



CONNECTION DIAGRAM - COMBINED EARTHING

CONNECTION DIAGRAM - SEGREGATED EARTHING

**NOTES**

- THIS DRAWING DETAILS A TYPICAL POLE TRANSFORMER SUBSTATION LAYOUT. 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 70mm<sup>2</sup> 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.
- 70mm<sup>2</sup> 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.

REFER TO DWG. 228831 FOR ITEM NUMBERS

CAD DRAWING  
DO NOT MANUALLY AMEND  
AMENDMENTS

1. LV NEUTRAL CONNECTION TO EARTH BAR ON COMBINED EARTHING AMENDED.

P/N: PM02-02010-1-3-1  
DATE: 04-02-2013  
DRAWN: C.MABBUTT  
CHECKED: P.JARVIS  
APPROVED: P.JARVIS

REFERENCE DRAWINGS	DWG. NO.
POLE TRANSFORMER - SINGLE PHASE - GENERAL ARRANGEMENT	228831
POLE TRANSFORMER - SINGLE PHASE - CROSSARM DETAILS	228833
POLE TRANSFORMER - SINGLE PHASE - LV CONNECTIONS	228834
POLE TRANSFORMER - SINGLE PHASE - HV OVERHEAD SUPPLY OPTIONS	228835
POLE TRANSFORMER - SINGLE PHASE - STREET LIGHTING DETAIL OPTION	228836

**CONSTRUCTION**

NETWORK STANDARD

DISTRIBUTION OPERATIONS & RELIABILITY  
LOGISTICS AND DISTRIBUTION ENGINEERING  
25-27 POMEROY STREET, HOMEBUSH

SCALE	AS SHOWN
DESIGNED	C.MABBUTT
DRAWN	P.JARVIS
CHECKED	D.GRCEV
APPROVED	15/10/2012
DATE	
PROJECT NUMBER	PM02-02010-1-3-1
PROJTRAK NUMBER	

STANDARD CONSTRUCTION  
SINGLE PHASE - 11/22kV POLE MOUNTED  
DISTRIBUTION SUBSTATION  
COMBINED AND SEGREGATED  
EARTHING CONNECTION DETAILS

SIZE: A2  
DRAWING No: 228832  
SHEET: 1  
AMD: 1