PERCOLATION REPORT

LOCATION:
The Old Corn Mill, Thurlstone

CLIENT:
Mr Gerry Trew

DOCUMENT REF:
24166-PR-001

DATE:
3rd April 2024

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CONTENTS & AMENDMENT HISTORY

Revision	Description	Date	Author	Checked
A	First Issue	April 2024	E Craig	R Thacker

1.0 TESTING REPORT

The Percolation Testing was carried out on site on 3rd April 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 and location shown below;

Test Pit 1 1400mm x 1200mm x 1500mm

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 450mm, the water level dropped 450mm after 5 minutes of testing.

For Test 2 (Test Pit 1), water was filled to a depth of 450mm, the water level dropped 450mm after 11 minutes of testing.

For Test 3 (Test Pit 1), water was filled to a depth of 450mm, the water level dropped 450mm after 17 minutes 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 is the worst case result so will be used to calculate the required infiltration rate.

APPENDICES

Appendix A – Percolation Test Sheet

METHOD (from BRE Digest 365)

- Excavate a soakage trail 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	**The Old Corn Mill, Thurlstone S36 9PT**
Date of Test	**03/04/24**
Weather Conditions	**Mixed - Spring**
Engineer Name	**Ed Craig**

SIZE OF PIT 1

Length	Width	Depth
1.4m	1.2m	1.5m

Test 1
RESULTS

Time (mins)	Dip (mm)
0	450
5	0

Test 2
RESULTS

Time (mins)	Dip (mm)
0	450
5	160
11	0

Appendix A

Percolation Test Sheet Pit 1

Test 3
RESULTS

Time (mins)	Dip (mm)
0	450
5	230
10	120
17	0

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TEST PIT 1:

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TEST PIT LOCATION:

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E: andy@dart-engineers.com
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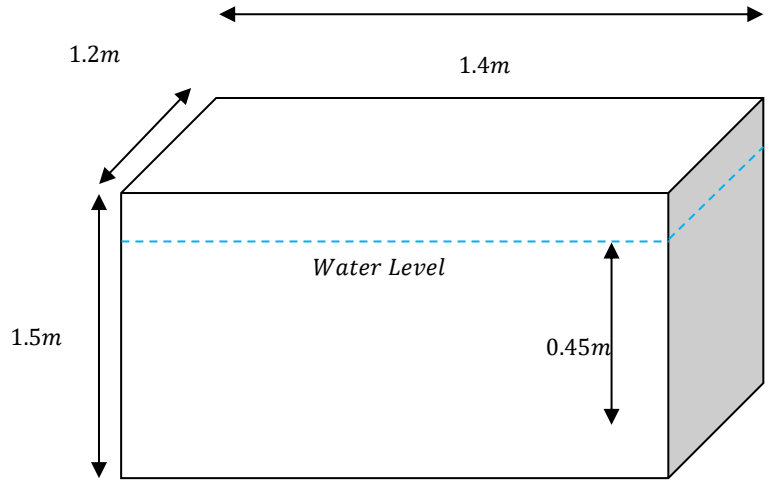
m: 07725 481902

Project				Job Ref.	
THE OLD CORN MILL, THURLSTONE				24166	
Section				Sheet no./rev.	
Calc. by	Date	Chk'd by	Date	App'd by	Date
EC	APR 24	RT	APR 24		

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 $75-25\%$

$V_{(p75-25)} = (0.45 \times 0.5) \times 1.4 \times 1.2 = 0.378m^3$

$a_{(p50)} = 1.4 \times 1.2 + 2((0.45 \times 0.5) \times 1.4) + 2((0.45 \times 0.5) \times 1.2) = 2.85m^2$

$t_{(p75-25)} = 1020s$

Soil Infiltration rate (m/s):

$$\frac{0.378}{1020 \times 2.85} = 1.3 \times 10^{-4} m/s$$

Soil Infiltration rate (m/hr):

$$1.3 \times 10^{-4} \times 3600 = 0.468\, m/hr$$