

# UK Design Flood Estimation

Generated on Tuesday, October 03, 2017 2:44:24 PM by Jan Clark  
Printed from the ReFH Flood Modelling software package, version 2.2.6029.28099

## Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH)

### Site details

Checksum: C7D7-70F5

Site name: FEH\_Catchment\_Descriptors\_377900\_144050

Easting: 377900

Northing: 144050

Country: England, Wales or Northern Ireland

Catchment Area (km<sup>2</sup>): 11.49

Using plot scale calculations: No

Site description: None

## Model run: 100 year

### Summary of results

Rainfall - FEH 2013 (mm):	73.22	Total runoff (ML):	203.58
Total Rainfall (mm):	54.05	Total flow (ML):	463.69
Peak Rainfall (mm):	9.22	Peak flow (m <sup>3</sup> /s):	8.73

### Parameters

*Where the user has overridden a system-generated value, this original value is shown in square brackets after the value used.*

*\* Indicates that the user locked the duration/timestep*

#### Rainfall parameters (Rainfall - FEH 2013 model)

Name	Value	User-defined?
Duration (hh:mm:ss)	07:30:00	No
Timestep (hh:mm:ss)	00:30:00	No
SCF (Seasonal correction factor)	0.77	No
ARF (Areal reduction factor)	0.96	No
Seasonality	Winter	n/a

#### Loss model parameters

Name	Value	User-defined?
Cini (mm)	107.84	No
Cmax (mm)	412.05	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

#### Routing model parameters

Name	Value	User-defined?
Tp (hr)	3.66	No
Up	0.65	No
Uk	0.8	No

#### Baseflow model parameters

Name	Value	User-defined?
BF0 (m <sup>3</sup> /s)	0.5	No
BL (hr)	46.22	No
BR	1.28	No

#### Urbanisation parameters

Name	Value	User-defined?
Urban area (km <sup>2</sup> )	0.05	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.3	No
Tp scaling factor	0.5	No
Sewered area (km <sup>2</sup> )	0.00	Yes
Sewer capacity (m <sup>3</sup> /s)	0.00	Yes

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m <sup>3</sup> /s)	Baseflow (m <sup>3</sup> /s)	Total Flow (m <sup>3</sup> /s)
00:00:00	0.808	0.000	0.213	0.000	0.504	0.504
00:30:00	1.181	0.000	0.314	0.008	0.498	0.507
01:00:00	1.721	0.000	0.463	0.038	0.493	0.531
01:30:00	2.501	0.000	0.686	0.097	0.489	0.586
02:00:00	3.620	0.000	1.020	0.202	0.485	0.688
02:30:00	5.204	0.000	1.521	0.374	0.484	0.858
03:00:00	7.379	0.000	2.270	0.646	0.486	1.131
03:30:00	9.222	0.000	3.022	1.065	0.492	1.557
04:00:00	7.379	0.000	2.567	1.685	0.506	2.190
04:30:00	5.204	0.000	1.890	2.495	0.529	3.023
05:00:00	3.620	0.000	1.353	3.434	0.563	3.997
05:30:00	2.501	0.000	0.954	4.434	0.611	5.044
06:00:00	1.721	0.000	0.665	5.425	0.671	6.096
06:30:00	1.181	0.000	0.460	6.337	0.744	7.081
07:00:00	0.808	0.000	0.317	7.085	0.828	7.913
07:30:00	0.000	0.000	0.000	7.567	0.920	8.487
08:00:00	0.000	0.000	0.000	7.713	1.015	8.728
08:30:00	0.000	0.000	0.000	7.570	1.109	8.679
09:00:00	0.000	0.000	0.000	7.218	1.199	8.417
09:30:00	0.000	0.000	0.000	6.726	1.282	8.007
10:00:00	0.000	0.000	0.000	6.148	1.357	7.505
10:30:00	0.000	0.000	0.000	5.532	1.422	6.955
11:00:00	0.000	0.000	0.000	4.919	1.479	6.398
11:30:00	0.000	0.000	0.000	4.347	1.527	5.874
12:00:00	0.000	0.000	0.000	3.839	1.567	5.406
12:30:00	0.000	0.000	0.000	3.382	1.600	4.982
13:00:00	0.000	0.000	0.000	2.961	1.627	4.588
13:30:00	0.000	0.000	0.000	2.567	1.647	4.214
14:00:00	0.000	0.000	0.000	2.195	1.663	3.858
14:30:00	0.000	0.000	0.000	1.843	1.672	3.515
15:00:00	0.000	0.000	0.000	1.509	1.678	3.186
15:30:00	0.000	0.000	0.000	1.192	1.678	2.870
16:00:00	0.000	0.000	0.000	0.897	1.675	2.571
16:30:00	0.000	0.000	0.000	0.636	1.667	2.303
17:00:00	0.000	0.000	0.000	0.423	1.656	2.079

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m <sup>3</sup> /s)	Baseflow (m <sup>3</sup> /s)	Total Flow (m <sup>3</sup> /s)
17:30:00	0.000	0.000	0.000	0.268	1.643	1.911
18:00:00	0.000	0.000	0.000	0.161	1.629	1.790
18:30:00	0.000	0.000	0.000	0.091	1.613	1.704
19:00:00	0.000	0.000	0.000	0.046	1.597	1.643
19:30:00	0.000	0.000	0.000	0.020	1.580	1.599
20:00:00	0.000	0.000	0.000	0.006	1.563	1.569
20:30:00	0.000	0.000	0.000	0.000	1.546	1.547
21:00:00	0.000	0.000	0.000	0.000	1.530	1.530
21:30:00	0.000	0.000	0.000	0.000	1.513	1.513
22:00:00	0.000	0.000	0.000	0.000	1.497	1.497
22:30:00	0.000	0.000	0.000	0.000	1.481	1.481
23:00:00	0.000	0.000	0.000	0.000	1.465	1.465
23:30:00	0.000	0.000	0.000	0.000	1.449	1.449
24:00:00	0.000	0.000	0.000	0.000	1.433	1.433
24:30:00	0.000	0.000	0.000	0.000	1.418	1.418
25:00:00	0.000	0.000	0.000	0.000	1.403	1.403
25:30:00	0.000	0.000	0.000	0.000	1.388	1.388
26:00:00	0.000	0.000	0.000	0.000	1.373	1.373
26:30:00	0.000	0.000	0.000	0.000	1.358	1.358
27:00:00	0.000	0.000	0.000	0.000	1.343	1.343
27:30:00	0.000	0.000	0.000	0.000	1.329	1.329
28:00:00	0.000	0.000	0.000	0.000	1.315	1.315
28:30:00	0.000	0.000	0.000	0.000	1.300	1.300
29:00:00	0.000	0.000	0.000	0.000	1.286	1.286
29:30:00	0.000	0.000	0.000	0.000	1.273	1.273
30:00:00	0.000	0.000	0.000	0.000	1.259	1.259
30:30:00	0.000	0.000	0.000	0.000	1.245	1.245
31:00:00	0.000	0.000	0.000	0.000	1.232	1.232
31:30:00	0.000	0.000	0.000	0.000	1.219	1.219
32:00:00	0.000	0.000	0.000	0.000	1.206	1.206
32:30:00	0.000	0.000	0.000	0.000	1.193	1.193
33:00:00	0.000	0.000	0.000	0.000	1.180	1.180
33:30:00	0.000	0.000	0.000	0.000	1.167	1.167
34:00:00	0.000	0.000	0.000	0.000	1.155	1.155
34:30:00	0.000	0.000	0.000	0.000	1.142	1.142
35:00:00	0.000	0.000	0.000	0.000	1.130	1.130

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m <sup>3</sup> /s)	Baseflow (m <sup>3</sup> /s)	Total Flow (m <sup>3</sup> /s)
35:30:00	0.000	0.000	0.000	0.000	1.118	1.118
36:00:00	0.000	0.000	0.000	0.000	1.106	1.106
36:30:00	0.000	0.000	0.000	0.000	1.094	1.094
37:00:00	0.000	0.000	0.000	0.000	1.082	1.082
37:30:00	0.000	0.000	0.000	0.000	1.070	1.070
38:00:00	0.000	0.000	0.000	0.000	1.059	1.059
38:30:00	0.000	0.000	0.000	0.000	1.047	1.047
39:00:00	0.000	0.000	0.000	0.000	1.036	1.036
39:30:00	0.000	0.000	0.000	0.000	1.025	1.025
40:00:00	0.000	0.000	0.000	0.000	1.014	1.014
40:30:00	0.000	0.000	0.000	0.000	1.003	1.003
41:00:00	0.000	0.000	0.000	0.000	0.992	0.992
41:30:00	0.000	0.000	0.000	0.000	0.982	0.982
42:00:00	0.000	0.000	0.000	0.000	0.971	0.971
42:30:00	0.000	0.000	0.000	0.000	0.961	0.961
43:00:00	0.000	0.000	0.000	0.000	0.950	0.950
43:30:00	0.000	0.000	0.000	0.000	0.940	0.940
44:00:00	0.000	0.000	0.000	0.000	0.930	0.930
44:30:00	0.000	0.000	0.000	0.000	0.920	0.920
45:00:00	0.000	0.000	0.000	0.000	0.910	0.910
45:30:00	0.000	0.000	0.000	0.000	0.900	0.900
46:00:00	0.000	0.000	0.000	0.000	0.891	0.891
46:30:00	0.000	0.000	0.000	0.000	0.881	0.881
47:00:00	0.000	0.000	0.000	0.000	0.872	0.872
47:30:00	0.000	0.000	0.000	0.000	0.862	0.862
48:00:00	0.000	0.000	0.000	0.000	0.853	0.853
48:30:00	0.000	0.000	0.000	0.000	0.844	0.844
49:00:00	0.000	0.000	0.000	0.000	0.835	0.835
49:30:00	0.000	0.000	0.000	0.000	0.826	0.826
50:00:00	0.000	0.000	0.000	0.000	0.817	0.817
50:30:00	0.000	0.000	0.000	0.000	0.808	0.808
51:00:00	0.000	0.000	0.000	0.000	0.799	0.799
51:30:00	0.000	0.000	0.000	0.000	0.791	0.791
52:00:00	0.000	0.000	0.000	0.000	0.782	0.782
52:30:00	0.000	0.000	0.000	0.000	0.774	0.774
53:00:00	0.000	0.000	0.000	0.000	0.765	0.765

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m <sup>3</sup> /s)	Baseflow (m <sup>3</sup> /s)	Total Flow (m <sup>3</sup> /s)
53:30:00	0.000	0.000	0.000	0.000	0.757	0.757
54:00:00	0.000	0.000	0.000	0.000	0.749	0.749
54:30:00	0.000	0.000	0.000	0.000	0.741	0.741
55:00:00	0.000	0.000	0.000	0.000	0.733	0.733
55:30:00	0.000	0.000	0.000	0.000	0.725	0.725
56:00:00	0.000	0.000	0.000	0.000	0.717	0.717
56:30:00	0.000	0.000	0.000	0.000	0.710	0.710
57:00:00	0.000	0.000	0.000	0.000	0.702	0.702
57:30:00	0.000	0.000	0.000	0.000	0.694	0.694
58:00:00	0.000	0.000	0.000	0.000	0.687	0.687
58:30:00	0.000	0.000	0.000	0.000	0.680	0.680
59:00:00	0.000	0.000	0.000	0.000	0.672	0.672
59:30:00	0.000	0.000	0.000	0.000	0.665	0.665
60:00:00	0.000	0.000	0.000	0.000	0.658	0.658
60:30:00	0.000	0.000	0.000	0.000	0.651	0.651
61:00:00	0.000	0.000	0.000	0.000	0.644	0.644
61:30:00	0.000	0.000	0.000	0.000	0.637	0.637
62:00:00	0.000	0.000	0.000	0.000	0.630	0.630
62:30:00	0.000	0.000	0.000	0.000	0.623	0.623
63:00:00	0.000	0.000	0.000	0.000	0.617	0.617
63:30:00	0.000	0.000	0.000	0.000	0.610	0.610
64:00:00	0.000	0.000	0.000	0.000	0.603	0.603
64:30:00	0.000	0.000	0.000	0.000	0.597	0.597
65:00:00	0.000	0.000	0.000	0.000	0.590	0.590
65:30:00	0.000	0.000	0.000	0.000	0.584	0.584
66:00:00	0.000	0.000	0.000	0.000	0.578	0.578
66:30:00	0.000	0.000	0.000	0.000	0.572	0.572
67:00:00	0.000	0.000	0.000	0.000	0.565	0.565
67:30:00	0.000	0.000	0.000	0.000	0.559	0.559
68:00:00	0.000	0.000	0.000	0.000	0.553	0.553
68:30:00	0.000	0.000	0.000	0.000	0.547	0.547
69:00:00	0.000	0.000	0.000	0.000	0.541	0.541
69:30:00	0.000	0.000	0.000	0.000	0.536	0.536
70:00:00	0.000	0.000	0.000	0.000	0.530	0.530
70:30:00	0.000	0.000	0.000	0.000	0.524	0.524
71:00:00	0.000	0.000	0.000	0.000	0.519	0.519

<b>Time (hh:mm:ss)</b>	<b>Rain (mm)</b>	<b>Sewer Loss (mm)</b>	<b>Net Rain (mm)</b>	<b>Runoff (m<sup>3</sup>/s)</b>	<b>Baseflow (m<sup>3</sup>/s)</b>	<b>Total Flow (m<sup>3</sup>/s)</b>
71:30:00	0.000	0.000	0.000	0.000	0.513	0.513
72:00:00	0.000	0.000	0.000	0.000	0.507	0.507

## Appendix

### Catchment descriptors

Name	Value	User-defined value used?
Area (km <sup>2</sup> )	11.49	No
ALTBAR	160	No
ASPBAR	338	No
ASPVAR	0.27	No
BFIHOST	0.51	No
DPLBAR (km)	4.81	No
DPSBAR (mkm <sup>-1</sup> )	86.7	No
FARL	0.96	No
LDP	8.38	No
PROPWET (mm)	0.36	No
RMED1H	11	No
RMED1D	34.9	No
RMED2D	45	No
SAAR (mm)	940	No
SAAR4170 (mm)	933	No
SPRHOST	36.85	No
Urbext2000	0	No
Urbext1990	0	No
URBCONC	0	No
URBLOC	0	No
Urban Area (km <sup>2</sup> )	0.05	No
DDF parameter C	-0.03	No
DDF parameter D1	0.37	No
DDF parameter D2	0.35	No
DDF parameter D3	0.34	No
DDF parameter E	0.3	No
DDF parameter F	2.48	No
DDF parameter C (1km grid value)	-0.03	No
DDF parameter D1 (1km grid value)	0.38	No
DDF parameter D2 (1km grid value)	0.33	No
DDF parameter D3 (1km grid value)	0.34	No
DDF parameter E (1km grid value)	0.29	No
DDF parameter F (1km grid value)	2.49	No