

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S12	0.015	450	Unknown	51.500	50.750	0.600	517630.181	131310.749
S13	0.009	450	Unknown	51.350	49.800	1.400	517613.513	131296.467
S14	0.004	450	Unknown	51.100	49.600	1.350	517609.187	131295.036
S15	0.014	450	Unknown	50.500	49.470	0.880	517598.070	131286.154
S18	0.043	450	Unknown	50.300	49.600	0.550	517577.180	131303.865
S16	0.026	600	Unknown	50.360	49.250	0.885	517584.855	131303.687
S17	0.008	600	Unknown	50.750	49.180	1.345	517593.523	131310.576
S1	0.020	450	Unknown	51.500	50.750	0.600	517603.602	131355.395
S11	0.018	450	Unknown	51.500	50.750	0.600	517631.342	131320.499
S2	0.000	450	Unknown	51.500	50.450	0.900	517618.743	131336.281
S3	0.008	450	Unknown	51.500	50.150	1.200	517603.778	131324.440
S7	0.004	0	Unknown	51.500	50.900	0.450	517594.145	131350.058
S8	0.013	450	Unknown	51.500	50.750	0.600	517587.546	131344.025
S9	0.000	450	Unknown	51.300	50.250	0.900	517592.909	131331.275
S10	0.017	450	Unknown	51.500	50.750	0.600	517606.881	131316.975
S4	0.000	450	Unknown	51.400	50.000	1.250	517600.640	131321.821
S5	0.006	1500	Type B	50.800	49.100	1.550	517583.104	131323.376
S6	0.000	450	Unknown	50.490	48.760	1.580	517566.897	131310.403

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S12	50.750	S13	49.800	Circ	150	21.950	23	0.600	0.600	1.400
1.001	S13	49.800	S14	49.600	Circ	150	4.557	23	0.600	1.400	1.350
1.002	S14	49.600	S15	49.470	Circ	150	14.230	109	0.600	1.350	0.880
1.003	S15	49.470	S16	49.325	Circ	150	21.956	151	0.600	0.880	0.885
2.000	S18	49.600	S16	49.325	Circ	150	7.677	28	0.600	0.550	0.885
1.004	S16	49.250	S17	49.180	Circ	225	11.072	158	0.600	0.885	1.345
1.005	S17	49.180	S5	49.100	Circ	225	16.505	206	0.600	1.345	1.475
3.000	S1	50.750	S2	50.450	Circ	150	24.384	81	0.600	0.600	0.900
4.000	S11	50.750	S2	50.450	Circ	150	20.194	67	0.600	0.600	0.900
3.001	S2	50.450	S3	50.150	Circ	150	19.083	64	0.600	0.900	1.200
3.002	S3	50.150	S4	50.000	Circ	150	4.088	27	0.600	1.200	1.250
5.000	S7	50.900	S8	50.750	Circ	150	8.941	60	0.600	0.450	0.600
5.001	S8	50.750	S9	50.250	Circ	150	13.832	28	0.600	0.600	0.900
5.002	S9	50.250	S4	50.000	Circ	150	12.213	49	0.600	0.900	1.250
6.000	S10	50.750	S4	50.000	Circ	150	7.902	11	0.600	0.600	1.250
3.003	S4	50.000	S5	49.125	Circ	150	17.605	20	0.600	1.250	1.525
1.006	S5	49.100	S6	48.760	Circ	150	20.760	61	0.600	1.550	1.580

Outfall Details

Outfall Manhole S6 : Free Discharge

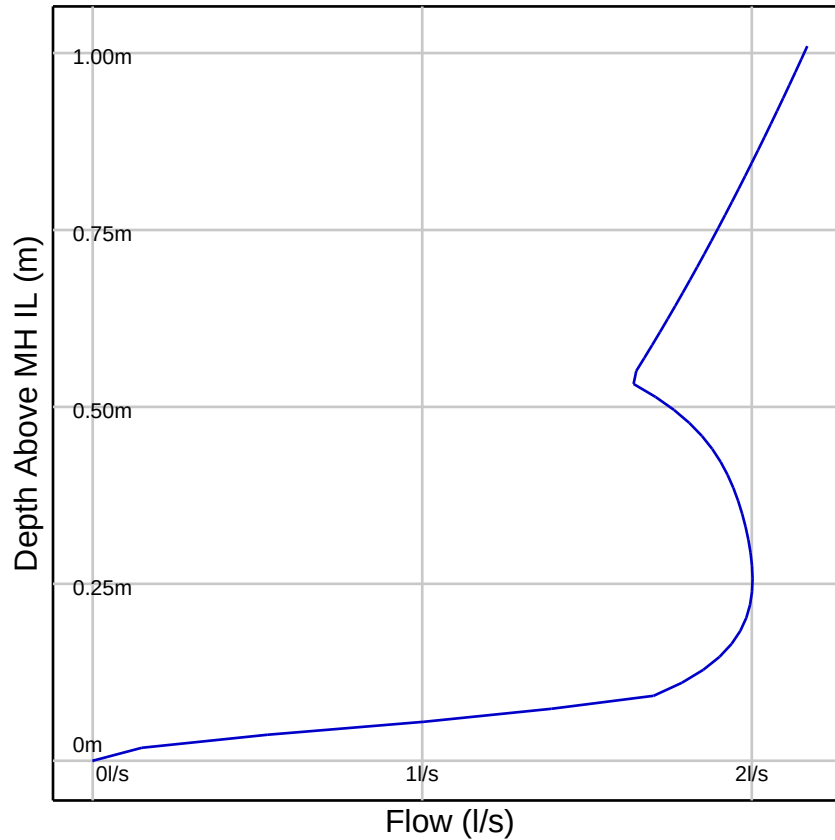
Flow Control Details

Controls within Manhole S5

Hydro-Brake® Optimum Control

Model Ref	Design Depth (m)	Design Flow (l/s)	Invert Offset (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0069-2000-0850-2000	0.850	2.000	0.000	0.257	2.002	0.535	1.628

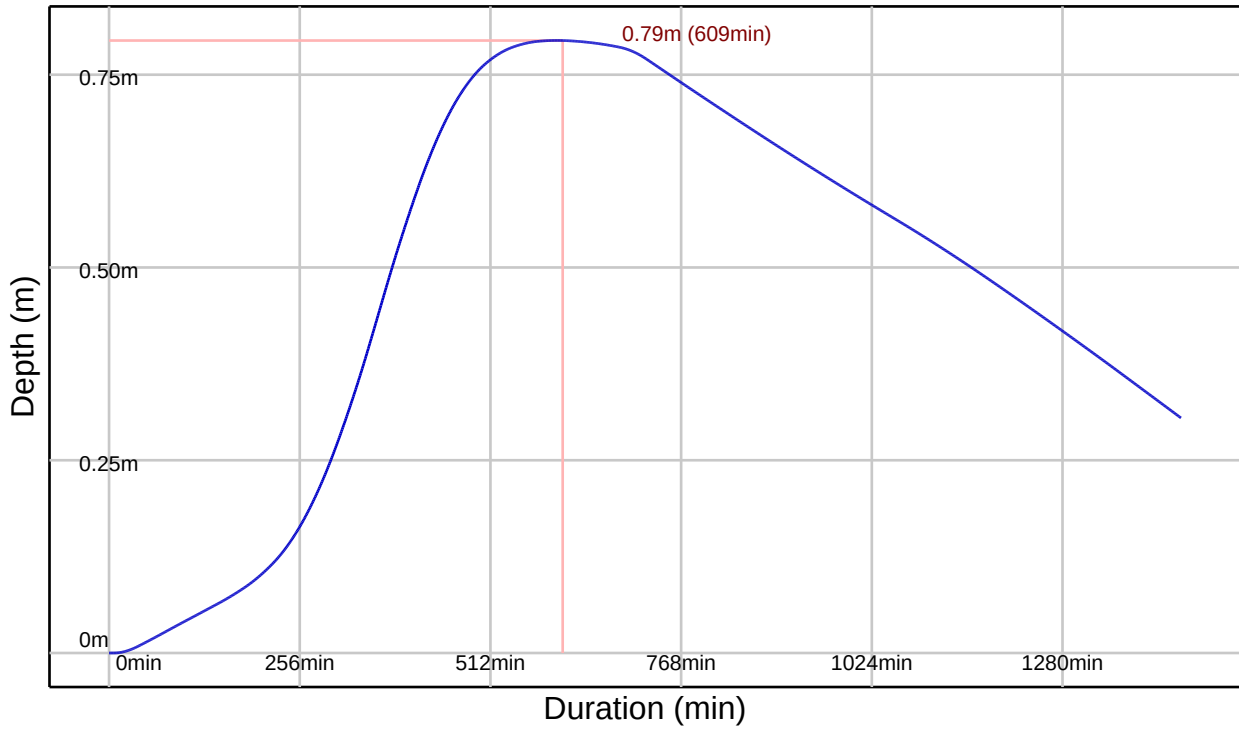
Hydro-Brake® Optimum Control from S5 to S6



Tank Structure at Manhole S5

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
49.100	0.800	95.00	169.000	160.550	128.440	0.00000000	0.00000000	2.00

Tank 1 at S5 (100Yr+45% 720Min Winter)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_350039_404939_v5_0_1 - 2.471.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440

Return Periods (yrs) + Climate Change: (2, +0%), (30, +0%), (100, +0%), (100, +45%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
2Yr 15Min Winter	29.200	0.00	0.00	100Yr 15Min Summer	83.495	0.00	0.00
2Yr 15Min Summer	29.200	0.00	0.00	100Yr 15Min Winter	83.495	0.00	0.00
2Yr 30Min Winter	19.000	0.00	0.00	100Yr 30Min Summer	55.735	0.00	0.18
2Yr 30Min Summer	19.000	0.00	0.00	100Yr 30Min Winter	55.735	0.00	0.14
2Yr 60Min Winter	12.089	0.00	0.00	100Yr 60Min Summer	35.463	0.00	0.36
2Yr 60Min Summer	12.089	0.00	0.00	100Yr 60Min Winter	35.463	0.00	0.38
2Yr 120Min Summer	8.045	0.00	-0.10	100Yr 120Min Summer	20.768	0.00	0.36
2Yr 120Min Winter	8.045	0.00	0.00	100Yr 120Min Winter	20.768	0.00	0.37
2Yr 180Min Summer	6.312	0.00	0.00	100Yr 180Min Summer	15.132	0.00	0.28
2Yr 180Min Winter	6.312	0.00	0.00	100Yr 180Min Winter	15.132	0.00	0.27
2Yr 240Min Summer	5.223	0.00	0.00	100Yr 240Min Summer	12.235	0.00	0.19
2Yr 240Min Winter	5.223	0.00	0.00	100Yr 240Min Winter	12.235	0.00	0.18
2Yr 360Min Summer	4.032	0.00	0.00	100Yr 360Min Summer	9.025	0.00	0.05
2Yr 360Min Winter	4.032	0.00	0.00	100Yr 360Min Winter	9.025	0.00	0.05
2Yr 480Min Summer	3.355	0.00	0.00	100Yr 480Min Summer	7.291	0.00	-0.03
2Yr 480Min Winter	3.355	0.00	0.00	100Yr 480Min Winter	7.291	0.00	-0.02
2Yr 600Min Summer	2.894	0.00	0.00	100Yr 600Min Summer	6.201	0.00	0.00
2Yr 600Min Winter	2.894	0.00	0.00	100Yr 600Min Winter	6.201	0.00	0.00
2Yr 720Min Winter	2.558	0.00	0.00	100Yr 720Min Summer	5.437	0.00	0.00
2Yr 720Min Summer	2.558	0.00	0.00	100Yr 720Min Winter	5.437	0.00	0.00
2Yr 960Min Summer	2.106	0.00	0.00	100Yr 960Min Summer	4.419	0.00	0.00
2Yr 960Min Winter	2.106	0.00	0.00	100Yr 960Min Winter	4.419	0.00	0.00
2Yr 1440Min Summer	1.600	0.00	0.00	100Yr 1440Min Summer	3.298	0.00	0.00
2Yr 1440Min Winter	1.600	0.00	0.00	100Yr 1440Min Winter	3.298	0.00	0.00
30Yr 15Min Summer	66.725	0.00	-0.08	100Yr+45% 15Min Summer	121.068	0.00	0.52
30Yr 15Min Winter	66.725	0.00	-0.09	100Yr+45% 15Min Winter	121.068	0.00	0.49
30Yr 30Min Summer	44.232	0.00	0.07	100Yr+45% 30Min Summer	80.816	0.00	0.63
30Yr 30Min Winter	44.232	0.00	0.00	100Yr+45% 30Min Winter	80.816	0.00	0.64
30Yr 60Min Summer	27.984	0.00	0.13	100Yr+45% 60Min Summer	51.421	0.00	1.06
30Yr 60Min Winter	27.984	0.00	0.14	100Yr+45% 60Min Winter	51.421	0.00	1.12
30Yr 120Min Winter	16.671	0.00	0.12	100Yr+45% 120Min Summer	30.113	0.00	1.18
30Yr 120Min Summer	16.671	0.00	0.11	100Yr+45% 120Min Winter	30.113	0.00	1.19
30Yr 180Min Summer	12.265	0.00	0.07	100Yr+45% 180Min Summer	21.941	0.00	1.10
30Yr 180Min Winter	12.265	0.00	0.07	100Yr+45% 180Min Winter	21.941	0.00	1.11
30Yr 240Min Summer	9.929	0.00	0.00	100Yr+45% 240Min Summer	17.741	0.00	1.00
30Yr 240Min Winter	9.929	0.00	0.00	100Yr+45% 240Min Winter	17.741	0.00	1.01
30Yr 360Min Summer	7.352	0.00	-0.04	100Yr+45% 360Min Summer	13.086	0.00	0.75
30Yr 360Min Winter	7.352	0.00	-0.04	100Yr+45% 360Min Winter	13.086	0.00	0.75
30Yr 480Min Summer	5.947	0.00	0.00	100Yr+45% 480Min Summer	10.572	0.00	0.49
30Yr 480Min Winter	5.947	0.00	0.00	100Yr+45% 480Min Winter	10.572	0.00	0.49
30Yr 600Min Winter	5.051	0.00	0.00	100Yr+45% 600Min Summer	8.991	0.00	0.27
30Yr 600Min Summer	5.051	0.00	0.00	100Yr+45% 600Min Winter	8.991	0.00	0.27
30Yr 720Min Summer	4.423	0.00	0.00	100Yr+45% 720Min Summer	7.884	0.00	0.09
30Yr 720Min Winter	4.423	0.00	0.00	100Yr+45% 720Min Winter	7.884	0.00	0.09
30Yr 960Min Summer	3.594	0.00	0.00	100Yr+45% 960Min Summer	6.408	0.00	-0.01
30Yr 960Min Winter	3.594	0.00	0.00	100Yr+45% 960Min Winter	6.408	0.00	0.00
30Yr 1440Min Summer	2.683	0.00	0.00	100Yr+45% 1440Min Winter	4.783	0.00	0.00
30Yr 1440Min Winter	2.683	0.00	0.00	100Yr+45% 1440Min Summer	4.783	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):

2yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S12	15 min Summer	8	50.777	0.027	2.590		OK
S13	15 min Summer	8	49.833	0.033	4.132		OK
S14	15 min Summer	8	49.654	0.054	4.801		OK
S15	15 min Summer	9	49.545	0.075	7.017		OK
S18	15 min Summer	8	49.649	0.049	7.426		OK
S16	15 min Summer	8	49.364	0.114	18.888		OK
S17	15 min Summer	8	49.308	0.128	20.196		OK
S1	15 min Summer	8	50.792	0.042	3.453		OK
S11	15 min Summer	8	50.788	0.038	3.109		OK
S2	15 min Summer	9	50.506	0.056	6.340		OK
S3	15 min Summer	9	50.200	0.050	7.752		OK
S7	15 min Summer	8	50.918	0.018	0.690		OK
S8	15 min Summer	8	50.779	0.029	2.928		OK
S9	15 min Summer	8	50.284	0.034	2.912		OK
S10	15 min Summer	8	50.773	0.023	2.936		OK
S4	15 min Summer	9	50.062	0.062	13.462		OK
S5	480 min Summer	310	49.292	0.192	1.942		Surcharged
S6	480 min Summer	310	48.789	0.029	1.934		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	8	S12	S13	0.030	1.045	2.577	0.069	OK
1.001	15 min Summer	8	S13	S14	0.043	0.978	4.111	0.110	OK
1.002	15 min Summer	8	S14	S15	0.064	0.662	4.773	0.282	OK
1.003	15 min Summer	9	S15	S16	0.074	0.818	7.123	0.496	OK
2.000	15 min Summer	8	S18	S16	0.048	1.534	7.404	0.219	OK
1.004	15 min Summer	8	S16	S17	0.121	0.883	18.814	0.457	OK
1.005	480 min Summer	310	S17	S5	0.152	0.539	4.309	0.120	OK
3.000	15 min Summer	8	S1	S2	0.049	0.682	3.425	0.174	OK
4.000	15 min Summer	8	S11	S2	0.047	0.654	3.088	0.143	OK
3.001	15 min Summer	9	S2	S3	0.053	1.151	6.427	0.288	OK
3.002	15 min Summer	9	S3	S4	0.056	1.298	7.781	0.228	OK
5.000	15 min Summer	8	S7	S8	0.023	0.386	0.683	0.030	OK
5.001	15 min Summer	8	S8	S9	0.032	1.078	2.912	0.086	OK
5.002	15 min Summer	9	S9	S4	0.048	0.599	2.889	0.113	OK
6.000	15 min Summer	8	S10	S4	0.042	0.922	2.927	0.053	OK
3.003	360 min Summer	209	S4	S5	0.086	0.856	3.496	0.088	OK
1.006	480 min Summer	310	S5	S6	0.029	0.799	1.934	0.085	OK

Return Period (yrs) + Climate Change (%):

30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S12	15 min Summer	8	50.790	0.040	5.921		OK
S13	15 min Summer	8	49.852	0.052	9.450		OK
S14	15 min Summer	9	49.694	0.094	10.662		OK
S15	15 min Summer	9	49.645	0.175	16.031		Surcharged
S18	15 min Summer	8	49.677	0.077	16.973		OK
S16	360 min Winter	291	49.480	0.230	1.071		Surcharged
S17	360 min Winter	291	49.480	0.300	1.147		Surcharged
S1	15 min Summer	8	50.815	0.065	7.895		OK
S11	15 min Summer	8	50.808	0.058	7.105		OK
S2	15 min Summer	8	50.541	0.091	14.912		OK
S3	15 min Summer	8	50.235	0.085	17.838		OK
S7	15 min Summer	8	50.926	0.026	1.579		OK
S8	15 min Summer	8	50.795	0.045	6.699		OK
S9	15 min Summer	8	50.301	0.051	6.671		OK
S10	15 min Summer	8	50.785	0.035	6.710		OK
S4	15 min Summer	9	50.106	0.106	30.714		OK
S5	360 min Winter	292	49.480	0.380	1.963		Surcharged
S6	180 min Winter	291	48.790	0.030	2.002		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	8	S12	S13	0.046	1.288	5.898	0.159	OK
1.001	15 min Summer	9	S13	S14	0.072	1.188	9.404	0.251	OK
1.002	15 min Summer	9	S14	S15	0.122	0.763	10.904	0.644	OK
1.003	15 min Summer	9	S15	S16	0.148	0.958	16.179	1.127	OK
2.000	15 min Summer	8	S18	S16	0.111	1.537	16.922	0.501	OK
1.004	360 min Summer	250	S16	S17	0.225	0.670	8.715	0.212	OK
1.005	60 min Winter	51	S17	S5	0.225	1.024	22.278	0.619	OK
3.000	15 min Summer	8	S1	S2	0.078	0.844	7.843	0.398	OK
4.000	15 min Summer	8	S11	S2	0.075	0.808	7.069	0.326	OK
3.001	15 min Summer	8	S2	S3	0.088	1.369	14.681	0.659	OK
3.002	15 min Summer	9	S3	S4	0.095	1.542	17.762	0.519	OK
5.000	15 min Summer	8	S7	S8	0.035	0.492	1.568	0.068	OK
5.001	15 min Summer	8	S8	S9	0.048	1.367	6.671	0.197	OK
5.002	15 min Summer	8	S9	S4	0.078	0.714	6.632	0.260	OK
6.000	15 min Summer	8	S10	S4	0.070	1.062	6.697	0.121	OK
3.003	30 min Summer	18	S4	S5	0.115	2.361	28.135	0.706	OK
1.006	600 min Summer	660	S5	S6	0.030	0.807	2.002	0.088	OK

Return Period (yrs) + Climate Change (%):

100yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S12	15 min Summer	8	50.795	0.045	7.409		OK
S13	15 min Summer	10	49.910	0.110	9.561		OK
S14	15 min Summer	10	49.900	0.300	11.955		Surcharged
S15	15 min Summer	9	49.830	0.360	18.146		Surcharged
S18	15 min Summer	9	49.718	0.118	20.351		OK
S16	15 min Summer	9	49.606	0.356	50.369		Surcharged
S17	480 min Winter	396	49.592	0.412	1.068		Surcharged
S1	15 min Summer	8	50.824	0.074	9.879		OK
S11	15 min Summer	8	50.816	0.066	8.891		OK
S2	15 min Summer	8	50.557	0.107	18.667		OK
S3	15 min Summer	9	50.252	0.102	22.137		OK
S7	15 min Summer	8	50.929	0.029	1.976		OK
S8	15 min Summer	8	50.800	0.050	8.385		OK
S9	15 min Summer	8	50.308	0.058	8.352		OK
S10	15 min Summer	8	50.789	0.039	8.397		OK
S4	15 min Summer	9	50.133	0.133	38.444		OK
S5	480 min Winter	396	49.592	0.492	1.845		Surcharged
S6	480 min Winter	750	48.790	0.030	2.002		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	10	S12	S13	0.075	1.331	7.382	0.199	OK
1.001	15 min Summer	10	S13	S14	0.130	1.155	10.913	0.292	OK
1.002	15 min Winter	10	S14	S15	0.150	0.771	11.727	0.692	Surcharged
1.003	15 min Winter	10	S15	S16	0.150	0.995	17.591	1.225	Surcharged
2.000	15 min Summer	9	S18	S16	0.134	1.621	20.914	0.619	OK
1.004	15 min Winter	9	S16	S17	0.225	1.179	46.870	1.138	OK
1.005	30 min Winter	19	S17	S5	0.225	1.432	40.731	1.132	OK
3.000	15 min Summer	8	S1	S2	0.090	0.886	9.819	0.499	OK
4.000	15 min Summer	8	S11	S2	0.086	0.847	8.848	0.408	OK
3.001	15 min Summer	8	S2	S3	0.104	1.404	18.366	0.824	OK
3.002	15 min Summer	9	S3	S4	0.118	1.587	22.247	0.651	OK
5.000	15 min Summer	8	S7	S8	0.040	0.524	1.963	0.085	OK
5.001	15 min Summer	8	S8	S9	0.054	1.454	8.352	0.246	OK
5.002	15 min Summer	9	S9	S4	0.095	0.734	8.306	0.326	OK
6.000	15 min Summer	9	S10	S4	0.086	1.100	8.381	0.152	OK
3.003	15 min Summer	10	S4	S5	0.130	2.471	38.788	0.974	OK
1.006	480 min Winter	750	S5	S6	0.030	0.807	2.002	0.088	OK

Return Period (yrs) + Climate Change (%):

100yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S12	15 min Summer	8	50.805	0.055	10.731		OK
S13	15 min Summer	10	50.408	0.608	13.908		Surcharged
S14	15 min Summer	10	50.377	0.777	15.690		Surcharged
S15	15 min Summer	10	50.264	0.794	23.273		Flood Risk
S18	15 min Summer	9	50.106	0.506	29.547		Flood Risk
S16	720 min Winter	602	49.895	0.645	1.031		Surcharged
S17	720 min Winter	602	49.895	0.715	1.105		Surcharged
S1	15 min Summer	10	50.968	0.218	11.489		Surcharged
S11	15 min Summer	10	50.934	0.184	10.340		Surcharged
S2	15 min Summer	10	50.869	0.419	21.391		Surcharged
S3	15 min Summer	10	50.606	0.456	25.036		Surcharged
S7	15 min Summer	8	50.935	0.035	2.861		OK
S8	15 min Summer	8	50.811	0.061	12.147		OK
S9	15 min Summer	10	50.547	0.297	9.972		Surcharged
S10	15 min Summer	9	50.798	0.048	11.681		OK
S4	15 min Summer	10	50.507	0.507	44.397		Surcharged
S5	720 min Winter	601	49.894	0.794	1.915		Surcharged
S6	960 min Summer	1665	48.790	0.030	2.002		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	8	S12	S13	0.102	1.378	10.698	0.288	OK
1.001	15 min Winter	9	S13	S14	0.150	1.163	12.754	0.341	Surcharged
1.002	15 min Winter	11	S14	S15	0.150	0.857	15.137	0.894	Surcharged
1.003	15 min Winter	11	S15	S16	0.150	1.271	22.452	1.563	Surcharged
2.000	15 min Winter	9	S18	S16	0.150	1.513	26.603	0.788	Surcharged
1.004	15 min Winter	9	S16	S17	0.225	1.570	62.425	1.516	OK
1.005	15 min Winter	10	S17	S5	0.225	1.799	66.739	1.855	OK
3.000	15 min Summer	9	S1	S2	0.150	0.934	13.361	0.678	Surcharged
4.000	15 min Summer	10	S11	S2	0.150	0.908	12.186	0.563	Surcharged
3.001	15 min Winter	8	S2	S3	0.150	1.382	21.651	0.971	Surcharged
3.002	15 min Winter	11	S3	S4	0.150	1.512	24.625	0.720	Surcharged
5.000	15 min Summer	8	S7	S8	0.048	0.581	2.847	0.124	OK
5.001	15 min Summer	9	S8	S9	0.105	1.562	12.107	0.357	OK
5.002	15 min Winter	9	S9	S4	0.150	0.752	10.191	0.400	Surcharged
6.000	15 min Summer	9	S10	S4	0.099	1.131	12.144	0.220	OK
3.003	15 min Winter	9	S4	S5	0.150	2.457	42.587	1.069	Surcharged
1.006	960 min Summer	1665	S5	S6	0.030	0.807	2.002	0.088	OK