

T J Booth Associates		Page 1
104 Yorkshire St Rochdale Lancashire OL16 1JY	1800 SW soakaway khan - kings road rochdale	
Date dec 2023 File CALC-T~2.SRC	Designed By ds Checked By	
Micro Drainage	Source Control W.10.4	

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 196 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	0.7	0.7	147.8003	0.8003	9.1	O K
30 Summer	0.8	0.8	148.1283	1.1283	12.9	O K
60 Summer	1.0	1.0	148.4302	1.4302	16.3	O K
120 Summer	1.0	1.0	148.6552	1.6552	18.9	O K
180 Summer	1.1	1.1	148.6947	1.6947	19.3	O K
240 Summer	1.1	1.1	148.7157	1.7157	19.6	O K
360 Summer	1.1	1.1	148.7757	1.7757	20.2	O K
480 Summer	1.1	1.1	148.7372	1.7372	19.8	O K
600 Summer	1.1	1.1	148.6887	1.6887	19.2	O K
720 Summer	1.0	1.0	148.6382	1.6382	18.7	O K
960 Summer	1.0	1.0	148.5397	1.5397	17.5	O K
1440 Summer	0.9	0.9	148.3568	1.3567	15.5	O K
2160 Summer	0.8	0.8	148.1228	1.1228	12.8	O K
2880 Summer	0.8	0.8	147.9308	0.9308	10.6	O K
4320 Summer	0.7	0.7	147.6463	0.6463	7.4	O K
5760 Summer	0.6	0.6	147.4457	0.4457	5.1	O K
7200 Summer	0.5	0.5	147.3013	0.3012	3.4	O K
8640 Summer	0.5	0.5	147.1933	0.1932	2.2	O K
10080 Summer	0.5	0.5	147.1147	0.1148	1.3	O K
15 Winter	0.8	0.8	147.9308	0.9308	10.6	O K
30 Winter	0.9	0.9	148.2688	1.2687	14.5	O K
60 Winter	1.0	1.0	148.6187	1.6187	18.5	O K
120 Winter	1.1	1.1	148.8992	1.8992	21.6	O K
180 Winter	1.2	1.2	148.9702	1.9702	22.5	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	89.23	18
30 Summer	61.54	33
60 Summer	40.51	62
120 Summer	25.63	120
180 Summer	19.23	156
240 Summer	15.63	186
360 Summer	11.65	254
480 Summer	9.44	324
600 Summer	8.01	394
720 Summer	7.00	462
960 Summer	5.65	598
1440 Summer	4.17	866
2160 Summer	3.07	1256
2880 Summer	2.46	1624
4320 Summer	1.81	2376
5760 Summer	1.45	3112
7200 Summer	1.23	3816
8640 Summer	1.07	4504
10080 Summer	0.95	5192
15 Winter	89.23	18
30 Winter	61.54	32
60 Winter	40.51	60
120 Winter	25.63	118
180 Winter	19.23	170

T J Booth Associates		Page 2
104 Yorkshire St Rochdale Lancashire OL16 1JY	1800 SW soakaway khan - kings road rochdale	
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Summary of Results for 100 year Return Period (+45%)

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	1.2	1.2	149.0432	2.0432	23.3	O K
360 Winter	1.2	1.2	149.0272	2.0272	23.1	O K
480 Winter	1.2	1.2	148.9682	1.9682	22.4	O K
600 Winter	1.1	1.1	148.8927	1.8927	21.6	O K
720 Winter	1.1	1.1	148.8102	1.8102	20.6	O K
960 Winter	1.0	1.0	148.6562	1.6562	18.9	O K
1440 Winter	0.9	0.9	148.3857	1.3857	15.8	O K
2160 Winter	0.8	0.8	148.0603	1.0603	12.1	O K
2880 Winter	0.7	0.7	147.8103	0.8103	9.2	O K
4320 Winter	0.6	0.6	147.4612	0.4612	5.3	O K
5760 Winter	0.5	0.5	147.2352	0.2352	2.7	O K
7200 Winter	0.5	0.5	147.0878	0.0878	1.0	O K
8640 Winter	0.4	0.4	147.0473	0.0472	0.5	O K
10080 Winter	0.4	0.4	147.0423	0.0422	0.5	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
240 Winter	15.63	194
360 Winter	11.65	270
480 Winter	9.44	348
600 Winter	8.01	424
720 Winter	7.00	498
960 Winter	5.65	642
1440 Winter	4.17	924
2160 Winter	3.07	1320
2880 Winter	2.46	1704
4320 Winter	1.81	2424
5760 Winter	1.45	3176
7200 Winter	1.23	3816
8640 Winter	1.07	4320
10080 Winter	0.95	5120

T J Booth Associates		Page 3
104 Yorkshire St Rochdale Lancashire OL16 1JY	1800 SW soakaway khan - kings road rochdale	
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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 %	+45
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) = 0.045

Time	(mins)	Area
from:	to:	(ha)
0	4	0.045

T J Booth Associates		Page 4
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Lined Soakaway Details

Infil Coef - Base (m/hr)	0.150000	Pit Multiplier	2.5
Infil Coef - Sides (m/hr)	0.150000	Number Required	1
Safety Factor	2.0	Invert Level (m)	147.000
Porosity	0.50	Cover Level (m)	149.500
Ring Diameter (m)	1.8		