Trinity Green
Environmental Consultants

Clonfert
Maynooth
Co. Kildare
t: 01-6290616
m: 086-2434828
Vat No. 3251411B

Soil Infiltration Test for Design of Soakaway

At

Slade, Saggart, Co. Dublin
D24 CA36

Prepared by

Dr. Eugene Bolton
Senior Consultant
Trinity Green

Report on Soil Infiltration Test

Introduction

To manage the surface water from the development it is proposed to construct Soakaways in accordance with BRE Digest365 As part of this, the infiltration capacity of the soil was assessed. Dr. Eugene Bolton of Trinity Green Environmental Consultants was commissioned to carry out soil Infiltration Tests in accordance with BRE Digest365 to establish the suitability of the site for disposal of water.

1.0 Visual assessment of Site

The site is located in a Rural setting and on the day of the tests there was no surface water present. There is no vegetation on the site or in adjoining fields that would indicate poor soakage. There is an existing on-site wastewater treatment system with percolation area on the site that is operating effectively suggesting good soakage.

2.0 *Sub-soil profile*

A test pit was excavated to 2.3mbgl. There is a layer of there was a layer of sandy clay subsoil to 1.2m bgl.with sandy silt/clay at lower depth.
There was no water in the test pit but there was mottling at 1.5m bgl showing the watertable comes to this hight.

4.0 Infiltration Tests

The Infiltration rate, generally expressed as metres per second, is the volume of water that enters the soil over a unit area and unit time. In order to obtain this measurement a pit is excavated and filled with water. The fall in the level of the water is recorded over time.
The test pit had dimensions

Length 1.6m
Width 0.3m
Depth 1.2m

The base of the pit was filled with water to a depth of 1m and the drop in the water level was followed over time

5.0 Results

The time required for the level to fall from 75% full to 25% full (ie 50% drop) – from a water depth of 0.75m to a water depth of 0.25m is estimated to be 722min.

Table 1 – Time taken for water level to fall

Elapsed Time (Mins)	Depth of Water (mm)
0	1000
5	960
17	930
32	900
38	880
56	860
87	820
116	790
146	750
178	710
216	680
266	640
321	600
348	580
454	500
509	460
578	410
630	380
681	350
766	300
810	280
868	250

Infiltration rate (f) = Volume of water used/unit exposed area /unit time

Volume = pit length (m) x Width (m) x Drop in water level (m)
= 1.6 x 0.3 x 0.5
= 0.24m3

Exposed area = (Length x Half the effective height x 2) + (Width x Half the effective height x 2) + Base area
= (1.6 x 0.5 x 2) + (0.3 x 0.5 x 2) + (1.6 x 0.3)
= 2.38m2

Time = 722min

Infiltration rate (f) = 0.24/2.38/722

= 1.39E-04 m/min

f = 2.3E-06 m/sec

6.0 *Conclusions*

From the above observation it is concluded that the soakage is reasonable and with the watertable at 1.5m bgl the site should be suitable for a soakaway

Signed .....

Dr. Eugene Bolton
Senior Consultant
Trinity Green
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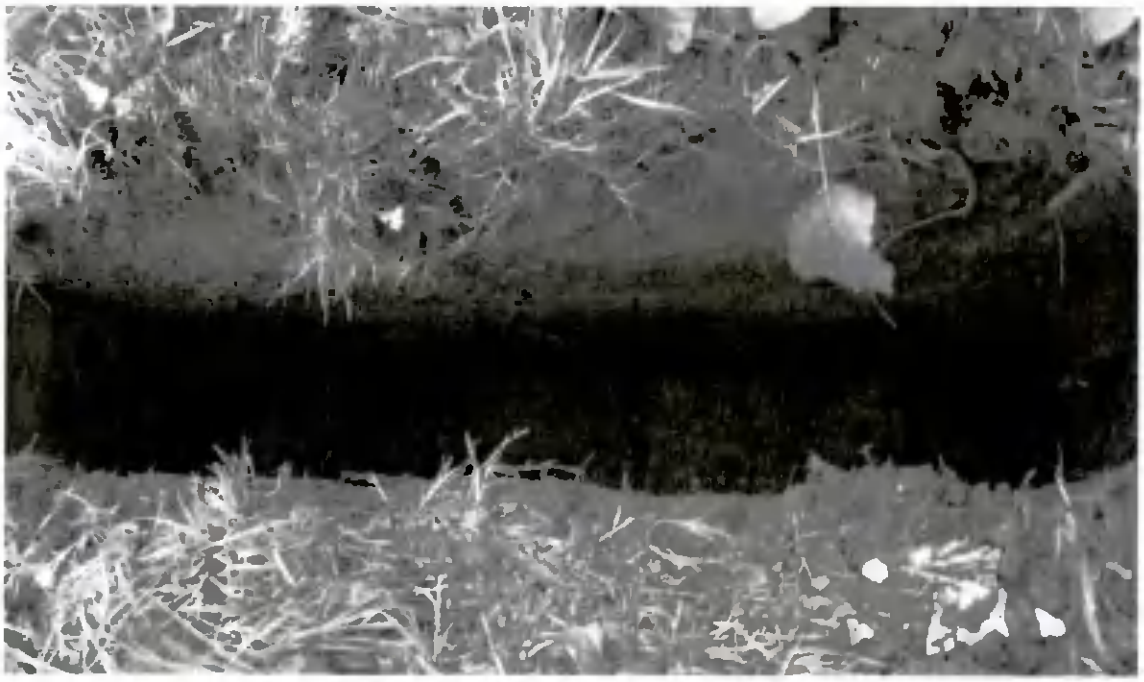
Photo

Trial Pit – Depth 2.3 – No water presenr but Mottling present at 1.5m bgl

Test Pit before water added – Depth 1.5m



Pit during test