



GeoShield Verification Plan



PROJECT DESCRIPTION

GEO105208
UK Membranes Ltd
Starbucks Drive Thru
Sandbrook Park,
Sandbrook Way,
Rochdale,
OL11 1RY

The proposed development for which gas protection measures are required involves the construction of a Starbucks drive thru.

In accordance with BS8485:2015 + A1 2019, the Type C building must conform to a Characteristic Specification (CS) rating of CS2, so mitigation will need to be 2.5 points.

Geoshield have adopted the highest design and verification principles associated with BS8485:2015 + A1 2019, BR 211, Public Health England, NHBC Technical Extra April 2016 and CIRIA 735.

This pre-verification plan reviews the design to ensure it is compliant with the developer and planning authority requirements and in conjunction with the relevant investigation report in accordance with BS8485:2015 +A1 2019.

In summary, the design does achieve a required level of attention to detail with its robust specific gas membrane design (2 points), a suspended, reinforced ground floor slab (1.5 points).

The pre-verification plan confirms how the installation will be tested in accordance with CIRIA735. The verification visits will be documented in verification reports during the project that are suitable for submission to the local planning authority in order to satisfy and discharge planning consent.

All faults identified during inspection and the verification site visit of the ground gas system will be itemised as remediations which will need to be signed off in the remediation log for the proposed building.



GeoShield Verification Plan



PROJECT DESCRIPTION

Pre-Verification Plan

GeoShield are appointed by the Client to carry out independent validation, verification and integrity testing of the ground gas protection system on site. The Pre-Verification plan sets out the requirements and procedures that GeoShield will adopt to ensure that the installation is in line with the proposed design, relevant UK standards and guidance.

GeoShield take no responsibility for any warranties to third parties for the design of the system or the installation.

Limitations

The Pre-Verification plan prepared by GeoShield Limited is limited to the proposed ground gas protection measures installed. The Pre-Verification plan has been prepared in line with the relevant UK Standards and Guidance (BS8485:2015+A1:2019 & CIRIA 735) alongside the information made available to GeoShield by the Client. The conclusions made in the report are considered to be correct at the time of writing, but additional information provided/discovered may require amendments to the Plan. GeoShield recognises that changes to relevant standard and guidance may occur at any time which may cause the conclusions made to be incorrect - GeoShield do not accept any responsibility or liability for the implications of such changes.

The Pre-Verification plan does not in itself constitute verification that the membrane has been installed in accordance with this document. Validation and verification of the installed membrane will be covered in separate verification reports following physical inspection of the gas barrier and will include photographic evidence of the installation.

Waterproofing elements (where applicable) do not fall into the remit of this Pre-Verification plan or future inspections. GeoShield will provide the opinion on membrane's suitability for ground gas protection purposes – no liability is offered or implied for the waterproofing element which should be checked by others.



GeoShield Verification Plan



PROJECT REFERENCE: GEO105208

PROJECT: Starbucks Drive Thru

PROJECT ADDRESS: Sandbrook Park,

Sandbrook Way, Rochdale,

OL11 1RY

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions.

Juta GP5 Gas Barrier

Juta GP SAM



GeoShield Verification Plan



INFORMATION INCLUDED

Geo-Environmental Assessment

Engineers drawings

Material Specification Technical Data Sheets

Uk radon maps

Information presented to at the pre-verification stage assumed correct

Any change client will let GeoShield know or this Pre-verification Plan will be void.



GeoShield Verification Plan



NAME OF SURVEYOR:

Paul Colbeck

VERIFICATION COMPANY:

GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER:

07462 546 926

EMAIL ADDRESS:

pcolbeck@geoshield.co.uk

ORDER NUMBER:

To be confirmed

PER VISIT:

YES:

☐

NO:

☐

PROJECT:

YES:

☐

NO:

☐



GeoShield Verification Plan



SPECIFICATION



Geo-Environmental Assessment

Proposed Starbucks Unit, Sandbrook Park,
Rochdale

Presented to: Molyneux Rose LLP on behalf of
AIG Holdings Ltd.

Issued: February 2024
Delta-Simons Project No: 94776.604690



Title Reference & Description:

Geo-Environmental Assessment

Front page

SPECIFICATION

Geo-Environmental Assessment
Sandbrook Park, Rochdale, OL11 1RY
Delta-Simons Project Number 94776.604690

Page 19

Location	Maximum Steady Methane (%v/v)	Maximum Steady Carbon Dioxide (%v/v)	Maximum Steady Flow Rate (l/hr)	GSV/Classification				Flooded?
				Methane		Carbon Dioxide		
				GSV	Classification	GSV	Classification	
DS101	<0.1	2.9	<0.1	0.0001	CS1	0.0029	CS1	N
DS102	<0.1	3.8	<0.1	0.0001	CS1	0.0038	CS1	n
DS104	1.8	<0.1	<0.1	0.0018	CS1*	0.0001	CS1	N

*=Consideration should be given to increase the hazard potential of the Site to CS2.

*=Consideration should be given to increase the hazard potential of the Site to CS2.

The preliminary data indicates that the Site can be provisionally classified as CS1 for carbon dioxide (very low hazard potential) and CS2 (low hazard potential) for methane in accordance with BS 8485:2015 Table 2. The GSV for the site-wide worst-case flow rate and ground gas concentration (either CO₂ or CO₄) has also been assessed which indicates that the Site may be classified as CS2, due to >1% methane v/v being detected in 2 of the 4 monitoring visits at DS104.

Given the significant thickness of Made Ground encountered at the Site (up to 4.5m bgl) which is likely to be a source for the methane encountered in the areas of DS104, and as methane was recorded ranging from 6.8 to 42.2% of its Lower Explosive Limit (LEL), it is anticipated that a CS2 classification for the Site is reasonable and appropriate.

Based on the results of the preliminary assessment, further ground gas monitoring is not considered to be required.

7.4 Ground Gas Risk Mitigation

The ground gas regime at the Site has been classified as CS2 in accordance with the CIRIA/BRI guidance and it is recommended that and CS2 situation is assumed for design purposes.

BS:8485 provides a scoring system to determine the appropriate protection measures for a proposed development in accordance with the identified ground gas regime. Table 3 of BS:8485 summarises typical UK building types, which for this development will comprise Type C (commercial). Table 4 details the points required for the Characteristic Situation, which for CS2 is 3.5. This can be achieved by a combination of the following:

Structural barriers (Table 5)

Ventilation (Table 6)

Gas Membrane (Table 7)

The above should be considered in conjunction with the proposed foundation/floorslab design to achieve the minimum score required within BS:8485.

The above assessment relates solely to future Site users. Given the nature of the ground gas regime at the Site, no further works are considered necessary to protect 3rd parties/surrounding occupiers. Entry to excavations/confined spaces should be restricted to personnel with relevant Confined Spaces training and with prior conformation of atmospheric conditions.

7.5 Radon

The Site is located within an area where the BGS report states radon protective measures are not required.

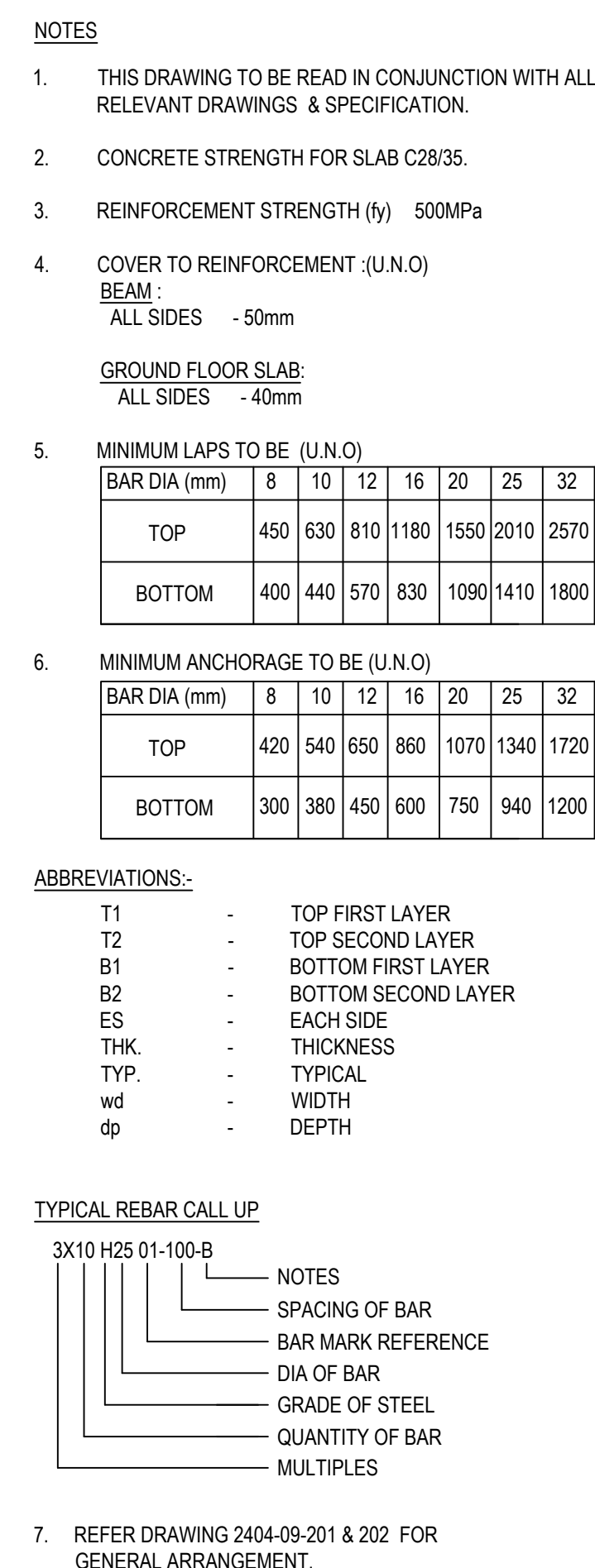
7.6 Organic Vapours

No sources of volatile vapours have been identified as part of the ground investigation.

Title Reference & Description:

Geo-Environmental Assessment

Site being classified as CS2.



000 U.N.O)

BEAMS PLAN
SCALE 1:50

2x1 H8 26 U-BARS ES

4x1 H10 27 TRIMMER BARS B1&B2 ES

2x3 H10 25-100 U BARS ES

26

DETAIL-A
SCALE 1:20

8

SECTION 1-1
SCALE 1:20

50 COVER (TYP.)

800

24

06

24

50 COVER (TYP.)

400

07

24

24

1

TYPICAL PILE HEAD DETAILS
SCALE 1:20
(34 Nos Req'd)

875

875

400

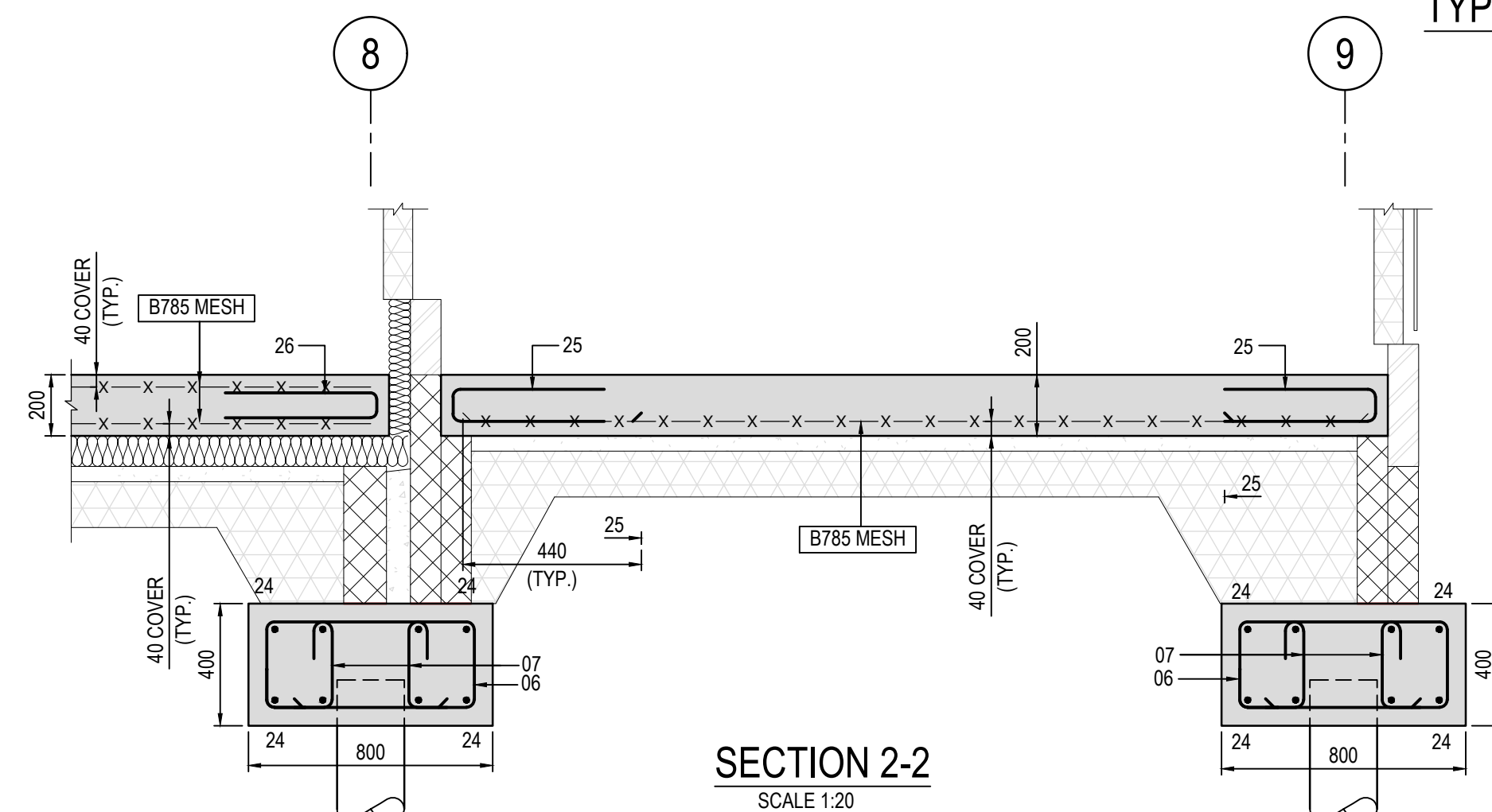
875

EMBEDMENT

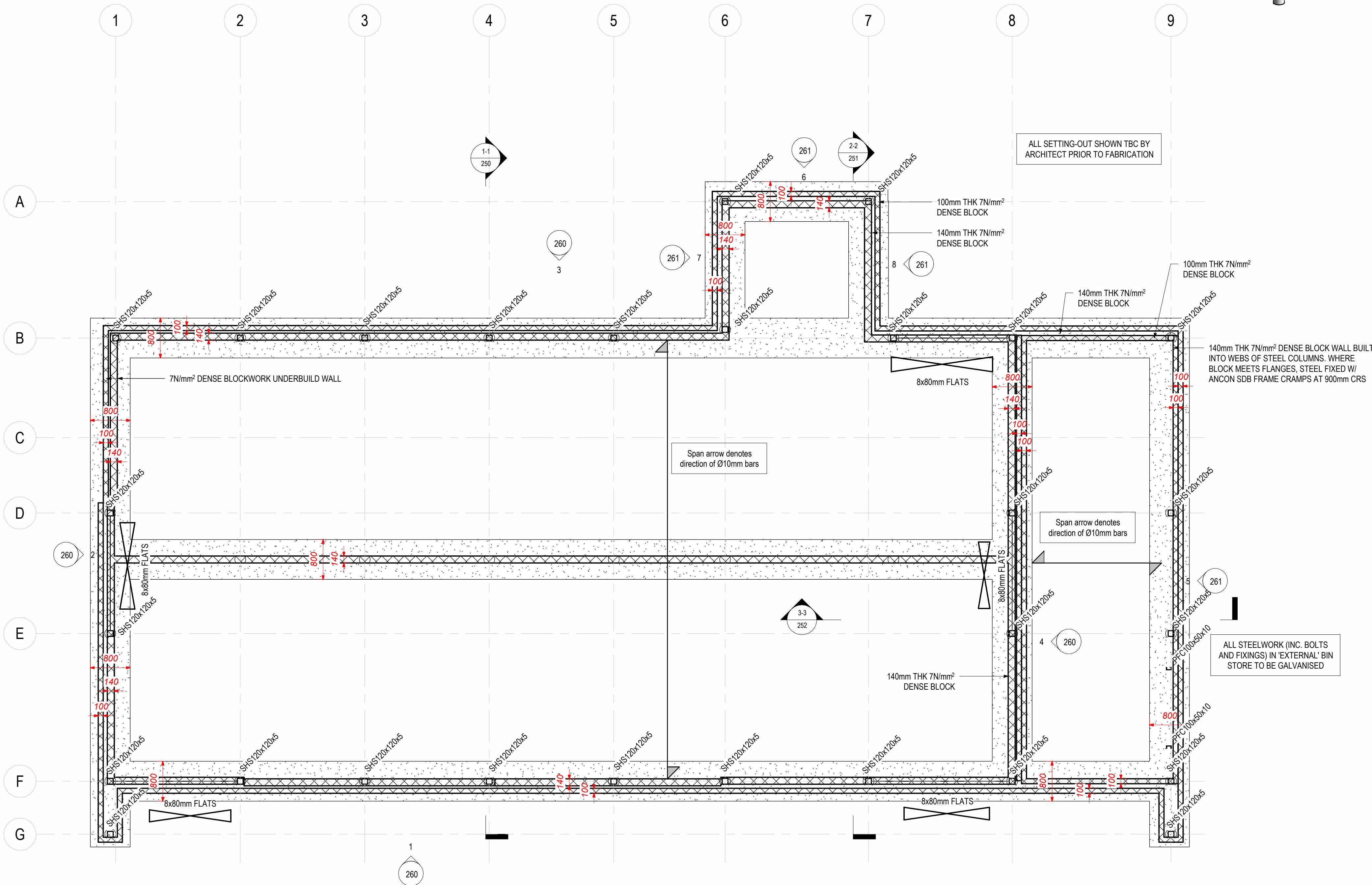
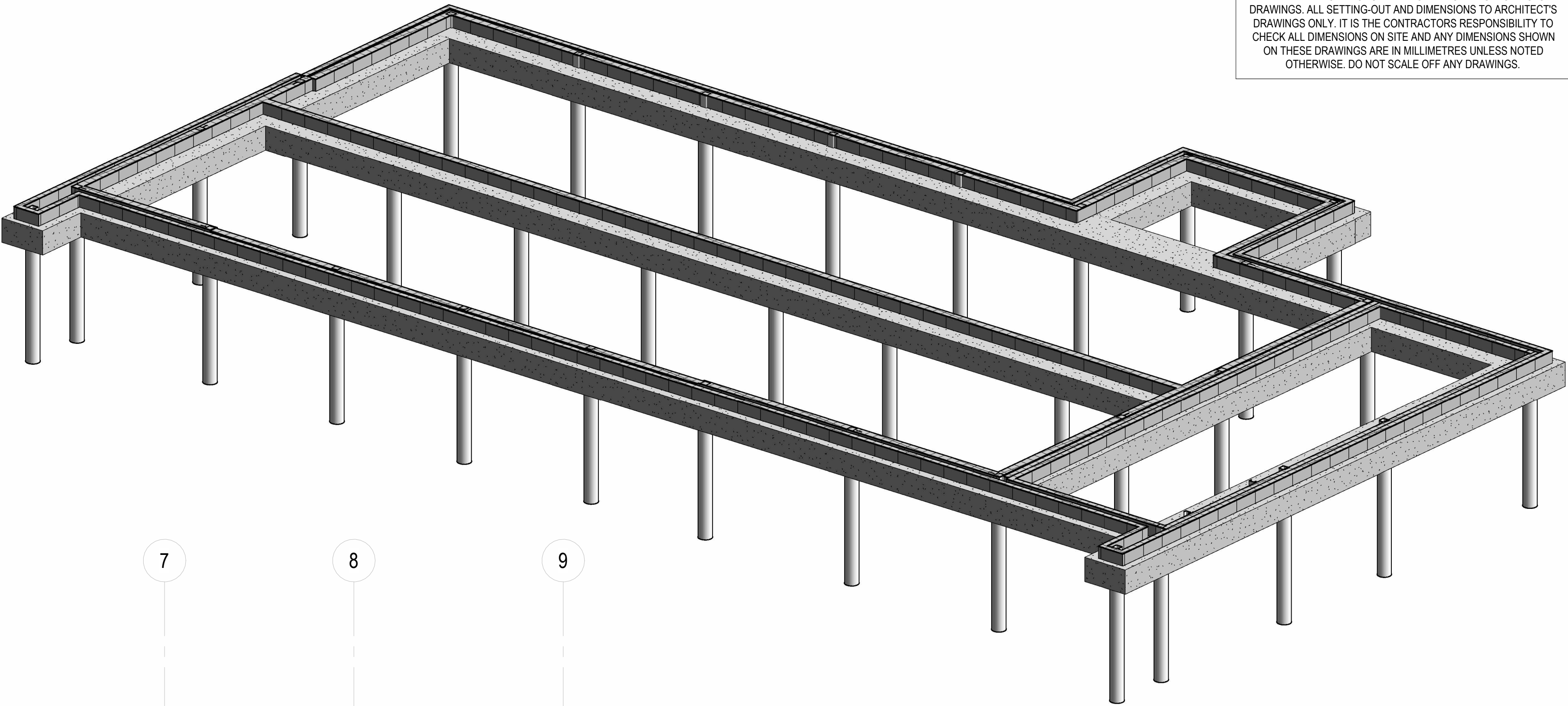
2x1 H12 18 DOWEL BARS

Ø220

9



ALL DRAWINGS SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEERS AND SPECIALISTS DRAWINGS. ALL SETTING-OUT AND DIMENSIONS TO ARCHITECT'S DRAWINGS ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK ALL DIMENSIONS ON SITE AND ANY DIMENSIONS SHOWN ON THESE DRAWINGS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. DO NOT SCALE OFF ANY DRAWINGS.



STARBUCKS EMEA SPECIFICATION NOTE

ALL DRAWINGS SHOULD BE READ IN CONJUNCTION WITH STARBUCKS DOCUMENTS 'STARBUCKS UK EMEA DRIVE THRU CAFE SPECIFICATION Rev07' & 'STARBUCKS DESIGN DOCUMENT DT-DD-REV2'. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND STARBUCKS SPECIFICATIONS THAT COULD AFFECT COSTING SHOULD BE RAISED AT TENDER STAGE FOR CLARIFICATION

SUBSTRUCTURE LEGEND

- Denotes 800x400mm RC Ground beam. Grade C28/35, 4No. H16 bars top and 4No. H16 bars btm. H10 closed links @ MAX. 225mm centres, 50mm cover, along full length of ground beams.
- Pile to contractor design. Ground beam assumes Ø220mm steel driven piles @ MAX. centres of 3.0m. Contractor to allow for piles to be driven to refusal.. Refer site investigation report for soil details & contractor to carry out any additional testing required for pile design by specialist. Piles to be centred on ground beams, refer to performance specification.
- Indicates 200mm Thick C28/35 Suspended concrete slab spanning between block on ground beams. B785 Mesh top and btm. 40mm cover. H8 U bars to perimeter of slab to suit mesh bar centres on 100mm thk insulation to architect's spec. (min. compressive strength 300kPa) on gas membrane to specialist contractor design & guarantee on 50mm sand blinding on min. 150mm type 1 hardcore

Gas Membrane

The gas barrier membrane is to be installed in accordance with the manufacturer's recommendations & specification. The installation of the gas barrier membrane is to be inspected by a qualified verifier during construction. Sand blinding, directly over the blanket, to provide a flat, smooth surface to receive the gas resistant DPC.

Foil backed gas barrier to be installed at solumn level. Membrane to have a minimum 0.15m lap at all joints and be fully taped with Visqueen foil backed girth jointing tape. Gas barrier to be fully welded with gas resistant DPC and carried over the cavity to the outer leaf. Airtight seals to be formed around all service entry points. Pre formed top hat units are to be used and fixed to membrane with double sided jointing tape.

Smaller service pipes (less than Ø50mm) can be accommodated by taping a lapped membrane piece around the pipe, then taping and securing with Visqueen tape or equal approved, and stainless steel jubilee clip. The overlap to be a minimum of 150mm and filled with sealant. Pipe location to be a minimum of 50mm away from the face of the wall.

A	18.12.24	TENDER	SF	AF
Rev	Date	Revision	By	Chk

Project
Starbucks, Rochdale

Drawing Title
Foundation Layout

TENDER

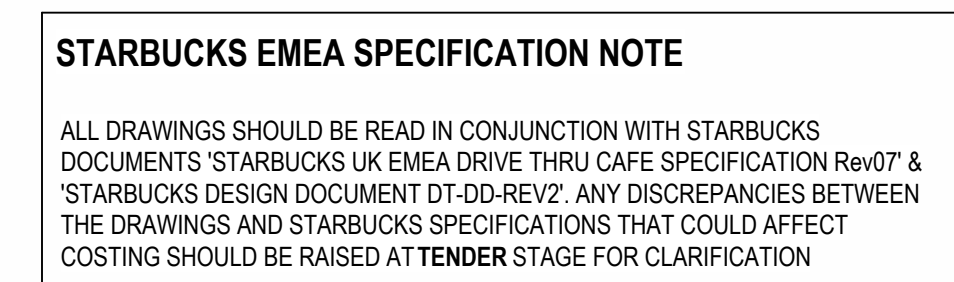
Drawn by	Checked by	Scale @ A1
SF	AF	1 : 50

Drawing no.	Revision
2301-16- 201	A

FOUNDATION LAYOUT

Scale - 1 : 50

ALL DRAWINGS SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEERS AND SPECIALISTS DRAWINGS. ALL SETTING-OUT AND DIMENSIONS TO ARCHITECT'S DRAWINGS ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL DIMENSIONS ON SITE AND ANY DIMENSIONS SHOWN ON THESE DRAWINGS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. DO NOT SCALE OFF ANY DRAWINGS.



Scale - 1 : 50

WWW.DESIGNENGINEERINGWORKSHOP.CO.UK



GP®5

GP®5 gas barrier is a multi-layer composite of virgin polyethylene (PE) giving exceptional resistance to the passage of ground gas and organic vapours. It also acts as a high performance DPM.

Thickness	0.4 mm
Width	Various m
Length	Various m
Weight	400 g/m ²

TITANTECH®

For developers of brownfield and contaminated sites the TITANTECH® family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

GP®5 is suitable for the following applications:

- Carbon dioxide and methane affected sites in accordance with BS 8485:2015 + A1:2019 & NHBC
- Radon affected sites in accordance with BRE211:2015
- Damp protection in accordance with Building Regulations Part C
- Low level VOC contaminated sites (site specific assessment required)

Handling

Roll weights can be in excess of 20kg and hence appropriate care and equipment is required for unloading and handling.

Installation

GP®5 should be installed in accordance with the product installation guidelines, and in accordance with BS 8485:2015.

Certifications



Please
Scan



Rev 2024



Feature	Characteristics	Test Method	GP [®] 5
Physical Properties	Thickness	EN 1849-2	0.4 mm
	Width	EN 1849-2	Various m
	Length	EN 1849-2	Various m
	Weight	EN 1849-2	400 g/m ²
Hydraulic Press	Resistance to Water Penetration	EN 1928 (A)	Pass
Mechanical Properties	Resistance to Static Load	EN 12730	> 20 kg
	Tensile Strength (MD)	EN 12311-2 (A)	> 300 N/50mm
	Tensile Strength (CMD)	EN 12311-2 (A)	> 300 N/50mm
	Resistance to Tearing (Nail Shank) MD	EN 12310-1	> 230 N
	Resistance to Tearing (Nail Shank) CMD	EN 12310-1	> 230 N
	Impact Resistance	EN 12691-B	500 mm
	Puncture Resistance	ASTM D 4833	> 160 N
	Puncture Resistance	EN 12236	1.60 kN
	Reaction to Fire	EN 13501-1	E
Vapour Permeability	Methane Permeability	BS EN ISO 15105-1	0.12 ml/m ² /day/atm
	Carbon Dioxide Permeability	BS EN ISO 15105-1	1.53 ml/m ² /day/atm
	Hydrogen Permeability	BS EN ISO 15105-1	68.7 ml/m ² /day/atm
	Benzene Permeability	BS EN ISO 15105-2	0.41 ml/m ² /day
	Oxygen Permeability	BS EN ISO 15105-2	<3 ml/m ² /day
	Radon Permeability	K124/02/95	1.0 x 10 ⁻¹² m ² /s
	Hydrogen Sulphide Permeability	BS EN ISO 15105-1	<0.68 ml/m ² /day/atm
Fuel Vapour Permeability	Petrol	BS EN ISO 15105-2	(ave.) 3.4 x 10 ⁻¹³ /mol/(m ² .s.Pa)
	Diesel	BS EN ISO 15105-2	(ave.) 3.4 x 10 ⁻¹³ /mol/(m ² .s.Pa)
Durability	Durability Watertightness After Artificial Ageing	EN 1928	Pass
	Durability Watertightness Against Chemicals	EN 1928	Pass
Compliance and Certification	CE Mark - EN 13967:2012		
	NHBC Standards Compliant		
	BS 8485:2015 + A1 2019 Accordant		

JUTA UK

Please contact JUTA UK Directly for more information on GP[®]5

Storage

Rolls of GP[®]5 should be stored on stable/level ground and stacked not more than five rolls high, with no other material stacked on top. The rolls can be stored outdoors when packaged, but should be protected from exposure to UV.



JUTA UK

Please contact JUTA
UK Directly for more
information on GP[®]5

Jointing and Sealing

It is recommended GP[®]5 can be heat welded where possible, with welding carried out by competent personnel with suitable qualifications in accordance with best practice, and guidance contained within BS 8485:2015. GP[®]5 should be overlapped by at least 100mm. If taping joints, only suitable tape must be used, ensuring application with a silicone roller to remove trapped air. JUTA pre-formed details, or self adhesive gas membrane are available for sealing around protuberances.

Accessory Products

- GP[®] DPC
- GP[®] Tape
- GP[®] Self Adhesive Membrane (SAM)
- GP[®] Primer
- GP[®] Top Hats and Preformed Corners
- GP[®] Protection Fleece
- GP[®] Void Vent (24/40mm)



GP® SAM

GP® SAM, gas protection self adhesive membrane, is a bituminous gas proof and water proof sheet, composed of self-adhesive SBS polymer modified bitumen incorporating GP® 1 with an upper surface finish of black reinforced LDPE, and a lower surface finish of siliconized release film. GP® SAM is used for the gas/waterproofing of underground structures where harmful ground gasses are anticipated, and as a self adhesive accessory to GP® 1.

Thickness	1.2 mm
Width	0.9 m or 0.3 m
Length	20 m
Weight	1100 g/m ²

TITANTECH®

For developers of brownfield and contaminated sites the TITANTECH® family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

Handling

Roll weights can be in excess of 20 kg (approx 33 kg/roll) and hence appropriate care and equipment is required for unloading and handling. This product is non-toxic nor flammable.

Storage

Rolls of GP® SAM should be stored on in a cool, dry place, and be protected from exposure to rain, sun, heat and cold temperatures prior to installation. Exposure to sunlight for extended period of time could cause difficulty with removal of the release film.





Feature	Characteristics	Test Method	GP® SAM
Physical Properties	Thickness	EN 1849-2	1.2 mm
	Width	EN 1849-2	0.9 or 0.3 m
	Length	EN 1849-2	20 m
	Weight	EN 1849-2	1100 g/m²
Hydraulic Press	Water Tightness	EN 1928	Pass
	Water Vapour Transmission	EN 1931	0.013 g/m²/day
Mechanical Properties	Tensile Strength (MD/CMD)	EN 12311-2 (A)	500 N/50mm
	Elongation (MD/CMD)	EN 12311-2 (A)	> 12 %
	Resistance to Static Load	EN 12370	20 kg
	Joint Strength	EN 12317-2	> 30 N
	Durability and Water Tightness (Ageing and Chemicals) 60 kPa	EN 1847	Pass
	Resistance to Nail Tear (MD/CMD)	EN 12310-1	> 300 N
	Resistance to Fire	EN 13501	F Euro Class
Gas Permeability	Methane Permeability	EN ISO 15105-1	< 0.68 ml/m²/day/atm
	Carbon Dioxide Permeability	EN ISO 15105-1	< 2.81 ml/m²/day/atm
	Radon Permeability	K124/02/95	8.0 x 10 ⁻¹⁵ m²/S
Compliance and Certification	CE Mark - EN13967:2012 + A1:2017 Type (A/T)		
	BS 8485:2015 Compliant (Methane and Carbon Dioxide Barrier)		

JUTA UK

Please contact JUTA UK Directly for more information on GP® SAM

Installation

GP® SAM should be installed in accordance with the product installation guidelines, and in accordance with BS 8485:2015, and/or BS 8102:2009.

It is recommended that GP® SAM is not applied in temperatures below 10°C, in colder weather the material can be warmed slightly to aid adhesion.

Accessory Products

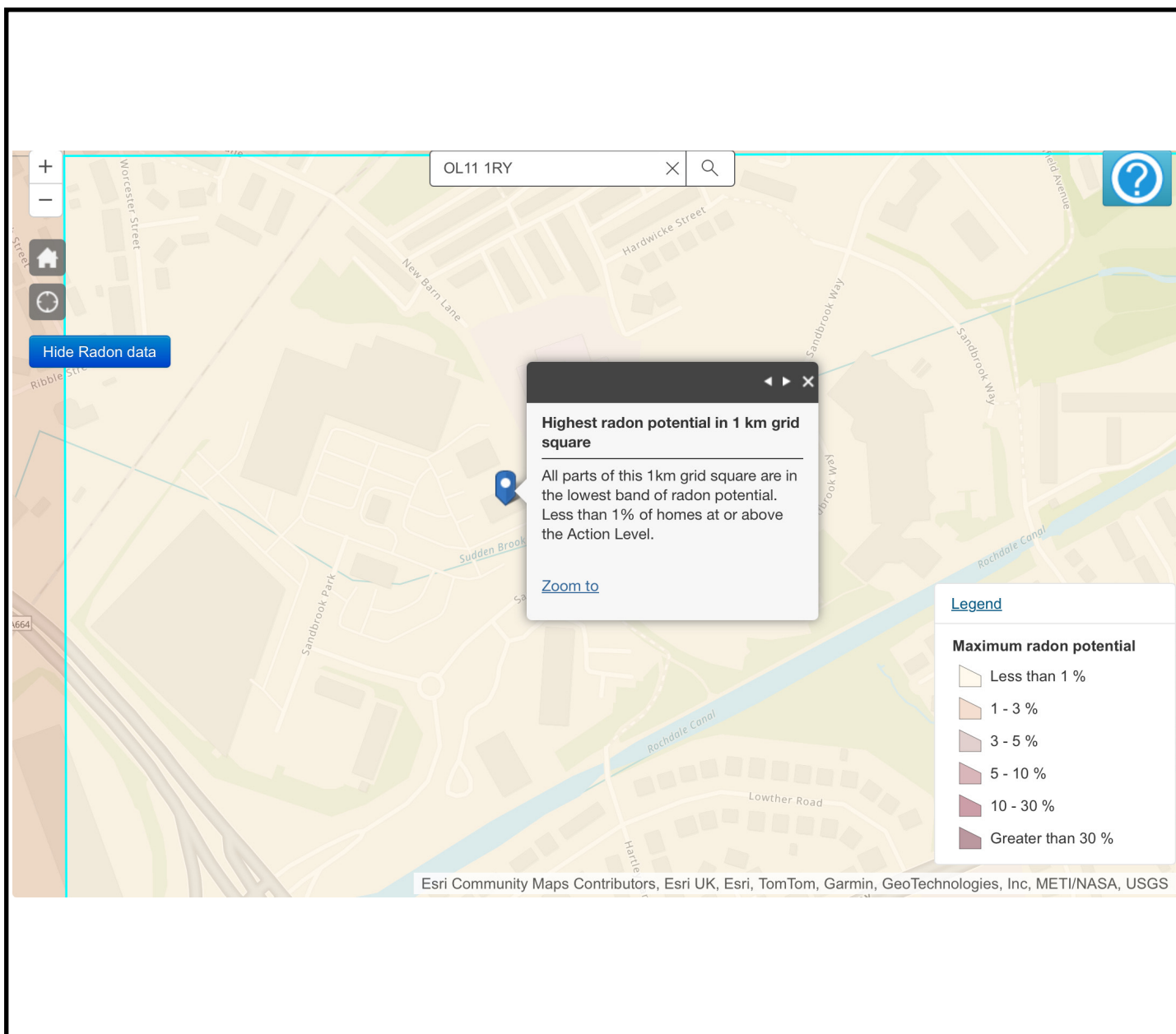
- GP® Primer
- GP® Protection Board
- GP® Protection Fleece



GeoShield Verification Plan



RADON MAPS UK - (Map 1) Site Location



Maximum Radon Potential:

Less than 1%

Description:

No radon protection measures are required.

Postcode:

OL11 1RY



GeoShield Verification Plan



CLIENT DETAILS

CLIENT CONTACT:	Kevan Shotter
CONTACTS ROLE:	
MOBILE PHONE:	07788239446
EMAIL ADDRESS:	Kevan@ukmembranes.co.uk



CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	



GeoShield Verification Plan



APPLICATOR'S DETAILS

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES:



GeoShield Verification Plan



APPLICATOR'S DETAILS

TRAINING LEVEL:

SPECIALIST CONTRACTOR:	YES	☒	NO	☐
NVQ LEVEL 2:	YES	☒	NO	☐
NVQ LEVEL 4:	YES	☐	NO	☒
COMPETENT APPLICATOR :	YES	☒	NO	☐

REASON FOR VISIT:

DURING INSTALLATION:	☒	UNDERSLAB VENTILATION	☐
PRE - POUR:	☒	DPC MEMBRANE CONNECTION	☐
TESTING:	☒	OTHER (PLEASE SPECIFY):	☐

NOTES: See method statement for breakdown of site visits.

NOTES: Having worked with UKM on numerous successful projects these applicators will be deemed to be at an appropriate skill level for the job of installing the ground gas protection measures.



GeoShield Verification Plan



In accordance with guidance from
CIRIA 735 & CIRIA C748.

Radon gas protection measures
specify to the guidance from the
BR 211 document:

VOC/Hydrocarbons

☐

RADON BASIC

☐

RADON FULL

☐

Characteristic Specification (CS) Rating

CS 2

Building Type:

TYPE C

POINTS REQUIRED UNDER BS8485:2019

2.5 POINTS

POINTS GAINED FROM BS8485:2019

Score for Structural Barrier:

1.5 POINTS

Grade 2 Basement:

N/A

Grade 3 Basement:

N/A

Score for Venting:

N/A

Car Park:

N/A

Score for Membrane:

2.0 POINTS

POINTS ACHIEVED UNDER BS8485 2019:

3.5 POINTS



GeoShield Verification Plan



TESTING

- VISUAL: PICK & PROBE/MECHANICAL POINT STRESS TEST: ☒
- NON-DESTRUCTIVE COMPRESSED AIR LANCE TEST: ☒
- NON-DESTRUCTIVE SMOKE TEST: ☐
- DESTRUCTIVE JOINT TESTING: ☐
- NON-DESTRUCTIVE TRACER GAS TESTING: ☐
- DIELECTRIC POROSITY TEST: ☐
- PUMP TEST FOR "Twinny" WELD ☐

NOTES: From the risk assessment GeoShield will initially conduct a visual

NOTES: and pick and probe testing regime for this project.

NOTES: Air lance testing will be conducted to test the installed membrane in

NOTES: accordance with CIRIA 735.

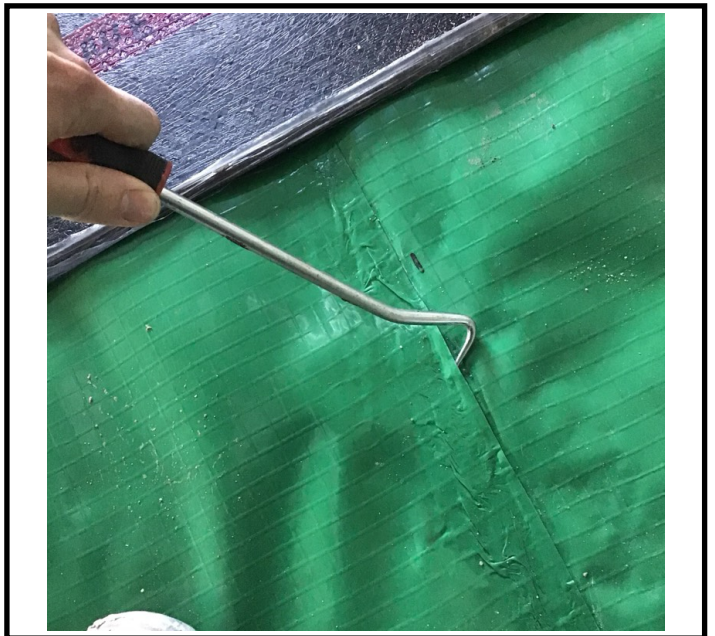
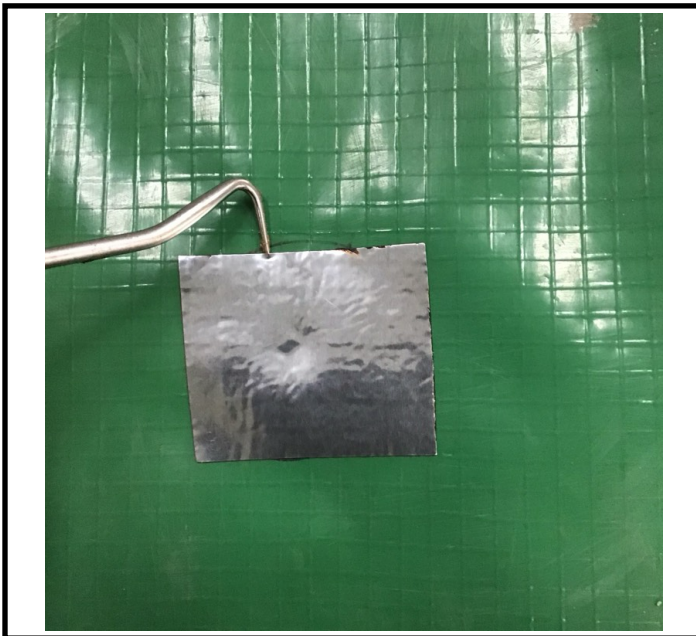
NOTES:

NOTES: Only if the application falls below the accepted standard will other testing

NOTES: be used.

SPECIFICATION

Mechanical Point Stress/ 'Pick and Probe' Testing



CIRIA 735

4.3.2 - Mechanical point stress tests involve running a blunt instrument (e.g. a screwdriver) along the edge of a seam to identify any unbonded seams. This method is not as effective as air lancing but it can be especially useful in hard to reach areas where it is not possible to air lance.

The instrument used should not puncture the gas membrane. This method is less appropriate for materials that are easily punctured where an air lance test is more suitable (although if a gas membrane can be easily punctured its suitability as a membrane is open to question).

SPECIFICATION

Air Lance Testing



CIRIA 735

4.3.3 - Air lance testing identifies unbonded areas of seam by directing a high pressure jet of air at the seam. The air is at a minimum pressure of 345kPa via a 4.8mm nozzle and is located no more than 50mm from the seam being tested.

In order to achieve the requirements of ASTM D4437-08:2013 bespoke specialist equipment is required to maintain the required pressure.



GeoShield Verification Plan



RISK ASSESSMENT

SITE SPECIFIC CIRCUMSTANCES	1	2	3	4	5
Complexity of Design	1	2 ✓	3	4	5
Repetition of design	1 ✓	2	3	4	5
Experience of workforce	1 ✓	2	3	4	5
Gas regime	1	2 ✓	3	4	5
Project management experience	1	2 ✓	3	4	5
Installation conditions (exposed?)	1	2 ✓	3	4	5
Robust Project specific gas design	1 ✓	2	3	4	5

TYPE OF RISK	RANGE	RISK
High Risk	23 - 30	
Medium High Risk	19 - 22	
Medium Risk	15 - 18	18
Medium Low Risk	11 - 14	
Low Risk	0 - 10	

GeoShield have classed this project as a medium risk.

GeoShield will lay all perimeters down for standards at the pre-verification meeting to assist both the installer and the main contractor.



GeoShield Verification Plan



VERIFICATION REPORT

These items will be included in the report

- NUMBER 1 GAS MEMBRANE SPECIFICATION
- NUMBER 2 ELEMENTS OF THE GAS MEMBRANE
- NUMBER 3 DATE, TIME and WEATHER CONDITIONS
- NUMBER 4 PLANS and DETAILS ISSUED
- NUMBER 5 INSTALLATION PHOTO's RELATING TO GRID LINES
- NUMBER 6 REPORTING DEFECTS AND LOGGING IN REMEDIATION LOG
- NUMBER 7 AREAS OF LIMITATION (areas unable to inspect)
- NUMBER 8 LOGGING AND REPORTING RESULTS OF TESTING

VERIFICATION REPORT ISSUE

HARD COPY:	☐ YES	☒	☐ NO	☐	EMAIL:	☐ YES	☒	☐ NO	☐
DROP BOX LINK:	☐ YES	☒	☐ NO	☐	FLASH DRIVE:	☐ YES	☐	☐ NO	☒



GeoShield Verification Plan



GEOSHIELD COMPETENCE

>GeoShield was founded in 2015

>GeoShield solely verifies, they are fully independent of installers, manufacturers and geotechnical companies.

>GeoShield follow guidance in CIRIA 735 (sufficient experience, membership of relevant professional organisations) GeoShield are members of the BVC, BGA, ERA The RADON Council, and UKRA

>Currently GeoShield hold the Chairmanship of the British Verification Council

>Two employees are NSAC Level 3 assessors for the NVQ 2 Gas Membrane install

>GeoShield were key in forming the NVQ 4 Verification qualification in which 2 Verification officers are undertaking this qualification

>GeoShield have the only qualified assessor for the NVQ 4 Verification qualification

>GeoShield Verification officers currently keep up to date CPD's

>All GeoShield Verification Officers have a full understanding of gas membrane install including 3 experienced (NVQ 2) installers in the GeoShield team

>GeoShield Verification Officers are all independent carrying there own air compressors. Other testing equipment GeoShield have access to are 2 x Buckley Dielectric Testing machines and also inert gas testing equipment



GeoShield Verification Plan



METHOD STATEMENT - Page 1

EXPECTED VISITS:- 1 site visit is deemed necessary for verification, however extra visits may be considered for potential remediations before sign off.

TESTING:- Mechanical Point Stress (Pick & Probe) testing on welded/Taped areas. Air lance testing will be conducted where access allows for use of equipment. Only if the application falls below the accepted standard will other testing be used. This project will NOT achieve sign off for gas membrane installation unless independent verification is carried out.

PURPOSE:- Geoshield are 3rd party gas membrane verifiers in accordance with CIRIA 735 and for this project to be compliant with BS8485:2019, the gas system must meet certain criteria from Tables 5, 6 & 7 to achieve mitigation of score for verification. The chosen membrane must be verified by Geoshield to ensure the materials have been installed in accordance with the manufacturer's specification.

REPORTING:- Each site visit be accompanied with a written and electronic report. Any remediations either completed on the visit or outstanding will be recorded and logged, sign off will not be achieved for each section area until all remediations has been completed. This will be fully recorded at all times.



GeoShield Verification Plan



METHOD STATEMENT - Page 2

GROUND GAS RISK:- From Geo-Environmental Assessment

this project has been classified as a Type C building and a CS2 rating in accordance with BS8485:2015+A1 2019, so this project will require a minimum score of 2.5 points for mitigation.

This will be achieved by 3rd party verification of the Gas protection membrane a suspended, reinforced ground floor slab, where applicable to the site specific design. A combination of which will achieve the necessary requirements

GAS MEMBRANE PROTECTION:- It is advised that the substrate should be prepared by removal of loose stone and debris. Other forms of protection could be in the form of either a protection board, geotextile fleece and insulation. In addition labels will be issued by Geoshield to restrict access to the installed area by follow on trades and help raise awareness to encourage a better duty of care. This will help to reduce the risk of potential damage caused to the gas membrane system.

FINAL:- Geoshield will liaise with the projects site supervision and all relevant parties prior to the installation start. This plan will be presented and reviewed, all points made clear as previously stated. Any alterations will be listed at the end of this plan as an all party agreed way forward.



GeoShield Verification Plan



VERIFICATION PLAN

METHOD STATEMENT

VERIFICATION STRATEGY:

Percentage Strategy: 1st 10 Plots (100%), 11-50 Plots (1:5) & 51 or > (1:10) ☐

Percentage Strategy: 100% Verification for VOC/Hydrocarbons ☐

Verification Percentage on site: Not Specified ☐

Remarks:

It is recommended that the installers are present at the time of testing so any

remediations can be rectified. If remediations are not rectified the nature of the fault

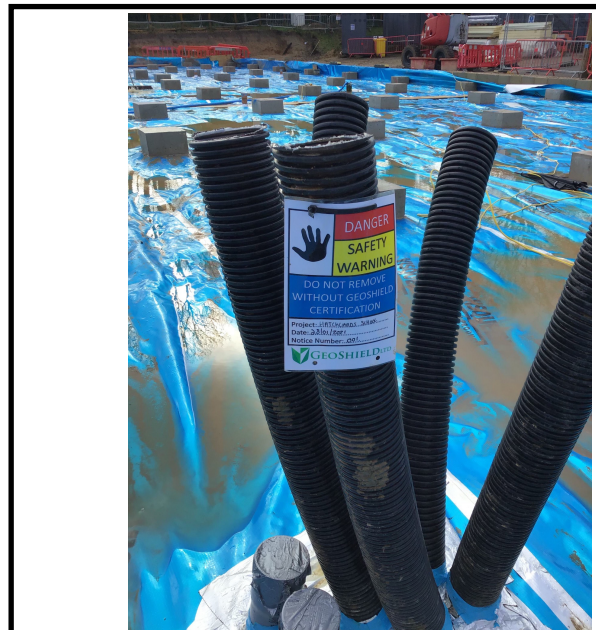
found will determine whether or not extra visits are required to test remediations.

Protection Type:- Protection Board ☐ Protection Fleece ☐

Insulation ☐ Remarks: Not specified

TESTING PROCEDURE

Method Statement - Pipe Penetrations and Service Entries Notice Signs



Geoshield Notice Signs -

During testing on site, notice signs will be tied to all pipe penetrations and a service entries which have not passed inspection.

Areas cannot be passed unless verification stickers have been applied to the Notice Signs, once remediations have been successfully carried out.



GeoShield Verification Plan



TESTING PROCEDURE

Method Statement - Membrane Sticker Notice Signs



Geoshield Notice Signs -

During testing on site, areas cannot be passed unless verification stickers have been applied, once remediations have been successfully carried out.



GeoShield Verification Plan



SUBSTRATE METHOD STATEMENT

SUBSTRATE TYPE:

Block and Beam Construction	Yes	☐	No	☒
-----------------------------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	Swept Clear	Yes	☐	No	☒
---------------------	-------------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	Vacuuming	Yes	☐	No	☒
---------------------	-----------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	Compressed air to remove	Yes	☐	No	☒
---------------------	--------------------------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	Remove Mortar Droppings	Yes	☐	No	☒
---------------------	-------------------------	-----	--------------------------	----	-------------------------------------

Stone Substrate	Yes	☒	No	☐
-----------------	-----	-------------------------------------	----	--------------------------

Minimum Preparation	Minimum 25mm Sand Blinding	Yes	☐	No	☒
---------------------	----------------------------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	Limestone Dust	Yes	☐	No	☒
---------------------	----------------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	Compacted Substrate	Yes	☒	No	☐
---------------------	---------------------	-----	-------------------------------------	----	--------------------------

Minimum Preparation	No large stones	Yes	☒	No	☐
---------------------	-----------------	-----	-------------------------------------	----	--------------------------

Concrete Substrate	Yes	☐	No	☒
--------------------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	No Hollows	Yes	☐	No	☒
---------------------	------------	-----	--------------------------	----	-------------------------------------

Minimum Preparation	Troweled Surface	Yes	☐	No	☒
---------------------	------------------	-----	--------------------------	----	-------------------------------------

Remarks:	
----------	--

--

--



GeoShield Verification Plan



PRE-CONTRACT MEETING

Items for discussion at the Pre-Contract meeting	☐
>Induction Procedure	☐
>Identification of installation team and point of contact	☐
>Identification of Project management team	☐
>Identification of Sub-Contractors associated with membrane installation	☐
>Validation of Membrane and design specification	☐
>Verification procedure	☐
>Notifications for Verification	☐
>Preparation of substrate	☐
>Program of works	☐
>Utility entry	☐
>Protection of Membrane	☐
>Remediation Procedure	☐
>Testing Procedures	☐
>Sign off Procedure	☐
>Installer PI	☐

All information is assumed correct at time of issue.

DATE:	
-------	--



GeoShield Verification Plan



PRE-CONTRACT MEETING SUMMARY

As discussed in this Pre Verification Plan, the installation and verification of the Juta products. All details and drawings in this verification plan have been discussed so now the installers must run through how they will install the Juta products. The indented method and manufacturers specification have been discussed in relation to the details provided for the project. Methods for preparation before installation have been laid out so the workers are made aware of the standards required to gain consent from the local authorities in order to satisfy and discharge planning consent. In addition to this aftercare of the Juta products such as the Juta GP SAM, Juta GP5 Gas barrier during, after installation, and after verification.

Finally GeoShield have discussed the site visits that are required and what testing and verification will be carried out to the highest standard and verification principles associated with CIRIA 735 and BS8485:2015 +A1 2019.



GeoShield Verification Plan



PRE-CONTRACT MEETING SUMMARY

A pro-forma quality assurance document will be discussed during the Pre-Verification meeting and training undertaken with the management team for non verified areas.

The Pre-Verification meeting will be led by Geoshield and should include all relevant parties who have an impact on the installation and future protection. Geoshield will provide guidance and strategy for all parties.

The site specific checklist will be covered as well as the risk assessment.

This site has been classified as a CS2

Any design alterations will be discussed and included in a revised Pre-Verification Plan.

Any specification changes must also be included in a revised Pre-Verification Plan.

All items will be minuted by the Geoshield representative.

This Pre-Verification plan follows all current guidance and the aim is to make all parties aware of the ramifications of poor installation and their responsibilities if they damage the membrane.

