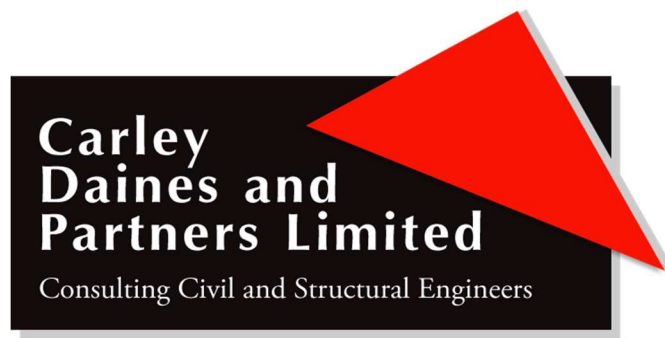




Bury Council Planning Department
Town Hall
Knowsley Street
Bury
BL9 0SW

DM/23-B-13947

For the attention of Helen Pressley

3rd March 2025

Dear Sirs,

**LAND OFF FLETCHER FOLD ROAD, BURY, BL9 9RX, PLANNING APPLICATION: 70805
CONTAMINATED LAND**

This letter is written in response to a Memo from Environmental Health to Planning dated 26th February 2025 and is concerned with protection from possible ground gases.

By way of background, we became involved in this scheme at a relatively late stage following a change of client and design team. We received a copy of the Hamson Barron Smith Ground Investigation Report dated 24th February 2024. We are aware that this report was written prior to gas monitoring being completed but the report took the view that gas risk was likely to be low.

Gas monitoring has since been carried out by others & the gas results were included in our Addendum Gas Report dated 13 January 2025. We are aware of the limitations and comments on the monitoring raised by Env Health and we have therefore adopted what we believe to be a precautionary approach to gas protection.

This could lead to greater protection being proposed than might have been recommended had the HBS monitoring being completed.

In our opinion, the source of ground gas could originate from decaying organic matter in made ground which is present across the site, overlying soft silty clay. However, we are aware that the site was formerly a school and it is assumed that there were no gas related health issues, despite the sensitivity of the building.

As indicated in our Gas Report, the GSV has been determined by multiplying the maximum flow with the maximum gas concentration which we consider produces a conservative (ie safe) outcome. Based on the NHBC Traffic Light System this indicated that "Amber 2" protection was required. We note the helpful comment regarding future withdrawal of this method of assessment but also note that this presently remains extant.

Assessing the results in accordance with BS8485:2015 + A1:2019 suggests a CS2 (Low) classification.

The proposed foundation drawings are attached and may involve either piling or vibro treatment due to weak ground conditions. Vibro can create a preferential pathway for gas migration which further justifies the protection measures indicated.

We therefore propose to install the Proctor GM Super Gas Barrier which is suitable for the most high-risk sites as defined by CIRIA, BS8485 & NHBC assessment criteria. The data sheet is attached.

This might be considered a “belt & braces” approach as CL:AIRE RB17 indicates that a beam and block floor with a vented sub-floor void below and insulation and screed above has good gas resistance properties even without a gas barrier.

Therefore, this is our proposal for gas protection, and we believe this will minimise any risk to future residents and is proportionate to possible site conditions.

In respect of a Validation Plan, this should be undertaken by an experienced specialist organisation and should accord with the requirements of Appendix F in NHBC NF94. A copy of this is attached.

We trust this is all satisfactory.

Yours faithfully

A handwritten signature in blue ink, appearing to read 'D Middleton', with a horizontal line underneath.

DAVID MIDDLETON

Protech GM Super

GAS PROTECTION

• HIGH RISK CHARACTERISTIC SITES •

REGULATIONS COMPATIBILITY TABLE

	CIRIA 665 CHARACTERISTIC SITUATION 2	CIRIA 665 CHARACTERISTIC SITUATION 3-6	BS8485 CHARACTERISTIC SITUATION 2	BS8485 CHARACTERISTIC SITUATION 3-6	BRE 211 RADON	NHBC AMBER 1	NHBC AMBER 2 & RED
METHANE	✓	✓	✓	✓	N/A	✓	✓
CARBON DIOXIDE	✓	✓	✓	✓	N/A	✓	✓
RADON	N/A	N/A	N/A	N/A	✓	N/A	N/A

DESCRIPTION

Protech GM Super is a proprietary reinforced gas barrier, that incorporates a 12 micron aluminium foil layer, for maximum protection against ground-borne gases. This specifically conforms with the latest guidance documents. The membrane also provides protection from damp when placed below the slab and, therefore, there is no need to install a separate DPM.

SPECIFICATION

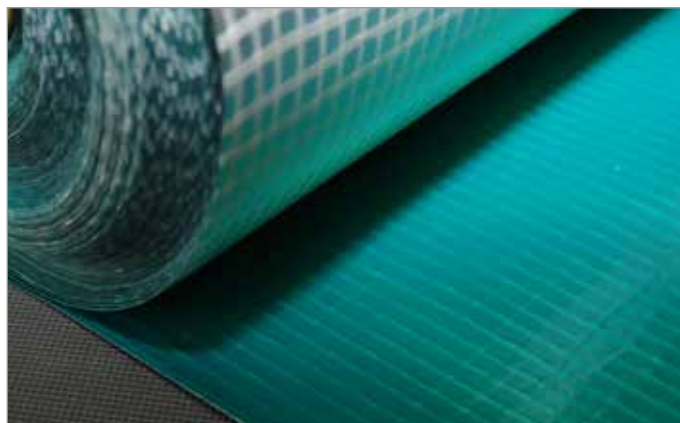
CIRIA C665, BS8485:2015 & Local Authority Ground Gas Handbook recommended that gas membranes are specified on the basis of the 'need to survive' construction, i.e. use one that is puncture and tear resistant.

Thickness should not be the main determinant of the suitability of a membrane for a particular site, although it can indirectly influence some key performance parameters.

In practise, because of the nature of construction sites, the survivability of membranes are equally important than purely permeability to gas.

Protech GM Super incorporates a reinforced grid to ensure that maximum protection is achieved when installed to manufacturers' instructions.

The need for high quality workmanship during installation should not be under-estimated. The health and safety of the occupants of the building is dependent on its satisfactory performance. If installed incorrectly or damaged during the construction process, the membrane is rendered ineffective and will fail to provide adequate protection against the ingress of ground gas or vapours.



TYPICAL PROPERTIES

Roll Length	50m
Width	2m
Weight	370g/m ²
Thickness	0.4mm
Colour	Green / Silver
Methane Permeability (ISO 15105-1)	≤ 0.1 ml/day/m ²

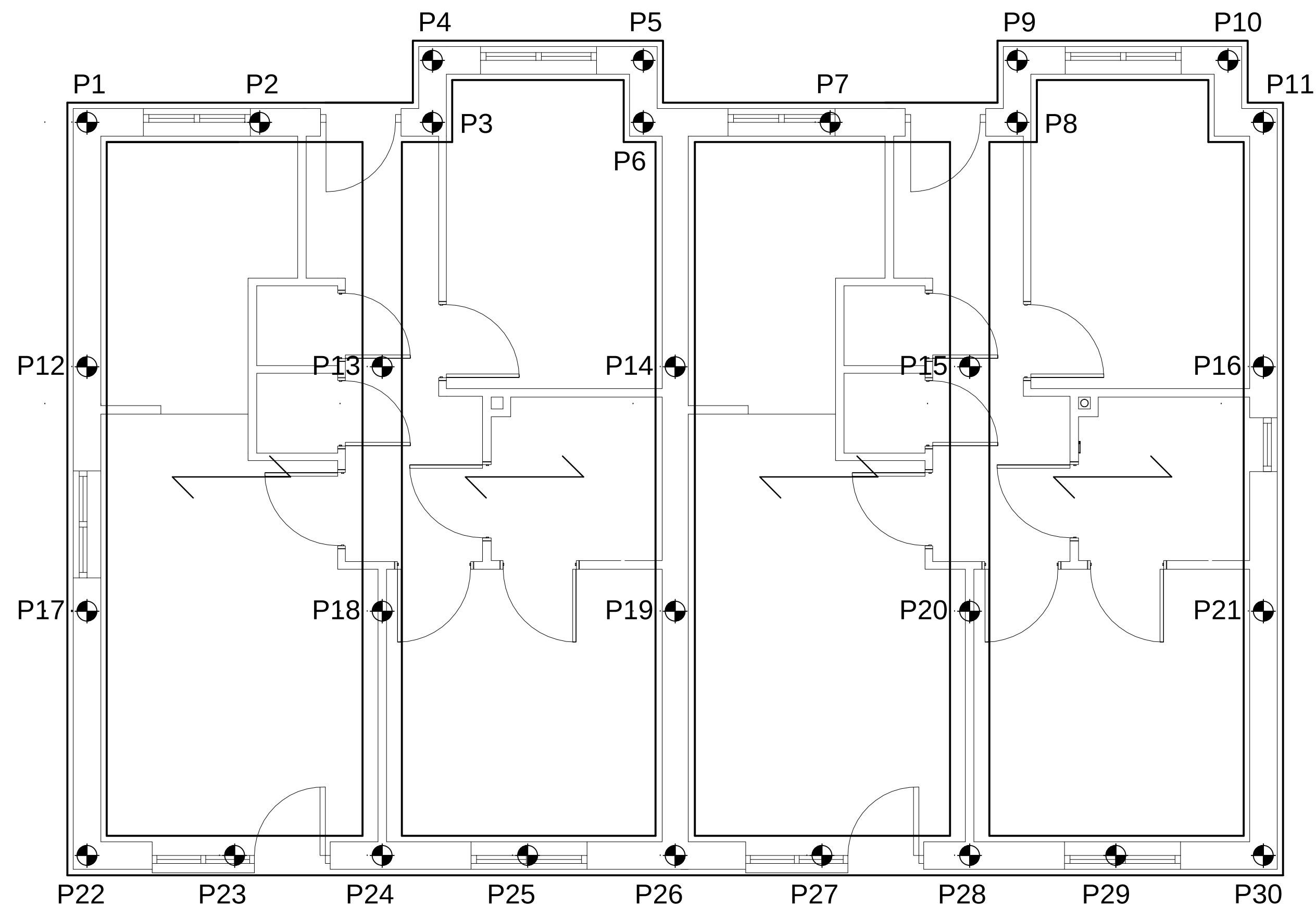
REQUIRED ACCESSORIES

- Protech GM Super Starter Band (1m x 50m)
- Protech GM Tape
- Protech GM Tophats
- Protech SAGM (Self Adhesive Gas Membrane)
- Protech GM Flashing Strip
- Protech GM Super Corner Units
- Protech GM Primer
- Protech GM 3mm Protection Board
- Protech GM Protection Fleece
- Protech I25

VENTING

On sites where venting is required, our Provoid Venting System should be used. We can provide design advice for both passive and active venting systems to suit individual site requirements.





FOUNDATION PLAN SHOWING SPAN OF GROUND FLOOR UNITS OVER

MASONRY SPECIFICATION

EXTERNAL WALLS
102.5mm BRICK (30N, CLASS M4(iii) MORTAR)
125mm CAVITY
100mm BLOCK (7.3N, CLASS M4(iii) MORTAR)

PARTY WALL
100mm BLOCK (7.3N, CLASS M4(iii) MORTAR)
75mm CAVITY
100mm BLOCK (7.3N, CLASS M4(iii) MORTAR)

NB. ALL PLANS ARE
FOUNDATION PLANS
SHOWING GROUND FLOOR
SPANS OVER

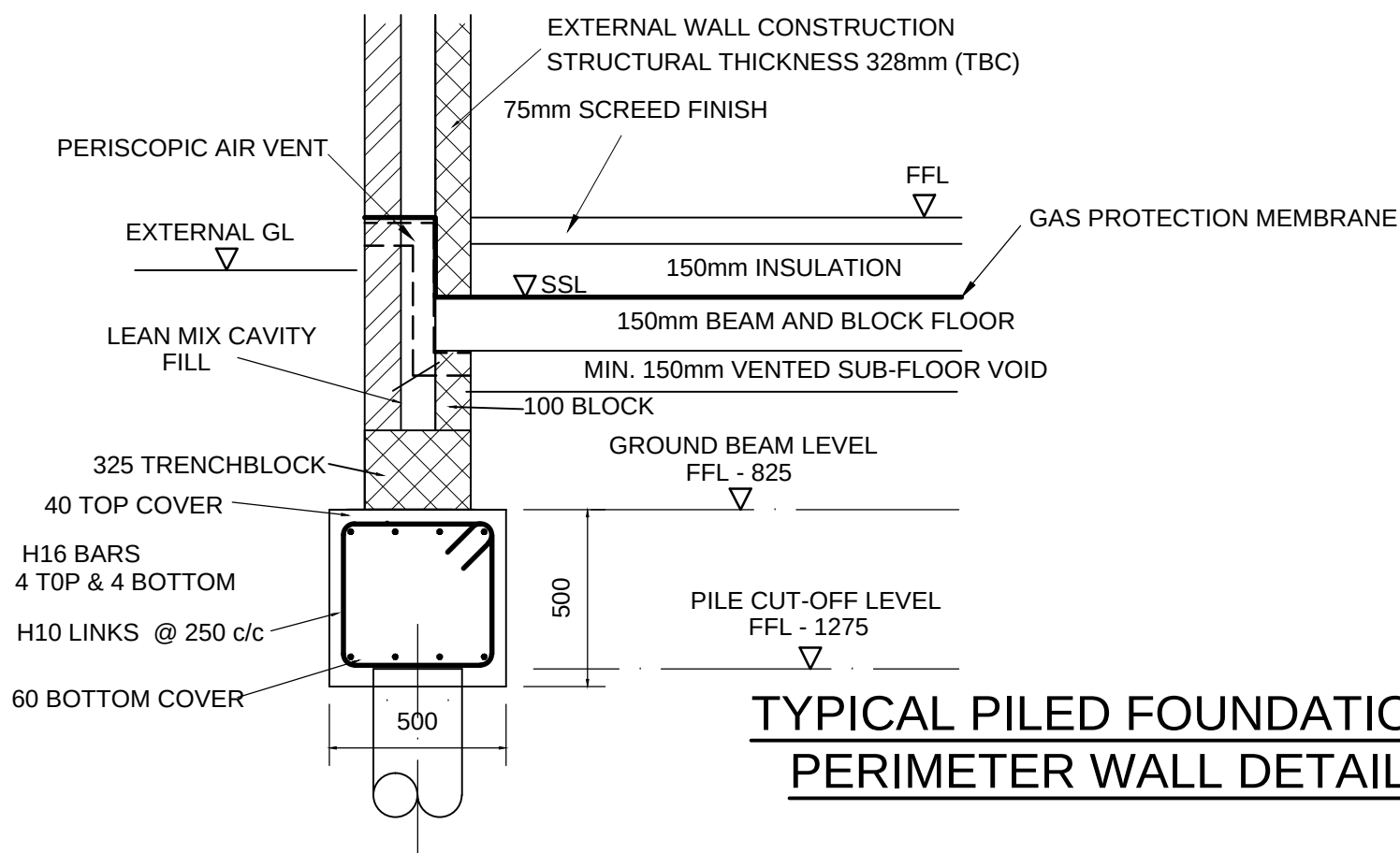
- 1) SUB-STRUCTURE BLOCKWORK TO BE A MIN. 4N STRENGTH
- 2) BELOW DPC MORTAR DESIGNATION M6
- 3) ABOVE DPC MORTAR DESIGNATION M4
- 4) CONFIRM DPC TYPE & POSITION WITH ARCHITECT
- 5) 2No. SUB-FLOOR VENTS PER ELEVATION
- 6) CONCRETE TO FOUNDATIONS TO BE C32/40

MAX PILE WORKING LOAD
300KN

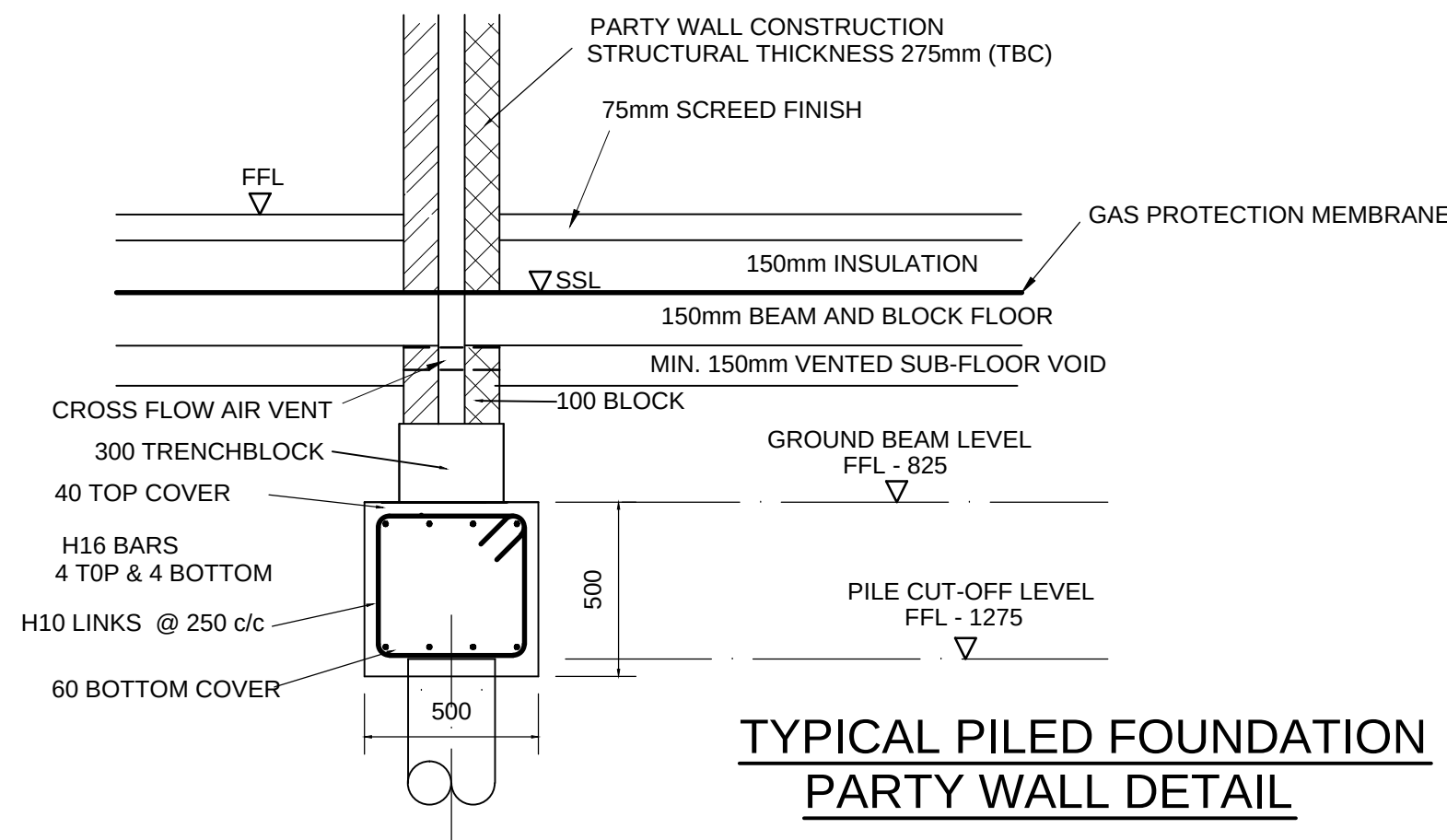
BEAM AND BLOCK FLOOR
DESIGN LOADINGS
SUPERIMPOSED:
DOMESTIC 1.5kN/m²
PARTITIONS 1.0kN/m²

1. CONCRETE FOR FOUNDATIONS TO BE DESIGNATED
MIX C32/40

INDICATES SPAN DIRECTION OF GROUND FLOOR
150mm THICK BEAM & BLOCK FLOOR &
TIMBER FLOOR JOIST SPAN AT FIRST FLOOR



TYPICAL PILED FOUNDATION
PERIMETER WALL DETAIL



TYPICAL PILED FOUNDATION
PARTY WALL DETAIL

CLIENT

TYSON CONSTRUCTION
BOLTON AT HOME

Carley
Daines and
Partners Limited

Consulting Civil and Structural Engineers

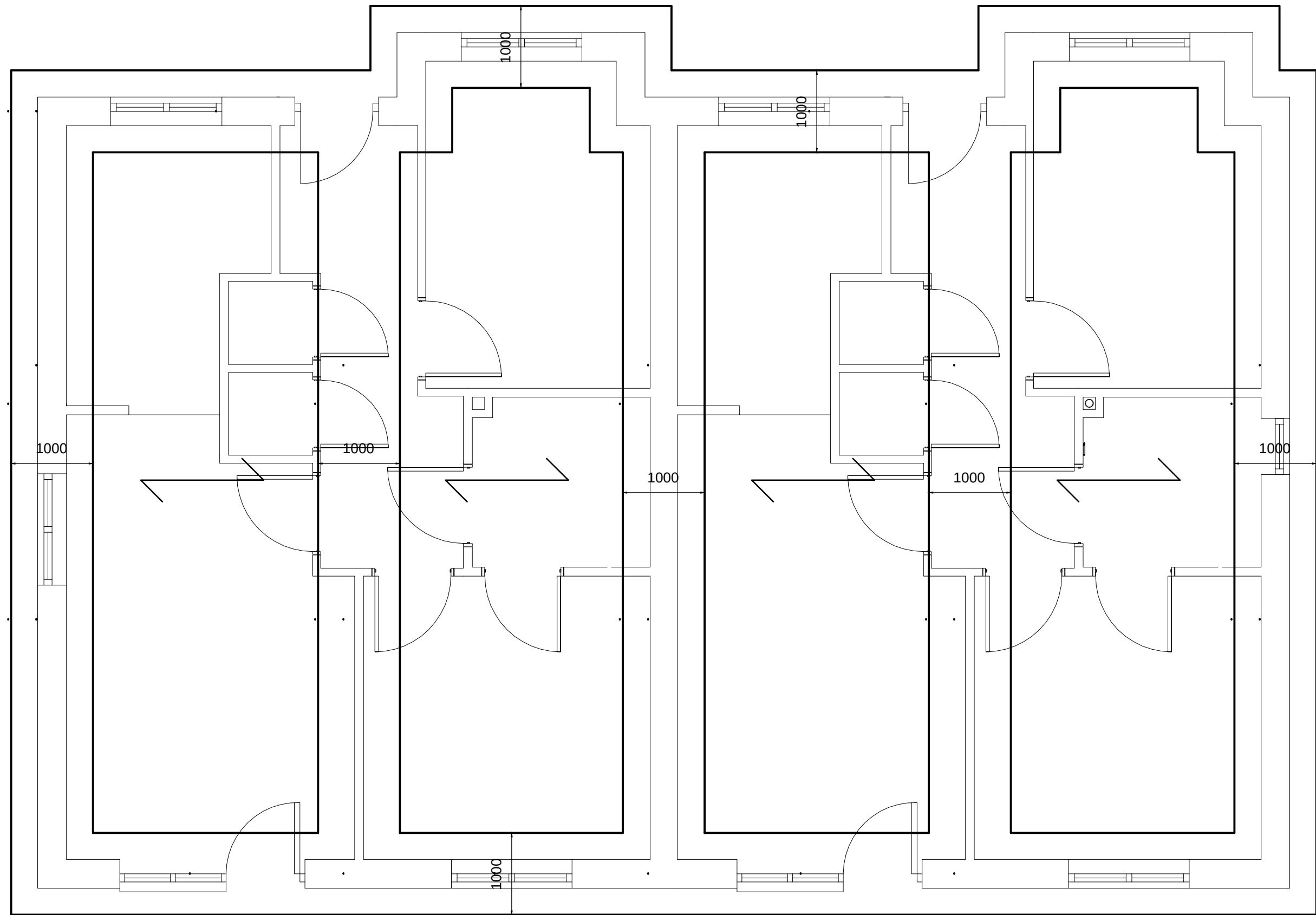
11 Bridgewater Road Walkden
Worsley Manchester M28 3JE
Tel 0161 799 2720 Fax 0161 790 3474
E-mail mail@carleydaines.co.uk

TITLE

FLETCHER FOLD ROAD
BURY

PILED FOUNDATIONS
TO BLOCKS 1/2 & 3/4

Drawn	M.HOLE	Checked
Date	MARCH 2024	Date
Scale	1:50	1:20
Drawing No.	23.B.13947/300	



FOUNDATION PLAN SHOWING SPAN OF GROUND FLOOR UNITS OVER

MASONRY SPECIFICATION

EXTERNAL WALLS
102.5mm BRICK (30N, CLASS M4(iii) MORTAR)
125mm CAVITY
100mm BLOCK (7.3N, CLASS M4(iii) MORTAR)

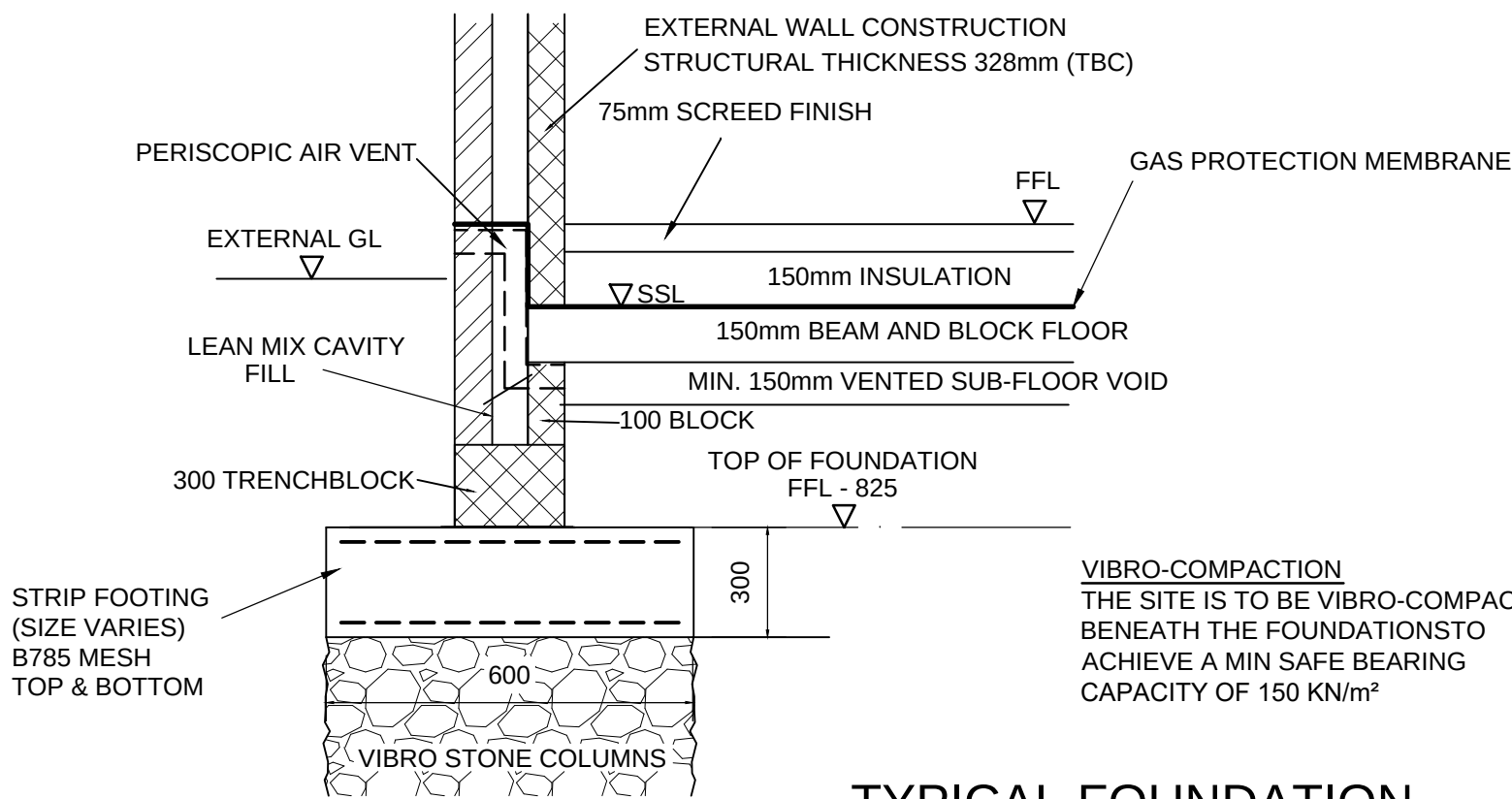
PARTY WALL
100mm BLOCK (7.3N, CLASS M4(iii) MORTAR)
75mm CAVITY
100mm BLOCK (7.3N, CLASS M4(iii) MORTAR)

NB. ALL PLANS ARE
FOUNDATION PLANS
SHOWING GROUND FLOOR
SPANS OVER

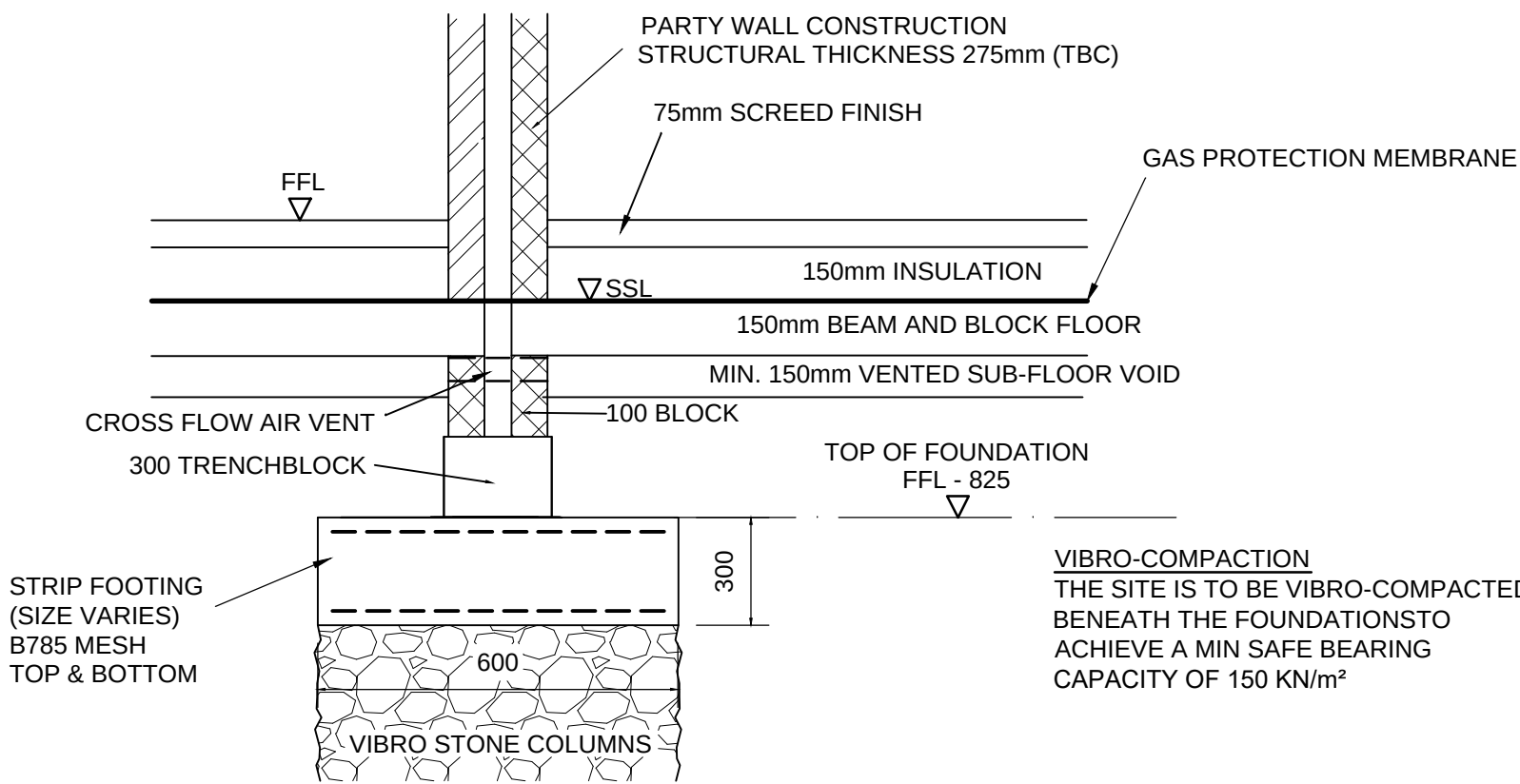
- 1) SUB-STRUCTURE BLOCKWORK TO BE A MIN. 4N STRENGTH
- 2) BELOW DPC MORTAR DESIGNATION M6
- 3) ABOVE DPC MORTAR DESIGNATION M4
- 4) CONFIRM DPC TYPE & POSITION WITH ARCHITECT
- 5) 2No. SUB-FLOOR VENTS PER ELEVATION
- 6) CONCRETE TO FOUNDATIONS TO BE C32/40

BEAM AND BLOCK FLOOR
DESIGN LOADINGS
SUPERIMPOSED:
DOMESTIC 1.5kN/m²
PARTITIONS 1.0kN/m²

1. CONCRETE FOR FOUNDATIONS TO BE DESIGNATED
MIX C32/40
- INDICATES SPAN DIRECTION OF GROUND FLOOR
150mm THICK BEAM & BLOCK FLOOR &
TIMBER FLOOR JOIST SPAN AT FIRST FLOOR



TYPICAL FOUNDATION
PERIMETER WALL DETAIL



TYPICAL FOUNDATION
PARTY WALL DETAIL

CLIENT

TYSON CONSTRUCTION
BOLTON AT HOME

Carley
Daines and
Partners Limited
Consulting Civil and Structural Engineers

11 Bridgewater Road Walkden
Worsley Manchester M28 3JE
Tel 0161 799 2720 Fax 0161 790 3474
E-mail mail@carleydaines.co.uk

TITLE

FLETCHER FOLD ROAD
BURY

VIBRO FOUNDATIONS
TO BLOCKS 1/2 & 3/4

Drawn	M.HOLE	Checked
Date	MARCH 2024	Date
Scale	1:50 1:20	
Drawing No.	23.B.13947/301	

Appendix F - Example Verification Plan

Membrane installation: Specialist installer requirements

The appointed specialist installer for the gas membrane will need to demonstrate that a minimum of one on-site operative holds an NVQ Level 2 Qualification in Gas Protection Installation.

It is the responsibility of the specialist installer to:

- in advance of site works commencing, provide an **Installation Plan** for the gas mitigation measures;
- provide sub-grade acceptance forms for all areas of membrane installation; and
- complete QA sign-off sheets for all areas of membrane installation.

Concrete floor: Flooring contractor requirements

The flooring contractor must ensure that the requirements of design and this verification plan are met.

In addition, the flooring contractor is to confirm that the faces between pours have been adequately cleaned and scabbled, and that all concrete is placed in accordance with the specification (by others).

Records of the above can be provided via a combination of inspection reports, QA documentation and a photographic record (location referenced photos).

The flooring contractor is also to provide concrete supplier's QA sheets (mix design and QA tests).

Verification contractor requirements:

The appointed Verification Contractor for the site will need to be suitably trained and submit a statement detailing their qualifications, independence and relevant experience, a copy of which is to be included in the **Verification Report** for the site. The Verification Consultant is to be a CL:AIRE Accredited Specialist in Gas Protection Verification and will be required to provide a CL:AIRE Declaration under the Gas Protection Verification Scheme for each report.

The company completing the verification will provide detailed method statements for the work (**Verification Method Statements**).

On completion of all the verification works on all parts of the system the verification consultant shall prepare an overall **Verification Report** for the whole gas mitigation system. This shall, as a minimum, include the completion inspection records detailing the site areas inspected, sign-off records, quality of workmanship, equipment calibration records, membrane type, membrane detailing, integrity testing methods, non-conformances and repairs, as well as good resolution photographs and any matters requiring further investigation and/or rectification.

It is also the responsibility of the Verification Contractor to:

- conduct a visual inspection of the ventilated void and air bricks and confirm it is in accordance with the design drawings. Provide location referenced example photos
- conduct a thorough visual inspection of 100% of the membrane area prior to it being
- ensure 100% of all joints / penetrations of the membrane are subject to mechanical point stress testing ('pick testing') in accordance with the ASTM D4437-08:2013
- verify that the ventilated void has been provided to the design height
- verify that the air bricks have been installed at the locations specified in the design drawings
- present verification evidence of the above (together with the information provided by the Specialist Installer, see above) in the form of a **Verification Report**.

Service ducts: Developer requirements

The Developer is to provide confirmation that the internal annulus of any open portion of any service duct annulus has been sealed in accordance with the design drawings. Location referenced photos to be provided of all seals.

Final ground levels at airbricks: Developer requirements

The Developer is to provide confirmation of the placement of airbricks with reference to finished ground levels after completion of landscaping works to ensure these have not been obscured. Location referenced photos to be provided.

Hold points in the process

The main contractor or developer has responsibility for ensuring that appropriate verification is done at the right times in the process. Hold points in the construction process have been determined, these are an important element in the Verification Plan as overlying construction should not proceed until the main contractor or developer has written confirmation that verification or QA sign off has been completed and that element of gas mitigation system is acceptable before it is covered up or the development occupied.

The hold points for the construction at the site comprise:

- verify depth of sub-floor void and spacing of vents/air bricks
- placement and sealing of the gas membrane across the entire building footprint
- placement of the geotextile protection fleece above the membrane
- hold points during concrete slab construction to be determined by structural engineer, but to include as a minimum: Inspection of reinforcement and formwork (including supports to both) prior to concrete pour to ensure gas membrane is not punctured
- sealing of service ducts (prior to occupation)
- ground level checks at airbricks (prior to occupation).