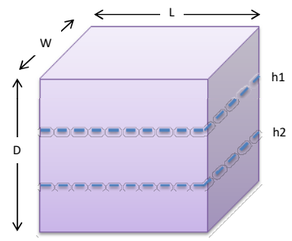
Percolation Test

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):	0.60	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
(y):	1.5000	m

Infiltration Coefficient (f)

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

3.24
6.3

Infiltration Coefficient (f): 0.51429 m/h

Area To Be Drained (A) & Storm Return Period

Area To Be Drained (A): 106.000 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	0.946368
10 minutes	0.167	12.648	1.340688
15 minutes	0.250	15.376	1.629856
30 minutes	0.500	19.592	2.076752
1 hour	1.000	24.800	2.6288
2 hours	2.000	30.256	3.207136
4 hours	4.000	36.704	3.890624
6 hours	6.000	41.664	4.416384
10 hours	10.000	47.120	4.99472
24 hours	24.000	60.016	6.361696

Volume Out		Minimum Storage Volume	
Circle (m^3)	*Rectangle (m^3)*	*Circle (m^3)*	*Rectangle (m^3)*
0.153	0.370	0.793	0.576
0.307	0.741	1.034	0.600
0.460	1.111	1.169	0.519
0.921	2.222	1.156	-0.145
1.842	4.443	0.787	-1.815
3.684	8.887	-0.477	-5.680
7.367	17.774	-3.477	-13.883
11.051	26.661	-6.635	-22.244
18.419	44.434	-13.424	-39.440
44.205	106.642	-37.843	-100.281

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 = 1.169 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 = 0.39 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 = 0.600 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 = 0.10 h

This is susficiant

Instructions

0.00 — Input cells

0.00 — Calculated cells (do not edit)

Abc — Information cells

Abc