

Mate Geo-Technic Services

Report prepared by RC
Sunday 09 August 2026
Revision 01

#1 Burley Road Summerley Estate, Felpham PO22 7NF -- FP/73/26/DoC

Calculation using Rainfall Model Data as :-

The Rainfall Data is FEH with the Rainfall Model of FEH22

The Site Location is GB 496617 99691 with Ordnance Survey reference SZ 96617 99691

Using AppVersion FEH Web Service (2.13.9615.22806) from data Version 1.0.0 and the Data Type is Point

With the following Point Descriptors

bfihost -- 0.607

bfihost19 -- 0.54

bfihost19Scaled -- 0.54

propwet -- 0.34

saar6190 -- 709

saar9120 -- 762

The Design Parameters for the Proposed Geocellular Soakaway Installation, S/A #1, located in the main south garden, are as follows :-

The Minimum Soil Infiltration Rate from testing is 3.745E-6 metres / second.

Climate Change for 1% AEP (100 year) Storm Event is at 45% addition to Rainfall Intensity.

The Installation consists of a GeoCellular Structure of 6.000 metres Long by 12.000 metres Wide and 0.300 metres High.

With a Cover Depth of 0.350 metres.

Percentage Void Space (Porosity) of 95%.

Total Contributing Impermeable Area specified as 217.80 square metres.

A +10% addition for Urban Creep allowance on all Domestic Habitable Roof Areas has been applied here.

Using a Factor-of-Safety of 3 for the Volumetric Runoff Coefficient $C_v=1.0$

The Side Areas are NOT Included in the Calculations with only a Factored Soil Infiltration Rate for the Base of 1.248E-6 metres / second.

This is for a 'blanket solution' to best replicate natural catchments.

All Levels are referenced to 'Above Ordnance Datum' (AOD).

The Peak Groundwater was recorded at the Location of the Proposed Structure at 4.331 metres AOD, at a minimum depth of 1.669 metres Below Ground Level (BGL).

The Ground Level at the Location of the Proposed Structure is 6.000 metres.

The Soffit Level of the Proposed Geocellular Soakaway is 5.650 metres.

The Base Level of the Proposed Structure is 5.350 metres.

The Base of the Geocellular Soakaway Installation is 1.019 metres above the Peak Recorded Groundwater (Freeboard) at the location of the Structure. This meets the Suds Manual Guidance.

FEH Rainfall Data using the Rainfall Model of FEH22 -- 1% AEP (100 Year) Storm Event with 45% Climate Change Addition to Rainfall Intensity.

Storm Duration	5-year Rain (mm)	1% AEP (100 Year) Rain (mm)	1% AEP (100 Year) + 45% (mm)	Inflow (Cu.Mtrs)	Outflow (Cu.Mtrs)	Storage (Cu.Mtrs)	Water Height (mm)	Soakaway Status
0.25 hours	12.73	25.56	37.06	8.072	0.081	7.991	117	OK
0.5 hours	16.52	34.16	49.53	10.788	0.162	10.626	155	OK
0.75 hours	18.97	39.76	57.65	12.556	0.243	12.313	180	OK
1 hour	20.81	43.82	63.54	13.839	0.324	13.515	198	OK
1.5 hours	24.19	48.95	70.98	15.459	0.485	14.974	219	OK
2 hours	26.86	52.52	76.15	16.585	0.647	15.938	233	OK
3 hours	30.48	57.88	83.93	18.280	0.971	17.309	253	OK
4 hours	32.99	61.76	89.55	19.504	1.294	18.210	266	OK
5 hours	34.83	64.78	93.93	20.458	1.618	18.840	275	OK
6 hours	36.29	67.26	97.53	21.242	1.941	19.301	282	OK
7 hours	37.50	69.34	100.54	21.898	2.265	19.633	287	OK
8 hours	38.54	71.13	103.14	22.464	2.589	19.875	291	OK
9 hours	39.46	72.71	105.43	22.963	2.912	20.051	293	OK
10 hours	40.29	74.12	107.47	23.407	3.236	20.171	295	OK
11 hours	41.03	75.39	109.32	23.810	3.559	20.251	296	OK
12 hours	41.72	76.54	110.98	24.171	3.883	20.288	297	OK
14 hours	42.95	78.56	113.91	24.810	4.530	20.280	296	OK
16 hours	44.04	80.32	116.46	25.365	5.177	20.188	295	OK
18 hours	45.03	81.88	118.73	25.859	5.824	20.035	293	OK
20 hours	45.96	83.32	120.81	26.312	6.471	19.841	290	OK
22 hours	46.84	84.64	122.73	26.731	7.118	19.613	287	OK
24 hours	47.67	85.88	124.53	27.123	7.766	19.357	283	OK

30 hours	50.01	89.20	129.34	28.170	9.707	18.463	270	OK
36 hours	52.17	92.15	133.62	29.102	11.648	17.454	255	OK
42 hours	54.21	94.86	137.55	29.958	13.590	16.368	239	OK
48 hours	56.16	97.38	141.20	30.753	15.531	15.222	223	OK
54 hours	58.10	99.83	144.75	31.527	17.473	14.054	205	OK
60 hours	60.00	102.18	148.16	32.269	19.414	12.855	188	OK
66 hours	61.85	104.44	151.44	32.984	21.355	11.629	170	OK
72 hours	63.66	106.64	154.63	33.678	23.297	10.381	152	OK
78 hours	65.45	108.79	157.75	34.358	25.238	9.120	133	OK
84 hours	67.22	110.89	160.79	35.020	27.180	7.840	115	OK
90 hours	68.97	112.95	163.78	35.671	29.121	6.550	96	OK
96 hours	70.71	114.98	166.72	36.312	31.063	5.249	77	OK

The Design Summary for the Proposed Geocellular Soakaway Installation, S/A #1 is as follows :-

Note the inclusion of 5 year Storm Event Data (20% AEP) is for comparison with the old standard FSR M5-60 Rainfall data

For a 1% AEP (100 Year) Storm Event Including a 45% Addition to Rainfall Intensity for Climate Change.

The Design requires a maximum storage of 20.288 cubic metres out of 20.520 cubic metres available.

Therefore Storage Passes with a Critical Storm duration of 12 hours and a maximum water level of 297mm

And the Half Drain Time for a 1% AEP (100 Year) Critical Storm Event Passes within the Allowable 24 hours Period at 10.45 hours.

The Maximum Available Volume of the Geocellular Soakaway Structure for a 1% AEP (100 Year) Storm Event is 20.520 cubic metres.

Requiring a Maximum (Critical) Storage Capacity of 20.288 cubic metres.

The Maximum Available (Effective) Outflow Surface Area for a 1% AEP (100 Year) Storm Event is 72.00 square metres -- base area only.

The Outflow Surface Area for the Critical Storm Duration for the 1% AEP (100 Year) Storm Event is 72.00 square metres -- base area only.

The Maximum Allowable Water Level for a 1% AEP (100 Year) Storm Event is 300mm (Geocellular Soakaway Height).

With a Maximum Internal Geocellular Soakaway Critical Water Level of 297mm.

For a 1% AEP (100 Year) Storm Event the Critical Storm occurs at 12 hours.