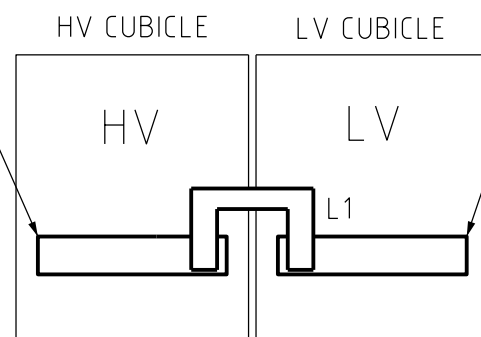
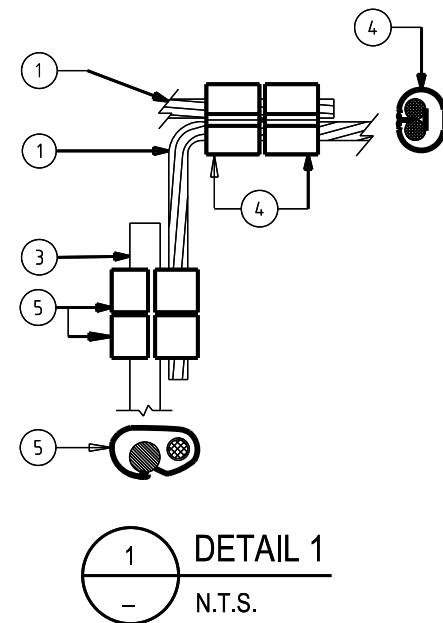
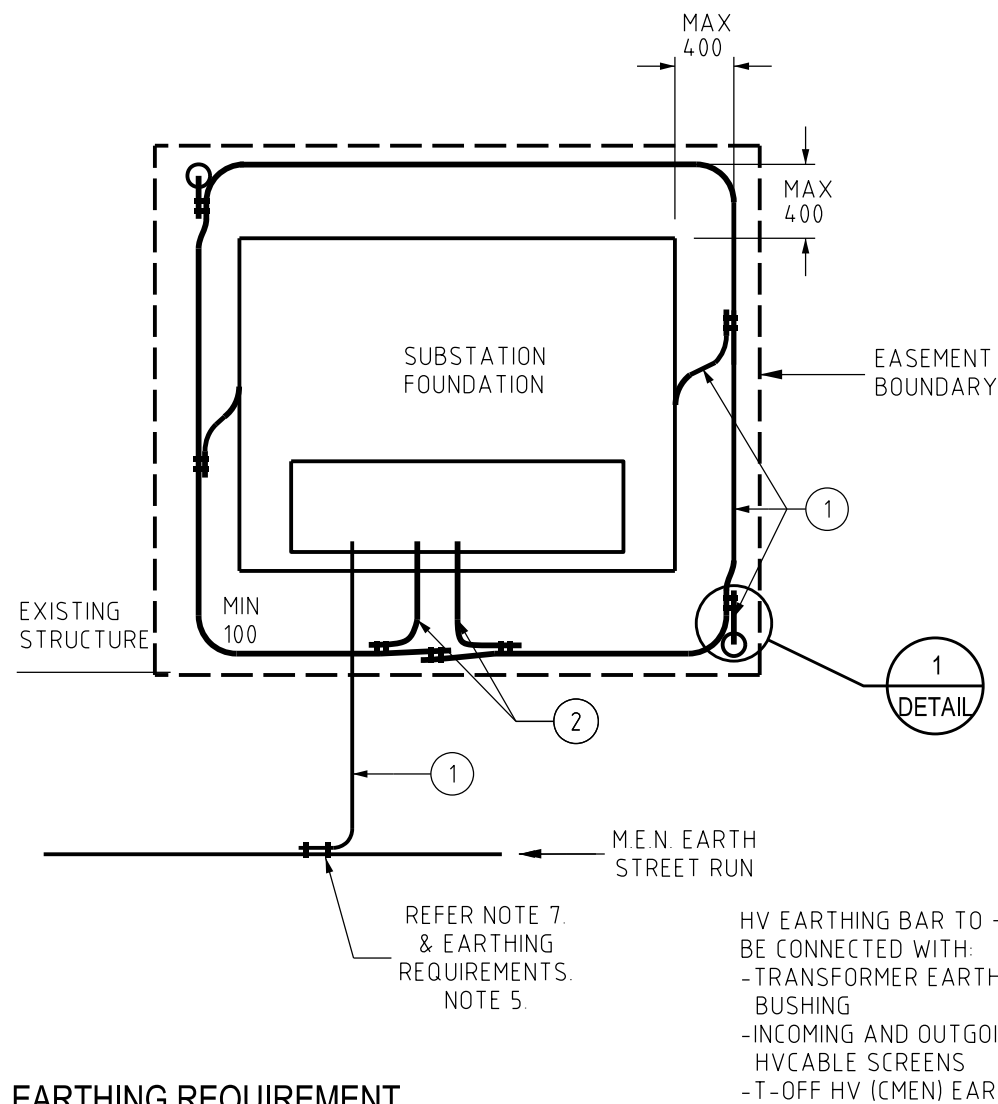




EARTHING REQUIREMENT

- FOR SUBSTATION EARTH RING, WITH LINK 1 OPEN, THE RECORDED EARTH RESISTANCE VALUE SHOULD NOT BE GREATER THAN 30 OHMS.
- FOR CMEN EARTH, WITH LINK 1 CLOSED, THE RECORDED EARTH RESISTANCE VALUE SHOULD NOT BE GREATER THAN 1 OHM.
- IF ANY OF THE ABOVE VALUES CANNOT BE ACHIEVED, REFER TO THE PROJECT MANAGER.
- 1 SPARE 10mm THREAD BOLT AND NUT FOR OPERATOR EARTHS ON THE HV AND LV EARTH BARS.
- TWO INDEPENDENT EARTHING CONNECTORS MUST BE USED FOR ALL EARTHING INTERCONNECTIONS. ALTERNATIVELY, CADWELD MAY BE USED. MEN TEE OFF MUST BE CONNECTED BY 2 X 'C' COMPRESSION CONNECTORS 300mm APART OR CADWELD.
- EARTH CONNECTIONS FOR ITEM 2 SHALL BE TERMINATED IN SEPARATE HOLES ON SUBSTATION EARTH BAR. IF ONLY ONE SPARE HOLE AVAILABLE, BOTH EARTH CABLES TO BE TERMINATED WITHIN A SINGLE HOLE

EARTHING TERMINATION ARRANGEMENT

NOTES:

- EARTHING FOR A SINGLE PHASE PACKAGE SUBSTATION CONSISTS OF TWO EARTH ELECTRODES IN OPPOSITE CORNERS OF THE EASEMENT AND A BARE COPPER CONDUCTOR EQUIPOTENTIAL RING.
- IN THE EASEMENT: TWO BORE HOLES TO BE DRILLED AT OPPOSITE CORNERS. FOR EACH HOLE:
 - AUGER DIAMETER TO BE USED SHOULD NOT BE GREATER THAN 150mm.
 - BORE DEPTH IS 3m.
 - EARTH ELECTRODE SHALL BE MADE FROM EITHER BARE 70 sq.mm COPPER CONDUCTOR OR 70 sq.mm BARE COPPER CONDUCTOR WITH AN EARTH STAKE ATTACHED VIA TWO PROFILE "6" COMPRESSION CONNECTOR BEFORE LOWERING THE STAKE INTO THE BORE HOLE. ATTACH THE 70 sq.mm COPPER CONDUCTOR TO THE EARTH GRID AS SHOWN IN DETAIL 1.
 - BACKFILL BORE HOLE FIRST WITH WATERED SLURRY MIXTURE OF ONE BAG OF EARTHING COMPOUND AND SOIL AT 1:1 RATIO, THEN TOP UP WITH EXISTING SOIL.
- EQUIPOTENTIAL EARTH RING OF 70 sq.mm BARE COPPER CONDUCTOR MUST BE LAID UP TO 400mm FROM THE FOUNDATION SLAB TO A DEPTH OF 300mm AND CONNECTED TO TWO EARTH ELECTRODES IN OPPOSITE CORNERS OF THE EASEMENT AS SHOWN. IF THERE IS ANY STRUCTURE WITHIN 400mm OF THE FOUNDATION, THEN PROVIDE A MINIMUM 100mm CLEARANCE BETWEEN THE STRUCTURE AND THE EQUIPOTENTIAL RING.
- FOR THE SUBSTATION FOUNDATION DETAILS, REFER TO DRG No S02-01-05-11
- M.E.N. EARTH (FROM DISTRIBUTION SYSTEM) MUST NOT BE BROUGHT INTO ELECTRICAL CONTACT WITH FOUNDATION AND EQUIPOTENTIAL RING SO THAT TESTING CAN BE CARRIED OUT. M.E.N. SHALL BE IN CONDUIT WHERE PASSING THROUGH SUBSTATION FOUNDATIONS.
- TRAFFIC BOLLARDS OF A RAIL DESIGN WITHIN EASEMENT, WITH TWO OR MORE FOUNDATIONS SHALL BE CONNECTED TO PERIMETER EARTHING CONDUCTOR BY 70sq.mm COPPER CONDUCTOR WHICH WILL BE SET INSIDE THE POST AND LUGGED OFF ONTO A BARRIER BOLT. POLE BOLLARDS WITH SINGLE FOUNDATION DO NOT REQUIRE EARTHING. CONDUCTIVE STRUCTURES EXTERNAL BUT IN CLOSE PROXIMITY TO EASEMENT SHALL ONLY BE EARTHED IF DEEMED NECESSARY TO DO SO. REFER TO STANDARDS FOR ADVICE AS REQUIRED.
- BOND THE SUBSTATION FOUNDATION TO THE SUBSTATION EARTH RING VIA 70 sq.mm BARE COPPER CABLE USING THE M12 FERRULES EMBEDDED IN THE FOUNDATION. STAINLESS STEEL FASTENERS TO BE USED.
- FOR ANY EARTH CONNECTIONS TO EXISTING COPPER FLAT BAR USE EXOTHERMIC EARTH WELD CONNECTION. CADWELD IS ALSO PERMITTED AS AN ALTERNATIVE TO CRIMPING. REFER TO DRG NO S01-01-05-03 FOR DETAILS.
- APPLY GREEN & YELLOW HEAT SHRINK TO LOCAL SUBSTATION EARTH TAIL CONNECTIONS FOR IDENTIFICATION PURPOSES, AS TO BE CONSISTANT WITH PREVIOUS INSTALLATION BEING INSULATED CABLE.

6	4	EARTHING COMPOUND.(BAG)	10876	-
5	AR	COMPRESSION CONNECTOR, "6" PROFILE, 70 sq.mm	257394	S01-01-05-08
4	AR	COMPRESSION CONNECTOR, "C" PROFILE , 70-70 sq.mm	255786	S01-01-05-08
3	AR	EARTH ROD, SS316, 14mm DIA	414060	S01-01-05-01
2	AR	CABLE, Cu, INSULATED, Y/GR, 70 sq.mm	401059	S02-01-01-23
1	AR	70sq.mm BARE COPPER CONDUCTOR.	9803	S01-01-05-05
ITEM	QTY	DESCRIPTION	ITEM NUMBER	DRG REF

MATERIAL SCHEDULE

6	EARTHING REQUIREMENT NOTE 6 ADDED AND EARTHING TERMINATION ARRANGEMENT AMENDED	P.G.	MAY'26	B.B.	B.V.
5	AMENDED NOTE 6.	J.R.	DEC'24	B.B.	B.V.
4	UPDATED LOCAL EARTH TAIL TO INSULATED CABLE. RE-ADDED ITEM 2. AMENDED LABELS	P.BH.	JUL'23	B.C.	B.V.
3	UPDATED NOTES 3, 6 & 7. TWO CRIMPS REQUIRED PER CONNECTION OR CADWELD. UPDATE EARTHING DESIGN. REMOVE ITEM 2. ADD NOTES 8 & 9.	CWM	OCT'21	B.V.	A.N.
2	CORRECTED NOTE 4 DRAWING NUMBER REFERENCE	R.A.	MAY'21	C.C.C.	B.C.
1	AMEND M.E.N. DETAILS	H.E.	SEP'20	B.C.	B.V.
0	ISSUED FOR CONSTRUCTION	C.C.	OCT'19	B.C.	B.V.
NO	DESCRIPTION	DRN	DATE	CKD	APPD
AMENDMENTS					

DES	A.TAYLOR	POWER STANDARD DRAWING			
DRN	C.COPPINS	EARTHING PACKAGE SUBSTATION SINGLE PHASE 75KVA CONSTRUCTION DETAILS			
CKD	B.CHEUNG				
APPD	B.CHEUNG				
SCALE	N.T.S.				
ISSUED	OCTOBER 2019	A3	DRAWING NUMBER	S02-02-05-15	
ALL DIM. IN mm					
DRAFTING STANDARD TO A.S.1100		CAD PRODUCT - DO NOT AMEND MANUALLY			AMDT