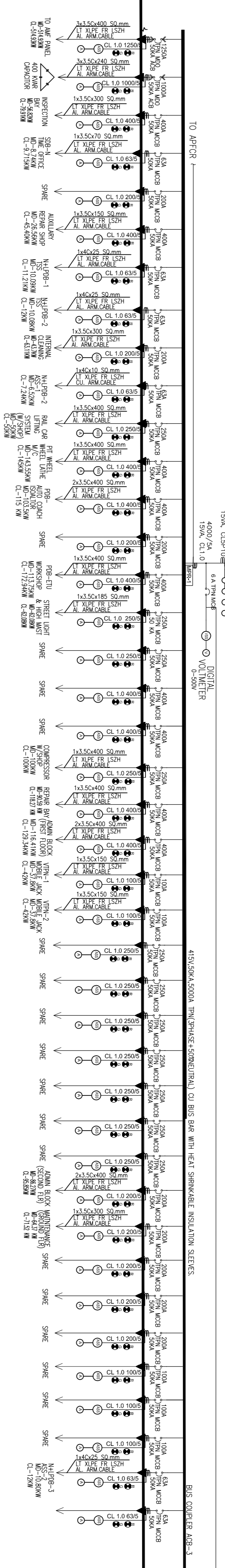


MAIN LT PANEL SECT.-B
LOCATION: SUBSTATION
BOO ITEM NO.-2.1.1
CL-1314.59KW
MD-1180.13KW

FROM RSS 33/0.415 KV, 2.5 MVA
TRANSFORMER INCOMER-II

5000A TPN. AI
BUS DUCT

2/3 INTERLOCKING (ELECTRICALLY & MECHANICALLY)

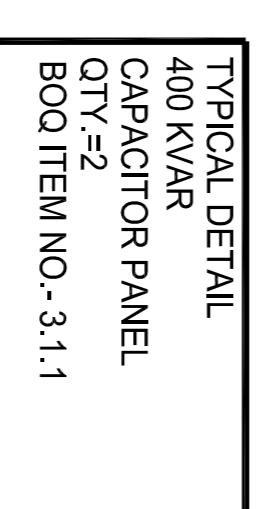
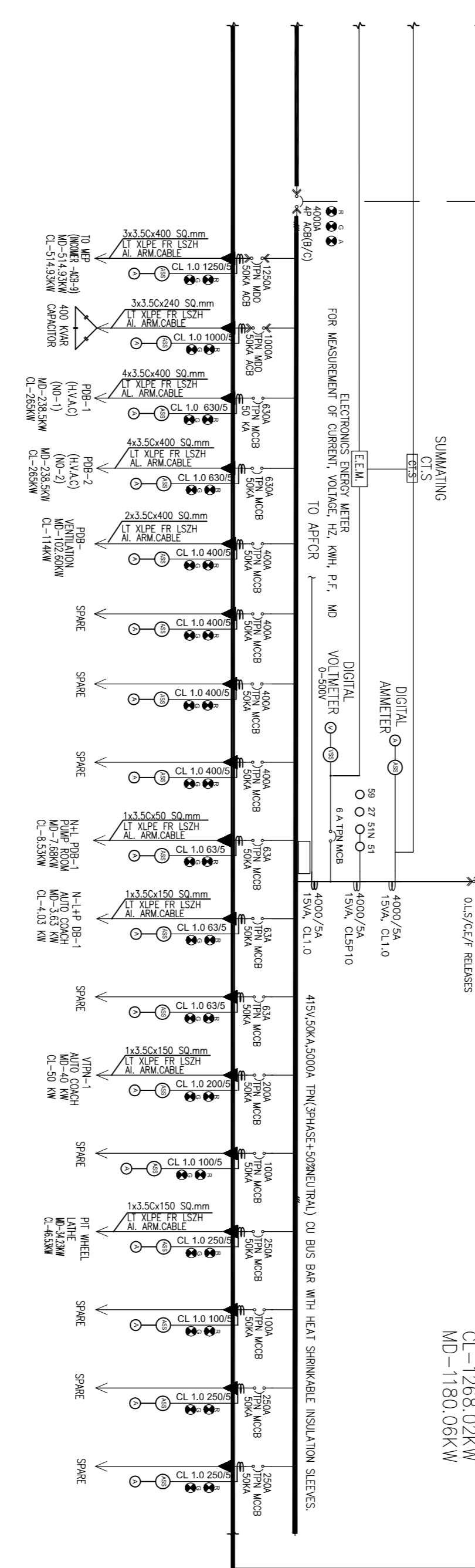


FROM RSS 33/0.415 KV, 2.5 MVA
(IMPEDENCE: 6.25%) TRANSFORMER INCOMER-I

5000A TPN. AI
BUS DUCT

MAIN LT PANEL SECT.-A
LOCATION: SUBSTATION
BOO ITEM NO.-2.1.1
CL-1288.02KW
MD-1180.06KW

2/3 INTERLOCKING (ELECTRICALLY & MECHANICALLY)



THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPETITIVENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS, IN RESPECT OF DESIGN ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS SCOPE FROM THE APPROVED OR DMG NO. _____ APPROVED ON DATE: _____.

THIS DRAWING, INCLUDING ITS DESIGN AND DETAILING, HAS BEEN PROOF CHECKED AND FOUND SUITABLE FOR EXECUTION INDEPENDENTLY AND FOUND SUITABLE FOR CONSTRUCTION. IT IS RECOMMENDED FOR GFC / NO OBJECTION.

THIS DRAWING, INCLUDING ITS DESIGN AND DETAILING, HAS BEEN PROOF CHECKED AND FOUND SUITABLE FOR EXECUTION INDEPENDENTLY AND FOUND SUITABLE FOR CONSTRUCTION. IT IS RECOMMENDED FOR GFC / NO OBJECTION.

REV. NO	DATE	DESCRIPTION	SIGN
B04	17/09/18	GOOD FOR CONSTRUCTION	
B03	06/02/2018	FOR APPROVAL	
B02	06/02/2018	FOR APPROVAL	
B01	06/02/2018	FOR APPROVAL	

INTERNAL REVISIONS	
B04	DATE: 13.09.2018 NAME: NEMA SIGN: NEMA DATE: 31-01-18 NAME: SURSH SIGN: SURSH
B03	DATE: 13.09.2018 NAME: ANCHAL SIGN: ANCHAL
B02	DATE: 13.09.2018 NAME: ANVAY SIGN: ANVAY
B01	DATE: 13.09.2018 NAME: ANVAY SIGN: ANVAY

DDC / CONTRACTOR	
SIGN: _____	SIGN: _____
DATE: 13.09.2018	DATE: 13.09.2018
NAME: NEMA	NAME: ANCHAL
DESIGNED BY: _____	CHECKED BY: _____
DESIGN BY: _____	APPROVED BY: _____

CONTRACTOR / DDC	
SIGN: _____	SIGN: _____
DATE: 13.09.2018	DATE: 13.09.2018
NAME: _____	NAME: _____
ACCEPTED BY: _____	APPROVED BY: _____

PROOF CONSULTANT	
SIGN: _____	SIGN: _____
DATE: _____	DATE: _____
NAME: _____	NAME: _____

GENERAL CONSULTANT TO NMPP	
SIGN: _____	SIGN: _____
DATE: _____	DATE: _____
NAME: _____	NAME: _____

MAHARASHTRA METRO RAIL CORPORATION LTD.	
SIGN: _____	SIGN: _____
DATE: _____	DATE: _____
NAME: _____	NAME: _____

CLIENT:	PROJECT:
MAHARASHTRA METRO RAIL CORPORATION LTD.	MAHARASHTRA METRO RAIL CORPORATION LTD.
LOCATION: Hingna Depot	NAGPUR METRO RAIL PROJECT
TITLE: ELECTRICAL SCHEMATIC (PART 1 OF 4)	Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur -440 001
SCALE: NTS	Phone No: 07122554217
DRG NO: DED01-FHD-EL-PRM-HIG_S1_G1-SLD-1031	

REVISION NO:	DATE:	DESCRIPTION:	SIGN:
B04	17/09/18	GOOD FOR CONSTRUCTION	

ELECTRICAL

SYMBOL	DESCRIPTION
[Symbol]	Draw Out Circuit Breaker
[Symbol]	Current Transformer
[Symbol]	Non-Draw Out Circuit Breaker
[Symbol]	Transformer
[Symbol]	Desal Generating Set
[Symbol]	Potential Circuit Meter
[Symbol]	Voltsmeter
[Symbol]	Three Way Off Voltmeter Selector Switch
[Symbol]	Armature
[Symbol]	Ass
[Symbol]	Directional Earth Fault Relay
[Symbol]	1.5N
[Symbol]	Directional Over Current Relay
[Symbol]	1.5I
[Symbol]	High Set Instantaneous Over Current Protective Device
[Symbol]	50
[Symbol]	Auxiliary Relay
[Symbol]	63x
[Symbol]	Master Trip Relay
[Symbol]	98
[Symbol]	Anti Pumping Relay
[Symbol]	94
[Symbol]	Earth Fault Protective Device
[Symbol]	50N
[Symbol]	Earth Fault Protective Device
[Symbol]	51N
[Symbol]	Under Voltage Relay
[Symbol]	27
[Symbol]	Over Voltage Relay
[Symbol]	27
[Symbol]	Reverse Power Relay
[Symbol]	32
[Symbol]	Reverse Power Relay
[Symbol]	51V
[Symbol]	Voltsup Restained High set Relay
[Symbol]	50V
[Symbol]	Current Balance Relay
[Symbol]	46
[Symbol]	Reverse Phase Voltage
[Symbol]	47
[Symbol]	Thermal Over Load Relay
[Symbol]	49
[Symbol]	Resisted earth fault relay
[Symbol]	87
[Symbol]	Under/Over Frequency
[Symbol]	81
[Symbol]	Frequency Meter
[Symbol]	81x
[Symbol]	Ratio Varies Meter
[Symbol]	KVM
[Symbol]	Power Factor Meter
[Symbol]	LFM
[Symbol]	Earth Fault Release
[Symbol]	Earth Fault Release
[Symbol]	Autobreaker Selector Switch
[Symbol]	Capacitor Bank
[Symbol]	Capacitor Bank
[Symbol]	Push Button
[Symbol]	Contactor
[Symbol]	A
[Symbol]	Tripp Circuit Healthy
[Symbol]	Breaker ON
[Symbol]	R
[Symbol]	Breaker OFF
[Symbol]	G
[Symbol]	Phase healthy indicating lamp
[Symbol]	W
[Symbol]	SPRING CHARGED
[Symbol]	B
[Symbol]	Distribution Board

NOTES:

- OVER CURRENT 40% - 100% - TIME SETTING
- SELECTIVE SHORT CIRCUIT 60% - 100% - TIME SETTING
- INSTANTANEOUS SHORT CIRCUIT 150% - 150% - TIME SETTING
- EARTH FAULT WITH ADJUSTABLE RELAY 20% - 100%
- UNDER VOLTAGE 60% - 95% TIME SETTING
- OVER VOLTAGE 105% - 120% TIME SETTING
- RESIDUAL VOLTAGE 10% - 40% TIME SETTING
- REVERSE POWER
- CHUBBENT - PHASES, NEUTRAL
- VOLTAGE - PHASES, NEUTRAL
- POWER - ACTIVE, REACTIVE
- ENERGY - ACTIVE, REACTIVE
- POWER FACTOR
- FREQUENCY
- PHASOR
- WOBUS CONNECTIVITY FOR AGP ON/OFF STATUS / PROTECTION PARAMETERS SET/FAULT TRIP SIGNALS
- OVER CURRENT 40% - 100% - TIME SETTING
- SELECTIVE SHORT CIRCUIT 60% - 100% - TIME SETTING
- INSTANTANEOUS SHORT CIRCUIT 150% - 150% - TIME SETTING
- EARTH FAULT WITH ADJUSTABLE RELAY 20% - 100%

NO	DESCRIPTION
1	ON ON OFF ON ON
2	OFF ON ON ON OFF
3	ON ON ON OFF

MECHANICAL INTERLOCKING SHALL BE PROVIDED WITH CASTELL KEYS BETWEEN H.V., L.V. AND TRANSFORMER DOOR TO PROVIDE SAFETY DURING MAINTENANCE.
ALL DISTRIBUTION PANELS SHALL BE EQUIPPED WITH CONDENSED AEROSOL FIRE SUPPRESSION SYSTEM, COMPLETELY COMPATIBLE WITH PROPOSED FIRE DETECTION SYSTEM.
ALL OTHER ACCESSORIES PROTECTION DEVICES, RELAYS, RELEASES ETC. SHALL BE AS MENTIONED IN BOO.
THIS DRAWING SHALL BE READ IN CONJUNCTION WITH BOO.

ELECTRICAL

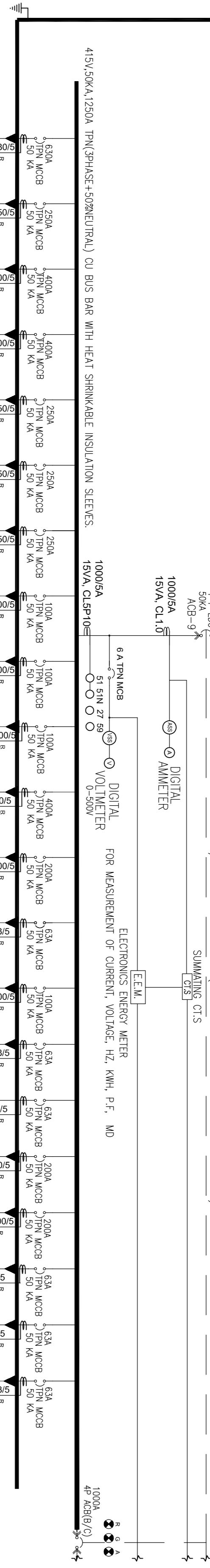
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

FROM MAIN
L.T. PANEL

3x3.50x400, 50mm
SEC-A

MAIN EMERGENCY PANEL SECT-A

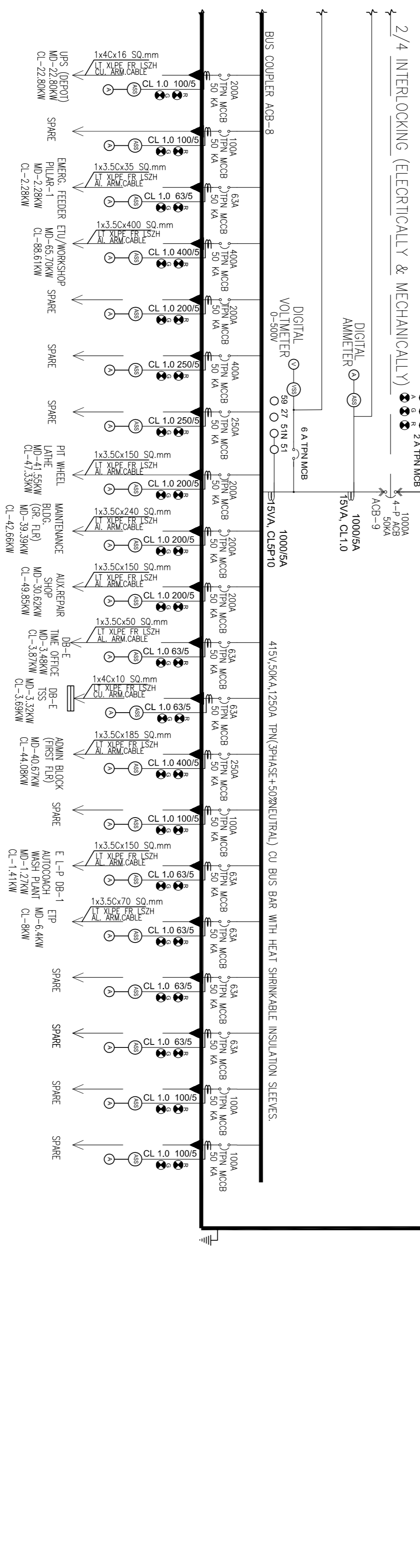
LOCATION: SUBSTATION
CL-535.81KW
MD-237.46KW



DG SET-1 (RADIATOR COOLED)
RATING: 640KVA
LOCATION: SUBSTATION

TO PRE. PANEL INCOMER-1

MAIN EMERGENCY PANEL SECT.-B
CL-314.58KW
MD-237.49KW



LEGEND

SYMBOL	DESCRIPTION
[Symbol]	Draw Out Circuit Breaker
[Symbol]	Current Transformer
[Symbol]	No-Draw Out Circuit Breaker
[Symbol]	Transformer
[Symbol]	Diesel Generating Set
[Symbol]	Potential Control Unit
[Symbol]	Voltage
[Symbol]	Three Way & Off Voltage Selector Switch
[Symbol]	Ammeter
[Symbol]	Three Way And Off Remote Selector Switch
[Symbol]	ASB
[Symbol]	Directional Earth Fault Relay
[Symbol]	Directional Over Current Relay
[Symbol]	Over Current Protective Device
[Symbol]	Over Current Protective Device
[Symbol]	Autobreak Relay
[Symbol]	Master Trip Relay
[Symbol]	Anti Pumping Relay
[Symbol]	Earth Fault Protective Device
[Symbol]	Earth Fault Protective Device
[Symbol]	Under Voltage Relay
[Symbol]	Reverse Power Relay
[Symbol]	50V
[Symbol]	Voltage Resistor Light set Relay
[Symbol]	46
[Symbol]	Current Transformer
[Symbol]	47
[Symbol]	Thermal Over Load Relay
[Symbol]	67
[Symbol]	Resistor earth fault relay
[Symbol]	81
[Symbol]	Under/Over Frequency
[Symbol]	HZ
[Symbol]	KLW
[Symbol]	Kilo Volt Hour Meter
[Symbol]	[Symbol]
[Symbol]	EXACTY FAULT FEEDBACK
[Symbol]	[Symbol]
[Symbol]	Autotransformer Selector Switch
[Symbol]	Capacitor Bank
[Symbol]	Push Button
[Symbol]	Connector
[Symbol]	A Tip-Circuit Healthy
[Symbol]	R Breaker ON
[Symbol]	G Breaker OFF
[Symbol]	W Phase healthy indicating lamp
[Symbol]	B SPRING CHANGED
[Symbol]	Distribution board

NOTES

- OVER CURRENT 40%-100% - TIME SETTING
- SELECTIVE SHORT CIRCUIT 60%-100% - TIME SETTING
- SELECTIVE SHORT CIRCUIT 60%-100% - TIME SETTING
- Earth Fault With Adjustable Relay 20%-10%
- Earth Fault With Adjustable Relay 20%-10%
- OVER VOLTAGE 105%-120% - TIME SETTING
- OVER VOLTAGE 105%-120% - TIME SETTING
- RESIDUAL VOLTAGE 10%-40% - TIME SETTING
- REVERSE POWER
- UNDER/OVER FREQUENCY
- VOLTAJE - PHASES, NEUTRAL
- VOLTAJE - PHASES, NEUTRAL
- POWER - ACTIVE/REACTIVE
- ENERGY - ACTIVE/REACTIVE
- POWER FACTOR
- POWER FACTOR
- HARBONIC
- CONNECTOR
- PHASES CONNECTOR FOR ACS ON/OFF STATUS PROTECTION
- POTENTIALS SET/FAULT TRIP SIGNALS
- OVER CURRENT 40%-100% - TIME SETTING
- SELECTIVE SHORT CIRCUIT 60%-100% - TIME SETTING
- INSTANTANEOUS SHORT CIRCUIT 150%-1500%
- Earth Fault With Adjustable Relay 20%-10%
- Earth Fault With Adjustable Relay 20%-10%
- OVER CURRENT 105%-120% - TIME SETTING
- SMART CIRCUIT WITH INSTANTANEOUS TRIP 150%-1200%
- ELECTRICAL & MECHANICAL INTERLOCK AT MAIN EMERGENCY PANEL (E2 INTERLOCK)
- S/N FROM IEP FROM IEP BUS-COILS 428
- 3 ON ON ON ON
- 2 OFF ON ON ON
- 3 ON ON ON OFF

ALL DISTRIBUTION PANELS SHALL BE EQUIPPED WITH CONDENSED AIR/DRY AIR FILTERS TO PROTECT FROM DUSTY AIR. THE PANELS SHOULD BE PROTECTED FROM MOISTURE AND VIBRATION BY PROPERLY FITTED COMPARTMENTS WITH ALL OTHER PROTECTIVE PROVISIONS. RELAYS RELEASES ETC. SHALL BE AS MENTIONED IN SW. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH B00.

REV NO	DATE	DESCRIPTION	SIGN
B04	17/09/18	GOOD FOR CONSTRUCTION	
B03	06/02/2018	FOR APPROVAL	
B02	06/02/2018	FOR APPROVAL	
B01	06/02/2018	FOR APPROVAL	

NOTES:

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS, IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS DESIGN FROM THE APPROVED APPROVED DWG NO. ... APPROVED ON DATE: ...

DDC / CONTRACTOR

CONTRACTOR / DDC

PROOF CONSULTANT

GENERAL CONSULTANT TO NMMP

PROJECT: MAHARASHTRA METRO RAIL CORPORATION LTD.

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Hingna Depot

TITLE: ELECTRICAL SCHEMATIC (PART 2 OF 4)

SCALE: NTS

DATE: 17/09/18

STATUS: Good for Construction

REVISION NO: B04

MAHARASHTRA METRO RAIL CORPORATION LTD.
NAGPUR METRO RAIL PROJECT
Metro House, 28/2, Ok Naidu Marg, Anand Nagar, Nagpur - 440 001
Phone No: 07122954217

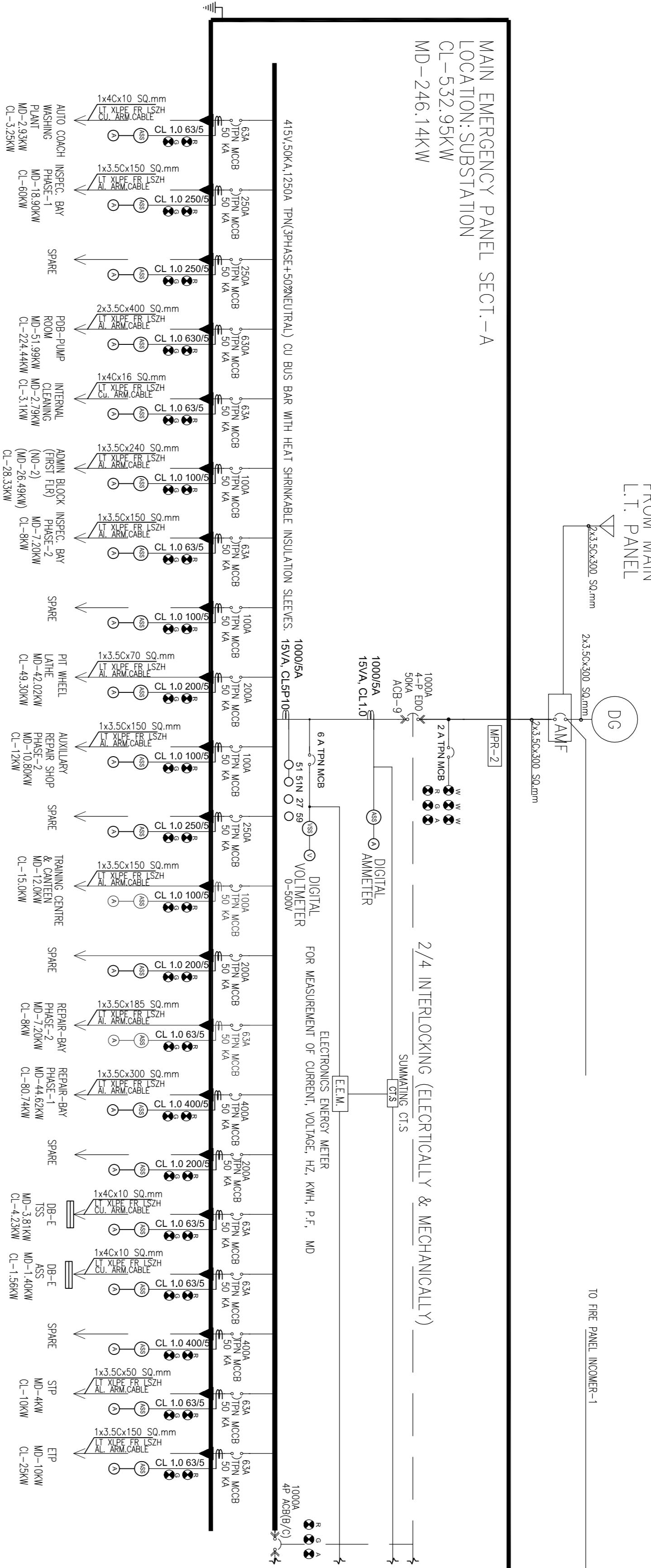
SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank,
Civil Lines, Nagpur - 440001

MAHARASHTRA METRO RAIL CORPORATION LTD.
NAGPUR METRO

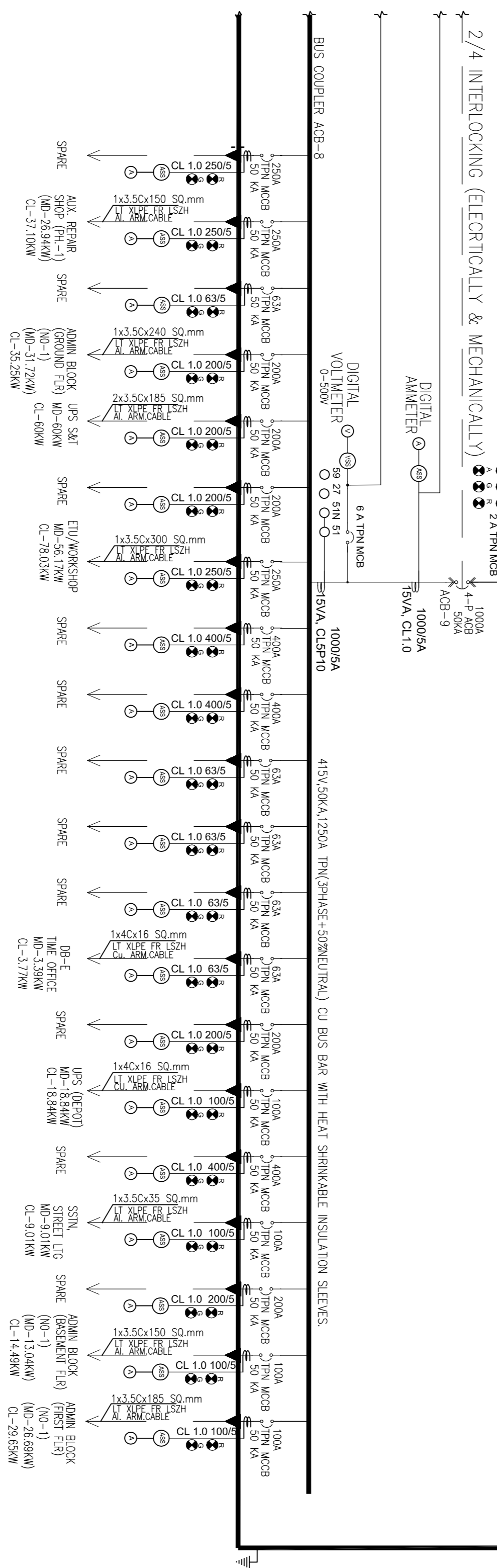
50mm

DG SET-1 (RADIATOR COOLED)
RATING: 640KVA
LOCATION: SUBSTATION

MAIN EMERGENCY PANEL SECT.-A
LOCATION: SUBSTATION
CL-532.95KW
MD-246.14KW



MAIN EMERGENCY PANEL SECT.-B
CL-286.14KW
MD-243.80KW



SYMBOL	DESCRIPTION
☐	Draw Out Circuit Breaker
☐	Current Transformer
☐	Non-Draw Out Circuit Breaker
☐	Transformer
☐	Diode Generating Set
☐	Potential Circuit MAs
☐	Voltage Meter
☐	Three Way & Off Voltage Meter Switch
☐	Ammeter
☐	Three Way And Off Remote Selector Switch
☐	Directional Earth Fault Relay
☐	Directional Over Current Relay
☐	Over Current Protective Device
☐	Over Current Protective Device
☐	Auxiliary Relay
☐	Master Trip Relay
☐	Anti Pumping Relay
☐	Earth Fault Protective Device
☐	Earth Fault Protective Device
☐	Over Voltage Relay
☐	Reverse Power Relay
☐	Voltage Sensitive O.C. Relay
☐	Voltage Resistorless Light Relay
☐	Current Transformer
☐	Reverse Phase Voltage
☐	Thermal Over Load Relay
☐	Restricted earth fault relay
☐	Under/Over Frequency
☐	Frequency Meter
☐	KVA Meter
☐	KVA Meter
☐	Power Factor Meter
☐	Earth Fault Protective Device
☐	Automatic Selector Switch
☐	Capacitor Bank
☐	Push Button
☐	Contactor
☐	Tip Circuit Healthy
☐	Breaker ON
☐	Breaker OFF
☐	Spring healthy indicating lamp
☐	SPRING CHARGED
☐	Distribution board

NOTES:
1. OVER CURRENT 40% - 100% - TIME SETTING
2. SELECTIVE SHORT CIRCUIT 60% - 100% - TIME SETTING
3. EARTH FAULT WITH ADJUSTABLE RELAY 20% - 100%
4. UNDER VOLTAGE 40% - 90% - TIME SETTING
5. OVER VOLTAGE 105% - 120% - TIME SETTING
6. RESidual VOLTAGE 10% - 40% - TIME SETTING
7. REVERSE POWER

NO.	DESCRIPTION	STATUS
1	ON	ON
2	OFF	ON
3	ON	ON

ALL DISTRIBUTION PANELS SHALL BE EQUIPPED WITH CONDENSED AIR/DRY AIR FILTERS TO PREVENT DUST FROM ENTERING THE PANELS.
PROPOSED FIRE DETECTION SYSTEM.
ALL OPERATING PROTECTION DEVICES, RELAYS, RELEASES ETC. SHALL BE AS MENTIONED IN S.O.
THIS DRAWING SHALL BE READ IN CONJUNCTION WITH B.O.

REV NO	DATE	DESCRIPTION	SIGN
B05	24/10/17	FOR APPROVAL	
B04	18.10.17	COMMENTS INCORPORATED AS PER CABLE SIZES REVISION ACCORDING TO DISTANCE & EQUIPMENT LOAD INCORPORATED	
B03	29.09.17	INCORPORATION OF INTERLOCKING SCHEME	
B02	09.08.17	INCORPORATION OF LOAD RECEIVED ADDITIONAL SUPPLY TO MAIN EMERGENCY PNL FROM ALTP	
B01	23.08.17	ADD ADDITIONAL SUPPLY TO MAIN EMERGENCY PNL FROM ALTP	
B05	24/10/17	FOR APPROVAL	

SIGN	DATE	NAME	DESIGN BY
	24/10/17		
	18.10.17		
	29.09.17		
	09.08.17		
	23.08.17		

SIGN	DATE	NAME	CHECKED BY
	24/10/17		
	18.10.17		
	29.09.17		
	09.08.17		
	23.08.17		

SIGN	DATE	NAME	APPROVED BY
	24/10/17		
	18.10.17		
	29.09.17		
	09.08.17		
	23.08.17		

SIGN	DATE	NAME	APPROVED BY
	24/10/17		
	18.10.17		
	29.09.17		
	09.08.17		
	23.08.17		

DDC / CONTRACTOR

CONTRACTOR / DDC

PROOF CONSULTANT

GENERAL CONSULTANT TO NMMP

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPETITIVENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS, IN RESPECT OF DESIGN ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS SCOPE FROM THE AGENCY APPROVED OF DWG NO. APPROVED ON DATE:

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Mihan Depot

TITLE: ELECTRICAL SCHEMATIC (PART-2 OF 4)

SCALE: NTS

DATE: 24/10/17

STATUS: Issued for Review and Approval

REVISION NO: B05

NOTES:

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPETITIVENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS, IN RESPECT OF DESIGN ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS SCOPE FROM THE AGENCY APPROVED OF DWG NO. APPROVED ON DATE:

DDC / CONTRACTOR

CONTRACTOR / DDC

PROOF CONSULTANT

GENERAL CONSULTANT TO NMMP

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Mihan Depot

TITLE: ELECTRICAL SCHEMATIC (PART-2 OF 4)

SCALE: NTS

DATE: 24/10/17

STATUS: Issued for Review and Approval

REVISION NO: B05

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Mihan Depot

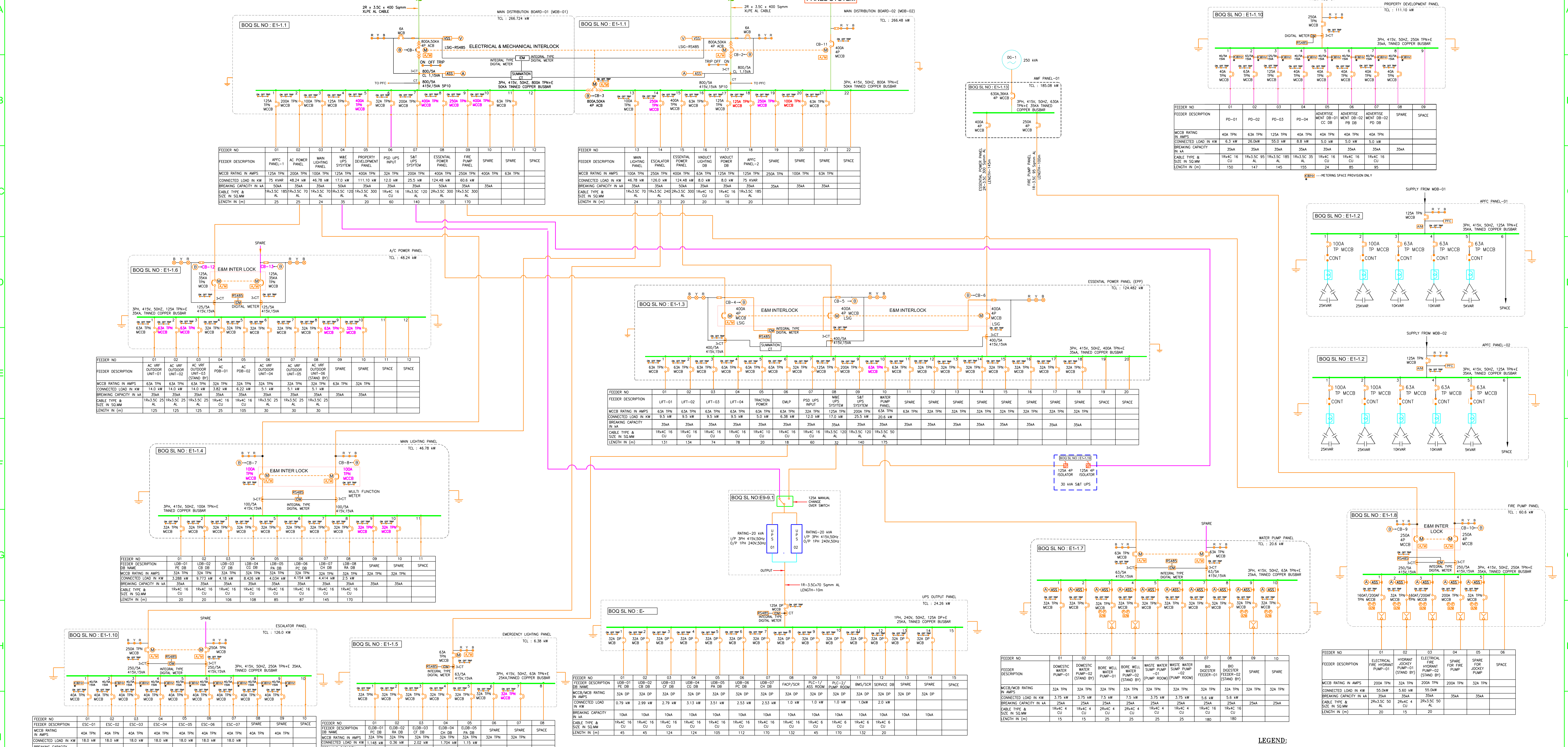
TITLE: ELECTRICAL SCHEMATIC (PART-2 OF 4)

SCALE: NTS

DATE: 24/10/17

STATUS: Issued for Review and Approval

REVISION NO: B05



REVISION NOTES-(REV-B01)

- FIRE PUMP PANEL INCOMER CHANGED FROM EPP TO MDB-01
- SOLAR PANEL SYSTEM INCOMER BREAKER RATING CHANGED 800A TO 400A
- AC POWER PANEL EMERGENCY BACK UP FEEDER REMOVED AND PROVIDED AS A SPARE FEEDER.
- EPP PANEL ADDITIONAL INCOMING FEEDER PROVIDED FROM MDB-01

REVISION NOTES-(REV-B02)

- ADDITIONAL INCOMING FEEDER PROVIDED FOR ESCALATOR PANEL AND WATER PUMP PANEL.

REVISION NOTES-(REV-B03 & B04)

- REVISED AS PER GC COMMENTS
- UPDATED AS PER MOM DATED ON 27.08.2018

INTERLOCKING SCHEME/CIRCUIT BREAKER STATUS ON DIFFERENT CONDITION :

OPERATING CONDITIONS	CB-1	CB-2	CB-3	CB-4	CB-5	CB-6
NORMAL OPERATION	CLOSE	OPEN	CLOSE	CLOSE	OPEN	OPEN
TR1 & TR2 AVAILABLE	OPEN	CLOSE	CLOSE	CLOSE	OPEN	OPEN
TR1 SUPPLY NOT AVAILABLE	OPEN	CLOSE	CLOSE	OPEN	CLOSE	OPEN
TR2 SUPPLY NOT AVAILABLE	CLOSE	OPEN	CLOSE	CLOSE	OPEN	OPEN
PONDER FAILURE	CLOSE	OPEN	OPEN	OPEN	OPEN	CLOSE
TR1 & TR2 NOT AVAILABLE	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSE

NOTES

- ALL DIMENSIONS ARE IN MM ALL LEVELS IN METERS UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED

REV NO	DATE	DESCRIPTION	SIGN
B04	24/09/18	REVISED AS PER MOM DATED ON 27/08/2018	
B03	31/08/18	REVISED AS PER GC COMMENTS & LAYOUTS	
B02	20/08/18	REVISED AS PER GC COMMENTS	
B01	28/07/18	GOOD FOR CONSTRUCTION	
A	27/04/17	CONSTRUCTION REFERENCE DRAWING	
0	16/11/16	ISSUE FOR APPROVAL PURPOSE	

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GFC FROM THE ALREADY APPROVED CR DWG NO.REV..... APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 24/09/18	DATE: 24/09/18	DATE: 24/09/18	DATE: 24/09/18
NAME: NRAM	NAME: K DHANUSH	NAME: B RAJENDRAN	NAME: P N S SASTRY
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY

L&T Infra Engineering
RAJENDRAN ASSOCIATES

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

SIGN: _____ DATE: _____ NAME: _____

GENERAL CONSULTANT TO NMRP

SIGN: _____ DATE: _____ NAME: _____

NOT APPLICABLE

SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank, First floor, Civil Lines Nagpur - 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: NAGPUR METRO RAIL PROJECT
Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: CONGRESS NAGAR METRO STATION

TITLE: ELECTRICAL SINGLE LINE DIAGRAM

SCALE: AS SHOWN **DATE:** 24 SEP 18 **STATUS:** Good for construction

DRG NO: R1D01-LNT-EL-PES-CON-SLD-0001

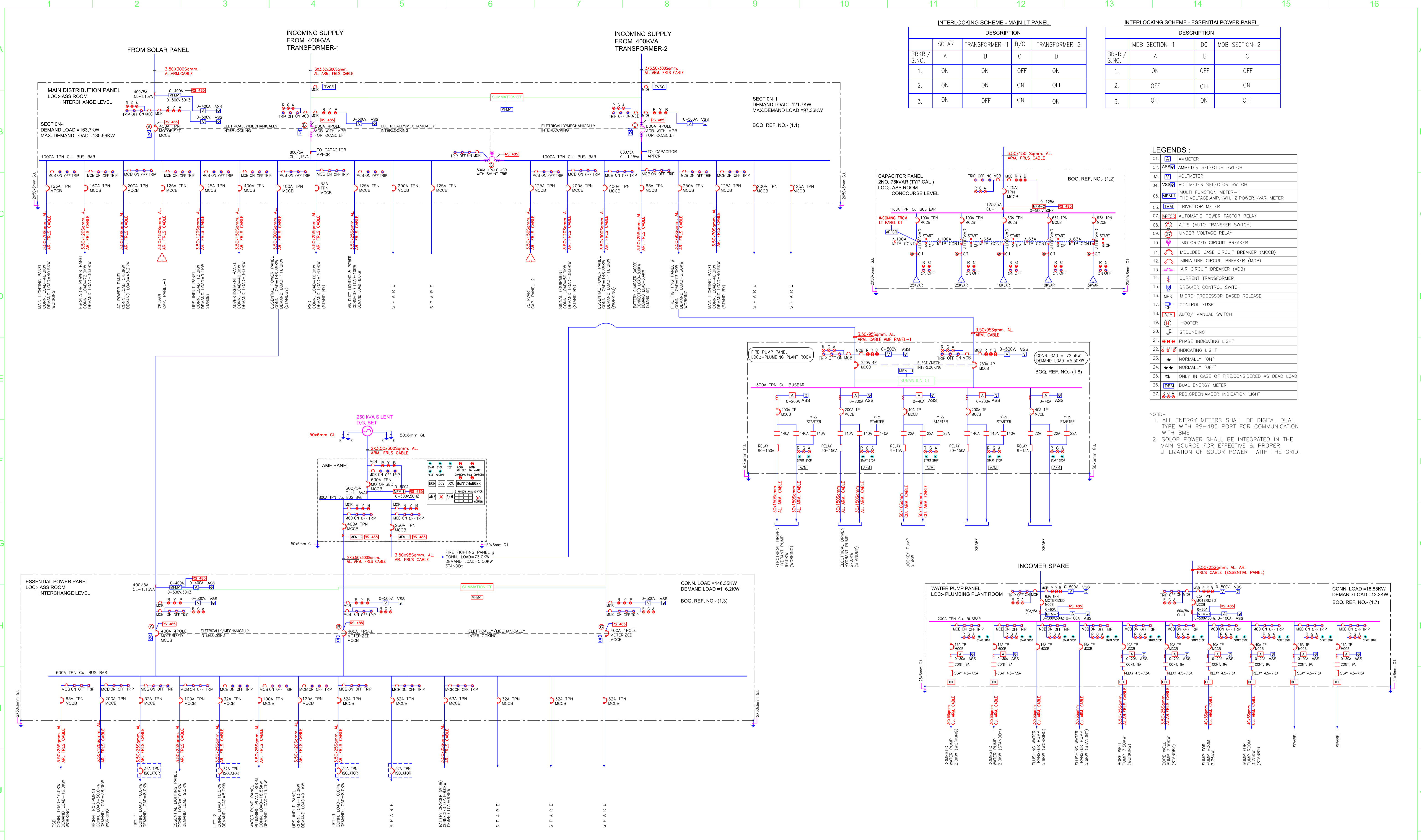
REVISION NO: B04

LEGEND:

	Miniature circuit Breaker (MCB)		Digital Voltmeter
	Moulded case circuit breaker (MCCB)		Digital Ammeter
	Motorised Moulded case circuit breaker (MCCB)		Current Transformer
	Air circuit breaker (Withdrawable type) ACB		Integral Type Digital Meter
	TP Contactor		Phase Indication Lamp
	Direct On Line Starter(DOL)		ON/OFF/TRIP
	Star Delta Starter		Start/stop Push Button
	Voltmeter Selector Switch		Auto/Manual Selector switch
	Ammeter Selector Switch		Kilowatt Hour Meter

SCALE:NTS

plot scale 50mm



INTERLOCKING SCHEME - MAIN LT PANEL

DESCRIPTION	SOLAR				TRANSFORMER-1				TRANSFORMER-2				
	A	B	C	D	B/C	C	D	B/C	C	D	B/C	C	D
1.	ON	ON	OFF	ON									
2.	ON	ON	ON	OFF									
3.	ON	OFF	ON	ON									

INTERLOCKING SCHEME - ESSENTIAL POWER PANEL

DESCRIPTION	MDB SECTION-1			MDB SECTION-2		
	A	B	C	A	B	C
1.	ON	OFF	OFF			
2.	OFF	OFF	ON			
3.	OFF	ON	OFF			

- LEGENDS :**
- 01. [Symbol] AMMETER
 - 02. [Symbol] AMMETER SELECTOR SWITCH
 - 03. [Symbol] VOLTMETER
 - 04. [Symbol] VOLTMETER SELECTOR SWITCH
 - 05. [Symbol] MULTI FUNCTION METER-1
 - 06. [Symbol] THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
 - 07. [Symbol] TRIVECTOR METER
 - 08. [Symbol] AUTOMATIC POWER FACTOR RELAY
 - 09. [Symbol] A.T.S (AUTO TRANSFER SWITCH)
 - 10. [Symbol] UNDER VOLTAGE RELAY
 - 11. [Symbol] MOTORIZED CIRCUIT BREAKER
 - 12. [Symbol] MOULDED CASE CIRCUIT BREAKER (MCCB)
 - 13. [Symbol] MINATURE CIRCUIT BREAKER (MCB)
 - 14. [Symbol] AIR CIRCUIT BREAKER (ACB)
 - 15. [Symbol] CURRENT TRANSFORMER
 - 16. [Symbol] BREAKER CONTROL SWITCH
 - 17. [Symbol] MICRO PROCESSOR BASED RELEASE
 - 18. [Symbol] CONTROL FUSE
 - 19. [Symbol] AUTO/ MANUAL SWITCH
 - 20. [Symbol] HOOTER
 - 21. [Symbol] GROUNDING
 - 22. [Symbol] PHASE INDICATING LIGHT
 - 23. [Symbol] INDICATING LIGHT
 - 24. [Symbol] NORMALLY "ON"
 - 25. [Symbol] NORMALLY "OFF"
 - 26. [Symbol] ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
 - 27. [Symbol] DUAL ENERGY METER
 - 28. [Symbol] RED, GREEN, AMBER INDICATION LIGHT

NOTE:-
 1. ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION WITH DMS.
 2. SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

- NOTES:**
- ALL DIMENSIONS ARE IN MM
 - ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
 - DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
 - ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
 - GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE

DDC / CONTRACTOR				CONTRACTOR / DDC			
SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:
DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20
NAME: SK	NAME: OP	NAME: RK	NAME: PG	NAME:	NAME:	NAME:	NAME:
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY	ACCEPTED BY			

consortium of enia, mahendra raj & worxpace

Sub-consultants:
 AECOM
 ADS
 Mansync
 Integral Design

KG-1/265, Vikaspur,
 New Delhi, India
 Tel.: +91 9971 691803 / +91 9818 629588
 s.manchanda@enia.in / a.joshi@enia.in
 www.enia.in

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT
 NAME: NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS "GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION"

GENERAL CONSULTANT TO NMRP
 SIGN: SYSTRA-AECOM-EGIS-RITES
 DATE: Church House, Above SBI Bank, First floor, Civil Lines Nagpur- 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: NAGPUR METRO RAIL PROJECT
 Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
 Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Automotive Square

TITLE: MAIN ELECTRICAL SINGLE LINE DIAGRAM PART 1 OF 2

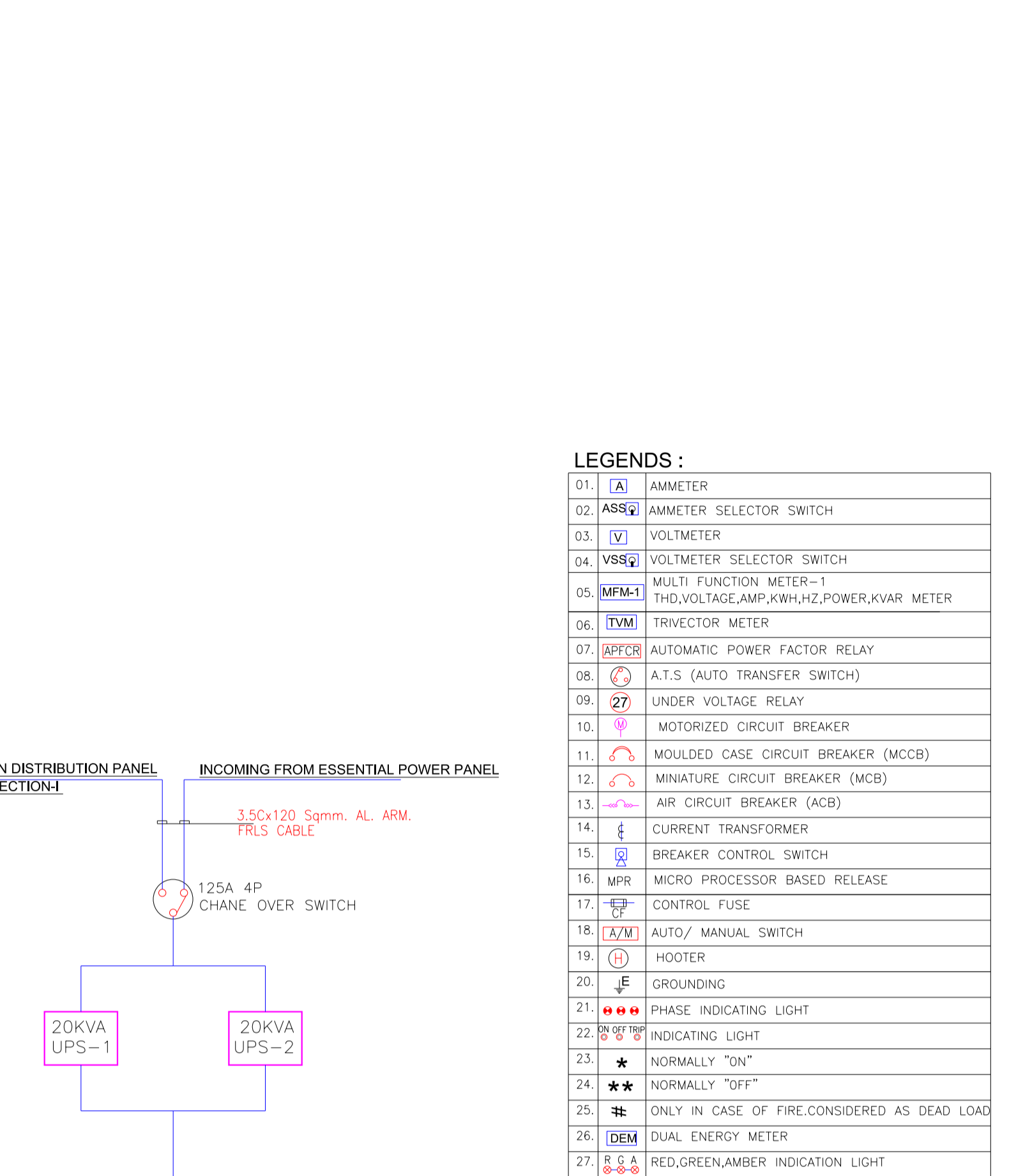
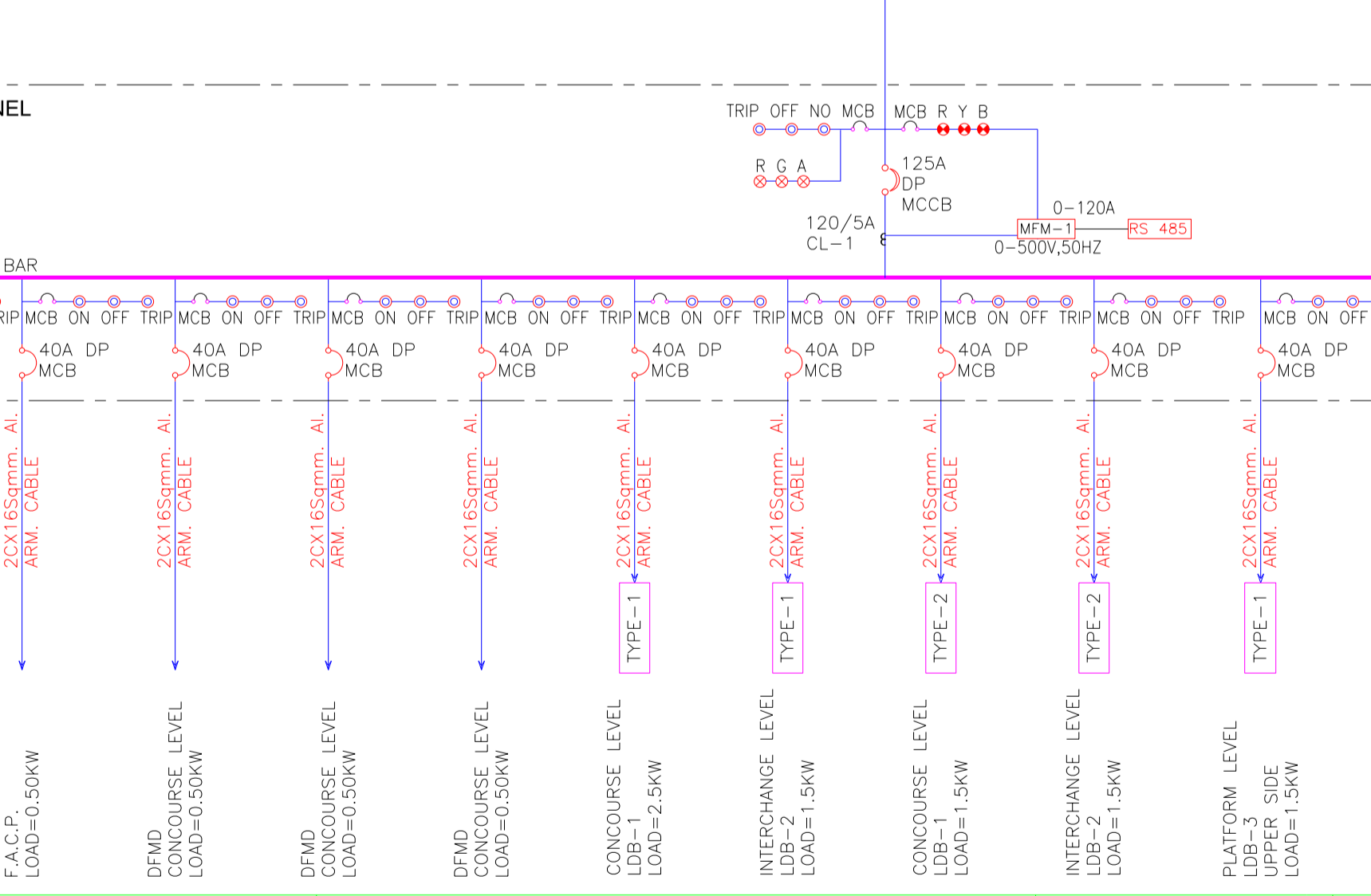
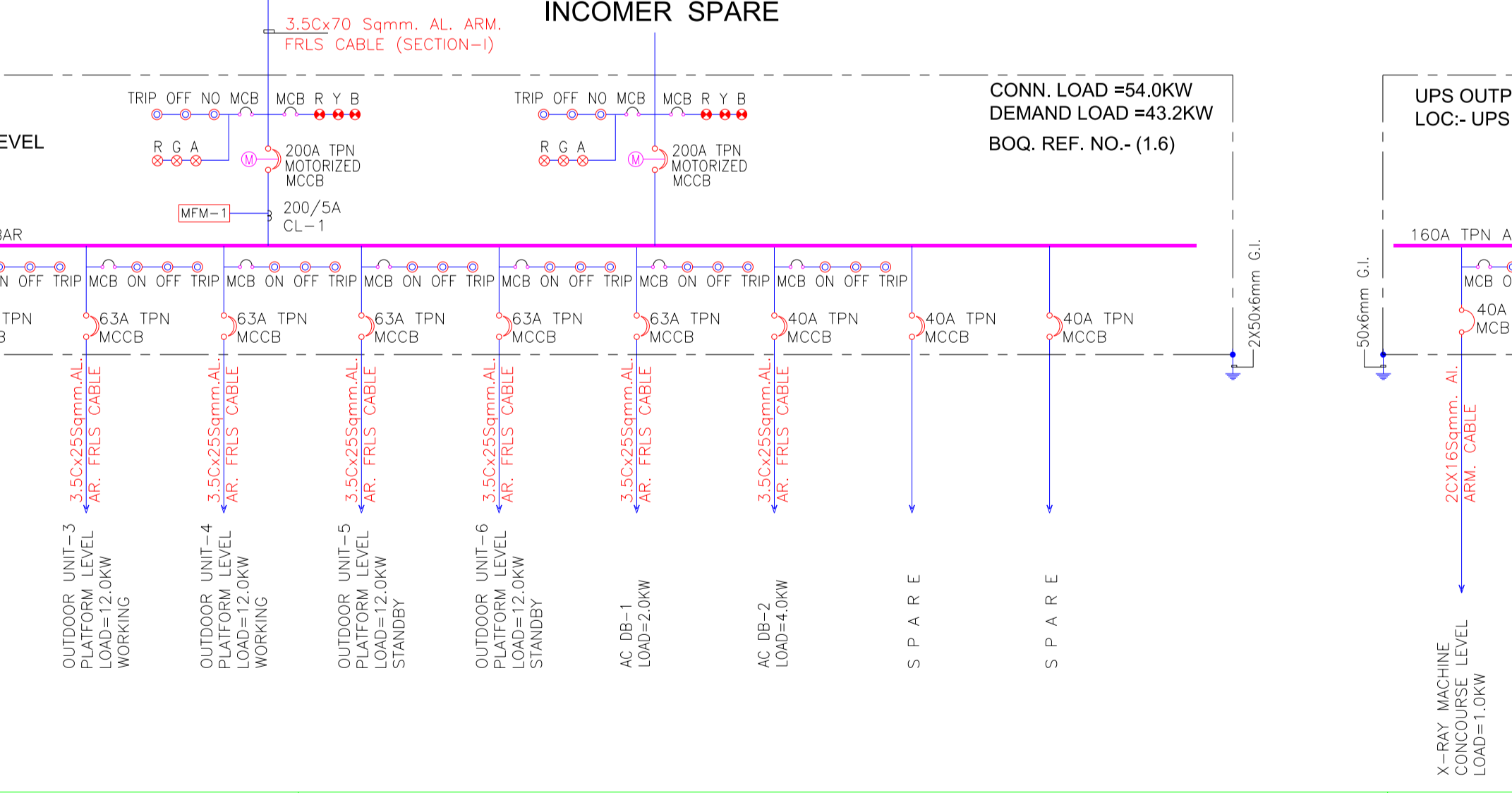
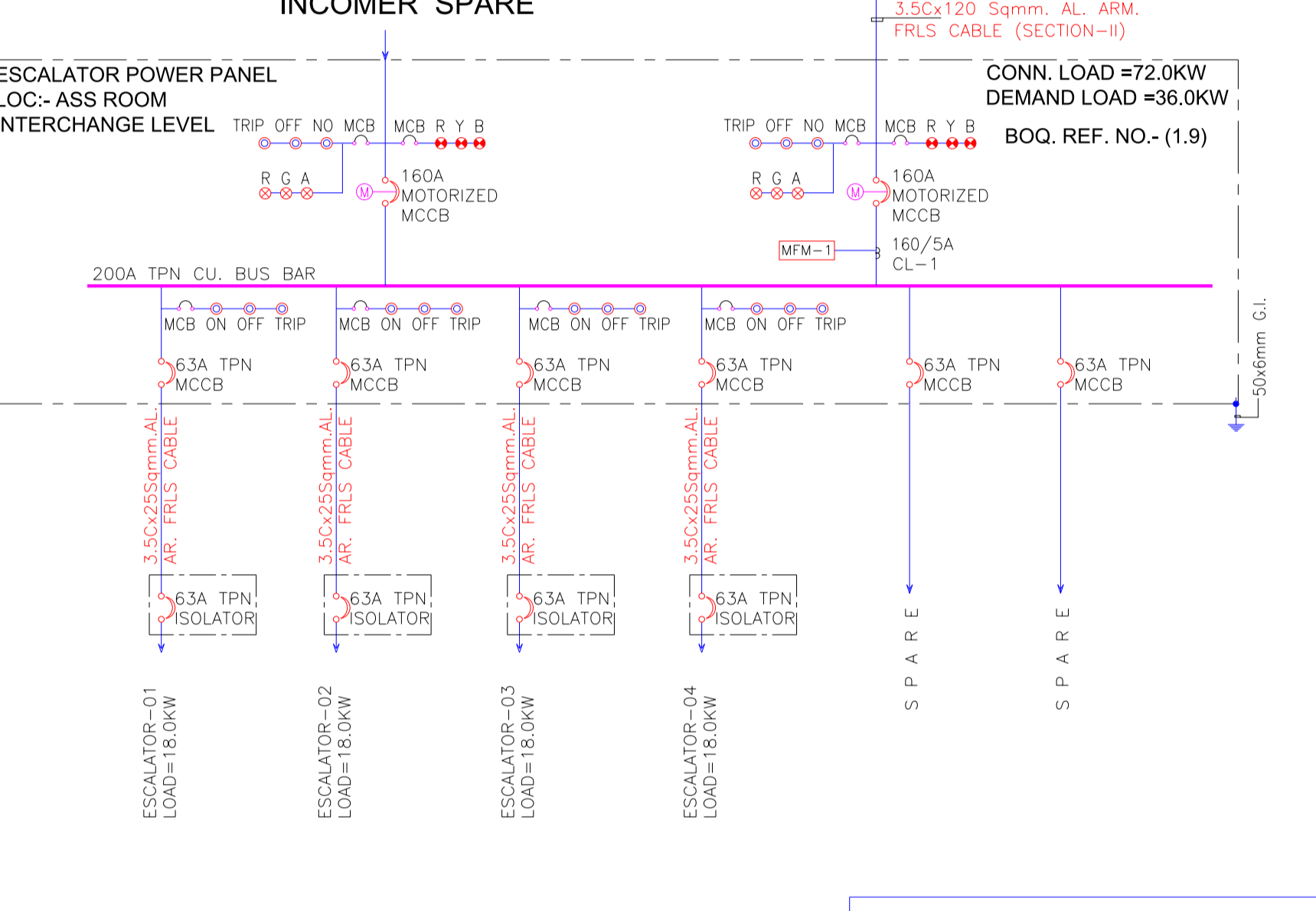
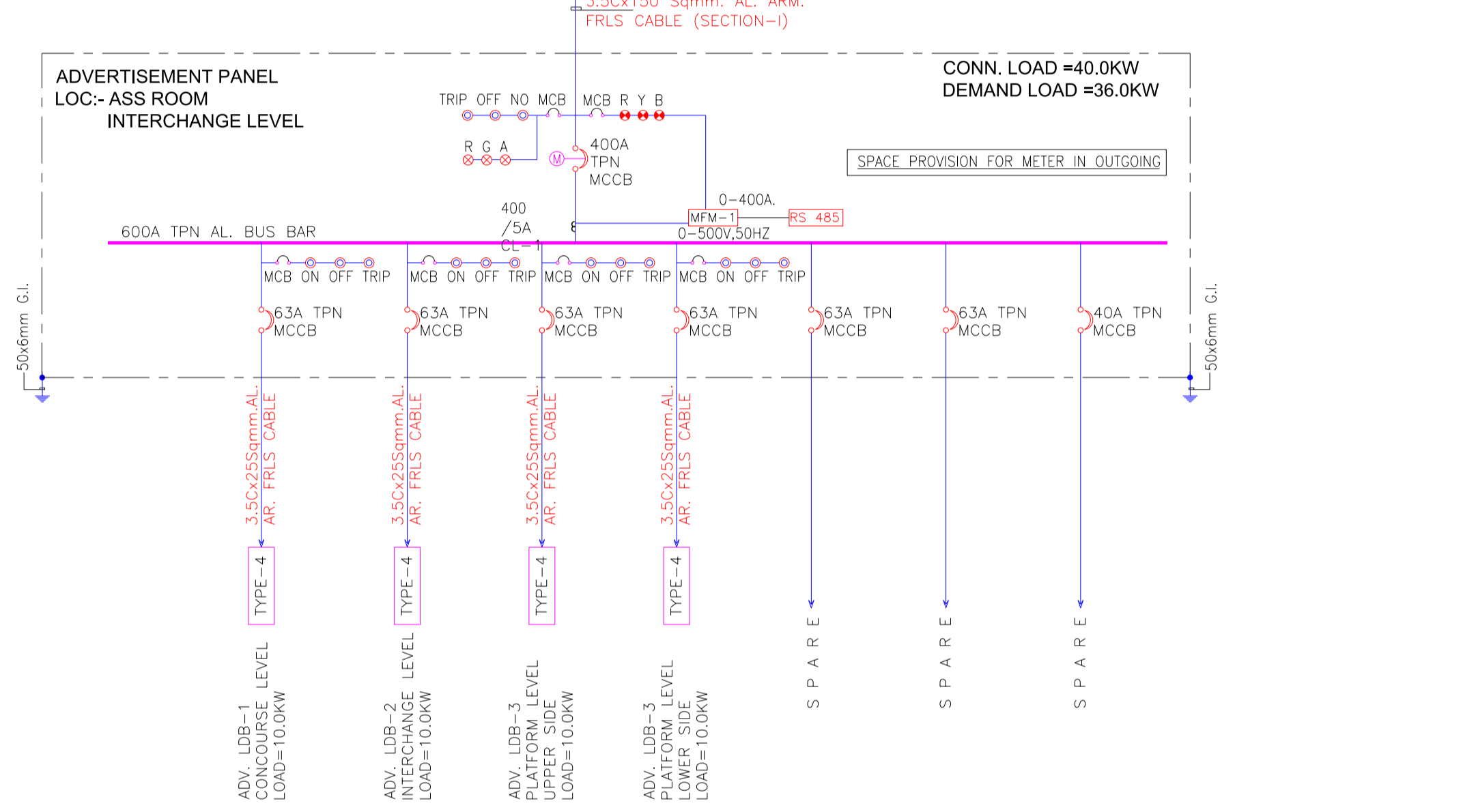
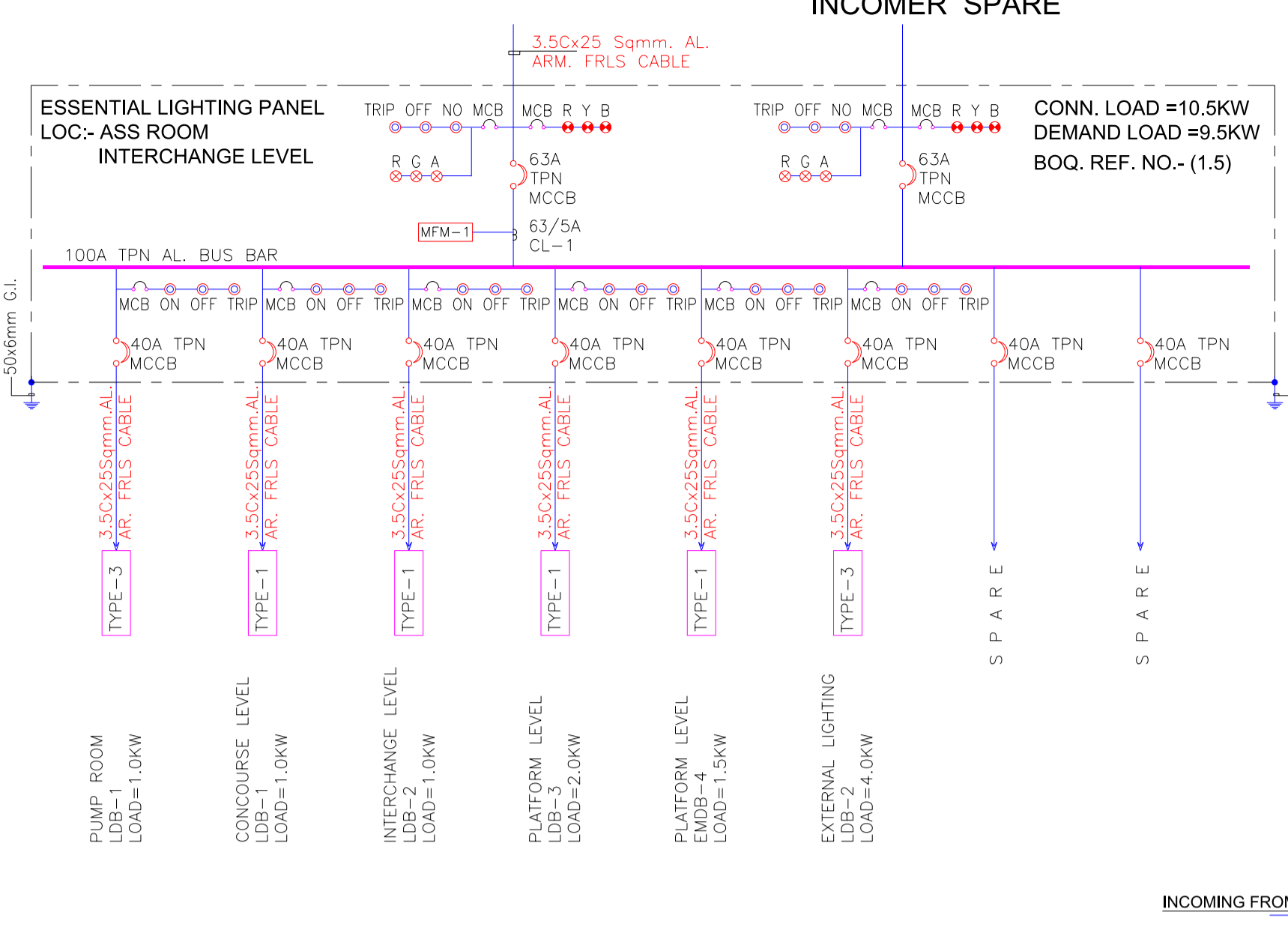
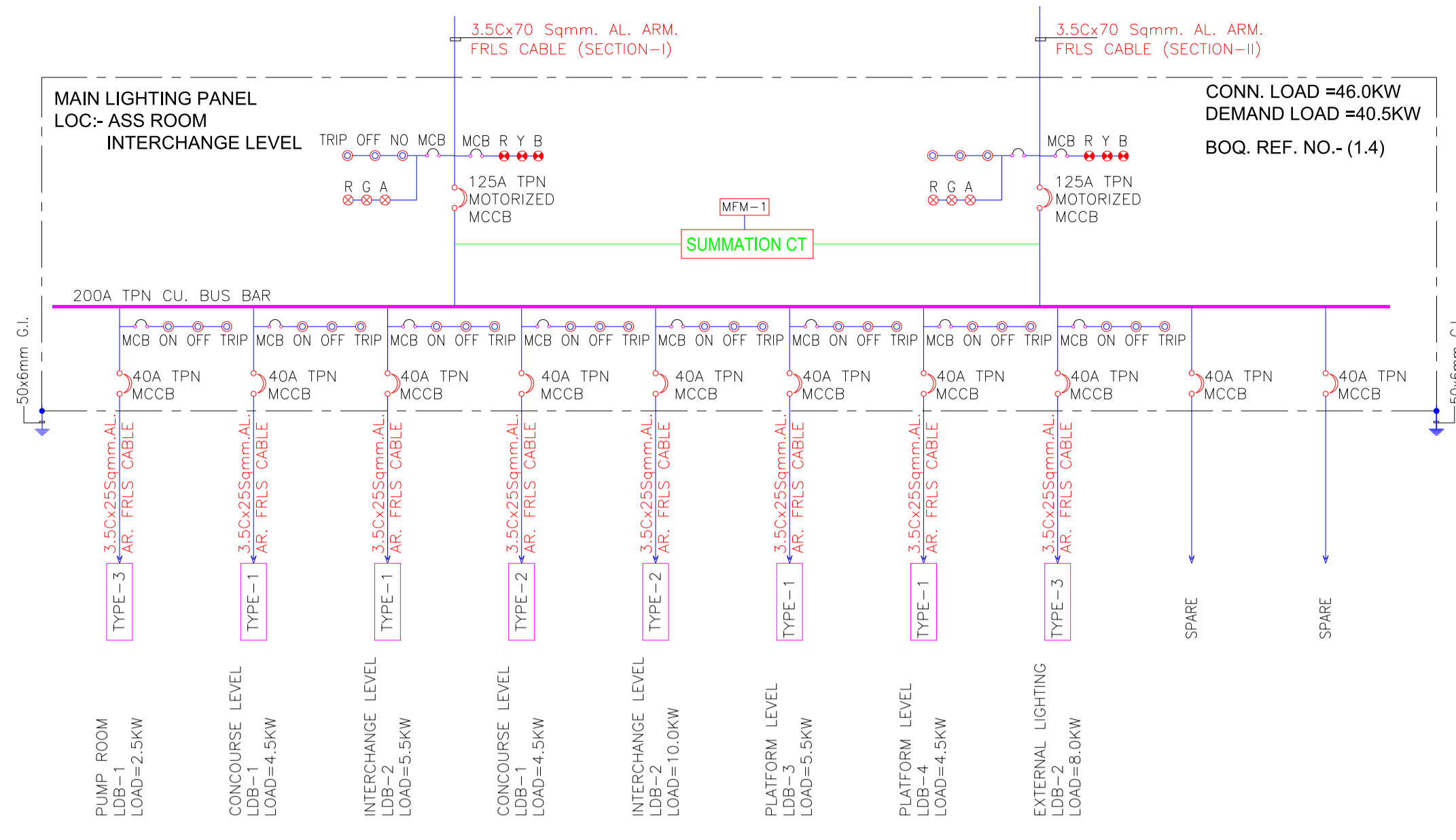
SCALE: AS SHOWN **DATE:** 01/10/20 **STATUS:** Good for Construction

DRG NO: R2D01-ENI-EL-PES-AMS-DRS-3001

REVISION NO: B04

ELECTRICAL

NAGPUR METRO



LEGENDS :

01.	[A]	AMMETER
02.	[AS]	AMMETER SELECTOR SWITCH
03.	[V]	VOLTMETER
04.	[VSS]	VOLTMETER SELECTOR SWITCH
05.	[MFM-1]	MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
06.	[TVM]	TRIVECTOR METER
07.	[APFCR]	AUTOMATIC POWER FACTOR RELAY
08.	[ATS]	A.T.S (AUTO TRANSFER SWITCH)
09.	[27]	UNDER VOLTAGE RELAY
10.	[M]	MOTORIZED CIRCUIT BREAKER
11.	[MCCB]	MOULDDED CASE CIRCUIT BREAKER (MCCB)
12.	[MCB]	MINIATURE CIRCUIT BREAKER (MCB)
13.	[ACB]	AIR CIRCUIT BREAKER (ACB)
14.	[CT]	CURRENT TRANSFORMER
15.	[BKS]	BREAKER CONTROL SWITCH
16.	[MPR]	MICRO PROCESSOR BASED RELEASE
17.	[CF]	CONTROL FUSE
18.	[A/M]	AUTO/ MANUAL SWITCH
19.	[H]	HOOTER
20.	[GND]	GROUNDING
21.	[PIL]	PHASE INDICATING LIGHT
22.	[IL]	INDICATING LIGHT
23.	[*]	NORMALLY "ON"
24.	[**]	NORMALLY "OFF"
25.	[F]	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
26.	[DEM]	DUAL ENERGY METER
27.	[R G A]	RED, GREEN, AMBER INDICATION LIGHT

1. ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION NOTE WITH BMS.
2. SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

REV NO	DATE	DESCRIPTION	SIGN
B04	01/10/20	REVISED AS PER COMMENTS	

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20	DATE: 13.09.20
NAME: SK	NAME: OP	NAME: RK	NAME: PG
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY
consortium of enia, mahendra raj & workspace		ACCEPTED BY	

Sub-consultants:
AECOM
ADS
Mansycom
Integral Design

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

NAME: _____

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS 'GOOD FOR CONSTRUCTION'/BEING GIVEN NO OBJECTION

GENERAL CONSULTANT TO NMRP

SIGN: _____

DATE: _____

NAME: _____

SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank,
First floor, Civil Lines Nagpur - 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar,
Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Automotive Square

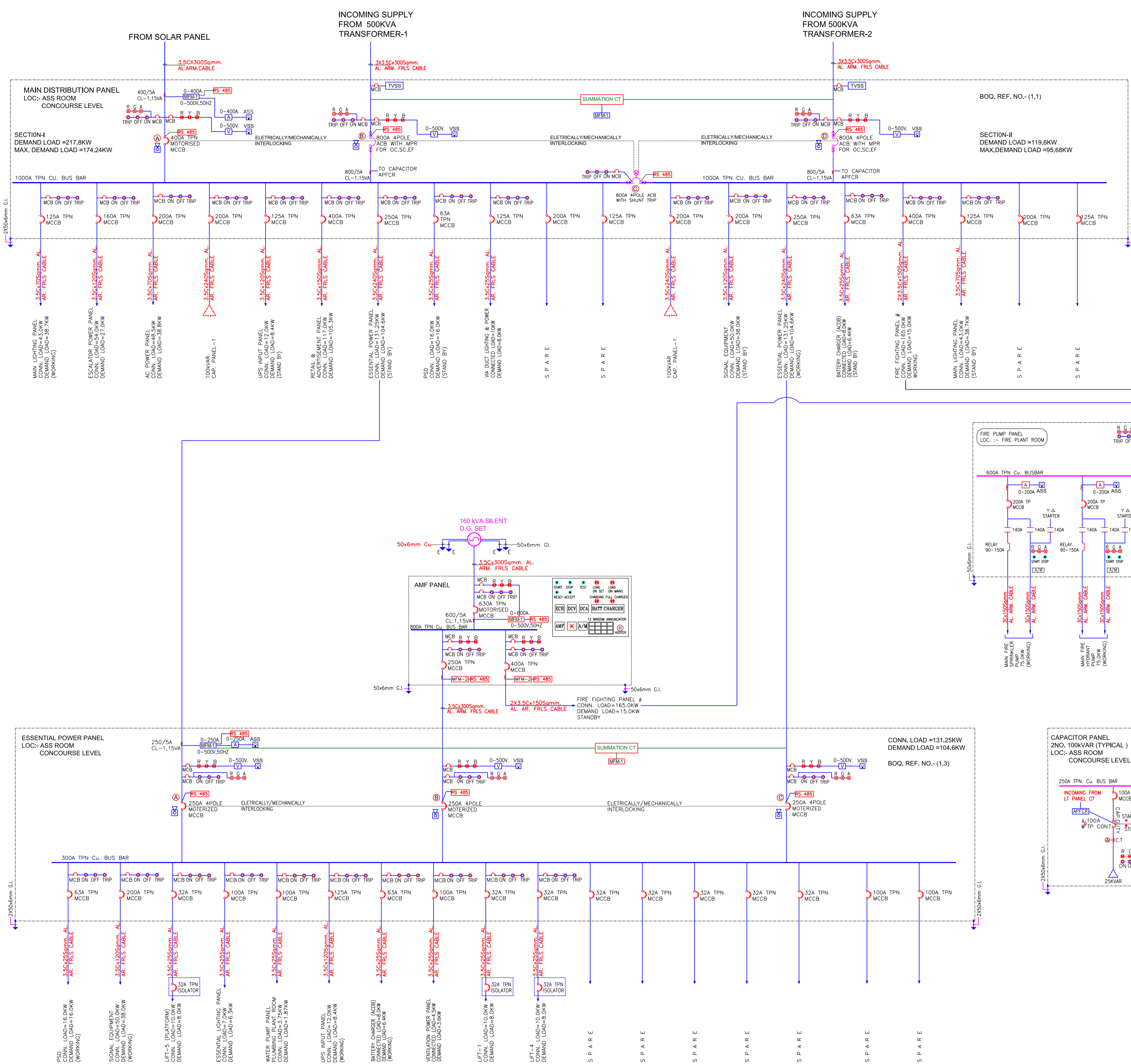
TITLE: MAIN ELECTRICAL SINGLE LINE DIAGRAM PART 2 OF 2

SCALE: AS SHOWN **DATE:** 01/10/20 **STATUS:** Good for Construction

DRG NO: R2D01-ENI-EL-PES-AMS-DRS-3002

REVISION NO: B04

ELECTRICAL

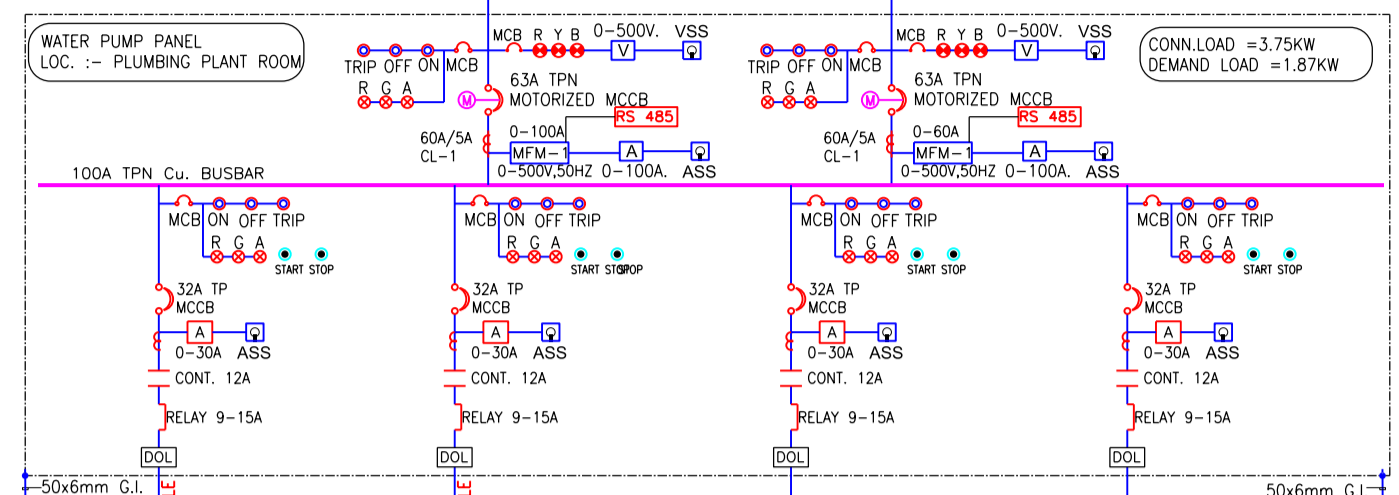


INTERLOCKING SCHEME - MAIN LT PANEL

BRKR./S.NO.	DESCRIPTION			
	SOLAR	TRANSFORMER-1	B/C	TRANSFORMER-2
1.	ON	ON	OFF	ON
2.	ON	ON	ON	OFF
3.	ON	OFF	ON	ON

INTERLOCKING SCHEME - ESSENTIAL POWER PANEL

BRKR./S.NO.	DESCRIPTION		
	MDB SECTION-1	DG	MDB SECTION-2
1.	ON	OFF	OFF
2.	OFF	OFF	ON
3.	OFF	ON	OFF



LEGENDS :

01. [A]	AMMETER
02. [ASS]	AMMETER SELECTOR SWITCH
03. [V]	VOLTMETER
04. [VSS]	VOLTMETER SELECTOR SWITCH
05. [MFM-1]	MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
06. [TM]	TRIVECTOR METER
07. [APFCR]	AUTOMATIC POWER FACTOR RELAY
08. [ATS]	A.T.S (AUTO TRANSFER SWITCH)
09. [ULR]	UNDER VOLTAGE RELAY
10. [M]	MOTORIZED CIRCUIT BREAKER
11. [MCCB]	MOLDED CASE CIRCUIT BREAKER (MCCB)
12. [MCB]	MINIATURE CIRCUIT BREAKER (MCB)
13. [ACB]	AIR CIRCUIT BREAKER (ACB)
14. [CT]	CURRENT TRANSFORMER
15. [BPS]	BREAKER CONTROL SWITCH
16. [MPR]	MICRO PROCESSOR BASED RELEASE
17. [F]	CONTROL FUSE
18. [AM/SW]	AUTO/ MANUAL SWITCH
19. [H]	HOOTER
20. [GND]	GROUNDING
21. [PIL]	PHASE INDICATING LIGHT
22. [IL]	INDICATING LIGHT
23. [NO]	NORMALLY "ON"
24. [NC]	NORMALLY "OFF"
25. [FIRE]	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
26. [DEM]	DUAL ENERGY METER
27. [R]	RED, RED-AMBER INDICATION LIGHT

- NOTE :-**
- ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION WITH BMS
 - SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 12.06.2021	DATE: 12.06.2021	DATE: 12.06.2021	DATE: 12.06.2021
NAME: SK	NAME: OP	NAME: RK	NAME: PG
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY
consortium of enia, mahendra raj & worxpace			
Sub-consultants:		Mansycom	
Integral Design			

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

NAME: _____

DATE: _____

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND ISSUED AS 'GOOD FOR CONSTRUCTION/BECOMING GIVEN NO OBJECTION'

GENERAL CONSULTANT TO NMRP

NAME: _____

DATE: _____

NOT APPLICABLE

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
 Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
 Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Gaddi Godam Square

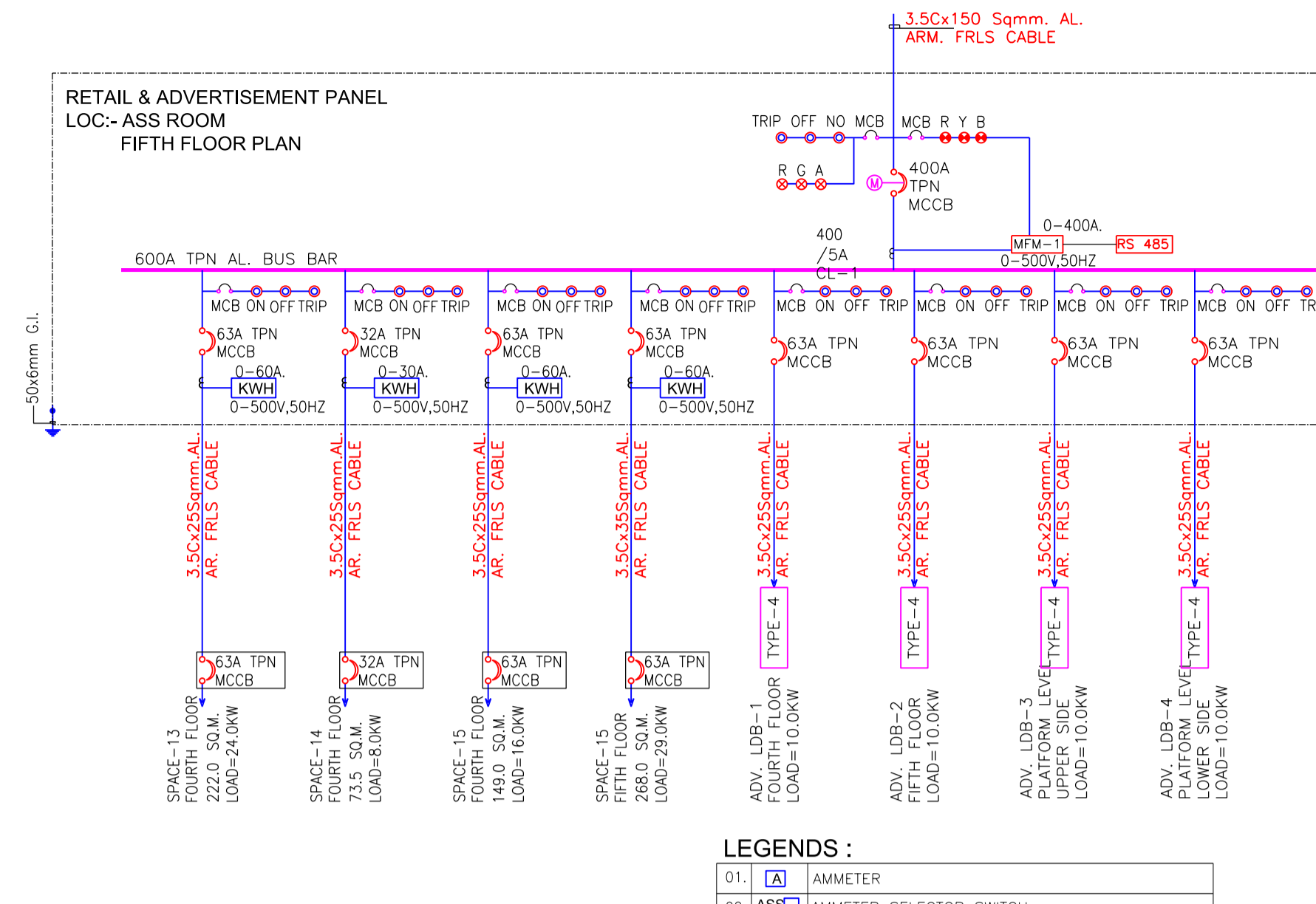
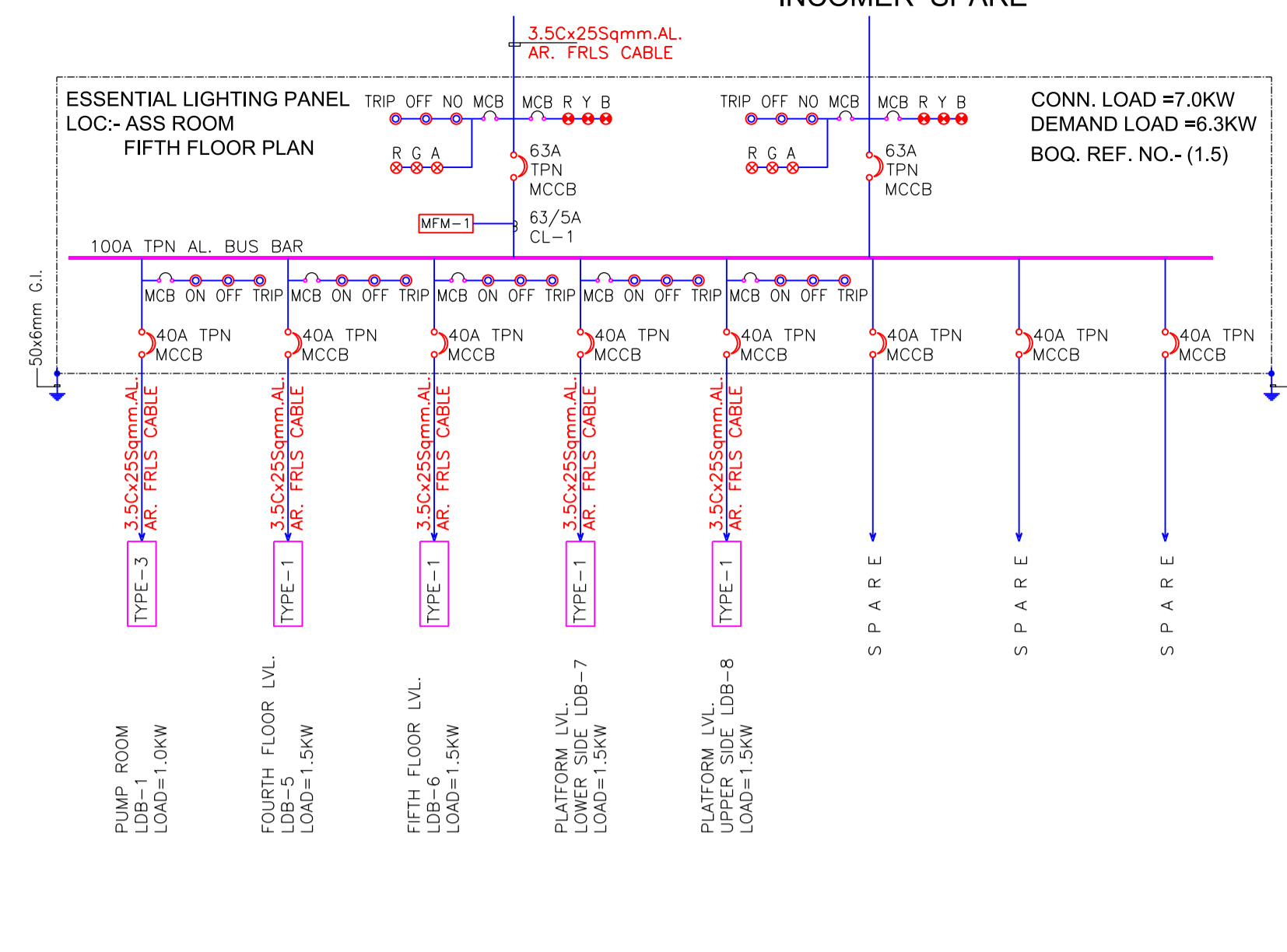
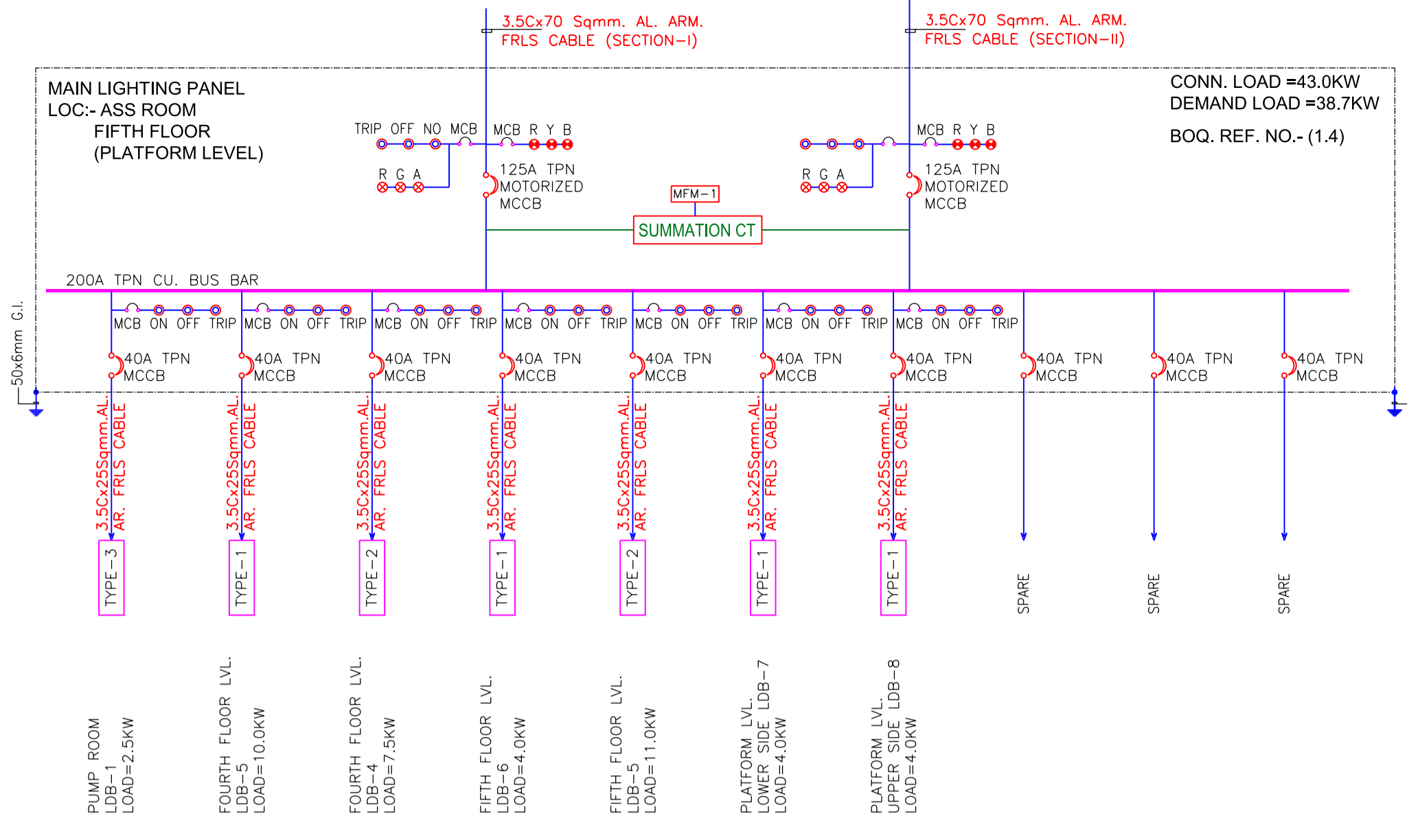
TITLE: MAIN ELECTRICAL SINGLE LINE DIAGRAM (PART-1)

SCALE: AS SHOWN **DATE:** 12/06/21 **STATUS:** Good for Construction

DRG NO: R2D01-ENI-EL-PES-GGS-DRS-3001

REVISION NO: B02

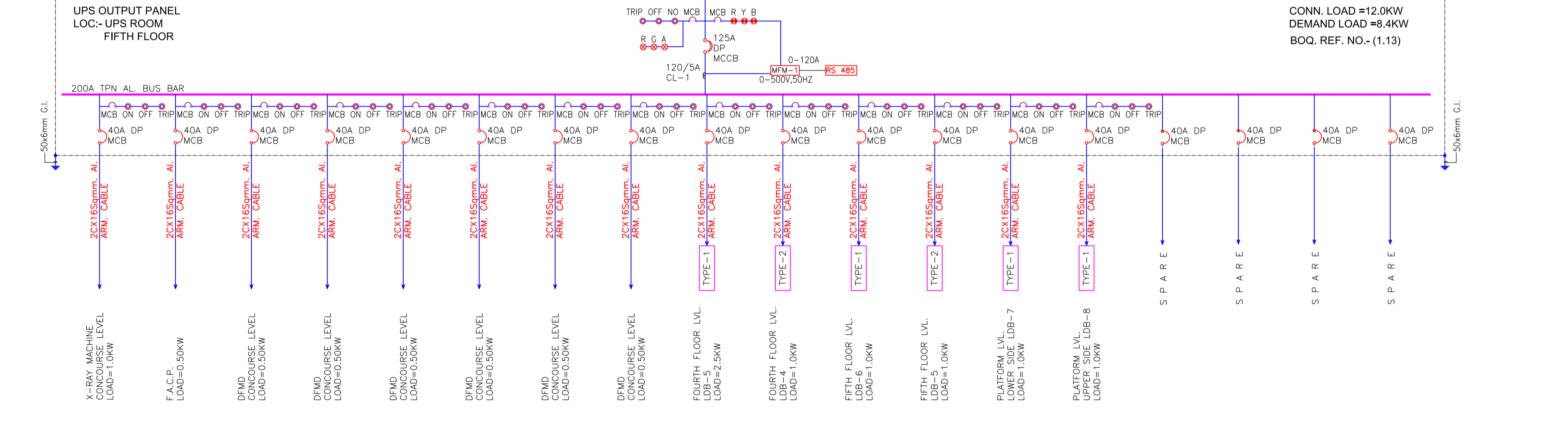
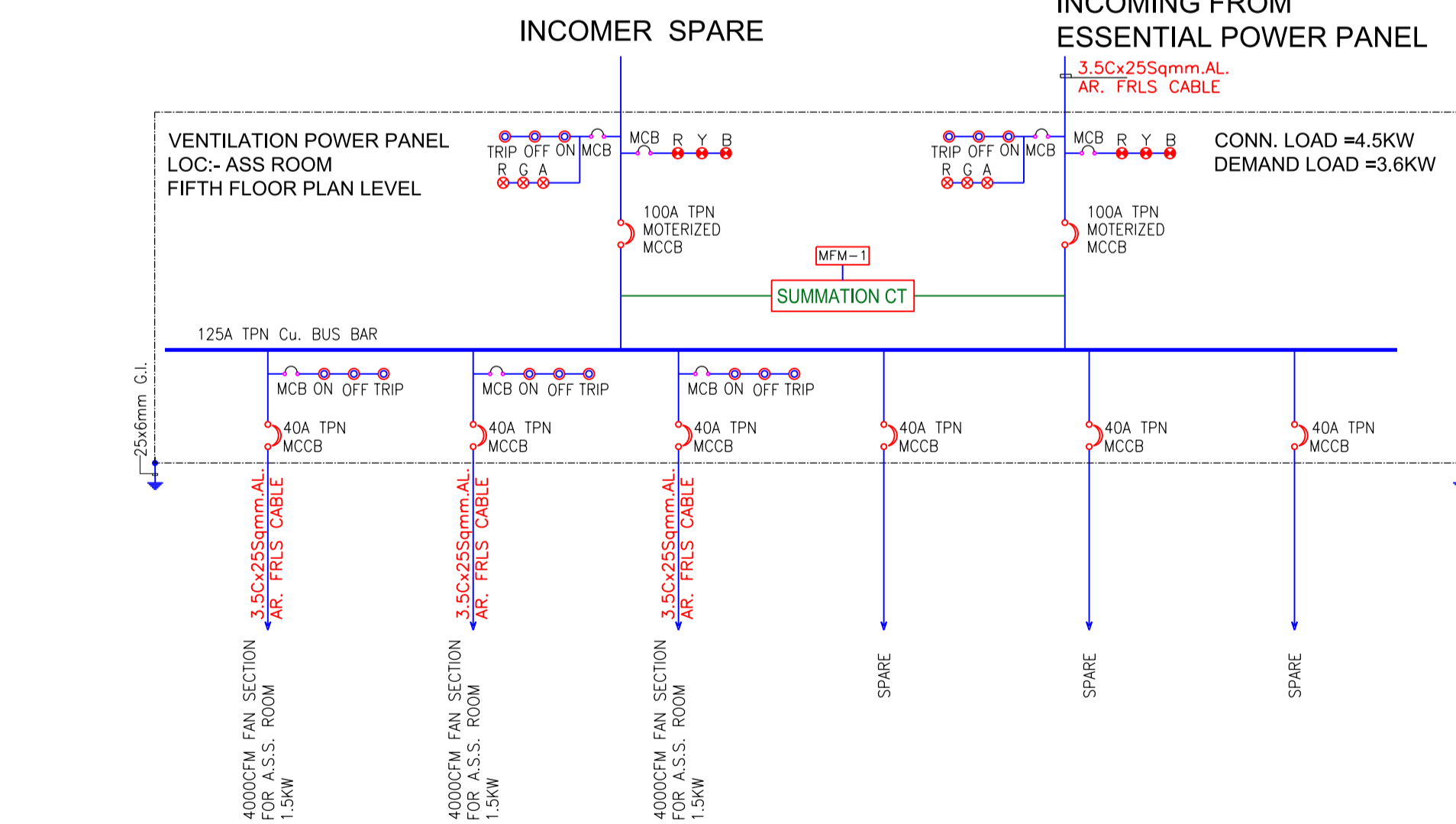
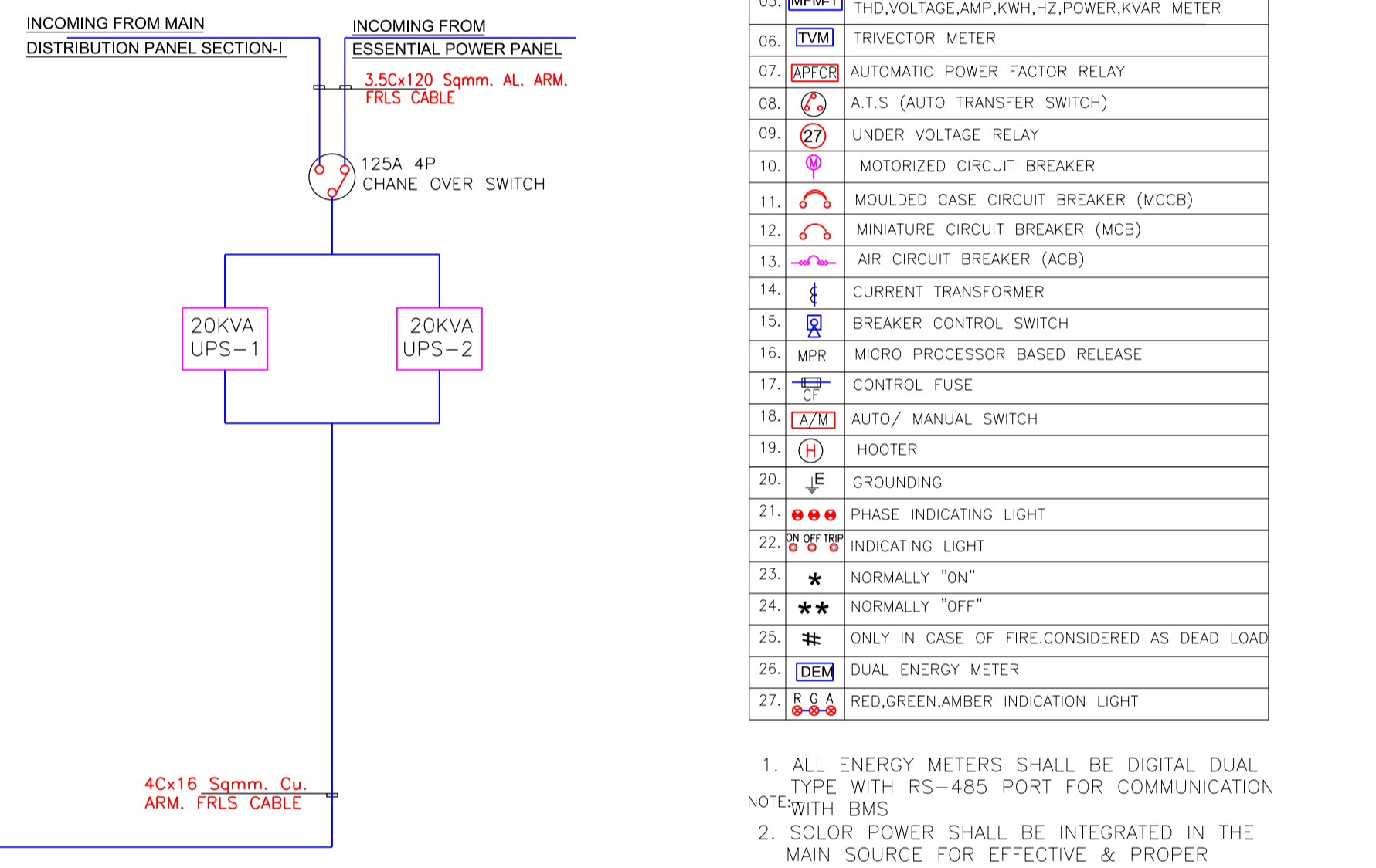
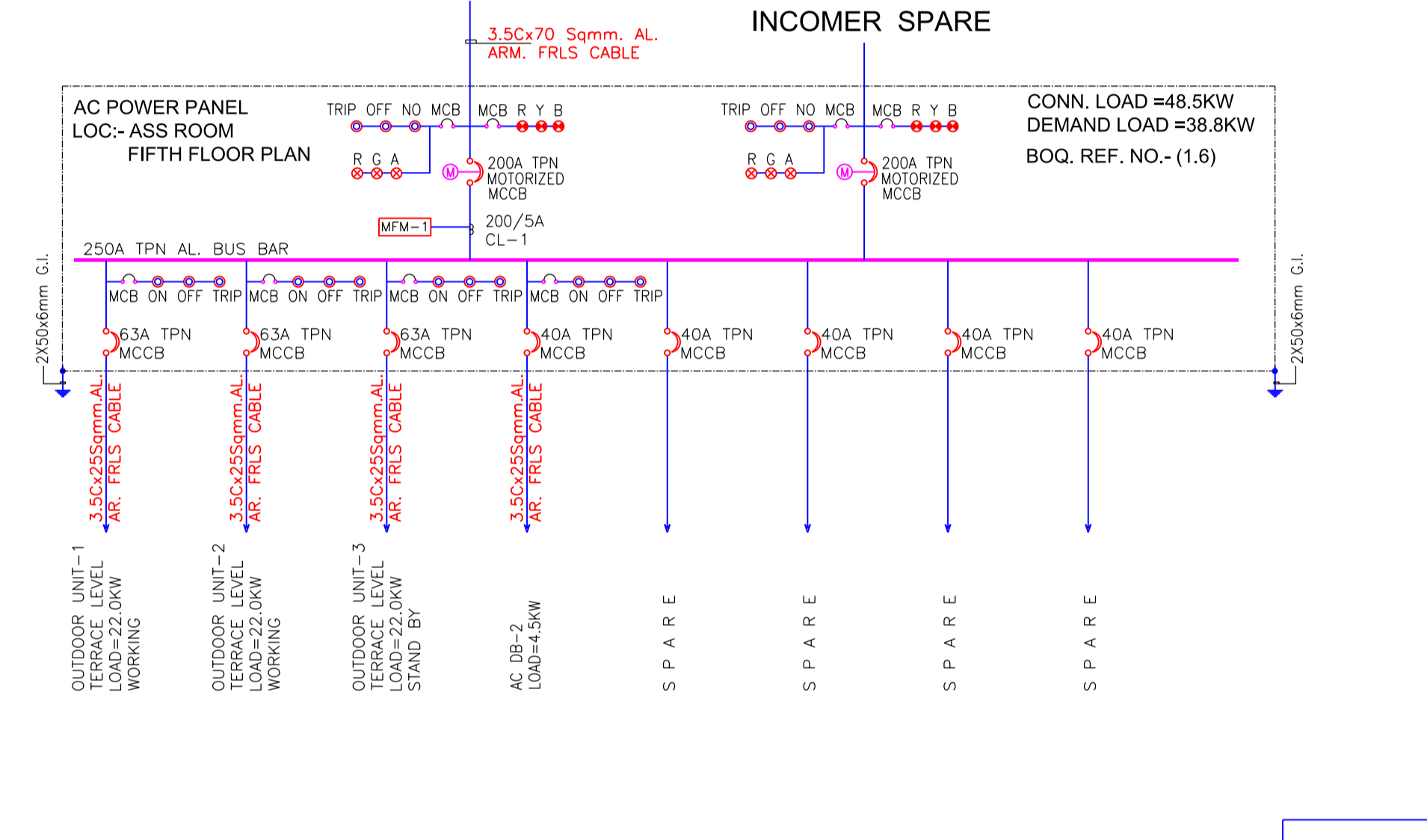
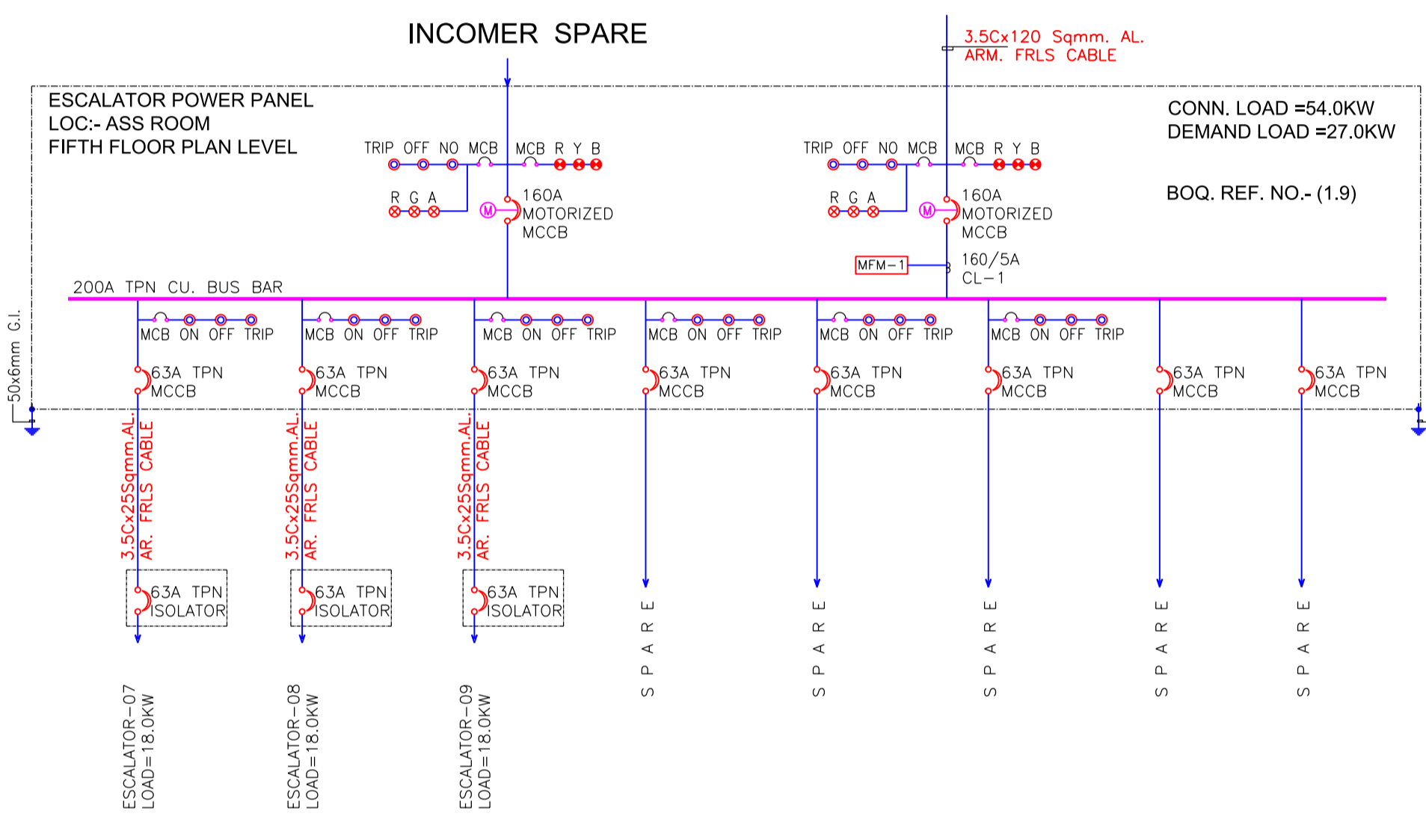
ELECTRICAL



LEGENDS :

01. [Symbol]	AMMETER
02. [Symbol]	AMMETER SELECTOR SWITCH
03. [Symbol]	VOLTMETER
04. [Symbol]	VOLTMETER SELECTOR SWITCH
05. [Symbol]	MULTI FUNCTION METER-1 (THD,VOLTAJE,AMP,KWH,HZ,POWER,KVAR METER)
06. [Symbol]	TRIVECTOR METER
07. [Symbol]	AUTOMATIC POWER FACTOR RELAY
08. [Symbol]	A.T.S (AUTO TRANSFER SWITCH)
09. [Symbol]	UNDER VOLTAGE RELAY
10. [Symbol]	MOTORIZED CIRCUIT BREAKER
11. [Symbol]	MOULDED CASE CIRCUIT BREAKER (MCCB)
12. [Symbol]	MINIATURE CIRCUIT BREAKER (MCB)
13. [Symbol]	AIR CIRCUIT BREAKER (ACB)
14. [Symbol]	CURRENT TRANSFORMER
15. [Symbol]	BREAKER CONTROL SWITCH
16. [Symbol]	MFR MICRO PROCESSOR BASED RELEASE
17. [Symbol]	CONTROL FUSE
18. [Symbol]	AUTO/ MANUAL SWITCH
19. [Symbol]	HOOTER
20. [Symbol]	GROUNDING
21. [Symbol]	PHASE INDICATING LIGHT
22. [Symbol]	INDICATING LIGHT
23. [Symbol]	NORMALLY "ON"
24. [Symbol]	NORMALLY "OFF"
25. [Symbol]	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
26. [Symbol]	DUAL ENERGY METER
27. [Symbol]	RED, GREEN, AMBER INDICATION LIGHT

- ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION WITH BMS
- SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.



NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

REV NO	DATE	REVISION	DESCRIPTION	SIGN
B02	12/06/21	REVISED AS PER NMRCL COMMENT / REFER NOTE		

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GFC FROM THE ALREADY APPROVED CR DWG NO. REV. APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 12.06.21	DATE: 12.06.21	DATE: 12.06.21	DATE: 12.06.21
NAME: SK	NAME: OP	NAME: RK	NAME: PG
NAME:	NAME:	NAME:	NAME:
DATE:	DATE:	DATE:	DATE:
NAME:	NAME:	NAME:	NAME:

consortium of enia, mahendra raj & worxpace

Sub-consultants:
AECOM
ADS
Mansycom
Integral Design

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN **PROOF CHECKED** INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN **PROOF CHECKED/REVIEWED** AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS "GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION"

GENERAL CONSULTANT TO NMRP

SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank,
First floor, Civil Lines Nagpur- 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar,
Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

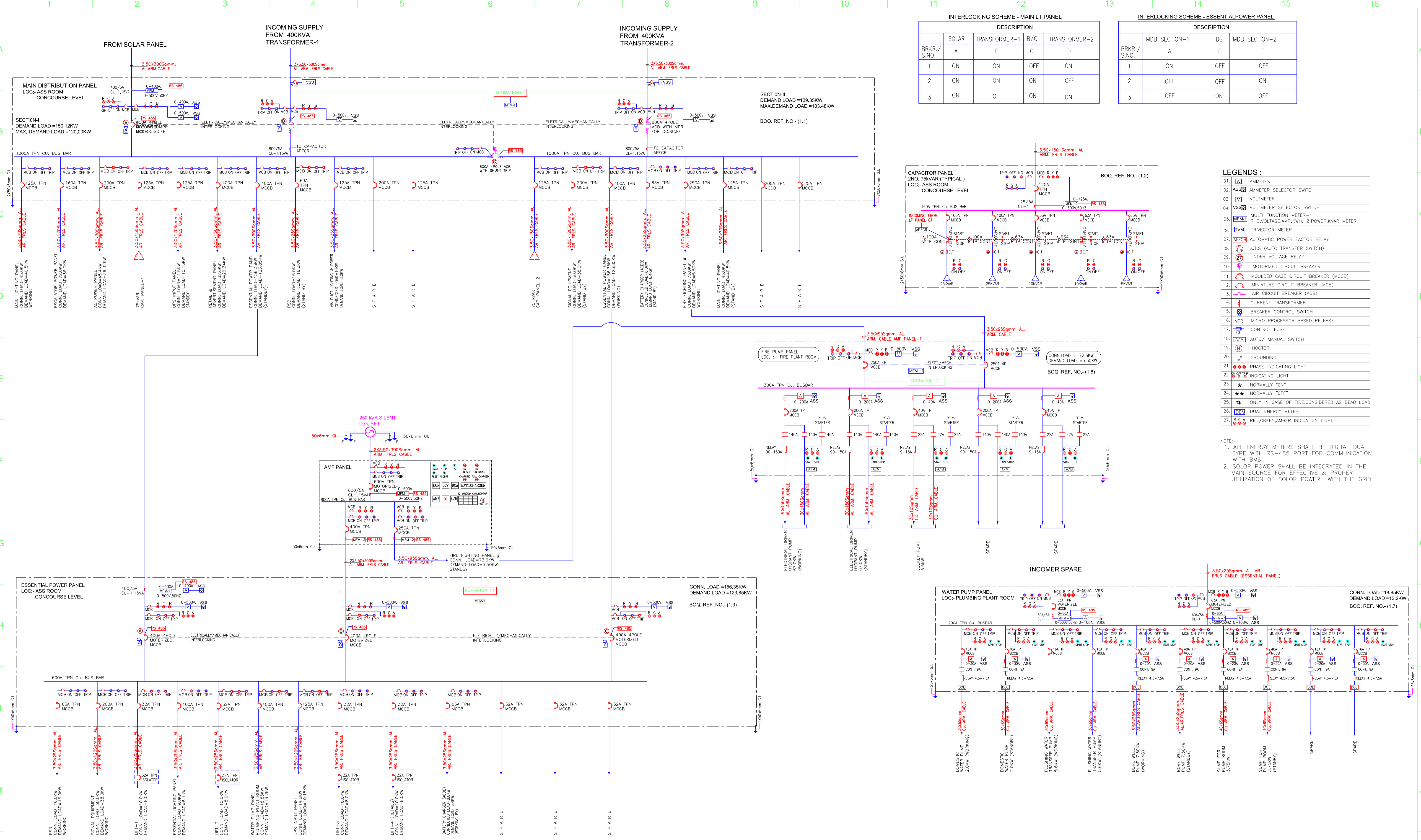
LOCATION: Gaddi Godam Square

TITLE: MAIN ELECTRICAL SINGLE LINE DIAGRAM (PART-2)

SCALE: AS SHOWN **DATE:** 12/06/21 **STATUS:** Good for Construction **REVISION NO:**

DRG NO: R2D01-ENI-EL-PES-GGS-DRS-3002 **B02**

ELECTRICAL

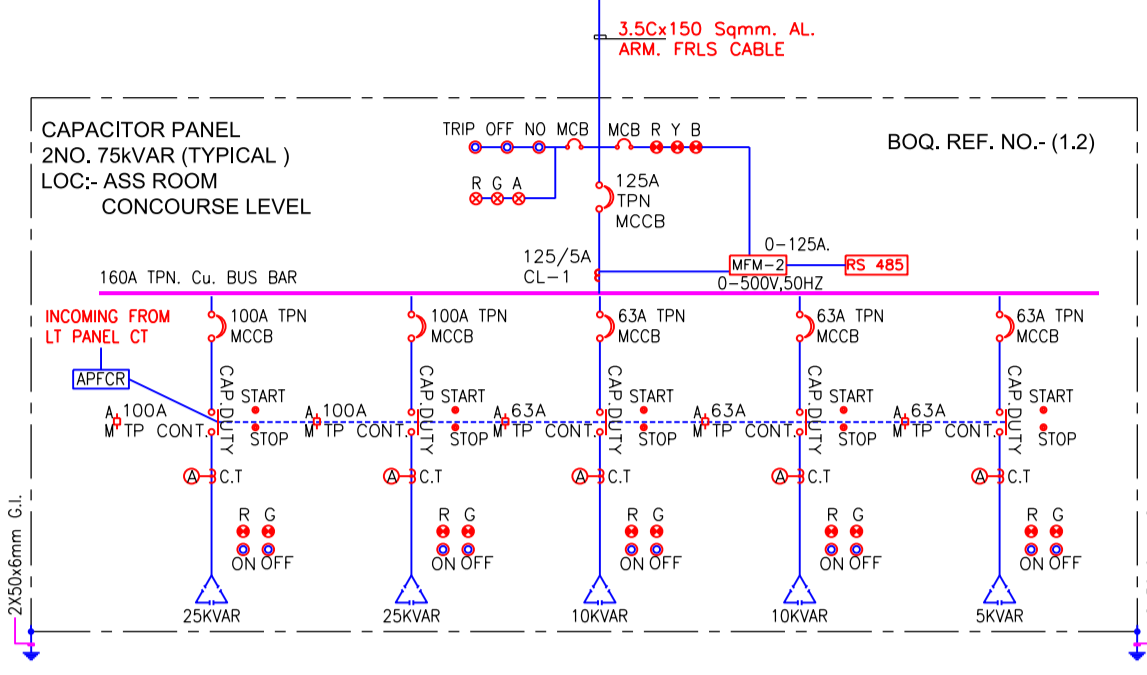


INTERLOCKING SCHEME - MAIN LT PANEL

BRKR./S.NO.	DESCRIPTION			
	SOLAR	TRANSFORMER-1	B/C	TRANSFORMER-2
1.	ON	ON	OFF	ON
2.	ON	ON	ON	OFF
3.	ON	OFF	ON	ON

INTERLOCKING SCHEME - ESSENTIALPOWER PANEL

BRKR./S.NO.	DESCRIPTION			
	MDB SECTION-1	DG	MDB SECTION-2	
1.	ON	OFF	OFF	
2.	OFF	OFF	ON	
3.	OFF	ON	OFF	



LEGENDS :

01.	[A]	AMMETER
02.	[ASS]	AMMETER SELECTOR SWITCH
03.	[V]	VOLTMETER
04.	[VSS]	VOLTMETER SELECTOR SWITCH
05.	[MFM-1]	MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR
06.	[TVM]	TRAVECTOR METER
07.	[APFCR]	AUTOMATIC POWER FACTOR RELAY
08.	[ATS]	A.T.S (AUTO TRANSFER SWITCH)
09.	[UR]	UNDER VOLTAGE RELAY
10.	[MCCB]	MOTORIZED CIRCUIT BREAKER
11.	[MCCB]	MOLDED CASE CIRCUIT BREAKER (MCCB)
12.	[MCB]	MINIATURE CIRCUIT BREAKER (MCB)
13.	[ACB]	AIR CIRCUIT BREAKER (ACB)
14.	[CT]	CURRENT TRANSFORMER
15.	[BKR]	BREAKER CONTROL SWITCH
16.	[MPR]	MICRO PROCESSOR BASED RELEASE
17.	[CF]	CONTROL FUSE
18.	[AM/S]	AUTO/ MANUAL SWITCH
19.	[H]	HOTTER
20.	[E]	GROUNDING
21.	[PI]	PHASE INDICATING LIGHT
22.	[IL]	INDICATING LIGHT
23.	[*]	NORMALLY "ON"
24.	[**]	NORMALLY "OFF"
25.	[#]	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
26.	[DEM]	DUAL ENERGY METER
27.	[R/G/A]	RED, GREEN, AMBER INDICATION LIGHT

NOTE:-
1. ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION WITH BMS
2. SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

- NOTES:**
- ALL DIMENSIONS ARE IN MM
 - ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
 - DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
 - ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
 - GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE

DDC / CONTRACTOR				CONTRACTOR / DDC			
SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:
DATE: 25.07.20	DATE: 25.07.20	DATE: 25.07.20	DATE: 25.07.20	DATE: 25.07.20	DATE: 25.07.20	DATE: 25.07.20	DATE: 25.07.20
NAME: SK	NAME: OP	NAME: RK	NAME: PG	NAME:	NAME:	NAME:	NAME:
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY	ACCEPTED BY			

consortium of enia, mahendra raj & worxpace

Sub-consultants:
AECOM
ADS
Mansycom
Integral Design

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

NAME: _____

DATE: _____

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS "GOOD FOR CONSTRUCTION"/BEING GIVEN NO OBJECTION

GENERAL CONSULTANT TO NMRP

NAME: _____

DATE: _____

SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank,
First floor, Civil Lines Nagpur- 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar,
Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Kasthurchand Park

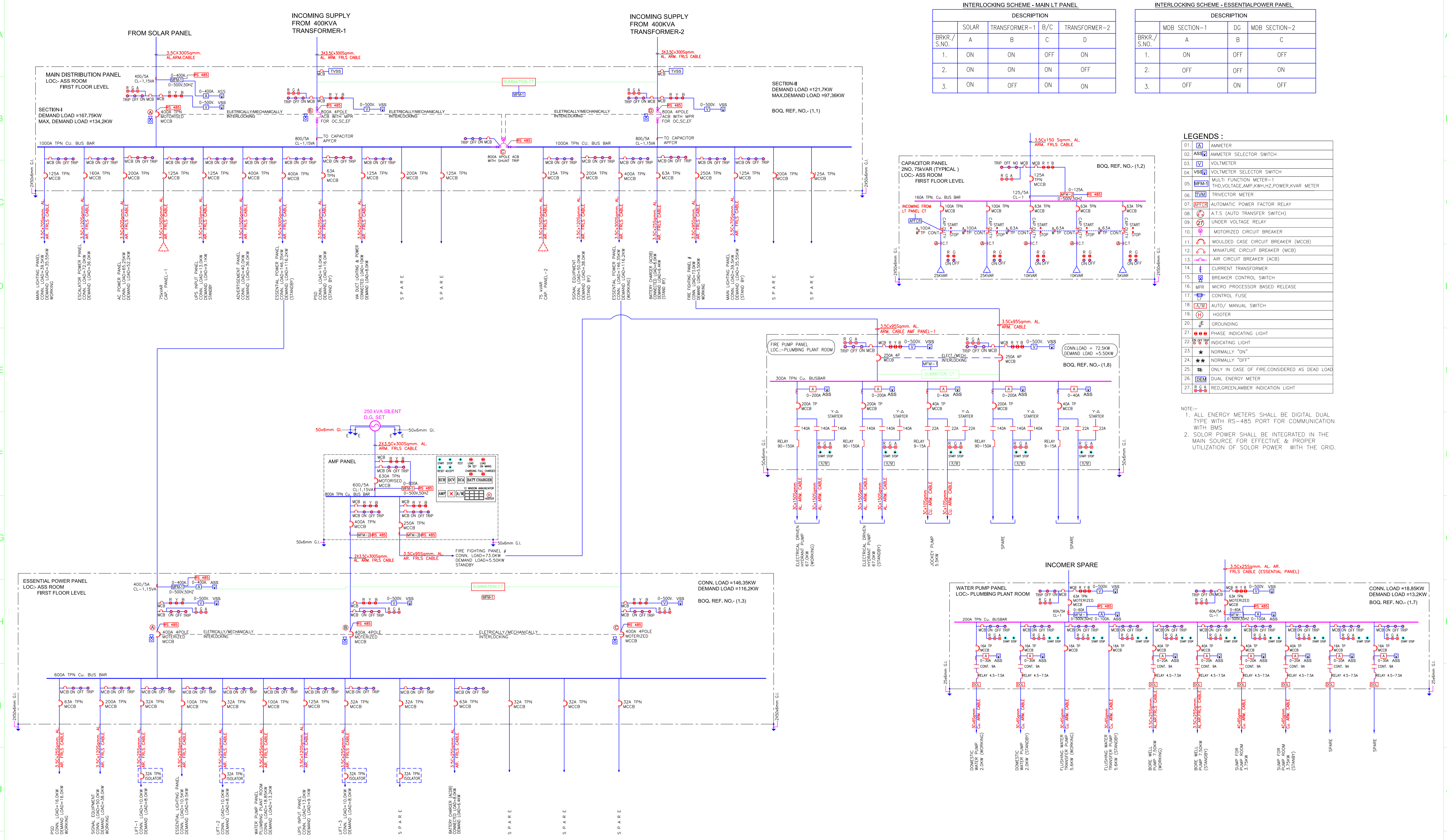
TITLE: MAIN ELECTRICAL SCHEMATIC DIAGRAM PART 1

SCALE: AS SHOWN **DATE:** 08/08/20 **STATUS:** Good for Construction

DRG NO: R2D01-ENI-EL-PES-KCP-DRS-3001

REVISION NO: B04

ELECTRICAL



NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

REV NO	DATE	DESCRIPTION	SIGN
B01	23/12/20	FIRST ISSUE	

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 02.11.20	DATE: 02.11.20	DATE: 02.11.20	DATE: 02.11.20
NAME: SK	NAME: OP	NAME:	NAME:
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY

consortium of enia, mahendra raj & worxpace

Sub-consultants:
AECOM
ADS
Mansycom
Integral Design

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

SIGN: _____ DATE: _____ NAME: _____

GENERAL CONSULTANT TO NMRP

SIGN: _____ DATE: _____ NAME: _____

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS "GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION"

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank, First floor, Civil Lines Nagpur - 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: **MAHARASHTRA METRO RAIL CORPORATION LTD.**

LOCATION: **Kadvi Chowk**

TITLE: **MAIN ELECTRICAL SCHEMATIC DIAGRAM PART 1/2**

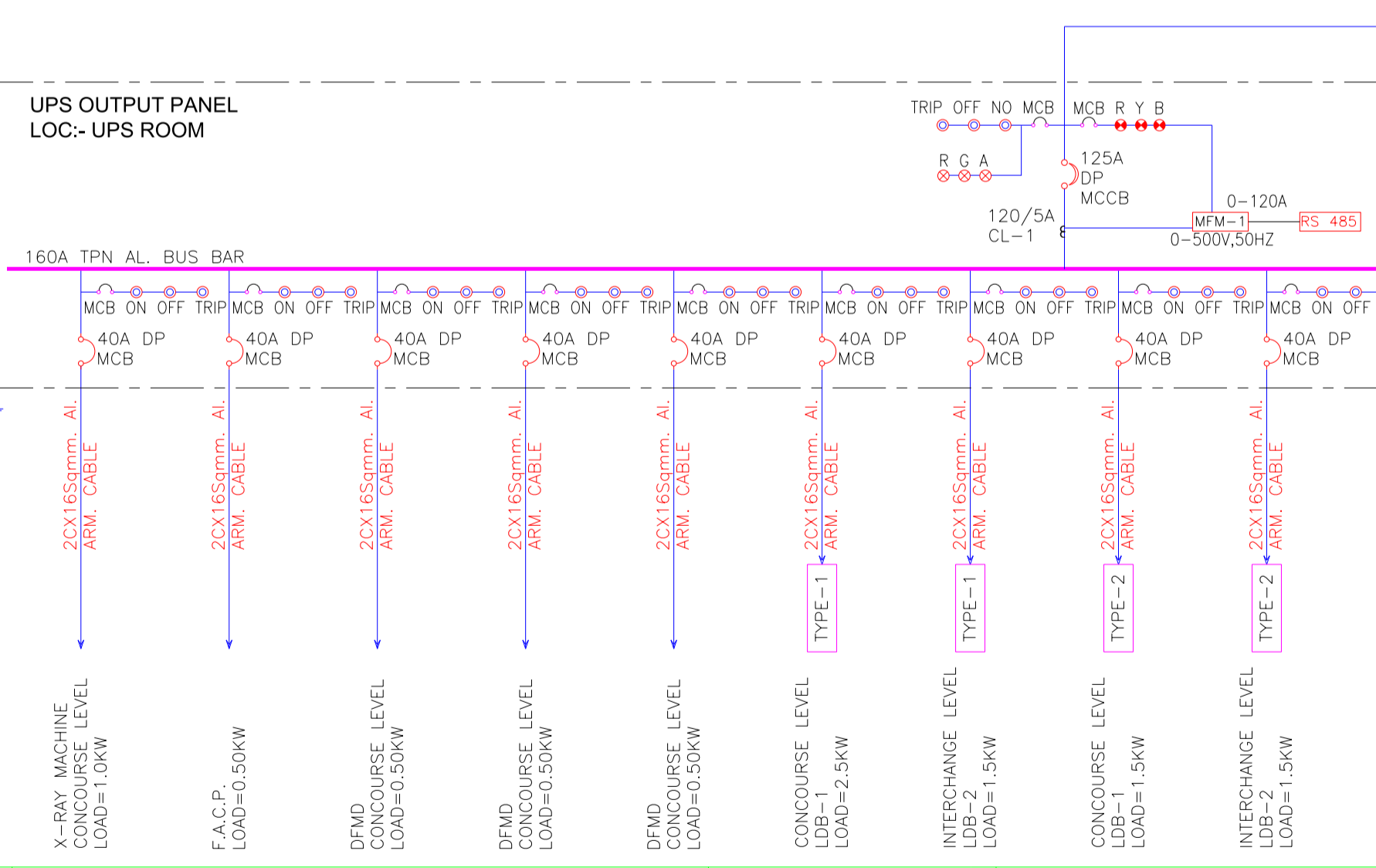
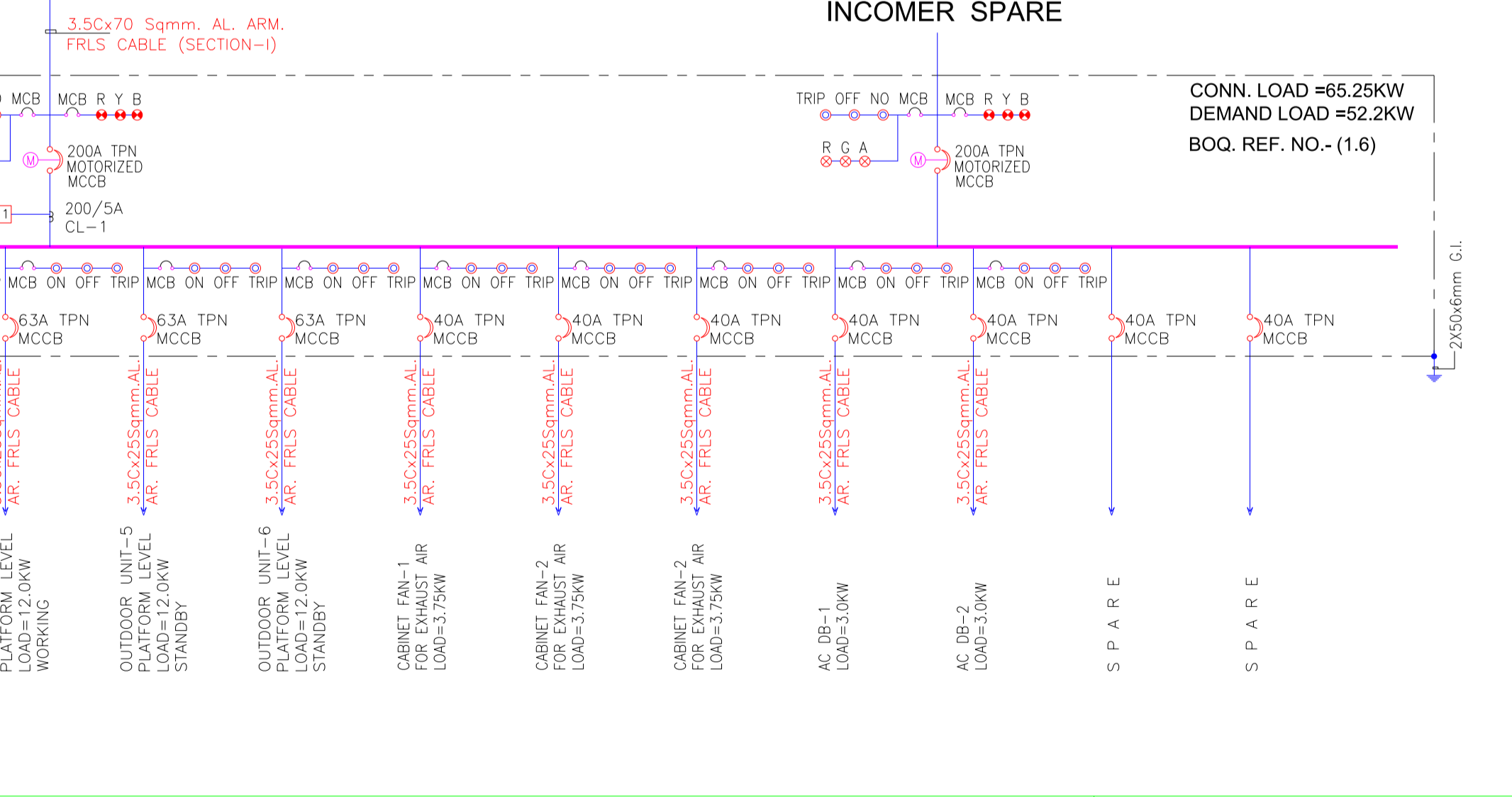
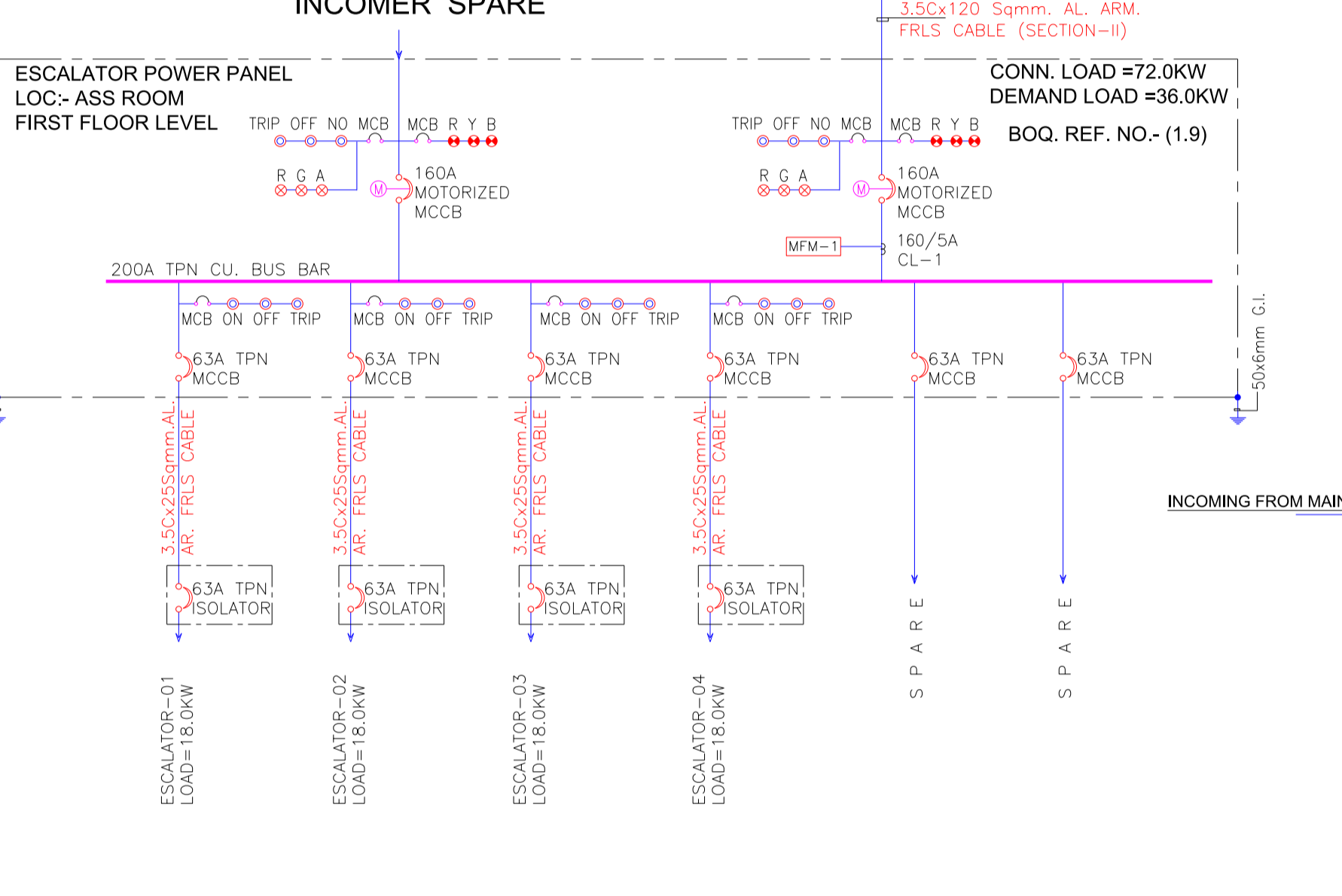
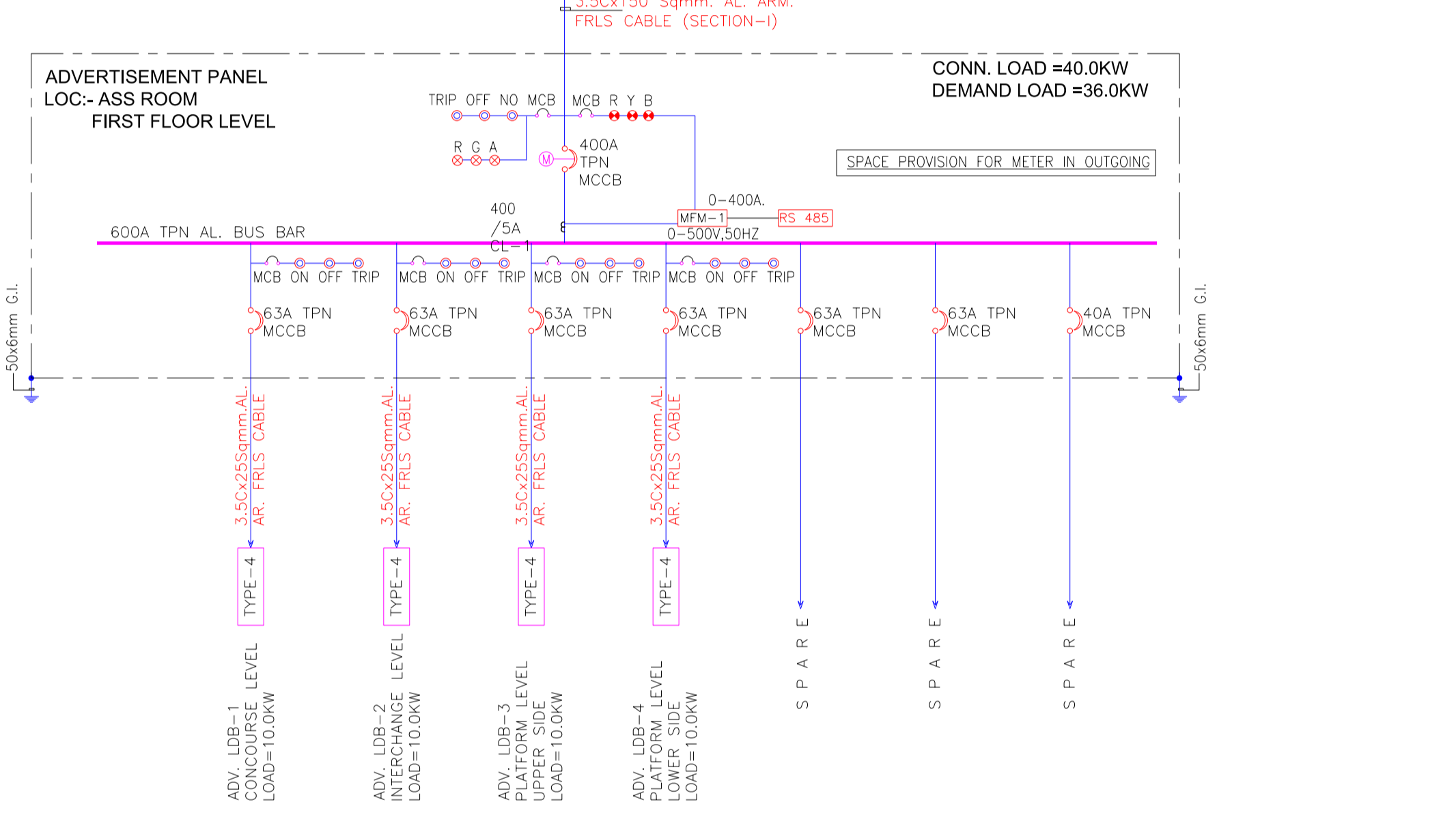
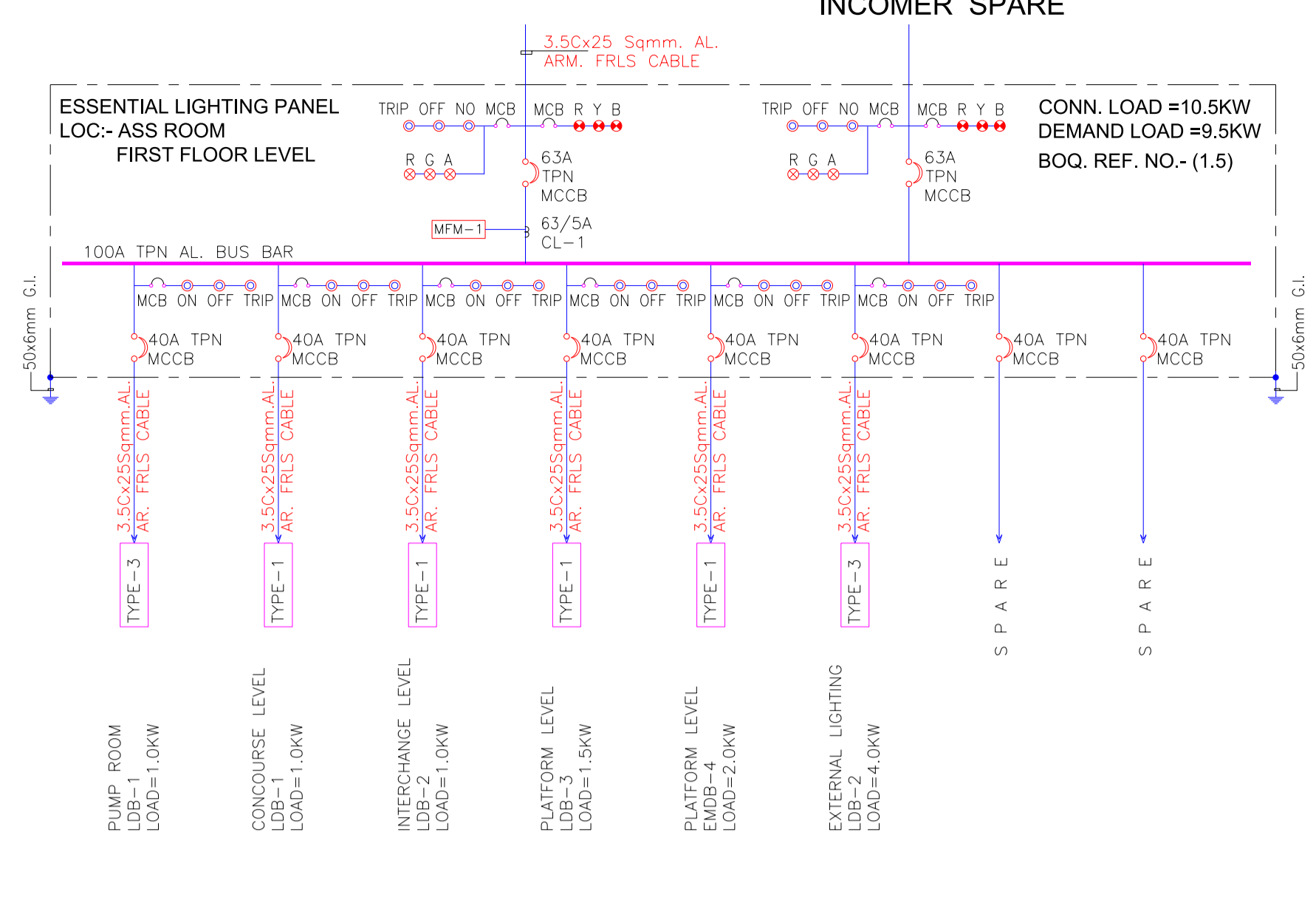
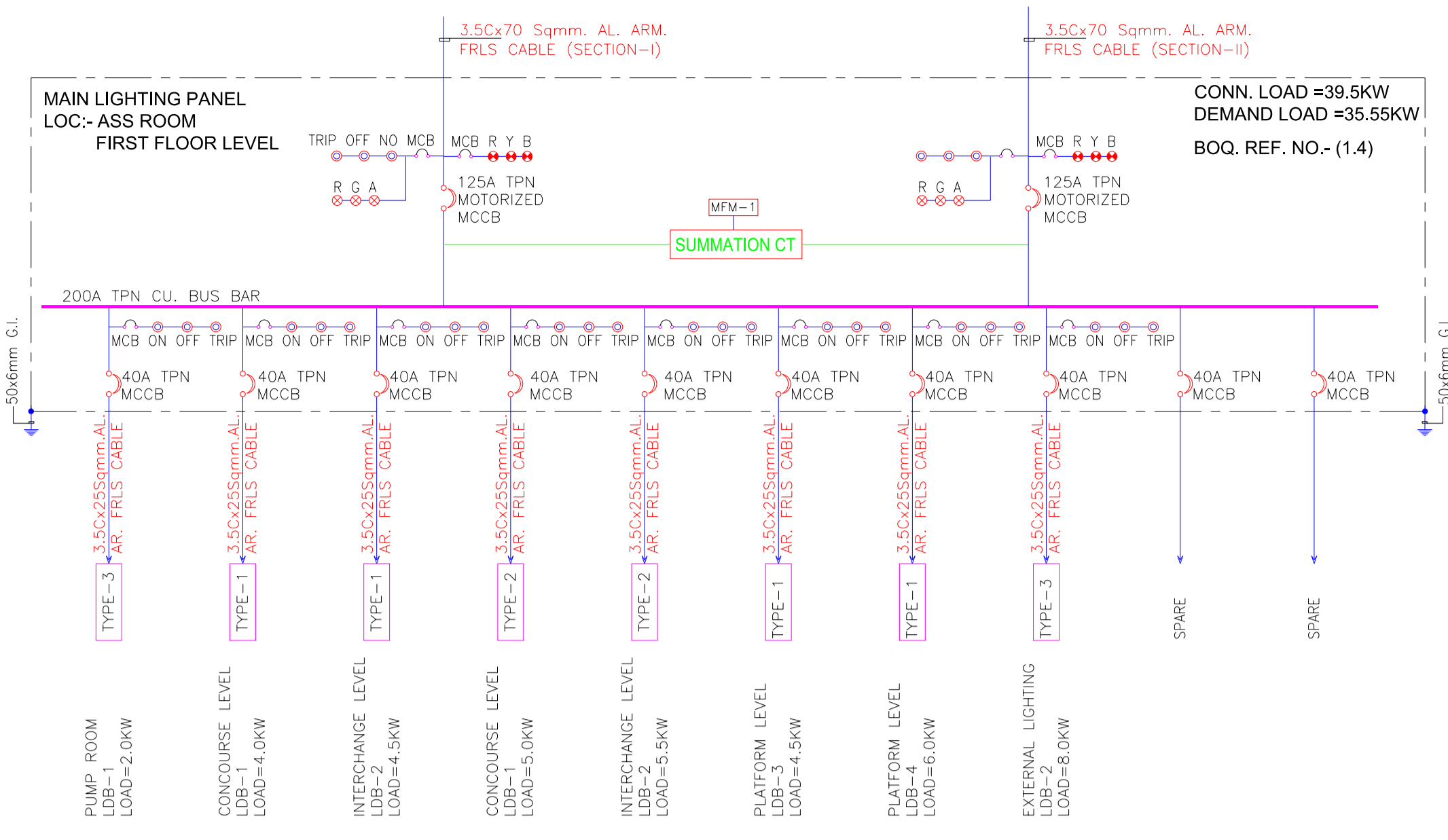
SCALE: AS SHOWN DATE: 23/12/20 STATUS: Good for Construction

DRG NO: **R2D01-ENI-EL-PES-KDC-DRS-3001**

REVISION NO: **B01**

ELECTRICAL

NAGPUR METRO

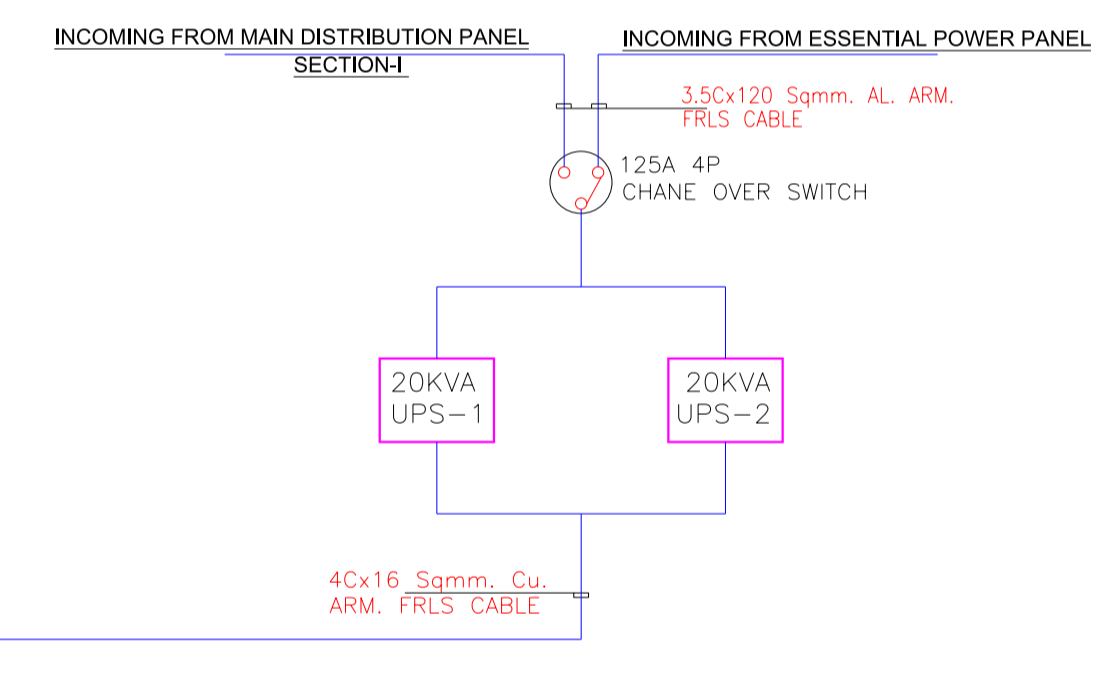


LEGENDS :

01	[A]	AMMETER
02	[ASB]	AMMETER SELECTOR SWITCH
03	[V]	VOLTMETER
04	[VSS]	VOLTMETER SELECTOR SWITCH
05	[MFM]	MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
06	[TVM]	TRIVECTOR METER
07	[APFR]	AUTOMATIC POWER FACTOR RELAY
08	[ATS]	A.T.S (AUTO TRANSFER SWITCH)
09	[UVR]	UNDER VOLTAGE RELAY
10	[MCCB]	MOTORIZED CIRCUIT BREAKER
11	[MCCB]	MOULDED CASE CIRCUIT BREAKER (MCCB)
12	[MCB]	MINIATURE CIRCUIT BREAKER (MCB)
13	[ACB]	AIR CIRCUIT BREAKER (ACB)
14	[CT]	CURRENT TRANSFORMER
15	[BKR]	BREAKER CONTROL SWITCH
16	[MPR]	MICRO PROCESSOR BASED RELEASE
17	[CFS]	CONTROL FUSE
18	[A/M]	AUTO/ MANUAL SWITCH
19	[H]	HOOTER
20	[E]	GROUNDING
21	[PIL]	PHASE INDICATING LIGHT
22	[IL]	INDICATING LIGHT
23	[ON]	NORMALLY "ON"
24	[OFF]	NORMALLY "OFF"
25	[FIRE]	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
26	[DEM]	DUAL ENERGY METER
27	[R,G,B]	RED, GREEN, AMBER INDICATION LIGHT

1. ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION WITH BMS

2. SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.



NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

REV NO	DATE	DESCRIPTION	SIGN
B01	23/12/20	FIRST ISSUE	

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 02.11.20	DATE: 02.11.20	DATE: 02.11.20	DATE: 02.11.20
NAME: SK	NAME: OP	NAME:	NAME:
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY
consortium of enia, mahendra raj & worxpace		Sub-consultants: AECOM, ADS, Mansycom, Integral Design	

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS 'GOOD FOR CONSTRUCTION'/BEING GIVEN NO OBJECTION

GENERAL CONSULTANT TO NMRP

SYSTRA-AECOM-EGIS-RITES

Church House, Above SBI Bank, First floor, Civil Lines Nagpur- 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: NAGPUR METRO RAIL PROJECT

Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

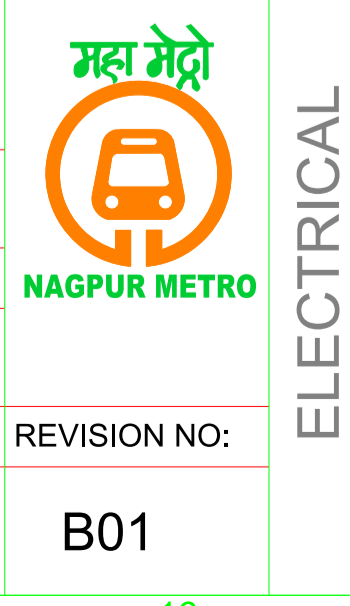
LOCATION: Kadvi Chowk

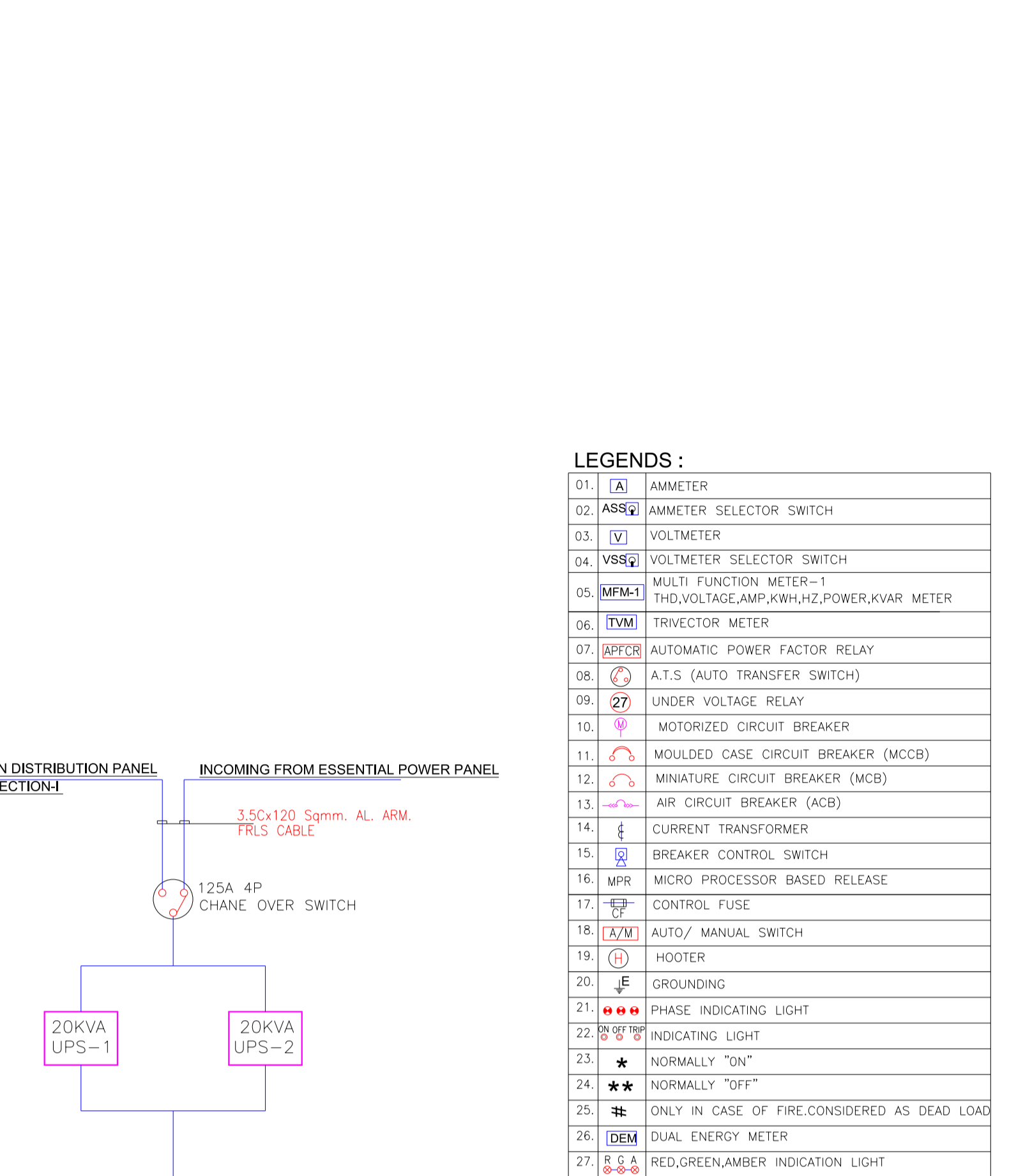
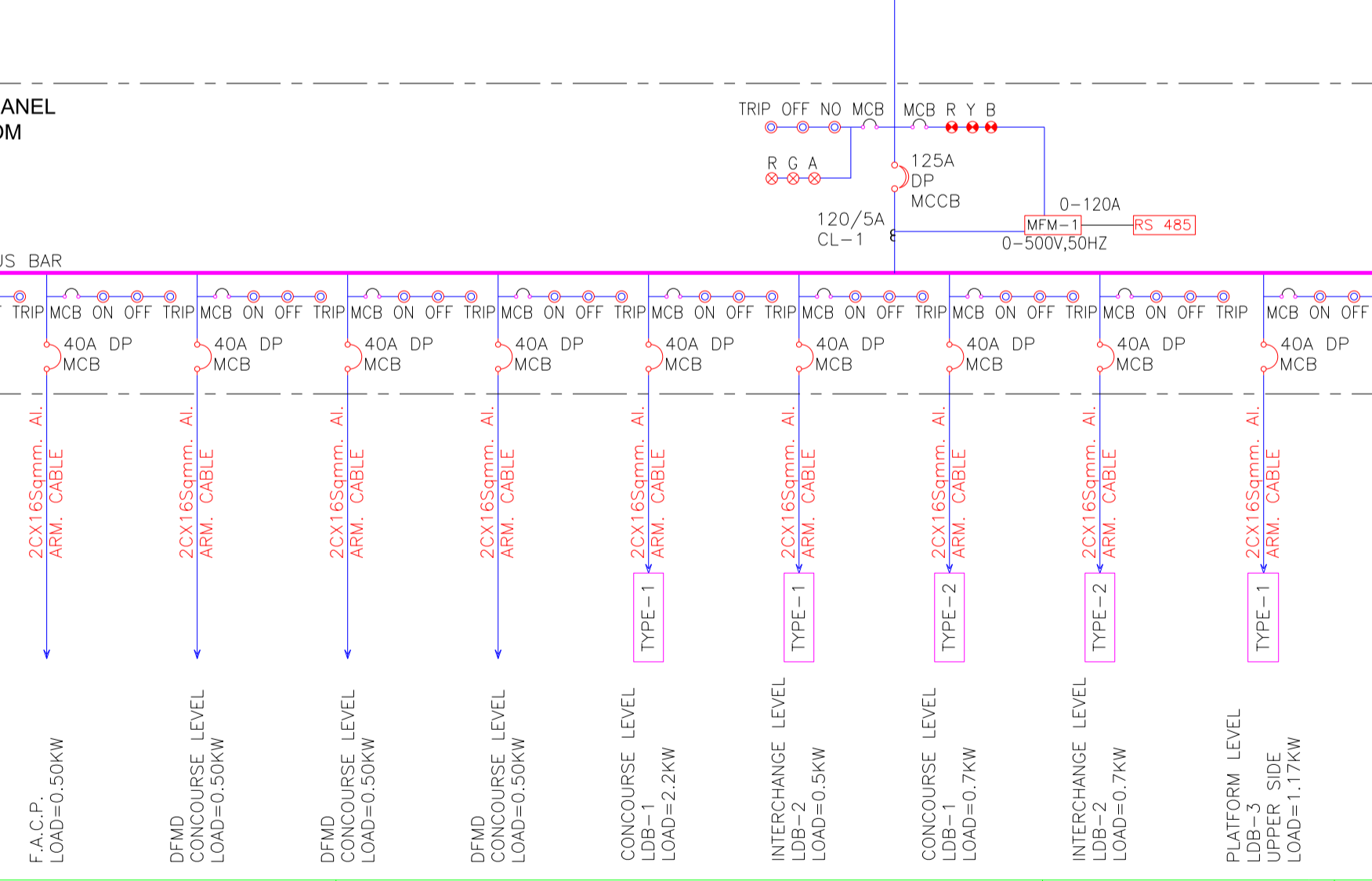
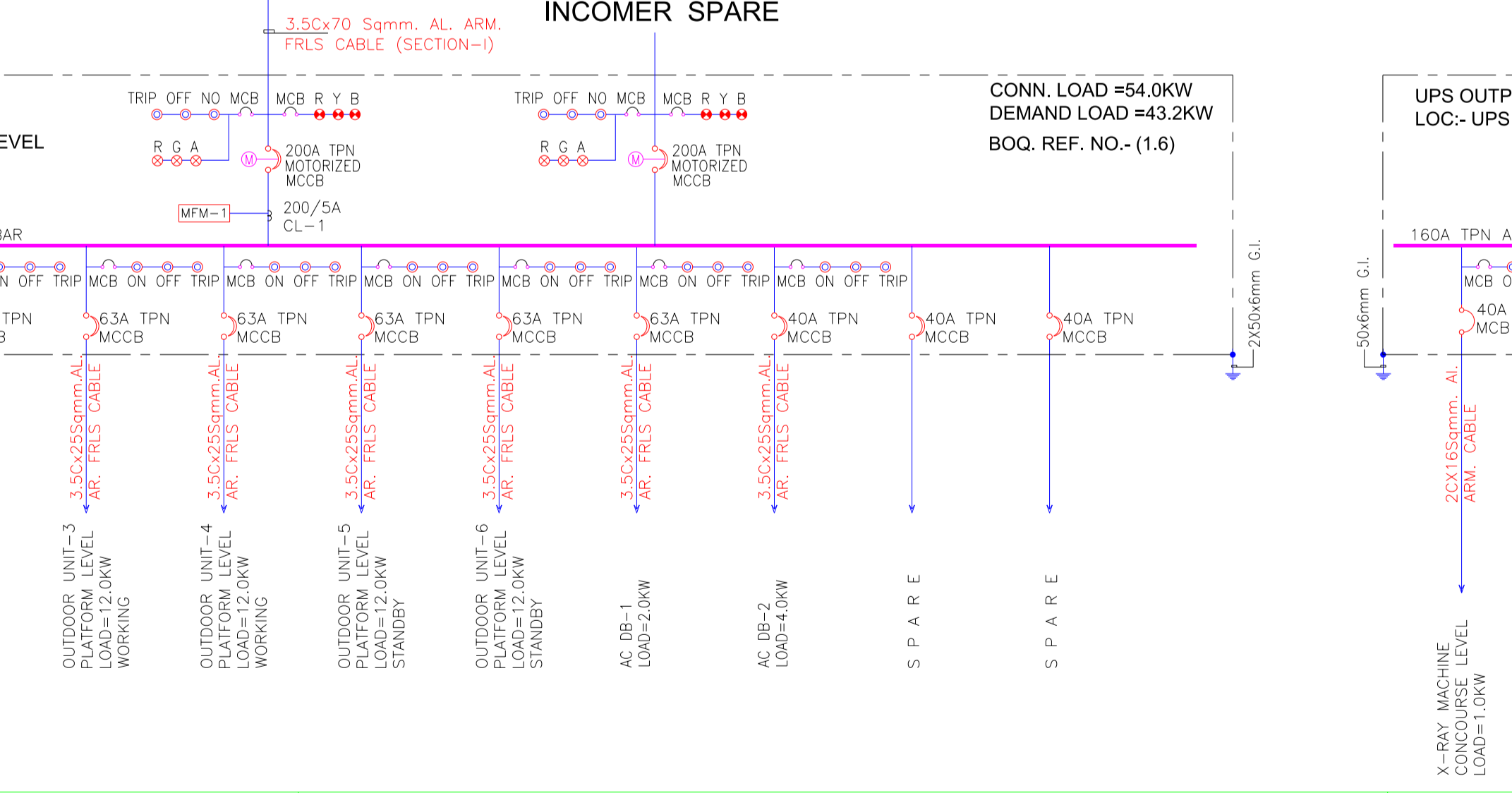
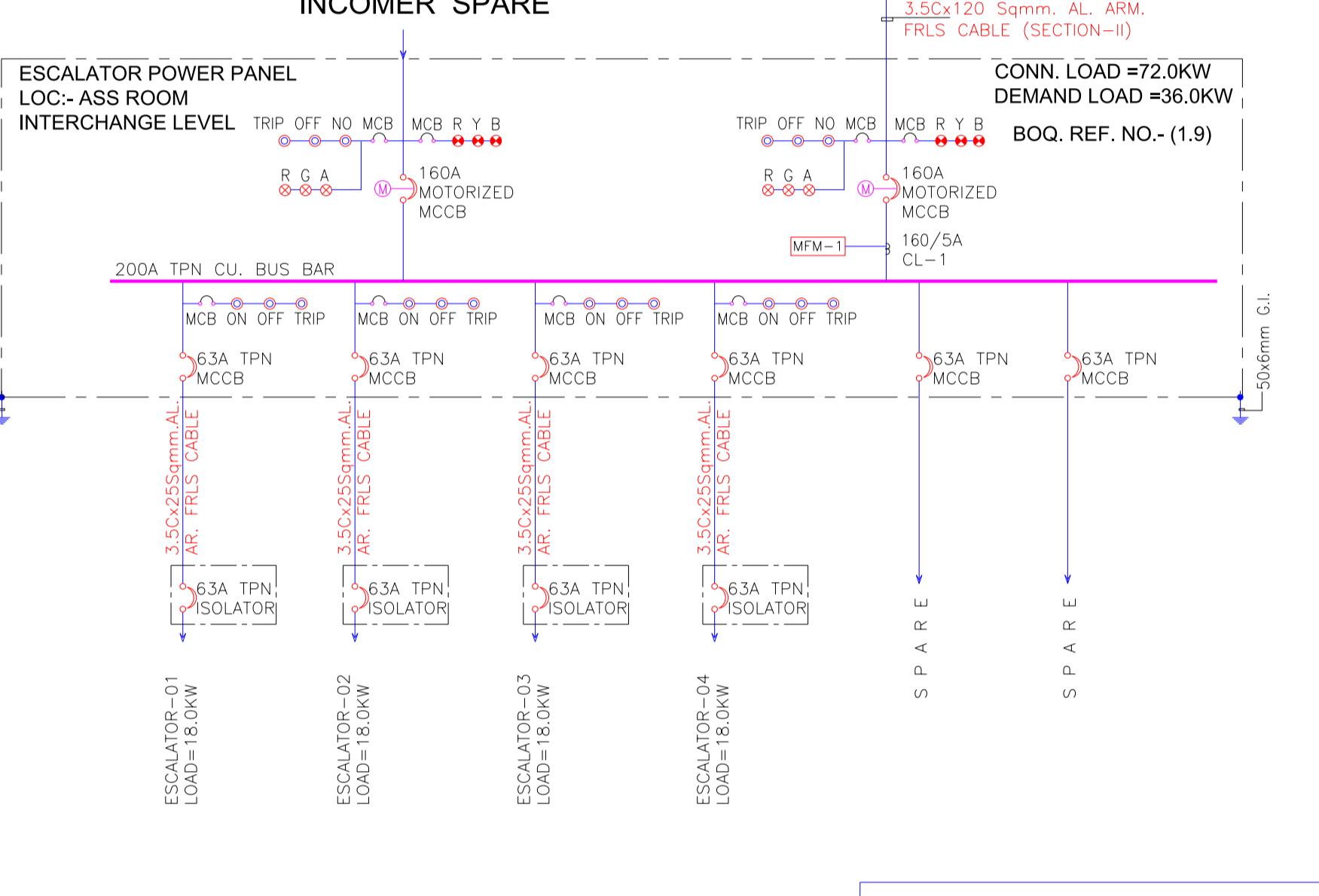
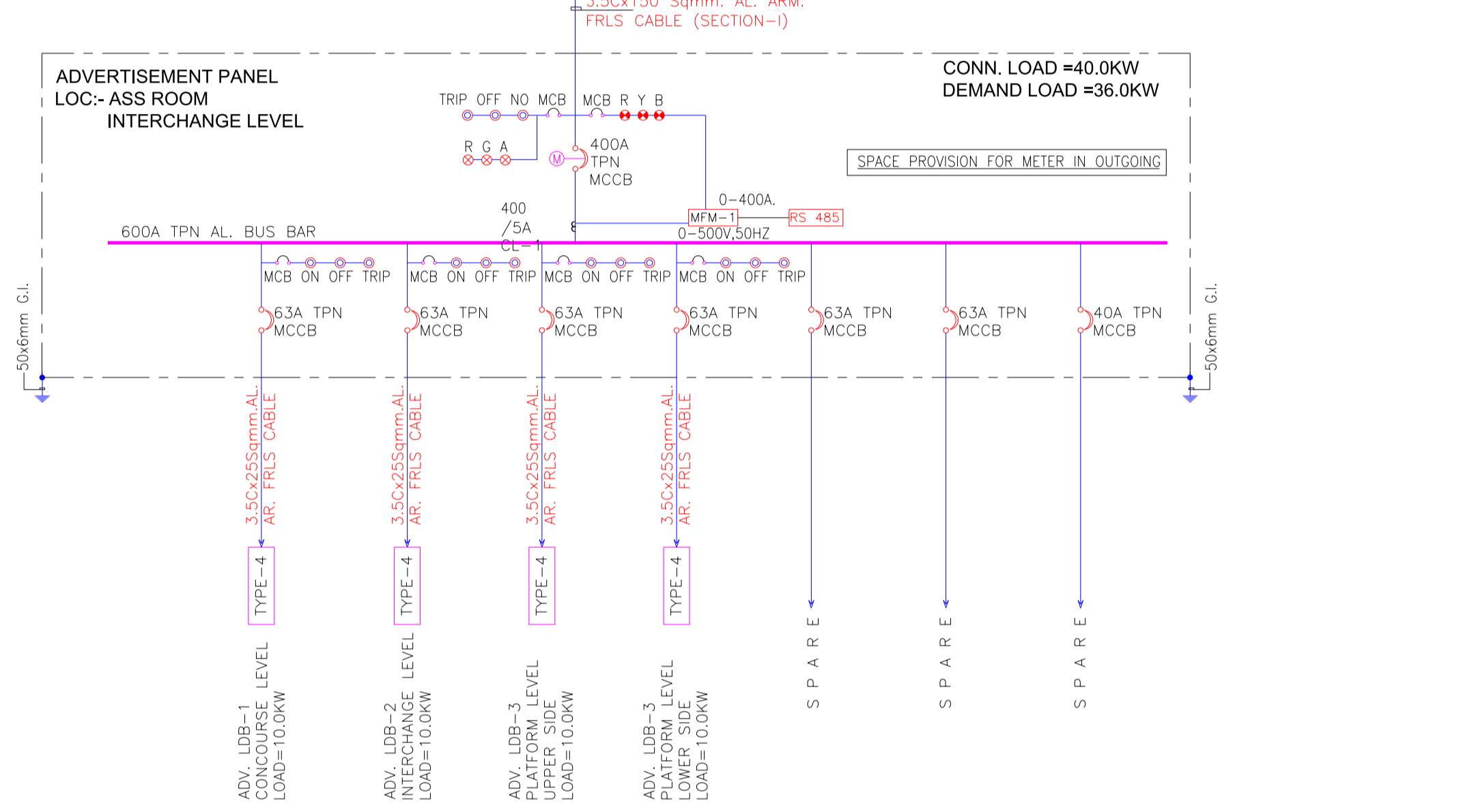
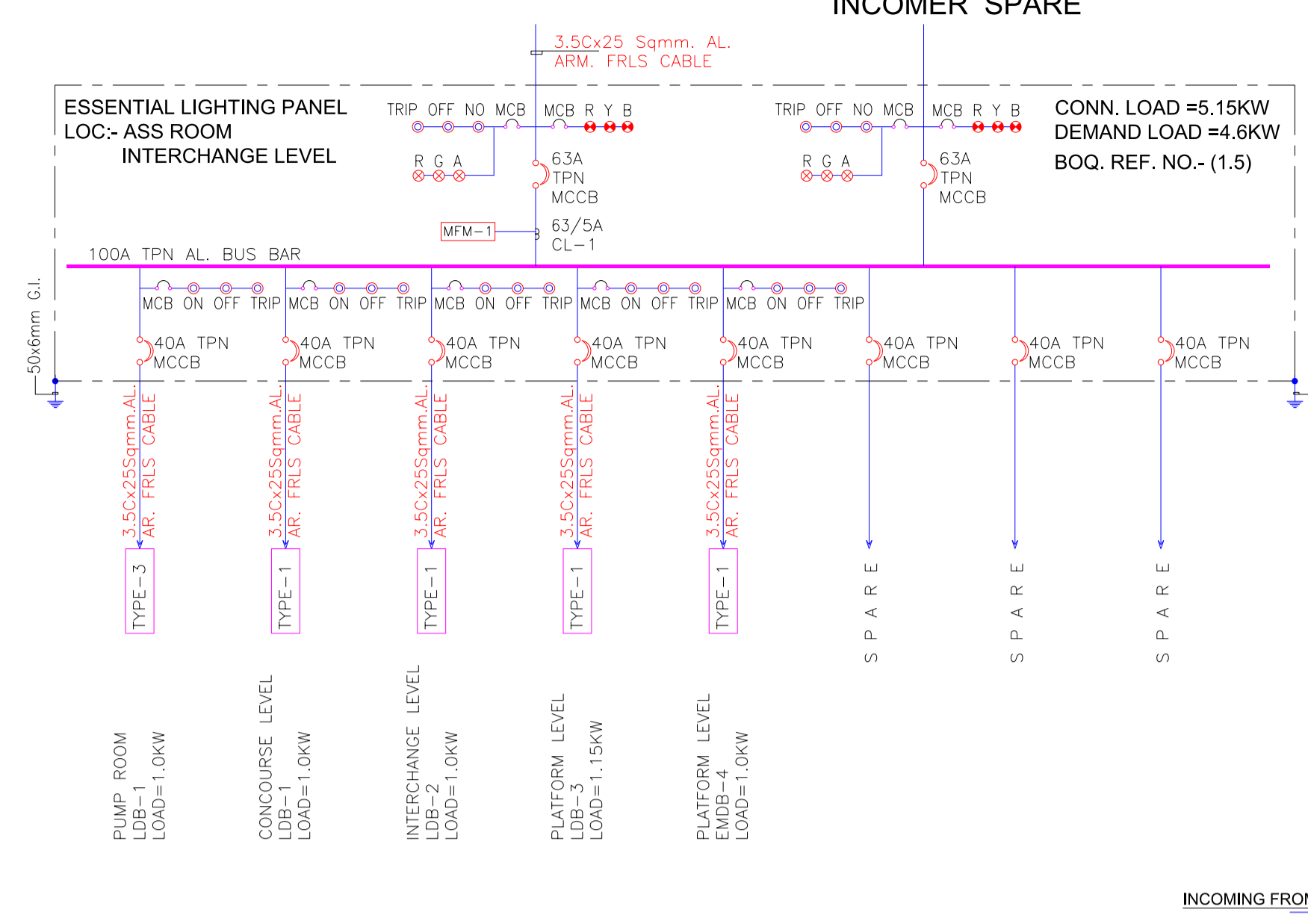
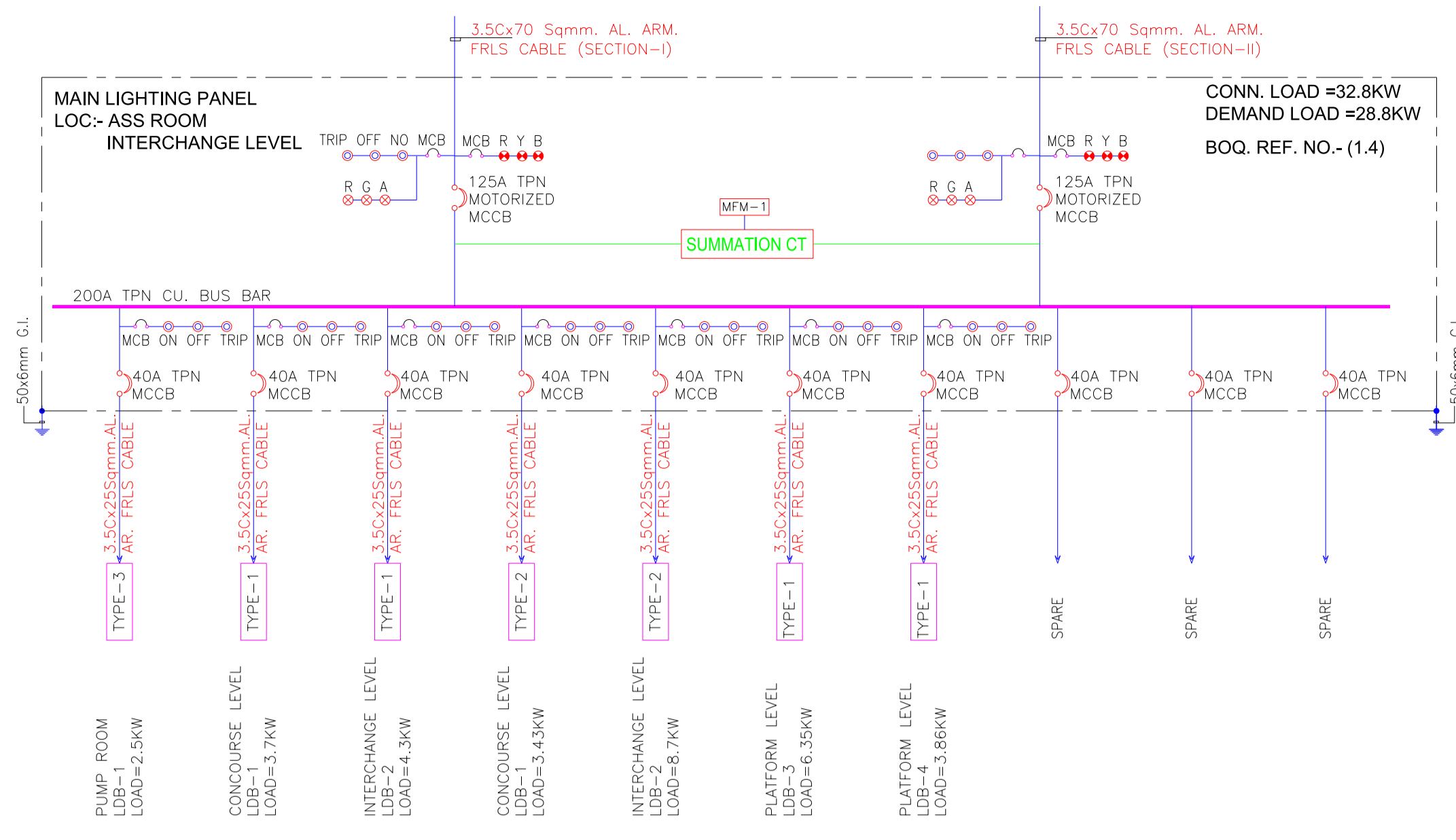
TITLE: MAIN ELECTRICAL SCHEMATIC DIAGRAM PART 2 / 2

SCALE: AS SHOWN DATE: 23/12/20 STATUS: Good for Construction

DRG NO: R2D01-ENI-EL-PES-KDC-DRS-3002

REVISION NO: B01





LEGENDS :

01.	A	AMMETER
02.	AS	AMMETER SELECTOR SWITCH
03.	V	VOLTMETER
04.	VSS	VOLTMETER SELECTOR SWITCH
05.	MFM-1	MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
06.	ITVM	TRIVECTOR METER
07.	APFCR	AUTOMATIC POWER FACTOR RELAY
08.	ATS	A.T.S (AUTO TRANSFER SWITCH)
09.	UR	UNDER VOLTAGE RELAY
10.	MCB	MOTORIZED CIRCUIT BREAKER
11.	MCCB	MOULDED CASE CIRCUIT BREAKER (MCCB)
12.	MCB	MINIATURE CIRCUIT BREAKER (MCB)
13.	ACB	AIR CIRCUIT BREAKER (ACB)
14.	CT	CURRENT TRANSFORMER
15.	BCS	BREAKER CONTROL SWITCH
16.	MPR	MICRO PROCESSOR BASED RELEASE
17.	CF	CONTROL FUSE
18.	AMS	AUTO/ MANUAL SWITCH
19.	H	HOOTER
20.	GR	GROUNDING
21.	PL	PHASE INDICATING LIGHT
22.	IL	INDICATING LIGHT
23.	*	NORMALLY "ON"
24.	**	NORMALLY "OFF"
25.	⚡	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
26.	DEM	DUAL ENERGY METER
27.	R G A	RED, GREEN, AMBER INDICATION LIGHT

- ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION NOTE WITH BMS.
- SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

B03	14/12/20	REVISED AS PER ARCHITECTURE PLAN	
REV NO	DATE	DESCRIPTION	SIGN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 02.12.20	DATE: 02.12.20	DATE: 02.12.20	DATE: 02.12.20
NAME: SK	NAME: OP	NAME: RK	NAME: PG
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY
consortium of enia, mahendra raj & workspace		ACCEPTED BY	
Sub-consultants: AECOM, ADS, Mansycom, Integral Design		NOT APPLICABLE	

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

NAME:

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS 'GOOD FOR CONSTRUCTION'/BEING GIVEN NO OBJECTION

GENERAL CONSULTANT TO NMRP

SIGN:

DATE:

NAME:

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Nari Road

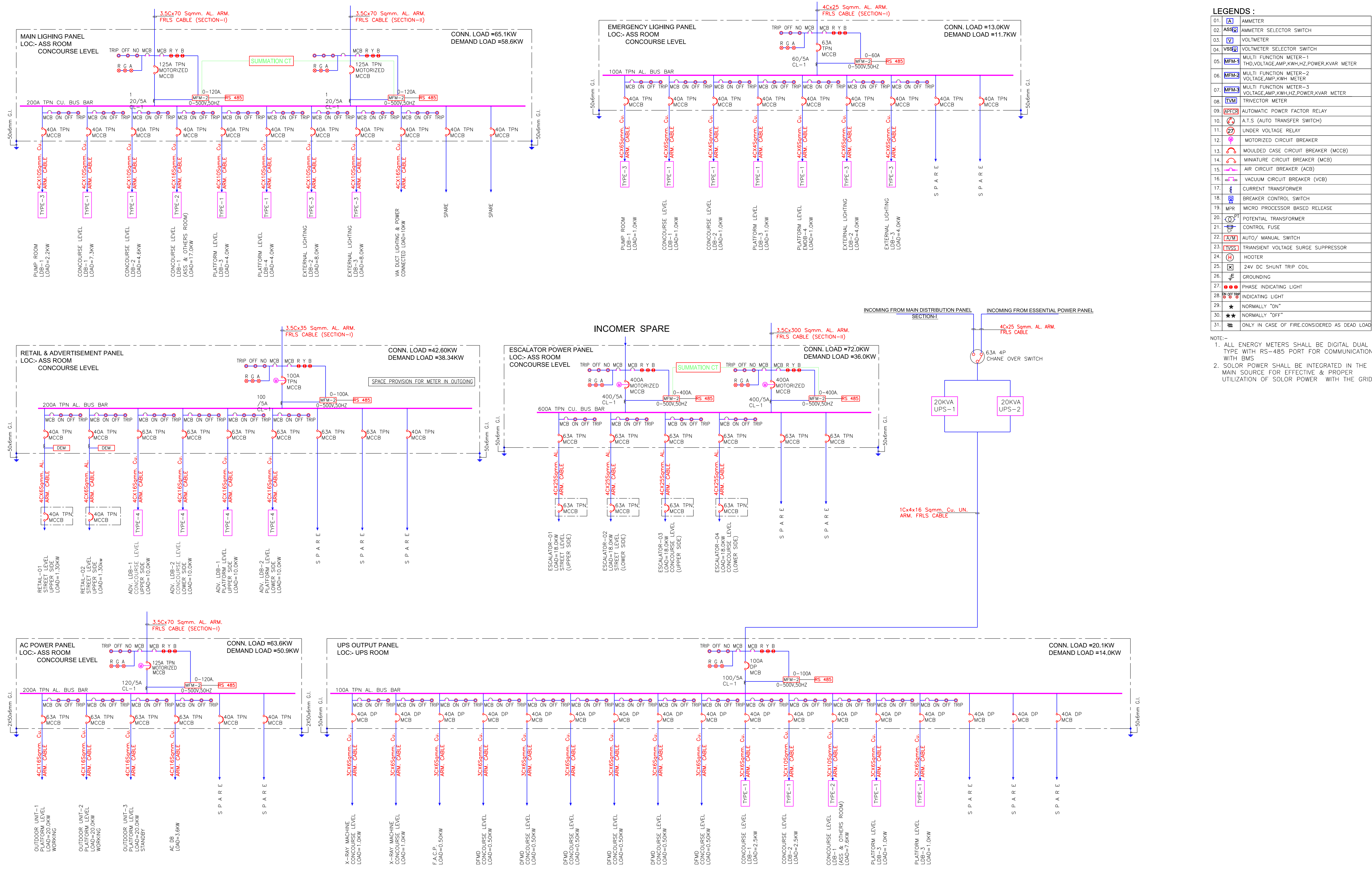
TITLE: MAIN ELECTRICAL SINGLE LINE DIAGRAM

SCALE: AS SHOWN **DATE:** 14/12/20 **STATUS:** Good for Construction

DRG NO: R2D01-ENI-EL-PES-NAR-DRS-3002

REVISION NO: B03

ELECTRICAL



LEGENDS :

01.	[A]	AMMETER
02.	[ASS]	AMMETER SELECTOR SWITCH
03.	[V]	VOLTMETER
04.	[VSS]	VOLTMETER SELECTOR SWITCH
05.	[MFM-1]	MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
06.	[MFM-2]	MULTI FUNCTION METER-2 VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
07.	[MFM-3]	MULTI FUNCTION METER-3 VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
08.	[TVM]	TRIVECTOR METER
09.	[APFR]	AUTOMATIC POWER FACTOR RELAY
10.	[ATS]	A.T.S (AUTO TRANSFER SWITCH)
11.	[UVR]	UNDER VOLTAGE RELAY
12.	[MCCB]	MOTORIZED CIRCUIT BREAKER
13.	[MCCB]	MOULDED CASE CIRCUIT BREAKER (MCCB)
14.	[MCB]	MINIATURE CIRCUIT BREAKER (MCB)
15.	[ACB]	AIR CIRCUIT BREAKER (ACB)
16.	[VCB]	VACUUM CIRCUIT BREAKER (VCB)
17.	[CT]	CURRENT TRANSFORMER
18.	[BKR]	BREAKER CONTROL SWITCH
19.	[MPR]	MICRO PROCESSOR BASED RELEASE
20.	[PT]	POTENTIAL TRANSFORMER
21.	[CF]	CONTROL FUSE
22.	[AMS]	AUTO/ MANUAL SWITCH
23.	[TVSS]	TRANSIENT VOLTAGE SURGE SUPPRESSOR
24.	[H]	HOOTER
25.	[X]	24V DC SHUNT TRIP COIL
26.	[E]	GROUNDING
27.	[PIL]	PHASE INDICATING LIGHT
28.	[IL]	INDICATING LIGHT
29.	[*]	NORMALLY "ON"
30.	[**]	NORMALLY "OFF"
31.	[#]	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD

NOTE:-
 1. ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION WITH BMS
 2. SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

B02	08/02/19	FIRST ISSUE	
REV NO	DATE	DESCRIPTION	SIGN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV..... APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 06.02.19	DATE: 06.02.19	DATE: 06.02.19	DATE: 06.02.19
NAME: SK	NAME: OP	NAME: RK	NAME: PG
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY
consortium of enia, mahendra raj & worxpace			
KG-1/265, Vikaspur, New Delhi, India		Sub-consultants: AEO/A, ADS	
Tel.: +91 9971 691803 / +91 9818 629588		Mansycom	
s.manichand@enia.in / a.joshi@enia.in		Integral Design	
www.enia.in		ROARK	

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

GENERAL CONSULTANT TO NMRP

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED, REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS 'GOOD FOR CONSTRUCTION'/BEING GIVEN NO OBJECTION

GENERAL CONSULTANT TO NMRP

SYSTRA-AECOM-EGIS-RITES

Church House, Above SBI Bank, First floor, Civil Lines Nagpur- 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
 Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
 Phone No: 07122554217

CLIENT: **MAHARASHTRA METRO RAIL CORPORATION LTD.**

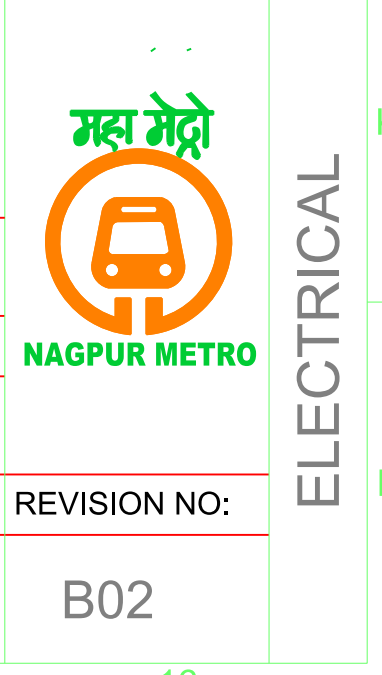
LOCATION: Kasthurchand Park

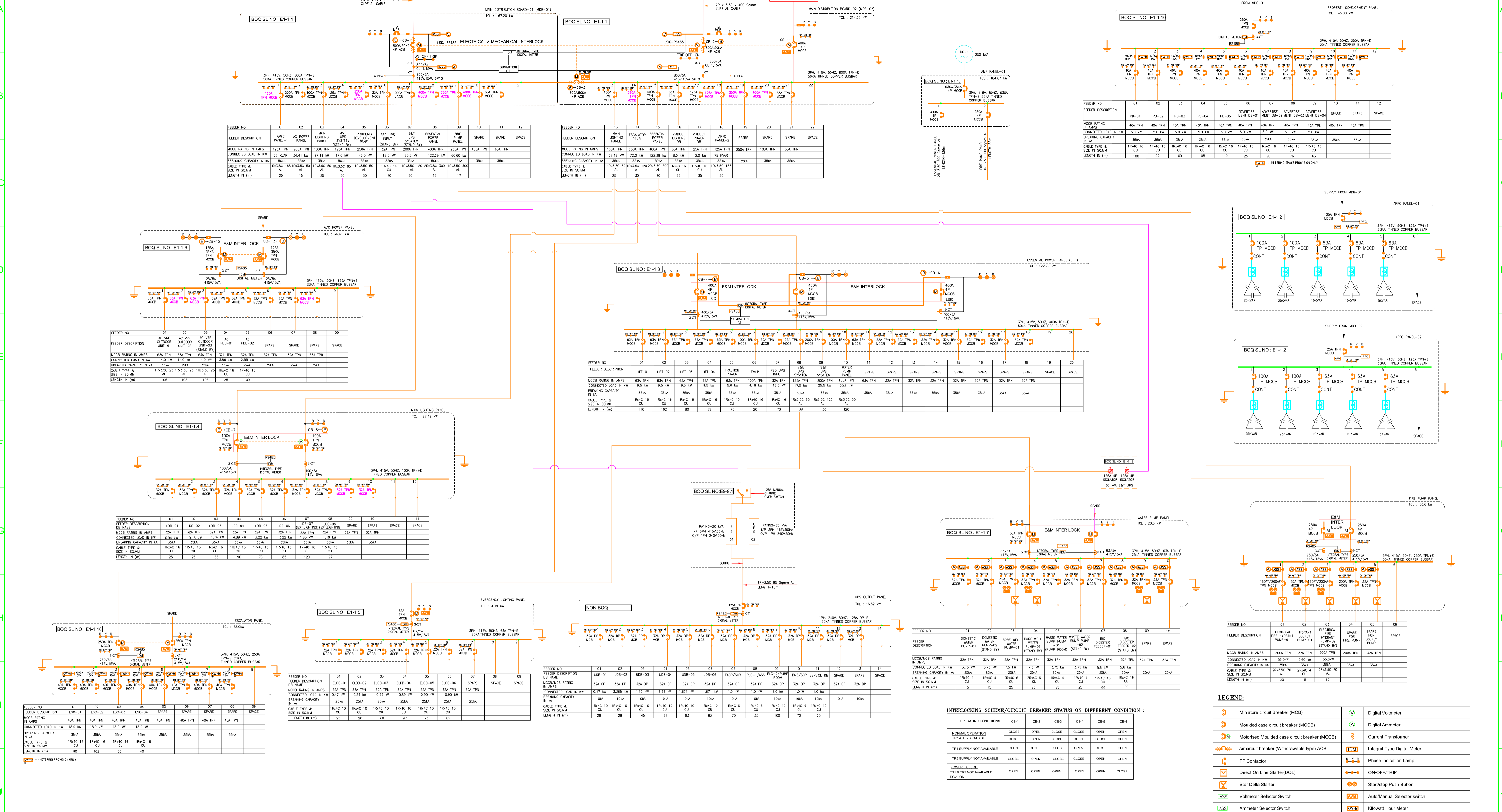
TITLE: **MAIN ELECTRICAL SINGLE LINE DIAGRAM PART 2/2**

SCALE: AS SHOWN | DATE: 08/02/19 | STATUS: Good for Construction

DRG NO: **R2D01-ENI-EL-PRM-KCP-DRS-3002**

REVISION NO: **B02**





NOTE:
* ALL LEVELS/GRID DIMENSIONS TO BE CONFIRMED AS PER LATEST ARCHITECTURAL DRAWINGS. IN CASE OF ANY DISCREPANCY IT SHALL BE IMMEDIATELY NOTIFIED TO ENGINEER-IN-CHARGE/DDC/GC PRIOR TO PLACING OF CONCRETE

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GFD FROM THE ALREADY APPROVED CR DWG NO.REV..... APPROVED ON DATE:

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN: _____	SIGN: _____	SIGN: _____	SIGN: _____
DATE: 10.08.19	DATE: 10.08.19	DATE: 10.08.19	DATE: 10.08.19
NAME: P SURYA	NAME: SIVA	NAME: K DHANUSH	NAME: VITHAL
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY

VISHWANATH ASSOCIATES
31, 2ND CROSS, 8TH MAIN, OFF PALACE ROAD, VASANTHANGAR, BANGALORE - 52
ARCHITECTS

SUKIR CONSULTING ENGINEERS PVT LTD

PROOF CONSULTANT

GENERAL CONSULTANT TO NMRP

SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank, First floor, Civil Lines Nagpur - 440001

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND ISSUED AS 'GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION'

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: **MAHARASHTRA METRO RAIL CORPORATION LTD.**

LOCATION: **AMBEDKAR CHOWK METRO STATION**

TITLE: **ELECTRICAL SINGLE LINE DIAGRAM**

SCALE: **AS SHOWN** DATE: **10 AUG 19** STATUS: **Good for construction**

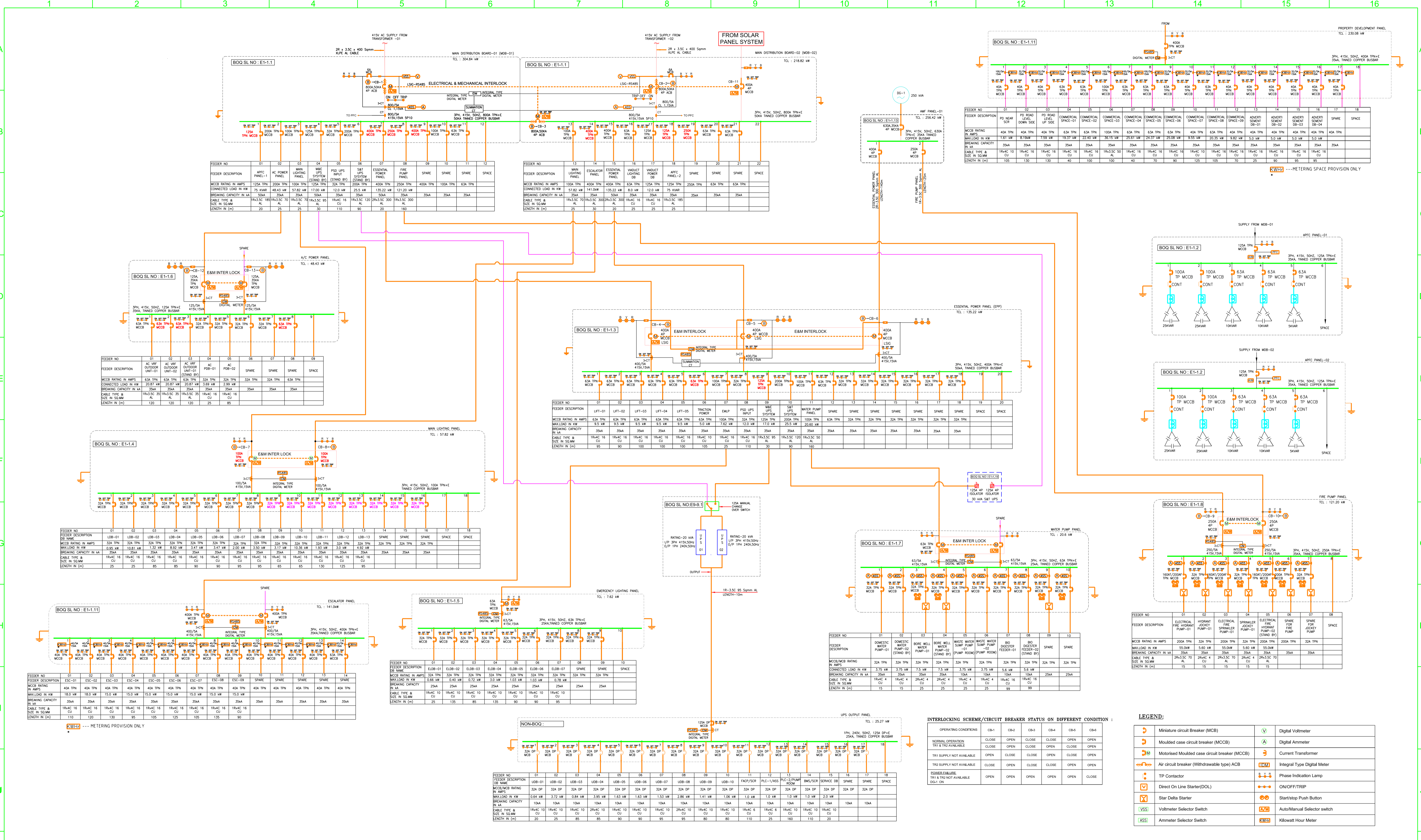
DRG NO: **R4D01-VIA-EL-PES-AMD-SLD-0001**

REVISION NO: **B01**

LEGEND:

	Miniature circuit breaker (MCB)		Digital Voltmeter
	Moulded case circuit breaker (MCCB)		Digital Ammeter
	Motorsised Moulded case circuit breaker (MCCB)		Current Transformer
	Air circuit breaker (Withdrawable type) ACB		Integral Type Digital Meter
	TP Contactor		Phase Indication Lamp
	Direct On Line Starter(DOL)		ON/OFF/TRIP
	Star Delta Starter		Start/stop Push Button
	Voltmeter Selector Switch		Auto/Manual Selector switch
	Ammeter Selector Switch		Kilowatt Hour Meter

GOOD FOR CONSTRUCTION



THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV. APPROVED ON DATE:

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN: _____	SIGN: _____	SIGN: _____	SIGN: _____
DATE: 23.07.19	DATE: 23.07.19	DATE: 23.07.19	DATE: 23.07.19
NAME: M GOPI	NAME: SIVA	NAME: K DHANUSH	NAME: VITHAL
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY
VISHWANATH ASSOCIATES 31, 2ND CROSS, 8TH MAIN, OFF PALACE ROAD VASANTHANGAR, BANGALORE - 52 PH. NO. +91-080-2284277		SUKIR CONSULTING ENGINEERS PVT LTD MEP Design Consultant	

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN **PROOF CHECKED** INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT
SIGN: _____
DATE: _____
NAME: _____

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN **PROOF CHECKED/REVIEWED** AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND ISSUED AS 'GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION'.

GENERAL CONSULTANT TO NMRP
SIGN: _____
DATE: _____
NAME: _____

SYSTRACOM-EGIS-RITES
Church House, Above SBI Bank,
First floor, Civil Lines Nagpur - 440001

COUNTER SIGNED BY
MAHARASHTRA METRO
RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar,
Civil Lines, Nagpur - 440 001
Phone No: 07122554217

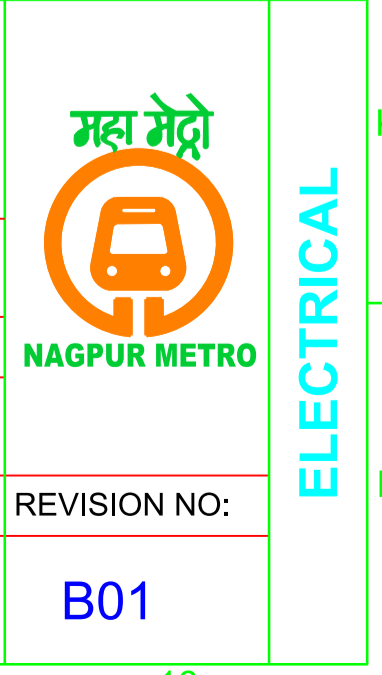
CLIENT: **MAHARASHTRA METRO RAIL CORPORATION LTD.**

LOCATION: **PRJAPATI NAGAR METRO STATION**

TITLE: **ELECTRICAL SINGLE LINE DIAGRAM**

SCALE: **NTS** DATE: **23 JUL 19** STATUS: **Good for construction**

DRG NO: **R4D01-VIA-EL-PES-PPN-SLD-0001** REVISION NO: **B01**

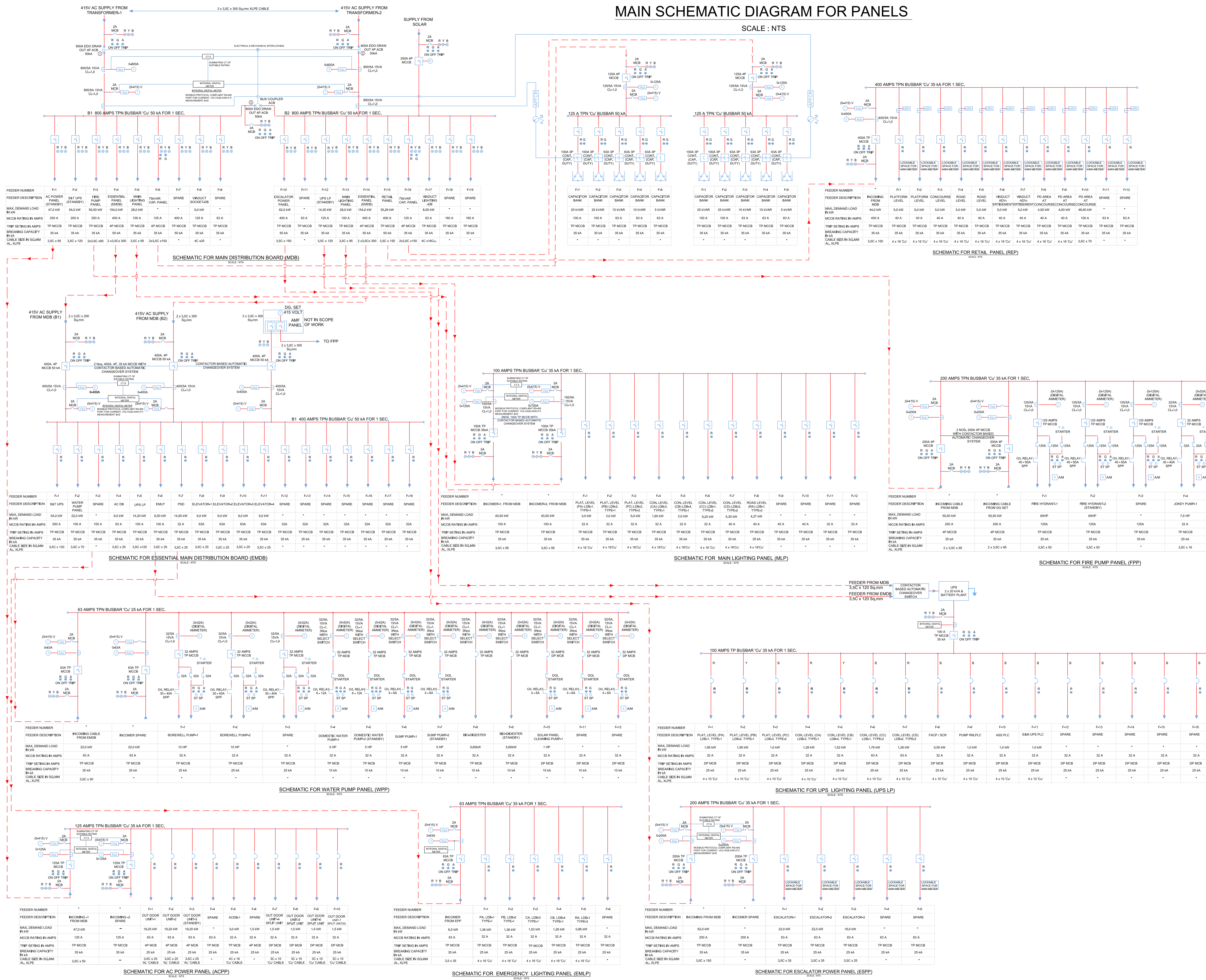


ELECTRICAL

B01

MAIN SCHEMATIC DIAGRAM FOR PANELS

SCALE: 1:NTS



LEGEND:-

SYMBOL	DESCRIPTION
	AIR CIRCUIT BREAKER
	MOULDED CASE CIRCUIT BREAKER
	MOTORISED MOULDED CASE CIRCUIT BREAKER
	MINIATURE CIRCUIT BREAKER
	EARTH LEAKAGE CIRCUIT BREAKER
	RESIDUAL CURRENT CIRCUIT BREAKER
	CURRENT TRANSFORMER
	KILOWATT HOUR METER
	MULTI FUNCTION METER
	DIGITAL AMMETER
	DIGITAL VOLTMETER
	VOLTMETER SELECTOR SWITCH
	AMMETER SELECTOR SWITCH
	OVER LOAD RELAY
	AUTOMATIC POWER FACTOR CORRECTION RELAY
	AUTO/MANUAL SELECTOR SWITCH
	EARTH BUS
	INDICATION LIGHT
	ON / OFF / TRIP
	START / STOP
	DG SET

ELECTRICAL & MECHANICAL INTERLOCK AT MAIN LT PANEL (2/3 INTERLOCK)

Sr. No	INCOMER ACB -1 FROM TR. - 1	INCOMER ACB -2 FROM TR. - 2	BUS-COUPLER ACB -3
1	ON	OFF	ON
2	OFF	ON	ON
3	ON	ON	OFF

NOTE:-
 1. SUPPLY FROM SOLAR SYSTEM AND RESPECTIVE BREAKER TO BE WITH INTERLOCK REST OF THE INCOMER OF MDB.
 2. ALL BREAKERS SHALL BE PROVIDED WITH COMMUNICATION FACILITY FOR BMS/SCADA CONNECTIVITY THROUGH MODBUS PROTOCOL RS-485.

GOOD FOR CONSTRUCTION

NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. ALL DIMENSIONS ARE TO BE READ AND NOT MEASURED.
 3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & FIRE FIGHTING, ELECTRICAL AND TRAFFIC MANAGEMENT DRAWINGS.
 4. ANY DISCREPANCIES MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.

REV NO	DATE	DESCRIPTION	SIGN
B04	03-09-19	REVISED AS PER GC COMMENTS	
B03	21-08-19	REVISED AS PER GC COMMENTS	
B02	28-05-19	REVISED AS PER GC COMMENTS	
B01	08-06-18	FIRST ISSUE	

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN GC FROM THE ALREADY APPROVED DWG NO. *.....* APPROVED ON DATE.....*

DETAILED DESIGN CONSULTANT					CONTRACTOR				
SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:	SIGN:
DATE: 03-09-19	DATE: 03-09-19	DATE: 03-09-19	DATE: 03-09-19	DATE: 03-09-19	DATE:	DATE:	DATE:	DATE:	DATE:
NAME: T. CHAND	NAME: A. HUSAIN	NAME: G. BHUTANI	NAME: A. JHAMNANI	NAME:	NAME:	NAME:	NAME:	NAME:	NAME:
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY	ACCEPTED BY					

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

SIGN: _____
 DATE: _____
 NAME: _____

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND ISSUED AS 'GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION'.

GENERAL CONSULTANT TO NMRP

SIGN: _____
 DATE: _____
 NAME: _____

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
 Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
 Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: REACH-4-AGRASEN CHOWK STATION

TITLE: MAIN SCHEMATIC DIAGRAM FOR PANELS

SCALE: AS SHOWN **DATE:** 03-09-19 **STATUS:** GOOD FOR CONSTRUCTION **REVISION NO:** B04

DRG NO: R4D02-SYS-EL-PES-ASS-DRS-0102

ELECTRICAL

SYSTRA
 DETAILED DESIGN CONSULTANT
 SYSTRA MVA CONSULTING (INDIA) PRIVATE LIMITED
 5TH FLOOR, GURU ANAND BHAWAN, 71, NEHRU PLACE, NEW DELHI-110019
 PH: 26422844, 26413310 FAX: 26224204
 SUBSIDIARY OF: SYSTRA S.A. - 72-76, RUE HENRI FARMAN, 75015, PARIS, FRANCE

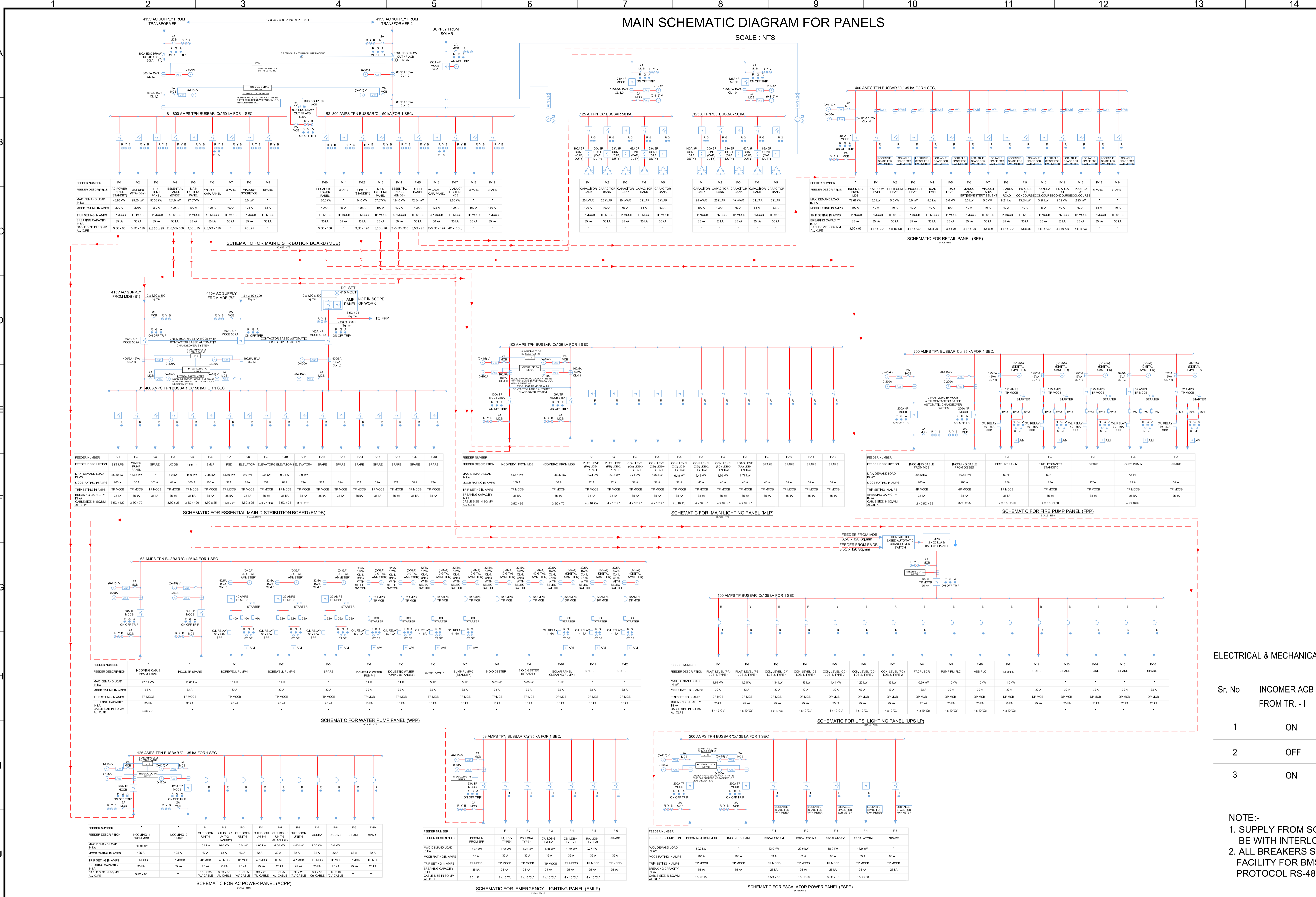
SYSTRA-AECOM-EGIS-RITES
 Church House, Above SBI Bank,
 First floor, Civil Lines Nagpur- 440001

plot scale _____ 50mm

MAIN SCHEMATIC DIAGRAM FOR PANELS

SCALE: 1:NTS

SYMBOL	DESCRIPTION
	AIR CIRCUIT BREAKER
	MOULDED CASE CIRCUIT BREAKER
	MOTORIZED MOULDED CASE CIRCUIT BREAKER
	MINIATURE CIRCUIT BREAKER
	EARTH LEAKAGE CIRCUIT BREAKER
	RESIDUAL CURRENT CIRCUIT BREAKER
	CURRENT TRANSFORMER
	KILOWATT HOUR METER
	MULTI FUNCTION METER
	DIGITAL AMMETER
	DIGITAL VOLTMETER
	VOLTMETER SELECTOR SWITCH
	AMMETER SELECTOR SWITCH
	OVER LOAD RELAY
	AUTOMATIC POWER FACTOR CORRECTION RELAY
	AUTOMANUAL SELECTOR SWITCH
	EARTH BUS
	INDICATION LIGHT
	ON / OFF / TRIP
	START / STOP
	DG SET



ELECTRICAL & MECHANICAL INTERLOCK AT MAIN LT PANEL (2/3 INTERLOCK)

Sr. No	INCOMER ACB-1 FROM TR. - 1	INCOMER ACB-2 FROM TR. - 2	BUS-COUPLER ACB-3
1	ON	OFF	ON
2	OFF	ON	ON
3	ON	ON	OFF

NOTE:-
 1. SUPPLY FROM SOLAR SYSTEM AND RESPECTIVE BREAKER TO BE WITH INTERLOCK REST OF THE INCOMER OF MDB.
 2. ALL BREAKERS SHALL BE PROVIDED WITH COMMUNICATION FACILITY FOR BMS/SCADA CONNECTIVITY THROUGH MODBUS PROTOCOL RS-485.

GOOD FOR CONSTRUCTION

REV NO	DATE	DESCRIPTION	SIGN
804	03-09-19	REVISED AS PER GC COMMENTS	
803	21-08-19	REVISED AS PER GC COMMENTS	
802	28-05-19	REVISED AS PER GC COMMENTS	
801	10-05-18	FIRST ISSUE	

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR.

IT IS CERTIFIED THAT THERE IS NO CHANGE IN GC FROM THE ALREADY APPROVED DWG NO. *..... APPROVED ON DATE.....

DETAILED DESIGN CONSULTANT		CONTRACTOR	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 03-09-19	DATE: 03-09-19	DATE: 03-09-19	DATE: 03-09-19
NAME: T. CHAND	NAME: A.HUSAIN	NAME: G.BHUTANI	NAME: A.JHAMNANI
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY

SYSTRA
 DETAILED DESIGN CONSULTANT
 SYSTRA MVA CONSULTING (INDIA) PRIVATE LIMITED
 5TH FLOOR, GURU ANAGAD BHAWAN, 71, NEHRU PLACE, NEW DELHI-110019
 PH: 26422844, 26413310 FAX: 26224204
 SUBSIDIARY OF: SYSTRA S.A. - 72-76, RUE HENRI FARMAN, 75015, PARIS, FRANCE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

SIGN: _____ DATE: _____ NAME: _____

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS 'GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION

GENERAL CONSULTANT TO NMRP

SIGN: _____ DATE: _____ NAME: _____

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
 Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
 Phone No: 07122554217

CLIENT: **MAHARASHTRA METRO RAIL CORPORATION LTD.**

LOCATION: **REACH-4- DOSAR VAISYA CHOWK STATION**

TITLE: **MAIN SCHEMATIC DIAGRAM FOR PANELS**

SCALE: AS SHOWN DATE: 03-09-19 STATUS: GOOD FOR CONSTRUCTION REVISION NO: B04

DRG NO: **R4D02-SYS-EL-PES-DVS-0102**

NAGPUR METRO

ELECTRICAL



LEGENDS:

01	AMMETER
02	AMMETER SELECTOR SWITCH
03	VOLTMETER
04	VOLTMETER SELECTOR SWITCH
05	MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,HZ,POWER,KVAR METER
06	TRIVECTOR METER
07	AUTOMATIC POWER FACTOR RELAY
08	A.T.S (AUTO TRANSFER SWITCH)
09	UNDER VOLTAGE RELAY
10	MOTORIZED CIRCUIT BREAKER
11	MOULDED CASE CIRCUIT BREAKER (MCCB)
12	MINIATURE CIRCUIT BREAKER (MCB)
13	AIR CIRCUIT BREAKER (ACB)
14	CURRENT TRANSFORMER
15	BREAKER CONTROL SWITCH
16	MICRO PROCESSOR BASED RELEASE
17	CONTROL FUSE
18	A.T.S / MANUAL SWITCH
19	HOOTER
20	GROUNDING
21	PHASE INDICATING LIGHT
22	INDICATING LIGHT
23	NORMALLY "ON"
24	NORMALLY "OFF"
25	ONLY IN CASE OF FIRE, CONSIDERED AS DEAD LOAD
26	DUAL GREEN METER
27	RED, GREEN, AMBER INDICATION LIGHT

- ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION NOT WITH EMS.
- SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

NOTES:

- ALL DIMENSIONS ARE IN MM
- ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
- ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
- GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

REV NO	DATE	DESCRIPTION	SIGN
B03	02/09/20	REVISED AS PER ARCHITECTURE PLAN	

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GFCD FROM THE ALREADY APPROVED CR DWG NO. REV. APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 07.08.20	DATE: 07.08.20	DATE: 07.08.20	DATE: 07.08.20
NAME: SK	NAME: OP	NAME: RK	NAME: PG
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY

consortium of enia, mahendra raj & worxpace

Sub-consultants:
AECOM
ADS
Mansycom
Integral Design

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN **PROOF CHECKED** INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT

NAME: _____

DATE: _____

NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN **PROOF CHECKED/REVIEWED** AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS ISSUED AS "GOOD FOR CONSTRUCTION/BEING GIVEN NO OBJECTION"

GENERAL CONSULTANT TO NMRP

NAME: _____

DATE: _____

NOT APPLICABLE

SYSTRA-AECOM-EGIS-RITES
Church House, Above SBI Bank,
First floor, Civil Lines Nagpur- 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
Metro House, 28/2, CK Naidu Marg, Anand Nagar,
Civil Lines, Nagpur - 440 001
Phone No: 07122554217

CLIENT: MAHARASHTRA METRO RAIL CORPORATION LTD.

LOCATION: Chitaroli Chowk

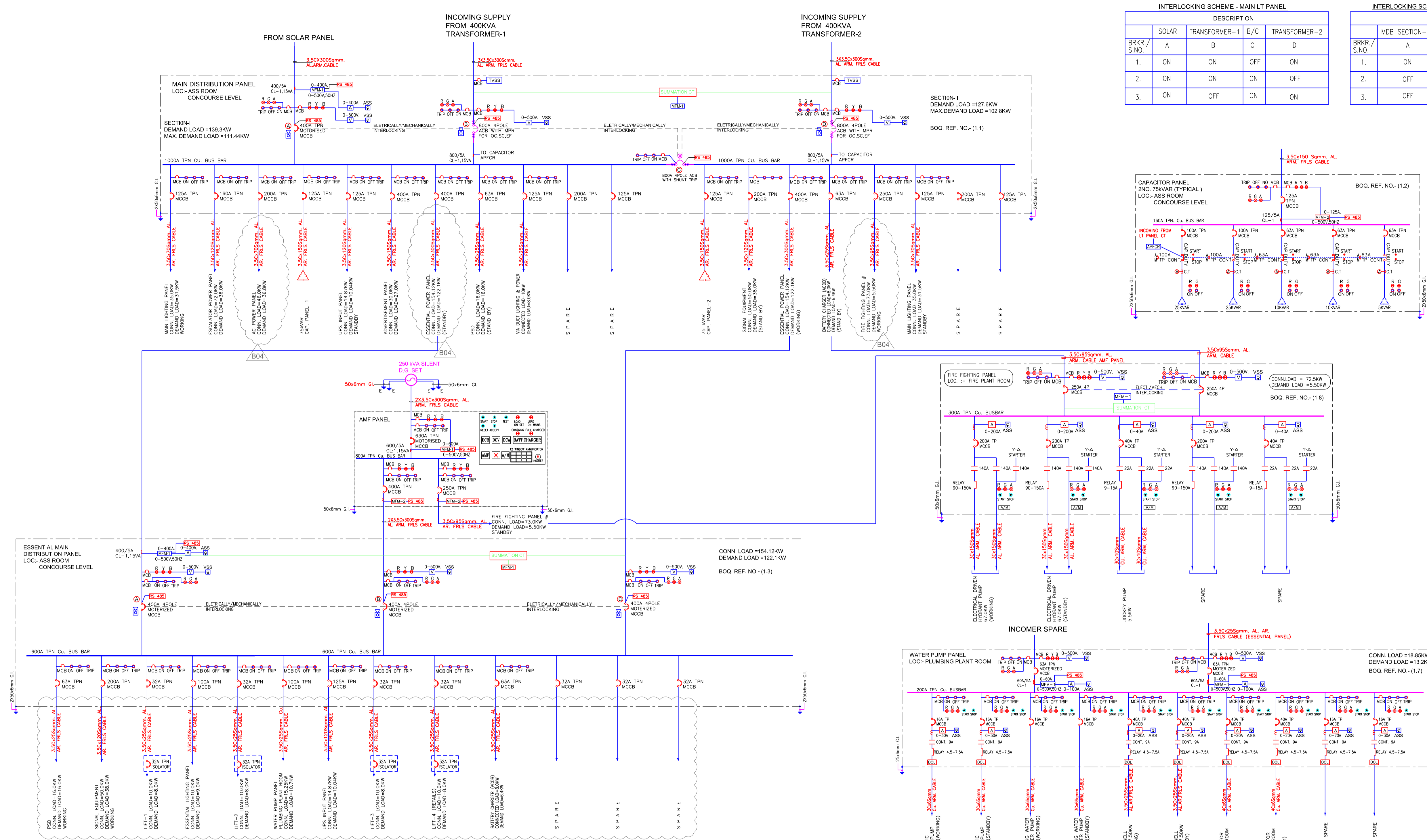
TITLE: MAIN ELECTRICAL SINGLE LINE DIAGRAM

SCALE: AS SHOWN **DATE:** 02/09/20 **STATUS:** Good for Construction

DRG NO: R4D03-ENI-EL-PES-COS-DRS-3002

REVISION NO: B03

ELECTRICAL

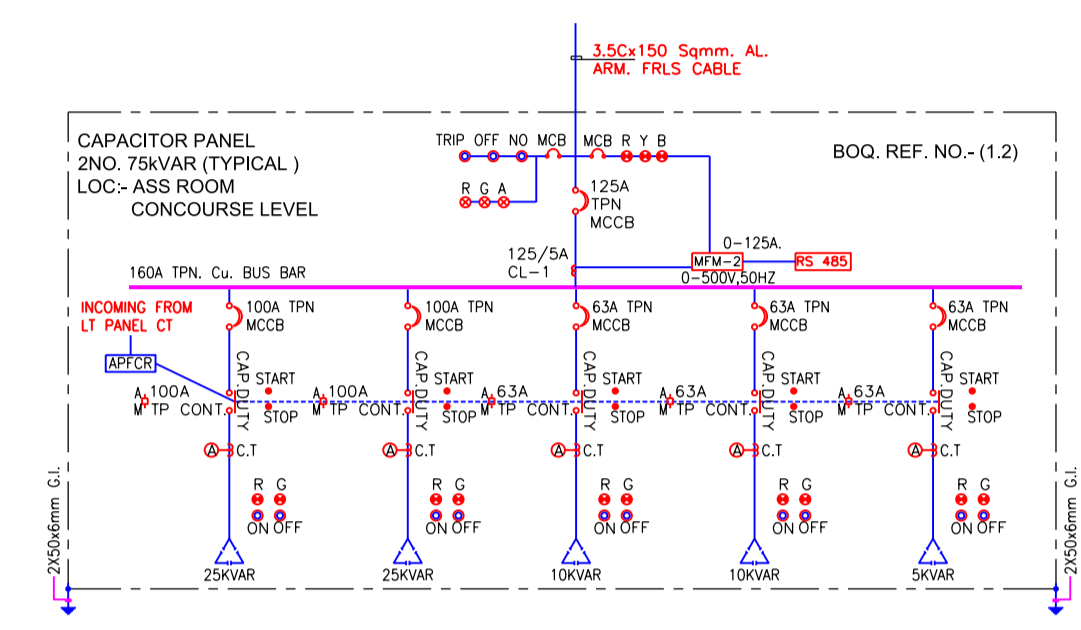


INTERLOCKING SCHEME - MAIN LT PANEL

BRKR/S.NO.	SOLAR	TRANSFORMER-1	B/C	TRANSFORMER-2
1.	ON	ON	OFF	ON
2.	ON	ON	ON	OFF
3.	ON	OFF	ON	ON

INTERLOCKING SCHEME - ESSENTIAL POWER PANEL

BRKR/S.NO.	MDB SECTION-1	DG	MDB SECTION-2
1.	ON	OFF	OFF
2.	OFF	OFF	ON
3.	OFF	ON	OFF



- LEGENDS:
- 01. AMMETER
 - 02. AMMETER SELECTOR SWITCH
 - 03. VOLTMETER
 - 04. VOLTMETER SELECTOR SWITCH
 - 05. MULTI FUNCTION METER-1 THD,VOLTAGE,AMP,KWH,KV,POWER,KVAR METER
 - 06. TRIVECTOR METER
 - 07. AUTOMATIC POWER FACTOR RELAY
 - 08. A.T.S (AUTO TRANSFER SWITCH)
 - 09. UNDER VOLTAGE RELAY
 - 10. MOTORIZED CIRCUIT BREAKER
 - 11. MOULDED CASE CIRCUIT BREAKER (MCCB)
 - 12. MINIATURE CIRCUIT BREAKER (MCB)
 - 13. AIR CIRCUIT BREAKER (ACB)
 - 14. CURRENT TRANSFORMER
 - 15. BREAKER CONTROL SWITCH
 - 16. MPR MICRO PROCESSOR BASED RELEASE
 - 17. CONTROL FUSE
 - 18. AUTO/MANUAL SWITCH
 - 19. HOOTER
 - 20. GROUNDING
 - 21. PHASE INDICATING LIGHT
 - 22. INDICATING LIGHT
 - 23. NORMALLY "ON"
 - 24. NORMALLY "OFF"
 - 25. ONLY IN CASE OF FIRE CONSIDERED AS DEAD LOAD
 - 26. DUAL ENERGY METER
 - 27. RED, GREEN, AMBER INDICATION LIGHT

NOTE:-
 1. ALL ENERGY METERS SHALL BE DIGITAL DUAL TYPE WITH RS-485 PORT FOR COMMUNICATION WITH BMS
 2. SOLAR POWER SHALL BE INTEGRATED IN THE MAIN SOURCE FOR EFFECTIVE & PROPER UTILIZATION OF SOLAR POWER WITH THE GRID.

- NOTES:
- ALL DIMENSIONS ARE IN MM
 - ALL LEVELS IN METERS FROM MEAN SEA LEVEL UNLESS OTHERWISE MENTIONED
 - DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED
 - ALL DIMENSIONS ARE INDICATIVE AND ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.
 - GRID DIMENSIONS FROM CENTER TO CENTER OF COLUMN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT / DETAILED DESIGN CONSULTANT & CONTRACTOR. IT IS CERTIFIED THAT THERE IS NO CHANGE IN THIS GCD FROM THE ALREADY APPROVED CR DWG NO.REV..... APPROVED ON DATE

DDC / CONTRACTOR		CONTRACTOR / DDC	
SIGN:	SIGN:	SIGN:	SIGN:
DATE: 02.11.20	DATE: 02.11.20	DATE: 02.11.20	DATE: 02.11.20
NAME: SK	NAME: OP	NAME: RK	NAME: PG
DRAWN BY	DESIGN BY	CHECKED BY	APPROVED BY
consortium of enia, mahendra raj & worxpace			
Sub-consultants:		Mansycom	
Integral Design			

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED INDEPENDENTLY AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND IS RECOMMENDED FOR GFC / NO OBJECTION.

PROOF CONSULTANT
 NAME: NOT APPLICABLE

THIS DRAWING INCLUDING ITS DESIGN AND DETAILING HAS BEEN PROOF CHECKED/REVIEWED AND FOUND SUITABLE FOR THE EXECUTION PURPOSE AND ISSUED AS 'GOOD FOR CONSTRUCTION'/BEING GIVEN NO OBJECTION

GENERAL CONSULTANT TO NMRP
 SIGN: SYSTRA-AECOM-EGIS-RITES
 DATE: Church House, Above SBI Bank, First floor, Civil Lines Nagpur- 440001

COUNTER SIGNED BY MAHARASHTRA METRO RAIL CORPORATION LTD.

PROJECT: **NAGPUR METRO RAIL PROJECT**
 Metro House, 28/2, CK Naidu Marg, Anand Nagar, Civil Lines, Nagpur - 440 001
 Phone No: 07122554217

CLIENT: **MAHARASHTRA METRO RAIL CORPORATION LTD.**

LOCATION: Nagpur Railway Station

TITLE: **MAIN ELECTRICAL SINGLE LINE DIAGRAM**

SCALE: AS SHOWN DATE: 03/11/20 STATUS: Good for Construction REVISION NO: B04

DRG NO: **R4D03-ENI-EL-PES-NRS-DRS-3001**