

48 West End
Westbury
Wiltshire BA13 3JG

61-65 Charlotte Street
London W1
Attenuation Tank



Date January 2016
File ATTENUATION + PUMPS.SRCX

Designed by Peter White
Checked by

Micro Drainage

Source Control 2015.1

Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	22.634	1.134	5.0	6.2	O K
30 min Summer	22.670	1.170	5.0	6.6	O K
60 min Summer	22.562	1.062	5.0	5.6	O K
120 min Summer	22.375	0.875	5.0	3.9	O K
180 min Summer	22.188	0.688	5.0	2.2	O K
240 min Summer	22.068	0.568	5.0	1.2	O K
360 min Summer	22.012	0.512	5.0	0.7	O K
480 min Summer	22.004	0.504	5.0	0.6	O K
600 min Summer	22.000	0.500	5.0	0.5	O K
720 min Summer	22.000	0.500	5.0	0.5	O K
960 min Summer	22.000	0.500	5.0	0.5	O K
1440 min Summer	22.000	0.500	5.0	0.5	O K
2160 min Summer	22.000	0.500	5.0	0.5	O K
2880 min Summer	22.000	0.500	5.0	0.5	O K
4320 min Summer	22.000	0.500	5.0	0.5	O K
5760 min Summer	21.999	0.499	0.5	0.5	O K
7200 min Summer	21.998	0.498	0.4	0.5	O K
8640 min Summer	21.999	0.499	0.3	0.5	O K
10080 min Summer	21.999	0.499	0.3	0.5	O K
15 min Winter	22.765	1.265	5.0	7.4	O K
30 min Winter	22.760	1.260	5.0	7.4	O K
60 min Winter	22.651	1.151	5.0	6.4	O K
120 min Winter	22.354	0.854	5.0	3.7	O K
180 min Winter	22.076	0.576	5.0	1.2	O K
240 min Winter	22.010	0.510	5.0	0.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	136.659	0.0	10.5	15
30 min Summer	88.315	0.0	13.8	24
60 min Summer	54.281	0.0	16.8	42
120 min Summer	32.230	0.0	20.4	74
180 min Summer	23.456	0.0	22.2	104
240 min Summer	18.621	0.0	23.4	130
360 min Summer	13.418	0.0	25.8	182
480 min Summer	10.633	0.0	27.0	238
600 min Summer	8.872	0.0	28.3	348
720 min Summer	7.649	0.0	29.6	92
960 min Summer	6.048	0.0	30.8	736
1440 min Summer	4.339	0.0	33.3	1176
2160 min Summer	3.108	0.0	28.3	1036
2880 min Summer	2.451	0.0	25.2	2328
4320 min Summer	1.752	0.0	22.1	1660
5760 min Summer	1.379	0.0	6.8	5224
7200 min Summer	1.145	0.0	6.1	4408
8640 min Summer	0.983	0.0	5.5	360
10080 min Summer	0.864	0.0	5.0	5336
15 min Winter	136.659	0.0	11.7	16
30 min Winter	88.315	0.0	15.3	26
60 min Winter	54.281	0.0	19.2	44
120 min Winter	32.230	0.0	22.8	78
180 min Winter	23.456	0.0	25.2	104
240 min Winter	18.621	0.0	26.4	116

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Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
360 min Winter	22.000	0.500	5.0	0.5	O K
480 min Winter	22.002	0.502	5.0	0.6	O K
600 min Winter	22.000	0.500	5.0	0.5	O K
720 min Winter	22.000	0.500	5.0	0.5	O K
960 min Winter	22.000	0.500	5.0	0.5	O K
1440 min Winter	22.000	0.500	5.0	0.5	O K
2160 min Winter	22.000	0.500	5.0	0.5	O K
2880 min Winter	22.000	0.500	5.0	0.5	O K
4320 min Winter	22.000	0.500	5.0	0.5	O K
5760 min Winter	21.999	0.499	0.4	0.5	O K
7200 min Winter	21.999	0.499	0.3	0.5	O K
8640 min Winter	21.999	0.499	0.2	0.5	O K
10080 min Winter	21.999	0.499	0.2	0.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
360 min Winter	13.418	0.0	28.8	98
480 min Winter	10.633	0.0	30.6	252
600 min Winter	8.872	0.0	31.8	182
720 min Winter	7.649	0.0	33.2	716
960 min Winter	6.048	0.0	35.0	948
1440 min Winter	4.339	0.0	37.6	160
2160 min Winter	3.108	0.0	38.4	224
2880 min Winter	2.451	0.0	29.4	2308
4320 min Winter	1.752	0.0	17.8	1192
5760 min Winter	1.379	0.0	7.4	4680
7200 min Winter	1.145	0.0	6.5	648
8640 min Winter	0.983	0.0	5.7	496
10080 min Winter	0.864	0.0	5.3	1712

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.600	Shortest Storm (mins)	15
Ratio R	0.437	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.038


Time (mins) Area
From: To: (ha)

0 4 0.038

Green Roof

Area (m³) 53 Evaporation (mm/day) 3
Depression Storage (mm) 5 Decay Coefficient 0.050

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0 4	0.000963	32 36	0.000194	64 68	0.000039	96 100	0.000008
4 8	0.000789	36 40	0.000159	68 72	0.000032	100 104	0.000006
8 12	0.000646	40 44	0.000130	72 76	0.000026	104 108	0.000005
12 16	0.000529	44 48	0.000107	76 80	0.000022	108 112	0.000004
16 20	0.000433	48 52	0.000087	80 84	0.000018	112 116	0.000004
20 24	0.000354	52 56	0.000072	84 88	0.000014	116 120	0.000003
24 28	0.000290	56 60	0.000059	88 92	0.000012		
28 32	0.000238	60 64	0.000048	92 96	0.000010		

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Model Details

Storage is Online Cover Level (m) 24.215

Tank or Pond Structure

Invert Level (m) 21.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1.1	0.501	9.0	1.301	1.1	2.300	0.4
0.500	1.1	1.300	9.0	2.200	1.1		

Level Controlled Pump Outflow Control

Invert Level (m) 21.500 Cut In Height (m) 0.500 Cut Out Height (m) 0.150

Depth (m)	Outflow (l/s)	Depth (m)	Outflow (l/s)
0.001	5.0000	10.000	5.0000