

T J Booth Associates		Page 1
104 Yorkshire St Rochdale Lancashire OL16 1JY	sw attenuation design wendy lane vets mason st heywood	
Date jun 2023 File calc-tjba-WLV-mason st-attenuation...	Designed By ds Checked By	
Micro Drainage		Source Control W.10.4

Summary of Results for 30 year Return Period (+40%)

Storm Duration (mins)	Maximum Control (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
15 Summer	3.5	3.5	119.3388	0.2887	3.1	O K
30 Summer	3.7	3.7	119.3743	0.3242	3.4	O K
60 Summer	3.7	3.7	119.3648	0.3147	3.3	O K
120 Summer	3.4	3.4	119.3098	0.2597	2.8	O K
180 Summer	3.0	3.0	119.2598	0.2097	2.2	O K
240 Summer	2.8	2.8	119.2213	0.1712	1.8	O K
360 Summer	2.4	2.4	119.1678	0.1178	1.3	O K
480 Summer	2.1	2.1	119.1348	0.0848	0.9	O K
600 Summer	1.8	1.8	119.1123	0.0623	0.7	O K
720 Summer	1.7	1.7	119.0973	0.0473	0.5	O K
960 Summer	1.4	1.4	119.0783	0.0282	0.3	O K
1440 Summer	1.1	1.1	119.0643	0.0143	0.1	O K
2160 Summer	0.8	0.8	119.0533	0.0033	0.0	O K
2880 Summer	0.6	0.6	119.0500	0.0000	0.0	O K
4320 Summer	0.5	0.5	119.0500	0.0000	0.0	O K
5760 Summer	0.4	0.4	119.0500	0.0000	0.0	O K
7200 Summer	0.3	0.3	119.0500	0.0000	0.0	O K
8640 Summer	0.3	0.3	119.0500	0.0000	0.0	O K
10080 Summer	0.3	0.3	119.0500	0.0000	0.0	O K
15 Winter	3.7	3.7	119.3792	0.3292	3.5	O K
30 Winter	3.9	3.9	119.4112	0.3612	3.8	FLOOD RISK
60 Winter	3.8	3.8	119.3808	0.3307	3.5	O K
120 Winter	3.3	3.3	119.2928	0.2427	2.6	O K
180 Winter	2.8	2.8	119.2258	0.1757	1.9	O K
240 Winter	2.5	2.5	119.1798	0.1298	1.4	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	68.99	13
30 Summer	47.08	22
60 Summer	30.81	38
120 Summer	19.53	70
180 Summer	14.75	102
240 Summer	12.05	132
360 Summer	9.05	192
480 Summer	7.38	252
600 Summer	6.29	312
720 Summer	5.52	370
960 Summer	4.49	490
1440 Summer	3.35	734
2160 Summer	2.49	1100
2880 Summer	2.02	0
4320 Summer	1.50	0
5760 Summer	1.21	0
7200 Summer	1.03	0
8640 Summer	0.90	0
10080 Summer	0.81	0
15 Winter	68.99	14
30 Winter	47.08	23
60 Winter	30.81	42
120 Winter	19.53	74
180 Winter	14.75	106
240 Winter	12.05	136

T J Booth Associates		Page 2
104 Yorkshire St Rochdale Lancashire OL16 1JY	sw attenuation design wendy lane vets mason st heywood	
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Storm Duration (mins)	Maximum Control (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
360 Winter	2.0	2.0	119.1258	0.0758	0.8	O K
480 Winter	1.7	1.7	119.0968	0.0467	0.5	O K
600 Winter	1.4	1.4	119.0798	0.0297	0.3	O K
720 Winter	1.3	1.3	119.0723	0.0222	0.2	O K
960 Winter	1.0	1.0	119.0633	0.0133	0.1	O K
1440 Winter	0.8	0.8	119.0523	0.0023	0.0	O K
2160 Winter	0.6	0.6	119.0500	0.0000	0.0	O K
2880 Winter	0.5	0.5	119.0500	0.0000	0.0	O K
4320 Winter	0.3	0.3	119.0500	0.0000	0.0	O K
5760 Winter	0.3	0.3	119.0500	0.0000	0.0	O K
7200 Winter	0.2	0.2	119.0500	0.0000	0.0	O K
8640 Winter	0.2	0.2	119.0500	0.0000	0.0	O K
10080 Winter	0.2	0.2	119.0500	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	9.05	194
480 Winter	7.38	252
600 Winter	6.29	308
720 Winter	5.52	368
960 Winter	4.49	488
1440 Winter	3.35	734
2160 Winter	2.49	0
2880 Winter	2.02	0
4320 Winter	1.50	0
5760 Winter	1.21	0
7200 Winter	1.03	0
8640 Winter	0.90	0
10080 Winter	0.81	0

T J Booth Associates		Page 3
104 Yorkshire St Rochdale Lancashire OL16 1JY	sw attenuation design wendy lane vets mason st heywood	
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Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	30	Longest Storm (mins)	10080
M5-60 (mm)	20.000	Summer Storms	Yes
Ratio-R	0.300	Winter Storms	Yes
Cv (Summer)	0.750	Climate Change %	+40
Cv (Winter)	0.840		

Time / Area Diagram

Total Area (ha) = 0.028

Time	(mins)	Area
from:	to:	(ha)
0	4	0.028

Tank/Pond Details

Invert Level (m) 119.050 Ground Level (m) 119.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.00	10.6	0.50	10.6	1.00	10.6	1.50	10.6	2.00	10.6	2.50	10.6
0.10	10.6	0.60	10.6	1.10	10.6	1.60	10.6	2.10	10.6		
0.20	10.6	0.70	10.6	1.20	10.6	1.70	10.6	2.20	10.6		
0.30	10.6	0.80	10.6	1.30	10.6	1.80	10.6	2.30	10.6		
0.40	10.6	0.90	10.6	1.40	10.6	1.90	10.6	2.40	10.6		

Orifice Outflow Control

Diameter (m) 0.055 Invert Level (m) 119.000

Discharge Coefficient 0.600