

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Diameter (m)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S38-4	0.174	1.350	Type C	6.043	4.325	1.268	488883.235	98125.981
S38-5	0.000	1.350	Type B	6.134	4.175	1.509	488827.698	98148.516
S38-7	0.032	0.000	Type C	5.400	4.100	0.850	488790.356	98178.405
S38-6	0.095	1.350	Type C	5.764	4.050	1.264	488785.300	98162.923
S38-8	0.000	1.350	Type C	5.477	3.935	1.092	488743.861	98177.112
S38-9	0.000	1.350	Type C	5.392	3.890	1.277	488731.597	98185.453
S38 Headwall F	0.000	0.000	Type C	4.433	3.800	0.408	488740.396	98200.397

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (m)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S38-4	4.325	S38-5	4.175	Circ	0.45mØ	59.935	399.6	0.600	1.268	1.509
1.001	S38-5	4.175	S38-6	4.050	Circ	0.45mØ	44.779	358.2	0.600	1.509	1.264
2.000	S38-7	4.100	S38-6	4.050	Circ	0.45mØ	16.287	325.7	0.600	0.850	1.264
1.002	S38-6	4.050	S38-8	3.935	Circ	0.45mØ	43.801	380.9	0.600	1.264	1.092
1.003	S38-8	3.935	S38-9	3.890	Circ	0.45mØ	14.832	329.6	0.600	1.092	1.052
1.004	S38-9	3.890	S38 Headwall	3.800	Circ	0.225mØ	17.342	192.7	0.600	1.277	0.408

Outfall Details

Outfall Manhole S38 Headwall F : Surcharged (Constant Level)

Surcharged Constant

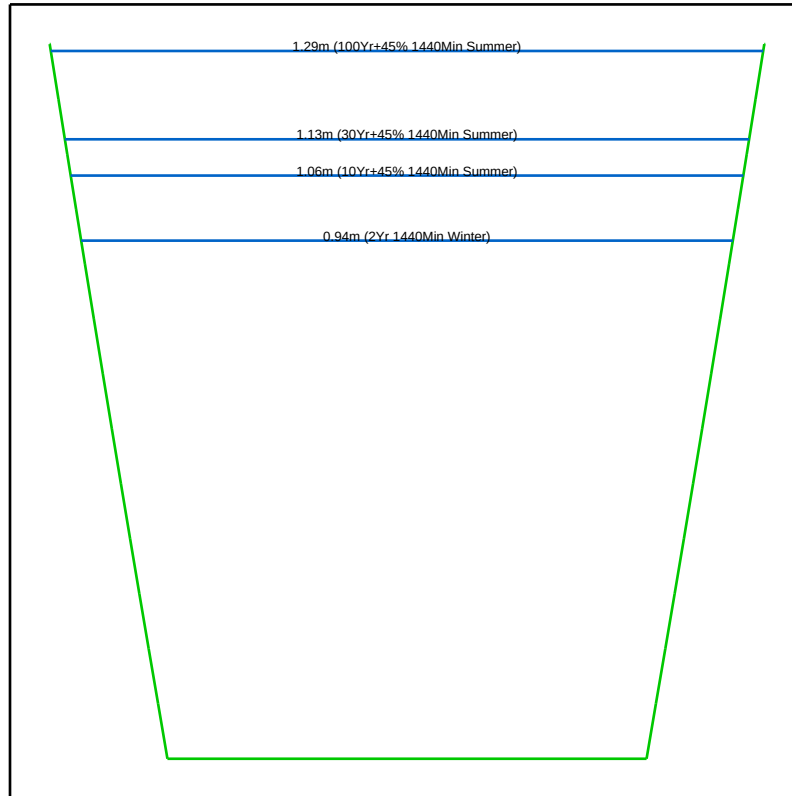
Water Elevation (m)	Water Depth (m)
5.000	1.200

Flow Control Details

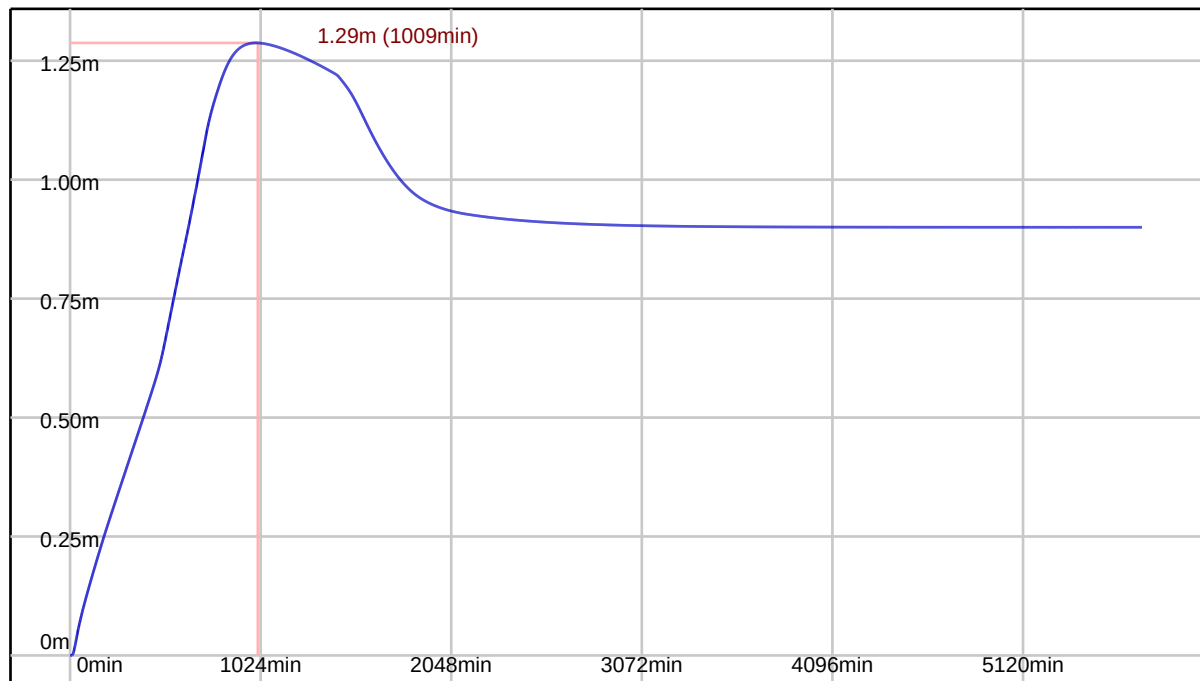
Pond Structure at Manhole S38-7

Pond Invert (m)	Max Depth (m)	Volume To Water Level (m3)	Water Level (m)	Freeboard (m)	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
4.100	1.300	216.662	5.100	0.300	0.00000000	0.00000000	2.00

Pond Depth/Area Diagram at S38-7



Pond at S38-7 (100Yr+45% 1440Min Summer)

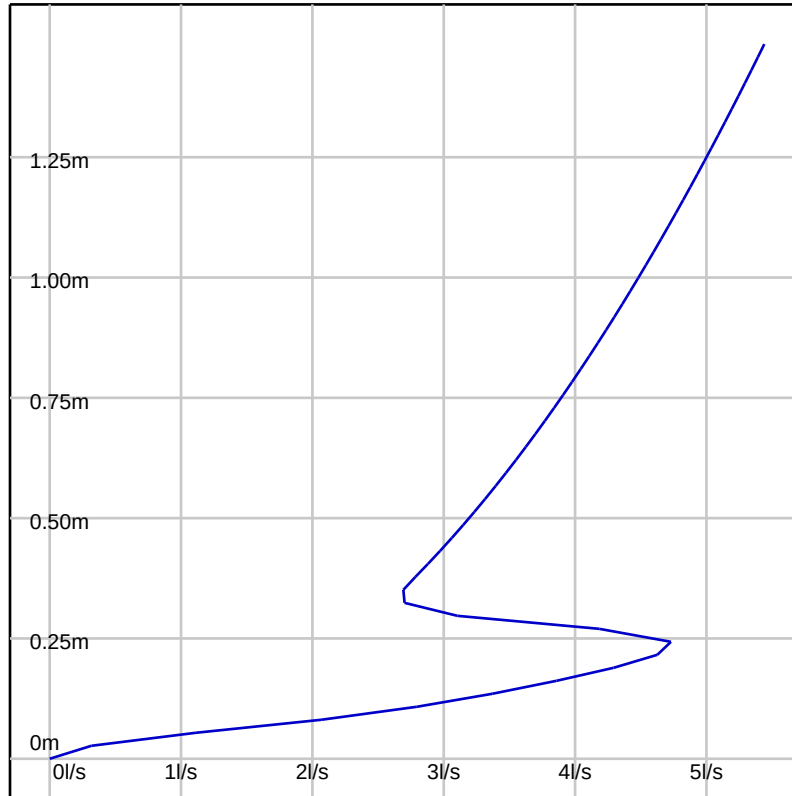


Controls within Manhole S38-9

Hydro-Brake® Optimum Control at Manhole S38-9

Model Ref	Design Depth (m)	Design Flow (l/s)	Depth Above Invert (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
CHE-0097-5000-1250-5000	1.250	5.000	0.000	0.238	4.739	0.337	2.682

Hydro-Brake® Optimum Control at S38-9



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_488693_97897_v5_0_1.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%), (10, +45%), (30, +45%), (100, +45%)

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
2Yr 15Min Winter	32.920	0.00	5.90	30Yr+45% 15Min Summer	116.894	0.00	5.95
2Yr 15Min Summer	32.920	0.00	5.90	30Yr+45% 15Min Winter	116.894	0.00	5.95
2Yr 30Min Winter	21.400	0.00	5.91	30Yr+45% 30Min Summer	76.716	0.00	5.96
2Yr 30Min Summer	21.400	0.00	5.91	30Yr+45% 30Min Winter	76.716	0.00	5.96
2Yr 60Min Winter	13.300	0.00	5.92	30Yr+45% 60Min Summer	48.209	0.00	5.97
2Yr 60Min Summer	13.300	0.00	5.92	30Yr+45% 60Min Winter	48.209	0.00	5.97
2Yr 120Min Summer	8.917	0.00	5.94	30Yr+45% 120Min Summer	28.721	0.00	5.98
2Yr 120Min Winter	8.917	0.00	5.94	30Yr+45% 120Min Winter	28.721	0.00	5.98
2Yr 180Min Summer	6.969	0.00	5.95	30Yr+45% 180Min Summer	21.032	0.00	5.98
2Yr 180Min Winter	6.969	0.00	5.95	30Yr+45% 180Min Winter	21.032	0.00	5.98
2Yr 240Min Summer	5.692	0.00	5.96	30Yr+45% 240Min Summer	16.846	0.00	5.91
2Yr 240Min Winter	5.692	0.00	5.96	30Yr+45% 240Min Winter	16.846	0.00	5.93
2Yr 360Min Summer	4.267	0.00	5.97	30Yr+45% 360Min Summer	12.224	0.00	5.34
2Yr 360Min Winter	4.267	0.00	5.97	30Yr+45% 360Min Winter	12.224	0.00	5.32
2Yr 480Min Summer	3.462	0.00	5.98	30Yr+45% 480Min Summer	9.702	0.00	4.92
2Yr 480Min Winter	3.462	0.00	5.98	30Yr+45% 480Min Winter	9.702	0.00	4.90
2Yr 600Min Summer	2.922	0.00	5.99	30Yr+45% 600Min Summer	8.089	0.00	4.58
2Yr 600Min Winter	2.922	0.00	5.99	30Yr+45% 600Min Winter	8.089	0.00	4.57
2Yr 720Min Winter	2.536	0.00	5.99	30Yr+45% 720Min Summer	6.961	0.00	4.32
2Yr 720Min Summer	2.536	0.00	5.99	30Yr+45% 720Min Winter	6.961	0.00	4.32
2Yr 960Min Summer	2.031	0.00	5.96	30Yr+45% 960Min Summer	5.492	0.00	3.93
2Yr 960Min Winter	2.031	0.00	5.96	30Yr+45% 960Min Winter	5.492	0.00	3.94
2Yr 1440Min Summer	1.486	0.00	5.37	30Yr+45% 1440Min Summer	3.953	0.00	3.42
2Yr 1440Min Winter	1.486	0.00	5.33	30Yr+45% 1440Min Winter	3.953	0.00	3.46
10Yr+45% 15Min Summer	90.144	0.00	5.94	100Yr+45% 15Min Summer	146.276	0.00	5.96
10Yr+45% 15Min Winter	90.144	0.00	5.93	100Yr+45% 15Min Winter	146.276	0.00	5.96
10Yr+45% 30Min Summer	58.702	0.00	5.95	100Yr+45% 30Min Summer	96.982	0.00	5.97
10Yr+45% 30Min Winter	58.702	0.00	5.95	100Yr+45% 30Min Winter	96.982	0.00	5.97
10Yr+45% 60Min Summer	36.665	0.00	5.96	100Yr+45% 60Min Summer	61.530	0.00	5.96
10Yr+45% 60Min Winter	36.665	0.00	5.96	100Yr+45% 60Min Winter	61.530	0.00	5.97
10Yr+45% 120Min Winter	22.521	0.00	5.97	100Yr+45% 120Min Summer	35.946	0.00	5.99
10Yr+45% 120Min Summer	22.521	0.00	5.97	100Yr+45% 120Min Winter	35.946	0.00	5.99
10Yr+45% 180Min Summer	16.756	0.00	5.98	100Yr+45% 180Min Summer	26.053	0.00	5.49
10Yr+45% 180Min Winter	16.756	0.00	5.98	100Yr+45% 180Min Winter	26.053	0.00	5.50
10Yr+45% 240Min Summer	13.465	0.00	5.98	100Yr+45% 240Min Summer	20.923	0.00	5.07
10Yr+45% 240Min Winter	13.465	0.00	5.98	100Yr+45% 240Min Winter	20.923	0.00	5.07
10Yr+45% 360Min Summer	9.827	0.00	6.00	100Yr+45% 360Min Summer	15.176	0.00	4.54
10Yr+45% 360Min Winter	9.827	0.00	6.00	100Yr+45% 360Min Winter	15.176	0.00	4.54
10Yr+45% 480Min Summer	7.833	0.00	5.61	100Yr+45% 480Min Summer	12.028	0.00	4.19
10Yr+45% 480Min Winter	7.833	0.00	5.59	100Yr+45% 480Min Winter	12.028	0.00	4.19
10Yr+45% 600Min Winter	6.549	0.00	5.21	100Yr+45% 600Min Summer	10.033	0.00	3.91
10Yr+45% 600Min Summer	6.549	0.00	5.25	100Yr+45% 600Min Winter	10.033	0.00	3.92
10Yr+45% 720Min Summer	5.645	0.00	4.95	100Yr+45% 720Min Summer	8.641	0.00	3.70
10Yr+45% 720Min Winter	5.645	0.00	4.92	100Yr+45% 720Min Winter	8.641	0.00	3.71
10Yr+45% 960Min Summer	4.467	0.00	4.48	100Yr+45% 960Min Summer	6.827	0.00	3.38
10Yr+45% 960Min Winter	4.467	0.00	4.47	100Yr+45% 960Min Winter	6.827	0.00	3.40
10Yr+45% 1440Min Summer	3.223	0.00	3.85	100Yr+45% 1440Min Winter	4.922	0.00	3.00
10Yr+45% 1440Min Winter	3.223	0.00	3.89	100Yr+45% 1440Min Summer	4.922	0.00	2.97

Simulation Results

Return Period Yrs: 2.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S38-4	1440 min Winter	1091	5.043	0.718	0.448		Surcharged
S38-5	1440 min Winter	1091	5.043	0.868	0.448		Surcharged
S38-7	1440 min Winter	1091	5.043	0.943	0.083		Surcharged
S38-6	1440 min Winter	1091	5.043	0.993	0.775		Surcharged
S38-8	1440 min Winter	1092	5.043	1.108	0.775		Surcharged
S38-9	1440 min Winter	1092	5.043	1.153	0.775		Surcharged
S38 Headwall F	15 min Winter	0	5.000	1.200	4.561		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	728	S38-4	S38-5	0.450	0.880	33.334	0.208	OK
1.001	15 min Summer	523	S38-5	S38-6	0.450	0.624	32.236	0.190	OK
2.000	1440 min Summer	1443	S38-7	S38-6	0.450	0.003	0.416	0.002	OK
1.002	15 min Summer	338	S38-6	S38-8	0.450	0.312	14.329	0.087	OK
1.003	1440 min Winter	1089	S38-8	S38-9	0.450	0.005	0.775	0.004	OK
1.004	1440 min Winter	1092	S38-9	S38 Headwall	0.225	0.019	0.775	0.021	OK

Return Period Yrs: 10.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S38-4	1440 min Summer	880	5.161	0.836	2.219		Surcharged
S38-5	1440 min Summer	880	5.161	0.986	2.219		Surcharged
S38-7	1440 min Summer	881	5.161	1.061	0.410		Flood Risk
S38-6	1440 min Summer	881	5.161	1.111	3.820		Surcharged
S38-8	1440 min Summer	881	5.161	1.226	3.820		Surcharged
S38-9	1440 min Summer	881	5.161	1.271	3.821		Surcharged
S38 Headwall F	15 min Summer	0	5.000	1.200	4.561		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 Winter	539	S38-4	S38-5	0.450	1.086	84.109	0.524	OK
1.001	15 min Winter	334	S38-5	S38-6	0.450	0.872	83.096	0.490	OK
2.000	15 min Winter	220	S38-7	S38-6	0.450	0.047	5.822	0.033	OK
1.002	15 min Winter	150	S38-6	S38-8	0.450	0.464	29.092	0.177	OK
1.003	15 min Winter	14	S38-8	S38-9	0.450	0.042	4.627	0.026	OK
1.004	1440 min Summer	881	S38-9	S38 Headwall	0.225	0.096	3.821	0.103	OK

Return Period Yrs: 30.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S38-4	1440 min Summer	882	5.227	0.902	2.681		Surcharged
S38-5	1440 min Summer	882	5.227	1.052	2.682		Surcharged
S38-7	1440 min Summer	881	5.227	1.127	0.503		Flood Risk
S38-6	1440 min Summer	882	5.227	1.177	4.660		Surcharged
S38-8	1440 min Summer	882	5.227	1.292	4.661		Surcharged
S38-9	1440 min Summer	882	5.227	1.337	4.662		Surcharged
S38 Headwall F	15 min Summer	0	5.000	1.200	4.561		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 Winter	442	S38-4	S38-5	0.450	1.137	109.144	0.680	OK
1.001	15 min Winter	236	S38-5	S38-6	0.450	0.964	110.124	0.649	OK
2.000	15 min Winter	123	S38-7	S38-6	0.450	0.029	4.339	0.024	OK
1.002	15 min Winter	52	S38-6	S38-8	0.450	0.510	26.974	0.164	OK
1.003	1440 min Summer	869	S38-8	S38-9	0.450	0.029	4.664	0.026	OK
1.004	1440 min Summer	882	S38-9	S38 Headwall	0.225	0.117	4.662	0.125	OK

Return Period Yrs: 100.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S38-4	1440 min Summer	999	5.388	1.063	1.629		Surcharged
S38-5	1440 min Summer	999	5.388	1.213	1.629		Surcharged
S38-7	1440 min Summer	999	5.388	1.288	0.303		Flood Risk
S38-6	1440 min Summer	999	5.388	1.338	2.817		Surcharged
S38-8	1440 min Summer	999	5.388	1.453	2.817		Flood Risk
S38-9	1440 min Summer	999	5.388	1.498	2.817		Flood Risk
S38 Headwall F	15 min Summer	0	5.000	1.200	4.561		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 Winter	328	S38-4	S38-5	0.450	1.179	136.306	0.849	OK
1.001	15 min Winter	121	S38-5	S38-6	0.450	1.019	134.787	0.794	OK
2.000	960 min Summer	774	S38-7	S38-6	0.450	0.126	20.117	0.113	OK
1.002	15 min Winter	12	S38-6	S38-8	0.450	0.538	34.661	0.211	OK
1.003	960 min Summer	815	S38-8	S38-9	0.450	0.070	11.158	0.063	OK
1.004	960 min Winter	770	S38-9	S38 Headwall	0.225	0.121	4.823	0.129	OK