

T J Booth Associates		Page 1
104 Yorkshire St Rochdale Lancashire OL16 1JY	atten' tank 1yr units 13-18 hallmark-dexine-rochdale	
Date Nov 2021 - revision1 File CALC-T~1.SRC	Designed By ds Checked By	
Micro Drainage		Source Control W.10.4

Summary of Results for 1 year Return Period

Storm Duration (mins)	Maximum Control (l/s)	Maximum Overflow (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Overflow Volume (m ³)	Maximum Volume (m ³)	Status
15 Summer	12.9	0.0	12.9	125.0732	0.1732	0.0	26.0	O K
30 Summer	19.2	0.0	19.2	125.1423	0.2422	0.0	36.3	O K
60 Summer	22.2	0.0	22.2	125.1982	0.2982	0.0	44.7	O K
120 Summer	23.3	0.0	23.3	125.2217	0.3217	0.0	48.2	O K
180 Summer	23.1	0.0	23.1	125.2168	0.3167	0.0	47.5	O K
240 Summer	22.3	0.0	22.3	125.2008	0.3007	0.0	45.1	O K
360 Summer	20.6	0.0	20.6	125.1667	0.2667	0.0	40.0	O K
480 Summer	19.1	0.0	19.1	125.1397	0.2397	0.0	36.0	O K
600 Summer	17.9	0.0	17.9	125.1203	0.2202	0.0	33.0	O K
720 Summer	16.6	0.0	16.6	125.1063	0.2062	0.0	31.0	O K
960 Summer	14.4	0.0	14.4	125.0868	0.1867	0.0	28.0	O K
1440 Summer	11.6	0.0	11.6	125.0612	0.1613	0.0	24.2	O K
2160 Summer	9.2	0.0	9.2	125.0393	0.1393	0.0	20.9	O K
2880 Summer	7.7	0.0	7.7	125.0253	0.1253	0.0	18.8	O K
4320 Summer	5.9	0.0	5.9	125.0052	0.1053	0.0	15.8	O K
5760 Summer	5.0	0.0	5.0	124.9933	0.0933	0.0	14.0	O K
7200 Summer	4.3	0.0	4.3	124.9857	0.0858	0.0	12.8	O K
8640 Summer	3.9	0.0	3.9	124.9813	0.0813	0.0	12.2	O K
10080 Summer	3.4	0.0	3.4	124.9772	0.0773	0.0	11.6	O K
15 Winter	17.7	0.0	17.7	125.1178	0.2177	0.0	32.7	O K
30 Winter	21.0	0.0	21.0	125.1748	0.2747	0.0	41.2	O K
60 Winter	23.5	0.0	23.5	125.2257	0.3257	0.0	48.8	O K
120 Winter	23.9	0.0	23.9	125.2332	0.3332	0.0	50.0	O K
180 Winter	22.8	0.0	22.8	125.2097	0.3097	0.0	46.4	O K
240 Winter	21.4	0.0	21.4	125.1817	0.2817	0.0	42.3	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	28.17	16
30 Summer	19.18	24
60 Summer	12.80	42
120 Summer	8.41	74
180 Summer	6.56	106
240 Summer	5.47	138
360 Summer	4.21	198
480 Summer	3.50	258
600 Summer	3.03	318
720 Summer	2.70	376
960 Summer	2.25	498
1440 Summer	1.73	736
2160 Summer	1.33	1104
2880 Summer	1.11	1468
4320 Summer	0.85	2212
5760 Summer	0.71	2944
7200 Summer	0.61	3648
8640 Summer	0.54	4384
10080 Summer	0.49	5112
15 Winter	28.17	16
30 Winter	19.18	26
60 Winter	12.80	44
120 Winter	8.41	80
180 Winter	6.56	112
240 Winter	5.47	144

T J Booth Associates		Page 2
104 Yorkshire St Rochdale Lancashire OL16 1JY	atten' tank 1yr units 13-18 hallmark-dexine-rochdale	
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Summary of Results for 1 year Return Period

Storm Duration (mins)	Maximum Control (l/s)	Maximum Overflow (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Overflow Volume (m ³)	Maximum Volume (m ³)	Status
360 Winter	18.8	0.0	18.8	125.1353	0.2352	0.0	35.3	O K
480 Winter	16.7	0.0	16.7	125.1068	0.2067	0.0	31.0	O K
600 Winter	14.8	0.0	14.8	125.0898	0.1897	0.0	28.5	O K
720 Winter	13.3	0.0	13.3	125.0768	0.1767	0.0	26.5	O K
960 Winter	11.2	0.0	11.2	125.0583	0.1583	0.0	23.7	O K
1440 Winter	8.7	0.0	8.7	125.0353	0.1353	0.0	20.3	O K
2160 Winter	6.7	0.0	6.7	125.0153	0.1153	0.0	17.3	O K
2880 Winter	5.6	0.0	5.6	125.0018	0.1018	0.0	15.2	O K
4320 Winter	4.4	0.0	4.4	124.9863	0.0863	0.0	12.9	O K
5760 Winter	3.6	0.0	3.6	124.9788	0.0788	0.0	11.8	O K
7200 Winter	3.1	0.0	3.1	124.9743	0.0743	0.0	11.1	O K
8640 Winter	2.8	0.0	2.8	124.9707	0.0708	0.0	10.6	O K
10080 Winter	2.5	0.0	2.5	124.9673	0.0673	0.0	10.1	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	4.21	204
480 Winter	3.50	262
600 Winter	3.03	320
720 Winter	2.70	382
960 Winter	2.25	500
1440 Winter	1.73	740
2160 Winter	1.33	1124
2880 Winter	1.11	1488
4320 Winter	0.85	2200
5760 Winter	0.71	2944
7200 Winter	0.61	3608
8640 Winter	0.54	4336
10080 Winter	0.49	5048

T J Booth Associates		Page 3
104 Yorkshire St Rochdale Lancashire OL16 1JY	atten' tank 1yr units 13-18 hallmark-dexine-rochdale	
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Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	1	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 %	+0
Cv (Winter)	0.840		

Pipe Network

Volume in Pipe Network (m ³)	10	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) = 0.867

Time	(mins)	Area
from:	to:	(ha)
0	4	0.867

T J Booth Associates		Page 4
104 Yorkshire St Rochdale Lancashire OL16 1JY	atten' tank 1yr units 13-18 hallmark-dexine-rochdale	
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Tank/Pond Details

Invert Level (m) 124.900 Ground Level (m) 126.500

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)
0.00	150.0	0.60	150.0	1.20	150.0	1.80	150.0	2.40	150.0
0.10	150.0	0.70	150.0	1.30	150.0	1.90	150.0	2.50	150.0
0.20	150.0	0.80	150.0	1.40	150.0	2.00	150.0		
0.30	150.0	0.90	150.0	1.50	150.0	2.10	150.0		
0.40	150.0	1.00	150.0	1.60	150.0	2.20	150.0		
0.50	150.0	1.10	150.0	1.70	150.0	2.30	150.0		

Pipe Outflow Control

Pipe Diameter (m) 0.150 Entry Loss Coef 0.500
Slope (1:x) 48.0 Coef of Contraction 0.600
Length (m) 8.500 Invert Level (m) 124.900
Roughness (mm) 0.600

Pipe Overflow Control

Pipe Diameter (m) 0.150 Entry Loss Coef 0.500
Slope (1:x) 48.0 Coef of Contraction 0.600
Length (m) 8.500 Invert Level (m) 126.500
Roughness (mm) 0.600