

job title Abraham Moss Leisure Centre

job no. 1620005164



Photograph of the water barrier pipe crossing the site with the building footprint on the right. The route is roughly crossing the site in a north-easterly direction.

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Photograph showing the proposed route for the water barrier pipe, which is adjacent to the building footprint (on the right). The photograph is taken facing the north-east.



Photograph of the water pipe route facing the south. Building footprint is visible on the left.

APPENDIX G

V8: GROUND GAS PROTECTION MEASURES DOCUMENTATION

job title Abraham Moss Leisure Centre	job no. 1620005164
date 06/12/2021	type Watching Brief Visit
visit to Abraham Moss Leisure Centre	by VG
met Philip Davies, Laing O'Rourke	
purpose SITE VISIT TO INSPECT GAS MEMBRANE INSTALLATION	

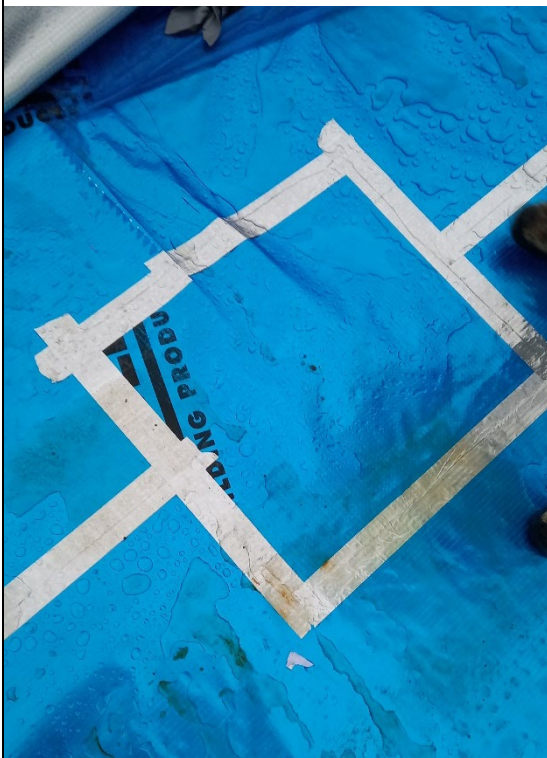
Notes	Action
Ramboll attended site at the Abraham Moss Leisure Centre on the request by the Client to view the installation of the gas membrane at the site for CS2 gas regime as part of the Validation Works. VG (of Ramboll) met with Philip Davies (of Laing O'Rourke) to walk around and inspect the general condition of the installed gas membrane. At the time of the visit, around 25% of the basement area (also known as "Pour One") was lined with a Visqueen Gas Barrier. An appointed independent verification officer of Geoshield had attended the site for verification and inspection of the barrier prior to Ramboll attendance. A certificate of conformity informed Ramboll that the gas membrane was installed over a smooth concrete (LOR informed RUK that 75mm of concrete was poured across the area to smooth the base for the membrane) blinded area and returned up the Pecafil sheet piles. All lap joints have been sealed in accordance to the manufacturer's specification using Visqueen Pro double-sided jointing tape and GR foil lap tape. Two lap joints have been damaged / peeled up due to the weather elements (rain and wind weekend prior to the inspection), which required further resealing; as well as sealing of lap joints up the sheet pile walls. The works were verified to CIRIA 735. VG was shown the areas requiring the resealing, the Photographs are attached at the end of the Site Record. Ramboll was informed of the methodology used to make the repairs, and the LOR showed VG a repair to one area. In short, a piece of the Visqueen membrane was cut and lain on top of the damage, where it was taped down using the Visqueen Pro double-sided tape and the GR foil lap tape was applied on top. There is a 150mm overlap of the membrane at lap joints. LOR informed Ramboll that a Treadguard will be lain on top of the membrane once the Visqueen Gas Barrier has been lain prior to steel fixings and concrete pour (500mm). No services are expected to be lain within the basement area; however, a complex area with a pit to the north of the will be lain and subsequently inspected and verified as early as January 2022. At the time of the Watching Brief, there was no progress in gas membrane installation within the Upper Raft Area. Photographs from the Site Visit are attached.	LOR to supplement inspection records and photographs of the progress of the gas membrane in the Basement Area to Ramboll for review. Specifically, the repairs that were identified by Geoshield at the time of the inspection; and the progress into the pit area. LOR to supplement inspection records and photographs of the progress of the gas membrane in the Upper Raft Area to Ramboll for review. Especially, photographs of the service duct seals / joints.

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Photograph showing the area with Visqueen Gas Barrier membrane requiring resealing due to the weather. Photograph taken of the Basement Area, facing the west.



Photograph showing the area of repair of the membrane within the Basement Area.

RECORD OF SITE VISIT

job title Abraham Moss Leisure Centre	job no. 1620005164
date 17/02/2022	type Watching Brief Visit
visit to Abraham Moss Leisure Centre	by VG
met Philip Davies, Laing O'Rourke	
purpose SITE VISIT TO INSPECT GAS MEMBRANE INSTALLATION AROUND SERVICE PENETRATIONS	

Notes	Action
Ramboll attended site at the Abraham Moss Leisure Centre on the request by the Client to view the installation of the gas membrane at the site for CS2 gas regime as part of the Validation Works. VG (of Ramboll) met with Philip Davies (of Laing O'Rourke) to walk around and inspect the general condition of the installed gas membrane. At the time of the visit, the gas membrane was already installed within the southern upper raft area, and the membrane was overlain by a Treadguard and steel fixings , ready for concrete pour (500 mm in thickness). Laing O'Rourke have provided Ramboll with photographs detailing the membrane installation process, which was concurrently inspected and verified by a verification officer of Geoshield on 14th February 2022. A membrane was in process of installation in an area towards the north-eastern site boundary of the site. As with the previous records, the membrane was installed over a smooth surface of concrete. All lap joints have been sealed in accordance to the manufacturer's specification using Visqueen Pro double-sided jointing tape and GR foil lap tape. Ramboll inspected the membrane around the service penetrations, and the proposed lift shaft. No damages or peeling of the membrane was noted. The service penetrations were sealed in accordance to the manufacturer's specification using Visqueen Pro double-sided jointing tape and GR foil lap tape. Service pipe entry seals (top hats) were noted for some of the service ducts. An unsealed service penetration was noted within the elevator shaft, which was due to be sealed. Photographs from the site visit, and the photographs provided by Laing O'Rourke are included overleaf.	LOR to provide certificated of conformity for the upper raft pour areas, and the final verification report once the membrane installation has been completed.

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Photograph showing the area with Visqueen Gas Barrier membrane in process of installation in the central upper raft area of the site (dated 14th February 2022), prior to Ramboll site attendance. Photograph taken facing south-east.



Photograph of a service pipe entry seals around the service ducts in the upper raft area. These were further sealed with GR foil lap tape

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Photograph of the completed membrane installation, awaiting the concrete pour in the upper raft area. Photograph taken facing the east.



Photograph of the elevator shaft area lined and sealed with the Visqueen membrane. A service penetration at the top of the image is still requiring sealing.



Photograph of the membrane installation underway towards the north-eastern site boundary. The membrane is laid down in strips. Photograph taken facing the north-east.



GEOSHIELD

Verification Report



PROJECT REFERENCE:

GEO102024

REPORT NUMBER:

001

PROJECT:

Abraham moss leisure centre.

PROJECT ADDRESS:

Crescent road, Crumpsall

Manchester

M8 5UF.

MEMBRANE SPECIFICATION:

Verified in accordance CIRIA 735.

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

Substrate prepared in-accordance with manufactures instructions and BS8485

Visqueen standard gas barrier & Visqueen treadguard 300

VisqueenUltimate double sided joint tape & Visqueen GR foil lap tape.

Visqueen GRSAM & Visqueen ultimate detailing strip.

Visqueen Axiom Uniseal & Visqueen HP tanking primer.

Preformed tophats



GEOSHIELD Verification Report



MEMBRANE SPECIFICATION:

DESIGN DETAILS:

Material specification technical data sheets

Ramboll 2019 Interpretative Report

Swimming Pool Sequence - Gas Membrane, Basement Slabs, Basement Walls,

Lytag Pour and Internal Manholes

Construction Considerations

4538-01 - Typical Lift Pit Detail / 4538-02 - Typical Service Pipe Penetration Detail

4538-04 - Typical Manhole Detail / 4538-05 - Foundation Section F16

LP44107-RAM-B01-FN-DR-S-12101_Ver5 - Foundation Slab Sections Sheet 1

LP44107-RAM-B01-FN-DR-S-12102_Ver7 - Foundation Slab Sections Sheet 2

LP44107-RAM-B01-FN-DR-S-12103_Ver2 - Foundation Slab Sections Sheet 3

LP44107-RAM-B01-FN-DR-S-12104_Ver1 - Foundation Slab Sections Sheet 4

LP44107-RAM-B01-FN-DR-S-12105_Ver2 - Foundation Slab Wall Elevations

LP44107-RAM-B01-FN-DR-S-14001_Ver5 - Foundation Slab Layout Sheet 1

LP44107-RAM-B01-FN-DR-S-14002_Ver5 - Foundation Slab Layout Sheet 2

LP44107-RAM-B01-FN-DR-S-14003_Ver6 - Foundation Slab Layout Sheet 3



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MEMBRANE SPECIFICATION:

DESIGN DETAILS:

LP44107-RAM-B01-FN-DR-S-14004_Ver1 - Basement Recess Setting Out Plan 1

LP44107-RAM-B01-FN-DR-S-14006_Ver1 - Lower Slab Wall Layout

LP44107-RAM-B01-FN-DR-S-14007_Ver1 - Foundation Slab Layout Plantroom GA

LP44107-RAM-B01-FN-DR-S-14100_Ver5 - Raft Slab & Walls Pour Sequence

Radon Maps UK - (Map 1) Site Location & (Map 2) Nearby Location



GEOSHIELD Verification Report



VERIFICATION OFFICER: Kavanagh Palmer-Fletcher

VERIFICATION COMPANY: GeoShield Limited

Icon Business Park, 4100 Park Approach

Thorpe Park, LEEDS

West Yorkshire

LS15 8GB

CONTACT NUMBER: 07470012812

EMAIL ADDRESS: Kpalmer-fletcher@geoshield.co.uk

ORDER NUMBER:

PER VISIT: YES:

☐

NO:



PROJECT: YES:



NO:

☐



GEOSHIELD

Verification Report



CLIENT DETAILS

CLIENT CONTACT:	Callum Alderton
CONTACTS ROLE:	
MOBILE PHONE:	07384 870 741
EMAIL ADDRESS:	CAlderton@laingrourke.com



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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Jordan Rigby

COMPANY: Expanded

APPLICATOR TEL: 07935418381

APPLICATOR EMAIL: Jordan.rig1991@gmail.com

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The dedicated gas membrane installers for Expanded have received tool-

NOTES: box talk training from Visqueen. They are deemed competent and trained

NOTES: to undertake the gas membrane installation throughout this project.

NOTES: Standard of works will closely monitored throughout each verification visit.



GEOSHIELD Verification Report



AREA SURVEYED: Pour 1- Basement slab.

SITE CONDITIONS:

WEATHER: Rain

TEMPERATURE: 5c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 08:30-11:00

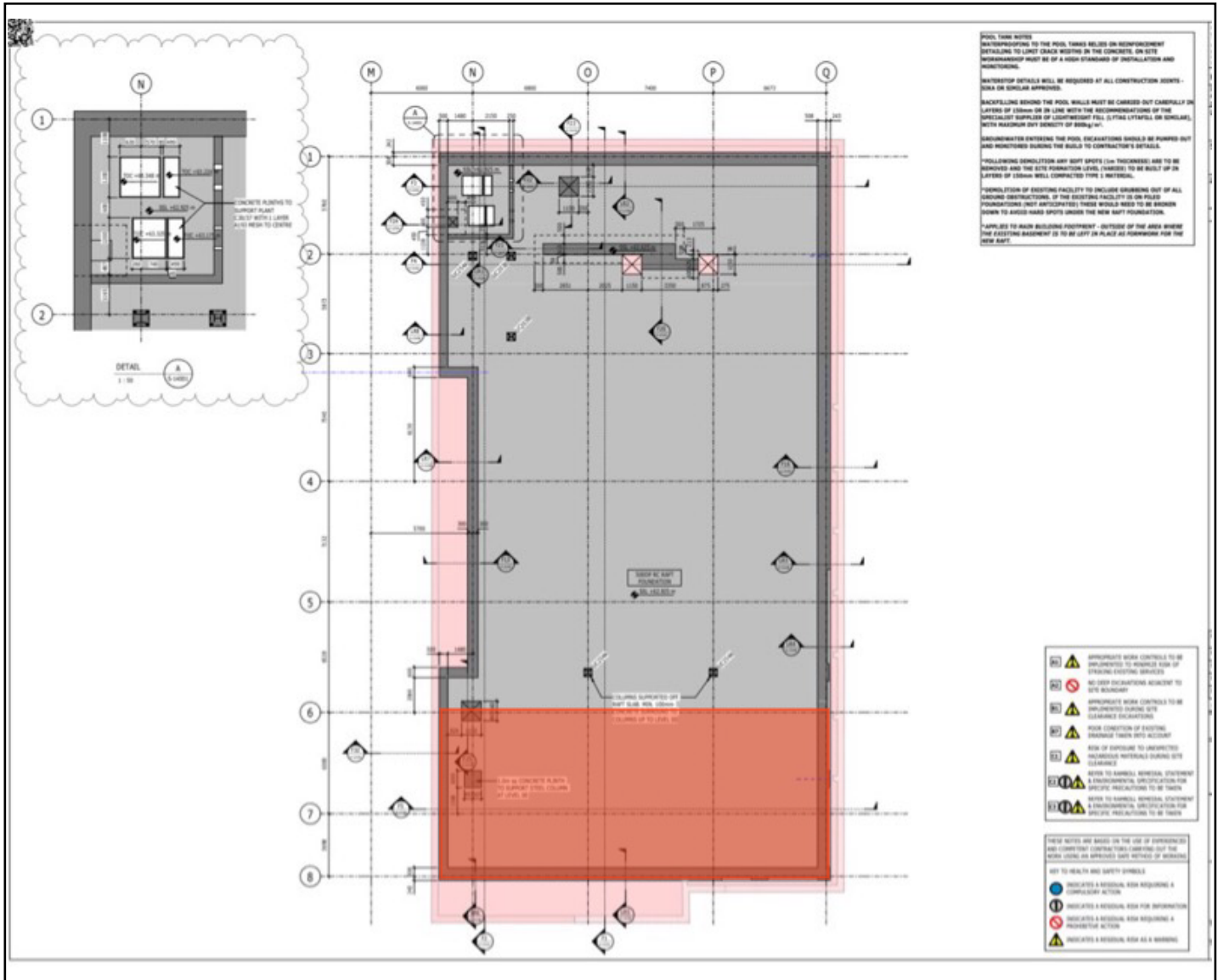
REPORT NUMBER: 001

DATE: 06/12/2021

ACCOMPANIED Senior site engineer.

GEOSHIELD Verification Report

VERIFICATION LAYOUT



The area highlighted red above is where verification took place during this visit.

Pour one within the basement slab.

Grid lines 6-8/(M/N)-Q



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

GEOSHIELD Verification Report

BGA
British Geomembrane Association



VERIFICATION ITEM ONE

LOCATION/GRID LINE: Basement slab.

NOTES: Preparation-

The below photographs display the preparation to the areas requiring gas membrane installation. The photograph on the left shows the smooth concrete blinded surface being swept clear of surface water prior to gas membrane application. The photograph on the right



right shows the sheet piles that have received pecafile sheets which has achieved a flat surface for the Visqueen standard gas barrier to be returned up and over the wall.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays the smooth concrete blinded surface the Visqueen standard gas barrier has been installed upon. The surfaces have been swept clear of any debris which cause potential damages from beneath the membrane and swept clear of surface water so lap joints can be successfully sealed, adhering the sheets together.



GEOSHIELD Verification Report

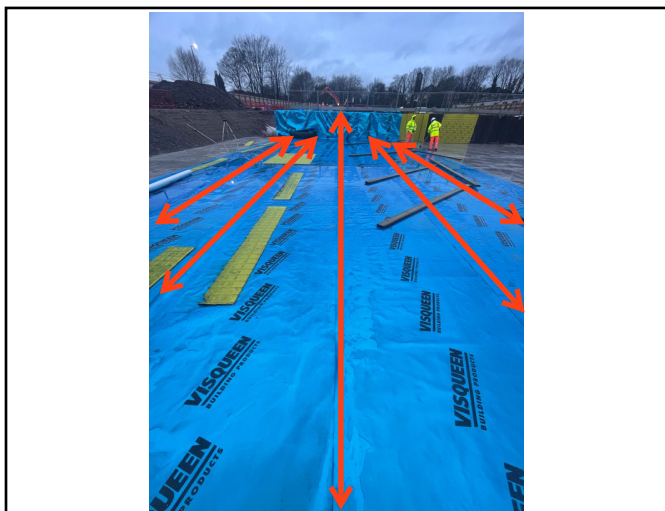


VERIFICATION ITEM TWO

LOCATION/GRID LINE: Pour one - Basement slab.

NOTES: Installation-

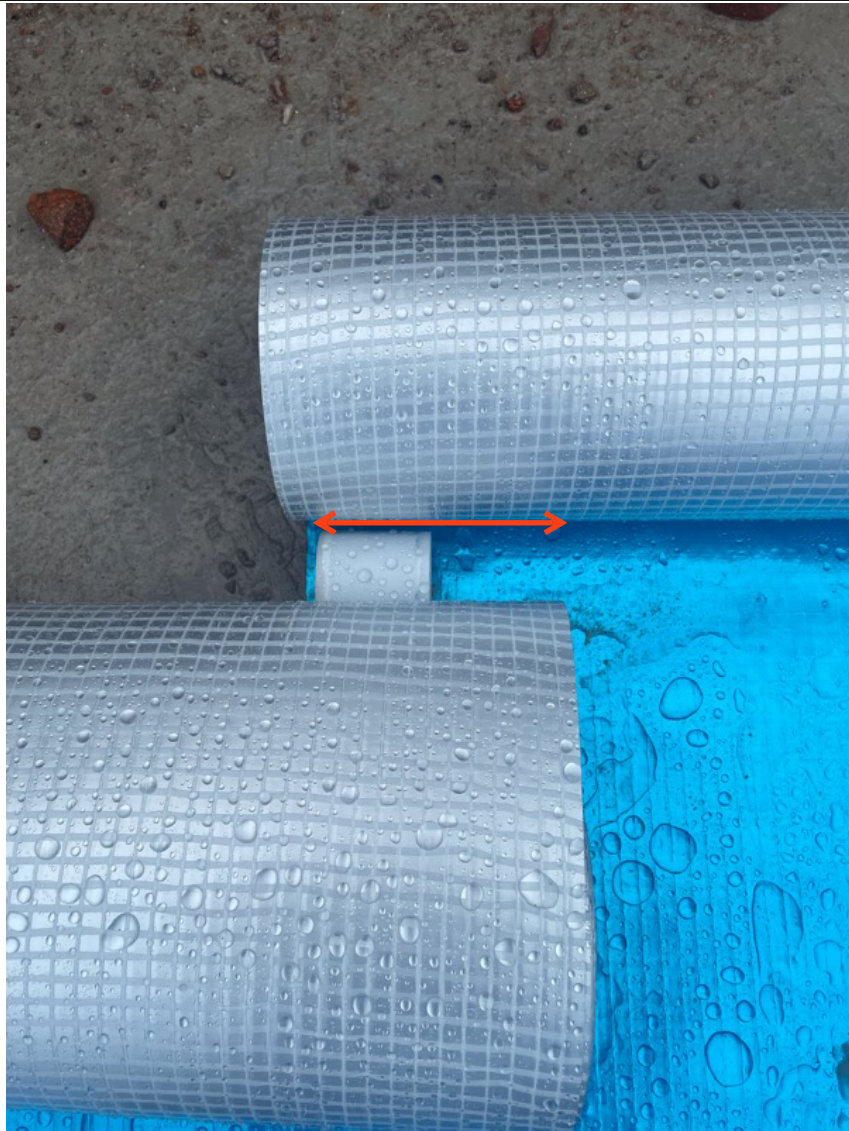
The installation of Visqueen gas barrier has been installed across pour one within the basement slab. The annotations on the left highlight the successfully adhered lap joints within this installation prior to application of the single side foil lap tape.



All lap joints have been successfully sealed in accordance to manufactures specification. Visqueen ultimate double sided jointing tape has been applied between each overlap & sheet(s) of gas membrane. The photograph on the right shows the membrane applied up the peca-filled sheet piles with an overhang in excess of 150mm returning into the ground floor area so that adequate overlaps and joints can be achieved for future works.

GEOSHIELD Verification Report

VERIFICATION ITEM TWO



The above photograph displays a sufficient 150mm overlap in place between two sheets of Visqueen standard gas barrier membrane. Conforming to manufactures specification prior to adhering the two sheets together using VisqueenPro double-sided joint tape.