



PERCOLATION REPORT

LOCATION:

Higher Woodhill Farm, Bury

CLIENT:

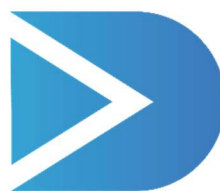
Jason Entwistle

DOCUMENT REF:

24644-PR-001

DATE:

12.12.24



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Revision	Description	Date	Author	Checked
A	First Issue	Dec 2024	H Dyson	A Dyson

TESTING REPORT

1.0 TESTING REPORT

The Percolation Testing was carried out on site on 12th December 2024 to establish if infiltration methods were going to be a suitable solution for draining the site.

1 Trial hole was formed with the following dimensions;

Test Pit 1 1600mm x 1200mm x 1000mm deep

The water level drop was monitored and recorded (see test sheets attached).

TEST PIT 1:

For Test 1 (Test Pit 1), water was filled to a depth of 500mm, the water level dropped 220mm after 3 hours 30 minutes of testing.

For Test 2 (Test Pit 1), water was filled to a depth of 500mm, the water level dropped 200mm after 4 hours of testing.

For Test 3 (Test Pit 1), water was filled to a depth of 500mm, the water level dropped 185mm after 5 hours of testing.

Calculation sheet 1 shows that the infiltration rates are high enough and do satisfy BRE 365 requirements. Therefore, Infiltration methods of drainage will be viable for this site and strategy. test 3 will be used to calculate the infiltration rate as it's the worst-case result.

APPENDICES

Appendix A – Percolation Test Sheet METHOD (from BRE Digest 365)

- Excavate a soakage trial pit to the required depth (typically 1.0m - 2.0m deep) using minimum width (0.3m) and length (1.0m). Carefully trim sides and bottom.
- Carefully measure size of pit and note sizes below.
- Fill soakage hole briskly with water (from bowser) to at least three quarters full. Being careful not to wash away the sides. (Note: a 0.3m wide, 1m long, 1.5m deep trench needs at least 350 litres (80 gallons) of water)
- Place straight edge over top of soakage pit and measure (dip) to the top of the water.
- Record time versus dips in table below. Dip every 5 minutes for the first hour and every hour until pit is one quarter full. Repeat test 3 times in total on the same or consecutive days.

DETAILS

Site Location	Higher Woodhill Farm, Bury
Date of Test	12.12.24
Weather Conditions	Wet – Winter
Engineer Name	Harry Dyson

SIZE OF PIT 1

Length	Width	Depth
1.6m	1.2m	1.0m

Test 1 RESULTS

Time (mins)	Dip (mm)	Time (mins)	Dip (mm)
0	500	90	155
5	475	105	110
10	460	120	80
15	445	180	40
20	420	210	0
25	395		
30	360		
35	335		
40	315		
45	305		
50	280		
55	255		
60	230		
75	200		

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Appendix A

Percolation Test Sheet Pit 1

Test 2

RESULTS

Time (mins)	Dip (mm)	Time (mins)	Dip (mm)
0	500	90	150
5	450	105	135
10	405	120	105
15	370	150	85
20	355	180	60
25	330	210	30
30	305	240	0
35	290		
40	270		
45	250		
50	240		
55	215		
60	210		
75	180		

Test 3

RESULTS

Time (mins)	Dip (mm)	Time (mins)	Dip (mm)
0	500	90	310
5	450	120	280
10	425	150	240
15	410	180	215
20	410	210	180
25	400	240	120
30	380	270	75
35	370	300	0
40	370		
45	350		
50	340		
55	335		
60	335		
75	325		

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Trial pit 1 was formed
here.

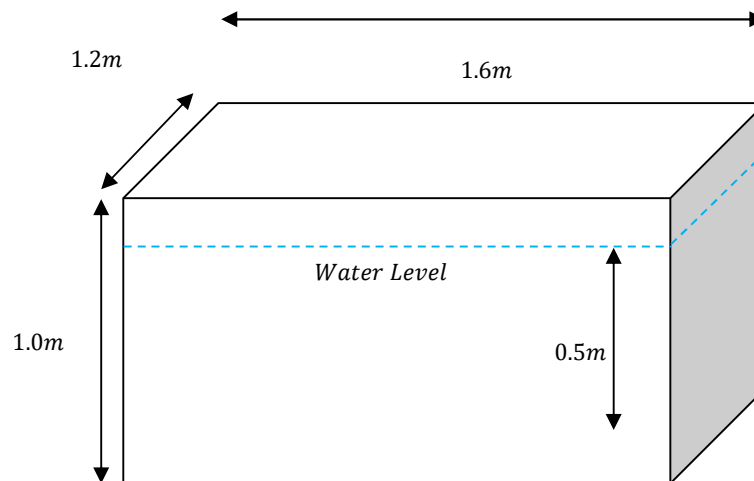
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Test 3, Test Pit 1)



Soil Infiltration rate(ms^{-1}):
$$\frac{V_{(P75-25)}}{t_{(P75-25)} \times a_{(P50)}}$$

V = Effective storage volume between 75 – 25%

$a_{(P50)}$ = Surface area of the pit (50% effective depth) + box area

$t_{(P75-25)}$ = Time for water to fall from 75 – 25%

$$V_{(p75-25)} = (0.5 \times 0.5) \times 1.6 \times 1.2 = 0.48m^3$$

$$a_{(p50)} = 1.6 \times 1.2 + 2((0.5 \times 0.5) \times 1.6) + 2((0.5 \times 0.5) \times 1.2) = 3.32m^2$$

$$t_{(p75-25)} = 18000s$$

Soil Infiltration rate (m/s):

$$\frac{0.48}{18000 \times 3.32} = 8.03 \times 10^{-6}m/s$$

Soil Infiltration rate (m/hr):

$$8.03 \times 10^{-6} \times 3600 = 0.02809m/hr$$