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COMPUTER DRG. PATH NAME :

REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED			CHECKED			CHECKED			CHECKED

LEGEND

- CONNECTION TO GROUND MAT THROUGH RISER
— ⊗ E CONNECTION TO ROD ELECTRODE.
— ⊗ PE CONNECTION TO PIPE ELECTRODE
● RISER

GENERAL NOTES:

- 1 ALL EARTH STRIPS SHALL BE TAKEN ALONG EDGE OF STRUCTURE. ALL DRAWING SHOWS TYPICAL ONLY.
- 2 ALL EQUIPMENT STRUCTURES SHALL BE PIPE TYPE.
- 3 REFER STANDARD PROCESS SPECIFICATION NO. TB 4 304 001 FOR WELDING (SHEET 20 & 21).
- 4 FOR NOTES REFER EARTHING LAYOUT OF 400/220KV S/S DRG. NO. TB 0 304 316 003
- 5 ALL EARTHING SHALL BE DONE IN ACCORDANCE WITH IS: 3043 UNLESS OTHERWISE STATED IN TECHNICAL SPECIFICATION.
- 6 7/9 SWG E/WIRE DOWN CONDUCTOR SHALL BE CLEATED AT AN INTERVAL OF 1.0 M ALONGWITH STRUCTURE NO HOLES IN STRUCTURE IS ALLOWED FOR THIS PURPOSE.

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
02.	420/245KV CIRCUIT BREAKER	12.	CABLE TRENCH EARTHING
03.	420/245KV CVT/EMVT	13.	SHIELD WIRE TOWER EARTHING
04A.	245KV HORIZONTAL CENTRE BREAK ISOLATOR WITHOUT E/S	14.	PIPE EARTH ELECTRODE DETAILS.
04B.	245KV HORIZONTAL CENTRE BREAK UP-RIGHT GANTRY MOUNTED ISOLATOR WITHOUT E/S	15.	ROD EARTH ELECTRODE
04C.	245KV HORIZONTAL CENTRE BREAK UNDERHUNG GANTRY MOUNTED ISOLATOR WITHOUT E/S	16.	MARSHALLING KIOSK EARTHING.
05.	420/245KV ISOLATER HORIZONTAL CENTRE BREAK ISOLATOR WITH ONE E/S	17.	AUX. EARTH MAT FOR ISO MAIN MECH. E/S MECH. BOX & CIRCUIT BREAKER (TYP.)
06.	420/245KV ISOLATER HORIZONTAL CENTRE BREAK ISOLATOR WITH TWO E/S	18.	LIGHTNING MAST EARTHING.
07.	420/245KV CT	19.	PANELS EARTHING
08.	420/245KV POST INSULATOR	20.	WELDING DETAILS-1
09.	360/198KV LIGHTNING ARRESTER	21.	WELDING DETAILS-2
10.	FIXING ARRANGEMENT OF EARTH STRIP CLAMP FOR TUBULAR TYPE STRUCTURE		
11.	CLAMP FOR VERTICAL MOUNTING OF 7/9 SWG. WIRE ON STEEL COLUMNS		

JOB NO. 87009

STATUS CONTRACT

DRG./REF. NO.



KARNATAKA POWER CORPORATION LTD.

CUSTOMER KARNATAKA POWER CORPORATION LIMITED
PROJECT BELLARY THERMAL POWER STATION
STAGE-II (1x500MW)

PRINT SCALE



BHARAT HEAVY ELECTRICALS LTD.
TRANSMISSION PROJECTS DIVISION

DEPT CODE	NAME	SIGN.	DATE
DRN	KAPIL	-SD-	
CHD	MS/MK	-SD-	
APPD	SN	-SD-	

REV.	DATE	ALTD	CHD	APPD
01	02.12.08	KAPIL	MS/MK	SN

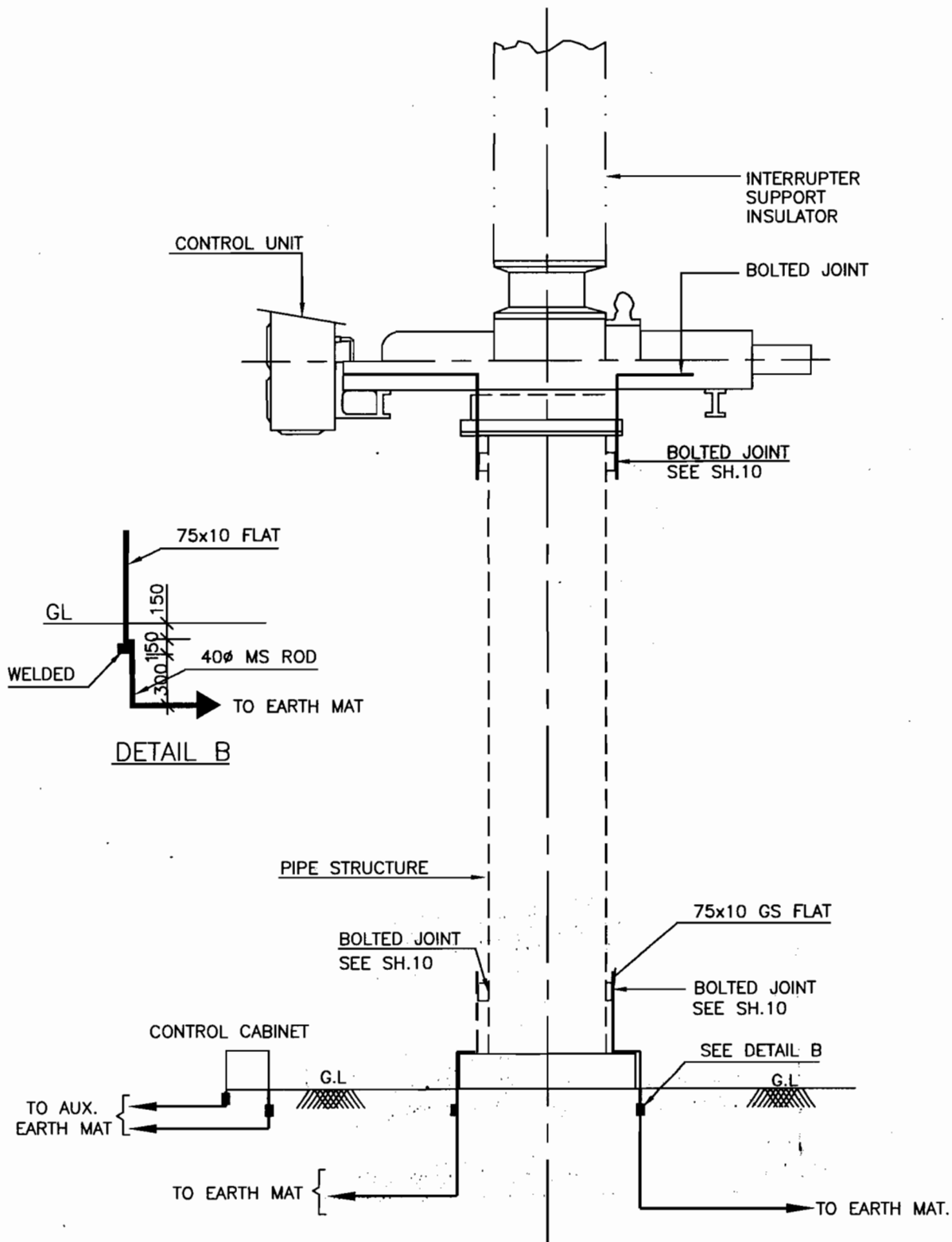
SUB-CONTRACTOR :

REVISED AS PER CUSTOMERS
COMMENTS dated 11.11.08.

TITLE

EQUIPMENT EARTHING DETAILS

DEPT.	SCALE	DRAWING NO.
SIGN		TB-4-304-509-004
DATE		SHEET 1
		REV. 01



NOTE:

- 1) LOCAL CONTROL CABINET & UNIT SHALL BE EARTHED SEPARATELY.



EQUIPMENT EARTHING DETAILS

420/245kV CIRCUIT BREAKER

COMPUTERREF.NO.

DRG. No.

TB 4 304 509 004

SHEET No.
2

2Nos. 75x10mm GS FLAT
FOR CVT JUNCTION BOX

BOLTED JOINT
REFER SH.10

PIPE STRUCTURE

75x10mm GS FLAT

SEE DETAIL B
IN SHEET NO 2

TO EARTH MAT $\oplus \otimes \oplus$
(REFER SHEET NO.15)

TO EARTH MAT



EQUIPMENT EARTHING DETAILS

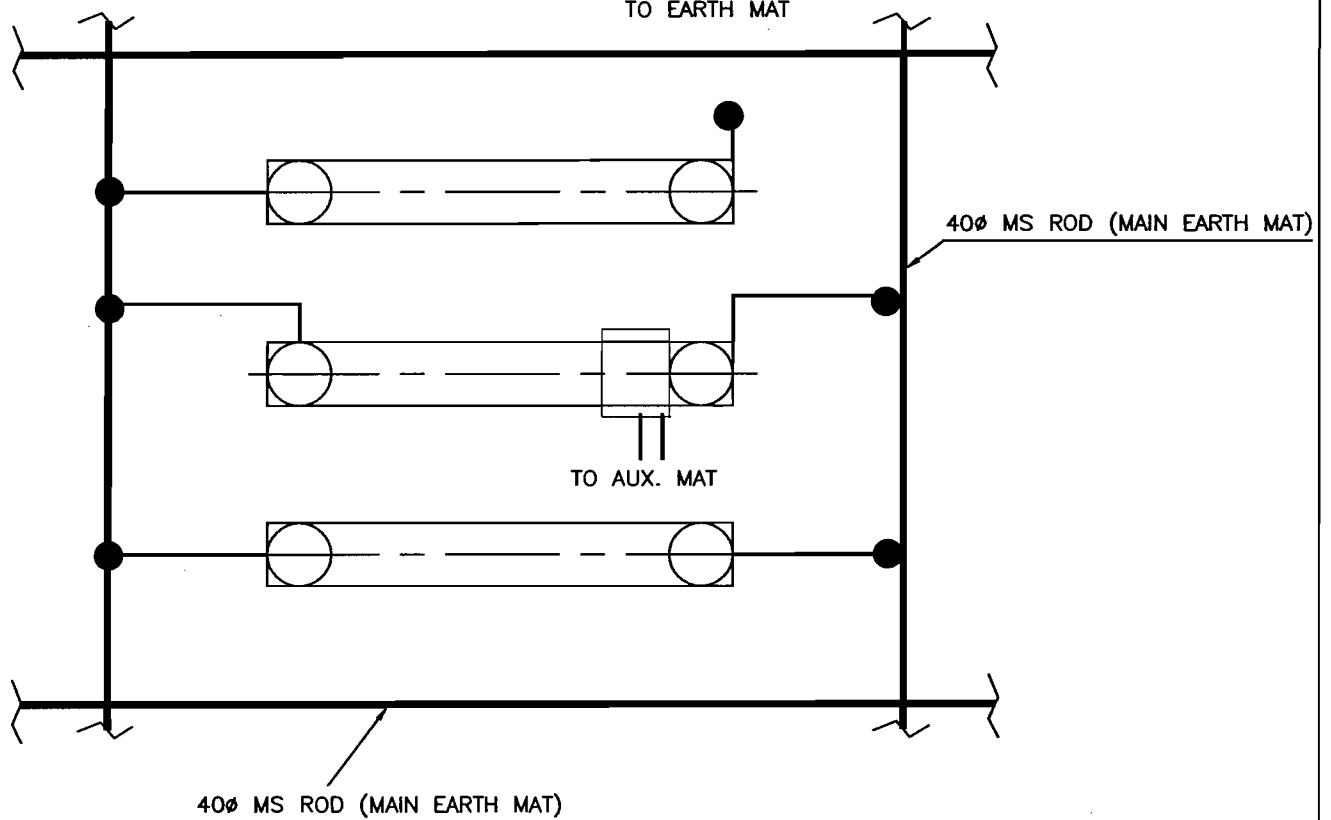
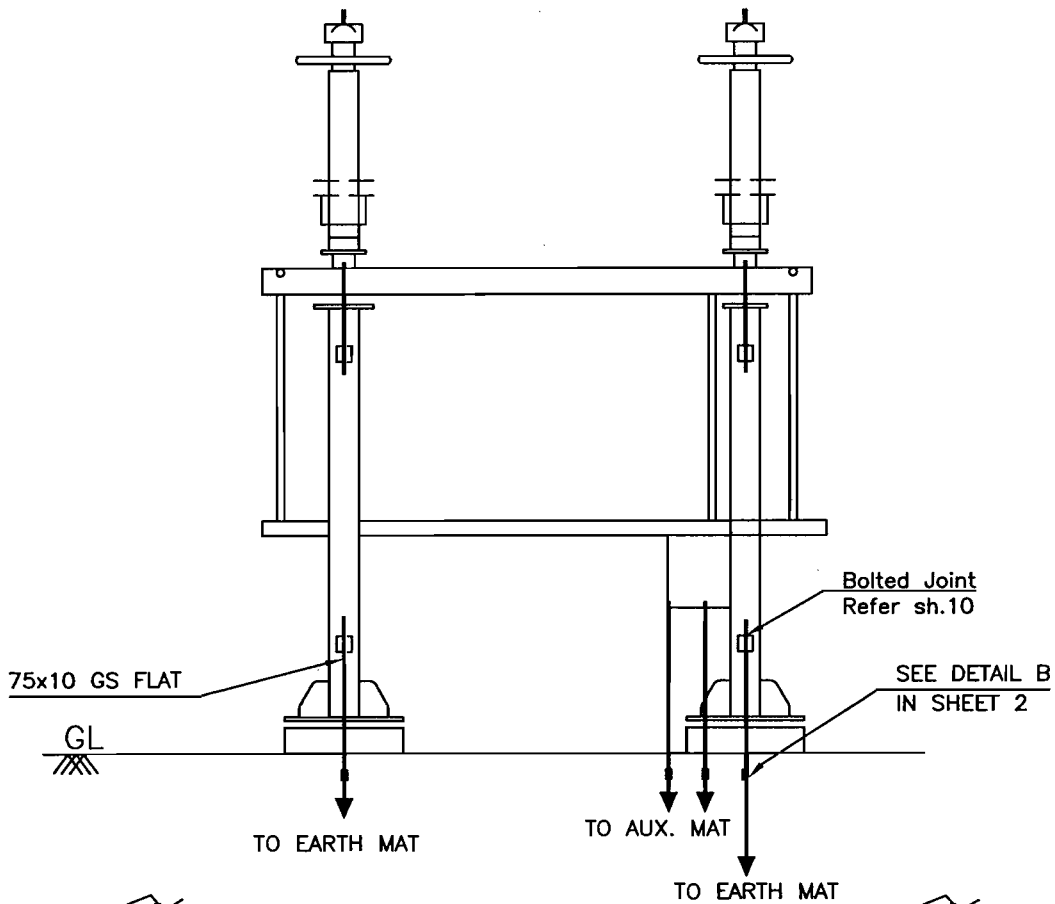
420kV/245kV CVT/EMVT

COMPUTERREF.NO.

DRG. No.

TB 4 304 509 004

SHEET No.
3



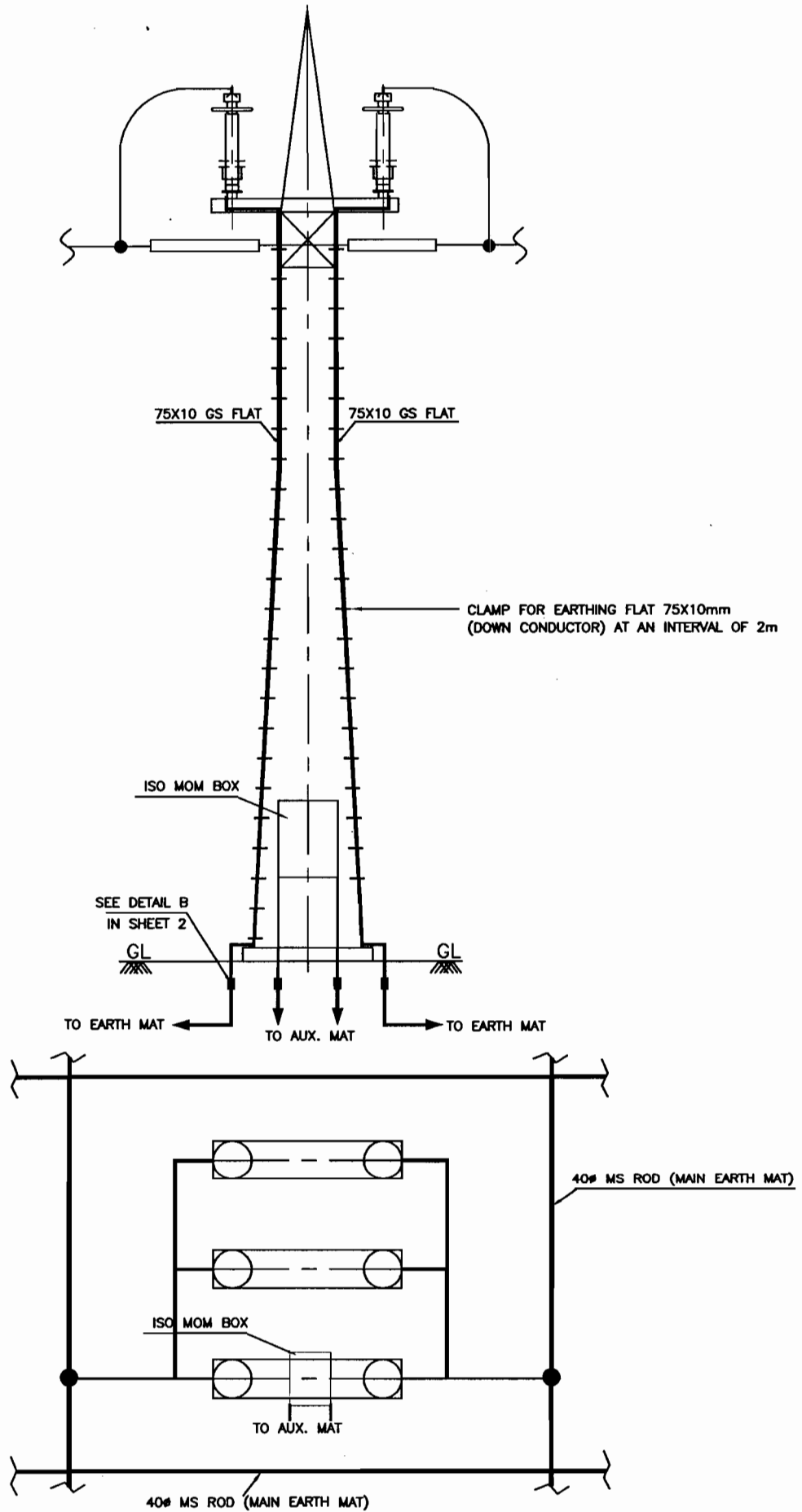
EQUIPMENT EARTHING DETAILS 245kV HORIZONTAL CENTER BREAK ISOLATOR (TYPICAL) WITHOUT EARTH SWITCH

COMPUTERREF.NO.

DRG. No.

TB 4 304 509 004

SHEET No.
4A



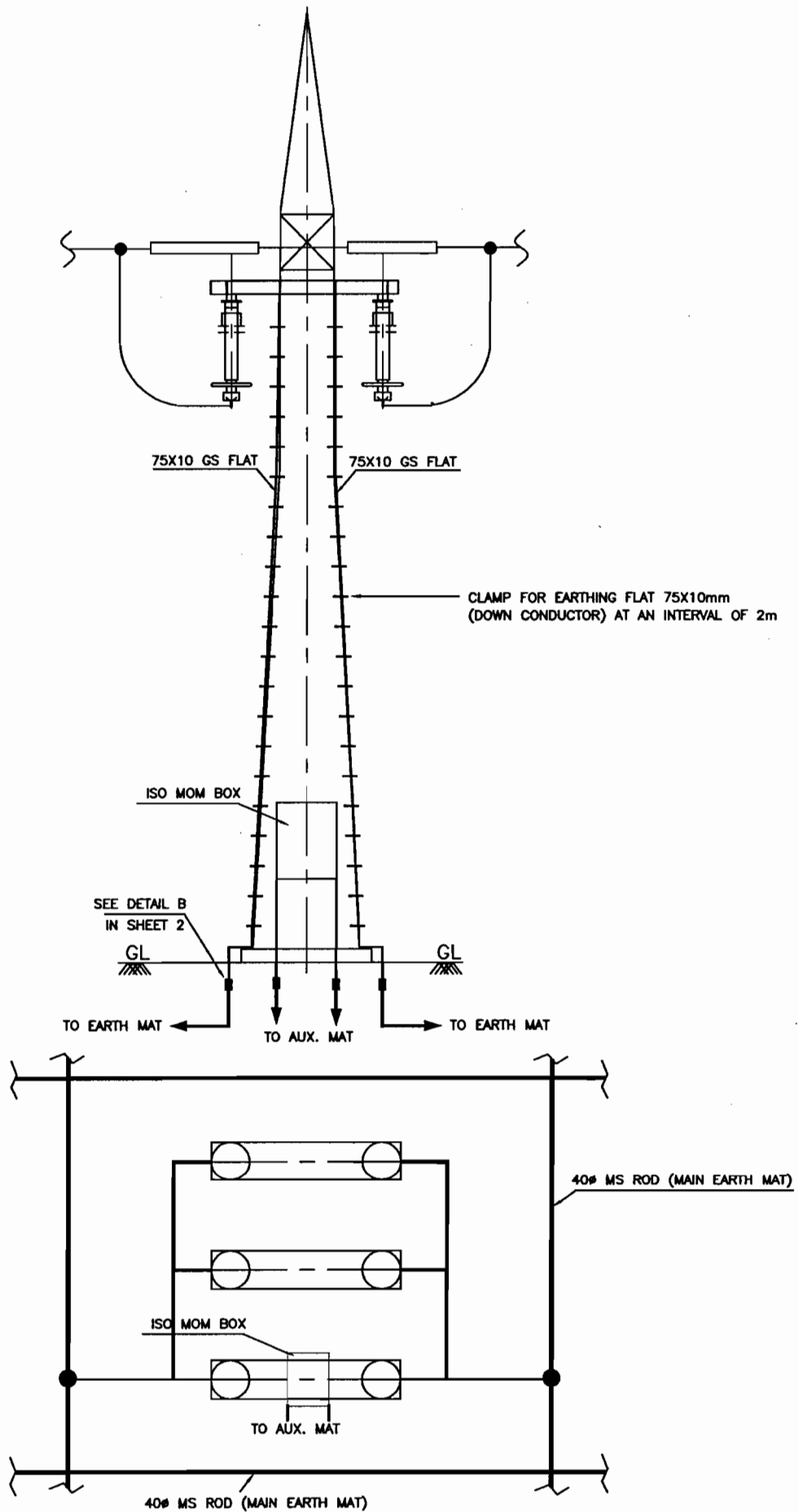
EQUIPMENT EARTHING DETAILS 245kV HORIZONTAL CENTER BREAK UP-RIGHT ISOLATOR (TYPICAL) WITHOUT EARTH SWITCH

COMPUTERREF.NO.

DRG. No.

TB 4 304 509 004

SHEET No.
4B



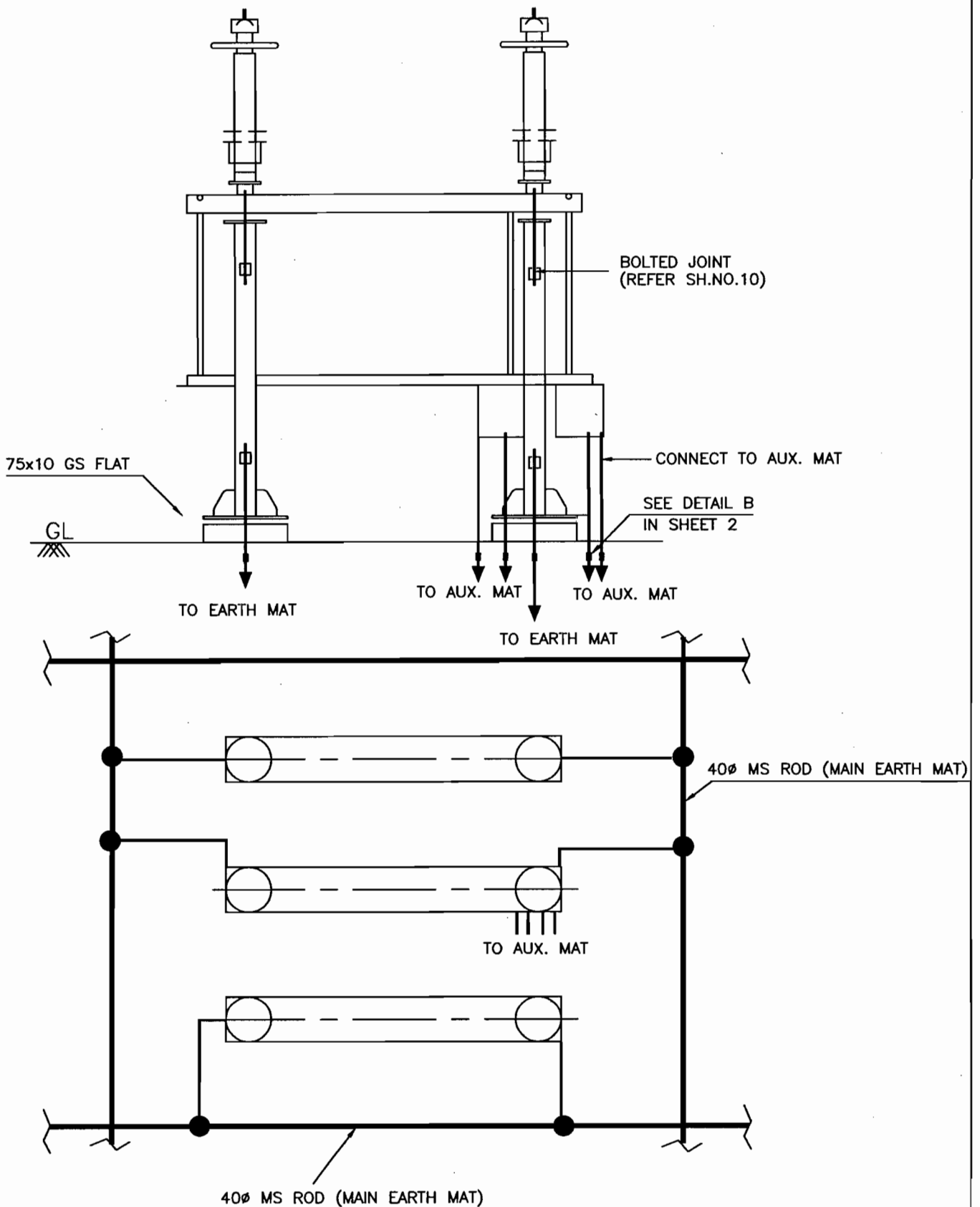
EQUIPMENT EARTHING DETAILS
245kV HORIZONTAL CENTER BREAK
UNDER HUNG ISOLATOR (TYPICAL) WITHOUT EARTH SWITCH

COMPUTERREF.NO.

DRG. No.

TB 4 304 509 004

SHEET No.
4C



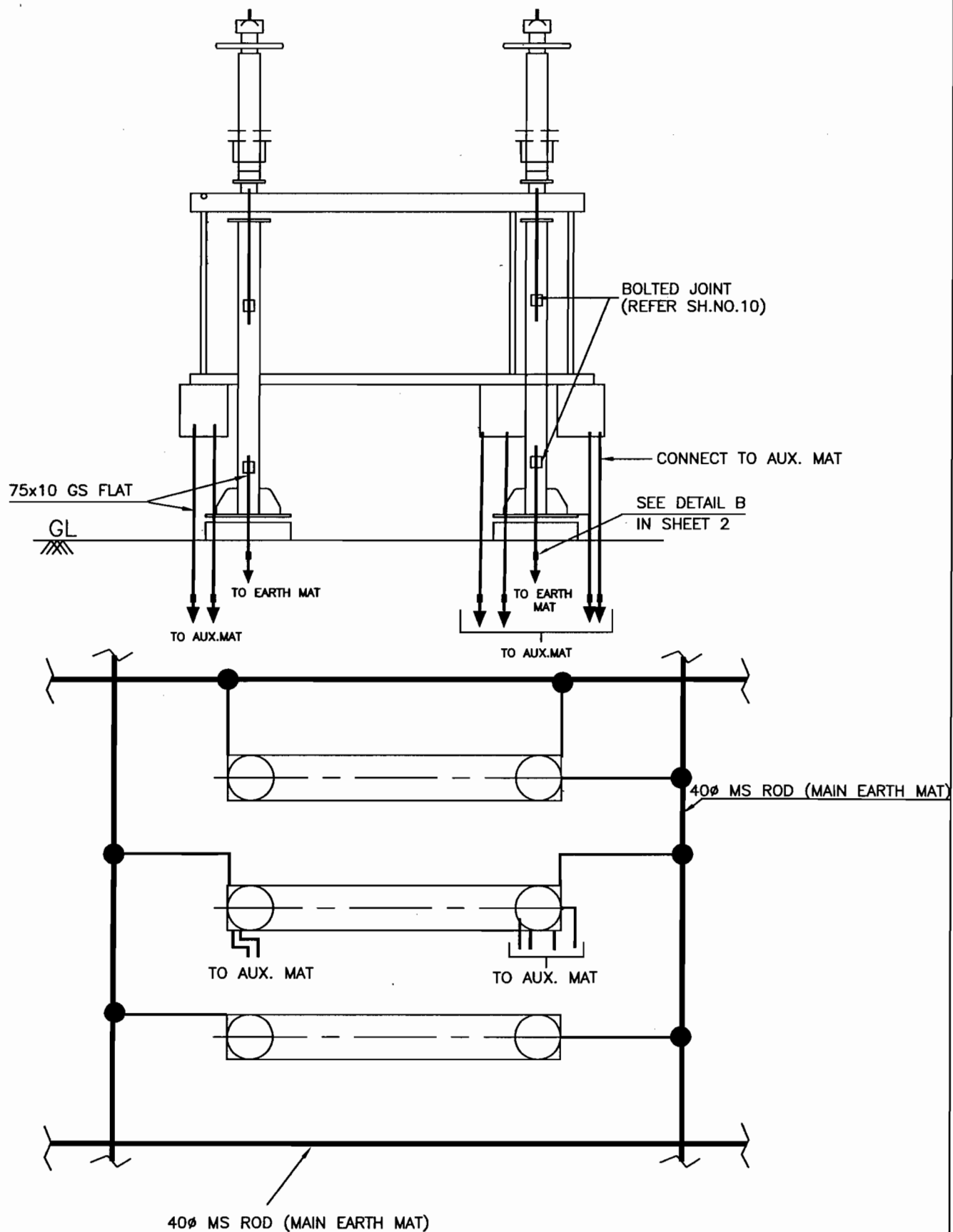
EQUIPMENT EARTHING DETAILS
420/ 245kV HORIZONTAL CENTER BREAK
ISOLATOR (TYPICAL) WITH ONE EARTH SWITCH

COMPUTERREF.NO.

DRG. No.

TB 4 304 509 004

SHEET No.
5



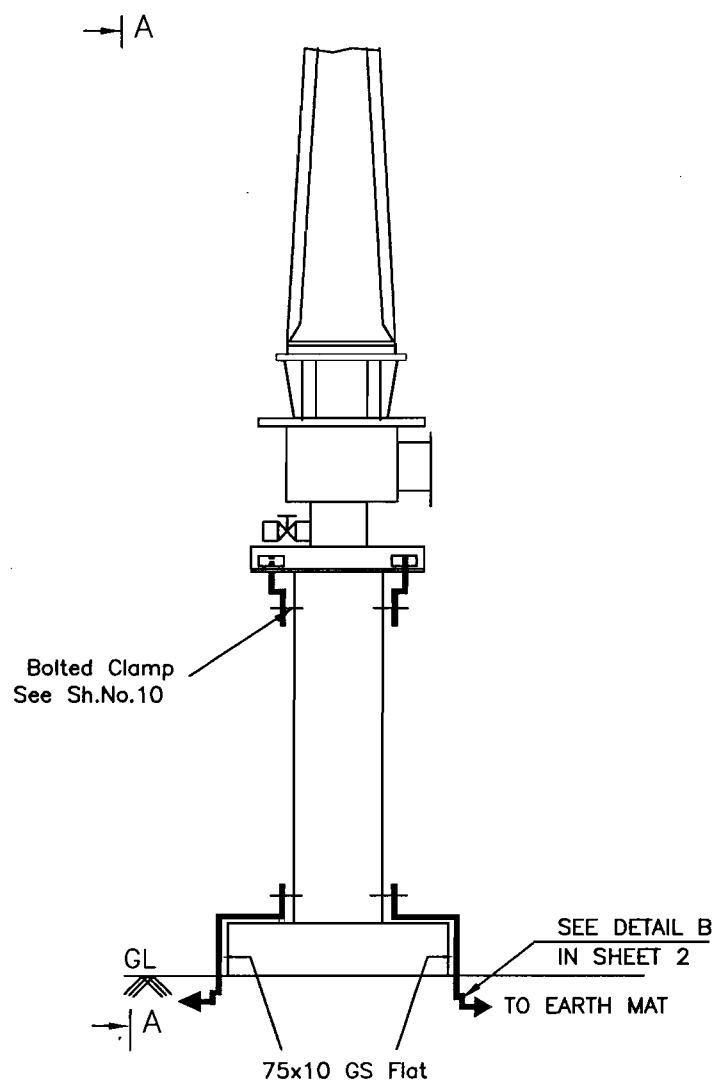
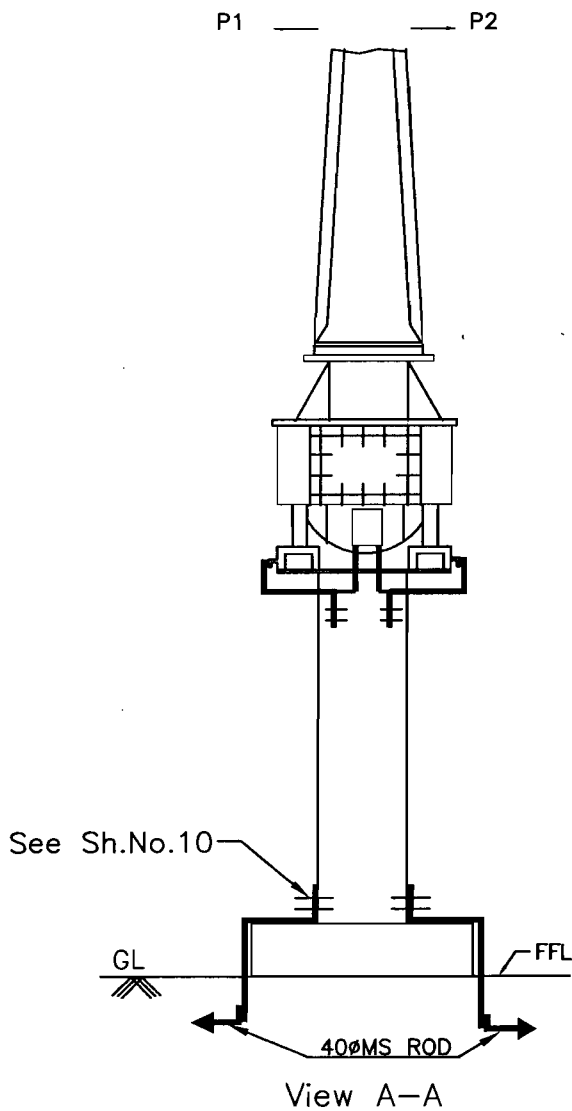
EQUIPMENT EARTHING DETAILS
420/245 kV HORIZONTAL CENTER BREAK
ISOLATOR (TYPICAL) WITH TWO EARTH SWITCHES

COMPUTER REF. NO.

DRG. No.

TB 4 304 509 004

SHEET No.
6



EQUIPMENT EARTHING DETAILS 420/245kV Current Transformer

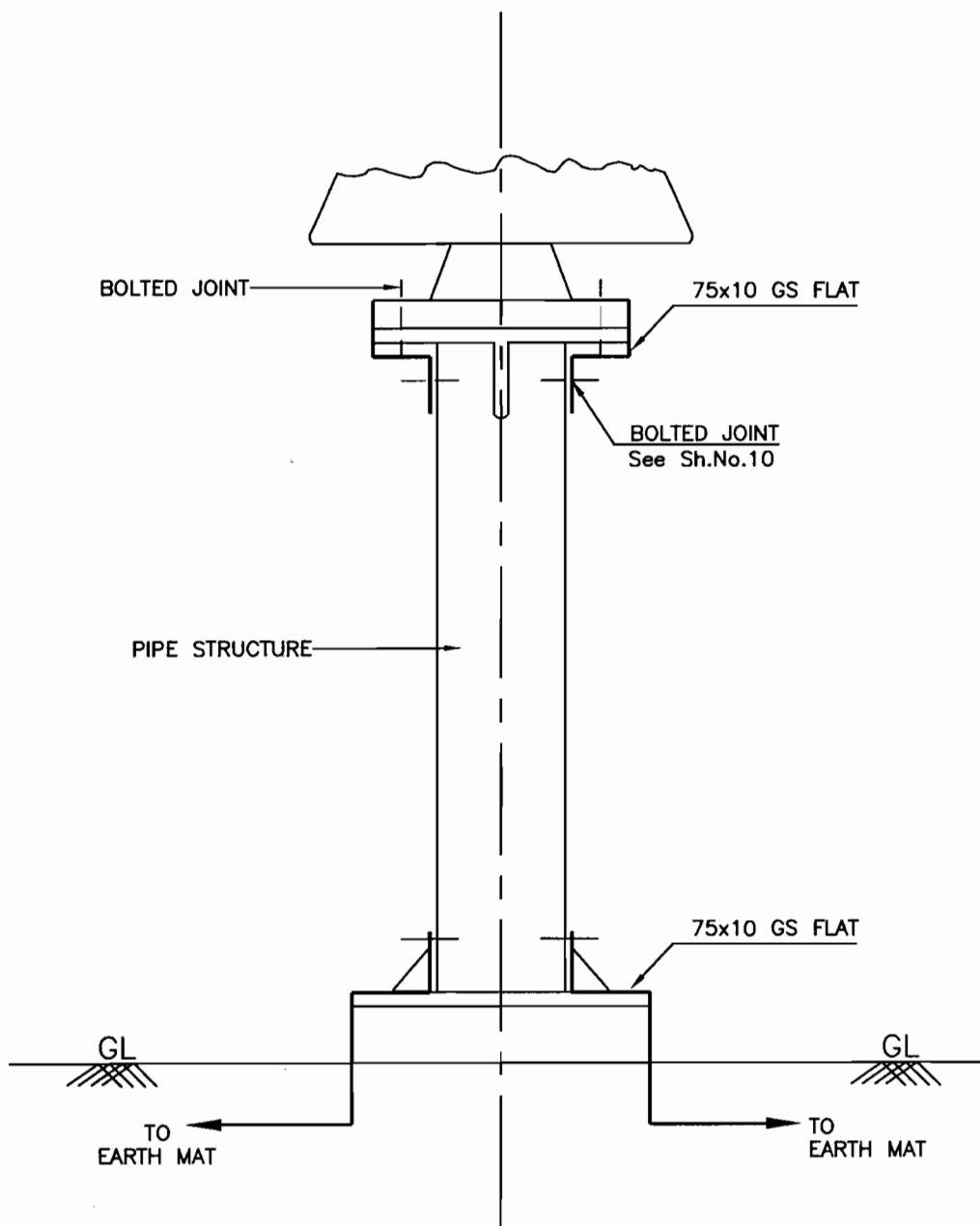
COMPU. DRG. REF.

DRG.NO.

TB 4 304 509 004

SHEET No.

7



EQUIPMENT EARTHING DETAILS

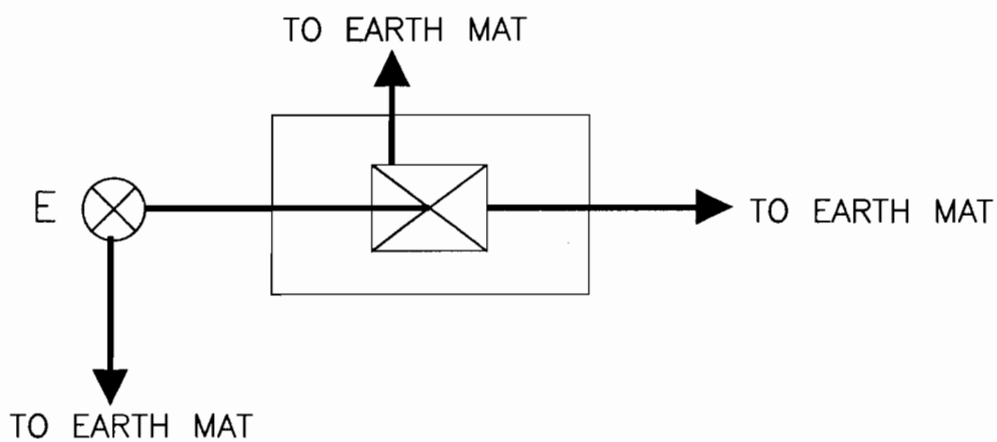
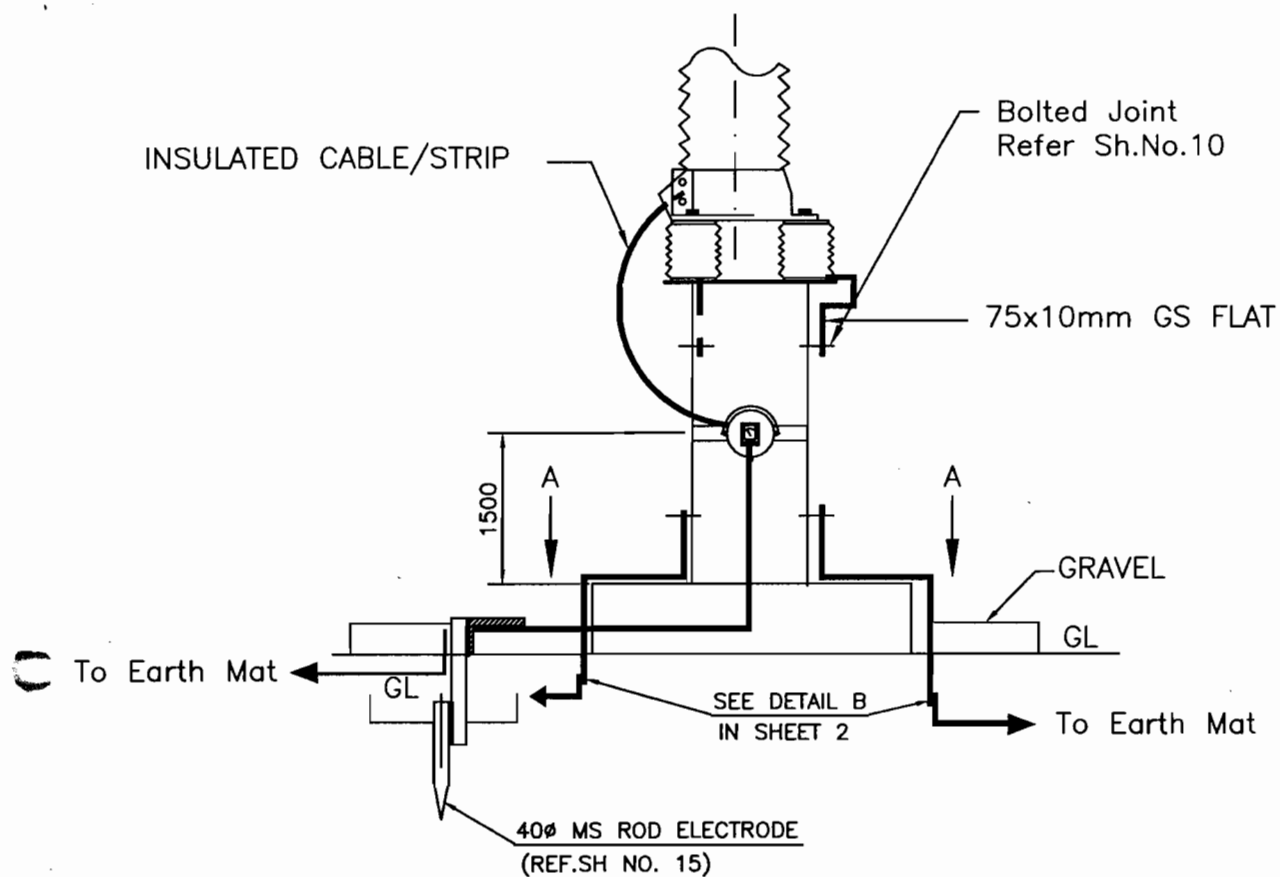
420/245kV POST INSULATOR EARTHING (SOLID CORE TYPE)

COMPUTER REF. NO.

DRG. No.

TB 4 304 509 004

SHEET No.
8



VIEW A-A

NOTES;

LA SHALL BE EARTHED THROUGH EARTH TERMINAL OF SURGE COUNTER



EQUIPMENT EARTHING DETAILS
360kV & 198kV LIGHTNING ARRESTER

COMPU. DRG. REF.

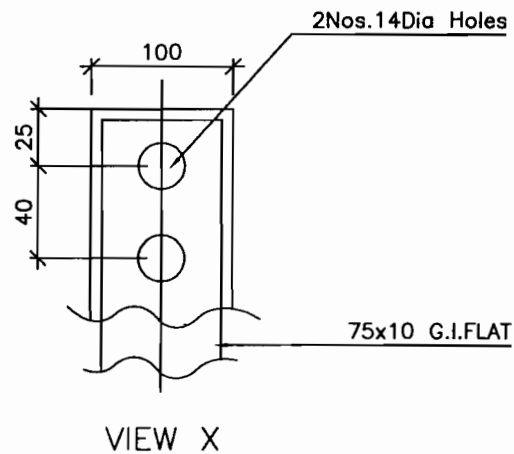
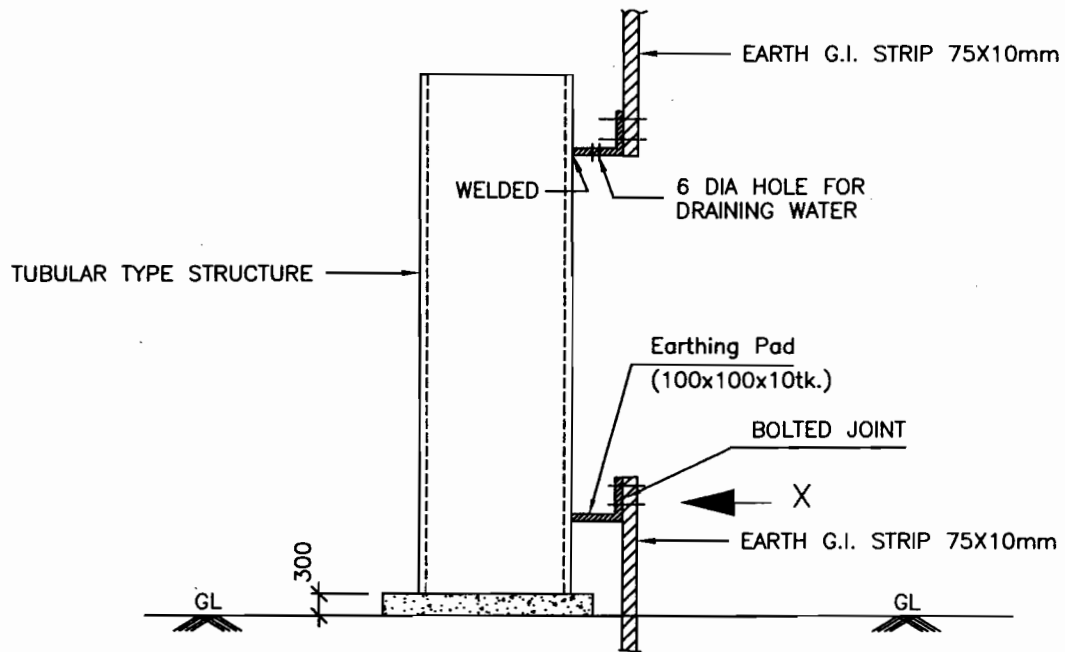
DRG.NO.

TB 4 304 509 004

REV

SHEET No.

9



EQUIPMENT EARTHING DETAILS
FIXING ARRANGEMENT OF EARTH STRIP
CLAMP FOR TUBULAR TYPE STRUCTURE

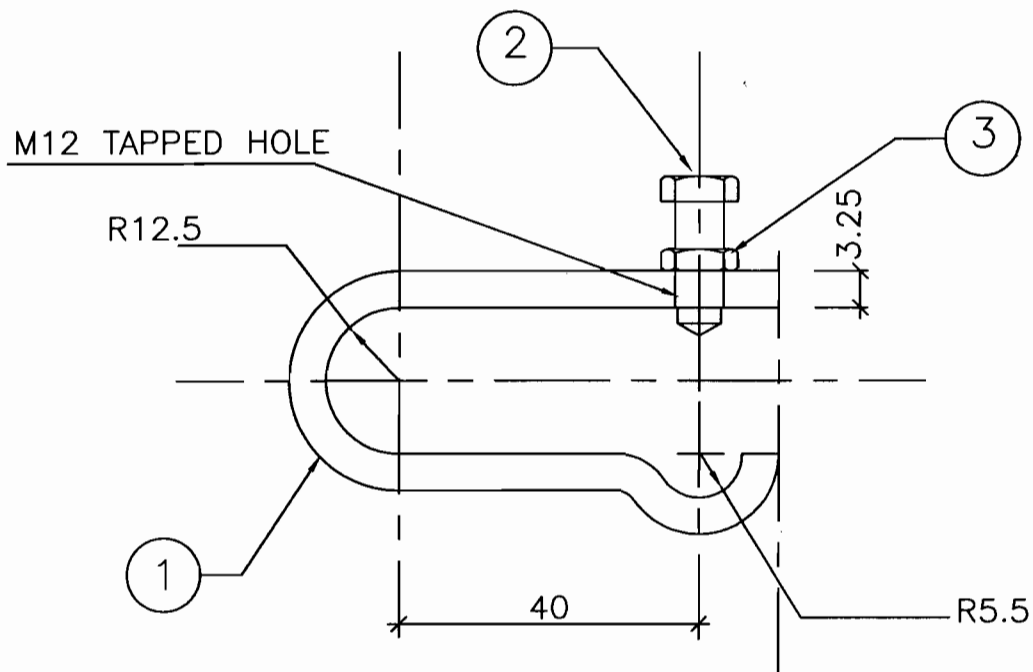
COMPUTER REF. NO.

DRG. No.

TB 4 304 509 004

SHEET No.
10

ITEM	BILL OF MATERIAL	QTY.	REMARK
1.	3x25x128mm lg MILD STEEL FLAT	1	HOT DIP GALV.
2.	BOLT HEX B M12x50	1	H.D. GALV.
3.	LOCK NUT HEX B M12	1	H.D. GALV.

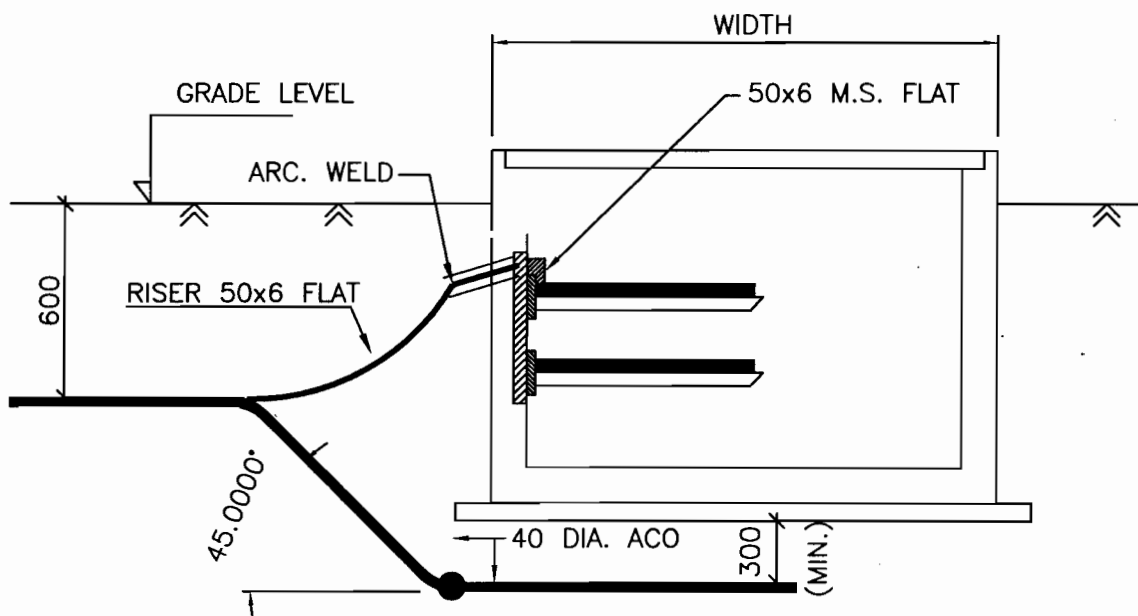
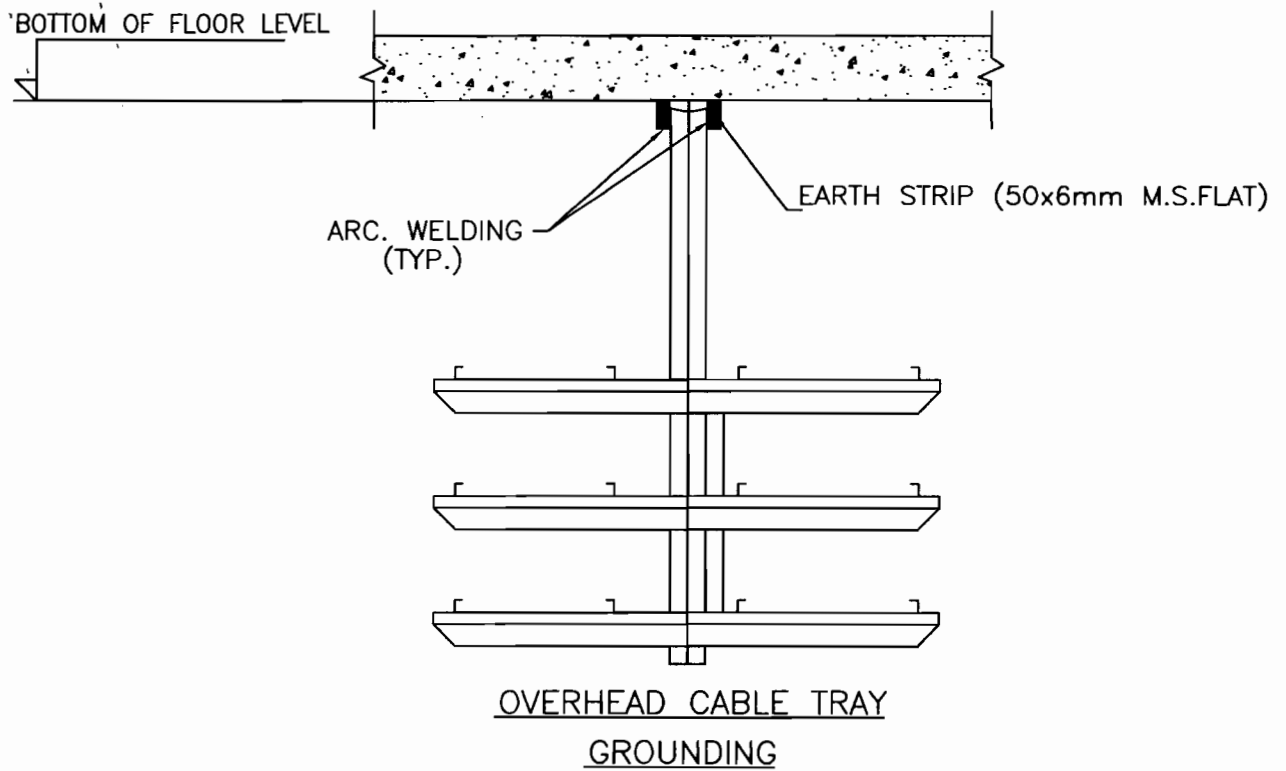


CLAMP FOR VERTICAL MOUNTING OF
7/9 SWG WIRE ON STEEL COLUMNS



EQUIPMENT EARTHING DETAILS

CLAMP FOR VERTICAL MOUNTING OF 7/9 SWG WIRE ON STEEL COLUMNS



NOTE:

1. ALL TRENCHES SHALL BE EARTHED AT AN INTERVAL OF 10M ALONG THE LENGTH OF TRENCH & FREE ENDS.
2. THE EARTH STRIP (50x6 M.S. FLAT) SHALL BE WELDED TO EMBEDDED PLATE AT EVERY 0.75M INTERVAL & CONTROL ROOM AT EVERY 2M INTERVAL
3. THE CABLE RACKS ARE PROVIDED ON BOTH SIDES OF THE TRENCH, BOTH SIDES SHALL BE EARTHED AS PER ABOVE.
4. CABLE EARTHING WILL BE DONE AS PER SPECIFICATION.



EQUIPMENT EARTHING DETAILS

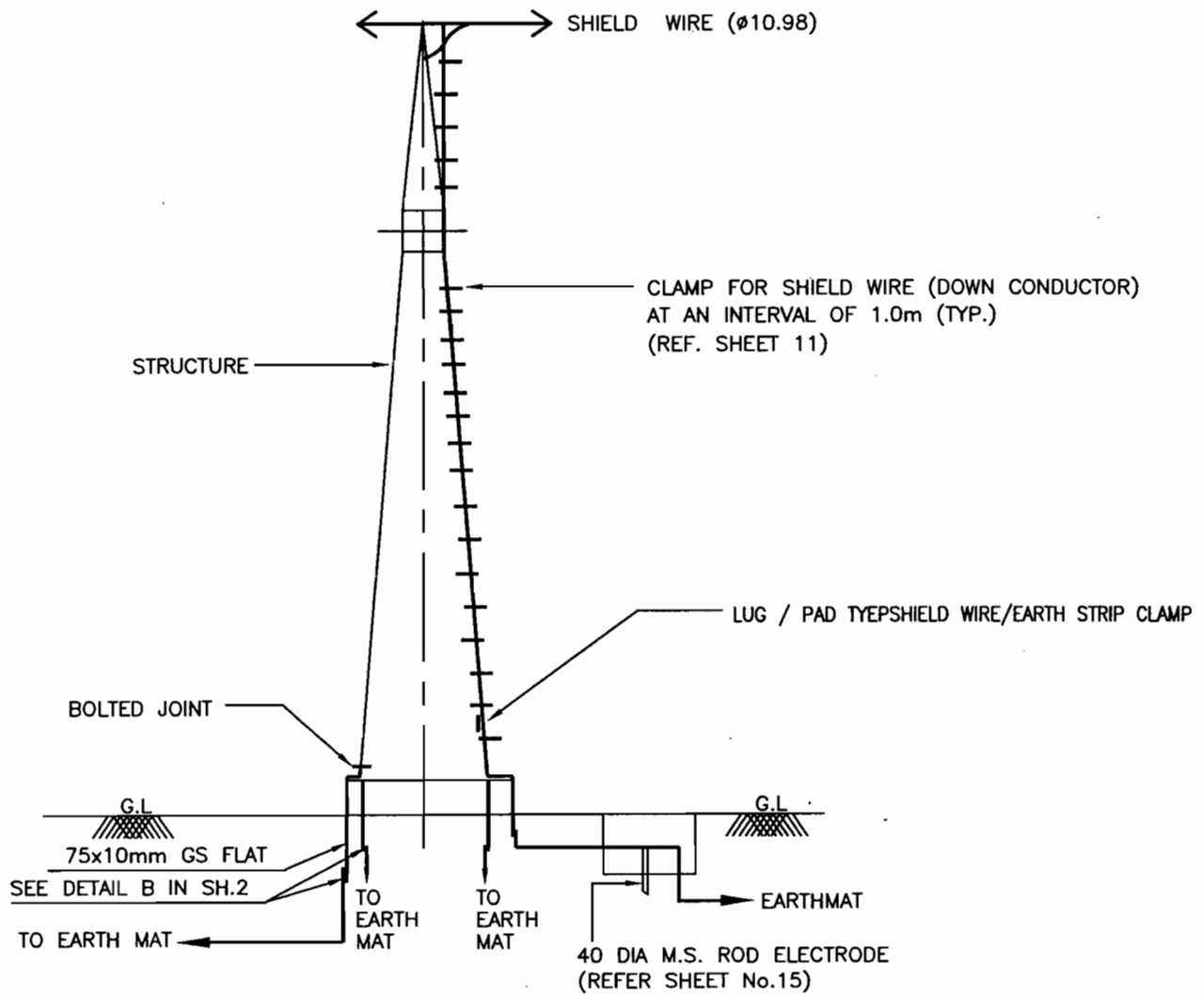
CABLE TRENCH EARTHING

COMPU. DRG. REF.

DRG. NO.

TB 4 304 509 004

SHEET
12



EQUIPMENT EARTHING DETAILS

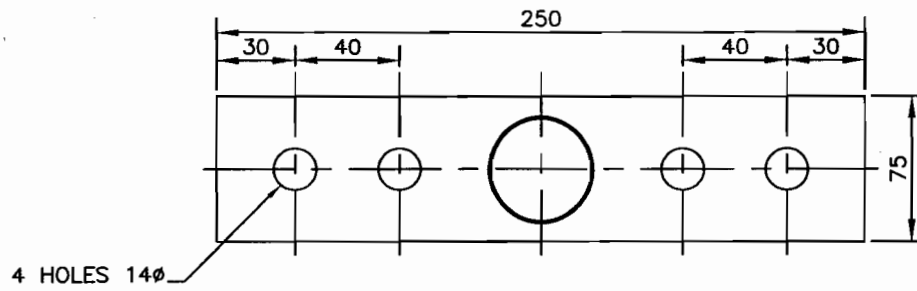
SHIELD WIRE TOWER EARTHING

COMPUTER REF. NO.

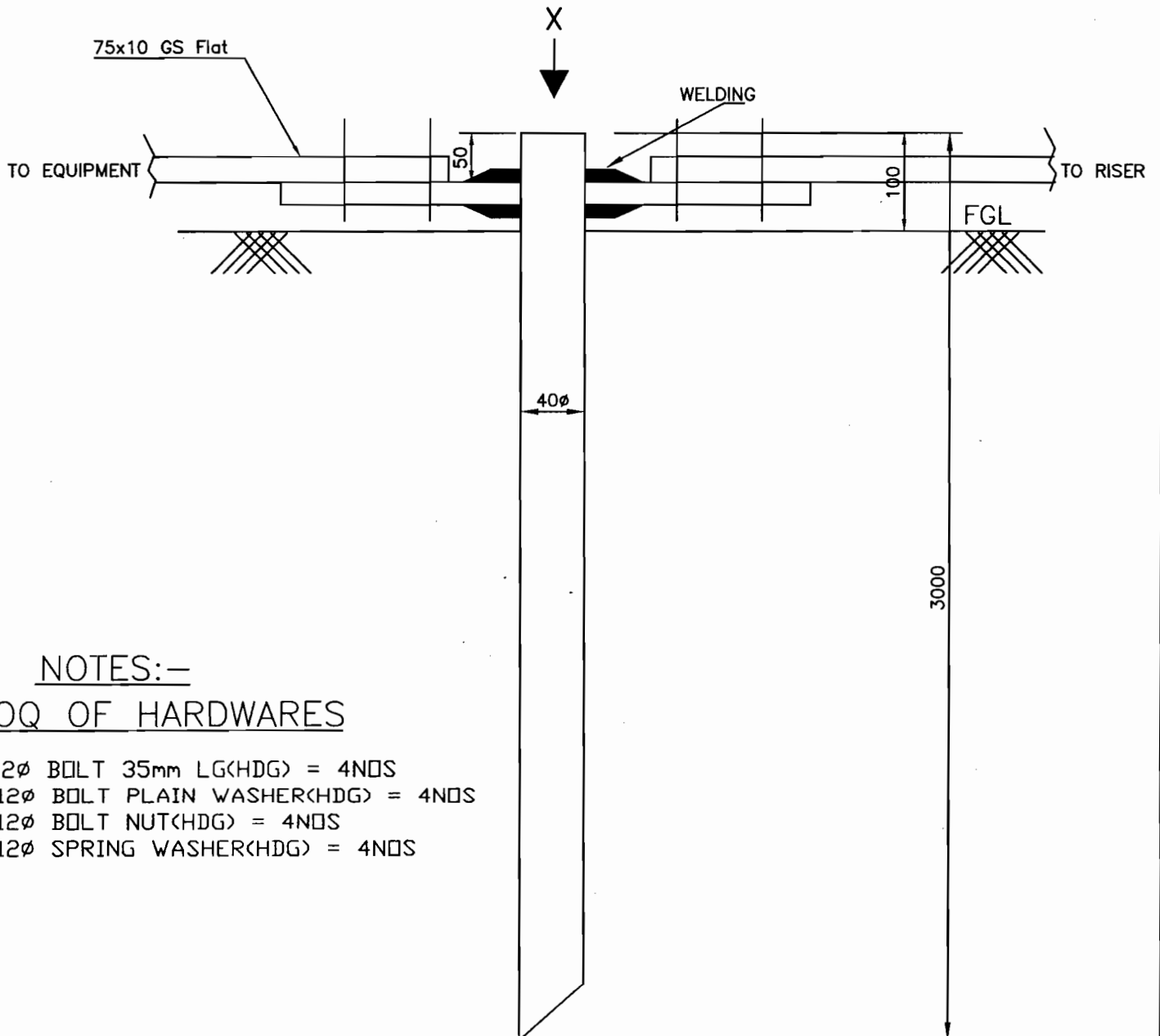
DRG. No.

TB 4 304 509 004

SHEET No.
13



DETAIL-X



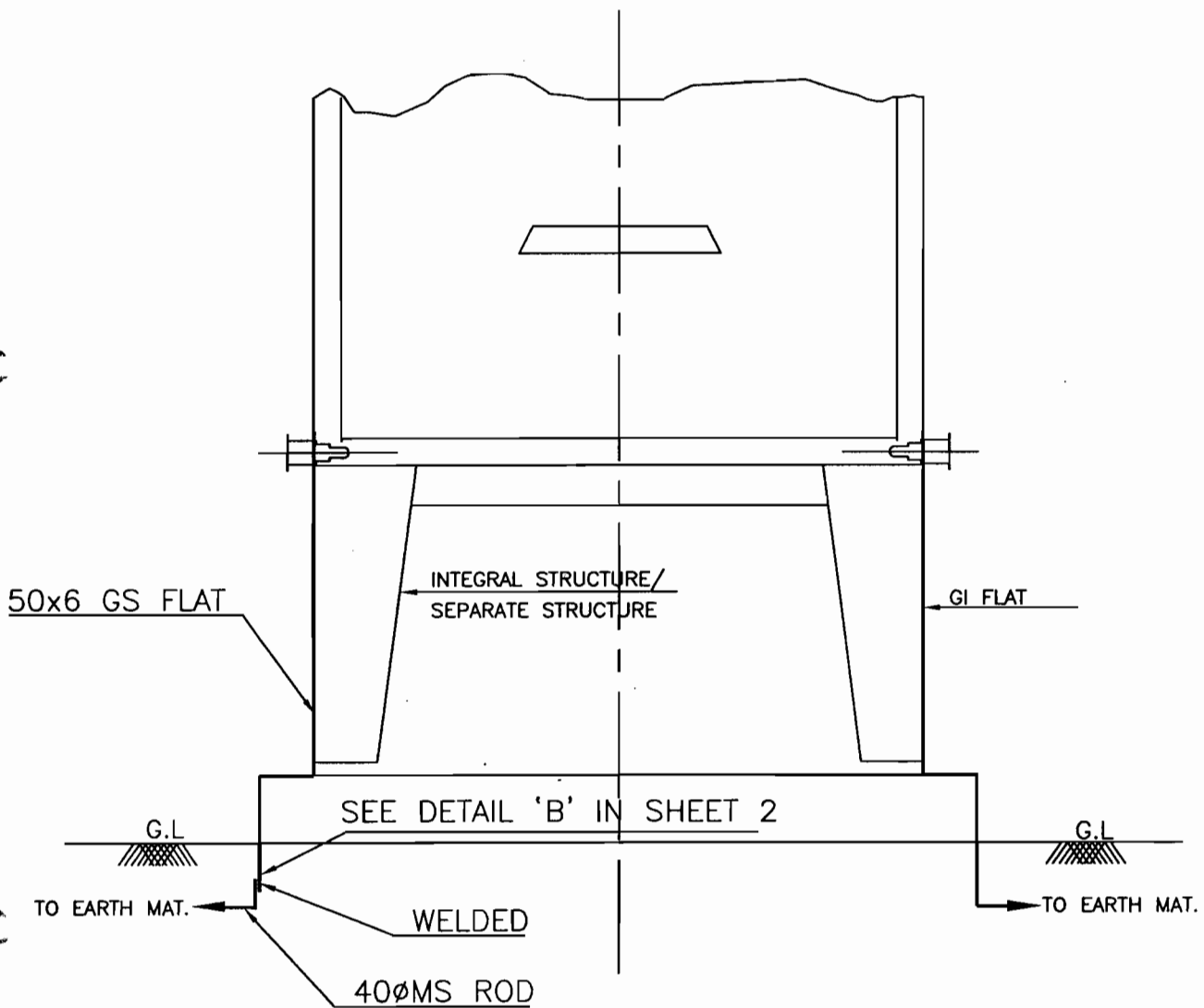
NOTES:-

BOQ OF HARDWARES

1. M 12Ø BOLT 35mm LG(HDG) = 4NOS
2. M 12Ø BOLT PLAIN WASHER(HDG) = 4NOS
3. M 12Ø BOLT NUT(HDG) = 4NOS
4. M 12Ø SPRING WASHER(HDG) = 4NOS



EQUIPMENT EARTHING DETAILS
DRIVEN IN ROD ELECTRODE



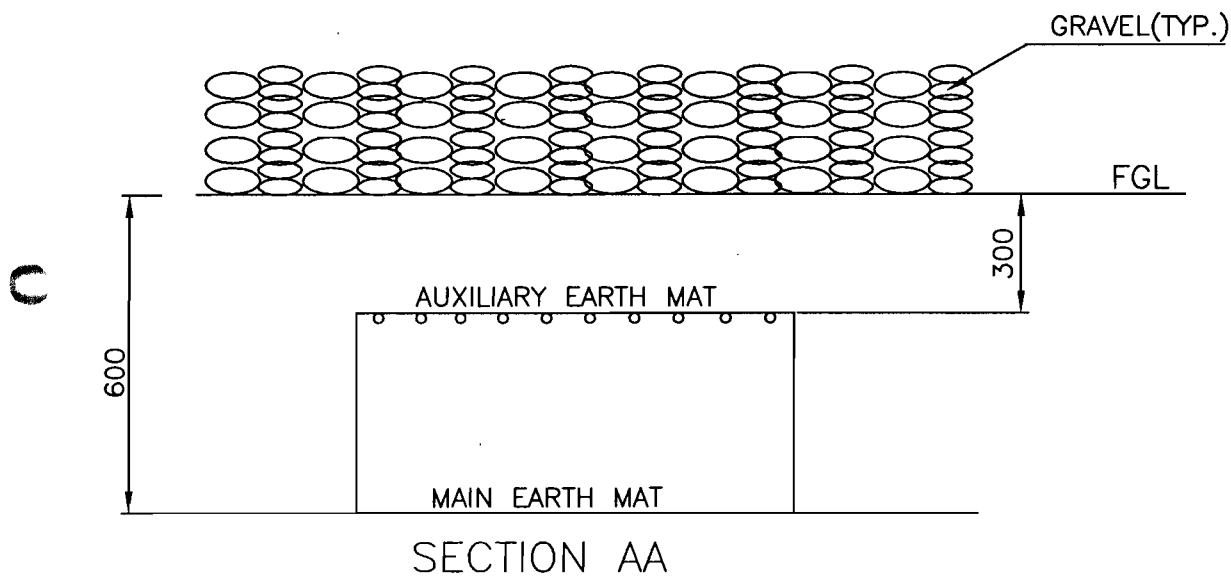
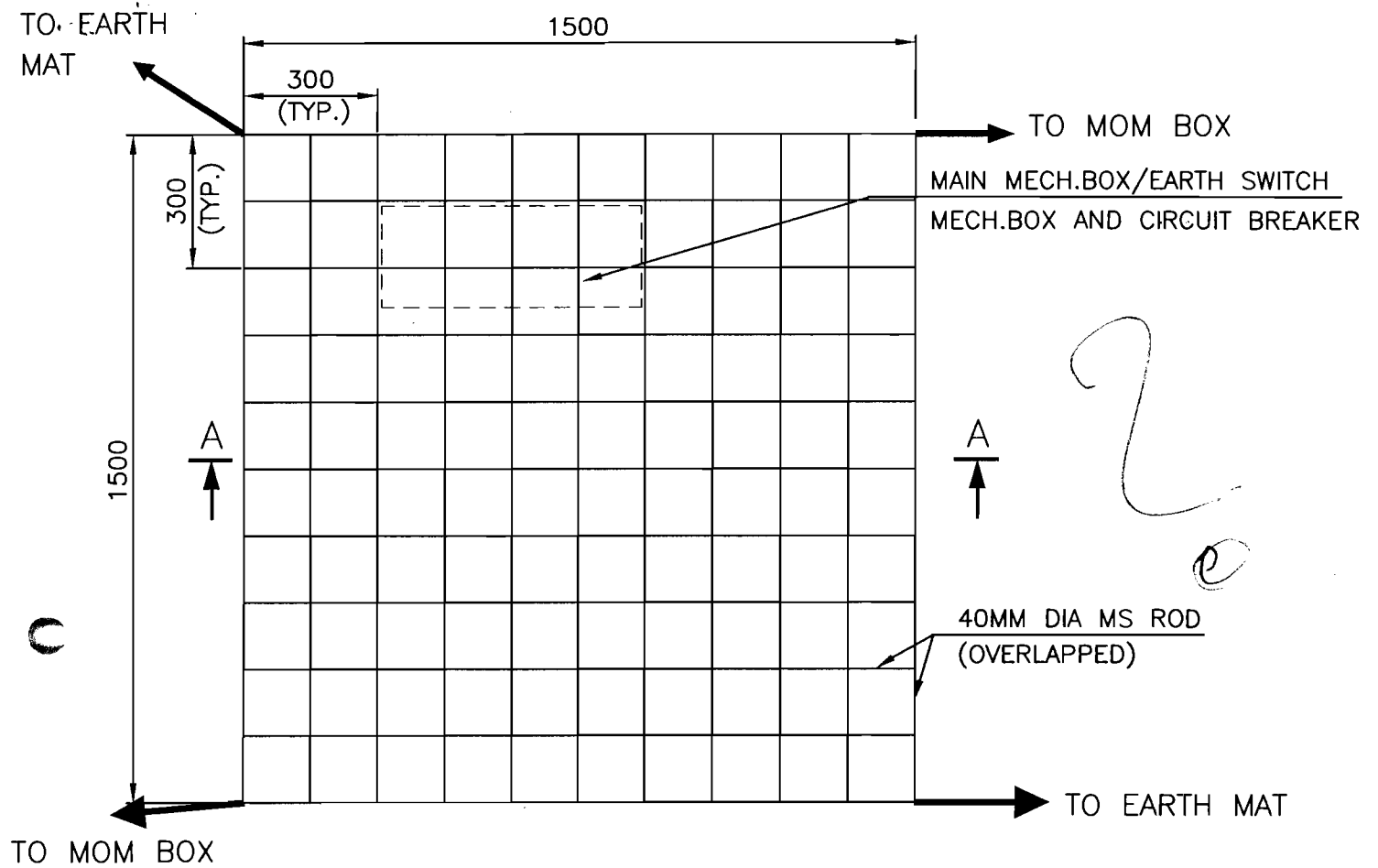
EQUIPMENT EARTHING DETAILS MARSHALLING KIOSK EARTHING

COMPUTERREF.NO.

DRG. No.

TB 4 304 509 004

SHEET No.
16



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.



EQUIPMENT EARTHING DETAILS
AUXILIARY EARTH MAT FOR ISOLATOR MAIN MECH., E/S MECH.
AND CIRCUIT BREAKER CONTROL CUBICLE

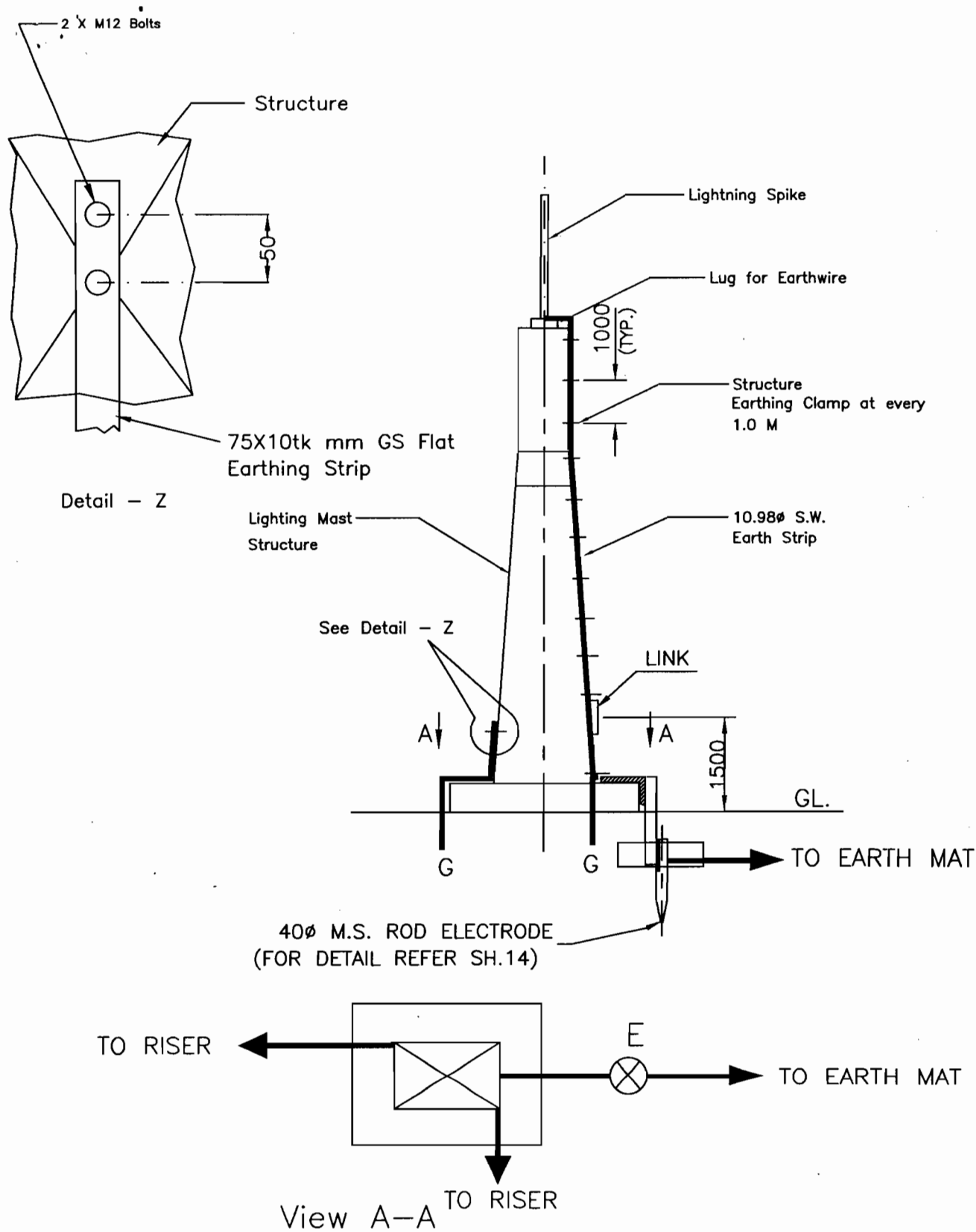
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Report No.

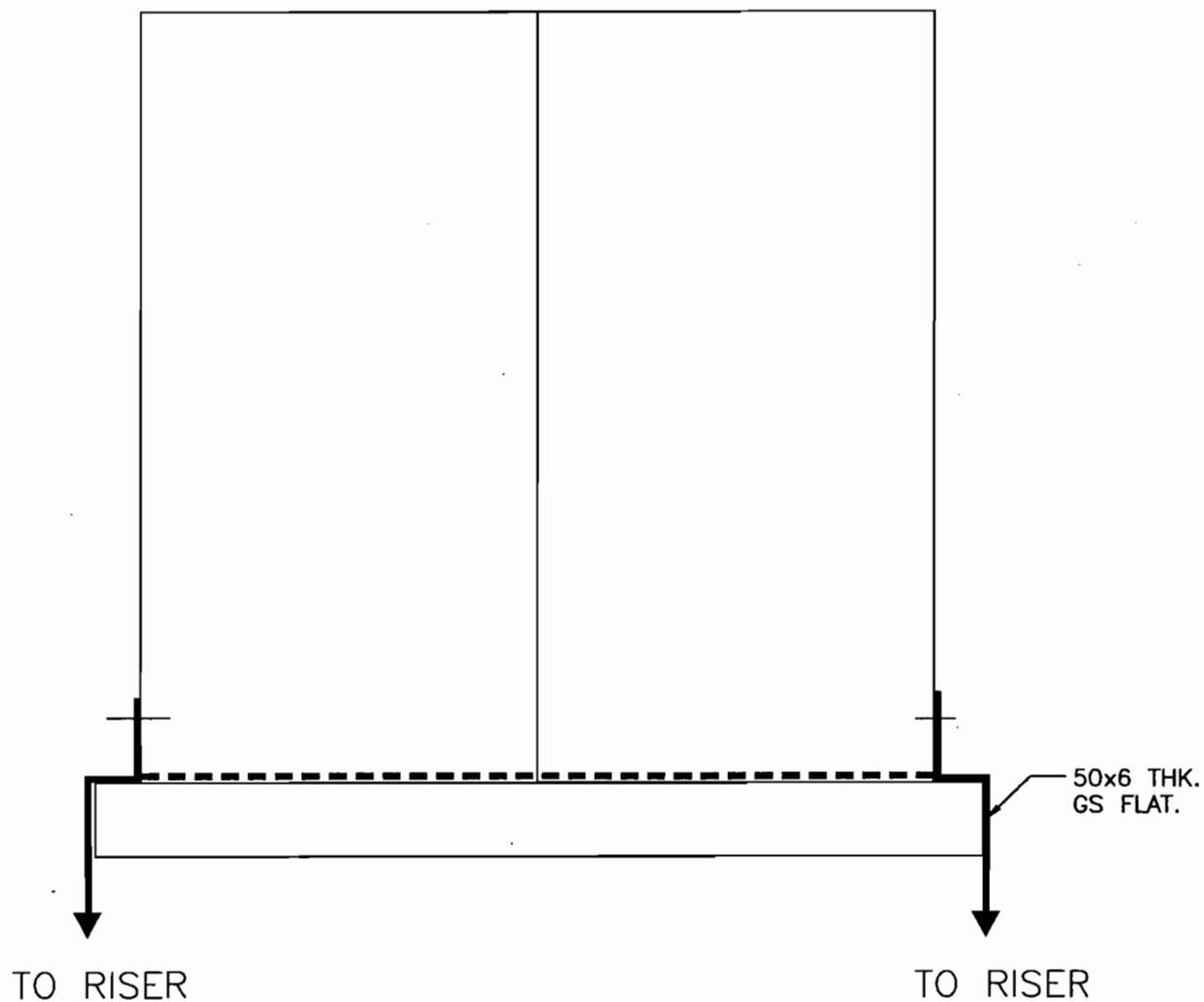
TB 4 304 509 004

SHEET No.

17



EQUIPMENT EARTHING DETAILS Lightning Mast



NOTE:

FLEXIBLE EARTHING CONDUCTOR BETWEEN DOOR, PANEL &
GLAND PLATE ARE SHOWN IN OGA DRAWINGS.



EQUIPMENT EARTHING DETAILS PANELS EARTHING

COMPU. DRG. REF.

Report No.

TB 4 304 509 004

SHEET No.

19



TRANSMISSION PROJECT
DIVISION

ENGINEERING MANAGEMENT

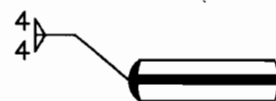
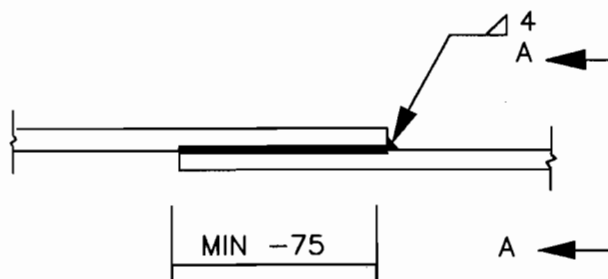
PROCESS SPECIFICATION WELDING DETAILS-2

TB 4 304 001

SHEET : 21

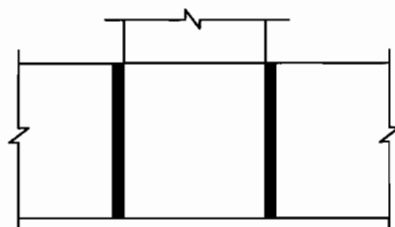
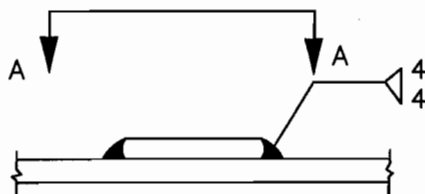
C. STRIP TO STRIP (FOR 50x6 G.S. FLAT OR M.S. FLAT)

1. STRAIGHT LAP JOINT/RISER



VIEW-A-A

2. CROSS LAP JOINT



VIEW A-A

NOTE :- NO JOINT SHALL BE PERMITTED IN 75x10mm GI FLAT.

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REVISION NO.				PREPARED	CHECKED				
DATE									
REVISION NO.								APPROVED	
DATE								HEAD TBEM	