

**Micro Drainage  
Attenuation tank  
Calculations**

**For**

**Garages 3 & 5-18  
America Lane, Hayward Heath,  
West Sussex**

**Date: September 2021  
Project No: 59725**

|                                                       |                                                                  |                                                                                     |
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| Dixon Hurst Kemp                                      |                                                                  | Page 1                                                                              |
| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | 3&5-18 America L...<br>SW Drainage Design<br>Greenfield Runof... |  |
| Date Sept 2021<br>File                                | Designed by JS<br>Checked by                                     |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                                  |                                                                                     |

### ICP SUDS Mean Annual Flood

#### Input

|                       |       |               |          |
|-----------------------|-------|---------------|----------|
| Return Period (years) | 2     | Soil          | 0.450    |
| Area (ha)             | 0.047 | Urban         | 0.000    |
| SAAR (mm)             | 800   | Region Number | Region 7 |

#### Results 1/s

|            |     |
|------------|-----|
| QBAR Rural | 0.2 |
| QBAR Urban | 0.2 |

Q2 years 0.2

|            |     |
|------------|-----|
| Q1 year    | 0.2 |
| Q30 years  | 0.5 |
| Q100 years | 0.8 |

|                                                       |                                                           |                                                                                     |
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| Dixon Hurst Kemp                                      |                                                           | Page 1                                                                              |
| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Summary of Results for 1 year Return Period (+40%)

Half Drain Time : 639 minutes.

| Storm Event      | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max $\Sigma$ Outflow (l/s) | Max Volume (m <sup>3</sup> ) | Status |
|------------------|---------------|---------------|------------------------|-------------------|----------------------------|------------------------------|--------|
| 15 min Summer    | 48.980        | 0.080         | 0.0                    | 0.1               | 0.1                        | 2.4                          | O K    |
| 30 min Summer    | 49.005        | 0.105         | 0.0                    | 0.1               | 0.1                        | 3.1                          | O K    |
| 60 min Summer    | 49.034        | 0.134         | 0.0                    | 0.1               | 0.1                        | 4.0                          | O K    |
| 120 min Summer   | 49.065        | 0.165         | 0.0                    | 0.1               | 0.1                        | 4.9                          | O K    |
| 180 min Summer   | 49.084        | 0.184         | 0.0                    | 0.1               | 0.1                        | 5.5                          | O K    |
| 240 min Summer   | 49.096        | 0.196         | 0.0                    | 0.1               | 0.1                        | 5.9                          | O K    |
| 360 min Summer   | 49.108        | 0.208         | 0.0                    | 0.1               | 0.1                        | 6.2                          | O K    |
| 480 min Summer   | 49.114        | 0.214         | 0.0                    | 0.1               | 0.1                        | 6.4                          | O K    |
| 600 min Summer   | 49.118        | 0.218         | 0.0                    | 0.1               | 0.1                        | 6.5                          | O K    |
| 720 min Summer   | 49.121        | 0.221         | 0.0                    | 0.1               | 0.1                        | 6.6                          | O K    |
| 960 min Summer   | 49.124        | 0.224         | 0.0                    | 0.1               | 0.1                        | 6.7                          | O K    |
| 1440 min Summer  | 49.123        | 0.223         | 0.0                    | 0.1               | 0.1                        | 6.7                          | O K    |
| 2160 min Summer  | 49.116        | 0.216         | 0.0                    | 0.1               | 0.1                        | 6.5                          | O K    |
| 2880 min Summer  | 49.109        | 0.209         | 0.0                    | 0.1               | 0.1                        | 6.2                          | O K    |
| 4320 min Summer  | 49.092        | 0.192         | 0.0                    | 0.1               | 0.1                        | 5.8                          | O K    |
| 5760 min Summer  | 49.076        | 0.176         | 0.0                    | 0.1               | 0.1                        | 5.3                          | O K    |
| 7200 min Summer  | 49.060        | 0.160         | 0.0                    | 0.1               | 0.1                        | 4.8                          | O K    |
| 8640 min Summer  | 49.045        | 0.145         | 0.0                    | 0.1               | 0.1                        | 4.3                          | O K    |
| 10080 min Summer | 49.032        | 0.132         | 0.0                    | 0.1               | 0.1                        | 3.9                          | O K    |
| 15 min Winter    | 48.989        | 0.089         | 0.0                    | 0.1               | 0.1                        | 2.7                          | O K    |
| 30 min Winter    | 49.018        | 0.118         | 0.0                    | 0.1               | 0.1                        | 3.5                          | O K    |
| 60 min Winter    | 49.051        | 0.151         | 0.0                    | 0.1               | 0.1                        | 4.5                          | O K    |
| 120 min Winter   | 49.087        | 0.187         | 0.0                    | 0.1               | 0.1                        | 5.6                          | O K    |
| 180 min Winter   | 49.109        | 0.209         | 0.0                    | 0.1               | 0.1                        | 6.2                          | O K    |
| 240 min Winter   | 49.123        | 0.223         | 0.0                    | 0.1               | 0.1                        | 6.7                          | O K    |
| 360 min Winter   | 49.139        | 0.239         | 0.0                    | 0.1               | 0.1                        | 7.2                          | O K    |
| 480 min Winter   | 49.148        | 0.248         | 0.0                    | 0.1               | 0.1                        | 7.4                          | O K    |
| 600 min Winter   | 49.152        | 0.252         | 0.0                    | 0.1               | 0.1                        | 7.6                          | O K    |
| Storm Event      |               |               | Rain (mm/hr)           | Time-Peak (mins)  |                            |                              |        |
| 15 min Summer    |               |               | 41.230                 | 26                |                            |                              |        |
| 30 min Summer    |               |               | 27.515                 | 40                |                            |                              |        |
| 60 min Summer    |               |               | 17.920                 | 70                |                            |                              |        |
| 120 min Summer   |               |               | 11.465                 | 128               |                            |                              |        |
| 180 min Summer   |               |               | 8.796                  | 186               |                            |                              |        |
| 240 min Summer   |               |               | 7.272                  | 244               |                            |                              |        |
| 360 min Summer   |               |               | 5.513                  | 362               |                            |                              |        |
| 480 min Summer   |               |               | 4.528                  | 456               |                            |                              |        |
| 600 min Summer   |               |               | 3.888                  | 512               |                            |                              |        |
| 720 min Summer   |               |               | 3.433                  | 574               |                            |                              |        |
| 960 min Summer   |               |               | 2.821                  | 704               |                            |                              |        |
| 1440 min Summer  |               |               | 2.140                  | 984               |                            |                              |        |
| 2160 min Summer  |               |               | 1.621                  | 1404              |                            |                              |        |
| 2880 min Summer  |               |               | 1.332                  | 1820              |                            |                              |        |
| 4320 min Summer  |               |               | 1.011                  | 2636              |                            |                              |        |
| 5760 min Summer  |               |               | 0.832                  | 3408              |                            |                              |        |
| 7200 min Summer  |               |               | 0.712                  | 4184              |                            |                              |        |
| 8640 min Summer  |               |               | 0.627                  | 4928              |                            |                              |        |
| 10080 min Summer |               |               | 0.564                  | 5656              |                            |                              |        |
| 15 min Winter    |               |               | 41.230                 | 26                |                            |                              |        |
| 30 min Winter    |               |               | 27.515                 | 40                |                            |                              |        |
| 60 min Winter    |               |               | 17.920                 | 68                |                            |                              |        |
| 120 min Winter   |               |               | 11.465                 | 126               |                            |                              |        |
| 180 min Winter   |               |               | 8.796                  | 182               |                            |                              |        |
| 240 min Winter   |               |               | 7.272                  | 240               |                            |                              |        |
| 360 min Winter   |               |               | 5.513                  | 352               |                            |                              |        |
| 480 min Winter   |               |               | 4.528                  | 462               |                            |                              |        |
| 600 min Winter   |               |               | 3.888                  | 566               |                            |                              |        |

|                                                       |                                                           |                                                                                     |
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| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Summary of Results for 1 year Return Period (+40%)

| Storm Event      | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Outflow (l/s) | Max Volume (m³) | Status |
|------------------|---------------|---------------|------------------------|-------------------|-------------------|-----------------|--------|
| 720 min winter   | 49.154        | 0.254         | 0.0                    | 0.1               | 0.1               | 7.6             | O K    |
| 960 min winter   | 49.158        | 0.258         | 0.0                    | 0.1               | 0.1               | 7.7             | O K    |
| 1440 min winter  | 49.156        | 0.256         | 0.0                    | 0.1               | 0.1               | 7.7             | O K    |
| 2160 min winter  | 49.143        | 0.243         | 0.0                    | 0.1               | 0.1               | 7.3             | O K    |
| 2880 min winter  | 49.128        | 0.228         | 0.0                    | 0.1               | 0.1               | 6.8             | O K    |
| 4320 min winter  | 49.100        | 0.200         | 0.0                    | 0.1               | 0.1               | 6.0             | O K    |
| 5760 min winter  | 49.075        | 0.175         | 0.0                    | 0.1               | 0.1               | 5.2             | O K    |
| 7200 min winter  | 49.051        | 0.151         | 0.0                    | 0.1               | 0.1               | 4.5             | O K    |
| 8640 min winter  | 49.030        | 0.130         | 0.0                    | 0.1               | 0.1               | 3.9             | O K    |
| 10080 min winter | 49.012        | 0.112         | 0.0                    | 0.1               | 0.1               | 3.4             | O K    |
| Storm Event      |               |               | Rain (mm/hr)           | Time-Peak (mins)  |                   |                 |        |
| 720 min winter   |               |               | 3.433                  | 614               |                   |                 |        |
| 960 min winter   |               |               | 2.821                  | 748               |                   |                 |        |
| 1440 min winter  |               |               | 2.140                  | 1060              |                   |                 |        |
| 2160 min winter  |               |               | 1.621                  | 1516              |                   |                 |        |
| 2880 min winter  |               |               | 1.332                  | 1960              |                   |                 |        |
| 4320 min winter  |               |               | 1.011                  | 2812              |                   |                 |        |
| 5760 min winter  |               |               | 0.832                  | 3624              |                   |                 |        |
| 7200 min winter  |               |               | 0.712                  | 4400              |                   |                 |        |
| 8640 min winter  |               |               | 0.627                  | 5184              |                   |                 |        |
| 10080 min winter |               |               | 0.564                  | 5944              |                   |                 |        |

|                                                       |                                                           |                                                                                     |
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| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 1                 | Cv (Summer)           | 0.750 |
| Region                | England and wales | Cv (winter)           | 0.840 |
| M5-60 (mm)            | 20.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.343             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +40   |

### Time / Area Diagram

Total Area (ha) 0.032

| Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) |
|----------------|--------------|----------------|--------------|----------------|--------------|
| 0-4            | 0.011        | 4-8            | 0.011        | 8-12           | 0.011        |

|                                                       |                                                           |                                                                                     |
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### Model Details

Storage is Online Cover Level (m) 50.600

### cellular Storage Structure

Invert Level (m) 48.900  
Infiltration Coefficient Base (m/hr) 0.00000  
Infiltration Coefficient Side (m/hr) 0.00000  
Safety Factor 2.0  
Porosity 0.95

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 31.5                   | 31.5                        | 1.200     | 0.0                    | 59.0                        |
| 1.100     | 31.5                   | 59.0                        |           |                        |                             |

### orifice Outflow Control

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 48.850

Victoria Court  
22 St Pancras  
West Sussex PO1...

Garages at Ameri...  
SW Drainage  
Attenuation Tank...

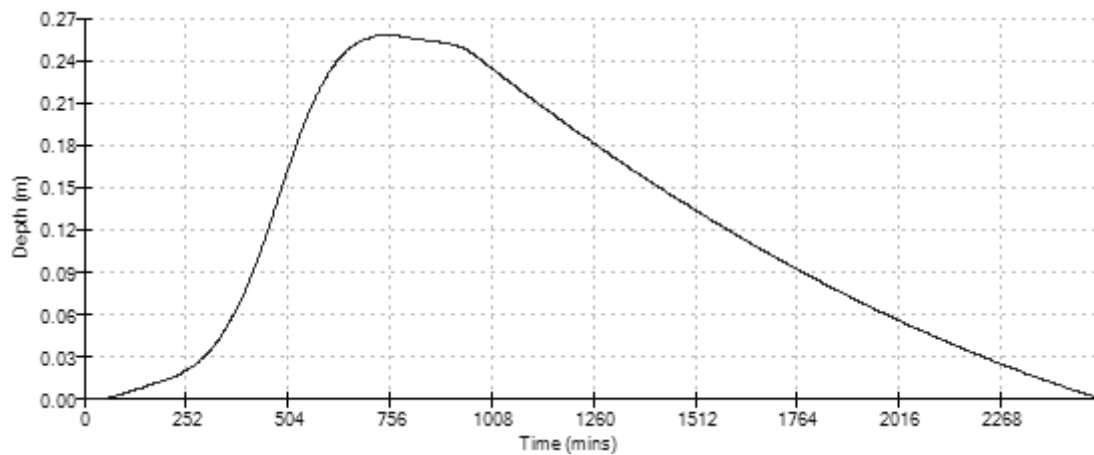
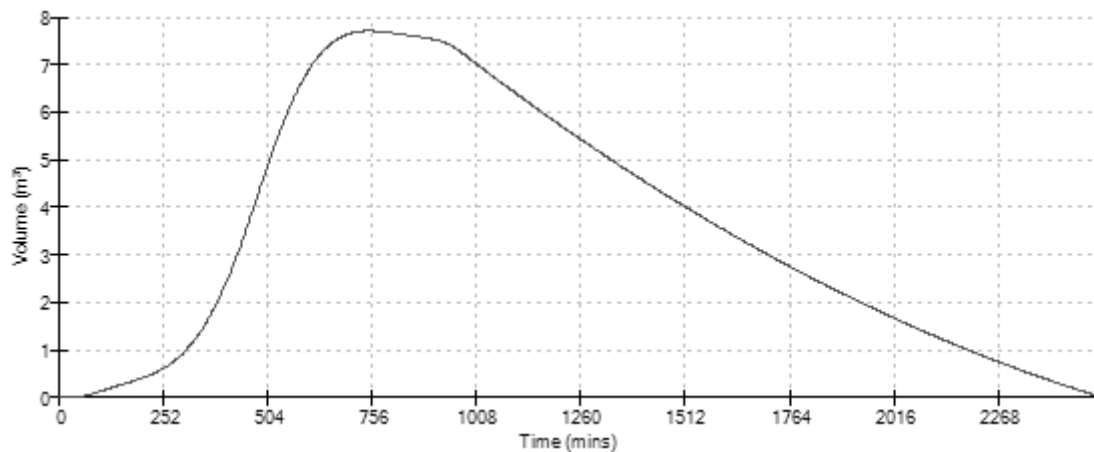
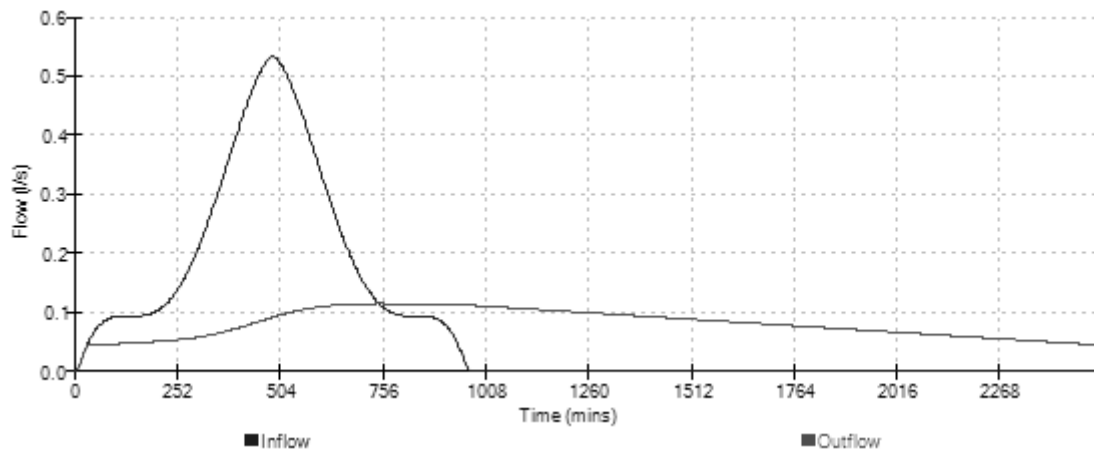
Date Sept 21  
File Attenuation...

Designed by JS  
Checked by



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Event: 960 min winter



|                                                       |                                                           |                                                                                     |
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| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Summary of Results for 30 year Return Period (+40%)

Half Drain Time : 1043 minutes.

| Storm Event      | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Σ Outflow (l/s) | Max Volume (m³) | Status |
|------------------|---------------|---------------|------------------------|-------------------|---------------------|-----------------|--------|
| 15 min Summer    | 49.099        | 0.199         | 0.0                    | 0.1               | 0.1                 | 5.9             | O K    |
| 30 min Summer    | 49.164        | 0.264         | 0.0                    | 0.1               | 0.1                 | 7.9             | O K    |
| 60 min Summer    | 49.233        | 0.333         | 0.0                    | 0.1               | 0.1                 | 10.0            | O K    |
| 120 min Summer   | 49.304        | 0.404         | 0.0                    | 0.1               | 0.1                 | 12.1            | O K    |
| 180 min Summer   | 49.342        | 0.442         | 0.0                    | 0.1               | 0.1                 | 13.2            | O K    |
| 240 min Summer   | 49.367        | 0.467         | 0.0                    | 0.1               | 0.1                 | 14.0            | O K    |
| 360 min Summer   | 49.399        | 0.499         | 0.0                    | 0.2               | 0.2                 | 14.9            | O K    |
| 480 min Summer   | 49.416        | 0.516         | 0.0                    | 0.2               | 0.2                 | 15.4            | O K    |
| 600 min Summer   | 49.425        | 0.525         | 0.0                    | 0.2               | 0.2                 | 15.7            | O K    |
| 720 min Summer   | 49.429        | 0.529         | 0.0                    | 0.2               | 0.2                 | 15.8            | O K    |
| 960 min Summer   | 49.432        | 0.532         | 0.0                    | 0.2               | 0.2                 | 15.9            | O K    |
| 1440 min Summer  | 49.430        | 0.530         | 0.0                    | 0.2               | 0.2                 | 15.9            | O K    |
| 2160 min Summer  | 49.417        | 0.517         | 0.0                    | 0.2               | 0.2                 | 15.5            | O K    |
| 2880 min Summer  | 49.398        | 0.498         | 0.0                    | 0.2               | 0.2                 | 14.9            | O K    |
| 4320 min Summer  | 49.357        | 0.457         | 0.0                    | 0.1               | 0.1                 | 13.7            | O K    |
| 5760 min Summer  | 49.320        | 0.420         | 0.0                    | 0.1               | 0.1                 | 12.6            | O K    |
| 7200 min Summer  | 49.287        | 0.387         | 0.0                    | 0.1               | 0.1                 | 11.6            | O K    |
| 8640 min Summer  | 49.258        | 0.358         | 0.0                    | 0.1               | 0.1                 | 10.7            | O K    |
| 10080 min Summer | 49.231        | 0.331         | 0.0                    | 0.1               | 0.1                 | 9.9             | O K    |
| 15 min Winter    | 49.123        | 0.223         | 0.0                    | 0.1               | 0.1                 | 6.7             | O K    |
| 30 min Winter    | 49.196        | 0.296         | 0.0                    | 0.1               | 0.1                 | 8.9             | O K    |
| 60 min Winter    | 49.274        | 0.374         | 0.0                    | 0.1               | 0.1                 | 11.2            | O K    |
| 120 min Winter   | 49.354        | 0.454         | 0.0                    | 0.1               | 0.1                 | 13.6            | O K    |
| 180 min Winter   | 49.399        | 0.499         | 0.0                    | 0.2               | 0.2                 | 14.9            | O K    |
| 240 min Winter   | 49.428        | 0.528         | 0.0                    | 0.2               | 0.2                 | 15.8            | O K    |
| 360 min Winter   | 49.466        | 0.566         | 0.0                    | 0.2               | 0.2                 | 16.9            | O K    |
| 480 min Winter   | 49.488        | 0.588         | 0.0                    | 0.2               | 0.2                 | 17.6            | O K    |
| 600 min Winter   | 49.501        | 0.601         | 0.0                    | 0.2               | 0.2                 | 18.0            | O K    |
| Storm Event      |               |               | Rain (mm/hr)           | Time-Peak (mins)  |                     |                 |        |
| 15 min Summer    |               |               | 101.062                | 26                |                     |                 |        |
| 30 min Summer    |               |               | 67.471                 | 41                |                     |                 |        |
| 60 min Summer    |               |               | 43.136                 | 70                |                     |                 |        |
| 120 min Summer   |               |               | 26.741                 | 130               |                     |                 |        |
| 180 min Summer   |               |               | 19.969                 | 188               |                     |                 |        |
| 240 min Summer   |               |               | 16.159                 | 246               |                     |                 |        |
| 360 min Summer   |               |               | 11.991                 | 364               |                     |                 |        |
| 480 min Summer   |               |               | 9.690                  | 484               |                     |                 |        |
| 600 min Summer   |               |               | 8.208                  | 602               |                     |                 |        |
| 720 min Summer   |               |               | 7.164                  | 708               |                     |                 |        |
| 960 min Summer   |               |               | 5.777                  | 816               |                     |                 |        |
| 1440 min Summer  |               |               | 4.259                  | 1068              |                     |                 |        |
| 2160 min Summer  |               |               | 3.135                  | 1476              |                     |                 |        |
| 2880 min Summer  |               |               | 2.520                  | 1884              |                     |                 |        |
| 4320 min Summer  |               |               | 1.851                  | 2724              |                     |                 |        |
| 5760 min Summer  |               |               | 1.485                  | 3520              |                     |                 |        |
| 7200 min Summer  |               |               | 1.254                  | 4320              |                     |                 |        |
| 8640 min Summer  |               |               | 1.091                  | 5104              |                     |                 |        |
| 10080 min Summer |               |               | 0.971                  | 5856              |                     |                 |        |
| 15 min Winter    |               |               | 101.062                | 26                |                     |                 |        |
| 30 min Winter    |               |               | 67.471                 | 41                |                     |                 |        |
| 60 min Winter    |               |               | 43.136                 | 70                |                     |                 |        |
| 120 min Winter   |               |               | 26.741                 | 126               |                     |                 |        |
| 180 min Winter   |               |               | 19.969                 | 184               |                     |                 |        |
| 240 min Winter   |               |               | 16.159                 | 242               |                     |                 |        |
| 360 min Winter   |               |               | 11.991                 | 358               |                     |                 |        |
| 480 min Winter   |               |               | 9.690                  | 472               |                     |                 |        |
| 600 min Winter   |               |               | 8.208                  | 584               |                     |                 |        |

|                                                       |                                                           |                                                                                     |
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| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Summary of Results for 30 year Return Period (+40%)

| Storm Event      | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Outflow (l/s) | Max Volume (m³) | Status |
|------------------|---------------|---------------|------------------------|-------------------|-------------------|-----------------|--------|
| 720 min winter   | 49.508        | 0.608         | 0.0                    | 0.2               | 0.2               | 18.2            | O K    |
| 960 min winter   | 49.512        | 0.612         | 0.0                    | 0.2               | 0.2               | 18.3            | O K    |
| 1440 min winter  | 49.506        | 0.606         | 0.0                    | 0.2               | 0.2               | 18.1            | O K    |
| 2160 min winter  | 49.487        | 0.587         | 0.0                    | 0.2               | 0.2               | 17.6            | O K    |
| 2880 min winter  | 49.459        | 0.559         | 0.0                    | 0.2               | 0.2               | 16.7            | O K    |
| 4320 min winter  | 49.398        | 0.498         | 0.0                    | 0.2               | 0.2               | 14.9            | O K    |
| 5760 min winter  | 49.342        | 0.442         | 0.0                    | 0.1               | 0.1               | 13.2            | O K    |
| 7200 min winter  | 49.294        | 0.394         | 0.0                    | 0.1               | 0.1               | 11.8            | O K    |
| 8640 min winter  | 49.253        | 0.353         | 0.0                    | 0.1               | 0.1               | 10.6            | O K    |
| 10080 min winter | 49.216        | 0.316         | 0.0                    | 0.1               | 0.1               | 9.5             | O K    |
| Storm Event      |               |               | Rain (mm/hr)           | Time-Peak (mins)  |                   |                 |        |
| 720 min winter   |               |               | 7.164                  | 694               |                   |                 |        |
| 960 min winter   |               |               | 5.777                  | 904               |                   |                 |        |
| 1440 min winter  |               |               | 4.259                  | 1126              |                   |                 |        |
| 2160 min winter  |               |               | 3.135                  | 1588              |                   |                 |        |
| 2880 min winter  |               |               | 2.520                  | 2048              |                   |                 |        |
| 4320 min winter  |               |               | 1.851                  | 2936              |                   |                 |        |
| 5760 min winter  |               |               | 1.485                  | 3752              |                   |                 |        |
| 7200 min winter  |               |               | 1.254                  | 4608              |                   |                 |        |
| 8640 min winter  |               |               | 1.091                  | 5368              |                   |                 |        |
| 10080 min winter |               |               | 0.971                  | 6152              |                   |                 |        |

|                                                       |                                                           |                                                                                     |
|-------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|
| Dixon Hurst Kemp                                      |                                                           | Page 3                                                                              |
| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### 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)            | 20.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.343             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +40   |

### Time / Area Diagram

Total Area (ha) 0.032

| Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) |
|----------------|--------------|----------------|--------------|----------------|--------------|
| 0-4            | 0.011        | 4-8            | 0.011        | 8-12           | 0.011        |

|                                                       |                                                           |                                                                                     |
|-------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|
| Dixon Hurst Kemp                                      |                                                           | Page 4                                                                              |
| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Model Details

Storage is Online Cover Level (m) 50.600

### cellular Storage Structure

Invert Level (m) 48.900  
Infiltration Coefficient Base (m/hr) 0.00000  
Infiltration Coefficient Side (m/hr) 0.00000  
Safety Factor 2.0  
Porosity 0.95

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 31.5                   | 31.5                        | 1.200     | 0.0                    | 59.0                        |
| 1.100     | 31.5                   | 59.0                        |           |                        |                             |

### orifice Outflow Control

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 48.850

Victoria Court  
22 St Pancras  
West Sussex PO1...

Garages at Ameri...  
SW Drainage  
Attenuation Tank...

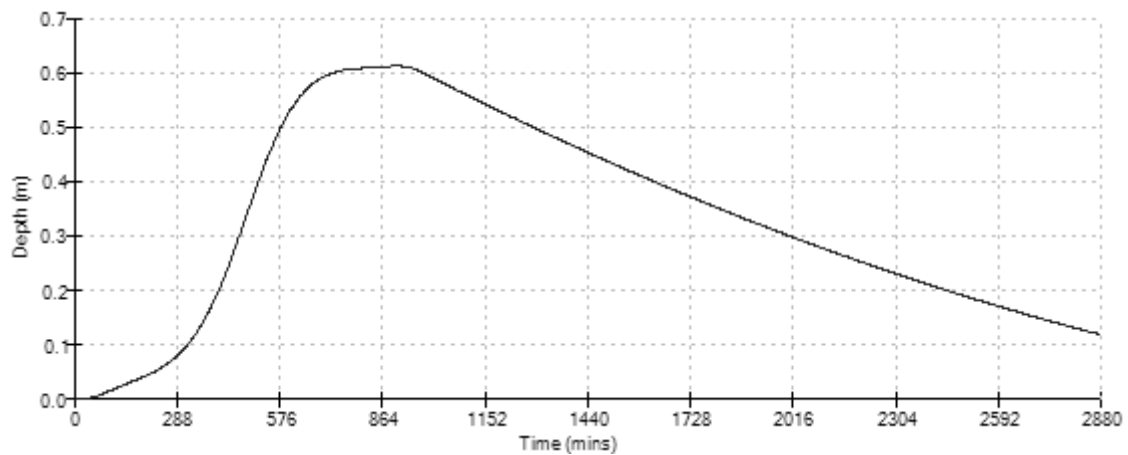
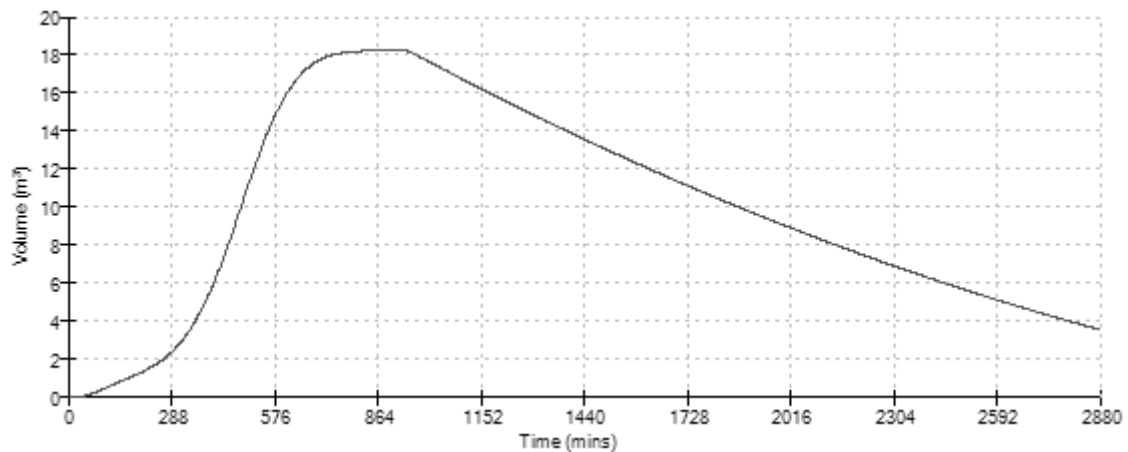
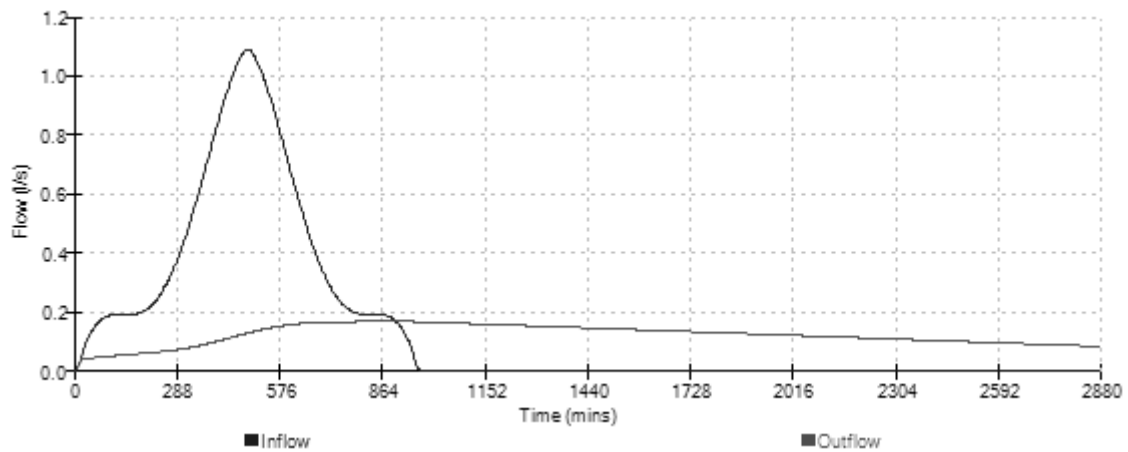
Date Sept 21  
File Attenuation...

Designed by JS  
Checked by



Elstree Computin... Source Control w.12.6

Event: 960 min Winter



|                                                       |                                                           |                                                                                     |
|-------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|
| Dixon Hurst Kemp                                      |                                                           | Page 1                                                                              |
| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 1225 minutes.

| Storm Event      | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max Σ Outflow (l/s) | Max Volume (m³) | Status |
|------------------|---------------|---------------|------------------------|-------------------|---------------------|-----------------|--------|
| 15 min Summer    | 49.158        | 0.258         | 0.0                    | 0.1               | 0.1                 | 7.7             | O K    |
| 30 min Summer    | 49.246        | 0.346         | 0.0                    | 0.1               | 0.1                 | 10.4            | O K    |
| 60 min Summer    | 49.341        | 0.441         | 0.0                    | 0.1               | 0.1                 | 13.2            | O K    |
| 120 min Summer   | 49.435        | 0.535         | 0.0                    | 0.2               | 0.2                 | 16.0            | O K    |
| 180 min Summer   | 49.485        | 0.585         | 0.0                    | 0.2               | 0.2                 | 17.5            | O K    |
| 240 min Summer   | 49.516        | 0.616         | 0.0                    | 0.2               | 0.2                 | 18.4            | O K    |
| 360 min Summer   | 49.557        | 0.657         | 0.0                    | 0.2               | 0.2                 | 19.7            | O K    |
| 480 min Summer   | 49.581        | 0.681         | 0.0                    | 0.2               | 0.2                 | 20.4            | O K    |
| 600 min Summer   | 49.593        | 0.693         | 0.0                    | 0.2               | 0.2                 | 20.8            | O K    |
| 720 min Summer   | 49.600        | 0.700         | 0.0                    | 0.2               | 0.2                 | 20.9            | O K    |
| 960 min Summer   | 49.601        | 0.701         | 0.0                    | 0.2               | 0.2                 | 21.0            | O K    |
| 1440 min Summer  | 49.596        | 0.696         | 0.0                    | 0.2               | 0.2                 | 20.8            | O K    |
| 2160 min Summer  | 49.578        | 0.678         | 0.0                    | 0.2               | 0.2                 | 20.3            | O K    |
| 2880 min Summer  | 49.553        | 0.653         | 0.0                    | 0.2               | 0.2                 | 19.5            | O K    |
| 4320 min Summer  | 49.500        | 0.600         | 0.0                    | 0.2               | 0.2                 | 17.9            | O K    |
| 5760 min Summer  | 49.450        | 0.550         | 0.0                    | 0.2               | 0.2                 | 16.4            | O K    |
| 7200 min Summer  | 49.407        | 0.507         | 0.0                    | 0.2               | 0.2                 | 15.2            | O K    |
| 8640 min Summer  | 49.369        | 0.469         | 0.0                    | 0.1               | 0.1                 | 14.0            | O K    |
| 10080 min Summer | 49.336        | 0.436         | 0.0                    | 0.1               | 0.1                 | 13.0            | O K    |
| 15 min Winter    | 49.189        | 0.289         | 0.0                    | 0.1               | 0.1                 | 8.7             | O K    |
| 30 min Winter    | 49.289        | 0.389         | 0.0                    | 0.1               | 0.1                 | 11.6            | O K    |
| 60 min Winter    | 49.395        | 0.495         | 0.0                    | 0.2               | 0.2                 | 14.8            | O K    |
| 120 min Winter   | 49.502        | 0.602         | 0.0                    | 0.2               | 0.2                 | 18.0            | O K    |
| 180 min Winter   | 49.559        | 0.659         | 0.0                    | 0.2               | 0.2                 | 19.7            | O K    |
| 240 min Winter   | 49.596        | 0.696         | 0.0                    | 0.2               | 0.2                 | 20.8            | O K    |
| 360 min Winter   | 49.644        | 0.744         | 0.0                    | 0.2               | 0.2                 | 22.3            | O K    |
| 480 min Winter   | 49.673        | 0.773         | 0.0                    | 0.2               | 0.2                 | 23.1            | O K    |
| 600 min Winter   | 49.690        | 0.790         | 0.0                    | 0.2               | 0.2                 | 23.6            | O K    |
| Storm Event      |               |               | Rain (mm/hr)           | Time-Peak (mins)  |                     |                 |        |
| 15 min Summer    |               |               | 130.922                |                   |                     | 27              |        |
| 30 min Summer    |               |               | 88.246                 |                   |                     | 41              |        |
| 60 min Summer    |               |               | 56.713                 |                   |                     | 70              |        |
| 120 min Summer   |               |               | 35.119                 |                   |                     | 130             |        |
| 180 min Summer   |               |               | 26.097                 |                   |                     | 188             |        |
| 240 min Summer   |               |               | 21.006                 |                   |                     | 248             |        |
| 360 min Summer   |               |               | 15.486                 |                   |                     | 366             |        |
| 480 min Summer   |               |               | 12.453                 |                   |                     | 484             |        |
| 600 min Summer   |               |               | 10.506                 |                   |                     | 602             |        |
| 720 min Summer   |               |               | 9.138                  |                   |                     | 722             |        |
| 960 min Summer   |               |               | 7.326                  |                   |                     | 874             |        |
| 1440 min Summer  |               |               | 5.354                  |                   |                     | 1112            |        |
| 2160 min Summer  |               |               | 3.904                  |                   |                     | 1504            |        |
| 2880 min Summer  |               |               | 3.116                  |                   |                     | 1928            |        |
| 4320 min Summer  |               |               | 2.263                  |                   |                     | 2732            |        |
| 5760 min Summer  |               |               | 1.802                  |                   |                     | 3568            |        |
| 7200 min Summer  |               |               | 1.512                  |                   |                     | 4336            |        |
| 8640 min Summer  |               |               | 1.310                  |                   |                     | 5112            |        |
| 10080 min Summer |               |               | 1.161                  |                   |                     | 5944            |        |
| 15 min Winter    |               |               | 130.922                |                   |                     | 26              |        |
| 30 min Winter    |               |               | 88.246                 |                   |                     | 41              |        |
| 60 min Winter    |               |               | 56.713                 |                   |                     | 70              |        |
| 120 min Winter   |               |               | 35.119                 |                   |                     | 128             |        |
| 180 min Winter   |               |               | 26.097                 |                   |                     | 186             |        |
| 240 min Winter   |               |               | 21.006                 |                   |                     | 244             |        |
| 360 min Winter   |               |               | 15.486                 |                   |                     | 358             |        |
| 480 min Winter   |               |               | 12.453                 |                   |                     | 474             |        |
| 600 min Winter   |               |               | 10.506                 |                   |                     | 588             |        |

|                                                       |                                                           |                                                                                     |
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| Dixon Hurst Kemp                                      |                                                           | Page 2                                                                              |
| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Summary of Results for 100 year Return Period (+40%)

| Storm Event      | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Control (l/s) | Max $\Sigma$ Outflow (l/s) | Max Volume (m³) | Status |
|------------------|---------------|---------------|------------------------|-------------------|----------------------------|-----------------|--------|
| 720 min winter   | 49.700        | 0.800         | 0.0                    | 0.2               | 0.2                        | 23.9            | O K    |
| 960 min winter   | 49.706        | 0.806         | 0.0                    | 0.2               | 0.2                        | 24.1            | O K    |
| 1440 min winter  | 49.695        | 0.795         | 0.0                    | 0.2               | 0.2                        | 23.8            | O K    |
| 2160 min winter  | 49.671        | 0.771         | 0.0                    | 0.2               | 0.2                        | 23.1            | O K    |
| 2880 min winter  | 49.636        | 0.736         | 0.0                    | 0.2               | 0.2                        | 22.0            | O K    |
| 4320 min winter  | 49.560        | 0.660         | 0.0                    | 0.2               | 0.2                        | 19.7            | O K    |
| 5760 min winter  | 49.488        | 0.588         | 0.0                    | 0.2               | 0.2                        | 17.6            | O K    |
| 7200 min winter  | 49.426        | 0.526         | 0.0                    | 0.2               | 0.2                        | 15.7            | O K    |
| 8640 min winter  | 49.372        | 0.472         | 0.0                    | 0.2               | 0.2                        | 14.1            | O K    |
| 10080 min winter | 49.326        | 0.426         | 0.0                    | 0.1               | 0.1                        | 12.7            | O K    |
| Storm Event      |               |               | Rain (mm/hr)           | Time-Peak (mins)  |                            |                 |        |
| 720 min winter   |               |               | 9.138                  | 700               |                            |                 |        |
| 960 min winter   |               |               | 7.326                  | 916               |                            |                 |        |
| 1440 min winter  |               |               | 5.354                  | 1158              |                            |                 |        |
| 2160 min winter  |               |               | 3.904                  | 1620              |                            |                 |        |
| 2880 min winter  |               |               | 3.116                  | 2076              |                            |                 |        |
| 4320 min winter  |               |               | 2.263                  | 2952              |                            |                 |        |
| 5760 min winter  |               |               | 1.802                  | 3808              |                            |                 |        |
| 7200 min winter  |               |               | 1.512                  | 4624              |                            |                 |        |
| 8640 min winter  |               |               | 1.310                  | 5448              |                            |                 |        |
| 10080 min winter |               |               | 1.161                  | 6256              |                            |                 |        |

|                                                       |                                                           |                                                                                     |
|-------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|
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| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### 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)            | 20.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.343             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +40   |

### Time / Area Diagram

Total Area (ha) 0.032

| Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) | Time<br>(mins) | Area<br>(ha) |
|----------------|--------------|----------------|--------------|----------------|--------------|
| 0-4            | 0.011        | 4-8            | 0.011        | 8-12           | 0.011        |

|                                                       |                                                           |                                                                                     |
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| Dixon Hurst Kemp                                      |                                                           | Page 4                                                                              |
| Victoria Court<br>22 St Pancras<br>West Sussex PO1... | Garages at Ameri...<br>SW Drainage<br>Attenuation Tank... |  |
| Date Sept 21<br>File Attenuation...                   | Designed by JS<br>Checked by                              |                                                                                     |
| Elstree Computin... Source Control w.12.6             |                                                           |                                                                                     |

### Model Details

Storage is Online Cover Level (m) 50.600

### cellular Storage Structure

Invert Level (m) 48.900  
Infiltration Coefficient Base (m/hr) 0.00000  
Infiltration Coefficient Side (m/hr) 0.00000  
Safety Factor 2.0  
Porosity 0.95

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 31.5                   | 31.5                        | 1.200     | 0.0                    | 59.0                        |
| 1.100     | 31.5                   | 59.0                        |           |                        |                             |

### orifice Outflow Control

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 48.850

Victoria Court  
22 St Pancras  
West Sussex PO1...

Garages at Ameri...  
SW Drainage  
Attenuation Tank...

Date Sept 21  
File Attenuation...

Designed by JS  
Checked by

Elstree Computin... Source Control w.12.6



Event: 960 min Winter

