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104 Yorkshire St Rochdale Lancashire OL16 1JY	rear site attenuation GB Services Riverside Business Park	
Date jan 2025 rev0 File CALC-T~1.SRC	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 (1/s)	Maximum Outflow (1/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
15 Summer	5.0	5.0	144.6117	0.1617	20.4	O K
30 Summer	5.0	5.0	144.6722	0.2222	28.1	O K
60 Summer	5.0	5.0	144.7312	0.2812	35.6	O K
120 Summer	5.0	5.0	144.7767	0.3267	41.3	O K
180 Summer	5.0	5.0	144.7902	0.3402	43.1	O K
240 Summer	5.0	5.0	144.7952	0.3452	43.7	O K
360 Summer	5.0	5.0	144.7912	0.3412	43.2	O K
480 Summer	5.0	5.0	144.7793	0.3292	41.6	O K
600 Summer	5.0	5.0	144.7627	0.3127	39.5	O K
720 Summer	5.0	5.0	144.7442	0.2942	37.2	O K
960 Summer	5.0	5.0	144.7052	0.2552	32.3	O K
1440 Summer	5.0	5.0	144.6367	0.1867	23.6	O K
2160 Summer	4.7	4.7	144.5762	0.1263	15.9	O K
2880 Summer	4.3	4.3	144.5392	0.0893	11.3	O K
4320 Summer	3.8	3.8	144.4993	0.0492	6.2	O K
5760 Summer	3.2	3.2	144.4847	0.0347	4.4	O K
7200 Summer	2.8	2.8	144.4747	0.0247	3.1	O K
8640 Summer	2.6	2.6	144.4672	0.0173	2.2	O K
10080 Summer	2.3	2.3	144.4612	0.0113	1.4	O K
15 Winter	5.0	5.0	144.6342	0.1842	23.3	O K
30 Winter	5.0	5.0	144.7057	0.2557	32.4	O K
60 Winter	5.0	5.0	144.7793	0.3292	41.6	O K
120 Winter	5.0	5.0	144.8322	0.3822	48.3	O K
180 Winter	5.0	5.0	144.8467	0.3967	50.2	O K
240 Winter	5.0	5.0	144.8487	0.3987	50.4	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	60.15	17
30 Summer	43.86	31
60 Summer	30.81	58
120 Summer	20.86	94
180 Summer	16.34	130
240 Summer	13.72	166
360 Summer	10.69	236
480 Summer	8.93	304
600 Summer	7.76	372
720 Summer	6.92	436
960 Summer	5.76	562
1440 Summer	4.44	806
2160 Summer	3.43	1148
2880 Summer	2.85	1504
4320 Summer	2.21	2204
5760 Summer	1.86	2936
7200 Summer	1.63	3672
8640 Summer	1.46	4400
10080 Summer	1.33	5136
15 Winter	60.15	17
30 Winter	43.86	31
60 Winter	30.81	60
120 Winter	20.86	110
180 Winter	16.34	140
240 Winter	13.72	180

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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
360 Winter	5.0	5.0	144.8332	0.3832	48.5	O K
480 Winter	5.0	5.0	144.8052	0.3552	44.9	O K
600 Winter	5.0	5.0	144.7717	0.3217	40.7	O K
720 Winter	5.0	5.0	144.7372	0.2872	36.3	O K
960 Winter	5.0	5.0	144.6718	0.2217	28.1	O K
1440 Winter	4.8	4.8	144.5847	0.1348	17.1	O K
2160 Winter	4.1	4.1	144.5222	0.0723	9.1	O K
2880 Winter	3.6	3.6	144.4942	0.0442	5.6	O K
4320 Winter	2.8	2.8	144.4737	0.0237	3.0	O K
5760 Winter	2.4	2.4	144.4622	0.0123	1.5	O K
7200 Winter	2.1	2.1	144.4543	0.0043	0.6	O K
8640 Winter	1.9	1.9	144.4500	0.0000	0.0	O K
10080 Winter	1.7	1.7	144.4500	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	10.69	258
480 Winter	8.93	332
600 Winter	7.76	402
720 Winter	6.92	468
960 Winter	5.76	588
1440 Winter	4.44	820
2160 Winter	3.43	1168
2880 Winter	2.85	1496
4320 Winter	2.21	2204
5760 Winter	1.86	2928
7200 Winter	1.63	3672
8640 Winter	1.46	0
10080 Winter	1.33	0

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	0.200	Winter Storms	Yes
Cv (Summer)	0.750	Climate Change %	+40
Cv (Winter)	0.840		

Time / Area Diagram

Total Area (ha) = 0.154

Time	(mins)	Area
from:	to:	(ha)
0	4	0.154

Tank/Pond Details

Invert Level (m) 144.450 Ground Level (m) 145.700

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	126.5	0.60	126.5	1.20	126.5	1.80	126.5	2.40	126.5
0.10	126.5	0.70	126.5	1.30	126.5	1.90	126.5	2.50	126.5
0.20	126.5	0.80	126.5	1.40	126.5	2.00	126.5		
0.30	126.5	0.90	126.5	1.50	126.5	2.10	126.5		
0.40	126.5	1.00	126.5	1.60	126.5	2.20	126.5		
0.50	126.5	1.10	126.5	1.70	126.5	2.30	126.5		

Depth / Flow Outflow Control

Invert Level of Control 144.400

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.10	3.8	0.80	5.4	2.00	8.5	4.00	12.0	7.00	15.9
0.20	5.0	1.00	6.0	2.20	8.9	4.50	12.8	7.50	16.5
0.30	4.9	1.20	6.6	2.40	9.3	5.00	13.5	8.00	17.0
0.40	4.6	1.40	7.1	2.60	9.7	5.50	14.1	8.50	17.6
0.50	4.4	1.60	7.6	3.00	10.4	6.00	14.8	9.00	18.1
0.60	4.8	1.80	8.1	3.50	11.3	6.50	15.4	9.50	18.6