



Drainage Design Report

Flow+

v10.7

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Network

Filename	SW Network 1.pfd
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Rainfall Methodology	FSR
Return Period (years)	1
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	20.000
Ratio-R	0.400
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	5.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.000
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	Yes
Enforce best practice design rules	Yes

	Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Width (mm)	Sump (m)	Easting (m)	Northing (m)	Depth (m)	Notes
✓	1	0.119	5.00		159.232	Manhole	Adoptable	1350			397470.513	339014.974	1.425	
✓	2	0.119	5.00		158.788	Manhole	Adoptable	1350			397461.252	339027.701	1.500	
✓	3	0.119	5.00		158.570	Manhole	Adoptable	1350			397459.903	339043.963	1.650	
✓	4	0.119	5.00		158.324	Manhole	Adoptable	1350			397432.346	339116.254	1.500	
✓	5	0.119	5.00		158.245	Manhole	Adoptable	1200			397457.935	339095.185	1.632	
✓	6	0.119	5.00		158.119	Manhole	Adoptable	1350			397463.377	339092.690	1.800	
✓	7	0.119	5.00		158.567	Manhole	Adoptable	1350			397477.090	339159.126	1.425	
✓	8	0.119	5.00		157.960	Manhole	Adoptable	1350			397500.448	339140.173	1.875	
✓	9	0.119	5.00		158.998	Manhole	Adoptable	1350			397521.517	339209.881	1.425	
✓	10	0.119	5.00		158.744	Manhole	Adoptable	1350			397536.650	339192.168	1.500	
✓	11	0.119	5.00		158.630	Manhole	Adoptable	1350			397546.591	339184.665	1.575	
✓	12	0.119	5.00		158.461	Manhole	Adoptable	1350			397550.345	339169.496	1.650	
✓	13	0.119	5.00		158.371	Manhole	Adoptable	1350			397547.609	339161.285	1.650	
✓	14	0.119	5.00		158.143	Manhole	Adoptable	1500			397533.706	339145.580	1.800	
✓	15	0.119	5.00		157.958	Manhole	Adoptable	1500			397523.205	339122.576	1.916	
✓	16	0.119	5.00		157.972	Manhole	Adoptable	1500			397546.722	339111.841	2.057	
✓	17	0.119	5.00		157.342	Manhole	Adoptable	1500			397546.267	339104.422	1.950	
✓	18	0.119	5.00		157.326	Manhole	Adoptable	1500			397534.458	339090.007	1.971	
✓	19-HW				157.100	Junction					397537.153	339082.999	2.395	Auto-design is off
✓	20	0.119	5.00		162.474	Manhole	Adoptable	1350			397516.525	338929.172	1.425	
✓	21	0.119	5.00		162.041	Manhole	Adoptable	1350			397544.825	338921.667	1.425	
✓	22	0.119	5.00		161.326	Manhole	Adoptable	1350			397549.404	338935.701	1.500	
✓	23	0.119	5.00		159.214	Manhole	Adoptable	1350			397557.396	338971.506	1.575	
✓	24	0.119	5.00		156.750	Manhole	Adoptable	1350			397582.990	338994.315	1.650	
✓	25-HW				157.700	Junction					397587.572	339006.049	2.800	Auto-design is off
✓	26	0.119	5.00		162.894	Manhole	Adoptable	1350			397409.327	338974.975	1.425	
✓	27	0.119	5.00		162.626	Manhole	Adoptable	1350			397443.102	338959.749	1.500	
✓	28	0.119	5.00		162.755	Manhole	Adoptable	1200			397475.012	338947.320	1.769	
✓	29	0.119	5.00		161.150	Manhole	Adoptable	1200			397487.111	338978.385	1.575	
✓	30	0.119	5.00		160.794	Manhole	Adoptable	1200			397487.175	338985.868	1.650	
✓	31	0.119	5.00		159.855	Manhole	Adoptable	1200			397505.099	338992.832	1.725	
✓	32	0.119	5.00		158.881	Manhole	Adoptable	1200			397514.553	339009.007	1.800	
✓	33	0.119	5.00		157.857	Manhole	Adoptable	1350			397529.616	339031.445	1.875	
✓	34-HW				156.822	Junction					397536.271	339040.790	2.052	Auto-design is off
✓	35-POND				157.100	Junction					397530.417	339066.645	2.383	Auto-design is off
✓	36-HW				157.100	Junction					397541.299	339075.675	2.411	Auto-design is off
✓	37-FC				156.546	Manhole	Adoptable	3000			397545.662	339073.504	1.866	Auto-design is off

✓	38				156.756	Manhole	Adoptable	1200			397588.436	339136.299	2.531	Auto-design is off
✓	38-OF				155.410	Junction					397598.133	339137.245	1.243	

	Name	US Node	DS Node	Length (m)	ks (mm) / n	Velocity Equation	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	T of C (mins)	Rain (mm/hr)	Con Offset (m)	Min DS IL (m)	Lateral Area (ha)	Lateral Ins Point (%)	Lateral T of E (mins)
✓	1.000	1	2	15.739	0.600	Colebrook-White	157.807	157.363	0.444	35.4	225	Circular	5.00	50.0					
✓	1.001	2	3	16.319	0.600	Colebrook-White	157.288	157.070	0.218	74.9	300	Circular	5.00	50.0					
✓	1.002	3	6	48.850	0.600	Colebrook-White	156.920	156.469	0.451	108.3	450	Circular	5.00	50.0					
✓	2.000	4	5	33.147	0.600	Colebrook-White	156.824	156.688	0.136	243.7	300	Circular	5.00	50.0					
✓	2.001	5	6	5.986	0.600	Colebrook-White	156.613	156.544	0.069	86.8	375	Circular	5.00	50.0					
✓	1.003	6	8	60.240	0.600	Colebrook-White	156.319	156.160	0.159	378.9	600	Circular	5.00	50.0					
✓	3.000	7	8	30.080	0.600	Colebrook-White	157.142	156.535	0.607	49.6	225	Circular	5.00	50.0					
✓	1.004	8	15	28.767	0.600	Colebrook-White	156.085	156.042	0.043	669.0	675	Circular	5.00	50.0					
✓	4.000	9	10	23.298	0.600	Colebrook-White	157.573	157.319	0.254	91.7	225	Circular	5.00	50.0					
✓	4.001	10	11	12.454	0.600	Colebrook-White	157.244	157.130	0.114	109.2	300	Circular	5.00	50.0					
✓	4.002	11	12	15.627	0.600	Colebrook-White	157.055	156.886	0.169	92.5	375	Circular	5.00	50.0					
✓	4.003	12	13	8.654	0.600	Colebrook-White	156.811	156.721	0.090	96.2	450	Circular	5.00	50.0					
✓	4.004	13	14	20.975	0.600	Colebrook-White	156.721	156.493	0.228	92.0	450	Circular	5.00	50.0					
✓	4.005	14	15	25.287	0.600	Colebrook-White	156.343	156.117	0.226	111.9	600	Circular	5.00	50.0					
✓	1.005	15	16	25.851	0.600	Colebrook-White	156.042	155.990	0.052	500.0	675	Circular	5.00	50.0					
?	1.006	16	17	7.432	0.600	Colebrook-White	155.915	155.392	0.523	14.2	750	Circular	5.00	50.0					
✓	1.007	17	18	18.634	0.600	Colebrook-White	155.392	155.355	0.037	500.0	750	Circular	5.00	50.0					
?	1.008	18	19-HW	7.509	0.600	Colebrook-White	155.355	154.705	0.650	11.6	750	Circular	5.00	50.0					
✓	1.009	19-HW	36-HW	8.416	0.600	Colebrook-White	154.705	154.689	0.016	526.0	750	Circular	5.00	50.0					
✓	5.000	20	21	29.278	0.600	Colebrook-White	161.049	160.616	0.433	67.6	225	Circular	5.00	50.0					
✓	5.001	21	22	14.762	0.600	Colebrook-White	160.616	159.901	0.715	20.6	225	Circular	5.00	50.0					
?	5.002	22	23	36.686	0.600	Colebrook-White	159.826	157.714	2.112	17.4	300	Circular	5.00	50.0					
?	5.003	23	24	34.283	0.600	Colebrook-White	157.639	155.175	2.464	13.9	375	Circular	5.00	50.0					
✓	5.004	24	25-HW	12.597	0.600	Colebrook-White	155.100	155.069	0.031	406.4	450	Circular	5.00	50.0					
✓	5.005	25-HW	34-HW	61.957	0.600	Colebrook-White	154.900	154.770	0.130	476.6	675	Circular	5.00	50.0					
✓	6.000	26	27	37.048	0.600	Colebrook-White	161.469	161.201	0.268	138.2	225	Circular	5.00	50.0					
✓	6.001	27	28	34.245	0.600	Colebrook-White	161.126	160.986	0.140	244.6	300	Circular	5.00	50.0					
?	6.002	28	29	33.338	0.600	Colebrook-White	160.986	159.650	1.336	25.0	300	Circular	5.00	50.0					
?	6.003	29	30	7.484	0.600	Colebrook-White	159.575	159.219	0.356	21.0	375	Circular	5.00	50.0					
?	6.004	30	31	19.229	0.600	Colebrook-White	159.144	158.205	0.939	20.5	450	Circular	5.00	50.0					
?	6.005	31	32	18.735	0.600	Colebrook-White	158.130	157.156	0.974	19.2	525	Circular	5.00	50.0					
?	6.006	32	33	27.025	0.600	Colebrook-White	157.081	156.057	1.024	26.4	600	Circular	5.00	50.0					
?	6.007	33	34-HW	11.472	0.600	Colebrook-White	155.982	154.770	1.212	9.5	675	Circular	5.00	50.0					
✓	5.006	34-HW	35-POND	26.510	0.600	Colebrook-White	154.770	154.717	0.053	500.2	675	Circular	5.00	50.0					
✓	5.007	35-POND	36-HW	14.141	0.600	Colebrook-White	154.717	154.689	0.028	505.0	675	Circular	5.00	50.0					
?	1.010	36-HW	37-FC	4.873	0.600	Colebrook-White	154.689	154.680	0.009	541.4	750	Circular	5.00	50.0					
✓	1.011	37-FC	38	75.979	0.600	Colebrook-White	154.680	154.225	0.455	167.0	225	Circular	5.00	0.0					
?	1.012	38	38-OF	9.744	0.600	Colebrook-White	154.225	154.167	0.058	168.0	225	Circular	5.00	0.0		154.167			

Rainfall Methodology	FSR		Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
FSR Region	England and Wales		2	0	0	0
M5-60 (mm)	20.000		30	0	0	0
Ratio-R	0.400		100	30	0	0
Summer CV	0.750					
Winter CV	0.840					
Analysis Speed	Normal					
Skip Steady State	No					
Drain Down Time (mins)	240					
Additional Storage (m³/ha)	0.0					
Storm Durations (mins)	15					
	30					
	60					
	120					
	180					
	240					
	360					
	480					
	600					
	720					
	960					
	1440					
Check Discharge Rate(s)	No					
Check Discharge Volume	No					
100 year 360 minute (m³)						

Hydro-Brake®													
Node	Flap Valve	Online / Offline	Downstream Link	Replaces Downstream Link	Loop to Node	Invert Level (m)	Design Depth (m)	Design Flow (l/s)	Objective	Sump Available	Product Number	Min Outlet Diameter (m)	Min Node Diameter (mm)
37-FC	No	Online		Yes		154.680	2.000	21.5	(HE) Minimise upstream storage	Yes	CTL-SHE-0190-2150-2000-2150	0.225	1800

<u>Depth/Area/Inf Area</u>									
Node	Base Inf Coefficient (m/hr)	Side Inf Coefficient (m/hr)	Safety Factor	Porosity	Invert Level (m)	Time to half empty (mins)	Depth (m)	Area (m²)	Inf. Area (m²)
36-HW	0.00000	0.00000	2.0	1.00	154.689		0.000	715.0	0.0
							1.700	2091.0	0.0
							2.000	2364.6	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 92.64%																
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link Event (Upstream Depth)	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	10	157.887	0.080	21.7	0.1146	0.0000	OK	15 minute winter	1.000	2	21.5	1.766	0.245	0.1915	
15 minute winter	2	10	157.417	0.129	43.2	0.1843	0.0000	OK	15 minute winter	1.001	3	42.7	1.566	0.332	0.4453	
15 minute winter	3	10	157.061	0.141	64.4	0.2019	0.0000	OK	15 minute winter	1.002	6	63.5	1.539	0.205	2.0169	
15 minute winter	4	10	156.939	0.115	21.7	0.1651	0.0000	OK	15 minute winter	2.000	5	21.1	0.874	0.297	0.8007	
15 minute winter	5	10	156.743	0.130	42.6	0.1470	0.0000	OK	15 minute winter	2.001	6	42.3	1.384	0.197	0.1833	
15 minute winter	6	11	156.575	0.256	126.6	0.3666	0.0000	OK	15 minute winter	1.003	8	126.8	0.965	0.360	8.2993	
15 minute winter	7	10	157.227	0.085	21.7	0.1220	0.0000	OK	15 minute winter	3.000	8	21.3	1.587	0.288	0.4042	
15 minute winter	8	11	156.493	0.408	168.0	0.5845	0.0000	OK	15 minute winter	1.004	15	163.6	0.717	0.455	6.6379	
15 minute winter	9	10	157.676	0.102	21.7	0.1466	0.0000	OK	15 minute winter	4.000	10	21.3	1.254	0.392	0.3958	
15 minute winter	10	10	157.389	0.145	43.0	0.2079	0.0000	OK	15 minute winter	4.001	11	42.5	1.346	0.400	0.3936	
15 minute winter	11	10	157.211	0.156	64.2	0.2229	0.0000	OK	15 minute winter	4.002	12	63.6	1.579	0.306	0.6312	
15 minute winter	12	10	156.999	0.188	85.3	0.2692	0.0000	OK	15 minute winter	4.003	13	84.9	1.351	0.257	0.5437	
15 minute winter	13	10	156.909	0.188	106.6	0.2696	0.0000	OK	15 minute winter	4.004	14	105.4	1.803	0.313	1.2324	
15 minute winter	14	10	156.529	0.186	126.9	0.3289	0.0000	OK	15 minute winter	4.005	15	127.5	1.187	0.196	3.0458	
15 minute winter	15	11	156.466	0.424	311.5	0.7485	0.0000	OK	15 minute winter	1.005	16	306.2	1.460	0.735	5.4481	
15 minute winter	16	11	156.112	0.197	326.6	0.3488	0.0000	OK	15 minute winter	1.006	17	326.4	2.171	0.099	1.1422	
15 minute winter	17	12	155.762	0.370	346.7	0.6546	0.0000	OK	15 minute winter	1.007	18	349.9	2.404	0.637	2.7651	
15 minute winter	18	11	155.539	0.184	370.3	0.3254	0.0000	OK	15 minute winter	1.008	19-HW	362.9	2.313	0.099	1.2094	
240 minute winter	19-HW	228	155.221	0.516	74.7	0.0000	0.0000	OK	240 minute winter	1.009	36-HW	74.1	1.456	0.138	2.7663	
15 minute winter	20	10	161.141	0.092	21.7	0.1312	0.0000	OK	15 minute winter	5.000	21	21.5	1.309	0.339	0.4800	
15 minute winter	21	10	160.719	0.103	43.1	0.1468	0.0000	OK	15 minute winter	5.001	22	42.7	2.555	0.371	0.2465	
15 minute winter	22	10	159.929	0.103	64.4	0.1471	0.0000	OK	15 minute winter	5.002	23	63.7	3.068	0.238	0.7617	
15 minute winter	23	10	157.739	0.100	85.4	0.1426	0.0000	OK	15 minute winter	5.003	24	85.0	2.474	0.158	1.2955	
15 minute winter	24	10	155.355	0.255	106.7	0.3645	0.0000	OK	15 minute winter	5.004	25-HW	105.5	1.230	0.662	1.0850	
240 minute winter	25-HW	228	155.221	0.321	20.9	0.0000	0.0000	OK	240 minute winter	5.005	34-HW	19.6	0.384	0.046	13.0405	
15 minute winter	26	10	161.582	0.113	21.7	0.1613	0.0000	OK	15 minute winter	6.000	27	21.0	1.089	0.476	0.7174	
15 minute winter	27	10	161.296	0.170	42.6	0.2431	0.0000	OK	15 minute winter	6.001	28	42.0	1.297	0.594	1.1185	
15 minute winter	28	11	161.099	0.113	63.6	0.1279	0.0000	OK	15 minute winter	6.002	29	63.2	2.679	0.283	0.7862	
15 minute winter	29	10	159.706	0.131	84.0	0.1483	0.0000	OK	15 minute winter	6.003	30	83.8	2.750	0.191	0.2287	
15 minute winter	30	10	159.269	0.125	105.3	0.1412	0.0000	OK	15 minute winter	6.004	31	104.7	3.111	0.146	0.6490	
15 minute winter	31	10	158.259	0.128	126.2	0.1453	0.0000	OK	15 minute winter	6.005	32	125.6	3.282	0.113	0.7185	
15 minute winter	32	10	157.222	0.141	147.1	0.1596	0.0000	OK	15 minute winter	6.006	33	146.7	3.064	0.109	1.2947	
15 minute winter	33	11	156.087	0.105	167.3	0.1501	0.0000	OK	15 minute winter	6.007	34-HW	167.3	1.595	0.055	1.3399	
240 minute winter	34-HW	228	155.221	0.451	52.9	0.0000	0.0000	OK	240 minute winter	5.006	35-POND	49.8	0.643	0.119	7.1513	
240 minute winter	35-POND	228	155.221	0.504	49.8	0.0000	0.0000	OK	240 minute winter	5.007	36-HW	48.3	1.162	0.117	4.1566	
240 minute winter	36-HW	228	155.221	0.532	122.4	495.1936	0.0000	OK	240 minute winter	1.010	37-FC	21.8	0.317	0.041	1.6431	
240 minute winter	37-FC	228	155.221	0.541	21.8	3.8256	0.0000	SURCHARGED	240 minute winter	Hydro-Brake®	38	21.4				
240 minute winter	38	228	154.347	0.122	21.4	0.1375	0.0000	OK	240 minute winter	1.012	38-OF	21.4	1.009	0.536	0.2071	505.2
240 minute winter	38-OF	228	154.283	0.116	21.4	0.0000	0.0000	OK								

Results for 30 year Critical Storm Duration. Lowest mass balance: 92.64%																
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link Event (Upstream Depth)	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	10	157.923	0.116	41.2	0.1659	0.0000	OK	15 minute winter	1.000	2	41.0	1.976	0.468	0.3295	
15 minute winter	2	10	157.482	0.194	82.2	0.2774	0.0000	OK	15 minute winter	1.001	3	81.2	1.812	0.631	0.7308	
15 minute winter	3	10	157.121	0.201	122.4	0.2881	0.0000	OK	15 minute winter	1.002	6	121.2	1.633	0.390	4.5145	
15 minute winter	4	10	156.993	0.169	41.2	0.2419	0.0000	OK	15 minute winter	2.000	5	40.0	1.042	0.564	1.2823	
15 minute winter	5	11	156.832	0.219	81.2	0.2475	0.0000	OK	15 minute winter	2.001	6	80.1	1.580	0.373	0.4283	
15 minute winter	6	11	156.789	0.470	242.4	0.6729	0.0000	OK	15 minute winter	1.003	8	227.0	0.992	0.645	15.4098	
15 minute winter	7	10	157.264	0.122	41.2	0.1751	0.0000	OK	15 minute winter	3.000	8	41.5	1.812	0.560	0.8420	
15 minute winter	8	11	156.723	0.638	304.9	0.9133	0.0000	OK	15 minute winter	1.004	15	303.1	0.876	0.842	10.0487	
15 minute winter	9	10	157.729	0.156	41.2	0.2235	0.0000	OK	15 minute winter	4.000	10	40.8	1.435	0.751	0.6638	
15 minute winter	10	10	157.467	0.222	81.9	0.3184	0.0000	OK	15 minute winter	4.001	11	80.8	1.555	0.761	0.6471	
15 minute winter	11	10	157.290	0.235	122.0	0.3359	0.0000	OK	15 minute winter	4.002	12	121.3	1.781	0.583	1.0742	
15 minute winter	12	10	157.100	0.289	162.5	0.4133	0.0000	OK	15 minute winter	4.003	13	161.3	1.523	0.489	0.9172	
15 minute winter	13	10	157.003	0.282	202.5	0.4033	0.0000	OK	15 minute winter	4.004	14	200.1	2.092	0.594	2.0179	
15 minute winter	14	11	156.688	0.345	241.2	0.6100	0.0000	OK	15 minute winter	4.005	15	238.2	1.222	0.366	5.5907	
15 minute winter	15	11	156.679	0.637	574.3	1.1260	0.0000	OK	15 minute winter	1.005	16	569.7	1.803	1.367	8.0291	
15 minute winter	16	11	156.228	0.313	608.5	0.5533	0.0000	OK	15 minute winter	1.006	17	608.1	2.475	0.185	1.8277	
15 minute winter	17	11	155.901	0.509	646.9	0.8985	0.0000	OK	15 minute winter	1.007	18	646.2	2.708	1.175	4.4322	
360 minute winter	18	352	155.659	0.304	100.4	0.5368	0.0000	OK	360 minute winter	1.008	19-HW	100.4	1.049	0.028	2.2795	
360 minute winter	19-HW	344	155.659	0.954	100.4	0.0000	0.0000	SURCHARGED	360 minute winter	1.009	36-HW	99.7	1.395	0.186	3.7041	
15 minute winter	20	10	161.185	0.136	41.2	0.1949	0.0000	OK	15 minute winter	5.000	21	40.8	1.482	0.644	0.8046	
15 minute winter	21	10	160.774	0.158	81.9	0.2264	0.0000	OK	15 minute winter	5.001	22	81.0	2.921	0.705	0.4092	
15 minute winter	22	10	159.975	0.149	122.2	0.2130	0.0000	OK	15 minute winter	5.002	23	121.2	3.609	0.452	1.2319	
15 minute winter	23	10	157.778	0.139	162.4	0.1991	0.0000	OK	15 minute winter	5.003	24	161.8	2.423	0.300	2.2513	
360 minute winter	24	352	155.659	0.559	28.0	0.7995	0.0000	SURCHARGED	360 minute winter	5.004	25-HW	27.5	0.812	0.172	1.9959	
360 minute winter	25-HW	352	155.659	0.759	27.5	0.0000	0.0000	SURCHARGED	360 minute winter	5.005	34-HW	24.5	0.328	0.057	22.1173	
15 minute winter	26	10	161.648	0.179	41.2	0.2560	0.0000	OK	15 minute winter	6.000	27	40.5	1.167	0.917	1.2866	
15 minute winter	27	10	161.390	0.264	81.7	0.3776	0.0000	OK	15 minute winter	6.001	28	80.3	1.491	1.136	1.8068	
15 minute winter	28	11	161.152	0.166	120.6	0.1880	0.0000	OK	15 minute winter	6.002	29	120.2	3.130	0.538	1.2807	
15 minute winter	29	10	159.773	0.197	159.8	0.2233	0.0000	OK	15 minute winter	6.003	30	159.4	3.148	0.364	0.3798	
15 minute winter	30	10	159.325	0.181	200.3	0.2046	0.0000	OK	15 minute winter	6.004	31	199.1	3.638	0.278	1.0565	
15 minute winter	31	10	158.315	0.185	240.3	0.2097	0.0000	OK	15 minute winter	6.005	32	238.9	3.842	0.215	1.1696	
15 minute winter	32	10	157.283	0.202	280.1	0.2286	0.0000	OK	15 minute winter	6.006	33	278.5	3.604	0.207	2.0950	
15 minute winter	33	10	156.126	0.144	319.0	0.2058	0.0000	OK	15 minute winter	6.007	34-HW	318.6	1.887	0.104	2.1100	
360 minute winter	34-HW	352	155.659	0.889	69.3	0.0000	0.0000	SURCHARGED	360 minute winter	5.006	35-POND	65.7	0.577	0.158	9.4635	
360 minute winter	35-POND	352	155.659	0.942	65.7	0.0000	0.0000	SURCHARGED	360 minute winter	5.007	36-HW	64.3	1.157	0.155	5.0480	
360 minute winter	36-HW	352	155.659	0.970	164.0	1073.8140	0.0000	SURCHARGED	360 minute winter	1.010	37-FC	22.5	0.305	0.043	2.1447	
360 minute winter	37-FC	352	155.659	0.979	22.5	6.9178	0.0000	SURCHARGED	360 minute winter	Hydro-Brake®	38	21.5				
30 minute summer	38	26	154.347	0.122	21.5	0.1376	0.0000	OK	30 minute summer	1.012	38-OF	21.5	1.009	0.537	0.2073	327.8
30 minute summer	38-OF	26	154.283	0.116	21.5	0.0000	0.0000	OK								

Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 92.64%																
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link Event (Upstream Depth)	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	11	158.389	0.582	69.5	0.8331	0.0000	SURCHARGED	15 minute winter	1.000	2	66.0	1.993	0.753	0.6260	
15 minute winter	2	11	158.051	0.763	131.4	1.0916	0.0000	SURCHARGED	15 minute winter	1.001	3	132.5	1.905	1.031	1.1492	
15 minute winter	3	11	157.717	0.797	197.9	1.1406	0.0000	SURCHARGED	15 minute winter	1.002	6	199.1	1.659	0.641	7.7400	
15 minute winter	4	11	157.699	0.875	69.5	1.2519	0.0000	SURCHARGED	15 minute winter	2.000	5	66.8	1.064	0.942	2.3342	
15 minute winter	5	11	157.552	0.939	132.1	1.0620	0.0000	SURCHARGED	15 minute winter	2.001	6	133.0	1.564	0.619	0.6602	
15 minute winter	6	11	157.488	1.169	397.5	1.6732	0.0000	SURCHARGED	15 minute winter	1.003	8	398.5	1.415	1.132	16.9682	
15 minute winter	7	11	157.823	0.681	69.5	0.9743	0.0000	SURCHARGED	15 minute winter	3.000	8	66.4	1.796	0.897	1.1963	
15 minute winter	8	11	157.238	1.153	530.3	1.6503	0.0000	SURCHARGED	15 minute winter	1.004	15	531.0	1.488	1.476	10.2692	
15 minute winter	9	11	158.638	1.065	69.5	1.5242	0.0000	SURCHARGED	15 minute winter	4.000	10	64.9	1.632	1.195	0.9266	
15 minute winter	10	11	158.187	0.943	130.3	1.3492	0.0000	SURCHARGED	15 minute winter	4.001	11	130.5	1.854	1.228	0.8770	
15 minute winter	11	11	157.919	0.864	195.9	1.2362	0.0000	SURCHARGED	15 minute winter	4.002	12	196.4	1.781	0.944	1.7236	
15 minute winter	12	11	157.683	0.872	261.8	1.2479	0.0000	SURCHARGED	15 minute winter	4.003	13	262.5	1.657	0.796	1.3712	
15 minute winter	13	11	157.555	0.834	327.9	1.1933	0.0000	SURCHARGED	15 minute winter	4.004	14	328.5	2.121	0.974	3.3234	
15 minute winter	14	11	157.225	0.882	393.9	1.5581	0.0000	SURCHARGED	15 minute winter	4.005	15	394.7	1.401	0.607	7.1228	
15 minute winter	15	11	157.092	1.050	991.0	1.8560	0.0000	SURCHARGED	15 minute winter	1.005	16	991.7	2.780	2.379	9.0051	
15 minute winter	16	11	156.430	0.515	1057.1	0.9096	0.0000	OK	15 minute winter	1.006	17	1057.5	2.663	0.322	2.8327	
480 minute winter	17	464	156.302	0.910	186.9	1.6073	0.0000	SURCHARGED	480 minute winter	1.007	18	-186.3	1.835	-0.339	8.2012	
360 minute winter	18	336	156.568	1.213	413.5	2.1428	0.0000	SURCHARGED	360 minute winter	1.008	19-HW	335.2	1.240	0.092	3.3049	
480 minute winter	19-HW	424	157.100	2.395	1318.4	0.0000	0.0000	FLOOD RISK	480 minute winter	1.009	36-HW	1150.4	2.614	2.147	3.7041	
15 minute winter	20	11	161.902	0.853	69.5	1.2201	0.0000	SURCHARGED	15 minute winter	5.000	21	65.6	1.649	1.036	1.1644	
15 minute winter	21	11	161.343	0.727	131.5	1.0407	0.0000	SURCHARGED	15 minute winter	5.001	22	131.3	3.301	1.141	0.5853	
15 minute winter	22	11	160.032	0.206	196.6	0.2951	0.0000	OK	15 minute winter	5.002	23	197.3	4.005	0.736	1.8062	
15 minute winter	23	11	157.821	0.182	262.9	0.2607	0.0000	OK	15 minute winter	5.003	24	263.0	2.804	0.488	2.8006	
480 minute winter	24	480	156.252	1.152	37.5	1.6488	0.0000	SURCHARGED	480 minute winter	5.004	25-HW	37.3	0.789	0.234	1.9959	
480 minute winter	25-HW	480	156.253	1.353	37.3	0.0000	0.0000	SURCHARGED	480 minute winter	5.005	34-HW	37.2	0.314	0.087	22.1173	
15 minute winter	26	11	162.527	1.058	69.5	1.5133	0.0000	SURCHARGED	15 minute winter	6.000	27	66.7	1.678	1.512	1.4734	
15 minute winter	27	11	161.816	0.690	133.9	0.9877	0.0000	SURCHARGED	15 minute winter	6.001	28	133.3	1.916	1.885	2.2703	
15 minute winter	28	11	161.234	0.248	199.5	0.2799	0.0000	OK	15 minute winter	6.002	29	200.2	3.408	0.896	1.9537	
15 minute winter	29	11	159.862	0.287	265.6	0.3249	0.0000	OK	15 minute winter	6.003	30	266.1	3.449	0.607	0.5734	
15 minute winter	30	10	159.394	0.250	332.7	0.2829	0.0000	OK	15 minute winter	6.004	31	332.5	4.067	0.464	1.5720	
15 minute winter	31	10	158.384	0.254	400.0	0.2875	0.0000	OK	15 minute winter	6.005	32	399.0	4.306	0.360	1.7390	
15 minute winter	32	10	157.356	0.275	467.2	0.3109	0.0000	OK	15 minute winter	6.006	33	466.3	4.063	0.347	3.1025	
480 minute winter	33	480	156.252	0.270	60.0	0.3859	0.0000	OK	480 minute winter	6.007	34-HW	60.0	0.693	0.020	2.8098	
480 minute winter	34-HW	480	156.250	1.480	97.2	0.0000	0.0000	SURCHARGED	480 minute winter	5.006	35-POND	96.3	0.615	0.231	9.4635	
480 minute winter	35-POND	480	156.254	1.537	96.3	0.0000	0.0000	SURCHARGED	480 minute winter	5.007	36-HW	96.0	1.195	0.232	5.0480	
480 minute winter	36-HW	488	156.251	1.562	1246.2	2104.3360	0.0000	SURCHARGED	480 minute winter	1.010	37-FC	22.9	0.315	0.043	2.1447	
480 minute winter	37-FC	488	156.252	1.572	22.9	11.1126	0.0000	FLOOD RISK	480 minute winter	Hydro-Brake®	38	21.5				
15 minute winter	38	12	154.347	0.122	21.5	0.1376	0.0000	OK	15 minute winter	1.012	38-OF	21.5	1.009	0.537	0.2073	313.9
15 minute winter	38-OF	12	154.283	0.116	21.5	0.0000	0.0000	OK								