

Simulation Settings

| | | | |
|----------------------|-------------------|----------------------------|--------|
| Rainfall Methodology | FSR | Analysis Speed | Normal |
| FSR Region | England and Wales | Skip Steady State | x |
| M5-60 (mm) | 20.000 | Drain Down Time (mins) | 240 |
| Ratio-R | 0.300 | Additional Storage (m³/ha) | 20.0 |
| 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 (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 |
| 30 | 0 | 0 | 0 |
| 100 | 30 | 0 | 0 |

Node 1.3 Online Hydro-Brake® Control

| | | | |
|--------------------------|-------|-------------------------|--------------------------------|
| Flap Valve | x | Objective | (HE) Minimise upstream storage |
| Downstream Link | 1.003 | Sump Available | |
| Replaces Downstream Link | | Product Number | CTL-SHE-0054-1300-1000-1300 |
| Invert Level (m) | 2.580 | Min Outlet Diameter (m) | 0.075 |
| Design Depth (m) | 1.000 | Min Node Diameter (mm) | 1200 |
| Design Flow (l/s) | 1.3 | | |

Node ATTENUATION BASIN Depth/Area Storage Structure

| | | | | | |
|-----------------------------|---------|---------------|------|---------------------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0 | Invert Level (m) | 2.620 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity | 1.00 | Time to half empty (mins) | |

| Depth (m) | Area (m²) | Inf Area (m²) | Depth (m) | Area (m²) | Inf Area (m²) | Depth (m) | Area (m²) | Inf Area (m²) |
|-----------|-----------|---------------|-----------|-----------|---------------|-----------|-----------|---------------|
| 0.000 | 25.0 | 0.0 | 1.300 | 152.0 | 0.0 | 1.301 | 0.0 | 0.0 |

Results for 1 year Critical Storm Duration. Lowest mass balance: 98.34%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | In flow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-------------------|-------------|-----------|-----------|---------------|----------------------------|-------------------------|------------|
| 15 minute winter | 1.0 | 10 | 3.996 | 0.046 | 5.9 | 0.0935 | 0.0000 | OK |
| 15 minute winter | 2.0 | 10 | 4.143 | 0.043 | 5.6 | 0.0452 | 0.0000 | OK |
| 15 minute winter | 1.1 | 10 | 3.235 | 0.045 | 13.9 | 0.0933 | 0.0000 | OK |
| 240 minute winter | 1.2 | 208 | 2.982 | 0.282 | 4.0 | 0.3593 | 0.0000 | SURCHARGED |
| 240 minute winter | 1.3 | 208 | 2.982 | 0.402 | 5.2 | 0.7100 | 0.0000 | SURCHARGED |
| 15 minute summer | 1.4 | 1 | 2.410 | 0.000 | 1.1 | 0.0000 | 0.0000 | OK |
| 240 minute winter | ATTENUATION BASIN | 208 | 2.982 | 0.362 | 3.7 | 15.4382 | 0.0000 | SURCHARGED |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|-------------------|--------------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute winter | 1.0 | 1.000 | 1.1 | 5.8 | 1.018 | 0.088 | 0.2763 | |
| 15 minute winter | 2.0 | 2.000 | 1.3 | 5.5 | 1.104 | 0.177 | 0.4789 | |
| 15 minute winter | 1.1 | 1.001 | 1.2 | 13.8 | 1.519 | 0.087 | 0.0640 | |
| 240 minute winter | 1.2 | 1.002 | 1.3 | 3.8 | 0.242 | 0.069 | 0.4347 | |
| 240 minute winter | 1.3 | Hydro-Brake® | 1.4 | 1.1 | | | | 29.5 |
| 240 minute winter | ATTENUATION BASIN | 3.000 | 1.3 | -3.7 | 0.255 | -0.067 | 0.1423 | |

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.34%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | In flow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-------------------|-------------|-----------|-----------|---------------|----------------------------|-------------------------|------------|
| 15 minute winter | 1.0 | 10 | 4.002 | 0.052 | 7.6 | 0.1064 | 0.0000 | OK |
| 15 minute winter | 2.0 | 10 | 4.149 | 0.049 | 7.3 | 0.0518 | 0.0000 | OK |
| 15 minute winter | 1.1 | 10 | 3.241 | 0.051 | 18.0 | 0.1060 | 0.0000 | OK |
| 360 minute winter | 1.2 | 296 | 3.070 | 0.370 | 3.7 | 0.4722 | 0.0000 | SURCHARGED |
| 360 minute winter | 1.3 | 296 | 3.070 | 0.490 | 4.8 | 0.8664 | 0.0000 | SURCHARGED |
| 15 minute summer | 1.4 | 1 | 2.410 | 0.000 | 1.1 | 0.0000 | 0.0000 | OK |
| 360 minute winter | ATTENUATION BASIN | 296 | 3.070 | 0.450 | 3.5 | 21.1643 | 0.0000 | SURCHARGED |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|-------------------|--------------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute winter | 1.0 | 1.000 | 1.1 | 7.4 | 1.093 | 0.114 | 0.3318 | |
| 15 minute winter | 2.0 | 2.000 | 1.3 | 7.2 | 1.149 | 0.231 | 0.5323 | |
| 15 minute winter | 1.1 | 1.001 | 1.2 | 17.8 | 1.590 | 0.113 | 0.0941 | |
| 360 minute winter | 1.2 | 1.002 | 1.3 | 3.5 | 0.215 | 0.065 | 0.4347 | |
| 360 minute winter | 1.3 | Hydro-Brake® | 1.4 | 1.1 | | | | 34.8 |
| 360 minute winter | ATTENUATION BASIN | 3.000 | 1.3 | -3.5 | -0.087 | -0.063 | 0.1423 | |

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.34%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | In ow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-------------------|-------------|-----------|-----------|-------------|----------------------------|-------------------------|------------|
| 15 minute winter | 1.0 | 10 | 4.022 | 0.072 | 14.4 | 0.1483 | 0.0000 | OK |
| 15 minute winter | 2.0 | 10 | 4.169 | 0.069 | 13.8 | 0.0734 | 0.0000 | OK |
| 360 minute winter | 1.1 | 344 | 3.388 | 0.198 | 5.9 | 0.4111 | 0.0000 | OK |
| 360 minute winter | 1.2 | 344 | 3.388 | 0.688 | 6.6 | 0.8768 | 0.0000 | SURCHARGED |
| 360 minute winter | 1.3 | 344 | 3.388 | 0.808 | 8.7 | 1.4271 | 0.0000 | SURCHARGED |
| 15 minute summer | 1.4 | 1 | 2.410 | 0.000 | 1.1 | 0.0000 | 0.0000 | OK |
| 360 minute winter | ATTENUATION BASIN | 344 | 3.388 | 0.768 | 7.4 | 47.9776 | 0.0000 | SURCHARGED |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Out low (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|-------------------|--------------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute winter | 1.0 | 1.000 | 1.1 | 14.1 | 1.306 | 0.217 | 0.5271 | |
| 15 minute winter | 2.0 | 2.000 | 1.3 | 13.6 | 1.108 | 0.437 | 0.6054 | |
| 360 minute winter | 1.1 | 1.001 | 1.2 | 5.9 | 0.820 | 0.037 | 0.2074 | |
| 360 minute winter | 1.2 | 1.002 | 1.3 | 6.4 | 0.221 | 0.118 | 0.4347 | |
| 360 minute winter | 1.3 | Hydro-Brake® | 1.4 | 1.2 | | | | 38.6 |
| 360 minute winter | ATTENUATION BASIN | 3.000 | 1.3 | -7.4 | -0.186 | -0.134 | 0.1423 | |

Results for 100 year +30% CC Critical Storm Duration. Lowest mass balance: 98.34%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-------------------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|------------|
| 15 minute winter | 1.0 | 10 | 4.044 | 0.094 | 24.3 | 0.1924 | 0.0000 | OK |
| 15 minute winter | 2.0 | 10 | 4.196 | 0.096 | 23.2 | 0.1015 | 0.0000 | OK |
| 480 minute winter | 1.1 | 464 | 3.781 | 0.591 | 7.9 | 1.2283 | 0.0000 | SURCHARGED |
| 480 minute winter | 1.2 | 464 | 3.781 | 1.081 | 8.3 | 1.3780 | 0.0000 | SURCHARGED |
| 480 minute winter | 1.3 | 464 | 3.781 | 1.201 | 11.4 | 2.1217 | 0.0000 | SURCHARGED |
| 15 minute summer | 1.4 | 1 | 2.410 | 0.000 | 1.1 | 0.0000 | 0.0000 | OK |
| 480 minute winter | ATTENUATION BASIN | 464 | 3.781 | 1.161 | 9.9 | 94.8336 | 0.0000 | FLOOD RISK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|-------------------|--------------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute winter | 1.0 | 1.000 | 1.1 | 23.9 | 1.307 | 0.368 | 1.3335 | |
| 15 minute winter | 2.0 | 2.000 | 1.3 | 22.8 | 1.399 | 0.730 | 0.6987 | |
| 480 minute winter | 1.1 | 1.001 | 1.2 | 7.4 | 0.767 | 0.047 | 0.2149 | |
| 480 minute winter | 1.2 | 1.002 | 1.3 | 8.2 | 0.224 | 0.151 | 0.4347 | |
| 480 minute winter | 1.3 | Hydro-Brake® | 1.4 | 1.4 | | | | 53.6 |
| 480 minute winter | ATTENUATION BASIN | 3.000 | 1.3 | -9.9 | -0.249 | -0.180 | 0.1423 | |