

GENERAL NOTES:

THE ELECTRICAL PLANT CONTAINED WITHIN THIS SUBSTATION CAN UNDER CERTAIN CIRCUMSTANCES SUFFER A DISRUPTIVE FAILURE RESULTING IN THE OR EXPLOSION. THE 33KV & 11KV SWITCHGEAR ALSO CONTAINS SULPHUR HEXAFLUORIDE GAS ( SF 6 ) – PLEASE REFER TO RELEVANT COSHH DATA.

PLANT & PERSONNEL ACCESS REQUIRED TO PUBLIC ROAD SYSTEM, 24HR ACCESS REQUIRED FOR SP MANNEB PERSONNEL. SITE TO BE CLEAR OF ALL OBSTRUCTIONS INCLUDING DRAINS, SERVICES, GAS ( INCL. METHANE ) ETC. ALL WORKS TO COMPLY WITH :- ALL CURRENT RELEVANT LEGISLATION & LOCAL AUTHORITY REQUIREMENTS.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ASSOCIATED ENERGY NETWORKS TECHNICAL SPECIFICATION/GUIDANCE.

EARTHING NOTES:

1. EARTHING IS SHOWN DIAGRAMMATICALLY ONLY.
2. ALL EARTHING TO BE CARRIED OUT IN ACCORDANCE WITH EMATS 41 – 24 , 2004.3 SECONDS AND TO SP POWERSYSTEMS Ltd. APPROVAL
3. EARTHING POINTS TO BE PROVIDED AS REQUIRED TO SUIT LOCAL CONDITIONS.
4. OUTER EARTH LOOP TO BE CONTINUOUS AND INSTALLED 1000 OUTSIDE BUILDING 1000 BELOW FINISHED G.L. EARTH LOOP TO BE BONDED TO SUBSTATION EARTH AS SHOWN.
5. ALL EARTH TAPE TO BE CONNECTED TO MAIN STRUCTURAL SUPPORT STEELWORK (WHERE AVAILABLE).
6. JOINTS TO BE BOLTED AND COATED WITH BITUMINOUS PAINT TO 150 BELOW CHIPPING LEVEL.
7. ALL CABLE SHEATHS & ARMOURING TO BE BONDED TO EARTH BAR.
8. S/C CABLES TO BE EARTHED AT 11KV SWITCHGEAR ONLY.
9. EARTH BAR AT REAR OF 11KV SWITCHGEAR TO BE MOUNTED AT APPROX 1524 ABOVE FTL SEE DRG.No. MW 11D 10565 AI.
10. EARTH BAR AT REAR OF 33KV SWITCHGEAR TO BE MOUNTED AT APPROX. 450 ABOVE FTL OF CABLE TERMINATION AREA.
11. EARTH TAPE/RODS TO BE COMPLETELY SEALED WHERE THEY PASS THROUGH THE ANT-OIL POLLUTION TRANSFORMER BUND.
12. STEEL REINFORCING FABRIC TO BE JOINED SUCH AS TO PROVIDE ELECTRICAL CONTINUITY FOR EARTHING PURPOSES. A 750mm LONG x 70sqmm FLEXIBLE COPPER CONNECTION TO BE INSTALLED AT POINTS DESIGNATED ON EARTHING DRAWING.
13. LENGTH OF COPPER STRIP TO BE BURRED IS EQUAL TO 3.2 x MEASURED SOIL RESISTIVITY IN OHM-METRES TO BE DISTRIBUTED EQUALLY AMONGST THE OUTGOING 33KV FEEDER CABLES.
14. DISCONNECTION POINTS REQUIRED TO TEST INDIVIDUAL EARTH RODS IN ISOLATION. THESE DISCONNECTION POINTS ARE NOT REQUIRED (I.E. SOLD CONNECTIONS) IF RODS ARE TESTED PRIOR TO BEING PERMANENTLY CONNECTED TO THE EARTHING SYSTEM.

LEGEND:- EARTHING EQUIPMENT INSTALLATION

| SYMBOL                                                                              | DESCRIPTION                                                          |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------|
|  | DENOTES EARTH ROD(S)                                                 |
|  | DENOTES DISCONNECTION POINT (OPTIONAL – SEE NOTE 14 EARTHING NOTES ) |
|  | DENOTES ALUMINIUM EARTH BAR                                          |
|  | DENOTES COPPER EARTH BAR                                             |

| Rev.     | Date |  |
|----------|------|--|
| 1.0      |      |  |
| Drawn    |      |  |
| Checked  |      |  |
| Approved |      |  |



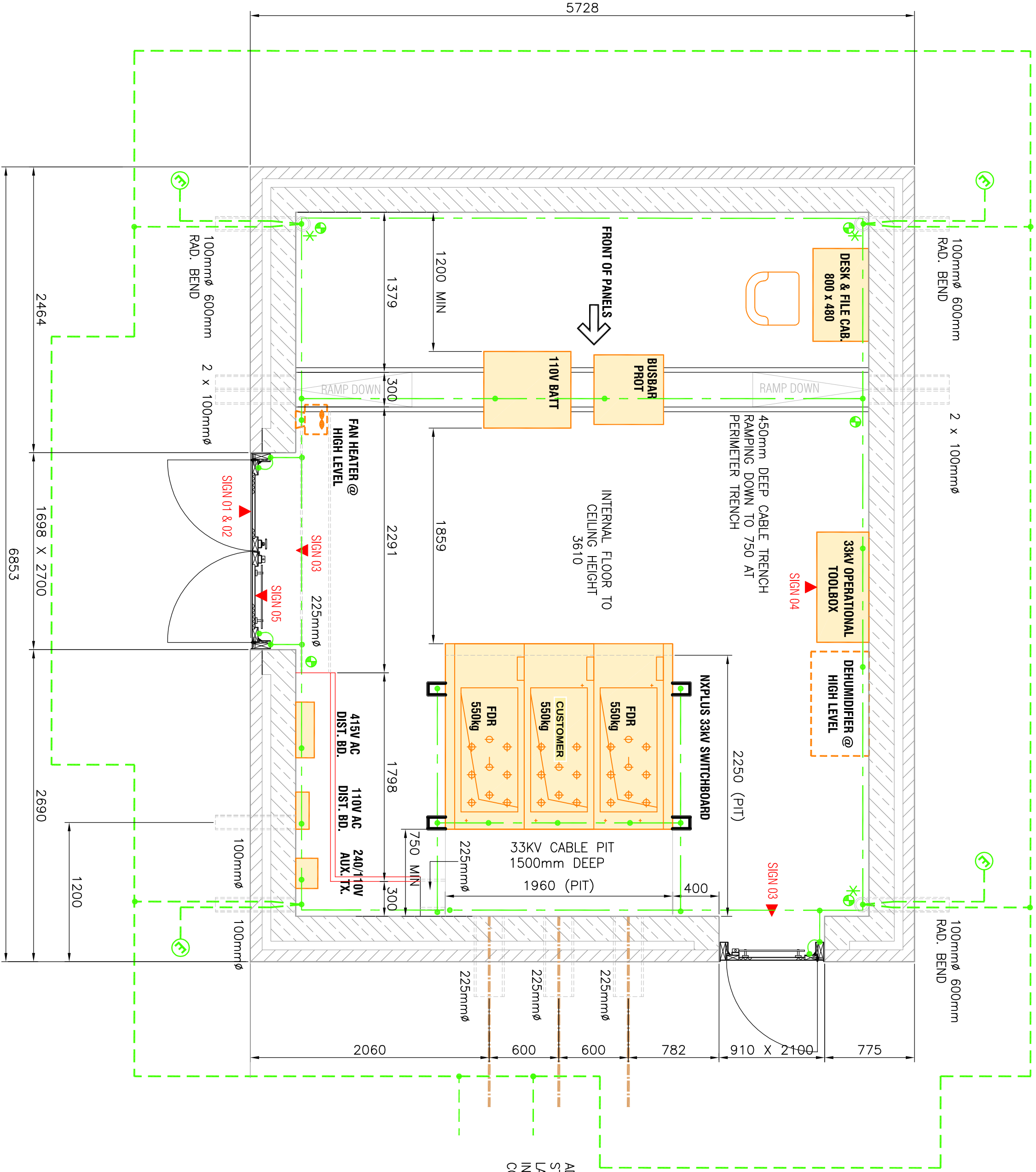
SP PowerSystems Ltd  
System Design, Drawing Office  
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Telephone 0151 6092491

INDICATIVE CUSTOMER 33KV SUBSTATION  
ELECTRICAL G.A. EARTHING & SAFETY SIGNS PLAN

| Location          |          |         |           |          |          |
|-------------------|----------|---------|-----------|----------|----------|
| LEIGHTON HOSPITAL |          |         |           |          |          |
| Drawn             | Date     | Checked | Date      | Approved | Date     |
| NJDDMM            | 23/11/12 | C.WOOD  | 23/11/12  | F.TAYLOR | 23/11/12 |
| Status            | Dwg. No. |         |           | Rev.     |          |
| PRELIMINARY       |          |         | SP4099442 |          | 1.0      |
| Scale             |          |         |           |          | Size     |
| 1/30              |          |         |           |          | A1       |

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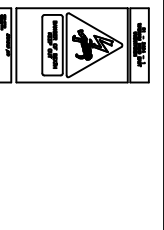
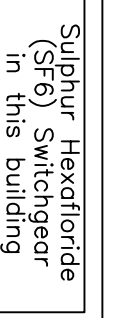
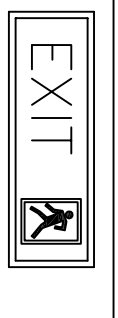
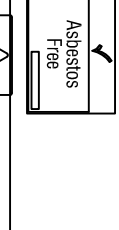
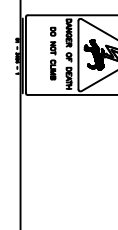


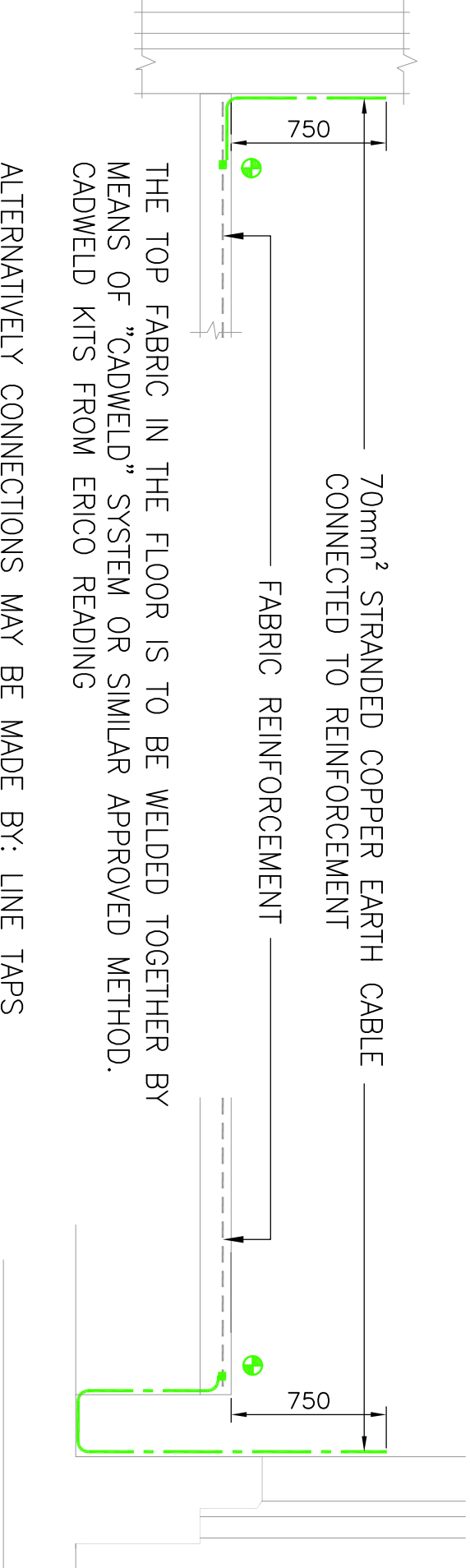
ADDITIONAL COPPER EARTH STRIP IS REQUIRED TO BE LAID WITH 33KV CABLES. INSTALLATION TO SUIT SITE CONDITIONS SEE NOTE 13

Independent unrestricted 24hr, 7-day access required to SPM substation

Customer will be required to install series' CB's Customer 33kV feeder circuit is > 100mts or passes through public or 3rd party owned land

SCHEDULE OF SIGNS ( ENGLISH VERSION ) - PROVIDED BY SP ENERGY NETWORKS

| SIGN REF.          | DESCRIPTION                                                                             | MATERIAL                                                          | SIZE          | MOUNTING                                   | LEGEND                                                                              | REF                |
|--------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------|--------------------------------------------|-------------------------------------------------------------------------------------|--------------------|
| SIGN 01<br>1th OFF | SUB GRID SQ. NO. SUB NAME<br>DANGER OF DEATH<br>KEEP OUT<br>ADDRESS AND EMERG. TELE NO. | SEE DRG. Nos.<br>50856/42<br>ENGLISH                              | 400mm x 200mm | MOUNTED ON<br>SWITCHROOM DOORS             |  | MANWEB<br>STANDARD |
| SIGN 02<br>1th OFF | SF6 SWITCHGEAR                                                                          | 1.5mm RIGID PLASTIC<br>BLACK LETTERS<br>ON YELLOW<br>BACKGROUND   | 150mm x 100mm | MOUNTED ON<br>SWITCHROOM DOORS             |  |                    |
| SIGN 03<br>4th OFF | EXIT SIGN                                                                               | 1.5mm RIGID PLASTIC<br>PHOTOLUMINESCENT<br>ON GREEN<br>BACKGROUND | 150mm x 610mm | WALL MOUNTED                               |  |                    |
| SIGN 04<br>1th OFF | OPERATIONAL TOOLBOX                                                                     | 1.5mm RIGID PLASTIC<br>BLACK LETTERS<br>ON GREEN<br>BACKGROUND    | 150mm x 100mm | MOUNTED ON<br>OPERATIONAL<br>TOOLBOX       |  |                    |
| SIGN 05<br>1th OFF | ASBESTOS FREE                                                                           | 1.5mm RIGID PLASTIC<br>WHITE LETTERS<br>ON GREEN<br>BACKGROUND    | 405mm x 300mm | MOUNTED ON<br>BACK OF OPENING<br>DOOR LEAF |  |                    |
| SIGN 06<br>3th OFF | DANGER OF DEATH<br>KEEP OUT                                                             | 1.5mm RIGID PLASTIC<br>BLACK PHOTOGRAM<br>ON YELLOW<br>BACKGROUND | 300mm x 200mm | MOUNTED ON<br>FENCE                        |  | MANWEB<br>STANDARD |



ALTERNATIVELY CONNECTIONS MAY BE MADE BY: LINE TAPS  
AVAILABLE FROM CCL SYSTEMS LTD. ELECTRICAL DIVISION.  
ELLAND ROAD LEEDS LS11 8BH. FITTING CODE ESI 70

DETAIL AT EARTH FIXINGS

ALTERNATIVE DETAIL OF EARTH  
FIXING AT TRENCH