

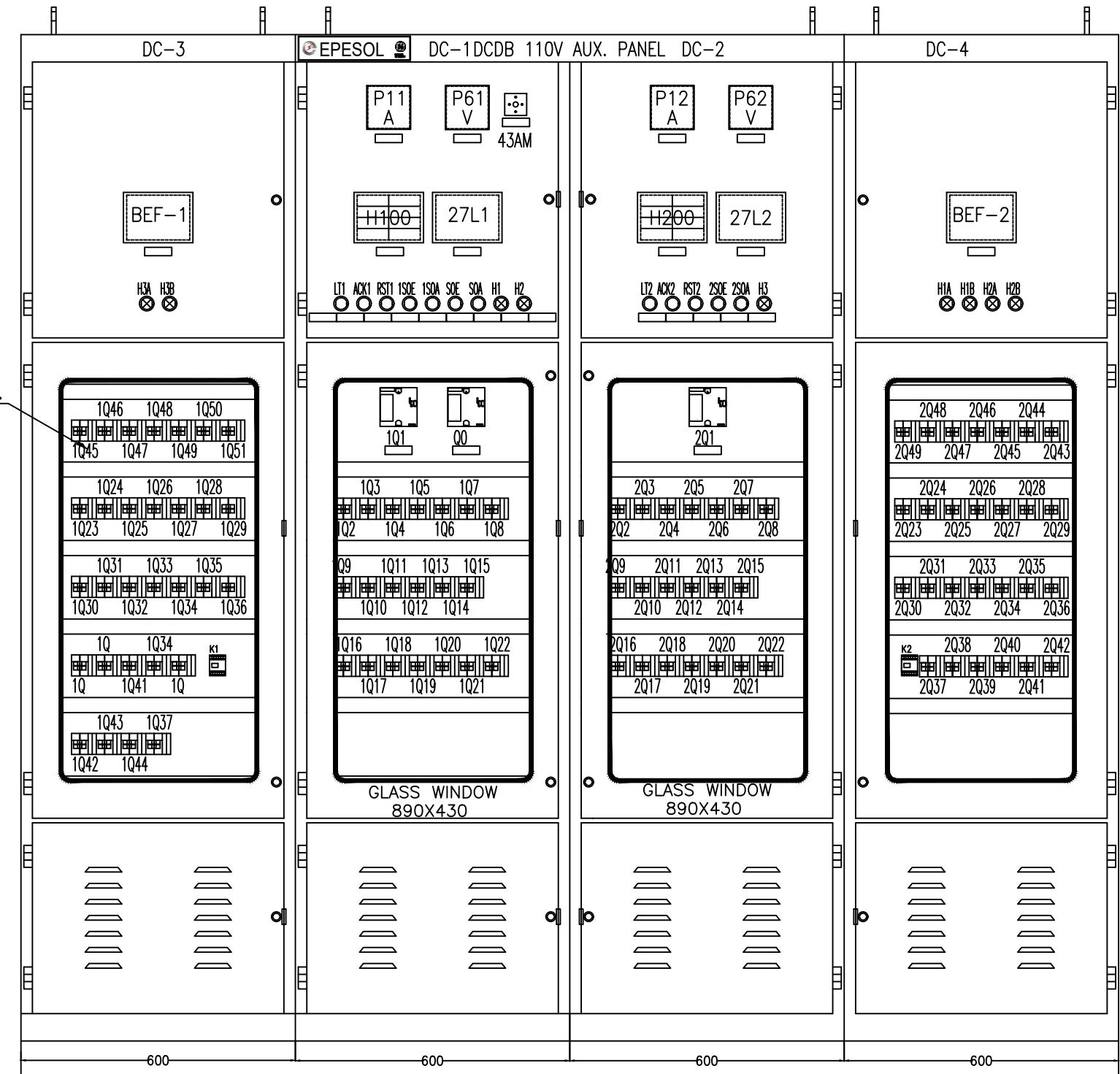
# LAYOUT DRAWING OF 110V DC AUXILIARY SUPPLY DISTRIBUTION BOARD

APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: COVER SHEET 110VDC AUXILIARY SUPPLY 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	DWG# EPE/ENU-18/P1463 71-B Garden Block, New Garden Town, Lahore, Pakistan	SHT: 01 OF 06
NAH	ABA	MSC			DATE:19.12.2018 AS BUILT	REV: 0



**E P E S O L** **P v t** **L t d .**  
71-B Garden Block, New Garden Town, Lahore, Pakistan

ALL MCCB'S ARE BEHIND  
THE HINGED PLEXI GLASS WINDOW.  
THE DOOR CAN BE READILY  
OPENED/CLOSED TO ACCESS  
THE MCCBS.



FRONT VIEW WITH DOOR

## NOTES

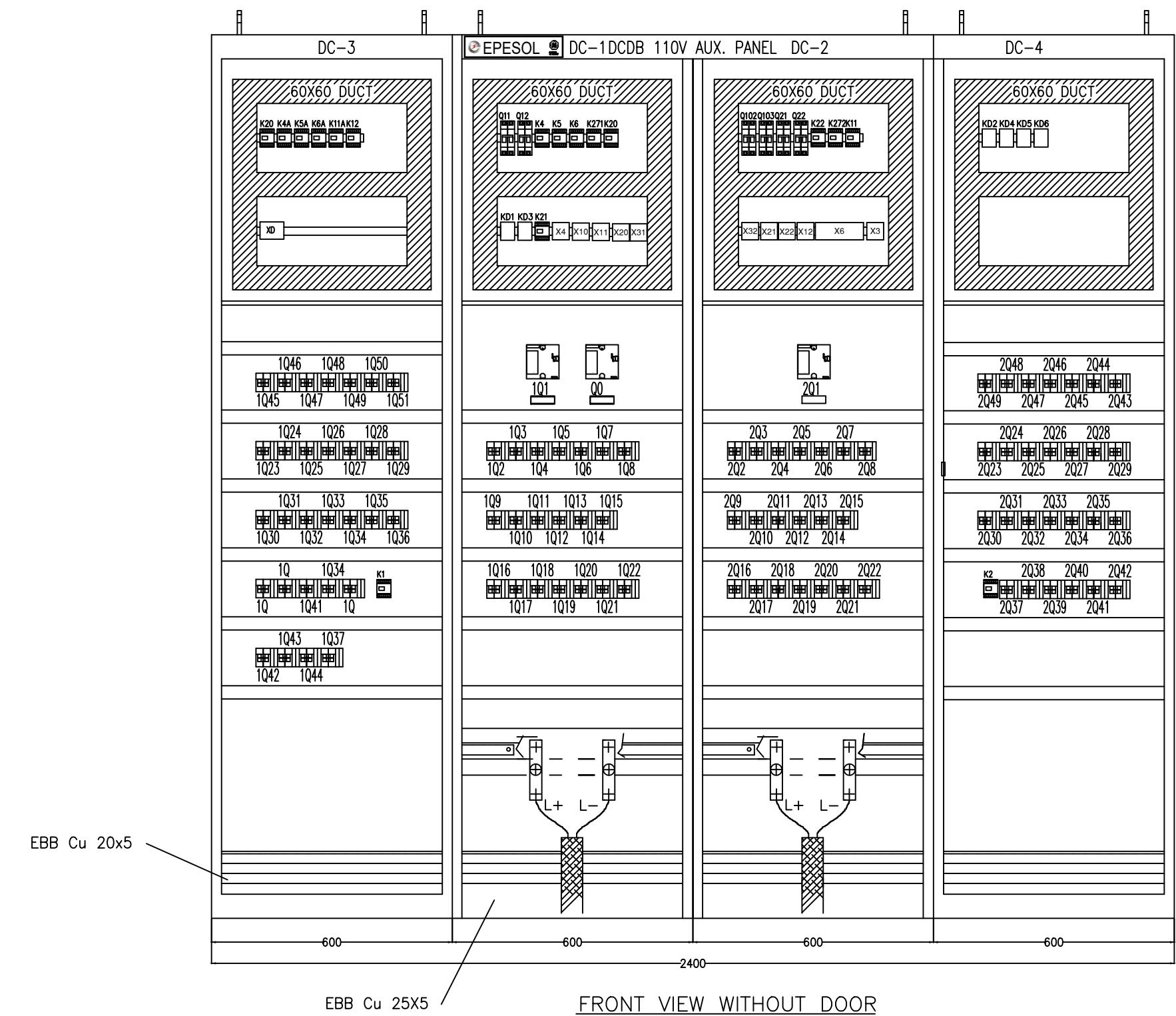
- COLOR: RAL7032
- CLASS OF PROTECTION: IP51
- CONTROL PANEL: (4x600)x600x2200 mm (WIDTHxDEPTHxHEIGHT)
- FACE SHEET: 600x2200 mm (WIDTHxHEIGHT)
- EARTHING BUSBAR 25x5 mm<sup>2</sup>
- FLEXIBLE EARTHING STRIP 16mm<sup>2</sup>

APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: GENERAL ARRANGEMENT 110VDC AUXILIARY SUPPLY 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	DWG# EPE/ENU-18/P1463	SHT: 02 OF 06
NAH	ABA	MSC			DATE: 19.12.2018	AS BUILT



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

DWG# EPE/ENU-18/P1463 SHT: 02 OF 06  
DATE: 19.12.2018 AS BUILT REV: 0

**NOTES**

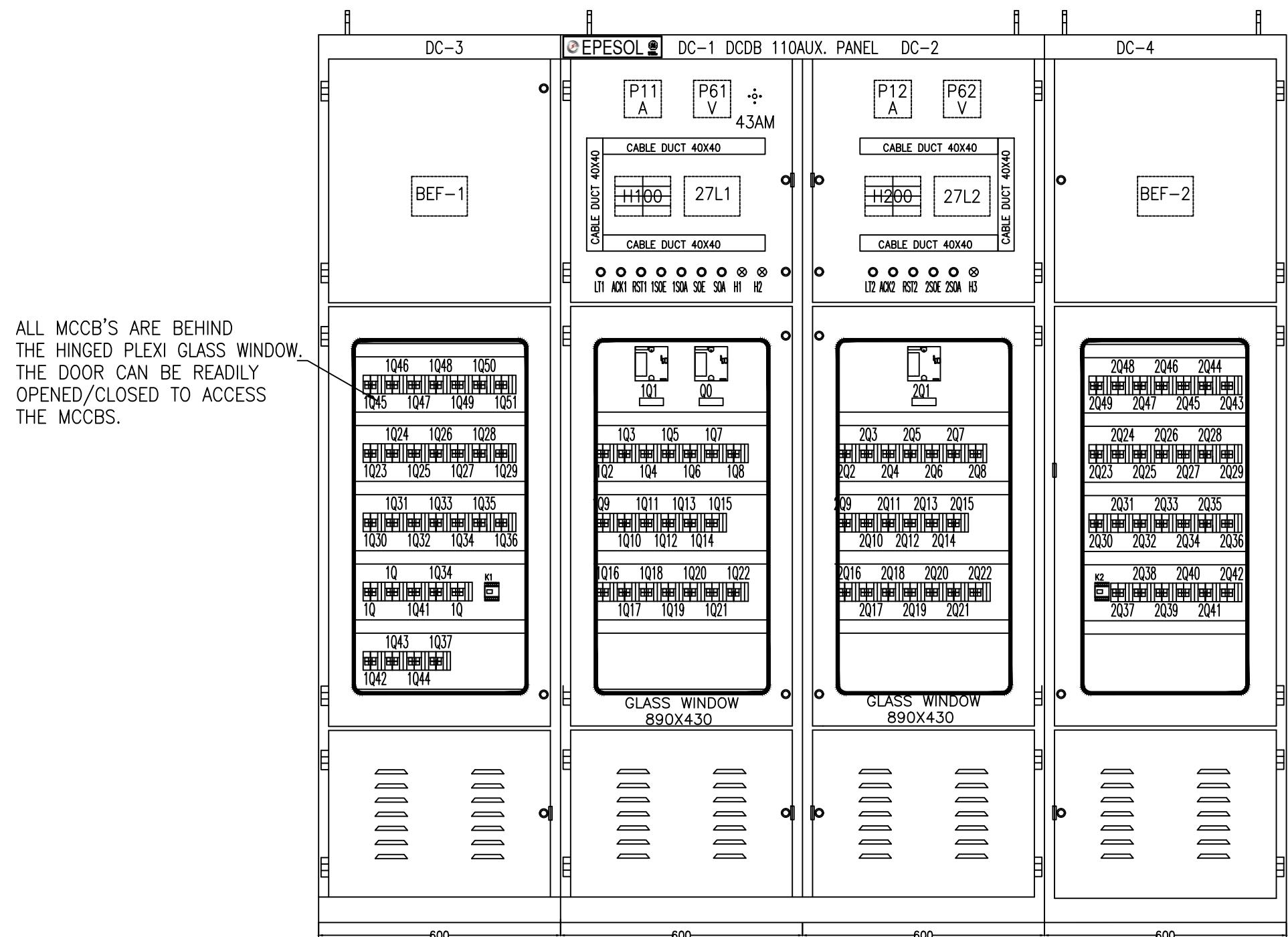
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NAH	ABA	MSC			DATE:19.12.2018	AS BUILT



**E P E S O L** Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

REV: 0



FRONT VIEW WITH DOOR

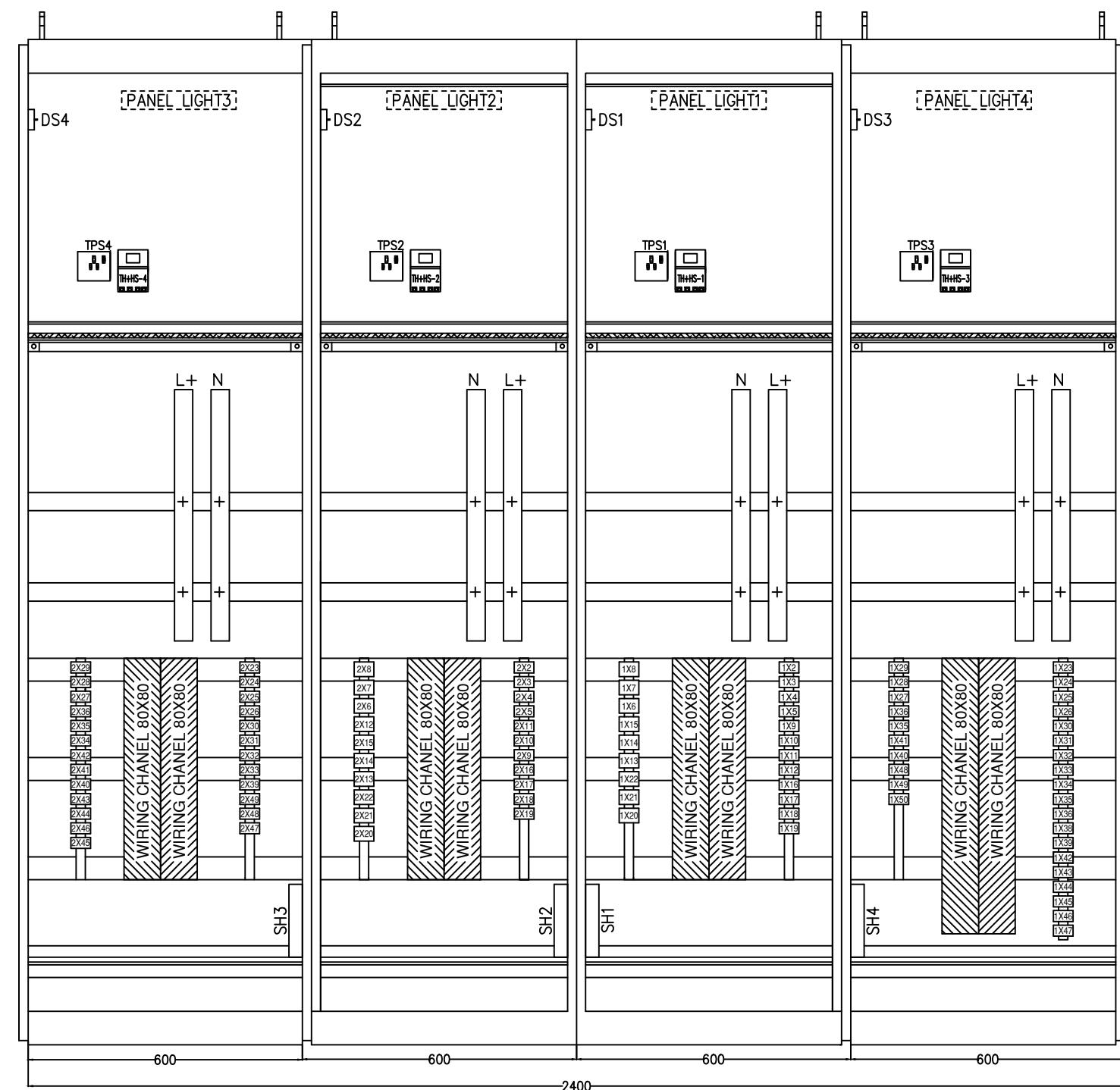
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NAH	ABA	MSC			DATE:19.12.2018 AS BUILT	REV: 0



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

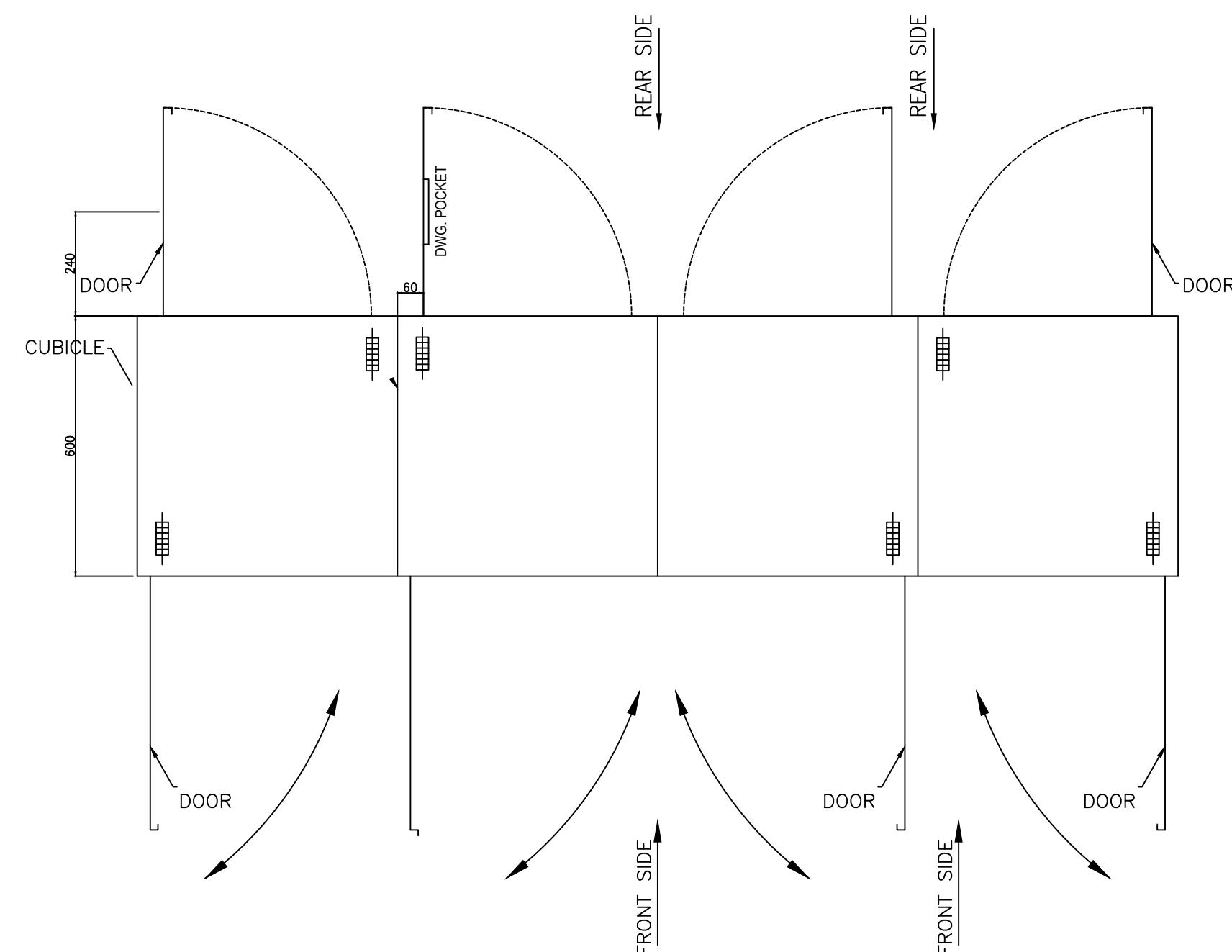


REAR VIEW WITHOUT DOOR

NOTES

1. COLOR: RAL7032
2. CLASS OF PROTECTION: IP51
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NAH	ABA	MSC			EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 19.12.2018 AS BUILT REV: 0



APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: GENERAL ARRANGEMENT 110VDC AUXILIARY SUPPLY 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	DWG# EPE/ENU-18/P1463	SHT: 06 OF 06
NAH	ABA	MSC			DATE: 19.12.2018	AS BUILT



**E P E S O L** *Pvt. Ltd.*  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/P1463  
SHT: 06 OF 06  
DATE: 19.12.2018  
AS BUILT  
REV: 0

# LIST OF APPARATUS

## 110V DC AUXILIARY SUPPLY

## DISTRIBUTION BOARD

APPROVED	CHECKED	DRAWN	PROJECT:	TITLE:	DWG# EPE/ENU-18/P1464		SHT: 01 OF 03
NAH	ABA	MSC	PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	COVER SHEET 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	 EPESOL Pvt. Ltd.	71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE:19.12.2018 AS BUILT REV: 0

	1	2	3	4	5	6	7	8		
SR. #	ITEM DESIGNATION		DESCRIPTION		QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A 1	Q0, 1Q1, 2Q1		TRIPLE POLE MCCB RATED CURRENT 80–100 Amp, Icu = 50 KAmp WITH 2NO+3NC AUXILIARY		3	FD160	GE	POLAND	FDN36TD100GD(1)+FABAT10(1)+FAS10R(2)+FAS01R	A
			CONTACTS, ONE NORMALLY CLOSED TRIP CONTACT AND ELECTRICAL OPERATOR UNIT						(3)+FDEMFJ(1)	
2	(1Q2~1Q5), (2Q2~2Q12)		DOUBLE POLE DC MCB, RATED CURRENT 32 Amp, Icu = 10 KAmp AT 110 VOLT DC TWO C/O CONTACTS		15	EP-100	GE	HUNGARY	EP102UCC32+CAH(2)	
3	(1Q6~1Q34), (2Q13, 2Q38)		DOUBLE POLE DC MCB RATED CURRENT 16 Amp, Icu = 10 KAmp WITH TWO C/O CONTACTS		55	EP-100	GE	HUNGARY	EP102UCC16+CAH(2)	
	(1Q40~1Q51), (2Q42, 2Q49)		DOUBLE POLE DC MCB RATED CURRENT 16 Amp, Icu = 10 KAmp WITH TWO C/O CONTACTS		20	EP-100	GE	HUNGARY	EP102UCC16+CAH(2)	
B 4	1Q35, 1Q36, 2Q39		DC MCB DOUBLE POLE RATED 10Amp, 10KA WITH TWO C/O CONTACT		3	EP-100	GE	HUNGARY	EP102UCC10+CAH(2)	B
5	Q11, Q12, Q21, Q22		DC MCB's DOUBLE POLE RATED 6Amp, WITH TWO CHANGE OVER CONTACT, 10KA		4	EP-100	GE	HUNGARY	EP102UCC06+CAH(2)	
6	Q101, Q102		ELCB, 2-POLE, RATINGS: 16A, 30mA, 230VAC, WITH 1 C/O		2	DM100	GE	HUNGARY	DM100C16/030+CAH(1)	
7	P11, P12		DC AMPERE METER 0–120Amp 96X96 FOR 60 mV SHUNT ACCURACY CLASS 1.5		2	1F96MA	FRER	ITALY		
c 8	P61, P62		DC VOLT METER SCALE 0–150 VOLT DC ACCURACY CLASS 1.5		2	1F96MV	FRER	ITALY		c
9	H100, H200		ANNUNCIATOR WITH EIGHT WINDOWS RATED VOLTAGE 230 VOLT AC		2	AM-101	ELABS	PAKISTAN		
10	27L1, 27L2		DC UNDER VOLTAGE RELAY 110 VOLTAGE		2	ELUV-110	ELABS	PAKISTAN		
11	BEF-1, BEF-2		DC BATTERY EARTH FAULT RELAY 110 VOLTAGE		2	ELEF-110	ELABS	PAKISTAN		
D 12	K1, K2		DC CONTACTOR RATED VOLTAGE 110 VOLT DC RATED CURRENT 32Amp WITH 1NO+1NC CONTACTS		2	CL04D400MJ	GE	SPAIN	CL04D400MJ+BCLL11(1)	D
13	K271, K272		DC CONTACTOR, RATED VOLTAGE 110 VOLT DC, WITH 3NO+1NC CONTACTS		2	MCRC031ATJ	GE	SPAIN		
14	KD1, KD2, KD3, KD4, KD5, KD6		TIMERS RATED VOLTAGE 110 VOLT DC TIME SETTING 0–10 SECONDS 2 CHANGE OVER CONTACTS		6	AT8N-AB	AUTONICS	KOREA		
15	K4, K5, K6, K11		DC CONTACTOR RATED VOLTAGE 110 VOLT DC WITH 2NO+2NC CONTACTS		4	MCRC022ATJ	GE	SPAIN		
E 16	K20, K20A		CONTACTOR RATED 230 VOLT AC WITH 2NO+2NC CONTACTS		2	MCR	GE	SPAIN	MCRA022ATN	E
	K21, K22		CONTACTOR RATED 230 VOLT AC WITH 3NO+2NC CONTACTS		2	MCR	GE	SPAIN	MCRA022ATN	
	LT1, ACK1, RST1,		PUSH BUTTON COLOR RED, YELLOW & GREEN FOR ACKNOWLEDGE, LAMP TEST AND RESET FUNCTION		6	YSAP1	YOUNGSUNG	SOUTH KOREA	YS-AP1-2-40-B-DW	
17	LT2, ACK2, RST2		RESPECTIVELY 4 NO CONTACT EACH							
	18 ISOE, ISOA, SOE, SOA, 2SOE		PUSH BUTTON FOR INCOMER AND BUS COUPLER BREAKER ON-OFF WITH TWO CONTACTS EACH		6	YSAP1	YOUNGSUNG	SOUTH KOREA	YS-AP1-2-40-B-DW	
	2SOA									
F 19	H1, H2, H3		INDICATING LAMPS COLOR RED FOR CB ON POSITION INDICATION RATING 2WATTS AT 110 VOLT DC		3	YSPL	YOUNGSUNG	SOUTH KOREA	YSPL-2-DL12RW	F
20	43AM		THREE POSITIN AUTO-OFF-MANUAL SELECTOR SWITCH WITH 3C/O CONTACTS		1	YSAK	YOUNGSUNG	SOUTH KOREA	YSAK2344D	
APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132KV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT		TITLE: LIST OF APPARATUS 110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT		 <b>EPESOL Pvt Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan		DWG# EPE/ENU-18/P1464	SHT: 02 OF 03
NAH	ABA	MSC					DATE:19.12.2018	AS BUILT	REV: 0	

	1	2	3	4	5	6	7	8			
SR. #	ITEM DESIGNATION		DESCRIPTION		QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO	
A	21	DS1, DS2, DS3, DS4		DOOR SWITCH		4	YSP-YSMS	YOUNGSUNG	SOUTH KOREA	YSP3315GW-B+YSMS-C	A
	22	IL1, IL2, IL3, IL4		CUBICLE LIGHTING, 5W, 230 VOLT AC		4	YST8	YOUNGSUNG	SOUTH KOREA	YST8-30-5W	
	23	TPS1, TPS2, TPS3, TPS4		THREE PIN SOCKET 240 VAC, 16Amp		4		LEAR	CHINA		
B	24	B1, B2		AC BELL RATED VOLTAGE 230 VOLT AC FOR DC FAIL FUNCTION		2	YSMB	YOUNGSUNG	SOUTH KOREA	YSMB-722A	B
	25	TH+HS-1, TH+HS-2		THERMOSTAT AND HUMIDSTAT		4	ELH-220	E-LABS	PAKISTAN		
		TH+HS-3, TH+HS-4									
	26	SH1, SH2, SH3, SH4		SPACE HEATER (60W)		4	ELH-220	E-LABS	PAKISTAN		
	27	R1, R2		SHUNT, 60mV, 100Amp		2		FRER	ITALY		
c	28	1X2 TO 1X5, 2X2 TO 2X12		TERMINAL BLOCKS SUITABLE FOR 35mm <sup>2</sup> CABLE		30	CBD-35	CABUR	ITALY		c
	29	1X6 TO 1X36, 2X13 TO 2X38		TERMINAL BLOCKS SUITABLE FOR 16mm <sup>2</sup> CABLE (2Nos. FOR EACH TYPE)		110	CBD-16	CABUR	ITALY		
	30	1X1,2X1		TERMINATION PADS (40X5mm Cu) FOR INCOMING CABLES		4					
D	31	X3		TERMINAL BLOCKS FOR DC CIRCUIT		4	CBD-4	CABUR	ITALY		D
	32	X4		TERMINAL BLOCKS FOR AC CIRCUIT		6	CBD-4	CABUR	ITALY		
	33	X6		TERMINAL BLOCKS FOR ANNUNCIATION		20	CBD-4	CABUR	ITALY		
	34	X10		TERMINAL BLOCKS FOR AUX. CONTACTS FOR Q0 BREAKER		4	CBD-4	CABUR	ITALY		
	35	X20		TERMINAL BLOCKS FOR AUX. CONTACTS FOR Q0 BREAKER		4	CBD-4	CABUR	ITALY		
	36	X11		TERMINAL BLOCKS FOR AUX. CONTACTS FOR 1Q1 BREAKER		4	CBD-4	CABUR	ITALY		
E	37	X21		TERMINAL BLOCKS FOR AUX. CONTACTS FOR 1Q1 BREAKER		4	CBD-4	CABUR	ITALY		E
	38	X12		TERMINAL BLOCKS FOR AUX. CONTACTS FOR 1Q2 BREAKER		4	CBD-4	CABUR	ITALY		
	39	X22		TERMINAL BLOCKS FOR AUX. CONTACTS FOR 1Q2 BREAKER		4	CBD-4	CABUR	ITALY		
F	40	K4A,K5A,K6A,K11A,K12		AUX. CONTACTOR 110VDC 4C/O		5	PRC	GE		PRC4M40DCJL	F
	41	H1A, H2A, H3A		INDICATION LAMPS, COLOURED GREEN		3	YSPL	YONGSUNG	SOUTH KOREA	YS-PL-2-DL12GW	
	42	H1B, H2B, H3B		INDICATION LAMPS, COLOURED YELLOW		3	YSPL	YONGSUNG	SOUTH KOREA	YS-PL-2-DL12YW	
	43	XD		TERMINAL BLOCKS WITH DIODE TYPE IN-D4007, RATED MAXIMUM VOLTAGE 350VDC, RATED BREAK DOWN VOLTAGE 430VDC		9	DAS.4/6	CABUR	ITALY		
APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132KV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT		TITLE: LIST OF APPARATUS 110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan		DWG# EPE/ENU-18/P1464	SHT: 03 OF 03	
NAH	ABA	MSC					DATE: 19.12.2018	AS BUILT	REV: 0		

# SCHEMATIC DIAGRAMS

## 110V DC AUXILIARY SUPPLY

## DISTRIBUTION BOARD

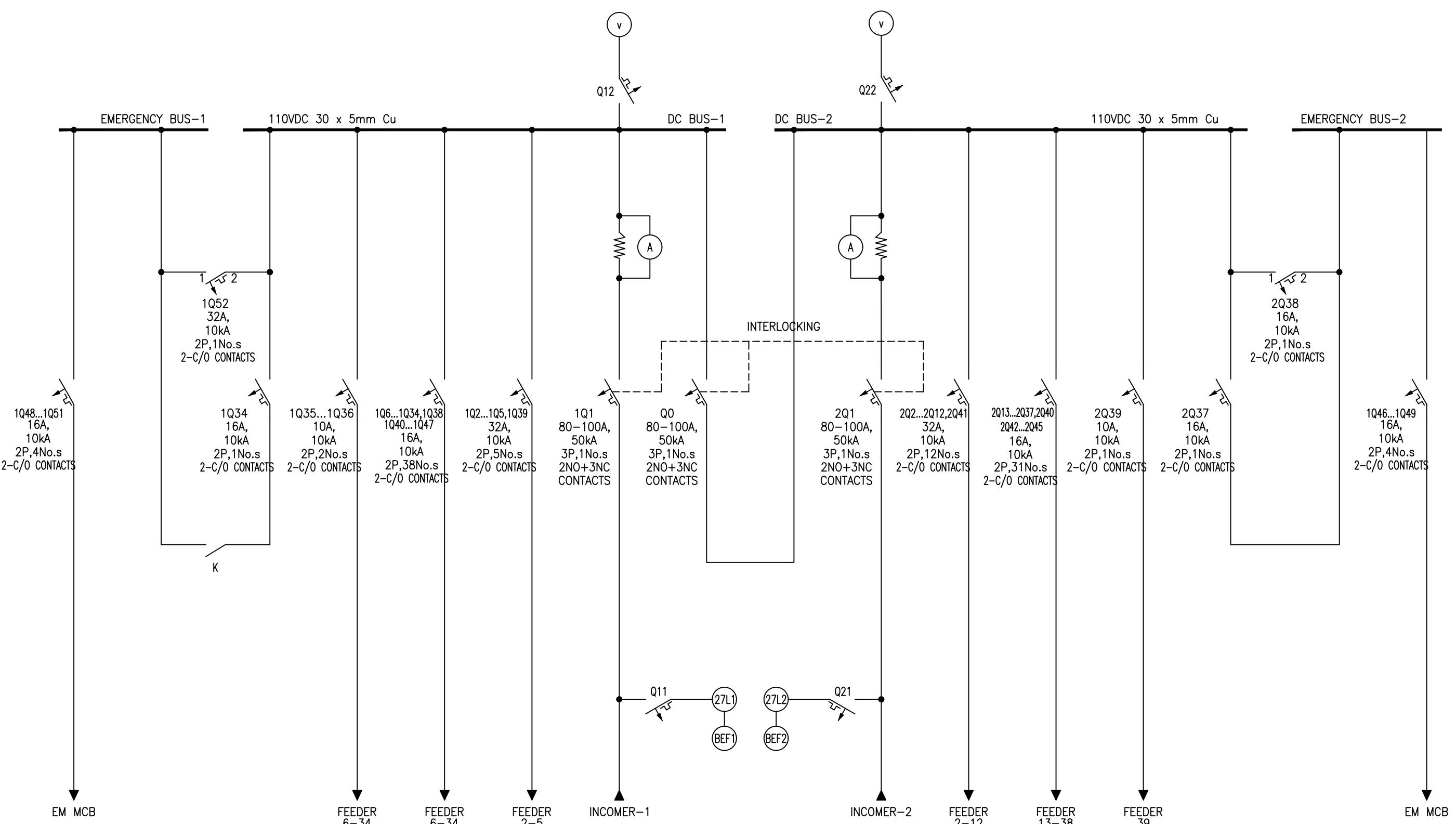
APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: COVER SHEET 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	E P E S O L P v t . L t d. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1465	SHT: 01 OF 28
NAH	ABA	MSC				DATE:19.12.2018	AS BUILT

DESCRIPTION	SHEET NO
COVER SHEET	01
LIST OF CONTENTS	02
LIST OF SYMBOLS	03
OVER ALL SINGLE LINE DIAGRAM	04
SINGLE LINE DIAGRAM FOR BUS-1 SIDE	04a
SINGLE LINE DIAGRAM FOR BUS-1 SIDE	04b
SINGLE LINE DIAGRAM FOR BUS-2 SIDE	04c
SINGLE LINE DIAGRAM FOR BUS-2 SIDE	04d
SINGLE LINE DIAGRAM FOR BUS-2 SIDE	04e
DC SUPPLY DISTRIBUTION	05
DC SUPPLY DISTRIBUTION	06
DC SUPPLY DISTRIBUTION	07
DC SUPPLY DISTRIBUTION	08
DC SUPPLY DISTRIBUTION	09
DC SUPPLY DISTRIBUTION	10
DC SUPPLY DISTRIBUTION	11
DC SUPPLY DISTRIBUTION	12
DC SUPPLY DISTRIBUTION	13
DC SUPPLY DISTRIBUTION	14

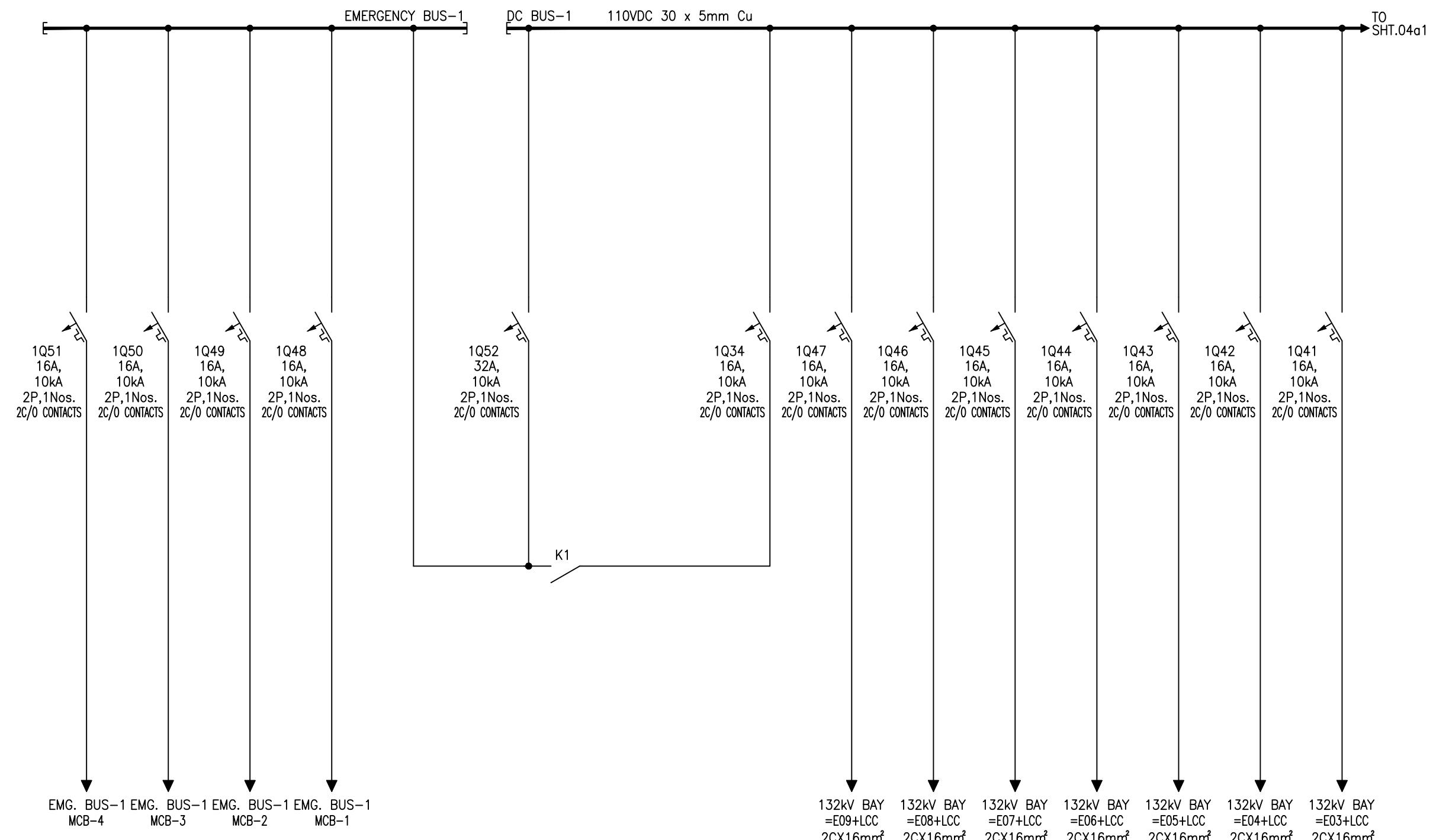
DESCRIPTION	SHEET NO
DC SUPPLY DISTRIBUTION	15
DC SUPPLY DISTRIBUTION	16
DC SUPPLY DISTRIBUTION	17
VOLTAGE MONITORING AND METERING CIRCUIT	18
SUPPLY CHANGE OVER AND INDICATION CIRCUIT	19
CONTROL & INTERLOCKING SCHEME	20
ANNUNCIATOR CIRCUIT	21
ANNUNCIATOR CIRCUIT	22
BUS-1 & 2 DC MCB's TRIP CIRCUIT	23
HEATING, LIGHTING CIRCUIT FOR CABINET-1 & 2	24
HEATING, LIGHTING CIRCUIT FOR CABINET-3 & 4	25
INCOMER-1 CLOSING & OPENING LOGIC DIAGRAM	26
INCOMER-2 CLOSING & OPENING LOGIC DIAGRAM	27
BUS SECTION & OPENING LOGIC DIAGRAM	28

LIST OF SYMBOLS	
	RELAY PANEL TERMINAL BLOCK
	CONTROL PANEL TERMINAL BLOCK
	EARTH CONNECTION
	NORMALLY CLOSED CONTACT
	NORMALLY OPEN CONTACT
	CONTACT FOR TRIPPING
	TIME DELAY PICKUP
	CHANGE OVER CONTACT
	MCB/MCCB
	INDICATION BULB/LED
	THREE PIN SOCKET
	SPACE HEATER
	COIL
	EQUIPMENT WITHIN PANEL
	INDEPENDENT PANEL
	INDEPENDENT PANEL
	RESISTOR
	FUSE

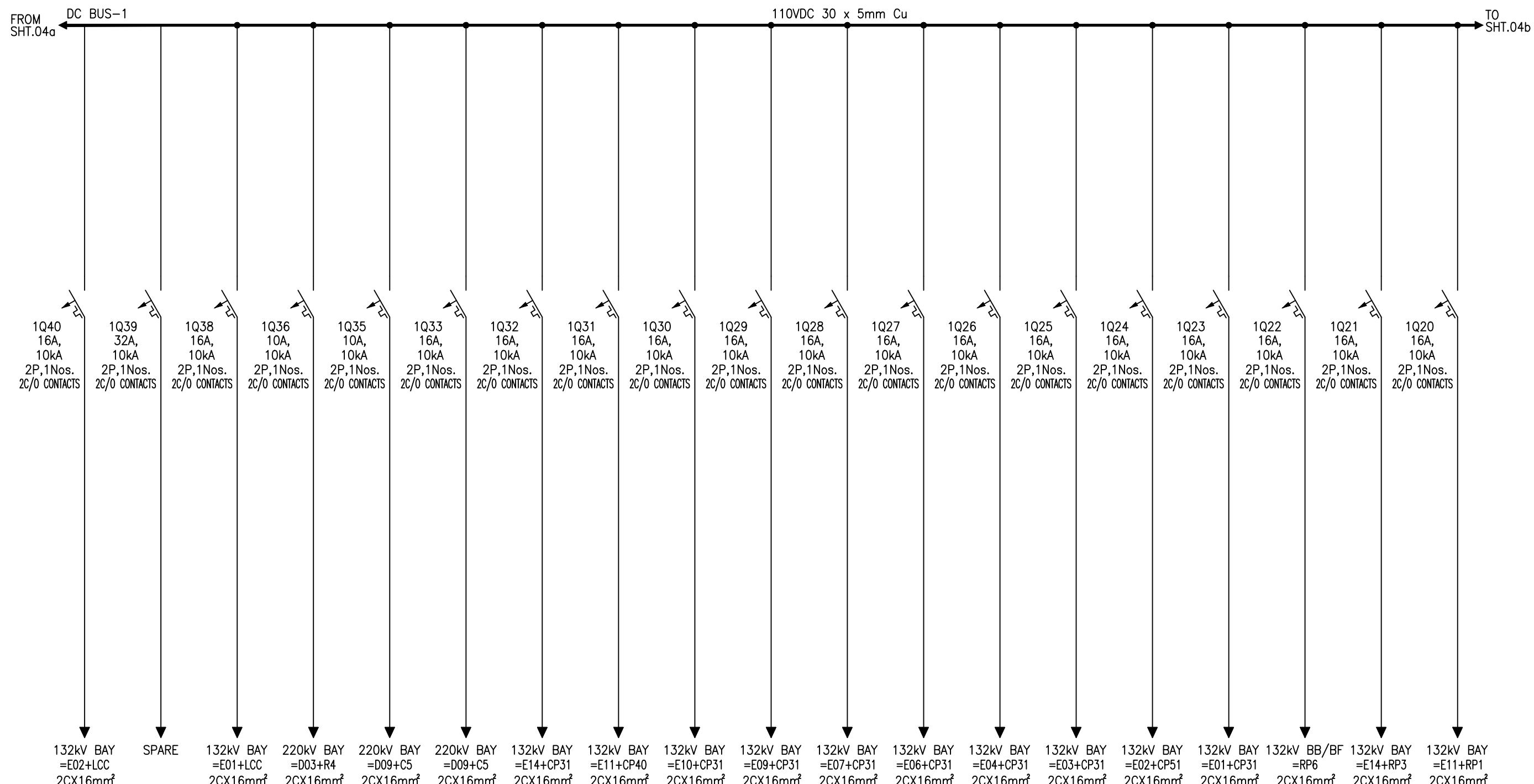
LIST OF SYMBOLS	
	TIME DELAYED CONTACTOR/TIMER
	PUSH BUTTON
	TWO POSITION SWITCH
	AC BELL



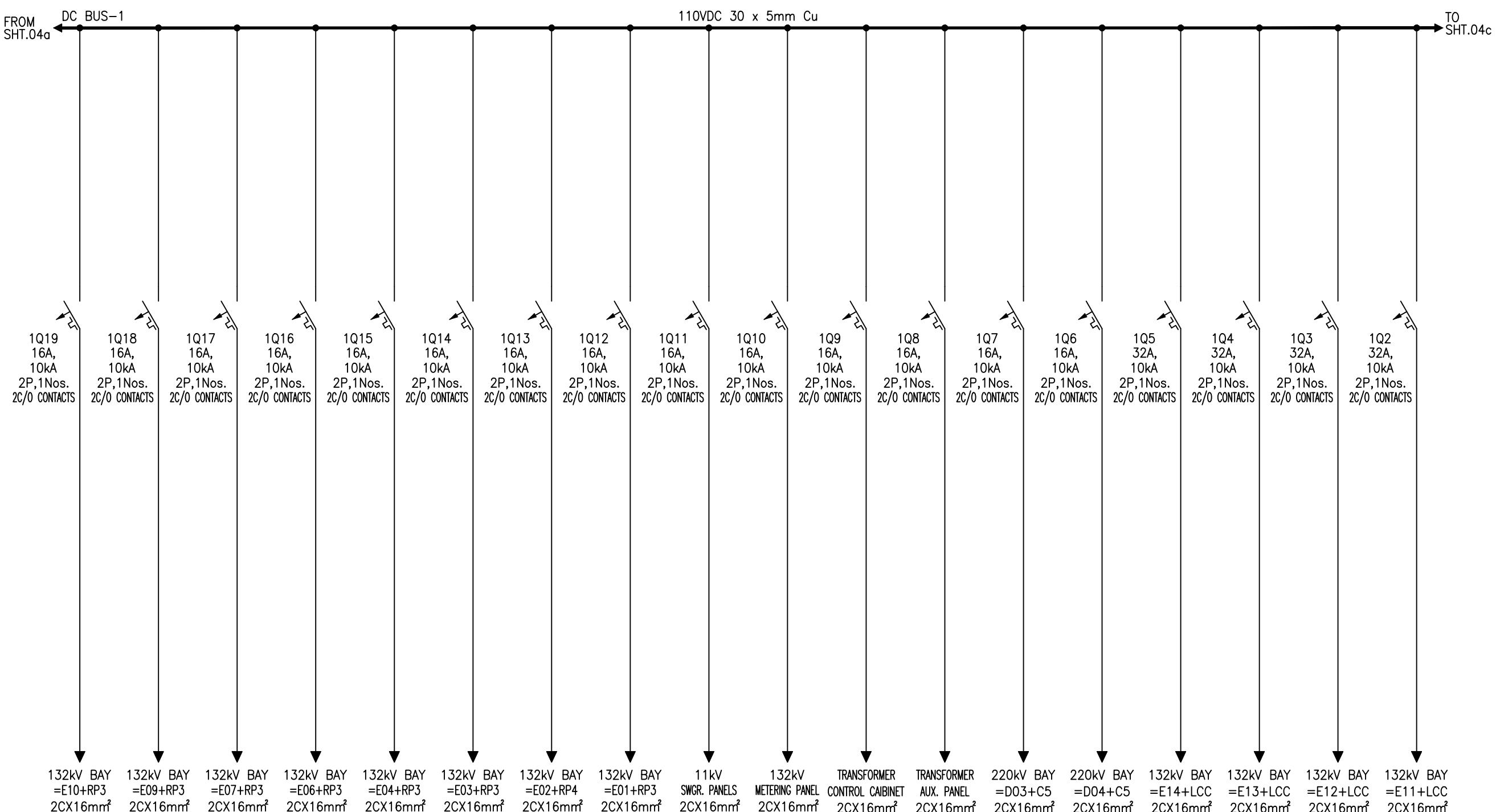
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NAH	ABA	MSC				DATE: 19.12.2018	AS BUILT



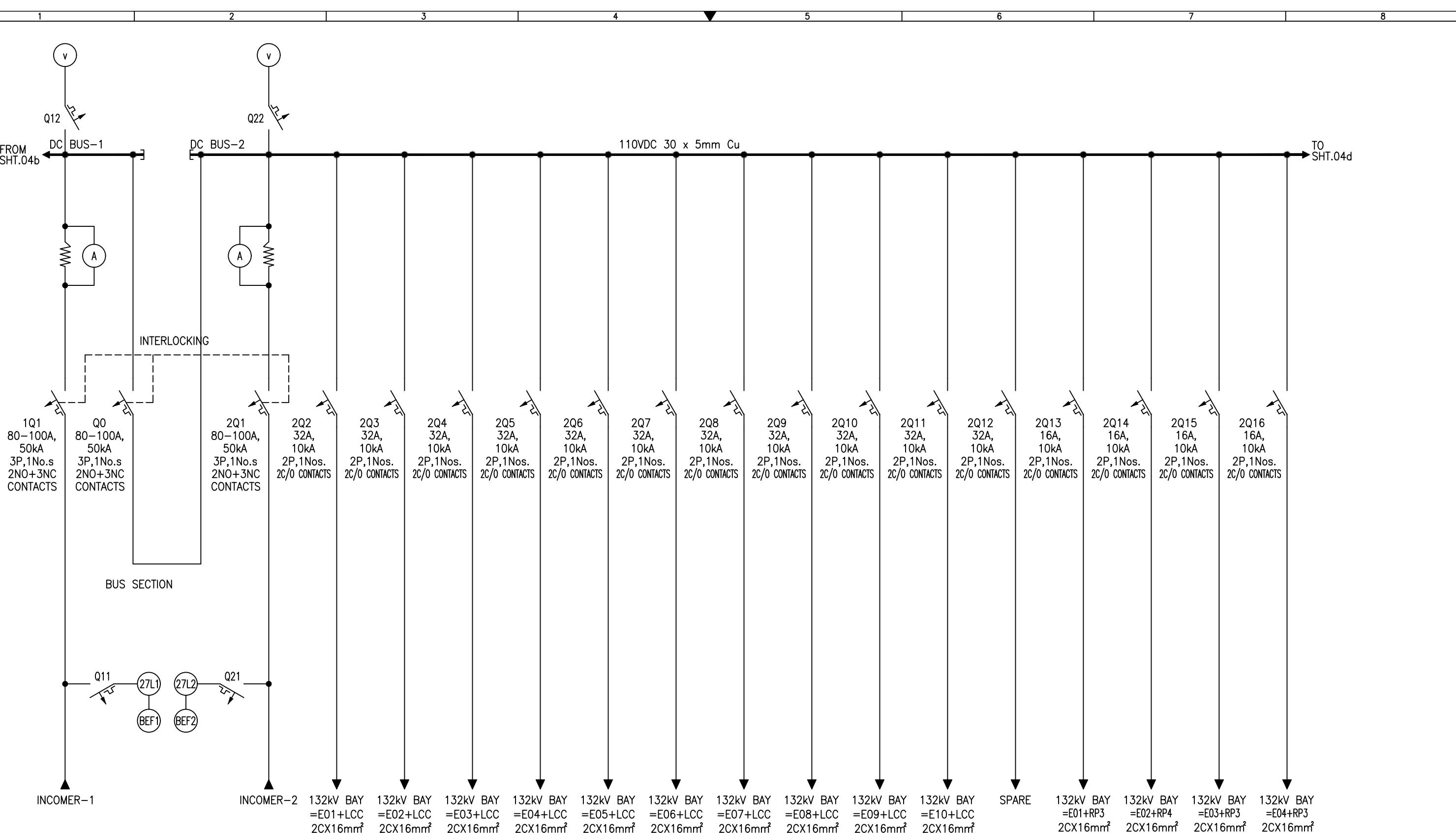
APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: DETAILED SINGLE LINE DIAGRAM 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	DWG# EPE/ENU-18/P1465	SHT:04aOF 28
NAH	ABA	MSC			E P E S O L P v t . L t d 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE:19.12.2018 AS BUILT REV: 0



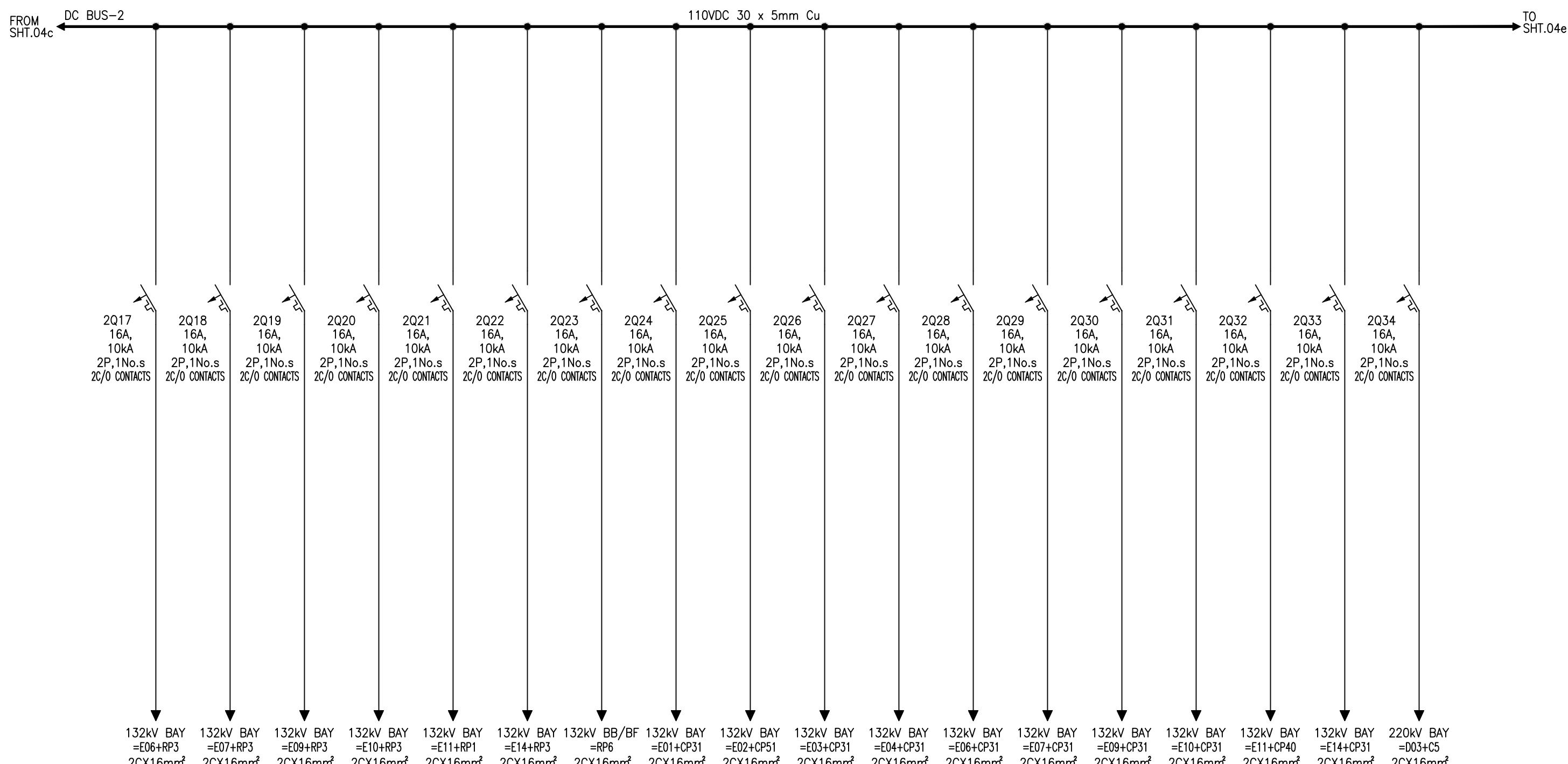
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NAH	ABA	MSC				DATE:19.12.2018	AS BUILT	REV: 0



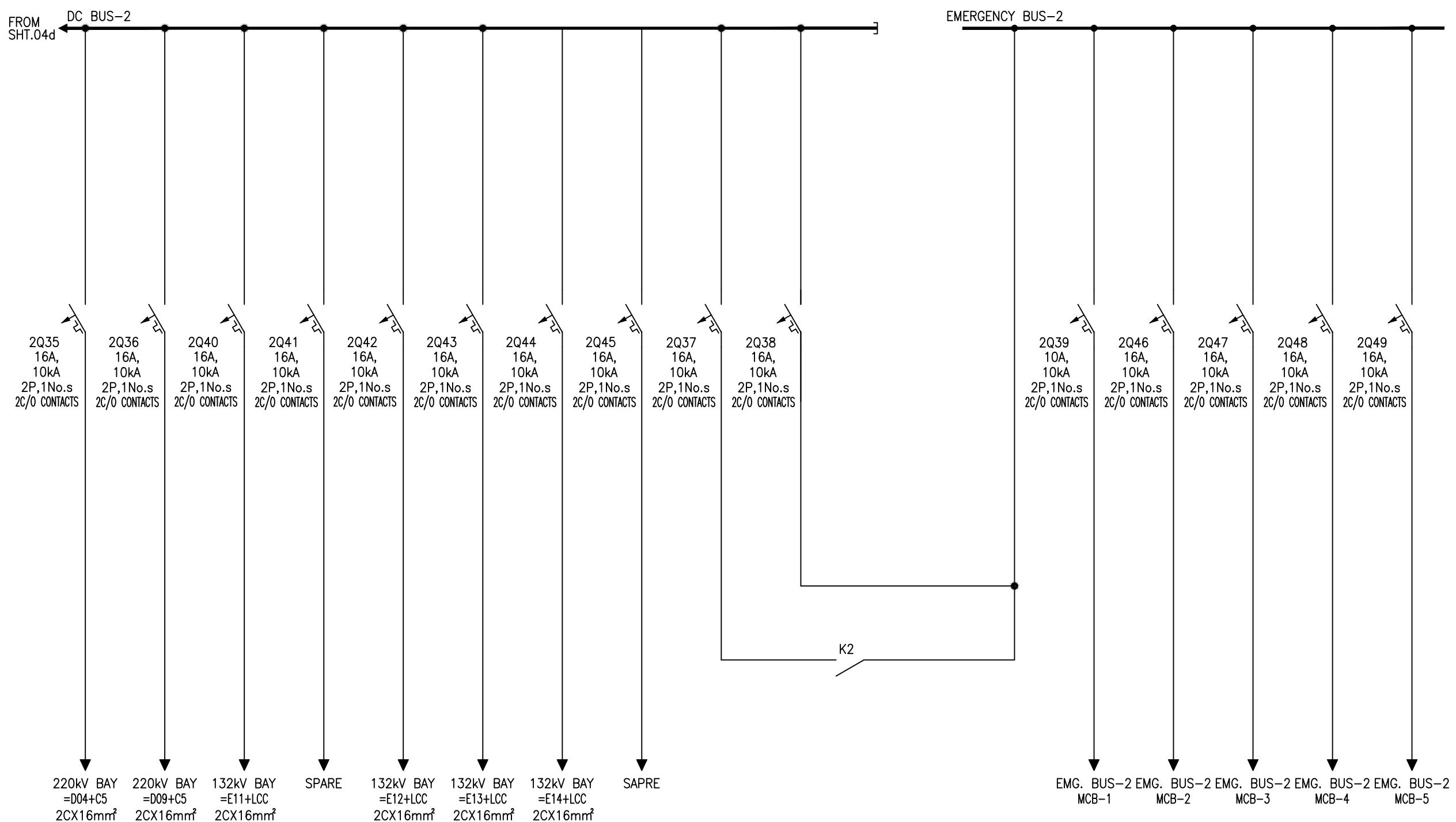
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NAH	ABA	MSC			EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 19.12.2018 AS BUILT REV: 0



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NAH	ABA	MSC				DATE:19.12.2018	AS BUILT	REV: 0



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NAH	ABA	MSC				DATE: 19.12.2018	AS BUILT



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NAH	ABA	MSC				DATE:19.12.2018	AS BUILT

DC EMERGENCY BUS-1

FEEDER No.

4

DC EMERGENCY BUS-1

FEEDER No.

3

DC EMERGENCY BUS-1

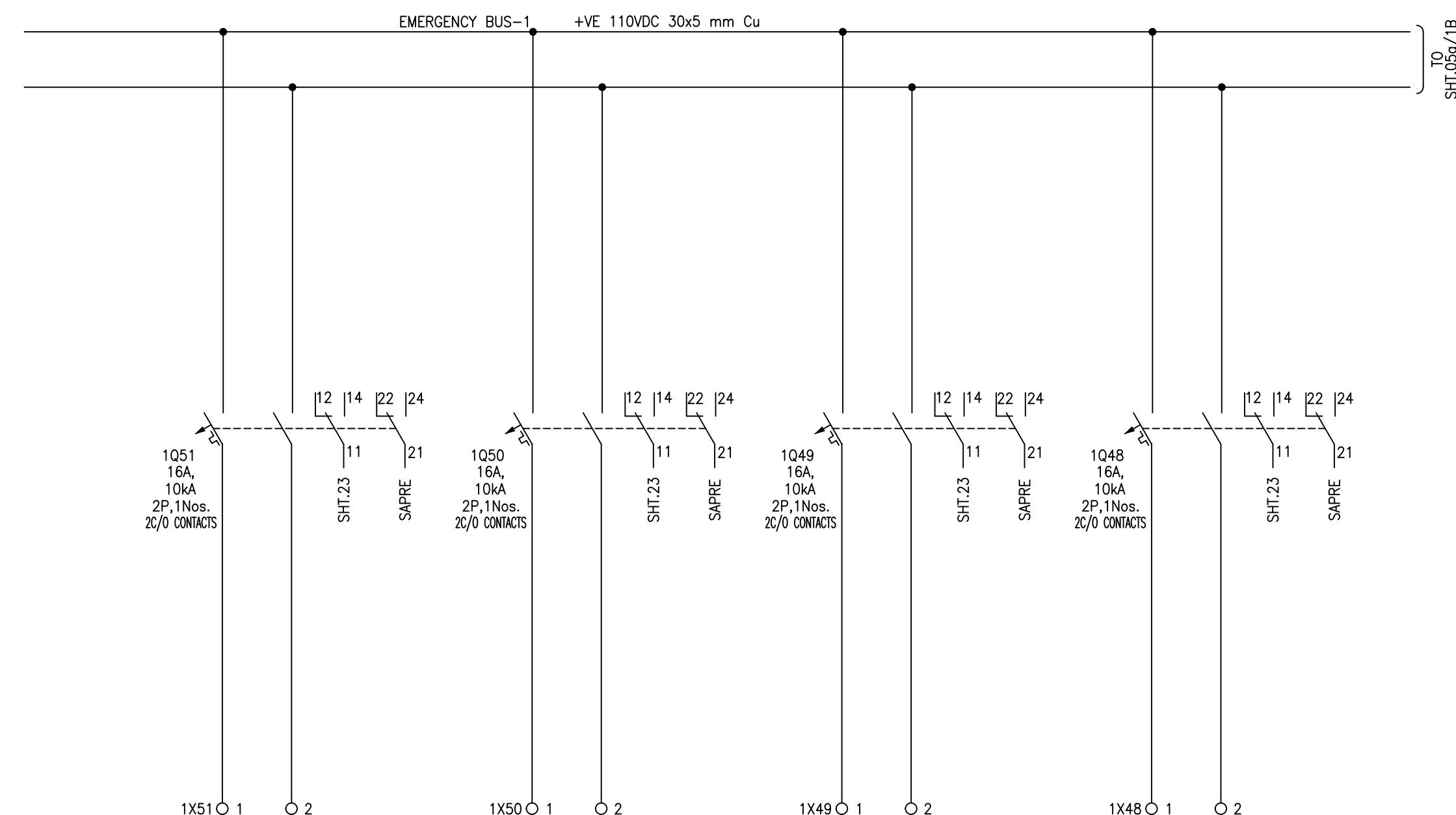
FEEDER No.

2

DC EMERGENCY BUS-1

FEEDER No.

1



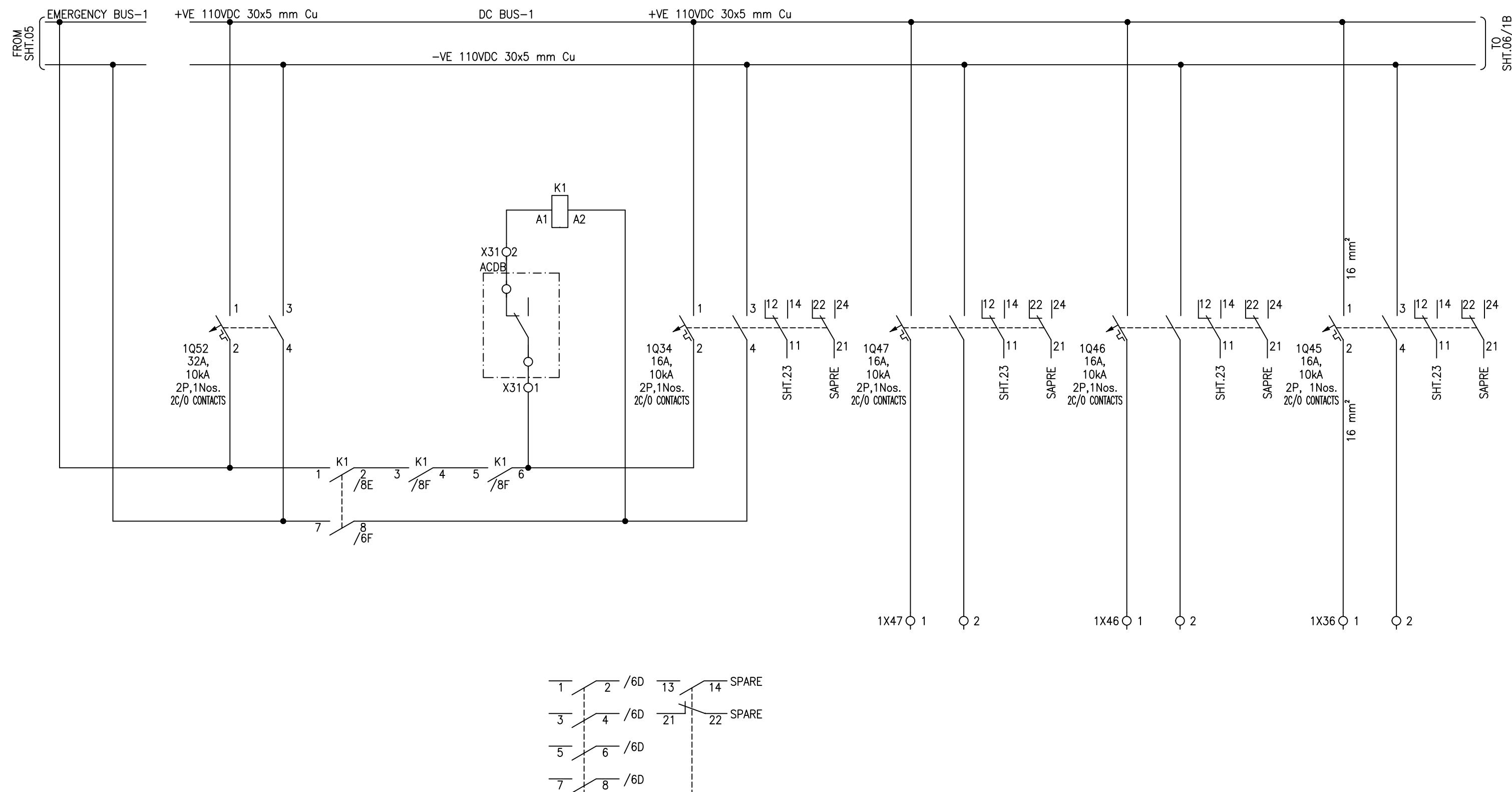
APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132KV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: DC SUPPLY DISTRIBUTION 110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1465	SHT: 05 OF 28
NAH	ABA	MSC				DATE:19.12.2018	AS BUILT

1 2 3 4 5 6 7 8

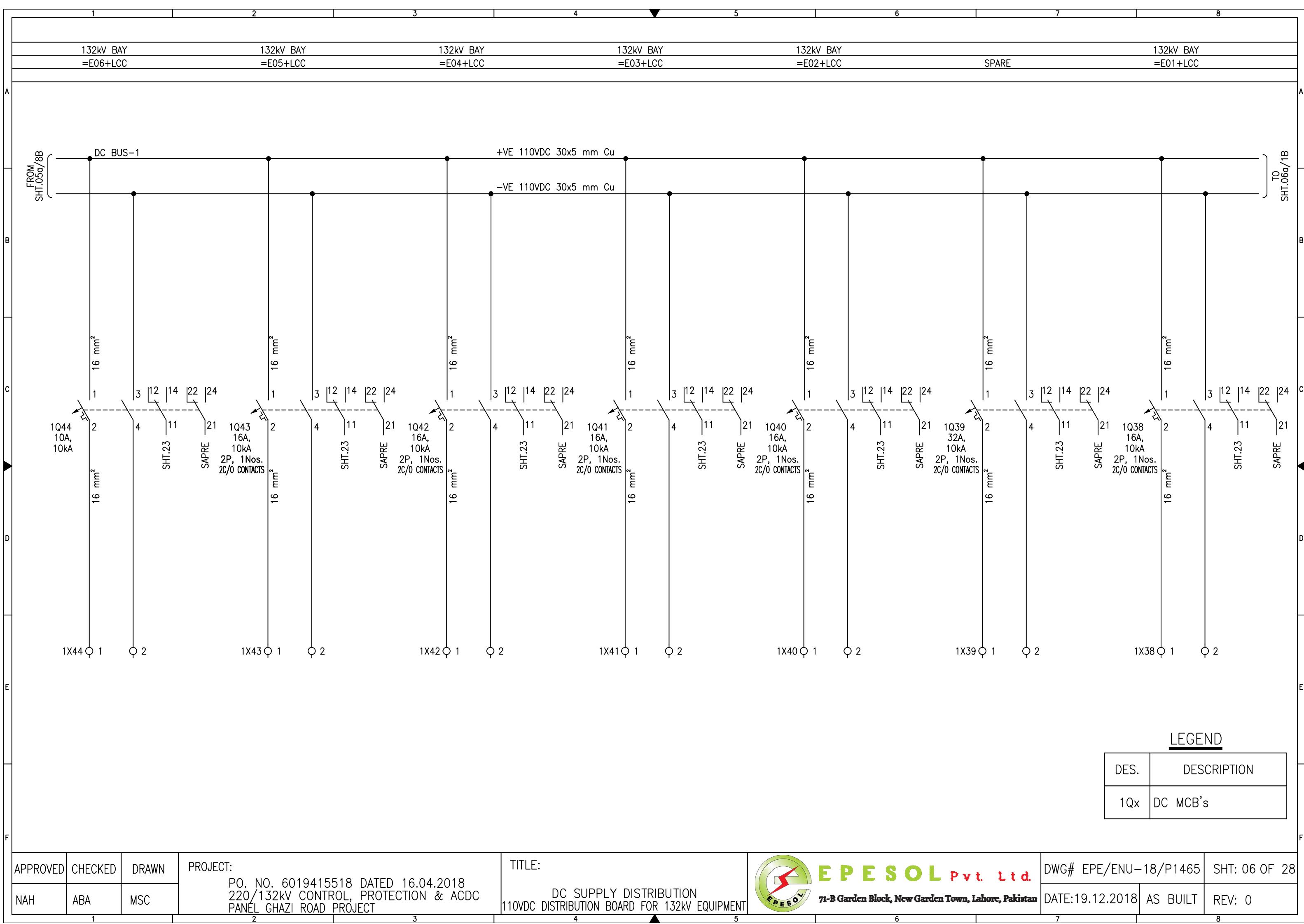
52  
FOR  
ON AC BUS-1UNDER VOLTAGE  
34  
FOR  
=E09+LCC132kV BAY  
=E08+LCC132kV BAY  
=E07+LCC132kV BAY  
=E07+LCC

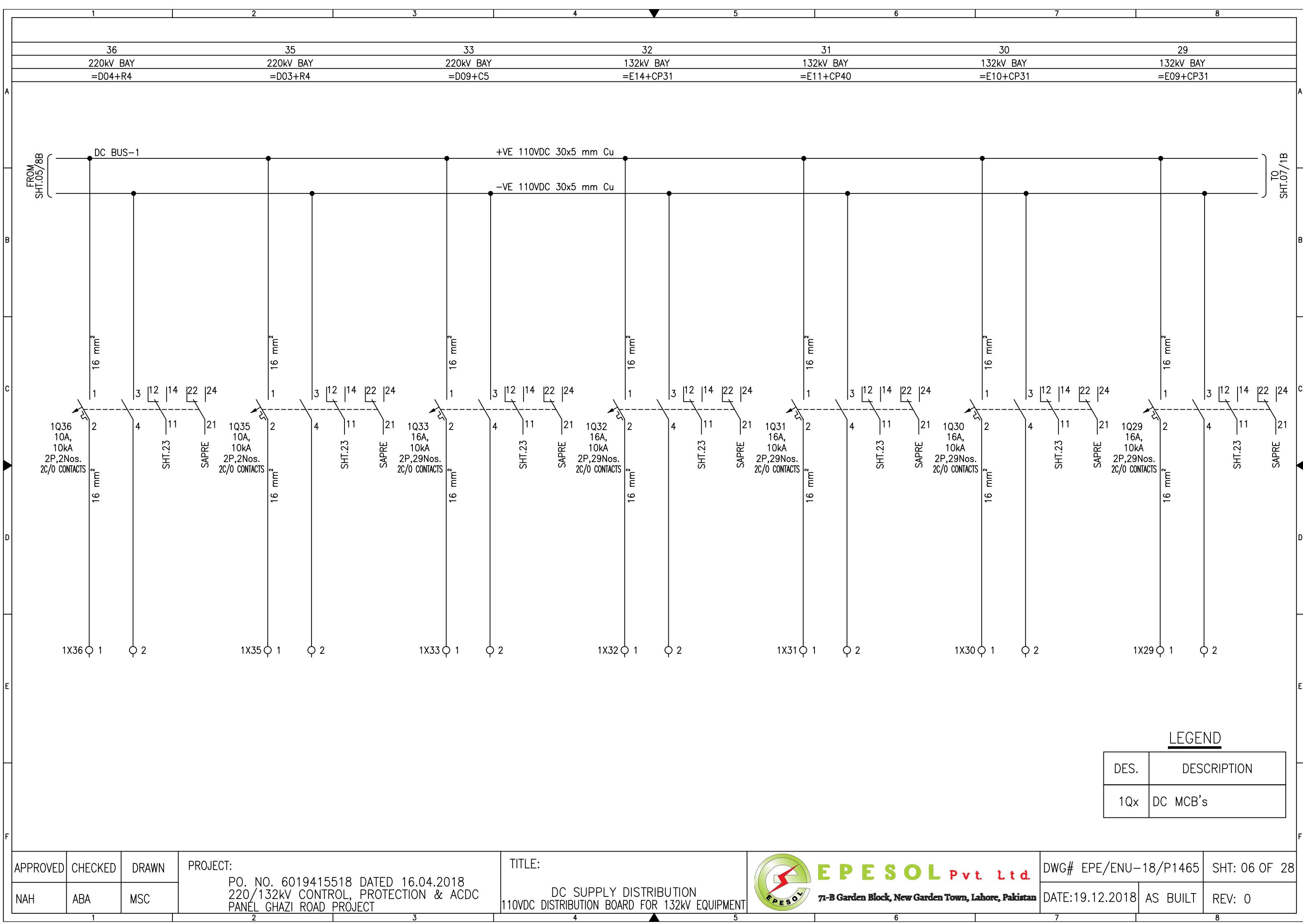
1 EMG. BUS-1 MANUAL OPP.

EMG. BUS-1 AUTO OPP.



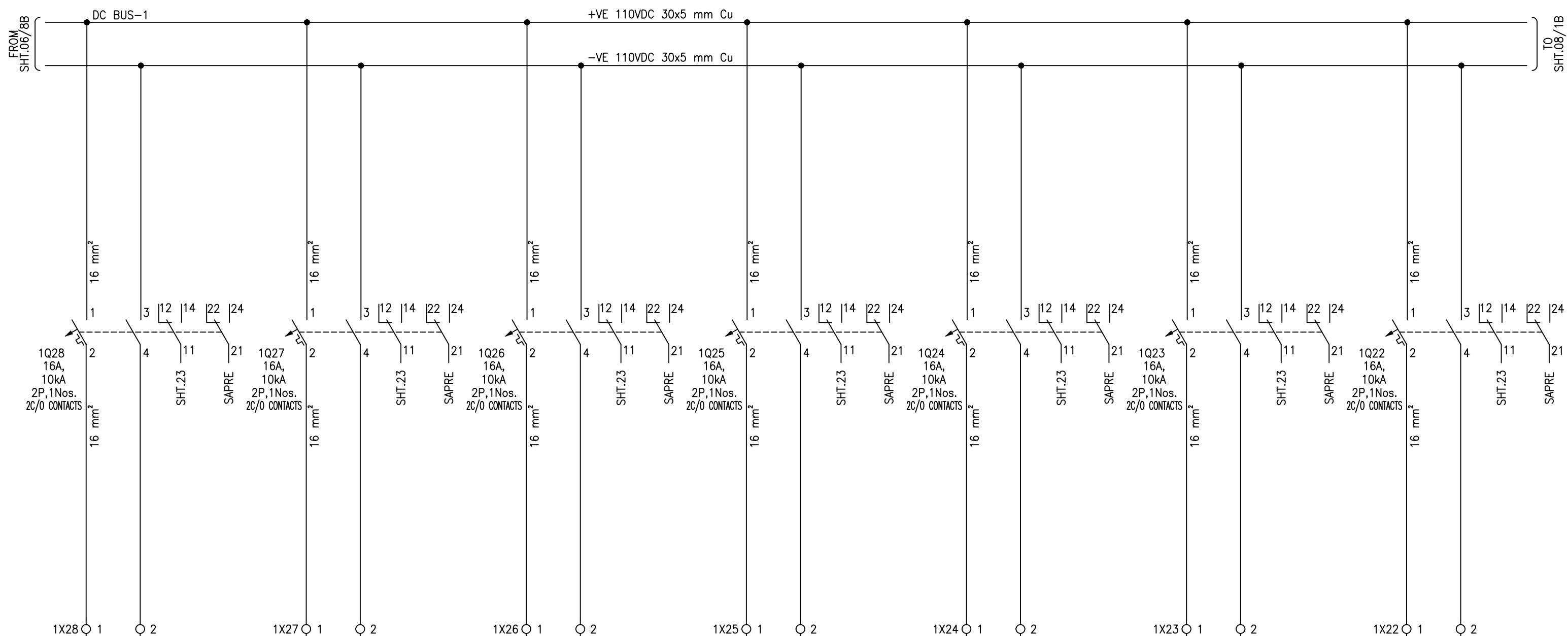
APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: DC SUPPLY DISTRIBUTION 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1465	SHT: 05aOF 28
NAH	ABA	MSC				DATE: 19.12.2018	AS BUILT





1 2 3 4 5 6 7 8

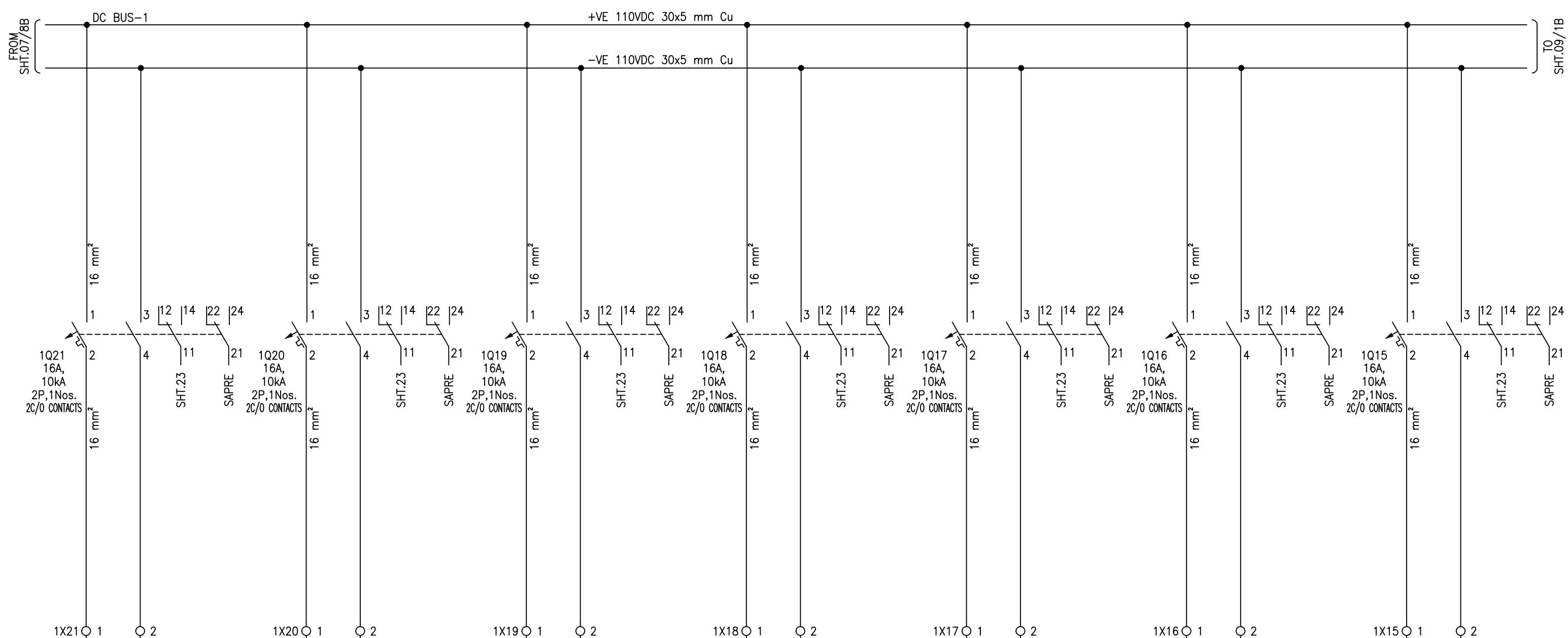
28 132KV BAY =E07+CP31	27 132KV BAY =E06+CP31	26 132KV BAY =E04+CP31	25 132KV BAY =E03+CP31	24 132KV BAY =E02+CP51	23 132KV BAY =E01+CP31	22 132KV BB/BF =RP6
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LEGEND

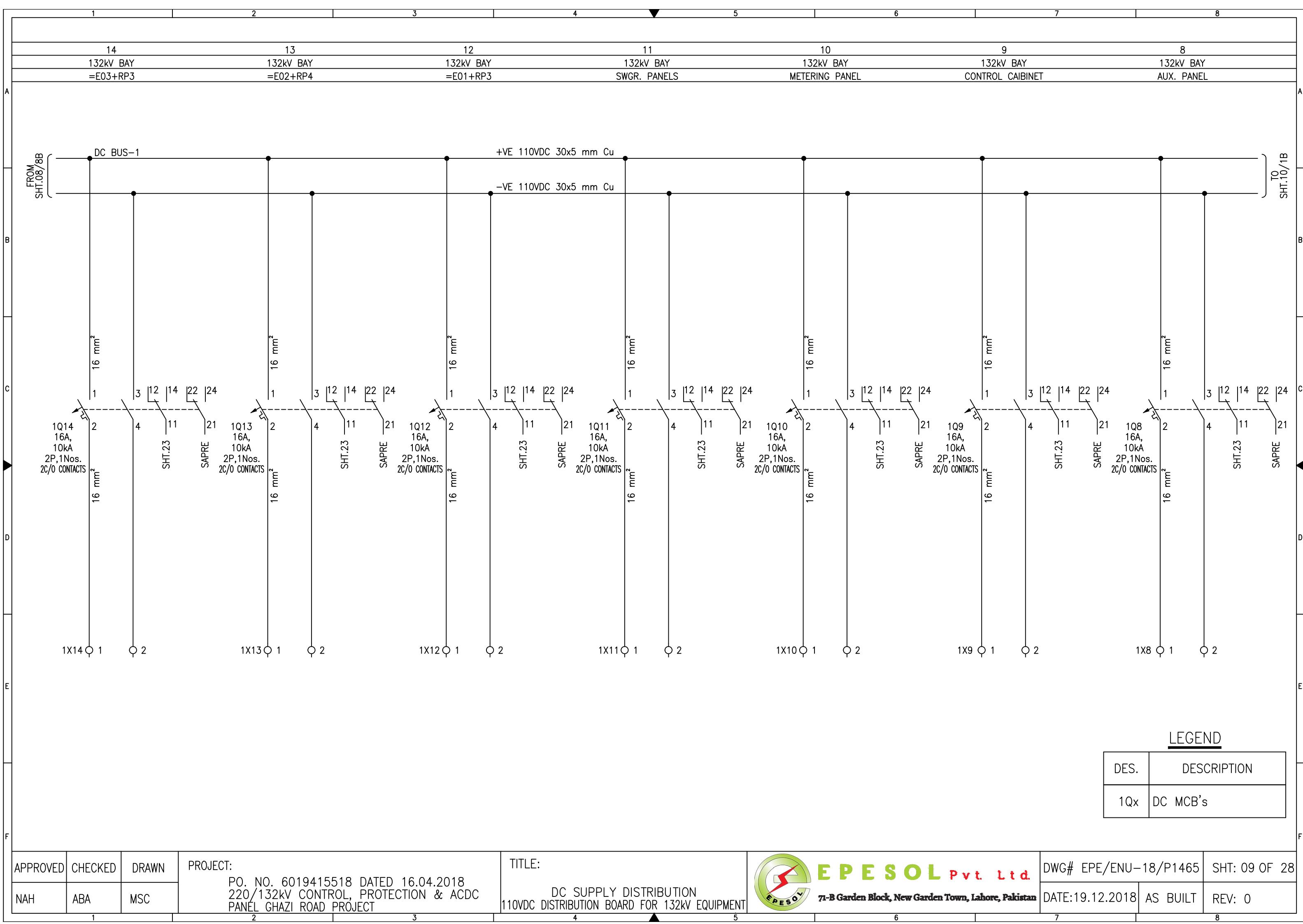
DES.	DESCRIPTION
1Qx	DC MCB's

1 2 3 4 5 6 7 8

21 132KV BAY =E14+RP3	20 132KV BAY =E11+RP1	19 132KV BAY =E10+RP3	18 132KV BAY =E09+RP3	17 132KV BAY =E07+RP3	16 132KV BAY =E06+RP3	15 132KV BAY =E04+RP3
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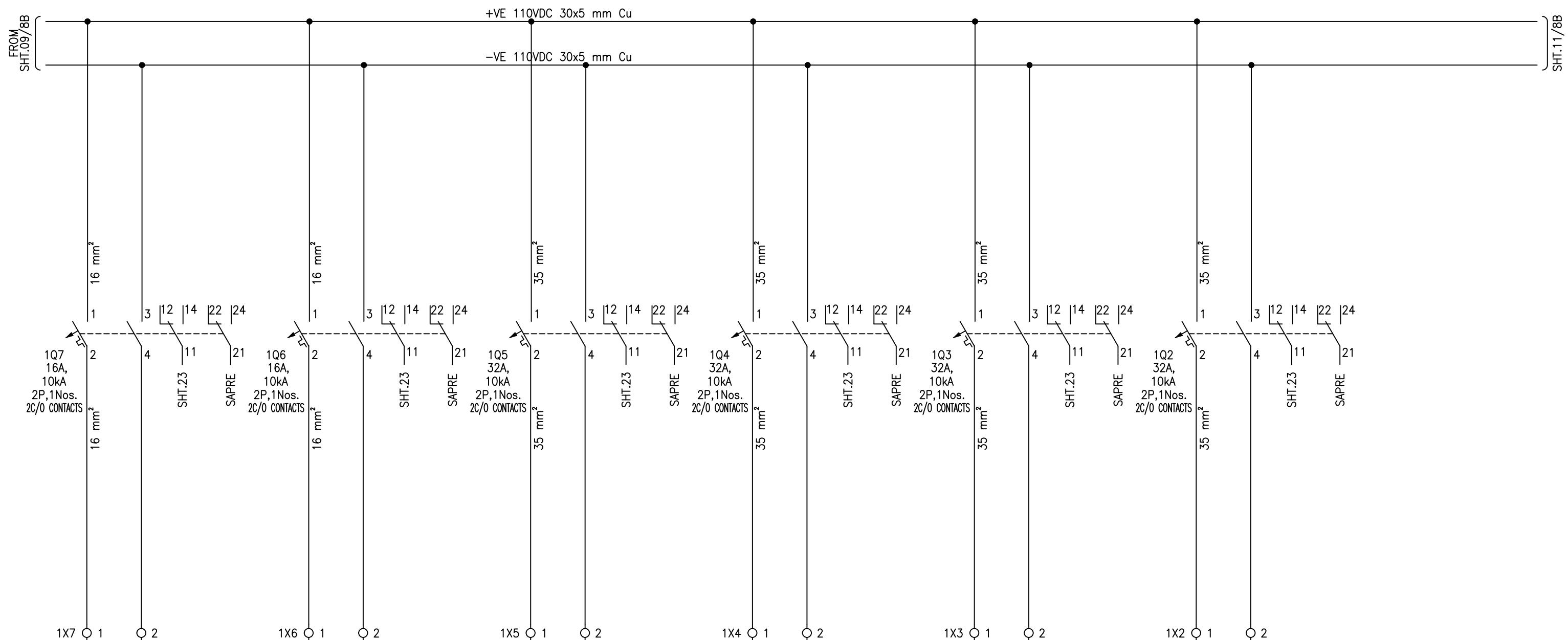
LEGEND

DES.	DESCRIPTION
1Qx	DC MCB's



1 2 3 4 5 6 7 8

7 220KV BAY =D03+C5	6 220KV BAY =D04+C5	5 132KV BAY =E14+LCC	4 132KV BAY =E13+LCC	3 132KV BAY =E12+LCC	2 132KV BAY =E11+LCC
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LEGEND

DES.	DESCRIPTION
1Qx	DC MCB's

110 VOLT DC BUS-1

INCOMER-1

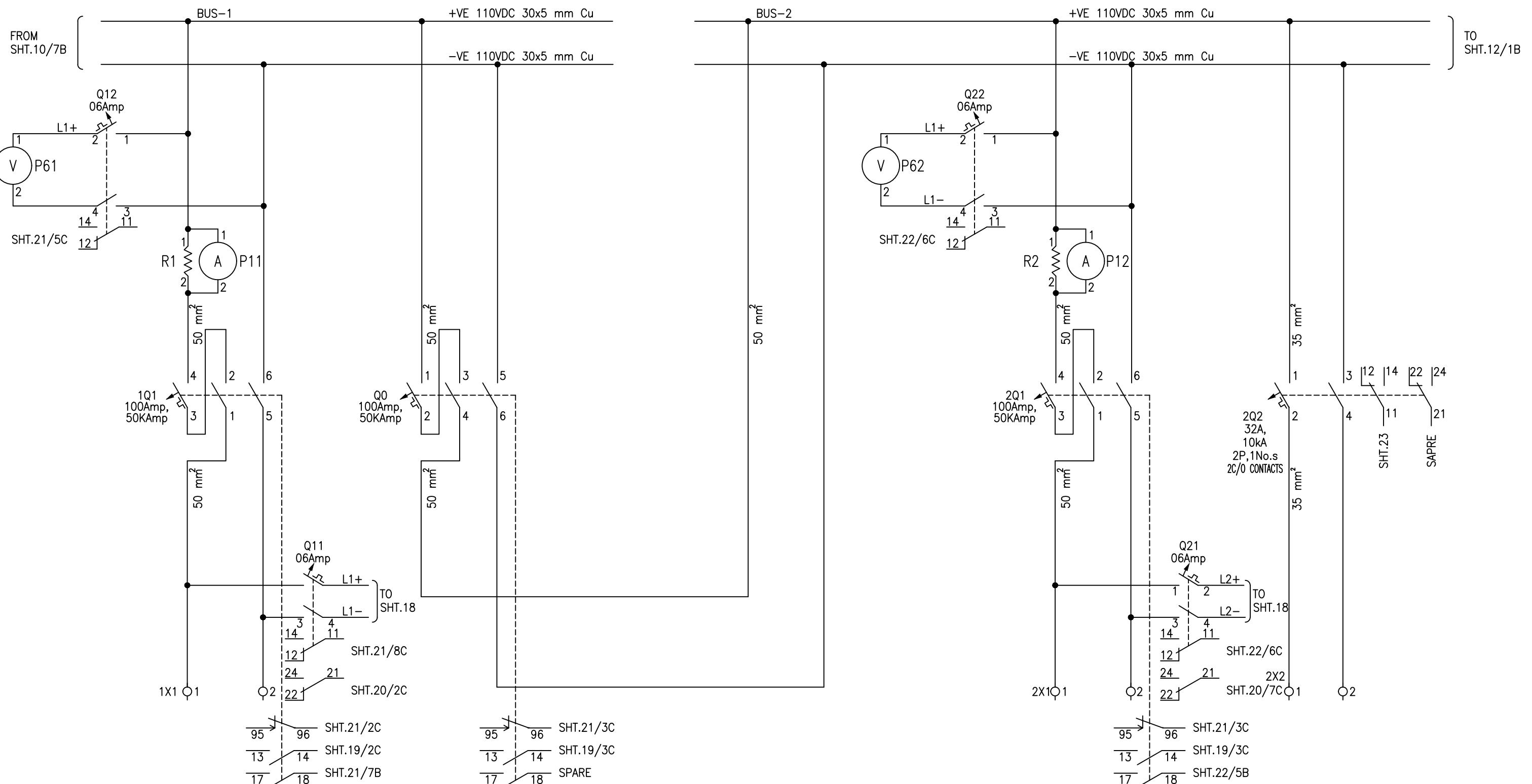
BUS SECTION

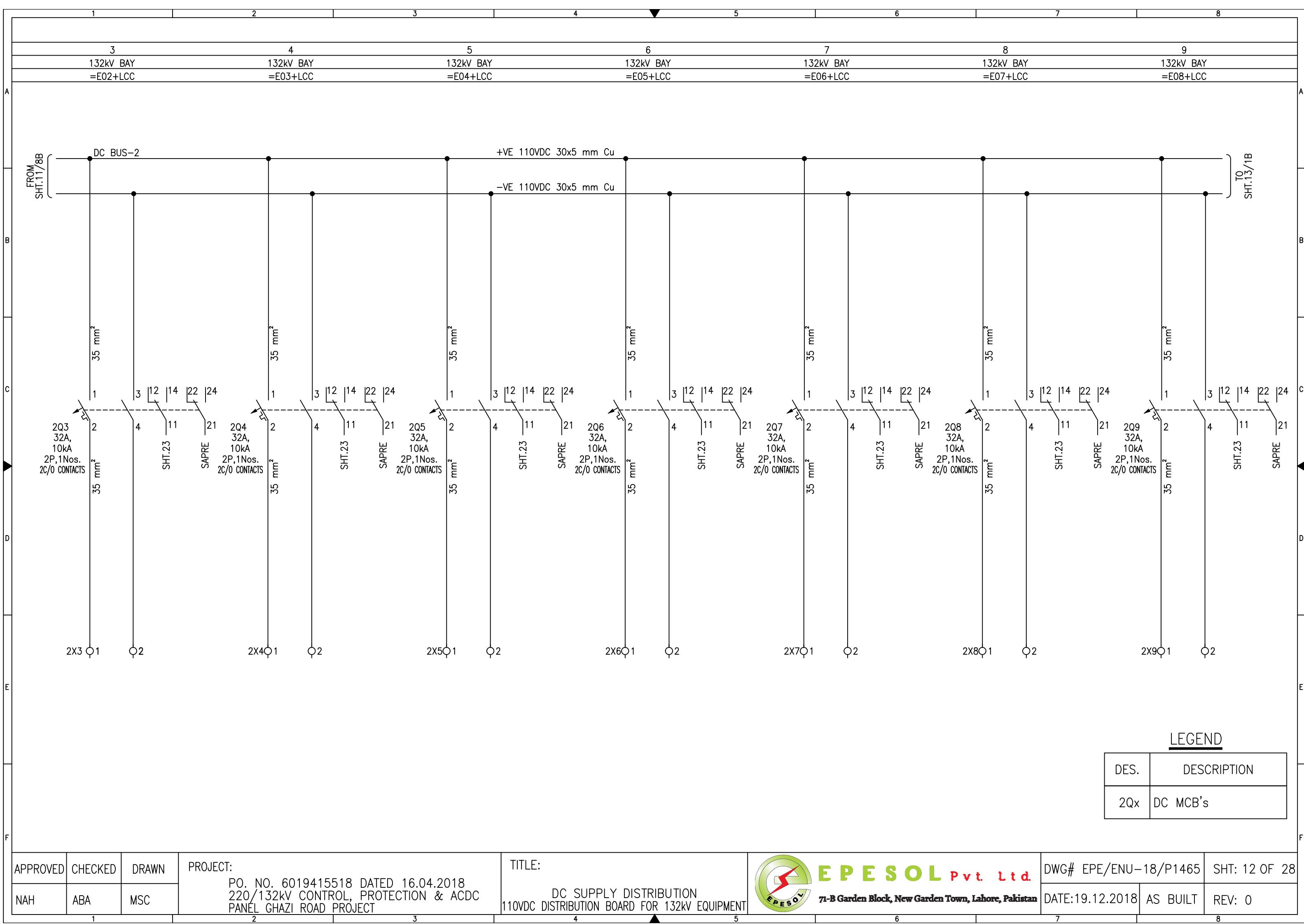
110 VOLT DC BUS-2

INCOMER-2

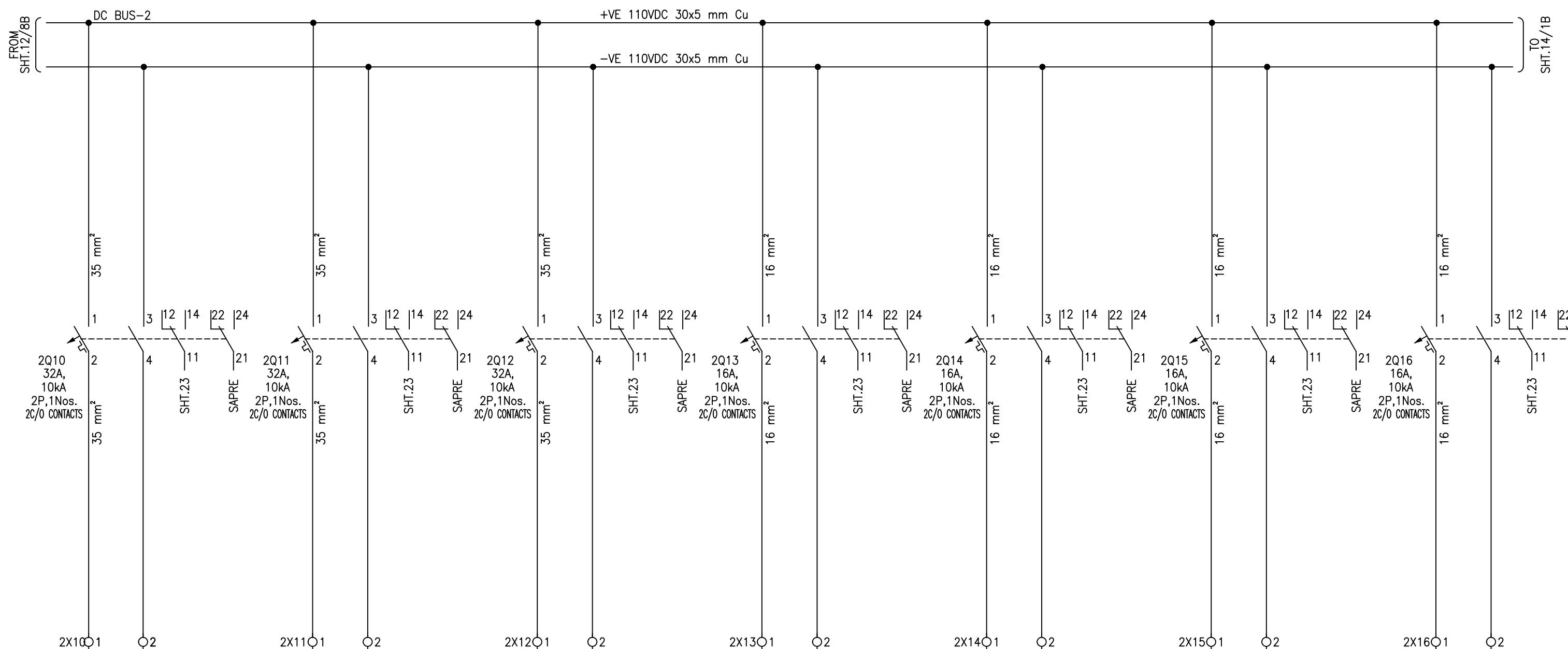
132KV BAY

=E01+LCC



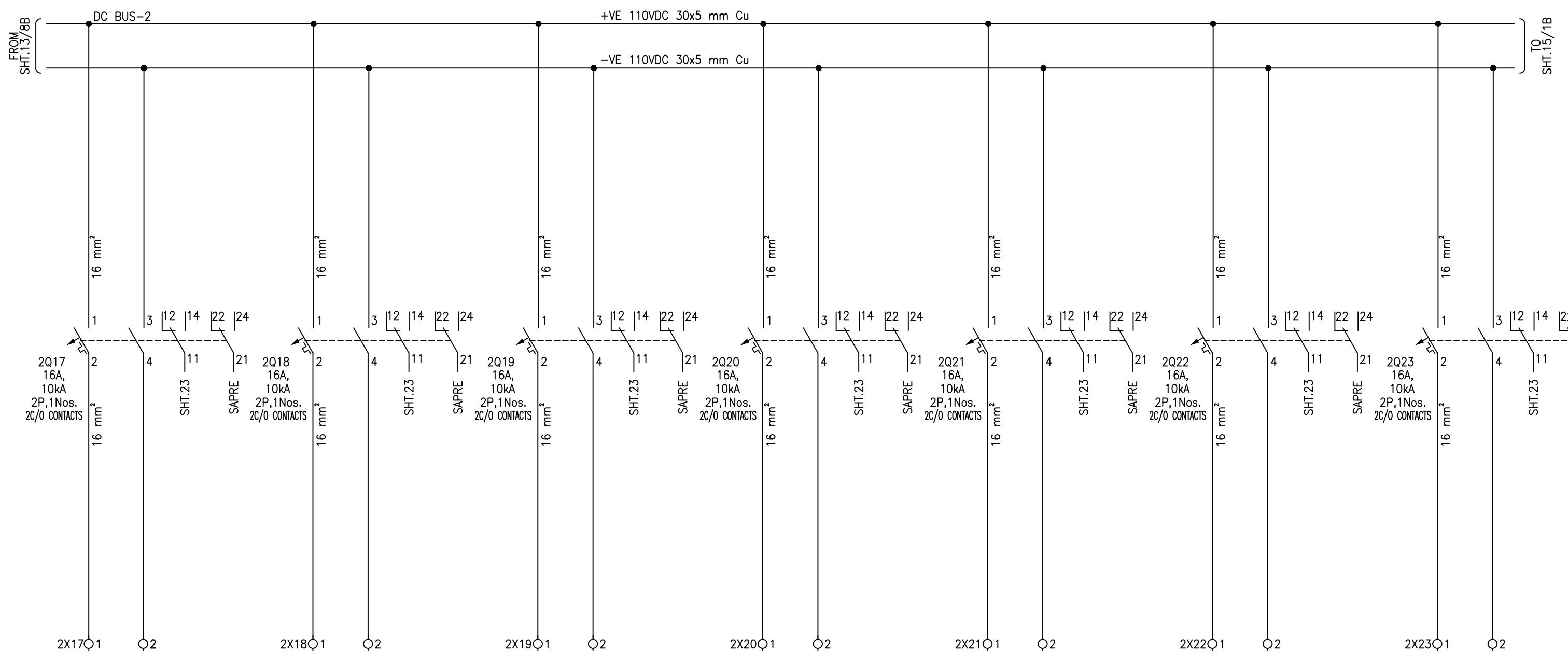


10 132KV BAY =E09+LCC	11 132KV BAY =E10+LCC	12 SPARE	13 132KV BAY =E01+RP3	14 132KV BAY =E02+RP4	15 132KV BAY =E03+RP3	16 132KV BAY =E04+RP3
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LEGEND

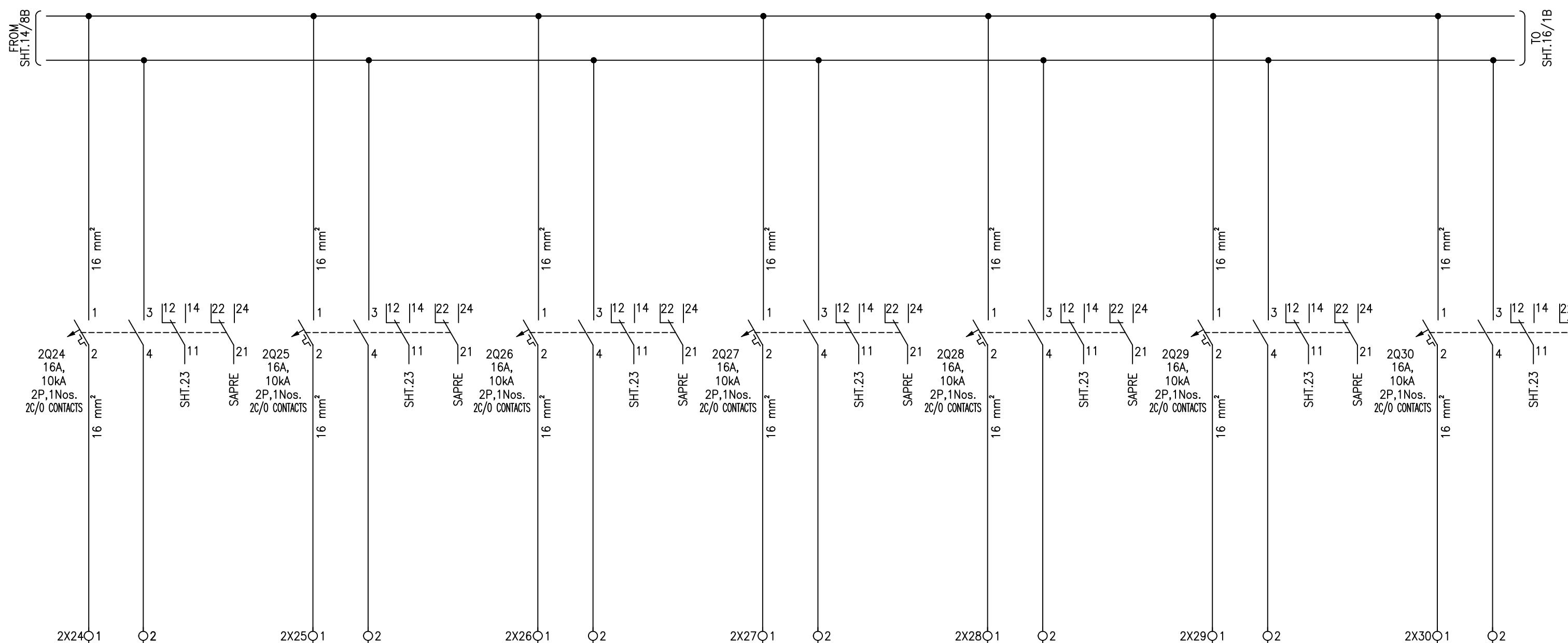
DES.	DESCRIPTION
2Qx	DC MCB's

17 132KV BAY =E06+RP3	18 132KV BAY =E07+RP3	19 132KV BAY =E09+RP3	20 132KV BAY =E10+RP3	21 132KV BAY =E11+RP1	22 132KV BAY =E14+RP3	23 132KV BB/BF =RP6
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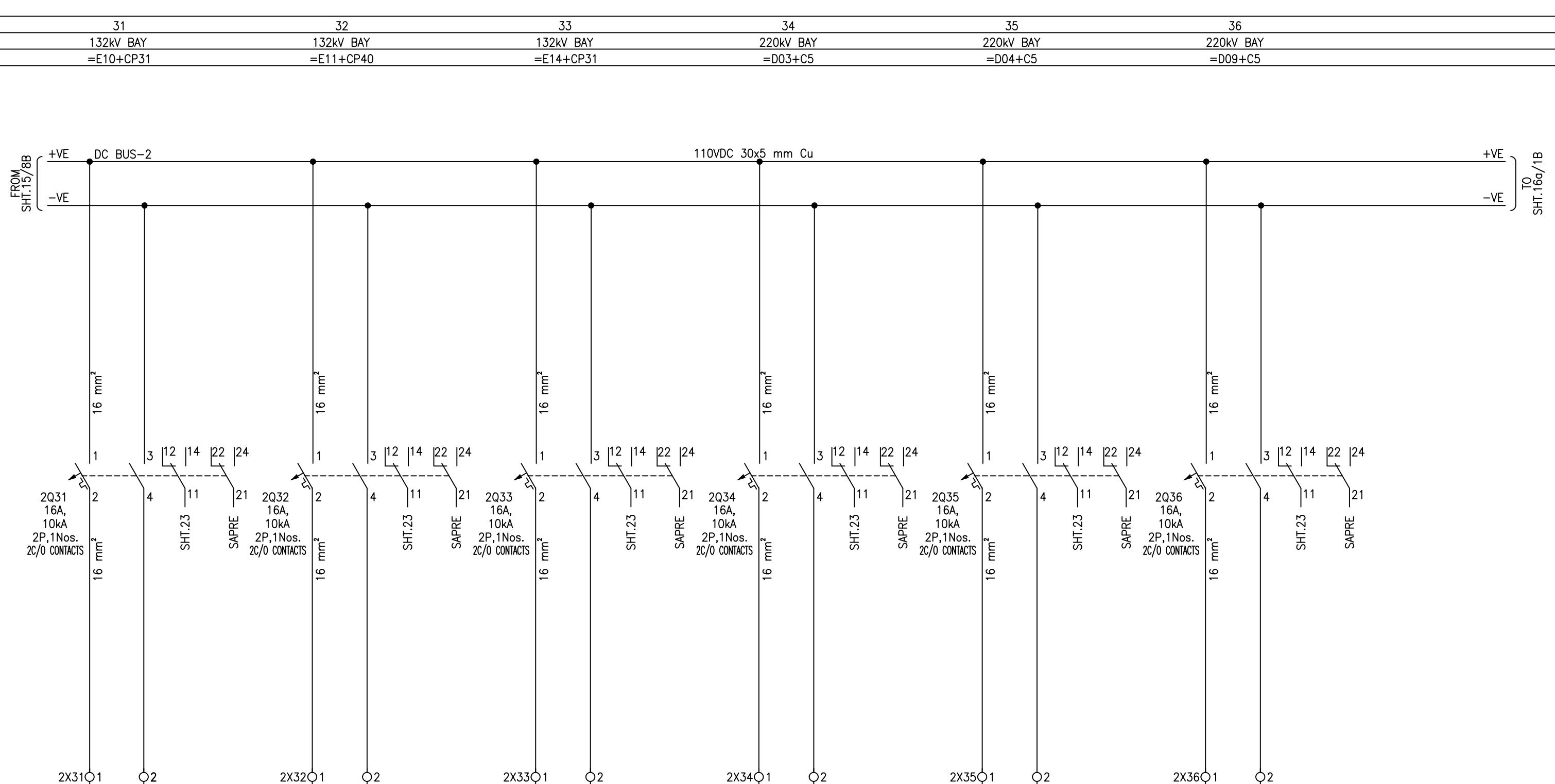
LEGEND

DES.	DESCRIPTION
2Qx	DC MCB's

24 132KV BAY =E01+CP31	25 132KV BAY =E02+CP51	26 132KV BAY =E03+CP31	27 132KV BAY =E04+CP31	28 132KV BAY =E06+CP31	29 132KV BAY =E07+CP31	30 132KV BAY =E09+CP31
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LEGEND

DES.	DESCRIPTION
2Qx	DC MCB's



## LEGEND

DES.	DESCRIPTION
2Qx	DC MCB's

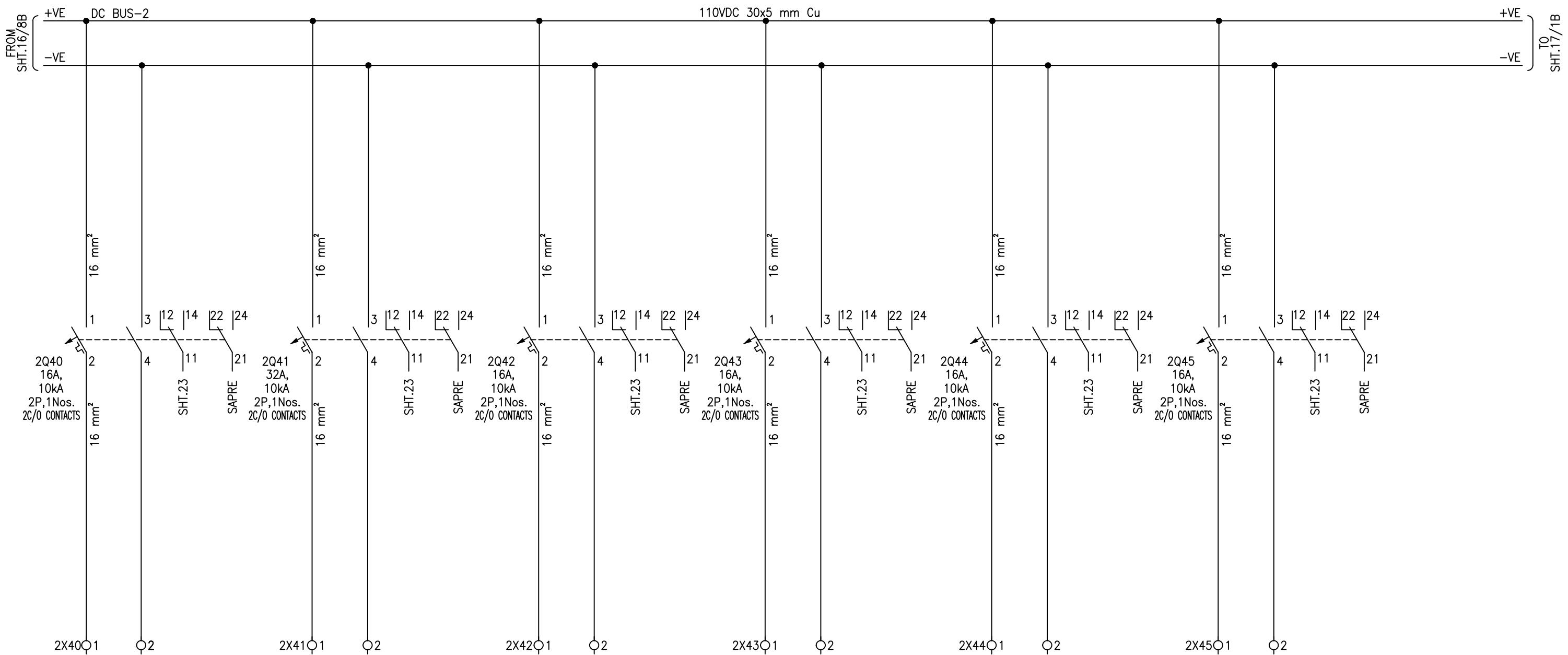
APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132KV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: DC SUPPLY DISTRIBUTION 110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT	 EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1465	SHT: 16 OF 28
NAH	ABA	MSC				DATE: 19.12.2018	AS BUILT

132KV BAY  
=E11+LCC

SPARE

132KV BAY  
=E12+LCC132KV BAY  
=E13+LCC132KV BAY  
=E14+LCC

SPARE

LEGEND

DES.	DESCRIPTION
2Qx	DC MCB's

37

FOR

EMG. BUS-2

UNDER VOLTAGE  
ON AC BUS-2

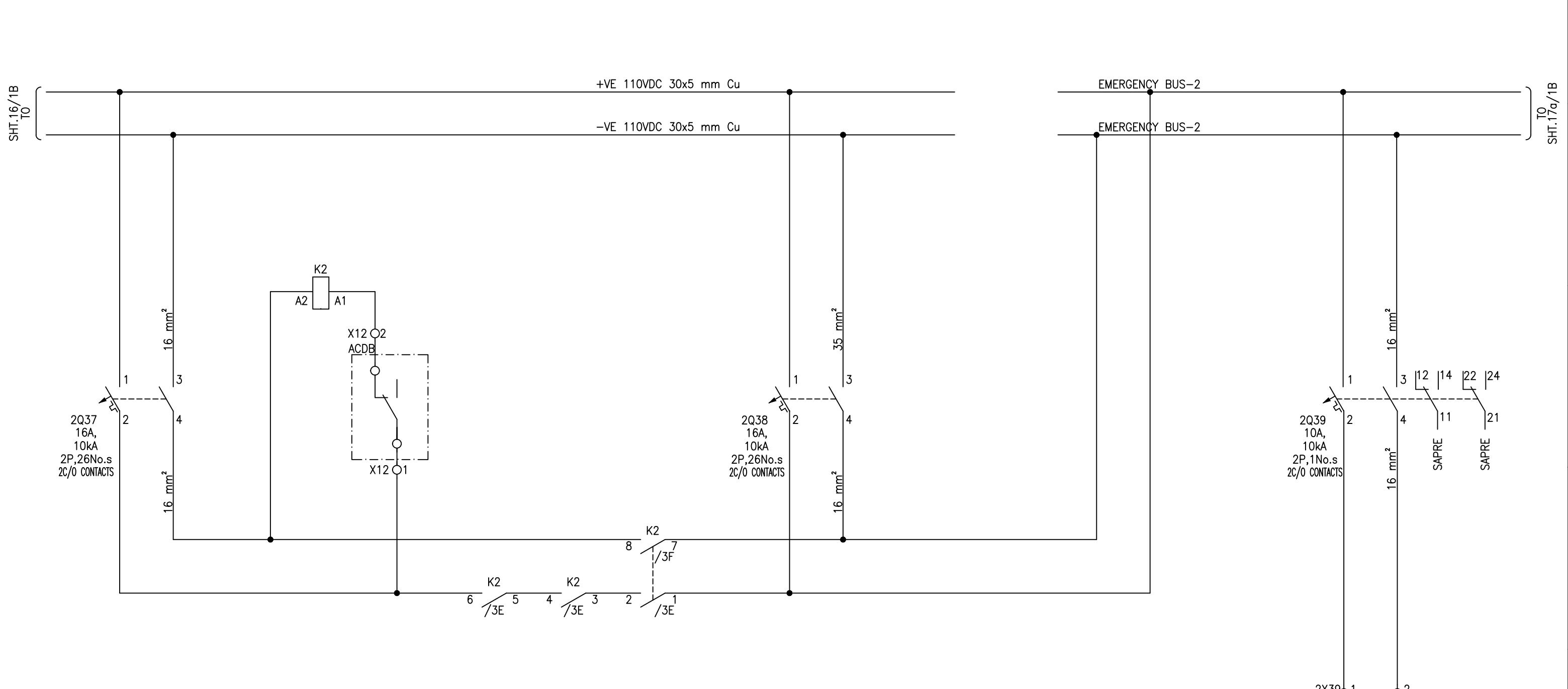
38

FOR

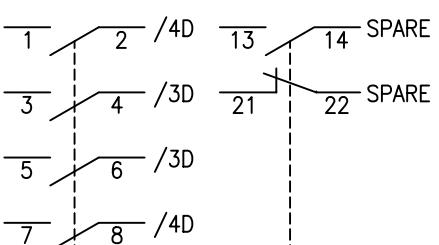
EMG. BUS-2

39

SPARE

**LEGEND**

DES.	DESCRIPTION
3Qx	DC MCB's
1Qx	DC MCB's
K1	AUXILIARY RELAY



**E P E S O L** **Pvt. Ltd.**  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DC EMERGENCY BUS-2

DC EMERGENCY BUS-2

DC EMERGENCY BUS-2

DC EMERGENCY BUS-2

FEEDER No.

FEEDER No.

FEEDER No.

FEEDER No.

2

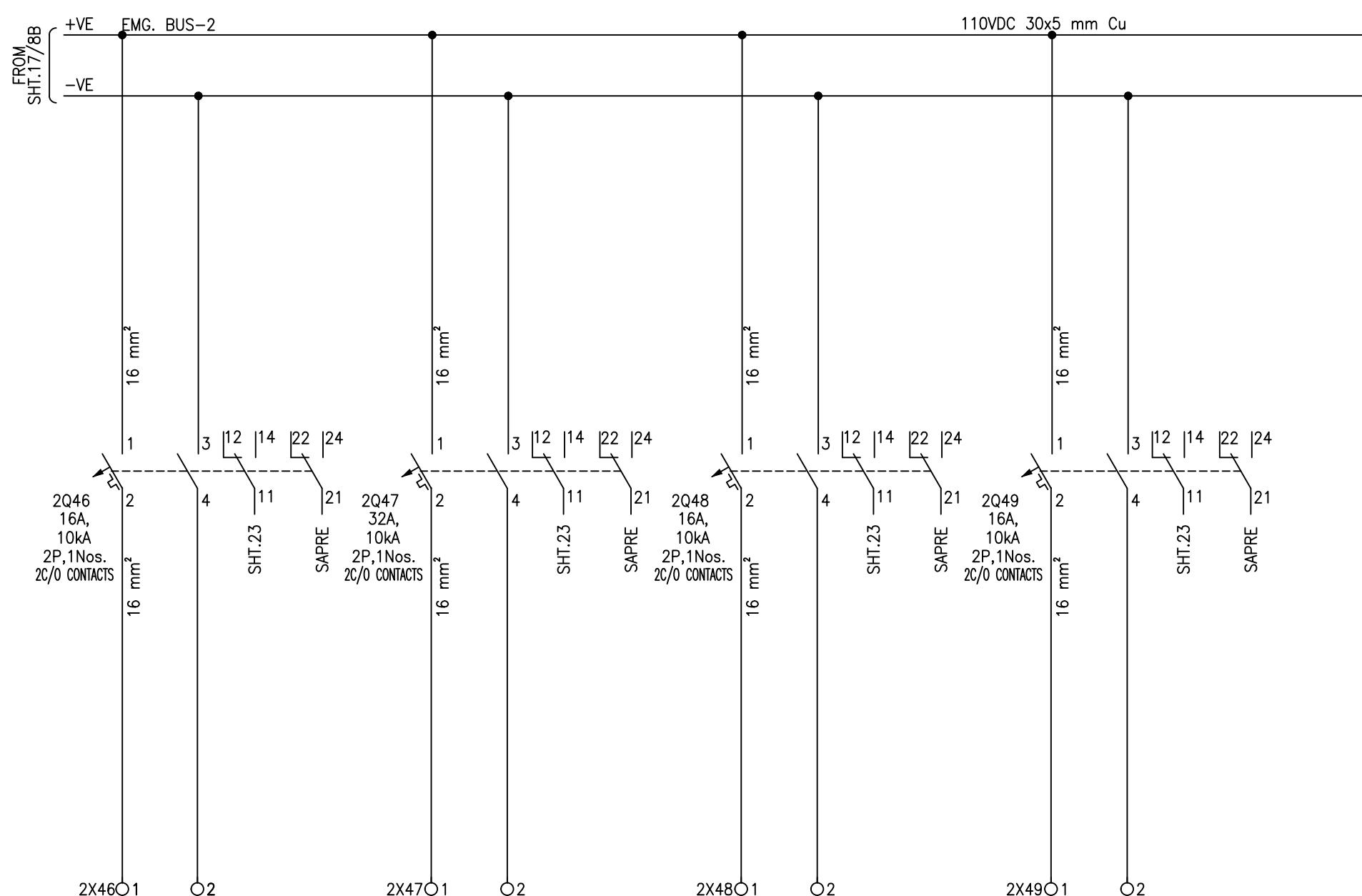
3

4

5

A

A

LEGEND

DES.	DESCRIPTION
2Qx	DC MCB's

INCOMER-1

INCOMER-2

BATTERY EARTH

UNDER VOLTAGE

BATTERY EARTH

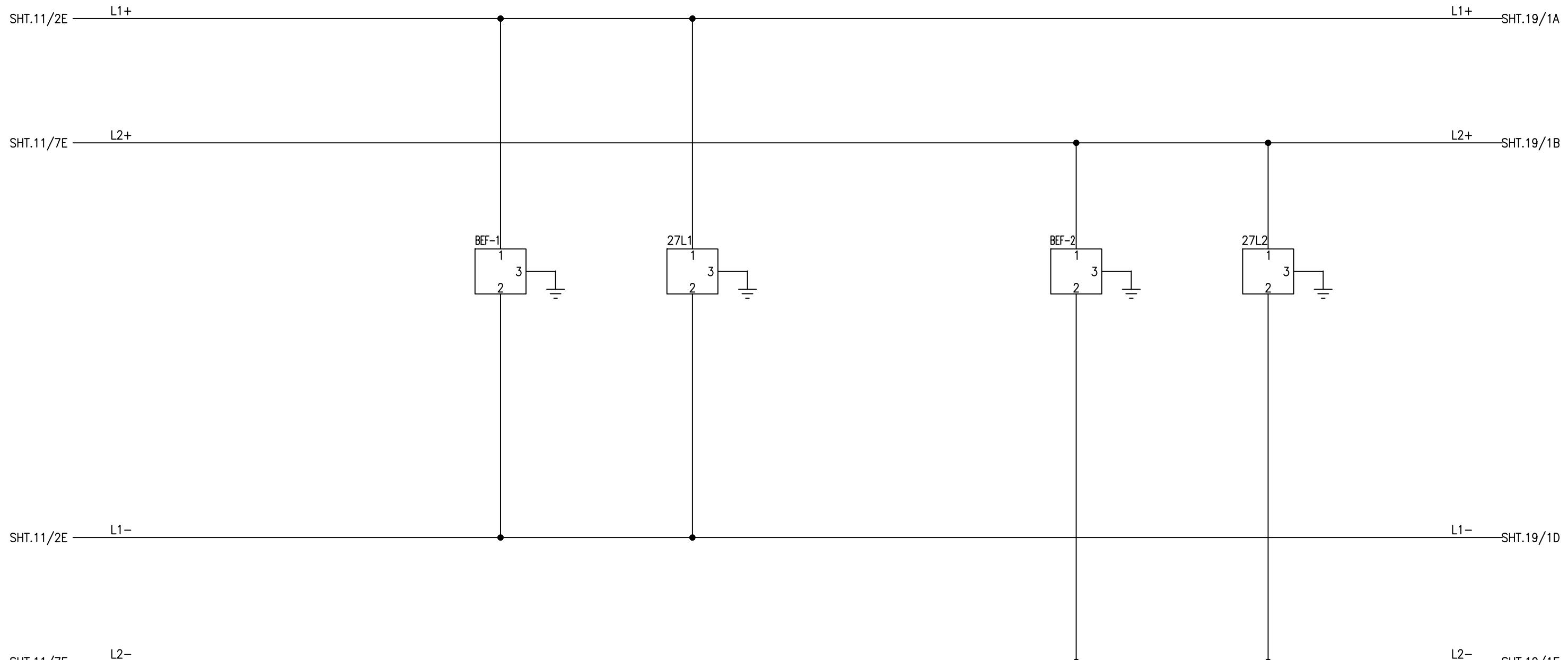
UNDER VOLTAGE

FAULT RELAY-1

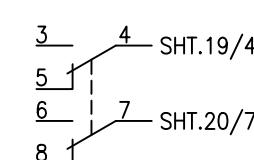
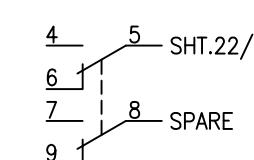
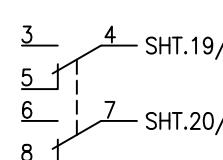
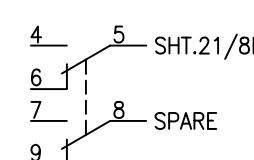
RELAY-1

FAULT RELAY-2

RELAY-2

LEGEND

DES.	DESCRIPTION
27L1 27L2	UNDER VOLTAGE RELAY
BEF-1 BEF-2	BATTERY EARTH FAULT RELAY



## CONTACT MULTIPLICATION

## CONTACT MULTIPLICATION

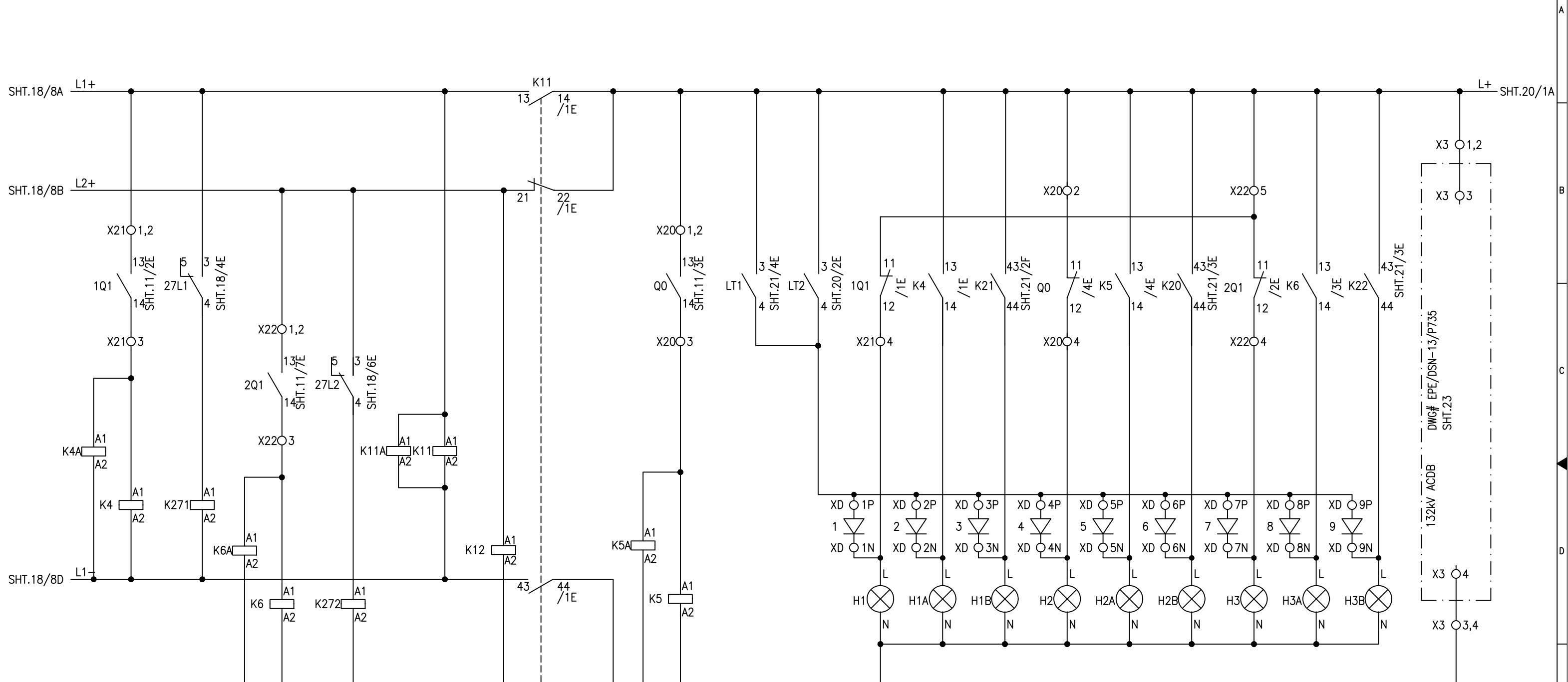
1Q1 INCOMER-1

SUPPLY CHANGE  
OVER

2Q1 INCOMER-2

Q0

1Q1 OFF 1Q1 ON 1Q1 TRIP Q0 OFF Q0 ON 2Q1 OFF 2Q1 ON 2Q1 ON Q0 DC SUPPLY TO TRIACDB ANNUNCIATORS



## LEGEND

DES.	DESCRIPTION
K11, K271	DC CONTACTOR
K272	DC MCCB's
1Q1, 2Q1 Q0	DC MCCB's
K4, K5 K6	DC CONTACTOR
H1, H2, H3, H1A H2A, H3A, H1B	INDICATION LAMPS

APPROVED	CHECKED	DRAWN
NAH	ABA	MSC

PROJECT:

PO. NO. 6019415518 DATED 16.04.2018  
220/132KV CONTROL, PROTECTION & ACDC  
PANEL GHAZI ROAD PROJECT

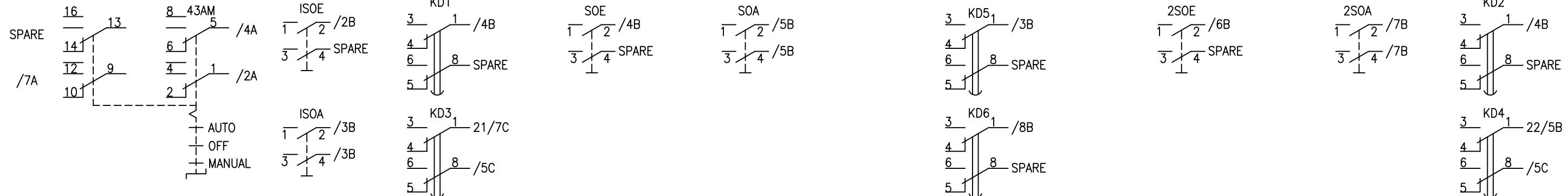
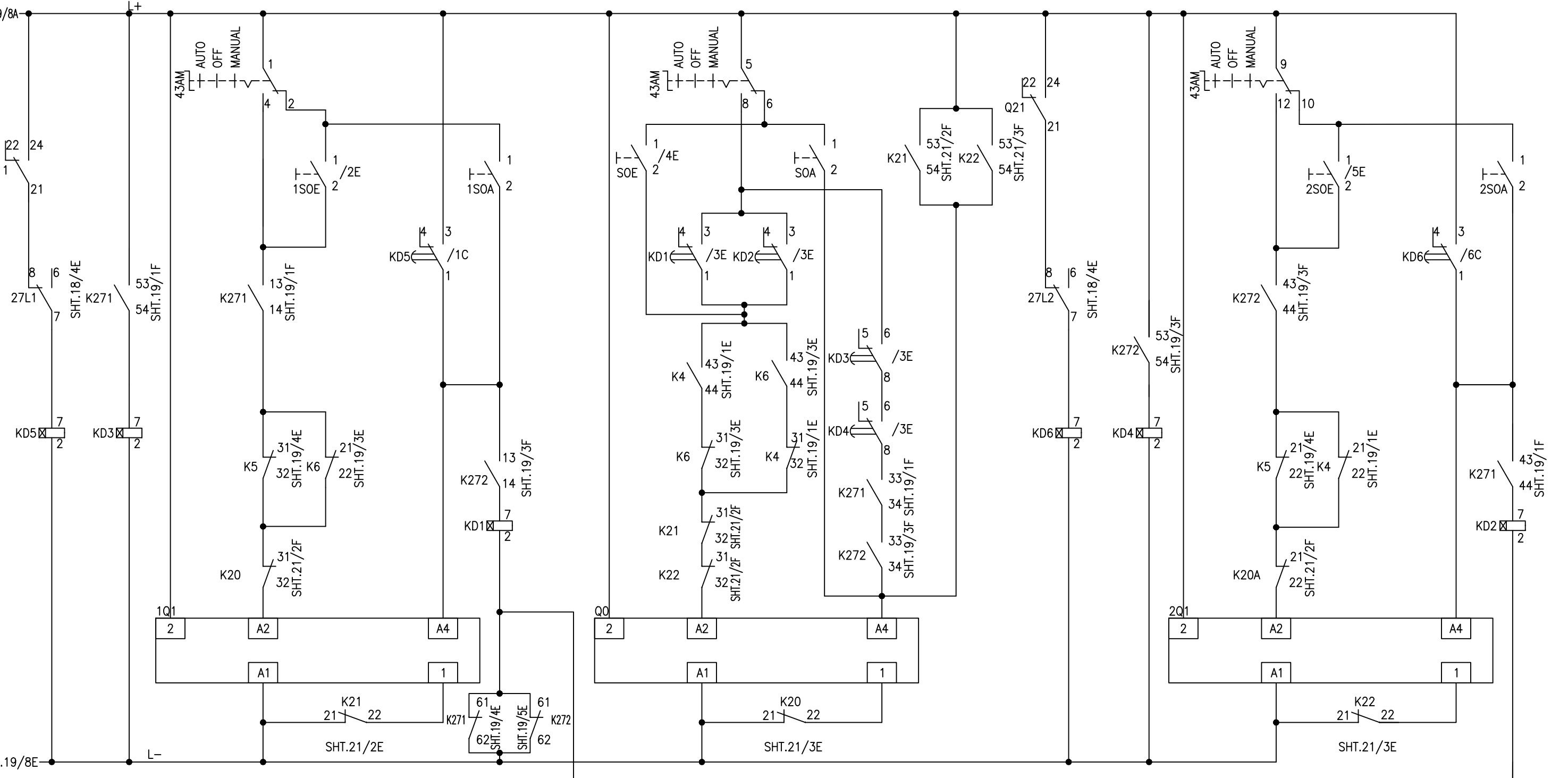
TITLE:

SUPPLY CHANGE OVER &  
INDICATION CIRCUIT  
110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT

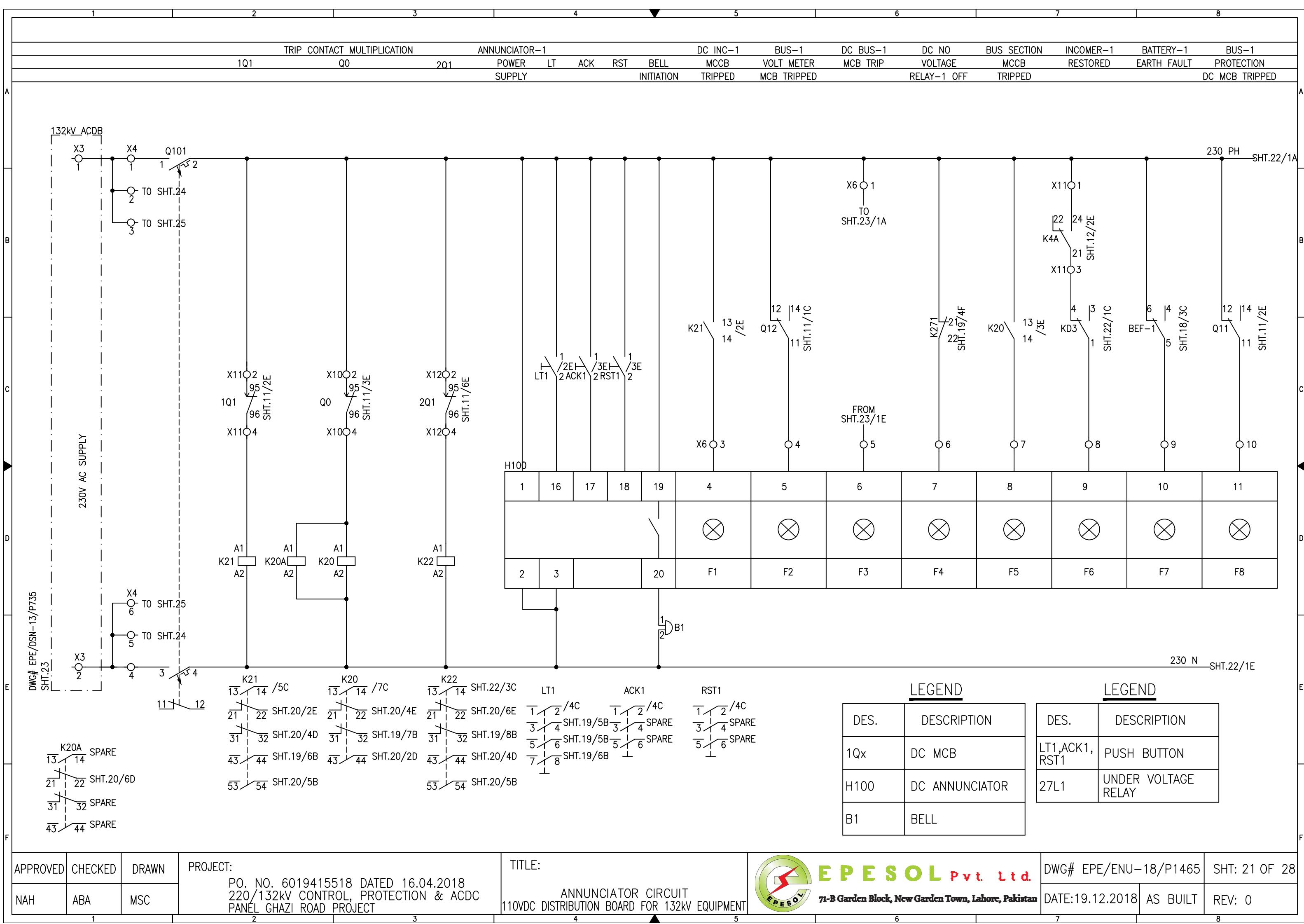
**E P E S O L** Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/P1465 SHT: 19 OF 28  
DATE: 19.12.2018 AS BUILT REV: 0

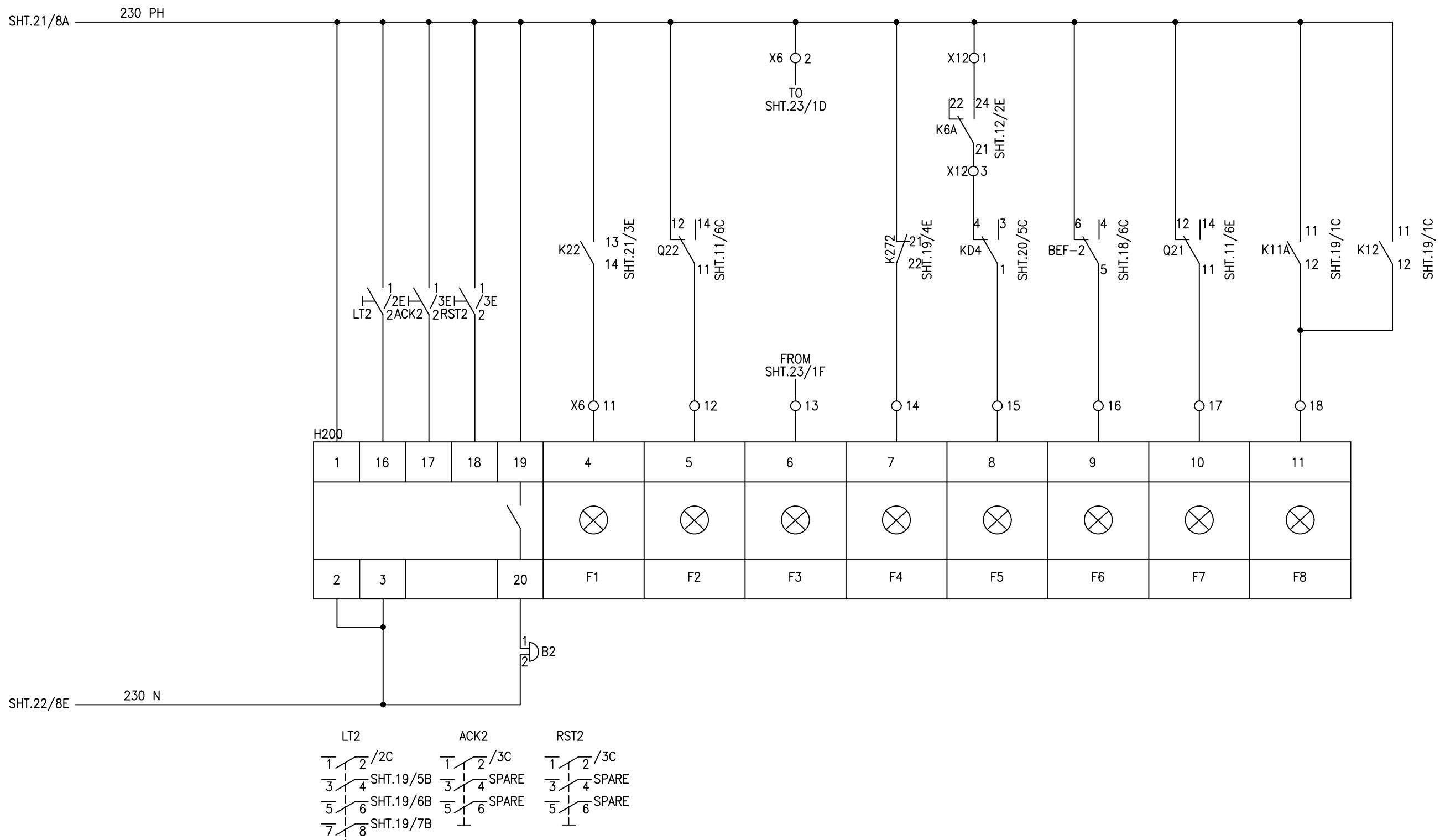
CLOSING OF OPENING OF CLOSING OF OPENING OF CLOSING OF OPENING OF  
1Q1 1Q1 Q0 Q0 2Q1 2Q1

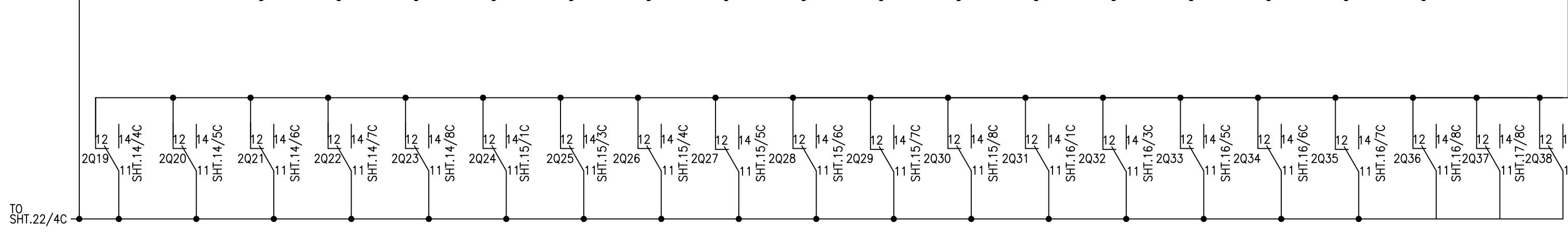
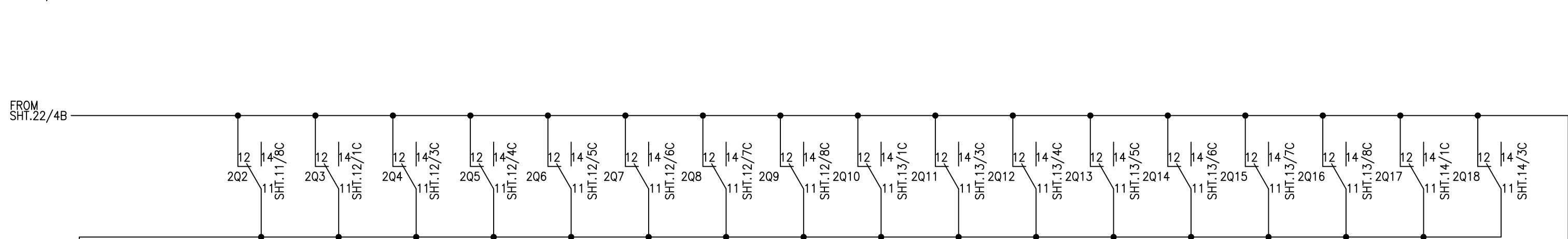
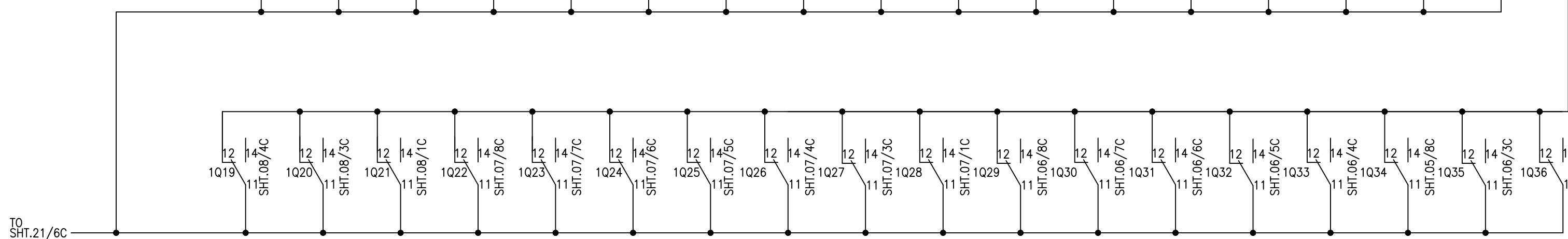
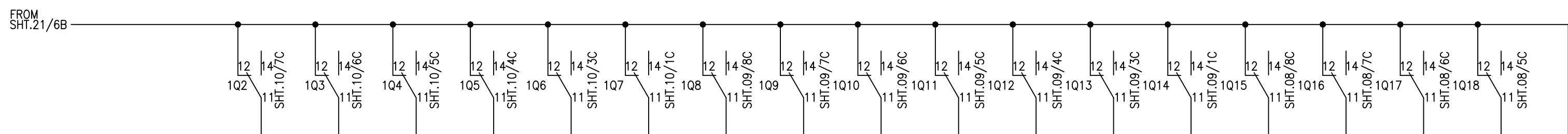


APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132KV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: CONTROL & INTERLOCKING SCHEME 110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1465	SHT: 20 OF 28
NAH	ABA	MSC				DATE: 19.12.2018	AS BUILT



ANNUNCIATOR-1				DC INC-2	BUS-2	DC BUS-2	DC NO	INCOMER-2	BATTERY-2	BATTERY EARTH	INCOMMER-1/2
POWER SUPPLY	LT INITIATION	ACK TRIPPED	RST MCCB	MCCB VOLT METER	MCB TRIP	VOLTAGE RESTORED	EARTH FAULT	FAULT RELAY	RELAY SUPPLY		
				MCB TRIPPED		RELAY-2 OFF	DC2 MCB TRIPPED			FAILED	

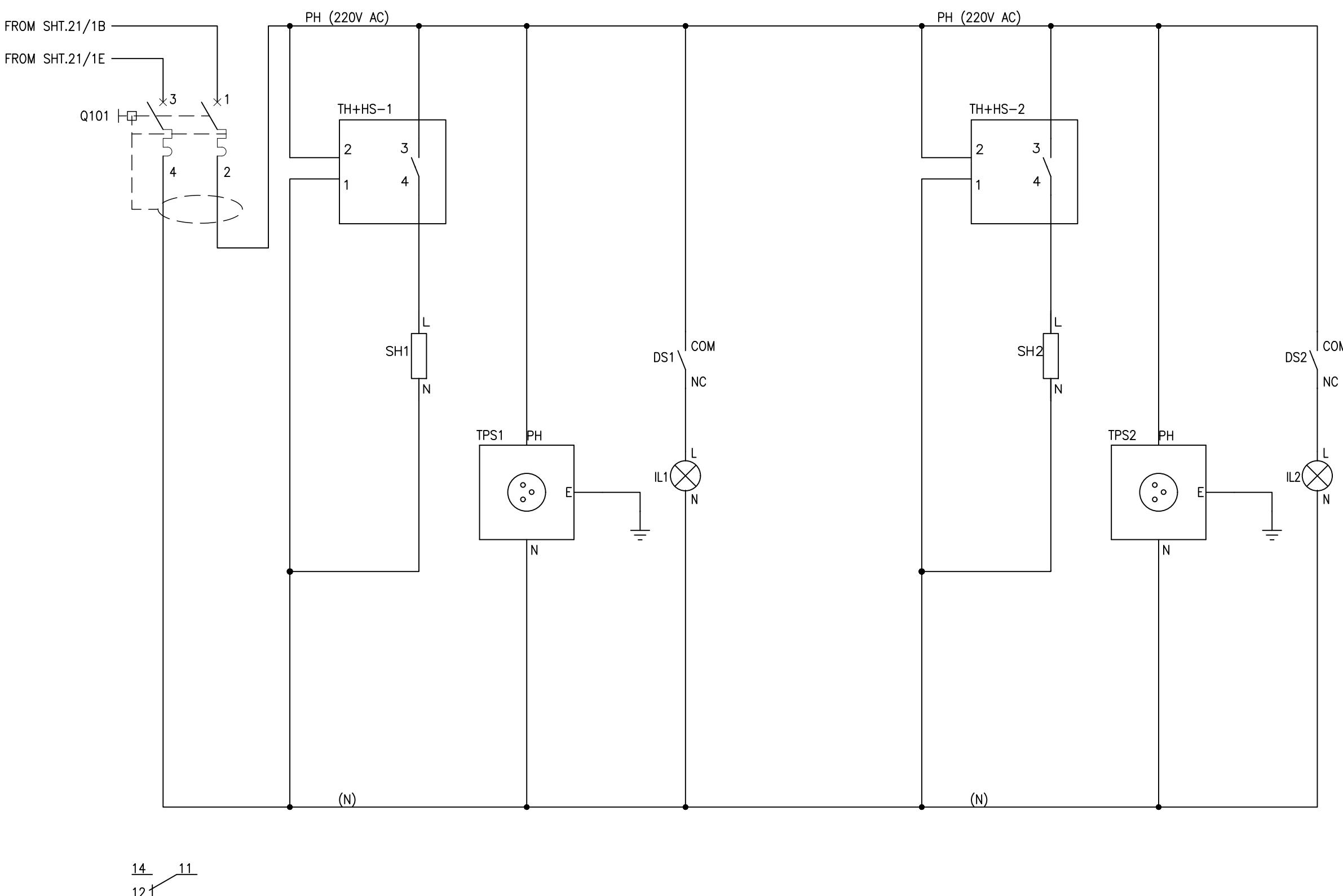




APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132KV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: BUS-1 & BUS-2 DC MCB TRIP 110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/P1465	SHT: 23 OF 28
NAH	ABA	MSC				DATE: 19.12.2018	AS BUILT

HEATING & LIGHTING SUPPLY  
PORTION-1

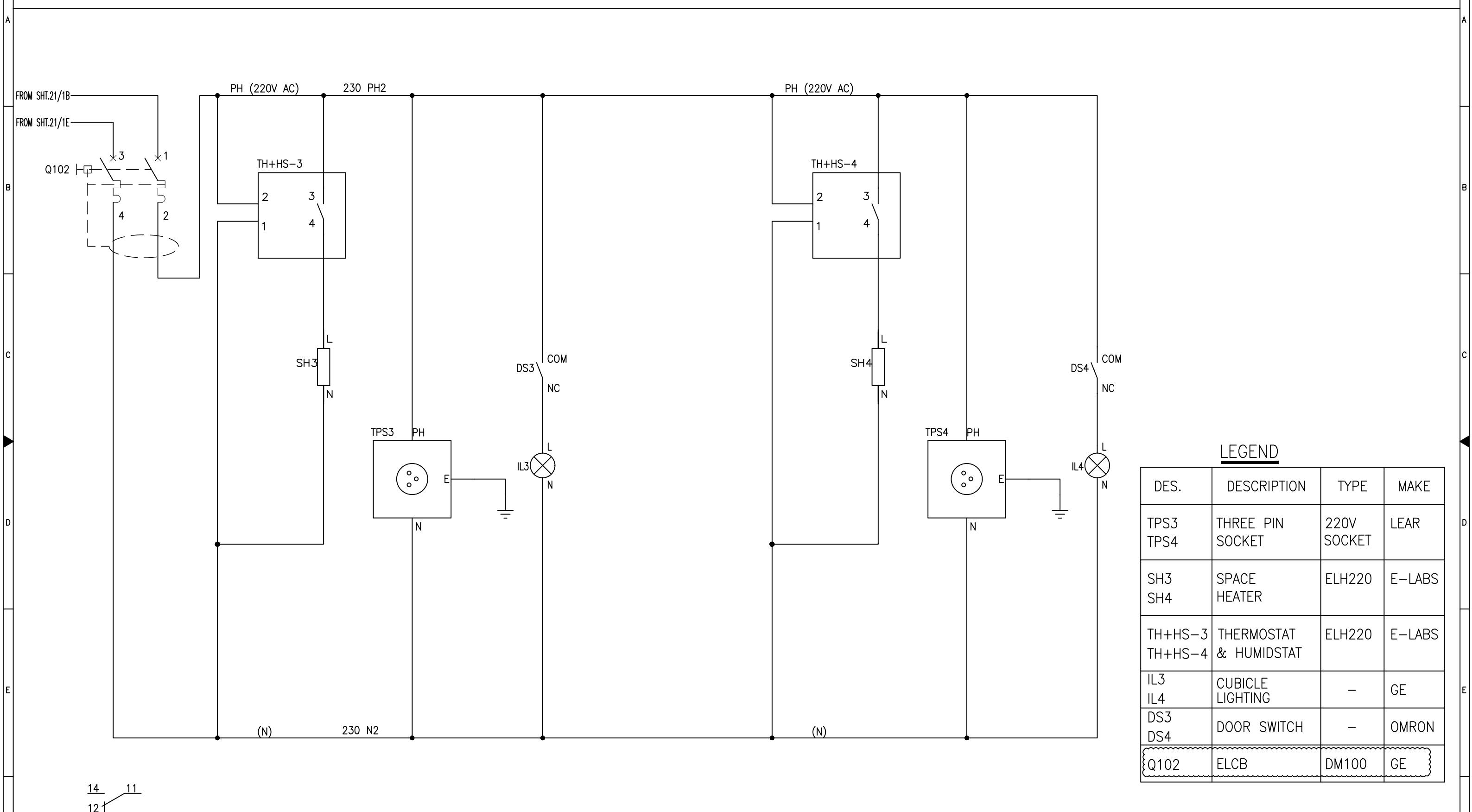
HEATING & LIGHTING SUPPLY  
PORTION-2

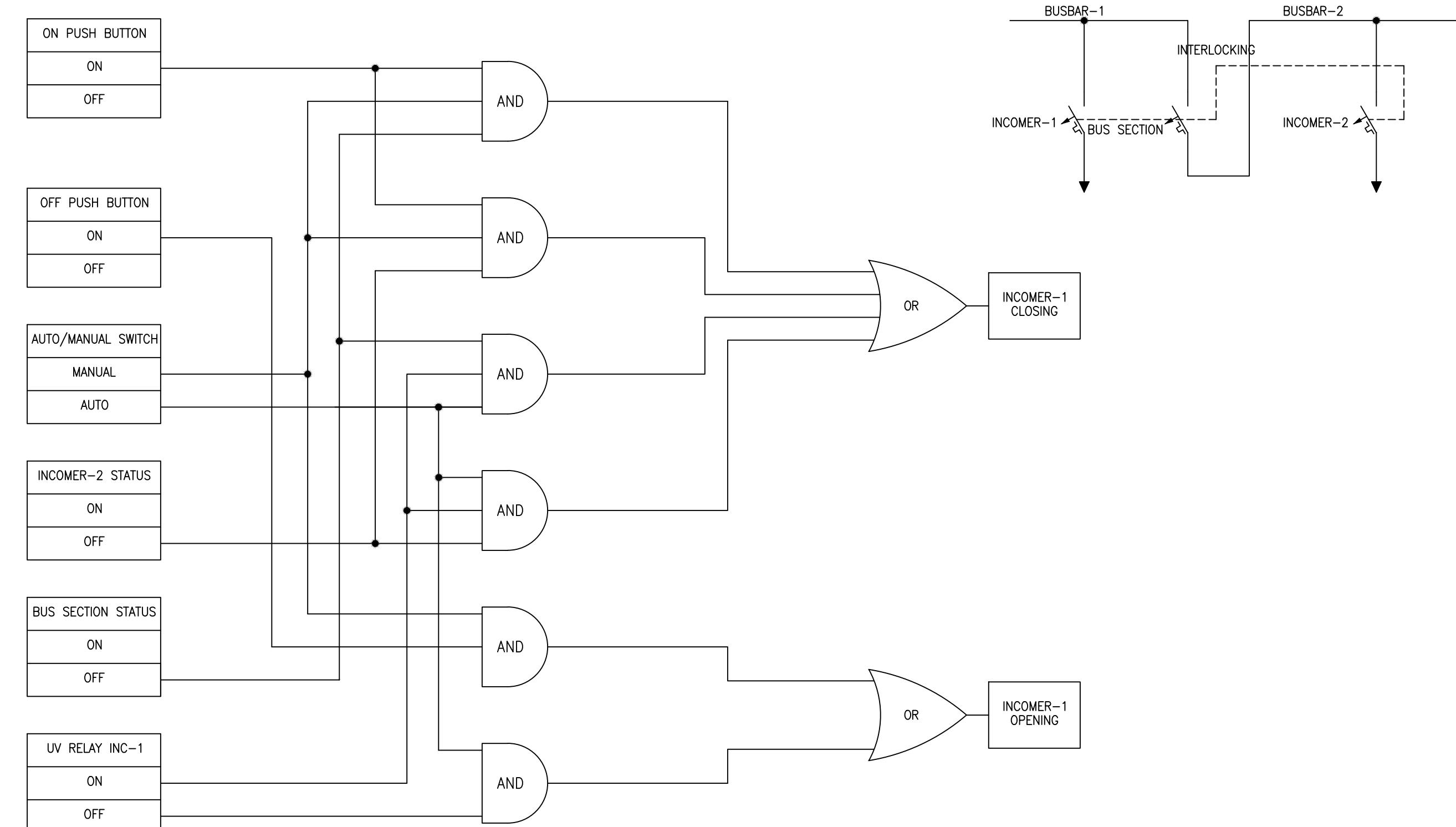


LEGEND

DES.	DESCRIPTION	TYPE	MAKE
Q101	ELCB	DM100	GE
TPS1 TPS2	THREE PIN SOCKET	220V SOCKET	LEAR
SH1 SH2	SPACE HEATER	ELH220	E-LABS
TH+HS-1 TH+HS-2	THERMOSTAT & HUMIDSTAT	ELH220	E-LABS
IL1 IL2	CUBICLE LIGHTING	-	GE
DS1 DS2	DOOR SWITCH	-	OMRON

14  
11  
12  
13

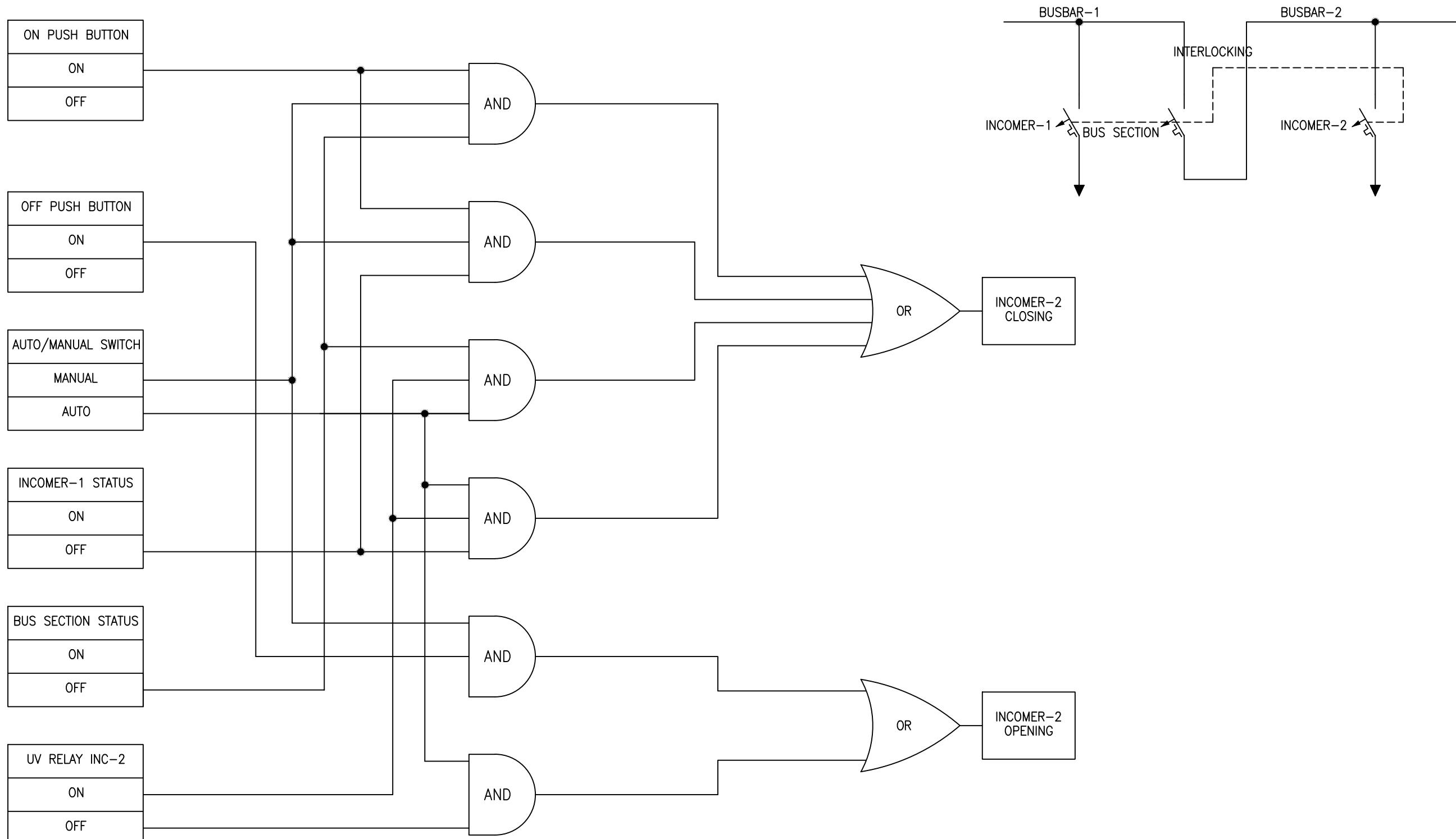
HEATING & LIGHTING SUPPLY  
PORTION-3HEATING & LIGHTING SUPPLY  
PORTION-414  
11  
12  
1



APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132kV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: INCOMER-1 CLOSING & OPENING LOGIC DIAGRAM 110VDC DISTRIBUTION BOARD FOR 132kV EQUIPMENT	DWG# EPE/ENU-18/P1465	SHT: 26 OF 28
NAH	ABA	MSC			DATE: 19.12.2018	AS BUILT



**E P E S O L** *Pvt. Ltd.*  
71-B Garden Block, New Garden Town, Lahore, Pakistan



APPROVED	CHECKED	DRAWN	PROJECT: PO. NO. 6019415518 DATED 16.04.2018 220/132KV CONTROL, PROTECTION & ACDC PANEL GHAZI ROAD PROJECT	TITLE: INCOMER-2 CLOSING & OPENING LOGIC DIAGRAM 110VDC DISTRIBUTION BOARD FOR 132KV EQUIPMENT	DWG# EPE/ENU-18/P1465	SHT: 27 OF 28
NAH	ABA	MSC			DATE: 19.12.2018	AS BUILT



**E P E S O L** *Pvt. Ltd.*  
71-B Garden Block, New Garden Town, Lahore, Pakistan

