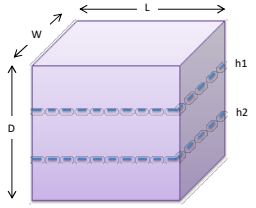
Percolation Test

BRE Digest 365

Site:	5 & 7 Wombwell Road Hoyland Barnsley		
Location:	As Above		
Engineer:	RF	**Date:**	07/06/2017
Start Time:	16:10	**End Time:**	16:40



Trial Pit Details

Width (W):	1.00	m
Length (L):	3.00	m
Depth (D):	2.40	m
Water Start Depth (h1):	2.40	m
Water Finish Depth (h1):	0.60	m
Time Taken (t):	0.50	h
(d):	1.80	m
(γ):	1.5000	m

Infiltration Coefficient (f)

$$\frac{(W \times L \times d)}{(((W \times L) + (2 \times W \times \gamma) + (2 \times L \times \gamma)) \times t)}$$

5.4
7.5

Infiltration Coefficient (f): 0.72000 m/h

Area To Be Drained (A) & Storm Return Period

Area To Be Drained (A): 165.000 m^2

Storm Return Period: 10 years

Formulas

Duration Of Storm		Rainfall Depth	Volume In
	(hours)	*(mm)*	*(m^3)*
5 minutes	0.083	8.928	1.47312
10 minutes	0.167	12.648	2.08692
15 minutes	0.250	15.376	2.53704
30 minutes	0.500	19.592	3.23268
1 hour	1.000	24.800	4.092
2 hours	2.000	30.256	4.99224
4 hours	4.000	36.704	6.05616
6 hours	6.000	41.664	6.87456
10 hours	10.000	47.120	7.7748
24 hours	24.000	60.016	9.90264

Volume Out		Minimum Storage Volume	
Circle (m^3)	*Rectangle (m^3)*	*Circle (m^3)*	*Rectangle (m^3)*
0.215	0.518	1.258	0.955
0.430	1.037	1.657	1.050
0.645	1.555	1.892	0.982
1.289	3.110	1.943	0.122
2.579	6.221	1.513	-2.129
5.157	12.442	-0.165	-7.449
10.314	24.883	-4.258	-18.827
15.472	37.325	-8.597	-30.450
25.786	62.208	-18.011	-54.433
61.887	149.299	-51.984	-139.397

Factor For Rainfall Duration (60 min 5 year)

5	10	15	30	1	2	4	6	10	24
0.36	0.51	0.62	0.79	1.00	1.22	1.48	1.68	1.90	2.42

Rainfall Can Be Taken As 20mm Across All Parts Of The Unitited Kingdom

7.20	10.20	12.40	15.80	20.00	24.40	29.60	33.60	38.00	48.40

Relationship Between Rainfall Of Return Period

	1	2	3	4	5	10	20	50	100
20mm	0.64	0.81	0.90	0.97	1.03	1.24	1.45	1.73	2.03

Return Period Ratio: 1.24

For Circular Soakaway (Concrete Rings)

Soakaway Depth (sd):	1.900	m
Soakaway Radius (sr):	0.600	m
Soakaway Volume (sv):	2.149	m^3
Average Wetted Area (awa):	5.372	m^2

$$a_{sso} = \frac{sd}{2} \times 2 \times \pi \times sr \quad m^2$$

a_{sso} = 3.581 m^2

Minimum Storage Volume = 1.943 m^3

This soakaway is large enough.

$$\text{Time To Drain Away} = \frac{sv}{2 \times f \times awa} \quad h$$

Time To Drain Away = 0.28 h

This is susficiant

For Rectangular Soakaway (Egg Crates & Stone Fill)

Soakaway Depth (sd):	2.400	m
Soakaway Width (sw):	0.600	m
Soakaway Length (sl):	3.000	m
Design Type:	Stone Fill	
Void Ratio:	0.3	%
Soakaway Volume (sv):	1.296	m^3
Average Wetted Area (awa):	12.960	m^2

$$a_{sso} = \frac{sd}{2} \times 2sw + 2sl \quad m^2$$

a_{sso} = 8.640 m^2

Minimum Storage Volume = 1.050 m^3

This soakaway is large enough

$$\text{Time To Drain Away} = \frac{sv}{2 \times f \times awa} \quad h$$

Time To Drain Away = 0.07 h

This is susficiant

Instructions

0.00 — Input cells

0.00 — Calculated cells (do not edit)

Abc
Abc — Information cells