# Distribution Substation Manual (DSM)

### **Section 6 - Miscellaneous**



July 2015



### **Document release information**

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#### **Document prepared by:**

## Western Power ABN 18540492861 363 Wellington Street, Perth

		Revision History		
Edition/Revision Number	Issue Date	Description	Endorsed By	Approved By
First Edition	June 1997	Distribution Substations Manual (DSM) issued	NA	NA
Second Edition	February 2002	Revised from First Edition	Ed Wilcox	Robert Rogerson
Third Edition	March 2007	DSM split into 10 Sections – Introduction and Sections 1 to 9	Sandeep Magan	Robert Rogerson
Fourth Edition	December 2008 July 2010	Modified DSM 6-04. Added DSM 6-06, 6-07, 6-08. Modified DSM 6-06 sheet 1	Sandeep Magan	Robert Rogerson
Fifth Edition	July 2015	Drawing format amended to include revision information and reference to WADCM. Removed F34 plywood references.	Revana Boodhraj	Herman Du Plessis

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### Fifth edition July 2015

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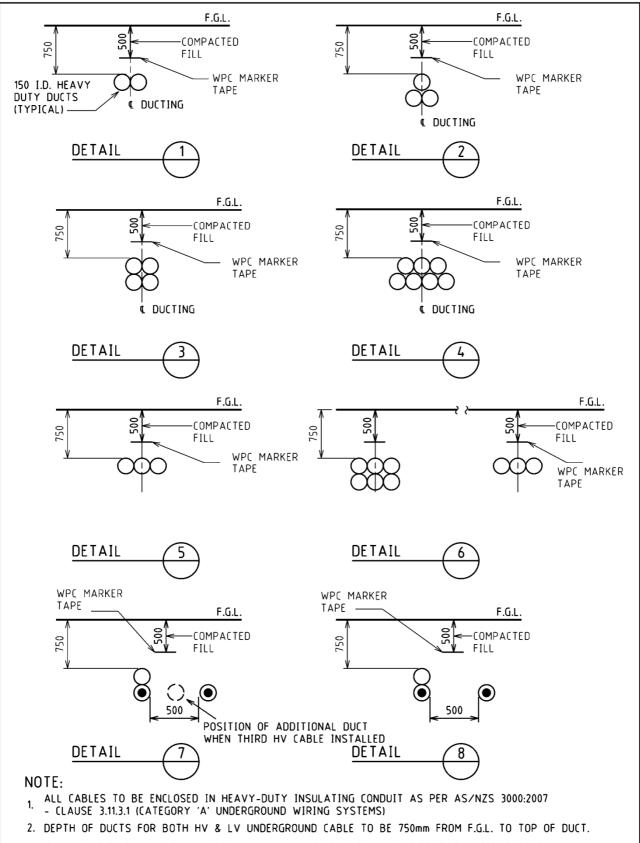


### 6 Miscellaneous

### **Index Of Drawings**

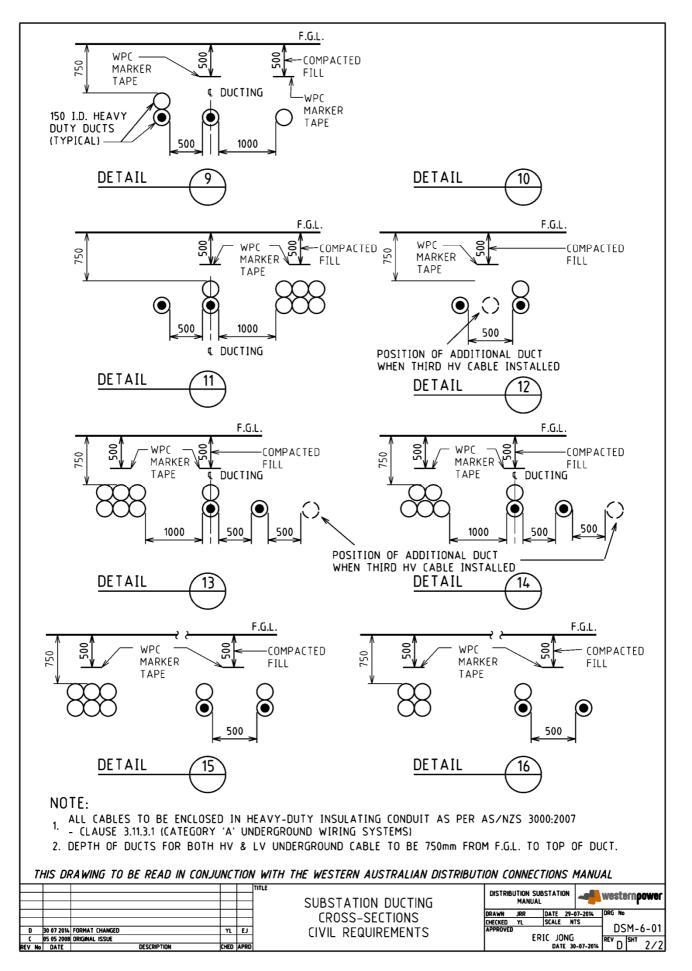
Drawing Number	Drawing Title
DSM-6-01	Substation Ducting Cross Sections - Civil Requirements
DSM-6-02	Substation Exhaust Fans - Details
DSM-6-03	Substation Exhaust Fan Sub-Distribution Board For Indoor Substation - Schematic
DSM-6-04	Schneider RM6 Switchgear Indoor Installation – Installation Details
DSM-6-05	Transformer Lifting Details - Lifting Eyes And Monorail
DSM-6-06	Schneider RM6 Switchgear Earthing Connections
DSM-6-07	Schneider RM6 Switchgear Support Beam Fabrication Details
DSM-6-08	Schneider RM6 Switchgear Indoor Base Frame Fixing Details



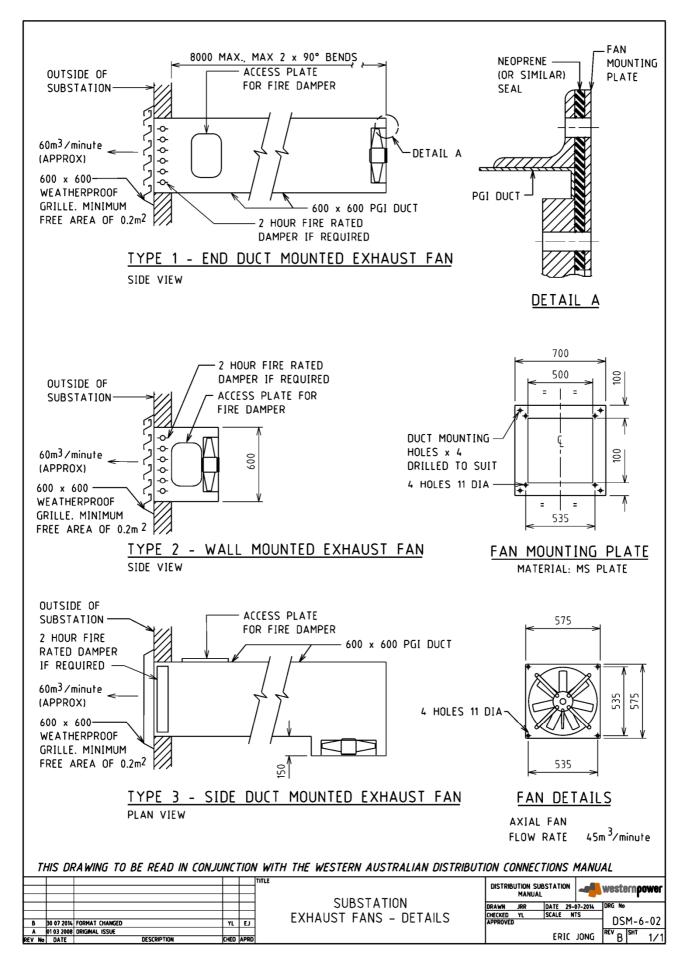


### THIS DRAWING TO BE READ IN CONJUNCTION WITH THE WESTERN AUSTRALIAN DISTRIBUTION CONNECTIONS MANUAL

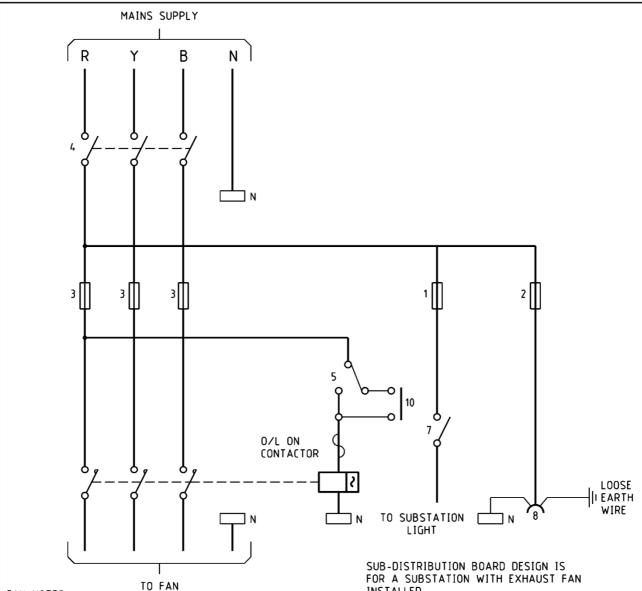
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FAN NOTES:

FOR TRANSFORMERS UPTO AND INCLUDING 500kVA THE FAN MOTOR SHALL BE Y CONNECTED FOR LOW SPEED OPERATION. THE MAX. FLOW RATE WILL BE 45m<sup>3</sup> / MINUTE

FOR TRANSFORMERS ABOVE 500kVA, THE FAN MOTOR SHALL BE A CONNECTED FOR HIGH SPEED OPERATION.

ELECTRICAL FAN LOADS : Y LOW SPEED 230W / 0.4 AMPS △ HIGH SPEED 320W / 0.6 AMPS

FAN THERMOSTAT TO BE LOCATED DIRECTLY ABOVE THE TRANSFORMER AND SET AT 500 C INSTALLED.

ITEM	QTY	DESCRIPTION
1	1	RED SPOT G.E.C RS 20 P FUSE HOLDER - LIGHTS
2	1	RED SPOT G.E.C RS 20 P FUSE HOLDER - POWER
3	3	RED SPOT G.E.C RS 20 P FUSE HOLDER -FAN
4	1	MAIN SWITCH - FEDERAL M335
5	1	AUTO/MANUAL SWITCH
6	1	CONTACTOR SIEMENS No.1
7	1	LIGHT SWITCH
8	1	G.P.O.
9	1	NEUTRAL BLOCK
10	1	THERMOSTAT
11	1	'ZIEHL-EBM' AXIAL FAN MODEL FC045-VDQ4C.3

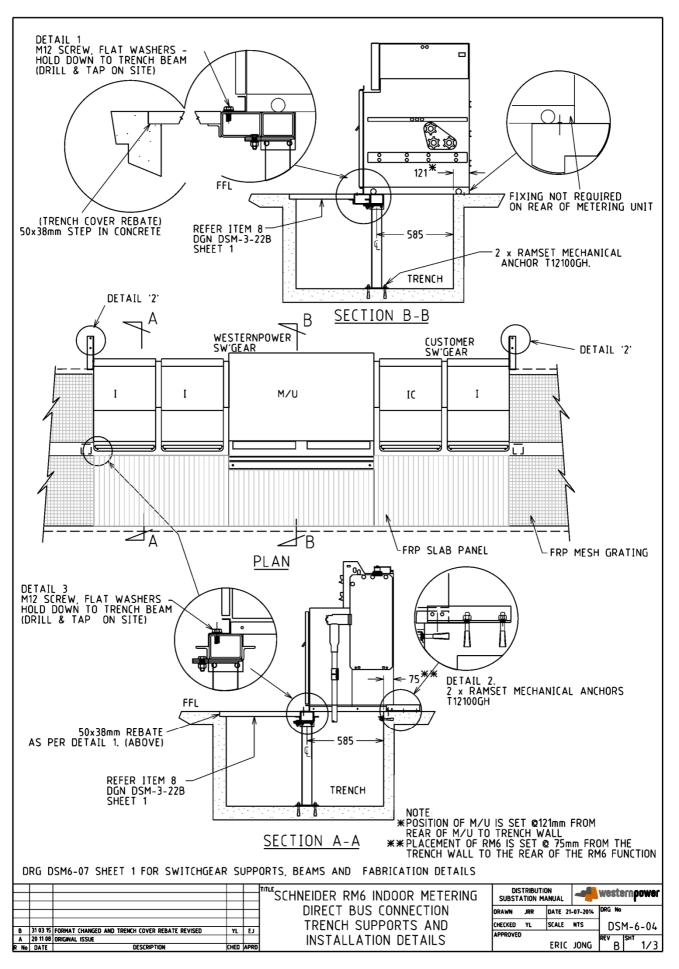
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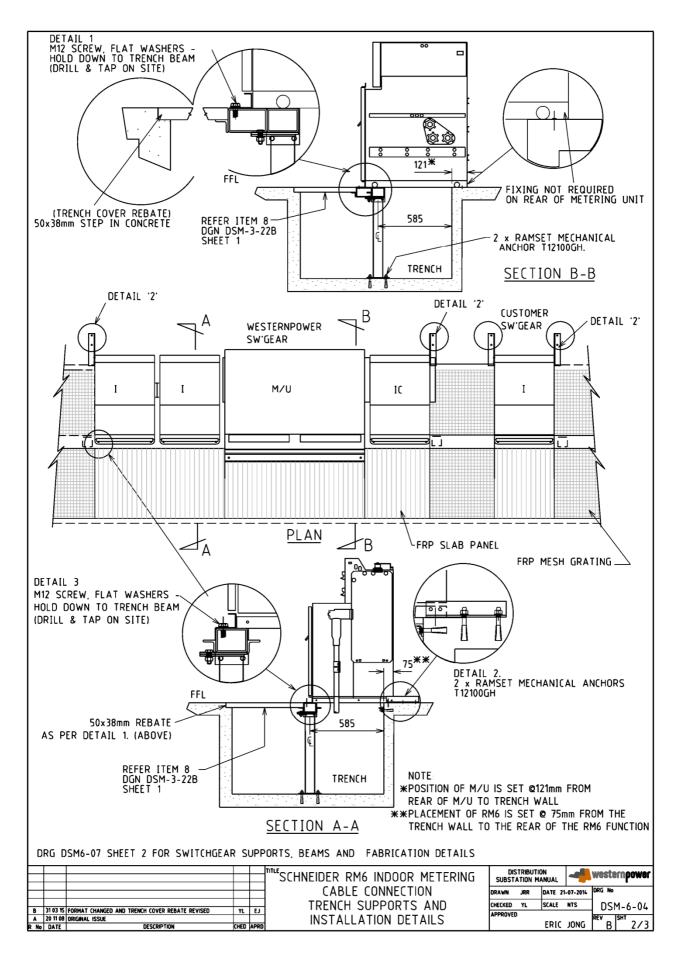
SUBSTATION EXHAUST FAN SUB-DISTRIBUTION BOARD FOR INDOOR SUBSTATION SCHEMATIC

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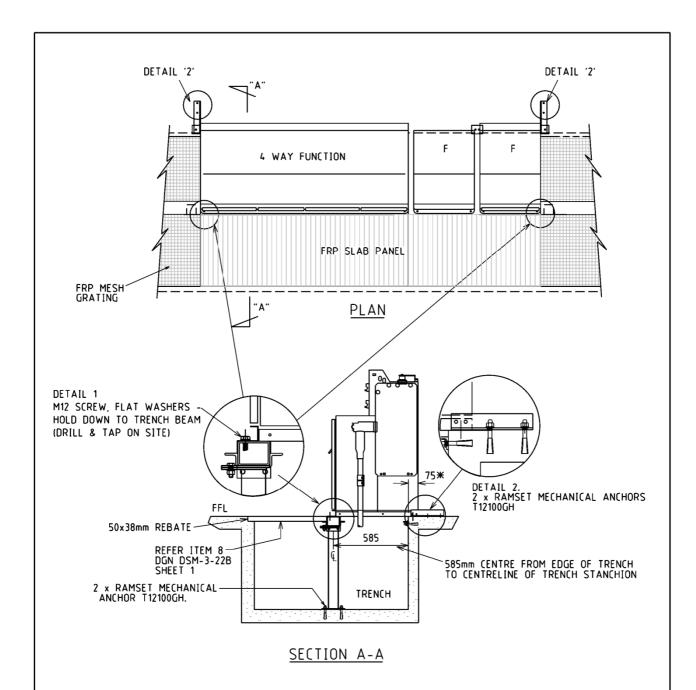










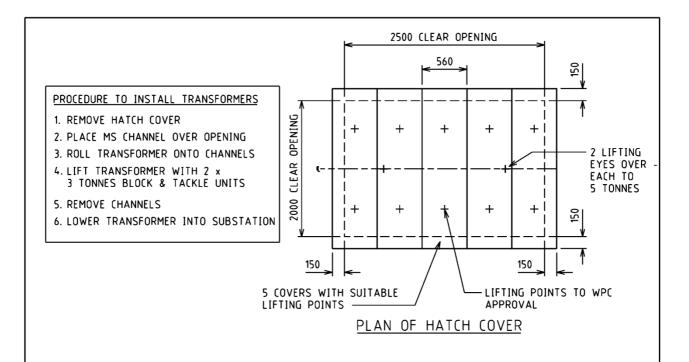


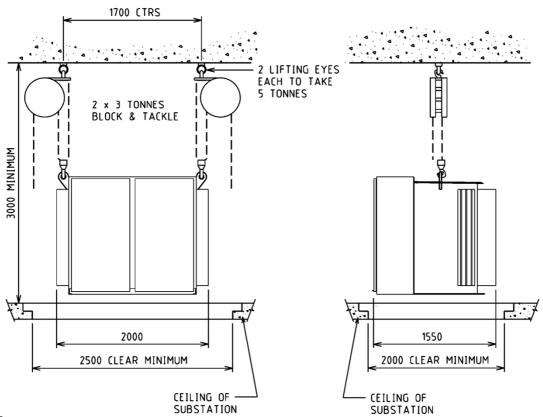
NOTE: \*\* PLACEMENT OF RM6 IS 75mm FROM THE TRENCH WALL TO THE REAR OF THE RM6 FUNCTION

DRG DSM6-07 SHEET 3 FOR SWITCHGEAR SUPPORTS, BEAMS AND FABRICATION DETAILS

E	Ŧ					TITLE	SCHNEIDER RM6 INDOOR	DISTRIBUTI SUBSTATION M		4	westernpower
F	‡					1		DRAWN JRR CHECKED YL	DATE 21	-07-2014 NTS	DSM-6-04
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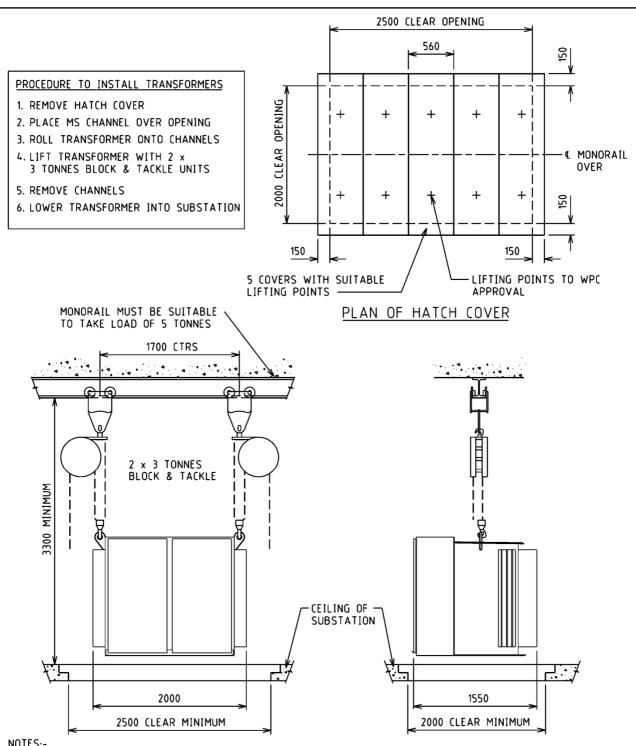




- NOTES:-
- 1. WEIGHT OF TRANSFORMER 5 TONNES (1000kVA).
- 2. THE FLOOR OVER WHICH THE TRANSFORMER IS TO BE TRANSPORTED IS TO BE CAPABLE OF SAFELY SUPPORTING THE TRANSFORMER

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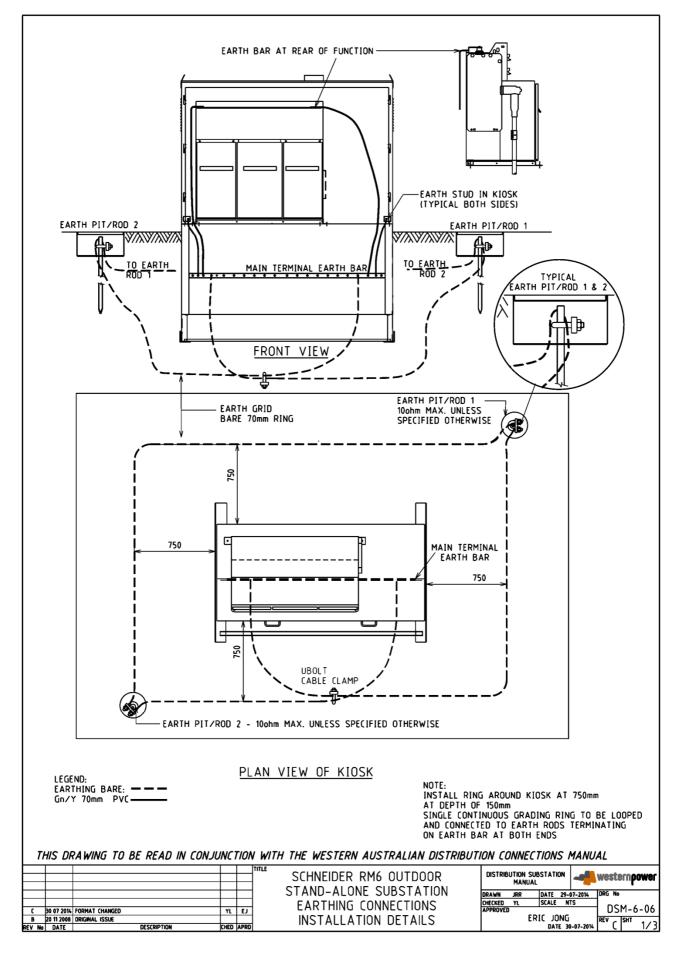


- NOTES:-
- 1. WEIGHT OF TRANSFORMER 5 TONNES (1000kVA).
- 2. THE FLOOR OVER WHICH THE TRANSFORMER IS TO BE TRANSPORTED IS TO BE CAPABLE OF SAFELY SUPPORTING THE TRANSFORMER
- 3. MONORAILS FOR TRANSFORMER LIFTING SHOULD BE 152 OR 200mm WIDE TO SUIT GIRDER TROLLEYS OF THESE SIZES
- 4. IT IS THE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE THE MONORAIL & ENGAGE A STRUCTURAL ENGINEER TO ENSURE THE CORRECT DESIGN & CONSTRUCTION OF THE MONORAIL SUPPORT & FLOOR.

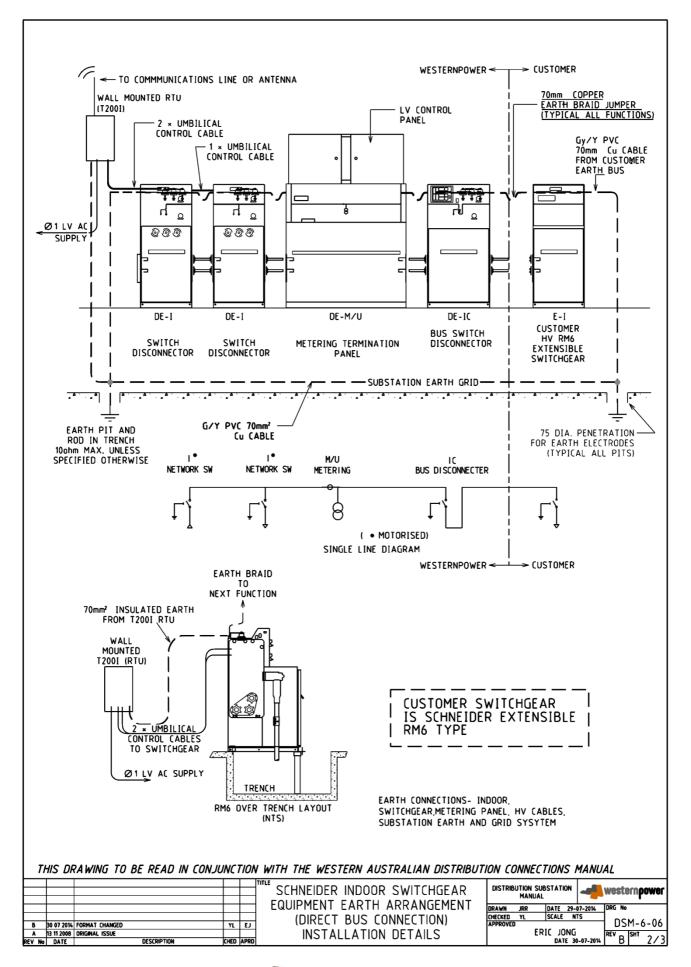
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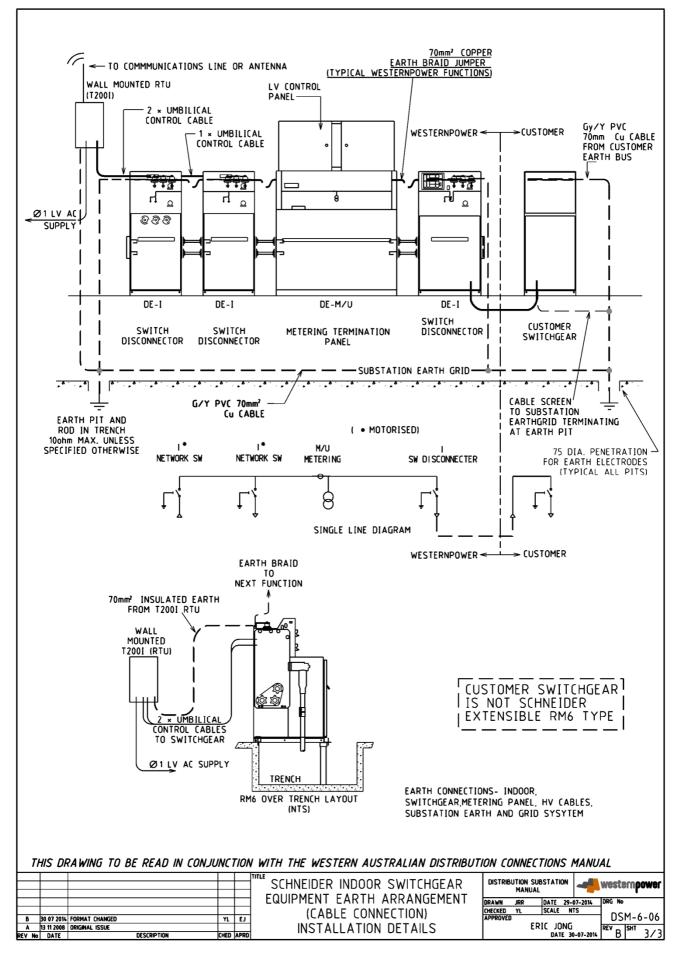




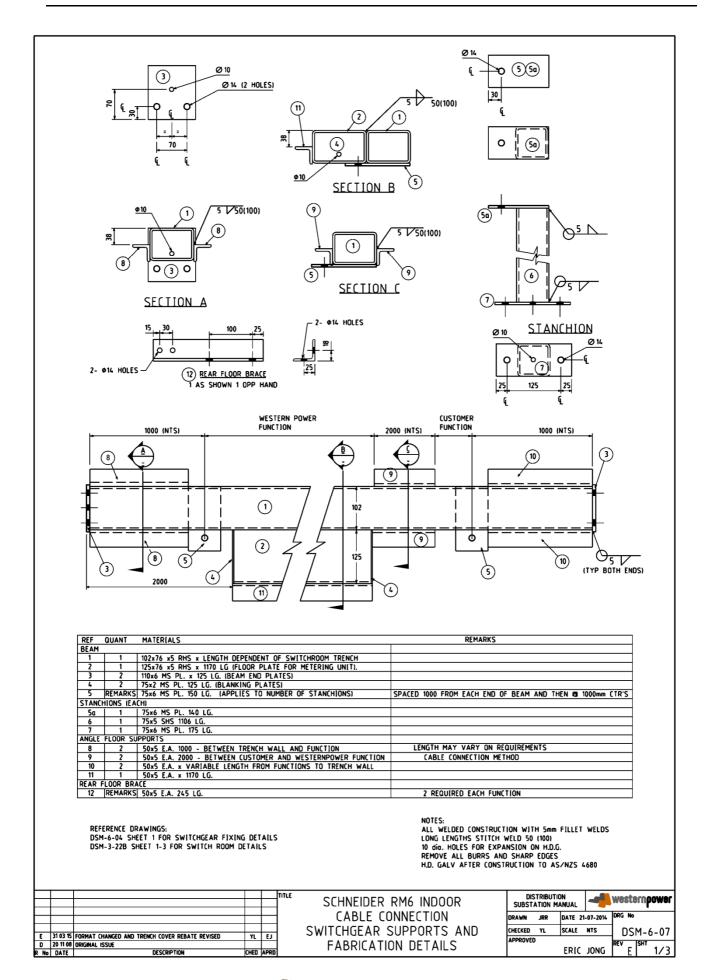




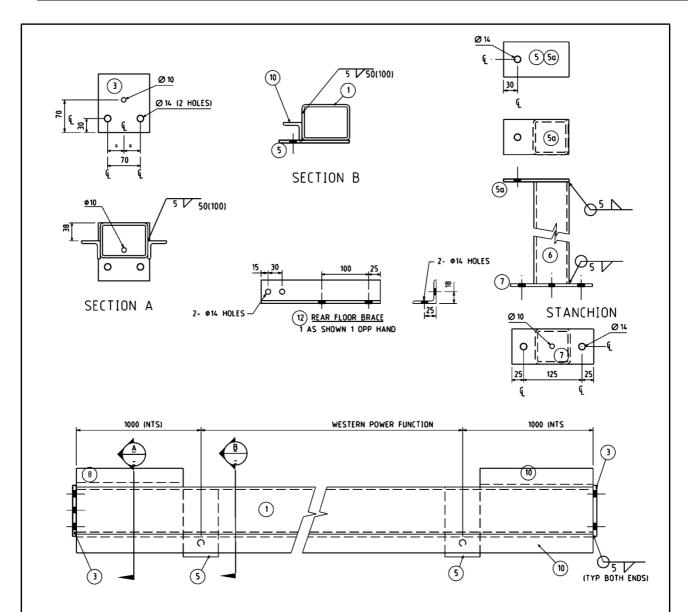










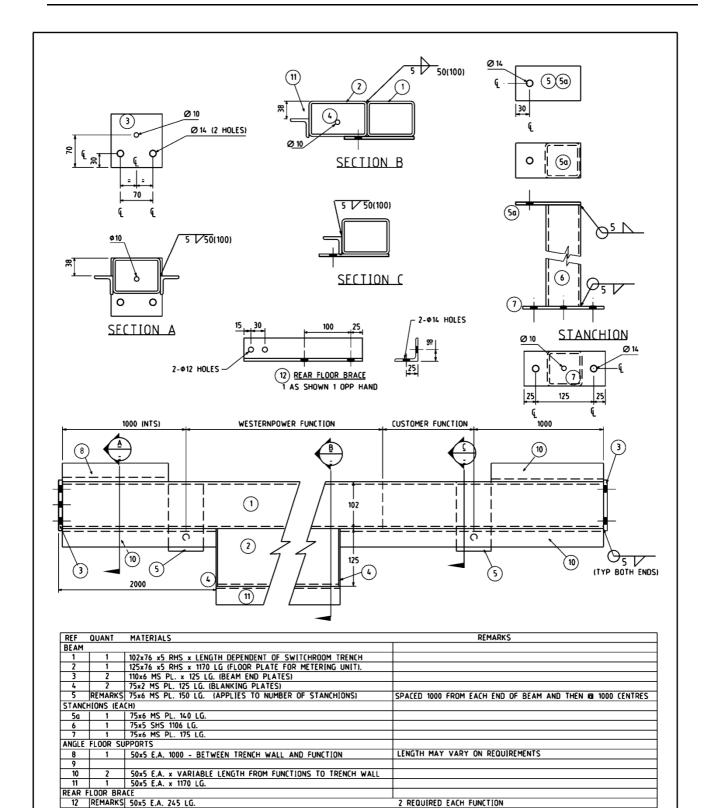


REF	QUANT	MATERIALS	REMARKS
BEAM			
1	1	102x76 x5 RHS x LENGTH DEPENDENT OF SWITCHROOM TRENCH	
2			
3	2	110x6 MS PL. x 125 LG. (BEAM END PLATES)	
4			
5	REMARKS	75×6 MS PL. 150 LG. (APPLIES TO NUMBER OF STANCHIONS)	SPACED 1000 FROM EACH END OF BEAM AND THEN 60 1000 CENTRES
STANCE	ILONS (EA	(H)	
5a	1	75x6 MS PL. 140 LG.	
6	1	75×5 SHS 1106 LG.	
7	1	75×6 MS PL. 175 LG.	
ANGLE	FLOOR SU	PPORTS	
8	1	50x5 E.A. 1000 - BETWEEN TRENCH WALL AND FUNCTION	LENGTH MAY VARY ON REQUIREMENTS
10	2	50x5 E.A. x LENGTH AS REQUIRED TO TRENCH WALLS	
11			
	LOOR BRA		
12	REMARKS	50×5 E.A. 245 LG.	2 REQUIRED EACH FUNCTION

REFERENCE DRAWINGS: DSM-6-04 SHEET 2 FOR SWITCHGEAR FIXING DETAILS DSM-3-21 SHEETS 1 TO 4 FOR SUBSTATION ROOM DETAILS NOTES:
ALL WELDED CONSTRUCTION WITH 5mm FILLET WELDS
LONG LENGTHS STITCH WELD 50 (100)
10 dio. HOLES FOR EXPANSION ON H.D.G.
REMOVE ALL BURRS AND SHARP EDGES
H.D. GALV AFTER CONSTRUCTION TO AS/NZS 4680

E	#				=	SCHNEIDER RM6 INDOOR SWITCHGEAR		STRIBUTI ATION M		-4	westernpower
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REFERENCE DRAWINGS: DSM-6-04 SHEET 3 FOR SWITCHGEAR FIXING DETAILS DSM-3-22A SHEET 1-3 FOR SWITCH ROOM DETAILS NOTES: ALL WELDED CONSTRUCTION WITH 5mm FILLET WELDS LONG LENGTHS STITCH WELD 50 (100) 10 dio. HOLES FOR EXPANSION ON H.D.G. REMOVE ALL BURRS AND SHARP EDGES H.D. GALV AFTER CONSTRUCTION TO AS/NZS 4680

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