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Land at Wood Farm
Farm Site
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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW FARM NETWORK 1.SWS

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales			
Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	20.800	Add Flow / Climate Change (%)	10
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	75	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

Time Area Diagram for SW FARM NETWORK 1.SWS

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.324	4-8	0.444

Total Area Contributing (ha) = 1.768

Total Pipe Volume (m³) = 22.933

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ICP SUDS Mean Annual Flood

Input

Return Period (years) 100 SAAR (mm) 700 Urban 0.000
 Area (ha) 1.138 Soil 0.450 Region Number Region 4

Results 1/s

QBAR Rural 5.0
 QBAR Urban 5.0

Q100 years 12.8

Q1 year 4.1
 Q30 years 9.8
 Q100 years 12.8



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Manhole Schedules for SW FARM NETWORK 1.SWS

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)
S1	167.191	1.050	Open Manhole	450	S1.000	166.141	150				
SGY	165.053	0.750	Open Manhole	450	S2.000	164.303	150				
S2	165.797	1.752	Open Manhole	1200	S1.001	164.045	150	S1.000	164.747	150	702
								S2.000	164.045	150	
S3	165.004	1.752	Open Manhole	1200	S1.002	163.252	150	S1.001	163.252	150	
S8	165.660	1.050	Open Manhole	450	S3.000	164.610	150				
S9	165.671	1.356	Open Manhole	450	S3.001	164.315	150	S3.000	164.315	150	
S10	164.092	1.150	Open Manhole	450	S4.000	162.942	150				
S4	163.992	1.542	Open Manhole	1200	S1.003	162.450	225	S1.002	162.525	150	
								S3.001	162.525	150	
								S4.000	162.525	150	
S11	168.311	1.050	Open Manhole	450	S5.000	167.261	150				
S13	168.045	1.350	Open Manhole	450	S6.000	166.695	150				
S12	167.775	1.304	Open Manhole	1200	S5.001	166.471	150	S5.000	166.720	150	249
								S6.000	166.471	150	
S5	163.654	1.474	Open Manhole	1200	S1.004	162.180	225	S1.003	162.180	225	
								S5.001	162.255	150	
S14	165.975	1.350	Open Manhole	450	S7.000	164.625	150				
S15	165.975	1.711	Open Manhole	450	S7.001	164.264	225	S7.000	164.339	150	
S16	165.060	2.014	Open Manhole	1200	S7.002	163.046	300	S7.001	164.198	225	1077
S18	163.925	1.050	Open Manhole	1200	S8.000	162.875	225				
S19	163.370	1.125	Open Manhole	1200	S8.001	162.245	300	S8.000	162.320	225	
S21	162.480	1.050	Open Manhole	450	S9.000	161.430	150				
S20	163.115	2.103	Open Manhole	1200	S8.002	161.012	300	S8.001	162.204	300	1192
								S9.000	161.162	150	
S17	161.552	1.087	Open Manhole	1350	S7.003	160.465	450	S7.002	160.615	300	
								S8.002	160.615	300	
S6	161.392	3.007	Open Manhole	1350	S1.005	158.385	450	S1.004	160.151	225	1541
								S7.003	160.001	450	1616
SPond	160.192	2.187	Open Manhole	1350	S1.006	158.005	150	S1.005	158.005	450	
S7	159.025	1.175	Open Manhole	1200	S1.007	157.850	150	S1.006	157.850	150	
S9	158.509	0.750	Open Manhole	0		OUTFALL		S1.007	157.759	150	



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PIPELINE SCHEDULES for SW FARM NETWORK 1.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)
S1.000	o	150	S1	167.191	166.141	0.900	Open Manhole	450
S2.000	o	150	SGY	165.053	164.303	0.600	Open Manhole	450
S1.001	o	150	S2	165.797	164.045	1.602	Open Manhole	1200
S1.002	o	150	S3	165.004	163.252	1.602	Open Manhole	1200
S3.000	o	150	S8	165.660	164.610	0.900	Open Manhole	450
S3.001	o	150	S9	165.671	164.315	1.206	Open Manhole	450
S4.000	o	150	S10	164.092	162.942	1.000	Open Manhole	450
S1.003	o	225	S4	163.992	162.450	1.317	Open Manhole	1200
S5.000	o	150	S11	168.311	167.261	0.900	Open Manhole	450
S6.000	o	150	S13	168.045	166.695	1.200	Open Manhole	450
S5.001	o	150	S12	167.775	166.471	1.154	Open Manhole	1200
S1.004	o	225	S5	163.654	162.180	1.249	Open Manhole	1200
S7.000	o	150	S14	165.975	164.625	1.200	Open Manhole	450
S7.001	o	225	S15	165.975	164.264	1.486	Open Manhole	450
S7.002	o	300	S16	165.060	163.046	1.714	Open Manhole	1200
S8.000	o	225	S18	163.925	162.875	0.825	Open Manhole	1200
S8.001	o	300	S19	163.370	162.245	0.825	Open Manhole	1200
S9.000	o	150	S21	162.480	161.430	0.900	Open Manhole	450
S8.002	o	300	S20	163.115	161.012	1.803	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)
S1.000	25.995	18.6	S2	165.797	164.747	0.900	Open Manhole	1200
S2.000	10.437	40.5	S2	165.797	164.045	1.602	Open Manhole	1200
S1.001	69.824	88.1	S3	165.004	163.252	1.602	Open Manhole	1200
S1.002	34.649	47.7	S4	163.992	162.525	1.317	Open Manhole	1200
S3.000	17.712	60.0	S9	165.671	164.315	1.206	Open Manhole	450
S3.001	29.654	16.6	S4	163.992	162.525	1.317	Open Manhole	1200
S4.000	16.682	40.0	S4	163.992	162.525	1.317	Open Manhole	1200
S1.003	26.179	96.9	S5	163.654	162.180	1.249	Open Manhole	1200
S5.000	22.629	41.8	S12	167.775	166.720	0.905	Open Manhole	1200
S6.000	7.570	33.8	S12	167.775	166.471	1.154	Open Manhole	1200
S5.001	83.663	19.8	S5	163.654	162.255	1.249	Open Manhole	1200
S1.004	33.716	16.6	S6	161.392	160.151	1.016	Open Manhole	1350
S7.000	28.900	101.0	S15	165.975	164.339	1.486	Open Manhole	450
S7.001	11.114	168.4	S16	165.060	164.198	0.637	Open Manhole	1200
S7.002	72.931	30.0	S17	161.552	160.615	0.637	Open Manhole	1350
S8.000	50.663	91.3	S19	163.370	162.320	0.825	Open Manhole	1200
S8.001	6.964	169.9	S20	163.115	162.204	0.611	Open Manhole	1200
S9.000	20.464	76.4	S20	163.115	161.162	1.803	Open Manhole	1200
S8.002	12.628	31.8	S17	161.552	160.615	0.637	Open Manhole	1350



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PIPELINE SCHEDULES for SW FARM NETWORK 1.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)
S7.003	o	450	S17	161.552	160.465	0.637	Open Manhole	1350
S1.005	o	450	S6	161.392	158.385	2.557	Open Manhole	1350
S1.006	o	150	SPond	160.192	158.005	2.037	Open Manhole	1350
S1.007	o	150	S7	159.025	157.850	1.025	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)
S7.003	11.248	24.2	S6	161.392	160.001	0.941	Open Manhole	1350
S1.005	17.773	46.8	SPond	160.192	158.005	1.737	Open Manhole	1350
S1.006	15.467	99.8	S7	159.025	157.850	1.025	Open Manhole	1200
S1.007	9.068	99.6	S9	158.509	157.759	0.600	Open Manhole	0



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Area Summary for SW FARM NETWORK 1.SWS

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.028	0.028	0.028
2.000	-	-	100	0.033	0.033	0.033
1.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.025	0.025	0.025
3.001	-	-	100	0.009	0.009	0.009
4.000	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.069	0.069	0.069
6.000	-	-	100	0.055	0.055	0.055
5.001	-	-	100	0.015	0.015	0.015
1.004	-	-	100	0.000	0.000	0.000
7.000	-	-	100	0.076	0.076	0.076
7.001	-	-	100	0.076	0.076	0.076
7.002	-	-	100	0.258	0.258	0.258
8.000	-	-	100	0.148	0.148	0.148
8.001	-	-	100	0.047	0.047	0.047
9.000	-	-	100	0.047	0.047	0.047
8.002	-	-	100	0.000	0.000	0.000
7.003	-	-	100	0.248	0.248	0.248
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.634	0.634	0.634
1.007	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.768	1.768	1.768



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Network Classifications for SW FARM NETWORK 1.SWS

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S1	150	0.900	0.963	Unclassified	450	0	0.900	Unclassified
S2.000	SGY	150	0.600	1.602	Unclassified	450	0	0.600	Unclassified
S1.001	S2	150	1.602	2.237	Unclassified	1200	0	1.602	Unclassified
S1.002	S3	150	1.317	1.602	Unclassified	1200	0	1.602	Unclassified
S3.000	S8	150	0.900	1.206	Unclassified	450	0	0.900	Unclassified
S3.001	S9	150	1.206	1.391	Unclassified	450	0	1.206	Unclassified
S4.000	S10	150	1.000	1.317	Unclassified	450	0	1.000	Unclassified
S1.003	S4	225	1.249	1.325	Unclassified	1200	0	1.317	Unclassified
S5.000	S11	150	0.900	0.931	Unclassified	450	0	0.900	Unclassified
S6.000	S13	150	1.129	1.200	Unclassified	450	0	1.200	Unclassified
S5.001	S12	150	1.154	1.569	Unclassified	1200	0	1.154	Unclassified
S1.004	S5	225	0.997	1.249	Unclassified	1200	0	1.249	Unclassified
S7.000	S14	150	1.200	2.394	Unclassified	450	0	1.200	Unclassified
S7.001	S15	225	0.637	1.673	Unclassified	450	0	1.486	Unclassified
S7.002	S16	300	0.637	2.124	Unclassified	1200	0	1.714	Unclassified
S8.000	S18	225	0.825	0.825	Unclassified	1200	0	0.825	Unclassified
S8.001	S19	300	0.611	0.825	Unclassified	1200	0	0.825	Unclassified
S9.000	S21	150	0.138	1.803	Unclassified	450	0	0.900	Unclassified
S8.002	S20	300	0.494	1.803	Unclassified	1200	0	1.803	Unclassified
S7.003	S17	450	0.637	0.941	Unclassified	1350	0	0.637	Unclassified
S1.005	S6	450	1.737	2.557	Unclassified	1350	0	2.557	Unclassified
S1.006	SPond	150	1.025	2.459	Unclassified	1350	0	2.037	Unclassified
S1.007	S7	150	0.600	1.025	Unclassified	1200	0	1.025	Unclassified

Free Flowing Outfall Details for SW FARM NETWORK 1.SWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D.L (mm)	W (mm)
S1.007	S9	158.509	157.759	0.000	0	0

Simulation Criteria for SW FARM NETWORK 1.SWS

Volumetric Runoff Coeff	0.840	Manhole Headloss Coeff (Global)	0.500	Inlet Coefficient	0.800
Areal Reduction Factor	1.000	Foul Sewage per hectare (l/s)	0.000	Flow per Person per Day (l/per/day)	0.000
Hot Start (mins)	0	Additional Flow - % of Total Flow	0.000	Run Time (mins)	60
Hot Start Level (mm)	0	MADD Factor * 10m ³ /ha Storage	2.000	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	M5-60 (mm)	20.000	Cv (Summer)	0.750
Return Period (years)	100	Ratio R	0.400	Cv (Winter)	0.840
Region	England and Wales	Profile Type	Winter Storm	Duration (mins)	15



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Online Controls for SW FARM NETWORK 1.SWS

Hydro-Brake® Optimum Manhole: SPond, DS/PN: S1.006, Volume (m³): 5.7

Unit Reference	MD-SHE-0149-1280-1900-1280	Sump Available	Yes
Design Head (m)	1.900	Diameter (mm)	149
Design Flow (l/s)	12.8	Invert Level (m)	158.005
Flush-Flow™	Calculated	Minimum Outlet Pipe Diameter (mm)	225
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1500
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.900	12.7	Kick-Flo®	1.163	10.1
Flush-Flow™	0.561	12.7	Mean Flow over Head Range	-	11.2

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)	Depth (m)	Flow (l/s)
0.100	5.4	0.600	12.7	1.600	11.7	2.600	14.8	5.000	20.2	7.500	24.5
0.200	10.8	0.800	12.4	1.800	12.4	3.000	15.8	5.500	21.1	8.000	25.3
0.300	11.9	1.000	11.6	2.000	13.1	3.500	17.0	6.000	22.1	8.500	26.1
0.400	12.5	1.200	10.3	2.200	13.7	4.000	18.2	6.500	22.9	9.000	26.8
0.500	12.7	1.400	11.0	2.400	14.2	4.500	19.2	7.000	23.7	9.500	27.5



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Storage Structures for SW FARM NETWORK 1.SWS

Tank or Pond Manhole: SPond, DS/PN: S1.006

Invert Level (m) 158.005

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	324.4	1.887	1009.0	1.888	0.0

Manhole Headloss for SW FARM NETWORK 1.SWS

PN	US/MH Name	US/MH Headloss
S1.000	S1	0.500
S2.000	SGY	0.500
S1.001	S2	0.500
S1.002	S3	0.500
S3.000	S8	0.500
S3.001	S9	0.500
S4.000	S10	0.500
S1.003	S4	0.500
S5.000	S11	0.500
S6.000	S13	0.500
S5.001	S12	0.500
S1.004	S5	0.500
S7.000	S14	0.500
S7.001	S15	0.500
S7.002	S16	0.500
S8.000	S18	0.500
S8.001	S19	0.500
S9.000	S21	0.500
S8.002	S20	0.500
S7.003	S17	0.500
S1.005	S6	0.500
S1.006	SPond	0.500
S1.007	S7	0.500



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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW FARM NETWORK 1.SWS

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 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) 20.600 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 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 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, 40

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)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S1	15 Winter	1	+0%					166.173	-0.118	0.000	0.10
S2.000	SGY	15 Winter	1	+0%	100/15 Summer	100/15 Summer			164.347	-0.106	0.000	0.19
S1.001	S2	15 Winter	1	+0%	30/15 Summer				164.118	-0.077	0.000	0.45
S1.002	S3	15 Winter	1	+0%	100/15 Summer				163.312	-0.090	0.000	0.33
S3.000	S8	15 Winter	1	+0%					164.651	-0.109	0.000	0.17
S3.001	S9	15 Winter	1	+0%					164.348	-0.117	0.000	0.11
S4.000	S10	120 Winter	1	+0%					162.976	-0.116	0.000	0.11
S1.003	S4	15 Winter	1	+0%					162.538	-0.137	0.000	0.32
S5.000	S11	15 Winter	1	+0%	100/15 Summer	100/15 Summer			167.325	-0.086	0.000	0.38
S6.000	S13	15 Winter	1	+0%	30/15 Summer	100/15 Summer			166.751	-0.094	0.000	0.30
S5.001	S12	15 Winter	1	+0%	30/15 Summer	100/15 Summer			166.546	-0.075	0.000	0.50
S1.004	S5	15 Winter	1	+0%					162.262	-0.143	0.000	0.29
S7.000	S14	15 Winter	1	+0%	30/15 Summer	100/15 Summer			164.713	-0.062	0.000	0.63
S7.001	S15	15 Winter	1	+0%	30/15 Summer				164.390	-0.099	0.000	0.59
S7.002	S16	15 Winter	1	+0%	100/15 Summer				163.151	-0.195	0.000	0.26
S8.000	S18	15 Winter	1	+0%	100/15 Summer	100/15 Summer			162.975	-0.125	0.000	0.40
S8.001	S19	15 Winter	1	+0%	30/15 Summer				162.383	-0.162	0.000	0.43
S9.000	S21	15 Winter	1	+0%	100/15 Summer				161.492	-0.088	0.000	0.35
S8.002	S20	15 Winter	1	+0%	100/15 Summer				161.105	-0.207	0.000	0.21
S7.003	S17	15 Winter	1	+0%	100/15 Summer				160.633	-0.282	0.000	0.30
S1.005	S6	15 Winter	1	+0%	30/15 Summer				158.590	-0.245	0.000	0.43
S1.006	SPond	240 Winter	1	+0%	1/15 Summer				158.533	0.378	0.000	0.77
S1.007	S7	240 Winter	1	+0%					157.953	-0.047	0.000	0.81

PN	US/MH Name	Pipe		Status	Level Exceeded
		Overflow (l/s)	Flow (l/s)		
S1.000	S1		4.0	OK	
S2.000	SGY		4.7	OK	3
S1.001	S2		8.3	OK	
S1.002	S3		8.3	OK	
S3.000	S8		3.6	OK	
S3.001	S9		4.6	OK	
S4.000	S10		3.0	OK	
S1.003	S4		15.6	OK	
S5.000	S11		9.9	OK	4
S6.000	S13		7.9	OK	3
S5.001	S12		19.7	OK	4
S1.004	S5		34.9	OK	
S7.000	S14		10.7	OK	4
S7.001	S15		20.0	OK	
S7.002	S16		51.3	OK	
S8.000	S18		20.8	OK	2



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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW FARM
NETWORK 1.SWS

PN	US/MH Name	Overflow (l/s)	Pipe	Status	Level
			Flow (l/s)		Exceeded
S8.001	S19		26.5		OK
S9.000	S21		6.7		OK
S8.002	S20		33.2		OK
S7.003	S17		114.4		OK
S1.005	S6		148.8		OK
S1.006	SPond		12.7	SURCHARGED	
S1.007	S7		12.7		OK



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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW FARM
NETWORK 1.SWS

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 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) 20.600 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 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 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, 40

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)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S1	15 Winter	30	+0%					166.192	-0.099	0.000	0.25
S2.000	SGY	15 Winter	30	+0%	100/15 Summer	100/15 Summer			164.375	-0.078	0.000	0.46
S1.001	S2	15 Winter	30	+0%	30/15 Summer				164.315	0.120	0.000	1.05
S1.002	S3	15 Winter	30	+0%	100/15 Summer				163.353	-0.049	0.000	0.78
S3.000	S8	15 Winter	30	+0%					164.677	-0.083	0.000	0.41
S3.001	S9	15 Winter	30	+0%					164.370	-0.095	0.000	0.29
S4.000	S10	120 Winter	30	+0%					162.976	-0.116	0.000	0.11
S1.003	S4	15 Winter	30	+0%					162.586	-0.089	0.000	0.66
S5.000	S11	15 Winter	30	+0%	100/15 Summer	100/15 Summer			167.385	-0.026	0.000	0.93
S6.000	S13	15 Winter	30	+0%	30/15 Summer	100/15 Summer			167.110	0.265	0.000	0.66
S5.001	S12	15 Winter	30	+0%	30/15 Summer	100/15 Summer			167.015	0.394	0.000	1.04
S1.004	S5	15 Winter	30	+0%					162.307	-0.098	0.000	0.61
S7.000	S14	15 Winter	30	+0%	30/15 Summer	100/15 Summer			165.197	0.422	0.000	1.48
S7.001	S15	15 Winter	30	+0%	30/15 Summer				164.570	0.081	0.000	1.49
S7.002	S16	15 Winter	30	+0%	100/15 Summer				163.243	-0.103	0.000	0.74
S8.000	S18	15 Winter	30	+0%	100/15 Summer	100/15 Summer			163.073	-0.027	0.000	0.96
S8.001	S19	15 Winter	30	+0%	30/15 Summer				162.560	0.015	0.000	1.06
S9.000	S21	15 Winter	30	+0%	100/15 Summer				161.539	-0.041	0.000	0.85
S8.002	S20	15 Winter	30	+0%	100/15 Summer				161.165	-0.147	0.000	0.51
S7.003	S17	15 Winter	30	+0%	100/15 Summer				160.779	-0.136	0.000	0.81
S1.005	S6	480 Winter	30	+0%	30/15 Summer				159.167	0.332	0.000	0.14
S1.006	SPond	480 Winter	30	+0%	1/15 Summer				159.164	1.009	0.000	0.77
S1.007	S7	600 Winter	30	+0%					157.953	-0.047	0.000	0.81

		Pipe			
PN	US/MH Name	Overflow (l/s)	Flow (l/s)	Status	Level Exceeded
S1.000	S1		9.9	OK	
S2.000	SGY		11.6	OK	3
S1.001	S2		19.5	SURCHARGED	
S1.002	S3		19.4	OK	
S3.000	S8		8.8	OK	
S3.001	S9		12.1	OK	
S4.000	S10		3.0	OK	
S1.003	S4		32.5	OK	
S5.000	S11		24.3	OK	4
S6.000	S13		17.4	SURCHARGED	3
S5.001	S12		41.2	SURCHARGED	4
S1.004	S5		73.8	OK	
S7.000	S14		25.1	SURCHARGED	4
S7.001	S15		50.4	SURCHARGED	
S7.002	S16		144.9	OK	
S8.000	S18		50.1	OK	2



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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW FARM
NETWORK 1.SWS

PN	US/MH Name	Overflow (l/s)	Pipe Flow (l/s)	Status	Level
					Exceeded
S8.001	S19		65.3	SURCHARGED	
S9.000	S21		16.4	OK	
S8.002	S20		81.0	OK	
S7.003	S17		312.4	OK	
S1.005	S6		47.1	SURCHARGED	
S1.006	SPond		12.7	SURCHARGED	
S1.007	S7		12.7	OK	



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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW FARM NETWORK 1.SWS

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 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) 20.600 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 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 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, 40

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)	Flooded Volume (m ³)	Flow / Cap.
S1.000	S1	15 Winter	100	+40%					166.212	-0.079	0.000	0.46
S2.000	SGY	15 Winter	100	+40%	100/15 Summer	100/15 Summer			165.054	0.601	1.335	0.76
S1.001	S2	15 Winter	100	+40%	30/15 Summer				165.053	0.858	0.000	1.40
S1.002	S3	15 Winter	100	+40%	100/15 Summer				163.434	0.032	0.000	1.03
S3.000	S8	15 Winter	100	+40%					164.708	-0.052	0.000	0.75
S3.001	S9	15 Winter	100	+40%					164.393	-0.072	0.000	0.52
S4.000	S10	120 Winter	100	+40%					162.976	-0.116	0.000	0.11
S1.003	S4	15 Winter	100	+40%					162.628	-0.047	0.000	0.98
S5.000	S11	15 Winter	100	+40%	100/15 Summer	100/15 Summer			168.314	0.903	2.518	1.00
S6.000	S13	15 Winter	100	+40%	30/15 Summer	100/15 Summer			168.046	1.201	0.629	1.09
S5.001	S12	15 Winter	100	+40%	30/15 Summer	100/15 Summer			167.779	1.158	4.388	1.13
S1.004	S5	15 Winter	100	+40%					162.328	-0.077	0.000	0.76
S7.000	S14	15 Winter	100	+40%	30/15 Summer	100/15 Summer			165.977	1.202	2.218	2.20
S7.001	S15	15 Winter	100	+40%	30/15 Summer				164.924	0.435	0.000	2.49
S7.002	S16	15 Winter	100	+40%	100/15 Summer				164.576	1.230	0.000	1.16
S8.000	S18	15 Winter	100	+40%	100/15 Summer	100/15 Summer			163.926	0.826	0.711	1.51
S8.001	S19	15 Winter	100	+40%	30/15 Summer				162.665	0.120	0.000	1.69
S9.000	S21	15 Winter	100	+40%	100/15 Summer				162.089	0.509	0.000	1.45
S8.002	S20	15 Winter	100	+40%	100/15 Summer				161.507	0.195	0.000	0.85
S7.003	S17	15 Winter	100	+40%	100/15 Summer				161.241	0.326	0.000	1.31
S1.005	S6	600 Winter	100	+40%	30/15 Summer				159.878	1.043	0.000	0.20
S1.006	SPond	600 Winter	100	+40%	1/15 Summer				159.874	1.719	0.000	0.77
S1.007	S7	1440 Summer	100	+40%					157.953	-0.047	0.000	0.81

PN	US/MH Name	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1		18.0	OK	
S2.000	SGY		19.1	FLOOD	3
S1.001	S2		26.1	SURCHARGED	
S1.002	S3		25.6	SURCHARGED	
S3.000	S8		16.0	OK	
S3.001	S9		22.1	OK	
S4.000	S10		3.0	OK	
S1.003	S4		47.9	OK	
S5.000	S11		26.2	FLOOD	4
S6.000	S13		29.0	FLOOD	3
S5.001	S12		44.7	FLOOD	4
S1.004	S5		92.1	OK	
S7.000	S14		37.2	FLOOD	4
S7.001	S15		84.3	SURCHARGED	
S7.002	S16		227.3	SURCHARGED	
S8.000	S18		78.9	FLOOD	2



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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW FARM
NETWORK 1.SWS

PN	US/MH Name	Overflow (l/s)	Pipe	Status	Level Exceeded
			Flow (l/s)		
S8.001	S19		103.6	SURCHARGED	
S9.000	S21		27.7	SURCHARGED	
S8.002	S20		134.4	SURCHARGED	
S7.003	S17		503.3	SURCHARGED	
S1.005	S6		69.6	SURCHARGED	
S1.006	SPond		12.7	SURCHARGED	
S1.007	S7		12.7	OK	