Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	5	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Circular Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100 | 150

tank Link Type

Shape	Closed Rectangular	Auto Increment (mm)	100
Barrels	1	Follow Ground	x
Height (mm)	800		

Available Diameters (mm)

4750

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Gavel Strip Inlet	0.004	5.00	41.220	300	385183.446	397277.676	0.420
Gavel Strip Outlet			41.220	300	385190.519	397290.505	0.518
RE01	0.009	5.00	41.214	300	385187.147	397273.878	0.792
IC06			41.223	450	385195.927	397289.898	0.989
RE02	0.010	5.00	41.221	300	385190.912	397271.912	0.721
IC05			41.222	450	385199.667	397287.904	1.016
RE03	0.010	5.00	41.240	300	385197.461	397268.387	0.740
IC04			41.222	450	385206.346	397284.323	1.067
RE04	0.010	5.00	41.250	300	385201.471	397266.222	0.750
IC03	0.054	5.00	41.221	600	385210.258	397282.292	1.170
RE05	0.011	5.00	41.953	300	385212.854	397321.266	0.453
IC11			41.940	450	385203.518	397304.297	1.000
RE06	0.010	5.00	41.932	300	385217.199	397319.169	0.432
IC10			41.941	450	385207.735	397301.900	1.350
RE07	0.011	5.00	41.950	300	385223.229	397316.098	0.450
IC09			41.941	450	385213.525	397298.738	1.394
RE08	0.012	5.00	41.950	300	385227.919	397313.702	0.450
IC08			41.944	600	385218.333	397296.008	1.434
IC02			41.815	600	385216.526	397293.496	1.850
INLET			41.800	450	385215.382	397294.122	1.836
OUTLET			41.777	450	385201.104	397301.287	1.815
IC01			41.777	600	385199.924	397301.963	1.824
IC16	0.004	5.00	42.000	450	385205.467	397316.247	0.807
MH01			41.841	1350	385198.033	397303.014	1.902

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Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
CW03			41.920	450	385196.501	397303.793	1.987
CW02			41.278	450	385192.717	397293.349	1.623
CW01			41.215	450	385183.172	397275.659	1.811
CW			41.221	450	385177.875	397267.666	2.291

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	Gavel Strip Inlet	Gavel Strip Outlet	14.650	0.600	40.800	40.702	0.098	150.0	100	5.39	50.0
1.001	Gavel Strip Outlet	IC06	5.442	0.600	40.702	40.666	0.036	150.0	150	5.50	50.0
2.000	RE01	IC06	18.268	0.600	40.422	40.300	0.122	150.0	150	5.37	50.0
1.002	IC06	IC05	4.238	0.600	40.234	40.206	0.028	150.0	150	5.59	50.0
3.000	RE02	IC05	18.233	0.600	40.500	40.378	0.122	150.0	150	5.37	50.0
1.003	IC05	IC04	7.578	0.600	40.206	40.155	0.051	150.0	150	5.74	50.0
4.000	RE03	IC04	18.246	0.600	40.500	40.378	0.122	150.0	150	5.37	50.0
1.004	IC04	IC03	4.415	0.600	40.155	40.126	0.029	150.0	150	5.83	50.0
5.000	RE04	IC03	18.332	0.600	40.500	40.378	0.122	150.0	150	5.37	50.0
1.005	IC03	IC02	12.855	0.600	40.051	39.965	0.086	150.0	225	6.03	50.0
6.000	RE05	IC11	19.368	0.600	41.500	41.371	0.129	150.0	150	5.39	50.0
6.001	IC11	IC10	4.851	0.600	40.940	40.908	0.032	150.0	150	5.49	50.0
7.000	RE06	IC10	19.692	0.600	41.500	41.369	0.131	150.0	150	5.40	50.0
6.002	IC10	IC09	6.597	0.600	40.591	40.547	0.044	150.0	150	5.63	50.0
8.000	RE07	IC09	19.888	0.600	41.500	41.367	0.133	150.0	150	5.41	50.0
6.003	IC09	IC08	5.529	0.600	40.547	40.510	0.037	150.0	150	5.74	50.0
9.000	RE08	IC08	20.124	0.600	41.500	41.366	0.134	150.0	150	5.41	50.0
6.004	IC08	IC02	3.094	0.600	40.510	40.489	0.021	150.0	225	5.79	50.0
1.006	IC02	INLET	1.304	0.600	39.973	39.964	0.009	150.0	225	6.05	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)
1.000	0.625	4.9	0.7	0.320	0.418	0.004	0.0
1.001	0.818	14.5	0.7	0.368	0.407	0.004	0.0
2.000	0.818	14.5	1.7	0.642	0.773	0.009	0.0
1.002	0.818	14.5	2.4	0.839	0.866	0.013	0.0
3.000	0.818	14.5	1.8	0.571	0.694	0.010	0.0
1.003	0.818	14.5	4.1	0.866	0.917	0.023	0.0
4.000	0.818	14.5	1.9	0.590	0.694	0.010	0.0
1.004	0.818	14.5	6.0	0.917	0.945	0.033	0.0
5.000	0.818	14.5	1.8	0.600	0.693	0.010	0.0
1.005	1.065	42.3	17.5	0.945	1.625	0.097	0.0
6.000	0.818	14.5	1.9	0.303	0.419	0.011	0.0
6.001	0.818	14.5	1.9	0.850	0.883	0.011	0.0
7.000	0.818	14.5	1.9	0.282	0.422	0.010	0.0
6.002	0.818	14.5	3.8	1.200	1.244	0.021	0.0
8.000	0.818	14.5	2.1	0.300	0.424	0.011	0.0
6.003	0.818	14.5	5.9	1.244	1.284	0.033	0.0
9.000	0.818	14.5	2.2	0.300	0.428	0.012	0.0
6.004	1.065	42.3	8.1	1.209	1.101	0.045	0.0
1.006	1.065	42.3	25.6	1.617	1.611	0.142	0.0

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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)
1.007	INLET	OUTLET	16.000	0.600	39.964	39.962	0.002	10000.0	4750	6.73	50.0
1.008	OUTLET	IC01	1.360	0.600	39.962	39.953	0.009	150.0	225	6.75	50.0
1.009	IC01	MH01	2.163	0.600	39.953	39.939	0.014	150.0	225	6.78	50.0
10.000	IC16	MH01	15.178	0.600	41.193	41.092	0.101	150.0	150	5.31	50.0
1.010	MH01	CW03	1.719	0.600	39.939	39.933	0.006	286.4	225	6.82	50.0
1.011	CW03	CW02	11.108	0.600	39.933	39.655	0.278	40.0	225	6.91	50.0
1.012	CW02	CW01	20.101	0.600	39.655	39.404	0.251	80.0	225	7.14	50.0
1.013	CW01	CW	9.591	0.600	39.404	38.930	0.474	20.2	225	7.19	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)
1.007	0.395	1501.7	25.6	1.036	1.015	0.142	0.0
1.008	1.065	42.3	25.6	1.590	1.599	0.142	0.0
1.009	1.065	42.3	25.6	1.599	1.677	0.142	0.0
10.000	0.818	14.5	0.7	0.657	0.599	0.004	0.0
1.010	0.767	30.5	26.3	1.677	1.762	0.146	0.0
1.011	2.074	82.5	26.3	1.762	1.398	0.146	0.0
1.012	1.463	58.2	26.3	1.398	1.586	0.146	0.0
1.013	2.922	116.2	26.3	1.586	2.066	0.146	0.0

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	14.650	150.0	100	Circular	41.220	40.800	0.320	41.220	40.702	0.418
1.001	5.442	150.0	150	Circular	41.220	40.702	0.368	41.223	40.666	0.407
2.000	18.268	150.0	150	Circular	41.214	40.422	0.642	41.223	40.300	0.773
1.002	4.238	150.0	150	Circular	41.223	40.234	0.839	41.222	40.206	0.866
3.000	18.233	150.0	150	Circular	41.221	40.500	0.571	41.222	40.378	0.694
1.003	7.578	150.0	150	Circular	41.222	40.206	0.866	41.222	40.155	0.917
4.000	18.246	150.0	150	Circular	41.240	40.500	0.590	41.222	40.378	0.694
1.004	4.415	150.0	150	Circular	41.222	40.155	0.917	41.221	40.126	0.945
5.000	18.332	150.0	150	Circular	41.250	40.500	0.600	41.221	40.378	0.693
1.005	12.855	150.0	225	Circular	41.221	40.051	0.945	41.815	39.965	1.625
6.000	19.368	150.0	150	Circular	41.953	41.500	0.303	41.940	41.371	0.419
6.001	4.851	150.0	150	Circular	41.940	40.940	0.850	41.941	40.908	0.883

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Gavel Strip Inlet	300	Manhole	Adoptable	Gavel Strip Outlet	300	Manhole	Adoptable
1.001	Gavel Strip Outlet	300	Manhole	Adoptable	IC06	450	Manhole	Adoptable
2.000	RE01	300	Manhole	Adoptable	IC06	450	Manhole	Adoptable
1.002	IC06	450	Manhole	Adoptable	IC05	450	Manhole	Adoptable
3.000	RE02	300	Manhole	Adoptable	IC05	450	Manhole	Adoptable
1.003	IC05	450	Manhole	Adoptable	IC04	450	Manhole	Adoptable
4.000	RE03	300	Manhole	Adoptable	IC04	450	Manhole	Adoptable
1.004	IC04	450	Manhole	Adoptable	IC03	600	Manhole	Adoptable
5.000	RE04	300	Manhole	Adoptable	IC03	600	Manhole	Adoptable
1.005	IC03	600	Manhole	Adoptable	IC02	600	Manhole	Adoptable
6.000	RE05	300	Manhole	Adoptable	IC11	450	Manhole	Adoptable
6.001	IC11	450	Manhole	Adoptable	IC10	450	Manhole	Adoptable

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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)
7.000	19.692	150.0	150	Circular	41.932	41.500	0.282	41.941	41.369	0.422
6.002	6.597	150.0	150	Circular	41.941	40.591	1.200	41.941	40.547	1.244
8.000	19.888	150.0	150	Circular	41.950	41.500	0.300	41.941	41.367	0.424
6.003	5.529	150.0	150	Circular	41.941	40.547	1.244	41.944	40.510	1.284
9.000	20.124	150.0	150	Circular	41.950	41.500	0.300	41.944	41.366	0.428
6.004	3.094	150.0	225	Circular	41.944	40.510	1.209	41.815	40.489	1.101
1.006	1.304	150.0	225	Circular	41.815	39.973	1.617	41.800	39.964	1.611
1.007	16.000	10000.0	4750	tank	41.800	39.964	1.036	41.777	39.962	1.015
1.008	1.360	150.0	225	Circular	41.777	39.962	1.590	41.777	39.953	1.599
1.009	2.163	150.0	225	Circular	41.777	39.953	1.599	41.841	39.939	1.677
10.000	15.178	150.0	150	Circular	42.000	41.193	0.657	41.841	41.092	0.599
1.010	1.719	286.4	225	Circular	41.841	39.939	1.677	41.920	39.933	1.762
1.011	11.108	40.0	225	Circular	41.920	39.933	1.762	41.278	39.655	1.398
1.012	20.101	80.0	225	Circular	41.278	39.655	1.398	41.215	39.404	1.586
1.013	9.591	20.2	225	Circular	41.215	39.404	1.586	41.221	38.930	2.066

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
7.000	RE06	300	Manhole	Adoptable	IC10	450	Manhole	Adoptable
6.002	IC10	450	Manhole	Adoptable	IC09	450	Manhole	Adoptable
8.000	RE07	300	Manhole	Adoptable	IC09	450	Manhole	Adoptable
6.003	IC09	450	Manhole	Adoptable	IC08	600	Manhole	Adoptable
9.000	RE08	300	Manhole	Adoptable	IC08	600	Manhole	Adoptable
6.004	IC08	600	Manhole	Adoptable	IC02	600	Manhole	Adoptable
1.006	IC02	600	Manhole	Adoptable	INLET	450	Manhole	Adoptable
1.007	INLET	450	Manhole	Adoptable	OUTLET	450	Manhole	Adoptable
1.008	OUTLET	450	Manhole	Adoptable	IC01	600	Manhole	Adoptable
1.009	IC01	600	Manhole	Adoptable	MH01	1350	Manhole	Adoptable
10.000	IC16	450	Manhole	Adoptable	MH01	1350	Manhole	Adoptable
1.010	MH01	1350	Manhole	Adoptable	CW03	450	Manhole	Adoptable
1.011	CW03	450	Manhole	Adoptable	CW02	450	Manhole	Adoptable
1.012	CW02	450	Manhole	Adoptable	CW01	450	Manhole	Adoptable
1.013	CW01	450	Manhole	Adoptable	CW	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Gavel Strip Inlet	385183.446	397277.676	41.220	0.420	300				
						0	1.000	40.800	100
Gavel Strip Outlet	385190.519	397290.505	41.220	0.518	300	1	1.000	40.702	100
						0	1.001	40.702	150
RE01	385187.147	397273.878	41.214	0.792	300				
						0	2.000	40.422	150

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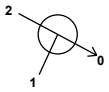
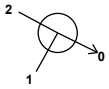
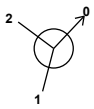
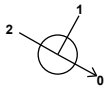
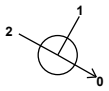
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
IC06	385195.927	397289.898	41.223	0.989	450		1	2.000	40.300	150
							2	1.001	40.666	150
							0	1.002	40.234	150
RE02	385190.912	397271.912	41.221	0.721	300		0	3.000	40.500	150
IC05	385199.667	397287.904	41.222	1.016	450		1	3.000	40.378	150
							2	1.002	40.206	150
							0	1.003	40.206	150
RE03	385197.461	397268.387	41.240	0.740	300		0	4.000	40.500	150
IC04	385206.346	397284.323	41.222	1.067	450		1	4.000	40.378	150
							2	1.003	40.155	150
							0	1.004	40.155	150
RE04	385201.471	397266.222	41.250	0.750	300		0	5.000	40.500	150
IC03	385210.258	397282.292	41.221	1.170	600		1	5.000	40.378	150
							2	1.004	40.126	150
							0	1.005	40.051	225
RE05	385212.854	397321.266	41.953	0.453	300		0	6.000	41.500	150
IC11	385203.518	397304.297	41.940	1.000	450		1	6.000	41.371	150
							0	6.001	40.940	150
RE06	385217.199	397319.169	41.932	0.432	300		0	7.000	41.500	150
IC10	385207.735	397301.900	41.941	1.350	450		1	7.000	41.369	150
							2	6.001	40.908	150
							0	6.002	40.591	150
RE07	385223.229	397316.098	41.950	0.450	300		0	8.000	41.500	150
IC09	385213.525	397298.738	41.941	1.394	450		1	8.000	41.367	150
							2	6.002	40.547	150
							0	6.003	40.547	150

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
RE08	385227.919	397313.702	41.950	0.450	300	0	9.000	41.500	150
IC08	385218.333	397296.008	41.944	1.434	600	1	9.000	41.366	150
						2	6.003	40.510	150
						0	6.004	40.510	225
IC02	385216.526	397293.496	41.815	1.850	600	1	6.004	40.489	225
						2	1.005	39.965	225
						0	1.006	39.973	225
INLET	385215.382	397294.122	41.800	1.836	450	1	1.006	39.964	225
						0	1.007	39.964	4750
OUTLET	385201.104	397301.287	41.777	1.815	450	1	1.007	39.962	4750
						0	1.008	39.962	225
IC01	385199.924	397301.963	41.777	1.824	600	1	1.008	39.953	225
						0	1.009	39.953	225
IC16	385205.467	397316.247	42.000	0.807	450	0	10.000	41.193	150
MH01	385198.033	397303.014	41.841	1.902	1350	1	10.000	41.092	150
						2	1.009	39.939	225
						0	1.010	39.939	225
CW03	385196.501	397303.793	41.920	1.987	450	1	1.010	39.933	225
						0	1.011	39.933	225
CW02	385192.717	397293.349	41.278	1.623	450	1	1.011	39.655	225
						0	1.012	39.655	225
CW01	385183.172	397275.659	41.215	1.811	450	1	1.012	39.404	225
						0	1.013	39.404	225
CW	385177.875	397267.666	41.221	2.291	450	1	1.013	38.930	225

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Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
Rainfall Events	Singular	Drain Down Time (mins)	240
FSR Region	England and Wales	Additional Storage (m³/ha)	20.0
M5-60 (mm)	17.000	Starting Level (m)	
Ratio-R	0.400	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	0	0	0
30	0	0	0
100	45	0	0

Node MH01 Online Hydro-Brake® Control

Flap Valve	✓	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	39.939	Product Number	CTL-SHE-0090-3500-0900-3500
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	3.5	Min Node Diameter (mm)	1200

Other (defaults)

Entry Loss (manhole)	0.250	Entry Loss (junction)	0.000	Apply Recommended Losses	x
Exit Loss (manhole)	0.250	Exit Loss (junction)	0.000	Flood Risk (m)	0.300

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute winter	84.042	33.888	30 year 360 minute winter	17.511	6.932
2 year 30 minute winter	54.399	21.935	30 year 480 minute winter	13.940	5.545
2 year 60 minute winter	34.361	13.668	30 year 600 minute winter	11.642	4.661
2 year 120 minute winter	20.961	8.338	30 year 720 minute winter	10.143	4.045
2 year 180 minute winter	15.687	6.210	30 year 960 minute winter	8.133	3.233
2 year 240 minute winter	12.649	5.032	30 year 1440 minute winter	5.906	2.355
2 year 360 minute winter	9.436	3.735	100 year +45% CC 15 minute winter	296.885	119.712
2 year 480 minute winter	7.598	3.022	100 year +45% CC 30 minute winter	195.350	78.770
2 year 600 minute winter	6.398	2.561	100 year +45% CC 60 minute winter	124.515	49.529
2 year 720 minute winter	5.605	2.235	100 year +45% CC 120 minute winter	75.946	30.209
2 year 960 minute winter	4.535	1.803	100 year +45% CC 180 minute winter	56.520	22.375
2 year 1440 minute winter	3.338	1.331	100 year +45% CC 240 minute winter	45.253	18.001
30 year 15 minute winter	158.733	64.005	100 year +45% CC 360 minute winter	33.238	13.158
30 year 30 minute winter	103.475	41.724	100 year +45% CC 480 minute winter	26.348	10.480
30 year 60 minute winter	65.517	26.061	100 year +45% CC 600 minute winter	21.932	8.780
30 year 120 minute winter	39.827	15.842	100 year +45% CC 720 minute winter	19.063	7.602
30 year 180 minute winter	29.640	11.734	100 year +45% CC 960 minute winter	15.225	6.052
30 year 240 minute winter	23.758	9.450	100 year +45% CC 1440 minute winter	10.990	4.383

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Results for 2 year Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Gavel Strip Inlet	10	40.825	0.025	0.7	0.0063	0.0000	OK
15 minute winter	Gavel Strip Outlet	11	40.724	0.022	0.6	0.0016	0.0000	OK
15 minute winter	RE01	11	40.457	0.035	1.7	0.0106	0.0000	OK
15 minute winter	IC06	11	40.278	0.044	2.3	0.0070	0.0000	OK
15 minute winter	RE02	11	40.536	0.036	1.8	0.0122	0.0000	OK
15 minute winter	IC05	11	40.263	0.057	4.0	0.0090	0.0000	OK
15 minute winter	RE03	11	40.537	0.037	1.9	0.0129	0.0000	OK
15 minute winter	IC04	11	40.228	0.073	5.9	0.0115	0.0000	OK
15 minute winter	RE04	11	40.536	0.036	1.8	0.0119	0.0000	OK
15 minute winter	IC03	11	40.158	0.107	16.9	0.1287	0.0000	OK
15 minute winter	RE05	11	41.538	0.038	2.0	0.0206	0.0000	OK
15 minute winter	IC11	11	40.979	0.039	1.9	0.0062	0.0000	OK
15 minute winter	RE06	11	41.537	0.037	1.9	0.0204	0.0000	OK
15 minute winter	IC10	11	40.647	0.056	3.8	0.0089	0.0000	OK
15 minute winter	RE07	11	41.539	0.039	2.1	0.0224	0.0000	OK
15 minute winter	IC09	11	40.620	0.073	5.8	0.0117	0.0000	OK
15 minute winter	RE08	11	41.540	0.040	2.2	0.0237	0.0000	OK
15 minute winter	IC08	11	40.583	0.073	8.0	0.0207	0.0000	OK
60 minute winter	IC02	49	40.120	0.155	13.1	0.0439	0.0000	OK
60 minute winter	INLET	49	40.120	0.156	12.9	0.0248	0.0000	OK
60 minute winter	OUTLET	49	40.120	0.158	7.9	0.0251	0.0000	OK
60 minute winter	IC01	49	40.120	0.167	3.3	0.0471	0.0000	OK
15 minute winter	IC16	11	41.216	0.023	0.7	0.0059	0.0000	OK
60 minute winter	MH01	49	40.119	0.180	3.4	0.2580	0.0000	OK
60 minute winter	CW03	50	39.964	0.031	3.3	0.0049	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 winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	0.6	0.469	0.132	0.0206	
15 minute winter	Gavel Strip Outlet	1.001	IC06	0.6	0.406	0.045	0.0087	
15 minute winter	RE01	2.000	IC06	1.6	0.542	0.113	0.0553	
15 minute winter	IC06	1.002	IC05	2.3	0.441	0.158	0.0220	
15 minute winter	RE02	3.000	IC05	1.7	0.552	0.120	0.0575	
15 minute winter	IC05	1.003	IC04	4.0	0.553	0.278	0.0551	
15 minute winter	RE03	4.000	IC04	1.8	0.560	0.127	0.0599	
15 minute winter	IC04	1.004	IC03	5.8	0.731	0.403	0.0352	
15 minute winter	RE04	5.000	IC03	1.7	0.551	0.120	0.0579	
15 minute winter	IC03	1.005	IC02	16.9	0.798	0.400	0.2728	
15 minute winter	RE05	6.000	IC11	1.9	0.568	0.134	0.0661	
15 minute winter	IC11	6.001	IC10	1.9	0.551	0.135	0.0171	
15 minute winter	RE06	7.000	IC10	1.8	0.560	0.127	0.0647	
15 minute winter	IC10	6.002	IC09	3.8	0.523	0.262	0.0479	
15 minute winter	RE07	8.000	IC09	2.0	0.577	0.141	0.0703	
15 minute winter	IC09	6.003	IC08	5.8	0.682	0.403	0.0472	
15 minute winter	RE08	9.000	IC08	2.1	0.584	0.148	0.0737	
15 minute winter	IC08	6.004	IC02	7.9	0.769	0.188	0.0320	
15 minute winter	IC02	1.006	INLET	24.9	1.760	0.588	0.0270	
15 minute winter	INLET	1.007	OUTLET	13.6	0.127	0.009	9.2564	
60 minute winter	OUTLET	1.008	IC01	3.3	0.331	0.077	0.0417	
60 minute winter	IC01	1.009	MH01	3.2	0.193	0.077	0.0710	
15 minute winter	IC16	10.000	MH01	0.7	0.421	0.048	0.0251	
60 minute winter	MH01	Hydro-Brake®	CW03	3.3				
60 minute winter	CW03	1.011	CW02	3.3	0.857	0.040	0.0434	

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Results for 2 year Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	CW02	50	39.694	0.039	3.3	0.0062	0.0000	OK
60 minute winter	CW01	50	39.431	0.027	3.3	0.0043	0.0000	OK
60 minute winter	CW	50	38.956	0.026	3.3	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)
60 minute winter	CW02	1.012	CW01	3.3	0.931	0.057	0.0727	
60 minute winter	CW01	1.013	CW	3.3	1.274	0.029	0.0251	19.6

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Results for 30 year Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Gavel Strip Inlet	10	40.836	0.036	1.3	0.0089	0.0000	OK
15 minute winter	Gavel Strip Outlet	11	40.733	0.031	1.3	0.0022	0.0000	OK
15 minute winter	RE01	10	40.471	0.049	3.2	0.0149	0.0000	OK
120 minute winter	IC06	98	40.307	0.073	1.4	0.0116	0.0000	OK
15 minute winter	RE02	10	40.550	0.050	3.4	0.0171	0.0000	OK
120 minute winter	IC05	98	40.307	0.101	2.5	0.0161	0.0000	OK
15 minute winter	RE03	10	40.551	0.051	3.6	0.0181	0.0000	OK
120 minute winter	IC04	96	40.307	0.152	3.6	0.0242	0.0000	SURCHARGED
15 minute winter	RE04	10	40.550	0.050	3.4	0.0167	0.0000	OK
120 minute winter	IC03	96	40.307	0.256	10.6	0.3076	0.0000	SURCHARGED
15 minute winter	RE05	10	41.552	0.052	3.7	0.0285	0.0000	OK
15 minute winter	IC11	11	40.995	0.055	3.6	0.0087	0.0000	OK
15 minute winter	RE06	10	41.551	0.051	3.6	0.0286	0.0000	OK
15 minute winter	IC10	11	40.679	0.088	7.1	0.0139	0.0000	OK
15 minute winter	RE07	10	41.554	0.054	4.0	0.0317	0.0000	OK
15 minute winter	IC09	11	40.659	0.112	11.0	0.0179	0.0000	OK
15 minute winter	RE08	10	41.555	0.055	4.1	0.0331	0.0000	OK
15 minute winter	IC08	11	40.614	0.104	15.0	0.0295	0.0000	OK
120 minute winter	IC02	96	40.307	0.342	15.1	0.0967	0.0000	SURCHARGED
120 minute winter	INLET	98	40.306	0.342	14.8	0.0544	0.0000	OK
120 minute winter	OUTLET	98	40.306	0.344	9.1	0.0548	0.0000	SURCHARGED
120 minute winter	IC01	98	40.306	0.353	3.4	0.0999	0.0000	SURCHARGED
15 minute winter	IC16	10	41.224	0.031	1.4	0.0082	0.0000	OK
120 minute winter	MH01	98	40.306	0.367	3.7	0.5250	0.0000	SURCHARGED
60 minute winter	CW03	91	39.965	0.032	3.5	0.0050	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 winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	1.3	0.559	0.256	0.0331	
15 minute winter	Gavel Strip Outlet	1.001	IC06	1.3	0.491	0.087	0.0139	
15 minute winter	RE01	2.000	IC06	3.1	0.649	0.217	0.0884	
15 minute winter	IC06	1.002	IC05	4.4	0.470	0.304	0.0399	
15 minute winter	RE02	3.000	IC05	3.3	0.658	0.228	0.0915	
15 minute winter	IC05	1.003	IC04	7.7	0.614	0.532	0.0944	
15 minute winter	RE03	4.000	IC04	3.5	0.669	0.241	0.0956	
15 minute winter	IC04	1.004	IC03	11.2	0.848	0.774	0.0581	
15 minute winter	RE04	5.000	IC03	3.3	0.657	0.228	0.0921	
15 minute winter	IC03	1.005	IC02	32.1	0.928	0.757	0.4462	
15 minute winter	RE05	6.000	IC11	3.6	0.673	0.248	0.1035	
15 minute winter	IC11	6.001	IC10	3.6	0.651	0.250	0.0269	
15 minute winter	RE06	7.000	IC10	3.5	0.668	0.241	0.1030	
15 minute winter	IC10	6.002	IC09	7.1	0.571	0.493	0.0820	
15 minute winter	RE07	8.000	IC09	3.9	0.690	0.269	0.1124	
15 minute winter	IC09	6.003	IC08	11.0	0.811	0.763	0.0752	
15 minute winter	RE08	9.000	IC08	4.0	0.693	0.276	0.1160	
15 minute winter	IC08	6.004	IC02	15.0	0.909	0.355	0.0511	
15 minute winter	IC02	1.006	INLET	46.6	1.917	1.102	0.0519	
15 minute winter	INLET	1.007	OUTLET	24.7	0.134	0.016	18.3376	
15 minute winter	OUTLET	1.008	IC01	3.6	0.465	0.086	0.0541	
240 minute winter	IC01	1.009	MH01	3.5	0.301	0.082	0.0860	
15 minute winter	IC16	10.000	MH01	1.3	0.510	0.093	0.0399	
60 minute winter	MH01	Hydro-Brake®	CW03	3.5				
60 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

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Results for 30 year Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	CW02	47	39.695	0.040	3.5	0.0063	0.0000	OK
30 minute winter	CW01	47	39.432	0.028	3.5	0.0044	0.0000	OK
30 minute winter	CW	47	38.957	0.027	3.5	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)
30 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
30 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	29.6

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Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	Gavel Strip Inlet	10	40.851	0.051	2.4	0.0126	0.0000	OK
15 minute winter	Gavel Strip Outlet	11	40.745	0.043	2.4	0.0031	0.0000	OK
180 minute winter	RE01	172	40.737	0.315	1.4	0.0966	0.0000	SURCHARGED
180 minute winter	IC06	172	40.737	0.503	2.0	0.0799	0.0000	SURCHARGED
180 minute winter	RE02	176	40.737	0.237	1.5	0.0812	0.0000	SURCHARGED
180 minute winter	IC05	172	40.737	0.531	3.1	0.0844	0.0000	SURCHARGED
180 minute winter	RE03	172	40.737	0.237	1.6	0.0831	0.0000	SURCHARGED
180 minute winter	IC04	172	40.737	0.582	4.3	0.0925	0.0000	SURCHARGED
180 minute winter	RE04	172	40.736	0.236	1.5	0.0790	0.0000	SURCHARGED
180 minute winter	IC03	172	40.736	0.685	13.9	0.8239	0.0000	SURCHARGED
15 minute winter	RE05	10	41.575	0.075	7.0	0.0411	0.0000	OK
15 minute winter	IC11	11	41.019	0.079	6.8	0.0126	0.0000	OK
15 minute winter	RE06	10	41.574	0.074	6.8	0.0411	0.0000	OK
15 minute winter	IC10	11	40.830	0.239	13.4	0.0381	0.0000	SURCHARGED
15 minute winter	RE07	10	41.578	0.078	7.5	0.0455	0.0000	OK
15 minute winter	IC09	11	40.775	0.228	20.6	0.0363	0.0000	SURCHARGED
15 minute winter	RE08	10	41.580	0.080	7.7	0.0478	0.0000	OK
180 minute winter	IC08	172	40.736	0.226	6.9	0.0640	0.0000	SURCHARGED
180 minute winter	IC02	176	40.736	0.771	20.5	0.2182	0.0000	SURCHARGED
180 minute winter	INLET	176	40.736	0.772	20.3	0.1227	0.0000	OK
180 minute winter	OUTLET	176	40.736	0.774	11.8	0.1231	0.0000	SURCHARGED
180 minute winter	IC01	176	40.736	0.783	3.4	0.2215	0.0000	SURCHARGED
15 minute winter	IC16	10	41.237	0.044	2.6	0.0114	0.0000	OK
180 minute winter	MH01	176	40.736	0.797	3.8	1.1399	0.0000	SURCHARGED
960 minute winter	CW03	495	39.965	0.032	3.5	0.0050	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 winter	Gavel Strip Inlet	1.000	Gavel Strip Outlet	2.4	0.660	0.481	0.0525	
15 minute winter	Gavel Strip Outlet	1.001	IC06	2.4	0.583	0.163	0.0220	
15 minute winter	RE01	2.000	IC06	5.6	0.692	0.386	0.3216	
15 minute winter	IC06	1.002	IC05	6.3	0.472	0.433	0.0746	
15 minute winter	RE02	3.000	IC05	6.4	0.750	0.440	0.3040	
15 minute winter	IC05	1.003	IC04	11.0	0.623	0.759	0.1334	
15 minute winter	RE03	4.000	IC04	6.8	0.758	0.471	0.2507	
15 minute winter	IC04	1.004	IC03	16.3	0.924	1.125	0.0777	
15 minute winter	RE04	5.000	IC03	6.2	0.748	0.431	0.2214	
15 minute winter	IC03	1.005	IC02	51.0	1.281	1.203	0.5113	
15 minute winter	RE05	6.000	IC11	6.8	0.794	0.471	0.1667	
15 minute winter	IC11	6.001	IC10	6.8	0.765	0.472	0.0433	
15 minute winter	RE06	7.000	IC10	6.6	0.788	0.457	0.1656	
15 minute winter	IC10	6.002	IC09	13.4	0.761	0.926	0.1161	
15 minute winter	RE07	8.000	IC09	7.3	0.808	0.503	0.1795	
15 minute winter	IC09	6.003	IC08	20.6	1.169	1.424	0.0973	
15 minute winter	RE08	9.000	IC08	7.5	0.814	0.519	0.1863	
15 minute winter	IC08	6.004	IC02	28.0	1.060	0.662	0.0818	
15 minute winter	IC02	1.006	INLET	78.1	2.088	1.843	0.0519	
15 minute winter	INLET	1.007	OUTLET	39.2	0.140	0.026	35.5745	
15 minute winter	OUTLET	1.008	IC01	3.6	0.461	0.085	0.0541	
960 minute winter	IC01	1.009	MH01	3.5	0.179	0.082	0.0860	
15 minute winter	IC16	10.000	MH01	2.5	0.611	0.176	0.0634	
960 minute winter	MH01	Hydro-Brake®	CW03	3.5				
960 minute winter	CW03	1.011	CW02	3.5	0.869	0.042	0.0450	

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Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	CW02	106	39.695	0.040	3.5	0.0063	0.0000	OK
240 minute winter	CW01	472	39.432	0.028	3.5	0.0044	0.0000	OK
240 minute winter	CW	472	38.957	0.027	3.5	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)
60 minute winter	CW02	1.012	CW01	3.5	0.944	0.060	0.0753	
240 minute winter	CW01	1.013	CW	3.5	1.293	0.030	0.0260	83.2

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