

**Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.98%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute summer  | 1       | 10          | 37.168    | 0.079     | 16.4         | 0.1135        | 0.0000     | OK         |
| 15 minute summer  | 2       | 11          | 36.670    | 0.309     | 91.4         | 0.4420        | 0.0000     | SURCHARGED |
| 600 minute winter | 3       | 585         | 36.337    | 0.392     | 8.7          | 0.5611        | 0.0000     | SURCHARGED |
| 600 minute winter | 5       | 600         | 36.337    | 0.704     | 15.0         | 1.0076        | 0.0000     | SURCHARGED |
| 600 minute winter | 4       | 600         | 36.337    | 0.571     | 8.7          | 0.8173        | 0.0000     | SURCHARGED |
| 15 minute summer  | 6       | 10          | 38.233    | 0.158     | 60.2         | 0.2257        | 0.0000     | OK         |
| 15 minute summer  | 7       | 10          | 37.930    | 0.186     | 72.9         | 0.2667        | 0.0000     | OK         |
| 15 minute summer  | 8       | 11          | 37.758    | 0.365     | 72.7         | 0.5220        | 0.0000     | SURCHARGED |
| 15 minute summer  | 9       | 11          | 37.704    | 0.383     | 100.1        | 0.5483        | 0.0000     | SURCHARGED |
| 15 minute summer  | 10      | 11          | 37.512    | 0.399     | 49.3         | 0.5709        | 0.0000     | SURCHARGED |
| 15 minute summer  | 11      | 11          | 37.372    | 0.383     | 187.1        | 0.5487        | 0.0000     | SURCHARGED |
| 15 minute summer  | 12      | 11          | 37.175    | 0.321     | 193.8        | 0.4589        | 0.0000     | OK         |
| 15 minute summer  | 13      | 11          | 36.762    | 0.233     | 236.2        | 0.3338        | 0.0000     | OK         |
| 600 minute winter | 14      | 600         | 36.337    | 0.415     | 23.5         | 0.5941        | 0.0000     | OK         |
| 600 minute winter | Basin 1 | 600         | 36.337    | 0.837     | 37.0         | 436.8599      | 0.0000     | SURCHARGED |
| 15 minute summer  | Outfall | 1           | 35.139    | 0.000     | 3.9          | 0.0000        | 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 summer            | 1       | 1.000        | 2       | 16.1          | 0.557          | 0.270    | 1.4358        |                    |
| 15 minute summer            | 2       | 1.001        | 3       | 88.6          | 2.306          | 0.952    | 0.3040        |                    |
| 600 minute winter           | 3       | 1.002        | 4       | 8.7           | 0.351          | 0.068    | 4.8211        |                    |
| 600 minute winter           | 5       | 1.004        | Basin 1 | 14.1          | 0.654          | 0.072    | 5.7941        |                    |
| 600 minute winter           | 4       | 1.003        | 5       | 8.3           | 0.453          | 0.061    | 4.9552        |                    |
| 15 minute summer            | 6       | 2.000        | 7       | 59.9          | 1.888          | 0.699    | 0.3990        |                    |
| 15 minute summer            | 7       | 2.001        | 8       | 72.7          | 1.375          | 0.654    | 1.9693        |                    |
| 15 minute summer            | 8       | 2.002        | 9       | 69.7          | 1.188          | 0.626    | 0.5058        |                    |
| 15 minute summer            | 9       | 2.003        | 11      | 99.3          | 1.423          | 0.895    | 2.3409        |                    |
| 15 minute summer            | 10      | 3.000        | 11      | 48.6          | 1.221          | 0.935    | 0.4940        |                    |
| 15 minute summer            | 11      | 2.004        | 12      | 186.6         | 1.748          | 0.933    | 1.4237        |                    |
| 15 minute summer            | 12      | 2.005        | 13      | 192.4         | 2.254          | 0.950    | 2.7311        |                    |
| 15 minute summer            | 13      | 2.006        | 14      | 235.7         | 2.862          | 0.550    | 1.0980        |                    |
| 600 minute winter           | 14      | 2.007        | Basin 1 | 23.4          | 1.166          | 0.067    | 5.5775        |                    |
| 600 minute winter           | Basin 1 | Hydro-Brake® | Outfall | 3.9           |                |          |               | 566.3              |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 99.97%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute summer  | 1       | 10          | 37.164    | 0.075     | 14.8         | 0.1073        | 0.0000     | OK         |
| 15 minute summer  | 2       | 10          | 36.568    | 0.207     | 82.2         | 0.2960        | 0.0000     | OK         |
| 600 minute winter | 3       | 585         | 36.247    | 0.302     | 7.9          | 0.4320        | 0.0000     | OK         |
| 600 minute winter | 5       | 585         | 36.247    | 0.614     | 14.0         | 0.8785        | 0.0000     | SURCHARGED |
| 600 minute winter | 4       | 585         | 36.247    | 0.481     | 7.9          | 0.6881        | 0.0000     | SURCHARGED |
| 15 minute summer  | 6       | 10          | 38.220    | 0.145     | 54.2         | 0.2071        | 0.0000     | OK         |
| 15 minute summer  | 7       | 10          | 37.917    | 0.173     | 65.6         | 0.2477        | 0.0000     | OK         |
| 15 minute summer  | 8       | 11          | 37.611    | 0.218     | 64.9         | 0.3119        | 0.0000     | OK         |
| 15 minute summer  | 9       | 11          | 37.552    | 0.231     | 93.1         | 0.3306        | 0.0000     | OK         |
| 15 minute summer  | 10      | 10          | 37.442    | 0.329     | 44.3         | 0.4711        | 0.0000     | SURCHARGED |
| 15 minute summer  | 11      | 11          | 37.323    | 0.334     | 173.4        | 0.4783        | 0.0000     | OK         |
| 15 minute summer  | 12      | 11          | 37.155    | 0.301     | 180.2        | 0.4303        | 0.0000     | OK         |
| 15 minute summer  | 13      | 11          | 36.750    | 0.221     | 220.1        | 0.3164        | 0.0000     | OK         |
| 600 minute winter | 14      | 585         | 36.247    | 0.325     | 21.1         | 0.4649        | 0.0000     | OK         |
| 600 minute winter | Basin 1 | 585         | 36.247    | 0.747     | 34.2         | 380.0176      | 0.0000     | SURCHARGED |
| 15 minute summer  | Outfall | 1           | 35.139    | 0.000     | 3.9          | 0.0000        | 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 summer            | 1       | 1.000        | 2       | 14.5          | 0.561          | 0.242    | 1.3683        |                    |
| 15 minute summer            | 2       | 1.001        | 3       | 80.3          | 2.323          | 0.863    | 0.2860        |                    |
| 600 minute winter           | 3       | 1.002        | 4       | 7.9           | 0.340          | 0.062    | 4.4886        |                    |
| 600 minute winter           | 5       | 1.004        | Basin 1 | 13.2          | 0.644          | 0.068    | 5.7941        |                    |
| 600 minute winter           | 4       | 1.003        | 5       | 7.7           | 0.457          | 0.057    | 4.9552        |                    |
| 15 minute summer            | 6       | 2.000        | 7       | 53.9          | 1.799          | 0.630    | 0.3674        |                    |
| 15 minute summer            | 7       | 2.001        | 8       | 64.9          | 1.356          | 0.585    | 1.6848        |                    |
| 15 minute summer            | 8       | 2.002        | 9       | 64.6          | 1.179          | 0.581    | 0.4060        |                    |
| 15 minute summer            | 9       | 2.003        | 11      | 93.5          | 1.370          | 0.842    | 2.1383        |                    |
| 15 minute summer            | 10      | 3.000        | 11      | 43.4          | 1.091          | 0.836    | 0.4940        |                    |
| 15 minute summer            | 11      | 2.004        | 12      | 173.7         | 1.746          | 0.869    | 1.3414        |                    |
| 15 minute summer            | 12      | 2.005        | 13      | 180.7         | 2.225          | 0.892    | 2.5712        |                    |
| 15 minute summer            | 13      | 2.006        | 14      | 220.5         | 2.821          | 0.515    | 1.0401        |                    |
| 600 minute winter           | 14      | 2.007        | Basin 1 | 21.1          | 1.143          | 0.060    | 5.0343        |                    |
| 600 minute winter           | Basin 1 | Hydro-Brake® | Outfall | 3.9           |                |          |               | 506.9              |

**Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.94%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute summer  | 1       | 10          | 37.181    | 0.092     | 21.4         | 0.1310        | 0.0000     | OK         |
| 15 minute summer  | 2       | 11          | 36.968    | 0.607     | 119.2        | 0.8687        | 0.0000     | SURCHARGED |
| 720 minute winter | 3       | 705         | 36.576    | 0.631     | 10.0         | 0.9033        | 0.0000     | SURCHARGED |
| 720 minute winter | 5       | 705         | 36.576    | 0.943     | 16.6         | 1.3498        | 0.0000     | SURCHARGED |
| 720 minute winter | 4       | 705         | 36.576    | 0.810     | 9.3          | 1.1594        | 0.0000     | SURCHARGED |
| 15 minute summer  | 6       | 11          | 38.843    | 0.768     | 78.5         | 1.0984        | 0.0000     | SURCHARGED |
| 15 minute summer  | 7       | 11          | 38.518    | 0.774     | 89.2         | 1.1083        | 0.0000     | SURCHARGED |
| 15 minute summer  | 8       | 12          | 38.273    | 0.880     | 84.8         | 1.2594        | 0.0000     | SURCHARGED |
| 15 minute summer  | 9       | 11          | 38.196    | 0.875     | 121.6        | 1.2522        | 0.0000     | SURCHARGED |
| 15 minute summer  | 10      | 11          | 37.952    | 0.839     | 64.3         | 1.2004        | 0.0000     | SURCHARGED |
| 15 minute summer  | 11      | 11          | 37.720    | 0.731     | 232.6        | 1.0464        | 0.0000     | SURCHARGED |
| 15 minute summer  | 12      | 11          | 37.422    | 0.568     | 240.5        | 0.8133        | 0.0000     | SURCHARGED |
| 15 minute summer  | 13      | 11          | 36.813    | 0.284     | 295.5        | 0.4068        | 0.0000     | OK         |
| 720 minute winter | 14      | 705         | 36.576    | 0.654     | 26.4         | 0.9362        | 0.0000     | SURCHARGED |

720 minute winter Basin 1 705 36.576 1.076 42.1 598.7426 0.0000 SURCHARGED

15 minute summer Outfall 1 35.139 0.000 3.9 0.0000 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 summer            | 1       | 1.000 | 2       | 21.1          | 0.656          | 0.352    | 1.5093        |                    |
| 15 minute summer            | 2       | 1.001 | 3       | 112.4         | 2.827          | 1.208    | 0.3329        |                    |
| 720 minute winter           | 3       | 1.002 | 4       | 9.3           | 0.327          | 0.073    | 4.8211        |                    |
| 720 minute winter           | 5       | 1.004 | Basin 1 | 16.4          | 0.653          | 0.085    | 5.7941        |                    |
| 720 minute winter           | 4       | 1.003 | 5       | 8.6           | 0.425          | 0.064    | 4.9552        |                    |
| 15 minute summer            | 6       | 2.000 | 7       | 73.1          | 1.939          | 0.854    | 0.4889        |                    |
| 15 minute summer            | 7       | 2.001 | 8       | 84.8          | 1.396          | 0.764    | 2.4732        |                    |
| 15 minute summer            | 8       | 2.002 | 9       | 86.8          | 1.232          | 0.780    | 0.5058        |                    |
| 15 minute summer            | 9       | 2.003 | 11      | 123.6         | 1.755          | 1.113    | 2.3409        |                    |
| 15 minute summer            | 10      | 3.000 | 11      | 60.1          | 1.511          | 1.157    | 0.4940        |                    |
| 15 minute summer            | 11      | 2.004 | 12      | 231.1         | 2.096          | 1.156    | 1.4908        |                    |
| 15 minute summer            | 12      | 2.005 | 13      | 238.4         | 2.278          | 1.176    | 3.1675        |                    |
| 15 minute summer            | 13      | 2.006 | 14      | 294.6         | 2.989          | 0.688    | 1.3054        |                    |
| 720 minute winter           | 14      | 2.007 | Basin 1 | 25.7          | 1.166          | 0.073    | 5.6775        |                    |

720 minute winter Basin 1 Hydro-Brake® Outfall 3.9 761.6

### Design Settings

|                                      |        |                                    |               |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology                 | FEH-22 | Minimum Velocity (m/s)             | 1.00          |
| Return Period (years)                | 100    | Connection Type                    | Level Soffits |
| Additional Flow (%)                  | 0      | Minimum Backdrop Height (m)        | 0.200         |
| CV                                   | 1.000  | Preferred Cover Depth (m)          | 1.200         |
| Time of Entry (mins)                 | 5.00   | Include Intermediate Ground        | ✓             |
| Maximum Time of Concentration (mins) | 30.00  | Enforce best practice design rules | x             |
| Maximum Rainfall (mm/hr)             | 999.9  |                                    |               |

### 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) |
|---------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| N2 S1   | 0.094        | 5.00             | 36.538                | 1500             | 511779.365     | 130781.775      | 1.660        |
| N2 S2   |              |                  | 37.209                | 1500             | 511800.767     | 130783.318      | 2.368        |
| N2 S3   | 0.061        | 5.00             | 36.744                | 1500             | 511846.070     | 130767.303      | 1.986        |
| N2 S4   | 0.039        | 5.00             | 36.548                | 1500             | 511868.844     | 130755.353      | 1.835        |
| N2 S6   |              |                  | 35.960                | 1500             | 511907.603     | 130740.658      | 1.318        |
| Outfall |              |                  | 35.200                |                  | 511945.963     | 130729.318      | 0.627        |
| Tank 1  | 0.056        | 5.00             | 36.500                |                  | 511878.410     | 130739.852      | 1.286        |
| Tank 2  |              | 5.00             | 37.200                |                  | 511836.834     | 130764.465      | 2.100        |
| N2 S5   | 0.023        | 5.00             | 36.341                | 1500             | 511882.346     | 130750.234      | 1.652        |

### 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) |
|-------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|------------------|-----------------|
| 1.000 | N2 S1      | N2 S2      | 21.458        | 0.600          | 34.878       | 34.841       | 0.037       | 579.9          | 600         | 5.36             | 169.2           |
| 1.001 | N2 S2      | N2 S3      | 48.050        | 0.600          | 34.841       | 34.758       | 0.083       | 578.9          | 600         | 6.15             | 161.4           |
| 1.002 | N2 S3      | N2 S4      | 25.719        | 0.600          | 34.758       | 34.713       | 0.045       | 571.5          | 600         | 6.58             | 157.4           |
| 1.004 | N2 S5      | N2 S6      | 27.011        | 0.600          | 34.689       | 34.642       | 0.047       | 574.7          | 600         | 7.27             | 151.2           |
| 1.005 | N2 S6      | Outfall    | 40.001        | 0.600          | 34.642       | 34.573       | 0.069       | 579.7          | 600         | 7.93             | 145.7           |
| 3.000 | Tank 1     | N2 S5      | 11.103        | 0.600          | 35.214       | 34.989       | 0.225       | 49.3           | 300         | 5.08             | 172.0           |
| 2.000 | Tank 2     | N2 S3      | 9.662         | 0.600          | 35.100       | 35.058       | 0.042       | 230.1          | 300         | 5.16             | 171.2           |
| 1.003 | N2 S4      | N2 S5      | 14.440        | 0.600          | 34.713       | 34.689       | 0.024       | 601.7          | 600         | 6.82             | 155.1           |

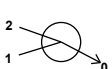
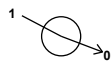
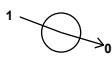
| Name  | Vel<br>(m/s) | Cap<br>(l/s) | Flow<br>(l/s) | US<br>Depth<br>(m) | DS<br>Depth<br>(m) | Σ Area<br>(ha) | Σ Add<br>Inflow<br>(l/s) | Pro<br>Depth<br>(mm) | Pro<br>Velocity<br>(m/s) |
|-------|--------------|--------------|---------------|--------------------|--------------------|----------------|--------------------------|----------------------|--------------------------|
| 1.000 | 1.004        | 283.8        | 57.5          | 1.060              | 1.768              | 0.094          | 0.0                      | 182                  | 0.793                    |
| 1.001 | 1.005        | 284.1        | 54.8          | 1.768              | 1.386              | 0.094          | 0.0                      | 177                  | 0.783                    |
| 1.002 | 1.011        | 285.9        | 88.2          | 1.386              | 1.235              | 0.155          | 0.0                      | 228                  | 0.895                    |
| 1.004 | 1.008        | 285.1        | 149.2         | 1.052              | 0.718              | 0.273          | 0.0                      | 308                  | 1.020                    |
| 1.005 | 1.004        | 283.9        | 143.7         | 0.718              | 0.027              | 0.273          | 0.0                      | 302                  | 1.007                    |
| 3.000 | 2.243        | 158.6        | 34.8          | 0.986              | 1.052              | 0.056          | 0.0                      | 95                   | 1.811                    |
| 2.000 | 1.032        | 73.0         | 0.0           | 1.800              | 1.386              | 0.000          | 0.0                      | 0                    | 0.000                    |
| 1.003 | 0.985        | 278.6        | 108.7         | 1.235              | 1.052              | 0.194          | 0.0                      | 260                  | 0.927                    |

### Pipeline Schedule

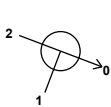
| Link  | Length<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | Link<br>Type | US CL<br>(m) | US IL<br>(m) | US Depth<br>(m) | DS CL<br>(m) | DS IL<br>(m) | DS Depth<br>(m) |
|-------|---------------|----------------|-------------|--------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| 1.000 | 21.458        | 579.9          | 600         | Circular     | 36.538       | 34.878       | 1.060           | 37.209       | 34.841       | 1.768           |
| 1.001 | 48.050        | 578.9          | 600         | Circular     | 37.209       | 34.841       | 1.768           | 36.744       | 34.758       | 1.386           |
| 1.002 | 25.719        | 571.5          | 600         | Circular     | 36.744       | 34.758       | 1.386           | 36.548       | 34.713       | 1.235           |
| 1.004 | 27.011        | 574.7          | 600         | Circular     | 36.341       | 34.689       | 1.052           | 35.960       | 34.642       | 0.718           |
| 1.005 | 40.001        | 579.7          | 600         | Circular     | 35.960       | 34.642       | 0.718           | 35.200       | 34.573       | 0.027           |
| 3.000 | 11.103        | 49.3           | 300         | Circular     | 36.500       | 35.214       | 0.986           | 36.341       | 34.989       | 1.052           |
| 2.000 | 9.662         | 230.1          | 300         | Circular     | 37.200       | 35.100       | 1.800           | 36.744       | 35.058       | 1.386           |
| 1.003 | 14.440        | 601.7          | 600         | Circular     | 36.548       | 34.713       | 1.235           | 36.341       | 34.689       | 1.052           |

| Link  | US<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type | DS<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type |
|-------|------------|-------------|--------------|------------|------------|-------------|--------------|------------|
| 1.000 | N2 S1      | 1500        | Manhole      | Adoptable  | N2 S2      | 1500        | Manhole      | Adoptable  |
| 1.001 | N2 S2      | 1500        | Manhole      | Adoptable  | N2 S3      | 1500        | Manhole      | Adoptable  |
| 1.002 | N2 S3      | 1500        | Manhole      | Adoptable  | N2 S4      | 1500        | Manhole      | Adoptable  |
| 1.004 | N2 S5      | 1500        | Manhole      | Adoptable  | N2 S6      | 1500        | Manhole      | Adoptable  |
| 1.005 | N2 S6      | 1500        | Manhole      | Adoptable  | Outfall    |             | Junction     |            |
| 3.000 | Tank 1     |             | Junction     |            | N2 S5      | 1500        | Manhole      | Adoptable  |
| 2.000 | Tank 2     |             | Junction     |            | N2 S3      | 1500        | Manhole      | Adoptable  |
| 1.003 | N2 S4      | 1500        | Manhole      | Adoptable  | N2 S5      | 1500        | Manhole      | Adoptable  |

### Manhole Schedule

| Node    | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                          | Link  | IL<br>(m) | Dia<br>(mm) |
|---------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|-------|-----------|-------------|
| N2 S1   | 511779.365     | 130781.775      | 36.538    | 1.660        | 1500        |  |       |           |             |
|         |                |                 |           |              |             | 0                                                                                    | 1.000 | 34.878    | 600         |
| N2 S2   | 511800.767     | 130783.318      | 37.209    | 2.368        | 1500        |  | 1     | 1.000     | 34.841      |
|         |                |                 |           |              |             | 0                                                                                    | 1.001 | 34.841    | 600         |
| N2 S3   | 511846.070     | 130767.303      | 36.744    | 1.986        | 1500        |  | 1     | 2.000     | 35.058      |
|         |                |                 |           |              |             | 2                                                                                    | 1.001 | 34.758    | 600         |
|         |                |                 |           |              |             | 0                                                                                    | 1.002 | 34.758    | 600         |
| N2 S4   | 511868.844     | 130755.353      | 36.548    | 1.835        | 1500        |  | 1     | 1.002     | 34.713      |
|         |                |                 |           |              |             | 0                                                                                    | 1.003 | 34.713    | 600         |
| N2 S6   | 511907.603     | 130740.658      | 35.960    | 1.318        | 1500        |  | 1     | 1.004     | 34.642      |
|         |                |                 |           |              |             | 0                                                                                    | 1.005 | 34.642    | 600         |
| Outfall | 511945.963     | 130729.318      | 35.200    | 0.627        |             |   | 1     | 1.005     | 34.573      |
|         |                |                 |           |              |             |                                                                                      |       |           |             |
| Tank 1  | 511878.410     | 130739.852      | 36.500    | 1.286        |             |  |       |           |             |
|         |                |                 |           |              |             | 0                                                                                    | 3.000 | 35.214    | 300         |

### Manhole Schedule

| Node   | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                        | Link | IL<br>(m) | Dia<br>(mm) |     |
|--------|----------------|-----------------|-----------|--------------|-------------|------------------------------------------------------------------------------------|------|-----------|-------------|-----|
| Tank 2 | 511836.834     | 130764.465      | 37.200    | 2.100        |             |  |      |           |             |     |
| N2 S5  | 511882.346     | 130750.234      | 36.341    | 1.652        | 1500        |  | 0    | 2.000     | 35.100      | 300 |
|        |                |                 |           |              |             |                                                                                    | 1    | 3.000     | 34.989      | 300 |
|        |                |                 |           |              |             |                                                                                    | 2    | 1.003     | 34.689      | 600 |
|        |                |                 |           |              |             |                                                                                    | 0    | 1.004     | 34.689      | 600 |

### Simulation Settings

|                      |          |                            |          |                         |   |
|----------------------|----------|----------------------------|----------|-------------------------|---|
| Rainfall Methodology | FEH-22   | Analysis Speed             | Detailed | Starting Level (m)      |   |
| Rainfall Events      | Singular | Skip Steady State          | x        | Check Discharge Rate(s) | x |
| Summer CV            | 1.000    | Drain Down Time (mins)     | 10080    | Check Discharge Volume  | x |
| Winter CV            | 1.000    | Additional Storage (m³/ha) | 0.0      |                         |   |

### Storm Durations

|    |     |     |     |     |      |      |      |      |       |
|----|-----|-----|-----|-----|------|------|------|------|-------|
| 15 | 60  | 180 | 360 | 600 | 960  | 2160 | 4320 | 7200 | 10080 |
| 30 | 120 | 240 | 480 | 720 | 1440 | 2880 | 5760 | 8640 |       |

| Return Period (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 0                     | 0                     | 0                     |
| 30                    | 0                     | 0                     | 0                     |
| 30                    | 40                    | 0                     | 0                     |
| 100                   | 0                     | 0                     | 0                     |
| 100                   | 45                    | 0                     | 0                     |

### Node N2 S5 Online Hydro-Brake® Control

|                          |        |                         |                                |
|--------------------------|--------|-------------------------|--------------------------------|
| Flap Valve               | x      | Objective               | (HE) Minimise upstream storage |
| Replaces Downstream Link | ✓      | Sump Available          | ✓                              |
| Invert Level (m)         | 34.689 | Product Number          | CTL-SHE-0063-2000-1300-2000    |
| Design Depth (m)         | 1.300  | Min Outlet Diameter (m) | 0.075                          |
| Design Flow (l/s)        | 2.0    | Min Node Diameter (mm)  | 1200                           |

### Node Tank 1 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 35.214 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 0.90 | Time to half empty (mins) | 780    |

| Depth (m) | Area (m²) | Inf Area (m²) | Depth (m) | Area (m²) | Inf Area (m²) | Depth (m) | Area (m²) | Inf Area (m²) |
|-----------|-----------|---------------|-----------|-----------|---------------|-----------|-----------|---------------|
| 0.000     | 175.0     | 0.0           | 0.800     | 175.0     | 0.0           | 0.801     | 0.0       | 0.0           |

### Node Tank 2 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 35.100 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 0.90 | Time to half empty (mins) | 1050   |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 123.0                     | 0.0                           | 0.800        | 123.0                     | 0.0                           | 0.801        | 0.0                       | 0.0                           |

**Results for 1 year Critical Storm Duration. Lowest mass balance: 99.97%**

| 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 |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 240 minute summer | N2 S1      | 160            | 35.144       | 0.266        | 4.3             | 0.4698           | 0.0000        | OK     |
| 240 minute summer | N2 S2      | 160            | 35.144       | 0.303        | 3.3             | 0.5352           | 0.0000        | OK     |
| 240 minute summer | N2 S3      | 160            | 35.144       | 0.386        | 3.3             | 0.6821           | 0.0000        | OK     |
| 240 minute summer | N2 S4      | 160            | 35.144       | 0.431        | 2.4             | 0.7617           | 0.0000        | OK     |
| 15 minute summer  | N2 S6      | 27             | 34.678       | 0.036        | 1.7             | 0.0637           | 0.0000        | OK     |
| 15 minute summer  | Outfall    | 28             | 34.599       | 0.026        | 1.7             | 0.0000           | 0.0000        | OK     |
| 120 minute summer | Tank 1     | 72             | 35.237       | 0.023        | 3.6             | 3.6833           | 0.0000        | OK     |
| 360 minute summer | Tank 2     | 272            | 35.140       | 0.040        | 2.3             | 4.4339           | 0.0000        | OK     |
| 240 minute summer | N2 S5      | 160            | 35.144       | 0.455        | 2.7             | 0.8042           | 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) |
|--------------------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 240 minute summer              | N2 S1      | 1.000        | N2 S2      | 3.3              | 0.306             | 0.012    | 2.8227           |                       |
| 240 minute summer              | N2 S2      | 1.001        | N2 S3      | 1.9              | 0.190             | 0.007    | 8.0294           |                       |
| 240 minute summer              | N2 S3      | 1.002        | N2 S4      | 1.5              | 0.189             | 0.005    | 5.2510           |                       |
| 240 minute summer              | N2 S4      | 1.003        | N2 S5      | 1.5              | 0.124             | 0.006    | 3.2206           |                       |
| 15 minute summer               | N2 S6      | 1.005        | Outfall    | 1.7              | 0.319             | 0.006    | 0.2179           | 14.1                  |
| 120 minute summer              | Tank 1     | 3.000        | N2 S5      | 2.0              | 0.721             | 0.012    | 0.1808           |                       |
| 360 minute summer              | Tank 2     | 2.000        | N2 S3      | -2.3             | -0.291            | -0.032   | 0.1021           |                       |
| 240 minute summer              | N2 S5      | Hydro-Brake® | N2 S6      | 1.7              |                   |          |                  |                       |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.99%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 360 minute winter | N2 S1      | 352            | 35.467       | 0.588        | 6.1             | 1.0399           | 0.0000        | OK         |
| 360 minute winter | N2 S2      | 352            | 35.467       | 0.626        | 5.9             | 1.1053           | 0.0000        | SURCHARGED |
| 360 minute winter | N2 S3      | 352            | 35.467       | 0.709        | 11.6            | 1.2519           | 0.0000        | SURCHARGED |
| 360 minute winter | N2 S4      | 352            | 35.467       | 0.754        | 4.8             | 1.3315           | 0.0000        | SURCHARGED |
| 15 minute summer  | N2 S6      | 506            | 34.678       | 0.036        | 1.7             | 0.0637           | 0.0000        | OK         |
| 15 minute summer  | Outfall    | 507            | 34.599       | 0.026        | 1.7             | 0.0000           | 0.0000        | OK         |
| 360 minute winter | Tank 1     | 352            | 35.467       | 0.253        | 7.9             | 39.7749          | 0.0000        | OK         |
| 360 minute winter | Tank 2     | 352            | 35.467       | 0.367        | 10.4            | 40.5733          | 0.0000        | SURCHARGED |
| 360 minute winter | N2 S5      | 352            | 35.467       | 0.778        | 5.9             | 1.3739           | 0.0000        | SURCHARGED |

| 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) |
|--------------------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 360 minute winter              | N2 S1      | 1.000        | N2 S2      | 5.9              | 0.248             | 0.021    | 6.0304           |                       |
| 360 minute winter              | N2 S2      | 1.001        | N2 S3      | 5.9              | 0.203             | 0.021    | 13.5346          |                       |
| 360 minute winter              | N2 S3      | 1.002        | N2 S4      | -4.0             | 0.186             | -0.014   | 7.2445           |                       |
| 360 minute winter              | N2 S4      | 1.003        | N2 S5      | 4.4              | 0.123             | 0.016    | 4.0674           |                       |
| 15 minute summer               | N2 S6      | 1.005        | Outfall    | 1.7              | 0.317             | 0.006    | 0.2179           | 57.5                  |
| 360 minute winter              | Tank 1     | 3.000        | N2 S5      | -4.3             | 0.632             | -0.027   | 0.7423           |                       |
| 360 minute winter              | Tank 2     | 2.000        | N2 S3      | -10.4            | -0.724            | -0.142   | 0.6804           |                       |
| 360 minute winter              | N2 S5      | Hydro-Brake® | N2 S6      | 1.7              |                   |          |                  |                       |

**Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%**

| 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 | N2 S1      | 472            | 35.682       | 0.804        | 6.7             | 1.4208           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S2      | 472            | 35.682       | 0.841        | 6.3             | 1.4862           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S3      | 472            | 35.682       | 0.924        | 10.0            | 1.6329           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S4      | 472            | 35.682       | 0.969        | 5.9             | 1.7124           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S6      | 472            | 34.679       | 0.037        | 1.8             | 0.0649           | 0.0000        | OK         |
| 480 minute winter | Outfall    | 472            | 34.600       | 0.027        | 1.8             | 0.0000           | 0.0000        | OK         |
| 480 minute winter | Tank 1     | 472            | 35.682       | 0.468        | 9.7             | 73.7247          | 0.0000        | SURCHARGED |
| 480 minute winter | Tank 2     | 472            | 35.682       | 0.582        | 8.4             | 64.4381          | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S5      | 472            | 35.682       | 0.993        | 7.4             | 1.7548           | 0.0000        | SURCHARGED |

| 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) |
|--------------------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 480 minute winter              | N2 S1      | 1.000        | N2 S2      | 6.3              | 0.254             | 0.022    | 6.0442           |                       |
| 480 minute winter              | N2 S2      | 1.001        | N2 S3      | 5.8              | 0.198             | 0.020    | 13.5346          |                       |
| 480 minute winter              | N2 S3      | 1.002        | N2 S4      | -3.5             | 0.195             | -0.012   | 7.2445           |                       |
| 480 minute winter              | N2 S4      | 1.003        | N2 S5      | 5.8              | 0.152             | 0.021    | 4.0674           |                       |
| 480 minute winter              | N2 S6      | 1.005        | Outfall    | 1.8              | 0.318             | 0.006    | 0.2253           | 223.4                 |
| 480 minute winter              | Tank 1     | 3.000        | N2 S5      | -5.7             | 0.590             | -0.036   | 0.7819           |                       |
| 480 minute winter              | Tank 2     | 2.000        | N2 S3      | -8.4             | -0.500            | -0.115   | 0.6804           |                       |
| 480 minute winter              | N2 S5      | Hydro-Brake® | N2 S6      | 1.8              |                   |          |                  |                       |

**Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%**

| 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 | N2 S1      | 472            | 35.599       | 0.721        | 6.0             | 1.2736           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S2      | 472            | 35.599       | 0.758        | 5.6             | 1.3390           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S3      | 472            | 35.599       | 0.841        | 9.5             | 1.4857           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S4      | 472            | 35.599       | 0.886        | 5.0             | 1.5652           | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S6      | 472            | 34.678       | 0.036        | 1.7             | 0.0638           | 0.0000        | OK         |
| 480 minute winter | Outfall    | 472            | 34.599       | 0.026        | 1.7             | 0.0000           | 0.0000        | OK         |
| 480 minute winter | Tank 1     | 472            | 35.599       | 0.385        | 8.3             | 60.6060          | 0.0000        | SURCHARGED |
| 480 minute winter | Tank 2     | 472            | 35.599       | 0.499        | 8.6             | 55.2158          | 0.0000        | SURCHARGED |
| 480 minute winter | N2 S5      | 472            | 35.599       | 0.910        | 6.3             | 1.6076           | 0.0000        | SURCHARGED |

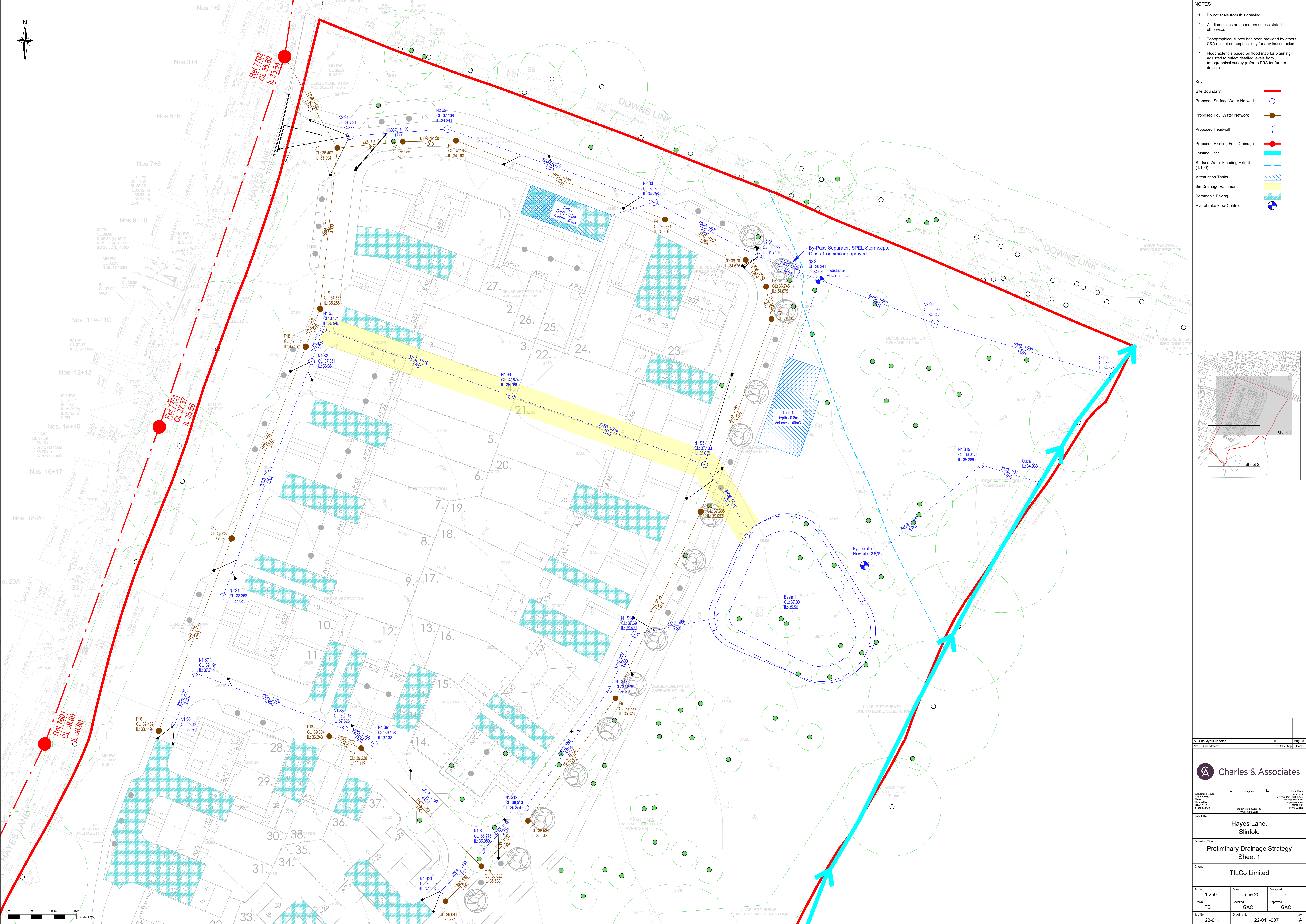
| Link Event<br>(Upstream Depth) | US<br>Node | Link         | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 480 minute winter              | N2 S1      | 1.000        | N2 S2      | 5.6              | 0.248             | 0.020    | 6.0442           |                       |
| 480 minute winter              | N2 S2      | 1.001        | N2 S3      | 4.8              | 0.193             | 0.017    | 13.5346          |                       |
| 480 minute winter              | N2 S3      | 1.002        | N2 S4      | -3.3             | 0.197             | -0.012   | 7.2445           |                       |
| 480 minute winter              | N2 S4      | 1.003        | N2 S5      | 4.9              | 0.143             | 0.018    | 4.0674           |                       |
| 480 minute winter              | N2 S6      | 1.005        | Outfall    | 1.7              | 0.312             | 0.006    | 0.2190           | 199.3                 |
| 480 minute winter              | Tank 1     | 3.000        | N2 S5      | -4.7             | 0.609             | -0.030   | 0.7819           |                       |
| 480 minute winter              | Tank 2     | 2.000        | N2 S3      | -8.6             | -0.512            | -0.118   | 0.6804           |                       |
| 480 minute winter              | N2 S5      | Hydro-Brake® | N2 S6      | 1.7              |                   |          |                  |                       |

**Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.97%**

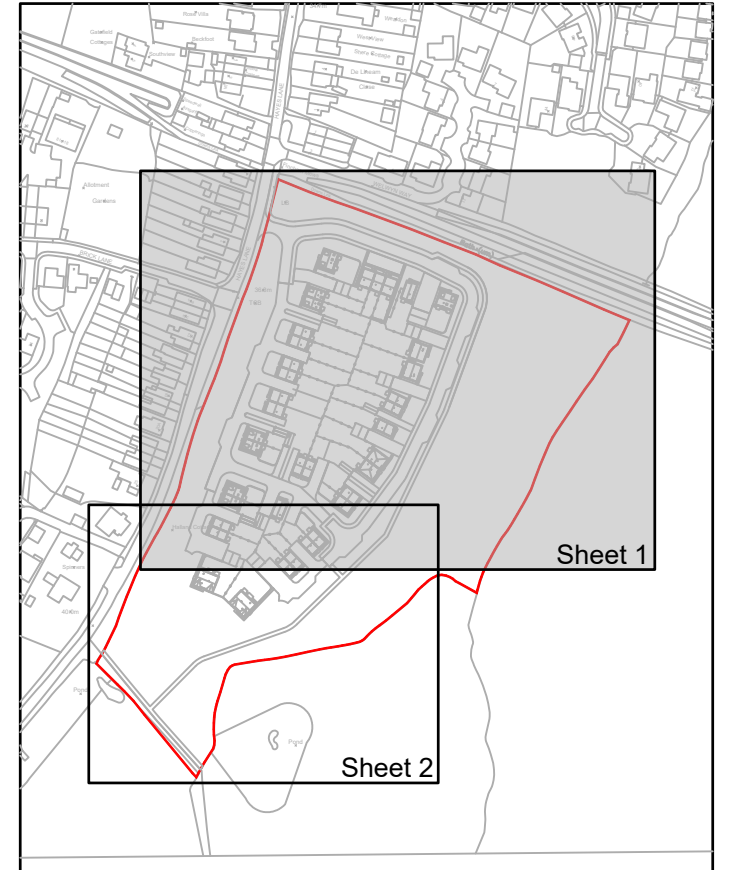
| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 600 minute winter | N2 S1      | 585            | 35.928       | 1.050        | 7.3             | 1.8548           | 0.0000        | SURCHARGED |
| 600 minute winter | N2 S2      | 585            | 35.928       | 1.087        | 7.2             | 1.9205           | 0.0000        | SURCHARGED |
| 600 minute winter | N2 S3      | 585            | 35.929       | 1.171        | 11.8            | 2.0683           | 0.0000        | SURCHARGED |
| 600 minute winter | N2 S4      | 585            | 35.929       | 1.216        | 6.8             | 2.1482           | 0.0000        | SURCHARGED |
| 600 minute winter | N2 S6      | 585            | 34.680       | 0.038        | 2.0             | 0.0679           | 0.0000        | OK         |
| 600 minute winter | Outfall    | 585            | 34.601       | 0.028        | 2.0             | 0.0000           | 0.0000        | OK         |
| 600 minute winter | Tank 1     | 585            | 35.928       | 0.714        | 11.1            | 112.5225         | 0.0000        | SURCHARGED |
| 600 minute winter | Tank 2     | 585            | 35.929       | 0.829        | 7.8             | 88.6154          | 0.0000        | SURCHARGED |
| 600 minute winter | N2 S5      | 585            | 35.929       | 1.240        | 8.5             | 2.1907           | 0.0000        | SURCHARGED |

| 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) |
|--------------------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 600 minute winter              | N2 S1      | 1.000        | N2 S2      | 7.2              | 0.257             | 0.025    | 6.0442           |                       |
| 600 minute winter              | N2 S2      | 1.001        | N2 S3      | 7.1              | 0.188             | 0.025    | 13.5346          |                       |
| 600 minute winter              | N2 S3      | 1.002        | N2 S4      | 3.8              | 0.195             | 0.013    | 7.2445           |                       |
| 600 minute winter              | N2 S4      | 1.003        | N2 S5      | 6.7              | 0.096             | 0.024    | 4.0674           |                       |
| 600 minute winter              | N2 S6      | 1.005        | Outfall    | 2.0              | 0.327             | 0.007    | 0.2398           | 303.1                 |
| 600 minute winter              | Tank 1     | 3.000        | N2 S5      | -6.8             | 0.584             | -0.043   | 0.7819           |                       |
| 600 minute winter              | Tank 2     | 2.000        | N2 S3      | -7.8             | -0.415            | -0.107   | 0.6804           |                       |
| 600 minute winter              | N2 S5      | Hydro-Brake® | N2 S6      | 2.0              |                   |          |                  |                       |

## Appendix F    Drainage Drawings



- |                                          |                                                                                     |
|------------------------------------------|-------------------------------------------------------------------------------------|
| Site Boundary                            |  |
| Proposed Surface Water Network           |  |
| Proposed Foul Water Network              |  |
| Proposed Headwall                        |  |
| Proposed Existing Foul Drainage          |  |
| Existing Ditch                           |  |
| Surface Water Flooding Extent<br>(1:100) |  |
| Attenuation Tanks                        |  |
| 6m Drainage Easement                     |  |
| Permeable Paving                         |  |
| Hydrobrake Flow Control                  |  |



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Client **TILCo Limited**

|                  |                          |                 |
|------------------|--------------------------|-----------------|
| Scale<br>1:250   | Date<br>June 25          | Designed<br>TB  |
| Drawn<br>TB      | Checked<br>GAC           | Approved<br>GAC |
| Job No<br>22-011 | Drawing No<br>22-011-007 | Rev<br>A        |