



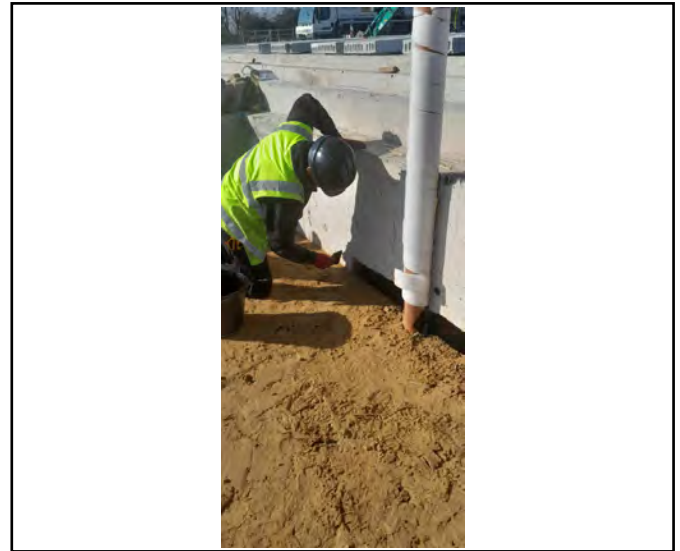
GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Photograph of the sand blinded
floor ready for the membrane.



Manifold pipe work
installation.



Installation of the retrofit
dealing required onsite.



Photograph above shows
a hot air leister used onsite.



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☒	☐ NO	☐	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☐	☐ NO	☒
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐



GEOSHIELD Verification Report



VERIFICATION SUMMARY

This was the eighth visit to Riverside Academy, Reading where verification was required to the infill installation to the Juta Titan Flex gas resistant membrane to the above referenced areas. All lap joints have been successfully welded between the two adjacent sheets of Juta Titan Flex. Sufficient heat and applied pressure has been used to form a minimum 40mm weld ensuring a gas resistant seal throughout the installation. All probe manifold pipe work has been installed in accordance with Geoshield design. All probes have been sealed using strips of Juta Titan Tank and a retrofit design around the inner walls has been sealed correctly and in accordance with manufacturers design. A thorough visual and mechanical point stress test highlighted no faults. Tested and verified in accordance with CIRIA 735.

GEOSHIELD SIGNATURE:

DATE: 01/03/2023.



GEOSHIELD Verification Report



PROJECT REFERENCE:

GEO103260

REPORT NUMBER:

009

PROJECT:

Riverside Academy

PROJECT ADDRESS:

Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION:

Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

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



VERIFICATION OFFICER: Mark Chapman

VERIFICATION COMPANY: GeoShield Limited

Icon Business Park, 4100 Park Approach

Thorpe Park, LEEDS

West Yorkshire

LS15 8GB

CONTACT NUMBER: 07795994117

EMAIL ADDRESS: Mchapman@geoshield.co.uk

ORDER NUMBER:

PER VISIT: YES:

☐

NO:



PROJECT: YES:



NO:

☐



GeoShield Verification Report



CLIENT DETAILS

CLIENT CONTACT:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME:

COMPANY:

SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME:

Ben

COMPANY:

Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: Block B, D & E.

SITE CONDITIONS:

WEATHER: Snowing

TEMPERATURE: 2c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 11:00-12:40

REPORT NUMBER: 009

DATE: 08/03/2023.

ACCOMPANIED Darren - Fenton Group.



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of the proposed site.

Above in blue is where today's installation and verification took place.

Block B, D & E.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of one of the areas verified during todays verification visit

Block B, D & E.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of one of the areas verified during this visit.

Block B, D & E.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



The photograph above displays an overview of one of the areas

verified during today's verification visit.

Block B, D & E.



GEOSHIELD Verification Report



VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block B, D & E.

NOTES: Installation-

During today's verification visit to the above referenced area to the infill installation to the

Juta Titan Flex gas resistant membrane, all lap joints have been successfully welded using

a hot air leister and silicone roller, ensuring a minimum 100mm overlap between the two



adjacent sheets of membrane as shown in the above photograph on the left. The photo

above on the right displays an overview photo of where today's installation took place.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also referred as a pick and probe test being conducted upon a successfully welded lap joint. A thorough pick and probe test and a non destructive air lance test was conducted upon the referenced areas identifying 5 faults which were remediated onsite. Verified in accordance with CIRIA735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block B, D & E.

NOTES: Sealed Pipe and Probe Detailing:

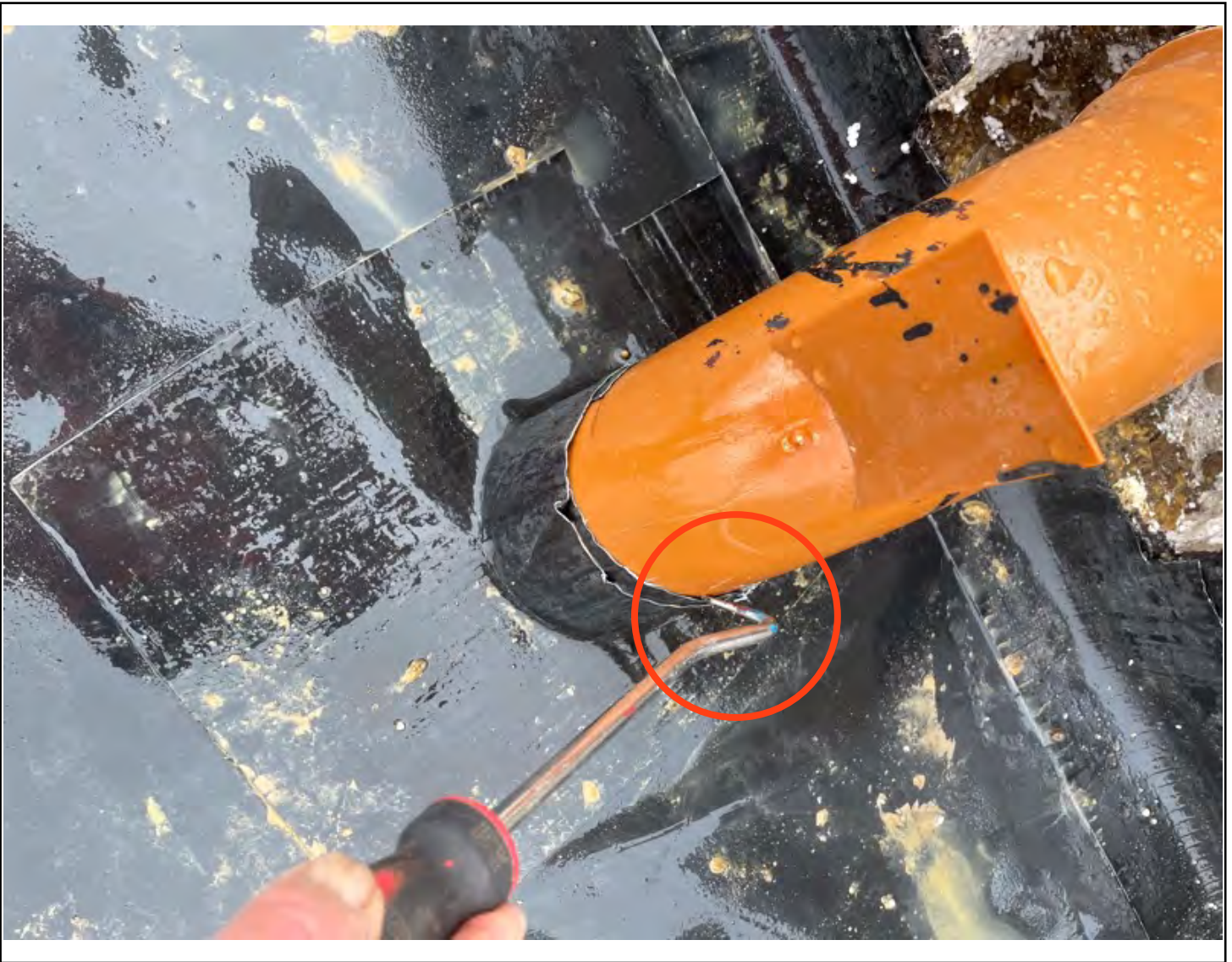
During today's verification visit to the above referenced areas several pipe penetrations and below basal layer probes required sealing and verification. Juta Titan Tank has been installed tightly around the neck of the pipes and probes lapping onto the Juta Titan Flex



gas resistant membrane. The photograph on the left above displays a successfully sealed pipe penetration that has been sealed in accordance with manufacturers specification and design detail. The photograph above on the right shows a below basal layer probe that has been installed by Prestige Air beneath a sub blinded sand floor and sealed in the same way as all the pipe penetrations.

GEOSHIELD Verification Report

VERIFICATION ITEM TWO



The above photograph displays a pick and probe test being carried out upon a

successfully sealed below basal layer probe. Two testing methods have been

used during today's inspection which were a non destructive air lance test followed

by a pick and probe test. Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report

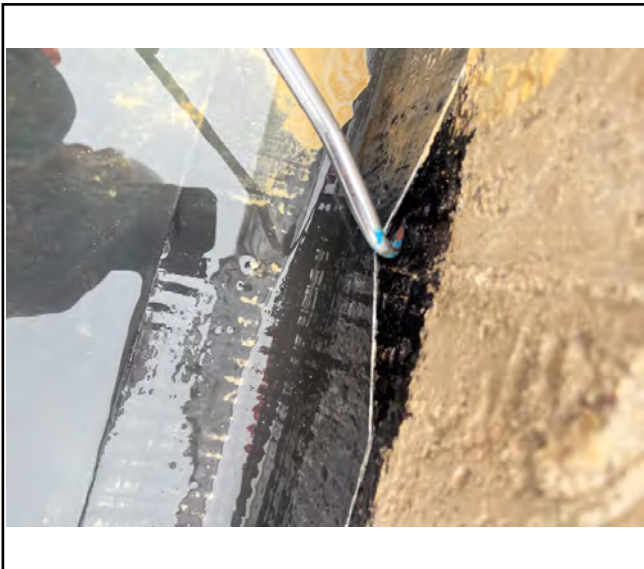


VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block B, D & E.

NOTES: Faults Identified:

During today's verification visit a retrofit design detail has been implemented around the inner walls onto the Juta Titan Flex gas resistant membrane in accordance with manufacturers specification and guidelines. The photograph below on the left displays



one of the faults that was identified during the inspection. Due to weather conditions

the Juta Titan Tank has started peeling away from the inner walls and required more

heat to stick the membrane down to ensure a gas resistant seal. Photo on the right

shows an area that required repair and has been remediated on-site.



GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Alternate overview photograph
of an area requiring verification.



Below Basal Layer Probe
installation.



Pick and probe test carried out
on a pipe penetration.



Pick and probe test conducted
upon a sealed lap joint.



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off		☐



GEOSHIELD Verification Report



VERIFICATION SUMMARY

This was the ninth visit to Riverside Academy, Reading where verification was required to the infill installation to the Juta Titan Flex gas resistant membrane to the above referenced areas. All lap joints have been successfully welded between the two adjacent sheets of Juta Titan Flex. Applied heat and pressure has been used throughout the installation process ensuring that a gas resistant seal has been achieved. All pipe penetrations and probes have been sealed using strips of the Juta Titan Tank In accordance with manufactures specification and guidelines. A retrofit detail has been implemented between the inner walls onto the Juta Titan Flex gas membranes. A visual pick and probe test and a non destructive air lance identified 5 faults which were remediated onsite. Verified in accordance with CIRIA73

GEOSHIELD SIGNATURE:

DATE: 08/03/2023



GEOSHIELD

Verification Report



PROJECT REFERENCE:

GEO103260

REPORT NUMBER:

010

PROJECT:

Riverside Academy

PROJECT ADDRESS:

Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION:

Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GS2686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

Radon Maps UK - (Map 1) Site Location & (Map 2) Nearby 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 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:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME:

Ben

COMPANY:

Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: Block B, D & E.

SITE CONDITIONS:

WEATHER: Snowing

TEMPERATURE: 2c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 11:00-12:40

REPORT NUMBER: 009

DATE: 08/03/2023.

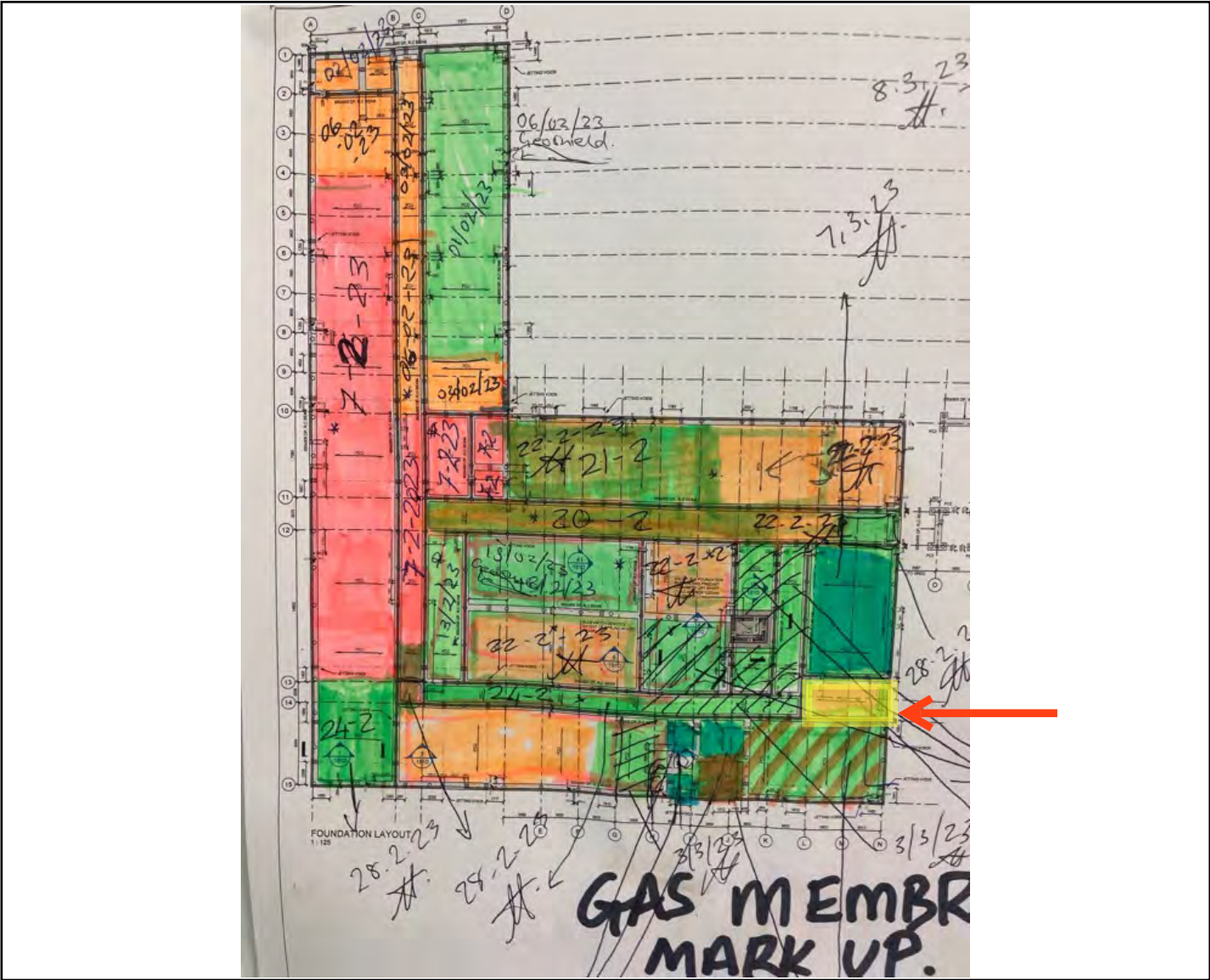
ACCOMPANIED Darren - Fenton Group.



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of the proposed site.

Above in blue is where today's installation and verification took place.

Infill installation Gridlines; L-N/13-14 & above basal layer probe 7.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

Basal Layer membrane - Gridlines; L-N/13-14



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

Above Basal Layer - Probe 7.



GEOSHIELD Verification Report



LIMITATIONS

SURVEY AREA: Basal Layer membrane - Gridlines; L-N/13-14

RESTRICTIONS AND LIMITATIONS: Insufficient Access-

There was insufficient access to the area requiring verification during this visit. No

access was available for the work vehicle to enable non-destructive airscan integrity

testing to be conducted. Alternatively, thorough pick&probe tests were conducted.





GEOSHIELD Verification Report

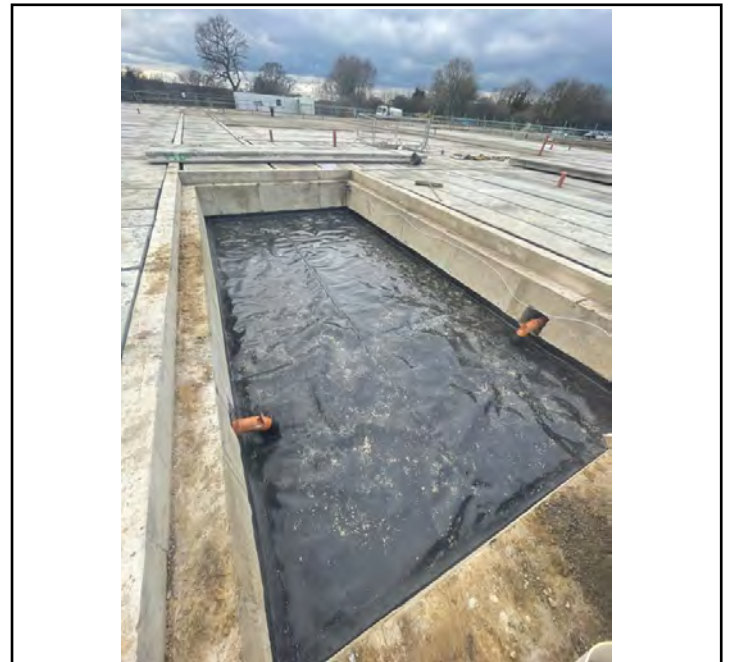


VERIFICATION ITEM ONE

LOCATION/GRID LINE: Basal Layer membrane - Gridlines; L-N/13-14

NOTES: Installation-

Juta Titan Flex has been installed across the sand blinded substrate. All overlaps between the sheets of membrane have been successfully welded using a hot air tool and silicone roller as highlighted in the photograph below on the left.



The Juta Titan Flex membrane has been lined tightly too the concrete perimeter walls.

Alternate overview photos displayed above, installed in accordance with BS8485:2019.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a consistently welded lap joint. Consistent welds have been achieved, with no faults or defects identified throughout the installation.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: Basal Layer membrane - Gridlines; L-N/13-14

NOTES: Pipe penetrations-

Within the area a couple of pipe penetrations required sealing to create a continuous seal across the area. The Juta Titan Flex has been cut tightly around each pipe penetration and sealed accordingly.



The pipe penetrations have been successfully sealed in accordance to manufactures specification using Juta Titan Tank - gas resistant self adhesive membrane to a good NVQ standard. These were also subjected to thorough pick&probe testing as shown in the photo above on the right. Complete adherence has been achieved throughout.

No faults identified. Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



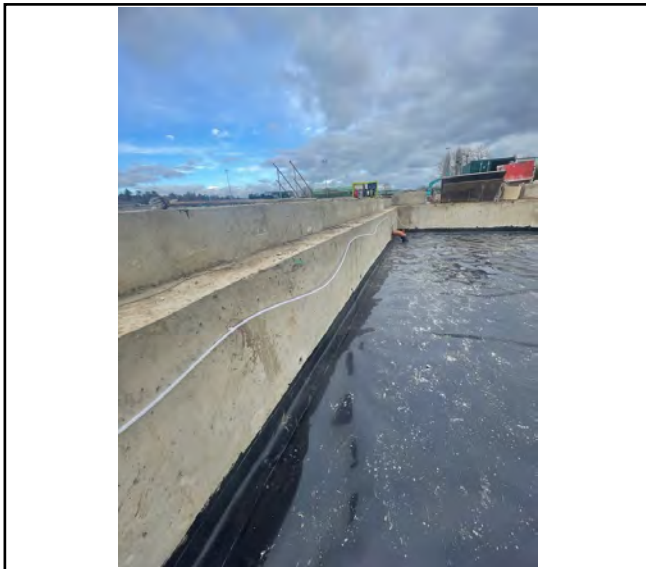
VERIFICATION ITEM THREE

LOCATION/GRID LINE: Basal Layer Probe - 7.

NOTES: Installation-

The final above basal layer probe (7) has been installed within the area. The probe pipe has been mechanically fixed upon the concrete perimeter at a horizontal angle.

This eliminates any sharp angles within the probe pipe which could possibly affect...



...the ground gas monitoring in the future. The probe has been installed to the

markup set out by the Fenton engineer to Geoshields design drawing.

The probe pipe has edified the area through pipe work vertically adjacent to area in

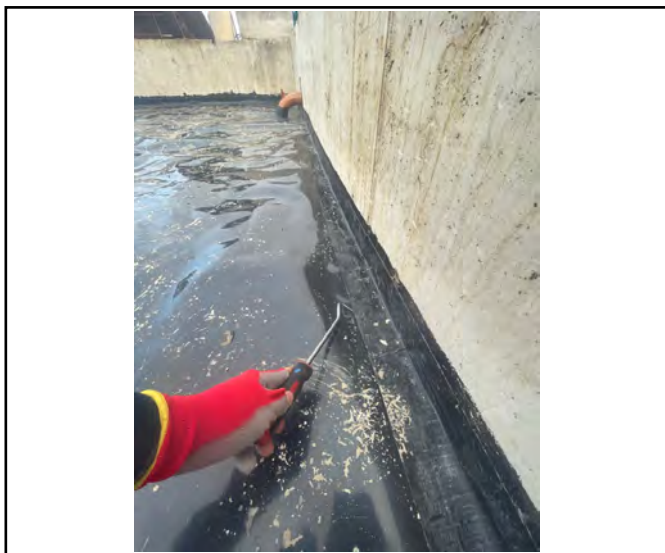
which it is placed, in accordance to Geoshields method statement.



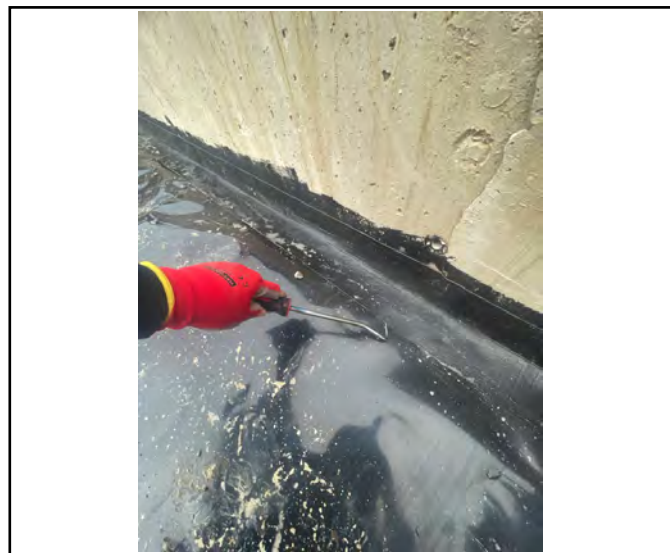
GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



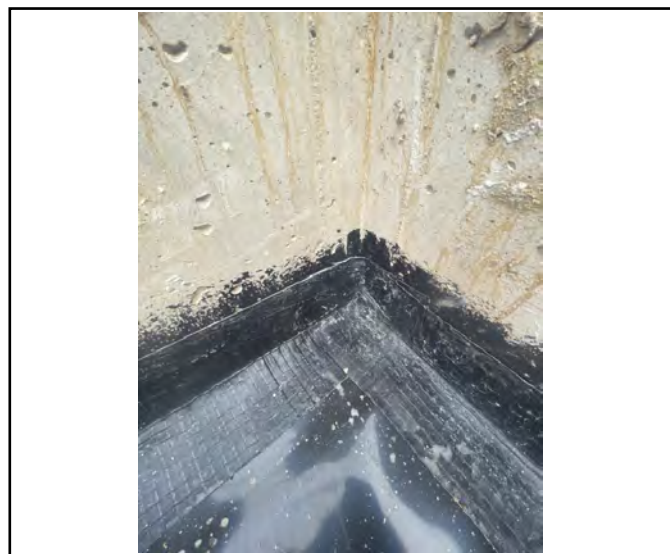
Pick&probe testing to retrofit detailing.



Pick&probe testing to retrofit detailing.



Pick&probe testing to pipe penetration.



Reinforced retrofit detail.



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



VERIFICATION SUMMARY

This was the tenth visit to Riverside Academy, Reading where verification was required for the installation of Juta Titan Flex membrane to Gridlines; L-N/13-14 to a basal layer section. All overlaps have been successfully welded using a hot air tool and silicone roller. Pipe penetrations and retrofitting detail to the perimeter of the area referenced have been successfully sealed in accordance to manufactures specification using Juta Titan Tank. All retrofitted surfaces have been primed prior to application to help aid in adherence. The final above basal layer probe (7) within this block has been successfully installed, the probe location has been set out by Fentons engineer. A thorough visual pick and probe test was conducted across the area and identified no faults or defects. Verified in accordance with CIRIA735

GEOSHIELD SIGNATURE:

DATE: 10/03/2023



GEOSHIELD

Verification Report



PROJECT REFERENCE:

GEO103260

REPORT NUMBER:

011

PROJECT:

Riverside Academy

PROJECT ADDRESS:

Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION:

Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

Radon Maps UK - (Map 1) Site Location & (Map 2) Nearby 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 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:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME: Ben

COMPANY: Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13

Below Basal Layer probes 3 and 4.

SITE CONDITIONS:

WEATHER: Overcast

TEMPERATURE: 12c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 11:00-12:40 REPORT NUMBER: 011

DATE: 23/03/2023.

ACCOMPANIED Darren - Fenton Group.



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of the proposed East Block.

Highlighted red above is where t verification took place.

East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13 plus basal layer probes 3&4.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer membrane - GLs Q-Q.5/10-12



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer membrane - GLs Q-Q.5/10-12



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer- Q-R/12-13 (incomplete).



GEOSHIELD Verification Report



LIMITATIONS

SURVEY AREA: East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13

RESTRICTIONS AND LIMITATIONS: Insufficient Access-

There was insufficient access to the area requiring verification during this visit. No access was available for the work vehicle to enable non-destructive airance integrity testing to be conducted. Alternatively, thorough pick&probe tests were conducted.



GEOSHIELD Verification Report

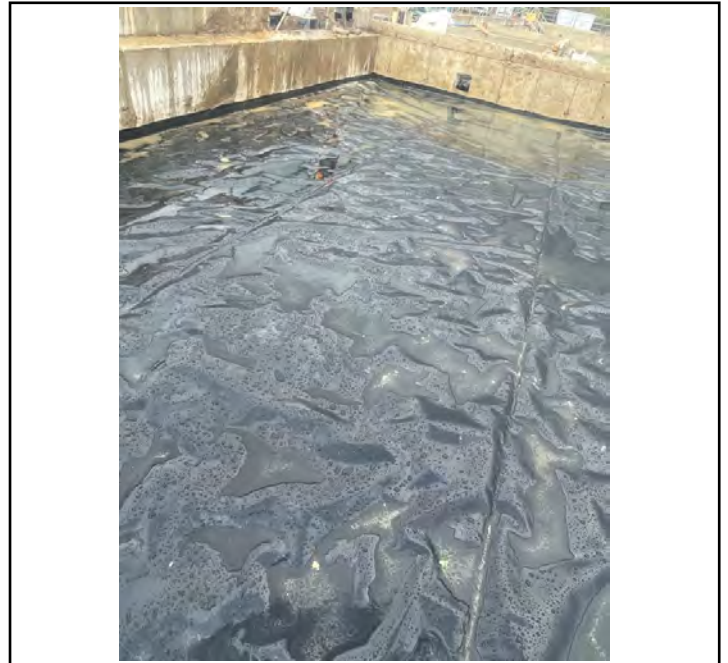


VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13

NOTES: Installation-

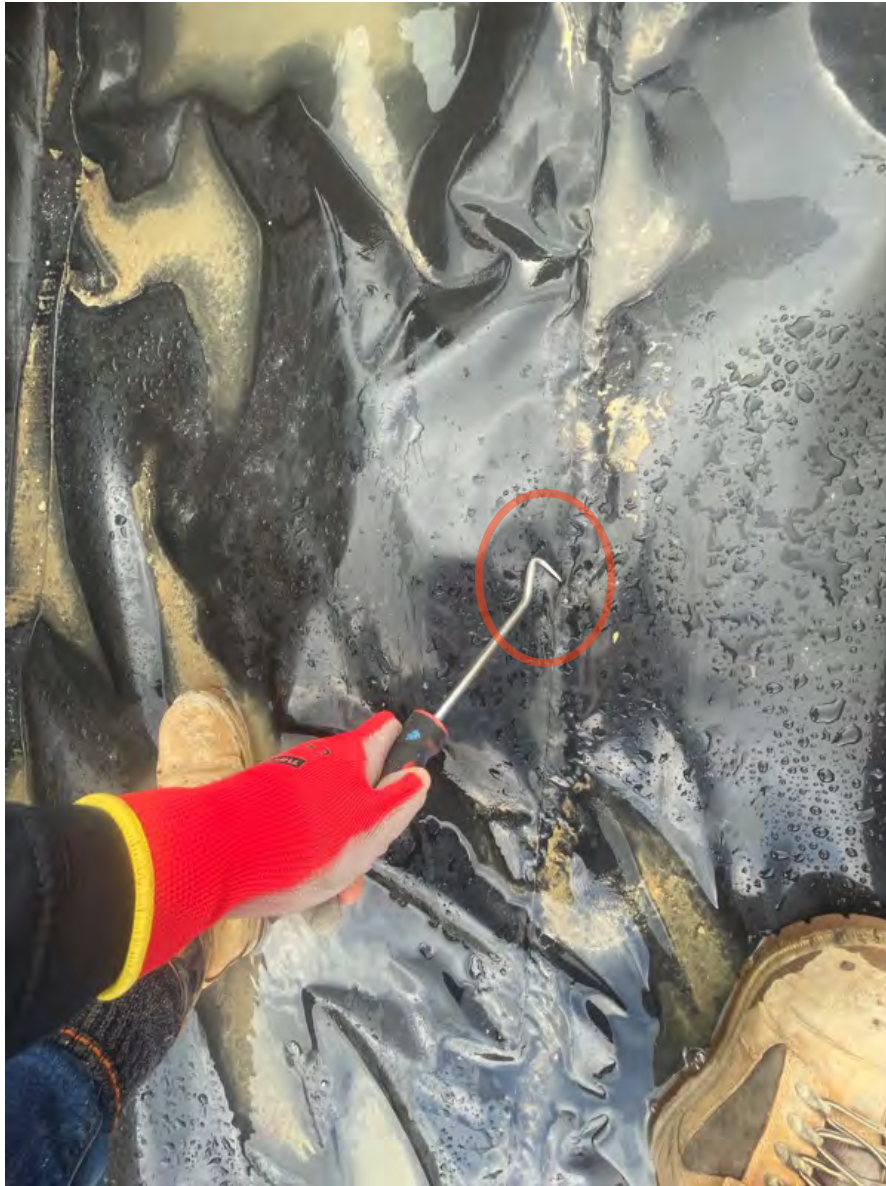
Juta Titan Flex has been installed across the sand blinded substrate. Overlaps between the sheets of Titan Flex have been successfully welded using a hot air tool and silicone roller in accordance to BS8485:2019 guidance.



The Juta Titan Flex membrane has been lined tightly too the concrete perimeter walls as shown in the alternate overview photographs shown above.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a consistently welded lap joint. Consistent welds have been achieved throughout all areas verified during this visit.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: East Block Basal Layer- Q-R/12-13

NOTES: Pipe penetrations-

Within the area referenced a single pipe penetration required sealing to create a continuous seal across the area. The Juta Titan Flex has been cut tightly around each pipe penetration eliminating voided spaces and sealed accordingly.



The pipe penetration has been successfully sealed in accordance to manufacturers specification using Juta Titan Tank - gas resistant self adhesive membrane to a good NVQ standard. The pipe was also subjected to thorough pick&probe testing as shown in the photo above on the right. Complete adherence has been achieved throughout.

No faults identified. Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report

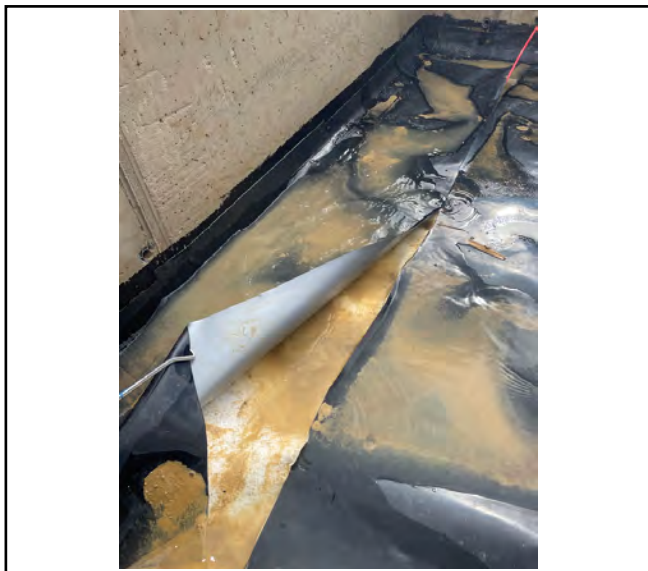


VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13

NOTES: Outstanding remediations-

Unfortunately the complete areas inspected and verified during this visit could not be completely signed off due to a number of reasons. The photograph below on the left shows the Juta Titan Flex membrane has been cut in one of the areas so the below...



...basal layer probe 3 could be installed due to being forgotten about.

The photograph above on the right shows one of several sections of retrofit perimeter detailing not sealed upon the primed perimeter due to excessive water ingress jeopardising the seal, areas will require further inspection once remediated.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Basal Layer Probes 3 and 4.

NOTES: Installation-

The below basal layer probes have been installed within the area. The probe pipe has been buried within the soft sand blinded substrate providing adequate protection as shown in the photograph below on the left.



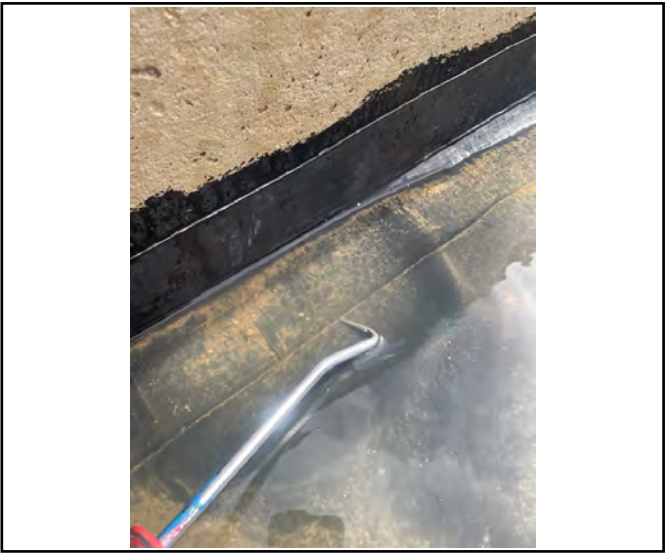
The probe positions are as per the Geoshield design drawing set out by Fentons Engineer. However, the probe pipe route has deviated a little due to the conflict with various areas of the structure. The probe pipe has returned vertically immediately outside the block in accordance to Geoshields method statement as shown on the right.



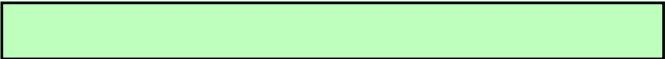
GEOSHIELD Verification Report



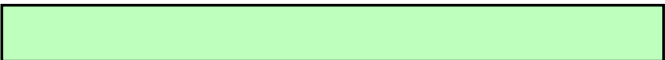
ADDITIONAL PHOTOGRAPHS



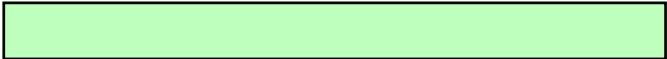
Pick&probe testing to retrofit detailing.



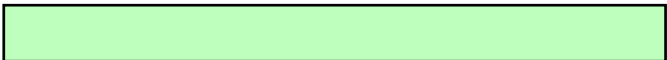
Pick&probe testing to pipe penetration.



Pick&probe testing to retrofit detailing.



Pick&probe testing to welded lap joint.





GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



VERIFICATION SUMMARY

This was the 11th visit to Riverside Academy, Reading where verification was required for the installation of Juta Titan Flex membrane to East Block Basal Layer-GLs Q-Q.5/10-12 & Q-R/12-13 and below basal layer probes 3 & 4. All overlaps have been welded using a hot air tool and silicone roller. Pipe penetrations and retrofitting detail to the perimeter of the area referenced have been sealed in accordance to manufactures specification using Juta Titan Tank. All retrofitted surfaces have been primed prior to application to help aid in adherence. However have been affected by water ingress. Below basal layer probes 3 & 4 have been installed. Thorough visual pick&probe testing identified several unsealed areas and incomplete sections which require remediating and further verification.

GEOSHIELD SIGNATURE:

DATE: 23/03/2023



GEOSHIELD

Verification Report



PROJECT REFERENCE: GEO103260

REPORT NUMBER: 012

PROJECT: Riverside Academy

PROJECT ADDRESS: Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION: Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

Radon Maps UK - (Map 1) Site Location & (Map 2) Nearby 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 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:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME:

Ben

COMPANY:

Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East Block Basal Layer Membrane - GLs A-T/10-11

SITE CONDITIONS:

WEATHER: Overcast & showers

TEMPERATURE: 12c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 12:45-15:30 REPORT NUMBER: 012

DATE: 28/03/2023.

ACCOMPANIED Nigel - Fenton Group and Ian Bland SWC



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of the proposed East Block.

Highlighted red above is where verification took place.

East Block Basal Layer Membrane - GLs A-T/10-11



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane - GLs A-T/10-11



GEOSHIELD Verification Report



LIMITATIONS

SURVEY AREA: East Block Basal Layer Membrane - GLs A-T/10-11

RESTRICTIONS AND LIMITATIONS: Insufficient Access-

There was insufficient access to the area requiring verification during this visit. No access was available for the work vehicle to enable non-destructive airlance integrity testing to be conducted. Alternatively, thorough pick&probe tests were conducted.





GEOSHIELD Verification Report

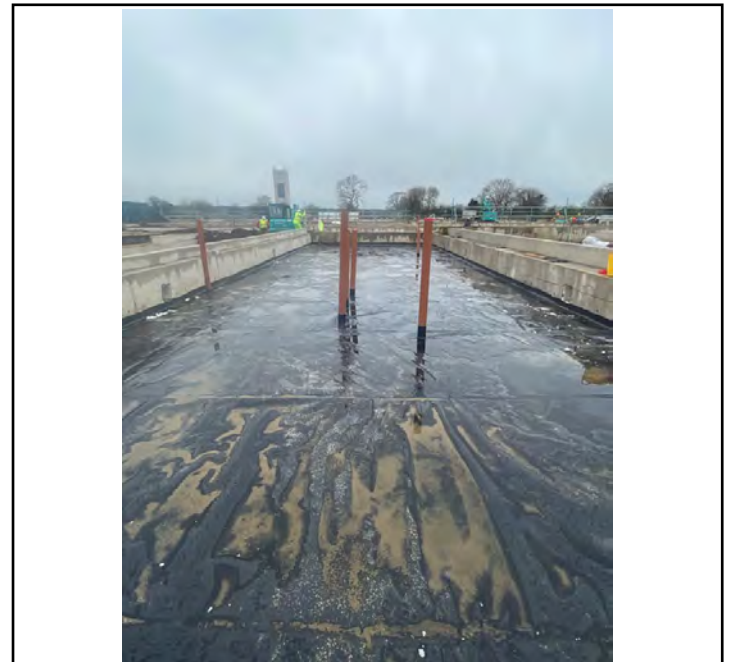
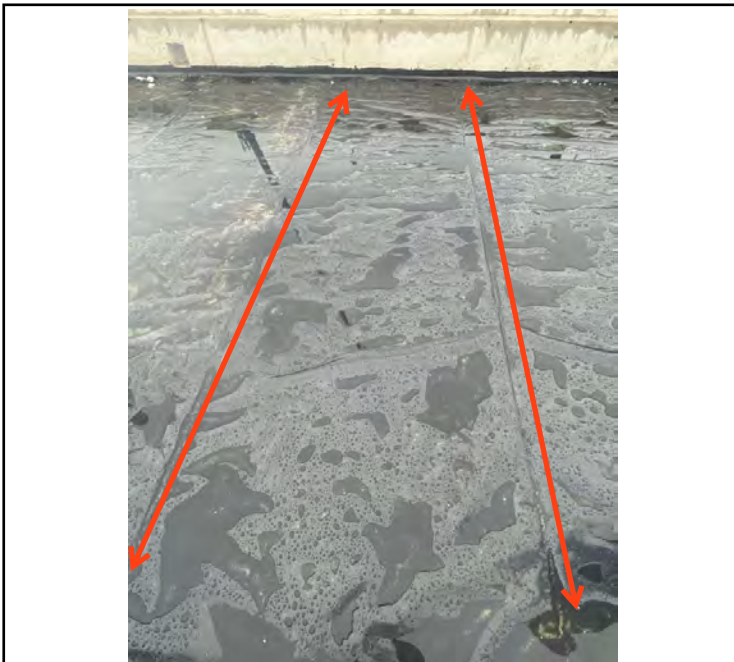


VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block Basal Layer Membrane - GLs A-T/10-11

NOTES: Installation-

Juta Titan Flex has been installed across the sand blinded substrate to another basal section of east block. All overlaps between sheets of Juta Titan Flex have been welded successfully using a hot air tool and silicone roller.



The annotations on the photograph on the left highlight consistently welded lap joints.

The photograph above on the right displays an alternate overview of the area verified.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a consistently welded lap joint. Consistent welds have been achieved throughout the area verified during this visit with no faults identified.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

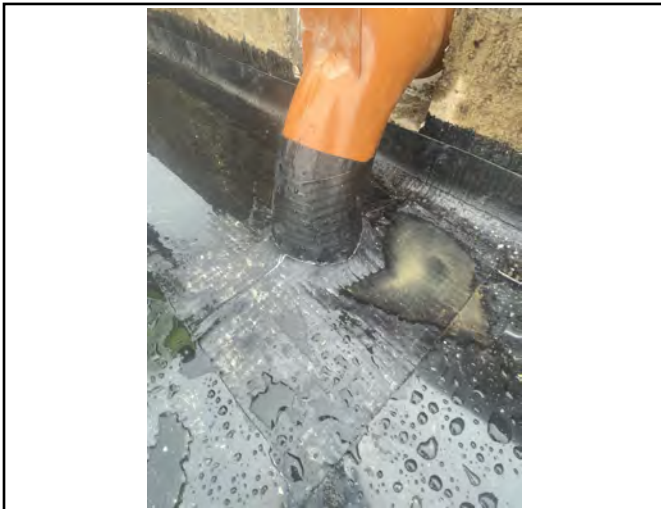
LOCATION/GRID LINE: East Block Basal Layer Membrane - GLs A-T/10-11

NOTES: Pipe penetrations-

Within the area referenced several pipe penetrations required sealing to create a

continuous seal across the area. The Juta Titan Flex has been cut tightly around each

pipe penetration eliminating voided spaces and sealed accordingly.



The pipe penetrations have been successfully sealed in accordance to manufacturers

specification using Juta Titan Tank - gas resistant self adhesive membrane to a good

NVQ standard following the petal and 300mm tophat sequence. The photograph on

the left shows this. The photograph above on the right displays the basal layer probe

pipe successfully sealed. Again, creating a continuous seal throughout the area.

GEOSHIELD Verification Report

VERIFICATION ITEM TWO



The above photograph displays a mechanical point stress test being conducted upon a successfully sealed pipe penetration detail, all pipes were subjected to the above testing procedure and no faults or defects were identified.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Basal Layer Membrane - GLs A-T/10-11

NOTES: Retrofit-

The Juta Titan Flex required terminating around the perimeter of the area referenced.

This has been achieved via retrofit detail carried out in accordance to design details

using Juta Titan Tank membrane.



Close up perspective of a successful retrofit detail shown in the photograph above on

the left, all areas have been primed prior to application to help aid in adherence.

The photograph above on the right displays a mechanical point stress test being

carried out upon a section of retrofit. No faults were identified throughout.



GEOSHIELD Verification Report

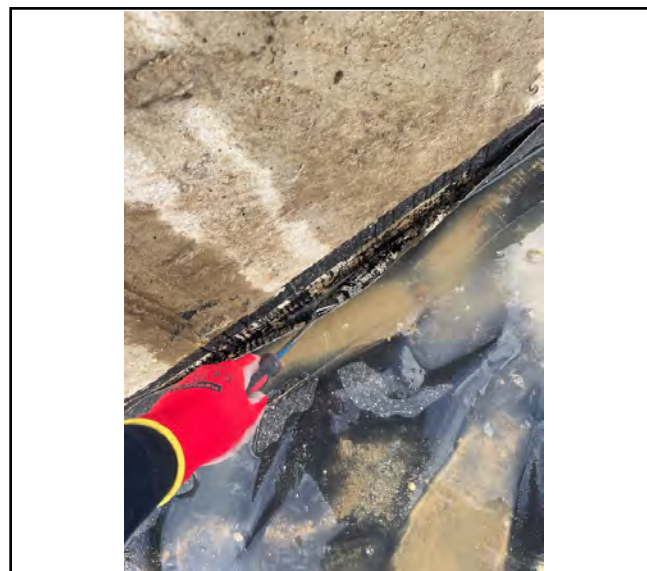
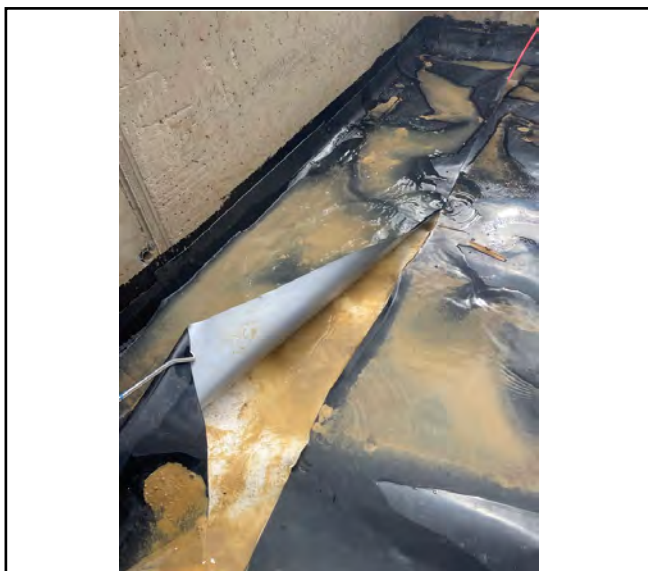


VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13

NOTES: Outstanding remediations-

Unfortunately the previous areas inspected and verified on the last visit still could not be completely signed off due to a number of reasons. The photograph below on the left shows the Juta Titan Flex membrane has been cut in one of the areas so the below...



...basal layer probe 3 could be installed due to being forgotten about.

The photograph above on the right shows one of several sections of retrofit perimeter detailing not sealed upon the primed perimeter due to excessive water ingress jeopardising the seal, areas will require further inspection once remediated.



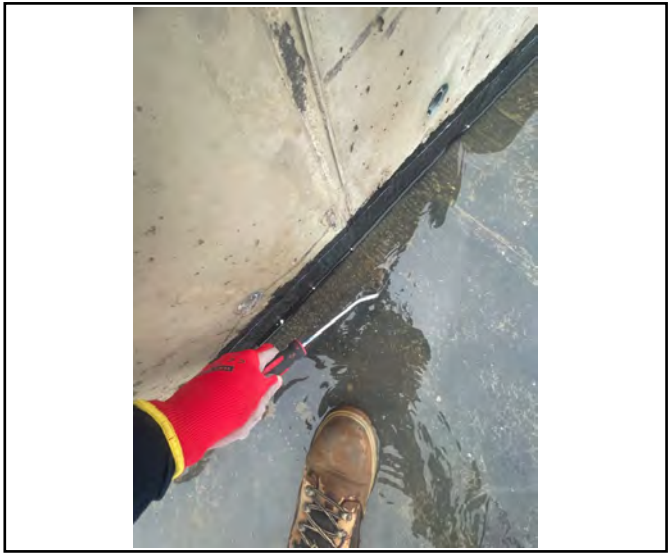
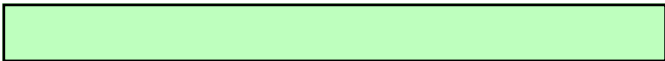
GEOSHIELD Verification Report



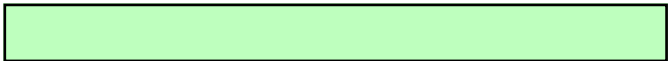
ADDITIONAL PHOTOGRAPHS



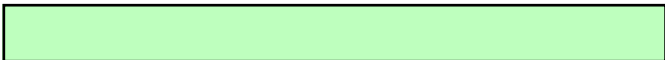
Pick&probe testing to retrofit detailing.



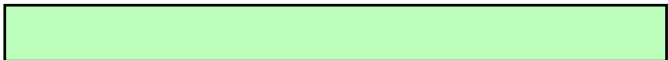
Pick&probe testing to retrofit detailing.



Successfully sealed pipe penetrations.



Pick&probe testing to welded lap joint.





GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	

[illegible]



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



VERIFICATION SUMMARY

This was the 12th visit to Riverside Academy, Reading where verification was required for the installation of Juta Titan Flex membrane to East Block Basal Layer- East Block Basal Layer Membrane - GLs A-T/10-11 All laps overlaps have been successfully welded using a hot air tool and silicone roller. Pipe penetrations and retrofitting detail to the perimeter of the area referenced have been sealed in accordance to manufactures specification using Juta Titan Tank. All retrofitted surfaces have been primed prior to application to help aid in adherence. All areas were subjected to thorough visual pick&probe testing due to limited access and no faults were identified. Outstanding remediations still stand within the previously verified areas - Q-Q.5/10-12 & Q-R/12-13. Verified in accordance with CIRIA 735.

GEOSHIELD SIGNATURE:

DATE: 28/03/2023



GEOSHIELD Verification Report



PROJECT REFERENCE: GEO103260

REPORT NUMBER: 013

PROJECT: Riverside Academy

PROJECT ADDRESS: Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION: Verified in accordance CIRIA 735.

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

Substrate prepared in-accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

Radon Maps UK - (Map 1) Site Location & (Map 2) Nearby 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 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:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME:

Ben

COMPANY:

Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East Block Basal Layer Membrane - GLs Q-T/1-13 & S-T/12-13

East Block Below Basal Layer Probes 5,6 and 7

SITE CONDITIONS:

WEATHER: Sunshine.

TEMPERATURE: 12c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 14:00-16:00 REPORT NUMBER: 013

DATE: 04/04/2023.

ACCOMPANIED Nigel - Fenton Group & SWC installers.



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of the proposed East Block.

Highlighted red above is where verification took place.

East Block Basal Layer Membrane - GLs Q-T/1-13 & S-T/12-13



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane -



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane -

GEOSHIELD Verification Report

BGA
British Geomembrane Association



VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block- GLs Q-T/1-13 & S-T/12-13

NOTES: Installation-

Juta Titan Flex has been installed across the blinded substrate to another basal section within east block. All overlaps between sheets of Juta Titan Flex have been welded using a hot air tool and silicone roller in accordance to BS8485:2019 guidelines.



The annotations on the photograph on the left highlight consistently welded lap joints.

The photograph above on the right displays an alternate overview of the area verified.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a consistently welded lap joint.

This was one of two testing procedures carried out during this verification visit.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report

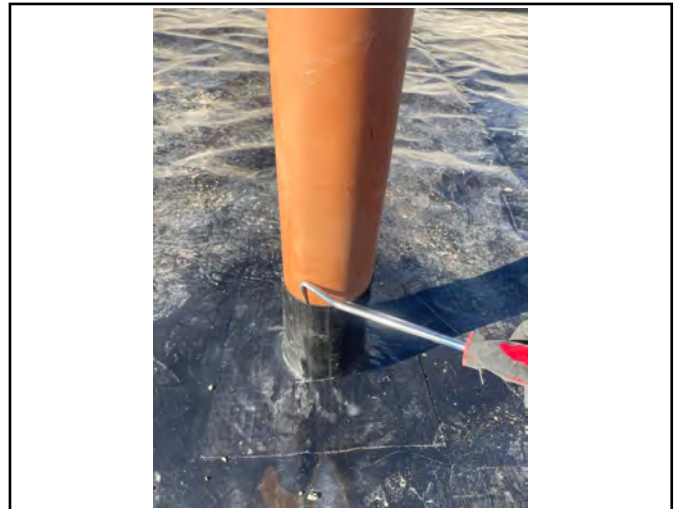


VERIFICATION ITEM TWO

LOCATION/GRID LINE: East Block- GLs Q-T/1-13 & S-T/12-13

NOTES: Pipe penetrations-

Within the area referenced several pipe penetrations required sealing to create a continuous seal throughout the areas. The Juta Titan Flex has been cut tightly around each pipe penetration eliminating voided spaces and sealed accordingly.



The pipe penetrations have been successfully sealed in accordance to manufactures specification using Juta Titan Tank - gas resistant self adhesive membrane to a good NVQ standard following the petal and 300mm tophat sequence which can be seen in the photographs above, each pipe penetration was also subjected to the pick&probe test as shown above. No faults were identified. Verified in accordance with CIRIA735.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

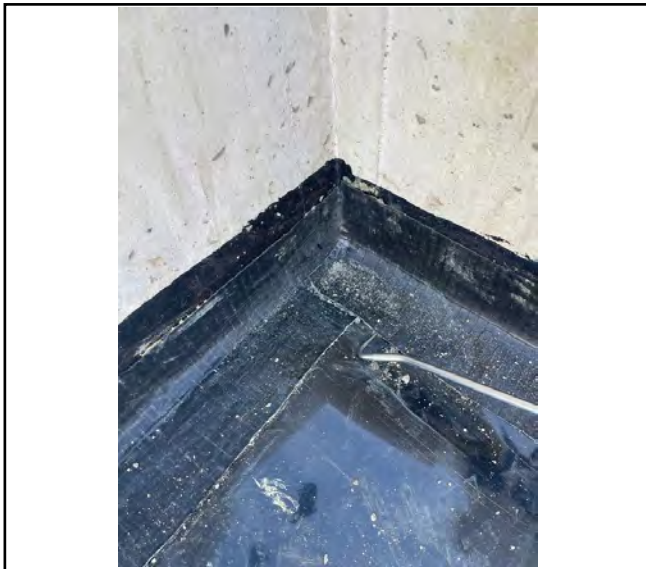
LOCATION/GRID LINE: East Block- GLs Q-T/1-13 & S-T/12-13

NOTES: Retrofit-

The Juta Titan Flex required terminating around the perimeter of the area referenced.

This has been achieved via a retrofit detail carried out in accordance to design details

using Juta Titan Tank membrane. All surfaces of the concrete have been primed prior...



...to application to help aid in adherence of the Juta Titan Tank.

All Juta Titan Tank works have been thoroughly heated down with rolled pressure

applied ensuring a complete seal has been achieved. The pick&probe tests carried out

to the retrofit detailing identified no faults or defects.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Below Basal Layer Probes 5,6 and 7

NOTES: Installation-

The probes referenced above have been successfully installed by the specialists from Prestige Air. The probe centres have been marked out by Fentons Engineer as per Geoshields design. The probe pipe has been ingresses within the sand blinded...



...substrate a suitable depth so no potential damages could occur once backfilled using soft sand as shown in the photograph above on the left.

All probes have been connected upon the the probes correctly with the pipe returning externally in preparation for the monitors to be installed.



GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Pick&probe testing to retrofit detailing.



Pick&probe testing to retrofit detailing.



Outstanding remediations, remediated

on previously verified areas.



Pick&probe testing to sealed pipe.



GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Fault identified.



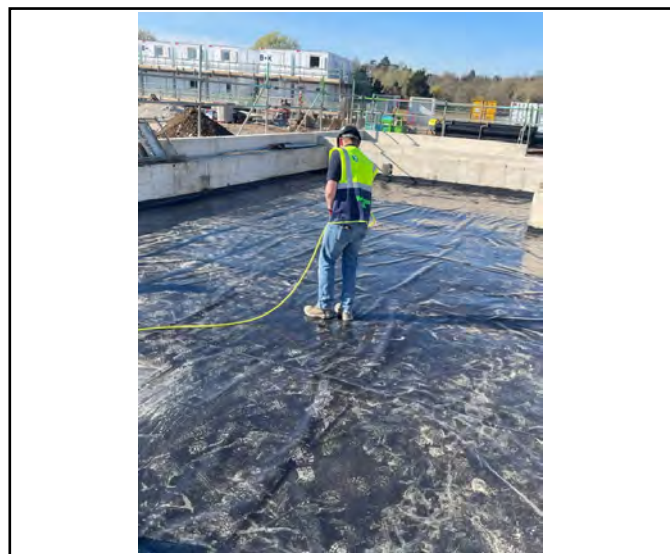
Installer carrying out patch repair

Remediated on-site.

remediation.



Cut membrane remediated from
previous visit.



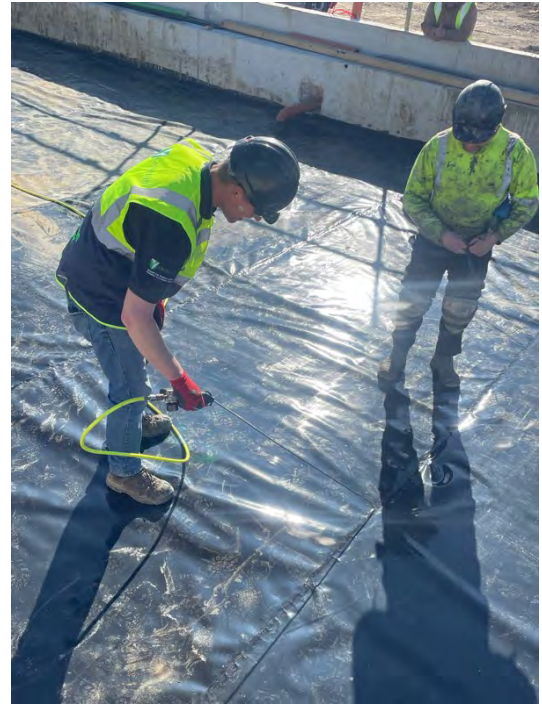
Airlance testing.

AIR LANCE INTEGRITY TESTING

AIR LANCE TEST: ASTM D4437-08:2013 Inspects all seams for unbonded areas using a 4.8mm air nozzle held not more than 51mm away from the seam. 50 Psi is the minimum requirement. The air nozzle is directed on the upper edge seam, ripples indicate a unbonded seam. Each seam is numbered and failure marked with a F/1 F/2 classification and a description given



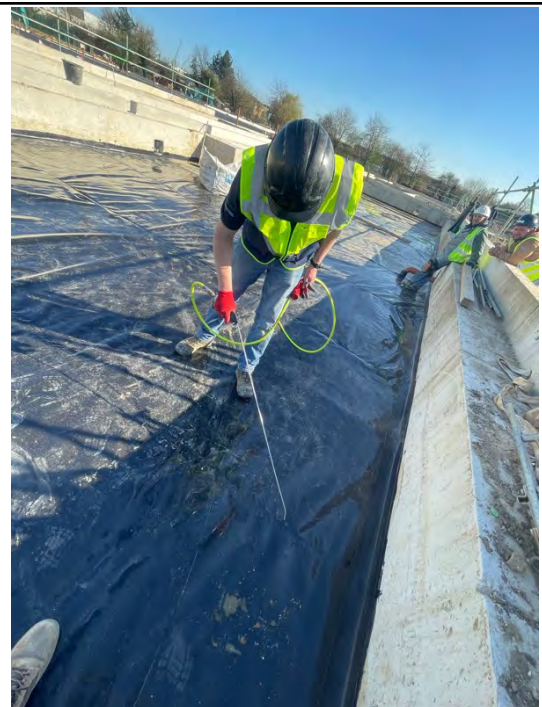
Airlance integrity testing to welded lap joint.



Airlance integrity testing to welded lap joint.



Airlance integrity testing to welded lap joint.



Airlance integrity testing to retrofit detail.



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QUALITY ASSURANCE PROGRAMS AND INSPECTION SERVICES



INTEGRITY TESTING RECORD

AIR LANCE INTEGRITY TESTING (cont)

Detail of the Gas Membrane	Juta Titan Flex
Detail of Tapes	Juta Titan Tank
Joints and lap design	Welded.

TEST NUMBER:	FAILED OR PASSED	DETAIL, COMMENT AND RECOMMENDATIONS
Weld 1-2	Pass	One misweld identified. Remediated on-site.
Weld 3-4	Pass	Consistently welded lap joints achieved. No faults.
Weld 5-6	Pass	Two miswelds identified. Remediated on-site.
Weld 7-8	Pass	Three miswelds identified. Remediated on-site.

NOTES:

Application of Membrane to specification and conforming to manufacturing technical data



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐



GEOSHIELD Verification Report



VERIFICATION SUMMARY

This was the 13th visit to Riverside Academy, Reading where verification was required for the installation of Juta Titan Flex membrane to East Block Basal Layer- East Block- GLs Q-T/1-13 & S-T/12-13. All overlaps have been welded using a hot air tool and silicone roller. Pipe penetrations and retrofit detailing of the areas referenced have been sealed in accordance to manufactures specification and to design details using Juta Titan Tank. All retrofitted surfaces have been primed prior to application to help aid in adherence. Basal layer probes 5,6 and 7 have also been installed as per the Geoshield design details. Thorough visual pick&probe tests and airtightness integrity testing identified several faults which were remediated on-site. No outstanding remediations. Verified in accordance with CIRIA 735

GEOSHIELD SIGNATURE:

DATE: 04/04/2023



GEOSHIELD Verification Report



PROJECT REFERENCE: GEO103260

REPORT NUMBER: 014

PROJECT: Riverside Academy

PROJECT ADDRESS: Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION: Verified in accordance CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GS2686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

Radon Maps UK - (Map 1) Site Location & (Map 2) Nearby 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 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:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME:

Ben

COMPANY:

Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East Block Basal Layer Membrane -GLs T-W/12-13 & S-AA/11-12

East Block Above Basal Layer Probes 1,2 and 3.

SITE CONDITIONS:

WEATHER: Overcast.

TEMPERATURE: 12c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 13:00-15:00 REPORT NUMBER: 014

DATE: 06/04/2023.

ACCOMPANIED Nigel - Fenton Group & SWC installers.



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of the proposed East Block.

Highlighted red above is where verification took place.

East Block Basal Layer Membrane - GLs T-W/12-13 & S-AA/11-12



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

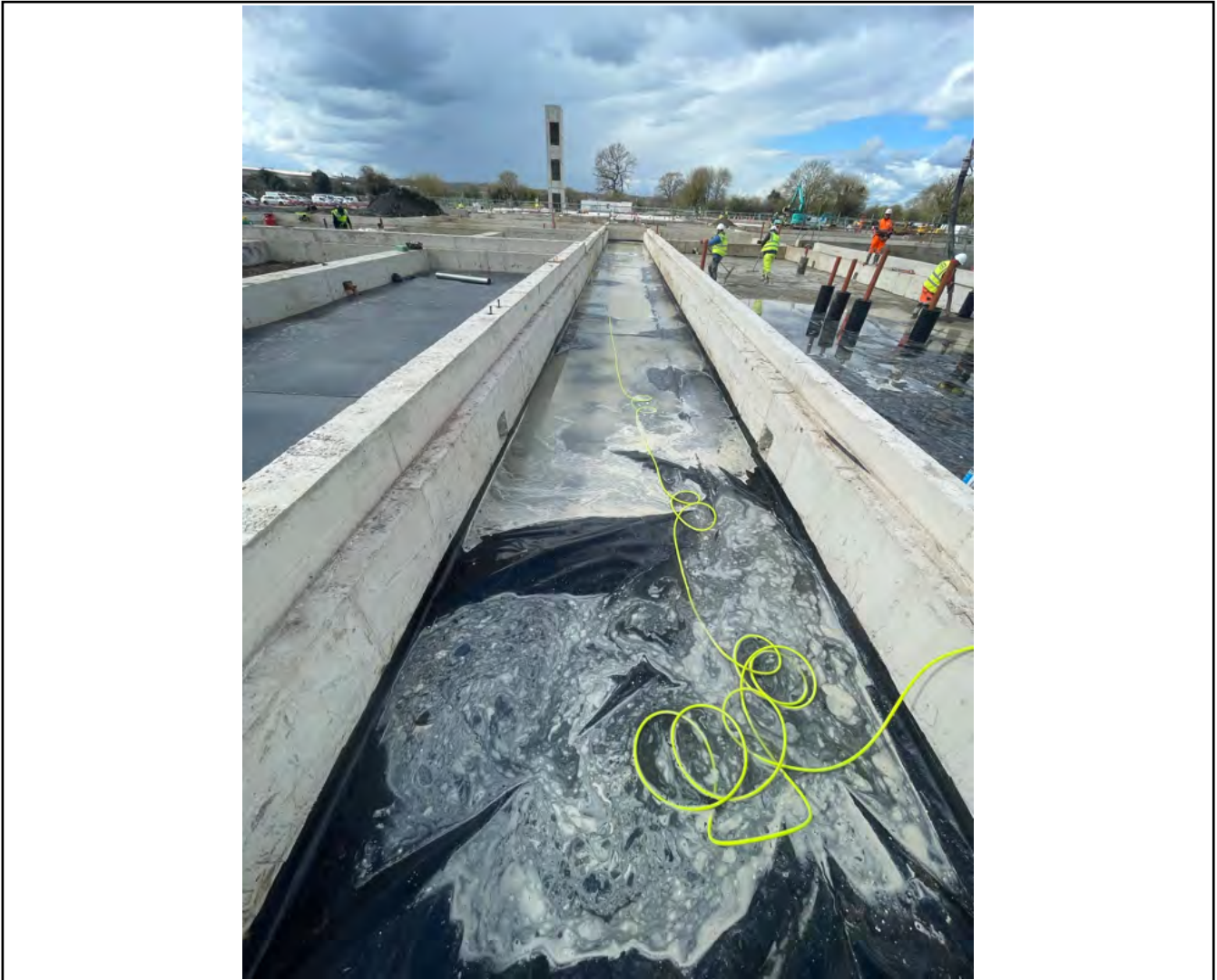
East Block Basal Layer Membrane - GLs T-W/12-13 & S-AA/11-12



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane - GLs T-W/12-13 & S-AA/11-12

GEOSHIELD Verification Report



VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block- GLs T-W/12-13 & S-AA/11-12

NOTES: Installation-

Juta Titan Flex has been installed across the blinded substrate to further basal sections within east block. All overlaps between sheets of Juta Titan Flex have been welded using a hot air tool & silicone roller upon a 150mm overlap conforming to manufacturers...



...specification. The photograph on the left highlights consistently welded lap joints.

The photograph above on the right displays an alternate overview of the area verified.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a consistently welded lap joint.

This was one of two testing procedures carried out during this verification visit.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: East Block- GLs T-W/12-13 & S-AA/11-12

NOTES: Pipe penetrations-

Within the area referenced several pipe penetrations required sealing to create a continuous seal throughout the areas. The Juta Titan Flex has been cut tightly around each pipe penetration eliminating voided spaces and sealed accordingly.



The pipe penetrations have been successfully sealed in accordance to manufactures specification using Juta Titan Tank - gas resistant self adhesive membrane to a good NVQ standard following the petal and 300mm tophat sequence which can be seen in the photographs above, each pipe penetration was also subjected to the pick&probe test as shown above. No faults were identified. Verified in accordance with CIRIA735.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

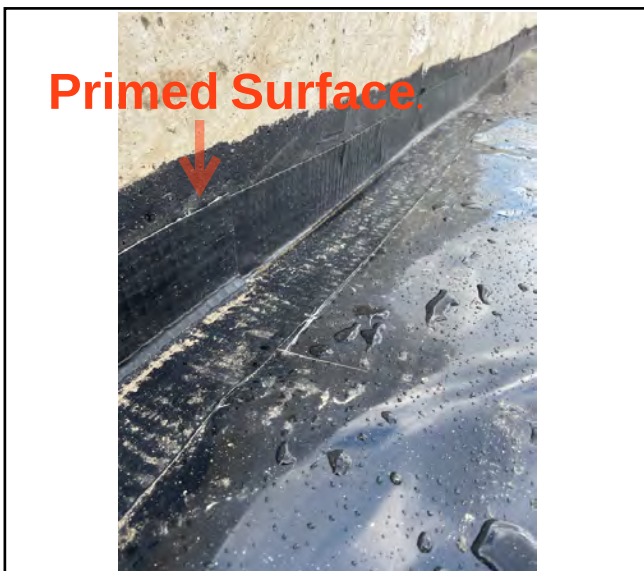
LOCATION/GRID LINE: East Block- GLs T-W/12-13 & S-AA/11-12

NOTES: Retrofit-

The Juta Titan Flex required terminating around the perimeter of the areas referenced.

This has been achieved via a retrofit detail carried out in accordance to design details

using Juta Titan Tank membrane. All surfaces of the concrete have been primed prior...



...to application to help aid in adherence of the 'Titan Tank' as highlighted on the left.

All Juta Titan Tank works have been thoroughly heated down with rolled pressure

applied ensuring a complete seal has been achieved. Mechanical point stress tests

were conducted across all areas of retrofits and no faults were found.



GEOSHIELD Verification Report

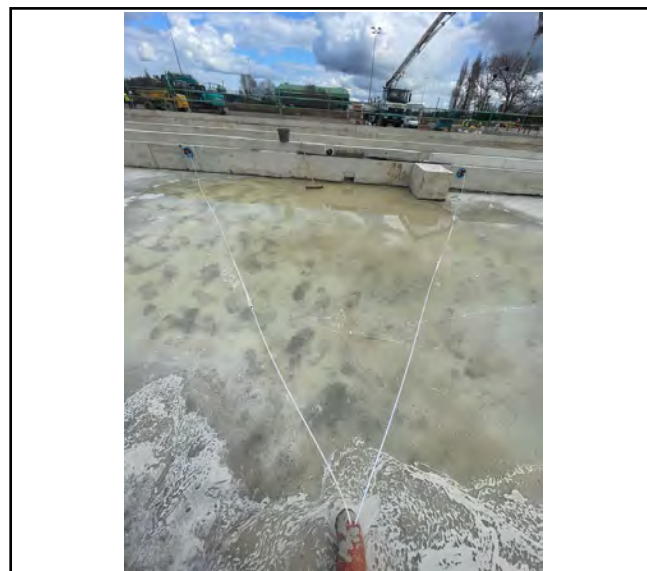


VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Above Basal Layer Probes 1,2 and 3.

NOTES: Installation-

The probes referenced above have been successfully installed by the specialists from Prestige Air. The probe centres have been marked out by Fentons Engineer as per Geoshields design. The probe pipe routes have been altered due to route disruptions.



The probe routes have been fixed upon the concrete blinding as shown in the photograph above on the left. No vicious angles were present ensuring an accurate reading is achieved. The probe pipe has been returned through pipe work externally and returned immediately horizontally as per the method statement.



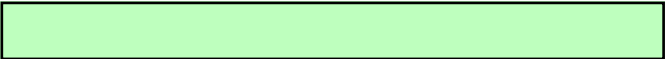
GEOSHIELD Verification Report



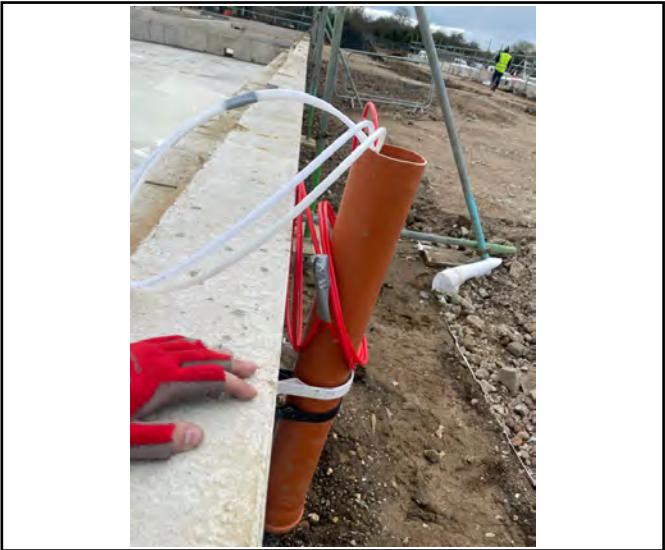
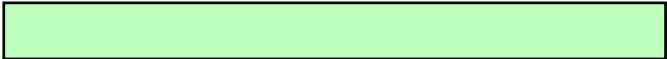
ADDITIONAL PHOTOGRAPHS



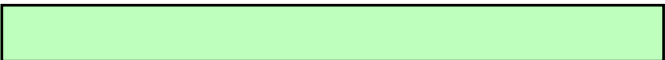
Faults identified.



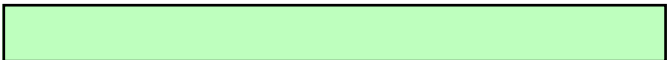
Faults remediated.



ABL probe pipe exit.



Pick&probe testing to sealed pipe.





GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Juta GP1 perimeter and internal wall

installation in progress.

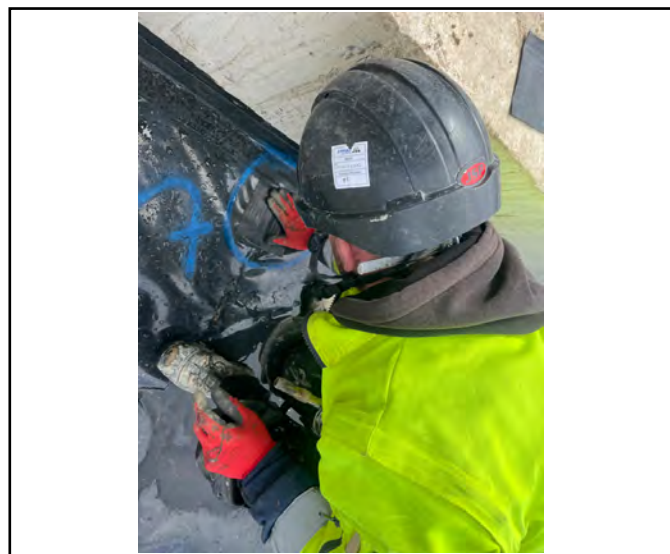


ABL probe fixed to engineers

mark up.



Preparation for next section.



Installer carrying out remediation.

AIR LANCE INTEGRITY TESTING

AIR LANCE TEST: ASTM D4437-08:2013 Inspects all seams for unbonded areas using a 4.8mm air nozzle held not more than 51mm away from the seam. 50 Psi is the minimum requirement.

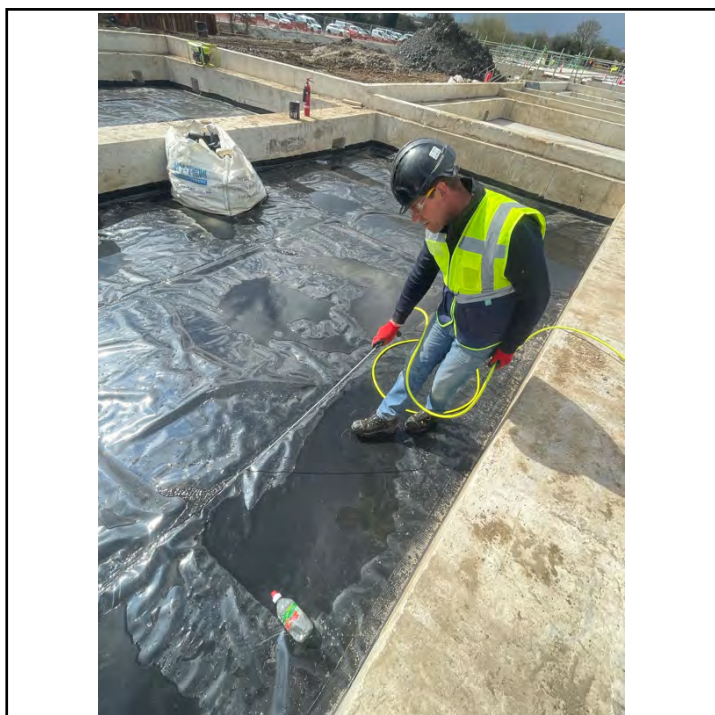
The air nozzle is directed on the upper edge seam, ripples indicate a unbonded seam. Each seam is numbered and failure marked with a F/1 F/2 classification and a description given



Airlance integrity testing to welded lap joint.



Airlance integrity testing to welded lap joint.



Airlance integrity testing to welded lap joint.



Airlance integrity testing to sealed pipe.



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INTEGRITY TESTING RECORD

AIR LANCE INTEGRITY TESTING (cont)

Detail of the Gas Membrane	Juta Titan Flex
Detail of Tapes	Juta Titan Tank
Joints and lap design	Welded.

TEST NUMBER:	FAILED OR PASSED	DETAIL, COMMENT AND RECOMMENDATIONS
Weld 1-2	Pass	Four miswelds identified. Remediated on-site.
Weld 3-4	Pass	Consistently welded lap joints achieved. No faults.
Weld 5-6	Pass	Two miswelds identified. Remediated on-site.

NOTES:

Application of Membrane to specification and conforming to manufacturing technical data



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs T-W/12-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-AA/11-12	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 1,2 and 3.	☒
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐



GEOSHIELD Verification Report



VERIFICATION SUMMARY

This was the 14th visit to Riverside Academy, Reading where verification was required for the installation of Juta Titan Flex to another section of East Block Basal Layer to GLs T-W/12-13 & S-AA/11-12. All overlaps have been welded using a hot air tool & silicone roller. Pipe penetrations and retrofit detailing to the areas referenced have been sealed in accordance to manufactures specification and to design details using Juta Titan Tank. All retrofitted surfaces have been primed prior to application to help aid in adherence. Above basal layer probes 1,2 & 3 have also been installed as per the Geoshield design details. Thorough visual pick&probe tests and airtightness integrity testing identified several faults which were remediated on-site. No outstanding remediations. Verified in accordance with CIRIA 735

GEOSHIELD SIGNATURE:

DATE: 06/04/2023



GEOSHIELD Verification Report



PROJECT REFERENCE:

GEO103260

REPORT NUMBER:

015

PROJECT:

Riverside Academy

PROJECT ADDRESS:

Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION:

Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

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



CLIENT DETAILS

CLIENT CONTACT:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



VERIFICATION OFFICER:

Brett Hattle

VERIFICATION COMPANY:

GeoShield Limited

Icon Business Park, 4100 Park Approach

Thorpe Park, LEEDS

West Yorkshire

LS15 8GB

CONTACT NUMBER:

07387373167

EMAIL ADDRESS:

bhattle@geoshield.co.uk

ORDER NUMBER:

PER VISIT: YES:

☐

NO:

☐

PROJECT: YES:



NO:

☐



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Robin

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME: Ben

COMPANY: Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East Block Basal Layer Membrane -GLs: 10-12/BB-EE

SITE CONDITIONS:

WEATHER: Raining

TEMPERATURE: 10c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 11.15-13.45 REPORT NUMBER: 015

DATE: 12/04/2023.

ACCOMPANIED Nigel - Fenton Group & SWC installers.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane -GLs: 10-12/BB-EE + 12/Z-EE



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane -GLs: 10-12/BB-EE + 12/Z-EE

GEOSHIELD Verification Report



VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block Basal Layer -GLs: 10-12/BB-EE + 12/Z-EE

NOTES: Installation-

Juta Titan Flex has been installed across the blinded substrate to further basal sections within east block. All overlaps between sheets of Juta Titan Flex have been welded using a hot air tool & silicone roller upon a 150mm overlap conforming to manufactures...



...specification. The photograph on the left highlights consistently welded lap joints.

The photograph above on the right displays an alternate overview of the area verified.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a consistently welded lap joint.

This was one of two testing procedures carried out during this verification visit.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: East Block Basal Layer -GLs: 10-12/BB-EE + 12/Z-EE

NOTES: Pipe Penetrations -

Within the area referenced several pipe penetrations required sealing to create a continuous seal throughout the areas. The Juta Titan Flex has been cut tightly around each pipe penetration eliminating voided spaces and sealed accordingly.



The pipe penetrations have been successfully sealed in accordance to manufactures specification using Juta Titan Tank - gas resistant self adhesive membrane to a good NVQ standard following the petal and 300mm tophat sequence which can be seen in the photographs above, each pipe penetration was also subjected to the pick&probe test as shown above. No faults were identified. Verified in accordance with CIRIA735.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

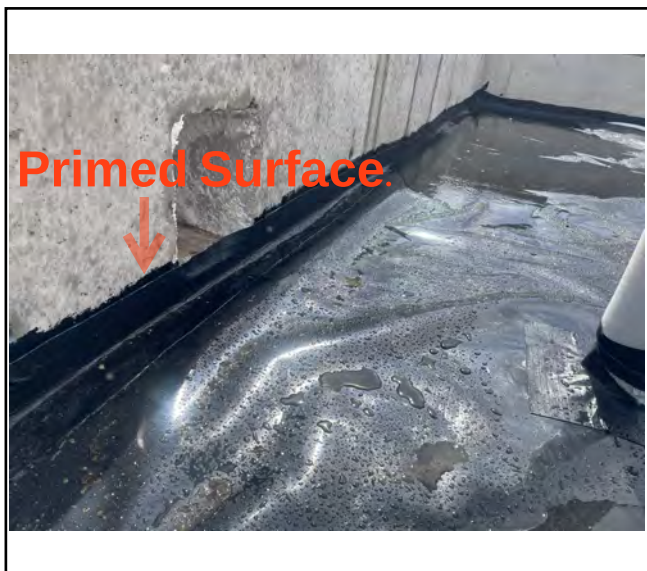
LOCATION/GRID LINE: East Block Basal Layer -GLs: 10-12/BB-EE + 12/Z-EE

NOTES: Retrofit-

The Juta Titan Flex required terminating around the perimeter of the areas referenced.

This has been achieved via a retrofit detail carried out in accordance to design details

using Juta Titan Tank membrane. All surfaces of the concrete have been primed prior...



...to application to help aid in adherence of the 'Titan Tank' as highlighted on the left.

All Juta Titan Tank works have been thoroughly heated down with rolled pressure

applied ensuring a complete seal has been achieved. Mechanical point stress tests

were conducted across all areas of retrofits and no faults were found.



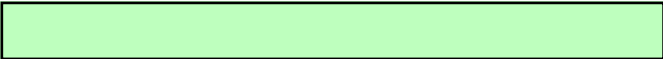
GEOSHIELD Verification Report



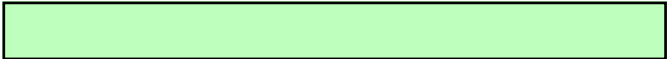
ADDITIONAL PHOTOGRAPHS



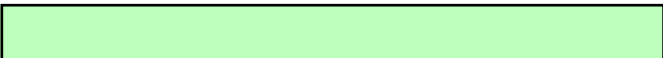
Faults identified.



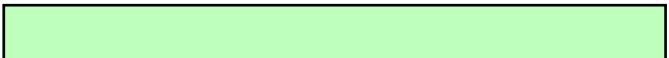
Faults remediated.



Heat applied to remediated area.



Pick&probe testing to sealed pipe.





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QUALITY ASSURANCE PROGRAMS AND INSPECTION SERVICES



INTEGRITY TESTING RECORD

AIR LANCE INTEGRITY TESTING (cont)

Detail of the Gas Membrane	Juta Titan Flex
Detail of Tapes	Juta Titan Tank
Joints and lap design	Welded.

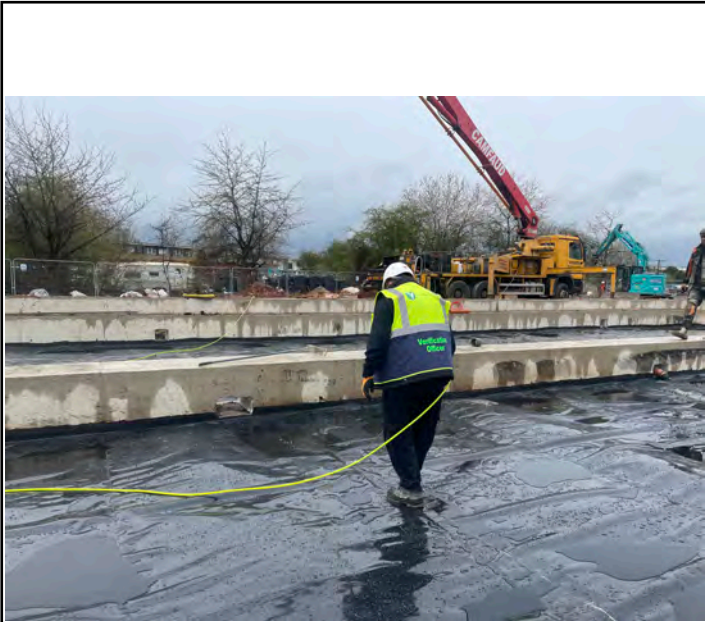
TEST NUMBER:	FAILED OR PASSED	DETAIL, COMMENT AND RECOMMENDATIONS
Weld 1-2	Pass	Four miswelds identified. Remediated on-site.
Weld 3-4	Pass	Consistently welded lap joints achieved. No faults.
Weld 5-6	Pass	Two miswelds identified. Remediated on-site.
Weld 7-8	Pass	Two miswelds identified. Remediated on-site.

NOTES:

Application of Membrane to specification and conforming to manufacturing technical data

AIR LANCE INTEGRITY TESTING

AIR LANCE TEST: ASTM D4437-08:2013 Inspects all seams for unbonded areas using a 4.8mm air nozzle held not more than 51mm away from the seam. 50 Psi is the minimum requirement. The air nozzle is directed on the upper edge seam, ripples indicate a unbonded seam. Each seam is numbered and failure marked with a F/1 F/2 classification and a description given



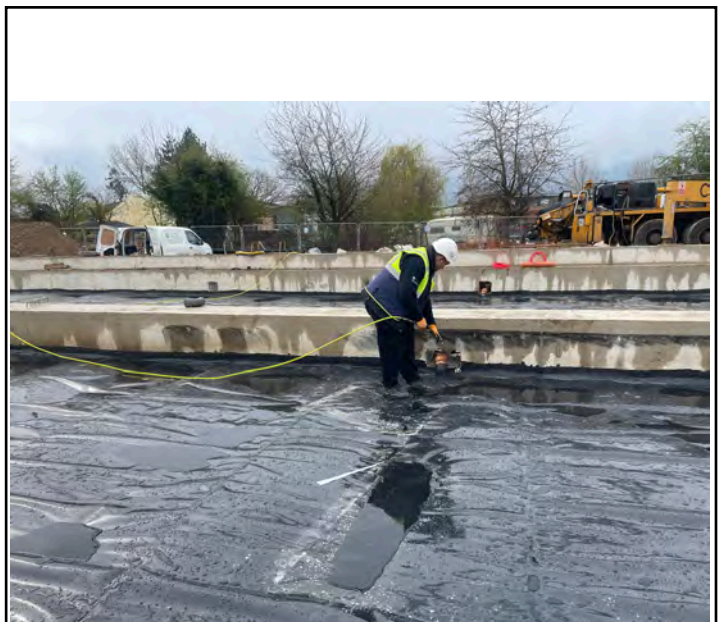
Airlance integrity testing to welded lap joint.



Airlance integrity testing to welded lap joint.



Airlance integrity testing to 55psi



Airlance integrity testing to sealed pipe.



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓

[illegible]



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs T-W/12-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-AA/11-12	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 1,2 and 3.	☒
Gridline/Plot Sign off	East Block Basal Layer -GLs: 10-12/BB-EE	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs: 12/Z-EE	☒



GEOSHIELD Verification Report



VERIFICATION SUMMARY

Today's visit to Riverside Academy, Reading was the fifteenth verification visit required for the installation of Juta Titan Flex to another section of East Block Basel Layer Membrane -GLs: 10-12/BB-EE + 12/Z-EE. All laps have been welded using a hot air tool & silicone roller. Pipe penetrations and retrofit detailing to the areas referenced have been sealed in accordance to manufactures specification and to design details using Juta Titan Tank. All retrofitted surfaces have been primed prior to application to help aid in adherence. Two testing procedures were conducted throughout the verification visit, a thorough visual pick and probe test as well as a non destructive air lance integrity test which identified several faults which were remediated on-site. Verified in accordance with CIRIA 735

GEOSHIELD SIGNATURE:

DATE: 12/04/2023



GEOSHIELD Verification Report



PROJECT REFERENCE:

GEO103260

REPORT NUMBER:

016

PROJECT:

Riverside Academy

PROJECT ADDRESS:

Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION:

Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

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



CLIENT DETAILS

CLIENT CONTACT:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



VERIFICATION OFFICER:

Brett Hattle

VERIFICATION COMPANY:

GeoShield Limited

Icon Business Park, 4100 Park Approach

Thorpe Park, LEEDS

West Yorkshire

LS15 8GB

CONTACT NUMBER:

07387373167

EMAIL ADDRESS:

bhattle@geoshield.co.uk

ORDER NUMBER:

PER VISIT: YES:

☐

NO:

☐

PROJECT: YES:



NO:

☐



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Robin

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME: Ben

COMPANY: Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East Block Basal Layer Membrane -GLs: 12-13/W-FF

East Block Above Basal Layer Probes 9,10,11

SITE CONDITIONS:

WEATHER: Cloudy

TEMPERATURE: 10c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 09.15-10.45 REPORT NUMBER: 016

DATE: 14/04/2023.

ACCOMPANIED Nigel - Fenton Group & SWC installers.



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of the proposed East Block.

Highlighted red above is where verification took place.

East Block Basal Layer Membrane -GLs: 12-13/W-FF



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane -GLs: 12-13/W-FF



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East Block Basal Layer Membrane -GLs: 12-13/W-FF

GEOSHIELD Verification Report



VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block Basal Layer Membrane -GLs: 12-13/W-FF

NOTES: Installation-

Juta Titan Flex has been installed across the blinded substrate to further basal sections within east block. All overlaps between sheets of Juta Titan Flex have been welded using a hot air leister and silicone roller with adequate pressure applied to ensure a 40mm



weld is achieved. The photograph on the left highlights a consistently welded lap joint.

The photograph above on the right displays an alternate overview of the area verified.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a consistently welded lap joint.

This was one of two testing procedures carried out during this verification visit.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: East Block Basal Layer Membrane -GLs: 12-13/W-FF

NOTES: Pipe Penetrations -

Within the area referenced several pipe penetrations required sealing to create a continuous seal throughout the areas. The Juta Titan Flex has been cut tightly around each pipe penetration eliminating voided spaces and sealed accordingly.



The pipe penetrations have been successfully sealed in accordance to manufactures specification using Juta Titan Tank - gas resistant self adhesive membrane to a good NVQ standard following the petal and 300mm tophat sequence which can be seen in the photographs above, each pipe penetration was also subjected to the pick&probe test as shown above. No faults were identified. Verified in accordance with CIRIA735.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Basal Layer Membrane -GLs: 12-13/W-FF

NOTES: Retrofit-

The Juta Titan Flex required terminating around the perimeter of the areas referenced.

This has been achieved via a retrofit detail carried out in accordance to design details

using Juta Titan Tank membrane. All surfaces of the concrete have been primed prior...



...to application to help aid in adherence of the 'Titan Tank' as highlighted on the left.

All Juta Titan Tank works have been thoroughly heated down with rolled pressure

applied ensuring a complete seal has been achieved. Mechanical point stress tests

were conducted across all areas of retrofits and no faults were found.



GEOSHIELD Verification Report

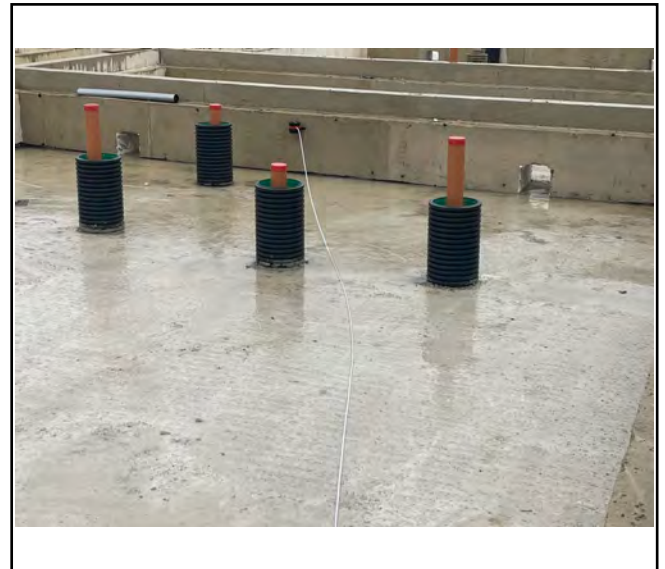
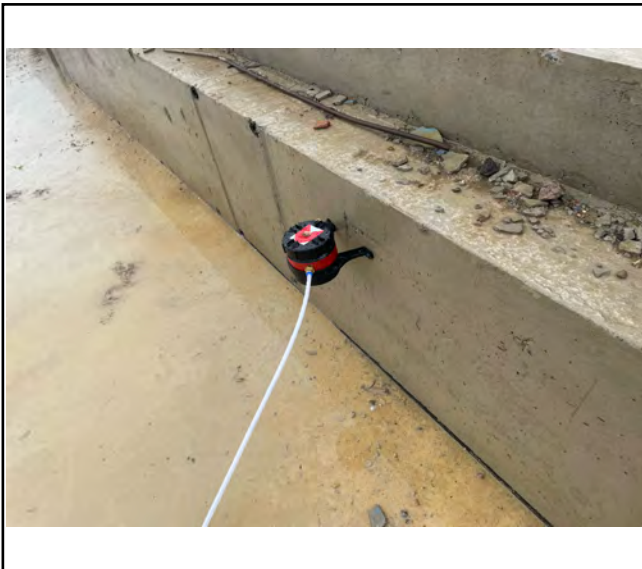


VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block Above Basal Layer Probes 9,10,11

NOTES: Installation-

The probes referenced above have been successfully installed by the specialists from Prestige Air. The probe centres have been marked out by Fentons Engineer as per Geoshields design. The probe pipe routes have been altered due to route disruptions.



The probe routes have been fixed upon the concrete blinding as shown in the photograph above on the left. No vicious angles were present ensuring an accurate reading is achieved. The probe pipe has been returned through pipe work externally and returned immediately horizontally as per the method statement.



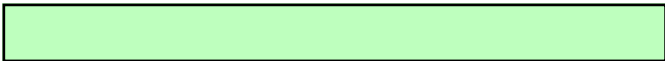
GEOSHIELD Verification Report



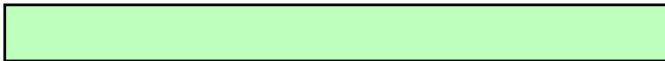
ADDITIONAL PHOTOGRAPHS



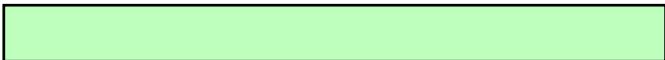
Faults identified.



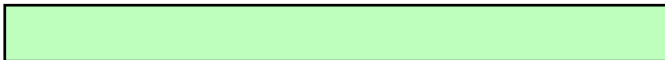
Faults remediated.



Heat applied to patch repair.



Hot air tool used on-site.





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INTEGRITY TESTING RECORD

AIR LANCE INTEGRITY TESTING (cont)

Detail of the Gas Membrane	Juta Titan Flex
Detail of Tapes	Juta Titan Tank
Joints and lap design	Welded.

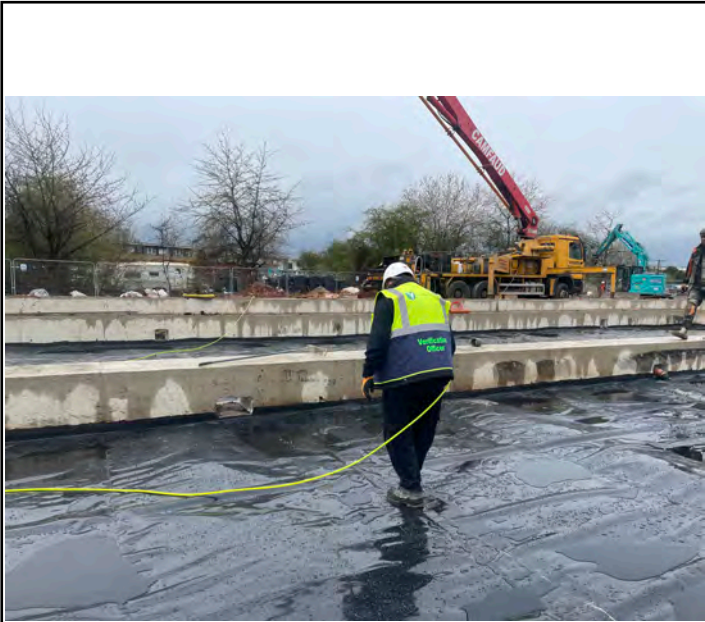
TEST NUMBER:	FAILED OR PASSED	DETAIL, COMMENT AND RECOMMENDATIONS
Weld 1-2	Pass	Four miswelds identified. Remediated on-site.
Weld 3-4	Pass	Consistently welded lap joints achieved. No faults.
Weld 5-6	Pass	Two miswelds identified. Remediated on-site.
Weld 7-8	Pass	Two miswelds identified. Remediated on-site.

NOTES:

Application of Membrane to specification and conforming to manufacturing technical data

AIR LANCE INTEGRITY TESTING

AIR LANCE TEST: ASTM D4437-08:2013 Inspects all seams for unbonded areas using a 4.8mm air nozzle held not more than 51mm away from the seam. 50 Psi is the minimum requirement. The air nozzle is directed on the upper edge seam, ripples indicate a unbonded seam. Each seam is numbered and failure marked with a F/1 F/2 classification and a description given



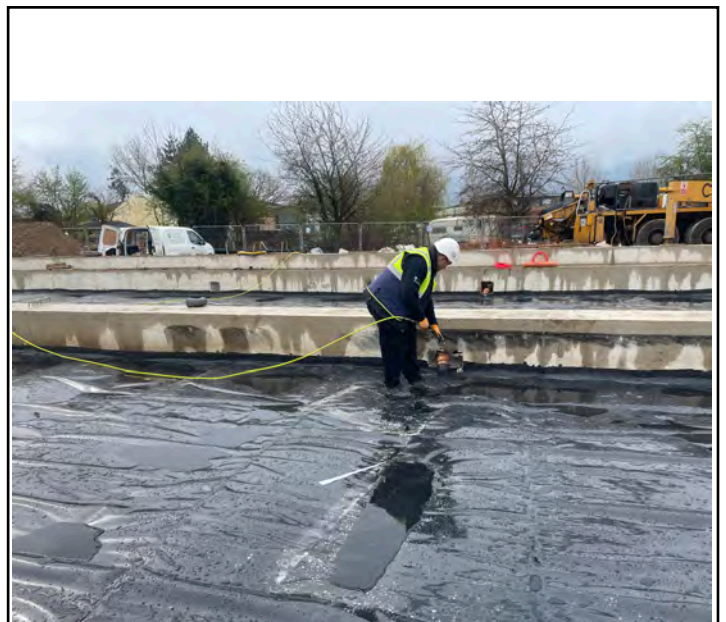
Airlance integrity testing to welded lap joint.



Airlance integrity testing to welded lap joint.



Airlance integrity testing to 55psi



Airlance integrity testing to sealed pipe.



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓

[illegible]



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs T-W/12-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-AA/11-12	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 1,2 and 3.	☒
Gridline/Plot Sign off	East Block Basal Layer -GLs: 10-12/BB-EE	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs: 12/Z-EE	☒



GEOSHIELD Verification Report



VERIFICATION SUMMARY

Today's visit to Riverside Academy, Reading was the sixteenth verification visit

required for the installation of Juta Titan Flex to another section of East Block

Basel Layer Membrane -GLs: 12-13/W-FF. All laps have been welded using

a hot air tool & silicone roller. Pipe penetrations and retrofit detailing to the areas

referenced have been sealed in accordance to manufactures specification and to

design details using Juta Titan Tank. All retrofitted surfaces have been primed prior

to application to help aid in adherence. Two testing procedures were conducted

throughout the verification visit, a thorough visual pick and probe test as well as a

non destructive air lance integrity test which identified several faults which were

remediated on-site. Verified in accordance with CIRIA 735

GEOSHIELD SIGNATURE:

DATE: 14/04/2023



GEOSHIELD

Verification Report



PROJECT REFERENCE: GEO103260

REPORT NUMBER: 017

PROJECT: Riverside Academy

PROJECT ADDRESS: Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION: Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

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



CLIENT DETAILS

CLIENT CONTACT:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



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



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Robin

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME: Ben

COMPANY: Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East Block Above Basal Layer Probes 6,7 and 8.

SITE CONDITIONS:

WEATHER: Cloudy

TEMPERATURE: 13c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 12:00-13:00

REPORT NUMBER: 017

DATE: 17/04/2023.

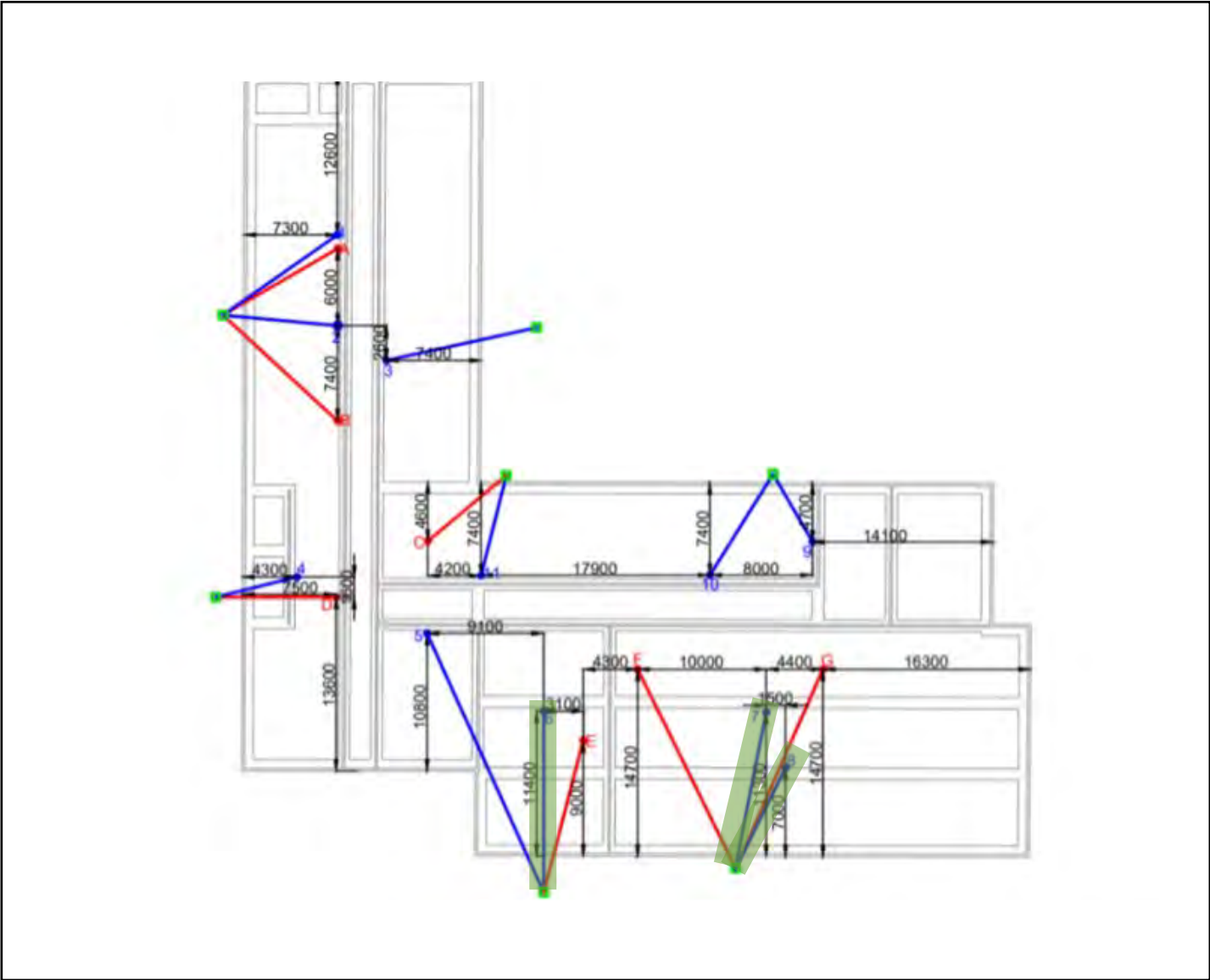
ACCOMPANIED Nigel - Fenton Group



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of East Block.

The above basal layer probes highlighted green above were verified during this visit.

East Block Above Basal Layer Probes 6,7 and 8.



GEOSHIELD Verification Report

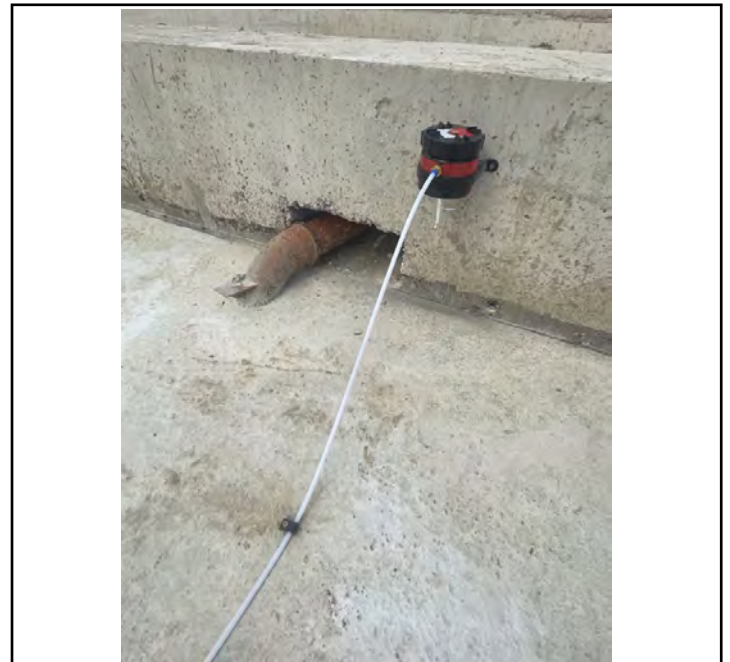
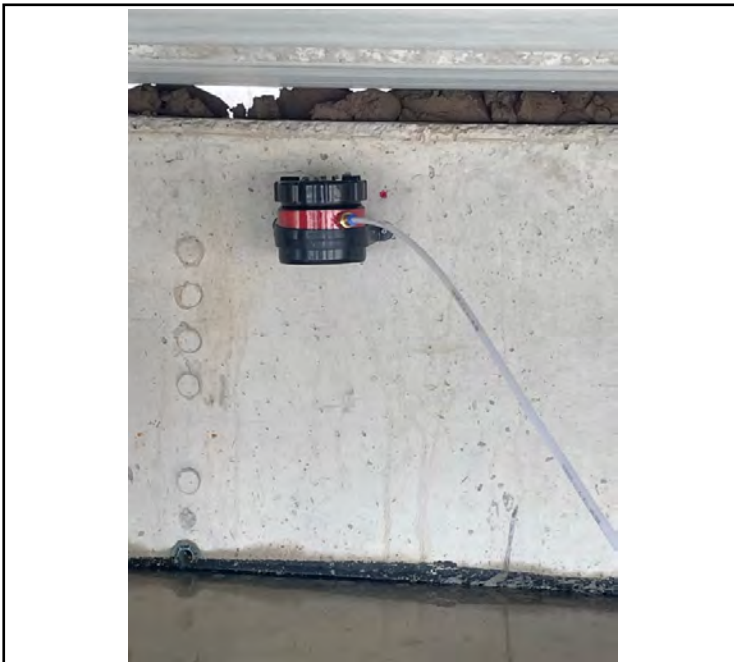


VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block Above Basal Layer Probes 6,7 and 8.

NOTES: Installation-

The remaining above nasal layer probes within the east block have now been successfully installed by the specialists Prestige Air. All monitoring probes have been installed as per Geoshields mark up. However, the probe pipe routes have differed due to obstructions.



The above photographs display the ground gas monitoring probes securely fixed upon the concrete walls.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: East Block Above Basal Layer Probes 6,7 and 8.

NOTES: Probe pipe routes-

As mentioned above the probe pipe routes have been altered due to obstruction within the structure and jetting voids. This will not affect the ground gas monitoring procedures

The photographs below displays some of the probe pipe routes.



The probe pipe has been lined and installed as horizontally as possible, it has been lightly fixed upon the concrete blinding to reduce movements throughout the development. No sharp angles within the probe pipe routes were present.

A gradual gradient to each probe monitoring point was present eliminating any areas potentially creasing causing disruption during the post monitoring procedures.

GEOSHIELD Verification Report

BGA
British Gas Association



VERIFICATION ITEM THREE



The probe pipe has been returned immediately through hard PVC pipe work

vertically up against the concrete perimeter walls in which the ground gas monitoring

works will be carried out on future visits.

Evidence of this shown above.



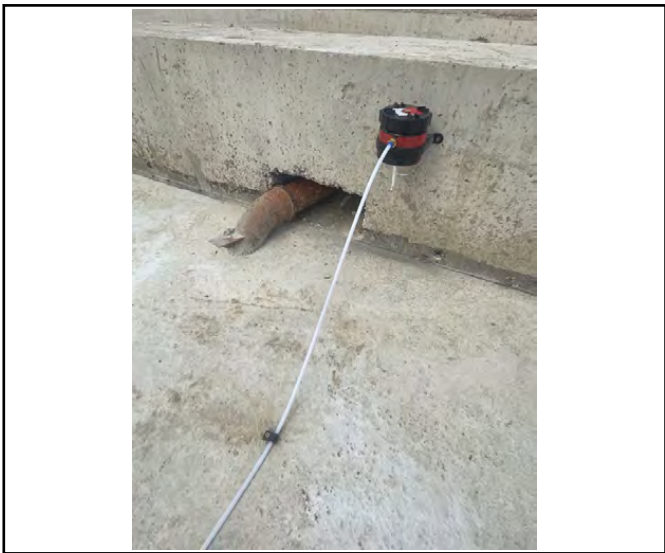
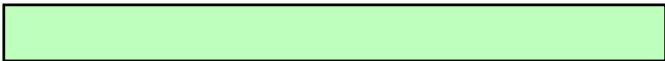
GEOSHIELD Verification Report



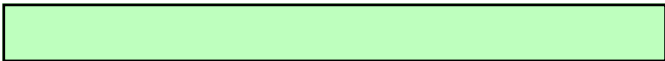
ADDITIONAL PHOTOGRAPHS



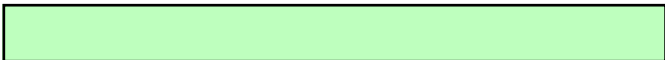
Probe pipe individually tagged.



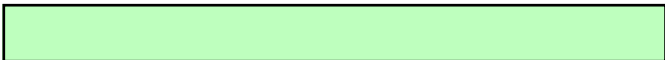
Probe pipe and monitor installation.



Ground gas monitor fixed.



Ground gas monitor fixed.





GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs T-W/12-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-AA/11-12	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 1,2 and 3.	☒
Gridline/Plot Sign off	East Block Basal Layer -GLs: 10-12/BB-EE	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs: 12/Z-EE	☒



GEOSHIELD Verification Report



VERIFICATION SUMMARY

Today's visit to Riverside Academy, Reading was the seventeenth verification visit required for the installation of the remaining Probes 6,7 and 8 within the east block above basal layer. All probes and ground gas monitors have been successfully installed to the centres on Geoshields design. However, the probe pipe routes have altered due to obstruction and jetting voids. This will not affect the ground gas monitoring procedures. No sharp/aggressive angles are present within the probe pipe installation. All ground gas monitors have been suitably fixed upon the concrete walls within the void. All probe pipe has been returned encapsulated immediately vertically external to the building at the monitoring point.

Verified in accordance with CIRIA 735

GEOSHIELD SIGNATURE:

DATE: 17/04/2023



GEOSHIELD

Verification Report



PROJECT REFERENCE: GEO103260

REPORT NUMBER: 018

PROJECT: Riverside Academy

PROJECT ADDRESS: Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION: Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GS2686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

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



CLIENT DETAILS

CLIENT CONTACT:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



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



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz Carey

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Robin

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

Ground gas monitoring probes.

APPLICATOR NAME:

Ben

COMPANY:

Prestige Air.

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY:

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from Prestige Air are specialists in the installation of ground

NOTES: gas protection systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and further qualifications in the installation

NOTES: of ground gas monitors, clean air blanket systems and an array of others.



GEOSHIELD Verification Report



AREA SURVEYED: East and West block internal wall and perimeter installation.

SITE CONDITIONS:

WEATHER: Sunny

TEMPERATURE: 19c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 13:30-15:30

REPORT NUMBER: 018

DATE: 24/05/2023.

ACCOMPANIED Timber frame foreman.



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of East and west block.

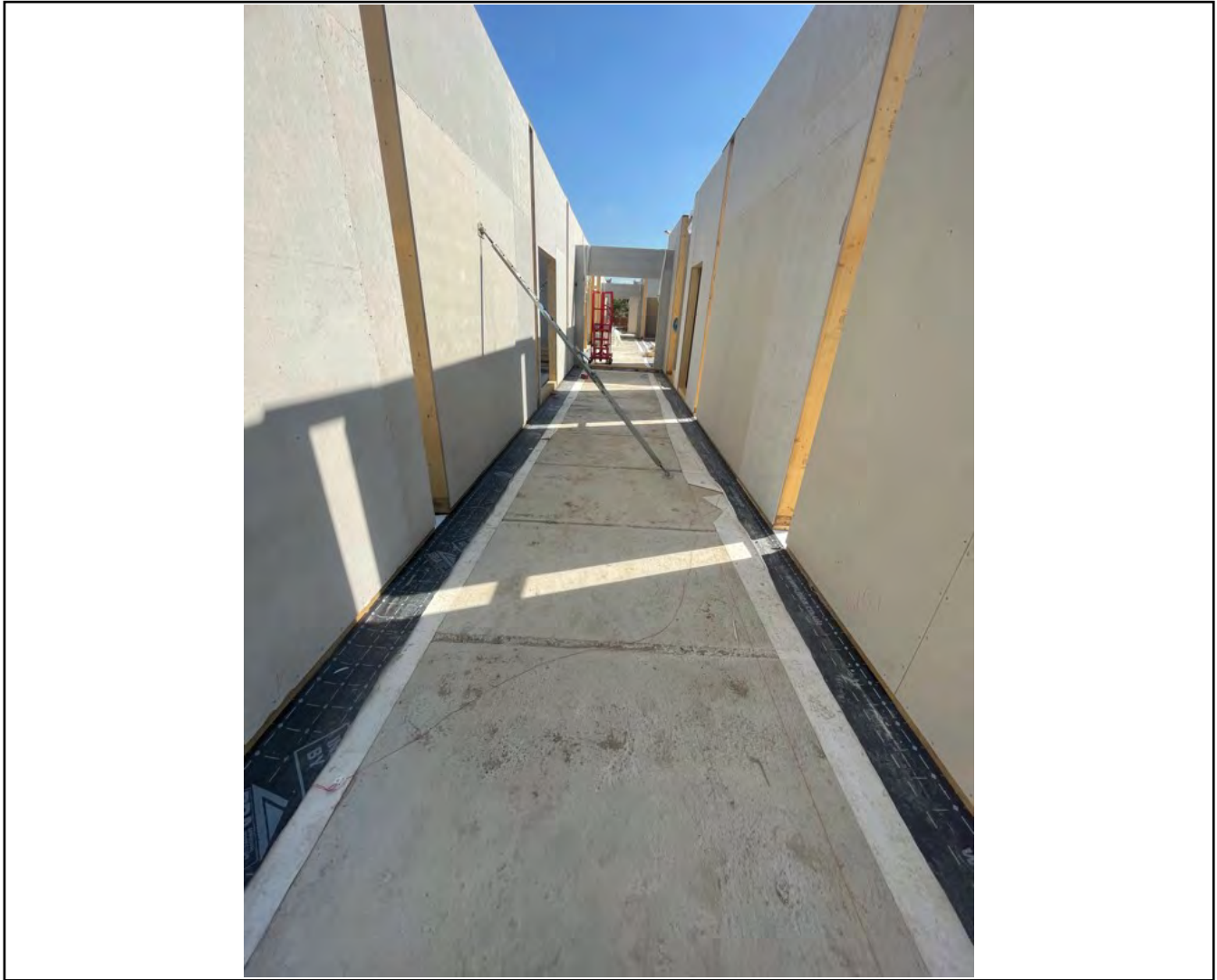
Juta GP1 perimeter and internal wall installation verified during this visit.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

East & West Block internal walls and perimeters.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Alternate overview photograph of the area verified during this visit.

East & West Block internal walls and perimeters.



GEOSHIELD Verification Report

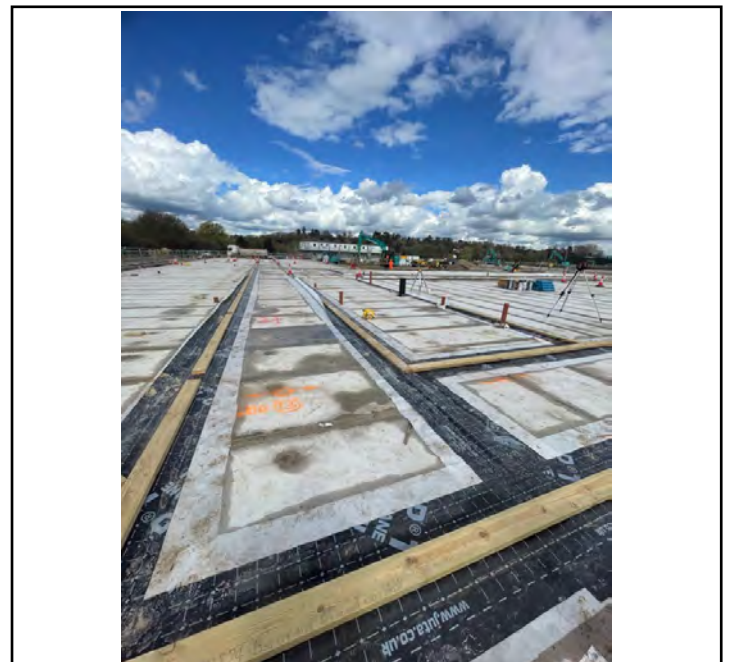
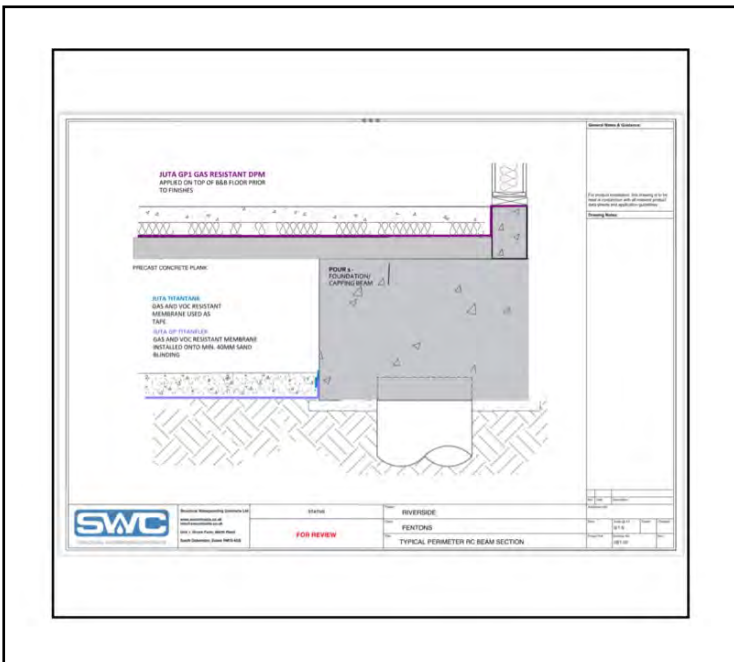


VERIFICATION ITEM ONE

LOCATION/GRID LINE: East & West Block internal walls and perimeters.

NOTES: Installation-

Juta GP1 membrane has been installed across approximately 90% of the internal walls and 100% of the perimeter walls of East and West block. The perimeter installation has been installed in accordance to the proposed and accepted SWC drawing as shown in...



...the photograph above on the left. The photograph above on the right shows an alternate overview photograph of the installation on east block prior to this verification visit.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays evidence that all timber sole plate works have been secured via screws throughout double sided butyl tape or alternatively strips of Juta GPSAM ensuring that the integrity of the membrane is not jeopardised via pierced areas. This enables the thread of the screw(s) to be sealed within the Juta GP1 gas membrane.



GEOSHIELD Verification Report

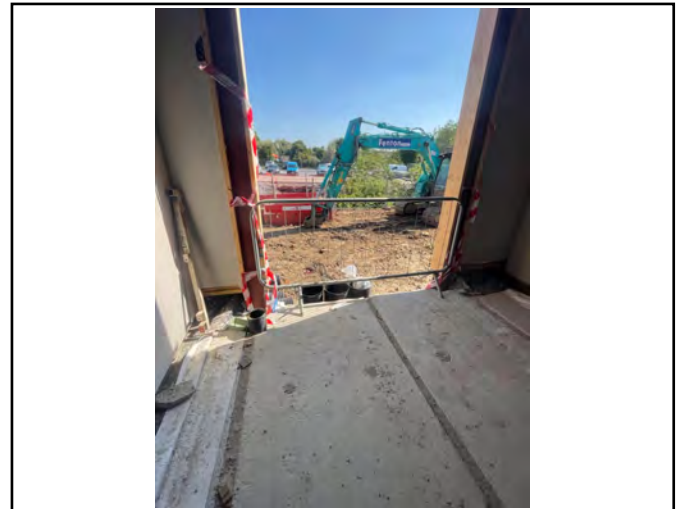
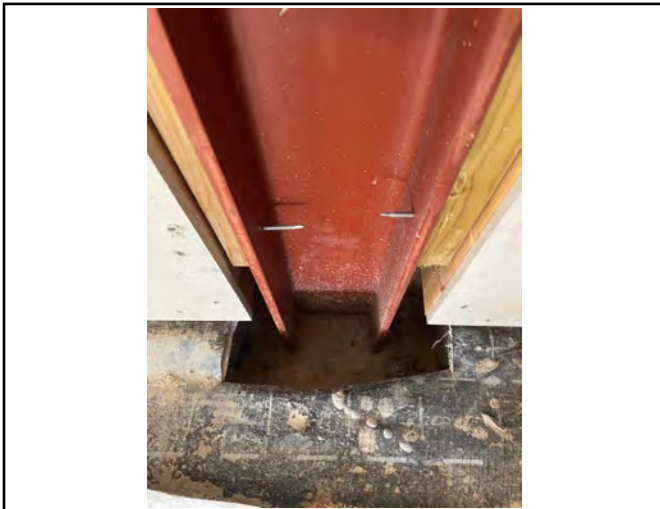


VERIFICATION ITEM TWO

LOCATION/GRID LINE: East & West Block internal walls and perimeters.

NOTES: Outstanding works-

Throughout the Juta GP1 perimeter and internal wall installations carried out by SWC it was identified that there was several incompleted areas. It has been advised that these areas are sealed/detailed accordingly prior to any further construction works.



The photograph above on the left displays one of several steel stanchion within the Juta GP1 internal wall installation which require grouting in to slab level in order for them to be sealed within the Juta GP1 internal wall installations. The photograph above on the right displays one of all perimeter threshold areas which require sealing ensuring a continuous seal around the perimeters of both blocks referenced.



GEOSHIELD Verification Report

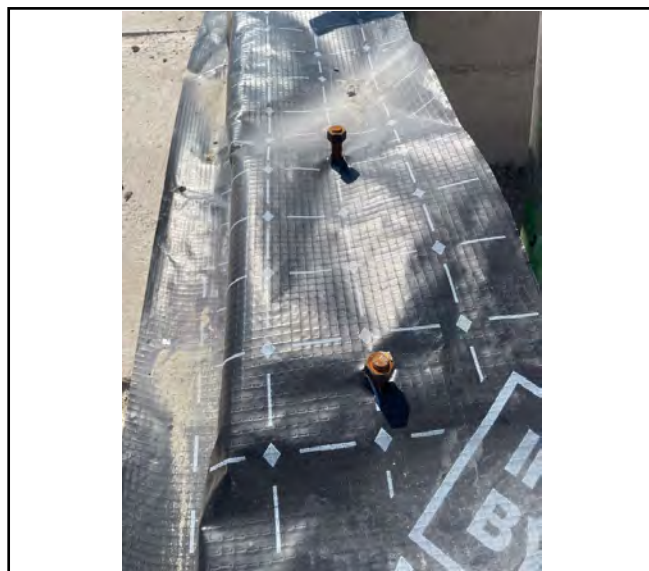
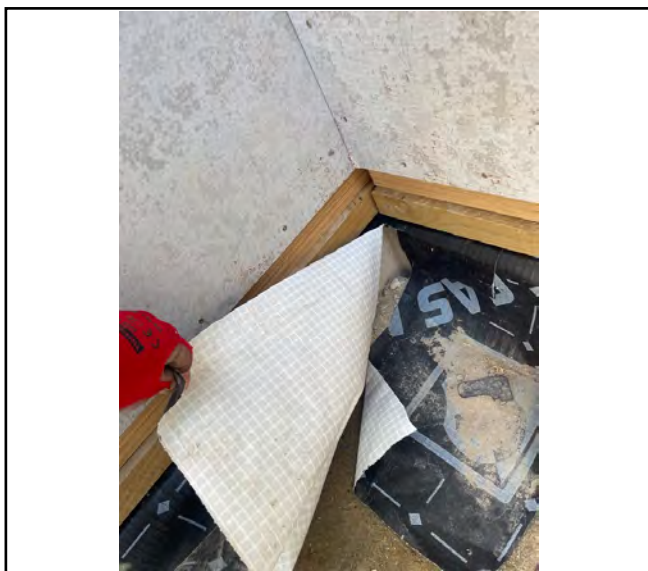


VERIFICATION ITEM THREE

LOCATION/GRID LINE: East & West Block internal walls and perimeters.

NOTES: Faults identified-

Throughout this verification visit several faults were identified which require remediation works to achieve sign off across both blocks. These works require remediation actions prior to any further internal works or Juta GP1 infill installations being carried out.



The photograph above on the left displays a corner which has only been sealed above.

The overlap between adjacent sheets has not been sealed - there was x5 areas found.

The photograph above on the right shows bolt holes around the sports hall which require sealing once the wooden base (beneath) has been removed.

GEOSHIELD Verification Report

BGA
British Gas Association



VERIFICATION ITEM THREE



The above photograph displays an outstanding pipe penetration. The installers

have been instructed to seal all pipe penetrations within the perimeter & internal

walls due to further plaster board being installed prior to infill installation works

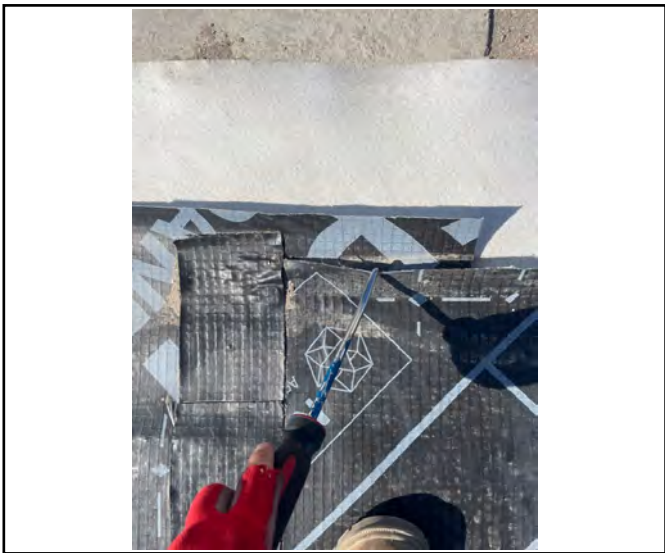
which will result in inadequate sealing.



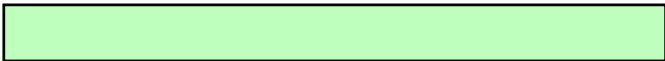
GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Evidence of dual taped lap joint.



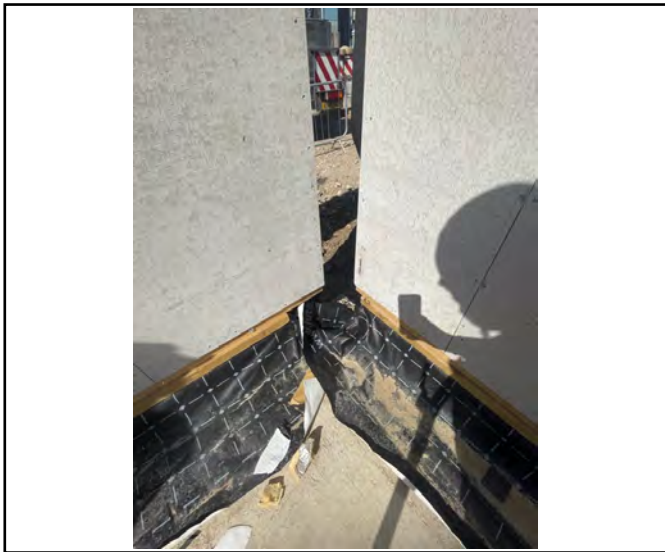
Mechanical point stress testing to

sealed overlap.

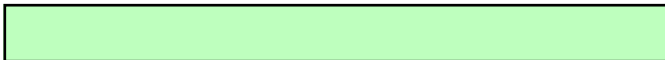


Outstanding threshold section.

Detail for this area to be issued.



Sealed overlap and detailing required.





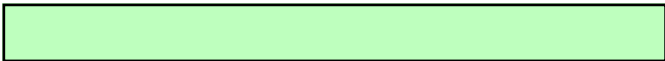
GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Unsealed and inadequate overlap.

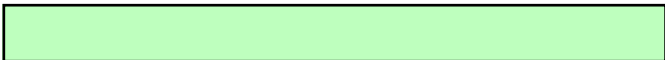


Evidence of GPSAM beneath

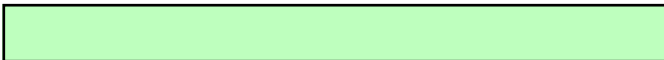
soleplate.



Outstanding steel stanchion.



Outstanding steel stanchion.





GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
28/03/2023	012	No faults or defects were identified.	✓
04/04/2023	013	Several miswelds identified and remediated on-site.	✓
06/04/2023	014	Several miswelds identified and remediated on-site.	✓
12/04/2023	015	X12 mis-welds identified and remediated on-site.	✓
14/04/2023	016	X6 faults identified and remediated on-site.	✓
17/04/2023	017	No faults or defects were identified.	✓
24/05/2023	018	X5 inadequately or (un)sealed overlaps.	
		Pipes within internal or perimeter walls to be sealed.	
		External thresholds to be seal.	
		Bolt pins around sports hall to be sealed.	



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs T-W/12-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-AA/11-12	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 1,2 and 3.	☒
Gridline/Plot Sign off	East Block Basal Layer -GLs: 10-12/BB-EE	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs: 12/Z-EE	☒



GAS MEMBRANE TESTING

VISUAL: ☐ YES ☒ NO ☐ SMOKE TEST: ☐ YES ☐ NO ☒

COMPRESSED AIR: ☐ YES ☒ NO ☐ DILECTIC ☐ YES ☐ NO ☒

DESTRUCTIVE: ☐ YES ☐ NO ☒ OTHER: ☐ YES ☒ NO ☐

Testing checklist attached: ☐ YES ☐ NO ☐

Gridline/Plot Sign off

[illegible]



GEOSHIELD Verification Report



VERIFICATION SUMMARY

Today's visit to Riverside Academy, Reading was the eighteenth verification visit required for the installation of Juta GP1 membrane around the perimeter & across internal walls within East and West block. The initial installation has been carried out in accordance to the proposed and accepted SWC design detail. Most overlaps have been sealed to manufactures specification. Timber sole plates have been fixed through double sided butyl tape or alternatively GP SAM enabling a continuous seal to be achieved. There is several incomplete areas throughout which require further works in order for sign off to be achieved highlighted within this report. Several faults were identified during this visit, which are also to be remediated prior to any sign off being achieved. Verified to CIRIA 735.

GEOSHIELD SIGNATURE:

DATE: 24/05/2023



GEOSHIELD Verification Report



PROJECT REFERENCE:

GEO103260

REPORT NUMBER:

020

PROJECT:

Riverside Academy

PROJECT ADDRESS:

Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION:

Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GS2686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

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



CLIENT DETAILS

CLIENT CONTACT:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



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



APPLICATION TEAM LEADERS

APPLICATOR NAME: Dumitru

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Robin

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



AREA SURVEYED: West block internal wall installation.

SITE CONDITIONS:

WEATHER: Sunny

TEMPERATURE: 18c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 13:30-15:00

REPORT NUMBER: 020

DATE: 31/05/2023.

ACCOMPANIED Robin- SWC



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the area verified during this visit.

West Block Internals.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Alternate overview photograph of the area verified during this visit.

West Block internal wall installation.



GEOSHIELD Verification Report

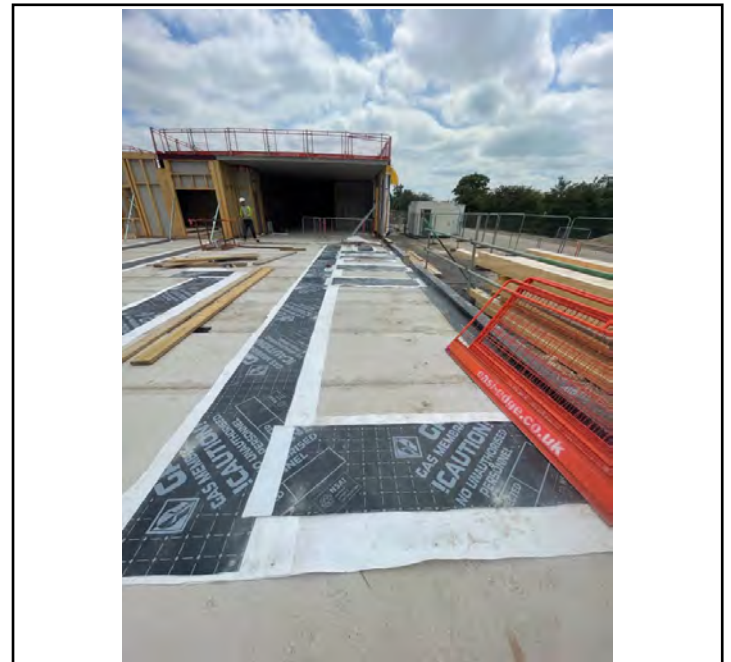


VERIFICATION ITEM ONE

LOCATION/GRID LINE: West Block internal walls.

NOTES: Installation-

Juta GP1 membrane has been installed across the remainder of the internal walls across West block which have been marked out by the engineer. All overlaps between sheets of membrane have been dual taped in accordance to manufacturers specification.



The photograph above on the left displays evidence of Juta Jointing tape in between sheets of Juta GP1 which have been lapped 100mm and over taped using Juta GPSAM.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a dual taped lap joint between sheets of Juta GP1.

Complete adherence has been achieved throughout with no faults or defects identified.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: West Block internal walls.

NOTES: Sealed pipe penetrations-

Throughout the remainder of the Juta GP1 internal wall installations several integral pipe penetrations required sealing, to prevent difficulties occurring within the infill installation, remaining pipe penetrations will be sealed during the infilling process.



All pipe penetrations have been successfully sealed using Juta GPSAM which is a gas resistant self adhesive membrane. All have been successfully sealed in accordance to manufactures specification and to a good NVQ standard. All Juta GPSAM works have received adequate heat and rolled pressure ensuring the bituminous backing is activated and a continuous seal has been achieved.

GEOSHIELD Verification Report

VERIFICATION ITEM TWO



The above photograph displays a mechanical point stress test being carried out to a successfully sealed pipe penetration detail.

Complete adherence has been achieved throughout, with no faults identified.

Tested and verified in accordance with CIRIA 735.



GEOSHIELD Verification Report

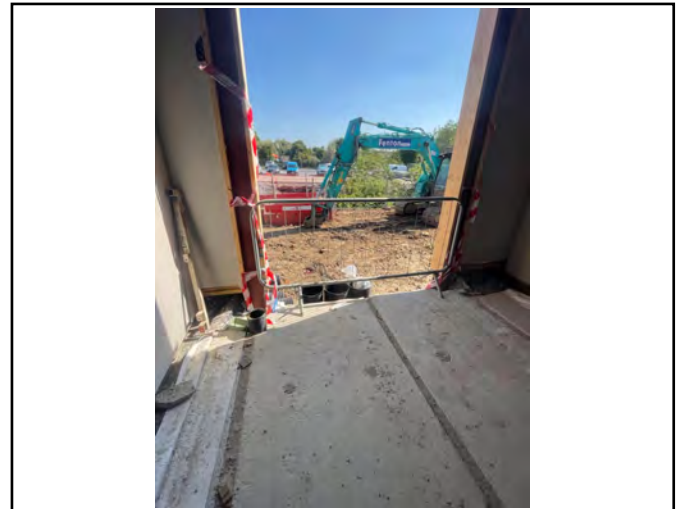
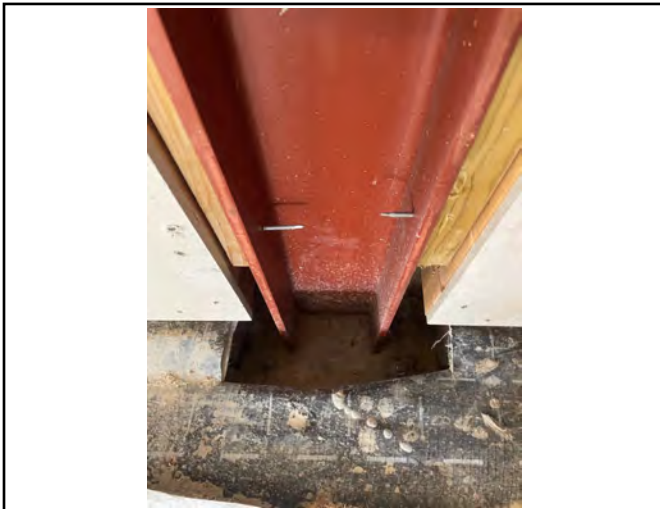


VERIFICATION ITEM TWO

LOCATION/GRID LINE: East & West Block internal walls and perimeters.

NOTES: Outstanding works-

Throughout the Juta GP1 perimeter and internal wall installations carried out by SWC it was identified that there were several incompleted areas. It has been advised that these areas are sealed/detailed accordingly prior to any further construction works.



The photograph above on the left displays one of several steel stanchions within the Juta GP1 internal wall installation which require grouting in to slab level in order for them to be sealed within the Juta GP1 internal wall installations. The photograph above on the right displays one of all perimeter threshold areas which require sealing ensuring a continuous seal around the perimeters of both blocks referenced.



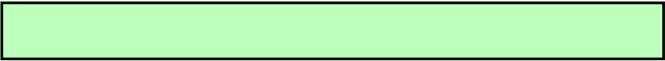
GEOSHIELD Verification Report



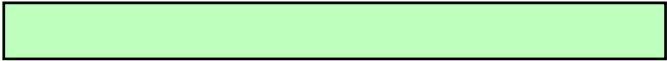
ADDITIONAL PHOTOGRAPHS



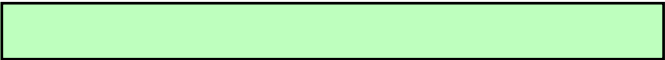
Dual taped lap joint evidence.



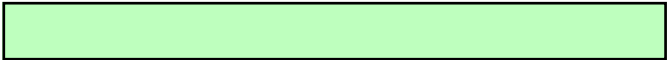
Dual taped lap joint evidence.



Mechanical point stress testing.



Alternate overview photograph.

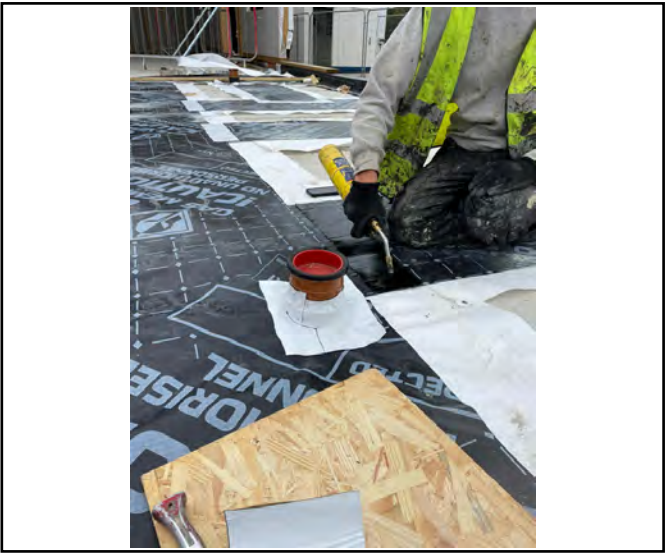




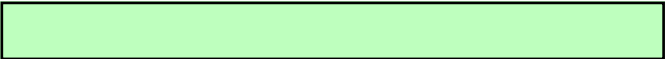
GEOSHIELD Verification Report



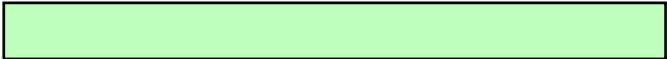
ADDITIONAL PHOTOGRAPHS



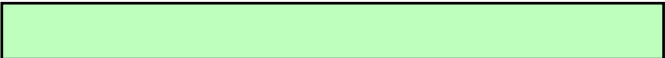
Installer applying heat to Juta GPSAM



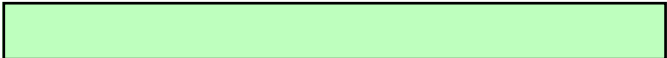
Evidence of butyl tape.



Alternate overview photograph.



Alternate overview photograph.





GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
28/03/2023	012	No faults or defects were identified.	✓
04/04/2023	013	Several miswelds identified and remediated on-site.	✓
06/04/2023	014	Several miswelds identified and remediated on-site.	✓
12/04/2023	015	X12 mis-welds identified and remediated on-site.	✓
14/04/2023	016	X6 faults identified and remediated on-site.	✓
17/04/2023	017	No faults or defects were identified.	✓
24/05/2023	018	X5 inadequately or (un)sealed overlaps.	✓
		Pipes within internal or perimeter walls to be sealed.	✓
		External thresholds to be sealed.	
		Bolt pins around sports hall to be sealed.	✓
25/05/2023	019	Further unsealed overlaps identified.	✓
31/05/2023	020	X1 unsealed overlap. Remediated on-site.	✓
		Internal steel stanchions (east&west) to be sealed.	



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs T-W/12-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-AA/11-12	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 1,2 and 3.	☒
Gridline/Plot Sign off	East Block Basal Layer -GLs: 10-12/BB-EE	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs: 12/Z-EE	☒



GEOSHIELD Verification Report



VERIFICATION SUMMARY

Today's visit to Riverside Academy, Reading was the twentieth verification visit required for the installation of Juta GP1 membrane to the remaining internal walls within East and West block. All overlaps have been sealed using double sided butyl tape and overtaped using Juta GPSAM cresting dual taped lap joints. All pipes have now been successfully sealed to a good NVQ standard usage Juta GP SAM. All faults identified on previous visits have all now been remediated to a suitable standard. Thorough mechanical point stress testing and visual inspections found no further faults or defects. Details/discussion are still be made in regards to sealing the thresholds and steel stanchions. These require sealing to achieve complete sign off. Tested and verified in accordance with CIRIA 735.

GEOSHIELD SIGNATURE:

DATE: 31/05/2023



GEOSHIELD

Verification Report



PROJECT REFERENCE: GEO103260

REPORT NUMBER: 021

PROJECT: Riverside Academy

PROJECT ADDRESS: Riverside Academy

Reading,

RG1 8EQ

MEMBRANE SPECIFICATION: Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions and BS8485

Juta GP1

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

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



CLIENT DETAILS

CLIENT CONTACT:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



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



APPLICATION TEAM LEADERS

APPLICATOR NAME: Dumitru

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Robin

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GEOSHIELD Verification Report



AREA SURVEYED: Infill installation- East Block; Enterprise rooms 1,2&3, ICT LRC & ICT2 and PE Rooms.

SITE CONDITIONS:

WEATHER: Overcast

TEMPERATURE: 18c

MEMBRANE TEMPERATURE: N/a

RELATIVE HUMIDITY: N/a

TIME: 12:00-15:00 REPORT NUMBER: 021

DATE: 18/09/2023.

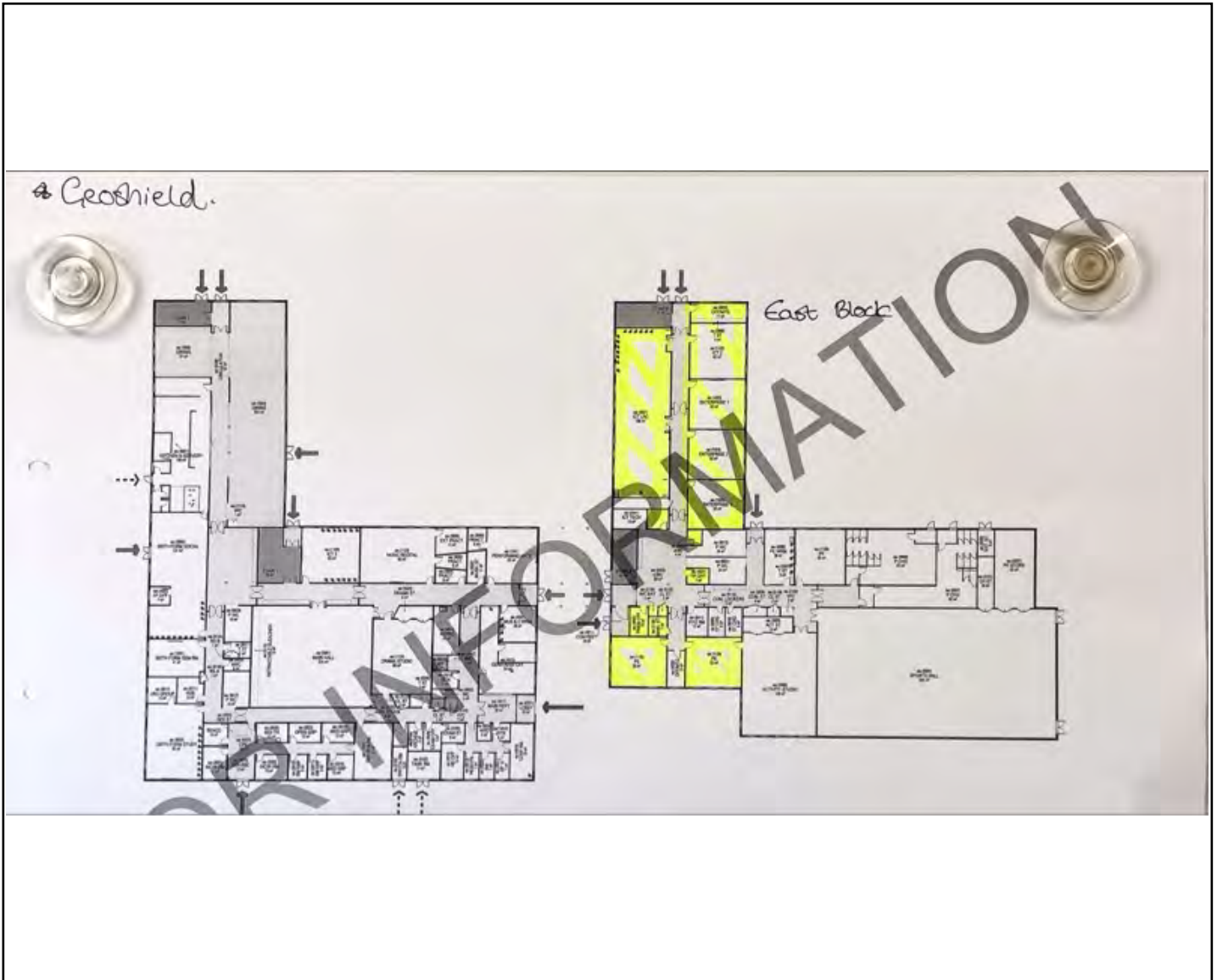
ACCOMPANIED Baz - SWC



GEOSHIELD Verification Report



VERIFICATION LAYOUT



The above photograph displays a layout plan of East and west block.

Juta GP1 infill installations verified during this visit highlighted yellow above.

East Block- Enterprise rooms 1,2&3, ICT LRC & ICT 2 plus PE rooms.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Overview photograph of the block where verification took place.

East Block- Enterprise rooms 1,2&3, ICT LRC & ICT 2 plus PE rooms.

Juta GP1 infill installations.



GEOSHIELD Verification Report



OVERVIEW PHOTOGRAPHS



Internal overview photograph within the block where verification took place.

East Block- Enterprise rooms 1,2&3, ICT LRC & ICT 2 plus PE rooms.

Juta GP1 infill installations.



GeoShield Verification Report



LIMITATIONS

SURVEYED AREA: East Block (See layout).

RESTRICTIONS AND LIMITATIONS:

There was insufficient vehicular access in order for non-destructive air lance integrity testing to be carried out to the area referenced. Alternatively mechanical point stress testing was carried out to all aspects of the install.



GEOSHIELD Verification Report

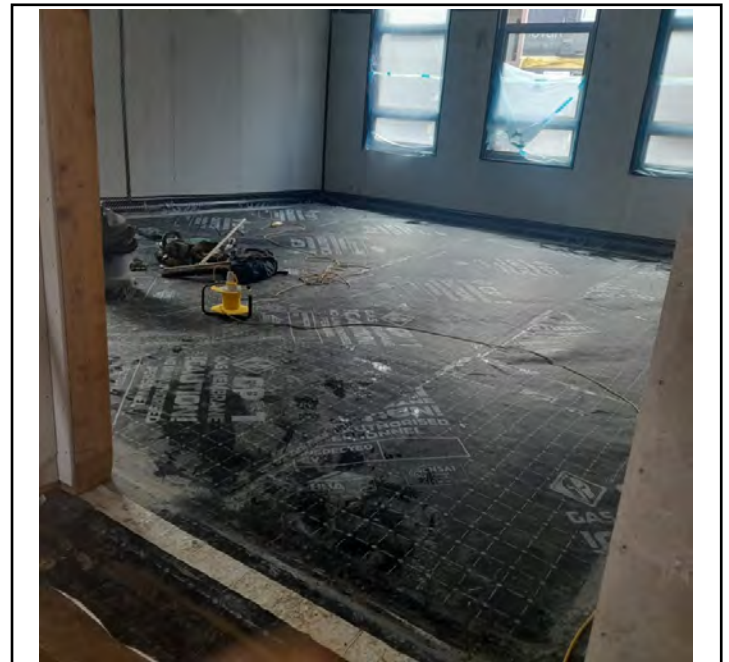


VERIFICATION ITEM ONE

LOCATION/GRID LINE: East Block (See layout).

NOTES: Installation-

Juta GP1 gas barrier has been installed across the foot print of the rooms highlighted and referenced upon the concrete precast planks. All overlaps between adjacent sheets of Juta GP1 gas barrier have been lapped a minimum of 100mm as per manufactures....



...specification prior to being welded using a hot air tool and silicone roller around the perimeter of each room and throughout the internal overlaps present.

GEOSHIELD

Verification Report

VERIFICATION ITEM ONE



The Juta GP1 gas barrier has returned beneath the existing Juta GP1 gas barrier present around around the perimeter of the building and from beneath the internal stud walls. All Juta GP1 perimeter and internal works were verified on a previous visit.

As mentioned all membranes have been welded using a hot air tool & silicone roller.

GEOSHIELD Verification Report

VERIFICATION ITEM ONE



The above photograph displays a mechanical point stress test also known as the pick and probe test being conducted upon a welded overlap between Juta GP1 infill and perimeter membrane. This testing procedure identified a total of 19 faults which were remediated on-site in the presence of Geoshield. Verified in accordance with CIRIA 735.



GEOSHIELD Verification Report



VERIFICATION ITEM TWO

LOCATION/GRID LINE: East Block (See layout).

NOTES: Detailing-

Throughout the Juta GP1 gas barrier infill installations a number of pipe penetrations and steel stanchions required sealing. The membrane has been cut tightly around each detail and successfully sealed using Juta GPSAM - gas resistant self adhesive.



The photographs above displays a evidence of the details referenced which have been sealed to a good NVQ standard following the petal formation made up of a minimum of 4 150mm patches of GPSAM and finished off with a 300mm tophat to seal the pipes.

All GPSAM works have received adequate heat & rolled pressure to ensure the bituminous backing of the material is activated and a complete seal has been achieved.



GEOSHIELD Verification Report



VERIFICATION ITEM THREE

LOCATION/GRID LINE: East Block (See layout).

NOTES: Faults identified-

As mentioned within this report a number of faults were identified throughout the rooms referenced within the East Block . These were identified during the visual inspections supported by the mechanical point stress test in accordance with CIRIA 735.



The photograph above on the left displays the typical fault identified. Miswelded lap joints around the perimeter between the new and old sheets of Juta GP1. All faults were highlighted as shown and remediated on-site in the presence of Geoshield using patches of GPSAM or re-welded as shown above on the right.



GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



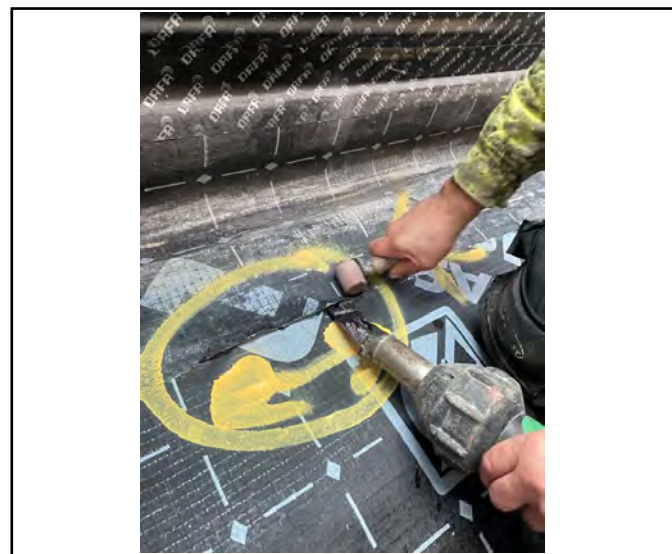
Pick&probe testing to welded lap joint.



Pick&probe testing to welded lap joint.



Re-welded remediation.



Re-welded remediation.



GEOSHIELD Verification Report



ADDITIONAL PHOTOGRAPHS



Internal overview photograph.



Internal overview photograph.



Internal overview photograph.



Internal overview photograph.



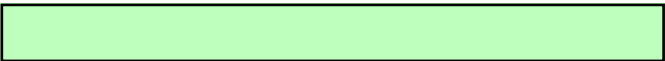
GEOSHIELD Verification Report



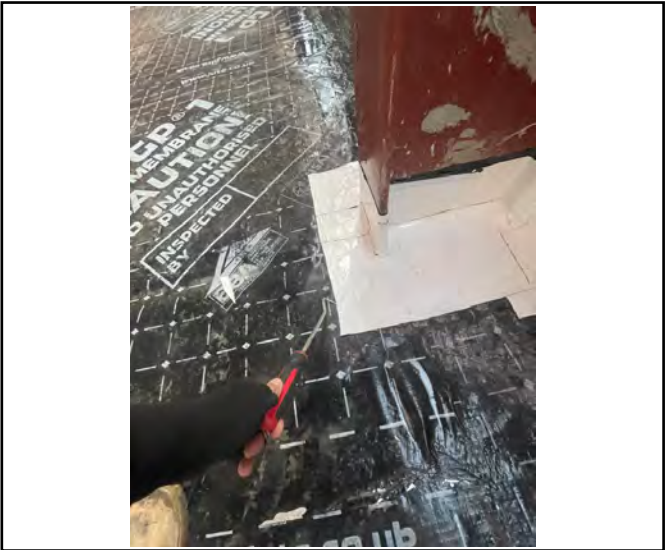
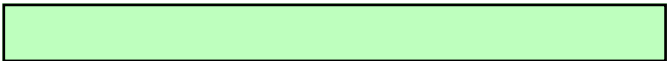
ADDITIONAL PHOTOGRAPHS



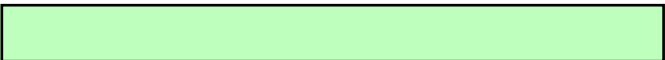
Internal overview photograph.



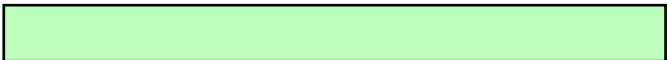
Internal overview photograph.



Mechanical point stress testing.



Mechanical point stress testing.





GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
27/01/2023	001	Probe 1 6.5 metres from centre & probe 2 5.8 metres from centre.	✓
		- The above has been confirmed it doesn't affect the ground gas	✓
		monitoring. However, centres are now to be followed as per design.	✓
06/02/2023	002	Six miswelded lap joints identified. Remediated on-site.	✓
15/02/2023	003	Six miswelded lap joints identified. Remediated on-site.	✓
17/02/2023	004	Membrane to be repaired and verified where basal layer probe 3	✓
		has been installed.	✓
22/02/2023	005	Zone B & C Above Basal Layer 3	✓
		Below Basal probe 4 needs membrane re installed.	✓
28/02/2023	006	No faults identified	✓
01/03/2023	007	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	✓
03/03/2023	008	Block B, D & E and Extension to Probe 5 BBL.	✓
08/03/2023	009	Block B, D & E.	✓
10/03/2023	010	No faults or defects were identified.	✓
23/03/2023	011	Inconsistent seal around retrofit detailing see locations above.	✓



GEOSHIELD Verification Report



REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
28/03/2023	012	No faults or defects were identified.	✓
04/04/2023	013	Several miswelds identified and remediated on-site.	✓
06/04/2023	014	Several miswelds identified and remediated on-site.	✓
12/04/2023	015	X12 mis-welds identified and remediated on-site.	✓
14/04/2023	016	X6 faults identified and remediated on-site.	✓
17/04/2023	017	No faults or defects were identified.	✓
24/05/2023	018	X5 inadequately or (un)sealed overlaps.	✓
		Pipes within internal or perimeter walls to be sealed.	✓
		External thresholds to be sealed.	
		Bolt pins around sports hall to be sealed.	✓
25/05/2023	019	Further unsealed overlaps identified.	✓
31/05/2023	020	X1 unsealed overlap. Remediated on-site.	✓
		Internal steel stanchions (east&west) to be sealed.	
18/09/2023	021	19 miswelds identified. Remediated on-site.	✓



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL: YES ☒ NO ☐ SMOKE TEST: YES ☐ NO ☒

COMPRESSED AIR: YES ☒ NO ☐ DILECTIC YES ☐ NO ☒

DESTRUCTIVE: YES ☐ NO ☒ OTHER: YES ☐ NO ☒

Testing checklist attached: YES ☐ NO ☐

Gridline/Plot Sign off

Gridline/Plot Sign off	Zone A - Below Basal Layer - Probes 1 and 2.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/1-10, A-B/1-2 & B-C/1-6.	☒
Gridline/Plot Sign off	Membrane Basal Layer. GL's; C-D/10-11, C-D 12-14, A-B/5-13	☒
Gridline/Plot Sign off	B-C/6-13 & C-H/12-12.5	☒
Gridline/Plot Sign off	Below Basal Layer - Probe 3	☒
Gridline/Plot Sign off	Above Basal Layer - Probes 1 & 2.	☒
Gridline/Plot Sign off	Zone B & C / Below Basel 4 and Above Basel 3.	☒
Gridline/Plot Sign off	Zone C & D	☒
Gridline/Plot Sign off	Probes 4,8 & 9 ABL / Probes 5 & 6 BBL	☒
Gridline/Plot Sign off	Block B, D & E and Extension to Probe 5 BBL.	☒
Gridline/Plot Sign off	Block B, D & E.	☒
Gridline/Plot Sign off	Membrane Basal Layer membrane - Gridlines; L-N/13-14	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☐	☐ NO	☒	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	Below Basal Layer Probe - 7.	☒
Gridline/Plot Sign off	East Block Basal Layer- GLs Q-Q.5/10-12 & Q-R/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probe 3&4	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs A-T/10-11	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs Q-T/1-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-T/12-13	☒
Gridline/Plot Sign off	East Block Below Basal Layer Probes 5,6 and 7	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs T-W/12-13	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane - GLs S-AA/11-12	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 1,2 and 3.	☒
Gridline/Plot Sign off	East Block Basal Layer -GLs: 10-12/BB-EE	☒
Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs: 12/Z-EE	☒



GEOSHIELD Verification Report



GAS MEMBRANE TESTING

VISUAL:	☐ YES	☒	☐ NO	☐	SMOKE TEST:	☐ YES	☐	☐ NO	☒
COMPRESSED AIR:	☐ YES	☒	☐ NO	☐	DILECTIC	☐ YES	☐	☐ NO	☒
DESTRUCTIVE:	☐ YES	☐	☐ NO	☒	OTHER:	☐ YES	☒	☐ NO	☐
Testing checklist attached:	☐ YES	☐	☐ NO	☐					

Gridline/Plot Sign off

Gridline/Plot Sign off	East Block Basal Layer Membrane -GLs: 12-13/W-FF	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 9,10,11	☒
Gridline/Plot Sign off	East Block Above Basal Layer Probes 6,7 and 8.	☒
Gridline/Plot Sign off	West Block perimeter and internal walls.	☐
Gridline/Plot Sign off	East Block perimeter and internal walls.	☒
Gridline/Plot Sign off	Infill installation- East Block; Enterprise rooms 1,2&3, ICT LRC	☒
Gridline/Plot Sign off	Infill Installation- East Block; ICT2 and PE Rooms.	☒
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐
Gridline/Plot Sign off		☐



GEOSHIELD Verification Report



VERIFICATION SUMMARY

Today's visit to Riverside Academy, Reading was the twenty first verification visit

required for the infill installation of Juta GP1 membrane to a selections of rooms

within East block. All overlaps have between new sheets of Juta GP1 and the

existing perimeter membrane have been welded using a hot air tool and silicone

rolled. All outstanding pipe penetrations and steels within the rooms have been

sealed to a good NVQ standard and to manufactures spec using Juta GP SAM.

Thorough mechanical point stress testing and visual inspections identified a total

of 19 miswelded lap joints which were remediated on-site in the presence of

Geoshield. External thresholds and steel stanchions still require sealing.

Tested and verified in accordance with CIRIA 735.

GEOSHIELD SIGNATURE:

DATE: 18/09/2023



GeoShield Verification Report 22



PROJECT REFERENCE: GEO103260 R22

PROJECT: Riverside Academy

PROJECT ADDRESS: Riverside Academy

Reading

RG1 8EQ

SPECIFICATION: Verified in accordance with CIRIA 735.

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

Substrate prepared in accordance with manufacturers instructions

Juta GP1 Gas Barrier

Juta GP SAM

Juta Titan Flex (Basal layer membrane)

Juta Titan Tank (Basal layer membrane)



GeoShield Verification Report



INFORMATION INCLUDED

GG52686 River Academy, Reading GGVRA Final

FS0949-ASO-XX-XX-RP-Y-0005 Remediation Strategy S3 P02

FS0949-HEX-01-FN-DR-S-1601-FOUNDATION LAYOUT_P07

SWC_RVS-Det_Version A (6 pages)

JUTA Material Specification Technical Data Sheets

Radon Maps UK - (Map 1) Site Location & (Map 2) Nearby 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 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:	James Hay
CONTACTS ROLE:	Commercial Director
MOBILE PHONE:	07507 560 728
EMAIL ADDRESS:	jameshay@swcontracts.co.uk

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



GEOSHIELD Verification Report



APPLICATION TEAM LEADERS

APPLICATOR NAME: Baz

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: SWC

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The installers from SWC are specialists in the installation of ground gas

NOTES: and waterproofing systems. They hold NVQ level 2 qualifications in the

NOTES: installation of gas membranes and weld all lap joints, which is required

NOTES: for this project.



GeoShield Verification Report



AREA SURVEYED:

East Block Infill, West Block Infill,
Various Rooms (as per the site layout plan) Infills

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

17c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME:

08:00 - 11:00

DATE:

26.09.2023

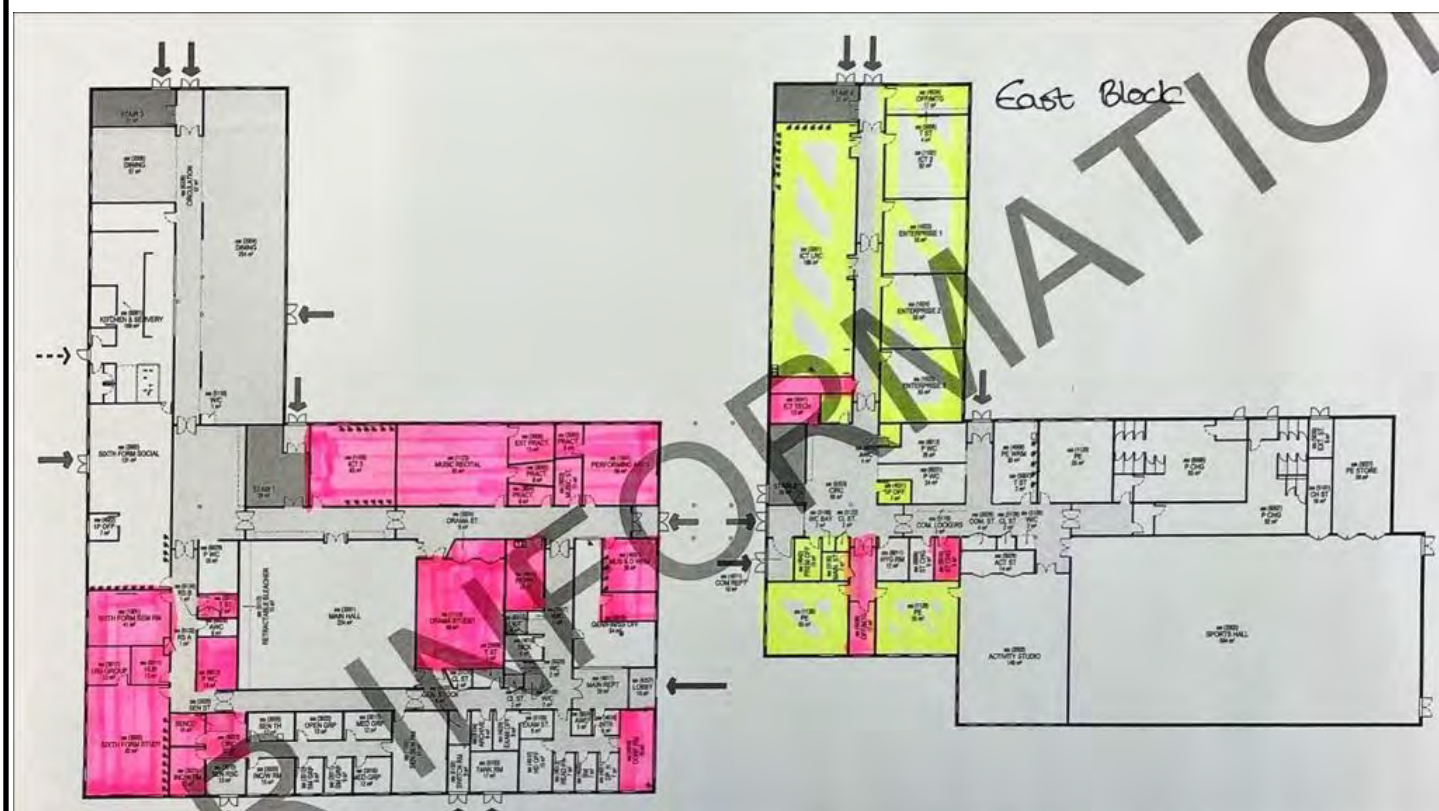
REPORT NUMBER:

022

ACCOMPANIED BY:

SWC

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in pink shows where the verification inspection took place on site today.