

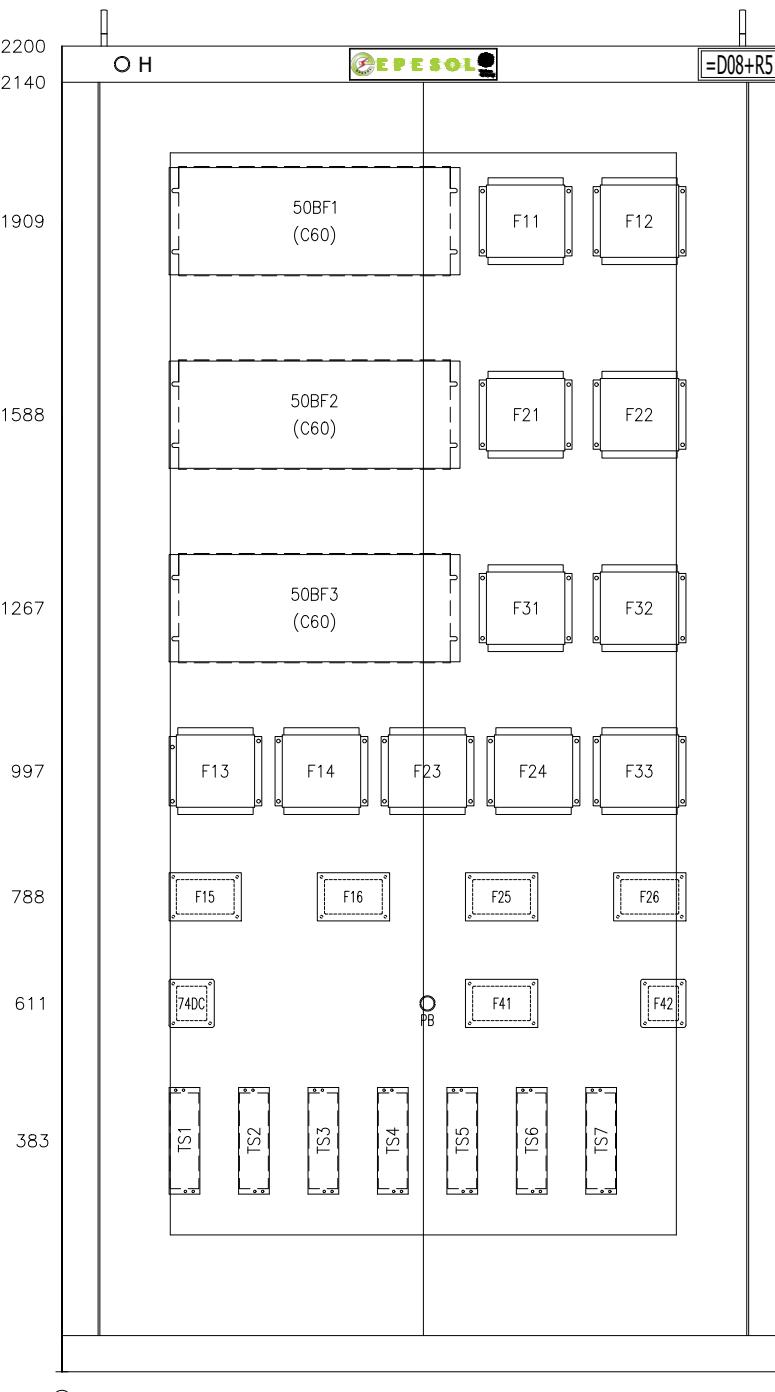
# LAYOUT DIAGRAM

# 220kV CIRCUIT BREAKER

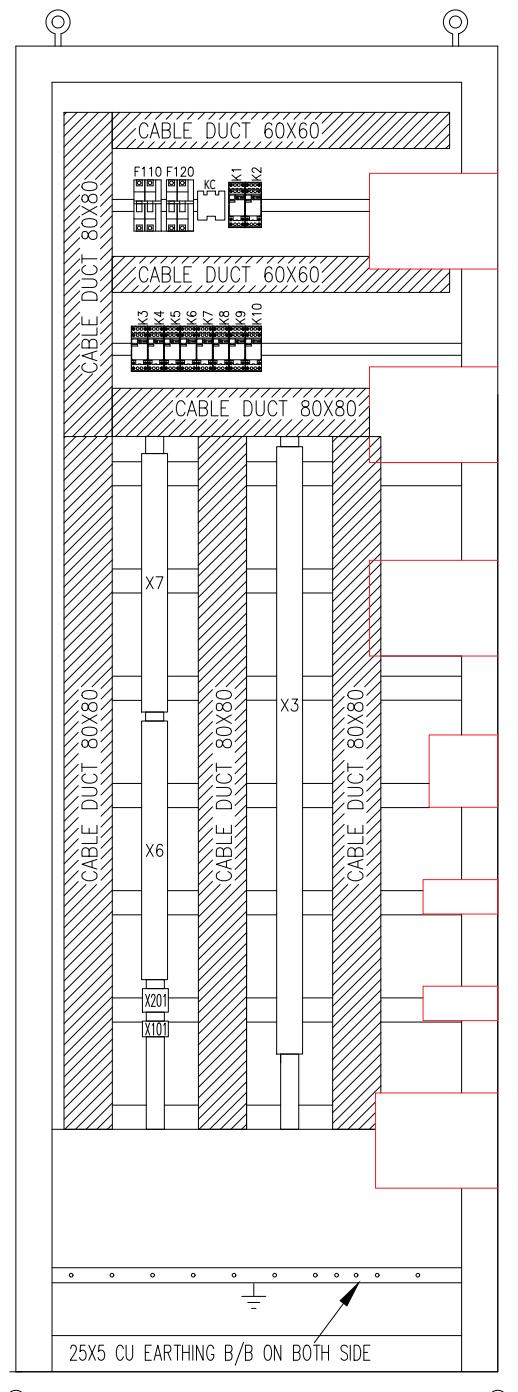
# FAILURE PROTECTION PANEL

# TYPE =D08+R5

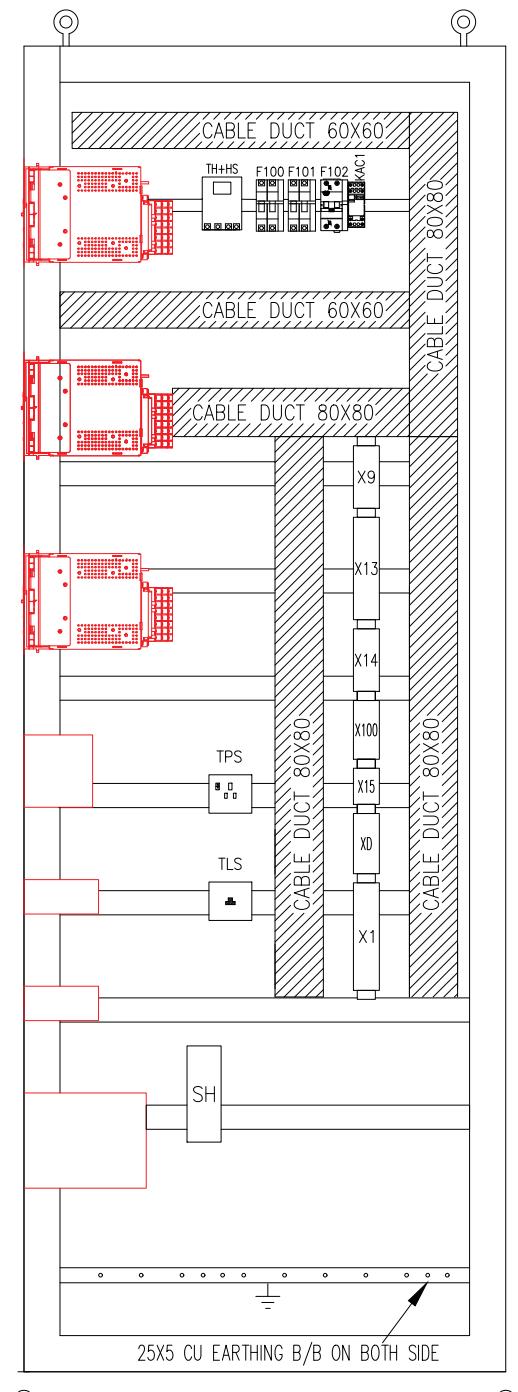
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: COVER SHEET 220kV CB FAILURE PROT. PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81556	SHT: 01 OF 03
NAH Q.	MSS M. Sohail	MUR Iy		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	<b>AS BUILT</b>



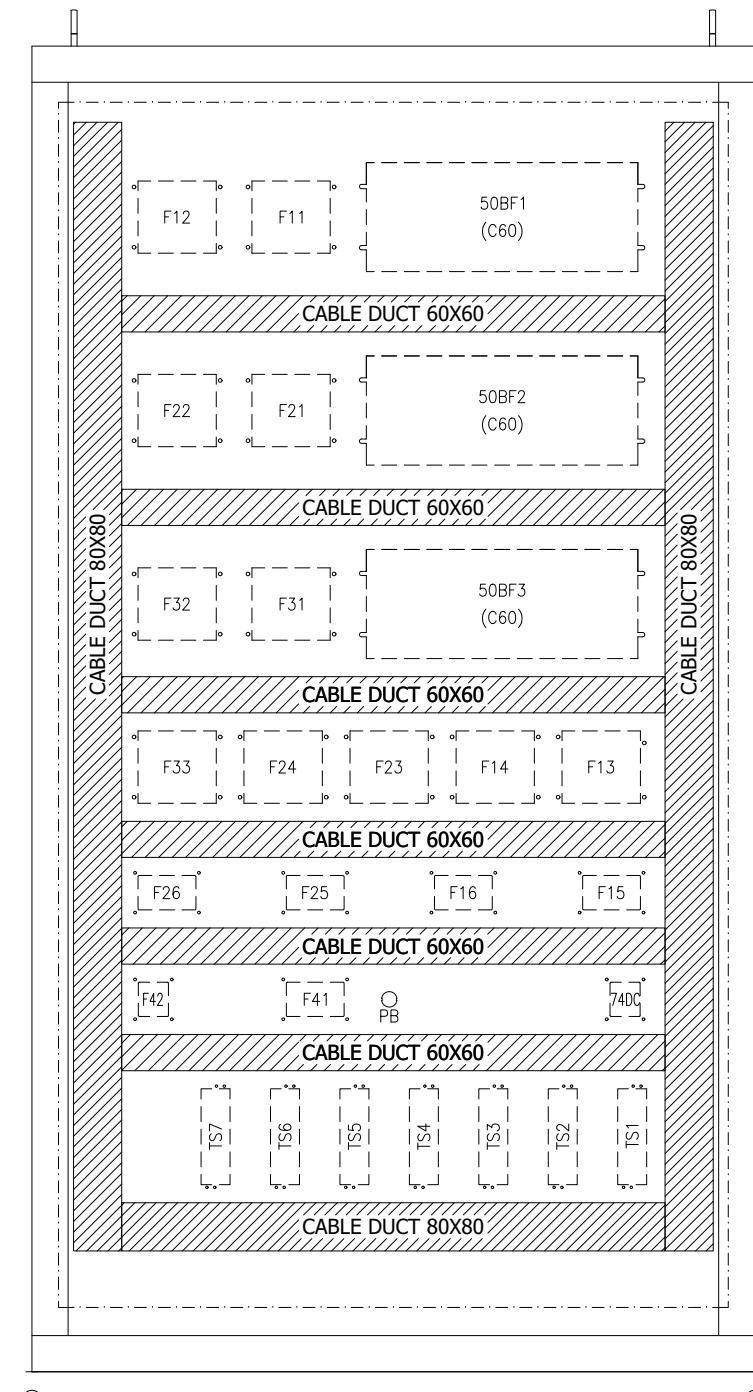
FRONT VIEW



LEFT SIDE VIEW

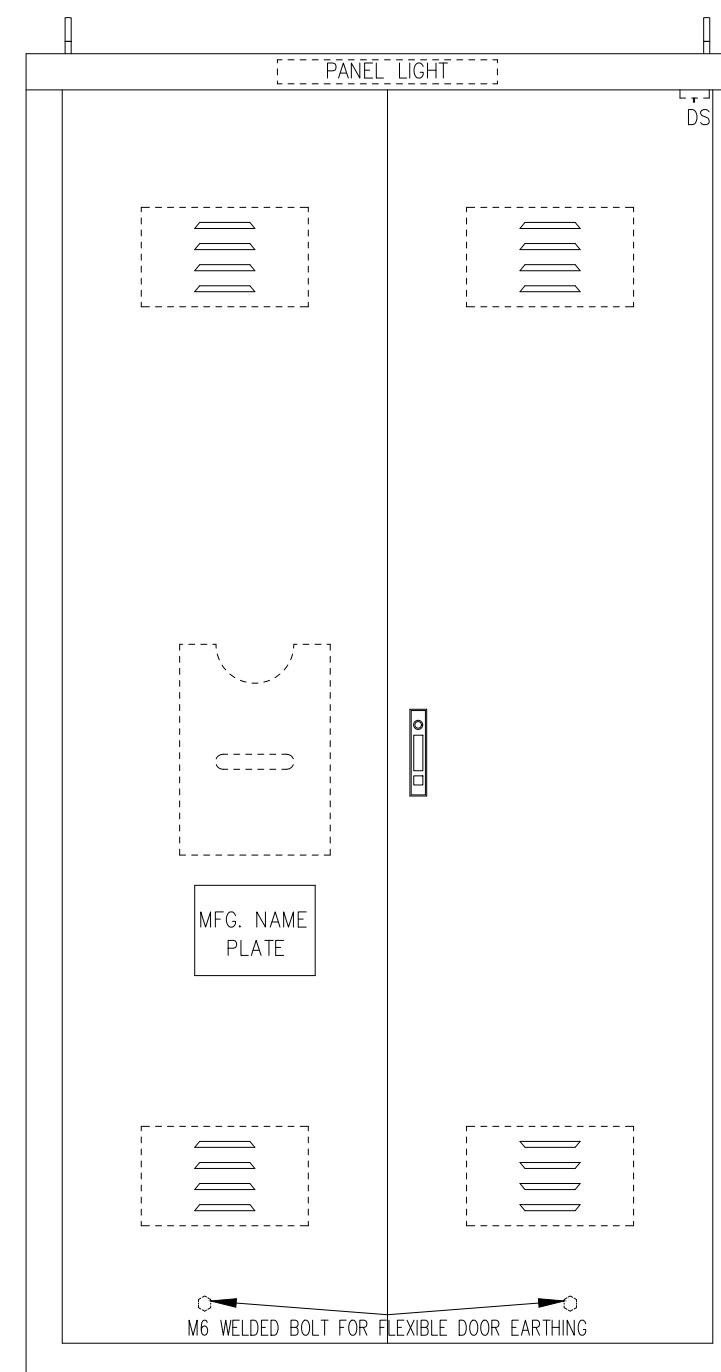


RIGHT SIDE VIEW

BACK SIDE VIEW  
FOR FIXING OF CABLE DUCT**NOTES**

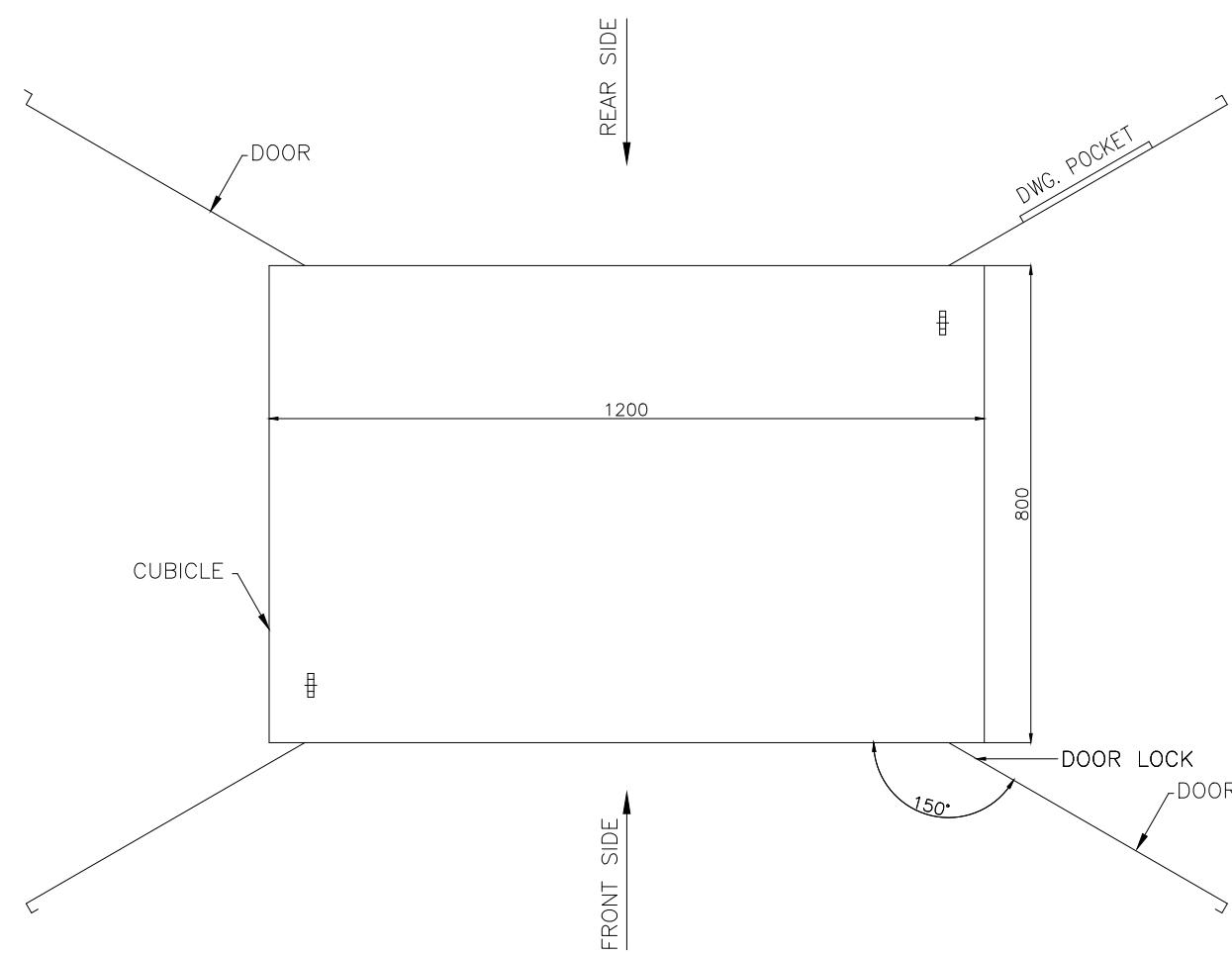
1. RELAY PANEL: 1200Wx800Dx2200H mm
2. EARTHING BUSBAR 25x5 mm<sup>2</sup>
3. FLEXIBLE EARTHING STRAP 16mm<sup>2</sup>
4. COLOUR: RAL7032
5. CLASS OF PROTECTION: IP51
6. APPLICABLE SPECS: P204:2008

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: LAYOUT DIAGRAM	DWG# EPE/ENU-18/D81556	SHT: 02 OF 03		
NAH	MSS	MUR		220KV CB FAILURE PROT. PANEL TYPE =D08+R5	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT	REV: 0



REAR WIEW

PANEL LIGHT → 4mm screw (THREAD)

TOP VIEW  
DOOR OPENING DETAIL

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: LAYOUT DIAGRAM 220KV CB FAILURE PROT. PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81556	SHT: 03 OF 03
NAH [Signature]	MSS [Signature]	MUR [Signature]		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

# LIST OF APPARATUS

## 220kV CIRCUIT BREAKER

## FAILURE PROTECTION PANEL

### TYPE =D08+R5

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: COVER SHEET 220kV CB FAILURE PROT. PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81557	SHT: 01 OF 03
NAH Qd	MSS M Sohail	MUR Iy		EPESOL Pvt Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT



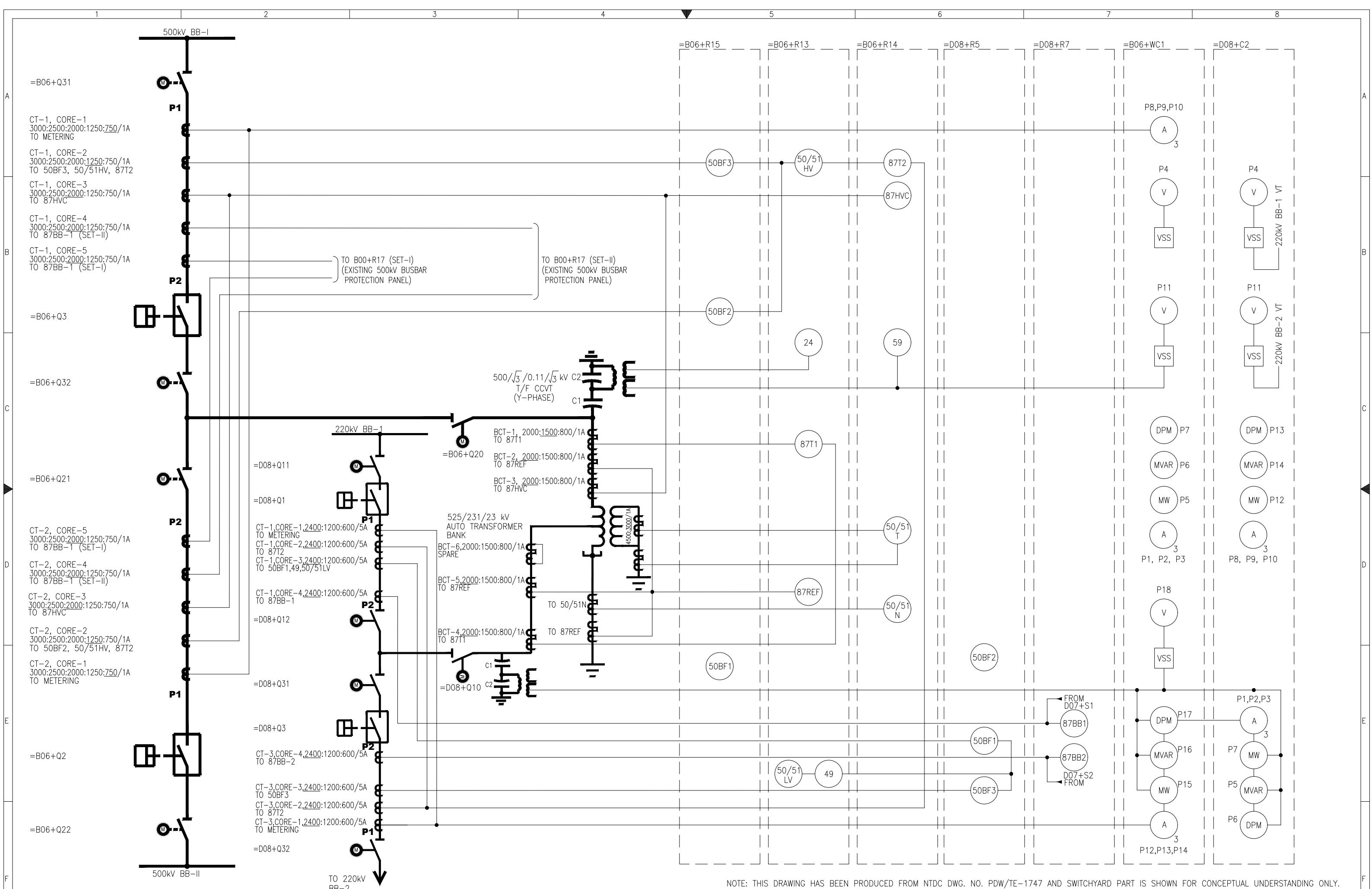
1	2	3	4	5	6	7	8		
SR.	ITEM DESIGNATION		DESCRIPTION	QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A	21	TH+HS	THERMOSTAT AND HUMIDISTAT	1	ELH-220	E-LABS	PAKISTAN		A
B	22	SH	SPACE HEATER	1	ELH-220	E-LABS	PAKISTAN		B
C	23	DS	DOOR SWITCH WITH COVER	1	YSP	YONGSUNG	SOUTH KOREA	YSP3315GWB+YSMS-C	C
D	24	TPS	240 VAC, 16A, THREE PIN SOCKET OUTLET	1		LEAR	CHINA		D
E	25	TLS	TELEPHONE SOCKET	1		LOCAL	PAKISTAN		E
F	26	IL	PANEL LIGHT, 5W, 220 VAC	1	YS	YONGSUNG	SOUTH KOREA	YS-T8-30-5W	F
G	27	X1	DISCONNECTING TERMINAL BLOCKS FOR CT CIRCUIT WITH SHORTING ARRANGEMENT	33	SCB-6	CABUR	ITALY		G
H	28	X101	TERMINAL BLOCKS FOR DC SUPPLY MAIN 1	4	CBD-4	CABUR	ITALY		H
I	29	X201	TERMINAL BLOCKS FOR DC SUPPLY MAIN 2	6	CBD-4	CABUR	ITALY		I
J	30	X6	TERMINAL BLOCKS FOR TRIP CIRCUIT - 1	66	CBD-4	CABUR	ITALY		J
K	31	X7	TERMINAL BLOCKS FOR TRIP CIRCUIT - 2	66	CBD-4	CABUR	ITALY		K
L	32	X3	TERMINAL BLOCKS FOR CONTROL CIRCUIT	155	CBD-4	CABUR	ITALY		L
M	33	X9	TERMINAL BLOCKS FOR ANNUNCIATION CIRCUIT	16	CBD-4	CABUR	ITALY		M
N	34	X13	TERMINAL BLOCKS FOR EVENT RECORDER & FAULT RECORDER CIRCUIT	25	CBD-4	CABUR	ITALY		N
O	35	X14	TERMINAL BLOCKS FOR SCADA CIRCUIT	16	CBD-4	CABUR	ITALY		O
P	36	X17	TERMINAL BLOCKS FOR AC DISTRIBUTION	15	CBD-4	CABUR	ITALY		P
Q	37	X15	TERMINAL BLOCKS FOR COMMUNICATION CIRCUIT	9	CBD-4	CABUR	ITALY		Q
R	38	XD	TERMINAL BLOCK WITH DIODE TYPE IN-D4007, RATED MAXIMUM VOLTAGE 350VDC, RATED BREAK DOWN VOLTAGE 430VDC	8	DAS.4/6	CABUR	ITALY		R
S	39	X2	TERMINAL BLOCKS FOR 220kV SYNC	8	CBD-4	CABUR	ITALY		S
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: LIST OF APPARATUS 220KV CB FAILURE PROT. PANEL TYPE =D08+R5	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81557	SHT: 03 OF 03		
NAH Q	MSS M	MUR B				DATE: 07.03.2019	AS BUILT	REV: 0	

# SCHEMATIC DIAGRAM OF 220kV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5 FOR ONE AND A HALF BREAKER SCHEME

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE:	COVER SHEET	DWG# EPE/ENU-18/D81558	SHT: 01 OF 34
NAH Q.	MSS M. Sohail	MUR B		220kV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

DESCRIPTION	SHEET NO	DESCRIPTION	SHEET NO
COVER SHEET	01	D08+Q3 TRIP CIRCUIT	18
LIST OF CONTENTS	02	D07+Q1 & D07+Q2 TRIP CIRCUIT	18A
LIST OF SYMBOLS	03	B06+Q2 TRIP CIRCUIT	19
SINGLE LINE DIAGRAM	04	B06+Q3 TRIP CIRCUIT	20
TRIP LOGIC FOR =D08+R5	04A	BB+DTT	21
DC SUPPLY DISTRIBUTION	05	BFI FOR B06+Q2,B06+Q3	22
CB CLOSE BLOCK CIRCUIT	06	RELAY FAULTY SIGNAL MULTIPLICATION	23
BF1 PROT. CT CIRCUIT	07	ANNUNCIATION CIRCUIT	24
BF2 PROT. CT CIRCUIT	08	ER SIGNALLING CIRCUIT	25
BF3 PROT. CT CIRCUIT	09	FR SIGNALLING CIRCUIT	26
BF1 PROT. DC CIRCUIT	10	SCADA SIGNALLING CIRCUIT	27
BF1 PROT. DC CIRCUIT	11	COMMUNICATION CIRCUIT	28
BREAKER FAILURE INITIATION FOR D08+Q2	13	DEVICE DETAIL FOR 50BF1	30
BREAKER FAILURE INITIATION FOR D08+Q1	14	DEVICE DETAIL FOR 50BF2	31
BREAKER FAILURE INITIATION FOR D08+Q3	15	DEVICE DETAIL FOR 50BF3	32
D08+Q1 TRIP CIRCUIT	16	DEVICE DETAIL FOR TEST BLOCKS	33
D08+Q2 TRIP CIRCUIT	17	DEVICE DETAIL FOR TEST BLOCKS	34

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: LIST OF CONTENTS 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 02 OF 34
NAH Q.	MSS M. Sohail	MUR Ilyas				DATE: 07.03.2019	AS BUILT



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: SINGLE LINE DIAGRAM 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 04 OF 34
NAH Q.	MSS M. Sohail	MUR Iy		<b>E P E S O L P v t. L t d.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

	CB	DTT	D08+Q1	D08+Q3	D08+Q2	220kV BB-I	220kV BB-II	B06+Q2	B06+Q3
50BF D08+Q1	STAGE-I		X						
	STAGE-II			X		X		X	X
50BF D08+Q3	STAGE-I			X					
	STAGE-II	X	X		X		XF	X	X
50BF D08+Q2	STAGE-I				X				
	STAGE-II	X		X			F		

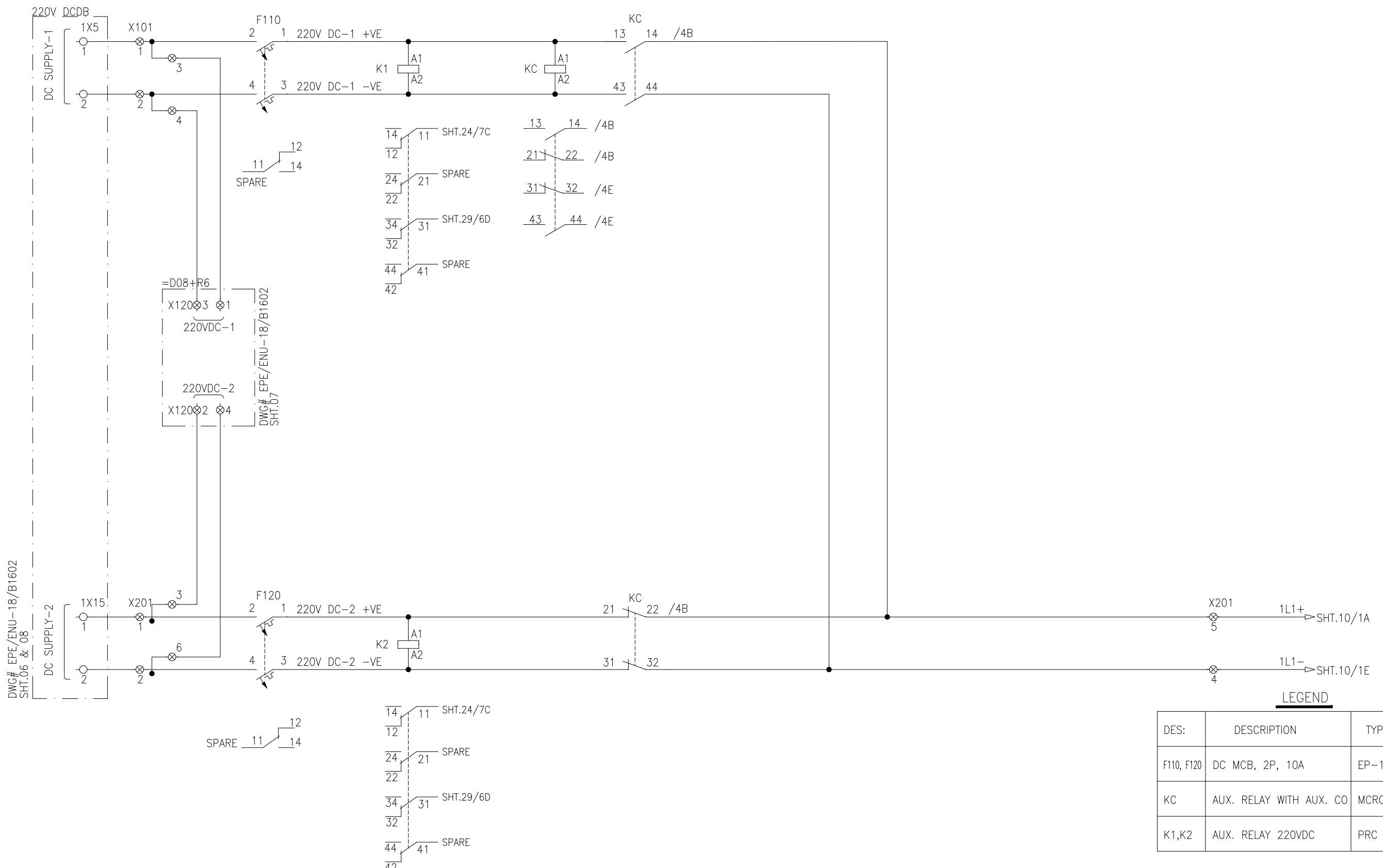
LEGEND

X	PRESENT
F	FUTURE
XF	TO BE REPLACED IN FUTURE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: TRIP LOGIC FOR =B06+R15 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT:04AOF 34
NAH Q.	MSS M. Sohail	MUR Iy				DATE: 07.03.2019	AS BUILT
						REV: 0	

## DC SUPPLY SUPERVISION

## INCOMING SUPPLY A



APPROVED: NAH  
CHECKED: MSS  
DRAWN: MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY & CONTROL PANELS

TITLE: DC SUPPLY DISTRIBUTION  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5



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

DWG# EPE/ENU-18/D81558 SHT: 05 OF 34  
DATE: 07.03.2019 AS BUILT REV: 0

CB D08+Q1

CLOSING LOCKOUT

CB D08+Q2

CLOSING LOCKOUT

CB D08+Q3

CLOSING LOCKOUT

CB D07+Q1

CLOSING LOCKOUT

CB D07+Q2

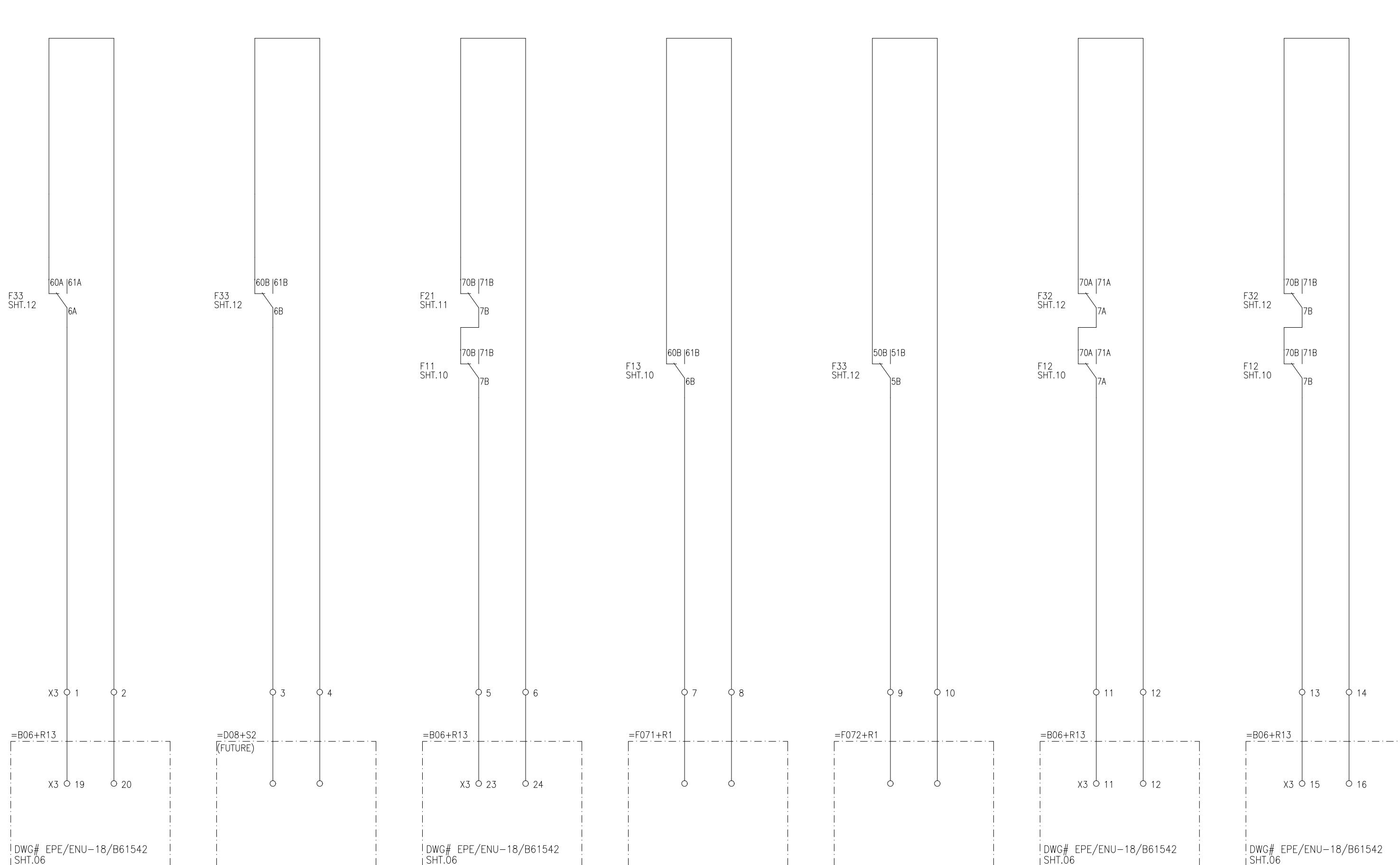
CLOSING LOCKOUT

CB B06+Q2

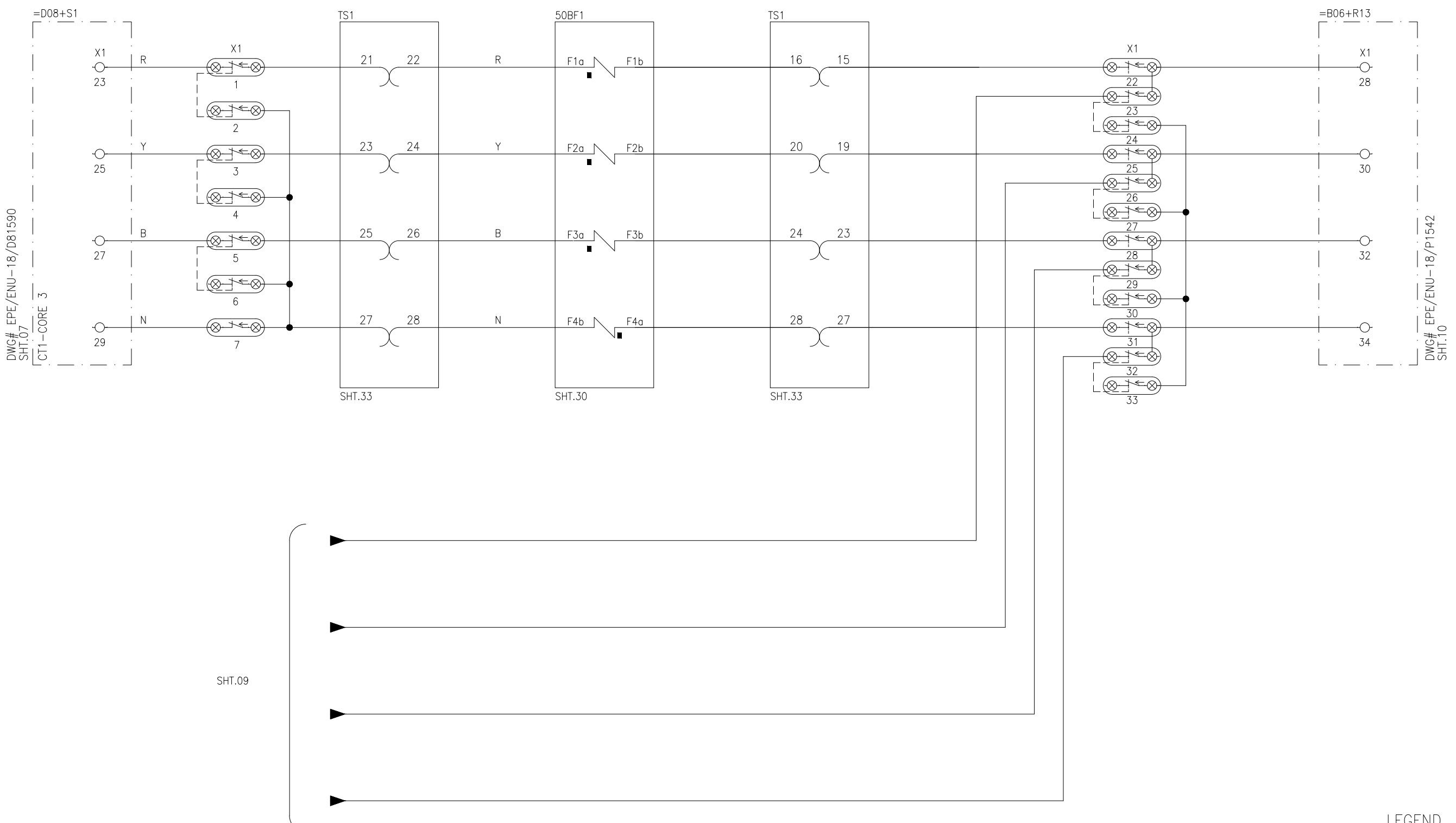
CLOSING LOCKOUT

CB B06+Q3

CLOSING LOCKOUT



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE:	DWG# EPE/ENU-18/D81558	SHT: 06 OF 34
NAH	MSS	MUR	 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	CB CLOSE BLOCK CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DATE: 07.03.2019	AS BUILT REV: 0

TEST BLOCK  
BREAKER FAILURE  
PROTECTION RELAY

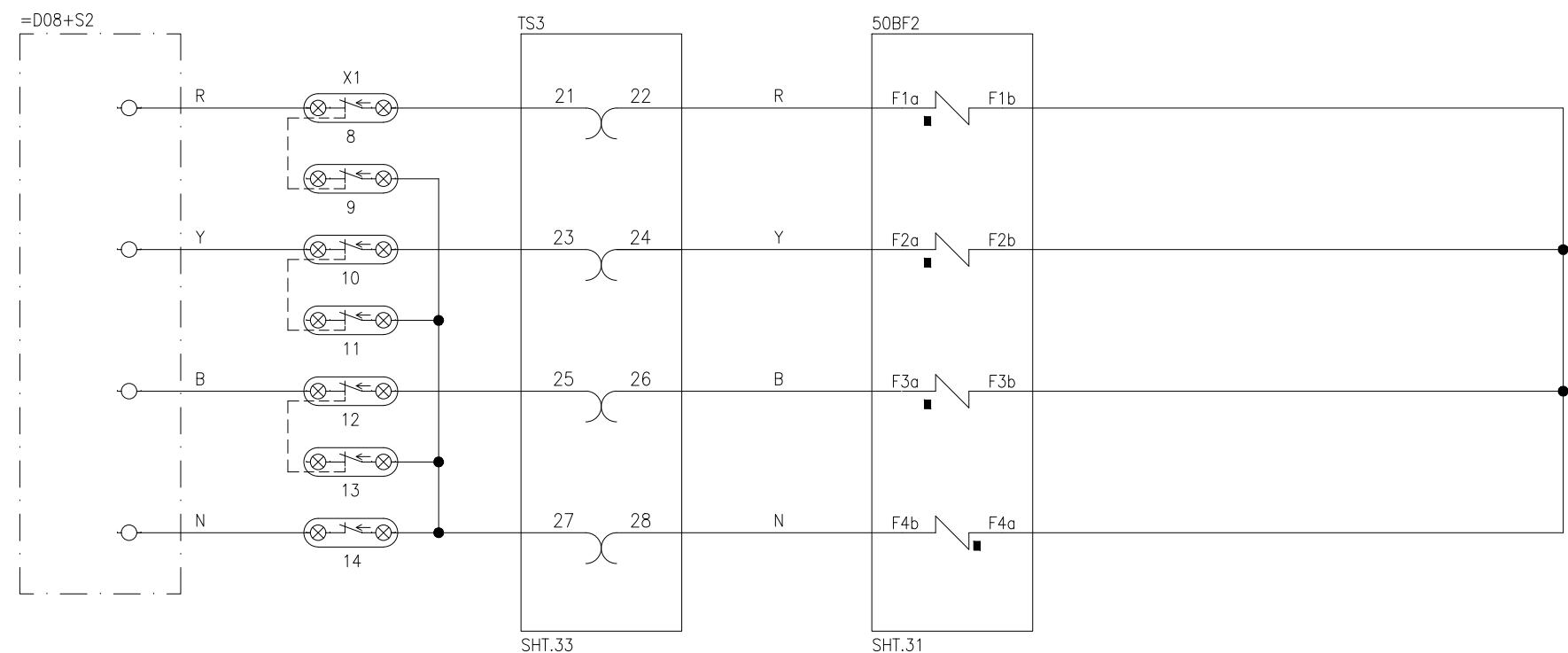
## LEGEND

DES.	DESCRIPTION	TYPE	MAKE
TS1	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE
50BF1	BREAKER FAILURE PROT. RELAY	C60	GE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: BREAKER FAILURE 1 PROT. CT CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 07 OF 34
NAH	MSS	MUR		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

TEST BLOCK                      BREAKER FAILURE  
PROTECTION RELAY

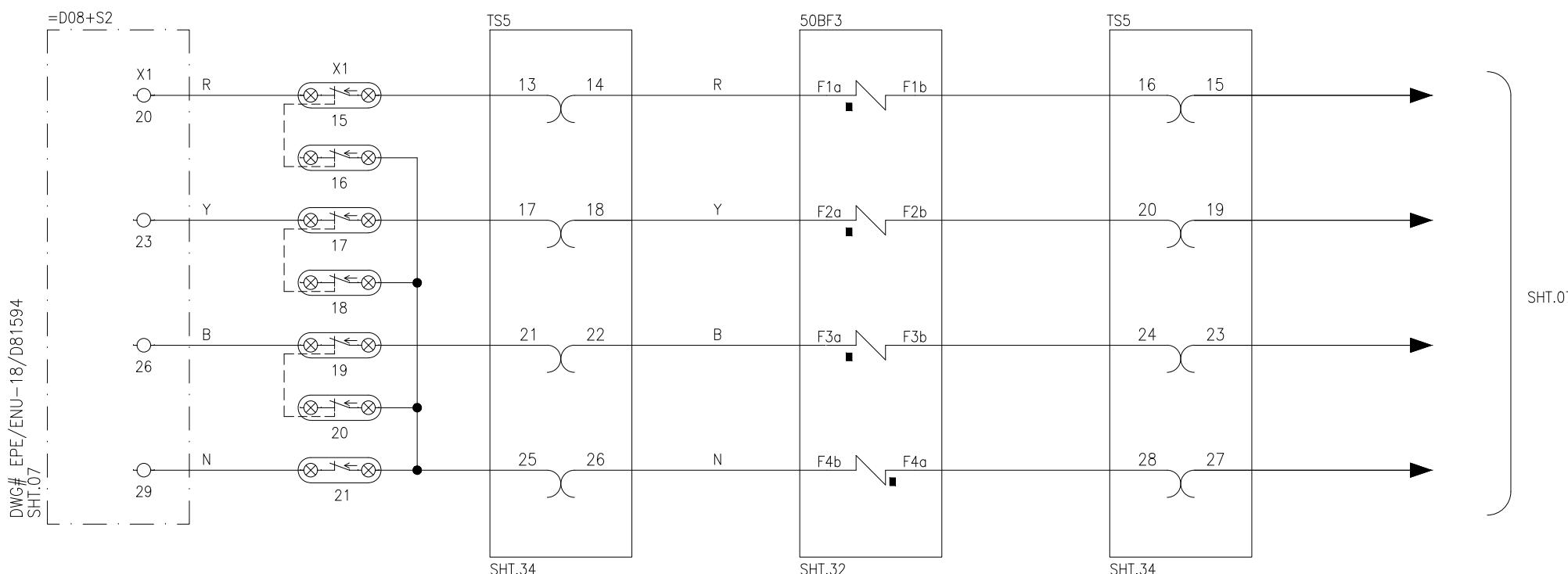
FUTURE

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
TS3	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE
50BF2	BREAKER FAILURE PROT. RELAY	C60	GE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: BREAKER FAILURE 2 PROT. CT CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 08 OF 34
NAH	MSS	MUR		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT
					REV: 0	

TEST BLOCK  
BREAKER FAILURE  
PROTECTION RELAY

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
TS5	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE
50BF3	BREAKER FAILURE PROT. RELAY	C60	GE

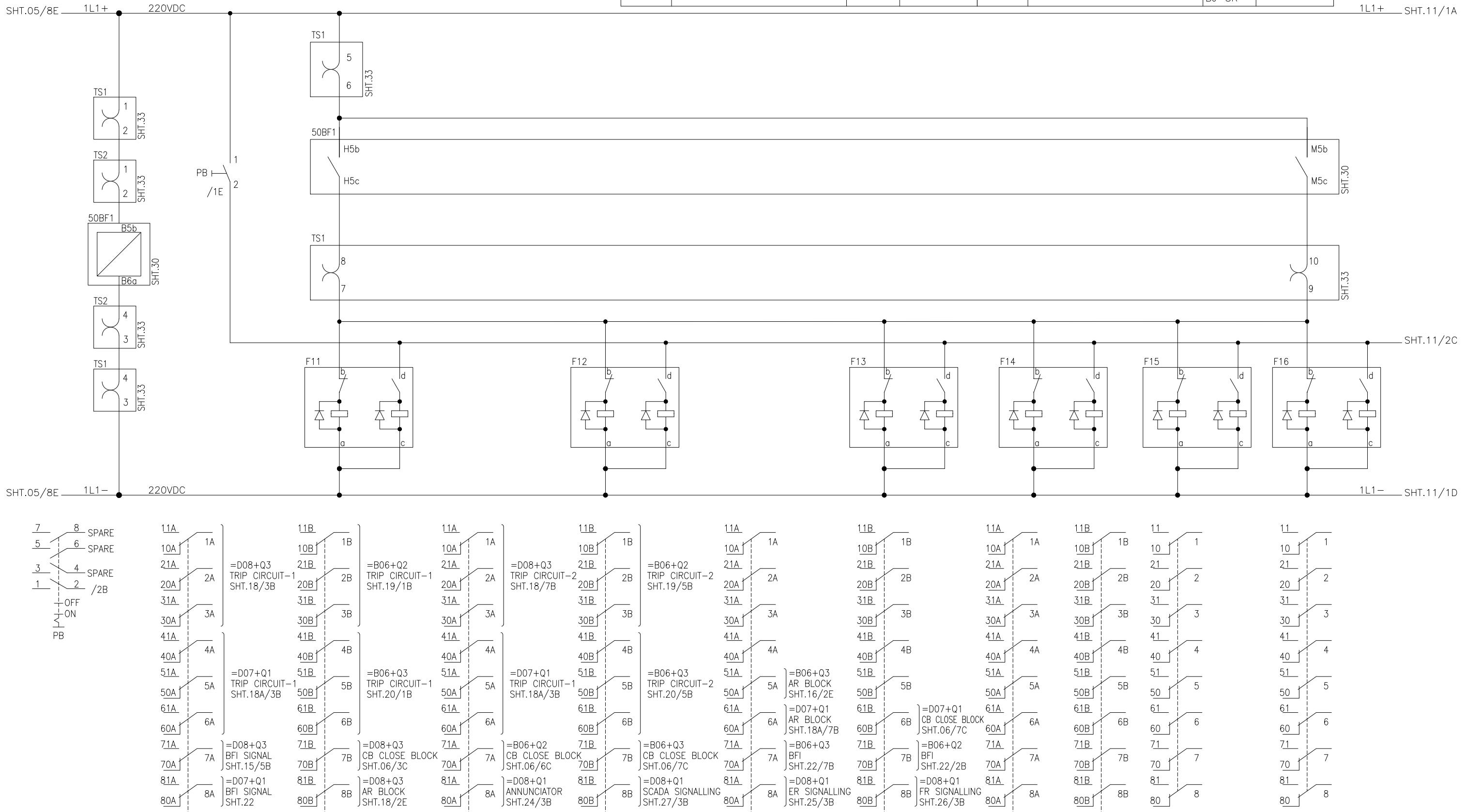
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: BREAKER FAILURE 3 PROT. CT CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 09 OF 34
NAH	MSS	MUR		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT
					REV: 0	

50BF1 CB D08+Q1  
INPUT POWER RESET 50BF1 STG-2 TRIP  
SUPPLY /END ZONE FAULT

CB D08+Q1  
50BF1 STG-2 TRIP  
/END ZONE FAULT

## LEGEND

DES.	DESCRIPTION	TYPE	MAKE	DES.	DESCRIPTION	TYPE	MAKE
TS1	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE	PB	PUSH BUTTON	YS-AP	YONGSUNG
50BF1	BREAKER FAILURE PROT. RELAY	C60	GE	Fx	TRIP RELAY	BI-16R, BJ-8R	ARTECHE

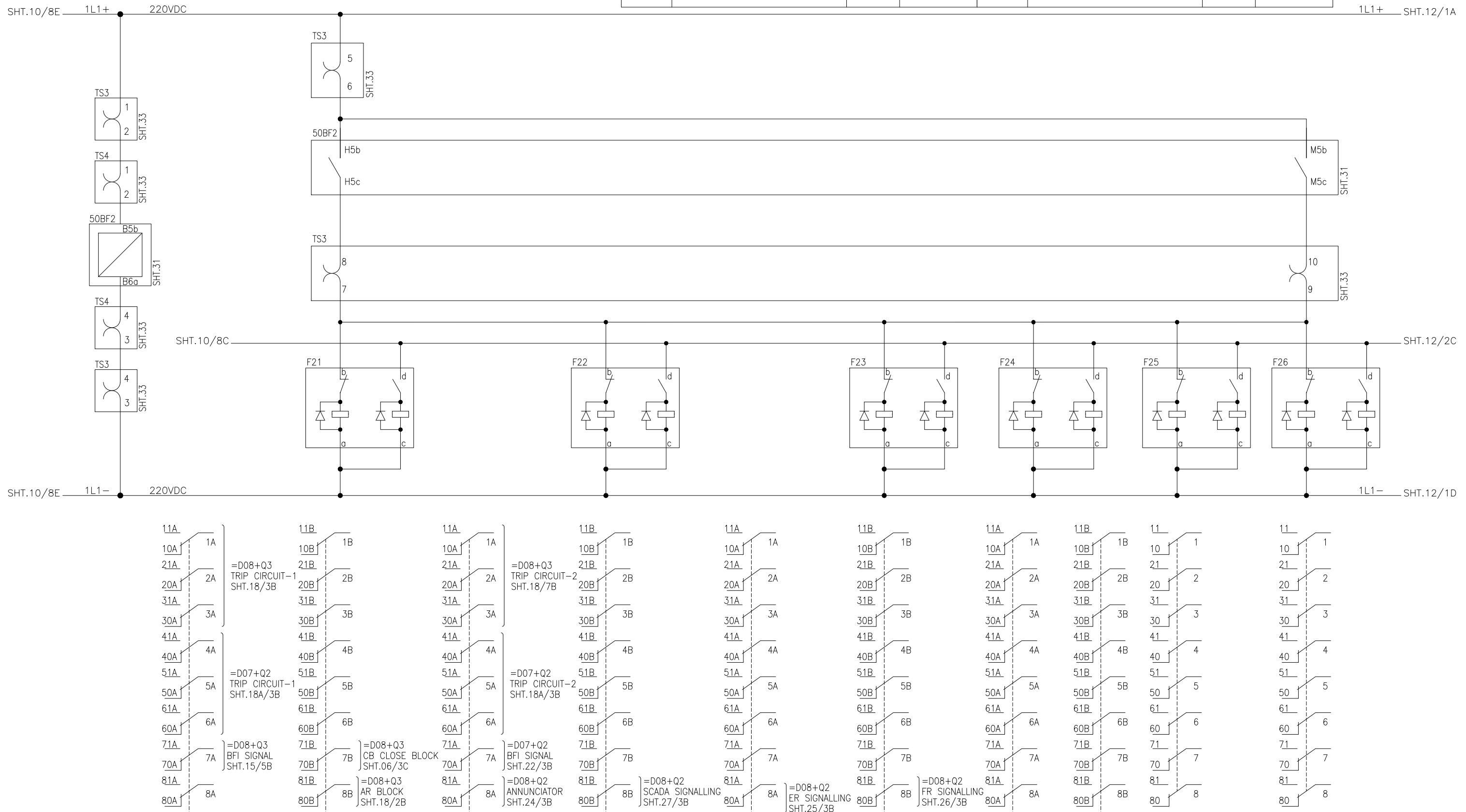


50BF2 CB D08+Q2  
INPUT POWER 50BF2 STG-2 TRIP  
SUPPLY /END ZONE FAULT

CB D08+Q2  
50BF2 STG-2 TRIP  
/END ZONE FAULT

## LEGEND

DES.	DESCRIPTION	TYPE	MAKE	DES.	DESCRIPTION	TYPE	MAKE
TS3	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE	Fx	TRIP RELAY	BI-16R	ARTECHE
50BF2	BREAKER FAILURE PROT. RELAY	C60	GE	Fx	TRIP RELAY	BJ-8R	ARTECHE



50BF3

CB D08+Q3

INPUT POWER

50BF3 STG-2 TRIP

SUPPLY

/END ZONE FAULT

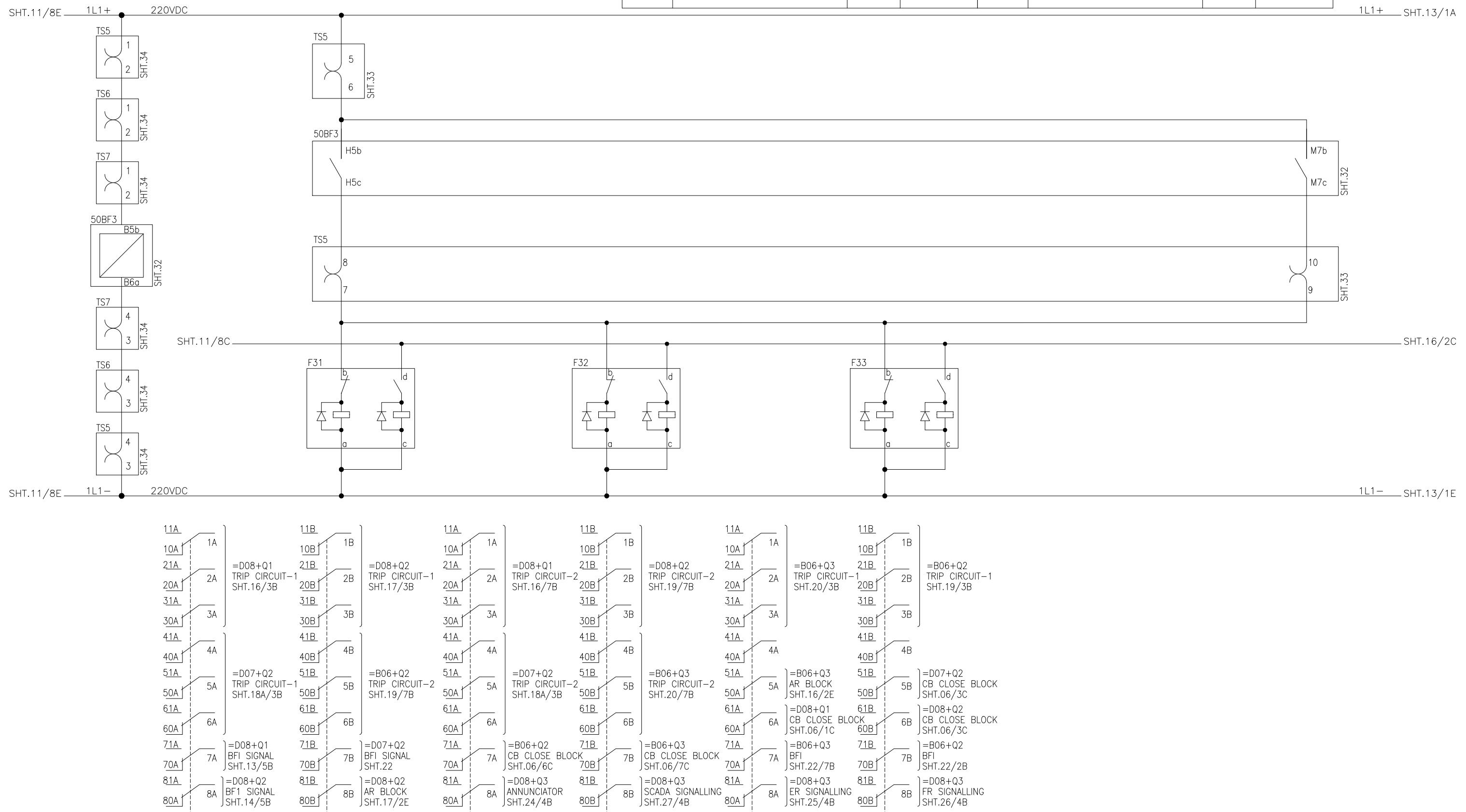
CB D08+Q3

50BF3 STG-2 TRIP

/END ZONE FAULT

## LEGEND

DES.	DESCRIPTION	TYPE	MAKE	DES.	DESCRIPTION	TYPE	MAKE
TS6	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE	Fx	TRIP RELAY	BI-16R	ARTECHE
50BF3	BREAKER FAILURE PROT. RELAY	C60	GE	Fx	TRIP RELAY	BJ-8R	ARTECHE



CB D08+Q1

CB OPEN STATUS

R-PH Y-PH B-PH

=B06+Q2 CBF /

=D08+Q3 CBF

STG-2 TRIP

TRAFO. SET-I

PROT. TRIP

ELECT./MECH.

TRAFO. SET-II

PROT. TRIP

ELECT./MECH.

BUSBAR-1

PROT. TRIP

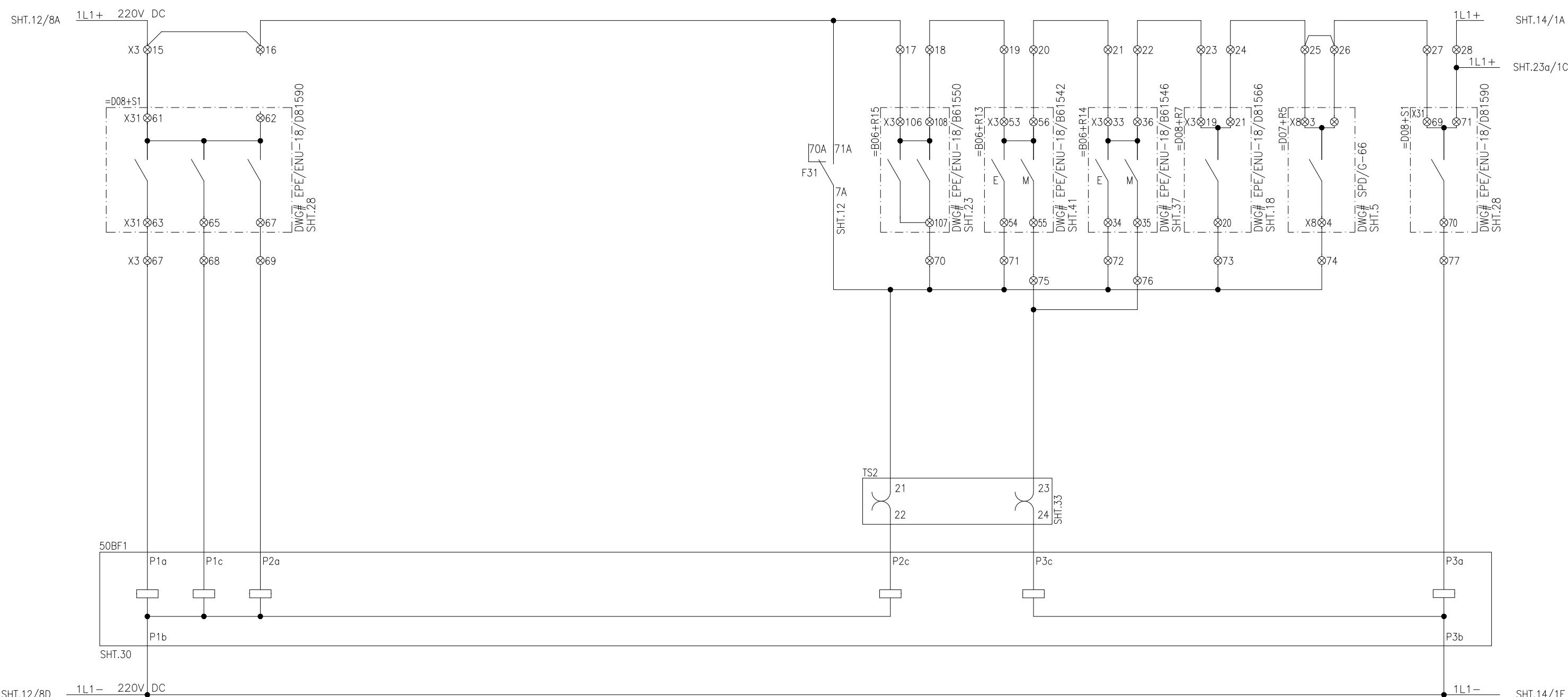
ELECT./MECH.

=D07+Q1 CBF

STG-2 TRIP

CB

FAULTY



NOTE:  
TO BE SHORTED AT SITE.

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
50BF2	BREAKER FAILURE PROT. RELAY	C60	GE

CB D08+Q2

DISTANCE SET-1 PROT.

DISTANCE SET-2 PROT.

DISTANCE SET-I

DISTANCE SET-II

CB OPEN STATUS

ZONE-1 TRIP

ZONE-1 TRIP

=D08+Q3 CBF

Z2/Z3/STUB

Z2/Z3/STUB

BUSBAR-2

=D07+Q2 CBF

CB

R-PH Y-PH B-PH

R-PH Y-PH B-PH

R-PH Y-PH B-PH

STG-2 TRIP

SOTF/PS/DTT

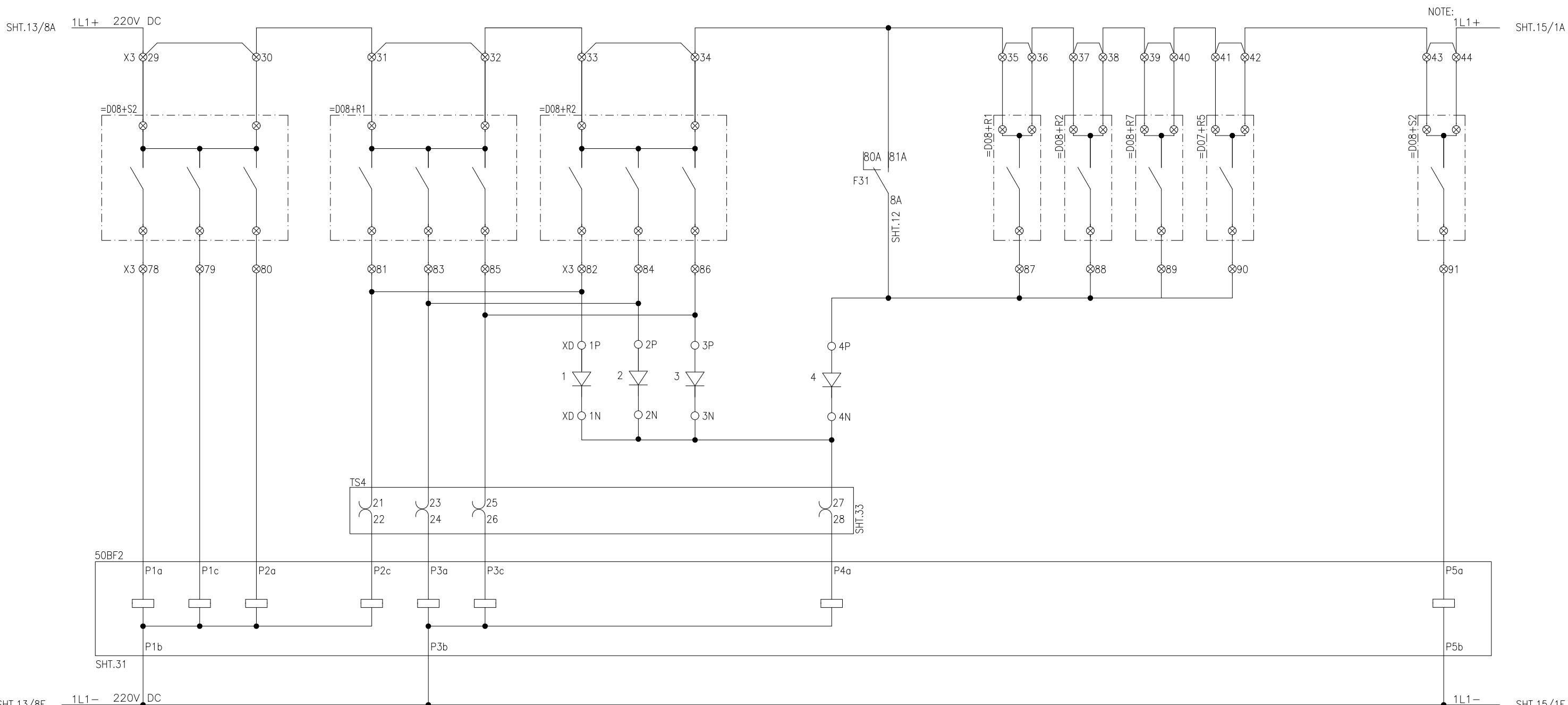
SOTF/PS/DTT

PROT. TRIP

STG-2 TRIP

FAULTY

A A

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
TS2	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE
50BF1	BREAKER FAILURE PROT. RELAY	C60	GE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: BREAKER FAILURE INITIATION FOR D08+Q2 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 14 OF 34
NAH [Signature]	MSS [Signature]	MUR [Signature]				DATE: 07.03.2019	AS BUILT REV: 0

CB D08+Q3

DISTANCE SET-1 PROT.

DISTANCE SET-2 PROT. =B06+Q2 CBF /

DISTANCE SET-I DISTANCE SET-II TRAFO. SET-I TRAFO. SET-II

CB OPEN STATUS

ZONE-1 TRIP

ZONE-1 TRIP

=B06+Q3 CBF

=D08+Q1

=D08+Q2

Z2/Z3/STUB

Z2/Z3/STUB

PROT. TRIP

PROT. TRIP

BUSBAR-2 =D07+Q2

CB

R-PH Y-PH B-PH

R-PH Y-PH B-PH

R-PH Y-PH B-PH

STG-2 TRIP

STG-2 TRIP

STG-2 TRIP

SOTF/PS/DTT

SOTF/PS/DTT

ELECT./MECH.

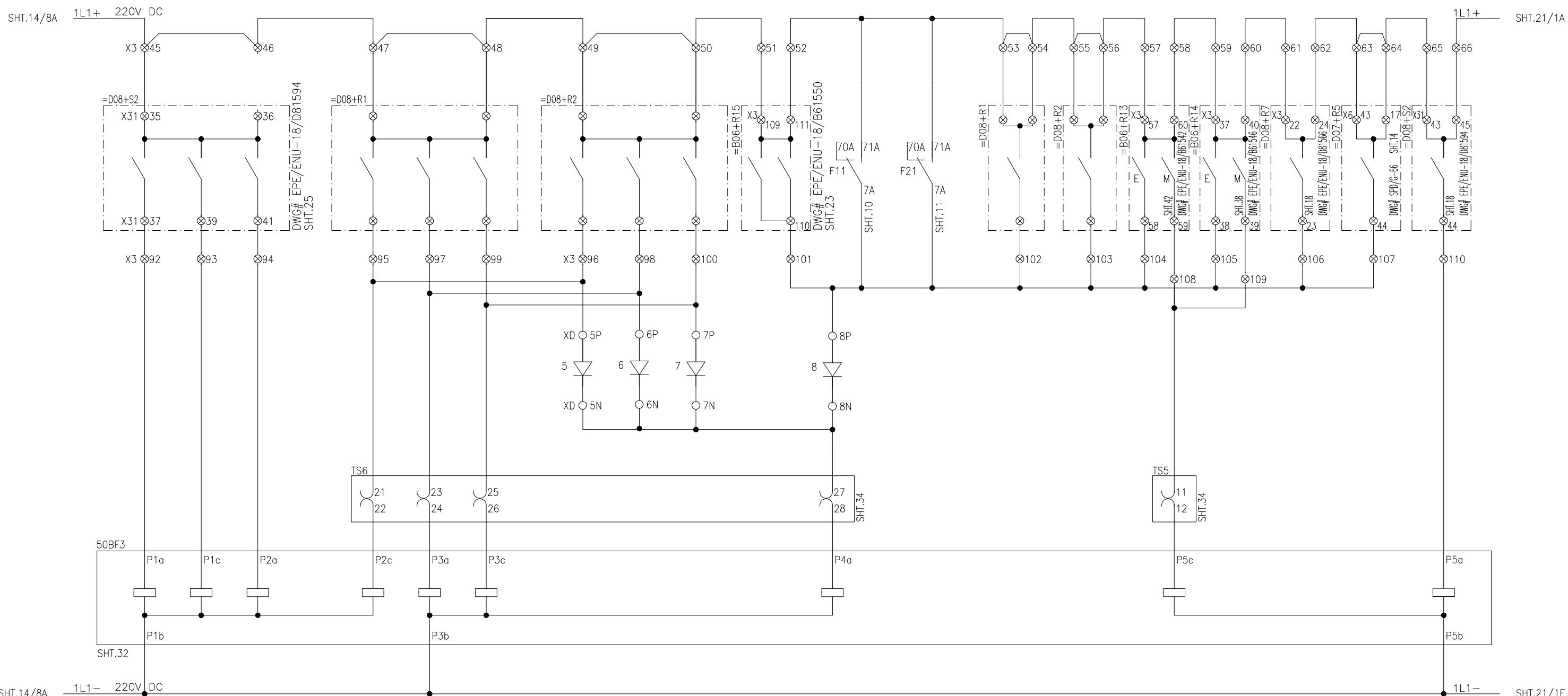
ELECT./MECH.

PROT. TRIP

PROT. TRIP

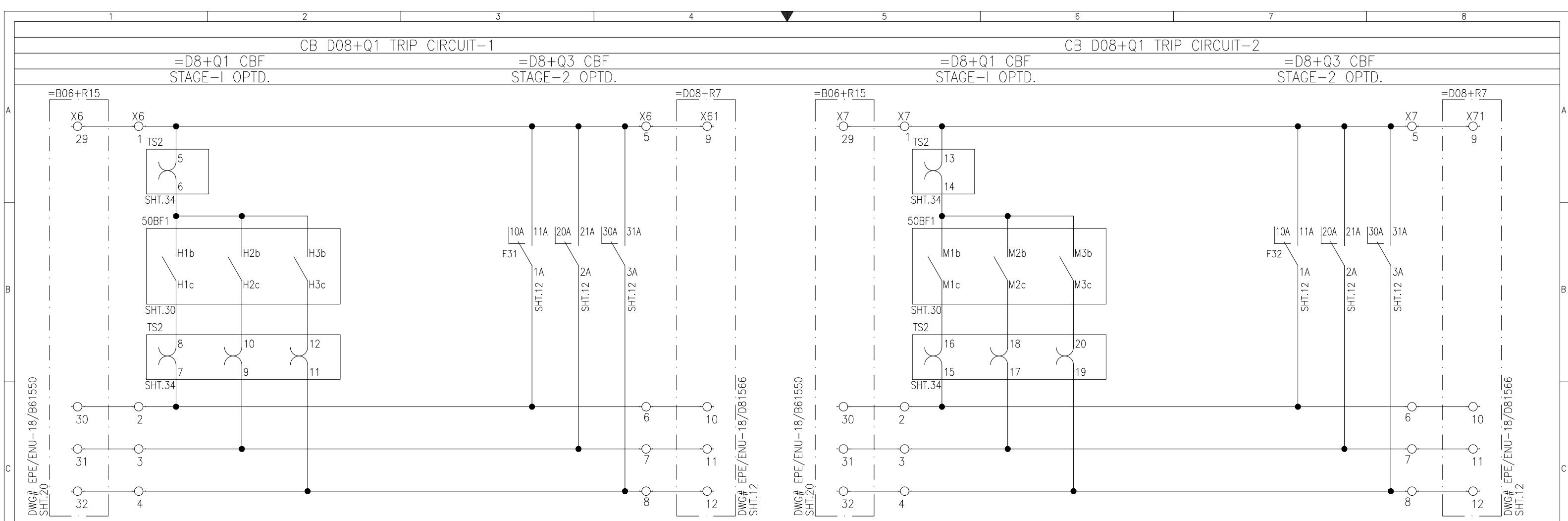
STG-2 TRIP

FAULTY

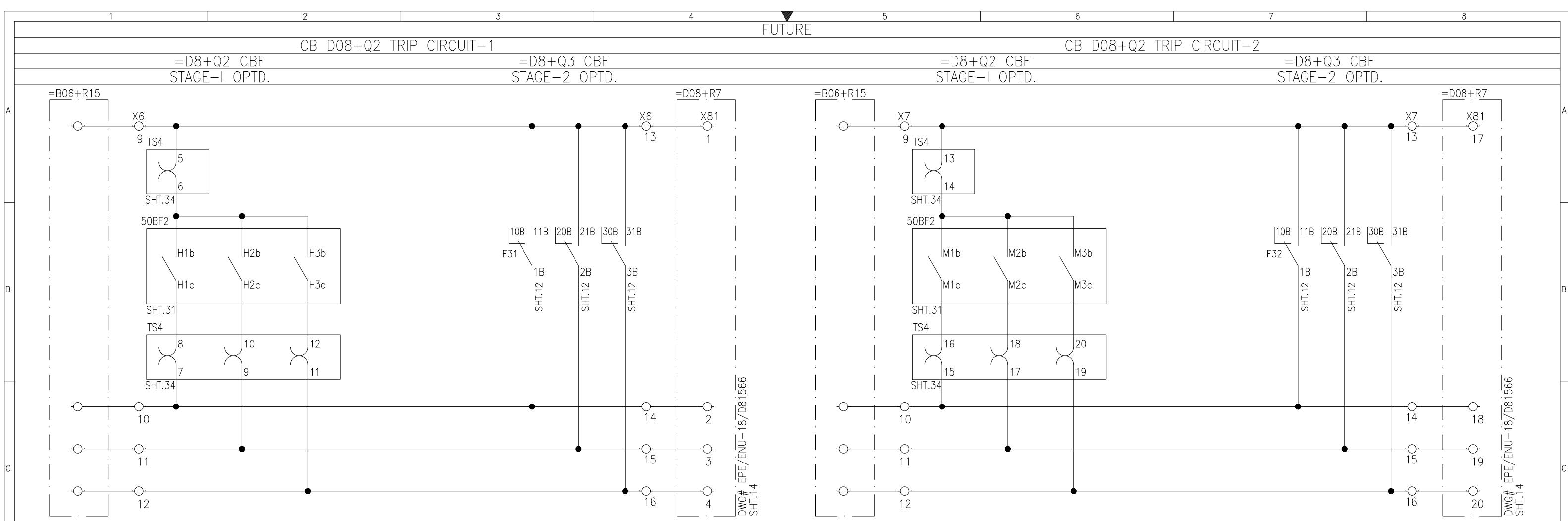
LEGEND

DES.	DESCRIPTION	TYPE	MAKE
TS6	TEST BLOCK (14 FINGERS)	saTECH TSB 14	ARTECHE
50BF3	BREAKER FAILURE PROT. RELAY	C60	GE

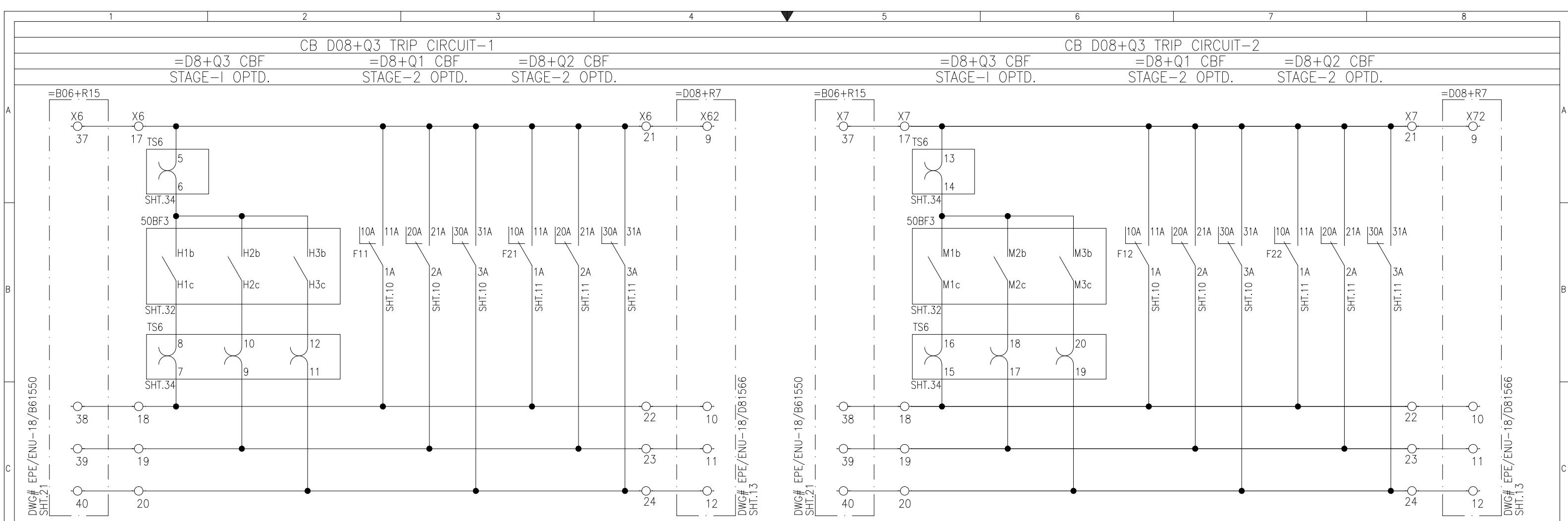
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS		TITLE: BREAKER FAILURE INITIATION FOR D08+Q3 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558 SHT: 15 OF 34	
NAH [Signature]	MSS [Signature]	MUR [Signature]			 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT
1	2	3	4	5	6	7	8



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: CB D08+Q1 TRIP CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 16 OF 34
NAH	MSS	MUR		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

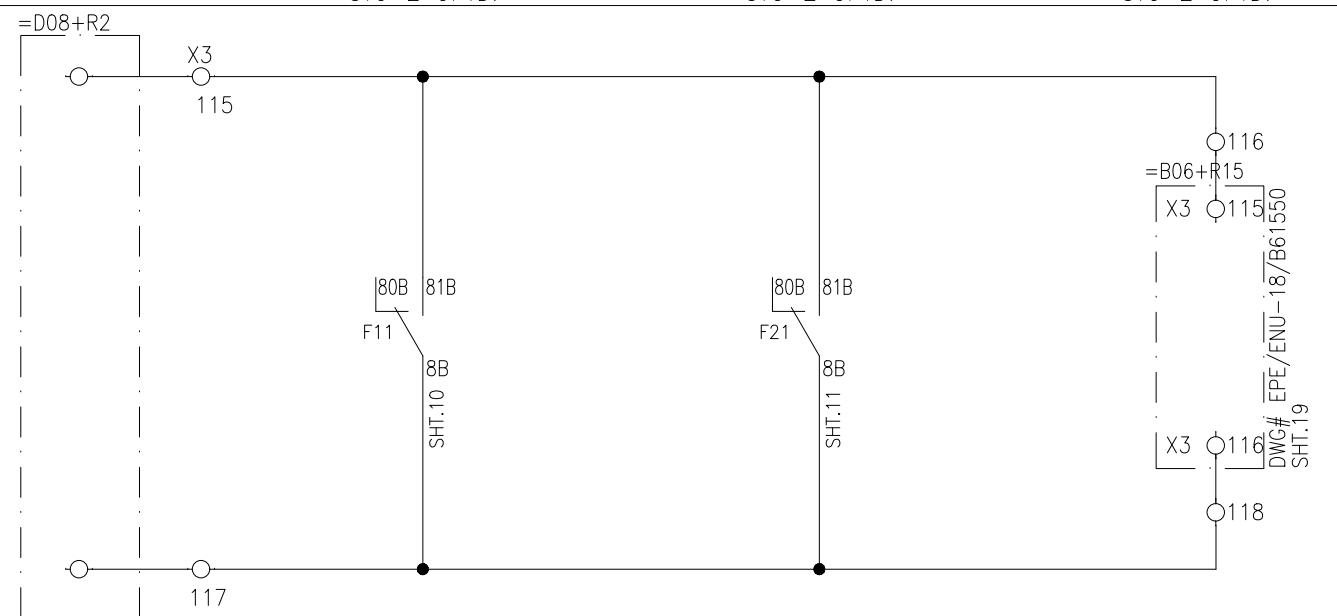


APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: CB D08+Q2 TRIP CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 17 OF 34
NAH Q.	MSS M. Sohail	MUR Iy		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

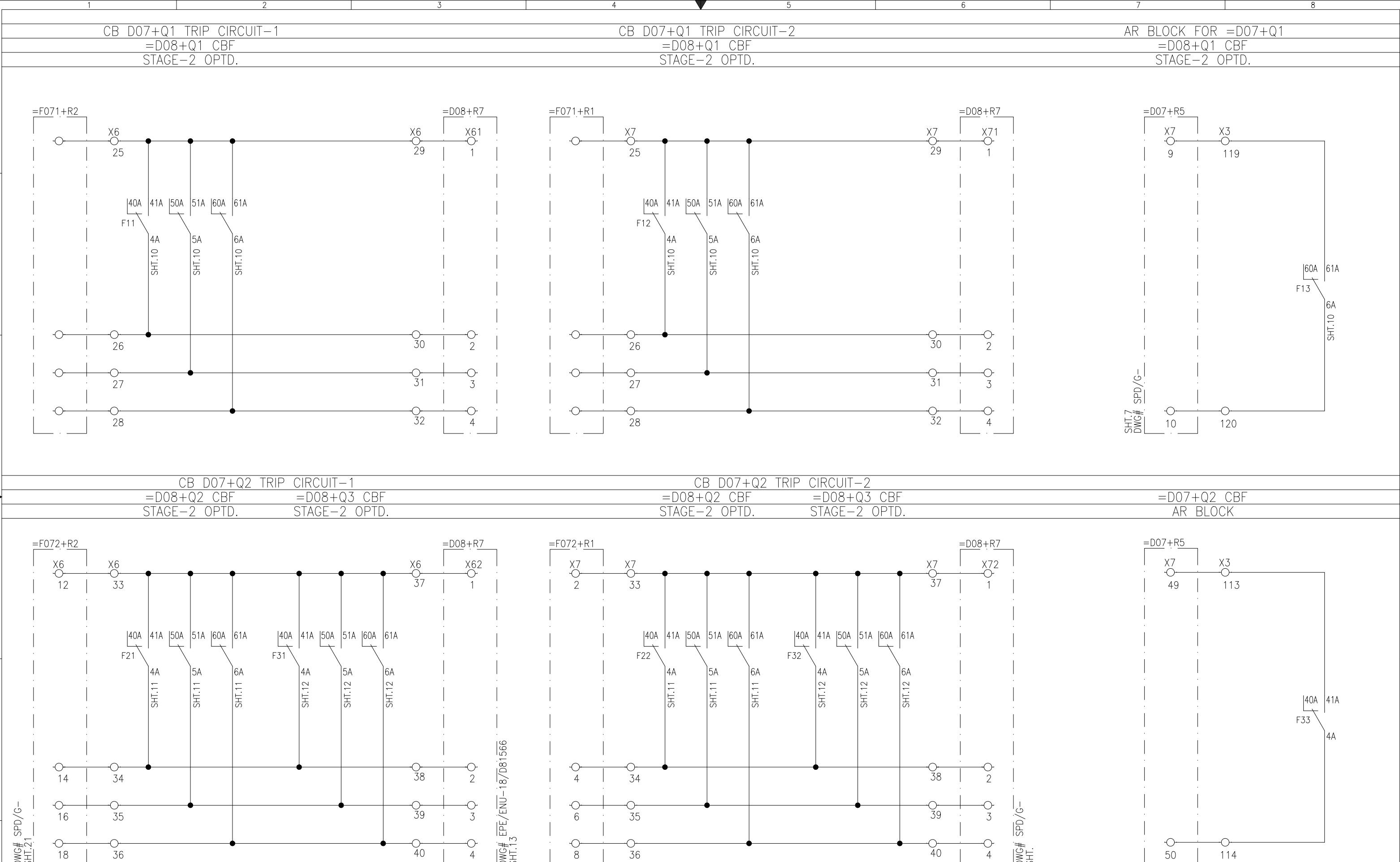


AR BLOCK FOR =D08+Q3

=D08+Q1 CBF STG-2 OPTD.      =D08+Q2 CBF STG-2 OPTD.      B06+Q2 / B06+Q3 CBF STG-2 OPTD.



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: CB D08+Q3 TRIP CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 18 OF 34
NAH	MSS	MUR			DATE: 07.03.2019	AS BUILT REV: 0



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: CB D07+Q1/D07+Q2 TRIP CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 18AOF 34
NAH	MSS	MUR				DATE: 07.03.2019	AS BUILT

1

2

3

4

5

6

7

8

## CB B06+Q2 TRIP CIRCUIT-1

=D8+Q1 CBF

STAGE-2 OPTD.

=D8+Q3 CBF

STAGE-2 OPTD.

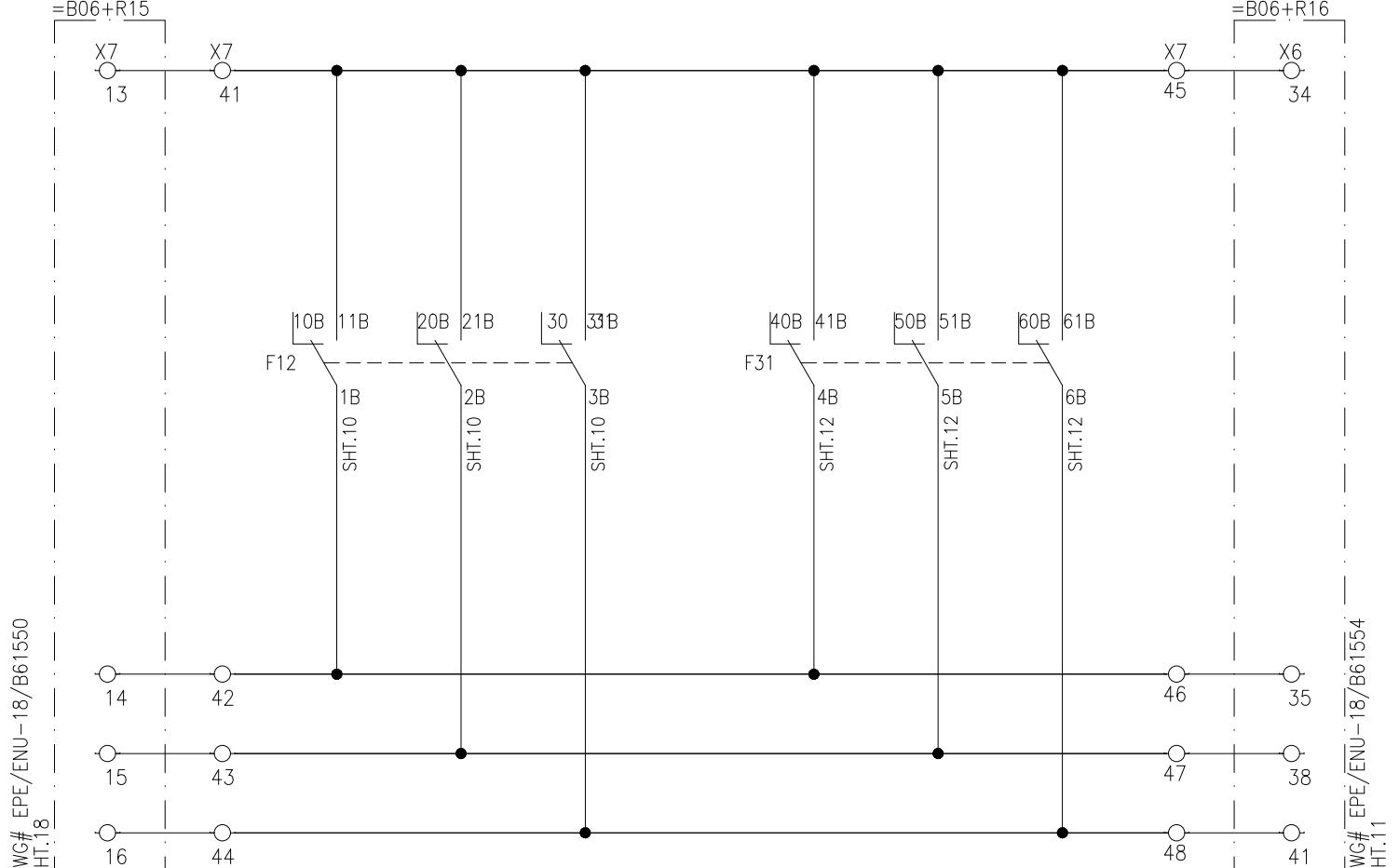
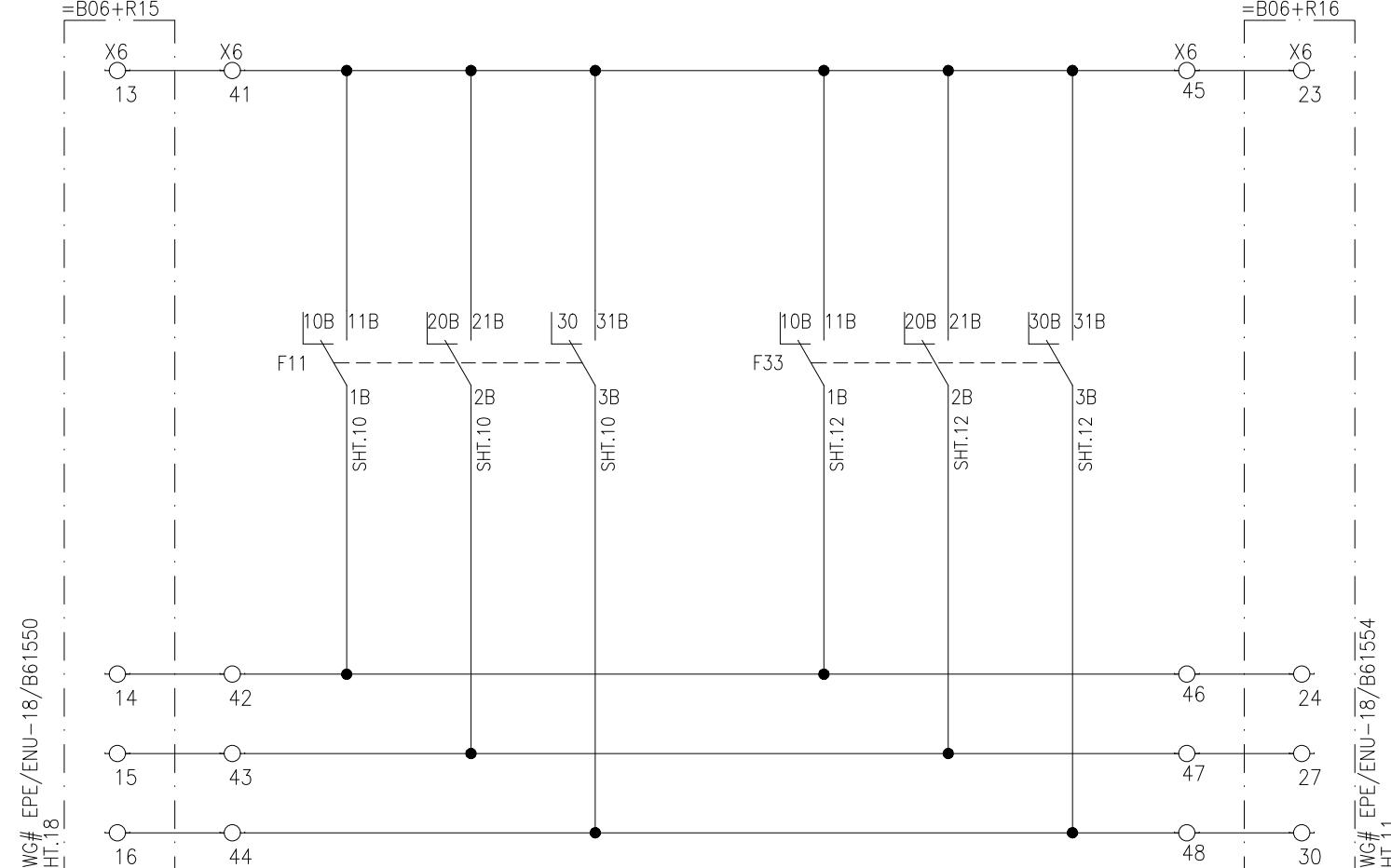
## CB B06+Q2 TRIP CIRCUIT-2

=D8+Q1 CBF

STAGE-2 OPTD.

=D8+Q3 CBF

STAGE-2 OPTD.



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: CB B06+Q1 TRIP CKT-1/2 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 19 OF 34
NAH Q.	MSS M. Sohail	MUR B.		<b>EPESOL Pvt. Ltd</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

1 2 3 4 ▼ 5 6 7 8

CB B06+Q1 TRIP CIRCUIT-1

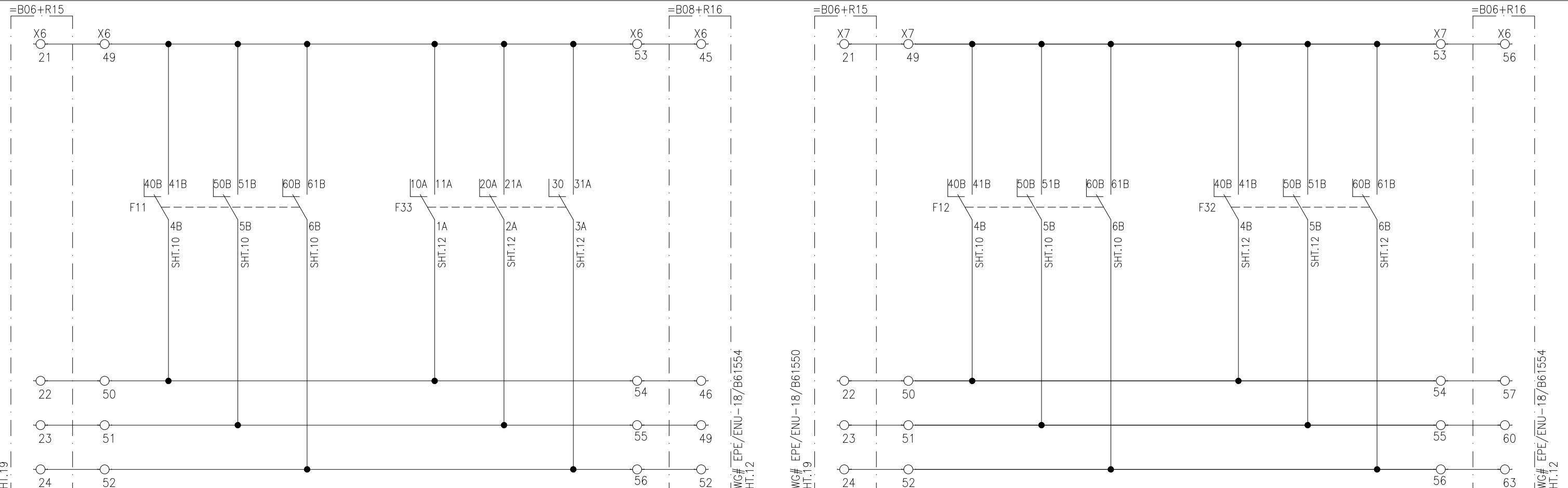
=D8+Q1 CBF  
STAGE-2 OPTD.

=D8+Q3 CBF  
STAGE-2 OPTD.

CB B06+Q1 TRIP CIRCUIT-2

=D8+Q1 CBF  
STAGE-2 OPTD.

=D8+Q3 CBF  
STAGE-2 OPTD.



APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
CB B06+Q3 TRIP CKT-1/2  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5

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

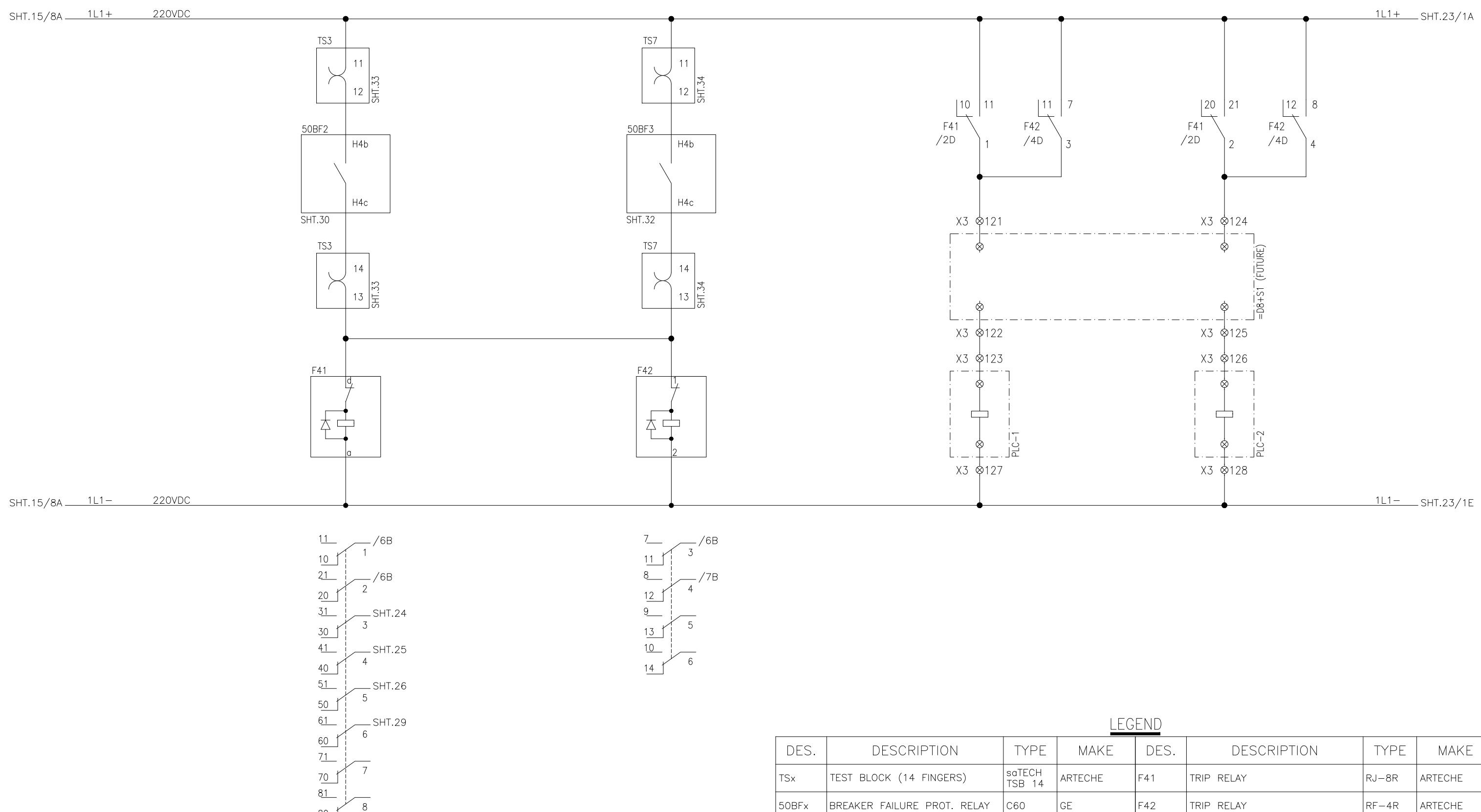
DWG# EPE/ENU-18/D81558 SHT: 20 OF 34  
DATE: 07.03.2019 **AS BUILT** REV: 0

1 2 3 4 5 6 7 8

DTT SEND ON  
CBF STAGE-2 /  
END ZONE FAULT

PLC SET-1  
SEND

PLC SET-2  
SEND



APPROVED    CHECKED    DRAWN



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
DTT SIGNAL  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5

DWG# EPE/ENU-18/D81558  
DWG# EPE/ENU-18/D81558  
EPE SOL Pvt Ltd  
71-B Garden Block, New Garden Town, Lahore, Pakistan

SHT: 21 OF 34  
DATE: 07.03.2019    AS BUILT  
REV: 0

1 2 3 4 ▼ 5 6 7 8

BFI FOR =D07+Q1

=D08+Q1 CBF

STG-2 TRIP

BFI FOR =D07+Q2

=D08+Q3

STG-2

=D8+Q1 CBF STG-2

TRIP FOR

ADJ. DIA's

=D8+Q2 CBF STG-2

TRIP FOR

ADJ. DIA's

BFI FOR =B06+Q2

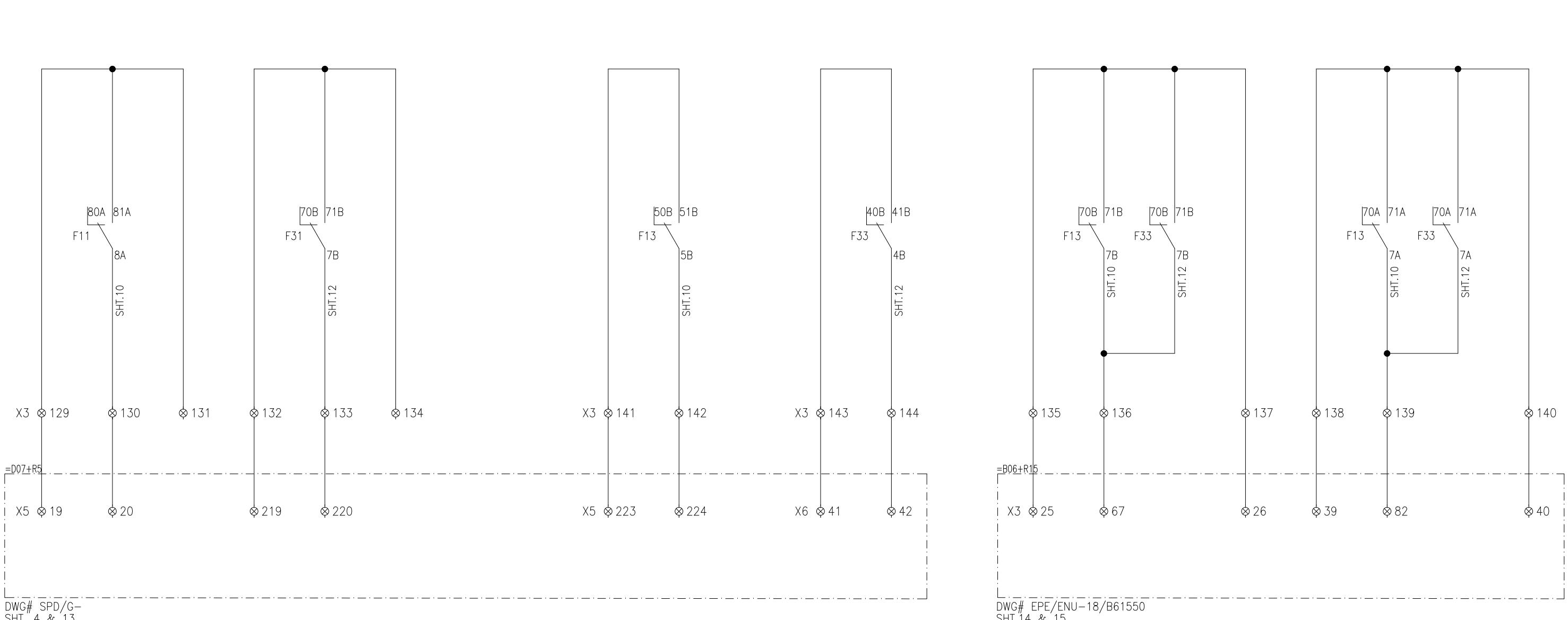
=D08+Q1 =D08+Q3

STG-2 STG-2

BFI FOR =B06+Q3

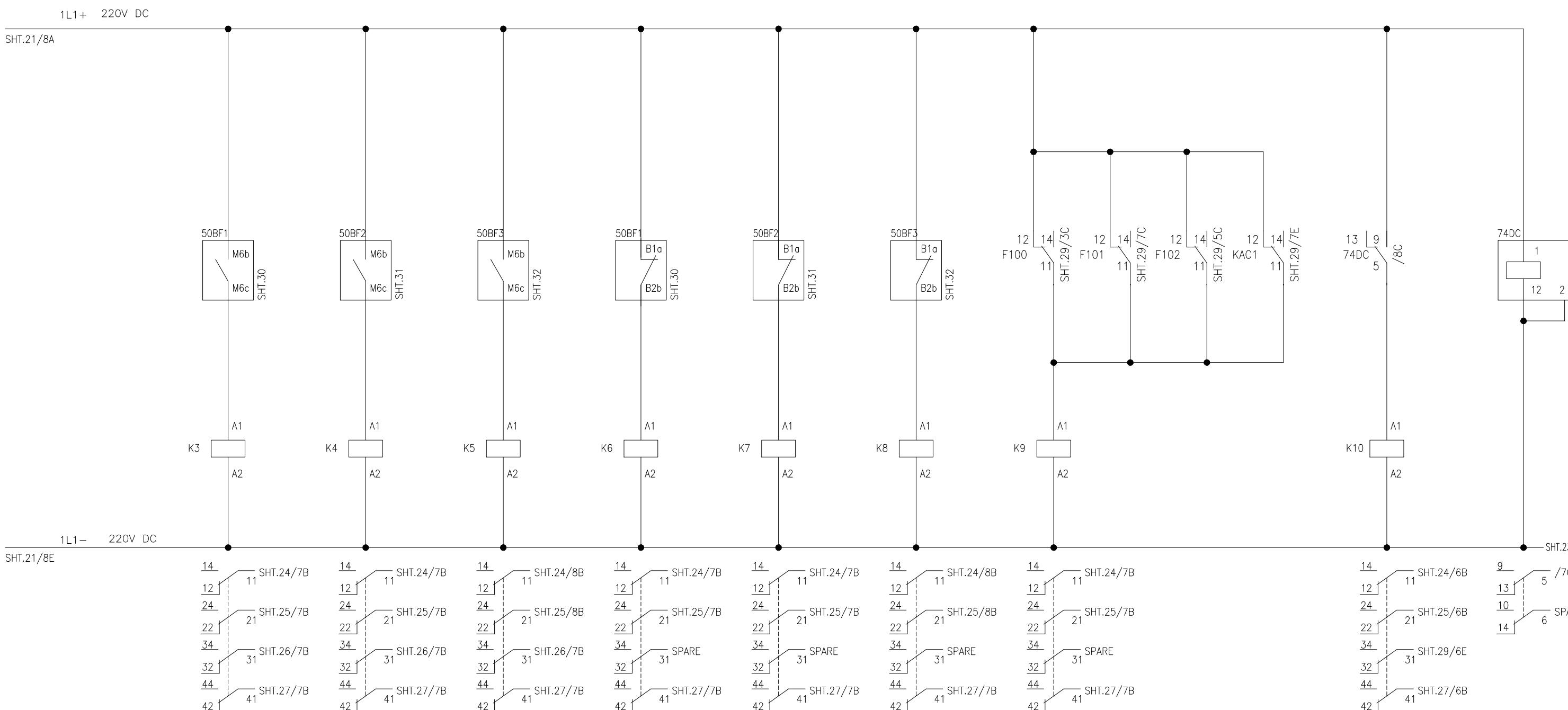
=D08+Q1 =D08+Q3

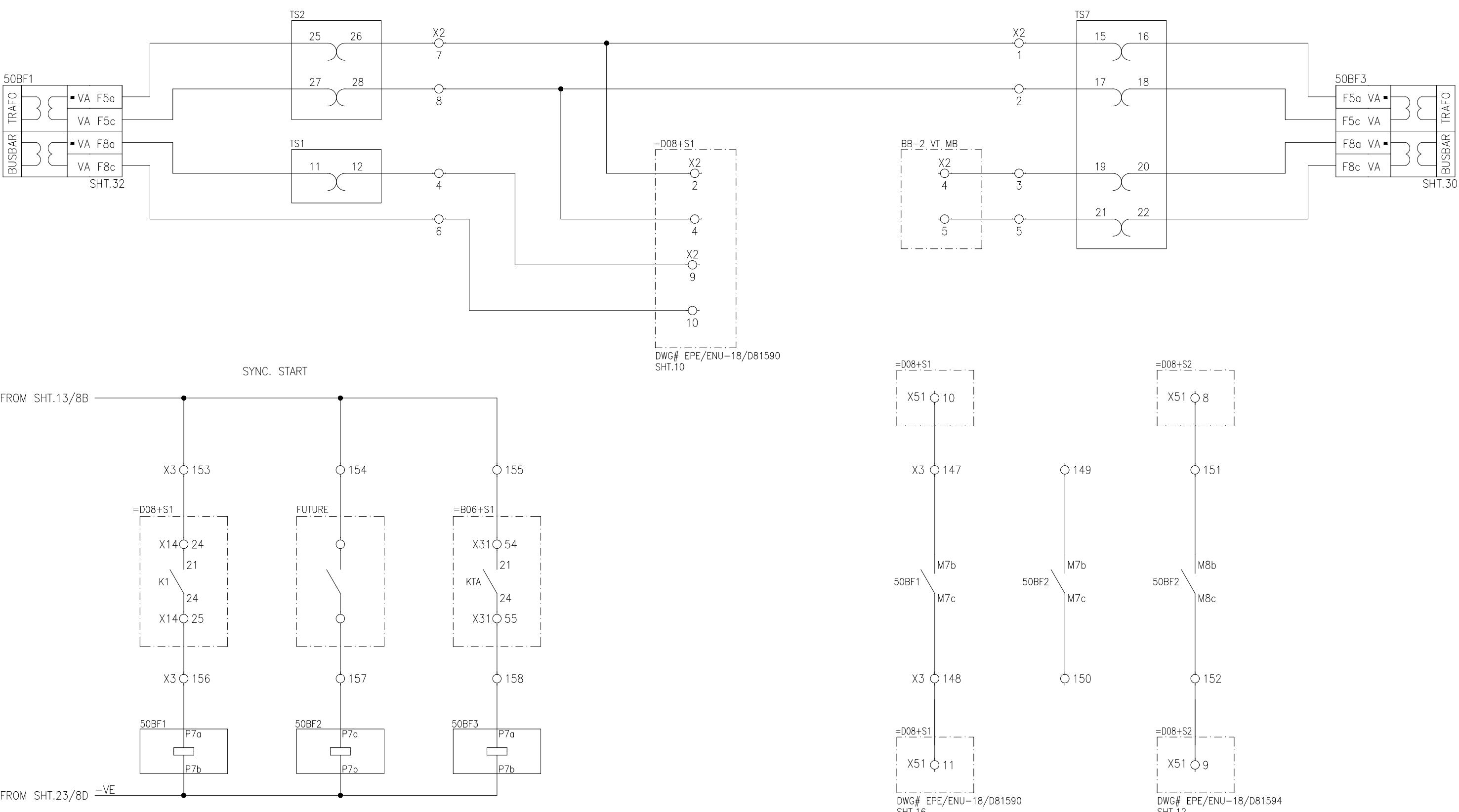
STG-2 STG-2



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: INITIATION FOR CB B06+Q2 & B06+Q3 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 22 OF 34
NAH Q.	MSS M. Sohail	MUR Iy				DATE: 07.03.2019	AS BUILT

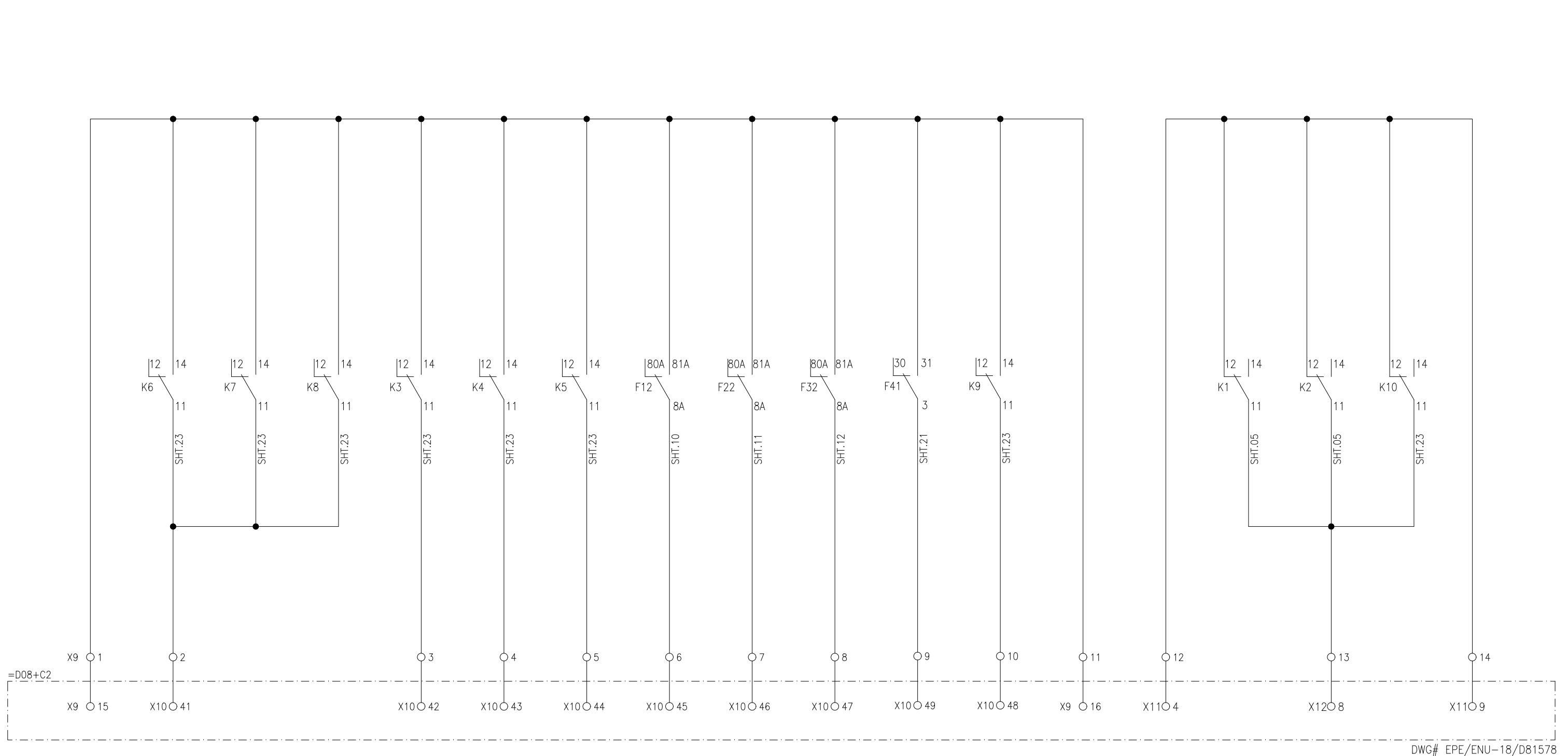
CBF 50BF1 STG-1 OPERATED	CBF 50BF2 STG-1 OPERATED	CBF 50BF3 STG-1 OPERATED	CBF 50BF1 UNHEALTHY	CBF 50BF2 UNHEALTHY	CBF 50BF3 UNHEALTHY	PANEL AC SUPPLY FAIL	PANEL DC SUPPLY FAIL	DC SUPPLY SUPERVISION
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APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: SYNC CIRCUIT FOR =D08Q1 & =D08Q3 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 23aOF 34
NAH [Signature]	MSS [Signature]	MUR [Signature]	 <b>EPE SOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan		DATE: 07.03.2019	AS BUILT REV: 0

50BF-1	50BF-2	50BF-3	D08+Q1	D08+Q2	D08+Q3	D08+Q1	D08+Q2	D08+Q3			
RELAY	RELAY	RELAY	50BF-1	50BF-2	50BF-3	50BF-1	50BF-2	50BF-3	DTT	AC SUPPLY	DC SUPPLY
UNHEALTHY	UNHEALTHY	UNHEALTHY	STG-1 TRIP	STG-1 TRIP	STG-1 TRIP	STG-2 TRIP	STG-2 TRIP	STG-2 TRIP	SENT	FAIL	FAIL

DWG# EPE/ENU-18/D81578  
SHT.21

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: ANNUNCIATION CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	E P E S O L P v t . L t d. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 24 OF 34
NAH	MSS	MUR				DATE: 07.03.2019	AS BUILT

1 2 3 4 ▼ 5 6 7 8

50BF-1	50BF-2	50BF-3	D08+Q1	D08+Q2	D08+Q3	D08+Q1	D08+Q2	D08+Q3
RELAY	RELAY	RELAY	50BF-1	50BF-2	50BF-3	50BF-1	50BF-2	50BF-3
UNHEALTHY	UNHEALTHY	UNHEALTHY	STG-1 TRIP	STG-1 TRIP	STG-1 TRIP	STG-2 TRIP	STG-2 TRIP	STG-2 TRIP

A

A

B

B

C

C

D

D

E

E

F

F

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



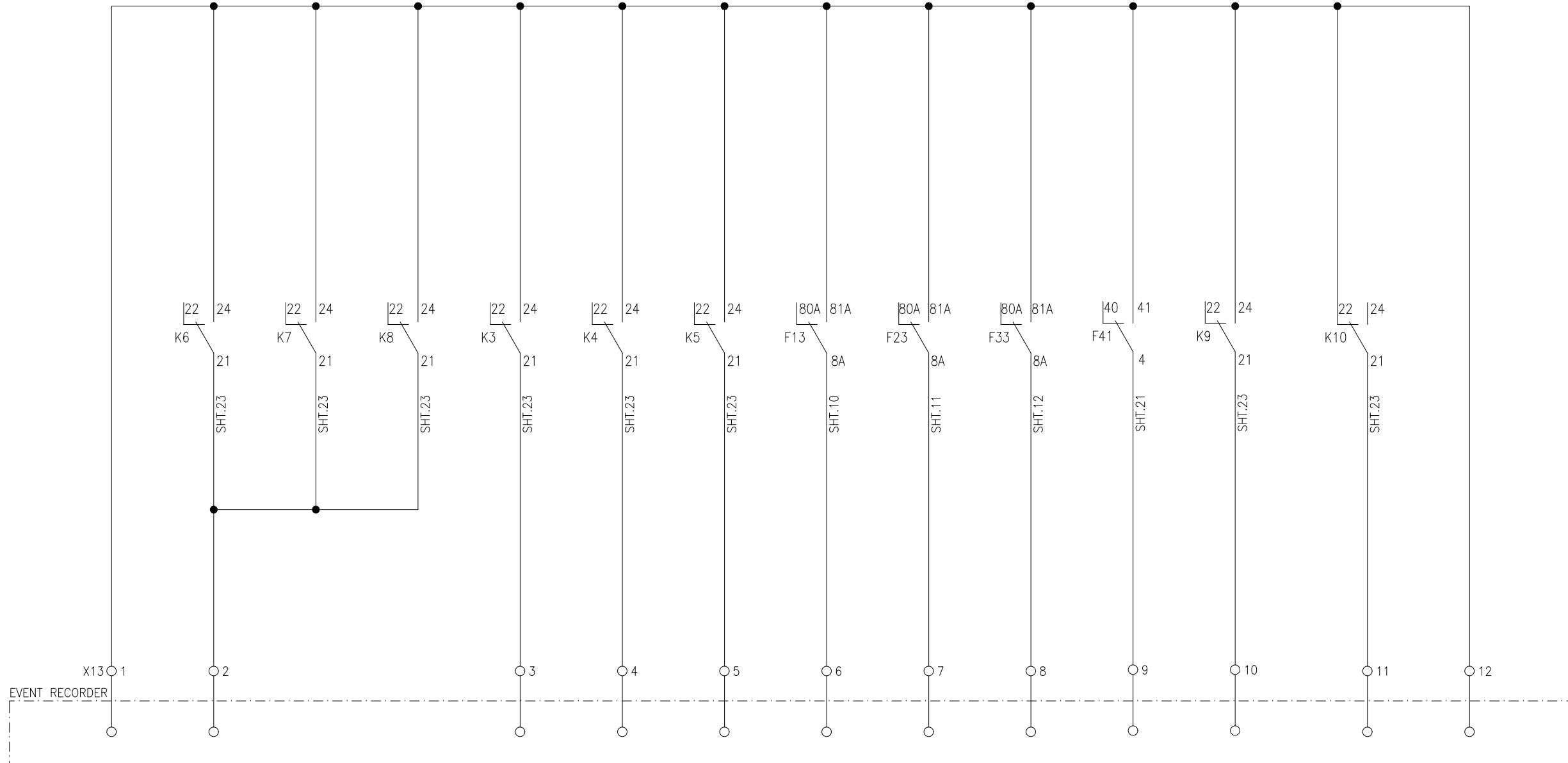
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
ER SIGNALING CIRCUIT  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5

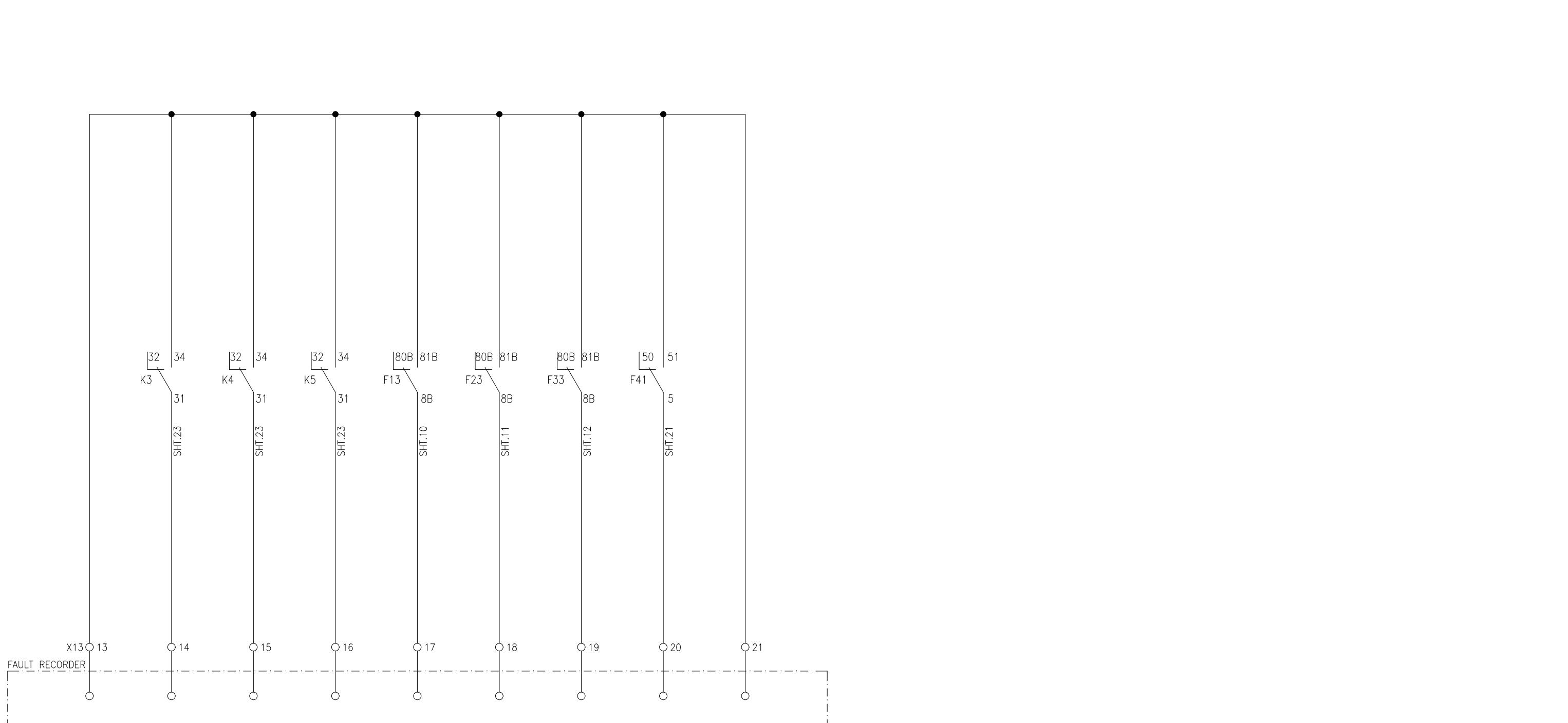
 **EPESOL Pvt. Ltd.**  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/D81558 SHT: 25 OF 34  
DATE: 07.03.2019 **AS BUILT** REV: 0

1 2 3 4 5 6 7 8



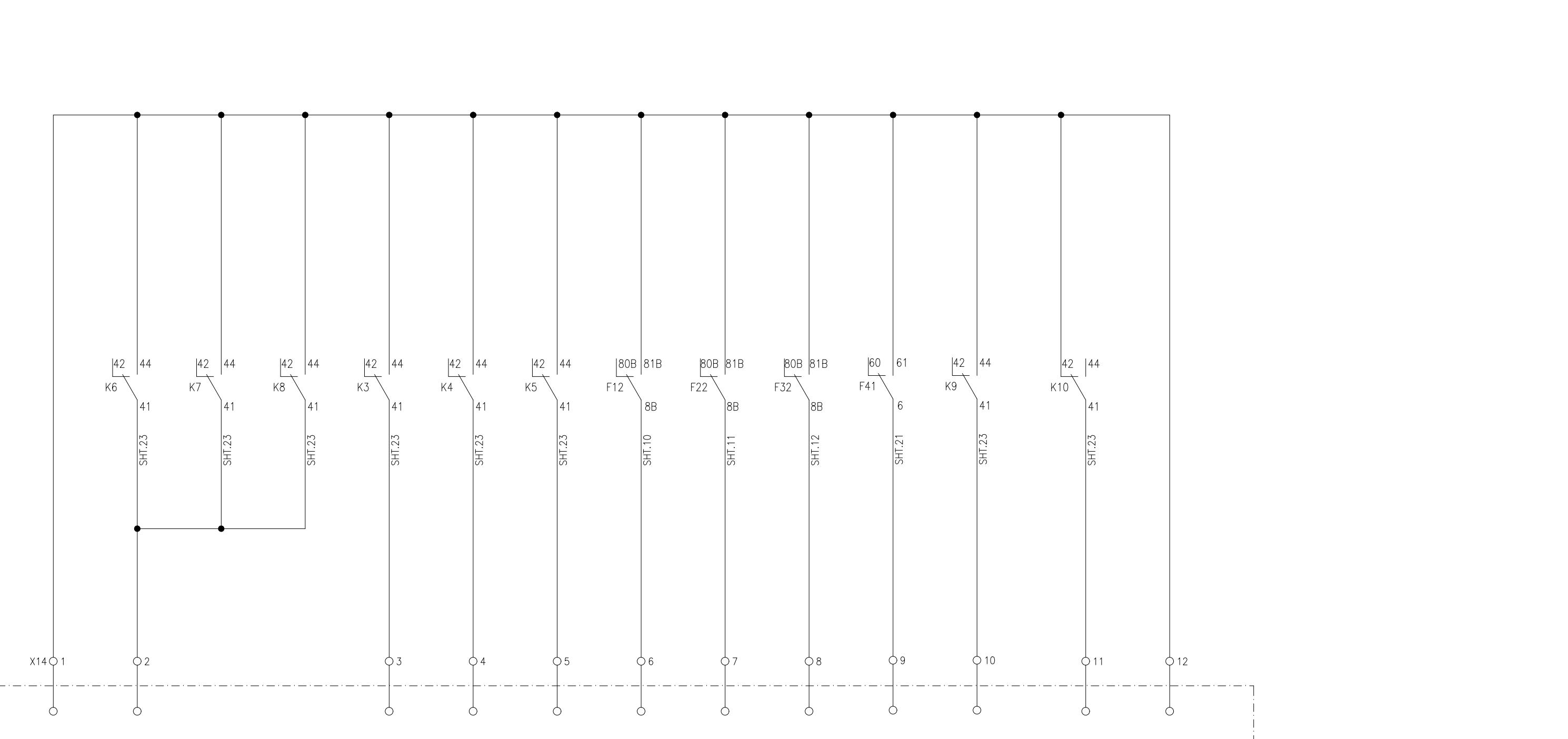
D08+Q1 50BF-1	D08+Q2 50BF-2	D08+Q3 50BF-3	D08+Q1 50BF-1	D08+Q2 50BF-2	D08+Q3 50BF-3	
STG-1 TRIP	STG-1 TRIP	STG-1 TRIP	STG-2 TRIP	STG-2 TRIP	STG-2 TRIP	DTT SENT



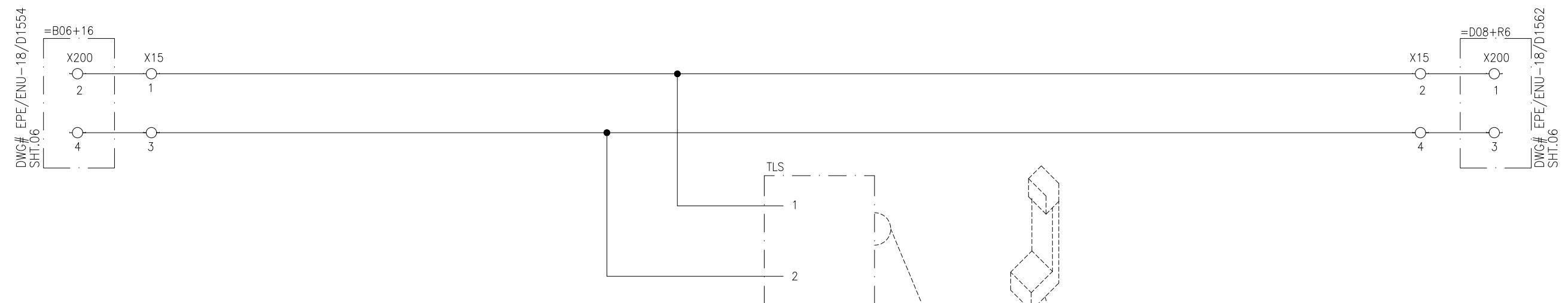
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: FR SIGNALING CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 26 OF 34
NAH Q.	MSS M. Sohail	MUR Iy				DATE: 07.03.2019	AS BUILT

1 2 3 4 5 6 7 8

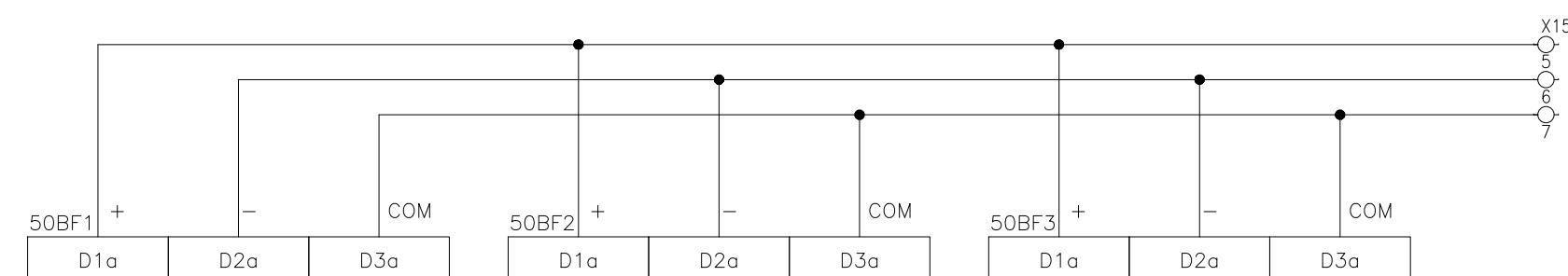
50BF-1	50BF-2	50BF-3	D08+Q1	D08+Q2	D08+Q3	D08+Q1	D08+Q2	D08+Q3
RELAY	RELAY	RELAY	50BF-1	50BF-2	50BF-3	50BF-1	50BF-2	50BF-3
UNHEALTHY	UNHEALTHY	UNHEALTHY	STG-1 TRIP	STG-1 TRIP	STG-1 TRIP	STG-2 TRIP	STG-2 TRIP	STG-2 TRIP



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: SCADA SIGNALING CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 27 OF 34
NAH Q	MSS M Sohail	MUR Ilyas				DATE: 07.03.2019	AS BUILT

TELEPHONE SOCKET  
SOCKET

RS-485 COMMUNICATION LOOP



## LEGEND

DES:	DESCRIPTION	TYPE	MAKE
TLS	TELEPHONE SOCKET	LOCAL	LOCAL

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: COMMUNICATION CIRCUIT 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	DWG# EPE/ENU-18/D81558	SHT: 28 OF 34
NAH [Signature]	MSS [Signature]	MUR [Signature]	 EPESOL Pvt Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT	REV: 0

DOOR SWITCH &  
CUBICLE LIGHTSPACE HEATER  
THERMOSTAT

## AC SUPPLY DISTRIBUTION

THREE  
PIN SOCKETPANEL DC SUPPLY  
HEALTHYPANEL AC SUPPLY  
SUPERVISIONLEGEND

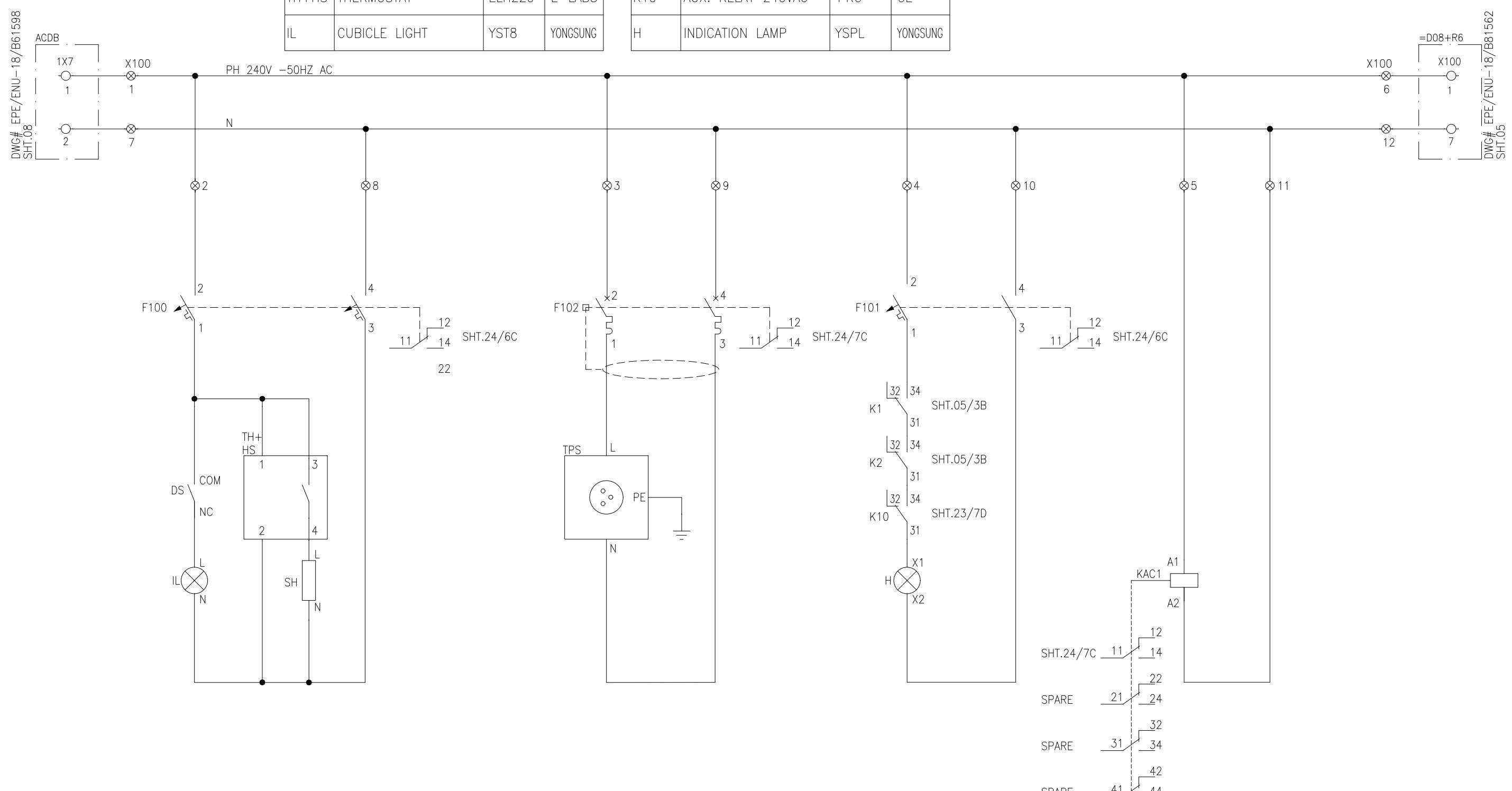
DES:	DESCRIPTION	TYPE	MAKE
TPS	THREE PIN SOCKET	220V SOCKET	LEAR
SH	SPACE HEATER	ELH220	E-LABS
TH+HS	THERMOSTAT	ELH220	E-LABS
IL	CUBICLE LIGHT	YST8	YONGSUNG

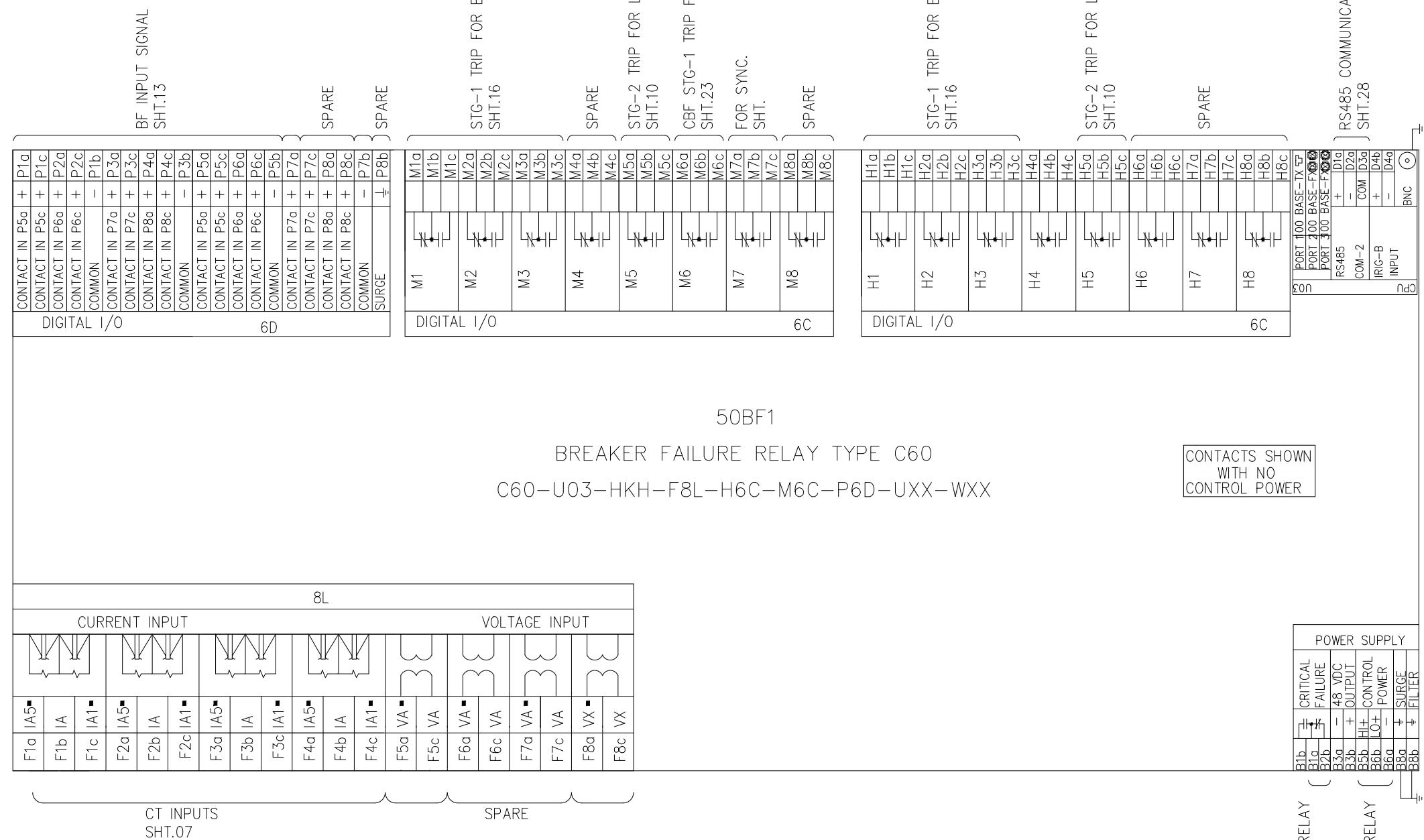
LEGEND

DS	DOOR SWITCH	YSP+YSMS-C	YONGSUNG
F100, F101	TWO POLE AC MCB	G60	GE
F102	ELCB	DM100	GE
K10	AUX. RELAY 240VAC	PRC	GE
H	INDICATION LAMP	YSPL	YONGSUNG

LEGEND

K07, K08	AUX. RELAY 220VDC	PRC	GE
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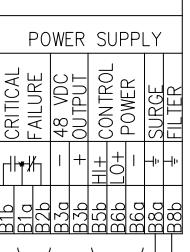




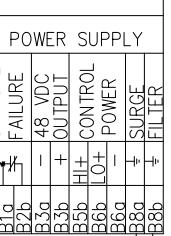
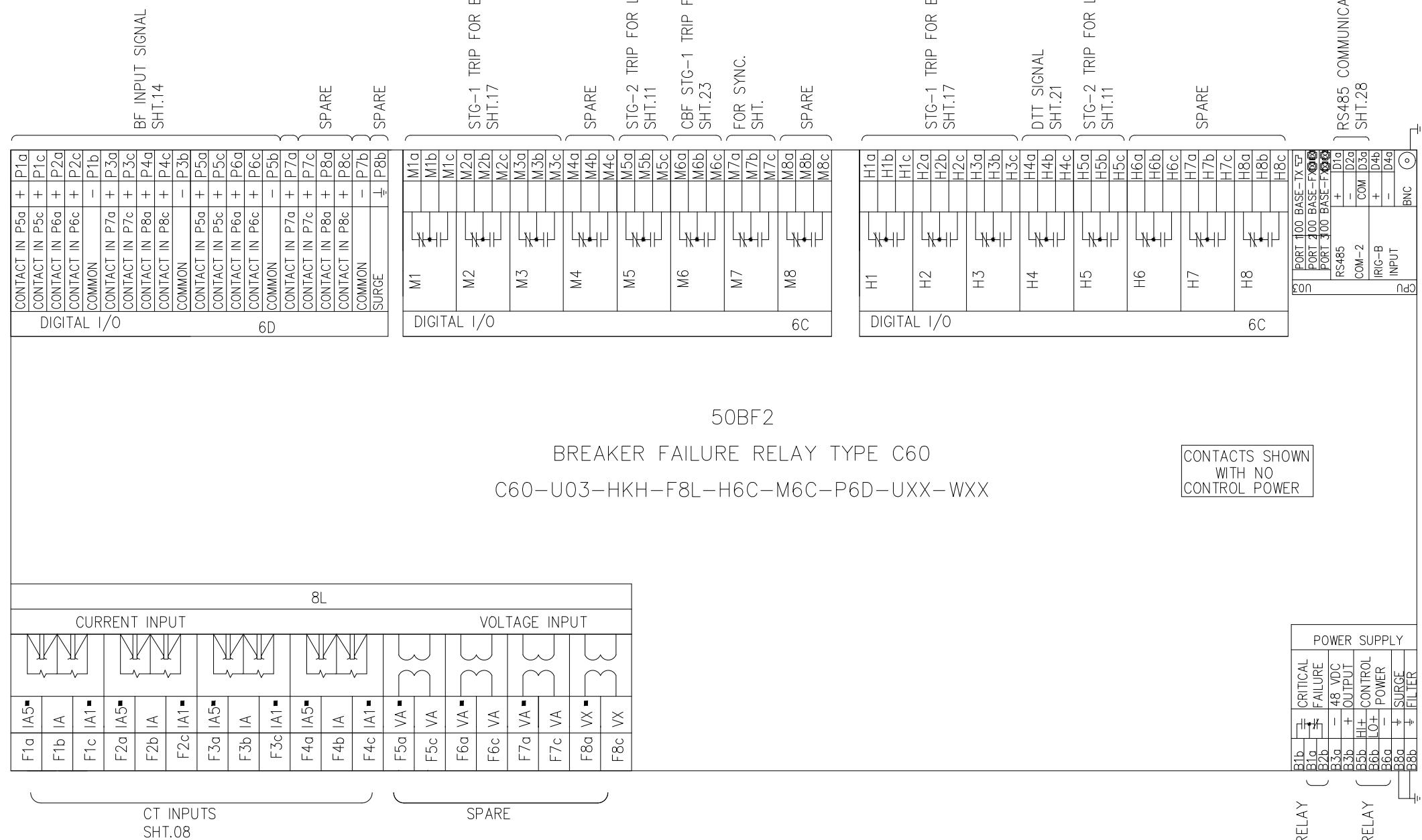
50BF1

BREAKER FAILURE RELAY TYPE C60

C60-U03-HKH-F8L-H6C-M6C-P6D-UXX-WXX



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAIL	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 30 OF 34
NAH	MSS	MUR		220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5		DATE: 07.03.2019	AS BUILT



BREAKER FAILURE RELAY  
FAULTY SHT.23  
BREAKER FAILURE RELAY  
DC SUPPLY SHT.11

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

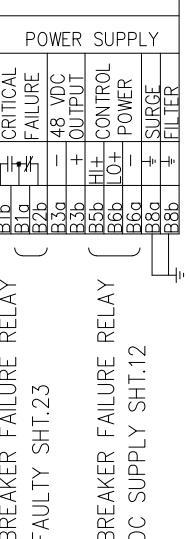
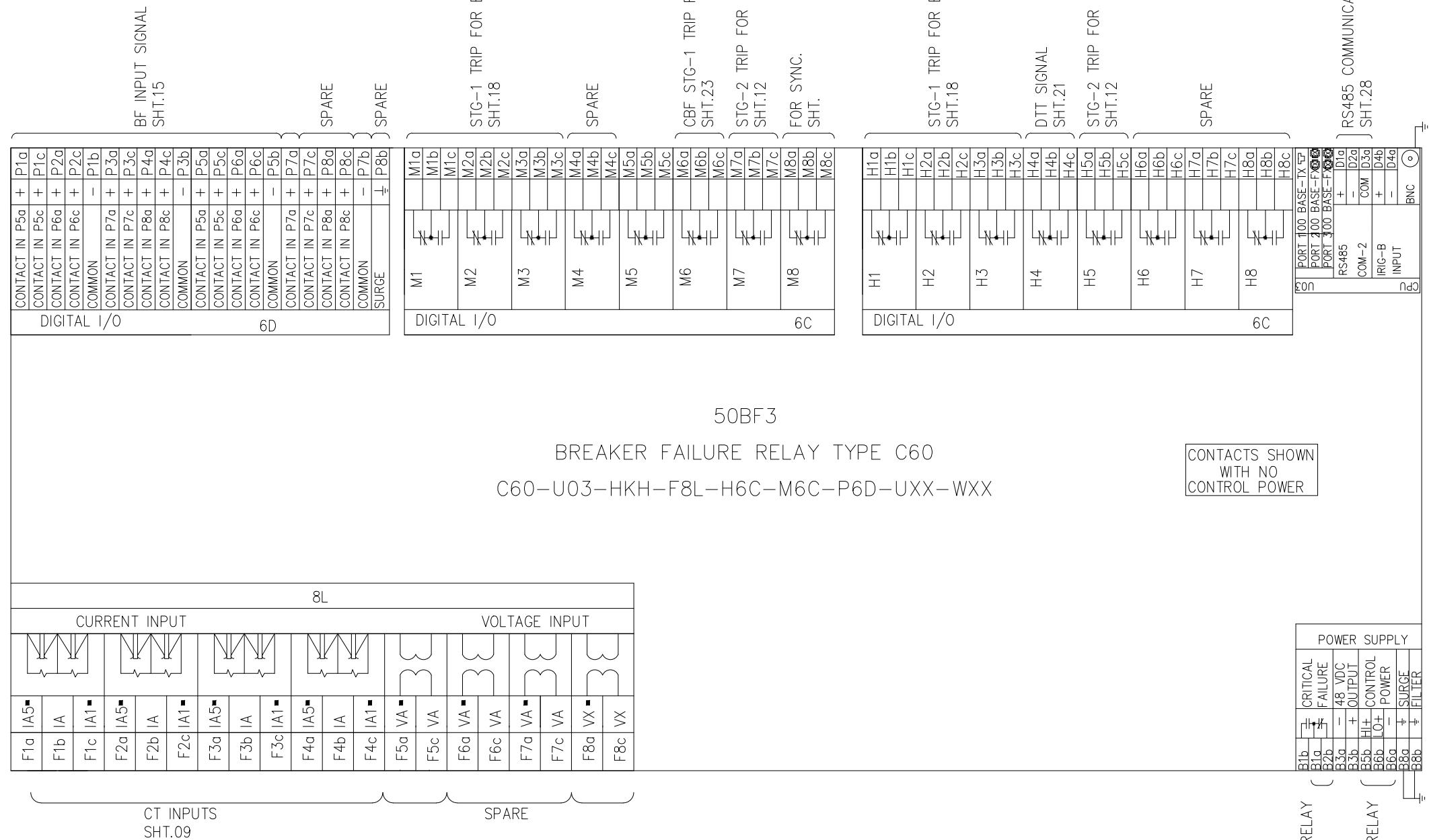


PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
DEVICE DETAIL  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5

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

DWG# EPE/ENU-18/D81558 SHT: 31 OF 34  
DATE: 07.03.2019 AS BUILT REV: 0



APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

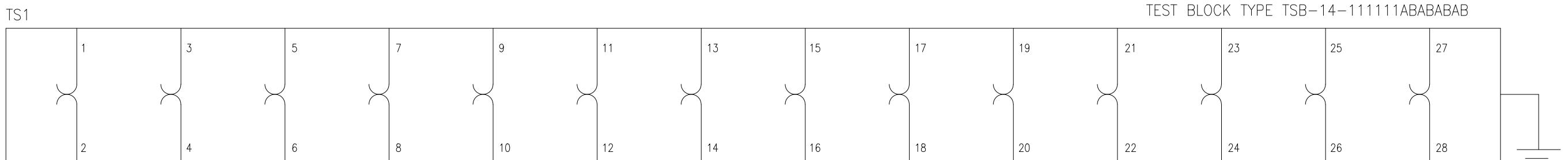


PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE: DEVICE DETAIL  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5

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

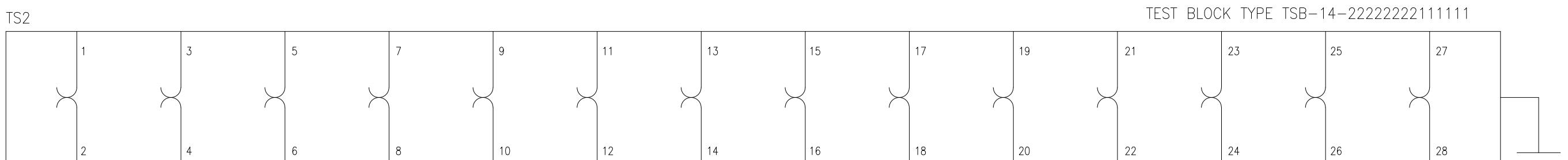
DWG# EPE/ENU-18/D81558 SHT: 32 OF 34  
DATE: 07.03.2019 AS BUILT REV: 0



POWER SUPPLY  
50BF1  
SHT.10

=D08+Q1  
LOR INTIATION  
SHT.10

CT CIRCUIT  
50BF1  
SHT.07

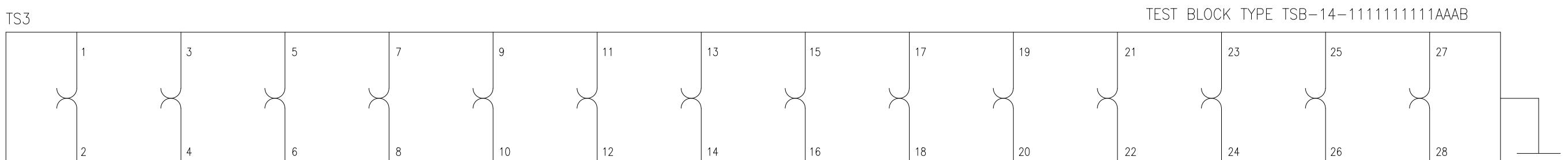


POWER SUPPLY  
50BF1  
SHT.10

=D08+Q1 STAGE-1/TRIP CIRCUIT-1  
FOR 50BF1  
SHT.16

=D08+Q1 STAGE-1 OPRATED/TRIP CIRCUIT-2  
FOR 50BF1  
SHT.16

BFI FOR =D08+Q1  
50BF1  
SHT.10



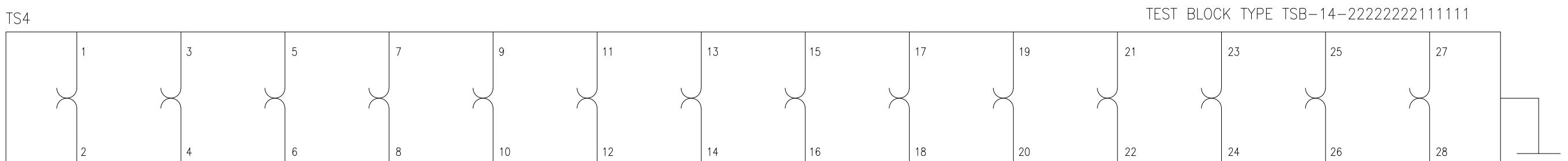
POWER SUPPLY  
50BF2  
SHT.11

=D08+Q2  
LOR INTIATION  
SHT.11

DTT SEND  
50BF2  
SHT.21

SPAF

CT CIRCUIT  
50BF2  
SHT.08



POWER SUPPLY  
50BF2  
SHT.11

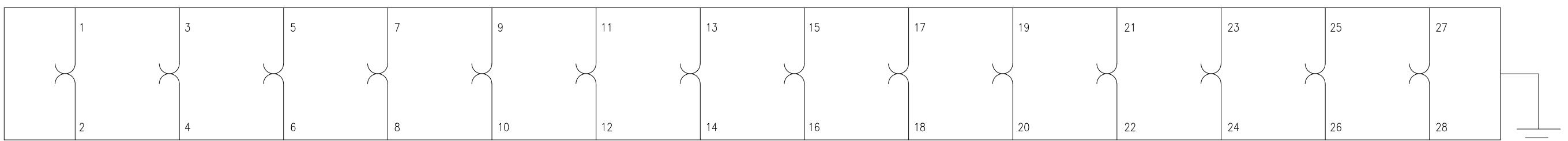
=D08+Q2 STAGE-1/TRIP CIRCUIT-1  
FOR 50BF2  
SHT.17

=D08+Q2 STAGE-1 OPRATED/TRIP CIRCUIT-2  
FOR 50BF2  
SHT.17

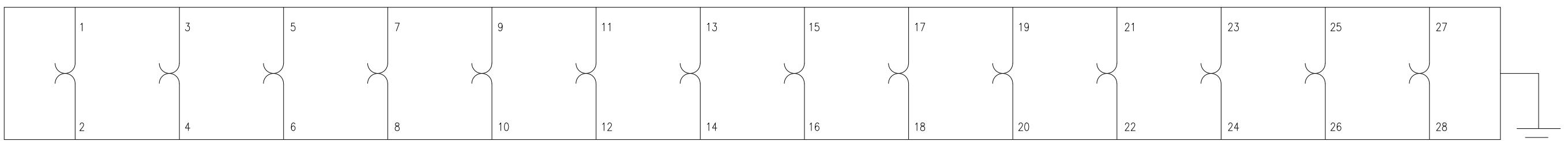
BFI FOR =D08+Q2  
50BF2  
SHT.13

APPROVED	CHECKED	DRAWN	 <p>PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&amp;M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV &amp; 500KV RELAY&amp; CONTROL PANELS</p>	TITLE:  DEVICE DETAILS FOR TEST BLOCK 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	 <p><b>E P E S O L</b> p v t . l t d. 71-B Garden Block, New Garden Town, Lahore, Pakistan</p>	DWG# EPE/ENU-18/D81558	SHT: 33 OF 34
NAH Q.	MSS M. Sohail	MUR B		DATE: 07.03.2019		AS BUILT REV: 0	

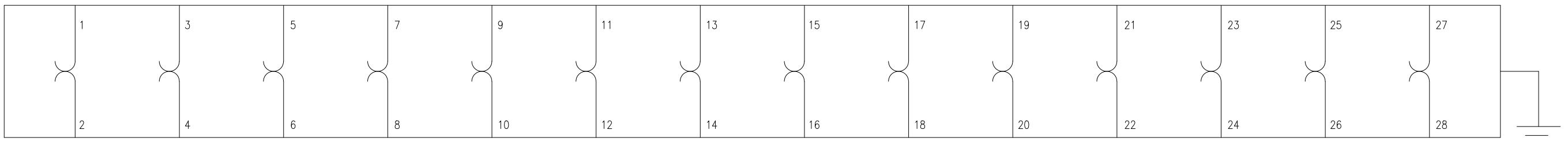
A

POWER SUPPLY  
50BF3  
SHT.12=D08+Q3  
LOR INITIATION  
SHT.12BFI FOR =D08+Q3  
50BF3  
SHT.15CT CIRCUIT  
50BF3  
SHT.09

B

POWER SUPPLY  
50BF3  
SHT.12=D08+Q3 STAGE-1/TRIP CIRCUIT-1  
FOR 50BF3  
SHT.18=D08+Q3 STAGE-1 OPRATED/TRIP CIRCUIT-2  
FOR 50BF3  
SHT.18BFI FOR =D08+Q3  
50BF3  
SHT.15

C

POWER SUPPLY  
50BF3  
SHT.12

SPARE

DTT SEND  
50BF3  
SHT.21

SPARE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAILS FOR TEST BLOCK 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81558	SHT: 34 OF 34
NAH Q.	MSS M.	MUR				DATE: 07.03.2019	AS BUILT

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION					
A	1							
B	2							
C	3							
D	4							
E	5							
F	6							
G	7							
H	8							
I	9							
J	10							
K	11							
L	12							
	1	2	3	4	5	6	7	8
	9	10	11	12				

### LEGEND:



TEMPORARY SHORTENING LINK



PERMANENT LINK



END COVER

REMOTE DESTINATION

TERMINAL BLOCK

TERMINAL NO

TERMINAL STRIP X1

LINK	REFERENCE		TERMINAL NO
	SHT	REF	
•	07	/	2B 1
• •	07	/	2B 2
•	07	/	2B 3
• •	07	/	2B 4
•	07	/	2C 5
• •	07	/	2C 6
•	07	/	2C 7
•	08	/	2B 8
• •	08	/	2B 9
•	08	/	2B 10
• •	08	/	2B 11
•	08	/	2C 12
• •	08	/	2C 13
•	08	/	2C 14
•	09	/	2B 15
• •	09	/	2B 16
•	09	/	2B 17
• •	09	/	2B 18
•	09	/	2C 19
• •	09	/	2C 20
•	09	/	2C 21

TITLE:

TERMINAL DETAIL  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5



EPESOL Pvt. Ltd.

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

SCHEME DWG. REF: EPE/ENU-18/D81558

APPROVED

CHECKED

DRAWN

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

NAH [Signature]  
MSS [Signature]

MUR [Signature]

TERMNIAL DETAIL

DWG# EPE/ENU-18/D81559

SHT: 01 OF 18

220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5

DATE: 07.03.2019

AS BUILT

REV: 0

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION	LEGEND:												SCHEME DWG. REF: EPE/ENU-18/D81558	
A	1																
B	2																
C	3																
D	4																
E	5																
F	6																
G	7																
H	8																
I	9																
J	10																
K	11																
L	12																
M	1	2	3	4	5	6	7	8	9	10	11	12	REMOTE DESTINATION				TERMINATION B
N													TERMINAL BLOCK	TERMINAL NO	TERMINAL STRIP X101		ITEM DESIGNATION
O															LINK	REFERENCE	TERMINAL NO
P															SHT / REF		
Q															05 / 2A	1	
R															05 / 2B	2	
S																3	
T																4	
U																	
V																	
W																	
X																	
Y																	
Z																	
APPROVED	CHECKED	DRAWN	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				E P E S O L P v t L t d . 71-B Garden Block, New Garden Town, Lahore, Pakistan				DWG# EPE/ENU-18/D81559	SHT: 02 OF 18	
NAH	MSS	MUR													DATE: 07.03.2019	AS BUILT	REV: 0

Sr.	CABLE DESIGNATION		CORE CROSS SECTION		DESTINATION						
A 1											
A 2											
A 3											
A 4											
A 5											
A 6											
A 7											
A 8											
B 9											
B 10											
B 11											
B 12											
C 1	2	3	4	5	6	7	8	9	10	11	12
D 											
E 											
F 											

### LEGEND:



TEMPORARY SHORTENING LINK



PERMANENT LINK

D-

END COVER

REMOTE DESTINATION

TERMINAL BLOCK

TERMINAL NO

TERMINAL STRIP X201

LINK

REFERENCE

TERMINAL NO

SHT

/

REF

1

2

3

4

5

6

TERMINATION B

ITEM DESIGNATION

TERMINAL NO

F120

2

F120

4

KC

32

KC

22

APPROVED  
NAH



PROJECT:

NTDC PO# CE/MP&M/M(P)/AM-VI/E0/  
9417-29 DATED 14.11.2018 FOR PROCUREMENT  
OF 220KV & 500KV PROTECTION & CONTROL PANELS

CHECKED  
MSS

DRAWN  
MUR

TITLE:

TERMINAL DETAIL  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5



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

DWG# EPE/ENU-18/D81559

SHT: 03 OF 18

DATE: 07.03.2019

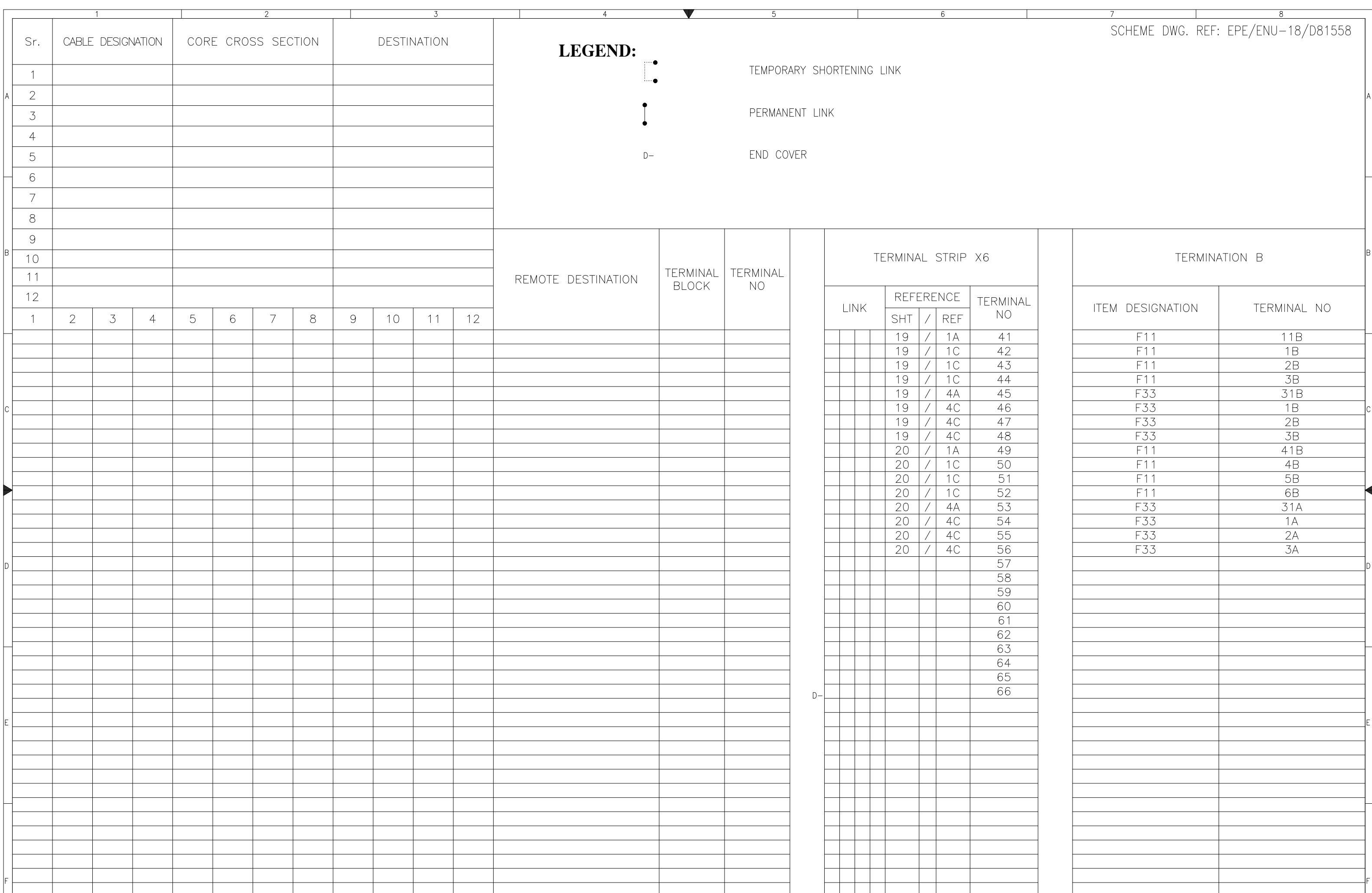
REV: 0

AS BUILT

7  
6  
5  
4  
3  
2  
1

8

APPROVED	CHECKED	DRAWN	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 BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5	 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/D81559	SHT: 04 OF 18
NAH <i>(Signature)</i>	MSS <i>(Signature)</i>	MUR <i>(Signature)</i>				DATE: 07.03.2019	AS BUILT REV: 0







Sr.	CABLE DESIGNATION			CORE CROSS SECTION			DESTINATION		
A	1								
	2								
	3								
	4								
	5								
	6								
B	7								
	8								
	9								
B	10								
	11								
	12								
C	1	2	3	4	5	6	7	8	9
									10
									11
									12
D									
E									
F									

**LEGEND:**

TEMPORARY SHORTENING LINK



PERMANENT LINK



END COVER

LINK	REFERENCE		TERMINAL NO
	SHT	/	
	06	/	1E
	06	/	2E
	06	/	3E
	06	/	4E
	06	/	5E
	06	/	6E
	06	/	7E
	06	/	8E
	06	/	9E
	06	/	10E
	06	/	11E
	06	/	12E
	06	/	13E
	06	/	14E
	13	/	1B
	13	/	2B
	13	/	5B
	13	/	6B
	13	/	19B
	13	/	20B
	13	/	21B
	13	/	22B
	13	/	23B
	13	/	24B
	13	/	25B
	13	/	26B
	13	/	27B
	13	/	28B
	14	/	1B
	14	/	2B
	14	/	3B
	14	/	31B
	14	/	32B
	14	/	4B
	14	/	33B
	14	/	34B
	14	/	6B
	14	/	35B
	14	/	6B
	14	/	36B
	14	/	6B
	14	/	37B
	14	/	6B
	14	/	38B
	14	/	6B
	14	/	39B
	14	/	6B

DWG# EPE/ENU-18/D81559 SHT: 08 OF 18

DATE: 07.03.2019 AS BUILT REV: 0

APPROVED	CHECKED	DRAWN	PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/E0/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS
NAH	MSS	MUR	 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan

TITLE:  
TERMINAL DETAIL  
220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5


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





Sr.	CABLE DESIGNATION			CORE CROSS SECTION		DESTINATION						
A	1	2	3	4	5	6	7	8	9	10	11	12
B	9											
B	10											
B	11											
B	12											
C	1	2	3	4	5	6	7	8	9	10	11	12
D												
E												
F												

**LEGEND:**

TEMPORARY SHORTENING LINK



PERMANENT LINK



END COVER

LINK	REFERENCE		TERMINAL NO
	SHT	REF	
	21	/ 6C	121
•	21	/ 6C	122
•	21	/ 6C	123
	21	/ 7C	124
•	21	/ 7C	125
•	21	/ 7C	126
	21	/ 6D	127
•	21	/ 7D	128
	22	/ 1C	129
	22	/ 1C	130
	22	/ 2C	131
	22	/ 3C	132
	22	/ 3C	133
	22	/ 4C	134
	22	/ 5C	135
	22	/ 5C	136
	22	/ 6C	137
	22	/ 6C	138
	22	/ 7C	139
	22	/ 8C	140
			141
			142
			143
			144
			145
			146
	23a	/ 6D	147
	23a	/ 6E	148
	23a	/ 6D	149
	23a	/ 6E	150
	23a	/ 7D	151
	23a	/ 7E	152
•	23a	/ 2D	153
•	23a	/ 3D	154
•	23a	/ 3D	155
	23a	/ 2E	156
	23a	/ 3E	157
	23a	/ 3E	158

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
F41	1
F41	2
F42	a
F11	81A
F11	8A
F11	81A
F31	71B
F31	7B
F22	71A
F13	71B
F13	7B
F33	71B
F13	71A
F13	7A
F33	71A
50BF1	M7b
50BF1	M7c
50BF2	M7b
50BF2	M7c
50BF2	M7b
50BF2	M7c
50BF1	71A
50BF2	71A
50BF3	71A

Sr.	CABLE DESIGNATION		CORE CROSS SECTION		DESTINATION														SCHEME DWG. REF: EPE/ENU-18/D81558	
A	1																			
A	2																			
A	3																			
A	4																			
A	5																			
A	6																			
B	7																			
B	8																			
B	9																			
B	10																			
B	11																			
B	12																			
C	1	2	3	4	5	6	7	8	9	10	11	12								
D																				
E																				
F																				
APPROVED	CHECKED	DRAWN	PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/E0/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS				TITLE: TERMINAL DETAIL 220KV BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan						DWG# EPE/ENU-18/D81559		SHT: 12 OF 18			
NAH		MSS	MUR													DATE: 07.03.2019		AS BUILT	REV: 0	



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 X14

LINK

REFERENCE

TERMINAL NO

SHT / REF

SHT

REF

TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
K6	44
K6	41
K3	41
K4	41
K5	41
F12	8B
F22	8B
F32	8B
F41	6
K9	41
K10	41
K10	42



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



Sr.	CABLE DESIGNATION	CORE CROSS SECTION		DESTINATION								
A	1											
A	2											
A	3											
A	4											
A	5											
A	6											
B	7											
B	8											
B	9											
B	10											
B	11											
B	12											
c	1	2	3	4	5	6	7	8	9	10	11	12
D												
E												
F												

**LEGEND:**

TEMPORARY SHORTENING LINK



PERMANENT LINK



END COVER

REMOTE DESTINATION      TERMINAL BLOCK      TERMINAL NO

**TERMINAL STRIP X15**

LINK	REFERENCE		TERMINAL NO
	SHT	REF	

•		28 / 2B	1
•		28 / 7B	2
•		28 / 2B	3
•		28 / 7B	4
		28 / 7E	5
		28 / 7E	6
		28 / 7E	7
			8
			9

TERMINATION B

ITEM DESIGNATION	TERMINAL NO
------------------	-------------

TLS                          1

TLS                          2

50BF3                          D1a

50BF3                          D2a

50BF3                          D3a

Sr.	CABLE DESIGNATION		CORE CROSS SECTION		DESTINATION		LEGEND:												SCHEME DWG. REF: EPE/ENU-18/D81558			
A	1																					
A	2																					
A	3																					
A	4																					
A	5																					
A	6																					
B	7																					
B	8																					
B	9																					
B	10																					
B	11																					
B	12																					
C	1	2	3	4	5	6	7	8	9	10	11	12										
D																						
E																						
F																						
APPROVED			CHECKED		DRAWN		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 BREAKER FAILURE PROTECTION PANEL TYPE =D08+R5		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan						DWG# EPE/ENU-18/D81559	SHT: 17 OF 18	
NAH <i>[Signature]</i>	MSS <i>[Signature]</i>	MUR <i>[Signature]</i>																		DATE: 07.03.2019	AS BUILT	REV: 0
1			2		3			4		5										7		8

