

Soil Infiltration Test for Design of Soakaway

At

43 Fortfield Park, D6W XH95

Prepared by

Dr. Eugene Bolton
Senior Consultant
Trinity Green

Report on Soil Infiltration Test

Introduction

To manage the surface water from the development the option of constructing soakaways in accordance with BRE Digest365 was assessed. As part of this, the infiltration capacity of the soil was examined. 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.

Visual assessment of Site

The site is located in a mature estate where all sites have been developed. On the day of the tests there was no surface water present. There is no vegetation on the site or in adjoining areas that would indicate poor soakage.

Sub-soil profile

A trial pit was excavated to 1.6m bgl.

There is a shallow layer of topsoil of about 200mm. This layer is Black and is soft. While it had rained on the day before the test the surface was soft and sump underfoot.

Below the topsoil the subsoil down to 1.5m is a CLAY with a massive structure with few cobbles. The subsoil is initially soft to firm but becomes firm at about 0.75m bgl. Between 1.5 and 1.6m bgl the subsoil is largely shale with low level; of clay present. There was rapid water ingress at the base of the pit and the settled water level after 24 hours was recorded at 700mm bgl.

There was also mottling present and this was observed at 550mm bgl.

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 new pit with the dimensions below was excavated and filled with water to allow the soil to become saturated. It was then filled with water and the fall in the level of the water is recorded over time.

Length 1.5m

Width 0.3m

Depth 0.6m

The base of the pit was filled with water to a depth of 400mm and the drop in the water level was followed over time

4.0 Results

The time required for the level to fall from 75% full to 25% full (ie 50% drop) – from a water depth of 0.3m to a water depth of 0.1m is estimated.

Table 1 – Time taken for water level to fall

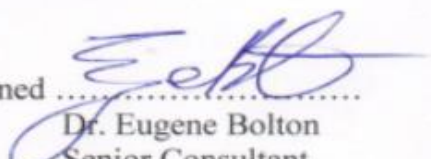
Elapsed Time (Mins)	Depth of Water (mm)
0	400
30	400
60	400
120	400
175	400

As there was no change in the level of the water after 175 min. the test was abandoned due to poor soakage in the soil.

5.0 Conclusions

From the above observation it is concluded that the soakage is very slow and there is a high watertable.

With these characteristics it is not feasible to design a soakaway that could be designed to take water from the roof are.

Signed

Dr. Eugene Bolton
Senior Consultant
Trinity Green

10/02/2024

Photo
Trial Pit after excavation – Depth 1.6



Trial Pit 24 hours after excavation – Depth 1.6 settled water level at 0.7m



Test Pit before water added – Depth 0.6m from original ground level



Pit during test

