STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Network 1

Pipe Sizes Manhole Sizes

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.360	Minimum Backdrop Height (m)	0.600
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	400

Designed with Level Soffits

Network Design Table for Surface Network 1

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	10.872	0.109	100.0	0.002	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.001	12.210	0.122	100.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
2.000	10.786	0.332	32.5	0.013	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.002	10.685	0.427	25.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.003	7.430	0.455	16.3	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
3.000	6.157	0.062	100.0	0.002	5.00	0.0	0.600	o	100	Pipe/Conduit	
3.001	10.800	0.108	100.0	0.006	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.004	13.050	0.548	23.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.24	60.948	0.002	0.0	0.0	0.0	0.77	6.0	0.3
1.001	50.00	5.50	60.839	0.002	0.0	0.0	0.0	0.77	6.0	0.3
2.000	50.00	5.13	61.049	0.013	0.0	0.0	0.0	1.36	10.7	2.3
1.002	50.00	5.62	60.717	0.015	0.0	0.0	0.0	1.55	12.2	2.6
1.003	50.00	5.68	60.289	0.015	0.0	0.0	0.0	1.92	15.1	2.6
3.000	50.00	5.13	60.005	0.002	0.0	0.0	0.0	0.77	6.0	0.4
3.001	50.00	5.37	59.943	0.008	0.0	0.0	0.0	0.77	6.0	1.5
1.004	50.00	5.82	59.835	0.023	0.0	0.0	0.0	1.59	12.5	4.1

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Network Design Table for Surface Network 1

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
4.000	10.309	0.103	100.0	0.000	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.005	7.384	0.074	100.0	0.006	0.00	0.0	0.600	o	100	Pipe/Conduit	
5.000	8.459	0.253	33.4	0.002	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.006	12.208	0.521	23.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.007	6.555	0.066	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.008	7.718	0.077	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.009	6.885	0.069	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.010	6.914	0.069	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.011	7.642	0.076	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.012	11.959	0.120	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
6.000	7.206	0.450	16.0	0.016	5.00	0.0	0.600	o	100	Pipe/Conduit	
6.001	7.226	0.450	16.1	0.011	0.00	0.0	0.600	o	100	Pipe/Conduit	
6.002	6.257	0.209	29.9	0.009	0.00	0.0	0.600	o	100	Pipe/Conduit	
6.003	7.791	0.175	44.4	0.009	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.013	9.477	0.465	20.4	0.003	0.00	0.0	0.600	o	150	Pipe/Conduit	
7.000	12.175	0.658	18.5	0.000	5.00	0.0	0.600	o	100	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)
4.000	50.00	5.22	59.390	0.000	0.0	0.0	0.0	0.77	6.0	0.0
1.005	50.00	5.98	59.287	0.029	0.0	0.0	0.0	0.77	6.0	5.3
5.000	50.00	5.11	59.466	0.002	0.0	0.0	0.0	1.34	10.5	0.3
1.006	50.00	6.07	59.213	0.031	0.0	0.0	0.0	2.09	36.9	5.6
1.007	50.00	6.18	58.692	0.031	0.0	0.0	0.0	1.00	17.8	5.6
1.008	50.00	6.31	58.626	0.031	0.0	0.0	0.0	1.00	17.8	5.6
1.009	50.00	6.43	58.549	0.031	0.0	0.0	0.0	1.00	17.8	5.6
1.010	50.00	6.54	58.480	0.031	0.0	0.0	0.0	1.00	17.8	5.6
1.011	50.00	6.67	58.411	0.031	0.0	0.0	0.0	1.00	17.8	5.6
1.012	50.00	6.86	58.335	0.031	0.0	0.0	0.0	1.00	17.8	5.6
6.000	50.00	5.06	59.550	0.016	0.0	0.0	0.0	1.94	15.2	2.9
6.001	50.00	5.12	59.100	0.027	0.0	0.0	0.0	1.94	15.2	4.8
6.002	50.00	5.20	58.650	0.036	0.0	0.0	0.0	1.42	11.1	6.6
6.003	50.00	5.31	58.441	0.046	0.0	0.0	0.0	1.16	9.1	8.2
1.013	50.00	6.94	58.215	0.079	0.0	0.0	0.0	2.24	39.6	14.3
7.000	50.00	5.11	59.002	0.000	0.0	0.0	0.0	1.80	14.2	0.0

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Network Design Table for Surface Network 1

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
7.001	9.720	0.545	17.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.014	6.622	0.066	100.4	0.009	0.00	0.0	0.600	o	150	Pipe/Conduit	
8.000	10.845	0.717	15.1	0.007	5.00	0.0	0.600	o	100	Pipe/Conduit	
8.001	10.498	0.525	20.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.015	5.420	0.054	99.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
9.000	3.633	0.036	100.0	0.000	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.016	7.525	0.168	44.7	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.017	7.733	0.153	50.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
7.001	50.00	5.18	58.295	0.000	0.0	0.0	0.0	2.40	42.3	0.0
1.014	50.00	7.05	57.750	0.088	0.0	0.0	0.0	1.00	17.7	15.9
8.000	50.00	5.09	58.976	0.007	0.0	0.0	0.0	2.00	15.7	1.3
8.001	50.00	5.19	58.259	0.007	0.0	0.0	0.0	1.73	13.6	1.3
1.015	50.00	7.14	57.684	0.096	0.0	0.0	0.0	1.01	17.8	17.3
9.000	50.00	5.05	56.588	0.000	0.0	0.0	0.0	1.31	52.0	0.0
1.016	50.00	7.22	56.551	0.116	0.0	0.0	0.0	1.51	26.7	21.0
1.017	50.00	7.28	56.233	0.116	0.0	0.0	0.0	2.22	156.7	21.0

Free Flowing Outfall Details for Surface Network 1

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.017	EX UU0508	58.500	56.080	0.000	1050	0

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Simulation Criteria for Surface Network 1

Volumetric Runoff Coeff	1.000	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	11
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	Winter
Return Period (years)	2	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.360		

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Online Controls for Surface Network 1

Hydro-Brake® Optimum Manhole: PS39, DS/PN: 1.016, Volume (m³): 4.2

Unit Reference	MD-SHE-0067-2600-1800-2600
Design Head (m)	1.800
Design Flow (l/s)	2.6
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	67
Invert Level (m)	56.551
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.800	2.6
Flush-Flo™	0.291	1.9
Kick-Flo®	0.595	1.6
Mean Flow over Head Range	-	2.0

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.6	1.200	2.2	3.000	3.3	7.000	4.9
0.200	1.9	1.400	2.3	3.500	3.5	7.500	5.0
0.300	1.9	1.600	2.5	4.000	3.8	8.000	5.2
0.400	1.9	1.800	2.6	4.500	4.0	8.500	5.4
0.500	1.8	2.000	2.7	5.000	4.2	9.000	5.5
0.600	1.6	2.200	2.8	5.500	4.4	9.500	5.6
0.800	1.8	2.400	3.0	6.000	4.5		
1.000	2.0	2.600	3.1	6.500	4.7		

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Storage Structures for Surface Network 1

Porous Car Park Manhole: PSW61, DS/PN: 1.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	5.0	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	61.100	Membrane Depth (mm)	0

Porous Car Park Manhole: Manhole (17), DS/PN: 2.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.5
Max Percolation (l/s)	5.4	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	61.220	Membrane Depth (mm)	0

Porous Car Park Manhole: PSW64, DS/PN: 3.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.0
Max Percolation (l/s)	6.7	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	60.000	Membrane Depth (mm)	0

Porous Car Park Manhole: PS3, DS/PN: 5.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	5.0	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	59.000	Membrane Depth (mm)	0

Porous Car Park Manhole: Manhole (6), DS/PN: 6.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	10.0
Max Percolation (l/s)	13.9	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	59.000	Membrane Depth (mm)	0

Porous Car Park Manhole: Manhole (7), DS/PN: 6.001

Infiltration Coefficient Base (m/hr)	0.00000	Max Percolation (l/s)	6.9
Membrane Percolation (mm/hr)	1000	Safety Factor	2.0

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Porous Car Park Manhole: Manhole (7), DS/PN: 6.001

Porosity	0.30	Slope (1:X)	1000.0
Invert Level (m)	58.750	Depression Storage (mm)	5
Width (m)	5.0	Evaporation (mm/day)	3
Length (m)	5.0	Membrane Depth (mm)	0

Porous Car Park Manhole: Manhole (8), DS/PN: 6.002

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	5.0
Max Percolation (l/s)	6.9	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	58.700	Membrane Depth (mm)	0

Porous Car Park Manhole: Manhole (10), DS/PN: 1.013

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	5.0
Max Percolation (l/s)	6.9	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	58.450	Membrane Depth (mm)	0

Porous Car Park Manhole: Manhole (13), DS/PN: 1.014

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	5.0	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	58.350	Membrane Depth (mm)	0

Porous Car Park Manhole: Manhole (15), DS/PN: 8.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	5.0	Slope (1:X)	1000.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	59.050	Membrane Depth (mm)	0

Tank or Pond Manhole: PS40, DS/PN: 9.000

Invert Level (m) 56.588

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	31.2	0.400	31.3	0.800	31.4	1.200	31.5
0.100	31.3	0.500	31.4	0.900	31.4	1.300	31.5
0.200	31.3	0.600	31.4	1.000	31.5	1.400	31.5
0.300	31.3	0.700	31.4	1.100	31.5	1.500	31.6

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Tank or Pond Manhole: PS40, DS/PN: 9.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
1.501	0.0						

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Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

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	11
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 0.360
Region	England and Wales	Cv (Summer)	1.000
M5-60 (mm)	18.000	Cv (Winter)	1.000

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	PSW61	15 Summer	100	+45%				
1.001	PSW62	15 Summer	100	+45%				
2.000	Manhole (17)	15 Summer	100	+45%				
1.002	PSW63	15 Summer	100	+45%				
1.003	PS5	15 Summer	100	+45%	100/15 Summer			
3.000	PSW64	15 Summer	100	+45%	100/15 Summer			
3.001	PSW65	15 Summer	100	+45%	100/15 Summer			
1.004	MH10	15 Summer	100	+45%	100/15 Summer			
4.000	PSW67	15 Summer	100	+45%	100/15 Summer			
1.005	PS4	15 Summer	100	+45%	100/15 Summer			
5.000	PS3	1440 Summer	100	+45%				
1.006	MH11	15 Summer	100	+45%				
1.007	MH12	15 Summer	100	+45%				
1.008	Manhole (1)	15 Summer	100	+45%	100/15 Summer			
1.009	Manhole (2)	15 Summer	100	+45%	100/15 Summer			
1.010	Manhole (3)	15 Summer	100	+45%	100/15 Summer			
1.011	Manhole (4)	15 Summer	100	+45%	100/15 Summer			
1.012	MH13	15 Summer	100	+45%	100/15 Summer			
6.000	Manhole (6)	240 Summer	100	+45%				
6.001	Manhole (7)	60 Summer	100	+45%				

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Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

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	PSW61	60.981	-0.067	0.000	0.24		5	1.4	OK
1.001	PSW62	60.872	-0.067	0.000	0.24			1.3	OK
2.000	Manhole (17)	61.123	-0.026	0.000	0.89		5	8.9	OK
1.002	PSW63	60.797	-0.020	0.000	0.89			10.1	OK
1.003	PS5	60.451	0.061	0.000	0.75			10.2	SURCHARGED
3.000	PSW64	60.171	0.066	0.000	0.88		5	4.8	SURCHARGED
3.001	PSW65	60.208	0.165	0.000	1.03			5.8	FLOOD RISK
1.004	MH10	60.204	0.269	0.000	0.88			10.4	FLOOD RISK
4.000	PSW67	59.839	0.349	0.000	0.00			0.0	FLOOD RISK
1.005	PS4	59.839	0.452	0.000	2.66			14.6	FLOOD RISK
5.000	PS3	59.396	-0.170	0.000	0.00			0.0	OK
1.006	MH11	59.282	-0.081	0.000	0.43			14.5	OK
1.007	MH12	58.833	-0.009	0.000	0.96			14.3	OK
1.008	Manhole (1)	58.784	0.008	0.000	0.92			14.1	SURCHARGED
1.009	Manhole (2)	58.726	0.027	0.000	0.90			13.6	SURCHARGED
1.010	Manhole (3)	58.670	0.040	0.000	0.90			13.6	SURCHARGED
1.011	Manhole (4)	58.614	0.053	0.000	0.92			14.1	SURCHARGED
1.012	MH13	58.555	0.070	0.000	0.92			14.7	SURCHARGED
6.000	Manhole (6)	59.573	-0.077	0.000	0.12			1.6	OK
6.001	Manhole (7)	59.142	-0.058	0.000	0.36			5.0	OK

PN	US/MH Name	Level Exceeded
1.000	PSW61	
1.001	PSW62	
2.000	Manhole (17)	
1.002	PSW63	
1.003	PS5	
3.000	PSW64	
3.001	PSW65	
1.004	MH10	
4.000	PSW67	
1.005	PS4	
5.000	PS3	
1.006	MH11	
1.007	MH12	
1.008	Manhole (1)	
1.009	Manhole (2)	
1.010	Manhole (3)	
1.011	Manhole (4)	
1.012	MH13	
6.000	Manhole (6)	
6.001	Manhole (7)	

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Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
6.002	Manhole (8)	30 Summer	100	+45%	100/15 Summer			
6.003	Manhole (9)	15 Summer	100	+45%	100/15 Summer			
1.013	Manhole (10)	15 Summer	100	+45%	100/15 Summer			
7.000	Manhole (12)	15 Summer	100	+45%				
7.001	Manhole (11)	15 Summer	100	+45%				
1.014	Manhole (13)	15 Summer	100	+45%	100/15 Summer			
8.000	Manhole (15)	15 Summer	100	+45%				
8.001	Manhole (16)	15 Summer	100	+45%				
1.015	PS38	15 Summer	100	+45%	100/15 Summer			
9.000	PS40	240 Winter	100	+45%	100/15 Summer			
1.016	PS39	240 Winter	100	+45%	100/15 Summer			
1.017	PR DIV 03	240 Winter	100	+45%				

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
6.002	Manhole (8)	58.786	0.036	0.000	0.77		4	7.7	SURCHARGED
6.003	Manhole (9)	58.746	0.206	0.000	1.35			11.2	SURCHARGED
1.013	Manhole (10)	58.471	0.106	0.000	0.71		5	24.9	SURCHARGED
7.000	Manhole (12)	59.002	-0.100	0.000	0.00			0.0	OK
7.001	Manhole (11)	58.295	-0.150	0.000	0.00			0.0	OK
1.014	Manhole (13)	58.290	0.390	0.000	1.85		7	27.8	SURCHARGED
8.000	Manhole (15)	59.017	-0.059	0.000	0.36		5	5.3	OK
8.001	Manhole (16)	58.304	-0.055	0.000	0.41			5.2	OK
1.015	PS38	58.052	0.218	0.000	2.25			32.9	SURCHARGED
9.000	PS40	58.047	1.234	0.000	0.07			2.1	SURCHARGED
1.016	PS39	58.047	1.345	0.000	0.10			2.4	SURCHARGED
1.017	PR DIV 03	56.264	-0.269	0.000	0.02			2.4	OK

PN	US/MH Name	Level Exceeded
6.002	Manhole (8)	
6.003	Manhole (9)	
1.013	Manhole (10)	
7.000	Manhole (12)	
7.001	Manhole (11)	
1.014	Manhole (13)	
8.000	Manhole (15)	
8.001	Manhole (16)	
1.015	PS38	
9.000	PS40	
1.016	PS39	
1.017	PR DIV 03	

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