



Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.43%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	LDC J1	1	23.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC J2	1	23.180	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC Outlet	1	23.060	0.000	0.0	0.0000	0.0000	OK
15 minute summer	S1	10	22.864	0.083	2.2	0.1182	0.0000	OK
15 minute summer	S2	10	22.863	0.139	28.1	0.1567	0.0000	OK
15 minute summer	S3	10	22.827	0.137	27.6	0.1957	0.0000	OK
15 minute summer	S4	10	22.790	0.139	30.0	0.1992	0.0000	OK
240 minute summer	S5	164	22.751	0.130	9.6	0.1862	0.0000	OK
15 minute summer	S6	10	23.170	0.070	9.4	0.0795	0.0000	OK
15 minute summer	S7	10	23.141	0.091	18.7	0.1031	0.0000	OK
15 minute summer	S8	10	23.185	0.035	2.8	0.0397	0.0000	OK
240 minute summer	Flow Control	164	22.751	0.177	9.4	15.8867	0.0000	SURCHARGED
15 minute summer	Non-Return Valve	11	22.537	0.030	1.9	0.0342	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	LDC J1	1.000	LDC J2	0.0	0.000	0.000	0.0000	
15 minute summer	LDC J2	1.001	LDC Outlet	0.0	0.000	0.000	0.0000	
15 minute summer	LDC Outlet	1.003	S1	0.0	0.000	0.000	0.0000	
15 minute summer	S1	1.004	S2	-2.2	-0.145	-0.019	0.4401	
15 minute summer	S2	1.005	S3	27.6	0.753	0.232	0.3476	
15 minute summer	S3	1.006	S4	27.2	0.739	0.228	0.3993	
15 minute summer	S4	1.007	S5	29.6	0.844	0.249	0.2933	
15 minute summer	S5	1.008	Flow Control	29.9	1.057	0.251	0.3961	
15 minute summer	S6	2.000	S2	9.4	1.232	0.379	0.0497	
15 minute summer	S7	2.001	S2	18.7	1.312	0.299	0.1487	
15 minute summer	S8	6.000	S4	2.8	1.185	0.238	0.0142	
240 minute summer	Flow Control	Hydro-Brake®	Non-Return Valve	2.0				
15 minute summer	Non-Return Valve	1.010	EX S5	2.6	0.712	0.090	0.0162	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.43%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX S1	1	22.680	0.000	0.0	0.0000	0.0000	OK
15 minute summer	EX S2	10	22.750	0.065	8.1	0.0698	0.0000	OK
15 minute summer	EX S3	11	22.541	0.010	0.3	0.0103	0.0000	OK
15 minute summer	EX S4	10	22.594	0.072	8.1	0.0817	0.0000	OK
15 minute summer	EX S5	10	22.540	0.094	10.0	0.1068	0.0000	OK
15 minute summer	EX S6	10	22.516	0.089	9.6	0.1010	0.0000	OK
15 minute summer	EX S7	10	22.487	0.080	9.6	0.0905	0.0000	OK
15 minute summer	EX S8	11	22.423	0.042	9.6	0.0471	0.0000	OK
10080 minute summer	TW 2930	8280	19.372	1.292	0.9	7.5571	0.0000	OK
10080 minute summer	TW JNC 2903	8100	19.372	1.261	0.3	1.4262	0.0000	OK
15 minute summer	TW 2930 Bend	1	19.882	1.829	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	EX S1	3.000	EX S3	0.0	0.000	0.000	0.0034	
15 minute summer	EX S2	4.000	EX S4	8.1	1.044	0.353	0.0766	
15 minute summer	EX S3	3.001	EX S5	-0.3	-0.064	-0.011	0.0178	
15 minute summer	EX S4	4.001	EX S5	8.1	0.962	0.350	0.0285	
15 minute summer	EX S5	1.011	EX S6	9.6	0.850	0.417	0.0130	
15 minute summer	EX S6	1.012	EX S7	9.6	0.937	0.415	0.0121	
15 minute summer	EX S7	1.013	EX S8	9.6	1.430	0.419	0.0107	
15 minute summer	EX S8	1.014	TW 2930	9.5	2.416	0.163	0.0966	
15 minute summer	TW 2930	5.001	TW 2930 Bend	0.0	0.000	0.000	39.6215	0.0
15 minute summer	TW JNC 2903	5.000	TW 2930	-3.7	-0.155	-0.001	7.7786	



Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
5	0	0	0

Results for 5 year Critical Storm Duration. Lowest mass balance: 98.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	LDC J1	1	23.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC J2	1	23.180	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC Outlet	1	23.060	0.000	0.0	0.0000	0.0000	OK
15 minute summer	S1	10	22.921	0.140	3.4	0.2001	0.0000	OK
15 minute summer	S2	10	22.921	0.197	49.5	0.2233	0.0000	OK
15 minute summer	S3	10	22.883	0.193	49.0	0.2767	0.0000	OK
15 minute summer	S4	10	22.842	0.191	52.9	0.2731	0.0000	OK
180 minute winter	S5	164	22.835	0.214	11.5	0.3057	0.0000	OK
15 minute summer	S6	10	23.202	0.102	16.6	0.1158	0.0000	OK
15 minute summer	S7	10	23.179	0.129	32.8	0.1455	0.0000	OK
15 minute summer	S8	10	23.198	0.048	4.8	0.0542	0.0000	OK
180 minute winter	Flow Control	168	22.835	0.261	11.2	28.8017	0.0000	SURCHARGED
15 minute summer	Non-Return Valve	11	22.582	0.075	2.0	0.0843	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	LDC J1	1.000	LDC J2	0.0	0.000	0.000	0.0000	
15 minute summer	LDC J2	1.001	LDC Outlet	0.0	0.000	0.000	0.0000	
15 minute summer	LDC Outlet	1.003	S1	0.0	0.000	0.000	0.0000	
15 minute summer	S1	1.004	S2	-3.4	-0.122	-0.028	0.7714	
15 minute summer	S2	1.005	S3	49.0	0.844	0.411	0.5505	
15 minute summer	S3	1.006	S4	48.1	0.847	0.404	0.6168	
15 minute summer	S4	1.007	S5	52.1	0.998	0.438	0.4354	
15 minute summer	S5	1.008	Flow Control	51.6	1.323	0.434	0.6094	
15 minute summer	S6	2.000	S2	16.6	1.395	0.670	0.0774	
15 minute summer	S7	2.001	S2	32.8	1.498	0.524	0.2284	
15 minute summer	S8	6.000	S4	4.8	1.355	0.409	0.0213	
180 minute winter	Flow Control	Hydro-Brake®	Non-Return Valve	2.0				
30 minute winter	Non-Return Valve	1.010	EX S5	3.5	0.721	0.121	0.0201	

Results for 5 year Critical Storm Duration. Lowest mass balance: 98.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX S1	1	22.680	0.000	0.0	0.0000	0.0000	OK
15 minute summer	EX S2	10	22.778	0.093	14.1	0.1003	0.0000	OK
15 minute summer	EX S3	11	22.582	0.051	0.9	0.0548	0.0000	OK
15 minute summer	EX S4	10	22.631	0.109	14.1	0.1233	0.0000	OK
15 minute summer	EX S5	11	22.582	0.136	15.6	0.1534	0.0000	OK
15 minute summer	EX S6	11	22.549	0.121	15.0	0.1374	0.0000	OK
15 minute summer	EX S7	11	22.513	0.106	15.1	0.1194	0.0000	OK
15 minute summer	EX S8	11	22.435	0.054	15.1	0.0605	0.0000	OK
8640 minute winter	TW 2930	6780	19.882	1.802	0.9	10.5399	0.0000	OK
7200 minute winter	TW JNC 2903	6420	19.882	1.771	0.3	2.0030	0.0000	OK
15 minute summer	TW 2930 Bend	1	19.882	1.829	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	EX S1	3.000	EX S3	0.0	0.000	0.000	0.0388	
15 minute summer	EX S2	4.000	EX S4	14.1	1.147	0.613	0.1232	
15 minute summer	EX S3	3.001	EX S5	1.0	-0.134	0.042	0.0386	
15 minute summer	EX S4	4.001	EX S5	14.0	1.086	0.606	0.0467	
15 minute summer	EX S5	1.011	EX S6	15.0	0.941	0.656	0.0184	
15 minute summer	EX S6	1.012	EX S7	15.1	1.056	0.652	0.0168	
15 minute summer	EX S7	1.013	EX S8	15.1	1.597	0.664	0.0150	
15 minute summer	EX S8	1.014	TW 2930	15.2	2.742	0.259	0.1357	
8640 minute winter	TW 2930	5.001	TW 2930 Bend	0.1	0.000	0.000	71.8133	10.0
15 minute summer	TW JNC 2903	5.000	TW 2930	-6.3	-0.185	-0.002	14.6845	



Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	0	0	0

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	LDC J1	1	23.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC J2	1	23.180	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC Outlet	1	23.060	0.000	0.0	0.0000	0.0000	OK
15 minute summer	S1	10	23.016	0.235	5.4	0.3369	0.0000	OK
15 minute summer	S2	10	23.016	0.292	87.7	0.3308	0.0000	OK
180 minute winter	S3	176	23.013	0.323	17.1	0.4624	0.0000	OK
180 minute winter	S4	176	23.013	0.362	18.3	0.5183	0.0000	OK
180 minute winter	S5	176	23.013	0.392	17.8	0.5612	0.0000	SURCHARGED
15 minute summer	S6	10	23.374	0.274	29.5	0.3104	0.0000	SURCHARGED
15 minute summer	S7	10	23.254	0.204	58.3	0.2305	0.0000	OK
15 minute summer	S8	10	23.221	0.071	8.6	0.0806	0.0000	OK
180 minute winter	Flow Control	176	23.013	0.439	17.3	56.4053	0.0000	SURCHARGED
15 minute summer	Non-Return Valve	11	22.687	0.180	2.0	0.2040	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	LDC J1	1.000	LDC J2	0.0	0.000	0.000	0.0000	
15 minute summer	LDC J2	1.001	LDC Outlet	0.0	0.000	0.000	0.0000	
15 minute summer	LDC Outlet	1.003	S1	0.0	0.000	0.000	0.0893	
15 minute summer	S1	1.004	S2	6.1	-0.140	0.051	1.3236	
15 minute summer	S2	1.005	S3	85.8	0.947	0.721	0.8599	
15 minute summer	S3	1.006	S4	84.8	0.973	0.712	0.9462	
15 minute summer	S4	1.007	S5	92.1	1.173	0.774	0.6638	
15 minute summer	S5	1.008	Flow Control	90.5	1.562	0.760	1.0438	
15 minute summer	S6	2.000	S2	29.4	1.673	1.188	0.1134	
15 minute summer	S7	2.001	S2	58.3	1.655	0.931	0.3649	
15 minute summer	S8	6.000	S4	8.6	1.530	0.732	0.0337	
60 minute winter	Flow Control	Hydro-Brake®	Non-Return Valve	2.0				
120 minute summer	Non-Return Valve	1.010	EX S5	3.7	0.722	0.128	0.0216	

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX S1	12	22.688	0.008	0.3	0.0090	0.0000	OK
15 minute summer	EX S2	10	23.013	0.328	25.2	0.3539	0.0000	SURCHARGED
15 minute summer	EX S3	11	22.687	0.156	2.0	0.1685	0.0000	SURCHARGED
15 minute summer	EX S4	11	22.785	0.263	24.1	0.2976	0.0000	SURCHARGED
15 minute summer	EX S5	11	22.687	0.241	24.0	0.2724	0.0000	SURCHARGED
15 minute summer	EX S6	11	22.620	0.193	23.4	0.2185	0.0000	SURCHARGED
15 minute summer	EX S7	11	22.553	0.146	23.3	0.1654	0.0000	OK
15 minute summer	EX S8	11	22.449	0.068	23.2	0.0767	0.0000	OK
2160 minute summer	TW 2930	1620	19.882	1.802	2.9	10.5417	0.0000	OK
960 minute summer	TW JNC 2903	1065	19.883	1.772	1.3	2.0036	0.0000	OK
15 minute summer	TW 2930 Bend	1	19.882	1.829	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	EX S1	3.000	EX S3	-0.3	0.081	-0.018	0.1310	
15 minute summer	EX S2	4.000	EX S4	24.1	1.371	1.050	0.1723	
15 minute summer	EX S3	3.001	EX S5	2.5	0.218	0.111	0.0686	
15 minute summer	EX S4	4.001	EX S5	23.3	1.321	1.008	0.0586	
15 minute summer	EX S5	1.011	EX S6	23.4	1.331	1.023	0.0202	
15 minute summer	EX S6	1.012	EX S7	23.3	1.326	1.008	0.0207	
15 minute summer	EX S7	1.013	EX S8	23.2	1.730	1.018	0.0200	
15 minute summer	EX S8	1.014	TW 2930	23.1	3.057	0.394	0.1852	
1440 minute winter	TW 2930	5.001	TW 2930 Bend	3.9	0.001	0.001	71.8141	22.6
15 minute winter	TW JNC 2903	5.000	TW 2930	-8.4	-0.202	-0.002	22.6001	



Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	0	0	0

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	LDC J1	1	23.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC J2	1	23.180	0.000	0.0	0.0000	0.0000	OK
240 minute winter	LDC Outlet	236	23.179	0.119	0.2	0.0190	0.0000	OK
240 minute winter	S1	236	23.179	0.398	0.6	0.5699	0.0000	SURCHARGED
240 minute winter	S2	236	23.179	0.455	19.0	2.2145	0.0000	SURCHARGED
240 minute winter	S3	236	23.179	0.489	18.0	0.7002	0.0000	SURCHARGED
240 minute winter	S4	236	23.179	0.528	19.3	0.7560	0.0000	SURCHARGED
240 minute winter	S5	236	23.179	0.558	18.9	0.7990	0.0000	SURCHARGED
15 minute summer	S6	10	23.540	0.440	38.6	0.5488	0.0000	SURCHARGED
15 minute summer	S7	10	23.437	0.387	76.4	0.4372	0.0000	SURCHARGED
15 minute summer	S8	10	23.260	0.110	11.3	0.1245	0.0000	SURCHARGED
240 minute winter	Flow Control	236	23.179	0.605	18.4	82.0766	0.0000	SURCHARGED
15 minute summer	Non-Return Valve	12	22.769	0.262	2.0	0.2964	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	LDC J1	1.000	LDC J2	0.0	0.000	0.000	0.0000	
15 minute summer	LDC J2	1.001	LDC Outlet	0.0	0.000	0.000	0.0207	
15 minute summer	LDC Outlet	1.003	S1	2.2	0.272	0.042	0.2108	
15 minute summer	S1	1.004	S2	10.2	-0.140	0.086	1.6524	
15 minute summer	S2	1.005	S3	109.8	1.016	0.922	1.0229	
15 minute summer	S3	1.006	S4	108.9	1.048	0.915	1.1381	
15 minute summer	S4	1.007	S5	118.5	1.262	0.996	0.8051	
15 minute summer	S5	1.008	Flow Control	117.0	1.672	0.983	1.3027	
15 minute summer	S6	2.000	S2	37.7	2.141	1.521	0.1134	
15 minute summer	S7	2.001	S2	76.4	1.921	1.220	0.4103	
15 minute summer	S8	6.000	S4	11.0	1.552	0.933	0.0424	
2160 minute summer	Flow Control	Hydro-Brake®	Non-Return Valve	2.0				
15 minute summer	Non-Return Valve	1.010	EX S5	3.6	0.722	0.123	0.0405	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX S1	12	22.774	0.094	2.4	0.1063	0.0000	OK
15 minute summer	EX S2	10	23.305	0.620	33.0	0.6700	0.0000	SURCHARGED
15 minute summer	EX S3	12	22.770	0.239	3.4	0.2578	0.0000	SURCHARGED
15 minute summer	EX S4	11	22.928	0.406	31.2	0.4589	0.0000	SURCHARGED
15 minute summer	EX S5	12	22.768	0.322	29.9	0.3642	0.0000	SURCHARGED
15 minute summer	EX S6	12	22.681	0.254	27.0	0.2876	0.0000	SURCHARGED
15 minute summer	EX S7	12	22.592	0.185	27.0	0.2096	0.0000	SURCHARGED
15 minute summer	EX S8	12	22.455	0.074	27.1	0.0842	0.0000	OK
4320 minute summer	TW 2930	2400	19.882	1.802	2.6	10.5421	0.0000	OK
4320 minute summer	TW JNC 2903	2460	19.883	1.772	0.9	2.0036	0.0000	OK
15 minute summer	TW 2930 Bend	1	19.882	1.829	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	EX S1	3.000	EX S3	-2.4	-0.199	-0.132	0.2167	
15 minute summer	EX S2	4.000	EX S4	31.2	1.770	1.356	0.1723	
15 minute summer	EX S3	3.001	EX S5	4.1	0.264	0.180	0.0686	
15 minute summer	EX S4	4.001	EX S5	29.9	1.698	1.295	0.0586	
15 minute summer	EX S5	1.011	EX S6	27.0	1.536	1.180	0.0202	
15 minute summer	EX S6	1.012	EX S7	27.0	1.532	1.164	0.0208	
15 minute summer	EX S7	1.013	EX S8	27.1	1.795	1.186	0.0209	
15 minute summer	EX S8	1.014	TW 2930	27.1	3.179	0.463	0.2088	
2160 minute winter	TW 2930	5.001	TW 2930 Bend	4.9	0.002	0.001	71.8132	129.4
15 minute summer	TW JNC 2903	5.000	TW 2930	-9.2	-0.197	-0.002	24.6165	



Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	40	0	0

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.40%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	LDC J1	352	23.400	0.100	0.1	0.1128	0.0000	OK
360 minute winter	LDC J2	352	23.400	0.220	0.3	0.2485	0.0000	OK
360 minute winter	LDC Outlet	352	23.400	0.340	0.5	0.0540	0.0000	SURCHARGED
360 minute winter	S1	352	23.400	0.619	1.1	0.8852	0.0000	SURCHARGED
360 minute winter	S2	352	23.400	0.676	19.6	15.0181	0.0000	SURCHARGED
360 minute winter	S3	352	23.400	0.710	17.9	1.0154	0.0000	SURCHARGED
360 minute winter	S4	352	23.400	0.749	19.6	1.0712	0.0000	SURCHARGED
360 minute winter	S5	352	23.400	0.779	19.5	1.1141	0.0000	SURCHARGED
15 minute summer	S6	11	23.726	0.626	54.0	2.2602	0.0000	SURCHARGED
15 minute summer	S7	11	23.636	0.586	107.0	2.7464	0.0000	SURCHARGED
15 minute summer	S8	10	23.483	0.333	15.8	0.3765	0.0000	SURCHARGED
360 minute winter	Flow Control	352	23.400	0.826	19.4	116.1096	0.0000	SURCHARGED
15 minute summer	Non-Return Valve	12	22.933	0.426	2.0	0.4821	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	LDC J1	1.000	LDC J2	-0.1	-0.010	-0.002	0.3388	
240 minute summer	LDC J2	1.001	LDC Outlet	-0.4	-0.031	-0.008	0.4604	
15 minute summer	LDC Outlet	1.003	S1	8.0	0.507	0.154	0.3994	
15 minute summer	S1	1.004	S2	26.7	0.272	0.224	1.7688	
15 minute summer	S2	1.005	S3	121.3	1.100	1.019	1.0466	
15 minute summer	S3	1.006	S4	121.0	1.097	1.016	1.1980	
15 minute summer	S4	1.007	S5	135.2	1.305	1.136	0.9128	
15 minute summer	S5	1.008	Flow Control	133.8	1.764	1.124	1.4397	
15 minute summer	S6	2.000	S2	42.9	2.437	1.731	0.1146	
15 minute summer	S7	2.001	S2	91.1	2.291	1.455	0.4149	
15 minute summer	S8	6.000	S4	14.7	1.882	1.253	0.0470	
360 minute winter	Flow Control	Hydro-Brake®	Non-Return Valve	2.0				
15 minute summer	Non-Return Valve	1.010	EX S5	3.8	0.721	0.132	0.0405	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.40%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX S1	12	22.937	0.257	3.2	0.2905	0.0000	SURCHARGED
15 minute summer	EX S2	10	23.820	1.135	46.2	1.2258	0.3206	FLOOD
15 minute summer	EX S3	12	22.934	0.403	5.3	0.4351	0.0000	SURCHARGED
15 minute summer	EX S4	11	23.190	0.668	40.8	0.7557	0.0000	SURCHARGED
15 minute summer	EX S5	12	22.933	0.487	39.4	0.5504	0.0000	SURCHARGED
15 minute summer	EX S6	12	22.796	0.369	33.6	0.4176	0.0000	SURCHARGED
15 minute summer	EX S7	12	22.659	0.252	33.5	0.2846	0.0000	SURCHARGED
15 minute summer	EX S8	12	22.466	0.085	33.5	0.0960	0.0000	OK
4320 minute summer	TW 2930	2220	19.882	1.802	3.3	10.5427	0.0000	OK
4320 minute summer	TW JNC 2903	2220	19.883	1.772	1.0	2.0038	0.0000	OK
15 minute summer	TW 2930 Bend	1	19.882	1.829	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	EX S1	3.000	EX S3	-3.2	-0.253	-0.178	0.2611	
15 minute summer	EX S2	4.000	EX S4	40.8	2.320	1.777	0.1723	
15 minute summer	EX S3	3.001	EX S5	-5.3	-0.300	-0.229	0.0686	
15 minute summer	EX S4	4.001	EX S5	39.4	2.238	1.707	0.0586	
15 minute summer	EX S5	1.011	EX S6	33.6	1.906	1.465	0.0202	
15 minute summer	EX S6	1.012	EX S7	33.5	1.905	1.448	0.0208	
15 minute summer	EX S7	1.013	EX S8	33.5	2.134	1.467	0.0221	
15 minute summer	EX S8	1.014	TW 2930	33.4	3.336	0.570	0.2451	
2160 minute summer	TW 2930	5.001	TW 2930 Bend	5.0	0.002	0.001	71.8139	129.7
15 minute summer	TW JNC 2903	5.000	TW 2930	-11.4	-0.204	-0.003	26.8335	



Simulation Settings

Rainfall Methodology	FSR	Summer CV	1.000	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	1.000	Additional Storage (m³/ha)	0.0
M5-60 (mm)	21.000	Analysis Speed	Normal	Check Discharge Rate(s)	x
Ratio-R	0.432	Skip Steady State	x	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.52%

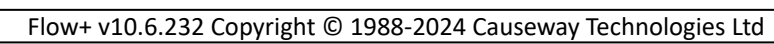
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	LDC J1	1	23.300	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC J2	1	23.180	0.000	0.0	0.0000	0.0000	OK
15 minute summer	LDC Outlet	1	23.060	0.000	0.0	0.0000	0.0000	OK
15 minute summer	S1	10	22.871	0.090	2.4	0.1291	0.0000	OK
15 minute summer	S2	10	22.870	0.146	30.7	0.1653	0.0000	OK
15 minute summer	S3	10	22.834	0.144	30.1	0.2061	0.0000	OK
15 minute summer	S4	10	22.797	0.146	32.6	0.2088	0.0000	OK
15 minute summer	S5	11	22.756	0.135	32.3	0.1934	0.0000	OK
15 minute summer	S6	10	23.174	0.074	10.3	0.0841	0.0000	OK
15 minute summer	S7	10	23.146	0.096	20.4	0.1085	0.0000	OK
15 minute summer	S8	10	23.186	0.036	3.0	0.0412	0.0000	OK
60 minute winter	Flow Control	60	22.740	0.166	14.5	14.1949	0.0000	SURCHARGED
15 minute summer	Non-Return Valve	11	22.547	0.040	1.9	0.0452	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	LDC J1	1.000	LDC J2	0.0	0.000	0.000	0.0000	
15 minute summer	LDC J2	1.001	LDC Outlet	0.0	0.000	0.000	0.0000	
15 minute summer	LDC Outlet	1.003	S1	0.0	0.000	0.000	0.0000	
15 minute summer	S1	1.004	S2	-2.4	-0.138	-0.020	0.4815	
15 minute summer	S2	1.005	S3	30.1	0.766	0.253	0.3732	
15 minute summer	S3	1.006	S4	29.6	0.755	0.249	0.4268	
15 minute summer	S4	1.007	S5	32.3	0.866	0.271	0.3118	
15 minute summer	S5	1.008	Flow Control	32.6	1.101	0.274	0.4187	
15 minute summer	S6	2.000	S2	10.3	1.259	0.416	0.0533	
15 minute summer	S7	2.001	S2	20.4	1.341	0.326	0.1588	
15 minute summer	S8	6.000	S4	3.0	1.206	0.255	0.0149	
60 minute winter	Flow Control	Hydro-Brake®	Non-Return Valve	2.0				
15 minute summer	Non-Return Valve	1.010	EX S5	3.0	0.713	0.105	0.0179	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.52%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX S1	1	22.680	0.000	0.0	0.0000	0.0000	OK
15 minute summer	EX S2	10	22.753	0.068	8.8	0.0734	0.0000	OK
15 minute summer	EX S3	11	22.545	0.014	0.2	0.0154	0.0000	OK
15 minute summer	EX S4	10	22.598	0.076	8.8	0.0860	0.0000	OK
15 minute summer	EX S5	10	22.548	0.102	11.7	0.1150	0.0000	OK
15 minute summer	EX S6	10	22.520	0.093	10.9	0.1050	0.0000	OK
15 minute summer	EX S7	11	22.488	0.081	10.2	0.0920	0.0000	OK
15 minute summer	EX S8	11	22.425	0.044	10.0	0.0494	0.0000	OK
10080 minute winter	TW 2930	9120	19.123	1.043	0.4	6.1011	0.0000	OK
10080 minute winter	TW JNC 2903	8820	19.123	1.012	0.1	1.1447	0.0000	OK
15 minute summer	TW 2930 Bend	1	19.882	1.829	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	EX S1	3.000	EX S3	0.0	0.000	0.000	0.0063	
15 minute summer	EX S2	4.000	EX S4	8.8	1.060	0.383	0.0817	
15 minute summer	EX S3	3.001	EX S5	0.4	0.080	0.015	0.0204	
15 minute summer	EX S4	4.001	EX S5	8.6	0.986	0.374	0.0312	
15 minute summer	EX S5	1.011	EX S6	10.9	0.905	0.477	0.0139	
15 minute summer	EX S6	1.012	EX S7	10.2	0.963	0.440	0.0125	
15 minute summer	EX S7	1.013	EX S8	10.0	1.437	0.437	0.0111	
15 minute summer	EX S8	1.014	TW 2930	10.4	2.478	0.178	0.1030	
15 minute summer	TW 2930	5.001	TW 2930 Bend	0.0	0.000	0.000	39.9891	0.0
15 minute summer	TW JNC 2903	5.000	TW 2930	-4.1	-0.163	-0.001	8.5961	



Technical Specification

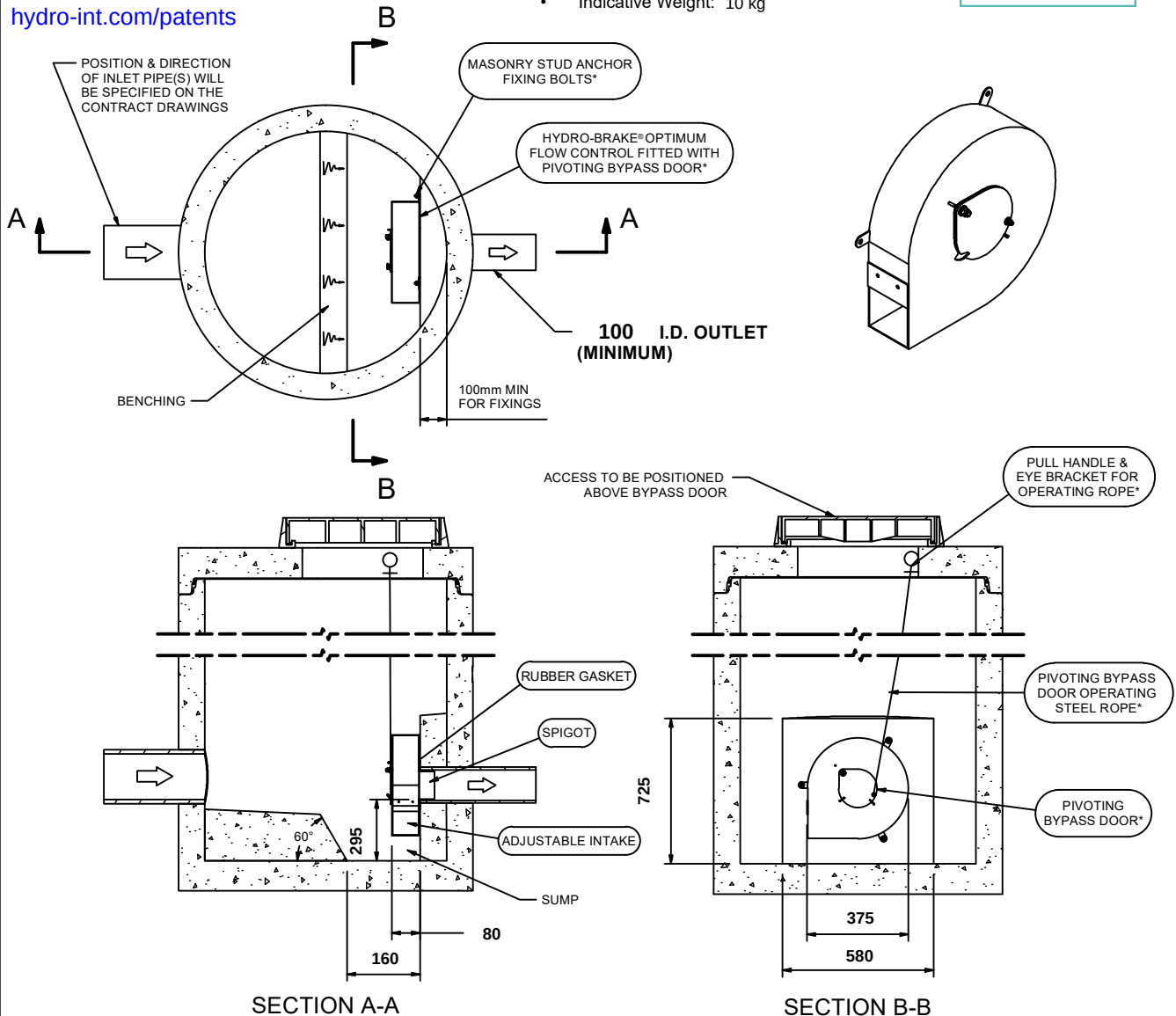
Control Point	Head (m)	Flow (l/s)
Primary Design	0.800	2.000
Flush-Flo™	0.240	1.986
Kick-Flo®	0.504	1.624
Mean Flow		1.743

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Variable flow rate post installation via adjustable inlet
- Indicative Weight: 10 kg



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IMPORTANT: ○ LIMIT OF HYDRO INTERNATIONAL SUPPLY
 THE DEVICE WILL BE HANDLED TO SUIT SITE CONDITIONS
 FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
 ALL CIVIL AND INSTALLATION WORK BY OTHERS
 * WHERE SUPPLIED
 HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW
 CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE



The head/flow characteristics of this SHE-0070-2000-0800-2000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

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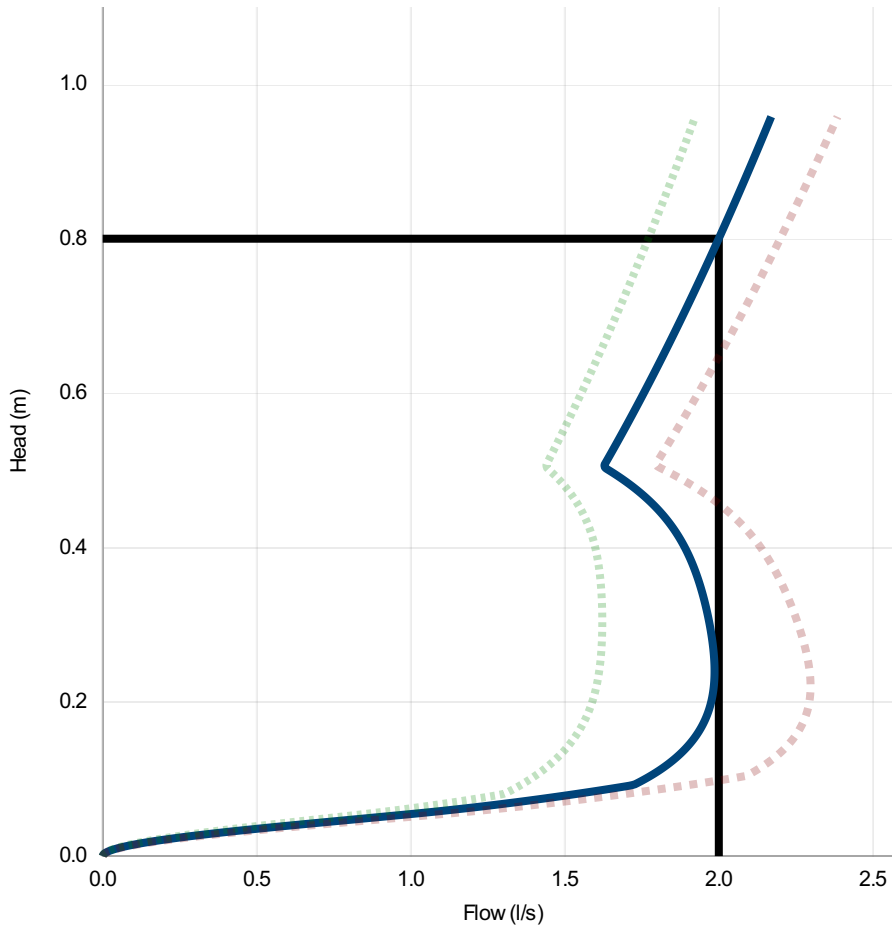
DATE	24/04/2024 15:59	SHE-0070-2000-0800-2000 Hydro-Brake® Optimum
SITE		
DESIGNER	Chris Micklethwaite	
REF		

Technical Specification

	Original Setting		Minimum Setting		Maximum Setting	
Control Point	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
Primary Design	0.800	2.000	0.800	1.771	0.800	2.199
Flush-Flo™	0.240	1.986	0.304	1.622	0.220	2.298
Kick-Flo®	0.504	1.624	0.504	1.436	0.506	1.792
Mean Flow		1.743		1.480		1.962



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Head (m)	Flow (l/s)
0.000	0.000
0.028	0.321
0.055	1.017
0.083	1.575
0.110	1.804
0.138	1.889
0.166	1.941
0.193	1.971
0.221	1.984
0.248	1.986
0.276	1.980
0.303	1.969
0.331	1.953
0.359	1.933
0.386	1.906
0.414	1.870
0.441	1.820
0.469	1.751
0.497	1.657
0.524	1.653
0.552	1.692
0.579	1.729
0.607	1.765
0.634	1.801
0.662	1.836
0.690	1.870
0.717	1.903
0.745	1.936
0.772	1.968
0.800	2.000

DESIGN ADVICE



The head/flow characteristics of this SHE-0070-2000-0800-2000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

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DATE 24/04/2024 15:59

Site

DESIGNER Chris Micklethwaite

Ref

SHE-0070-2000-0800-2000

Hydro-Brake® Optimum