STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW 05

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	20.600	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	1.200
Ratio R	0.423	PIMP (%)	100	Min Vel for Auto Design only (m/s)	1.00
Maximum Rainfall (mm/hr)	50	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200		

Designed with Level Soffits

Network Design Table for SW 05

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design

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)

Network Design Table for SW 05

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	21.957	0.257	85.4	0.098	6.00	0.0	0.600		o	225	Pipe/Conduit	
2.000	26.047	0.220	118.4	0.098	6.00	0.0	0.600		o	225	Pipe/Conduit	
2.001	23.664	0.200	118.3	0.098	0.00	0.0	0.600		o	225	Pipe/Conduit	
1.001	8.946	0.760	11.8	0.098	0.00	0.0	0.600		o	450	Pipe/Conduit	
3.000	117.369	0.001	117369.5	0.098	6.00	0.0	0.600			-1	Pipe/Conduit	
1.002	44.172	0.001	44171.8	0.098	0.00	0.0	0.600			-1	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	6.26	91.491	0.098	0.0	0.0	0.0	1.42	56.3	13.3
2.000	50.00	6.36	91.654	0.098	0.0	0.0	0.0	1.20	47.7	13.3
2.001	50.00	6.69	91.434	0.196	0.0	0.0	0.0	1.20	47.8	26.5
1.001	50.00	6.72	91.234	0.392	0.0	0.0	0.0	5.95	946.5	53.1
3.000	31.75	15.65	90.474	0.098	0.0	0.0	0.0	0.20	1551.2	8.4
1.002	29.31	17.84	90.473	0.588	0.0	0.0	0.0	0.34	2571.7	53.1

Network Design Table for SW 05

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
4.000	34.630	0.592	58.5	0.098	6.00	0.0	0.600		o	225	Pipe/Conduit	
4.001	74.794	0.937	79.8	0.098	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.002	72.722	1.037	70.1	0.098	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.000	36.964	0.632	58.5	0.098	6.00	0.0	0.600		o	225	Pipe/Conduit	
6.000	22.965	0.149	154.1	0.098	6.00	0.0	0.600		o	300	Pipe/Conduit	
6.001	28.172	0.149	189.1	0.098	0.00	0.0	0.600		o	300	Pipe/Conduit	
6.002	14.892	0.068	219.0	0.098	0.00	0.0	0.600		o	450	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)
4.000	50.00	6.34	94.678	0.098	0.0	0.0	0.0	1.71	68.1	13.3
4.001	49.16	7.04	94.011	0.196	0.0	0.0	0.0	1.76	124.5	26.1
4.002	46.98	7.69	93.074	0.294	0.0	0.0	0.0	1.88	132.9	37.4
5.000	50.00	6.36	93.060	0.098	0.0	0.0	0.0	1.71	68.1	13.3
6.000	50.00	6.30	94.662	0.098	0.0	0.0	0.0	1.26	89.3	13.3
6.001	50.00	6.71	94.513	0.196	0.0	0.0	0.0	1.14	80.6	26.5
6.002	49.69	6.90	94.214	0.294	0.0	0.0	0.0	1.37	217.8	39.6

Network Design Table for SW 05

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
6.003	38.276	0.177	216.2	0.098	0.00	0.0	0.600		o	450	Pipe/Conduit	
7.000	34.592	0.938	36.9	0.098	6.00	0.0	0.600		o	225	Pipe/Conduit	
6.004	27.540	0.082	335.9	0.098	0.00	0.0	0.600		o	450	Pipe/Conduit	
6.005	35.548	0.075	474.0	0.098	0.00	0.0	0.600		o	450	Pipe/Conduit	
8.000	36.180	0.702	51.5	0.098	6.00	0.0	0.600		o	225	Pipe/Conduit	
6.006	25.409	0.041	619.7	0.100	0.00	0.0	0.600		o	450	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)
6.003	48.07	7.36	94.146	0.392	0.0	0.0	0.0	1.38	219.2	51.0
7.000	50.00	6.27	95.132	0.098	0.0	0.0	0.0	2.16	85.9	13.3
6.004	46.71	7.77	93.969	0.588	0.0	0.0	0.0	1.10	175.5	74.4
6.005	44.86	8.41	93.887	0.686	0.0	0.0	0.0	0.93	147.5	83.4
8.000	50.00	6.33	94.739	0.098	0.0	0.0	0.0	1.83	72.6	13.3
6.006	43.49	8.94	93.812	0.884	0.0	0.0	0.0	0.81	128.7	104.1

Network Design Table for SW 05

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
6.007	35.166	1.568	22.4	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
5.001	63.103	0.316	199.4	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
4.003	50.383	0.564	89.3	0.090	0.00	0.0	0.600		o	450	Pipe/Conduit	
9.000	31.792	0.544	58.4	0.075	6.00	0.0	0.600		o	225	Pipe/Conduit	
9.001	10.755	0.054	200.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
4.004	16.748	1.240	13.5	0.000	0.00	0.0	0.600		o	450	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)
6.007	43.15	9.07	93.771	0.884	0.0	0.0	0.0	4.31	685.1	104.1
5.001	41.42	9.81	92.203	0.982	0.0	0.0	0.0	1.44	228.4	110.2
4.003	40.56	10.20	91.887	1.366	0.0	0.0	0.0	2.15	342.2	150.0
9.000	50.00	6.31	92.145	0.075	0.0	0.0	0.0	1.71	68.2	10.2
9.001	50.00	6.50	91.601	0.075	0.0	0.0	0.0	0.92	36.6	10.2
4.004	40.45	10.25	91.322	1.441	0.0	0.0	0.0	5.55	883.4	157.9

Network Design Table for SW 05

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
10.000	80.808	0.359	225.1	0.000	6.00	0.0	0.600		o	225	Pipe/Conduit	
4.005	7.911	0.276	28.7	0.000	0.00	0.0	0.600		o	600	Pipe/Conduit	
11.000	42.223	0.001	42223.0	0.000	7.00	0.0	0.600			-1	Pipe/Conduit	
11.001	23.241	0.057	407.7	0.000	0.00	0.0	0.600		o	600	Pipe/Conduit	
11.002	9.592	0.025	383.7	0.000	0.00	0.0	0.600			-1	Pipe/Conduit	
4.006	67.013	0.001	67013.0	0.151	0.00	0.0	0.600			-1	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)
10.000	47.42	7.55	90.711	0.000	0.0	0.0	0.0	0.87	34.5	0.0
4.005	40.39	10.27	90.352	1.441	0.0	0.0	0.0	4.56	1289.4	157.9
11.000	43.22	9.05	91.200	0.000	0.0	0.0	0.0	0.34	2632.0	0.0
11.001	42.43	9.37	91.199	0.000	0.0	0.0	0.0	1.20	339.2	0.0
11.002	42.33	9.41	91.142	0.000	0.0	0.0	0.0	3.72	28424.9	0.0
4.006	33.37	14.39	90.472	1.592	0.0	0.0	0.0	0.27	2074.4	157.9

Network Design Table for SW 05

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.003	5.492	0.001	5492.0	0.000	0.00	0.0	0.600			-1	Pipe/Conduit	
1.004	48.607	2.215	21.9	0.000	0.00	0.0		0.045	3 \=/	525	1:3 Swale	
1.005	17.158	0.326	52.6	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.006	75.070	2.886	26.0	0.000	0.00	0.0		0.045	3 \=/	525	1:3 Swale	
1.007	15.079	0.100	150.8	0.000	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)
1.003	29.22	17.93	90.471	2.180	0.0	0.0	0.0	0.97	7443.4	172.5
1.004	28.44	18.73	90.470	2.180	0.0	0.0	0.0	1.02	148.7«	172.5
1.005	28.32	18.86	88.409	2.180	0.0	0.0	0.0	2.17	153.5«	172.5
1.006	27.13	20.20	88.083	2.180	0.0	0.0	0.0	0.93	136.6«	172.5
1.007	26.98	20.37	85.197	2.180	0.0	0.0	0.0	1.47	162.7«	172.5

Conduit Sections for SW 05

NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \/ open channel, oo dual pipe, ooo triple pipe, O egg.

Section numbers < 0 are taken from user conduit table

Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m^2)
-1		7700	1500			3.599	7.650

Manhole Schedules for SW 05

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)	Backdrop (mm)
S5.01	92.500	1.009	Open Manhole	1200	1.000	91.491	225				
S5.02	93.079	1.425	Open Manhole	1200	2.000	91.654	225				
S5.03	92.906	1.472	Open Manhole	1200	2.001	91.434	225	2.000	91.434	225	
S5.04	92.500	1.266	Open Manhole	1350	1.001	91.234	450	1.000	91.234	225	
								2.001	91.234	225	
S5.05	92.700	2.226	Junction		3.000	90.474	-1				
S5.06	92.400	1.927	Junction		1.002	90.473	-1	1.001	90.474	450	
								3.000	90.473	-1	
S5.07	96.103	1.425	Open Manhole	1200	4.000	94.678	225				
S5.08	95.961	1.950	Open Manhole	1200	4.001	94.011	300	4.000	94.086	225	
S5.09	96.127	3.053	Open Manhole	1200	4.002	93.074	300	4.001	93.074	300	
S5.10	94.485	1.425	Open Manhole	1200	5.000	93.060	225				
S5.11	96.087	1.425	Open Manhole	1200	6.000	94.662	300				
S5.12	95.790	1.277	Open Manhole	1200	6.001	94.513	300	6.000	94.513	300	
S5.13	95.790	1.576	Open Manhole	1350	6.002	94.214	450	6.001	94.364	300	
S5.14	95.809	1.663	Open Manhole	1350	6.003	94.146	450	6.002	94.146	450	
S5.15	96.806	1.674	Open Manhole	1200	7.000	95.132	225				
S5.16	96.508	2.539	Open Manhole	1350	6.004	93.969	450	6.003	93.969	450	
								7.000	94.194	225	

Manhole Schedules for SW 05

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)	Backdrop (mm)
S5.17	96.600	2.713	Open Manhole	1350	6.005	93.887	450	6.004	93.887	450	
S5.18	96.331	1.592	Open Manhole	1200	8.000	94.739	225				
S5.19	96.179	2.367	Open Manhole	1350	6.006	93.812	450	6.005	93.812	450	
								8.000	94.037	225	
S5.20	95.842	2.071	Open Manhole	1350	6.007	93.771	450	6.006	93.771	450	
S5.21	94.504	2.301	Open Manhole	1350	5.001	92.203	450	5.000	92.428	225	
								6.007	92.203	450	
S5.22	94.784	2.897	Open Manhole	1350	4.003	91.887	450	4.002	92.037	300	
								5.001	91.887	450	
S5.23	93.570	1.425	Open Manhole	1200	9.000	92.145	225				
S5.24	93.210	1.609	Open Manhole	1200	9.001	91.601	225	9.000	91.601	225	
S5.25	93.122	1.800	Open Manhole	1350	4.004	91.322	450	4.003	91.323	450	
								9.001	91.547	225	
S5.26	92.136	1.425	Open Manhole	1200	10.000	90.711	225				
S5.27	92.800	2.718	Open Manhole	1500	4.005	90.352	600	4.004	90.082	450	
								10.000	90.352	225	
28	93.456	2.256	Junction		11.000	91.200	-1				
29	93.000	1.801	Junction		11.001	91.199	600	11.000	91.199	-1	
30	92.800	1.658	Junction		11.002	91.142	-1	11.001	91.142	600	

Manhole Schedules for SW 05

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)	Backdrop (mm)
S5.28	92.800	2.724	Open Manhole	3000	4.006	90.472	-1	4.005	90.076	600	
								11.002	91.117	-1	645
S5.29	92.000	1.529	Junction		1.003	90.471	-1	1.002	90.472	-1	1
								4.006	90.471	-1	
S5.30 FC	92.000	1.530	Junction		1.004	90.470	525	1.003	90.470	-1	
S5.31	91.350	3.095	Open Manhole	10000	1.005	88.409	300	1.004	88.255	525	
S5.32	88.973	0.890	Open Manhole	10000	1.006	88.083	525	1.005	88.083	300	
S5.33	86.900	1.703	Open Manhole	10000	1.007	85.197	375	1.006	85.197	525	
S5.O1	91.000	5.903	Open Manhole	1800		OUTFALL		1.007	85.097	375	

PIPELINE SCHEDULES for SW 05

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	S5.01	92.500	91.491	0.784	Open Manhole	1200
2.000	o	225	S5.02	93.079	91.654	1.200	Open Manhole	1200
2.001	o	225	S5.03	92.906	91.434	1.247	Open Manhole	1200
1.001	o	450	S5.04	92.500	91.234	0.816	Open Manhole	1350
3.000		-1	S5.05	92.700	90.474	0.726	Junction	

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	21.957	85.4	S5.04	92.500	91.234	1.041	Open Manhole	1350
2.000	26.047	118.4	S5.03	92.906	91.434	1.247	Open Manhole	1200
2.001	23.664	118.3	S5.04	92.500	91.234	1.041	Open Manhole	1350
1.001	8.946	11.8	S5.06	92.400	90.474	1.476	Junction	
3.000	117.369	117369.5	S5.06	92.400	90.473	0.427	Junction	

PIPELINE SCHEDULES for SW 05

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)
1.002		-1	S5.06	92.400	90.473	0.427	Junction	
4.000	o	225	S5.07	96.103	94.678	1.200	Open Manhole	1200
4.001	o	300	S5.08	95.961	94.011	1.650	Open Manhole	1200
4.002	o	300	S5.09	96.127	93.074	2.753	Open Manhole	1200
5.000	o	225	S5.10	94.485	93.060	1.200	Open Manhole	1200
6.000	o	300	S5.11	96.087	94.662	1.125	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)
1.002	44.172	44171.8	S5.29	92.000	90.472	0.028	Junction	
4.000	34.630	58.5	S5.08	95.961	94.086	1.650	Open Manhole	1200
4.001	74.794	79.8	S5.09	96.127	93.074	2.753	Open Manhole	1200
4.002	72.722	70.1	S5.22	94.784	92.037	2.447	Open Manhole	1350
5.000	36.964	58.5	S5.21	94.504	92.428	1.851	Open Manhole	1350
6.000	22.965	154.1	S5.12	95.790	94.513	0.977	Open Manhole	1200

PIPELINE SCHEDULES for SW 05

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)
6.001	o	300	S5.12	95.790	94.513	0.977	Open Manhole	1200
6.002	o	450	S5.13	95.790	94.214	1.126	Open Manhole	1350
6.003	o	450	S5.14	95.809	94.146	1.213	Open Manhole	1350
7.000	o	225	S5.15	96.806	95.132	1.449	Open Manhole	1200
6.004	o	450	S5.16	96.508	93.969	2.089	Open Manhole	1350
6.005	o	450	S5.17	96.600	93.887	2.263	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)
6.001	28.172	189.1	S5.13	95.790	94.364	1.126	Open Manhole	1350
6.002	14.892	219.0	S5.14	95.809	94.146	1.213	Open Manhole	1350
6.003	38.276	216.2	S5.16	96.508	93.969	2.089	Open Manhole	1350
7.000	34.592	36.9	S5.16	96.508	94.194	2.089	Open Manhole	1350
6.004	27.540	335.9	S5.17	96.600	93.887	2.263	Open Manhole	1350
6.005	35.548	474.0	S5.19	96.179	93.812	1.917	Open Manhole	1350

PIPELINE SCHEDULES for SW 05

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)
8.000	o	225	S5.18	96.331	94.739	1.367	Open Manhole	1200
6.006	o	450	S5.19	96.179	93.812	1.917	Open Manhole	1350
6.007	o	450	S5.20	95.842	93.771	1.621	Open Manhole	1350
5.001	o	450	S5.21	94.504	92.203	1.851	Open Manhole	1350
4.003	o	450	S5.22	94.784	91.887	2.447	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)
8.000	36.180	51.5	S5.19	96.179	94.037	1.917	Open Manhole	1350
6.006	25.409	619.7	S5.20	95.842	93.771	1.621	Open Manhole	1350
6.007	35.166	22.4	S5.21	94.504	92.203	1.851	Open Manhole	1350
5.001	63.103	199.4	S5.22	94.784	91.887	2.447	Open Manhole	1350
4.003	50.383	89.3	S5.25	93.122	91.323	1.349	Open Manhole	1350

PIPELINE SCHEDULES for SW 05

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)
9.000	o	225	S5.23	93.570	92.145	1.200	Open Manhole	1200
9.001	o	225	S5.24	93.210	91.601	1.384	Open Manhole	1200
4.004	o	450	S5.25	93.122	91.322	1.350	Open Manhole	1350
10.000	o	225	S5.26	92.136	90.711	1.200	Open Manhole	1200
4.005	o	600	S5.27	92.800	90.352	1.848	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)
9.000	31.792	58.4	S5.24	93.210	91.601	1.384	Open Manhole	1200
9.001	10.755	200.0	S5.25	93.122	91.547	1.350	Open Manhole	1350
4.004	16.748	13.5	S5.27	92.800	90.082	2.268	Open Manhole	1500
10.000	80.808	225.1	S5.27	92.800	90.352	2.223	Open Manhole	1500
4.005	7.911	28.7	S5.28	92.800	90.076	2.124	Open Manhole	3000

PIPELINE SCHEDULES for SW 05

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)
11.000		-1	28	93.456	91.200	0.756	Junction	
11.001	o	600	29	93.000	91.199	1.201	Junction	
11.002		-1	30	92.800	91.142	0.158	Junction	
4.006		-1	S5.28	92.800	90.472	0.828	Open Manhole	3000
1.003		-1	S5.29	92.000	90.471	0.029	Junction	
1.004	3 \=/	525	S5.30 FC	92.000	90.470	1.380	Junction	
1.005	o	300	S5.31	91.350	88.409	2.641	Open Manhole	10000

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)
11.000	42.223	42223.0	29	93.000	91.199	0.301	Junction	
11.001	23.241	407.7	30	92.800	91.142	1.058	Junction	
11.002	9.592	383.7	S5.28	92.800	91.117	0.183	Open Manhole	3000
4.006	67.013	67013.0	S5.29	92.000	90.471	0.029	Junction	
1.003	5.492	5492.0	S5.30 FC	92.000	90.470	0.030	Junction	
1.004	48.607	21.9	S5.31	91.350	88.255	2.945	Open Manhole	10000
1.005	17.158	52.6	S5.32	88.973	88.083	0.590	Open Manhole	10000

PIPELINE SCHEDULES for SW 05

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)
1.006	3 \=/	525	S5.32	88.973	88.083	0.740	Open Manhole	10000
1.007	o	375	S5.33	86.900	85.197	1.328	Open Manhole	10000

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)
1.006	75.070	26.0	S5.33	86.900	85.197	1.553	Open Manhole	10000
1.007	15.079	150.8	S5.O1	91.000	85.097	5.528	Open Manhole	1800

Area Summary for SW 05

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.098	0.098	0.098
2.000	-	-	100	0.098	0.098	0.098
2.001	-	-	100	0.098	0.098	0.098
1.001	-	-	100	0.098	0.098	0.098
3.000	-	-	100	0.098	0.098	0.098
1.002	-	-	100	0.098	0.098	0.098
4.000	-	-	100	0.098	0.098	0.098
4.001	-	-	100	0.098	0.098	0.098
4.002	-	-	100	0.098	0.098	0.098
5.000	-	-	100	0.098	0.098	0.098
6.000	-	-	100	0.098	0.098	0.098
6.001	-	-	100	0.098	0.098	0.098
6.002	-	-	100	0.098	0.098	0.098
6.003	-	-	100	0.098	0.098	0.098
7.000	-	-	100	0.098	0.098	0.098
6.004	-	-	100	0.098	0.098	0.098
6.005	-	-	100	0.098	0.098	0.098
8.000	-	-	100	0.098	0.098	0.098
6.006	-	-	100	0.100	0.100	0.100
6.007	-	-	100	0.000	0.000	0.000
5.001	-	-	100	0.000	0.000	0.000
4.003	-	-	100	0.090	0.090	0.090
9.000	-	-	100	0.075	0.075	0.075
9.001	-	-	100	0.000	0.000	0.000
4.004	-	-	100	0.000	0.000	0.000
10.000	-	-	100	0.000	0.000	0.000
4.005	-	-	100	0.000	0.000	0.000
11.000	-	-	100	0.000	0.000	0.000

Area Summary for SW 05

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
11.001	-	-	100	0.000	0.000	0.000
11.002	-	-	100	0.000	0.000	0.000
4.006	-	-	100	0.151	0.151	0.151
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	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
				2.180	2.180	2.180

Free Flowing Outfall Details for SW 05

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.007	S5.O1	91.000	85.097	0.000	1800	0

Simulation Criteria for SW 05

Volumetric Runoff Coeff	0.840	Manhole Headloss Coeff (Global)	0.500	Inlet Coeffiecient	0.800
Areal Reduction Factor	1.000	Foul Sewage per hectare (l/s)	0.000	Flow per Person per Day (l/per/day)	0.000
Hot Start (mins)	0	Additional Flow - % of Total Flow	0.000	Run Time (mins)	60
Hot Start Level (mm)	0	MADD Factor * 10m³/ha Storage	4.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm)	21.000	Cv (Summer)	0.750
Return Period (years)	100	Ratio R	0.423	Cv (Winter)	0.840
Region	England and Wales	Profile Type	Winter	Storm Duration (mins)	15

Online Controls for SW 05

Complex Manhole: S5.30 FC, DS/PN: 1.004, Volume (m³): 42.0

Orifice

Diameter (m) 0.060 Discharge Coefficient 0.600 Invert Level (m) 90.470

Orifice

Diameter (m) 0.060 Discharge Coefficient 0.600 Invert Level (m) 91.170

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m³/ha Storage	4.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000

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

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.297
FEH Rainfall Version	1999	E (1km)	0.307
Site Location	GB 568800 245850 TL 68800 45850	F (1km)	2.496
C (1km)	-0.024	Cv (Summer)	0.750
D1 (1km)	0.285	Cv (Winter)	0.840
D2 (1km)	0.289		

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	2.5 Second Increment (Extended)	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

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S5.01	15 Winter	1	+0%	100/15 Summer				91.568	-0.148	0.000	0.26		13.3	OK
2.000	S5.02	15 Winter	1	+0%	30/15 Summer	100/15 Summer			91.738	-0.141	0.000	0.30		13.2	OK
2.001	S5.03	15 Winter	1	+0%	30/15 Summer	100/15 Summer			91.556	-0.103	0.000	0.57		24.9	OK
1.001	S5.04	15 Winter	1	+0%	100/120 Winter				91.330	-0.354	0.000	0.10		50.0	OK
3.000	S5.05	600 Winter	1	+0%					90.994	-0.980	0.000	0.00		1.3	OK
1.002	S5.06	600 Winter	1	+0%					90.994	-0.979	0.000	0.00		2.8	OK
4.000	S5.07	15 Winter	1	+0%	100/15 Summer	100/15 Summer			94.747	-0.156	0.000	0.21		13.3	OK
4.001	S5.08	15 Winter	1	+0%	100/15 Summer	100/15 Winter			94.105	-0.206	0.000	0.21		24.7	OK
4.002	S5.09	15 Winter	1	+0%	30/15 Winter				93.183	-0.190	0.000	0.28		36.3	OK
5.000	S5.10	15 Winter	1	+0%	30/15 Summer	100/15 Summer			93.129	-0.156	0.000	0.21		13.3	OK
6.000	S5.11	15 Winter	1	+0%	30/15 Summer				94.744	-0.218	0.000	0.17		13.3	OK
6.001	S5.12	15 Winter	1	+0%	30/15 Summer	100/15 Summer			94.635	-0.178	0.000	0.34		24.9	OK
6.002	S5.13	15 Winter	1	+0%	30/15 Summer	100/15 Summer			94.357	-0.307	0.000	0.22		36.6	OK
6.003	S5.14	15 Winter	1	+0%	30/15 Summer	100/15 Summer			94.307	-0.289	0.000	0.24		47.1	OK
7.000	S5.15	15 Winter	1	+0%	100/15 Summer				95.193	-0.164	0.000	0.16		13.3	OK
6.004	S5.16	15 Winter	1	+0%	30/15 Summer				94.238	-0.181	0.000	0.44		66.0	OK
6.005	S5.17	15 Winter	1	+0%	30/15 Summer				94.200	-0.137	0.000	0.56		73.0	OK
8.000	S5.18	15 Winter	1	+0%	100/15 Summer	100/15 Winter			94.806	-0.158	0.000	0.19		13.3	OK
6.006	S5.19	15 Winter	1	+0%	30/15 Summer				94.155	-0.107	0.000	0.93		90.9	OK
6.007	S5.20	15 Winter	1	+0%	100/15 Summer				93.887	-0.334	0.000	0.15		90.4	OK
5.001	S5.21	15 Winter	1	+0%	30/15 Summer	100/15 Summer			92.419	-0.234	0.000	0.46		98.0	OK
4.003	S5.22	15 Winter	1	+0%	30/15 Summer				92.093	-0.243	0.000	0.43		133.9	OK
9.000	S5.23	15 Winter	1	+0%	100/15 Summer				92.205	-0.165	0.000	0.16		10.2	OK
9.001	S5.24	15 Winter	1	+0%	100/15 Summer				91.690	-0.136	0.000	0.33		10.1	OK
4.004	S5.25	15 Winter	1	+0%	100/15 Summer				91.466	-0.306	0.000	0.22		140.6	OK

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
1.000	S5.01	
2.000	S5.02	2
2.001	S5.03	2
1.001	S5.04	
3.000	S5.05	
1.002	S5.06	
4.000	S5.07	2
4.001	S5.08	1
4.002	S5.09	
5.000	S5.10	4
6.000	S5.11	
6.001	S5.12	4
6.002	S5.13	4
6.003	S5.14	4
7.000	S5.15	
6.004	S5.16	
6.005	S5.17	
8.000	S5.18	1
6.006	S5.19	
6.007	S5.20	
5.001	S5.21	4
4.003	S5.22	
9.000	S5.23	
9.001	S5.24	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
4.004	S5.25	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
10.000	S5.26	120 Winter	1	+0%	1/15 Winter				91.040	0.104	0.000	0.01		0.4	SURCHARGED
4.005	S5.27	120 Winter	1	+0%	1/15 Winter				91.040	0.088	0.000	0.11		59.2	SURCHARGED
11.000	28	360 Winter	1	+0%					91.200	-1.500	0.000	0.00		0.0	OK
11.001	29	360 Winter	1	+0%	100/120 Winter				91.199	-0.600	0.000	0.00		0.0	OK*
11.002	30	360 Winter	1	+0%					91.142	-1.500	0.000	0.00		0.0	OK
4.006	S5.28	600 Winter	1	+0%					90.995	-0.977	0.000	0.00		21.3	OK
1.003	S5.29	600 Winter	1	+0%					90.995	-0.976	0.000	0.00		9.3	OK
1.004	S5.30 FC	600 Winter	1	+0%					90.999	-1.001	0.000	0.00		5.3	OK
1.005	S5.31	600 Winter	1	+0%					88.448	-0.261	0.000	0.04		5.3	OK
1.006	S5.32	600 Winter	1	+0%					88.108	-0.865	0.000	0.00		5.3	OK
1.007	S5.33	600 Winter	1	+0%					85.246	-0.326	0.000	0.04		5.3	OK

PN	US/MH Name	Level Exceeded
10.000	S5.26	
4.005	S5.27	
11.000	28	
11.001	29	
11.002	30	
4.006	S5.28	
1.003	S5.29	
1.004	S5.30 FC	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
1.005	S5.31	
1.006	S5.32	
1.007	S5.33	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m³/ha Storage	4.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000

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

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.297
FEH Rainfall Version	1999	E (1km)	0.307
Site Location	GB 568800 245850 TL 68800 45850	F (1km)	2.496
C (1km)	-0.024	Cv (Summer)	0.750
D1 (1km)	0.285	Cv (Winter)	0.840
D2 (1km)	0.289		

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	2.5 Second Increment (Extended)	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

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S5.01	15 Winter	30	+0%	100/15 Summer				91.646	-0.070	0.000	0.82		42.0	OK
2.000	S5.02	15 Winter	30	+0%	30/15 Summer	100/15 Summer			92.227	0.348	0.000	0.93		41.0	SURCHARGED
2.001	S5.03	15 Winter	30	+0%	30/15 Summer	100/15 Summer			92.058	0.399	0.000	1.71		75.0	SURCHARGED
1.001	S5.04	480 Winter	30	+0%	100/120 Winter				91.420	-0.264	0.000	0.03		15.1	OK
3.000	S5.05	480 Winter	30	+0%					91.420	-0.554	0.000	0.00		3.6	OK
1.002	S5.06	480 Winter	30	+0%					91.420	-0.553	0.000	0.00		4.9	OK
4.000	S5.07	15 Winter	30	+0%	100/15 Summer	100/15 Summer			94.811	-0.092	0.000	0.65		42.0	OK
4.001	S5.08	15 Winter	30	+0%	100/15 Summer	100/15 Winter			94.207	-0.104	0.000	0.72		86.0	OK
4.002	S5.09	15 Winter	30	+0%	30/15 Winter				93.396	0.023	0.000	0.97		124.1	SURCHARGED
5.000	S5.10	15 Winter	30	+0%	30/15 Summer	100/15 Summer			93.602	0.317	0.000	0.63		40.3	SURCHARGED
6.000	S5.11	15 Winter	30	+0%	30/15 Summer				95.361	0.399	0.000	0.45		35.7	SURCHARGED
6.001	S5.12	15 Winter	30	+0%	30/15 Summer	100/15 Summer			95.254	0.441	0.000	0.88		63.9	SURCHARGED
6.002	S5.13	15 Winter	30	+0%	30/15 Summer	100/15 Summer			95.130	0.466	0.000	0.55		92.0	SURCHARGED
6.003	S5.14	15 Winter	30	+0%	30/15 Summer	100/15 Summer			95.058	0.462	0.000	0.65		125.8	SURCHARGED
7.000	S5.15	15 Winter	30	+0%	100/15 Summer				95.247	-0.110	0.000	0.52		42.1	OK
6.004	S5.16	15 Winter	30	+0%	30/15 Summer				94.946	0.527	0.000	1.35		201.8	SURCHARGED
6.005	S5.17	15 Winter	30	+0%	30/15 Summer				94.791	0.454	0.000	1.79		231.7	SURCHARGED
8.000	S5.18	15 Winter	30	+0%	100/15 Summer	100/15 Winter			94.867	-0.097	0.000	0.61		42.0	OK
6.006	S5.19	15 Winter	30	+0%	30/15 Summer				94.532	0.270	0.000	3.07		300.9	SURCHARGED
6.007	S5.20	15 Winter	30	+0%	100/15 Summer				93.997	-0.224	0.000	0.50		299.3	OK
5.001	S5.21	15 Winter	30	+0%	30/15 Summer	100/15 Summer			93.494	0.841	0.000	1.47		311.1	SURCHARGED
4.003	S5.22	15 Winter	30	+0%	30/15 Summer				92.791	0.454	0.000	1.35		419.7	SURCHARGED
9.000	S5.23	15 Winter	30	+0%	100/15 Summer				92.258	-0.112	0.000	0.50		32.2	OK
9.001	S5.24	15 Winter	30	+0%	100/15 Summer				91.819	-0.007	0.000	1.00		30.8	OK
4.004	S5.25	15 Winter	30	+0%	100/15 Summer				91.741	-0.031	0.000	0.68		428.1	OK

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
1.000	S5.01	
2.000	S5.02	2
2.001	S5.03	2
1.001	S5.04	
3.000	S5.05	
1.002	S5.06	
4.000	S5.07	2
4.001	S5.08	1
4.002	S5.09	
5.000	S5.10	4
6.000	S5.11	
6.001	S5.12	4
6.002	S5.13	4
6.003	S5.14	4
7.000	S5.15	
6.004	S5.16	
6.005	S5.17	
8.000	S5.18	1
6.006	S5.19	
6.007	S5.20	
5.001	S5.21	4
4.003	S5.22	
9.000	S5.23	
9.001	S5.24	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
4.004	S5.25	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
10.000	S5.26	240 Winter	30	+0%	1/15 Winter				91.522	0.586	0.000	0.02		0.5	SURCHARGED
4.005	S5.27	240 Winter	30	+0%	1/15 Winter				91.522	0.570	0.000	0.18		95.1	SURCHARGED
11.000	28	480 Winter	30	+0%					91.422	-1.278	0.000	0.00		0.0	OK
11.001	29	480 Winter	30	+0%	100/120 Winter				91.422	-0.377	0.000	0.00		0.8	OK*
11.002	30	480 Winter	30	+0%					91.422	-1.220	0.000	0.00		0.9	OK
4.006	S5.28	480 Winter	30	+0%					91.422	-0.550	0.000	0.01		59.7	OK
1.003	S5.29	480 Winter	30	+0%					91.420	-0.551	0.000	0.00		13.4	OK
1.004	S5.30 FC	480 Winter	30	+0%					91.422	-0.578	0.000	0.00		10.7	OK
1.005	S5.31	480 Winter	30	+0%					88.466	-0.243	0.000	0.08		10.7	OK
1.006	S5.32	480 Winter	30	+0%					88.121	-0.852	0.000	0.00		10.7	OK
1.007	S5.33	480 Winter	30	+0%					85.271	-0.301	0.000	0.09		10.7	OK

PN	US/MH Name	Level Exceeded
10.000	S5.26	
4.005	S5.27	
11.000	28	
11.001	29	
11.002	30	
4.006	S5.28	
1.003	S5.29	
1.004	S5.30 FC	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
1.005	S5.31	
1.006	S5.32	
1.007	S5.33	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m³/ha Storage	4.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000

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

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.297
FEH Rainfall Version	1999	E (1km)	0.307
Site Location	GB 568800 245850 TL 68800 45850	F (1km)	2.496
C (1km)	-0.024	Cv (Summer)	0.750
D1 (1km)	0.285	Cv (Winter)	0.840
D2 (1km)	0.289		

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	2.5 Second Increment (Extended)	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

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	S5.01	15 Winter	100	+30%	100/15 Summer				92.086	0.370	0.000	1.53		78.8	SURCHARGED
2.000	S5.02	15 Winter	100	+30%	30/15 Summer	100/15 Summer			93.087	1.208	7.474	1.70		75.2	FLOOD
2.001	S5.03	15 Winter	100	+30%	30/15 Summer	100/15 Summer			92.907	1.248	1.097	2.68		117.6	FLOOD
1.001	S5.04	600 Winter	100	+30%	100/120 Winter				91.831	0.147	0.000	0.04		21.6	SURCHARGED
3.000	S5.05	600 Winter	100	+30%					91.830	-0.144	0.000	0.00		5.4	OK
1.002	S5.06	600 Winter	100	+30%					91.830	-0.143	0.000	0.00		6.7	OK
4.000	S5.07	15 Winter	100	+30%	100/15 Summer	100/15 Summer			96.109	1.206	6.228	1.20		76.9	FLOOD
4.001	S5.08	15 Winter	100	+30%	100/15 Summer	100/15 Winter			95.962	1.651	1.234	0.90		107.9	FLOOD
4.002	S5.09	15 Winter	100	+30%	30/15 Winter				95.574	2.200	0.000	1.23		157.3	SURCHARGED
5.000	S5.10	15 Winter	100	+30%	30/15 Summer	100/15 Summer			94.505	1.220	20.800	1.42		91.1	FLOOD
6.000	S5.11	15 Winter	100	+30%	30/15 Summer				95.974	1.012	0.000	1.03		81.7	FLOOD RISK
6.001	S5.12	15 Winter	100	+30%	30/15 Summer	100/15 Summer			95.837	1.024	47.189	1.26		92.0	FLOOD
6.002	S5.13	15 Winter	100	+30%	30/15 Summer	100/15 Summer			95.823	1.159	32.522	0.62		103.4	FLOOD
6.003	S5.14	15 Winter	100	+30%	30/15 Summer	100/15 Summer			95.828	1.232	19.669	0.83		160.9	FLOOD
7.000	S5.15	15 Winter	100	+30%	100/15 Summer				96.730	1.373	0.000	1.02		82.7	FLOOD RISK
6.004	S5.16	15 Winter	100	+30%	30/15 Summer				96.090	1.671	0.000	1.69		252.5	SURCHARGED
6.005	S5.17	15 Winter	100	+30%	30/15 Summer				96.063	1.726	0.000	2.46		318.0	SURCHARGED
8.000	S5.18	15 Winter	100	+30%	100/15 Summer	100/15 Winter			96.331	1.367	0.344	1.18		80.7	FLOOD
6.006	S5.19	15 Winter	100	+30%	30/15 Summer				95.771	1.509	0.000	4.22		413.7	SURCHARGED
6.007	S5.20	15 Winter	100	+30%	100/15 Summer				95.208	0.987	0.000	0.67		403.4	SURCHARGED
5.001	S5.21	15 Winter	100	+30%	30/15 Summer	100/15 Summer			94.515	1.862	10.461	1.61		339.5	FLOOD
4.003	S5.22	15 Winter	100	+30%	30/15 Summer				93.937	1.601	0.000	1.71		531.9	SURCHARGED
9.000	S5.23	15 Winter	100	+30%	100/15 Summer				92.821	0.451	0.000	0.89		56.9	SURCHARGED
9.001	S5.24	15 Winter	100	+30%	100/15 Summer				92.490	0.664	0.000	1.77		54.7	SURCHARGED
4.004	S5.25	15 Winter	100	+30%	100/15 Summer				92.375	0.603	0.000	0.89		559.9	SURCHARGED

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
1.000	S5.01	
2.000	S5.02	2
2.001	S5.03	2
1.001	S5.04	
3.000	S5.05	
1.002	S5.06	
4.000	S5.07	2
4.001	S5.08	1
4.002	S5.09	
5.000	S5.10	4
6.000	S5.11	
6.001	S5.12	4
6.002	S5.13	4
6.003	S5.14	4
7.000	S5.15	
6.004	S5.16	
6.005	S5.17	
8.000	S5.18	1
6.006	S5.19	
6.007	S5.20	
5.001	S5.21	4
4.003	S5.22	
9.000	S5.23	
9.001	S5.24	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Level Exceeded
4.004	S5.25	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)
10.000	S5.26	360 Winter	100	+30%	1/15 Winter				92.002	1.066	0.000	0.01		0.3
4.005	S5.27	360 Winter	100	+30%	1/15 Winter				92.002	1.050	0.000	0.23		121.5
11.000	28	480 Winter	100	+30%					91.856	-0.844	0.000	0.00		0.0
11.001	29	480 Winter	100	+30%	100/120 Winter				91.856	0.057	0.000	0.01		4.1
11.002	30	480 Winter	100	+30%					91.856	-0.786	0.000	0.00		4.2
4.006	S5.28	480 Winter	100	+30%					91.856	-0.116	0.000	0.01		90.5
1.003	S5.29	600 Winter	100	+30%					91.830	-0.141	0.000	0.00		15.8
1.004	S5.30 FC	600 Winter	100	+30%					91.830	-0.170	0.000	0.00		14.6
1.005	S5.31	600 Winter	100	+30%					88.475	-0.234	0.000	0.11		14.6
1.006	S5.32	600 Winter	100	+30%					88.129	-0.844	0.000	0.00		14.6
1.007	S5.33	600 Winter	100	+30%					85.282	-0.290	0.000	0.12		14.6

PN	US/MH Name	Status	Level Exceeded
10.000	S5.26	FLOOD RISK	
4.005	S5.27	SURCHARGED	
11.000	28	OK	
11.001	29	SURCHARGED*	
11.002	30	OK	
4.006	S5.28	OK	
1.003	S5.29	FLOOD RISK*	
1.004	S5.30 FC	FLOOD RISK*	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 05

PN	US/MH Name	Status	Level Exceeded
1.005	S5.31	OK	
1.006	S5.32	OK	
1.007	S5.33	OK	