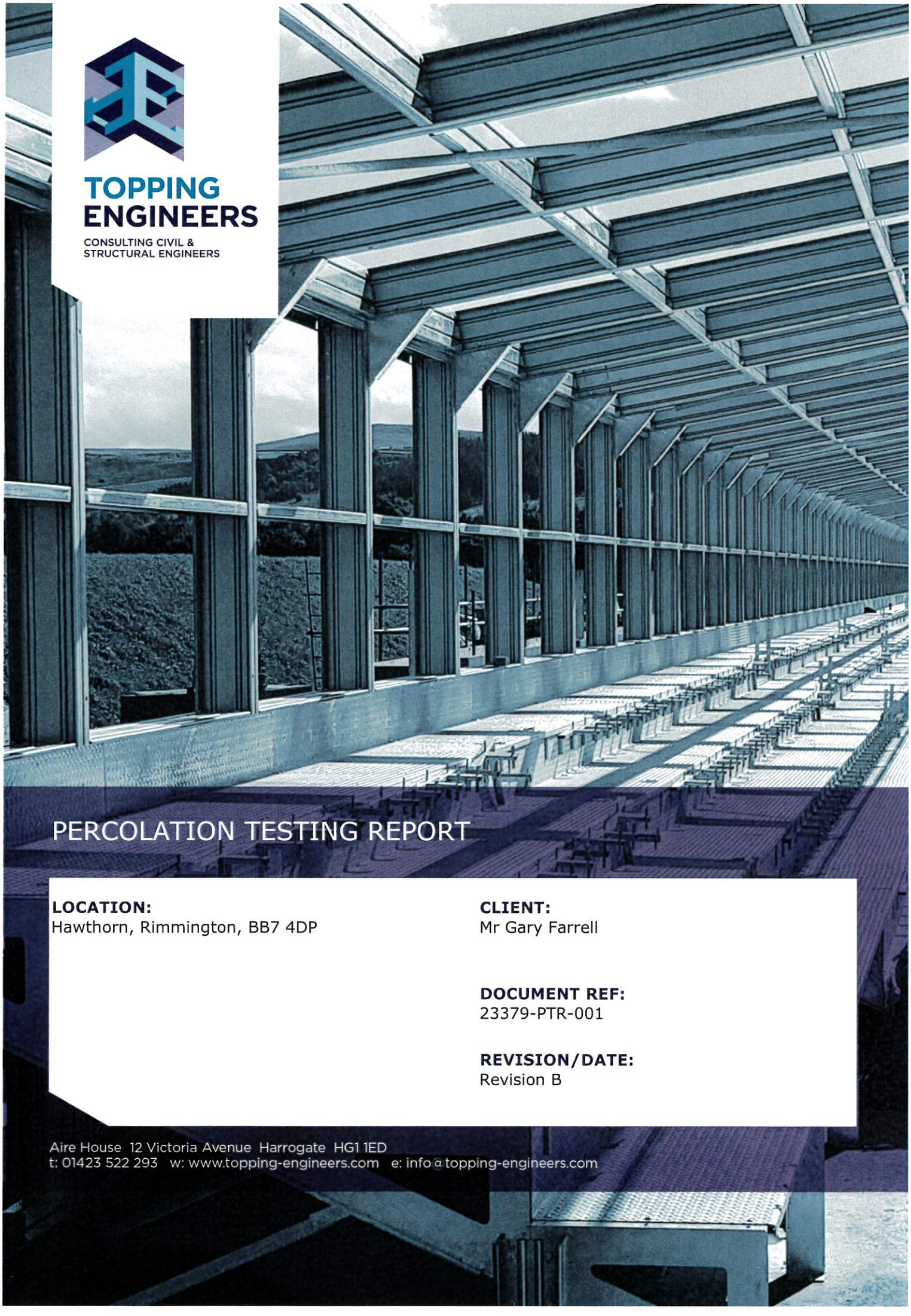

TOPPING ENGINEERS

CONSULTING CIVIL & STRUCTURAL ENGINEERS

PERCOLATION TESTING REPORT

LOCATION:
Hawthorn, Rimmington, BB7 4DP

CLIENT:
Mr Gary Farrell

DOCUMENT REF:
23379-PTR-001

REVISION/DATE:
Revision B

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Revision	Description	Date	Author	Checked
A	First Issue	Nov 2023	[redacted]	
B	Change in Client	Sept 2025		

1.0 TESTING REPORT

The Percolation Testing was carried out on site on 16th November 2023 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;

Test Pit 1 1000mm x 600mm x 1000mm deep

The water level drop was monitored and recorded (see test sheets attached).

For Test 1 (Test Pit 1), water was filled to a depth of 750mm, the water level dropped 680mm after 3 hours of testing.

For Test 2 (Test Pit 1), water was filled to a depth of 750mm, the water level dropped 650mm after 3 hours of testing.

For Test 3 (Test Pit 1), water was filled to a depth of 750mm, the water level dropped 640mm after 4 hours of testing.

Calculation sheet 1 shows that the infiltration rates are high enough and satisfy BRE 365 requirements. Therefore, Infiltration methods of drainage will be viable for this site and strategy.

2.0 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	**Hawthornes, Rimmington, BB7 4DP**
Date of Test	**16/11/2023**
Weather Conditions	**dry– autumn**
Engineer Name	[redacted]

SIZE OF PIT 1

Length	Width	Depth
1.00m	0.30m	1.00m

Test 1
RESULTS

Time (mins)	Dip (mm)
0	250
5	270
10	300
15	320
20	360
25	390
30	430
35	470
40	510
45	530
50	550
55	590
60	630
120	810
180	930
210	1000

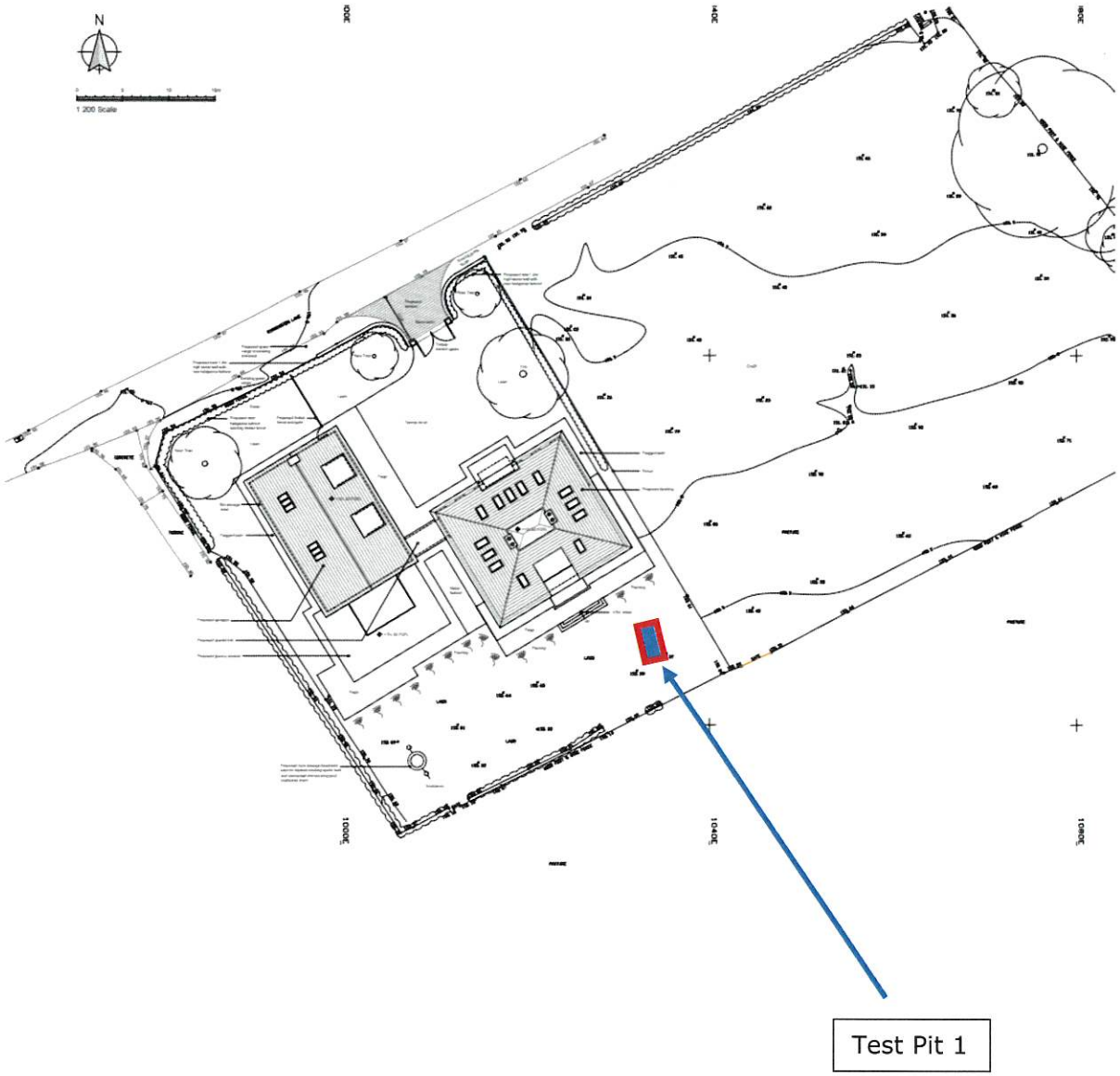
Test 2
RESULTS

Time (mins)	Dip (mm)
0	250
5	260
10	290
15	310
20	330
25	360
30	390
35	420
40	440
45	460
50	490
55	520
60	540
120	710
180	900
212	1000

Test 3
RESULTS

Time (mins)	Dip (mm)
0	250
5	250
10	270
15	290
20	310
25	330
30	360
35	380
40	410
45	420
50	440
55	460
60	490
120	670
180	770
240	890
291	1000

Appendix B – Percolation Test Location

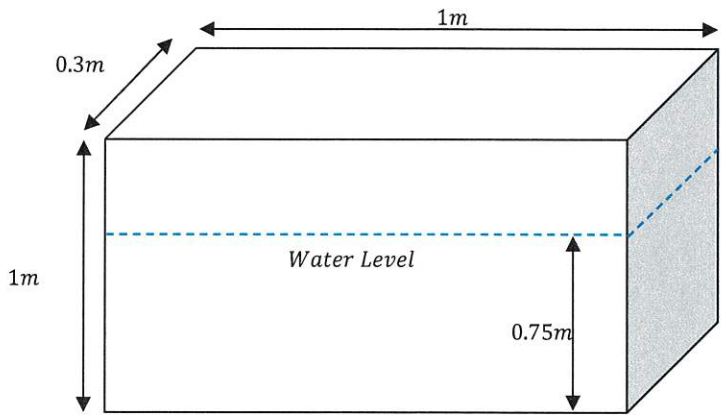


Appendix C – Percolation Test Calculation Sheets

TOPPING ENGINEERS CONSULTING CIVIL & STRUCTURAL ENGINEERS 01423 522293	Project The Hawthorns, Rimington Lane, Rimington				Job Ref. 23379	
	Section Test Pit 1				Sheet no./rev. 1	
	Calc. by OG	Date 22/11/2023	Chk'd by	Date	App'd by	Date

Test 1,

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%

$V_{(p75-25)} = (0.75 \times 0.5) \times 1 \times 0.3 = 0.1125m^3$

$a_{(p50)} = 1 \times 0.3 + 2((0.75 \times 0.5) \times 1) + 2((0.75 \times 0.5) \times 0.3) = 1.275m^2$

$t_{(p75-25)} = 6300s$

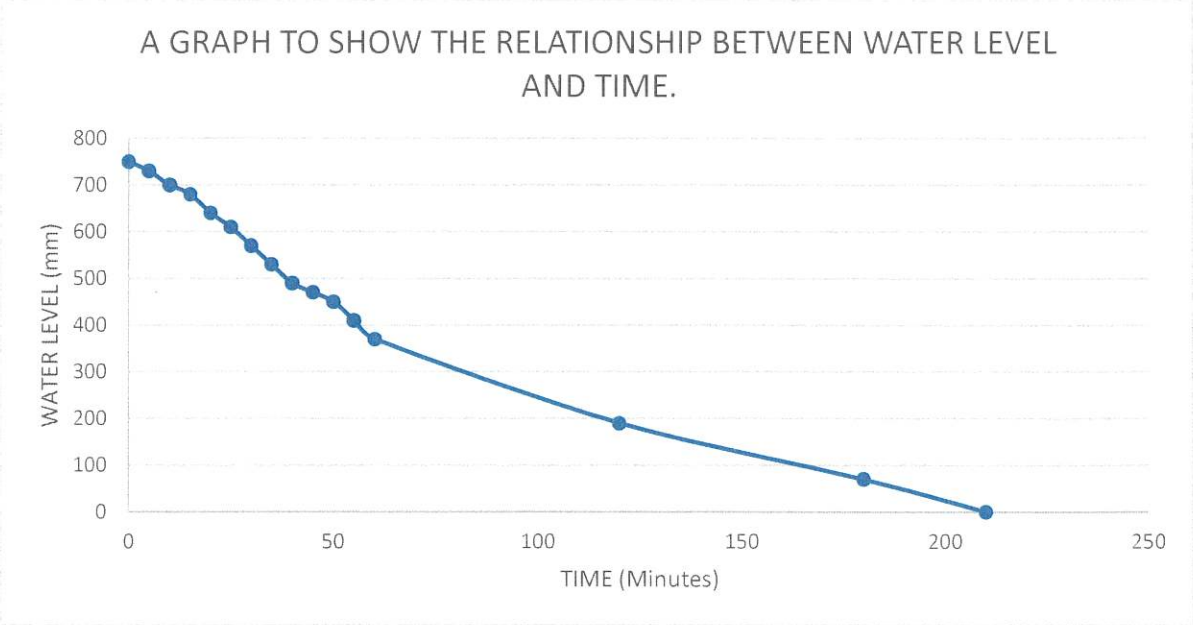
Soil Infiltration rate (m/s):

$$\frac{0.1125}{6300 \times 1.275} = 1.40 \times 10^{-5} m/s$$

Soil Infiltration rate (m/hr):

$$1.40 \times 10^{-5} \times 3600 = 5.04 \times 10^{-2}\ m/hr$$

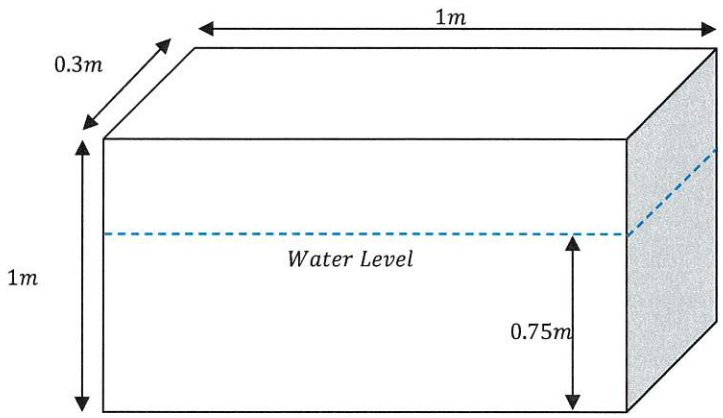
TOPPING ENGINEERS CONSULTING CIVIL & STRUCTURAL ENGINEERS 01423 522293	Project The Hawthorns, Rimington Lane, Rimington				Job Ref. 23379	
	Section Test Pit 1				Sheet no./rev. 2	
	Calc. by OG	Date 22/11/2023	Chk'd by	Date	App'd by	Date



TOPPING ENGINEERS CONSULTING CIVIL & STRUCTURAL ENGINEERS 01423 522293	Project The Hawthorns, Rimington Lane, Rimington				Job Ref. 23379	
	Section Test Pit 1				Sheet no./rev. 1	
	Calc. by OG	Date 22/11/2023	Chk'd by	Date	App'd by	Date

Test 2,

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%

$V_{(p75-25)} = (0.75 \times 0.5) \times 1 \times 0.3 = 0.1125m^3$

$a_{(p50)} = 1 \times 0.3 + 2((0.75 \times 0.5) \times 1) + 2((0.75 \times 0.5) \times 0.3) = 1.275m^2$

$t_{(p75-25)} = 6360s$

Soil Infiltration rate (m/s):

$$\frac{0.1125}{6360 \times 1.275} = 1.38 \times 10^{-5} m/s$$

Soil Infiltration rate (m/hr):

$$1.38 \times 10^{-5} \times 3600 = 4.99 \times 10^{-2}\ m/hr$$

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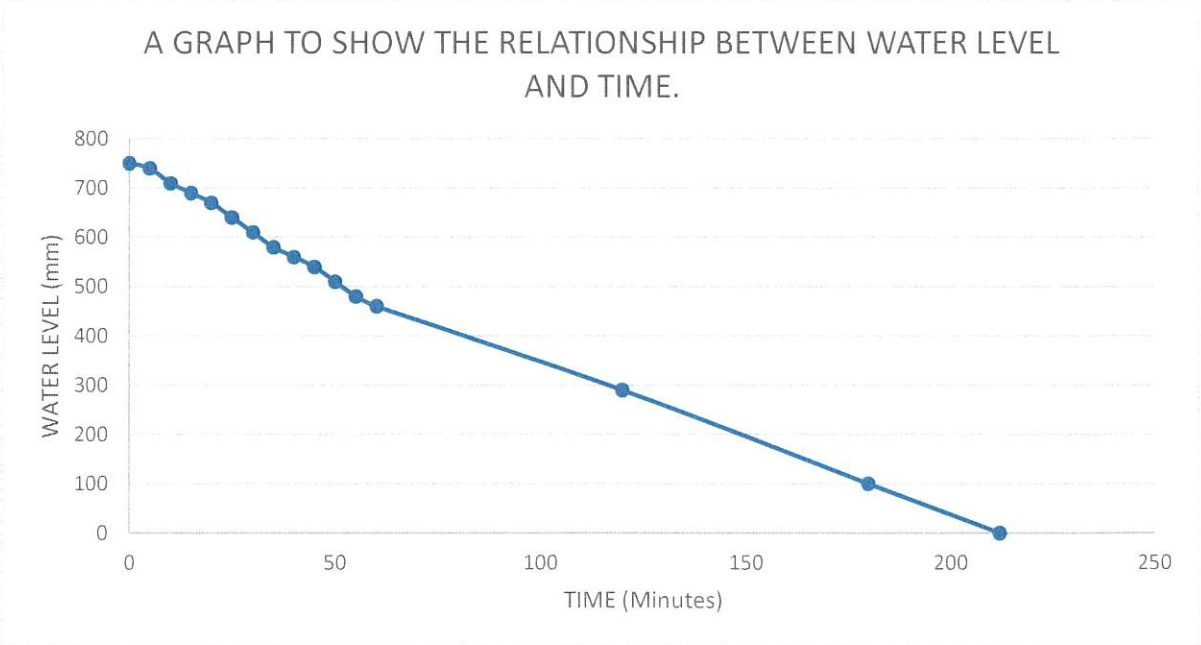
	Section Test Pit 1				Sheet no./rev. 2	
	Calc. by OG	Date 22/11/2023	Chk'd by	Date	App'd by	Date



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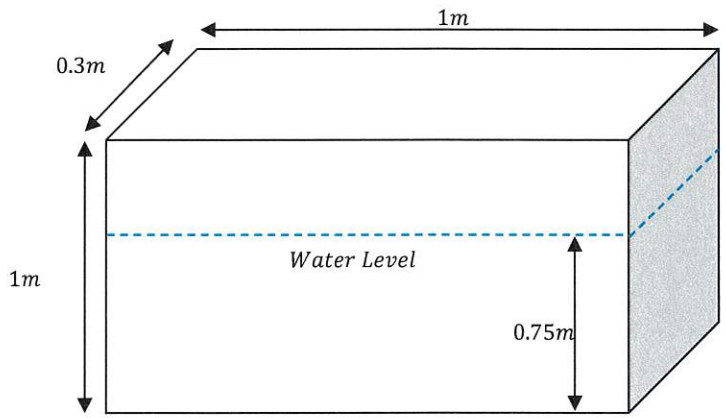
	Section Test Pit 1				Sheet no./rev. 1	
	Calc. by OG	Date 22/11/2023	Chk'd by	Date	App'd by	Date

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%

$V_{(p75-25)} = (0.75 \times 0.5) \times 1 \times 0.3 = 0.1125m^3$

$a_{(p50)} = 1 \times 0.3 + 2((0.75 \times 0.5) \times 1) + 2((0.75 \times 0.5) \times 0.3) = 1.275m^2$

$t_{(p75-25)} = 8730s$

Soil Infiltration rate (m/s):

$$\frac{0.1125}{8730 \times 1.275} = 1.01 \times 10^{-5} m/s$$

Soil Infiltration rate (m/hr):

$$1.01 \times 10^{-5} \times 3600 = 3.63 \times 10^{-2}\ m/hr$$

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	Section Test Pit 1				Sheet no./rev. 2	
	Calc. by OG	Date 22/11/2023	Chk'd by	Date	App'd by	Date