

GAS MEMBRANE VALIDATION – BELLE VUE

Project Name: Belle Vue Stadium

Project Number: 12-123

Client: Countryside Properties

Date: 09-01-2024

Project Manager & Qualifications: N. Sellars – MSci (Hons), FGS, MEnvSc

E3P Engineer & Qualifications: J. James – GGS Training

Gas Membrane Installer : Chandos Civils

Ground Gas Risk Assessment: Amber 1

Plots: 97-98

OVERVIEW

The membrane comprised the Visqueen Ultimate HC Blok (Gold) resistant to radon, carbon dioxide, methane and VOCs. E3P can confirm there were no holes or rips at the inspection time.

E3P inspected all external joints, and E3P can confirm that the membrane was overlapped and double-taped. The membrane was taped using double-sided jointing tape. All the overlaps were then additionally taped using foil-backed girth tape.

Each unit has a service duct located at the front and outer edge of the property. E3P inspected each one and can confirm that the top hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Plots 97 and 98 have been installed with gas protection measures following Amber 1 to an acceptable level of workmanship.

A list of plots requiring validation and their associated validation letters is presented in Table 1.



Geo-Environmental



Acoustics



Remediation and
Enabling Earthworks
Design



Arboriculture



Compliance
& Due Diligence



Ecology



Industrial Permitting



Geotechnical

MEMBRANE SPECIFICATION: VISQUEEN GAS MEMBRANE (GOLD)

Technical Datasheet - Product Overview



Technical support: +44 (0) 333 202 6800
Date Published: 05/06/2023

Visqueen Ultimate HC BLOK

Features and benefits

- Agreement certified - third party accreditation
- Complies with C18/A C748:2014 - industry standard for volatile organic compounds (VOC) protection
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019 - industry standard for methane and carbon dioxide protection
- Flexible - easy to detail and install on site
- Multi functional - also acts as a radon and damp proof membrane
- Dual jointing methods - lap joints can be taped or heat welded

Product description

Visqueen Ultimate HC Blok is a 0.5mm thick, chemically resistant co-extruded volatile organic compound barrier and gas barrier. It is coloured gold on the upper surface and white on the reverse. The product is supplied in single wound rolls (not folded), 2.44m x 41m.

Approvals and standards

- Third party accreditation (BDA certificate BAF-18-051-P-A-UK)
- Complies with C18/A C748:2014
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019
- Suitable for all Characteristic Gas Situation (CS) ground gas regimes
- Conforms to the specification requirements of NHBC Amber 1 and Amber 2 applications
- Conforms to the specification requirements of BR 211:2015
- CE Mark EN 13967:2012
- Quality Management System ISO 9001:2015
- Occupational Health and Safety System ISO 45001:2018
- Environmental Management System ISO 14001:2015

Usage

Visqueen Ultimate HC Blok is suitable for use in all types of buildings to prevent the ingress of harmful levels of volatile organic compounds (VOCs). The barrier can be positioned above or below a solid concrete ground floor slab or above a precast suspended segmental ground floor system, e.g. beam and block floor.

The barrier can also be used in all types of buildings to prevent the ingress of harmful levels of ground gases e.g. methane, carbon dioxide and radon. The barrier also acts as a damp proof membrane. In this application, the barrier can be positioned above or below a solid concrete ground floor slab or above a precast suspended segmental ground floor system, e.g. beam and block floor.

The product is not intended for use where there is a risk of hydrostatic pressure.

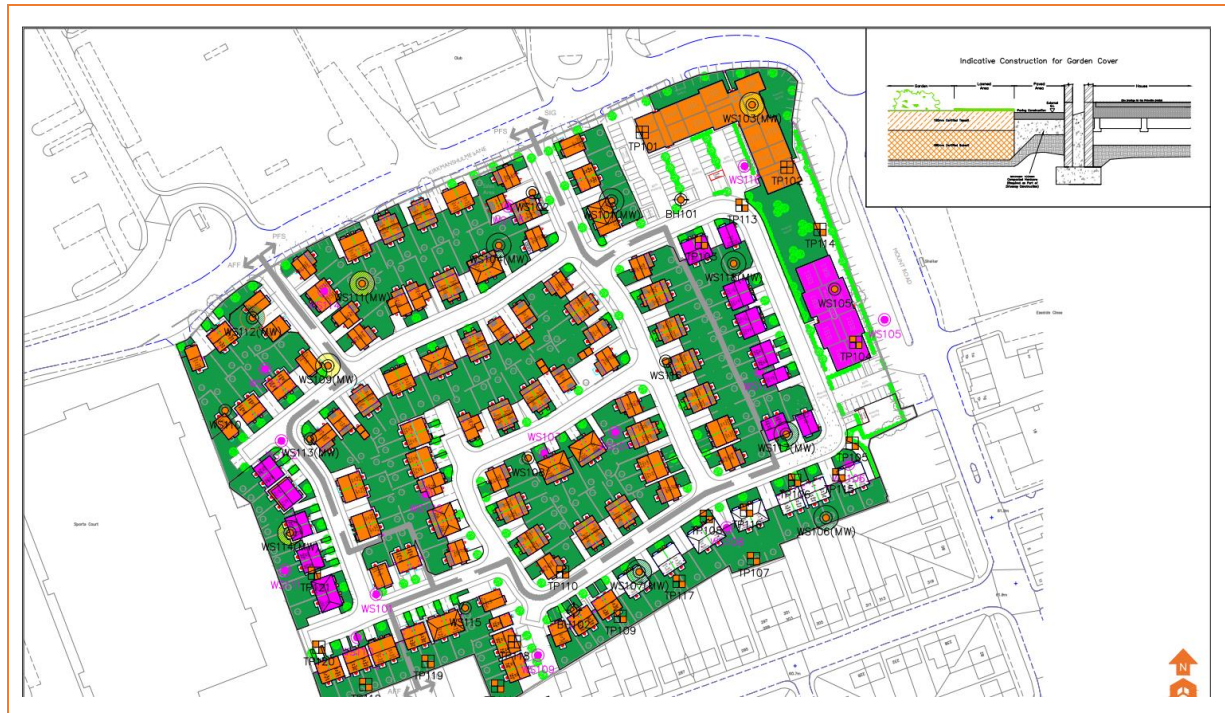
System components

- Visqueen Ultimate Double Sided Jointing Tape, 100mm x 15m
- Visqueen GR Lap Tape, 150mm x 10m
- Visqueen Ultimate Top Hat Units
- Visqueen Preformed Units
- VisqueenPro Detailing Strip, 300mm x 10m, 500mm x 10m

Find your local stockist



GAS MITIGATION MEASURES PLAN



The gas membrane validation photographs are enclosed within this letter. For information, Table 1 includes references and validation dates of previously validated plots.

TABLE 1 – VALIDATION LETTER REFERENCE

PLOT NUMBER	DATE	REPORT NUMBER
1	3 rd March 2022	V4
2	3 rd March 2022	V4
3	3 rd March 2022	V4
4	29 th March 2022	V5
5	29 th March 2022	V5
6		
7		
8		
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11		

PLOT NUMBER	DATE	REPORT NUMBER
12		
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PLOT NUMBER	DATE	REPORT NUMBER
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PLOT NUMBER	DATE	REPORT NUMBER
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82		
82		

PLOT NUMBER	DATE	REPORT NUMBER
83		
84		
85		
86	27 th May 2022	V9
87	27 th May 2022	V9
88	27 th May 2022	V9
89	25 th May 2022	V8
90	25 th May 2022	V8
91	25 th May 2022	V8
92	8 th June 2022	V12
93	8 th June 2022	V12
94	28 th June 2022	V15
95	28 th June 2022	V15
96		
97	9 th January 2024	V59
98	9 th January 2024	V59
99	30 th May 2022	V10
100	31 st May 2022	V11
101	31 st May 2022	V11
102	15 th June 2022	V13
103	15 th June 2022	V13
104	22 nd June 2022	V14
105	22 nd June 2022	V14
106		

PLOT NUMBER	DATE	REPORT NUMBER
107		
108	4 th July 2022	V15
109	4 th July 2022	V15
110	19 th July 2022	V18
111		
112		
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123		
124		
125	8 th September 2022	V23
126	8 th September 2022	V23
127	8 th September 2022	V23
128	8 th September 2022	V23
129	8 th September 2022	V23
130	23 rd August 2022	V20

PLOT NUMBER	DATE	REPORT NUMBER
131	23 rd August 2022	V20
132	23 rd August 2022	V20
133	23 rd August 2022	V20
134	5 th September 2022	V21
135	15 th September 2022	V25
136	23 rd August 2022	V20
137	23 rd August 2022	V20
138	23 rd August 2022	V20
139	23 rd August 2022	V20
140	4 th August 2022	V19
141	15 th July 2022	V17
142	15 th July 2022	V17
143	11 th July 2022	V16
144	11 th July 2022	V16
145	11 th July 2022	V16
146	9 th May 2022	V6
147	9 th May 2022	V6
148	9 th May 2022	V6
149	9 th May 2022	V6
150	13 th May 2022	V7
151	9 th May 2023	V43
152	9 th May 2023	V43
153	2 nd June 2023	V44
154	2 nd June 2023	V44

PLOT NUMBER	DATE	REPORT NUMBER
155	8 th June 2023	V46
156	8 th June 2023	V46
157		
158		
159	19 th July 2023	V48
160	19 th July 2023	V48
161	2 nd August 2023	V50
162	9 th August 2023	V51
163	7 th February 2023	V40
164	7 th February 2023	V40
165	7 th February 2023	V40
166	7 th February 2023	V40
167	4 th November 2022	V31
168	24 th September 2022	V26
168	24 th September 2022	V26
169		
170	5 th October 2022	V27
171	21 st November 2022	V33
172	21 st November 2022	V33
173	23 rd November 2022	V34
174	12 th December 2022	V35
175	12 th December 2022	V35
176	15 th December 2022	V36
177	15 th December 2022	V36

PLOT NUMBER	DATE	REPORT NUMBER
178	4 th November 2022 10 th November 2022	V31 V32
179	4 th November 2022	V31
180	4 th November 2022	V31
181	27 th October 2022	V30
182	27 th October 2022	V30
183	27 th October 2022	V30
184	24 th October 2022	V29
185	24 th October 2022	V29
186	24 th October 2022	V29
187	24 th October 2022	V29
188		
189	21 st November 2022	V33
190	21 st November 2022	V33
191	1 st September 2022	V22
192	1 st September 2022	V22
193	1 st September 2022	V22
194	22 nd September 2022	V24
195	22 nd September 2022	V24
196	24 th September 2022	V26
197	24 th September 2022	V26
198	12 th October 2022	V28
199	12 th October 2022	V28
200	24 th October 2022	V29
201	24 th October 2022	V29

PLOT NUMBER	DATE	REPORT NUMBER
202	24 th October 2022	V29
203	24 th October 2022	V29
204	23 rd February 2023	V40
205	23 rd February 2023	V40
206	23 rd February 2023	V40
207	23 rd February 2023	V40
208	1 st March 2023	V41
209	1 st March 2023	V41
210		
211		
212		
213		
214	30 th October 2023	V58
215	27 th September 2023	V56
216	27 th September 2023	V56
217	13 th September 2023	V55
218	13 th September 2023	V55
219	13 th September 2023	V55
220	27 th April 2023	V42
221	27 th April 2023	V42
222	27 th April 2023	V42
223	22 nd August 2023	V53
224	18 th August 2023	V52
225	9 th August 2023	V51

PLOT NUMBER	DATE	REPORT NUMBER
226	27 th July 2023	V49
227	27 th July 2023	V49
228	19 th July 2023	V48
229	19 th July 2023	V48
230	7 th July 2023	V47
231	7 th July 2023	V47
232		
233		
234	4 th September 2023	V54
235	4 th September 2023	V54
236	24 th Jan 2022	V1
237	24 th Jan 2022	V1
238	24 th Jan 2022	V1
239	24 th Jan 2022	V1
240	18 th May 2023	V44
241	18 th May 2023	V44
242	15 th February 2022	V3
243	15 th February 2022	V3
244		
245		
246	24 th January 2022	V2
247	24 th January 2022	V2
248		
249		

PLOT NUMBER	DATE	REPORT NUMBER
250		
Apartment Block 1	15 th September 2022	V25
	5 th October 2022	V27
Apartment Block 1 Stairwell	19 th January 2023	V38
	20 th January 2023	V39
Apartment Block 2	23 rd August 2022	V20

GAS MEMBRANE VALIDATION

Site Name	Belle Vue
Location	Manchester England M18 7FS United Kingdom (53.46167856061252, - 2.183712035839838)
Project Manager	-
Project number	12123
Developer	Countryside
Site representative Signature	Dave Evans Chandos 9 Jan 2024 1:28 PM GMT
Conducted on	9 Jan 2024 12:54 PM GMT
Prepared by	Jordan James
Have you got the correct Gas Membrane detail (attached to the job in synergist)?	Yes

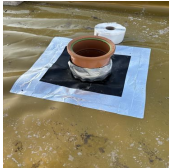
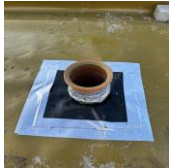
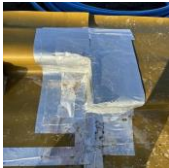
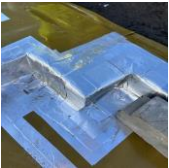
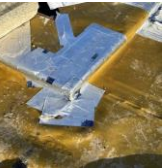
Inspection Gas Membrane	
Plot Inspection	
Plot Inspection 1	
Plot Number	97
Type of Development: Other add note	House
Foundation Type: Other add note	Suspended Floor
Gas Membrane Type: Manufacturer, gauge, and colour.	HC BLOK Visqueen
Gas Membrane Condition: Open punctures, tears, rips, stretching, Presence of debris, Repairs, Signs of weakness such as raised or sunken indentations, Protection plan in place to restrict access to lain gas membrane? IF FAIL DESCRIPTION IN ACTIONS AND PHOTOS REQUIRED	Pass
Laps, welds, and joints seals: Joints lapped and sealed in accordance with manufacturer's requirements/ specification? Minimum overlap insured? Sections taped twice? Are welds complete? Appropriate joining/double-sided tape used, Folds running in line with joints? (no joints cutting across folds)	Pass
Service entries seals: Top hats seal arrangements fixed around service entries? Use of Jubilee clips?	Yes
<div></div> <div>Photo 1Photo 2Photo 3Photo 4Photo 5Photo 6</div>	
Type of joints/ Lapping	Welded
Corners / Internal joints: Check all corners are correctly formed or contractor has used preformed corners.	Pass
<div></div> <div>Photo 7Photo 8Photo 9Photo 10Photo 11Photo 12</div>	



Photo 13



Photo 14



Photo 15



Photo 16

Extent of Coverage: Is the membrane covering the entire plot? Does membrane span over outside walls?

Yes



Photo 17



Photo 18

Condition of sub-grade and underside of gas membrane: Check that the subgrade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present and meets the design criteria.

Pass

Slab / membrane condition (is membrane clear of debris or insulation): Can membrane be fully seen and photographed – ask contractor to remove an debris so membrane can be fully seen an inspected – this is a requirement of NHBC and local authorities.

Pass

External Wall Air bricks: Numbers, size. positions as design drawing? (Minimum of 3 walls)

Pass



Photo 19



Photo 20

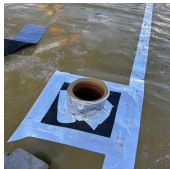
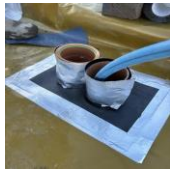
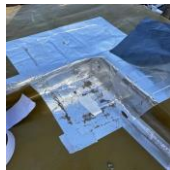
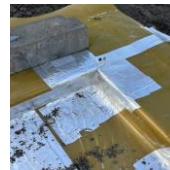
Plot Inspection 2	
Plot Number	98
Type of Development: Other add note	House
Foundation Type: Other add note	Suspended Floor
Gas Membrane Type: Manufacturer, gauge, and colour.	HC BLOK Visqueen
Gas Membrane Condition: Open punctures, tears, rips, stretching, Presence of debris, Repairs, Signs of weakness such as raised or sunken indentations, Protection plan in place to restrict access to lain gas membrane? IF FAIL DESCRIPTION IN ACTIONS AND PHOTOS REQUIRED	Pass
Laps, welds, and joints seals: Joints lapped and sealed in accordance with manufacturer's requirements/ specification? Minimum overlap insured? Sections taped twice? Are welds complete? Appropriate joining/double-sided tape used, Folds running in line with joints? (no joints cutting across folds)	Pass
Service entries seals: Top hats seal arrangements fixed around service entries? Use of Jubilee clips?	Yes
    <p>Photo 21 Photo 22 Photo 23 Photo 24</p>	
Type of joints/ Lapping	Taped
Corners / Internal joints: Check all corners are correctly formed or contractor has used preformed corners.	Pass
      <p>Photo 25 Photo 26 Photo 27 Photo 28 Photo 29 Photo 30</p>      <p>Photo 31 Photo 32 Photo 33 Photo 34 Photo 35</p>	
Extent of Coverage: Is the membrane covering the entire plot? Does membrane span over outside walls?	Yes



Photo 36



Photo 37

Condition of sub-grade and underside of gas membrane: Check that the subgrade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present and meets the design criteria.

Pass

Slab / membrane condition (is membrane clear of debris or insulation): Can membrane be fully seen and photographed – ask contractor to remove an debris so membrane can be fully seen an inspected – this is a requirement of NHBC and local authorities.

Pass

External Wall Air bricks: Numbers, size. positions as design drawing? (Minimum of 3 walls)

Pass



Photo 38



Photo 39



Photo 40

Passive Venting

Sub-floor Void: Is a check possible on future plots (insert Plot number or NO in text box)

No

Media summary



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5

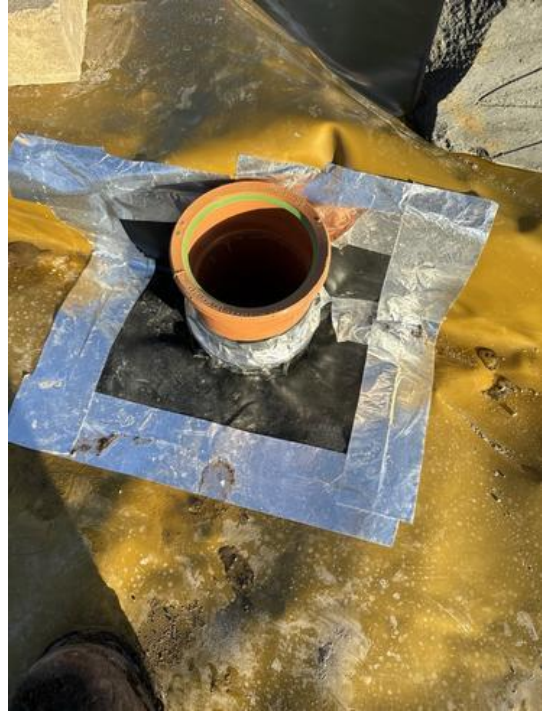


Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11

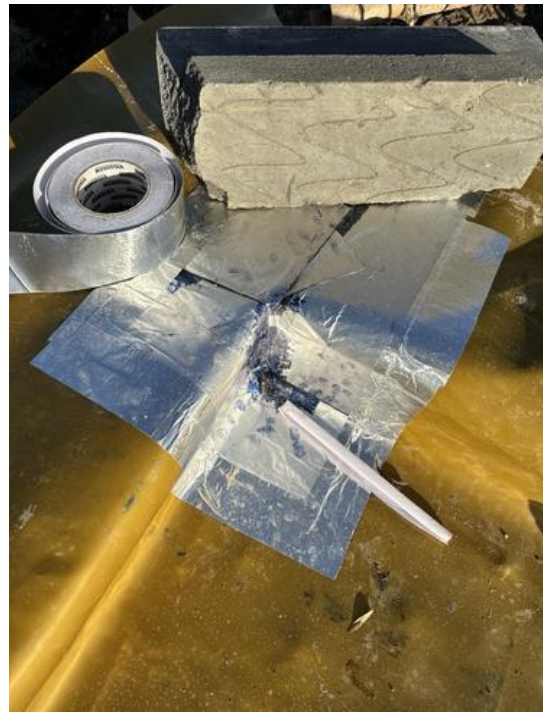


Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17

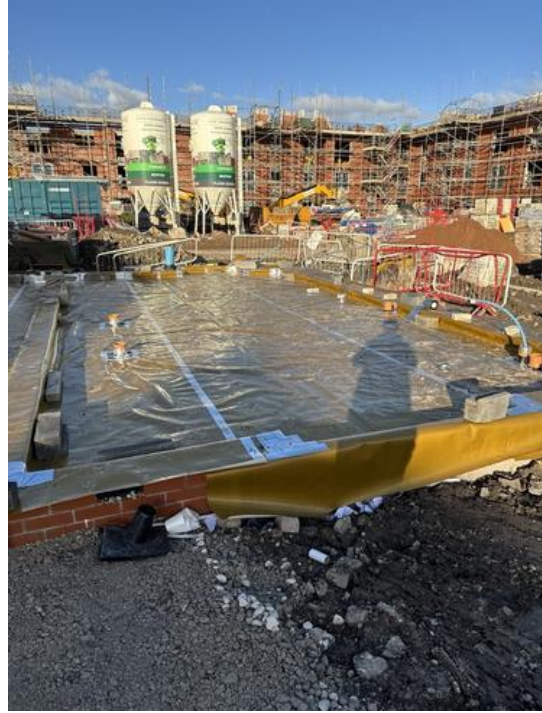


Photo 18



Photo 19



Photo 20



Photo 21

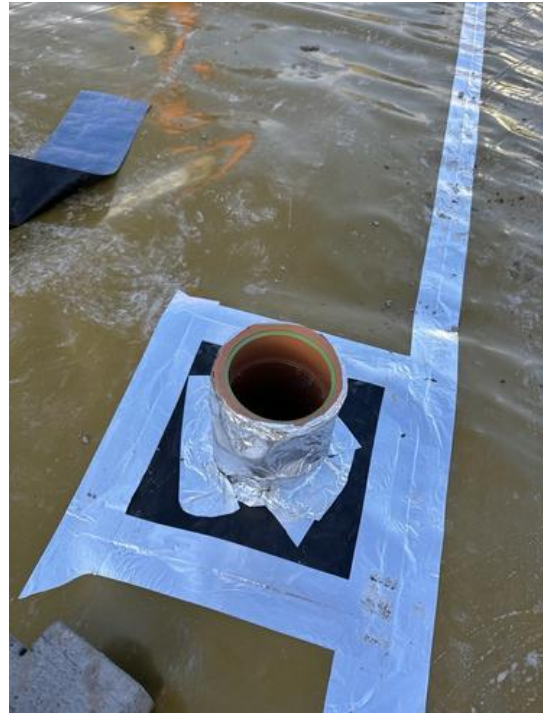


Photo 22

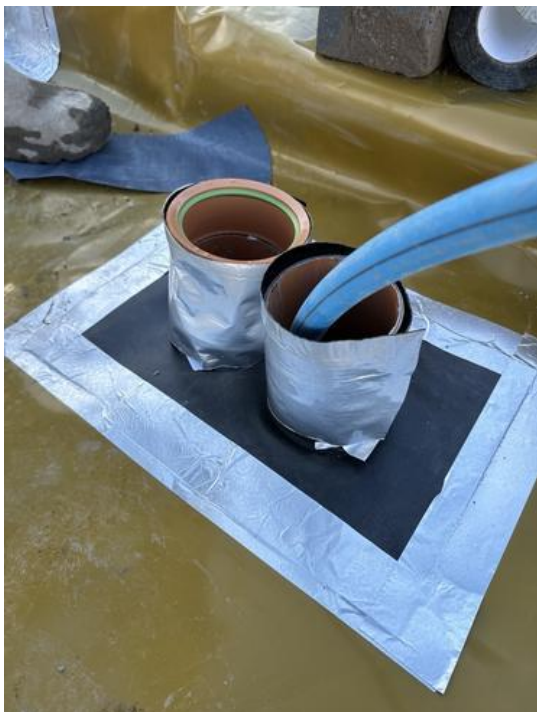


Photo 23



Photo 24



Photo 25



Photo 26

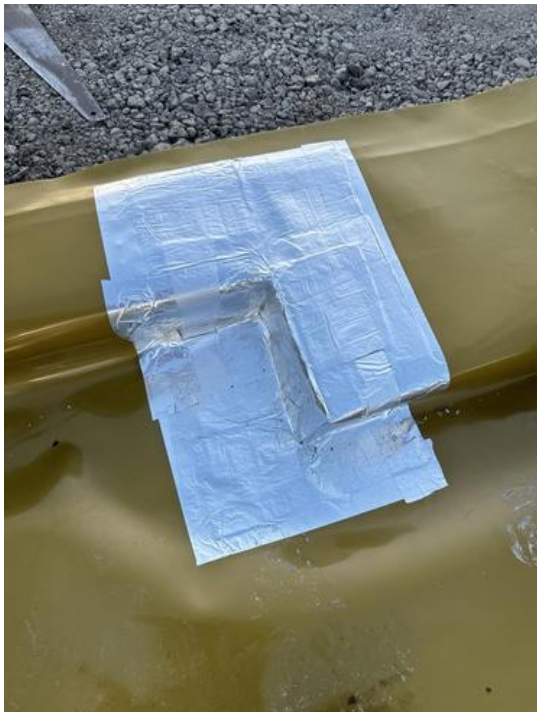


Photo 27



Photo 28



Photo 29



Photo 30



Photo 31

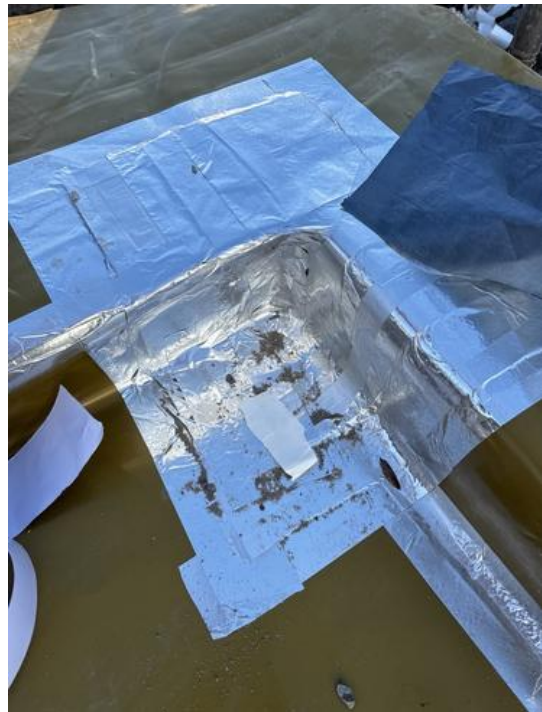


Photo 32



Photo 33



Photo 34



Photo 35



Photo 36



Photo 37



Photo 38



Photo 39



Photo 40