TYPICAL DETAILS OF

BELOW GROUND EARTHING

REV.	DATE	ALTD	CHD	APPD
01	09/11/10	-Sd-	-Sd-	-Sd-

REVISED AS PER M/s TCE COMMENTS VIDE LTR. NO. TCE-5403A-EL-BHEL PEM-540-VDT-003, DTD 13/10/10.

BECL
Bhavnagar Energy Company Limited

TATA

TATA CONSULTING ENGINEERS LIMITED

PROJECT: 2 x 250 MW LIGNITE BASED TPP
PADVA, DIST. BHAVNAGAR, GUJRAT

356

CONTRACT

DISTRIBUTION

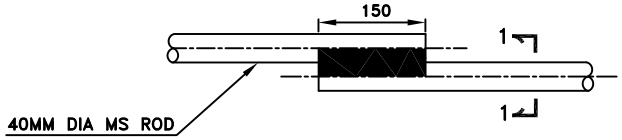
BHARAT HEAVY ELECTRICALS LTD.
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA

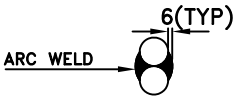
DEPT CODE		NAME	SIGN	DATE
E	DRN	MC	-Sd-	24/09/10
	DSGN	MC	-Sd-	24/09/10
	CHD	SS	-Sd-	24/09/10
	APPD	SKG	-Sd-	24/09/10

TITLE: TYPICAL DETAILS OF BELOW GROUND EARTHING

DRAWING NO. PE-DG-356-509-E006

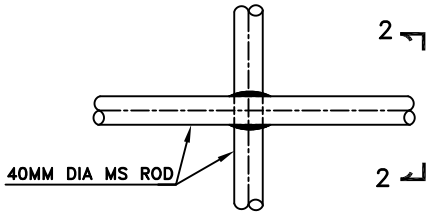
SHEET 1 OF 8 | REV. 01

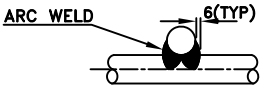




SECTION 1–1

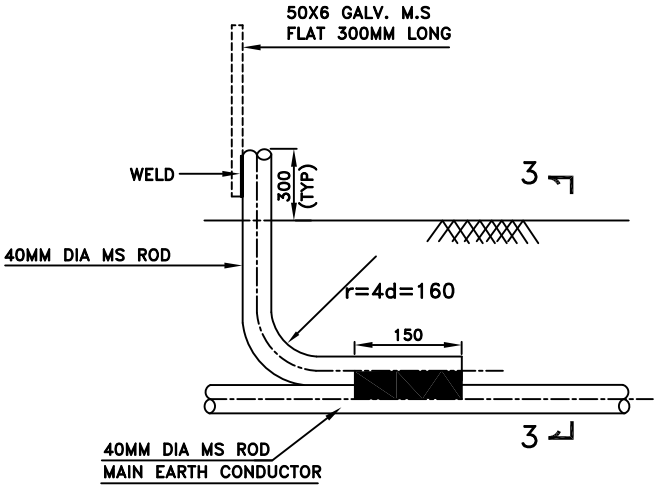
LAP JOINT

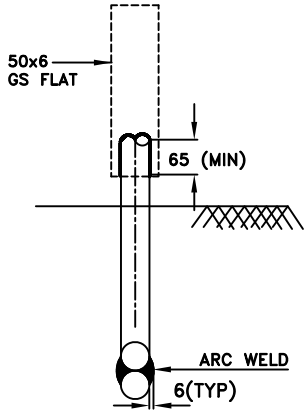




SECTION 2–2

CROSS JOINT





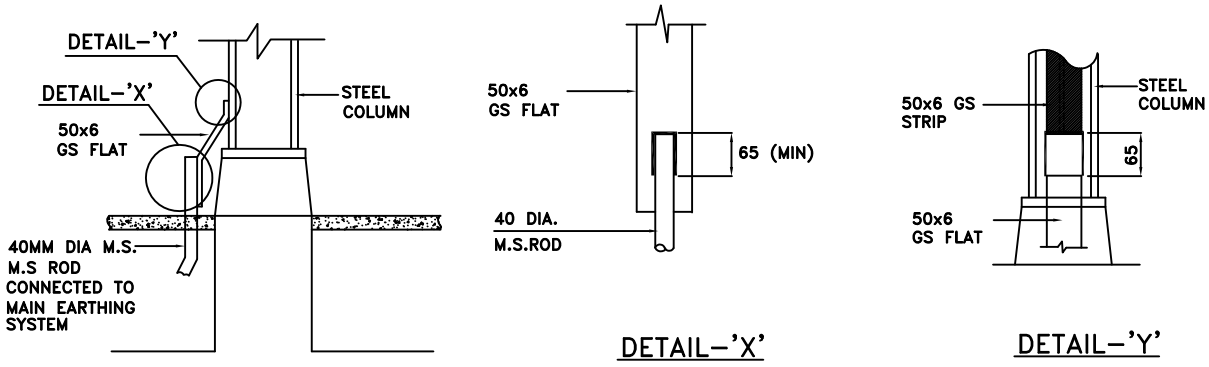
SECTION 3–3

LAP JOINT FOR RISER/
COLUMN EARTHING

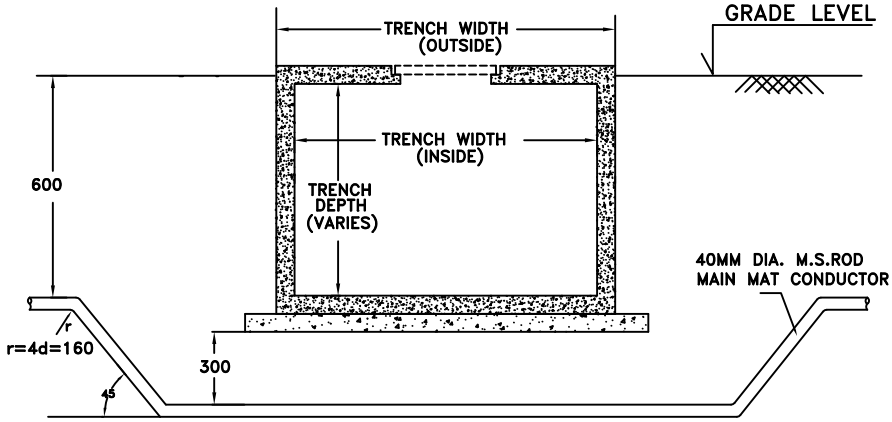
WELDED JOINTS

NOTE:–
ALL DIMENSIONS ARE IN MM.

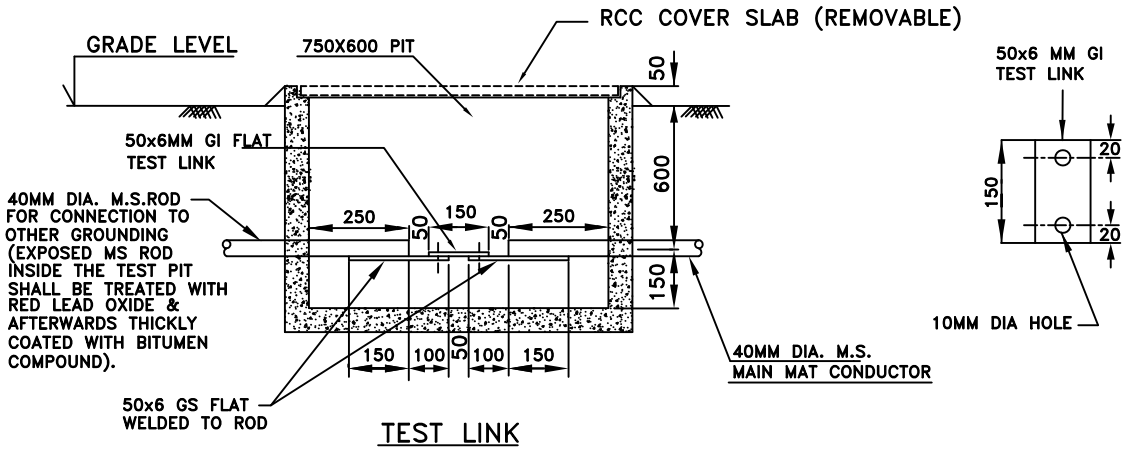
बीएचईएल BHEL	TYPICAL DETAILS OF BELOW GROUND EARTHING	BHEL DRAWING NO. PE–DG–356–509–E006 SH 2 OF 8



COLUMN EARTHING



TRENCH CROSSING

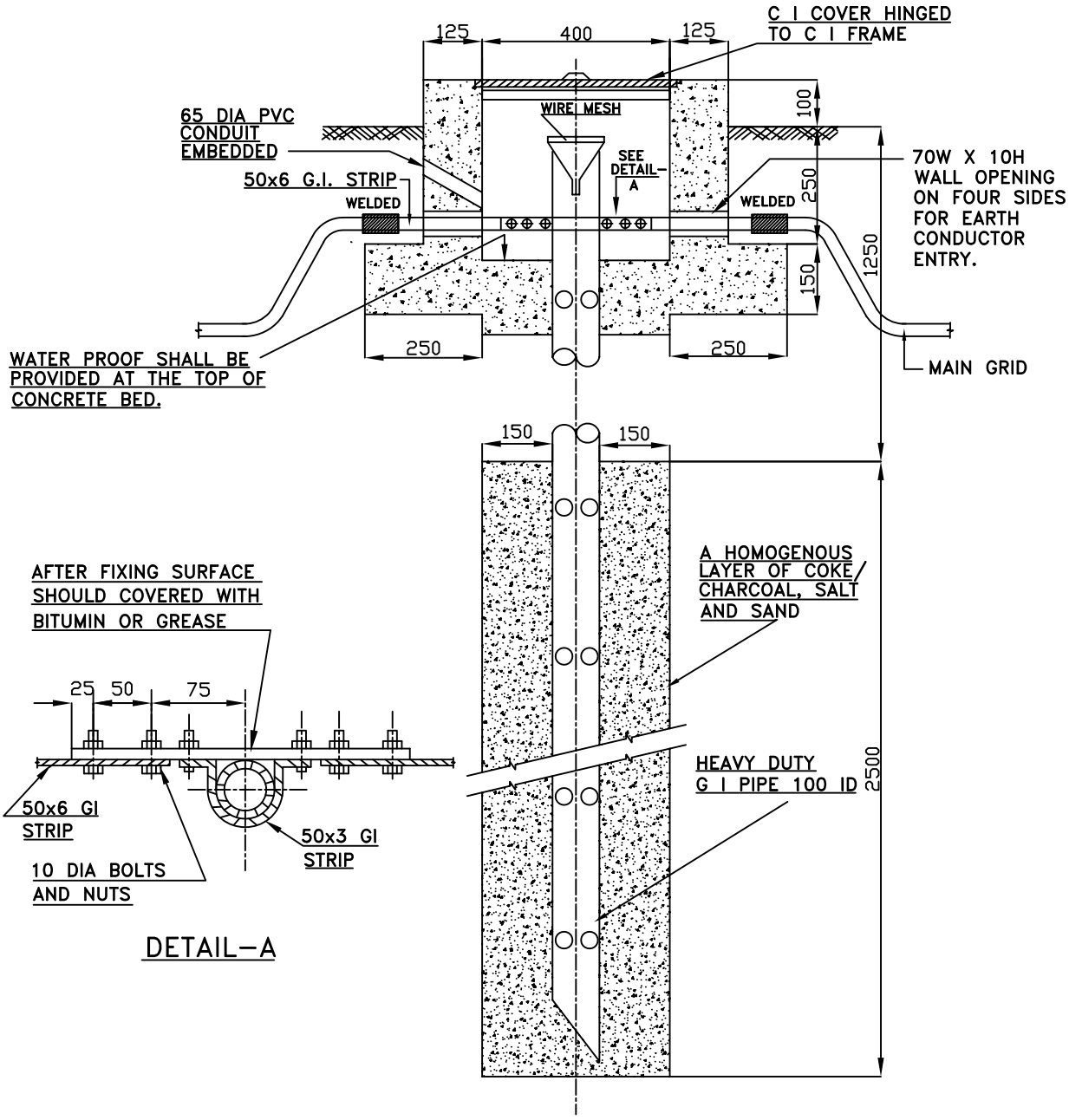


TEST LINK

(PROVIDED FOR CONNECTION BETWEEN VARIOUS GROUNDING SYSTEMS)

NOTES:–
ALL DIMENSIONS ARE IN MM.

भेल BHEL	TYPICAL DETAILS OF BELOW GROUND EARTHING	BHEL DRAWING NO. PE–DG–356–509–E006
		SH 3 OF 8

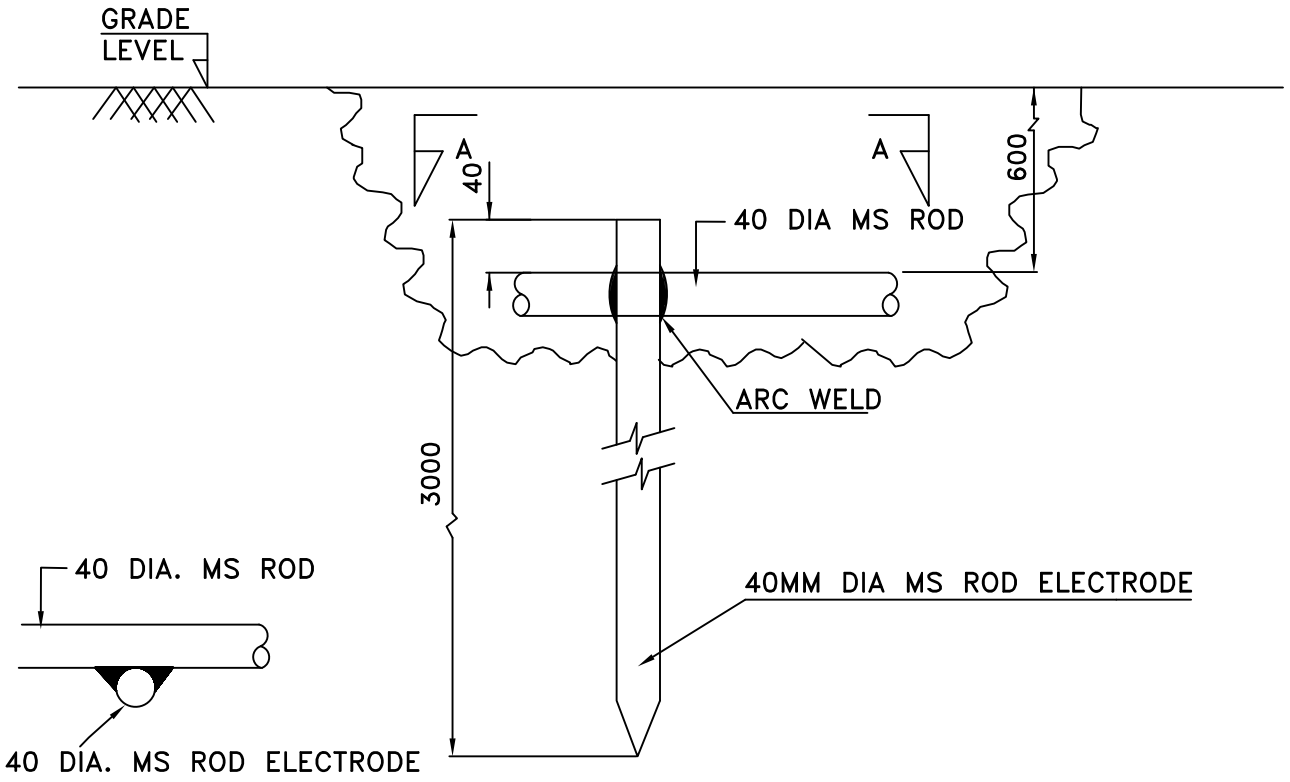


NOTE:

1. ALL DIMENSIONS ARE IN MM.
2. TOP OF PIT SHALL BE ALIGNED WITH GRADE LEVEL IN PAVED AREA.

TYPICAL ARRANGEMENT OF PIPE ELECTRODE

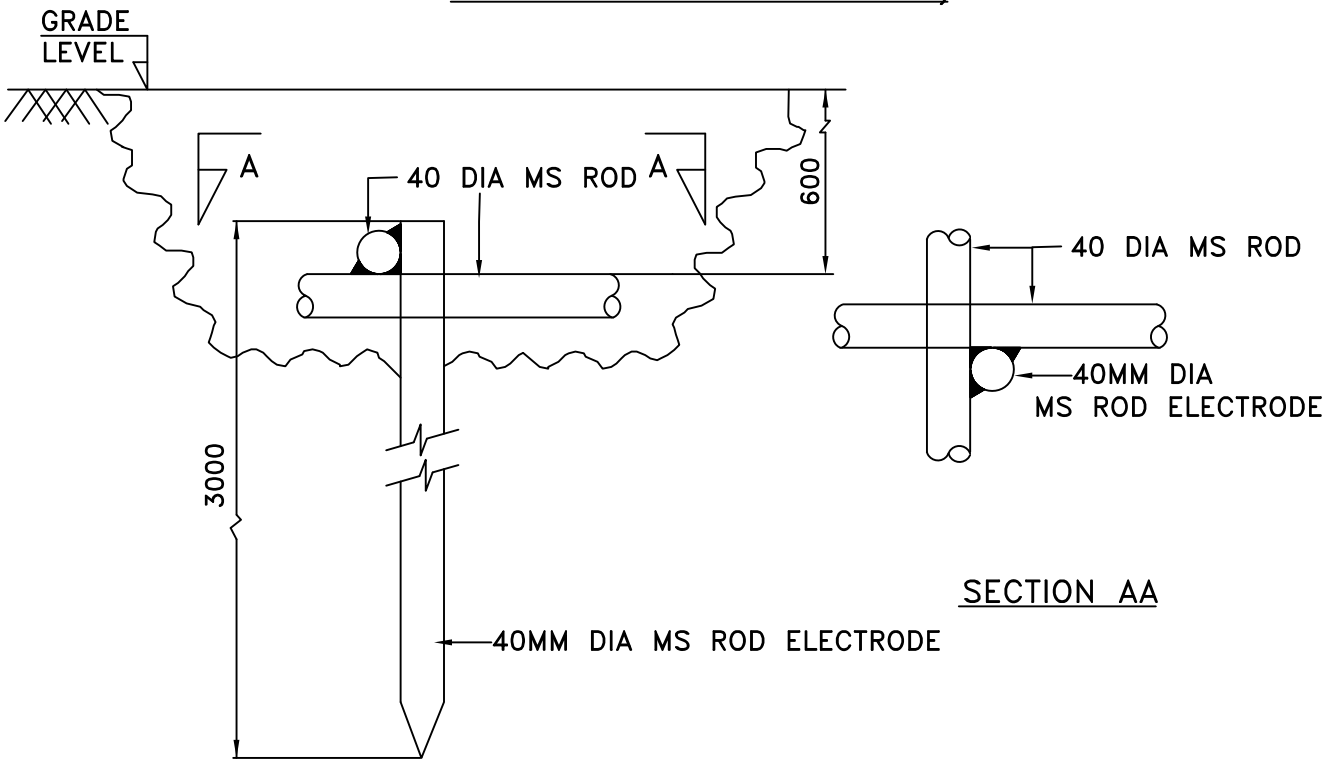
बीएचईएल BHEL	TYPICAL BELOW GROUND EARTHING DETAILS	BHEL DRAWING NO. PE-DG-356-509-E006
		SH 4 OF 8



SECTION AA

VERTICAL GROUND ELECTRODE

(LOCATED ALONG PERIPHERY OF EARTHING GRID FOR USE OTHER THAN EARTH TEST PIT)



SECTION AA

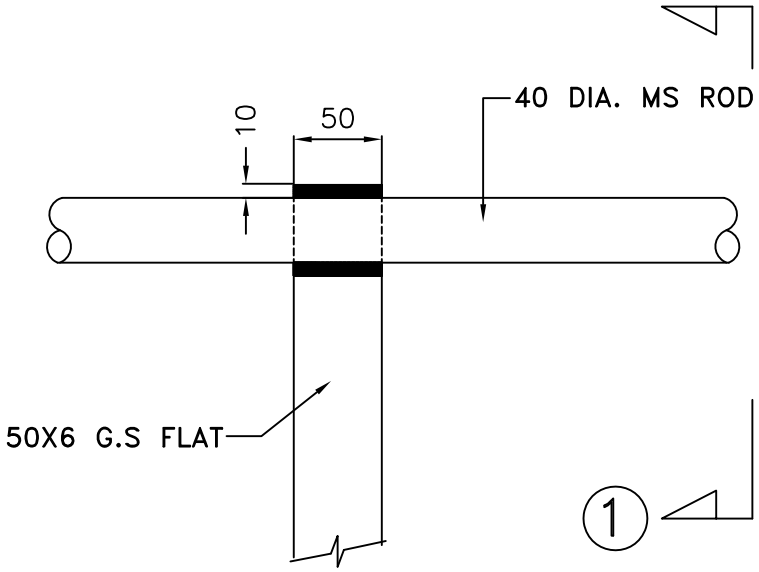
VERTICAL GROUND ELECTRODE

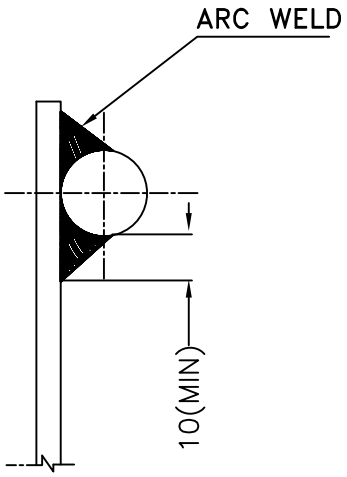
(LOCATED AT JUNCTION OF EARTH CONDUCTOR)

NOTES:-

1. ALL DIMENSIONS ARE IN M.M..

BHEL	TYPICAL DETAILS OF BELOW GROUND EARTHING	BHEL DRAWING NO. PE-DG-356-509-E006
		SH 5 OF 8





SECTION – (1)

CROSS JOINT

BETWEEN M.S ROD & G.S FLAT

NOTES:–

1. ALL DIMENSIONS ARE IN M.M

बीएचईएल BHEL	TYPICAL DETAILS OF BELOW GROUND EARTHING	BHEL DRAWING NO. PE–DG–356–509–E006
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NOTES:-

1. WELDING OF GALVANISED FLAT/ MS ROD SHALL BE CARRIED OUT AS FOLLOWS:-

   a) CLEANING OF WELD AREA WITH WIRE BRUSH.

   b) REMOVAL OF GALVANISATION COATING IN THE WELD AREA.

   c) WELDING OF THE CONDUCTOR SHALL BE AS PER IS : 816.

   d) NATURAL COOLING OF WELDING JOINTS.

⚠ 2. THE EARTH CONDUCTOR BELOW GRADE LEVEL SHALL BE BARE 40 mm DIA MILD STEEL (M.S.) ROD.
   BELOW GRADE LEVEL. EARTH CONDUCTOR SHALL BE ROUTED
   BELOW ROADS/ RAIL TRACKS/TRENCHES WITH MINIMUM CLEARANCES AS UNDER :

   a) BELOW RAIL TRACK : MINIMUM 1000 MM

   b) BELOW ROAD/ CABLE TRENCHES/ PIPE TRENCHES : MINIMUM 300 MM.

3. DETAILS OF EARTH TEST PIT / TEST LINK PIT ARE INDICATIVE. ACTUAL DETAILS SHALL BE SHOWN IN CIVIL DRAWINGS & IS IN CIVIL SCOPE.

4. DRG. FOR DEPTH OF BURIAL OF MAIN CONDUCTOR SHALL BE FURNISHED. HOWEVER THE DEPTH OF BURIAL SHALL BE 600MM.

⚠ 5. POWER STATION GROUNDING GRID SHALL BE PROVIDED TWO INTER CONNECTIONS WITH TEST FACILITY TO INTER CONNECT WITH OTHER GRIDS.

⚠ 6. EARTH ELECTRODE AND TEST PIT ELECTRODE SHALL BE 40MM DIA X 3000MM DIA LONG MILD STEEL ROD DRIVEN INTO THE GROUND AND CONNECTED TO THE GROUND GRID CONDUCTOR. TEST PIT SHALL BE AS PER IS: 3043

⚠ 7. RISERS/PIGTAILS FROM THE GROUNDING GRID /RING SHALL PROJECT 300MM ABOVE GRADE /CONCRETE FLOOR LEVEL UNLESS OTHERWISE SPECIFIED. ALL RISERS PIG TAILS SHALL BE PAINTED GREEN FOR THE ABOVE GROUND PORTION.

⚠ 8. THE INTERCONNECTED CONDUCTORS SHALL BE RUN PARALLEL TO AND AS CLOSE AS POSSIBLE TO THE INTERCONNECTING CABLE PATH ON PIPE CUM CABLE TRESTLE/ DUCT BANK/TRENCH AS APPLICABLE.

⚠ 9. ALL SYSTEM NEUTRALS, GROUNDING TERMINALS OF SURGE ARRESTORS AND VOLTAGE TERMINALS SHALL BE CONNECTED TO TEST PITS, WHICH IN TURN ARE CONNECTED TO THE GROUNDING GRID.

⚠ 10. EARTH PIT WITH RISER FOR SYSTEM NEUTRAL SHALL BE CONSTRUCTED AFTER ERECTION OF RELEVANT EQUIPMENT FOUNDATION.

⚠ 11. ALL LIGHTNING PROTECTION DOWN CONDUCTORS SHALL BE CONNECTED TO DEDICATED GROUND ELECTRODES THROUGH ISOLATING LINKS AND THEN TO THE GROUNDING SYSTEM.

भेल BHEL	TYPICAL DETAILS OF BELOW GROUND EARTHING	BHEL DRAWING NO. PE-DG-356-509-E006
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12. FOR ELECTRONIC GROUNDING,ONE NUMBER TREATED EARTH PIT SHALL BE PROVIDED FOR EACH UNIT. ONLY ELECTRONIC CONNECTIONS SHALL BE BROUGHT TO THE TEST PIT. NO OTHER EARTH CONNECTIONS SHALL BE PERMITTED. THE OTHER END CONNECTION FROM THE TEST PITS SHALL BE MADE TO STATION GROUND. ONLY SUCH CONNECTION SHALL BE MADE FROM EACH PIT. NO INTER CONNECTION PITS SHALL BE DONE BETWEEN THE TEST PITS. SUITABLE BIMETALLIC CONNECTORS SHALL BE USED FOR ALL CONNECTIONS. FOR FURTHER DETAILS OF ELECTRONIC GROUNDING, BHEL EDN DOCUMENTATION SHALL BE REFERRED.

⚠
13. THE ERECTION OF BELOW GROUND EARTHING SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF IS: 3043 CODE OF PRACTICE FOR EARTHING.

बीएचईएल
BHEL

TYPICAL DETAILS OF BELOW GROUND EARTHING

BHEL DRAWING NO.

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