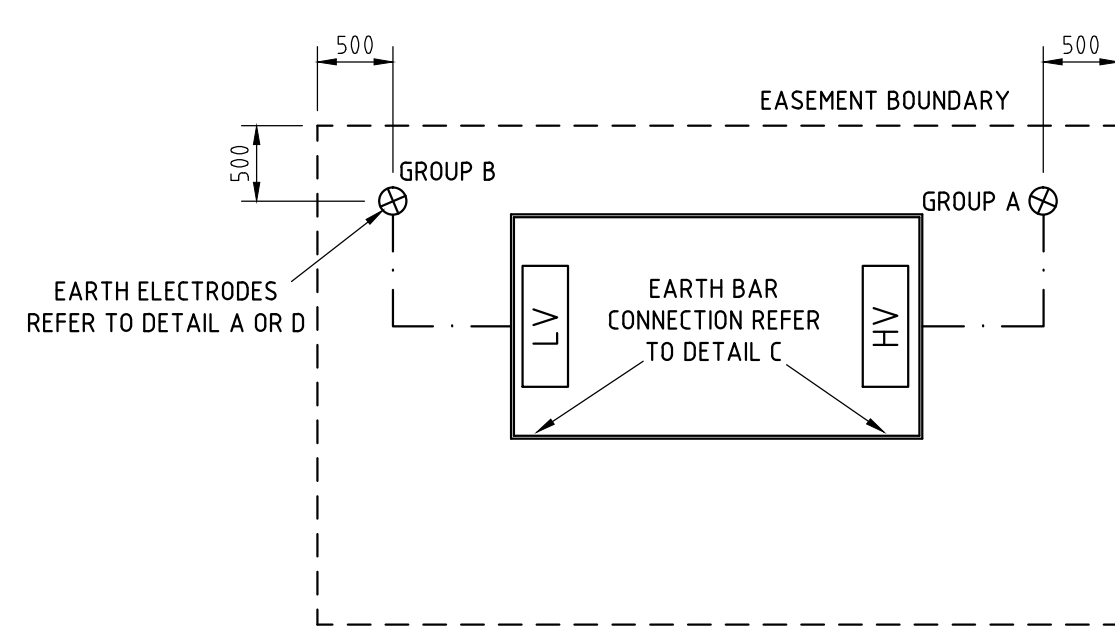
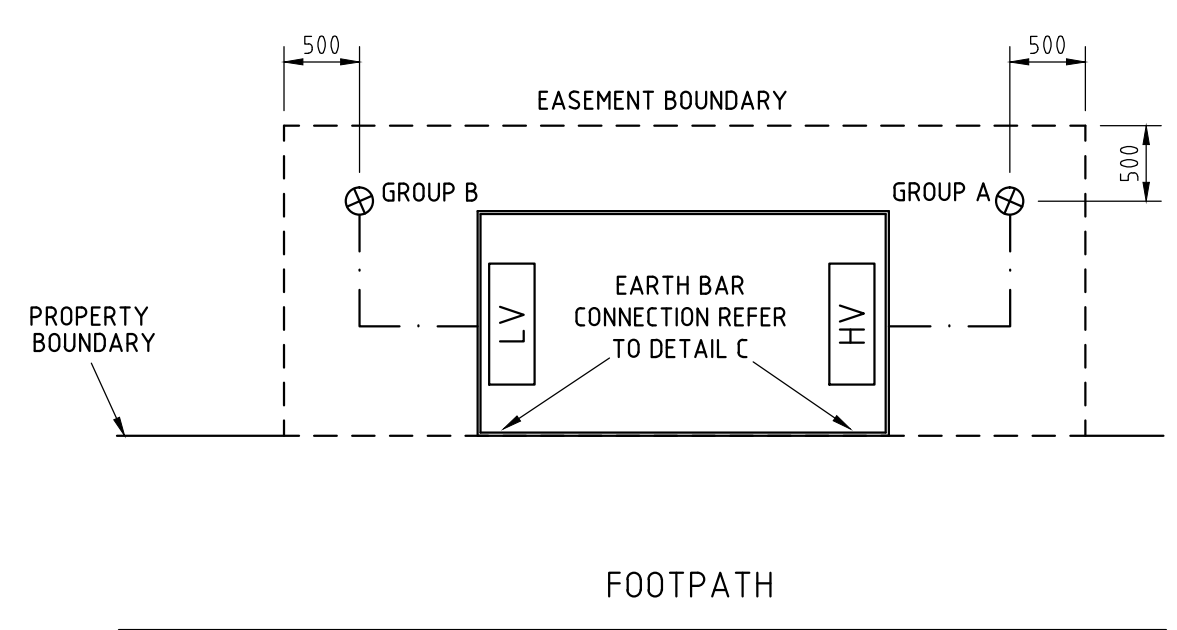


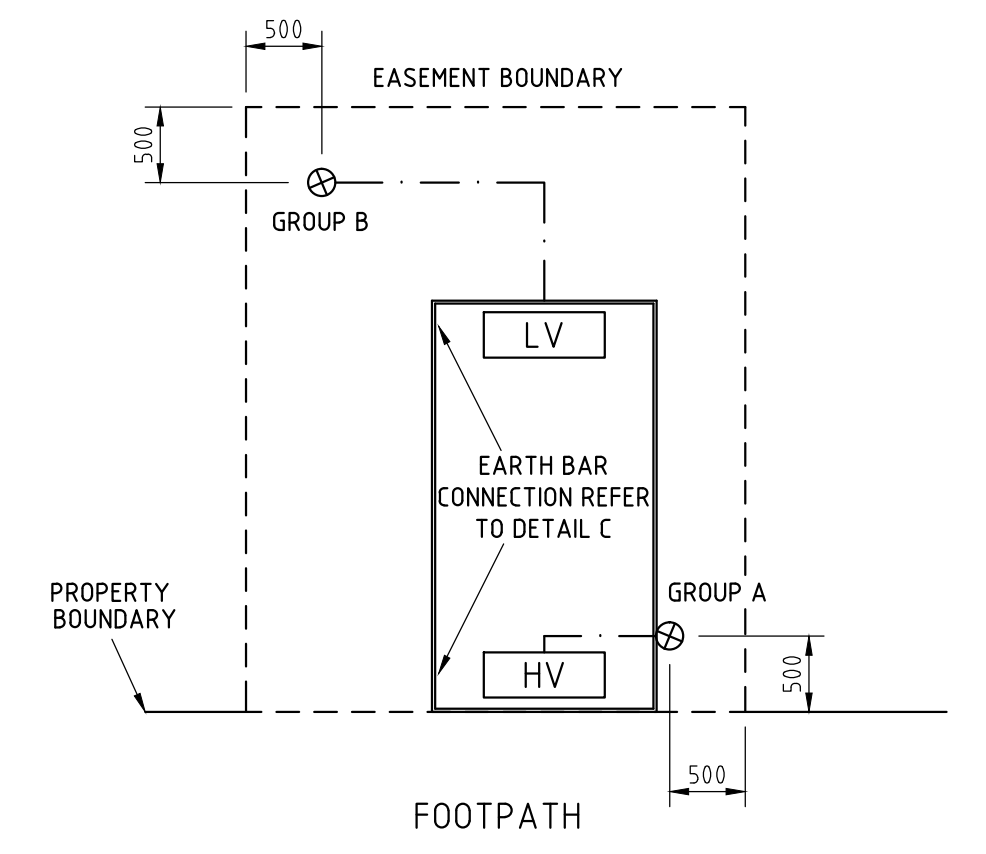
STANDARD MINIMUM EARTHING DESIGN (SME)



SITE PLAN A



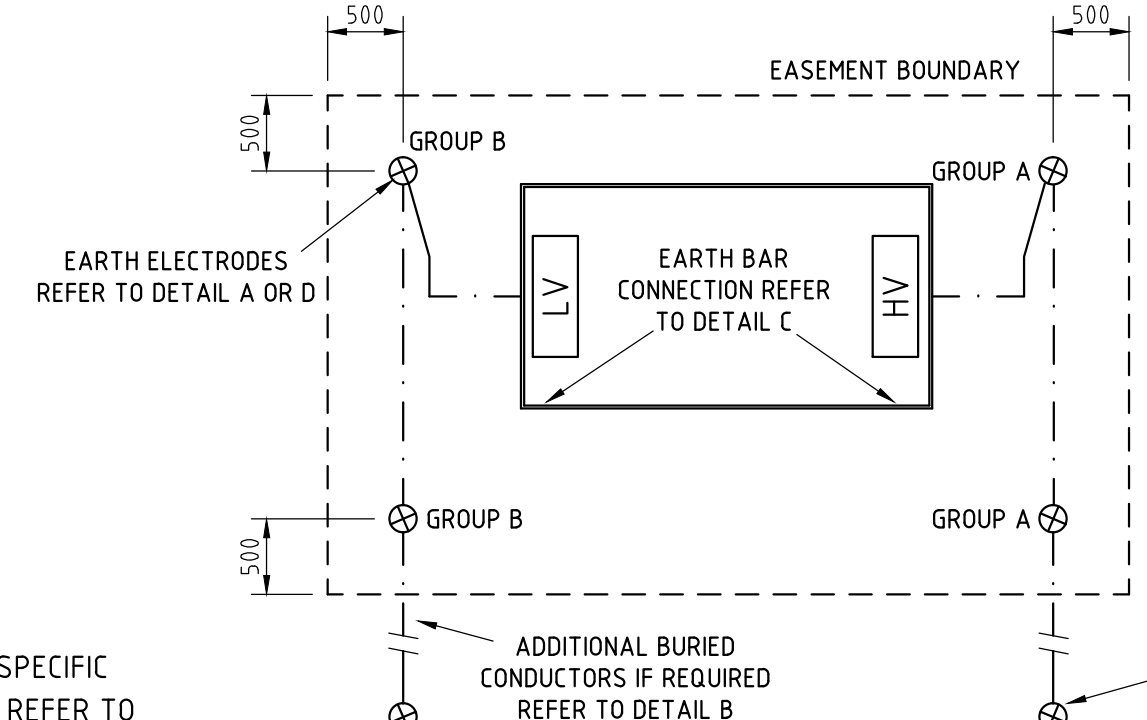
SITE PLAN B



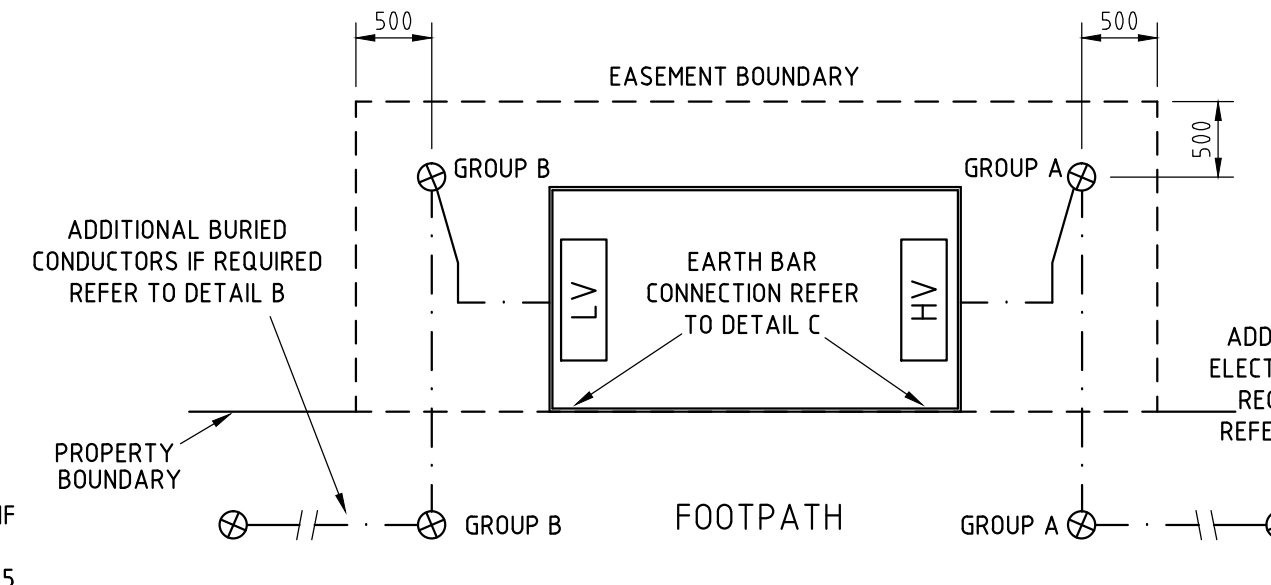
SITE PLAN C

TYPICAL EARTHING DESIGN

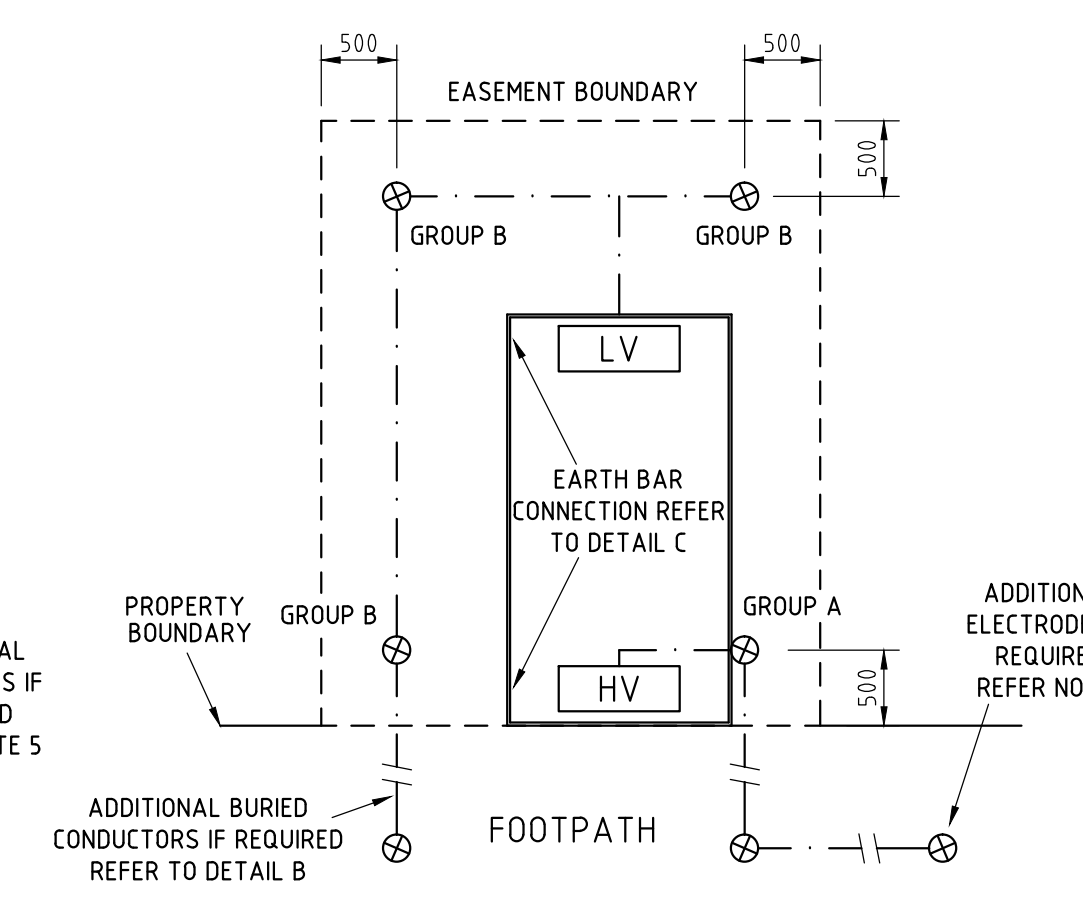
IF THE KIOSK SITE DOES NOT MEET THE CRITERIA FOR STANDARD MINIMUM EARTHING, A SITE SPECIFIC EARTHING DESIGN MUST BE UNDERTAKEN



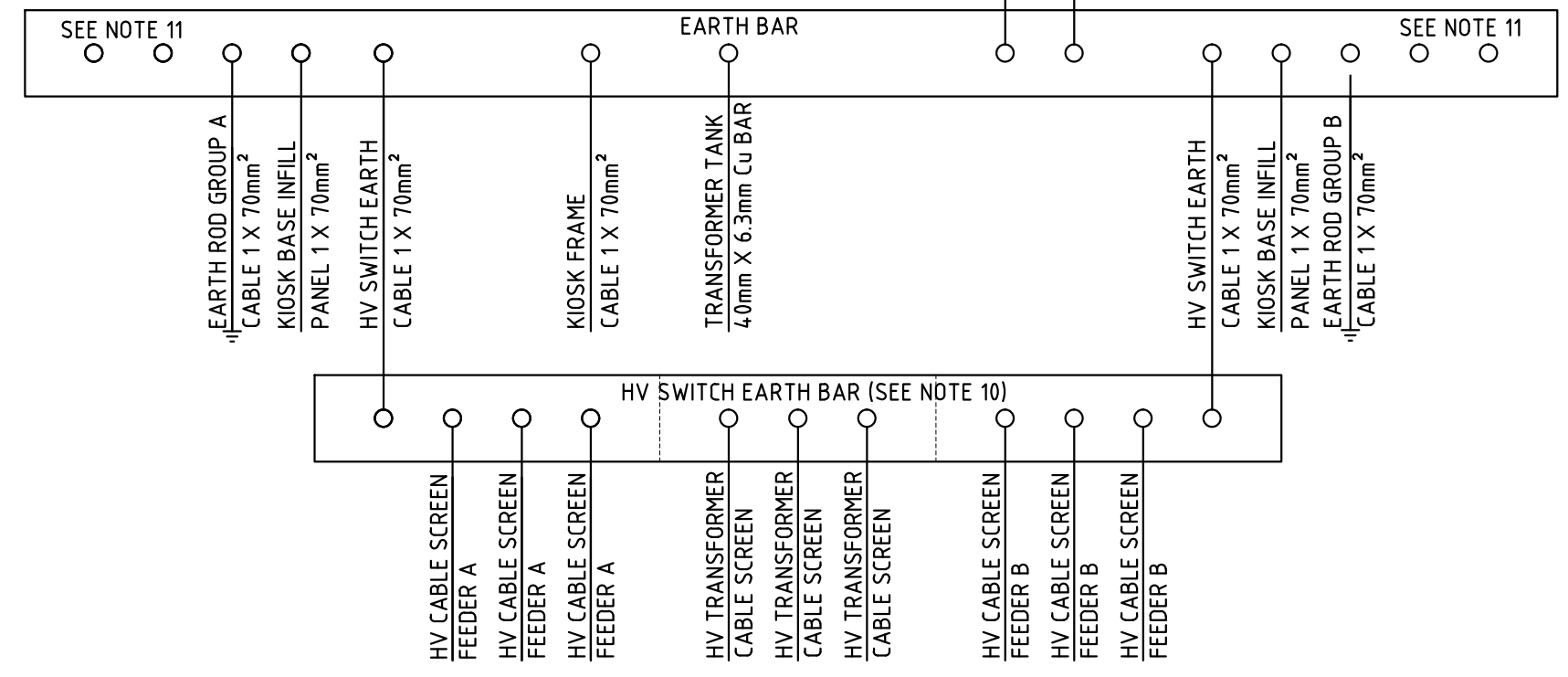
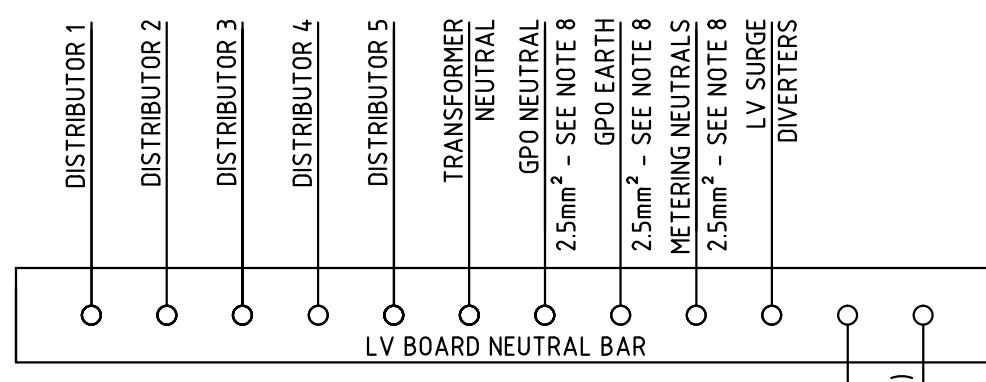
SITE PLAN A



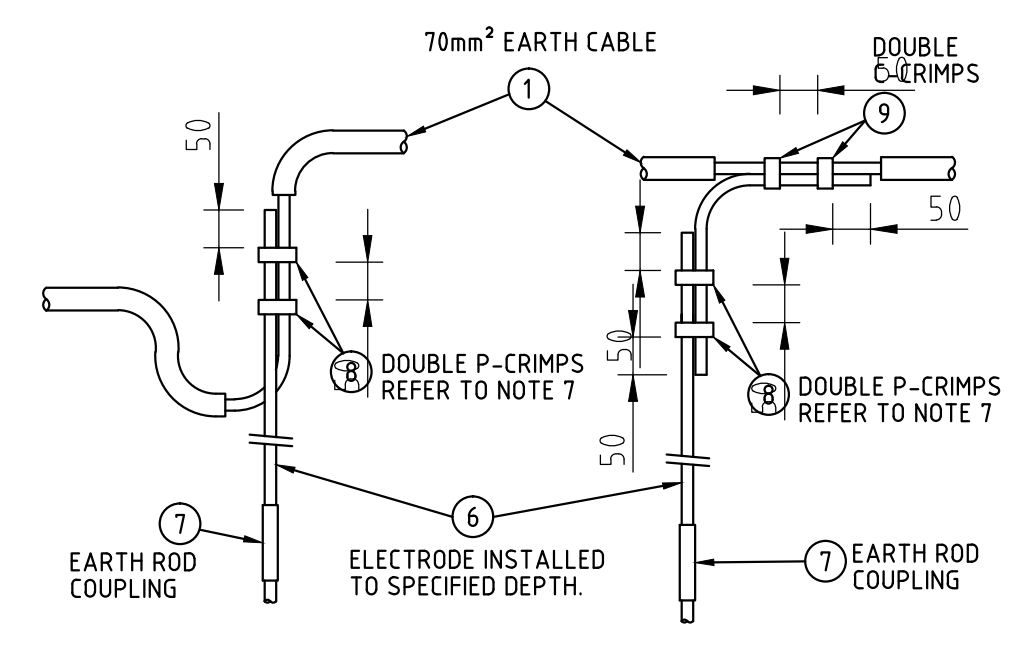
SITE PLAN B



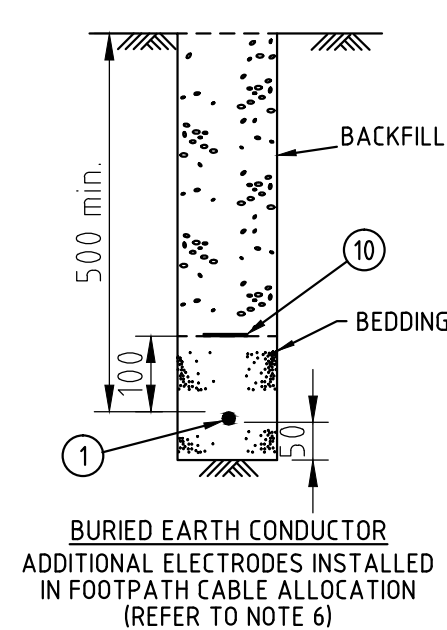
SITE PLAN C



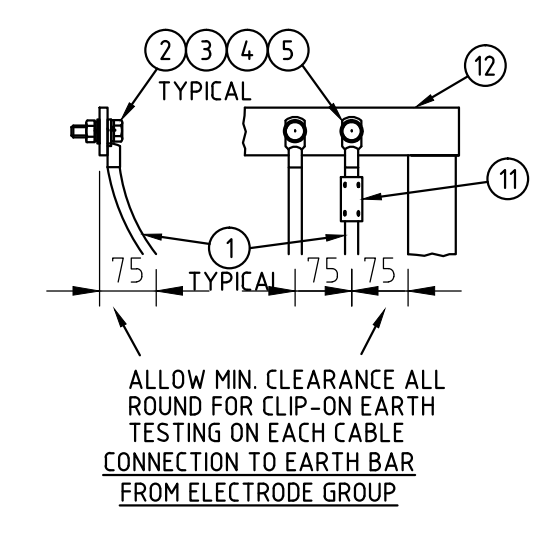
SCHEMATIC DIAGRAM



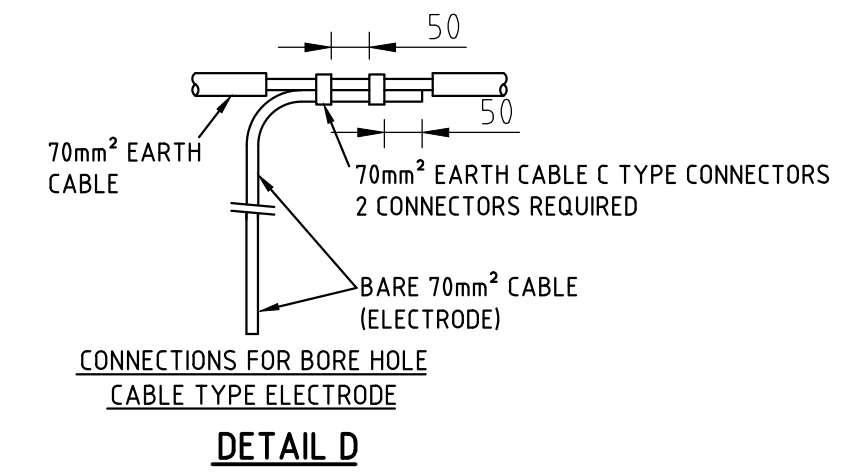
**CONNECTION FOR DRIVEN ROD TYPE ELECTRODES
DETAIL A**



DETAIL B



DETAIL C



DETAIL D

NOTES

- THIS DRAWING DETAILS STANDARD MINIMUM AND TYPICAL SITE SPECIFIC SINGLE KIOSK SUBSTATION EARTHING LAYOUTS. A SITE SPECIFIC DESIGN IS REQUIRED FOR EACH SITE THAT DOES NOT MEET THE CRITERIA FOR STANDARD MINIMUM EARTHING NOMINATED IN NS116. REFER TO NS116, NS117 AND NS14.1 FOR ADDITIONAL INFORMATION.
- WHERE KIOSKS ARE INSTALLED ON SUPPORTING STRUCTURES REFER TO DRAWINGS 151573 (FOR J KIOSK), 151572 (FOR L KIOSK), 151190 (FOR K KIOSK) FOR EARTHING CONDUIT INSTALLATION REQUIREMENTS.
- WHERE KIOSKS ARE INSTALLED ON SUPPORTING STRUCTURES AND EARTHING CABLES ARE TO BE INSTALLED THROUGH FLOORS OF BUILDINGS BELOW SUPPORTING STRUCTURES, THEN THE ARRANGEMENT FOR CABLING TO ELECTRODES SHOULD FOLLOW THE SIMILAR REQUIREMENTS FOR CHAMBER SUBSTATIONS AS PER NS113 AND DRAWING 25121.
- MINIMUM SPACING BETWEEN ELECTRODES SHALL BE 3m UNLESS STATED IN THE INDIVIDUAL SITE EARTHING DESIGN.
- WHERE THE INDIVIDUAL SITE EARTHING DESIGN CALLS FOR MORE THAN 2 ELECTRODES PER GROUP THEN ADDITIONAL ELECTRODES MUST BE INSTALLED IN A CABLE EASEMENT OR THE CABLE ALLOCATION IN THE FOOTPATH AREA.
- WHERE CABLES AND / OR CONDUITS ALREADY EXIST IN A 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 IN THE POLE LINE ALLOCATION, IN ACCORDANCE WITH NS 116. IF INSTALLATION IN THE POLE LINE ALLOCATION IS NOT FEASIBLE, THEN THE EARTHING CONDUCTORS MAY BE INSTALLED IN THE CABLE ALLOCATION 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.
- ALL 70mm² EARTH CABLE TO BE BLACK INSULATED STRANDED COPPER CONDUCTOR, EXCEPT FOR GPO AND METERING CABLING WHICH IS TO BE 2.5mm² PVC INSULATED 7/0.67 STRANDED COPPER CONDUCTOR.
- EACH INDIVIDUAL DOOR AND ACCESS HATCH FOR KIOSKS WITH A METAL ENCLOSURE IS TO BE CONNECTED TO KIOSK ENCLOSURE WITH A STRANDED COPPER CABLE OR BRAID OF NOT LESS THAN 70mm². A SEPARATE CONNECTION IS TO BE PROVIDED FOR EACH DOOR LEAF AND HATCH. THE KIOSK ENCLOSURE IS TO BE CONNECTED TO KIOSK FRAME CABLE OR BRAID OF NOT LESS THAN 70mm² AT A MINIMUM OF TWO SEPARATE ACCESSIBLE LOCATIONS.
- THE HV SWITCH EARTH BAR MAY BE ONE CONTINUOUS BAR OR A SEPARATE BAR FOR EACH END BOX. IF SEPARATE BARS ARE USED THEY ARE TO BE RING CONNECTED WITH A MINIMUM OF 70mm² CABLE TO THE KIOSK EARTH BAR.
- SPARE HOLES IN THE EARTH BAR ARE REQUIRED FOR ADDITIONAL FUTURE CONNECTIONS.
- 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.

ITEM No	DESCRIPTION	STOCK CODE	QTY.
12	EARTH BAR, TINNED COPPER (AS PER SCHEMATIC)		
11	PERMANENT LABEL WORDING "EARTH ELECTRODES GROUP A" OR "B"		AS REQD
10	PVC/POLYMERIC CABLE COVER - 150mm WIDE MARKED "ELECTRICAL CABLE"	151084	AS REQD
9	'C' CRIMP CONNECTOR TO SUIT 70mm² CONDUCTOR	177942	AS REQD
8	'P' CRIMP CONNECTOR TO SUIT 70mm² CONDUCTOR	H31699	AS REQD
7	Ø15mm EARTH ROD COUPLERS	H31649	AS REQD
6	EARTH ROD - Ø15mm - 1800 LONG COPPER COATED PER NS 116 - MIN. OF 3 PER 5m ELECTRODE	H31631	AS REQD
5	BELLEVILLE WASHER M12 STAINLESS STEEL	175903	1 PER BOLT
4	FLAT WASHER M12 STAINLESS STEEL	49429	2 PER BOLT
3	HEX BOLT & NUT M12 S.S TO A.S. 316 - LENGTH TO SUIT		AS REQD
2	LUG HEX. COMPRESSION M12 TO SUIT 70mm²	74831	AS REQD
1	BLACK INSULATED STRANDED COPPER CONDUCTOR - 70mm²	60111	AS REQD

AMENDMENTS

NO.	DESCRIPTION	DATE
1	DO NOT MANUALLY AMEND	
2	CONVERTED TO AUTOCAD	
3	NEW DRAWING BORDER ADDED	
4	PN PH-02-0210-1-1-1	
5	CHECKED: N.ORELY	
6	APPROVED: P.JARVIS	
7	SHEET 2 INCORPORATED INTO	
8	SCHEMATIC DIAGRAM REDRAWN	
9	LAYOUT DIAGRAMS REDRAWN	
10	PN PH-02-0210-1-1-1	
11	CHECKED: N.ORELY	
12	APPROVED: P.JARVIS	
13	8mm Ø BORE HOLE EARTHING	
14	CABLE TO BE BORED	
15	NOTE 12 ADDED	
16	DETAIL A AMENDED	
17	CHECKED: P.JARVIS	
18	CHECKED: P.JARVIS	
19	APPROVED: N.ORELY	
20	9. TYPICAL LAYOUT 1&2 AMENDED	
21	REFERENCES TO DETAIL A, C & D	
22	WATER MAIN CONNECTION REMOVED ON	
23	SCHEMATIC	
24	DETAIL B AMENDED	
25	PN PH-02-0210-1-1-1	
26	CHECKED: P.JARVIS	
27	CHECKED: P.JARVIS	
28	APPROVED: N.ORELY	
29	10. DRAWING WAS AS SIZE	
30	TYPICAL LAYOUTS RENAMED	
31	TYPICAL SITE PLANS	
32	NOTE 11 AMENDED	
33	PN PH-02-0210-1-1-1	
34	CHECKED: P.JARVIS	
35	APPROVED: P.JARVIS	
36	11. STANDARD MINIMUM EARTHING	
37	REQUIREMENTS ADDED	
38	DESIGN CLARIFIED	
39	APPROVED: P.JARVIS	
40	PN OPEX 6588-1-1-1	
41	CHECKED: P.JARVIS	
42	APPROVED: D.GREY	

CONSTRUCTION

NETWORK STANDARD

Ausgrid

ENGINEERING BRANCH
PRIMARY SYSTEMS
TRANSMISSION & DISTRIBUTION SUBSTATION ENGINEERING
570 GEORGE STREET, SYDNEY

SCALE
DESIGNED
DRAWN
CHECKED
APPROVED
DATE
PROJECT NUMBER
PROJ TRACK NUMBER

AS SHOWN

SIGNED ON ORIGINAL

STANDARD CONSTRUCTION
SINGLE KIOSK SUBSTATIONS
COMBINED HV/LV EARTHING DETAILS

SIZE: A1
DRAWING No: 167433
SHEET: 1
AMD: 11