

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S64	0.211	1350	Type C	123.578	122.130	1.223	442755.853	296144.072
S65	0.041	1350	Type C	123.192	121.700	1.192	442723.953	296182.878
S66	0.070	1350	Type C	123.309	121.895	1.189	442731.903	296192.478
S67	0.031	1350	Type C	123.205	121.625	1.280	442723.277	296189.396
S68	0.106	1350	Type C	122.989	121.390	1.299	442706.177	296189.539
S69	0.129	1200	Type B	122.971	121.132	1.615	442680.865	296231.854
S70	0.000	1350	Type B	122.603	120.705	1.523	442665.070	296213.724
S71	0.116	1350	Type B	122.437	120.525	1.537	442661.188	296205.630
S72	0.138	1350	Type C	121.658	119.997	1.286	442649.386	296172.777
S73	0.057	1350	Type C	120.828	119.315	1.138	442631.832	296178.800
S74	0.062	1350	Type C	119.290	117.920	0.995	442594.754	296204.656
S75	0.065	1350	Type C	121.317	119.780	1.312	442614.549	296256.685
S76	0.056	1350	Type B	120.401	117.480	2.471	442603.841	296230.575
S77	0.044	1350	Type B	119.243	116.865	1.853	442579.890	296239.001
S78	0.102	1350	Type C	115.333	113.770	1.038	442523.049	296244.480
S79	0.000	---	Type C	115.300	113.610	1.165	442504.715	296253.407
S80	0.045	1350	Type C	122.668	121.047	1.396	442665.889	296257.640
S81	0.034	1350	Type C	122.530	120.904	1.400	442658.661	296267.006
S82	0.071	1350	Type C	122.456	120.975	1.256	442655.328	296291.165
S83	0.082	1350	Type C	122.390	120.832	1.333	442649.410	296272.705
S84	0.094	1350	Type C	121.739	120.305	1.209	442612.465	296336.737
S85	0.048	1350	Type B	121.910	120.075	1.610	442606.434	296320.295
S86	0.108	1200	Type B	121.679	119.660	1.719	442596.694	296289.849
S87	0.211	1350	Type C	118.738	116.975	1.388	442534.188	296305.316
S88	0.000	---	Type C	115.300	113.710	1.140	442507.967	296288.074
S89	0.000	---	Unknown	115.300	113.500	1.275	442473.730	296267.549
S90	0.000	3000	Type B	115.300	113.450	1.625	442467.534	296266.072
S91	0.000	---	Type C	113.300	112.580	0.495	442457.793	296263.539

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	S64	122.130	S65	121.775	Circ	225	50.234	142	0.600	1.223	1.192
1.001	S65	121.700	S67	121.625	Circ	300	6.554	87	0.600	1.192	1.280
2.000	S66	121.895	S67	121.700	Circ	225	9.160	47	0.600	1.189	1.280
1.002	S67	121.625	S68	121.390	Circ	300	17.101	73	0.600	1.280	1.299
1.003	S68	121.390	S70	120.780	Circ	300	47.693	78	0.600	1.299	1.523
3.000	S69	121.132	S70	120.855	Circ	225	24.045	87	0.600	1.615	1.523
1.004	S70	120.705	S71	120.525	Circ	375	8.977	50	0.600	1.523	1.537
1.005	S71	120.525	S72	119.997	Circ	375	34.908	66	0.600	1.537	1.286
1.006	S72	119.997	S73	119.315	Circ	375	18.558	27	0.600	1.286	1.138
1.007	S73	119.315	S74	117.920	Circ	375	45.203	32	0.600	1.138	0.995
1.008	S74	117.920	S76	117.555	Circ	375	27.465	75	0.600	0.995	2.471
4.000	S75	119.780	S76	117.705	Circ	225	28.221	14	0.600	1.312	2.471
1.009	S76	117.480	S77	116.940	Circ	450	25.390	47	0.600	2.471	1.853
1.010	S77	116.865	S78	113.770	Circ	525	57.104	18	0.600	1.853	1.038
1.011	S78	113.770	S79	113.610	Circ	525	20.392	127	0.600	1.038	1.165
1.012	S79	113.610	S89	113.500	Circ	525	34.060	310	0.600	1.165	1.275
5.000	S80	121.047	S81	120.904	Circ	225	11.831	83	0.600	1.396	1.400
5.001	S81	120.904	S83	120.832	Circ	225	10.866	150	0.600	1.400	1.333
6.000	S82	120.975	S83	120.832	Circ	225	19.384	136	0.600	1.256	1.333
5.002	S83	120.832	S86	119.735	Circ	225	55.433	51	0.600	1.333	1.719
7.000	S84	120.305	S85	120.075	Circ	225	17.514	76	0.600	1.209	1.610
7.001	S85	120.075	S86	119.735	Circ	225	31.966	94	0.600	1.610	1.719
5.003	S86	119.660	S87	117.050	Circ	300	64.391	25	0.600	1.719	1.388
5.004	S87	116.975	S88	113.785	Circ	375	31.381	10	0.600	1.388	1.140
5.005	S88	113.710	S89	113.575	Circ	450	39.918	296	0.600	1.140	1.275
1.013	S89	113.500	S90	113.450	Circ	525	6.370	127	0.600	1.275	1.325
1.014	S90	113.450	S91	112.580	Circ	225	10.065	12	0.600	1.625	0.495

Outfall Details

Outfall Manhole S91 : Free Discharge

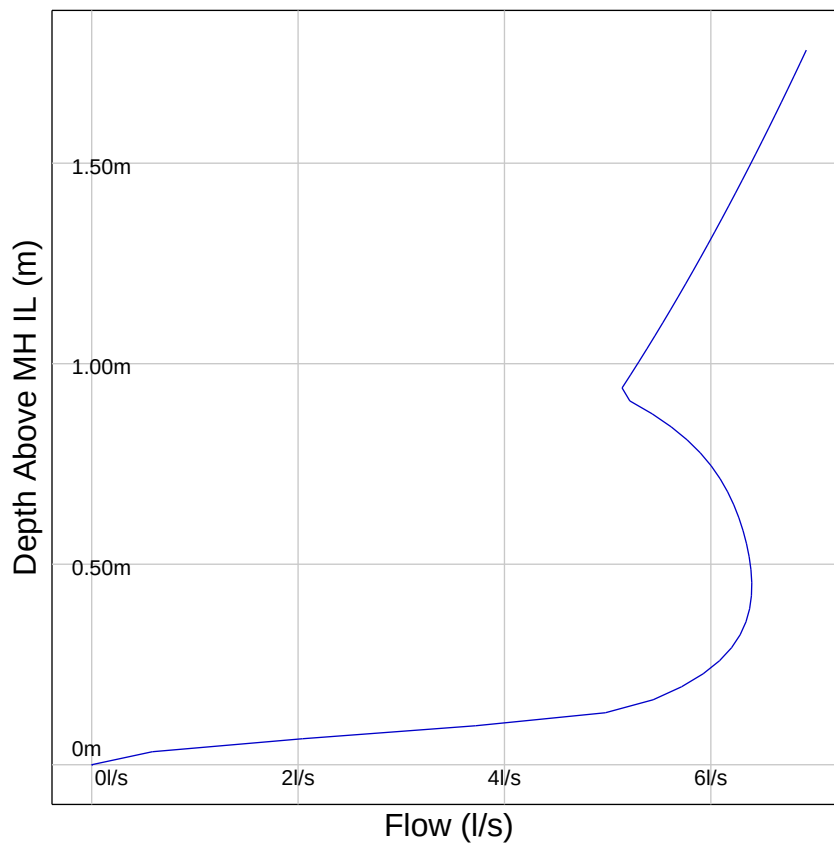
Flow Control Details

Controls within Manhole S89

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-0111-6400-1500-6400	1.500	6.400	0.000	0.447	6.397	0.922	5.094

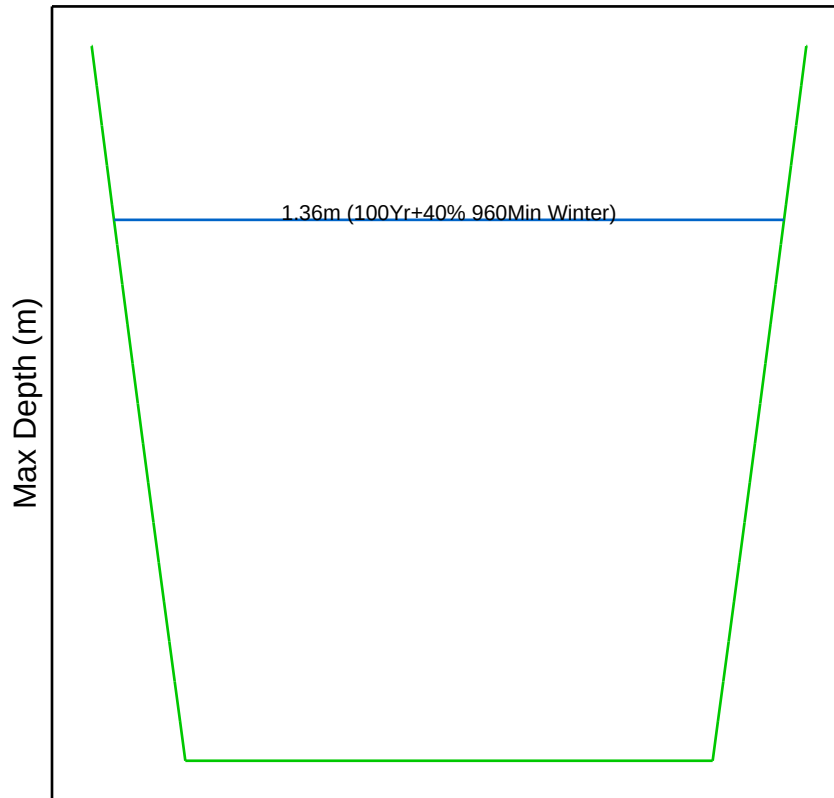
Hydro-Brake® Optimum Control from S89 to S90



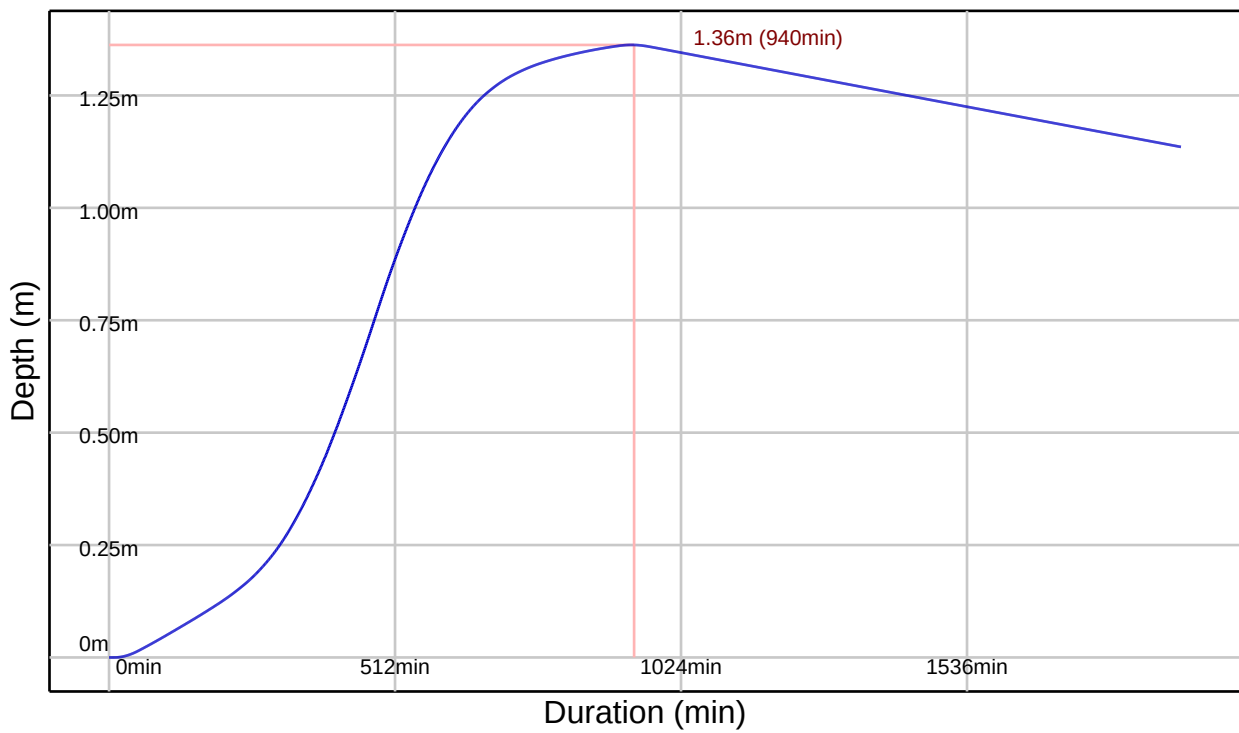
Pond Structure at Manhole S89

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
113.500	1.800	1847.496	115.000	0.300	0.00000000	0.00000000	2.00

Pond Depth/Area Diagram at S89



Pond 1 at S89 (100Yr+40% 960Min Winter)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_442861_296095_v5_1_0.xml

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

Global Time of Entry: 5.0 mins

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

Return Periods (yrs) + Climate Change: (100, +40%)

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 %
100Yr+40% 60Min Winter	53.806	0.00	0.65	100Yr+40% 480Min Summer	11.426	0.00	0.97
100Yr+40% 60Min Summer	53.806	0.00	0.74	100Yr+40% 480Min Winter	11.426	0.00	0.97
100Yr+40% 120Min Winter	32.943	0.00	0.85	100Yr+40% 600Min Summer	9.514	0.00	0.93
100Yr+40% 120Min Summer	32.943	0.00	0.81	100Yr+40% 600Min Winter	9.514	0.00	0.93
100Yr+40% 180Min Winter	24.503	0.00	0.95	100Yr+40% 720Min Summer	8.166	0.00	0.88
100Yr+40% 180Min Summer	24.503	0.00	0.94	100Yr+40% 720Min Winter	8.166	0.00	0.85
100Yr+40% 240Min Winter	19.707	0.00	0.99	100Yr+40% 960Min Summer	6.409	0.00	0.74
100Yr+40% 240Min Summer	19.707	0.00	0.98	100Yr+40% 960Min Winter	6.409	0.00	0.74
100Yr+40% 360Min Winter	14.374	0.00	1.00	100Yr+40% 1440Min Winter	4.554	0.00	0.53
100Yr+40% 360Min Summer	14.374	0.00	1.00	100Yr+40% 1440Min Summer	4.554	0.00	0.52

Simulation Results

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

100yr+40%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S64	60 min Summer	32	123.578	1.448	101.830	7.981	Flood
S65	60 min Summer	34	122.821	1.121	79.316		Surcharged
S66	60 min Summer	34	122.801	0.906	26.111		Surcharged
S67	60 min Summer	34	122.775	1.150	118.867		Surcharged
S68	60 min Summer	34	122.556	1.166	159.579		Surcharged
S69	60 min Summer	33	121.816	0.684	55.773		Surcharged
S70	60 min Summer	34	121.542	0.837	212.726		Surcharged
S71	60 min Summer	34	121.400	0.875	259.064		Surcharged
S72	60 min Summer	33	120.782	0.784	320.069		Surcharged
S73	60 min Summer	33	120.248	0.933	342.606		Surcharged
S74	60 min Summer	33	118.915	0.995	366.940		Surcharged
S75	60 min Summer	31	119.853	0.073	33.257		OK
S76	60 min Summer	32	117.834	0.354	420.261		OK
S77	60 min Summer	32	117.086	0.221	441.025		OK
S78	960 min Winter	935	114.862	1.092	3.956		Surcharged
S79	960 min Winter	935	114.862	1.252	3.956		Surcharged
S80	60 min Summer	34	121.738	0.691	16.605		Surcharged
S81	60 min Summer	34	121.724	0.820	30.248		Surcharged
S82	60 min Summer	33	121.737	0.762	30.720		Surcharged
S83	60 min Summer	34	121.682	0.850	89.351		Surcharged
S84	60 min Summer	32	120.631	0.326	45.641		Surcharged
S85	60 min Summer	32	120.491	0.416	69.086		Surcharged
S86	60 min Summer	32	119.894	0.234	210.685		OK
S87	60 min Summer	31	117.156	0.181	313.554		OK
S88	960 min Winter	935	114.862	1.152	2.129		Surcharged
S89	960 min Winter	935	114.862	1.362	6.086		Surcharged
S90	1440 min Summer	641	113.481	0.031	6.397		OK
S91	1440 min Summer	641	112.610	0.030	6.397		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	60 min Summer	30	S64	S65	0.225	2.040	81.128	1.863	OK
1.001	60 min Summer	30	S65	S67	0.300	1.323	88.176	0.742	Surcharged
2.000	60 min Summer	32	S66	S67	0.225	1.351	30.333	0.399	OK
1.002	60 min Summer	37	S67	S68	0.300	1.749	123.642	0.949	Surcharged
1.003	60 min Summer	36	S68	S70	0.300	2.315	163.362	1.300	Surcharged
3.000	60 min Summer	31	S69	S70	0.225	1.600	59.464	1.067	OK
1.004	60 min Summer	36	S70	S71	0.375	2.202	217.368	0.766	Surcharged
1.005	60 min Summer	34	S71	S72	0.375	2.686	261.802	1.063	Surcharged
1.006	60 min Summer	33	S72	S73	0.375	3.364	317.747	0.826	Surcharged
1.007	60 min Summer	34	S73	S74	0.375	3.083	340.546	0.966	Surcharged
1.008	60 min Summer	33	S74	S76	0.375	3.310	365.561	1.584	Surcharged
4.000	60 min Summer	32	S75	S76	0.100	2.673	33.257	0.235	OK
1.009	60 min Summer	32	S76	S77	0.334	3.318	419.787	0.889	OK
1.010	60 min Summer	32	S77	S78	0.373	2.682	440.857	0.389	OK
1.011	60 min Summer	32	S78	S79	0.525	2.239	484.694	1.130	OK
1.012	60 min Summer	34	S79	S89	0.525	2.291	482.724	1.761	OK
5.000	60 min Summer	30	S80	S81	0.225	0.781	18.804	0.330	OK
5.001	60 min Summer	33	S81	S83	0.225	0.831	31.546	0.746	OK
6.000	60 min Summer	31	S82	S83	0.225	0.850	30.942	0.695	OK
5.002	60 min Summer	34	S83	S86	0.225	2.318	92.161	1.258	OK
7.000	60 min Summer	31	S84	S85	0.225	1.228	46.178	0.775	OK
7.001	60 min Summer	32	S85	S86	0.217	1.752	68.808	1.284	OK
5.003	60 min Summer	32	S86	S87	0.229	3.635	210.384	0.937	OK
5.004	60 min Summer	31	S87	S88	0.278	3.569	313.309	0.489	OK
5.005	60 min Summer	34	S88	S89	0.450	2.032	313.541	1.677	OK
1.013	1440 min Winter	603	S89	S90	0.036	0.990	6.397	0.015	OK

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
1.014	1440 min Summer	641	S90	S91	0.030	2.003	6.397	0.042	OK