



Design Settings

|                       |                   |                                      |               |
|-----------------------|-------------------|--------------------------------------|---------------|
| Rainfall Methodology  | FSR               | Maximum Time of Concentration (mins) | 99.00         |
| Return Period (years) | 1                 | Maximum Rainfall (mm/hr)             | 0.0           |
| Additional Flow (%)   | 0                 | Minimum Velocity (m/s)               | 1.00          |
| FSR Region            | England and Wales | Connection Type                      | Level Soffits |
| M5-60 (mm)            | 20.000            | Minimum Backdrop Height (m)          | 1.000         |
| Ratio-R               | 0.400             | Preferred Cover Depth (m)            | 1.200         |
| CV                    | 0.750             | Include Intermediate Ground          | ✓             |
| Time of Entry (mins)  | 5.00              | Enforce best practice design rules   | ✓             |

Nodes

| Name | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Diameter<br>(mm) | Easting<br>(m) | Northing<br>(m) | Depth<br>(m) |
|------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| S47  | 0.050        | 5.00             | 87.438                | 1500             | 451050.725     | 305369.683      | 1.273        |
| S48  | 0.086        | 5.00             | 86.192                | 1500             | 451087.712     | 305371.344      | 1.542        |
| S49  | 0.088        | 5.00             | 85.540                | 1500             | 451108.827     | 305367.783      | 1.570        |
| S50  | 0.082        | 5.00             | 85.006                | 1500             | 451124.708     | 305373.089      | 1.691        |
| S51  | 0.155        | 5.00             | 82.847                | 1500             | 451187.464     | 305375.395      | 1.507        |
| S52  | 0.059        | 5.00             | 82.407                | 1500             | 451199.849     | 305371.818      | 1.647        |
| S53  | 0.032        | 5.00             | 81.944                | 1500             | 451204.320     | 305358.537      | 1.614        |
| S54  | 0.064        | 5.00             | 80.292                | 1500             | 451255.512     | 305376.363      | 1.842        |
| S55  | 0.061        | 5.00             | 80.276                | 1350             | 451263.750     | 305353.462      | 2.061        |
| S57  | 0.224        | 5.00             | 79.500                | 1500             | 451279.630     | 305362.577      | 0.540        |
| S58  |              |                  | 79.409                | 1500             | 451281.116     | 305359.195      | 1.427        |
| S59  |              |                  | 79.300                | 1500             | 451282.947     | 305355.151      | 1.472        |
| S60  | 0.050        | 5.00             | 78.775                | 1500             | 451288.249     | 305315.525      | 1.325        |
| S61  |              |                  | 78.100                | 1500             | 451291.039     | 305302.370      | 1.093        |
| S62  | 0.108        | 5.00             | 82.053                | 1500             | 451169.674     | 305319.604      | 1.390        |
| S63  | 0.081        | 5.00             | 81.505                | 1500             | 451190.062     | 305319.284      | 1.595        |
| S64  | 0.024        | 5.00             | 81.261                | 1500             | 451212.016     | 305334.967      | 1.426        |
| S65  | 0.089        | 5.00             | 80.907                | 1500             | 451215.008     | 305322.562      | 1.727        |
| S66  | 0.103        | 5.00             | 80.307                | 1500             | 451217.734     | 305296.355      | 1.827        |
| S67  | 0.042        | 5.00             | 79.884                | 1350             | 451213.569     | 305275.230      | 1.894        |
| S68  | 0.260        | 5.00             | 78.760                | 1500             | 451266.098     | 305259.319      | 1.493        |
| S69  |              |                  | 78.100                | 1500             | 451276.171     | 305253.862      | 1.093        |
| S70  | 0.250        | 5.00             | 78.100                | 1500             | 451295.865     | 305256.974      | 1.100        |
| S71  |              |                  | 78.500                | 3000             | 451306.929     | 305256.650      | 1.525        |
| S72  |              |                  | 77.500                | 1500             | 451320.232     | 305256.264      | 1.144        |
| S73  |              |                  | 77.000                | 1500             | 451326.151     | 305256.217      | 0.700        |

Links

| Name   | US<br>Node | DS<br>Node | Length<br>(m) | ks (mm) /<br>n | US IL<br>(m) | DS IL<br>(m) | Fall<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | T of C<br>(mins) | Rain<br>(mm/hr) |
|--------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|------------------|-----------------|
| 13.000 | S47        | S48        | 37.024        | 0.600          | 86.165       | 84.725       | 1.440       | 25.7           | 225         | 5.24             | 0.0             |
| 1.008  | S48        | S49        | 21.413        | 0.600          | 84.650       | 83.970       | 0.680       | 31.5           | 300         | 5.37             | 0.0             |
| 1.009  | S49        | S50        | 16.745        | 0.600          | 83.970       | 83.390       | 0.580       | 28.9           | 300         | 5.46             | 0.0             |
| 1.010  | S50        | S51        | 62.798        | 0.600          | 83.315       | 81.340       | 1.975       | 31.8           | 375         | 5.78             | 0.0             |
| 1.011  | S51        | S52        | 12.892        | 0.600          | 81.340       | 80.760       | 0.580       | 22.2           | 375         | 5.84             | 0.0             |
| 1.012  | S52        | S53        | 14.013        | 0.600          | 80.760       | 80.330       | 0.430       | 32.6           | 375         | 5.91             | 0.0             |
| 1.013  | S53        | S54        | 54.207        | 0.600          | 80.330       | 78.525       | 1.805       | 30.0           | 375         | 6.19             | 0.0             |
| 1.014  | S54        | S55        | 24.338        | 0.600          | 78.450       | 78.215       | 0.235       | 103.6          | 450         | 6.39             | 0.0             |
| 1.015  | S55        | S59        | 19.271        | 0.600          | 78.215       | 77.829       | 0.386       | 49.9           | 450         | 6.50             | 0.0             |
| 25.013 | S57        | S58        | 3.693         | 0.600          | 78.960       | 77.982       | 0.978       | 3.8            | 300         | 5.01             | 0.0             |
| 25.014 | S58        | S59        | 4.439         | 0.600          | 77.982       | 77.828       | 0.154       | 28.8           | 300         | 5.03             | 0.0             |
| 1.016  | S59        | S60        | 39.980        | 0.600          | 77.828       | 77.450       | 0.378       | 105.8          | 450         | 6.84             | 0.0             |
| 1.017  | S60        | S61        | 13.448        | 0.600          | 77.450       | 77.300       | 0.150       | 89.7           | 450         | 6.94             | 0.0             |
| 42.003 | S62        | S63        | 20.391        | 0.600          | 80.663       | 79.910       | 0.753       | 27.1           | 300         | 5.11             | 0.0             |
| 42.004 | S63        | S65        | 25.160        | 0.600          | 79.910       | 79.255       | 0.655       | 38.4           | 300         | 5.28             | 0.0             |
| 46.000 | S64        | S65        | 12.761        | 0.600          | 79.835       | 79.330       | 0.505       | 25.3           | 225         | 5.08             | 0.0             |
| 34.010 | S65        | S66        | 26.348        | 0.600          | 79.180       | 78.480       | 0.700       | 37.6           | 375         | 5.43             | 0.0             |
| 34.011 | S66        | S67        | 21.532        | 0.600          | 78.480       | 77.990       | 0.490       | 43.9           | 375         | 5.56             | 0.0             |
| 34.012 | S67        | S68        | 54.886        | 0.600          | 77.990       | 77.342       | 0.648       | 84.7           | 375         | 6.02             | 0.0             |
| 34.013 | S68        | S69        | 11.456        | 0.600          | 77.267       | 77.225       | 0.042       | 272.8          | 450         | 6.18             | 0.0             |
| 1.019  | S70        | S71        | 11.068        | 0.600          | 77.000       | 76.975       | 0.025       | 442.7          | 450         | 5.19             | 0.0             |
| 1.020  | S71        | S72        | 13.309        | 0.600          | 76.975       | 76.356       | 0.619       | 21.5           | 225         | 5.27             | 0.0             |
| 1.021  | S72        | S73        | 5.919         | 0.600          | 76.356       | 76.300       | 0.056       | 105.7          | 225         | 5.35             | 0.0             |

| Name   | Vel<br>(m/s) | Cap<br>(l/s) | Flow<br>(l/s) | US<br>Depth<br>(m) | DS<br>Depth<br>(m) | Σ Area<br>(ha) | Σ Add<br>Inflow<br>(l/s) |
|--------|--------------|--------------|---------------|--------------------|--------------------|----------------|--------------------------|
| 13.000 | 2.590        | 103.0        | 0.0           | 1.048              | 1.242              | 0.050          | 0.0                      |
| 1.008  | 2.811        | 198.7        | 0.0           | 1.242              | 1.270              | 0.136          | 0.0                      |
| 1.009  | 2.937        | 207.6        | 0.0           | 1.270              | 1.316              | 0.224          | 0.0                      |
| 1.010  | 3.223        | 355.9        | 0.0           | 1.316              | 1.132              | 0.306          | 0.0                      |
| 1.011  | 3.857        | 426.0        | 0.0           | 1.132              | 1.272              | 0.461          | 0.0                      |
| 1.012  | 3.183        | 351.6        | 0.0           | 1.272              | 1.239              | 0.520          | 0.0                      |
| 1.013  | 3.316        | 366.3        | 0.0           | 1.239              | 1.392              | 0.552          | 0.0                      |
| 1.014  | 1.997        | 317.6        | 0.0           | 1.392              | 1.611              | 0.616          | 0.0                      |
| 1.015  | 2.882        | 458.4        | 0.0           | 1.611              | 1.021              | 0.677          | 0.0                      |
| 25.013 | 8.143        | 575.6        | 0.0           | 0.240              | 1.127              | 0.224          | 0.0                      |
| 25.014 | 2.939        | 207.7        | 0.0           | 1.127              | 1.172              | 0.224          | 0.0                      |
| 1.016  | 1.976        | 314.3        | 0.0           | 1.022              | 0.875              | 0.901          | 0.0                      |
| 1.017  | 2.148        | 341.6        | 0.0           | 0.875              | 0.350              | 0.951          | 0.0                      |
| 42.003 | 3.033        | 214.4        | 0.0           | 1.090              | 1.295              | 0.108          | 0.0                      |
| 42.004 | 2.544        | 179.8        | 0.0           | 1.295              | 1.352              | 0.190          | 0.0                      |
| 46.000 | 2.613        | 103.9        | 0.0           | 1.201              | 1.352              | 0.024          | 0.0                      |
| 34.010 | 2.961        | 327.0        | 0.0           | 1.352              | 1.452              | 0.302          | 0.0                      |
| 34.011 | 2.739        | 302.6        | 0.0           | 1.452              | 1.519              | 0.406          | 0.0                      |
| 34.012 | 1.969        | 217.5        | 0.0           | 1.519              | 1.043              | 0.448          | 0.0                      |
| 34.013 | 1.226        | 195.0        | 0.0           | 1.043              | 0.425              | 0.707          | 0.0                      |
| 1.019  | 0.960        | 152.6        | 0.0           | 0.650              | 1.075              | 0.250          | 0.0                      |
| 1.020  | 2.834        | 112.7        | 0.0           | 1.300              | 0.919              | 0.250          | 0.0                      |
| 1.021  | 1.271        | 50.5         | 0.0           | 0.919              | 0.475              | 0.250          | 0.0                      |

Simulation Settings

|                      |                   |                            |          |
|----------------------|-------------------|----------------------------|----------|
| Rainfall Methodology | FSR               | Analysis Speed             | Detailed |
| FSR Region           | England and Wales | Skip Steady State          | x        |
| M5-60 (mm)           | 20.000            | Drain Down Time (mins)     | 10080    |
| Ratio-R              | 0.400             | Additional Storage (m³/ha) | 0.0      |
| Summer CV            | 0.750             | Check Discharge Rate(s)    | x        |
| Winter CV            | 0.840             | Check Discharge Volume     | x        |

Storm Durations

|    |    |    |     |     |     |     |     |     |     |     |      |
|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440 |
|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|------|

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 100                      | 40                       | 0                        | 0                        |

Node S71 Online Hydro-Brake® Control

|                          |        |                         |                                |
|--------------------------|--------|-------------------------|--------------------------------|
| Flap Valve               | x      | Objective               | (HE) Minimise upstream storage |
| Replaces Downstream Link | x      | Sump Available          | ✓                              |
| Invert Level (m)         | 76.975 | Product Number          | CTL-SHE-0146-1000-1000-1000    |
| Design Depth (m)         | 1.000  | Min Outlet Diameter (m) | 0.225                          |
| Design Flow (l/s)        | 10.0   | Min Node Diameter (mm)  | 1200                           |

Node S70 Flow through Pond Storage Structure

|                             |         |                           |        |                          |         |
|-----------------------------|---------|---------------------------|--------|--------------------------|---------|
| Base Inf Coefficient (m/hr) | 0.00000 | Porosity                  | 1.00   | Main Channel Length (m)  | 70.000  |
| Side Inf Coefficient (m/hr) | 0.00000 | Invert Level (m)          | 77.000 | Main Channel Slope (1:X) | 10000.0 |
| Safety Factor               | 2.0     | Time to half empty (mins) | 1305   | Main Channel n           | 0.040   |

Inlets

|     |     |
|-----|-----|
| S61 | S69 |
|-----|-----|

| Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) |
|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|
| 0.000        | 1287.4       | 0.0              | 0.300        | 1454.5       | 0.0              | 0.600        | 1627.9       | 0.0              | 0.900        | 1806.3       | 0.0              |
| 0.100        | 1341.8       | 0.0              | 0.400        | 1511.7       | 0.0              | 0.700        | 1686.8       | 0.0              | 1.000        | 1866.9       | 0.0              |
| 0.200        | 1397.9       | 0.0              | 0.500        | 1569.5       | 0.0              | 0.800        | 1746.2       | 0.0              | 1.100        | 2501.0       | 0.0              |

Node S57 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 78.960 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 1.00 | Time to half empty (mins) | 3      |

| Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) |
|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|
| 0.000        | 0.0          | 0.0              | 0.200        | 17.5         | 0.0              | 0.400        | 56.6         | 0.0              |
| 0.100        | 6.1          | 0.0              | 0.300        | 34.3         | 0.0              | 0.500        | 86.8         | 0.0              |

**Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter  | S47     | 10          | 86.205    | 0.040     | 7.0          | 0.0701        | 0.0000     | OK     |
| 15 minute winter  | S48     | 10          | 84.712    | 0.062     | 18.9         | 0.1094        | 0.0000     | OK     |
| 15 minute winter  | S49     | 10          | 84.052    | 0.082     | 31.2         | 0.1453        | 0.0000     | OK     |
| 15 minute winter  | S50     | 10          | 83.401    | 0.086     | 42.4         | 0.1516        | 0.0000     | OK     |
| 15 minute winter  | S51     | 10          | 81.442    | 0.102     | 63.7         | 0.1796        | 0.0000     | OK     |
| 15 minute winter  | S52     | 10          | 80.885    | 0.125     | 71.0         | 0.2203        | 0.0000     | OK     |
| 15 minute winter  | S53     | 11          | 80.448    | 0.118     | 75.3         | 0.2084        | 0.0000     | OK     |
| 15 minute winter  | S54     | 11          | 78.619    | 0.169     | 84.4         | 0.2991        | 0.0000     | OK     |
| 15 minute winter  | S55     | 11          | 78.359    | 0.144     | 92.8         | 0.2066        | 0.0000     | OK     |
| 15 minute winter  | S57     | 10          | 79.007    | 0.047     | 31.6         | 0.1514        | 0.0000     | OK     |
| 15 minute winter  | S58     | 10          | 78.073    | 0.091     | 31.5         | 0.1612        | 0.0000     | OK     |
| 15 minute winter  | S59     | 11          | 78.033    | 0.205     | 123.0        | 0.3619        | 0.0000     | OK     |
| 15 minute winter  | S60     | 11          | 77.669    | 0.219     | 130.0        | 0.3863        | 0.0000     | OK     |
| 480 minute winter | S61     | 352         | 77.192    | 0.185     | 16.5         | 0.3273        | 0.0000     | OK     |
| 15 minute winter  | S62     | 10          | 80.717    | 0.054     | 15.3         | 0.0950        | 0.0000     | OK     |
| 15 minute winter  | S63     | 10          | 79.990    | 0.080     | 26.7         | 0.1414        | 0.0000     | OK     |
| 15 minute winter  | S64     | 10          | 79.863    | 0.028     | 3.4          | 0.0500        | 0.0000     | OK     |
| 15 minute winter  | S65     | 10          | 79.270    | 0.090     | 42.1         | 0.1593        | 0.0000     | OK     |
| 15 minute winter  | S66     | 10          | 78.592    | 0.112     | 56.4         | 0.1977        | 0.0000     | OK     |
| 15 minute winter  | S67     | 11          | 78.125    | 0.135     | 61.6         | 0.1930        | 0.0000     | OK     |
| 15 minute winter  | S68     | 11          | 77.512    | 0.245     | 97.0         | 0.4336        | 0.0000     | OK     |
| 15 minute winter  | S69     | 11          | 77.285    | 0.278     | 97.2         | 0.4909        | 0.0000     | OK     |
| 480 minute winter | S70     | 360         | 77.191    | 0.191     | 19.9         | 0.3367        | 0.0000     | OK     |
| 480 minute winter | S71     | 360         | 77.190    | 0.215     | 9.4          | 1.5191        | 0.0000     | OK     |
| 480 minute winter | S72     | 360         | 76.428    | 0.072     | 9.4          | 0.1266        | 0.0000     | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link              | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-------------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter               | S47        | 13.000            | S48        | 6.8              | 1.467             | 0.066    | 0.1723           |                       |
| 15 minute winter               | S48        | 1.008             | S49        | 18.8             | 1.447             | 0.095    | 0.2796           |                       |
| 15 minute winter               | S49        | 1.009             | S50        | 30.8             | 2.049             | 0.148    | 0.2515           |                       |
| 15 minute winter               | S50        | 1.010             | S51        | 41.8             | 1.945             | 0.117    | 1.3515           |                       |
| 15 minute winter               | S51        | 1.011             | S52        | 62.9             | 2.254             | 0.148    | 0.3615           |                       |
| 15 minute winter               | S52        | 1.012             | S53        | 71.1             | 2.314             | 0.202    | 0.4312           |                       |
| 15 minute winter               | S53        | 1.013             | S54        | 75.9             | 2.615             | 0.207    | 1.5735           |                       |
| 15 minute winter               | S54        | 1.014             | S55        | 84.7             | 1.724             | 0.267    | 1.1962           |                       |
| 15 minute winter               | S55        | 1.015             | S59        | 92.9             | 1.647             | 0.203    | 1.0942           |                       |
| 15 minute winter               | S57        | 25.013            | S58        | 31.5             | 2.663             | 0.055    | 0.0464           |                       |
| 15 minute winter               | S58        | 25.014            | S59        | 31.4             | 1.157             | 0.151    | 0.1510           |                       |
| 15 minute winter               | S59        | 1.016             | S60        | 123.4            | 1.684             | 0.393    | 2.9293           |                       |
| 15 minute winter               | S60        | 1.017             | S61        | 129.6            | 1.860             | 0.379    | 0.9372           |                       |
| 480 minute winter              | S61        | Flow through pond | S70        | 15.6             | 0.017             | 0.005    | 250.5959         |                       |
| 15 minute winter               | S62        | 42.003            | S63        | 15.2             | 1.301             | 0.071    | 0.2406           |                       |
| 15 minute winter               | S63        | 42.004            | S65        | 26.2             | 1.791             | 0.146    | 0.3682           |                       |
| 15 minute winter               | S64        | 46.000            | S65        | 3.3              | 1.184             | 0.032    | 0.0361           |                       |
| 15 minute winter               | S65        | 34.010            | S66        | 41.8             | 1.750             | 0.128    | 0.6308           |                       |
| 15 minute winter               | S66        | 34.011            | S67        | 55.7             | 1.774             | 0.184    | 0.6775           |                       |
| 15 minute winter               | S67        | 34.012            | S68        | 61.8             | 1.474             | 0.284    | 2.3135           |                       |
| 15 minute winter               | S68        | 34.013            | S69        | 97.2             | 1.186             | 0.499    | 0.9392           |                       |
| 15 minute winter               | S69        | Flow through pond | S70        | 136.2            | 0.102             | 0.042    | 119.2827         |                       |
| 480 minute winter              | S70        | 1.019             | S71        | 9.4              | 0.188             | 0.062    | 0.7667           |                       |
| 480 minute winter              | S71        | 1.020             | S72        | 9.4              | 1.173             | 0.084    | 0.1084           |                       |
| 480 minute winter              | S72        | 1.021             | S73        | 9.4              | 0.923             | 0.186    | 0.0604           | 379.0                 |



**Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 480 minute winter | S73        | 360            | 76.365       | 0.065        | 9.4             | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|------|------------|------------------|-------------------|----------|------------------|-----------------------|
|--------------------------------|------------|------|------------|------------------|-------------------|----------|------------------|-----------------------|

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | S47     | 10          | 86.228    | 0.063     | 17.2         | 0.1109        | 0.0000     | OK         |
| 15 minute winter  | S48     | 10          | 84.748    | 0.098     | 46.7         | 0.1736        | 0.0000     | OK         |
| 15 minute winter  | S49     | 10          | 84.108    | 0.138     | 76.8         | 0.2435        | 0.0000     | OK         |
| 15 minute winter  | S50     | 10          | 83.452    | 0.137     | 104.5        | 0.2416        | 0.0000     | OK         |
| 15 minute winter  | S51     | 10          | 81.515    | 0.175     | 157.2        | 0.3094        | 0.0000     | OK         |
| 15 minute winter  | S52     | 10          | 80.979    | 0.219     | 175.6        | 0.3868        | 0.0000     | OK         |
| 15 minute winter  | S53     | 10          | 80.521    | 0.191     | 185.5        | 0.3367        | 0.0000     | OK         |
| 15 minute winter  | S54     | 11          | 78.748    | 0.297     | 206.9        | 0.5257        | 0.0000     | OK         |
| 15 minute winter  | S55     | 11          | 78.488    | 0.273     | 229.3        | 0.3901        | 0.0000     | OK         |
| 15 minute winter  | S57     | 10          | 79.035    | 0.075     | 77.5         | 0.3051        | 0.0000     | OK         |
| 15 minute winter  | S58     | 11          | 78.295    | 0.313     | 77.2         | 0.5539        | 0.0000     | SURCHARGED |
| 15 minute winter  | S59     | 11          | 78.249    | 0.421     | 303.7        | 0.7438        | 0.0000     | OK         |
| 15 minute winter  | S60     | 11          | 77.867    | 0.417     | 317.9        | 0.7363        | 0.0000     | OK         |
| 480 minute winter | S61     | 456         | 77.448    | 0.441     | 35.8         | 0.7790        | 0.0000     | OK         |
| 15 minute winter  | S62     | 10          | 80.747    | 0.084     | 37.4         | 0.1484        | 0.0000     | OK         |
| 15 minute winter  | S63     | 10          | 80.042    | 0.132     | 65.4         | 0.2330        | 0.0000     | OK         |
| 15 minute winter  | S64     | 10          | 79.879    | 0.044     | 8.2          | 0.0778        | 0.0000     | OK         |
| 15 minute winter  | S65     | 10          | 79.328    | 0.148     | 103.3        | 0.2612        | 0.0000     | OK         |
| 15 minute winter  | S66     | 10          | 78.672    | 0.192     | 138.5        | 0.3396        | 0.0000     | OK         |
| 15 minute winter  | S67     | 10          | 78.219    | 0.229     | 151.7        | 0.3272        | 0.0000     | OK         |
| 15 minute winter  | S68     | 11          | 77.717    | 0.450     | 241.7        | 0.7954        | 0.0000     | SURCHARGED |
| 15 minute winter  | S69     | 11          | 77.508    | 0.501     | 238.2        | 0.8853        | 0.0000     | OK         |
| 480 minute winter | S70     | 464         | 77.446    | 0.446     | 41.1         | 0.7883        | 0.0000     | OK         |
| 480 minute winter | S71     | 464         | 77.446    | 0.471     | 10.3         | 3.3289        | 0.0000     | SURCHARGED |
| 60 minute winter  | S72     | 54          | 76.430    | 0.074     | 10.0         | 0.1306        | 0.0000     | OK         |

| Link Event (Upstream Depth) | US Node | Link              | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|-------------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | S47     | 13.000            | S48     | 16.9          | 1.900          | 0.164    | 0.3292        |                    |
| 15 minute winter            | S48     | 1.008             | S49     | 46.4          | 1.806          | 0.234    | 0.5524        |                    |
| 15 minute winter            | S49     | 1.009             | S50     | 76.0          | 2.569          | 0.366    | 0.4955        |                    |
| 15 minute winter            | S50     | 1.010             | S51     | 103.5         | 2.391          | 0.291    | 2.7228        |                    |
| 15 minute winter            | S51     | 1.011             | S52     | 155.2         | 2.657          | 0.364    | 0.7555        |                    |
| 15 minute winter            | S52     | 1.012             | S53     | 174.5         | 2.852          | 0.496    | 0.8618        |                    |
| 15 minute winter            | S53     | 1.013             | S54     | 186.1         | 2.999          | 0.508    | 3.3632        |                    |
| 15 minute winter            | S54     | 1.014             | S55     | 209.3         | 1.978          | 0.659    | 2.5754        |                    |
| 15 minute winter            | S55     | 1.015             | S59     | 230.8         | 1.809          | 0.504    | 2.4512        |                    |
| 15 minute winter            | S57     | 25.013            | S58     | 77.2          | 2.637          | 0.134    | 0.1541        |                    |
| 15 minute winter            | S58     | 25.014            | S59     | 73.7          | 1.406          | 0.355    | 0.3126        |                    |
| 15 minute winter            | S59     | 1.016             | S60     | 301.8         | 1.965          | 0.960    | 6.1447        |                    |
| 15 minute winter            | S60     | 1.017             | S61     | 315.7         | 2.247          | 0.924    | 1.8732        |                    |
| 480 minute winter           | S61     | Flow through pond | S70     | 31.7          | 0.024          | 0.010    | 624.7270      |                    |
| 15 minute winter            | S62     | 42.003            | S63     | 37.2          | 1.633          | 0.174    | 0.4682        |                    |
| 15 minute winter            | S63     | 42.004            | S65     | 64.5          | 2.263          | 0.358    | 0.7169        |                    |
| 15 minute winter            | S64     | 46.000            | S65     | 8.1           | 1.528          | 0.078    | 0.0679        |                    |
| 15 minute winter            | S65     | 34.010            | S66     | 102.7         | 2.117          | 0.314    | 1.2800        |                    |
| 15 minute winter            | S66     | 34.011            | S67     | 137.2         | 2.168          | 0.453    | 1.3694        |                    |
| 15 minute winter            | S67     | 34.012            | S68     | 151.8         | 1.599          | 0.698    | 4.9549        |                    |
| 15 minute winter            | S68     | 34.013            | S69     | 238.2         | 1.609          | 1.222    | 1.6515        |                    |
| 15 minute winter            | S69     | Flow through pond | S70     | 391.4         | 0.158          | 0.122    | 292.5486      |                    |
| 480 minute winter           | S70     | 1.019             | S71     | 10.3          | 0.234          | 0.068    | 1.7525        |                    |
| 480 minute winter           | S71     | 1.020             | S72     | 10.0          | 1.189          | 0.088    | 0.1130        |                    |
| 60 minute winter            | S72     | 1.021             | S73     | 10.0          | 0.936          | 0.197    | 0.0630        | 493.0              |



**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%**

| Node Event       | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 60 minute winter | S73        | 54             | 76.367       | 0.067        | 10.0            | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|------|------------|------------------|-------------------|----------|------------------|-----------------------|
|--------------------------------|------------|------|------------|------------------|-------------------|----------|------------------|-----------------------|

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.79%

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | S47     | 10          | 86.252    | 0.087     | 31.3         | 0.1531        | 0.0000     | OK         |
| 15 minute winter  | S48     | 10          | 84.790    | 0.140     | 84.9         | 0.2468        | 0.0000     | OK         |
| 15 minute winter  | S49     | 10          | 84.176    | 0.206     | 139.8        | 0.3645        | 0.0000     | OK         |
| 15 minute winter  | S50     | 10          | 83.506    | 0.191     | 189.9        | 0.3377        | 0.0000     | OK         |
| 15 minute winter  | S51     | 12          | 82.101    | 0.761     | 286.0        | 1.3455        | 0.0000     | SURCHARGED |
| 15 minute winter  | S52     | 12          | 81.773    | 1.013     | 286.7        | 1.7908        | 0.0000     | SURCHARGED |
| 15 minute winter  | S53     | 12          | 81.335    | 1.005     | 299.4        | 1.7752        | 0.0000     | SURCHARGED |
| 15 minute winter  | S54     | 12          | 79.944    | 1.494     | 326.8        | 2.6393        | 0.0000     | SURCHARGED |
| 15 minute winter  | S55     | 12          | 79.581    | 1.366     | 359.3        | 1.9553        | 0.0000     | SURCHARGED |
| 15 minute winter  | S57     | 13          | 79.347    | 0.387     | 140.8        | 8.5985        | 0.0000     | FLOOD RISK |
| 15 minute winter  | S58     | 12          | 79.280    | 1.298     | 126.4        | 2.2939        | 0.0000     | FLOOD RISK |
| 15 minute winter  | S59     | 12          | 79.212    | 1.384     | 445.1        | 2.4460        | 0.0000     | FLOOD RISK |
| 15 minute winter  | S60     | 12          | 78.240    | 0.790     | 469.3        | 1.3964        | 0.0000     | SURCHARGED |
| 720 minute winter | S61     | 705         | 77.848    | 0.841     | 47.0         | 1.4863        | 0.0000     | OK         |
| 15 minute winter  | S62     | 10          | 80.778    | 0.115     | 68.0         | 0.2030        | 0.0000     | OK         |
| 15 minute winter  | S63     | 11          | 80.141    | 0.231     | 118.9        | 0.4083        | 0.0000     | OK         |
| 15 minute winter  | S64     | 12          | 79.898    | 0.063     | 15.0         | 0.1112        | 0.0000     | OK         |
| 15 minute winter  | S65     | 11          | 79.904    | 0.724     | 190.2        | 1.2785        | 0.0000     | SURCHARGED |
| 15 minute winter  | S66     | 11          | 79.662    | 1.182     | 231.7        | 2.0879        | 0.0000     | SURCHARGED |
| 15 minute winter  | S67     | 11          | 79.284    | 1.294     | 246.9        | 1.8514        | 0.0000     | SURCHARGED |
| 15 minute winter  | S68     | 11          | 78.312    | 1.045     | 398.0        | 1.8465        | 0.0000     | SURCHARGED |
| 15 minute winter  | S69     | 11          | 77.976    | 0.969     | 397.2        | 1.7114        | 0.0000     | OK         |
| 720 minute winter | S70     | 705         | 77.846    | 0.846     | 51.7         | 1.4957        | 0.0000     | FLOOD RISK |
| 720 minute winter | S71     | 705         | 77.846    | 0.871     | 10.4         | 6.1592        | 0.0000     | SURCHARGED |
| 15 minute summer  | S72     | 75          | 76.430    | 0.074     | 10.0         | 0.1306        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link              | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|-------------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | S47     | 13.000            | S48     | 30.8          | 2.236          | 0.299    | 0.5102        |                    |
| 15 minute winter               | S48     | 1.008             | S49     | 84.5          | 2.008          | 0.425    | 0.8970        |                    |
| 15 minute winter               | S49     | 1.009             | S50     | 138.2         | 2.909          | 0.666    | 0.7947        |                    |
| 15 minute winter               | S50     | 1.010             | S51     | 188.4         | 2.587          | 0.529    | 5.2086        |                    |
| 15 minute winter               | S51     | 1.011             | S52     | 251.8         | 2.767          | 0.591    | 1.4219        |                    |
| 15 minute winter               | S52     | 1.012             | S53     | 280.7         | 3.002          | 0.798    | 1.5456        |                    |
| 15 minute winter               | S53     | 1.013             | S54     | 295.4         | 2.996          | 0.807    | 5.9789        |                    |
| 15 minute winter               | S54     | 1.014             | S55     | 327.7         | 2.069          | 1.032    | 3.8562        |                    |
| 15 minute winter               | S55     | 1.015             | S59     | 358.2         | 2.261          | 0.781    | 3.0534        |                    |
| 15 minute winter               | S57     | 25.013            | S58     | 126.4         | 2.589          | 0.220    | 0.2601        |                    |
| 15 minute winter               | S58     | 25.014            | S59     | 146.8         | 2.085          | 0.707    | 0.3126        |                    |
| 15 minute winter               | S59     | 1.016             | S60     | 445.0         | 2.809          | 1.416    | 6.3346        |                    |
| 15 minute winter               | S60     | 1.017             | S61     | 469.5         | 2.963          | 1.375    | 2.1092        |                    |
| 720 minute winter              | S61     | Flow through pond | S70     | 39.4          | 0.025          | 0.012    | 1286.7716     |                    |
| 15 minute winter               | S62     | 42.003            | S63     | 67.7          | 1.892          | 0.316    | 0.8371        |                    |
| 15 minute winter               | S63     | 42.004            | S65     | 119.5         | 2.526          | 0.664    | 1.6185        |                    |
| 15 minute winter               | S64     | 46.000            | S65     | 18.2          | 1.760          | 0.175    | 0.3116        |                    |
| 15 minute winter               | S65     | 34.010            | S66     | 171.8         | 2.191          | 0.525    | 2.9061        |                    |
| 15 minute winter               | S66     | 34.011            | S67     | 226.1         | 2.221          | 0.747    | 2.3749        |                    |
| 15 minute winter               | S67     | 34.012            | S68     | 249.4         | 2.262          | 1.147    | 6.0538        |                    |
| 15 minute winter               | S68     | 34.013            | S69     | 397.2         | 2.507          | 2.037    | 1.8151        |                    |
| 15 minute winter               | S69     | Flow through pond | S70     | 540.5         | 0.180          | 0.168    | 536.8665      |                    |
| 720 minute winter              | S70     | 1.019             | S71     | 10.4          | 0.217          | 0.068    | 1.7537        |                    |
| 720 minute winter              | S71     | 1.020             | S72     | 10.0          | 1.189          | 0.088    | 0.1130        |                    |
| 15 minute summer               | S72     | 1.021             | S73     | 10.0          | 0.936          | 0.197    | 0.0630        | 493.4              |

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.79%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute summer | S73     | 73          | 76.367    | 0.067     | 10.0         | 0.0000        | 0.0000     | OK     |

| Link Event<br>(Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|------|---------|---------------|----------------|----------|---------------|--------------------|
|--------------------------------|---------|------|---------|---------------|----------------|----------|---------------|--------------------|