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Victoria Court 22 St Pancras West Sussex PO19 7GD	34 Hurst Road. Hassocks Surface Water Drainage Design Simulation Rev03	
Date Nov 25	Designed by JS	
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Elstree Computing Ltd	Network W.12.6	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	45
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.000
Ratio R	0.343	Maximum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	50	Min Design Depth for Optimisation (m)	0.000
Foul Sewage (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.76
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	500
PIMP (%)	100		

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.014	4-8	0.002

Total Area Contributing (ha) = 0.016

Total Pipe Volume (m³) = 0.381

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)
1.000	16.200	1.906	8.5	0.004	5.00	0.0	0.600	o	110
1.001	5.000	0.050	100.0	0.004	0.00	0.0	0.600	o	110
2.000	3.600	0.379	9.5	0.004	5.00	0.0	0.600	o	110
2.001	9.200	1.533	6.0	0.004	0.00	0.0	0.600	o	110
1.002	3.600	0.045	80.0	0.000	0.00	0.0	0.600	o	110
1.003	1.000	0.010	100.0	0.000	0.00	0.0	0.600	o	110
1.004	1.500	0.015	100.0	0.000	0.00	0.0	0.600	o	110

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	5.10	65.400	0.004	0.0	0.0	0.3	2.84	27.0	1.0
1.001	50.00	5.20	63.494	0.008	0.0	0.0	0.6	0.82	7.8	2.1
2.000	50.00	5.02	65.400	0.004	0.0	0.0	0.3	2.69	25.5	1.0
2.001	50.00	5.07	65.000	0.008	0.0	0.0	0.6	3.38	32.2	2.1
1.002	50.00	5.26	63.444	0.016	0.0	0.0	1.3	0.92	8.7	4.2
1.003	50.00	5.28	63.250	0.016	0.0	0.0	1.3	0.82	7.8	4.2
1.004	50.00	5.31	63.100	0.016	0.0	0.0	1.3	0.82	7.8	4.2

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backd (mm)
RE1	66.000	0.600	Open Manhole	110	1.000	65.400	110				
S1	64.100	0.606	Open Manhole	600	1.001	63.494	110	1.000	63.494	110	
RE2	66.000	0.600	Open Manhole	110	2.000	65.400	110				
S2	65.650	0.650	Open Manhole	600	2.001	65.000	110	2.000	65.021	110	
S3	64.100	0.656	Open Manhole	600	1.002	63.444	110	1.001	63.444	110	
								2.001	63.467	110	
S4	64.000	0.750	Open Manhole	600	1.003	63.250	110	1.002	63.399	110	
RAIN GARDEN	63.700	0.600	Open Manhole	600	1.004	63.100	110	1.003	63.240	110	
Dummy	63.800	0.715	Open Manhole	600		OUTFALL		1.004	63.085	110	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	110	RE1	66.000	65.400	0.490	Open Manhole	110
1.001	o	110	S1	64.100	63.494	0.496	Open Manhole	600
2.000	o	110	RE2	66.000	65.400	0.490	Open Manhole	110
2.001	o	110	S2	65.650	65.000	0.540	Open Manhole	600
1.002	o	110	S3	64.100	63.444	0.546	Open Manhole	600
1.003	o	110	S4	64.000	63.250	0.640	Open Manhole	600
1.004	o	110	RAIN GARDEN	63.700	63.100	0.490	Open Manhole	600

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	16.200	8.5	S1	64.100	63.494	0.496	Open Manhole	600
1.001	5.000	100.0	S3	64.100	63.444	0.546	Open Manhole	600
2.000	3.600	9.5	S2	65.650	65.021	0.519	Open Manhole	600
2.001	9.200	6.0	S3	64.100	63.467	0.523	Open Manhole	600
1.002	3.600	80.0	S4	64.000	63.399	0.491	Open Manhole	600
1.003	1.000	100.0	RAIN GARDEN	63.700	63.240	0.350	Open Manhole	600
1.004	1.500	100.0	Dummy	63.800	63.085	0.605	Open Manhole	600

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.004	Dummy	63.800	63.085	63.100	600	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Foul Sewage per hectare (l/s)	0.000
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	45.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Run Time (mins)	240
Manhole Headloss Coeff (Global)	0.500	Output Interval (mins)	4

Number of Input Hydrographs	0	Number of Storage Structures	2
Number of Online Controls	2	Number of Time/Area Diagrams	0
Number of Offline Controls	0		

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Winter
Return Period (years)	100	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	20.000	Storm Duration (mins)	120
Ratio R	0.343		

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Online Controls for Storm

Orifice Manhole: S4, DS/PN: 1.003, Volume (m³): 0.2

Diameter (m) 0.017 Discharge Coefficient 0.600 Invert Level (m) 63.250

Depth/Flow Relationship Manhole: RAIN GARDEN, DS/PN: 1.004, Volume (m³): 0.2

Invert Level (m) 63.100

Depth (m) Flow (l/s)

0.700 0.0400

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Storage Structures for Storm

cellular Storage Manhole: S4, DS/PN: 1.003

Invert Level (m) 63.250 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	30.0	30.0	0.500	0.0	43.6
0.400	30.0	43.6			

Infiltration Blanket Manhole: RAIN GARDEN, DS/PN: 1.004

Infiltration Coefficient Base (m/hr) 0.04461 Diameter/Width (m) 1.2
Safety Factor 2.0 Length (m) 7.7
Porosity 0.30 Cap Volume Depth (m) 0.000
Invert Level (m) 63.100

Manhole Headloss for Storm

PN	US/MH Name	US/MH Headloss
1.000	RE1	0.500
1.001	S1	0.500
2.000	RE2	0.500
2.001	S2	0.500
1.002	S3	0.500
1.003	S4	0.500
1.004	RAIN GARDEN	0.500

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Summary of Results for 120 minute 100 year Winter (Storm)

Margin for Flood Risk Warning (mm) 0.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	RE1	65.414	-0.096	0.000	0.04	0.0	1.0	OK
1.001	S1	63.603	-0.001	0.000	0.30	0.0	2.0	OK
2.000	RE2	65.415	-0.095	0.000	0.05	0.0	1.0	OK
2.001	S2	65.019	-0.091	0.000	0.07	0.0	2.0	OK
1.002	S3	63.602	0.047	0.000	0.56	0.0	4.0	SURCHARGED
1.003	S4	63.600	0.240	0.000	0.06	0.0	0.3	SURCHARGED
1.004	RAIN GARDEN	63.523	0.313	0.000	0.00	0.0	0.0	SURCHARGED

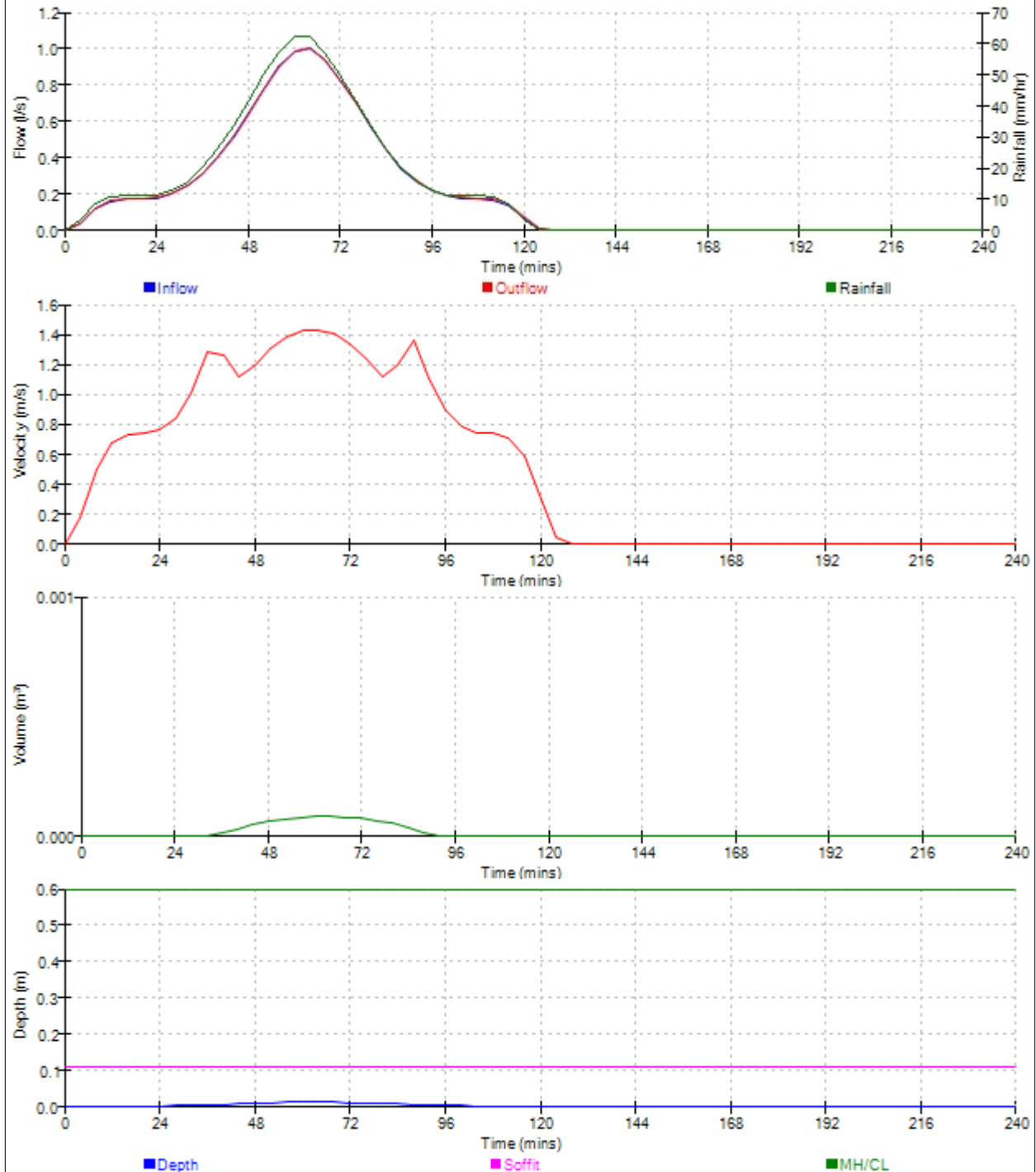
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Rainfall Hyetograph for 120 minute 100 year winter (Storm)

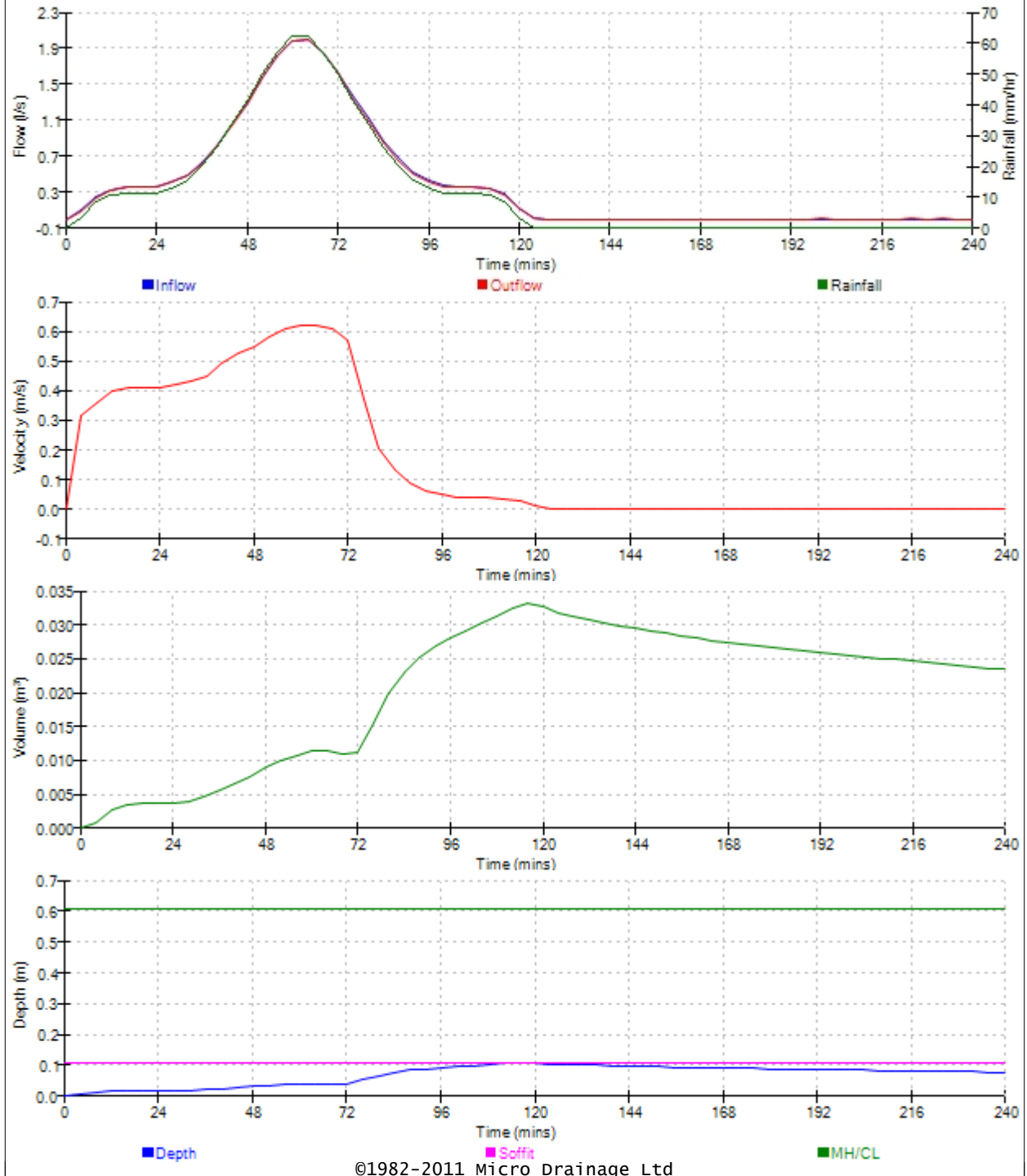
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
4	3.455	28	12.958	52	49.979	76	41.649	100	11.533
8	8.489	32	15.779	56	57.134	80	33.609	104	11.168
12	10.632	36	20.179	60	62.210	84	26.336	108	11.164
16	11.164	40	26.336	64	62.210	88	20.179	112	10.632
20	11.168	44	33.609	68	57.134	92	15.779	116	8.489
24	11.533	48	41.649	72	49.979	96	12.958	120	3.455

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Graphs for Pipe 1.000 US/MH RE1 (Storm)
120 minute 100 year Winter
Status: OK

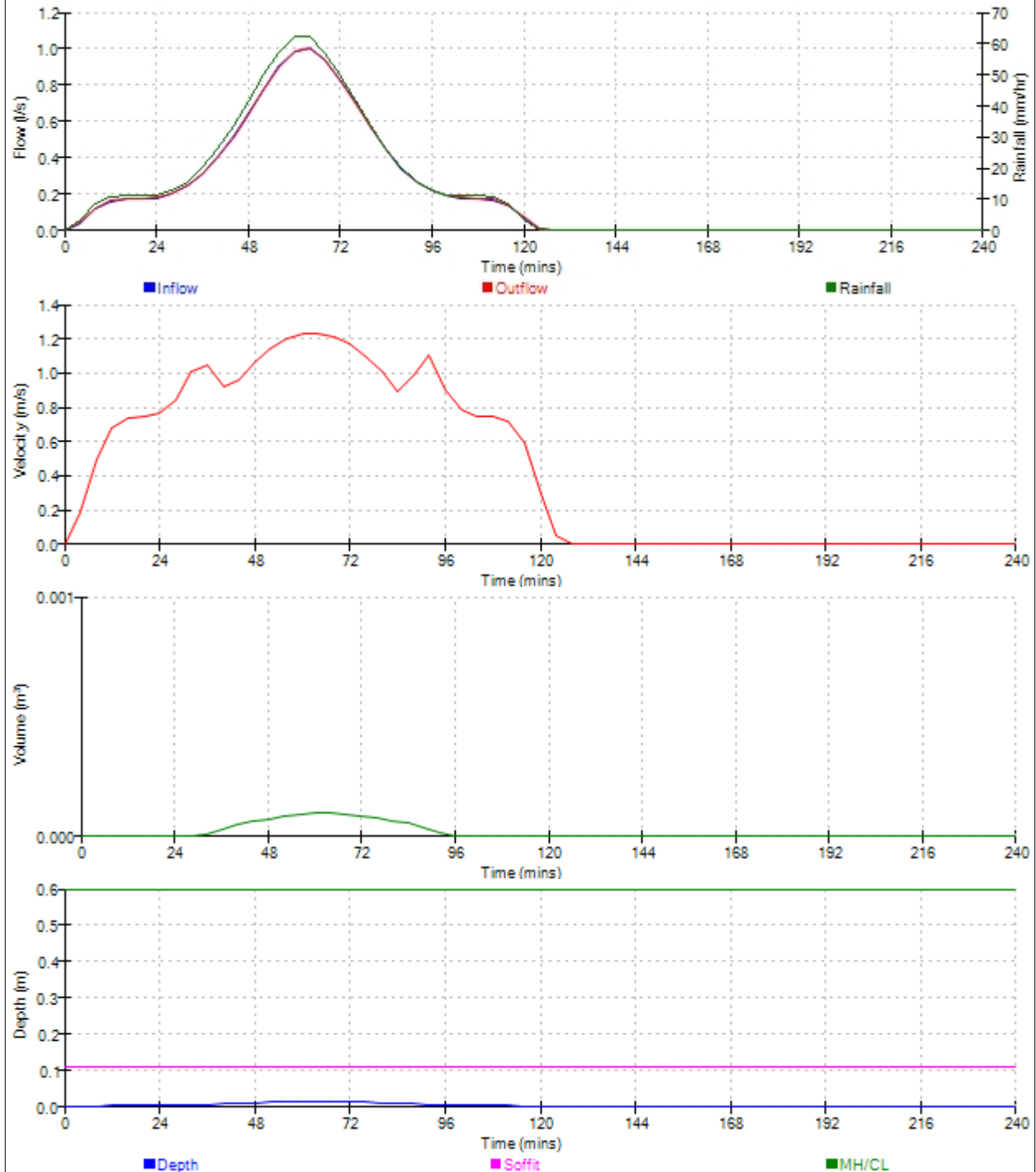


Graphs for Pipe 1.001 US/MH S1 (Storm)
 120 minute 100 year winter
 Status: OK



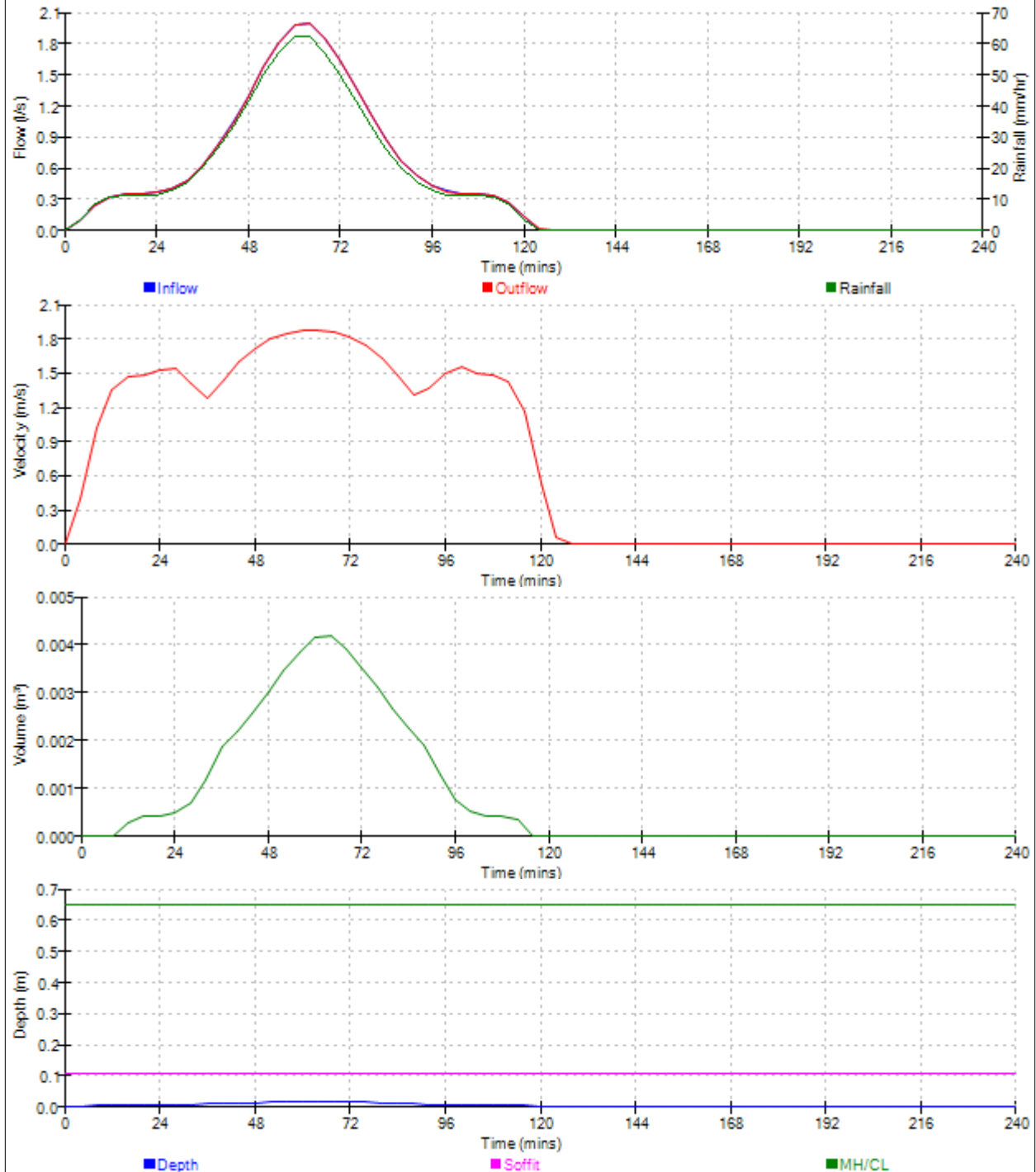
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Graphs for Pipe 2.000 US/MH RE2 (Storm)
120 minute 100 year Winter
Status: OK



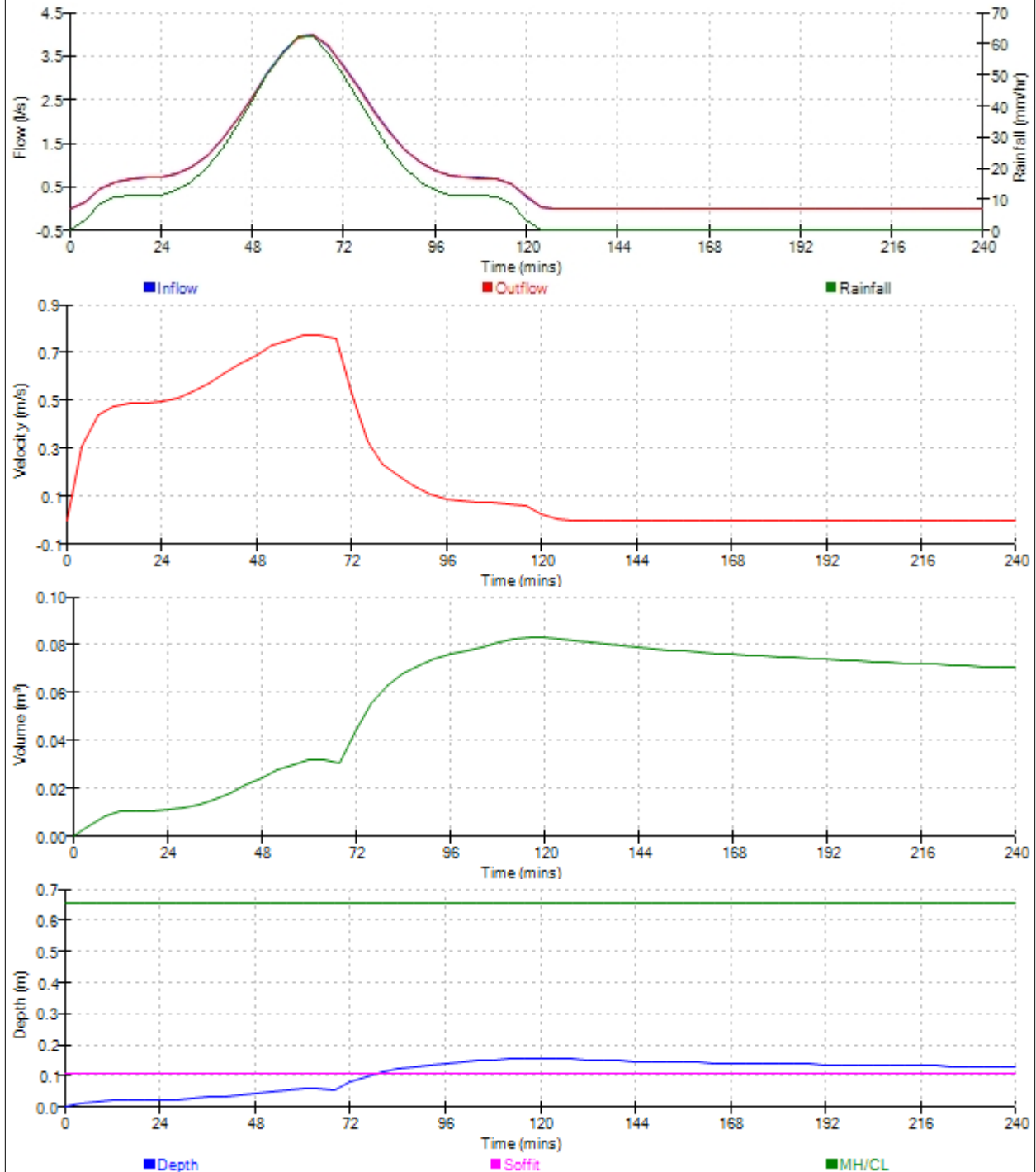
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Graphs for Pipe 2.001 US/MH S2 (Storm)
120 minute 100 year winter
Status: OK

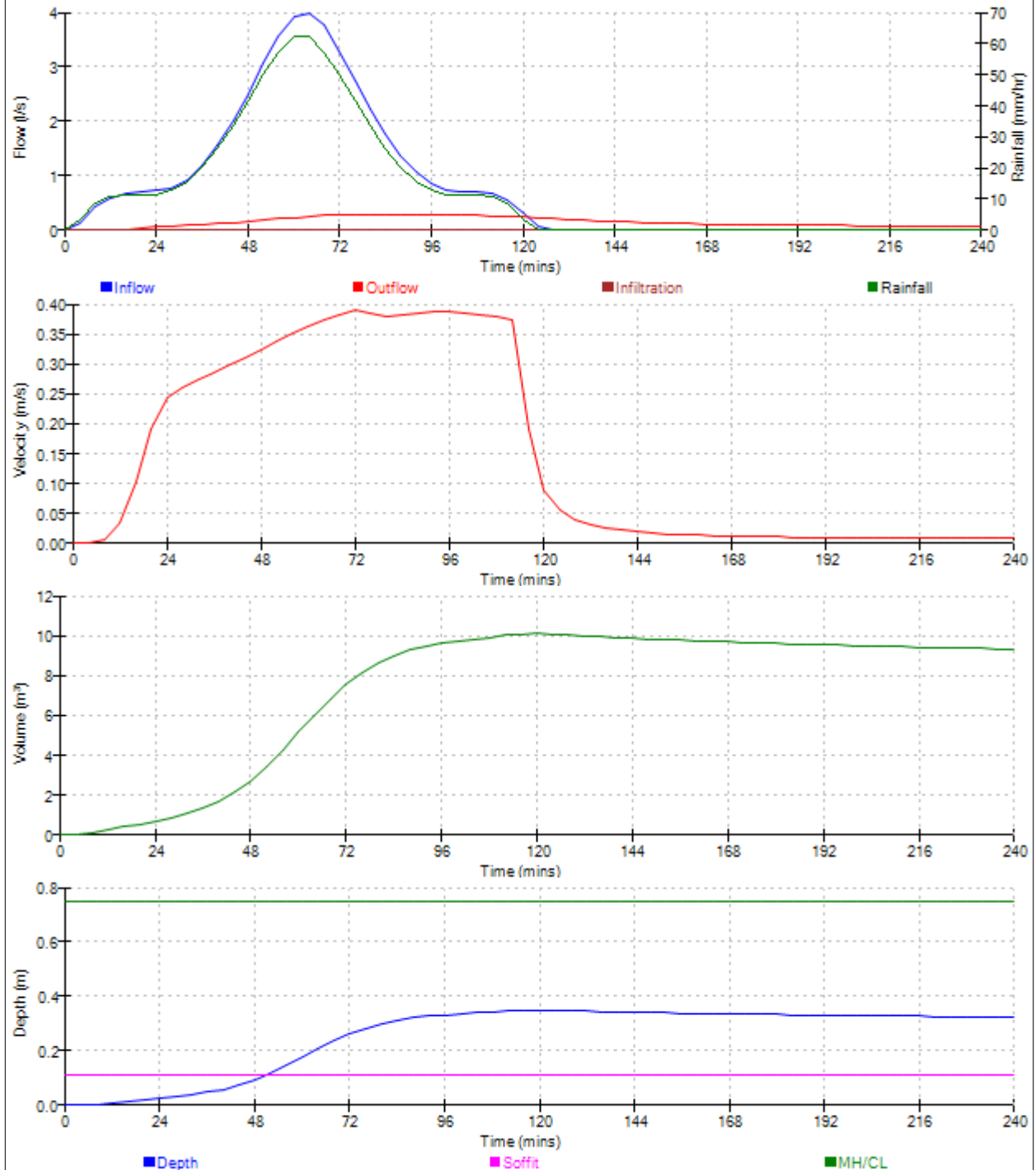


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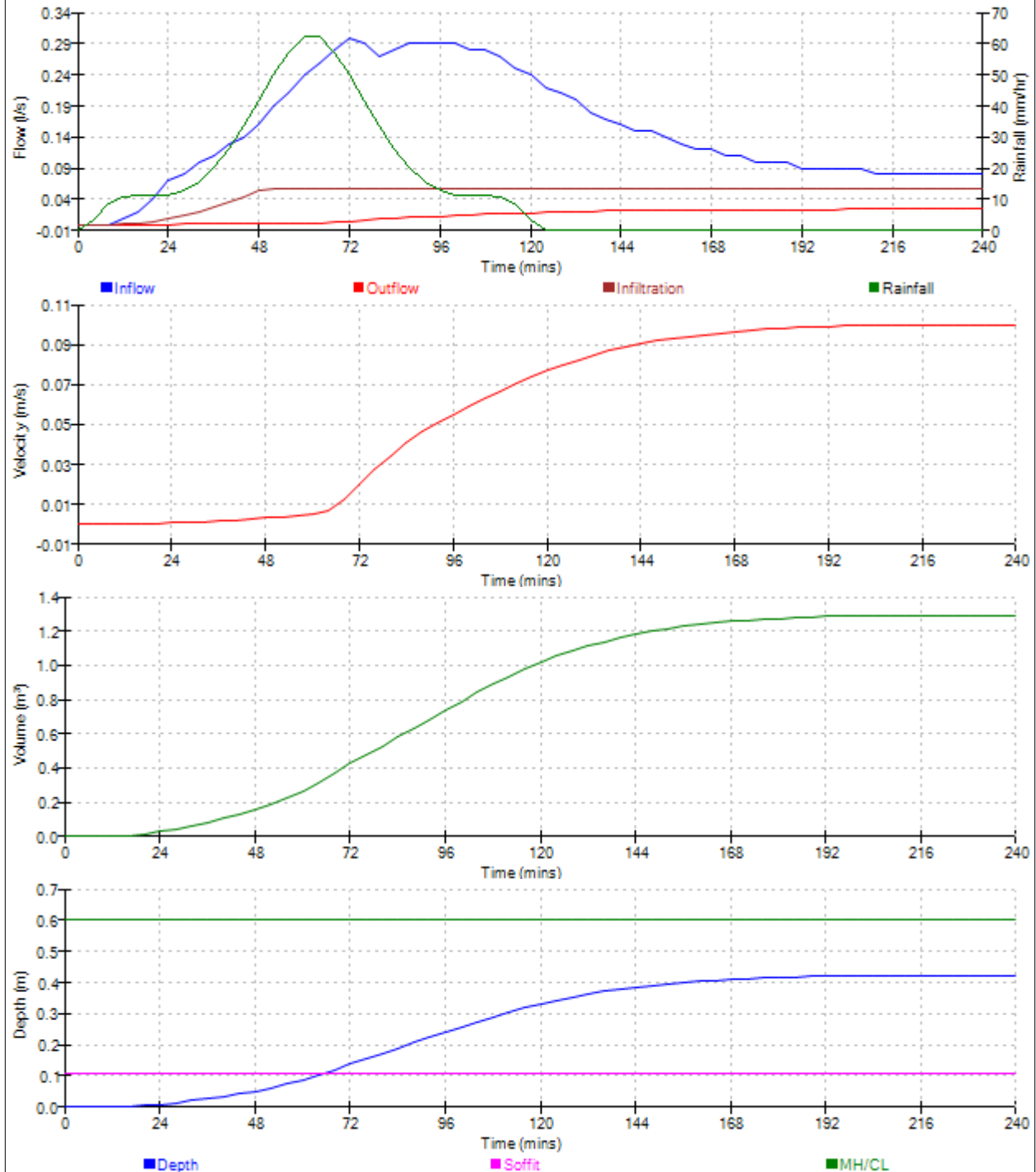
Graphs for Pipe 1.002 US/MH S3 (Storm)
120 minute 100 year winter
Status: SURCHARGED



Graphs for Pipe 1.003 US/MH S4 (Storm)
120 minute 100 year winter
Status: SURCHARGED



Graphs for Pipe 1.004 US/MH RAIN GARDEN (Storm)
120 minute 100 year Winter
Status: SURCHARGED



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Flows and Levels for Pipe 1.000 US/MH RE1 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
204	65.400	63.578	-0.110	0.0	0.0	0.0
208	65.400	63.578	-0.110	0.0	0.0	0.0
212	65.400	63.577	-0.110	0.0	0.0	0.0
216	65.400	63.576	-0.110	0.0	0.0	0.0
220	65.400	63.576	-0.110	0.0	0.0	0.0
224	65.400	63.575	-0.110	0.0	0.0	0.0
228	65.400	63.574	-0.110	0.0	0.0	0.0
232	65.400	63.574	-0.110	0.0	0.0	0.0
236	65.400	63.573	-0.110	0.0	0.0	0.0
240	65.400	63.573	-0.110	0.0	0.0	0.0

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Flows and Levels for Pipe 1.001 US/MH S1 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total O/F (l/s)	Velocity (m/s)	Pipe Flow (l/s)
4	63.502	63.456	-0.102	0.0	0.3	0.1
8	63.508	63.463	-0.096	0.0	0.4	0.2
12	63.510	63.467	-0.094	0.0	0.4	0.3
16	63.510	63.467	-0.094	0.0	0.4	0.4
20	63.510	63.467	-0.094	0.0	0.4	0.4
24	63.511	63.468	-0.093	0.0	0.4	0.4
28	63.512	63.469	-0.092	0.0	0.4	0.4
32	63.514	63.471	-0.090	0.0	0.4	0.5
36	63.517	63.475	-0.087	0.0	0.4	0.6
40	63.520	63.480	-0.084	0.0	0.5	0.8
44	63.523	63.485	-0.081	0.0	0.5	1.0
48	63.527	63.490	-0.077	0.0	0.5	1.3
52	63.530	63.495	-0.074	0.0	0.6	1.6
56	63.533	63.500	-0.071	0.0	0.6	1.8
60	63.535	63.503	-0.069	0.0	0.6	2.0
64	63.535	63.503	-0.069	0.0	0.6	2.0
68	63.533	63.500	-0.071	0.0	0.6	1.9
72	63.534	63.523	-0.070	0.0	0.6	1.6
76	63.548	63.542	-0.057	0.0	0.4	1.3
80	63.561	63.557	-0.043	0.0	0.2	1.1
84	63.571	63.568	-0.033	0.0	0.1	0.9
88	63.578	63.575	-0.026	0.0	0.1	0.7
92	63.583	63.581	-0.021	0.0	0.1	0.5
96	63.587	63.585	-0.017	0.0	0.1	0.4
100	63.590	63.589	-0.014	0.0	0.0	0.4
104	63.594	63.592	-0.010	0.0	0.0	0.4
108	63.597	63.596	-0.007	0.0	0.0	0.4
112	63.601	63.599	-0.003	0.0	0.0	0.3
116	63.603	63.602	-0.001	0.0	0.0	0.3
120	63.602	63.601	-0.002	0.0	0.0	0.1
124	63.599	63.599	-0.005	0.0	0.0	0.0
128	63.597	63.597	-0.007	0.0	0.0	0.0
132	63.596	63.596	-0.008	0.0	0.0	0.0
136	63.594	63.594	-0.010	0.0	0.0	0.0
140	63.593	63.593	-0.011	0.0	0.0	0.0
144	63.592	63.592	-0.012	0.0	0.0	0.0
148	63.590	63.591	-0.014	0.0	0.0	0.0
152	63.589	63.589	-0.015	0.0	0.0	0.0
156	63.588	63.588	-0.016	0.0	0.0	0.0
160	63.587	63.587	-0.017	0.0	0.0	0.0
164	63.586	63.586	-0.018	0.0	0.0	0.0
168	63.585	63.585	-0.019	0.0	0.0	0.0
172	63.584	63.584	-0.020	0.0	0.0	0.0
176	63.584	63.584	-0.021	0.0	0.0	0.0
180	63.583	63.583	-0.021	0.0	0.0	0.0
184	63.582	63.582	-0.022	0.0	0.0	0.0
188	63.581	63.581	-0.023	0.0	0.0	0.0
192	63.580	63.581	-0.024	0.0	0.0	0.0
196	63.580	63.580	-0.024	0.0	0.0	0.0
200	63.579	63.579	-0.025	0.0	0.0	0.0

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Flows and Levels for Pipe 1.001 US/MH S1 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
204	63.578	63.578	-0.026	0.0	0.0	0.0
208	63.578	63.578	-0.026	0.0	0.0	0.0
212	63.577	63.577	-0.027	0.0	0.0	0.0
216	63.576	63.577	-0.028	0.0	0.0	0.0
220	63.576	63.576	-0.028	0.0	0.0	0.0
224	63.575	63.575	-0.029	0.0	0.0	0.0
228	63.574	63.574	-0.030	0.0	0.0	0.0
232	63.574	63.574	-0.030	0.0	0.0	0.0
236	63.573	63.573	-0.031	0.0	0.0	0.0
240	63.573	63.573	-0.031	0.0	0.0	0.0

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Flows and Levels for Pipe 2.000 US/MH RE2 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
4	65.401	65.002	-0.109	0.0	0.2	0.0
8	65.403	65.005	-0.107	0.0	0.5	0.1
12	65.404	65.006	-0.106	0.0	0.7	0.2
16	65.404	65.006	-0.106	0.0	0.7	0.2
20	65.405	65.006	-0.105	0.0	0.7	0.2
24	65.405	65.007	-0.105	0.0	0.8	0.2
28	65.405	65.007	-0.105	0.0	0.8	0.2
32	65.406	65.009	-0.104	0.0	1.0	0.2
36	65.408	65.011	-0.102	0.0	1.0	0.3
40	65.410	65.012	-0.100	0.0	0.9	0.4
44	65.412	65.013	-0.098	0.0	1.0	0.5
48	65.413	65.015	-0.097	0.0	1.1	0.6
52	65.414	65.016	-0.096	0.0	1.1	0.8
56	65.415	65.018	-0.095	0.0	1.2	0.9
60	65.415	65.019	-0.095	0.0	1.2	1.0
64	65.415	65.019	-0.095	0.0	1.2	1.0
68	65.415	65.018	-0.095	0.0	1.2	0.9
72	65.414	65.017	-0.096	0.0	1.2	0.8
76	65.413	65.015	-0.097	0.0	1.1	0.7
80	65.412	65.014	-0.098	0.0	1.0	0.6
84	65.411	65.012	-0.099	0.0	0.9	0.4
88	65.409	65.011	-0.101	0.0	1.0	0.3
92	65.407	65.009	-0.103	0.0	1.1	0.3
96	65.405	65.008	-0.105	0.0	0.9	0.2
100	65.405	65.007	-0.105	0.0	0.8	0.2
104	65.405	65.006	-0.105	0.0	0.7	0.2
108	65.405	65.006	-0.105	0.0	0.7	0.2
112	65.404	65.006	-0.106	0.0	0.7	0.2
116	65.404	65.005	-0.106	0.0	0.6	0.1
120	65.402	65.002	-0.108	0.0	0.3	0.1
124	65.400	65.000	-0.110	0.0	0.0	0.0
128	65.400	65.000	-0.110	0.0	0.0	0.0
132	65.400	65.000	-0.110	0.0	0.0	0.0
136	65.400	65.000	-0.110	0.0	0.0	0.0
140	65.400	65.000	-0.110	0.0	0.0	0.0
144	65.400	65.000	-0.110	0.0	0.0	0.0
148	65.400	65.000	-0.110	0.0	0.0	0.0
152	65.400	65.000	-0.110	0.0	0.0	0.0
156	65.400	65.000	-0.110	0.0	0.0	0.0
160	65.400	65.000	-0.110	0.0	0.0	0.0
164	65.400	65.000	-0.110	0.0	0.0	0.0
168	65.400	65.000	-0.110	0.0	0.0	0.0
172	65.400	65.000	-0.110	0.0	0.0	0.0
176	65.400	65.000	-0.110	0.0	0.0	0.0
180	65.400	65.000	-0.110	0.0	0.0	0.0
184	65.400	65.000	-0.110	0.0	0.0	0.0
188	65.400	65.000	-0.110	0.0	0.0	0.0
192	65.400	65.000	-0.110	0.0	0.0	0.0
196	65.400	65.000	-0.110	0.0	0.0	0.0
200	65.400	65.000	-0.110	0.0	0.0	0.0

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Flows and Levels for Pipe 2.000 US/MH RE2 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
204	65.400	65.000	-0.110	0.0	0.0	0.0
208	65.400	65.000	-0.110	0.0	0.0	0.0
212	65.400	65.000	-0.110	0.0	0.0	0.0
216	65.400	65.000	-0.110	0.0	0.0	0.0
220	65.400	65.000	-0.110	0.0	0.0	0.0
224	65.400	65.000	-0.110	0.0	0.0	0.0
228	65.400	65.000	-0.110	0.0	0.0	0.0
232	65.400	65.000	-0.110	0.0	0.0	0.0
236	65.400	65.000	-0.110	0.0	0.0	0.0
240	65.400	65.000	-0.110	0.0	0.0	0.0

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Flows and Levels for Pipe 2.001 US/MH S2 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total O/F (l/s)	Velocity (m/s)	Pipe Flow (l/s)
4	65.002	63.456	-0.108	0.0	0.4	0.1
8	65.005	63.463	-0.105	0.0	1.0	0.2
12	65.006	63.467	-0.104	0.0	1.3	0.3
16	65.006	63.467	-0.104	0.0	1.5	0.4
20	65.006	63.467	-0.104	0.0	1.5	0.4
24	65.007	63.468	-0.103	0.0	1.5	0.4
28	65.007	63.469	-0.103	0.0	1.5	0.4
32	65.009	63.471	-0.101	0.0	1.4	0.5
36	65.011	63.475	-0.099	0.0	1.3	0.6
40	65.012	63.480	-0.098	0.0	1.4	0.8
44	65.013	63.485	-0.097	0.0	1.6	1.0
48	65.015	63.490	-0.095	0.0	1.7	1.3
52	65.016	63.495	-0.094	0.0	1.8	1.6
56	65.018	63.500	-0.092	0.0	1.8	1.8
60	65.019	63.503	-0.091	0.0	1.9	2.0
64	65.019	63.503	-0.091	0.0	1.9	2.0
68	65.018	63.500	-0.092	0.0	1.9	1.9
72	65.017	63.523	-0.093	0.0	1.8	1.6
76	65.015	63.542	-0.095	0.0	1.7	1.4
80	65.014	63.557	-0.096	0.0	1.6	1.1
84	65.012	63.568	-0.098	0.0	1.5	0.9
88	65.011	63.575	-0.099	0.0	1.3	0.7
92	65.009	63.581	-0.101	0.0	1.4	0.5
96	65.008	63.585	-0.102	0.0	1.5	0.4
100	65.007	63.589	-0.103	0.0	1.6	0.4
104	65.006	63.592	-0.104	0.0	1.5	0.4
108	65.006	63.596	-0.104	0.0	1.5	0.4
112	65.006	63.599	-0.104	0.0	1.4	0.3
116	65.005	63.602	-0.105	0.0	1.2	0.3
120	65.002	63.601	-0.108	0.0	0.5	0.1
124	65.000	63.599	-0.110	0.0	0.1	0.0
128	65.000	63.597	-0.110	0.0	0.0	0.0
132	65.000	63.596	-0.110	0.0	0.0	0.0
136	65.000	63.594	-0.110	0.0	0.0	0.0
140	65.000	63.593	-0.110	0.0	0.0	0.0
144	65.000	63.592	-0.110	0.0	0.0	0.0
148	65.000	63.591	-0.110	0.0	0.0	0.0
152	65.000	63.589	-0.110	0.0	0.0	0.0
156	65.000	63.588	-0.110	0.0	0.0	0.0
160	65.000	63.587	-0.110	0.0	0.0	0.0
164	65.000	63.586	-0.110	0.0	0.0	0.0
168	65.000	63.585	-0.110	0.0	0.0	0.0
172	65.000	63.584	-0.110	0.0	0.0	0.0
176	65.000	63.584	-0.110	0.0	0.0	0.0
180	65.000	63.583	-0.110	0.0	0.0	0.0
184	65.000	63.582	-0.110	0.0	0.0	0.0
188	65.000	63.581	-0.110	0.0	0.0	0.0
192	65.000	63.581	-0.110	0.0	0.0	0.0
196	65.000	63.580	-0.110	0.0	0.0	0.0
200	65.000	63.579	-0.110	0.0	0.0	0.0

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Flows and Levels for Pipe 2.001 US/MH S2 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
204	65.000	63.578	-0.110	0.0	0.0	0.0
208	65.000	63.578	-0.110	0.0	0.0	0.0
212	65.000	63.577	-0.110	0.0	0.0	0.0
216	65.000	63.577	-0.110	0.0	0.0	0.0
220	65.000	63.576	-0.110	0.0	0.0	0.0
224	65.000	63.575	-0.110	0.0	0.0	0.0
228	65.000	63.574	-0.110	0.0	0.0	0.0
232	65.000	63.574	-0.110	0.0	0.0	0.0
236	65.000	63.573	-0.110	0.0	0.0	0.0
240	65.000	63.573	-0.110	0.0	0.0	0.0

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Flows and Levels for Pipe 1.002 US/MH S3 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
4	63.456	63.251	-0.098	0.0	0.3	0.2
8	63.463	63.254	-0.091	0.0	0.4	0.4
12	63.467	63.258	-0.087	0.0	0.5	0.6
16	63.467	63.264	-0.087	0.0	0.5	0.7
20	63.467	63.270	-0.087	0.0	0.5	0.7
24	63.468	63.275	-0.086	0.0	0.5	0.7
28	63.469	63.281	-0.085	0.0	0.5	0.8
32	63.471	63.288	-0.083	0.0	0.5	0.9
36	63.475	63.298	-0.079	0.0	0.6	1.2
40	63.480	63.310	-0.074	0.0	0.6	1.6
44	63.485	63.325	-0.069	0.0	0.7	2.0
48	63.490	63.344	-0.064	0.0	0.7	2.5
52	63.495	63.370	-0.059	0.0	0.7	3.1
56	63.500	63.397	-0.054	0.0	0.8	3.6
60	63.503	63.428	-0.051	0.0	0.8	3.9
64	63.503	63.459	-0.051	0.0	0.8	4.0
68	63.500	63.488	-0.054	0.0	0.8	3.8
72	63.523	63.513	-0.031	0.0	0.5	3.3
76	63.542	63.533	-0.012	0.0	0.3	2.7
80	63.557	63.550	0.002	0.0	0.2	2.2
84	63.568	63.562	0.013	0.0	0.2	1.8
88	63.575	63.571	0.021	0.0	0.1	1.4
92	63.581	63.578	0.027	0.0	0.1	1.1
96	63.585	63.583	0.031	0.0	0.1	0.9
100	63.589	63.586	0.035	0.0	0.1	0.8
104	63.592	63.590	0.038	0.0	0.1	0.7
108	63.596	63.594	0.042	0.0	0.1	0.7
112	63.599	63.597	0.045	0.0	0.1	0.7
116	63.602	63.600	0.047	0.0	0.1	0.6
120	63.601	63.600	0.047	0.0	0.0	0.3
124	63.599	63.599	0.045	0.0	0.0	0.1
128	63.597	63.597	0.043	0.0	0.0	0.0
132	63.596	63.596	0.042	0.0	0.0	0.0
136	63.594	63.594	0.040	0.0	0.0	0.0
140	63.593	63.593	0.039	0.0	0.0	0.0
144	63.592	63.592	0.038	0.0	0.0	0.0
148	63.591	63.591	0.036	0.0	0.0	0.0
152	63.589	63.589	0.035	0.0	0.0	0.0
156	63.588	63.588	0.034	0.0	0.0	0.0
160	63.587	63.587	0.033	0.0	0.0	0.0
164	63.586	63.586	0.032	0.0	0.0	0.0
168	63.585	63.586	0.031	0.0	0.0	0.0
172	63.584	63.585	0.030	0.0	0.0	0.0
176	63.584	63.584	0.030	0.0	0.0	0.0
180	63.583	63.583	0.029	0.0	0.0	0.0
184	63.582	63.582	0.028	0.0	0.0	0.0
188	63.581	63.582	0.027	0.0	0.0	0.0
192	63.581	63.581	0.027	0.0	0.0	0.0
196	63.580	63.580	0.026	0.0	0.0	0.0
200	63.579	63.579	0.025	0.0	0.0	0.0

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Flows and Levels for Pipe 1.002 US/MH S3 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
204	63.578	63.579	0.024	0.0	0.0	0.0
208	63.578	63.578	0.024	0.0	0.0	0.0
212	63.577	63.577	0.023	0.0	0.0	0.0
216	63.577	63.577	0.022	0.0	0.0	0.0
220	63.576	63.576	0.022	0.0	0.0	0.0
224	63.575	63.575	0.021	0.0	0.0	0.0
228	63.574	63.575	0.020	0.0	0.0	0.0
232	63.574	63.574	0.020	0.0	0.0	0.0
236	63.573	63.573	0.019	0.0	0.0	0.0
240	63.573	63.573	0.019	0.0	0.0	0.0

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Flows and Levels for Pipe 1.003 US/MH S4 (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
204	63.579	63.522	0.219	0.0	0.0	0.1
208	63.578	63.522	0.218	0.0	0.0	0.1
212	63.577	63.522	0.217	0.0	0.0	0.1
216	63.577	63.522	0.217	0.0	0.0	0.1
220	63.576	63.523	0.216	0.0	0.0	0.1
224	63.575	63.522	0.215	0.0	0.0	0.1
228	63.575	63.522	0.215	0.0	0.0	0.1
232	63.574	63.522	0.214	0.0	0.0	0.1
236	63.573	63.522	0.213	0.0	0.0	0.1
240	63.573	63.522	0.213	0.0	0.0	0.1

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Flows and Levels for Pipe 1.004 US/MH RAIN GARDEN (Storm)
120 minute 100 year Winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
4	63.100	63.096	-0.110	0.0	0.0	0.0
8	63.100	63.096	-0.110	0.0	0.0	0.0
12	63.101	63.096	-0.109	0.0	0.0	0.0
16	63.102	63.096	-0.108	0.0	0.0	0.0
20	63.105	63.096	-0.105	0.0	0.0	0.0
24	63.110	63.096	-0.100	0.0	0.0	0.0
28	63.115	63.096	-0.095	0.0	0.0	0.0
32	63.121	63.096	-0.089	0.0	0.0	0.0
36	63.128	63.096	-0.082	0.0	0.0	0.0
40	63.135	63.096	-0.075	0.0	0.0	0.0
44	63.143	63.096	-0.067	0.0	0.0	0.0
48	63.152	63.096	-0.058	0.0	0.0	0.0
52	63.162	63.096	-0.048	0.0	0.0	0.0
56	63.174	63.096	-0.036	0.0	0.0	0.0
60	63.188	63.096	-0.022	0.0	0.0	0.0
64	63.204	63.096	-0.006	0.0	0.0	0.0
68	63.221	63.096	0.011	0.0	0.0	0.0
72	63.239	63.096	0.029	0.0	0.0	0.0
76	63.257	63.096	0.047	0.0	0.0	0.0
80	63.273	63.096	0.063	0.0	0.0	0.0
84	63.289	63.096	0.079	0.0	0.0	0.0
88	63.306	63.096	0.096	0.0	0.0	0.0
92	63.324	63.096	0.114	0.0	0.1	0.0
96	63.341	63.096	0.131	0.0	0.1	0.0
100	63.358	63.096	0.148	0.0	0.1	0.0
104	63.374	63.096	0.164	0.0	0.1	0.0
108	63.390	63.096	0.180	0.0	0.1	0.0
112	63.405	63.096	0.195	0.0	0.1	0.0
116	63.419	63.096	0.209	0.0	0.1	0.0
120	63.432	63.096	0.222	0.0	0.1	0.0
124	63.444	63.096	0.234	0.0	0.1	0.0
128	63.454	63.096	0.244	0.0	0.1	0.0
132	63.464	63.096	0.254	0.0	0.1	0.0
136	63.472	63.096	0.262	0.0	0.1	0.0
140	63.479	63.096	0.269	0.0	0.1	0.0
144	63.485	63.096	0.275	0.0	0.1	0.0
148	63.491	63.096	0.281	0.0	0.1	0.0
152	63.496	63.096	0.286	0.0	0.1	0.0
156	63.501	63.096	0.291	0.0	0.1	0.0
160	63.504	63.096	0.294	0.0	0.1	0.0
164	63.508	63.096	0.298	0.0	0.1	0.0
168	63.510	63.096	0.300	0.0	0.1	0.0
172	63.513	63.096	0.303	0.0	0.1	0.0
176	63.515	63.096	0.305	0.0	0.1	0.0
180	63.516	63.096	0.306	0.0	0.1	0.0
184	63.518	63.096	0.308	0.0	0.1	0.0
188	63.519	63.096	0.309	0.0	0.1	0.0
192	63.520	63.096	0.310	0.0	0.1	0.0
196	63.521	63.096	0.311	0.0	0.1	0.0
200	63.521	63.096	0.311	0.0	0.1	0.0

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Flows and Levels for Pipe 1.004 US/MH RAIN GARDEN (Storm)
120 minute 100 year winter
Average Rainfall Intensity 25.085 mm/hr

Time (mins)	Upstream Level (m)	Downstream Level (m)	Surcharged Depth (m)	Total (l/s)	O/F Velocity (m/s)	Pipe Flow (l/s)
204	63.522	63.096	0.312	0.0	0.1	0.0
208	63.522	63.096	0.312	0.0	0.1	0.0
212	63.522	63.096	0.312	0.0	0.1	0.0
216	63.522	63.096	0.312	0.0	0.1	0.0
220	63.523	63.096	0.313	0.0	0.1	0.0
224	63.522	63.096	0.312	0.0	0.1	0.0
228	63.522	63.096	0.312	0.0	0.1	0.0
232	63.522	63.096	0.312	0.0	0.1	0.0
236	63.522	63.096	0.312	0.0	0.1	0.0
240	63.522	63.096	0.312	0.0	0.1	0.0