

5th April 2023

Dear Universal Bargain Ltd,

Please find below the results of your infiltration testing. The information contained below is a summary of the site works carried out on 29th March 2023.

Geology

An examination of the available British Geological Survey data of the area for the site has been examined and indicates that the site is underlain by superficial drift deposits comprising Glaciofluvial Sheet Deposits (sand and gravel). The underlying bedrock deposits are recorded as the Pennine Lower Coal Measures (sandstone, siltstone and mudstone).

Fieldworks

The programme of this investigation included the excavation of two (2no) trial pits (TP1 and TP2). The locations of the infiltration tests were selected by the client. During this work, the soils encountered were logged in general accordance with BS5930: 1990, as amended in 2007.

Infiltration Testing

During the period of the infiltration test within TP1 (total depth of 1.0m), the water level achieved a fall from 75% to 25% of the effective depth of the storage volume of the pit. The infiltration test in TP2 (total depth of 2.0m) failed to achieve a fall in water level from 75% to 25% effective depth of the storage volume of the depth of the pit. The results obtained from the infiltration tests are summarised below:

WS	Dimensions (m)	Depth (m)	Soil Description	Infiltration Rate (m/sec)	Drainage Characteristics
TP1	1.6 x 0.5	1	MADE GROUND of brown sandy GRAVEL [0-0.8mbgl] Orangish brown gravelly clayey SAND [0.8-1mbgl]	4.3×10^{-5}	Good
TP2	1.5 x 0.5	2	MADE GROUND of brown sandy GRAVEL [0-0.85mbgl] Orangish brown gravelly SAND [0.85-1.3mbgl] Dark brown gravelly SAND [0.85-1.4mbgl]	N/A	Potentially good

Conclusion

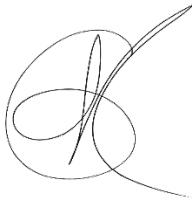
The soils encountered beneath the site were found to be granular Made Ground underlain by natural SAND. The infiltration rate recorded in TP1 at 1.0m depth was assessed as good. Despite the water level in TP2 at 2.0m depth failing to achieve a fall from 75% to 25% of the effective depth of the storage volume throughout the duration of the test, it is considered that the soakage rates are potentially good and the soils regarded as permeable. Given the data from the testing, it is considered that the use of soakaways is suitable for this site.

References

- Building Research Establishment (BRE) Digest 365, *Soakaway Design*, September 1991.
- British Standards Institution (1999) BS5930: *Code of practice for site investigations*, B.S.I., London.
- British Standards Institution (2007), Amendment No 1, BS5930: *Code of practice for site investigations*, B.S.I., London.

Please do contact me on 01243 787150 should you have any questions.

Regards

A handwritten signature in black ink, appearing to be 'Cathleen Cox', written over a faint circular outline.

Cathleen Cox
Geo-Environmental Engineer



Appendix A– Trial Pit Location Plan





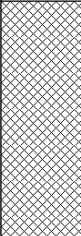
Site Investigation Plan



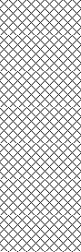
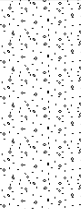
33-38 Townley Road, M24 IPA
YEX5049
Mar-23

Appendix B- Trial Pit Logs



				Trial Pit Log			TrialPit No TP1 Sheet 1 of 1	
Project Name: 33-38 Townley Road BRE				Project No. YEX5049		Co-ords: - Level:		Date 29/03/2023
Location: 33-38 Towley Road, Middleton, M24 1PA						Dimensions (m): 0.50 1.60		Scale 1:25
Client: Universal Bargain Ltd						Depth 1.00		Logged CC
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.80			MADE GROUND. Sandy GRAVEL. Sand is medium. Gravel is fine to coarse subrounded to subangular of brick	
				1.00			Orangish brown gravelly SAND. Sand is fine to medium. Gravel is fine to coarse of weathered sandstone	1
							End of Pit at 1.00m	2
								3
								4
								5
Remarks: No groundwater encountered								
Stability:								



				Trial Pit Log			TrialPit No TP2 Sheet 1 of 1	
Project Name: 33-38 Townley Road BRE				Project No. YEX5049		Co-ords: - Level:		Date 29/03/2023
Location: 33-38 Towley Road, Middleton, M24 1PA						Dimensions (m): 0.50 1.80		Scale 1:25
Client: Universal Bargain Ltd						Depth 2.00		Logged CC
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.85			MADE GROUND. Sandy GRAVEL. Sand is medium. Gravel is fine to coarse subrounded to subangular of brick	
				1.30			Orangish brown gravelly SAND. Sand is fine to medium. Gravel is fine to coarse of weathered sandstone	
				2.00			Dark brown gravelly SAND. Sand is fine to medium. Gravel is fine to coarse of coal and weathered sandstone	
							End of Pit at 2.00m	
1 2 3 4 5								
Remarks: No groundwater encountered								
Stability:								



Appendix C– Site Photographs





Appendix D- Infiltration Test Results

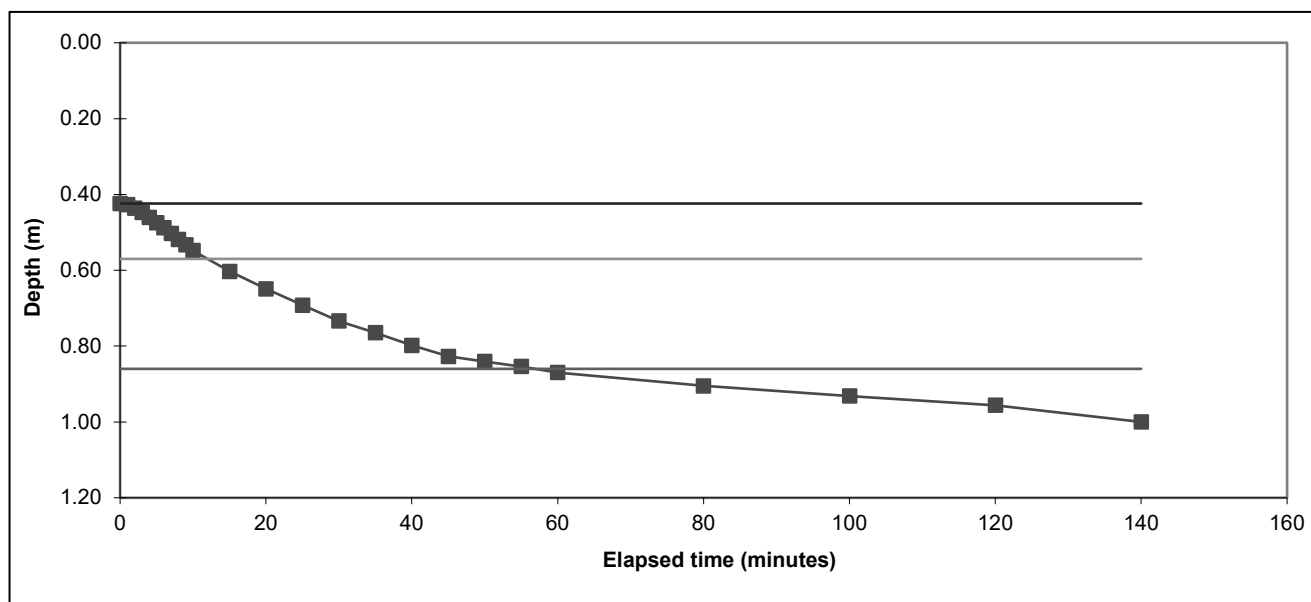


Your Environment

Soakaway Test

Trial Pit No:	TP1	Test No:	1	Date:	29/03/2023
Length (m):	1.600	Datum Height:	0.00 m agl		
Width (m):	0.50	Granular infill:	None		
Depth (m):	1.00	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	0.424	30	0.734
1	0.427	35	0.765
2	0.436	40	0.798
3	0.448	45	0.827
4	0.461	50	0.841
5	0.475	55	0.854
6	0.488	60	0.870
7	0.503	80	0.905
8	0.519	100	0.932
9	0.533	120	0.956
10	0.548	140	1.000
15	0.603		
20	0.649		
25	0.692		



Start water depth for analysis (mbgl):	0.42		
75% effective depth (mbgl):	0.57	Elapsed time (mins):	12.0
50% effective depth (mbgl):	0.71		
25% effective depth (mbgl):	0.86	Elapsed time (mins):	56.9
Base of soakage zone (mbgl):	1.00		
Volume outflow between 75% and 25% effective depth (m ³):	0.232		
Mean surface area of outflow (m ²):	2.02		
(side area at 50% effective depth + base area)			
Time for outflow between 75% and 25% effective depth (mins):	44.9		

Soil infiltration rate (m/s):	4.3E-5
-------------------------------	--------

Remarks	Results processed following BRE 365 (2007).
---------	---

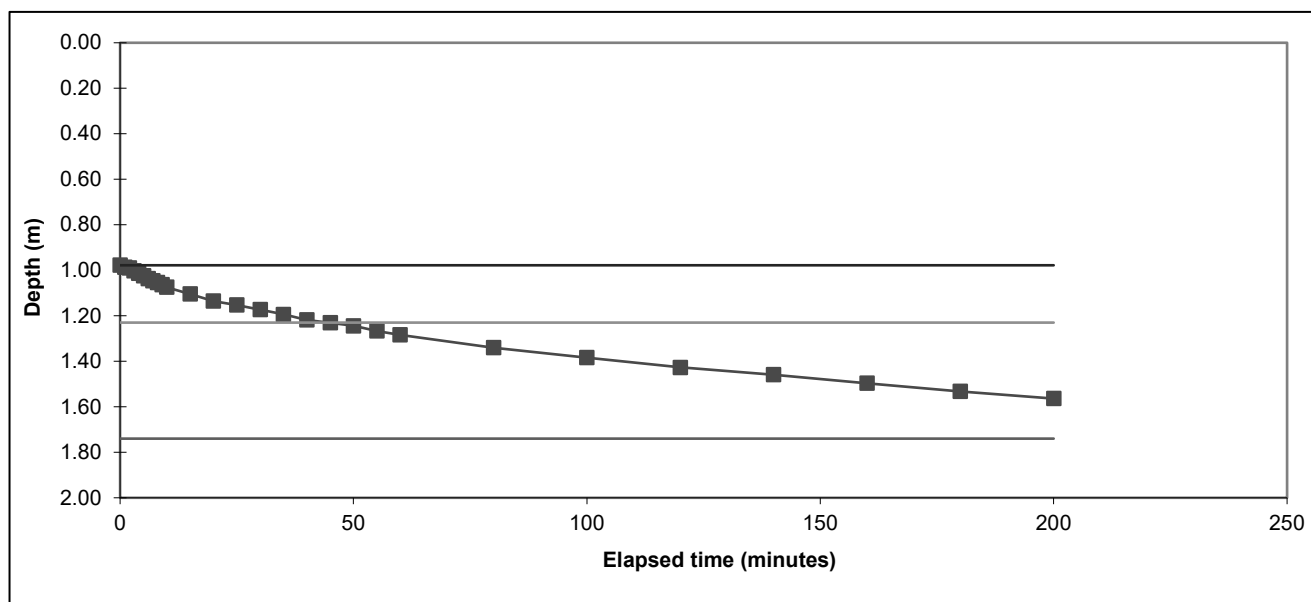
Client:	Universal Bargain Ltd	TP1
Site:	38-44 Townley Street, Middleton, M24 1AS	

Your Environment

Soakaway Test

Trial Pit No:	TP2	Test No:	1	Date:	29/03/2023
Length (m):	1.800	Datum Height:	0.00 m agl		
Width (m):	0.50	Granular infill:	None		
Depth (m):	2.00	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	0.978	30	1.173
1	0.986	35	1.194
2	0.990	40	1.218
3	1.002	45	1.231
4	1.013	50	1.244
5	1.024	55	1.267
6	1.037	60	1.284
7	1.046	80	1.340
8	1.054	100	1.384
9	1.064	120	1.427
10	1.075	140	1.459
15	1.104	160	1.496
20	1.135	180	1.533
25	1.153	200	1.564



Start water depth for analysis (mbgl):	0.98		
75% effective depth (mbgl):	1.23	Elapsed time (mins):	44.6
50% effective depth (mbgl):	1.49		
25% effective depth (mbgl):	1.74	Elapsed time (mins):	#N/A
Base of soakage zone (mbgl):	2.00		
Volume outflow between 75% and 25% effective depth (m ³):			
Mean surface area of outflow (m ²):			3.25
(side area at 50% effective depth + base area)			
Time for outflow between 75% and 25% effective depth (mins):			

Soil infiltration rate (m/s):	Test incomplete as 25% effective depth not achieved. Unable to reliably determine soil infiltration rate.
-------------------------------	---

Remarks	Results processed following BRE 365 (2007).
---------	---

Client:	Universal Bargain Ltd	TP2
Site:	38-44 Townley Street, Middleton, M24 1AS	