


SUBSTATION EARTH MAT AND EARTH TAILS NOTES ::

1. THE MAIN EARTH GRID SHALL BE CONSTRUCTED FROM A 10mm DIAMETER BLACK ANNEALED COPPER (UNLESS OTHERWISE INDICATED), BURIED AT LEAST 1000mm BELOW FINISHED GROUND LEVEL.
WHERE PASSING UNDER DEEPER FOUNDATIONS AND DRAINS, THE EARTH MAT IS TO BE LAID 150mm BELOW CONCRETE.
2. WHERE A CONCRETE BLINDING IS CAST UNDER BUILDING FOUNDATIONS THE EARTH MAT MESHES ARE TO BE INSTALLED ON TOP OF THE BLINDING AND UNDER THE CONCRETE FOOTING OF COLUMNS ETC.
3. WHERE THE EARTH MAT PASSES UNDER DRAINS WITH LESS THAN 1000mm OF COVER, IT IS TO BE BURIED AS DEEPLY AS POSSIBLE.
4. THE MAIN EARTH GRID SHALL BE 1000mm AWAY FROM THE FENCE INSIDE THE SUBSTATIONS AND EXTEND 1000mm AWAY FROM THE FENCE, OUTSIDE THE SUBSTATION.
5. ON FOUNDATION AND EARTHING DRAWINGS, ROD TRANSVERSE CROSSINGS SHALL BE INDICATED BY  AND THESE CROSSINGS SHALL BE JOINED AS PER NOTE 9.
6. EARTH TAILS SHALL BE CONSTRUCTED FROM A 50 x 3mm FLAT BLACK ANNEALED COPPER BOLTED TO HOLDING DOWN BOLTS (UNLESS OTHERWISE INDICATED).
7. WHERE EARTH TAILS CROSS THEY SHALL BE WELDED TOGETHER.
8. WHERE THE EARTH MAT IS NOT DIMENSIONED, IT IS TO BE PLACED AS CLOSE TO THE MAIN FOUNDATIONS AS POSSIBLE.
9. ALL JOINTS SHALL BE EXOTHERMICALLY WELDED OR OXY-ACETYLENE BRAZEN USING A 3mm DIAMETER SILBRALLOY BRAZING RODS OR EQUIVALENT. NO FLUX IS REQUIRED.
10. ALL HOLDING DOWN BOLTS TO BE **M24 OR LARGER**.
11. THE NUMBER OF SUPPORT STEEL EARTHING CONNECTIONS, FOR THE INDICATED FAULT LEVELS, SHALL BE (UNLESS OTHERWISE INDICATED):


UNDER 25kA	TWO CONNECTIONS PER SUPPORT
25kA AND ABOVE	FOUR CONNECTIONS PER SUPPORT

NOTE: ALL SUPPORTS SHALL BE EARTHED AT LEAST TWICE.

12. SACRIFICIAL EARTH MAT ANODES SHALL BE INSTALLED FOR MILD TO SEVERE CORROSIVE SOIL CONDITIONS (< 100 OHM.M). THE APPLICATION OF THESE ANODES WILL BE DETERMINED BY THE RESULTS OF SOIL TESTS CARRIED OUT BY ESKOM OR AN APPOINTED REPRESENTATIVE. WHERE THE REQUIRED SACRIFICIAL ANODES ARE TO BE MANUFACTURED AND CONNECTED TO THE MAIN EARTH MAT, THIS SHALL BE DONE ACCORDING TO SHEET 11.
13. A ROOF EARTHING STRAP OF AT LEAST 50 x 3mm ANNEALED FLAT COPPER IS TO BE RUN ON THE OUTSIDE SURFACE OF THE BRICK BUILDING WALL OF THE ROOF AND JOINED TO METAL ROOF SHEETING WITH AT LEAST M8 BOLTS.
14. WHERE A CONNECTION IS MADE TO PAINTED STEELWORK, THE PAINT SHALL BE REMOVED OVER A MINIMAL AREA TO ALLOW FOR A GOOD CONTACT BETWEEN THE SURFACES.
SURFACES SHALL BE COATED WITH A NON-OXIDE GREASE BEFORE BOLTING. AFTER BOLTING, ANY SCRAPPED AREA NOT COVERED BY THE COPPER CONNECTION SHALL BE PAINTED USING THE ORIGINAL TYPE AND COLOUR OF PAINT.
15. WHERE A CONNECTION IS TO BE MADE TO GALVANISED STEELWORK, PRIOR TO BOLTING, THE SURFACE SHALL BE COATED WITH A NON-OXIDE GREASE OR AN ALTERNATIVE.
16. WHERE A FLAT COPPER STRAP RUNS ACROSS VERTICAL OR HORIZONTAL FLAT SURFACES OF CONCRETE PLINTH OR BRICK WALL, IT SHALL BE SECURED AS PER DETAIL A IN SHEET 12; AT ALL CORNERS, INTERSECTIONS AND AT NOT MORE THAN 1000mm SPACING.
17. FOR EARTH STRAP ARRANGEMENT IN CABLE TRENCHES
SEE DETAIL B IN SHEET 12.
18. FOR PART OF THE EARTH MAT THAT RUNS ALONG CABLE RACKING, SEPARATE INSTRUCTIONS SHALL BE ISSUED.
19. WHERE FLAT COPPER EARTH STRAPS HAVE RUN ON TOP OF FINISHED FLOOR SURFACES, ACROSS WALKWAYS, THE STRAP SHALL BE SCREWED TO THE FLOOR AS PER DETAIL A IN SHEET 12.

THIS DRAWING IS THE NEW OFFICIAL REVISION AND IT SUPERSEDES ALL OTHER PUBLISHED DRAWINGS

REV	DESCRIPTION	BY	CHKD	AUTH	DATE	PROJECT NO.
4	NOTE 10 HOLDING DOWN BOLTS CHANGED	P.A.T.	J.M.M.	J.M.M.	20/03/2013	
3	NOTE 10 HOLDING DOWN BOLTS TO BE GREATER THAN 100mm AND MINUS 10mm COVER FROM THE END OF THE STRAP	P.A.T.	J.M.M.	J.M.M.	14/03/2012	
2	NOTES CHANGED AS PER DET 24-1205	P.A.T.	J.M.M.	V.SINGH	27/02/2012	
1	SHEET RE-NUMBERED FROM SHEET 0 TO SHEET 1.	R.A.	CRC	CRC	13/03/2006	

		EARTHING STANDARD			
AUTHOR: C. CLARK		GENERAL NOTES			
DATE: 05/11/2004					
CHKD: C. CLARK					
DATE: 05/11/2004		D-DT-5240			
SCALE: 1					
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DATE: 07/11/2004		SET		SHEET	REVISION
		22		1	4