22	/	7D	58
				22	/	7D	59
				22	/	8D	60
				23	/	2D	61
				23	/	3D	62
				23	/	3D	63
				23	/	4D	64
				23	/	4D	65
				23	/	5D	66
				23	/	5D	67
				23	/	6D	68
				23	/	6D	69
				23	/	7D	70
				23	/	7D	71
				23	/	8D	72

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
H104	4
H104	5
H104	6
H104	7
H104	8
H104	9
H104	10
H104	11
H104	12
H104	13
H104	14
H104	15
H105	4
H105	5
H105	6
H105	7
H105	8
H105	9
H105	10
H105	11
H105	12
H105	13
H105	14
H105	15
H106	4
H106	5
H106	6
H106	7
H106	8
H106	9
H106	10
H106	11
H106	12
H106	13
H106	14
H106	15

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 21 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X10							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
					24	/	2D	73
					24	/	3D	74
					24	/	3D	75
					24	/	4D	76
					24	/	4D	77
					24	/	5D	78
					24	/	5D	79
					24	/	6D	80
					24	/	6D	81
					24	/	7D	82
					24	/	7D	83
					24	/	8D	84
					25	/	2D	85
					25	/	3D	86
					25	/	3D	87
					25	/	4D	88
					25	/	4D	89
					25	/	5D	90
					25	/	5D	91
					25	/	6D	92
					25	/	6D	93
					25	/	7D	94
					25	/	7D	95
					25	/	8D	96
								97
								98
								99
D-								100

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
H107	4
H107	5
H107	6
H107	7
H107	8
H107	9
H107	10
H107	11
H107	12
H107	13
H107	14
H107	15
H108	4
H108	5
H108	6
H108	7
H108	8
H108	9
H108	10
H108	11
H108	12
H108	13
H108	14
H108	15

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579
DATE: 07.03.2019
AS BUILT
SHT: 22 OF 27
REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

LEGEND:

- TEMPORARY SHORTENING LINK
- PERMANENT LINK
- D- END COVER

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X11								TERMINATION B	
	LINK				REFERENCE			TERMINAL NO	ITEM DESIGNATION	TERMINAL NO
					SHT	/	REF			
					26	/	2B	1		
					26	/	4A	2		
					26	/	5A	3		
					26	/	5A	4		
					26	/	6A	5		
					26	/	7B	6		
					27	/	2B	7		
	•				27	/	5B	8		
	•				27	/	6B	9		
	•				27	/	6B	10		
	•				27	/	7B	11		
	•				27	/	7B	12		
	•				27	/	8B	13		
								14		
D-								15		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 23 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X12								TERMINATION B	
	LINK				REFERENCE			TERMINAL NO	ITEM DESIGNATION	TERMINAL NO
					SHT	/	REF			
					26	/	2D	1	H109	4
					26	/	3D	2	H109	5
					26	/	3D	3	H109	6
					26	/	4D	4	H109	7
					26	/	4D	5	H109	8
					26	/	5D	6	H109	9
					26	/	5D	7	H109	10
					26	/	6D	8	H109	11
					26	/	6D	9	H109	12
					26	/	7D	10	H109	13
					26	/	7D	11	H109	14
					26	/	8D	12	H109	15
					27	/	2D	13	H110	4
					27	/	3D	14	H110	5
					27	/	3D	15	H110	6
					27	/	4D	16	H110	7
					27	/	4D	17	H110	8
					27	/	5D	18	H110	9
					27	/	5D	19	H110	10
					27	/	6D	20	H110	11
					27	/	6D	21	H110	12
					27	/	7D	22	H110	13
					27	/	7D	23	H110	14
					27	/	8D	24	H110	15
D-								25		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 24 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

	TERMINAL STRIP X73							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
					28	/	2C	1
					28	/	3C	2
					28	/	3C	3
					28	/	5C	4
					28	/	5C	5
					28	/	5C	6
					28	/	6C	7
					28	/	6C	8
					28	/	7C	9
D-								10

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
K1	24
K1	21
K1	24
K5	44
K5	41
K5	44
K57	24
K57	21
K57	24

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 25 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

	TERMINAL STRIP X7							
	LINK				REFERENCE			TERMINAL NO
					SHT	/	REF	
					32	/	3A	1
					32	/	3D	2
					32	/	4D	3
					32	/	5A	4
					32	/	5D	5
					32	/	7A	6
D-								7

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
K10	41
K27	A1
K28	A1
K13	41
K29	A1
K16	41

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT:
NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE:
TERMINAL DETAIL
220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579
DATE: 07.03.2019
AS BUILT
SHT: 26 OF 27
REV: 0

SCHEME DWG. REF: EPE/ENU-18/D81578

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

LEGEND:

TEMPORARY SHORTENING LINK

PERMANENT LINK

D- END COVER

1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO

TERMINAL STRIP XD								TERMINATION B	
LINK				REFERENCE			TERMINAL NO	ITEM DESIGNATION	TERMINAL NO
				SHT	/	REF			
				13	/	2D	1	XD	2P
				13	/	4D	2	XD	3P
				13	/	5D	3	XD	4P
				13	/	6D	4	XD	6P
							5		
				14	/	2D	6	XD	7P
				14	/	4D	7	XD	8P
				14	/	5D	8	XD	9P
				14	/	6D	9	XD	10P
				14	/	7D	10	XD	11P
				15	/	2D	11	XD	12P
				15	/	4D	12	XD	13P
				15	/	5D	13		
				16	/	2D	14	XD	15P
				16	/	2D	15	XD	16P
				16	/	3D	16	XD	17P
				16	/	3D	17	XD	18P
				16	/	4D	18	XD	19P
				16	/	4D	19	XD	20P
				16	/	5D	20	XD	21P
				16	/	5D	21	XD	22P
				16	/	6D	22	XD	23P
				17	/	2D	23	XD	24P
				17	/	3D	24	XD	25P
				17	/	3D	25	XD	26P
				17	/	5D	26	XD	27P
				17	/	5D	27		
				32	/	3D	28		
				32	/	4D	29		
				32	/	5D	30		
				32	/	5D	31		
				32	/	6D	32		
				32	/	7D	33		
				32	/	7D	34		
				32	/	8D	35		
				32	/	8D	36		
							37		
							38		
							39		
							40		

D-

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS

TITLE: TERMINAL DETAIL 220kV CONTROL PANEL TYPE =D08+C2

EPESOL Pvt. Ltd.
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81579 | SHT: 27 OF 27
DATE: 07.03.2019 | AS BUILT | REV: 0