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Bessemer Road Welwyn Garden City Hertfordshire AL7 1HE	Havant Catchment C and D	
Date 06/08/2021 File SW Network 2 (updated).MDX	Designed by sudeep.chongbang Checked by	
XP Solutions	Network 2017.1.2	

Storage Structures for Storm

Porous Car Park Manhole: PPIC2, DS/PN: 3.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	22.0
Membrane Percolation (mm/hr)	1000	Length (m)	50.0
Max Percolation (l/s)	305.6	Slope (1:X)	300.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	14.461	Membrane Depth (mm)	0

Porous Car Park Manhole: PPIC17, DS/PN: 3.003

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	34.0
Membrane Percolation (mm/hr)	1000	Length (m)	50.0
Max Percolation (l/s)	472.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	14.518	Membrane Depth (mm)	0

Porous Car Park Manhole: PPIC12, DS/PN: 8.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	34.0
Membrane Percolation (mm/hr)	1000	Length (m)	50.0
Max Percolation (l/s)	472.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	14.493	Membrane Depth (mm)	0

Cellular Storage Manhole: TANK, DS/PN: 1.005

Invert Level (m)	12.655	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)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	754.0	754.0	0.500	754.0	825.0	0.501	0.0	825.0

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		
Number of Input Hydrographs	0	Number of Offline Controls	0
Number of Online Controls	1	Number of Storage Structures	4
		Number of Time/Area Diagrams	0
		Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.387
FEH Rainfall Version	1999	E (1km)	0.310
Site Location	GB 472400 107400 SU 72400 07400	F (1km)	2.252
C (1km)	-0.029	Cv (Summer)	0.750
D1 (1km)	0.457	Cv (Winter)	0.840
D2 (1km)	0.295		
Margin for Flood Risk Warning (mm)			300.0
Analysis Timestep	2.5	Second Increment (Extended)	
DTS Status			ON
DVD Status			ON
Inertia Status			ON
Profile(s)		Summer and Winter	
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440		
Return Period(s) (years)		1, 30, 100	
Climate Change (%)		0, 0, 20	

										Water Surcharged
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)
1.000	S24	15 Winter	1	+0%	100/15 Summer	100/15 Winter			13.861	-0.314
1.001	S25	15 Winter	1	+0%	30/15 Summer	100/15 Winter			13.726	-0.273
1.002	S26	15 Winter	1	+0%	30/15 Summer				13.576	-0.239
1.003	S27	15 Winter	1	+0%	30/15 Summer				13.433	-0.215
2.000	S30	15 Winter	1	+0%	100/15 Summer	100/15 Winter			13.876	-0.314
2.001	S31	15 Winter	1	+0%	30/15 Summer	100/15 Winter			13.671	-0.273
2.002	S32	15 Winter	1	+0%	30/15 Summer				13.535	-0.237
2.003	S33	15 Winter	1	+0%	30/15 Summer				13.444	-0.211
1.004	S28	15 Winter	1	+0%	30/15 Summer				13.363	-0.167
3.000	PPIC1	15 Winter	1	+0%	100/15 Summer				13.054	-0.259
4.000	PPIC8	15 Winter	1	+0%	30/15 Summer	100/15 Summer			13.354	-0.057
3.001	PPIC2	15 Winter	1	+0%	30/15 Summer				13.007	-0.204
5.000	S34	15 Summer	1	+0%	100/15 Summer				13.113	-0.238
5.001	PPIC4	15 Winter	1	+0%	100/15 Summer	100/60 Winter			13.081	-0.237
3.002	PPIC3	15 Winter	1	+0%	30/15 Summer				12.930	-0.173
6.000	PPIC15	15 Summer	1	+0%	30/15 Summer	100/15 Summer			13.303	-0.079
7.000	PPIC16	120 Winter	1	+0%	100/30 Winter				13.750	-0.150
3.003	PPIC17	15 Winter	1	+0%	30/15 Summer				12.871	-0.115
8.000	PPIC11	15 Summer	1	+0%	30/15 Summer	100/15 Summer			13.197	-0.131
8.001	PPIC12	15 Winter	1	+0%	30/15 Summer				12.918	-0.078
1.005	TANK	180 Winter	1	+0%	100/15 Winter				12.827	-0.278
1.006	S29	180 Winter	1	+0%	100/15 Winter				12.811	-0.279

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)		
1.000	S24	0.000	0.06		7.1	OK	1
1.001	S25	0.000	0.16		18.8	OK	1
1.002	S26	0.000	0.28		32.2	OK	
1.003	S27	0.000	0.35		41.2	OK	
2.000	S30	0.000	0.06		7.0	OK	1
2.001	S31	0.000	0.16		18.8	OK	1
2.002	S32	0.000	0.29		32.2	OK	
2.003	S33	0.000	0.38		44.3	OK	
1.004	S28	0.000	0.72		82.1	OK	
3.000	PPIC1	0.000	0.04		2.5	OK	
4.000	PPIC8	0.000	0.70		11.7	OK	6
3.001	PPIC2	0.000	0.22		14.0	OK	
5.000	S34	0.000	0.09		5.6	OK	
5.001	PPIC4	0.000	0.10		10.1	OK	2
3.002	PPIC3	0.000	0.36		22.9	OK	
6.000	PPIC15	0.000	0.46		11.0	OK	3
7.000	PPIC16	0.000	0.00		0.0	OK	
3.003	PPIC17	0.000	0.69		32.0	OK	
8.000	PPIC11	0.000	0.37		23.2	OK	3
8.001	PPIC12	0.000	0.75		23.0	OK	
1.005	TANK	0.000	0.29		31.3	OK	
1.006	S29	0.000	0.24		31.3	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 4 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.387
 FEH Rainfall Version 1999 E (1km) 0.310
 Site Location GB 472400 107400 SU 72400 07400 F (1km) 2.252
 C (1km) -0.029 Cv (Summer) 0.750
 D1 (1km) 0.457 Cv (Winter) 0.840
 D2 (1km) 0.295

Margin for Flood Risk Warning (mm) 300.0

Analysis Timestep 2.5 Second Increment (Extended)

DTS Status ON

DVD Status ON

Inertia Status ON

Profile(s) Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440

Return Period(s) (years) 1, 30, 100

Climate Change (%) 0, 0, 20

										Water Surcharged
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)
1.000	S24	15 Winter	30	+0%	100/15 Summer	100/15 Winter			14.090	-0.085
1.001	S25	15 Winter	30	+0%	30/15 Summer	100/15 Winter			14.063	0.064
1.002	S26	15 Winter	30	+0%	30/15 Summer				13.987	0.172
1.003	S27	15 Winter	30	+0%	30/15 Summer				13.883	0.235
2.000	S30	15 Winter	30	+0%	100/15 Summer	100/15 Winter			14.069	-0.121
2.001	S31	15 Winter	30	+0%	30/15 Summer	100/15 Winter			14.050	0.106
2.002	S32	15 Winter	30	+0%	30/15 Summer				13.982	0.210
2.003	S33	15 Winter	30	+0%	30/15 Summer				13.885	0.230
1.004	S28	15 Winter	30	+0%	30/15 Summer				13.657	0.127
3.000	PPIC1	15 Winter	30	+0%	100/15 Summer				13.272	-0.041
4.000	PPIC8	15 Winter	30	+0%	30/15 Summer	100/15 Summer			13.973	0.562
3.001	PPIC2	15 Winter	30	+0%	30/15 Summer				13.266	0.055
5.000	S34	15 Winter	30	+0%	100/15 Summer				13.218	-0.133
5.001	PPIC4	15 Winter	30	+0%	100/15 Summer	100/60 Winter			13.212	-0.106
3.002	PPIC3	15 Winter	30	+0%	30/15 Summer				13.178	0.075
6.000	PPIC15	15 Winter	30	+0%	30/15 Summer	100/15 Summer			13.732	0.350
7.000	PPIC16	120 Winter	30	+0%	100/30 Winter				13.750	-0.150
3.003	PPIC17	15 Winter	30	+0%	30/15 Summer				13.076	0.090
8.000	PPIC11	15 Winter	30	+0%	30/15 Summer	100/15 Summer			13.743	0.415
8.001	PPIC12	15 Winter	30	+0%	30/15 Summer				13.369	0.373
1.005	TANK	120 Winter	30	+0%	100/15 Winter				13.018	-0.087
1.006	S29	120 Winter	30	+0%	100/15 Winter				12.999	-0.091

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
1.000	S24	0.000	0.19	21.8	OK		1
1.001	S25	0.000	0.48	55.7	SURCHARGED		1
1.002	S26	0.000	0.75	86.0	SURCHARGED		
1.003	S27	0.000	1.03	120.3	SURCHARGED		
2.000	S30	0.000	0.19	22.1	OK		1
2.001	S31	0.000	0.44	50.6	SURCHARGED		1
2.002	S32	0.000	0.76	84.1	SURCHARGED		
2.003	S33	0.000	1.10	126.6	SURCHARGED		
1.004	S28	0.000	2.16	246.7	SURCHARGED		
3.000	PPIC1	0.000	0.11	6.9	OK		
4.000	PPIC8	0.000	1.90	31.7	SURCHARGED		6
3.001	PPIC2	0.000	0.55	35.2	SURCHARGED		
5.000	S34	0.000	0.30	17.7	OK		
5.001	PPIC4	0.000	0.34	34.4	OK		2
3.002	PPIC3	0.000	0.92	59.1	SURCHARGED		
6.000	PPIC15	0.000	1.29	30.8	SURCHARGED		3
7.000	PPIC16	0.000	0.00	0.0	OK		
3.003	PPIC17	0.000	1.90	88.5	SURCHARGED		
8.000	PPIC11	0.000	1.05	66.3	SURCHARGED		3
8.001	PPIC12	0.000	2.13	65.2	SURCHARGED		
1.005	TANK	0.000	0.94	102.0	OK		
1.006	S29	0.000	0.78	102.0	OK		