

**SP POWERGRID**

*A subsidiary of Singapore Power*

# SUBSTATION SAMPLE PHOTOS HANDBOOK

Version: May 2015

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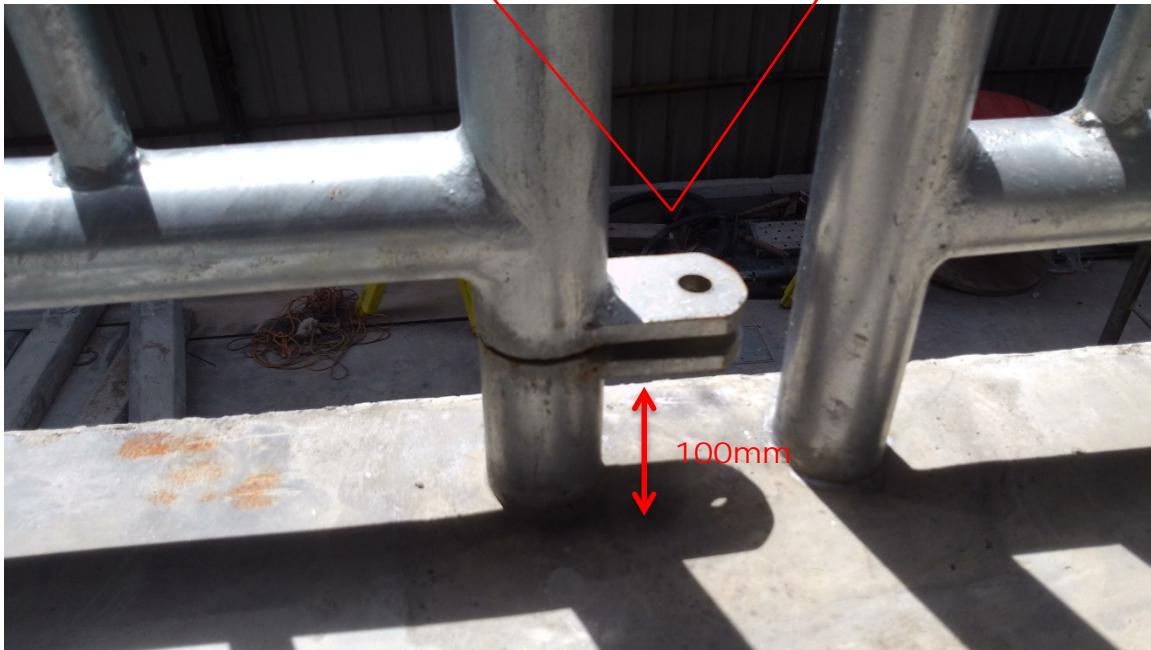
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## Switchgear Room

### Removable Stainless Steel Hand Railings

Reference: Appendix 11, Railings



Reference: Appendix 11, Railings



## Switchgear Louvred Door

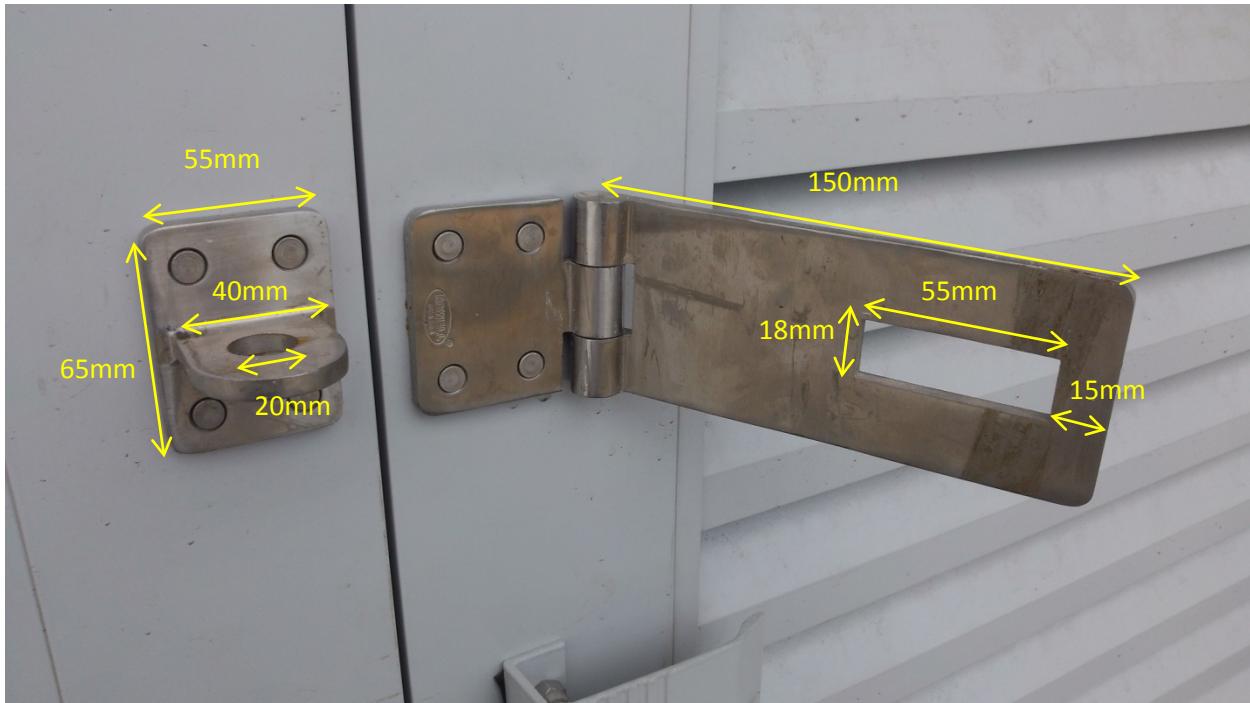
Reference: Appendix 12, Switchgear Louvred Door





## Hasp & Staple

Reference: Appendix 12



Reference: Appendix 12, Switchgear & Cable Chamber Exit Door



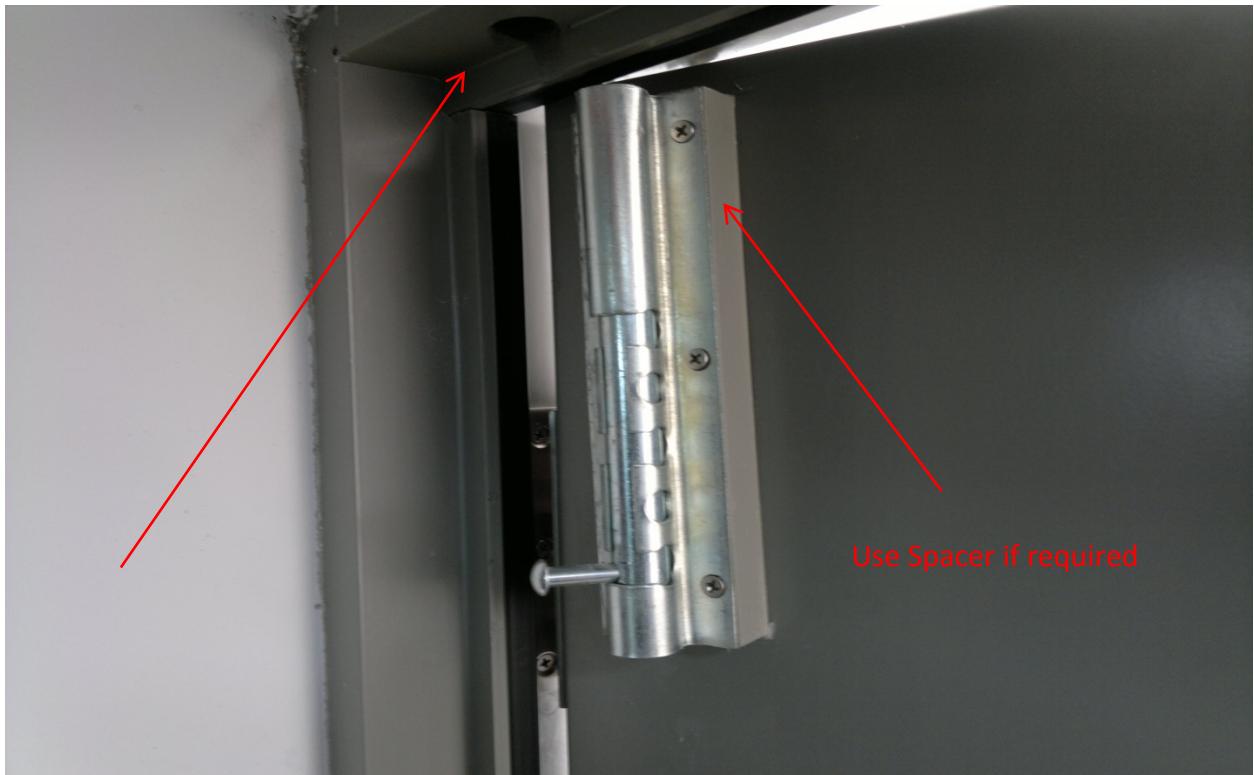
Reference: Appendix 12, Switchgear Louvred Door



Reference: Appendix 12, Switchgear & Cable Chamber Exit Door



All doors must latched at the internal floor level



Reference: Appendix 12, Switchgear & Transformer Louvred Door



All doors to be fitted with good quality door hook and must be able to open fully.

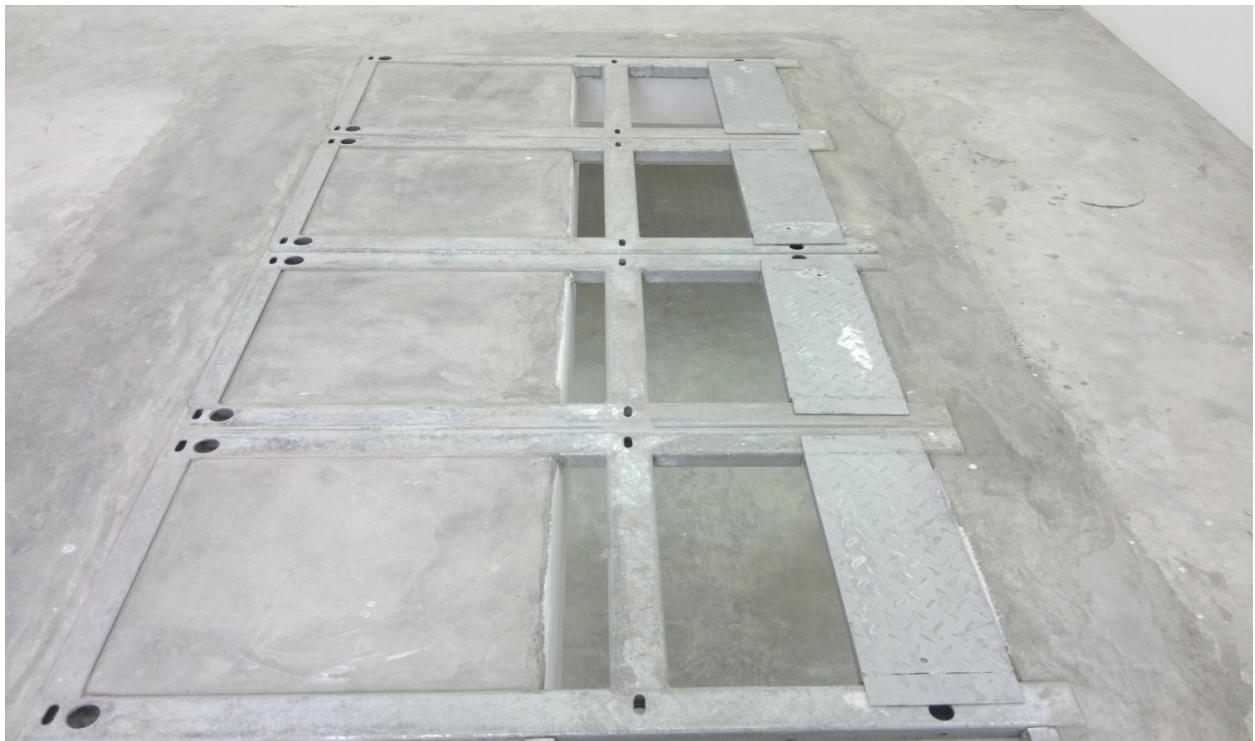




### HT Openings & Floor Frame

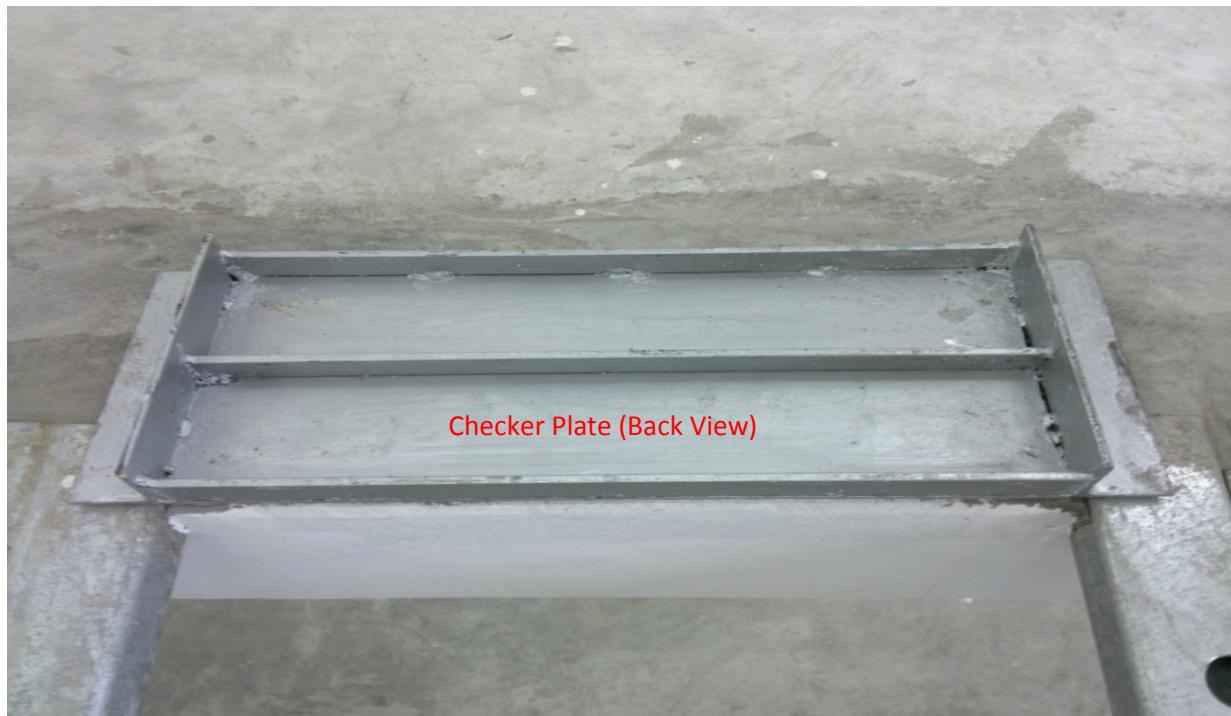


Screeed the floor 5mm below the floor frame, after the floor frame had been fixed





600mm x 150mm checker plate / metal grating





## Opening for Marshaling Box, Pilot Box & Battery Charger

Reference: Appendix 11, Floor Plan



## Equipment Dimension

Item	DIMENSION (L X B X H)mm
<b>BATTERY CHARGER</b>	 960 x 390 x 1300
<b>RTU</b>	 600 x 300 x 600
<b>MARSHALLING BOX</b>	 790 x 300 x 1300
<b>PILOT BOX</b>	 800 x 250 x 1300
<b>IDS</b>	 390 x 240 x 500
<b>TOOLS &amp; KEY CABINET</b>	 800 x 360 x 1110

**LT Openings**

To provide (2x25mm<sup>2</sup>)+16mm<sup>2</sup> cu cable with 1m of flexi hose and hot gland from DB box to right side of the LT opening.



LT Board – 2200mm x 600mm x 1850mm



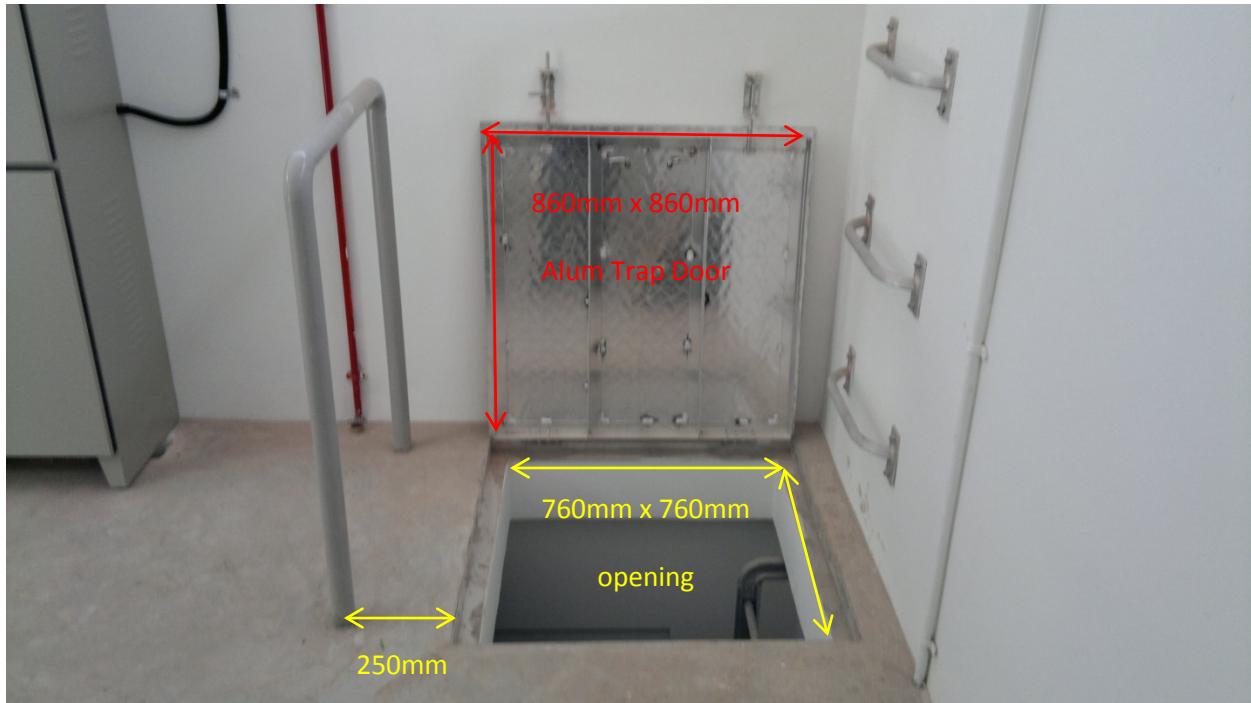
## Distribution Box

Reference: Appendix 15, Electrical Installation



**Trap Door**

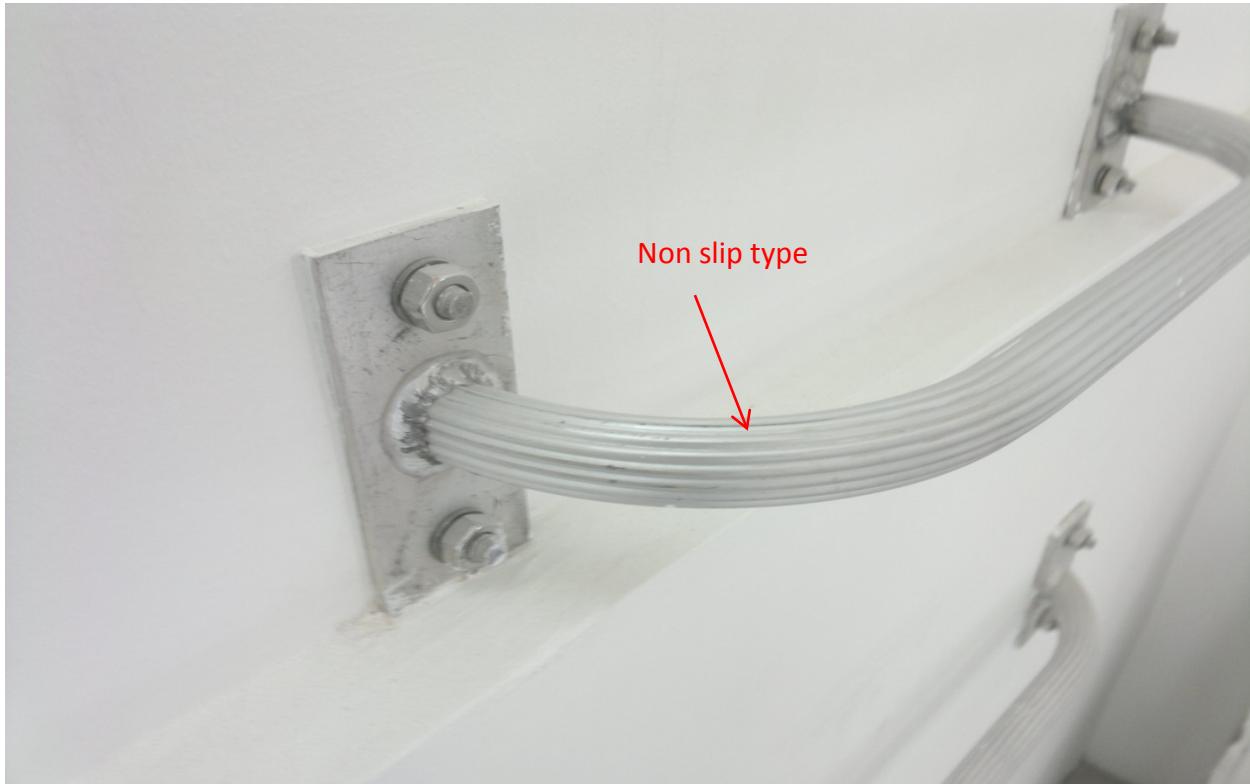
Reference: Appendix 11, Aluminum Trap Door & Cat Ladder



Reference: Appendix 11, Aluminum Trap Door & Cat Ladder



Reference: Appendix 11, Aluminum Trap Door & Cat Ladder







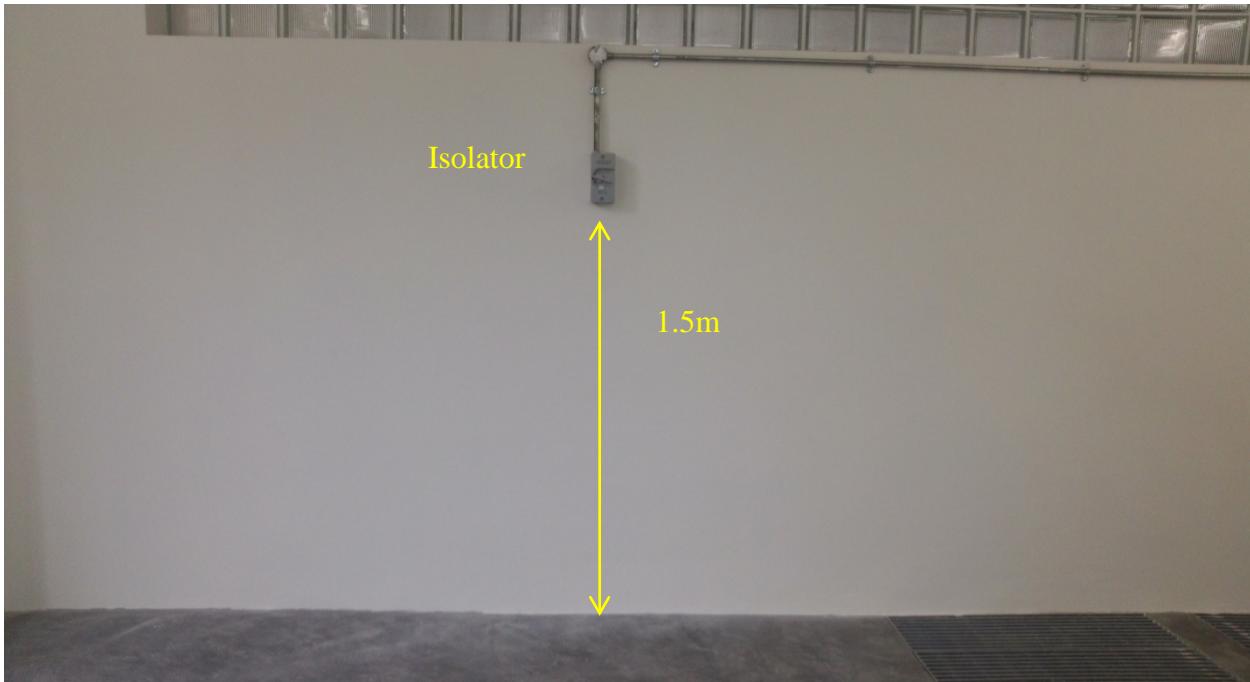
## Lightings

Reference: Appendix 15, Electrical Installation





Isolator



## Cable Basement

### Cable Basement Door

Reference: Appendix 12, Switchgear & Cable Chamber Exit Door



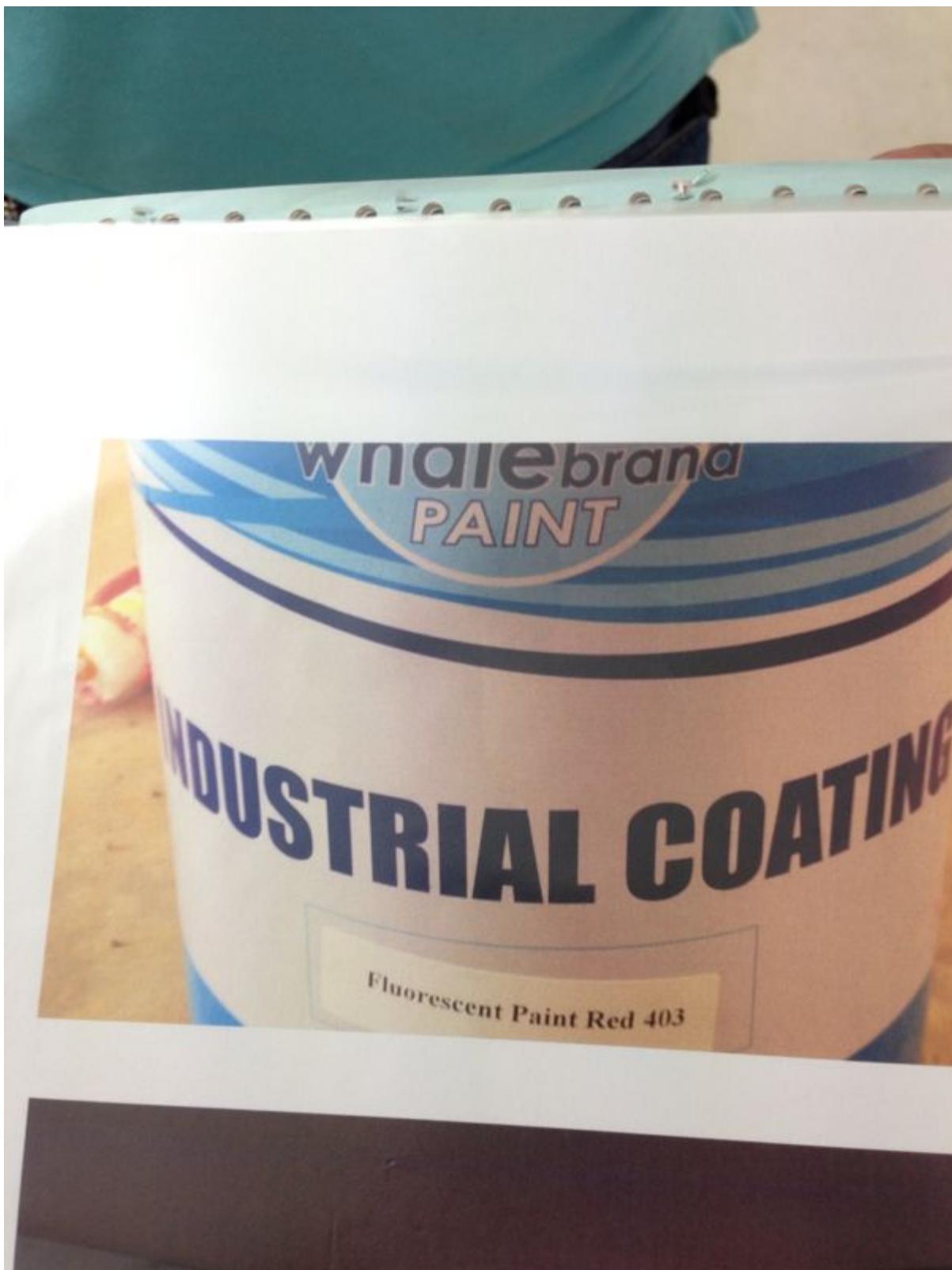
## Red Luminous Paint

Reference: Appendix 15, Cable Chamber “Basement”



To paint front and back of all beam with 50mm Red Luminous Paint





## Cable Ramp & Entry Pipes

Reference: Appendix 11, Cable Ramp & Entry Pipes



All entry pipes must be smoothed and flush to the wall





## Transformer Room Door

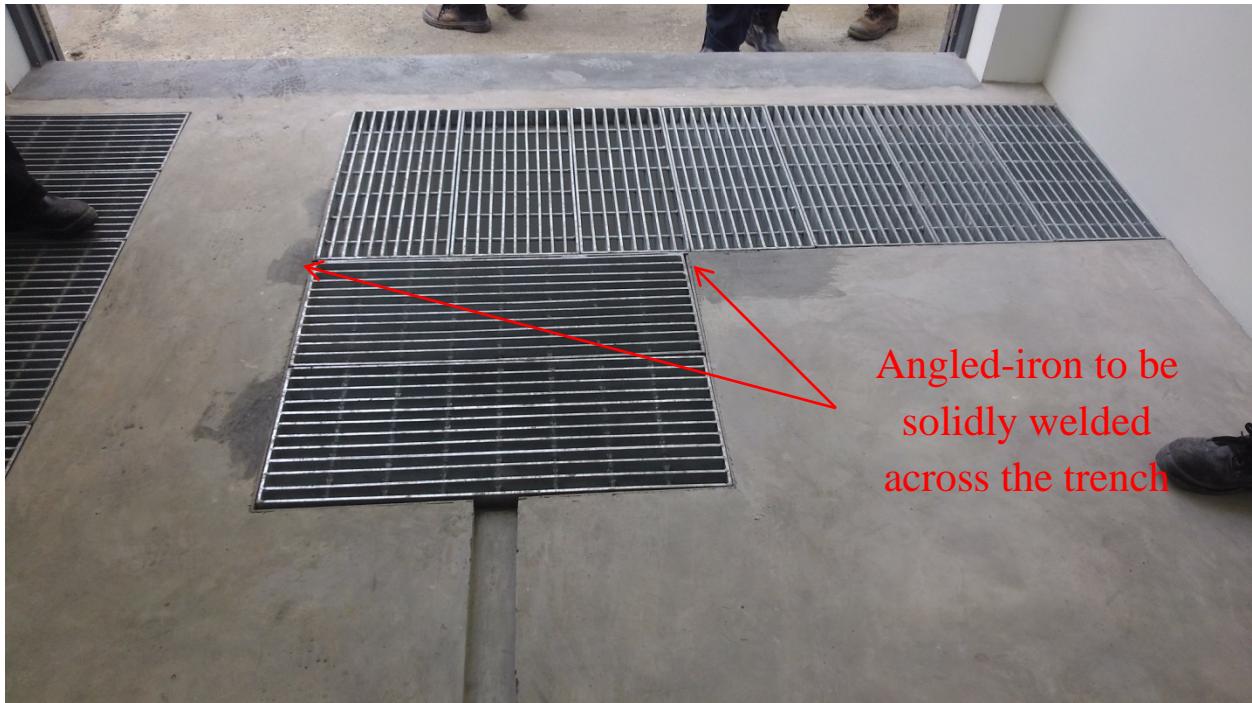
Reference: Appendix 12, Transformer Room Louvred Door with Hasp & Staple



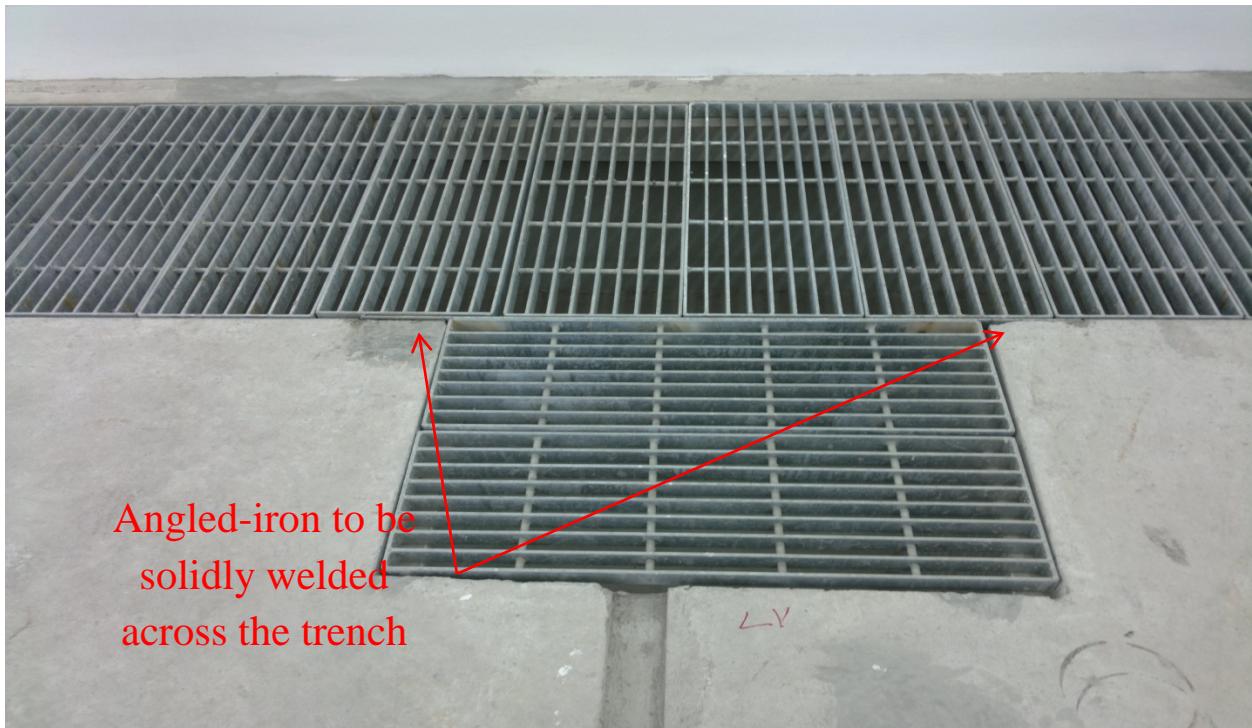
**Transformer Plinth**

Appendix 11, Layout Plan





All cable trenches to be covered by removable hot-dipped galvanized mild steel gratings



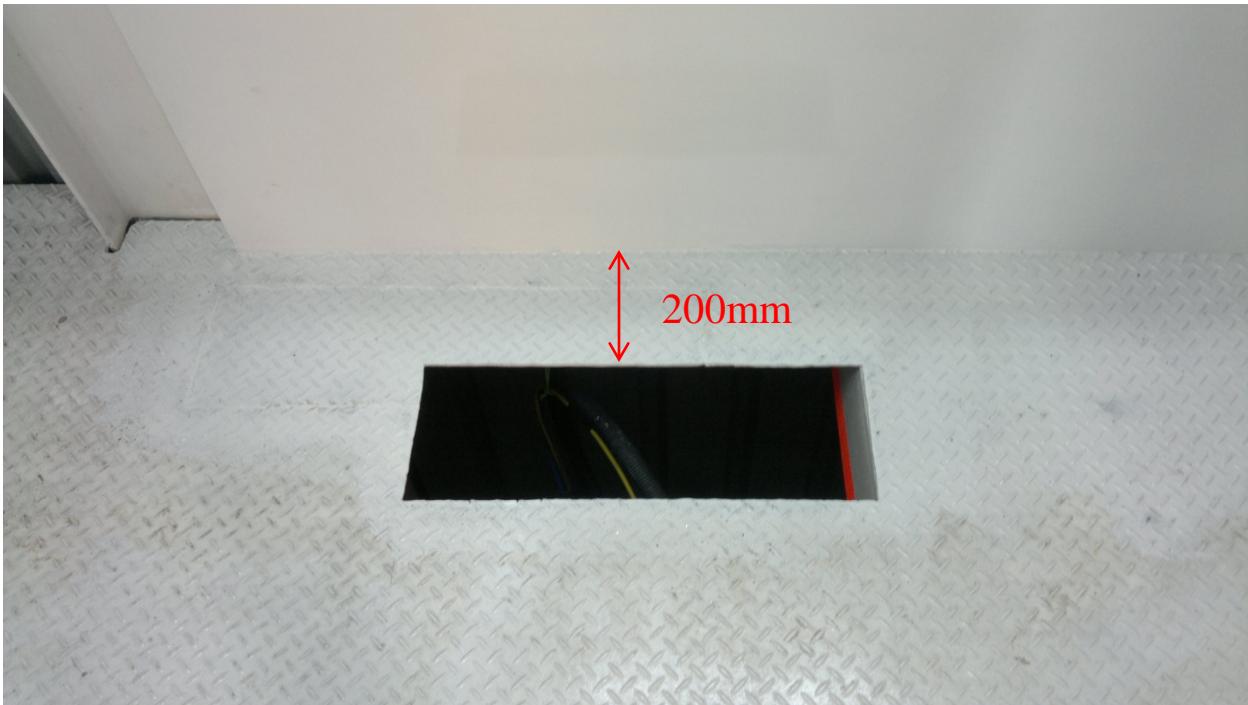
**Substation w/o cable basement**



Temporary Substation



**LT Opening (OGB)**





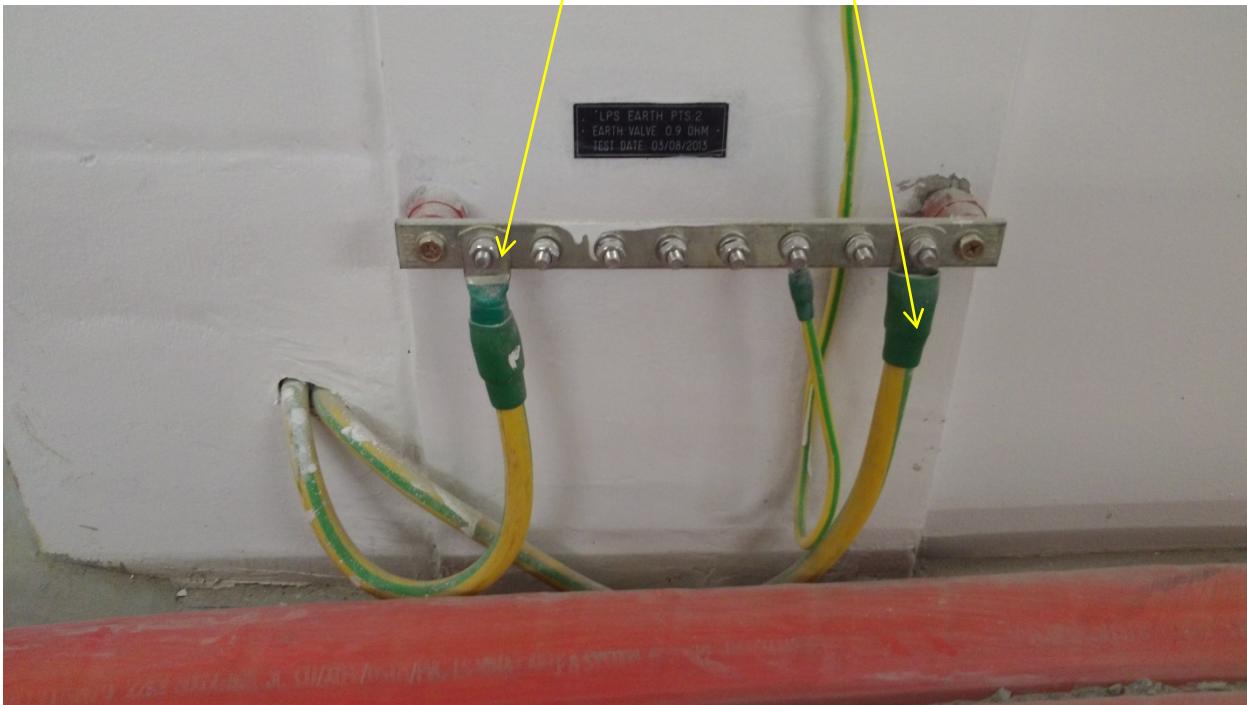
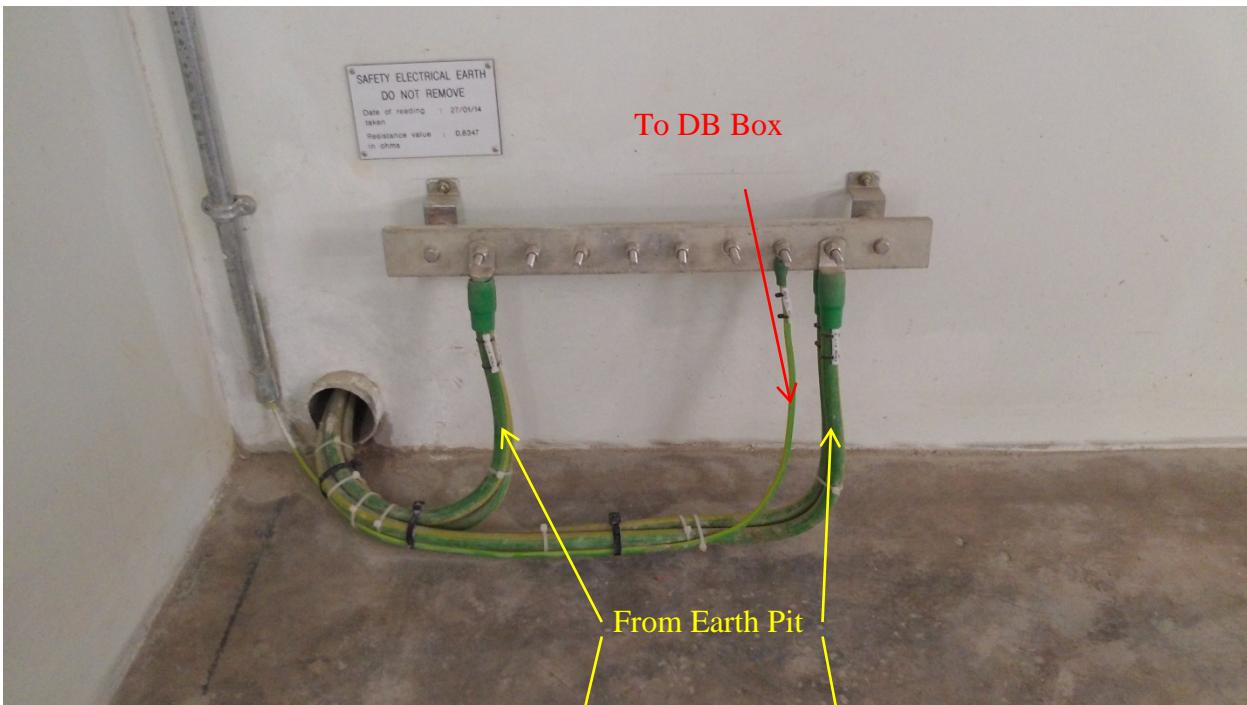
5-WAY OGB – 830 X 320 X 1300



**Trap Door**





**Earthing for s/s Lighting**

## Fencing

Reference: Appendix 15, Fencing (where required)



600mm wide concrete apron to surround the fence externally



**Draw Pit**



## Substation Main Gate

Reference: Appendix 13, Gate Details



## Butterfly Lock

Reference: Appendix 13, Gate Details

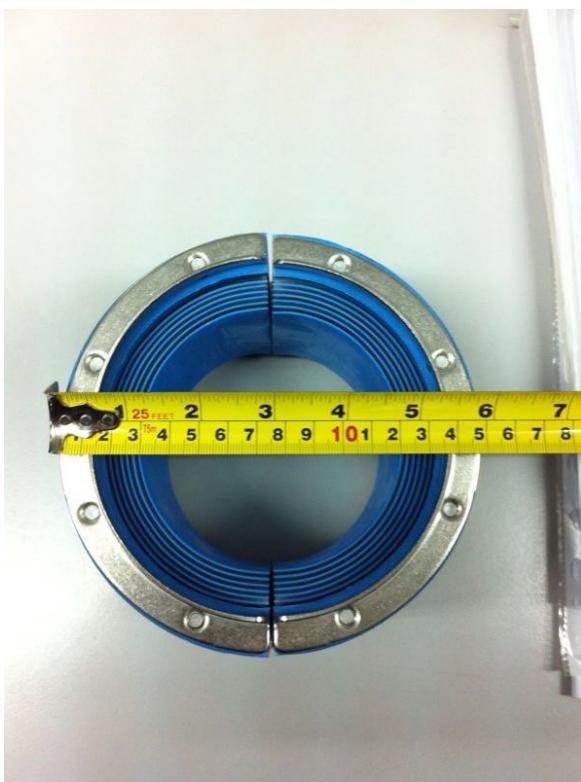




Signage



MCT



**Cable Lugs**



1000mm<sup>2</sup> 4 holes cable lugs





500mm<sup>2</sup> 2 holes cable lugs





500mm<sup>2</sup> 1 holes cable lugs

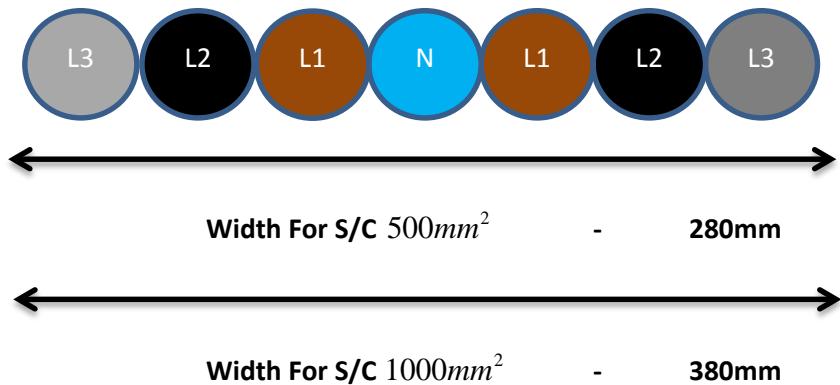
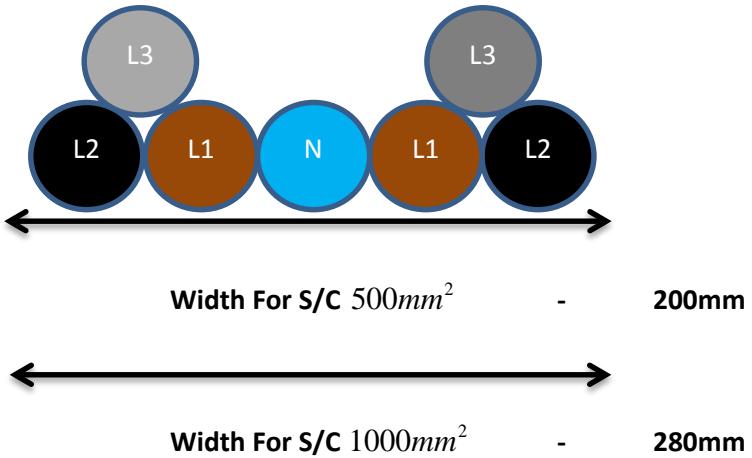


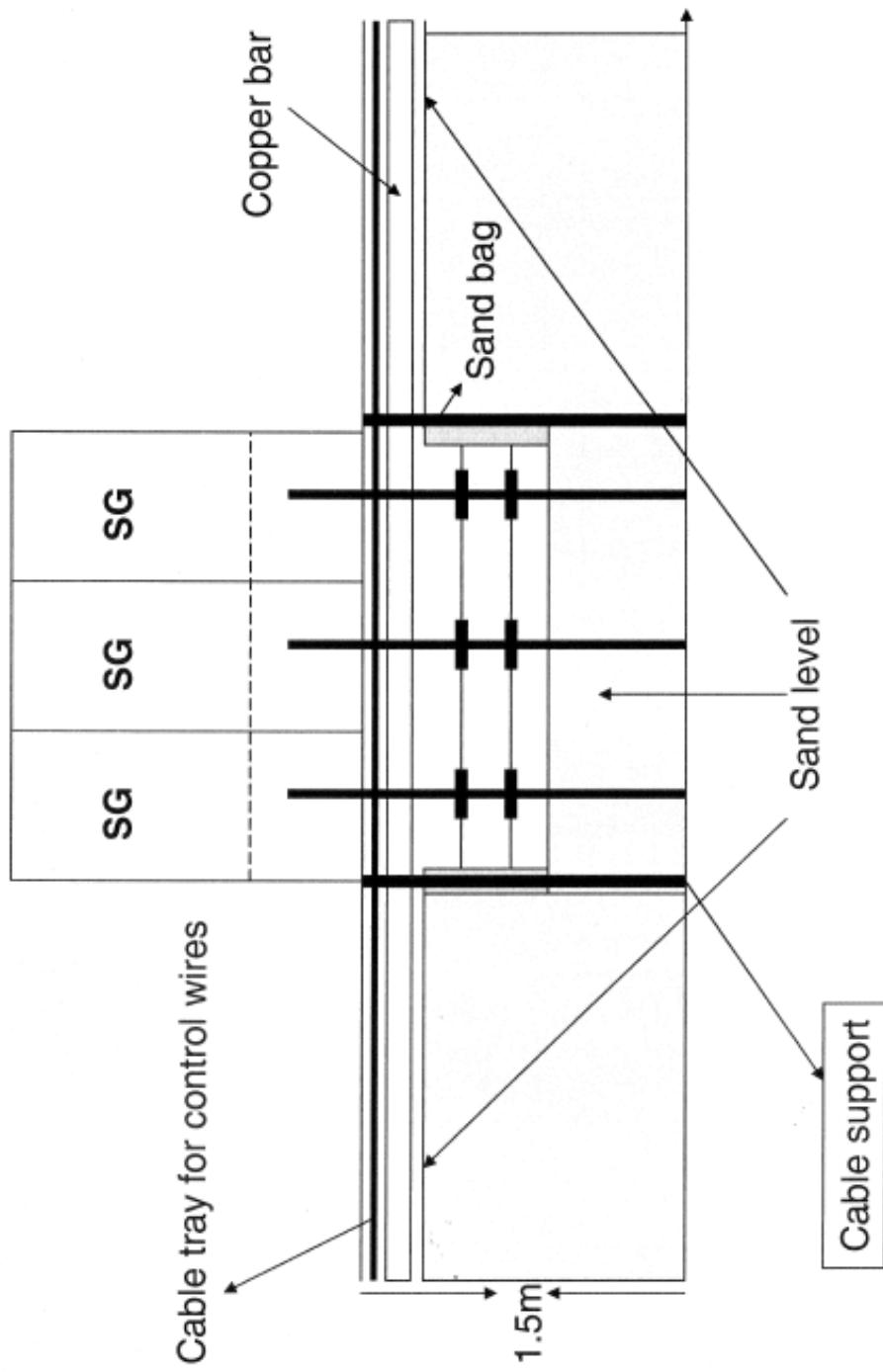
**Hot Gland**



**Arrangement of  $500mm^2$  or  $1000mm^2$  Cu single core cables**

Arrangement of  $500mm^2$  or  $1000mm^2$  Cu single core cables is carried out as shown below so that the current in each phase is evenly distributed between the cables for that phase.

**Arrangement 1****Arrangement 2**

**Backfill of Sand At Trench S/S**

### Things to include in Handing Over letter

\*\*All the 7 item below need to be done by the main contractor after the substation work had been completed

- 1) Seal all cable entry pipes.
- 2) Backfill all trench with wash dry sand
- 3) Apply thin layer of cement



- 4) Touch-up paint work
- 5) Cover all excess opening with checker plate or grating
- 6) Any other minor defect work
- 7) 24/7 security access

For handover of substation, kindly liaise with the Project Officer of the respective section using Appendix 5 form extracted from the “How to Apply for Electricity Connection” handbook.