

Former Tetrosyl Works, Bevis Green, Bury

Remediation Phases 2C (South), 2D (North), 2F (East / North) & 2G Handover Area (Plots 101-111, 126-138, 190-207, 249- 250 & 258-268): Developer-Stage Remediation Strategy

For: Barratt Homes Manchester

Date: October 2025

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Developer-Stage Remediation Strategy

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Remediation Phases 2C (South), 2D (North), 2F (East / North) & 2G Handover Area: Developer-Stage Remediation Strategy

For: Barratt Homes Manchester

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1. Introduction

- 1.1. The former Tetrosyl Bevis Green works located off Mill Road, Bury has been granted Planning Consent (63533) for residential redevelopment. Barratt Homes Manchester (BHM) is currently developing the site and appointed Urban Regen Ltd. (URL) to carry out the demolition and preparatory remedial earthworks. URL and BHM subsequently instructed Smith Grant LLP (SGP) to undertake supplementary site investigations and assessments (as well as Groundtech Consulting), and produce an Outline Remediation Strategy (ORS), a Phase 2 Detailed Remediation Strategy (DRS) and phased Developer-Stage Remediation Strategies for submission to Bury Metropolitan Borough Council (BMBC) to satisfy Condition 4 of the Planning Consent.
- 1.2. Remedial works have previously been completed within the areas referred to as Phase 1A (Plots 1-40, 42-57 and 143-151) and Phase 1B (Plots 152-189) under the ORS, and SGP subsequently produced Developer-Stage Strategies for both of these parcels (refs. R2174-R07-v5 and R2174-R12-v2, respectively). URL has also previously completed remedial works within two handover areas within Phase 2 under the Phase 2 DRS for which SGP has produced Developer-Stage Strategies, as follows:
- Remediation Phases 2E and 2F (southwest) – Developer-Stage Strategy ref. 'R2174-R19-v3', May 2025.
 - Remediation Phases 2D (South) & 2F (Centre-south) & Plot 138 – Developer-Stage Strategy ref. 'R2174-R21-v3', May 2025.
- 1.3. URL has now completed preparatory works within a third handover area in the central / southeast areas of Phase 2 referred to as Remediation Phases 2C (South), 2D (North), 2F (East / North) & 2G. Verification reporting has been undertaken by Groundtech Consulting on behalf of URL for Phase 2 which encompasses this area (ref. GRO-21459-5053), and BHM has now instructed SGP to produce this Developer-Stage Strategy.
- 1.4. For clarity, this report pertains to a handover area within Phase 2 which is to include **Plots 101-111, 126-138, 190-207, 249-250 & 258-268**, the extent of which is indicated on Figure 1.2 below and the appended 'Site Layout + Developer Phases' drawing (ref: D01)). Site details are:

Table 1.1: Site Details

Address	Bevis Green Works, Mill Road, Bury BL9 6RE
National Grid Reference	380950, 413950
Local Authority	Bury Metropolitan Borough Council (BMBC)
Site Area	Total: 10.4 ha total. Development area: 7.2 ha. Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area: ~1.5 ha
Previous Use of Site	Former mill / warehouse buildings, infill areas (lodge and area to south of reservoir), culvert, internal roads, drum compound (hotspot 'HS2'), above-ground (AST) and underground storage tank (UST) areas (hotspots 'HS1', 'HS5' & 'HS8').

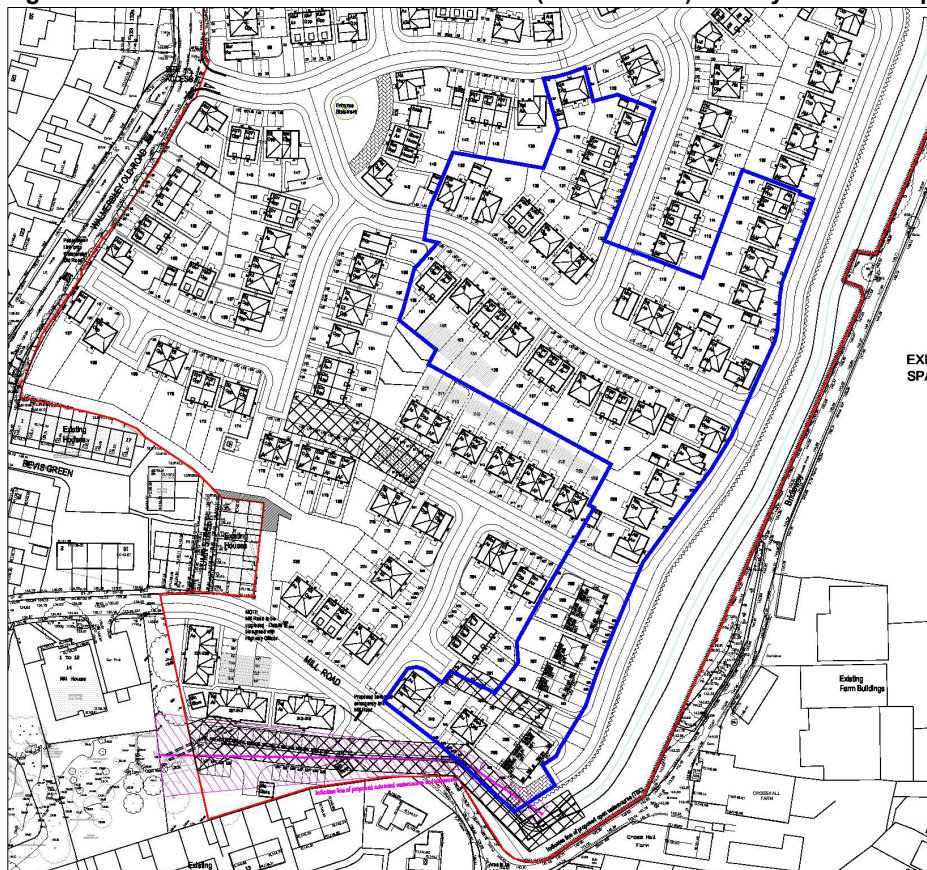
Site Access	Entrance off Walmersley Old Road and Mill Road
Planning Reference	63533
Proposed Use	Residential dwellings (houses) with private gardens, parking and landscaping

Figure 1.1: Site Location



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Figure 1.2: Phase 2C/2D/2F/2G Handover Area (Blue Outline) overlayed on Excerpt of Site Layout Plan



- 1.5. Planning permission for redevelopment of the site has been granted by BMBC (ref: 63533) for the construction of up to 268 dwellings with open space, landscaping, private gardens and infrastructure. Condition 4 of the Planning Consent relates to the requirement for site investigation, risk assessment and remediation proposals to be submitted to, and approved by, BMBC, and is worded as follows:

Table 1.2: Planning Condition relating to Contaminated Land

4	<i>No development, other than site clearance, demolition, or works relating to site investigation, remediation or ground works, shall commence unless and until: -</i> • <i>A contaminated land Preliminary Risk Assessment report to assess the actual/potential contamination and/or ground gas/landfill gas risks at the site shall be submitted to, and approved in writing by, the Local Planning Authority.</i> • <i>Where actual/potential contamination and/or ground gas/landfill gas risks have been identified, detailed site investigation and suitable risk assessment shall be submitted to and approved in writing by the Local Planning Authority.</i> • <i>Where remediation/protection measures is/are required, a detailed Remediation Strategy shall be submitted to, and approved in writing by, the Local Planning Authority.</i>
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- 1.6. To partially satisfy Condition 4 for the Phase 2 area covered by this report, it is understood that the following documents have been submitted to BMBC and/or the Environment Agency (EA):

- ESNR Phase I and Phase II Environmental Site Assessment (ref. 10468-1(01)), dated January 2003;
- RSK STATS Geoconsult Ltd. Revised Environmental Site Assessment (ref. 16565-R1(00)), dated February 2011;
- e3p Phase I and Phase II Geo-environmental Site Investigation (ref. 10-110-r1), dated May 2014;
- e3p Remediation and Enabling Works Strategy (ref. 11-500-R1), dated February 2017;
- SGP Outline Remediation Strategy (ref. R2174-R01-v2), dated May 2019;
- SGP Phase 2 Supplementary Groundwater Investigation (ref. R2174C-R05-v1), dated December 2020.
- SGP Phase 2 Supplementary Groundwater Investigation No.2 (ref. R2174C-R09-v1), dated June 2021.
- SGP Phase 2: Supplementary Site Investigation (ref: R2174-R06-v1), dated April 2021.
- Groundtech Groundwater Investigation Factual Report (GRO021459-3627, rev 1.1), dated July 2022.
- Groundtech Supplementary Geo-Environmental Appraisal (GRO-21459-3928, rev. 1.3), dated December 2022.

- Groundtech Letter Report Containing Proposed Soil RTVs (GRO-21459-4595), dated July 2023.
 - SGP Phase 2 Area (excluding Phase 2A & 2B and Former Mill Lodge Reservoir) Detailed Remediation Strategy (ref: R2174-R11-v6), dated October 2023.
 - Groundtech Consulting Verification Report – Phase 2 (excluding Phase 2A and 2B) (ref: GRO-21459-5053, rev. 1.2), dated June 2024.
 - SGP Phase 2 Early Handover Area (Phases 2E & Phase 2F – Southwest) Ground Gas / Vapour Risk Assessment (ref: R2174-R18-v1), dated August 2024
 - SGP Phase 2 Early Handover Area (2E & Phase 2F – Southwest) Developer-Stage Remediation Strategy (ref: R2174-R19-v3), dated May 2025
 - SGP Remediation Phases 2D (South) & 2F (Centre-south) Handover Area (Plots 208-218 & 251-257) Vapour Risk Assessment (ref: R2174-R20-v2), dated November 2024
 - SGP Remediation Phases 2D (South) & 2F (Centre-south) Handover Area (Plots 208-218 & 251-257) & Plot 138: Developer-Stage Remediation Strategy (ref: R2174-R21-v3), dated May 2025
 - SGP Remediation Phases 2C (South), 2D (North) & 2F (East / North) Handover Area: Plots 105-111, 126-138, 190-207, 249-250 & 258-268 - Gas / Vapour Risk Assessment (ref: R2174-R24-v1), dated August 2025
 - SGP Remediation Phase 2G: Plots 101-104 – Ground Gas / Vapour Risk Assessment (ref: R2174-R27-v1), dated October 2025
- 1.7. The ORS produced by SGP (the general provisions of which were approved by both BMBC (ref: CL584.240719.1; July 2019) and the EA (February 2020)) was to allow preparatory earthworks to commence on site whilst site investigations were on-going.
- 1.8. The subsequent Phase 2 supplementary investigation works carried out by both SGP and Groundtech included soil and groundwater sampling and monitoring. This enabled production of updated risk assessments for Phase 2 which ultimately informed production of the SGP Phase 2 DRS (ref: R2174-R11-v6) which was approved by both BMBC (ref: CL584.140224.1; February 2024) and the EA (SO/2020/120065/06-L01; February 2024). It should be noted that the Phase 2 DRS does not include Remediation Phases 2A & 2B or the former mill lodge reservoir areas which are to be covered in separate reporting.
- 1.9. The Phase 2 DRS covered appropriate working methods, contamination hotspot removal, health and safety control measures, soil treatment and sampling requirements, and additional mitigation measures to manage residual risks from soil contamination. The DRS also detailed the requirement for post-remediation gas and vapour monitoring within the Phase 2 area.
- 1.10. The Phase 2 remediation and preparatory earthworks were carried out by URL between March 2022 and January 2024 and are detailed within the Groundtech Verification Report – Phase 2

(excluding Phases 2A and 2B) (ref. GRO-21459-5053). It is understood that this report has been submitted to BMBC and the EA for comment, however, to SGP's knowledge, responses are currently outstanding. To allow construction works to commence, it is a requirement that standalone construction-stage Remediation Strategies are provided to compile and summarise all the recommendations from the previous Phase 2 reporting.

- 1.11. Following completion of the Phase 2 remediation works, SGP undertook the required post-remediation ground gas / vapour monitoring and sampling programme for the Remediation Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area covered by this report. A subsequent gas / vapour risk assessment was then produced (ref: R2174-R27-v1) in order to inform the ground gas / vapour protection measures required for this part of the site. This report has been submitted to BMBC and a response is currently outstanding.
- 1.12. This Developer-Stage Remediation Strategy has been produced to detail the final remedial measures to be implemented within Remediation Phases 2C (South), 2D (North), 2F (East / North) & 2G by the developer, including their verification, prior to the onset of construction works at the site.
- 1.13. The assessment methodology in the production of this Remediation Strategy follows the framework described in EA guidance 'Land Contamination Risk Management (LCRM)' (last updated June 2025), comprising an options appraisal to evaluate and identify feasible remediation options, specification of appropriate techniques, and an implementation programme and verification plan.

2. Information Sources

2.1. The principal reporting that has informed production of this report is as follows:

Table 2.1: Information Sources

Report	Information
SGP Phase 2 Area (excluding Phase 2A & 2B and Former Mill Lodge Reservoir) Detailed Remediation Strategy Bevis Green Works (Tetrosyl) Mill Road, Bury BL9 6RE Report Ref. R2174-R11-v6 October 2023	Review of factual information from previous site investigations and assessments (see Section 1.6), updated site characterisation and Conceptual Site Model, risk assessment, remediation objectives, options appraisal, details of the remedial strategy to be implemented by the earthwork's contractor / housebuilder, verification plan, recommendations for general / dedicated site inspections and further investigation / reporting required. Detail provided on the validation testing requirements for site won / imported soils and aggregates, verification of remediated hotspots, and the post-remediation VOC and gas monitoring / sampling programme to be implemented. Construction phase remediation recommendations including placement of 600mm clean soil cover in all private gardens (reduced to 450mm in landscaped areas) in combination with an underlying warning/barrier geotextile where made ground is present at the formation surface, and gas protection measures compliant to Ciria CS2 in all plots as a minimum (subject to post-remediation gas / VOC monitoring and sampling); however, these recommendations were subject to being finalised within a <u>Developer-Stage Remediation Strategy</u>.
Groundtech Consulting Verification Report (Phase 2 excluding Phases 2A&2B), Tetrosyl Bevis Green Works, Bury Report ref. GRO-21459-5053 June 2024	Details of the remediation of nine previously identified hotspots in Phase 2 under the provisions outlined in the SGP Phase 2 DRS with stockpiling of excavated, impacted materials for future treatment or disposal. No unexpected contamination encountered therefore no revisions to the SGP DRS required. Summary of the surface water monitoring programme undertaken – no elevated contaminants of concern recorded. Detail also provided with respect to the asbestos testing carried out on site-recovered aggregate (deemed suitable for reuse as haul roads and subbase for hardstanding and in the construction of roads based) and the asbestos air monitoring undertaken. Remedial recommendations for the construction phase of development detailed in the DRS confirmed to be appropriate and it was acknowledged that vapour protection measures may be required depending on the results of the gas / vapour monitoring and sampling programme to be undertaken.

SGP Remediation Phases 2C (South), 2D (North) & 2F (East / North) Handover Area (Plots 105-111, 126-138, 190-207, 249-250 & 258-268) Gas / Vapour Risk Assessment Tetrosyl, Waldmers Wood, Bury Report Ref. R2174-R24-v1 04th August 2025	Details of the ground gas / vapour monitoring programme carried out in the Phases 2C (South), 2D (North) & 2F (East / North) handover area which comprised: • The drilling of 9 continuous tube sample boreholes to 2m bgl or refusal on an approximate 25m grid spacing. • Logging of ground conditions and screening of arisings with PID. • Monitoring of vapour concentrations (8/9 wells) – 3 rounds • Monitoring of ground gas concentrations (1/9 wells) – 6 rounds. • Collection of vapour samples (8/9 wells) for VOC, BTEX and TPH CWG hydrocarbons analysis and comparison with derived inhalation criteria. • Ground gas and vapour risk assessment. Low ground gas concentrations reported across the site, however, elevated VOCs, most significantly vinyl chloride and trichloroethene (TCE), above the derived criteria identified across the site. Concluded that VOC protection measures and high-level verification required across the Phases 2C (South), 2D (North) & 2F (East / North) Handover Area, although it was considered that further detailed assessment may negate this requirement.
SGP Remediation Phase 2G (Plots 101-104) Ground Gas / Vapour Risk Assessment Tetrosyl, Waldmers Wood, Bury Report Ref. R2174-R27-v1 21st October 2025	Details of the ground gas / vapour monitoring programme carried out in the Phase 2G area which comprised: • The drilling of 3 continuous tube sample boreholes to refusal on an approximate 25m grid spacing. • Logging of ground conditions and screening of arisings with PID. • Monitoring of vapour concentrations (all wells) – 6 rounds • Monitoring of ground gas concentrations (all wells) – 6 rounds. • Collection of vapour sample (1/3 wells) for VOC, BTEX and TPH CWG hydrocarbons analysis and comparison with derived inhalation criteria. • Ground gas and vapour risk assessment. Elevated methane and slightly elevated carbon dioxide concentrations reported in borehole VGP2G03. Elevated VOCs also detected, most significantly aliphatic C8-10 hydrocarbons, vinyl chloride and trichloroethene (TCE), above the derived criteria identified across the site. Concluded that VOC protection measures and high-level verification required across the Phase 2G area.

3. Site Characterisation

3.1. Summary of Historical Contamination Status

- 3.1.1. The site has been subject to industrial use since the earliest available mapping (1844) with the southeast occupied by the Lumn and Bentley Cotton Mills, later used as a Dye and Print Works which were supplied by a series of man-made reservoirs in the centre-east and southeast of the site; the southwestern and northern parts of the site remained largely undeveloped at this time. Other features of the wider site were a quarry in the northeast and mine entries in the southeast. Mapping from 1890 shows an earth-retained reservoir had been constructed across the majority of the southwest (Phase 1B) area.
- 3.1.2. Tetrosyl acquired and developed the site in the mid-1960s and the 1971 map annotates the site as a 'Car Accessories Factory' with some storage tanks indicated. A solvent tank farm was constructed in the northeast at some point after 1981 and an office / reception building was constructed in the centre-south after 1996. Two large warehouses are shown occupying much of the northwest of the site on the 1984 mapping which, according to Tetrosyl personnel, were constructed in the 1970s (as reported by ENSR). To construct the northern warehouse, significant excavation works were required which generated rock and soil which was used to infill the reservoir located in Phase 1B.
- 3.1.3. The Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area comprised several mill / warehouse buildings, internal roads, part of a historic reservoir that was infilled between 1908-1928 in the approximate centre of the site, an area of deep fill to the south of the recently infilled reservoir, part of a UST / AST storage area (white spirit, antifreeze, methanol and heating oil) and drum compound in the southeast (hotspots 'HS1' & 'HS2', respectively), a kerosene AST in the east (hotspot 'HS5') and a disused AST (contents unknown) in the centre-northeast (hotspot 'HS8'). All of these features have since been demolished / removed from the site.
- 3.1.4. Asbestos containing materials (ACMs) are known to have been used within the site buildings including structural asbestos cement boarding and insulation. All site buildings underwent an asbestos strip and were demolished prior to the Phase 2 Remediation Earthworks.
- 3.1.5. Post-remediation soil-vapour monitoring / sampling was undertaken within entries across the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area with exceedances reported across the phase for benzene, C4-6, C6-8, C8-10 & C10-12 aliphatic hydrocarbons, C5-7 & C8-10 aromatic hydrocarbons, vinyl chloride, chloromethane, dichloromethane, trans-1,2-dichloroethene and TCE. It was determined that the plots within the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area would require VOC protection measures in accordance with current CIRIA guidance.
- 3.1.6. The groundwater monitoring did not indicate any extensive impacts to the underlying aquifer in the sandstone units below Phase 2 (excluding Phases 2A and 2B).

3.2. Summary of Enabling Remediation Works

3.2.1. Enabling remediation works in accordance with the SGP Phase 2 DRS have been carried out to prepare the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area for the construction phase of development. The elements concerning tank decommissioning and disposal, product removal, hotspot remediation and testing of site-recovered aggregate are all detailed within the Groundtech Consulting Verification Report (Phase 2). In summary, the general preparatory enabling remediation works across Remediation Phase 2 so far have included:

- asbestos strip and demolition of existing buildings;
- removal of ground floor slabs, relict foundations and other sub-structures;
- removal of IBCs, drums and product from the site;
- site regrade to achieve development levels;
- crushing of suitable recovered hard materials (i.e. masonry, concrete and brick) to produce aggregate for placement in pile mats and as road capping.

3.2.2. Remediation works specific to the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area included:

- Hotspot 'HS1': removal of product from tanks with offsite disposal via bulk tanker, excavation of tanks, breaking out of concrete cradles, excavation of the surrounding, impacted soils to the extents feasible and placement within the Phase 2 treatment area. Natural, clean, site won material obtained from the reduced level dig in Phase 1B then utilised to backfill the hotspot in accordance with the Remedial Strategy.
- Hotspot 'HS2': Remediation verification works at 'HS2' were unable to take place due to the presence of the culvert and, in any case, significant contamination generally not recorded in this area. A watching brief for visual or olfactory evidence of contamination was recommended following the culvert diversion works and it is understood that no further works were deemed to be required in this area.
- Hotspot 'HS5': removal of AST (undertaken during enabling works), followed by excavation of hydrocarbon / VOC impacted soils and placement within the Phase 2 treatment area.
- Hotspot 'HS8': removal of AST (undertaken during enabling works), followed by excavation of hydrocarbon / VOC impacted soils over several visits and placement within the Phase 2 treatment area.

3.3. Risk Assessment Summary

3.3.1. The potential contamination sources identified which could impose constraints on the proposed redevelopment of the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area for residential use can be summarised as:

- the presence of made ground soils, confirmed locally as containing elevated concentrations of metals, PAHs, non-volatile hydrocarbons and trace asbestos fibres;
- elevated soil-vapour (VOC) concentrations.

3.3.2. An options appraisal was provided within the SGP Phase 2 DRS which identified that whilst remedial works including the investigation / excavation and remediation of any potential hydrocarbon hotspots would be carried out, it was not practical to remove all made ground from the site which contained elevated concentrations of PAHs, heavy metals, hydrocarbons and asbestos fibres. Consequently, a 600mm clean soil cover system was recommended for all private gardens in Phase 2 in combination with a warning / barrier geotextile where residual made ground is present at the formation surface. Only clean and validated soils are to be used for this purpose.

3.3.3. The Remediation Phases 2C (South), 2D (North) & 2F (East / North) Handover Area Vapour Risk Assessment (ref: R2174-R24-v1) and Remediation Phase 2G Ground Gas / Vapour Risk Assessment (ref: R2174-R27-v1) which utilised the results of the post-remediation vapour monitoring exercises concluded that VOC protection measures are required within all of the dwellings covered by the reports (Plots **101-111, 126-138, 190-207, 249-250 & 258-268**) in accordance with current CIRIA guidance.

3.3.4. A risk assessment for water supply pipes has not been undertaken within the Phase 2 area and one is likely to be required by the utility provider; however, it is understood that the developer will install barrier pipe in any case.

3.3.5. The preliminary construction phase remediation measures summarised within the SGP Phase 2 DRS (Section 9) are now detailed further with respect to the Phases 2C (South), 2D (North) 2F (East / North) & 2G handover area with consideration to the remediation works and post-remediation monitoring carried out since. A detailed verification plan is also included.

4. VOC Protection Measures

- 4.1. The Remediation Phases 2C (South), 2D (North), 2F (East / North) & 2G Handover Area Ground Gas / Vapour Risk Assessments (refs: R2174-R24-v1 & R2174-R27-v1) recommend that VOC vapour resistant protection measures are to be installed within all dwellings within this area (**Plots 101-111, 126-138, 190-207, 249-250 & 258-268**, according to the layout plan provided by BHM), all of which are to comprise low-level detached, semi-detached and terraced housing.

4.2. Vapour Protection Design

- 4.2.1. BHM has provided detailed design drawings for their VOC vapour protection measures, copies of which are provided in Appendix A. These show the placement of a 'VOC Membrane – Visqueen Ultimate HC Blok' across the footprint of the plots / apartment blocks in combination with a ventilated, sub-floor void.

Membrane

- 4.2.2. SGP understand that the designer (BHM) has approved the membrane's performance specification in accordance with the requirements of CIRIA C748¹. The VOC resistant membrane is to be installed with the supporting ancillary products in all plots as per the manufacturer's instructions.

The developer (as the designer) has confirmed that a Visqueen Ultimate HC Blok membrane will be installed which is compliant with CIRIA C748:2014 VOC protection. A copy of the technical datasheet for the membrane is provided in Appendix A.

- 4.2.3. The technical datasheet referred to above includes the specification details for how service entries are to be sealed to the VOC membrane and gives two options for achieving this, as reproduced below. It is understood that BH's preferred method will be to use the VisqueenPro detailing strip.

*"Airtight seals should be formed around all service entry points. Visqueen Ultimate Preformed Top Hat Units should be used for sealing service entry pipes. The base of the top hat and the upstand should be bonded using Visqueen 100mm Double Sided Butyl Tape and sealed with Visqueen GR Lap Tape. The upstand should be secured with the supplied jubilee clip. **Alternatively VisqueenPro Detailing Strip can be used to seal service entry points. The upstand should be secured with a jubilee clip**"*

Slab

- 4.2.4. All slabs to be constructed with a minimum 150mm, ventilated, sub-floor void.

The developer has confirmed that the foundations will consist of strip footings with a block and beam suspended Jet Floor System and a minimum 150mm, ventilated, sub-floor void. Design

¹ CIRIA C748: Guidance on the use of plastic membranes as VOC vapour barriers (2014)

drawings have been provided showing how the VOC membrane will be constructed across the footprint of the buildings in combination with the ventilated sub-floor void and airbricks which are to be installed along the external walls (the VOC membrane construction detail drawings are provided in Appendix A – ref: BM-GM05).

4.3. Installation of Membrane

- 4.3.1. Each membrane is to be installed by a suitably qualified installer (holds relevant qualification NVQ Level 2 in gas protection). Membrane laps are to be heat sealed.

The developer will appoint PRS Manchester² who are specialists in the installation of gas / VOC resistant membranes. The installer will provide an installation certificate and provide suitable evidence that they hold the relevant qualifications.

4.4. Vapour Protection Verification Plan

- 4.4.1. As VOC resistant membranes have been recommended for all dwellings in the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area, these require the following verification to demonstrate compliance as per the CIRIA C748 guidance:

Low rise housing (all plots)

Verifier (consultant or third party qualified and experienced installer) to conduct thorough verification (visual) inspection of all plots, and after placement of reinforcement if no protection provided. All joints, pipe penetrations etc air lanced to ASTM D4437. Consideration given to need for/scope of integrity testing.

- 4.4.2. It is deemed prudent to carry out visual inspection and integrity testing of all membranes installed within the plots in this area. The membranes will be inspected after construction is completed and prior to the placement of insulation to ensure that the full footprint of the membranes can be inspected for any defects. Visual inspection and specialist air-lance testing as per ASTM D4437 will be undertaken by third-party specialist verifier GeoEngineenSeer Ltd³.
- 4.4.3. A photographic record of the verified plot will be maintained including details on the number of service entries and airbricks, along with information on the use of appropriate ancillary products (single- and double-sided tape, preformed top hats etc.).
- 4.4.4. To ensure that the subfloor voids for the dwellings are being constructed in accordance with the design plans, it is proposed that SGP inspects the first plot constructed on Phase 2 to ensure that a minimum 150mm clear void has been provided. A photographic record will be maintained. It is then proposed that BH (i.e., the site manager or groundworker) will maintain a photographic record of the subfloor construction of 1 in 4 of the remaining plots in Phase 2 to demonstrate this thereafter.

² <https://prsmanchester.co.uk/gas-membranes>

³ <https://geoenginseerltd.com>

4.4.5. A verification certificate will be produced for each validated plot. SGP has produced a guide on what to look for when inspecting membranes based on NHBC and Environment Agency guidance as reported within Appendix C of the Ground Gas Handbook. An example of the verification certificate to be produced for each of the validated plots is provided in Appendix B. In addition, the details of the air-lance testing performed on the VOC resistant membrane installations will be appended to the verification reports. Integrity testing beyond air-lance testing is not proposed which is consistent with the validation requirements of earlier phases.

5. Soil Cover System

5.1. Depth of Garden Soils

- 5.1.1. The site levels have been regraded to allow placement of inert cover systems during the construction phase of development.
- 5.1.2. The cover system to be placed by the developer within all private gardens in the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area will comprise 600mm clean soil cover within garden areas (typically comprising 450mm of subsoil and 150mm of imported topsoil) in combination with a basal geotextile.

5.2. Import / Site-Won & Formation Sampling Requirements

- 5.2.1. Verification testing of all soils (subsoil and topsoil) for use within the cover system will be subject to chemical testing to ensure suitability for use. Sampling should be undertaken by an independent consultant. The frequency of testing will be dependent on the provenance of the soil and will be completed as follows:

- site won subsoil (if natural soils recovered from wider development): 1 sample per 50m³;
- imported topsoil / subsoil (well-characterised Greenfield source): 1 sample per 250m³;
- imported topsoil / subsoil (unknown / well-characterised Brownfield source with evidence that extraction of suitable soils for transfer is feasible): 1 sample per 100m³;
- minimum of 3 samples to be collected from each source;

- 5.2.2. The quality criteria for garden cover soils are as that detailed in the SGP Phase 2 DRS (Table 4.4) which has been reproduced in the table below. Soils testing is to be undertaken at an MCERTS or UKAS accredited environmental laboratory.

Table 5.1 Garden Cover System Compliance Criteria

Contaminant	Residential Use Screening criteria (mg/kg unless stated)
Asbestos	<0.001% by mass (limit of detection)
Arsenic	37 LQM/CIEH S4UL
Cadmium	11 LQM/CIEH S4UL
Chromium (total)	910 LQM/CIEH S4UL
Hexavalent Chromium	6 LQM/CIEH S4UL
Copper	2,400 LQM/CIEH S4UL
Lead	200 (C4SL)
Mercury	40 LQM/CIEH S4UL
Nickel	180 LQM/CIEH S4UL
Zinc	3,700 LQM/CIEH S4UL
Naphthalene	2.3 LQM/CIEH S4UL
Acenaphthylene	170 LQM/CIEH S4UL

Contaminant	Residential Use Screening criteria (mg/kg unless stated)
Acenaphthene	210 LQM/CIEH S4UL
Fluorene	170 LQM/CIEH S4UL
Phenanthrene	95 LQM/CIEH S4UL
Fluoranthene	2,400 LQM/CIEH S4UL
Anthracene	280 LQM/CIEH S4UL
Pyrene	620 LQM/CIEH S4UL
Benzo(a)anthracene	7.2 LQM/CIEH S4UL
Chrysene	15 LQM/CIEH S4UL
Benzo(b)fluoranthene	2.6 LQM/CIEH S4UL
Benzo(k)fluoranthene	77 LQM/CIEH S4UL
Benzo(a)pyrene	2.2 LQM/CIEH S4UL
Indeno(123cd)pyrene	27 LQM/CIEH S4UL
Dibenzo(ah)anthracene	0.24 LQM/CIEH S4UL
Benzo(ghi)perylene	320 LQM/CIEH S4UL
Aliphatic C5-C6	42 LQM / CIEH S4UL
Aliphatic C6-C8	100 LQM / CIEH S4UL
Aliphatic C8-C10	27LQM / CIEH S4UL
Aliphatic C10-C12	130LQM / CIEH S4UL
Aliphatic C12-C16	1100 LQM / CIEH S4UL
Aliphatic C16-C21	65,000 LQM / CIEH S4UL
Aliphatic C21-C35	65,000 LQM / CIEH S4UL
Aromatic C5-C6	70 LQM / CIEH S4UL
Aromatic C6-C8	130 LQM / CIEH S4UL
Aromatic C8-C10	34 LQM / CIEH S4UL
Aromatic C10-C12	74 LQM / CIEH S4UL
Aromatic C12-C16	140 LQM / CIEH S4UL
Aromatic C16-C21	260 LQM / CIEH S4UL
Aromatic C21-C35	1,100 LQM / CIEH S4UL
Benzene	0.08 LQM / CIEH S4UL
Toluene	130 LQM / CIEH S4UL
Ethyl-benzene	47 LQM / CIEH S4UL
m/p-xylene	56 LQM / CIEH S4UL
o-xylene	60 LQM / CIEH S4UL

5.3. Cover System Validation

5.3.1. Following application of the soil cover system, an independent consultant is required to attend site to excavate trial holes to prove that the prescribed 600mm clean soil cover has been placed and that an underlying warning geotextile is present.

5.3.2. Depth validation testing will be undertaken in all rear gardens with **1 entry per plot** and a photographic record will be maintained to confirm the depth of soil cover, placement of the underlying warning geotextile, the strata placed, and the location of the depth entry in relation to the plot.

5.3.3. Upon completion, the consultant will produce a verification certificate detailing the presence of the basal geotextile and depth of soil cover with accompanying photos, confirmation on the source of topsoil and/or subsoil, and the corresponding laboratory test results for the placed soils. An example of the soil cover system certificate proforma is provided in Appendix C.

5.4. Imported Soils

5.4.1. It is not anticipated that any site-recovered topsoil will be suitable for use in garden areas therefore the import of topsoil for use in the soil cover system is required. If these materials would otherwise be wastes from other development sites or construction projects, then the import must be carried out under the provisions of a Material management Plan for Direct Transfer as defined in The Definition of Waste: Development Industry Code of Practice.

6. Other Construction-Stage Considerations

6.1. Watching Brief

- 6.1.1. It is not considered likely that any uncharacterised contamination remains in the Phases 2C (South), 2D (North) & 2F (East / North) handover area; however, it is a proportional response to any residual uncertainty that construction workers are briefed on the history of the site and instructed to maintain a watching brief during excavations for visual or olfactory indicators of contamination.
- 6.1.2. If encountered, any suspect materials should be inspected by a competent Contaminated Land professional and subject to appropriate analysis to determine their status. If any contamination that requires revision to this Remediation Strategy is encountered, the Local Planning Authority Contaminated Land Officer must be informed immediately.

6.2. Waste Materials

- 6.2.1. Site-won material referred to as 'Use on the Site of Origin' under the DoWCoP (Appendix 1) states that excavated materials can be used directly within the development subject to it being suitable for use and demonstration that there is certainty of use.
- 6.2.2. In practice it may not be possible to accommodate any such arisings in Phase 2, but this would be at shallow depths and effectively form part of the soil cover system. If it is intended that any natural soils generated during excavations (foundations etc.) are to be reused as garden subsoils, these should be segregated, quarantined and subject to testing and inspection in accordance with the provisions set out in Section 5.2.
- 6.2.3. Any material movements proposed in this handover phase must be undertaken under the provisions of the Earthworks-Stage Materials Management plan in place for the wider site preparatory and enabling remediation earthworks being carried out under the SGP Phase 2 DRS.
- 6.2.4. Any other waste materials for disposal offsite must be accurately classified and taken to a facility permitted to accept such materials.

7. Conclusions & Recommendations

7.1. Summary of Construction-Stage requirements to be implemented by Developer.

7.1.1. Based on the totality of the information available, it is concluded that construction works may commence in the Phases 2C (South), 2D (North), 2F (East / North) & 2G handover area provided that the following measures are adopted:

- maintenance of a watching brief for indicators of residual contamination during excavations;
- provision of VOC vapour resistant membranes in all plots (specialist installation);
- Visual inspection and air-lance testing of membrane installations in **all** plots by specialist verifier;
- placement of a 600mm soil cover system using clean validated soil materials in combination with an underlying basal geotextile.
- Visual inspection and photographic record of subfloor void construction to confirm a 150mm clear void has been provided: SGP to inspect first plot on Phase 2 and maintain photographic record, BH to provide photographic record of a minimum **1 in 4 plots** thereafter;
- verification of depth of soil cover system through the excavation of a hand-dug trial pit in the rear gardens on **a plot by plot basis**;
- verification of the quality of soil used in the cover systems via testing as outlined in Section 5.2;
- provision of individual plot certificates for gas protection and soil cover system verification activities;
- adoption of construction-stage MMP for import of soils;
- classification of waste materials for disposal or use under the Phase 2 MMP;
- backfill of all utility trenches with clean imported materials;
- completion of Pipeline Risk Assessment utilising post-remediation data where possible or use of barrier pipe.

7.2. Limitations

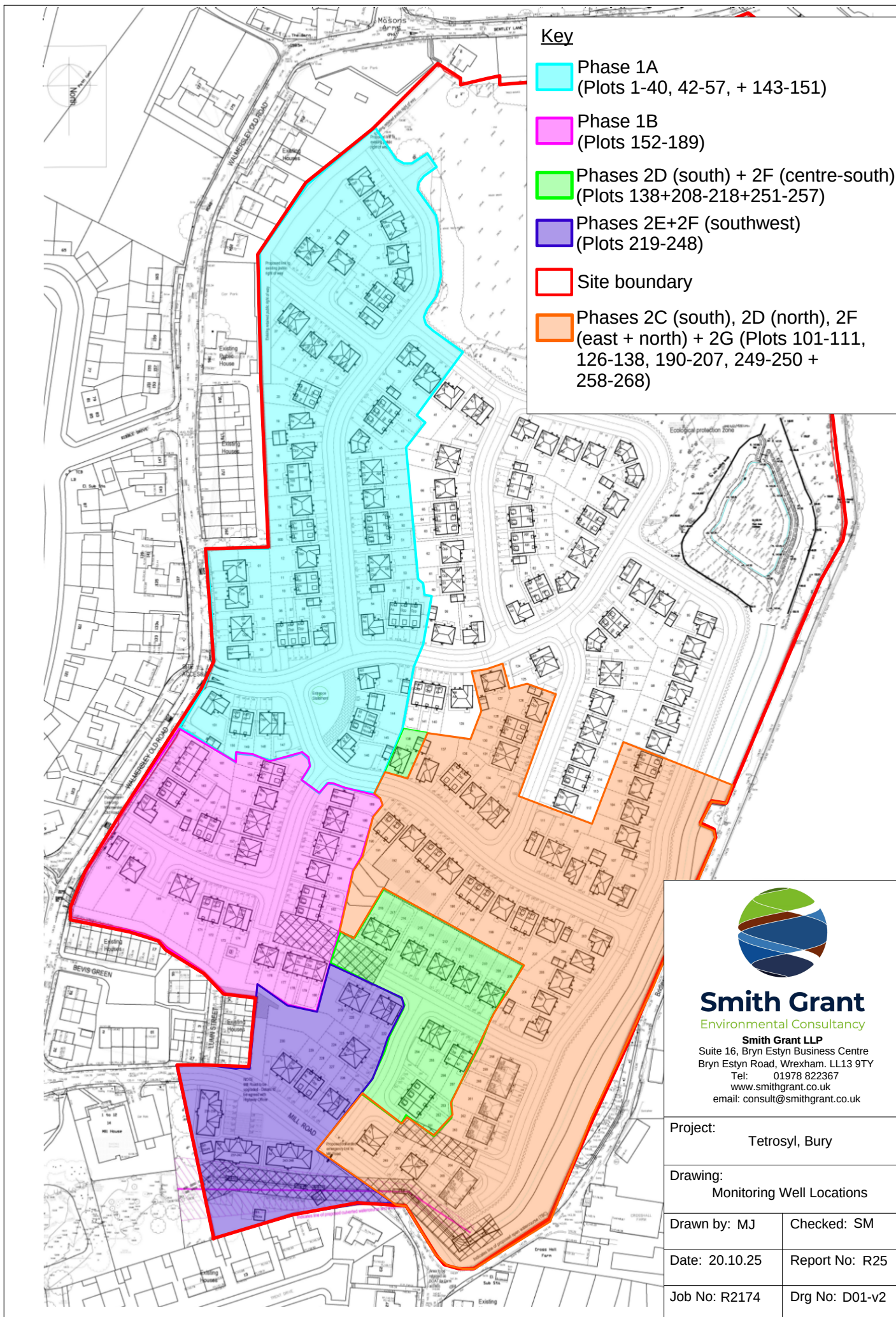
7.2.1. This report has been prepared by SGP for the sole and exclusive use of Barratt Homes Manchester. Reasonable skill, care and diligence has been exercised within the budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context.

7.2.2. The factual information and recommendations have been partly informed by information prepared by third parties and provided to SGP. The recommendations contained within this report have been made in good faith, based on the totality of the information provided to SGP, however SGP accepts no responsibility or liability for errors or omissions caused by information which has been withheld,

or where errors or omissions within previous reporting have led to false or unreliable conclusions by others relating to the contamination status of the site.

7.2.3. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines, and responses by the statutory and regulatory authorities.

DRAWING



Key

- Phase 1A
(Plots 1-40, 42-57, + 143-151)
- Phase 1B
(Plots 152-189)
- Phases 2D (south) + 2F (centre-south)
(Plots 138+208-218+251-257)
- Phases 2E+2F (southwest)
(Plots 219-248)
- Site boundary
- Phases 2C (south), 2D (north), 2F (east + north) + 2G (Plots 101-111, 126-138, 190-207, 249-250 + 258-268)



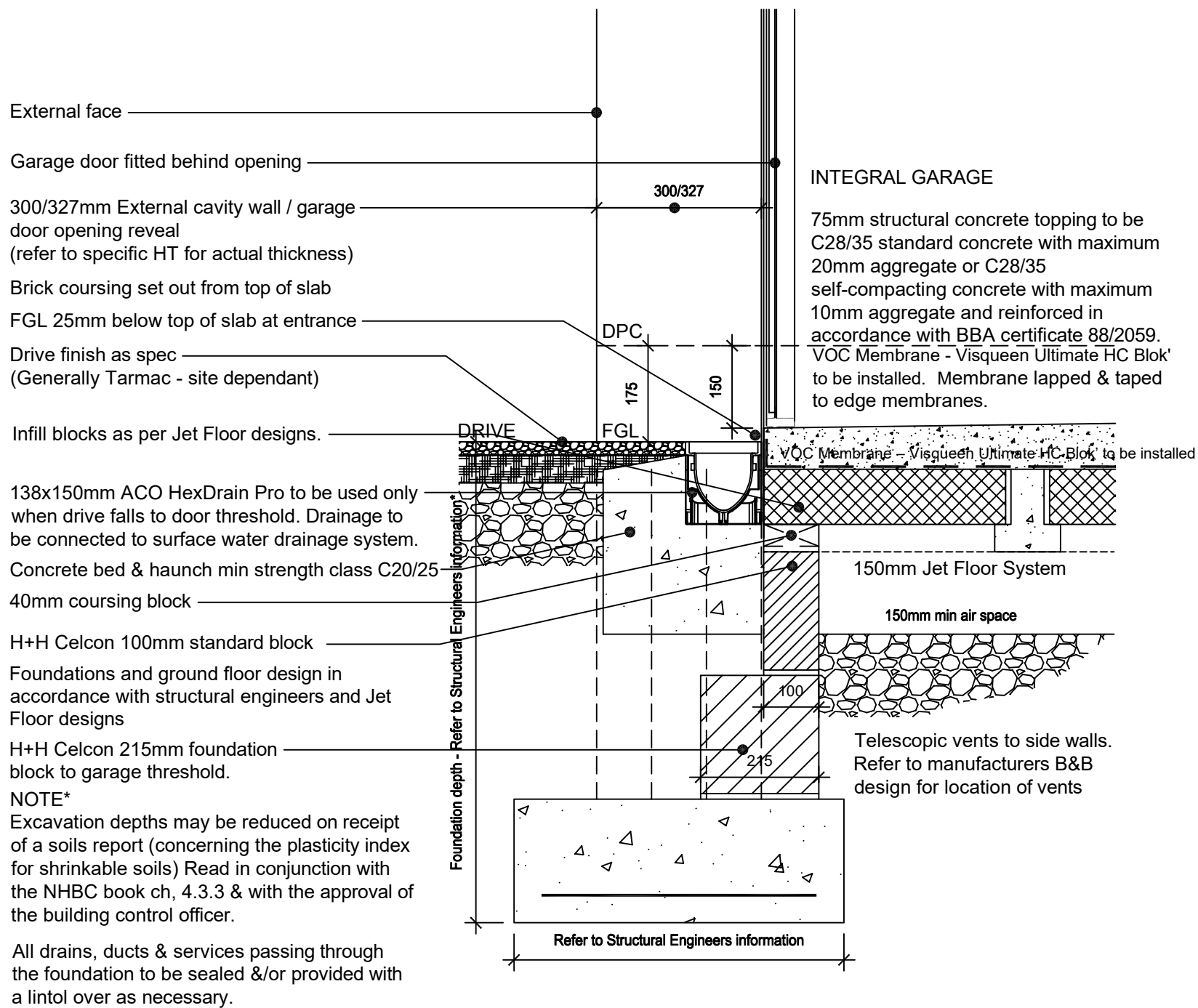
Smith Grant
Environmental Consultancy

Smith Grant LLP
Suite 16, Bryn Estyn Business Centre
Bryn Estyn Road, Wrexham, LL13 9TY
Tel: 01978 822367
www.smithgrant.co.uk
email: consult@smithgrant.co.uk

Project: Tetrosyl, Bury	
Drawing: Monitoring Well Locations	
Drawn by: MJ	Checked: SM
Date: 20.10.25	Report No: R25
Job No: R2174	Drg No: D01-v2

APPENDIX A

Gas Protection Detail



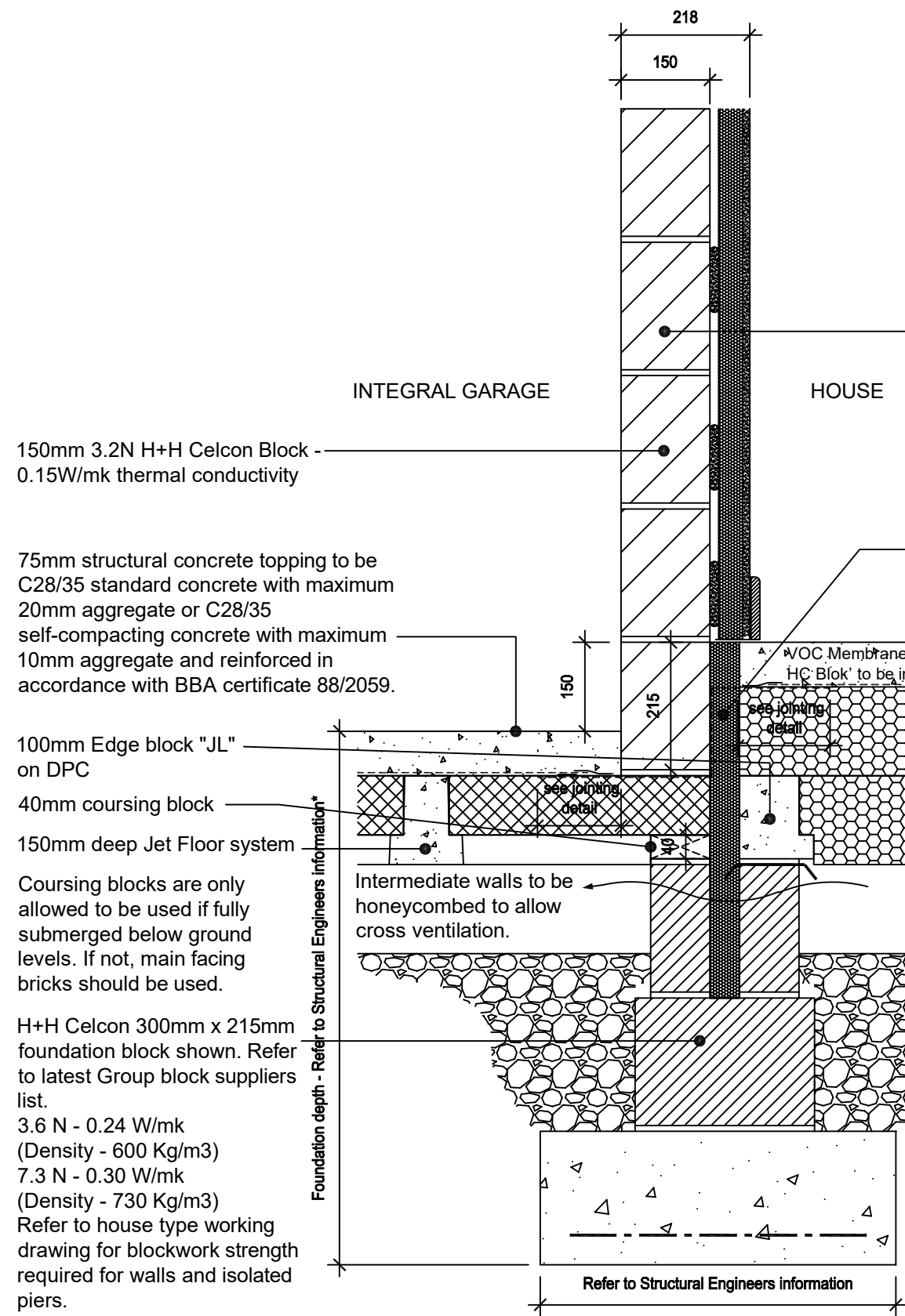
Section showing integral garage door thresh - door fitted behind opening
(Refer to details DB SD06-213, DB SD06-214 & DB SD06-215)

EXTERNAL REFERENCE :

Brand: **BARRATT - WALDMERS WOOD**
Range: **2016**
Title: **Jet Floor int. garage door thresh - ACO & gas membrane**
Detail No: **BM-GM05-204**
Drawn: **SAH** Checked: **SAH** Scale: **1:10** Date: **Jan 23**

Rev: **A**
Description: **GAS_MEMBRANE_SPEC_ADDED**
Date: **13.05.25**





INTERNAL WALL/GARAGE FLOOR JUNCTION - BEAM & BLOCK TO HOUSE & GARAGE FLOOR

150mm 3.2N H+H Celcon Block -
0.15W/mk thermal conductivity

75mm structural concrete topping to be
C28/35 standard concrete with maximum
20mm aggregate or C28/35
self-compacting concrete with maximum
10mm aggregate and reinforced in
accordance with BBA certificate 88/2059.

100mm Edge block "JL"
on DPC

40mm coursing block

150mm deep Jet Floor system

Coursing blocks are only
allowed to be used if fully
submerged below ground
levels. If not, main facing
bricks should be used.

H+H Celcon 300mm x 215mm
foundation block shown. Refer
to latest Group block suppliers
list.

3.6 N - 0.24 W/mk
(Density - 600 Kg/m³)

7.3 N - 0.30 W/mk
(Density - 730 Kg/m³)

Refer to house type working
drawing for blockwork strength
required for walls and isolated
piers.

Foundation depth - Refer to Structural Engineers information*

Refer to Structural Engineers information

NOTE*

Excavation depths may be reduced on
receipt of a soils report (concerning the
plasticity index for shrinkable soils) Read
in conjunction with the NHBC book ch,
4.3.3 & with the approval of the building
control officer.

All drains, ducts & services passing
through the foundation to be sealed &/or
provided with a lintel over as necessary.

Internal walls to garage to be 150mm
Aircrete blockwork faced with 53mm
Gyproc ThermaLine PIR Board on 15mm
plaster adhesive dabs.
Continuous dabs at board perimeters -
see air leakage detail for positioning.

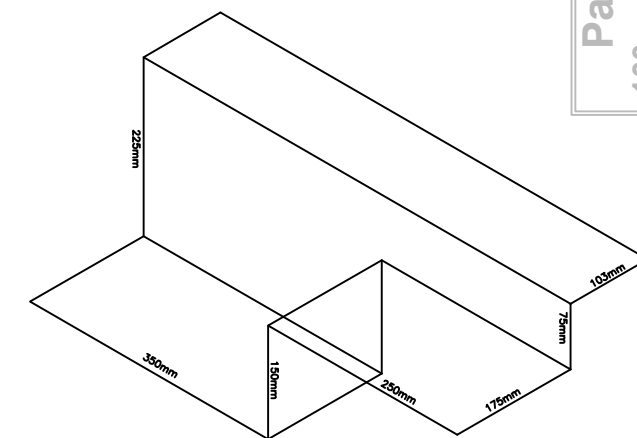
50mm TE Alreflex 'Platinum'
Board to slab perimeter

75mm structural concrete topping to be
C28/35 standard concrete with maximum
20mm aggregate or C28/35
self-compacting concrete with maximum
10mm aggregate and reinforced in
accordance with BBA certificate 88/2059.
The topping is to be laid as soon as
possible after the installation of the
polystyrene components.

150mm Structural Overlay sheet (Grey)
below VOC Membrane - Visqueen Ultimate
HC Blok'

"Wide" or "Narrow" Poly blocks. Beam
spacing is set with the relevant "Wide" or
"Narrow" TS End Space Blocks. Refer to
plot specific designs.

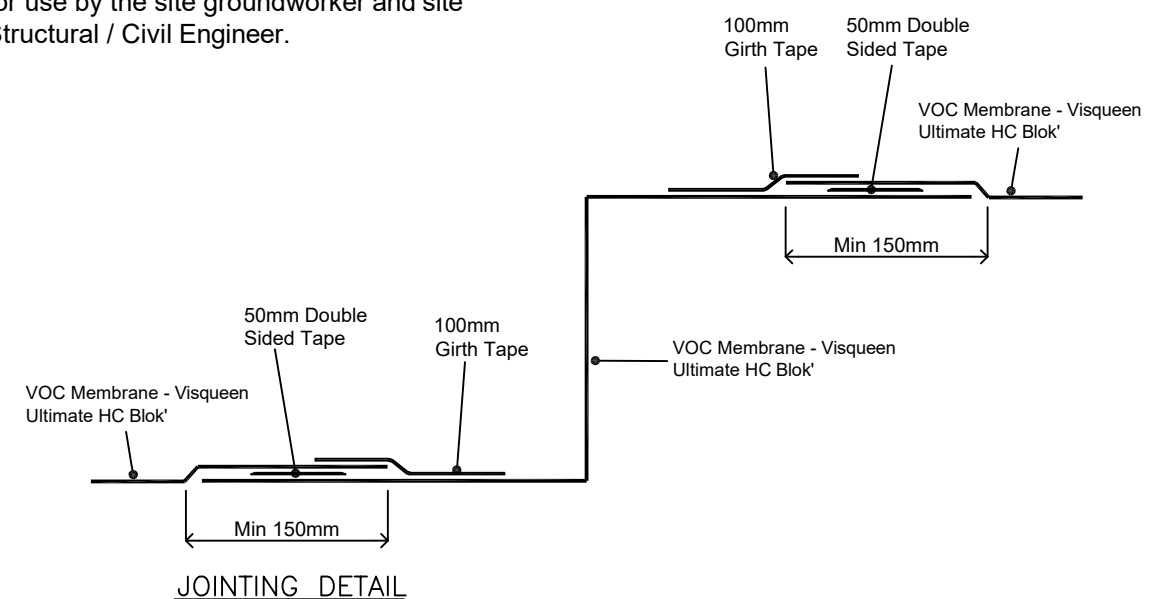
On some sites it may be possible to use
site won material as fill instead of
hardcore. This material needs to meet the
requirements of NHBC Standards 5.1.9
and must be approved as being suitable
for use by the site groundworker and site
Structural / Civil Engineer.



Part L
100mm Cavity
"X" Drawings

Gas Resistant Garage External Wall to Semi Exposed Wall Cavity Tray

All Party Wall units are made to Order and
should be ordered in sufficient time to allow
manufacture.



EXTERNAL REFERENCE : 22/029/GW01 ($\psi = 0.053$ W/mk)

Brand: **BARRATT - WALDMERS WOOD**

Range: **2016**

Title: **Jet Floor Integral Garage Wall Detail - Gas Membrane**

Detail No: **BM-GM05-206**

Drawn: **SAH** Checked: **SAH**

Scale: **1:10**

Date: **Jan 24**

Date:
13.05.25

Description:
GAS_MEMBRANE_SPEC_ADDED

Rev:
A



BARRATT
MANCHESTER DIVISION

Part L
100mm Cavity
"X" Drawings

Composite front door with weather bar and compression weather strip.

Standard mobility threshold.

DPC min. 150mm above ramp.

I.G / Ian Firth 2 part synthetic cill with 30mm overhang

DPC sandwiched in joint below cill.

Gradient 1 in 20.

Paving slab.

Perpends to be left open to facilitate drainage.

30mm P34 insulation strip

100mm thick Thermal Economics Platinum Ground Floor Insulation Board cut to suit 110mm cavity and to fill the cavity at door opening only.

Lean mix cavity fill

H+H Celcon 325mm x 215mm foundation block shown. Refer to latest Group block suppliers list.

3.6 N - 0.24 W/mk
(Density - 600 Kg/m³)

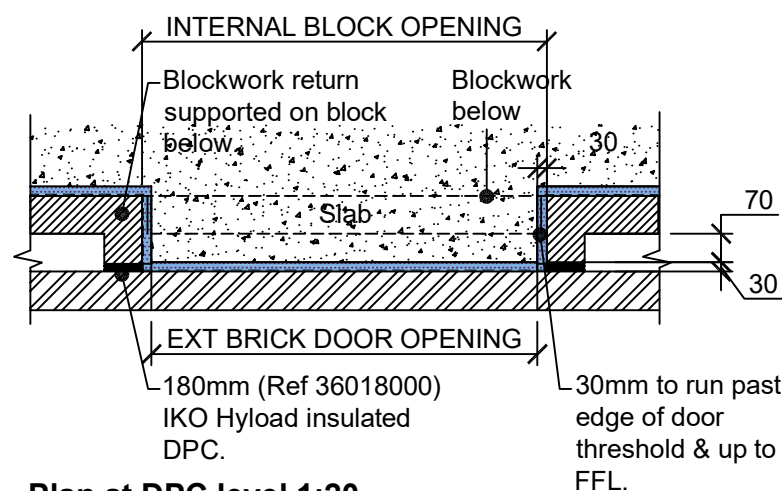
7.3 N - 0.30 W/mk
(Density - 730 Kg/m³)

Refer to house type working drawing for blockwork strength required for walls and isolated piers.

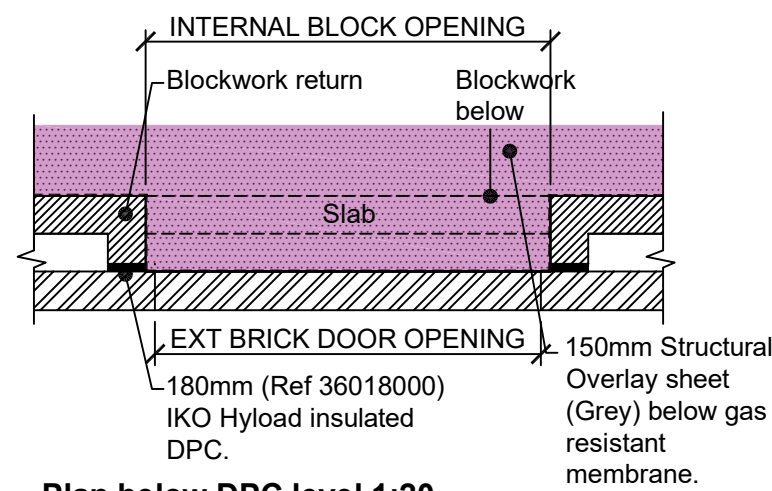
Coursing blocks are only allowed to be used if fully submerged below ground levels. If not, main facing bricks should be used.

Scale 1:10

Colours shown for clarity only



Plan at DPC level 1:20



Plan below DPC level 1:20

Ian Firth internal transition piece shown. Transition piece clips into back of door cill cut to full width of reveal between skirting boards and is bedded on mastic sealant. No screw fixings required.

Alternative Aluminium internal transition ramp from Ian Firth is available if required, Ref - STO844INRAMP (844mm long) or STO920INRAMP (920mm long). Longer lengths are available if level access is required to rear french doors. Sealed with mastic along each edge and secured to floor with 3 no screws for standard lengths referenced above.

VOC Membrane - Visqueen Ultimate HC Blok' taken up back of insulation and lapped under DPC.

75mm structural concrete topping to be C28/35 standard concrete with maximum 20mm aggregate or C28/35 self-compacting concrete with maximum 10mm aggregate and reinforced in accordance with BBA certificate 88/2059. The topping is to be laid as soon as possible after the installation of the polystyrene components.

150mm Structural Overlay sheet (Grey) below VOC Membrane - Visqueen Ultimate HC Blok'

"Wide" or "Narrow" Poly blocks. Beam spacing is set with the relevant "Wide" or "Narrow" TS End Space Blocks. Refer to plot specific designs.

On some sites it may be possible to use site won material as fill instead of hardcore. This material needs to meet the requirements of NHBC Standards 5.1.9 and must be approved as being suitable for use by the site groundworker and site Structural / Civil Engineer.

NOTE*

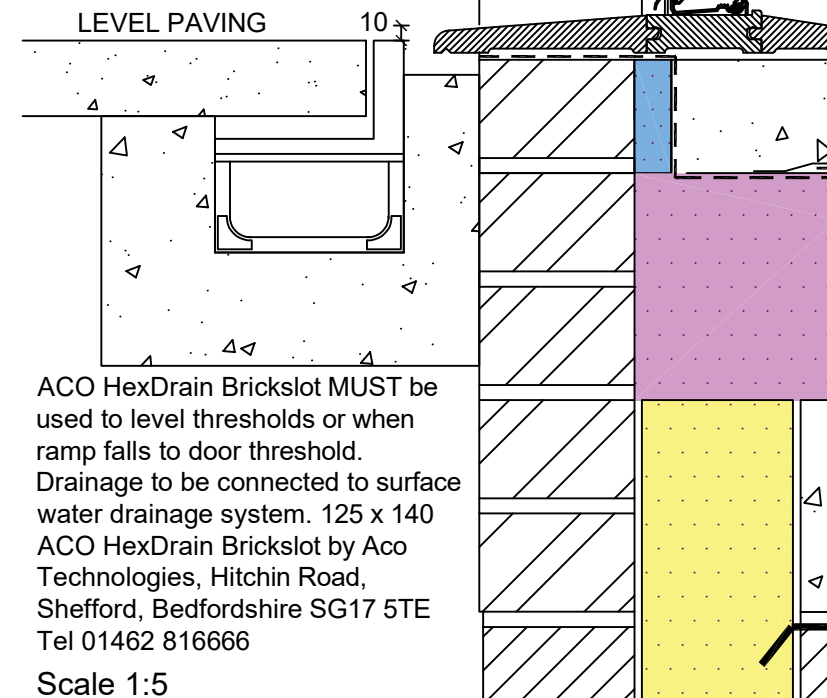
Excavation depths may be reduced on receipt of a soils report (concerning the plasticity index for shrinkable soils) Read in conjunction with the NHBC book ch, 4.3.3 & with the approval of the building control officer.

All drains, ducts & services passing through the foundation to be sealed &/or provided with a lintel over as necessary.

ACO HexDrain BrickSlot to be laid on concrete bed and surround

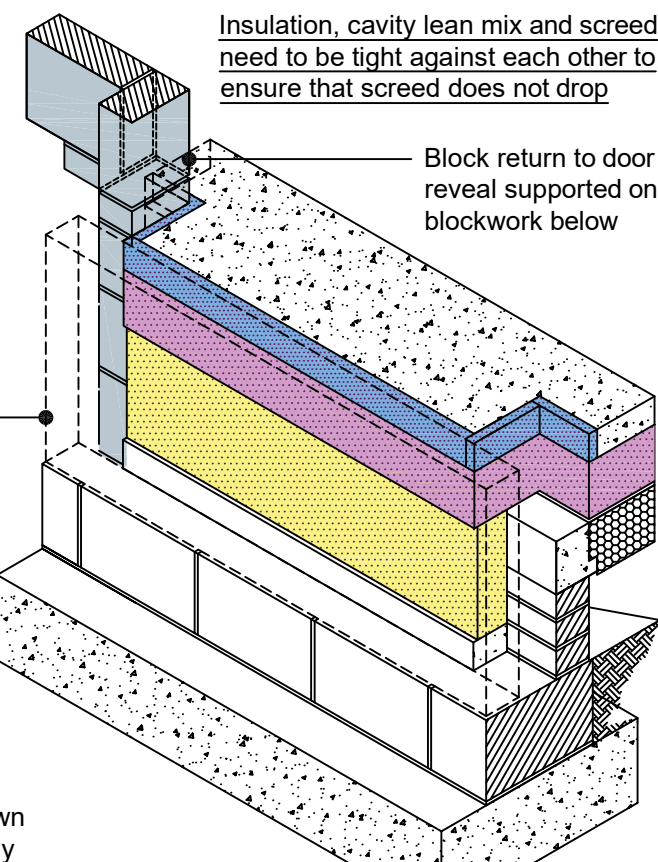
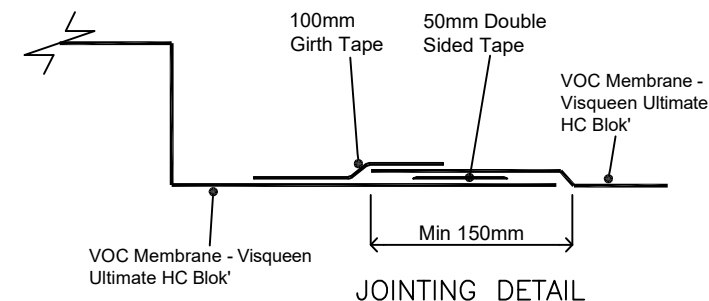
10mm cill upstand to arrest water flow during heavy rain

LEVEL PAVING



ACO HexDrain Brickslot MUST be used to level thresholds or when ramp falls to door threshold. Drainage to be connected to surface water drainage system. 125 x 140 ACO HexDrain Brickslot by Aco Technologies, Hitchin Road, Shefford, Bedfordshire SG17 5TE Tel 01462 816666

Scale 1:5



Scale 1:20
Isometric

Colours shown for clarity only



BARRATT
MANCHESTER DIVISION

Date: 28.01.25
13.05.25

Description: BLOCK RETURN & HYLOAD DPM ADDED AT DOOR THRESHOLD
GAS MEMBRANE SPEC ADDED

Rev: A B

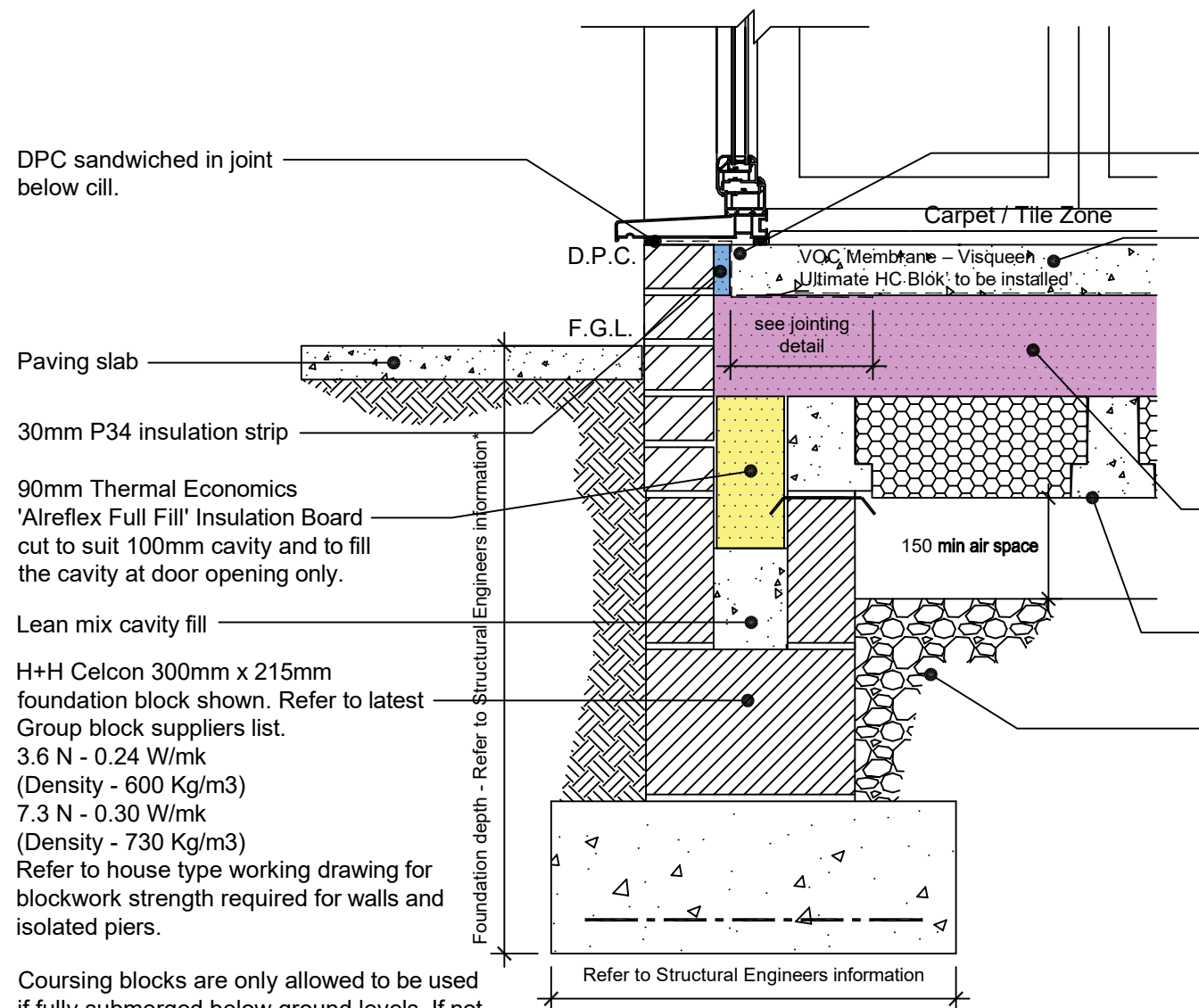
Brand: **BARRATT - WALDMERS WOOD**

Range: **2016**

Title: **JET FLOOR FRONT DOOR GAS MEMBRANE**

Detail No: **BM-GM05-207**

Drawn: **SAH** Checked: **SAH** Scale: **1:5, 10, 20** Date: **Jan 24**



DPC sandwiched in joint below cill.

Paving slab

30mm P34 insulation strip

90mm Thermal Economics 'Alreflex Full Fill' Insulation Board cut to suit 100mm cavity and to fill the cavity at door opening only.

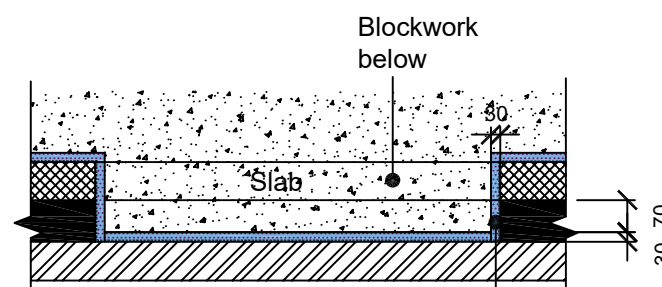
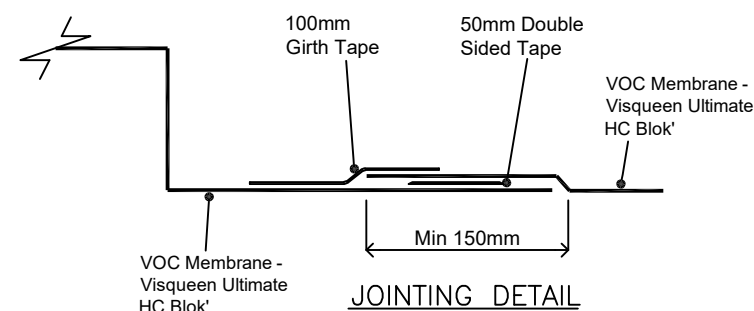
Lean mix cavity fill

H+H Celcon 300mm x 215mm foundation block shown. Refer to latest Group block suppliers list.
3.6 N - 0.24 W/mk (Density - 600 Kg/m3)
7.3 N - 0.30 W/mk (Density - 730 Kg/m3)
Refer to house type working drawing for blockwork strength required for walls and isolated piers.

Coursing blocks are only allowed to be used if fully submerged below ground levels. If not, main facing bricks should be used.

Scale 1:10

Colours shown for clarity only

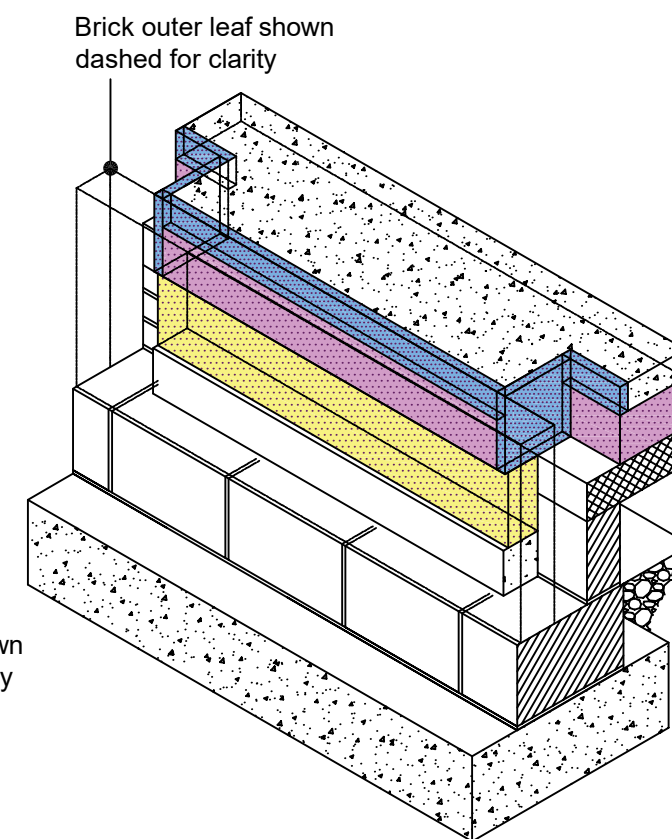


Scale 1:20
Plan at DPC level

Colours shown for clarity only

Scale 1:20
Isometric

Colours shown for clarity only



EXTERNAL REFERENCE :

Brand: **BARRATT - WALDMERS WOOD**
Range: **2016**
Title: **JET FLOOR BAY DOOR THRESH. GAS MEMBRANE**
Detail No: **BM-GM05-210**
Drawn: **SAH** Checked: **SAH** Scale: **1:10 1:20** Date: **Jan 24**

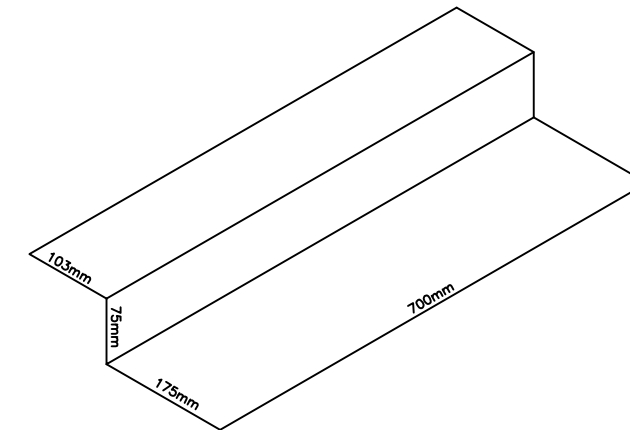
Date: 13.05.25

Description: GAS MEMBRANE SPEC ADDED

Rev: A



BARRATT
MANCHESTER DIVISION



Gas Resistant External/Party Wall Cavity Tray
All Party Wall units are made to Order and should be ordered in sufficient time to allow manufacture.

100mm Party wall roll insulation as Group Agreement (full fill cavity - no gaps remain) - min 225mm below finished floor level.

Type A cavity wall ties @ 900mm c/s horz. & 450mm c/s vert. staggered (typical). First row as per manufacturers instructions.

Monarfloor Bridgestop Quilt in two lifts to prevent mortar droppings touching both masonry leaves.

Monarfloor Bridgestop tie to penetrate at max 450mm centres.

Monarfloor 6mm Acoustic Angled Flanking Strip to isolate screed / insulation from party wall.

700mm wide VOC Membrane - Visqueen Ultimate HC Blok'

H+H Celcon 300mm x 215mm foundation block shown. Refer to latest Group block suppliers list.
3.6 N - 0.24 W/mk (Density - 600 Kg/m3)
7.3 N - 0.30 W/mk (Density - 730 Kg/m3)
Refer to house type working drawing for blockwork strength required for walls and isolated piers.

E-WM-22 100mm Light Aggregate blocks - 3.6 N/mm², Density 1350-1600kg/m³

15mm Gyproc Wallboard (E-WM-23 density 9.8kg/m³ / E-WM-22 density 10kg/m³) with with 3mm skim finish or taped and jointed on 15mm plaster adhesive dabs on blockwork.

500mm wide MONARFLOOR BRIDGESTOP 3mm HP Acoustic Membrane laid under the party wall over the DPM/Gas membrane - refer to Appendix A2 of the Robust Details.

30mm P34 insulation strip

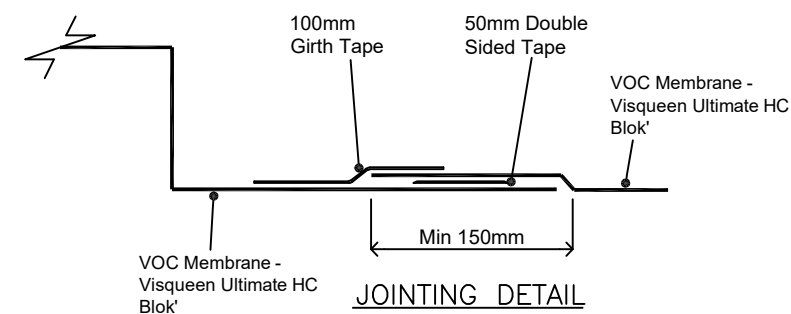
75mm structural concrete topping to be C28/35 standard concrete with maximum 20mm aggregate or C28/35 self-compacting concrete with maximum 10mm aggregate and reinforced in accordance with BBA certificate 88/2059. The topping is to be laid as soon as possible after the installation of the polystyrene components.

150mm Structural Overlay sheet (Grey) below VOC Membrane - Visqueen Ultimate HC Blok'

"Wide" or "Narrow" Poly blocks. Beam spacing is set with the relevant "Wide" or "Narrow" TS End Space Blocks. Refer to plot specific designs.

On some sites it may be possible to use site won material as fill instead of hardcore. This material needs to meet the requirements of NHBC Standards 5.1.9 and must be approved as being suitable for use by the site groundworker and site Structural / Civil Engineer.

NOTE*
Excavation depths may be reduced on receipt of a soils report (concerning the plasticity index for shrinkable soils) Read in conjunction with the NHBC book ch, 4.3.3 & with the approval of the building control officer.
All drains, ducts & services passing through the foundation to be sealed &/or provided with a lintel over as necessary.



PARTY WALL / GROUND FLOOR JUNCTION (E-WM-22) JET FLOOR SYSTEM

EXTERNAL REFERENCE : 22/029/PW01 (Ψ = 0.086 W/mK)

Brand: **BARRATT - WALDMERS WOOD**

Range: **2016**

Title: **Jet Floor Party Wall with Gas Membrane**

Detail No: **BM-GM05-211**

Drawn: **SAH** Checked: **SAH**

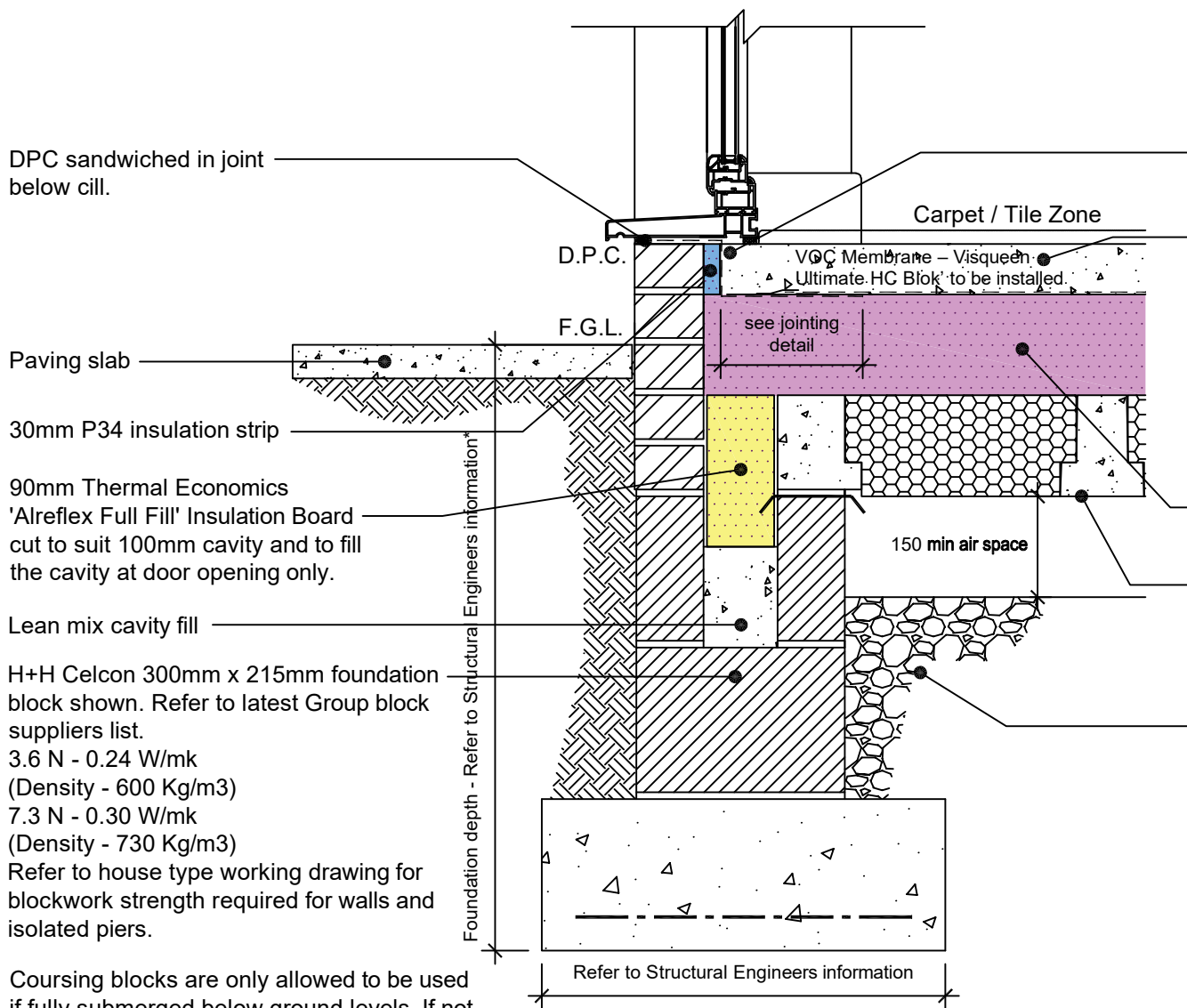
Scale: **1:10**

Date: **Jan 24**

Description:
GAS MEMBRANE SPEC ADDED

Date:
13.05.25

EXTERNAL REFERENCE :



DPC sandwiched in joint below cill.

Paving slab

30mm P34 insulation strip

90mm Thermal Economics 'Alreflex Full Fill' Insulation Board cut to suit 100mm cavity and to fill the cavity at door opening only.

Lean mix cavity fill

H+H Celcon 300mm x 215mm foundation block shown. Refer to latest Group block suppliers list.
3.6 N - 0.24 W/mk
(Density - 600 Kg/m3)
7.3 N - 0.30 W/mk
(Density - 730 Kg/m3)
Refer to house type working drawing for blockwork strength required for walls and isolated piers.

Coursing blocks are only allowed to be used if fully submerged below ground levels. If not, main facing bricks should be used.

Scale 1:10

Colours shown for clarity only

VOC Membrane - Visqueen Ultimate HC Blok' taken up back of insulation and lapped under DPC.

75mm structural concrete topping to be C28/35 standard concrete with maximum 20mm aggregate or C28/35 self-compacting concrete with maximum 10mm aggregate and reinforced in accordance with BBA certificate 88/2059. The topping is to be laid as soon as possible after the installation of the polystyrene components.

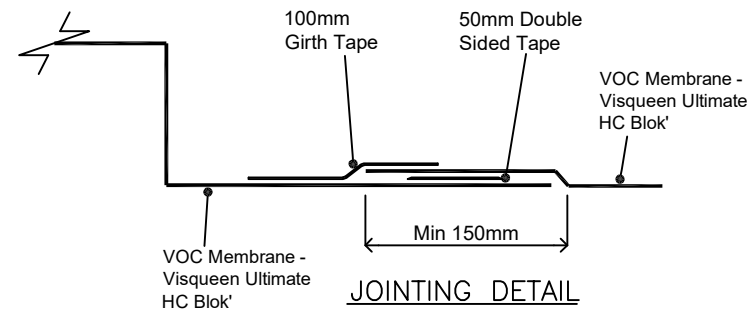
150mm Structural Overlay sheet (Grey) below VOC Membrane - Visqueen Ultimate HC Blok'

"Wide" or "Narrow" Poly blocks. Beam spacing is set with the relevant "Wide" or "Narrow" TS End Space Blocks. Refer to plot specific designs.

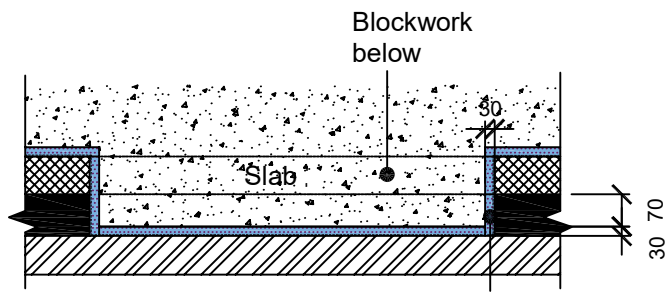
On some sites it may be possible to use site won material as fill instead of hardcore. This material needs to meet the requirements of NHBC Standards 5.1.9 and must be approved as being suitable for use by the site groundworker and site Structural / Civil Engineer.

NOTE*

Excavation depths may be reduced on receipt of a soils report (concerning the plasticity index for shrinkable soils) Read in conjunction with the NHBC book ch, 4.3.3 & with the approval of the building control officer.
All drains, ducts & services passing through the foundation to be sealed &/or provided with a lintel over as necessary.



JOINTING DETAIL



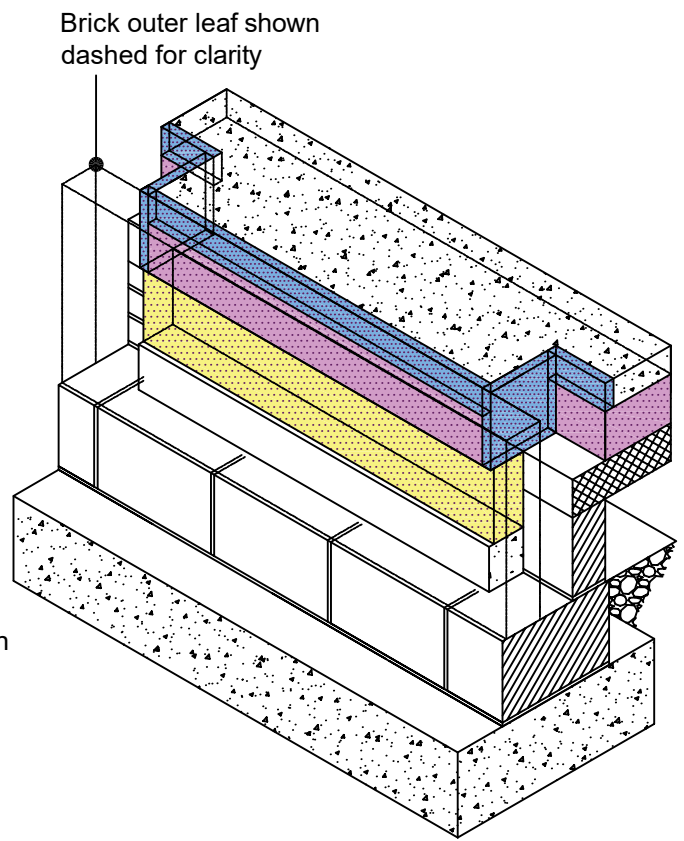
Scale 1:20
Plan at DPC level

Colours shown for clarity only

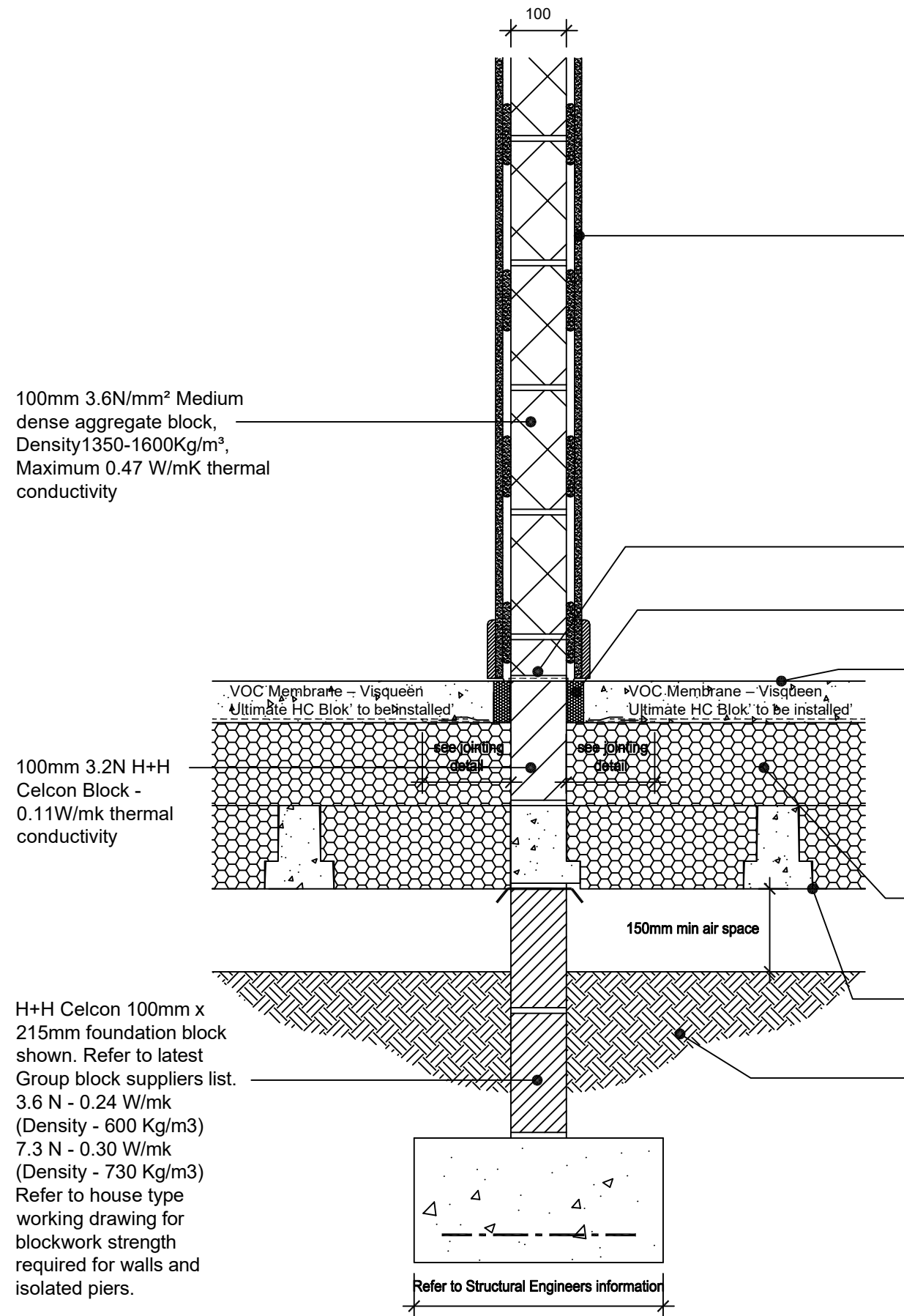
Blockwork below
Slab
30 70
30mm to run past edge of door threshold & up to FFL.

Scale 1:20
Isometric

Colours shown for clarity only



Brick outer leaf shown dashed for clarity



INTERNAL WALL JET FLOOR

12.5mm Gyproc Wallboard (density 8.5kg/m³) with 3mm skim finish or taped and jointed on 15mm plaster adhesive dabs on blockwork.

600mm wide VOC Membrane - Visqueen Ultimate HC Blok'

30mm P34 insulation strip

75mm structural concrete topping to be C28/35 standard concrete with maximum 20mm aggregate or C28/35 self-compacting concrete with maximum 10mm aggregate and reinforced in accordance with BBA certificate 88/2059. The topping is to be laid as soon as possible after the installation of the polystyrene components.

150mm Structural Overlay sheet (Grey) below VOC Membrane - Visqueen Ultimate HC Blok'

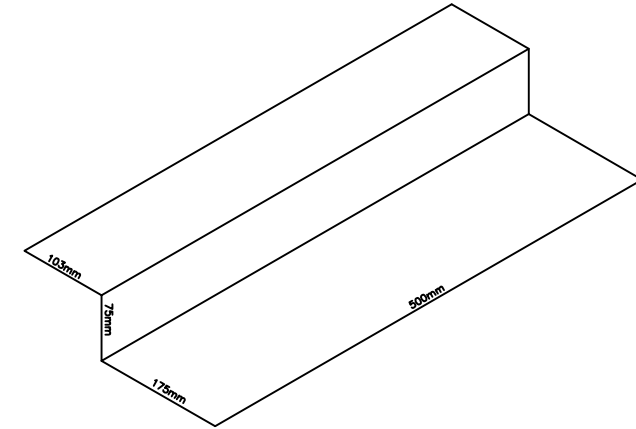
"Wide" or "Narrow" Poly blocks. Beam spacing is set with the relevant "Wide" or "Narrow" TS End Space Blocks. Refer to plot specific designs.

On some sites it may be possible to use site won material as fill instead of hardcore. This material needs to meet the requirements of NHBC Standards 5.1.9 and must be approved as being suitable for use by the site groundworker and site Structural / Civil Engineer.

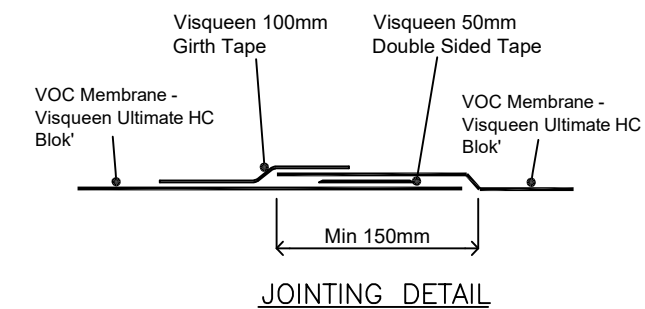
NOTE*

Excavation depths may be reduced on receipt of a soils report (concerning the plasticity index for shrinkable soils) Read in conjunction with the NHBC book ch, 4.3.3 & with the approval of the building control officer.

All drains, ducts & services passing through the foundation to be sealed &/or provided with a lintel over as necessary.



Gas Resistant External/Internal Wall Cavity Tray
All Party Wall units are made to Order and should be ordered in sufficient time to allow manufacture.



Part L
100mm Cavity
"X" Drawings



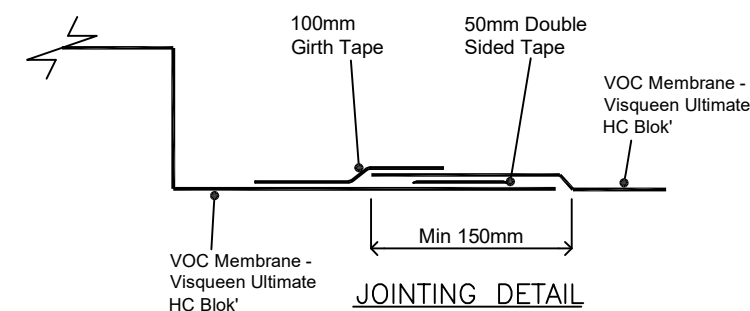
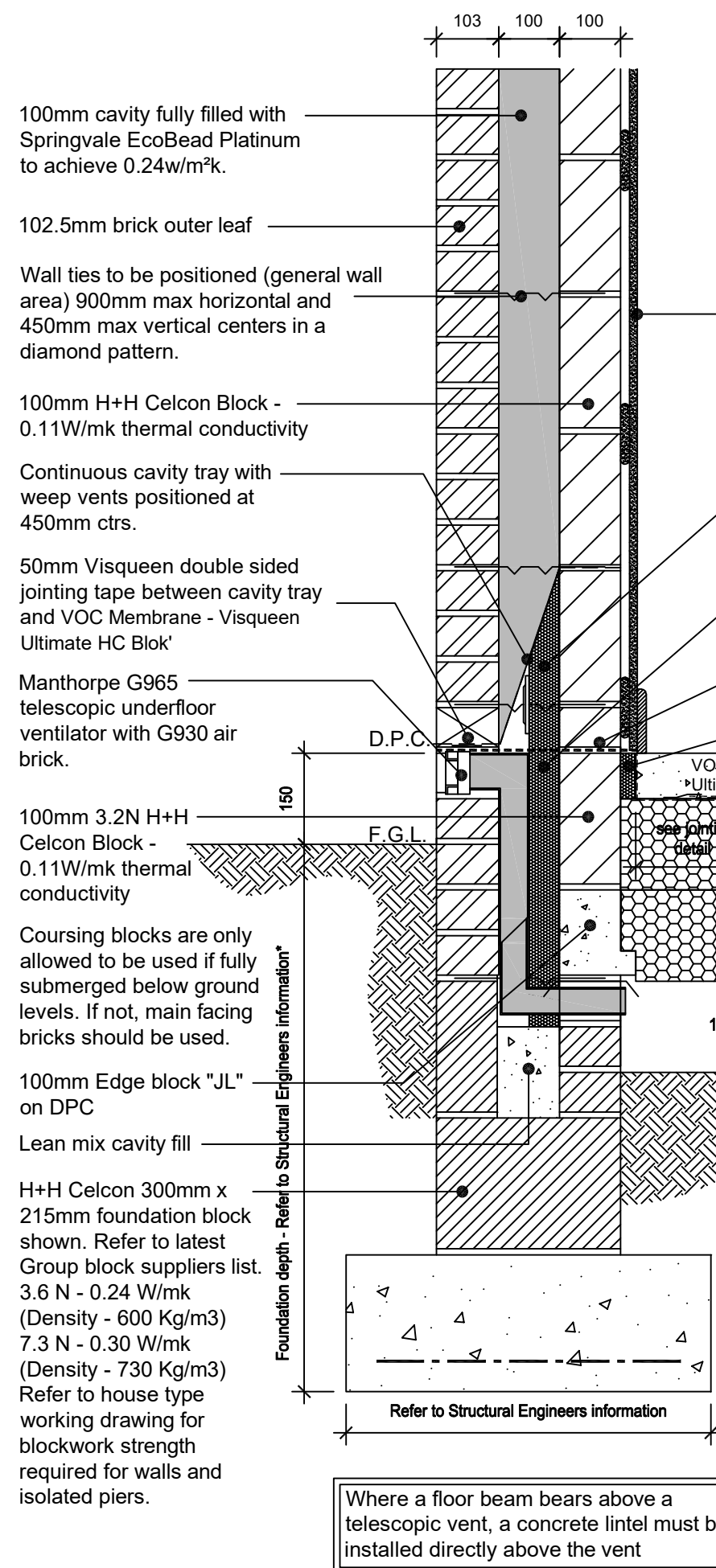
Date:
13.05.25

Description:
GAS MEMBRANE SPEC ADDED

Rev:
A

Brand: **BARRATT - WALDMERS WOOD**
Range: **2016**
Title: **Jet Floor Internal Wall with Gas Membrane**
Detail No: **BG-GM05-236**
Drawn: **SAH** Checked: **SAH** Scale: **1:10** Date: **Jan 24**

EXTERNAL REFERENCE :



12.5mm Gyproc Wallboard (density 8.5kg/m³) with 3mm skim finish or taped and jointed on 15mm plaster dabs on blockwork.

50mm TE Alreflex Platinum board required below cavity tray, to be cut at angle as shown.

50mm TE Alreflex Platinum board required below gas resistant DPC. Insulation to be taken down to underside of beams.

600mm wide VOC Membrane - Visqueen Ultimate HC Blok'

30mm P34 insulation strip

75mm structural concrete topping to be C28/35 standard concrete with maximum 20mm aggregate or C28/35 self-compacting concrete with maximum 10mm aggregate and reinforced in accordance with BBA certificate 88/2059. The topping is to be laid as soon as possible after the installation of the polystyrene components.

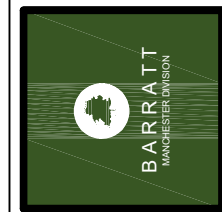
150mm Structural Overlay sheet (Grey) below VOC Membrane - Visqueen Ultimate HC Blok'

"Wide" or "Narrow" Poly blocks. Beam spacing is set with the relevant "Wide" or "Narrow" TS End Space Blocks. Refer to plot specific designs.

On some sites it may be possible to use site won material as fill instead of hardcore. This material needs to meet the requirements of NHBC Standards 5.1.9 and must be approved as being suitable for use by the site groundworker and site Structural / Civil Engineer.

NOTE*
Excavation depths may be reduced on receipt of a soils report (concerning the plasticity index for shrinkable soils) Read in conjunction with the NHBC book ch, 4.3.3 & with the approval of the building control officer.
All drains, ducts & services passing through the foundation to be sealed &/or provided with a lintel over as necessary.

Part L
100mm Cavity
"X" Drawings



Date: 13.05.25

Description: GAS MEMBRANE SPEC ADDED

Rev: A

Brand: **BARRATT - WALDMERS WOOD**
Range: **2016**
Title: **Jet Floor - Parallel Beams Gas Membrane**
Detail No: **BM-GM05-245**
Drawn: **SAH** Checked: **SAH** Scale: **1:10** Date: **Jan 24**

EXTERNAL REFERENCE :

EXTERNAL WALL/GROUND FLOOR JUNCTION JET FLOOR BEAMS PARALLEL

100mm cavity fully filled with Springvale EcoBead Platinum to achieve 0.24w/m²k.

102.5mm brick outer leaf

Wall ties to be positioned (general wall area) 900mm max horizontal and 450mm max vertical centers in a diamond pattern.

100mm H+H Celcon Block - 0.11W/mk thermal conductivity

Continuous cavity tray with weep vents positioned at 450mm ctrs.

50mm Visqueen double sided jointing tape between cavity tray and VOC Membrane - Visqueen Ultimate HC Blok'

Manthorpe G965 telescopic underfloor ventilator with G930 air brick.

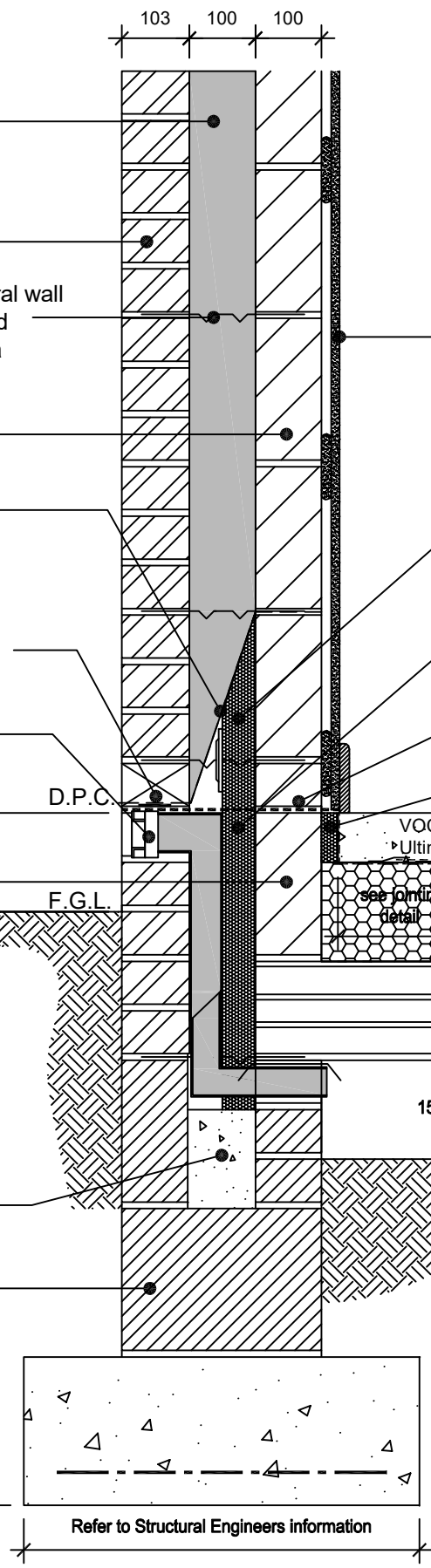
100mm 3.2N H+H Celcon Block - 0.11W/mk thermal conductivity

Coursing blocks are only allowed to be used if fully submerged below ground levels. If not, main facing bricks should be used.

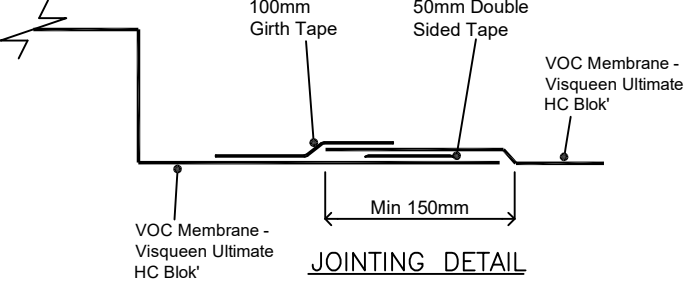
Lean mix cavity fill

H+H Celcon 300mm x 215mm foundation block shown. Refer to latest Group block suppliers list.
3.6 N - 0.24 W/mk (Density - 600 Kg/m3)
7.3 N - 0.30 W/mk (Density - 730 Kg/m3)
Refer to house type working drawing for blockwork strength required for walls and isolated piers.

Foundation depth - Refer to Structural Engineers information*



Where a floor beam bears above a telescopic vent, a concrete lintel must be installed directly above the vent



12.5mm Gyproc Wallboard (density 8.5kg/m³) with 3mm skim finish or taped and jointed on 15mm plaster dabs on blockwork.

50mm TE Alreflex Platinum board required below cavity tray, to be cut at angle as shown.

50mm TE Alreflex Platinum board required below gas resistant DPC. Insulation to be taken down to underside of beams.

600mm wide VOC Membrane - Visqueen Ultimate HC Blok'

30mm P34 insulation strip

75mm structural concrete topping to be C28/35 standard concrete with maximum 20mm aggregate or C28/35 self-compacting concrete with maximum 10mm aggregate and reinforced in accordance with BBA certificate 88/2059. The topping is to be laid as soon as possible after the installation of the polystyrene components.

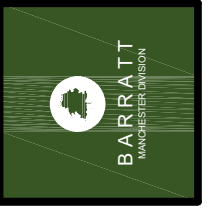
150mm Structural Overlay sheet (Grey) below VOC Membrane - Visqueen Ultimate HC Blok'

"Wide" or "Narrow" Poly blocks. Beam spacing is set with the relevant "Wide" or "Narrow" TS End Space Blocks. Refer to plot specific designs.

On some sites it may be possible to use site won material as fill instead of hardcore. This material needs to meet the requirements of NHBC Standards 5.1.9 and must be approved as being suitable for use by the site groundworker and site Structural / Civil Engineer.

NOTE*
Excavation depths may be reduced on receipt of a soils report (concerning the plasticity index for shrinkable soils) Read in conjunction with the NHBC book ch, 4.3.3 & with the approval of the building control officer.
All drains, ducts & services passing through the foundation to be sealed &/or provided with a lintel over as necessary.

Part L
100mm Cavity
"X" Drawings



Date: 13.05.25

Description: GAS MEMBRANE SPEC ADDED

Rev: A

Brand: BARRATT - WALDMERS WOOD
Range: 2016
Title: Jet Floor - Perpendicular Beams Gas Membrane
Detail No: BM-GM05-246
Drawn: SAH
Checked: SAH
Scale: 1:10
Date: Jan 24

EXTERNAL REFERENCE :

100mm Party wall roll insulation
as Group Agreement (full fill
cavity - no gaps remain) - min
225mm below finished floor level.

E-WM-22 100mm Light Aggregate
blocks - 3.6 N/mm², Density
1350-1600kg/m³

Type A cavity wall ties @ 900mm c/s horz. &
450mm c/s vert. staggered (typical). First
row as per manufacturers instructions.

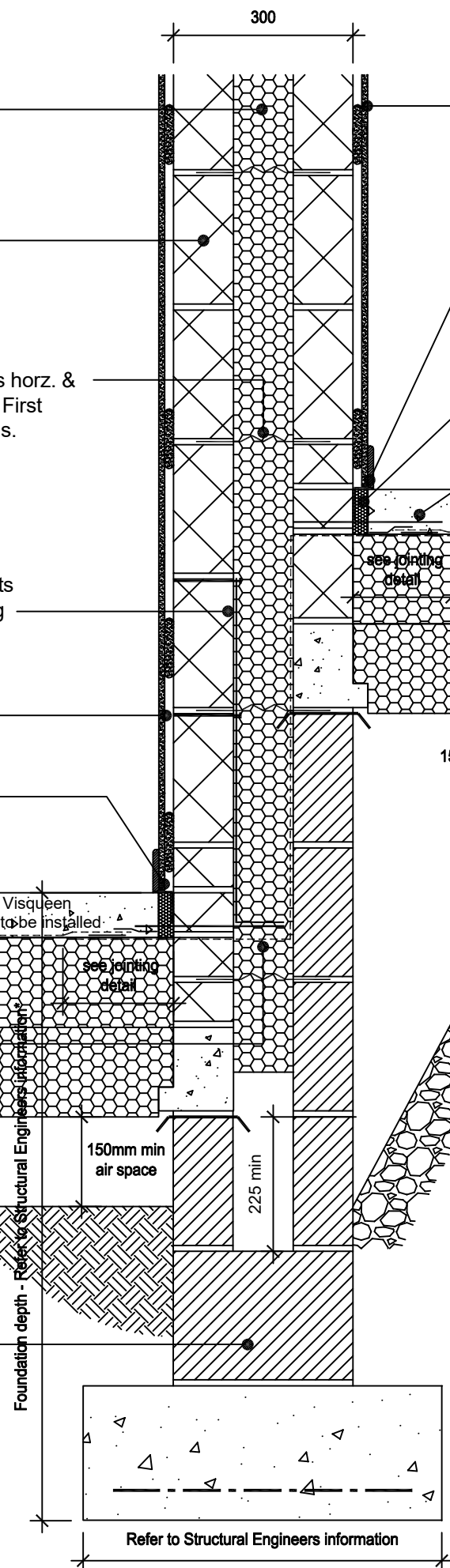
Monarfloor Bridgestop Quilt in two lifts
to prevent mortar droppings touching
both masonry leaves.

Monarfloor Bridgestop tie to
penetrate at max 450mm centres.

Monarfloor 6mm Acoustic Angled
Flanking Strip to isolate screed /
insulation from party wall.

1375mm wide VOC
Membrane -
Visqueen Ultimate
HC Blok' (for
675mm step
shown).

H+H Celcon 300mm x 215mm
foundation block shown. Refer
to latest Group block suppliers
list.
3.6 N - 0.24 W/mk
(Density - 600 Kg/m³)
7.3 N - 0.30 W/mk
(Density - 730 Kg/m³)
Refer to house type working
drawing for blockwork strength
required for walls and isolated
piers.



15mm Gyproc Wallboard (E-WM-23
density 9.8kg/m³ / E-WM-22 density
10kg/m³) with with 3mm skim finish or
taped and jointed on 15mm plaster
adhesive dabs on blockwork.

Monarfloor 6mm Acoustic Angled
Flanking Strip

30mm P34 insulation strip

250mm wide MONARFLOOR
BRIDGESTOP 3mm HP Acoustic
Membrane laid under the party wall over
Gas membrane - refer to Appendix A2 of
the Robust Details.

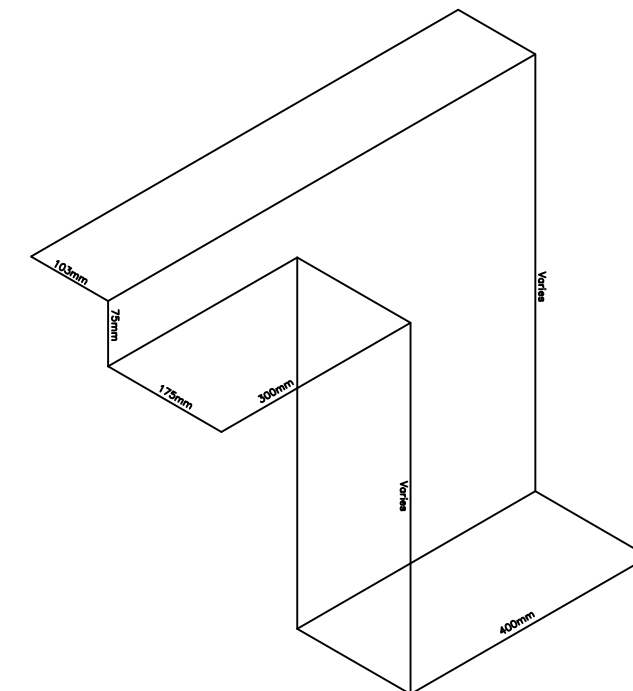
75mm structural concrete topping to be
C28/35 standard concrete with maximum
20mm aggregate or C28/35
self-compacting concrete with maximum
10mm aggregate and reinforced in
accordance with BBA certificate 88/2059.
The topping is to be laid as soon as
possible after the installation of the
polystyrene components.

150mm Structural Overlay sheet (Grey)
below VOC Membrane - Visqueen Ultimate
HC Blok'

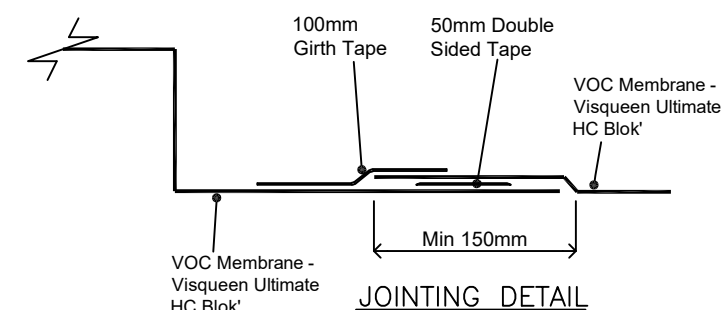
"Wide" or "Narrow" Poly blocks. Beam
spacing is set with the relevant "Wide" or
"Narrow" TS End Space Blocks. Refer to
plot specific designs.

Ground battered back on higher FFL side
as shown. On some sites it may be
possible to use site won material as fill
instead of hardcore. This material needs
to meet the requirements of NHBC
Standards 5.1.9 and must be approved as
being suitable for use by the site
groundworker and site Structural / Civil
Engineer.

NOTE*
Excavation depths may be reduced on
receipt of a soils report (concerning the
plasticity index for shrinkable soils) Read
in conjunction with the NHBC book ch,
4.3.3 & with the approval of the building
control officer.
All drains, ducts & services passing
through the foundation to be sealed &/or
provided with a lintel over as necessary.



Gas Resistant External/Stepped Party Wall Cavity Tray
All Party Wall units are made to Order and
should be ordered in sufficient time to allow
manufacture.



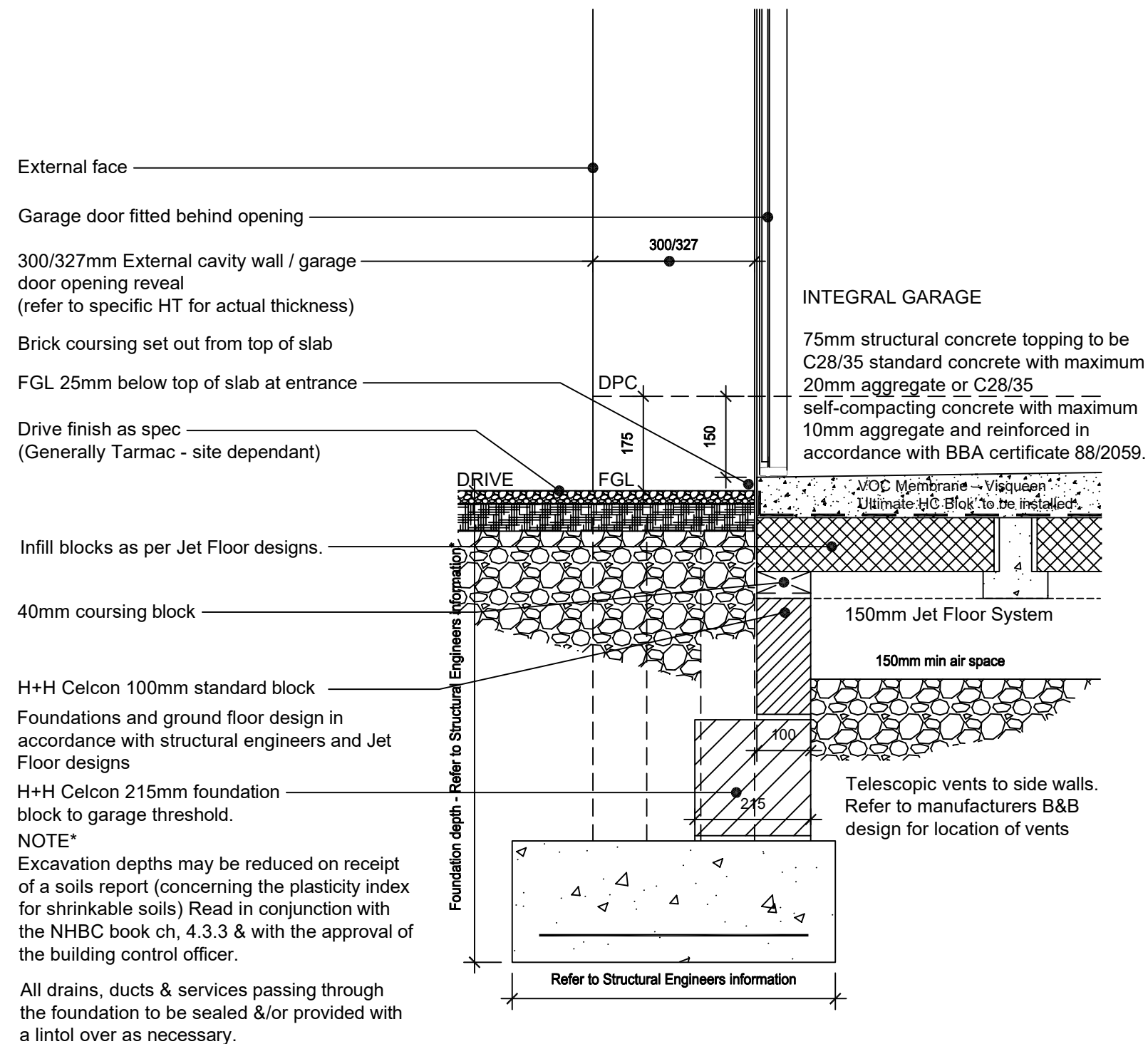
Part L
100mm Cavity
"X" Drawings

EXTERNAL REFERENCE : 22/029/PW01 ($\psi = 0.086 \text{ W/mK}$)

Brand: **BARRATT - WALDMERS WOOD**
Range: **2016**
Title: **Jet Floor Stepped Party Wall with Gas Membrane**
Detail No: **BM-GM05-500**
Drawn: **SAH** Checked: **SAH** Scale: **1:10** Date: **Jan 24**

Rev: **A**
Description: **GAS MEMBRANE SPEC ADDED**
Date: **13.05.25**

BARRATT
MANCHESTER DIVISION

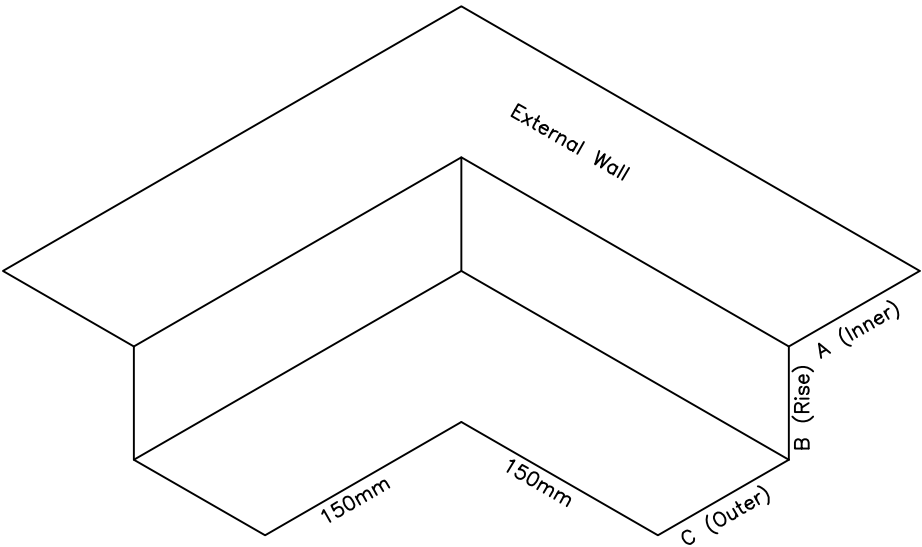
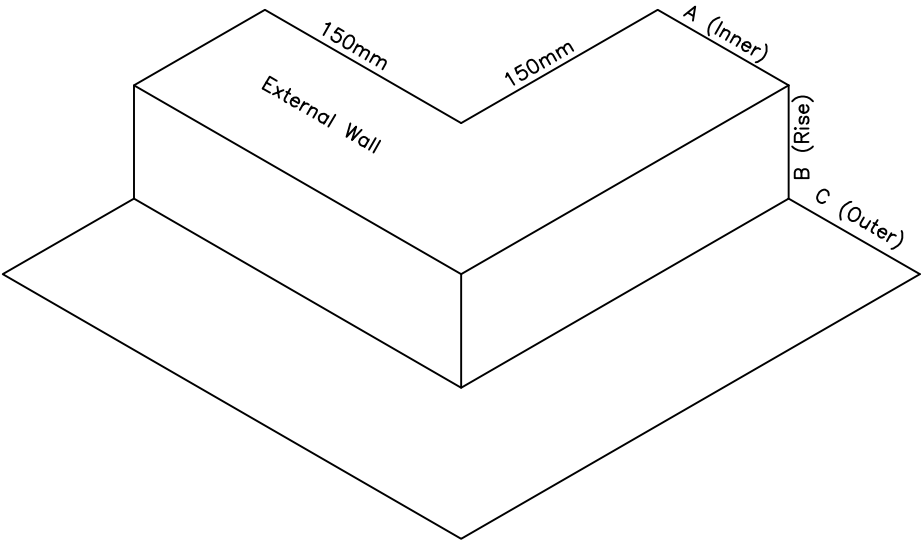


Section showing integral garage door thresh - door fitted behind opening
(Refer to details DB SD06-213, DB SD06-214 & DB SD06-215)

EXTERNAL REFERENCE :

 BARRATT MANCHESTER DIVISION		Date: 13.05.25
Description: GAS MEMBRANE SPEC ADDED		Rev: A
Brand: BARRATT - WALDMERS WOOD Range: 2016 Title: Jet Floor Int Garage door behind reveal gas membrane Detail No: BM-GM05-600 Drawn: SAH Checked: SAH Scale: 1:10 Date: Jan 24		

External Corner Cloak	
A (Inner)	
B (Rise)	
C (Outer)	



Internal Corner Cloak	
A (Inner)	
B (Rise)	
C (Outer)	

Gas Resistant Preformed Corner Cloaks (ZX-16)

These are required where a step is required in the cavity due to use of non standard brickwork sizes. Dimensions to be provided to manufacturer for fabrication.

REV. A - SITE NAME ADDED. 13.05.25

Visqueen Ultimate HC BLOK

Features & benefits

- Agreement certified - third party accreditation
- Complies with NHBC Foundation's NF94 guidance for use in Type A and Type B membrane locations
- Complies with CIRIA C748:2014 - industry standard for volatile organic compounds (VOC) protection
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019 - industry standard for methane and carbon dioxide protection
- Also provides radon and damp proof membrane protection
- Dual jointing methods - depending upon specification, lap joints can be taped or heat welded

Product description

Visqueen Ultimate HC Blok is a 0.5mm thick, chemically resistant co-extruded volatile organic compound barrier and gas barrier. It is coloured gold on the upper surface and white on the reverse. The product is supplied in single wound rolls (not folded), 2.44m x 41m.

Approvals and standards

- Third party accreditation (BDA certificate BAF-18-051-P-A-UK)
- Complies with NHBC Foundation's NF94 guidance for use in Type A and Type B membrane locations
- Complies with CIRIA C748:2014
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019
- Suitable for all Characteristic Gas Situation (CS) ground gas regimes
- Conforms to the specification requirements of NHBC Amber 1 and Amber 2 applications
- Conforms to the specification requirements of BR 211:2023
- UKCA UKNI CE to EN 13967:2012
- Visqueen certified with Quality Management System ISO 9001:2015
- Visqueen certified with Occupational Health and Safety System ISO 45001:2018
- Visqueen certified with Environmental Management System ISO 14001:2015

Usage

Visqueen Ultimate HC Blok is suitable for use in all types of buildings to prevent the ingress of harmful levels of volatile organic compounds (VOCs), methane, carbon dioxide and radon. The barrier can be positioned above or below a concrete ground floor slab or above a precast suspended segmental ground floor system, e.g. beam and block floor.

The barrier also acts as a damp proof membrane.

Radon, carbon dioxide, methane, and VOC protection – NHBC NF94 guidance:
Visqueen Ultimate HC Blok when installed with either taped or welded joints (welded only for VOC protection) complies with NHBC Foundation's NF94 publication, Hazardous ground gas - an essential guide for housebuilders, in Type A membrane locations in precast suspended segmental subfloors and reinforced cast in situ concrete floor slabs (ground bearing, suspended or raft). Visqueen Ultimate HC Blok also complies with this guidance when installed with welded joints in Type B membrane locations in reinforced cast in situ concrete floor slabs (ground bearing, suspended or raft). For site or zone characteristic gas situations of CS4 and above, contact Visqueen Technical Services.

The product is not intended for use where there is a risk of hydrostatic pressure.

System components

- VisqueenPro Detailing Strip, 300mm x 10m, 500mm x 10m
- Visqueen Ultimate Top Hat Units
- Visqueen GR Lap Tape, 150mm x 10m
- Visqueen 100mm Double Sided Butyl Tape, 100mm x 15m

Storage and handling

Visqueen Ultimate HC Blok should be stored horizontally, under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Visqueen Ultimate HC Blok should be installed on a smooth continuous surface free from irregularities such as voids or protrusions e.g. grouted beam and block floor, 50mm thick sand blinding, or smooth concrete blinding.

The membrane can be cut with a sharp retractable safety knife or robust scissors.

Different jointing options are available depending on product use. Where protection against VOCs or hydrocarbon contamination is required, the barrier system should be applied with welded joints.

Visqueen Ultimate HC BLOK

Installation

Visqueen Ultimate HC Blok should be loose laid on the substrate with the gold side up so as to avoid sunlight glare. Different jointing options are available depending on product use. Where protection against VOCs or hydrocarbon contamination is required, the barrier system should be applied with welded joints.

The barrier should be clean and dry at the time of jointing. It should be overlapped by at least 150mm, bonded with Visqueen 100mm Double Sided Butyl Tape and sealed with Visqueen GR Lap Tape. Alternatively lap joints can be heat welded to achieve an effective seal. The overlap in the barrier is typically 100mm and when hand welding, a 35mm weld is normally achieved. When hand welding, a roller must be used.

Airtight seals should be formed around all service entry points. Visqueen Ultimate Preformed Top Hat Units should be used for sealing service entry pipes. The base of the top hat and the upstand should be bonded using Visqueen 100mm Double Sided Butyl Tape and sealed with Visqueen GR Lap Tape. The upstand should be secured with the supplied jubilee clip. Alternatively VisqueenPro Detailing Strip can be used to seal service entry points. The upstand should be secured with a jubilee clip.

Forming an effective barrier to gases may give rise to complex three-dimensional detailing where, it is recommended Visqueen Ultimate Preformed Units are used e.g. corners. Alternatively VisqueenPro Detailing Strip can be used to seal awkward junctions.

If the barrier is punctured or perforated a patch of the same material should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen 100mm Double Sided Butyl Tape and sealed with Visqueen GR Lap Tape. Alternatively a patch can be formed using VisqueenPro Detailing Strip and lapped at least 150mm beyond the extents of the puncture.

Long periods of exposure to ultraviolet light will reduce the effectiveness of the membrane. The membrane should be covered by a protective layer immediately after installation to prevent damage from following trades, ultraviolet light, etc. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended. When reinforced concrete is to be laid over the barrier the wire reinforcements and spacers must be prevented from puncturing the barrier. Where there is a high risk of potential damage, the barrier should be covered with Visqueen TreadGUARD protection, screed, or other approved protection material before positioning the reinforcement.

Usable temperature range

It is recommended that Visqueen Ultimate HC Blok and all associated system components should not be installed below 5°C.

Additional information

When used in accordance with CIRIA C748:2014 or BS8485:2015 + A1:2019, a subfloor ventilation system or pressure relief maybe required.
To assist build sequencing, Visqueen Ultimate Gas DPC is available for gas protection through the wall constructions.

For additional detailing information, contact Visqueen Technical Services +44 (0) 333 202 6800.

The information in this datasheet was correct at the time of publication. It is the user's responsibility to obtain the latest version of the datasheet as it is updated on a regular basis. The information contained in the latest datasheet supersedes all previously published editions.

Property	Test method	Units	Criteria	Result
Colour				Gold/white
Weight		kg		49
Length	BS EN 1848-2	m	-0/+10%	41
Width	BS EN 1848-2	m	-0/+10%	2.44
Thickness	BS EN 1849-2	mm	+/-10%	0.5
BS 8485 and C748 physical test results		Units	Criteria	Result
Puncture	BS EN ISO 12236:2006	N	MDV	1640
Impact resistance Method A hard surface	BS EN 12691	mm	MDV	200
Impact resistance Method B soft surface	BS EN 12691	mm	MDV	1250
Tensiles yield strength MD 1	ASTM D4885-01	kN/m	MDV	5.1

Visqueen Ultimate HC BLOK

Tensiles yield strength CD 1	ASTM D4885-01	kN/m	MDV	4.91
Yield elongation MD 1	ASTM D4885-01	%	MDV	76
Yield elongation CD 1	ASTM D4885-01	%	MDV	62
Tear resistance - trouser method A - MD	BS ISO 34-1	kN/m	MDV	60.2
Tear resistance - trouser method A - CD	BS ISO 34-1	kN/m	MDV	66.1
Tear resistance - angle method B - MD	BS ISO 34-1	N	MDV	48.7
Tear resistance - angle method B - CD	BS ISO 34-1	N	MDV	49.6
1 - this is at yield and not break as the equipment used was not strong enough to break the membrane				
BS 8485 - Methane testing	Test method	Units	Criteria	Result
Methane gas transmission rate (unjointed)	ISO 15105-1	ml/m ² /day/ atm	<40	1.3
Methane gas transmission rate (welded joint)	ISO 15105-1	ml/m ² /day/ atm	<40	24
Carbon dioxide gas transmission rate	ISO 15105-1	ml/m ² /day/ atm	<40	8.3
C748:2014 - Permeation vapour tests - 100% concentration		Criteria	ml/m ² /d	mg/m ² /d
Benzene	ISO 15105-2	MDV	0.08	70
Toluene	ISO 15105-2	MDV	0.09	78.5
Ethyl benzene	ISO 15105-2	MDV	0.11	93.8
m,p xylene	ISO 15105-2	MDV	0.01	6.7
Hexane	ISO 15105-2	MDV	gas	2.6
Vinyl chloride	ISO 15105-2	MDV	0	6.4
Tetrachloroethene (PCE)	ISO 15105-2	MDV	0	3.2
Trichloroethene (TCE)	ISO 15105-2	MDV	solid	0.3
Naphthalene	ISO 15105-2	MDV	0.03	19.7
C748:2014 - Chemical immersion testing		weight %	Thickness %	Tensiles/elongation
Pass is achieved if the aged membrane is within 25% of the fresh sample				
Benzene	BS EN 14414	Pass	Pass	Pass
Toluene	BS EN 14414	Pass	Pass	Pass
Ethyl benzene	BS EN 14414	Pass	Pass	Pass
(m,p, and o) xylene	BS EN 14414	Pass	Pass	Pass
Hexane	BS EN 14414	Pass	Pass	Pass
Vinyl chloride	BS EN 14414	Pass	Pass	Pass
Tetrachloroethene	BS EN 14414	Pass	Pass	Pass
Trichloroethene	BS EN 14414	Pass	Pass	Pass
Naphthalene	BS EN 14414	Pass	Pass	Pass
CE Marking to EN13967 Type A				

Visqueen Ultimate HC BLOK

Characteristic	Test method	Units	Criteria	Result
Tensile strength - MD	BS EN 12311	N/mm ²	MDV	32.8
Tensile strength - CD	BS EN 12311	N/mm ²	MDV	33.1
Tensile elongation - MD	BS EN 12311	%	MDV	699
Tensile elongation - CD	BS EN 12311	%	MDV	723
Joint strength	BS EN 12317-2	N	MDV	265
Watertightness to 2kPa for 24 hours	BS EN 1928	-	Pass/Fail	Pass
Resistance to impact	BS EN 12691	mm	>MLV	200
Durability watertightness after heat ageing	BS EN 1296	-	Pass/Fail	Pass
Durability watertightness against chemicals	BS EN 1847	-	Pass/Fail	Pass
Resistance to tearing (nail shank) CD	BS EN 12310-1	N	MDV	245
Resistance to tearing (nail shank) MD	BS EN 12310-1	N	MDV	270
Water vapour transmission - resistance	BS EN 1931	MNs/g	MDV	1034
Water vapour transmission - permeability	BS EN 1931	g/m ² /d	MDV	0.13
Radon permeability	Sp Method 3873	m ² /s	MDV	<1.5 x 10 ⁻¹²

Health and safety information

Refer to the Visqueen Ultimate HC Blok safety datasheet (SDS).

About Visqueen

Visqueen is a leading provider of construction membrane technologies and design-based solutions for ground gas, structural waterproofing, damp proofing and fire protection.

We offer complete support at every stage of the specification, including the supply chain process. As the UK's principal technical authority, we are best placed to ensure that the principal designer and contractor specify the most technically suited, durable, and competitive solution to guarantee their project is protected for the lifetime of the building.

Visqueen is at the forefront of advanced membrane technology and innovation in the construction industry, earning the trust and loyalty of specifiers throughout the UK and Europe.

For more information, visit visqueen.com or contact our sales office at [+44 \(0\) 333 202 6800](tel:+4403332026800) or enquiries@visqueen.com

Complete Range, Complete Solution



Passive Fire Protection



Gas Protection



Damp Proof Membrane



Air and Vapor Control



Stormwater



Damp Proof Course



Temporary Protection

Visqueen Technical Support

Visqueen offer a comprehensive full nationwide technical support. Our team of CSSW qualified technical support managers provide on site design-based solutions for specifiers, contractors and builders merchants, and will ensure that from design stage to installation the project is fully risk assessed and the specification is approved by all stakeholders.

Our Technical Office, can design, prepare and manage CAD detailing, together with assisting in quantity take offs, while offering advice on technical installations and product selection.

Competency & Design

Visqueen promotes competency in building design by ensuring that its technical team possesses the necessary

Visqueen Ultimate HC BLOK

skills, knowledge, experience, and ethical practices. The company adopts the "golden thread of information," ensuring all project data is digitally secure and accessible throughout a building's lifecycle. This approach aligns with the Building Safety Act and aims to foster accountability and compliance with evolving regulations, providing clients with confidence in the safety and reliability of their projects.

Visqueen CPD Seminars

Visqueen's CPD Seminars offer insights into Building Regulations, Standards, and industry guidance related to damp proofing, hazardous ground gas protection, and structural waterproofing. These one-hour seminars are tailored for construction design professionals and delivered by our Technical Support Managers. Visit our website to book a free CPD.

Visqueen Contract Design Services

Visqueen Contract Design Services offers a bespoke design service led by our team of Certified Surveyors in Structural Waterproofing (CSSW), providing experienced and specialised waterproofing design expertise for complex projects. We provide comprehensive support throughout the entire project, ensuring that all work meets the requirements of warranty providers and adheres to the highest standards of quality, reliability and current legislation.

Visqueen Training Academy

Based at our Derbyshire facility, the Visqueen Training Academy offers a variety of training programs across the UK. These include one-day product awareness sessions for distributors and builders' merchants, and intensive two-day courses for hands-on product installation training. Contact us for more information.

APPENDIX B

Gas Membrane Validation Certificate Proforma

Gas Protection Validation Record



job number		design source/ref:		specification source/ref:		documents attached	✕	
site name / location		building use:	residential	commercial	other (describe)			
plot number		building description:	no. of storeys =	2	Detached	semi-detached	terrace	apartment block
compiled by:		gas protection type:	active / passive		foundation type:	block and beam / raft / other		

Ventilated sub-floor (if present)	inspection date/time:		inspected by:		photographed:	
--	-----------------------	--	---------------	--	---------------	--

✓ / ✕ notes (see overleaf)

void former type		1.
height of void space		2.
gravel type		3.
pipe size and spacing		4.
external wall airbricks		5.
internal sleeper walls		6.
external vent trenches / ducts		7.

Gas barrier	inspection date/time:		inspected by:		photographed:	
--------------------	-----------------------	--	---------------	--	---------------	--

membrane type		8.
extent of coverage		9.
slab/membrane condition		10.
laps and joints		11.
damp-proof course		12.
service entries and seals		13.
Integrity testing		14.

Gas Protection Validation Record

Photograph	Photograph	Photograph
Photograph	Photograph	Photograph

Gas Protection Validation Record



Guide notes:

1	void former type	proprietary type - manufacturer and specification, in accordance with design? Installed properly without damage?
2	height of void space	height of proprietary former or constructed ventilation space below suspended floor - note any debris on void / obstructions to air flow, note formation surface soil type (e.g. crushed concrete/brick), any evidence of flooding
3	gravel type	gravel type, if used (limestone / granite etc.) and any specification (e.g. 6F2), typical particle dimensions (mm), apparent fines content (low/high), compaction (loose/dense), waterlogging / contamination by clay, organic matter, other debris
4	pipe size and spacing	diameter in mm; material type (e.g. PVC); slotted or perforated; positioning and spacing / separation and jointing as on design drawing - if not sketch arrangement - do pipes connect with external (telescopic / swan-neck) vents?
5	external wall airbricks	check numbers, size and positions as design drawing (if not shown, make sketch; check for blockage, e.g. by mortar, or soil / pavings etc.
6	internal sleeper walls	check for ventilation holes - e.g. honeycombe brickwork or pipe crossings - note size, spacing and location - in accordance with design?
7	external vent trenches / ducts	check whether located and constructed in accordance with design drawings; if open-topped gravel, note gravel type and presence of fines / contamination; if pipe or other vents - check positions and construction for functionality and absence of blockages - vents may be built over
8	membrane type	note manufacturer and product specification, including batch / roll numbers if present - in accordance with specification? check stock storage arrangements - protected from dirt and damage?
9	extent of coverage	if membrane is incomplete, further inspection will be required - note areas completed / incomplete - is membrane fully visible or have internal walls been constructed over membrane / screed placed?
10	slab/membrane condition	record presence of debris / rough surfaces, in particular sharp projections, below or above membrane; record locations of all punctures or repairs, note arrangements to protect membrane surface from traffic / tools and equipment / materials, and temporary weighting down of membrane, e.g. use of boards - record evidence of footprints / tracks on membrane surface, creases or water/wind damage
11	laps and joints	check the all joints are lapped and sealed in accordance with manufacturer's requirements / specification, particularly where creases/folds are present (usually minimum 150mm laps with double-sided tape between sheets, and single-sided tape on top surface; note size of sheets and frequency of edge seals
12	damp-proof course	record DPC manufacturer and product code - usually integrated with the membrane; measure the DPC projection from external wall in mm; check laps and seals between membrane and DPC - note any potential stress points and tension between the two; check for damage to DPC
13	service entries and seals	note number, position and diameter of service entries - check top hat seal arrangements in accordance with design / specification (laps and seals between top hat and floor membrane, pipe upstand is usually a minimum 150mm) check, with jubilee clips to secure top hat seal to pipe - note presence of clips and tightness of connections
14	Integrity testing	Has integrity testing been undertaken on this plot? If yes, who undertook the testing (company name) and what type of test did they use (air lancing/other test)? Append a copy of the testing certificate to this report.

Gas Protection Validation Record



These buildings have PASSED inspection.

An additional inspection IS NOT required for this plot.

SGP Staff:

Signed:

SGP Member:

Signed:

APPENDIX C

Cover System Validation Certificate Proforma

Soil Cover Validation Record



Job number		Depth ref:		Quality ref:		Other documents attached	✓
Date		Area use:	garden	landscaped	stockpile	other	
Site name / location		Size area (m):		Approx Area (m ²):		Approx Depth Top (m):	
Plot / location:				Approx Depth Sub (m):		Approx Volume Top (m ³):	
Compiled by:				Approx Volume Sub (m ³):			
		Number depth entries required		x (at 1 per 3 gardens); x entries provided.		Number samples required: x (1 per 250m³ TS Greenfield Source; minimum of 3 from any one source). x TS samples provided.	

Quality Validation		inspection date/time:		inspected by:		photographed:	✓
notes (see below)		✓ / ✗					
Source Topsoil	1.	✓					
Description Topsoil	2.	✓					
Sample Topsoil	3.	✓					
Source Subsoil	4.	✗					
Description Subsoil	5.	✗					
Sample Subsoil	6.	✗					

Soil Cover Validation Record



Topsoil Analysis Summary

contaminant	soil standard adopted (mg/kg)	concentrations (mg/kg)	compliant?
asbestos Fibres	NAD		Yes
pH	-		Yes
soil organic matter	-		-
arsenic	37		Yes
cadmium	11		Yes
chromium III	910		Yes
chromium VI	6		Yes
copper	2,400		Yes
lead	200		Yes
mercury	40		Yes
nickel	130		Yes
zinc	3,700		Yes
naphthalene	2.3		Yes
acenaphthene	210		Yes
acenaphthylene	170		Yes
fluorene	170		Yes
phenanthrene	95		Yes
anthracene	280		Yes
fluoranthene	2,400		Yes
pyrene	620		Yes
benzo(a)anthracene	7.2		Yes
chrysene	15		Yes
benzo(b/k)fluoranthene	2.6		Yes
benzo(a)pyrene	2.2		Yes
indeno(123cd)pyrene	27		Yes

Contaminant	Soil standard adopted (mg/kg)	Concentrations (mg/kg)	Compliant?
dibenzo(ah)anthracene	0.24		Yes
benzo(ghi)perylene	320		Yes
Aliphatic C5-C6	42		Yes
Aliphatic C6-C8	100		Yes
Aliphatic C8-C10	27		Yes
Aliphatic C10-C12	130		Yes
Aliphatic C12-C16	1,100		Yes
Aliphatic C16-C21	65,000		Yes
Aliphatic C21-C35	65,000		Yes
Aromatic C6-C7	70		Yes
Aromatic C7-C8	130		Yes
Aromatic C8-C10	34		Yes
Aromatic C10-C12	74		Yes
Aromatic C12-C16	140		Yes
Aromatic C16-C21	260		Yes
Aromatic C21-C35	1,100		Yes

Soil Cover Validation Record



Subsoil Analysis Summary

contaminant	soil standard adopted (mg/kg)	concentrations (mg/kg)	compliant?
asbestos Fibres	NAD		Yes
pH	-		Yes
soil organic matter	-		-
arsenic	37		Yes
cadmium	11		Yes
chromium III	910		Yes
chromium VI	6		Yes
copper	2,400		Yes
lead	200		Yes
mercury	40		Yes
nickel	130		Yes
zinc	3,700		Yes
naphthalene	2.3		Yes
acenaphthene	210		Yes
acenaphthylene	170		Yes
fluorene	170		Yes
phenanthrene	95		Yes
anthracene	280		Yes
fluoranthene	2,400		Yes
pyrene	620		Yes
benzo(a)anthracene	7.2		Yes
chrysene	15		Yes
benzo(b/k)fluoranthene	2.6		Yes
benzo(a)pyrene	2.2		Yes
indeno(123cd)pyrene	27		Yes

Contaminant	Soil standard adopted (mg/kg)	Concentrations (mg/kg)	Compliant?
dibenzo(ah)anthracene	0.24		Yes
benzo(ghi)perylene	320		Yes
Aliphatic C5-C6	42		Yes
Aliphatic C6-C8	100		Yes
Aliphatic C8-C10	27		Yes
Aliphatic C10-C12	130		Yes
Aliphatic C12-C16	1,100		Yes
Aliphatic C16-C21	65,000		Yes
Aliphatic C21-C35	65,000		Yes
Aromatic C6-C7	70		Yes
Aromatic C7-C8	130		Yes
Aromatic C8-C10	34		Yes
Aromatic C10-C12	74		Yes
Aromatic C12-C16	140		Yes
Aromatic C16-C21	260		Yes
Aromatic C21-C35	1,100		Yes

Soil Cover Validation Record



Depth Validation	Inspection date/time:		Inspected by:		Photographed:	✓
Plot xx	Required Depth (mm)	600	Measured Depth (mm)		PASS	
Source Topsoil						
Source Subsoil						
Soil profile/description						
Photograph (depth profile)		Photograph (soil type)		Photograph (location)		

Soil Cover Validation Record



These plots have PASSED testing for quality and depth

An additional inspection visit IS NOT required.

SGP Staff:

Signed:

SGP Member:

Signed:

Guide notes:

1.	Source Topsoil	As much information as possible: Date Delivered, volume/weight delivery, supplier, certification, source address (yard), original source address (site).
2.	Description Topsoil	Full Description: Grading (Particle Size: clay, silt, sand, gravel), organic content, colour, odour, minerals, stone, glass, slate, ash, clinker, coal, coke, tarmac, plastic, other?
3.	Sample Topsoil	Date sampled, date submitted, sample reference, laboratory, laboratory job number
4.	Source Subsoil	As much information as possible: Date Delivered, volume/weight delivery, supplier, certification, source address (yard), original source address (site).
5.	Description Subsoil	Full Description: Grading (Particle Size: clay, silt, sand, gravel), organic content, colour, odour, minerals, stone, glass, slate, ash, clinker, coal, coke, tarmac, plastic, other?
6.	Sample Subsoil	Date sampled, date submitted, sample reference, laboratory, laboratory job number
7.	Material Acceptability	Presence and amount of visible deleterious or otherwise unacceptable materials, e.g. glass, metal, plastic, Knotweed shoots etc.