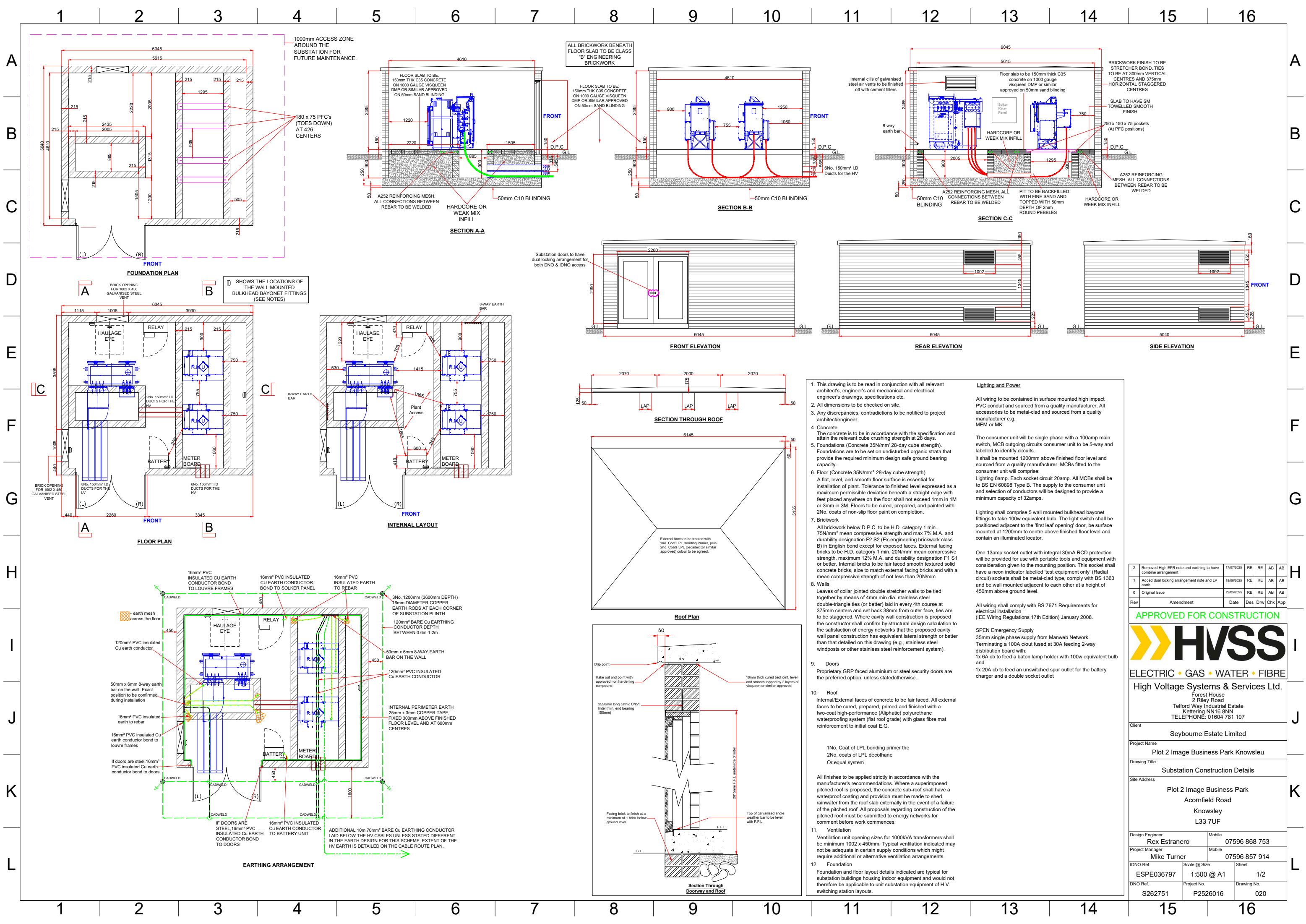




1. This drawing is to be read in conjunction with all relevant architect's, engineer's and mechanical and electrical engineer's drawings, specifications etc.

2. All dimensions to be checked on site.

3. Any discrepancies, contradictions to be notified to project architect/engineer.

4. Concrete

The concrete is to be in accordance with the specification and attain the relevant cube crushing strength at 28 days.

5. Foundations (Concrete 35N/mm<sup>2</sup> 28-day cube strength).

Foundations are to be set on undisturbed organic strata that provide the required minimum design safe ground bearing capacity.

6. Floor (Concrete 35N/mm<sup>2</sup> 28-day cube strength).

A flat, level, and smooth floor surface is essential for installation of plant. Tolerance to finished level expressed as a maximum permissible deviation beneath a straight edge with feet placed anywhere on the floor shall not exceed 1mm in 1M or 3mm in 3M. Floors to be cured, prepared, and painted with 2No. coats of non-slip floor paint on completion.

7. Brickwork

All brickwork below D.P.C. to be H.D. category 1 min. 75N/mm<sup>2</sup> mean compressive strength and max 7% M.A. and durability designation F2 S2 (Ex-engineering brickwork class B) in English bond except for exposed faces. External facing bricks to be H.D. category 1 min. 20N/mm<sup>2</sup> mean compressive strength, maximum 12% M.A. and durability designation F1 S1 or better. Internal bricks to be fair faced smooth textured solid concrete bricks, size to match external facing bricks and with a mean compressive strength of not less than 20N/mm<sup>2</sup>.

8. Walls

Leaves of collar jointed double stretcher walls to be tied together by means of 4mm min dia. stainless steel double-triangle ties (or better) laid in every 4th course at 375mm centres and set back 38mm from outer face, ties are to be staggered. Where cavity wall construction is proposed the constructor shall confirm by structural design calculation to the satisfaction of energy networks that the proposed cavity wall panel construction has equivalent lateral strength or better than that detailed on this drawing (e.g., stainless steel windposts or other stainless steel reinforcement system).

9. Doors

Proprietary GRP faced aluminium or steel security doors are the preferred option, unless stated otherwise.

10. Roof

Internal/External faces of concrete to be fair faced. All external faces to be cured, prepared, primed and finished with a two-coat high-performance (Aliphatic) polyurethane waterproofing system (flat roof grade) with glass fibre mat reinforcement to initial coat E.G.

11. Ventilation

Ventilation unit opening sizes for 1000kVA transformers shall be minimum 1002 x 450mm. Typical ventilation indicated may not be adequate in certain supply conditions which might require additional or alternative ventilation arrangements.

12. Foundation

Foundation and floor layout details indicated are typical for substation buildings housing indoor equipment and would not therefore be applicable to unit substation equipment of H.V. switching station layouts.
- Lighting and Power**

All wiring to be contained in surface mounted high impact PVC conduit and sourced from a quality manufacturer. All accessories to be metal-clad and sourced from a quality manufacturer e.g. MEM or MK.

The consumer unit will be single phase with a 100amp main switch, MCB outgoing circuits consumer unit to be 5-way and labelled to identify circuits.

It shall be mounted 1200mm above finished floor level and sourced from a quality manufacturer. MCBs fitted to the consumer unit will comprise:

Lighting 6amp. Each socket circuit 20amp. All MCBs shall be to BS EN 60898 Type B. The supply to the consumer unit and selection of conductors will be designed to provide a minimum capacity of 32amps.

Lighting shall comprise 5 wall mounted bulkhead bayonet fittings to take 100w equivalent bulb. The light switch shall be positioned adjacent to the 'first leaf opening' door, be surface mounted at 1200mm to centre above finished floor level and contain an illuminated locator.

One 13amp socket outlet with integral 30mA RCD protection will be provided for use with portable tools and equipment with consideration given to the mounting position. This socket shall have a neon indicator labelled 'test equipment only' (Radial circuit) sockets shall be metal-clad type, comply with BS 1363 and be wall mounted adjacent to each other at a height of 450mm above ground level.

All wiring shall comply with BS:7671 Requirements for electrical installation (IEE Wiring Regulations 17th Edition) January 2008.

SPEN Emergency Supply

35mm single phase supply from Manweb Network.

Terminating a 100A c/out fused at 30A feeding 2-way distribution board with:

1x 6A cb to feed a baton lamp holder with 100w equivalent bulb and

1x 20A cb to feed an unswitched spur outlet for the battery charger and a double socket outlet

|     |                                                                |            |     |     |     |     |
|-----|----------------------------------------------------------------|------------|-----|-----|-----|-----|
| 2   | Removed High EPR note and earthing to have combine arrangement | 17/07/2025 | RE  | RE  | AB  | AB  |
| 1   | Added dual locking arrangement note and LV earth               | 18/06/2025 | RE  | RE  | AB  | AB  |
| 0   | Original Issue                                                 | 29/05/2025 | RE  | RE  | AB  | AB  |
| Rev | Amendment                                                      | Date       | Des | Drw | Chk | App |

APPROVED FOR CONSTRUCTION



ELECTRIC • GAS • WATER • FIBRE

High Voltage Systems & Services Ltd.

Forest House  
2 Riley Road  
Telford Way Industrial Estate  
Kettering NN16 8NN  
TELEPHONE: 01604 781 107

Client  
Seybourne Estate Limited

Project Name  
Plot 2 Image Business Park Knowsleu

Drawing Title  
Substation Construction Details

Site Address  
Plot 2 Image Business Park  
Acornfield Road  
Knowsley  
L33 7UF

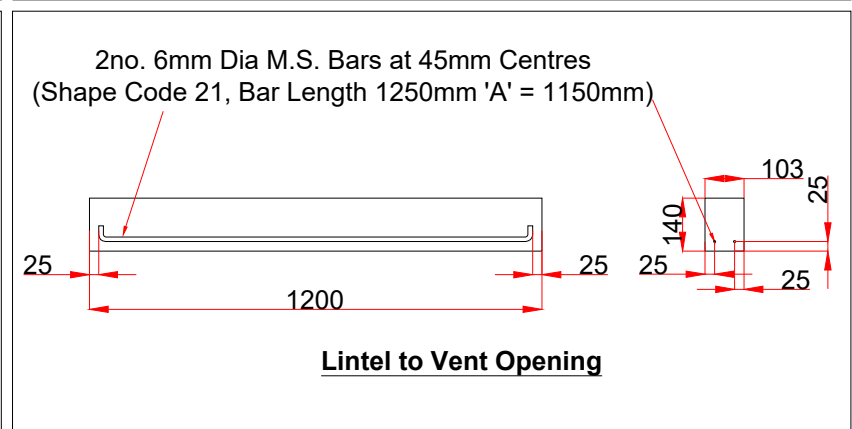
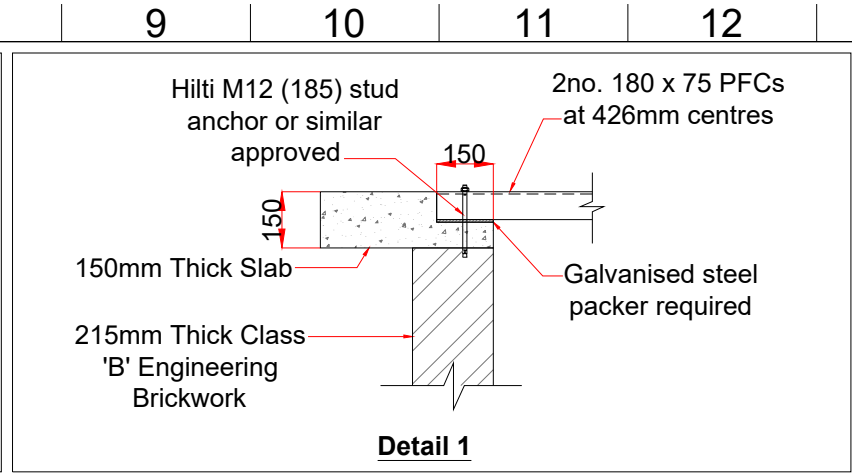
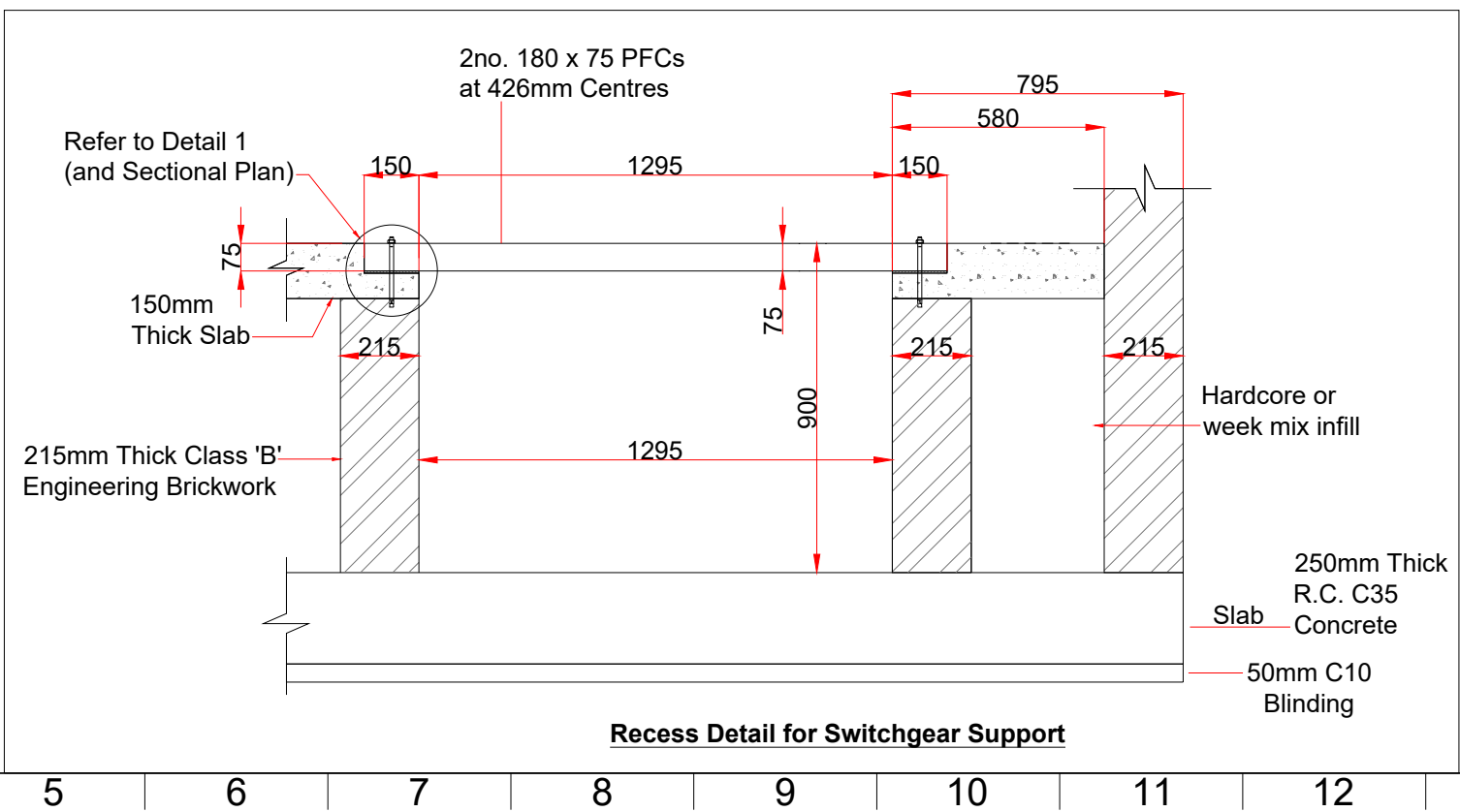
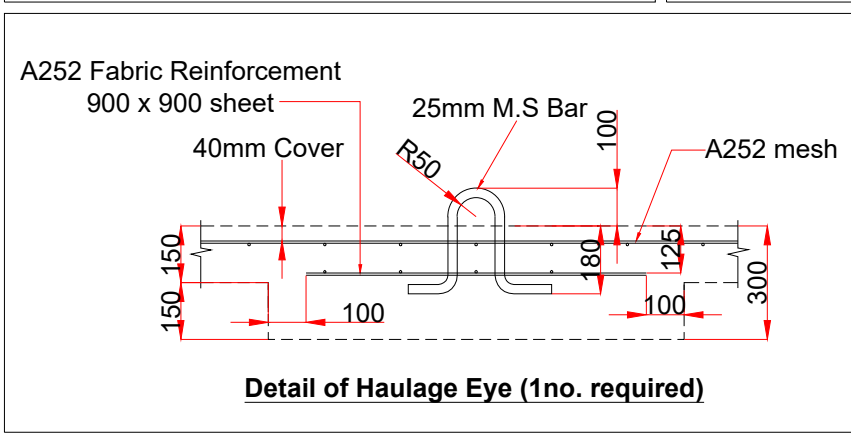
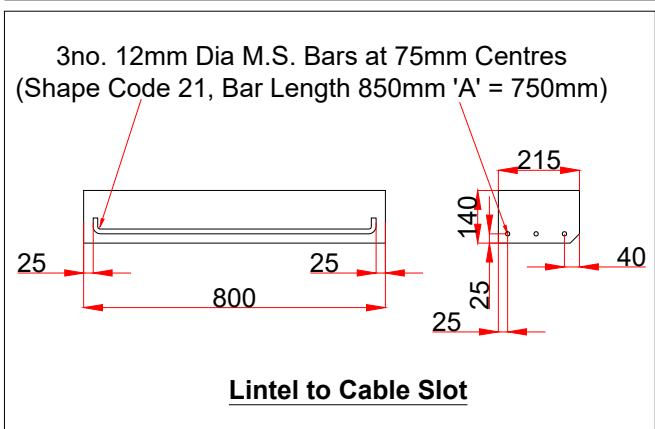
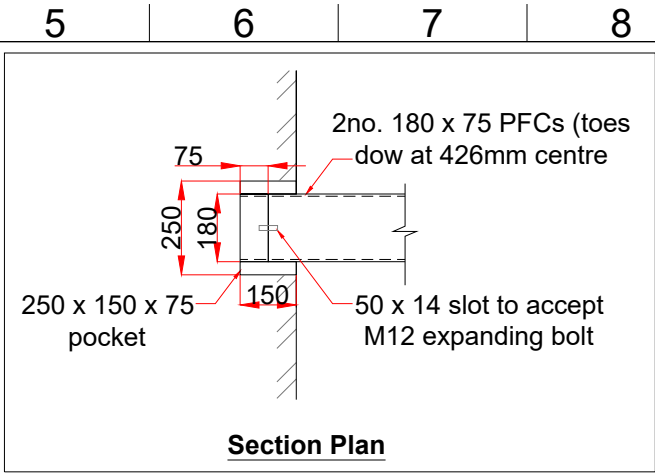
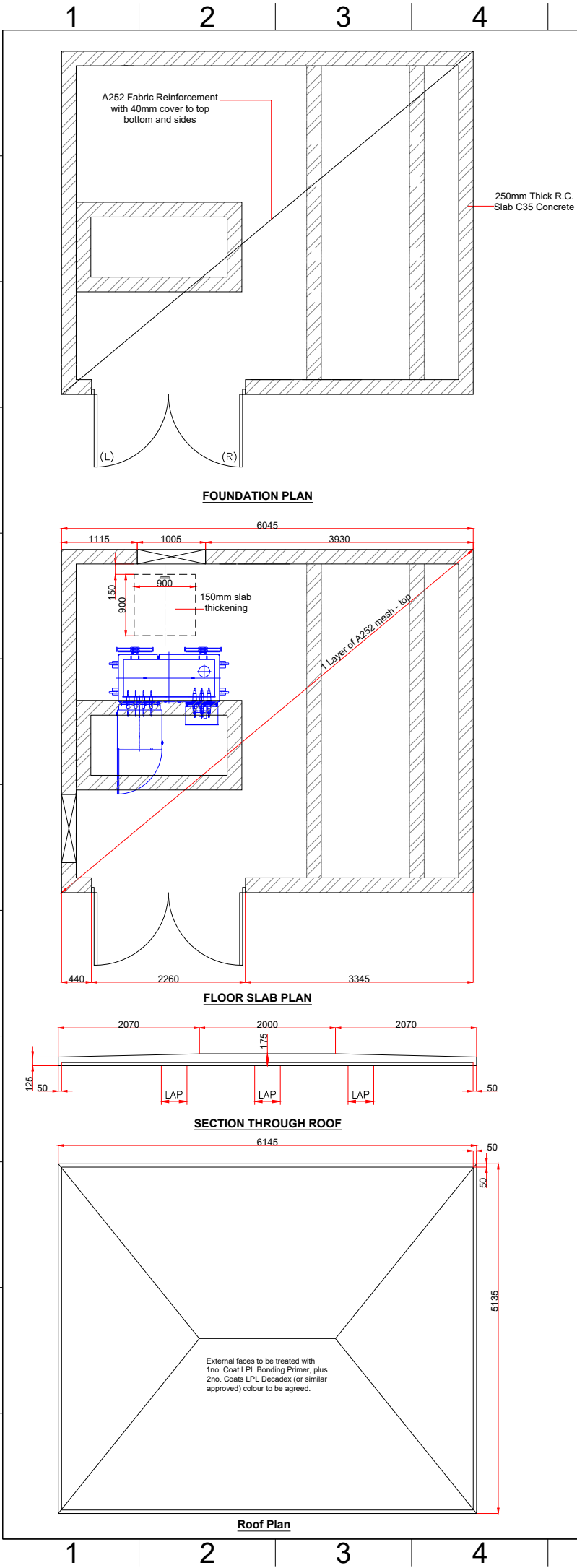
Design Engineer  
Rex Estranero  
Mobile  
07596 868 753

Project Manager  
Mike Turner  
Mobile  
07596 857 914

IDNO Ref.  
ESPE036797  
Scale @ Size  
1:500 @ A1  
Sheet  
1/2

DNO Ref.  
S262751  
Project No.  
P2526016  
Drawing No.  
020

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- This drawing is to be read in conjunction with all relevant architect's, engineer's and mechanical and electrical engineer's drawings, specifications etc.
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- Brickwork  
All brickwork below D.P.C. to be H.D. category 1 min. 75N/mm<sup>2</sup> mean compressive strength and max 7% M.A. and durability designation F2 S2 (Ex-engineering brickwork class B) in English bond except for exposed faces. External facing bricks to be H.D. category 1 min. 20N/mm<sup>2</sup> mean compressive strength, maximum 12% M.A. and durability designation F1 S1 or better. Internal bricks to be fair faced smooth textured solid concrete bricks, size to match external facing bricks and with a mean compressive strength of not less than 20N/mm<sup>2</sup>.
- Walls  
Leaves of collar jointed double stretcher walls to be tied together by means of 4mm min dia. stainless steel double-triangle ties (or better) laid in every 4th course at 375mm centers and set back 38mm from outer face, ties are to be staggered. Where cavity wall construction is proposed the constructor shall confirm by structural design calculation to the satisfaction of energy networks that the proposed cavity wall panel construction has equivalent lateral strength or better than that detailed on this drawing (e.g., stainless steel windposts or other stainless steel reinforcement system).
- Doors  
Proprietary GRP faced aluminium or steel security doors are the preferred option, unless stated otherwise.
- Roof  
Internal/External faces of concrete to be fair faced. All external faces to be cured, prepared, primed and finished with a two-coat high-performance (Aliphatic) polyurethane waterproofing system (flat roof grade) with glass fibre mat reinforcement to initial coat E.G.  
  
1No. Coat of LPL bonding primer the  
2No. coats of LPL decothane  
Or equal system  
  
All finishes to be applied strictly in accordance with the manufacturer's recommendations. Where a superimposed pitched roof is proposed, the concrete sub-roof shall have a waterproof coating and provision must be made to shed rainwater from the roof slab externally in the event of a failure of the pitched roof. All proposals regarding construction of the pitched roof must be submitted to energy networks for comment before work commences.
- Ventilation  
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Foundation and floor layout details indicated are typical for substation buildings housing indoor equipment and would not therefore be applicable to unit substation equipment of H.V. switching station layouts.

|                                                                                                                                                         |                                                                      |              |               |             |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------|---------------|-------------|-----|
| 2                                                                                                                                                       | Removed High EPR note and earthing to have combine arrangement       | 17/07/2025   | RE            | AB          | AB  |
| Rev                                                                                                                                                     | Amendment                                                            | Date         | Des           | Drw         | Chk |
| APPROVED FOR CONSTRUCTION                                                                                                                               |                                                                      |              |               |             |     |
| <b>HVSS</b>                                                                                                                                             |                                                                      |              |               |             |     |
| ELECTRIC • GAS • WATER • FIBRE                                                                                                                          |                                                                      |              |               |             |     |
| High Voltage Systems & Services Ltd.<br>Forest House<br>2 Riley Road<br>Telford Way Industrial Estate<br>Kettering NN16 8NN<br>TELEPHONE: 01604 781 107 |                                                                      |              |               |             |     |
| Client                                                                                                                                                  | Seybourne Estate Limited                                             |              |               |             |     |
| Project Name                                                                                                                                            | Plot 2 Image Business Park Knowsleu                                  |              |               |             |     |
| Drawing Title                                                                                                                                           | Substation Construction Details                                      |              |               |             |     |
| Site Address                                                                                                                                            | Plot 2 Image Business Park<br>Acornfield Road<br>Knowsley<br>L33 7UF |              |               |             |     |
| Design Engineer                                                                                                                                         | Rex Estranero                                                        | Mobile       | 07596 868 753 |             |     |
| Project Manager                                                                                                                                         | Mike Turner                                                          | Mobile       | 07596 857 914 |             |     |
| IDNO Ref.                                                                                                                                               | ESPE036797                                                           | Scale @ Size | Varies @ A1   | Sheet       | 2/2 |
| DNO Ref.                                                                                                                                                | S262751                                                              | Project No.  | P2526016      | Drawing No. | 020 |

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