



Stair core 2 overview



Stair core 2 retro fit detailing



Stair core 2 pipe penetration



Stair core 2 detailing



Stair core 2 stanchion detailing



Stair core 3 overview



Stair core 3 detailing



Stair core 3 pipe penetration



Stair core3 stanchion detailing



Stair core 3 retro fit detailing



Probe testing hand welds

Site name: A&H Construction - Lowry Park, Grimshaw Lane, Manchester.		Units/ plots checked: : Unit 6 core area line outs			
Postcode: M40 2BA					
Installers Name: UK Membranes					
Date: 25/01/2024					
Inspection by: Dan Squire		Weather: 7°C Wet			
	Item	Comments			
	Sub-floor void	N/A			
	Ventilation Inlets and Outlets	N/A			
	Number Of Vents	N/A			
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A			
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard. The membrane is lined across the full core area. Sealing to the perimeter steel as a retro fit detail using SAGM. All pipes and stanchions sealed using SAGM. The membrane extends under the temporary shuttering into the building to allow membrane to be joined at a later date. The Stair core base and lift pit are also sealed as a retro fit detail using SAGM and heat applied.			
	Type of Joint	Tape Joint ☐	Auto Weld ☐	Hand Weld ☒	Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)		☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?		☒ Yes	☐ No ☐ N/A
		Have all pipes passed testing prior to surveyor leaving site?		☒ Yes	☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?		☒ Yes	☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?		☐ Yes	☐ No ☒ N/A
		Has all other detailing work passed inspection		☒ Yes	☐ No ☐ N/A

	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 2no patch repairs made by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 25/01/2024</p>
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Area Inspected

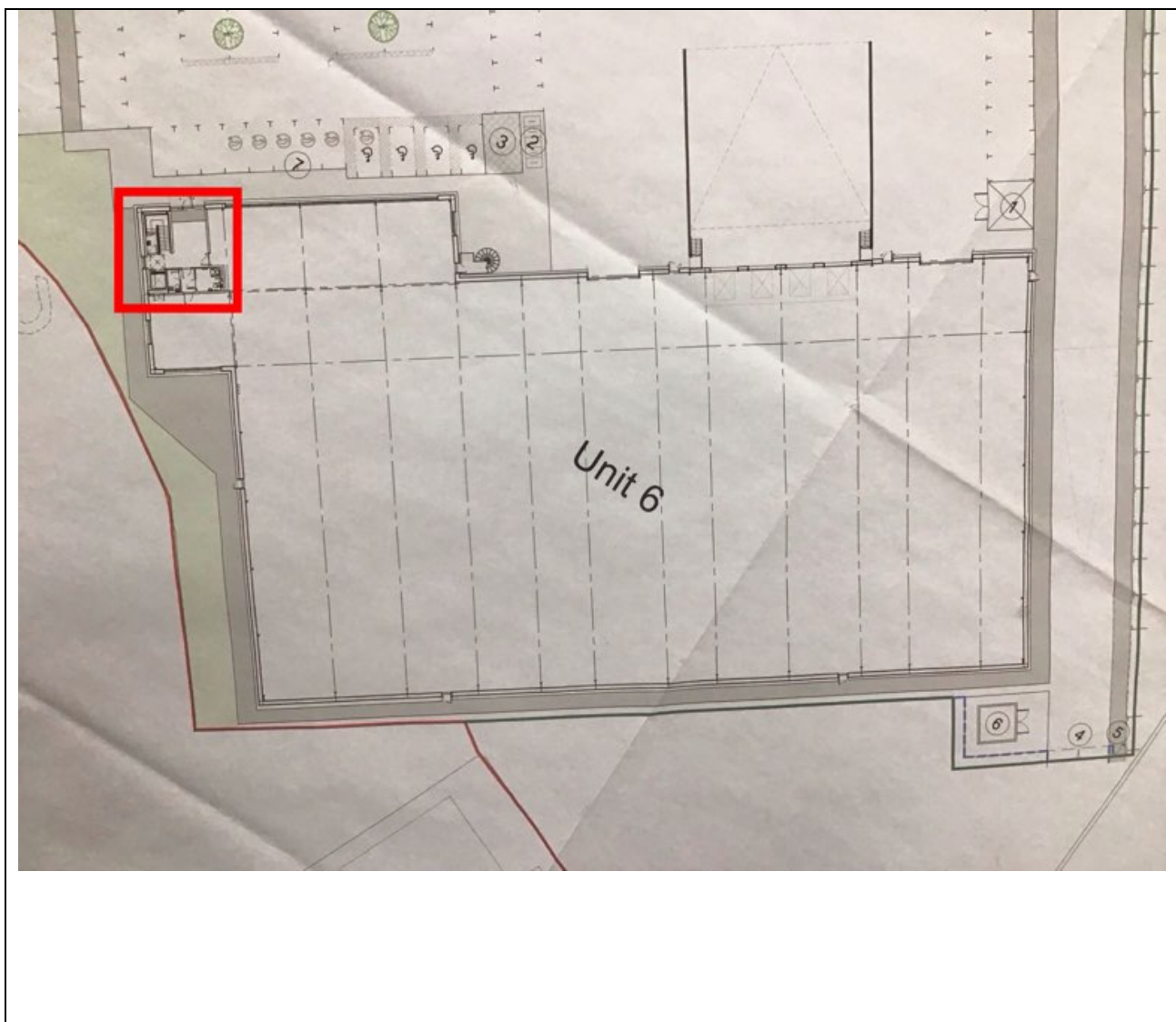


Photo 25/01/2024



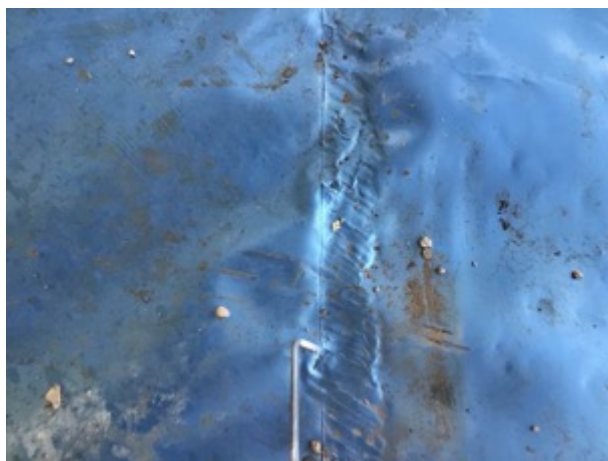
Unit 6 core area overview



Sealed stair base



Lift pit retro fit detailing



Hand weld probe testing



Sealed stanchion detailing



Perimeter retro fit detailing



SAGM patch repair

Site name: A&H Construction - Lowry Park, Grimshaw Lane, Manchester.		Units/ plots checked: : Unit 1 core area line out	
Postcode: M40 2BA			
Installers Name: UK Membranes			
Date: 25/01/2024			
Inspection by: Dan Squire		Weather: 7°C Wet	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: Vent mat	
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard. The membrane is lined across the full core area. Sealing to the perimeter steel as a retro fit detail using SAGM. All pipes and stanchions sealed using SAGM. The membrane extends under the temporary shuttering into the building to allow membrane to be joined at a later date. The Stair core base and lift pit are also sealed as a retro fit detail using SAGM and heat applied. Prior to the membrane installation, a full layer coverage of vent mat was installed	
	Type of Joint	Tape Joint ☐	Auto Weld ☐ Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A
		Has all other detailing work passed inspection	☒ Yes ☐ No ☐ N/A

	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: no recorded defects.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 25/01/2024</p>
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Area Inspected

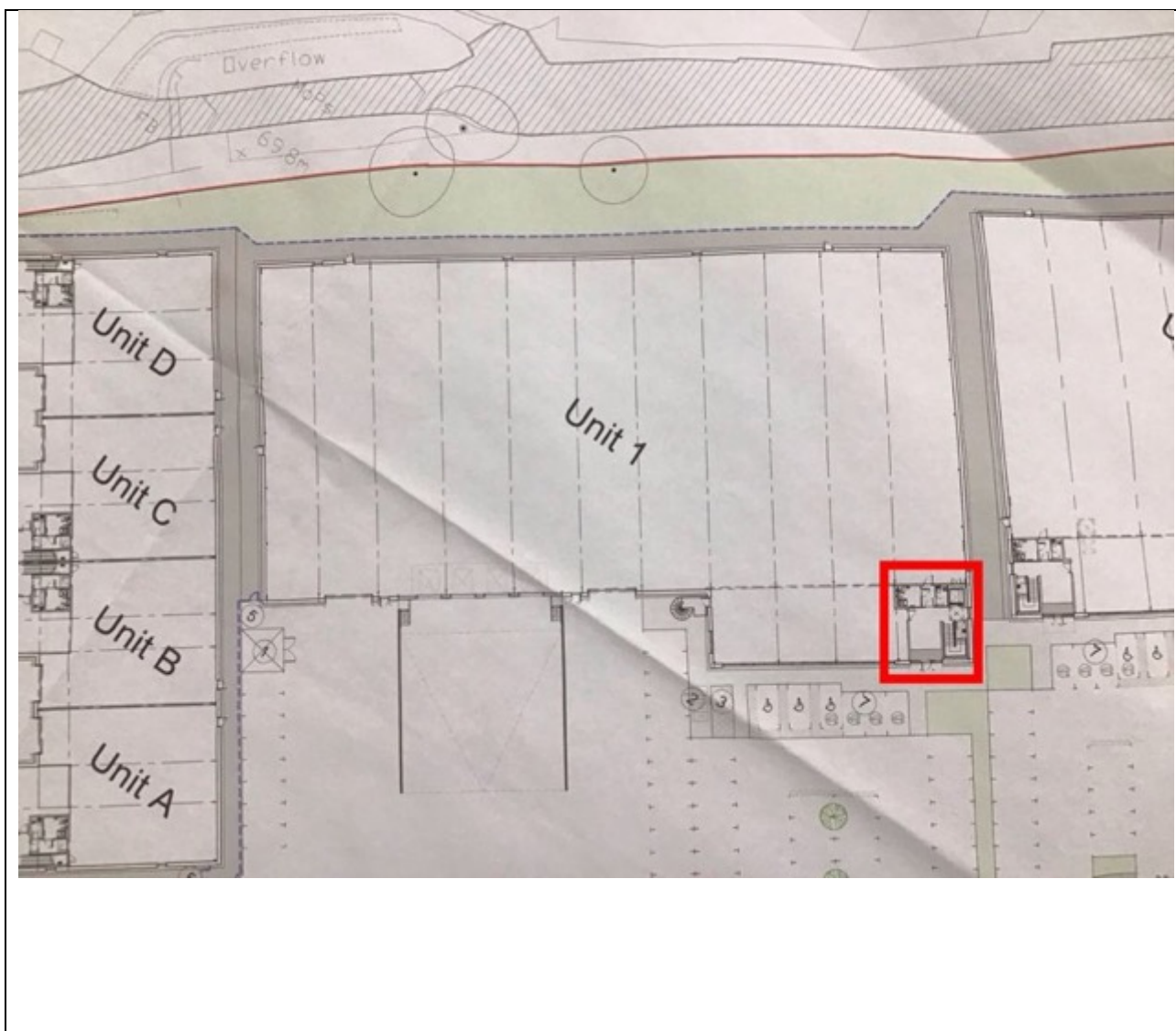


Photo 25/01/2024



Stair base retro fit detailing



Sealed pipe penetration



Perimeter retro fit detailing



Lift pit retro fit detailing



Vent mat installed under the membrane



Unit 1 core area overview



Sealed stanchion detailing

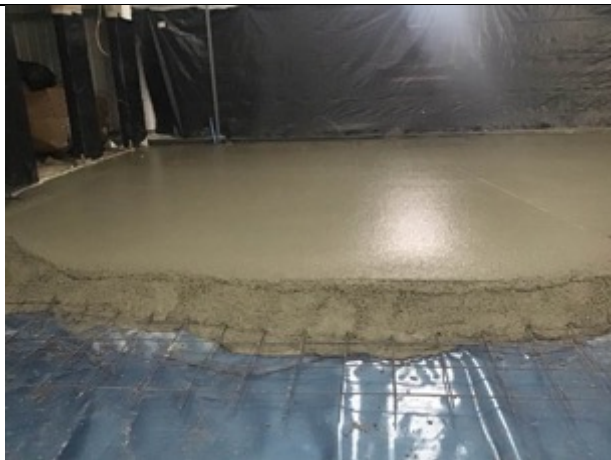
Site name: A&H Construction - Lowry Park, Grimshaw Lane, Manchester.		Units/ plots checked: : Unit E-F laser screed		
Postcode: M40 2BA				
Installers Name: UK Membranes				
Date: 21/02/2024				
Inspection by: Dan Squire		Weather: 8°C Showers		
	Item	Comments		
	Sub-floor void	N/A		
	Ventilation Inlets and Outlets	N/A		
	Number Of Vents	N/A		
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A		
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail. All stanchions are sealed using SAGM.</p> <p>Site installed miothene strips surrounding all pipes and stanchions prior to the concrete pour restricting areas of the inspection. The stanchions had also been encased in concrete prior to the laser pour installation.</p>		
	Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)		☒ Probe Test (ASTM D4437)
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A	
		Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A	
	Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A	

	Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A
	Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 5no patch repairs carried out by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 21/02/2024</p>				

Area Inspected



Photo 21/02/2024



Laser screed pour



Membrane inspected after laser screed machine feet raised



Laser screed machine keeping off the mesh on the membrane



Sealed auto weld membrane joint



Probe test to sealed hand weld membrane joint



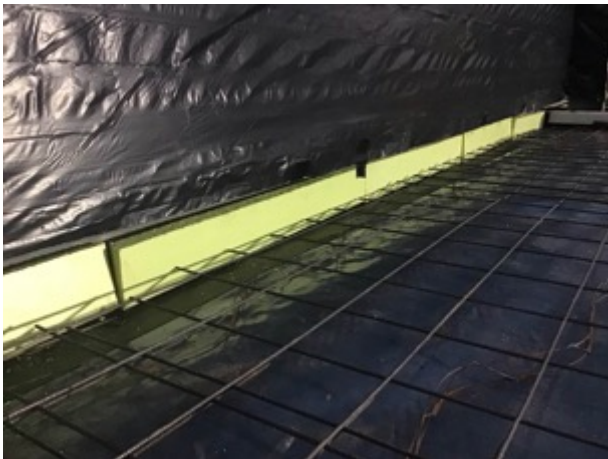
Stanchions encased prior to the pour inspection



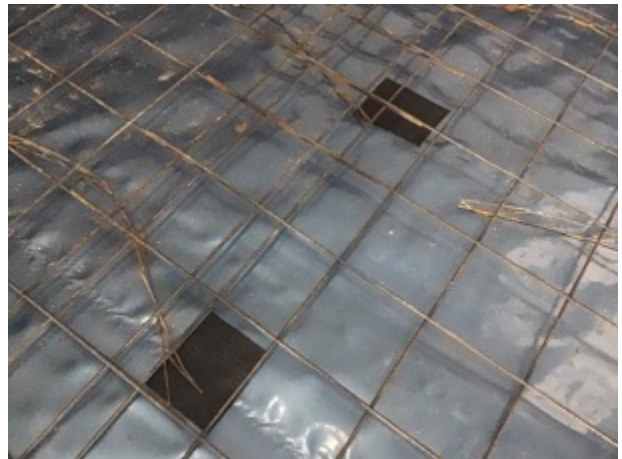
Perimeter retro fit detailing



Sealed pipe penetrations with miothene installed by site



Restricted perimeter inspection



Sealed SAGM patch repairs



Blinded substrate prior to membrane installation



Membrane installed ahead of the first pour

Site name: A&H Construction - Lowry Park, Grimshaw Lane, Manchester.		Units/ plots checked: : Unit E-F laser screed. See marked up plan	
Postcode: M40 2BA			
Installers Name: UK Membranes			
Date: 22/02/2024			
Inspection by: Dan Squire		Weather: 10°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the membrane from the previous pour using a hand welder and sealed to perimeter edge using SAGM as a retro fit detail. All stanchions are sealed using SAGM.</p> <p>Site installed miothene strips surrounding all pipes and stanchions prior to the concrete pour restricting areas of the inspection. The stanchions had also been encased in concrete prior to the laser pour installation.</p>	
	Type of Joint	Tape Joint ☐	Auto Weld ☒ Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)	☒ Probe Test (ASTM D4437)
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A Have all pipes passed testing prior to surveyor leaving site? ☒ Yes ☐ No ☐ N/A

Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A
	Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: all pin holes repairs from the previous pour and 3no patch repairs during the pour were carried out by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 22/02/2024</p>			

Area Inspected

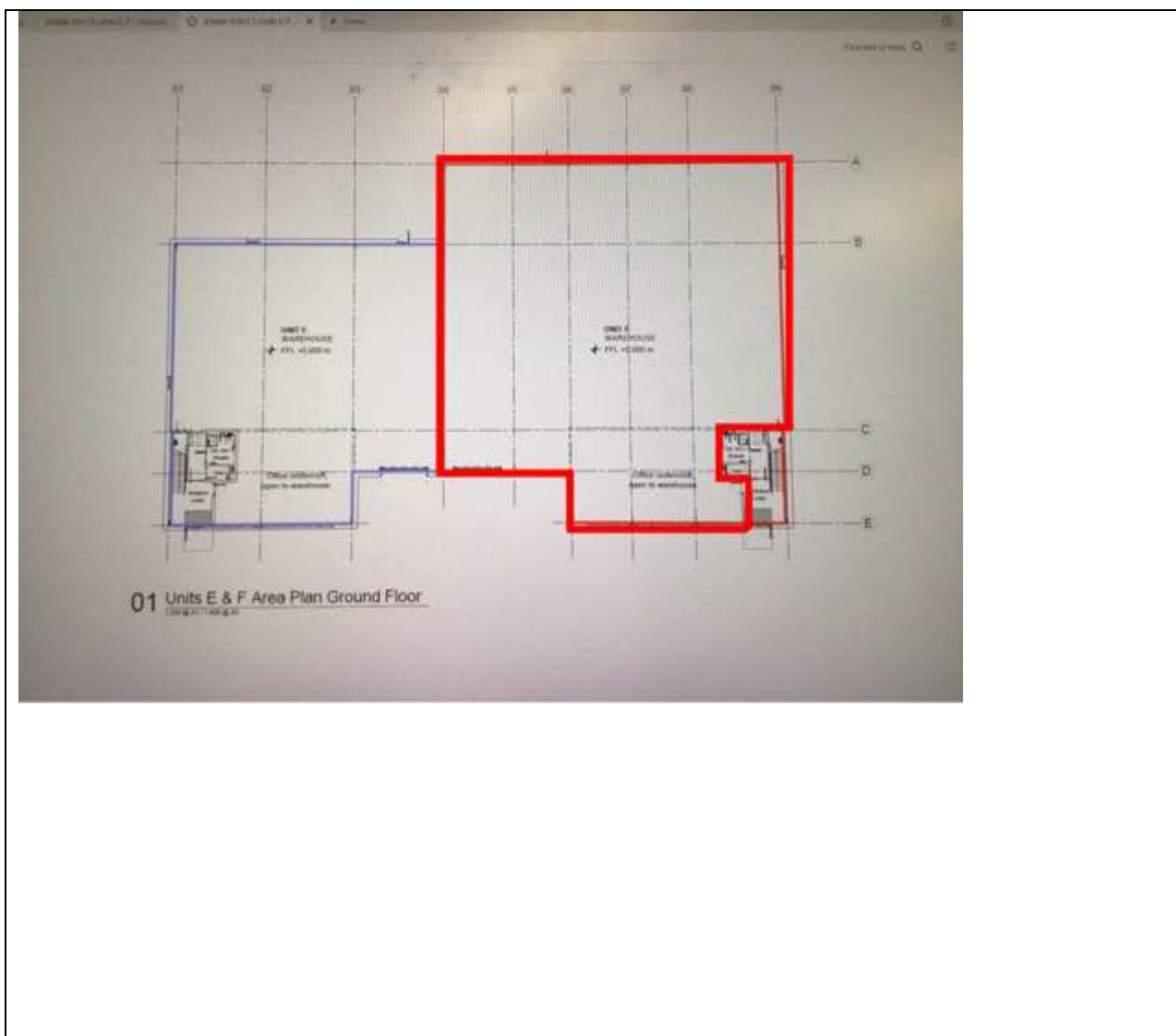


Photo 22/02/2024





Sealed stanchions poured prior to the inspection



Probe test to hand weld joint



Sealed auto weld membrane joint



Restricted inspection to sealed pipe penetrations



Membrane lined ahead of the pour



Sub grade rolled ahead of the membrane installation



Plant keeping off the mesh on the membrane



Membrane inspection after laser machine feet lifted



Laser screed pour



Sealed SAGM patch repair during the installation

Site name: A&H Construction - Lowry Park, Grimshaw Lane, Manchester.		Units/ plots checked: : Unit A-B-C-D laser screed. See marked up plan	
Postcode: M40 2BA			
Installers Name: UK Membranes			
Date: 27/02/2024			
Inspection by: Dan Squire		Weather: 3°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail. All stanchions and pipe penetrations are sealed using SAGM.</p> <p>Site installed miothene strips surrounding all pipes and stanchions prior to the concrete pour restricting areas of the inspection. The perimeter membrane inspection was also restricted due to insulation installed over the retro fit detailing.</p>	
	Type of Joint	Tape Joint ☐	Auto Weld ☒ Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A ☒ Yes ☐ No ☐ N/A

Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A
	Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 3no patch repairs carried out by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 27/02/2024</p>			

Area Inspected

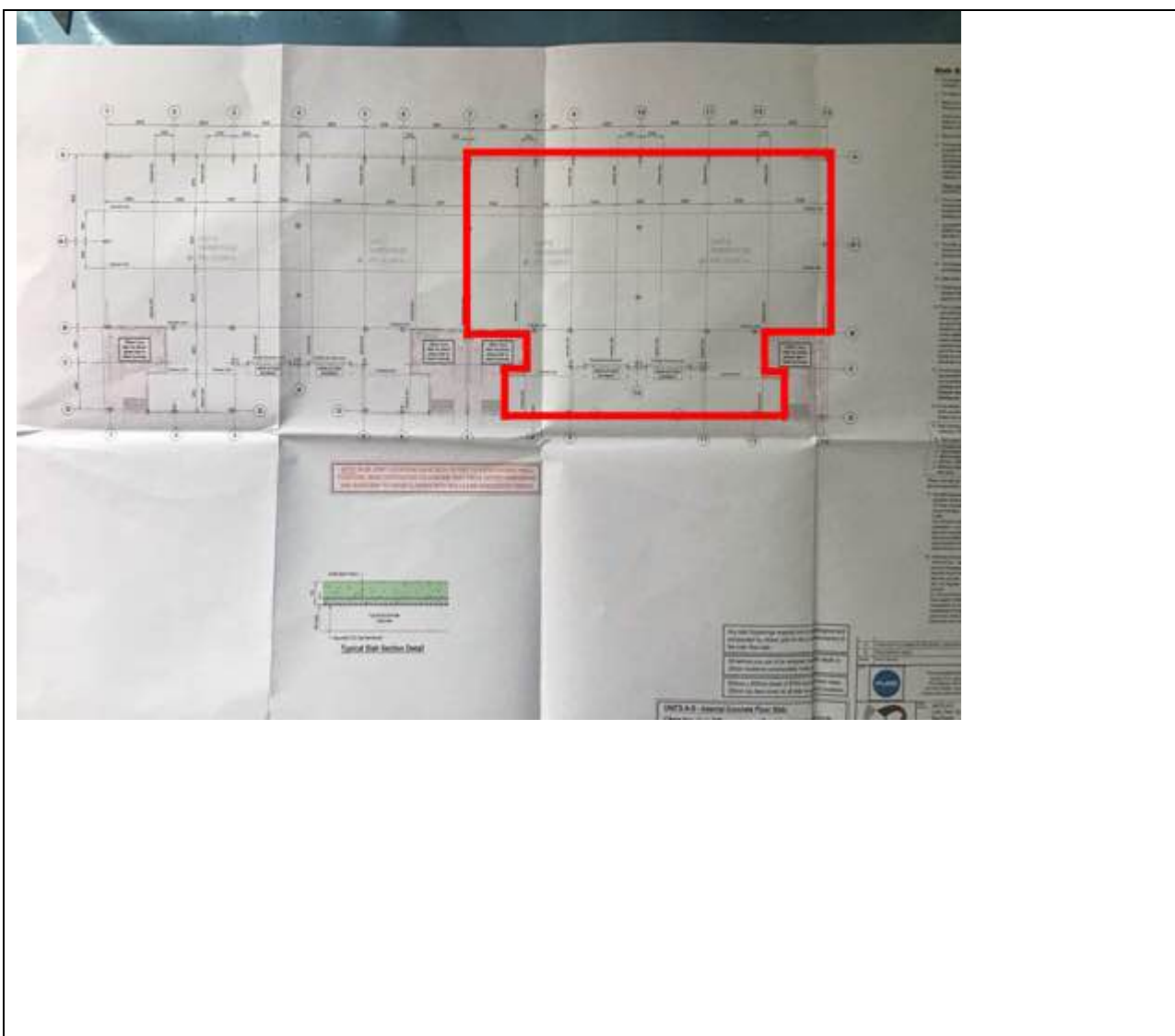


Photo 27/02/2024



Sealed SAGM patch repair

Plant keeping off the mesh on the membrane and using miothene on the plant feet to protect the membrane



Membrane inspected after plant feet are raised



Laser screed pour



Probe test to sealed hand weld membrane joint



Rolled substrate under the membrane



Restricted inspection to stanchion detailing



Sealed auto weld membrane joint



Restricted inspection to perimeter retro fit detailing



Sealed pipe penetrations using SAGM

Site name: A&H Construction - Lowry Park, Grimshaw Lane, Manchester.		Units/ plots checked: : Unit A-B-C-D laser screed. See marked up plan	
Postcode: M40 2BA			
Installers Name: UK Membranes			
Date: 28/02/2024			
Inspection by: Dan Squire		Weather: 8°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail. All stanchions and pipe penetrations are sealed using SAGM.</p> <p>Concrete had been poured around the pipe penetrations prior to our inspection restricting these areas for inspection.</p>	
	Type of Joint	Tape Joint ☐	Auto Weld ☒ Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A

	Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A
	Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: All shuttering pin holes and 7no defect patch repairs carried out by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 28/02/2024</p>				

Area Inspected

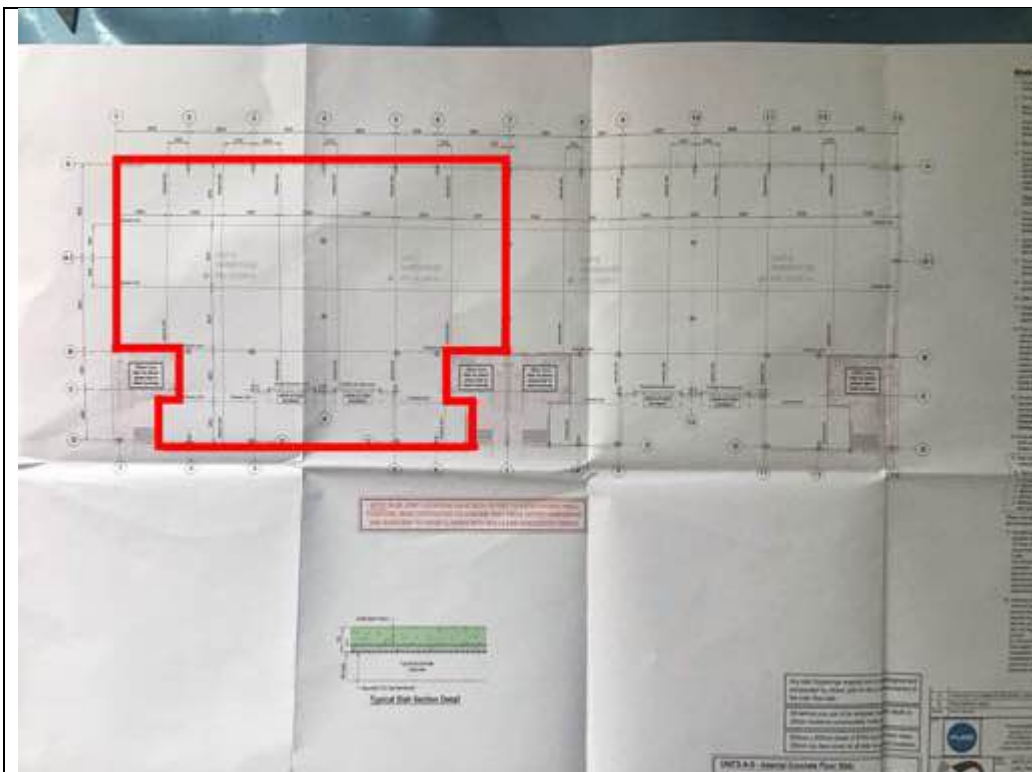


Photo 28/02/2024



Sealed auto weld membrane joint



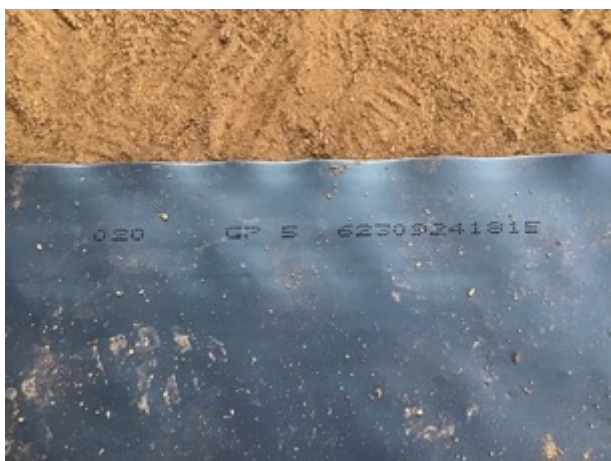
Sealed SAGM pin hole repairs



Membrane inspected after laser machine feet were raised



Plant keeping off the membrane and using miothene to protect the membrane from the laser machine feet



Juta GP5 gas membrane



Rolled substrate ahead of the membrane installation



Sealed SAGM defect patch repairs



Probe test to sealed hand weld membrane joint



Laser screed pour



SAGM perimeter retro fit detailing



Sealed stanchion detailing using SAGM



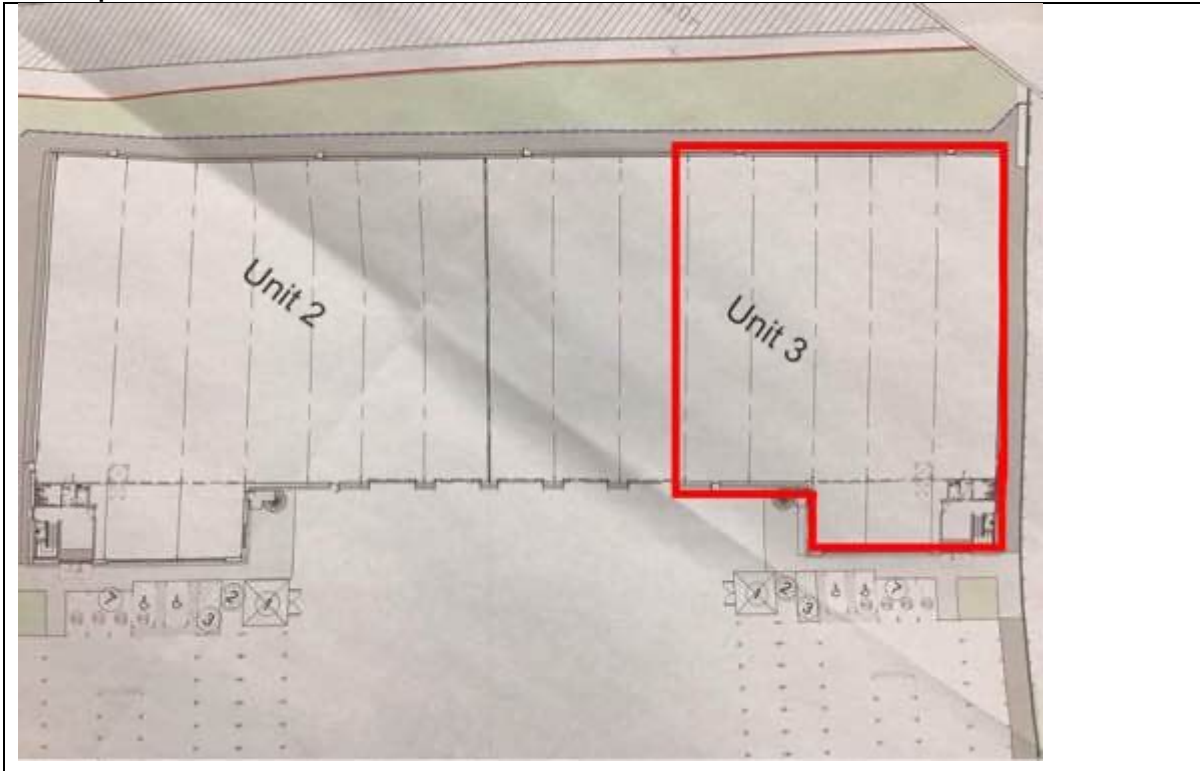
Restricted inspection to pipe penetrations

Main Contractor Name: A&H Construction		Date: 10/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 9 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 2-3	
Area Inspected:	Laser screed pour - See Marked Up Plan	
Description of Works:	The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. All pipe penetrations and stanchions have been sealed using SAGM	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GPSAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with SAGM that has been heat sealed, The perimeter membrane has been covered with follow on materials which restricted the inspection to this area		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions has been wrapped in miothenes which restricted the inspection to this area, The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	
(Section 3, Defects List)		Action Required

MEC recorded 4no defects in the membrane. The installers repaired the damage using SAGM patches and heat applied

No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



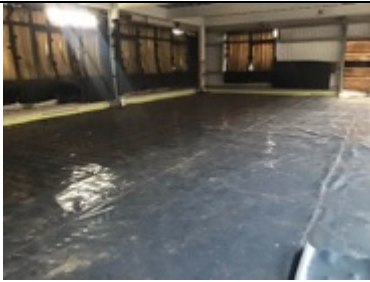
Membrane lined ahead of the pour



Plant keeping off the steel above the membrane



Wagons keeping off the steel above the membrane



Membrane lined under the mezzanine floor

Subgrade Photos



Substrate prep work ahead of the membrane installation



Close up of compacted sand blinding

Materials Used

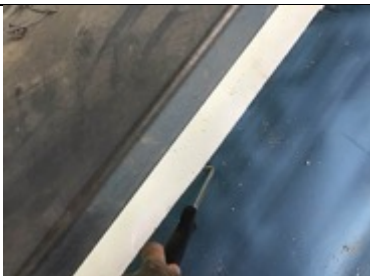


Evidence of Juta GPSAM



Evidence of Juta GP5 gas barrier membrane

Perimeter Detail



Probe test to perimeter detailing



Restricted inspection to perimeter detailing

Pipe and Duct Seals



Probe test to pipe sealing



Pipe penetrations sealed using
SAGM and heat applied

Stanchions and Columns Seals



Sealed stanchion using SAGM
and heat applied



Miothene restricting stanchion
inspection



Probe test to stanchion sealing

Testing of Joints



Probe test to hand weld
membrane lap joint



Membrane being hand welded
together

Additional Photos



Recorded defect



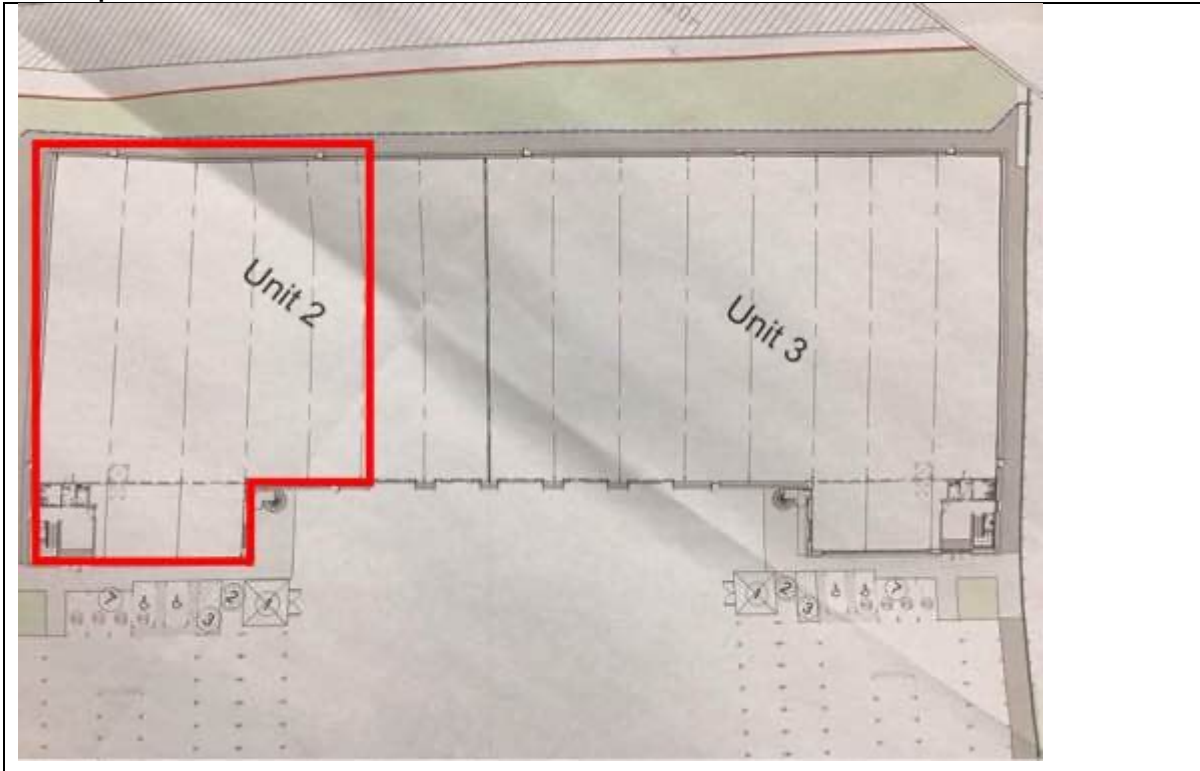
Defect sealed using SAGM and
heat applied

Main Contractor Name: A&H Construction		Date: 11/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 12 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 2-3	
Area Inspected:	Laser screed pour - See Marked Up Plan	
Description of Works:	The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. All pipe penetrations and stanchions have been sealed using SAGM. After the inspection insulation is installed by site around the perimeter edge and miothene is installed around all penetrations.	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GPSAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	
(Section 3, Defects List)		Action Required

MEC recorded no defects in the membrane. The installers repaired damage prior to the inspection under their own CQA using SAGM patches and heat applied

No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



Subgrade Photos



Rolled sand blinding substrate

Materials Used

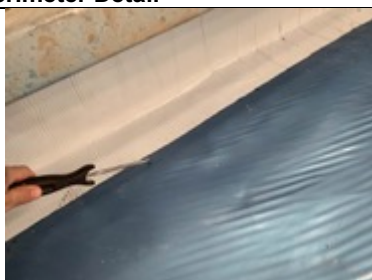


Evidence of Juta GPSAM

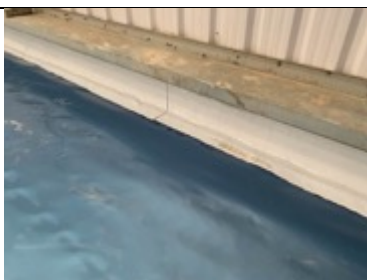


Evidence of Juta GP5 gas membrane

Perimeter Detail



Testing perimeter retro fit detailing

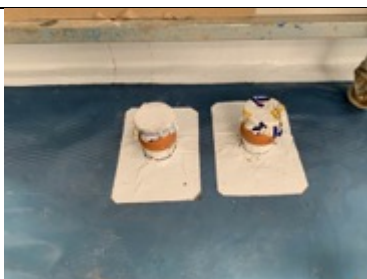


Sealed perimeter retro fit detailing to cladding using SAGM and heat applied

Pipe and Duct Seals



Testing pipe seals



Sealed pipe penetrations using SAGM and heat applied

Stanchions and Columns Seals



Testing stanchion detailing



Sealed stanchion detailing using
SAGM and heat applied



Sealed stanchion detailing using
SAGM and heat applied

Testing of Joints



Hand weld membrane lap joint
testing



Hand welding membrane lap joint

Additional Photos



Sealed patch repair using SAGM
and heat applied



Laser screed installation over the
membrane



Plant keeping off the steel above the
membrane

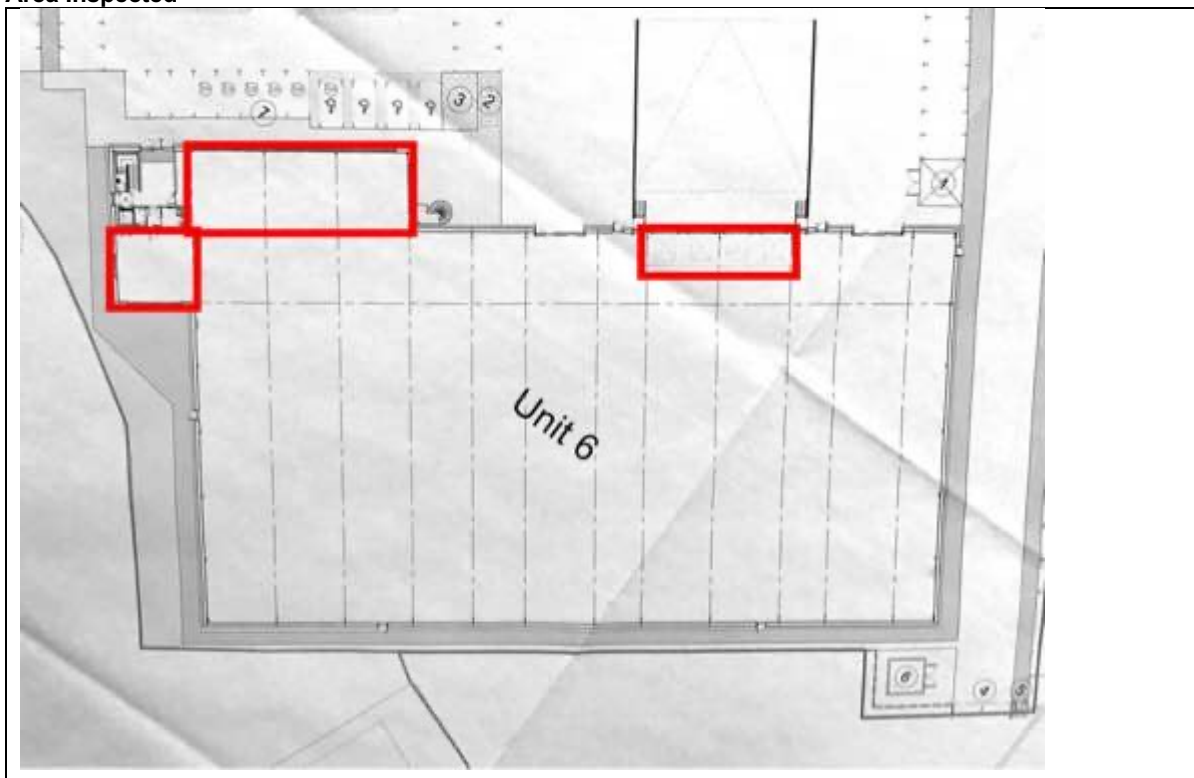


Insulation and miothene installed
after the inspection of works
carried out

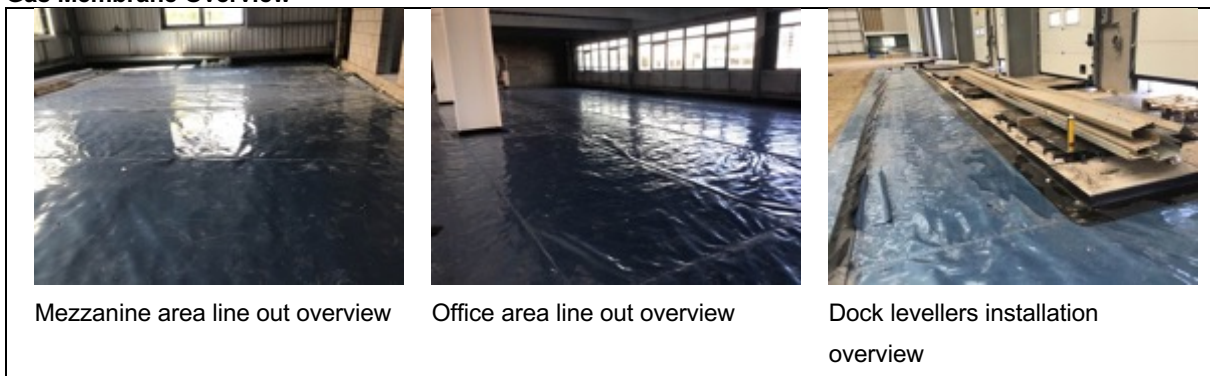
Main Contractor Name: A&H Construction		Date: 15/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 5 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 6	
Area Inspected:	Dock levellers and mezzanine / office area - See Marked Up Plan	
Description of Works:	<p>MEC did a thorough inspection of the membrane installed in preparation for dock leveller and mezzanine office area pours. The membrane is fully lined across a sand blinded and rolled substrate and left extended under the armoured joint so that the membrane can lap onto the membrane which will be installed across the main floor with the laser screed pour. Around the dock levellers the membrane is sealed to the concrete using SAGM as a retro fit detail and heat applied. Under the mezzanine floor all membrane lap joints are hand welded. The membrane is sealed to the perimeter cladding using SAGM and heat applied as a retro fit detail. In this area the membrane is hand welded to the membrane previously installed and inspected in the stair core areas. The existing membrane has had patch repairs made using SAGM and heat applied prior to the inspection under the installers own CQA.</p>	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas barrier membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: Not Applicable		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	

(Section 3, Defects List)	Action Required
The installers made patch repairs prior to the inspection using SAGM patches and heat applied under their own CQA. No recorded defects found by MEC	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



Mezzanine area line out overview

Office area line out overview

Dock levellers installation overview

Subgrade Photos



Acceptable sub base under the dock leveller membrane



Acceptable sub base under the office area membrane

Materials Used

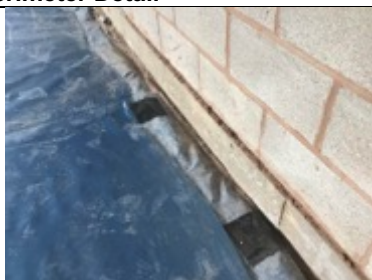


Evidence of Juta GP5 gas barrier membrane



Evidence of Juta GP1 SAM

Perimeter Detail



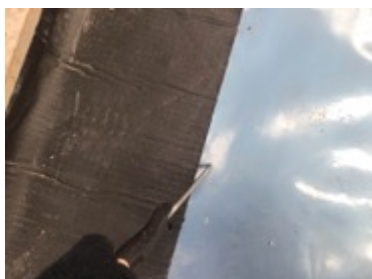
Membrane hand welded to existing stair core membrane with SAGM patches installed using SAGM and heat applied



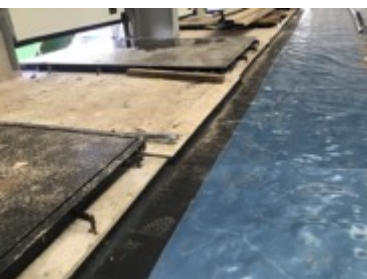
Office area retro fit detailing using SAGM and heat applied



Perimeter detailing testing



Testing dock leveller retro fit detailing



Dock levellers retro fit detailing using SAGM and heat applied

Pipe and Duct Seals

Stanchions and Columns Seals

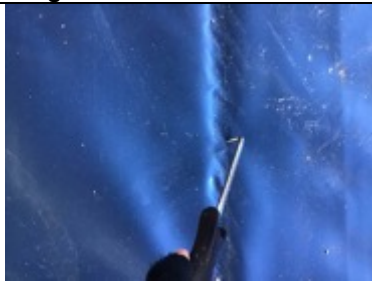


Sealed office area stanchion detailing using SAGM and heat applied



Testing sealed dock leveller area stanchion detailing using SAGM and heat applied

Testing of Joints



Testing sealed hand welded membrane lap joint

Additional Photos

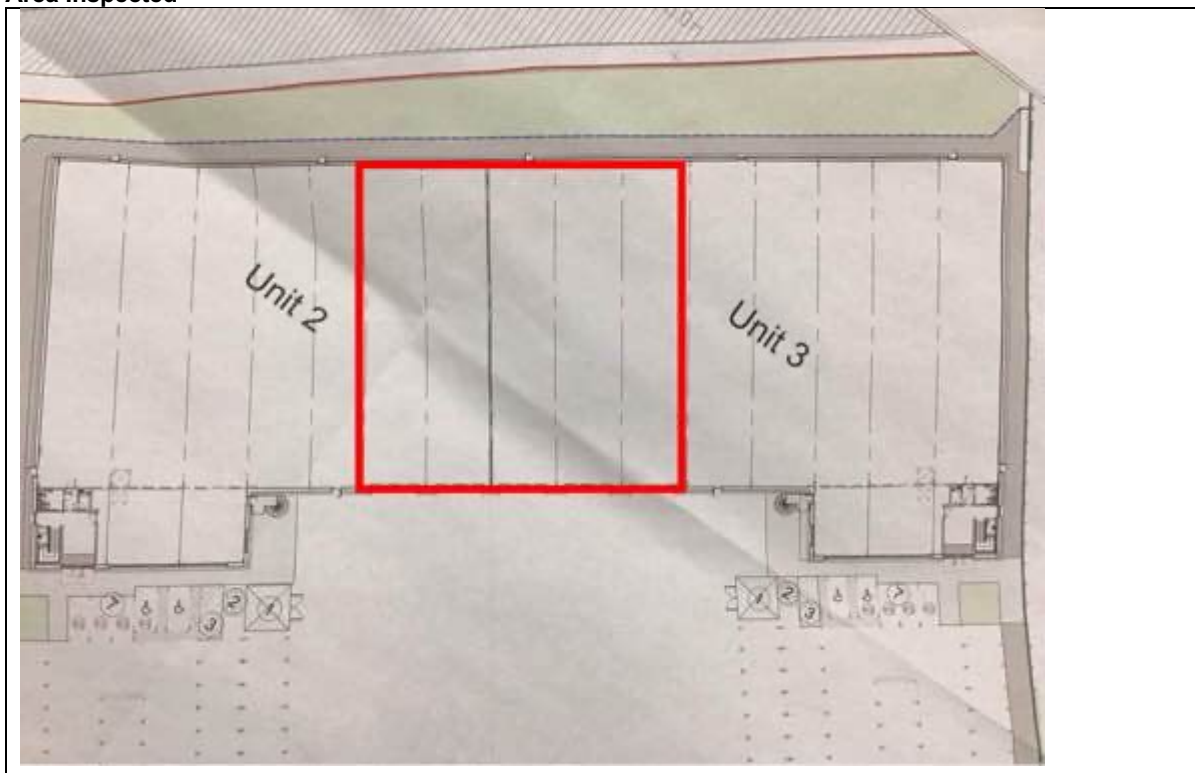


Testing sealed patch repair made by the installers prior to our inspection using SAGM and heat applied

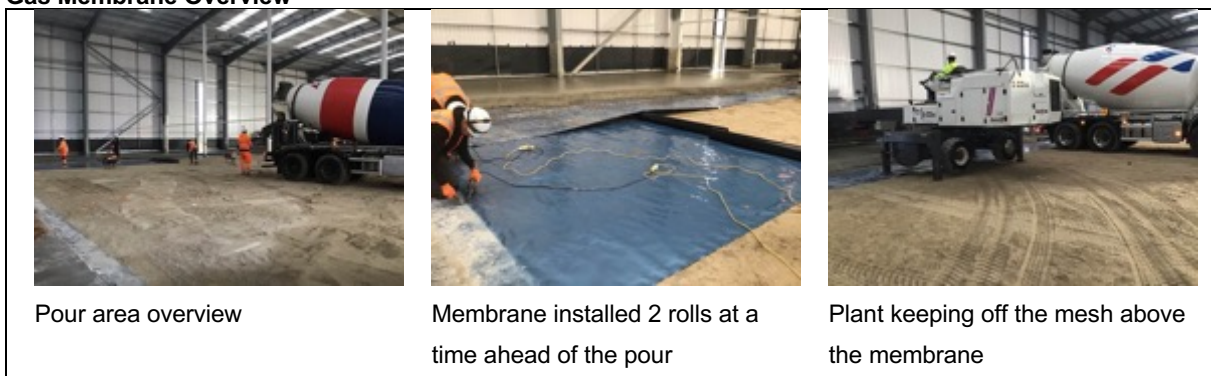
Main Contractor Name: A&H Construction		Date: 15/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 5 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 2-3	
Area Inspected:	Laser screed pour - See Marked Up Plan	
Description of Works:	<p>The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. The membrane is hand welded to the membrane installed on the previous pour with all pin holes sealed using SAGM patches with heat applied. All stanchions have been sealed using SAGM and heat applied. After the inspection insulation is installed by site around the perimeter edge and miothene is installed around all penetrations.</p>	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GPSAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: Not Applicable		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	<p>The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like</p>	

(Section 3, Defects List)	Action Required
MEC recorded 3no defects in the membrane. The installers repaired damage prior to the inspection under their own CQA using SAGM patches and heat applied.	No Action Required all Defects rectified at time of inspection

Area Inspected



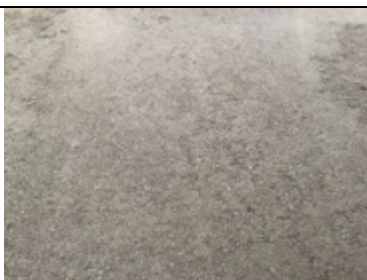
Gas Membrane Overview



Subgrade Photos



Roller prep ahead of the
membrane installation



Compact sand blinding

Materials Used

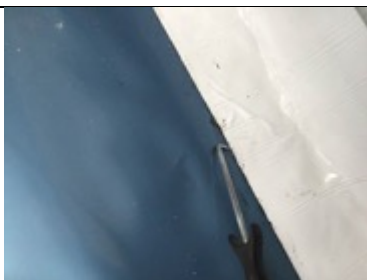


Evidence of Juta GP5 gas barrier
membrane

Perimeter Detail



Perimeter retro fit detailing to
cladding using SAGM and heat
applied



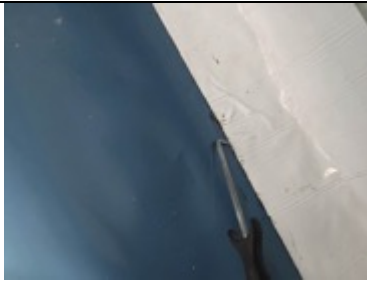
Probe testing perimeter detailing

Pipe and Duct Seals

Stanchions and Columns Seals



Sealed stanchion detailing using
SAGM and heat applied



Testing of Joints

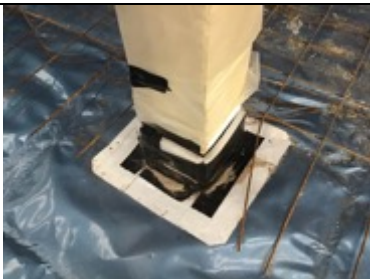


Membrane hand welded into
position



Probe test to hand welded
membrane lap joint

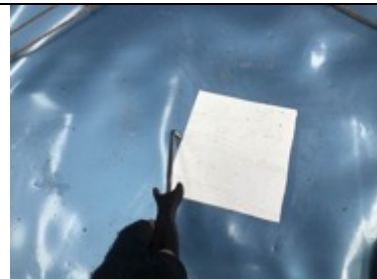
Additional Photos



Miothene installed by site after
inspection



Sealed pin hole repair patches
using SAGM and heat applied

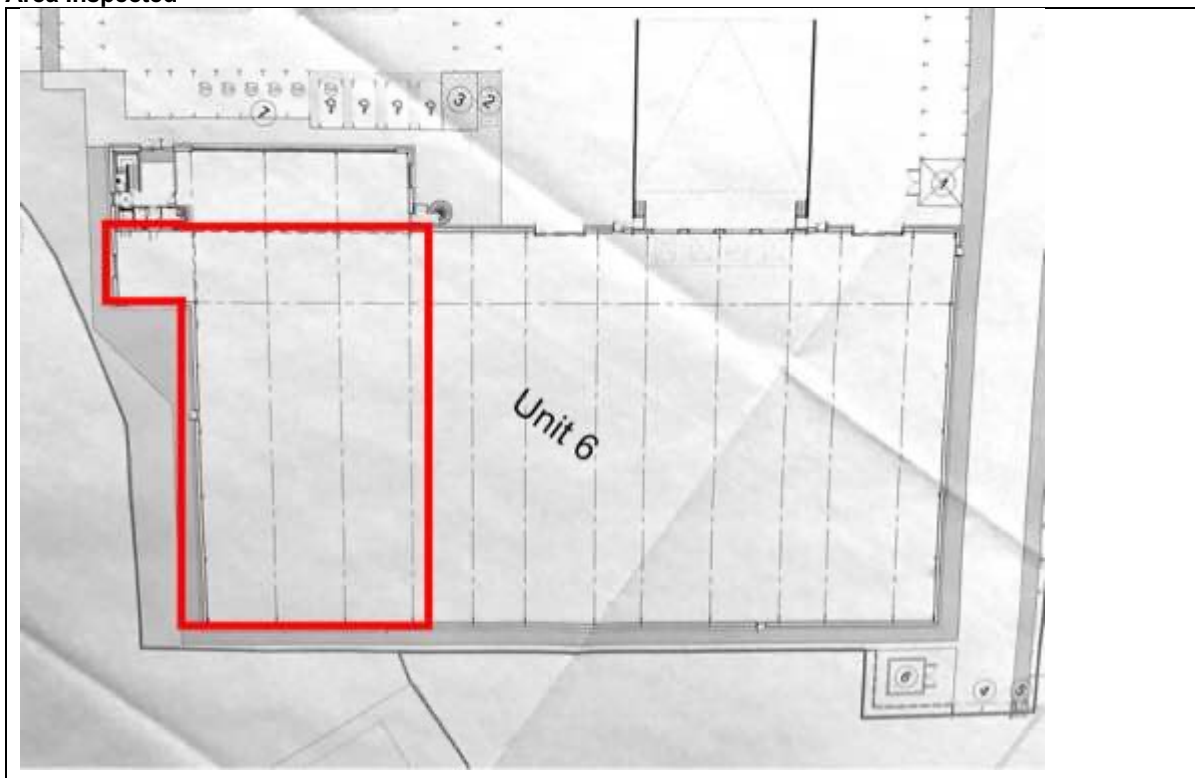


Sealed patch repair to recorded
defect using SAGM and heat
applied

Main Contractor Name: A&H Construction		Date: 17/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 9 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 6	
Area Inspected:	Laser screed pour - See Marked Up Plan	
Description of Works:	<p>The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. The membrane is hand welded to the membrane installed on the previous pour with all pin holes sealed using SAGM patches with heat applied. All stanchions and pipe penetrations have been sealed using SAGM and heat applied. After the inspection insulation is installed by site around the perimeter edge and miothene is installed around all penetrations.</p>	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	<p>The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like</p>	

(Section 3, Defects List)	Action Required
MEC recorded 4no defects in the membrane which were repaired by the installers during the inspection using SAGM patches and heat applied . The installers repaired shuttering pin damages prior to the inspection under their own CQA using SAGM patches and heat applied.	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



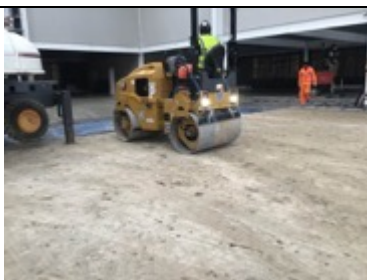
Overview of the pour area

Plant keeping off the mesh above the membrane

Subgrade Photos



Roller prep ahead of the
membrane installation



Roller prep ahead of the
membrane installation

Materials Used

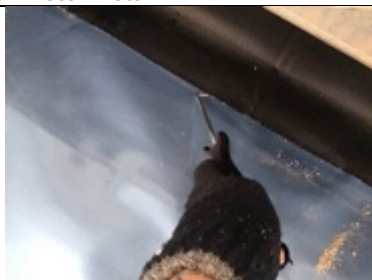


Juta GP1 SAM

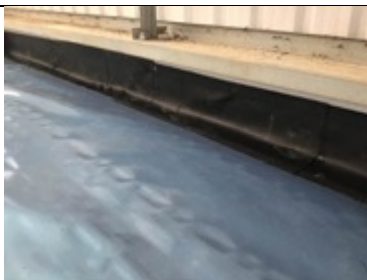


Juta GP5 gas barrier membrane

Perimeter Detail

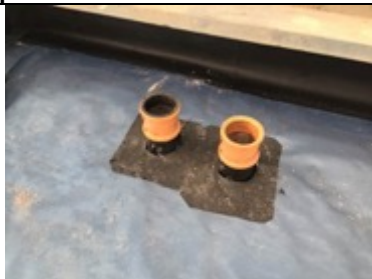


Testing perimeter detailing



Sealed perimeter retro fit detailing
using SAGM and heat applied

Pipe and Duct Seals



Sealed pipe penetrations using
SAGM and heat applied



Testing pipe detailing

Stanchions and Columns Seals



Sealed stanchion detailing using SAGM and heat applied



Testing stanchion detailing

Testing of Joints



Testing hand welded membrane lap joint



Membrane hand welded into position ahead of the pour

Additional Photos



Sealed shuttering pin patch repair using SAGM and heat applied



Recorded defects sealed using SAGM patch repairs and heat applied

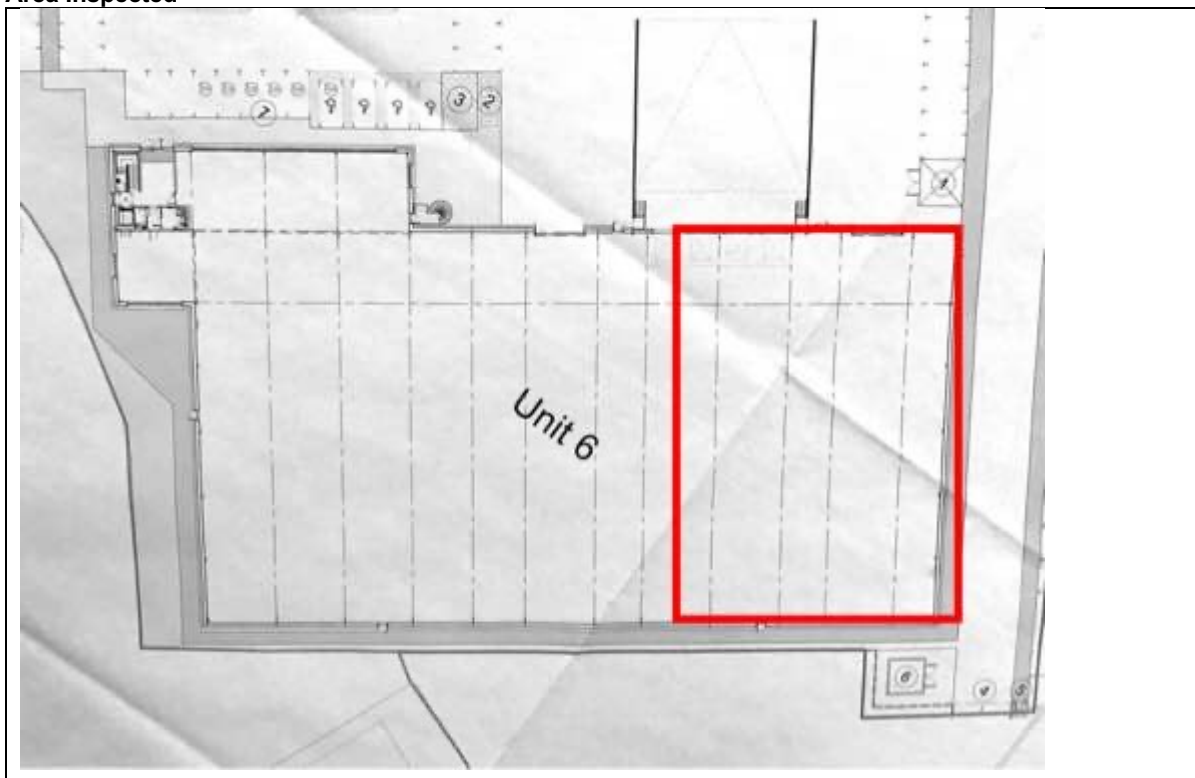


Insulation and miothere installed after the inspection

Main Contractor Name: A&H Construction		Date: 18/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 8 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 6	
Area Inspected:	Laser screed pour - See Marked Up Plan	
Description of Works:	<p>The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. The membrane is hand welded to the membrane installed around the dock levellers with all pin holes sealed using SAGM patches with heat applied. All stanchions and pipe penetrations have been sealed using SAGM and heat applied. After the inspection insulation is installed by site around the perimeter edge and miothere is installed around all penetrations.</p>	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	<p>The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like</p>	

(Section 3, Defects List)	Action Required
MEC recorded no defects in the membrane. The installers repaired shuttering pin damages prior to the inspection under their own CQA using SAGM patches and heat applied.	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



Subgrade Photos



Roller prep ahead of the
membrane installation

Materials Used



Juta GP1 SAM



Juta GP5 gas barrier membrane

Perimeter Detail



Testing perimeter detailing



Sealed perimeter retro fit detailing
using SAGM and heat applied

Pipe and Duct Seals

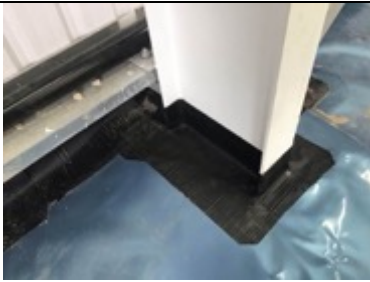


Sealed pipe penetrations using
SAGM and heat applied



Testing pipe detailing

Stanchions and Columns Seals



Sealed stanchion detailing using SAGM and heat applied



Testing stanchion detailing

Testing of Joints



Testing hand welded membrane lap joint



Membrane hand welded into position ahead of the pour

Additional Photos



Sealed shuttering pin patch repair using SAGM and heat applied



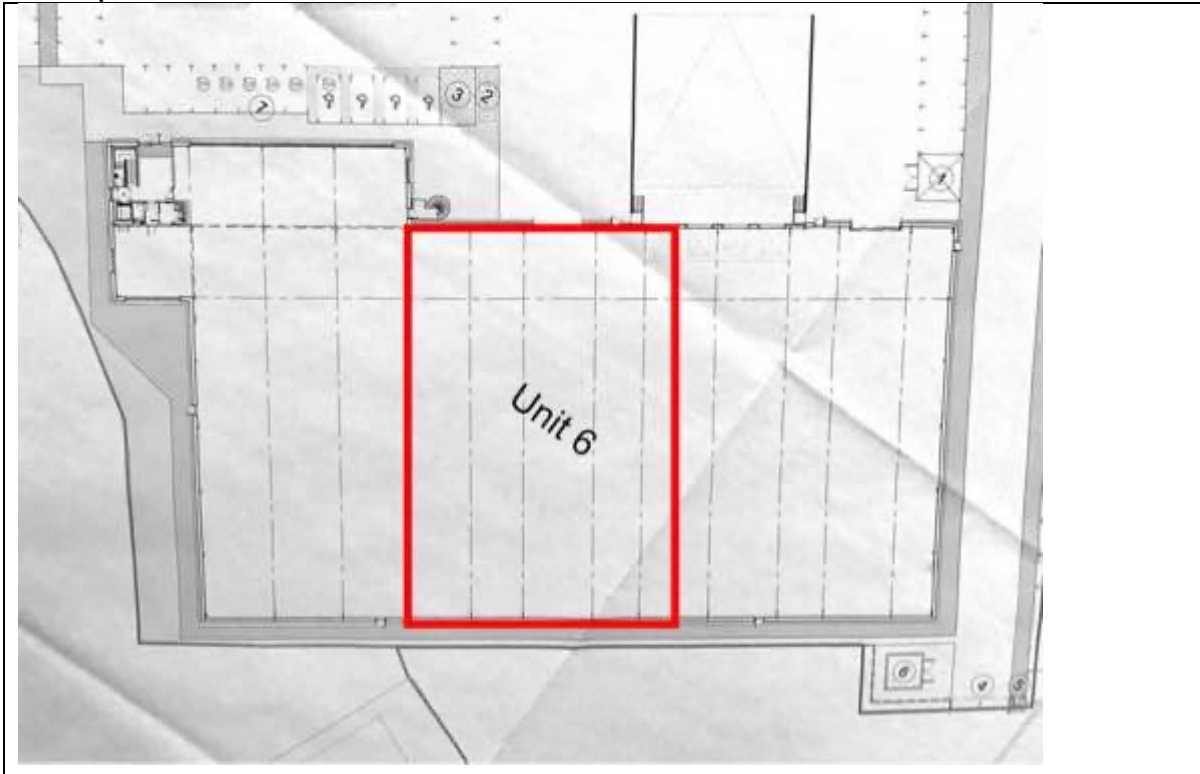
Insulation and miothene installed after the inspection

Main Contractor Name: A&H Construction		Date: 19/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 10 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 6	
Area Inspected:	Laser screed pour - See Marked Up Plan	
Description of Works:	<p>The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. The membrane is hand welded to the membrane installed around the dock levellers and previous pour areas with all pin holes sealed using SAGM patches with heat applied. All stanchions and pipe penetrations have been sealed using SAGM and heat applied. After the inspection insulation is installed by site around the perimeter edge and miothene is installed around all penetrations.</p>	
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: Not Applicable		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	
(Section 3, Defects List)		Action Required

MEC recorded no defects in the membrane. The installers repaired shuttering pin damages prior to the inspection under their own CQA using SAGM patches and heat applied.

No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



Overview of the pour area

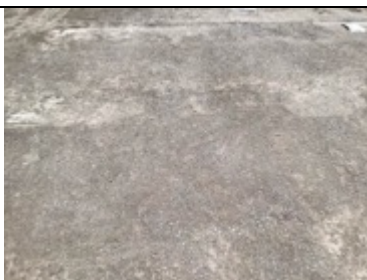


Plant keeping off the mesh above the membrane

Subgrade Photos



Roller prep ahead of the
membrane installation



Compact blinding after roller prep

Materials Used



Juta GP1 SAM

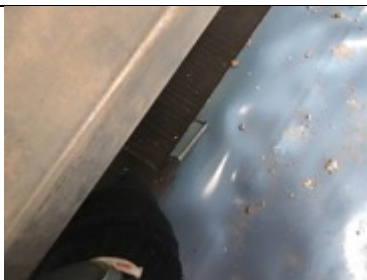


Juta GP5 gas barrier membrane

Perimeter Detail



Sealed perimeter retro fit detailing
using SAGM and heat applied



Probe test to the perimeter
detailing

Pipe and Duct Seals

Stanchions and Columns Seals



Sealed stanchion detailing using
SAGM and heat applied



Testing stanchion detailing

Testing of Joints



Testing hand welded membrane lap joint

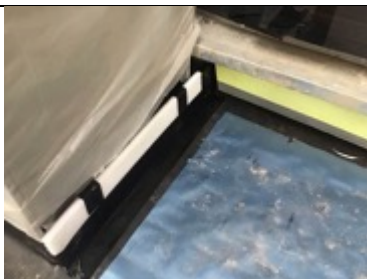


Membrane hand welded into position ahead of the pour

Additional Photos



Sealed shuttering pin patch repair using SAGM and heat applied

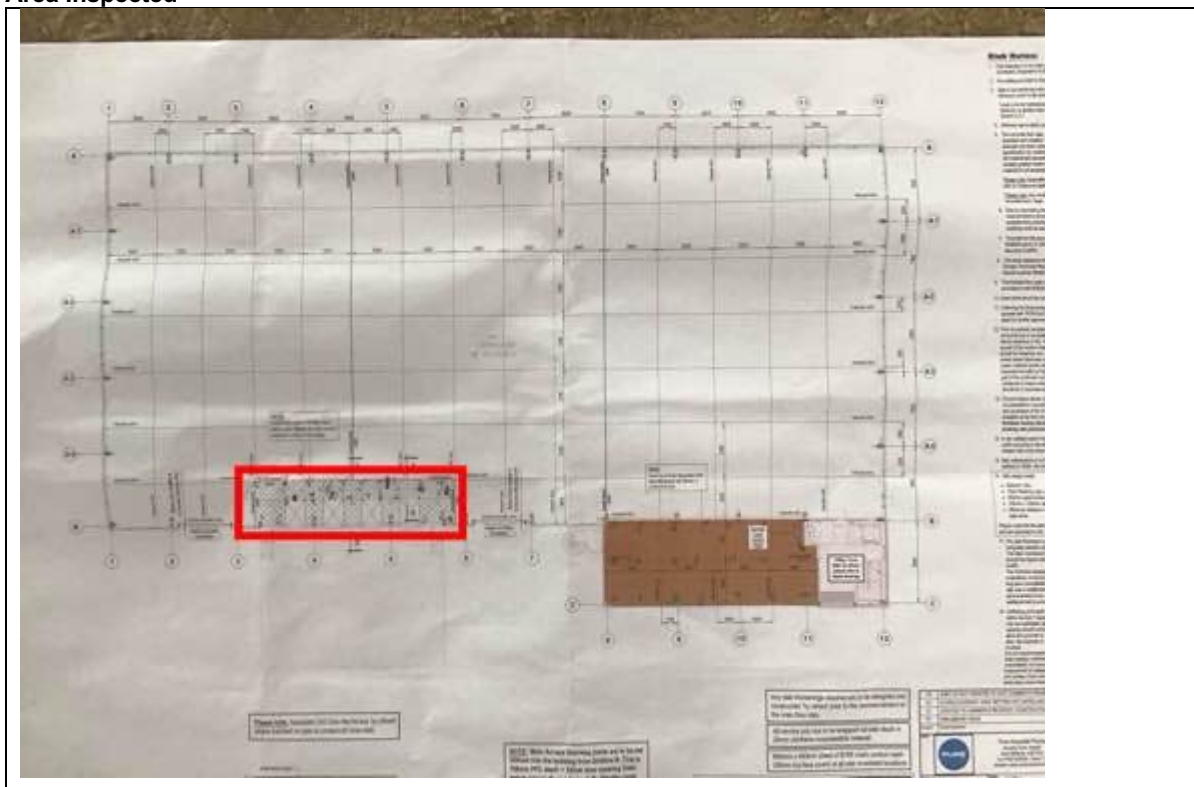


Insulation and miothene installed after the inspection

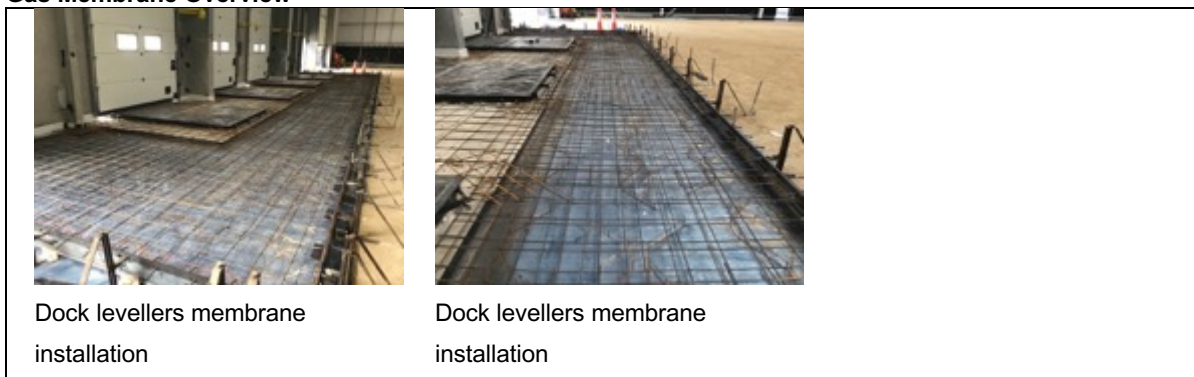
Main Contractor Name: A&H Construction		Date: 30/04/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 12 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 1	
Area Inspected:	Dock levellers installation - See Marked Up Plan	
Description of Works:	<p>MEC carried out a thorough visual inspection of the membrane installed to the dock levellers. The membrane is hand welded and sealed to the concrete docks using SAGM as a retro fit detail with heat applied. The membrane extends under the armoured joint where it will be joined to further membrane at a later date during the laser screed pour. Either side of the dock levellers the perimeter and stanchions have been sealed using SAGM and heat applied with site installing miothene and insulation around the detailing work prior to the pour.</p> <p>A layer of steel mesh was installed on the membrane prior to our inspection. MEC were still able to inspect the membrane and could see no damage caused by the mesh.</p>	
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The perimeter membrane has been covered with follow on materials which restricted the inspection to this area, The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: Not Applicable		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735, The stanchions has been wrapped in miothenes which restricted the inspection to this area		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like	

(Section 3, Defects List)	Action Required
MEC recorded no defects in the membrane. The installers repaired shuttering pin damages prior to the inspection under their own CQA using SAGM patches and heat applied.	No Action Required all Defects rectified at time of inspection

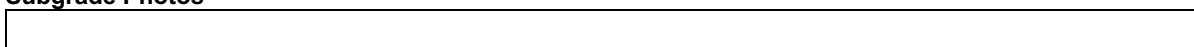
Area Inspected



Gas Membrane Overview



Subgrade Photos



Materials Used



Juta GP1 SAM



Juta GP5 gas barrier membrane

Perimeter Detail



Miothene installed at the perimeter
and around the stanchion detail

Pipe and Duct Seals

Stanchions and Columns Seals

Testing of Joints



Probe testing the membrane retro
fit detail to the dock levellers

Additional Photos



Corner retro fit detailing using
SAGM and heat applied

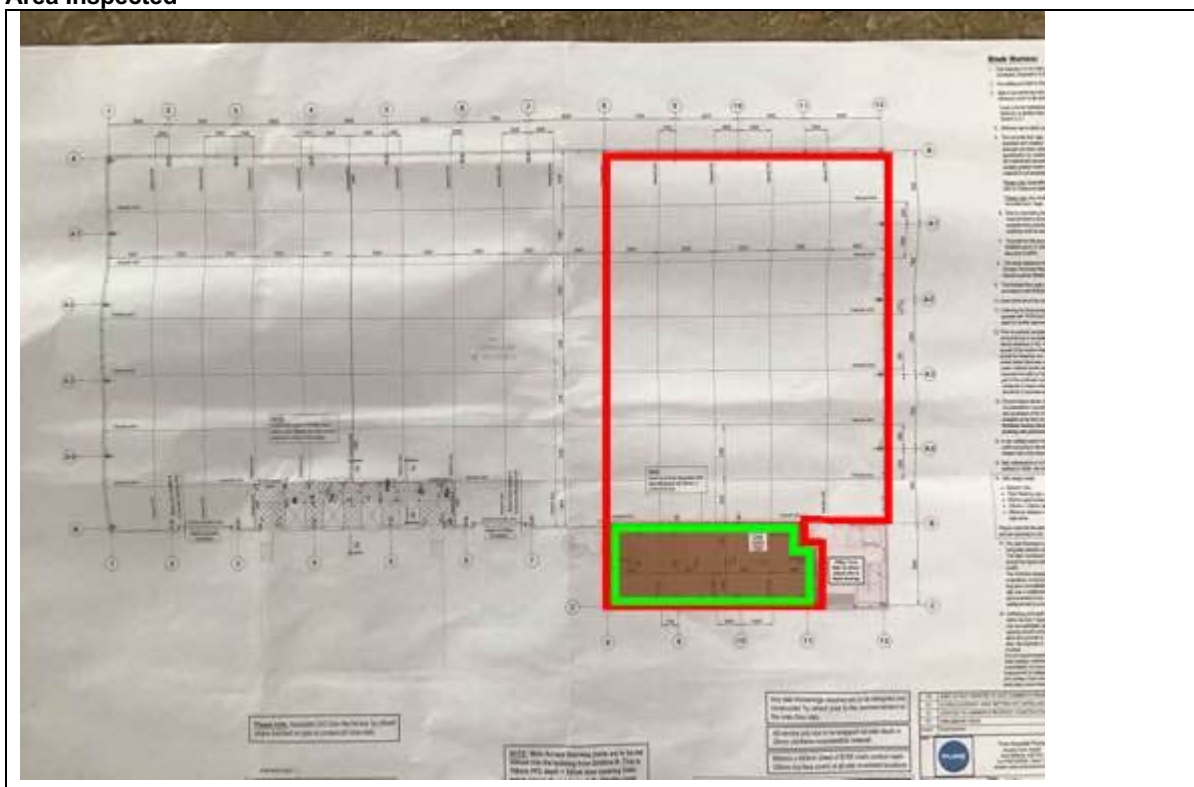


Membrane extended under the
armoured joint

Main Contractor Name: A&H Construction		Date: 01/05/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 14 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 1	
Area Inspected:	Laser screed installation - See Marked Up Plan	
Description of Works:	<p>The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. All stanchions and pipe penetrations have been sealed using SAGM and heat applied. After the inspection insulation is installed by site around the perimeter edge and miothene is installed around all penetrations. A full layer of vent void mat was installed across the base of the mezzanine floor area prior to the membrane installation. (Area marked in green on the marked up plan)</p>	
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The perimeter membrane has been covered with follow on materials which resrtricted the inspection to this area, The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735, The stanchions has been wrapped in miothenes which resrtricted the inspection to this area		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the	

	membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like
(Section 3, Defects List)	Action Required
MEC recorded 3no defects in the membrane. The installers repaired this area during the inspection and repaired damages prior to the inspection under their own CQA using SAGM patches and heat applied.	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview

 <p>Pour area overview</p>	 <p>Membrane installed under the mezzanine floor above the full layer of vent mat</p>
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Subgrade Photos



Substrate prep ahead of the
membrane installation

Materials Used

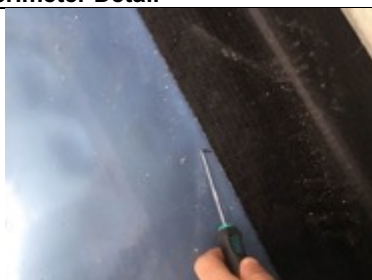


Juta GP1 SAM

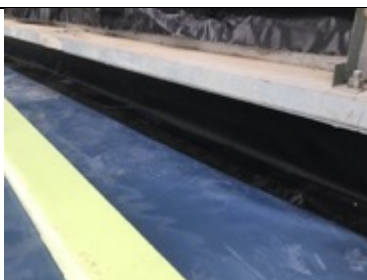


Juta GP5 gas barrier membrane

Perimeter Detail

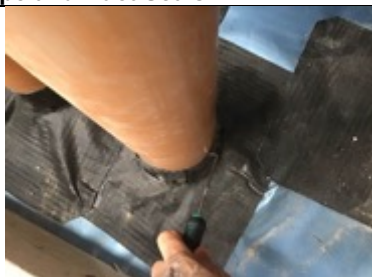


Perimeter retro fit detail testing



Retro fit detail to the perimeter
cladding using SAGM and heat
applied

Pipe and Duct Seals



Pipe penetrations testing



Pipe penetrations sealed using
SAGM and heat applied



Pipe penetrations sealed using
SAGM and heat applied

Stanchions and Columns Seals



Stanchion detailing sealed using
SAGM and heat applied



Stanchion detailing sealed using
SAGM and heat applied



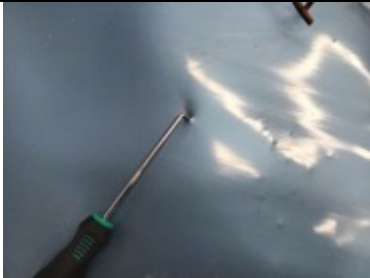
Stanchion detail testing

Testing of Joints



Probe test hand welded
membrane lap joint

Additional Photos



Recorded defect



Recorded defect sealed using
SAGM and heat applied



Plant keeping off the mesh above
the membrane

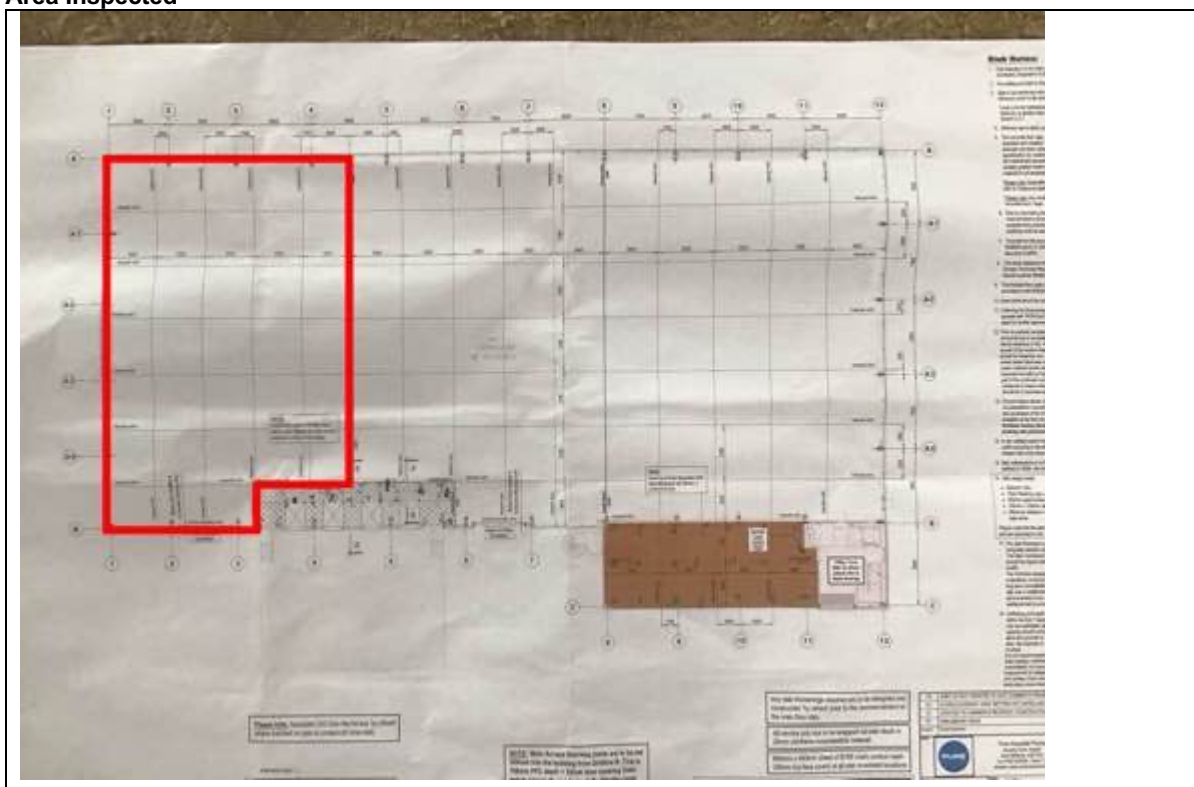


Vent mat installed under the
mezzanine floor area

Main Contractor Name: A&H Construction		Date: 02/05/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 15 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 1	
Area Inspected:	Laser screed installation - See Marked Up Plan	
Description of Works:	<p>The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. The membrane is hand welded to the membrane previously installed under the dock levellers and all pin holes have been sealed using SAGM and heat applied. All stanchions and pipe penetrations have been sealed using SAGM and heat applied. After the inspection insulation is installed by site around the perimeter edge and miothene is installed around all penetrations.</p>	
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The perimeter membrane has been covered with follow on materials which restricted the inspection to this area, The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735, The stanchions has been wrapped in miothenes which restricted the inspection to this area		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the	

	membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like
(Section 3, Defects List)	Action Required
No recorded defects in the membrane. The installers repaired damages prior to the inspection under their own CQA using SAGM patches and heat applied.	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



Subgrade Photos



Substrate prep ahead of the
membrane installation

Materials Used



Juta GP1 SAM



Juta GP5 gas barrier membrane

Perimeter Detail



Perimeter retro fit detail testing



Retro fit detail to the perimeter
cladding using SAGM and heat
applied

Pipe and Duct Seals



Pipe penetrations testing



Pipe penetrations sealed using
SAGM and heat applied

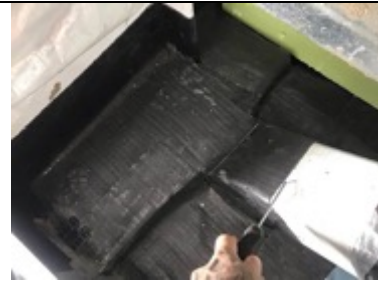
Stanchions and Columns Seals



Stanchion detailing sealed using SAGM and heat applied



Stanchion detailing sealed using SAGM and heat applied



Stanchion detail testing

Testing of Joints



Probe test hand welded membrane lap joint

Additional Photos



Plant keeping off the mesh above the membrane



Membrane installed 4 meters at a time ahead of the pour

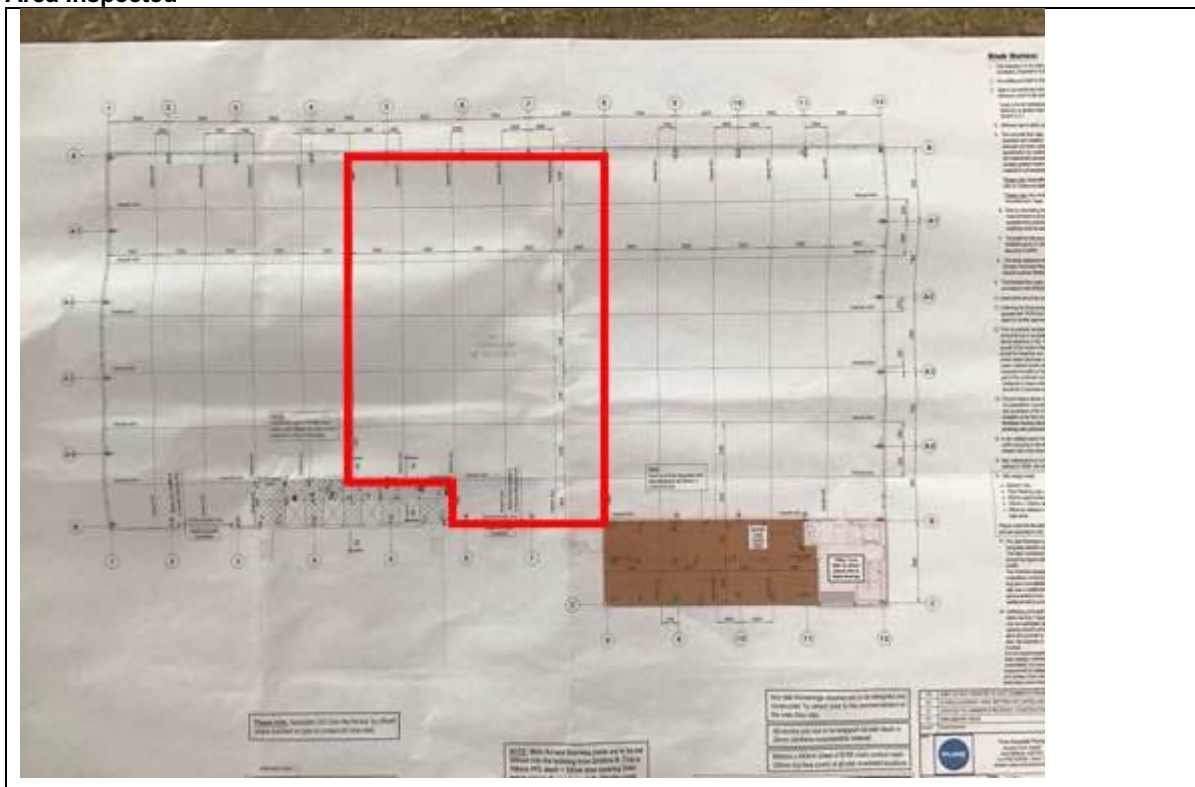


Pin patch repairs made using SAGM and heat applied

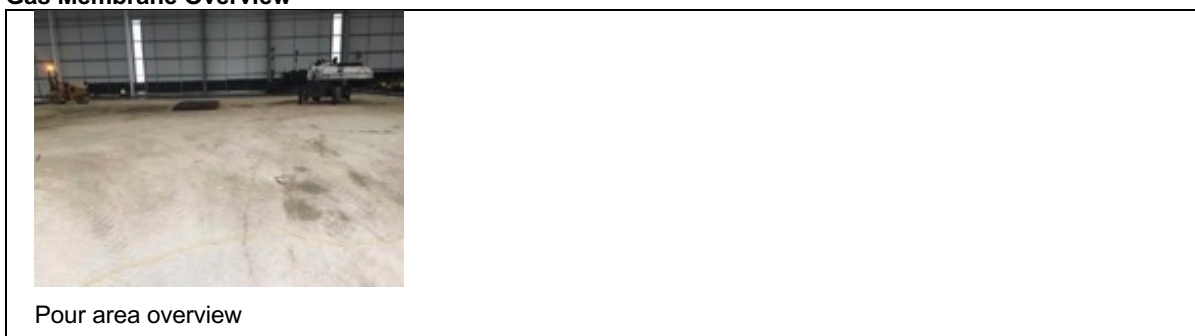
Main Contractor Name: A&H Construction		Date: 03/05/2024
Site Name: Lowry Park, Grimshaw Lane, Manchester.		Temp: 12 °C
		Installer: UK Membranes
Postcode: M40 2BA	Surveyor: Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	Unit 1	
Area Inspected:	Laser screed installation - See Marked Up Plan	
Description of Works:	<p>The membrane has been laid as the concrete pour progresses, a roll of membrane/preprepared bundle is laid out, inspected and then covered with steel and immediately concreted, the process is then repeated until the pour is completed. The membrane is auto and hand welded together 2 rolls at a time upon a well blinded and rolled substrate and sealed to the perimeter cladding using SAGM as a retro fit detail. The membrane is hand welded to the membrane previously installed under the dock levellers and previous pours with all pin holes sealed using SAGM and heat applied. All stanchions have been sealed using SAGM and heat applied. After the inspection insulation is installed by site around the perimeter edge and miothene is installed around all penetrations.</p>	
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP5 gas membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: The perimeter membrane has been covered with follow on materials which restricted the inspection to this area, The membrane has been sealed to the cladding rail with SAGM that has been heat sealed		
Service Entry Seal Method: Not Applicable		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735, The stanchions has been wrapped in miothenes which restricted the inspection to this area		
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.		
Others Please List: N/A		
(Section 2, Testing and Inspection Method)		
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection	
Joint Testing	<p>The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like</p>	

(Section 3, Defects List)	Action Required
No recorded defects in the membrane. The installers repaired damages prior to the inspection under their own CQA using SAGM patches and heat applied.	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview



Subgrade Photos



Substrate prep ahead of the
membrane installation

Materials Used

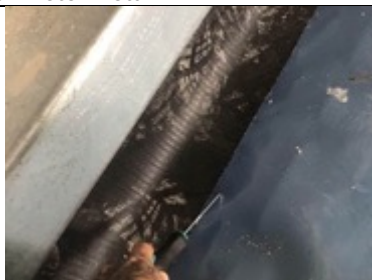


Juta GP1 SAM



Juta GP5 gas barrier membrane

Perimeter Detail



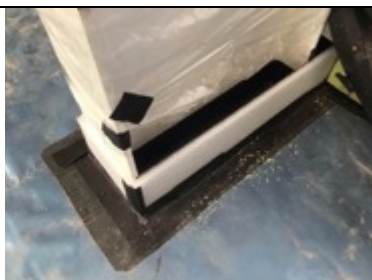
Perimeter retro fit detail testing



Retro fit detail to the perimeter
cladding using SAGM and heat
applied

Pipe and Duct Seals

Stanchions and Columns Seals



Stanchion detailing sealed using
SAGM and heat applied



Stanchion detailing sealed using
SAGM and heat applied



Stanchion detail testing

Testing of Joints



Probe test hand welded
membrane lap joint

Additional Photos



Plant keeping off the mesh above
the membrane



Armoured joint pin hole patch
repairs made using SAGM and
heat applied



GP®5

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

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

TITANTECH®

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

GP®5 is suitable for the following applications:

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

Handling

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

Installation

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





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

JUTA UK

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

Storage

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



JUTA UK

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

Jointing and Sealing

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

Accessory Products

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

Annex E: Materials Testing

TEST REPORT

Client Chartrange Ltd

Address Wharf Street
Dukinfield
Cheshire
SK16 4NJ

Contract Wharf Street,
Dukinfield

Job Number MRN 4579/36A

Date of Issue 26 May 2023

Page 1 of 13

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN 933-1 : 2012 (Washing & Sieving Method)

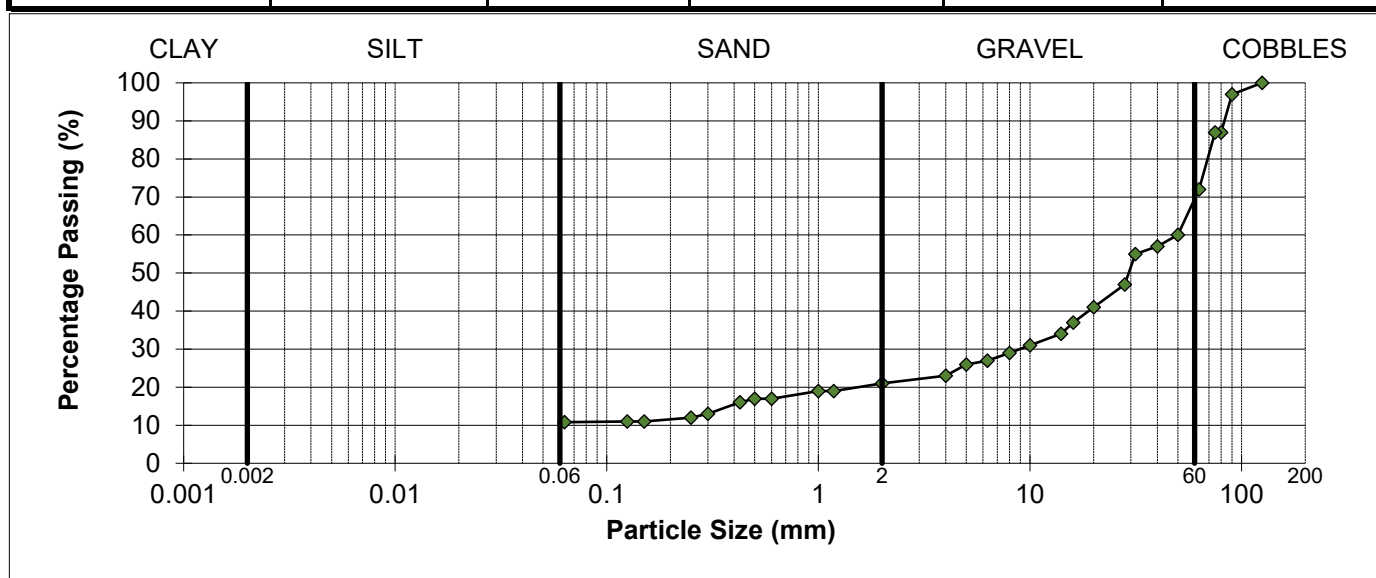
Determination of water content in accordance with BS EN 1097-5:2008

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield
JOB NUMBER	MRN 4579/36A

SAMPLE LABEL	15/05/23-DB-6F5-01	DATE SAMPLED	15-May-23
LAB SAMPLE No	125266	DATE RECEIVED	15-May-23
DATE TESTED	15-May-23	SAMPLED BY	Murray Rix

MATERIAL	Recycled Aggregate
ADVISED SOURCE	As client and site above

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	6.3	27	
90	97		5	26	
80	87	75-99	4	23	
75	87		2	21	0-35
63	72		1.18	19	
50	60		1	19	
40	57	50-90	0.6	17	
31.5	55		0.5	17	
28	47		0.425	16	
20	41	30-75	0.3	13	
16	37		0.25	12	
14	34		0.15	11	
10	31	15-60	0.125	11	
8	29		0.063	10.8	0-12



REMARKS

As received water content = 7.0%

Sample complies with the advised grading specification for a 6F5 material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER
BS EN 13286-4:2021

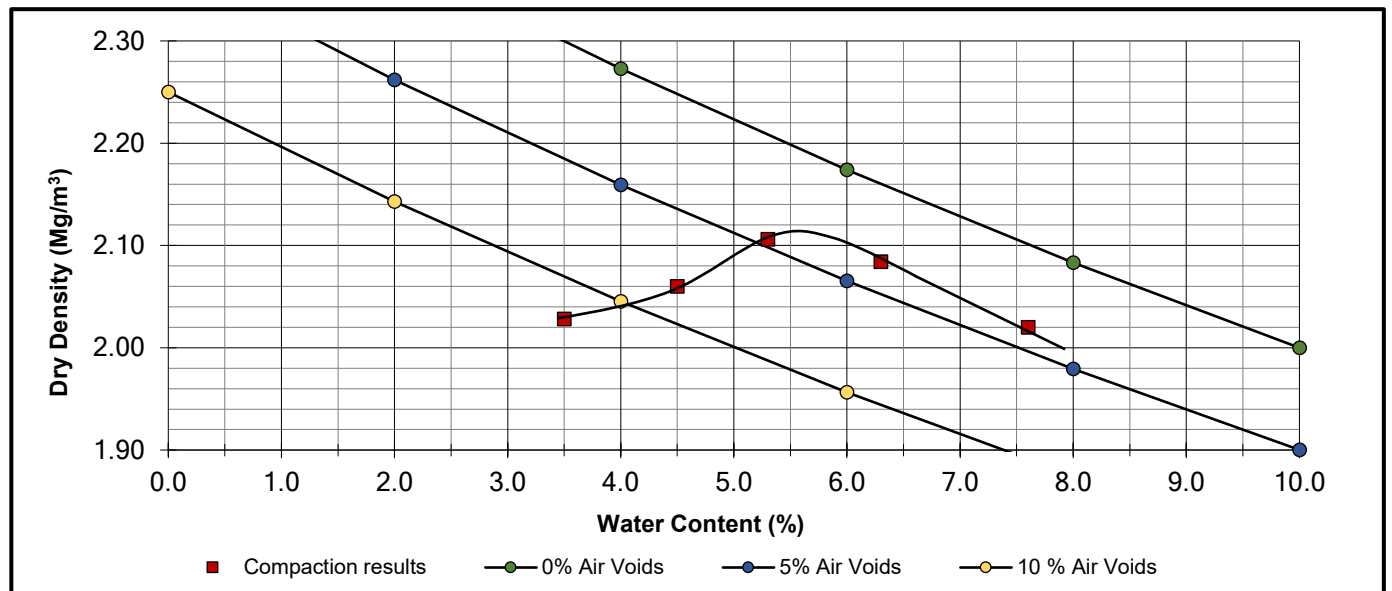
CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield
JOB NUMBER	MRN 4579/36A

SAMPLE LABEL	15/05/23-DB-6F5-01	DATE SAMPLED	15-May-23
SAMPLE NUMBER	125266	DATE RECEIVED	15-May-23
DATE TESTED	15-May-23	SAMPLED BY	Murray Rix

MATERIAL	Recycled Aggregate
ADVISED SOURCE	As client and site above
PRE TREATMENT	Air Dried

RETAINED 40mm	43 %	VIBRATING HAMMER	Hikoki DH40MC Rotary Hammer
RETAINED 20mm	59 %	PARTICLE DENSITY	2.50 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	3.5	2.028
2	4.5	2.060
3	5.3	2.106
4	6.3	2.084
5	7.6	2.020



OPTIMUM WATER CONTENT	5.5 (%)
MAXIMUM DRY DENSITY	2.11 (Mg/m ³)
FORM OF CURVE	Convex Downwards

REMARKS

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield

SAMPLE DETAILS

Job Number : MRN 4579/36A
Laboratory sample number : 125266
Material : Recycled Aggregate
Advised source : As client and site above
Site mark : 15/05/23-DB-6F5-01
Certificate of sampling received : Yes
Date and time of sampling : 15-May-23
Date received at Laboratory : 15-May-23
Date of start of test : 15-May-23
Sampling Location : Site Stockpile
Method of sampling : BS EN 932-1 : 1997
Sampled by : Murray Rix
Size Fraction : 35% passing 14mm retained 12.5mm
65% passing 12.5mm retained 10mm
Mass of dry sample tested : 5000g
Target specification : <50

RESULT

Los Angeles Coefficient : 40

Comment

NAME O.P. Davies BA (Hons
(Laboratory Manager)

SIGNED

DATE

26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DETERMINATION OF CONSTITUENTS OF COARSE RECYCLED AGGREGATE

BS EN 933-11:2009

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield

SAMPLE DETAILS

Job Number : MRN 4579/36A
Laboratory sample number : 125266
Material : Recycled Aggregate
Advised source : As client and site above
Site mark : 15/05/23-DB-6F5-01
Certificate of sampling received : Yes
Date and time of sampling : 15 May 2023
Date received at Laboratory : 15 May 2023
Date of start of test : 15 May 2023
Sampling Location : Site Stockpile
Method of sampling : BS EN 932-1 : 1997
Sampled by : Client
Mass of dry sample tested : 50 kg
Drying Temperature : $40 \pm 5^{\circ}\text{C}$

RESULT

Constituent	Description	Proportion (%)
Rc	Concrete, Concrete products, Mortar, Concrete masonry units	74
Ru	Unbound aggregate, Natural stone, Hydraulically bound aggregate	3.4
Rb	Clay masonry units (i.e. bricks & tiles), Calcium silicate masonry units, Aerated non-floating concrete	19
Ra	Bituminous materials	2.8
Rg	Glass	0.2
X	Other: Cohesive (i.e. clay & soil), Metals (ferrous & non-ferrous), Non-floating wood, plastic & rubber, Gypsum plaster	0.1
FL	Floating Particles (cm^3/kg)	0.1

Comments

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE

26-May-23

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN 933-1 : 2012 (Washing & Sieving Method)

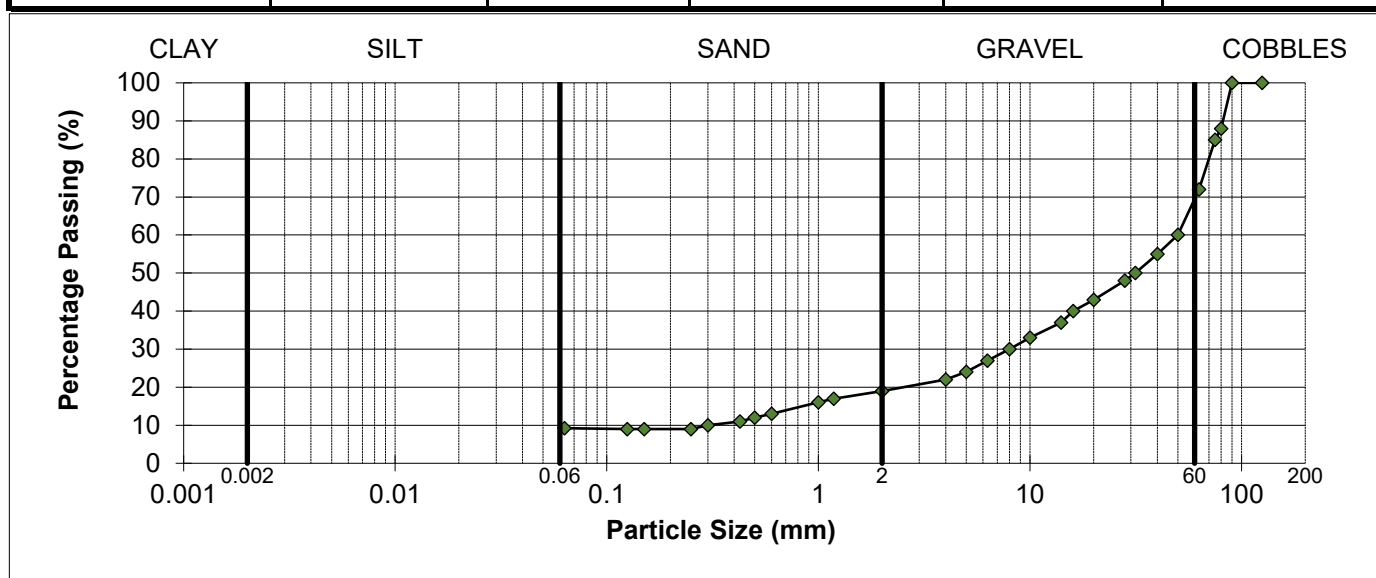
Determination of water content in accordance with BS EN 1097-5:2008

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield
JOB NUMBER	MRN 4579/36A

SAMPLE LABEL	15/05/23-DB-6F5-02	DATE SAMPLED	15-May-23
LAB SAMPLE No	125267	DATE RECEIVED	15-May-23
DATE TESTED	15-May-23	SAMPLED BY	Murray Rix

MATERIAL	Recycled Aggregate
ADVISED SOURCE	As client and site above

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	6.3	27	
90	100		5	24	
80	88	75-99	4	22	
75	85		2	19	0-35
63	72		1.18	17	
50	60		1	16	
40	55	50-90	0.6	13	
31.5	50		0.5	12	
28	48		0.425	11	
20	43	30-75	0.3	10	
16	40		0.25	9	
14	37		0.15	9	
10	33	15-60	0.125	9	
8	30		0.063	9.2	0-12



REMARKS

As received water content = 6.9%

Sample complies with the advised grading specification for a 6F5 material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER
BS EN 13286-4:2021

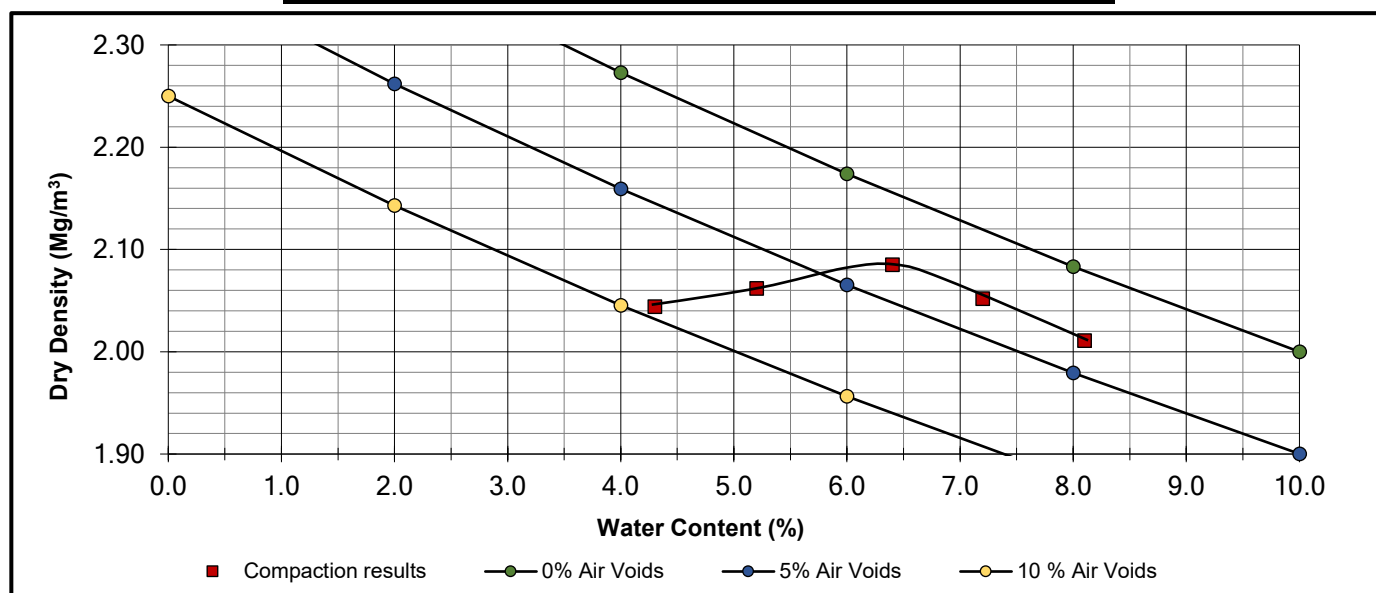
CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield
JOB NUMBER	MRN 4579/36A

SAMPLE LABEL	15/05/23-DB-6F5-02	DATE SAMPLED	15-May-23
SAMPLE NUMBER	125267	DATE RECEIVED	15-May-23
DATE TESTED	15-May-23	SAMPLED BY	Murray Rix

MATERIAL	Recycled Aggregate
ADVISED SOURCE	As client and site above
PRE TREATMENT	Air Dried

RETAINED 40mm	45 %	VIBRATING HAMMER	Hikoki DH40MC Rotary Hammer
RETAINED 20mm	57 %	PARTICLE DENSITY	2.50 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	4.3	2.044
2	5.2	2.062
3	6.4	2.085
4	7.2	2.052
5	8.1	2.011



OPTIMUM WATER CONTENT	6.3 (%)
MAXIMUM DRY DENSITY	2.08 (Mg/m ³)
FORM OF CURVE	Convex Downwards

REMARKS

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield

SAMPLE DETAILS

Job Number : MRN 4579/36A
Laboratory sample number : 125267
Material : Recycled Aggregate
Advised source : As client and site above
Site mark : 15/05/23-DB-6F5-02
Certificate of sampling received : Yes
Date and time of sampling : 15-May-23
Date received at Laboratory : 15-May-23
Date of start of test : 15-May-23
Sampling Location : Site Stockpile
Method of sampling : BS EN 932-1 : 1997
Sampled by : Murray Rix
Size Fraction : 35% passing 14mm retained 12.5mm
65% passing 12.5mm retained 10mm
Mass of dry sample tested : 5000g
Target specification : <50

RESULT

Los Angeles Coefficient : 40

Comment

NAME O.P. Davies BA (Hons
(Laboratory Manager)

SIGNED

DATE

26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DETERMINATION OF CONSTITUENTS OF COARSE RECYCLED AGGREGATE

BS EN 933-11:2009

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield

SAMPLE DETAILS

Job Number : MRN 4579/36A
Laboratory sample number : 125267
Material : Recycled Aggregate
Advised source : As client and site above
Site mark : 15/05/23-DB-6F5-02
Certificate of sampling received : Yes
Date and time of sampling : 15 May 2023
Date received at Laboratory : 15 May 2023
Date of start of test : 15 May 2023
Sampling Location : Site Stockpile
Method of sampling : BS EN 932-1 : 1997
Sampled by : Client
Mass of dry sample tested : 50 kg
Drying Temperature : $40 \pm 5^{\circ}\text{C}$

RESULT

Constituent	Description	Proportion (%)
Rc	Concrete, Concrete products, Mortar, Concrete masonry units	80
Ru	Unbound aggregate, Natural stone, Hydraulically bound aggregate	1.1
Rb	Clay masonry units (i.e. bricks & tiles), Calcium silicate masonry units, Aerated non-floating concrete	17
Ra	Bituminous materials	1.6
Rg	Glass	0.1
X	Other: Cohesive (i.e. clay & soil), Metals (ferrous & non-ferrous), Non-floating wood, plastic & rubber, Gypsum plaster	0.2
FL	Floating Particles (cm^3/kg)	0

Comments

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE

26-May-23

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN 933-1 : 2012 (Washing & Sieving Method)

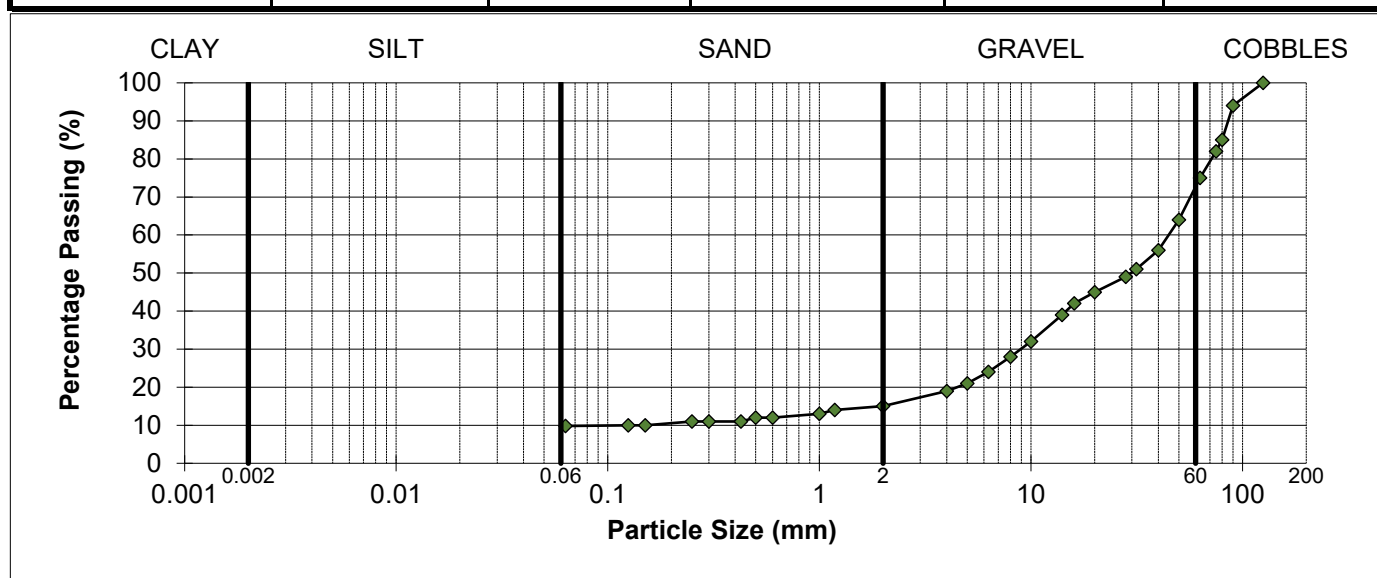
Determination of water content in accordance with BS EN 1097-5:2008

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield
JOB NUMBER	MRN 4579/36A

SAMPLE LABEL	15/05/23-DB-6F5-03	DATE SAMPLED	15-May-23
LAB SAMPLE No	125268	DATE RECEIVED	15-May-23
DATE TESTED	15-May-23	SAMPLED BY	Murray Rix

MATERIAL	Recycled Aggregate
ADVISED SOURCE	As client and site above

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	6.3	24	
90	94		5	21	
80	85	75-99	4	19	
75	82		2	15	0-35
63	75		1.18	14	
50	64		1	13	
40	56	50-90	0.6	12	
31.5	51		0.5	12	
28	49		0.425	11	
20	45	30-75	0.3	11	
16	42		0.25	11	
14	39		0.15	10	
10	32	15-60	0.125	10	
8	28		0.063	9.8	0-12



REMARKS

As received water content = 7.2%

Sample complies with the advised grading specification for a 6F5 material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER
BS EN 13286-4:2021

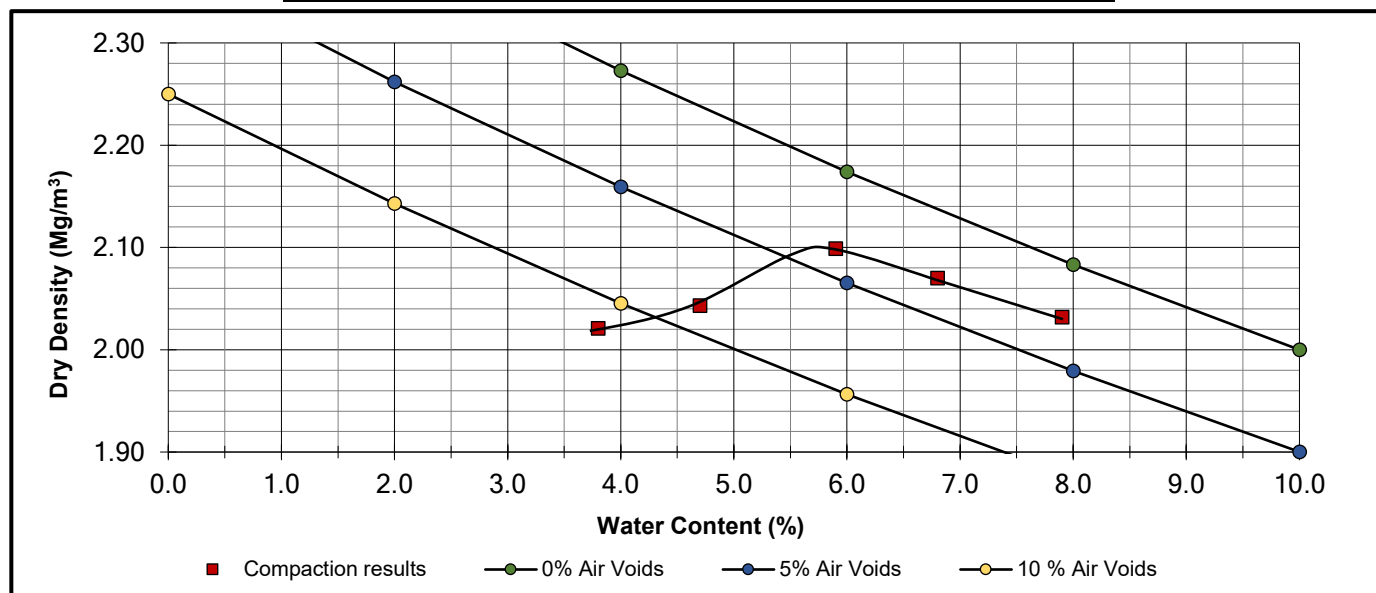
CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield
JOB NUMBER	MRN 4579/36A

SAMPLE LABEL	15/05/23-DB-6F5-03	DATE SAMPLED	15-May-23
SAMPLE NUMBER	125268	DATE RECEIVED	15-May-23
DATE TESTED	15-May-23	SAMPLED BY	Murray Rix

MATERIAL	Recycled Aggregate
ADVISED SOURCE	As client and site above
PRE TREATMENT	Air Dried

RETAINED 40mm	44 %	VIBRATING HAMMER	Hikoki DH40MC Rotary Hammer
RETAINED 20mm	55 %	PARTICLE DENSITY	2.50 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	3.8	2.021
2	4.7	2.043
3	5.9	2.099
4	6.8	2.070
5	7.9	2.032



OPTIMUM WATER CONTENT	5.8 (%)
MAXIMUM DRY DENSITY	2.10 (Mg/m ³)
FORM OF CURVE	Convex Downwards

REMARKS

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield

SAMPLE DETAILS

Job Number : MRN 4579/36A
Laboratory sample number : 125268
Material : Recycled Aggregate
Advised source : As client and site above
Site mark : 15/05/23-DB-6F5-03
Certificate of sampling received : Yes
Date and time of sampling : 15-May-23
Date received at Laboratory : 15-May-23
Date of start of test : 15-May-23
Sampling Location : Site Stockpile
Method of sampling : BS EN 932-1 : 1997
Sampled by : Murray Rix
Size Fraction : 34% passing 14mm retained 12.5mm
66% passing 12.5mm retained 10mm
Mass of dry sample tested : 5000g
Target specification : <50

RESULT

Los Angeles Coefficient : 41

Comment

NAME O.P. Davies BA (Hons
(Laboratory Manager)

SIGNED

DATE

26-May-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DETERMINATION OF CONSTITUENTS OF COARSE RECYCLED AGGREGATE

BS EN 933-11:2009

CLIENT	Chartrange Ltd
SITE	Wharf Street, Dukinfield

SAMPLE DETAILS

Job Number : MRN 4579/36A
Laboratory sample number : 125268
Material : Recycled Aggregate
Advised source : As client and site above
Site mark : 15/05/23-DB-6F5-03
Certificate of sampling received : Yes
Date and time of sampling : 15 May 2023
Date received at Laboratory : 15 May 2023
Date of start of test : 15 May 2023
Sampling Location : Site Stockpile
Method of sampling : BS EN 932-1 : 1997
Sampled by : Client
Mass of dry sample tested : 50 kg
Drying Temperature : 40 ± 5°C

RESULT

Constituent	Description	Proportion (%)
Rc	Concrete, Concrete products, Mortar, Concrete masonry units	86
Ru	Unbound aggregate, Natural stone, Hydraulically bound aggregate	0.7
Rb	Clay masonry units (i.e. bricks & tiles), Calcium silicate masonry units, Aerated non-floating concrete	12
Ra	Bituminous materials	0.8
Rg	Glass	0.2
X	Other: Cohesive (i.e. clay & soil), Metals (ferrous & non-ferrous), Non-floating wood, plastic & rubber, Gypsum plaster	0.2
FL	Floating Particles (cm ³ /kg)	0

Comments

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE

26-May-23

Marshalls Central Laboratory
Brookfoot Works
Southowram
Halifax
West Yorks
HX3 9SZ
Contract: Scoutmoor

Date: 05 April 2023
Test Report Ref: TR 927296

Order No: PTH1001414

Page 1 of 2

LABORATORY TEST REPORT

TEST REQUIREMENTS:

Petrographical examination of aggregate sample in accordance with
BS EN 932-3: 1997.

SAMPLE DETAILS:

Certificate of sampling received:	No
Laboratory Ref. No:	S106763
Client Ref. No:	150mm
Date and Time of Sampling:	Unknown
Date of Receipt at Lab:	15/11/2022
Date of Start of Test:	22/03/2023
Sampling Location:	Scoutmoor
Name of Source:	Scoutmoor
Method of Sampling:	Unknown
Sampled By:	Client (Test results apply to sample as received)
Tested By:	Subcontracted Laboratory
Material Description:	150mm
Target Specification:	N/A

RESULTS:

See attached

This test report shall not be reproduced, except in full, without the written approval of Celtest Company Limited.

These results relate only to the items tested.

Comments:

See attached

Report checked and approved by:



Ewen McKay

Assistant Soils Team Manager

RESULTS:

Summary of Findings:

Aggregate Property	Observations
Aggregate type	Crushed sandstone

Simplified Petrographic Description of Aggregate – BS EN 932-3:1997

Visual Observations

Discrete Constituent		Particle Shape	Surface Texture	Coatings / Encrustations	Grade ³
Major (≥10%)	Sandstone	Angular	Rough	Iron oxide stain	I
Minor (2 to <10%)	--	--	--	--	--
Trace (<2%)	--	--	--	--	--

Comments:

The work was carried out by our accredited, competent, sub contracted laboratory.

BS EN 932-3 applies only to natural aggregate particles up to 63mm in size. The examination is therefore a non-standard test method beyond the scope of our UKAS accreditation. However the sample was subjected to the same approach as would any sample complying with BS EN 932-3.

Based on UK experience, the above aggregate combination could be classified as potentially having normal alkali-silica reactivity in accordance with BRE Digest 330². However, we would recommend a full high-power microscopical examination of a representative portion of the aggregate sample in order to reach a more conclusive classification.

Notes:

¹ Major >10 %, Minor 2<10 %, Trace <2 %.

² BRE Digest 330, alkali-silica reaction in concrete, 1997, Building Research Establishment, Garston, UK.

³ Grade I (Fresh): unchanged from original state
Grade II (Slightly Weathered): slight discolouration, slight weakening
Grade III (Moderately Weathered): Considerably weakened, penetrative discolouration, large pieces cannot be broken by hand
Grade IV (Highly Weathered): large pieces can be broken by hand, does not readily disaggregate (slake) when dry sample immersed in water
Grade V (Completely Weathered): considerably weakened, slakes, original texture apparent
Grade VI (Residual Soil): soil derived by in situ weathering but retaining none of the original texture of fabric.



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Simon Pugh
Lowther Forestry Group Ltd
Upton Magna Business Park
Shrewsbury
Shropshire
SY4 4TT

13th May 2024
Our Ref: TOHA/24/1355/SS
Your Ref: PO WM-2911

Dear Sirs

Topsoil Analysis Report: T223 – Lowry Park, Grimshaw Lane, Manchester

We have completed the analysis of the soil samples recently submitted, referenced *Sample 1* to *Sample 15*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the samples for general landscape purposes (trees, shrubs, amenity grass) on a new commercial / industrial site. In addition, these samples have been assessed to determine their compliance with the requirements of the British Standard for Topsoil (BS3882:2015 – *Specification for Topsoil – Table 1, Multipurpose Topsoil*).

We understand that the soil is proposed for use in a *commercial* setting, and as such, concentrations of potential contaminants tested that affect human health have been compared in accordance with this land use.

This report presents the results of analysis for the samples submitted to our office and should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification testing, validation testing or waste designation purposes.

SAMPLE EXAMINATION

The samples were reasonably consistent in appearance and were described as very dark grey (Munsell Colour 10YR 3/1), slightly moist to moist, slightly plastic to plastic, non-calcareous to very slightly calcareous SANDY LOAM. The samples had poor to moderately developed, fine to very coarse subangular blocky structures, with occasional massive 'structureless' peds*. The samples were slightly stony, comprising stones up to 30mm in size. 1 No. ceramic fragment 40mm in size was recorded in Sample 9. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of disturbed samples. Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

Tim O'Hare Associates LLP
Howbery Park Wallingford Oxfordshire OX10 8BA
T:01491 822653 E:info@toha.co.uk
www.toha.co.uk

ANALYTICAL SCHEDULE

The samples were submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- particle size analysis (sand, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The samples fell into the *sandy loam* texture class, which is usually considered suitable for general landscape applications provided the soil's physical condition is satisfactory.

The overall stone content of the samples was low and, as such, stones should not restrict the use of the soil for most general landscape purposes.

A number of the samples contained stones greater than 20mm in size. This exceeds the maximum recommended stone size for *informal* and *formal recreation* end uses given in Annex A.4 (Stones) of the British Standard for Topsoil (BS3882:2015). It may be advisable to remove any larger stones, for example, by raking, picking, burying and/or screening, should the soil be used for these purposes.

Sample 12 contained a percentage of stone >50mm, which exceeds the maximum permissible stone size given in BS3882:2015 – Table 1 for *Multipurpose Topsoil*. The overall stone content of this sample should not restrict the use of the soil; however, larger stones encountered may need to be picked out during planting or seeding works as necessary.

pH and Electrical Conductivity Values

The samples were slightly acid in reaction (pH 6.0 – 6.7), with pH values that would be considered ideal for general landscape purposes.

The electrical conductivity (salinity) values (water extract) were low, which indicates that soluble salts were not present at levels that would be harmful to plants.

The electrical conductivity values by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (3300 µS/cm) given in BS3882:2015 – Table 1.

Organic Matter and Fertility Status

The samples were adequately supplied with organic matter, total nitrogen and extractable phosphorus but were typically deficient in extractable potassium and extractable magnesium. These deficiencies can be remedied by an appropriate fertiliser application.

The C:N ratios of the samples were acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *commercial* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none exceeded their respective guideline values for *commercial* end-use. Further assessment should be undertaken if the soil is to be considered for more sensitive end-uses.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil samples for general landscape purposes in a commercial / industrial setting. The analysis has also been undertaken to determine the samples' compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

From the soil examination and subsequent laboratory analysis, the samples were described as slightly acid, non-saline, non-calcareous to very slightly calcareous sandy loam, with low overall stone contents and poor to moderate soil structures. The samples contained sufficient reserves of organic matter, total nitrogen and extractable phosphorus with deficiencies recorded in extractable potassium and extractable magnesium. Of the potential contaminants determined, none exceeded their respective guideline values for *commercial* end-use. Further assessment should be undertaken if the soil is to be considered for more sensitive end-uses.

Sample 4, Sample 5, Sample 8, Sample 10 and Sample 14 displayed significant structural degradation. This may, in part, be due to damage caused during sampling or whilst in transit. However, if these samples are representative of site conditions, the soils are likely to suffer from a lack of drainage and insufficient aeration. Such conditions are typically inhospitable to plants. Therefore, it will be important to ensure that the physical condition of the topsoil is improved to allow adequate drainage.

To conclude, based on our findings, the topsoil represented by these samples would be considered suitable for general landscape purposes (trees, shrubs and amenity grass) in a commercial setting, provided the extractable potassium and extractable magnesium deficiencies are addressed and the physical condition of the soil is improved.

The samples were largely compliant with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*), with the exception of deficiencies in extractable potassium (*all samples*) and extractable magnesium (*Sample 11 to Sample 13 and Sample 15*). *Sample 12* also contained a percentage of stone greater than 50mm in size.

RECOMMENDATIONS

Stone Removal

To reduce the stone content for *informal* and *formal recreation* end uses (Annex A.4 of BS3882:2015), it may be advisable to remove a portion of the larger stones (>20mm) by intensive picking, raking, burying and/or screening prior to seeding or turfing.

Fertiliser for Planting

To address the nutrient deficiencies and to help promote effective plant establishment, we recommend applying and incorporating the compound, controlled release fertiliser ICL Osmocote PrePlant (17%N:9%P₂O₅:10%K₂O:2%MgO+TE) at a rate of 70 g/m² for planting beds and/or 180 g/tree pit, and to a depth of 200mm.

Fertiliser for Amenity Grass Establishment

To address the nutrient deficiencies and to help promote effective grass establishment, we recommend applying and incorporating the pre-seeding grass fertiliser ICL Sportsmaster Pre-seeder (8%N:12%P₂O₅:8%K₂O+3%MgO) prior to seeding or turfing at a rate of 35 g/m² and to a depth of 100mm.

Soil Handling Recommendations

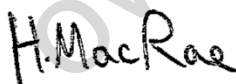
It is important to maintain the physical condition of the soils and avoid structural damage during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soils are not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soils are friable in consistency. If the soils are structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further guidance on the management, preparation and handling of soils is provided in the DEFRA publication *Construction code of practice for the sustainable use of soils on construction sites*, 2009.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



Harriet MacRae
BSc MSc
Soil Scientist



Ceri Spears
BSc MSc MISOilSci
Senior Associate

For & on behalf of Tim O'Hare Associates LLP



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	Lowther Forestry Group Ltd
Project:	T223 - Lowry Park, Grimshaw Lane, Manchester
Job:	Topsoil Analysis (BS3882:2015)
Date:	13/05/2024
Job Ref No:	TOHA/24/1355/SS

Sample Reference		Accreditation
Clay (<0.002mm)	%	UKAS
Silt (0.002-0.063mm)	%	UKAS
Sand (0.063-2.0mm)	%	UKAS
Texture Class (UK Classification)	--	UKAS
Stones (2-20mm)	% DW	GLP
Stones (20-50mm)	% DW	GLP
Stones (>50mm)	% DW	GLP

pH Value (1:2.5 water extract)	units	UKAS
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS
Exchangeable Sodium Percentage	%	UKAS

Organic Matter (LOI)	%	UKAS
Total Nitrogen (Dumas)	%	UKAS
C : N Ratio	ratio	UKAS
Extractable Phosphorus	mg/l	UKAS
Extractable Potassium	mg/l	UKAS
Extractable Magnesium	mg/l	UKAS

Total Arsenic (As)	mg/kg	MCERTS
Total Cadmium (Cd)	mg/kg	MCERTS
Total Chromium (Cr)	mg/kg	MCERTS
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS
Total Copper (Cu)	mg/kg	MCERTS
Total Lead (Pb)	mg/kg	MCERTS
Total Mercury (Hg)	mg/kg	MCERTS
Total Nickel (Ni)	mg/kg	MCERTS
Total Selenium (Se)	mg/kg	MCERTS
Total Zinc (Zn)	mg/kg	MCERTS
Water Soluble Boron (B)	mg/kg	MCERTS
Total Cyanide (CN)	mg/kg	MCERTS
Total (mono) Phenols	mg/kg	MCERTS

Naphthalene	mg/kg	MCERTS
Acenaphthylene	mg/kg	MCERTS
Acenaphthene	mg/kg	MCERTS
Fluorene	mg/kg	MCERTS
Phenanthrene	mg/kg	MCERTS
Anthracene	mg/kg	MCERTS
Fluoranthene	mg/kg	MCERTS
Pyrene	mg/kg	MCERTS
Benzo(a)anthracene	mg/kg	MCERTS
Chrysene	mg/kg	MCERTS
Benzo(b)fluoranthene	mg/kg	MCERTS
Benzo(k)fluoranthene	mg/kg	MCERTS
Benzo(a)pyrene	mg/kg	MCERTS
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS
Dibenzo(a,h)anthracene	mg/kg	MCERTS
Benzo(g,h,i)perylene	mg/kg	MCERTS
Total PAHs (sum USEPA16)	mg/kg	MCERTS

Aliphatic TPH >C5 - C6	mg/kg	MCERTS
Aliphatic TPH >C6 - C8	mg/kg	MCERTS
Aliphatic TPH >C8 - C10	mg/kg	MCERTS
Aliphatic TPH >C10 - C12	mg/kg	MCERTS
Aliphatic TPH >C12 - C16	mg/kg	MCERTS
Aliphatic TPH >C16 - C21	mg/kg	MCERTS
Aliphatic TPH >C21 - C35	mg/kg	MCERTS
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS
Aromatic TPH >C5 - C7	mg/kg	MCERTS
Aromatic TPH >C7 - C8	mg/kg	MCERTS
Aromatic TPH >C8 - C10	mg/kg	MCERTS
Aromatic TPH >C10 - C12	mg/kg	MCERTS
Aromatic TPH >C12 - C16	mg/kg	MCERTS
Aromatic TPH >C16 - C21	mg/kg	MCERTS
Aromatic TPH >C21 - C35	mg/kg	MCERTS
Aromatic TPH (C5 - C35)	mg/kg	MCERTS

Benzene	mg/kg	MCERTS
Toluene	mg/kg	MCERTS
Ethylbenzene	mg/kg	MCERTS
p & m-xylene	mg/kg	MCERTS
o-xylene	mg/kg	MCERTS
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS

Asbestos Screen	--	ISO 17025
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SL = SANDY LOAM

Visual Examination

The samples were reasonably consistent in appearance and were described as very dark grey (Munsell Colour 10YR 3/1), slightly moist to moist, slightly plastic to plastic, non-calcareous to very slightly calcareous SANDY LOAM. The samples had poor to moderately developed, fine to very coarse subangular blocky structures, with occasional massive 'structureless' peds. The samples were slightly stony, comprising stones up to 30mm in size. 1 No. ceramic fragment 40mm in size was recorded in Sample 9. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Sample 1
13
17
73
SL
2
0
0

6.5
126
2097
0.9

7.9
0.31
15
56
64
66

16
< 0.2
20
< 1.8
94
120
0.40
21
< 1.0
97
< 0.2
< 1.0
< 1.0

0.32
0.07
0.89
0.55
6.70
1.50
11.00
10.00
5.90
6.00
6.70
2.60
5.70
3.00
0.75
3.30
65

< 0.020
< 0.020
< 0.050
1.6
2.8
< 8.0
24
29
< 0.010
< 0.010
< 0.050
1.5
10
61
89
160

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 2
12
15
77
SL
2
9
0

6.7
145
2090
0.8

7.3
0.36
12
46
64
60

22
< 0.2
21
< 1.8
90
150
0.6
19
< 1.0
110
0.6
< 1.0
< 1.0

0.39
0.11
1.00
0.64
7.60
1.80
14.00
13.00
6.70
7.00
8.30
3.00
6.80
3.70
0.84
4.20
79

< 0.020
< 0.020
< 0.050
< 1.0
4.8
< 8.0
21
26
< 0.010
< 0.010
< 0.050
< 1.0
9.3
46
71
130

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 3
10
13
77
SL
3
3
0

6.1
110
2068
1

8.0
0.32
14
46
49
51

22
< 0.2
21
< 1.8
90
140
0.50
23
< 1.0
110
< 0.2
< 1.0
< 1.0

0.41
0.10
0.94
0.60
6.70
1.60
12.00
11.00
5.80
6.10
6.70
2.60
5.70
3.10
0.75
3.50
67

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
15
20
< 0.010
< 0.010
< 0.050
< 1.0
8
52
61
110

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 4
14
18
68
SL
1
6
0

6.0
81
2063
0.9

7.0
0.35
12
44
70
64

18
< 0.2
21
< 1.8
65
100
0.5
22
< 1.0
92
0.4
< 1.0
< 1.0

0.35
0.13
0.54
0.29
4.30
0.97
7.50
7.00
3.60
3.70
4.20
1.50
3.40
1.90
0.42
2.10
42

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
20
< 0.010
< 0.010
< 0.050
< 1.0
8
40
51
100

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 5
13
17
70
SL
3
0
0

6.1
63
2065
0.8

6.4
0.30
12
41
58
65

20
< 0.2
21
< 1.8
71
150
0.40
23
< 1.0
140
< 0.2
< 1.0
< 1.0

0.82
0.20
0.66
0.78
8.30
2.10
13.00
12.00
6.60
4.20
7.60
2.90
6.30
3.40
0.87
3.80
77

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
8
9.7
31
110

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 6
14
17
69
SL
2
1
0

6.2
58
2054
0.8

5.9
0.25
14
41
69
77

18
< 0.2
21
< 1.8
75
110
< 0.3
31
< 1.0
92
0.6
< 1.0
< 1.0

0.31
0.17
0.66
0.43
4.90
1.10
8.20
8.10
3.90
4.80
5.10
1.80
3.90
2.00
0.51
2.40
47

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
8
9.7
31
110

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 7
14
18
68
SL
3
1
0

6.2
68
2066
0.7

6.3
0.32
11
51
66
66

27
< 0.2
22
< 1.8
60
130
0.7
20
< 1.0
98
0.2
< 1.0
< 1.0

0.38
0.19
0.64
0.49
5.20
1.20
8.50
8.00
3.80
4.80
5.10
1.50
4.00
2.10
0.47
2.40
49

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
8
9.7
31
85

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 8
16
20
64
SL
3
4
0

6.0
62
2040
0.7

6.8
0.3
13
39
77
86

23
< 0.2
22
< 1.8
67
120
0.6
22
< 1.0
120
0.8
< 1.0
< 1.0

0.28
0.15
0.78
0.52
5.80
1.30
10.00
9.80
5.00
5.00
6.10
2.20
4.80
2.30
0.59
2.60
58

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
5
9.7
44
78



TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	Lowther Forestry Group Ltd
Project:	T223 - Lowry Park, Grimshaw Lane, Manchester
Job:	Topsoil Analysis (BS3882:2015)
Date:	13/05/2024
Job Ref No:	TOHA/24/1355/SS

Sample Reference		Accreditation
Clay (<0.002mm)	%	UKAS
Silt (0.002-0.063mm)	%	UKAS
Sand (0.063-2.0mm)	%	UKAS
Texture Class (UK Classification)	--	UKAS
Stones (2-20mm)	% DW	GLP
Stones (20-50mm)	% DW	GLP
Stones (>50mm)	% DW	GLP

pH Value (1:2.5 water extract)	units	UKAS
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS
Electrical Conductivity (1:2 CaSO ₄ extract)	uS/cm	UKAS
Exchangeable Sodium Percentage	%	UKAS

Organic Matter (LOI)	%	UKAS
Total Nitrogen (Dumas)	%	UKAS
C : N Ratio	ratio	UKAS
Extractable Phosphorus	mg/l	UKAS
Extractable Potassium	mg/l	UKAS
Extractable Magnesium	mg/l	UKAS

Total Arsenic (As)	mg/kg	MCERTS
Total Cadmium (Cd)	mg/kg	MCERTS
Total Chromium (Cr)	mg/kg	MCERTS
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS
Total Copper (Cu)	mg/kg	MCERTS
Total Lead (Pb)	mg/kg	MCERTS
Total Mercury (Hg)	mg/kg	MCERTS
Total Nickel (Ni)	mg/kg	MCERTS
Total Selenium (Se)	mg/kg	MCERTS
Total Zinc (Zn)	mg/kg	MCERTS
Water Soluble Boron (B)	mg/kg	MCERTS
Total Cyanide (CN)	mg/kg	MCERTS
Total (mono) Phenols	mg/kg	MCERTS

Naphthalene	mg/kg	MCERTS
Acenaphthylene	mg/kg	MCERTS
Acenaphthene	mg/kg	MCERTS
Fluorene	mg/kg	MCERTS
Phenanthrene	mg/kg	MCERTS
Anthracene	mg/kg	MCERTS
Fluoranthene	mg/kg	MCERTS
Pyrene	mg/kg	MCERTS
Benzo(a)anthracene	mg/kg	MCERTS
Chrysene	mg/kg	MCERTS
Benzo(b)fluoranthene	mg/kg	MCERTS
Benzo(k)fluoranthene	mg/kg	MCERTS
Benzo(a)pyrene	mg/kg	MCERTS
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS
Dibenzo(a,h)anthracene	mg/kg	MCERTS
Benzo(g,h,i)perylene	mg/kg	MCERTS
Total PAHs (sum USEPA16)	mg/kg	MCERTS

Aliphatic TPH >C5 - C6	mg/kg	MCERTS
Aliphatic TPH >C6 - C8	mg/kg	MCERTS
Aliphatic TPH >C8 - C10	mg/kg	MCERTS
Aliphatic TPH >C10 - C12	mg/kg	MCERTS
Aliphatic TPH >C12 - C16	mg/kg	MCERTS
Aliphatic TPH >C16 - C21	mg/kg	MCERTS
Aliphatic TPH >C21 - C35	mg/kg	MCERTS
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS
Aromatic TPH >C5 - C7	mg/kg	MCERTS
Aromatic TPH >C7 - C8	mg/kg	MCERTS
Aromatic TPH >C8 - C10	mg/kg	MCERTS
Aromatic TPH >C10 - C12	mg/kg	MCERTS
Aromatic TPH >C12 - C16	mg/kg	MCERTS
Aromatic TPH >C16 - C21	mg/kg	MCERTS
Aromatic TPH >C21 - C35	mg/kg	MCERTS
Aromatic TPH (C5 - C35)	mg/kg	MCERTS

Benzene	mg/kg	MCERTS
Toluene	mg/kg	MCERTS
Ethylbenzene	mg/kg	MCERTS
p & m-xylene	mg/kg	MCERTS
o-xylene	mg/kg	MCERTS
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS

Asbestos Screen	--	ISO 17025
-----------------	----	-----------

SL = SANDY LOAM

Visual Examination

The samples were reasonably consistent in appearance and were described as very dark grey (Munsell Colour 10YR 3/1), slightly moist to moist, slightly plastic to plastic, non-calcareous to very slightly calcareous SANDY LOAM. The samples had poor to moderately developed, fine to very coarse subangular blocky structures, with occasional massive 'structureless' beds. The samples were slightly stony, comprising stones up to 30mm in size. 1 No. ceramic fragment 40mm in size was recorded in Sample 9. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

Sample 9
14
18
67
SL
3
4
0

6.1
77
2076
0.7

6.5
0.34
11
38
73
73

21
< 0.2
21
< 1.8
68
120
0.4
22
< 1.0
100
0.6
< 1.0
< 1.0

0.33
0.12
0.70
0.48
5.40
1.20
9.00
8.30
3.90
4.60
4.70
2.20
4.10
2.00
< 0.05
2.30
49

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
10
10
< 0.010
< 0.010
< 0.050
2.8
6.2
33
63
95

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 10
15
18
67
SL
5
2
0

6.2
84
2081
1.0

6.6
0.37
10
49
73
78

29
< 0.2
24
< 1.8
65
210
2.6
21
< 1.0
92
0.3
< 1.0
< 1.0

0.30
0.16
1.30
0.80
7.80
1.70
12.00
11.00
5.30
5.60
5.50
2.70
5.10
2.60
0.58
3.00
65

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
5.2
13
22
37
64

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 11
10
15
75
SL
3
0
0

6.4
63
2059
0.7

5.5
0.21
15
59
41
46

69
< 0.2
18
< 1.8
61
210
2.6
21
< 1.0
89
< 0.2
< 1.0
< 1.0

0.13
< 0.05
0.12
0.11
1.20
0.25
1.90
1.80
0.98
1.10
1.10
0.44
0.94
0.50
0.14
0.60
11

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
2.5
18
36
44
56

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 12
10
14
76
SL
1
0
8

6.4
82
2068
0.6

5.6
0.27
12
52
48
47

67
< 0.2
21
< 1.8
61
210
2.9
21
< 1.0
87
< 0.2
< 1.0
< 1.0

0.23
0.06
0.15
0.12
1.40
0.33
3.10
2.90
1.50
1.80
1.50
1.70
0.93
1.60
0.86
0.18
0.97
18

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
< 2.0
9
21
41
68
120

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 13
10
14
76
SL
4
0
0

6.7
115
2095
0.6

7.0
0.19
17
61
47
40

92
< 0.2
21
< 1.8
62
280
5.4
20
< 1.0
87
< 0.2
< 1.0
< 1.0

0.22
0.06
0.09
0.09
1.10
0.28
2.90
2.80
1.40
1.50
1.70
0.63
1.40
0.77
0.18
0.84
16

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
< 2.0
9
21
41
68
120

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 14
17
20
63
SL
3
1
0

6.0
87
2063
0.9

7.0
0.26
16
43
103
83

20
< 0.2
17
< 1.8
59
110
0.3
20
< 1.0
110
0.5
< 1.0
< 1.0

0.52
0.36
1.30
0.87
8.20
2.30
13.00
14.00
6.50
6.60
6.90
2.60
5.90
3.00
0.66
3.40
76

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
< 2.0
9
21
41
68
120

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

Sample 15
10
14
76
SL
5
1
0

6.6
91
2066
0.5

4.9
0.20
14
58
37
31

93
< 0.2
17
< 1.8
63
270
4.9
20
< 1.0
83
< 0.2
< 1.0
< 1.0

0.07
0.06
0.09
0.08
1.00
0.22
2.80
2.70
1.40
1.70
1.90
0.81
1.70
0.90
0.23
1.00
17

< 0.020
< 0.020
< 0.050
< 1.0
< 2.0
< 8.0
< 8.0
< 10
< 0.010
< 0.010
< 0.050
< 1.0
< 2.0
< 10
< 2.0
< 10
21

< 0.005
< 0.005
< 0.005
< 0.005
< 0.005
< 0.005

Not-detected

HMacRae
Harriet MacRae
BSc MSc
Soil Scientist

Alert™

Alert™ Woven Polypropylene Geotextile and Contamination Indicator

Alert™ was developed by Geosynthetics Limited to provide a cost effective and practical way to indicate the break between potentially contaminated ground and imported or site won clean fill. The large roll size combined with industrial leading technical specifications and strength have lead to the vivid orange **Alert™** woven geotextile being the product of choice in the UK.



PROPERTY	TEST METHOD	Value
Colour		Orange
Tensile strength - warp	BS EN ISO 10319	18 kN/m
Tensile strength - weft	BS EN ISO 10319	12 kN/m
Elongation at break - warp	BS EN ISO 10319	28 %
Elongation at break - weft	BS EN ISO 10319	16 %
CBR puncture resistance	BS EN ISO 102236	1840 N
Water flow normal to the plane	BS 6906 Part 3	32 l/m ² /sec
Pore size 90% finer than	BS 6906 Part 2	230 microns
Effects of UV light		The polypropylene used contains a UV inhibitor
Fabric thickness under 2 kN/m ²		0.39 mm
Standard roll width		4.5 m
Standard roll length		100 m
Applications		Brownfield sites Developed land Warning indicator
CE Reference		0338-CPR-5058

This information corresponds to our current knowledge on the subject. It is offered solely to provide possible suggestions for your own experimentation. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information may be subject to revision as new knowledge becomes available. Since we cannot anticipate all variations in actual end use conditions, Geosynthetics Limited makes no warranties and assumes no liabilities in connection with this information. Nothing in this publication is to be considered as a licence to operate under or a recommendation to infringe any patent right.

DR: 04/V3/22/08/2022

**UK
CA**
**Geosynthetics**

Annex F: Photographs

Photographic Log

Client Name: A&H Construction and Developments Plc		Site Location: Lowry Park	Project No.: 602192.0000.0000
Photo No. 1	Date 3 April 2024		
Description: Geotextile membrane and topsoil installation			

Photo No. 2	Date 3 April 2024		
Description: Geotextile membrane and topsoil installation			

Photographic Log

Client Name:		Site Location:	Project No.:
A&H Construction and Developments Plc		Lowry Park	602192.0000.0000
Photo No.	Date		
3	3 April 2024		
Description: Geotextile membrane and topsoil installation			