

Soakaway Design

|                                                       |          |                                      |                                      |       |                         |
|-------------------------------------------------------|----------|--------------------------------------|--------------------------------------|-------|-------------------------|
| Job No.:                                              |          | Site Areas                           |                                      |       |                         |
| Job Name: Lovedean Lane                               |          | Plot 1 roof                          | 143                                  | m2    |                         |
|                                                       |          | Plot 2 roof                          | 104                                  | m2    |                         |
|                                                       |          | Plot 2 patio                         | 65                                   | m2    |                         |
|                                                       |          | Plot 3 roof                          | 104                                  | m2    |                         |
|                                                       |          | Plot 3 patio                         | 65                                   | m2    |                         |
| Area                                                  | 481      | m2                                   | Total impermeable 481 m2             |       |                         |
| Run off Coeff                                         | 1        | m2                                   |                                      |       |                         |
|                                                       | 481      | m2                                   |                                      |       |                         |
| 100 year return period + 40% climate change           |          | Storm duration (Min.)                | T                                    | N     | r Climate allowance 30% |
| R5                                                    | 0.03242  | 5 0.08 hrs                           | 0.083333333                          | 0.1   | 0.023154                |
| R10                                                   | 0.04017  | 10 0.17 hrs                          | 0.166666667                          | 0.1   | 0.028694                |
| R15                                                   | 0.04546  | 15 0.25 hrs                          | 0.25                                 | 0.1   | 0.032473                |
| R30                                                   | 0.05603  | 30 0.50 hrs                          | 0.5                                  | 0.1   | 0.040022                |
| R60                                                   | 0.06888  | 60 1.00 hrs                          | 1                                    | 0.1   | 0.0492                  |
| R120                                                  | 0.08450  | 120 2.00 hrs                         | 2                                    | 0.1   | 0.060356                |
| R240                                                  | 0.10348  | 240 4.00 hrs                         | 4                                    | 0.1   | 0.073917                |
| R360                                                  | 0.11643  | 360 6.00 hrs                         | 6                                    | 0.1   | 0.083168                |
| R600                                                  | 0.13500  | 600 10.00 hrs                        | 10                                   | 0.1   | 0.096432                |
| R1440                                                 | 0.17376  | 1440 24.00 hrs                       | 24                                   | 0.1   | 0.124113                |
| Inflow to attenuation system                          |          |                                      |                                      |       |                         |
| I5                                                    | 15.592   | m3                                   |                                      |       |                         |
| I10                                                   | 19.322   | m3                                   |                                      |       |                         |
| I15                                                   | 21.867   | m3                                   |                                      |       |                         |
| I30                                                   | 26.951   | m3                                   |                                      |       |                         |
| I60                                                   | 33.131   | m3                                   |                                      |       |                         |
| I120                                                  | 40.643   | m3                                   |                                      |       |                         |
| I240                                                  | 49.776   | m3                                   |                                      |       |                         |
| I360                                                  | 56.005   | m3                                   |                                      |       |                         |
| I600                                                  | 64.937   | m3                                   |                                      |       |                         |
| I1440                                                 | 83.577   | m3                                   |                                      |       |                         |
| Outflow from Tank                                     |          |                                      |                                      |       |                         |
| f                                                     | 4.11E-06 | m3/s                                 | (Worst case test result on site)     |       |                         |
| Soakaway dims:                                        |          |                                      |                                      |       |                         |
| L                                                     | 7        | m                                    |                                      |       |                         |
| W                                                     | 6        | m                                    |                                      |       |                         |
| Depth                                                 | 1.6      | m (below invert depth of inlet pipe) |                                      |       |                         |
| As50 62.8 (50% effective depth + base area as BRE365) |          |                                      |                                      |       |                         |
| Void ratio                                            | 95       | %                                    |                                      |       |                         |
| Outflow from Tank:                                    |          |                                      |                                      |       |                         |
| O5                                                    | 0.08     | m3                                   |                                      |       |                         |
| O10                                                   | 0.15     | m3                                   |                                      |       |                         |
| O15                                                   | 0.23     | m3                                   |                                      |       |                         |
| O30                                                   | 0.46     | m3                                   |                                      |       |                         |
| O60                                                   | 0.93     | m3                                   |                                      |       |                         |
| O120                                                  | 1.86     | m3                                   |                                      |       |                         |
| O240                                                  | 3.72     | m3                                   |                                      |       |                         |
| O360                                                  | 5.58     | m3                                   |                                      |       |                         |
| O600                                                  | 9.29     | m3                                   |                                      |       |                         |
| O1440                                                 | 22.30    | m3                                   |                                      |       |                         |
| Storage required:                                     |          | Time to drain:                       |                                      |       |                         |
| S5                                                    | 15.51    | m3                                   | ts50                                 | 8.35  | hours                   |
| S10                                                   | 19.17    | m3                                   | ts50                                 | 10.31 | hours                   |
| S15                                                   | 21.63    | m3                                   | ts50                                 | 11.64 | hours                   |
| S30                                                   | 26.49    | m3                                   | ts50                                 | 14.25 | hours                   |
| S60                                                   | 32.20    | m3                                   | ts50                                 | 17.32 | hours                   |
| S120                                                  | 38.78    | m3                                   | ts50                                 | 20.87 | hours                   |
| S240                                                  | 46.06    | m3                                   | ts50                                 | 24.78 | hours                   |
| S360                                                  | 50.43    | m3                                   | ts50                                 | 27.13 | hours                   |
| S600                                                  | 55.64    | m3                                   | ts50                                 | 29.94 | hours                   |
| S1440                                                 | 61.27    | m3                                   | ts50                                 | 32.97 | hours                   |
| Storage provided                                      |          | 63.8                                 | m3                                   |       |                         |
| Critical storm =                                      |          | S1440                                |                                      |       |                         |
| Storage required =                                    |          | 61.27                                |                                      |       |                         |
| Time to discharge=                                    |          | 32.97                                | Hours (Should be less than 24 hours) |       |                         |

Soakaway size proposed is satisfactory

|                                                                 |            |        |             |      |   |
|-----------------------------------------------------------------|------------|--------|-------------|------|---|
| Lower Swanwick                                                  |            |        |             |      |   |
| HOLE 1                                                          |            |        |             |      |   |
| Building Regulation Type Test                                   |            |        |             |      |   |
| Hole size (at invert depth)                                     |            |        |             |      |   |
| Width                                                           | 300        | mm     |             |      |   |
| Length                                                          | 300        | mm     |             |      |   |
| Depth                                                           | 300        | mm     | 150         | mm   |   |
|                                                                 |            |        |             |      |   |
| 0                                                               | Test 1     | Test 2 | Test 3      |      |   |
| 0                                                               | 0          | 0      | 0           | 9    |   |
| 75 Time to drop 75mm                                            | 3600       | secs   | 3600        | secs | 3 |
| 120                                                             | 6192       | secs   | 7920        | secs |   |
| 150 Time to drop 150mm                                          | 7920       | secs   | 10800       | secs |   |
| 170                                                             | 9658.66667 | secs   | 12186.66667 | secs |   |
| 225 Time to drop 225mm                                          | 14440      | secs   | 16000       | secs |   |
| 300                                                             | 18000      | secs   | 22750       | secs |   |
| Time between 75mm & 150mm                                       | 10840      | secs   | 12400       | secs |   |
| Vp                                                              | 72.26667   |        | 82.6666667  |      |   |
| Ave. Vp = 81.09 (Used for septic tank drainage fields)          |            |        |             |      |   |
| Soil infiltration rate, f = 4.11E-06 (Used for soakaway design) |            |        |             |      |   |

