

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	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)	16.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	16.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.300	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 %)
2	0	0	0
30	50	0	0
100	50	0	0

Node EX SW04 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	4.000	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0346-8760-3000-8760
Invert Level (m)	39.666	Min Outlet Diameter (m)	0.375
Design Depth (m)	3.000	Min Node Diameter (mm)	0
Design Flow (l/s)	87.6		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	EX SW01	12	47.141	0.143	302.2	1.2376	0.0000	OK
360 minute winter	EXISTING INLET	248	40.097	0.431	71.3	0.0000	0.0000	OK
360 minute winter	EX SW04	248	40.082	0.416	65.4	555.6702	0.0000	OK
360 minute winter	EXISTING OUTLET	248	39.635	0.135	56.9	0.0000	0.0000	OK
360 minute winter	SW07	248	40.093	0.427	42.4	0.0000	0.0000	OK
15 minute winter	SW04	11	46.525	0.171	168.7	0.6856	0.0000	OK
15 minute winter	SW03	11	48.208	0.157	146.2	1.1684	0.0000	OK
15 minute winter	EX SW02	12	48.519	0.249	101.2	1.7290	0.0000	OK
15 minute winter	EX SW03	13	47.869	0.266	115.9	1.4937	0.0000	OK
15 minute winter	SW01	11	48.696	0.146	40.3	0.7995	0.0000	OK
15 minute winter	EX SW05	11	48.694	0.144	39.6	0.7802	0.0000	OK
15 minute winter	EX SW06	13	48.072	0.189	75.9	0.9026	0.0000	OK
15 minute winter	SW02	11	48.515	0.214	76.8	0.9948	0.0000	OK
15 minute winter	SW05	12	44.680	0.180	190.7	0.8016	0.0000	OK
15 minute winter	SW06	12	42.932	0.232	209.9	1.0428	0.0000	OK
15 minute winter	EX SW07	12	48.683	0.133	39.6	0.6731	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	EX SW01	1.003	EXISTING INLET	299.8	7.316	0.194	1.0866	
360 minute winter	EX SW04	4.000	EXISTING OUTLET	56.9	1.153	0.117	1.6276	804.3
15 minute winter	SW04	3.003	SW05	166.7	2.448	0.178	6.8129	
15 minute winter	SW03	3.002	SW04	143.8	2.760	0.257	2.9714	
15 minute winter	EX SW02	2.001	EX SW01	91.9	1.130	0.572	5.1218	
15 minute winter	EX SW03	1.002	EX SW01	97.7	1.482	0.608	16.7334	
15 minute winter	SW01	3.000	SW02	38.2	0.659	0.238	5.9222	
15 minute winter	EX SW05	2.000	EX SW02	37.2	0.578	0.231	7.4219	
15 minute winter	EX SW06	1.001	EX SW03	61.3	0.771	0.381	8.9828	
15 minute winter	SW02	3.001	SW03	73.4	1.214	0.457	6.1779	
15 minute winter	SW05	3.004	SW06	189.3	2.239	0.205	8.5832	
15 minute winter	SW06	3.005	SW07	205.7	2.132	0.301	7.5779	
15 minute winter	EX SW07	1.000	EX SW06	33.0	0.679	0.197	12.4089	

Results for 30 year +50% CC Critical Storm Duration. Lowest mass balance: 99.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	EX SW01	11	47.267	0.269	828.9	2.3242	0.0000	OK
360 minute winter	EXISTING INLET	272	40.945	1.279	197.4	0.0000	0.0000	OK
360 minute winter	EX SW04	272	40.920	1.254	161.9	1660.4150	0.0000	SURCHARGED
180 minute winter	EXISTING OUTLET	228	39.668	0.168	87.5	0.0000	0.0000	OK
360 minute winter	SW07	272	40.939	1.273	117.9	0.0000	0.0000	OK
15 minute winter	SW04	11	46.662	0.308	479.8	1.2386	0.0000	OK
15 minute winter	SW03	11	48.353	0.302	409.9	2.2459	0.0000	OK
15 minute winter	EX SW02	12	48.868	0.598	263.5	4.1566	0.0000	SURCHARGED
30 minute winter	EX SW03	22	48.550	0.947	260.0	5.3221	0.0000	SURCHARGED
15 minute winter	SW01	12	48.849	0.299	113.0	1.6332	0.0000	OK
15 minute winter	EX SW05	12	48.985	0.435	111.1	2.3512	0.0000	OK
15 minute winter	EX SW06	13	48.748	0.865	220.9	4.1425	0.0000	SURCHARGED
15 minute winter	SW02	11	48.784	0.483	217.0	2.2427	0.0000	SURCHARGED
15 minute winter	SW05	11	44.828	0.328	549.9	1.4583	0.0000	OK
15 minute winter	SW06	12	43.170	0.470	616.1	2.1109	0.0000	OK
15 minute winter	EX SW07	11	48.793	0.243	111.1	1.2303	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	EX SW01	1.003	EXISTING INLET	830.0	9.215	0.538	2.3863	
360 minute winter	EX SW04	4.000	EXISTING OUTLET	87.5	1.296	0.180	2.2299	2284.2
15 minute winter	SW04	3.003	SW05	480.1	3.166	0.511	15.1673	
15 minute winter	SW03	3.002	SW04	410.0	3.585	0.733	6.5193	
15 minute winter	EX SW02	2.001	EX SW01	244.2	1.583	1.520	9.1340	
30 minute winter	EX SW03	1.002	EX SW01	217.4	1.773	1.353	30.0056	
15 minute winter	SW01	3.000	SW02	103.9	0.826	0.647	13.4442	
15 minute winter	EX SW05	2.000	EX SW02	97.4	0.712	0.606	17.6589	
15 minute winter	EX SW06	1.001	EX SW03	136.6	0.895	0.850	17.7457	
15 minute winter	SW02	3.001	SW03	197.1	1.557	1.227	13.5711	
15 minute winter	SW05	3.004	SW06	546.3	2.800	0.591	19.4470	
15 minute winter	SW06	3.005	SW07	607.3	2.707	0.888	17.5454	
15 minute winter	EX SW07	1.000	EX SW06	98.9	0.862	0.590	30.0901	

Results for 100 year +50% CC Critical Storm Duration. Lowest mass balance: 99.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	EX SW01	11	47.324	0.326	1071.1	2.8179	0.0000	OK
360 minute winter	EXISTING INLET	296	41.473	1.807	257.5	0.0000	0.0000	OK
360 minute winter	EX SW04	296	41.449	1.783	195.4	2352.1050	0.0000	SURCHARGED
120 minute winter	EXISTING OUTLET	72	39.668	0.168	87.5	0.0000	0.0000	OK
360 minute winter	SW07	296	41.467	1.801	153.6	0.0000	0.0000	OK
15 minute winter	SW04	11	46.709	0.355	600.6	1.4271	0.0000	OK
15 minute winter	SW03	11	48.420	0.369	517.6	2.7502	0.0000	OK
15 minute winter	EX SW02	11	49.278	1.008	347.8	7.0059	0.0000	SURCHARGED
30 minute winter	EX SW03	22	49.187	1.584	327.1	8.8980	0.0000	SURCHARGED
15 minute winter	SW01	11	49.223	0.673	144.8	3.6780	0.0000	SURCHARGED
15 minute winter	EX SW05	11	49.439	0.889	142.4	4.8049	0.0000	SURCHARGED
30 minute winter	EX SW06	21	49.512	1.629	237.0	7.7997	0.0000	SURCHARGED
15 minute winter	SW02	11	49.032	0.731	270.6	3.3969	0.0000	SURCHARGED
15 minute winter	SW05	11	44.886	0.386	691.0	1.7158	0.0000	OK
15 minute winter	SW06	12	43.478	0.778	782.2	3.4963	0.0000	SURCHARGED
15 minute winter	EX SW07	13	49.696	1.146	142.4	5.8084	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	EX SW01	1.003	EXISTING INLET	1061.1	9.577	0.688	2.9288	
360 minute winter	EX SW04	4.000	EXISTING OUTLET	87.5	1.296	0.180	2.2298	2456.5
15 minute winter	SW04	3.003	SW05	601.7	3.294	0.641	18.2592	
15 minute winter	SW03	3.002	SW04	511.2	3.763	0.914	7.7949	
15 minute winter	EX SW02	2.001	EX SW01	337.5	2.133	2.101	9.6732	
30 minute winter	EX SW03	1.002	EX SW01	267.3	1.903	1.664	32.6504	
15 minute winter	SW01	3.000	SW02	134.4	0.848	0.836	15.7651	
15 minute winter	EX SW05	2.000	EX SW02	128.1	0.809	0.797	17.7457	
30 minute winter	EX SW06	1.001	EX SW03	186.6	1.178	1.162	17.7457	
15 minute winter	SW02	3.001	SW03	253.8	1.636	1.580	14.8855	
15 minute winter	SW05	3.004	SW06	692.9	2.882	0.749	23.6563	
15 minute winter	SW06	3.005	SW07	734.3	2.733	1.074	21.4299	
15 minute winter	EX SW07	1.000	EX SW06	117.8	0.898	0.703	38.8186	