

8.8. SOIL INFILTRATION

In-situ variable (falling) head permeability tests were undertaken within all four monitoring well installations (WS101, WS102, WS103 and WS104). All four monitoring wells were bailed before the tests were undertaken due to groundwater being identified between 1.00 m bgl and 3.60 m bgl. As a result, the data has been interpreted as soakaway tests rather than permeability tests.

The results are presented in Table 8.4 and the test certificates are included within Appendix IX.

TABLE 8.4 SOIL INFILTRATION RESULTS

LOCATION	DEPTH (m)	MATERIAL	TEST No.	SOIL INFILTRATION RATE (m/s)
WS101	3.60	Very stiff high strength brown slightly gravelly sandy CLAY	1	1.60E-07
WS102	1.60	MADE GROUND: Firm low strength black slightly sandy gravelly clay	1	4.84E-07
WS103	3.00	Very soft extremely low strength light grey brown slightly sandy CLAY	1	2.56E-07
WS104	1.86	Very stiff high strength brown grey slightly sandy CLAY	1	4.04E-07

All tests showed granular drift deposits to have poor soakage potential as clay drift deposits were present.

Therefore, considering the significant volumes of impermeable CLAY on the site, it is considered that soakaway drainage will not be suitable for the proposed development.

However, the application of soakaway drainage will ultimately be dependent on the specific requirements of the development. All soakaways should be designed in accordance with BRE Special Digest 365 – *Soakaway Design*.

8.9. SOIL PLASTICITY

The Atterberg limits determinations, summarised in Table 8.5, show the clay to be of predominantly low plasticity.

TABLE 8.5 SUMMARY OF PLASTICITY INDEX TEST RESULTS

LOCATION	DEPTH (m)	NATURAL MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	PASSING 425 µm SIEVE (%)	MODIFIED PLASTICITY INDEX	NHBC VOLUME CHANGE POTENTIAL
WS101	2.00	17	16	30	14	96	13.44	Low
WS103	2.00	26	17	36	19	95	18.05	Low
WS104	2.00	16	16	33	17	97	16.49	Low



APPENDIX V

E3P EXPLORATORY HOLE LOGS

Project Name: Kenyon Lane

Project No.
14776

Co-ords: 387273E - 401499N

Hole Type
WS

Location: Moston

Level:

Scale
1:50

Client: Challenger Group

Dates: 26/04/2021

Logged By
E. Fearn

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			MADE GROUND: Light grey sandy gravel with occasional rootlets. Gravel is fine to coarse angular to sub-rounded of mudstone and brick.	
					0.40			MADE GROUND: Red black slightly sandy gravel. Gravel is fine to coarse angular to sub-angular of mudstone, brick and concrete.	
		0.80	ES					MADE GROUND: Stiff medium strength black brown slightly sandy gravelly clay. Gravel is fine to coarse angular to sub-rounded of mudstone and brick.	1
		1.00 - 1.45	D					Very stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine to coarse angular to sub-rounded of mudstone.	
		1.00	SPT	N=12 (1,2/3,3,3,3)	1.10				
		1.50 - 2.00	U						
		1.80	ES						
		1.90	PP	80.93					2
		2.00 - 2.45	D						
		2.00	SPT	N=19 (3,5/6,4,4,5)					
		2.90	PP	73.58					3
		3.00 - 3.45	D						
		3.00	SPT	N=20 (3,3/3,5,6,6)					
		3.90	PP	29.43					4
		4.00 - 4.45	D						
		4.00	SPT	N=17 (3,4/4,3,5,5)					
		5.00 - 5.45	D						5
		5.00	SPT	N=32 (4,5/7,7,8,10)	5.45				
								End of Borehole at 5.45m	6
									7
									8
									9
									10

Remarks

1. Complete. 2. Monitoring well installed (response zone 1.00m to 4.00m bgl).

Project Name: Kenyon Lane

Project No.
14776

Co-ords: 387268E - 401488N

Hole Type
WS

Location: Moston

Level:

Scale
1:50

Client: Challenger Group

Dates: 26/04/2021

Logged By
E. Fearn

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			MADE GROUND: Light grey sandy gravel. Gravel is fine to coarse angular to sub-angular of mudstone and brick.	
		0.60	ES					MADE GROUND: Firm low strength black slightly sandy gravelly clay. Gravel is fine to coarse angular to sub-rounded of mudstone and brick.	1
		1.00	SPT	N=7 (1,1/2,2,1,2)					
		1.60	ES		1.50			Firm low strength light grey slightly sandy silty CLAY. Becoming stiff medium strength from circa. 3.00m bgl, then becoming very stiff high strength from circa. 4.00m bgl.	2
		1.60	PP	29.43					
		2.00 - 2.45	D						
		2.00	SPT	N=7 (1,2/1,2,2,2)					
		2.40	PP	26.98					
		2.50 - 3.00	U						
		3.00 - 3.45	D						3
		3.00	SPT	N=16 (3,3/3,3,5,5)					
		3.40	PP	31.88					
		4.00 - 4.45	D						4
		4.00	SPT	N=32 (4,5/7,7,8,10)	4.45				
								End of Borehole at 4.45m	5
									6
									7
									8
									9
									10

Remarks

1. Terminated due to redrilling twice. 2. Monitoring well installed (response zone 0.50m to 1.50m bgl).

Project Name: Kenyon Lane

Project No.
14776

Co-ords: 387264E - 401460N

Hole Type
WS

Location: Moston

Level:

Scale
1:50

Client: Challenger Group

Dates: 26/04/2021

Logged By
E. Fearn

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								MADE GROUND: Light grey slightly sandy gravel. Gravel is fine to coarse angular to sub-rounded of mudstone.	
		1.00	SPT	N=7 (1,1/2,2,1,2)	0.90				
		1.10	ES					MADE GROUND: Firm low strength black slightly gravelly sandy clay. Gravel is fine to coarse angular to sub-rounded of mudstone and brick. Slight organic odour.	1
		1.50	PP	22.07	1.30				
		2.00 - 2.45	D					Very soft extremely low strength light grey brown slightly sandy CLAY. Becoming firm low strength from circa. 3.00m bgl, then becoming very stiff high strength from circa. 4.00m bgl.	2
		2.00	SPT	N=1 (0,0/0,0,0,1)					
		2.50	PP	63.77					
		2.80	ES						
		3.00 - 3.45	D						3
		3.00	SPT	N=8 (1,1/2,2,2,2)					
		3.50 - 4.00	U						
		4.00 - 4.45	D						4
		4.00	SPT	N=27 (3,4/6,6,7,8)					
		4.60	PP	93.20					
		5.00 - 5.45	D						5
		5.00	SPT	N=35 (5,7/7,8,10,10)	5.45				
								End of Borehole at 5.45m	6
									7
									8
									9
									10

Remarks

1. Complete. 2. Monitoring well installed (response zone 1.00m to 3.50m bgl).