



PROPOSED BUILDING OF 4 DETACHED HOUSES
AT LEAPINGS LANE THURLSTONE

POROSITY TEST
SOIL INFILTRATION RATE

MAY 2024



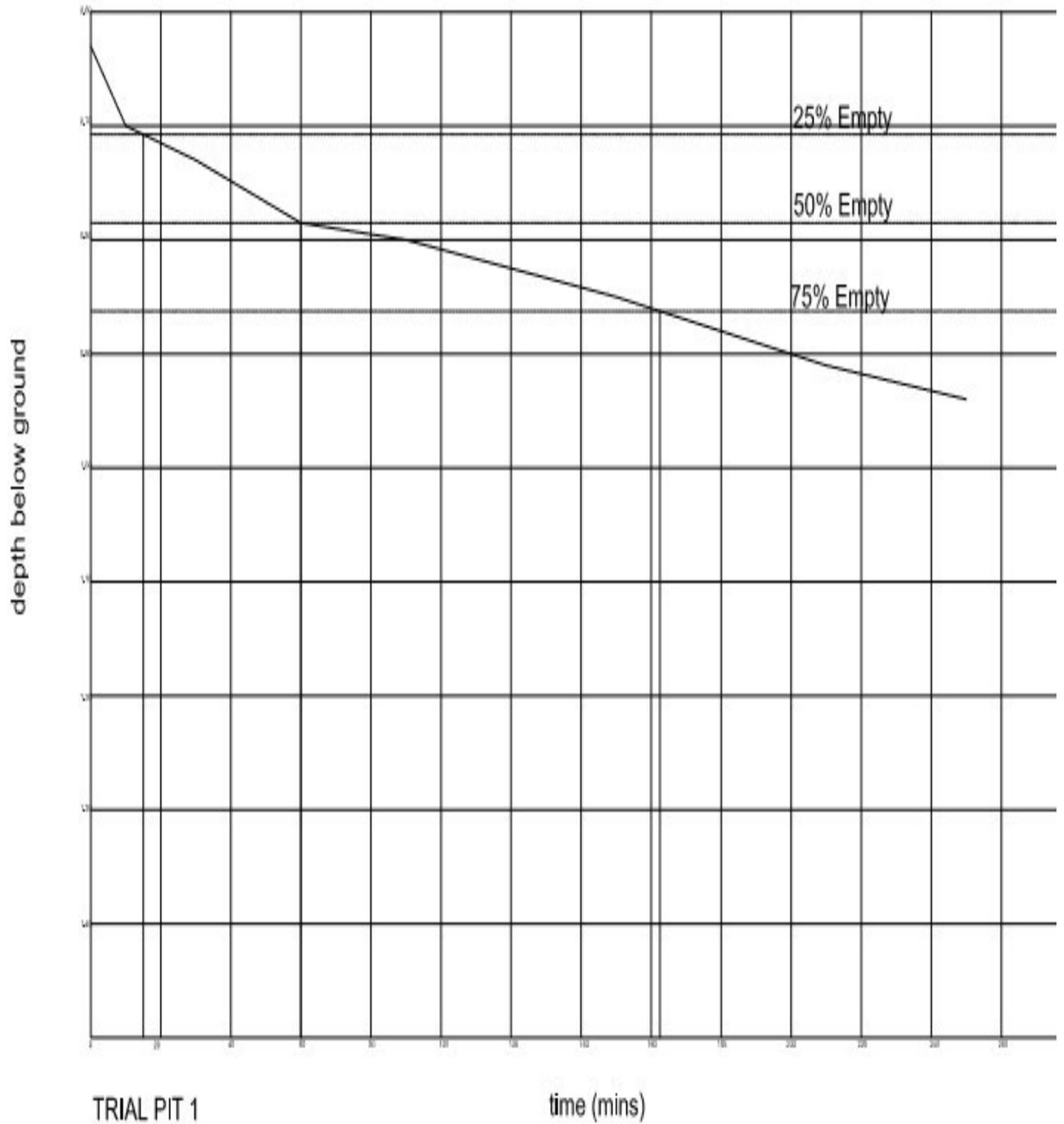
POROSITY TEST RESULTS TO BRE DIGEST 365

Date of test 31-05-2024

TRIAL PIT 1

Trial pit excavated 2.00m long x 0.7m wide x 1.4m deep filled with water to depth 0.630m below ground and allowed to drain out. Trial pit re-filled and test commenced. Average results as below:-

Time in mins	Water level depth below ground (m)
0	0.630
10	0.700
30	0.730
60	0.785
90	0.800
150	0.850
210	0.910
250	0.940



TRIAL PIT 1

time (mins)

Trial Pit 1 was 2.0m long x 0.7m wide x 1.4m deep

Volume of outflow based on 75% to 25% maximum water depth

$$V = 2.0 \times 0.7 \times (0.2325 - 0.0775)$$

$$V = \underline{0.217\text{m}^3}$$

Maximum surface through which outflow occurs = pit sides x 50% maximum depth x base of pit

$$= (2.0 \times 0.155)2 + (0.7 \times 0.155)2 + (2.0 \times 0.7)$$

$$= \underline{2.237\text{m}^2}$$

from graph time = 166mins (9960secs)

$$f =$$

$$\underline{0.217}$$

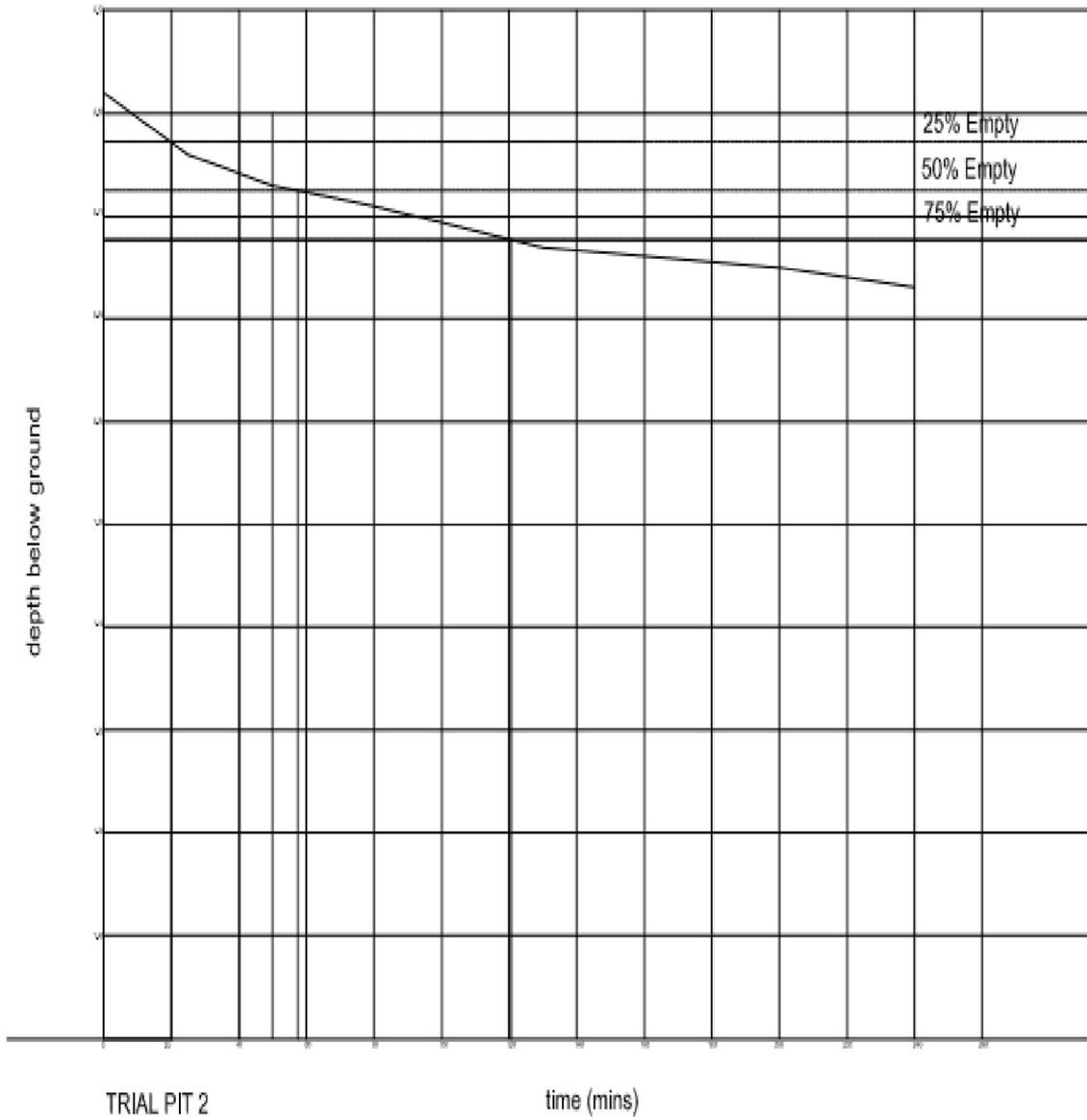
$$2.237 \times 9960$$

$$\underline{9.73945 \times 10^{-6}\text{m/sec}}$$

TRIAL PIT 2

Trial pit excavated 2.0m long x 0.7m wide x 1.5m deep filled with water to depth 0.58m below ground and allowed to drain out. Trial pit re-filled and test commenced. Average results as below:-

Time in mins	Water level depth below ground (m)
0	0.58
25	0.64
50	0.67
80	0.69
130	0.73
200	0.75
240	0.77



Trial Pit 2 was 2.0m long x 0.7m wide x 1.5m deep

Volume of outflow based on 75% to 25% maximum water depth

$$V = 2.0 \times 0.7 \times (0.1425 - 0.0475)$$

$$V = \underline{0.133\text{m}^3}$$

Maximum surface through which outflow occurs = pit sides x 50% maximum depth x base of pit
 $= (2.0 \times 0.095)^2 + (0.7 \times 0.095)^2 + (2.0 \times 0.7)$

$$= \underline{1.913\text{m}^2}$$

from graph time = 89.5mins (5370secs)

$$f =$$

$$\underline{0.133}$$

$$1.913 \times 5370$$

$$\underline{1.29467 \times 10^{-5} \text{ m/sec}}$$

1.00 Summary

- 1.01 Porosity testing was carried out at the above development site on Friday 31st May 2024 to determine whether ground conditions are suitable for surface water disposal via soak-a-way techniques.
- 1.02 Two trial pits were excavated dimensions as above the material encountered was stone granular fill to clay approximately 1m down..
- 1.03 The porosity test and subsequent calculations indicate that the soil infiltration rate is 9.739×10^{-6} m/sec (Pit 1), 1.29467×10^{-5} m/sec (Pit 2)
- 1.04 Generally speaking if the soil infiltration rate is 10^{-6} or less then the ground is suitable for soak-a-ways techniques.
- 1.05 It is therefore concluded that soak-a-ways are a suitable means of surface water disposal at the above site.
- 1.06 The typical soak-a-way was sized using MicroDrainage source control software.
- 1.07 The typical house soak-a-way is a 1.5m dia concrete soak-a-way ring in a pit 2.25m x 2.25m square for the 1 in 10 year storm event.
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