



GeoShield Verification Plan



PROJECT DESCRIPTION

GEO103983 Rev.B

Fair Oak & Horton Heath Parish Council,
Foundation Community Cafe,
Shorts Road,
Fair Oak,
SO50 7EJ

The proposed development for which gas protection measures are required involves a single storey community café and servery, with kitchen, stores, WCs, and a meeting room.

In accordance with BS8485:2015 + A1 2019, the Type C building must conform to a Characteristic Specification (CS) rating of 3, so mitigation will need to be a minimum of 3.0 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 (2.0 points), the structural barrier of a reinforced cast insitu monolithic raft slab with minimal penetrations (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 relevance 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



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GeoShield Verification Plan



GEO103983

Foundation Community Cafe

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Shorts Road, Fair Oak,

SO50 7EJ

Verified in accordance CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions.

JUTA GP1 Gas Membrane

JUTA GP SAM



GeoShield Verification Plan



NAME OF SURVEYOR:

Paul Colbeck

VERIFICATION COMPANY:

GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER:



EMAIL ADDRESS:

pcolbeck@geoshield.co.uk

ORDER NUMBER:

To be confirmed

PER VISIT:

YES:

☐

NO:

☐

PROJECT:

YES:

☐

NO:

☐



GeoShield Verification Plan



INFORMATION INCLUDED

Remediation Method Statement - Condition 3 4 July 2023 v4 (5 pages)

22365-301P~SECTION & DETAILS

A21-Com-P-101C

Geoshield Ground Gas Design Details

Material Specification Technical Data Sheets

Radon Maps UK - (Map 1) Site Location

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



SPECIFICATION

Remediation Method Statement

For

**Construction of a Single Storey Community Café Building
following demolition of existing Scout Hut**



South Elevation



North Elevation



East Elevation



West Elevation

Dated:
Reference No.:
Client:
Planning Application:

August 2023
B22 – FAIR OAK CAFÉ v4.0
Fair Oak & Horton Heath Parish Council
F/21/91251

Title Reference & Description:

Remediation Method Statement - Condition 3 4 July 2023 v4

SPECIFICATION

8.0 Characteristic Gas Situation (CS)

When considering the results of the site tests set out in the soil investigation report against Table 2 of BS 8485:2015+A1:2019, the Site Characteristic GSV was <0.4 which would indicate the site could be considered within CS2 (Low), which has an upper limit of 0.7L/h GSV. Following initial discussions with the Local Authority Contaminated Land Officer however, regarding the extent and location of the samples taken on the site (limited by an existing structure), a decision was taken to design to a CS of 3 (Moderate) to ensure that gas protection measures were sufficiently robust and essentially over-specified.

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9.0 Building Type Categorization

The construction and use of the building, together with the control of future structural changes to the building and its maintenance (the building's management) has been assessed against Table 3 of BS 8485:2015+A1:2019. From this we have determined that the building falls into categorization **Type C**. This is defined in the standard as:

Type C building: commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas. Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).

The Parish Council will own the property and it will remain in control of the building's maintenance and repair, including the external grounds. The occupancy by the café operator will be on a single occupancy basis. As can be seen from the scheme proposals, the internal spaces are clearly defined whereby the commercial kitchen will have a bespoke commercial extraction / ventilation system supplemented by opening windows and doors. WC areas and the kitchen store will be mechanically ventilated. The main public rooms and entrance hallway are served by a range of opening windows and doors which will all incorporate permanent passive ventilation when security of the building is required.

10.0 Gas Protection Score

Taking the above into consideration and following the measures set out in BS 8485:2015+A1:2019, the minimum level of gas protection (score) has been considered against Table 4 based upon the CS of 3, and the buildings categorization as a Type C Building (medium risk). From Table 4 the minimum gas protection score to be achieved is 3.

In order to demonstrate achieving the minimum gas protection score, the designer has followed the evaluative design process set out in BS 8485:2015+A1:2019 section 7.2 – Selection of appropriate gas protection measures, where relevant applying the structural design requirements of the building based upon the local ground conditions and following the recommendations of the Structural Engineer.

Title Reference & Description:

Remediation Method Statement - Condition 3 4 July 2023 v4

The site has been classified as a CS3 gas regime rating for a Type C Building so a minimum of 3.0 points is required.

SPECIFICATION

10.2 Gas Membrane – Selection / Specification

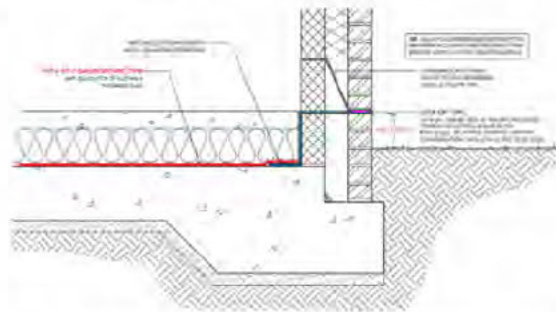
The proposed design incorporates a gas membrane in accordance with the criteria set out in Table 7 of BS 8485:2015+A1:2019, in terms of the following criteria:

- The specified membrane will have methane gas transmission rate <40.0 ml/day/m²/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1:2007 manometric method)
- The membrane will be positioned above the slab and therefore should have a minimum mass per unit area of 370g/m² and not less than 0.4mm thickness cover between the reinforcement scrim when tested in accordance with Procedure D of BS EN ISO 9863-1:2016.

Based on the above criteria, the product selected is the Juta / Titantech 'GP1' membrane, a multi-layer, low density polyethylene membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil. The product has been specifically designed and manufactured to perform as a methane, carbon dioxide, radon, ground gas, air & moisture protection system.

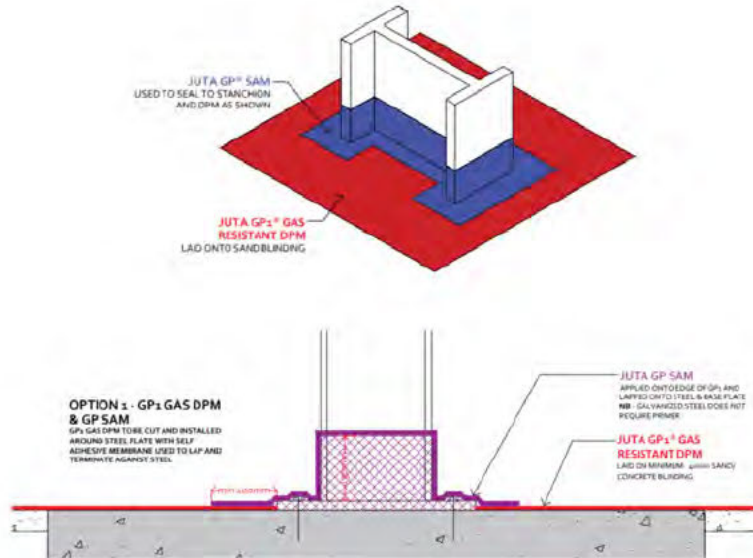
The membrane installation shall be installed by a competent person, in accordance with the manufacturer's instructions.

The manufacturer has a library of standard construction details which are relevant to the proposed application. These include the following:

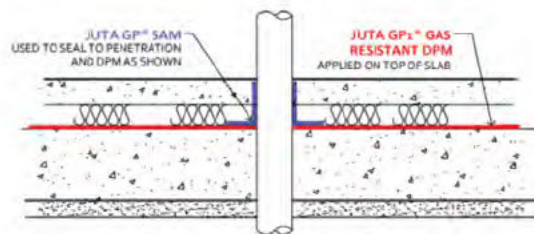


Standard perimeter detail / toe of raft (where membrane above slab) (Source: Juta website)

SPECIFICATION



Details x2 showing membrane at base of steel stanchion using self-adhesive product to dress around the base of the steelwork (Source: Juta website)



PIPE PENETRATION WITH SELF ADHESIVE GAS MEMBRANE

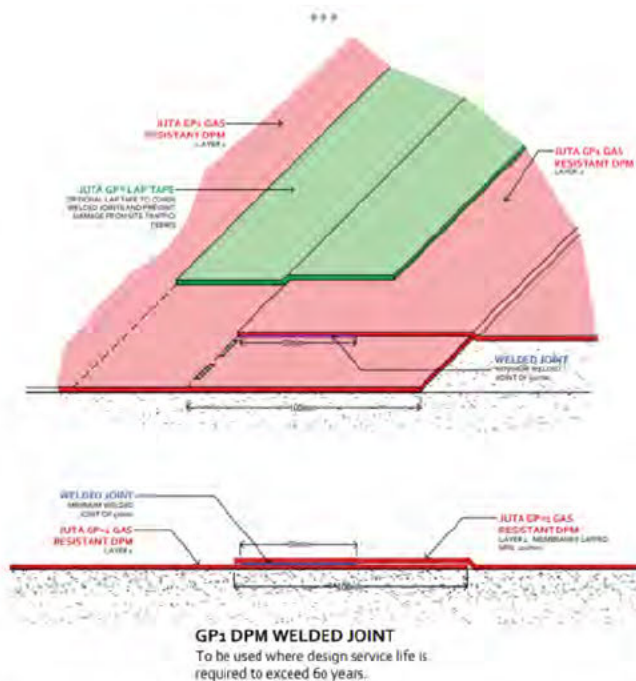
Detail of pipe penetration through the slab (soil vent pipe only) using self-adhesive product to dress around the pipe prior to insulating and screeding (Source: Juta website)

Title Reference & Description:

Remediation Method Statement - Condition 3 4 July 2023 v4

10.2 Gas Protection - Section/Specification Page 6

SPECIFICATION



Typical joint welding detail for the GP1 membrane product (Source: Juta website)

A copy of the manufacturer's product data sheet is appended to this report. From this it can be clearly seen that:

- The membrane's stated methane gas transmission rate < 0.09 ml/day/m²/atm when tested in accordance with BS EN ISO 15105-1
- The product has a thickness between scrim of 0.4mm according to test method BS EN ISO 9863-1:2016
- The product weight is 370g/m² when tested in accordance with EN 1849-2

On this basis, the selected product achieves a **gas protection score of 2** when assessed against Table 7 of BS 8485:2015+A1:2019.

The performance characteristics of the membrane can be found in the manufacturer's product data sheet. It should be appreciated that the membrane will be laid above the slab barrier which in turn sits over a vented gas dispersal layer. Therefore, it will not be in direct contact with the ground or any ground-borne contaminant.

10.3 Gas Membrane Testing

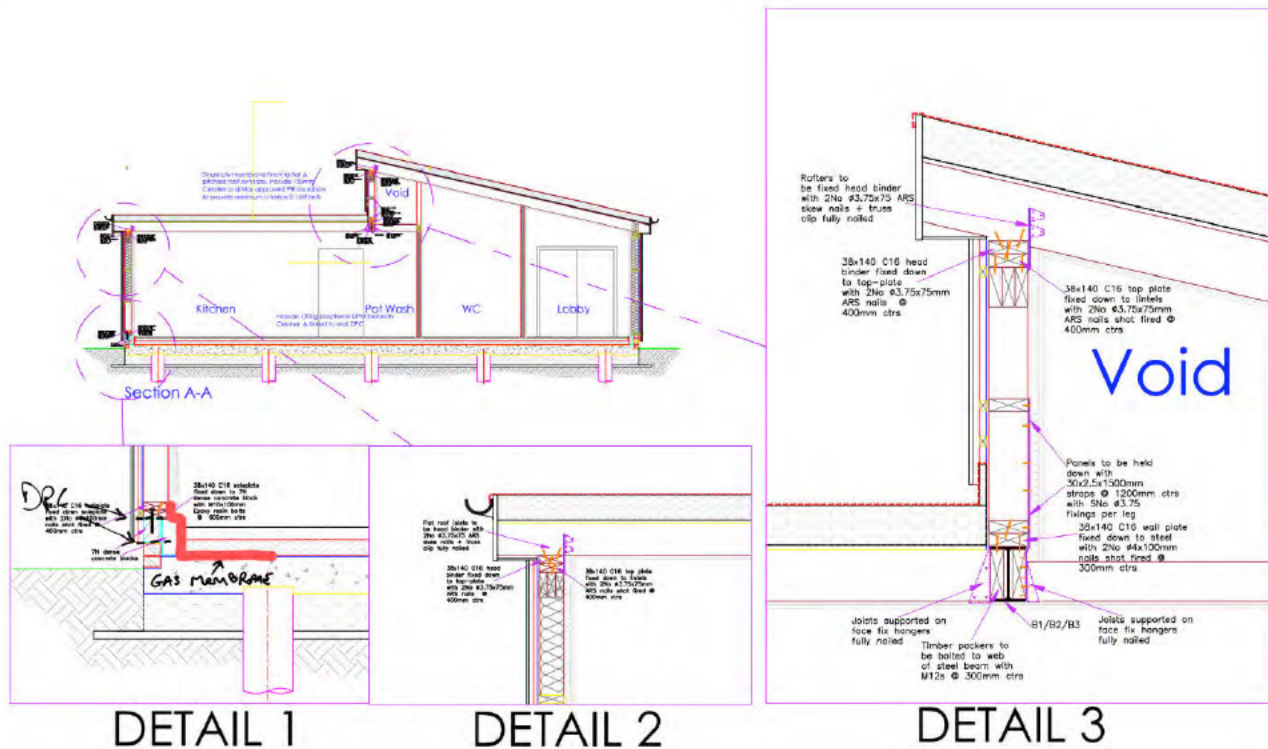
Upon installation the gas membrane will be subject to independent gas membrane integrity testing and verification, in accordance with BS 8485:2015 operating alongside the CIRIA 735 code of practice.

Title Reference & Description:

Remediation Method Statement - Condition 3 4 July 2023 v4

10.2 Gas Protection - Section/Specification Page 7

SPECIFICATION



Title: PROPOSED SECTION & DETAILS

Job No: 22365	Job: Fair Oak Community Cafe		
Date: May'23	Drawn: TA	Checked: BPW	Scale: 1:75(A3)
Dwg No: 22365/301P	Status: FOR APPROVAL	Rev -	

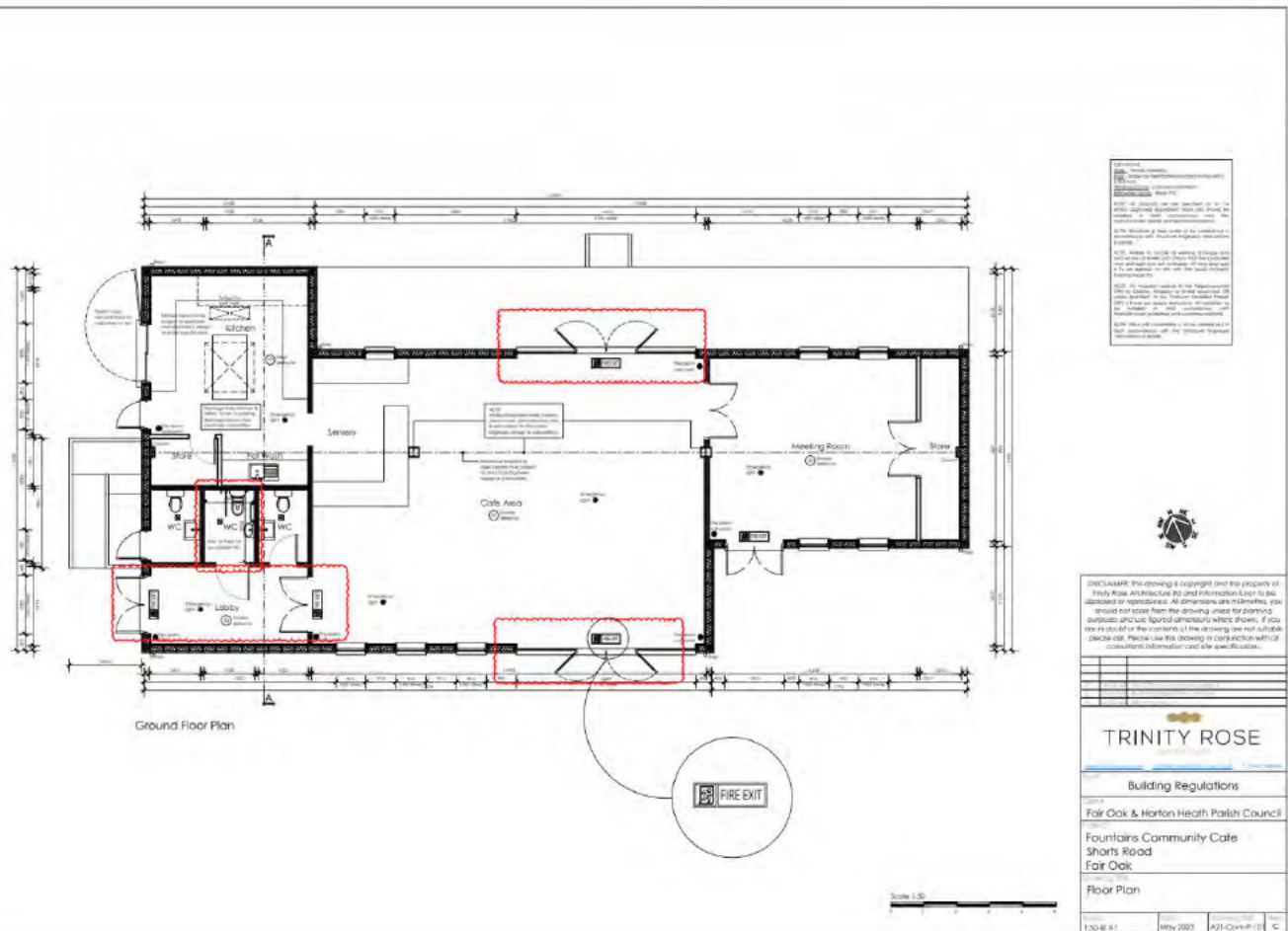
Wedeman
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Civil & Structural Engineers

Botley Mills
Mill Hill
Botley
Southampton
Hampshire
SO30 2GB
Tel: 01489 255534
info@wedemanconsulting.co.uk
www.wedemanconsulting.co.uk

Title Reference & Description:

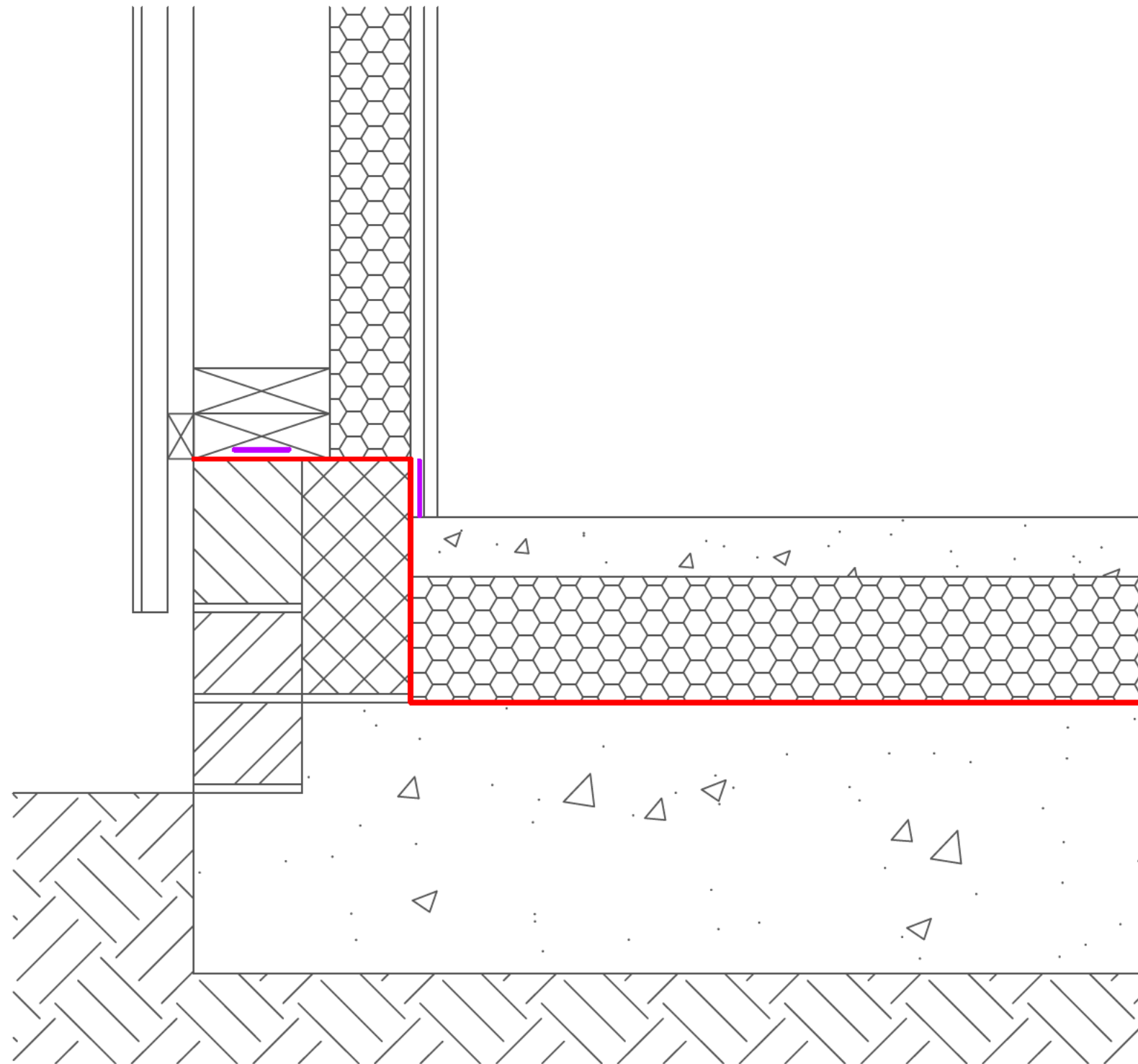
22365-301P~SECTION & DETAILS

SPECIFICATION



Title Reference & Description:

A21-Com-P-101C



CLIENT

Vision D&B Limited

PROJECT

Shorts Road, Fair Oak



GEOSHIELD

NOTES

- Juta GP1 installed as per manufacturers guidance
- All corners and penetrations to be sealed with Juta GP SAM

- Key

- Juta GP1
- Juta GP SAM
- Butyl Tape

DRAWING TITLE

Typical Perimeter Detail

DRAWING NUMBER

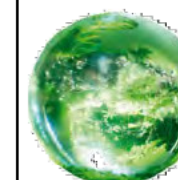
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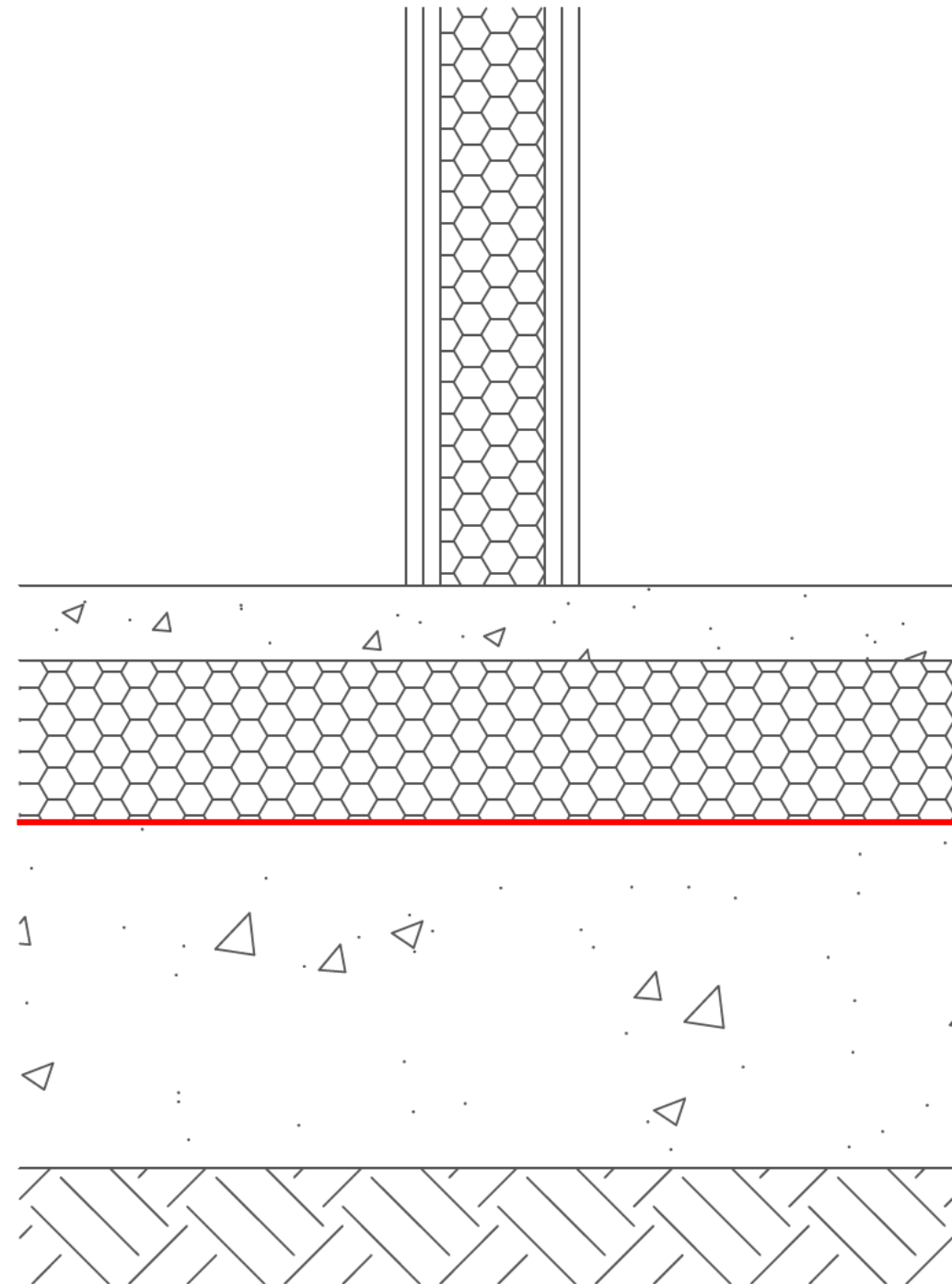
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DATE
14/08/23



GeoShield
4100 Park Approach
Leeds
LS15 8GB
United Kingdom

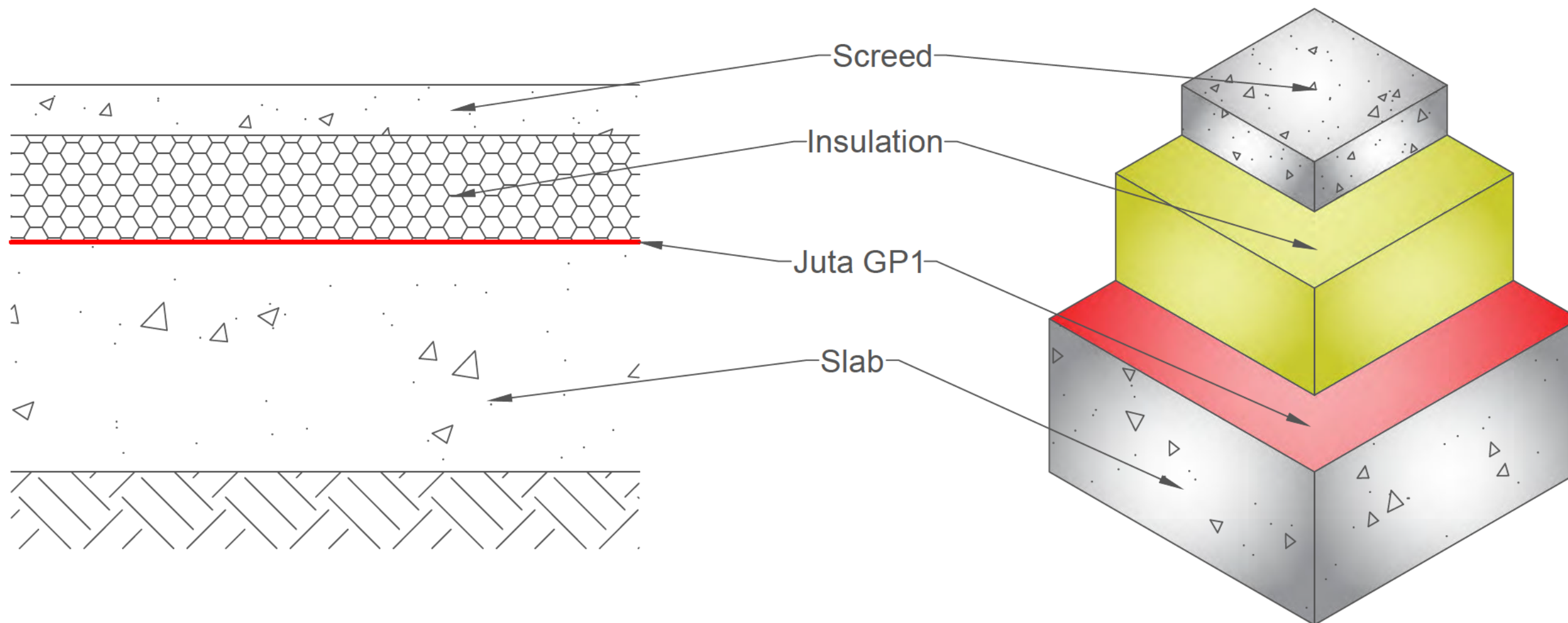
Tel: +44 (0) 113 320 8639
Email: QAP@geoshieldglobal.com
Website: www.geoshieldglobal.com



CLIENT	Vision D&B Limited
PROJECT	Shorts Road, Fair Oak
	

NOTES
- Juta GP1 installed as per manufacturers guidance - All corners and penetrations to be sealed with Juta GP SAM
- Key
 Juta GP1  Juta GP SAM  Butyl Tape

DRAWING TITLE			
Typical Internal Wall Detail			
DRAWING NUMBER			
GEO103983.02			
DRAWN BY	CHECKED BY	SCALE	DATE
OC	PC	NOT TO SCALE	14/08/23
		GeoShield 4100 Park Approach Leeds LS15 8GB United Kingdom Tel: +44 (0) 113 320 8639 Email: QAP@geoshieldglobal.com Website: www.geoshieldglobal.com	



CLIENT

Vision D&B Limited

PROJECT

Shorts Road, Fair Oak



GEOSHIELD

NOTES

- Juta GP1 installed as per manufacturers guidance
- All corners and penetrations to be sealed with Juta GP SAM

- Key

- Juta GP1
- Juta GP SAM
- Butyl Tape

DRAWING TITLE

Typical Floor Build Up

DRAWING NUMBER

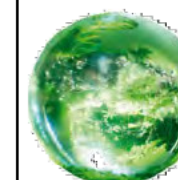
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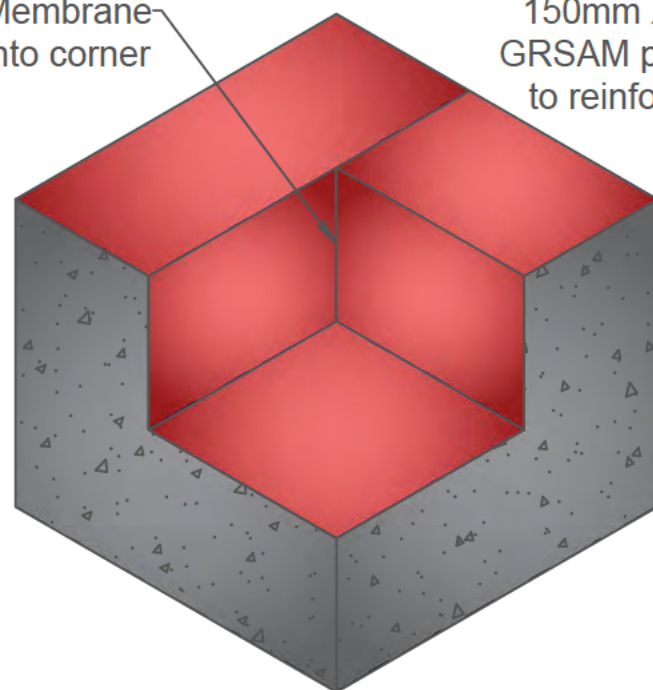
DATE
14/08/23



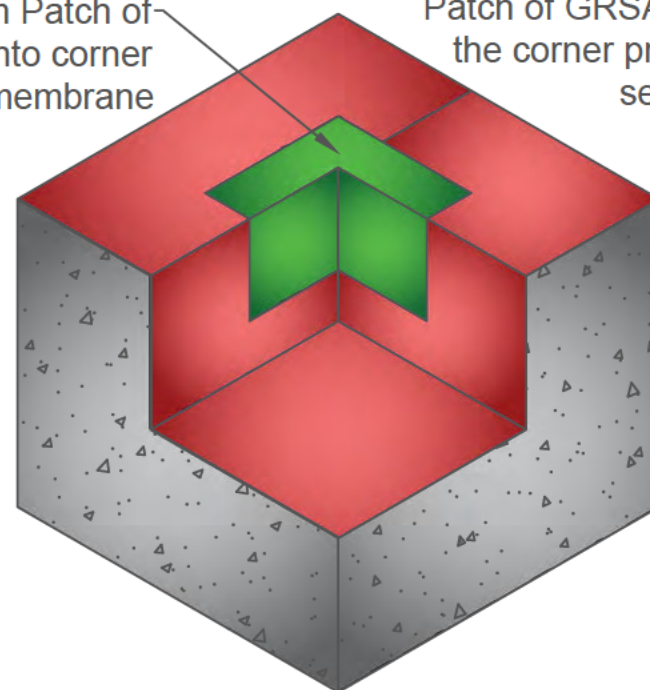
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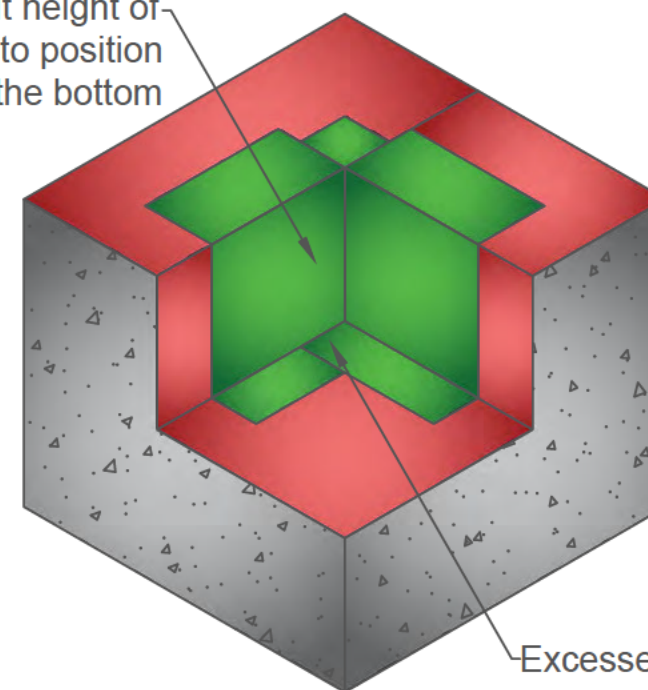
Gas Resistant Membrane
Laid into corner



150mm X 150mm Patch of
GRSAM pressed into corner
to reinforce the membrane

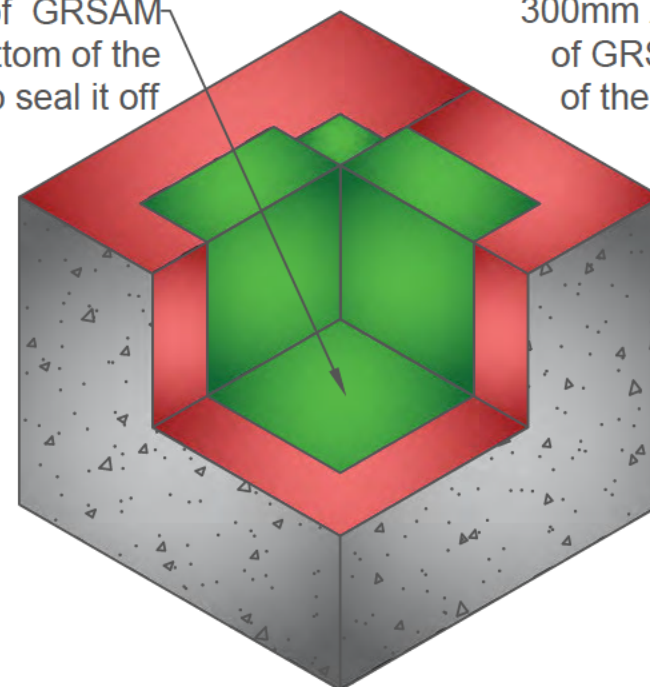


Patch of GRSAM to suit height of
the corner pressed into position
sealing to the bottom

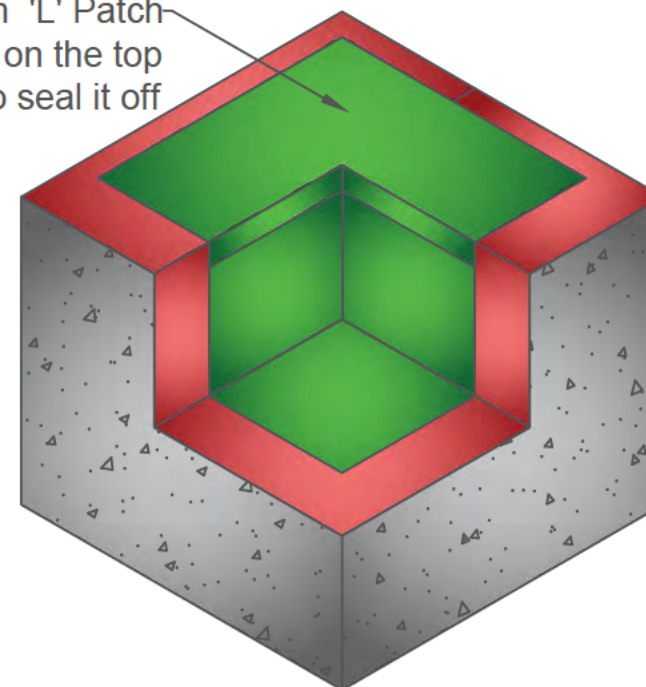


Excesses GRSAM folded
over and pressed down to
create a seal

150mm X 150mm Patch of GRSAM
pressed on the bottom of the
corner to seal it off



300mm X 300mm 'L' Patch
of GRSAM laid on the top
of the corner to seal it off



CLIENT

Vision D&B Limited

PROJECT

Shorts Road, Fair Oak



GEOSHIELD

NOTES

- Juta GP1 installed as per manufacturers guidance
- All corners and penetrations to be sealed with Juta GP SAM

- Key

— Juta GP1
— Juta GP SAM

DRAWING TITLE

Internal Corner Detail

DRAWING NUMBER

GEO103983.04a

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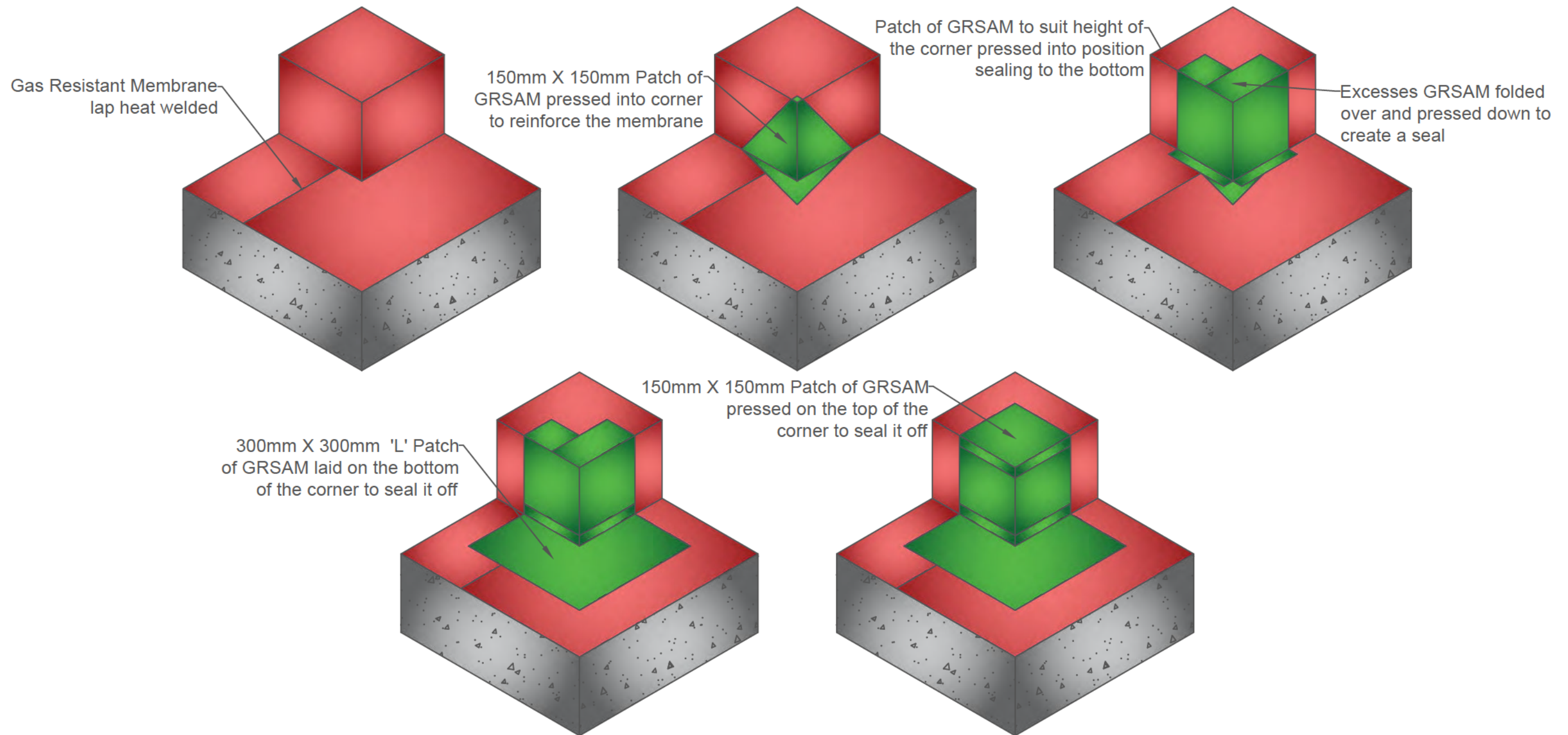
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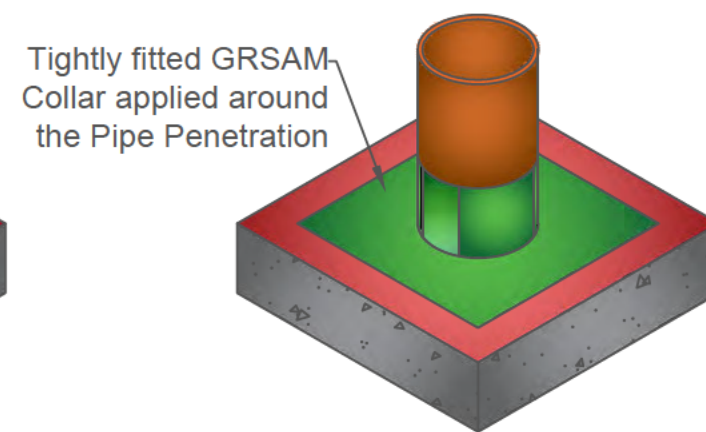
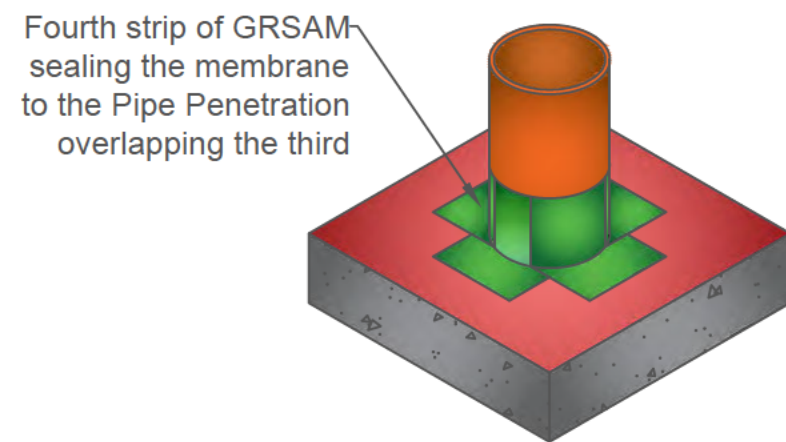
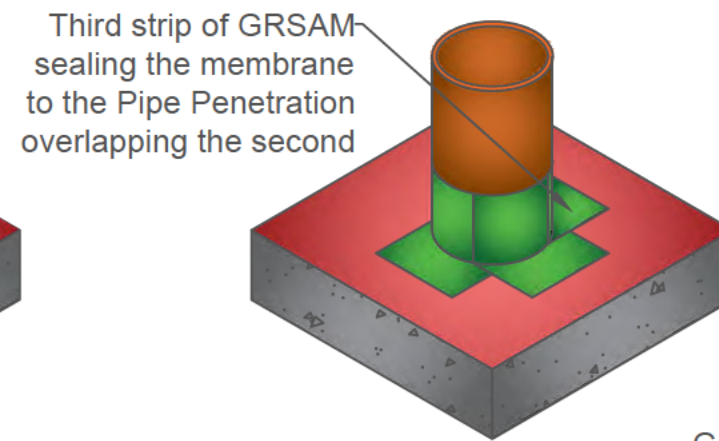
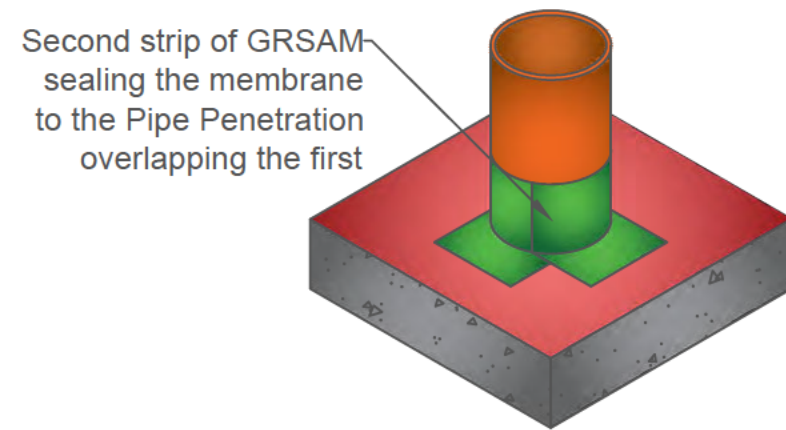
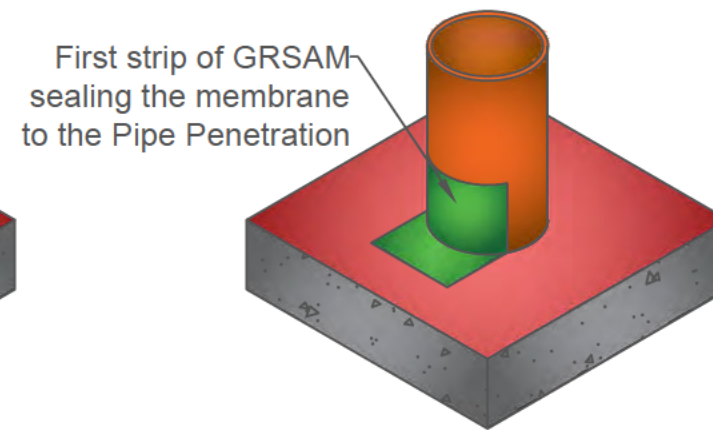
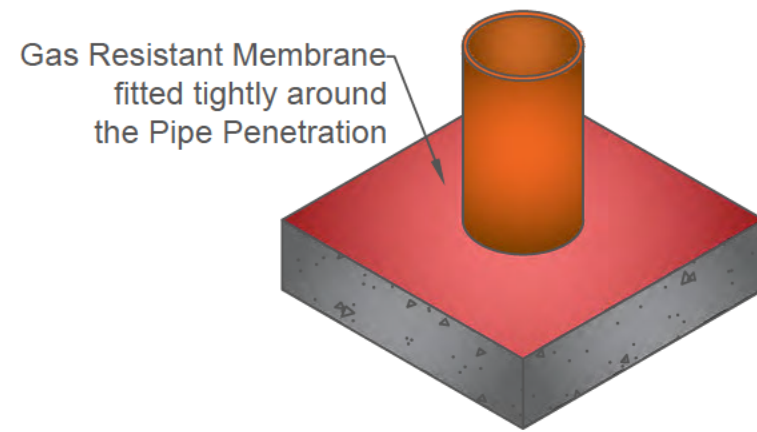


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United Kingdom

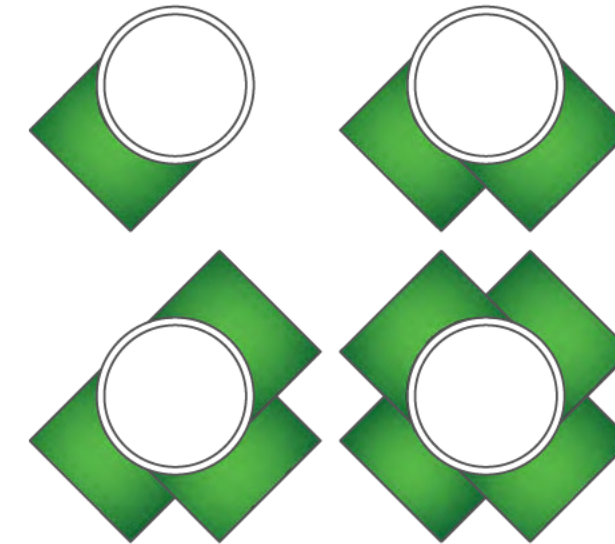
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Website: www.geoshieldglobal.com



CLIENT Vision D&B Limited	NOTES - Juta GP1 installed as per manufacturers guidance - All corners and penetrations to be sealed with Juta GP SAM - Key Juta GP1 Juta GP SAM		DRAWING TITLE External Corner Detail
PROJECT Shorts Road, Fair Oak	DRAWING NUMBER GEO103983.04b		DRAWING NUMBER GEO103983.04b
	DRAWN BY OC		CHECKED BY PC
	SCALE NOT TO SCALE		DATE 14/08/23  GeoShield 4100 Park Approach Leeds LS15 8GB United Kingdom Tel: +44 (0) 113 320 8639 Email: QAP@geoshieldglobal.com Website: www.geoshieldglobal.com



PLAN VIEW OF DETAIL

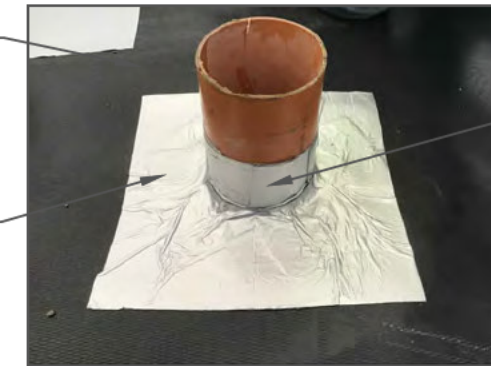


EXAMPLE PHOTOGRAPH

Gas Resistant Membrane fitted around Pipe Penetration

GRSAM Collar applied around Pipe Penetration

Strips of GRSAM sealing the membrane to the Pipe Penetration



CLIENT

Vision D&B Limited

PROJECT

Shorts Road, Fair Oak



NOTES

- Juta GP1 installed as per manufacturers guidance
- All corners and penetrations to be sealed with Juta GP SAM

- Key

— Juta GP1
— Juta GP SAM

DRAWING TITLE

Pipe Penetration Detail

DRAWING NUMBER

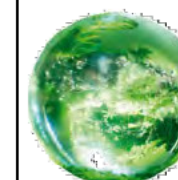
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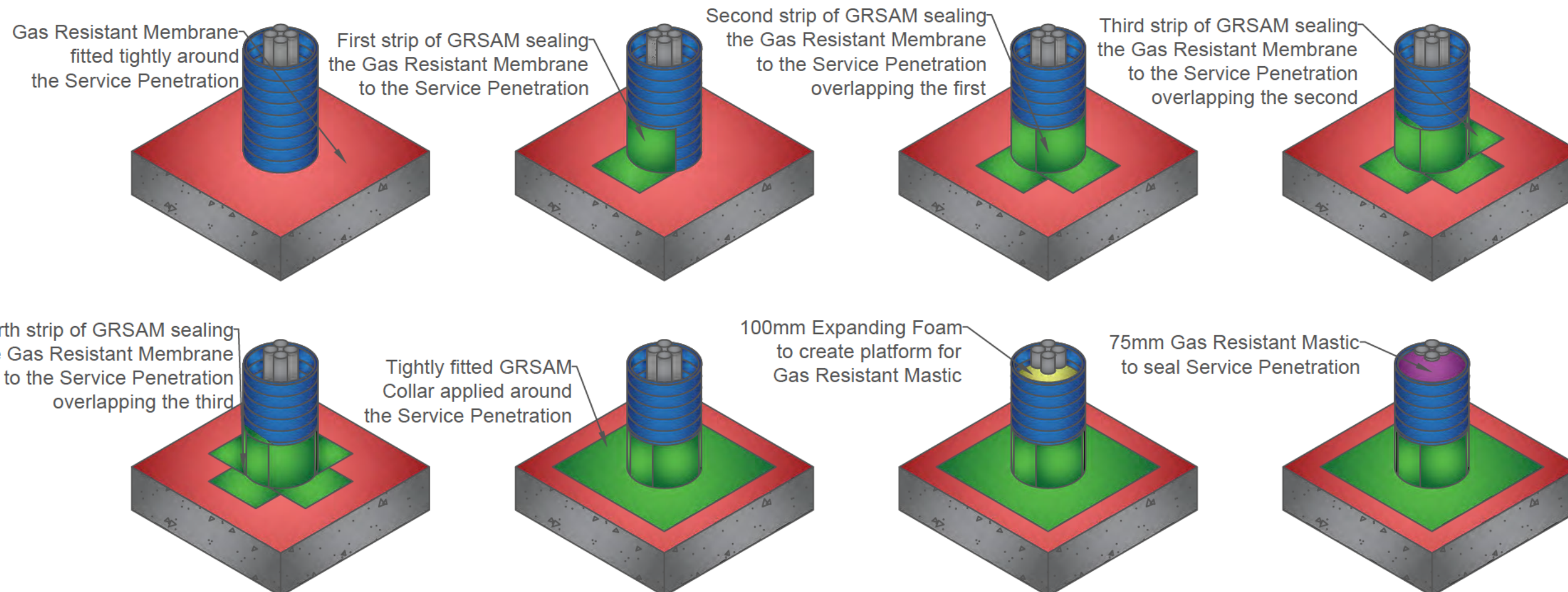
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PC

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DATE
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Website: www.geoshieldglobal.com



CLIENT Vision D&B Limited		NOTES - Juta GP1 installed as per manufacturers guidance - All corners and penetrations to be sealed with Juta GP SAM - Key Juta GP1 Juta GP SAM 100mm Expanding Foam 75mm Gas Resistant Mastic	DRAWING TITLE Service Penetration Detail			
PROJECT Shorts Road, Fair Oak			DRAWING NUMBER GEO103983.05b			
			DRAWN BY OC	CHECKED BY PC	SCALE NOT TO SCALE	DATE 14/08/23
				GeoShield 4100 Park Approach Leeds LS15 8GB United Kingdom Tel: +44 (0) 113 320 8639 Email: QAP@geoshieldglobal.com Website: www.geoshieldglobal.com		

SPECIFICATION

GP[®] 1

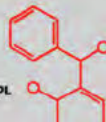
Rev. June 2019

Juta GP[®] 1 - Gas Barrier is a multi-layer, low density polyethylene membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil. GP[®] 1 is specifically designed and manufactured to perform as a Methane, Carbon Dioxide, Radon, Ground Gas, VOC/Hydrocarbon vapors, air & moisture protection system.

Ground Gas
Protection

JUTA GP [®] 1			
Characteristics	Test Method	Unit	JUTA GP [®] 1
Physical Properties			
Thickness	EN 1849-2	mm	0.6
Thickness - Between Scrim	BS EN ISO 9863-1:2016	Mm	0.4
Width	EN 1849-2	m	Various
Length	EN 1849-2	m	Various
Weight	EN 1849-2	G/M2	370
Hydraulic Properties			
Thickness	EN 20811	-	>300
Resistance to Water Penetration	EN 13967, EN 1928	-	Pass
Water Tightness	EN 1296, EN 1367, EN 1928	-	Pass
Mechanical Properties			
Resistance to Static Load	EN 12730-B	Kg	20
Tensile Strength (MD)	EN 12311-1	N/50mm	600
Tensile Strength (CMD)	EN 12311-1	N/50mm	480
Tensile Elongation (MD)	EN 12310-1	%	20
Tensile Elongation (CMD)	EN 12310-1	%	20
Puncture Resistance	EN 12236	kN	1.25
Resistance to Tearing (Nail Shank) MD	EN 12310-1	N	330
Resistance to Tearing (Nail Shank) CMD	EN 12310-1	N	400
Durability and Chemical Resistance			
Transmission Rate of Volatile Liquids - Diesel	ISO 6179:2010 (B)	g/m ² /h	0.246
Transmission Rate of Volatile Liquids - Xylene	ISO 6179:2010 (B)	g/m ² /h	0.571
Transmission Rate of Volatile Liquids - Toluene	ISO 6179:2010 (B)	g/m ² /h	0.583
Transmission Rate of Volatile Liquids - Petrol	ISO 6179:2010 (B)	g/m ² /h	0.135
Gas Permeability			
Methane Permeability	BS EN ISO 15105-1	ml/m ² /day/atm	<0.09
Carbon Dioxide Permeability	BS EN ISO 15105-1	ml/m ² /day/atm	<0.09
Radon Permeability	K124/02/95	m ² /s	8.0 x 10 ⁻¹⁵
Compliance and Certification			
CE Mark - EN13967:2012			
NHBC Standards Compliant			
BS 8485:2015 + A1 2019 Accordant			
BBA Certified - Certificate No. 12/4912			

Contact us to find out more information.
info@juta.co.uk | 01772 754777 | JUTA.CO.UK
Milton Grove Works, Church Road, Lytham, FY8 5PL



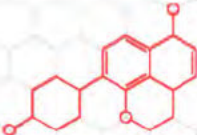
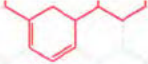
JUTA

riba
product
selector

Title Reference & Description:

JUTA GP1 Technical Data Sheet

SPECIFICATION



Ground Gas Protection

Additional Information

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

STORAGE
Rolls of JUTA GP® 1 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.

INSTALLATION
JUTA GP® 1 should be installed in accordance with the product installation guidelines, and in accordance with BS 8485:2015.

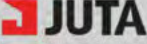
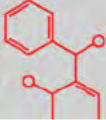
JOINTING AND SEALING
It is recommended JUTA GP® 1 be heat welded where possible, with welding carried out by competent personnel with suitable qualifications in accordance with best practice, and guidance contained within BS 8485:2015. JUTA GP® 1 should be overlapped by at least 100mm. If taping joints, 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 protruberances.

ACCESSORY PRODUCTS

- JUTA GP® 1 Starter Band
- JUTA GP® Tape
- JUTA GP® Self Adhesive Membrane
- JUTA GP® Primer
- JUTA GP® Top Hats and Preformed Corners
- JUTA GP® Protection Fleece
- JUTA GP® Void Vent (25/40mm)

PLEASE CONTACT JUTA UK DIRECTLY FOR MORE INFORMATION ON JUTA GP® 1

Contact us to find out more information.
info@juta.co.uk | 01773 754177 | JUTA.CO.UK
Melton Grove Works, Church Road, Lytham, FY8 5PL



Title Reference & Description:

JUTA GP1 Technical Data Sheet

SPECIFICATION

GP® SAM

Rev: June 2019

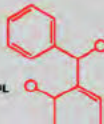
JUTA GP® SAM - Gas Protection - Self Adhesive Membrane, is a bituminous gas proof and water proof sheet, composed of self-adhesive SBS polymer modified bitumen incorporating an aluminium foil with an upper surface finish of white cross laminated HDPE, and a lower surface finish of siliconized paper release film. JUTA GP® SAM is used for the gas/waterproofing of underground structures where harmful ground gasses are anticipated.

Ground Gas
Protection

JUTA GP® SAM			
Characteristic	Test Method	Unit	GP® SAM
Physical Properties			
Thickness	EN 1849-2	mm	1.00
Width	EN 1849-2	M	0.3 or 1
Length	EN 1849-2	M	20
Weight	EN 1849-2	g/m ²	1100
Hydraulic Properties			
Watertightness	EN 1928	-	PASS
Water Vapour Transmission	EN 1931	g/m ² /day	0.013
Mechanical Properties			
Tensile Strength (MD/CMD)	EN12311-2	N/mm ²	3
Elongation (MD/CMD)	EN 12311-2	%	>120
Resistance to Static Load	EN 12370	Rg	20kg
Joint Strength	EN 12317-2	N	>30
Durability and Water tightness (ageing and chemicals)	EN 1847	-	PASS
Resistance to Nail Tear (MD/CMD)	EN 12310-1	N	>100
Reaction to Fire	EN 13501	Euro Class	F
Gas Permeability			
Methane Permeability	BS EN ISO 15105 - 1	ml/m ² /day/atm	< 0.53
Carbon Dioxide Permeability	BS EN ISO 15105 - 1	ml/m ² /day/atm	< 0.53
Radon Permeability	K124/02/95	m ² /s	5.0 x 10 ⁻¹⁴

JUTA GP® SAM complies with the latest codes of practice as published by BRE, CIRIA and BSI (BS 8485:2015).

Contact us to find out more information.
info@juta.co.uk | 01772 754177 | JUTA.CO.UK
Melton Grove Works, Church Road, Lytham, FY8 5PL



JUTA



riba
product
selector

Title Reference & Description:

JUTA GP SAM Technical Data Sheet



SPECIFICATION

Title Reference & Description:

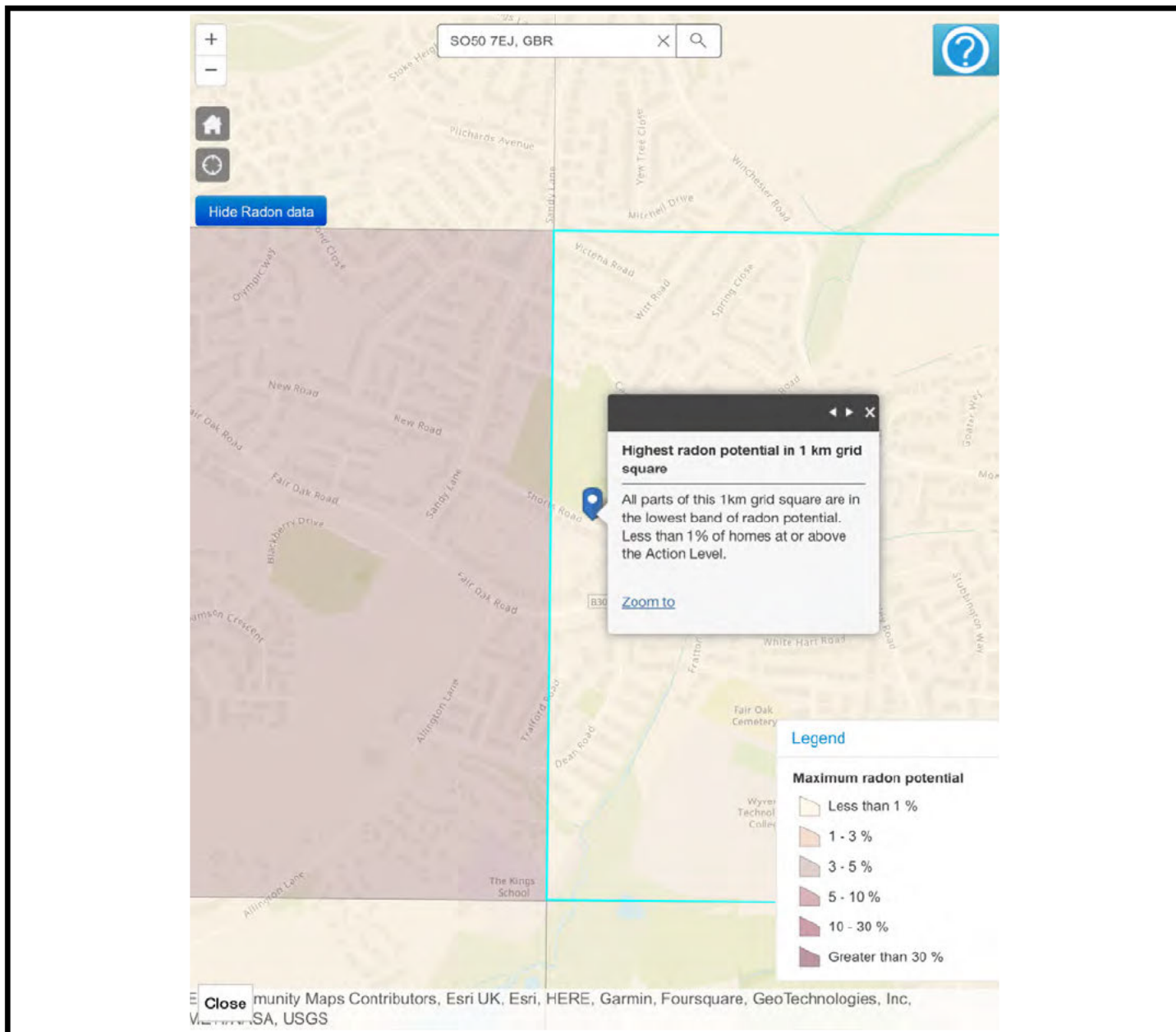
JUTA GP SAM Technical Data Sheet



GeoShield Verification Plan



RADON MAPS UK - (Map 1) Site Location



Maximum Radon Potential:

Please choose from the following

Description:

No radon protection measures are required.

Postcode:

SO50 7EJ



GeoShield Verification Plan



CLIENT DETAILS

CLIENT CONTACT:

CONTACTS ROLE:

MOBILE PHONE:

EMAIL ADDRESS:

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



HEALTH AND SAFETY

INDUCTION: ☒ ☒

INDUCTION TIME:

CSCS CARD: ☒ ☐

CSCS CARD NUMBER:

METHOD STATEMENT: ☒ ☐

RISK ASSESSMENT: ☒ ☐

COSHH: ☒ ☐

SITE SPECIFIC HAZARDS:



GeoShield Verification Plan



APPLICATOR'S DETAILS

TRAINING LEVEL:

SPECIALIST CONTRACTOR:	YES	☐	NO	☒
NVQ LEVEL 2:	YES	☐	NO	☒
COMPETENT APPLICATOR:	YES	☒	NO	☐
TOOLBOX BY GEOSHIELD:	YES	☒	NO	☐

REASON FOR VISIT:

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

NOTIFICATION:

24 HOURS:	YES	☒	48 HOURS:	YES	☒
-----------	----------------------------------	-------------------------------------	-----------	----------------------------------	-------------------------------------

NOTES:



GeoShield Verification Plan



Community Cafe

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

CS3

Building Type:

TYPE C

POINTS REQUIRED UNDER BS8485:2019

3.0 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:

0 POINTS

Car Park:

N/A

Score for Membrane:

2.0 POINTS

POINTS ACHIEVED UNDER BS8485 2019:

3.5 POINTS



GeoShield Verification Plan



TESTING PROCEDURES

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.

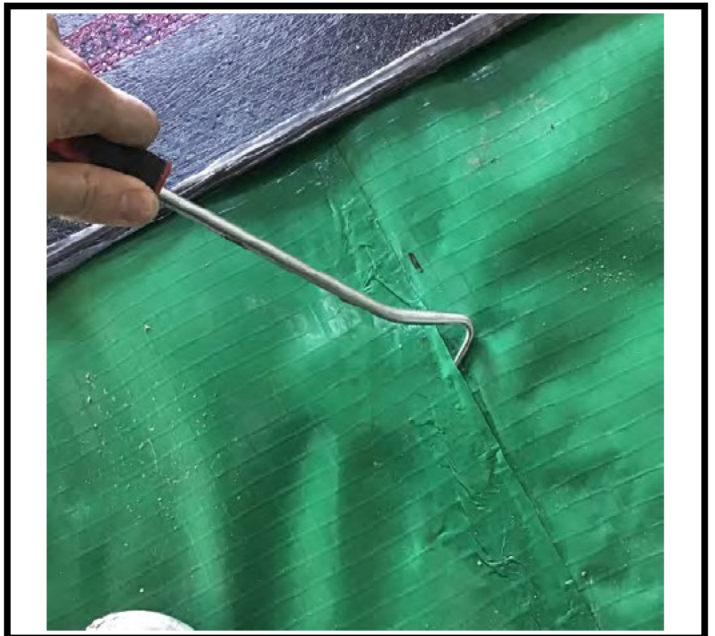
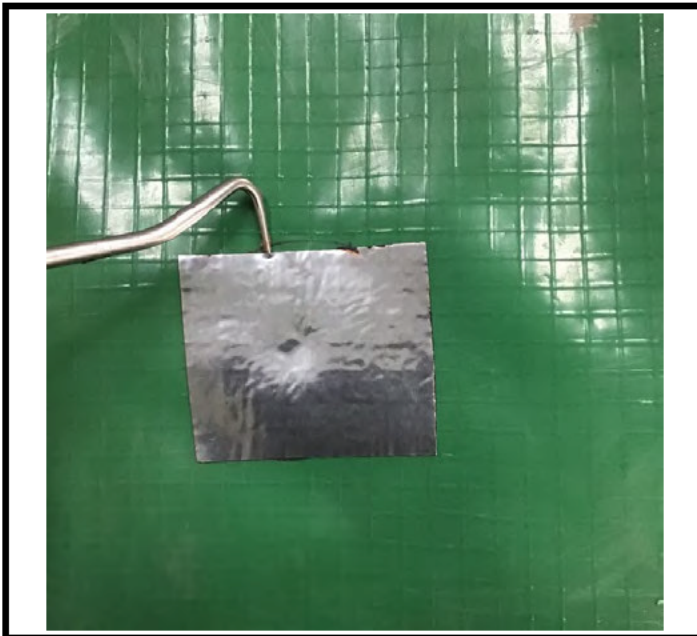


GeoShield Verification Plan



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 parameters 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 their 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 expected in line with the proposed build

programme, additional visits may be considered (if required) to achieve sign off.

TESTING:- Mechanical Point Stress (Pick & Probe) testing on taped areas.

Air lance testing will be carried out (as per CIRIA C735 Annex 1, Table A3).

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 will 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 have been completed. This will be fully recorded at all times.



GeoShield Verification Plan



METHOD STATEMENT - Page 2

GROUND GAS RISK:- From the Remediation Method Statement,

this project has been classified as a Type C building and a CS3 gas regime

rating in accordance with BS8485:2015+A1 2019, so this project will require a

minimum score of 3.0 points for mitigation.

This will be achieved by 3rd party verification of the gas membrane, cast insitu

reinforced 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: 100% 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: Insulation installed on top of gas membrane

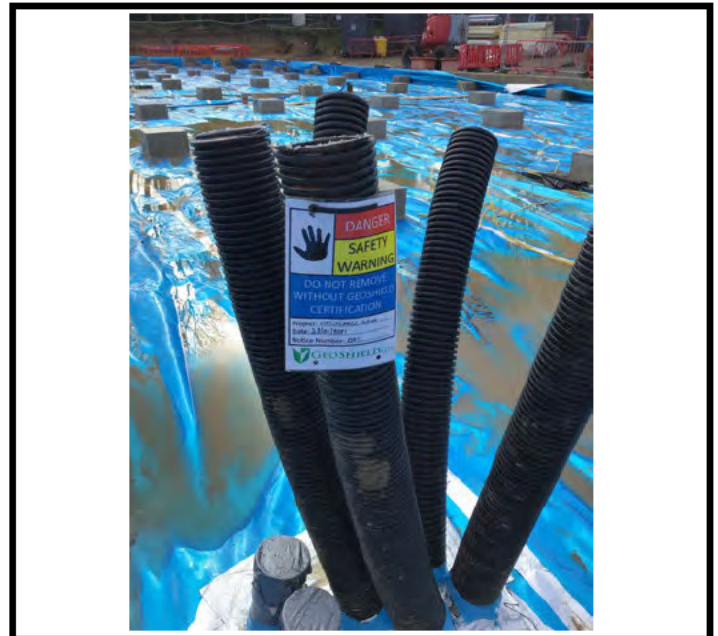


GeoShield Verification Plan



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.

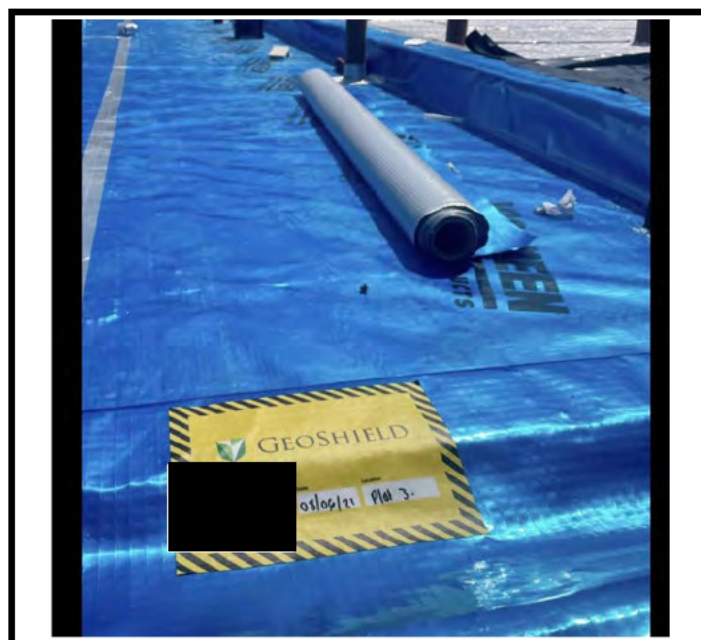


GeoShield Verification Plan



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: Gas Membrane installed on top of reinforced slab.



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

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 CS3 gas regime rating.

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.

