STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW 03

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	PIMP (%)	100
M5-60 (mm)	20.700	Add Flow / Climate Change (%)	0
Ratio R	0.419	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for SW 03

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	105.417	3.039	34.7	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	116.859	4.333	27.0	0.264	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	9.984	0.323	30.9	0.176	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	34.202	0.795	43.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.004	25.373	0.001	25373.0	0.000	0.00	0.0	0.600	o	825	Pipe/Conduit	
2.000	100.906	0.577	175.0	0.176	4.00	0.0	0.600	o	225	Pipe/Conduit	
2.001	90.675	2.418	37.5	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.002	10.000	0.066	151.5	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.003	62.032	1.571	39.5	0.088	0.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.79	92.164	0.088	0.0	0.0	0.0	2.23	88.6	11.9
1.001	50.00	5.43	89.050	0.352	0.0	0.0	0.0	3.04	214.8	47.7
1.002	50.00	5.49	84.717	0.528	0.0	0.0	0.0	2.84	200.6	71.5
1.003	50.00	5.72	84.394	0.528	0.0	0.0	0.0	2.40	169.9	71.5
1.004	45.72	8.12	83.599	0.528	0.0	0.0	0.0	0.18	94.5	71.5
2.000	50.00	5.71	97.823	0.176	0.0	0.0	0.0	0.99	39.2	23.8
2.001	50.00	6.29	97.171	0.264	0.0	0.0	0.0	2.58	182.1	35.7
2.002	50.00	6.42	94.753	0.352	0.0	0.0	0.0	1.27	90.1	47.7
2.003	50.00	6.78	94.612	0.440	0.0	0.0	0.0	2.89	319.3	59.6

Network Design Table for SW 03

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.000	19.590	0.261	75.1	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
3.001	78.540	2.032	38.7	0.188	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.004	54.652	1.470	37.2	0.088	0.00	0.0	0.600	o	450	Pipe/Conduit	
4.000	49.705	1.533	32.4	0.188	4.00	0.0	0.600	o	225	Pipe/Conduit	
2.005	56.286	1.247	45.1	0.088	0.00	0.0	0.600	o	525	Pipe/Conduit	
2.006	15.117	0.701	21.6	0.088	0.00	0.0	0.600	o	525	Pipe/Conduit	
5.000	9.912	0.219	45.3	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
6.000	25.208	0.572	44.1	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
5.001	70.741	1.474	48.0	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.002	15.519	0.084	184.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.003	9.990	0.084	118.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.000	69.872	1.539	45.4	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
8.000	19.312	0.194	99.5	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.000	50.00	4.22	95.484	0.088	0.0	0.0	0.0	1.51	60.1	11.9
3.001	50.00	4.73	95.148	0.276	0.0	0.0	0.0	2.54	179.3	37.4
2.004	49.15	7.05	92.966	0.804	0.0	0.0	0.0	3.34	531.6	107.0
4.000	50.00	4.36	93.254	0.188	0.0	0.0	0.0	2.31	91.7	25.5
2.005	48.17	7.34	91.421	1.080	0.0	0.0	0.0	3.34	723.1	140.9
2.006	48.00	7.39	90.174	1.168	0.0	0.0	0.0	4.84	1047.5	151.8
5.000	50.00	4.08	95.043	0.088	0.0	0.0	0.0	1.95	77.5	11.9
6.000	50.00	4.21	95.396	0.088	0.0	0.0	0.0	1.98	78.6	11.9
5.001	50.00	4.73	94.749	0.264	0.0	0.0	0.0	2.28	160.8	35.7
5.002	50.00	4.96	93.275	0.264	0.0	0.0	0.0	1.15	81.5	35.7
5.003	50.00	5.07	93.191	0.264	0.0	0.0	0.0	1.44	101.8	35.7
7.000	50.00	4.60	97.125	0.088	0.0	0.0	0.0	1.95	77.4	11.9
8.000	50.00	4.25	95.780	0.088	0.0	0.0	0.0	1.31	52.1	11.9

Network Design Table for SW 03

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
7.001	30.292	0.781	38.8	0.088	0.00	0.0	0.600	o	225	Pipe/Conduit	
7.002	30.292	0.125	241.9	0.104	0.00	0.0	0.600	o	300	Pipe/Conduit	
9.000	71.080	1.157	61.4	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
9.001	67.515	1.081	62.5	0.088	0.00	0.0	0.600	o	225	Pipe/Conduit	
7.003	29.838	0.479	62.3	0.088	0.00	0.0	0.600	o	450	Pipe/Conduit	
7.004	25.538	1.019	25.1	0.088	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.004	105.358	3.409	30.9	0.088	0.00	0.0	0.600	o	450	Pipe/Conduit	
2.007	17.025	0.284	59.9	0.088	0.00	0.0	0.600	o	750	Pipe/Conduit	
10.000	102.533	2.950	34.8	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
10.001	9.995	0.791	12.6	0.088	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.008	17.776	0.284	62.6	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
2.009	71.075	1.667	42.6	0.088	0.00	0.0	0.600	o	750	Pipe/Conduit	
11.000	23.305	0.428	54.5	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
11.001	16.200	0.453	35.8	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit	
11.002	53.253	1.283	41.5	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
7.001	50.00	4.84	95.586	0.264	0.0	0.0	0.0	2.11	83.8	35.7
7.002	50.00	5.34	94.730	0.368	0.0	0.0	0.0	1.01	71.1	49.8
9.000	50.00	4.71	96.918	0.088	0.0	0.0	0.0	1.67	66.5	11.9
9.001	50.00	5.39	95.761	0.176	0.0	0.0	0.0	1.66	65.9	23.8
7.003	50.00	5.58	94.455	0.632	0.0	0.0	0.0	2.58	410.2	85.6
7.004	50.00	5.68	93.976	0.720	0.0	0.0	0.0	4.07	648.0	97.5
5.004	50.00	6.16	92.957	1.072	0.0	0.0	0.0	3.67	583.3	145.2
2.007	47.73	7.47	89.248	2.328	0.0	0.0	0.0	3.62	1598.6	301.0
10.000	50.00	4.77	93.230	0.088	0.0	0.0	0.0	2.23	88.5	11.9
10.001	50.00	4.81	90.280	0.176	0.0	0.0	0.0	3.70	147.2	23.8
2.008	47.46	7.55	88.964	2.504	0.0	0.0	0.0	3.54	1564.4	321.8
2.009	46.57	7.83	88.680	2.592	0.0	0.0	0.0	4.29	1896.6	326.9
11.000	50.00	4.22	93.171	0.088	0.0	0.0	0.0	1.78	70.6	11.9
11.001	50.00	4.32	92.668	0.176	0.0	0.0	0.0	2.64	186.5	23.8
11.002	50.00	4.68	92.215	0.264	0.0	0.0	0.0	2.45	173.0	35.7

Network Design Table for SW 03

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
11.003	73.647	2.483	29.7	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
11.004	10.002	1.086	9.2	0.288	0.00	0.0	0.600	o	375	Pipe/Conduit	
2.010	8.220	0.063	130.5	0.088	0.00	0.0	0.600	o	750	Pipe/Conduit	
2.011	86.275	1.520	56.8	0.088	0.00	0.0	0.600		-1	Pipe/Conduit	
2.012	10.783	0.403	26.8	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
12.000	40.648	0.522	77.9	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
12.001	28.056	0.680	41.3	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit	
13.000	42.376	0.981	43.2	0.088	4.00	0.0	0.600	o	225	Pipe/Conduit	
12.002	51.697	1.082	47.8	0.088	0.00	0.0	0.600	o	375	Pipe/Conduit	
12.003	10.000	1.190	8.4	0.288	0.00	0.0	0.600	o	375	Pipe/Conduit	
2.013	9.243	0.065	142.2	0.098	0.00	0.0	0.600	o	750	Pipe/Conduit	
2.014	51.307	0.880	58.3	0.000	0.00	0.0	0.600		-1	Pipe/Conduit	
2.015	9.710	0.386	25.2	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
14.000	69.411	1.804	38.5	0.098	4.00	0.0	0.600	o	225	Pipe/Conduit	
14.001	14.492	0.053	273.4	0.098	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
11.003	50.00	5.05	90.857	0.264	0.0	0.0	0.0	3.34	368.6	35.7
11.004	50.00	5.08	88.474	0.552	0.0	0.0	0.0	6.00	662.7	74.7
2.010	46.40	7.88	87.013	3.232	0.0	0.0	0.0	2.45	1081.7	406.1
2.011	45.67	8.14	88.000	3.320	0.0	0.0	0.0	5.65	10276.0	410.6
2.012	45.58	8.17	86.355	3.320	0.0	0.0	0.0	6.07	3861.7	410.6
12.000	50.00	4.46	89.951	0.088	0.0	0.0	0.0	1.48	59.0	11.9
12.001	50.00	4.65	89.354	0.176	0.0	0.0	0.0	2.45	173.5	23.8
13.000	50.00	4.35	89.730	0.088	0.0	0.0	0.0	2.00	79.4	11.9
12.002	50.00	4.98	88.599	0.352	0.0	0.0	0.0	2.63	290.1	47.7
12.003	50.00	5.00	87.517	0.640	0.0	0.0	0.0	6.28	693.9	86.7
2.013	45.40	8.23	85.952	4.058	0.0	0.0	0.0	2.34	1036.0	498.9
2.014	44.98	8.38	86.141	4.058	0.0	0.0	0.0	5.57	10138.8	498.9
2.015	44.91	8.41	85.061	4.058	0.0	0.0	0.0	6.26	3983.0	498.9
14.000	50.00	4.55	87.207	0.098	0.0	0.0	0.0	2.12	84.1	13.3
14.001	50.00	4.80	85.328	0.196	0.0	0.0	0.0	0.95	66.9	26.5

Network Design Table for SW 03

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
2.016	64.746	1.076	60.2	0.098	0.00	0.0	0.600	o	900	Pipe/Conduit	
2.017	45.476	0.002	22738.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.005	23.790	0.001	23790.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.006	3.983	0.033	120.7	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.007	12.367	1.566	7.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2.016	44.20	8.68	84.675	4.352	0.0	0.0	0.0	4.04	2572.3	520.9
2.017	36.26	12.51	83.599	4.352	0.0	0.0	0.0	0.20	126.0«	520.9
1.005	33.21	14.56	83.597	4.880	0.0	0.0	0.0	0.19	123.0«	520.9
1.006	33.17	14.59	83.599	4.880	0.0	0.0	0.0	2.22	626.4	520.9
1.007	33.12	14.62	83.566	4.880	0.0	0.0	0.0	5.63	397.8«	520.9

Manhole Schedules for SW 03

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdr (mm)
S3.S3.01	93.589	1.425	Open Manhole	1200	1.000	92.164	225				
S3.S3.02	90.550	1.500	Open Manhole	1200	1.001	89.050	300	1.000	89.125	225	
S3.S3.03	86.217	1.500	Sealed Manhole	1200	1.002	84.717	300	1.001	84.717	300	
S3.S3.04	85.893	1.499	Sealed Manhole	1200	1.003	84.394	300	1.002	84.394	300	
S3.S3.05	85.100	1.501	Sealed Manhole	1800	1.004	83.599	825	1.003	83.599	300	
S3.S3.06	99.248	1.425	Open Manhole	1200	2.000	97.823	225				
S3.S3.07	98.182	1.011	Open Manhole	1200	2.001	97.171	300	2.000	97.246	225	
S3.S3.08	96.253	1.500	Open Manhole	1200	2.002	94.753	300	2.001	94.753	300	
S3.S3.09	96.264	1.652	Open Manhole	1350	2.003	94.612	375	2.002	94.687	300	
S3.S3.10	96.909	1.425	Open Manhole	1200	3.000	95.484	225				
S3.S3.11	96.605	1.457	Open Manhole	1200	3.001	95.148	300	3.000	95.223	225	
S3.S3.12	94.693	1.727	Open Manhole	1350	2.004	92.966	450	2.003	93.041	375	
								3.001	93.116	300	
S3.S3.13	94.679	1.425	Open Manhole	1200	4.000	93.254	225				
S3.S3.14	93.280	1.859	Open Manhole	1500	2.005	91.421	525	2.004	91.496	450	
								4.000	91.721	225	
S3.S3.15	92.158	1.984	Open Manhole	1500	2.006	90.174	525	2.005	90.174	525	
S3.S3.16	96.393	1.350	Open Manhole	1200	5.000	95.043	225				
S3.S3.17	96.821	1.425	Open Manhole	1200	6.000	95.396	225				
S3.S3.18	96.249	1.500	Open Manhole	1200	5.001	94.749	300	5.000	94.824	225	
								6.000	94.824	225	
S3.S3.19	94.975	1.700	Open Manhole	1200	5.002	93.275	300	5.001	93.275	300	
S3.S3.20	95.351	2.160	Open Manhole	1200	5.003	93.191	300	5.002	93.191	300	
S3.S3.21	98.550	1.425	Open Manhole	1200	7.000	97.125	225				
S3.S3.22	97.205	1.425	Open Manhole	1200	8.000	95.780	225				
S3.S3.23	97.413	1.827	Open Manhole	1200	7.001	95.586	225	7.000	95.586	225	
								8.000	95.586	225	
S3.S3.24	96.230	1.500	Open Manhole	1200	7.002	94.730	300	7.001	94.805	225	
S3.S3.25	98.343	1.425	Open Manhole	1200	9.000	96.918	225				
S3.S3.26	97.186	1.425	Open Manhole	1200	9.001	95.761	225	9.000	95.761	225	
S3.S3.27	96.352	1.897	Open Manhole	1350	7.003	94.455	450	7.002	94.605	300	
								9.001	94.680	225	
S3.S3.28	95.903	1.927	Open Manhole	1350	7.004	93.976	450	7.003	93.976	450	
S3.S3.29	95.327	2.370	Open Manhole	1350	5.004	92.957	450	5.003	93.107	300	
								7.004	92.957	450	
S3.S3.30	92.248	3.000	Open Manhole	1350	2.007	89.248	750	2.006	89.473	525	
								5.004	89.548	450	
S3.S3.31	94.655	1.425	Open Manhole	1200	10.000	93.230	225				

Manhole Schedules for SW 03

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Ba
S3.S3.32	91.480	1.200	Open Manhole	1200	10.001	90.280	225	10.000	90.280	225	
S3.S3.33	91.729	2.765	Open Manhole	1800	2.008	88.964	750	2.007	88.964	750	
								10.001	89.489	225	
S3.S3.34	91.312	2.632	Open Manhole	1800	2.009	88.680	750	2.008	88.680	750	
S3.S3.35	94.596	1.425	Open Manhole	1200	11.000	93.171	225				
S3.S3.36	94.168	1.500	Open Manhole	1200	11.001	92.668	300	11.000	92.743	225	
S3.S3.37	93.774	1.559	Open Manhole	1200	11.002	92.215	300	11.001	92.215	300	
S3.S3.38	92.432	1.575	Open Manhole	1350	11.003	90.857	375	11.002	90.932	300	
S3.S3.39	89.749	1.375	Open Manhole	1350	11.004	88.474	375	11.003	88.374	375	
S3.S3.40	89.478	2.465	Open Manhole	1800	2.010	87.013	750	2.009	87.013	750	
								11.004	87.388	375	
S3.S3.41	89.300	2.350	Open Manhole	1800	2.011	88.000	-1	2.010	86.950	750	
S3.S3.42	88.050	1.695	Open Manhole	1800	2.012	86.355	900	2.011	86.480	-1	
S3.S3.43	91.376	1.425	Open Manhole	1200	12.000	89.951	225				
S3.S3.44	90.854	1.500	Open Manhole	1200	12.001	89.354	300	12.000	89.429	225	
S3.S3.45	91.080	1.350	Open Manhole	1200	13.000	89.730	225				
S3.S3.46	90.249	1.650	Open Manhole	1350	12.002	88.599	375	12.001	88.674	300	
								13.000	88.749	225	
S3.S3.47	89.167	1.650	Open Manhole	1350	12.003	87.517	375	12.002	87.517	375	
S3.S3.48	87.902	1.950	Open Manhole	1800	2.013	85.952	750	2.012	85.952	900	
								12.003	86.327	375	
S3.S3.49	87.500	1.613	Open Manhole	1800	2.014	86.141	-1	2.013	85.887	750	
S3.S3.50	86.730	1.669	Open Manhole	1800	2.015	85.061	900	2.014	85.261	-1	
S3.S3.51	88.632	1.425	Open Manhole	1200	14.000	87.207	225				
S3.S3.52	86.826	1.498	Open Manhole	1200	14.001	85.328	300	14.000	85.403	225	
S3.S3.53	86.524	1.849	Open Manhole	1800	2.016	84.675	900	2.015	84.675	900	
								14.001	85.275	300	
S3.S3.54	85.100	1.501	Sealed Manhole	1800	2.017	83.599	900	2.016	83.599	900	
S3.S3.55	85.100	1.503	Sealed Manhole	1800	1.005	83.597	900	1.004	83.598	825	
								2.017	83.597	900	
S3.S3.56	85.100	1.504	Sealed Manhole	1800	1.006	83.599	600	1.005	83.596	900	
S3.S3.56 FC	85.100	1.534	Sealed Manhole	1500	1.007	83.566	300	1.006	83.566	600	
S3.57	85.100	3.100	Open Manhole	1800		OUTFALL		1.007	82.000	300	

PIPELINE SCHEDULES for SW 03

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	S3.S3.01	93.589	92.164	1.200	Open Manhole	1200
1.001	o	300	S3.S3.02	90.550	89.050	1.200	Open Manhole	1200
1.002	o	300	S3.S3.03	86.217	84.717	1.200	Sealed Manhole	1200
1.003	o	300	S3.S3.04	85.893	84.394	1.199	Sealed Manhole	1200
1.004	o	825	S3.S3.05	85.100	83.599	0.676	Sealed Manhole	1800
2.000	o	225	S3.S3.06	99.248	97.823	1.200	Open Manhole	1200
2.001	o	300	S3.S3.07	98.182	97.171	0.711	Open Manhole	1200
2.002	o	300	S3.S3.08	96.253	94.753	1.200	Open Manhole	1200
2.003	o	375	S3.S3.09	96.264	94.612	1.277	Open Manhole	1350
3.000	o	225	S3.S3.10	96.909	95.484	1.200	Open Manhole	1200
3.001	o	300	S3.S3.11	96.605	95.148	1.157	Open Manhole	1200
2.004	o	450	S3.S3.12	94.693	92.966	1.277	Open Manhole	1350
4.000	o	225	S3.S3.13	94.679	93.254	1.200	Open Manhole	1200
2.005	o	525	S3.S3.14	93.280	91.421	1.334	Open Manhole	1500
2.006	o	525	S3.S3.15	92.158	90.174	1.459	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	105.417	34.7	S3.S3.02	90.550	89.125	1.200	Open Manhole	1200
1.001	116.859	27.0	S3.S3.03	86.217	84.717	1.200	Sealed Manhole	1200
1.002	9.984	30.9	S3.S3.04	85.893	84.394	1.199	Sealed Manhole	1200
1.003	34.202	43.0	S3.S3.05	85.100	83.599	1.201	Sealed Manhole	1800
1.004	25.373	25373.0	S3.S3.55	85.100	83.598	0.677	Sealed Manhole	1800
2.000	100.906	175.0	S3.S3.07	98.182	97.246	0.711	Open Manhole	1200
2.001	90.675	37.5	S3.S3.08	96.253	94.753	1.200	Open Manhole	1200
2.002	10.000	151.5	S3.S3.09	96.264	94.687	1.277	Open Manhole	1350
2.003	62.032	39.5	S3.S3.12	94.693	93.041	1.277	Open Manhole	1350
3.000	19.590	75.1	S3.S3.11	96.605	95.223	1.157	Open Manhole	1200
3.001	78.540	38.7	S3.S3.12	94.693	93.116	1.277	Open Manhole	1350
2.004	54.652	37.2	S3.S3.14	93.280	91.496	1.334	Open Manhole	1500
4.000	49.705	32.4	S3.S3.14	93.280	91.721	1.334	Open Manhole	1500
2.005	56.286	45.1	S3.S3.15	92.158	90.174	1.459	Open Manhole	1500
2.006	15.117	21.6	S3.S3.30	92.248	89.473	2.250	Open Manhole	1350

PIPELINE SCHEDULES for SW 03

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
5.000	o	225	S3.S3.16	96.393	95.043	1.125	Open Manhole	1200
6.000	o	225	S3.S3.17	96.821	95.396	1.200	Open Manhole	1200
5.001	o	300	S3.S3.18	96.249	94.749	1.200	Open Manhole	1200
5.002	o	300	S3.S3.19	94.975	93.275	1.400	Open Manhole	1200
5.003	o	300	S3.S3.20	95.351	93.191	1.860	Open Manhole	1200
7.000	o	225	S3.S3.21	98.550	97.125	1.200	Open Manhole	1200
8.000	o	225	S3.S3.22	97.205	95.780	1.200	Open Manhole	1200
7.001	o	225	S3.S3.23	97.413	95.586	1.602	Open Manhole	1200
7.002	o	300	S3.S3.24	96.230	94.730	1.200	Open Manhole	1200
9.000	o	225	S3.S3.25	98.343	96.918	1.200	Open Manhole	1200
9.001	o	225	S3.S3.26	97.186	95.761	1.200	Open Manhole	1200
7.003	o	450	S3.S3.27	96.352	94.455	1.447	Open Manhole	1350
7.004	o	450	S3.S3.28	95.903	93.976	1.477	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
5.000	9.912	45.3	S3.S3.18	96.249	94.824	1.200	Open Manhole	1200
6.000	25.208	44.1	S3.S3.18	96.249	94.824	1.200	Open Manhole	1200
5.001	70.741	48.0	S3.S3.19	94.975	93.275	1.400	Open Manhole	1200
5.002	15.519	184.8	S3.S3.20	95.351	93.191	1.860	Open Manhole	1200
5.003	9.990	118.9	S3.S3.29	95.327	93.107	1.920	Open Manhole	1350
7.000	69.872	45.4	S3.S3.23	97.413	95.586	1.602	Open Manhole	1200
8.000	19.312	99.5	S3.S3.23	97.413	95.586	1.602	Open Manhole	1200
7.001	30.292	38.8	S3.S3.24	96.230	94.805	1.200	Open Manhole	1200
7.002	30.292	241.9	S3.S3.27	96.352	94.605	1.447	Open Manhole	1350
9.000	71.080	61.4	S3.S3.26	97.186	95.761	1.200	Open Manhole	1200
9.001	67.515	62.5	S3.S3.27	96.352	94.680	1.447	Open Manhole	1350
7.003	29.838	62.3	S3.S3.28	95.903	93.976	1.477	Open Manhole	1350
7.004	25.538	25.1	S3.S3.29	95.327	92.957	1.920	Open Manhole	1350

PIPELINE SCHEDULES for SW 03

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
5.004	o	450	S3.S3.29	95.327	92.957	1.920	Open Manhole	1350
2.007	o	750	S3.S3.30	92.248	89.248	2.250	Open Manhole	1350
10.000	o	225	S3.S3.31	94.655	93.230	1.200	Open Manhole	1200
10.001	o	225	S3.S3.32	91.480	90.280	0.975	Open Manhole	1200
2.008	o	750	S3.S3.33	91.729	88.964	2.015	Open Manhole	1800
2.009	o	750	S3.S3.34	91.312	88.680	1.882	Open Manhole	1800
11.000	o	225	S3.S3.35	94.596	93.171	1.200	Open Manhole	1200
11.001	o	300	S3.S3.36	94.168	92.668	1.200	Open Manhole	1200
11.002	o	300	S3.S3.37	93.774	92.215	1.259	Open Manhole	1200
11.003	o	375	S3.S3.38	92.432	90.857	1.200	Open Manhole	1350
11.004	o	375	S3.S3.39	89.749	88.474	0.900	Open Manhole	1350
2.010	o	750	S3.S3.40	89.478	87.013	1.715	Open Manhole	1800
2.011		-1	S3.S3.41	89.300	88.000	0.600	Open Manhole	1800
2.012	o	900	S3.S3.42	88.050	86.355	0.795	Open Manhole	1800
12.000	o	225	S3.S3.43	91.376	89.951	1.200	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
5.004	105.358	30.9	S3.S3.30	92.248	89.548	2.250	Open Manhole	1350
2.007	17.025	59.9	S3.S3.33	91.729	88.964	2.015	Open Manhole	1800
10.000	102.533	34.8	S3.S3.32	91.480	90.280	0.975	Open Manhole	1200
10.001	9.995	12.6	S3.S3.33	91.729	89.489	2.015	Open Manhole	1800
2.008	17.776	62.6	S3.S3.34	91.312	88.680	1.882	Open Manhole	1800
2.009	71.075	42.6	S3.S3.40	89.478	87.013	1.715	Open Manhole	1800
11.000	23.305	54.5	S3.S3.36	94.168	92.743	1.200	Open Manhole	1200
11.001	16.200	35.8	S3.S3.37	93.774	92.215	1.259	Open Manhole	1200
11.002	53.253	41.5	S3.S3.38	92.432	90.932	1.200	Open Manhole	1350
11.003	73.647	29.7	S3.S3.39	89.749	88.374	1.000	Open Manhole	1350
11.004	10.002	9.2	S3.S3.40	89.478	87.388	1.715	Open Manhole	1800
2.010	8.220	130.5	S3.S3.41	89.300	86.950	1.600	Open Manhole	1800
2.011	86.275	56.8	S3.S3.42	88.050	86.480	0.870	Open Manhole	1800
2.012	10.783	26.8	S3.S3.48	87.902	85.952	1.050	Open Manhole	1800
12.000	40.648	77.9	S3.S3.44	90.854	89.429	1.200	Open Manhole	1200

PIPELINE SCHEDULES for SW 03

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
12.001	o	300	S3.S3.44	90.854	89.354	1.200	Open Manhole	1200
13.000	o	225	S3.S3.45	91.080	89.730	1.125	Open Manhole	1200
12.002	o	375	S3.S3.46	90.249	88.599	1.275	Open Manhole	1350
12.003	o	375	S3.S3.47	89.167	87.517	1.275	Open Manhole	1350
2.013	o	750	S3.S3.48	87.902	85.952	1.200	Open Manhole	1800
2.014		-1	S3.S3.49	87.500	86.141	0.659	Open Manhole	1800
2.015	o	900	S3.S3.50	86.730	85.061	0.769	Open Manhole	1800
14.000	o	225	S3.S3.51	88.632	87.207	1.200	Open Manhole	1200
14.001	o	300	S3.S3.52	86.826	85.328	1.198	Open Manhole	1200
2.016	o	900	S3.S3.53	86.524	84.675	0.949	Open Manhole	1800
2.017	o	900	S3.S3.54	85.100	83.599	0.601	Sealed Manhole	1800
1.005	o	900	S3.S3.55	85.100	83.597	0.603	Sealed Manhole	1800
1.006	o	600	S3.S3.56	85.100	83.599	0.901	Sealed Manhole	1800
1.007	o	300	S3.S3.56 FC	85.100	83.566	1.234	Sealed Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
12.001	28.056	41.3	S3.S3.46	90.249	88.674	1.275	Open Manhole	1350
13.000	42.376	43.2	S3.S3.46	90.249	88.749	1.275	Open Manhole	1350
12.002	51.697	47.8	S3.S3.47	89.167	87.517	1.275	Open Manhole	1350
12.003	10.000	8.4	S3.S3.48	87.902	86.327	1.200	Open Manhole	1800
2.013	9.243	142.2	S3.S3.49	87.500	85.887	0.863	Open Manhole	1800
2.014	51.307	58.3	S3.S3.50	86.730	85.261	0.769	Open Manhole	1800
2.015	9.710	25.2	S3.S3.53	86.524	84.675	0.949	Open Manhole	1800
14.000	69.411	38.5	S3.S3.52	86.826	85.403	1.198	Open Manhole	1200
14.001	14.492	273.4	S3.S3.53	86.524	85.275	0.949	Open Manhole	1800
2.016	64.746	60.2	S3.S3.54	85.100	83.599	0.601	Sealed Manhole	1800
2.017	45.476	22738.0	S3.S3.55	85.100	83.597	0.603	Sealed Manhole	1800
1.005	23.790	23790.0	S3.S3.56	85.100	83.596	0.604	Sealed Manhole	1800
1.006	3.983	120.7	S3.S3.56 FC	85.100	83.566	0.934	Sealed Manhole	1500
1.007	12.367	7.9	S3.57	85.100	82.000	2.800	Open Manhole	1800

Area Summary for SW 03

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.088	0.088	0.088
1.001	-	-	100	0.264	0.264	0.264
1.002	-	-	100	0.176	0.176	0.176
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
2.000	-	-	100	0.176	0.176	0.176
2.001	-	-	100	0.088	0.088	0.088
2.002	-	-	100	0.088	0.088	0.088
2.003	-	-	100	0.088	0.088	0.088
3.000	-	-	100	0.088	0.088	0.088
3.001	-	-	100	0.188	0.188	0.188
2.004	-	-	100	0.088	0.088	0.088
4.000	-	-	100	0.188	0.188	0.188
2.005	-	-	100	0.088	0.088	0.088
2.006	-	-	100	0.088	0.088	0.088
5.000	-	-	100	0.088	0.088	0.088
6.000	-	-	100	0.088	0.088	0.088
5.001	-	-	100	0.088	0.088	0.088
5.002	-	-	100	0.000	0.000	0.000
5.003	-	-	100	0.000	0.000	0.000
7.000	-	-	100	0.088	0.088	0.088
8.000	-	-	100	0.088	0.088	0.088
7.001	-	-	100	0.088	0.088	0.088
7.002	-	-	100	0.104	0.104	0.104
9.000	-	-	100	0.088	0.088	0.088
9.001	-	-	100	0.088	0.088	0.088
7.003	-	-	100	0.088	0.088	0.088
7.004	-	-	100	0.088	0.088	0.088
5.004	-	-	100	0.088	0.088	0.088
2.007	-	-	100	0.088	0.088	0.088
10.000	-	-	100	0.088	0.088	0.088
10.001	-	-	100	0.088	0.088	0.088
2.008	-	-	100	0.000	0.000	0.000
2.009	-	-	100	0.088	0.088	0.088
11.000	-	-	100	0.088	0.088	0.088
11.001	-	-	100	0.088	0.088	0.088
11.002	-	-	100	0.088	0.088	0.088
11.003	-	-	100	0.000	0.000	0.000
11.004	-	-	100	0.288	0.288	0.288
2.010	-	-	100	0.088	0.088	0.088
2.011	-	-	100	0.088	0.088	0.088
2.012	-	-	100	0.000	0.000	0.000
12.000	-	-	100	0.088	0.088	0.088
12.001	-	-	100	0.088	0.088	0.088
13.000	-	-	100	0.088	0.088	0.088
12.002	-	-	100	0.088	0.088	0.088
12.003	-	-	100	0.288	0.288	0.288
2.013	-	-	100	0.098	0.098	0.098
2.014	-	-	100	0.000	0.000	0.000
2.015	-	-	100	0.000	0.000	0.000
14.000	-	-	100	0.098	0.098	0.098

Area Summary for SW 03

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
14.001	-	-	100	0.098	0.098	0.098
2.016	-	-	100	0.098	0.098	0.098
2.017	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				4.880	4.880	4.880

Free Flowing Outfall Details for SW 03

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.007	S3.57	85.100	82.000	0.000	1800	0

Simulation Criteria for SW 03

Volumetric Runoff Coeff	0.840	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	960
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	8

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	1
FEH Rainfall Version	1999
Site Location	GB 568800 245850 TL 68800 45850
C (1km)	-0.024
D1 (1km)	0.285
D2 (1km)	0.289
D3 (1km)	0.297
E (1km)	0.307
F (1km)	2.496
Summer Storms	No
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	480

Online Controls for SW 03

Complex Manhole: S3.S3.56 FC, DS/PN: 1.007, Volume (m³): 3.4

Hydro-Brake® Optimum

Unit Reference	MD-SHE-0152-1000-0500-1000
Design Head (m)	0.500
Design Flow (l/s)	10.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	152
Invert Level (m)	83.566
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.500	10.0
Flush-Flo™	0.225	10.0
Kick-Flo®	0.396	9.0
Mean Flow over Head Range	-	7.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.5	1.200	15.1	3.000	23.4	7.000	35.3
0.200	10.0	1.400	16.3	3.500	25.2	7.500	36.5
0.300	9.8	1.600	17.3	4.000	26.9	8.000	37.7
0.400	9.0	1.800	18.3	4.500	28.5	8.500	38.9
0.500	10.0	2.000	19.3	5.000	30.0	9.000	40.1
0.600	10.9	2.200	20.2	5.500	31.2	9.500	41.2
0.800	12.5	2.400	21.1	6.000	32.6		
1.000	13.9	2.600	21.9	6.500	34.0		

Orifice

Diameter (m) 0.120 Discharge Coefficient 0.600 Invert Level (m) 84.066

Storage Structures for SW 03

Tank or Pond Manhole: S3.S3.56 FC, DS/PN: 1.007

Invert Level (m) 83.600

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	2652.0	1.500	3661.0

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.423
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	21.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S3.S3.01	15 Winter	1	+0%				
1.001	S3.S3.02	15 Winter	1	+0%	100/15 Summer	100/15 Winter		
1.002	S3.S3.03	15 Winter	1	+0%	30/15 Summer			
1.003	S3.S3.04	15 Winter	1	+0%	30/15 Summer			
1.004	S3.S3.05	15 Winter	1	+0%	1/15 Summer			
2.000	S3.S3.06	15 Winter	1	+0%	30/15 Summer	100/15 Summer		
2.001	S3.S3.07	15 Winter	1	+0%				
2.002	S3.S3.08	15 Winter	1	+0%	30/15 Summer			
2.003	S3.S3.09	15 Winter	1	+0%				
3.000	S3.S3.10	15 Winter	1	+0%	100/15 Summer			
3.001	S3.S3.11	15 Winter	1	+0%	100/15 Summer			
2.004	S3.S3.12	15 Winter	1	+0%	100/15 Winter			
4.000	S3.S3.13	15 Winter	1	+0%	100/15 Summer			
2.005	S3.S3.14	15 Winter	1	+0%	100/15 Summer			
2.006	S3.S3.15	15 Winter	1	+0%	100/15 Summer			
5.000	S3.S3.16	15 Winter	1	+0%	100/15 Summer			
6.000	S3.S3.17	15 Winter	1	+0%	100/15 Summer			
5.001	S3.S3.18	15 Winter	1	+0%	100/15 Summer			
5.002	S3.S3.19	15 Winter	1	+0%	30/15 Summer			

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S3.S3.01	92.224	-0.165	0.000	0.16		14.1	OK	
1.001	S3.S3.02	89.147	-0.203	0.000	0.22		46.8	OK	1
1.002	S3.S3.03	84.864	-0.153	0.000	0.48		68.7	OK	7
1.003	S3.S3.04	84.574	-0.120	0.000	0.44		68.6	OK	7
1.004	S3.S3.05	84.502	0.078	0.000	0.22		55.5	SURCHARGED*	12
2.000	S3.S3.06	97.967	-0.081	0.000	0.73		27.8	OK	4
2.001	S3.S3.07	97.267	-0.205	0.000	0.22		38.1	OK	
2.002	S3.S3.08	94.950	-0.104	0.000	0.75		48.2	OK	
2.003	S3.S3.09	94.725	-0.263	0.000	0.19		57.9	OK	
3.000	S3.S3.10	95.561	-0.148	0.000	0.26		14.1	OK	
3.001	S3.S3.11	95.243	-0.205	0.000	0.22		37.6	OK	
2.004	S3.S3.12	93.106	-0.310	0.000	0.21		102.9	OK	
4.000	S3.S3.13	93.345	-0.134	0.000	0.34		30.1	OK	
2.005	S3.S3.14	91.585	-0.361	0.000	0.21		139.0	OK	
2.006	S3.S3.15	90.345	-0.354	0.000	0.23		148.9	OK	
5.000	S3.S3.16	95.114	-0.154	0.000	0.22		14.1	OK	
6.000	S3.S3.17	95.463	-0.158	0.000	0.19		14.1	OK	
5.001	S3.S3.18	94.852	-0.197	0.000	0.25		38.6	OK	
5.002	S3.S3.19	93.437	-0.138	0.000	0.56		38.7	OK	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
5.003	S3.S3.20	15 Winter	1	+0%	30/15 Summer		
7.000	S3.S3.21	15 Winter	1	+0%	100/15 Summer		
8.000	S3.S3.22	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
7.001	S3.S3.23	15 Winter	1	+0%	30/15 Summer		
7.002	S3.S3.24	15 Winter	1	+0%	30/15 Summer		
9.000	S3.S3.25	15 Winter	1	+0%	100/15 Summer		
9.001	S3.S3.26	15 Winter	1	+0%	30/15 Summer		
7.003	S3.S3.27	15 Winter	1	+0%			
7.004	S3.S3.28	15 Winter	1	+0%			
5.004	S3.S3.29	15 Winter	1	+0%	100/15 Summer		
2.007	S3.S3.30	15 Winter	1	+0%	100/15 Summer		
10.000	S3.S3.31	15 Winter	1	+0%			
10.001	S3.S3.32	15 Winter	1	+0%	100/15 Summer		
2.008	S3.S3.33	15 Winter	1	+0%	100/15 Summer		
2.009	S3.S3.34	15 Winter	1	+0%	100/15 Summer		
11.000	S3.S3.35	15 Winter	1	+0%			
11.001	S3.S3.36	15 Winter	1	+0%			
11.002	S3.S3.37	15 Winter	1	+0%	100/15 Summer		
11.003	S3.S3.38	15 Winter	1	+0%			
11.004	S3.S3.39	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
2.010	S3.S3.40	15 Winter	1	+0%	1/15 Summer		
2.011	S3.S3.41	15 Winter	1	+0%			
2.012	S3.S3.42	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
12.000	S3.S3.43	15 Winter	1	+0%	100/15 Summer		
12.001	S3.S3.44	15 Winter	1	+0%			
13.000	S3.S3.45	15 Winter	1	+0%			
12.002	S3.S3.46	15 Winter	1	+0%	100/15 Winter		
12.003	S3.S3.47	15 Winter	1	+0%	100/15 Summer		
2.013	S3.S3.48	15 Winter	1	+0%	30/15 Summer		
2.014	S3.S3.49	15 Winter	1	+0%	100/15 Summer		
2.015	S3.S3.50	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
14.000	S3.S3.51	15 Winter	1	+0%			
14.001	S3.S3.52	15 Winter	1	+0%	30/15 Summer		
2.016	S3.S3.53	15 Winter	1	+0%	30/15 Summer	100/15 Summer	
2.017	S3.S3.54	15 Winter	1	+0%	1/15 Summer		
1.005	S3.S3.55	15 Winter	1	+0%	30/15 Summer		
1.006	S3.S3.56	15 Winter	1	+0%	1/15 Summer		
1.007	S3.S3.56 FC 720	Winter	1	+0%	1/360 Winter		

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
5.003	S3.S3.20		93.347	-0.144	0.000	0.53		38.8	OK
7.000	S3.S3.21		97.191	-0.159	0.000	0.18		13.8	OK
8.000	S3.S3.22		95.864	-0.141	0.000	0.30		14.1	OK
7.001	S3.S3.23		95.699	-0.112	0.000	0.49		38.7	OK

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
7.002	S3.S3.24		94.936	-0.094	0.000	0.81		52.2	OK
9.000	S3.S3.25		96.989	-0.154	0.000	0.21		13.6	OK
9.001	S3.S3.26		95.859	-0.127	0.000	0.39		24.9	OK
7.003	S3.S3.27		94.607	-0.298	0.000	0.25		87.9	OK
7.004	S3.S3.28		94.105	-0.321	0.000	0.18		98.3	OK
5.004	S3.S3.29		93.114	-0.292	0.000	0.27		147.3	OK
2.007	S3.S3.30		89.564	-0.434	0.000	0.37		307.6	OK
10.000	S3.S3.31		93.290	-0.165	0.000	0.16		13.5	OK
10.001	S3.S3.32		90.349	-0.156	0.000	0.20		24.5	OK
2.008	S3.S3.33		89.292	-0.421	0.000	0.40		331.4	OK
2.009	S3.S3.34		88.908	-0.522	0.000	0.20		340.2	OK
11.000	S3.S3.35		93.242	-0.154	0.000	0.22		14.1	OK
11.001	S3.S3.36		92.748	-0.220	0.000	0.16		25.2	OK
11.002	S3.S3.37		92.311	-0.204	0.000	0.22		36.1	OK
11.003	S3.S3.38		90.938	-0.294	0.000	0.10		36.3	OK
11.004	S3.S3.39		88.580	-0.269	0.000	0.18		72.3	OK
2.010	S3.S3.40		88.191	0.428	0.000	0.72		416.3	SURCHARGED
2.011	S3.S3.41		88.158	-0.542	0.000	0.05		421.8	OK
2.012	S3.S3.42		86.690	-0.565	0.000	0.30		425.3	OK
12.000	S3.S3.43		90.027	-0.149	0.000	0.25		14.1	OK
12.001	S3.S3.44		89.434	-0.220	0.000	0.16		25.2	OK
13.000	S3.S3.45		89.795	-0.160	0.000	0.19		14.1	OK
12.002	S3.S3.46		88.709	-0.265	0.000	0.19		49.8	OK
12.003	S3.S3.47		87.632	-0.260	0.000	0.20		86.2	OK
2.013	S3.S3.48		86.499	-0.203	0.000	0.87		507.4	OK
2.014	S3.S3.49		86.325	-0.516	0.000	0.08		508.6	OK
2.015	S3.S3.50		85.434	-0.527	0.000	0.36		508.3	OK
14.000	S3.S3.51		87.273	-0.159	0.000	0.19		15.4	OK
14.001	S3.S3.52		85.479	-0.149	0.000	0.49		27.6	OK
2.016	S3.S3.53		84.976	-0.599	0.000	0.25		535.4	OK
2.017	S3.S3.54		84.546	0.047	0.000	1.02		488.8	SURCHARGED*
1.005	S3.S3.55		84.497	0.000	0.000	1.72		517.2	OK
1.006	S3.S3.56		84.403	0.204	0.000	1.82		518.2	SURCHARGED*
1.007	S3.S3.56 FC		83.885	0.019	0.000	0.03		10.0	SURCHARGED*

PN	US/MH Name	Level Exceeded
5.003	S3.S3.20	
7.000	S3.S3.21	
8.000	S3.S3.22	3
7.001	S3.S3.23	
7.002	S3.S3.24	
9.000	S3.S3.25	
9.001	S3.S3.26	
7.003	S3.S3.27	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Level Exceeded
7.004	S3.S3.28	
5.004	S3.S3.29	
2.007	S3.S3.30	
10.000	S3.S3.31	
10.001	S3.S3.32	
2.008	S3.S3.33	
2.009	S3.S3.34	
11.000	S3.S3.35	
11.001	S3.S3.36	
11.002	S3.S3.37	
11.003	S3.S3.38	
11.004	S3.S3.39	2
2.010	S3.S3.40	
2.011	S3.S3.41	
2.012	S3.S3.42	4
12.000	S3.S3.43	
12.001	S3.S3.44	
13.000	S3.S3.45	
12.002	S3.S3.46	
12.003	S3.S3.47	
2.013	S3.S3.48	
2.014	S3.S3.49	
2.015	S3.S3.50	5
14.000	S3.S3.51	
14.001	S3.S3.52	
2.016	S3.S3.53	5
2.017	S3.S3.54	13
1.005	S3.S3.55	12
1.006	S3.S3.56	11
1.007	S3.S3.56 FC	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.423
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	21.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S3.S3.01	15 Winter	30	+0%				
1.001	S3.S3.02	15 Winter	30	+0%	100/15 Summer	100/15 Winter		
1.002	S3.S3.03	15 Winter	30	+0%	30/15 Summer			
1.003	S3.S3.04	15 Winter	30	+0%	30/15 Summer			
1.004	S3.S3.05	15 Winter	30	+0%	1/15 Summer			
2.000	S3.S3.06	15 Winter	30	+0%	30/15 Summer	100/15 Summer		
2.001	S3.S3.07	15 Winter	30	+0%				
2.002	S3.S3.08	15 Winter	30	+0%	30/15 Summer			
2.003	S3.S3.09	15 Winter	30	+0%				
3.000	S3.S3.10	15 Winter	30	+0%	100/15 Summer			
3.001	S3.S3.11	15 Summer	30	+0%	100/15 Summer			
2.004	S3.S3.12	15 Winter	30	+0%	100/15 Winter			
4.000	S3.S3.13	15 Winter	30	+0%	100/15 Summer			
2.005	S3.S3.14	15 Winter	30	+0%	100/15 Summer			
2.006	S3.S3.15	15 Winter	30	+0%	100/15 Summer			
5.000	S3.S3.16	15 Winter	30	+0%	100/15 Summer			
6.000	S3.S3.17	15 Winter	30	+0%	100/15 Summer			
5.001	S3.S3.18	15 Summer	30	+0%	100/15 Summer			
5.002	S3.S3.19	15 Winter	30	+0%	30/15 Summer			

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S3.S3.01	92.262	-0.127	0.000	0.38		33.3	OK	
1.001	S3.S3.02	89.228	-0.122	0.000	0.63		131.8	OK	1
1.002	S3.S3.03	86.217	1.200	0.000	1.13		161.3	FLOOD RISK*	7
1.003	S3.S3.04	85.893	1.199	0.000	1.00		155.5	FLOOD RISK*	7
1.004	S3.S3.05	85.100	0.676	0.000	0.53		136.9	FLOOD	12
2.000	S3.S3.06	98.775	0.727	0.000	1.39		53.4	SURCHARGED	4
2.001	S3.S3.07	97.315	-0.156	0.000	0.45		79.1	OK	
2.002	S3.S3.08	95.171	0.117	0.000	1.70		109.7	SURCHARGED	
2.003	S3.S3.09	94.796	-0.192	0.000	0.47		140.5	OK	
3.000	S3.S3.10	95.615	-0.094	0.000	0.64		34.6	OK	
3.001	S3.S3.11	95.321	-0.127	0.000	0.62		106.6	OK	
2.004	S3.S3.12	93.213	-0.203	0.000	0.57		276.1	OK	
4.000	S3.S3.13	93.412	-0.067	0.000	0.84		73.8	OK	
2.005	S3.S3.14	91.713	-0.233	0.000	0.58		379.4	OK	
2.006	S3.S3.15	90.483	-0.216	0.000	0.64		412.2	OK	
5.000	S3.S3.16	95.160	-0.108	0.000	0.54		34.6	OK	
6.000	S3.S3.17	95.505	-0.116	0.000	0.48		34.6	OK	
5.001	S3.S3.18	94.930	-0.119	0.000	0.66		102.0	OK	
5.002	S3.S3.19	93.731	0.156	0.000	1.46		100.1	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
5.003	S3.S3.20	15 Winter	30	+0%	30/15 Summer		
7.000	S3.S3.21	15 Winter	30	+0%	100/15 Summer		
8.000	S3.S3.22	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
7.001	S3.S3.23	15 Winter	30	+0%	30/15 Summer		
7.002	S3.S3.24	15 Winter	30	+0%	30/15 Summer		
9.000	S3.S3.25	15 Winter	30	+0%	100/15 Summer		
9.001	S3.S3.26	15 Winter	30	+0%	30/15 Summer		
7.003	S3.S3.27	15 Winter	30	+0%			
7.004	S3.S3.28	15 Winter	30	+0%			
5.004	S3.S3.29	15 Winter	30	+0%	100/15 Summer		
2.007	S3.S3.30	15 Winter	30	+0%	100/15 Summer		
10.000	S3.S3.31	15 Winter	30	+0%			
10.001	S3.S3.32	15 Winter	30	+0%	100/15 Summer		
2.008	S3.S3.33	15 Winter	30	+0%	100/15 Summer		
2.009	S3.S3.34	15 Winter	30	+0%	100/15 Summer		
11.000	S3.S3.35	15 Winter	30	+0%			
11.001	S3.S3.36	15 Summer	30	+0%			
11.002	S3.S3.37	15 Summer	30	+0%	100/15 Summer		
11.003	S3.S3.38	15 Winter	30	+0%			
11.004	S3.S3.39	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
2.010	S3.S3.40	15 Winter	30	+0%	1/15 Summer		
2.011	S3.S3.41	15 Winter	30	+0%			
2.012	S3.S3.42	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
12.000	S3.S3.43	15 Winter	30	+0%	100/15 Summer		
12.001	S3.S3.44	15 Winter	30	+0%			
13.000	S3.S3.45	15 Winter	30	+0%			
12.002	S3.S3.46	15 Winter	30	+0%	100/15 Winter		
12.003	S3.S3.47	15 Winter	30	+0%	100/15 Summer		
2.013	S3.S3.48	15 Winter	30	+0%	30/15 Summer		
2.014	S3.S3.49	15 Winter	30	+0%	100/15 Summer		
2.015	S3.S3.50	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
14.000	S3.S3.51	15 Winter	30	+0%			
14.001	S3.S3.52	15 Winter	30	+0%	30/15 Summer		
2.016	S3.S3.53	15 Winter	30	+0%	30/15 Summer	100/15 Summer	
2.017	S3.S3.54	30 Winter	30	+0%	1/15 Summer		
1.005	S3.S3.55	15 Winter	30	+0%	30/15 Summer		
1.006	S3.S3.56	15 Winter	30	+0%	1/15 Summer		
1.007	S3.S3.56 FC 720	Winter	30	+0%	1/360 Winter		

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
5.003	S3.S3.20		93.550	0.059	0.000	1.38		100.0	SURCHARGED
7.000	S3.S3.21		97.232	-0.118	0.000	0.45		33.9	OK
8.000	S3.S3.22		96.371	0.366	0.000	0.59		27.7	SURCHARGED
7.001	S3.S3.23		96.278	0.467	0.000	1.10		85.8	SURCHARGED

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
7.002	S3.S3.24		95.324	0.294	0.000	1.83		118.6	SURCHARGED
9.000	S3.S3.25		97.035	-0.108	0.000	0.52		33.4	OK
9.001	S3.S3.26		96.002	0.016	0.000	1.01		64.3	SURCHARGED
7.003	S3.S3.27		94.709	-0.196	0.000	0.60		212.5	OK
7.004	S3.S3.28		94.188	-0.237	0.000	0.45		242.9	OK
5.004	S3.S3.29		93.229	-0.178	0.000	0.66		368.6	OK
2.007	S3.S3.30		89.952	-0.045	0.000	0.95		792.8	OK
10.000	S3.S3.31		93.328	-0.127	0.000	0.38		33.3	OK
10.001	S3.S3.32		90.400	-0.105	0.000	0.55		67.4	OK
2.008	S3.S3.33		89.699	-0.014	0.000	1.00		836.0	OK
2.009	S3.S3.34		89.153	-0.277	0.000	0.51		857.8	OK
11.000	S3.S3.35		93.288	-0.108	0.000	0.53		34.6	OK
11.001	S3.S3.36		92.807	-0.161	0.000	0.44		69.1	OK
11.002	S3.S3.37		92.389	-0.126	0.000	0.63		102.9	OK
11.003	S3.S3.38		90.996	-0.236	0.000	0.29		100.8	OK
11.004	S3.S3.39		89.057	0.208	0.000	0.45		183.7	SURCHARGED
2.010	S3.S3.40		88.719	0.956	0.000	1.81		1052.2	SURCHARGED
2.011	S3.S3.41		88.261	-0.439	0.000	0.14		1073.9	OK
2.012	S3.S3.42		87.358	0.103	0.000	0.71		1015.5	SURCHARGED
12.000	S3.S3.43		90.079	-0.097	0.000	0.61		34.2	OK
12.001	S3.S3.44		89.493	-0.161	0.000	0.44		68.6	OK
13.000	S3.S3.45		89.837	-0.118	0.000	0.46		34.5	OK
12.002	S3.S3.46		88.789	-0.185	0.000	0.51		136.1	OK
12.003	S3.S3.47		87.724	-0.168	0.000	0.58		247.9	OK
2.013	S3.S3.48		87.142	0.440	0.000	1.98		1147.6	SURCHARGED
2.014	S3.S3.49		86.420	-0.421	0.000	0.19		1143.9	OK
2.015	S3.S3.50		86.168	0.207	0.000	0.73		1024.5	SURCHARGED
14.000	S3.S3.51		87.316	-0.116	0.000	0.46		37.9	OK
14.001	S3.S3.52		85.995	0.367	0.000	1.35		75.5	SURCHARGED
2.016	S3.S3.53		85.977	0.402	0.000	0.48		1052.3	SURCHARGED
2.017	S3.S3.54		85.100	0.601	0.000	1.95		934.3	FLOOD
1.005	S3.S3.55		85.100	0.603	0.000	3.51		1054.9	FLOOD RISK*
1.006	S3.S3.56		85.100	0.901	0.000	3.70		1053.2	FLOOD RISK*
1.007	S3.S3.56 FC		84.229	0.363	0.000	0.07		20.7	SURCHARGED*

PN	US/MH Name	Level Exceeded
5.003	S3.S3.20	
7.000	S3.S3.21	
8.000	S3.S3.22	3
7.001	S3.S3.23	
7.002	S3.S3.24	
9.000	S3.S3.25	
9.001	S3.S3.26	
7.003	S3.S3.27	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Level Exceeded
7.004	S3.S3.28	
5.004	S3.S3.29	
2.007	S3.S3.30	
10.000	S3.S3.31	
10.001	S3.S3.32	
2.008	S3.S3.33	
2.009	S3.S3.34	
11.000	S3.S3.35	
11.001	S3.S3.36	
11.002	S3.S3.37	
11.003	S3.S3.38	
11.004	S3.S3.39	2
2.010	S3.S3.40	
2.011	S3.S3.41	
2.012	S3.S3.42	4
12.000	S3.S3.43	
12.001	S3.S3.44	
13.000	S3.S3.45	
12.002	S3.S3.46	
12.003	S3.S3.47	
2.013	S3.S3.48	
2.014	S3.S3.49	
2.015	S3.S3.50	5
14.000	S3.S3.51	
14.001	S3.S3.52	
2.016	S3.S3.53	5
2.017	S3.S3.54	13
1.005	S3.S3.55	12
1.006	S3.S3.56	11
1.007	S3.S3.56 FC	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.423
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	21.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S3.S3.01	15 Winter	100	+30%				
1.001	S3.S3.02	15 Winter	100	+30%	100/15 Summer	100/15 Winter		
1.002	S3.S3.03	30 Winter	100	+30%	30/15 Summer			
1.003	S3.S3.04	15 Winter	100	+30%	30/15 Summer			
1.004	S3.S3.05	15 Winter	100	+30%	1/15 Summer			
2.000	S3.S3.06	15 Winter	100	+30%	30/15 Summer	100/15 Summer		
2.001	S3.S3.07	15 Winter	100	+30%				
2.002	S3.S3.08	15 Winter	100	+30%	30/15 Summer			
2.003	S3.S3.09	15 Winter	100	+30%				
3.000	S3.S3.10	15 Winter	100	+30%	100/15 Summer			
3.001	S3.S3.11	15 Winter	100	+30%	100/15 Summer			
2.004	S3.S3.12	15 Winter	100	+30%	100/15 Winter			
4.000	S3.S3.13	15 Winter	100	+30%	100/15 Summer			
2.005	S3.S3.14	15 Winter	100	+30%	100/15 Summer			
2.006	S3.S3.15	15 Winter	100	+30%	100/15 Summer			
5.000	S3.S3.16	15 Winter	100	+30%	100/15 Summer			
6.000	S3.S3.17	15 Winter	100	+30%	100/15 Summer			
5.001	S3.S3.18	15 Winter	100	+30%	100/15 Summer			
5.002	S3.S3.19	15 Winter	100	+30%	30/15 Summer			

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S3.S3.01	92.299	-0.090	0.000	0.65		56.3	OK	
1.001	S3.S3.02	90.551	1.201	0.776	0.83		174.4	FLOOD	1
1.002	S3.S3.03	86.217	1.200	0.000	1.44		204.4	FLOOD RISK*	7
1.003	S3.S3.04	85.893	1.199	0.000	1.41		219.4	FLOOD RISK*	7
1.004	S3.S3.05	85.100	0.676	0.000	0.81		208.8	FLOOD	12
2.000	S3.S3.06	99.255	1.207	7.479	1.75		67.3	FLOOD	4
2.001	S3.S3.07	97.353	-0.118	0.000	0.65		114.8	OK	
2.002	S3.S3.08	95.443	0.389	0.000	2.62		168.8	SURCHARGED	
2.003	S3.S3.09	94.858	-0.130	0.000	0.74		221.3	OK	
3.000	S3.S3.10	95.780	0.071	0.000	1.04		56.5	SURCHARGED	
3.001	S3.S3.11	95.502	0.054	0.000	1.01		173.8	SURCHARGED	
2.004	S3.S3.12	93.464	0.048	0.000	0.89		433.1	SURCHARGED	
4.000	S3.S3.13	94.354	0.875	0.000	1.17		102.9	SURCHARGED	
2.005	S3.S3.14	92.480	0.534	0.000	0.84		548.9	SURCHARGED	
2.006	S3.S3.15	91.669	0.970	0.000	0.87		559.5	SURCHARGED	
5.000	S3.S3.16	95.668	0.400	0.000	0.76		49.1	SURCHARGED	
6.000	S3.S3.17	95.767	0.146	0.000	0.77		55.6	SURCHARGED	
5.001	S3.S3.18	95.529	0.480	0.000	0.95		145.6	SURCHARGED	
5.002	S3.S3.19	94.433	0.858	0.000	2.01		138.2	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
5.003	S3.S3.20	15 Winter	100	+30%	30/15 Summer		
7.000	S3.S3.21	15 Winter	100	+30%	100/15 Summer		
8.000	S3.S3.22	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
7.001	S3.S3.23	15 Summer	100	+30%	30/15 Summer		
7.002	S3.S3.24	15 Winter	100	+30%	30/15 Summer		
9.000	S3.S3.25	15 Winter	100	+30%	100/15 Summer		
9.001	S3.S3.26	15 Winter	100	+30%	30/15 Summer		
7.003	S3.S3.27	15 Winter	100	+30%			
7.004	S3.S3.28	15 Winter	100	+30%			
5.004	S3.S3.29	15 Winter	100	+30%	100/15 Summer		
2.007	S3.S3.30	15 Winter	100	+30%	100/15 Summer		
10.000	S3.S3.31	15 Winter	100	+30%			
10.001	S3.S3.32	15 Winter	100	+30%	100/15 Summer		
2.008	S3.S3.33	15 Winter	100	+30%	100/15 Summer		
2.009	S3.S3.34	15 Winter	100	+30%	100/15 Summer		
11.000	S3.S3.35	15 Winter	100	+30%			
11.001	S3.S3.36	15 Winter	100	+30%			
11.002	S3.S3.37	15 Winter	100	+30%	100/15 Summer		
11.003	S3.S3.38	15 Winter	100	+30%			
11.004	S3.S3.39	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
2.010	S3.S3.40	15 Winter	100	+30%	1/15 Summer		
2.011	S3.S3.41	15 Winter	100	+30%			
2.012	S3.S3.42	15 Winter	100	+30%	30/15 Summer	100/15 Summer	
12.000	S3.S3.43	15 Winter	100	+30%	100/15 Summer		
12.001	S3.S3.44	15 Winter	100	+30%			
13.000	S3.S3.45	15 Winter	100	+30%			
12.002	S3.S3.46	15 Winter	100	+30%	100/15 Winter		
12.003	S3.S3.47	15 Winter	100	+30%	100/15 Summer		
2.013	S3.S3.48	30 Winter	100	+30%	30/15 Summer		
2.014	S3.S3.49	30 Winter	100	+30%	100/15 Summer		
2.015	S3.S3.50	30 Winter	100	+30%	30/15 Summer	100/15 Summer	
14.000	S3.S3.51	15 Winter	100	+30%			
14.001	S3.S3.52	30 Winter	100	+30%	30/15 Summer		
2.016	S3.S3.53	30 Winter	100	+30%	30/15 Summer	100/15 Summer	
2.017	S3.S3.54	120 Winter	100	+30%	1/15 Summer		
1.005	S3.S3.55	15 Winter	100	+30%	30/15 Summer		
1.006	S3.S3.56	15 Winter	100	+30%	1/15 Summer		
1.007	S3.S3.56 FC	600 Winter	100	+30%	1/360 Winter		

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
5.003	S3.S3.20		94.121	0.630	0.000	1.99		144.3	SURCHARGED
7.000	S3.S3.21		97.871	0.521	0.000	0.65		48.5	SURCHARGED
8.000	S3.S3.22		97.211	1.206	6.123	1.30		61.0	FLOOD
7.001	S3.S3.23		97.246	1.435	0.000	1.39		108.8	FLOOD RISK

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
7.002	S3.S3.24		95.791	0.761	0.000	2.60		168.5	SURCHARGED
9.000	S3.S3.25		97.565	0.422	0.000	0.75		48.3	SURCHARGED
9.001	S3.S3.26		96.984	0.998	0.000	1.37		87.5	FLOOD RISK
7.003	S3.S3.27		94.779	-0.126	0.000	0.86		302.9	OK
7.004	S3.S3.28		94.243	-0.183	0.000	0.65		353.3	OK
5.004	S3.S3.29		93.840	0.433	0.000	0.90		499.5	SURCHARGED
2.007	S3.S3.30		91.139	1.141	0.000	1.30		1088.7	SURCHARGED
10.000	S3.S3.31		93.366	-0.089	0.000	0.65		56.3	OK
10.001	S3.S3.32		91.021	0.516	0.000	0.84		103.3	SURCHARGED
2.008	S3.S3.33		90.655	0.941	0.000	1.40		1167.9	SURCHARGED
2.009	S3.S3.34		90.100	0.670	0.000	0.71		1197.0	SURCHARGED
11.000	S3.S3.35		93.338	-0.058	0.000	0.90		58.4	OK
11.001	S3.S3.36		92.862	-0.106	0.000	0.74		116.9	OK
11.002	S3.S3.37		92.620	0.105	0.000	1.03		168.9	SURCHARGED
11.003	S3.S3.38		91.041	-0.191	0.000	0.48		168.8	OK
11.004	S3.S3.39		89.752	0.903	3.059	0.73		296.7	FLOOD
2.010	S3.S3.40		89.245	1.482	0.000	2.57		1498.0	FLOOD RISK
2.011	S3.S3.41		88.313	-0.387	0.000	0.19		1530.5	OK
2.012	S3.S3.42		88.098	0.843	47.958	0.85		1216.8	FLOOD
12.000	S3.S3.43		90.201	0.025	0.000	1.01		56.4	SURCHARGED
12.001	S3.S3.44		89.547	-0.107	0.000	0.73		114.3	OK
13.000	S3.S3.45		89.879	-0.076	0.000	0.77		58.3	OK
12.002	S3.S3.46		88.992	0.018	0.000	0.82		220.8	SURCHARGED
12.003	S3.S3.47		88.357	0.465	0.000	0.87		370.9	SURCHARGED
2.013	S3.S3.48		87.814	1.112	0.000	2.42		1402.9	FLOOD RISK
2.014	S3.S3.49		87.120	0.279	0.000	0.23		1365.9	SURCHARGED
2.015	S3.S3.50		86.809	0.848	78.578	0.82		1142.7	FLOOD
14.000	S3.S3.51		87.360	-0.072	0.000	0.79		64.1	OK
14.001	S3.S3.52		86.621	0.993	0.000	1.50		83.5	FLOOD RISK
2.016	S3.S3.53		86.551	0.976	26.882	0.53		1165.0	FLOOD
2.017	S3.S3.54		85.100	0.601	0.000	1.69		808.9	FLOOD
1.005	S3.S3.55		85.100	0.603	0.000	4.22		1268.3	FLOOD RISK*
1.006	S3.S3.56		85.100	0.901	0.000	4.44		1263.5	FLOOD RISK*
1.007	S3.S3.56 FC		84.598	0.732	0.000	0.11		34.7	SURCHARGED*

PN	US/MH Name	Level Exceeded
5.003	S3.S3.20	
7.000	S3.S3.21	
8.000	S3.S3.22	3
7.001	S3.S3.23	
7.002	S3.S3.24	
9.000	S3.S3.25	
9.001	S3.S3.26	
7.003	S3.S3.27	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 03

PN	US/MH Name	Level Exceeded
7.004	S3.S3.28	
5.004	S3.S3.29	
2.007	S3.S3.30	
10.000	S3.S3.31	
10.001	S3.S3.32	
2.008	S3.S3.33	
2.009	S3.S3.34	
11.000	S3.S3.35	
11.001	S3.S3.36	
11.002	S3.S3.37	
11.003	S3.S3.38	
11.004	S3.S3.39	2
2.010	S3.S3.40	
2.011	S3.S3.41	
2.012	S3.S3.42	4
12.000	S3.S3.43	
12.001	S3.S3.44	
13.000	S3.S3.45	
12.002	S3.S3.46	
12.003	S3.S3.47	
2.013	S3.S3.48	
2.014	S3.S3.49	
2.015	S3.S3.50	5
14.000	S3.S3.51	
14.001	S3.S3.52	
2.016	S3.S3.53	5
2.017	S3.S3.54	13
1.005	S3.S3.55	12
1.006	S3.S3.56	11
1.007	S3.S3.56 FC	