

Caversham Bridge House	Green Park Village
Waterman Place	West Lakeside
Reading RG1 8DN	Cellular Soakaway 3
Date 8th July 2010	Designed By VH
File Cellular Infiltration 3.SUM	Checked By
Micro Drainage	Simulation W.11.4 net



Global Variables

Region	FSR - England & Wales	Manhole Headloss Coefficient	0.500
Return Period (yrs)	10	MADD Factor * 10m³/ha Storage	2.000
M5-60 (mm)	18.800	Foul Sewage/Hectare (l/s)	0.00
Ratio R	0.400	Additional Flow - % of Total Flow	0
Volumetric Runoff Coef	0.750	Inlet Coefficient	0.800
Profile Type	Summer	Number of Input Hydrographs	0
P1MP (%)	100	Number of Time/Area Diagrams	1
Areal Reduction Factor	1.000	Number of Bifurcations	0
Storm Duration (mins)	15	Number of Overflows	0
Hot Start (mins)	0	Number of Off-Line Controls	1
Hot Start Level (mm)	0	Number of On-Line Controls	0

Starting storm file name

J:\11321\2002\Windex\West side\Cellular C.sws

Green Roof at Pipe Number 2.000

Area (m²)	759	Evaporation (mm/day)	3
Depression Storage (mm)	5	Decay Coefficient	0.050

Time/Area Diagram for Green Roof

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)				
From:	To:	From:	To:	From:	To:	From:	To:				
0	4	0.013793	32	36	0.002785	64	68	0.000562	96	100	0.000114
4	8	0.011292	36	40	0.002280	68	72	0.000460	100	104	0.000093
8	12	0.009245	40	44	0.001867	72	76	0.000377	104	108	0.000076
12	16	0.007569	44	48	0.001528	76	80	0.000309	108	112	0.000062
16	20	0.006197	48	52	0.001251	80	84	0.000253	112	116	0.000051
20	24	0.005074	52	56	0.001024	84	88	0.000207	116	120	0.000042
24	28	0.004154	56	60	0.000839	88	92	0.000169			
28	32	0.003401	60	64	0.000687	92	96	0.000139			

Freely Discharging Outfalls

Outfall Pipe Number	Outfall MH/No	C.Level (m)	I.Level (m)	D,L (mm)	B (mm)
1.005		39.825	39.300	1200	0

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Infiltration Systems

Warning: - Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier.

DS/PN	MH Loss	Height above DS PN (m)	Filename	Type	Include Volume
1.005	0.500	-0.600	STORAGE C.SRC	Cellular Storage	Yes (capped) (lvl 39.300m)

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Network Details

* - Indicates pipe has been modified outside of WIndes's Storm/Foul & Schedules

PN	Length (m)	Fall (m)	Slope (1:x)	Area (ha)	T.E. (mins)	Rain Pro	k (mm)	Hyd Sect	Dia (mm)
1.000	16.87	0.101	167.1	0.040	5.00	1	0.600	0	225
1.001	5.29	0.032	165.3	0.014	0.00	1	0.600	0	225
1.002	13.61	0.082	166.0	0.003	0.00	1	0.600	0	225
1.003	6.39	0.038	168.2	0.003	0.00	1	0.600	0	225
2.000	1.00	0.006	166.8	0.076	5.00	1	0.600	0	225
2.001	34.87	0.209	166.8	0.026	0.00	1	0.600	0	225
2.002	19.05	0.114	167.1	0.034	0.00	1	0.600	0	225
2.003	9.06	0.054	167.7	0.025	0.00	1	0.600	0	225
1.004	18.90	0.113	167.3	0.000	0.00	1	0.600	0	225
1.005	1.00	0.100	10.0	0.028	0.00	1	0.600	0	225
PN	USMH No.	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl No.	US/MH (mm)
1.000	1	40.491	39.366	0.900	40.390	39.265	0.900		1200
1.001	2	40.390	39.265	0.900	40.358	39.233	0.900		1200
1.002	3	40.358	39.233	0.900	40.276	39.151	0.900		1200
1.003	4	40.276	39.151	0.900	40.238	39.113	0.900		1200
2.000	5	40.615	39.496	0.894	40.615	39.490	0.900		1200
2.001	6	40.615	39.490	0.900	40.406	39.281	0.900		1200
2.002	6	40.406	39.281	0.900	40.292	39.167	0.900		1200
2.003	7	40.292	39.167	0.900	40.238	39.113	0.900		1200
1.004	8	40.238	39.113	0.900	40.200	39.000	0.975		1200
1.005		40.200	39.400	0.575	39.825	39.300	0.300		1200

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Summary Wizard of "CRITICAL BY RETURN PERIOD"(Rank 1 by Max Level)
Results for Design Storms

Margin for Flood Risk warning (mm) 300 Inertia Status OFF
DTS Status ON Analysis Time Step Fine
DVD Status OFF

Profile(s)
Duration(s) (mins)
Return Period(s) (years)
Climate Change (%)
Summer and Winter
15, 30, 60, 120, 240, 360, 480, 960, 1440
0

PN	Storm	Return Period	Climate Change	Rank	First X Surge	First Y Flood	First Z Overflow	O/F Act
1.000	15 Winter	10	0%	1				
1.001	15 Winter	10	0%	1				
1.002	15 Winter	10	0%	1				
1.003	15 Winter	10	0%	1				
2.000	30 Winter	10	0%	1				
2.001	60 Winter	10	0%	1				
2.002	15 Summer	10	0%	1				
2.003	15 Winter	10	0%	1				
1.004	15 Winter	10	0%	1				
1.005	240 Winter	10	0%	1				
10/15 Summer 18								
Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
	1.000	39.448	-0.143	0.000	0.28	0.0	9.9	OK
	1.001	39.373	-0.117	0.000	0.45	0.0	13.5	OK
	1.002	39.339	-0.119	0.000	0.41	0.0	14.3	OK
	1.003	39.304	-0.072	0.000	0.49	0.0	14.7	OK
	2.000	39.562	-0.159	0.000	0.18	0.0	5.5	OK
	2.001	39.560	-0.155	0.000	0.20	0.0	7.7	OK
	2.002	39.384	-0.122	0.000	0.42	0.0	15.2	OK
	2.003	39.315	-0.077	0.000	0.64	0.0	20.8	OK
	1.004	39.291	-0.047	0.000	0.97	0.0	35.1	OK
	1.005	38.964	-0.661	0.000	0.00	1.6	0.0	OK

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Profile(s)
 Duration(s) (mins)
 Return Period(s) (years)
 Climate Change (%)

Summer and Winter
 15, 30, 60, 120, 240, 360, 480, 960, 1440
 30
 0

PN	Storm	Return Period	Climate Change	Rank	First X Surge	First Y Flood	First Z Overflow	O/F Act
1.000	15 Winter	30	0%	1				
1.001	15 Winter	30	0%	1				
1.002	15 Winter	30	0%	1				
1.003	15 Winter	30	0%	1				
2.000	30 Winter	30	0%	1				
2.001	30 Winter	30	0%	1				
2.002	15 Winter	30	0%	1				
2.003	15 Winter	30	0%	1				
1.004	15 Winter	30	0%	1	30/15 Summer			
1.005	360 Winter	30	0%	1		30/15 Summer		18
Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000		39.459	-0.132	0.000	0.35	0.0	12.6	0 K
1.001		39.410	-0.080	0.000	0.56	0.0	16.6	0 K
1.002		39.398	-0.060	0.000	0.47	0.0	16.4	0 K
1.003		39.369	-0.007	0.000	0.57	0.0	17.0	0 K
2.000		39.574	-0.147	0.000	0.25	0.0	7.4	0 K
2.001		39.572	-0.143	0.000	0.26	0.0	9.9	0 K
2.002		39.417	-0.089	0.000	0.52	0.0	18.9	0 K
2.003		39.383	-0.009	0.000	0.73	0.0	23.9	0 K
1.004		39.354	-0.016	0.000	1.11	0.0	40.0	SURCH'D 0 K
1.005		39.026	-0.599	0.000	0.00	1.6	0.0	0 K

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Summary Wizard of "CRITICAL BY RETURN PERIOD"(Rank 1 by Max Level)
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DTS Status ON Analysis Time Step Fine
DVD Status OFF

Profile(s)
Duration(s) (mins) Summer and Winter
Return Period(s) (years) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Climate Change (%) 0

PN	Storm	Return Period	Climate Change	Rank	First X Surge	First Y Flood	First Z Overflow	O/F Act
1.000	15 Winter	100	0%	1				
1.001	15 Winter	100	0%	1	100/15 Winter			
1.002	15 Winter	100	0%	1	100/15 Summer			
1.003	15 Winter	100	0%	1	100/15 Summer			
2.000	30 Winter	100	0%	1				
2.001	30 Winter	100	0%	1				
2.002	15 Winter	100	0%	1	100/15 Winter			
2.003	15 Winter	100	0%	1	100/15 Summer			
1.004	15 Winter	100	0%	1	100/15 Summer			
1.005	360 Winter	100	0%	1			100/15 Summer	18
Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000		39.521	-0.070	0.000	0.44	0.0	15.9	0 K
1.001		39.492	0.002	0.000	0.64	0.0	19.1	SURCH'ED
1.002		39.476	0.018	0.000	0.56	0.0	19.6	SURCH'ED
1.003		39.441	-0.065	0.000	0.69	0.0	20.6	SURCH'ED
2.000		39.595	-0.126	0.000	0.33	0.0	9.9	0 K
2.001		39.592	-0.123	0.000	0.40	0.0	15.1	0 K
2.002		39.507	0.001	0.000	0.58	0.0	20.9	SURCH'ED
2.003		39.465	0.073	0.000	0.89	0.0	29.0	SURCH'ED
1.004		39.422	0.084	0.000	1.36	0.0	49.0	SURCH'ED
1.005		39.113	-0.512	0.000	0.00	1.7	0.0	0 K

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

PN	Storm	Return Period	Climate Change	Rank	First X Surcharge	First Y Flood	First Z Overflow	O/F Act
1.000	15 Winter	100	30%	1	100/15 Summer			
1.001	15 Winter	100	30%	1	100/15 Summer			
1.002	15 Winter	100	30%	1	100/15 Summer			
1.003	15 Winter	100	30%	1	100/15 Summer			
2.000	30 Winter	100	30%	1	100/15 Summer			
2.001	30 Winter	100	30%	1	100/15 Summer			
2.002	15 Winter	100	30%	1	100/15 Summer			
2.003	15 Winter	100	30%	1	100/15 Summer			
1.004	15 Winter	100	30%	1	100/15 Summer			
1.005	480 Winter	100	30%	1	100/15 Summer		100/15 Summer	18
Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000		39.674	0.083	0.000	0.53	0.0	18.8	SURCH'ED
1.001		39.637	0.147	0.000	0.82	0.0	24.4	SURCH'ED
1.002		39.614	0.156	0.000	0.73	0.0	25.4	SURCH'ED
1.003		39.569	0.193	0.000	0.89	0.0	26.7	SURCH'ED
2.000		39.687	-0.034	0.000	0.47	0.0	14.1	OK
2.001		39.684	-0.031	0.000	0.53	0.0	19.9	OK
2.002		39.655	0.149	0.000	0.76	0.0	27.5	SURCH'ED
2.003		39.604	0.212	0.000	1.09	0.0	35.7	SURCH'ED
1.004		39.540	0.202	0.000	1.69	0.0	61.1	SURCH'ED
1.005		39.238	-0.387	0.000	0.00	1.7	0.0	OK

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Cellular Storage Details

Infil Coef - Base (m/hr)		Safety Factor		Invert Level (m)			
Infil Coef - Sides (m/hr)		Porosity		Ground Level (m)			
0.036000		0.95		0.500			
Depth (m)	Infil. Area (m ²)	Depth (m)	Infil. Area (m ²)	Depth (m)	Infil. Area (m ²)		
0.00	315.0	0.60	0.0	343.8	1.80	0.0	343.8
0.10	315.0	0.70	0.0	343.8	1.90	0.0	343.8
0.20	315.0	0.80	0.0	343.8	2.00	0.0	343.8
0.30	315.0	0.90	0.0	343.8	2.10	0.0	343.8
0.40	315.0	1.00	0.0	343.8	2.20	0.0	343.8
0.50	0.0	1.10	0.0	343.8	2.30	0.0	343.8

Note:
Infiltration Rate = 1 x 10 -5m/s