



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)

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AMENDMENT NO- 1 TO NIT

DATE: 07.07.08

SUB : AMENDMENT- 01 To NIT 4768 For Civil Works

REF: TENDER SPEC. No. – TBSM/UKAI/CIVIL/TENDER, Dtd: 09.06.08.

With reference to above tender for Civil Works for 400/220kV substation at Ukai in Gujarat, following amendments/addendums may be noted.

1. Underground Earthing & Electrodes (Annexure-III) BOQ is being added to our civil works BOQ's provided in the subject tender. BOQ & Drawings for underground earthing and electrodes are enclosed.
- Bidders are required to quote as per BOQ (Annexure-III) along with the other BOQ's (Annexure-I & II) provided in tender documents.
 - All other terms & conditions of the tender specifications remain unchanged.
 - Please enclose with your Technical Bid a copy of this amendment-01 duly signed by your authorized signatory and stamped.
 - Vendors, who have already submitted their offer, may submit supplementary Price offer in a sealed cover. This duly signed letter is to be submitted in a separate sealed cover. Both these cover shall be kept in a separate envelope superscribing "**Supplementary price offer due to amendment-01 in NIT**" and also indicating tender specification No.

(R.LODWAL)
SR.DGM/TBSM

ANNEXURE-III

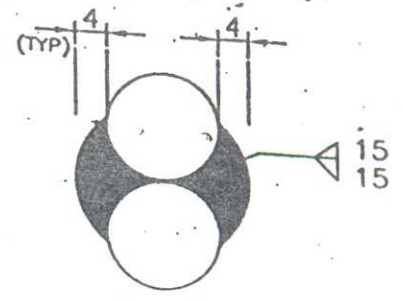
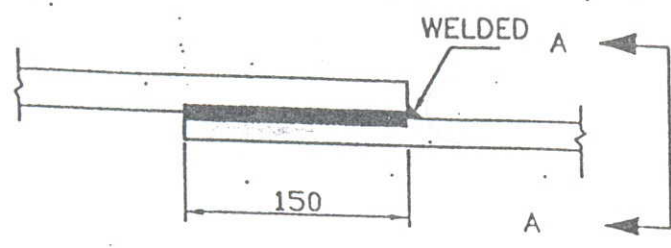
BILL OF QUANTITIES FOR UNDER GROUND EARTHING AND ELECTRODES , REV.00

Name of Project - 1X500MW Unit-6 TPS-400/220kV Substation at Ukai

S. No	Description	Unit	Quantities	Rate	Amount
1	<p>Unloading, storing and laying of 40 mm dia MS Rods at a depth of ----- 600----- mm measured from the top of FGL (either top of gravel or top of land as the case may be) for bringing out risers just below gravel level near the equipment foundations as per requirement including following works:</p> <ul style="list-style-type: none"> - excavation of trenches - laying of MS rod - welding of rods (refer Drg No. TB-STD-316-Rod Welding Rev 00 for Welding details of rods) - backfilling of soil for bringing out pig tail risers of 40 dia MS rod (approximately 2000) for equipments. Risers shall be raised from the earthmat (at 600 mm depth) to 150 mm above ground level to the nearest point of the equipment. This shall include all cutting, bending, welding, fixing, application of zinc rich paint on cutting surface, etc to the main earthmesh. - any other work necessary to complete the laying of earthmat (40 Diameter MS rod will be supplied by BHEL Quantity may vary by +/- --- -40-----% at contract stage.) 	m	400		
2	<p>Fabrication & laying of Auxiliary Mat of 40 mm Dia MS Rods at a depth of 300 mm from top of FGL including excavation & backfilling as per Drg No. TB-STD-316-Auxiliary mat Rev 00.& connection with existing main earthmat</p> <ul style="list-style-type: none"> - any other work necessary to complete the laying of earthmat (40 Diameter MS rod will be supplied by BHEL Quantity may vary by +/- --- -40-----% at contract stage.) 	Nos.	77		
3	<p>Installing of Pipe Electrode(to be driven - 3.0 Mtr) as per Drg. No. TB-STD-316-Pipe Electrode Rev 00 including following works:</p> <ul style="list-style-type: none"> - excavation - installing the pipe electrode with alternate layers of Coke & charcoal, salt - backfilling and compaction - Casting the Test Pit with Cast Iron covers - any other work necessary to complete the work (GI Pipe, Nuts, Bolts & Washers and funnel with wire mesh will be supplies by BHEL. Quantity may vary by +/- -----40-----% at contract stage). 	Nos.	17		
4	<p>Installing of 40 mm diameter Rod Electrode with test pit as per Drg. No. TB-STD-316-Rod Electrode Rev 00 including following works for reactors and transformers:</p> <ul style="list-style-type: none"> - excavation - installing the rod electrode - backfilling and compaction - Casting the Test Pit with Cast Iron covers - any other work necessary to complete the work (40 Diameter MS rod will be supplied by BHEL Quantity may vary by +/- --- -40-----% at contract stage) 	Nos.	0		
5	<p>Installing of 40 mm diameter Rod Electrode without test pit including following works:</p> <ul style="list-style-type: none"> - excavation/hammering of rod in earth - installing the rode electrode - backfilling and compaction - any other work necessary to complete the work <p>(40 Diameter MS rod will be supplied by BHEL Quantity may vary by +/- --- -40-----% at contract stage)</p>	Nos.	12		
Total Amount (Rs.)					

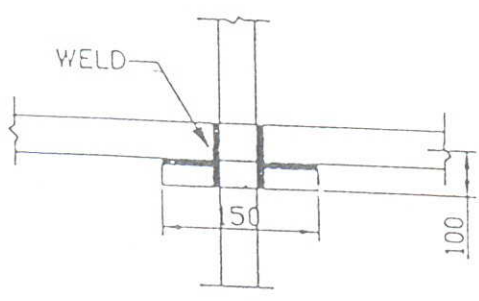
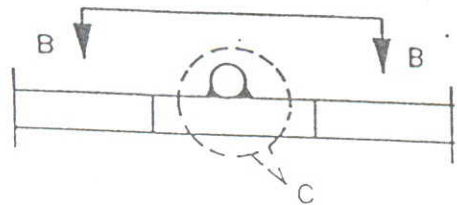
ROD TO ROD

1. STRAIGHT LAP JOINT/RISER

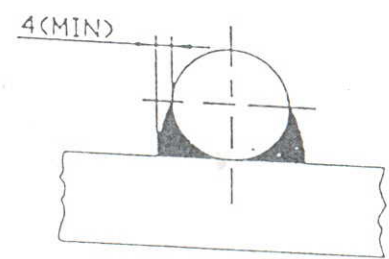


VIEW A-A

2. RIGHT ANGLED JOINT

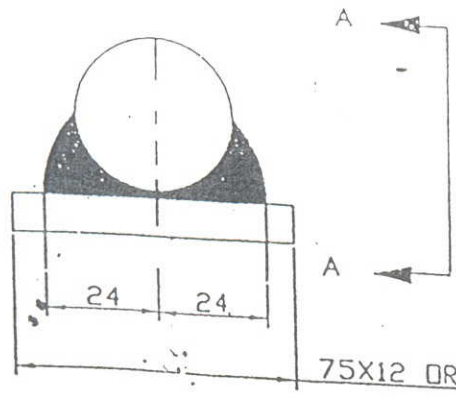


VIEW B-B

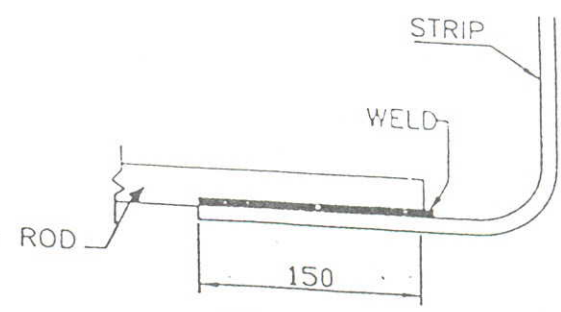


VIEW C

3. ROD TO STRIP



75X12 DR 50X6 GI FLAT



VIEW A-A

EQUIPMENT EARTHING DETAILS

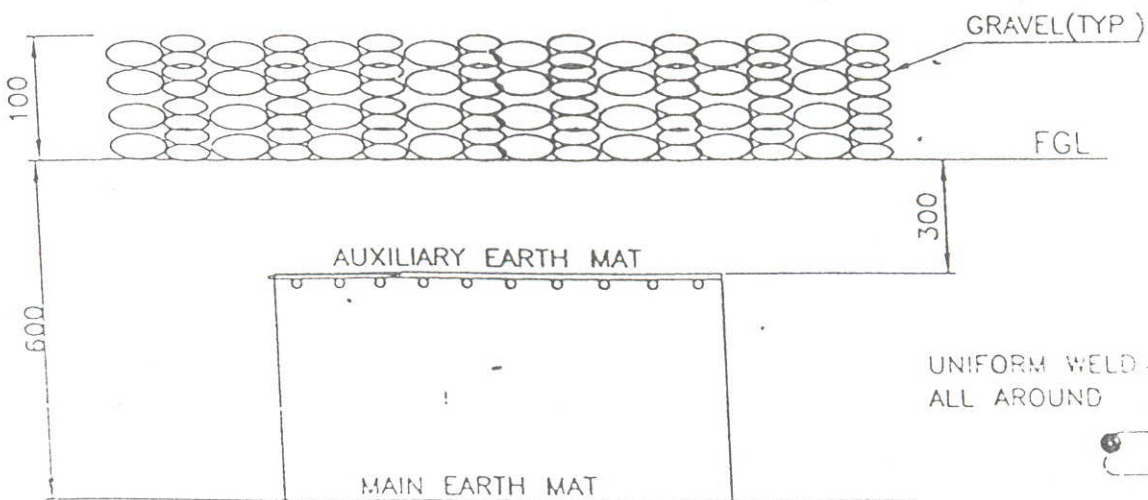
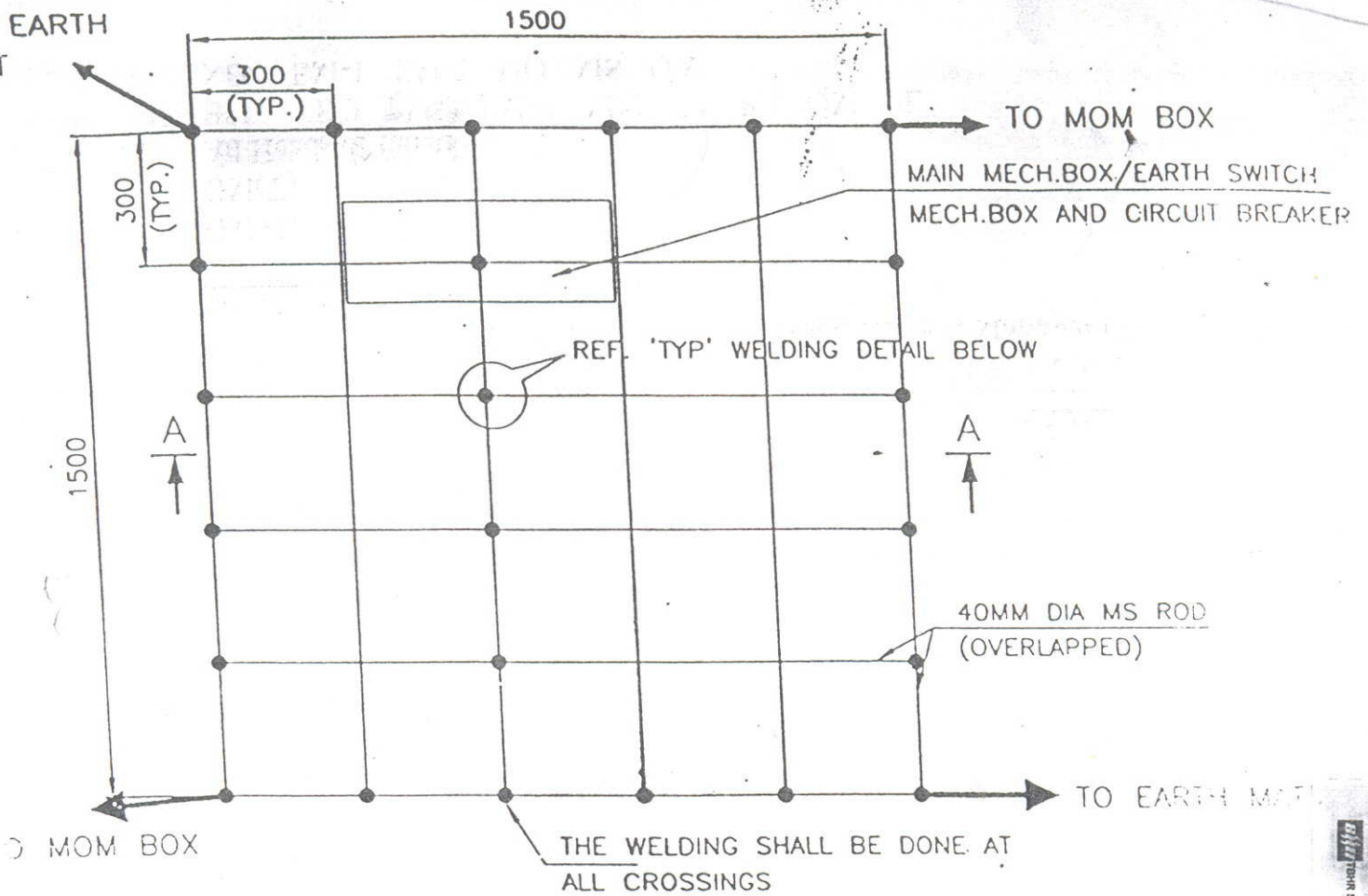


DRG. No.

TB-STD-316-Rod Welding

REV. 00

SHEET No. 00



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.



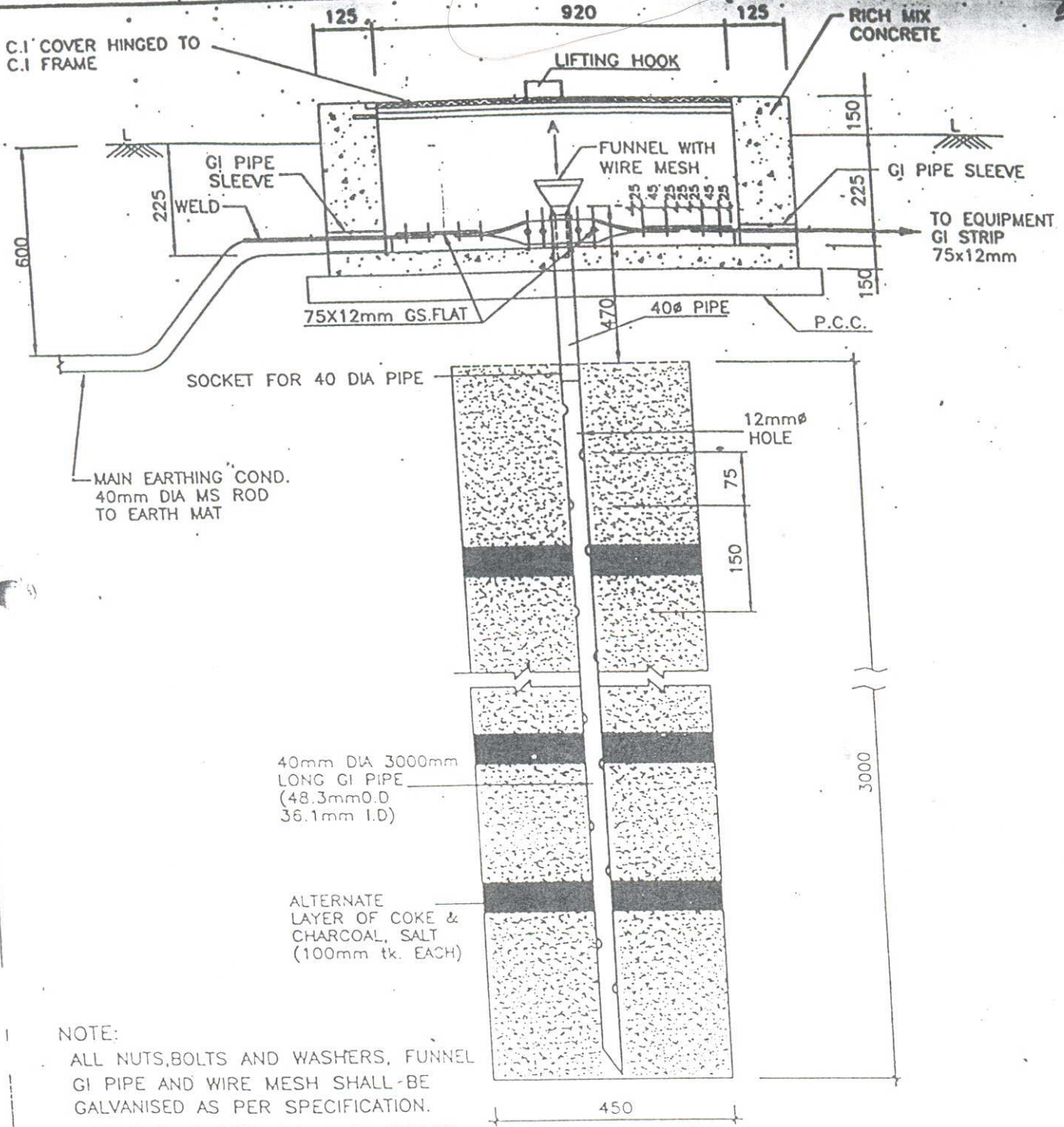
CC MPU. DRC. REF.

Report No

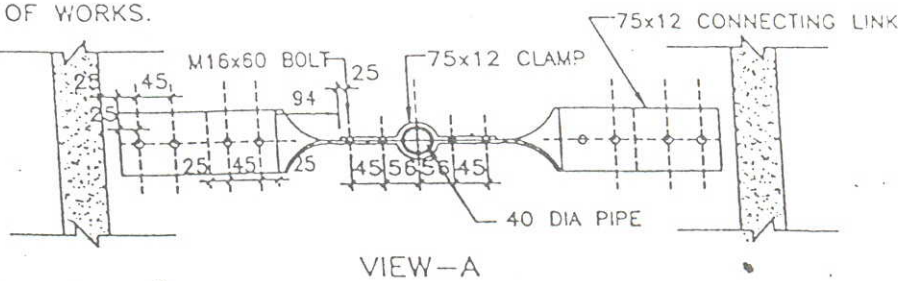
EQUIPMENT EARTHING DETAILS

AUXILIARY EARTH MAT FOR ISOLATOR MAIN MECH. E/S
MECH. BOX & CB (TYP.)

TB-STD-316-Auxiliary Mat.

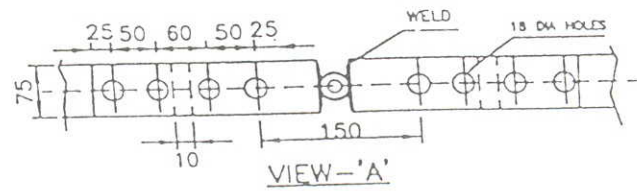
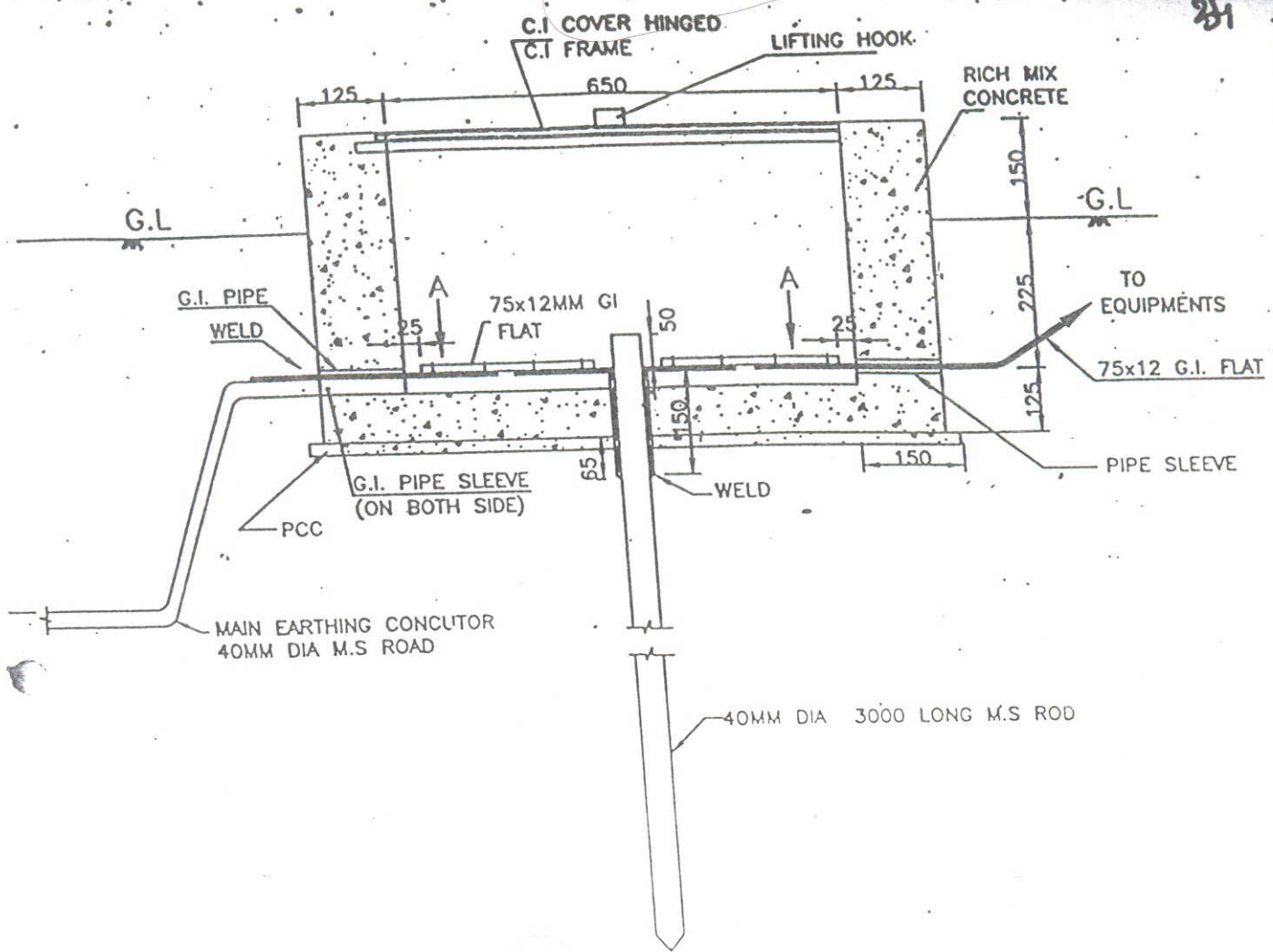


- NOTE:
- ALL NUTS, BOLTS AND WASHERS, FUNNEL, GI PIPE AND WIRE MESH SHALL BE GALVANISED AS PER SPECIFICATION.
 - PIPE SLEEVE ENDS SHALL BE SEALED AFTER COMPLETION OF WORKS.
 - FUNNEL SHALL BE SECURELY HELD TO THE PIPE.



EQUIPMENT-EARTHING DETAILS
 DETAILS OF PIPE EARTH ELECTRODE
 IN TREATED EARTH PIT (ET)





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 PROTECTION SYSTEM.
3. PIPE SLEEVE ENDS SHALL BE SEALED AFTER COMPRETION OF WORK.



EQUIPMENT EARTHING DETAILS
ROD EARTH ELECTRODE WITH TEST PIT

OMPU: DRG. REF. 2

DRG. No.

TB=STD=316=ROD ELECTRODE

REV. 00

SHEET No. 00

TBM/SI/NO/000134/13