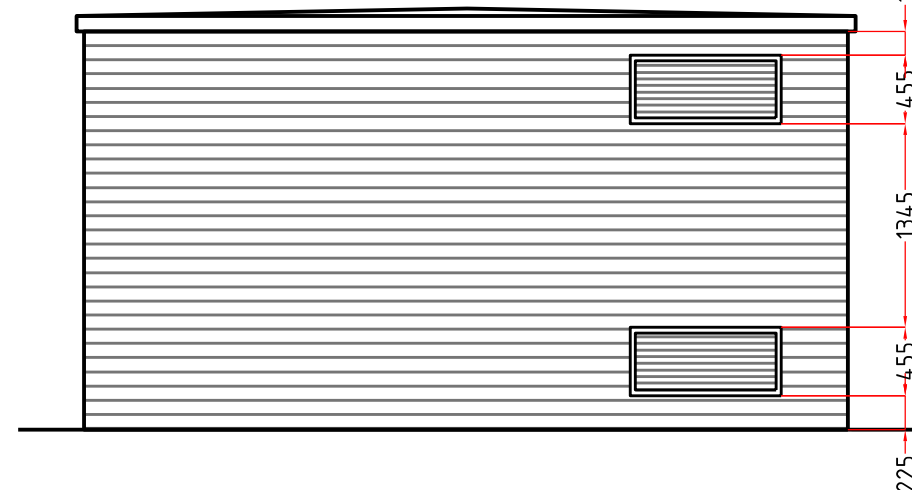


1. This drawing is to be read in conjunction with all relevant architect's, engineer's and mechanical and electrical engineer's drawings, specifications etc.
2. All dimensions to be checked on site.
3. Any discrepancies, contradictions to be notified to project architect/engineer.
4. Concrete
 - a. Concrete to be in accordance with the specification and attain the relevant cube crushing strength at 28 days.
5. Foundations (Concrete 35N/mm² 28-day cube strength).
 - a. Foundations are to be set on undisturbed organic strata that provide the required minimum design safe ground bearing capacity.
6. Floor (Concrete 35N/mm² 28-day cube strength).
 - a. Floor to be smooth and free of defects as essential for installation of plant. Tolerance to finished level expressed as a maximum permissible deviation between 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
 - a. Brickwork below D.P.C. to be H.D. category 1 min. 75N/mm² minimum compressive strength and max 7% M.A. and durability designation S2 (i.e. engineering brickwork class B) in English bond except for exposed faces. External facing bricks to be H.D. category 1 min. 20N/mm² minimum compressive strength, maximum 12% M.A. and durability designation F1 S1 or better. Internal facing bricks to be face mixed textured solid concrete bricks, size to match external facing bricks and with a mean compressive strength of not less than 20N/mm².

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

10. 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.

11. 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.

12. Doors
It is essential that DNO & IDNO personnel can access and properly secure on congress all doors at all times. Any door material/construction type that may bind, shrink, warp, wind, corrode or distort will not be acceptable. Doors shall be of robust construction that offers a high degree of security against entry.
The number of doors having external locking to access buildings shall be kept to a minimum consistent with adequate safe operational use (to limit opportunities for unauthorised entry).
Doors shall open outwards.
Doors shall not open over public highway (i.e. including footways).
Subject to site layout, external doors may be required to open in minimum 180° to facilitate the installation of Equipment.
Doors shall be fully weathered including appropriate seals to the external perimeter of frames, cover plate to meeting styles and weather bar to thresholds. Weather bars shall be corrosion resistant construction, built-in concrete thresholds to form weathered faces not exceeding 15mm and flush with finished floor level to avoid presenting a trip hazard.
All external access lock mechanisms to substitution doors that utilise padlocks shall incorporate internal security shrouds to prevent malicious access to locks, the fitting of more than one padlock on the entry door.
Proposed door construction details shall be submitted to SPEN Engineering Design and Standards for comment and shall be subject to acceptance in principle prior to procurement, however; irrespective of location and risk, metal security doors are the preferred option type for external substitution doors.

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.

- Manweb's 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

REVISIONS			
REV	DATE	DETAILS OF DESCRIPTION	CHKD



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PROJECT:

Southport

TITLE:

Xtype Substation Arrangement

DNO SPEN		IDNO ESPE
SCALE 1:50 @ A1	DRAWN RB	DESIGNED RB
REVIEWED JT	APPROVED JT	FIRST ISSUE DATE 24.01.23

TO BE READ IN CONJUNCTION WITH
Southport-X-Type Sub-pg2

DRAWING NO:

Southport - X-Type Sub - pg1

VER.

*

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For Approval