Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	250.0
Additional Flow (%)	0	Minimum Velocity (m/s)	0.75
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.350	Preferred Cover Depth (m)	0.500
CV	0.750	Include Intermediate Ground	x
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.131	5.00	9.722	1350	493658.343	104199.609	1.017
2	0.020	5.00	9.647	1350	493690.412	104199.617	1.013
3			9.477	1350	493711.818	104199.819	0.891
4	0.056	5.00	9.452	1350	493722.945	104196.895	0.892
5	0.107	5.00	9.551	1350	493725.885	104187.618	1.013
6	0.043	5.00	9.799	1350	493725.806	104157.287	1.328
7	0.014	5.00	9.731	1350	493734.112	104121.736	1.341
8			9.500	1350	493730.627	104118.311	1.625
9	0.040	5.00	9.835	1200	493658.975	104147.455	0.957
13	0.024	5.00	9.810	1200	493717.063	104147.455	0.990
10	0.053	5.00	9.658	1200	493697.079	104147.455	0.910
14	0.107	5.00	9.966	1200	493673.638	104075.144	1.105
15	0.025	5.00	9.852	1200	493671.906	104105.399	1.086
11			9.875	1200	493696.950	104121.110	1.292
12			9.500	1200	493713.471	104114.923	1.625
16	0.082	5.00	10.065	1350	493688.492	104076.197	1.865
17	0.019	5.00	9.879	1350	493720.562	104076.084	1.780
20	0.069	5.00	9.448	1200	493769.894	104072.474	1.098
21	0.024	5.00	9.587	1200	493745.746	104073.312	1.319
18	0.010	5.00	9.731	1350	493733.420	104082.467	1.677
19			9.500	1350	493725.461	104093.496	1.625
22	0.065	5.00	9.500	1350	493732.097	104106.511	1.650
23	0.068	5.00	9.482	1350	493745.090	104106.067	1.742
24	0.010	5.00	9.079	1200	493778.105	104104.940	1.559
25	0.000		9.039	1200	493782.059	104107.757	1.551

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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)
1.000	1	2	32.069	0.600	8.705	8.634	0.071	450.0	375	5.63	62.4
1.001	2	3	21.407	0.600	8.634	8.586	0.048	450.0	375	6.05	60.5
1.002	3	4	11.505	0.600	8.586	8.560	0.026	450.0	375	6.28	59.6
1.003	4	5	9.732	0.600	8.560	8.538	0.022	450.0	375	6.47	58.8
1.004	5	6	30.331	0.600	8.538	8.471	0.067	450.0	375	7.07	56.5
1.005	6	7	36.508	0.600	8.471	8.390	0.081	450.0	375	7.78	53.9
2.000	9	10	38.104	0.600	8.878	8.748	0.130	294.0	225	5.84	61.5
3.000	13	10	19.984	0.600	8.820	8.748	0.072	277.6	225	5.43	63.4
2.001	10	11	26.345	0.600	8.748	8.658	0.090	294.0	225	6.42	59.0
4.000	14	15	30.305	0.600	8.861	8.766	0.095	318.0	300	5.58	62.7
4.001	15	11	29.564	0.600	8.766	8.673	0.093	318.0	300	6.14	60.2
5.000	16	17	32.070	0.600	8.200	8.099	0.101	318.0	375	5.53	62.9
5.001	17	18	14.355	0.600	8.099	8.054	0.045	318.0	375	5.77	61.8
6.000	20	21	24.163	0.600	8.350	8.268	0.082	294.0	225	5.53	62.9
6.001	21	18	15.354	0.600	8.268	8.216	0.052	294.0	225	5.87	61.3
1.008	22	23	13.001	0.600	7.850	7.740	0.110	118.2	450	5.12	65.0
1.009	23	24	33.034	0.600	7.740	7.520	0.220	150.0	150	5.79	61.7
1.010	24	25	4.855	0.600	7.520	7.488	0.032	150.0	150	5.89	61.3
1.006	7	8	4.886	0.600	8.390	8.041	0.349	14.0	375	7.80	53.9
2.002	11	12	17.641	0.600	8.583	8.050	0.533	33.1	300	6.53	58.5
5.002	18	19	13.601	0.600	8.054	8.012	0.042	323.8	375	6.10	60.3

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	0.847	93.6	22.2	0.642	0.638	0.131	0.0
1.001	0.847	93.6	24.8	0.638	0.516	0.151	0.0
1.002	0.847	93.6	24.4	0.516	0.517	0.151	0.0
1.003	0.847	93.6	33.0	0.517	0.638	0.207	0.0
1.004	0.847	93.6	48.0	0.638	0.953	0.314	0.0
1.005	0.847	93.6	52.2	0.953	0.966	0.357	0.0
2.000	0.757	30.1	6.7	0.732	0.685	0.040	0.0
3.000	0.780	31.0	4.1	0.765	0.685	0.024	0.0
2.001	0.757	30.1	18.7	0.685	0.992	0.117	0.0
4.000	0.876	61.9	18.2	0.805	0.786	0.107	0.0
4.001	0.876	61.9	21.5	0.786	0.902	0.132	0.0
5.000	1.010	111.6	14.0	1.490	1.405	0.082	0.0
5.001	1.010	111.6	16.9	1.405	1.302	0.101	0.0
6.000	0.757	30.1	11.8	0.873	1.094	0.069	0.0
6.001	0.757	30.1	15.5	1.094	1.290	0.093	0.0
1.008	1.869	297.2	11.4	1.200	1.292	0.065	0.0
1.009	0.818	14.5	22.2	1.592	1.409	0.133	0.0
1.010	0.818	14.5	23.7	1.409	1.401	0.143	0.0
1.006	4.863	537.1	54.2	0.966	1.084	0.371	0.0
2.002	2.742	193.8	39.5	0.992	1.150	0.249	0.0
5.002	1.001	110.6	33.4	1.302	1.113	0.204	0.0

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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)
1.000	32.069	450.0	375	Circular_Default Sewer Type	9.722	8.705	0.642	9.647	8.634	0.638
1.001	21.407	450.0	375	Circular_Default Sewer Type	9.647	8.634	0.638	9.477	8.586	0.516
1.002	11.505	450.0	375	Circular_Default Sewer Type	9.477	8.586	0.516	9.452	8.560	0.517
1.003	9.732	450.0	375	Circular_Default Sewer Type	9.452	8.560	0.517	9.551	8.538	0.638
1.004	30.331	450.0	375	Circular_Default Sewer Type	9.551	8.538	0.638	9.799	8.471	0.953
1.005	36.508	450.0	375	Circular_Default Sewer Type	9.799	8.471	0.953	9.731	8.390	0.966
2.000	38.104	294.0	225	Circular_Default Sewer Type	9.835	8.878	0.732	9.658	8.748	0.685
3.000	19.984	277.6	225	Circular_Default Sewer Type	9.810	8.820	0.765	9.658	8.748	0.685
2.001	26.345	294.0	225	Circular_Default Sewer Type	9.658	8.748	0.685	9.875	8.658	0.992
4.000	30.305	318.0	300	Circular_Default Sewer Type	9.966	8.861	0.805	9.852	8.766	0.786
4.001	29.564	318.0	300	Circular_Default Sewer Type	9.852	8.766	0.786	9.875	8.673	0.902
5.000	32.070	318.0	375	Circular_Default Sewer Type	10.065	8.200	1.490	9.879	8.099	1.405
5.001	14.355	318.0	375	Circular_Default Sewer Type	9.879	8.099	1.405	9.731	8.054	1.302
6.000	24.163	294.0	225	Circular_Default Sewer Type	9.448	8.350	0.873	9.587	8.268	1.094
6.001	15.354	294.0	225	Circular_Default Sewer Type	9.587	8.268	1.094	9.731	8.216	1.290
1.008	13.001	118.2	450	Circular_Default Sewer Type	9.500	7.850	1.200	9.482	7.740	1.292
1.009	33.034	150.0	150	Circular_Default Sewer Type	9.482	7.740	1.592	9.079	7.520	1.409
1.010	4.855	150.0	150	Circular_Default Sewer Type	9.079	7.520	1.409	9.039	7.488	1.401
1.006	4.886	14.0	375	Circular_Default Sewer Type	9.731	8.390	0.966	9.500	8.041	1.084
2.002	17.641	33.1	300	Circular_Default Sewer Type	9.875	8.583	0.992	9.500	8.050	1.150
5.002	13.601	323.8	375	Circular_Default Sewer Type	9.731	8.054	1.302	9.500	8.012	1.113

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1350	Manhole	Adoptable	2	1350	Manhole	Adoptable
1.001	2	1350	Manhole	Adoptable	3	1350	Manhole	Adoptable
1.002	3	1350	Manhole	Adoptable	4	1350	Manhole	Adoptable
1.003	4	1350	Manhole	Adoptable	5	1350	Manhole	Adoptable
1.004	5	1350	Manhole	Adoptable	6	1350	Manhole	Adoptable
1.005	6	1350	Manhole	Adoptable	7	1350	Manhole	Adoptable
2.000	9	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
3.000	13	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
2.001	10	1200	Manhole	Adoptable	11	1200	Manhole	Adoptable
4.000	14	1200	Manhole	Adoptable	15	1200	Manhole	Adoptable
4.001	15	1200	Manhole	Adoptable	11	1200	Manhole	Adoptable
5.000	16	1350	Manhole	Adoptable	17	1350	Manhole	Adoptable
5.001	17	1350	Manhole	Adoptable	18	1350	Manhole	Adoptable
6.000	20	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
6.001	21	1200	Manhole	Adoptable	18	1350	Manhole	Adoptable
1.008	22	1350	Manhole	Adoptable	23	1350	Manhole	Adoptable
1.009	23	1350	Manhole	Adoptable	24	1200	Manhole	Adoptable
1.010	24	1200	Manhole	Adoptable	25	1200	Manhole	Adoptable
1.006	7	1350	Manhole	Adoptable	8	1350	Manhole	Adoptable
2.002	11	1200	Manhole	Adoptable	12	1200	Manhole	Adoptable
5.002	18	1350	Manhole	Adoptable	19	1350	Manhole	Adoptable

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	493658.343	104199.609	9.722	1.017	1350	0	1.000	8.705	375
2	493690.412	104199.617	9.647	1.013	1350	1	1.000	8.634	375
						0	1.001	8.634	375
3	493711.818	104199.819	9.477	0.891	1350	1	1.001	8.586	375
						0	1.002	8.586	375
4	493722.945	104196.895	9.452	0.892	1350	1	1.002	8.560	375
						0	1.003	8.560	375
5	493725.885	104187.618	9.551	1.013	1350	1	1.003	8.538	375
						0	1.004	8.538	375
6	493725.806	104157.287	9.799	1.328	1350	1	1.004	8.471	375
						0	1.005	8.471	375
7	493734.112	104121.736	9.731	1.341	1350	1	1.005	8.390	375
						0	1.006	8.390	375
8	493730.627	104118.311	9.500	1.625	1350	1	1.006	8.041	375
9	493658.975	104147.455	9.835	0.957	1200	0	2.000	8.878	225
13	493717.063	104147.455	9.810	0.990	1200	0	3.000	8.820	225
10	493697.079	104147.455	9.658	0.910	1200	1	3.000	8.748	225
						2	2.000	8.748	225
						0	2.001	8.748	225
14	493673.638	104075.144	9.966	1.105	1200	0	4.000	8.861	300
15	493671.906	104105.399	9.852	1.086	1200	1	4.000	8.766	300
						0	4.001	8.766	300

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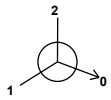
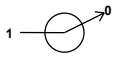
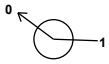
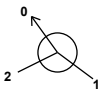
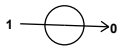
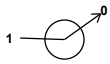
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
11	493696.950	104121.110	9.875	1.292	1200		1	4.001	8.673	300
							2	2.001	8.658	225
							0	2.002	8.583	300
12	493713.471	104114.923	9.500	1.625	1200		1	2.002	8.050	300
16	493688.492	104076.197	10.065	1.865	1350		0	5.000	8.200	375
17	493720.562	104076.084	9.879	1.780	1350		1	5.000	8.099	375
							0	5.001	8.099	375
20	493769.894	104072.474	9.448	1.098	1200		0	6.000	8.350	225
21	493745.746	104073.312	9.587	1.319	1200		1	6.000	8.268	225
							0	6.001	8.268	225
18	493733.420	104082.467	9.731	1.677	1350		1	6.001	8.216	225
							2	5.001	8.054	375
							0	5.002	8.054	375
19	493725.461	104093.496	9.500	1.625	1350		1	5.002	8.012	375
22	493732.097	104106.511	9.500	1.650	1350		0	1.008	7.850	450
23	493745.090	104106.067	9.482	1.742	1350		1	1.008	7.740	450
							0	1.009	7.740	150
24	493778.105	104104.940	9.079	1.559	1200		1	1.009	7.520	150
							0	1.010	7.520	150
25	493782.059	104107.757	9.039	1.551	1200		1	1.010	7.488	150

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Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	✓
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	19.400	Additional Storage (m³/ha)	20.0
Ratio-R	0.333	Check Discharge Rate(s)	x
Winter CV	1.000	Check Discharge Volume	x
Analysis Speed	Detailed		

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 %)
2	40	0	0
10	40	0	0
30	40	0	0
100	20	0	0
100	40	0	0

Node 23 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	7.740	Product Number	CTL-SHE-0095-5000-1750-5000
Design Depth (m)	1.750	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node 22 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	25.090
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	7.850	Main Channel Slope (1:X)	1000.0
Safety Factor	1.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

12	19	8

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	307.0	0.0	1.571	650.1	0.0

Node 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	8.890	Slope (1:X)	91.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.800	Inf Depth (m)	
Porosity	0.32	Length (m)	31.000		

Node 10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.020	Slope (1:X)	493.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	240	Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	67.000		

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Node 15 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.110	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	120	Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.800	Inf Depth (m)	
Porosity	0.32	Length (m)	16.140		

Node 20 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	8.890	Slope (1:X)	526.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	42.950		

Node 14 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	8.890	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	36.710		

Node 16 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.290	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	24	Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	19.658		

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	8.900	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	5.800	Inf Depth (m)	
Porosity	0.32	Length (m)	19.700		

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Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 61.41%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	11	8.877	0.172	36.3	0.6913	0.0000	OK
15 minute winter	2	11	8.852	0.218	40.2	0.3979	0.0000	OK
15 minute winter	3	11	8.836	0.250	37.5	0.3574	0.0000	OK
15 minute winter	4	11	8.826	0.266	51.0	0.7159	0.0000	OK
15 minute winter	5	11	8.810	0.272	78.0	0.9654	0.0000	OK
720 minute winter	6	690	8.771	0.300	10.1	0.6239	0.0000	OK
720 minute winter	7	690	8.771	0.381	11.2	0.6243	0.0000	SURCHARGED
720 minute winter	8	690	8.775	0.900	28.8	1.2875	0.0000	OK
15 minute winter	9	10	8.969	0.091	11.1	0.1800	0.0000	OK
15 minute winter	13	11	8.936	0.116	6.7	0.1872	0.0000	OK
15 minute winter	10	11	8.932	0.184	31.1	0.4220	0.0000	OK
15 minute winter	14	11	9.007	0.146	29.7	1.5043	0.0000	OK
15 minute winter	15	11	8.928	0.162	34.0	0.2571	0.0000	OK
720 minute winter	11	690	8.770	0.187	7.0	0.2117	0.0000	OK
720 minute winter	12	930	8.936	1.060	9.9	1.1994	0.0000	OK
720 minute winter	16	690	8.770	0.570	2.3	1.3167	0.0000	SURCHARGED
720 minute winter	17	690	8.769	0.670	2.4	1.1022	0.0000	SURCHARGED
720 minute winter	20	690	8.770	0.420	1.9	1.0020	0.0000	SURCHARGED
720 minute winter	21	690	8.770	0.502	2.5	0.7505	0.0000	SURCHARGED
720 minute winter	18	690	8.769	0.715	5.2	1.1092	0.0000	SURCHARGED
720 minute winter	19	690	8.771	0.896	7.0	1.2825	0.0000	OK
720 minute winter	22	690	8.770	0.920	81.6	2.0411	0.0000	SURCHARGED
720 minute winter	23	690	8.771	1.031	21.7	2.2810	0.0000	SURCHARGED
15 minute winter	24	10	7.602	0.082	7.2	0.1028	0.0000	OK
15 minute winter	25	10	7.562	0.074	7.1	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	1	1.000	2	34.7	0.679	0.370	1.8576	
15 minute winter	2	1.001	3	37.5	0.575	0.400	1.5451	
15 minute winter	3	1.002	4	37.8	0.490	0.404	0.9302	
15 minute winter	4	1.003	5	51.0	0.616	0.545	0.8248	
15 minute winter	5	1.004	6	76.6	0.937	0.818	2.4824	
720 minute winter	6	1.005	7	10.2	0.863	0.109	3.7393	
720 minute winter	7	1.006	8	10.1	0.739	0.019	0.5389	
720 minute winter	8	Flow through pond	22	80.9	0.056	0.003	368.4187	
15 minute winter	9	2.000	10	10.7	0.447	0.355	0.9494	
15 minute winter	13	3.000	10	5.9	0.295	0.191	0.5528	
15 minute winter	10	2.001	11	29.3	0.951	0.973	0.8084	
15 minute winter	14	4.000	15	27.5	0.758	0.444	1.1005	
15 minute winter	15	4.001	11	33.3	0.939	0.537	1.0473	
720 minute winter	11	2.002	12	7.4	0.698	0.038	1.0288	
720 minute winter	12	Flow through pond	22	80.9	0.056	0.003	368.4187	
720 minute winter	16	5.000	17	1.9	0.200	0.017	3.5372	
720 minute winter	17	5.001	18	2.6	0.182	0.024	1.5833	
720 minute winter	20	6.000	21	1.8	0.341	0.059	0.9610	
720 minute winter	21	6.001	18	2.3	0.400	0.076	0.6106	
720 minute winter	18	5.002	19	5.1	0.312	0.046	1.5002	
720 minute winter	19	Flow through pond	22	80.9	0.056	0.003	368.4187	
720 minute winter	22	1.008	23	21.5	0.670	0.072	2.0599	
720 minute winter	23	Hydro-Brake®	24	4.5				
15 minute winter	24	1.010	25	7.1	0.770	0.492	0.0449	68.1

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Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 61.41%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	1	555	9.017	0.312	5.9	1.2525	0.0000	OK
600 minute winter	2	555	9.018	0.384	6.8	3.5565	0.0000	SURCHARGED
600 minute winter	3	555	9.017	0.431	6.8	3.1801	0.0000	SURCHARGED
600 minute winter	4	555	9.018	0.458	9.3	1.2296	0.0000	SURCHARGED
600 minute winter	5	555	9.018	0.480	14.1	1.7001	0.0000	SURCHARGED
600 minute winter	6	555	9.018	0.547	16.0	1.1363	0.0000	SURCHARGED
600 minute winter	7	555	9.018	0.628	15.7	1.0295	0.0000	SURCHARGED
600 minute winter	8	555	9.035	1.160	1312.9	1.6598	0.0000	OK
600 minute winter	9	570	9.153	0.275	1.8	0.5407	0.0000	SURCHARGED
600 minute winter	13	570	9.153	0.333	1.1	0.5380	0.0000	SURCHARGED
600 minute winter	10	570	9.153	0.405	5.3	7.6182	0.0000	SURCHARGED
600 minute winter	14	570	9.153	0.292	4.8	6.2172	0.0000	OK
600 minute winter	15	570	9.153	0.387	5.9	0.9358	0.0000	SURCHARGED
600 minute winter	11	570	9.153	0.570	11.2	0.6447	0.0000	SURCHARGED
720 minute winter	12	675	9.262	1.387	15.1	1.5683	0.0000	OK
600 minute winter	16	555	8.993	0.793	3.7	1.8319	0.0000	SURCHARGED
600 minute winter	17	570	8.992	0.893	4.5	1.4694	0.0000	SURCHARGED
600 minute winter	20	570	8.992	0.642	3.1	5.5769	0.0000	SURCHARGED
600 minute winter	21	570	8.992	0.724	4.0	1.0827	0.0000	SURCHARGED
600 minute winter	18	570	8.992	0.938	8.7	1.4553	0.0000	SURCHARGED
600 minute winter	19	570	8.992	1.117	8.6	1.5985	0.0000	OK
600 minute winter	22	570	8.992	1.142	255.3	2.5342	0.0000	SURCHARGED
600 minute winter	23	555	8.993	1.253	20.2	2.7712	0.0000	SURCHARGED
15 minute winter	24	10	7.612	0.092	8.5	0.1153	0.0000	OK
15 minute winter	25	10	7.570	0.082	8.5	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)
600 minute winter	1	1.000	2	5.9	0.460	0.063	3.3424	
600 minute winter	2	1.001	3	6.8	0.463	0.073	2.3611	
600 minute winter	3	1.002	4	6.8	0.382	0.072	1.2690	
600 minute winter	4	1.003	5	9.3	0.435	0.099	1.0734	
600 minute winter	5	1.004	6	14.1	0.563	0.150	3.3454	
600 minute winter	6	1.005	7	15.1	0.935	0.161	4.0267	
600 minute winter	7	1.006	8	48.7	0.557	0.091	0.5389	
600 minute winter	8	Flow through pond	22	223.4	0.109	0.008	485.8654	
600 minute winter	9	2.000	10	1.8	0.267	0.060	1.5154	
600 minute winter	13	3.000	10	1.1	0.183	0.035	0.7948	
600 minute winter	10	2.001	11	5.3	0.595	0.176	1.0478	
600 minute winter	14	4.000	15	4.8	0.481	0.078	2.1261	
600 minute winter	15	4.001	11	5.9	0.582	0.095	2.0819	
600 minute winter	11	2.002	12	11.1	0.507	0.058	1.2423	
720 minute winter	12	Flow through pond	22	295.5	0.169	0.010	485.3957	
600 minute winter	16	5.000	17	3.6	0.262	0.032	3.5372	
600 minute winter	17	5.001	18	4.3	0.225	0.039	1.5833	
600 minute winter	20	6.000	21	2.9	0.381	0.097	0.9610	
600 minute winter	21	6.001	18	4.0	0.430	0.133	0.6106	
600 minute winter	18	5.002	19	8.6	0.214	0.077	1.5002	
600 minute winter	19	Flow through pond	22	223.4	0.109	0.008	485.8654	
600 minute winter	22	1.008	23	-31.6	-0.342	-0.106	2.0599	
600 minute winter	23	Hydro-Brake®	24	4.5				
15 minute winter	24	1.010	25	8.5	0.801	0.587	0.0514	67.9

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Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 61.41%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	1	435	9.108	0.403	7.4	1.6164	0.0000	SURCHARGED
600 minute winter	2	435	9.108	0.474	8.5	7.0392	0.0000	SURCHARGED
960 minute winter	3	630	9.109	0.523	5.4	8.3249	0.0000	SURCHARGED
960 minute winter	4	630	9.108	0.548	7.5	1.4733	0.0000	SURCHARGED
720 minute winter	5	495	9.108	0.570	14.0	2.0197	0.0000	SURCHARGED
720 minute winter	6	495	9.108	0.637	15.5	1.3238	0.0000	SURCHARGED
960 minute winter	7	630	9.128	0.738	12.2	1.2100	0.0000	SURCHARGED
960 minute winter	8	630	9.135	1.260	1121.9	1.8032	0.0000	OK
960 minute winter	9	705	9.219	0.341	1.9	0.6706	0.0000	SURCHARGED
960 minute winter	13	705	9.219	0.399	1.0	0.6446	0.0000	SURCHARGED
960 minute winter	10	705	9.219	0.471	4.9	14.5548	0.0000	SURCHARGED
960 minute winter	14	705	9.219	0.358	6.4	9.4149	0.0000	SURCHARGED
960 minute winter	15	705	9.219	0.453	14.8	2.7683	0.0000	SURCHARGED
960 minute winter	11	705	9.219	0.636	35.1	0.7195	0.0000	SURCHARGED
960 minute winter	12	615	9.322	1.447	34.3	1.6364	0.0000	OK
960 minute winter	16	645	9.081	0.881	3.3	2.0353	0.0000	SURCHARGED
960 minute winter	17	630	9.081	0.982	5.3	1.6149	0.0000	SURCHARGED
960 minute winter	20	630	9.082	0.732	3.8	11.7275	0.0000	SURCHARGED
960 minute winter	21	630	9.082	0.814	3.7	1.2162	0.0000	SURCHARGED
960 minute winter	18	630	9.081	1.027	7.8	1.5928	0.0000	SURCHARGED
960 minute winter	19	630	9.081	1.206	8.5	1.7256	0.0000	OK
960 minute winter	22	630	9.080	1.230	351.1	2.7304	0.0000	SURCHARGED
960 minute winter	23	720	9.080	1.340	40.6	2.9642	0.0000	SURCHARGED
15 minute winter	24	10	7.620	0.100	9.7	0.1257	0.0000	OK
15 minute winter	25	10	7.577	0.089	9.6	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)
600 minute winter	1	1.000	2	7.4	0.477	0.079	3.5371	
600 minute winter	2	1.001	3	8.1	0.469	0.086	2.3611	
960 minute winter	3	1.002	4	6.3	0.365	0.068	1.2690	
960 minute winter	4	1.003	5	7.8	0.408	0.084	1.0734	
720 minute winter	5	1.004	6	13.6	0.555	0.145	3.3454	
720 minute winter	6	1.005	7	14.5	0.915	0.155	4.0267	
960 minute winter	7	1.006	8	21.8	0.287	0.041	0.5389	
960 minute winter	8	Flow through pond	22	350.9	0.214	0.012	536.0903	
960 minute winter	9	2.000	10	1.6	0.267	0.053	1.5154	
960 minute winter	13	3.000	10	1.0	0.186	0.032	0.7948	
960 minute winter	10	2.001	11	15.2	0.565	0.505	1.0478	
960 minute winter	14	4.000	15	14.2	0.476	0.229	2.1341	
960 minute winter	15	4.001	11	19.9	0.550	0.322	2.0819	
960 minute winter	11	2.002	12	34.3	0.487	0.177	1.2423	
960 minute winter	12	Flow through pond	22	350.9	0.214	0.012	536.0903	
960 minute winter	16	5.000	17	3.2	0.198	0.028	3.5372	
960 minute winter	17	5.001	18	3.9	0.194	0.035	1.5833	
960 minute winter	20	6.000	21	2.7	0.309	0.089	0.9610	
960 minute winter	21	6.001	18	3.6	0.351	0.119	0.6106	
960 minute winter	18	5.002	19	8.5	0.255	0.077	1.5002	
960 minute winter	19	Flow through pond	22	350.9	0.214	0.012	536.0903	
960 minute winter	22	1.008	23	40.4	0.790	0.136	2.0599	
960 minute winter	23	Hydro-Brake®	24	4.5				
15 minute winter	24	1.010	25	9.6	0.822	0.664	0.0567	65.8

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Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 61.41%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	1	352	9.168	0.463	12.0	1.8573	0.0000	SURCHARGED
360 minute winter	2	344	9.168	0.534	13.5	9.3479	0.0000	SURCHARGED
360 minute winter	3	352	9.169	0.583	12.8	13.0418	0.0000	SURCHARGED
360 minute winter	4	344	9.171	0.611	17.2	1.6406	0.0000	FLOOD RISK
360 minute winter	5	344	9.171	0.633	26.0	2.2451	0.0000	SURCHARGED
360 minute winter	6	344	9.170	0.699	29.3	1.4535	0.0000	SURCHARGED
360 minute winter	7	328	9.170	0.780	28.0	1.2791	0.0000	SURCHARGED
360 minute winter	8	352	9.176	1.301	77.6	1.8617	0.0000	OK
720 minute winter	9	510	9.243	0.365	2.2	0.7186	0.0000	SURCHARGED
720 minute winter	13	510	9.243	0.423	1.3	0.6840	0.0000	SURCHARGED
720 minute winter	10	510	9.243	0.495	6.6	17.1196	0.0000	SURCHARGED
720 minute winter	14	510	9.243	0.382	6.3	10.7758	0.0000	SURCHARGED
720 minute winter	15	510	9.243	0.477	14.4	3.8283	0.0000	SURCHARGED
720 minute winter	11	510	9.244	0.661	34.8	0.7472	0.0000	SURCHARGED
480 minute winter	12	352	9.340	1.465	38.3	1.6566	0.0000	OK
360 minute winter	16	344	9.168	0.968	7.5	2.2364	0.0000	SURCHARGED
360 minute winter	17	344	9.168	1.069	8.8	1.7588	0.0000	SURCHARGED
360 minute winter	20	344	9.168	0.818	7.9	17.5772	0.0000	FLOOD RISK
360 minute winter	21	344	9.168	0.900	8.2	1.3460	0.0000	SURCHARGED
360 minute winter	18	344	9.168	1.114	17.5	1.7275	0.0000	SURCHARGED
360 minute winter	19	336	9.168	1.293	17.3	1.8508	0.0000	OK
360 minute winter	22	344	9.167	1.317	90.0	2.9219	0.0000	SURCHARGED
360 minute winter	23	336	9.165	1.425	15.7	3.1529	0.0000	SURCHARGED
15 minute winter	24	10	7.624	0.104	10.3	0.1314	0.0000	OK
15 minute winter	25	10	7.581	0.093	10.2	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)
360 minute winter	1	1.000	2	11.7	0.532	0.125	3.5371	
360 minute winter	2	1.001	3	12.8	0.499	0.137	2.3611	
360 minute winter	3	1.002	4	12.5	0.398	0.133	1.2690	
360 minute winter	4	1.003	5	17.0	0.470	0.182	1.0734	
360 minute winter	5	1.004	6	25.7	0.646	0.274	3.3454	
360 minute winter	6	1.005	7	26.8	1.109	0.286	4.0267	
360 minute winter	7	1.006	8	77.6	1.412	0.145	0.5389	
360 minute winter	8	Flow through pond	22	84.9	0.031	0.003	586.2613	
720 minute winter	9	2.000	10	2.2	0.292	0.074	1.5154	
720 minute winter	13	3.000	10	1.4	0.196	0.046	0.7948	
720 minute winter	10	2.001	11	15.0	0.609	0.498	1.0478	
720 minute winter	14	4.000	15	13.5	0.519	0.218	2.1341	
720 minute winter	15	4.001	11	19.8	0.606	0.319	2.0819	
720 minute winter	11	2.002	12	34.0	0.654	0.175	1.2423	
480 minute winter	12	Flow through pond	22	-79.2	-0.024	-0.003	555.5814	
360 minute winter	16	5.000	17	7.1	0.322	0.064	3.5372	
360 minute winter	17	5.001	18	8.6	0.267	0.077	1.5833	
360 minute winter	20	6.000	21	6.0	0.425	0.198	0.9610	
360 minute winter	21	6.001	18	7.9	0.481	0.264	0.6106	
360 minute winter	18	5.002	19	17.3	0.435	0.156	1.5002	
360 minute winter	19	Flow through pond	22	84.9	0.031	0.003	586.2613	
360 minute winter	22	1.008	23	14.8	0.243	0.050	2.0599	
360 minute winter	23	Hydro-Brake®	24	4.5				
15 minute winter	24	1.010	25	10.2	0.831	0.706	0.0595	64.4

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 61.41%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	1	472	9.320	0.615	11.3	2.4639	0.0000	SURCHARGED
480 minute winter	2	472	9.320	0.686	11.9	15.1598	0.0000	SURCHARGED
480 minute winter	3	472	9.319	0.733	10.7	28.7990	0.0000	FLOOD RISK
480 minute winter	4	472	9.319	0.759	14.4	2.0407	0.0000	FLOOD RISK
480 minute winter	5	472	9.320	0.782	22.8	2.7714	0.0000	FLOOD RISK
480 minute winter	6	472	9.319	0.848	26.0	1.7638	0.0000	SURCHARGED
480 minute winter	7	472	9.317	0.927	31.7	1.5203	0.0000	SURCHARGED
480 minute winter	8	440	9.318	1.443	76.5	2.0643	0.0000	OK
480 minute winter	9	456	9.325	0.447	3.4	0.8795	0.0000	SURCHARGED
480 minute winter	13	456	9.325	0.505	2.1	0.8163	0.0000	SURCHARGED
480 minute winter	10	456	9.325	0.577	13.9	25.7331	0.0000	SURCHARGED
480 minute winter	14	456	9.325	0.464	13.4	15.6457	0.0000	SURCHARGED
480 minute winter	15	456	9.326	0.560	26.4	8.4178	0.0000	SURCHARGED
480 minute winter	11	456	9.326	0.743	60.7	0.8406	0.0000	SURCHARGED
720 minute winter	12	555	9.361	1.486	32.4	1.6809	0.0000	OK
480 minute winter	16	472	9.318	1.118	7.0	2.6496	0.0000	SURCHARGED
480 minute winter	17	472	9.318	1.219	8.5	2.0052	0.0000	SURCHARGED
480 minute winter	20	472	9.318	0.968	7.8	27.8217	0.0000	FLOOD RISK
480 minute winter	21	472	9.317	1.049	7.7	1.5690	0.0000	FLOOD RISK
480 minute winter	18	472	9.318	1.264	16.6	1.9604	0.0000	SURCHARGED
480 minute winter	19	472	9.315	1.440	16.3	2.0606	0.0000	OK
480 minute winter	22	472	9.316	1.466	58.9	3.2539	0.0000	FLOOD RISK
480 minute winter	23	472	9.316	1.576	18.6	3.4862	0.0000	FLOOD RISK
15 minute winter	24	10	7.632	0.112	11.3	0.1407	0.0000	OK
15 minute winter	25	10	7.586	0.098	11.2	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)
480 minute winter	1	1.000	2	10.2	0.512	0.109	3.5371	
480 minute winter	2	1.001	3	10.7	0.488	0.115	2.3611	
480 minute winter	3	1.002	4	10.3	0.392	0.110	1.2690	
480 minute winter	4	1.003	5	14.0	0.456	0.150	1.0734	
480 minute winter	5	1.004	6	22.3	0.607	0.238	3.3454	
480 minute winter	6	1.005	7	25.8	1.002	0.276	4.0267	
480 minute winter	7	1.006	8	28.9	1.279	0.054	0.5389	
480 minute winter	8	Flow through pond	22	-93.6	-0.030	-0.003	676.8930	
480 minute winter	9	2.000	10	5.8	0.319	0.194	1.5154	
480 minute winter	13	3.000	10	3.4	0.217	0.111	0.7948	
480 minute winter	10	2.001	11	28.1	0.706	0.933	1.0478	
480 minute winter	14	4.000	15	24.3	0.601	0.393	2.1341	
480 minute winter	15	4.001	11	32.6	0.671	0.526	2.0819	
480 minute winter	11	2.002	12	63.3	0.921	0.327	1.2423	
720 minute winter	12	Flow through pond	22	143.2	0.047	0.005	596.6187	
480 minute winter	16	5.000	17	6.9	0.312	0.062	3.5372	
480 minute winter	17	5.001	18	8.4	0.233	0.075	1.5833	
480 minute winter	20	6.000	21	5.6	0.384	0.185	0.9610	
480 minute winter	21	6.001	18	7.7	0.444	0.254	0.6106	
480 minute winter	18	5.002	19	16.3	0.406	0.147	1.5002	
480 minute winter	19	Flow through pond	22	-93.6	-0.030	-0.003	676.8930	
480 minute winter	22	1.008	23	18.1	0.433	0.061	2.0599	
480 minute winter	23	Hydro-Brake®	24	4.8				
15 minute winter	24	1.010	25	11.2	0.850	0.774	0.0638	58.9

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