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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 100 year Return Period (+45%)

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	5.0	5.0	144.6738	0.2237	28.3	O K
30 Summer	5.0	5.0	144.7687	0.3187	40.3	O K
60 Summer	5.0	5.0	144.8712	0.4212	53.3	O K
120 Summer	5.0	5.0	144.9477	0.4977	63.0	O K
180 Summer	5.0	5.0	144.9682	0.5182	65.6	O K
240 Summer	5.0	5.0	144.9777	0.5277	66.8	O K
360 Summer	5.0	5.0	144.9792	0.5292	66.9	O K
480 Summer	5.0	5.0	144.9688	0.5187	65.7	O K
600 Summer	5.0	5.0	144.9537	0.5037	63.7	O K
720 Summer	5.0	5.0	144.9352	0.4852	61.4	O K
960 Summer	5.0	5.0	144.8902	0.4402	55.7	O K
1440 Summer	5.0	5.0	144.7892	0.3392	42.9	O K
2160 Summer	5.0	5.0	144.6687	0.2187	27.7	O K
2880 Summer	5.0	5.0	144.5977	0.1478	18.7	O K
4320 Summer	4.2	4.2	144.5342	0.0843	10.7	O K
5760 Summer	3.8	3.8	144.5017	0.0517	6.5	O K
7200 Summer	3.4	3.4	144.4892	0.0392	4.9	O K
8640 Summer	3.0	3.0	144.4802	0.0302	3.8	O K
10080 Summer	2.8	2.8	144.4733	0.0232	2.9	O K
15 Winter	5.0	5.0	144.7042	0.2542	32.1	O K
30 Winter	5.0	5.0	144.8147	0.3647	46.1	O K
60 Winter	5.0	5.0	144.9362	0.4862	61.5	O K
120 Winter	5.0	5.0	145.0293	0.5792	73.3	O K
180 Winter	5.0	5.0	145.0508	0.6008	76.0	O K
240 Winter	5.0	5.0	145.0607	0.6108	77.3	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	77.42	17
30 Summer	57.20	32
60 Summer	40.51	62
120 Summer	27.31	112
180 Summer	21.16	144
240 Summer	17.64	176
360 Summer	13.58	248
480 Summer	11.25	318
600 Summer	9.70	386
720 Summer	8.59	456
960 Summer	7.07	596
1440 Summer	5.36	850
2160 Summer	4.07	1192
2880 Summer	3.36	1528
4320 Summer	2.57	2248
5760 Summer	2.15	2936
7200 Summer	1.88	3672
8640 Summer	1.68	4400
10080 Summer	1.53	5136
15 Winter	77.42	17
30 Winter	57.20	32
60 Winter	40.51	60
120 Winter	27.31	116
180 Winter	21.16	152
240 Winter	17.64	188

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360 Winter	5.0	5.0	145.0553	0.6053	76.5	O K
480 Winter	5.0	5.0	145.0322	0.5823	73.7	O K
600 Winter	5.0	5.0	145.0027	0.5527	69.9	O K
720 Winter	5.0	5.0	144.9692	0.5192	65.7	O K
960 Winter	5.0	5.0	144.8932	0.4432	56.1	O K
1440 Winter	5.0	5.0	144.7233	0.2732	34.6	O K
2160 Winter	4.8	4.8	144.5858	0.1358	17.2	O K
2880 Winter	4.2	4.2	144.5313	0.0813	10.3	O K
4320 Winter	3.4	3.4	144.4888	0.0387	4.9	O K
5760 Winter	2.8	2.8	144.4742	0.0242	3.1	O K
7200 Winter	2.5	2.5	144.4648	0.0148	1.9	O K
8640 Winter	2.2	2.2	144.4583	0.0083	1.0	O K
10080 Winter	2.0	2.0	144.4527	0.0028	0.4	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	13.58	266
480 Winter	11.25	344
600 Winter	9.70	420
720 Winter	8.59	494
960 Winter	7.07	642
1440 Winter	5.36	880
2160 Winter	4.07	1192
2880 Winter	3.36	1552
4320 Winter	2.57	2204
5760 Winter	2.15	2936
7200 Winter	1.88	3672
8640 Winter	1.68	4376
10080 Winter	1.53	5144

Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	100	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 %	+45
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