

TD-201 Rev No. 00	Form No.		PRODUCT STANDARD HYDERABAD-32 PROJECT ENGINEERING & SYSTEMS DIVISION		PY55002 Rev No. 04 Page 1 of 14																														
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.		<u>Technical Specification for Earth Electrode</u> 1.0 SCOPE Manufacture and supply to site of Earth electrodes. 2.0 APPICABLE STANDARDS IS: 3043 (Latest revisions & amendments are applicable). 3.0 BHEL MATERIAL CODIFICATION: <table border="1" data-bbox="381 701 1325 1266"> <thead> <tr> <th>Var. No.</th> <th>Description of Material</th> <th>BHEL Material Code</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>GI Pipe electrode as per Fig. 1</td> <td>PY9755002014</td> </tr> <tr> <td>02</td> <td>Plate electrode with G.I. strip as per Fig.2</td> <td>PY9755002022</td> </tr> <tr> <td>03</td> <td>Plate electrode with copper strip as per Fig. 3</td> <td>PY9755002030</td> </tr> <tr> <td>04</td> <td>GI Pipe electrode as per Fig. 4</td> <td>PY9755002049</td> </tr> <tr> <td>05</td> <td>MS Rod electrode as per fig. 5</td> <td>PY9755002057</td> </tr> <tr> <td>06</td> <td>Copper Pipe Electrode as per Fig.6, Class-C</td> <td>PY9755002065</td> </tr> <tr> <td>07</td> <td>40mm,4.5M GI Pipe electrode as per Fig. 7</td> <td>PY9755002073</td> </tr> <tr> <td>08</td> <td>100mm dia, 4.2M long C.I pipe electrode 13mm thick as per Fig. 8</td> <td>PY9755002081</td> </tr> <tr> <td>09</td> <td>65mm dia, 6.0M long G.I pipe electrode as per Fig. 9</td> <td>PY9755002090</td> </tr> </tbody> </table> 4.0 TESTS Following tests will be conducted in presence of purchaser/purchaser representative: Inspection of dimensions, finish surface defects, thickness & uniformity of Zinc coating, adhesion test as per provisions of IS2062, 2629, 2633 as applicable on the date of enquiry. Test certificates for the same shall be furnished, establishing the suitability of material, In 6 sets for our records within one week after the inspection. Test certificate for chemical & physical properties of Raw materials i.e Steel Flats/Rods/pipes/plates shall be tested as per IS-2062 from NABL approved lab/government approved laboratory and same shall be made available by vendor at the time of inspection.				Var. No.	Description of Material	BHEL Material Code	01	GI Pipe electrode as per Fig. 1	PY9755002014	02	Plate electrode with G.I. strip as per Fig.2	PY9755002022	03	Plate electrode with copper strip as per Fig. 3	PY9755002030	04	GI Pipe electrode as per Fig. 4	PY9755002049	05	MS Rod electrode as per fig. 5	PY9755002057	06	Copper Pipe Electrode as per Fig.6, Class-C	PY9755002065	07	40mm,4.5M GI Pipe electrode as per Fig. 7	PY9755002073	08	100mm dia, 4.2M long C.I pipe electrode 13mm thick as per Fig. 8	PY9755002081	09	65mm dia, 6.0M long G.I pipe electrode as per Fig. 9	PY9755002090
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Ref. Doc	Revisions : Refer to record of revisions :	Prepared : Sd/- G.Seshu Kiran	Approved : Sd- J.K Pattanaik	Date : 27-04-13																															

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5.0 STANDARD FORMATS: (a) CHECJK LIST FOR BIDDER: (TO BE FILLED BY BIDDER AND SUBMITTED ALONG WITH TECHNICAL OFFER) Enquiry No. Date : Name of the Bidder : Project : Specification No : PY55002, Rev-03 Item : Earth Electrode <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Check point description</th> <th>Bidder Compliance</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Duly signed Deviation Schedule(Technical) enclosed</td> <td>Yes/No</td> </tr> <tr> <td>2.</td> <td>Signed & stamped unpriced price format enclosed</td> <td>Yes/No</td> </tr> <tr> <td>3.</td> <td>Duly signed & stamped Technical Specification</td> <td>Yes/No</td> </tr> </tbody> </table> Note: Bidder shall strictly fill up the check list as applicable and submit along with the offer. No deviation is acceptable in this regard. Without duly signed & stamped checklist, offer shall not be considered for evaluation. ----- BIDDER'S STAMP & SIGNATURE						Sl. No.	Check point description	Bidder Compliance	1.	Duly signed Deviation Schedule(Technical) enclosed	Yes/No	2.	Signed & stamped unpriced price format enclosed	Yes/No	3.	Duly signed & stamped Technical Specification	Yes/No
Sl. No.	Check point description	Bidder Compliance															
1.	Duly signed Deviation Schedule(Technical) enclosed	Yes/No															
2.	Signed & stamped unpriced price format enclosed	Yes/No															
3.	Duly signed & stamped Technical Specification	Yes/No															

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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company. (b) DEVIATION SCHEDULE (TECHNICAL) Enquiry No. Date : Name of the Bidder : Project : Specification No : PY55002, Rev-03 Item : Earth Electrode <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Sl. No.</th> <th style="width: 15%;">Clause.no. & Spec.no</th> <th style="width: 25%;">Description as per specification</th> <th style="width: 10%;">Deviation taken</th> <th style="width: 15%;">Nature of Deviation</th> <th style="width: 25%;">Remarks</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <u>NOTES</u> - Deviation to tender documents, if any, shall be indicated only in this schedule. - Deviations, if any, shall be clearly brought out only in this format. Deviations mentioned / taken elsewhere or in any other format will be ignored. - The vendor, if necessary can attach additional sheets in the same format. - Nature of Deviations shall only be of Design / Manufacturing constraints and non-availability of items / components / makes in market. - No price implications shall be entertained for deviations withdrawn during the technical scrutiny. If any deviations are accepted by BHEL during technical scrutiny then also there will be no price implication. Hence, in no case there will be consideration of Price implications. - Reasons for the deviations shall be specified in the Remarks column. If there are no deviations from the specifications, bidder still has to submit the Deviation Schedule by writing “<u>NO Deviations</u>” in this format. - If the “Deviation Schedule” is not submitted along with the offer, the bidder’s offer is likely to be rejected without any further interaction with the bidder. - Only the accepted deviations in conjunction with the original tender shall constitute the contract document for the award of job to the bidder. (Signature of the Bidder with Seal)							Sl. No.	Clause.no. & Spec.no	Description as per specification	Deviation taken	Nature of Deviation	Remarks												
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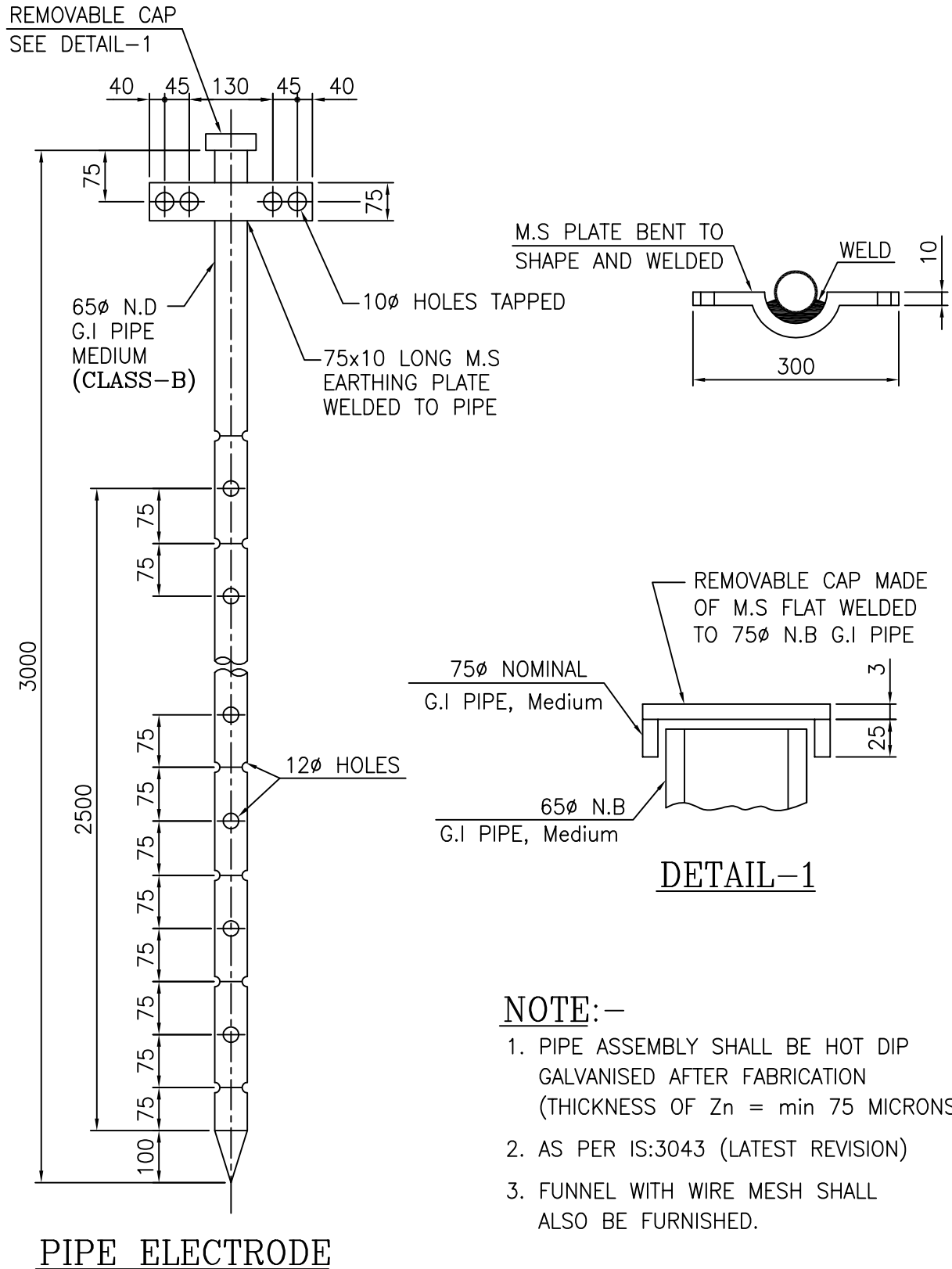


FIG-1

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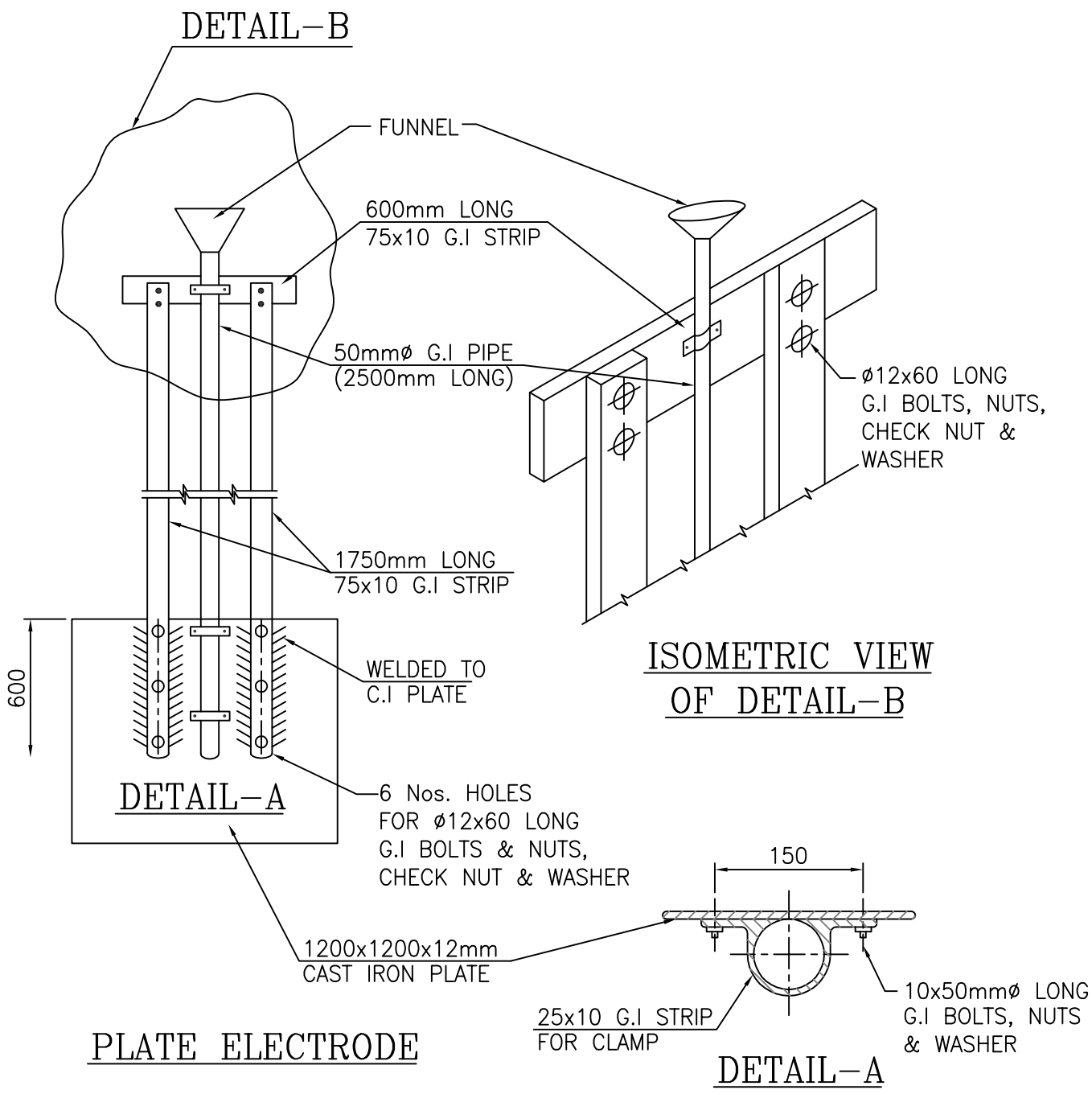


FIG-2

NOTE:-
 FOR HOT DIP GALVANISATION, THE
 THICKNESS OF Zn SHALL BE
 75 MICRONS

NOTE:-
 FUNNEL WITH WIRE MESH AND
 REMOVABLE CAP AS PER DETAIL-1
 OF FIG.-1 SHALL BE PROVIDED
 WITH EACH ELECTRODE.



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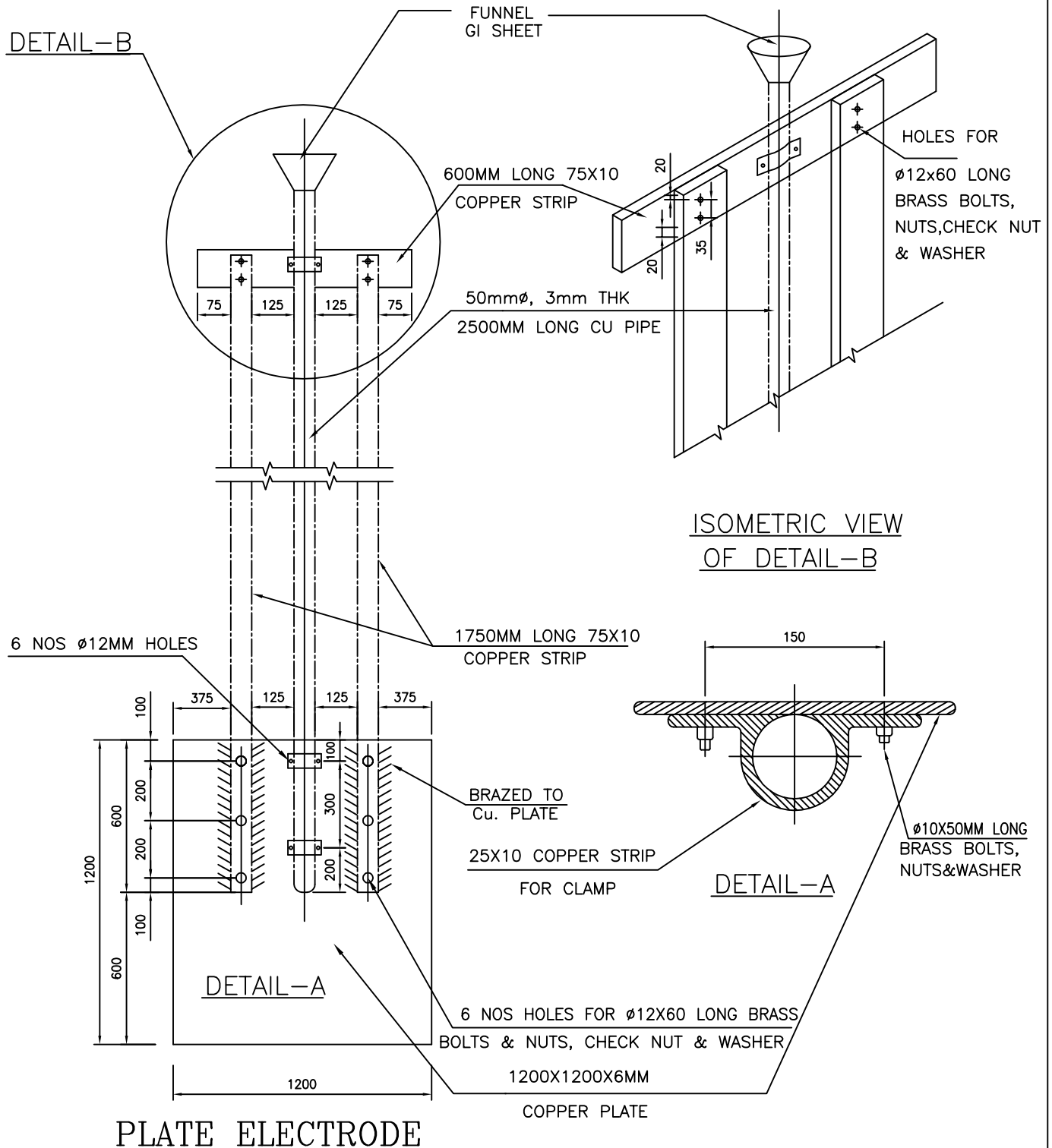


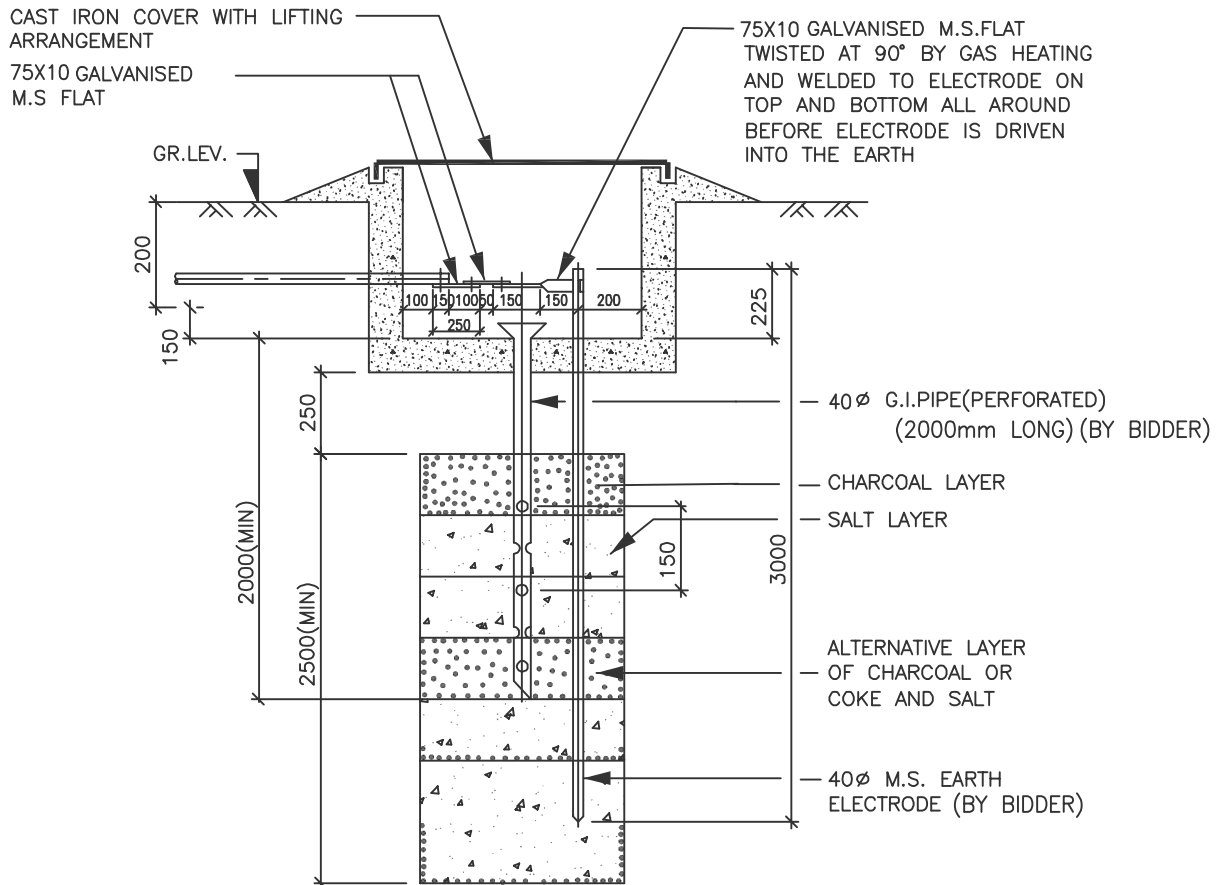
FIG-3

NOTE:-

FUNNEL WITH WIRE MESH AND
REMOVABLE CAP AS PER DETAIL-1
OF FIG.-1 SHALL BE PROVIDED
WITH EACH ELECTRODE.



TYPICAL ARRANGEMENT FOR MS ROD ELECTRODE

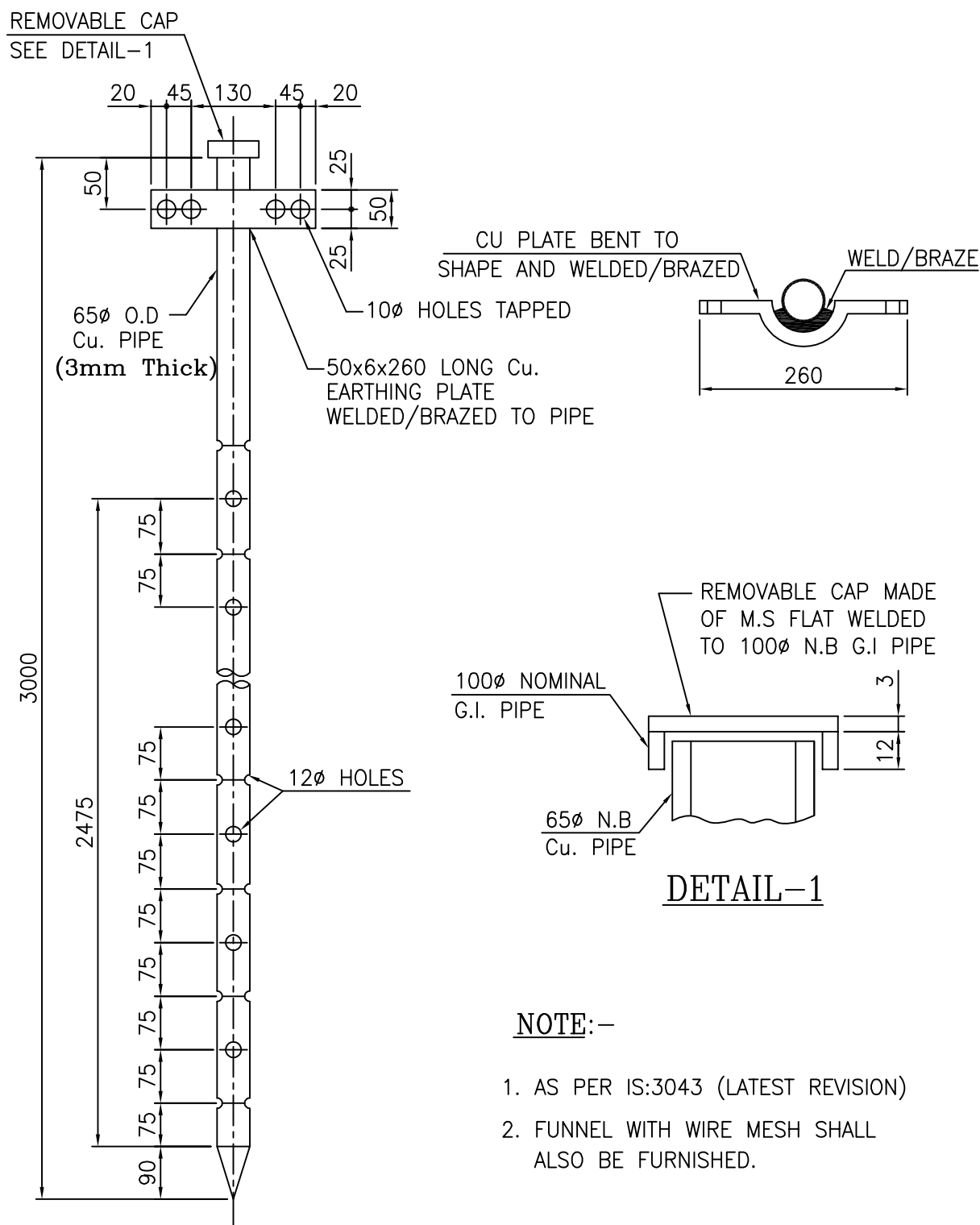


NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. ALL WELDED JOINTS SHALL BE COVERED WITH 2mm THICK BITUMEN COMPOUND.

FIG-5

Ref. Doc.



Cu. PIPE ELECTRODE

FIG-6

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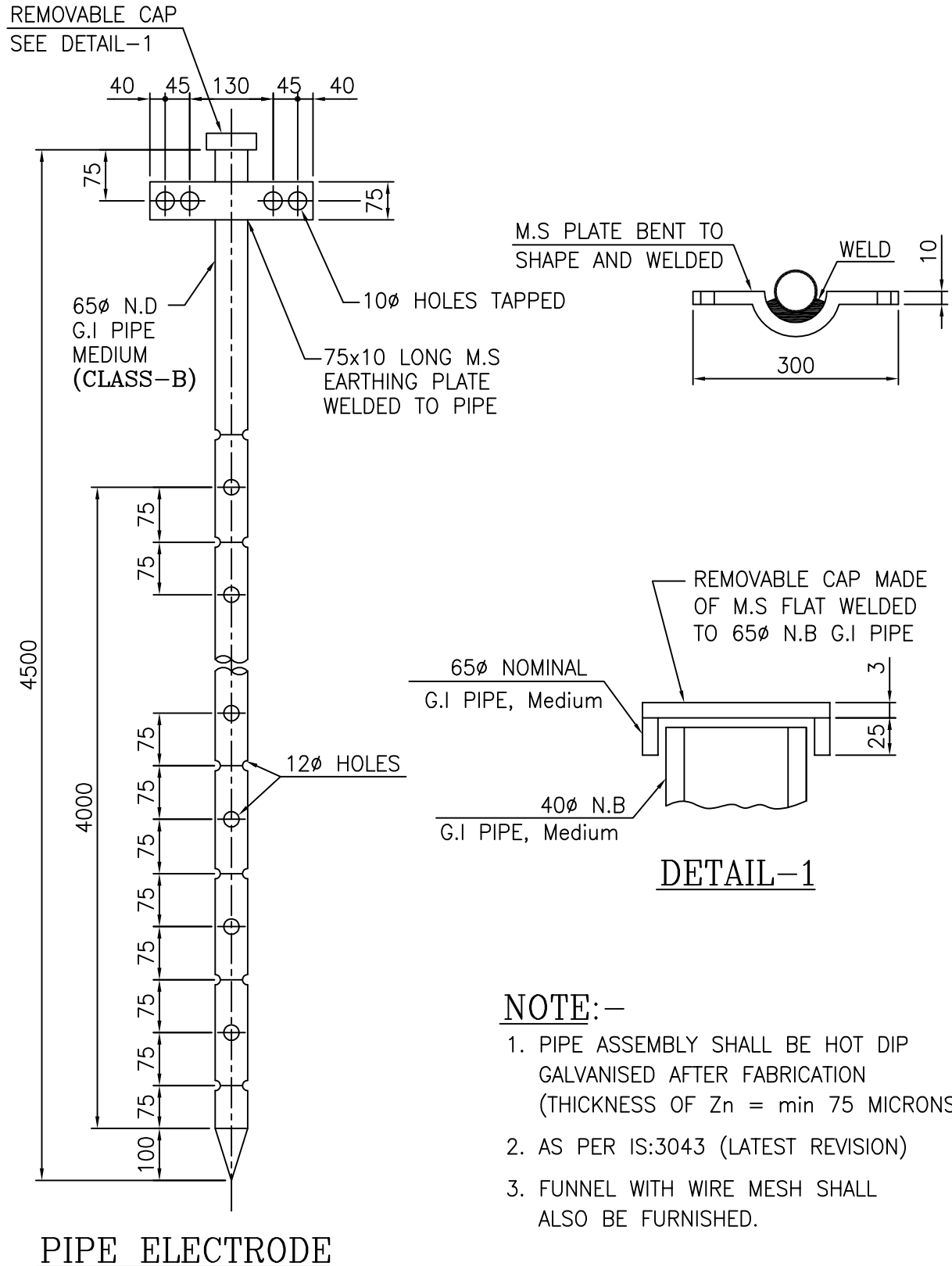


FIG-7



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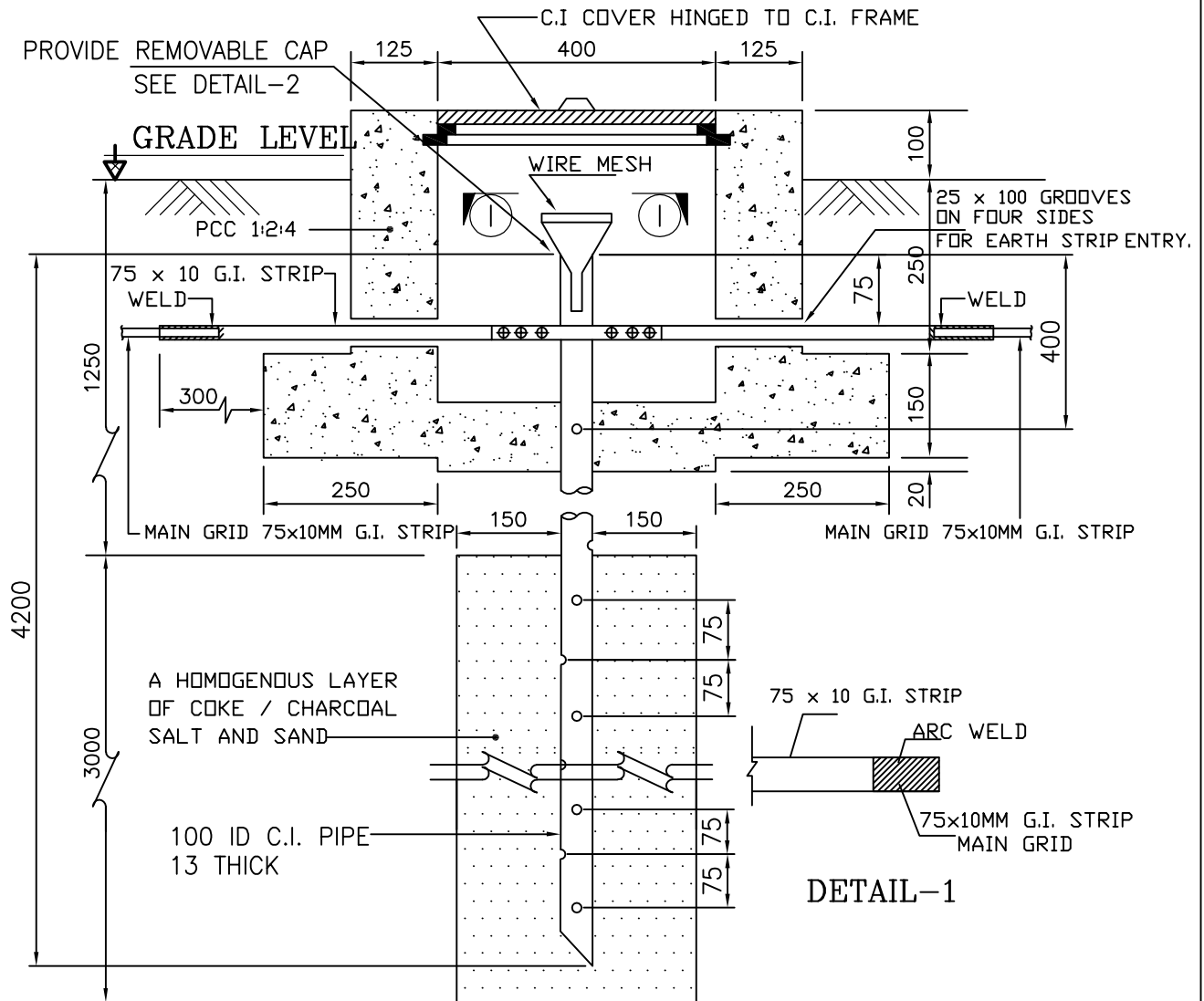
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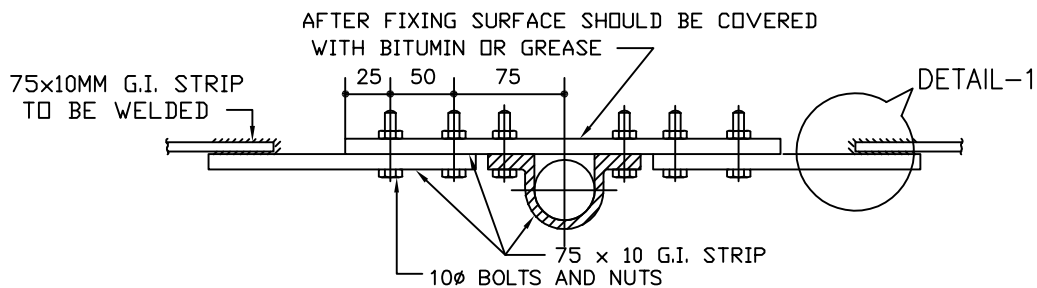
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TYPICAL ARRANGEMENT OF PIPE ELECTRODE



NOTE:-

1. PIPE ASSEMBLY SHALL BE HOT DIP GALVANISED AFTER FABRICATION (THICKNESS OF Zn = min 75 MICRONS)
2. AS PER IS:3043 (LATEST REVISION)
3. FUNNEL WITH WIRE MESH SHALL ALSO BE FURNISHED.

SECTION - I

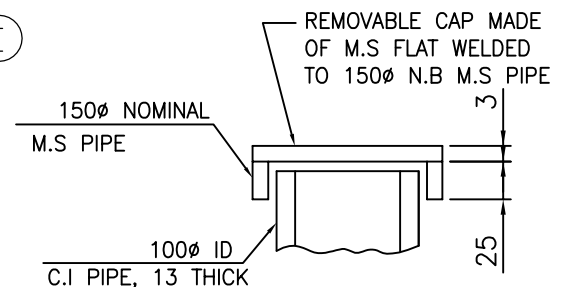


FIG-8

DETAIL-2

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COPYRIGHT AND CONFIDENTIAL The Information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.		REMOVABLE CAP SEE DETAIL-1 40451304540 75 65ø N.B G.I PIPE MEDIUM (CLASS-B) 12ø/10ø HOLES TAPPED 75x10 LONG M.S EARTHING PLATE WELDED TO PIPE 75 75 6000 5500 75 75 75 75 75 75 75 75 75 75 75 100 12ø HOLES M.S PLATE BENT TO SHAPE AND WELDED WELD 10 300 REMOVABLE CAP MADE OF M.S FLAT WELDED/RUBBER CAP TO 100ø N.B G.I PIPE 100ø NOMINAL G.I PIPE, Medium 65ø N.B G.I PIPE, Medium 25 3 DETAIL-1 NOTE:- 1. PIPE ASSEMBLY SHALL BE HOT DIP GALVANISED AFTER FABRICATION (THICKNESS OF Zn = min 75 MICRONS) 2. AS PER IS:3043 (LATEST REVISION) 3. FUNNEL WITH WIRE MESH SHALL ALSO BE SUPPLIED. PIPE ELECTRODE FIG-9			
Ref. Doc.					

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RECORD OF REVISIONS						
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	00	27-04-2013	Original Issue	Sd/-	Sd/- J.K Pattanaik	
	01	02-01-2018	Technical details of 40mm MS rod electrode and 65mm Cu pipe electrode	Sd/- G Seshu Kiran	Sd/- P Suresh	
	02	26-07-2019	40mm GI Pipe electrode details-Fig7 added.	Sd/- Ch Mahesh	Sd/- P Suresh	
	03	10-04-2021	100mm dia C.I pipe electrode details-Fig. 8 added	Sd/- GRM / AVS	Sd/- P Suresh	
	04	03-07-2021	65mm dia,6Mtrs Long G.I pipe electrode details-Fig. 9 added	Sd/- Ch Mahesh	Sd/- Saroj Kumar	
	Ref. Doc.					