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|--|--|--------------------------|------------------|------------------------------|-------------|
|  | Project Baker's Lane, Chartham, CT4 7QB | | | Job no. 301817 | |
| | Calcs for Soakaway - Plot 16 | | | Start page no./Revision 1 | |
| | Calcs by MW | Calcs date 22/05/2018 | Checked by PB | Checked date | Approved by |

SOAKAWAY DESIGN

In accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.03

Design rainfall intensity

| | |
|--|------------------------------------|
| Location of catchment area | Other |
| Impermeable area drained to the system | A = 143.0 m ² |
| Return period | Period = 100 yr |
| Ratio 60 min to 2 day rainfall of 5 yr return period | r = 0.450 |
| 5-year return period rainfall of 60 minutes duration | M5_60min = 20.0 mm |
| Increase of rainfall intensity due to global warming | p _{climate} = 40 % |

Soakaway / infiltration trench details

| | |
|--|---|
| Soakaway type | Rectangular |
| Minimum depth of pit (below incoming invert) | d = 800 mm |
| Width of pit | w = 2709 mm |
| Length of pit | l = 2000 mm |
| Percentage free volume | V _{free} = 95 % |
| Soil infiltration rate | f = 370. × 10⁻⁶ m/s |
| Wetted area of pit 50% full | a _{s50} = l × d + w × d = 3767024 mm ² |

Table equations

| | |
|--------------------|------------------------------|
| Inflow (cl.3.3.1) | I = M100 × A |
| Outflow (cl.3.3.2) | O = a _{s50} × f × D |
| Storage (cl.3.3.3) | S = I - O |

| Duration, D (min) | Growth factor Z1 | M5 rainfalls (mm) | Growth factor Z2 | 100 year rainfall, M100 (mm) | Inflow (m ³) | Outflow (m ³) | Storage required (m ³) |
|-------------------|------------------|-------------------|------------------|------------------------------|--------------------------|---------------------------|------------------------------------|
| 5 | 0.39; | 10.9; | 1.92; | 21.0; | 3.01; | 0.42; | 2.59 |
| 10 | 0.54; | 15.1; | 1.99; | 30.1; | 4.30; | 0.84; | 3.47 |
| 15 | 0.65; | 18.2; | 2.02; | 36.7; | 5.25; | 1.25; | 3.99 |
| 30 | 0.82; | 23.0; | 2.02; | 46.3; | 6.63; | 2.51; | 4.12 |
| 60 | 1.00; | 28.0; | 1.99; | 55.6; | 7.95; | 5.02; | 2.93 |
| 120 | 1.19; | 33.3; | 1.94; | 64.8; | 9.26; | 10.04; | 0.00 |
| 240 | 1.38; | 38.6; | 1.90; | 73.5; | 10.50; | 20.07; | 0.00 |
| 360 | 1.51; | 42.3; | 1.87; | 79.1; | 11.32; | 30.11; | 0.00 |
| 600 | 1.68; | 47.0; | 1.83; | 86.3; | 12.33; | 50.18; | 0.00 |
| 1440 | 2.03; | 56.8; | 1.76; | 100.2; | 14.33; | 120.42; | 0.00 |

Required storage volume $S_{req} = 4.12$ m³

Soakaway storage volume $S_{act} = l \times d \times w \times V_{free} = 4.12$ m³

PASS - Soakaway storage volume

Time for emptying soakaway to half volume $t_{s50} = S_{req} \times 0.5 / (a_{s50} \times f) = 24$ min 38s

PASS - Soakaway discharge time less than or equal to 24 hours