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104 Yorkshire St Rochdale Lancashire OL16 1JY	soakaway calc full site soakaway crates baxter - buxton st	
Date Jan 2023 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 (+40%)

Half Drain Time : 608 minutes

Storm Duration (mins)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
15 Summer	0.9	0.9	119.8517	0.3517	24.1	O K
30 Summer	0.9	0.9	119.9847	0.4847	33.2	O K
60 Summer	1.0	1.0	120.1283	0.6283	43.0	O K
120 Summer	1.0	1.0	120.2643	0.7643	52.3	O K
180 Summer	1.0	1.0	120.3278	0.8278	56.6	O K
240 Summer	1.0	1.0	120.3648	0.8648	59.2	O K
360 Summer	1.0	1.0	120.3988	0.8988	61.5	O K
480 Summer	1.0	1.0	120.4038	0.9038	61.8	O K
600 Summer	1.0	1.0	120.4018	0.9018	61.7	O K
720 Summer	1.0	1.0	120.3948	0.8948	61.2	O K
960 Summer	1.0	1.0	120.3763	0.8763	59.9	O K
1440 Summer	1.0	1.0	120.3443	0.8443	57.7	O K
2160 Summer	1.0	1.0	120.2753	0.7753	53.0	O K
2880 Summer	1.0	1.0	120.2063	0.7063	48.3	O K
4320 Summer	0.9	0.9	120.0788	0.5788	39.6	O K
5760 Summer	0.9	0.9	119.9677	0.4677	32.0	O K
7200 Summer	0.9	0.9	119.8727	0.3727	25.5	O K
8640 Summer	0.9	0.9	119.7927	0.2927	20.0	O K
10080 Summer	0.8	0.8	119.7267	0.2267	15.5	O K
15 Winter	0.9	0.9	119.8947	0.3947	27.0	O K
30 Winter	0.9	0.9	120.0462	0.5462	37.4	O K
60 Winter	1.0	1.0	120.2103	0.7103	48.6	O K
120 Winter	1.0	1.0	120.3693	0.8693	59.5	O K
180 Winter	1.1	1.1	120.4443	0.9443	64.6	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	89.23	19
30 Summer	61.54	33
60 Summer	40.51	64
120 Summer	25.63	122
180 Summer	19.23	182
240 Summer	15.63	242
360 Summer	11.65	360
480 Summer	9.44	458
600 Summer	8.01	510
720 Summer	7.00	572
960 Summer	5.65	702
1440 Summer	4.17	982
2160 Summer	3.07	1388
2880 Summer	2.46	1796
4320 Summer	1.81	2596
5760 Summer	1.45	3344
7200 Summer	1.23	4104
8640 Summer	1.07	4840
10080 Summer	0.95	5512
15 Winter	89.23	19
30 Winter	61.54	33
60 Winter	40.51	62
120 Winter	25.63	120
180 Winter	19.23	178

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Summary of Results for 100 year Return Period (+40%)

Storm Duration (mins)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
240 Winter	1.1	1.1	120.4893	0.9893	67.7	O K
360 Winter	1.1	1.1	120.5398	1.0398	71.1	O K
480 Winter	1.1	1.1	120.5563	1.0563	72.2	O K
600 Winter	1.1	1.1	120.5553	1.0553	72.2	O K
720 Winter	1.1	1.1	120.5548	1.0548	72.2	O K
960 Winter	1.1	1.1	120.5323	1.0323	70.6	O K
1440 Winter	1.1	1.1	120.4693	0.9693	66.3	O K
2160 Winter	1.0	1.0	120.3628	0.8628	59.0	O K
2880 Winter	1.0	1.0	120.2563	0.7563	51.7	O K
4320 Winter	0.9	0.9	120.0642	0.5643	38.6	O K
5760 Winter	0.9	0.9	119.9037	0.4037	27.6	O K
7200 Winter	0.8	0.8	119.7728	0.2727	18.7	O K
8640 Winter	0.8	0.8	119.6687	0.1687	11.5	O K
10080 Winter	0.8	0.8	119.5922	0.0923	6.3	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
240 Winter	15.63	236
360 Winter	11.65	350
480 Winter	9.44	460
600 Winter	8.01	566
720 Winter	7.00	658
960 Winter	5.65	746
1440 Winter	4.17	1056
2160 Winter	3.07	1512
2880 Winter	2.46	1936
4320 Winter	1.81	2768
5760 Winter	1.45	3528
7200 Winter	1.23	4256
8640 Winter	1.07	4928
10080 Winter	0.95	5552

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

Pipe Network

Volume in Pipe Network (m ³)	1	Dia of Outfall Pipe (m)	0.100
Slope of Outfall Pipe (1:x)	100.0	Roughness of Outfall Pipe	0.600

Time / Area Diagram

Total Area (ha) = 0.110

Time	(mins)	Area
from:	to:	(ha)
0	4	0.110

Cellular Storage Details

Infil Coef - Base (m/hr) 0.076149 Porosity 0.95
Infil Coef - Sides (m/hr) 0.076149 Invert Level (m) 119.500
Safety Factor 2.0 Ground Level (m) 121.800

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	72.0	0.50	72.0	1.00	72.0	1.50	72.0	2.00	72.0	2.50	72.0
0.10	72.0	0.60	72.0	1.10	72.0	1.60	72.0	2.10	72.0		
0.20	72.0	0.70	72.0	1.20	72.0	1.70	72.0	2.20	72.0		
0.30	72.0	0.80	72.0	1.30	72.0	1.80	72.0	2.30	72.0		
0.40	72.0	0.90	72.0	1.40	72.0	1.90	72.0	2.40	72.0		