

## Appendix F – Hydraulic Calculations

### **Existing Runoff**

Page 1      Greenfield Runoff Rate

Page 2-5      Two No. Soakaway Tests

### **Proposed Drainage**

Page 6-10      Outline Pond Storage calculations for 30 year storm event.

Page 11-15      Outline Pond Storage calculations for 100 year + climate change storm event.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                           |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|-----|------|-------|-----------|-------|-------|-------|-----------|------|---------------|----------|------------|-----|------------|-----|------------|------|---------|-----|-----------|-----|------------|------|
| Scott Hughes Design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                           | Page 1                                                                              |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Project Merlin<br>Waterswallows<br>Greenfield Runoff Rate |  |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| Date Dec 10<br>File                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Designed By PG<br>Checked By                              |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| Micro Drainage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                           | Source Control W.12.4                                                               |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| <p style="text-align: center;"><b>ICP SUDS Mean Annual Flood</b></p> <p style="text-align: center;">Input</p> <table> <tr> <td>Return Period (years)</td> <td>100</td> <td>Soil</td> <td>0.150</td> </tr> <tr> <td>Area (ha)</td> <td>8.208</td> <td>Urban</td> <td>0.000</td> </tr> <tr> <td>SAAR (mm)</td> <td>1000</td> <td>Region Number</td> <td>Region 4</td> </tr> </table> <p style="text-align: center;"><b>Results    1/s</b></p> <table> <tr> <td>QBAR Rural</td> <td>5.0</td> </tr> <tr> <td>QBAR Urban</td> <td>5.0</td> </tr> <tr> <td>Q100 years</td> <td>13.0</td> </tr> <tr> <td>Q1 year</td> <td>4.2</td> </tr> <tr> <td>Q30 years</td> <td>9.9</td> </tr> <tr> <td>Q100 years</td> <td>13.0</td> </tr> </table> |                                                           |                                                                                     | Return Period (years) | 100 | Soil | 0.150 | Area (ha) | 8.208 | Urban | 0.000 | SAAR (mm) | 1000 | Region Number | Region 4 | QBAR Rural | 5.0 | QBAR Urban | 5.0 | Q100 years | 13.0 | Q1 year | 4.2 | Q30 years | 9.9 | Q100 years | 13.0 |
| Return Period (years)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 100                                                       | Soil                                                                                | 0.150                 |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| Area (ha)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8.208                                                     | Urban                                                                               | 0.000                 |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| SAAR (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1000                                                      | Region Number                                                                       | Region 4              |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| QBAR Rural                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.0                                                       |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| QBAR Urban                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.0                                                       |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| Q100 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13.0                                                      |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| Q1 year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4.2                                                       |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| Q30 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9.9                                                       |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| Q100 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13.0                                                      |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |
| ©1982-2010 Micro Drainage Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           |                                                                                     |                       |     |      |       |           |       |       |       |           |      |               |          |            |     |            |     |            |      |         |     |           |     |            |      |

## Soakaway Tests

| TEST No.                                              | SA1  |
|-------------------------------------------------------|------|
| PIT WIDTH (m)                                         | 1.00 |
| PIT LENGTH (m)                                        | 2.20 |
| PIT DEPTH (m)                                         | 1.00 |
| DEPTH OF PIT AT END OF TEST (m)                       | 1.00 |
| DEPTH TO PERMEABLE SOIL LAYER (m)                     | 0.40 |
| DEPTH OF WATER TABLE (m)                              | 4.00 |
| VOLUME OF PIT ABOVE PERM LAYER (m³)                   | 0.88 |
| VOLUME OF PIT BELOW PERM LAYER (m³)                   | 1.32 |
| TOTAL VOLUME OF PIT (m³)                              | 2.20 |
| REVISED WIDTH AT END OF TEST (PERM LAYER REDUCED) (m) | 1.00 |
| CROSS SECTIONAL AREA OF PERMEABLE SOIL STRATA (m²)    | 6.04 |
| MAXIMUM POSSIBLE WATER DEPTH (m)                      | 1.00 |
| MINIMUM POSSIBLE WATER DEPTH (m)                      | 0.41 |
| MAX POSSIBLE CHANGE IN WATER DEPTH (m)                | 0.59 |
| TOTAL TIME OF TEST (min)                              | 9    |
| DEPTH OF WATER AT END OF TEST (m)                     | 0.9  |

|                                   |       |
|-----------------------------------|-------|
| START PERCENTAGE FOR CALCULATIONS | 75    |
| DEPTH AT START PERCENTAGE (m)     | 0.558 |
| TIME AT START PERCENTAGE (min)    | 0.0   |
| WIDTH AT START PERCENTAGE (m)     | 0.60  |

|                                    |       |
|------------------------------------|-------|
| FINISH PERCENTAGE FOR CALCULATIONS | 25    |
| DEPTH AT FINISH PERCENTAGE (m)     | 1.865 |
| TIME AT FINISH PERCENTAGE (min)    | 160.0 |
| WIDTH AT FINISH PERCENTAGE (m)     | 0.60  |

|                                                     |       |
|-----------------------------------------------------|-------|
| CORRESPONDING PERM THICKNESS FOR AVERAGE PERCENTAGE | 0.285 |
| OVERIDING PERM THICKNESS FOR AVERAGE PERCENTAGE     |       |
| PERM THICKNESS USED                                 | 0.285 |
| CROSS SECTIONAL AREA FOR AVERAGE PERM THICKNESS     | 4.02  |

|                                  |        |
|----------------------------------|--------|
| TOTAL VOLUME CHANGE (m³)         | 1.726  |
| TOTAL TIME FOR VOLUME LOST (min) | 160.00 |
| TOTAL TIME FOR VOLUME LOST (sec) | 9600   |

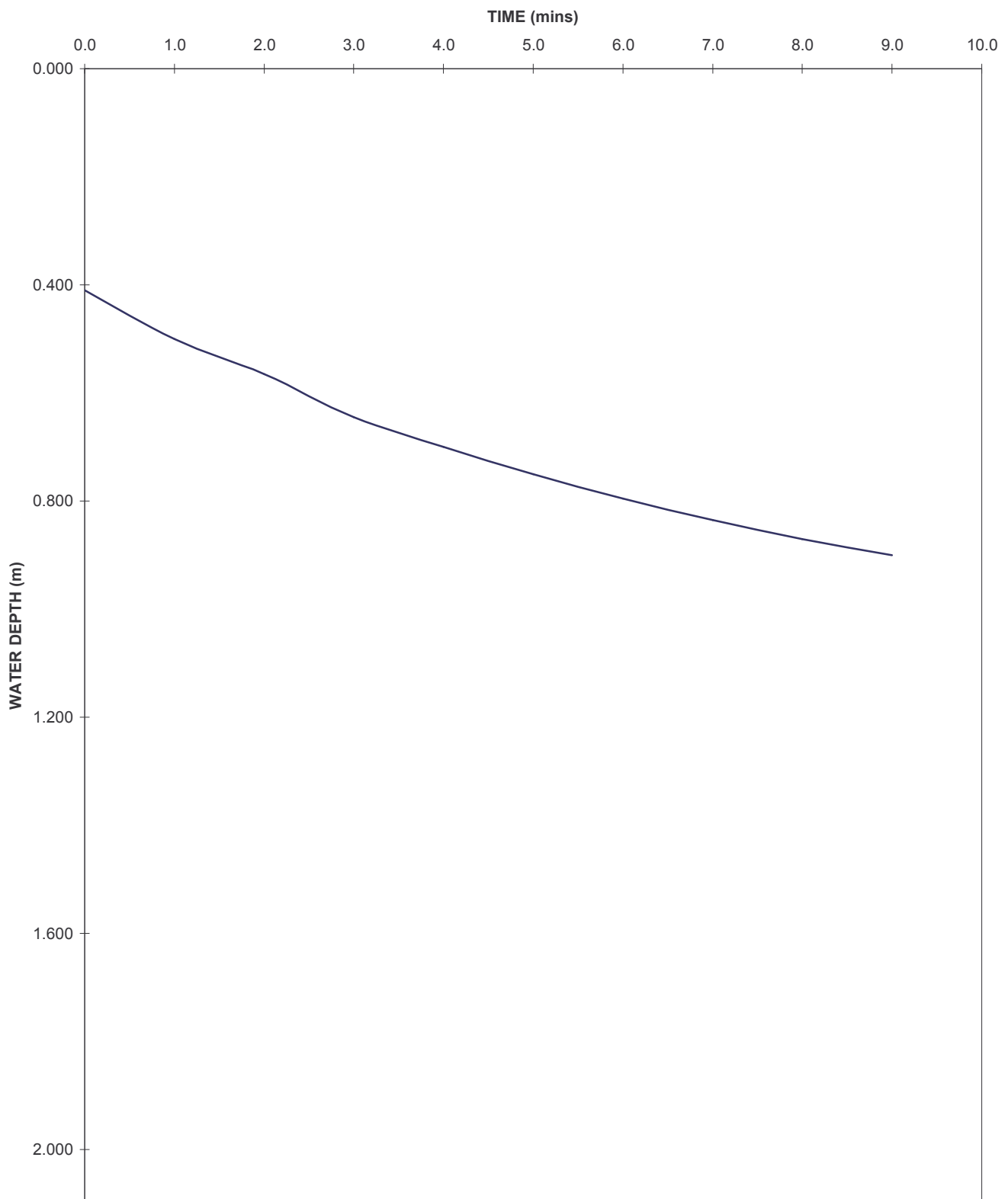
**BASED ON BRE DIGEST 365, SEPTEMBER 1991  
FOR A VOLUME DROP BETWEEN 75% AND 25%**

| No. | TIME (min) | DEPTH (m) | PERCENT |
|-----|------------|-----------|---------|
| 1   | 0.0        | 0.410     | 100.0   |
| 2   | 1.0        | 0.500     | 84.7    |
| 3   | 2.0        | 0.565     | 73.7    |
| 4   | 3.0        | 0.645     | 60.2    |
| 5   | 4.0        | 0.700     | 50.8    |
| 6   | 5.0        | 0.750     | 42.4    |
| 7   | 6.0        | 0.795     | 34.7    |
| 8   | 7.0        | 0.835     | 28.0    |
| 9   | 8.0        | 0.870     | 22.0    |
| 10  | 9.0        | 0.900     | 16.9    |
| 11  |            |           |         |
| 12  |            |           |         |
| 13  |            |           |         |
| 14  |            |           |         |
| 15  |            |           |         |
| 16  |            |           |         |
| 17  |            |           |         |
| 18  |            |           |         |
| 19  |            |           |         |
| 20  |            |           |         |
| 21  |            |           |         |
| 22  |            |           |         |
| 23  |            |           |         |
| 24  |            |           |         |
| 25  |            |           |         |
| 26  |            |           |         |
| 27  |            |           |         |
| 28  |            |           |         |
| 29  |            |           |         |
| 30  |            |           |         |
| 31  |            |           |         |
| 32  |            |           |         |
| 33  |            |           |         |
| 34  |            |           |         |
| 35  |            |           |         |
| 36  |            |           |         |
| 37  |            |           |         |
| 38  |            |           |         |
| 39  |            |           |         |
| 40  |            |           |         |

|                                  |                 |
|----------------------------------|-----------------|
| <b>SOIL INFILTRATION RATE, f</b> | <b>4.47E-05</b> |
|----------------------------------|-----------------|

**Table 2: Results of Soakaway Test in SA1**

## Soakaway Tests



## Soakaway Tests

| TEST No.                                              | SA2  |
|-------------------------------------------------------|------|
| PIT WIDTH (m)                                         | 1.00 |
| PIT LENGTH (m)                                        | 2.20 |
| PIT DEPTH (m)                                         | 1.10 |
| DEPTH OF PIT AT END OF TEST (m)                       | 1.10 |
| DEPTH TO PERMEABLE SOIL LAYER (m)                     | 0.40 |
| DEPTH OF WATER TABLE (m)                              | 4.00 |
| VOLUME OF PIT ABOVE PERM LAYER (m³)                   | 0.88 |
| VOLUME OF PIT BELOW PERM LAYER (m³)                   | 1.54 |
| TOTAL VOLUME OF PIT (m³)                              | 2.42 |
| REVISED WIDTH AT END OF TEST (PERM LAYER REDUCED) (m) | 1.00 |
| CROSS SECTIONAL AREA OF PERMEABLE SOIL STRATA (m²)    | 6.68 |
| MAXIMUM POSSIBLE WATER DEPTH (m)                      | 1.10 |
| MINIMUM POSSIBLE WATER DEPTH (m)                      | 0.49 |
| MAX POSSIBLE CHANGE IN WATER DEPTH (m)                | 0.61 |
| TOTAL TIME OF TEST (min)                              | 10   |
| DEPTH OF WATER AT END OF TEST (m)                     | 0.91 |

|                                   |       |
|-----------------------------------|-------|
| START PERCENTAGE FOR CALCULATIONS | 75    |
| DEPTH AT START PERCENTAGE (m)     | 0.643 |
| TIME AT START PERCENTAGE (min)    | 0.0   |
| WIDTH AT START PERCENTAGE (m)     | 0.60  |

|                                    |       |
|------------------------------------|-------|
| FINISH PERCENTAGE FOR CALCULATIONS | 25    |
| DEPTH AT FINISH PERCENTAGE (m)     | 1.865 |
| TIME AT FINISH PERCENTAGE (min)    | 160.0 |
| WIDTH AT FINISH PERCENTAGE (m)     | 0.60  |

|                                                     |       |
|-----------------------------------------------------|-------|
| CORRESPONDING PERM THICKNESS FOR AVERAGE PERCENTAGE | 0.309 |
| OVERRIDING PERM THICKNESS FOR AVERAGE PERCENTAGE    |       |
| PERM THICKNESS USED                                 | 0.309 |
| CROSS SECTIONAL AREA FOR AVERAGE PERM THICKNESS     | 4.18  |

|                                  |        |
|----------------------------------|--------|
| TOTAL VOLUME CHANGE (m³)         | 1.614  |
| TOTAL TIME FOR VOLUME LOST (min) | 160.00 |
| TOTAL TIME FOR VOLUME LOST (sec) | 9600   |

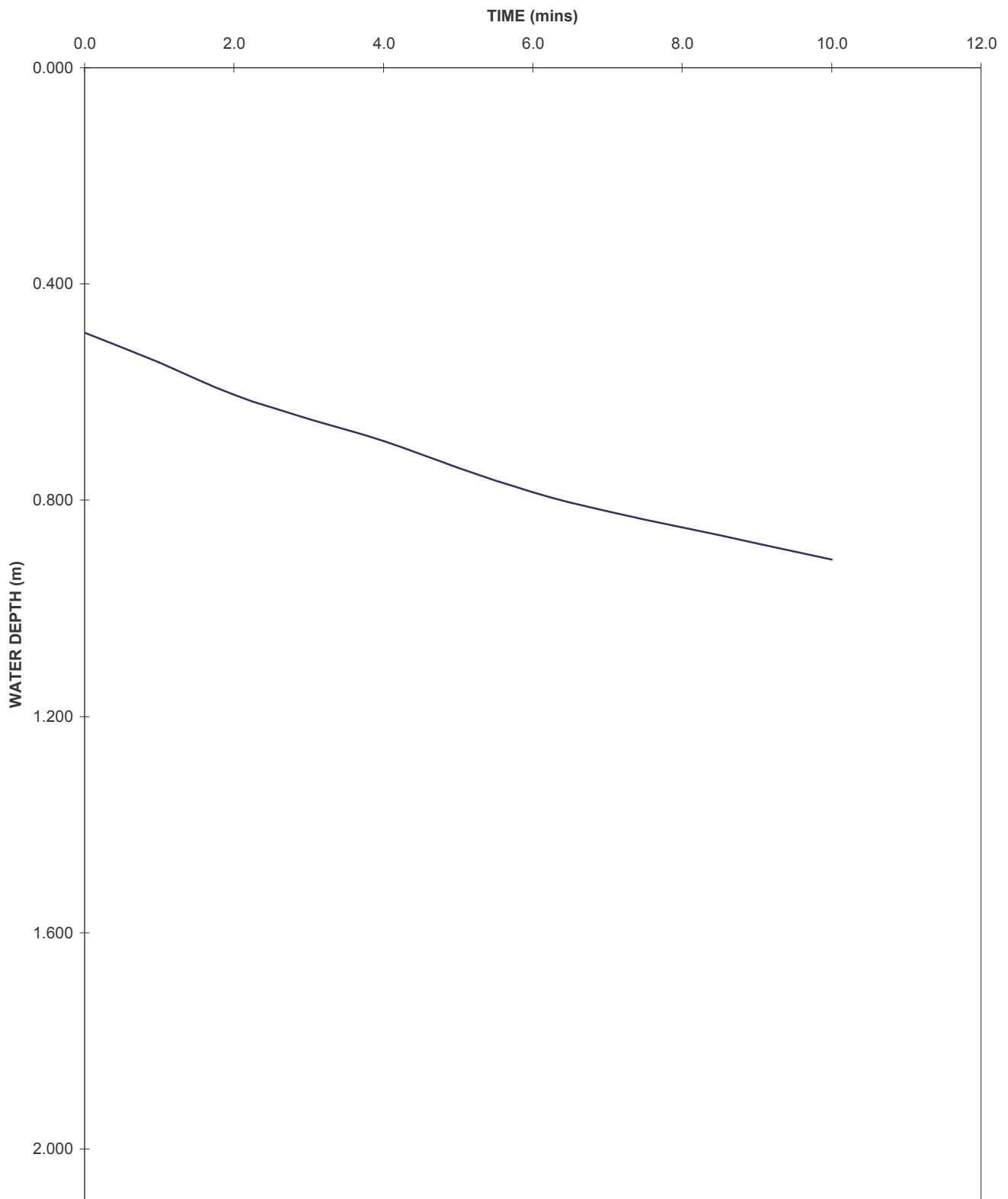
**BASED ON BRE DIGEST 365, SEPTEMBER 1991  
FOR A VOLUME DROP BETWEEN 75% AND 25%**

| No. | TIME (min) | DEPTH (m) | PERCENT |
|-----|------------|-----------|---------|
| 1   | 0.0        | 0.490     | 100.0   |
| 2   | 1.0        | 0.545     | 91.0    |
| 3   | 2.0        | 0.605     | 81.1    |
| 4   | 3.0        | 0.650     | 73.8    |
| 5   | 4.0        | 0.690     | 67.2    |
| 6   | 5.0        | 0.740     | 59.0    |
| 7   | 6.0        | 0.785     | 51.6    |
| 8   | 7.0        | 0.820     | 45.9    |
| 9   | 8.0        | 0.850     | 41.0    |
| 10  | 9.0        | 0.880     | 36.1    |
| 11  | 10.0       | 0.910     | 31.1    |
| 12  |            |           |         |
| 13  |            |           |         |
| 14  |            |           |         |
| 15  |            |           |         |
| 16  |            |           |         |
| 17  |            |           |         |
| 18  |            |           |         |
| 19  |            |           |         |
| 20  |            |           |         |
| 21  |            |           |         |
| 22  |            |           |         |
| 23  |            |           |         |
| 24  |            |           |         |
| 25  |            |           |         |
| 26  |            |           |         |
| 27  |            |           |         |
| 28  |            |           |         |
| 29  |            |           |         |
| 30  |            |           |         |
| 31  |            |           |         |
| 32  |            |           |         |
| 33  |            |           |         |
| 34  |            |           |         |
| 35  |            |           |         |
| 36  |            |           |         |
| 37  |            |           |         |
| 38  |            |           |         |
| 39  |            |           |         |
| 40  |            |           |         |

|                                  |                 |
|----------------------------------|-----------------|
| <b>SOIL INFILTRATION RATE, f</b> | <b>4.02E-05</b> |
|----------------------------------|-----------------|

**Table 2: Results of Soakaway Test in SA2**

# Soakaway Tests



|                                                                |                     |                                                     |                              |                                                                                     |        |
|----------------------------------------------------------------|---------------------|-----------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|--------|
| Scott Hughes Design                                            |                     |                                                     | Page 1                       |                                                                                     |        |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW |                     | Nestle Waters<br>Attenuation Volumes<br>30 yr event |                              |  |        |
| Date Nov 10<br>File Nestle Infiltrati...                       |                     | Designed By PG<br>Checked By                        |                              |                                                                                     |        |
| Micro Drainage                                                 |                     | Source Control W.12.4                               |                              |                                                                                     |        |
| Summary of Results for 30 year Return Period                   |                     |                                                     |                              |                                                                                     |        |
| Half Drain Time : 313 minutes.                                 |                     |                                                     |                              |                                                                                     |        |
| Storm<br>Event                                                 | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                 | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³)                                                               | Status |
| 15 min Summer                                                  | 331.498             | 0.498                                               | 24.3                         | 424.6                                                                               | O K    |
| 30 min Summer                                                  | 331.641             | 0.641                                               | 25.9                         | 566.0                                                                               | O K    |
| 60 min Summer                                                  | 331.779             | 0.779                                               | 27.4                         | 710.0                                                                               | O K    |
| 120 min Summer                                                 | 331.893             | 0.893                                               | 28.7                         | 835.8                                                                               | O K    |
| 180 min Summer                                                 | 331.935             | 0.935                                               | 29.2                         | 883.8                                                                               | O K    |
| 240 min Summer                                                 | 331.947             | 0.947                                               | 29.3                         | 897.7                                                                               | O K    |
| 360 min Summer                                                 | 331.952             | 0.952                                               | 29.4                         | 903.6                                                                               | O K    |
| 480 min Summer                                                 | 331.945             | 0.945                                               | 29.3                         | 896.2                                                                               | O K    |
| 600 min Summer                                                 | 331.935             | 0.935                                               | 29.2                         | 883.6                                                                               | O K    |
| 720 min Summer                                                 | 331.922             | 0.922                                               | 29.0                         | 869.0                                                                               | O K    |
| 960 min Summer                                                 | 331.894             | 0.894                                               | 28.7                         | 836.9                                                                               | O K    |
| 1440 min Summer                                                | 331.831             | 0.831                                               | 28.0                         | 767.6                                                                               | O K    |
| 2160 min Summer                                                | 331.734             | 0.734                                               | 26.9                         | 662.2                                                                               | O K    |
| 2880 min Summer                                                | 331.640             | 0.640                                               | 25.8                         | 564.4                                                                               | O K    |
| 4320 min Summer                                                | 331.472             | 0.472                                               | 24.0                         | 399.8                                                                               | O K    |
| 5760 min Summer                                                | 331.336             | 0.336                                               | 22.5                         | 275.6                                                                               | O K    |
| 7200 min Summer                                                | 331.228             | 0.228                                               | 21.4                         | 181.7                                                                               | O K    |
| 8640 min Summer                                                | 331.145             | 0.145                                               | 20.6                         | 113.4                                                                               | O K    |
| Storm<br>Event                                                 |                     | Rain<br>(mm/hr)                                     | Time-Peak<br>(mins)          |                                                                                     |        |
| 15 min Summer                                                  |                     | 66.438                                              | 22                           |                                                                                     |        |
| 30 min Summer                                                  |                     | 45.115                                              | 36                           |                                                                                     |        |
| 60 min Summer                                                  |                     | 29.395                                              | 64                           |                                                                                     |        |
| 120 min Summer                                                 |                     | 18.583                                              | 122                          |                                                                                     |        |
| 180 min Summer                                                 |                     | 14.031                                              | 182                          |                                                                                     |        |
| 240 min Summer                                                 |                     | 11.431                                              | 234                          |                                                                                     |        |
| 360 min Summer                                                 |                     | 8.566                                               | 292                          |                                                                                     |        |
| 480 min Summer                                                 |                     | 6.970                                               | 356                          |                                                                                     |        |
| 600 min Summer                                                 |                     | 5.935                                               | 424                          |                                                                                     |        |
| 720 min Summer                                                 |                     | 5.202                                               | 494                          |                                                                                     |        |
| 960 min Summer                                                 |                     | 4.222                                               | 634                          |                                                                                     |        |
| 1440 min Summer                                                |                     | 3.141                                               | 910                          |                                                                                     |        |
| 2160 min Summer                                                |                     | 2.333                                               | 1304                         |                                                                                     |        |
| 2880 min Summer                                                |                     | 1.887                                               | 1700                         |                                                                                     |        |
| 4320 min Summer                                                |                     | 1.397                                               | 2428                         |                                                                                     |        |
| 5760 min Summer                                                |                     | 1.130                                               | 3168                         |                                                                                     |        |
| 7200 min Summer                                                |                     | 0.958                                               | 3888                         |                                                                                     |        |
| 8640 min Summer                                                |                     | 0.838                                               | 4576                         |                                                                                     |        |
| ©1982-2010 Micro Drainage Ltd                                  |                     |                                                     |                              |                                                                                     |        |

|                                                                |               |                                                     |                        |                                                                                     |        |
|----------------------------------------------------------------|---------------|-----------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|--------|
| Scott Hughes Design                                            |               |                                                     | Page 2                 |                                                                                     |        |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW |               | Nestle Waters<br>Attenuation Volumes<br>30 yr event |                        |  |        |
| Date Nov 10<br>File Nestle Infiltrati...                       |               | Designed By PG<br>Checked By                        |                        |                                                                                     |        |
| Micro Drainage                                                 |               | Source Control W.12.4                               |                        |                                                                                     |        |
| Summary of Results for 30 year Return Period                   |               |                                                     |                        |                                                                                     |        |
| Storm Event                                                    | Max Level (m) | Max Depth (m)                                       | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status |
| 10080 min Summer                                               | 331.087       | 0.087                                               | 20.0                   | 67.1                                                                                | O K    |
| 15 min Winter                                                  | 331.553       | 0.553                                               | 24.9                   | 477.8                                                                               | O K    |
| 30 min Winter                                                  | 331.712       | 0.712                                               | 26.6                   | 638.8                                                                               | O K    |
| 60 min Winter                                                  | 331.865       | 0.865                                               | 28.4                   | 805.0                                                                               | O K    |
| 120 min Winter                                                 | 331.997       | 0.997                                               | 29.9                   | 955.9                                                                               | O K    |
| 180 min Winter                                                 | 332.050       | 1.050                                               | 30.5                   | 1019.6                                                                              | O K    |
| 240 min Winter                                                 | 332.071       | 1.071                                               | 30.7                   | 1044.7                                                                              | O K    |
| 360 min Winter                                                 | 332.077       | 1.077                                               | 30.8                   | 1051.7                                                                              | O K    |
| 480 min Winter                                                 | 332.069       | 1.069                                               | 30.7                   | 1042.5                                                                              | O K    |
| 600 min Winter                                                 | 332.054       | 1.054                                               | 30.5                   | 1024.0                                                                              | O K    |
| 720 min Winter                                                 | 332.034       | 1.034                                               | 30.3                   | 1000.0                                                                              | O K    |
| 960 min Winter                                                 | 331.990       | 0.990                                               | 29.8                   | 947.7                                                                               | O K    |
| 1440 min Winter                                                | 331.892       | 0.892                                               | 28.7                   | 835.1                                                                               | O K    |
| 2160 min Winter                                                | 331.742       | 0.742                                               | 27.0                   | 671.3                                                                               | O K    |
| 2880 min Winter                                                | 331.603       | 0.603                                               | 25.4                   | 527.1                                                                               | O K    |
| 4320 min Winter                                                | 331.364       | 0.364                                               | 22.8                   | 299.9                                                                               | O K    |
| 5760 min Winter                                                | 331.181       | 0.181                                               | 20.9                   | 142.5                                                                               | O K    |
| 7200 min Winter                                                | 331.063       | 0.063                                               | 19.7                   | 48.0                                                                                | O K    |
| 8640 min Winter                                                | 331.046       | 0.046                                               | 17.9                   | 34.6                                                                                | O K    |
| Storm Event                                                    | Rain (mm/hr)  |                                                     | Time-Peak (mins)       |                                                                                     |        |
| 10080 min Summer                                               | 0.748         |                                                     | 5240                   |                                                                                     |        |
| 15 min Winter                                                  | 66.438        |                                                     | 22                     |                                                                                     |        |
| 30 min Winter                                                  | 45.115        |                                                     | 36                     |                                                                                     |        |
| 60 min Winter                                                  | 29.395        |                                                     | 64                     |                                                                                     |        |
| 120 min Winter                                                 | 18.583        |                                                     | 120                    |                                                                                     |        |
| 180 min Winter                                                 | 14.031        |                                                     | 178                    |                                                                                     |        |
| 240 min Winter                                                 | 11.431        |                                                     | 232                    |                                                                                     |        |
| 360 min Winter                                                 | 8.566         |                                                     | 332                    |                                                                                     |        |
| 480 min Winter                                                 | 6.970         |                                                     | 378                    |                                                                                     |        |
| 600 min Winter                                                 | 5.935         |                                                     | 456                    |                                                                                     |        |
| 720 min Winter                                                 | 5.202         |                                                     | 534                    |                                                                                     |        |
| 960 min Winter                                                 | 4.222         |                                                     | 686                    |                                                                                     |        |
| 1440 min Winter                                                | 3.141         |                                                     | 982                    |                                                                                     |        |
| 2160 min Winter                                                | 2.333         |                                                     | 1404                   |                                                                                     |        |
| 2880 min Winter                                                | 1.887         |                                                     | 1792                   |                                                                                     |        |
| 4320 min Winter                                                | 1.397         |                                                     | 2552                   |                                                                                     |        |
| 5760 min Winter                                                | 1.130         |                                                     | 3232                   |                                                                                     |        |
| 7200 min Winter                                                | 0.958         |                                                     | 3752                   |                                                                                     |        |
| 8640 min Winter                                                | 0.838         |                                                     | 4328                   |                                                                                     |        |
| ©1982-2010 Micro Drainage Ltd                                  |               |                                                     |                        |                                                                                     |        |



| Scott Hughes Design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                                                     |                              | Page 3                                                                              |        |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|--------|----------------|---------------------|---------------------|------------------------------|-----------------------|--------|------------------|---------|-------|------|------|-----|----------------|-----------------|---------------------|------------------|-------|------|
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     | Nestle Waters<br>Attenuation Volumes<br>30 yr event |                              |  |        |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
| Date Nov 10<br>File Nestle Infiltrati...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     | Designed By PG<br>Checked By                        |                              |                                                                                     |        |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
| Micro Drainage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     | Source Control W.12.4                               |                              |                                                                                     |        |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
| <div>Summary of Results for 30 year Return Period</div> <table><thead><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Infiltration<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr></thead><tbody><tr><td>10080 min Winter</td><td>331.041</td><td>0.041</td><td>15.9</td><td>30.9</td><td>O K</td></tr></tbody></table><br><table><thead><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Time-Peak<br/>(mins)</th></tr></thead><tbody><tr><td>10080 min Winter</td><td>0.748</td><td>5136</td></tr></tbody></table> |                     |                                                     |                              |                                                                                     |        | Storm<br>Event | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status | 10080 min Winter | 331.041 | 0.041 | 15.9 | 30.9 | O K | Storm<br>Event | Rain<br>(mm/hr) | Time-Peak<br>(mins) | 10080 min Winter | 0.748 | 5136 |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                 | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³)                                                               | Status |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 331.041             | 0.041                                               | 15.9                         | 30.9                                                                                | O K    |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rain<br>(mm/hr)     | Time-Peak<br>(mins)                                 |                              |                                                                                     |        |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.748               | 5136                                                |                              |                                                                                     |        |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |
| ©1982-2010 Micro Drainage Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |                                                     |                              |                                                                                     |        |                |                     |                     |                              |                       |        |                  |         |       |      |      |     |                |                 |                     |                  |       |      |

|                                                                |                                                     |                                                                                     |
|----------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|
| Scott Hughes Design                                            |                                                     | Page 4                                                                              |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW | Nestle Waters<br>Attenuation Volumes<br>30 yr event |  |
| Date Nov 10<br>File Nestle Infiltrati...                       | Designed By PG<br>Checked By                        |                                                                                     |
| Micro Drainage                                                 |                                                     | Source Control W.12.4                                                               |

**Rainfall Details**

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 30                | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.100            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.310             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +0    |

Time / Area Diagram

Total Area (ha) 3.600

| Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) |
|----------------|--------------|----------------|--------------|
| 0-4            | 2.000        | 4-8            | 1.600        |

©1982-2010 Micro Drainage Ltd

|                                                                |                                                     |                                                                                     |
|----------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|
| Scott Hughes Design                                            |                                                     | Page 5                                                                              |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW | Nestle Waters<br>Attenuation Volumes<br>30 yr event |  |
| Date Nov 10<br>File Nestle Infiltrati...                       | Designed By PG<br>Checked By                        |                                                                                     |
| Micro Drainage Source Control W.12.4                           |                                                     |                                                                                     |

Model Details

Storage is Online Cover Level (m) 335.000

**Infiltration Basin Structure**

Invert Level (m) 331.000 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.18280 Porosity 1.00  
Infiltration Coefficient Side (m/hr) 0.00000

| Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------|------------------------|-----------|------------------------|-----------|------------------------|
| 0.000     | 751.0                  | 2.800     | 2107.0                 | 5.600     | 2342.0                 | 8.400     | 2342.0                 |
| 0.400     | 914.0                  | 3.200     | 2342.0                 | 6.000     | 2342.0                 | 8.800     | 2342.0                 |
| 0.800     | 1087.0                 | 3.600     | 2342.0                 | 6.400     | 2342.0                 | 9.200     | 2342.0                 |
| 1.200     | 1270.0                 | 4.000     | 2342.0                 | 6.800     | 2342.0                 | 9.600     | 2342.0                 |
| 1.600     | 1463.0                 | 4.400     | 2342.0                 | 7.200     | 2342.0                 | 10.000    | 2342.0                 |
| 2.000     | 1667.0                 | 4.800     | 2342.0                 | 7.600     | 2342.0                 |           |                        |
| 2.400     | 1882.0                 | 5.200     | 2342.0                 | 8.000     | 2342.0                 |           |                        |

©1982-2010 Micro Drainage Ltd

| Scott Hughes Design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                                           | Page 1                       |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|--------|--|----------------|---------------------|---------------------|------------------------------|-----------------------|--------|---------------|---------|-------|---------------|--------|-----|----------------|---------|-------|----------------|--------|-----|----------------|---------|-------|----------------|--------|-----|----------------|---------|-------|----------------|--------|-----|----------------|---------|-------|----------------|--------|-----|-----------------|---------|-------|-----------------|--------|------|-----------------|---------|-------|-----------------|--------|------|-----------------|---------|-------|-----------------|--------|------|-----------------|---------|-------|------|--------|-----|----------------|---------|-------|------|--------|-----|----------------|---------|-------|------|--------|-----|-----------------|---------|-------|------|--------|-----|-----------------|---------|-------|------|--------|-----|-----------------|---------|-------|------|--------|-----|-----------------|---------|-------|------|--------|-----|-----------------|---------|-------|------|-------|-----|-----------------|---------|-------|------|-------|-----|-----------------|---------|-------|------|-------|-----|
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     | Nestle Waters<br>Attenuation Volumes<br>100 yr event + CC |                              |  |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| Date Nov 10<br>File Nestle Infiltrati...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     | Designed By PG<br>Checked By                              |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| Micro Drainage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     | Source Control W.12.4                                     |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| Summary of Results for 100 year Return Period (+30%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                                                           |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| Half Drain Time : 490 minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                           |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| <table><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Infiltration<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>331.793</td><td>0.793</td><td>27.5</td><td>725.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>332.020</td><td>1.020</td><td>30.2</td><td>983.3</td><td>O K</td></tr><tr><td>60 min Summer</td><td>332.241</td><td>1.241</td><td>32.7</td><td>1257.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>332.435</td><td>1.435</td><td>35.1</td><td>1515.8</td><td>O K</td></tr><tr><td>180 min Summer</td><td>332.517</td><td>1.517</td><td>36.1</td><td>1631.7</td><td>O K</td></tr><tr><td>240 min Summer</td><td>332.554</td><td>1.554</td><td>36.6</td><td>1683.9</td><td>O K</td></tr><tr><td>360 min Summer</td><td>332.580</td><td>1.580</td><td>36.9</td><td>1721.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>332.582</td><td>1.582</td><td>36.9</td><td>1724.4</td><td>O K</td></tr><tr><td>600 min Summer</td><td>332.575</td><td>1.575</td><td>36.8</td><td>1714.9</td><td>O K</td></tr><tr><td>720 min Summer</td><td>332.563</td><td>1.563</td><td>36.7</td><td>1697.6</td><td>O K</td></tr><tr><td>960 min Summer</td><td>332.531</td><td>1.531</td><td>36.3</td><td>1651.2</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>332.460</td><td>1.460</td><td>35.4</td><td>1551.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>332.356</td><td>1.356</td><td>34.2</td><td>1408.6</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>332.253</td><td>1.253</td><td>32.9</td><td>1272.9</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>332.059</td><td>1.059</td><td>30.6</td><td>1030.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>331.891</td><td>0.891</td><td>28.7</td><td>834.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>331.744</td><td>0.744</td><td>27.0</td><td>672.8</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>331.615</td><td>0.615</td><td>25.6</td><td>539.2</td><td>O K</td></tr></table> |                     |                                                           |                              |                                                                                     |        |  | Storm<br>Event | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status | 15 min Summer | 331.793 | 0.793 | 27.5          | 725.5  | O K | 30 min Summer  | 332.020 | 1.020 | 30.2           | 983.3  | O K | 60 min Summer  | 332.241 | 1.241 | 32.7           | 1257.6 | O K | 120 min Summer | 332.435 | 1.435 | 35.1           | 1515.8 | O K | 180 min Summer | 332.517 | 1.517 | 36.1           | 1631.7 | O K | 240 min Summer  | 332.554 | 1.554 | 36.6            | 1683.9 | O K  | 360 min Summer  | 332.580 | 1.580 | 36.9            | 1721.5 | O K  | 480 min Summer  | 332.582 | 1.582 | 36.9            | 1724.4 | O K  | 600 min Summer  | 332.575 | 1.575 | 36.8 | 1714.9 | O K | 720 min Summer | 332.563 | 1.563 | 36.7 | 1697.6 | O K | 960 min Summer | 332.531 | 1.531 | 36.3 | 1651.2 | O K | 1440 min Summer | 332.460 | 1.460 | 35.4 | 1551.7 | O K | 2160 min Summer | 332.356 | 1.356 | 34.2 | 1408.6 | O K | 2880 min Summer | 332.253 | 1.253 | 32.9 | 1272.9 | O K | 4320 min Summer | 332.059 | 1.059 | 30.6 | 1030.5 | O K | 5760 min Summer | 331.891 | 0.891 | 28.7 | 834.3 | O K | 7200 min Summer | 331.744 | 0.744 | 27.0 | 672.8 | O K | 8640 min Summer | 331.615 | 0.615 | 25.6 | 539.2 | O K |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                       | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³)                                                               | Status |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 331.793             | 0.793                                                     | 27.5                         | 725.5                                                                               | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 332.020             | 1.020                                                     | 30.2                         | 983.3                                                                               | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 332.241             | 1.241                                                     | 32.7                         | 1257.6                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.435             | 1.435                                                     | 35.1                         | 1515.8                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.517             | 1.517                                                     | 36.1                         | 1631.7                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.554             | 1.554                                                     | 36.6                         | 1683.9                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.580             | 1.580                                                     | 36.9                         | 1721.5                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.582             | 1.582                                                     | 36.9                         | 1724.4                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.575             | 1.575                                                     | 36.8                         | 1714.9                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.563             | 1.563                                                     | 36.7                         | 1697.6                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 332.531             | 1.531                                                     | 36.3                         | 1651.2                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 332.460             | 1.460                                                     | 35.4                         | 1551.7                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 332.356             | 1.356                                                     | 34.2                         | 1408.6                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 332.253             | 1.253                                                     | 32.9                         | 1272.9                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 332.059             | 1.059                                                     | 30.6                         | 1030.5                                                                              | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 331.891             | 0.891                                                     | 28.7                         | 834.3                                                                               | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 331.744             | 0.744                                                     | 27.0                         | 672.8                                                                               | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 331.615             | 0.615                                                     | 25.6                         | 539.2                                                                               | O K    |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| <table><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Time-Peak<br/>(mins)</th></tr><tr><td>15 min Summer</td><td>111.556</td><td>22</td></tr><tr><td>30 min Summer</td><td>76.556</td><td>37</td></tr><tr><td>60 min Summer</td><td>50.211</td><td>66</td></tr><tr><td>120 min Summer</td><td>31.746</td><td>124</td></tr><tr><td>180 min Summer</td><td>23.862</td><td>182</td></tr><tr><td>240 min Summer</td><td>19.329</td><td>242</td></tr><tr><td>360 min Summer</td><td>14.382</td><td>348</td></tr><tr><td>480 min Summer</td><td>11.638</td><td>404</td></tr><tr><td>600 min Summer</td><td>9.866</td><td>466</td></tr><tr><td>720 min Summer</td><td>8.615</td><td>530</td></tr><tr><td>960 min Summer</td><td>6.947</td><td>666</td></tr><tr><td>1440 min Summer</td><td>5.118</td><td>942</td></tr><tr><td>2160 min Summer</td><td>3.761</td><td>1360</td></tr><tr><td>2880 min Summer</td><td>3.017</td><td>1760</td></tr><tr><td>4320 min Summer</td><td>2.207</td><td>2548</td></tr><tr><td>5760 min Summer</td><td>1.770</td><td>3288</td></tr><tr><td>7200 min Summer</td><td>1.492</td><td>4032</td></tr><tr><td>8640 min Summer</td><td>1.298</td><td>4752</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                                                           |                              |                                                                                     |        |  | Storm<br>Event | Rain<br>(mm/hr)     | Time-Peak<br>(mins) | 15 min Summer                | 111.556               | 22     | 30 min Summer | 76.556  | 37    | 60 min Summer | 50.211 | 66  | 120 min Summer | 31.746  | 124   | 180 min Summer | 23.862 | 182 | 240 min Summer | 19.329  | 242   | 360 min Summer | 14.382 | 348 | 480 min Summer | 11.638  | 404   | 600 min Summer | 9.866  | 466 | 720 min Summer | 8.615   | 530   | 960 min Summer | 6.947  | 666 | 1440 min Summer | 5.118   | 942   | 2160 min Summer | 3.761  | 1360 | 2880 min Summer | 3.017   | 1760  | 4320 min Summer | 2.207  | 2548 | 5760 min Summer | 1.770   | 3288  | 7200 min Summer | 1.492  | 4032 | 8640 min Summer | 1.298   | 4752  |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rain<br>(mm/hr)     | Time-Peak<br>(mins)                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 111.556             | 22                                                        |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 76.556              | 37                                                        |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 50.211              | 66                                                        |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 31.746              | 124                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23.862              | 182                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 19.329              | 242                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 14.382              | 348                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 11.638              | 404                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 9.866               | 466                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8.615               | 530                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6.947               | 666                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5.118               | 942                                                       |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3.761               | 1360                                                      |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3.017               | 1760                                                      |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2.207               | 2548                                                      |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.770               | 3288                                                      |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.492               | 4032                                                      |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.298               | 4752                                                      |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |
| ©1982-2010 Micro Drainage Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                                                           |                              |                                                                                     |        |  |                |                     |                     |                              |                       |        |               |         |       |               |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                |         |       |                |        |     |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |                 |        |      |                 |         |       |      |        |     |                |         |       |      |        |     |                |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |        |     |                 |         |       |      |       |     |                 |         |       |      |       |     |                 |         |       |      |       |     |

|                                                                |               |                                                           |                        |                                                                                     |        |
|----------------------------------------------------------------|---------------|-----------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|--------|
| Scott Hughes Design                                            |               |                                                           | Page 2                 |                                                                                     |        |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW |               | Nestle Waters<br>Attenuation Volumes<br>100 yr event + CC |                        |  |        |
| Date Nov 10<br>File Nestle Infiltrati...                       |               | Designed By PG<br>Checked By                              |                        |                                                                                     |        |
| Micro Drainage                                                 |               | Source Control W.12.4                                     |                        |                                                                                     |        |
| Summary of Results for 100 year Return Period (+30%)           |               |                                                           |                        |                                                                                     |        |
| Storm Event                                                    | Max Level (m) | Max Depth (m)                                             | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status |
| 10080 min Summer                                               | 331.502       | 0.502                                                     | 24.3                   | 428.1                                                                               | O K    |
| 15 min Winter                                                  | 331.874       | 0.874                                                     | 28.5                   | 815.2                                                                               | O K    |
| 30 min Winter                                                  | 332.122       | 1.122                                                     | 31.3                   | 1106.9                                                                              | O K    |
| 60 min Winter                                                  | 332.364       | 1.364                                                     | 34.2                   | 1419.4                                                                              | O K    |
| 120 min Winter                                                 | 332.579       | 1.579                                                     | 36.9                   | 1720.2                                                                              | O K    |
| 180 min Winter                                                 | 332.674       | 1.674                                                     | 38.1                   | 1861.3                                                                              | O K    |
| 240 min Winter                                                 | 332.720       | 1.720                                                     | 38.7                   | 1930.8                                                                              | O K    |
| 360 min Winter                                                 | 332.762       | 1.762                                                     | 39.2                   | 1995.4                                                                              | O K    |
| 480 min Winter                                                 | 332.766       | 1.766                                                     | 39.3                   | 2000.9                                                                              | O K    |
| 600 min Winter                                                 | 332.756       | 1.756                                                     | 39.2                   | 1985.6                                                                              | O K    |
| 720 min Winter                                                 | 332.745       | 1.745                                                     | 39.0                   | 1968.1                                                                              | O K    |
| 960 min Winter                                                 | 332.706       | 1.706                                                     | 38.5                   | 1909.1                                                                              | O K    |
| 1440 min Winter                                                | 332.601       | 1.601                                                     | 37.2                   | 1752.8                                                                              | O K    |
| 2160 min Winter                                                | 332.447       | 1.447                                                     | 35.3                   | 1533.1                                                                              | O K    |
| 2880 min Winter                                                | 332.296       | 1.296                                                     | 33.4                   | 1329.4                                                                              | O K    |
| 4320 min Winter                                                | 332.019       | 1.019                                                     | 30.1                   | 982.6                                                                               | O K    |
| 5760 min Winter                                                | 331.784       | 0.784                                                     | 27.4                   | 716.1                                                                               | O K    |
| 7200 min Winter                                                | 331.583       | 0.583                                                     | 25.2                   | 508.0                                                                               | O K    |
| 8640 min Winter                                                | 331.413       | 0.413                                                     | 23.3                   | 344.8                                                                               | O K    |
| Storm Event                                                    | Rain (mm/hr)  | Time-Peak (mins)                                          |                        |                                                                                     |        |
| 10080 min Summer                                               | 1.153         | 5448                                                      |                        |                                                                                     |        |
| 15 min Winter                                                  | 111.556       | 22                                                        |                        |                                                                                     |        |
| 30 min Winter                                                  | 76.556        | 36                                                        |                        |                                                                                     |        |
| 60 min Winter                                                  | 50.211        | 64                                                        |                        |                                                                                     |        |
| 120 min Winter                                                 | 31.746        | 122                                                       |                        |                                                                                     |        |
| 180 min Winter                                                 | 23.862        | 180                                                       |                        |                                                                                     |        |
| 240 min Winter                                                 | 19.329        | 236                                                       |                        |                                                                                     |        |
| 360 min Winter                                                 | 14.382        | 348                                                       |                        |                                                                                     |        |
| 480 min Winter                                                 | 11.638        | 450                                                       |                        |                                                                                     |        |
| 600 min Winter                                                 | 9.866         | 486                                                       |                        |                                                                                     |        |
| 720 min Winter                                                 | 8.615         | 562                                                       |                        |                                                                                     |        |
| 960 min Winter                                                 | 6.947         | 716                                                       |                        |                                                                                     |        |
| 1440 min Winter                                                | 5.118         | 1024                                                      |                        |                                                                                     |        |
| 2160 min Winter                                                | 3.761         | 1456                                                      |                        |                                                                                     |        |
| 2880 min Winter                                                | 3.017         | 1876                                                      |                        |                                                                                     |        |
| 4320 min Winter                                                | 2.207         | 2684                                                      |                        |                                                                                     |        |
| 5760 min Winter                                                | 1.770         | 3456                                                      |                        |                                                                                     |        |
| 7200 min Winter                                                | 1.492         | 4184                                                      |                        |                                                                                     |        |
| 8640 min Winter                                                | 1.298         | 4920                                                      |                        |                                                                                     |        |
| ©1982-2010 Micro Drainage Ltd                                  |               |                                                           |                        |                                                                                     |        |

| Scott Hughes Design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                           | Page 3                                                                              |                              |                       |                     |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------|-----------------------|---------------------|------------------------------|-----------------------|--------|------------------|---------|-------|------|-------|-----|----------------|-----------------|---------------------|------------------|-------|------|
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Nestle Waters<br>Attenuation Volumes<br>100 yr event + CC |  |                              |                       |                     |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
| Date Nov 10<br>File Nestle Infiltrati...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Designed By PG<br>Checked By                              |                                                                                     |                              |                       |                     |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
| Micro Drainage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                           | Source Control W.12.4                                                               |                              |                       |                     |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
| <div>Summary of Results for 100 year Return Period (+30%)</div> <table><thead><tr><th>Storm<br/>Event</th><th>Max<br/>Level<br/>(m)</th><th>Max<br/>Depth<br/>(m)</th><th>Max<br/>Infiltration<br/>(l/s)</th><th>Max<br/>Volume<br/>(m³)</th><th>Status</th></tr></thead><tbody><tr><td>10080 min Winter</td><td>331.268</td><td>0.268</td><td>21.8</td><td>216.1</td><td>O K</td></tr></tbody></table><br><table><thead><tr><th>Storm<br/>Event</th><th>Rain<br/>(mm/hr)</th><th>Time-Peak<br/>(mins)</th></tr></thead><tbody><tr><td>10080 min Winter</td><td>1.153</td><td>5552</td></tr></tbody></table> |                                                           |                                                                                     | Storm<br>Event               | Max<br>Level<br>(m)   | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status | 10080 min Winter | 331.268 | 0.268 | 21.8 | 216.1 | O K | Storm<br>Event | Rain<br>(mm/hr) | Time-Peak<br>(mins) | 10080 min Winter | 1.153 | 5552 |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Max<br>Level<br>(m)                                       | Max<br>Depth<br>(m)                                                                 | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status              |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 331.268                                                   | 0.268                                                                               | 21.8                         | 216.1                 | O K                 |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
| Storm<br>Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Rain<br>(mm/hr)                                           | Time-Peak<br>(mins)                                                                 |                              |                       |                     |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.153                                                     | 5552                                                                                |                              |                       |                     |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |
| ©1982-2010 Micro Drainage Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                           |                                                                                     |                              |                       |                     |                              |                       |        |                  |         |       |      |       |     |                |                 |                     |                  |       |      |

|                                                                |                                                           |                                                                                     |
|----------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|
| Scott Hughes Design                                            |                                                           | Page 4                                                                              |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW | Nestle Waters<br>Attenuation Volumes<br>100 yr event + CC |  |
| Date Nov 10<br>File Nestle Infiltrati...                       | Designed By PG<br>Checked By                              |                                                                                     |
| Micro Drainage                                                 |                                                           | Source Control W.12.4                                                               |

Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.100            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.310             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +30   |

Time / Area Diagram

Total Area (ha) 3.600

| Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) |
|----------------|--------------|----------------|--------------|
| 0-4            | 2.000        | 4-8            | 1.600        |

©1982-2010 Micro Drainage Ltd

|                                                                |                                                           |                                                                                     |
|----------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|
| Scott Hughes Design                                            |                                                           | Page 5                                                                              |
| The Flint Glass Works<br>64 Jersey Street<br>Manchester M4 6JW | Nestle Waters<br>Attenuation Volumes<br>100 yr event + CC |  |
| Date Nov 10<br>File Nestle Infiltrati...                       | Designed By PG<br>Checked By                              |                                                                                     |
| Micro Drainage                                                 |                                                           | Source Control W.12.4                                                               |

Model Details

Storage is   Online   Cover Level (m)   335.000

Infiltration Basin Structure

Invert Level (m)   331.000   Safety Factor   2.0

Infiltration Coefficient Base (m/hr)   0.18280   Porosity   1.00

Infiltration Coefficient Side (m/hr)   0.00000

| Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------|------------------------|-----------|------------------------|-----------|------------------------|
| 0.000     | 751.0                  | 2.800     | 2107.0                 | 5.600     | 2342.0                 | 8.400     | 2342.0                 |
| 0.400     | 914.0                  | 3.200     | 2342.0                 | 6.000     | 2342.0                 | 8.800     | 2342.0                 |
| 0.800     | 1087.0                 | 3.600     | 2342.0                 | 6.400     | 2342.0                 | 9.200     | 2342.0                 |
| 1.200     | 1270.0                 | 4.000     | 2342.0                 | 6.800     | 2342.0                 | 9.600     | 2342.0                 |
| 1.600     | 1463.0                 | 4.400     | 2342.0                 | 7.200     | 2342.0                 | 10.000    | 2342.0                 |
| 2.000     | 1667.0                 | 4.800     | 2342.0                 | 7.600     | 2342.0                 |           |                        |
| 2.400     | 1882.0                 | 5.200     | 2342.0                 | 8.000     | 2342.0                 |           |                        |

©1982-2010 Micro Drainage Ltd