

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1L	0.015	5.00	165.000	450	446567.352	310029.082	1.350
S1	0.030	5.00	164.893	1200	446570.505	310034.186	1.725
S2			165.629	1200	446587.138	310023.913	2.576
S3	0.017	5.00	165.424	1200	446594.767	310009.925	2.465
S4	0.016	5.00	164.763	1200	446593.461	309993.083	1.903
S5	0.016	5.00	164.489	1200	446637.208	309972.578	1.913
S6L	0.100	5.00	164.500	450	446645.043	309968.719	1.650
S6			164.311	1500	446641.291	309967.333	1.775
S7	0.020	5.00	164.103	1200	446641.841	309961.210	1.725
S8L	0.048	5.00	162.950	450	446625.942	309939.776	1.350
S8	0.013	5.00	162.839	1500	446631.442	309937.380	1.725
S9	0.019	5.00	162.357	1200	446633.065	309929.036	1.725
S10L	0.042	5.00	161.950	450	446645.185	309926.758	1.500
S10			161.682	1200	446644.221	309922.363	1.725
S11			161.118	1200	446657.263	309919.500	1.725
S12L	0.096	5.00	160.350	450	446691.500	309933.138	1.350
S12	0.016	5.00	160.413	1200	446682.446	309925.262	1.625
S13	0.040	5.00	160.782	1500	446669.318	309920.398	2.200
HW1			157.975	1200	446676.195	309891.709	1.484
S14L	0.070	5.00	163.250	450	446573.828	309969.225	1.400
S14	0.048	5.00	163.111	1500	446579.305	309966.776	1.425
S15L	0.106	5.00	162.450	600	446547.383	309954.172	1.425
S15	0.039	5.00	161.890	1500	446569.412	309944.648	1.425
S16			161.450	1500	446565.825	309936.626	1.425
S17L	0.056	5.00	161.950	450	446572.031	309932.330	2.150
S17			161.175	1200	446571.823	309929.118	1.800
S18L	0.043	5.00	160.900	450	446599.409	309915.348	1.650
S18			160.700	1200	446598.610	309913.515	1.800
S19			158.500	1500	446649.035	309891.553	1.300
HW2			157.975	1200	446666.215	309888.224	1.484
HW3		5.00	157.975	1200	446691.086	309887.372	1.500
S20 FCU			158.375	2700	446694.580	309880.175	2.275
HW4			155.580	1200	446696.787	309871.760	0.350

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1L	S1L	S1	5.999	0.600	163.650	163.243	0.407	14.7	150	5.04	50.0
1.000	S1	S2	19.550	0.600	163.168	163.053	0.115	170.0	225	5.36	50.0
1.001	S2	S3	15.933	0.600	163.053	162.959	0.094	170.0	225	5.63	50.0
1.002	S3	S4	16.893	0.600	162.959	162.860	0.099	170.0	225	5.91	50.0
1.003	S4	S5	48.314	0.600	162.860	162.576	0.284	170.0	225	6.72	50.0
1.004	S5	S6	6.647	0.600	162.576	162.536	0.040	166.2	225	6.83	50.0
S6L	S6L	S6	4.000	0.600	162.850	162.611	0.239	16.7	150	5.03	50.0
1.005	S6	S7	6.148	0.600	162.536	162.378	0.158	38.9	225	6.87	50.0
1.006	S7	S8	26.000	0.600	162.378	161.114	1.264	20.6	225	7.02	50.0
S8L	S8L	S8	5.999	0.600	161.600	161.189	0.411	14.6	150	5.04	50.0
1.007	S8	S9	8.500	0.600	161.114	160.632	0.482	17.6	225	7.07	50.0
1.008	S9	S10	12.999	0.600	160.632	159.957	0.675	19.3	225	7.14	50.0
S10L	S10L	S10	4.499	0.600	160.450	160.032	0.418	10.8	150	5.02	50.0
1.009	S10	S11	13.353	0.600	159.957	159.393	0.564	23.7	225	7.22	50.0
1.010	S11	S13	12.088	0.600	159.393	158.657	0.736	16.4	225	7.29	50.0
S12L	S12L	S12	12.000	0.600	159.000	158.863	0.137	87.6	150	5.19	50.0
2.000	S12	S13	14.000	0.600	158.788	158.657	0.131	106.9	225	5.37	50.0
1.011	S13	HW1	29.502	0.600	158.582	156.700	1.882	15.7	300	7.41	50.0
S14L	S14L	S14	6.000	0.600	161.850	161.761	0.089	67.4	150	5.08	50.0
3.000	S14	S15	24.239	0.600	161.686	160.465	1.221	19.9	225	5.22	50.0
S15L	S15L	S15	24.000	0.600	161.025	160.465	0.560	42.9	225	5.20	50.0
3.001	S15	S16	8.787	0.600	160.465	160.025	0.440	20.0	225	5.27	50.0
3.002	S16	S17	9.610	0.600	160.025	159.450	0.575	16.7	225	5.32	50.0
S17L	S17L	S17	3.219	0.600	159.800	159.525	0.275	11.7	150	5.02	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1L	2.637	46.6	2.8	1.200	1.500	0.015	0.0	25	1.457
1.000	1.000	39.7	8.5	1.500	2.351	0.045	0.0	71	0.800
1.001	1.000	39.7	8.5	2.351	2.240	0.045	0.0	71	0.800
1.002	1.000	39.7	11.8	2.240	1.678	0.062	0.0	84	0.874
1.003	1.000	39.7	14.8	1.678	1.688	0.078	0.0	95	0.930
1.004	1.011	40.2	17.8	1.688	1.550	0.094	0.0	105	0.982
S6L	2.474	43.7	19.0	1.500	1.550	0.100	0.0	69	2.385
1.005	2.103	83.6	36.8	1.550	1.500	0.194	0.0	104	2.036
1.006	2.898	115.2	40.6	1.500	1.500	0.214	0.0	92	2.649
S8L	2.650	46.8	9.1	1.200	1.500	0.048	0.0	45	2.062
1.007	3.130	124.5	52.2	1.500	1.500	0.275	0.0	102	2.996
1.008	2.995	119.1	55.8	1.500	1.500	0.294	0.0	109	2.951
S10L	3.088	54.6	8.0	1.350	1.500	0.042	0.0	38	2.205
1.009	2.700	107.4	63.8	1.500	1.500	0.336	0.0	125	2.814
1.010	3.244	129.0	63.8	1.500	1.900	0.336	0.0	112	3.239
S12L	1.074	19.0	18.2	1.200	1.400	0.096	0.0	118	1.220
2.000	1.264	50.3	21.3	1.400	1.900	0.112	0.0	102	1.214
1.011	3.990	282.0	92.6	1.900	0.975	0.488	0.0	118	3.589
S14L	1.226	21.7	13.3	1.250	1.200	0.070	0.0	85	1.286
3.000	2.950	117.3	22.4	1.200	1.200	0.118	0.0	66	2.287
S15L	2.003	79.7	20.1	1.200	1.200	0.106	0.0	77	1.678
3.001	2.941	116.9	49.9	1.200	1.200	0.263	0.0	102	2.826
3.002	3.216	127.9	49.9	1.200	1.500	0.263	0.0	97	3.018
S17L	2.961	52.3	10.6	2.000	1.500	0.056	0.0	46	2.337

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
3.003	S17	S18	31.000	0.600	159.375	158.900	0.475	65.3	300	5.58	50.0
S18L	S18L	S18	2.000	0.600	159.250	159.050	0.200	10.0	150	5.01	50.0
3.004	S18	S19	55.000	0.600	158.900	157.200	1.700	32.4	300	5.91	50.0
3.005	S19	HW2	17.500	0.600	157.200	156.700	0.500	35.0	300	6.02	50.0
1.012	HW3	S20 FCU	8.000	0.600	156.475	156.100	0.375	21.3	225	5.05	50.0
10.001	S20 FCU	HW4	8.700	0.600	156.100	155.230	0.870	10.0	225	5.08	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
3.003	1.949	137.8	60.5	1.500	1.500	0.319	0.0	139	1.889
S18L	3.204	56.6	8.2	1.500	1.500	0.043	0.0	38	2.288
3.004	2.773	196.0	68.7	1.500	1.000	0.362	0.0	122	2.535
3.005	2.666	188.4	68.7	1.000	0.975	0.362	0.0	125	2.463
1.012	2.845	113.1	0.0	1.275	2.050	0.000	0.0	0	0.000
10.001	4.161	165.5	0.0	2.050	0.125	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1L	5.999	14.7	150	Circular_Default Sewer Type	165.000	163.650	1.200	164.893	163.243	1.500
1.000	19.550	170.0	225	Circular_Default Sewer Type	164.893	163.168	1.500	165.629	163.053	2.351
1.001	15.933	170.0	225	Circular_Default Sewer Type	165.629	163.053	2.351	165.424	162.959	2.240
1.002	16.893	170.0	225	Circular_Default Sewer Type	165.424	162.959	2.240	164.763	162.860	1.678
1.003	48.314	170.0	225	Circular_Default Sewer Type	164.763	162.860	1.678	164.489	162.576	1.688
1.004	6.647	166.2	225	Circular_Default Sewer Type	164.489	162.576	1.688	164.311	162.536	1.550
S6L	4.000	16.7	150	Circular_Default Sewer Type	164.500	162.850	1.500	164.311	162.611	1.550
1.005	6.148	38.9	225	Circular_Default Sewer Type	164.311	162.536	1.550	164.103	162.378	1.500
1.006	26.000	20.6	225	Circular_Default Sewer Type	164.103	162.378	1.500	162.839	161.114	1.500
S8L	5.999	14.6	150	Circular_Default Sewer Type	162.950	161.600	1.200	162.839	161.189	1.500
1.007	8.500	17.6	225	Circular_Default Sewer Type	162.839	161.114	1.500	162.357	160.632	1.500
1.008	12.999	19.3	225	Circular_Default Sewer Type	162.357	160.632	1.500	161.682	159.957	1.500
S10L	4.499	10.8	150	Circular_Default Sewer Type	161.950	160.450	1.350	161.682	160.032	1.500
1.009	13.353	23.7	225	Circular_Default Sewer Type	161.682	159.957	1.500	161.118	159.393	1.500

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1L	S1L	450	Manhole	Adoptable	S1	1200	Manhole	Adoptable
1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.001	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.002	S3	1200	Manhole	Adoptable	S4	1200	Manhole	Adoptable
1.003	S4	1200	Manhole	Adoptable	S5	1200	Manhole	Adoptable
1.004	S5	1200	Manhole	Adoptable	S6	1500	Manhole	Adoptable
S6L	S6L	450	Manhole	Adoptable	S6	1500	Manhole	Adoptable
1.005	S6	1500	Manhole	Adoptable	S7	1200	Manhole	Adoptable
1.006	S7	1200	Manhole	Adoptable	S8	1500	Manhole	Adoptable
S8L	S8L	450	Manhole	Adoptable	S8	1500	Manhole	Adoptable
1.007	S8	1500	Manhole	Adoptable	S9	1200	Manhole	Adoptable
1.008	S9	1200	Manhole	Adoptable	S10	1200	Manhole	Adoptable
S10L	S10L	450	Manhole	Adoptable	S10	1200	Manhole	Adoptable
1.009	S10	1200	Manhole	Adoptable	S11	1200	Manhole	Adoptable



Pipeline Schedule

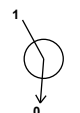
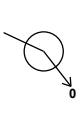
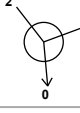
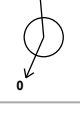
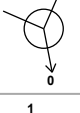
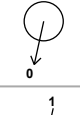
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.010	12.088	16.4	225	Circular_Default Sewer Type	161.118	159.393	1.500	160.782	158.657	1.900
S12L	12.000	87.6	150	Circular_Default Sewer Type	160.350	159.000	1.200	160.413	158.863	1.400
2.000	14.000	106.9	225	Circular_Default Sewer Type	160.413	158.788	1.400	160.782	158.657	1.900
1.011	29.502	15.7	300	Circular_Default Sewer Type	160.782	158.582	1.900	157.975	156.700	0.975
S14L	6.000	67.4	150	Circular_Default Sewer Type	163.250	161.850	1.250	163.111	161.761	1.200
3.000	24.239	19.9	225	Circular_Default Sewer Type	163.111	161.686	1.200	161.890	160.465	1.200
S15L	24.000	42.9	225	Circular_Default Sewer Type	162.450	161.025	1.200	161.890	160.465	1.200
3.001	8.787	20.0	225	Circular_Default Sewer Type	161.890	160.465	1.200	161.450	160.025	1.200
3.002	9.610	16.7	225	Circular_Default Sewer Type	161.450	160.025	1.200	161.175	159.450	1.500
S17L	3.219	11.7	150	Circular_Default Sewer Type	161.950	159.800	2.000	161.175	159.525	1.500
3.003	31.000	65.3	300	Circular_Default Sewer Type	161.175	159.375	1.500	160.700	158.900	1.500
S18L	2.000	10.0	150	Circular_Default Sewer Type	160.900	159.250	1.500	160.700	159.050	1.500
3.004	55.000	32.4	300	Circular_Default Sewer Type	160.700	158.900	1.500	158.500	157.200	1.000
3.005	17.500	35.0	300	Circular_Default Sewer Type	158.500	157.200	1.000	157.975	156.700	0.975
1.012	8.000	21.3	225	Circular_Default Sewer Type	157.975	156.475	1.275	158.375	156.100	2.050
10.001	8.700	10.0	225	Circular_Default Sewer Type	158.375	156.100	2.050	155.580	155.230	0.125

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.010	S11	1200	Manhole	Adoptable	S13	1500	Manhole	Adoptable
S12L	S12L	450	Manhole	Adoptable	S12	1200	Manhole	Adoptable
2.000	S12	1200	Manhole	Adoptable	S13	1500	Manhole	Adoptable
1.011	S13	1500	Manhole	Adoptable	HW1	1200	Manhole	Adoptable
S14L	S14L	450	Manhole	Adoptable	S14	1500	Manhole	Adoptable
3.000	S14	1500	Manhole	Adoptable	S15	1500	Manhole	Adoptable
S15L	S15L	600	Manhole	Adoptable	S15	1500	Manhole	Adoptable
3.001	S15	1500	Manhole	Adoptable	S16	1500	Manhole	Adoptable
3.002	S16	1500	Manhole	Adoptable	S17	1200	Manhole	Adoptable
S17L	S17L	450	Manhole	Adoptable	S17	1200	Manhole	Adoptable
3.003	S17	1200	Manhole	Adoptable	S18	1200	Manhole	Adoptable
S18L	S18L	450	Manhole	Adoptable	S18	1200	Manhole	Adoptable
3.004	S18	1200	Manhole	Adoptable	S19	1500	Manhole	Adoptable
3.005	S19	1500	Manhole	Adoptable	HW2	1200	Manhole	Adoptable
1.012	HW3	1200	Manhole	Adoptable	S20 FCU	2700	Manhole	Adoptable
10.001	S20 FCU	2700	Manhole	Adoptable	HW4	1200	Manhole	Adoptable

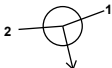
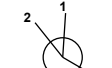
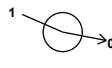
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1L	446567.352	310029.082	165.000	1.350	450					
						0	S1L	163.650	150	
S1	446570.505	310034.186	164.893	1.725	1200		1	S1L	163.243	150
						0	1.000	163.168	225	
S2	446587.138	310023.913	165.629	2.576	1200		1	1.000	163.053	225
						0	1.001	163.053	225	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
S3	446594.767	310009.925	165.424	2.465	1200		1	1.001	162.959	225
							0	1.002	162.959	225
S4	446593.461	309993.083	164.763	1.903	1200		1	1.002	162.860	225
							0	1.003	162.860	225
S5	446637.208	309972.578	164.489	1.913	1200		1	1.003	162.576	225
							0	1.004	162.576	225
S6L	446645.043	309968.719	164.500	1.650	450					
							0	S6L	162.850	150
S6	446641.291	309967.333	164.311	1.775	1500		1	S6L	162.611	150
							2	1.004	162.536	225
							0	1.005	162.536	225
S7	446641.841	309961.210	164.103	1.725	1200		1	1.005	162.378	225
							0	1.006	162.378	225
S8L	446625.942	309939.776	162.950	1.350	450					
							0	S8L	161.600	150
S8	446631.442	309937.380	162.839	1.725	1500		1	S8L	161.189	150
							2	1.006	161.114	225
							0	1.007	161.114	225
S9	446633.065	309929.036	162.357	1.725	1200		1	1.007	160.632	225
							0	1.008	160.632	225
S10L	446645.185	309926.758	161.950	1.500	450					
							0	S10L	160.450	150
S10	446644.221	309922.363	161.682	1.725	1200		1	S10L	160.032	150
							2	1.008	159.957	225
							0	1.009	159.957	225
S11	446657.263	309919.500	161.118	1.725	1200		1	1.009	159.393	225
							0	1.010	159.393	225
S12L	446691.500	309933.138	160.350	1.350	450					
							0	S12L	159.000	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S12	446682.446	309925.262	160.413	1.625	1200		1 S12L	158.863	150
						0	2.000	158.788	225
S13	446669.318	309920.398	160.782	2.200	1500		1 S13L	158.657	225
						2	1.010	158.657	225
						0	1.011	158.582	300
HW1	446676.195	309891.709	157.975	1.484	1200		1 HW1	156.700	300
S14L	446573.828	309969.225	163.250	1.400	450		0 S14L	161.850	150
S14	446579.305	309966.776	163.111	1.425	1500		1 S14L	161.761	150
						0	3.000	161.686	225
S15L	446547.383	309954.172	162.450	1.425	600		0 S15L	161.025	225
S15	446569.412	309944.648	161.890	1.425	1500		1 S15L	160.465	225
						2	3.000	160.465	225
						0	3.001	160.465	225
S16	446565.825	309936.626	161.450	1.425	1500		1 S16L	160.025	225
						0	3.002	160.025	225
S17L	446572.031	309932.330	161.950	2.150	450		0 S17L	159.800	150
S17	446571.823	309929.118	161.175	1.800	1200		1 S17L	159.525	150
						2	3.002	159.450	225
						0	3.003	159.375	300
S18L	446599.409	309915.348	160.900	1.650	450		0 S18L	159.250	150
S18	446598.610	309913.515	160.700	1.800	1200		1 S18L	159.050	150
						2	3.003	158.900	300
						0	3.004	158.900	300
S19	446649.035	309891.553	158.500	1.300	1500		1 S19L	157.200	300
						0	3.005	157.200	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
HW2	446666.215	309888.224	157.975	1.484	1200	1	3.005	156.700	300
HW3	446691.086	309887.372	157.975	1.500	1200	0	1.012	156.475	225
S20 FCU	446694.580	309880.175	158.375	2.275	2700	1	1.012	156.100	225
HW4	446696.787	309871.760	155.580	0.350	1200	1	10.001	156.100	225

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	0.0
Ratio-R	0.400	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	40	0	0

Node S20 FCU Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	156.100	Product Number	CTL-SHE-0135-9700-1575-9700
Design Depth (m)	1.575	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	9.7	Min Node Diameter (mm)	0

Node HW1 Online Orifice Control

Flap Valve	x	Invert Level (m)	156.491	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.375		

Node HW2 Online Orifice Control

Flap Valve	x	Invert Level (m)	156.491	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node HW3 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	16.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	156.475	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.020

Inlets

HW2 | HW1

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	202.1	0.0	0.400	297.8	0.0	0.800	402.5	0.0	1.200	516.2	0.0
0.100	225.2	0.0	0.500	323.1	0.0	0.900	430.1	0.0	1.300	546.1	0.0
0.200	248.8	0.0	0.600	349.0	0.0	1.000	458.2	0.0	1.400	576.5	0.0
0.300	273.0	0.0	0.700	375.4	0.0	1.100	486.9	0.0	1.500	607.5	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1L	10	163.672	0.022	2.1	0.0036	0.0000	OK
15 minute winter	S1	10	163.230	0.062	6.3	0.0698	0.0000	OK
15 minute winter	S2	11	163.114	0.061	6.2	0.0686	0.0000	OK
15 minute winter	S3	11	163.032	0.073	8.5	0.0830	0.0000	OK
15 minute winter	S4	11	162.938	0.078	10.6	0.0886	0.0000	OK
15 minute winter	S5	11	162.673	0.097	12.6	0.1097	0.0000	OK
15 minute winter	S6L	10	162.918	0.068	14.1	0.0108	0.0000	OK
15 minute winter	S6	11	162.635	0.099	25.7	0.1744	0.0000	OK
15 minute winter	S7	11	162.454	0.076	28.4	0.0856	0.0000	OK
15 minute winter	S8L	10	161.641	0.041	6.8	0.0065	0.0000	OK
15 minute winter	S8	11	161.206	0.092	36.5	0.1619	0.0000	OK
15 minute winter	S9	11	160.724	0.092	39.0	0.1041	0.0000	OK
15 minute winter	S10L	10	160.486	0.036	5.9	0.0057	0.0000	OK
15 minute winter	S10	11	160.068	0.111	44.6	0.1252	0.0000	OK
15 minute winter	S11	11	159.493	0.100	44.6	0.1129	0.0000	OK
15 minute winter	S12L	10	159.100	0.100	13.5	0.0159	0.0000	OK
15 minute winter	S12	10	158.879	0.091	15.6	0.1025	0.0000	OK
15 minute winter	S13	11	158.684	0.102	65.2	0.1801	0.0000	OK
15 minute winter	HW1	11	156.745	0.254	65.3	0.2872	0.0000	OK
15 minute winter	S14L	10	161.929	0.079	9.9	0.0125	0.0000	OK
15 minute winter	S14	10	161.743	0.057	16.6	0.1004	0.0000	OK
15 minute winter	S15L	10	161.090	0.065	14.9	0.0185	0.0000	OK
15 minute winter	S15	10	160.561	0.096	36.8	0.1688	0.0000	OK
15 minute winter	S16	10	160.115	0.090	36.3	0.1595	0.0000	OK
15 minute winter	S17L	10	159.844	0.044	7.9	0.0070	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1L	S1L	S1	2.1	1.302	0.045	0.0096	
15 minute winter	S1	1.000	S2	6.2	0.716	0.156	0.1696	
15 minute winter	S2	1.001	S3	6.2	0.626	0.156	0.1581	
15 minute winter	S3	1.002	S4	8.5	0.727	0.215	0.1985	
15 minute winter	S4	1.003	S5	10.5	0.735	0.264	0.6919	
15 minute winter	S5	1.004	S6	12.5	0.801	0.311	0.1100	
15 minute winter	S6L	S6L	S6	14.0	1.995	0.321	0.0282	
15 minute winter	S6	1.005	S7	25.7	1.807	0.307	0.0875	
15 minute winter	S7	1.006	S8	28.3	2.110	0.246	0.3495	
15 minute winter	S8L	S8L	S8	6.8	1.805	0.144	0.0225	
15 minute winter	S8	1.007	S9	36.5	2.397	0.293	0.1293	
15 minute winter	S9	1.008	S10	39.0	2.248	0.327	0.2255	
15 minute winter	S10L	S10L	S10	5.9	1.920	0.108	0.0140	
15 minute winter	S10	1.009	S11	44.6	2.451	0.416	0.2432	
15 minute winter	S11	1.010	S13	44.6	2.790	0.346	0.1934	
15 minute winter	S12L	S12L	S12	13.3	1.116	0.701	0.1431	
15 minute winter	S12	2.000	S13	15.4	1.078	0.306	0.2002	
15 minute winter	S13	1.011	HW1	65.3	3.193	0.231	0.6034	
15 minute winter	HW1	Flow through pond	HW3	70.1	0.132	0.002	43.0441	
15 minute winter	S14L	S14L	S14	9.8	1.121	0.452	0.0525	
15 minute winter	S14	3.000	S15	16.5	1.395	0.141	0.2895	
15 minute winter	S15L	S15L	S15	14.8	1.162	0.186	0.3072	
15 minute winter	S15	3.001	S16	36.3	2.352	0.311	0.1358	
15 minute winter	S16	3.002	S17	36.1	2.601	0.282	0.1336	
15 minute winter	S17L	S17L	S17	7.9	1.962	0.150	0.0129	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S17	10	159.498	0.123	43.9	0.1390	0.0000	OK
15 minute winter	S18L	10	159.289	0.039	6.1	0.0061	0.0000	OK
15 minute winter	S18	11	159.003	0.103	49.6	0.1166	0.0000	OK
15 minute winter	S19	11	157.313	0.113	50.2	0.2002	0.0000	OK
60 minute winter	HW2	60	156.740	0.249	26.5	0.2821	0.0000	OK
60 minute winter	HW3	61	156.739	0.263	48.4	0.2980	0.0000	SURCHARGED
60 minute winter	S20 FCU	60	156.734	0.634	20.5	3.6323	0.0000	SURCHARGED
15 minute summer	HW4	1	155.230	0.000	9.7	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S17	3.003	S18	43.8	1.812	0.318	0.7512	
15 minute winter	S18L	S18L	S18	6.1	1.880	0.107	0.0065	
15 minute winter	S18	3.004	S19	50.2	2.194	0.256	1.2589	
15 minute winter	S19	3.005	HW2	50.2	2.172	0.267	0.4049	
60 minute winter	HW2	Flow through pond	HW3	48.4	0.079	0.001	59.4031	
60 minute winter	HW3	1.012	S20 FCU	20.5	1.163	0.181	0.3182	
60 minute winter	S20 FCU	Hydro-Brake®	HW4	9.7				90.8

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1L	10	163.686	0.036	5.2	0.0057	0.0000	OK
15 minute winter	S1	10	163.270	0.102	15.6	0.1152	0.0000	OK
15 minute winter	S2	11	163.154	0.101	15.4	0.1145	0.0000	OK
15 minute winter	S3	11	163.084	0.125	21.0	0.1409	0.0000	OK
15 minute winter	S4	11	162.992	0.132	26.2	0.1488	0.0000	OK
15 minute winter	S5	11	162.764	0.188	31.3	0.2124	0.0000	OK
15 minute winter	S6L	10	162.985	0.135	34.6	0.0214	0.0000	OK
15 minute winter	S6	11	162.720	0.184	63.8	0.3248	0.0000	OK
15 minute winter	S7	11	162.504	0.126	70.3	0.1430	0.0000	OK
15 minute winter	S8L	10	161.665	0.065	16.6	0.0103	0.0000	OK
15 minute winter	S8	11	161.296	0.182	90.5	0.3214	0.0000	OK
15 minute winter	S9	11	160.924	0.292	94.5	0.3297	0.0000	SURCHARGED
15 minute winter	S10L	11	160.508	0.058	14.5	0.0093	0.0000	OK
15 minute winter	S10	12	160.352	0.395	106.4	0.4466	0.0000	SURCHARGED
15 minute winter	S11	12	159.580	0.187	105.5	0.2119	0.0000	OK
15 minute winter	S12L	10	159.496	0.496	33.2	0.0789	0.0000	SURCHARGED
15 minute winter	S12	11	158.947	0.159	37.6	0.1794	0.0000	OK
15 minute winter	S13	11	158.740	0.157	155.4	0.2782	0.0000	OK
120 minute winter	HW1	122	157.175	0.684	52.6	0.7735	0.0000	OK
15 minute winter	S14L	10	162.060	0.210	24.2	0.0333	0.0000	SURCHARGED
15 minute winter	S14	10	161.776	0.090	40.4	0.1597	0.0000	OK
15 minute winter	S15L	10	161.131	0.106	36.7	0.0301	0.0000	OK
15 minute winter	S15	10	160.645	0.180	90.1	0.3177	0.0000	OK
15 minute winter	S16	10	160.189	0.164	88.7	0.2902	0.0000	OK
15 minute winter	S17L	10	159.876	0.076	19.4	0.0121	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1L	S1L	S1	5.2	1.674	0.111	0.0185	
15 minute winter	S1	1.000	S2	15.4	0.885	0.387	0.3397	
15 minute winter	S2	1.001	S3	15.2	0.765	0.383	0.3174	
15 minute winter	S3	1.002	S4	21.0	0.903	0.528	0.3940	
15 minute winter	S4	1.003	S5	26.1	0.867	0.657	1.4376	
15 minute winter	S5	1.004	S6	31.0	0.945	0.771	0.2331	
15 minute winter	S6L	S6L	S6	34.4	2.312	0.787	0.0592	
15 minute winter	S6	1.005	S7	63.8	2.187	0.763	0.1774	
15 minute winter	S7	1.006	S8	70.6	2.483	0.612	0.7457	
15 minute winter	S8L	S8L	S8	16.6	2.110	0.354	0.0603	
15 minute winter	S8	1.007	S9	88.3	2.705	0.710	0.3152	
15 minute winter	S9	1.008	S10	92.6	2.492	0.778	0.5170	
15 minute winter	S10L	S10L	S10	14.1	1.974	0.259	0.0538	
15 minute winter	S10	1.009	S11	105.5	2.735	0.983	0.5015	
15 minute winter	S11	1.010	S13	105.9	3.280	0.821	0.3885	
15 minute winter	S12L	S12L	S12	32.1	1.824	1.692	0.2091	
15 minute winter	S12	2.000	S13	37.6	1.326	0.747	0.3964	
15 minute winter	S13	1.011	HW1	155.5	3.523	0.551	1.5898	
120 minute winter	HW1	Flow through pond	HW3	50.7	0.078	0.001	197.6237	
15 minute winter	S14L	S14L	S14	23.8	1.352	1.098	0.1034	
15 minute winter	S14	3.000	S15	40.2	1.614	0.342	0.5928	
15 minute winter	S15L	S15L	S15	36.5	1.386	0.458	0.6294	
15 minute winter	S15	3.001	S16	88.7	2.723	0.758	0.2859	
15 minute winter	S16	3.002	S17	88.2	3.074	0.690	0.2766	
15 minute winter	S17L	S17L	S17	19.4	2.360	0.370	0.0268	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S17	10	159.593	0.217	107.5	0.2460	0.0000	OK
15 minute winter	S18L	10	159.317	0.067	14.9	0.0106	0.0000	OK
15 minute winter	S18	11	159.073	0.173	121.5	0.1954	0.0000	OK
15 minute winter	S19	11	157.401	0.201	122.9	0.3549	0.0000	OK
120 minute winter	HW2	120	157.177	0.686	39.3	0.7756	0.0000	OK
120 minute winter	HW3	122	157.175	0.700	50.7	0.7914	0.0000	SURCHARGED
120 minute winter	S20 FCU	122	157.172	1.072	18.2	6.1365	0.0000	SURCHARGED
15 minute summer	HW4	1	155.230	0.000	9.7	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S17	3.003	S18	107.4	2.218	0.780	1.4969	
15 minute winter	S18L	S18L	S18	14.8	2.281	0.262	0.0130	
15 minute winter	S18	3.004	S19	122.9	2.666	0.627	2.5336	
15 minute winter	S19	3.005	HW2	123.1	2.651	0.653	0.8257	
120 minute winter	HW2	Flow through pond	HW3	50.7	0.078	0.001	197.6237	
120 minute winter	HW3	1.012	S20 FCU	18.2	1.137	0.161	0.3182	
120 minute winter	S20 FCU	Hydro-Brake®	HW4	9.7				174.5

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1L	13	163.970	0.320	9.4	0.0509	0.0000	SURCHARGED
15 minute winter	S1	13	163.963	0.795	28.3	0.8986	0.0000	SURCHARGED
15 minute winter	S2	13	163.941	0.888	25.6	1.0042	0.0000	SURCHARGED
15 minute winter	S3	13	163.922	0.962	34.0	1.0886	0.0000	SURCHARGED
15 minute winter	S4	13	163.885	1.025	41.4	1.1588	0.0000	SURCHARGED
15 minute winter	S5	13	163.737	1.161	41.0	1.3127	0.0000	SURCHARGED
15 minute winter	S6L	12	164.194	1.344	62.9	0.2137	0.0000	SURCHARGED
15 minute winter	S6	13	163.690	1.154	88.7	2.0394	0.0000	SURCHARGED
15 minute winter	S7	13	163.469	1.091	96.2	1.2337	0.0000	SURCHARGED
15 minute winter	S8L	12	162.791	1.191	30.2	0.1894	0.0000	FLOOD RISK
15 minute winter	S8	13	162.669	1.555	117.9	2.7481	0.0000	FLOOD RISK
15 minute winter	S9	13	162.094	1.462	116.9	1.6538	0.0000	FLOOD RISK
15 minute winter	S10L	12	161.292	0.841	26.4	0.1338	0.0000	SURCHARGED
15 minute winter	S10	12	161.198	1.241	135.2	1.4033	0.0000	SURCHARGED
15 minute winter	S11	13	159.982	0.589	134.2	0.6657	0.0000	SURCHARGED
15 minute winter	S12L	10	160.350	1.350	60.3	0.2147	0.9765	FLOOD
15 minute winter	S12	10	159.104	0.316	60.5	0.3572	0.0000	SURCHARGED
15 minute winter	S13	12	158.806	0.224	213.2	0.3951	0.0000	OK
240 minute winter	HW1	236	157.690	1.199	57.3	1.3555	0.0000	OK
15 minute winter	S14L	12	162.684	0.834	44.0	0.1326	0.0000	SURCHARGED
15 minute winter	S14	12	162.306	0.620	73.1	1.0952	0.0000	SURCHARGED
15 minute winter	S15L	11	162.226	1.201	66.6	0.3399	0.0000	FLOOD RISK
15 minute winter	S15	12	161.890	1.425	143.6	2.5179	0.0000	FLOOD RISK
15 minute winter	S16	12	160.970	0.945	136.2	1.6704	0.0000	SURCHARGED
15 minute winter	S17L	11	160.178	0.378	35.2	0.0601	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1L	S1L	S1	9.4	1.675	0.201	0.1056	
15 minute winter	S1	1.000	S2	25.6	0.979	0.644	0.7775	
15 minute winter	S2	1.001	S3	25.0	0.818	0.628	0.6337	
15 minute winter	S3	1.002	S4	34.2	0.944	0.861	0.6719	
15 minute winter	S4	1.003	S5	39.8	1.022	1.001	1.9215	
15 minute winter	S5	1.004	S6	44.8	1.288	1.114	0.2644	
15 minute winter	S6L	S6L	S6	56.2	3.192	1.285	0.0704	
15 minute winter	S6	1.005	S7	84.4	2.172	1.009	0.2445	
15 minute winter	S7	1.006	S8	90.6	2.389	0.787	1.0340	
15 minute winter	S8L	S8L	S8	24.3	2.065	0.519	0.1056	
15 minute winter	S8	1.007	S9	108.3	2.722	0.870	0.3381	
15 minute winter	S9	1.008	S10	116.2	2.922	0.976	0.5170	
15 minute winter	S10L	S10L	S10	22.1	1.996	0.404	0.0792	
15 minute winter	S10	1.009	S11	134.2	3.374	1.250	0.5311	
15 minute winter	S11	1.010	S13	134.2	3.374	1.040	0.4807	
15 minute winter	S12L	S12L	S12	50.4	2.866	2.657	0.2113	
15 minute winter	S12	2.000	S13	60.4	1.520	1.201	0.5400	
15 minute winter	S13	1.011	HW1	212.1	3.470	0.752	1.8695	
240 minute winter	HW1	Flow through pond	HW3	53.2	0.055	0.001	426.1456	
15 minute winter	S14L	S14L	S14	42.9	2.437	1.979	0.1056	
15 minute winter	S14	3.000	S15	64.3	1.793	0.548	0.9640	
15 minute winter	S15L	S15L	S15	59.6	1.499	0.748	0.9545	
15 minute winter	S15	3.001	S16	136.2	3.426	1.165	0.3495	
15 minute winter	S16	3.002	S17	135.9	3.417	1.063	0.3822	
15 minute winter	S17L	S17L	S17	32.3	2.402	0.617	0.0567	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S17	13	160.011	0.636	165.2	0.7192	0.0000	SURCHARGED
15 minute winter	S18L	10	159.351	0.101	27.0	0.0161	0.0000	OK
15 minute winter	S18	13	159.263	0.363	186.9	0.4110	0.0000	SURCHARGED
15 minute winter	S19	14	157.792	0.592	182.8	1.0454	0.0000	SURCHARGED
240 minute winter	HW2	236	157.691	1.200	42.5	1.3574	0.0000	OK
240 minute winter	HW3	240	157.689	1.214	53.2	1.3731	0.0000	FLOOD RISK
240 minute winter	S20 FCU	240	157.685	1.585	18.3	9.0734	0.0000	SURCHARGED
15 minute summer	HW4	1	155.230	0.000	9.7	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S17	3.003	S18	165.7	2.353	1.202	2.1830	
15 minute winter	S18L	S18L	S18	27.0	2.511	0.476	0.0271	
15 minute winter	S18	3.004	S19	182.8	2.790	0.933	3.8731	
15 minute winter	S19	3.005	HW2	179.4	2.678	0.952	1.2323	
240 minute winter	HW2	Flow through pond	HW3	53.2	0.055	0.001	426.1456	
240 minute winter	HW3	1.012	S20 FCU	18.3	1.120	0.162	0.3182	
240 minute winter	S20 FCU	Hydro-Brake®	HW4	9.7				257.1