


Woods Hardwick		Page 1
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW EAST PROPOSED 23.07.13.SWS

Pipe Sizes SW WEST DEVELOPMENT Manhole Sizes SW WEST DEVELOPMENT






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 SW EAST PROPOSED 23.07.13.SWS

- 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	48.425	0.442	109.6	0.075	5.00	0.0	0.600	o	150	
1.001	22.970	0.291	78.9	0.086	0.00	0.0	0.600	o	225	
1.002	37.335	0.452	82.6	0.100	0.00	0.0	0.600	o	225	
1.003	22.125	0.316	70.0	0.063	0.00	0.0	0.600	o	225	
1.004	51.854	0.429	120.9	0.142	0.00	0.0	0.600	o	225	

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	5.84	126.100	0.075	0.0	0.0	0.0	0.96	17.0	0.0
1.001	0.00	6.10	125.583	0.161	0.0	0.0	0.0	1.47	58.6	0.0
1.002	0.00	6.53	125.292	0.261	0.0	0.0	0.0	1.44	57.2	0.0
1.003	0.00	6.77	124.840	0.324	0.0	0.0	0.0	1.56	62.2	0.0
1.004	0.00	7.50	124.524	0.466	0.0	0.0	0.0	1.19	47.2	0.0

Woods Hardwick		Page 2
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1















Network Design Table for SW EAST PROPOSED 23.07.13.SWS

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
2.000	41.092	0.280	146.8	0.048	5.00	0.0	0.600	o	150	
2.001	8.985	0.108	83.2	0.000	0.00	0.0	0.600	o	150	
3.000	13.687	0.339	40.4	0.063	5.00	0.0	0.600	o	150	
3.001	22.832	0.195	117.1	0.039	0.00	0.0	0.600	o	150	
4.000	22.194	0.312	71.1	0.049	5.00	0.0	0.600	o	150	
2.002	16.307	0.123	132.6	0.055	0.00	0.0	0.600	o	225	
2.003	4.596	0.099	46.4	0.013	0.00	0.0	0.600	o	225	
2.004	20.705	0.228	90.8	0.000	0.00	0.0	0.600	o	225	
2.005	6.475	0.009	719.4	0.010	0.00	0.0	0.600	o	225	
5.000	20.917	0.226	92.6	0.060	5.00	0.0	0.600	o	150	
2.006	10.070	0.028	359.6	0.000	0.00	0.0	0.600	o	225	
1.005	48.316	0.433	111.6	0.064	0.00	0.0	0.600	o	225	
1.006	70.328#	0.872	80.7	0.393	0.00	0.0	0.600	o	300	
1.007	15.564#	0.450	34.6	0.000	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)
2.000	0.00	5.83	124.970	0.048	0.0	0.0	0.0	0.83	14.6	0.0
2.001	0.00	5.96	124.690	0.048	0.0	0.0	0.0	1.10	19.5	0.0
3.000	0.00	5.14	125.041	0.063	0.0	0.0	0.0	1.59	28.1	0.0
3.001	0.00	5.55	124.702	0.102	0.0	0.0	0.0	0.93	16.4	0.0
4.000	0.00	5.31	124.894	0.049	0.0	0.0	0.0	1.19	21.1	0.0
2.002	0.00	6.20	124.507	0.254	0.0	0.0	0.0	1.13	45.1	0.0
2.003	0.00	6.24	124.384	0.267	0.0	0.0	0.0	1.92	76.5	0.0
2.004	0.00	6.49	124.285	0.267	0.0	0.0	0.0	1.37	54.6	0.0
2.005	0.00	6.72	124.057	0.277	0.0	0.0	0.0	0.48	19.1	0.0
5.000	0.00	5.33	124.349	0.060	0.0	0.0	0.0	1.04	18.5	0.0
2.006	0.00	6.96	124.048	0.337	0.0	0.0	0.0	0.68	27.2	0.0
1.005	0.00	8.15	124.020	0.867	0.0	0.0	0.0	1.24	49.2	0.0
1.006	0.00	8.82	123.512	1.260	0.0	0.0	0.0	1.75	123.9	0.0
1.007	0.00	8.89	122.490	1.260	0.0	0.0	0.0	3.47	551.3	0.0

Network Design Table for SW EAST PROPOSED 23.07.13.SWS

















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
6.000	10.500#	0.100	105.0	0.079	5.00	0.0	0.600	o	150	
6.001	8.020#	0.810	9.9	0.000	0.00	0.0	0.600	o	300	
1.008	25.189#	0.320	78.7	0.004	0.00	0.0	0.600	o	450	
1.009	7.844#	0.070	112.1	0.017	0.00	0.0	0.600	o	450	
7.000	1.000#	0.010	100.0	0.000	5.00	0.0	0.600	o	300	
7.001	9.685#	0.140	69.2	0.059	0.00	0.0	0.600	o	150	
1.010	15.594#	0.385	40.5	0.000	0.00	0.0	0.600	o	450	
8.000	66.397	0.579	114.7	0.112	5.00	0.0	0.600	o	150	
8.001	6.889	0.063	109.3	0.041	0.00	0.0	0.600	o	225	
8.002	48.289	0.423	114.2	0.064	0.00	0.0	0.600	o	225	
9.000	13.342	0.130	102.6	0.050	5.00	0.0	0.600	o	150	
9.001	5.771	0.295	19.6	0.030	0.00	0.0	0.600	o	150	
8.003	44.670#	0.550	81.2	0.120	0.00	0.0	0.600	o	225	
10.000	22.661#	0.151	150.1	0.050	5.00	0.0	0.600	o	150	

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)
6.000	0.00	5.18	123.250	0.079	0.0	0.0	0.0	0.98	17.3	0.0
6.001	0.00	5.21	123.000	0.079	0.0	0.0	0.0	5.02	355.2	0.0
1.008	0.00	9.07	122.040	1.343	0.0	0.0	0.0	2.29	364.7	0.0
1.009	0.00	9.14	121.720	1.360	0.0	0.0	0.0	1.92	305.4	0.0
7.000	0.00	5.01	122.100	0.000	0.0	0.0	0.0	1.57	111.1	0.0
7.001	0.00	5.14	122.090	0.059	0.0	0.0	0.0	1.21	21.4	0.0
1.010	0.00	9.22	121.650	1.419	0.0	0.0	0.0	3.20	509.3	0.0
8.000	0.00	6.18	125.230	0.112	0.0	0.0	0.0	0.94	16.6	0.0
8.001	0.00	6.27	124.576	0.153	0.0	0.0	0.0	1.25	49.7	0.0
8.002	0.00	6.93	124.513	0.217	0.0	0.0	0.0	1.22	48.6	0.0
9.000	0.00	5.22	124.590	0.050	0.0	0.0	0.0	0.99	17.5	0.0
9.001	0.00	5.27	124.460	0.080	0.0	0.0	0.0	2.29	40.4	0.0
8.003	0.00	7.44	124.015	0.417	0.0	0.0	0.0	1.45	57.7	0.0
10.000	0.00	5.46	123.691	0.050	0.0	0.0	0.0	0.82	14.5	0.0


Woods Hardwick		Page 4
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS















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
8.004	9.590#	0.055	174.4	0.000	0.00	0.0	0.600	o	225	
8.005	46.800#	0.430	108.8	0.147	0.00	0.0	0.600	o	300	
8.006	3.585#	0.353	10.2	0.059	0.00	0.0	0.600	o	300	
11.000	10.000	0.100	100.0	0.291	5.00	0.0	0.600	o	300	
11.001	14.407#	0.210	68.6	0.000	0.00	0.0	0.600	o	300	
11.002	89.250#	0.438	203.8	0.121	0.00	0.0	0.600	o	300	
12.000	7.282#	0.748	9.7	0.030	5.00	0.0	0.600	o	150	
8.007	22.990#	0.912	25.2	0.027	0.00	0.0	0.600	o	300	
13.000	12.568	0.171	73.5	0.041	5.00	0.0	0.600	o	150	
13.001	5.616	0.030	187.2	0.048	0.00	0.0	0.600	o	150	
13.002	12.180#	0.076	160.3	0.044	0.00	0.0	0.600	o	150	
13.003	17.830#	0.032	557.2	0.052	0.00	0.0	0.600	o	150	
13.004	15.688#	0.099	158.5	0.050	0.00	0.0	0.600	o	150	
13.005	7.556#	0.894	8.5	0.030	0.00	0.0	0.600	o	150	
14.000	17.960#	0.502	35.8	0.020	5.00	0.0	0.600	o	150	
15.000	1.000	0.517	1.9	0.020	5.00	0.0	0.600	o	150	

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)
8.004	0.00	7.60	123.465	0.467	0.0	0.0	0.0	0.99	39.2	0.0
8.005	0.00	8.12	123.335	0.614	0.0	0.0	0.0	1.51	106.5	0.0
8.006	0.00	8.13	122.905	0.673	0.0	0.0	0.0	4.96	350.7	0.0
11.000	0.00	5.11	123.300	0.291	0.0	0.0	0.0	1.57	111.1	0.0
11.001	0.00	5.23	123.200	0.291	0.0	0.0	0.0	1.90	134.4	0.0
11.002	0.00	6.59	122.990	0.412	0.0	0.0	0.0	1.10	77.6	0.0
12.000	0.00	5.04	123.450	0.030	0.0	0.0	0.0	3.25	57.4	0.0
8.007	0.00	8.26	122.552	1.142	0.0	0.0	0.0	3.14	222.3	0.0
13.000	0.00	5.18	123.172	0.041	0.0	0.0	0.0	1.17	20.7	0.0
13.001	0.00	5.31	123.001	0.089	0.0	0.0	0.0	0.73	12.9	0.0
13.002	0.00	5.56	122.971	0.133	0.0	0.0	0.0	0.79	14.0	0.0
13.003	0.00	6.27	122.895	0.185	0.0	0.0	0.0	0.42	7.4	0.0
13.004	0.00	6.60	122.863	0.235	0.0	0.0	0.0	0.80	14.1	0.0
13.005	0.00	6.64	122.764	0.265	0.0	0.0	0.0	3.49	61.6	0.0
14.000	0.00	5.18	123.122	0.020	0.0	0.0	0.0	1.69	29.8	0.0
15.000	0.00	5.00	123.145	0.020	0.0	0.0	0.0	7.30	129.1	0.0


Woods Hardwick		Page 5
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS















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	41.837#	0.250	167.3	0.000	0.00	0.0	0.600	o	300	
16.000	13.134#	0.108	121.6	0.000	5.00	0.0	0.600	o	150	
16.001	70.619#	0.220	321.0	0.097	0.00	0.0	0.600	o	375	
16.002	34.858#	0.105	332.0	0.190	0.00	0.0	0.600	o	375	
13.006	24.902#	0.080	311.3	0.030	0.00	0.0	0.600	o	450	
8.008	56.214#	0.185	303.9	0.013	0.00	0.0	0.600	o	450	
17.000	18.666#	0.100	186.7	0.010	5.00	0.0	0.600	o	300	
17.001	5.606#	0.030	186.9	0.005	0.00	0.0	0.600	o	300	
17.002	25.784#	0.110	234.4	0.000	0.00	0.0	0.600	o	300	
17.003	7.630#	0.040	190.8	0.038	0.00	0.0	0.600	o	300	
17.004	12.974#	0.030	432.5	0.004	0.00	0.0	0.600	o	600	
18.000	13.268#	0.055	241.2	0.016	5.00	0.0	0.600	o	300	
17.005	39.671#	0.090	440.8	0.047	0.00	0.0	0.600	o	600	
17.006	31.681#	0.070	452.6	0.107	0.00	0.0	0.600	o	600	

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	5.75	121.970	0.040	0.0	0.0	0.0	1.21	85.7	0.0
16.000	0.00	5.24	122.303	0.000	0.0	0.0	0.0	0.91	16.1	0.0
16.001	0.00	6.41	121.970	0.097	0.0	0.0	0.0	1.01	111.1	0.0
16.002	0.00	7.00	121.750	0.287	0.0	0.0	0.0	0.99	109.2	0.0
13.006	0.00	7.36	121.570	0.622	0.0	0.0	0.0	1.15	182.4	0.0
8.008	0.00	9.06	121.490	1.777	0.0	0.0	0.0	1.16	184.6	0.0
17.000	0.00	5.27	122.150	0.010	0.0	0.0	0.0	1.15	81.1	0.0
17.001	0.00	5.35	122.050	0.015	0.0	0.0	0.0	1.15	81.1	0.0
17.002	0.00	5.77	122.020	0.015	0.0	0.0	0.0	1.02	72.3	0.0
17.003	0.00	5.88	121.910	0.053	0.0	0.0	0.0	1.13	80.2	0.0
17.004	0.00	6.07	121.570	0.057	0.0	0.0	0.0	1.16	329.3	0.0
18.000	0.00	5.22	121.895	0.016	0.0	0.0	0.0	1.01	71.2	0.0
17.005	0.00	6.64	121.540	0.120	0.0	0.0	0.0	1.15	326.1	0.0
17.006	0.00	7.11	121.450	0.227	0.0	0.0	0.0	1.14	321.8	0.0


Woods Hardwick		Page 6
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS














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
19.000	17.303#	0.220	78.7	0.033	5.00	0.0	0.600	o	300	
17.007	5.047#	0.020	252.4	0.000	0.00	0.0	0.600	o	600	
17.008	14.888#	0.055	270.7	0.075	0.00	0.0	0.600	o	450	
1.011	41.647#	0.150	277.6	0.000	0.00	0.0	0.600	o	525	
1.012	42.119	0.155	271.7	0.059	0.00	0.0	0.600	o	525	
1.013	4.668	0.020	233.4	0.000	0.00	0.0	0.600	ooo	-6	
1.014	20.352	0.075	271.4	0.000	0.00	0.0	0.600	o	525	
20.000	3.770#	0.640	5.9	0.000	5.00	0.0	0.600	o	100	
21.000	19.005#	0.135	140.8	0.020	5.00	0.0	0.600	o	225	
20.001	23.689#	0.180	131.6	0.039	0.00	0.0	0.600	o	225	
22.000	5.520#	0.821	6.7	0.030	5.00	0.0	0.600	o	100	
20.002	23.205#	0.170	136.5	0.016	0.00	0.0	0.600	o	225	
23.000	3.269#	0.040	81.7	0.050	5.00	0.0	0.600	o	100	
23.001	7.073#	0.188	37.6	0.050	0.00	0.0	0.600	o	100	

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)
19.000	0.00	5.16	121.900	0.033	0.0	0.0	0.0	1.77	125.4	0.0
17.007	0.00	7.16	121.380	0.260	0.0	0.0	0.0	1.53	432.1	0.0
17.008	0.00	7.36	121.360	0.335	0.0	0.0	0.0	1.23	195.8	0.0
1.011	0.00	9.74	121.230	3.531	0.0	0.0	0.0	1.34	289.9	0.0
1.012	0.00	10.26	121.080	3.590	0.0	0.0	0.0	1.35	293.1	0.0
1.013	0.00	10.34	120.925	3.590	0.0	0.0	0.0	1.02	217.3	0.0
1.014	0.00	10.59	120.905	3.590	0.0	0.0	0.0	1.35	293.3	0.0
20.000	0.00	5.02	124.635	0.000	0.0	0.0	0.0	3.21	25.2	0.0
21.000	0.00	5.29	124.005	0.020	0.0	0.0	0.0	1.10	43.7	0.0
20.001	0.00	5.63	123.870	0.059	0.0	0.0	0.0	1.14	45.3	0.0
22.000	0.00	5.03	124.636	0.030	0.0	0.0	0.0	3.00	23.6	0.0
20.002	0.00	5.98	123.690	0.105	0.0	0.0	0.0	1.12	44.4	0.0
23.000	0.00	5.06	124.690	0.050	0.0	0.0	0.0	0.85	6.7	0.0
23.001	0.00	5.16	124.650	0.100	0.0	0.0	0.0	1.26	9.9	0.0


Woods Hardwick		Page 7
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS













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
23.002	8.244#	0.817	10.1	0.047	0.00	0.0	0.600	o	100	
20.003	12.105#	0.090	134.5	0.210	0.00	0.0	0.600	o	225	
20.004	35.751#	0.400	89.4	0.036	0.00	0.0	0.600	o	225	
24.000	21.472#	0.130	165.2	0.034	5.00	0.0	0.600	o	225	
20.005	34.159#	0.285	119.9	0.026	0.00	0.0	0.600	o	225	
20.006	70.423#	1.250	56.3	0.076	0.00	0.0	0.600	o	225	
25.000	10.000	0.070	142.9	0.200	5.00	0.0	0.600	o	450	
25.001	10.821	0.050	216.4	0.008	0.00	0.0	0.600	o	300	
20.007	80.000	0.365	219.2	0.090	0.00	0.0	0.600	o	300	
26.000	30.000	0.300	100.0	0.295	5.00	0.0	0.600	o	375	
26.001	31.535#	0.210	150.2	0.100	0.00	0.0	0.600	o	300	
27.000	14.422	0.415	34.8	0.003	5.00	0.0	0.600	o	150	
28.000	16.275	0.215	75.7	0.034	5.00	0.0	0.600	o	150	

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)
23.002	0.00	5.21	124.462	0.147	0.0	0.0	0.0	2.45	19.2	0.0
20.003	0.00	6.16	123.520	0.462	0.0	0.0	0.0	1.13	44.8	0.0
20.004	0.00	6.59	123.430	0.498	0.0	0.0	0.0	1.38	55.0	0.0
24.000	0.00	5.35	123.160	0.034	0.0	0.0	0.0	1.01	40.3	0.0
20.005	0.00	7.07	123.030	0.558	0.0	0.0	0.0	1.19	47.4	0.0
20.006	0.00	7.74	122.745	0.634	0.0	0.0	0.0	1.75	69.4	0.0
25.000	0.00	5.10	121.540	0.200	0.0	0.0	0.0	1.70	270.2	0.0
25.001	0.00	5.27	121.470	0.208	0.0	0.0	0.0	1.06	75.3	0.0
20.007	0.00	9.00	121.420	0.932	0.0	0.0	0.0	1.06	74.8	0.0
26.000	0.00	5.28	122.400	0.295	0.0	0.0	0.0	1.81	200.1	0.0
26.001	0.00	5.69	122.100	0.395	0.0	0.0	0.0	1.28	90.5	0.0
27.000	0.00	5.14	124.320	0.003	0.0	0.0	0.0	1.71	30.3	0.0
28.000	0.00	5.23	124.120	0.034	0.0	0.0	0.0	1.16	20.4	0.0


Woods Hardwick		Page 8
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS















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
27.001	100.000	1.865	53.6	0.132	0.00	0.0	0.600	o	225	
26.002	53.884	0.400	134.7	0.057	0.00	0.0	0.600	o	300	
29.000	10.000	0.080	125.0	0.079	5.00	0.0	0.600	o	375	
29.001	12.515	0.130	96.3	0.050	0.00	0.0	0.600	o	300	
26.003	50.998	0.435	117.2	0.046	0.00	0.0	0.600	o	300	
30.000	29.940#	0.100	299.4	0.000	5.00	0.0	0.600	o	525	
1.015	20.192#	0.300	67.3	0.040	0.00	0.0	0.600	o	525	
31.000	33.480#	0.125	267.8	0.317	5.00	0.0	0.600	o	375	
32.000	18.553#	0.335	55.4	0.050	5.00	0.0	0.600	o	225	
31.001	20.585#	0.260	79.2	0.000	0.00	0.0	0.600	o	150	
1.016	34.280#	0.520	65.9	0.000	0.00	0.0	0.600	o	525	
33.000	17.445#	0.840	20.8	0.000	5.00	0.0	0.600	o	375	

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)
27.001	0.00	6.17	123.830	0.169	0.0	0.0	0.0	1.79	71.2	0.0
26.002	0.00	6.83	121.890	0.621	0.0	0.0	0.0	1.35	95.6	0.0
29.000	0.00	5.10	121.700	0.079	0.0	0.0	0.0	1.62	178.8	0.0
29.001	0.00	5.23	121.620	0.129	0.0	0.0	0.0	1.60	113.3	0.0
26.003	0.00	7.42	121.490	0.796	0.0	0.0	0.0	1.45	102.6	0.0
30.000	0.00	5.39	120.930	0.000	0.0	0.0	0.0	1.29	279.1	0.0
1.015	0.00	10.71	120.830	5.358	0.0	0.0	0.0	2.73	591.7	0.0
31.000	0.00	5.51	121.290	0.317	0.0	0.0	0.0	1.10	121.7	0.0
32.000	0.00	5.18	121.500	0.050	0.0	0.0	0.0	1.76	70.0	0.0
31.001	0.00	5.81	121.165	0.367	0.0	0.0	0.0	1.13	20.0	0.0
1.016	0.00	10.92	120.530	5.725	0.0	0.0	0.0	2.76	597.9	0.0
33.000	0.00	5.07	123.380	0.000	0.0	0.0	0.0	3.99	440.8	0.0


Woods Hardwick		Page 9
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS

















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
33.001	14.193	0.186	76.3	0.044	0.00	0.0	0.600	o	375	
33.002	3.120#	0.119	26.2	0.000	0.00	0.0	0.600	o	375	
34.000	33.846#	0.205	165.1	0.019	5.00	0.0	0.600	o	225	
33.003	58.196#	1.055	55.2	0.039	0.00	0.0	0.600	o	375	
35.000	25.340#	0.125	202.7	0.174	5.00	0.0	0.600	o	300	
35.001	23.100#	0.190	121.6	0.000	0.00	0.0	0.600	o	150	
33.004	72.000#	0.480	150.0	0.037	0.00	0.0	0.600	o	375	
33.005	29.329#	0.465	63.1	0.000	0.00	0.0	0.600	o	375	
1.017	13.550	0.200	67.8	0.077	0.00	0.0	0.600	oo	45	
36.000	29.000	0.480	60.4	0.180	5.00	0.0	0.600	o	300	
36.001	5.000	0.050	100.0	0.000	0.00	0.0	0.600	o	300	
1.018	42.000	0.185	227.0	0.000	0.00	0.0	0.600	oo	45	
37.000	36.380	0.160	227.4	0.180	5.00	0.0	0.600	o	300	
37.001	2.210	0.040	55.3	0.000	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)
33.001	0.00	5.19	122.540	0.044	0.0	0.0	0.0	2.08	229.3	0.0
33.002	0.00	5.20	122.354	0.044	0.0	0.0	0.0	3.55	392.2	0.0
34.000	0.00	5.56	122.590	0.019	0.0	0.0	0.0	1.01	40.3	0.0
33.003	0.00	5.95	122.235	0.102	0.0	0.0	0.0	2.44	269.9	0.0
35.000	0.00	5.38	121.720	0.174	0.0	0.0	0.0	1.10	77.8	0.0
35.001	0.00	5.81	121.595	0.174	0.0	0.0	0.0	0.91	16.1	0.0
33.004	0.00	6.77	121.180	0.313	0.0	0.0	0.0	1.48	163.1	0.0
33.005	0.00	6.98	120.700	0.313	0.0	0.0	0.0	2.28	252.3	0.0
1.017	0.00	10.99	120.010	6.115	0.0	0.0	0.0	2.96	1672.3	0.0
36.000	0.00	5.24	120.640	0.180	0.0	0.0	0.0	2.03	143.2	0.0
36.001	0.00	5.29	120.160	0.180	0.0	0.0	0.0	1.57	111.1	0.0
1.018	0.00	11.43	119.810	6.295	0.0	0.0	0.0	1.61	910.3	0.0
37.000	0.00	5.58	120.050	0.180	0.0	0.0	0.0	1.04	73.4	0.0
37.001	0.00	5.60	119.890	0.180	0.0	0.0	0.0	2.12	149.8	0.0


Woods Hardwick		Page 10
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS
















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
1.019	5.518	0.075	73.6	0.000	0.00	0.0	0.600	o	525	
1.020	67.455#	0.450	149.9	0.016	0.00	0.0	0.600	o	525	
1.021	11.110#	0.080	138.9	0.000	0.00	0.0	0.600	o	525	
1.022	35.286#	0.180	196.0	0.000	0.00	0.0	0.600	o	525	
38.000	29.177#	0.300	97.3	0.047	5.00	0.0	0.600	o	300	
38.001	10.806#	0.370	29.2	0.100	0.00	0.0	0.600	o	300	
38.002	7.249#	0.075	96.7	0.062	0.00	0.0	0.600	o	150	
1.023	24.253#	0.080	303.2	0.010	0.00	0.0	0.600	o	525	
1.024	14.210#	0.050	284.2	0.000	0.00	0.0	0.600	o	525	
39.000	16.934#	0.100	169.3	0.031	5.00	0.0	0.600	o	225	
39.001	12.904#	0.076	169.8	0.020	0.00	0.0	0.600	o	225	
39.002	16.240#	0.067	242.4	0.052	0.00	0.0	0.600	o	300	
40.000	4.750#	0.030	158.3	0.119	5.00	0.0	0.600	o	300	
40.001	15.695#	0.100	157.0	0.000	0.00	0.0	0.600	o	300	
40.002	19.723#	0.208	94.8	0.000	0.00	0.0	0.600	o	150	
39.003	80.958#	0.352	230.0	0.000	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)
1.019	0.00	11.46	119.625	6.475	0.0	0.0	0.0	2.61	565.8	0.0
1.020	0.00	12.08	119.550	6.491	0.0	0.0	0.0	1.83	395.6	0.0
1.021	0.00	12.18	119.100	6.491	0.0	0.0	0.0	1.90	411.1	0.0
1.022	0.00	12.54	119.020	6.491	0.0	0.0	0.0	1.60	345.5	0.0
38.000	0.00	5.30	119.960	0.047	0.0	0.0	0.0	1.59	112.7	0.0
38.001	0.00	5.37	119.660	0.147	0.0	0.0	0.0	2.92	206.4	0.0
38.002	0.00	5.48	119.290	0.209	0.0	0.0	0.0	1.02	18.1	0.0
1.023	0.00	12.86	118.840	6.710	0.0	0.0	0.0	1.28	277.3	0.0
1.024	0.00	13.04	118.760	6.710	0.0	0.0	0.0	1.32	286.5	0.0
39.000	0.00	5.28	121.490	0.031	0.0	0.0	0.0	1.00	39.8	0.0
39.001	0.00	5.50	121.390	0.051	0.0	0.0	0.0	1.00	39.8	0.0
39.002	0.00	5.77	121.239	0.103	0.0	0.0	0.0	1.01	71.1	0.0
40.000	0.00	5.06	121.660	0.119	0.0	0.0	0.0	1.25	88.1	0.0
40.001	0.00	5.27	121.630	0.119	0.0	0.0	0.0	1.25	88.5	0.0
40.002	0.00	5.59	121.530	0.119	0.0	0.0	0.0	1.03	18.2	0.0
39.003	0.00	7.07	121.172	0.222	0.0	0.0	0.0	1.03	73.0	0.0


Woods Hardwick		Page 11
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS
















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
39.004	34.696#	0.145	239.3	0.000	0.00	0.0	0.600	o	300	
39.005	18.331#	0.075	244.4	0.000	0.00	0.0	0.600	o	300	
39.006	18.975#	0.080	237.2	0.031	0.00	0.0	0.600	o	300	
39.007	62.332#	0.240	259.7	0.077	0.00	0.0	0.600	o	300	
41.000	1.000#	0.020	50.0	0.000	5.00	0.0	0.600	o	100	
41.001	8.040#	0.620	13.0	0.140	0.00	0.0	0.600	o	150	
42.000	22.797#	0.350	65.1	0.020	5.00	0.0	0.600	o	150	
39.008	19.861#	0.130	152.8	0.000	0.00	0.0	0.600	o	300	
39.009	40.390#	0.190	212.6	0.000	0.00	0.0	0.600	o	300	
39.010	33.848#	0.270	125.4	0.030	0.00	0.0	0.600	o	300	
43.000	1.000#	0.010	100.0	0.000	5.00	0.0	0.600	o	300	
44.000	22.652#	0.100	226.5	0.084	5.00	0.0	0.600	o	300	
44.001	31.508#	0.180	175.0	0.000	0.00	0.0	0.600	o	300	
43.001	3.579#	0.180	19.9	0.093	0.00	0.0	0.600	o	150	
39.011	29.404#	0.125	235.2	0.068	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)
39.004	0.00	7.64	120.820	0.222	0.0	0.0	0.0	1.01	71.5	0.0
39.005	0.00	7.95	120.675	0.222	0.0	0.0	0.0	1.00	70.8	0.0
39.006	0.00	8.26	120.600	0.253	0.0	0.0	0.0	1.02	71.9	0.0
39.007	0.00	9.33	120.520	0.330	0.0	0.0	0.0	0.97	68.6	0.0
41.000	0.00	5.02	121.120	0.000	0.0	0.0	0.0	1.09	8.6	0.0
41.001	0.00	5.06	121.050	0.140	0.0	0.0	0.0	2.81	49.7	0.0
42.000	0.00	5.30	120.780	0.020	0.0	0.0	0.0	1.25	22.1	0.0
39.008	0.00	9.59	120.280	0.490	0.0	0.0	0.0	1.27	89.7	0.0
39.009	0.00	10.22	120.150	0.490	0.0	0.0	0.0	1.07	75.9	0.0
39.010	0.00	10.62	119.960	0.520	0.0	0.0	0.0	1.40	99.2	0.0
43.000	0.00	5.01	120.030	0.000	0.0	0.0	0.0	1.57	111.1	0.0
44.000	0.00	5.36	120.300	0.084	0.0	0.0	0.0	1.04	73.5	0.0
44.001	0.00	5.81	120.200	0.084	0.0	0.0	0.0	1.19	83.8	0.0
43.001	0.00	5.83	120.020	0.177	0.0	0.0	0.0	2.27	40.1	0.0
39.011	0.00	11.10	119.690	0.765	0.0	0.0	0.0	1.02	72.2	0.0


Woods Hardwick		Page 12
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS


















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
45.000	10.000	0.040	250.0	0.066	5.00	0.0	0.600	o	300	
45.001	3.130	0.029	107.9	0.000	0.00	0.0	0.600	o	225	
45.002	42.106	0.506	83.2	0.018	0.00	0.0	0.600	o	375	
45.003	27.683	0.835	33.2	0.000	0.00	0.0	0.600	oo	-3	
39.012	20.452#	0.630	32.5	0.020	0.00	0.0	0.600	o	375	
1.025	11.100#	0.250	44.4	0.070	0.00	0.0	0.600	o	525	
46.000	16.507#	0.829	19.9	0.050	5.00	0.0	0.600	o	225	
1.026	65.237#	1.440	45.3	0.000	0.00	0.0	0.600	o	525	
1.027	7.970#	0.030	265.7	0.033	0.00	0.0	0.600	o	525	
1.028	49.110#	0.190	258.5	0.000	0.00	0.0	0.600	o	600	
47.000	43.403#	0.550	78.9	0.030	5.00	0.0	0.600	o	100	
47.001	15.654#	0.110	142.3	0.012	0.00	0.0	0.600	o	150	
47.002	25.507#	0.170	150.0	0.066	0.00	0.0	0.600	o	150	
47.003	14.388#	0.100	143.9	0.043	0.00	0.0	0.600	o	150	
48.000	32.387#	0.217	149.2	0.017	5.00	0.0	0.600	o	150	

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)
45.000	0.00	5.17	121.200	0.066	0.0	0.0	0.0	0.99	70.0	0.0
45.001	0.00	5.21	121.160	0.066	0.0	0.0	0.0	1.26	50.0	0.0
45.002	0.00	5.56	120.981	0.084	0.0	0.0	0.0	1.99	219.5	0.0
45.003	0.00	5.77	120.475	0.084	0.0	0.0	0.0	2.28	182.4	0.0
39.012	0.00	11.21	119.490	0.869	0.0	0.0	0.0	3.19	352.3	0.0
1.025	0.00	13.09	118.710	7.649	0.0	0.0	0.0	3.37	729.1	0.0
46.000	0.00	5.09	119.589	0.050	0.0	0.0	0.0	2.95	117.1	0.0
1.026	0.00	13.42	118.460	7.699	0.0	0.0	0.0	3.33	721.8	0.0
1.027	0.00	13.52	117.020	7.732	0.0	0.0	0.0	1.37	296.4	0.0
1.028	0.00	14.06	115.470	7.732	0.0	0.0	0.0	1.51	426.9	0.0
47.000	0.00	5.83	121.700	0.030	0.0	0.0	0.0	0.87	6.8	0.0
47.001	0.00	6.14	121.150	0.042	0.0	0.0	0.0	0.84	14.8	0.0
47.002	0.00	6.66	121.040	0.108	0.0	0.0	0.0	0.82	14.5	0.0
47.003	0.00	6.95	120.870	0.151	0.0	0.0	0.0	0.84	14.8	0.0
48.000	0.00	5.66	122.250	0.017	0.0	0.0	0.0	0.82	14.5	0.0


Woods Hardwick		Page 13
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS
















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
48.001	14.350#	0.096	149.5	0.036	0.00	0.0	0.600	o	150	
48.002	42.417#	1.167	36.3	0.000	0.00	0.0	0.600	o	150	
47.004	16.920#	0.120	141.0	0.088	0.00	0.0	0.600	o	150	
47.005	29.021#	0.200	145.1	0.180	0.00	0.0	0.600	o	150	
47.006	29.194#	0.200	146.0	0.037	0.00	0.0	0.600	o	150	
47.007	4.919#	0.038	129.4	0.047	0.00	0.0	0.600	o	150	
47.008	4.903#	0.038	129.0	0.002	0.00	0.0	0.600	o	150	
49.000	21.931#	0.327	67.1	0.019	5.00	0.0	0.600	o	100	
49.001	20.176#	0.324	62.3	0.012	0.00	0.0	0.600	o	150	
49.002	14.181#	0.226	62.7	0.012	0.00	0.0	0.600	o	150	
49.003	22.288#	0.800	27.9	0.000	0.00	0.0	0.600	o	150	
47.009	17.551#	0.119	147.5	0.020	0.00	0.0	0.600	o	150	
50.000	29.924#	0.395	75.8	0.108	5.00	0.0	0.600	o	150	
50.001	28.247#	0.250	113.0	0.037	0.00	0.0	0.600	o	150	
50.002	14.417#	0.195	73.9	0.017	0.00	0.0	0.600	o	150	
51.000	37.779#	0.329	114.8	0.023	5.00	0.0	0.600	o	100	
51.001	27.973#	0.669	41.8	0.018	0.00	0.0	0.600	o	150	

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)
48.001	0.00	5.95	122.033	0.053	0.0	0.0	0.0	0.82	14.5	0.0
48.002	0.00	6.37	121.937	0.053	0.0	0.0	0.0	1.67	29.6	0.0
47.004	0.00	7.29	120.770	0.292	0.0	0.0	0.0	0.84	14.9	0.0
47.005	0.00	7.87	120.650	0.472	0.0	0.0	0.0	0.83	14.7	0.0
47.006	0.00	8.45	120.450	0.509	0.0	0.0	0.0	0.83	14.7	0.0
47.007	0.00	8.55	120.250	0.556	0.0	0.0	0.0	0.88	15.6	0.0
47.008	0.00	8.64	120.212	0.558	0.0	0.0	0.0	0.88	15.6	0.0
49.000	0.00	5.39	121.851	0.019	0.0	0.0	0.0	0.94	7.4	0.0
49.001	0.00	5.65	121.524	0.031	0.0	0.0	0.0	1.28	22.6	0.0
49.002	0.00	5.84	121.200	0.043	0.0	0.0	0.0	1.27	22.5	0.0
49.003	0.00	6.03	120.974	0.043	0.0	0.0	0.0	1.91	33.8	0.0
47.009	0.00	8.99	120.174	0.621	0.0	0.0	0.0	0.83	14.6	0.0
50.000	0.00	5.43	121.665	0.108	0.0	0.0	0.0	1.16	20.4	0.0
50.001	0.00	5.93	121.270	0.145	0.0	0.0	0.0	0.94	16.7	0.0
50.002	0.00	6.13	121.020	0.162	0.0	0.0	0.0	1.17	20.7	0.0
51.000	0.00	5.88	121.880	0.023	0.0	0.0	0.0	0.72	5.6	0.0
51.001	0.00	6.18	121.551	0.041	0.0	0.0	0.0	1.56	27.6	0.0


Woods Hardwick		Page 14
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS


















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
51.002	42.507#	0.133	319.6	0.266	0.00	0.0	0.600	o	225	
50.003	12.673#	0.555	22.8	0.048	0.00	0.0	0.600	o	225	
50.004	10.364#	0.110	94.2	0.062	0.00	0.0	0.600	o	225	
50.005	27.312#	0.029	941.8	0.069	0.00	0.0	0.600	o	300	
47.010	24.204#	0.169	143.2	0.066	0.00	0.0	0.600	o	300	
52.000	13.405#	0.060	223.4	0.050	5.00	0.0	0.600	o	300	
52.001	13.405#	0.050	268.1	0.000	0.00	0.0	0.600	o	300	
52.002	35.413#	0.140	253.0	0.000	0.00	0.0	0.600	o	300	
52.003	11.912#	0.050	238.2	0.000	0.00	0.0	0.600	o	300	
52.004	17.270#	0.064	269.8	0.000	0.00	0.0	0.600	o	300	
47.011	115.388#	2.913	39.6	0.208	0.00	0.0	0.600	o	300	
47.012	3.690#	0.303	12.2	0.050	0.00	0.0	0.600	o	300	
53.000	77.000#	1.680	45.8	0.094	5.00	0.0	0.600	o	225	
47.013	25.956#	1.090	23.8	0.000	0.00	0.0	0.600	o	300	
1.029	34.847#	0.120	290.4	0.036	0.00	0.0	0.600	o	600	

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)
51.002	0.00	7.15	120.882	0.307	0.0	0.0	0.0	0.73	28.9	0.0
50.003	0.00	7.23	120.749	0.517	0.0	0.0	0.0	2.75	109.3	0.0
50.004	0.00	7.36	120.194	0.579	0.0	0.0	0.0	1.35	53.6	0.0
50.005	0.00	8.26	120.084	0.648	0.0	0.0	0.0	0.50	35.6	0.0
47.010	0.00	9.30	120.055	1.335	0.0	0.0	0.0	1.31	92.7	0.0
52.000	0.00	5.21	120.250	0.050	0.0	0.0	0.0	1.05	74.1	0.0
52.001	0.00	5.45	120.190	0.050	0.0	0.0	0.0	0.96	67.5	0.0
52.002	0.00	6.05	120.140	0.050	0.0	0.0	0.0	0.98	69.6	0.0
52.003	0.00	6.24	120.000	0.050	0.0	0.0	0.0	1.01	71.7	0.0
52.004	0.00	6.54	119.950	0.050	0.0	0.0	0.0	0.95	67.3	0.0
47.011	0.00	10.07	119.886	1.593	0.0	0.0	0.0	2.51	177.1	0.0
47.012	0.00	10.08	116.973	1.643	0.0	0.0	0.0	4.53	320.2	0.0
53.000	0.00	5.66	118.425	0.094	0.0	0.0	0.0	1.94	77.0	0.0
47.013	0.00	10.22	116.670	1.737	0.0	0.0	0.0	3.24	228.7	0.0
1.029	0.00	14.47	115.280	9.505	0.0	0.0	0.0	1.42	402.6	0.0


Woods Hardwick		Page 15
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Network Design Table for SW EAST PROPOSED 23.07.13.SWS















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
54.000	24.960#	0.060	416.0	0.074	5.00	0.0	0.600	o	525	
54.001	18.620#	0.050	372.4	0.038	0.00	0.0	0.600	o	525	
54.002	8.190#	0.020	409.5	0.080	0.00	0.0	0.600	o	525	
55.000	13.685#	0.140	97.8	0.028	5.00	0.0	0.600	o	150	
55.001	13.515#	0.185	73.1	0.030	0.00	0.0	0.600	o	150	
55.002	32.988#	0.400	82.5	0.013	0.00	0.0	0.600	o	225	
55.003	7.171#	0.050	143.4	0.000	0.00	0.0	0.600	o	225	
55.004	15.504#	0.150	103.4	0.010	0.00	0.0	0.600	o	225	
55.005	12.485#	0.120	104.0	0.005	0.00	0.0	0.600	o	225	
55.006	18.239#	0.170	107.3	0.005	0.00	0.0	0.600	o	225	
55.007	31.070#	1.190	26.1	0.040	0.00	0.0	0.600	o	225	
55.008	4.394#	0.445	9.9	0.030	0.00	0.0	0.600	o	225	
56.000	12.990#	0.125	103.9	0.018	5.00	0.0	0.600	o	225	
57.000	14.165#	0.750	18.9	0.050	5.00	0.0	0.600	o	150	
55.009	20.164#	0.200	100.8	0.025	0.00	0.0	0.600	o	300	
55.010	17.357#	0.325	53.4	0.010	0.00	0.0	0.600	o	300	
55.011	8.051#	0.050	161.0	0.014	0.00	0.0	0.600	o	525	

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)
54.000	0.00	5.38	115.420	0.074	0.0	0.0	0.0	1.09	236.4	0.0
54.001	0.00	5.65	115.360	0.112	0.0	0.0	0.0	1.15	250.0	0.0
54.002	0.00	5.77	115.310	0.192	0.0	0.0	0.0	1.10	238.3	0.0
55.000	0.00	5.22	119.600	0.028	0.0	0.0	0.0	1.02	18.0	0.0
55.001	0.00	5.42	119.460	0.058	0.0	0.0	0.0	1.18	20.8	0.0
55.002	0.00	5.80	119.200	0.071	0.0	0.0	0.0	1.44	57.3	0.0
55.003	0.00	5.91	118.800	0.071	0.0	0.0	0.0	1.09	43.3	0.0
55.004	0.00	6.11	118.750	0.081	0.0	0.0	0.0	1.29	51.1	0.0
55.005	0.00	6.27	118.600	0.086	0.0	0.0	0.0	1.28	51.0	0.0
55.006	0.00	6.51	118.480	0.091	0.0	0.0	0.0	1.26	50.2	0.0
55.007	0.00	6.71	118.310	0.131	0.0	0.0	0.0	2.57	102.2	0.0
55.008	0.00	6.73	117.120	0.161	0.0	0.0	0.0	4.19	166.5	0.0
56.000	0.00	5.17	116.800	0.018	0.0	0.0	0.0	1.28	51.0	0.0
57.000	0.00	5.10	117.500	0.050	0.0	0.0	0.0	2.33	41.1	0.0
55.009	0.00	6.94	116.600	0.254	0.0	0.0	0.0	1.57	110.7	0.0
55.010	0.00	7.08	116.400	0.264	0.0	0.0	0.0	2.16	152.4	0.0
55.011	0.00	7.15	115.850	0.278	0.0	0.0	0.0	1.76	381.6	0.0

Woods Hardwick		Page 16
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1







Network Design Table for SW EAST PROPOSED 23.07.13.SWS

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
55.012	22.785#	0.280	81.4	0.017	0.00	0.0	0.600	o	525	
55.013	19.464#	0.230	84.6	0.017	0.00	0.0	0.600	o	525	
54.003	17.590#	0.050	351.8	0.040	0.00	0.0	0.600	o	525	
54.004	2.690#	0.080	33.6	0.018	0.00	0.0	0.600	o	300	
58.000	10.459#	0.935	11.2	0.000	5.00	0.0	0.600	o	225	
59.000	89.850#	1.360	66.1	0.100	5.00	0.0	0.600	o	225	
59.001	78.149#	1.195	65.4	0.047	0.00	0.0	0.600	o	225	
58.001	21.683#	1.660	13.1	0.011	0.00	0.0	0.600	o	225	
1.030	66.440#	0.130	511.1	0.036	0.00	0.0	0.600	o	600	
60.000	16.000#	0.970	16.5	0.009	5.00	0.0	0.600	o	150	
1.031	18.703#	0.030	623.4	0.021	0.00	0.0	0.600	o	750	
61.000	103.884#	0.570	182.3	0.083	5.00	0.0	0.600	o	225	
61.001	114.526#	0.520	220.2	0.155	0.00	0.0	0.600	o	300	
61.002	23.331#	0.111	210.2	0.046	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)
55.012	0.00	7.31	115.800	0.295	0.0	0.0	0.0	2.48	537.8	0.0
55.013	0.00	7.44	115.520	0.312	0.0	0.0	0.0	2.44	527.4	0.0
54.003	0.00	7.69	115.290	0.544	0.0	0.0	0.0	1.19	257.3	0.0
54.004	0.00	7.70	115.240	0.562	0.0	0.0	0.0	2.72	192.3	0.0
58.000	0.00	5.04	118.130	0.000	0.0	0.0	0.0	3.93	156.4	0.0
59.000	0.00	5.93	119.750	0.100	0.0	0.0	0.0	1.61	64.1	0.0
59.001	0.00	6.73	118.390	0.147	0.0	0.0	0.0	1.62	64.4	0.0
58.001	0.00	6.83	117.195	0.158	0.0	0.0	0.0	3.64	144.7	0.0
1.030	0.00	15.50	115.160	10.261	0.0	0.0	0.0	1.07	302.6	0.0
60.000	0.00	5.11	118.000	0.009	0.0	0.0	0.0	2.49	44.0	0.0
1.031	0.00	15.78	115.030	10.291	0.0	0.0	0.0	1.11	491.9	0.0
61.000	0.00	6.79	119.350	0.083	0.0	0.0	0.0	0.97	38.4	0.0
61.001	0.00	8.60	118.705	0.238	0.0	0.0	0.0	1.06	74.6	0.0
61.002	0.00	8.96	118.185	0.284	0.0	0.0	0.0	1.08	76.4	0.0

Network Design Table for SW EAST PROPOSED 23.07.13.SWS

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
61.003	11.890#	2.624	4.5	0.005	0.00	0.0	0.600	o	300	
1.032	143.569#	0.270	532.0	0.030	0.00	0.0	0.600	o	750	
1.033	15.344#	0.040	383.6	0.000	0.00	0.0	0.600	oo	44	
1.034	2.088#	0.070	29.8	0.000	0.00	0.0	0.600	o	450	
1.035	3.000	0.030	100.0	0.000	0.00	0.0	0.600	o	450	
1.036	8.282	0.110	75.3	0.000	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)
61.003	0.00	8.99	118.074	0.289	0.0	0.0	0.0	7.43	525.5	0.0
1.032	0.00	17.76	115.000	10.610	0.0	0.0	0.0	1.21	532.9	0.0
1.033	0.00	17.99	114.730	10.610	0.0	0.0	0.0	1.14	492.6	0.0
1.034	0.00	18.00	114.590	10.610	0.0	0.0	0.0	3.73	593.8	0.0
1.035	0.00	18.02	114.520	10.610	0.0	0.0	0.0	2.03	323.4	0.0
1.036	0.00	18.08	114.290	10.610	0.0	0.0	0.0	2.35	373.0	0.0

Free Flowing Outfall Details for SW EAST PROPOSED 23.07.13.SWS


Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.036	27	115.000	114.180	0.000	0	0

Simulation Criteria for SW EAST PROPOSED 23.07.13.SWS

Volumetric Runoff Coeff	0.840	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /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	32
Number of Online Controls	18	Number of Time/Area Diagrams	0
Number of Offline Controls	1	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

Woods Hardwick		Page 18
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage	Network 2014.1.1	

Synthetic Rainfall Details

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

Woods Hardwick		Page 19
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Online Controls for SW EAST PROPOSED 23.07.13.SWS

Orifice Manhole: 312 (D2b), DS/PN: 6.001, Volume (m³): 4.5

Diameter (m) 0.059 Discharge Coefficient 0.600 Invert Level (m) 123.000

Orifice Manhole: 316 (D2b), DS/PN: 7.001, Volume (m³): 5.1

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 122.090

Orifice Manhole: 47 (B4b), DS/PN: 11.001, Volume (m³): 6.2

Diameter (m) 0.100 Discharge Coefficient 0.600 Invert Level (m) 123.200

Hydro-Brake® Manhole: 311 (D3b), DS/PN: 17.008, Volume (m³): 6.5

Design Head (m) 1.700 Hydro-Brake® Type Md6 SW Only Invert Level (m) 121.360
Design Flow (l/s) 80.7 Diameter (mm) 318

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	10.3	1.200	79.9	3.000	100.2	7.000	152.6
0.200	29.8	1.400	79.0	3.500	108.0	7.500	158.0
0.300	51.2	1.600	79.7	4.000	115.4	8.000	163.2
0.400	69.5	1.800	81.6	4.500	122.4	8.500	168.2
0.500	81.0	2.000	84.2	5.000	129.0	9.000	173.1
0.600	85.0	2.200	87.2	5.500	135.3	9.500	177.8
0.800	85.5	2.400	90.4	6.000	141.3		
1.000	82.6	2.600	93.6	6.500	147.1		

Pre-initialised control selected, excessive flows may result.

Orifice Manhole: 74 (B4a), DS/PN: 25.001, Volume (m³): 7.3

Diameter (m) 0.108 Discharge Coefficient 0.600 Invert Level (m) 121.470

Orifice Manhole: 76 (B4a), DS/PN: 26.001, Volume (m³): 8.6


Diameter (m) 0.150 Discharge Coefficient 0.600 Invert Level (m) 122.100

Orifice Manhole: 317 (D2b), DS/PN: 29.001, Volume (m³): 5.4

Diameter (m) 0.130 Discharge Coefficient 0.600 Invert Level (m) 121.620

Orifice Manhole: 136 (VCN), DS/PN: 31.001, Volume (m³): 10.5

Diameter (m) 0.079 Discharge Coefficient 0.600 Invert Level (m) 121.165

Woods Hardwick		Page 20
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Orifice Manhole: 131 (VCN), DS/PN: 35.001, Volume (m³): 7.2

Diameter (m) 0.069 Discharge Coefficient 0.600 Invert Level (m) 121.595

Orifice Manhole: 116 (VCS), DS/PN: 36.001, Volume (m³): 7.4

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 120.160

Orifice Manhole: 119 (VCS), DS/PN: 37.001, Volume (m³): 8.3

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 119.890

Hydro-Brake® Manhole: 12a, DS/PN: 1.019, Volume (m³): 34.3

Design Head (m) 1.450 Hydro-Brake® Type Md10 Invert Level (m) 119.625
Design Flow (l/s) 440.0 Diameter (mm) 511

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	19.4	1.200	394.8	3.000	630.9	7.000	963.8
0.200	49.9	1.400	431.0	3.500	681.5	7.500	997.6
0.300	85.4	1.600	460.8	4.000	728.5	8.000	1030.3
0.400	123.5	1.800	488.7	4.500	772.7	8.500	1062.0
0.500	162.6	2.000	515.2	5.000	814.5	9.000	1092.8
0.600	201.7	2.200	540.3	5.500	854.3	9.500	1122.8
0.800	276.5	2.400	564.3	6.000	892.3		
1.000	342.3	2.600	587.4	6.500	928.7		

Orifice Manhole: 115 (D1a), DS/PN: 38.002, Volume (m³): 6.0

Diameter (m) 0.055 Discharge Coefficient 0.600 Invert Level (m) 119.290

Orifice Manhole: PH7a, DS/PN: 40.002, Volume (m³): 2.7

Diameter (m) 0.049 Discharge Coefficient 0.600 Invert Level (m) 121.530

Orifice Manhole: Private (D3b), DS/PN: 41.001, Volume (m³): 0.4


Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 121.100

Orifice Manhole: Bld 52 TC, DS/PN: 43.001, Volume (m³): 3.7

Diameter (m) 0.045 Discharge Coefficient 0.600 Invert Level (m) 120.020

Orifice Manhole: 99b (D1c), DS/PN: 45.001, Volume (m³): 3.0

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 121.160

Woods Hardwick		Page 21
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Hydro-Brake® Manhole: 16 (D1b), DS/PN: 54.004, Volume (m³): 14.1

Design Head (m) 1.200 Hydro-Brake® Type Md6 SW Only Invert Level (m) 115.240
Design Flow (l/s) 69.0 Diameter (mm) 300

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	9.8	1.200	68.6	3.000	89.1	7.000	135.9
0.200	28.0	1.400	68.4	3.500	96.1	7.500	140.6
0.300	47.4	1.600	69.6	4.000	102.7	8.000	145.2
0.400	63.1	1.800	71.7	4.500	108.9	8.500	149.7
0.500	71.6	2.000	74.3	5.000	114.8	9.000	154.0
0.600	74.0	2.200	77.2	5.500	120.4	9.500	158.3
0.800	73.5	2.400	80.1	6.000	125.8		
1.000	70.5	2.600	83.2	6.500	130.9		

Pre-initialised control selected, excessive flows may result.

15-17 Goldington Road
Bedford
MK40 3NH



Date 15/03/2018 15:00
File SW East proposed 15.03....


Designed by a.tew
Checked by

Micro Drainage Network 2014.1.1

Offline Controls for SW EAST PROPOSED 23.07.13.SWS

Pipe Manhole: Ex MH, DS/PN: 46.000, Loop to PN: None

Diameter (m)	0.225	Roughness k (mm)	0.600
Section Type	Pipe/Conduit	Entry Loss Coefficient	0.500
Slope (1:X)	50.0	Coefficient of Contraction	0.600
Length (m)	77.412	Upstream Invert Level (m)	119.589

Woods Hardwick		Page 23
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Storage Structures for SW EAST PROPOSED 23.07.13.SWS

Porous Car Park Manhole: Private (D2b), DS/PN: 6.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	16.2
Membrane Percolation (mm/hr)	1000	Length (m)	37.0
Max Percolation (l/s)	166.5	Slope (1:X)	200.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	123.250	Cap Volume Depth (m)	0.000

Tank or Pond Manhole: 316 (D2b), DS/PN: 7.001

Invert Level (m) 122.090

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	40.0	1.000	40.0	1.001	0.0

Tank or Pond Manhole: 47 (B4b), DS/PN: 11.001

Invert Level (m) 123.800

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	121.0	0.600	121.0	0.601	0.0

Tank or Pond Manhole: 58, DS/PN: 16.002

Invert Level (m) 121.750

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	88.0	0.800	88.0	0.801	0.0

Tank or Pond Manhole: 308 (D3b), DS/PN: 17.006


Invert Level (m) 121.450

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	132.0	1.000	132.0	1.001	0.0

Tank or Pond Manhole: 311 (D3b), DS/PN: 17.008

Invert Level (m) 121.360

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	175.5	1.000	175.5	1.001	0.0

Woods Hardwick		Page 24
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Tank or Pond Manhole: 70, DS/PN: 20.005

Invert Level (m) 123.160

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	116.0	1.000	116.0	1.001	0.0

Porous Car Park Manhole: Future (B4a), DS/PN: 25.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	15.5
Membrane Percolation (mm/hr)	1000	Length (m)	18.0
Max Percolation (l/s)	77.5	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	122.950	Cap Volume Depth (m)	0.000

Tank or Pond Manhole: 74 (B4a), DS/PN: 25.001

Invert Level (m) 121.780

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	65.0	1.200	65.0	1.201	0.0

Porous Car Park Manhole: Future (B4a), DS/PN: 26.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	30.0
Membrane Percolation (mm/hr)	1000	Length (m)	15.7
Max Percolation (l/s)	130.8	Slope (1:X)	200.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	5
Invert Level (m)	123.550	Cap Volume Depth (m)	0.000

Tank or Pond Manhole: 76 (B4a), DS/PN: 26.001

Invert Level (m) 122.200

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	30.0	1.200	30.0	1.201	0.0

Tank or Pond Manhole: 317 (D2b), DS/PN: 29.001

Invert Level (m) 121.620

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	238.0	0.400	238.0	0.401	0.0

15-17 Goldington Road
 Bedford
 MK40 3NH



Date 15/03/2018 15:00
 File SW East proposed 15.03....

Designed by a.tew
 Checked by

Micro Drainage Network 2014.1.1

Tank or Pond Manhole: 102, DS/PN: 30.000

Invert Level (m) 120.930

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	201.0	1.000	201.0	1.001	0.0

Tank or Pond Manhole: 136 (VCN), DS/PN: 31.001

Invert Level (m) 121.165

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	188.7	0.800	188.7	0.801	0.0

Tank or Pond Manhole: 131 (VCN), DS/PN: 35.001

Invert Level (m) 121.595

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	137.0	0.400	137.0	0.401	0.0

Tank or Pond Manhole: 116 (VCS), DS/PN: 36.001

Invert Level (m) 120.160

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	108.5	1.200	108.5	1.201	0.0

Tank or Pond Manhole: 119 (VCS), DS/PN: 37.001

Invert Level (m) 119.890

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	104.0	1.200	104.0	1.201	0.0

Tank or Pond Manhole: 12a, DS/PN: 1.019

Invert Level (m) 119.690

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	420.5	1.200	420.5	1.201	0.0

Tank or Pond Manhole: 121 (VCS), DS/PN: 38.001

Invert Level (m) 119.660

15-17 Goldington Road
Bedford
MK40 3NH



Date 15/03/2018 15:00
File SW East proposed 15.03....

Designed by a.tew
Checked by

Micro Drainage Network 2014.1.1

Tank or Pond Manhole: 121 (VCS), DS/PN: 38.001

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	60.0	0.500	60.0	0.501	0.0

Tank or Pond Manhole: 115 (D1a), DS/PN: 38.002

Invert Level (m) 119.290

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	57.5	0.800	57.5	0.801	0.0

Tank or Pond Manhole: PH7a tank, DS/PN: 40.000

Invert Level (m) 121.660

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	93.5	0.500	93.5	0.501	0.0

Porous Car Park Manhole: Private (D3b), DS/PN: 41.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	12.7
Membrane Percolation (mm/hr)	1000	Length (m)	30.0
Max Percolation (l/s)	105.8	Slope (1:X)	200.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	5
Invert Level (m)	121.450	Cap Volume Depth (m)	0.000

Tank or Pond Manhole: Bld 52 TC, DS/PN: 43.001

Invert Level (m) 120.050

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	128.0	0.600	128.0	0.601	0.0


Tank or Pond Manhole: 99b (D1c), DS/PN: 45.001

Invert Level (m) 121.160

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	25.0	0.500	25.0	0.501	0.0

Tank or Pond Manhole: S116b, DS/PN: 52.001

Invert Level (m) 120.190

Woods Hardwick		Page 27
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Tank or Pond Manhole: S116b, DS/PN: 52.001

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	35.0	0.500	35.0	0.501	0.0

Complex Manhole: 18 (D1b), DS/PN: 54.000

Tank or Pond

Invert Level (m) 115.420

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	192.0	0.801	0.0	1.350	0.0
0.800	192.0	1.349	0.0	1.470	75.0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	8.5
Membrane Percolation (mm/hr)	1000	Length (m)	55.0
Max Percolation (l/s)	129.9	Slope (1:X)	350.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.33	Evaporation (mm/day)	5
Invert Level (m)	116.420	Cap Volume Depth (m)	0.000

Tank or Pond Manhole: 19 (D1b), DS/PN: 54.001

Invert Level (m) 115.360

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	0.0	1.440	0.0	1.560	38.0

Tank or Pond Manhole: 20 (D1b), DS/PN: 54.002


Invert Level (m) 115.310

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	70.0	0.800	70.0	0.801	0.0

Tank or Pond Manhole: 12 (D1b), DS/PN: 55.011

Invert Level (m) 115.850

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	23.0	0.800	23.0	0.801	0.0

Woods Hardwick		Page 28
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Tank or Pond Manhole: 15 (D1b), DS/PN: 54.003

Invert Level (m) 115.290

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	25.0	0.800	25.0	0.801	0.0

Tank or Pond Manhole: 21, DS/PN: 1.031


Invert Level (m) 115.030

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	52.0	2.000	52.0	2.001	0.0

Tank or Pond Manhole: Pond, DS/PN: 1.034

Invert Level (m) 114.590

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	547.7	0.940	813.2

Woods Hardwick		Page 29
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00	Designed by a.tew	
File SW East proposed 15.03....	Checked by	
Micro Drainage	Network 2014.1.1	

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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	32
Number of Online Controls	18	Number of Time/Area Diagrams	0
Number of Offline Controls	1	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	O/F Act.	Lvl Exc.
1.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			8
1.001	15 Winter	100	+30%	100/15 Summer	100/15 Summer			4
1.002	15 Winter	100	+30%	100/15 Summer	100/15 Summer			7
1.003	30 Winter	100	+30%	100/15 Summer	100/15 Summer			8
1.004	15 Winter	100	+30%	100/15 Summer				
2.000	30 Winter	100	+30%	100/15 Summer	100/15 Summer			9
2.001	15 Winter	100	+30%	100/15 Summer	100/15 Summer			7
3.000	30 Winter	100	+30%	100/15 Summer	100/15 Summer			10
3.001	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
4.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			3
2.002	15 Winter	100	+30%	100/15 Summer	100/15 Summer			3
2.003	15 Summer	100	+30%	100/15 Summer				
2.004	15 Winter	100	+30%	100/15 Summer				
2.005	15 Summer	100	+30%	100/15 Summer				

Woods Hardwick		Page 30
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
5.000	30 Winter	100	+30%	100/15 Summer	100/15 Summer			9
2.006	15 Winter	100	+30%	100/15 Summer	100/15 Summer			4
1.005	60 Winter	100	+30%	100/15 Summer	100/15 Summer			11
1.006	15 Winter	100	+30%	100/15 Summer	100/15 Summer			5
1.007	15 Winter	100	+30%	100/15 Summer				
6.000	30 Winter	100	+30%	100/15 Summer				
6.001	30 Winter	100	+30%	100/15 Summer				
1.008	15 Winter	100	+30%	100/15 Summer				
1.009	15 Winter	100	+30%	100/15 Summer				
7.000	240 Winter	100	+30%	100/15 Summer				
7.001	240 Winter	100	+30%	100/15 Summer				
1.010	15 Winter	100	+30%	100/15 Summer				
8.000	30 Winter	100	+30%	100/15 Summer	100/15 Summer			8
8.001	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
8.002	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
9.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
9.001	30 Winter	100	+30%	100/15 Summer	100/15 Summer			6
8.003	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
10.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
8.004	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
8.005	120 Winter	100	+30%					
8.006	15 Winter	100	+30%	100/15 Summer				
11.000	15 Winter	100	+30%	100/15 Summer				
11.001	30 Winter	100	+30%	100/15 Summer	100/15 Winter			2
11.002	15 Winter	100	+30%	100/15 Summer				
12.000	15 Winter	100	+30%	100/15 Summer				
8.007	15 Winter	100	+30%	100/15 Summer				
13.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			4
13.001	15 Winter	100	+30%	100/15 Summer	100/15 Summer			8
13.002	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
13.003	30 Winter	100	+30%	100/15 Summer	100/15 Summer			8
13.004	15 Winter	100	+30%	100/15 Summer	100/15 Summer			4
13.005	15 Winter	100	+30%	100/15 Summer				
14.000	15 Winter	100	+30%	100/15 Winter				
15.000	15 Winter	100	+30%	100/15 Winter				
14.001	15 Winter	100	+30%	100/15 Summer				
16.000	30 Winter	100	+30%	100/15 Summer				
16.001	30 Winter	100	+30%	100/15 Summer	100/15 Summer			7
16.002	15 Winter	100	+30%	100/15 Summer				
13.006	15 Winter	100	+30%	100/15 Summer				
8.008	15 Winter	100	+30%	100/15 Summer				
17.000	120 Winter	100	+30%					
17.001	120 Winter	100	+30%	100/120 Winter				
17.002	120 Winter	100	+30%	100/120 Winter				
17.003	120 Winter	100	+30%	100/60 Winter				
17.004	120 Winter	100	+30%	100/60 Summer				
18.000	120 Winter	100	+30%	100/60 Winter				
17.005	120 Winter	100	+30%	100/60 Summer				
17.006	120 Winter	100	+30%	100/30 Winter				
19.000	120 Winter	100	+30%	100/60 Winter				


Woods Hardwick		Page 31
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.	
17.007	120	Winter	100	+30%	100/15	Winter			
17.008	120	Winter	100	+30%	100/15	Summer			
1.011	15	Winter	100	+30%	100/15	Summer			
1.012	120	Winter	100	+30%	100/15	Summer			
1.013	120	Winter	100	+30%	100/15	Summer			
1.014	120	Winter	100	+30%	100/15	Summer			
20.000	15	Winter	100	+30%	100/15	Summer			
21.000	15	Winter	100	+30%	100/15	Summer			
20.001	15	Winter	100	+30%	100/15	Summer	100/15	Summer	4
22.000	15	Winter	100	+30%	100/15	Summer	100/15	Summer	4
20.002	15	Winter	100	+30%	100/15	Summer	100/15	Summer	4
23.000	30	Winter	100	+30%	100/15	Summer	100/15	Summer	9
23.001	15	Winter	100	+30%	100/15	Summer	100/15	Summer	4
23.002	30	Winter	100	+30%	100/15	Summer	100/15	Summer	8
20.003	15	Winter	100	+30%	100/15	Summer	100/15	Summer	6
20.004	15	Winter	100	+30%	100/15	Summer			
24.000	60	Winter	100	+30%	100/15	Summer			
20.005	60	Winter	100	+30%	100/15	Summer			
20.006	15	Winter	100	+30%	100/15	Summer			
25.000	30	Winter	100	+30%	100/15	Summer			
25.001	30	Winter	100	+30%	100/15	Summer			
20.007	15	Winter	100	+30%	100/15	Summer			
26.000	15	Winter	100	+30%	100/15	Summer			
26.001	15	Winter	100	+30%	100/15	Summer			
27.000	15	Summer	100	+30%	100/15	Summer			
28.000	15	Winter	100	+30%	100/15	Summer	100/15	Summer	2
27.001	15	Winter	100	+30%	100/15	Summer	100/15	Summer	2
26.002	15	Winter	100	+30%	100/15	Summer			
29.000	120	Winter	100	+30%	100/120	Winter			
29.001	120	Winter	100	+30%	100/60	Summer			
26.003	15	Winter	100	+30%	100/15	Summer			
30.000	120	Winter	100	+30%	100/15	Summer			
1.015	120	Winter	100	+30%	100/15	Summer	100/60	Winter	4
31.000	120	Winter	100	+30%	100/15	Summer			
32.000	120	Winter	100	+30%	100/15	Winter			
31.001	120	Winter	100	+30%	100/15	Summer			
1.016	120	Winter	100	+30%	100/15	Summer			
33.000	60	Winter	100	+30%					
33.001	15	Winter	100	+30%					
33.002	15	Summer	100	+30%					
34.000	15	Winter	100	+30%					
33.003	15	Winter	100	+30%					
35.000	120	Winter	100	+30%	100/15	Summer			
35.001	120	Winter	100	+30%	100/15	Summer			
33.004	120	Winter	100	+30%	100/60	Winter			
33.005	120	Winter	100	+30%	100/15	Summer			
1.017	120	Winter	100	+30%	100/15	Summer			
36.000	960	Winter	100	+30%	100/15	Summer			
36.001	960	Winter	100	+30%	100/15	Summer			
1.018	120	Winter	100	+30%	100/15	Summer			

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.	
37.000	960	Winter	100	+30%	100/15	Summer			
37.001	960	Winter	100	+30%	100/15	Summer			
1.019	120	Winter	100	+30%	100/15	Summer			
1.020	120	Winter	100	+30%	100/30	Summer			
1.021	120	Winter	100	+30%	100/15	Summer			
1.022	120	Winter	100	+30%	100/15	Summer			
38.000	120	Winter	100	+30%	100/60	Winter			
38.001	120	Winter	100	+30%	100/15	Summer			
38.002	120	Winter	100	+30%	100/15	Summer			
1.023	120	Winter	100	+30%	100/15	Summer			
1.024	120	Winter	100	+30%	100/15	Summer			
39.000	15	Winter	100	+30%	100/15	Summer			
39.001	15	Winter	100	+30%	100/15	Summer			
39.002	15	Winter	100	+30%	100/15	Summer			
40.000	120	Winter	100	+30%	100/15	Summer			
40.001	120	Winter	100	+30%	100/15	Summer			
40.002	120	Winter	100	+30%	100/15	Summer			
39.003	15	Winter	100	+30%	100/15	Summer			
39.004	15	Winter	100	+30%	100/15	Summer			
39.005	15	Winter	100	+30%	100/15	Summer			
39.006	15	Winter	100	+30%	100/15	Summer			
39.007	15	Winter	100	+30%	100/15	Summer			
41.000	480	Winter	100	+30%	100/15	Summer			
41.001	480	Winter	100	+30%	100/15	Summer			
42.000	15	Winter	100	+30%	100/15	Winter			
39.008	15	Winter	100	+30%	100/15	Summer			
39.009	15	Winter	100	+30%	100/15	Summer			
39.010	15	Winter	100	+30%	100/15	Summer			
43.000	240	Winter	100	+30%	100/15	Summer			
44.000	240	Winter	100	+30%	100/30	Winter			
44.001	240	Winter	100	+30%	100/15	Winter			
43.001	240	Winter	100	+30%	100/15	Summer			
39.011	15	Winter	100	+30%	100/15	Summer			
45.000	30	Winter	100	+30%	100/15	Summer	100/15	Winter	7
45.001	15	Winter	100	+30%	100/15	Summer	100/15	Winter	3
45.002	15	Winter	100	+30%					
45.003	15	Winter	100	+30%					
39.012	15	Winter	100	+30%					
1.025	120	Winter	100	+30%					
46.000	15	Winter	100	+30%		100/15	Summer	18	
1.026	120	Winter	100	+30%					
1.027	120	Winter	100	+30%	100/15	Summer			
1.028	120	Winter	100	+30%	100/15	Summer			
47.000	240	Winter	100	+30%	100/15	Summer	100/15	Summer	15
47.001	120	Winter	100	+30%	100/15	Summer	100/15	Summer	14
47.002	30	Winter	100	+30%	100/15	Summer	100/15	Summer	12
47.003	15	Winter	100	+30%	100/15	Summer	100/15	Summer	6
48.000	15	Winter	100	+30%	100/15	Summer	100/15	Summer	2
48.001	30	Winter	100	+30%	100/15	Summer	100/15	Summer	9
48.002	30	Winter	100	+30%	100/15	Summer			

Woods Hardwick		Page 33
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
47.004	30 Winter	100	+30%	100/15 Summer	100/15 Summer			9
47.005	120 Winter	100	+30%	100/15 Summer	100/15 Summer			14
47.006	60 Winter	100	+30%	100/15 Summer	100/15 Summer			11
47.007	15 Winter	100	+30%	100/15 Summer	100/15 Summer			7
47.008	30 Winter	100	+30%	100/15 Summer	100/15 Summer			9
49.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			4
49.001	15 Winter	100	+30%	100/15 Summer				
49.002	15 Winter	100	+30%	100/15 Summer				
49.003	15 Winter	100	+30%	100/15 Summer				
47.009	15 Winter	100	+30%	100/15 Summer	100/15 Summer			5
50.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			7
50.001	60 Winter	100	+30%	100/15 Summer	100/15 Summer			8
50.002	30 Winter	100	+30%	100/15 Summer	100/15 Summer			6
51.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			6
51.001	15 Winter	100	+30%	100/15 Summer				
51.002	15 Winter	100	+30%	100/15 Summer	100/15 Summer			8
50.003	15 Winter	100	+30%	100/15 Summer	100/15 Summer			4
50.004	30 Winter	100	+30%	100/15 Summer	100/15 Summer			8
50.005	15 Winter	100	+30%	100/15 Summer	100/15 Summer			8
47.010	15 Summer	100	+30%	100/15 Summer				
52.000	15 Winter	100	+30%	100/15 Summer				
52.001	15 Winter	100	+30%	100/15 Summer				
52.002	15 Winter	100	+30%	100/15 Summer				
52.003	15 Winter	100	+30%	100/15 Summer				
52.004	15 Summer	100	+30%	100/15 Summer				
47.011	15 Summer	100	+30%	100/15 Summer				
47.012	15 Winter	100	+30%	100/15 Summer				
53.000	15 Winter	100	+30%	100/15 Summer				
47.013	15 Winter	100	+30%	100/15 Summer				
1.029	120 Winter	100	+30%	100/15 Summer				
54.000	240 Winter	100	+30%	100/15 Summer				
54.001	240 Winter	100	+30%	100/15 Summer				
54.002	240 Winter	100	+30%	100/15 Summer				
55.000	15 Winter	100	+30%	100/15 Summer				
55.001	15 Winter	100	+30%	100/15 Summer				
55.002	15 Winter	100	+30%	100/15 Summer				
55.003	15 Winter	100	+30%	100/15 Summer				
55.004	15 Winter	100	+30%	100/15 Summer				
55.005	15 Winter	100	+30%	100/15 Summer				
55.006	15 Winter	100	+30%	100/15 Summer				
55.007	15 Winter	100	+30%	100/15 Winter				
55.008	15 Winter	100	+30%	100/15 Summer				
56.000	15 Winter	100	+30%	100/15 Summer				
57.000	15 Winter	100	+30%	100/15 Summer				
55.009	15 Winter	100	+30%	100/15 Summer				
55.010	15 Winter	100	+30%	100/15 Summer				
55.011	240 Winter	100	+30%	100/15 Summer				
55.012	240 Winter	100	+30%	100/15 Summer				
55.013	240 Winter	100	+30%	100/15 Summer				
54.003	240 Winter	100	+30%	100/15 Summer				

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.	
54.004	240	Winter	100	+30%	100/15	Summer			
58.000	60	Winter	100	+30%					
59.000	15	Winter	100	+30%	100/15	Summer			
59.001	15	Winter	100	+30%	100/15	Summer			
58.001	15	Winter	100	+30%					
1.030	120	Winter	100	+30%	100/15	Summer			
60.000	15	Winter	100	+30%					
1.031	120	Winter	100	+30%	100/15	Summer			
61.000	15	Winter	100	+30%	100/15	Summer	100/15	Summer	4
61.001	15	Winter	100	+30%	100/15	Summer	100/15	Summer	2
61.002	15	Winter	100	+30%	100/15	Summer			
61.003	15	Winter	100	+30%					
1.032	120	Winter	100	+30%	100/15	Summer			
1.033	240	Winter	100	+30%	100/15	Summer			
1.034	240	Winter	100	+30%	100/15	Summer	100/15	Winter	15
1.035	240	Winter	100	+30%	100/15	Summer	100/120	Winter	5
1.036	240	Winter	100	+30%	100/15	Summer			

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
1.000	Ex MH	127.115	0.865	14.741	1.16	0.0	19.2	FLOOD
1.001	0883	126.930	1.122	6.882	0.92	0.0	49.2	FLOOD
1.002	0810	126.700	1.183	26.213	0.93	0.0	50.4	FLOOD
1.003	0923	126.319	1.254	45.379	1.04	0.0	58.9	FLOOD
1.004	0822	126.459	1.710	0.000	1.71	0.0	77.8	FLOOD RISK
2.000	0961	125.684	0.564	13.651	0.69	0.0	9.8	FLOOD
2.001	0859	125.672	0.832	9.809	0.86	0.0	14.7	FLOOD
3.000	0799	125.736	0.545	25.269	0.50	0.0	12.9	FLOOD
3.001	0797	125.768	0.916	9.315	1.04	0.0	16.2	FLOOD
4.000	0860	126.364	1.320	1.830	1.40	0.0	27.9	FLOOD
2.002	0805	125.814	1.082	2.047	1.02	0.0	40.6	FLOOD
2.003	0825	125.739	1.130	0.000	1.02	0.0	45.3	FLOOD RISK
2.004	0824	125.631	1.121	0.000	0.89	0.0	43.9	FLOOD RISK
2.005	0804	125.456	1.174	0.000	2.43	0.0	51.8	FLOOD RISK
5.000	0863	125.334	0.835	15.390	0.56	0.0	9.8	FLOOD
2.006	0865	125.315	1.042	1.547	2.44	0.0	50.6	FLOOD
1.005	0816	125.257	1.012	100.906	1.83	0.0	86.4	FLOOD
1.006	0908	125.116	1.304	36.422	1.58	0.0	187.3	FLOOD
1.007	8	123.429	0.489	0.000	0.49	0.0	186.5	SURCHARGED
6.000	Private (D2b)	123.472	0.072	0.000	0.56	0.0	8.7	SURCHARGED
6.001	312 (D2b)	123.455	0.155	0.000	0.02	0.0	4.7	SURCHARGED
1.008	313 (D2b)	123.200	0.710	0.000	0.62	0.0	188.6	SURCHARGED
1.009	314 (D2b)	123.009	0.839	0.000	1.14	0.0	192.0	SURCHARGED
7.000	Private (D2b)	122.870	0.470	0.000	0.00	0.0	0.1	SURCHARGED
7.001	316 (D2b)	122.870	0.630	0.000	0.04	0.0	0.7	SURCHARGED
1.010	8a	122.902	0.802	0.000	0.55	0.0	194.0	SURCHARGED
8.000	Ex MH	125.744	0.364	34.255	1.27	0.0	20.7	FLOOD
8.001	0991	125.744	0.943	2.891	0.74	0.0	26.1	FLOOD

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS


PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
8.002	0992	125.705	0.967	11.771	0.88	0.0	40.7	FLOOD
9.000	0827	125.597	0.857	7.468	0.90	0.0	14.5	FLOOD
9.001	0826	125.539	0.929	18.810	1.53	0.0	51.3	FLOOD
8.003	0662	125.547	1.307	21.211	1.45	0.0	79.7	FLOOD
10.000	0801	124.986	1.145	16.700	2.24	0.0	30.7	FLOOD
8.004	Ex MH	125.254	1.564	3.696	3.31	0.0	107.4	FLOOD
8.005	Ex blind	123.635	0.000	0.000	1.00	0.0	106.0	SURCHARGED*
8.006	0823	124.869	1.664	0.000	1.18	0.0	175.9	FLOOD RISK
11.000	46 (B4b)	125.556	1.956	0.000	2.72	0.0	215.7	FLOOD RISK
11.001	47 (B4b)	125.438	1.938	7.140	0.27	0.0	30.5	FLOOD
11.002	48	124.889	1.599	0.000	1.00	0.0	75.3	SURCHARGED
12.000	ST5	124.588	0.988	0.000	0.42	0.0	20.5	SURCHARGED
8.007	41	124.461	1.609	0.000	1.38	0.0	270.7	SURCHARGED
13.000	0666	124.570	1.248	3.433	0.92	0.0	17.3	FLOOD
13.001	0668	124.435	1.284	15.280	2.01	0.0	21.5	FLOOD
13.002	0667	124.381	1.260	6.363	1.98	0.0	25.1	FLOOD
13.003	0930	124.101	1.056	25.597	4.45	0.0	30.8	FLOOD
13.004	0931	124.034	1.021	3.845	3.12	0.0	40.7	FLOOD
13.005	0963	123.727	0.813	0.000	1.05	0.0	56.0	FLOOD RISK
14.000	KO	123.397	0.125	0.000	0.55	0.0	15.4	FLOOD RISK
15.000	KO	123.348	0.053	0.000	0.34	0.0	15.4	FLOOD RISK
14.001	56	123.338	1.068	0.000	0.33	0.0	26.0	SURCHARGED
16.000	1224	122.986	0.533	0.000	0.46	0.0	6.7	FLOOD RISK
16.001	57	122.987	0.642	36.645	0.46	0.0	48.8	FLOOD
16.002	58	123.345	1.220	0.000	0.54	0.0	53.4	SURCHARGED
13.006	59	123.319	1.299	0.000	0.63	0.0	97.0	SURCHARGED
8.008	42	123.275	1.335	0.000	1.86	0.0	315.1	SURCHARGED
17.000	301 (D3b)	122.395	-0.055	0.000	0.03	0.0	2.0	OK
17.001	302 (D3b)	122.395	0.045	0.000	0.05	0.0	3.0	SURCHARGED
17.002	303 (D3b)	122.395	0.075	0.000	0.05	0.0	3.0	SURCHARGED
17.003	304 (D3b)	122.395	0.185	0.000	0.18	0.0	10.5	SURCHARGED
17.004	305 (D3b)	122.395	0.225	0.000	0.06	0.0	10.7	SURCHARGED
18.000	306 (D3b)	122.395	0.200	0.000	0.05	0.0	3.2	FLOOD RISK
17.005	307 (D3b)	122.395	0.255	0.000	0.07	0.0	20.3	SURCHARGED
17.006	308 (D3b)	122.395	0.345	0.000	0.14	0.0	37.0	SURCHARGED
19.000	309 (D3b)	122.406	0.206	0.000	0.06	0.0	6.6	SURCHARGED
17.007	310 (D3b)	122.406	0.426	0.000	0.19	0.0	40.2	SURCHARGED
17.008	311 (D3b)	122.406	0.596	0.000	0.49	0.0	73.0	SURCHARGED
1.011	9	122.682	0.927	0.000	1.50	0.0	380.1	SURCHARGED
1.012	10	122.368	0.763	0.000	1.21	0.0	310.8	SURCHARGED
1.013	10a	122.208	0.983	0.000	2.19	0.0	309.1	SURCHARGED
1.014	10b	122.094	0.664	0.000	1.34	0.0	307.4	SURCHARGED
20.000	0892	125.432	0.697	0.000	0.28	0.0	5.9	FLOOD RISK
21.000	ST1 (HWD)	125.463	1.233	0.000	0.38	0.0	15.0	FLOOD RISK
20.001	66	125.432	1.337	2.112	0.75	0.0	31.2	FLOOD
22.000	0874	125.345	0.609	5.962	0.90	0.0	18.7	FLOOD
20.002	67	125.331	1.416	0.888	0.98	0.0	40.0	FLOOD
23.000	0786	125.282	0.492	22.207	1.27	0.0	7.0	FLOOD
23.001	0785	125.361	0.611	5.856	1.53	0.0	13.7	FLOOD

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
23.002	0875	125.112	0.550	29.871	1.29	0.0	22.7	FLOOD
20.003	68	125.183	1.438	32.513	2.14	0.0	82.1	FLOOD
20.004	69	124.878	1.223	0.000	1.94	0.0	100.9	FLOOD RISK
24.000	ST2 (HWD)	123.827	0.442	0.000	0.28	0.0	10.4	SURCHARGED
20.005	70	123.822	0.567	0.000	1.30	0.0	58.0	SURCHARGED
20.006	71	123.493	0.523	0.000	0.96	0.0	65.0	SURCHARGED
25.000	Future (B4a)	122.801	0.811	0.000	0.60	0.0	102.2	SURCHARGED
25.001	74 (B4a)	122.726	0.956	0.000	0.32	0.0	19.0	SURCHARGED
20.007	72	122.426	0.706	0.000	1.62	0.0	116.9	SURCHARGED
26.000	Future (B4a)	123.996	1.221	0.000	0.95	0.0	167.2	FLOOD RISK
26.001	76 (B4a)	123.967	1.567	0.000	0.69	0.0	56.8	FLOOD RISK
27.000	ST3 (HWD)	125.490	1.020	0.000	0.24	0.0	6.8	FLOOD RISK
28.000	ST4 (HWD)	125.475	1.205	5.023	2.10	0.0	39.8	FLOOD
27.001	78	125.473	1.418	2.651	1.09	0.0	76.0	FLOOD
26.002	79	123.383	1.193	0.000	1.56	0.0	141.1	SURCHARGED
29.000	Private (D2b)	122.189	0.114	0.000	0.14	0.0	15.6	SURCHARGED
29.001	317 (D2b)	122.188	0.268	0.000	0.22	0.0	19.5	SURCHARGED
26.003	80	122.408	0.618	0.000	1.45	0.0	140.2	SURCHARGED
30.000	102	122.016	0.561	0.000	0.31	0.0	72.9	FLOOD RISK
1.015	11	122.016	0.661	95.927	0.93	0.0	388.9	FLOOD
31.000	134 (VCN)	122.581	0.916	0.000	0.56	0.0	61.4	FLOOD RISK
32.000	135 (VCN)	122.578	0.853	0.000	0.15	0.0	9.3	FLOOD RISK
31.001	136 (VCN)	122.575	1.260	0.000	0.57	0.0	10.7	SURCHARGED
1.016	11a	121.851	0.796	0.000	0.77	0.0	393.4	SURCHARGED
33.000	Ex MH	123.380	-0.375	0.000	0.00	0.0	0.0	OK
33.001	Ex MH	122.657	-0.258	0.000	0.22	0.0	36.3	OK
33.002	Ex MH	122.487	-0.242	0.000	0.27	0.0	36.4	OK
34.000	ST14 (HWD)	122.687	-0.128	0.000	0.38	0.0	14.5	OK
33.003	86	122.383	-0.227	0.000	0.32	0.0	81.4	OK
35.000	130 (VCN)	122.832	0.812	0.000	0.48	0.0	33.6	FLOOD RISK
35.001	131 (VCN)	122.820	1.075	0.000	0.69	0.0	10.6	SURCHARGED
33.004	87	121.650	0.095	0.000	0.21	0.0	32.6	SURCHARGED
33.005	88	121.634	0.559	0.000	0.14	0.0	31.1	SURCHARGED
1.017	12	121.624	1.014	0.000	0.48	0.0	431.9	SURCHARGED
36.000	122 (VCS)	121.335	0.395	0.000	0.05	0.0	7.0	SURCHARGED
36.001	116 (VCS)	121.334	0.874	0.000	0.01	0.0	0.9	SURCHARGED
1.018	12b	121.472	1.062	0.000	0.55	0.0	430.5	SURCHARGED
37.000	118 (VCS)	121.599	1.249	0.000	0.10	0.0	7.0	SURCHARGED
37.001	119 (VCS)	121.597	1.407	0.000	0.02	0.0	1.1	SURCHARGED
1.019	12a	121.340	1.190	0.000	1.34	0.0	333.1	SURCHARGED
1.020	13	120.363	0.288	0.000	0.91	0.0	328.4	SURCHARGED
1.021	13a	119.995	0.370	0.000	1.32	0.0	328.2	SURCHARGED
1.022	13b	119.813	0.268	0.000	1.11	0.0	328.0	SURCHARGED
38.000	120 (VCS)	120.866	0.606	0.000	0.09	0.0	9.4	SURCHARGED
38.001	121 (VCS)	120.864	0.904	0.000	0.13	0.0	19.7	SURCHARGED
38.002	115 (D1a)	120.860	1.420	0.000	0.46	0.0	7.1	SURCHARGED
1.023	13c	119.598	0.233	0.000	1.50	0.0	335.4	SURCHARGED
1.024	14	119.413	0.128	0.000	1.62	0.0	335.4	SURCHARGED
39.000	ST7 (HWD)	121.989	0.274	0.000	0.61	0.0	21.8	SURCHARGED


Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
39.001	ST8 (HWD)	121.948	0.333	0.000	1.03	0.0	35.4	SURCHARGED
39.002	ST9 (HWD)	121.883	0.344	0.000	1.25	0.0	75.5	SURCHARGED
40.000	PH7a tank	122.154	0.194	0.000	0.09	0.0	5.1	SURCHARGED
40.001	PH7a	122.184	0.254	0.000	0.06	0.0	4.5	SURCHARGED
40.002	PH7a	122.200	0.520	0.000	0.22	0.0	3.9	SURCHARGED
39.003	ST10	121.803	0.331	0.000	0.89	0.0	62.4	SURCHARGED
39.004	ST11	121.680	0.560	0.000	0.81	0.0	53.3	FLOOD RISK
39.005	ST12	121.596	0.621	0.000	0.88	0.0	53.7	FLOOD RISK
39.006	ST13	121.517	0.617	0.000	0.97	0.0	60.6	FLOOD RISK
39.007	92	121.436	0.616	0.000	1.30	0.0	85.3	FLOOD RISK
41.000	Dummy (D3b)	122.272	1.052	0.000	0.00	0.0	0.0	FLOOD RISK
41.001	Private (D3b)	122.272	1.072	0.000	0.02	0.0	0.9	FLOOD RISK
42.000	ST6 (HWD)	121.099	0.169	0.000	0.73	0.0	15.2	SURCHARGED
39.008	93	121.043	0.463	0.000	1.15	0.0	90.2	SURCHARGED
39.009	94	120.872	0.422	0.000	1.28	0.0	90.2	SURCHARGED
39.010	95	120.572	0.312	0.000	1.06	0.0	96.7	SURCHARGED
43.000	Bld 52 TC	120.889	0.559	0.000	0.00	0.0	0.0	FLOOD RISK
44.000	Bld 52 CP	120.893	0.293	0.000	0.15	0.0	9.6	SURCHARGED
44.001	Bld 52 CP	120.891	0.391	0.000	0.12	0.0	8.8	SURCHARGED
43.001	Bld 52 TC	120.889	0.719	0.000	0.15	0.0	3.9	FLOOD RISK
39.011	96	120.297	0.307	0.000	1.83	0.0	119.9	SURCHARGED
45.000	99a (D1c)	122.104	0.604	3.730	0.60	0.0	33.0	FLOOD
45.001	99b (D1c)	122.104	0.719	0.103	0.17	0.0	5.0	FLOOD
45.002	99 (ex MH)	121.056	-0.300	0.000	0.09	0.0	17.5	OK
45.003	Ex MH	120.520	-0.180	0.000	0.10	0.0	17.3	OK
39.012	98	119.679	-0.186	0.000	0.50	0.0	147.0	OK
1.025	15	119.235	0.000	0.000	1.00	0.0	385.3	OK
46.000	Ex MH	119.662	-0.152	0.000	0.23	14.5	24.2	OK
1.026	16	118.750	-0.235	0.000	0.59	0.0	388.0	OK
1.027	17	117.748	0.203	0.000	2.14	0.0	391.0	SURCHARGED
1.028	18	117.350	1.280	0.000	1.04	0.0	389.0	SURCHARGED
47.000	EX MH	122.331	0.531	30.601	1.40	0.0	9.3	FLOOD
47.001	0704	122.421	1.121	21.277	0.71	0.0	9.8	FLOOD
47.002	EX MH	122.471	1.281	21.465	0.50	0.0	6.9	FLOOD
47.003	1222	122.526	1.506	5.906	0.68	0.0	9.2	FLOOD
48.000	EX MH	122.700	0.300	0.196	0.81	0.0	11.3	FLOOD
48.001	EX MH	122.562	0.379	11.750	0.70	0.0	9.3	FLOOD
48.002	0947	122.541	0.454	0.000	0.31	0.0	8.9	FLOOD RISK
47.004	0703	122.501	1.581	21.339	1.45	0.0	20.1	FLOOD
47.005	1223	122.300	1.500	80.401	1.82	0.0	25.6	FLOOD
47.006	0702	121.966	1.366	15.806	2.03	0.0	28.5	FLOOD
47.007	0701	121.697	1.297	7.336	2.42	0.0	29.5	FLOOD
47.008	0700	121.517	1.155	16.581	2.58	0.0	31.5	FLOOD
49.000	0946	122.283	0.332	1.742	1.28	0.0	9.1	FLOOD
49.001	0943	122.158	0.484	0.000	0.61	0.0	12.9	FLOOD RISK
49.002	0940	122.043	0.693	0.000	1.00	0.0	20.7	FLOOD RISK
49.003	0706	121.813	0.689	0.000	0.64	0.0	20.5	FLOOD RISK
47.009	EX MH	121.484	1.160	3.858	2.61	0.0	35.5	FLOOD
50.000	0698	122.645	0.830	19.137	1.07	0.0	21.0	FLOOD

Woods Hardwick		Page 38
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00	Designed by a.tew	
File SW East proposed 15.03....	Checked by	
Micro Drainage		Network 2014.1.1

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
50.001	1202	122.195	0.775	16.309	1.52	0.0	24.2	FLOOD
50.002	1201	121.871	0.701	5.729	1.63	0.0	31.1	FLOOD
51.000	0937	122.633	0.653	3.475	1.14	0.0	6.3	FLOOD
51.001	0999	122.491	0.790	0.000	0.68	0.0	18.0	FLOOD RISK
51.002	1195	122.184	1.077	55.610	2.02	0.0	55.6	FLOOD
50.003	0998	121.707	0.733	5.171	0.90	0.0	84.9	FLOOD
50.004	0939	121.271	0.852	25.771	1.80	0.0	80.7	FLOOD
50.005	0994	120.947	0.563	57.273	4.26	0.0	104.4	FLOOD
47.010	0995	121.116	0.761	0.000	1.64	0.0	135.6	FLOOD RISK
52.000	S116a	120.894	0.344	0.000	0.57	0.0	34.9	FLOOD RISK
52.001	S116b	120.816	0.326	0.000	0.48	0.0	26.6	SURCHARGED
52.002	S116c	120.810	0.370	0.000	0.42	0.0	26.6	SURCHARGED
52.003	S116d	120.849	0.549	0.000	0.52	0.0	30.2	SURCHARGED
52.004	S116e	120.929	0.679	0.000	0.54	0.0	31.0	SURCHARGED
47.011	S116	121.028	0.842	0.000	1.02	0.0	175.1	FLOOD RISK
47.012	EX MH	118.596	1.323	0.000	1.37	0.0	188.3	FLOOD RISK
53.000	100	119.208	0.558	0.000	0.83	0.0	62.4	SURCHARGED
47.013	101	118.107	1.137	0.000	1.17	0.0	239.2	SURCHARGED
1.029	19	117.165	1.285	0.000	1.65	0.0	554.6	SURCHARGED
54.000	18 (D1b)	116.881	0.936	0.000	0.12	0.0	23.3	FLOOD RISK
54.001	19 (D1b)	116.880	0.995	0.000	0.13	0.0	24.6	FLOOD RISK
54.002	20 (D1b)	116.880	1.045	0.000	0.26	0.0	32.7	SURCHARGED
55.000	1 (D1b)	120.479	0.729	0.000	1.21	0.0	19.9	SURCHARGED
55.001	2 (D1b)	120.282	0.672	0.000	2.09	0.0	39.7	SURCHARGED
55.002	3 (D1b)	119.493	0.068	0.000	0.86	0.0	46.4	SURCHARGED
55.003	4 (D1b)	119.226	0.201	0.000	1.43	0.0	45.0	SURCHARGED
55.004	5 (D1b)	119.128	0.153	0.000	1.09	0.0	49.0	SURCHARGED
55.005	6 (D1b)	118.950	0.125	0.000	1.17	0.0	51.3	SURCHARGED
55.006	7 (D1b)	118.790	0.085	0.000	1.20	0.0	54.0	SURCHARGED
55.007	8 (D1b)	118.579	0.044	0.000	0.79	0.0	75.4	SURCHARGED
55.008	9 (D1b)	117.862	0.517	0.000	1.00	0.0	93.6	SURCHARGED
56.000	17 (D1b)	117.439	0.414	0.000	0.30	0.0	13.0	SURCHARGED
57.000	21 (D1b)	118.080	0.430	0.000	0.92	0.0	34.7	SURCHARGED
55.009	10 (D1b)	117.418	0.518	0.000	1.62	0.0	156.6	SURCHARGED
55.010	11 (D1b)	116.904	0.204	0.000	1.25	0.0	163.0	SURCHARGED
55.011	12 (D1b)	116.887	0.512	0.000	0.14	0.0	32.1	SURCHARGED
55.012	13 (D1b)	116.885	0.560	0.000	0.08	0.0	34.0	SURCHARGED
55.013	14 (D1b)	116.883	0.838	0.000	0.10	0.0	35.9	SURCHARGED
54.003	15 (D1b)	116.880	1.065	0.000	0.18	0.0	35.5	SURCHARGED
54.004	16 (D1b)	116.876	1.336	0.000	0.50	0.0	35.8	SURCHARGED
58.000	Dummy	118.130	-0.225	0.000	0.00	0.0	0.0	OK
59.000	HWD 1	121.047	1.072	0.000	1.02	0.0	63.5	FLOOD RISK
59.001	HWD 2	119.619	1.004	0.000	1.34	0.0	84.2	SURCHARGED
58.001	99	117.331	-0.089	0.000	0.67	0.0	88.2	OK
1.030	20	116.883	1.123	0.000	2.07	0.0	565.3	SURCHARGED
60.000	Private	118.042	-0.108	0.000	0.17	0.0	7.0	OK
1.031	21	116.424	0.644	0.000	2.08	0.0	551.3	SURCHARGED
61.000	Ex MH	120.258	0.683	8.037	1.26	0.0	47.5	FLOOD
61.001	Ex MH	120.024	1.019	4.043	1.53	0.0	111.3	FLOOD

Woods Hardwick		Page 39
15-17 Goldington Road Bedford MK40 3NH		
Date 15/03/2018 15:00 File SW East proposed 15.03....	Designed by a.tew Checked by	
Micro Drainage		Network 2014.1.1

Summary of Critical Results by Maximum Level (Rank 1) for SW EAST PROPOSED
23.07.13.SWS

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m ³)	Flow / Cap.	O'flow (1/s)	Pipe Flow (1/s)	Status
61.002	Ex MH	118.758	0.273	0.000	1.89	0.0	127.7	FLOOD RISK
61.003	Ex MH	118.190	-0.184	0.000	0.32	0.0	129.5	OK
1.032	22	116.358	0.608	0.000	1.17	0.0	584.3	SURCHARGED
1.033	23	116.148	0.893	0.000	1.66	0.0	539.9	SURCHARGED
1.034	Pond	116.096	1.056	460.114	2.46	0.0	416.4	FLOOD
1.035	26	115.584	0.614	83.596	2.60	0.0	393.8	FLOOD
1.036	PI	115.096	0.356	0.000	2.11	0.0	393.8	FLOOD RISK*