


Woods Hardwick		Page 1
15-17 Goldington Road Bedford MK40 3NH		
Date 07/11/2014 16:50 File SW West Proposed 07.11....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes MANHOLESFA5






FEH Rainfall Model

Return Period (years)	2
Site Location GB 450500 225250 SP 50500 25250	
C (1km)	-0.023
D1 (1km)	0.328
D2 (1km)	0.309
D3 (1km)	0.264
E (1km)	0.292
F (1km)	2.461
Maximum Rainfall (mm/hr)	0
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.000
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm


















# - Indicates pipe length does not match coordinates

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	14.303#	0.145	98.6	0.030	6.00	0.0	0.600	o	150	
1.001	16.577#	0.110	150.7	0.030	0.00	0.0	0.600	o	225	
1.002	11.424#	0.075	152.3	0.030	0.00	0.0	0.600	o	225	
1.003	31.582#	0.190	166.2	0.030	0.00	0.0	0.600	o	300	
1.004	19.811#	0.090	220.1	0.050	0.00	0.0	0.600	o	450	

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	0.00	6.24	124.730	0.030	0.0	0.0	0.0	1.01	17.9	0.0
1.001	0.00	6.50	124.510	0.060	0.0	0.0	0.0	1.06	42.3	0.0
1.002	0.00	6.68	124.400	0.090	0.0	0.0	0.0	1.06	42.0	0.0
1.003	0.00	7.11	124.250	0.120	0.0	0.0	0.0	1.22	86.0	0.0
1.004	0.00	7.35	123.910	0.170	0.0	0.0	0.0	1.37	217.3	0.0















Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.005	23.881#	0.170	140.5	0.030	0.00	0.0	0.600	o	450	
2.000	37.605#	0.120	313.4	0.050	6.00	0.0	0.600	o	375	
1.006	48.618#	0.155	313.7	0.307	0.00	0.0	0.600	o	525	
1.007	54.980#	0.170	323.4	0.100	0.00	0.0	0.600	o	525	
1.008	21.721	0.064	339.4	0.100	0.00	0.0	0.600	o	525	
1.009	65.735#	0.176	373.5	0.071	0.00	0.0	0.600	o	525	
1.010	8.406#	0.020	420.3	0.000	0.00	0.0	0.600	o	525	
3.000	43.030#	0.230	187.1	0.090	6.00	0.0	0.600	o	300	
3.001	4.430#	0.030	147.7	0.000	0.00	0.0	0.600	o	300	
3.002	42.281#	0.175	241.6	0.067	0.00	0.0	0.600	o	300	
1.011	16.811#	0.038	442.4	0.000	0.00	0.0	0.600	o	525	
1.012	24.443	0.062	394.2	0.000	0.00	0.0	0.600	3 \=/	525	
1.013	3.190#	0.010	319.0	0.000	0.00	0.0	0.600	o	525	
1.014	9.350#	0.019	492.1	0.000	0.00	0.0	0.600	o	525	
4.000	48.968#	0.170	288.0	0.096	6.00	0.0	0.600	o	375	
4.001	29.802	0.100	298.0	0.060	0.00	0.0	0.600	o	375	
4.002	13.142#	0.054	243.4	0.022	0.00	0.0	0.600	o	375	

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)
1.005	0.00	7.58	123.820	0.200	0.0	0.0	0.0	1.71	272.5	0.0
2.000	0.00	6.62	123.845	0.050	0.0	0.0	0.0	1.02	112.4	0.0
1.006	0.00	8.23	123.575	0.557	0.0	0.0	0.0	1.26	272.6	0.0
1.007	0.00	8.96	123.420	0.657	0.0	0.0	0.0	1.24	268.4	0.0
1.008	0.00	9.26	123.250	0.757	0.0	0.0	0.0	1.21	262.0	0.0
1.009	0.00	10.21	123.186	0.828	0.0	0.0	0.0	1.15	249.6	0.0
1.010	0.00	10.34	123.010	0.828	0.0	0.0	0.0	1.09	235.1	0.0
3.000	0.00	6.63	123.650	0.090	0.0	0.0	0.0	1.15	81.0	0.0
3.001	0.00	6.68	123.420	0.090	0.0	0.0	0.0	1.29	91.3	0.0
3.002	0.00	7.38	123.390	0.157	0.0	0.0	0.0	1.01	71.2	0.0
1.011	0.00	10.61	122.990	0.985	0.0	0.0	0.0	1.06	229.1	0.0
1.012	0.00	11.04	122.952	0.985	0.0	0.0	0.0	0.94	137.5	0.0
1.013	0.00	11.08	122.890	0.985	0.0	0.0	0.0	1.25	270.3	0.0
1.014	0.00	11.24	122.880	0.985	0.0	0.0	0.0	1.00	217.1	0.0
4.000	0.00	6.77	123.100	0.096	0.0	0.0	0.0	1.06	117.3	0.0
4.001	0.00	7.24	122.930	0.156	0.0	0.0	0.0	1.04	115.3	0.0
4.002	0.00	7.43	122.830	0.178	0.0	0.0	0.0	1.16	127.8	0.0

Network Design Table for Storm














PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
5.000	54.889#	0.280	196.0	0.094	6.00	0.0	0.600	o	225	
5.001	23.748#	0.054	439.8	0.080	0.00	0.0	0.600	o	450	
1.015	44.270	0.090	491.9	0.000	0.00	0.0	0.600	3 \=/	525	
1.016	6.454	0.015	430.3	0.000	0.00	0.0	0.600	o	525	
1.017	4.436	0.009	492.9	0.000	0.00	0.0	0.600	o	525	
6.000	25.590	0.455	56.2	0.108	6.00	0.0	0.600	o	225	
7.000	18.881	0.080	236.0	0.065	6.00	0.0	0.600	o	300	
6.001	15.459	0.070	220.8	0.040	0.00	0.0	0.600	o	300	
6.002	10.259	0.050	205.2	0.000	0.00	0.0	0.600	o	300	
6.003	18.087	0.095	190.4	0.065	0.00	0.0	0.600	o	300	
8.000	9.323#	0.060	155.4	0.067	6.00	0.0	0.600	o	225	
9.000	16.200#	0.130	124.6	0.017	6.00	0.0	0.600	o	225	
8.001	32.282#	0.195	165.5	0.009	0.00	0.0	0.600	o	225	
8.002	26.594	0.115	231.3	0.107	0.00	0.0	0.600	o	300	

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)
5.000	0.00	6.98	123.060	0.094	0.0	0.0	0.0	0.93	37.0	0.0
5.001	0.00	7.39	122.780	0.174	0.0	0.0	0.0	0.96	153.2	0.0
1.015	0.00	12.12	122.726	1.337	0.0	0.0	0.0	0.84	122.9	0.0
1.016	0.00	12.22	122.635	1.337	0.0	0.0	0.0	1.07	232.4	0.0
1.017	0.00	12.29	122.620	1.337	0.0	0.0	0.0	1.00	216.9	0.0
6.000	0.00	6.24	123.100	0.108	0.0	0.0	0.0	1.75	69.5	0.0
7.000	0.00	6.31	122.650	0.065	0.0	0.0	0.0	1.02	72.0	0.0
6.001	0.00	6.55	122.570	0.213	0.0	0.0	0.0	1.05	74.5	0.0
6.002	0.00	6.71	122.500	0.213	0.0	0.0	0.0	1.09	77.3	0.0
6.003	0.00	6.97	122.450	0.278	0.0	0.0	0.0	1.14	80.3	0.0
8.000	0.00	6.15	122.800	0.067	0.0	0.0	0.0	1.05	41.6	0.0
9.000	0.00	6.23	122.870	0.017	0.0	0.0	0.0	1.17	46.5	0.0
8.001	0.00	6.76	122.740	0.093	0.0	0.0	0.0	1.01	40.3	0.0
8.002	0.00	7.19	122.470	0.200	0.0	0.0	0.0	1.03	72.8	0.0

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Date 07/11/2014 16:50	Designed by a.tew	
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Micro Drainage		Network 2014.1.1

















Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
6.004	59.029	0.150	393.5	0.067	0.00	0.0	0.600	o	525	
6.005	15.889	0.040	397.2	0.190	0.00	0.0	0.600	o	525	
10.000	21.879#	0.095	230.3	0.140	6.00	0.0	0.600	o	300	
1.018	60.578	0.121	500.6	0.000	0.00	0.0	0.600	3 \=/	900	
11.000	34.108#	0.200	170.5	0.102	6.00	0.0	0.600	o	225	
11.001	24.426#	0.245	99.7	0.100	0.00	0.0	0.600	o	225	
12.000	21.313	0.206	103.5	0.094	6.00	0.0	0.600	o	225	
1.019	10.565	0.020	528.3	0.000	0.00	0.0	0.600	o	900	
1.020	15.518#	0.048	323.3	0.000	0.00	0.0	0.600	o	750	
1.021	33.421#	0.058	576.2	0.000	0.00	0.0	0.600	o	600	
13.000	18.480	1.059	17.5	0.090	6.00	0.0	0.600	o	150	
1.022	36.931	0.074	499.1	0.000	0.00	0.0	0.600	3 \=/	600	
14.000	15.326#	0.062	247.2	0.051	6.00	0.0	0.600	o	300	

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)
6.004	0.00	8.07	122.130	0.545	0.0	0.0	0.0	1.12	243.1	0.0
6.005	0.00	8.31	121.980	0.735	0.0	0.0	0.0	1.12	241.9	0.0
10.000	0.00	6.35	122.820	0.140	0.0	0.0	0.0	1.03	72.9	0.0
1.018	0.00	13.43	121.940	2.212	0.0	0.0	0.0	0.89	179.5	0.0
11.000	0.00	6.57	122.520	0.102	0.0	0.0	0.0	1.00	39.7	0.0
11.001	0.00	6.88	122.320	0.202	0.0	0.0	0.0	1.31	52.1	0.0
12.000	0.00	6.28	122.300	0.094	0.0	0.0	0.0	1.29	51.1	0.0
1.019	0.00	13.56	121.720	2.508	0.0	0.0	0.0	1.36	862.8	0.0
1.020	0.00	13.73	121.700	2.508	0.0	0.0	0.0	1.55	685.2	0.0
1.021	0.00	14.28	121.650	2.508	0.0	0.0	0.0	1.01	284.8	0.0
13.000	0.00	6.13	122.750	0.090	0.0	0.0	0.0	2.42	42.8	0.0
1.022	0.00	15.01	121.591	2.598	0.0	0.0	0.0	0.85	133.4	0.0
14.000	0.00	6.26	121.670	0.051	0.0	0.0	0.0	1.00	70.4	0.0

















Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
14.001	38.915#	0.160	243.2	0.068	0.00	0.0	0.600	o	300	
14.002	12.228#	0.050	244.6	0.030	0.00	0.0	0.600	o	300	
14.003	10.963#	0.050	219.3	0.000	0.00	0.0	0.600	o	300	
14.004	23.647#	0.097	243.8	0.001	0.00	0.0	0.600	o	300	
15.000	7.525#	0.300	25.1	0.241	6.00	0.0	0.600	o	300	
15.001	33.256#	0.270	123.2	0.008	0.00	0.0	0.600	o	300	
15.002	17.857#	0.180	99.2	0.100	0.00	0.0	0.600	o	375	
16.000	29.032#	0.190	152.8	0.060	6.00	0.0	0.600	o	150	
16.001	20.076#	0.200	100.4	0.070	0.00	0.0	0.600	o	225	
15.003	62.260#	0.580	107.3	0.232	0.00	0.0	0.600	o	525	
17.000	23.364#	0.155	150.7	0.090	6.00	0.0	0.600	o	225	
17.001	51.510#	0.235	219.2	0.100	0.00	0.0	0.600	o	300	
17.002	77.159#	0.440	175.4	0.100	0.00	0.0	0.600	o	525	
17.003	52.594#	0.245	214.7	0.094	0.00	0.0	0.600	o	525	
15.004	28.254#	0.290	97.4	0.000	0.00	0.0	0.600	o	600	
15.005	45.556#	0.080	569.5	0.078	0.00	0.0	0.600	o	750	

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)
14.001	0.00	6.90	121.608	0.119	0.0	0.0	0.0	1.00	70.9	0.0
14.002	0.00	7.11	121.448	0.149	0.0	0.0	0.0	1.00	70.7	0.0
14.003	0.00	7.28	121.398	0.149	0.0	0.0	0.0	1.06	74.8	0.0
14.004	0.00	7.67	121.348	0.150	0.0	0.0	0.0	1.00	70.9	0.0
15.000	0.00	6.04	124.300	0.241	0.0	0.0	0.0	3.15	222.8	0.0
15.001	0.00	6.43	124.000	0.249	0.0	0.0	0.0	1.42	100.1	0.0
15.002	0.00	6.59	123.655	0.349	0.0	0.0	0.0	1.82	200.9	0.0
16.000	0.00	6.60	124.090	0.060	0.0	0.0	0.0	0.81	14.3	0.0
16.001	0.00	6.85	123.825	0.130	0.0	0.0	0.0	1.30	51.9	0.0
15.003	0.00	7.33	123.325	0.711	0.0	0.0	0.0	2.16	467.9	0.0
17.000	0.00	6.37	124.120	0.090	0.0	0.0	0.0	1.06	42.3	0.0
17.001	0.00	7.18	123.890	0.190	0.0	0.0	0.0	1.06	74.8	0.0
17.002	0.00	7.94	123.430	0.290	0.0	0.0	0.0	1.69	365.5	0.0
17.003	0.00	8.51	122.990	0.384	0.0	0.0	0.0	1.52	330.1	0.0
15.004	0.00	8.71	122.670	1.095	0.0	0.0	0.0	2.47	697.7	0.0
15.005	0.00	9.36	122.230	1.173	0.0	0.0	0.0	1.17	514.9	0.0

Network Design Table for Storm




















PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
18.000	37.000#	0.090	411.1	0.120	6.00	0.0	0.600	o	450	
18.001	11.062#	0.030	368.7	0.010	0.00	0.0	0.600	o	450	
15.006	26.656#	0.050	533.1	0.010	0.00	0.0	0.600	o	750	
15.007	39.783#	0.080	497.3	0.134	0.00	0.0	0.600	o	750	
15.008	37.152#	0.060	619.2	0.130	0.00	0.0	0.600	o	750	
15.009	77.855#	0.105	741.5	0.246	0.00	0.0	0.600	o	750	
15.010	13.442#	0.019	707.5	0.130	0.00	0.0	0.600	o	750	
15.011	38.118#	0.051	747.4	0.009	0.00	0.0	0.600	o	750	
19.000	14.910#	0.100	149.1	0.050	6.00	0.0	0.600	o	150	
19.001	11.780#	0.040	294.5	0.055	0.00	0.0	0.600	o	375	
19.002	12.326#	0.045	273.9	0.070	0.00	0.0	0.600	o	375	
15.012	63.874#	0.086	742.7	0.115	0.00	0.0	0.600	o	750	
15.013	16.570#	0.023	720.4	0.057	0.00	0.0	0.600	o	750	
14.005	18.318	0.027	678.4	0.000	0.00	0.0	0.600	3 \=/	750	
1.023	5.384	0.009	598.2	0.000	0.00	0.0	0.600	o	900	
1.024	2.428#	0.005	485.6	0.000	0.00	0.0	0.600	o	900	

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)
18.000	0.00	6.62	122.270	0.120	0.0	0.0	0.0	1.00	158.5	0.0
18.001	0.00	6.79	122.180	0.130	0.0	0.0	0.0	1.05	167.4	0.0
15.006	0.00	9.73	122.150	1.313	0.0	0.0	0.0	1.20	532.3	0.0
15.007	0.00	10.26	122.100	1.447	0.0	0.0	0.0	1.25	551.4	0.0
15.008	0.00	10.81	122.020	1.577	0.0	0.0	0.0	1.12	493.6	0.0
15.009	0.00	12.08	121.960	1.823	0.0	0.0	0.0	1.02	450.6	0.0
15.010	0.00	12.30	121.855	1.953	0.0	0.0	0.0	1.04	461.4	0.0
15.011	0.00	12.92	121.836	1.962	0.0	0.0	0.0	1.02	448.8	0.0
19.000	0.00	6.30	121.920	0.050	0.0	0.0	0.0	0.82	14.5	0.0
19.001	0.00	6.49	121.820	0.105	0.0	0.0	0.0	1.05	116.0	0.0
19.002	0.00	6.68	121.780	0.175	0.0	0.0	0.0	1.09	120.4	0.0
15.012	0.00	13.97	121.360	2.252	0.0	0.0	0.0	1.02	450.2	0.0
15.013	0.00	14.23	121.274	2.309	0.0	0.0	0.0	1.03	457.2	0.0
14.005	0.00	14.65	121.251	2.459	0.0	0.0	0.0	0.74	133.9	0.0
1.023	0.00	15.08	121.224	5.057	0.0	0.0	0.0	1.27	810.3	0.0
1.024	0.00	15.11	121.215	5.057	0.0	0.0	0.0	1.42	900.2	0.0


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Network Design Table for Storm






PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
20.000	141.271	0.323	437.4	1.930	6.00	0.0	0.600	o	825	
20.001	22.063	0.063	350.2	0.000	0.00	0.0	0.600	oo	-3	
20.002	81.476	0.182	447.7	0.050	0.00	0.0	0.600	o	750	
20.003	4.000	0.010	400.0	0.000	0.00	0.0	0.600	o	750	
20.004	27.166	0.080	339.6	0.000	0.00	0.0	0.600	o	750	
21.000	11.633	1.490	7.8	0.255	6.00	0.0	0.600	o	150	
20.005	41.906	0.425	98.6	0.000	0.00	0.0	0.600	o	750	
20.006	10.069	0.025	402.8	0.000	0.00	0.0	0.600	o	750	
20.007	89.212	0.237	376.4	0.000	0.00	0.0	0.600	o	750	
20.008	45.691	0.108	423.1	0.000	0.00	0.0	0.600	o	750	
20.009	48.256	0.242	199.4	0.000	0.00	0.0	0.600	o	750	
20.010	74.990	0.218	344.0	0.000	0.00	0.0	0.600	o	750	
1.025	75.149	0.300	250.5	0.000	0.00	0.0	0.600	o	900	
1.026	14.377#	0.020	718.9	0.000	0.00	0.0	0.600	o	900	
1.027	12.562	0.020	628.1	0.000	0.00	0.0	0.600	o	900	
1.028	43.989	0.080	549.9	0.000	0.00	0.0	0.600	o	900	
1.029	11.362#	0.027	420.8	0.000	0.00	0.0	0.600	o	900	
1.030	49.420#	0.133	371.6	1.000	0.00	0.0	0.600	o	900	
1.031	36.960	0.265	139.5	1.000	0.00	0.0	0.600	o	900	

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)
20.000	0.00	7.67	123.463	1.930	0.0	0.0	0.0	1.41	755.4	0.0
20.001	0.00	7.92	123.140	1.930	0.0	0.0	0.0	1.43	1098.6	0.0
20.002	0.00	8.96	123.027	1.980	0.0	0.0	0.0	1.32	581.4	0.0
20.003	0.00	9.00	122.845	1.980	0.0	0.0	0.0	1.39	615.4	0.0
20.004	0.00	9.30	122.535	1.980	0.0	0.0	0.0	1.51	668.4	0.0
21.000	0.00	6.05	124.545	0.255	0.0	0.0	0.0	3.63	64.1	0.0
20.005	0.00	9.55	122.455	2.235	0.0	0.0	0.0	2.82	1245.2	0.0
20.006	0.00	9.67	122.030	2.235	0.0	0.0	0.0	1.39	613.3	0.0
20.007	0.00	10.71	122.005	2.235	0.0	0.0	0.0	1.44	634.6	0.0
20.008	0.00	11.27	121.768	2.235	0.0	0.0	0.0	1.35	598.3	0.0
20.009	0.00	11.68	121.660	2.235	0.0	0.0	0.0	1.98	873.9	0.0
20.010	0.00	12.51	121.418	2.235	0.0	0.0	0.0	1.50	664.1	0.0
1.025	0.00	15.74	121.050	7.292	0.0	0.0	0.0	1.98	1256.6	0.0
1.026	0.00	15.95	120.750	7.292	0.0	0.0	0.0	1.16	738.5	0.0
1.027	0.00	16.11	120.730	7.292	0.0	0.0	0.0	1.24	790.6	0.0
1.028	0.00	16.67	120.710	7.292	0.0	0.0	0.0	1.33	845.5	0.0
1.029	0.00	16.79	120.630	7.292	0.0	0.0	0.0	1.52	967.6	0.0
1.030	0.00	17.30	120.583	8.292	0.0	0.0	0.0	1.62	1030.3	0.0
1.031	0.00	17.53	120.450	9.292	0.0	0.0	0.0	2.65	1686.8	0.0

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.032	119.800	0.640	187.2	0.500	0.00	0.0	0.600	o	900	
1.033	1.350	0.005	270.0	0.000	0.00	0.0	0.600	o	600	
1.034	184.800	2.050	90.1	0.000	0.00	0.0	0.600	\/\	-4	
1.035	149.300	1.770	84.4	0.000	0.00	0.0	0.600	\/\	-4	
1.036	2.700	0.030	90.0	0.000	0.00	0.0	0.600	oo	45	

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)
1.032	0.00	18.40	120.185	9.792	0.0	0.0	0.0	2.29	1454.9	0.0
1.033	0.00	18.42	119.545	9.792	0.0	0.0	0.0	1.48	417.7	0.0
1.034	0.00	18.95	119.140	9.792	0.0	0.0	0.0	5.80	15082.6	0.0
1.035	0.00	19.37	117.090	9.792	0.0	0.0	0.0	6.00	15593.3	0.0
1.036	0.00	19.38	115.320	9.792	0.0	0.0	0.0	2.57	1450.0	0.0



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PIPELINE SCHEDULES for Storm

Upstream Manhole

# - Indicates pipe length does not match coordinates

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	150	1 (B3)	125.830	124.730	0.950	Open Manhole	1500
1.001	o	225	2 (B3)	125.900	124.510	1.165	Open Manhole	1500
1.002	o	225	3 (B3)	126.150	124.400	1.525	Open Manhole	1200
1.003	o	300	4 (B3)	126.270	124.250	1.720	Open Manhole	1200
1.004	o	450	5 (B3)	126.110	123.910	1.750	Open Manhole	1500
1.005	o	450	6 (B3)	125.900	123.820	1.630	Open Manhole	1500
2.000	o	375	7 (B3)	125.150	123.845	0.930	Open Manhole	1500
1.006	o	525	8 (B3)	125.550	123.575	1.450	Open Manhole	1800
1.007	o	525	9 (B3)	125.230	123.420	1.285	Open Manhole	1800
1.008	o	525	10 (B3)	125.080	123.250	1.305	Open Manhole	1800
1.009	o	525	7 (B2b)	125.060	123.186	1.349	Open Manhole	1500
1.010	o	525	8a (B2b)	125.500	123.010	1.965	Open Manhole	1500
3.000	o	300	29 (B2a)	125.400	123.650	1.450	Open Manhole	1200
3.001	o	300	30 (B2a)	125.550	123.420	1.830	Open Manhole	1200
3.002	o	300	30a (B2a)	125.500	123.390	1.810	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	14.303#	98.6	2 (B3)	125.900	124.585	1.165	Open Manhole	1500
1.001	16.577#	150.7	3 (B3)	126.150	124.400	1.525	Open Manhole	1200
1.002	11.424#	152.3	4 (B3)	126.270	124.325	1.720	Open Manhole	1200
1.003	31.582#	166.2	5 (B3)	126.110	124.060	1.750	Open Manhole	1500
1.004	19.811#	220.1	6 (B3)	125.900	123.820	1.630	Open Manhole	1500
1.005	23.881#	140.5	8 (B3)	125.550	123.650	1.450	Open Manhole	1800
2.000	37.605#	313.4	8 (B3)	125.550	123.725	1.450	Open Manhole	1800
1.006	48.618#	313.7	9 (B3)	125.230	123.420	1.285	Open Manhole	1800
1.007	54.980#	323.4	10 (B3)	125.080	123.250	1.305	Open Manhole	1800
1.008	21.721	339.4	7 (B2b)	125.060	123.186	1.349	Open Manhole	1500
1.009	65.735#	373.5	8a (B2b)	125.500	123.010	1.965	Open Manhole	1500
1.010	8.406#	420.3	8	125.200	122.990	1.685	Open Manhole	1500
3.000	43.030#	187.1	30 (B2a)	125.550	123.420	1.830	Open Manhole	1200
3.001	4.430#	147.7	30a (B2a)	125.500	123.390	1.810	Open Manhole	1200
3.002	42.281#	241.6	8	125.200	123.215	1.685	Open Manhole	1500


PIPELINE SCHEDULES for Storm

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)
1.011	o	525	8	125.200	122.990	1.685	Open Manhole	1500
1.012	3 \=/	525	9 (HW)	125.382	122.952	2.280	Open Manhole	1500
1.013	o	525	10 (HW)	124.835	122.890	1.420	Open Manhole	1500
1.014	o	525	11 (HB)	124.810	122.880	1.405	Open Manhole	1800
4.000	o	375	31 (B2a)	124.770	123.100	1.295	Open Manhole	1500
4.001	o	375	32 (B2a)	124.680	122.930	1.375	Open Manhole	1500
4.002	o	375	33 (B2a)	124.900	122.830	1.695	Open Manhole	1500
5.000	o	225	34 (B2b)	124.000	123.060	0.715	Open Manhole	1200
5.001	o	450	35 (B2b)	124.480	122.780	1.250	Open Manhole	1200
1.015	3 \=/	525	12 (HW)	124.519	122.726	1.643	Open Manhole	1500
1.016	o	525	13 (HW)	124.340	122.635	1.180	Open Manhole	1200
1.017	o	525	14 (HB)	124.310	122.620	1.165	Open Manhole	1800
6.000	o	225	36 (B2a)	124.530	123.100	1.205	Open Manhole	1500
7.000	o	300	42 (B2a)	123.790	122.650	0.840	Open Manhole	1800
6.001	o	300	37 (B2a)	124.220	122.570	1.350	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.011	16.811#	442.4	9 (HW)	125.382	122.952	1.905	Open Manhole	1500
1.012	24.443	394.2	10 (HW)	124.835	122.890	1.795	Open Manhole	1500
1.013	3.190#	319.0	11 (HB)	124.810	122.880	1.405	Open Manhole	1800
1.014	9.350#	492.1	12 (HW)	124.519	122.861	1.133	Open Manhole	1500
4.000	48.968#	288.0	32 (B2a)	124.680	122.930	1.375	Open Manhole	1500
4.001	29.802	298.0	33 (B2a)	124.900	122.830	1.695	Open Manhole	1500
4.002	13.142#	243.4	12 (HW)	124.519	122.776	1.368	Open Manhole	1500
5.000	54.889#	196.0	35 (B2b)	124.480	122.780	1.475	Open Manhole	1200
5.001	23.748#	439.8	12 (HW)	124.519	122.726	1.343	Open Manhole	1500
1.015	44.270	491.9	13 (HW)	124.340	122.636	1.554	Open Manhole	1200
1.016	6.454	430.3	14 (HB)	124.310	122.620	1.165	Open Manhole	1800
1.017	4.436	492.9	15 (HW)	124.300	122.611	1.164	Open Manhole	1200
6.000	25.590	56.2	37 (B2a)	124.220	122.645	1.350	Open Manhole	1500
7.000	18.881	236.0	37 (B2a)	124.220	122.570	1.350	Open Manhole	1500
6.001	15.459	220.8	38 (B2a)	124.010	122.500	1.210	Open Manhole	1200

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PIPELINE SCHEDULES for Storm

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)
6.002	o	300	38 (B2a)	124.010	122.500	1.210	Open Manhole	1200
6.003	o	300	39 (B2a)	123.960	122.450	1.210	Open Manhole	1200
8.000	o	225	45 (B2a)	124.080	122.800	1.055	Open Manhole	1800
9.000	o	225	46 (B2a)	124.010	122.870	0.915	Open Manhole	1200
8.001	o	225	43 (B2a)	124.170	122.740	1.205	Open Manhole	1200
8.002	o	300	44 (B2a)	123.920	122.470	1.150	Open Manhole	1200
6.004	o	525	40 (B2a)	124.160	122.130	1.505	Open Manhole	1500
6.005	o	525	41 (B2a)	124.360	121.980	1.855	Open Manhole	1500
10.000	o	300	Private (B2b)	124.160	122.820	1.040	Open Manhole	1200
1.018	3 \=/	900	15 (HW)	124.300	121.940	2.210	Open Manhole	1200
11.000	o	225	47 (B2b)	123.730	122.520	0.985	Open Manhole	1500
11.001	o	225	48 (B2b)	123.850	122.320	1.305	Open Manhole	1200
12.000	o	225	49 (B2a)	123.900	122.300	1.375	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)
6.002	10.259	205.2	39 (B2a)	123.960	122.450	1.210	Open Manhole	1200
6.003	18.087	190.4	40 (B2a)	124.160	122.355	1.505	Open Manhole	1500
8.000	9.323#	155.4	43 (B2a)	124.170	122.740	1.205	Open Manhole	1200
9.000	16.200#	124.6	43 (B2a)	124.170	122.740	1.205	Open Manhole	1200
8.001	32.282#	165.5	44 (B2a)	123.920	122.545	1.150	Open Manhole	1200
8.002	26.594	231.3	40 (B2a)	124.160	122.355	1.505	Open Manhole	1500
6.004	59.029	393.5	41 (B2a)	124.360	121.980	1.855	Open Manhole	1500
6.005	15.889	397.2	15 (HW)	124.300	121.940	1.835	Open Manhole	1200
10.000	21.879#	230.3	15 (HW)	124.300	122.725	1.275	Open Manhole	1200
1.018	60.578	500.6	16 (HW)	123.870	121.819	1.901	Open Manhole	1200
11.000	34.108#	170.5	48 (B2b)	123.850	122.320	1.305	Open Manhole	1200
11.001	24.426#	99.7	16 (HW)	123.870	122.075	1.570	Open Manhole	1200
12.000	21.313	103.5	16 (HW)	123.870	122.094	1.551	Open Manhole	1200

PIPELINE SCHEDULES for Storm

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)
1.019	o	900	16 (HW)	123.870	121.720	1.250	Open Manhole	1200
1.020	o	750	17 (HW)	123.860	121.700	1.410	Open Manhole	1200
1.021	o	600	18 (HB)	123.550	121.650	1.300	Open Manhole	1800
13.000	o	150	Private (B2b)	123.350	122.750	0.450	Open Manhole	1200
1.022	3 \=/	600	19 (HW)	123.264	121.591	1.523	Open Manhole	1200
14.000	o	300	59 (B2b)	122.850	121.670	0.880	Open Manhole	1200
14.001	o	300	60 (B2b)	122.870	121.608	0.962	Open Manhole	1200
14.002	o	300	61 (B2b)	122.860	121.448	1.112	Open Manhole	1200
14.003	o	300	61a (B2b)	123.150	121.398	1.452	Open Manhole	1200
14.004	o	300	61b (B2b)	123.150	121.348	1.502	Open Manhole	1200
15.000	o	300	Existing	125.435	124.300	0.835	Open Manhole	1200
15.001	o	300	11 (B3)	125.550	124.000	1.250	Open Manhole	1200
15.002	o	375	12 (B3)	124.930	123.655	0.900	Open Manhole	1500
16.000	o	150	13 (B3)	125.690	124.090	1.450	Open Manhole	1200
16.001	o	225	14 (B3)	125.300	123.825	1.250	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)
1.019	10.565	528.3	17 (HW)	123.860	121.700	1.260	Open Manhole	1200
1.020	15.518#	323.3	18 (HB)	123.550	121.652	1.148	Open Manhole	1800
1.021	33.421#	576.2	19 (HW)	123.264	121.592	1.072	Open Manhole	1200
13.000	18.480	17.5	19 (HW)	123.264	121.691	1.423	Open Manhole	1200
1.022	36.931	499.1	20 (HW)	123.235	121.517	1.568	Open Manhole	1200
14.000	15.326#	247.2	60 (B2b)	122.870	121.608	0.962	Open Manhole	1200
14.001	38.915#	243.2	61 (B2b)	122.860	121.448	1.112	Open Manhole	1200
14.002	12.228#	244.6	61a (B2b)	123.150	121.398	1.452	Open Manhole	1200
14.003	10.963#	219.3	61b (B2b)	123.150	121.348	1.502	Open Manhole	1200
14.004	23.647#	243.8	HW 82 (B2b)	122.410	121.251	0.859	Open Manhole	1200
15.000	7.525#	25.1	11 (B3)	125.550	124.000	1.250	Open Manhole	1200
15.001	33.256#	123.2	12 (B3)	124.930	123.730	0.900	Open Manhole	1500
15.002	17.857#	99.2	15 (B3)	125.100	123.475	1.250	Open Manhole	1500
16.000	29.032#	152.8	14 (B3)	125.300	123.900	1.250	Open Manhole	1200
16.001	20.076#	100.4	15 (B3)	125.100	123.625	1.250	Open Manhole	1500


PIPELINE SCHEDULES for Storm

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	525	15 (B3)	125.100	123.325	1.250	Open Manhole	1500
17.000	o	225	16 (B3)	125.600	124.120	1.255	Open Manhole	1200
17.001	o	300	17 (B3)	125.290	123.890	1.100	Open Manhole	1500
17.002	o	525	18 (B3)	124.970	123.430	1.015	Open Manhole	1500
17.003	o	525	19 (B3)	124.700	122.990	1.185	Open Manhole	1500
15.004	o	600	20 (B3)	124.580	122.670	1.310	Open Manhole	1500
15.005	o	750	68 (B2b)	124.575	122.230	1.595	Open Manhole	1800
18.000	o	450	69 (B2b)	123.550	122.270	0.830	Open Manhole	1500
18.001	o	450	70 (B2b)	123.870	122.180	1.240	Open Manhole	1500
15.006	o	750	71 (B2b)	124.000	122.150	1.100	Open Manhole	1800
15.007	o	750	72 (B2b)	124.145	122.100	1.295	Open Manhole	1800
15.008	o	750	73 (B2b)	123.770	122.020	1.000	Open Manhole	1800
15.009	o	750	74 (B2b)	124.060	121.960	1.350	Open Manhole	1800
15.010	o	750	75 (B2b)	123.610	121.855	1.005	Open Manhole	1800
15.011	o	750	76 (B2b)	123.505	121.836	0.919	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)
15.003	62.260#	107.3	20 (B3)	124.580	122.745	1.310	Open Manhole	1500
17.000	23.364#	150.7	17 (B3)	125.290	123.965	1.100	Open Manhole	1500
17.001	51.510#	219.2	18 (B3)	124.970	123.655	1.015	Open Manhole	1500
17.002	77.159#	175.4	19 (B3)	124.700	122.990	1.185	Open Manhole	1500
17.003	52.594#	214.7	20 (B3)	124.580	122.745	1.310	Open Manhole	1500
15.004	28.254#	97.4	68 (B2b)	124.575	122.380	1.595	Open Manhole	1800
15.005	45.556#	569.5	71 (B2b)	124.000	122.150	1.100	Open Manhole	1800
18.000	37.000#	411.1	70 (B2b)	123.870	122.180	1.240	Open Manhole	1500
18.001	11.062#	368.7	71 (B2b)	124.000	122.150	1.400	Open Manhole	1800
15.006	26.656#	533.1	72 (B2b)	124.145	122.100	1.295	Open Manhole	1800
15.007	39.783#	497.3	73 (B2b)	123.770	122.020	1.000	Open Manhole	1800
15.008	37.152#	619.2	74 (B2b)	124.060	121.960	1.350	Open Manhole	1800
15.009	77.855#	741.5	75 (B2b)	123.610	121.855	1.005	Open Manhole	1800
15.010	13.442#	707.5	76 (B2b)	123.505	121.836	0.919	Open Manhole	1800
15.011	38.118#	747.4	80 (B2b)	123.110	121.785	0.575	Open Manhole	1800

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PIPELINE SCHEDULES for Storm

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)
19.000	o	150	77 (B2b)	122.720	121.920	0.650	Open Manhole	1200
19.001	o	375	78 (B2b)	122.860	121.820	0.665	Open Manhole	1500
19.002	o	375	79 (B2b)	122.965	121.780	0.810	Open Manhole	1500
15.012	o	750	80 (B2b)	123.110	121.360	1.000	Open Manhole	1800
15.013	o	750	81 (B2b)	123.530	121.274	1.506	Open Manhole	1800
14.005	3 \=/	750	HW 82 (B2b)	122.410	121.251	1.009	Open Manhole	1200
1.023	o	900	20 (HW)	123.235	121.224	1.111	Open Manhole	1200
1.024	o	900	21 (HB)	123.300	121.215	1.185	Open Manhole	1800
20.000	o	825	EX MH	125.353	123.463	1.065	Open Manhole	1800
20.001	oo	-3	EX MH	126.909	123.140	3.069	Open Manhole	2700
20.002	o	750	SD1	124.690	123.027	0.913	Open Manhole	2700
20.003	o	750	SD2	125.200	122.845	1.605	Open Manhole	1800
20.004	o	750	PI	125.210	122.535	1.925	Open Manhole	1000
21.000	o	150	0622	125.350	124.545	0.655	Open Manhole	1500
20.005	o	750	SD3	125.325	122.455	2.120	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)
19.000	14.910#	149.1	78 (B2b)	122.860	121.820	0.890	Open Manhole	1500
19.001	11.780#	294.5	79 (B2b)	122.965	121.780	0.810	Open Manhole	1500
19.002	12.326#	273.9	80 (B2b)	123.110	121.735	1.000	Open Manhole	1800
15.012	63.874#	742.7	81 (B2b)	123.530	121.274	1.506	Open Manhole	1800
15.013	16.570#	720.4	HW 82 (B2b)	122.410	121.251	0.409	Open Manhole	1200
14.005	18.318	678.4	20 (HW)	123.235	121.224	1.861	Open Manhole	1200
1.023	5.384	598.2	21 (HB)	123.300	121.215	1.185	Open Manhole	1800
1.024	2.428#	485.6	SD9	123.400	121.210	1.290	Open Manhole	2100
20.000	141.271	437.4	EX MH	126.909	123.140	2.944	Open Manhole	2700
20.001	22.063	350.2	SD1	124.690	123.077	0.913	Open Manhole	2700
20.002	81.476	447.7	SD2	125.200	122.845	1.605	Open Manhole	1800
20.003	4.000	400.0	PI	125.210	122.835	1.625	Open Manhole	1000
20.004	27.166	339.6	SD3	125.325	122.455	2.120	Open Manhole	1800
21.000	11.633	7.8	SD3	125.325	123.055	2.120	Open Manhole	1800
20.005	41.906	98.6	SD4	125.466	122.030	2.686	Open Manhole	1800


PIPELINE SCHEDULES for Storm

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)
20.006	o	750	SD4	125.466	122.030	2.686	Open Manhole	1800
20.007	o	750	SD5	125.404	122.005	2.649	Open Manhole	1800
20.008	o	750	SD6	124.350	121.768	1.832	Open Manhole	1800
20.009	o	750	SD7	124.050	121.660	1.640	Open Manhole	1800
20.010	o	750	SD8	123.668	121.418	1.500	Open Manhole	1800
1.025	o	900	SD9	123.400	121.050	1.450	Open Manhole	2100
1.026	o	900	SD10	123.200	120.750	1.550	Open Manhole	1800
1.027	o	900	SD11	123.225	120.730	1.595	Open Manhole	1800
1.028	o	900	SD12	123.220	120.710	1.610	Open Manhole	1800
1.029	o	900	SD13	122.430	120.630	0.900	Open Manhole	2400
1.030	o	900	0307	122.383	120.583	0.900	Open Manhole	1800
1.031	o	900	0306	122.110	120.450	0.760	Open Manhole	1800
1.032	o	900	0305	121.795	120.185	0.710	Open Manhole	1800
1.033	o	600	0369	121.235	119.545	1.090	Open Manhole	1800
1.034	\/	-4	Channel	121.000	119.140	0.860	Open Manhole	1
1.035	\/	-4	Channel	119.500	117.090	1.410	Open Manhole	1
1.036	oo	45	Double pipe	116.810	115.320	0.890	Open Manhole	1

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)
20.006	10.069	402.8	SD5	125.404	122.005	2.649	Open Manhole	1800
20.007	89.212	376.4	SD6	124.350	121.768	1.832	Open Manhole	1800
20.008	45.691	423.1	SD7	124.050	121.660	1.640	Open Manhole	1800
20.009	48.256	199.4	SD8	123.668	121.418	1.500	Open Manhole	1800
20.010	74.990	344.0	SD9	123.400	121.200	1.450	Open Manhole	2100
1.025	75.149	250.5	SD10	123.200	120.750	1.550	Open Manhole	1800
1.026	14.377#	718.9	SD11	123.225	120.730	1.595	Open Manhole	1800
1.027	12.562	628.1	SD12	123.220	120.710	1.610	Open Manhole	1800
1.028	43.989	549.9	SD13	122.430	120.630	0.900	Open Manhole	2400
1.029	11.362#	420.8	0307	122.383	120.603	0.880	Open Manhole	1800
1.030	49.420#	371.6	0306	122.110	120.450	0.760	Open Manhole	1800
1.031	36.960	139.5	0305	121.795	120.185	0.710	Open Manhole	1800
1.032	119.800	187.2	0369	121.235	119.545	0.790	Open Manhole	1800
1.033	1.350	270.0	Channel	121.000	119.540	0.860	Open Manhole	1
1.034	184.800	90.1	Channel	119.500	117.090	1.410	Open Manhole	1
1.035	149.300	84.4	Double pipe	116.810	115.320	0.490	Open Manhole	1
1.036	2.700	90.0	Watercourse	116.500	115.290	0.610	Open Manhole	0

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Free Flowing Outfall Details for Storm

<b>Outfall Pipe Number</b>	<b>Outfall Name</b>	<b>C. Level (m)</b>	<b>I. Level (m)</b>	<b>Min I. Level (m)</b>	<b>D,L (mm)</b>	<b>W (mm)</b>
1.036	Watercourse	116.500	115.290	0.000	0	0


Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m <sup>3</sup> /ha Storage	1.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Storage Structures	6
Number of Online Controls	4	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 450500 225250 SP 50500 25250
C (1km)	-0.023
D1 (1km)	0.328
D2 (1km)	0.309
D3 (1km)	0.264
E (1km)	0.292
F (1km)	2.461
Summer Storms	No
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	15



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Online Controls for Storm

Hydro-Brake® Manhole: 10 (HW), DS/PN: 1.013, Volume (m³): 439.1

Design Head (m) 1.800 Hydro-Brake® Type Md6 SW Only Invert Level (m) 122.890  
Design Flow (l/s) 7.1 Diameter (mm) 96

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.9	1.200	5.8	3.000	9.1	7.000	13.9
0.200	4.3	1.400	6.2	3.500	9.8	7.500	14.4
0.300	4.1	1.600	6.7	4.000	10.5	8.000	14.9
0.400	4.0	1.800	7.1	4.500	11.2	8.500	15.3
0.500	4.0	2.000	7.4	5.000	11.8	9.000	15.8
0.600	4.2	2.200	7.8	5.500	12.3	9.500	16.2
0.800	4.7	2.400	8.1	6.000	12.9		
1.000	5.3	2.600	8.5	6.500	13.4		

Hydro-Brake® Manhole: 14 (HB), DS/PN: 1.017, Volume (m³): 5.4

Design Head (m) 0.600 Hydro-Brake® Type Md6 SW Only Invert Level (m) 122.620  
Design Flow (l/s) 14.2 Diameter (mm) 159

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.3	1.200	16.0	3.000	25.0	7.000	38.2
0.200	12.3	1.400	17.1	3.500	27.0	7.500	39.5
0.300	15.0	1.600	18.3	4.000	28.8	8.000	40.8
0.400	15.1	1.800	19.4	4.500	30.6	8.500	42.1
0.500	14.6	2.000	20.4	5.000	32.3	9.000	43.3
0.600	14.1	2.200	21.4	5.500	33.8	9.500	44.5
0.800	14.1	2.400	22.3	6.000	35.3		
1.000	14.9	2.600	23.3	6.500	36.8		

Pre-initialised control selected, excessive flows may result.

Hydro-Brake® Manhole: 18 (HB), DS/PN: 1.021, Volume (m³): 11.0

Design Head (m) 0.750 Hydro-Brake® Type Md6 SW Only Invert Level (m) 121.650  
Design Flow (l/s) 61.5 Diameter (mm) 279

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	9.1	1.200	57.0	3.000	77.0	7.000	117.5
0.200	25.9	1.400	57.5	3.500	83.1	7.500	121.6
0.300	42.9	1.600	59.1	4.000	88.8	8.000	125.6
0.400	55.5	1.800	61.2	4.500	94.2	8.500	129.5
0.500	60.8	2.000	63.8	5.000	99.3	9.000	133.2
0.600	62.0	2.200	66.4	5.500	104.2	9.500	136.9
0.800	60.6	2.400	69.1	6.000	108.8		
1.000	58.1	2.600	71.8	6.500	113.2		

Pre-initialised control selected, excessive flows may result.

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Hydro-Brake® Manhole: 20 (HW), DS/PN: 1.023, Volume (m³): 422.0

Design Head (m) 1.100 Hydro-Brake® Type Md5 SW Only Invert Level (m) 121.224  
 Design Flow (l/s) 194.0 Diameter (mm) 474

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	16.9	1.200	192.8	3.000	235.2	7.000	357.8
0.200	48.1	1.400	191.4	3.500	253.3	7.500	370.3
0.300	83.8	1.600	192.3	4.000	270.5	8.000	382.5
0.400	118.5	1.800	195.5	4.500	286.9	8.500	394.2
0.500	147.9	2.000	200.4	5.000	302.4	9.000	405.7
0.600	168.8	2.200	206.6	5.500	317.1	9.500	416.8
0.800	189.1	2.400	213.4	6.000	331.2		
1.000	194.2	2.600	220.5	6.500	344.7		

Pre-initialised control selected, excessive flows may result.

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Storage Structures for Storm

Tank or Pond Manhole: 9 (HW), DS/PN: 1.012

Invert Level (m) 122.952

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	65.0	2.400	430.0

Tank or Pond Manhole: 12 (HW), DS/PN: 1.015

Invert Level (m) 122.726

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	173.0	1.800	746.0

Porous Car Park Manhole: 36 (B2a), DS/PN: 6.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	14.1
Membrane Percolation (mm/hr)	1000	Length (m)	20.0
Max Percolation (l/s)	78.3	Slope (1:X)	100.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	124.280	Cap Volume Depth (m)	0.000

Porous Car Park Manhole: 43 (B2a), DS/PN: 8.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.6
Membrane Percolation (mm/hr)	1000	Length (m)	25.0
Max Percolation (l/s)	45.8	Slope (1:X)	100.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	123.840	Cap Volume Depth (m)	0.000

Tank or Pond Manhole: 16 (HW), DS/PN: 1.019


Invert Level (m) 121.720

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	640.0	2.150	1751.0

Tank or Pond Manhole: 20 (HW), DS/PN: 1.023

Invert Level (m) 121.224

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	297.0	2.000	1420.0

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000      Additional Flow - % of Total Flow 0.000  
Hot Start (mins) 0      MADD Factor \* 10m<sup>3</sup>/ha Storage 1.000  
Hot Start Level (mm) 0      Inlet Coefficient 0.800  
Manhole Headloss Coeff (Global) 0.500      Flow per Person per Day (l/per/day) 0.000  
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0      Number of Storage Structures 6  
Number of Online Controls 4      Number of Time/Area Diagrams 0  
Number of Offline Controls 0      Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH  
Site Location GB 450500 225250 SP 50500 25250  
C (1km) -0.023  
D1 (1km) 0.328  
D2 (1km) 0.309  
D3 (1km) 0.264  
E (1km) 0.292  
F (1km) 2.461  
Cv (Summer) 0.750  
Cv (Winter) 0.840

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

Profile(s) Summer and Winter  
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440  
Return Period(s) (years) 100  
Climate Change (%) 30

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow Act.	O/F	Lvl Exc.
1.000	15 Winter	100	+30%	100/15 Summer	100/15 Winter			1
1.001	15 Winter	100	+30%	100/15 Summer				
1.002	15 Winter	100	+30%	100/15 Summer				
1.003	15 Winter	100	+30%	100/15 Summer				
1.004	15 Winter	100	+30%	100/15 Summer				
1.005	15 Winter	100	+30%	100/15 Summer				
2.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
1.006	15 Winter	100	+30%	100/15 Summer				
1.007	15 Winter	100	+30%	100/15 Summer				
1.008	15 Winter	100	+30%	100/15 Summer				
1.009	15 Winter	100	+30%	100/15 Summer				
1.010	480 Winter	100	+30%	100/15 Summer				
3.000	480 Winter	100	+30%	100/15 Summer				
3.001	480 Winter	100	+30%	100/15 Summer				
3.002	480 Winter	100	+30%	100/15 Summer				

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	Storm	Return Period	Climate Change	First X SurchARGE	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
1.011	480 Winter	100	+30%	100/15 Summer				
1.012	480 Winter	100	+30%					
1.013	480 Winter	100	+30%	100/15 Summer				
1.014	120 Winter	100	+30%					
4.000	15 Winter	100	+30%					
4.001	15 Winter	100	+30%	100/15 Winter				
4.002	15 Winter	100	+30%	100/15 Summer				
5.000	15 Winter	100	+30%	100/15 Summer	100/15 Winter			1
5.001	120 Winter	100	+30%					
1.015	120 Winter	100	+30%					
1.016	120 Winter	100	+30%	100/60 Winter				
1.017	120 Winter	100	+30%	100/60 Winter				
6.000	15 Winter	100	+30%	100/15 Summer				
7.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
6.001	15 Winter	100	+30%	100/15 Summer				
6.002	15 Winter	100	+30%	100/15 Summer				
6.003	15 Winter	100	+30%	100/15 Summer				
8.000	15 Winter	100	+30%	100/15 Summer				
9.000	15 Winter	100	+30%	100/15 Summer				
8.001	15 Winter	100	+30%	100/15 Summer				
8.002	15 Winter	100	+30%	100/15 Summer				
6.004	15 Winter	100	+30%	100/15 Summer				
6.005	15 Winter	100	+30%	100/15 Summer				
10.000	15 Winter	100	+30%	100/15 Summer				
1.018	240 Winter	100	+30%					
11.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			3
11.001	15 Summer	100	+30%	100/15 Summer				
12.000	15 Winter	100	+30%	100/15 Summer				
1.019	240 Winter	100	+30%					
1.020	240 Winter	100	+30%	100/120 Winter				
1.021	240 Winter	100	+30%	100/15 Winter				
13.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
1.022	60 Winter	100	+30%					
14.000	60 Winter	100	+30%	100/15 Summer				
14.001	60 Winter	100	+30%	100/15 Summer				
14.002	60 Winter	100	+30%	100/15 Summer				
14.003	60 Winter	100	+30%	100/15 Summer				
14.004	60 Winter	100	+30%	100/15 Summer				
15.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
15.001	15 Winter	100	+30%	100/15 Summer				
15.002	15 Winter	100	+30%	100/15 Summer				
16.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
16.001	15 Winter	100	+30%	100/15 Summer				
15.003	15 Winter	100	+30%	100/15 Summer				
17.000	15 Winter	100	+30%	100/15 Summer				
17.001	15 Winter	100	+30%	100/15 Summer				
17.002	15 Winter	100	+30%	100/15 Summer				
17.003	15 Winter	100	+30%	100/15 Summer				
15.004	15 Winter	100	+30%	100/15 Summer				
15.005	15 Winter	100	+30%	100/15 Summer				
18.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	Storm	Return Period	Climate Change	First X SurchARGE	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
18.001	15 Winter	100	+30%	100/15 Summer				
15.006	15 Winter	100	+30%	100/15 Summer				
15.007	15 Winter	100	+30%	100/15 Summer				
15.008	15 Winter	100	+30%	100/15 Summer				
15.009	15 Winter	100	+30%	100/15 Summer				
15.010	15 Winter	100	+30%	100/15 Summer				
15.011	15 Winter	100	+30%	100/15 Summer				
19.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			3
19.001	15 Winter	100	+30%	100/15 Summer				
19.002	15 Winter	100	+30%	100/15 Summer				
15.012	30 Winter	100	+30%	100/15 Summer				
15.013	60 Winter	100	+30%	100/15 Summer				
14.005	60 Winter	100	+30%	100/60 Winter	100/60 Winter			1
1.023	60 Winter	100	+30%	100/15 Summer				
1.024	30 Winter	100	+30%					
20.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
20.001	15 Winter	100	+30%	100/15 Summer				
20.002	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
20.003	15 Summer	100	+30%	100/15 Summer				
20.004	15 Winter	100	+30%	100/15 Summer				
21.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
20.005	15 Winter	100	+30%	100/15 Summer				
20.006	15 Winter	100	+30%	100/15 Summer				
20.007	15 Winter	100	+30%	100/15 Summer				
20.008	15 Winter	100	+30%	100/15 Summer				
20.009	15 Winter	100	+30%	100/15 Summer				
20.010	15 Winter	100	+30%	100/15 Summer				
1.025	30 Winter	100	+30%	100/15 Winter				
1.026	30 Winter	100	+30%	100/15 Summer				
1.027	30 Winter	100	+30%	100/15 Summer				
1.028	15 Winter	100	+30%	100/15 Summer				
1.029	15 Winter	100	+30%	100/15 Summer				
1.030	15 Winter	100	+30%	100/15 Summer				
1.031	15 Winter	100	+30%	100/15 Summer				
1.032	15 Winter	100	+30%	100/15 Summer				
1.033	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
1.034	15 Winter	100	+30%					
1.035	15 Winter	100	+30%					
1.036	15 Winter	100	+30%	100/15 Summer				

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
1.000	1 (B3)	125.831	0.951	1.032	1.51	0.0	24.8	FLOOD
1.001	2 (B3)	125.788	1.053	0.000	0.92	0.0	34.6	FLOOD RISK
1.002	3 (B3)	125.726	1.101	0.000	1.49	0.0	53.3	SURCHARGED
1.003	4 (B3)	125.640	1.090	0.000	0.85	0.0	67.0	SURCHARGED
1.004	5 (B3)	125.542	1.182	0.000	0.46	0.0	77.7	SURCHARGED
1.005	6 (B3)	125.480	1.210	0.000	0.41	0.0	93.3	SURCHARGED
2.000	7 (B3)	125.164	0.944	14.304	0.61	0.0	62.5	FLOOD

15-17 Goldington Road  
 Bedford  
 MK40 3NH



Date 07/11/2014 16:50

Designed by a.tew

File SW West Proposed 07.11....

Checked by

Micro Drainage

Network 2014.1.1

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
1.006	8 (B3)	125.347	1.247	0.000	1.15	0.0	279.4	FLOOD RISK
1.007	9 (B3)	125.212	1.267	0.000	1.34	0.0	324.3	FLOOD RISK
1.008	10 (B3)	124.934	1.159	0.000	1.80	0.0	373.5	FLOOD RISK
1.009	7 (B2b)	124.735	1.024	0.000	1.71	0.0	389.9	SURCHARGED
1.010	8a (B2b)	124.730	1.195	0.000	0.41	0.0	51.6	SURCHARGED
3.000	29 (B2a)	124.732	0.782	0.000	0.08	0.0	5.9	SURCHARGED
3.001	30 (B2a)	124.731	1.011	0.000	0.10	0.0	5.7	SURCHARGED
3.002	30a (B2a)	124.730	1.040	0.000	0.15	0.0	10.1	SURCHARGED
1.011	8	124.729	1.214	0.000	0.41	0.0	61.1	SURCHARGED
1.012	9 (HW)	124.727	-0.655	0.000	0.00	0.0	29.3	OK
1.013	10 (HW)	124.726	1.311	0.000	0.04	0.0	6.9	FLOOD RISK
1.014	11 (HB)	123.188	-0.217	0.000	0.06	0.0	6.4	OK
4.000	31 (B2a)	123.381	-0.094	0.000	0.60	0.0	65.1	OK
4.001	32 (B2a)	123.315	0.010	0.000	0.96	0.0	98.0	SURCHARGED
4.002	33 (B2a)	123.219	0.014	0.000	1.09	0.0	109.1	SURCHARGED
5.000	34 (B2b)	124.000	0.715	0.111	1.74	0.0	62.0	FLOOD
5.001	35 (B2b)	123.193	-0.037	0.000	0.26	0.0	32.7	OK
1.015	12 (HW)	123.187	-1.332	0.000	0.00	0.0	29.2	OK
1.016	13 (HW)	123.185	0.025	0.000	0.11	0.0	16.1	SURCHARGED
1.017	14 (HB)	123.188	0.043	0.000	0.09	0.0	15.1	SURCHARGED
6.000	36 (B2a)	124.325	1.000	0.000	1.11	0.0	71.4	FLOOD RISK
7.000	42 (B2a)	123.795	0.845	5.251	0.86	0.0	53.8	FLOOD
6.001	37 (B2a)	123.823	0.953	0.000	1.82	0.0	114.1	SURCHARGED
6.002	38 (B2a)	123.649	0.849	0.000	1.92	0.0	116.8	SURCHARGED
6.003	39 (B2a)	123.483	0.733	0.000	2.12	0.0	146.1	SURCHARGED
8.000	45 (B2a)	123.907	0.882	0.000	1.28	0.0	43.8	FLOOD RISK
9.000	46 (B2a)	123.841	0.746	0.000	0.31	0.0	12.6	FLOOD RISK
8.001	43 (B2a)	123.824	0.859	0.000	1.61	0.0	61.0	SURCHARGED
8.002	44 (B2a)	123.447	0.677	0.000	1.79	0.0	117.2	SURCHARGED
6.004	40 (B2a)	123.050	0.395	0.000	1.36	0.0	299.5	SURCHARGED
6.005	41 (B2a)	122.756	0.251	0.000	2.60	0.0	419.1	SURCHARGED
10.000	Private (B2b)	123.239	0.119	0.000	1.55	0.0	99.7	SURCHARGED
1.018	15 (HW)	122.471	-1.829	0.000	0.00	0.0	116.0	OK
11.000	47 (B2b)	123.737	0.992	6.588	1.84	0.0	68.8	FLOOD
11.001	48 (B2b)	123.644	1.099	0.000	2.28	0.0	109.5	FLOOD RISK
12.000	49 (B2a)	122.734	0.209	0.000	1.43	0.0	66.6	SURCHARGED
1.019	16 (HW)	122.462	-0.158	0.000	0.17	0.0	58.7	OK
1.020	17 (HW)	122.463	0.013	0.000	0.13	0.0	59.1	SURCHARGED
1.021	18 (HB)	122.459	0.209	0.000	0.25	0.0	59.4	SURCHARGED
13.000	Private (B2b)	123.352	0.452	2.321	1.20	0.0	48.0	FLOOD
1.022	19 (HW)	122.410	-0.854	0.000	0.00	0.0	57.0	OK
14.000	59 (B2b)	122.452	0.482	0.000	0.27	0.0	15.8	SURCHARGED
14.001	60 (B2b)	122.446	0.538	0.000	0.56	0.0	37.1	SURCHARGED
14.002	61 (B2b)	122.435	0.687	0.000	0.80	0.0	46.1	SURCHARGED
14.003	61a (B2b)	122.428	0.730	0.000	0.76	0.0	45.3	SURCHARGED
14.004	61b (B2b)	122.421	0.773	0.000	0.71	0.0	44.7	SURCHARGED
15.000	Existing	125.440	0.840	5.136	1.05	0.0	144.0	FLOOD
15.001	11 (B3)	125.235	0.935	0.000	1.52	0.0	139.4	SURCHARGED
15.002	12 (B3)	124.753	0.723	0.000	1.19	0.0	197.6	FLOOD RISK
16.000	13 (B3)	125.692	1.452	1.639	2.56	0.0	35.1	FLOOD

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
16.001	14 (B3)	124.954	0.904	0.000	1.67	0.0	78.5	SURCHARGED
15.003	15 (B3)	124.561	0.711	0.000	1.00	0.0	424.1	SURCHARGED
17.000	16 (B3)	125.272	0.927	0.000	1.57	0.0	60.7	SURCHARGED
17.001	17 (B3)	124.951	0.761	0.000	1.81	0.0	128.0	SURCHARGED
17.002	18 (B3)	124.442	0.487	0.000	0.53	0.0	180.8	SURCHARGED
17.003	19 (B3)	124.297	0.782	0.000	0.63	0.0	187.6	SURCHARGED
15.004	20 (B3)	124.167	0.897	0.000	1.02	0.0	548.2	SURCHARGED
15.005	68 (B2b)	123.871	0.891	0.000	1.33	0.0	570.6	SURCHARGED
18.000	69 (B2b)	123.573	0.853	22.828	0.48	0.0	67.1	FLOOD
18.001	70 (B2b)	123.682	1.052	0.000	0.61	0.0	65.9	FLOOD RISK
15.006	71 (B2b)	123.723	0.823	0.000	1.38	0.0	553.5	FLOOD RISK
15.007	72 (B2b)	123.639	0.789	0.000	1.34	0.0	603.0	SURCHARGED
15.008	73 (B2b)	123.490	0.720	0.000	1.64	0.0	651.2	FLOOD RISK
15.009	74 (B2b)	123.307	0.597	0.000	1.75	0.0	703.4	SURCHARGED
15.010	75 (B2b)	122.962	0.357	0.000	3.68	0.0	737.5	SURCHARGED
15.011	76 (B2b)	122.747	0.161	0.000	2.00	0.0	725.8	SURCHARGED
19.000	77 (B2b)	122.722	0.652	1.536	2.08	0.0	27.9	FLOOD
19.001	78 (B2b)	122.576	0.381	0.000	0.81	0.0	71.8	FLOOD RISK
19.002	79 (B2b)	122.567	0.412	0.000	1.38	0.0	128.0	SURCHARGED
15.012	80 (B2b)	122.541	0.431	0.000	1.89	0.0	742.5	SURCHARGED
15.013	81 (B2b)	122.445	0.421	0.000	2.91	0.0	606.9	SURCHARGED
14.005	HW 82 (B2b)	122.412	0.002	1.670	0.19	0.0	636.4	FLOOD
1.023	20 (HW)	122.410	0.286	0.000	0.37	0.0	187.5	SURCHARGED
1.024	21 (HB)	122.044	-0.071	0.000	0.35	0.0	185.7	OK
20.000	EX MH	125.374	1.086	21.497	1.66	0.0	1165.8	FLOOD
20.001	EX MH	124.859	1.019	0.000	1.34	0.0	1084.8	SURCHARGED
20.002	SD1	124.733	0.956	42.880	1.81	0.0	943.7	FLOOD
20.003	SD2	124.412	0.817	0.000	2.58	0.0	913.0	SURCHARGED
20.004	PI	124.173	0.888	0.000	1.77	0.0	896.6	SURCHARGED
21.000	0622	125.385	0.690	34.935	1.21	0.0	70.0	FLOOD
20.005	SD3	123.956	0.751	0.000	0.92	0.0	939.0	SURCHARGED
20.006	SD4	123.693	0.913	0.000	2.97	0.0	908.0	SURCHARGED
20.007	SD5	123.424	0.669	0.000	1.48	0.0	848.6	SURCHARGED
20.008	SD6	122.941	0.423	0.000	1.67	0.0	831.4	SURCHARGED
20.009	SD7	122.647	0.237	0.000	1.13	0.0	826.7	SURCHARGED
20.010	SD8	122.346	0.178	0.000	1.37	0.0	811.2	SURCHARGED
1.025	SD9	122.035	0.085	0.000	0.72	0.0	784.1	SURCHARGED
1.026	SD10	121.892	0.242	0.000	2.68	0.0	771.6	SURCHARGED
1.027	SD11	121.834	0.204	0.000	2.45	0.0	770.1	SURCHARGED
1.028	SD12	121.779	0.169	0.000	1.21	0.0	819.9	SURCHARGED
1.029	SD13	121.877	0.347	0.000	1.80	0.0	820.1	SURCHARGED
1.030	0307	121.942	0.459	0.000	0.97	0.0	815.8	SURCHARGED
1.031	0306	121.919	0.569	0.000	0.75	0.0	872.7	FLOOD RISK
1.032	0305	121.792	0.707	0.000	0.87	0.0	1151.2	FLOOD RISK
1.033	0369	121.245	1.100	10.858	4.50	0.0	1067.6	FLOOD
1.034	Channel	119.307	-0.833	0.000	0.08	0.0	1066.5	OK
1.035	Channel	117.255	-0.835	0.000	0.09	0.0	1065.4	OK
1.036	Double pipe	116.131	0.211	0.000	1.86	0.0	1041.3	SURCHARGED