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Manchester One Portland Street Manchester M1 3LF	Haverhill Great Willsey Park Area 4	
Date 28/03/2019 File HAVERHILL. ALL NETWORKS.MDX	Designed by RMV Checked by PV	
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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW 04

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)	21.000	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 04

« - Indicates pipe capacity < flow









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

Network Results Table

PN	Rain	T.C.	US/IL E	I.Area	E Base	Foul	Add Flow	Vel	Cap	Flow
	(mm/hr)	(mins)	(m)	(ha)	Flow (l/s)	(l/s)	(l/s)	(m/s)	(l/s)	(l/s)


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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	47.956	0.230	208.5	0.083	8.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	14.173	0.089	159.2	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	18.300	0.298	61.4	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	55.651	1.263	44.1	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.004	84.227	0.860	97.9	0.117	0.00	0.0	0.600	o	450	Pipe/Conduit	
2.000	34.268	0.735	46.6	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
2.001	17.280	0.744	23.2	0.083	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.005	10.377	0.130	79.8	0.117	0.00	0.0	0.600	o	525	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	44.89	8.74	84.375	0.083	0.0	0.0	0.0	1.09	76.7	10.1
1.001	44.39	8.93	84.145	0.166	0.0	0.0	0.0	1.24	87.9	20.0
1.002	44.01	9.08	84.056	0.249	0.0	0.0	0.0	2.01	142.1	29.7
1.003	43.04	9.47	83.758	0.332	0.0	0.0	0.0	2.38	167.9	38.7
1.004	41.47	10.15	82.345	0.449	0.0	0.0	0.0	2.05	326.8	50.4
2.000	46.09	8.30	83.189	0.083	0.0	0.0	0.0	1.92	76.4	10.4
2.001	45.79	8.40	82.454	0.166	0.0	0.0	0.0	2.73	108.4	20.6
1.005	41.32	10.22	81.410	0.732	0.0	0.0	0.0	2.51	543.1	81.9


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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
1.006	28.883	0.430	67.2	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
1.007	5.158	0.010	515.8	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
1.008	25.168	2.550	9.9	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
3.000	26.206	0.925	28.3	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
4.000	16.662	0.285	58.5	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
4.001	22.046	0.110	200.4	0.067	0.00	0.0	0.600	o	225	Pipe/Conduit	
3.001	16.941	0.070	241.9	0.083	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)
1.006	40.94	10.40	81.280	0.732	0.0	0.0	0.0	2.74	592.3	81.9
1.007	40.75	10.48	80.850	0.732	0.0	0.0	0.0	0.98	212.0	81.9
1.008	40.63	10.54	80.840	0.732	0.0	0.0	0.0	7.16	1549.7	81.9
3.000	46.43	8.18	86.451	0.083	0.0	0.0	0.0	2.47	98.1	10.4
4.000	46.47	8.16	85.921	0.083	0.0	0.0	0.0	1.71	68.1	10.4
4.001	45.36	8.56	85.636	0.150	0.0	0.0	0.0	0.92	36.6	18.4
3.001	44.61	8.84	85.451	0.316	0.0	0.0	0.0	1.01	71.1	38.2


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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
3.002	40.489	0.681	59.5	0.083	0.00	0.0	0.600	o	375	Pipe/Conduit	
5.000	40.699	1.631	25.0	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
6.000	40.165	0.179	224.4	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
6.001	38.354	0.170	225.6	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.002	26.501	0.088	300.0	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
6.003	33.112	0.110	300.0	0.085	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.000	95.358	1.862	51.2	0.083	8.00	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)
3.002	43.88	9.13	85.306	0.399	0.0	0.0	0.0	2.35	260.0	47.4
5.000	46.20	8.26	86.381	0.083	0.0	0.0	0.0	2.63	104.6	10.4
6.000	44.80	8.77	88.004	0.083	0.0	0.0	0.0	0.87	34.5	10.1
6.001	43.25	9.38	87.750	0.166	0.0	0.0	0.0	1.04	73.7	19.4
6.002	42.10	9.87	87.580	0.249	0.0	0.0	0.0	0.90	63.8	28.4
6.003	40.75	10.48	87.492	0.334	0.0	0.0	0.0	0.90	63.8	36.9
7.000	44.55	8.87	93.493	0.083	0.0	0.0	0.0	1.83	72.8	10.0


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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
8.000	21.299	4.028	5.3	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
7.001	56.881	0.289	196.8	0.083	0.00	0.0	0.600	o	525	Pipe/Conduit	
9.000	69.228	0.403	171.8	0.083	8.00	0.0	0.600	o	300	Pipe/Conduit	
9.001	27.949	2.818	9.9	0.067	0.00	0.0	0.600	o	375	Pipe/Conduit	
7.002	67.790	0.137	494.8	0.097	0.00	0.0	0.600	o	525	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)
8.000	46.76	8.06	95.659	0.083	0.0	0.0	0.0	5.73	227.8	10.5
7.001	43.06	9.46	91.331	0.249	0.0	0.0	0.0	1.59	344.9	29.0
9.000	44.30	8.96	94.488	0.083	0.0	0.0	0.0	1.20	84.6	10.0
9.001	44.09	9.04	94.010	0.150	0.0	0.0	0.0	5.78	638.6	17.9
7.002	40.53	10.59	91.042	0.496	0.0	0.0	0.0	1.00	216.5	54.4


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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
10.000	72.642	0.200	363.2	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
10.001	17.369	2.170	8.0	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.003	49.341	0.139	355.0	0.067	0.00	0.0	0.600	o	525	Pipe/Conduit	
11.000	29.997	0.513	58.5	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
11.001	28.454	0.204	139.5	0.083	0.00	0.0	0.600	o	225	Pipe/Conduit	
7.004	14.219	1.713	8.3	0.117	0.00	0.0	0.600	o	525	Pipe/Conduit	
7.005	36.140	0.073	495.1	0.160	0.00	0.0	0.600	o	525	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	42.31	9.78	93.500	0.083	0.0	0.0	0.0	0.68	27.0	9.5
10.001	42.19	9.83	93.300	0.166	0.0	0.0	0.0	5.59	395.1	19.0
7.003	39.13	11.29	90.905	0.729	0.0	0.0	0.0	1.18	256.1	77.3
11.000	46.10	8.29	91.783	0.083	0.0	0.0	0.0	1.71	68.1	10.4
11.001	44.93	8.72	91.270	0.166	0.0	0.0	0.0	1.11	43.9	20.2
7.004	39.07	11.32	90.766	1.012	0.0	0.0	0.0	7.81	1690.1	107.1
7.005	37.95	11.92	89.053	1.172	0.0	0.0	0.0	1.00	216.5	120.5


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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
7.006	15.916	0.057	279.2	0.117	0.00	0.0	0.600	o	825	Pipe/Conduit	
7.007	19.474	1.204	16.2	0.083	0.00	0.0	0.600	o	600	Pipe/Conduit	
12.000	13.499	0.257	52.5	0.083	8.00	0.0	0.600	o	225	Pipe/Conduit	
7.008	23.018	0.338	68.1	0.117	0.00	0.0	0.600	o	600	Pipe/Conduit	
6.004	16.645	0.033	500.0	0.083	0.00	0.0	0.600	o	600	Pipe/Conduit	
6.005	36.008	1.588	22.7	0.083	0.00	0.0	0.600	o	600	Pipe/Conduit	
6.006	37.339	0.275	135.8	0.083	0.00	0.0	0.600	oo	525	Double Pipe	

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)
7.006	37.69	12.07	88.680	1.289	0.0	0.0	0.0	1.77	947.1	131.6
7.007	37.59	12.12	88.623	1.372	0.0	0.0	0.0	6.07	1717.7	139.7
12.000	46.58	8.12	88.051	0.083	0.0	0.0	0.0	1.81	71.9	10.5
7.008	37.37	12.25	87.419	1.572	0.0	0.0	0.0	2.95	835.2	159.1
6.004	36.93	12.51	87.081	1.989	0.0	0.0	0.0	1.08	306.0	198.9
6.005	36.73	12.63	87.048	2.072	0.0	0.0	0.0	5.13	1450.1	206.1
6.006	36.20	12.95	85.460	2.155	0.0	0.0	0.0	1.92	831.5	211.3


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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
6.007	21.463	0.161	133.3	0.086	0.00	0.0	0.600	oo	525	Double Pipe	
6.008	30.800	0.399	77.2	0.040	0.00	0.0	0.600	oo	525	Double Pipe	
3.003	13.782	0.020	689.1	0.165	0.00	0.0	0.600	oo	600	Double Pipe	
3.004	21.047	0.050	420.9	0.000	0.00	0.0	0.600	oo	600	Double Pipe	
3.005	13.098	0.080	163.7	0.000	0.00	0.0	0.600	oo	600	Double Pipe	
3.006	6.013	0.010	601.3	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
3.007	28.027	0.690	40.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
13.000	91.061	0.405	224.8	0.069	8.00	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)
6.007	35.91	13.14	85.185	2.241	0.0	0.0	0.0	1.94	839.2	217.9
6.008	35.59	13.34	85.024	2.281	0.0	0.0	0.0	2.55	1104.6	219.9
3.003	35.21	13.59	84.550	2.928	0.0	0.0	0.0	0.92	520.3	279.2
3.004	34.77	13.88	84.530	2.928	0.0	0.0	0.0	1.18	667.6	279.2
3.005	34.60	14.00	84.480	2.928	0.0	0.0	0.0	1.90	1074.7	279.2
3.006	34.46	14.10	84.400	2.928	0.0	0.0	0.0	0.99	278.7	279.2
3.007	34.14	14.33	84.390	2.928	0.0	0.0	0.0	2.06	81.9	279.2
13.000	42.38	9.75	88.653	0.069	0.0	0.0	0.0	0.87	34.5	7.9


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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
13.001	9.354	0.436	21.5	0.069	0.00	0.0	0.600	o	375	Pipe/Conduit		
13.002	35.466	0.110	323.7	0.069	0.00	0.0	0.600	o	375	Pipe/Conduit		
13.003	28.059	0.759	37.0	0.069	0.00	0.0	0.600	o	525	Pipe/Conduit		
13.004	10.115	0.077	131.4	0.069	0.00	0.0	0.600	o	525	Pipe/Conduit		
14.000	28.615	0.846	33.8	0.069	8.00	0.0	0.600	o	225	Pipe/Conduit		
14.001	20.692	1.649	12.5	0.069	0.00	0.0	0.600	o	225	Pipe/Conduit		
15.000	36.063	0.687	52.5	0.083	8.00	0.0	0.600	o	300	Pipe/Conduit		
15.001	19.035	0.063	302.1	0.083	0.00	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)
13.001	42.29	9.79	88.098	0.138	0.0	0.0	0.0	3.93	433.7	15.8
13.002	40.98	10.38	87.662	0.207	0.0	0.0	0.0	1.00	110.6	23.0
13.003	40.71	10.51	87.402	0.276	0.0	0.0	0.0	3.69	799.3	30.4
13.004	40.53	10.59	86.643	0.345	0.0	0.0	0.0	1.95	422.7	37.9
14.000	46.33	8.21	90.937	0.069	0.0	0.0	0.0	2.26	89.7	8.7
14.001	46.07	8.30	90.091	0.138	0.0	0.0	0.0	3.71	147.7	17.2
15.000	46.15	8.28	89.652	0.083	0.0	0.0	0.0	2.17	153.7	10.4
15.001	44.98	8.70	88.965	0.166	0.0	0.0	0.0	0.75	29.7	20.2


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15.002	20.799	0.069	300.0	0.083	0.00	0.0	0.600	o	225	Pipe/Conduit	
15.003	91.554	0.302	303.2	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
15.004	31.329	0.081	386.8	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
15.005	30.920	0.041	758.9	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
15.006	7.914	0.042	190.7	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
14.002	60.305	0.382	157.9	0.069	0.00	0.0	0.600	o	375	Pipe/Conduit	
16.000	57.437	0.255	225.2	0.069	8.00	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)
15.002	43.79	9.16	88.902	0.249	0.0	0.0	0.0	0.75	29.8	29.5
15.003	39.97	10.86	88.758	0.332	0.0	0.0	0.0	0.90	63.5	35.9
15.004	38.85	11.43	88.381	0.332	0.0	0.0	0.0	0.92	101.1	35.9
15.005	37.41	12.23	88.300	0.332	0.0	0.0	0.0	0.65	71.8	35.9
15.006	37.24	12.33	88.259	0.332	0.0	0.0	0.0	1.31	144.5	35.9
14.002	36.08	13.03	88.217	0.539	0.0	0.0	0.0	1.44	159.0	52.7
16.000	43.94	9.10	88.240	0.069	0.0	0.0	0.0	0.87	34.5	8.2


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Network Design Table for SW 04






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
14.003	40.399	0.881	45.9	0.069	0.00	0.0	0.600	o	450	Pipe/Conduit	
14.004	22.597	0.387	58.4	0.069	0.00	0.0	0.600	o	525	Pipe/Conduit	
13.005	40.898	0.967	42.3	0.069	0.00	0.0	0.600	oo	375	Double Pipe	
13.006	14.503	0.050	290.1	0.069	0.00	0.0	0.600	oo	375	Double Pipe	
13.007	23.711	0.040	592.8	0.000	0.00	0.0	0.600	oo	450	Double Pipe	
13.008	36.176	0.110	328.9	0.000	0.00	0.0	0.600	oo	450	Double Pipe	
13.009	4.574	0.010	457.4	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
13.010	16.040	1.692	9.5	0.000	0.00	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)
14.003	35.73	13.25	87.835	0.677	0.0	0.0	0.0	3.01	478.5	65.5
14.004	35.53	13.38	86.954	0.746	0.0	0.0	0.0	2.94	635.5	71.8
13.005	35.16	13.62	86.567	1.160	0.0	0.0	0.0	2.79	617.0	110.5
13.006	34.82	13.85	85.600	1.229	0.0	0.0	0.0	1.06	233.9	115.9
13.007	34.13	14.33	85.550	1.229	0.0	0.0	0.0	0.83	263.3	115.9
13.008	33.39	14.87	85.510	1.229	0.0	0.0	0.0	1.12	354.8	115.9
13.009	33.30	14.94	85.400	1.229	0.0	0.0	0.0	1.04	225.3	115.9
13.010	33.21	15.00	85.390	1.229	0.0	0.0	0.0	4.28	170.0	115.9


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Network Design Table for SW 04

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
17.000	36.910	0.631	58.5	0.000	8.00	0.0	0.600	o	225	Pipe/Conduit	
17.001	33.818	0.202	167.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
17.002	21.572	0.129	167.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
17.003	76.754	0.685	112.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
17.004	12.791	0.097	131.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	


Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
17.000	45.92	8.36	89.762	0.000	0.0	0.0	0.0	1.71	68.1	0.0
17.001	44.41	8.92	89.131	0.000	0.0	0.0	0.0	1.01	40.0	0.0
17.002	43.51	9.28	88.929	0.000	0.0	0.0	0.0	1.01	40.0	0.0
17.003	41.12	10.31	88.801	0.000	0.0	0.0	0.0	1.23	49.1	0.0
17.004	40.72	10.50	88.115	0.000	0.0	0.0	0.0	1.14	45.2	0.0

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Manhole Schedules for SW 04

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)
S4.01	85.550	1.175	Open Manhole	1200	1.000	84.375	300				
S4.02	85.831	1.686	Open Manhole	1200	1.001	84.145	300	1.000	84.145	300	
S4.03	86.218	2.162	Open Manhole	1200	1.002	84.056	300	1.001	84.056	300	
S4.04	85.750	1.992	Open Manhole	1200	1.003	83.758	300	1.002	83.758	300	
S4.05	83.920	1.575	Open Manhole	1350	1.004	82.345	450	1.003	82.495	300	
S4.06	84.617	1.428	Open Manhole	1200	2.000	83.189	225				
S4.07	83.876	1.422	Open Manhole	1200	2.001	82.454	225	2.000	82.454	225	
S4.08	83.255	1.845	Open Manhole	1500	1.005	81.410	525	1.004	81.485	450	
								2.001	81.710	225	
S4.09	82.680	1.400	Open Manhole	1500	1.006	81.280	525	1.005	81.280	525	
S4.10	82.650	1.800	Open Manhole	1500	1.007	80.850	525	1.006	80.850	525	
S4.11 FC	82.650	1.810	Open Manhole	1800	1.008	80.840	525	1.007	80.840	525	
S4.01	79.550	1.260	Open Manhole	0		OUTFALL		1.008	78.290	525	
S4.12	87.876	1.425	Open Manhole	1200	3.000	86.451	225				
S4.13	87.221	1.300	Open Manhole	1200	4.000	85.921	225				
S4.14	87.165	1.529	Open Manhole	1200	4.001	85.636	225	4.000	85.636	225	
S4.15	87.144	1.693	Open Manhole	1200	3.001	85.451	300	3.000	85.526	225	
								4.001	85.526	225	
S4.16	86.700	1.394	Open Manhole	1350	3.002	85.306	375	3.001	85.381	300	

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Manhole Schedules for SW 04

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out			Pipes In			Backdrop (mm)
					PN	Invert Level (m)	Diameter (mm)	PN	Invert Level (m)	Diameter (mm)	
S4.17	87.806	1.425	Open Manhole	1200	5.000	86.381	225				
S4.18	89.916	1.912	Open Manhole	1200	6.000	88.004	225				
S4.19	89.370	1.620	Open Manhole	1200	6.001	87.750	300	6.000	87.825	225	
S4.20	89.370	1.790	Open Manhole	1200	6.002	87.580	300	6.001	87.580	300	
S4.21	89.370	1.878	Open Manhole	1200	6.003	87.492	300	6.002	87.492	300	
S4.22	94.918	1.425	Open Manhole	1200	7.000	93.493	225				
S4.23	96.959	1.300	Open Manhole	1200	8.000	95.659	225				
S4.24	92.940	1.609	Open Manhole	1500	7.001	91.331	525	7.000	91.631	225	
								8.000	91.631	225	
S4.25	95.913	1.425	Open Manhole	1200	9.000	94.488	300				
S4.26	94.884	0.874	Open Manhole	1350	9.001	94.010	375	9.000	94.085	300	
S4.27	93.559	2.517	Open Manhole	1500	7.002	91.042	525	7.001	91.042	525	
								9.001	91.192	375	
S4.28	94.906	1.406	Open Manhole	1200	10.000	93.500	225				
S4.29	95.000	1.700	Open Manhole	1200	10.001	93.300	300	10.000	93.300	225	
S4.30	94.456	3.551	Open Manhole	1500	7.003	90.905	525	7.002	90.905	525	
								10.001	91.130	300	
S4.31	93.083	1.300	Open Manhole	1200	11.000	91.783	225				
S4.32	92.984	1.714	Open Manhole	1200	11.001	91.270	225	11.000	91.270	225	

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Manhole Schedules for SW 04

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S4.33	92.500	1.734	Open Manhole	1500	7.004	90.766	525	7.003	90.766	525	

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Manhole Schedules for SW 04

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S4.34	90.787	1.734	Open Manhole	1500	7.005	89.053	525	11.001	91.066	225	
S4.35	90.787	2.107	Open Manhole	1800	7.006	88.680	825	7.004	89.053	525	
S4.36	90.787	2.164	Open Manhole	1800	7.007	88.623	600	7.005	88.980	525	
S4.37	89.351	1.300	Open Manhole	1200	12.000	88.051	225	7.006	88.623	825	
S4.38	89.526	2.107	Open Manhole	1500	7.008	87.419	600	7.007	87.419	600	
S4.39	89.370	2.289	Open Manhole	1500	6.004	87.081	600	12.000	87.794	225	
								6.003	87.381	300	
								7.008	87.081	600	
S4.40	89.370	2.322	Open Manhole	1500	6.005	87.048	600	6.004	87.048	600	
S4.41	87.260	1.800	Open Manhole	1950	6.006	85.460	525	6.005	85.460	600	
S4.42	87.100	1.915	Open Manhole	1950	6.007	85.185	525	6.006	85.185	525	
S4.43	87.100	2.076	Open Manhole	1950	6.008	85.024	525	6.007	85.024	525	
S4.44	86.624	2.074	Open Manhole	2100	3.003	84.550	600	3.002	84.625	375	
								5.000	84.750	225	
								6.008	84.625	525	
S4.45	86.200	1.670	Open Manhole	2100	3.004	84.530	600	3.003	84.530	600	
S4.46	86.200	1.720	Open Manhole	2100	3.005	84.480	600	3.004	84.480	600	
S4.47	86.200	1.800	Open Manhole	2100	3.006	84.400	600	3.005	84.400	600	

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Manhole Schedules for SW 04

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S4.48 FC	86.200	1.810	Open Manhole	1800	3.007	84.390	225	3.006	84.390	600	

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Manhole Schedules for SW 04


MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S4.02	83.931	0.231	Open Manhole	1350		OUTFALL		3.007	83.700	225	
S4.49	90.078	1.425	Open Manhole	1200	13.000	88.653	225				
S4.50	89.577	1.479	Open Manhole	1350	13.001	88.098	375	13.000	88.248	225	
S4.51	89.087	1.425	Open Manhole	1350	13.002	87.662	375	13.001	87.662	375	
S4.52	88.446	1.044	Open Manhole	1500	13.003	87.402	525	13.002	87.552	375	
S4.53	88.369	1.726	Open Manhole	1500	13.004	86.643	525	13.003	86.643	525	
S4.54	92.150	1.213	Open Manhole	1200	14.000	90.937	225				
S4.55	91.391	1.300	Open Manhole	1200	14.001	90.091	225	14.000	90.091	225	
S4.56	91.074	1.422	Open Manhole	1200	15.000	89.652	300				
S4.57	92.100	3.135	Open Manhole	1200	15.001	88.965	225	15.000	88.965	300	
S4.58	92.425	3.523	Open Manhole	1200	15.002	88.902	225	15.001	88.902	225	
S4.59	92.000	3.242	Open Manhole	1200	15.003	88.758	300	15.002	88.833	225	
S4.60	91.356	2.975	Open Manhole	1350	15.004	88.381	375	15.003	88.456	300	
S4.61	89.454	1.154	Open Manhole	1350	15.005	88.300	375	15.004	88.300	375	
S4.62	89.454	1.195	Open Manhole	1350	15.006	88.259	375	15.005	88.259	375	
S4.63	89.454	1.237	Open Manhole	1350	14.002	88.217	375	14.001	88.442	225	75
								15.006	88.217	375	
S4.64	89.590	1.350	Open Manhole	1200	16.000	88.240	225				
S4.65	89.475	1.640	Open Manhole	1350	14.003	87.835	450	14.002	87.835	375	

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Manhole Schedules for SW 04

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
								16.000	87.985	225	
S4.66	88.170	1.216	Open Manhole	1500	14.004	86.954	525	14.003	86.954	450	
S4.67	87.770	1.204	Open Manhole	1800	13.005	86.567	375	13.004	86.566	525	
								14.004	86.567	525	
S4.68	87.049	1.449	Open Manhole	1800	13.006	85.600	375	13.005	85.600	375	
S4.69	86.891	1.341	Open Manhole	1800	13.007	85.550	450	13.006	85.550	375	
S4.70	86.400	0.890	Open Manhole	1800	13.008	85.510	450	13.007	85.510	450	
S4.71	86.400	1.000	Open Manhole	1800	13.009	85.400	525	13.008	85.400	450	
S4.72 FC	86.400	1.010	Open Manhole	1800	13.010	85.390	225	13.009	85.390	525	
S4.03	86.000	2.302	Open Manhole	2250		OUTFALL		13.010	83.698	225	
S4.73	91.062	1.300	Open Manhole	1200	17.000	89.762	225				
S4.74	90.765	1.634	Open Manhole	1200	17.001	89.131	225	17.000	89.131	225	
S4.75	90.571	1.642	Open Manhole	1200	17.002	88.929	225	17.001	88.929	225	
S4.76	90.420	1.620	Open Manhole	1200	17.003	88.801	225	17.002	88.801	225	
S4.77	89.540	1.425	Open Manhole	1200	17.004	88.115	225	17.003	88.115	225	
S4.04	89.443	1.425	Open Manhole	0		OUTFALL		17.004	88.018	225	

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PIPELINE SCHEDULES for SW 04

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	300	S4.01	85.550	84.375	0.875	Open Manhole	1200
1.001	o	300	S4.02	85.831	84.145	1.386	Open Manhole	1200
1.002	o	300	S4.03	86.218	84.056	1.862	Open Manhole	1200
1.003	o	300	S4.04	85.750	83.758	1.692	Open Manhole	1200
1.004	o	450	S4.05	83.920	82.345	1.125	Open Manhole	1350
2.000	o	225	S4.06	84.617	83.189	1.203	Open Manhole	1200
2.001	o	225	S4.07	83.876	82.454	1.197	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)
1.000	47.956	208.5	S4.02	85.831	84.145	1.386	Open Manhole	1200
1.001	14.173	159.2	S4.03	86.218	84.056	1.862	Open Manhole	1200
1.002	18.300	61.4	S4.04	85.750	83.758	1.692	Open Manhole	1200
1.003	55.651	44.1	S4.05	83.920	82.495	1.125	Open Manhole	1350
1.004	84.227	97.9	S4.08	83.255	81.485	1.320	Open Manhole	1500
2.000	34.268	46.6	S4.07	83.876	82.454	1.197	Open Manhole	1200
2.001	17.280	23.2	S4.08	83.255	81.710	1.320	Open Manhole	1500

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PIPELINE SCHEDULES for SW 04

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)
1.005	o	525	S4.08	83.255	81.410	1.320	Open Manhole	1500
1.006	o	525	S4.09	82.680	81.280	0.875	Open Manhole	1500
1.007	o	525	S4.10	82.650	80.850	1.275	Open Manhole	1500
1.008	o	525	S4.11 FC	82.650	80.840	1.285	Open Manhole	1800
3.000	o	225	S4.12	87.876	86.451	1.200	Open Manhole	1200
4.000	o	225	S4.13	87.221	85.921	1.075	Open Manhole	1200
4.001	o	225	S4.14	87.165	85.636	1.304	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)
1.005	10.377	79.8	S4.09	82.680	81.280	0.875	Open Manhole	1500
1.006	28.883	67.2	S4.10	82.650	80.850	1.275	Open Manhole	1500
1.007	5.158	515.8	S4.11 FC	82.650	80.840	1.285	Open Manhole	1800
1.008	25.168	9.9	S4.01	79.550	78.290	0.735	Open Manhole	0
3.000	26.206	28.3	S4.15	87.144	85.526	1.393	Open Manhole	1200
4.000	16.662	58.5	S4.14	87.165	85.636	1.304	Open Manhole	1200
4.001	22.046	200.4	S4.15	87.144	85.526	1.393	Open Manhole	1200

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PIPELINE SCHEDULES for SW 04

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)
3.001	o	300	S4.15	87.144	85.451	1.393	Open Manhole	1200
3.002	o	375	S4.16	86.700	85.306	1.019	Open Manhole	1350
5.000	o	225	S4.17	87.806	86.381	1.200	Open Manhole	1200
6.000	o	225	S4.18	89.916	88.004	1.687	Open Manhole	1200
6.001	o	300	S4.19	89.370	87.750	1.320	Open Manhole	1200
6.002	o	300	S4.20	89.370	87.580	1.490	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)
3.001	16.941	241.9	S4.16	86.700	85.381	1.019	Open Manhole	1350
3.002	40.489	59.5	S4.44	86.624	84.625	1.624	Open Manhole	2100
5.000	40.699	25.0	S4.44	86.624	84.750	1.649	Open Manhole	2100
6.000	40.165	224.4	S4.19	89.370	87.825	1.320	Open Manhole	1200
6.001	38.354	225.6	S4.20	89.370	87.580	1.490	Open Manhole	1200
6.002	26.501	300.0	S4.21	89.370	87.492	1.578	Open Manhole	1200

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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)
6.003	o	300	S4.21	89.370	87.492	1.578	Open Manhole	1200
7.000	o	225	S4.22	94.918	93.493	1.200	Open Manhole	1200
8.000	o	225	S4.23	96.959	95.659	1.075	Open Manhole	1200
7.001	o	525	S4.24	92.940	91.331	1.084	Open Manhole	1500
9.000	o	300	S4.25	95.913	94.488	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)
6.003	33.112	300.0	S4.39	89.370	87.381	1.689	Open Manhole	1500
7.000	95.358	51.2	S4.24	92.940	91.631	1.084	Open Manhole	1500
8.000	21.299	5.3	S4.24	92.940	91.631	1.084	Open Manhole	1500
7.001	56.881	196.8	S4.27	93.559	91.042	1.992	Open Manhole	1500
9.000	69.228	171.8	S4.26	94.884	94.085	0.499	Open Manhole	1350

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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)
9.001	o	375	S4.26	94.884	94.010	0.499	Open Manhole	1350
7.002	o	525	S4.27	93.559	91.042	1.992	Open Manhole	1500
10.000	o	225	S4.28	94.906	93.500	1.181	Open Manhole	1200
10.001	o	300	S4.29	95.000	93.300	1.400	Open Manhole	1200
7.003	o	525	S4.30	94.456	90.905	3.026	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)
9.001	27.949	9.9	S4.27	93.559	91.192	1.992	Open Manhole	1500
7.002	67.790	494.8	S4.30	94.456	90.905	3.026	Open Manhole	1500
10.000	72.642	363.2	S4.29	95.000	93.300	1.475	Open Manhole	1200
10.001	17.369	8.0	S4.30	94.456	91.130	3.026	Open Manhole	1500
7.003	49.341	355.0	S4.33	92.500	90.766	1.209	Open Manhole	1500

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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	o	225	S4.31	93.083	91.783	1.075	Open Manhole	1200
11.001	o	225	S4.32	92.984	91.270	1.489	Open Manhole	1200
7.004	o	525	S4.33	92.500	90.766	1.209	Open Manhole	1500
7.005	o	525	S4.34	90.787	89.053	1.209	Open Manhole	1500
7.006	o	825	S4.35	90.787	88.680	1.282	Open Manhole	1800
7.007	o	600	S4.36	90.787	88.623	1.564	Open Manhole	1800
12.000	o	225	S4.37	89.351	88.051	1.075	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)
11.000	29.997	58.5	S4.32	92.984	91.270	1.489	Open Manhole	1200
11.001	28.454	139.5	S4.33	92.500	91.066	1.209	Open Manhole	1500
7.004	14.219	8.3	S4.34	90.787	89.053	1.209	Open Manhole	1500
7.005	36.140	495.1	S4.35	90.787	88.980	1.282	Open Manhole	1800
7.006	15.916	279.2	S4.36	90.787	88.623	1.339	Open Manhole	1800
7.007	19.474	16.2	S4.38	89.526	87.419	1.507	Open Manhole	1500
12.000	13.499	52.5	S4.38	89.526	87.794	1.507	Open Manhole	1500

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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)
7.008	o	600	S4.38	89.526	87.419	1.507	Open Manhole	1500
6.004	o	600	S4.39	89.370	87.081	1.689	Open Manhole	1500
6.005	o	600	S4.40	89.370	87.048	1.722	Open Manhole	1500
6.006	oo	525	S4.41	87.260	85.460	1.275	Open Manhole	1950
6.007	oo	525	S4.42	87.100	85.185	1.390	Open Manhole	1950
6.008	oo	525	S4.43	87.100	85.024	1.551	Open Manhole	1950

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)
7.008	23.018	68.1	S4.39	89.370	87.081	1.689	Open Manhole	1500
6.004	16.645	500.0	S4.40	89.370	87.048	1.722	Open Manhole	1500
6.005	36.008	22.7	S4.41	87.260	85.460	1.200	Open Manhole	1950
6.006	37.339	135.8	S4.42	87.100	85.185	1.390	Open Manhole	1950
6.007	21.463	133.3	S4.43	87.100	85.024	1.551	Open Manhole	1950
6.008	30.800	77.2	S4.44	86.624	84.625	1.474	Open Manhole	2100

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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)
3.003	oo	600	S4.44	86.624	84.550	1.474	Open Manhole	2100
3.004	oo	600	S4.45	86.200	84.530	1.070	Open Manhole	2100
3.005	oo	600	S4.46	86.200	84.480	1.120	Open Manhole	2100
3.006	o	600	S4.47	86.200	84.400	1.200	Open Manhole	2100
3.007	o	225	S4.48 FC	86.200	84.390	1.585	Open Manhole	1800
13.000	o	225	S4.49	90.078	88.653	1.200	Open Manhole	1200
13.001	o	375	S4.50	89.577	88.098	1.104	Open Manhole	1350
13.002	o	375	S4.51	89.087	87.662	1.050	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)
3.003	13.782	689.1	S4.45	86.200	84.530	1.070	Open Manhole	2100
3.004	21.047	420.9	S4.46	86.200	84.480	1.120	Open Manhole	2100
3.005	13.098	163.7	S4.47	86.200	84.400	1.200	Open Manhole	2100
3.006	6.013	601.3	S4.48 FC	86.200	84.390	1.210	Open Manhole	1800
3.007	28.027	40.6	S4.02	83.931	83.700	0.006	Open Manhole	1350
13.000	91.061	224.8	S4.50	89.577	88.248	1.104	Open Manhole	1350
13.001	9.354	21.5	S4.51	89.087	87.662	1.050	Open Manhole	1350
13.002	35.466	323.7	S4.52	88.446	87.552	0.519	Open Manhole	1500

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PIPELINE SCHEDULES for SW 04

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)
13.003	o	525	S4.52	88.446	87.402	0.519	Open Manhole	1500
13.004	o	525	S4.53	88.369	86.643	1.201	Open Manhole	1500
14.000	o	225	S4.54	92.150	90.937	0.988	Open Manhole	1200
14.001	o	225	S4.55	91.391	90.091	1.075	Open Manhole	1200
15.000	o	300	S4.56	91.074	89.652	1.122	Open Manhole	1200
15.001	o	225	S4.57	92.100	88.965	2.910	Open Manhole	1200
15.002	o	225	S4.58	92.425	88.902	3.298	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)
13.003	28.059	37.0	S4.53	88.369	86.643	1.201	Open Manhole	1500
13.004	10.115	131.4	S4.67	87.770	86.566	0.679	Open Manhole	1800
14.000	28.615	33.8	S4.55	91.391	90.091	1.075	Open Manhole	1200
14.001	20.692	12.5	S4.63	89.454	88.442	0.787	Open Manhole	1350
15.000	36.063	52.5	S4.57	92.100	88.965	2.835	Open Manhole	1200
15.001	19.035	302.1	S4.58	92.425	88.902	3.298	Open Manhole	1200
15.002	20.799	300.0	S4.59	92.000	88.833	2.942	Open Manhole	1200

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PIPELINE SCHEDULES for SW 04

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)
15.003	o	300	S4.59	92.000	88.758	2.942	Open Manhole	1200
15.004	o	375	S4.60	91.356	88.381	2.600	Open Manhole	1350
15.005	o	375	S4.61	89.454	88.300	0.779	Open Manhole	1350
15.006	o	375	S4.62	89.454	88.259	0.820	Open Manhole	1350
14.002	o	375	S4.63	89.454	88.217	0.862	Open Manhole	1350
16.000	o	225	S4.64	89.590	88.240	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)
15.003	91.554	303.2	S4.60	91.356	88.456	2.600	Open Manhole	1350
15.004	31.329	386.8	S4.61	89.454	88.300	0.779	Open Manhole	1350
15.005	30.920	758.9	S4.62	89.454	88.259	0.820	Open Manhole	1350
15.006	7.914	190.7	S4.63	89.454	88.217	0.862	Open Manhole	1350
14.002	60.305	157.9	S4.65	89.475	87.835	1.265	Open Manhole	1350
16.000	57.437	225.2	S4.65	89.475	87.985	1.265	Open Manhole	1350

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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)
14.003	o	450	S4.65	89.475	87.835	1.190	Open Manhole	1350
14.004	o	525	S4.66	88.170	86.954	0.691	Open Manhole	1500
13.005	oo	375	S4.67	87.770	86.567	0.828	Open Manhole	1800
13.006	oo	375	S4.68	87.049	85.600	1.074	Open Manhole	1800
13.007	oo	450	S4.69	86.891	85.550	0.891	Open Manhole	1800
13.008	oo	450	S4.70	86.400	85.510	0.440	Open Manhole	1800
13.009	o	525	S4.71	86.400	85.400	0.475	Open Manhole	1800
13.010	o	225	S4.72 FC	86.400	85.390	0.785	Open Manhole	1800

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)
14.003	40.399	45.9	S4.66	88.170	86.954	0.766	Open Manhole	1500
14.004	22.597	58.4	S4.67	87.770	86.567	0.678	Open Manhole	1800
13.005	40.898	42.3	S4.68	87.049	85.600	1.074	Open Manhole	1800
13.006	14.503	290.1	S4.69	86.891	85.550	0.966	Open Manhole	1800
13.007	23.711	592.8	S4.70	86.400	85.510	0.440	Open Manhole	1800
13.008	36.176	328.9	S4.71	86.400	85.400	0.550	Open Manhole	1800
13.009	4.574	457.4	S4.72 FC	86.400	85.390	0.485	Open Manhole	1800
13.010	16.040	9.5	S4.03	86.000	83.698	2.077	Open Manhole	2250

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PIPELINE SCHEDULES for SW 04

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)
17.000	o	225	S4.73	91.062	89.762	1.075	Open Manhole	1200
17.001	o	225	S4.74	90.765	89.131	1.409	Open Manhole	1200
17.002	o	225	S4.75	90.571	88.929	1.417	Open Manhole	1200
17.003	o	225	S4.76	90.420	88.801	1.395	Open Manhole	1200
17.004	o	225	S4.77	89.540	88.115	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)
17.000	36.910	58.5	S4.74	90.765	89.131	1.409	Open Manhole	1200
17.001	33.818	167.6	S4.75	90.571	88.929	1.417	Open Manhole	1200
17.002	21.572	167.6	S4.76	90.420	88.801	1.395	Open Manhole	1200
17.003	76.754	112.0	S4.77	89.540	88.115	1.200	Open Manhole	1200
17.004	12.791	131.9	S4.04	89.443	88.018	1.200	Open Manhole	0

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Area Summary for SW 04

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.083	0.083	0.083
1.001	-	-	100	0.083	0.083	0.083
1.002	-	-	100	0.083	0.083	0.083
1.003	-	-	100	0.083	0.083	0.083
1.004	-	-	100	0.117	0.117	0.117
2.000	-	-	100	0.083	0.083	0.083
2.001	-	-	100	0.083	0.083	0.083
1.005	-	-	100	0.117	0.117	0.117
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.083	0.083	0.083
4.000	-	-	100	0.083	0.083	0.083
4.001	-	-	100	0.067	0.067	0.067
3.001	-	-	100	0.083	0.083	0.083
3.002	-	-	100	0.083	0.083	0.083
5.000	-	-	100	0.083	0.083	0.083
6.000	-	-	100	0.083	0.083	0.083
6.001	-	-	100	0.083	0.083	0.083
6.002	-	-	100	0.083	0.083	0.083
6.003	-	-	100	0.085	0.085	0.085
7.000	-	-	100	0.083	0.083	0.083
8.000	-	-	100	0.083	0.083	0.083
7.001	-	-	100	0.083	0.083	0.083
9.000	-	-	100	0.083	0.083	0.083
9.001	-	-	100	0.067	0.067	0.067
7.002	-	-	100	0.097	0.097	0.097
10.000	-	-	100	0.083	0.083	0.083

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Area Summary for SW 04

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
10.001	-	-	100	0.083	0.083	0.083
7.003	-	-	100	0.067	0.067	0.067
11.000	-	-	100	0.083	0.083	0.083
11.001	-	-	100	0.083	0.083	0.083
7.004	-	-	100	0.117	0.117	0.117
7.005	-	-	100	0.160	0.160	0.160
7.006	-	-	100	0.117	0.117	0.117
7.007	-	-	100	0.083	0.083	0.083
12.000	-	-	100	0.083	0.083	0.083
7.008	-	-	100	0.117	0.117	0.117
6.004	-	-	100	0.083	0.083	0.083
6.005	-	-	100	0.083	0.083	0.083
6.006	-	-	100	0.083	0.083	0.083
6.007	-	-	100	0.086	0.086	0.086
6.008	-	-	100	0.040	0.040	0.040
3.003	-	-	100	0.165	0.165	0.165
3.004	-	-	100	0.000	0.000	0.000
3.005	-	-	100	0.000	0.000	0.000
3.006	-	-	100	0.000	0.000	0.000
3.007	-	-	100	0.000	0.000	0.000
13.000	-	-	100	0.069	0.069	0.069
13.001	-	-	100	0.069	0.069	0.069
13.002	-	-	100	0.069	0.069	0.069
13.003	-	-	100	0.069	0.069	0.069
13.004	-	-	100	0.069	0.069	0.069
14.000	-	-	100	0.069	0.069	0.069
14.001	-	-	100	0.069	0.069	0.069
15.000	-	-	100	0.083	0.083	0.083

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Area Summary for SW 04

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
15.001	-	-	100	0.083	0.083	0.083
15.002	-	-	100	0.083	0.083	0.083
15.003	-	-	100	0.083	0.083	0.083
15.004	-	-	100	0.000	0.000	0.000
15.005	-	-	100	0.000	0.000	0.000
15.006	-	-	100	0.000	0.000	0.000
14.002	-	-	100	0.069	0.069	0.069
16.000	-	-	100	0.069	0.069	0.069
14.003	-	-	100	0.069	0.069	0.069
14.004	-	-	100	0.069	0.069	0.069
13.005	-	-	100	0.069	0.069	0.069
13.006	-	-	100	0.069	0.069	0.069
13.007	-	-	100	0.000	0.000	0.000
13.008	-	-	100	0.000	0.000	0.000
13.009	-	-	100	0.000	0.000	0.000
13.010	-	-	100	0.000	0.000	0.000
17.000	-	-	100	0.000	0.000	0.000
17.001	-	-	100	0.000	0.000	0.000
17.002	-	-	100	0.000	0.000	0.000
17.003	-	-	100	0.000	0.000	0.000
17.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				4.889	4.889	4.889

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Free Flowing Outfall Details for SW 04

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.008	S4.01	79.550	78.290	0.000	0	0
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Free Flowing Outfall Details for SW 04


Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

3.007	S4.02	83.931	83.700	0.000	1350	0
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Free Flowing Outfall Details for SW 04

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

13.010	S4.03	86.000	83.698	0.000	2250	0
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Free Flowing Outfall Details for SW 04

Outfall Pipe Number	Outfall C. Level Name (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
------------------------	------------------------------	-----------------	------------------------	-------------	-----------

17.004	S4.04	89.443	88.018	0.000	0 0
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Simulation Criteria for SW 04

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 * 10m ³ /ha Storage	4.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Offline Controls	1	Number of Time/Area Diagrams	0
Number of Online Controls	3	Number of Storage Structures	3	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

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Online Controls for SW 04

Complex Manhole: S4.11 FC, DS/PN: 1.008, Volume (m³): 5.4


Hydro-Brake® Optimum

Unit Reference	MD-SHE-0066-2000-1100-2000	Sump Available	Yes
Design Head (m)	1.100	Diameter (mm)	66
Design Flow (l/s)	2.0	Invert Level (m)	80.840
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	100
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.100	2.0	Kick-Flo®	0.584	1.5
Flush-Flo™	0.289	1.8	Mean Flow over Head Range	-	1.7

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)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.6	0.600	1.5	1.600	2.4	2.600	3.0	5.000	4.0	7.500	4.9
0.200	1.8	0.800	1.7	1.800	2.5	3.000	3.2	5.500	4.2	8.000	5.0
0.300	1.8	1.000	1.9	2.000	2.6	3.500	3.4	6.000	4.4	8.500	5.1
0.400	1.8	1.200	2.1	2.200	2.7	4.000	3.6	6.500	4.5	9.000	5.3
0.500	1.7	1.400	2.2	2.400	2.9	4.500	3.8	7.000	4.7	9.500	5.4

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Orifice

Diameter (m) 0.100 Discharge Coefficient 0.600 Invert Level (m) 81.740

Complex Manhole: S4.48 FC, DS/PN: 3.007, Volume (m³): 5.8


Hydro-Brake® Optimum

Unit Reference	MD-SHE-0105-5000-1000-5000	Sump Available	Yes
Design Head (m)	1.000	Diameter (mm)	105
Design Flow (l/s)	5.0	Invert Level (m)	84.390
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	150
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	5.0	Kick-Flo®	0.637	4.1
Flush-Flo™	0.296	5.0	Mean Flow over Head Range	-	4.3

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)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6	0.500	4.7	1.200	5.4	2.000	6.9	3.000	8.4	5.000	10.6
0.200	4.8	0.600	4.3	1.400	5.8	2.200	7.2	3.500	9.0	5.500	11.1
0.300	5.0	0.800	4.5	1.600	6.2	2.400	7.5	4.000	9.6	6.000	11.6
0.400	4.9	1.000	5.0	1.800	6.6	2.600	7.8	4.500	10.1	6.500	12.1

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Hydro-Brake® Optimum

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
7.000	12.5	7.500	12.9	8.000	13.3	8.500	13.7	9.000	14.1	9.500	14.5

Orifice

Diameter (m) 0.100 Discharge Coefficient 0.600 Invert Level (m) 85.390


Complex Manhole: S4.72 FC, DS/PN: 13.010, Volume (m³): 3.2

Hydro-Brake® Optimum

Unit Reference	MD-SHE-0092-3000-0300-3000	Sump Available	Yes
Design Head (m)	0.300	Diameter (mm)	92
Design Flow (l/s)	3.0	Invert Level (m)	85.390
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	150
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.300	3.0	Kick-Flo®	0.238	2.7
Flush-Flo™	0.133	3.0	Mean Flow over Head Range	-	2.3

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


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Hydro-Brake® Optimum

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.9	0.600	4.1	1.600	6.5	2.600	8.2	5.000	11.3	7.500	13.8
0.200	2.9	0.800	4.7	1.800	6.9	3.000	8.8	5.500	11.8	8.000	14.3
0.300	3.0	1.000	5.2	2.000	7.2	3.500	9.4	6.000	12.4	8.500	14.7
0.400	3.4	1.200	5.7	2.200	7.6	4.000	10.1	6.500	12.9	9.000	15.2
0.500	3.8	1.400	6.1	2.400	7.9	4.500	10.7	7.000	13.4	9.500	15.6

Orifice

Diameter (m) 0.100 Discharge Coefficient 0.600 Invert Level (m) 86.090

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<p><u>Offline Controls for SW 04</u></p> <p><u>Weir Manhole: S4.72 FC, DS/PN: 13.010, Loop to PN: 3.005</u></p> <p>Discharge Coef 0.544 Width (m) 8.000 Invert Level (m) 85.950</p>		
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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /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	1	Number of Time/Area Diagrams	0
Number of Online Controls	3	Number of Storage Structures	3	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	DTS Status	OFF	Inertia Status	OFF
Analysis Timestep	Fine	DVD Status	ON		

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

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

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

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow	Pipe	Status
									Level (m)	Depth (m)	Volume (m ³)		Flow (l/s)	Flow (l/s)	
1.000	S4.01	15	Winter	1	+0%	100/15	Summer	100/15	Summer	84.447	-0.228	0.000	0.13	9.5	OK
1.001	S4.02	15	Winter	1	+0%	100/15	Summer			84.249	-0.196	0.000	0.26	18.9	OK
1.002	S4.03	15	Winter	1	+0%	100/15	Summer			84.155	-0.201	0.000	0.24	28.9	OK
1.003	S4.04	15	Winter	1	+0%	100/15	Summer			83.859	-0.199	0.000	0.24	38.9	OK
1.004	S4.05	15	Winter	1	+0%	100/15	Summer			82.470	-0.325	0.000	0.17	52.1	OK
2.000	S4.06	15	Winter	1	+0%	100/15	Summer			83.243	-0.171	0.000	0.13	9.6	OK
2.001	S4.07	15	Winter	1	+0%	100/15	Summer			82.523	-0.156	0.000	0.20	19.5	OK
1.005	S4.08	15	Winter	1	+0%	30/15	Winter			81.610	-0.325	0.000	0.31	84.7	OK
1.006	S4.09	15	Winter	1	+0%	100/15	Summer			81.426	-0.379	0.000	0.17	84.9	OK
1.007	S4.10	360	Winter	1	+0%	30/15	Summer			81.321	-0.054	0.000	0.09	13.9	OK
1.008	S4.11	FC 360	Winter	1	+0%	30/15	Summer			81.321	-0.044	0.000	0.00	1.8	OK
3.000	S4.12	15	Winter	1	+0%	100/15	Summer			86.500	-0.176	0.000	0.11	9.6	OK
4.000	S4.13	15	Winter	1	+0%	30/15	Summer	100/15	Summer	85.981	-0.165	0.000	0.16	9.6	OK
4.001	S4.14	15	Winter	1	+0%	30/15	Summer	100/15	Summer	85.753	-0.108	0.000	0.52	17.4	OK
3.001	S4.15	15	Winter	1	+0%	30/15	Summer			85.621	-0.130	0.000	0.61	36.8	OK
3.002	S4.16	15	Winter	1	+0%	30/15	Summer	100/15	Summer	85.419	-0.262	0.000	0.20	46.4	OK
5.000	S4.17	15	Winter	1	+0%	100/15	Summer			86.428	-0.178	0.000	0.10	9.6	OK
6.000	S4.18	15	Winter	1	+0%	30/15	Summer	100/15	Winter	88.087	-0.142	0.000	0.29	9.5	OK
6.001	S4.19	15	Winter	1	+0%	30/15	Summer	100/15	Summer	87.858	-0.192	0.000	0.28	18.9	OK
6.002	S4.20	15	Winter	1	+0%	30/15	Summer	100/15	Summer	87.729	-0.151	0.000	0.49	28.0	OK
6.003	S4.21	15	Winter	1	+0%	30/15	Summer	100/15	Summer	87.680	-0.112	0.000	0.63	36.7	OK
7.000	S4.22	15	Winter	1	+0%	100/15	Winter			93.548	-0.170	0.000	0.14	9.6	OK
8.000	S4.23	15	Winter	1	+0%					95.690	-0.194	0.000	0.05	9.6	OK
7.001	S4.24	15	Winter	1	+0%	100/15	Summer			91.438	-0.418	0.000	0.09	28.5	OK
9.000	S4.25	15	Winter	1	+0%					94.556	-0.232	0.000	0.12	9.6	OK

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Level Exceeded
1.000	S4.01	2
1.001	S4.02	
1.002	S4.03	
1.003	S4.04	
1.004	S4.05	
2.000	S4.06	
2.001	S4.07	
1.005	S4.08	
1.006	S4.09	
1.007	S4.10	
1.008	S4.11 FC	
3.000	S4.12	
4.000	S4.13	4
4.001	S4.14	4
3.001	S4.15	
3.002	S4.16	4
5.000	S4.17	
6.000	S4.18	1
6.001	S4.19	4
6.002	S4.20	4
6.003	S4.21	1
7.000	S4.22	
8.000	S4.23	
7.001	S4.24	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Level Exceeded
9.000	S4.25	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow	Pipe
									Level (m)	Depth (m)	Volume (m ³)		Flow (l/s)	Flow (l/s)
9.001	S4.26	15	Winter	1	+0%				94.053	-0.332	0.000	0.03		17.1
7.002	S4.27	15	Winter	1	+0%	100/15	Summer		91.234	-0.333	0.000	0.27		53.8
10.000	S4.28	15	Winter	1	+0%	30/15	Winter		93.594	-0.131	0.000	0.35		9.1
10.001	S4.29	15	Winter	1	+0%				93.345	-0.255	0.000	0.05		18.0
7.003	S4.30	15	Winter	1	+0%	100/15	Summer		91.115	-0.315	0.000	0.33		76.0
11.000	S4.31	15	Winter	1	+0%	100/15	Summer	100/15	91.841	-0.167	0.000	0.15		9.6
11.001	S4.32	15	Winter	1	+0%	30/15	Summer		91.380	-0.115	0.000	0.47		19.4
7.004	S4.33	15	Winter	1	+0%	100/15	Summer		90.878	-0.413	0.000	0.10		103.4
7.005	S4.34	15	Winter	1	+0%	30/15	Summer	100/15	89.358	-0.220	0.000	0.63		118.0
7.006	S4.35	15	Winter	1	+0%	100/15	Summer		88.936	-0.569	0.000	0.21		127.9
7.007	S4.36	15	Winter	1	+0%	100/15	Summer		88.763	-0.460	0.000	0.12		134.9
12.000	S4.37	15	Winter	1	+0%	30/15	Winter	100/15	88.110	-0.166	0.000	0.15		9.6
7.008	S4.38	15	Winter	1	+0%	30/15	Summer	100/15	87.684	-0.335	0.000	0.26		151.7
6.004	S4.39	15	Winter	1	+0%	30/15	Summer		87.644	-0.037	0.000	1.00		180.5
6.005	S4.40	15	Winter	1	+0%	100/15	Summer		87.205	-0.443	0.000	0.15		187.7
6.006	S4.41	15	Winter	1	+0%	30/15	Summer	100/15	85.642	-0.342	0.000	0.27		195.0
6.007	S4.42	15	Winter	1	+0%	30/15	Summer		85.378	-0.332	0.000	0.33		202.6
6.008	S4.43	15	Winter	1	+0%	30/15	Summer		85.186	-0.363	0.000	0.22		205.8
3.003	S4.44	360	Winter	1	+0%	30/15	Summer		85.127	-0.023	0.000	0.24		55.6
3.004	S4.45	360	Winter	1	+0%	30/15	Summer	100/15	85.102	-0.028	0.000	0.11		54.5
3.005	S4.46	360	Winter	1	+0%	30/15	Summer	100/15	85.040	-0.040	0.000	0.08		52.9
3.006	S4.47	720	Winter	1	+0%	1/360	Winter		85.018	0.018	0.000	0.15		32.1
3.007	S4.48	FC 720	Winter	1	+0%	1/15	Summer		85.018	0.403	0.000	0.07		5.0
13.000	S4.49	15	Winter	1	+0%	100/15	Summer		88.727	-0.151	0.000	0.24		8.0
13.001	S4.50	15	Winter	1	+0%	100/15	Winter		88.157	-0.316	0.000	0.06		15.3

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
9.001	S4.26	OK	
7.002	S4.27	OK	
10.000	S4.28	OK	
10.001	S4.29	OK	
7.003	S4.30	OK	
11.000	S4.31	OK	1
11.001	S4.32	OK	
7.004	S4.33	OK	
7.005	S4.34	OK	2
7.006	S4.35	OK	
7.007	S4.36	OK	
12.000	S4.37	OK	4
7.008	S4.38	OK	1
6.004	S4.39	OK	
6.005	S4.40	OK	
6.006	S4.41	OK	4
6.007	S4.42	OK	
6.008	S4.43	OK	
3.003	S4.44	OK	
3.004	S4.45	OK	9
3.005	S4.46	OK	4
3.006	S4.47	SURCHARGED	
3.007	S4.48 FC	SURCHARGED	
13.000	S4.49	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
13.001	S4.50	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow	Pipe
									Level (m)	Depth (m)	Volume (m ³)		Flow (l/s)	Flow (l/s)
13.002	S4.51	15 Winter	1	+0%	100/15 Summer				87.786	-0.251	0.000	0.24		23.4
13.003	S4.52	15 Winter	1	+0%	100/15 Summer				87.476	-0.452	0.000	0.05		31.2
13.004	S4.53	15 Winter	1	+0%	100/15 Summer				86.783	-0.385	0.000	0.16		39.1
14.000	S4.54	15 Winter	1	+0%					90.984	-0.178	0.000	0.10		8.0
14.001	S4.55	15 Winter	1	+0%					90.143	-0.173	0.000	0.12		16.3
15.000	S4.56	15 Winter	1	+0%	30/15 Summer	100/15 Summer			89.703	-0.249	0.000	0.07		9.6
15.001	S4.57	15 Winter	1	+0%	30/15 Summer				89.145	-0.045	0.000	0.69		18.5
15.002	S4.58	15 Winter	1	+0%	30/15 Summer				89.108	-0.019	0.000	1.00		27.1
15.003	S4.59	15 Winter	1	+0%	30/15 Summer				88.926	-0.132	0.000	0.56		34.6
15.004	S4.60	15 Winter	1	+0%	30/15 Summer				88.560	-0.196	0.000	0.38		34.2
15.005	S4.61	15 Winter	1	+0%	30/15 Summer	100/15 Winter			88.507	-0.168	0.000	0.59		33.7
15.006	S4.62	15 Winter	1	+0%	100/15 Summer				88.408	-0.226	0.000	0.33		33.6
14.002	S4.63	15 Winter	1	+0%	100/15 Summer				88.364	-0.228	0.000	0.32		47.8
16.000	S4.64	15 Winter	1	+0%	100/15 Summer				88.315	-0.150	0.000	0.24		8.0
14.003	S4.65	15 Winter	1	+0%	100/15 Summer				87.947	-0.338	0.000	0.14		60.0
14.004	S4.66	15 Winter	1	+0%	100/15 Summer				87.083	-0.396	0.000	0.14		65.2
13.005	S4.67	15 Winter	1	+0%	100/15 Summer	100/15 Summer			86.675	-0.267	0.000	0.19		107.4
13.006	S4.68	180 Winter	1	+0%	1/60 Winter	100/15 Summer			86.015	0.040	0.000	0.20		37.6
13.007	S4.69	180 Winter	1	+0%	30/15 Summer				85.974	-0.026	0.000	0.19		36.3
13.008	S4.70	180 Winter	1	+0%	30/15 Summer	100/15 Summer			85.923	-0.037	0.000	0.11		34.2
13.009	S4.71	360 Winter	1	+0%	30/15 Summer				85.901	-0.024	0.000	0.12		20.0
13.010	S4.72	FC 360 Winter	1	+0%	1/15 Summer		30/15 Summer	70	85.900	0.285	0.000	0.03	0.0	3.8
17.000	S4.73	360 Winter	1	+0%					89.762	-0.225	0.000	0.00		0.0
17.001	S4.74	360 Winter	1	+0%					89.131	-0.225	0.000	0.00		0.0
17.002	S4.75	360 Winter	1	+0%					88.929	-0.225	0.000	0.00		0.0

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
13.002	S4.51	OK	
13.003	S4.52	OK	
13.004	S4.53	OK	
14.000	S4.54	OK	
14.001	S4.55	OK	
15.000	S4.56	OK	4
15.001	S4.57	OK	
15.002	S4.58	OK	
15.003	S4.59	OK	
15.004	S4.60	OK	
15.005	S4.61	OK	1
15.006	S4.62	OK	
14.002	S4.63	OK	
16.000	S4.64	OK	
14.003	S4.65	OK	
14.004	S4.66	OK	
13.005	S4.67	OK	2
13.006	S4.68	SURCHARGED	2
13.007	S4.69	OK	
13.008	S4.70	OK	6
13.009	S4.71	OK	
13.010	S4.72	FC SURCHARGED	
17.000	S4.73	OK	
17.001	S4.74	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
17.002	S4.75	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged Flooded			Pipe		Level Exceeded
									Level (m)	Depth (m)	Volume (m ³)	Flow / Cap. (l/s)	Overflow Flow (l/s)	
17.003	S4.76	360 Winter	1	+0%					88.801	-0.225	0.000	0.00	0.0	OK
17.004	S4.77	360 Winter	1	+0%					88.115	-0.225	0.000	0.00	0.0	OK

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /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	1	Number of Time/Area Diagrams	0
Number of Online Controls	3	Number of Storage Structures	3	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	DTS Status	OFF	Inertia Status	OFF
Analysis Timestep	Fine	DVD Status	ON		

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

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

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

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Overflow Cap.	Pipe
									Level (m)	Depth (m)	Volume (m³)		Flow (l/s)
1.000	S4.01	15 Winter	30	+0%	100/15 Summer	100/15 Summer		84.511	-0.164	0.000	0.42	30.0	
1.001	S4.02	15 Winter	30	+0%	100/15 Summer			84.371	-0.074	0.000	0.90	65.8	
1.002	S4.03	15 Winter	30	+0%	100/15 Summer			84.274	-0.082	0.000	0.85	103.4	
1.003	S4.04	15 Winter	30	+0%	100/15 Summer			83.984	-0.074	0.000	0.89	142.2	
1.004	S4.05	15 Winter	30	+0%	100/15 Summer			82.611	-0.184	0.000	0.63	192.9	
2.000	S4.06	15 Winter	30	+0%	100/15 Summer			83.291	-0.123	0.000	0.42	30.5	
2.001	S4.07	15 Winter	30	+0%	100/15 Summer			82.597	-0.082	0.000	0.71	68.7	
1.005	S4.08	15 Winter	30	+0%	30/15 Winter			81.941	0.006	0.000	1.09	302.6	
1.006	S4.09	720 Winter	30	+0%	100/15 Summer			81.674	-0.131	0.000	0.04	20.2	
1.007	S4.10	720 Winter	30	+0%	30/15 Summer			81.673	0.298	0.000	0.12	19.7	
1.008	S4.11	FC 720 Winter	30	+0%	30/15 Summer			81.673	0.308	0.000	0.00	1.8	
3.000	S4.12	15 Winter	30	+0%	100/15 Summer			86.541	-0.135	0.000	0.34	30.5	
4.000	S4.13	15 Winter	30	+0%	30/15 Summer	100/15 Summer		86.487	0.341	0.000	0.43	26.1	
4.001	S4.14	15 Winter	30	+0%	30/15 Summer	100/15 Summer		86.432	0.571	0.000	1.53	51.1	
3.001	S4.15	15 Winter	30	+0%	30/15 Summer			86.324	0.573	0.000	1.85	112.4	
3.002	S4.16	15 Winter	30	+0%	30/15 Summer	100/15 Summer		86.230	0.549	0.000	0.57	134.2	
5.000	S4.17	15 Winter	30	+0%	100/15 Summer			86.466	-0.140	0.000	0.31	30.5	
6.000	S4.18	15 Winter	30	+0%	30/15 Summer	100/15 Winter		88.752	0.523	0.000	0.97	31.9	
6.001	S4.19	15 Winter	30	+0%	30/15 Summer	100/15 Summer		88.617	0.567	0.000	0.75	51.1	
6.002	S4.20	15 Winter	30	+0%	30/15 Summer	100/15 Summer		88.527	0.647	0.000	1.32	75.4	
6.003	S4.21	15 Winter	30	+0%	30/15 Summer	100/15 Summer		88.369	0.578	0.000	1.75	102.5	
7.000	S4.22	15 Winter	30	+0%	100/15 Winter			93.596	-0.122	0.000	0.43	30.4	
8.000	S4.23	15 Winter	30	+0%				95.716	-0.168	0.000	0.15	30.5	
7.001	S4.24	15 Winter	30	+0%	100/15 Summer			91.550	-0.306	0.000	0.30	94.1	
9.000	S4.25	15 Winter	30	+0%				94.615	-0.173	0.000	0.38	30.5	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
1.000	S4.01	OK	2
1.001	S4.02	OK	
1.002	S4.03	OK	
1.003	S4.04	OK	
1.004	S4.05	OK	
2.000	S4.06	OK	
2.001	S4.07	OK	
1.005	S4.08	SURCHARGED	
1.006	S4.09	OK	
1.007	S4.10	SURCHARGED	
1.008	S4.11 FC	SURCHARGED	
3.000	S4.12	OK	
4.000	S4.13	SURCHARGED	4
4.001	S4.14	SURCHARGED	4
3.001	S4.15	SURCHARGED	
3.002	S4.16	SURCHARGED	4
5.000	S4.17	OK	
6.000	S4.18	SURCHARGED	1
6.001	S4.19	SURCHARGED	4
6.002	S4.20	SURCHARGED	4
6.003	S4.21	SURCHARGED	1
7.000	S4.22	OK	
8.000	S4.23	OK	
7.001	S4.24	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
9.000	S4.25	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Overflow (l/s)	Pipe
									Level (m)	Depth (m)	Volume (m³)		Flow Cap.
9.001	S4.26	15 Winter	30	+0%					94.091	-0.294	0.000	0.10	58.3
7.002	S4.27	15 Winter	30	+0%	100/15 Summer				91.481	-0.086	0.000	0.85	169.5
10.000	S4.28	15 Winter	30	+0%	30/15 Winter				93.774	0.049	0.000	1.09	28.6
10.001	S4.29	15 Winter	30	+0%					93.388	-0.212	0.000	0.18	61.9
7.003	S4.30	15 Winter	30	+0%	100/15 Summer				91.392	-0.038	0.000	1.00	227.9
11.000	S4.31	15 Winter	30	+0%	100/15 Summer	100/15 Winter			91.902	-0.106	0.000	0.49	30.9
11.001	S4.32	15 Winter	30	+0%	30/15 Summer				91.788	0.293	0.000	1.56	63.8
7.004	S4.33	15 Winter	30	+0%	100/15 Summer				90.974	-0.317	0.000	0.32	325.7
7.005	S4.34	15 Winter	30	+0%	30/15 Summer	100/15 Summer			89.802	0.224	0.000	2.03	376.8
7.006	S4.35	15 Winter	30	+0%	100/15 Summer				89.182	-0.323	0.000	0.68	413.3
7.007	S4.36	15 Winter	30	+0%	100/15 Summer				88.888	-0.335	0.000	0.40	439.2
12.000	S4.37	15 Winter	30	+0%	30/15 Winter	100/15 Summer			88.346	0.070	0.000	0.55	34.4
7.008	S4.38	15 Winter	30	+0%	30/15 Summer	100/15 Winter			88.268	0.249	0.000	0.86	500.0
6.004	S4.39	15 Winter	30	+0%	30/15 Summer				88.014	0.333	0.000	3.45	622.3
6.005	S4.40	15 Winter	30	+0%	100/15 Summer				87.361	-0.286	0.000	0.53	644.9
6.006	S4.41	15 Winter	30	+0%	30/15 Summer	100/15 Summer			86.608	0.623	0.000	0.89	635.2
6.007	S4.42	15 Winter	30	+0%	30/15 Summer				86.402	0.692	0.000	1.05	646.5
6.008	S4.43	15 Winter	30	+0%	30/15 Summer				86.232	0.683	0.000	0.70	651.7
3.003	S4.44	15 Winter	30	+0%	30/15 Summer				86.027	0.877	0.000	3.32	785.7
3.004	S4.45	15 Winter	30	+0%	30/15 Summer	100/15 Summer			85.875	0.745	0.000	1.53	780.3
3.005	S4.46	15 Winter	30	+0%	30/15 Summer	100/15 Summer			85.723	0.643	0.000	1.12	779.6
3.006	S4.47	15 Winter	30	+0%	1/360 Winter				85.570	0.570	0.000	3.72	781.3
3.007	S4.48 FC	720 Winter	30	+0%	1/15 Summer				85.501	0.886	0.000	0.13	9.7
13.000	S4.49	15 Winter	30	+0%	100/15 Summer				88.799	-0.079	0.000	0.75	25.3
13.001	S4.50	15 Winter	30	+0%	100/15 Winter				88.214	-0.259	0.000	0.20	51.7

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
9.001	S4.26	OK	
7.002	S4.27	OK	
10.000	S4.28	SURCHARGED	
10.001	S4.29	OK	
7.003	S4.30	OK	
11.000	S4.31	OK	1
11.001	S4.32	SURCHARGED	
7.004	S4.33	OK	
7.005	S4.34	SURCHARGED	2
7.006	S4.35	OK	
7.007	S4.36	OK	
12.000	S4.37	SURCHARGED	4
7.008	S4.38	SURCHARGED	1
6.004	S4.39	SURCHARGED	
6.005	S4.40	OK	
6.006	S4.41	SURCHARGED	4
6.007	S4.42	SURCHARGED	
6.008	S4.43	SURCHARGED	
3.003	S4.44	SURCHARGED	
3.004	S4.45	SURCHARGED	9
3.005	S4.46	SURCHARGED	4
3.006	S4.47	SURCHARGED	
3.007	S4.48 FC	SURCHARGED	
13.000	S4.49	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
13.001	S4.50	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow	Pipe
									Level (m)	Depth (m)	Volume (m ³)		Flow (l/s)	Flow (l/s)
13.002	S4.51	15 Winter	30	+0%	100/15 Summer				87.933	-0.104	0.000	0.86		85.3
13.003	S4.52	15 Winter	30	+0%	100/15 Summer				87.551	-0.376	0.000	0.17		115.7
13.004	S4.53	15 Winter	30	+0%	100/15 Summer				86.940	-0.229	0.000	0.59		147.0
14.000	S4.54	15 Winter	30	+0%					91.021	-0.141	0.000	0.30		25.3
14.001	S4.55	15 Winter	30	+0%					90.195	-0.121	0.000	0.43		57.7
15.000	S4.56	15 Winter	30	+0%	30/15 Summer	100/15 Summer			90.479	0.527	0.000	0.26		36.7
15.001	S4.57	15 Winter	30	+0%	30/15 Summer				90.430	1.240	0.000	2.07		55.5
15.002	S4.58	15 Winter	30	+0%	30/15 Summer				90.218	1.091	0.000	2.84		77.0
15.003	S4.59	15 Winter	30	+0%	30/15 Summer				89.661	0.603	0.000	1.60		98.2
15.004	S4.60	15 Winter	30	+0%	30/15 Summer				88.789	0.033	0.000	1.04		93.1
15.005	S4.61	15 Winter	30	+0%	30/15 Summer	100/15 Winter			88.702	0.027	0.000	1.61		92.3
15.006	S4.62	15 Winter	30	+0%	100/15 Summer				88.540	-0.093	0.000	0.91		91.7
14.002	S4.63	15 Winter	30	+0%	100/15 Summer				88.499	-0.094	0.000	0.89		131.9
16.000	S4.64	15 Winter	30	+0%	100/15 Summer				88.388	-0.077	0.000	0.75		24.8
14.003	S4.65	15 Winter	30	+0%	100/15 Summer				88.041	-0.244	0.000	0.42		179.6
14.004	S4.66	15 Winter	30	+0%	100/15 Summer				87.198	-0.281	0.000	0.43		204.9
13.005	S4.67	15 Winter	30	+0%	100/15 Summer	100/15 Summer			86.917	-0.025	0.000	0.64		358.6
13.006	S4.68	15 Winter	30	+0%	1/60 Winter	100/15 Summer			86.561	0.586	0.000	1.94		360.9
13.007	S4.69	15 Winter	30	+0%	30/15 Summer				86.350	0.350	0.000	1.83		358.1
13.008	S4.70	15 Winter	30	+0%	30/15 Summer	100/15 Summer			86.247	0.287	0.000	1.13		353.8
13.009	S4.71	15 Winter	30	+0%	30/15 Summer				86.105	0.180	0.000	2.17		354.8
13.010	S4.72	FC 30 Winter	30	+0%	1/15 Summer		30/15 Summer	70	86.018	0.403	0.000	0.03	152.1	4.2
17.000	S4.73	360 Winter	30	+0%					89.762	-0.225	0.000	0.00		0.0
17.001	S4.74	360 Winter	30	+0%					89.131	-0.225	0.000	0.00		0.0
17.002	S4.75	360 Winter	30	+0%					88.929	-0.225	0.000	0.00		0.0

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
13.002	S4.51	OK	
13.003	S4.52	OK	
13.004	S4.53	OK	
14.000	S4.54	OK	
14.001	S4.55	OK	
15.000	S4.56	SURCHARGED	4
15.001	S4.57	SURCHARGED	
15.002	S4.58	SURCHARGED	
15.003	S4.59	SURCHARGED	
15.004	S4.60	SURCHARGED	
15.005	S4.61	SURCHARGED	1
15.006	S4.62	OK	
14.002	S4.63	OK	
16.000	S4.64	OK	
14.003	S4.65	OK	
14.004	S4.66	OK	
13.005	S4.67	OK	2
13.006	S4.68	SURCHARGED	2
13.007	S4.69	SURCHARGED	
13.008	S4.70	FLOOD RISK	6
13.009	S4.71	FLOOD RISK	
13.010	S4.72 FC	SURCHARGED	
17.000	S4.73	OK	
17.001	S4.74	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
17.002	S4.75	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged Flooded			Pipe		Level Exceeded
									Level (m)	Depth (m)	Volume (m ³)	Flow / Cap. (l/s)	Overflow Flow (l/s)	
17.003	S4.76	360 Winter	30	+0%					88.801	-0.225	0.000	0.00	0.0	OK
17.004	S4.77	360 Winter	30	+0%					88.115	-0.225	0.000	0.00	0.0	OK

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /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	1	Number of Time/Area Diagrams	0
Number of Online Controls	3	Number of Storage Structures	3	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	DTS Status	OFF	Inertia Status	OFF
Analysis Timestep	Fine	DVD Status	ON		

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

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

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

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Overflow Cap.	Pipe Flow (l/s)
									Level (m)	Depth (m)	Volume (m³)		
1.000	S4.01	15 Winter	100	+30%	100/15 Summer	100/15 Summer		85.558	0.883	7.714	1.39	100.0	
1.001	S4.02	15 Winter	100	+30%	100/15 Summer			85.638	1.193	0.000	1.69	123.5	
1.002	S4.03	15 Winter	100	+30%	100/15 Summer			85.549	1.193	0.000	1.20	147.0	
1.003	S4.04	15 Winter	100	+30%	100/15 Summer			85.211	1.153	0.000	1.25	198.8	
1.004	S4.05	15 Winter	100	+30%	100/15 Summer			83.196	0.401	0.000	0.91	279.4	
2.000	S4.06	15 Winter	100	+30%	100/15 Summer			83.848	0.434	0.000	0.86	62.0	
2.001	S4.07	15 Winter	100	+30%	100/15 Summer			83.417	0.738	0.000	1.12	108.7	
1.005	S4.08	15 Winter	100	+30%	30/15 Winter			82.491	0.556	0.000	1.64	453.6	
1.006	S4.09	15 Winter	100	+30%	100/15 Summer			82.151	0.346	0.000	0.92	453.0	
1.007	S4.10	360 Winter	100	+30%	30/15 Summer			81.901	0.526	0.000	0.36	58.1	
1.008	S4.11	FC 360 Winter	100	+30%	30/15 Summer			81.900	0.535	0.000	0.01	8.9	
3.000	S4.12	15 Winter	100	+30%	100/15 Summer			87.482	0.806	0.000	0.67	60.7	
4.000	S4.13	15 Winter	100	+30%	30/15 Summer	100/15 Summer		87.231	1.085	10.399	0.79	47.7	
4.001	S4.14	15 Winter	100	+30%	30/15 Summer	100/15 Summer		87.174	1.313	9.628	1.72	57.5	
3.001	S4.15	15 Winter	100	+30%	30/15 Summer			87.122	1.371	0.000	2.37	143.8	
3.002	S4.16	15 Winter	100	+30%	30/15 Summer	100/15 Summer		86.714	1.033	14.282	0.75	178.0	
5.000	S4.17	15 Winter	100	+30%	100/15 Summer			87.041	0.435	0.000	0.58	57.4	
6.000	S4.18	15 Winter	100	+30%	30/15 Summer	100/15 Winter		89.916	1.687	0.335	1.70	55.8	
6.001	S4.19	15 Winter	100	+30%	30/15 Summer	100/15 Summer		89.404	1.354	34.641	1.31	89.8	
6.002	S4.20	15 Winter	100	+30%	30/15 Summer	100/15 Summer		89.377	1.497	7.189	1.59	91.1	
6.003	S4.21	15 Winter	100	+30%	30/15 Summer	100/15 Summer		89.370	1.579	0.187	2.46	143.8	
7.000	S4.22	15 Winter	100	+30%	100/15 Winter			93.722	0.004	0.000	0.82	58.5	
8.000	S4.23	15 Winter	100	+30%				95.741	-0.143	0.000	0.29	59.9	
7.001	S4.24	15 Winter	100	+30%	100/15 Summer			92.545	0.689	0.000	0.53	166.0	
9.000	S4.25	15 Winter	100	+30%				94.681	-0.107	0.000	0.73	59.4	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
1.000	S4.01	FLOOD	2
1.001	S4.02	FLOOD RISK	
1.002	S4.03	SURCHARGED	
1.003	S4.04	SURCHARGED	
1.004	S4.05	SURCHARGED	
2.000	S4.06	SURCHARGED	
2.001	S4.07	SURCHARGED	
1.005	S4.08	SURCHARGED	
1.006	S4.09	SURCHARGED	
1.007	S4.10	SURCHARGED	
1.008	S4.11 FC	SURCHARGED	
3.000	S4.12	SURCHARGED	
4.000	S4.13	FLOOD	4
4.001	S4.14	FLOOD	4
3.001	S4.15	FLOOD RISK	
3.002	S4.16	FLOOD	4
5.000	S4.17	SURCHARGED	
6.000	S4.18	FLOOD	1
6.001	S4.19	FLOOD	4
6.002	S4.20	FLOOD	4
6.003	S4.21	FLOOD	1
7.000	S4.22	SURCHARGED	
8.000	S4.23	OK	
7.001	S4.24	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
9.000	S4.25	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Overflow Cap.	Pipe Flow (l/s)
									Level (m)	Depth (m)	Volume (m³)		
9.001	S4.26	15 Winter	100	+30%					94.127	-0.258	0.000	0.21	115.6
7.002	S4.27	15 Winter	100	+30%	100/15 Summer				92.410	0.843	0.000	1.63	324.3
10.000	S4.28	15 Winter	100	+30%	30/15 Winter				94.451	0.726	0.000	2.07	54.3
10.001	S4.29	15 Winter	100	+30%					93.424	-0.176	0.000	0.34	115.5
7.003	S4.30	15 Winter	100	+30%	100/15 Summer				92.056	0.626	0.000	2.01	457.9
11.000	S4.31	15 Winter	100	+30%	100/15 Summer	100/15 Winter			93.083	1.075	0.422	1.02	64.7
11.001	S4.32	15 Winter	100	+30%	30/15 Summer				92.754	1.259	0.000	2.59	105.8
7.004	S4.33	15 Winter	100	+30%	100/15 Summer				91.484	0.193	0.000	0.62	618.2
7.005	S4.34	15 Winter	100	+30%	30/15 Summer	100/15 Summer			90.802	1.224	14.917	3.54	657.8
7.006	S4.35	15 Winter	100	+30%	100/15 Summer				90.163	0.658	0.000	1.11	676.3
7.007	S4.36	15 Winter	100	+30%	100/15 Summer				90.094	0.871	0.000	0.65	717.9
12.000	S4.37	15 Winter	100	+30%	30/15 Winter	100/15 Summer			89.374	1.098	23.408	1.91	119.0
7.008	S4.38	15 Winter	100	+30%	30/15 Summer	100/15 Winter			89.529	1.510	2.982	1.27	739.7
6.004	S4.39	15 Winter	100	+30%	30/15 Summer				89.047	1.366	0.000	4.88	880.5
6.005	S4.40	15 Winter	100	+30%	100/15 Summer				88.273	0.625	0.000	0.77	936.0
6.006	S4.41	15 Winter	100	+30%	30/15 Summer	100/15 Summer			87.344	1.359	83.664	1.10	791.8
6.007	S4.42	15 Winter	100	+30%	30/15 Summer				87.079	1.370	0.000	1.29	792.1
6.008	S4.43	15 Winter	100	+30%	30/15 Summer				86.840	1.292	0.000	0.85	792.4
3.003	S4.44	15 Winter	100	+30%	30/15 Summer				86.523	1.373	0.000	4.65	1101.8
3.004	S4.45	30 Winter	100	+30%	30/15 Summer	100/15 Summer			86.320	1.190	120.463	1.83	931.6
3.005	S4.46	60 Winter	100	+30%	30/15 Summer	100/15 Summer			86.204	1.124	5.322	1.23	853.5
3.006	S4.47	60 Summer	100	+30%	1/360 Winter				86.096	1.096	0.000	4.14	869.5
3.007	S4.48 FC	720 Winter	100	+30%	1/15 Summer				85.924	1.309	0.000	0.27	20.6
13.000	S4.49	15 Winter	100	+30%	100/15 Summer				89.304	0.426	0.000	1.35	45.7
13.001	S4.50	15 Winter	100	+30%	100/15 Winter				88.522	0.049	0.000	0.39	99.9

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
9.001	S4.26	OK	
7.002	S4.27	SURCHARGED	
10.000	S4.28	SURCHARGED	
10.001	S4.29	OK	
7.003	S4.30	SURCHARGED	
11.000	S4.31	FLOOD	1
11.001	S4.32	FLOOD RISK	
7.004	S4.33	SURCHARGED	
7.005	S4.34	FLOOD	2
7.006	S4.35	SURCHARGED	
7.007	S4.36	SURCHARGED	
12.000	S4.37	FLOOD	4
7.008	S4.38	FLOOD	1
6.004	S4.39	SURCHARGED	
6.005	S4.40	SURCHARGED	
6.006	S4.41	FLOOD	4
6.007	S4.42	FLOOD RISK	
6.008	S4.43	FLOOD RISK	
3.003	S4.44	FLOOD RISK	
3.004	S4.45	FLOOD	9
3.005	S4.46	FLOOD	4
3.006	S4.47	FLOOD RISK	
3.007	S4.48 FC	FLOOD RISK	
13.000	S4.49	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
13.001	S4.50	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow	Pipe
									Level (m)	Depth (m)	Volume (m³)		Flow (l/s)	Flow (l/s)
13.002	S4.51	15 Winter	100	+30%	100/15 Summer				88.375	0.338	0.000	1.57		155.8
13.003	S4.52	15 Winter	100	+30%	100/15 Summer				88.214	0.286	0.000	0.29		190.4
13.004	S4.53	15 Winter	100	+30%	100/15 Summer				87.893	0.725	0.000	0.90		222.5
14.000	S4.54	15 Winter	100	+30%					91.062	-0.100	0.000	0.60		49.8
14.001	S4.55	15 Winter	100	+30%					90.252	-0.064	0.000	0.85		113.4
15.000	S4.56	15 Winter	100	+30%	30/15 Summer	100/15 Summer			91.108	1.156	33.602	0.58		82.3
15.001	S4.57	15 Winter	100	+30%	30/15 Summer				91.420	2.230	0.000	3.08		82.5
15.002	S4.58	15 Winter	100	+30%	30/15 Summer				91.488	2.361	0.000	3.07		83.2
15.003	S4.59	15 Winter	100	+30%	30/15 Summer				91.080	2.022	0.000	2.16		132.5
15.004	S4.60	15 Winter	100	+30%	30/15 Summer				89.622	0.866	0.000	1.42		127.4
15.005	S4.61	15 Winter	100	+30%	30/15 Summer	100/15 Winter			89.457	0.782	2.649	2.38		137.0
15.006	S4.62	15 Winter	100	+30%	100/15 Summer				89.392	0.758	0.000	1.36		136.8
14.002	S4.63	15 Winter	100	+30%	100/15 Summer				89.311	0.718	0.000	1.49		221.9
16.000	S4.64	15 Winter	100	+30%	100/15 Summer				88.915	0.450	0.000	1.36		45.2
14.003	S4.65	15 Winter	100	+30%	100/15 Summer				88.422	0.137	0.000	0.69		295.4
14.004	S4.66	15 Winter	100	+30%	100/15 Summer				87.998	0.519	0.000	0.68		324.9
13.005	S4.67	15 Winter	100	+30%	100/15 Summer	100/15 Summer			87.781	0.839	10.986	0.87		487.5
13.006	S4.68	15 Winter	100	+30%	1/60 Winter	100/15 Summer			87.052	1.077	3.210	2.75		512.3
13.007	S4.69	15 Winter	100	+30%	30/15 Summer				86.650	0.650	0.000	2.60		510.4
13.008	S4.70	15 Winter	100	+30%	30/15 Summer	100/15 Summer			86.463	0.503	62.814	1.37		427.2
13.009	S4.71	30 Winter	100	+30%	30/15 Summer				86.355	0.430	0.000	2.50		408.5
13.010	S4.72	FC 30 Winter	100	+30%	1/15 Summer		30/15 Summer	70	86.232	0.617	0.000	0.07	409.1	11.1
17.000	S4.73	360 Winter	100	+30%					89.762	-0.225	0.000	0.00		0.0
17.001	S4.74	360 Winter	100	+30%					89.131	-0.225	0.000	0.00		0.0
17.002	S4.75	360 Winter	100	+30%					88.929	-0.225	0.000	0.00		0.0

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PN	US/MH Name	Status	Level Exceeded
13.002	S4.51	SURCHARGED	
13.003	S4.52	FLOOD RISK	
13.004	S4.53	SURCHARGED	
14.000	S4.54	OK	
14.001	S4.55	OK	
15.000	S4.56	FLOOD	4
15.001	S4.57	SURCHARGED	
15.002	S4.58	SURCHARGED	
15.003	S4.59	SURCHARGED	
15.004	S4.60	SURCHARGED	
15.005	S4.61	FLOOD	1
15.006	S4.62	FLOOD RISK	
14.002	S4.63	FLOOD RISK	
16.000	S4.64	SURCHARGED	
14.003	S4.65	SURCHARGED	
14.004	S4.66	FLOOD RISK	
13.005	S4.67	FLOOD	2
13.006	S4.68	FLOOD	2
13.007	S4.69	FLOOD RISK	
13.008	S4.70	FLOOD	6
13.009	S4.71	FLOOD RISK	
13.010	S4.72 FC	FLOOD RISK	
17.000	S4.73	OK	
17.001	S4.74	OK	

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Manchester One Portland Street Manchester M1 3LF	Haverhill Great Willsey Park Area 4	
Date 28/03/2019 File HAVERHILL. ALL NETWORKS.MDX	Designed by RMV Checked by PV	
Innovyze	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Status	Level Exceeded
17.002	S4.75	OK	

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Date 28/03/2019 File HAVERHILL. ALL NETWORKS.MDX	Designed by RMV Checked by PV	
Innovyze	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 04

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged Flooded			Pipe		Level Exceeded
									Level (m)	Depth (m)	Volume (m ³)	Flow / Cap. (l/s)	Overflow Flow (l/s)	
17.003	S4.76	360 Winter	100	+30%					88.801	-0.225	0.000	0.00	0.0	OK
17.004	S4.77	360 Winter	100	+30%					88.115	-0.225	0.000	0.00	0.0	OK