

APPENDIX III

Soakaway Calculation Sheets

Test pit dimensions	L	W	D
	2.20	0.80	2.00

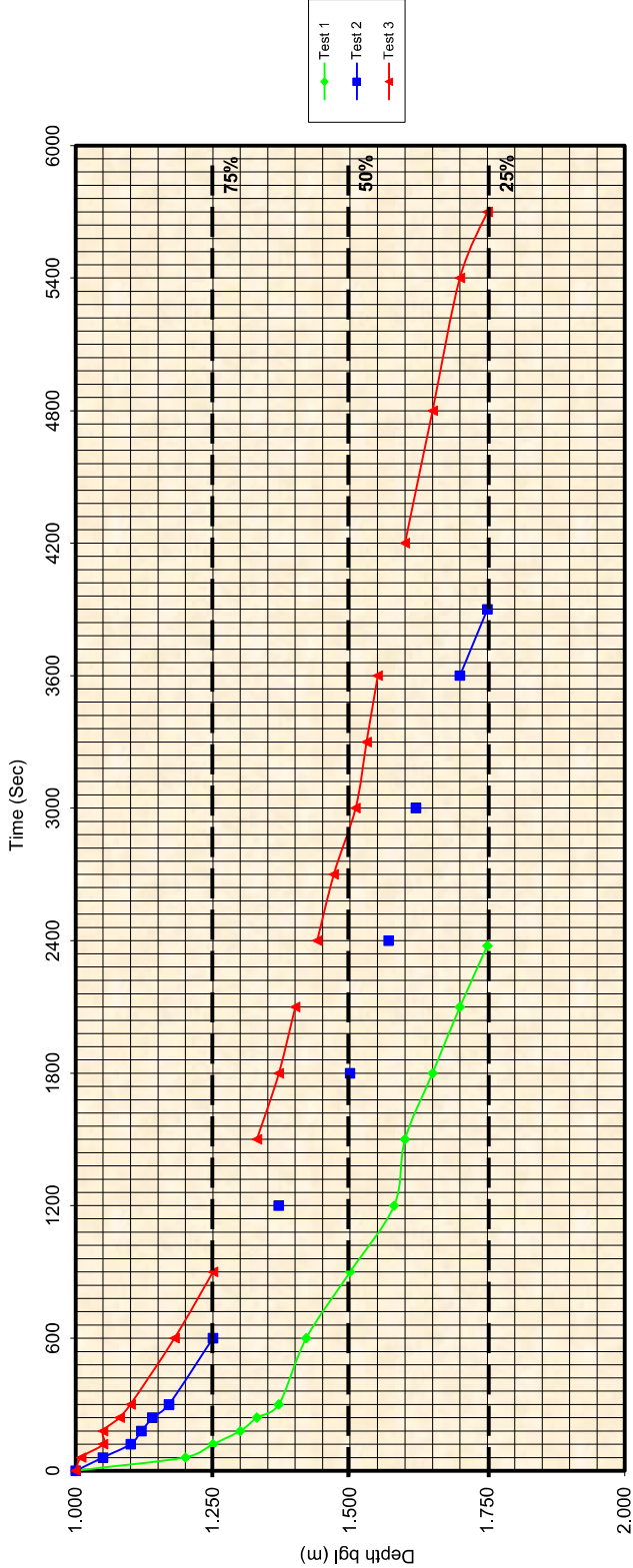
Effective depth (D) from 1.00m to 2.00m = 1.00 m

75% effective depth =	1.25	m	bg
50% effective depth =	1.5	m	bg
25% effective depth =	1.75	m	bg

V_{p75-25} = outflow volume between 75% & 25% effective depth	$V_{p75-25} = 0.8800 \text{ m}^3$
a_{p50} = 50% internal surface area of effective depth including base	$a_{p50} = 4.760 \text{ m}^2$

Time (sec) d_{t0}	Depth bgl (m)		
	Test No.		
	1	2	3
0	1.000	1.000	1.000
60	1.200	1.050	1.010
120	1.250	1.100	1.050
180	1.300	1.120	1.050
240	1.330	1.140	1.080
300	1.370	1.170	1.100
600	1.420	1.250	1.180
900	1.500	1.370	1.250
1200	1.580		
1500	1.600	1.330	
1800	1.650	1.500	1.330
2100	1.700		1.370
2377	1.750		1.400
2400		1.570	1.440
2700			1.470
3000		1.620	1.510
3300			1.530
3600		1.700	1.550
3900		1.750	
4200			1.600
4800			1.650
5400			1.700
5700			1.75

Fig 1: Depth v's Time - Infiltration Rates



OBSERVATIONS:

At the end of each test the trial trench became only part flooded due to the uneven nature of it's base following some side collapse.

Inflow rate estimated at c.0.50m³/min (i.e. c.7.50m³ entering test pit in 15mins)

Test pit difficult to fill any higher than c.1.30m below current ground levels following c.<22mins of inflow.

Soil Infiltration Calculations

t_{p75-25} = time for infiltration (from fig 1)

Soil infiltration rate (f) =

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

f = 8.19E-05 5.60E-05 3.85E-05 ms⁻¹

Average f = 5.88E-05 ms⁻¹

Test 1 Test 2 Test 3

22257 3300 4800 secs

DATE: 31/10/22

Soil Infiltration Rate Calculated as BRE Digest 365: Soakaway Design

Test pit dimesions	L	W	D
	2.10	0.80	2.00

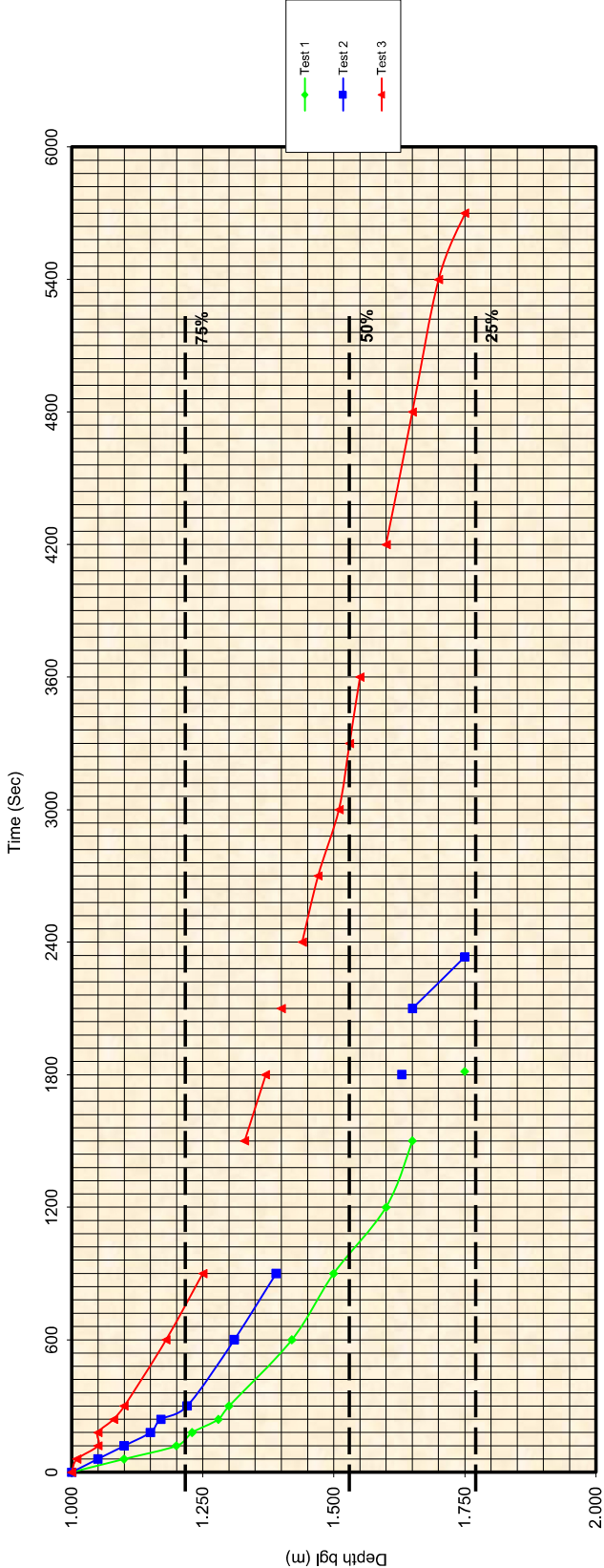
Effective depth (D) from 1.00m to 2.00m = 1.00 m

75% effective depth =	1.25	m	bg
50% effective depth =	1.5	m	bg
25% effective depth =	1.75	m	bg

V_{p75-25} = outflow volume between 75% & 25% effective depth	$V_{p75-25} = 0.8400 \text{ m}^3$
a_{p50} = 50% internal surface area of effective depth including base	$a_{p50} = 4.580 \text{ m}^2$

Time (sec) dt_0	Depth bgl (m)		
	1	2	3
0	1.000	1.000	1.000
60	1.100	1.050	1.010
120	1.200	1.100	1.050
180	1.230	1.150	1.050
240	1.280	1.170	1.080
300	1.300	1.220	1.100
600	1.420	1.310	1.180
900	1.500	1.390	1.250
1200	1.600		
1500	1.650		
1800		1.630	1.330
1815	1.750		1.370
2100		1.650	1.400
2333		1.750	
2400			1.440
2700			1.470
3000			1.510
3300			1.530
3600			1.550
3900			
4200			1.600
4800			1.650
5400			1.700
5700			1.750

Fig 1: Depth v's Time - Infiltration Rates



OBSERVATIONS:

At the end of each test the trial trench became only part flooded due to the uneven nature of it's base following some side collapse.



Soil Infiltration Calculations

Test 1	Test 2	Test 3
t_{p75-25} = time for infiltration (from fig 1)	1632	2023
t_{p75-25} =	1632	4800
Soil infiltration rate (f) =		
$a_{p50} \times t_{p75-25}$		
$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$		
$f = 1.12E-04$	$9.07E-05$	$3.82E-05 \text{ ms}^{-1}$
Average f =	8.04E-05	ms^{-1}