


Collinshallgreen Ltd		Page 1
21 Stoney Street The Lace Market Nottingham NG1 1LP	LNT Bury St Edmunds SW Network	
Date 25/09/2019 12:16 File 2019 09 25th F522 SW.mdx	Designed by ad Checked by	
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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm













Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	21.000	Add Flow / Climate Change (%)	0
Ratio R	0.421	Minimum Backdrop Height (m)	0.500
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	0.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500


Designed with Level Soffits

Network Design Table for 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)	Section Type	Auto Design
1.000	17.151	0.070	245.0	0.020	5.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	56.221	0.300	187.4	0.033	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	16.400	0.140	117.1	0.015	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	13.341	0.055	242.6	0.010	5.00	0.0	0.600	o	300	Pipe/Conduit	
2.001	17.667	0.075	235.6	0.009	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.002	12.000	0.050	240.0	0.010	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.003	31.450	0.330	95.3	0.021	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	8.927	0.155	57.6	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.000	4.279	0.043	99.5	0.056	5.00	0.0	0.600	o	150	Pipe/Conduit	
4.000	2.856	0.043	66.4	0.042	5.00	0.0	0.600	o	150	Pipe/Conduit	
3.001	5.713	0.060	95.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
3.002	4.475	0.010	447.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.29	49.950	0.020	0.0	0.0	0.0	1.00	70.7	2.7
1.001	50.00	6.10	49.880	0.053	0.0	0.0	0.0	1.15	80.9	7.2
1.002	50.00	6.29	49.580	0.068	0.0	0.0	0.0	1.45	102.6	9.2
2.000	50.00	5.22	49.950	0.010	0.0	0.0	0.0	1.01	71.0	1.4
2.001	50.00	5.51	49.895	0.019	0.0	0.0	0.0	1.02	72.1	2.6
2.002	50.00	5.71	49.820	0.029	0.0	0.0	0.0	1.01	71.4	3.9
2.003	50.00	6.03	49.770	0.050	0.0	0.0	0.0	1.61	113.9	6.8
1.003	50.00	6.36	49.440	0.118	0.0	0.0	0.0	2.08	146.7	16.0
3.000	50.00	5.07	50.073	0.056	0.0	0.0	0.0	1.01	17.8	7.6
4.000	50.00	5.04	50.073	0.042	0.0	0.0	0.0	1.24	21.8	5.7
3.001	50.00	5.16	50.030	0.098	0.0	0.0	0.0	1.03	18.2	13.3
3.002	50.00	5.26	49.295	0.098	0.0	0.0	0.0	0.74	52.1	13.3

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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)	Section Type	Auto Design
1.004	9.587	0.102	94.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.005	5.815	0.024	240.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.004	50.00	5.15	49.235	0.000	2.5	0.0	0.0	1.04	18.3	2.5
1.005	50.00	5.25	49.133	0.000	2.5	0.0	0.0	1.01	71.4	2.5

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
SW01-01	51.150	1.200	Open Manhole	1200	1.000	49.950	300				
SW01-02	51.150	1.270	Open Manhole	1200	1.001	49.880	300	1.000	49.880	300	
SW01-03	50.780	1.200	Open Manhole	1200	1.002	49.580	300	1.001	49.580	300	
SW01-04	51.150	1.200	Open Manhole	1200	2.000	49.950	300				
SW01-05	51.150	1.255	Open Manhole	1200	2.001	49.895	300	2.000	49.895	300	
SW01-06	51.150	1.330	Open Manhole	1200	2.002	49.820	300	2.001	49.820	300	
SW01-07	51.150	1.380	Open Manhole	1200	2.003	49.770	300	2.002	49.770	300	
SW01-08	50.640	1.200	Open Manhole	1200	1.003	49.440	300	1.002	49.440	300	
								2.003	49.440	300	
ACO 1.0	50.838	0.765	Junction	0	3.000	50.073	150				
ACO 2.0	50.838	0.765	Junction	0	4.000	50.073	150				
SW01-09	50.840	0.810	Open Manhole	600	3.001	50.030	150	3.000	50.030	150	
								4.000	50.030	150	
SW01-10	50.838	1.543	Open Manhole	600	3.002	49.295	300	3.001	49.970	150	525
SW01-11	50.620	1.385	Open Manhole	1500	1.004	49.235	150	1.003	49.285	300	200
								3.002	49.285	300	200
SW01-12	50.580	1.447	Open Manhole	1200	1.005	49.133	300	1.004	49.133	150	
EX SW-S3	50.648	1.539	Open Manhole	1200		OUTFALL		1.005	49.109	300	

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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)
1.000	o	300	SW01-01	51.150	49.950	0.900	Open Manhole	1200
1.001	o	300	SW01-02	51.150	49.880	0.970	Open Manhole	1200
1.002	o	300	SW01-03	50.780	49.580	0.900	Open Manhole	1200
2.000	o	300	SW01-04	51.150	49.950	0.900	Open Manhole	1200
2.001	o	300	SW01-05	51.150	49.895	0.955	Open Manhole	1200
2.002	o	300	SW01-06	51.150	49.820	1.030	Open Manhole	1200
2.003	o	300	SW01-07	51.150	49.770	1.080	Open Manhole	1200
1.003	o	300	SW01-08	50.640	49.440	0.900	Open Manhole	1200
3.000	o	150	ACO 1.0	50.838	50.073	0.615	Junction	
4.000	o	150	ACO 2.0	50.838	50.073	0.615	Junction	
3.001	o	150	SW01-09	50.840	50.030	0.660	Open Manhole	600
3.002	o	300	SW01-10	50.838	49.295	1.243	Open Manhole	600
1.004	o	150	SW01-11	50.620	49.235	1.235	Open Manhole	1500
1.005	o	300	SW01-12	50.580	49.133	1.147	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	17.151	245.0	SW01-02	51.150	49.880	0.970	Open Manhole	1200
1.001	56.221	187.4	SW01-03	50.780	49.580	0.900	Open Manhole	1200
1.002	16.400	117.1	SW01-08	50.640	49.440	0.900	Open Manhole	1200
2.000	13.341	242.6	SW01-05	51.150	49.895	0.955	Open Manhole	1200
2.001	17.667	235.6	SW01-06	51.150	49.820	1.030	Open Manhole	1200
2.002	12.000	240.0	SW01-07	51.150	49.770	1.080	Open Manhole	1200
2.003	31.450	95.3	SW01-08	50.640	49.440	0.900	Open Manhole	1200
1.003	8.927	57.6	SW01-11	50.620	49.285	1.035	Open Manhole	1500
3.000	4.279	99.5	SW01-09	50.840	50.030	0.660	Open Manhole	600
4.000	2.856	66.4	SW01-09	50.840	50.030	0.660	Open Manhole	600
3.001	5.713	95.2	SW01-10	50.838	49.970	0.718	Open Manhole	600
3.002	4.475	447.5	SW01-11	50.620	49.285	1.035	Open Manhole	1500
1.004	9.587	94.0	SW01-12	50.580	49.133	1.297	Open Manhole	1200
1.005	5.815	240.0	EX SW-S3	50.648	49.109	1.239	Open Manhole	1200

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.005	EX SW-S3	50.648	49.109	49.109	1200	0

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Online Controls for Storm

Complex Manhole: SW01-11, DS/PN: 1.004, Volume (m³): 3.2

Hydro-Brake® Optimum

Unit Reference MD-SHE-0076-2500-0950-2500
Design Head (m) 0.950
Design Flow (l/s) 2.5
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 76
Invert Level (m) 49.235
Minimum Outlet Pipe Diameter (mm) 100
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.950	2.5	Kick-Flo®	0.594	2.0
Flush-Flo™	0.285	2.5	Mean Flow over Head Range	-	2.2

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	0.800	2.3	2.000	3.5	4.000	4.9	7.000	6.3
0.200	2.4	1.000	2.6	2.200	3.7	4.500	5.1	7.500	6.5
0.300	2.5	1.200	2.8	2.400	3.8	5.000	5.4	8.000	6.7
0.400	2.4	1.400	3.0	2.600	4.0	5.500	5.6	8.500	6.9
0.500	2.3	1.600	3.2	3.000	4.2	6.000	5.9	9.000	7.1
0.600	2.0	1.800	3.4	3.500	4.6	6.500	6.1	9.500	7.3

Weir

Discharge Coef 0.544 Width (m) 0.035 Invert Level (m) 50.185

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Storage Structures for Storm

Cellular Storage Manhole: SW01-10, DS/PN: 3.002

Invert Level (m) 49.295 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	75.0	0.0	0.800	75.0	0.0	1.600	0.0	0.0
0.400	75.0	0.0	0.801	0.0	0.0			

1 year Return Period 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 * 10m³/ha Storage 2.000
 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 21.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.422 Cv (Winter) 0.840

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

Profile(s)

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 30, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged	
									Level (m)	Depth (m)
1.000	SW01-01	15 Winter	1	+0%	100/60 Summer				49.994	-0.256
1.001	SW01-02	15 Winter	1	+0%	30/240 Winter				49.941	-0.239
1.002	SW01-03	15 Winter	1	+0%	30/30 Summer				49.643	-0.237
2.000	SW01-04	15 Winter	1	+0%	100/60 Summer				49.982	-0.268
2.001	SW01-05	15 Winter	1	+0%	100/30 Winter				49.935	-0.260
2.002	SW01-06	15 Winter	1	+0%	30/120 Winter				49.870	-0.250
2.003	SW01-07	15 Winter	1	+0%	30/120 Winter				49.818	-0.252
1.003	SW01-08	15 Winter	1	+0%	30/15 Summer				49.526	-0.214
3.000	ACO 1.0	15 Winter	1	+0%					50.162	-0.061
4.000	ACO 2.0	15 Winter	1	+0%					50.155	-0.068
3.001	SW01-09	15 Winter	1	+0%	30/15 Summer				50.148	-0.032
3.002	SW01-10	60 Winter	1	+0%	30/15 Summer				49.517	-0.078
1.004	SW01-11	60 Winter	1	+0%	1/15 Summer				49.517	0.132
1.005	SW01-12	30 Winter	1	+0%					49.176	-0.257

PN	US/MH Name	Flooded		Pipe		Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)	Status	
1.000	SW01-01	0.000	0.05	2.9	OK	
1.001	SW01-02	0.000	0.09	6.8	OK	
1.002	SW01-03	0.000	0.10	8.6	OK	
2.000	SW01-04	0.000	0.03	1.5	OK	
2.001	SW01-05	0.000	0.04	2.6	OK	
2.002	SW01-06	0.000	0.07	3.8	OK	
2.003	SW01-07	0.000	0.06	6.3	OK	
1.003	SW01-08	0.000	0.15	14.7	OK	
3.000	ACO 1.0	0.000	0.63	8.2	OK*	
4.000	ACO 2.0	0.000	0.47	6.1	OK*	
3.001	SW01-09	0.000	0.96	14.4	OK	

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

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
3.002	SW01-10	0.000	0.05	2.3		OK	
1.004	SW01-11	0.000	0.15	2.5		SURCHARGED	
1.005	SW01-12	0.000	0.05	2.5		OK	

30 year Return Period 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 * 10m³/ha Storage 2.000
 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 21.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.422 Cv (Winter) 0.840

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

Profile(s)

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 30, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged	
									Level (m)	Depth (m)
1.000	SW01-01	240 Winter	30	+30%	100/60 Summer				50.194	-0.056
1.001	SW01-02	240 Winter	30	+30%	30/240 Winter				50.194	0.014
1.002	SW01-03	240 Winter	30	+30%	30/30 Summer				50.194	0.314
2.000	SW01-04	240 Winter	30	+30%	100/60 Summer				50.195	-0.055
2.001	SW01-05	240 Winter	30	+30%	100/30 Winter				50.195	0.000
2.002	SW01-06	240 Winter	30	+30%	30/120 Winter				50.194	0.074
2.003	SW01-07	240 Winter	30	+30%	30/120 Winter				50.194	0.124
1.003	SW01-08	240 Winter	30	+30%	30/15 Summer				50.194	0.454
3.000	ACO 1.0	60 Winter	30	+30%					50.223	0.000
4.000	ACO 2.0	60 Winter	30	+30%					50.223	0.000
3.001	SW01-09	15 Winter	30	+30%	30/15 Summer				50.563	0.383
3.002	SW01-10	240 Winter	30	+30%	30/15 Summer				50.193	0.598
1.004	SW01-11	240 Winter	30	+30%	1/15 Summer				50.193	0.808
1.005	SW01-12	240 Winter	30	+30%					49.177	-0.256

PN	US/MH Name	Flooded		Pipe		Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)	Status	
1.000	SW01-01	0.000	0.03	1.7	OK	
1.001	SW01-02	0.000	0.06	4.6	SURCHARGED	
1.002	SW01-03	0.000	0.06	5.0	SURCHARGED	
2.000	SW01-04	0.000	0.01	0.9	OK	
2.001	SW01-05	0.000	0.03	1.6	OK	
2.002	SW01-06	0.000	0.04	2.5	SURCHARGED	
2.003	SW01-07	0.000	0.04	4.3	SURCHARGED	
1.003	SW01-08	0.000	0.08	7.9	SURCHARGED	
3.000	ACO 1.0	0.000	1.03	13.3	SURCHARGED*	
4.000	ACO 2.0	0.000	0.77	10.0	SURCHARGED*	
3.001	SW01-09	0.000	2.71	40.9	FLOOD RISK	

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

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
3.002	SW01-10	0.000	0.04	1.8		SURCHARGED	
1.004	SW01-11	0.000	0.16	2.5		SURCHARGED	
1.005	SW01-12	0.000	0.05	2.5		OK	

100 year Return Period 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 * 10m³/ha Storage 2.000
 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

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Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 30, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	SW01-01	120 Winter	100	+30%	100/60 Summer				50.598	0.348
1.001	SW01-02	120 Winter	100	+30%	30/240 Winter				50.596	0.416
1.002	SW01-03	120 Winter	100	+30%	30/30 Summer				50.590	0.710
2.000	SW01-04	120 Winter	100	+30%	100/60 Summer				50.593	0.343
2.001	SW01-05	120 Winter	100	+30%	100/30 Winter				50.593	0.398
2.002	SW01-06	120 Winter	100	+30%	30/120 Winter				50.591	0.471
2.003	SW01-07	120 Winter	100	+30%	30/120 Winter				50.590	0.520
1.003	SW01-08	120 Winter	100	+30%	30/15 Summer				50.585	0.845
3.000	ACO 1.0	30 Winter	100	+30%					50.223	0.000
4.000	ACO 2.0	30 Winter	100	+30%					50.223	0.000
3.001	SW01-09	15 Winter	100	+30%	30/15 Summer				50.811	0.631
3.002	SW01-10	120 Winter	100	+30%	30/15 Summer				50.582	0.987
1.004	SW01-11	120 Winter	100	+30%	1/15 Summer				50.579	1.194
1.005	SW01-12	120 Winter	100	+30%					49.253	-0.180

PN	US/MH Name	Flooded	Pipe	Level Exceeded
		Volume Flow / Overflow (m ³ / (l/s))	Pipe Flow (l/s)	
1.000	SW01-01	0.000 0.06	3.8 SURCHARGED	
1.001	SW01-02	0.000 0.13	10.0 SURCHARGED	
1.002	SW01-03	0.000 0.11	9.2 FLOOD RISK	
2.000	SW01-04	0.000 0.03	1.9 SURCHARGED	
2.001	SW01-05	0.000 0.06	3.6 SURCHARGED	
2.002	SW01-06	0.000 0.09	5.3 SURCHARGED	
2.003	SW01-07	0.000 0.09	8.8 SURCHARGED	
1.003	SW01-08	0.000 0.14	14.2 FLOOD RISK	
3.000	ACO 1.0	0.000 1.91	24.7 SURCHARGED*	
4.000	ACO 2.0	0.000 1.43	18.5 SURCHARGED*	
3.001	SW01-09	0.000 3.39	51.2 FLOOD RISK	

Collinshallgreen Ltd		Page 12
21 Stoney Street The Lace Market Nottingham NG1 1LP	LNT Bury St Edmunds SW Network	
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XP Solutions	Network 2017.1	

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

PN	US/MH Name	Flooded		Pipe	Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)		
3.002	SW01-10	0.000	0.18	8.5	FLOOD RISK	
1.004	SW01-11	0.000	1.03	16.7	FLOOD RISK	
1.005	SW01-12	0.000	0.34	16.7	OK	