



## HORIZONTAL SOAKAWAY CALCULATIONS CIRIA C753 - EQ 25.4 - using FEH 22 rainfall data

|                |                                     |           |                      |              |
|----------------|-------------------------------------|-----------|----------------------|--------------|
| PROJECT TITLE: | Sussex Business Centre Site Barnham |           | JOB No:              | 1859         |
| SOAKAWAY NO.:  | 1                                   | LOCATION: | Soakways 1-3 - Front | DATE: Aug-24 |

| 1. FEH Rainfall data |          | 2. Design Inflow                |    | 3. Test rate calculations |      |                              | 4. Design Outflow results |                         |      |
|----------------------|----------|---------------------------------|----|---------------------------|------|------------------------------|---------------------------|-------------------------|------|
| Event:               | 100 year | Roof (m <sup>2</sup> ):         | 43 | Test pit L:               | 1.00 | Tot vol.:                    | 0.9300                    | Q <sub>50</sub> (sq.m): | 1.00 |
| CC %                 | 1.45     | Driveway (m <sup>2</sup> ):     | 0  | Test pit W:               | 1.00 | Q <sub>p50</sub> :           | 2.000                     | Inflow (cu.m):          | 2.00 |
| Index:               | 10       | Paths/patios (m <sup>2</sup> ): | 0  | Test pit D:               | 1.00 | V <sub>p75-25</sub> :        | 2.35000                   | Outflow(cu.m):          | 1.00 |
|                      |          | Car parking (m <sup>2</sup> ):  | 0  | Free vol (%):             | 100  | I <sub>p75-25</sub> :        | 107                       | Storage(cu.m):          | 2.00 |
|                      |          | Total Area (sq.m):              | 43 |                           |      | Effective depth:             | 0.500                     |                         |      |
|                      |          |                                 |    |                           |      | Infiltration rate (f) (m/s): | 1.567E-05                 |                         |      |

| 5. Infiltration system data |       |            |        | 6. Infiltration coefficient (q) (m/h) |           | 7. FOS                    |          |     |
|-----------------------------|-------|------------|--------|---------------------------------------|-----------|---------------------------|----------|-----|
| Length (m):                 | 4.000 | Width (m): | 2.000  | q value (m/h):                        | 0.0447521 | Rate (q) provided by SI:  | 0.005000 | 1.5 |
| Eff depth:                  | 0.500 | Inlet IL:  | 48.600 | Base IL:                              | 48.200    | Calculated Soil Rate (f): | 0.075073 |     |
| Free vol (%):               | 100   |            |        |                                       |           |                           |          |     |

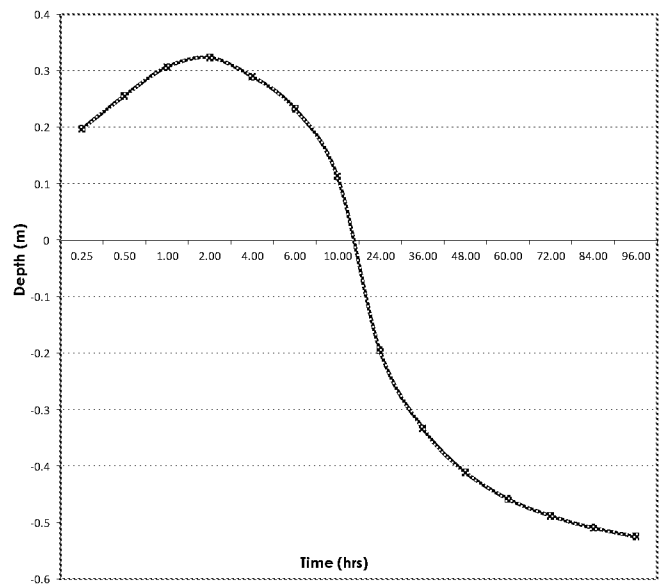
## Summary of designer's sizes for chosen D min duration for 100 year storm

| L    | W    | d    | Ab   | Ad    | P     | R    | n    |
|------|------|------|------|-------|-------|------|------|
| 4.00 | 2.00 | 0.50 | 8.00 | 43.00 | 12.00 | 5.38 | 1.00 |

Soakaway calculations are based on BS 8463 infiltration results and the calculated method shown in CIRIA document C697 & C753 and use FEH 22 rainfall data. The rainfall results are modified by the climate change growth factor shown. The rainfall rate is further reduced for a 10% to 50% risk from sea level rise. Always refer to the project construction details sheet at 201 for the soakaway or permeable pavement details and the main general arrangement (GA) showing the sea levels and position of the soakaway.

Calculations used are derived from CIRIA document C753 - SUDS manual Eq 25.4

| D (Hrs) | mm     | f (m/h) | a      | b        | H <sub>max</sub> |
|---------|--------|---------|--------|----------|------------------|
| 0.25    | 27.05  | 0.1567  | -1.138 | 0.070073 | 0.1974           |
| 0.50    | 34.37  | 0.1055  | -7.22  | 0.070073 | 0.2566           |
| 1.00    | 46.78  | 0.0678  | -4.23  | 0.070073 | 0.3070           |
| 2.00    | 56.52  | 0.0410  | -2.48  | 0.070073 | 0.3233           |
| 4.00    | 66.45  | 0.0242  | -1.19  | 0.070073 | 0.3290           |
| 6.00    | 72.56  | 0.0175  | -0.69  | 0.070073 | 0.3308           |
| 10.00   | 80.05  | 0.0116  | -0.22  | 0.070073 | 0.3326           |
| 24.00   | 92.26  | 0.0056  | 0.24   | 0.070073 | 0.3347           |
| 36.00   | 98.80  | 0.0040  | 0.36   | 0.070073 | 0.3328           |
| 48.00   | 104.26 | 0.0031  | 0.43   | 0.070073 | 0.3304           |
| 60.00   | 109.20 | 0.0026  | 0.46   | 0.070073 | 0.3274           |
| 72.00   | 113.80 | 0.0023  | 0.49   | 0.070073 | 0.3239           |
| 84.00   | 118.16 | 0.0020  | 0.51   | 0.070073 | 0.3200           |
| 96.00   | 122.34 | 0.0018  | 0.52   | 0.070073 | 0.3163           |

MAX HEIGHT (H<sub>max</sub>): 0.3328

## Time to empty

H<sub>max</sub>: 0.3328  
R: 5.38

Time to empty (hrs): 8

Recalculated q (m/h): 0.075

Equivalent f rate: 0.075

EMPTY TIME IS SATISFACTORY