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Ground Floor, 24 High Street Whittlesford Cams, CB22 4LT	48 MIDDLE WATCH SWAVESEY CAMBRIDGESHIRE DRAINAGE CALCS Rev A	
Date 14/02/2024 11:17 File 3240-STORAGE CALCS.SRCX	Designed by JTC Checked by	
Innovyze	Source Control 2020.1	

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 243 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E (l/s)	Max Outflow Volume (m ³)	Status
15 min Summer	6.418	0.618	0.0	0.9	0.9	15.0	Flood Risk
30 min Summer	6.504	0.704	0.0	1.0	1.0	19.2	Flood Risk
60 min Summer	6.575	0.775	0.0	1.1	1.1	22.6	Flood Risk
120 min Summer	6.659	0.859	0.0	1.1	1.1	26.6	Flood Risk
180 min Summer	6.688	0.888	0.0	1.1	1.1	28.0	Flood Risk
240 min Summer	6.694	0.894	0.0	1.1	1.1	28.3	Flood Risk
360 min Summer	6.682	0.882	0.0	1.1	1.1	27.7	Flood Risk
480 min Summer	6.657	0.857	0.0	1.1	1.1	26.5	Flood Risk
600 min Summer	6.628	0.828	0.0	1.1	1.1	25.1	Flood Risk
720 min Summer	6.598	0.798	0.0	1.1	1.1	23.7	Flood Risk
960 min Summer	6.542	0.742	0.0	1.0	1.0	21.0	Flood Risk
1440 min Summer	6.447	0.647	0.0	1.0	1.0	16.4	Flood Risk
2160 min Summer	6.343	0.543	0.0	0.9	0.9	11.4	O K
2880 min Summer	6.272	0.472	0.0	0.8	0.8	8.0	O K
4320 min Summer	6.188	0.388	0.0	0.7	0.7	4.4	O K
5760 min Summer	6.070	0.270	0.0	0.6	0.6	3.1	O K
7200 min Summer	6.007	0.207	0.0	0.5	0.5	2.4	O K
8640 min Summer	5.967	0.167	0.0	0.5	0.5	1.9	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	173.604	0.0	15.7	18
30 min Summer	112.002	0.0	20.5	33
60 min Summer	68.517	0.0	25.2	62
120 min Summer	43.426	0.0	32.2	122
180 min Summer	32.780	0.0	36.5	180
240 min Summer	26.563	0.0	39.5	206
360 min Summer	19.366	0.0	43.2	268
480 min Summer	15.275	0.0	45.5	334
600 min Summer	12.627	0.0	47.0	404
720 min Summer	10.771	0.0	48.1	470
960 min Summer	8.333	0.0	49.5	606
1440 min Summer	5.755	0.0	51.2	866
2160 min Summer	3.951	0.0	52.5	1236
2880 min Summer	3.029	0.0	53.5	1588
4320 min Summer	2.105	0.0	55.3	2252
5760 min Summer	1.642	0.0	57.2	2992
7200 min Summer	1.373	0.0	59.4	3680
8640 min Summer	1.199	0.0	61.9	4408

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Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Summer	5.941	0.141	0.0	0.4	0.4	1.6	O K
15 min Winter	6.418	0.618	0.0	0.9	0.9	15.0	Flood Risk
30 min Winter	6.505	0.705	0.0	1.0	1.0	19.2	Flood Risk
60 min Winter	6.576	0.776	0.0	1.1	1.1	22.6	Flood Risk
120 min Winter	6.661	0.861	0.0	1.1	1.1	26.7	Flood Risk
180 min Winter	6.692	0.892	0.0	1.1	1.1	28.2	Flood Risk
240 min Winter	6.697	0.897	0.0	1.1	1.1	28.4	Flood Risk
360 min Winter	6.679	0.879	0.0	1.1	1.1	27.6	Flood Risk
480 min Winter	6.648	0.848	0.0	1.1	1.1	26.1	Flood Risk
600 min Winter	6.611	0.811	0.0	1.1	1.1	24.3	Flood Risk
720 min Winter	6.574	0.774	0.0	1.0	1.0	22.5	Flood Risk
960 min Winter	6.502	0.702	0.0	1.0	1.0	19.0	Flood Risk
1440 min Winter	6.384	0.584	0.0	0.9	0.9	13.4	O K
2160 min Winter	6.262	0.462	0.0	0.8	0.8	7.5	O K
2880 min Winter	6.187	0.387	0.0	0.7	0.7	4.4	O K
4320 min Winter	6.012	0.212	0.0	0.5	0.5	2.4	O K
5760 min Winter	5.938	0.138	0.0	0.4	0.4	1.6	O K
7200 min Winter	5.901	0.101	0.0	0.4	0.4	1.2	O K
8640 min Winter	5.880	0.080	0.0	0.3	0.3	0.9	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Summer	1.080	0.0	64.8	5144
15 min Winter	173.604	0.0	15.7	18
30 min Winter	112.002	0.0	20.5	32
60 min Winter	68.517	0.0	25.2	62
120 min Winter	43.426	0.0	32.2	118
180 min Winter	32.780	0.0	36.5	174
240 min Winter	26.563	0.0	39.5	224
360 min Winter	19.366	0.0	43.2	280
480 min Winter	15.275	0.0	45.5	356
600 min Winter	12.627	0.0	47.0	432
720 min Winter	10.771	0.0	48.1	506
960 min Winter	8.333	0.0	49.5	646
1440 min Winter	5.755	0.0	51.2	910
2160 min Winter	3.951	0.0	52.5	1276
2880 min Winter	3.029	0.0	53.5	1584
4320 min Winter	2.105	0.0	55.3	2288
5760 min Winter	1.642	0.0	57.2	2992
7200 min Winter	1.373	0.0	59.4	3680
8640 min Winter	1.199	0.0	62.0	4408

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Winter	5.867	0.067	0.0	0.3	0.3	0.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Winter	1.080	0.0	64.8	5136

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 536281 268323 TL 36281 68323
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.038

Time (mins)		Area
From:	To:	(ha)
0	4	0.038

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Model Details

Storage is Online Cover Level (m) 6.700

Complex Structure

Cellular Storage

Invert Level (m) 5.800 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	12.0	12.0	0.401	0.0	17.5
0.400	12.0	17.5			

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000 Width (m) 16.0
 Membrane Percolation (mm/hr) 1000 Length (m) 10.0
 Max Percolation (l/s) 44.4 Slope (1:X) 0.0
 Safety Factor 2.0 Depression Storage (mm) 5
 Porosity 0.30 Evaporation (mm/day) 3
 Invert Level (m) 6.200 Membrane Depth (m) 0

Orifice Outflow Control

Diameter (m) 0.024 Discharge Coefficient 0.600 Invert Level (m) 5.800