

Peter Brett Associates LLP		Page 1
Caversham Bridge House	Green Park Village	
Waterman Place	East	
Reading RG1 8DN	Surface Water Network	
Date 01 July 2010	Designed By VH	
File East.SIM	Checked By	
Micro Drainage	Simulation W.11.4 net	

Global Variables

Region	FSR - England & Wales
Return Period (yrs)	100
M5-60 (mm)	18.800
Ratio R	0.400
Volumetric Runoff Coef	0.750
Profile Type	Summer
PIMP (%)	100
Areal Reduction Factor	1.000
Storm Duration (mins)	30
Hot Start (mins)	0
Hot Start Level (mm)	0
Manhole Headloss Coefficient	0.500
MADD Factor * 10m ³ /ha Storage	2.000
Foul Sewage/Hectare (l/s)	0.00
Additional Flow - % of Total Flow	0
Inlet Coefficient	0.800
Number of Input Hydrographs	0
Number of Time/Area Diagrams	0
Number of Bifurcations	0
Number of Overflows	0
Number of Off-Line Controls	3
Number of On-Line Controls	4

Starting Storm file name

J:\11321\2002\Windes\Networks june 2010\compatibility\East.ews

Freely Discharging Outfalls

Outfall Pipe Number	Outfall MH/No	C.Level (m)	I.Level (m)	D,L (mm)	B (mm)
90.010	O/F 1	40.200	38.200	1200	0

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On-Line Controls (Non Return Valve)

US/PN	Volume (m ³)	Ctrl MH Name
90.009	2.068	19

On-Line Controls (Hydro-Brake®)

US/PN	Volume (m ³)	Ctrl MH Name	Invert (m)	Type	Dia (m)	D.Head (m)	D.Flow (l/s)	Headloss (m)	Flow (l/s)
90.007	3.841	5	38.297	Md3	0.091	1.700	10.5	0.1	3.2
								0.2	4.3
								0.3	4.4
								0.4	5.1
								0.5	5.7
								0.6	6.2
								0.7	6.7
								0.8	7.2
								0.9	7.6
								1.0	8.0
								1.2	8.8
								1.4	9.5
95.005	3.504	5	38.297	Md3	0.091	1.700	10.5	1.6	10.1
								1.8	10.8
								2.0	11.3
								0.1	3.2
								0.2	4.3
								0.3	4.4
								0.4	5.1
								0.5	5.7
								0.6	6.2
								0.7	6.7
								0.8	7.2
								0.9	7.6
97.000	0.263	5	38.297	Md3	0.091	1.700	10.5	1.0	8.0
								1.2	8.8
								1.4	9.5
								1.6	10.1
								1.8	10.8
								2.0	11.3
								0.1	3.2
								0.2	4.3
								0.3	4.4
								0.4	5.1
								0.5	5.7
								0.6	6.2
								0.7	6.7

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Off-line Weir Controls

DS/PN	Loop PN	MH Loss	Height above DS PN (m)	Width (m)	Discharge Coefficient
90.008	97.000	0.500	0.150	1.350	0.544

Off-line Flap Controls

DS/PN	Loop PN	MH Loss	Height above DS PN (m)	Diameter (m)	Coef of Contraction
90.008	90.008	0.500	0.000	0.100	0.600

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
97.000	0.500	0.000	east.SRC	Cellular Storage	Yes (capped) (lvl 39.502m)

Cellular Storage Details

Infil Coef - Base (m/hr) 0.000000 Porosity 0.95
 Infil Coef - Sides (m/hr) 0.000000 Invert Level (m) 0.000
 Safety Factor 2.0 Ground Level (m) 1.200

Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)
0.00	375.6	375.6	0.70	375.6	429.9	1.40	0.0	468.7	2.10	0.0	468.7
0.10	375.6	383.3	0.80	375.6	437.6	1.50	0.0	468.7	2.20	0.0	468.7
0.20	375.6	391.1	0.90	375.6	445.4	1.60	0.0	468.7	2.30	0.0	468.7
0.30	375.6	398.8	1.00	375.6	453.2	1.70	0.0	468.7	2.40	0.0	468.7
0.40	375.6	406.6	1.10	375.6	460.9	1.80	0.0	468.7	2.50	0.0	468.7
0.50	375.6	414.4	1.20	375.6	468.7	1.90	0.0	468.7			
0.60	375.6	422.1	1.30	0.0	468.7	2.00	0.0	468.7			

Orifice Outflow Control

Diameter (m) 0.800 Discharge Coefficient 0.600 Invert Level (m) 0.000

Weir / Flume Overflow Control

Discharge Coef 0.544 Width (m) 1.200 Crest Level (m) 0.150

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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)
90.000	16.70	0.068	245.6	0.054	4.00	1	0.600	o	300
91.000	16.50	0.099	166.7	0.003	4.00	1	0.600	o	225
90.001	31.40	0.128	245.3	0.016	0.00	1	0.600	o	300
90.002	39.50	0.161	245.3	0.084	0.00	1	0.600	o	300
90.003	38.53	0.095	405.6	0.066	0.00	1	0.600	o	450
90.004	45.59	0.112	407.0	0.057	0.00	1	0.600	o	450
92.000	31.34	0.128	244.8	0.073	4.00	1	0.600	o	300
90.005	23.79	0.058	410.2	0.050	0.00	1	0.600	o	450
93.000	39.48	0.161	245.2	0.039	4.00	1	0.600	o	300
93.001	32.22	0.132	244.1	0.137	0.00	1	0.600	o	300
93.002	23.29	0.095	245.2	0.066	0.00	1	0.600	o	300
90.006	23.43	0.057	411.1	0.018	0.00	1	0.600	o	450
94.000	34.00	0.200	170.0	0.047	4.00	1	0.600	o	225
90.007	25.50	0.063	404.8	0.032	0.00	1	0.600	o	450
95.000	22.50	0.092	244.6	0.076	4.00	1	0.600	o	300
95.001	26.90	0.110	244.5	0.036	0.00	1	0.600	o	300
95.002	11.32	0.046	246.1	0.034	0.00	1	0.600	o	300
96.000	18.54	0.185	100.2	0.036	4.00	1	0.600	o	150
95.003	49.87	0.122	408.8	0.021	0.00	1	0.600	o	450
95.004	42.90	0.105	408.6	0.050	0.00	1	0.600	o	450
95.005	23.38	0.057	410.2	0.033	0.00	1	0.600	o	450

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)
90.000	1	40.389	39.189	0.900	40.321	39.121	0.900		1200
91.000	2	40.420	39.295	0.900	40.321	39.196	0.900		1200
90.001	2	40.321	39.121	0.900	40.200	38.993	0.907		1200
90.002	2	40.200	38.993	0.907	40.200	38.832	1.068		1200
90.003	3	40.200	38.682	1.068	40.200	38.587	1.163		1350
90.004	3	40.200	38.587	1.163	40.200	38.475	1.275		1350
92.000	3	40.200	38.753	1.147	40.200	38.625	1.275		1200
90.005	3	40.200	38.475	1.275	40.200	38.417	1.333		1350
93.000	4	40.200	38.955	0.945	40.200	38.794	1.106		1200
93.001	4	40.200	38.794	1.106	40.200	38.662	1.238		1200
93.002	4	40.200	38.662	1.238	40.200	38.567	1.333		1200
90.006	4	40.200	38.417	1.333	40.200	38.360	1.390		1350
94.000	5	40.200	38.785	1.190	40.200	38.585	1.390		1200
90.007	5	40.200	38.360	1.390	40.200	38.297	1.453		1350
95.000	5	40.200	39.027	0.873	40.200	38.935	0.965		1200
95.001	5	40.200	38.935	0.965	40.200	38.825	1.075		1200
95.002	5	40.200	38.825	1.075	40.200	38.779	1.121		1200
96.000	5	40.200	39.114	0.936	40.200	38.929	1.121		1200
95.003	5	40.200	38.629	1.121	40.200	38.507	1.243		1350
95.004	5	40.200	38.507	1.243	40.200	38.402	1.348		1350
95.005	5	40.200	38.402	1.348	40.200	38.345	1.405		1350

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Date 01 July 2010	Designed By VH	
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Micro Drainage		Simulation W.11.4 net

Network Details

PN	Length (m)	Fall (m)	Slope (1:x)	Area (ha)	T.E. (mins)	Rain Pro	k (mm)	Hyd Sect	Dia (mm)
97.000	5.00	0.005	1000.6	0.000	4.00	1	0.600	o	300
90.008	4.60	0.011	418.1	0.000	0.00	1	0.600	o	450
90.009	13.90	0.034	408.8	0.000	0.00	1	0.600	o	450
90.010	1.00	0.002	500.3	0.000	0.00	1	0.600	o	450

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)
97.000	22	40.252	38.302	1.650	40.200	38.297	1.603		1200
90.008	5	40.200	38.297	1.453	40.200	38.286	1.464	9	1350
90.009	19	40.200	38.236	1.514	40.200	38.202	1.548		1350
90.010	19	40.200	38.202	1.548	40.200	38.200	1.550	3	450

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

Margin for Flood Risk warning (mm) 300
DTS Status ON
DVD Status ON
Inertia Status OFF
Analysis Time Step 2.5 second increment (extended)

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 30, 100
Climate Change (%) 0, 0

PN	Storm	Return Period	Climate Change	Rank	First X Surchage	First Y Flood	First Z Overflow	O/F Act
90.000	15 Summer	30	0%	1				
91.000	15 Summer	30	0%	1				
90.001	15 Winter	30	0%	1				
90.002	15 Winter	30	0%	1				
90.003	15 Winter	30	0%	1	100/15 Winter			
90.004	15 Winter	30	0%	1	100/15 Summer			
92.000	360 Winter	30	0%	1	100/240 Summer			
90.005	360 Winter	30	0%	1	30/30 Summer			
93.000	15 Winter	30	0%	1	100/15 Winter			
93.001	15 Winter	30	0%	1	100/15 Summer			
93.002	15 Winter	30	0%	1	30/15 Summer			
90.006	360 Winter	30	0%	1	30/240 Summer			
94.000	360 Winter	30	0%	1	100/120 Summer			
90.007	360 Winter	30	0%	1	30/120 Summer			
95.000	15 Summer	30	0%	1				
95.001	15 Winter	30	0%	1				
95.002	15 Winter	30	0%	1	100/240 Winter			
96.000	15 Summer	30	0%	1				
95.003	360 Winter	30	0%	1	100/120 Winter			
95.004	360 Winter	30	0%	1	30/360 Winter			
95.005	360 Winter	30	0%	1	30/240 Summer			
97.000	360 Winter	30	0%	1	30/15 Summer			0
90.008	360 Winter	30	0%	1	30/60 Summer		30/15 Summer	36
90.009	240 Winter	30	0%	1				
90.010	240 Winter	30	0%	1				

Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
	90.000	39.305	-0.184	0.000	0.31	0.0	18.4	0 K
	91.000	39.320	-0.200	0.000	0.03	0.0	1.0	0 K
	90.001	39.253	-0.168	0.000	0.37	0.0	24.0	0 K
	90.002	39.195	-0.098	0.000	0.76	0.0	49.6	0 K
	90.003	39.064	-0.068	0.000	0.45	0.0	64.2	0 K
	90.004	39.002	-0.035	0.000	0.44	0.0	62.7	0 K
	92.000	38.965	-0.088	0.000	0.05	0.0	3.2	0 K
	90.005	38.964	0.039	0.000	0.11	0.0	14.6	SURCH'ED
	93.000	39.076	-0.179	0.000	0.19	0.0	12.6	0 K
	93.001	39.058	-0.036	0.000	0.79	0.0	50.8	0 K
	93.002	38.979	0.017	0.000	1.10	0.0	68.8	SURCH'ED
	90.006	38.966	0.099	0.000	0.18	0.0	24.2	SURCH'ED
	94.000	38.962	-0.048	0.000	0.06	0.0	2.1	0 K
	90.007	38.963	0.153	0.000	0.20	0.0	27.1	SURCH'ED
	95.000	39.163	-0.164	0.000	0.41	0.0	25.8	0 K
	95.001	39.103	-0.132	0.000	0.58	0.0	36.8	0 K
	95.002	39.038	-0.087	0.000	0.84	0.0	47.6	0 K
	96.000	39.211	-0.053	0.000	0.74	0.0	12.3	0 K
	95.003	38.961	-0.118	0.000	0.06	0.0	9.0	0 K
	95.004	38.961	0.004	0.000	0.07	0.0	9.9	SURCH'ED
	95.005	38.962	0.110	0.000	0.08	0.0	9.9	SURCH'ED
	97.000	38.959	0.357	0.000	0.27	0.0	12.4	SURCH'ED
	90.008	38.967	0.220	0.000	0.06	19.8	6.4	SURCH'ED
	90.009	38.310	-0.376	0.000	0.06	0.0	6.4	0 K
	90.010	38.265	-0.387	0.000	0.05	0.0	6.4	0 K

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Date 01 July 2010 File EAST.SUM	Designed By VH Checked By	
Micro Drainage		
Simulation W.11.4 net		

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

Margin for Flood Risk warning (mm) 300
DTS Status ON
DVD Status ON
Inertia Status OFF
Analysis Time Step 2.5 second increment (extended)

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 30, 100
Climate Change (%) 0, 0

PN	Storm	Return Period	Climate Change	Rank	First X Surchage	First Y Flood	First Z Overflow	O/F Act
90.000	15 Summer	100	0%	1				
91.000	15 Winter	100	0%	1				
90.001	15 Winter	100	0%	1				
90.002	15 Winter	100	0%	1				
90.003	360 Winter	100	0%	1	100/15 Winter			
90.004	360 Winter	100	0%	1	100/15 Summer			
92.000	360 Winter	100	0%	1	100/240 Summer			
90.005	360 Winter	100	0%	1	30/30 Summer			
93.000	15 Winter	100	0%	1	100/15 Winter			
93.001	15 Winter	100	0%	1	100/15 Summer			
93.002	360 Winter	100	0%	1	30/15 Summer			
90.006	360 Winter	100	0%	1	30/240 Summer			
94.000	360 Winter	100	0%	1	100/120 Summer			
90.007	360 Winter	100	0%	1	30/120 Summer			
95.000	360 Winter	100	0%	1				
95.001	360 Winter	100	0%	1				
95.002	360 Winter	100	0%	1	100/240 Winter			
96.000	15 Summer	100	0%	1				
95.003	360 Winter	100	0%	1	100/120 Winter			
95.004	360 Winter	100	0%	1	30/360 Winter			
95.005	360 Winter	100	0%	1	30/240 Summer			
97.000	360 Winter	100	0%	1	30/15 Summer			0
90.008	360 Winter	100	0%	1	30/60 Summer		30/15 Summer	36
90.009	240 Winter	100	0%	1				
90.010	240 Winter	100	0%	1				

Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
	90.000	39.328	-0.161	0.000	0.39	0.0	23.7	0 K
	91.000	39.324	-0.196	0.000	0.04	0.0	1.3	0 K
	90.001	39.283	-0.138	0.000	0.47	0.0	30.4	0 K
	90.002	39.249	-0.044	0.000	0.95	0.0	62.1	0 K
	90.003	39.204	0.072	0.000	0.09	0.0	12.9	SURCH'ED
	90.004	39.204	0.167	0.000	0.11	0.0	16.1	SURCH'ED
	92.000	39.204	0.151	0.000	0.07	0.0	4.3	SURCH'ED
	90.005	39.203	0.278	0.000	0.18	0.0	23.2	SURCH'ED
	93.000	39.278	0.023	0.000	0.22	0.0	14.4	SURCH'ED
	93.001	39.261	0.167	0.000	0.95	0.0	61.6	SURCH'ED
	93.002	39.203	0.241	0.000	0.22	0.0	14.1	SURCH'ED
	90.006	39.203	0.336	0.000	0.29	0.0	38.3	SURCH'ED
	94.000	39.200	0.190	0.000	0.07	0.0	2.7	SURCH'ED
	90.007	39.202	0.392	0.000	0.31	0.0	41.8	SURCH'ED
	95.000	39.200	-0.127	0.000	0.07	0.0	4.4	0 K
	95.001	39.199	-0.036	0.000	0.10	0.0	6.5	0 K
	95.002	39.199	0.074	0.000	0.15	0.0	8.5	SURCH'ED
	96.000	39.231	-0.033	0.000	0.96	0.0	16.0	0 K
	95.003	39.198	0.119	0.000	0.08	0.0	11.5	SURCH'ED
	95.004	39.198	0.241	0.000	0.09	0.0	13.1	SURCH'ED
	95.005	39.199	0.347	0.000	0.11	0.0	14.3	SURCH'ED
	97.000	39.195	0.593	0.000	0.35	0.0	16.2	SURCH'ED
	90.008	39.201	0.454	0.000	0.06	30.1	7.5	SURCH'ED
	90.009	38.316	-0.370	0.000	0.07	0.0	7.4	0 K
	90.010	38.270	-0.382	0.000	0.06	0.0	7.5	0 K

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

Margin for Flood Risk warning (mm)	300
DTS Status	ON
DVD Status	ON
Inertia Status	OFF
Analysis Time Step	2.5 second increment (extended)

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

PN	Storm	Return Period	Climate Change	Rank	First X Surchage	First Y Flood	First Z Overflow	O/F Act
90.000	15 Winter	100	30%	1	100/15 Summer			
91.000	15 Winter	100	30%	1	100/15 Winter			
90.001	15 Winter	100	30%	1	100/15 Summer			
90.002	480 Winter	100	30%	1	100/15 Summer			
90.003	360 Winter	100	30%	1	100/15 Summer			
90.004	360 Winter	100	30%	1	100/15 Summer			
92.000	480 Winter	100	30%	1	100/15 Summer			
90.005	360 Winter	100	30%	1	100/15 Summer			
93.000	15 Winter	100	30%	1	100/15 Summer			
93.001	15 Winter	100	30%	1	100/15 Summer			
93.002	360 Winter	100	30%	1	100/15 Summer			
90.006	360 Winter	100	30%	1	100/15 Summer			
94.000	360 Winter	100	30%	1	100/15 Summer			
90.007	360 Winter	100	30%	1	100/15 Summer			
95.000	480 Winter	100	30%	1	100/240 Summer			
95.001	480 Winter	100	30%	1	100/15 Summer			
95.002	360 Winter	100	30%	1	100/15 Summer			
96.000	480 Winter	100	30%	1	100/15 Summer			
95.003	360 Winter	100	30%	1	100/60 Summer			
95.004	360 Winter	100	30%	1	100/30 Summer			
95.005	360 Winter	100	30%	1	100/30 Summer			
97.000	360 Winter	100	30%	1	100/15 Summer			0
90.008	360 Winter	100	30%	1	100/15 Summer		100/15 Summer	18
90.009	360 Winter	100	30%	1				
90.010	360 Winter	100	30%	1				

Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
	90.000	39.607	0.118	0.000	0.48	0.0	28.6	SURCH'ED
	91.000	39.590	0.070	0.000	0.06	0.0	2.0	SURCH'ED
	90.001	39.588	0.167	0.000	0.47	0.0	30.5	SURCH'ED
	90.002	39.540	0.247	0.000	0.14	0.0	9.4	SURCH'ED
	90.003	39.540	0.408	0.000	0.12	0.0	16.3	SURCH'ED
	90.004	39.541	0.504	0.000	0.14	0.0	20.2	SURCH'ED
	92.000	39.538	0.485	0.000	0.07	0.0	4.3	SURCH'ED
	90.005	39.541	0.616	0.000	0.22	0.0	29.1	SURCH'ED
	93.000	39.706	0.451	0.000	0.26	0.0	16.7	SURCH'ED
	93.001	39.684	0.590	0.000	1.22	0.0	78.8	SURCH'ED
	93.002	39.540	0.578	0.000	0.28	0.0	17.7	SURCH'ED
	90.006	39.538	0.671	0.000	0.35	0.0	45.8	SURCH'ED
	94.000	39.533	0.523	0.000	0.09	0.0	3.3	SURCH'ED
	90.007	39.534	0.724	0.000	0.37	0.0	49.1	SURCH'ED
	95.000	39.535	0.208	0.000	0.07	0.0	4.6	SURCH'ED
	95.001	39.534	0.299	0.000	0.11	0.0	6.7	SURCH'ED
	95.002	39.534	0.409	0.000	0.19	0.0	10.9	SURCH'ED
	96.000	39.533	0.269	0.000	0.13	0.0	2.2	SURCH'ED
	95.003	39.536	0.457	0.000	0.10	0.0	14.9	SURCH'ED
	95.004	39.534	0.577	0.000	0.13	0.0	18.0	SURCH'ED
	95.005	39.533	0.681	0.000	0.15	0.0	20.1	SURCH'ED
	97.000	39.528	0.926	0.000	0.23	0.0	10.6	SURCH'ED
	90.008	39.530	0.783	0.000	0.08	41.9	8.8	SURCH'ED
	90.009	38.324	-0.362	0.000	0.09	0.0	8.8	0 K
	90.010	38.277	-0.375	0.000	0.07	0.0	8.8	0 K