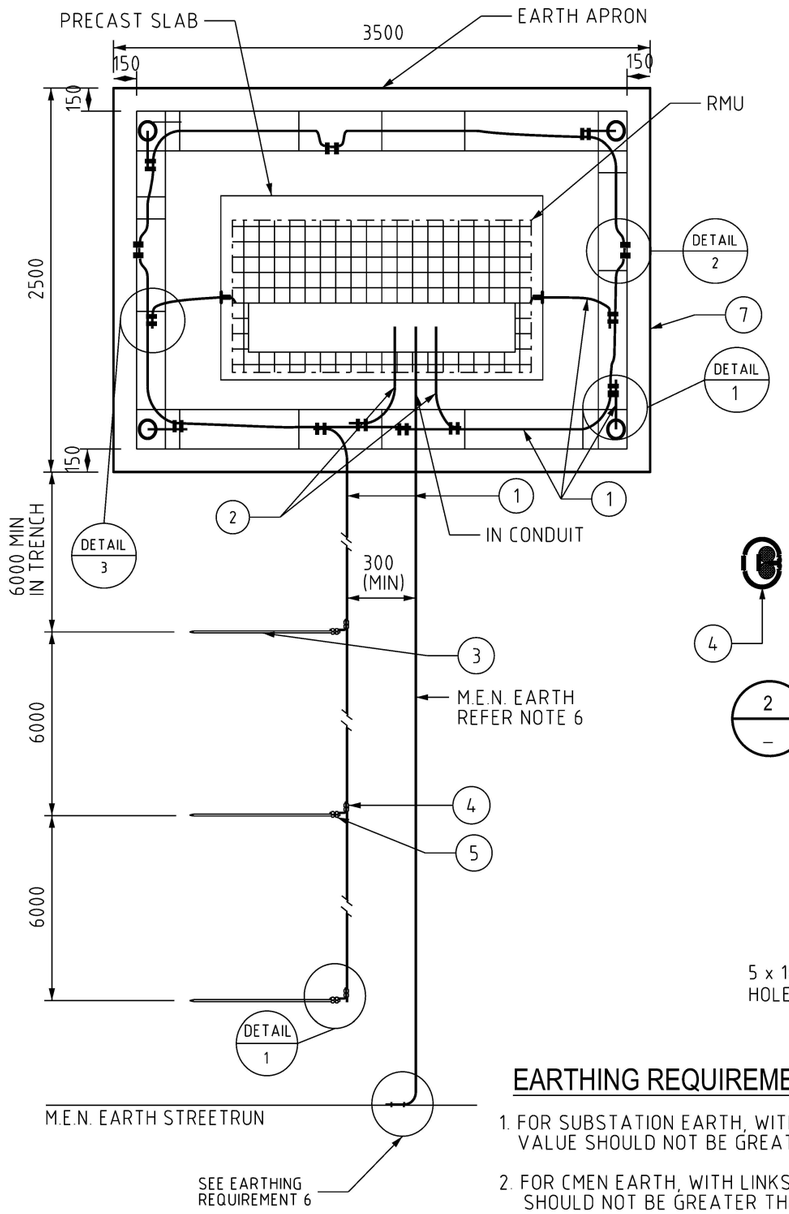
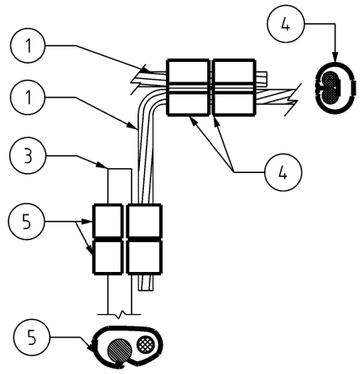
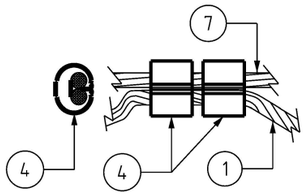


PLAN VIEW

N.T.S.



1 DETAIL 1 N.T.S.



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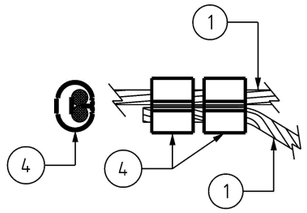
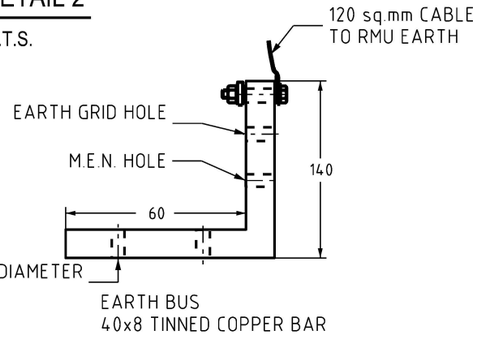


3 DETAIL 3 N.T.S.



EARTHING REQUIREMENT:

1. FOR SUBSTATION EARTH, WITH LINKS 1 AND 2 OPEN, THE RECORDED EARTH RESISTANCE VALUE SHOULD NOT BE GREATER THAN 30 OHMS.
2. FOR CMEN EARTH, WITH LINKS 1 AND 2 CLOSED, THE RECORDED EARTH RESISTANCE VALUE SHOULD NOT BE GREATER THAN 1 OHM.
3. IF ANY OF THE ABOVE VALUES CANNOT BE ACHIEVED, REFER TO THE PROJECT MANAGER.
4. 1 SPARE 10mm THREAD BOLT AND NUT FOR OPERATOR EARTHS ON THE HV EARTH BARS.
5. WHERE ACCESS IS LIMITED, EARTHING STAKES IN THE EASEMENT CAN BE RELOCTED TO THE CABLE TRENCH TO ENSURE THE SUBSTATION EARTH RESISTANCE IS LESS THAN 30 OHMS.
6. TWO INDEPENDENT EARTHING CONNECTORS MUST BE USED FOR ALL EARTHING INTERCONNECTIONS, ALTERNATIVELY CADWELD MAY BE USED. MEN TEE OFF SHALL BE CONNECTED VIA 2 x "C" COMPRESSION CONNECTOR 300mm APART OR CADWELD.

NOTES:

1. MINIMUM EARTHING FOR RING MAIN UNIT CONSISTS OF FOUR EARTH ELECTRODES IN THE EASEMENT AND IF REQUIRED THREE EARTH ELECTRODES IN THE CANLE ENTRY TRENCH.
2. IN THE EASEMENT: FOUR BORE HOLES TO BE DRILLED AT 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 SQMM COPPER CONDUCTOR OR 70SQMM BARE COPPER CONDUCTOR WITH AN EARTH STAKE ATTACHED VIA TWO PROFILE "6" COMPRESSION CONNECTOR BEFORE LOWERING THE STAKE INTO THE BORE HOLE. ATTACH THE 70SQMM 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 (ITEM NUMBER 400915 REFER TO DWG S02-01-05-02) AND SOIL AT 1:1 RATIO, THEN TOP UP WITH EXISTING SOIL.
3. IF REQUIRED TO ACHIEVE EARTHING REQUIREMENT NOTE 1, THREE ADDITIONAL EARTH ELECTRODES ARE TO BE INSTALLED AT THE BOTTOM OF THE CABLE ENTRY TRENCH WITH A DISTANCE OF 6m BETWEEN ELECTRODES AND TO A DEPTH OF 3m. A HAMMER CAN BE USED TO DRIVE CONNECTED EARTH RODS INTO THE GROUND, OR ALTERNATIVELY THE EARTH ELECTRODES CAN BE AS PER NOTE 2.
4. EQUIPOTENTIAL EARTH MESH OF 400mm WIDTH SHALL BE LAID ACROSS USING CONCRETE MESH CHAIRS AND CONNECTED TO FOUR EARTH ELECTRODES IN THE EASEMENT AS SHOWN BEFORE FORMING THE CONCRETE APRON FROM THE EASEMENT BOUNDARY TO THE RING MAIN UNIT FOUNDATION.
5. CABLE EARTH SCREENS TO BE CONNECTED TO EARTH BUS IN EACH COMPARTMENT.
6. M.E.N. EARTH (FROM DISTRIBUTION SYSTEM) MUST NOT BE BROUGHT INTO ELECTRICAL CONTACT WITH FOUNDATION SO THAT TESTING CAN BE CARRIED OUT. M.E.N. SHALL BE IN CONDUIT WHERE PASSING THROUGH SUBSTATION FOUNDATIONS.
7. 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.
8. EARTH BUS BAR TO BE LOCATED IN THE FRONT RIGHT CORNER OF THE RMU ENCLOSURE ALL BOLTS SHALL BE M12 CLASS 8.8 STAINLESS STEEL TIGHTENED TO 35-40NM.
9. REFER TO S02-02-06-23 & S02-01-05-14 FOR RMU FOUNDATION DETAILS.
10. BOND THE RMU FOUNDATION TO THE RMU EARTH RING VIA 70sqmm. BARE COPPER CABLE USING THE M12 FERRELLS EMBEDED IN THE FOUNDATION. STAINLESS STEEL FASTENERS TO BE USED.
11. FOR ANY EARTH CONNECTIONS TO EXISTING COPPER FLAT BAR USE CADWELD PLUS CONNECTION. CADWELD IS ALSO PERMITTED AS AN ALTERNATIVE TO CRIMPING. REFER TO DRG S02-01-05-03 FOR DETAILS.
12. APPLY GREEN & YELLOW HEATSHRINK TO LOCAL SUBSTATION EARTH TAIL CONNECTIONS FOR IDENTIFICATION PURPOSES, AS TO BE CONSISTANT WITH PREVIOUS INSTALLATIONS BEING INSULATED CABLE
13. ADD 100mm LOOPS TO LOCAL EARTH BAR CONNECTION POINTS TO ASSIST WITH EARTH TESTING.

ITEM	QTY	DESCRIPTION	ITEM NUMBER	DRG REF
7	4	EQUIPOTENTIAL EARTHING MASONRY WIRE MESH, GALVANISED, 400mm X 7.2mm DIA	288415	-
6	4	EARTHING COMPOUND (BAG)	10876	-
5	AR	COMPRESSION CONNECTOR, "6" PROFILE, 70 sq.mm	267394	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	70 sq.mm BARE COPPER CONDUCTOR	9803	S01-01-05-05

TABLE 01: MATERIAL SCHEDULE

NO	DESCRIPTION	DRN	DATE	CKD	APPD
13	AMENDED NOTE 7.	J.R.	DEC'24	B.B.	B.V.
12	AMENDED RMU, SLAB & EARTH MESH POSITION AND SCALED ACCORDINGLY. ADDED LABELS AND DIMENSIONS. UPDATED LOCAL EARTH TAIL TO INSULATED CABLE. RE-ADDED ITEM 2. AMENDED EARTH RING. AMENDED ITEM 2. AMENDED LABELS.	P.BH.	JUL'23	B.C.	B.V.
11	UPDATE NOTES. TWO CRIMPS REQUIRED PER CONNECTION OR CADWELD. UPDATE EARTHING DESIGN. REMOVE ITEM 2. ADD NOTES 4, 5, 6 EARTHING REQUIREMENTS.	CWM	OCT'21	A.N.	B.V.
10	CORRECTION MADE TO LOCAL EARTH TO EARTH BAR AND M.E.N. ENTRY	CWM	MAY'20	B.C.	B.V.
9	DRAWING NUMBER ERROR CORRECTED	CWM	FEB'20	B.V.	B.V.
8	DETAIL 2 AMENDED	C.C.	NOV'19	B.V.	B.C.
7	TITLE BLOCK & DRAWING NUMBER FORMATTED	K.T.	FEB'19	C.C.	C.C

AMENDMENTS

PowerWater
NORTHERN TERRITORY

DES	C.FOO.
DRN	A.S.
CKD	R.C.
APPD	C.FOO.
SCALE	AS SHOWN
ISSUED	SEPT'2004
ALL DIM. IN mm	
DRAFTING STANDARD TO A.S.1100	

POWER STANDARD DRAWING

EARTHING
RING MAIN UNIT (RMU), RM6
CONSTRUCTION DETAILS

A3

DRAWING NUMBER S02-02-05-06

CAD PRODUCT - DO NOT AMEND MANUALLY

13 AMDT