

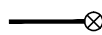





TB-4-369-316-009

DRAWING NO.

LEGEND

	CONNECTION TO GROUND MAT THROUGH RISER
 RE	CONNECTION TO ROD ELECTRODE WITH NON- TREATED PIT.
 PE	CONNECTION TO PIPE ELECTRODE WITH TREATED EARTH PIT
	75x12mm GS FLAT
	50x6mm GS FLAT
	40mm DIA MS ROD

GENERAL NOTES:

- 1 EARTH STRIP CLEATED TO LATTICE /PIPE TYPE STRUCTURE AT AN INTERVAL OF 1.0M SUITABLE PROVISION SHALL BE MADE WITH SUPPORT STRUCTURE.
- 2 ALL EARTH STRIPS SHALL BE TAKEN ALONG EDGE OF STRUCTURE. ALL DRAWING SHOWS TYPICAL ARRANGEMENT ONLY.
- 3 ALL STRUCTURES/EQUIPMENTS SHALL BE EARTHED AS SHOWN IN THE FOLLOWING SHEETS.
- 4 BOLT SIZE FOR CONNECTING EARTHING FLAT TO THE EQPT/STRUCTURE SHALL BE TO SUIT RESPECTIVE HOLE SIZE.
5. ALL EARTHING SHALL BE DONE IN ACCORDANCE WITH IS:3043 UNLESS OTHERWISE STATED IN TECHNICAL SPECIFICATION
- 6 EACH RISER OF A PARTICULAR EQUIPMENT SHALL BE CONNECTED TO A DIFFERENT EARTHROD (EITHER HORIZONTAL OR VERTICAL CONDUCTORS OF MAIN EARTHMAT).
- 7 FOR WELDING DETAILS REFER SHEET #20 & 21
- 8 E/WIRE DOWN CONDUCTOR SHALL BE CLEATED AT AN INTERVAL OF 2.0 M ALONG WITH STRUCTURE .

SHEET NO. DESCRIPTION


01. TITLE
- 1A. NOTES
02. 400kV & 220kV SF6 CIRCUIT BREAKER
- 3A. 400kV & 220KV LINE CVT (WITH LMU)
- 3B. 400kV & 220KV CVT (WITHOUT LMU)
04. 400kV & 220kV POST INSULATOR (SOLID CORE TYPE)
05. 336kV & 216kV LIGHTNING ARRESTER
06. MARSHALLING KIOSK
- 7A. 400KV HORIZONTAL CENTER BREAK ISOLATOR WITH ONE EARTH SWITCH (TYPICAL)
- 7B. 400KV HORIZONTAL CENTER BREAK ISOLATOR WITH TWO EARTH SWITCH (TYPICAL)
- 7C. 220KV HORIZONTAL CENTER BREAK ISOLATOR WITH TWO EARTH SWITCH (TYPICAL)
- 7D. 220KV HORIZONTAL CENTER BREAK ISOLATOR WITH ONE EARTH SWITCH (TYPICAL)
- 7E. 220KV HORIZONTAL CENTER BREAK ISOLATOR WITHOUT EARTH SWITCH (TYPICAL)
- 08A. TOWER WITH PEAK
- 08B. TOWER WITHOUT PEAK
- 08C. LIGHTENING MAST (LM)
09. 400kV & 220kV CURRENT TRANSFORMER
10. CABLE TRENCH
11. PIPE EARTH ELECTRODE WITH TREATED PIT
- 12A. ROD ELECTRODE WITHOUT TEST PIT
- 12B. ROD ELECTRODE WITH TEST PIT

SHEET NO. DESCRIPTION

13. RAIL BONDING
- 14A. AUTO TRANSFORMER
- 14B. BUS REACTOR.
- 14C. SWITCHYARD SERVICE TRANSFORMER
15. AUXILIARY EARTH MAT FOR ISOLATOR MAIN MECH.,E/S MECH. BOX
- 16 CONTROL AND RELAY PANELS/BATTERY CHARGER/ AC DC BOARDS/MLDB
- 17 400KV WAVE TRAP
- 18 GATE/FENCE POST
- 19 TYPICAL ARRANGEMENT OF BOLTED JOINTS
- 20 WELDING DETAILS
- 21 WELDING DETAILS

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FILE NAME : I_100_M03BRD

NTPC DRG. No. 4410-001-572-PVE-F-0038													
PROJECT		NORTH KARNPURA SUPER THERMAL POWER PROJECT (3X660MW)											
OWNER		 NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)											
JOB NO. 401		STATUS CONTRACT		DISTRIBUTION		DEPT. CODE		NAME		SIGN		DATE	
TO		No. OF		REV. DATE		ALTD		CHD		APPD		DKM	
REV. 01		DATE 26.04.18		ALTD AK		CHD AK		APPD DKM		SIGN		DATE	
DRAWING REVISED TO INCORPORATE NTPC COMMENTS ON R.O.		QBTGM		BHARAT HEAVY ELECTRICALS LTD TRANSMISSION BUSINESS GROUP NOIDA		DEPT. CODE		NAME		SIGN		DATE	
TITLE		400/220 kV – EQUIPMENT EARTHING PHILOSOPHY & DETAILS											
DEPT.		SCALE		DRAWING NO.		SHEET		OF		REV. 01		FORMAT SIZE A4	
SIGN		DATE		TB-4-369-316-009		SHEET		OF		REV. 01		FORMAT SIZE A4	

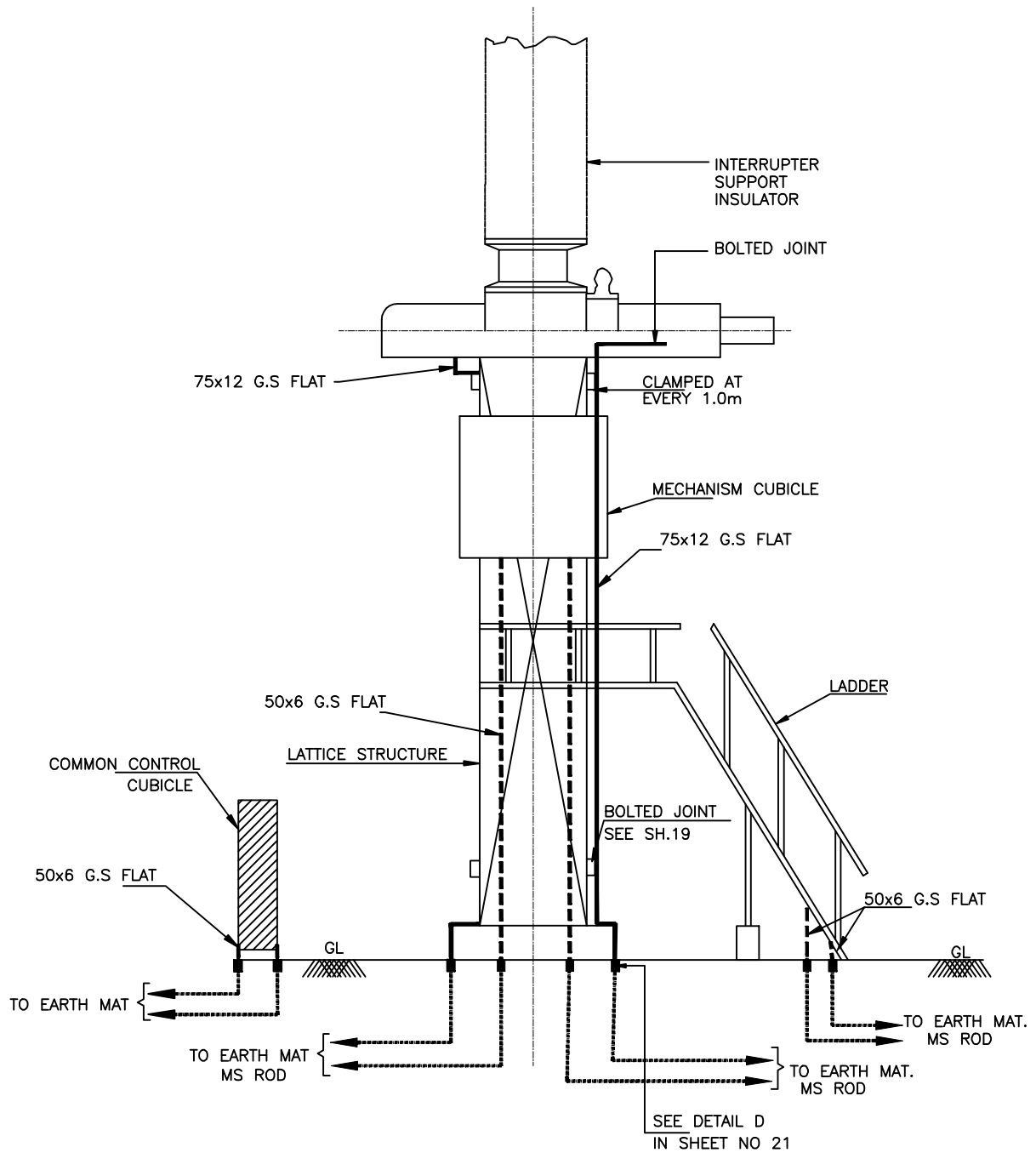
1. RISER FROM THE EARTH GRID SHALL BE 40MM DIAMETER MILD STEEL ROD. RISER SHALL RISE FROM THE GROUND ALONG THE NEAREST EQUIPMENT FOUNDATION/BUILDING COLUMN/WALL TO AVOID ANY OBSTRUCTION TO MOVEMENT OF PERSONNEL.
2. CONNECTION TO ALL EQUIPMENT AND TOWERS SHALL BE BY BOLTED JOINTS. CONTACT SURFACES SHALL BE THOROUGHLY CLEANED BEFORE CONNECTIONS. EQUIPMENT BOLTED CONNECTIONS AFTER BEING TESTED AND CHECKED SHALL BE PAINTED WITH ANTI CORROSIVE PAINT/COMPOUND.
3. CONNECTIONS BETWEEN EQUIPMENT EARTHING LEADS AND BETWEEN MAIN EARTHING CONDUCTORS SHALL BE OF WELDED TYPE. FOR RUST PROTECTION THE WELDS SHOULD BE TREATED WITH RED LEAD COMPOUND AND AFTERWARDS THICKLY COATED WITH BITUMEN COMPOUND.
THE SURFACES TO BE WELDED SHALL BE CLEANED OF DIRT, OIL, GREASE AND OXIDES BEFORE WELDING. ANY OXIDE FILMS THAT MAY HAVE FORMED DURING WELDING MUST BE REMOVED FROM THE WELDED JOINT.
4. EARTHING CONDUCTOR FOR EQUIPMENT SHALL BE OF GALVANISED M.S. OF SIZE 75x12/50x6 mm.
THE CONDUCTOR BELOW THE GROUND LEVEL SHALL BE 40 mm DIA BLACK MS ROD.
5. IN THE ATTACHED DRAWINGS GL REPRESENTS GROUND LEVEL.
6. ALL EQUIPMENT STRUCTURES, CABLE TRENCHES & TOWERS SHALL BE EARTHED AT TWO POINTS WITH 75x12 mm. G.S. FLAT EVEN THOUGH THEY ARE SHOWN OR NOT IN THE DRAWING DUE TO CLARITY.
7. ALL JUNCTION BOXES, MECHANISM BOXES, GROUND MOUNTED CONTROL CABINETS, CUBICLES, PANELS, MBs ETC. SHALL BE EARTHED AT TWO POINTS WITH 50x6mm G.S. FLAT BY TWO SEPARATE AND DISTINCT EARTH CONNECTERS.
8. EARTHING CONDUCTORS FROM EQUIPMENT STRUCTURES SHALL BE CONNECTED TO THE NEAREST POSSIBLE EARTH MAT RISER. EQUIPMENT EARTHING SHALL BE AS PER IS 3043.
9. ALL JOINTS BETWEEN 40 DIA M.S. ROD AND 75x12 mm. G.S. FLAT SHALL BE BELOW GROUND LEVEL.
10. FOR WELDED JOINTS LOW HYDROGEN CONTENT ELECTRODES SHALL BE USED.
11. METTALIC SHEATHS/SCREENS, AND ARMOUR OF MULTI CORE CABLES SHALL BE EARTHED AT BOTH ENDS.
METTALIC SHEATHS AND ARMOUR OF SINGLE CORE CABLES SHALL BE EARTHED AT SWITCHGEAR END ONLY UNLESS OTHERWISE INSTRUCTED BY THE EMPLOYER.
12. EQUIPMENT BOLTED CONNECTIONS AFTER BEING TESTED AND CHECKED SHALL BE PAINTED WITH ANTI CORROSIVE PAINT/COMPOUND.
13. LOCATION OF EARTHING CONDUCTORS/RISERS SHOWN IN THE EARTHING DRAWING MAY CHANGE TO SUIT THE SITE CONDITION.
14. FOR SURGE ARRESTER, EARTHING LEAD FROM SURGE COUNTER TO MAIN EARTH MAT SHALL BE SHORTEST IN LENGTH AS PRACTICALLY AS POSSIBLE.
15. AN ADDITIONAL AUXILIARY GRID OF 1500MMX1500MM COMPRISING OF CLOSELY SPACED(300MMX300MM) 40 DIA CONDUCTORS AT A DEPTH OF 300MM FROM FINISHED GROUND LEVEL SHALL BE PROVIDED BELOW THE OPERATING HANDLE OF ISOLATORS AND EARTH SWITCHES. THIS GRID SHALL BE CONNECTED TO THE MAIN GROUND GRID.
THE EARTH CONNECTION TO OPERATING HANDLE SHALL BE MADE OF FLEXIBLE CONNECTION. THE MOM BOX OF THE ISOLATOR TO BE CONNECTED TO THIS AUX. GRID.
16. ALL NON CURRENT CARRYING METALIC PARTS SHALL BE EARTHED AT TWO DIFFERENT PLACES.
17. ALL EQUIPMENT DRAWINGS SHOWN ARE INDICATIVE ONLY.
18. WELDING OF EARTHING CONDUCTOR SHALL BE CONNECTED IN VERTICAL PLANE WHEREVER POSSIBLE.
19. ALL GROUND CONNECTIONS SHALL BE MADE BY ELECTRIC ARC WELDING.
20. BENDING OF LARGE DIAMETER CONDUCTORS SHALL BE DONE PREFERABLY BY GAS HEATING.



EQUIPMENT EARTHING DETAILS NOTES

DRG. No. TB-4-369-316-009

SHEET No.
1A



NOTES:

1. NO. OF RISERS FOR CIRCUIT BREAKER = 2 Nos./PHASE
2. NO. OF RISERS FOR MECHANISM CUBICLE = 2 Nos.
3. NO. OF RISERS FOR LADDER = 2 Nos.
4. NO. OF RISERS FOR CONTROL CUBICLE = 2 Nos.



EQUIPMENT EARTHING DETAILS

400kV & 220kV SF6 CIRCUIT BREAKER

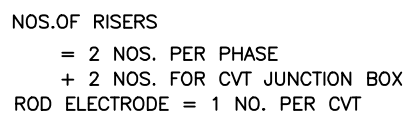
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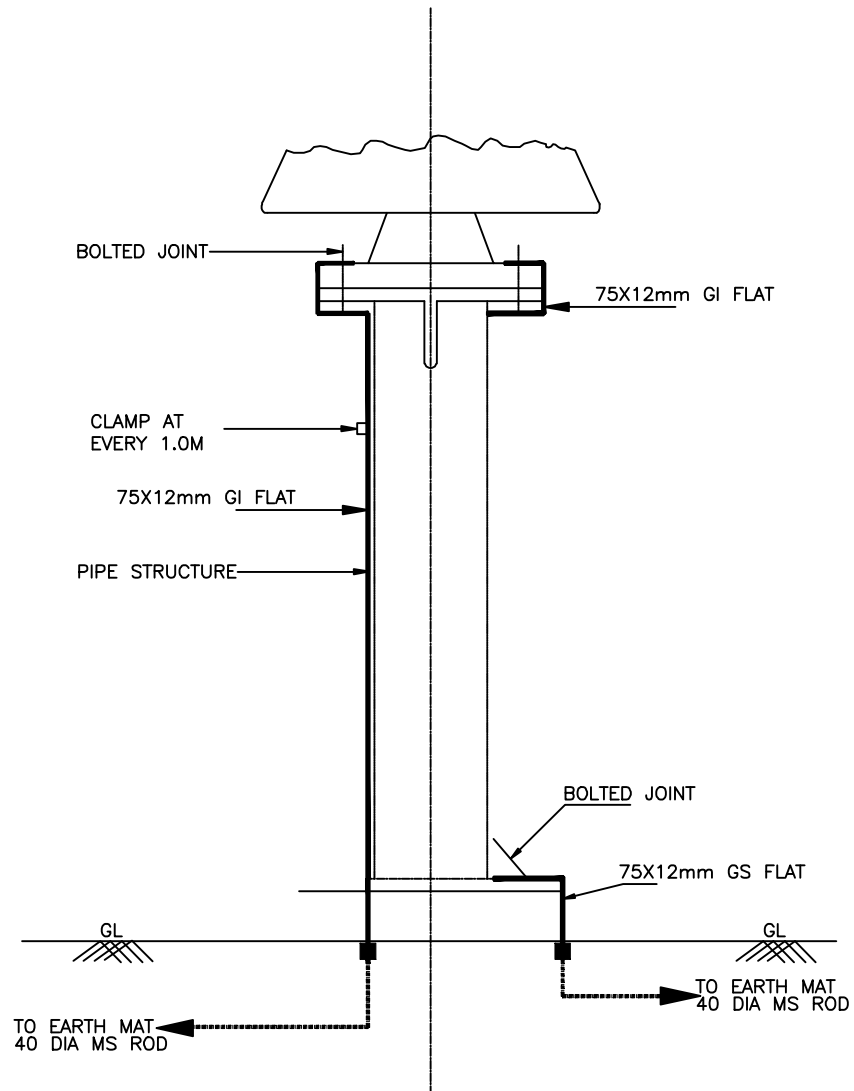
DRG. No.

TB-4-369-316-009

SHEET No.
2

SHEET No.
3A





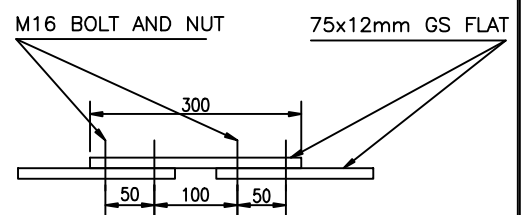
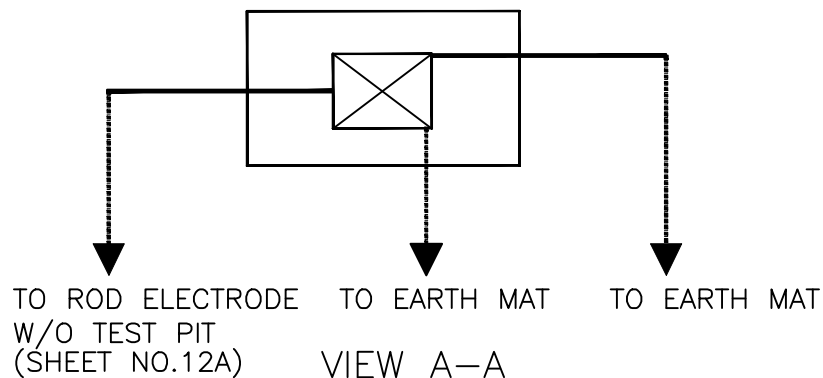
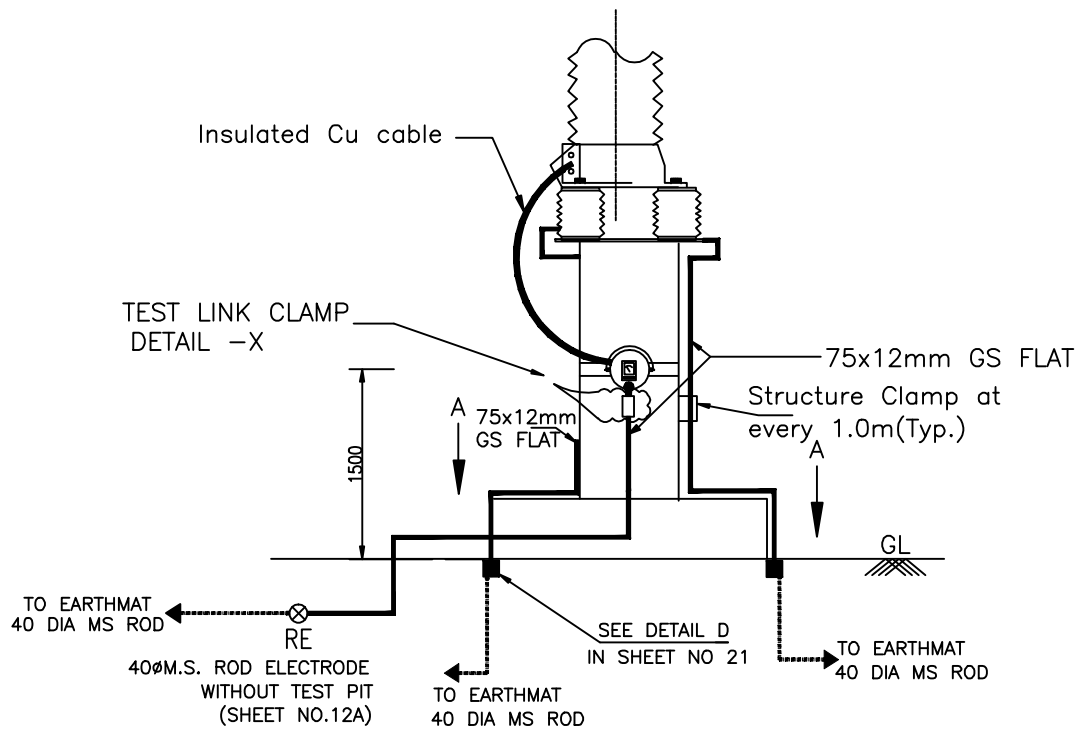
NOS.OF RISERS = 2 NOS.



EQUIPMENT EARTHING DETAILS 400kV & 220kV POST INSULATOR (SOLID CORE TYPE)

DRG. No. TB-4-369-316-009

SHEET No.
4



(DETAIL -X)

NOTES;

1. LA SHALL BE EARTHED THROUGH EARTH TERMINAL OF SURGE COUNTER
2. NO. OF ROD ELECTRODE : 1 NO.
NO OF RISERS = 3 NOS.
3. TEST LINK SHALL HAVE PROVISION TO BOLT TEST LEAD BEFORE ISOLATING THE MAIN EARTHING CONNECTIONS (AS PER SKETCH ABOVE) = 1NO.



EQUIPMENT EARTHING DETAILS

336kV & 216kV LIGHTNING ARRESTER

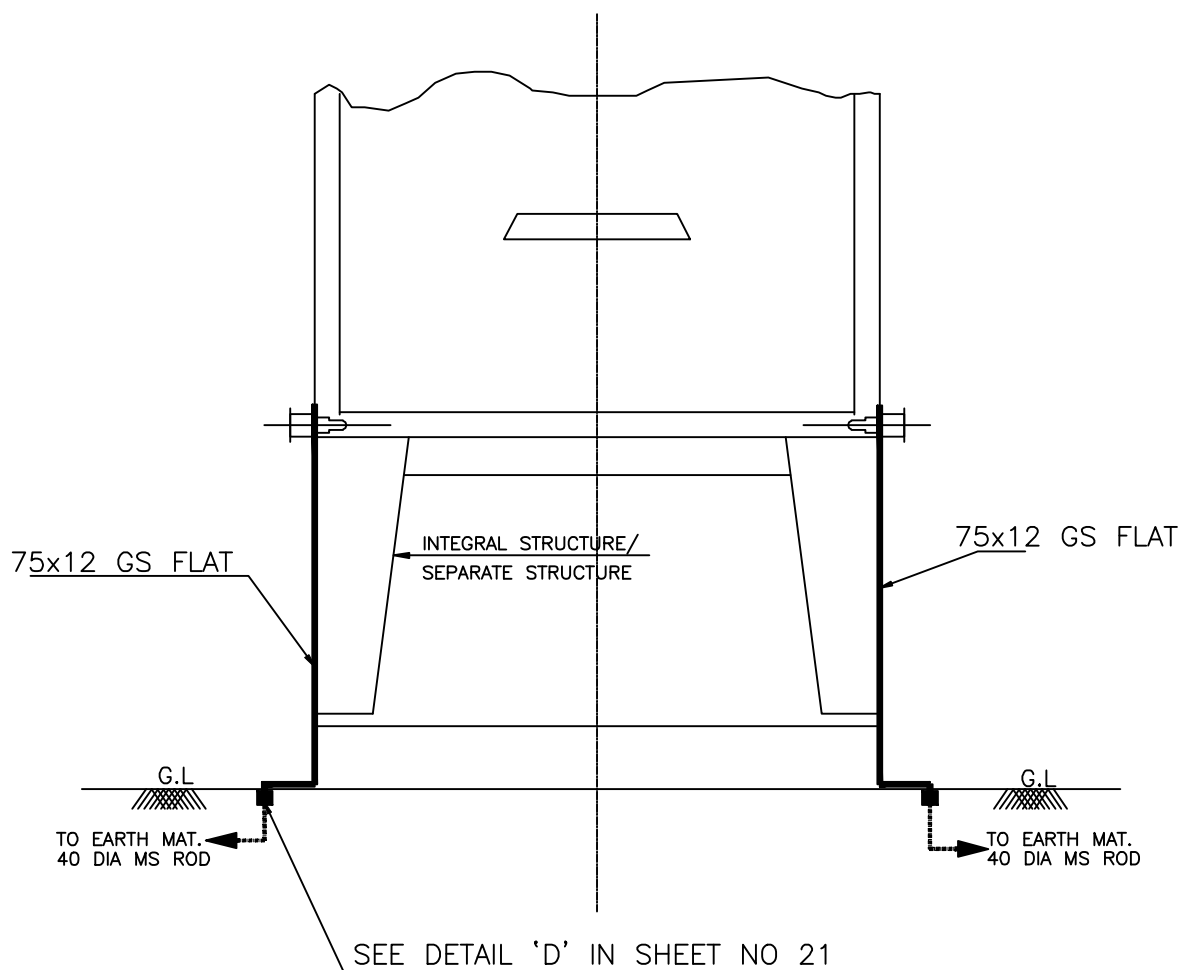
COMPU. DRG. REF.

DRG.NO.

TB-4-369-316-009

SHEET No.

5



NOS.OF RISERS = 2 NOS.



EQUIPMENT EARTHING DETAILS

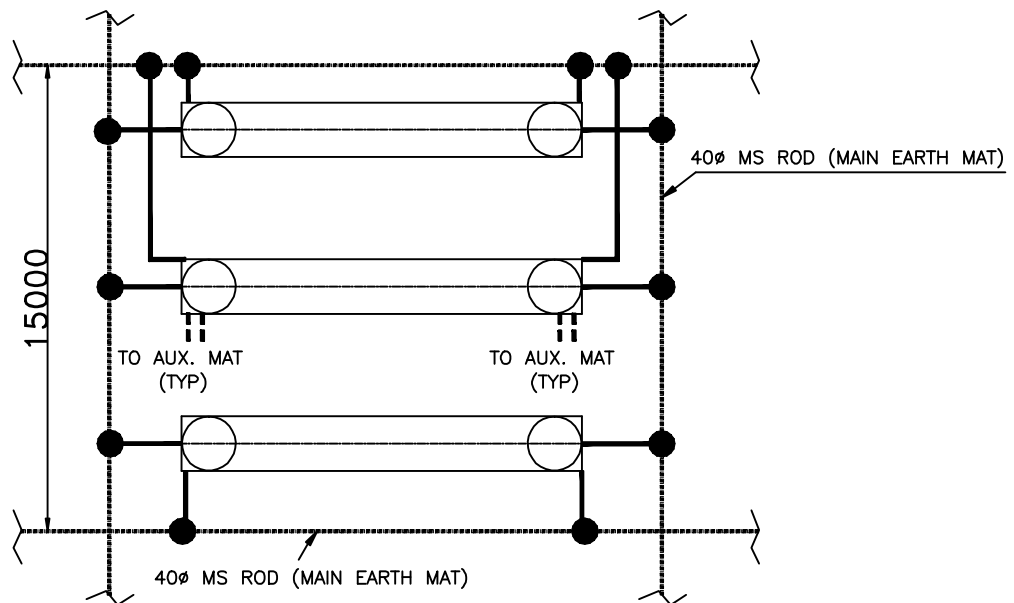
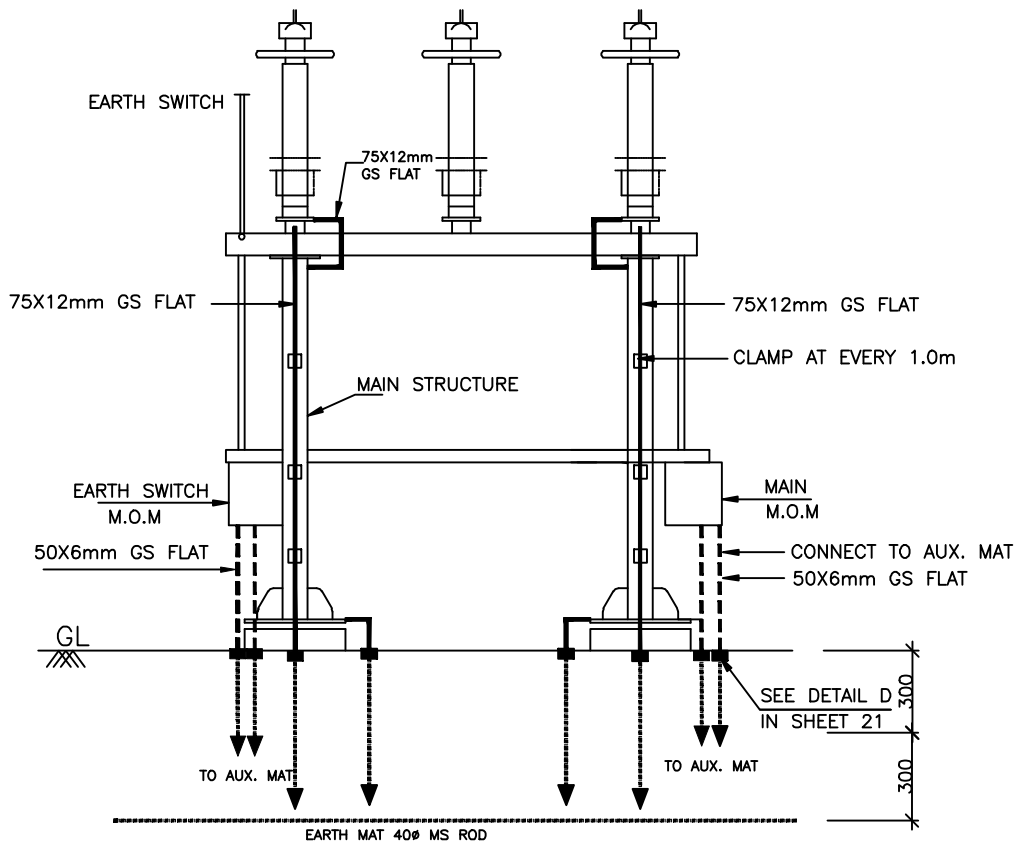
MARSHALLING KIOSK

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
6



NOTES:

1. NO. OF RISER FOR EQUIPMENT = 4 Nos./PHASE
2. NO. OF RISER FOR MECHANISM BOX = 2 Nos./BOX
3. NO. OF AUXILIARY MAT = 1 No./BOX



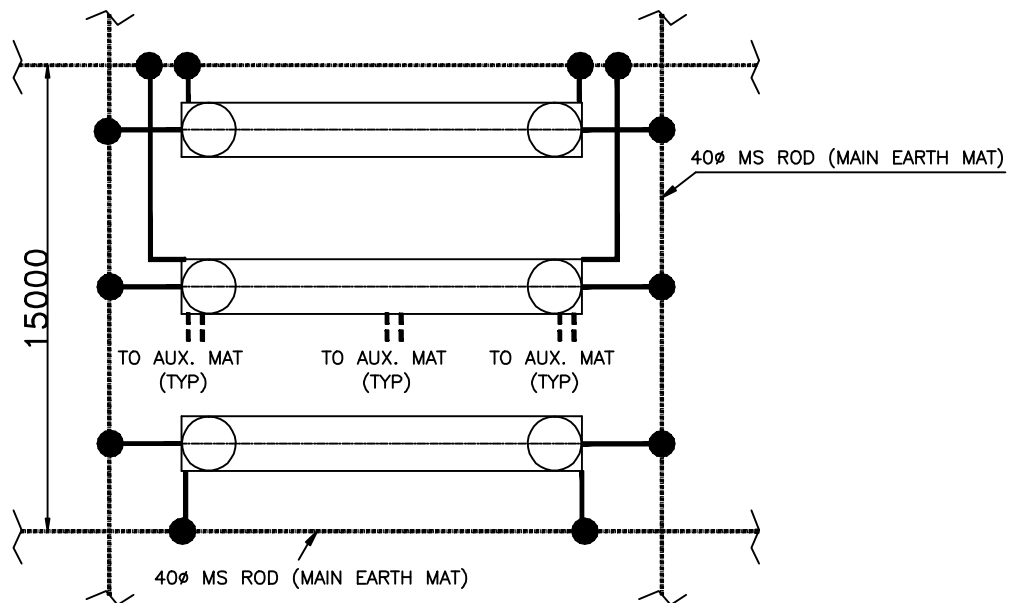
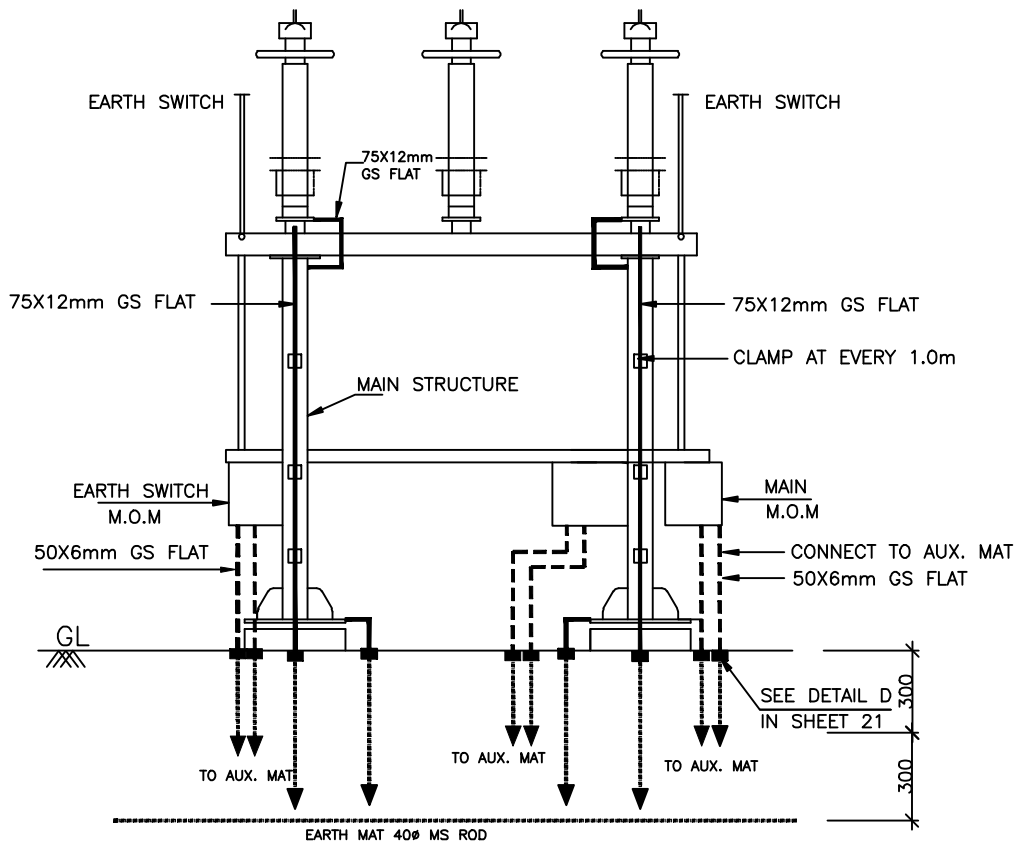
EQUIPMENT EARTHING DETAILS
400kV HORIZONTAL CENTER BREAK
ISOLATOR (TYPICAL) WITH ONE EARTHSWITCH

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
7A



NOTES:

1. NO. OF RISER FOR EQUIPMENT = 4 Nos./PHASE
2. NO. OF RISER FOR MECHANISM BOX = 2 Nos./BOX
3. NO. OF AUXILIARY MAT = 1 No./BOX



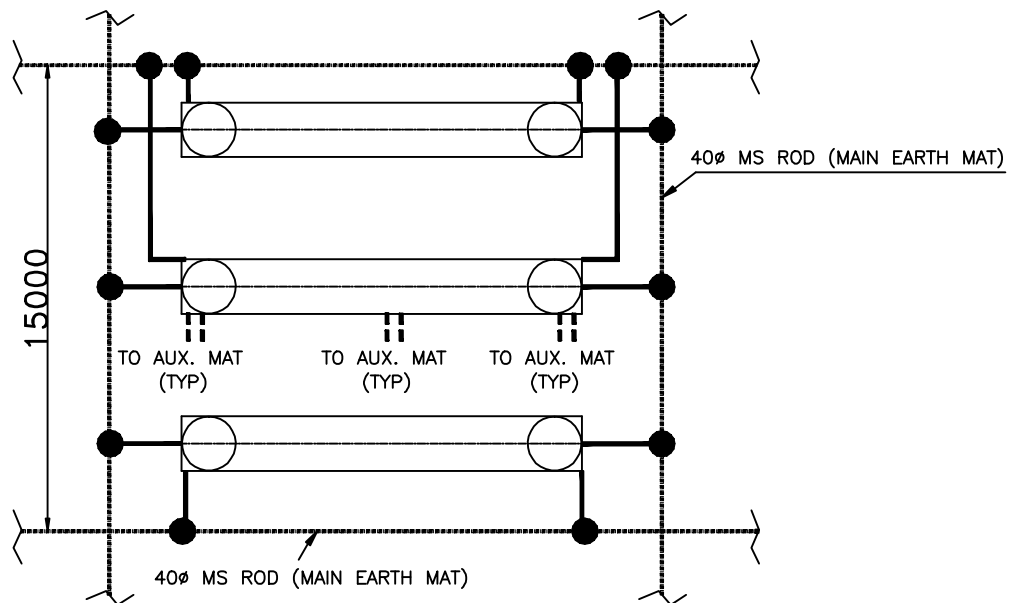
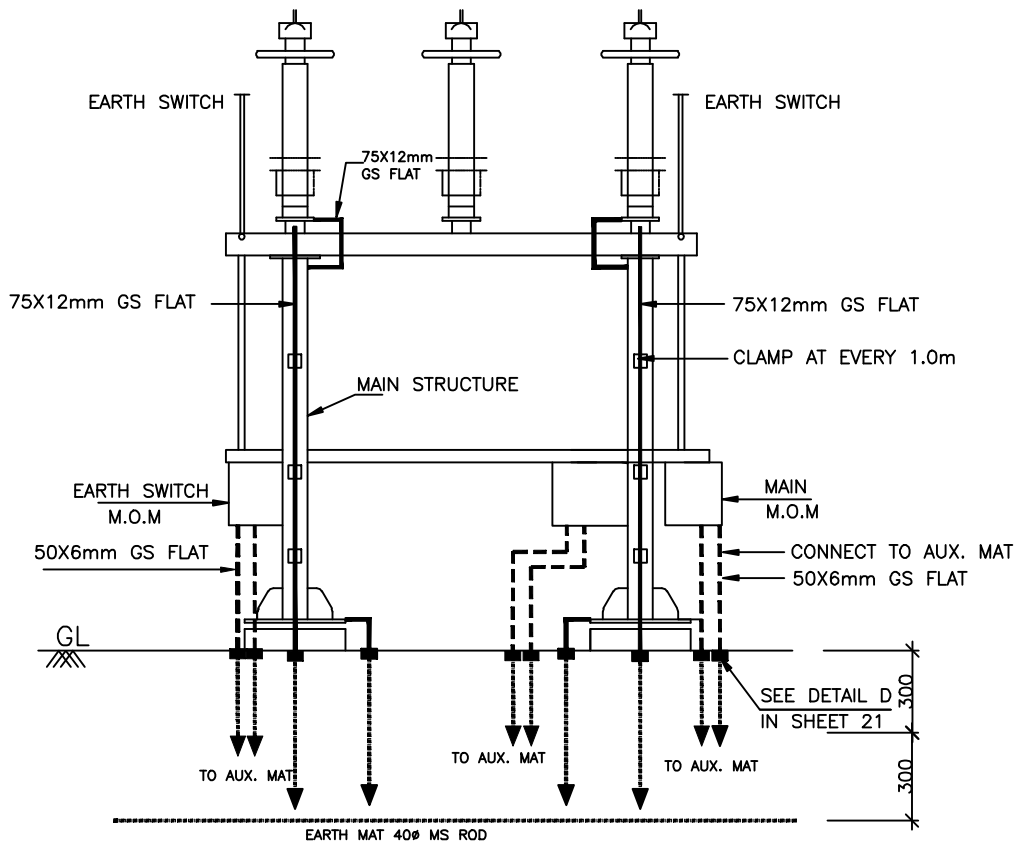
EQUIPMENT EARTHING DETAILS
400kV HORIZONTAL CENTER BREAK
ISOLATOR (TYPICAL) WITH TWO EARTHSWITCH

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
7B



NOTES:

1. NO. OF RISER FOR EQUIPMENT = 4 Nos./PHASE
2. NO. OF RISER FOR MECHANISM BOX = 2 Nos./BOX
3. NO. OF AUXILIARY MAT = 1 No./BOX



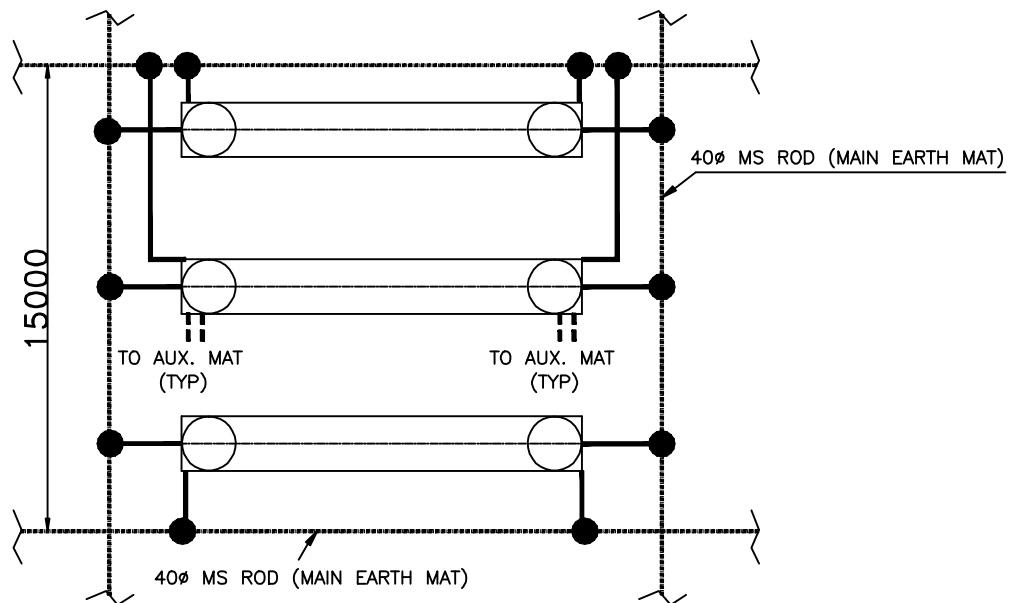
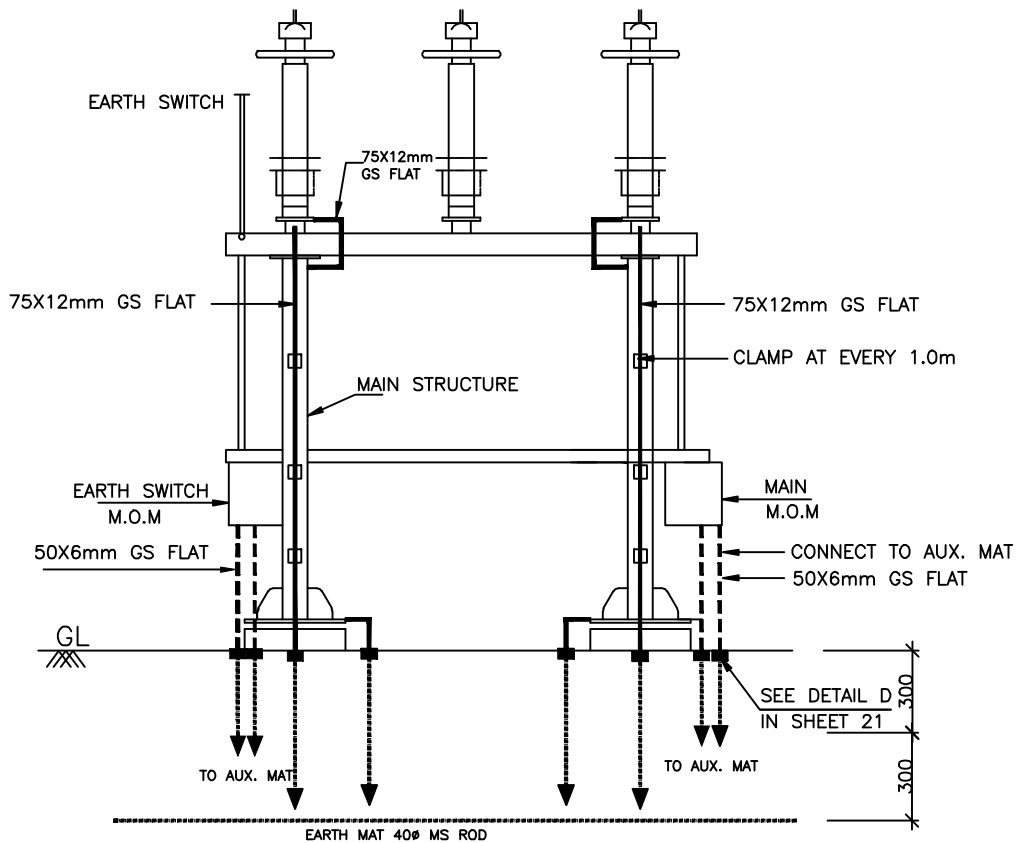
EQUIPMENT EARTHING DETAILS
220KV HORIZONTAL CENTER BREAK
ISOLATOR (TYPICAL) WITH TWO EARTHSWITCH

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
7C



NOTES:

1. NO. OF RISER FOR EQUIPMENT = 4 Nos./PHASE
2. NO. OF RISER FOR MECHANISM BOX = 2 Nos./BOX
3. NO. OF AUXILIARY MAT = 1 No./BOX



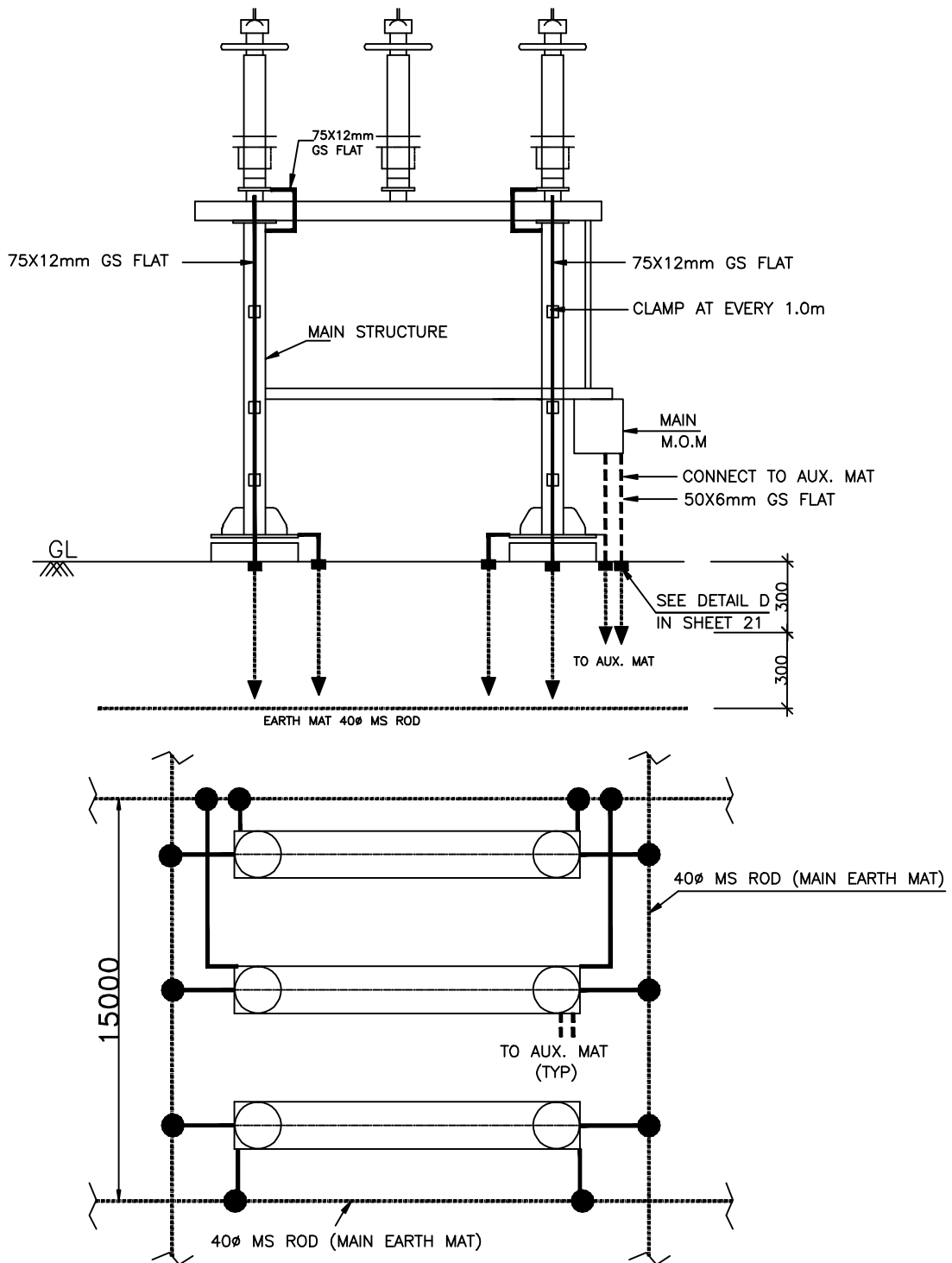
EQUIPMENT EARTHING DETAILS
220KV HORIZONTAL CENTER BREAK
ISOLATOR (TYPICAL) WITH ONE EARTHSWITCH

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
7D



NOTES:

1. NO. OF RISER FOR EQUIPMENT = 4 Nos./PHASE
2. NO. OF RISER FOR MECHANISM BOX = 2 Nos./BOX
3. NO. OF AUXILIARY MAT = 1 No./BOX



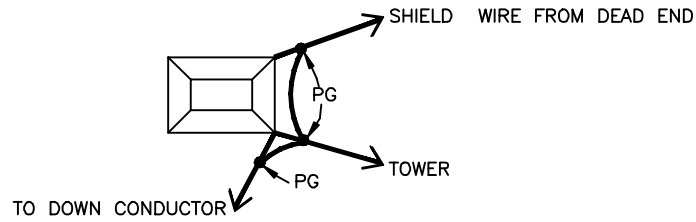
EQUIPMENT EARTHING DETAILS
 220KV HORIZONTAL CENTER BREAK
 ISOLATOR (TYPICAL) WITHOUT EARTH SWITCH

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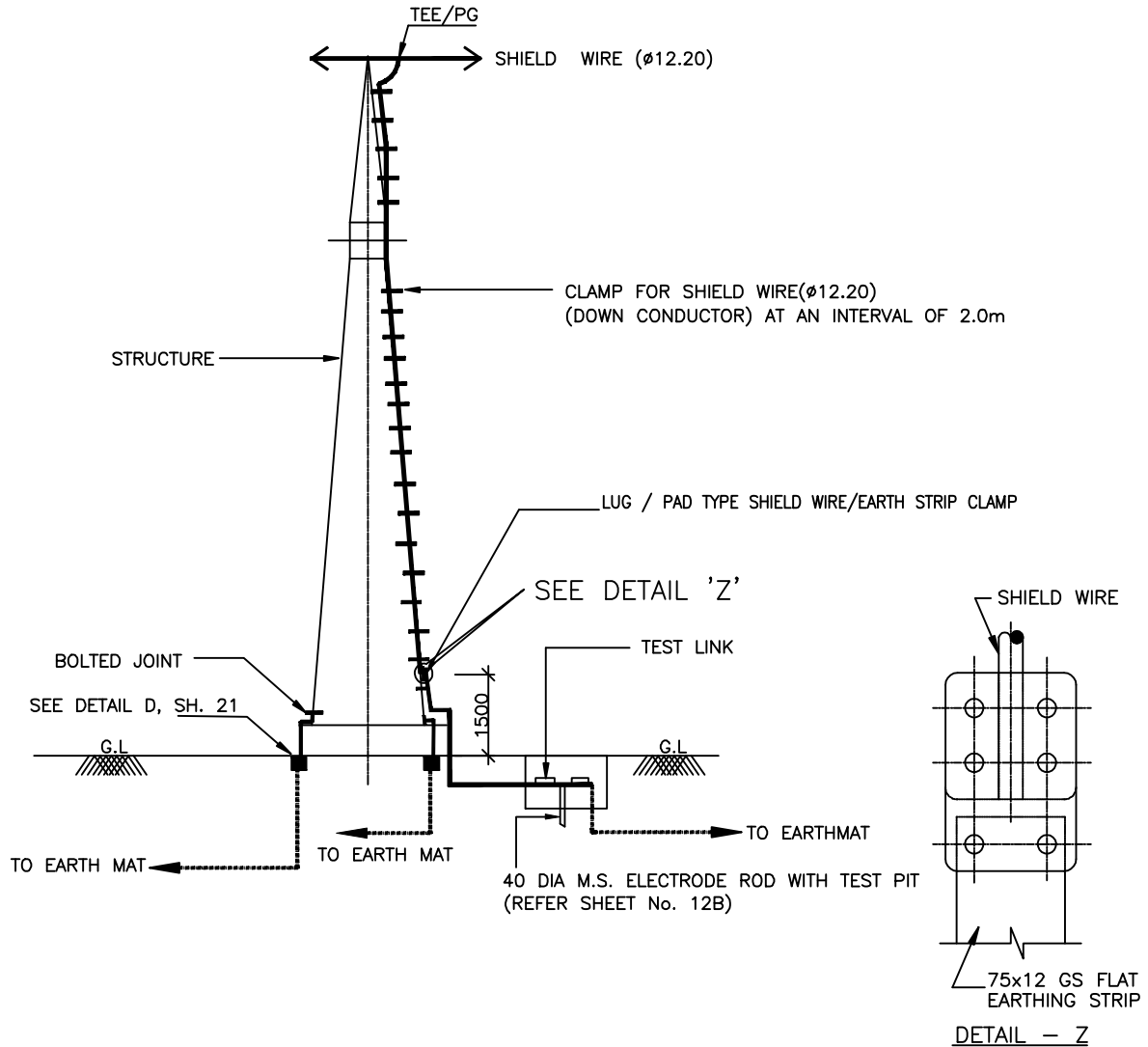
DRG. No.

TB-4-369-316-009

SHEET No.
7E



DETAIL WHEN 2 E/WIRES TERMINATES A TOWER



NOTE:

1. TWO EARTHING STRIP SHALL BE CONNECTED TO ONE RISER.
2. NO. OF ROD ELECTRODE : 1 NO. PER TOWER WITH DOWN CONDUCTOR.
3. NO. OF RISERS = 2 NOS.



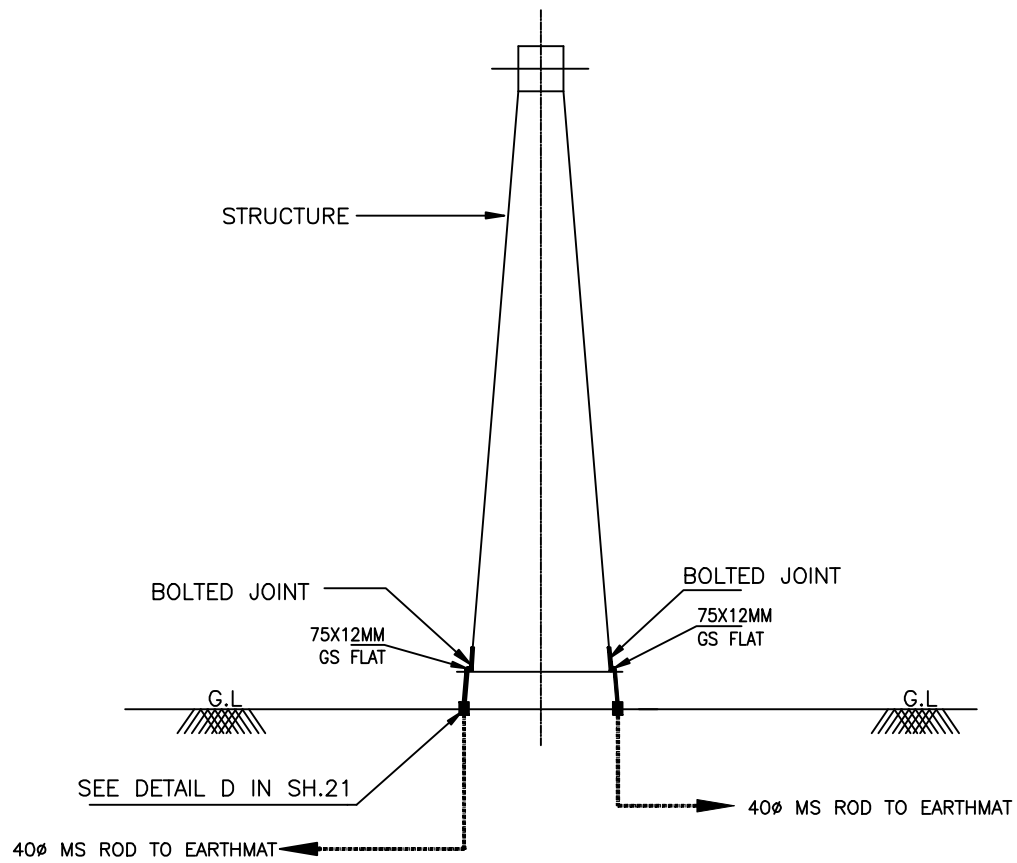
EQUIPMENT EARTHING DETAILS
TOWER WITH PEAK

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
8A



NOS.OF RISERS = 2 NOS. PER TOWER



EQUIPMENT EARTHING DETAILS

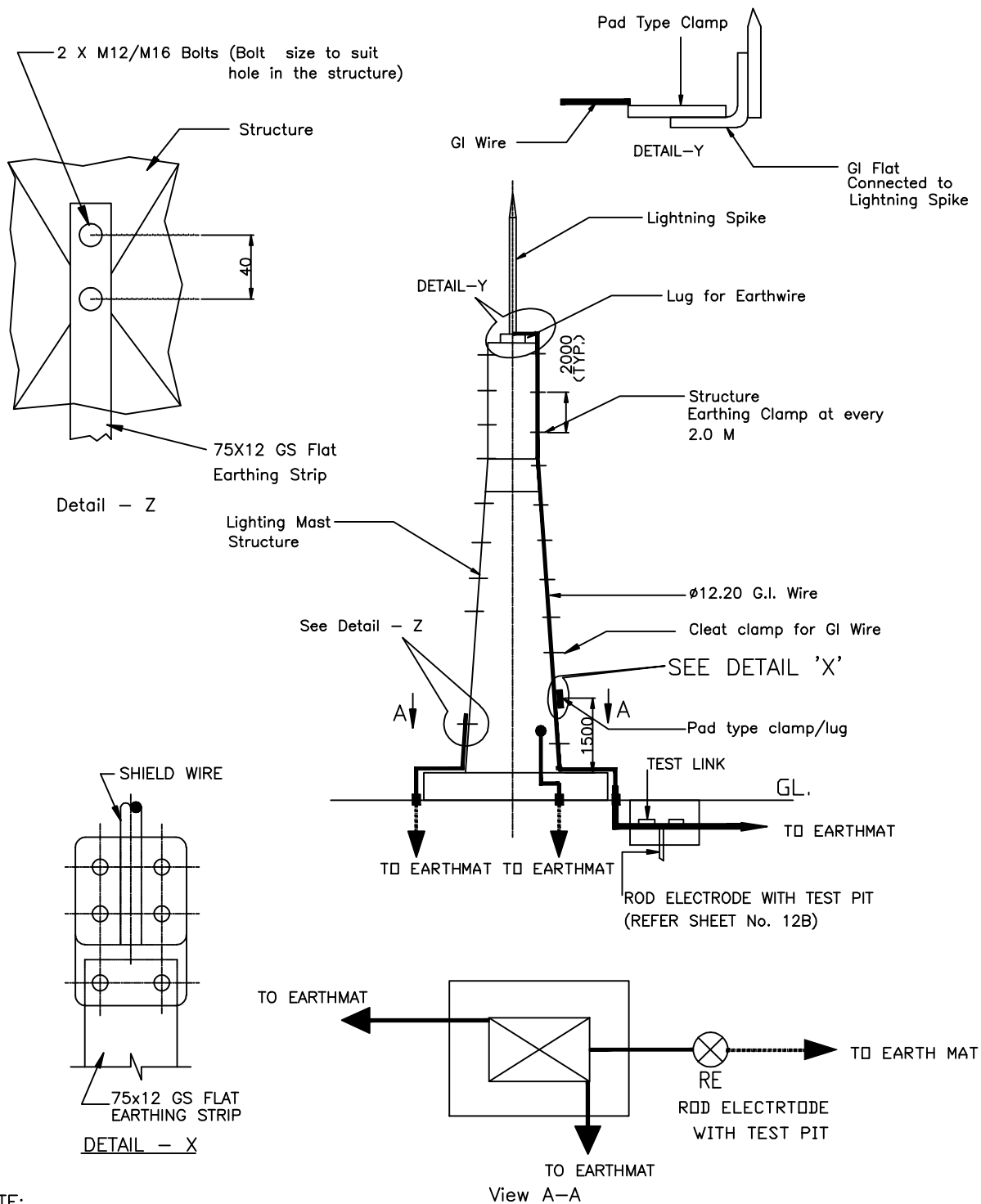
TOWER WITHOUT PEAK

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
8B



NOTE:

1. TWO EARTHING STRIP SHALL BE CONNECTED TO ONE RISER.
2. NO. OF ROD ELECTRODE WITH TEST PIT : 1 NO.
3. PAD TYPE CLAMP 1 NOS.
4. THE DOWN CONDUCTORS (E/WIRE) SHALL BE CONNECTED TO EARTH ELECTRODE.



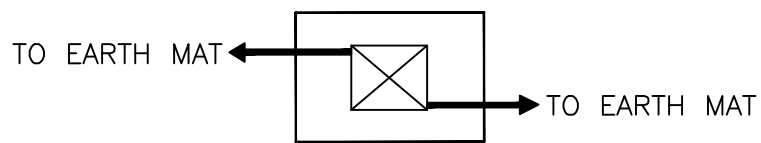
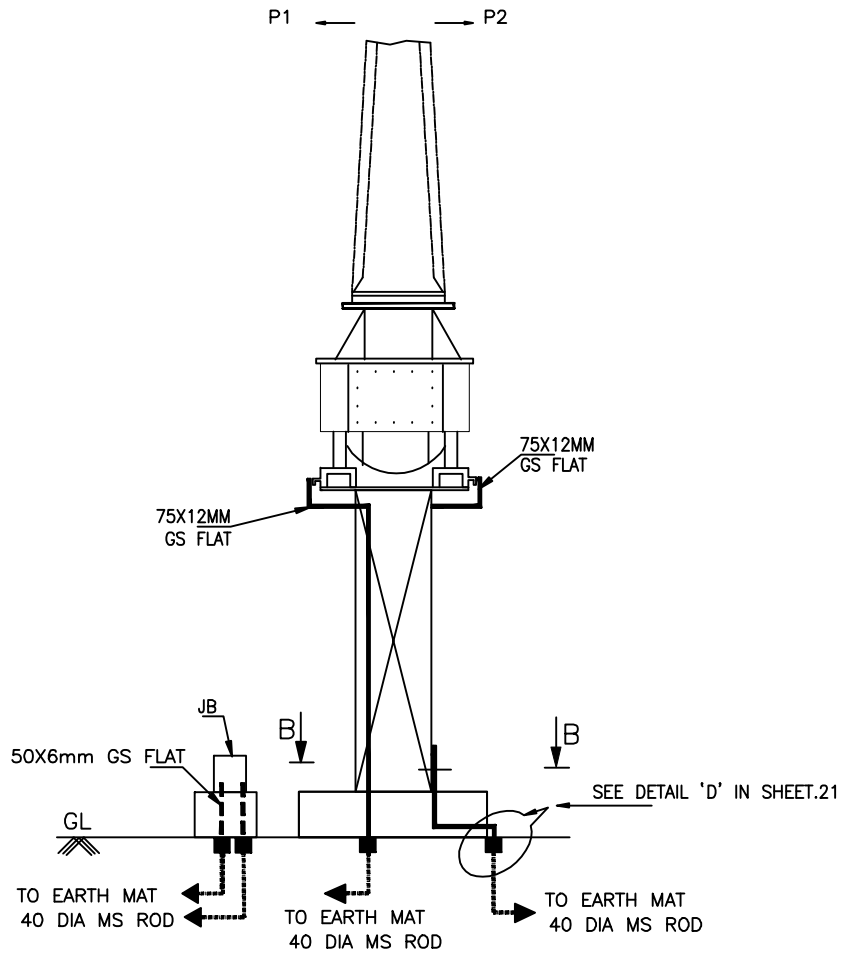
EQUIPMENT EARTHING DETAILS LIGHTENING MAST (LM)

COMPU. DRG. REF.

DRG.NO.

TB-4-369-316-009

SHEET No.
8C



View B-B

NOS.OF RISERS
 = 2 NOS. PER PHASE FOR CT
 + 2 NOS. FOR CT JB



EQUIPMENT EARTHING DETAILS 400kV & 220kV CURRENT TRANSFORMER

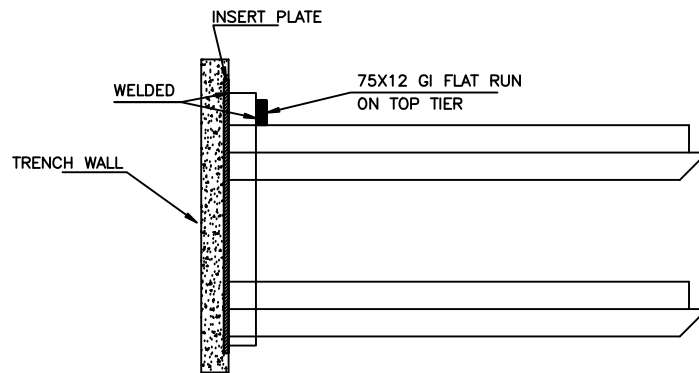
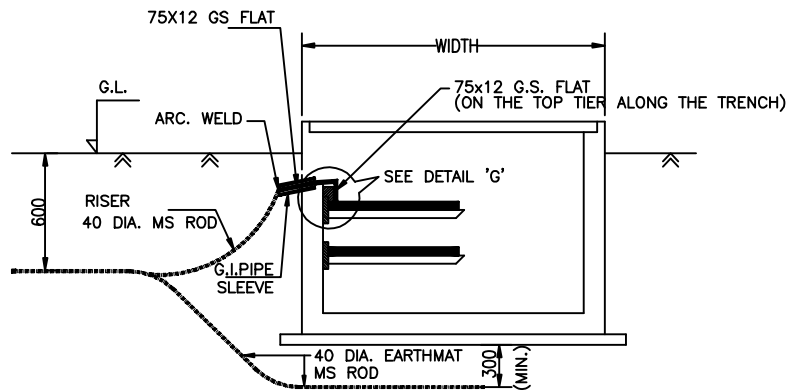
COMPU. DRG. REF.

DRG.NO.

TB-4-369-316-009

SHEET No.

9



DETAIL 'G'

DETAIL FOR CONNECTING GI FLAT RUNNING
ON TOP TIER TRENCH TO EMBEDDED PLATE.

NOTE:

1. RISERS SHALL BE PROVIDED AT AN INTERVAL OF 20M ALONG THE LENGTH OF TRENCH.
2. THE EARTH STRIP (75x12 G.S. FLAT) SHALL BE WELDED/CLEATED TO TOP RACK ALONG THE TRENCH RUN AT EVERY 0.75M.
3. WHERE THE CABLE RACKS ARE PROVIDED ON BOTH SIDES OF THE TRENCH, BOTH SIDES SHALL BE EARTHED AS PER ABOVE.
4. CABLE & CABLE TRAY EARTHING SHALL BE DONE AS PER SPECIFICATION.



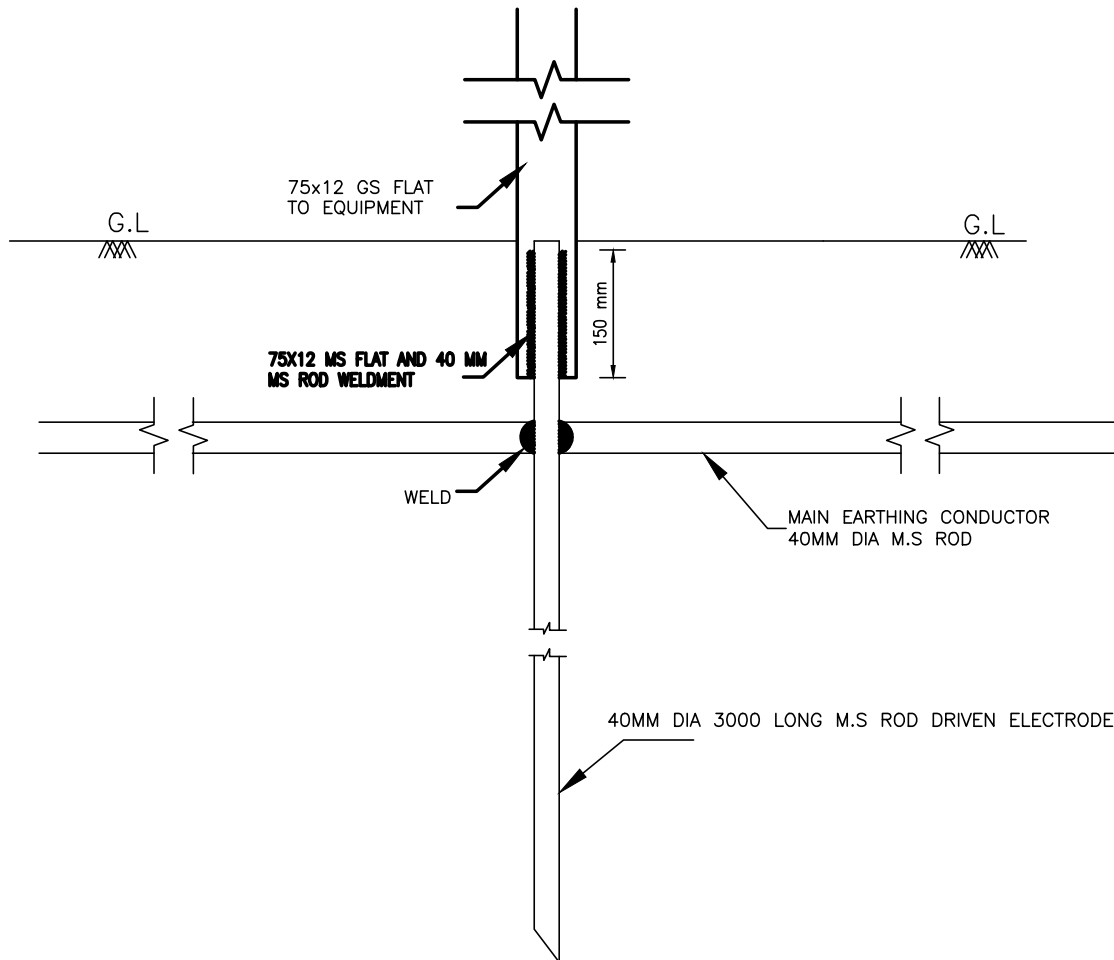
EQUIPMENT EARTHING DETAILS CABLE TRENCH

COMPU. DRG. REF.

DRG. NO.

TB-4-369-316-009

SHEET
10



APPLICABLE FOR CVT & LA

NOTES:-

1. SUPPLY OF FIXING BOLTS NUTS & WASHERS FOR GI FLAT EARTHING CONDUCTOR IS ALSO FORMS PART OF THE SCOPE.
2. ALL NUTS, BOLTS & WASHERS SHALL BE GALVANISED.



EQUIPMENT EARTHING DETAILS
ROD ELECTRODE WITHOUT PIT (FOR CVT & LA)

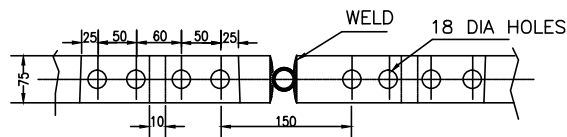
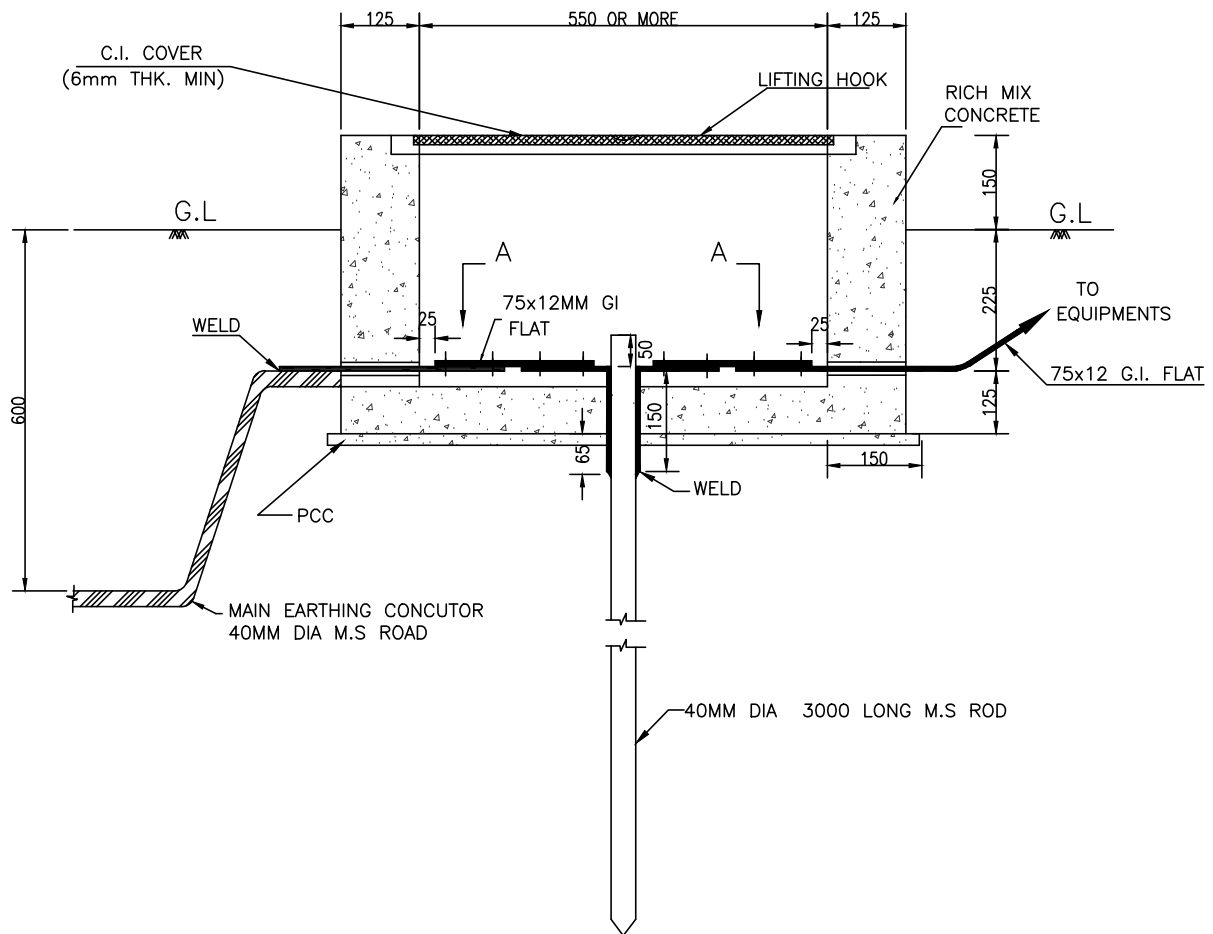
COMPU. DRG. REF.

DRG.NO.

TB-4-369-316-009

SHEET No.

12A



VIEW-A'

NOTES:-

1. SUPPLY OF FIXING BOLTS NUTS & WASHERS FOR GI FLAT EARTHING CONDUCTOR IS ALSO FORMS PART OF THE SCOPE.
2. TO BE USED FOR CONNECTING DOWN CONDUCTOR OF LIGHTNING MASTS & TOWERS WITH PEAK.



EQUIPMENT EARTHING DETAILS

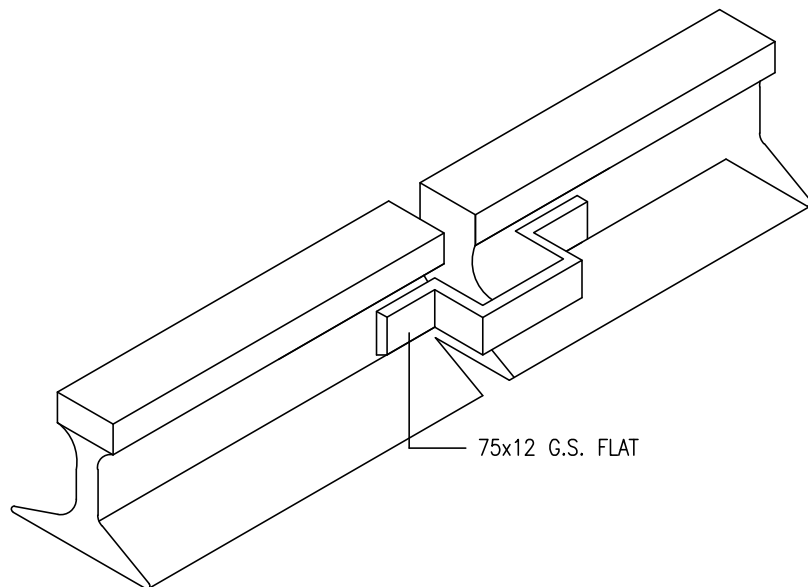
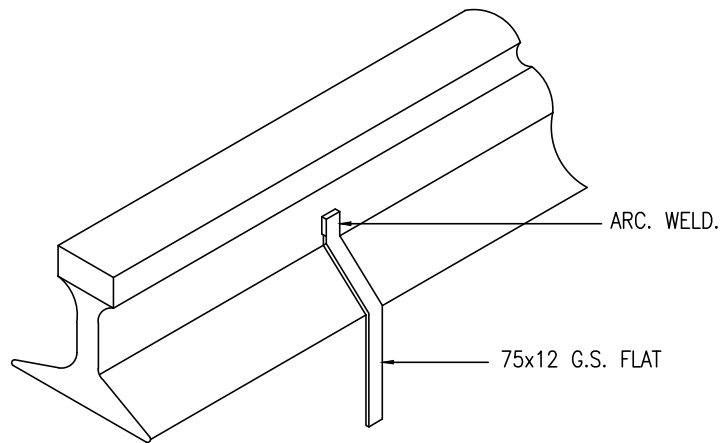
ROD EARTH ELECTRODE WITH TEST PIT FOR TOWERS WITH PEAK & LM

COMPU. DRG. REF.

DRG. No.

TB-4-369-316-009

SHEET No.
12B



NOTE:—

1. RAILWAY TRACKS WITHIN SWITCHYARD AREA SHALL BE EARTHED AT A SPACING OF 30 m AND ALSO AT BOTH ENDS.



EQUIPMENT EARTHING DETAILS RAIL BONDING

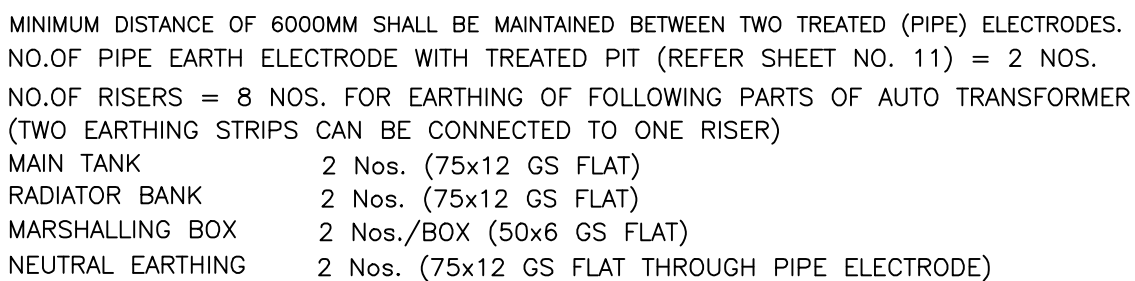
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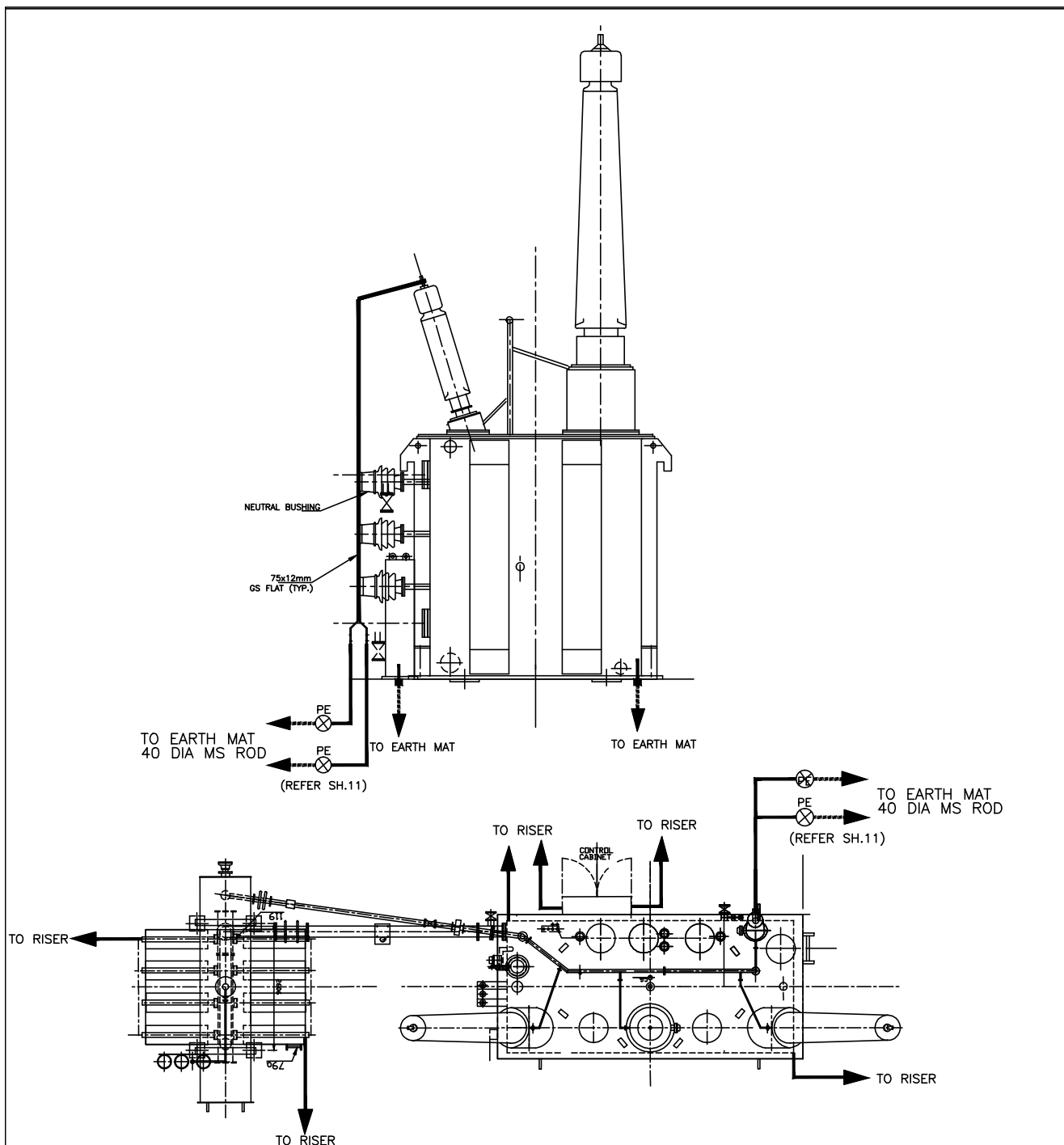
DRG. NO.

TB-4-369-316-009

SHEET No.

13





MINIMUM DISTANCE OF 6000MM SHALL BE MAINTAINED BETWEEN TWO TREATED (PIPE) ELECTRODES.

NO. OF PIPE EARTH ELECTRODE WITH TREATED PIT (REFER SHEET NO. 11) = 2 NOS.

NO.OF RISERS = 8 NOS. FOR EARTHING OF FOLLOWING PARTS OF 400KV BUS REACTOR
(TWO EARTHING STRIPS CAN BE CONNECTED TO ONE RISER)

- MAIN TANK – 2 Nos. (75x12 GS FLAT)
- RADIATOR SUPPORT – 2 Nos. (75x12 GS FLAT)
- CONTROL CABINET/MB – 2 Nos. (50x6 GS FLAT)
- NEUTRAL EARTHING – 2 Nos. (75x12 GS FLAT THROUGH PIPE ELECTRODE)



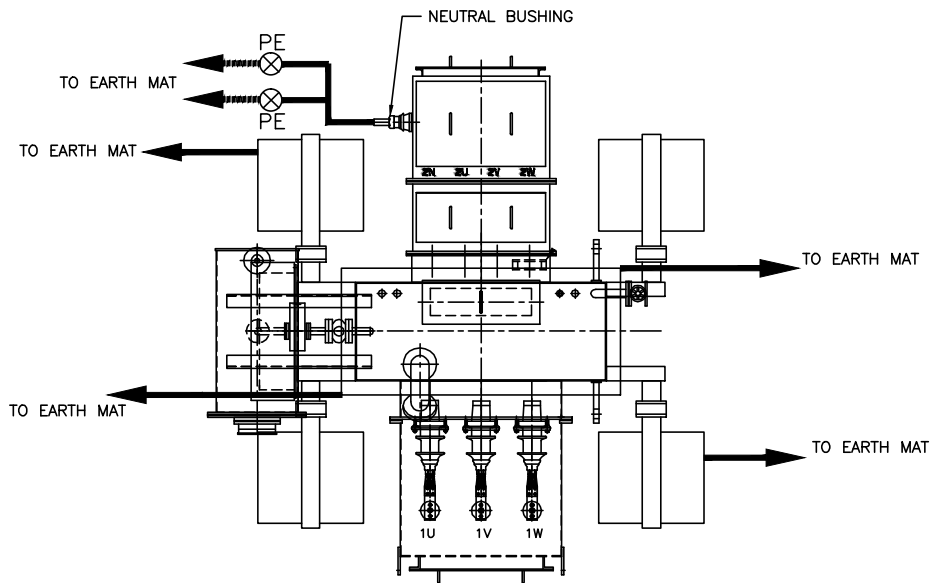
EQUIPMENT EARTHING DETAILS BUS REACTOR

COMPU. DRG. REF.

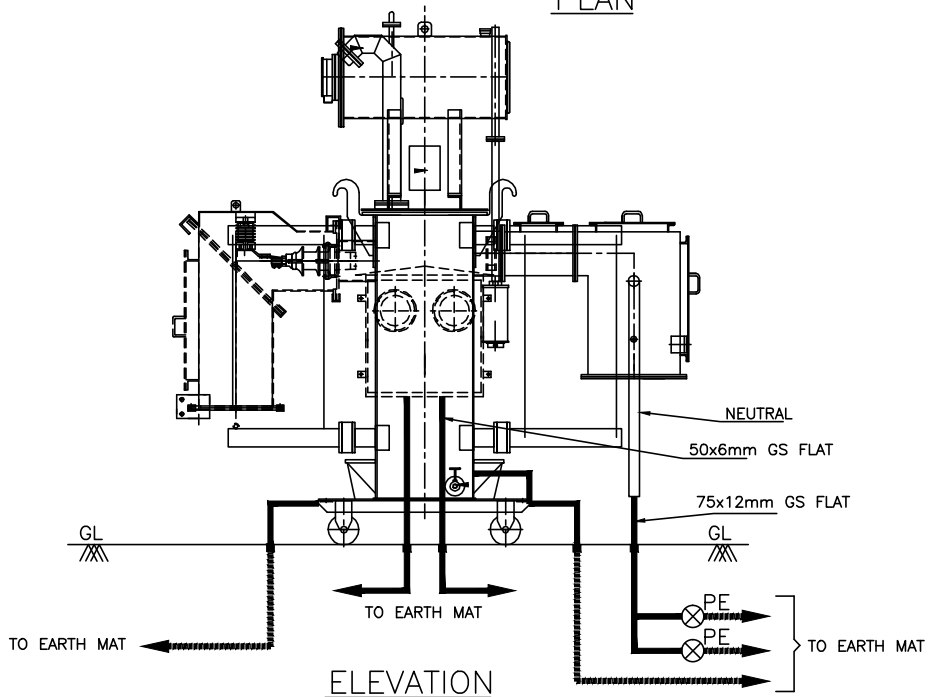
DRG. NO.

TB-4-369-316-009

SHEET
14B



PLAN



ELEVATION

MINIMUM DISTANCE OF 6000MM SHALL BE MAINTAINED BETWEEN TWO TREATED (PIPE) ELECTRODES.

NO.OF PIPE EARTH ELECTRODE WITH TREATED PIT (REFER SHEET NO. 11) = 2 NOS.

NO.OF RISERS = 6 NOS. FOR EARTHING OF FOLLOWING PARTS OF TRANSFORMER

(TWO EARTHING STRIPS CAN BE CONNECTED TO ONE RISER):

MAIN TANK 2 Nos. (75x12 GS FLAT)

RADIATOR BANK 2 Nos. (75x12 GS FLAT)

MARSHALLING BOX 2 Nos. (50x6 GS FLAT)

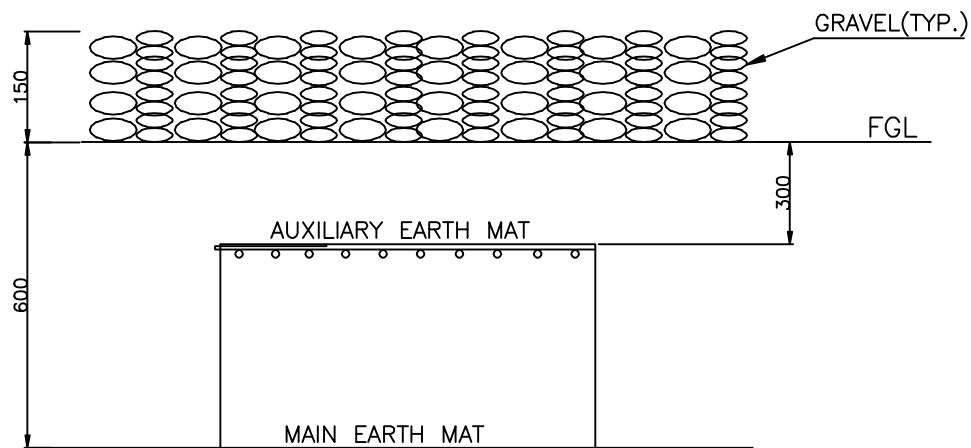
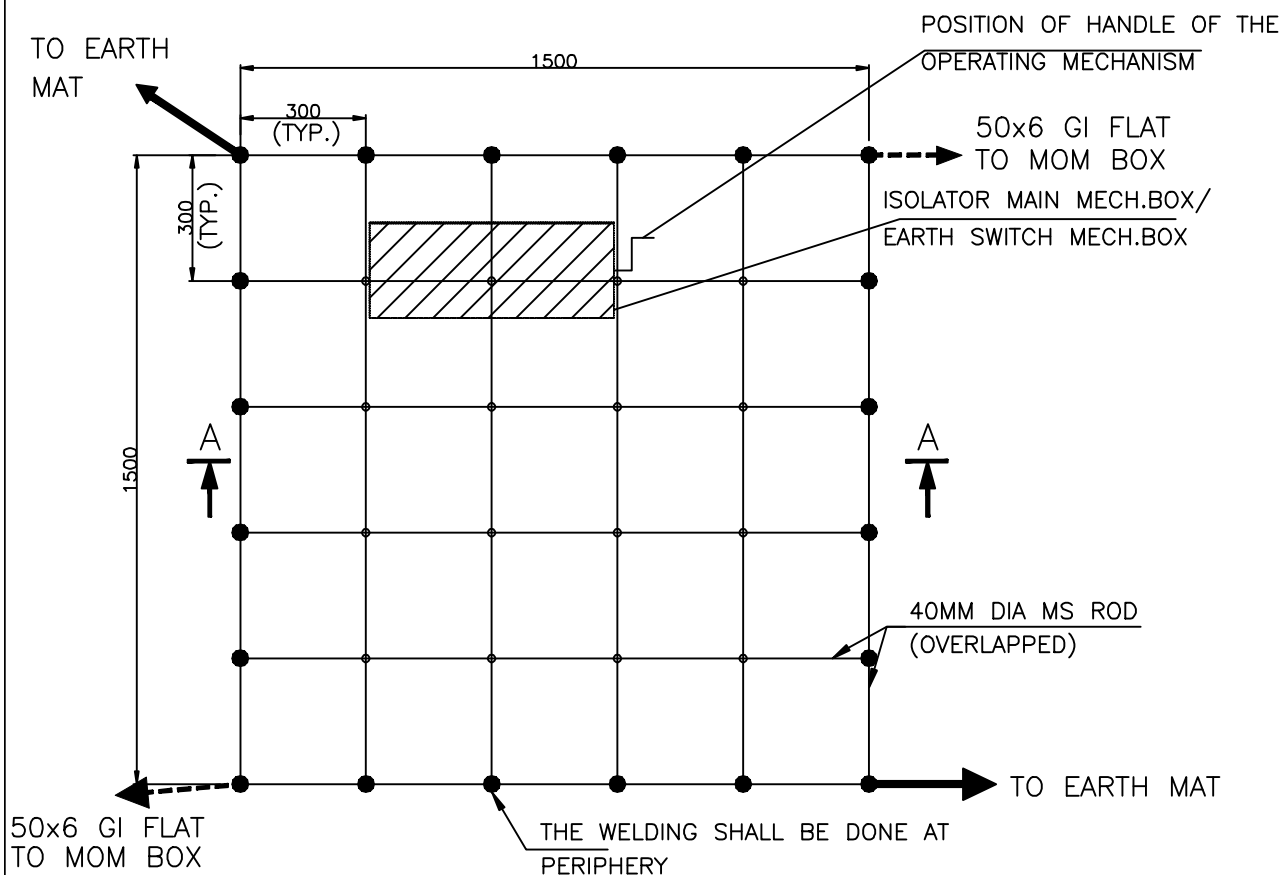
NEUTRAL EARTHING 2 Nos. (75x12 GS FLAT THROUGH PIPE ELECTRODE)



EQUIPMENT EARTHING DETAILS SWITCHYARD SERVICE TRANSFORMER

DRG. No. TB-4-369-316-009

SHEET No.
14C



SECTION AA

NOTE:

AUX. EARTH MAT SHALL BE SO POSITIONED THAT THE FOOT OF THE OPERATOR ALWAYS LIE OVER THE AUX. EARTH MAT AREA WHILE ATTENDING / OPERATING THE MECH. BOX THE CABLE TRENCH ROUTING SHALL BE PLANNED ACCORDINGLY.



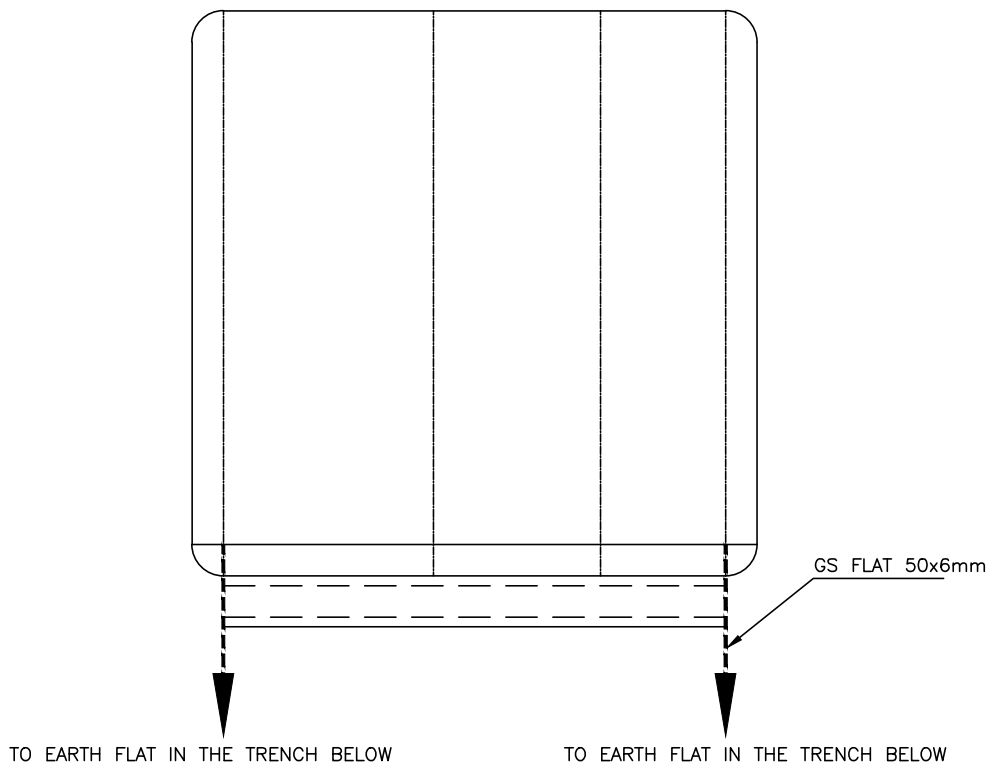
EQUIPMENT EARTHING DETAILS

AUXILIARY EARTH MAT FOR ISOLATOR MAIN MECH., E/S MECH. BOX

COMPU. DRG. REF.

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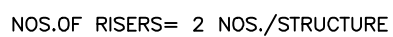


EQUIPMENT EARTHING DETAILS

ALL PANELS/KIOSKS/MBs/BATTERY CHARGER/AC DC BOARDS/MLDB

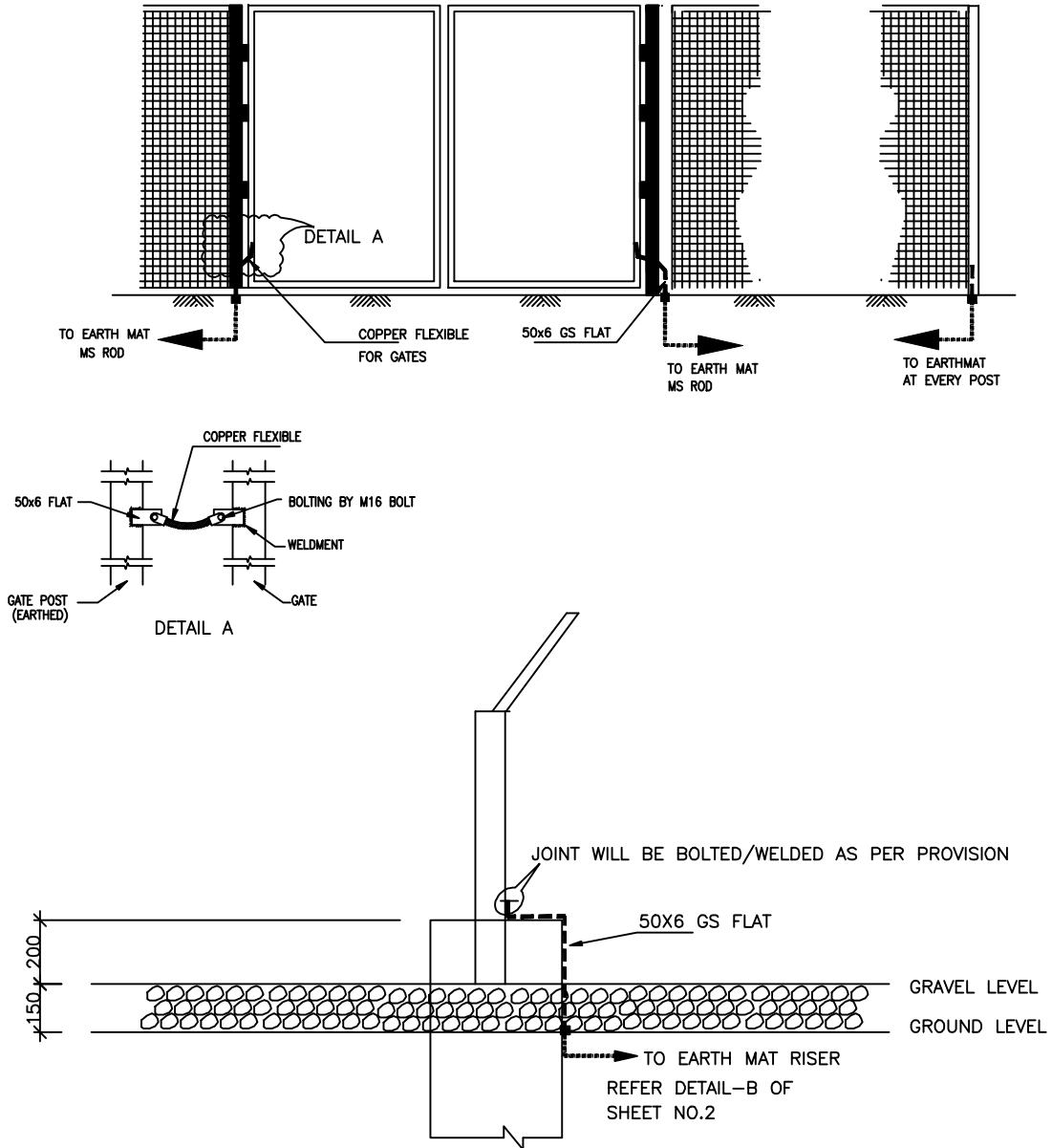
DRG. No. TB-4-369-316-009

SHEET No.
16



FENCE GATE

FENCE GROUNDING



EVERY POST OF FENCE & GATES SHALL BE CONNECTED TO EARTHING LOOP BY 50X6 MM GS FLAT.
EARTHING CONDUCTOR SHALL BE BURRIED 2000mm OUTSIDE THE SWITCHYARD FENCE.

FENCE EARTHING



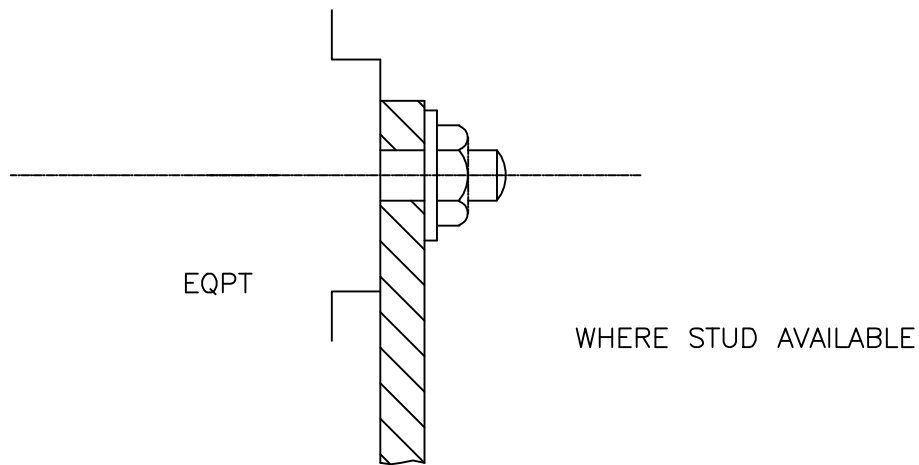
EQUIPMENT EARTHING DETAILS GATE/FENCE POST

DRG. No.

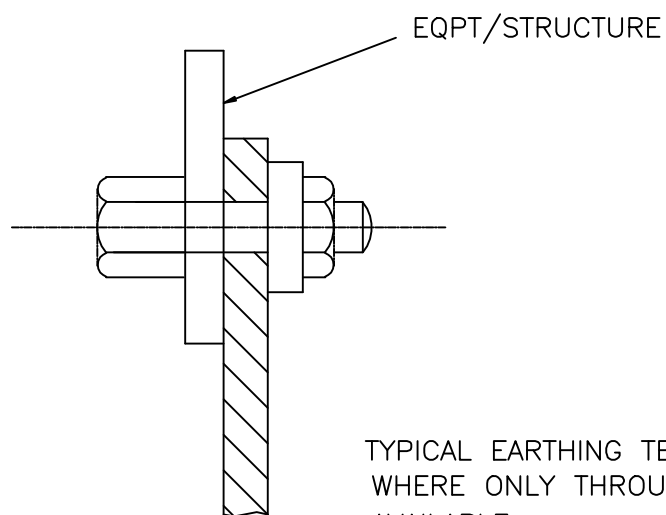
TB-4-369-316-009

SHEET No.

18



TYPICAL EARTHING TERMINAL JOINT



NOTE

1. THIS IS GENERAL TYPICAL BOLTING ARRANGEMENT APPLICABLE TO ALL PANELS, EQUIPMENT ETC. WHERE BOLTING ARRANGEMENT IS PROVIDED.
2. IN CASE EARTHING TERMINAL COMPRISES ONLY A TAPPED HOLE SUITABLE BOLT/ SCREW WITH WASHER MAY BE USED FOR EARTHING CONDUCTOR TERMINATION



EQUIPMENT EARTHING DETAILS

TYPICAL ARRANGEMENT OF BOLTED JOINTS

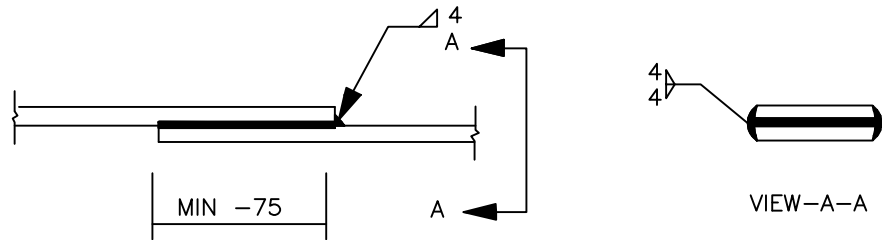
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TB-4-369-316-009

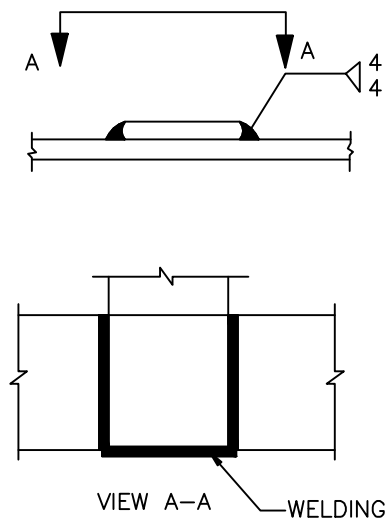
SHEET No.
19

STRIP TO STRIP (75x12/50X6 MS FLAT)

1. STRAIGHT LAP JOINT/RISER



2. CROSS LAP JOINT



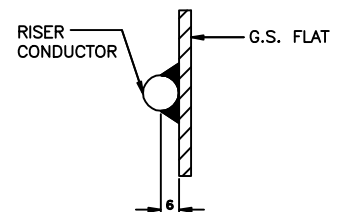
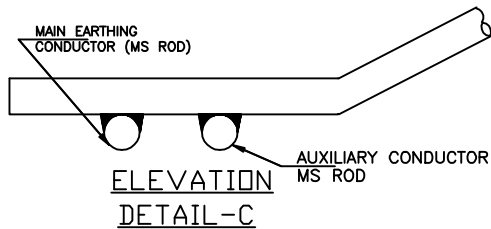
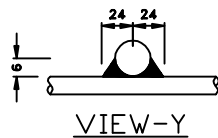
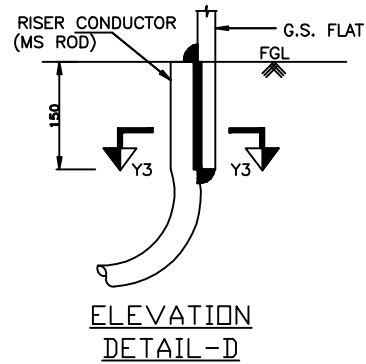
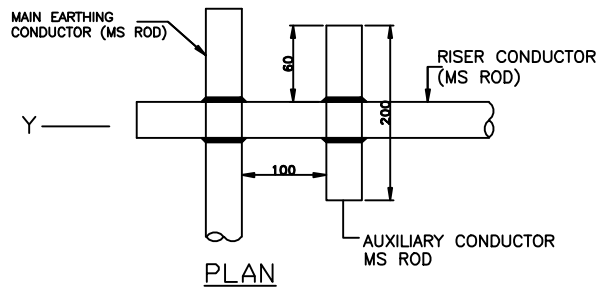
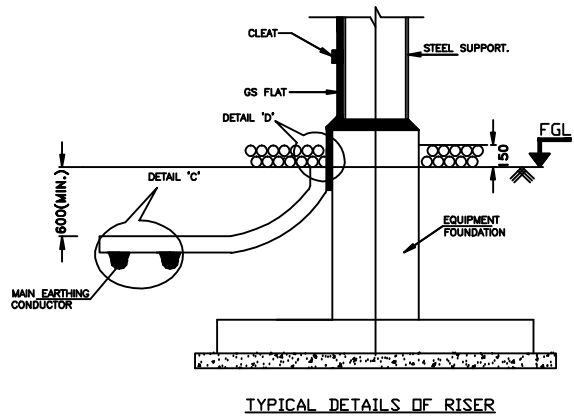
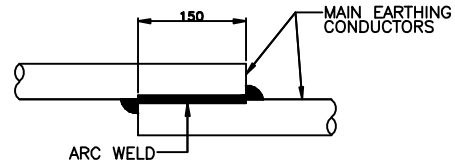
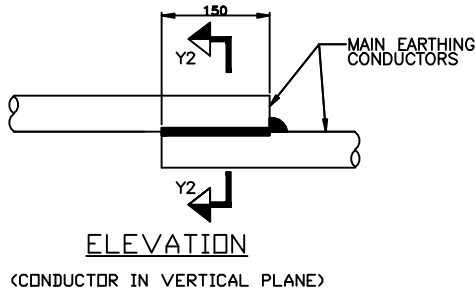
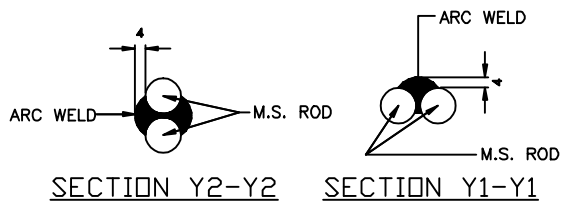
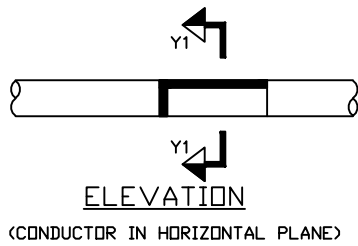
EQUIPMENT EARTHING DETAILS WELDING DETAILS

COMPUTERREF.NO.

DRG. No.

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SHEET No.
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TYPICAL OVERLAPPING JOINT OF TWO CONDUCTORS



EQUIPMENT EARTHING DETAILS

WELDING DETAILS

COMPUTERREF.NO.

DRG. No.

TB-4-369-316-009

SHEET No.
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