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| The Stables<br>High Cogges, Witney<br>Oxfordshire       | Branch Hill<br>Green roof South West |  |
| Date 19/07/2017 09:28<br>File Greenroof SW lin2+CC.srcx | Designed by david<br>Checked by      |   |
| Micro Drainage  | Source Control 2015.1                |   |

Summary of Results for 2 year Return Period (+40%)

| Storm Event      | Max Level (m) | Max Depth (m) | Max Control (l/s) | Max Volume (m <sup>3</sup> ) | Status |
|------------------|---------------|---------------|-------------------|------------------------------|--------|
| 15 min Summer    | 115.017       | 0.017         | 0.2               | 0.0                          | O K    |
| 30 min Summer    | 115.022       | 0.022         | 0.3               | 0.0                          | O K    |
| 60 min Summer    | 115.024       | 0.024         | 0.3               | 0.0                          | O K    |
| 120 min Summer   | 115.022       | 0.022         | 0.3               | 0.0                          | O K    |
| 180 min Summer   | 115.020       | 0.020         | 0.2               | 0.0                          | O K    |
| 240 min Summer   | 115.018       | 0.018         | 0.2               | 0.0                          | O K    |
| 360 min Summer   | 115.016       | 0.016         | 0.2               | 0.0                          | O K    |
| 480 min Summer   | 115.015       | 0.015         | 0.2               | 0.0                          | O K    |
| 600 min Summer   | 115.014       | 0.014         | 0.1               | 0.0                          | O K    |
| 720 min Summer   | 115.013       | 0.013         | 0.1               | 0.0                          | O K    |
| 960 min Summer   | 115.012       | 0.012         | 0.1               | 0.0                          | O K    |
| 1440 min Summer  | 115.011       | 0.011         | 0.1               | 0.0                          | O K    |
| 2160 min Summer  | 115.010       | 0.010         | 0.1               | 0.0                          | O K    |
| 2880 min Summer  | 115.009       | 0.009         | 0.0               | 0.0                          | O K    |
| 4320 min Summer  | 115.007       | 0.007         | 0.0               | 0.0                          | O K    |
| 5760 min Summer  | 115.006       | 0.006         | 0.0               | 0.0                          | O K    |
| 7200 min Summer  | 115.006       | 0.006         | 0.0               | 0.0                          | O K    |
| 8640 min Summer  | 115.006       | 0.006         | 0.0               | 0.0                          | O K    |
| 10080 min Summer | 115.005       | 0.005         | 0.0               | 0.0                          | O K    |
| 15 min Winter    | 115.020       | 0.020         | 0.2               | 0.0                          | O K    |
| 30 min Winter    | 115.024       | 0.024         | 0.3               | 0.0                          | O K    |


| Storm Event      | Rain (mm/hr) | Flooded Volume (m <sup>3</sup> ) | Discharge Volume (m <sup>3</sup> ) | Time-Peak (mins) |
|------------------|--------------|----------------------------------|------------------------------------|------------------|
| 15 min Summer    | 60.816       | 0.0                              | 0.3                                | 23               |
| 30 min Summer    | 38.864       | 0.0                              | 0.4                                | 27               |
| 60 min Summer    | 23.873       | 0.0                              | 0.6                                | 40               |
| 120 min Summer   | 14.343       | 0.0                              | 0.7                                | 70               |
| 180 min Summer   | 10.586       | 0.0                              | 0.8                                | 102              |
| 240 min Summer   | 8.521        | 0.0                              | 0.9                                | 134              |
| 360 min Summer   | 6.250        | 0.0                              | 1.0                                | 194              |
| 480 min Summer   | 5.010        | 0.0                              | 1.1                                | 250              |
| 600 min Summer   | 4.219        | 0.0                              | 1.2                                | 310              |
| 720 min Summer   | 3.666        | 0.0                              | 1.2                                | 380              |
| 960 min Summer   | 2.937        | 0.0                              | 1.3                                | 492              |
| 1440 min Summer  | 2.148        | 0.0                              | 1.4                                | 744              |
| 2160 min Summer  | 1.571        | 0.0                              | 1.5                                | 1128             |
| 2880 min Summer  | 1.258        | 0.0                              | 1.6                                | 1468             |
| 4320 min Summer  | 0.919        | 0.0                              | 1.6                                | 2196             |
| 5760 min Summer  | 0.736        | 0.0                              | 1.7                                | 2864             |
| 7200 min Summer  | 0.619        | 0.0                              | 1.6                                | 3656             |
| 8640 min Summer  | 0.538        | 0.0                              | 1.6                                | 4360             |
| 10080 min Summer | 0.478        | 0.0                              | 1.6                                | 5240             |
| 15 min Winter    | 60.816       | 0.0                              | 0.3                                | 21               |
| 30 min Winter    | 38.864       | 0.0                              | 0.5                                | 27               |

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| Micro Drainage  | Source Control 2015.1                |   |

Summary of Results for 2 year Return Period (+40%)

| Storm Event      | Max Level (m) | Max Depth (m) | Max Control (l/s) | Max Volume (m <sup>3</sup> ) | Status |
|------------------|---------------|---------------|-------------------|------------------------------|--------|
| 60 min Winter    | 115.025       | 0.025         | 0.4               | 0.0                          | O K    |
| 120 min Winter   | 115.022       | 0.022         | 0.3               | 0.0                          | O K    |
| 180 min Winter   | 115.019       | 0.019         | 0.2               | 0.0                          | O K    |
| 240 min Winter   | 115.017       | 0.017         | 0.2               | 0.0                          | O K    |
| 360 min Winter   | 115.015       | 0.015         | 0.2               | 0.0                          | O K    |
| 480 min Winter   | 115.013       | 0.013         | 0.1               | 0.0                          | O K    |
| 600 min Winter   | 115.012       | 0.012         | 0.1               | 0.0                          | O K    |
| 720 min Winter   | 115.012       | 0.012         | 0.1               | 0.0                          | O K    |
| 960 min Winter   | 115.011       | 0.011         | 0.1               | 0.0                          | O K    |
| 1440 min Winter  | 115.010       | 0.010         | 0.1               | 0.0                          | O K    |
| 2160 min Winter  | 115.008       | 0.008         | 0.0               | 0.0                          | O K    |
| 2880 min Winter  | 115.007       | 0.007         | 0.0               | 0.0                          | O K    |
| 4320 min Winter  | 115.006       | 0.006         | 0.0               | 0.0                          | O K    |
| 5760 min Winter  | 115.006       | 0.006         | 0.0               | 0.0                          | O K    |
| 7200 min Winter  | 115.005       | 0.005         | 0.0               | 0.0                          | O K    |
| 8640 min Winter  | 115.005       | 0.005         | 0.0               | 0.0                          | O K    |
| 10080 min Winter | 115.004       | 0.004         | 0.0               | 0.0                          | O K    |

| Storm Event      | Rain (mm/hr) | Flooded Volume (m <sup>3</sup> ) | Discharge Volume (m <sup>3</sup> ) | Time-Peak (mins) |
|------------------|--------------|----------------------------------|------------------------------------|------------------|
| 60 min Winter    | 23.873       | 0.0                              | 0.7                                | 38               |
| 120 min Winter   | 14.343       | 0.0                              | 0.9                                | 72               |
| 180 min Winter   | 10.586       | 0.0                              | 1.0                                | 108              |
| 240 min Winter   | 8.521        | 0.0                              | 1.1                                | 138              |
| 360 min Winter   | 6.250        | 0.0                              | 1.2                                | 196              |
| 480 min Winter   | 5.010        | 0.0                              | 1.3                                | 248              |
| 600 min Winter   | 4.219        | 0.0                              | 1.3                                | 308              |
| 720 min Winter   | 3.666        | 0.0                              | 1.4                                | 374              |
| 960 min Winter   | 2.937        | 0.0                              | 1.5                                | 488              |
| 1440 min Winter  | 2.148        | 0.0                              | 1.6                                | 786              |
| 2160 min Winter  | 1.571        | 0.0                              | 1.8                                | 1080             |
| 2880 min Winter  | 1.258        | 0.0                              | 1.8                                | 1452             |
| 4320 min Winter  | 0.919        | 0.0                              | 1.9                                | 2104             |
| 5760 min Winter  | 0.736        | 0.0                              | 2.0                                | 2896             |
| 7200 min Winter  | 0.619        | 0.0                              | 2.0                                | 3512             |
| 8640 min Winter  | 0.538        | 0.0                              | 2.0                                | 4344             |
| 10080 min Winter | 0.478        | 0.0                              | 1.9                                | 5088             |

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Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 2                 | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 21.000            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.439             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +40   |

Green Roof

|                         |    |                      |       |
|-------------------------|----|----------------------|-------|
| Area (m <sup>3</sup> )  | 46 | Evaporation (mm/day) | 3     |
| Depression Storage (mm) | 5  | Decay Coefficient    | 0.050 |

| Time (mins) | Area (ha) | Time (mins) | Area (ha) | Time (mins) | Area (ha) | Time (mins) | Area (ha) |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| From:       | To:       | From:       | To:       | From:       | To:       | From:       | To:       |
| 0           | 4         | 32          | 36        | 64          | 68        | 96          | 100       |
| 4           | 8         | 36          | 40        | 68          | 72        | 100         | 104       |
| 8           | 12        | 40          | 44        | 72          | 76        | 104         | 108       |
| 12          | 16        | 44          | 48        | 76          | 80        | 108         | 112       |
| 16          | 20        | 48          | 52        | 80          | 84        | 112         | 116       |
| 20          | 24        | 52          | 56        | 84          | 88        | 116         | 120       |
| 24          | 28        | 56          | 60        | 88          | 92        |             |           |
| 28          | 32        | 60          | 64        | 92          | 96        |             |           |