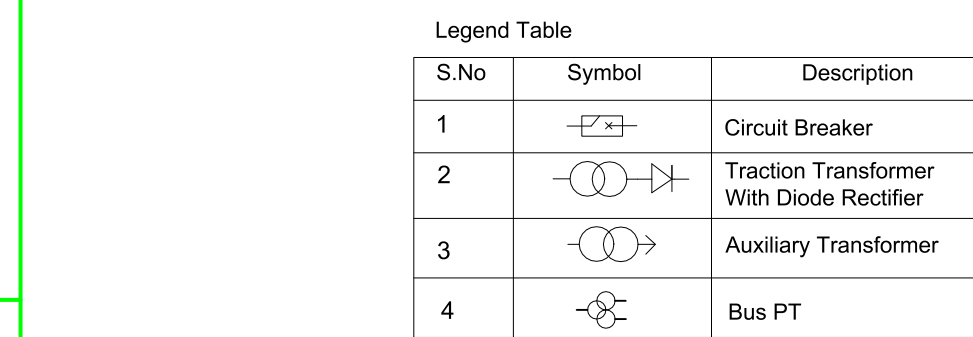


S.No.	DRAWING TITLE	MODIFICATION STATUS
A	POWER SCHEMATIC	
1	POWER FEEDING DIAGRAM	DONE
2	THIRD RAIL FEEDING SCHEMATIC MAINLINE	UNDER PROCESS
3	SECTIONING SCHEME OF VASANTKUNJ DEPOT	DATA NOT AVAILABLE
B	33kV CABLES	
4	33kV CABLES LAID IN HDPE PIPES THROUGH TRENCHLESS MACHINE	SAME AS AGRA, Modified as per Lucknow
5	SECTION OF 33kV BURIED CABLE TRENCH FROM UPPTCL GSS TO UPMRC RSS	SAME AS AGRA, Modified as per Lucknow
6	TYPICAL 33kV CABLE JOINT BAY-LINK BOX DETAIL	SAME AS AGRA, Modified as per Lucknow
7	TYPICAL DETAILS OF JOINTING BAY (DOUBLE CIRCUIT)	SAME AS AGRA, Modified as per Lucknow
8	ARRANGEMENT FOR SHEATH/SCREEN CROSS-BONDING & EARTHING FOR 33kV FEEDER FOR VASANTKUNJ RSS	SAME AS AGRA, Modified as per Lucknow
9	DETAILS OF CABLE WARNING SLAB FOR BURIED CABLE LAID IN SOIL	SAME AS AGRA, Modified as per Lucknow
10	CABLES ROUTE MARKER	SAME AS AGRA, Modified as per Lucknow
11	WARNING BOARD FOR 33kV UNDERGROUND CABLE	SAME AS AGRA, Modified as per Lucknow
C	RSS LAYOUT	
12	DETAIL DRAWING OF BOUNDARY WALL	SAME AS AGRA, Modified as per Lucknow
13	ELEVATION OF RSS/AMS BUILDING	DATA NOT AVAILABLE
14	OVERALL LAYOUT OF VASANTKUNJ RSS/AMS	DATA NOT AVAILABLE
15	TYPICAL EARTH MAT LAYOUT FOR 33kV RECEIVING SUB-STATION SHEET 01 OF 02	DATA NOT AVAILABLE
16	TYPICAL EARTH MAT LAYOUT FOR 33 kV RECEIVING SUB-STATION SHEET 02 OF 02	DATA NOT AVAILABLE
D	RSS/AMS SCHEMATICS	
17	33kV SLD & PROTECTION SCHEME FOR VASANTKUNJ RSS	DONE
18	33kV SINGLE LINE DIAGRAM AND PROTECTION SCHEME FOR VASANTKUNJ RSS/AMS	DONE
19	ACDB FOR VASANTKUNJ RSS/AMS	DONE
20	110V DC DISTRIBUTION SCHEME FOR VASANTKUNJ RSS/AMS	DONE
E	33kV CABLES	
21	CABLE BRACKET ARRANGEMENT ON VIADUCT	SAME AS AGRA, Modified as per Lucknow
22	ROUTE LENGTH INFORMATION FOR 33kV CONNECTING CABLES	DONE
F	ASS TSS SCHEMATICS	
23	SLD FOR TSS (WITHOUT INVERTER)	DONE
24	SLD FOR TSS (WITH INVERTER)	DONE
25	SLD FOR DEPOT AMS (ASS+TSS)	DONE
26	SLD FOR ASS	DONE
27	TYPICAL ACDB & DCDB SCHEMATIC FOR ASSS	SAME AS AGRA, Modified as per Lucknow
28	TYPICAL ACDB & DCDB SCHEMATIC FOR ASS CUM TSSS	SAME AS AGRA, Modified as per Lucknow
G	ASS/TSS PROTECTION SCHEMATICS	
29	TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-A (ELEVATED END ASS WITH I/C)	DONE
30	TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-B (MID ELEVATED ASS)	DONE
31	TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-C (MID ELEVATED ASS CUM TSS)	DONE
32	TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-D (ELEVATED END ASS WITH I/C FROM RSS/ASS)	DONE
33	TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-E (MID ASS UG)	DONE
34	TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-F (MID ASS CUM TSS UG)	DONE
35	PROTECTION SCHEME FOR DEPOT ASS CUM TSS	DONE
H	ASS & TSS LAYOUT PLANS	

36	MUSABAGH STATION CABLING LAYOUT (ELEVATED)	DONE
37	750V DC POSITIVE & NEGATIVE CURRENT CARRYING CABLE	DONE
38	VASANTKUNJ SUBSTATION EQUIPMENT LAYOUT	DONE
39	MUSABAGH SUBSTATION EQUIPMENT LAYOUT	DONE
40	SARFARAJGANJ SUBSTATION EQUIPMENT LAYOUT	DONE
41	CHOWK SUBSTATION EQUIPMENT LAYOUT	DONE
42	PANDEYGANJ ASS+TSS LAYOUT SUBSTATION EQUIPMENT LAYOUT	DONE
43	CHARBAGH SUBSTATION EQUIPMENT LAYOUT	DONE
I	Depot LAYOUT	
44	DS FOUNDATION DRAWING	SAME AS AGRA, Modified as per Lucknow
45	ETS FOUNDATION DRAWING	SAME AS AGRA, Modified as per Lucknow
46	SECTION DETAILS OF CABLES LAYOUT IN VASANTKUNJ DEPOT	SAME AS AGRA, Modified as per Lucknow
47	CABLES LAYOUT IN VASANTKUNJ DEPOT (33kv, 750V DC, LT AND CONTROL CABLE)	DATA NOT AVAILABLE
J	THIRD RAIL SYSTEM COMPONENTS	
48	TYPICAL CONDUCTOR RAIL DRAWING	SAME AS AGRA, Modified as per Lucknow
49	TYPICAL DRAWING OF HIGH SPEED RAMP SET FOR THIRD RAIL	SAME AS AGRA, Modified as per Lucknow
50	TYPICAL DRAWING OF LOW SPEED RAMP SET FOR THIRD RAIL	SAME AS AGRA, Modified as per Lucknow
51	TYPICAL DRAWING OF THIRD RAIL SPLICE JOINT ASSEMBLY	SAME AS AGRA, Modified as per Lucknow
52	TYPICAL DRAWING OF THIRD RAIL EXPANSION JOINT ASSEMBLY	SAME AS AGRA, Modified as per Lucknow
53	TYPICAL DRAWING OF POWER FEEDING	SAME AS AGRA, Modified as per Lucknow
54	TYPICAL DRAWING OF THIRD RAIL UPVC COVER ARRANGMENT	SAME AS AGRA, Modified as per Lucknow
55	TYPICAL DRAWING OF COVER FASTENER FOR THIRD RAIL	SAME AS AGRA, Modified as per Lucknow
56	TYPICAL DRAWING OF LINE COVER INSTALLATION FOR THIRD RAIL	SAME AS AGRA, Modified as per Lucknow
K	THIRD RAIL	
57	TYPICAL THIRD RAIL INSTALLATION AT CROSSOVER (19, R300) WITH 4.6M TRACK CENTER	SAME AS AGRA, Modified as per Lucknow
58	TYPICAL THIRD RAIL INSTALLATION AT CROSSOVER (19, R300) WITH 4.6M TRACK CENTER	SAME AS AGRA, Modified as per Lucknow
59	TYPICAL THIRD RAIL INSTALLATION AT CROSSOVER (19, R300) WITH 15M TRACK CENTER	SAME AS AGRA, Modified as per Lucknow
60	TYPICAL THIRD RAIL INSTALLATION AT CROSSOVER (19, R300) WITH 15M TRACK CENTER	SAME AS AGRA, Modified as per Lucknow
61	BALLASTED SINGLE TRACK WITH THIRD IN DEPOT	SAME AS AGRA, Modified as per Lucknow
62	DOWEL & BOLT FOR THIRD RAIL BRACKET	SAME AS AGRA, Modified as per Lucknow
63	THIRD RAIL BRACKET AT CONCRETE SLEEPER	SAME AS AGRA, Modified as per Lucknow
64	THIRD RAIL INSTALLATION ARRANGEMENT AT DEPOT-MAINLINE INTERFACE	SAME AS AGRA, Modified as per Lucknow
65	TYPICAL THIRD RAIL ARRANGEMENT AT VIADUCT STRAIGHT TRACKS	SAME AS AGRA, Modified as per Lucknow
66	TYPICAL THIRD RAIL ARRANGEMENT IN TUNNEL STRAIGHT TRACKS	SAME AS AGRA, Modified as per Lucknow
67	TYPICAL THIRD RAIL ARRANGEMENT IN TUNNEL CANTED TRACKS CLOCKWISE	SAME AS AGRA, Modified as per Lucknow
68	TYPICAL THIRD RAIL ARRANGEMENT IN TUNNELCANTED TRACKS ANTI-CLOCKWISE	SAME AS AGRA, Modified as per Lucknow
69	TYPICAL THIRD RAIL ARRANGEMENT AT VIADUCT CANTED TRACKS CLOCKWISE	SAME AS AGRA, Modified as per Lucknow
70	TYPICAL THIRD RAIL ARRANGEMENT AT VIADUCT CANTED TRACKS ANTI-CLOCKWISE	SAME AS AGRA, Modified as per Lucknow
L	STRINGER AND SHORE SUPPLY	
71	TYPICAL DRAWING OF STINGER SYSTEM IN DEPOT	SAME AS AGRA, Modified as per Lucknow

72	TYPICAL DRAWING OF STINGER SYSTEM SAFETY COVER FOR PLUG IN DEVICE	SAME AS AGRA, Modified as per Lucknow
73	TYPICAL DRAWING OF CURRENT COLLECTOR TROLLEY OF STINGER SYSTEM	SAME AS AGRA, Modified as per Lucknow
74	TYPICAL DRAWING OF OVERHEAD CONDUCTOR FOR STINGER SYSTEM	SAME AS AGRA, Modified as per Lucknow
75	STINGER INSTALLATION ARRANGEMENT IN PAC DEPOT INSPECTION LINES	SAME AS AGRA, Modified as per Lucknow
M	E & B	
76	SYSTEM WIDE E&B STRATEGY	SAME AS AGRA, Modified as per Lucknow
77	INTEGRATED EARTHING SCHEME FOR DEPOT	SAME AS AGRA, Modified as per Lucknow
78	STRUCTURE EARTHING IN VIADUCT (SHEET 1)	SAME AS AGRA, Modified as per Lucknow
79	STRUCTURE EARTHING IN VIADUCT (SHEET-2)	SAME AS AGRA, Modified as per Lucknow
80	TYPICAL DETAILS OF STRUCTURE EARTHING AND STRAY CURRENT CONTROL MEASURES IN TRACK PLINTH	SAME AS AGRA, Modified as per Lucknow
81	TYPICAL DETAILS OF STRUCTURE EARTHING AND STRAY CURRENT CONTROL MEASURES IN UG TRACK SLAB	SAME AS AGRA, Modified as per Lucknow
82	TYPICAL DETAILS OF STRUCTURE EARTHING AND BONDING FOR ELEVATED STATIONS(SHEET 1)	SAME AS AGRA, Modified as per Lucknow
83	TYPICAL DETAILS OF STRUCTURE EARTHING AND BONDING FOR ELEVATED STATIONS(SHEET 2)	SAME AS AGRA, Modified as per Lucknow
84	MEASUREMENT OF THE RAIL RESISTANCE FOR A RAIL OF 10M LENGTH	SAME AS AGRA, Modified as per Lucknow
85	MEASURING ARRANGEMENT FOR THE CONDUCTANCE AS UNIT LENGTH BETWEEN RAIL AND TUNNEL/VIADUCT	SAME AS AGRA, Modified as per Lucknow
86	PLATFORM INSULATION	SAME AS AGRA, Modified as per Lucknow
N	SCADA SCMS ETS FOR EAST WEST CORRIDOR	
87	SCADA ARCHITECTURE DRAWING	UNDER PROCESS
88	TYPICAL RTU ARRANGEMENT	UNDER PROCESS
89	POWER DISTRIBUTION ARRANGEMENT	UNDER PROCESS
90	SCMS SCHEME	DONE
91	ETS GENERAL ARRANGEMENT (ELEVATED STATIONS)	DONE
92	ETS GENERAL ARRANGEMENT (UNDERGROUND STATIONS)	DONE
93	TYPICAL POLE MOUNTED OUTDOOR ETS	DONE
O	SCADA FOR NORTH SOUTH CORRIDOR	
94		
95		
96		
97		
P	SCADA FOR CENTRALISED OCC	
98		
99		
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NOTES:


1. This is an indicative power-feeding scheme for tender purpose.
It shall be contractor's responsibility to develop detailed design and obtain approval from Engineer.
2. ASS OR ASS CUM TSS LOCATION (CONCOURSE/PLATFORM/AT GRADE) MAY CHANGE AS PER ACTUAL SITE CONDITIONS. CONTRACTOR HAVE TO BEAR ALL SUCH COST ARISING DUE TO THIS CHANGE AT ANY STAGE OF THE PROJECT.

P2		-	
REV NO	DATE	DESCRIPTION	SIGN

THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT .														
DDC / CONTRACTOR														
P2	SIGN.													
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	-	PE/PM	APPD	DATE	
CLEARED														
DETAIL DESIGN CONSULTANT														

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .		
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REVIEWED BY	APPROVED BY	VETTED BY
GENERAL CONSULTANT		

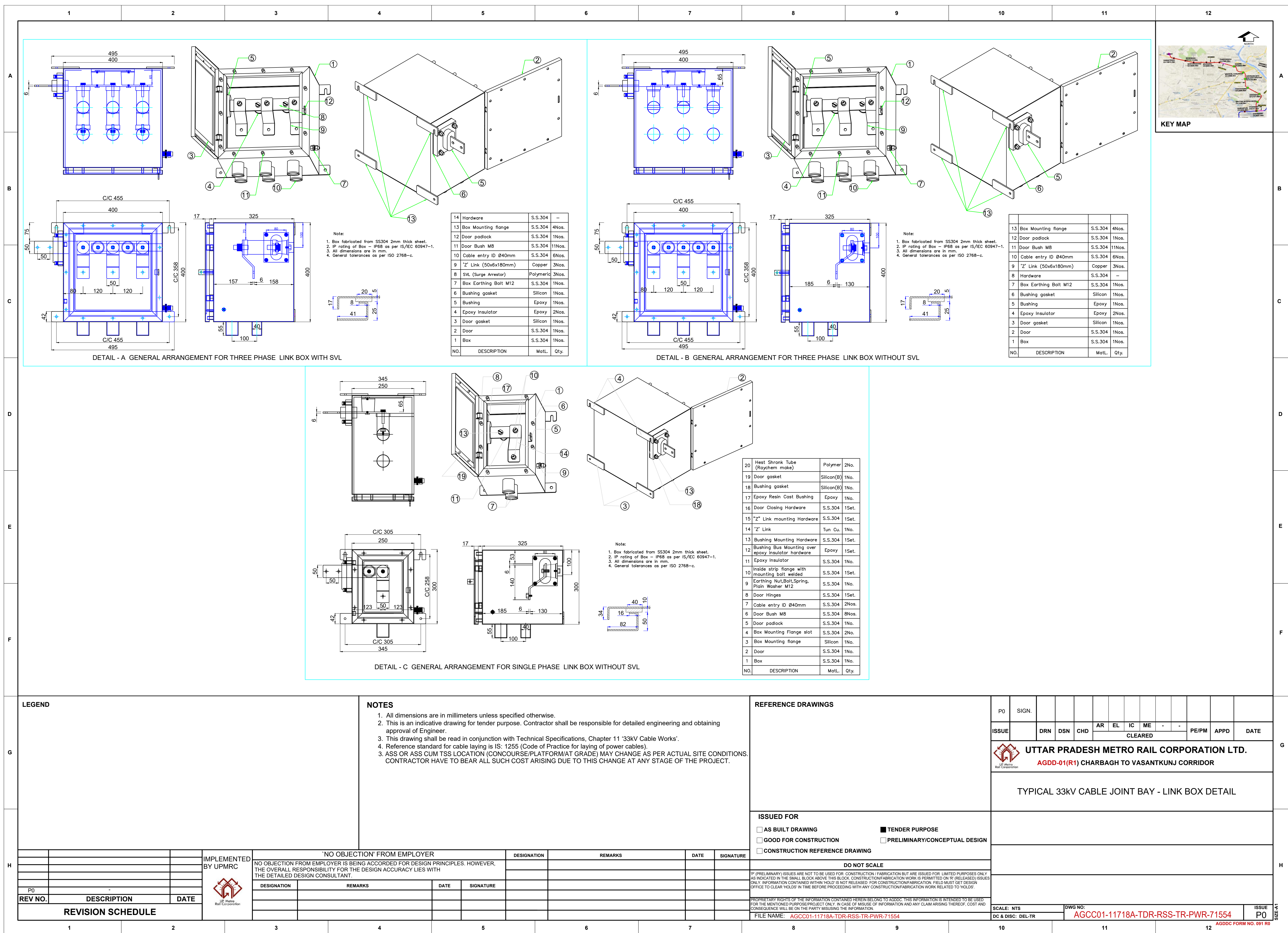
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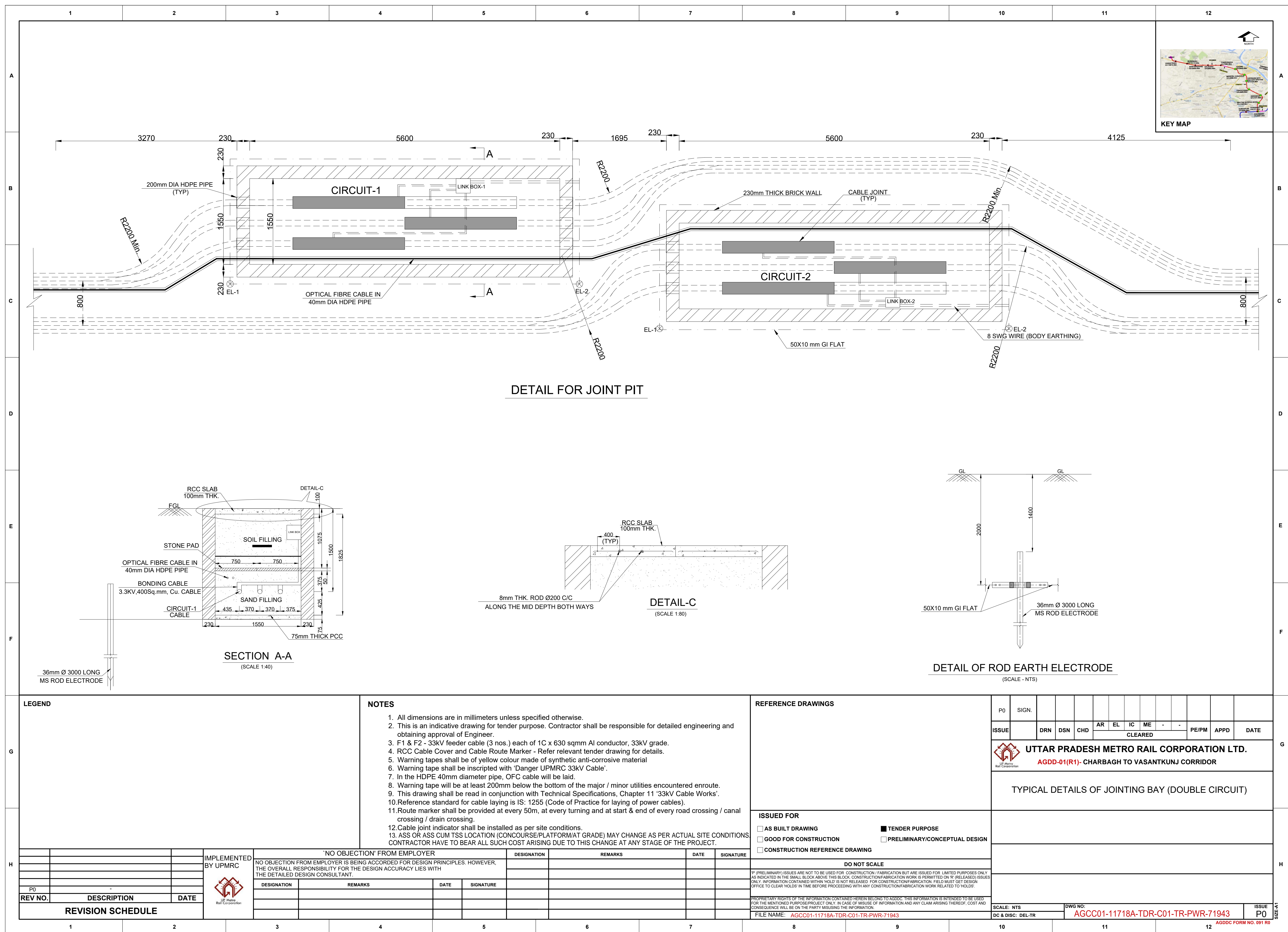
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CLIENT:		UP METRO RAIL CORPORATION LTD.	
LOCATION:			
TITLE:		POWER FEEDING DIAGRAM (EAST WEST CORRIDOR)	
SCALE: NTS	DATE:	STAGE: TDR	
DRG NO:		AGCC01-11718A-TDR-RSS-TR-PWR-71551	

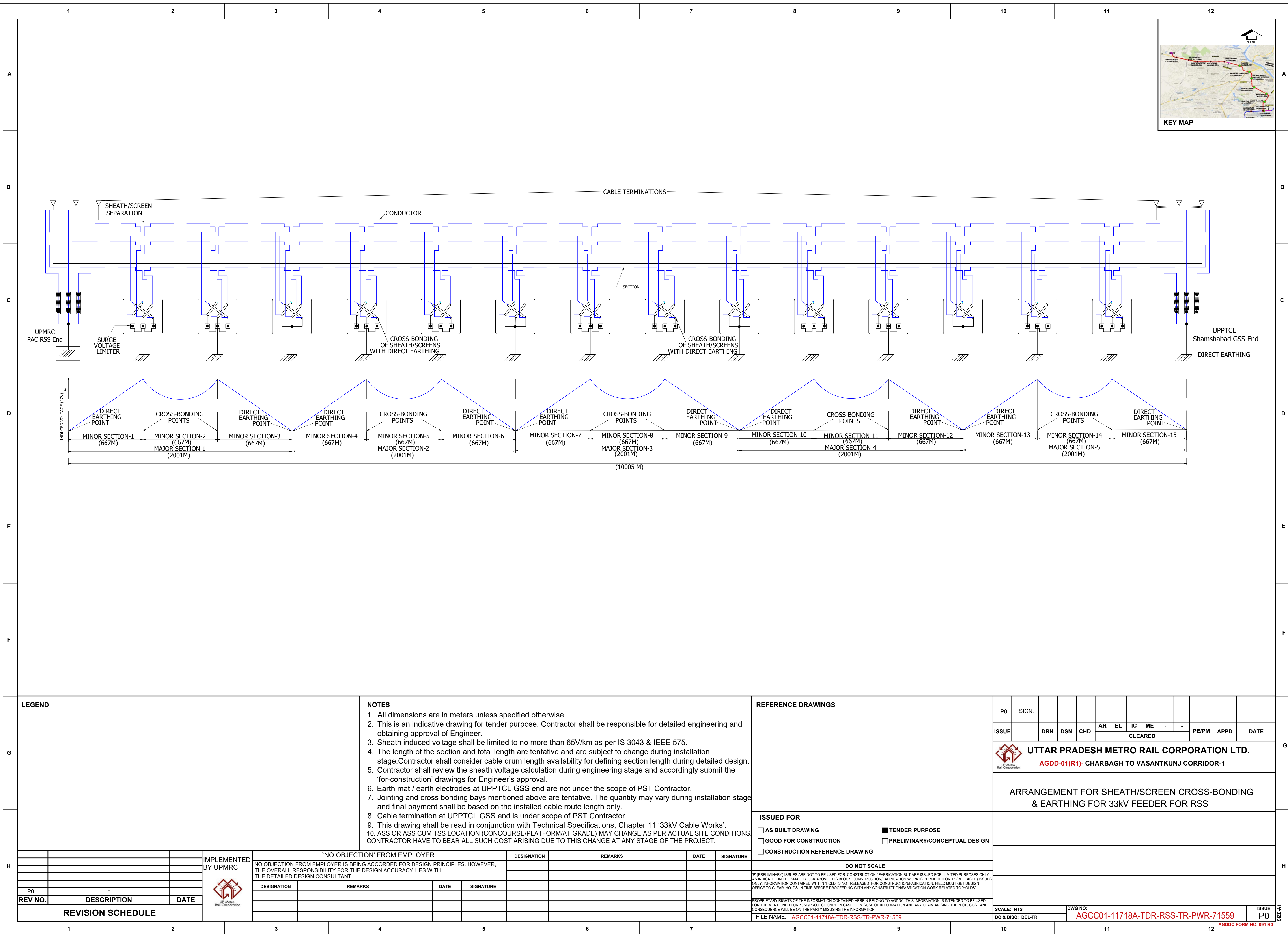
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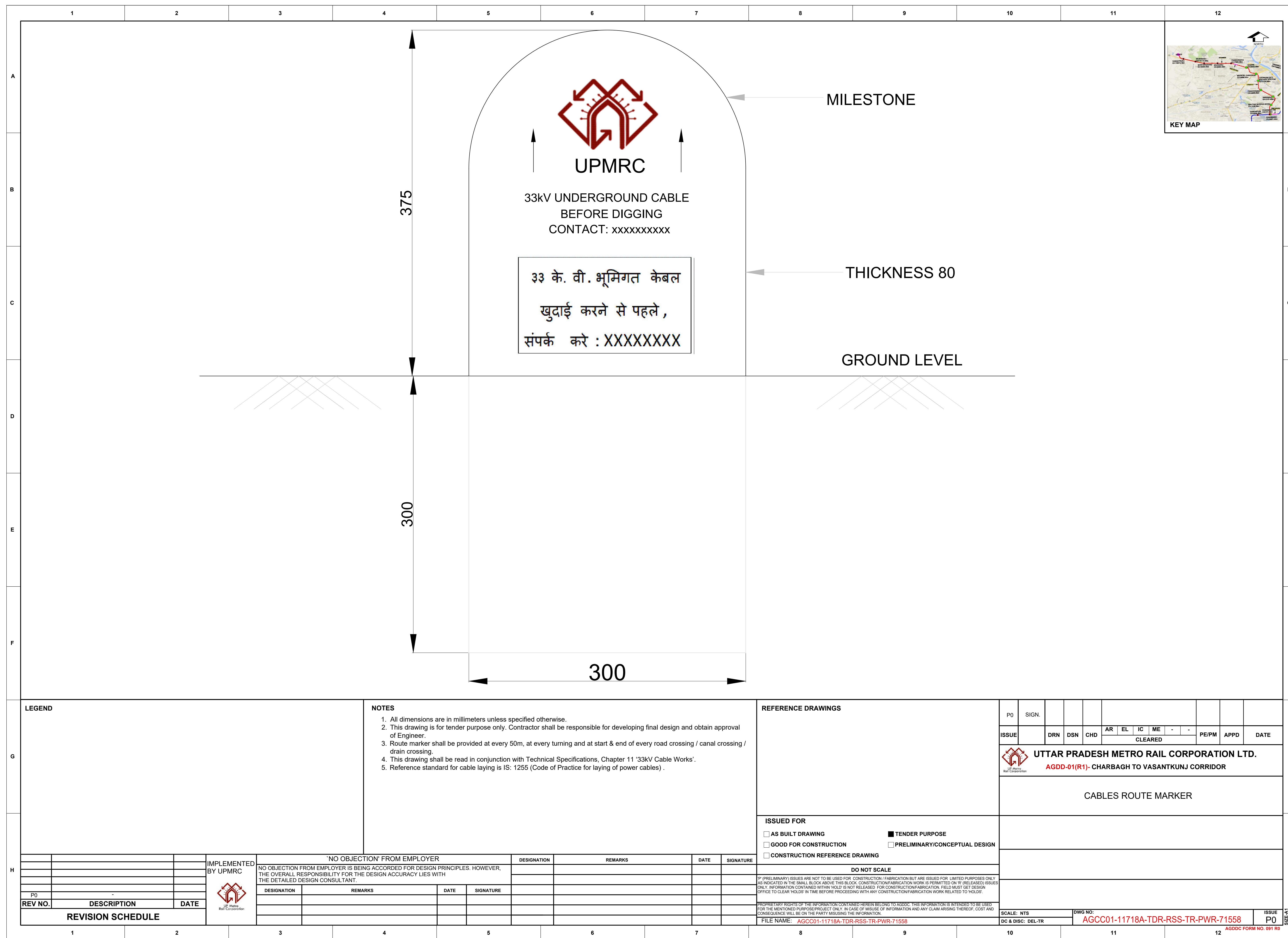
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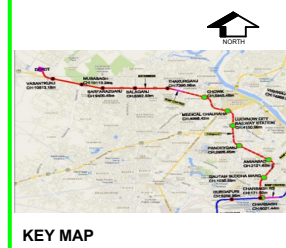
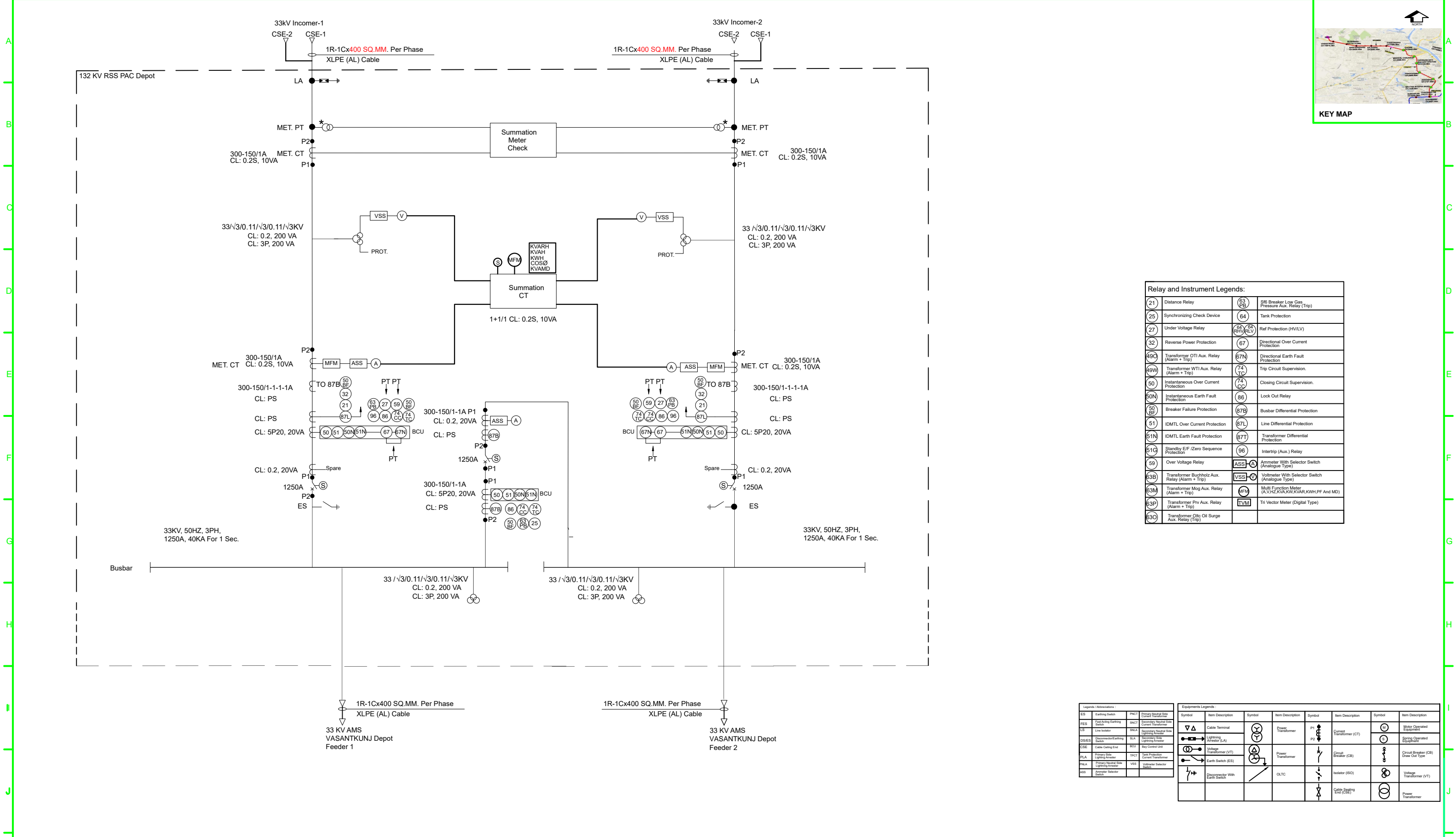
P2











NOTES:
1. This is an indicative schematic for tender purpose. It shall be contractor's responsibility to develop detailed design and obtain approval from Engineer.
2. The switchgears shall be extendable for augmentation in future.
3. This drawing shall be read in conjunction with Technical Specifications, Chapter 12 '132KV/33KV Receiving Substations'.
4. Contractor shall coordinate with UPTCL & Torrent Power (DISCOM) for arrangement at Grid Substation end as well as for metering at UPMRC RSS end.
5. VA burden mentioned for the Current Transformer and Voltage Transformer are tentative the actual values calculated later stage and this shall be ensured the fulfillment of the functional requirements.

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

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN.

DDC / CONTRACTOR											
P2	SIGN.										
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	PE/PM	APPD
Cleared											
DETAIL DESIGN CONSULTANT											
P2		Revised and updated									
REV NO	DATE	DESCRIPTION									

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DATE:	DATE:	DATE:
NAME:	NAME:	NAME:
DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY

COUNTER SIGNED BY	DATE	SIGNATURE
UPMRC		
DY.CEE		
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PROJECT: LUCKNOW METRO RAIL PROJECT PHASE 1B
UTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

CLIENT: UP METRO RAIL CORPORATION LTD.

LOCATION:

TITLE: 33kV SLD & PROTECTION SCHEME FOR VASANTKUNJ RSS

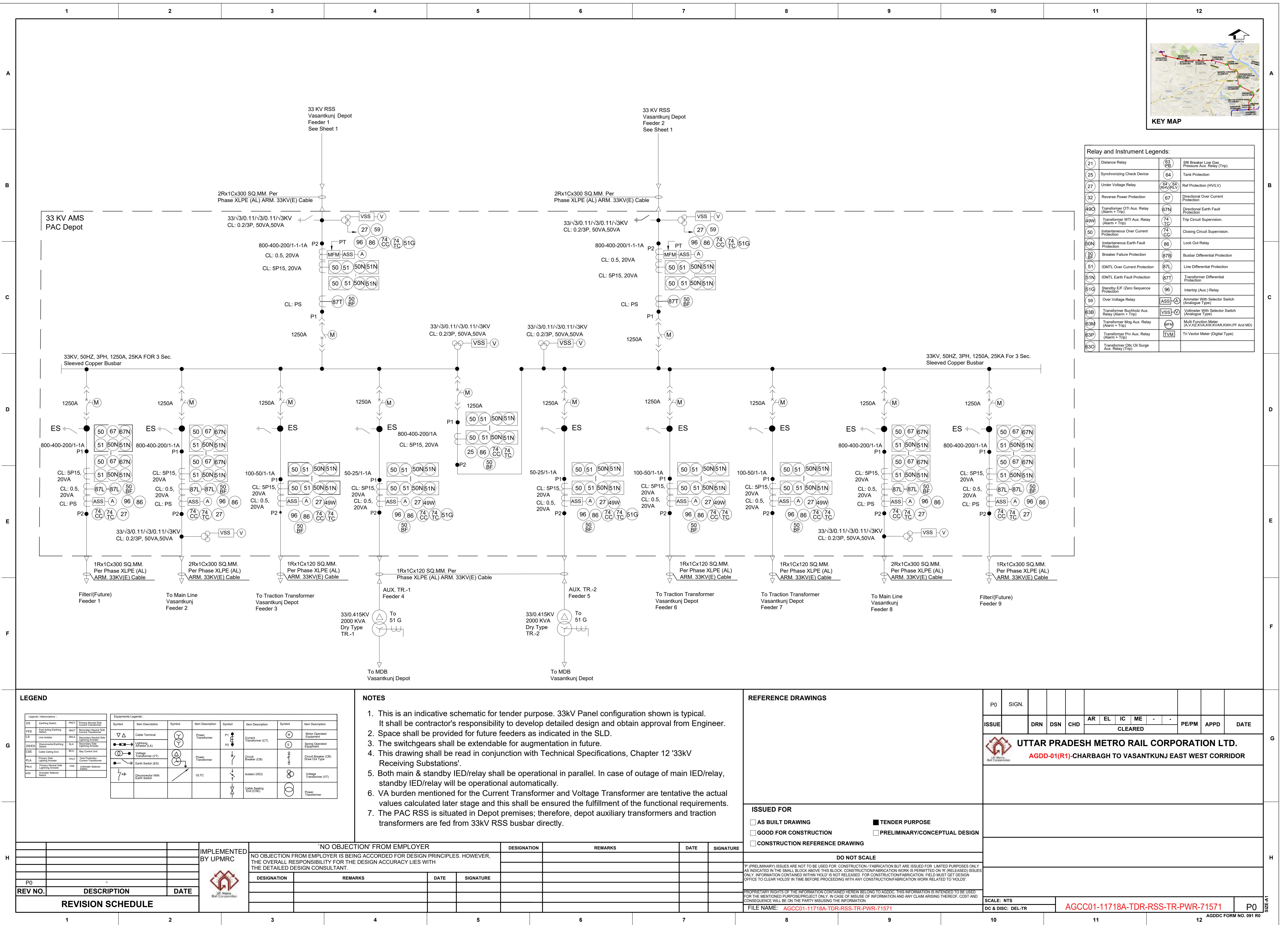
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DRG NO: AGCC01-11718A-TDR-RSS-TR-PWR-71569

OFFICE OF ORIGIN

REVISION NO:

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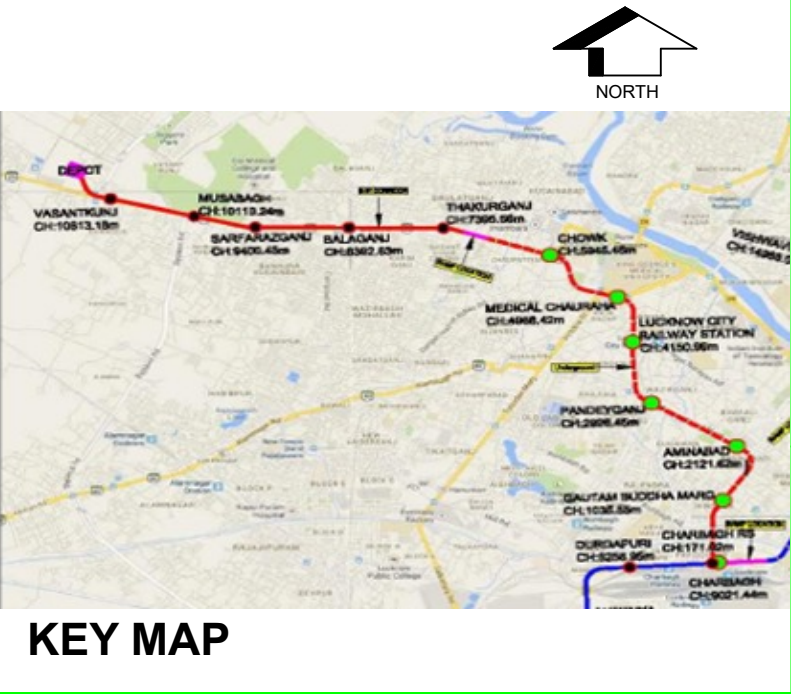
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INTERLOCK MATRIX :-

CONDITIONS	IC/MDB1	IC/MDB2	BC
MDB-1 & MDB-2 AVAILABLE	ON	ON	OFF
MDB-1 SUPPLY NOT AVAILABLE	OFF	ON	ON
MDB-2 SUPPLY NOT AVAILABLE	ON	OFF	ON

ABBREVIATIONS:-

S.N.	ACRONYM	DESCRIPTION
1	SP	SINGLE POLE
2	TPN	THREE PHASE AND NEUTRAL
3	MCCB	MOULDED CASE CIRCUIT BREAKER
4	MCB	MINIATURE CIRCUIT BREAKER
5	MDB	MAIN DISTRIBUTION BOARD
6	TR	TRANSFORMER
7	ASS	AMMETER SLECTOR SWITCH
8	VSS	VOLTMETER SLECTOR SWITCH
9	ACB	AIR CIRCUIT BREAKER

	MCB
	MCCB
	CURRENT TRANSFORMER
	EARTH BUS
	VOLTMETER
	AMMETER
	ACB

NOTES:
1. This is an indicative scheme for tender purpose only. It shall be Contractors responsibility to perform detailed engineering and obtain approval of Engineer.
2. This drawing shall be read in conjunction with Technical Specifications
3. The body of the ACDB shall be earthed by suitable size cables / connection
4. The capacity of battery shall be determined based on battery sizing calculations. However, minimum size of battery shall be 450 Ah (each set).

P1		-	
REV NO	DATE	DESCRIPTION	SIGN

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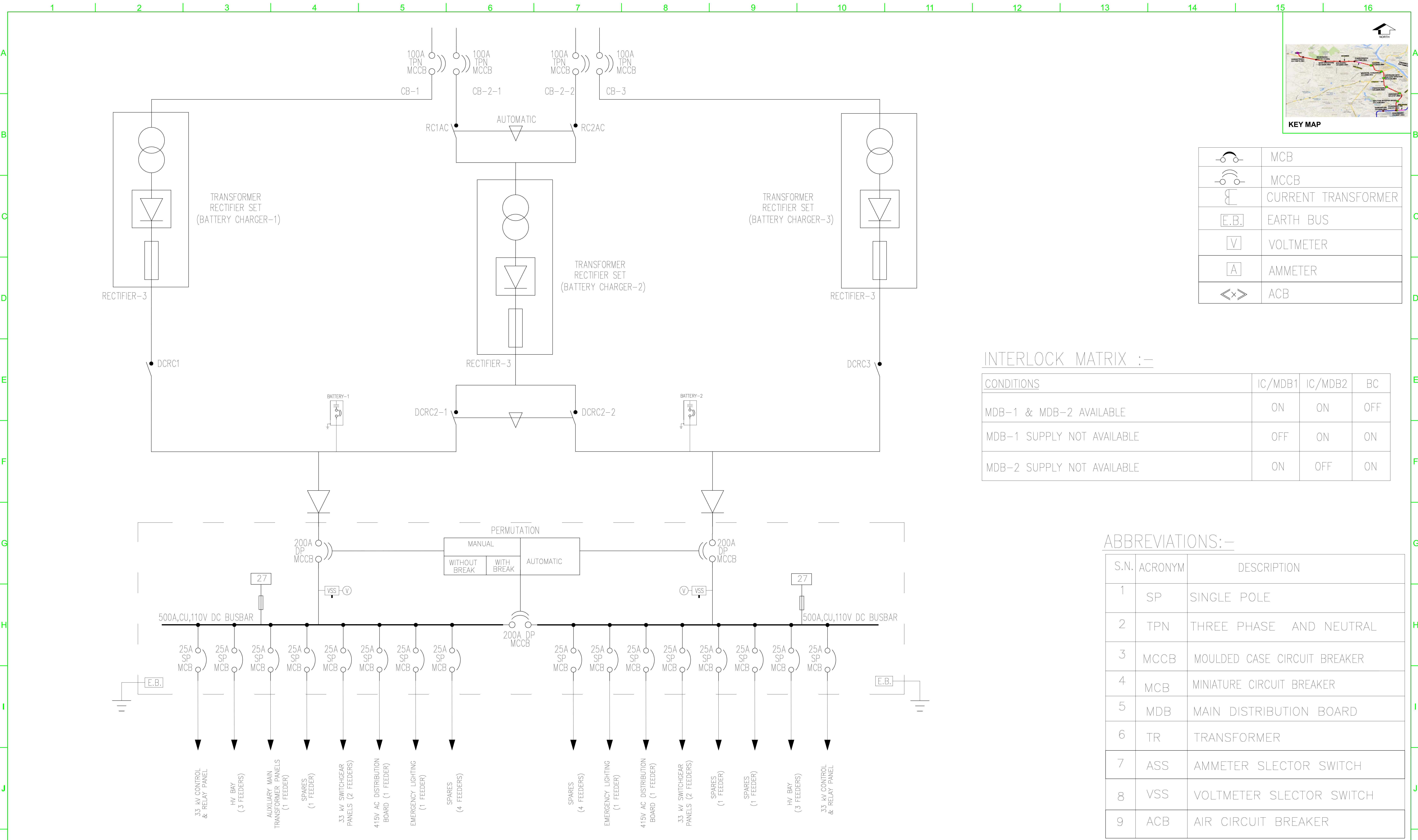
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DETAIL DESIGN CONSULTANT											

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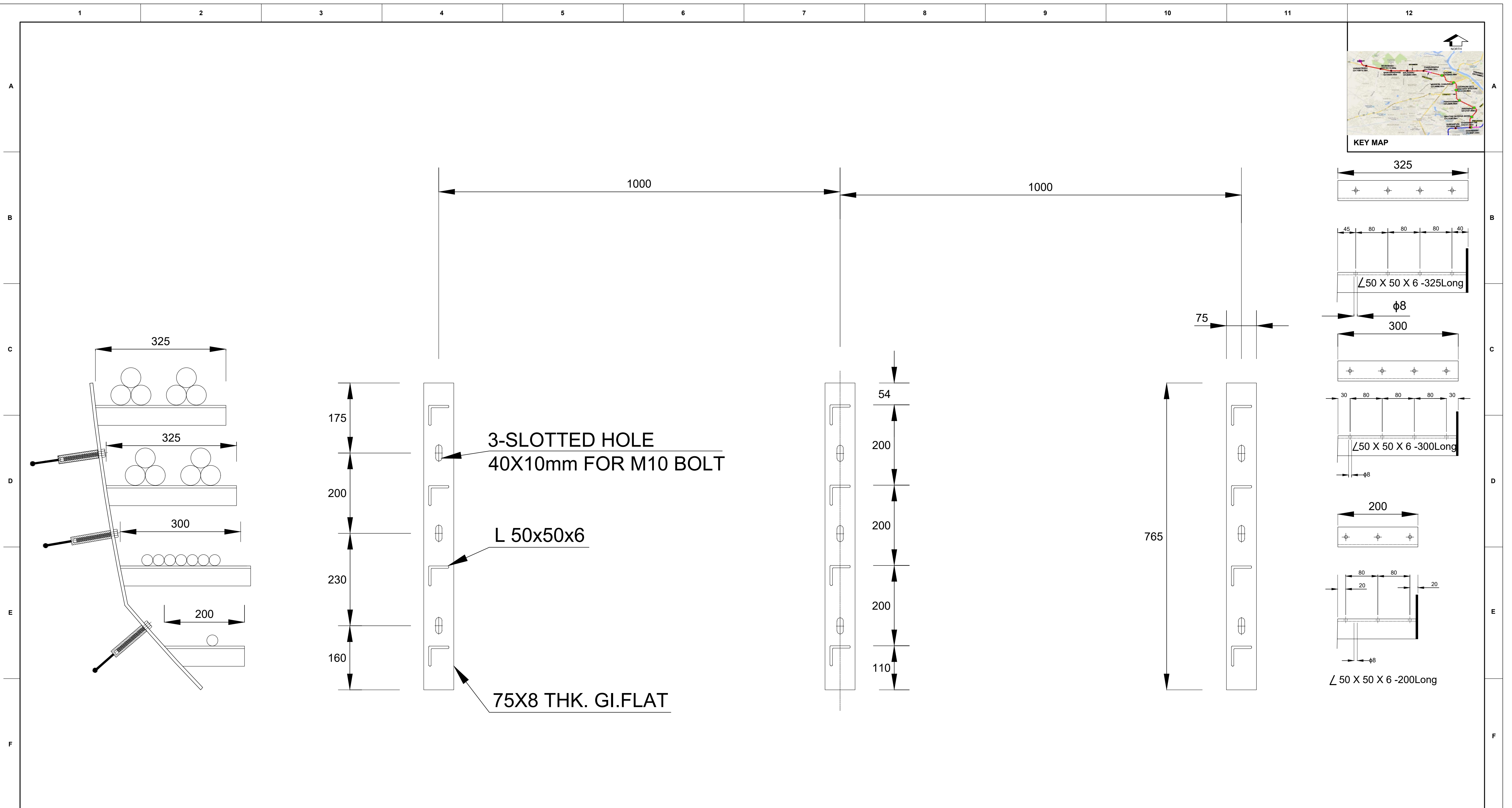
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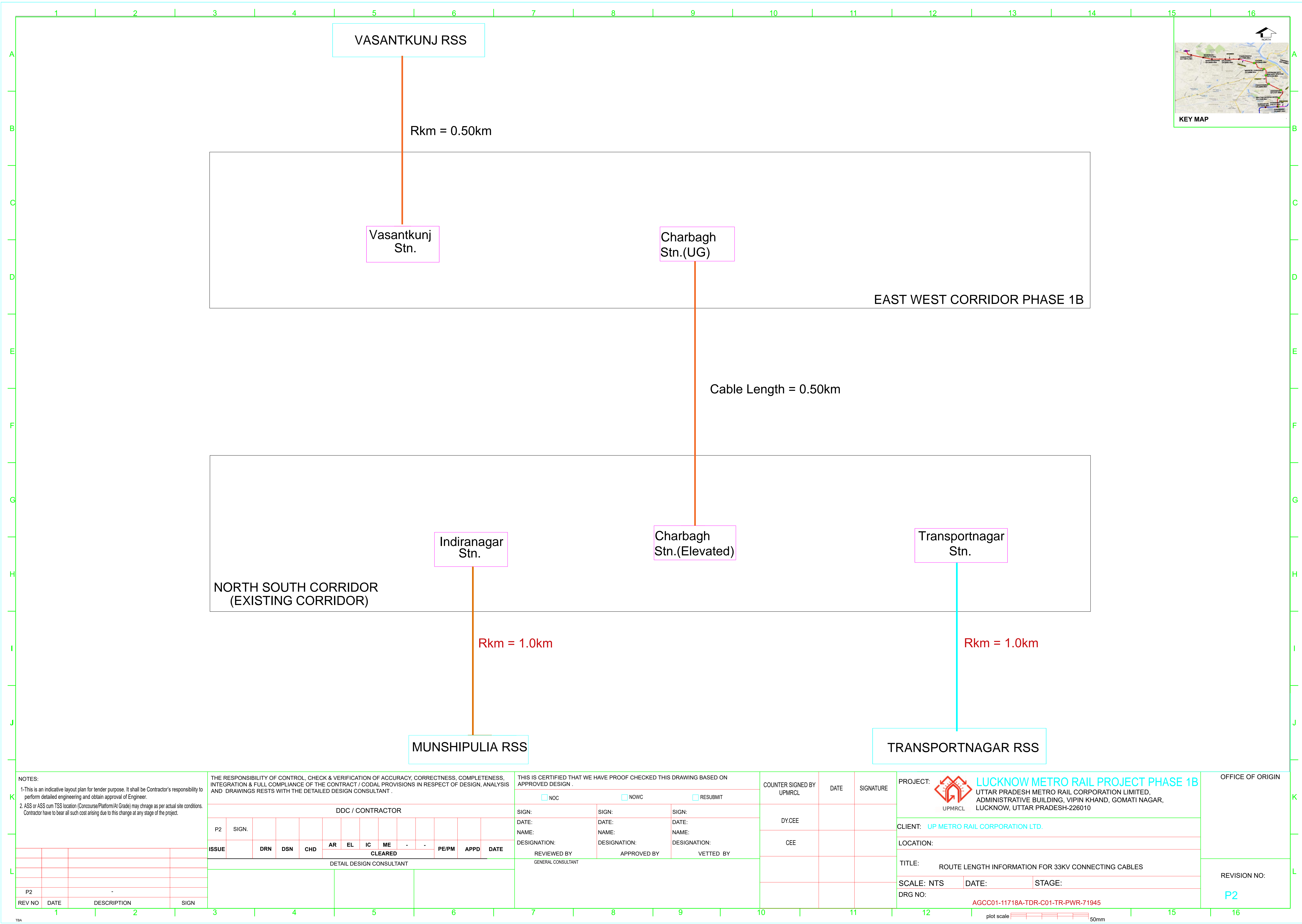
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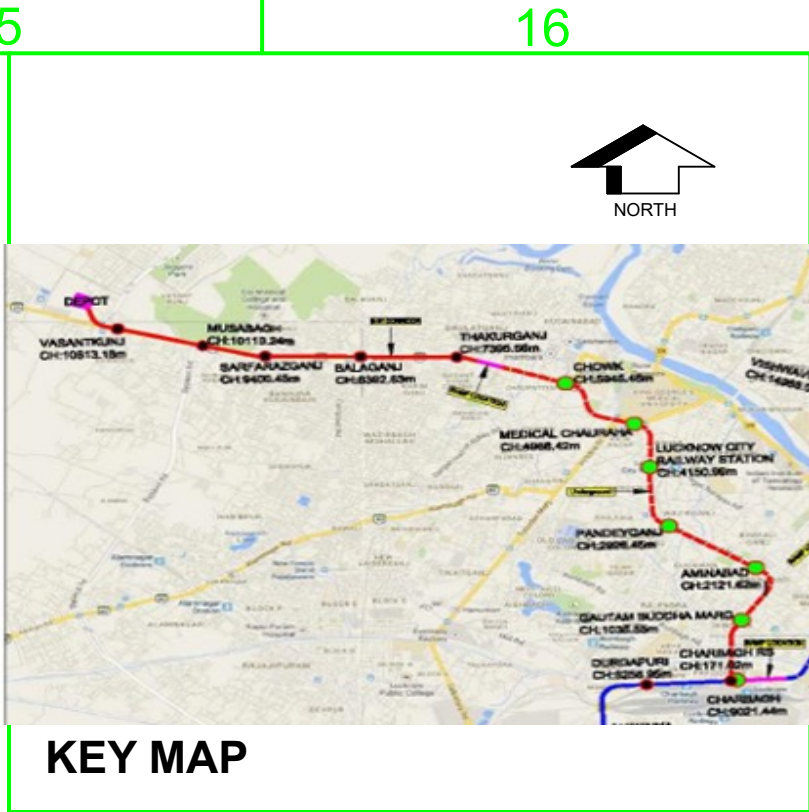
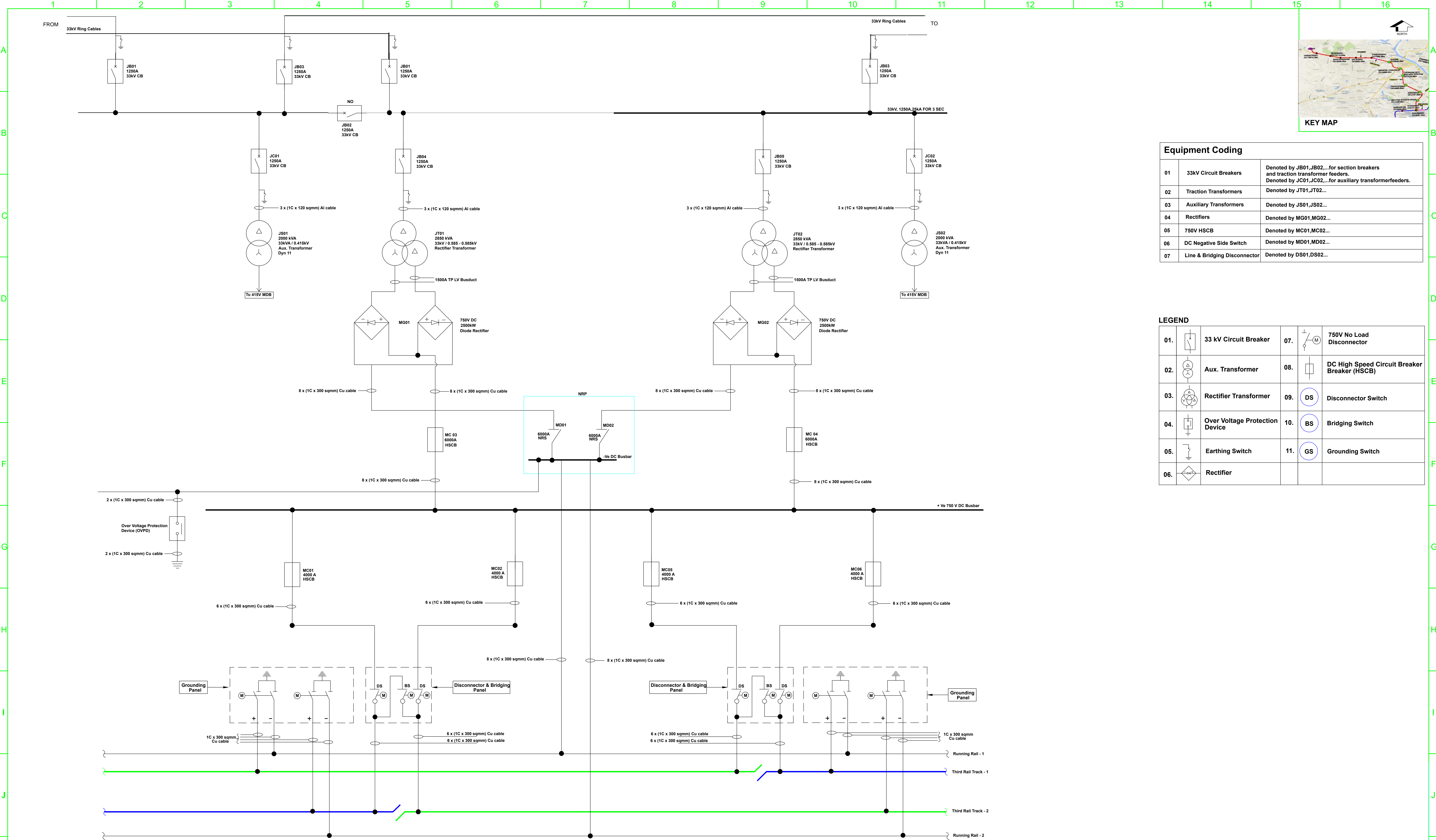
PROJECT: LUCKNOW METRO RAIL PROJECT PHASE 1B	OFFICE OF ORIGIN
UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010	
CLIENT: UP METRO RAIL CORPORATION LTD.	
LOCATION:	
TITLE: ACDB FOR VASANTKUNJ RSS/AMS	REVISION NO: P1
SCALE: NTS DATE: STAGE: TDR	
DRG NO: AGCC01-11718A-TDR-DPT-TR-PWR-72005	














<div>NOTES:</div> <div>1. This is an indicative scheme for tender purpose only. It shall be Contractors responsibility to perform detailed engineering and obtain approval of Engineer.</div> <div>2. This drawing shall be read in conjunction with Technical Specifications</div> <div>3. The body of the ACDB shall be earthed by suitable size cables / connection</div> <div>4. The capacity of battery shall be determined based on battery sizing calculations. However, minimum size of battery shall be 450 Ah (each set).</div>				<div>THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT .</div> <div><div>DDC / CONTRACTOR</div><table><tr><td>P1</td><td>SIGN.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></t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Equipment Coding		
01	33kV Circuit Breakers	Denoted by JB01,JB02,...for section breakers and traction transformer feeders. Denoted by JC01,JC02,...for auxiliary transformerfeeders.
02	Traction Transformers	Denoted by JT01,JT02...
03	Auxiliary Transformers	Denoted by JS01,JS02...
04	Rectifiers	Denoted by MG01,MG02...
05	750V HSCB	Denoted by MC01,MC02...
06	DC Negative Side Switch	Denoted by MD01,MD02...
07	Line & Bridging Disconnector	Denoted by DS01,DS02...

LEGEND					
01.		33 kV Circuit Breaker	07.		750V No Load Disconnector
02.		Aux. Transformer	08.		DC High Speed Circuit Breaker (HSCB)
03.		Rectifier Transformer	09.		Disconnector Switch
04.		Over Voltage Protection Device	10.		Bridging Switch
05.		Earthing Switch	11.		Grounding Switch
06.		Rectifier			

NOTES:
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04. Power supply & Traction Contractor shall follow the latest SOD for third rail system and other lineside equipment under his scope.
05. This scheme is generally applicable to all TSSs on mainline.
06. ASS transformer's rating is 500 kVA for elevated stations and 2000 kVA for underground stations.

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

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

☐ NOC ☐ NOWC ☐ RESUBMIT

SIGN:	SIGN:	SIGN:
DATE:	DATE:	DATE:
NAME:	NAME:	NAME:
DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY

COUNTER SIGNED BY UPMRCL	DATE	SIGNATURE
DY.CEE		
CEE		

PROJECT: **LUCKNOW METRO RAIL PROJECT-PHASE 1B**
UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

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

LOCATION:

TITLE: **SLD FOR TSS (WITHOUT INVERTER)**

SCALE: NTS DATE: STAGE: TDR

DRG NO: **AGCC01-11718A-TDR-RSS-TR-PWR-71588**

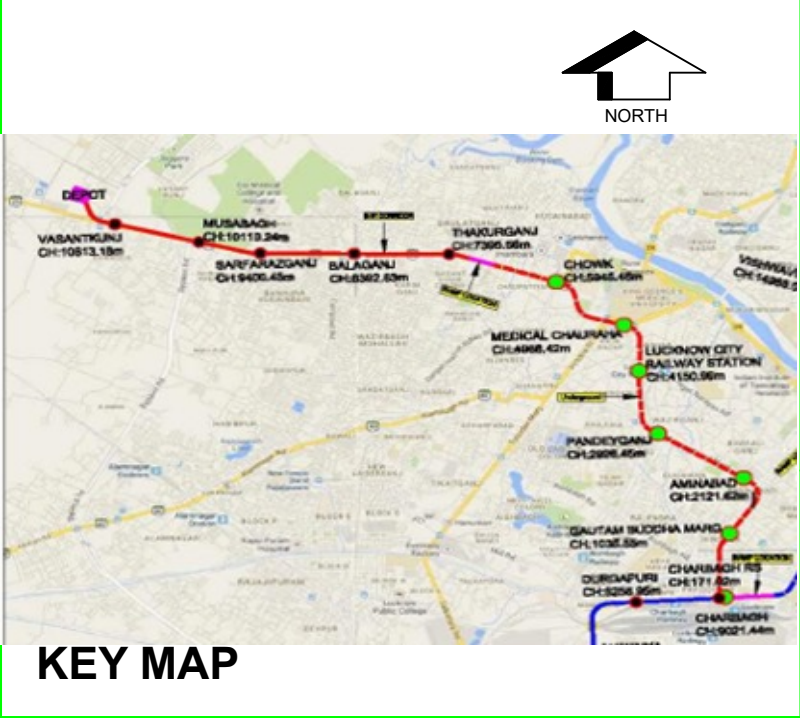
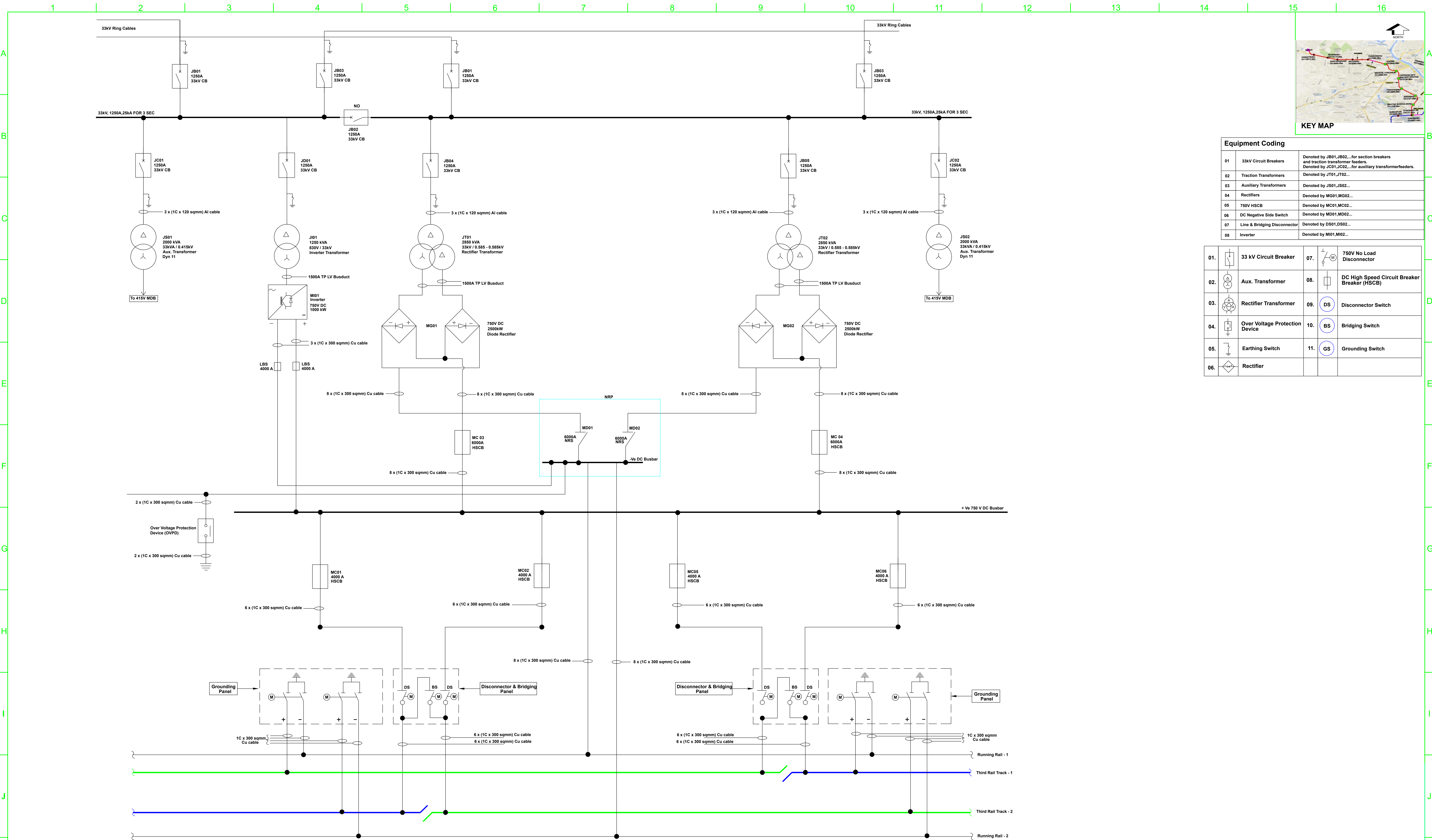
OFFICE OF ORIGIN

REVISION NO:

P2

REV NO	DATE	DESCRIPTION	SIGN
P2		-	

DDC / CONTRACTOR											
P2	SIGN.										
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	PE/PM	APPD
CLEARED											
DATE											
DETAIL DESIGN CONSULTANT											



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ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	PE/PM	APPD
CLEARED											
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SIGN:	SIGN:	SIGN:
DATE:	DATE:	DATE:
NAME:	NAME:	NAME:
DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY

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DY.CEE		
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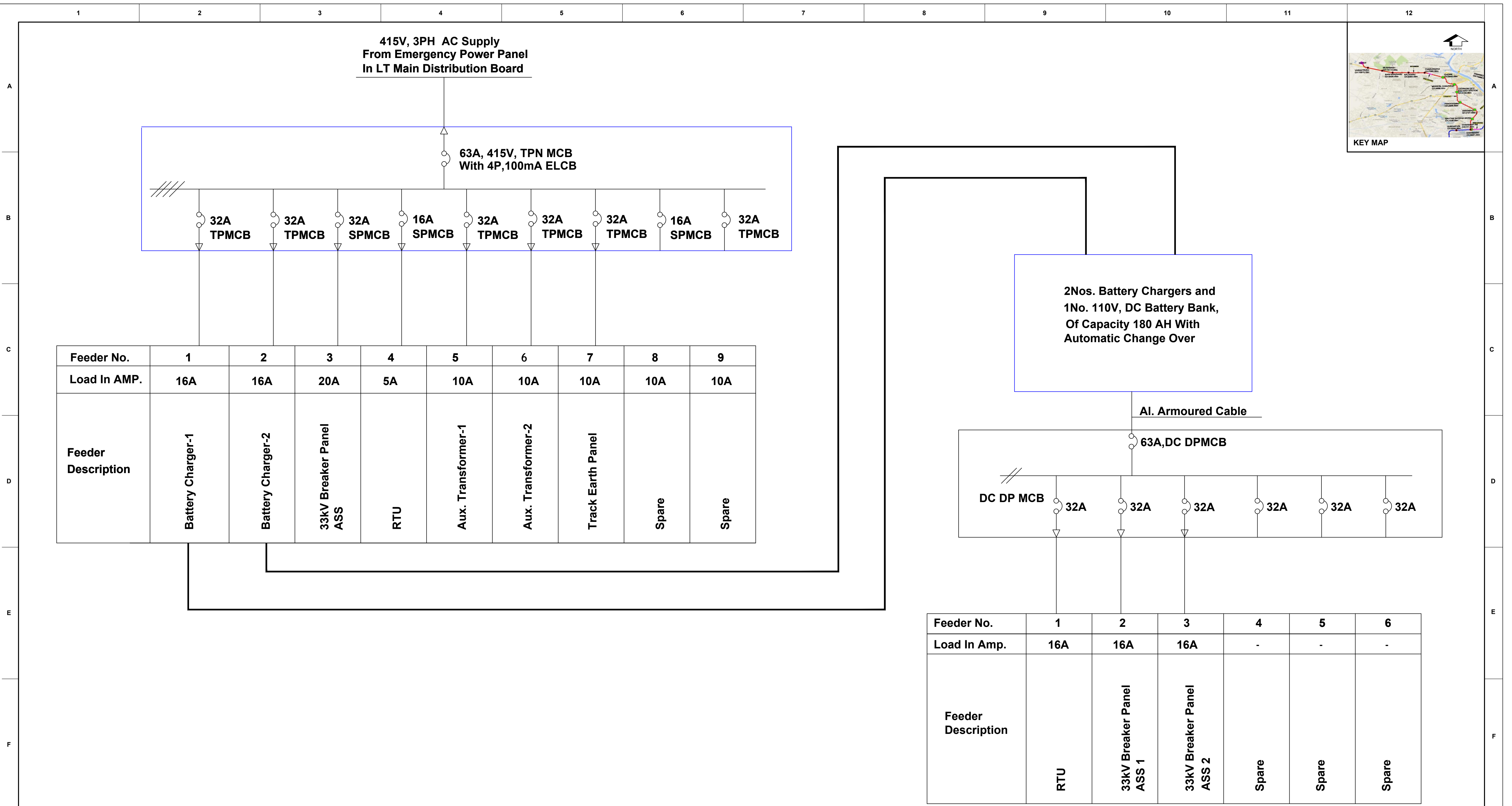
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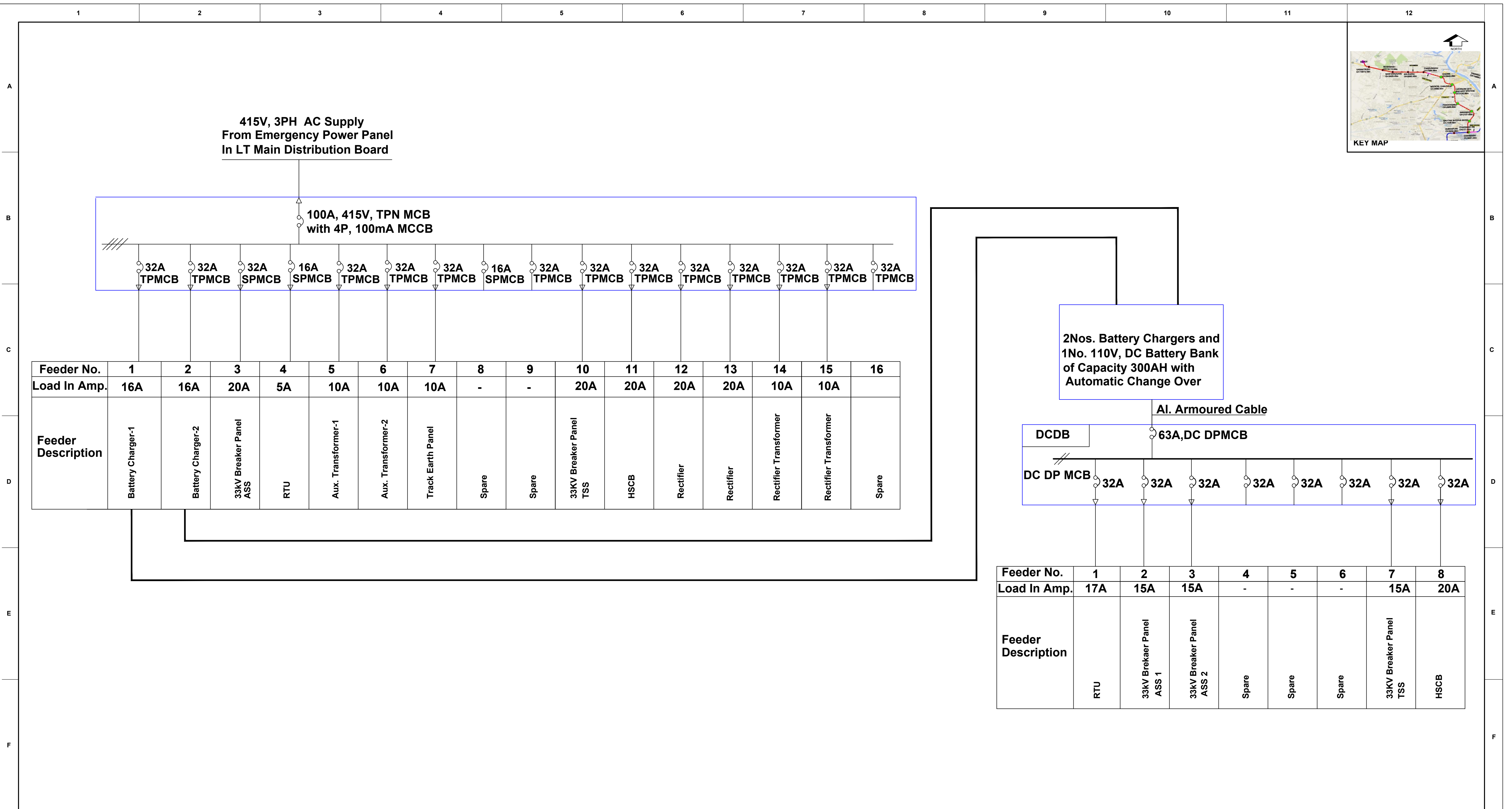
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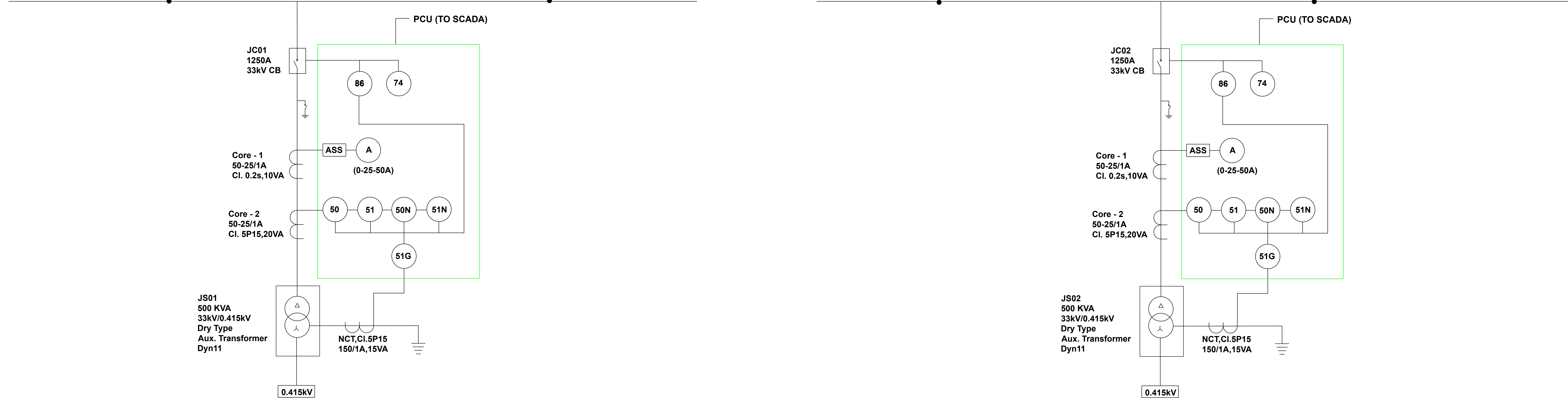
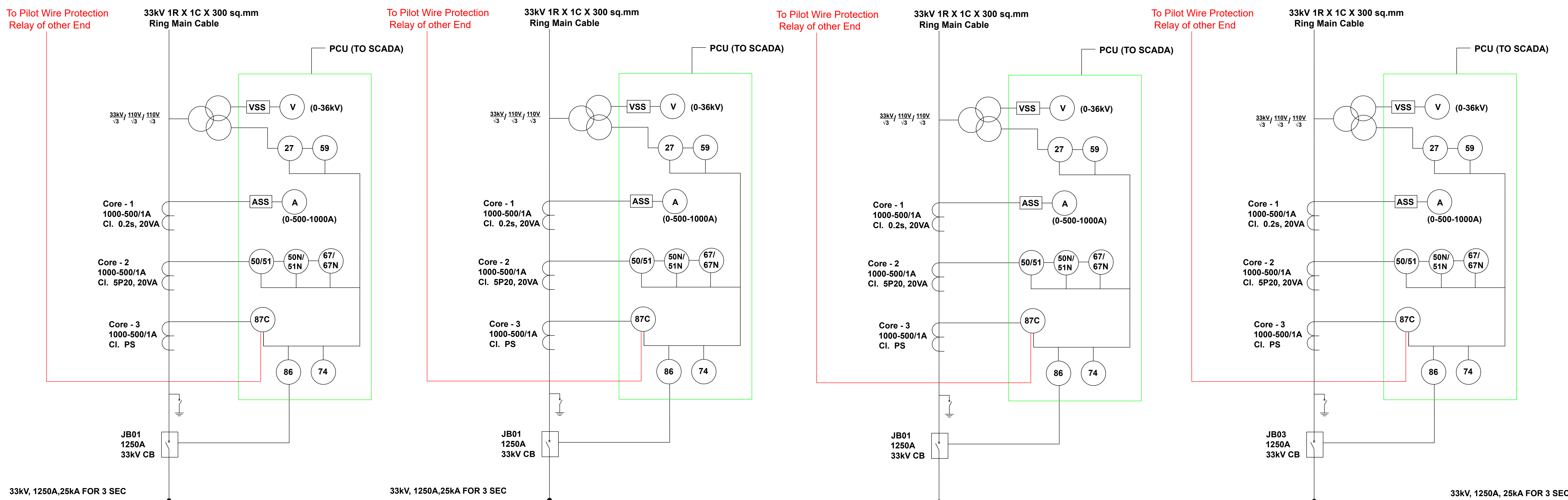
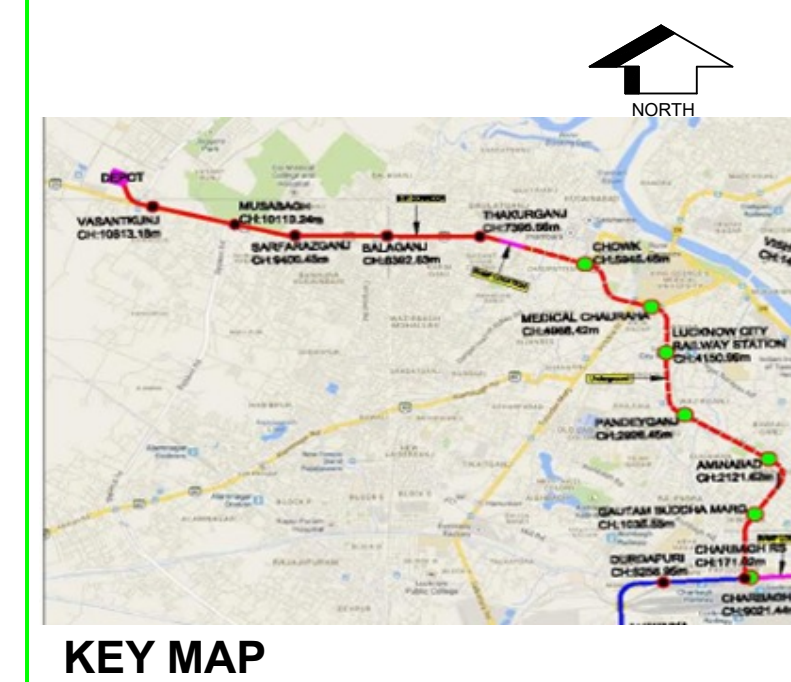
OFFICE OF ORIGIN

REVISION NO:

P2

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



















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Relay Legends:			
27	Under Voltage	02	Time delay relay
49-A	Thermal Overload Protection - Alarm	21-F	Full Voltage line Test (LTD-F)
49-T	Thermal Overload Protection - Trip	26	Rectifier diode temperature detection(Alarm/Trip)
50BF	Local Breaker Backup or Breaker Failure	32	Reverse Current
50	Over Current - Instantaneous	50-P	Current Rate of Rise (Positive di/dt)
50N	Earth Fault - Instantaneous	51-P	Time Delay Overcurrent (Imax+)
51	Over Current - Time Delayed	51-N	Time Delay Overcurrent (Imax-)
51N	Earth Fault - Time Delayed	58	Diode Monitoring Relay (Alarm/Trip)
51G	Restricted Earth Fault	64	DC Switchgear Frame Fault
59	Overvoltage	72	DC High Speed Circuit Breaker (HSCB)
67	Directional Overcurrent	76	Instantaneous Direct Overcurrent (Ids)
67N	Direction Earth Fault	82	Automatic Reclosing (Auto-Reclose)
74	Trip Circuit Supervision Relay	85	Inter-tripping (IN and OUT)
86	Lockout	96	Reclose Maximum Number (Anti-pumping)
87C	Line/Cable Differential		

Equipment Coding		
01	33kV Circuit Breakers	Denoted by JB01,JB02,...for section breakers and traction transformer feeders. Denoted by JC01,JC02,...for auxiliary transformerfeeders.
02	Traction Transformers	Denoted by JT01,JT02...
03	Auxiliary Transformers	Denoted by JS01,JS02...
04	Rectifiers	Denoted by MG01,MG02...
05	750V HSCB	Denoted by MC01,MC02...
06	DC Negative Side Switch	Denoted by MD01,MD02...
07	Line & Bridging Disconnector	Denoted by DS01,DS02...
08	Inverter	Denoted by MI01,MI02...


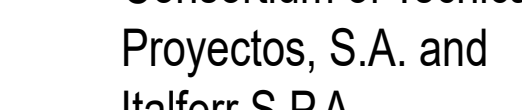
c	Station Type	ASS Type	Attributes					Stations in this category
			IC from RSS	Ring Feeders	Bus Coupler	Aux Trafo	Trac Trafo	
A	Elevated	ASS	2	2	1	2	2	Elevated End ASS With from RSS/ASS – Vasantkunj.
B	Elevated	ASS		4		2		Mid elevated ASS -, Sarfarazganj, Balaganj
C	Elevated	ASS+TSS		4	1	2	2	Mid Elevated ASS+TSS Thakurganj, Musabagh,
D	UG	ASS	2	4	1	2	2	End ASS With IC from RSS/ASS – Charbagh (UG)
E	UG	ASS		4		2		Mid ASS UG – Aminabad City Railway Station, Chowk
F	UG	ASS+TSS		4	1	2	2	Mid ASS+TSS (UG) Pandeyganj, Gautam Budh Marg, Medical Chowk

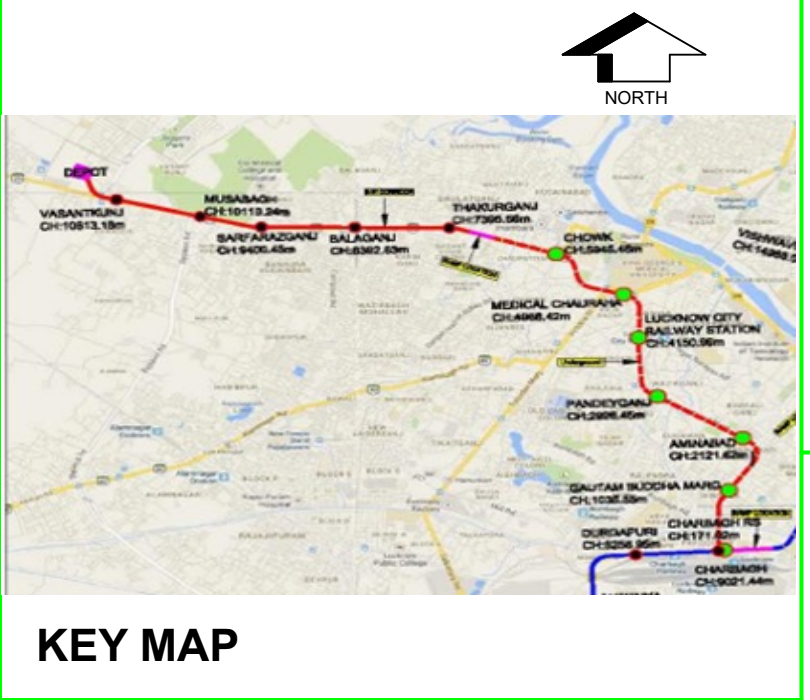
LEGEND			
01.		Over Voltage Protection Device	
02.		Aux. Transformer	
03.		Circuit Breaker	
04.		Rectifier Transformer	
05.		Rectifier	
06.		DC High Speed Circuit Breaker (HSCB)	
07.		750V No Load Disconnecter	
08.		DC Electro Magntic Contractor	
09.		Inverter	
10.		DC CT	
11.		DC PT	
12.		Frame Bonding	
13.		CT	
14.		PT	
15.		V	
16.		A	
17.		KVAR	
18.		KVA	
19.		KWH	
20.		K	

NOTES:-

- This is an indicative scheme for tender purpose. It shall be contractor's responsibility to perform detailed engineering and obtain approval from Engineer.
- In addition to the protection shown in this drawing, the following protections are also to be provided:
 - 49TWA / 49TWT: Transformer winding temperature alarm / trip
 - 49TC: Transformer core temperature trip
- The provided circuit breakers are to be provided with two position disconnector switch (earthing position and open position)
- All armatures of 33kV system shall have phase selection facility. The scale of all AC ammeters shall be selectable by software.
- For busbar fault at 33kV switchgear, 50 or 50N of incoming feeder will operate and trip the CB instantaneously. For any downstream fault the instantaneous relay 50 or 50N of the respective outgoing feeder will operate & block 50 or 50N of the incomer. In this case 51 or 51N of the incomer will work as backup
- Interlocks shall be provided so that the transformer panel doors cannot be opened unless the associated circuit breakers on both sides are open (electrical interlock)
- In order to achieve directional protection, the Contractor shall provide separate PTs on incomers and feeders
- ASSUMED CUM TMS LOCATION FOR PROPOSED PLATFORM AT GRADE (MAY CHANGE AS PER ACTUAL SITE CONDITIONS)

CONTRACTOR HAVE TO BEAR ALL SUCH COST ARISING DUE TO THIS CHANGE AT ANY STAGE OF THE PROJECT.

NOTES:				THE RESPONSIBILITY OF CONTROL , CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT .												THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .												COUNTER SIGNED BY UPMRCL		DATE		SIGNATURE		PROJECT: <div>UPMRCL</div> LUCKNOW METRO RAIL PROJECT-PHASE 1B UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010		OFFICE OF ORIGIN	
DDC / CONTRACTOR												SIGN:				SIGN:				SIGN:				DY.CEE				CLIENT: UP METRO RAIL CORPORATION LTD.									
P2	SIGN.												DATE:				DATE:				DATE:								LOCATION:								
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	-	PE/PM	APPD	DATE	DESIGNATION:				DESIGNATION:				DESIGNATION:				CEE											
CLEARED												REVIEWED BY				APPROVED BY				VETTED BY																	
DETAIL DESIGN CONSULTANT												GENERAL CONSULTANT				Consortium of Tecnica y Proyectos, S.A. and Italferr S.P.A 710, 7th Floor, Cyber Heights Vibhuti Khand, Gomti Nagar, Lucknow-226010																					
<div></div>												<div></div>																									
P2	-																								TITLE: TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-B		REVISION NO:										
REV NO	DATE	DESCRIPTION			SIGN																						SCALE: NTS		DATE:		STAGE: TDR						
																												DRG NO:		AGCC01-11718A-TDR-C01-TR-PWR-71931		P2					




Equipment Coding

c	Station Type	ASS Type	Attributes					Bus PTs	Stations in this category
			IC from RSS	Ring Feeders	Bus Coupler	Aux Trafo	Trac Trafo		
A	Elevated	ASS	2	2	1	2		2	Elevated End ASS With IC from RSS/ASS – Vasantkunj,
B	Elevated	ASS		4		2			Mid elevated ASS –, Sarfarazganj, Balaganj
C	Elevated	ASS+TSS		4	1	2	2	2	Mid Elevated ASS+TSS –, Thakurganj, Musabagh,
D	UG	ASS	2	4	1	2		2	End ASS With IC from RSS/ASS – Charbagh (UG)
E	UG	ASS		4		2			Mid ASS UG – Aminabad, City Railway Station, Chowk
F	UG	ASS+TSS		4	1	2	2	2	Mid ASS+TSS (UG) Pandeyganj, Gautam Buddh Marg, Medical Chauraha

NOTES:-

- This is an indicative scheme for tender purpose, shall contractor's responsibility to perform detailed engineering and obtain approval from Engineer.
- In addition to the protection shown in this drawing, the following protections are also to be provided:
 - 43TWTW/ 49TWT: Transformer winding temperature alarm / trip
 - 49TCT: Transformer core temperature trip
 - 26TIRA / 26TIR: Rectifier diode temperature alarm / trip
 - 58: Diode monitoring relay
- The 33kV circuit breakers are to be provided with two position disconnector switch (earthing position and open position)
- Key interlocking between HSCB and corresponding negative isolator shall allow operation of the isolator only when HSCB is open.
- When earthing is tripped from ETS, the auto re-close and line test sequence shall be bypassed and it shall be locked out until released by the OCC.
- DC CT AMT AND DC PT of adequate ratings shall be provided for all current/voltage operated relays, meters and transducers connected with 750V dc positive.
- All Cimeters of 33kV system shall have phase selection facility. The scale of all AC Ammeters shall be selectable by software.
- For busbar faults at 33kV, whichever, 50 or 60 of the incoming feed will operate and trip the CBs and disconnect accordingly. For any downstream fault the instantaneous relay 50 or 50N of the incoming feed in this case 51 or 51N of the incoming will work as backup.
- The following interlocking shall be provided:
 - A. The rectifier panel doors cannot be opened unless the associated circuit breakers on both sides are open (electrical interlock)
 - B. The rectifier transformer panel doors cannot be opened unless the associated circuit breakers on both sides are open (electrical interlock)
 - C. To trip the corresponding downstream rectifier HSCB when the corresponding Traction transformer feeding 33kV is open (electrical interlock)
 - D. Not to allow closing of rectifier HSCB when the corresponding traction transformer feeding 33kV CB is open (electrical interlock)
- Electrical interlocking to prevent operation of line disconnection switch and bridging disconnection switch when concerned HSCBs are closed.
- In order to avoid any directional protection, the Contractor shall provide separate PTs on incoming and outgoing feeders.
- ASS OR OR CUM TSS LOCATION (CONCOURSE/PLATFORM GRADE) MAY CHANGE AS PER ACTUAL SITE CONDITIONS.

CONTRACTOR HAVE TO BEAR ALL SUCH COST ARISING DUE TO THIS CHANGE AT ANY STAGE OF THE PROJECT.

PROJECT:  LUCKNOW METRO RAIL PROJECT-PHASE 1B UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010			OFFICE OF ORIGIN
CLIENT: UP METRO RAIL CORPORATION LTD. LOCATION:			
TITLE: TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-C			REVISION NO: P2
SCALE: NTS	DATE:	STAGE: TDR	
DRG NO: AGCC01-11718A-TDR-C01-TR-PWR-71934			

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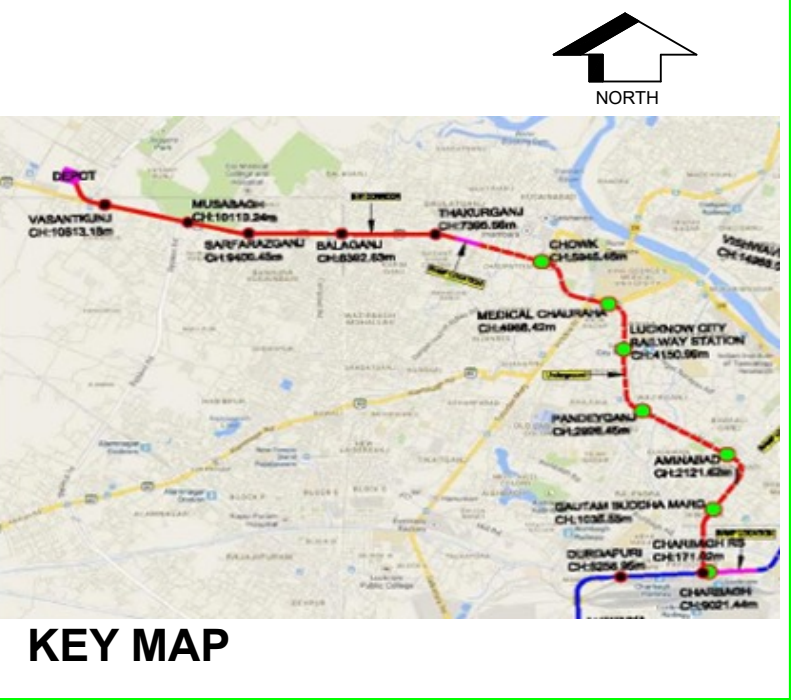
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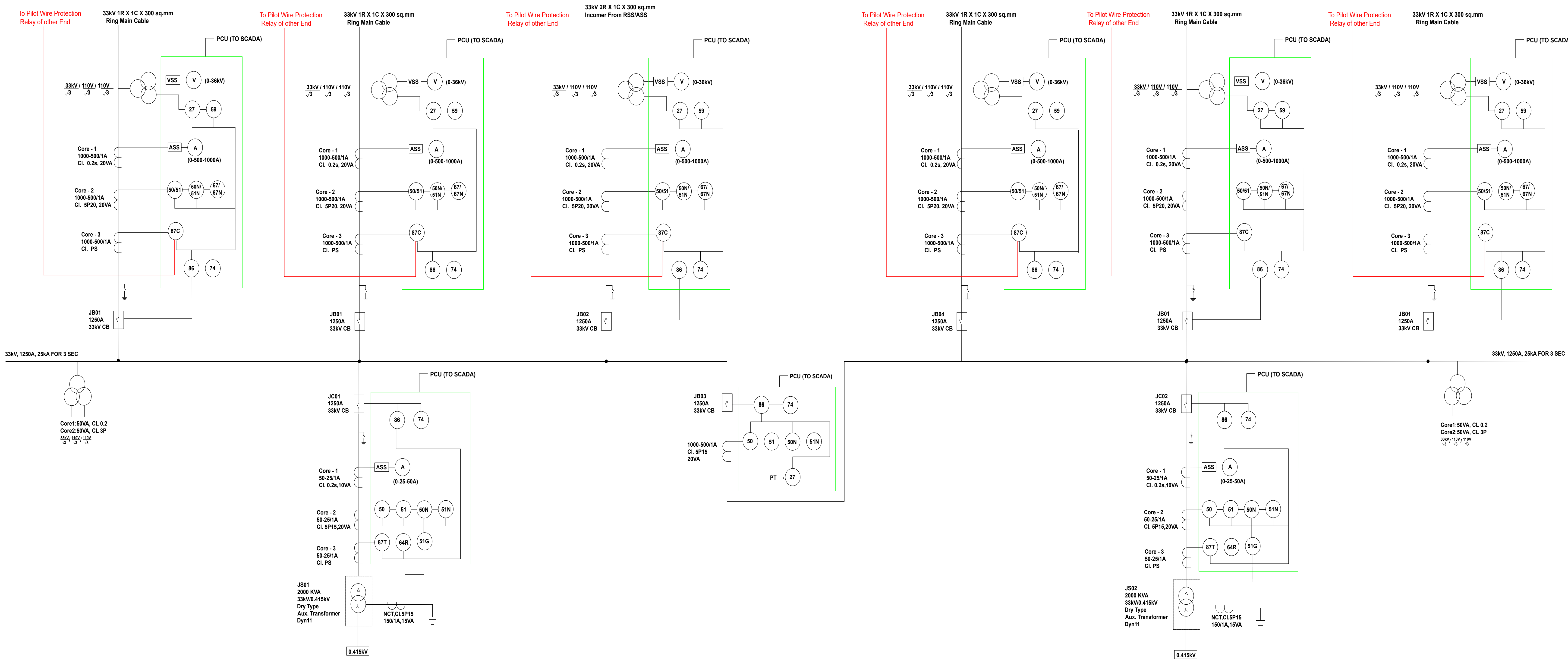
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Relay Legends:			
27	Under Voltage	02	Time delay relay
49-A	Thermal Overload Protection - Alarm	21-F	Full Voltage line Test (LTD-F)
49-T	Thermal Overload Protection - Trip	26	Rectifier diode temperature detection(Alarm/Trip)
50BF	Local Breaker Backup or Breaker Failure	32	Reverse Current
50	Over Current - Instantaneous	50-P	Current Rate of Rise (Positive di/dt)
50N	Earth Fault - Instantaneous	51-P	Time Delay Overcurrent (Imax+)
51	Over Current - Time Delayed	51-N	Time Delay Overcurrent (Imax-)
51N	Earth Fault - Time Delayed	58	Diode Monitoring Relay (Alarm/Trip)
51G	Restricted Earth Fault	64	DC Switchgear Frame Fault
59	Overvoltage	72	DC High Speed Circuit Breaker (HSCB)
67	Directional Overcurrent	76	Instantaneous Direct Overcurrent (ids)
67N	Direction Earth Fault	82	Automatic Reclosing (Auto-Reclose)
74	Trip Circuit Supervision Relay	85	Inter-tripping (IN and OUT)
86	Lockout	96	Reclose Maximum Number (Anti-pumping)
87C	Line/Cable Differential		

Equipment Coding		
01	33kV Circuit Breakers	Denoted by JB01,JB02,...for section breakers and traction transformer feeders. Denoted by JC01,JC02,...for auxiliary transformerfeeders.
02	Traction Transformers	Denoted by JT01,JT02...
03	Auxiliary Transformers	Denoted by JS01,JS02...
04	Rectifiers	Denoted by MG01,MG02...
05	750V HSCB	Denoted by MC01,MC02...
06	DC Negative Side Switch	Denoted by MD01,MD02...
07	Line & Bridging Disconnect	Denoted by DS01,DS02...
08	Inverter	Denoted by MI01,MI02...

c	Station Type	ASS Type	Attributes						Stations in this category
			IC from RSS	Ring Feeders	Bus Coupler	Aux Trafo	Trac Trafo	Bus PTs	
A	Elevated	ASS	2	2	1	2		2	Elevated End ASS With IC from RSS/ASS – Yasankunj.
B	Elevated	ASS		4		2			Mid elevated ASS –, Sarfarazganj, Balaganj
C	Elevated	ASS+TSS		4	1	2	2	2	Mid Elevated ASS+TSS –, Thakurganj, Musabagh, (UG)
D	UG	ASS	2	4	1	2		2	End ASS With IC from RSS/ASS – Charbagh (UG)
E	UG	ASS		4		2			Mid ASS UG – Aminabad, City Railway Station, Chowk
F	UG	ASS+TSS		4	1	2	2	2	Mid ASS+TSS (UG) Pandeyganj, Gautam Buddha Marg, Medical Chauraha

LEGEND

01.		Over Voltage Protection Device	06.		DC High Speed Circuit Breaker (HSCB)	11.		DC PT	16.		Ammeter
02.		Aux. Transformer	07.		750V No Load Disconnecter	12.		Frame Bonding	17.		Reactive Power Meter
03.		Circuit Breaker	08.		DC Electro Magntic Contactor	13.		Current Transformer	18.		Kilo Volt Ampere Meter
04.		Rectifier Transformer	09.		Inverter	14.		Voltage Transformer	19.		Kilo Watt Hour Meter
05.		Rectifier	10.		DC CT	15.		Voltmeter	20.		Key Interlocking

NOTES:-

- This is an indicative scheme for tender purpose. It shall be contractor's responsibility to perform detailed engineering and obtain approval from Engineer.
- In addition to the protection shown in this drawing, the following protections are also to be provided:
 - 49TWA/ 49TW: Transformer winding temperature alarm / trip
 - 49TC: Transformer core temperature trip
- The 33kV circuit breakers are to be provided with two position disconnector switch (earthing position and open position)
- All ammeters of 33kV system shall have phase selection facility. The scale of all AC ammeters shall be selectable by software.
- For busbar fault at 33kV switchgear, 50 or 50N of incoming feeder will operate and trip the CB instantaneously. For any downstream fault the instantaneous relay 50 or 50N of the respective outgoing feeder will operate & block 50 or 50N of the incomer. In this case 51 or 51N of the incomer will work as backup
- Interlocks shall be provided so that the transformer panel doors cannot be opened unless the associated circuit breakers on both sides are open (electrical interlock)
- In order to achieve directional protection, the Contractor shall provide separate PTs on incomers and feeders.
- ASS OR ASS CUM TSS LOCATION (CONCOURSE/PLATFORM/AT GRADE) MAY CHANGE AS PER ACTUAL SITE CONDITIONS. CONTRACTOR HAVE TO BEAR ALL SUCH COST ARISING DUE TO THIS CHANGE AT ANY STAGE OF THE PROJECT.

NOTES:

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

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

☐ NOC ☐ NOWC ☐ RESUBMIT

COUNTER SIGNED BY
UPMRC
DATE
SIGNATURE
DY.CEE
CEE

PROJECT: **LUCKNOW METRO RAIL PROJECT-PHASE 1B**
UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010
CLIENT: **UP METRO RAIL CORPORATION LTD.**
LOCATION:
TITLE: **TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-D**
SCALE: NTS DATE: STAGE: TDR
DRG NO: **AGCC01-11718A-TDR-C01-TR-PWR-71935**

OFFICE OF ORIGIN
REVISION NO:
P2

REV NO	DATE	DESCRIPTION	SIGN
P2		-	

DDC / CONTRACTOR											
P2	SIGN.										
ISSUE	DRN	DSN	CHD	AR	EL	IC	ME	-	PE/PM	APPD	DATE
DETAIL DESIGN CONSULTANT											

REVIEWED BY
GENERAL CONSULTANT

Consortium of Tecnica y
Proyectos, S.A. and
Italferr S.P.A
710, 7th Floor, Cyber Heights
Vibhuti Khand, Gomti Nagar,
Lucknow-226010

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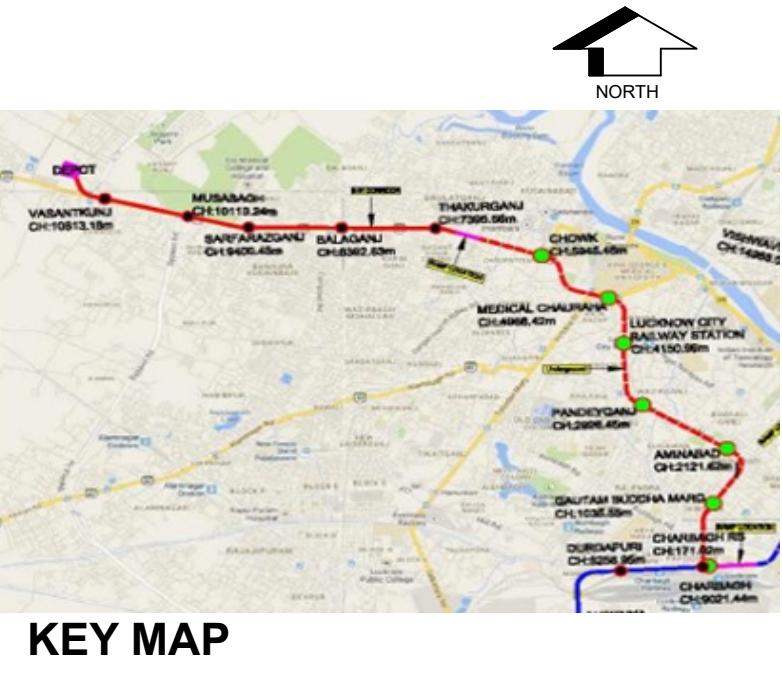
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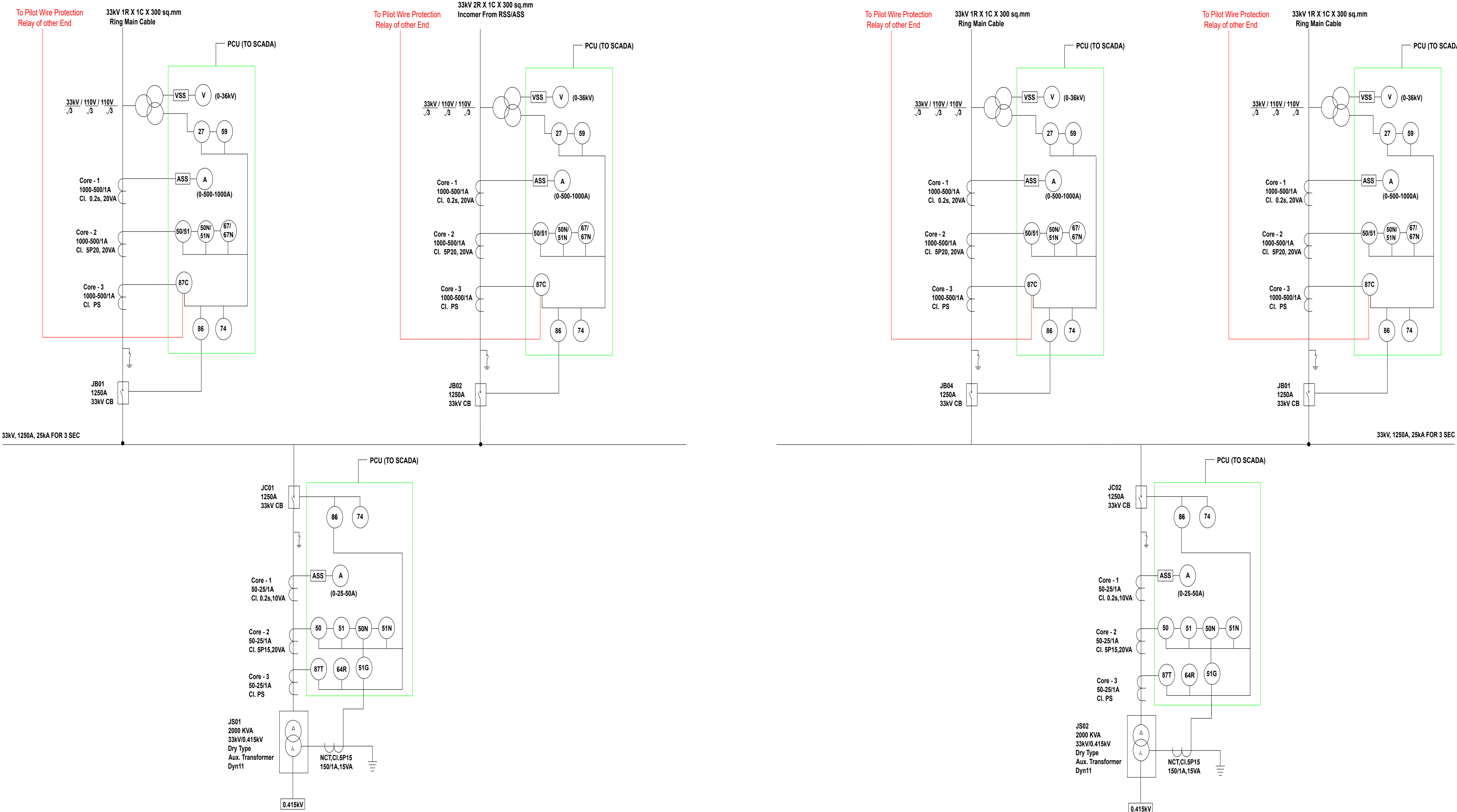
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KEY MAP



Relay Legends:

27	Under Voltage	02	Time delay relay
49-A	Thermal Overload Protection - Alarm	21-F	Full Voltage line Test (LTD-F)
49-T	Thermal Overload Protection - Trip	26	Rectifier diode temperature detection(Alarm/Trip)
50BF	Local Breaker Backup or Breaker Failure	32	Reverse Current
50	Over Current - Instantaneous	50-P	Current Rate of Rise (Positive di/dt)
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51	Over Current - Time Delayed	51-N	Time Delay Overcurrent (Imax-)
51N	Earth Fault - Time Delayed	58	Diode Monitoring Relay (Alarm/Trip)
51G	Restricted Earth Fault	64	DC Switchgear Frame Fault
59	Overvoltage	72	DC High Speed Circuit Breaker (HSCB)
67	Directional Overcurrent	76	Instantaneous Direct Overcurrent (ids)
67N	Direction Earth Fault	82	Automatic Reclosing (Auto-Reclose)
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03	Auxiliary Transformers	Denoted by JS01,JS02...
04	Rectifiers	Denoted by MG01,MG02...
05	750V HSCB	Denoted by MC01,MC02...
06	DC Negative Side Switch	Denoted by MD01,MD02...
07	Line & Bridging Disconnect	Denoted by DS01,DS02...
08	Inverter	Denoted by MI01,MI02...

c	Station Type	ASS Type	IC from RSS	Ring Feeders	Bus Coupler	Aux Trafo	Trac Trafo	Bus Pts	Stations in this category
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B	Elevated	ASS		4		2			Mid elevated ASS -, Sarfarazganj, Balaganj
C	Elevated	ASS+TSS		4	1	2	2	2	Mid Elevated ASS+TSS -, Thakurganj, Musabagh,
D	UG	ASS	2	4	1	2		2	End ASS With IC from RSS/ASS - Charbagh (UG)
E	UG	ASS		4		2			Mid ASS UG - Aminabad, City Railway Station, Chowk
F	UG	ASS+TSS		4	1	2	2	2	Mid ASS+TSS (UG) Pandeyganj, Gautam Buddha Marg, Medical Chauraha

LEGEND

01.		Over Voltage Protection Device	06.		DC High Speed Circuit Breaker (HSCB)	11.		DC PT	16.		Ammeter
02.		Aux. Transformer	07.		750V No Load Disconnector	12.		Frame Bonding	17.		Reactive Power Meter
03.		Circuit Breaker	08.		DC Electro Magntic Contractor	13.		Current Transformer	18.		Kilo Volt Ampere Meter
04.		Rectifier Transformer	09.		Inverter	14.		Voltage Transformer	19.		Kilo Watt Hour Meter
05.		Rectifier	10.		DC CT	15.		Voltmeter	20.		Key Interlocking

NOTES:-

- This is an indicative scheme for tender purpose. It shall be contractor's responsibility to perform detailed engineering and obtain approval from Engineer.
- In addition to the protection shown in this drawing, the following protections are also to be provided:
 - 49TWA / 49TW: Transformer winding temperature alarm / trip
 - 49TC: Transformer core temperature trip
- The 33kV circuit breakers are to be provided with two position disconnector switch (earthing position and open position)
- All ammeters of 33kV system shall have phase selection facility. The scale of all AC ammeters shall be selectable by software.
- For busbar fault at 33kV switchgear, 50 or 50N of incoming feeder will operate and trip the CB instantaneously. For any downstream fault the instantaneous relay 50 or 50N of the respective outgoing feeder will operate & block 50 or 50N of the incomer. In this case 51 or 51N of the incomer will work as backup
- Interlocks shall be provided so that the transformer panel doors cannot be opened unless the associated circuit breakers on both sides are open (electrical interlock)
- In order to achieve directional protection, the Contractor shall provide separate PTs on incomers and feeders.
- ASS OR ASS CUM TSS LOCATION (CONCOURSE/PLATFORM/AT GRADE) MAY CHANGE AS PER ACTUAL SITE CONDITIONS. CONTRACTOR HAVE TO BEAR ALL SUCH COST ARISING DUE TO THIS CHANGE AT ANY STAGE OF THE PROJECT.

NOTES:

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THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

☐ NOC ☐ NOWC ☐ RESUBMIT

SIGN: DATE: NAME: DESIGNATION: REVIEWED BY GENERAL CONSULTANT APPROVED BY VETTED BY



Consortium of Tecnica y Projectos, S.A. and Italferr S.P.A. 710, 7th Floor, Cyber Heights Vibhuti Khand, Gomti Nagar, Lucknow-226010

COUNTER SIGNED BY UPMRCL

DATE

SIGNATURE



PROJECT: LUCKNOW METRO RAIL PROJECT-PHASE 1B

UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010

OFFICE OF ORIGIN

CLIENT: UP METRO RAIL CORPORATION LTD.

LOCATION:

TITLE: TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE- E

SCALE: NTS

DATE:

STAGE: TDR

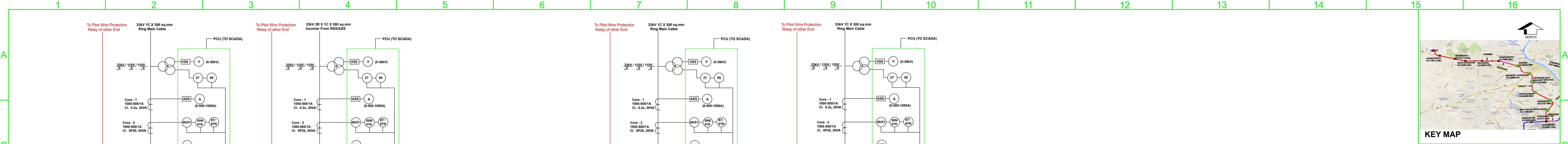
DRG NO:

AGCC01-11718A-TDR-C01-TR-PWR-71935

REVISION NO:

P2





















plot scale 50mm



Relay Legends:			
27	Under Voltage	02	Time delay relay
49-A	Thermal Overload Protection - Alarm	21-F	Full Voltage line Test (LTD-F)
49-T	Thermal Overload Protection - Trip	26	Rectifier diode temperature detection(Alarm/Trip)
50BF	Local Breaker Backup or Breaker Failure	32	Reverse Current
50	Over Current - Instantaneous	50-P	Current Rate of Rise (Positive di/dt)
50N	Earth Fault - Instantaneous	51-P	Time Delay Overcurrent (Imax+)
51	Over Current - Time Delayed	51-N	Time Delay Overcurrent (Imax-)
51N	Earth Fault - Time Delayed	58	Diode Monitoring Relay (Alarm/Trip)
51G	Restricted Earth Fault	64	DC Switchgear Frame Fault
59	Overvoltage	72	DC High Speed Circuit Breaker (HSCB)
67	Directional Overcurrent	76	Instantaneous Direct Overcurrent (Ida)
67N	Direction Earth Fault	82	Automatic Reclosing (Auto-Reclose)
74	Trip Circuit Supervision Relay	85	Inter-tripping (IN and OUT)
86	Lockout	96	Reclose Maximum Number (Anti-pumping)
87C	Line/Cable Differential		

Equipment Coding		
01	33kV Circuit Breakers	Denoted by JB01,JB02,...for section breakers and traction transformer feeders. Denoted by JC01,JC02,...for auxiliary transformer feeders.
02	Traction Transformers	Denoted by JT01,JT02...
03	Auxiliary Transformers	Denoted by JS01,JS02...
04	Rectifiers	Denoted by MG01,MG02...
05	750V HSCB	Denoted by MC01,MC02...
06	DC Negative Side Switch	Denoted by MD01,MD02...
07	Line & Bridging Disconnector	Denoted by DS01,DS02...
08	Inverter	Denoted by MI01,MI02...

c	Station Type	ASS Type	IC from RSS	Ring Feeders	Bus Coupler	Aux Trafo	Trac Trafo	Bus PTs	Stations in this category
A	Elevated	ASS	2	2	1	2		2	Elevated End ASS With IC from RSS/ASS - Vasantkunj,
B	Elevated	ASS		4		2			Mid elevated ASS -, Sarfarazganj, Balaganj
C	Elevated	ASS+TSS		4	1	2	2	2	Mid Elevated ASS+TSS -, Thakurganj, Musabagh,
D	UG	ASS	2	4	1	2		2	End ASS With IC from RSS/ASS - Charbagh (UG)
E	UG	ASS		4		2			Mid ASS UG - Aminabad, City Railway Station, Chowk
F	UG	ASS+TSS		4	1	2	2	2	Mid ASS+TSS (UG) Pandeyganj, Gautam Buddh Marg, Medical Chauraha

LEGEND					
01.		Over Voltage Protection Device	06.		DC High Speed Circuit Breaker (HSCB)
02.		Aux. Transformer	07.		750V No Load Disconnector
03.		Circuit Breaker	08.		DC Electro Magnetic Contactor
04.		Rectifier Transformer	09.		Inverter
05.		Rectifier	10.		DC CT
11.		DC PT	12.		Frame Bonding
13.		Current Transformer	14.		Voltage Transformer
15.		Voltmeter	16.		Ammeter
			17.		Reactive Power Meter
			18.		Kilo Volt Ampere Meter
			19.		Kilo Watt Hour Meter
			20.		Key Interlocking

NOTES:-

01. This is an indicative scheme for tender purpose.It shall contractor's responsibility to perform detailed engineering and obtain approval from Engineer.

02. In addition to the protection shown in this drawing, the following protections are also to be provided:

A. 49TWA / 49TW: Transformer winding temperature alarm / trip

B. 49TC: Transformer core temperature trip

C. 26TRA / 26TR: Rectifier diode tempertare alarm / trip

D. 58: Diode monitoring relay

03. The 33kV circuit breakers are to be provided with two position disconnector switch (earthing position and open position)

04. Key interlock between main HSCB and corresponding negative isolator shall allow operation of the isolator only when HSCB is open.

05. When a breaker is tripped from ETS, the auto re-closure and line test sequence shall be bypassed and it shall be locked out until released by the OCC.

06. DC CT AND DC PT of adequate ratings shall be provided for all current/voltage operated relays, meters and transducers connected with 750V dc positive.

07. All Ammeters of 33kV system shall have phase selection facility.The scale of all AC Ammeters shall be selectable by software.

08. For busbar fault at 33kV switchgear, 50 or 50N of incoming feeder will operate and trip the CB instantaneously.For any downstream fault the instantaneous relay 50 or 50N of the incomer.In this case 51 or 51N of the incomer will work as backup.

09. The following interlocking shall be provided:

A. The rectifier panel doors cannot be opened unless the associated circuit breakers on both sides are open (electrical interlock)

B. The tansformer panel doors cannot be opened unless the associated circuit breaker on both side are open(electrical interlock)

C. To trip the corresponding downstream recifier HSCB when the corresponding Traction transformer feeding 33kV is open(electrical interlock)

D. Not to allow closing of rectifier HSCB when the corresponding traction transformer feeding 33kV CB is open (electrical interlock)

10. Electrical interlock to prevent operation of line disconnection switch and bridging disconnection switch when concerned HSCBs are closed.

11. In order to achieve directional protection, the Contractor shall provide separate PTs on incomers and feeders.

12. ASS OR ASS CUM TSS LOCATION (CONCOURSE/PLATFORM/AT GRADE) MAY CHANGE AS PER ACTUAL SITE CONDITIONS.

CONTRACTOR HAVE TO BEAR ALL SUCH COST ARISING DUE TO THIS CHANGE AT ANY STAGE OF THE PROJECT.

NOTES:

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

DDC / CONTRACTOR

P2

SIGN.

ISSUE

DRN

DSN

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PE/PM

APPD

DATE

DETAIL DESIGN CONSULTANT

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

NOC

NOWC

RESUBMIT

SIGN:

DATE:

NAME:

DESIGNATION:

SIGN:

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NAME:

DESIGNATION:

SIGN:

DATE:

NAME:

DESIGNATION:

REVIEWED BY

APPROVED BY

VETTED BY

GENERAL CONSULTANT

Consortium of Tecnica y Proyetcos, S.A. and Italfer S.P.A

710, 7th Floor, Cyber Heights

Vibhuti Khandi, Gomti Nagar,

Lucknow-226010

COUNTER SIGNED BY

DATE

SIGNATURE

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PROJECT:

AGRA METRO RAIL PROJECT
UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

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

LOCATION:

TITLE: **TYPICAL PROTECTION SCHEME FOR SUBSTATION TYPE-F**

SCALE: NTS

DATE:

STAGE: TDR

DRG NO: **AGCC01-11718A-TDR-MDC-TR-PWR-71946**

OFFICE OF ORIGIN

REVISION NO:

P2

plot scale

50mm

A

B

C

D

E

F

G

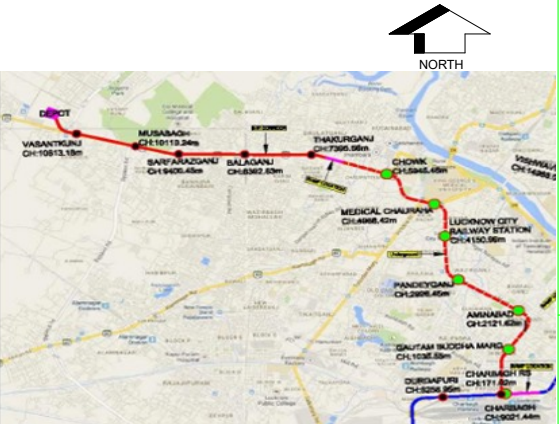
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KEY MAP

Equipment Coding		
01	33kV Circuit Breakers	Denoted by JB01,JB02...for section breakers and traction transformer feeders. Denoted by JCB1,JCB2...for auxiliary transformerfeeders.
02	Traction Transformers	Denoted by JT01,JT02...
03	Auxiliary Transformers	Denoted by JS01,JS02...
04	Rectifiers	Denoted by MG01,MG02...
05	750V HSCB	Denoted by MC01,MC02...
06	DC Negative Side Switch	Denoted by MD01,MD02...
07	Line & Bridging Disconnector	Denoted by DS01,DS02...
08	Inverter	Denoted by MI01,MI02...

c	Station Type	ASS Type	IC from RSS	Ring Feeders	Bus Coupler	Aux Trafo	Trac Trafo	Bus PTs	Stations in this category
A	Elevated	ASS	2	2	1	2		2	Elevated End ASS With IC from RSS/ASS – Vasantkunj,
B	Elevated	ASS		4		2			Mid elevated ASS – Sarfarazganj, Balaganj,
C	Elevated	ASS+TSS		4	1	2	2	2	Mid Elevated ASS+TSS – Thakurganj, Musabagh,
D	UG	ASS	2	4	1	2		2	End ASS With IC from RSS/ASS – Charbagh (UG)
E	UG	ASS		4		2			Mid ASS UG – Aminabad, City Railway Station, Chowk
F	UG	ASS+TSS		4	1	2	2	2	Mid ASS+TSS (UG) Pandeyganj, Gautam Budh Marg, Medical Chauraha

Relay Legends:			
27	Under Voltage	02	Time delay relay
49-A	Thermal Overload Protection - Alarm	21-F	Full Voltage line Test (LTD-F)
49-T	Thermal Overload Protection - Trip	26	Rectifier diode temperature detection(Alarm/Trip)
50BF	Local Breaker Backup or Breaker Failure	32	Reverse Current
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51G	Restricted Earth Fault	64	DC Switchgear Frame Fault
59	Overvoltage	72	DC High Speed Circuit Breaker (HSCB)
67	Directional Overcurrent	76	Instantaneous Direct Overcurrent (Ids)
67N	Direction Earth Fault	82	Automatic Reclosing (Auto-Reclose)
74	Trip Circuit Supervision Relay	85	Inter-tripping (IN and OUT)
86	Lockout	96	Reclose Maximum Number (Anti-pumping)
87C	Line/Cable Differential		

LEGEND

01.		Over Voltage Protection Device	06.		DC High Speed Circuit Breaker (HSCB)	11.		DC PT	16.		Ammeter
02.		Aux. Transformer	07.		750V No Load Disconnector	12.		Frame Bonding	17.		Reactive Power Meter
03.		Circuit Breaker	08.		DC Electro Magntic Contactor	13.		Current Transformer	18.		Kilo Volt Ampere Meter
04.		Rectifier Transformer	09.		Inverter	14.		Voltage Transformer	19.		Kilo Watt Hour Meter
05.		Rectifier	10.		DC CT	15.		Voltmeter	20.		Key Interlocking

NOTES:
01. This is an indicative scheme for tender purpose & shall contractor's responsibility to perform detailed engineering and obtain approval from Engineer.
02. In addition to the protection shown in this drawing, the following protections are also to be provided:
A. 33kV/11kV Transformer winding temperature alarm / trip
B. 33kV/11kV Transformer core temperature trip
C. 33kV/11kV Transformer oil temperature alarm / trip
03. The 33kV circuit breakers are to be provided with two position disconnector switch (switching position and open position)
04. Key interlock between main HSCB and corresponding negative feeder shall allow operation of the feeder only when HSCB is open.
05. When a breaker is tripped from ETR, the auto re-closure and time test sequence shall be tripped and it shall be locked out until released by the OCC.
06. DC CT AND DC PT of adequate ratings shall be provided for all current/voltage operated relays, meters and transducers connected with 250V AC positive.
07. All feeders of 250V system shall have ground detection facility. The scale of all DC ammeters shall be adjustable by software.
08. For feeder fault at 33kV voltage, 50 or 20% of incoming feeder will operate and trip the CB instantaneously for any downstream fault the instantaneous relay 50 or 20% of the incoming bus zone 51 or 51N of the feeder will work as backup.
09. The following interlocking shall be provided:
A. The rectifier panel doors cannot be opened unless the associated circuit breakers on both sides are open (electrical interlock)
B. The rectifier panel doors cannot be opened unless the associated circuit breakers on both sides are open (mechanical interlock)
C. To trip the corresponding downstream rectifier HSCB when the corresponding Traction transformer feeding 250V is open(electrical interlock)
D. Key to allow closing of feeder HSCB when the corresponding traction transformer feeding 250V is open (mechanical interlock)
10. Electrical interlock to prevent operation of line disconnection switch and bridging disconnection switch when concerned HSCBs are closed.
11. In order to achieve differential protection, the Contractor shall provide dedicated protection for all feeders and busbars.
12. ASS OR ASS CUM TSS LOCATION, CONCEPTS, ATTACHMENT GRADES MAY CHANGE AS PER ACTUAL SITE CONDITIONS.
CONTRACTOR HAVE TO BEAR ALL SUCH COST ARISING DUE TO THIS CHANGE AT ANY STAGE OF THE PROJECT.

REV NO	DATE	DESCRIPTION	SIGN
P1		-	

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

DDC / CONTRACTOR											
P1	SIGN.										
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	PE/PM	APPD DATE
CLEARED											
DETAIL DESIGN CONSULTANT											

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

<input type="checkbox"/> NOC	<input type="checkbox"/> NOWC	<input type="checkbox"/> RESUBMIT
SIGN:	SIGN:	SIGN:
DATE:	DATE:	DATE:
NAME:	NAME:	NAME:
DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY
GENERAL CONSULTANT		

COUNTER SIGNED BY UPMRCL	DATE	SIGNATURE
DY.CEE		
CEE		

PROJECT: LUCKNOW METRO RAIL PROJECT PHASE 1B
UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

CLIENT: UP METRO RAIL CORPORATION LTD.

LOCATION:

TITLE: PROTECTION SCHEME FOR DEPOT TSS-CUM-ASS

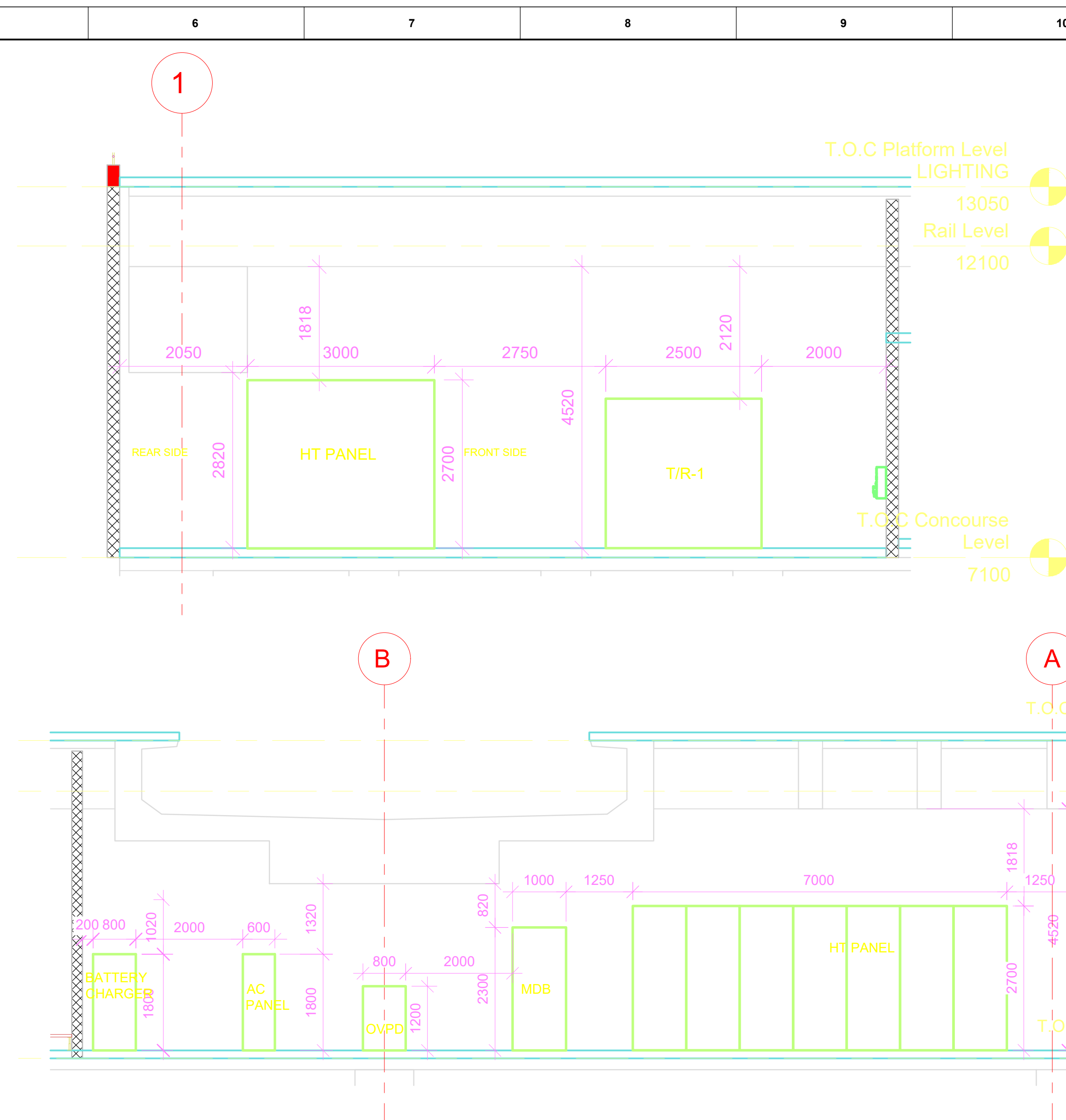
SCALE: NTS DATE: STAGE: TDR

DRG NO: AGCC01-11718A-TDR-DPT-TR-PWR-71949

OFFICE OF ORIGIN

REVISION NO:

P1



SARFARAJGANJ ASS ROOM PANEL SIZES					
SL NO.	PANEL NAME	LENGTH(m)	DEPTH(m)	HEIGHT(Tmm)	RATING
1	33kV HT panel (AIS)	7000	3000	2700	1250A
2	Auxiliary Transformer	2000	2500	2500	500kVA
3	Main Distribution Board	6000	1000	2300	800A
4	Main Lighting Panel	3500	600	1800	-
5	EMDB	4500	600	1800	-
6	Excitator Panel	2500	600	1800	-
7	PASSANGER AMENITIES PANEL	2500	600	1800	-
8	AC Panel	2500	600	1800	-
9	Charger Set	1000	800	1800	-
10	AC Distribution Board	1200	500	1200	-
11	DC Distribution Board	1200	500	700	-
12	RTU	1000	1000	2000	-
13	OXPD	800	800	1200	-

REFERENCE DRAWINGS

P0	SIGN.												
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	-	PE/PM	APPD	DATE
					CLEARED								


UTTAR PRADESH METRO RAIL CORPORATION LTD.
AGDD-01(R1)-CHARBAGH TO VASANTKUNJ EAST WEST CORRIDOR

ASS ROOM LAYOUT

SUBSTATION EQUIPMENT LAYOUT AND SECTIONS

ISSUED FOR

- ☐ AS BUILT DRAWING
 ☒ TENDER PURPOSE
☐ GOOD FOR CONSTRUCTION
 ☐ PRELIMINARY/CONCEPTUAL DESIGN
☐ CONSTRUCTION REFERENCE DRAWING

DO NOT SCALE

DO NOT SCALE

* (P) (PRELIMINARY) ISSUES ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY AS INDICATED IN THE SMALL BLOCK ABOVE THIS BLOCK. CONSTRUCTION/FABRICATION WORK IS PERMITTED ON 'R' (RELEASED) ISSUES ONLY. INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION/FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/FABRICATION WORK RELATED TO 'HOLDS'.

FILE NAME: AGCC01-11718A-TDR-FBD-TR-PWR-72015

SCALE: NTS

DWG NO:

DC & DISC: DEL-TR


AGCC01-11718A-TDR-FBD-TR-PWR-72015

ISSUE P0	SIZE-A1
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AGDDC FORM NO. 091 R0

P0	-	
REV NO.	DESCRIPTION	DATE
REVISION SCHEDULE		

IMPLEMENTED
BY UPMRC



UP Metro
Rail Corporation

'NO OBJECTION' FROM EMPLOYER

NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES. HOWEVER, THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAILED DESIGN CONSULTANT.

DESIGNATION	REMARKS	DATE	SIGNATURE

DESIGNATION

REMARKS

DATE

SIGNATURE

	1	2	3	4	5	6	7	8	9	10	11	12																																																																																																																																																																						
A	<table><tr><th colspan="7">ASS+TSS ROOM PANEL SIZES</th></tr><tr><th>SL NO.</th><th>PANEL NAME</th><th>LENGTH(mm)</th><th>DEPTH(mm)</th><th>HEIGHT(mm)</th><th>Approx Weight (kg)</th><th>RATING</th></tr><tr><td>1</td><td>33kV HT panel (AIS)</td><td>6300</td><td>1600</td><td>2700</td><td>1800</td><td>1250A</td></tr><tr><td>2</td><td>Auxiliary Transformer</td><td>2000</td><td>3000</td><td>2500</td><td>8000</td><td>2000A</td></tr><tr><td>3</td><td>Main Distribution Board</td><td>10700</td><td>1250</td><td>2300</td><td>7000</td><td>3200A</td></tr><tr><td>4</td><td>Main Lighting Panel</td><td>3200</td><td>600</td><td>2300</td><td>700</td><td>-</td></tr><tr><td>5</td><td>EMDB</td><td>7900</td><td>1250</td><td>2300</td><td>4500</td><td>-</td></tr><tr><td>6</td><td>Escalator Panel</td><td>2500</td><td>600</td><td>2300</td><td>500</td><td>-</td></tr><tr><td>7</td><td>Normal Power Panel-1</td><td>2500</td><td>600</td><td>2300</td><td>600</td><td>-</td></tr><tr><td>8</td><td>ASS PLC Panel</td><td>1000</td><td>1000</td><td>2000</td><td>200</td><td>-</td></tr><tr><td>9</td><td>Charger Set</td><td>1000</td><td>800</td><td>1800</td><td>500</td><td>-</td></tr><tr><td>10</td><td>AC Distribution Board</td><td>1200</td><td>500</td><td>1200</td><td>150</td><td>-</td></tr><tr><td>11</td><td>DC Distribution Board</td><td>1200</td><td>500</td><td>700</td><td>120</td><td>-</td></tr><tr><td>12</td><td>RTU</td><td>1000</td><td>1000</td><td>2000</td><td>300</td><td>-</td></tr><tr><td>13</td><td>Inverter</td><td>1600</td><td>1400</td><td>2300</td><td>1600</td><td>1000kW</td></tr><tr><td>14</td><td>Rectifier</td><td>1600</td><td>1400</td><td>2300</td><td>1600</td><td>2500kW</td></tr><tr><td>15</td><td>Inverter Transformer</td><td>3300</td><td>2800</td><td>2800</td><td>10000</td><td>1250kVA</td></tr><tr><td>16</td><td>Traction Transformer</td><td>3300</td><td>2800</td><td>3300</td><td>12000</td><td>33kV/585-585V, 2850 kVA</td></tr><tr><td>17</td><td>HSCB</td><td>800/500</td><td>1400</td><td>2300</td><td>1000</td><td>6000A</td></tr><tr><td>18</td><td>OVPD</td><td>800</td><td>800</td><td>1200</td><td>500</td><td>-</td></tr><tr><td>19</td><td>Grounding Panel</td><td>1200</td><td>1000</td><td>2300</td><td>-</td><td>-</td></tr><tr><td>20</td><td>Bridging Panel</td><td>1500</td><td>1200</td><td>2300</td><td>-</td><td>-</td></tr><tr><td>21</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>					ASS+TSS ROOM PANEL SIZES							SL NO.	PANEL NAME	LENGTH(mm)	DEPTH(mm)	HEIGHT(mm)	Approx Weight (kg)	RATING	1	33kV HT panel (AIS)	6300	1600	2700	1800	1250A	2	Auxiliary Transformer	2000	3000	2500	8000	2000A	3	Main Distribution Board	10700	1250	2300	7000	3200A	4	Main Lighting Panel	3200	600	2300	700	-	5	EMDB	7900	1250	2300	4500	-	6	Escalator Panel	2500	600	2300	500	-	7	Normal Power Panel-1	2500	600	2300	600	-	8	ASS PLC Panel	1000	1000	2000	200	-	9	Charger Set	1000	800	1800	500	-	10	AC Distribution Board	1200	500	1200	150	-	11	DC Distribution Board	1200	500	700	120	-	12	RTU	1000	1000	2000	300	-	13	Inverter	1600	1400	2300	1600	1000kW	14	Rectifier	1600	1400	2300	1600	2500kW	15	Inverter Transformer	3300	2800	2800	10000	1250kVA	16	Traction Transformer	3300	2800	3300	12000	33kV/585-585V, 2850 kVA	17	HSCB	800/500	1400	2300	1000	6000A	18	OVPD	800	800	1200	500	-	19	Grounding Panel	1200	1000	2300	-	-	20	Bridging Panel	1500	1200	2300	-	-	21																		
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2	Auxiliary Transformer	2000	3000	2500	8000	2000A																																																																																																																																																																												
3	Main Distribution Board	10700	1250	2300	7000	3200A																																																																																																																																																																												
4	Main Lighting Panel	3200	600	2300	700	-																																																																																																																																																																												
5	EMDB	7900	1250	2300	4500	-																																																																																																																																																																												
6	Escalator Panel	2500	600	2300	500	-																																																																																																																																																																												
7	Normal Power Panel-1	2500	600	2300	600	-																																																																																																																																																																												
8	ASS PLC Panel	1000	1000	2000	200	-																																																																																																																																																																												
9	Charger Set	1000	800	1800	500	-																																																																																																																																																																												
10	AC Distribution Board	1200	500	1200	150	-																																																																																																																																																																												
11	DC Distribution Board	1200	500	700	120	-																																																																																																																																																																												
12	RTU	1000	1000	2000	300	-																																																																																																																																																																												
13	Inverter	1600	1400	2300	1600	1000kW																																																																																																																																																																												
14	Rectifier	1600	1400	2300	1600	2500kW																																																																																																																																																																												
15	Inverter Transformer	3300	2800	2800	10000	1250kVA																																																																																																																																																																												
16	Traction Transformer	3300	2800	3300	12000	33kV/585-585V, 2850 kVA																																																																																																																																																																												
17	HSCB	800/500	1400	2300	1000	6000A																																																																																																																																																																												
18	OVPD	800	800	1200	500	-																																																																																																																																																																												
19	Grounding Panel	1200	1000	2300	-	-																																																																																																																																																																												
20	Bridging Panel	1500	1200	2300	-	-																																																																																																																																																																												
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ASS ROOM 229 SQM

Equipment and Dimensions:

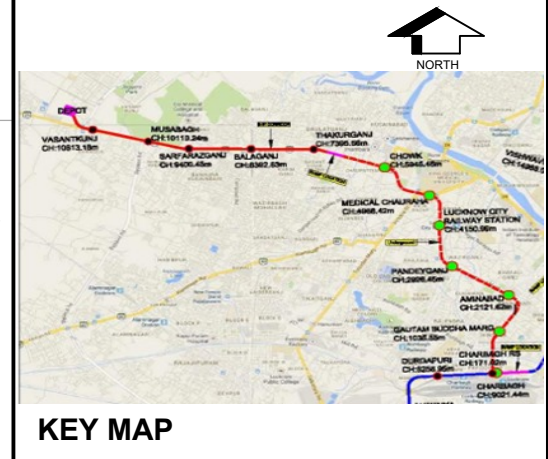
- BATTERY:** 2800 x 800
- BATTERY CHARGER:** 2000 x 800
- AUX TRF-1:** 2000 x 1250
- AUX TRF-2:** 3000 x 1250
- LIGHTING PANEL:** 3250 x 1200
- NORMAL POWER PANEL:** 2500 x 1200
- ESCALATOR PANEL:** 2500 x 1200
- ACDB:** 1200 x 1200
- DCDB:** 1200 x 1200
- ASS PLG PANEL:** 1000 x 200
- RTU:** 1000 x 1250
- OVPD:** 1000 x 1250
- Smaller Panels (Top Right):** O/G-2, ATCB-2, I/C-4, I/C-3, BUS RISER, BUS COUPLER, O/G-1, ATCB-1, I/C-2, I/C-1

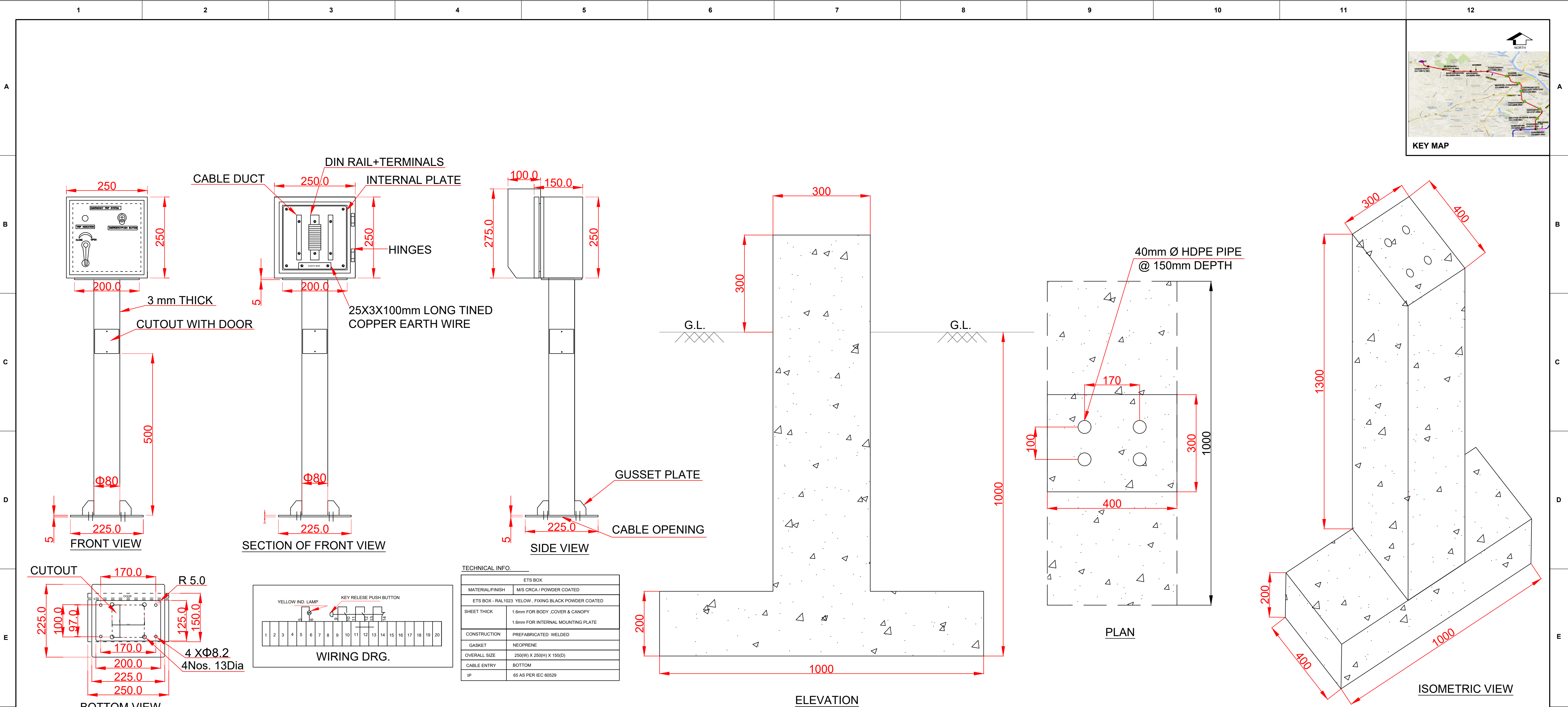
Dimensions and Clearances:

- Overall Width:** 7900
- Overall Depth:** 10700
- Clearance (Top):** 2500
- Clearance (Bottom):** 2500
- Clearance (Left):** 2170
- Clearance (Right):** 250

Other Labels:

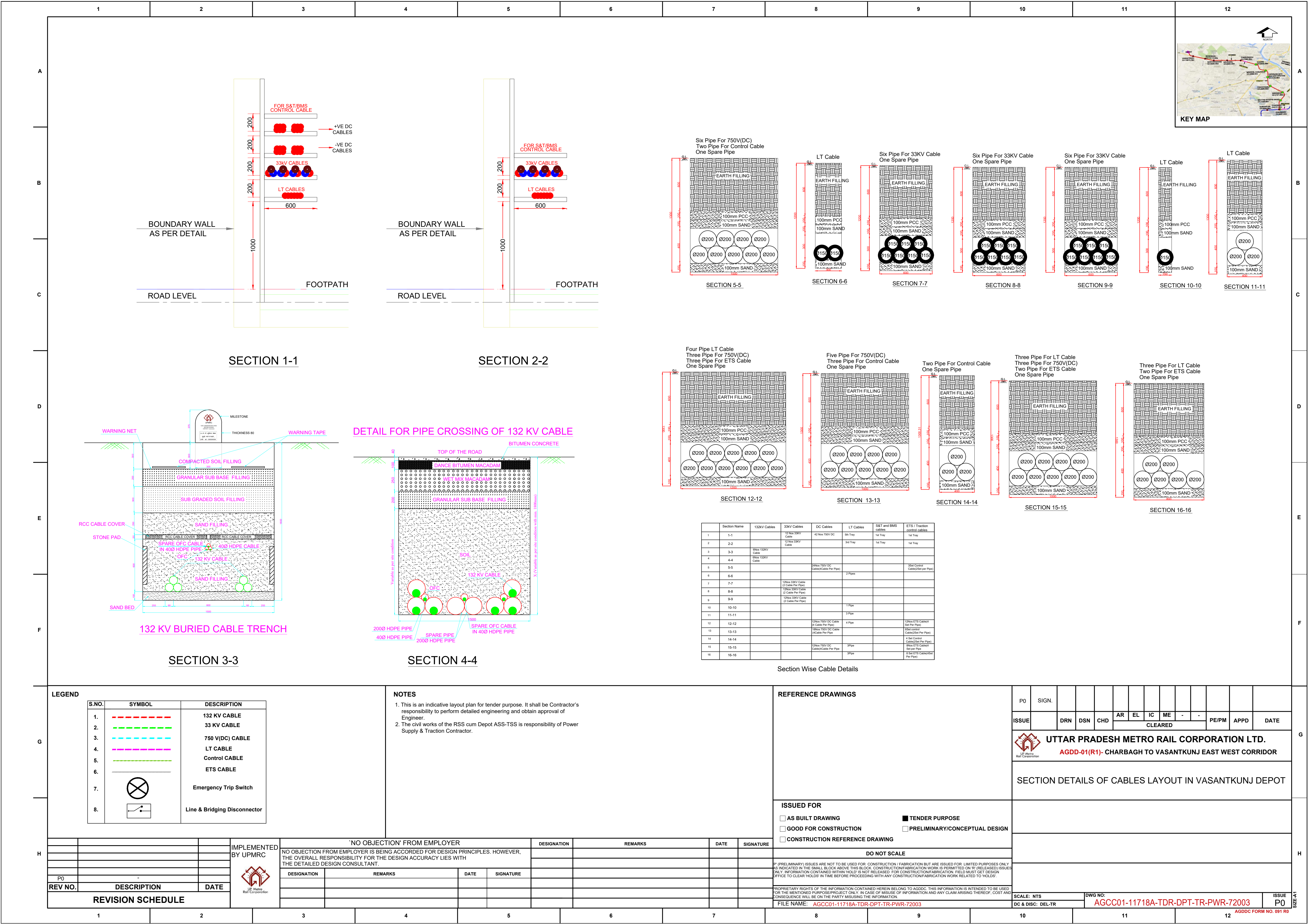
- CUT OUT FOR INCOMING 33KV CABLES** (indicated by a green arrow)
- EMDB** (Equipment Main Distribution Board)

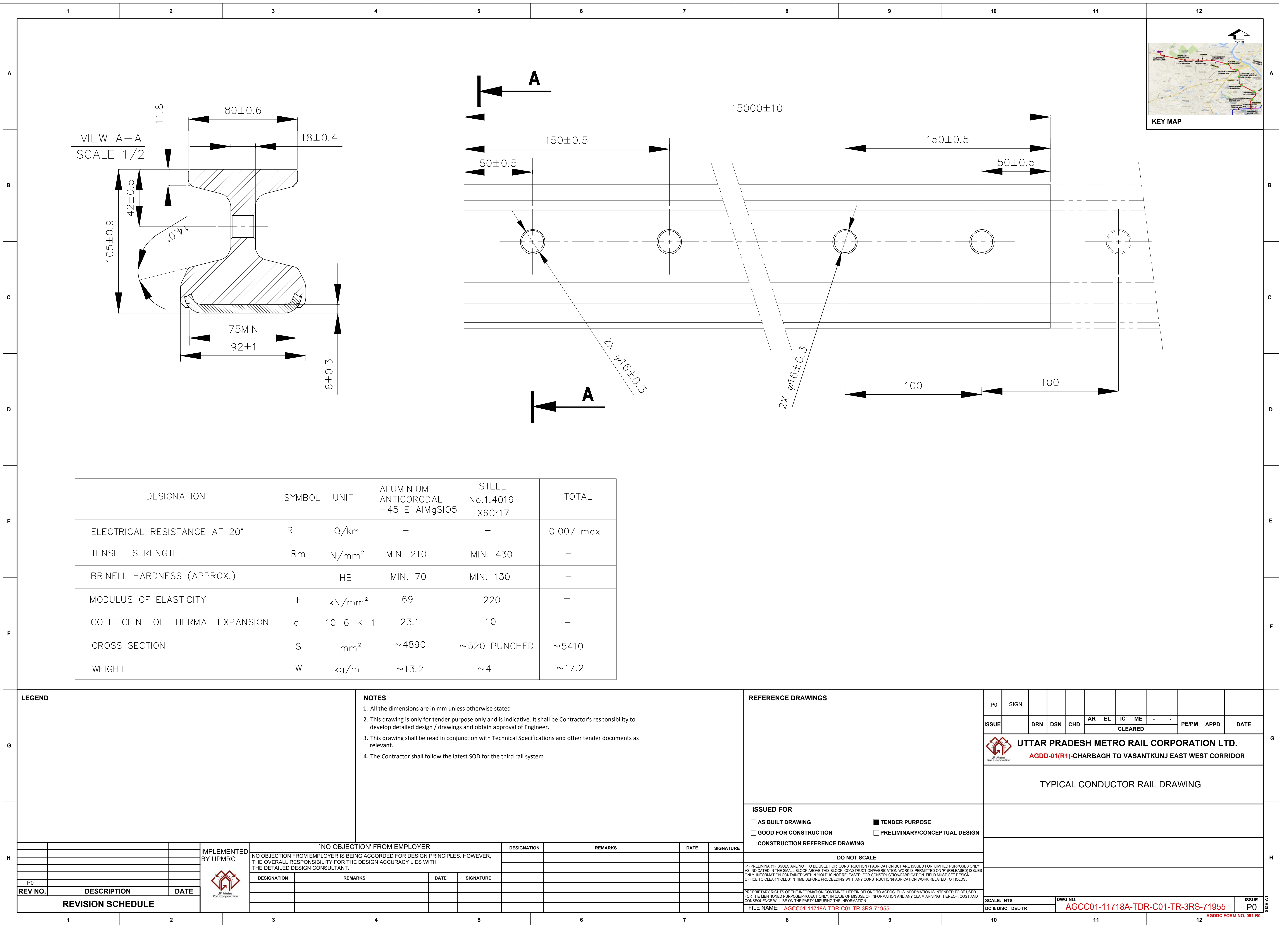
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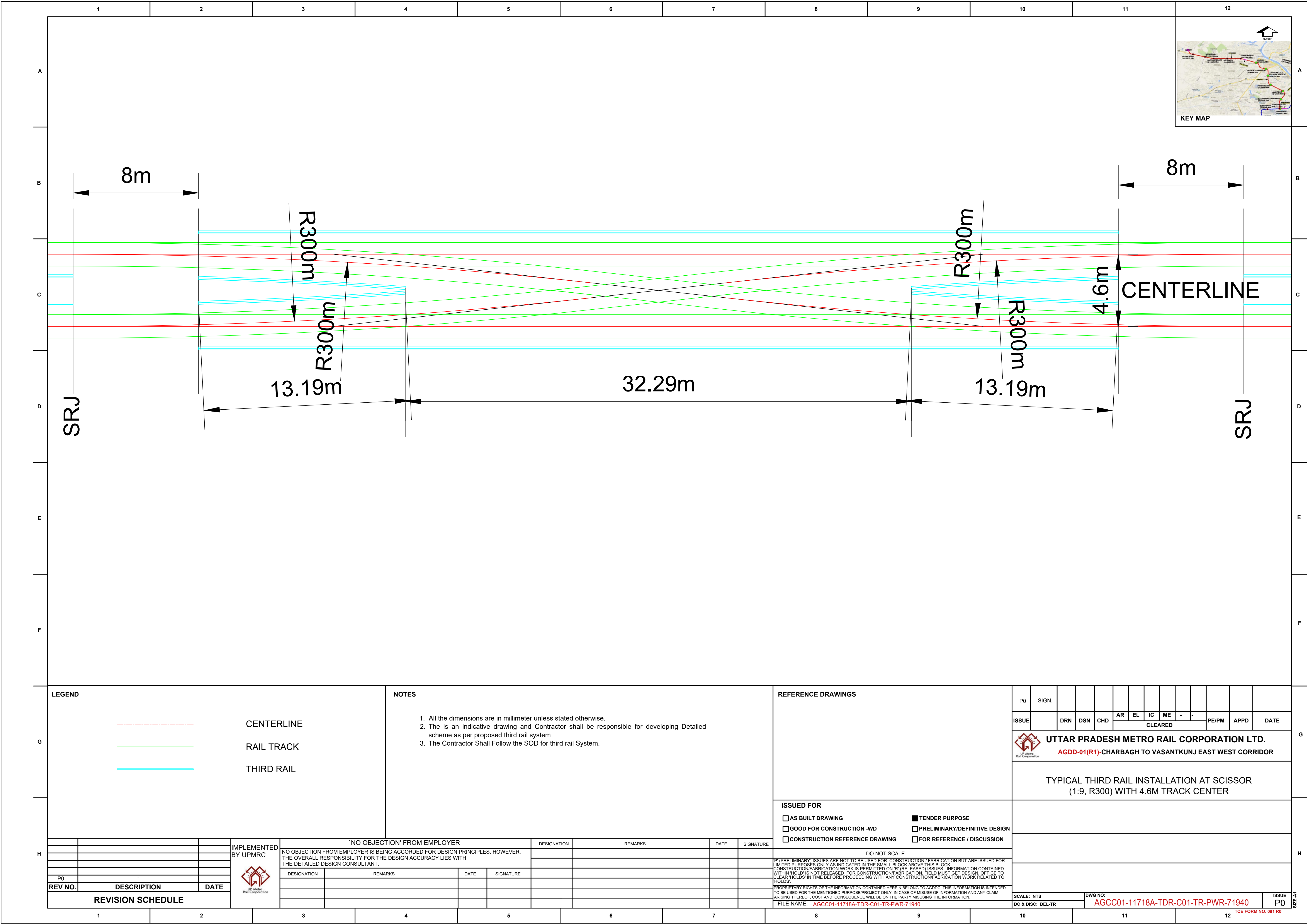


FOUNDATION DETAILS

LEGEND			NOTES <div>1. All dimensions are in millimeters unless specified otherwise.</div> <div>2. This is an indicative drawing for tender purpose. Contractor shall be responsible for performing detailed engineering and obtain approval of Engineer.</div> <div>3. Concrete mixture shall be in the ratio 1:2:4 and concrete shall be at least 15mm size.</div> <div>4. Concrete grade shall be M-30.</div> <div>5. Provision of relevant specification / standards shall be applicable to ETS foundation.</div> <div>6. This drawing shall be read in conjunction with Technical Specifications.</div>				REFERENCE DRAWINGS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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LEGEND

CENTERLINE

RAIL TRACK

THIRD RAIL

NOTES

1. All the dimensions are in millimeter unless stated otherwise.

2. The is an indicative drawing and Contractor shall be responsible for developing Detailed scheme as per proposed third rail system.

3. The Contractor Shall Follow the SOD for third rail System.

REFERENCE DRAWINGS

ISSUED FOR

☐ AS BUILT DRAWING


☐ TENDER PURPOSE

☐ GOOD FOR CONSTRUCTION -WD

☐ PRELIMINARY/DEFINITIVE DESIGN

☐ CONSTRUCTION REFERENCE DRAWING

☐ FOR REFERENCE / DISCUSSION

			IMPLEMENTED BY UPMRC	 UP Metro Rail Corporation	'NO OBJECTION' FROM EMPLOYER				DESIGNATION	REMARKS	DATE	SIGNATURE
					NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES. HOWEVER, THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAILED DESIGN CONSULTANT.							
P0					DESIGNATION	REMARKS	DATE	SIGNATURE				
REV NO.	DESCRIPTION	DATE										
REVISION SCHEDULE												

DO NOT SCALE

P (PRELIMINARY) ISSUES ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY AS INDICATED IN THE SMALL BLOCK ABOVE THIS BLOCK.

CONSTRUCTION/FABRICATION WORK IS PERMITTED ON 'P' (RELEASED) ISSUES. INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION/FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR HOLDS IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/FABRICATION WORK RELATED TO HOLDS.

PROPRIETARY RIGHTS OF THE INFORMATION CONTAINED HEREIN BELONG TO AGCCDC. THIS INFORMATION IS INTENDED TO BE USED FOR THE MENTIONED PURPOSE/PROJECT ONLY. IN CASE OF MISUSE OF INFORMATION AND ANY CLAIM ARISING THEREOF, COST AND CONSEQUENCE WILL BE ON THE PARTY MISUSING THE INFORMATION.

FILE NAME: AGCC01-11718A-TDR-C01-TR-PWR-71940

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UTTAR PRADESH METRO RAIL CORPORATION LTD.

AGDD-01(R1)-CHARBAGH TO VASANTKUNJ EAST WEST CORRIDOR

TYPICAL THIRD RAIL INSTALLATION AT SCISSOR

(1:9, R300) WITH 4.6M TRACK CENTER

ISSUED FOR

☐ AS BUILT DRAWING

☐ TENDER PURPOSE

☐ GOOD FOR CONSTRUCTION -WD

☐ PRELIMINARY/DEFINITIVE DESIGN

☐ CONSTRUCTION REFERENCE DRAWING

☐ FOR REFERENCE / DISCUSSION

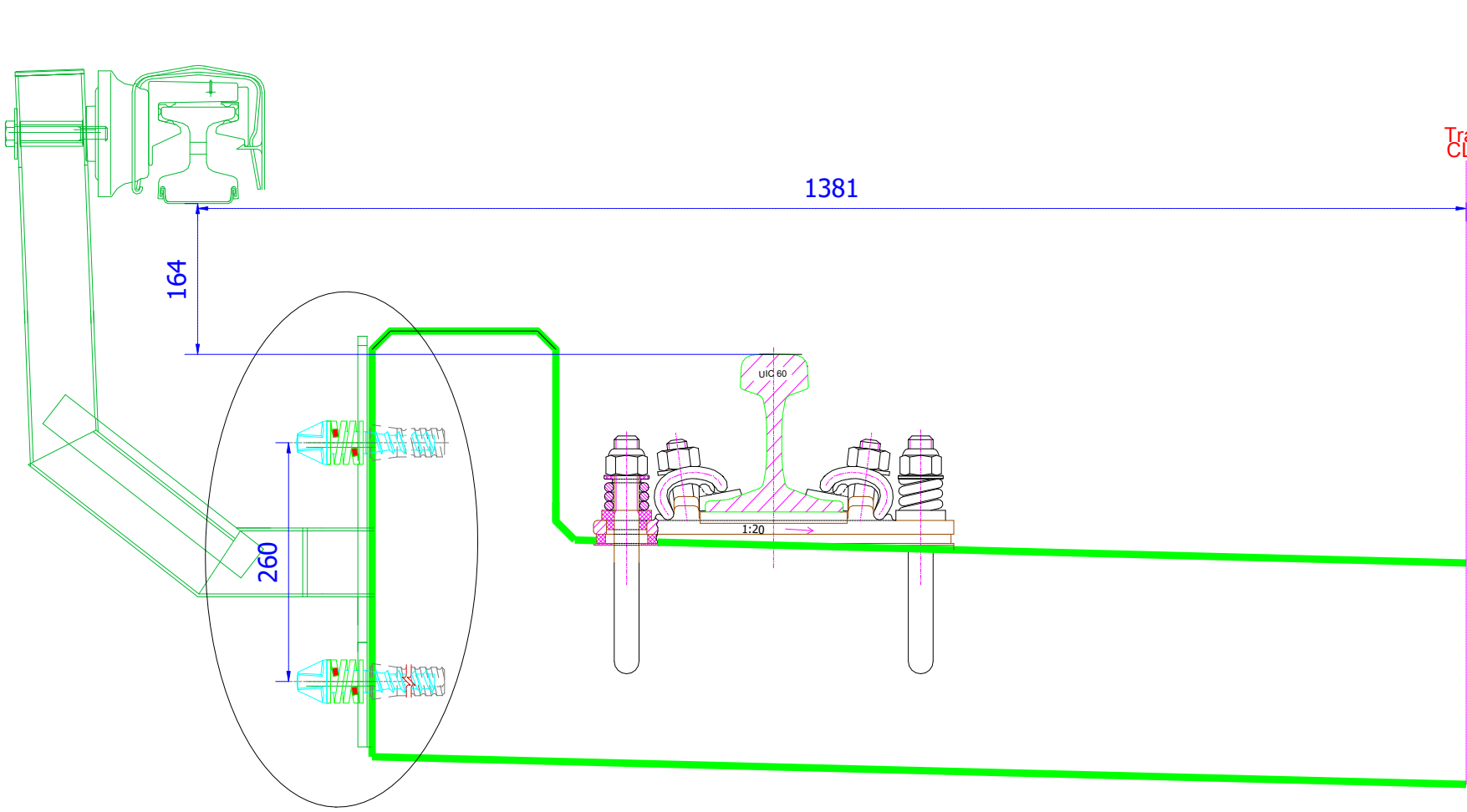
SCALE: NTS

DWG NO: AGCC01-11718A-TDR-C01-TR-PWR-71940

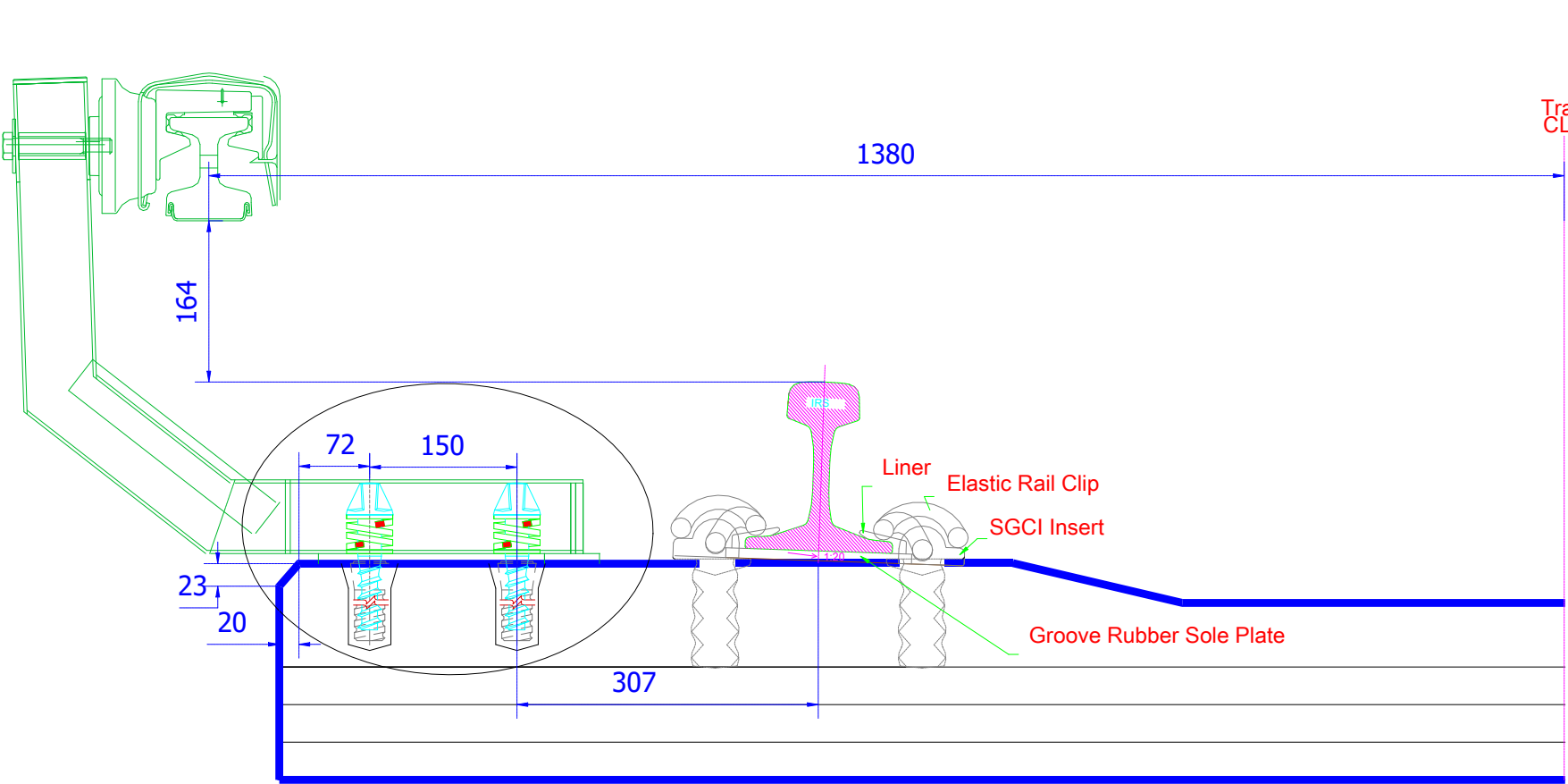
ISSUE P0

DC & DISC: DEL-TR

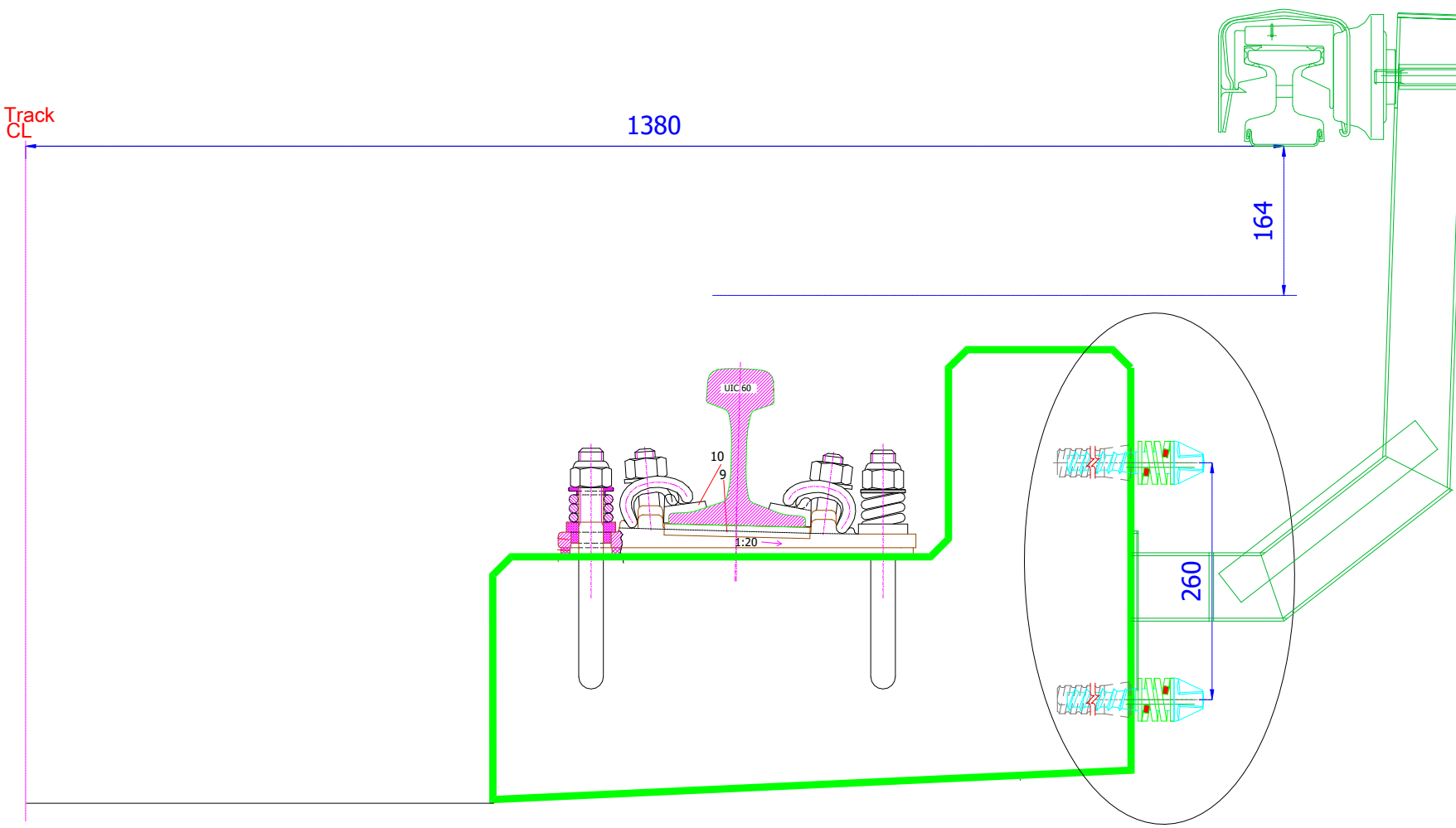
TCE FORM NO. 091 R0



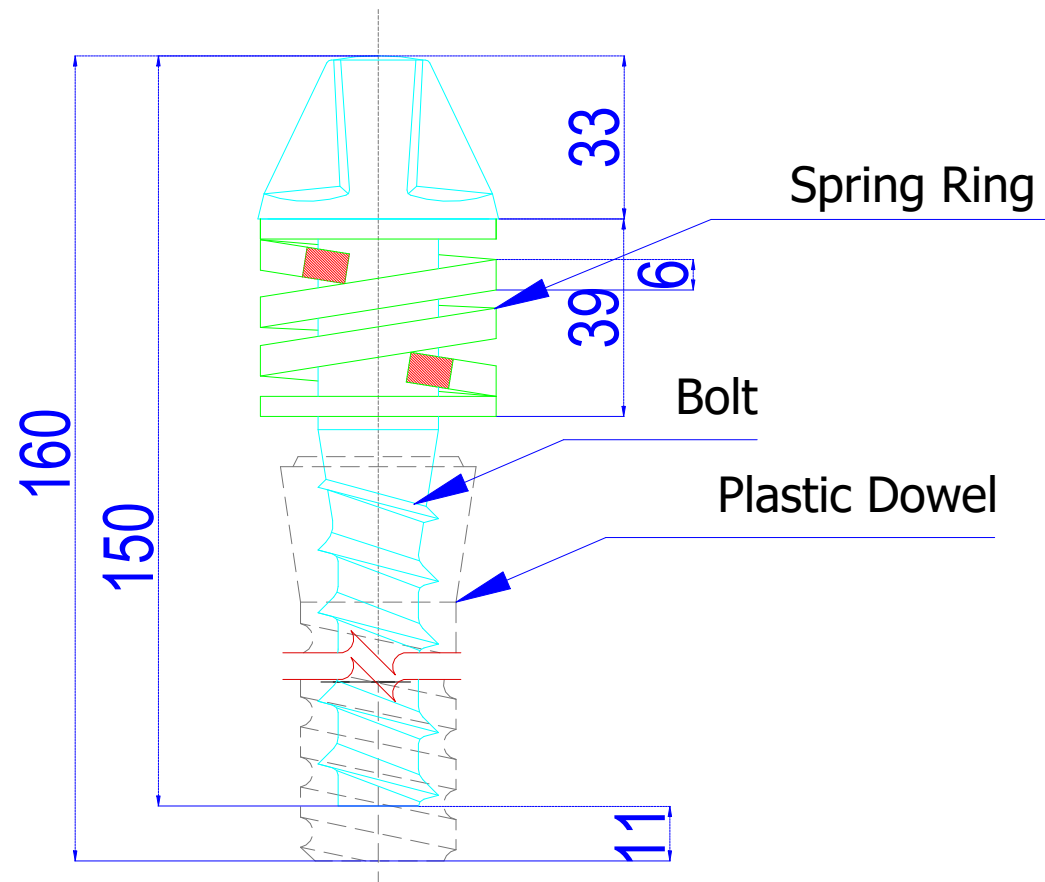
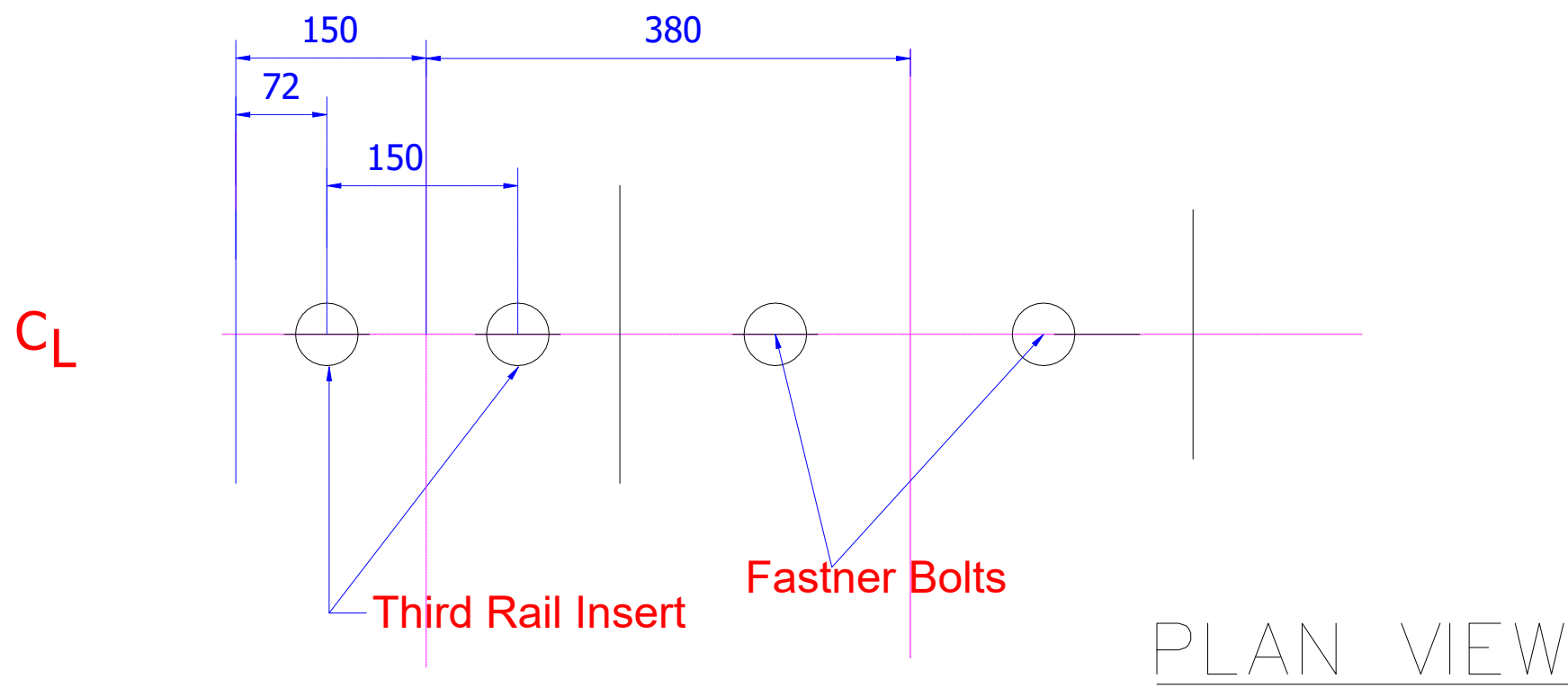
TURNOUT SLAB TRACK



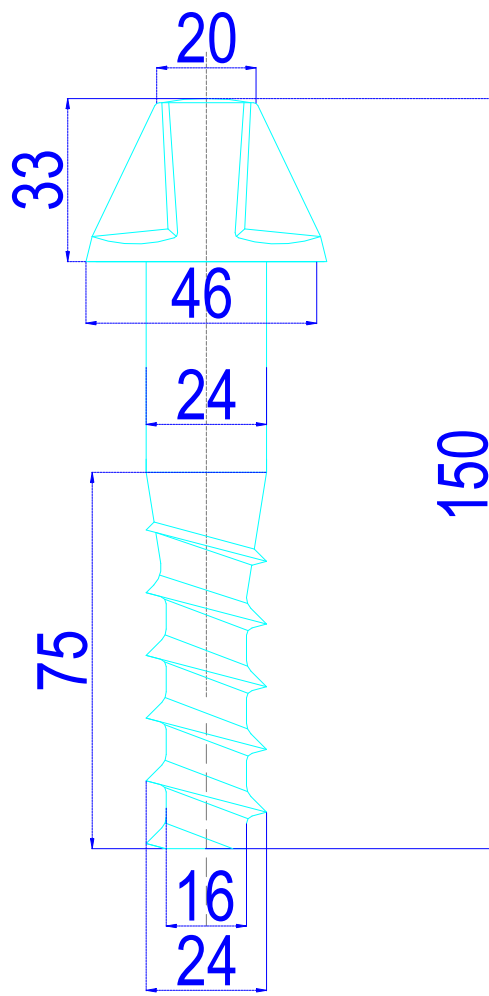
CONCRETE SLEEPER



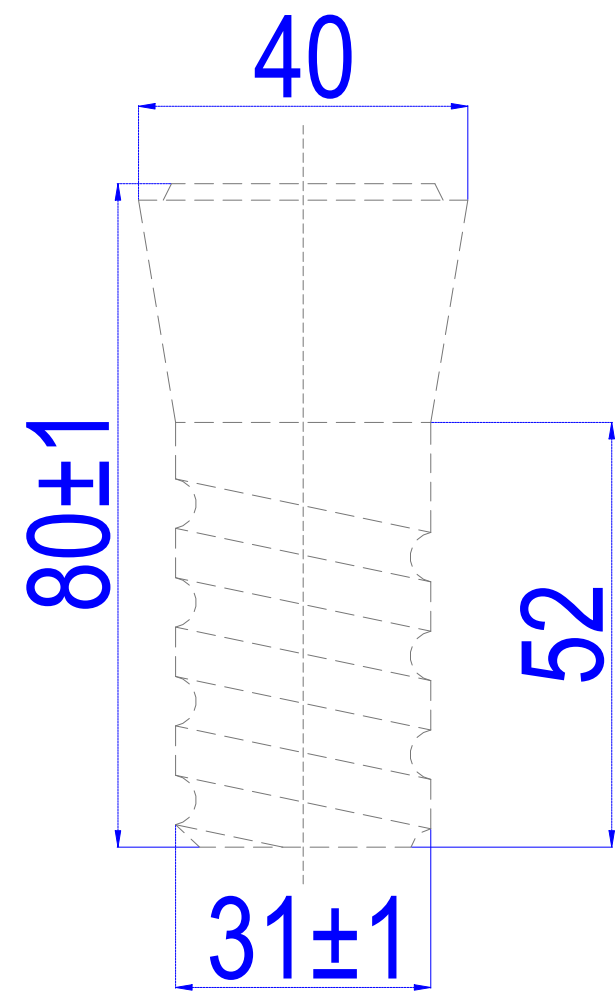
PLINTH TRACK



Dowel with Bolt



Anchor Bolt



Plastic Dowel

- NOTES:
1. The Dowel shall be embedded in sleeper during manufacturing process.
 2. The trackwork and third Rail Contractors shall appropriately Interface for embedment of dowels in track plinth/slad structure.
 3. All the Dimensions & details shown one indicative Only.
 4. The Contractor Shall Follow the SOD for third rail System.

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

DDC / CONTRACTOR											
P1	SIGN.										
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	-	
CLEARED											
PE/PM											
APPD											
DATE											

DETAIL DESIGN CONSULTANT

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

☐ NOC ☐ NOWC ☐ RESUBMIT

SIGN:	SIGN:	SIGN:
DATE:	DATE:	DATE:
NAME:	NAME:	NAME:
DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY
GENERAL CONSULTANT		

COUNTER SIGNED BY
UPMRCL

DATE

SIGNATURE

DY.CEE

CEE

PROJECT:  **LUCKNOW METRO RAIL PROJECT PHASE 1B**
UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

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

LOCATION:

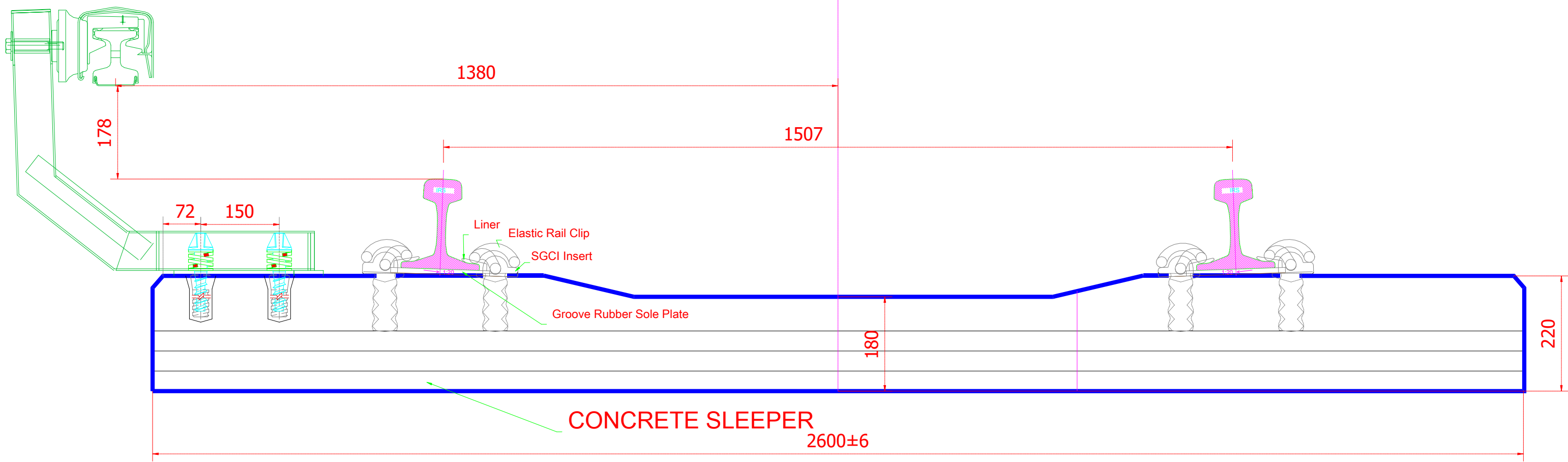
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SCALE: NTS DATE: STAGE: TDR

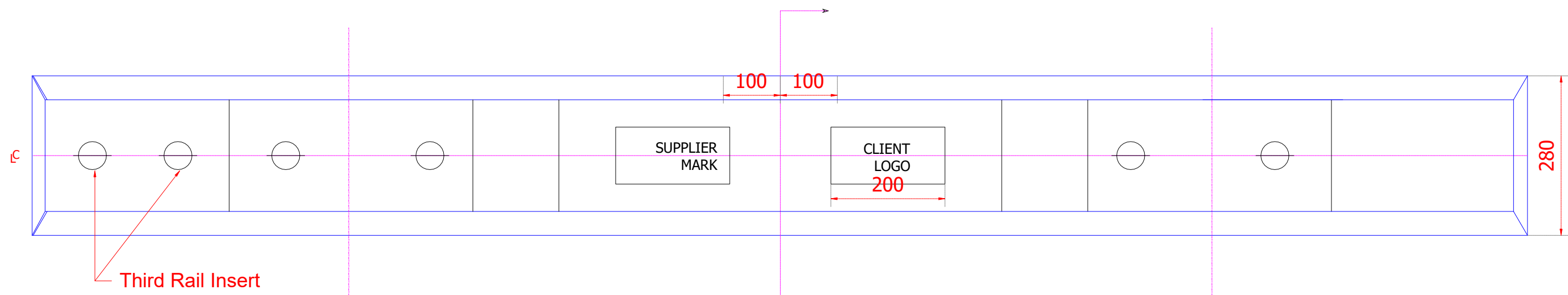
DRG NO: **AGCC01-11718A-TDR-EST-TR-PWR-71512**

REVISION NO:

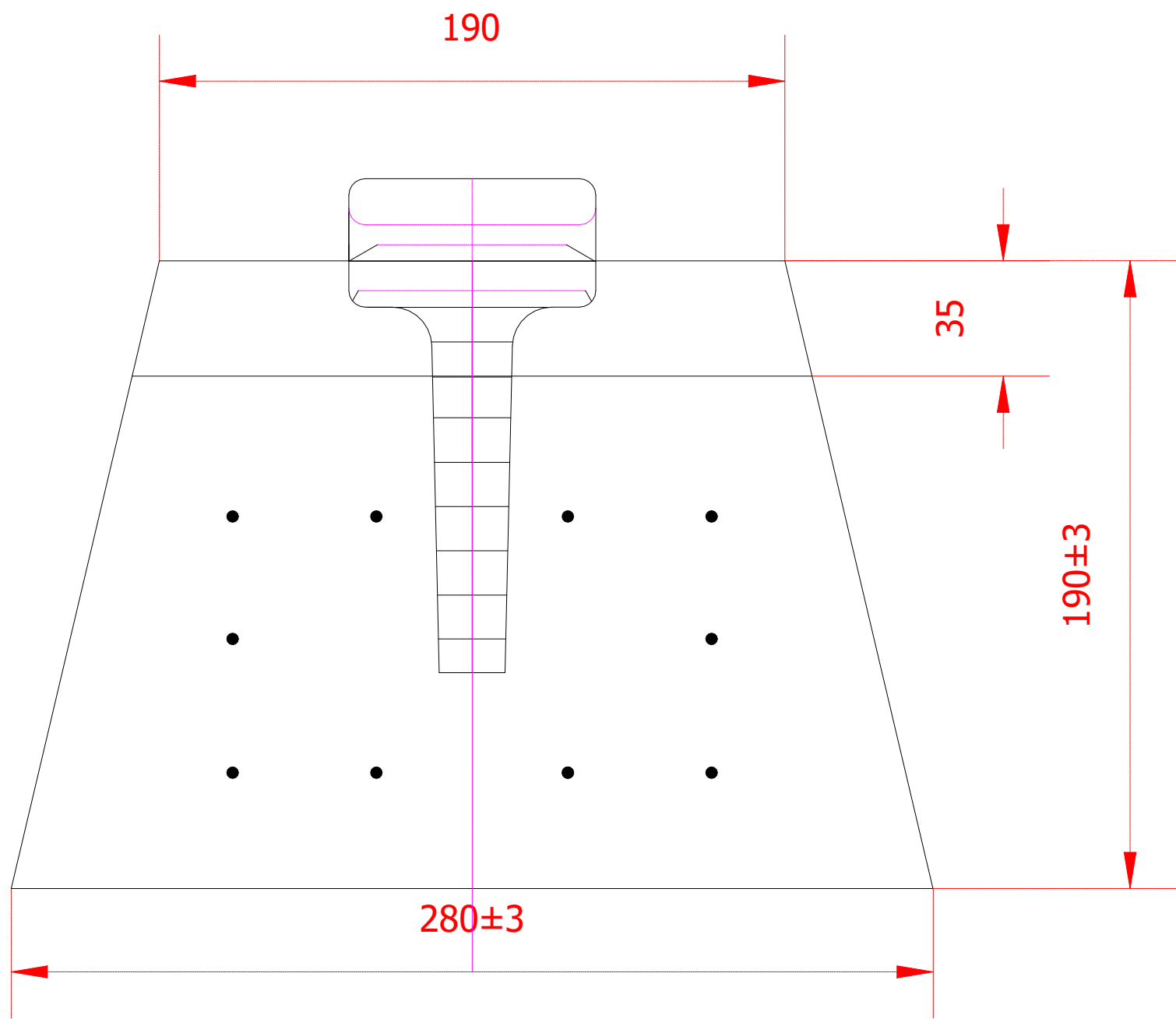
P1



PROFILE SECTION



PLAN VIEW



NOTES:
1. Details of Indian railway fastening system are as per- RDSO Dwg No:- 1898, 1899, 3701, 3706, 3771 & 3914
2. Fastening system Indicative only.
3. All Dimensions are in mm.
4. Sleeper design is indicative only.
5. Design of monoblock PSC sleepers shall be broadly in accordance with the design parameter, specifications of raw materials, specification of finished products, codes and drawings of manufacturing broad gauge sleepers used on Indian railways.
6. The final size and position for third rail bracket mounting shall be obtained from PST contractor trackwork, Contractor shall do necessary interface accordingly.
7. The contractor shall follow the SOD for third rail system.

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

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

☐ NOC ☐ NOWC ☐ RESUBMIT

COUNTER SIGNED BY
UPMRCL

DATE

SIGNATURE

PROJECT:



LUCKNOW METRO RAIL PROJECT PHASE 1B
UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

OFFICE OF ORIGIN

DDC / CONTRACTOR													
P1	SIGN.												
ISSUE		DRN	DSN	CHD	AR	EL	IC	ME	-	-	PE/PM	APPD	DATE
CLEARED													
DETAIL DESIGN CONSULTANT													

SIGN:	SIGN:	SIGN:
DATE:	DATE:	DATE:
NAME:	NAME:	NAME:
DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY

DY.CEE

CEE

CLIENT: UP METRO RAIL CORPORATION LTD.

LOCATION:

TITLE:

THIRD RAIL BRACKET AT CONCRETE SLEEPER

SCALE: NTS

DATE:

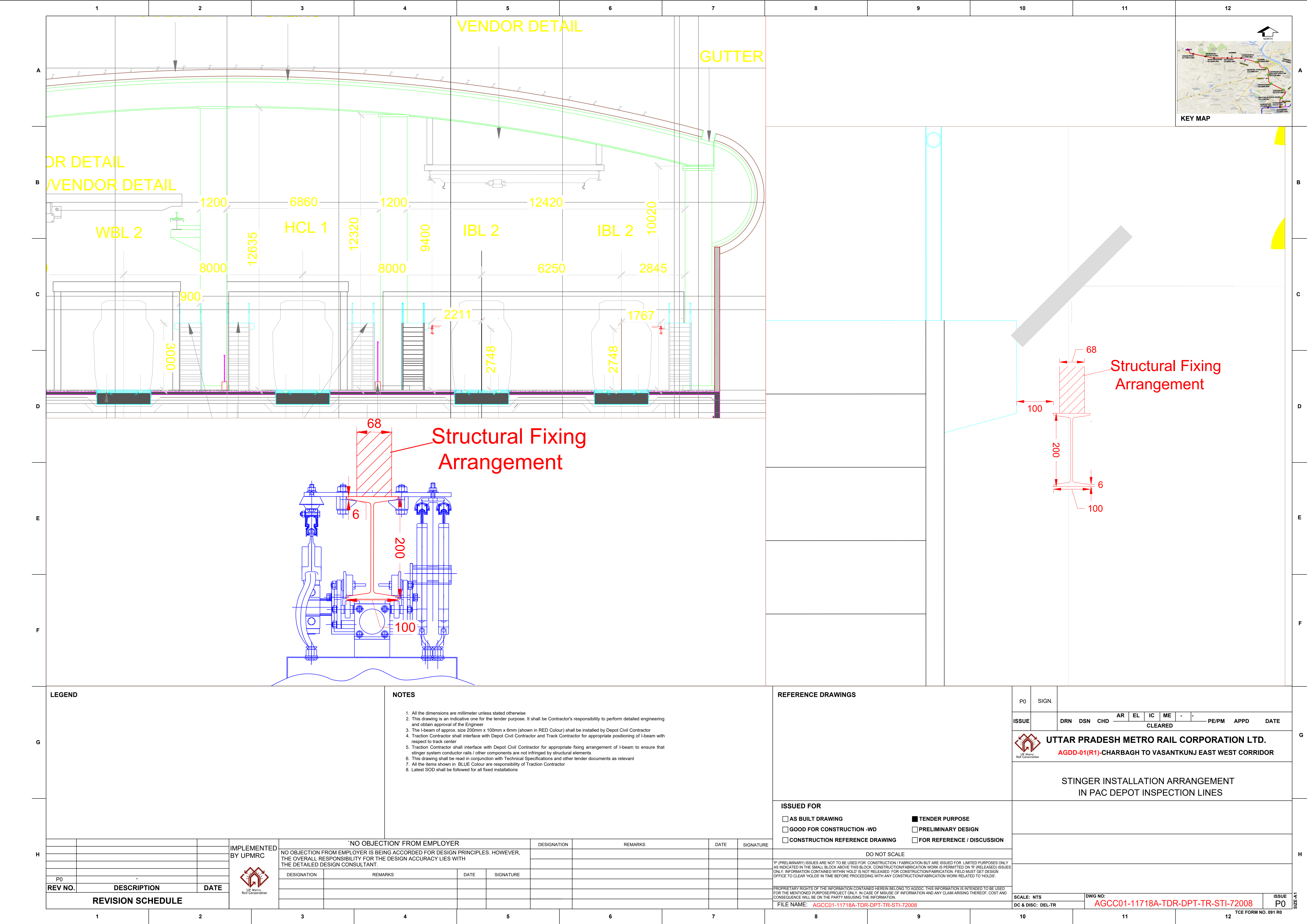
STAGE: TDR

DRG NO:

AGCC01-11718A-TDR-RSS-TR-3RS-71515

REVISION NO:

P1



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REV NO.

DESCRIPTION

DATE

REVISION SCHEDULE

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NOTES

1. All the dimensions are millimeter unless stated otherwise
2. This drawing is an indicative one for the tender purpose. It shall be Contractor's responsibility to perform detailed engineering and obtain approval of the Engineer
3. The I-beam of approx. size 200mm x 100mm x 6mm (shown in RED Colour) shall be installed by Depot Civil Contractor
4. Traction Contractor shall interface with Depot Civil Contractor and Track Contractor for appropriate positioning of I-beam with respect to track center
5. Traction Contractor shall interface with Depot Civil Contractor for appropriate fixing arrangement of I-beam to ensure that stinger system conductor rails / other components are not infringed by structural elements
6. This drawing shall be read in conjunction with Technical Specifications and other tender documents as relevant
7. All the items shown in BLUE Colour are responsibility of Traction Contractor
8. Latest SOD shall be followed for all fixed installations

DESIGNATION

REMARKS

DATE

SIGNATURE

NO OBJECTION FROM EMPLOYER

NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES. HOWEVER, THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAILED DESIGN CONSULTANT.

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ISSUED FOR

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☐ GOOD FOR CONSTRUCTION -WD

☐ CONSTRUCTION REFERENCE DRAWING

☒ TENDER PURPOSE

☐ PRELIMINARY DESIGN

☐ FOR REFERENCE / DISCUSSION

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FILE NAME: AGCC01-11718A-TDR-DPT-TR-STI-72008

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UTTAH PRADESH METRO RAIL CORPORATION LTD.

AGDD-01(R1)-CHARBAGH TO VASANTKUNJ EAST WEST CORRIDOR

STINGER INSTALLATION ARRANGEMENT

IN PAC DEPOT INSPECTION LINES

SCALE: NTS

DC & DISC: DEL-TR

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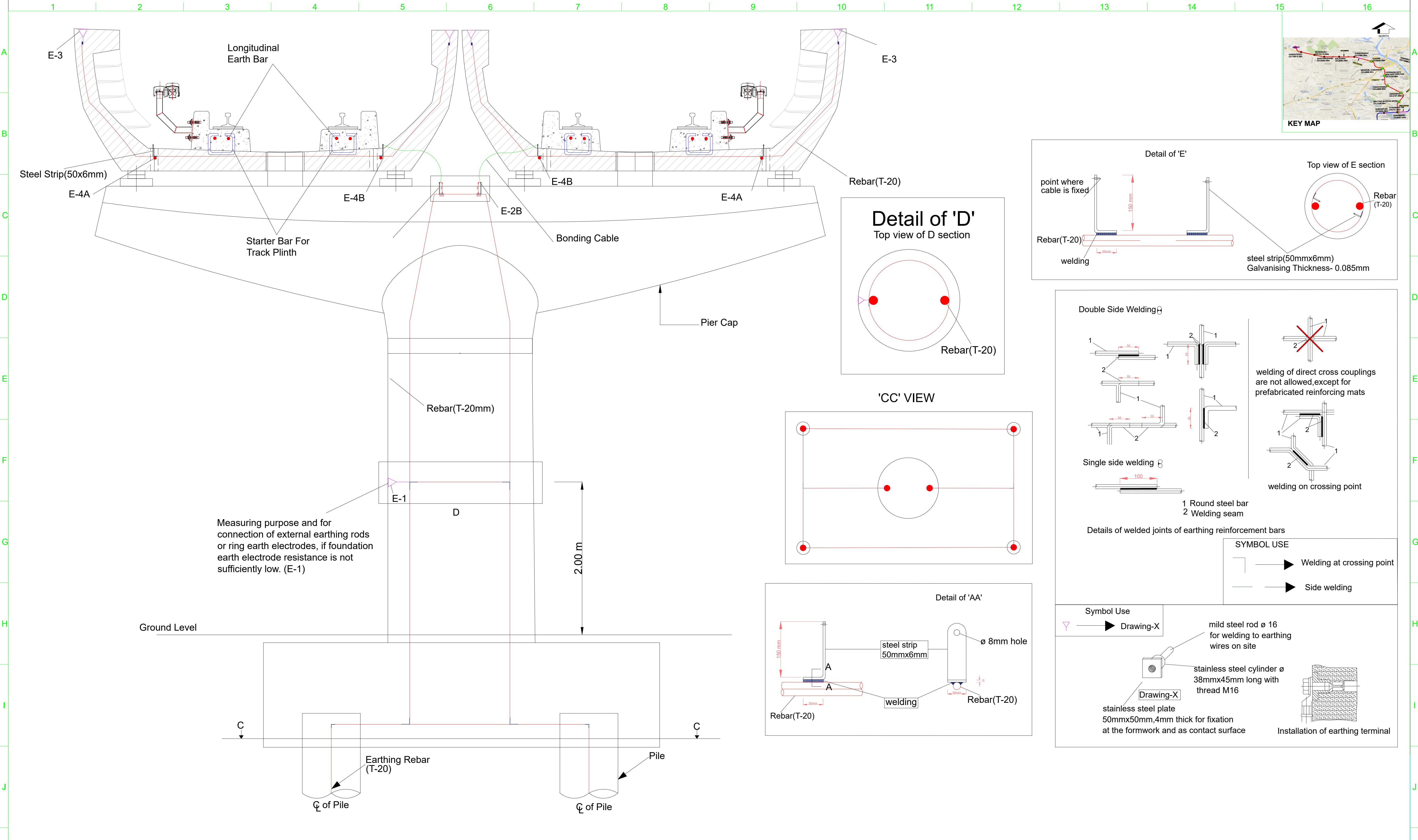
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DC & DISC: DEL-TR



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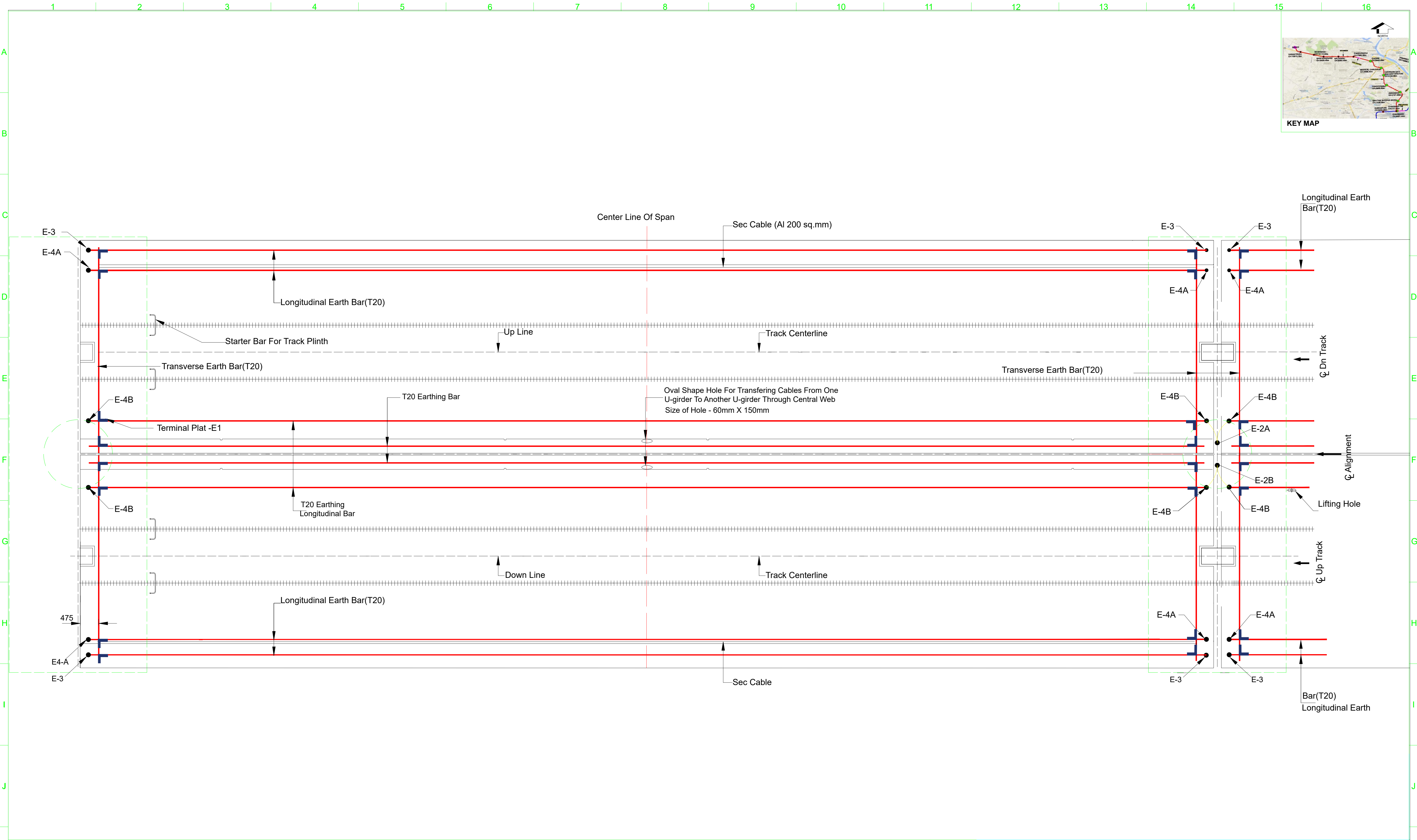
1. THIS IS AN INDICATIVE SCHEME FOR TENDER PURPOSE ONLY. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO DEVELOP FINAL SCHEME AND OBTAIN APPROVAL OF ENGINEER.

2. THE POWER SUPPLY & TRACTION CONTRACTOR IS THE CUSTODIAN OF EARTHING, BONDING, AND STRAY CURRENT CONTROL STRATEGY FOR THE ENTIRE PROJECT AND THEREFORE SHALL ASSUME PROACTIVE & LEAD ROLE FOR ALL MATTERS RELATED TO E&B AND STRAY CURRENT CONTROL MEASURES.

3. THE SCHEME SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATIONS AND OTHER TENDER DOCUMENTS AS RELEVANT.

4. THE TERMINAL E-1 (AT PIER) IS FORESEEN EVERY 400-500 METER AND NOT AT EVERY PIER.

<



NOTES:
1.This is an indicative scheme for tender purpose only.It shall be contractor's responsibility to develop final scheme and obtain approval of Engineer.
2.The Power Supply & Traction Contractor is the custodian of Earthing, Bonding, and Stray Current Control strategy for the entire project and therefore shall assume proactive & Lead role for all matters related to E&B and Stray Current Control measures.
3.The Scheme shall be read in conjunction with Technical specifications and other tender documents as relevant.
4.The Terminal E-1 (at pier) is foreseen every 400-500 meter and not at every pier.

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

THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .

☐ NOC ☐ NOWC ☐ RESUBMIT

COUNTER SIGNED BY
UPMRCL

DATE

SIGNATURE

PROJECT:



LUCKNOW METRO RAIL PROJECT PHASE 1B

UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

OFFICE OF ORIGIN

CLIENT: UP METRO RAIL CORPORATION LTD.

LOCATION:

TITLE:

TYPICAL STRUCTURE EARTHING IN VIADUCT (SHEET 2 OF 2)

SCALE: NTS

DATE:

STAGE: TDR

DRG NO:

AGCC01-11718A-TDR-VDC-TR-SCR-71633

REVISION NO:

P1

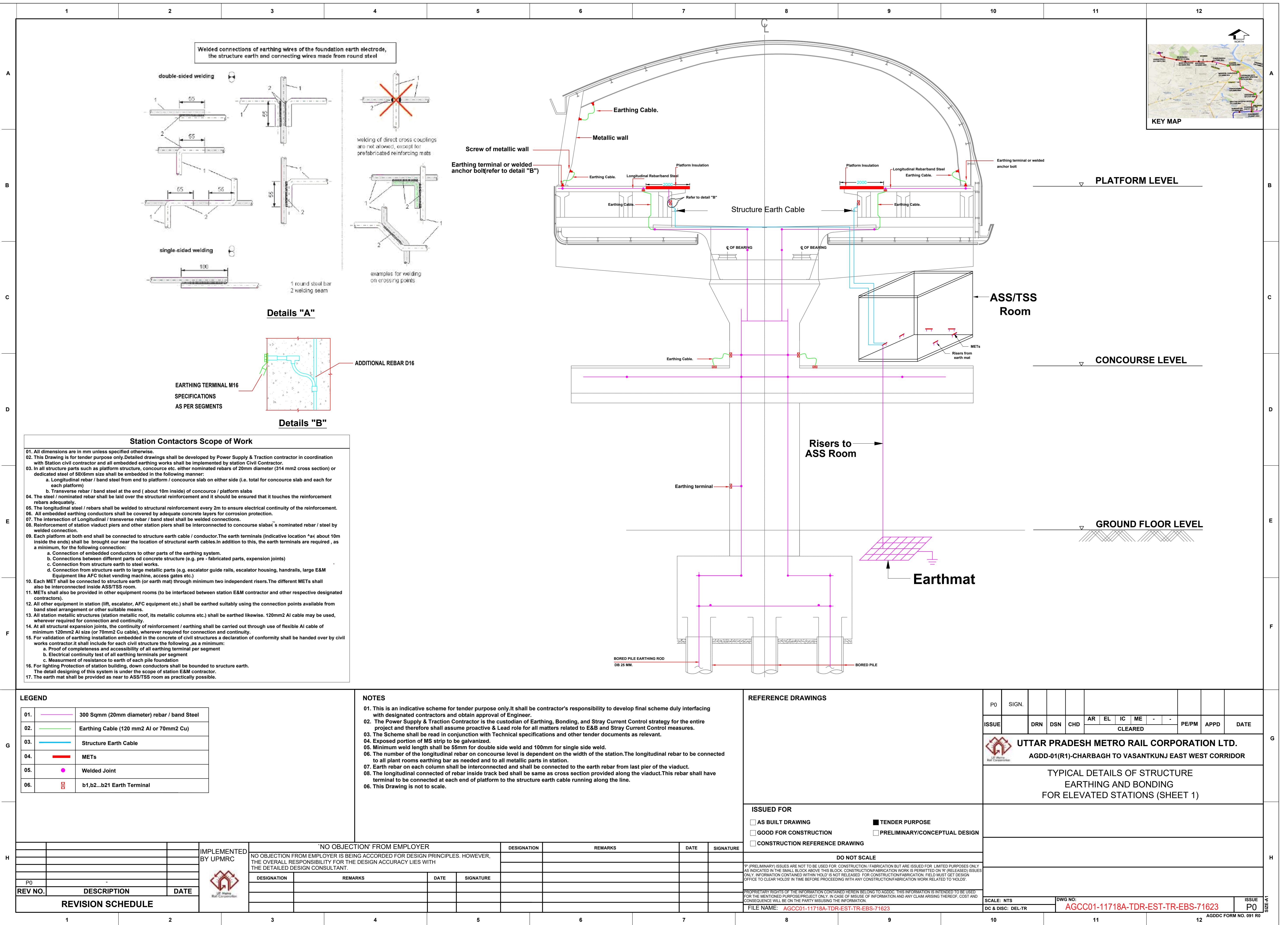
REV NO	DATE	DESCRIPTION	SIGN

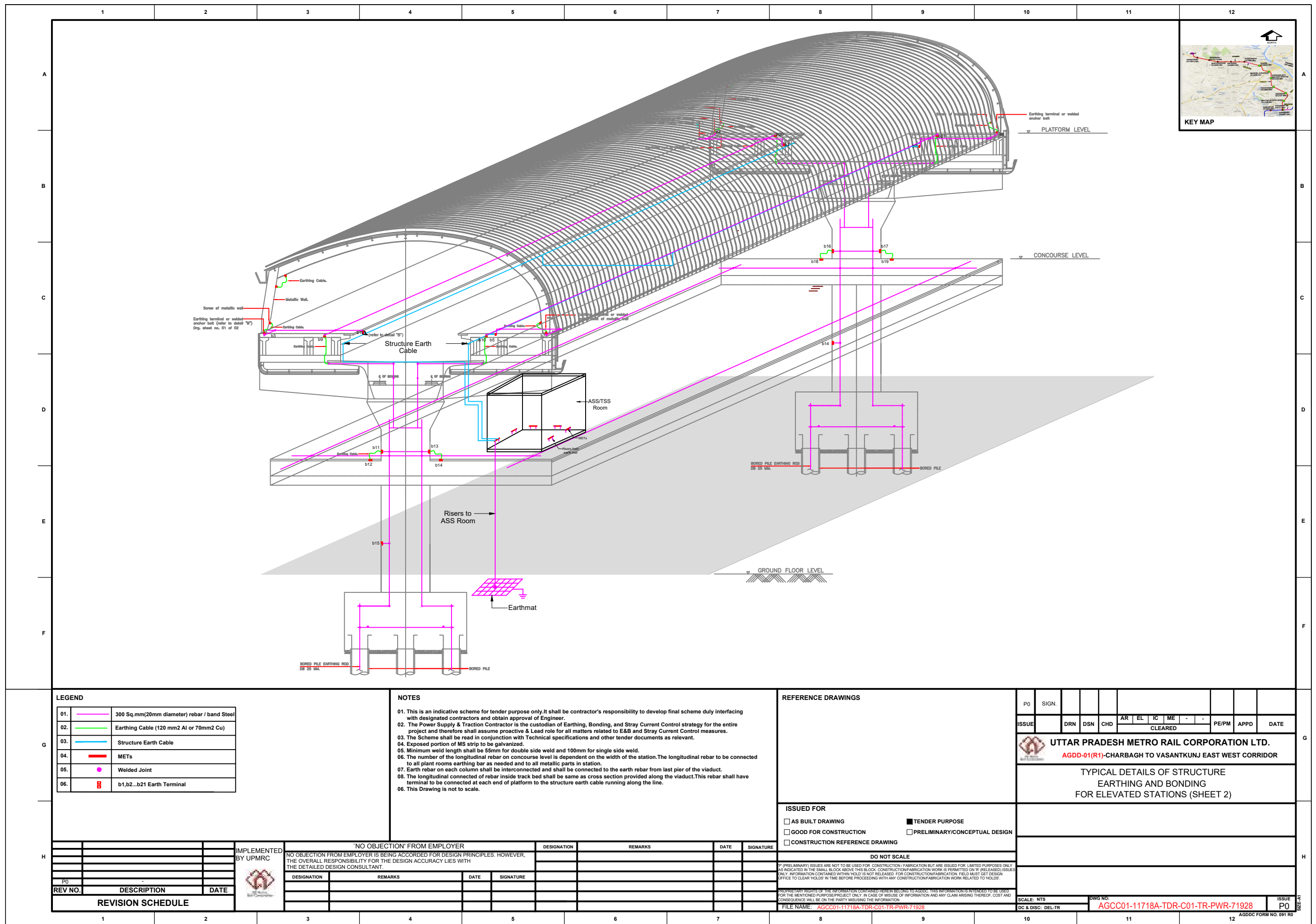
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P1	SIGN.											
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DETAIL DESIGN CONSULTANT												

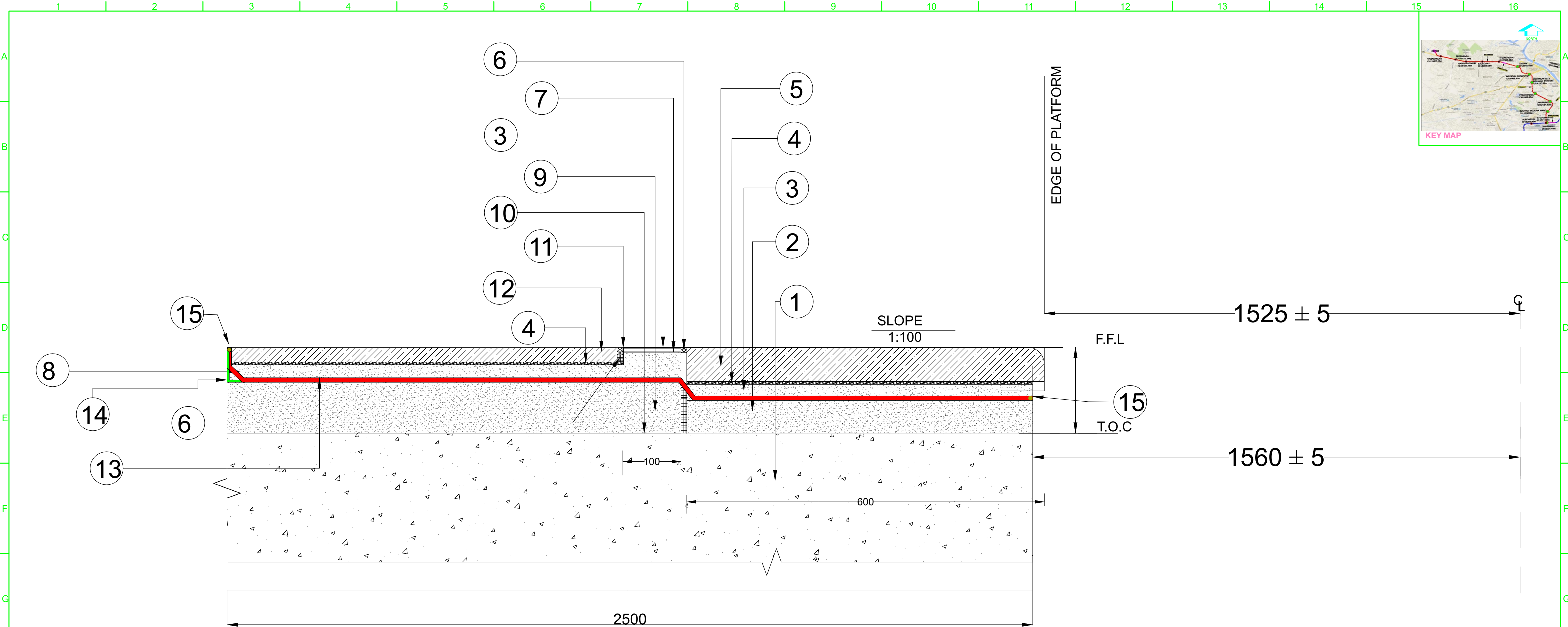
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NAME:	NAME:	NAME:
DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY

DY.CEE		
CEE		

plot scale 50mm








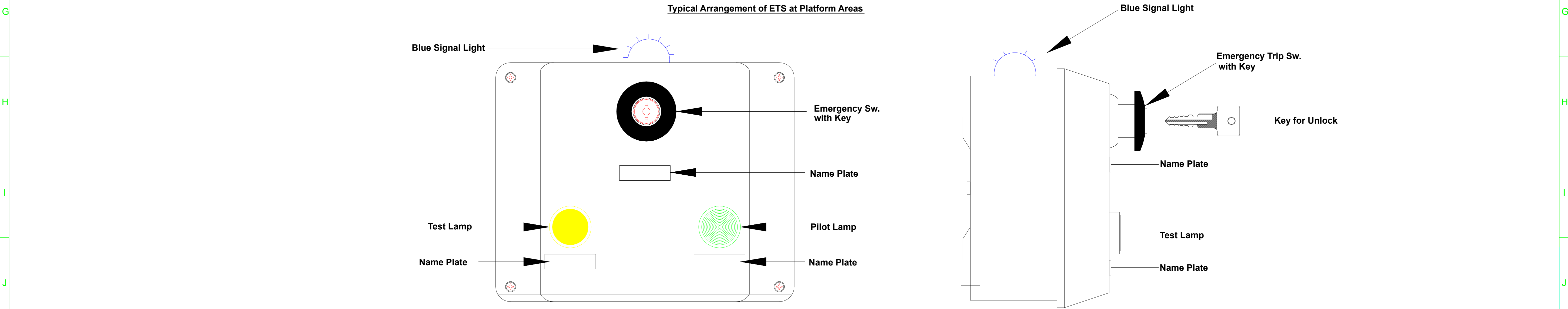
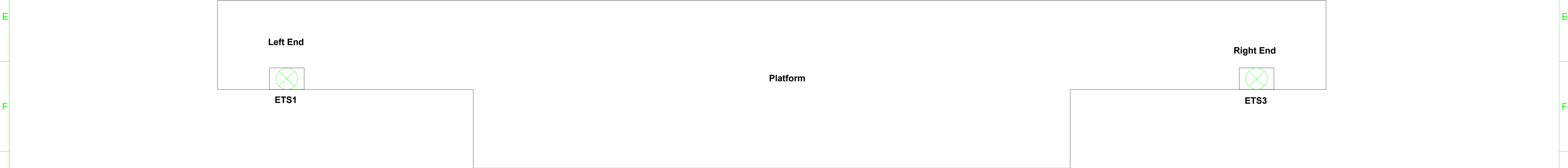
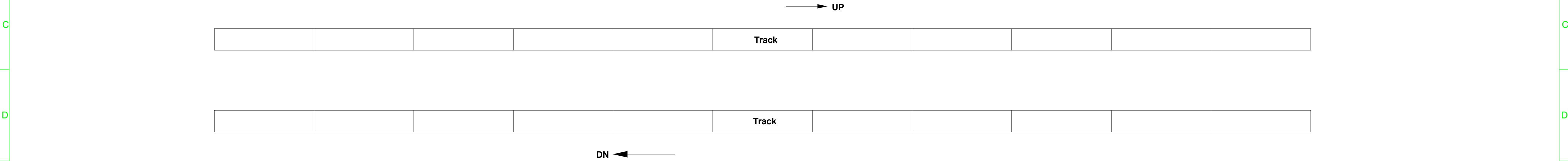
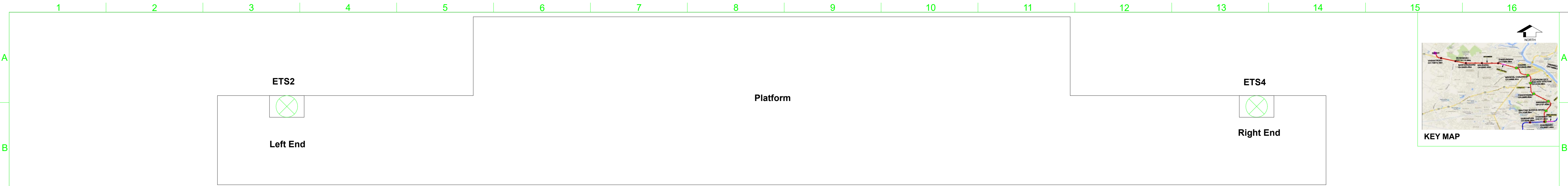
①	R.C.C Slab AS/Structure	⑨	Unbonded Concrete Screed (1:4:8) In Proper Slope
②	Maximum 90MM THK. Trowel Finished Unbonded Concrete Screed (1:4:8) in 1:100 Slope Away From Platform Edge	⑩	65 Micron Polythene Layer
③	20MM THK. Cement Mortar Bed(1:4)	⑪	Hair line Joint AS/Layout
④	5MM Thick Bed Adhesive	⑫	25THK Polished Granite Stone (1200X600) AS/Layout
⑤	60 MM THK. (1200X600) Flamed Finish Granite Stone (Half Bull Nosed)At Platform Edge Fixed in Slope	⑬	Insulation Membrane
⑥	10MM THK. Compressible Filer With Two Part Polysulphide Sealant to Top Edge	⑭	GRC Angle
⑦	8MM Thick Yellow Visibility vitrified Tile 200X100	⑮	Polysulphide Sealant
⑧	20 MM THK Cement Mortar Bed(1:3)		


NOTES

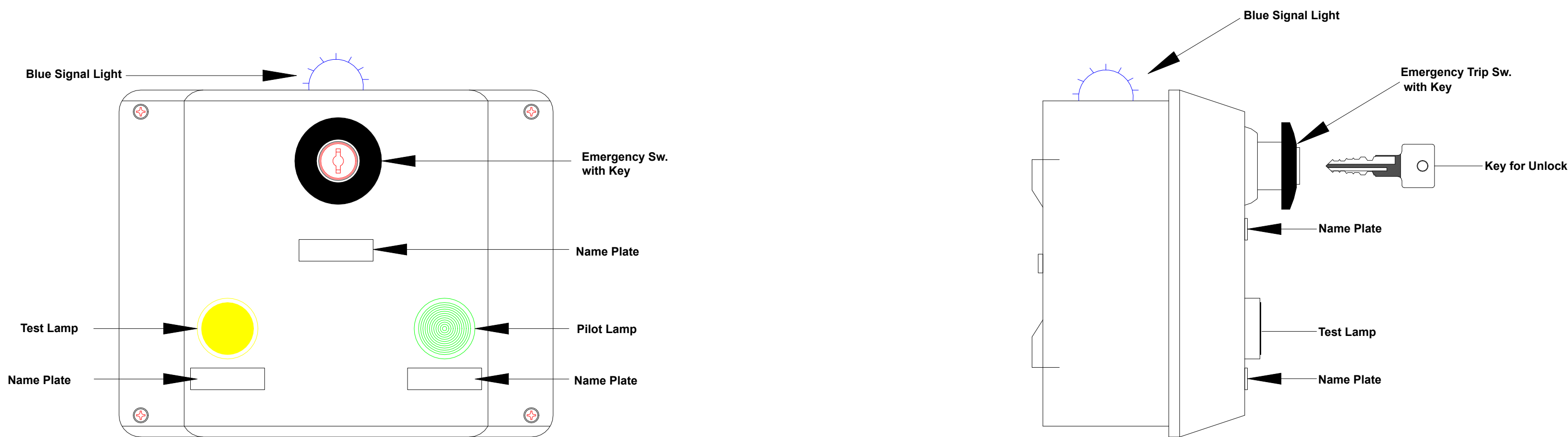
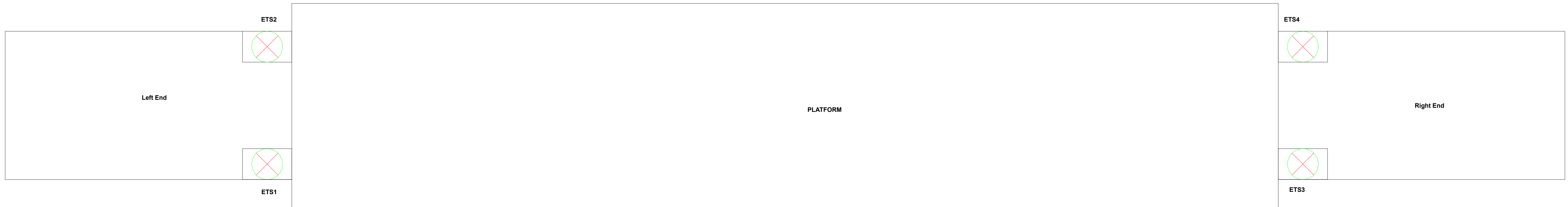
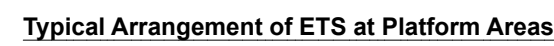
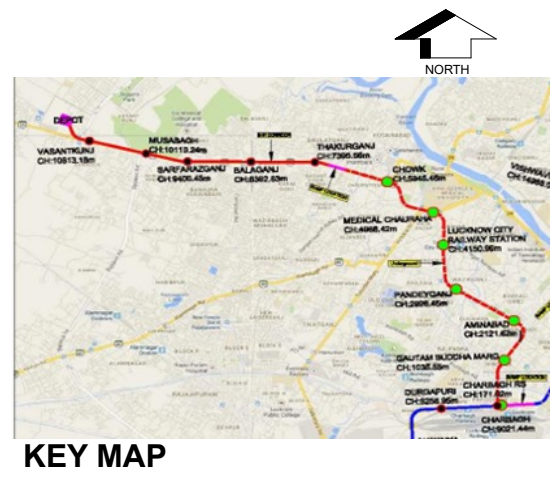
1. The EIM membrane is to be installed throughout the entire length of platform
2. The application area is to be divided into smaller sections of length 20m and width 2m by the Power Supply Contractor; this would allow easy detection of faulty area should insulation test fail
3. Civil contractor would provide a surface on which EIM membrane to be laid by Power Supply Contractor
4. Power Supply Contractor shall ensure a clean surface, remove dust if necessary before laying the EIM membrane
5. Power Supply Contractor to use appropriate method such as 4.5mm polycarbonate thick angle / sheet and cement sand screed angle fillet etc. to ensure proper laying of EIM membrane
6. Power Supply Contractor shall perform insulation testing as per approved procedure
7. After laying the EIM membrane and successful insulation testing, the Civil Contractor will perform the remaining civil work till finish platform surface; Civil Contractor will not use any process after EIM membrane is laid, which may damage the laid membrane
8. The Civil Contractor shall be the lead for purpose of this interface and Power Supply Contractor shall appropriately coordinate with Civil Contractor

NOTES:				THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT .								THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .			
				DDC / CONTRACTOR								SIGN: _____			
				R0 SIGN. _____								DATE: _____			
				ISSUE _____ DRN _____ DSN _____ CHD _____ AR _____ EL _____ IC _____ ME _____ - _____ - _____ PE/PM _____ APPD _____ DATE _____								NAME: _____			
				Cleared								DESIGNATION: _____			
				DETAIL DESIGN CONSULTANT								REVIEWED BY _____			
												GENERAL CONSULTANT			
REV NO															
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DESCRIPTION															
SIGN															

COUNTER SIGNED BY UPMRCL	DATE	SIGNATURE	PROJECT:  LUCKNOW METRO RAIL PROJECT PHASE 1B UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010	OFFICE OF ORIGIN
DY.CEE			CLIENT: UP METRO RAIL CORPORATION LTD.	
CEE			LOCATION:	
			TITLE: PLATFORM INSULATION	
			SCALE: NTS DATE: STAGE: CRD	REVISION NO:
			DRG NO: AGCC01-11718A-CRD-RSS-TR-EBS-71626	R0



Emergency Trip Switch (Indicative)																																														
<div>NOTES:</div> <div>01. This is indicative scheme for tender purpose. It shall be contractor's responsibility to develop detailed design duly meeting the technical, function and performance requirements and obtain approval from Engineer.</div> <div>02. The Schematic shall be read in conjunction with other tender drawing and Technical specifications, as relevant.</div> <div>03. Contractor shall interface with Telecom Contractor for provision of Emergency telephone near ETS.</div> <div>04. Contractor shall appropriately interface with designated contractors as required.</div> <div>05. ETS shall be provided at platforms, emergency access points, TSSs and Station Control Room as per requirements of NFPA 130.</div> <div>06. ETS cable system shall be fire rated as elaborated in Technical Specifications.</div>				THE RESPONSIBILITY OF CONTROL, CHECK & VERIFICATION OF ACCURACY, CORRECTNESS, COMPLETENESS, INTEGRATION & FULL COMPLIANCE OF THE CONTRACT / CODAL PROVISIONS IN RESPECT OF DESIGN, ANALYSIS AND DRAWINGS RESTS WITH THE DETAILED DESIGN CONSULTANT .										THIS IS CERTIFIED THAT WE HAVE PROOF CHECKED THIS DRAWING BASED ON APPROVED DESIGN .										COUNTER SIGNED BY UPMRCL	DATE	SIGNATURE	PROJECT:  LUCKNOW METRO RAIL PROJECT PHASE 1B										OFFICE OF ORIGIN									
																											UTTAR PRADESH METRO RAIL CORPORATION LIMITED, ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR, LUCKNOW, UTTAR PRADESH-226010																			
				DDC / CONTRACTOR										SIGN:					SIGN:								SIGN:					CLIENT: UP METRO RAIL CORPORATION LTD.														
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Emergency Trip Switch (Indicative)

NOTES:

01. This is indicative scheme for tender purpose.It shall be contractor's responsibility to develop detailed design duly meeting the technical, function and performance requirements and obtain approval from Engineer.

02. The Schematic shall be read in conjunction with other tender drawing and Technical specifications, as relevant.

03. Contractor shall interface with Telecom Contractor for provision of Emergency telephone near ETS.

04. Contractor shall appropriately interface with other designated contractors as required.

05. ETS shall be provided at platforms, cross passages in tunnels, emergency access points, TSSs and Station Control Room as per requirements of NFPA 130.

06. ETS cable system shall be fire rated as elaborated in Technical Specifications.

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

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REVIEWED BY

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VETTED BY

COUNTER SIGNED BY
UPMRCCL

DATE

SIGNATURE

DY.CEE

CEE

PROJECT:

UPMRCCL

LUCKNOW METRO RAIL PROJECT PHASE 1B

UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

CLIENT: UP METRO RAIL CORPORATION LTD.

LOCATION:

TITLE:

ETS GENERAL ARRANGEMENT (UG STATION)

SCALE: NTS

DATE:

STAGE: TDR

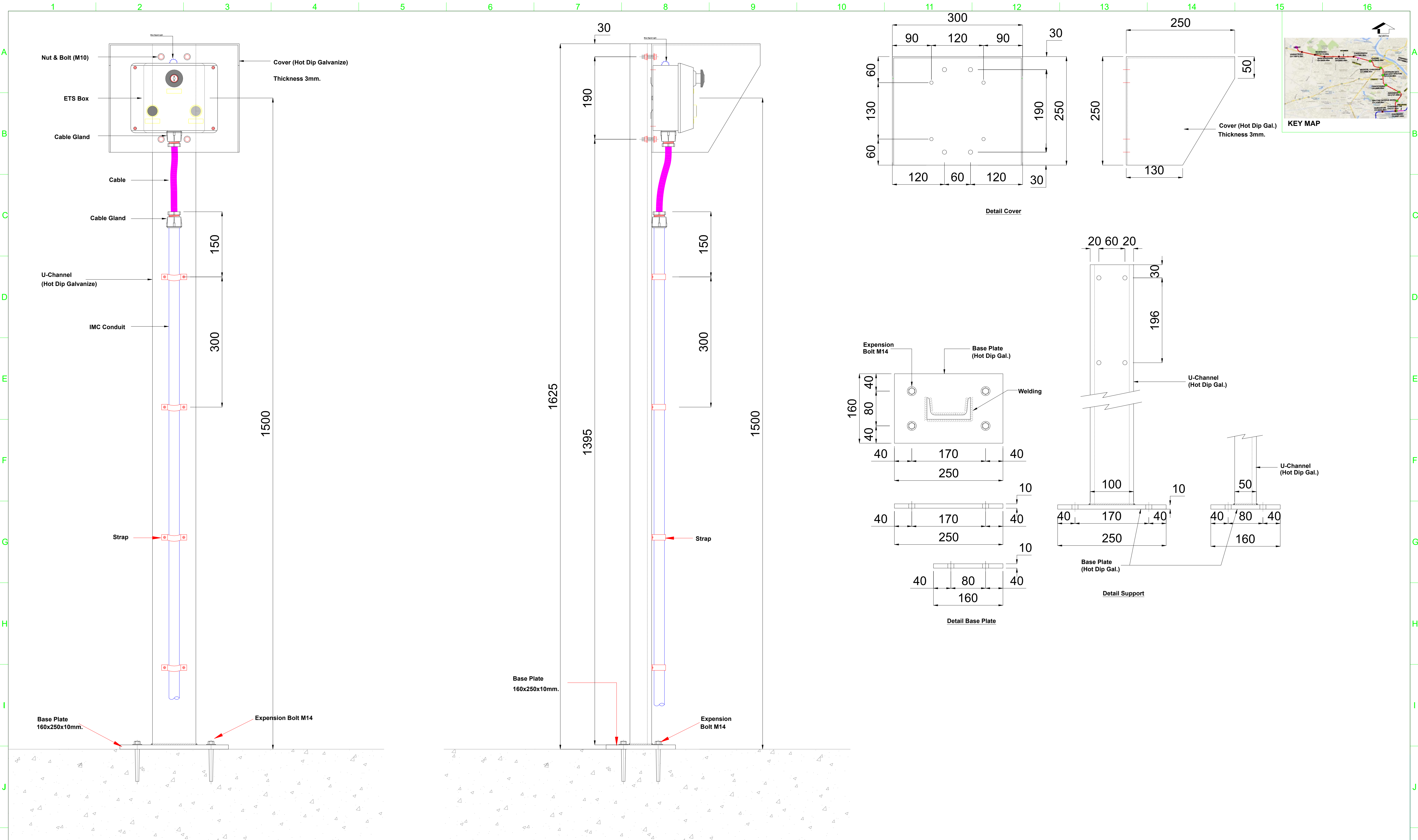
DRG NO:

AGCC01-11718A-TDR-RSS-TR-PWR-71629

OFFICE OF ORIGIN

REVISION NO:

P1



NOTES:

01. This is indicative scheme for tender purpose. It shall be contractor's responsibility to develop detailed design duly meeting the technical, function and performance requirements and obtain approval from Engineer.

02. The Schematic shall be read in conjunction with other tender drawing and Technical specifications, as relevant.

03. Contractor shall interface with Telecom Contractor for provision of Emergency telephone near ETS.

04. Contractor shall appropriately interface with other designated contractors as required.

05. This arrangement of ETS shall be provided in depot outside locations.

06. ETS cable system shall be fire rated as elaborated in Technical Specifications.


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

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Cleared											
DETAIL DESIGN CONSULTANT											

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DESIGNATION:	DESIGNATION:	DESIGNATION:	DESIGNATION:	DESIGNATION:	DESIGNATION:	DESIGNATION:	DESIGNATION:	DESIGNATION:
REVIEWED BY	APPROVED BY	VETTED BY						

COUNTER SIGNED BY	DATE	SIGNATURE
UPMRCL		
DY.CEE		
CEE		

PROJECT:  **LUCKNOW METRO RAIL PROJECT PHASE 1B**

UTTAR PRADESH METRO RAIL CORPORATION LIMITED,
ADMINISTRATIVE BUILDING, VIPIN KHAND, GOMATI NAGAR,
LUCKNOW, UTTAR PRADESH-226010

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

LOCATION:

TITLE: **TYPICAL POLE MOUNTED OUTDOOR ETS**

SCALE: NTS DATE: STAGE: TDR

DRG NO: **AGCC01-11718A-TDR-EST-TR-PWR-71628**

OFFICE OF ORIGIN

REVISION NO:

P1