



CONNECTION DIAGRAM - COMBINED EARTHING

CONNECTION DIAGRAM - SEGREGATED EARTHING

DETAIL D
EARTH BAR (ITEM 8) CONNECTIONS
SCALE 1:5

CONNECTIONS FOR BORE HOLE
CABLE TYPE ELECTRODE
DETAIL C
SCALE 1:10

BURIED EARTH CONDUCTOR
ELECTRODES INSTALLED
IN FOOTPATH CABLE ALLOCATION
(REFER TO NOTE 3)
DETAIL B
SCALE 1:10

CONNECTION FOR DRIVEN
ROD TYPE ELECTRODES
DETAIL A
SCALE 1:10

ITEM NUMBERS ARE SHOWN ○

REFER TO DRAWINGS 228821 OR 244219 FOR ITEM NUMBERS

NOTES

- THIS DRAWING DETAILS REQUIREMENTS FOR A TYPICAL POLE TRANSFORMER SUBSTATION LAYOUT. THE NUMBER OF EARTH ELECTRODES SHOWN IS INDICATIVE ONLY. REFER TO INDIVIDUAL SUBSTATION EARTHING DESIGN FOR DETAILS REGARDING NUMBER, DEPTH AND SPACING OF ELECTRODES. REFER TO NS116 AND NS122 FOR ADDITIONAL INFORMATION.
- RECOMMENDED MINIMUM SPACING BETWEEN ELECTRODES IN EACH GROUP SHALL BE 3 METRES. ELECTRODES SHALL BE INSTALLED IN A DIRECT LINE BETWEEN THE POLE MOUNTED SUBSTATION AND THE ADJACENT 11kV FEEDER POLES.
- WHERE ELECTRODES CANNOT BE INSTALLED ALONG THE POLE LINE OR AT THE CORRECT DEPTH, ELECTRODES MAY BE INSTALLED IN THE FOOTPATH SERVICES ALLOCATION. IF CABLES AND / OR CONDUITS ALREADY EXIST IN A SERVICES FOOTPATH CABLE ALLOCATION, IT MAY NOT BE FEASIBLE FOR THE EARTHING CONDUCTORS TO BE INSTALLED AT THE DEPTH INDICATED IN DETAIL B. IN THESE CASES, THE PREFERRED ALTERNATIVE IS FOR THE EARTHING CONDUCTORS TO BE INSTALLED AT A DEPTH OF NOT LESS THAN 500mm AND A CLEARANCE OF NOT LESS THAN 100mm FROM DIRECT BURIED CABLES.
- 'P' CRIMPS ARE TO BE INSTALLED WITH THE CLOSED SECTION AROUND THE 70mm² CONDUCTOR AND THE OPEN SECTION AROUND THE EARTH ROD.
- FOR DETAILS ON MINIMUM SEPARATION DISTANCE BETWEEN LV AND HV GROUP ELECTRODES AND OTHER CONDUCTIVE STRUCTURES (eg METALLIC FENCES) REFER TO NS116 AND SITE SPECIFIC EARTHING DESIGN.
- ALL EARTH CABLING TO BE BLACK INSULATED STRANDED COPPER CONDUCTOR AT SIZE INDICATED UNLESS SPECIFIED OTHERWISE.
- WHERE GROUND CONDITIONS PERMIT, ELECTRODES ARE TO BE DRIVEN USING APPROPRIATE ROD DRIVERS AND DRIVING HEADS. WHERE GROUND CONDITIONS REQUIRE BORE HOLES, A 35mm DIAMETER HOLE FOR ROCK OR A 50mm DIAMETER HOLE FOR CLAY IS TO BE BORED FOR EACH EARTH CABLE. AN APPROVED EARTHING COMPOUND IS TO BE PUMPED INTO THE BORE HOLE AFTER BARE EARTH CABLE HAS BEEN INSTALLED. ALL ELECTRODE AND EARTH CABLE INSTALLATIONS ARE TO BE AT THE DEPTH SPECIFIED IN THE EARTHING DESIGN.
- 70mm² EARTH CABLE IS TO REMAIN UNBROKEN WHERE IT PASSES THROUGH PARALLEL GROOVE CLAMP (ITEM 23) OR SPLIT BOLT CLAMP (ITEM 24) WITH ONLY THE INSULATION STRIPPED BACK TO MAKE CONNECTION.

CONSTRUCTION

NETWORK STANDARD
Ausgrid
ASSET ENGINEERING, POLICY AND STANDARDS
TRANSMISSION & DISTRIBUTION SUBSTATION ENGINEERING
570 GEORGE STREET, SYDNEY

SCALE DESIGNED	AS SHOWN
DRAWN	C.MABBUTT
CHECKED	P.JARVIS
APPROVED	D.GRCEV
DATE	15.10.12
PROJECT NUMBER	PM02-02010-1-3-1
PROJTRAK NUMBER	

STANDARD CONSTRUCTION 3 PHASE - 11kV POLE MOUNTED DISTRIBUTION SUBSTATION COMBINED AND SEGREGATED EARTHING CONNECTION DETAILS			
SIZE	DRAWING No	SHEET	AMD
A2	228822	1	3

REFERENCE DRAWINGS	
TITLE	DRAWING No
3 PHASE POLE TRANSFORMER ON TIMBER POLE GENERAL ARRANGEMENT	228821
3 PHASE POLE TRANSFORMER ON COMPOSITE POLE GENERAL ARRANGEMENT	244219

CAD DRAWING DO NOT MANUALLY AMEND	AMENDMENTS 1. UPDATED TO INCLUDE DM&C OPTION FOR 400kV TX. DM&C EARTH BAR CONNECTION ADDED. NOTE 9 ADDED. PN: PM02-02010-0-0-0010 C/MABBUTT 26.6.13 DRAWN: C/MABBUTT CHECKED: P.JARVIS APPROVED: D.GRCEV	2. NOTE 9 AMENDED AND REFERENCES ADDED. PN: PM02-02010-0-21013 C/MABBUTT 15.10.14 CHECKED: P.JARVIS APPROVED: P.JARVIS	3. CONNECTION DIAGRAMS AND DETAIL D CHANGED TO SHOW TIMBER & COMPOSITE POLES. DM&C REMOVED. CABLES SADDLE NOTE ADDED TO DETAIL D. NUTS, BOLTS AND WASHERS ADDED TO DETAIL D AND CONNECTION DIAGRAMS. CONNECTION DIAGRAMS, REFERENCE DRAWING TABLE UPDATED. PN: 129021840 P.JARVIS 15.18 CHECKED: C/MABBUTT APPROVED: D.GRCEV
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