


Coopers		Page 1
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
Micro Drainage	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 8007 SW01.SWS













Pipe Sizes 8007 SW01 Manhole Sizes 8007 SW01

FSR Rainfall Model - England and Wales			
Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	17.200	Add Flow / Climate Change (%)	0
Ratio R	0.372	Minimum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
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)	0.75
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	400

Designed with Level Soffits


Network Design Table for 8007 SW01.SWS

◀ - Indicates pipe capacity < flow










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	12.715	0.763	16.7	0.085	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	12.933	1.231	10.5	0.024	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	20.867	2.307	9.0	0.014	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.003	29.355	3.840	7.6	0.087	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	27.431	2.825	9.7	0.102	5.00	0.0	0.600	o	225	Pipe/Conduit	
2.001	29.824	1.274	23.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.002	20.328	0.526	38.6	0.098	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.003	17.721	1.839	9.6	0.060	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.004	16.367	0.489	33.5	0.085	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.005	11.172	0.122	91.6	0.056	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.006	24.711	0.062	398.6	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.007	16.707	0.538	31.1	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.07	27.177	0.085	0.0	0.0	0.0	3.22	128.1	11.5
1.001	50.00	5.12	26.414	0.109	0.0	0.0	0.0	4.06	161.4	14.8
1.002	50.00	5.20	25.183	0.123	0.0	0.0	0.0	4.38	174.0	16.7
1.003	50.00	5.30	22.876	0.210	0.0	0.0	0.0	4.76	189.4	28.4
2.000	50.00	5.11	25.500	0.102	0.0	0.0	0.0	4.22	168.0	13.8
2.001	50.00	5.29	22.675	0.102	0.0	0.0	0.0	2.72	108.0	13.8
2.002	50.00	5.42	21.326	0.200	0.0	0.0	0.0	2.54	179.3	27.1
2.003	50.00	5.48	20.800	0.260	0.0	0.0	0.0	5.09	360.0	35.2
1.004	50.00	5.58	18.961	0.555	0.0	0.0	0.0	2.73	192.8	75.2
1.005	50.00	5.70	18.472	0.611	0.0	0.0	0.0	1.64	116.2	82.7
1.006	50.00	6.10	17.900	0.611	0.0	0.0	0.0	1.01	161.0	82.7
1.007	50.00	6.18	17.838	0.611	0.0	0.0	0.0	3.66	581.9	82.7

Coopers		Page 2
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
Micro Drainage	Network 2020.1.3	

Network Design Table for 8007 SW01.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)	Section Type	Auto Design
1.008	19.986	0.050	399.7	0.061	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.009	10.756	0.635	16.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.010	77.019	4.065	18.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.011	30.464	1.600	19.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.012	40.131	1.900	21.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.013	11.238	0.177	63.5	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.014	86.994	0.580	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.015	48.725	0.325	149.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.016	12.610	0.084	150.1	0.000	0.00	0.0	0.600	o	150	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)
1.008	50.00	6.51	17.300	0.672	0.0	0.0	0.0	1.01	160.7	91.0
1.009	50.00	6.58	17.250	0.672	0.0	0.0	0.0	2.46	43.5«	91.0
1.010	50.00	7.13	16.615	0.672	0.0	0.0	0.0	2.32	41.1«	91.0
1.011	50.00	7.35	12.550	0.672	0.0	0.0	0.0	2.32	41.0«	91.0
1.012	50.00	7.66	10.950	0.672	0.0	0.0	0.0	2.20	38.9«	91.0
1.013	50.00	7.80	9.050	0.672	0.0	0.0	0.0	1.26	22.3«	91.0
1.014	50.00	9.58	8.873	0.672	0.0	0.0	0.0	0.82	14.5«	91.0
1.015	50.00	10.57	8.293	0.672	0.0	0.0	0.0	0.82	14.5«	91.0
1.016	50.00	10.83	7.968	0.672	0.0	0.0	0.0	0.82	14.5«	91.0

Park House
Sandpiper Court
Chester CH4 9QU

MIDNANT FARM, PRESATYN
Surface Water Design
PRELIMINARY



Date 23/11/2022
File 8007 N1 SW01.MDX

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Micro Drainage

Network 2020.1.3

Manhole Schedules for 8007 SW01.SWS

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out			Pipes In			Backdrop (mm)
					PN	Invert Level (m)	Diameter (mm)	PN	Invert Level (m)	Diameter (mm)	
1	28.902	1.725	Open Manhole	1500	1.000	27.177	225				
2	28.139	1.725	Open Manhole	1500	1.001	26.414	225	1.000	26.414	225	
3	26.908	1.725	Open Manhole	1500	1.002	25.183	225	1.001	25.183	225	
4	24.801	1.925	Open Manhole	1500	1.003	22.876	225	1.002	22.876	225	
5	28.339	2.839	Open Manhole	1500	2.000	25.500	225				
6	24.100	1.425	Open Manhole	1500	2.001	22.675	225	2.000	22.675	225	
7	22.951	1.625	Open Manhole	1500	2.002	21.326	300	2.001	21.401	225	
8	22.425	1.625	Open Manhole	1500	2.003	20.800	300	2.002	20.800	300	
9	21.884	2.923	Open Manhole	1500	1.004	18.961	300	1.003	19.036	225	
								2.003	18.961	300	
10	20.372	1.900	Open Manhole	1500	1.005	18.472	300	1.004	18.472	300	
11	22.000	4.100	Open Manhole	1500	1.006	17.900	450	1.005	18.350	300	300
12	20.500	2.662	Open Manhole	1500	1.007	17.838	450	1.006	17.838	450	
13	19.384	2.084	Open Manhole	1800	1.008	17.300	450	1.007	17.300	450	
14	18.900	1.650	Open Manhole	2100	1.009	17.250	150	1.008	17.250	450	
15	17.965	1.350	Open Manhole	1350	1.010	16.615	150	1.009	16.615	150	
16	13.900	1.350	Open Manhole	1350	1.011	12.550	150	1.010	12.550	150	
17	12.300	1.350	Open Manhole	1350	1.012	10.950	150	1.011	10.950	150	
18	10.400	1.350	Open Manhole	1350	1.013	9.050	150	1.012	9.050	150	
19	10.000	1.127	Open Manhole	1350	1.014	8.873	150	1.013	8.873	150	
20	9.500	1.207	Open Manhole	1350	1.015	8.293	150	1.014	8.293	150	
21	9.100	1.132	Open Manhole	1350	1.016	7.968	150	1.015	7.968	150	
22	9.100	1.216	Open Manhole	0		OUTFALL		1.016	7.884	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
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1	307824.048	383095.126	307824.048	383095.126	Required	
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2	307817.283	383105.892	307817.283	383105.892	Required	
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3	307807.245	383114.046	307807.245	383114.046	Required	
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4	307787.305	383120.196	307787.305	383120.196	Required	
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5	307767.298	383057.354	307767.298	383057.354	Required	
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6	307752.648	383080.546	307752.648	383080.546	Required	
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Sandpiper Court
Chester CH4 9QU

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File 8007 N1 SW01.MDX

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Network 2020.1.3

Manhole Schedules for 8007 SW01.SWS

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
7	307735.177	383104.716	307735.177	383104.716	Required	
8	307752.401	383115.511	307752.401	383115.511	Required	
9	307760.185	383131.431	307760.185	383131.431	Required	
10	307745.769	383139.180	307745.769	383139.180	Required	
11	307738.735	383130.501	307738.735	383130.501	Required	
12	307720.300	383146.957	307720.300	383146.957	Required	
13	307717.887	383163.488	307717.887	383163.488	Required	
14	307730.031	383179.362	307730.031	383179.362	Required	
15	307736.566	383187.904	307736.566	383187.904	Required	
16	307677.728	383237.603	307677.728	383237.603	Required	
17	307697.110	383261.106	307697.110	383261.106	Required	
18	307704.917	383300.470	307704.917	383300.470	Required	
19	307701.702	383311.238	307701.702	383311.238	Required	
20	307616.522	383293.564	307616.522	383293.564	Required	
21	307569.301	383281.551	307569.301	383281.551	Required	
22	307562.595	383270.873			No Entry	

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Surface Water Design
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Network 2020.1.3

PIPELINE SCHEDULES for 8007 SW01.SWS

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	1	28.902	27.177	1.500	Open Manhole	1500
1.001	o	225	2	28.139	26.414	1.500	Open Manhole	1500
1.002	o	225	3	26.908	25.183	1.500	Open Manhole	1500
1.003	o	225	4	24.801	22.876	1.700	Open Manhole	1500
2.000	o	225	5	28.339	25.500	2.614	Open Manhole	1500
2.001	o	225	6	24.100	22.675	1.200	Open Manhole	1500
2.002	o	300	7	22.951	21.326	1.325	Open Manhole	1500
2.003	o	300	8	22.425	20.800	1.325	Open Manhole	1500
1.004	o	300	9	21.884	18.961	2.623	Open Manhole	1500
1.005	o	300	10	20.372	18.472	1.600	Open Manhole	1500
1.006	o	450	11	22.000	17.900	3.650	Open Manhole	1500
1.007	o	450	12	20.500	17.838	2.212	Open Manhole	1500
1.008	o	450	13	19.384	17.300	1.634	Open Manhole	1800
1.009	o	150	14	18.900	17.250	1.500	Open Manhole	2100
1.010	o	150	15	17.965	16.615	1.200	Open Manhole	1350
1.011	o	150	16	13.900	12.550	1.200	Open Manhole	1350
1.012	o	150	17	12.300	10.950	1.200	Open Manhole	1350
1.013	o	150	18	10.400	9.050	1.200	Open Manhole	1350
1.014	o	150	19	10.000	8.873	0.977	Open Manhole	1350
1.015	o	150	20	9.500	8.293	1.057	Open Manhole	1350
1.016	o	150	21	9.100	7.968	0.982	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	12.715	16.7	2	28.139	26.414	1.500	Open Manhole	1500
1.001	12.933	10.5	3	26.908	25.183	1.500	Open Manhole	1500
1.002	20.867	9.0	4	24.801	22.876	1.700	Open Manhole	1500
1.003	29.355	7.6	9	21.884	19.036	2.623	Open Manhole	1500
2.000	27.431	9.7	6	24.100	22.675	1.200	Open Manhole	1500
2.001	29.824	23.4	7	22.951	21.401	1.325	Open Manhole	1500
2.002	20.328	38.6	8	22.425	20.800	1.325	Open Manhole	1500
2.003	17.721	9.6	9	21.884	18.961	2.623	Open Manhole	1500
1.004	16.367	33.5	10	20.372	18.472	1.600	Open Manhole	1500
1.005	11.172	91.6	11	22.000	18.350	3.350	Open Manhole	1500
1.006	24.711	398.6	12	20.500	17.838	2.212	Open Manhole	1500
1.007	16.707	31.1	13	19.384	17.300	1.634	Open Manhole	1800
1.008	19.986	399.7	14	18.900	17.250	1.200	Open Manhole	2100
1.009	10.756	16.9	15	17.965	16.615	1.200	Open Manhole	1350
1.010	77.019	18.9	16	13.900	12.550	1.200	Open Manhole	1350
1.011	30.464	19.0	17	12.300	10.950	1.200	Open Manhole	1350
1.012	40.131	21.1	18	10.400	9.050	1.200	Open Manhole	1350
1.013	11.238	63.5	19	10.000	8.873	0.977	Open Manhole	1350
1.014	86.994	150.0	20	9.500	8.293	1.057	Open Manhole	1350
1.015	48.725	149.9	21	9.100	7.968	0.982	Open Manhole	1350
1.016	12.610	150.1	22	9.100	7.884	1.066	Open Manhole	0

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Chester CH4 9QU

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Free Flowing Outfall Details for 8007 SW01.SWS

Outfall Pipe Number	Outfall C. Level Name (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.016	22	9.100	7.884	0.000	0 0
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Simulation Criteria for 8007 SW01.SWS

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
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 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	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	17.200	Storm Duration (mins)	30
Ratio R	0.372		

Coopers		Page 7
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
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Online Controls for 8007 SW01.SWS


Hydro-Brake® Optimum Manhole: 14, DS/PN: 1.009, Volume (m³): 8.6

Unit Reference	MD-SHE-0100-5000-1350-5000
Design Head (m)	1.350
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	100
Invert Level (m)	17.250
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.350	5.0	Kick-Flo®	0.829	4.0
Flush-Flo™	0.400	5.0	Mean Flow over Head Range	-	4.4

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)
0.100	3.3	1.200	4.7	3.000	7.3	7.000	10.9
0.200	4.6	1.400	5.1	3.500	7.8	7.500	11.2
0.300	4.9	1.600	5.4	4.000	8.3	8.000	11.6
0.400	5.0	1.800	5.7	4.500	8.8	8.500	11.9
0.500	5.0	2.000	6.0	5.000	9.2	9.000	12.2
0.600	4.8	2.200	6.3	5.500	9.7	9.500	12.6
0.800	4.2	2.400	6.5	6.000	10.1		
1.000	4.4	2.600	6.8	6.500	10.5		

Coopers		Page 8
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
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Storage Structures for 8007 SW01.SWS

Tank or Pond Manhole: 12, DS/PN: 1.007


Invert Level (m) 17.838

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	300.0	0.400	375.0	0.800	450.0	1.200	530.0

Volume Summary (Static)

Length Calculations based on Centre-Centre

Pipe Number	USMH Name	Manhole Volume (m ³)	Pipe Volume (m ³)	Storage Structure Volume (m ³)	Total Volume (m ³)
1.000	1	3.048	0.506	0.000	3.554
1.001	2	3.048	0.514	0.000	3.563
1.002	3	3.048	0.830	0.000	3.878
1.003	4	3.402	1.167	0.000	4.569
2.000	5	5.017	1.091	0.000	6.108
2.001	6	2.518	1.186	0.000	3.704
2.002	7	2.872	1.437	0.000	4.309
2.003	8	2.872	1.253	0.000	4.124
1.004	9	5.165	1.157	0.000	6.322
1.005	10	3.358	0.790	0.000	4.147
1.006	11	7.245	3.930	0.000	11.175
1.007	12	4.704	2.657	1270.136	1277.497
1.008	13	5.303	3.179	0.000	8.482
1.009	14	5.715	0.190	0.000	5.905
1.010	15	1.932	1.361	0.000	3.293
1.011	16	1.932	0.538	0.000	2.471
1.012	17	1.932	0.709	0.000	2.642
1.013	18	1.932	0.199	0.000	2.131
1.014	19	1.613	1.537	0.000	3.150
1.015	20	1.728	0.861	0.000	2.589
1.016	21	1.620	0.223	0.000	1.843
Total		70.006	25.313	1270.136	1365.455

Coopers		Page 9
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
Micro Drainage	Network 2020.1.3	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 8007 SW01.SWS

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) 17.200 Cv (Summer) 0.750
Region England and Wales Ratio R 0.371 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) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 50

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	1	15 Winter	1	+0%					27.222	-0.180
1.001	2	15 Winter	1	+0%					26.459	-0.180
1.002	3	15 Winter	1	+0%					25.228	-0.180
1.003	4	15 Winter	1	+0%					22.929	-0.172
2.000	5	15 Winter	1	+0%					25.541	-0.184
2.001	6	15 Winter	1	+0%					22.726	-0.174
2.002	7	15 Winter	1	+0%	100/15 Summer				21.400	-0.226
2.003	8	15 Winter	1	+0%	100/15 Summer				20.860	-0.240
1.004	9	15 Winter	1	+0%	30/15 Summer				19.084	-0.177
1.005	10	15 Winter	1	+0%	30/15 Summer				18.663	-0.109
1.006	11	15 Winter	1	+0%	30/15 Summer				18.116	-0.234
1.007	12	120 Winter	1	+0%	100/30 Summer				17.969	-0.319
1.008	13	120 Winter	1	+0%	1/15 Summer				17.976	0.226
1.009	14	120 Winter	1	+0%	1/15 Summer				17.976	0.576
1.010	15	1440 Summer	1	+0%					16.649	-0.116
1.011	16	1440 Summer	1	+0%					12.585	-0.115
1.012	17	1440 Summer	1	+0%					10.986	-0.114
1.013	18	1440 Summer	1	+0%					9.100	-0.100
1.014	19	1440 Summer	1	+0%					8.933	-0.090
1.015	20	1440 Summer	1	+0%					8.354	-0.089
1.016	21	1440 Summer	1	+0%					8.031	-0.087

Coopers		Page 10
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
Micro Drainage	Network 2020.1.3	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 8007 SW01.SWS

PN	US/MH Name	Flooded		Half Drain		Pipe Flow (l/s)	Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)			
1.000	1	0.000	0.09			9.8	OK	
1.001	2	0.000	0.09			12.1	OK	
1.002	3	0.000	0.09			13.6	OK	
1.003	4	0.000	0.13			22.1	OK	
2.000	5	0.000	0.08			11.8	OK	
2.001	6	0.000	0.12			11.7	OK	
2.002	7	0.000	0.14			21.3	OK	
2.003	8	0.000	0.09			27.3	OK	
1.004	9	0.000	0.35			57.8	OK	
1.005	10	0.000	0.72			63.4	OK	
1.006	11	0.000	0.46			62.5	OK	
1.007	12	0.000	0.04			15.9	OK	
1.008	13	0.000	0.09			11.4	SURCHARGED	
1.009	14	0.000	0.12			4.9	SURCHARGED	
1.010	15	0.000	0.12			4.9	OK	
1.011	16	0.000	0.12			4.9	OK	
1.012	17	0.000	0.13			4.9	OK	
1.013	18	0.000	0.24			4.9	OK	
1.014	19	0.000	0.34			4.9	OK	
1.015	20	0.000	0.35			4.9	OK	
1.016	21	0.000	0.37			4.9	OK	

Coopers		Page 11
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
Micro Drainage	Network 2020.1.3	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 8007 SW01.SWS

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) 17.200 Cv (Summer) 0.750
Region England and Wales Ratio R 0.371 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) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 50

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	1	15 Winter	30	+0%					27.248	-0.154
1.001	2	15 Winter	30	+0%					26.486	-0.153
1.002	3	15 Winter	30	+0%					25.256	-0.152
1.003	4	15 Winter	30	+0%					22.968	-0.133
2.000	5	15 Winter	30	+0%					25.566	-0.159
2.001	6	15 Winter	30	+0%					22.757	-0.143
2.002	7	15 Winter	30	+0%	100/15 Summer				21.454	-0.172
2.003	8	15 Winter	30	+0%	100/15 Summer				20.902	-0.198
1.004	9	15 Winter	30	+0%	30/15 Summer				19.607	0.346
1.005	10	15 Winter	30	+0%	30/15 Summer				19.129	0.357
1.006	11	15 Winter	30	+0%	30/15 Summer				18.369	0.019
1.007	12	240 Winter	30	+0%	100/30 Summer				18.274	-0.014
1.008	13	240 Winter	30	+0%	1/15 Summer				18.279	0.529
1.009	14	240 Winter	30	+0%	1/15 Summer				18.279	0.879
1.010	15	480 Summer	30	+0%					16.649	-0.116
1.011	16	720 Winter	30	+0%					12.585	-0.115
1.012	17	1440 Summer	30	+0%					10.986	-0.114
1.013	18	480 Summer	30	+0%					9.100	-0.100
1.014	19	720 Winter	30	+0%					8.933	-0.090
1.015	20	1440 Summer	30	+0%					8.354	-0.089
1.016	21	1440 Summer	30	+0%					8.031	-0.087

Coopers		Page 12
Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY	
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ	
Micro Drainage	Network 2020.1.3	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 8007 SW01.SWS

PN	US/MH Name	Flooded		Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)				
1.000	1	0.000	0.22		24.1	OK	
1.001	2	0.000	0.22		31.2	OK	
1.002	3	0.000	0.22		35.2	OK	
1.003	4	0.000	0.35		61.3	OK	
2.000	5	0.000	0.19		29.0	OK	
2.001	6	0.000	0.28		28.6	OK	
2.002	7	0.000	0.37		58.1	OK	
2.003	8	0.000	0.25		76.0	OK	
1.004	9	0.000	0.97		158.6	SURCHARGED	
1.005	10	0.000	2.00		174.6	SURCHARGED	
1.006	11	0.000	1.27		171.1	SURCHARGED	
1.007	12	0.000	0.03		10.6	OK	
1.008	13	0.000	0.06		8.1	SURCHARGED	
1.009	14	0.000	0.12		4.9	SURCHARGED	
1.010	15	0.000	0.12		4.9	OK	
1.011	16	0.000	0.12		4.9	OK	
1.012	17	0.000	0.13		4.9	OK	
1.013	18	0.000	0.24		4.9	OK	
1.014	19	0.000	0.34		4.9	OK	
1.015	20	0.000	0.35		4.9	OK	
1.016	21	0.000	0.37		4.9	OK	

Park House Sandpiper Court Chester CH4 9QU	MIDNANT FARM, PRESATYN Surface Water Design PRELIMINARY
Date 23/11/2022 File 8007 N1 SW01.MDX	Designed by Coopers Checked by AJ



Micro Drainage Network 2020.1.3

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 8007 SW01.SWS

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) 17.200 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.371 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) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 0, 50

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	1	15 Winter	100	+50%					27.280	-0.122
1.001	2	15 Winter	100	+50%					26.518	-0.121
1.002	3	15 Winter	100	+50%					25.287	-0.121
1.003	4	15 Winter	100	+50%					23.023	-0.078
2.000	5	15 Winter	100	+50%					25.594	-0.131
2.001	6	15 Winter	100	+50%					22.796	-0.104
2.002	7	15 Winter	100	+50%	100/15 Summer				22.019	0.393
2.003	8	15 Winter	100	+50%	100/15 Summer				21.798	0.698
1.004	9	15 Winter	100	+50%	30/15 Summer				21.356	2.095
1.005	10	15 Winter	100	+50%	30/15 Summer				20.027	1.255
1.006	11	360 Winter	100	+50%	30/15 Summer				18.770	0.420
1.007	12	360 Winter	100	+50%	100/30 Summer				18.768	0.480
1.008	13	480 Winter	100	+50%	1/15 Summer				18.816	1.066
1.009	14	480 Winter	100	+50%	1/15 Summer				18.833	1.433
1.010	15	480 Winter	100	+50%					16.651	-0.114
1.011	16	480 Winter	100	+50%					12.586	-0.114
1.012	17	480 Winter	100	+50%					10.987	-0.113
1.013	18	360 Winter	100	+50%					9.102	-0.098
1.014	19	480 Winter	100	+50%					8.936	-0.087
1.015	20	480 Winter	100	+50%					8.356	-0.087
1.016	21	480 Winter	100	+50%					8.034	-0.084

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 8007 SW01.SWS

PN	US/MH Name	Flooded		Half Drain Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)		
1.000	1	0.000	0.42		46.7	OK	
1.001	2	0.000	0.43		60.3	OK	
1.002	3	0.000	0.43		68.1	OK	
1.003	4	0.000	0.67		118.4	OK	
2.000	5	0.000	0.36		56.1	OK	
2.001	6	0.000	0.55		55.5	OK	
2.002	7	0.000	0.66		103.8	SURCHARGED	
2.003	8	0.000	0.44		134.7	SURCHARGED	
1.004	9	0.000	1.63		266.5	SURCHARGED	
1.005	10	0.000	3.35		293.1	SURCHARGED	
1.006	11	0.000	0.38		50.8	SURCHARGED	
1.007	12	0.000	0.06		23.7	SURCHARGED	
1.008	13	0.000	0.11		14.7	SURCHARGED	
1.009	14	0.000	0.14		5.3	FLOOD RISK	
1.010	15	0.000	0.13		5.3	OK	
1.011	16	0.000	0.13		5.3	OK	
1.012	17	0.000	0.14		5.3	OK	
1.013	18	0.000	0.26		5.3	OK	
1.014	19	0.000	0.37		5.3	OK	
1.015	20	0.000	0.37		5.3	OK	
1.016	21	0.000	0.40		5.3	OK	