



**GENERAL NOTES:**

- CONSTRUCTION TEAM/ COMMISSIONING OFFICER MUST ENSURE SUBSTATION IS IN A SEPARATE EARTHING CONFIGURATION - CMEN LINK IS NOT TO BE CONNECTED TO THE LV NEUTRAL OR EARTH BAR.
- THE AMOUNT OF GRADING RING CONDUCTOR REQUIRED IS EQUAL TO 2X DISTANCE BETWEEN PADMOUNTS + 40m. THE AMOUNT OF COVERED CONDUCTOR FOR LV & HV BOND IS EQUAL TO 2X THE DISTANCE BETWEEN PADMOUNTS + 30m.
- BOTH HV & LV ELECTRODE EARTH BONDS ARE 70mm<sup>2</sup> PVC COVERED COPPER, FOR THE FIRST RUN UP TO THE DEEP EARTH ELECTRODE FROM THE SUBSTATION.
- ALL EARTHING CONDUCTORS SHALL BE THOROUGHLY CLEANED AND DEBURRED AT CONNECTION POINTS BEFORE CONNECTION.
- TRANSFORMER TANK, LV SWITCHBOARD FRAME, PADMOUNT ENCLOSURE, HV SWITCHGEAR, AND HV CABLE SCREEN SHALL BE CONNECTED TO THE HV EARTH.
- NEUTRALS OF LV CABLES AND TRANSFORMER NEUTRAL TO BE CONNECTED TO NEUTRAL BAR ON THE LV BOARD.
- EACH EARTHING CONNECTION MADE TO AN EARTHING BAR MUST BE FIXED WITH A SEPARATE M12 STAINLESS STEEL BOLT. AS REQUIRED THE EARTH BAR MAYBE EXTENDED WITH ADDITIONAL COPPER BAR OF AT LEAST THE SAME SIZE, FIXED WITH TWO M12 BOLTS.
- ALL EARTHING FASTENERS MUST BE STAINLESS STEEL.
- ALL EARTHING CONDUCTORS CROSSING THE GRADING RING MUST MAINTAIN A MINIMUM 150mm CLEARANCE BELOW THE INSTALLED GRADING RING AT ALL CROSS OVER POINTS.
- SEPARATION BETWEEN BURIED EARTHING AND NON-BONDED METALLIC EQUIPMENT IS REQUIRED. SEPARATION DISTANCE IS TO BE SPECIFIED IN THE PARTICULAR DESIGN FOR THE SUBSTATION.
- ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED- DO NOT TO SCALE.
- EARTHING CONDUCTORS MUST BE LABELLED IN ACCORDANCE WITH "PO07127 DISTRIBUTION EARTHING DESIGN MANUAL".
- EARTHING CONDUCTORS ENTERING THE SUBSTATION MUST BE A MINIMUM 70MM<sup>2</sup> COVERED COPPER CABLE. COPPER BAR OR STRAP MUST NOT BE USED.
- PADMOUNT SUBSTATION EARTHING TYPE LABELS ARE TO BE INSTALLED ON THE INSIDE END HV AND LV PADMOUNT DOOR.
- EARTHING MUST BE ASSESSED, DESIGNED AND VALIDATED IN ACCORDANCE WITH THE EVOENERGY EARTHING DESIGN MANUAL- PO07127.
- TYPICAL CONNECTION SHOWN- REFERENCE INTERFACE TABLE FOR ACTUAL PART.
- EXCESS JOINTING COMPOUND APPLIED TO EARTHING CONNECTIONS MUST BE REMOVED AFTER INSTALLATION.
- PRE APPLIED JOINTING COMPOUND IN EARTHING CONNECTIONS MUST BE REMOVED PRIOR TO INSTALLATION WHEN INSTALLING INTO AN AQUATIC ENVIRONMENT.
- ADDITIONAL EARTH ELECTRODES MAYBE REQUIRED AS PER THE EARTHING DESIGN FOR THE PARTICULAR SUBSTATION.

**GRADING RING NOTES:**

- SITE EXCAVATION DETAILS PROVIDED IN DRAWING D303-0019.
- TWO CONNECTION POINTS ARE REQUIRED BETWEEN THE EARTH GRADING RING AND THE HV EARTH BAR AT EACH SUBSTATION.
- GRADING RING IS TO BE INSTALLED 1000mm FROM EACH FACE OF THE SUBSTATION SHELL.
- IF THE SUBSTATION IS UPGRADED THE GRADING RING DISTANCE MUST BE CHECKED AND MOVED IF REQUIRED TO ACHIEVE 1m DISTANCE TO SUBSTATION SHELL.
- AS REQUIRED ADDITIONAL EARTH STAKES MAYBE UTILISED TO ENSURE THE GRADING RING IS INSTALLED AT THE CORRECT DEPTH.

ITEM	UA TYPE	DESCRIPTION	STOCK CODE	QTY	DRAWING NO
1	P	EARTHING ROD, dia 13 x 1440mm, COPPER CLAD STEEL, EXTENDABLE, NO CLIP	1161222	8	D110-0001
2	P	CONDUCTOR, AERIAL, HD8C, 70mm <sup>2</sup> , 19/2.14 (19/083)	1068830	AR	D102-0005
3	P	LUG, SHEAR-BOLT, 25-95mm <sup>2</sup> , M13 BOLT HOLE, TINNED ALUMINIUM	1193219	8	D103-0022
4	P	CABLE, BUILDING, 70mm <sup>2</sup> , 1C, 19/2.14, 0.6/1kV, V-75, BLACK, PVC INSULATED	1069603	AR	D102-0012
5	P	LABEL, EARTHING, GRADING RING FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202086	4	D107-0017
6	P	CABLE TIE FOR EARTHING CONDUCTOR LABELS 4.6 x 200mm S/STEEL GR316	1202042	24	D107-0027
7	P	LABEL, EARTHING, HV DEEP ELECTRODE, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202064	2	D107-0015
8	P	LABEL, EARTHING, LV DEEP ELECTRODE, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202075	2	D107-0016
9	P	LABEL, EARTHING, HV BOND TO PADMOUNT ADJ, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202119	2	D107-0020
10	P	LABEL, EARTHING, PADMOUNT, SUBSTATION EARTHING TYPE, SEPARATELY EARTHED	1202196	4	D107-0028
11	P	LABEL, EARTHING, LV BOND TO PADMOUNT ADJ, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202130	2	D107-0021
12	S	SA, EARTHING, DEEP EARTH ELECTRODE FOR STATIONS	-	4	D303-0006
13	S	SA, EARTHING, ADDITIONAL DEEP EARTH ELECTRODE FOR STATIONS	-	AR	D303-0013
14	I	INTERFACE, EARTHING PARTS, CONNECTIONS, CONNECTORS AND ACCESSORIES	SELECT	28	D199-0001

A	IMAGE UPDATED	JJP	WNI	
B	C CRIMP, IMAGE & BOM AMENDED	BAN	WJC	15/11/2019
C	NOTES AND TITLE AMENDED - KV	NAA	WJC	12/08/2022
D	EARTH STOCK CODE UPDATE	JJP	WJC	17/11/2023

**evenergy**

Project: 3rd Dim  
 Designed: J. Primmer  
 Checked: J. Primmer 7/11/2016  
 Branch Engineer: W. Ibrahim 18/11/2016  
 Branch Manager: W. Cleland 15/11/2019

STANDARD CONSTRUCTION, DISTRIBUTION UNDERGROUND, STATIONS, SA, EARTHING, SEPARATE EARTHING HV AND LV TWIN PADMOUNT SUBSTATION 3m - 10m SEPARATION

Scale: Project No.: Status: Current  
 Date: Stock Code: Rev: A1 D303-0020