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104 Yorkshire St Rochdale Lancashire OL16 1JY	attenuation pond morris 1 wildhouse ct milnrow	
Date nov 2025 - rev0 File calc-tjba-morris-1 wildhouse ct-pon...	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	3.6	3.6	174.0753	0.2752	8.7	O K
30 Summer	3.9	3.9	174.1223	0.3222	10.5	O K
60 Summer	4.1	4.1	174.1503	0.3502	11.6	O K
120 Summer	4.1	4.1	174.1483	0.3482	11.5	O K
180 Summer	4.0	4.0	174.1283	0.3282	10.7	O K
240 Summer	3.8	3.8	174.1062	0.3062	9.8	O K
360 Summer	3.5	3.5	174.0668	0.2667	8.3	O K
480 Summer	3.3	3.3	174.0343	0.2342	7.1	O K
600 Summer	3.1	3.1	174.0072	0.2072	6.2	O K
720 Summer	2.9	2.9	173.9853	0.1852	5.5	O K
960 Summer	2.5	2.5	173.9518	0.1518	4.4	O K
1440 Summer	2.1	2.1	173.9113	0.1113	3.1	O K
2160 Summer	1.7	1.7	173.8838	0.0838	2.3	O K
2880 Summer	1.4	1.4	173.8728	0.0727	1.9	O K
4320 Summer	1.0	1.0	173.8603	0.0602	1.6	O K
5760 Summer	0.8	0.8	173.8528	0.0527	1.4	O K
7200 Summer	0.7	0.7	173.8483	0.0482	1.3	O K
8640 Summer	0.6	0.6	173.8438	0.0437	1.1	O K
10080 Summer	0.6	0.6	173.8408	0.0407	1.1	O K
15 Winter	3.8	3.8	174.1048	0.3047	9.8	O K
30 Winter	4.1	4.1	174.1563	0.3562	11.9	O K
60 Winter	4.3	4.3	174.1823	0.3822	13.0	O K
120 Winter	4.2	4.2	174.1678	0.3677	12.4	O K
180 Winter	4.0	4.0	174.1342	0.3342	11.0	O K
240 Winter	3.8	3.8	174.1013	0.3012	9.6	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	68.99	16
30 Summer	47.08	26
60 Summer	30.81	42
120 Summer	19.53	78
180 Summer	14.75	110
240 Summer	12.05	144
360 Summer	9.05	206
480 Summer	7.38	266
600 Summer	6.29	326
720 Summer	5.52	386
960 Summer	4.49	504
1440 Summer	3.35	740
2160 Summer	2.49	1100
2880 Summer	2.02	1468
4320 Summer	1.50	2192
5760 Summer	1.21	2936
7200 Summer	1.03	3608
8640 Summer	0.90	4296
10080 Summer	0.81	5096
15 Winter	68.99	16
30 Winter	47.08	27
60 Winter	30.81	46
120 Winter	19.53	82
180 Winter	14.75	118
240 Winter	12.05	150

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360 Winter	3.4	3.4	174.0453	0.2452	7.5	O K
480 Winter	3.0	3.0	174.0023	0.2022	6.0	O K
600 Winter	2.7	2.7	173.9702	0.1702	5.0	O K
720 Winter	2.5	2.5	173.9458	0.1458	4.2	O K
960 Winter	2.1	2.1	173.9133	0.1133	3.1	O K
1440 Winter	1.6	1.6	173.8822	0.0823	2.2	O K
2160 Winter	1.2	1.2	173.8672	0.0673	1.8	O K
2880 Winter	1.0	1.0	173.8593	0.0592	1.6	O K
4320 Winter	0.7	0.7	173.8497	0.0497	1.3	O K
5760 Winter	0.6	0.6	173.8428	0.0427	1.1	O K
7200 Winter	0.5	0.5	173.8383	0.0382	1.0	O K
8640 Winter	0.4	0.4	173.8353	0.0352	0.9	O K
10080 Winter	0.4	0.4	173.8333	0.0332	0.9	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	9.05	214
480 Winter	7.38	276
600 Winter	6.29	334
720 Winter	5.52	394
960 Winter	4.49	510
1440 Winter	3.35	736
2160 Winter	2.49	1104
2880 Winter	2.02	1452
4320 Winter	1.50	2200
5760 Winter	1.21	2936
7200 Winter	1.03	3584
8640 Winter	0.90	4272
10080 Winter	0.81	4976

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) = 0.059

Time	(mins)	Area
from:	to:	(ha)
0	4	0.059

Tank/Pond Details

Invert Level (m) 173.800 Ground Level (m) 174.500

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	25.0	0.50	50.0	1.00	50.0	1.50	50.0	2.00	50.0	2.50	50.0
0.10	30.0	0.60	50.0	1.10	50.0	1.60	50.0	2.10	50.0		
0.20	34.0	0.70	50.0	1.20	50.0	1.70	50.0	2.20	50.0		
0.30	39.0	0.80	50.0	1.30	50.0	1.80	50.0	2.30	50.0		
0.40	44.0	0.90	50.0	1.40	50.0	1.90	50.0	2.40	50.0		

Orifice Outflow Control

Diameter (m)0.060
Invert Level (m)173.800

Discharge Coefficient0.580