



PERCOLATION TESTS AND CALCULATIONS

For the proposed installation of a new soak away system

Based on BS6297 – Design and Installation of Small Sewage Treatment Works and Cesspools

MAP/SKETCH OF SITE LAYOUT

(All measurements to be in metres unless otherwise stated)

PIT SIZE 0.5 x 0.5 250 L water
So depth water = 1m.
time for 250mm to drain = 75min.

Positions marked * are the approximate locations of the percolation tests

Procedure for Percolation Test:

- i) Excavate hole to level of proposed outlet to the septic tank, then excavate test hole 300mm sq. x 250mm deep.
- ii) Fill test hole with water and allow to seep away overnight.
- iii) Next day fill test hole to not less than 250mm depth of water (care to be taken to avoid abnormal conditions, i.e. heavy rain, severe frost, drought).

Calculations

Result of 1st Percolation Test

(a) Depth of water (mm) 250

(b) Time taken to soak away (secs) 4500

Percolation Value (V_p) = (b) ÷ (a)

18 (secs)

Result of 2nd Percolation Test

(a) Depth of water (mm) 250

(b) Time taken to soak away (secs) 4800

Percolation Value (V_p) = (b) \div (a)

19 (secs)

Result of 3rd Percolation Test

(a) Depth of water (mm) _____

(b) Time taken to soak away (secs) _____

Percolation Value (V_p) = (b) \div (a)

_____ (secs)

Calculations (continued)

Average V_p Value of test 1, 2 & 3

19 (secs) (This is known as the Percolation Value)

Number of persons (P) to be served by the new system

4

(Allow a realistic figure here, e.g. for a 3 bedroom house, 4 to 5 persons)

Area of drainage trench (A_t) required

= $P \times V_p \times 0.25$ (or 0.2)

Substituting the values given above: A_t = 4 \times 19 \times 0.25

= 19 square metres

Width (W) of new drainage trench

= 2 metres

Length (L) of new drainage trench

= $A_t \div W$

= 19 \div 2 metres

= 9 metres

Notes

1. Avoid carrying out the tests in abnormal weather conditions such as heavy rain, severe frost or drought.
2. In the event that any of the measurements in a test is 50% or more above or below the average of the results, make a further three measurements and calculate a further average.
3. Unless an average value of V_p of 24s or less is obtained (in which case no further tests are necessary), make further tests on a minimum of three different locations on the proposed route of a land drain, or at least three tests on separate days on the site proposed for a soak away.
4. If the Percolation Value (V_p) exceeds 140 seconds, the soil is not suitable for drain fields. If the value is between 100 and 140 seconds (about 7-10 hours to fall 250mm), under drains are desirable.
5. If results show a requirement for a drainage trench in excess of 200m, serious consideration should be given to an alternative system, which may be more economic.

IMPORTANT

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