STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK1.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK1.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.278	4-8	0.039

Total Area Contributing (ha) = 0.317

Total Pipe Volume (m³) = 6.799

Network Design Table for 4950 YW NETWORK1.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
1.000	37.000	1.100	33.6	0.215	4.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	28.216	0.475	59.4	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	10.430	0.050	208.6	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
2.000	3.529	0.345	10.2	0.102	4.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	3.826	0.050	76.5	0.000	0.00	0.0	0.600	o	375	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	0.00	4.23	151.700	0.215	0.0	0.0	0.0	2.72	192.3	0.0
1.001	0.00	4.46	150.600	0.215	0.0	0.0	0.0	2.04	144.5	0.0
1.002	0.00	4.60	150.050	0.215	0.0	0.0	0.0	1.25	138.1	0.0
2.000	0.00	4.02	150.570	0.102	0.0	0.0	0.0	3.17	56.0	0.0
1.003	0.00	4.63	150.000	0.317	0.0	0.0	0.0	2.07	229.0	0.0

Network Design Table for 4950 YW NETWORK1.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
1.004	5.000	0.050	100.0	0.000	0.00	0.0	0.600	o	375	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	0.00	4.67	149.950	0.317	0.0	0.0	0.0	1.81	200.1	0.0

Manhole Schedules for 4950 YW NETWORK1.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1-1	154.149	2.449	Open Manhole	1200	1.000	151.700	300				
S1-2	153.085	2.485	Open Manhole	1200	1.001	150.600	300	1.000	150.600	300	
S1-3	152.348	2.298	Open Manhole	1350	1.002	150.050	375	1.001	150.125	300	
IC4	152.620	2.050	Open Manhole	1200	2.000	150.570	150				
S1-4	152.500	2.500	Open Manhole	1350	1.003	150.000	375	1.002	150.000	375	
								2.000	150.225	150	
YWSA01	152.300	2.350	Open Manhole	2400	1.004	149.950	375	1.003	149.950	375	
OF	152.300	2.400	Open Manhole	0		OUTFALL		1.004	149.900	375	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1-1	413173.234	412805.192	413173.234	412805.192	Required	
S1-2	413203.830	412825.998	413203.830	412825.998	Required	
S1-3	413228.105	412840.381	413228.105	412840.381	Required	
IC4	413219.765	412847.535	413219.765	412847.535	Required	
S1-4	413222.789	412849.353	413222.789	412849.353	Required	
YWSA01	413226.081	412851.304	413226.081	412851.304	Required	
OF	413223.532	412855.605			No Entry	

Free Flowing Outfall Details for 4950 YW NETWORK1.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.004	OF	152.300	149.900	1.900	0	0

Simulation Criteria for 4950 YW NETWORK1.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK1.sws

Pump Manhole: YWSA01, DS/PN: 1.004, Volume (m^3): 10.8

Invert Level (m) 149.950

Storage Structures for 4950 YW NETWORK1.sws

Lined Soakaway Manhole: YWSA01, DS/PN: 1.004

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.03210	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	6
Porosity	0.30	Cap Volume Depth (m)	2.750
Invert Level (m)	149.050	Cap Infiltration Depth (m)	2.750

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK1.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S1-1	360 Summer	2	+0%				
1.001	S1-2	360 Summer	2	+0%	100/360 Summer			
1.002	S1-3	360 Summer	2	+0%	30/360 Summer			
2.000	IC4	360 Summer	2	+0%	100/360 Summer			
1.003	S1-4	360 Summer	2	+0%	30/360 Summer			
1.004	YWSA01	360 Winter	2	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S1-1	151.741	-0.259	0.000	0.05			8.2	OK	
1.001	S1-2	150.648	-0.252	0.000	0.06			8.2	OK	
1.002	S1-3	150.120	-0.305	0.000	0.08			8.2	OK	
2.000	IC4	150.602	-0.118	0.000	0.11			3.9	OK	
1.003	S1-4	150.083	-0.292	0.000	0.11			12.0	OK	
1.004	YWSA01	149.965	-0.360	0.000	0.00		750	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK1.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S1-1	360 Summer	30	+0%				
1.001	S1-2	360 Summer	30	+0%	100/360 Summer			
1.002	S1-3	360 Winter	30	+0%	30/360 Summer			
2.000	IC4	360 Winter	30	+0%	100/360 Summer			
1.003	S1-4	360 Winter	30	+0%	30/360 Summer			
1.004	YWSA01	360 Winter	30	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S1-1	151.757	-0.243	0.000	0.08			14.7	OK
1.001	S1-2	150.667	-0.233	0.000	0.11			14.7	OK
1.002	S1-3	150.640	0.215	0.000	0.10			10.6	SURCHARGED
2.000	IC4	150.640	-0.080	0.000	0.14			5.0	OK
1.003	S1-4	150.640	0.265	0.000	0.15			15.7	SURCHARGED
1.004	YWSA01	150.639	0.314	0.000	0.00		803	0.0	SURCHARGED

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK1.sws

PN	US/MH Name	Level Exceeded
1.000	S1-1	
1.001	S1-2	
1.002	S1-3	
2.000	IC4	
1.003	S1-4	
1.004	YWSA01	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK1.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S1-1	360 Summer	100	+30%				
1.001	S1-2	360 Winter	100	+30%	100/360 Summer			
1.002	S1-3	360 Winter	100	+30%	30/360 Summer			
2.000	IC4	360 Winter	100	+30%	100/360 Summer			
1.003	S1-4	360 Winter	100	+30%	30/360 Summer			
1.004	YWSA01	360 Winter	100	+30%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S1-1	151.774	-0.226	0.000	0.14			24.7	OK
1.001	S1-2	151.665	0.765	0.000	0.14			17.9	SURCHARGED
1.002	S1-3	151.663	1.238	0.000	0.16			16.6	SURCHARGED
2.000	IC4	151.663	0.943	0.000	0.23			8.5	SURCHARGED
1.003	S1-4	151.662	1.287	0.000	0.22			24.1	SURCHARGED
1.004	YWSA01	151.661	1.336	0.000	0.00		835	0.0	SURCHARGED

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK1.sws

PN	US/MH Name	Level Exceeded
1.000	S1-1	
1.001	S1-2	
1.002	S1-3	
2.000	IC4	
1.003	S1-4	
1.004	YWSA01	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK2.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for 4950 YW NETWORK2.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
1.000	14.215	0.569	25.0	0.085	4.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	23.737	0.099	239.8	0.233	4.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	9.211	0.039	236.2	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	5.000	0.025	200.0	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)
1.000	0.00	4.08	150.600	0.085	0.0	0.0	0.0	3.16	223.3	0.0
2.000	0.00	4.39	149.122	0.233	0.0	0.0	0.0	1.01	71.5	0.0
1.001	0.00	4.54	149.023	0.318	0.0	0.0	0.0	1.02	72.0	0.0
1.002	0.00	4.62	148.984	0.318	0.0	0.0	0.0	1.11	78.3	0.0

Manhole Schedules for 4950 YW NETWORK2.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S2-1	152.111	1.511	Open Manhole	1200	1.000	150.600	300				
S2-3	150.673	1.551	Open Manhole	1200	2.000	149.122	300				
S2-2	151.591	2.568	Open Manhole	1200	1.001	149.023	300	1.000	150.031	300	1008
								2.000	149.023	300	
YWSA02	151.250	2.266	Open Manhole	2400	1.002	148.984	300	1.001	148.984	300	
OF	150.900	1.941	Open Manhole	1200		OUTFALL		1.002	148.959	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S2-1	413234.066	412842.517	413234.066	412842.517	Required	
S2-3	413253.411	412809.866	413253.411	412809.866	Required	
S2-2	413241.311	412830.288	413241.311	412830.288	Required	
YWSA02	413249.236	412834.983	413249.236	412834.983	Required	
OF	413246.687	412839.285			No Entry	

Free Flowing Outfall Details for 4950 YW NETWORK2.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	OF	150.900	148.959	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK2.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK2.sws

Pump Manhole: YWSA02, DS/PN: 1.002, Volume (m^3): 10.8

Invert Level (m) 148.984

Storage Structures for 4950 YW NETWORK2.sws

Lined Soakaway Manhole: YWSA02, DS/PN: 1.002

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.02556	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	7
Porosity	0.30	Cap Volume Depth (m)	2.500
Invert Level (m)	148.250	Cap Infiltration Depth (m)	2.500

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK2.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S2-1	360 Summer	2	+0%					150.625
2.000	S2-3	360 Summer	2	+0%	30/360 Summer				149.196
1.001	S2-2	360 Summer	2	+0%	30/360 Summer				149.118
1.002	YWSA02	360 Winter	2	+0%	30/360 Summer				149.067

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S2-1	-0.275	0.000	0.02			3.2	OK	
2.000	S2-3	-0.226	0.000	0.14			8.9	OK	
1.001	S2-2	-0.205	0.000	0.22			12.1	OK	
1.002	YWSA02	-0.217	0.000	0.00		932	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK2.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S2-1	360 Summer	30	+0%					150.635
2.000	S2-3	360 Winter	30	+0%	30/360 Summer				149.683
1.001	S2-2	360 Winter	30	+0%	30/360 Summer				149.681
1.002	YWSA02	360 Winter	30	+0%	30/360 Summer				149.681

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S2-1	-0.265	0.000	0.03			5.8	OK	
2.000	S2-3	0.261	0.000	0.18			11.5	SURCHARGED	
1.001	S2-2	0.358	0.000	0.28			15.7	SURCHARGED	
1.002	YWSA02	0.397	0.000	0.00		987	0.0	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK2.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S2-1	360 Winter	100	+30%					150.646
2.000	S2-3	360 Winter	100	+30%	30/360 Summer				150.648
1.001	S2-2	360 Winter	100	+30%	30/360 Summer				150.645
1.002	YWSA02	360 Winter	100	+30%	30/360 Summer				150.644

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S2-1	-0.254	0.000	0.04			7.1	OK	
2.000	S2-3	1.226	0.000	0.30			18.8	FLOOD RISK	
1.001	S2-2	1.322	0.000	0.46			25.5	SURCHARGED	
1.002	YWSA02	1.360	0.000	0.00		974	0.0	SURCHARGED	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK3.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK3.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.221	4-8	0.012

Total Area Contributing (ha) = 0.233

Total Pipe Volume (m^3) = 1.126

Network Design Table for 4950 YW NETWORK3.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
1.000	19.108	0.925	20.7	0.233	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	4.201	0.200	21.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	5.000	0.050	100.0	0.000	0.00	0.0	0.600	o	225	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	0.00	4.11	148.125	0.233	0.0	0.0	0.0	2.89	115.0	0.0
1.001	0.00	4.13	147.200	0.233	0.0	0.0	0.0	2.87	114.0	0.0
1.002	0.00	4.20	147.000	0.233	0.0	0.0	0.0	1.31	52.0	0.0

Manhole Schedules for 4950 YW NETWORK3.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S3-1	149.600	1.475	Open Manhole	1200	1.000	148.125	225				
S3-2	149.965	2.765	Open Manhole	1200	1.001	147.200	225	1.000	147.200	225	
YWSA03	149.650	2.650	Open Manhole	2400	1.002	147.000	225	1.001	147.000	225	
OF	149.750	2.800	Open Manhole	1200		OUTFALL		1.002	146.950	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S3-1	413302.386	412901.107	413302.386	412901.107	Required	
S3-2	413292.646	412917.546	413292.646	412917.546	Required	
YWSA03	413296.260	412919.687	413296.260	412919.687	Required	
OF	413293.711	412923.989			No Entry	

Free Flowing Outfall Details for 4950 YW NETWORK3.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	OF	149.750	146.950	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK3.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Simulation Criteria for 4950 YW NETWORK3.sws

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK3.sws

Pump Manhole: YWSA03, DS/PN: 1.002, Volume (m^3): 12.1

Invert Level (m) 147.000

Storage Structures for 4950 YW NETWORK3.sws

Lined Soakaway Manhole: YWSA03, DS/PN: 1.002

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.01944	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	4
Porosity	0.30	Cap Volume Depth (m)	3.250
Invert Level (m)	145.900	Cap Infiltration Depth (m)	3.250

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK3.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S3-1	360 Summer	2	+0%	100/360 Summer			
1.001	S3-2	360 Summer	2	+0%	30/360 Summer			
1.002	YWSA03	360 Winter	2	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S3-1	148.169	-0.181	0.000	0.09			8.9	OK	
1.001	S3-2	147.256	-0.169	0.000	0.14			8.9	OK	
1.002	YWSA03	146.942	-0.283	0.000	0.00		1269	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK3.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S3-1	360 Summer	30	+0%	100/360 Summer			
1.001	S3-2	360 Winter	30	+0%	30/360 Summer			
1.002	YWSA03	360 Winter	30	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S3-1	148.184	-0.166	0.000	0.15			15.9	OK
1.001	S3-2	147.756	0.331	0.000	0.18			11.5	SURCHARGED
1.002	YWSA03	147.755	0.530	0.000	0.00		1294	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S3-1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK3.sws

PN	US/MH Name	Level Exceeded
1.001	S3-2	
1.002	YWSA03	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK3.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S3-1	360 Winter	100	+30%	100/360 Summer			
1.001	S3-2	360 Winter	100	+30%	30/360 Summer			
1.002	YWSA03	360 Winter	100	+30%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S3-1	148.972	0.622	0.000	0.19			19.4	SURCHARGED
1.001	S3-2	148.969	1.544	0.000	0.30			18.7	SURCHARGED
1.002	YWSA03	148.968	1.743	0.000	0.00		1337	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S3-1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK3.sws

PN	US/MH Name	Level Exceeded
1.001	S3-2	
1.002	YWSA03	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK4.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK4.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.198	4-8	0.029

Total Area Contributing (ha) = 0.227

Total Pipe Volume (m^3) = 1.572

Network Design Table for 4950 YW NETWORK4.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
1.000	24.800	0.160	155.0	0.227	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	9.070	1.000	9.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	5.670	0.050	113.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

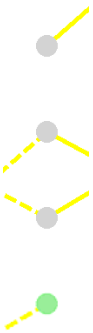
Network Results Table

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	0.00	4.39	144.810	0.227	0.0	0.0	0.0	1.05	41.7	0.0
1.001	0.00	4.43	144.650	0.227	0.0	0.0	0.0	4.37	173.8	0.0
1.002	0.00	4.51	143.650	0.227	0.0	0.0	0.0	1.23	48.8	0.0

Manhole Schedules for 4950 YW NETWORK4.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S4-1	147.157	2.347	Open Manhole	1200	1.000	144.810	225				
S4-2	146.300	1.650	Open Manhole	2400	1.001	144.650	225	1.000	144.650	225	
YWSA04	145.700	2.050	Open Manhole	2400	1.002	143.650	225	1.001	143.650	225	
OF	145.100	1.500	Open Manhole	1200		OUTFALL		1.002	143.600	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S4-1	413352.593	412854.187	413352.593	412854.187	Required	
S4-2	413371.220	412870.560	413371.220	412870.560	Required	
YWSA04	413379.211	412866.269	413379.211	412866.269	Required	
OF	413384.089	412869.160			No Entry	



Free Flowing Outfall Details for 4950 YW NETWORK4.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	OF	145.100	143.600	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK4.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Simulation Criteria for 4950 YW NETWORK4.sws

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK4.sws

Pump Manhole: YWSA04, DS/PN: 1.002, Volume (m³): 9.5

Invert Level (m) 143.650

Storage Structures for 4950 YW NETWORK4.sws

Lined Soakaway Manhole: YWSA04, DS/PN: 1.002

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.70
Infiltration Coefficient Side (m/hr)	0.02970	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	3
Porosity	0.30	Cap Volume Depth (m)	3.000
Invert Level (m)	142.200	Cap Infiltration Depth (m)	3.000

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK4.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S4-1	360 Summer	2	+0%	100/360 Winter			
1.001	S4-2	360 Summer	2	+0%	100/360 Summer			
1.002	YWSA04	360 Winter	2	+0%	30/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S4-1	144.882	-0.153	0.000	0.22			8.6	OK	
1.001	S4-2	144.686	-0.189	0.000	0.06			8.6	OK	
1.002	YWSA04	143.230	-0.645	0.000	0.00		942	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK4.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S4-1	360 Summer	30	+0%	100/360 Winter			
1.001	S4-2	360 Summer	30	+0%	100/360 Summer			
1.002	YWSA04	360 Winter	30	+0%	30/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S4-1	144.909	-0.126	0.000	0.40			15.5	OK
1.001	S4-2	144.700	-0.175	0.000	0.11			15.5	OK
1.002	YWSA04	144.053	0.178	0.000	0.00		943	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S4-1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK4.sws

PN	US/MH Name	Level Exceeded
1.001	S4-2	
1.002	YWSA04	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK4.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S4-1	360 Winter	100	+30%	100/360 Winter			
1.001	S4-2	360 Winter	100	+30%	100/360 Summer			
1.002	YWSA04	360 Winter	100	+30%	30/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S4-1	145.345	0.310	0.000	0.49			18.9	SURCHARGED
1.001	S4-2	145.341	0.466	0.000	0.13			18.9	SURCHARGED
1.002	YWSA04	145.339	1.464	0.000	0.00		996	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S4-1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK4.sws

PN	US/MH Name	Level Exceeded
1.001	S4-2	
1.002	YWSA04	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK5.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK5.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.164	4-8	0.033

Total Area Contributing (ha) = 0.197

Total Pipe Volume (m³) = 6.286

Network Design Table for 4950 YW NETWORK5.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
1.000	30.600	0.850	36.0	0.061	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	15.000	0.450	33.3	0.058	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	15.000	0.450	33.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.003	30.100	0.130	231.5	0.078	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.004	5.000	0.050	100.0	0.000	0.00	0.0	0.600	o	375	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	0.00	4.23	145.500	0.061	0.0	0.0	0.0	2.19	87.0	0.0
1.001	0.00	4.34	144.650	0.119	0.0	0.0	0.0	2.27	90.4	0.0
1.002	0.00	4.45	144.200	0.119	0.0	0.0	0.0	2.27	90.4	0.0
1.003	0.00	4.88	143.600	0.197	0.0	0.0	0.0	1.19	131.0	0.0
1.004	0.00	4.92	143.470	0.197	0.0	0.0	0.0	1.81	200.1	0.0

Manhole Schedules for 4950 YW NETWORK5.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S5-1	147.547	2.047	Open Manhole	1200	1.000	145.500	225				
S5-2	146.363	1.713	Open Manhole	1200	1.001	144.650	225	1.000	144.650	225	
S5-3	145.798	1.598	Open Manhole	1200	1.002	144.200	225	1.001	144.200	225	
S5-4	145.221	1.621	Open Manhole	1350	1.003	143.600	375	1.002	143.750	225	
YWSA05	145.600	2.130	Open Manhole	2400	1.004	143.470	375	1.003	143.470	375	
OF	145.600	2.180	Open Manhole	1200		OUTFALL		1.004	143.420	375	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S5-1	413342.299	412922.059	413342.299	412922.059	Required	
S5-2	413368.625	412937.657	413368.625	412937.657	Required	
S5-3	413377.743	412949.568	413377.743	412949.568	Required	
S5-4	413385.231	412962.565	413385.231	412962.565	Required	
YWSA05	413375.245	412990.960	413375.245	412990.960	Required	
OF	413373.816	412995.752			No Entry	

Free Flowing Outfall Details for 4950 YW NETWORK5.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.004	OF	145.600	143.420	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK5.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK5.sws

Pump Manhole: YWSA05, DS/PN: 1.004, Volume (m³): 12.8

Invert Level (m) 143.470

Storage Structures for 4950 YW NETWORK5.sws

Lined Soakaway Manhole: YWSA05, DS/PN: 1.004

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.04500	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	4
Porosity	0.30	Cap Volume Depth (m)	2.250
Invert Level (m)	142.850	Cap Infiltration Depth (m)	2.250

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK5.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S5-1	360 Summer	2	+0%				
1.001	S5-2	360 Summer	2	+0%	100/360 Winter			
1.002	S5-3	360 Summer	2	+0%	100/360 Summer			
1.003	S5-4	360 Summer	2	+0%	30/360 Summer			
1.004	YWSA05	360 Winter	2	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S5-1	145.525	-0.200	0.000	0.03			2.3	OK	
1.001	S5-2	144.684	-0.191	0.000	0.06			4.5	OK	
1.002	S5-3	144.234	-0.191	0.000	0.06			4.5	OK	
1.003	S5-4	143.661	-0.314	0.000	0.06			7.4	OK	
1.004	YWSA05	143.622	-0.223	0.000	0.00		560	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK5.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S5-1	360 Summer	30	+0%				
1.001	S5-2	360 Summer	30	+0%	100/360 Winter			
1.002	S5-3	360 Summer	30	+0%	100/360 Summer			
1.003	S5-4	360 Winter	30	+0%	30/360 Summer			
1.004	YWSA05	360 Winter	30	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S5-1	145.533	-0.192	0.000	0.05			4.2	OK
1.001	S5-2	144.698	-0.177	0.000	0.10			8.1	OK
1.002	S5-3	144.248	-0.177	0.000	0.10			8.1	OK
1.003	S5-4	144.183	0.208	0.000	0.08			9.7	SURCHARGED
1.004	YWSA05	144.182	0.337	0.000	0.00		601	0.0	SURCHARGED

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK5.sws

PN	US/MH Name	Level Exceeded
1.000	S5-1	
1.001	S5-2	
1.002	S5-3	
1.003	S5-4	
1.004	YWSA05	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK5.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S5-1	360 Summer	100	+30%				
1.001	S5-2	360 Winter	100	+30%	100/360 Winter			
1.002	S5-3	360 Winter	100	+30%	100/360 Summer			
1.003	S5-4	360 Winter	100	+30%	30/360 Summer			
1.004	YWSA05	360 Winter	100	+30%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S5-1	145.544	-0.181	0.000	0.09			7.0	OK
1.001	S5-2	145.079	0.204	0.000	0.12			9.9	SURCHARGED
1.002	S5-3	145.076	0.651	0.000	0.12			9.9	SURCHARGED
1.003	S5-4	145.074	1.099	0.000	0.14			15.6	FLOOD RISK
1.004	YWSA05	145.072	1.227	0.000	0.00		630	0.0	SURCHARGED

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK5.sws

PN	US/MH Name	Level Exceeded
1.000	S5-1	
1.001	S5-2	
1.002	S5-3	
1.003	S5-4	
1.004	YWSA05	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK6.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK6.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.123	4-8	0.007

Total Area Contributing (ha) = 0.130

Total Pipe Volume (m³) = 1.325

Network Design Table for 4950 YW NETWORK6.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
1.000	14.708	1.050	14.0	0.055	4.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	10.001	0.080	125.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	4.000	0.400	10.0	0.075	4.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	10.000	0.440	22.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	5.000	0.050	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

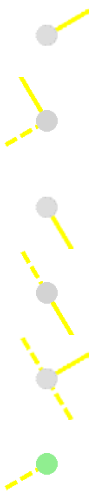
Network Results Table

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	0.00	4.09	143.900	0.055	0.0	0.0	0.0	2.71	47.8	0.0
1.001	0.00	4.23	142.775	0.055	0.0	0.0	0.0	1.17	46.4	0.0
2.000	0.00	4.02	143.610	0.075	0.0	0.0	0.0	3.20	56.6	0.0
2.001	0.00	4.08	143.135	0.075	0.0	0.0	0.0	2.76	109.6	0.0
1.002	0.00	4.30	142.695	0.130	0.0	0.0	0.0	1.31	52.0	0.0

Manhole Schedules for 4950 YW NETWORK6.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S6-1	145.250	1.350	Open Manhole	1200	1.000	143.900	150				
S6-2	144.600	1.825	Open Manhole	1200	1.001	142.775	225	1.000	142.850	150	
S6-3	145.550	1.940	Open Manhole	1200	2.000	143.610	150				
S6-4	145.330	2.195	Open Manhole	1200	2.001	143.135	225	2.000	143.210	150	
YWSA06	144.600	1.905	Open Manhole	2400	1.002	142.695	225	1.001	142.695	225	
								2.001	142.695	225	
OF	144.000	1.355	Open Manhole	1200		OUTFALL		1.002	142.645	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S6-1	413389.476	412885.994	413389.476	412885.994	Required	
S6-2	413402.184	412893.398	413402.184	412893.398	Required	
S6-3	413389.950	412914.046	413389.950	412914.046	Required	
S6-4	413391.989	412910.605	413391.989	412910.605	Required	
YWSA06	413397.086	412902.002	413397.086	412902.002	Required	
OF	413401.388	412904.550			No Entry	



Free Flowing Outfall Details for 4950 YW NETWORK6.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	OF	144.000	142.645	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK6.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK6.sws

Pump Manhole: YWSA06, DS/PN: 1.002, Volume (m³): 9.3

Invert Level (m) 142.695

Storage Structures for 4950 YW NETWORK6.sws

Lined Soakaway Manhole: YWSA06, DS/PN: 1.002

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.02038	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	3
Porosity	0.30	Cap Volume Depth (m)	3.250
Invert Level (m)	140.850	Cap Infiltration Depth (m)	3.250

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK6.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S6-1	360 Summer	2	+0%				
1.001	S6-2	360 Summer	2	+0%	100/360 Winter			
2.000	S6-3	360 Summer	2	+0%				
2.001	S6-4	360 Summer	2	+0%				
1.002	YWSA06	360 Winter	2	+0%	100/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S6-1	143.921	-0.129	0.000	0.05			2.1	OK	
1.001	S6-2	142.809	-0.191	0.000	0.05			2.1	OK	
2.000	S6-3	143.636	-0.124	0.000	0.07			2.9	OK	
2.001	S6-4	143.161	-0.199	0.000	0.03			2.9	OK	
1.002	YWSA06	141.600	-1.320	0.000	0.00		1249	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK6.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S6-1	360 Summer	30	+0%				
1.001	S6-2	360 Summer	30	+0%	100/360 Winter			
2.000	S6-3	360 Summer	30	+0%				
2.001	S6-4	360 Summer	30	+0%				
1.002	YWSA06	360 Winter	30	+0%	100/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S6-1	143.929	-0.121	0.000	0.09			3.8	OK	
1.001	S6-2	142.822	-0.178	0.000	0.10			3.8	OK	
2.000	S6-3	143.646	-0.114	0.000	0.13			5.1	OK	
2.001	S6-4	143.169	-0.191	0.000	0.06			5.1	OK	
1.002	YWSA06	142.201	-0.719	0.000	0.00		1250	0.0	OK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK6.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S6-1	360 Summer	100	+30%				
1.001	S6-2	360 Winter	100	+30%	100/360 Winter			
2.000	S6-3	360 Summer	100	+30%				
2.001	S6-4	360 Summer	100	+30%				
1.002	YWSA06	360 Winter	100	+30%	100/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S6-1	143.938	-0.112	0.000	0.14			6.3	OK
1.001	S6-2	143.098	0.098	0.000	0.12			4.6	SURCHARGED
2.000	S6-3	143.657	-0.103	0.000	0.22			8.6	OK
2.001	S6-4	143.181	-0.179	0.000	0.09			8.6	OK
1.002	YWSA06	143.097	0.177	0.000	0.00		1260	0.0	SURCHARGED

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK6.sws

PN	US/MH Name	Level Exceeded
1.000	S6-1	
1.001	S6-2	
2.000	S6-3	
2.001	S6-4	
1.002	YWSA06	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK7.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK7.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.218	4-8	0.023

Total Area Contributing (ha) = 0.241

Total Pipe Volume (m³) = 3.968

Manhole Schedules for 4950 YW NETWORK7.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S7-1	155.303	1.953	Open Manhole	1200	1.000	153.350	225				
S7-2	155.755	2.670	Open Manhole	1200	1.001	153.085	300	1.000	153.160	225	
S7-3	154.650	2.165	Open Manhole	1200	1.002	152.485	300	1.001	152.485	300	
YWSA07	153.600	1.615	Open Manhole	2400	1.003	151.985	300	1.002	151.985	300	
OF	153.500	1.565	Open Manhole	1200		OUTFALL		1.003	151.935	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S7-1	413095.677	412740.272	413095.677	412740.272	Required	
S7-2	413112.716	412767.004	413112.716	412767.004	Required	
S7-3	413136.581	412751.793	413136.581	412751.793	Required	
YWSA07	413140.797	412749.105	413140.797	412749.105	Required	
OF	413145.022	412746.431			No Entry	

PIPELINE SCHEDULES for 4950 YW NETWORK7.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	S7-1	155.303	153.350	1.728	Open Manhole	1200
1.001	o	300	S7-2	155.755	153.085	2.370	Open Manhole	1200
1.002	o	300	S7-3	154.650	152.485	1.865	Open Manhole	1200
1.003	o	300	YWSA07	153.600	151.985	1.315	Open Manhole	2400

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	31.700	166.8	S7-2	155.755	153.160	2.370	Open Manhole	1200
1.001	28.300	47.2	S7-3	154.650	152.485	1.865	Open Manhole	1200
1.002	5.000	10.0	YWSA07	153.600	151.985	1.315	Open Manhole	2400
1.003	5.000	100.0	OF	153.500	151.935	1.265	Open Manhole	1200

Free Flowing Outfall Details for 4950 YW NETWORK7.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.003	OF	153.500	151.935	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK7.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK7.sws

Pump Manhole: YWSA07, DS/PN: 1.003, Volume (m³): 7.5

Invert Level (m) 151.985

Storage Structures for 4950 YW NETWORK7.sws

Lined Soakaway Manhole: YWSA07, DS/PN: 1.003

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.01752	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	9
Porosity	0.30	Cap Volume Depth (m)	1.500
Invert Level (m)	151.600	Cap Infiltration Depth (m)	1.500

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK7.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S7-1	360 Summer	2	+0%				
1.001	S7-2	360 Summer	2	+0%				
1.002	S7-3	360 Summer	2	+0%	100/360 Summer			
1.003	YWSA07	360 Winter	2	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S7-1	153.383	-0.192	0.000	0.05			2.0	OK	
1.001	S7-2	153.133	-0.252	0.000	0.06			9.1	OK	
1.002	S7-3	152.528	-0.257	0.000	0.05			9.1	OK	
1.003	YWSA07	152.108	-0.177	0.000	0.00		1334	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK7.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S7-1	360 Summer	30	+0%				
1.001	S7-2	360 Summer	30	+0%				
1.002	S7-3	360 Summer	30	+0%	100/360 Summer			
1.003	YWSA07	360 Winter	30	+0%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S7-1	153.396	-0.179	0.000	0.09			3.6	OK
1.001	S7-2	153.152	-0.233	0.000	0.11			16.5	OK
1.002	S7-3	152.546	-0.239	0.000	0.09			16.5	OK
1.003	YWSA07	152.513	0.228	0.000	0.00		1336	0.0	SURCHARGED

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK7.sws

PN	US/MH Name	Level Exceeded
1.000	S7-1	
1.001	S7-2	
1.002	S7-3	
1.003	YWSA07	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK7.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S7-1	360 Summer	100	+30%				
1.001	S7-2	360 Winter	100	+30%				
1.002	S7-3	360 Winter	100	+30%	100/360 Summer			
1.003	YWSA07	360 Winter	100	+30%	30/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S7-1	153.410	-0.165	0.000	0.16			6.0	OK
1.001	S7-2	153.257	-0.128	0.000	0.14			20.0	OK
1.002	S7-3	153.256	0.471	0.000	0.11			20.0	SURCHARGED
1.003	YWSA07	153.255	0.970	0.000	0.00		1381	0.0	SURCHARGED

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK7.sws

PN	US/MH Name	Level Exceeded
1.000	S7-1	
1.001	S7-2	
1.002	S7-3	
1.003	YWSA07	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK8.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK8.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.309	4-8	0.031

Total Area Contributing (ha) = 0.340

Total Pipe Volume (m^3) = 3.090

Network Design Table for 4950 YW NETWORK8.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
1.000	26.000	0.750	34.7	0.252	4.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	12.711	0.060	211.9	0.088	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	5.000	0.050	100.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

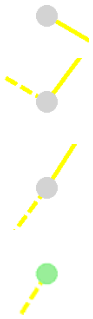
Network Results Table

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)
1.000	0.00	4.16	152.200	0.252	0.0	0.0	0.0	2.68	189.4	0.0
1.001	0.00	4.36	151.450	0.340	0.0	0.0	0.0	1.08	76.1	0.0
1.002	0.00	4.41	151.390	0.340	0.0	0.0	0.0	1.57	111.1	0.0

Manhole Schedules for 4950 YW NETWORK8.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S8-1	154.582	2.382	Open Manhole	1500	1.000	152.200	300				
S8-2	153.778	2.328	Open Manhole	1500	1.001	151.450	300	1.000	151.450	300	
YWSA08	154.036	2.646	Open Manhole	2400	1.002	151.390	300	1.001	151.390	300	
OF	154.000	2.660	Open Manhole	1200		OUTFALL		1.002	151.340	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S8-1	413045.106	412683.628	413045.106	412683.628	Required	
S8-2	413067.642	412670.491	413067.642	412670.491	Required	
YWSA08	413075.222	412680.695	413075.222	412680.695	Required	
OF	413077.896	412684.920			No Entry	



Free Flowing Outfall Details for 4950 YW NETWORK8.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	OF	154.000	151.340	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK8.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Simulation Criteria for 4950 YW NETWORK8.sws

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK8.sws

Pump Manhole: YWSA08, DS/PN: 1.002, Volume (m^3): 12.7

Invert Level (m) 151.390

Storage Structures for 4950 YW NETWORK8.sws

Lined Soakaway Manhole: YWSA08, DS/PN: 1.002

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.04530	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	6
Porosity	0.30	Cap Volume Depth (m)	2.750
Invert Level (m)	150.786	Cap Infiltration Depth (m)	2.750

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK8.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S8-1	360 Summer	2	+0%	100/360 Summer			
1.001	S8-2	360 Winter	2	+0%	30/360 Summer			
1.002	YWSA08	360 Winter	2	+0%	2/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S8-1	152.246	-0.254	0.000	0.06			9.6	OK
1.001	S8-2	151.693	-0.057	0.000	0.15			9.3	OK
1.002	YWSA08	151.692	0.002	0.000	0.00		550	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S8-1	

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK8.sws

PN	US/MH Name	Level Exceeded
1.001	S8-2	
1.002	YWSA08	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK8.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S8-1	360 Winter	30	+0%	100/360 Summer			
1.001	S8-2	360 Winter	30	+0%	30/360 Summer			
1.002	YWSA08	360 Winter	30	+0%	2/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S8-1	152.396	-0.104	0.000	0.07			12.5	OK
1.001	S8-2	152.394	0.644	0.000	0.27			16.8	SURCHARGED
1.002	YWSA08	152.392	0.702	0.000	0.00		576	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S8-1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK8.sws

PN	US/MH Name	Level Exceeded
1.001	S8-2	
1.002	YWSA08	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK8.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S8-1	360 Winter	100	+30%	100/360 Summer			
1.001	S8-2	360 Winter	100	+30%	30/360 Summer			
1.002	YWSA08	360 Winter	100	+30%	2/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S8-1	153.478	0.978	0.000	0.12			20.4	SURCHARGED
1.001	S8-2	153.475	1.725	0.000	0.44			27.0	SURCHARGED
1.002	YWSA08	153.471	1.781	0.000	0.00		576	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S8-1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK8.sws

PN	US/MH Name	Level Exceeded
1.001	S8-2	
1.002	YWSA08	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK9.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK9.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.238	4-8	0.022

Total Area Contributing (ha) = 0.260

Total Pipe Volume (m³) = 4.802

Network Design Table for 4950 YW NETWORK9.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
1.000	56.679	2.175	26.1	0.221	4.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	6.255	0.600	10.4	0.039	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	5.000	0.050	100.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

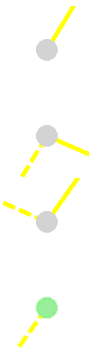
Network Results Table

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)
1.000	0.00	4.31	153.425	0.221	0.0	0.0	0.0	3.09	218.6	0.0
1.001	0.00	4.33	151.250	0.260	0.0	0.0	0.0	4.90	346.1	0.0
1.002	0.00	4.38	150.650	0.260	0.0	0.0	0.0	1.57	111.1	0.0

Manhole Schedules for 4950 YW NETWORK9.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S9-1	155.724	2.299	Open Manhole	1200	1.000	153.425	300				
S9-2	153.000	1.750	Open Manhole	1200	1.001	151.250	300	1.000	151.250	300	
YWSA09	152.570	1.920	Open Manhole	2400	1.002	150.650	300	1.001	150.650	300	
OF	152.400	1.800	Open Manhole	1200		OUTFALL		1.002	150.600	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S9-1	413066.098	412599.180	413066.098	412599.180	Required	
S9-2	413095.548	412647.607	413095.548	412647.607	Required	
YWSA09	413101.283	412645.110	413101.283	412645.110	Required	
OF	413104.164	412649.196			No Entry	



Free Flowing Outfall Details for 4950 YW NETWORK9.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	OF	152.400	150.600	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK9.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Simulation Criteria for 4950 YW NETWORK9.sws

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK9.sws

Pump Manhole: YWSA09, DS/PN: 1.002, Volume (m³): 9.0

Invert Level (m) 150.650

Storage Structures for 4950 YW NETWORK9.sws

Lined Soakaway Manhole: YWSA09, DS/PN: 1.002

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.06863	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	4
Porosity	0.30	Cap Volume Depth (m)	3.000
Invert Level (m)	149.070	Cap Infiltration Depth (m)	3.000

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK9.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S9-1	360 Summer	2	+0%				
1.001	S9-2	360 Summer	2	+0%	100/360 Summer			
1.002	YWSA09	360 Winter	2	+0%	100/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S9-1	153.464	-0.261	0.000	0.04			8.4	OK	
1.001	S9-2	151.293	-0.257	0.000	0.05			9.9	OK	
1.002	YWSA09	150.016	-0.934	0.000	0.00		418	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK9.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S9-1	360 Summer	30	+0%				
1.001	S9-2	360 Summer	30	+0%	100/360 Summer			
1.002	YWSA09	360 Winter	30	+0%	100/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S9-1	153.478	-0.247	0.000	0.07			15.1	OK	
1.001	S9-2	151.311	-0.239	0.000	0.09			17.8	OK	
1.002	YWSA09	150.774	-0.176	0.000	0.00		418	0.0	OK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK9.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S9-1	360 Summer	100	+30%				
1.001	S9-2	360 Winter	100	+30%	100/360 Summer			
1.002	YWSA09	360 Winter	100	+30%	100/360 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	S9-1	153.494	-0.231	0.000	0.12			25.4	OK
1.001	S9-2	151.900	0.350	0.000	0.11			21.6	SURCHARGED
1.002	YWSA09	151.898	0.948	0.000	0.00		426	0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	S9-1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK9.sws

PN	US/MH Name	Level Exceeded
1.001	S9-2	
1.002	YWSA09	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 4950 YW NETWORK10.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.323	Minimum Backdrop Height (m)	1.200
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.500
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)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for 4950 YW NETWORK10.sws

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.158	4-8	0.012

Total Area Contributing (ha) = 0.170

Total Pipe Volume (m³) = 2.346

Network Design Table for 4950 YW NETWORK10.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
1.000	14.554	0.065	223.9	0.139	4.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	5.000	0.100	50.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	15.352	1.535	10.0	0.031	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	5.000	0.050	100.0	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)
1.000	0.00	4.23	154.900	0.139	0.0	0.0	0.0	1.05	74.0	0.0
1.001	0.00	4.27	154.835	0.139	0.0	0.0	0.0	2.23	157.5	0.0
2.000	0.00	4.06	156.440	0.031	0.0	0.0	0.0	4.16	165.5	0.0
1.002	0.00	4.32	154.735	0.170	0.0	0.0	0.0	1.57	111.1	0.0

Manhole Schedules for 4950 YW NETWORK10.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S10-1	157.126	2.226	Open Manhole	1200	1.000	154.900	300				
S10-2	156.800	1.965	Open Manhole	1200	1.001	154.835	300	1.000	154.835	300	
S10-3	157.790	1.350	Open Manhole	1200	2.000	156.440	225				
YWSA10	156.700	1.965	Open Manhole	2400	1.002	154.735	300	1.001	154.735	300	
								2.000	154.905	225	95
OF	156.700	2.015	Open Manhole	1200		OUTFALL		1.002	154.685	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S10-1	413013.077	412641.415	413013.077	412641.415	Required	
S10-2	413015.894	412655.694	413015.894	412655.694	Required	
S10-3	412998.386	412666.041	412998.386	412666.041	Required	
YWSA10	413011.425	412657.937	413011.425	412657.937	Required	
OF	413013.669	412662.406			No Entry	

Free Flowing Outfall Details for 4950 YW NETWORK10.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	OF	156.700	154.685	1.900	1200	0

Simulation Criteria for 4950 YW NETWORK10.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Storm Duration (mins)	30
Ratio R	0.323		

Online Controls for 4950 YW NETWORK10.sws

Pump Manhole: YWSA10, DS/PN: 1.002, Volume (m³): 9.7

Invert Level (m) 154.735

Storage Structures for 4950 YW NETWORK10.sws

Lined Soakaway Manhole: YWSA10, DS/PN: 1.002

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.40
Infiltration Coefficient Side (m/hr)	0.41850	Pit Multiplier	2.1
Safety Factor	1.0	Number Required	2
Porosity	0.30	Cap Volume Depth (m)	2.000
Invert Level (m)	154.200	Cap Infiltration Depth (m)	2.000

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK10.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S10-1	360 Summer	2	+0%	30/360 Summer				154.959
1.001	S10-2	360 Summer	2	+0%	30/360 Summer				154.885
2.000	S10-3	360 Summer	2	+0%					156.449
1.002	YWSA10	360 Winter	2	+0%	30/360 Summer				154.808

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S10-1	-0.241	0.000	0.09			5.3	OK	
1.001	S10-2	-0.250	0.000	0.07			5.3	OK	
2.000	S10-3	-0.216	0.000	0.01			1.2	OK	
1.002	YWSA10	-0.227	0.000	0.00		131	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK10.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S10-1	360 Winter	30	+0%	30/360 Summer				155.250
1.001	S10-2	360 Winter	30	+0%	30/360 Summer				155.247
2.000	S10-3	360 Summer	30	+0%					156.455
1.002	YWSA10	360 Winter	30	+0%	30/360 Summer				155.245

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S10-1	0.050	0.000	0.11			6.7	SURCHARGED	
1.001	S10-2	0.112	0.000	0.08			6.3	SURCHARGED	
2.000	S10-3	-0.210	0.000	0.01			2.1	OK	
1.002	YWSA10	0.210	0.000	0.00		137	0.0	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for 4950 YW NETWORK10.sws

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	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	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.323
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	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)	360
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S10-1	360 Winter	100	+30%	30/360 Summer				155.966
1.001	S10-2	360 Winter	100	+30%	30/360 Summer				155.959
2.000	S10-3	360 Summer	100	+30%					156.464
1.002	YWSA10	360 Winter	100	+30%	30/360 Summer				155.957

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S10-1	0.766	0.000	0.18			11.2	SURCHARGED	
1.001	S10-2	0.824	0.000	0.14			10.9	SURCHARGED	
2.000	S10-3	-0.201	0.000	0.02			3.6	OK	
1.002	YWSA10	0.922	0.000	0.00		137	0.0	SURCHARGED	