

## Attenuation Design

### Design Rainfall

From Wallingford Procedure, Volume 3 - Maps  
Rainfall Depths (M5 - 60minutes)

from BRE Digest 365, fig. 1

Design Storm Return Period,

**CC Allowance = 40 %**

**M5\_60 = 20.0 mm**

**rainfall ratio r = 0.400**

**P = 100 years**

D mins	M5_D	Z2	R = MP_D	Rainfall Intensity
5	7.4 mm	1.848	19.2 mm	230 mm/hr
10	10.6 mm	1.918	28.4 mm	171 mm/hr
15	12.6 mm	1.950	34.4 mm	138 mm/hr
30	16.2 mm	1.999	45.3 mm	91 mm/hr
60	20.0 mm	2.030	56.8 mm	57 mm/hr
120	24.2 mm	2.014	68.2 mm	34 mm/hr
240	28.9 mm	1.979	80.1 mm	20 mm/hr
360	32.0 mm	1.955	87.5 mm	15 mm/hr
600	36.3 mm	1.920	97.5 mm	10 mm/hr
1440	44.9 mm	1.852	116.3 mm	5 mm/hr
5000	60.5 mm	1.742	147.6 mm	2 mm/hr

Infiltration Rate  m/s  
 Impermeable Area  m<sup>2</sup>  
 Width  m  
 Depth  m  
 Min Length (optional)  m

(OR Outlet Flow Rate  l/s )  
 ie  m<sup>3</sup>/hr  
 Gravel Pit or Trench Soakaway  
 Gravel free volume

D	Length req	Inflow	Outflow	Storage	t <sub>s50</sub> (hrs)	Storage Prov
5	20.58	22.1	1.5	20.6	0.57	20.6
10	29.76	32.8	3.0	29.8	0.83	29.8
15	35.11	39.6	4.5	35.1	0.98	35.1
30	43.16	52.2	9.0	43.2	1.20	43.2
60	47.48	65.5	18.0	47.5	1.32	47.5
120	42.55	78.5	36.0	42.5	1.18	42.5
240	20.25	92.3	72.0	20.3	0.56	20.3
360	0.00	100.8	108.0	0.0	0.00	0.0
600	0.00	112.3	180.0	0.0	0.00	0.0
1440	0.00	133.9	432.0	0.0	0.00	0.0
5000	0.00	170.0	1500.0	0.0	0.00	0.0

Time until system can cope with additional influx of 50% design storage volume < 24 hrs ~ OK

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**Minimum Free Volume = 100%**

50 Rounded volume

Actual Volume = 47.5m<sup>3</sup>

(Note that the depth is measured below the inlet pipe invert)