

## Avenue One, Letchworth

### TECHNICAL NOTE

### Response to LLFA Comments Dated 01 August 2025

#### DOCUMENT CONTROL SHEET

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#### Document Revision Record

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| P01            | 07/08/2025 | First Issue              |
| P02            | 08/08/2025 | Updates to suit comments |

Burrows Graham Limited has prepared this report in accordance with the instructions of the above-named Client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

## Responses to LLFA Objections Comments

This technical note has been produced in response to comments raised by Hertfordshire County Council who act as the Lead Local Flood Authority in their letter dated 01 August 2025.

Responses to each of the comments are below.

- 2. The current location where the buildings are proposed are already at risk of flooding. A large part of the site is flooded in surface water flooding which will require mitigation. The effectiveness of these mitigation strategies has not been properly assessed in the report.**

The existing surface water flooding maps shows some flooding for the 3.33% AEP storm events and 1% AEP storm events. This corresponds to low areas on the existing site and likely due to exceedance from the existing on-site drainage. The proposed building floor levels are set a minimum of 300mm above the existing levels. The proposed external levels are designed to fall away from buildings to ensure surface water does not drain towards the building and any exceedance flows do not enter the building. With the proposed drainage design, the floor levels will be over 1m above any surface water flood level. The proposed drainage strategy is designed for storms up to and including the 1% AEP + climate change events. There is no surface water flooding for the 3.33% AEP + climate change event with some any exceedance for the 1% AEP + climate change event retained on site in low risk areas. The redevelopment reduces the surface water flooding risk to the site.

- 3. The report quotes that “Should exceedance flooding occur, access and egress to the development shall be from the main site access onto Avenue One to the northwest.” However, the flood map shows that Avenue One is also at risk of flooding.**

There is also a new pedestrian access to the northeast of the site which will provide an alternative access/ egress in the event of exceedance flooding.

- 4. Infiltration testing is required to understand if it can be utilised within the drainage strategy.**

Soakaways have not been proposed due to the low grade structureless chalk underlying the site and the risk of dissolution features. It is not possible to locate any soakaway suitably away from any proposed structure.

- 5. The proposed drainage strategy cannot flood in the 3.33% AEP plus climate change rainfall event and any flooding in the 1% AEP plus climate change rainfall event must be stored safely on site. The current calculations show flooding occurring in the 3.33% AEP plus climate change rainfall event and it shows 140m<sup>3</sup> of flooding occurring in the 1% AEP plus climate change rainfall event. This is a significant amount of flooding and needs to be reduced.**

The drainage design has been updated to suit a site discharge rate restricted to Q<sub>bar</sub>. This has resulted in increased attenuation volumes. No flooding occurs during the 3.33% AEP + climate change event. The total volume of surface water flooding during the 1% AEP + climate change event is less than 40m<sup>3</sup> with the extent and depth shown on the drainage layout drawing. This is a reduction of 100m<sup>3</sup> of surface water flooding for the same event. Any flooding that does occur is retained on site and kept in low-risk areas such as the loading docks.

- 6. An updated Drainage strategy with supporting drainage calculations including the complete pipe network to test the network for flooding using FEH rainfall parameters (either FEH13 or FEH22) should be submitted. The calculations should show:**

- a. 50% AEP rainfall event does not surcharge in the drainage network if it is to be adopted by a responsible authority.**

The drainage network is to remain private. The surcharging shown in the calculations are as a result of the flow control.

- b. 3.33% AEP rainfall event plus climate change does not flood outside the drainage network which is designed to hold water.**

The updated calculations show no flooding for the 3.33% AEP + climate change rainfall event.

- c. 1% AEP rainfall event plus climate change does not leave the application boundary or flood any part of a building, utility plant susceptible to water within the development boundary.**

The area of flooding for the 1% AEP + climate change rainfall event is shown on the drainage drawing. It is retained on site, located in low risk areas.

- 7. Any flooding occurring in the 1% AEP plus climate change rainfall event must be shown on an associated drawing. This flooding must be stored safely on site.**

The small amount of flooding for the 1% AEP + climate change rainfall event is shown on the drainage drawing. This is a reduction of 100m<sup>3</sup> of flooding previously shown. It is retained on site, located away from the building and any susceptible areas.

- 8. The outflow for the design event which is 100-year plus climate change should be limited to the Qbar rate which is 6.2l/s. The current calculation shows an outflow of 22.1l/s. If this cannot be achieved, full justification must be provided.**

Calculations have been updated to remove the complex control and limit the site discharge rate to Qbar (6.2 l/s). Associated attenuation volumes have been increased to suit this increased restriction. The updated drainage layout and calculations are appended to this technical note.

- 9. Details with regard to the discharge of water to the surface water sewer need to be updated. The current pipe drains to a manhole. The invert level of is not provided at the outfall.**

The updated drawing now includes an invert level at the outfall.

- 10. Any pipe with a diameter of over 225mm is known as oversized. Some of the pipes in the network provided have a diameter of the order of 675mm which are much more than the permissible limit. Also, if the velocity is less than 0.75m/s, the pipes will become silted up (this limiting value is known as the self-cleansing velocity). Ideally it should be above 1 m/s and less than 3m/s. This might lead to associated losses, erosion and deposition.**

The drainage calculations have been updated to ensure velocity does above 0.75m/s and are appended to this technical note.

**11. Since the half drain time is not provided on the structure there are chances that the structure is not activated during the simulation.**

The half drain time for the structures is now shown in the calculations. Note that the half drain times are for the 1% AEP + climate change events.

**12. Details of flood resistance and resilience measures for residual risk. Finished floor levels should be minimum 300mm above any source of flooding (design flood levels including river flooding, surface water flooding or from the drainage scheme) or a minimum of 150mm above any ground level. Whichever is the more precautionary.**

The building floor levels are a minimum 300mm above existing levels. This is also over 1m above any surface water flood level on the site.

**13. Details regarding the water quality management at site to prevent pollution is not quantified.**

The pollution hazard index is taken from table 26.2 of the SuDS Manual. To deliver adequate treatment the SuDS components should have a total pollution mitigation index that equals or exceeds the pollution hazard index.

**Total SuDS mitigation index  $\geq$  Pollution hazard index**

| <b>TABLE 26.2 Pollution hazard indices for different land use classifications</b>                                                                                                                                                                                                                                      |                               |                                     |                                                                            |                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------|----------------------------------------------------------------------------|----------------------|
| <b>Land use</b>                                                                                                                                                                                                                                                                                                        | <b>Pollution hazard level</b> | <b>Total suspended solids (TSS)</b> | <b>Metals</b>                                                              | <b>Hydro-carbons</b> |
| Residential roofs                                                                                                                                                                                                                                                                                                      | Very low                      | 0.2                                 | 0.2                                                                        | 0.05                 |
| Other roofs (typically commercial/ industrial roofs)                                                                                                                                                                                                                                                                   | Low                           | 0.3                                 | 0.2 (up to 0.8 where there is potential for metals to leach from the roof) | 0.05                 |
| Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day                                                                               | Low                           | 0.5                                 | 0.4                                                                        | 0.4                  |
| Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways <sup>1</sup>                                                                                                                                 | Medium                        | 0.7                                 | 0.6                                                                        | 0.7                  |
| Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways <sup>1</sup> | High                          | 0.8 <sup>2</sup>                    | 0.8 <sup>2</sup>                                                           | 0.9 <sup>2</sup>     |

*Figure 1 - Pollution hazard indices for different land use classification (Table 26.2 The SuDS Manual CIRIA 753)*

Commercial yards and non-residential parking areas are considered as having a medium pollution hazard level. As such, the surface water drainage system must provide sufficient treatment to equal or exceed the corresponding hazard indices.

The indicative mitigation indices for different SuDS components are taken from table 26.3 of The SuDS Manual.

| TABLE 26.3 Indicative SuDS mitigation indices for discharges to surface waters |                                                                                                                                                                                                                                                    |        |              |
|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|
| Type of SuDS component                                                         | Mitigation indices <sup>1</sup>                                                                                                                                                                                                                    |        |              |
|                                                                                | TSS                                                                                                                                                                                                                                                | Metals | Hydrocarbons |
| Filter strip                                                                   | 0.4                                                                                                                                                                                                                                                | 0.4    | 0.5          |
| Filter drain                                                                   | 0.4 <sup>2</sup>                                                                                                                                                                                                                                   | 0.4    | 0.4          |
| Swale                                                                          | 0.5                                                                                                                                                                                                                                                | 0.6    | 0.6          |
| Bioretention system                                                            | 0.8                                                                                                                                                                                                                                                | 0.8    | 0.8          |
| Permeable pavement                                                             | 0.7                                                                                                                                                                                                                                                | 0.6    | 0.7          |
| Detention basin                                                                | 0.5                                                                                                                                                                                                                                                | 0.5    | 0.6          |
| Pond <sup>4</sup>                                                              | 0.7 <sup>3</sup>                                                                                                                                                                                                                                   | 0.7    | 0.5          |
| Wetland                                                                        | 0.8 <sup>3</sup>                                                                                                                                                                                                                                   | 0.8    | 0.8          |
| Proprietary treatment systems <sup>5,6</sup>                                   | These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area. |        |              |

Figure 2 - Indicative SuDS mitigation indices (Table 26.3 The SuDS Manual CIRIA 753)

Where the mitigation index of an individual component is insufficient, two components (or more) in series will be required and calculated as below.

**Total SuDS mitigation index = mitigation index<sub>1</sub> + 0.5(mitigation index<sub>2</sub>) + ...**

The surface water drainage system utilises various SuDS components and summarised below.

| SuDS Component                    | Mitigation Indices |        |              |
|-----------------------------------|--------------------|--------|--------------|
|                                   | TSS                | Metals | Hydrocarbons |
| Full Retention Separator          | 0.8                | 0.6    | 0.9          |
| Permeable Paving                  | 0.7                | 0.6    | 0.7          |
| Rain Garden/<br>Bioretention area | 0.8                | 0.8    | 0.8          |

As part of the drainage strategy, surface water run-off from the access road will be treated by either a full retention separator or bioretention area, runoff within yard will pass through a full retention separator. Surface water run-off from car parking areas will be intercepted and treated through lined permeable paving. Based on a medium pollution hazard level of medium, each of the proposed SuDS treatment components in isolation have an equal or higher mitigation index, so therefore provides adequate surface water treatment.

**14. A surface water management and construction phasing plan is required. A high-level assessment of how water quantity and water quality will be managed during the construction phase is required.**

A surface water management and construction phasing plan will be produced by the Principal Contractor once appointed and prior to works commencing on site. It will include details of how water quantity and water quality will be managed during the construction phase. The information included in their Plan should not be limited to the information below.

- The Contractor will plan ahead for intense and prolonged wet weather and consider all relevant pollution mitigation measures including minimising the amount of time stripped ground and soil stockpiles are exposed.
- The contractor shall only remove vegetation from the area that needs to be exposed in the near future. Contractor to create run-off lagoons, as required and allow suspended solids to settle before disposal off site. Settled solids should be removed regularly and appropriately disposed of.
- Run-off is to be collected in an impermeable sump. Contaminated water will be tankered off site for authorised disposal.
- The contractor will prevent water from entering excavations using cut-off ditches and using pump sumps in excavations to draw water away from the area.
- Where run-off is contaminated with silt or other pollutants such as oils, this water must not be pumped or allowed to be discharged from site without treatment.
- Plant and wheel washing will be carried out in a designated area of hardstanding at least 10m from any surface water drain.
- Refuelling of plant or equipment shall be carried away from drainage points and on hardstanding with drip trays underneath.
- Sandbags will be placed around areas such as gullies and drains to protect them and prevent any ingress should a spill occur.
- Spills will be cleaned up immediately with a spill kit and the waste material disposed of appropriately via a licensed waste contractor.
- Any spills that may affect the local water environment will be reported to the local EA for advice and control.
- All fuel and generators will be stored on a suitable drip tray with a capacity equal to 110% of the capacity of the fuel tank that supplies the equipment.
- The contractor will ensure that the equipment used does not leak oil. Drip trays will be emptied regularly to make sure that they can contain any spills.
- The external hard standings that are constructed will drain to the permanent drainage network and be dealt with as the drainage design intended.
- All plant will be inspected daily to ensure that it is in good working order. This includes inspecting hoses to ensure that they are not corroded or leaking fuels such as hydraulics.
- Any plant found to have faults will be taken out of service. It will be stored on a hardstanding area until repaired or removed.
- Regular audits and inspections will be carried out to ensure compliance of the pollution control measures to ensure that they are suitable and satisfactory.
- As the works progress, the weekly weather will be monitored to determine if the weather conditions anticipated, will impact on the site activities and operations. This will help determine what measures to be implemented to mitigate the risk i.e. change the planned works, additional resources or equipment required for significant rainfall.

**Appendix A – Drainage Layout Drawing**



DRAINAGE NOTES:

1. Do not scale from this drawing, work to dimensions or co-ordinates provided. All levels are in metres and all dimensions are in millimetres, unless otherwise noted (u.o.n.). If in doubt seek clarification.
2. This drawing is to be read in conjunction with all relevant drawings, specifications and documentation.
3. The Contractor MUST check the position, size and levels of all existing drains / sewers / pipes / outfalls / manholes that are being retained prior to the commencement of the site works and any discrepancies reported immediately to Burrows Graham Limited. Contractor should allow for cleaning / jetting / surveying existing retained drainage.
4. The Contractor must check for any offsite connections to the existing site drainage and report any findings to Burrows Graham Limited.
5. The Contractor is responsible for obtaining all required permits and licenses (S106 agreements).
6. All works are assumed to be within public highway or within land owners lands & no works are required on third party land owners property.
7. Any gradients of drains indicated are indicative only and the Contractor shall install the drains to the specified levels shown for each chamber (u.o.n.).
8. Cover levels of the access points are provisional and subject to adjustment on site to suit the finished ground levels. All external works construction areas to be as located by the architect.
9. Positions and sizes of above ground foul and surface water drainage connections ("pop-ups") are indicative only. Setting out and confirmation of the internal requirements is the responsibility of the architect. Contractor to confirm requirement prior to construction.
10. Design assumes that no sewerage authority sewers or other drainage systems require modification, diversion or abandoning (u.o.n.).
11. Drainage channels are to be ACO Qmax in service yards and ACO Multidrain in car parks, or similar approved. Channels are to be sized by the supplier and approved by the Engineer in writing prior to ordering. Drainage channels to be installed to manufacturers' requirements. Design of channels shall be based on a 1 in 100 year storm return period, 15 minute duration. Outlet units on channel drains to include silt traps.
12. All RWP, gully and channel connections shall be 100mm dia UNO. Waste/soil stack connections shall be 100mm dia UNO and shall have internal above ground rodding eyes or large access fittings in accordance with Building Regulations.
13. All WPC's, SRWP's and RWP's are shown indicatively. Locations shall be confirmed by others.
14. No deep rooting trees/vegetation should be planted within 5.0m of any drainage works.

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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

CONSTRUCTION

MAINTENANCE

DEMOLITION

KEY:

- Existing AW Foul Water Sewer
- Existing AW Surface Water Sewer
- Existing Foul Water Drainage
- Existing Surface Water Drainage
- Existing Drainage to be Abandoned
- Surface Water Drainage Pipe
- Surface Water Drainage Manhole
- Surface Water Drainage Channel
- Filter Drainage Pipe
- Offlet Kerb Drainage
- Foul Water Drainage Pipe
- Foul Water Drainage Manhole
- Above Ground Syphonic Pipedwork
- Proposed Permeable Surfacing
- Proposed Green SuDS (Tree Pits/Rain Garden & Green Roofs)
- DU
- Diffuser Unit at Base of Permeable Surfacing
- Road Gully
- Planning Boundary

|     |          |       |                                         |      |
|-----|----------|-------|-----------------------------------------|------|
| T02 | 07.08.25 | GL    | Drainage updated to suit Q8ar discharge | RM   |
| T01 | 10.07.25 | GL    | Issued for tender                       | RM   |
| P03 | 24.06.25 | FT/GL | Drainage updated following coordination | RM   |
| P02 | 25.04.25 | PG    | Unit 1 Car Park Updated                 | RM   |
| P01 | 17.04.25 | PG    | Issued for information                  | RM   |
| REV | DATE     | BY    | DESCRIPTION                             | CHKD |

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CLIENT  
Wrenbrigde

PROJECT  
Letchworth, Ave One

DRAWING TITLE  
DRAINAGE STRATEGY PLAN

|                            |                |          |
|----------------------------|----------------|----------|
| BGL PROJECT NUMBER         | DRAWING STATUS | OFFICE   |
| 40365                      | TENDER         | SOUTH    |
| SCALE @ A0                 | DATE           | DRAWN BY |
| 1:250                      | 16.04.2025     | PG       |
| DRAWING No                 | CHECKED BY     | REV      |
| 40365-BGL-XX-XX-DR-C-00210 | RM             | T02      |

**Appendix B – Drainage Calculations**

### Design Settings

|                                      |        |                                    |               |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology                 | FEH-22 | Minimum Velocity (m/s)             | 1.00          |
| Return Period (years)                | 10     | 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)             | 150.0  |                                    |               |

### 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) |
|----------------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| SWMH03         | 0.296        | 5.00             | 81.803                | 1500             | 523223.221     | 232858.345      | 2.153        |
| SWMH04         | 0.047        | 5.00             | 81.805                | 1500             | 523274.069     | 232877.624      | 2.285        |
| DC01           | 0.035        | 5.00             | 80.250                | 450              | 523328.204     | 232941.119      | 0.950        |
| DC02           | 0.228        | 5.00             | 80.800                | 450              | 523336.294     | 232925.279      | 1.200        |
| SWMH01         |              |                  | 80.924                | 1500             | 523336.161     | 232921.532      | 2.074        |
| PI01           |              |                  | 81.300                | 1500             | 523326.636     | 232917.652      | 2.580        |
| SWMH02         |              |                  | 81.014                | 1500             | 523314.845     | 232913.231      | 2.324        |
| SWMH05         |              |                  | 81.394                | 1800             | 523298.188     | 232906.980      | 2.834        |
| DC03           | 0.019        | 5.00             | 80.600                | 450              | 523257.831     | 232930.338      | 0.900        |
| DC04           | 0.202        | 5.00             | 81.185                | 450              | 523274.604     | 232934.723      | 1.285        |
| SWMH06         |              |                  | 81.306                | 1350             | 523278.222     | 232938.127      | 2.056        |
| PI02           |              |                  | 81.300                | 1350             | 523275.130     | 232946.514      | 2.180        |
| SWMH07         | 0.000        |                  | 81.305                | 1350             | 523271.634     | 232955.320      | 2.225        |
| SWMH08         |              |                  | 81.395                | 1500             | 523275.381     | 232967.632      | 2.965        |
| SWMH09         | 0.296        | 5.00             | 81.735                | 1350             | 523244.384     | 232962.863      | 2.235        |
| TANK01         |              |                  | 81.300                | 1350             | 523253.114     | 232965.955      | 2.500        |
| SWMH10         | 0.045        | 5.00             | 81.274                | 1350             | 523257.748     | 232980.239      | 2.524        |
| SWMH11         | 0.487        | 5.00             | 81.457                | 1350             | 523275.951     | 232987.072      | 1.957        |
| SWMH12         |              |                  | 81.374                | 1800             | 523269.027     | 232984.439      | 2.984        |
| Entrance Gully | 0.000        | 5.00             | 80.300                | 600              | 523172.234     | 232978.465      | 0.760        |
| SWMH13         | 0.050        | 5.00             | 80.993                | 1500             | 523194.779     | 232980.549      | 1.693        |
| SWMH14         | 0.050        | 5.00             | 81.268                | 1500             | 523229.191     | 232989.455      | 2.078        |
| SWMH15         |              |                  | 81.265                | 1800             | 523263.741     | 232998.422      | 2.905        |
| TANK02         |              |                  | 80.900                | 1500             | 523300.129     | 233014.972      | 2.620        |
| SWMH16         | 0.100        | 5.00             | 80.807                | 1350             | 523329.108     | 233033.903      | 1.207        |
| SWMH17         |              |                  | 80.873                | 1800             | 523332.219     | 233026.252      | 2.663        |
| SWMH18         | 0.129        | 5.00             | 81.236                | 1500             | 523347.386     | 233015.789      | 1.696        |
| SWMH19         |              |                  | 80.814                | 1800             | 523343.931     | 233028.990      | 2.654        |
| EXMH3052       |              |                  | 80.050                | 1350             | 523350.768     | 233047.765      | 1.950        |

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 | SWMH03         | SWMH04     | 54.380        | 0.600          | 79.650       | 79.520       | 0.130       | 418.3          | 450         | 5.92             | 101.2           |
| 1.001 | SWMH04         | SWMH05     | 37.993        | 0.600          | 79.520       | 78.800       | 0.720       | 52.8           | 450         | 6.14             | 99.6            |
| 2.000 | DC01           | SWMH01     | 21.142        | 0.600          | 79.300       | 79.150       | 0.150       | 140.9          | 225         | 5.32             | 105.7           |
| 3.000 | DC02           | SWMH01     | 3.749         | 0.600          | 79.600       | 79.500       | 0.100       | 37.5           | 300         | 5.02             | 108.0           |
| 2.001 | SWMH01         | PI01       | 10.285        | 0.600          | 78.850       | 78.820       | 0.030       | 342.8          | 450         | 5.48             | 104.5           |
| 2.002 | PI01           | SWMH02     | 12.593        | 0.600          | 78.720       | 78.690       | 0.030       | 419.8          | 450         | 5.69             | 102.9           |
| 2.003 | SWMH02         | SWMH05     | 17.791        | 0.600          | 78.690       | 78.640       | 0.050       | 355.8          | 450         | 5.97             | 100.8           |
| 1.002 | SWMH05         | SWMH08     | 64.798        | 0.600          | 78.560       | 78.430       | 0.130       | 498.4          | 600         | 7.14             | 92.7            |
| 4.000 | DC03           | SWMH06     | 21.828        | 0.600          | 79.700       | 79.480       | 0.220       | 99.2           | 150         | 5.36             | 105.4           |
| 5.000 | DC04           | SWMH06     | 4.968         | 0.600          | 79.900       | 79.800       | 0.100       | 49.7           | 300         | 5.04             | 107.9           |
| 4.001 | SWMH06         | PI02       | 8.939         | 0.600          | 79.250       | 79.220       | 0.030       | 298.0          | 375         | 5.50             | 104.4           |
| 4.002 | PI02           | SWMH07     | 9.475         | 0.600          | 79.120       | 79.080       | 0.040       | 236.9          | 375         | 5.64             | 103.3           |
| 4.003 | SWMH07         | SWMH08     | 12.870        | 0.600          | 79.080       | 78.750       | 0.330       | 39.0           | 375         | 5.71             | 102.8           |
| 1.003 | SWMH08         | SWMH12     | 17.968        | 0.600          | 78.430       | 78.390       | 0.040       | 449.2          | 600         | 7.40             | 91.1            |
| 6.000 | SWMH09         | TANK01     | 9.261         | 0.600          | 79.500       | 79.470       | 0.030       | 308.7          | 375         | 5.15             | 107.0           |
| 6.001 | TANK01         | SWMH10     | 15.017        | 0.600          | 78.800       | 78.750       | 0.050       | 300.3          | 375         | 5.39             | 105.2           |
| 6.002 | SWMH10         | SWMH12     | 12.036        | 0.600          | 78.750       | 78.710       | 0.040       | 300.9          | 375         | 5.58             | 103.7           |
| 7.000 | SWMH11         | SWMH12     | 7.408         | 0.600          | 79.500       | 78.630       | 0.870       | 8.5            | 450         | 5.02             | 108.1           |
| 1.004 | SWMH12         | SWMH15     | 14.949        | 0.600          | 78.390       | 78.360       | 0.030       | 498.3          | 600         | 7.63             | 89.8            |
| 8.000 | Entrance Gully | SWMH13     | 22.641        | 0.600          | 79.540       | 79.389       | 0.151       | 150.0          | 150         | 5.46             | 104.7           |
| 8.001 | SWMH13         | SWMH14     | 35.546        | 0.600          | 79.300       | 79.190       | 0.110       | 323.1          | 450         | 5.99             | 100.7           |
| 8.002 | SWMH14         | SWMH15     | 35.695        | 0.600          | 79.190       | 78.600       | 0.590       | 60.5           | 450         | 6.22             | 99.1            |
| 1.005 | SWMH15         | TANK02     | 39.975        | 0.600          | 78.360       | 78.280       | 0.080       | 499.7          | 600         | 8.25             | 86.2            |
| 1.006 | TANK02         | SWMH17     | 34.015        | 0.600          | 78.280       | 78.210       | 0.070       | 485.9          | 600         | 8.76             | 83.5            |

| 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) |
|-------|--------------|--------------|---------------|--------------------|--------------------|----------------|--------------------------|
| 1.000 | 0.987        | 157.1        | 108.2         | 1.703              | 1.835              | 0.296          | 0.0                      |
| 1.001 | 2.803        | 445.8        | 123.4         | 1.835              | 2.144              | 0.343          | 0.0                      |
| 2.000 | 1.099        | 43.7         | 13.4          | 0.725              | 1.549              | 0.035          | 0.0                      |
| 3.000 | 2.575        | 182.0        | 89.0          | 0.900              | 1.124              | 0.228          | 0.0                      |
| 2.001 | 1.092        | 173.7        | 99.4          | 1.624              | 2.030              | 0.263          | 0.0                      |
| 2.002 | 0.986        | 156.8        | 97.8          | 2.130              | 1.874              | 0.263          | 0.0                      |
| 2.003 | 1.072        | 170.4        | 95.8          | 1.874              | 2.304              | 0.263          | 0.0                      |
| 1.002 | 1.084        | 306.4        | 203.1         | 2.234              | 2.365              | 0.606          | 0.0                      |
| 4.000 | 1.009        | 17.8         | 7.2           | 0.750              | 1.676              | 0.019          | 0.0                      |
| 5.000 | 2.236        | 158.0        | 78.8          | 0.985              | 1.206              | 0.202          | 0.0                      |
| 4.001 | 1.044        | 115.3        | 83.3          | 1.681              | 1.705              | 0.221          | 0.0                      |
| 4.002 | 1.173        | 129.5        | 82.5          | 1.805              | 1.850              | 0.221          | 0.0                      |
| 4.003 | 2.909        | 321.2        | 82.1          | 1.850              | 2.270              | 0.221          | 0.0                      |
| 1.003 | 1.142        | 322.9        | 272.4         | 2.365              | 2.384              | 0.827          | 0.0                      |
| 6.000 | 1.026        | 113.3        | 114.5         | 1.860              | 1.455              | 0.296          | 0.0                      |
| 6.001 | 1.040        | 114.9        | 112.5         | 2.125              | 2.149              | 0.296          | 0.0                      |
| 6.002 | 1.039        | 114.8        | 127.8         | 2.149              | 2.289              | 0.341          | 0.0                      |
| 7.000 | 6.998        | 1113.0       | 190.2         | 1.507              | 2.294              | 0.487          | 0.0                      |
| 1.004 | 1.084        | 306.4        | 536.8         | 2.384              | 2.305              | 1.655          | 0.0                      |
| 8.000 | 0.818        | 14.5         | 0.0           | 0.610              | 1.454              | 0.000          | 0.0                      |
| 8.001 | 1.125        | 179.0        | 18.2          | 1.243              | 1.628              | 0.050          | 0.0                      |
| 8.002 | 2.617        | 416.2        | 35.8          | 1.628              | 2.215              | 0.100          | 0.0                      |
| 1.005 | 1.082        | 306.0        | 546.8         | 2.305              | 2.020              | 1.755          | 0.0                      |
| 1.006 | 1.098        | 310.4        | 529.4         | 2.020              | 2.063              | 1.755          | 0.0                      |

### Links

| Name   | US Node | DS Node  | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|--------|---------|----------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 9.000  | SWMH16  | SWMH17   | 8.259      | 0.600       | 79.600    | 78.630    | 0.970    | 8.5         | 375      | 5.02          | 108.0        |
| 1.007  | SWMH17  | SWMH19   | 12.028     | 0.600       | 78.210    | 78.160    | 0.050    | 240.6       | 600      | 8.89          | 82.8         |
| 10.000 | SWMH18  | SWMH19   | 13.646     | 0.600       | 79.540    | 78.160    | 1.380    | 9.9         | 450      | 5.04          | 107.9        |
| 1.008  | SWMH19  | EXMH3052 | 19.981     | 0.600       | 78.160    | 78.100    | 0.060    | 333.0       | 375      | 9.23          | 81.2         |

| Name   | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) |
|--------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|
| 9.000  | 6.240     | 689.2     | 39.0       | 0.832        | 1.868        | 0.100       | 0.0                |
| 1.007  | 1.565     | 442.6     | 555.0      | 2.063        | 2.054        | 1.855       | 0.0                |
| 10.000 | 6.493     | 1032.6    | 50.3       | 1.246        | 2.204        | 0.129       | 0.0                |
| 1.008  | 0.987     | 109.0     | 581.9      | 2.279        | 1.575        | 1.984       | 0.0                |

### Pipeline Schedule

| Link  | Length (m) | Slope (1:X) | Dia (mm) | Link Type | US CL (m) | US IL (m) | US Depth (m) | DS CL (m) | DS IL (m) | DS Depth (m) |
|-------|------------|-------------|----------|-----------|-----------|-----------|--------------|-----------|-----------|--------------|
| 1.000 | 54.380     | 418.3       | 450      | Circular  | 81.803    | 79.650    | 1.703        | 81.805    | 79.520    | 1.835        |
| 1.001 | 37.993     | 52.8        | 450      | Circular  | 81.805    | 79.520    | 1.835        | 81.394    | 78.800    | 2.144        |
| 2.000 | 21.142     | 140.9       | 225      | Circular  | 80.250    | 79.300    | 0.725        | 80.924    | 79.150    | 1.549        |
| 3.000 | 3.749      | 37.5        | 300      | Circular  | 80.800    | 79.600    | 0.900        | 80.924    | 79.500    | 1.124        |
| 2.001 | 10.285     | 342.8       | 450      | Circular  | 80.924    | 78.850    | 1.624        | 81.300    | 78.820    | 2.030        |
| 2.002 | 12.593     | 419.8       | 450      | Circular  | 81.300    | 78.720    | 2.130        | 81.014    | 78.690    | 1.874        |
| 2.003 | 17.791     | 355.8       | 450      | Circular  | 81.014    | 78.690    | 1.874        | 81.394    | 78.640    | 2.304        |
| 1.002 | 64.798     | 498.4       | 600      | Circular  | 81.394    | 78.560    | 2.234        | 81.395    | 78.430    | 2.365        |
| 4.000 | 21.828     | 99.2        | 150      | Circular  | 80.600    | 79.700    | 0.750        | 81.306    | 79.480    | 1.676        |
| 5.000 | 4.968      | 49.7        | 300      | Circular  | 81.185    | 79.900    | 0.985        | 81.306    | 79.800    | 1.206        |
| 4.001 | 8.939      | 298.0       | 375      | Circular  | 81.306    | 79.250    | 1.681        | 81.300    | 79.220    | 1.705        |
| 4.002 | 9.475      | 236.9       | 375      | Circular  | 81.300    | 79.120    | 1.805        | 81.305    | 79.080    | 1.850        |
| 4.003 | 12.870     | 39.0        | 375      | Circular  | 81.305    | 79.080    | 1.850        | 81.395    | 78.750    | 2.270        |
| 1.003 | 17.968     | 449.2       | 600      | Circular  | 81.395    | 78.430    | 2.365        | 81.374    | 78.390    | 2.384        |
| 6.000 | 9.261      | 308.7       | 375      | Circular  | 81.735    | 79.500    | 1.860        | 81.300    | 79.470    | 1.455        |
| 6.001 | 15.017     | 300.3       | 375      | Circular  | 81.300    | 78.800    | 2.125        | 81.274    | 78.750    | 2.149        |

| Link  | US Node | Dia (mm) | Node Type | MH Type   | DS Node | Dia (mm) | Node Type | MH Type   |
|-------|---------|----------|-----------|-----------|---------|----------|-----------|-----------|
| 1.000 | SWMH03  | 1500     | Manhole   | Adoptable | SWMH04  | 1500     | Manhole   | Adoptable |
| 1.001 | SWMH04  | 1500     | Manhole   | Adoptable | SWMH05  | 1800     | Manhole   | Adoptable |
| 2.000 | DC01    | 450      | Manhole   | Adoptable | SWMH01  | 1500     | Manhole   | Adoptable |
| 3.000 | DC02    | 450      | Manhole   | Adoptable | SWMH01  | 1500     | Manhole   | Adoptable |
| 2.001 | SWMH01  | 1500     | Manhole   | Adoptable | PI01    | 1500     | Manhole   | Adoptable |
| 2.002 | PI01    | 1500     | Manhole   | Adoptable | SWMH02  | 1500     | Manhole   | Adoptable |
| 2.003 | SWMH02  | 1500     | Manhole   | Adoptable | SWMH05  | 1800     | Manhole   | Adoptable |
| 1.002 | SWMH05  | 1800     | Manhole   | Adoptable | SWMH08  | 1500     | Manhole   | Adoptable |
| 4.000 | DC03    | 450      | Manhole   | Adoptable | SWMH06  | 1350     | Manhole   | Adoptable |
| 5.000 | DC04    | 450      | Manhole   | Adoptable | SWMH06  | 1350     | Manhole   | Adoptable |
| 4.001 | SWMH06  | 1350     | Manhole   | Adoptable | PI02    | 1350     | Manhole   | Adoptable |
| 4.002 | PI02    | 1350     | Manhole   | Adoptable | SWMH07  | 1350     | Manhole   | Adoptable |
| 4.003 | SWMH07  | 1350     | Manhole   | Adoptable | SWMH08  | 1500     | Manhole   | Adoptable |
| 1.003 | SWMH08  | 1500     | Manhole   | Adoptable | SWMH12  | 1800     | Manhole   | Adoptable |
| 6.000 | SWMH09  | 1350     | Manhole   | Adoptable | TANK01  | 1350     | Manhole   | Adoptable |
| 6.001 | TANK01  | 1350     | Manhole   | Adoptable | SWMH10  | 1350     | Manhole   | Adoptable |

## Pipeline Schedule

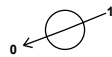
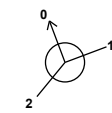
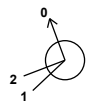
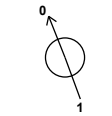
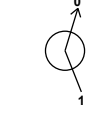
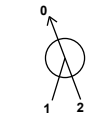
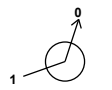
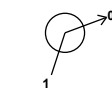
| Link   | Length<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | Link<br>Type | US CL<br>(m) | US IL<br>(m) | US Depth<br>(m) | DS CL<br>(m) | DS IL<br>(m) | DS Depth<br>(m) |
|--------|---------------|----------------|-------------|--------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| 6.002  | 12.036        | 300.9          | 375         | Circular     | 81.274       | 78.750       | 2.149           | 81.374       | 78.710       | 2.289           |
| 7.000  | 7.408         | 8.5            | 450         | Circular     | 81.457       | 79.500       | 1.507           | 81.374       | 78.630       | 2.294           |
| 1.004  | 14.949        | 498.3          | 600         | Circular     | 81.374       | 78.390       | 2.384           | 81.265       | 78.360       | 2.305           |
| 8.000  | 22.641        | 150.0          | 150         | Circular     | 80.300       | 79.540       | 0.610           | 80.993       | 79.389       | 1.454           |
| 8.001  | 35.546        | 323.1          | 450         | Circular     | 80.993       | 79.300       | 1.243           | 81.268       | 79.190       | 1.628           |
| 8.002  | 35.695        | 60.5           | 450         | Circular     | 81.268       | 79.190       | 1.628           | 81.265       | 78.600       | 2.215           |
| 1.005  | 39.975        | 499.7          | 600         | Circular     | 81.265       | 78.360       | 2.305           | 80.900       | 78.280       | 2.020           |
| 1.006  | 34.015        | 485.9          | 600         | Circular     | 80.900       | 78.280       | 2.020           | 80.873       | 78.210       | 2.063           |
| 9.000  | 8.259         | 8.5            | 375         | Circular     | 80.807       | 79.600       | 0.832           | 80.873       | 78.630       | 1.868           |
| 1.007  | 12.028        | 240.6          | 600         | Circular     | 80.873       | 78.210       | 2.063           | 80.814       | 78.160       | 2.054           |
| 10.000 | 13.646        | 9.9            | 450         | Circular     | 81.236       | 79.540       | 1.246           | 80.814       | 78.160       | 2.204           |
| 1.008  | 19.981        | 333.0          | 375         | Circular     | 80.814       | 78.160       | 2.279           | 80.050       | 78.100       | 1.575           |

| 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 |
|--------|-----------------|-------------|--------------|------------|------------|-------------|--------------|------------|
| 6.002  | SWMH10          | 1350        | Manhole      | Adoptable  | SWMH12     | 1800        | Manhole      | Adoptable  |
| 7.000  | SWMH11          | 1350        | Manhole      | Adoptable  | SWMH12     | 1800        | Manhole      | Adoptable  |
| 1.004  | SWMH12          | 1800        | Manhole      | Adoptable  | SWMH15     | 1800        | Manhole      | Adoptable  |
| 8.000  | Entrance Gulley | 600         | Manhole      | Adoptable  | SWMH13     | 1500        | Manhole      | Adoptable  |
| 8.001  | SWMH13          | 1500        | Manhole      | Adoptable  | SWMH14     | 1500        | Manhole      | Adoptable  |
| 8.002  | SWMH14          | 1500        | Manhole      | Adoptable  | SWMH15     | 1800        | Manhole      | Adoptable  |
| 1.005  | SWMH15          | 1800        | Manhole      | Adoptable  | TANK02     | 1500        | Manhole      | Adoptable  |
| 1.006  | TANK02          | 1500        | Manhole      | Adoptable  | SWMH17     | 1800        | Manhole      | Adoptable  |
| 9.000  | SWMH16          | 1350        | Manhole      | Adoptable  | SWMH17     | 1800        | Manhole      | Adoptable  |
| 1.007  | SWMH17          | 1800        | Manhole      | Adoptable  | SWMH19     | 1800        | Manhole      | Adoptable  |
| 10.000 | SWMH18          | 1500        | Manhole      | Adoptable  | SWMH19     | 1800        | Manhole      | Adoptable  |
| 1.008  | SWMH19          | 1800        | Manhole      | Adoptable  | EXMH3052   | 1350        | Manhole      | Adoptable  |

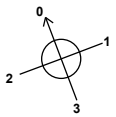
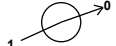
## Manhole Schedule

| Node   | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                          | Link | IL<br>(m) | Dia<br>(mm) |     |
|--------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|------|-----------|-------------|-----|
| SWMH03 | 523223.221     | 232858.345      | 81.803    | 2.153        | 1500        |  | 0    | 1.000     | 79.650      | 450 |
| SWMH04 | 523274.069     | 232877.624      | 81.805    | 2.285        | 1500        |  | 1    | 1.000     | 79.520      | 450 |
|        |                |                 |           |              |             |  | 0    | 1.001     | 79.520      | 450 |
| DC01   | 523328.204     | 232941.119      | 80.250    | 0.950        | 450         |  | 0    | 2.000     | 79.300      | 225 |
| DC02   | 523336.294     | 232925.279      | 80.800    | 1.200        | 450         |  | 0    | 3.000     | 79.600      | 300 |
| SWMH01 | 523336.161     | 232921.532      | 80.924    | 2.074        | 1500        |  | 1    | 3.000     | 79.500      | 300 |
|        |                |                 |           |              |             |  | 2    | 2.000     | 79.150      | 225 |
|        |                |                 |           |              |             |  | 0    | 2.001     | 78.850      | 450 |

## 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) |     |
|--------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|-------|-----------|-------------|-----|
| PI01   | 523326.636     | 232917.652      | 81.300    | 2.580        | 1500        |    | 1     | 2.001     | 78.820      | 450 |
|        |                |                 |           |              |             | 0                                                                                    | 2.002 | 78.720    | 450         |     |
| SWMH02 | 523314.845     | 232913.231      | 81.014    | 2.324        | 1500        |    | 1     | 2.002     | 78.690      | 450 |
|        |                |                 |           |              |             | 0                                                                                    | 2.003 | 78.690    | 450         |     |
| SWMH05 | 523298.188     | 232906.980      | 81.394    | 2.834        | 1800        |    | 1     | 2.003     | 78.640      | 450 |
|        |                |                 |           |              |             | 2                                                                                    | 1.001 | 78.800    | 450         |     |
|        |                |                 |           |              |             | 0                                                                                    | 1.002 | 78.560    | 600         |     |
| DC03   | 523257.831     | 232930.338      | 80.600    | 0.900        | 450         |    |       |           |             |     |
|        |                |                 |           |              |             | 0                                                                                    | 4.000 | 79.700    | 150         |     |
| DC04   | 523274.604     | 232934.723      | 81.185    | 1.285        | 450         |    |       |           |             |     |
|        |                |                 |           |              |             | 0                                                                                    | 5.000 | 79.900    | 300         |     |
| SWMH06 | 523278.222     | 232938.127      | 81.306    | 2.056        | 1350        |  | 1     | 5.000     | 79.800      | 300 |
|        |                |                 |           |              |             | 2                                                                                    | 4.000 | 79.480    | 150         |     |
|        |                |                 |           |              |             | 0                                                                                    | 4.001 | 79.250    | 375         |     |
| PI02   | 523275.130     | 232946.514      | 81.300    | 2.180        | 1350        |  | 1     | 4.001     | 79.220      | 375 |
|        |                |                 |           |              |             | 0                                                                                    | 4.002 | 79.120    | 375         |     |
| SWMH07 | 523271.634     | 232955.320      | 81.305    | 2.225        | 1350        |  | 1     | 4.002     | 79.080      | 375 |
|        |                |                 |           |              |             | 0                                                                                    | 4.003 | 79.080    | 375         |     |
| SWMH08 | 523275.381     | 232967.632      | 81.395    | 2.965        | 1500        |  | 1     | 4.003     | 78.750      | 375 |
|        |                |                 |           |              |             | 2                                                                                    | 1.002 | 78.430    | 600         |     |
|        |                |                 |           |              |             | 0                                                                                    | 1.003 | 78.430    | 600         |     |
| SWMH09 | 523244.384     | 232962.863      | 81.735    | 2.235        | 1350        |  |       |           |             |     |
|        |                |                 |           |              |             | 0                                                                                    | 6.000 | 79.500    | 375         |     |
| TANK01 | 523253.114     | 232965.955      | 81.300    | 2.500        | 1350        |  | 1     | 6.000     | 79.470      | 375 |
|        |                |                 |           |              |             | 0                                                                                    | 6.001 | 78.800    | 375         |     |
| SWMH10 | 523257.748     | 232980.239      | 81.274    | 2.524        | 1350        |  | 1     | 6.001     | 78.750      | 375 |
|        |                |                 |           |              |             | 0                                                                                    | 6.002 | 78.750    | 375         |     |
| SWMH11 | 523275.951     | 232987.072      | 81.457    | 1.957        | 1350        |  |       |           |             |     |
|        |                |                 |           |              |             | 0                                                                                    | 7.000 | 79.500    | 450         |     |

## 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)                          |                          |
|-----------------|----------------|-----------------|-----------|--------------|-------------|--------------------------------------------------------------------------------------|------------------|----------------------------------|--------------------------------------|--------------------------|
| SWMH12          | 523269.027     | 232984.439      | 81.374    | 2.984        | 1800        |    | 1<br>2<br>3<br>0 | 7.000<br>6.002<br>1.003<br>1.004 | 78.630<br>78.710<br>78.390<br>78.390 | 450<br>375<br>600<br>600 |
| Entrance Gulley | 523172.234     | 232978.465      | 80.300    | 0.760        | 600         |    | 0                | 8.000                            | 79.540                               | 150                      |
| SWMH13          | 523194.779     | 232980.549      | 80.993    | 1.693        | 1500        |    | 1<br>0           | 8.000<br>8.001                   | 79.389<br>79.300                     | 150<br>450               |
| SWMH14          | 523229.191     | 232989.455      | 81.268    | 2.078        | 1500        |    | 1<br>0           | 8.001<br>8.002                   | 79.190<br>79.190                     | 450<br>450               |
| SWMH15          | 523263.741     | 232998.422      | 81.265    | 2.905        | 1800        |    | 1<br>2<br>0      | 8.002<br>1.004<br>1.005          | 78.600<br>78.360<br>78.360           | 450<br>600<br>600        |
| TANK02          | 523300.129     | 233014.972      | 80.900    | 2.620        | 1500        |  | 1<br>0           | 1.005<br>1.006                   | 78.280<br>78.280                     | 600<br>600               |
| SWMH16          | 523329.108     | 233033.903      | 80.807    | 1.207        | 1350        |  | 0                | 9.000                            | 79.600                               | 375                      |
| SWMH17          | 523332.219     | 233026.252      | 80.873    | 2.663        | 1800        |  | 1<br>2<br>0      | 9.000<br>1.006<br>1.007          | 78.630<br>78.210<br>78.210           | 375<br>600<br>600        |
| SWMH18          | 523347.386     | 233015.789      | 81.236    | 1.696        | 1500        |  | 0                | 10.000                           | 79.540                               | 450                      |
| SWMH19          | 523343.931     | 233028.990      | 80.814    | 2.654        | 1800        |  | 1<br>2<br>0      | 10.000<br>1.007<br>1.008         | 78.160<br>78.160<br>78.160           | 450<br>600<br>375        |
| EXMH3052        | 523350.768     | 233047.765      | 80.050    | 1.950        | 1350        |  | 1                | 1.008                            | 78.100                               | 375                      |

## Simulation Settings

Rainfall Methodology FEH-22  
Rainfall Events Singular  
Summer CV 1.000  
Winter CV 1.000

Analysis Speed Normal  
Skip Steady State x  
Drain Down Time (mins) 5760  
Additional Storage (m³/ha) 0.0

Starting Level (m)  
Check Discharge Rate(s) x  
Check Discharge Volume x

### Storm Durations

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

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 0                        | 0                        | 0                        |
| 2                        | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 30                       | 35                       | 0                        | 0                        |
| 100                      | 40                       | 0                        | 0                        |

### Node SWMH19 Online Hydro-Brake® Control

|                          |        |                         |                                |
|--------------------------|--------|-------------------------|--------------------------------|
| Flap Valve               | x      | Objective               | (HE) Minimise upstream storage |
| Replaces Downstream Link | x      | Sump Available          | ✓                              |
| Invert Level (m)         | 78.160 | Product Number          | CTL-SHE-0102-6200-2050-6200    |
| Design Depth (m)         | 2.050  | Min Outlet Diameter (m) | 0.150                          |
| Design Flow (l/s)        | 6.2    | Min Node Diameter (mm)  | 1200                           |

### Node TANK02 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 78.280 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 0.95 | Time to half empty (mins) | 3180   |

| 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        | 645.0        | 0.0              | 1.600        | 645.0        | 0.0              | 1.601        | 0.0          | 0.0              |

### Node TANK01 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 78.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 0.95 | Time to half empty (mins) | 2010   |

| 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        | 501.0        | 0.0              | 1.200        | 501.0        | 0.0              | 1.201        | 0.0          | 0.0              |

### Node SWMH10 Carpark Storage Structure

|                             |         |                           |        |               |       |
|-----------------------------|---------|---------------------------|--------|---------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m)          | 80.770 | Slope (1:X)   | 100.0 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) |        | Depth (m)     | 0.450 |
| Safety Factor               | 2.0     | Width (m)                 | 10.000 | Inf Depth (m) |       |
| Porosity                    | 0.33    | Length (m)                | 22.500 |               |       |

### Node SWMH04 Carpark Storage Structure

|                             |         |                           |        |               |       |
|-----------------------------|---------|---------------------------|--------|---------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m)          | 80.750 | Slope (1:X)   | 100.0 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) |        | Depth (m)     | 0.450 |
| Safety Factor               | 2.0     | Width (m)                 | 10.000 | Inf Depth (m) |       |
| Porosity                    | 0.33    | Length (m)                | 27.500 |               |       |

**Node SWMH16 Carpark Storage Structure**

|                             |         |                           |        |               |       |
|-----------------------------|---------|---------------------------|--------|---------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m)          | 80.240 | Slope (1:X)   | 100.0 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | 0      | Depth (m)     | 0.450 |
| Safety Factor               | 2.0     | Width (m)                 | 74.000 | Inf Depth (m) |       |
| Porosity                    | 0.33    | Length (m)                | 5.000  |               |       |

**Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%**

| Node Event        | US Node        | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|-------------------|----------------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute summer  | SWMH03         | 10          | 79.783    | 0.133     | 30.0         | 0.2356        | 0.0000     | OK     |
| 15 minute summer  | SWMH04         | 11          | 79.605    | 0.085     | 34.2         | 0.1510        | 0.0000     | OK     |
| 15 minute summer  | DC01           | 10          | 79.343    | 0.043     | 3.5          | 0.0069        | 0.0000     | OK     |
| 15 minute summer  | DC02           | 10          | 79.685    | 0.085     | 23.1         | 0.0136        | 0.0000     | OK     |
| 15 minute summer  | SWMH01         | 10          | 78.974    | 0.124     | 26.5         | 0.2190        | 0.0000     | OK     |
| 15 minute summer  | PI01           | 12          | 78.883    | 0.163     | 26.2         | 0.2884        | 0.0000     | OK     |
| 15 minute summer  | SWMH02         | 12          | 78.876    | 0.186     | 25.9         | 0.3290        | 0.0000     | OK     |
| 15 minute summer  | SWMH05         | 12          | 78.869    | 0.308     | 57.0         | 0.7851        | 0.0000     | OK     |
| 15 minute summer  | DC03           | 10          | 79.733    | 0.033     | 1.9          | 0.0053        | 0.0000     | OK     |
| 15 minute summer  | DC04           | 10          | 79.983    | 0.083     | 20.4         | 0.0132        | 0.0000     | OK     |
| 15 minute summer  | SWMH06         | 10          | 79.368    | 0.118     | 22.2         | 0.1687        | 0.0000     | OK     |
| 15 minute summer  | PI02           | 10          | 79.225    | 0.105     | 22.0         | 0.1500        | 0.0000     | OK     |
| 15 minute summer  | SWMH07         | 10          | 79.149    | 0.069     | 21.8         | 0.0994        | 0.0000     | OK     |
| 15 minute summer  | SWMH08         | 12          | 78.856    | 0.426     | 84.7         | 0.7519        | 0.0000     | OK     |
| 15 minute summer  | SWMH09         | 10          | 79.639    | 0.139     | 30.0         | 0.1995        | 0.0000     | OK     |
| 240 minute summer | TANK01         | 148         | 78.854    | 0.054     | 11.9         | 25.5833       | 0.0000     | OK     |
| 15 minute summer  | SWMH10         | 12          | 78.855    | 0.105     | 4.8          | 0.1500        | 0.0000     | OK     |
| 15 minute summer  | SWMH11         | 9           | 79.569    | 0.069     | 49.3         | 0.0983        | 0.0000     | OK     |
| 15 minute summer  | SWMH12         | 12          | 78.847    | 0.457     | 142.3        | 1.1640        | 0.0000     | OK     |
| 15 minute summer  | Entrance Gully | 1           | 79.540    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |
| 15 minute summer  | SWMH13         | 10          | 79.352    | 0.052     | 5.1          | 0.0925        | 0.0000     | OK     |
| 15 minute summer  | SWMH14         | 11          | 79.237    | 0.047     | 10.0         | 0.0836        | 0.0000     | OK     |
| 15 minute summer  | SWMH15         | 12          | 78.833    | 0.473     | 166.4        | 1.2028        | 0.0000     | OK     |
| 480 minute winter | TANK02         | 456         | 78.653    | 0.373     | 27.0         | 229.4609      | 0.0000     | OK     |
| 15 minute summer  | SWMH16         | 10          | 79.633    | 0.033     | 10.1         | 0.0469        | 0.0000     | OK     |

| Link Event (Outflow) | US Node        | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|----------------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute summer     | SWMH03         | 1.000 | SWMH04  | 29.4          | 1.003          | 0.187    | 1.6176        |                    |
| 15 minute summer     | SWMH04         | 1.001 | SWMH05  | 34.1          | 1.665          | 0.076    | 0.7783        |                    |
| 15 minute summer     | DC01           | 2.000 | SWMH01  | 3.4           | 0.655          | 0.079    | 0.1115        |                    |
| 15 minute summer     | DC02           | 3.000 | SWMH01  | 23.0          | 1.575          | 0.127    | 0.0549        |                    |
| 15 minute summer     | SWMH01         | 2.001 | PI01    | 26.2          | 0.803          | 0.151    | 0.3356        |                    |
| 15 minute summer     | PI01           | 2.002 | SWMH02  | 25.9          | 0.714          | 0.165    | 0.7163        |                    |
| 15 minute summer     | SWMH02         | 2.003 | SWMH05  | 24.8          | 0.784          | 0.145    | 1.2694        |                    |
| 15 minute summer     | SWMH05         | 1.002 | SWMH08  | 74.2          | 0.580          | 0.242    | 11.6530       |                    |
| 15 minute summer     | DC03           | 4.000 | SWMH06  | 1.8           | 0.650          | 0.104    | 0.0621        |                    |
| 15 minute summer     | DC04           | 5.000 | SWMH06  | 20.3          | 1.413          | 0.129    | 0.0716        |                    |
| 15 minute summer     | SWMH06         | 4.001 | PI02    | 22.0          | 0.799          | 0.190    | 0.2459        |                    |
| 15 minute summer     | PI02           | 4.002 | SWMH07  | 21.8          | 1.133          | 0.169    | 0.1855        |                    |
| 15 minute summer     | SWMH07         | 4.003 | SWMH08  | 22.3          | 1.617          | 0.069    | 0.2403        |                    |
| 15 minute summer     | SWMH08         | 1.003 | SWMH12  | 113.8         | 0.705          | 0.352    | 3.9911        |                    |
| 15 minute summer     | SWMH09         | 6.000 | TANK01  | 29.7          | 0.864          | 0.262    | 0.3186        |                    |
| 240 minute summer    | TANK01         | 6.001 | SWMH10  | 4.9           | 0.485          | 0.043    | 0.1546        |                    |
| 240 minute summer    | SWMH10         | 6.002 | SWMH12  | 5.9           | 0.566          | 0.051    | 0.1249        |                    |
| 15 minute summer     | SWMH11         | 7.000 | SWMH12  | 49.2          | 3.280          | 0.044    | 0.3237        |                    |
| 15 minute summer     | SWMH12         | 1.004 | SWMH15  | 159.3         | 0.930          | 0.520    | 3.5029        |                    |
| 15 minute summer     | Entrance Gully | 8.000 | SWMH13  | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer     | SWMH13         | 8.001 | SWMH14  | 5.0           | 0.523          | 0.028    | 0.3376        |                    |
| 15 minute summer     | SWMH14         | 8.002 | SWMH15  | 9.8           | 0.872          | 0.024    | 1.6240        |                    |
| 15 minute summer     | SWMH15         | 1.005 | TANK02  | 195.8         | 2.331          | 0.640    | 4.8126        |                    |
| 15 minute summer     | TANK02         | 1.006 | SWMH17  | -16.2         | -0.449         | -0.052   | 1.7328        |                    |
| 15 minute summer     | SWMH16         | 9.000 | SWMH17  | 10.1          | 2.224          | 0.015    | 0.0374        |                    |

**Results for 1 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 | SWMH17     | 456            | 78.653       | 0.443        | 5.2             | 1.1284           | 0.0000        | OK         |
| 15 minute summer  | SWMH18     | 10             | 79.575       | 0.035        | 13.1            | 0.0623           | 0.0000        | OK         |
| 480 minute winter | SWMH19     | 456            | 78.653       | 0.493        | 5.5             | 1.2556           | 0.0000        | SURCHARGED |
| 480 minute winter | EXMH3052   | 456            | 78.151       | 0.051        | 5.3             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | 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        | SWMH17     | 1.007  | SWMH19     | 6.5              | 0.160             | 0.015    | 1.1035           |                       |
| 15 minute summer        | SWMH18     | 10.000 | SWMH19     | 13.0             | 1.266             | 0.013    | 0.6480           |                       |
| 480 minute winter       | SWMH19     | 1.008  | EXMH3052   | 5.3              | 0.542             | 0.049    | 0.1972           | 382.4                 |

**Results for 2 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  | SWMH03         | 10          | 79.822    | 0.172     | 49.7         | 0.3037        | 0.0000     | OK     |
| 15 minute summer  | SWMH04         | 10          | 79.630    | 0.110     | 56.9         | 0.1937        | 0.0000     | OK     |
| 15 minute summer  | DC01           | 10          | 79.357    | 0.057     | 5.9          | 0.0090        | 0.0000     | OK     |
| 15 minute summer  | DC02           | 10          | 79.715    | 0.115     | 38.3         | 0.0182        | 0.0000     | OK     |
| 15 minute summer  | SWMH01         | 12          | 79.030    | 0.180     | 44.0         | 0.3173        | 0.0000     | OK     |
| 15 minute summer  | PI01           | 12          | 79.010    | 0.289     | 43.6         | 0.5115        | 0.0000     | OK     |
| 15 minute summer  | SWMH02         | 12          | 79.004    | 0.314     | 39.2         | 0.5543        | 0.0000     | OK     |
| 15 minute summer  | SWMH05         | 11          | 78.989    | 0.429     | 97.2         | 1.0915        | 0.0000     | OK     |
| 15 minute summer  | DC03           | 10          | 79.743    | 0.043     | 3.2          | 0.0069        | 0.0000     | OK     |
| 15 minute summer  | DC04           | 10          | 80.011    | 0.111     | 33.9         | 0.0176        | 0.0000     | OK     |
| 15 minute summer  | SWMH06         | 10          | 79.406    | 0.156     | 36.9         | 0.2228        | 0.0000     | OK     |
| 15 minute summer  | PI02           | 10          | 79.255    | 0.135     | 36.6         | 0.1936        | 0.0000     | OK     |
| 15 minute summer  | SWMH07         | 10          | 79.166    | 0.086     | 36.4         | 0.1227        | 0.0000     | OK     |
| 15 minute summer  | SWMH08         | 11          | 78.972    | 0.542     | 157.0        | 0.9577        | 0.0000     | OK     |
| 15 minute summer  | SWMH09         | 10          | 79.685    | 0.185     | 49.7         | 0.2642        | 0.0000     | OK     |
| 240 minute summer | TANK01         | 144         | 78.869    | 0.069     | 16.8         | 32.9976       | 0.0000     | OK     |
| 15 minute summer  | SWMH10         | 11          | 78.955    | 0.205     | 22.4         | 0.2929        | 0.0000     | OK     |
| 15 minute summer  | SWMH11         | 10          | 79.581    | 0.081     | 81.7         | 0.1165        | 0.0000     | OK     |
| 15 minute summer  | SWMH12         | 11          | 78.955    | 0.565     | 236.1        | 1.4389        | 0.0000     | OK     |
| 15 minute summer  | Entrance Gully | 1           | 79.540    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |
| 15 minute summer  | SWMH13         | 10          | 79.367    | 0.067     | 8.4          | 0.1180        | 0.0000     | OK     |
| 15 minute summer  | SWMH14         | 11          | 79.250    | 0.060     | 16.6         | 0.1064        | 0.0000     | OK     |
| 15 minute summer  | SWMH15         | 11          | 78.926    | 0.566     | 263.9        | 1.4415        | 0.0000     | OK     |
| 600 minute winter | TANK02         | 585         | 78.827    | 0.547     | 30.4         | 335.9836      | 0.0000     | OK     |
| 15 minute summer  | SWMH16         | 10          | 79.642    | 0.042     | 16.8         | 0.0605        | 0.0000     | OK     |

| Link Event (Outflow) | US Node        | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|----------------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute summer     | SWMH03         | 1.000 | SWMH04  | 49.0          | 1.177          | 0.312    | 2.3223        |                    |
| 15 minute summer     | SWMH04         | 1.001 | SWMH05  | 56.8          | 1.778          | 0.127    | 1.7454        |                    |
| 15 minute summer     | DC01           | 2.000 | SWMH01  | 5.8           | 0.757          | 0.132    | 0.1617        |                    |
| 15 minute summer     | DC02           | 3.000 | SWMH01  | 38.2          | 1.771          | 0.210    | 0.0810        |                    |
| 15 minute summer     | SWMH01         | 2.001 | PI01    | 43.6          | 0.920          | 0.251    | 0.6292        |                    |
| 15 minute summer     | PI01           | 2.002 | SWMH02  | 39.2          | 0.790          | 0.250    | 1.4215        |                    |
| 15 minute summer     | SWMH02         | 2.003 | SWMH05  | 49.5          | 0.746          | 0.290    | 2.2145        |                    |
| 15 minute summer     | SWMH05         | 1.002 | SWMH08  | 131.1         | 0.660          | 0.428    | 15.6629       |                    |
| 15 minute summer     | DC03           | 4.000 | SWMH06  | 3.1           | 0.752          | 0.175    | 0.0905        |                    |
| 15 minute summer     | DC04           | 5.000 | SWMH06  | 33.8          | 1.597          | 0.214    | 0.1052        |                    |
| 15 minute summer     | SWMH06         | 4.001 | PI02    | 36.6          | 0.917          | 0.317    | 0.3566        |                    |
| 15 minute summer     | PI02           | 4.002 | SWMH07  | 36.4          | 1.357          | 0.281    | 0.2593        |                    |
| 15 minute summer     | SWMH07         | 4.003 | SWMH08  | 36.5          | 1.786          | 0.114    | 0.5554        |                    |
| 15 minute summer     | SWMH08         | 1.003 | SWMH12  | 187.7         | 0.828          | 0.581    | 4.8799        |                    |
| 15 minute summer     | SWMH09         | 6.000 | TANK01  | 49.3          | 0.995          | 0.435    | 0.4585        |                    |
| 15 minute summer     | TANK01         | 6.001 | SWMH10  | -18.6         | -0.639         | -0.162   | 0.4903        |                    |
| 15 minute summer     | SWMH10         | 6.002 | SWMH12  | -15.2         | 0.574          | -0.133   | 0.8298        |                    |
| 15 minute summer     | SWMH11         | 7.000 | SWMH12  | 81.7          | 3.480          | 0.073    | 0.5246        |                    |
| 15 minute summer     | SWMH12         | 1.004 | SWMH15  | 252.4         | 1.156          | 0.824    | 4.1177        |                    |
| 15 minute summer     | Entrance Gully | 8.000 | SWMH13  | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 15 minute summer     | SWMH13         | 8.001 | SWMH14  | 8.2           | 0.607          | 0.046    | 0.4800        |                    |
| 15 minute summer     | SWMH14         | 8.002 | SWMH15  | 16.4          | 0.923          | 0.039    | 2.4224        |                    |
| 15 minute summer     | SWMH15         | 1.005 | TANK02  | 297.4         | 2.632          | 0.972    | 5.5963        |                    |
| 15 minute summer     | TANK02         | 1.006 | SWMH17  | -36.8         | -0.654         | -0.119   | 3.0579        |                    |
| 15 minute summer     | SWMH16         | 9.000 | SWMH17  | 16.7          | 2.567          | 0.024    | 0.0539        |                    |

**Results for 2 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 600 minute winter | SWMH17     | 585            | 78.827       | 0.617        | 5.2             | 1.5696           | 0.0000        | SURCHARGED |
| 15 minute summer  | SWMH18     | 10             | 79.585       | 0.045        | 21.7            | 0.0789           | 0.0000        | OK         |
| 600 minute winter | SWMH19     | 585            | 78.827       | 0.667        | 5.7             | 1.6968           | 0.0000        | SURCHARGED |
| 240 minute summer | EXMH3052   | 148            | 78.151       | 0.051        | 5.3             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | 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 summer        | SWMH17     | 1.007  | SWMH19     | -16.8            | 0.159             | -0.038   | 1.6272           |                       |
| 15 minute summer        | SWMH18     | 10.000 | SWMH19     | 21.6             | 1.375             | 0.021    | 0.8673           |                       |
| 240 minute summer       | SWMH19     | 1.008  | EXMH3052   | 5.3              | 0.542             | 0.049    | 0.1972           | 429.3                 |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.93%**

| Node Event        | US Node         | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|-----------------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute summer  | SWMH03          | 10          | 79.949    | 0.299     | 136.5        | 0.5278        | 0.0000     | OK         |
| 15 minute summer  | SWMH04          | 10          | 79.706    | 0.186     | 156.5        | 0.3293        | 0.0000     | OK         |
| 15 minute winter  | DC01            | 9           | 79.772    | 0.472     | 15.2         | 0.0751        | 0.0000     | SURCHARGED |
| 15 minute summer  | DC02            | 10          | 79.837    | 0.237     | 105.2        | 0.0377        | 0.0000     | OK         |
| 15 minute summer  | SWMH01          | 10          | 79.720    | 0.870     | 123.3        | 1.5372        | 0.0000     | SURCHARGED |
| 15 minute summer  | PI01            | 10          | 79.688    | 0.968     | 122.2        | 1.7101        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH02          | 10          | 79.649    | 0.959     | 125.3        | 1.6948        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH05          | 10          | 79.602    | 1.042     | 290.8        | 2.6531        | 0.0000     | SURCHARGED |
| 15 minute summer  | DC03            | 10          | 79.774    | 0.074     | 8.8          | 0.0118        | 0.0000     | OK         |
| 15 minute summer  | DC04            | 10          | 80.111    | 0.211     | 93.1         | 0.0335        | 0.0000     | OK         |
| 15 minute summer  | SWMH06          | 10          | 79.638    | 0.388     | 101.7        | 0.5551        | 0.0000     | SURCHARGED |
| 15 minute summer  | PI02            | 10          | 79.590    | 0.470     | 103.0        | 0.6732        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH07          | 10          | 79.543    | 0.463     | 108.2        | 0.6619        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH08          | 10          | 79.485    | 1.055     | 411.2        | 1.8637        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH09          | 10          | 79.850    | 0.350     | 136.5        | 0.5003        | 0.0000     | OK         |
| 720 minute winter | TANK01          | 720         | 79.296    | 0.496     | 27.3         | 236.6007      | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH10          | 720         | 79.296    | 0.546     | 18.0         | 0.7807        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH11          | 10          | 79.686    | 0.186     | 224.7        | 0.2656        | 0.0000     | OK         |
| 15 minute summer  | SWMH12          | 10          | 79.384    | 0.994     | 629.5        | 2.5291        | 0.0000     | SURCHARGED |
| 15 minute summer  | Entrance Gulley | 1           | 79.540    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer  | SWMH13          | 10          | 79.411    | 0.111     | 23.1         | 0.1953        | 0.0000     | OK         |
| 720 minute winter | SWMH14          | 720         | 79.296    | 0.106     | 3.4          | 0.1865        | 0.0000     | OK         |
| 720 minute winter | SWMH15          | 720         | 79.296    | 0.936     | 48.2         | 2.3810        | 0.0000     | SURCHARGED |
| 720 minute winter | TANK02          | 720         | 79.296    | 1.016     | 48.4         | 624.1006      | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH16          | 10          | 79.672    | 0.072     | 46.2         | 0.1024        | 0.0000     | OK         |

| Link Event (Outflow) | US Node         | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|-----------------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute summer     | SWMH03          | 1.000 | SWMH04  | 134.9         | 1.549          | 0.859    | 4.7224        |                    |
| 15 minute summer     | SWMH04          | 1.001 | SWMH05  | 162.5         | 1.851          | 0.365    | 4.1873        |                    |
| 15 minute summer     | DC01            | 2.000 | SWMH01  | -19.3         | 0.887          | -0.441   | 0.8408        |                    |
| 15 minute summer     | DC02            | 3.000 | SWMH01  | 104.3         | 2.186          | 0.573    | 0.2158        |                    |
| 15 minute summer     | SWMH01          | 2.001 | PI01    | 122.2         | 1.014          | 0.704    | 1.6296        |                    |
| 15 minute summer     | PI01            | 2.002 | SWMH02  | 125.3         | 0.842          | 0.799    | 1.9953        |                    |
| 15 minute summer     | SWMH02          | 2.003 | SWMH05  | 128.3         | 0.810          | 0.752    | 2.8189        |                    |
| 15 minute summer     | SWMH05          | 1.002 | SWMH08  | 300.5         | 1.067          | 0.981    | 18.2521       |                    |
| 15 minute summer     | DC03            | 4.000 | SWMH06  | 8.8           | 0.958          | 0.492    | 0.2866        |                    |
| 15 minute summer     | DC04            | 5.000 | SWMH06  | 93.0          | 2.011          | 0.588    | 0.2290        |                    |
| 15 minute summer     | SWMH06          | 4.001 | PI02    | 103.0         | 1.212          | 0.893    | 0.9847        |                    |
| 15 minute summer     | PI02            | 4.002 | SWMH07  | 108.2         | 1.554          | 0.835    | 1.0451        |                    |
| 15 minute summer     | SWMH07          | 4.003 | SWMH08  | 111.5         | 1.684          | 0.347    | 1.4195        |                    |
| 15 minute summer     | SWMH08          | 1.003 | SWMH12  | 414.0         | 1.470          | 1.282    | 5.0612        |                    |
| 15 minute summer     | SWMH09          | 6.000 | TANK01  | 135.7         | 1.390          | 1.198    | 0.8919        |                    |
| 15 minute summer     | TANK01          | 6.001 | SWMH10  | -157.7        | -2.028         | -1.372   | 1.1387        |                    |
| 15 minute summer     | SWMH10          | 6.002 | SWMH12  | -134.2        | -1.217         | -1.170   | 1.3275        |                    |
| 15 minute summer     | SWMH11          | 7.000 | SWMH12  | 224.5         | 3.321          | 0.202    | 0.8152        |                    |
| 15 minute summer     | SWMH12          | 1.004 | SWMH15  | 502.3         | 1.783          | 1.639    | 4.2108        |                    |
| 15 minute summer     | Entrance Gulley | 8.000 | SWMH13  | 0.0           | 0.000          | 0.000    | 0.0176        |                    |
| 15 minute summer     | SWMH13          | 8.001 | SWMH14  | 22.7          | 0.816          | 0.127    | 0.9911        |                    |
| 15 minute summer     | SWMH14          | 8.002 | SWMH15  | 45.0          | 0.985          | 0.108    | 3.2848        |                    |
| 15 minute summer     | SWMH15          | 1.005 | TANK02  | 570.4         | 2.818          | 1.864    | 8.9894        |                    |
| 15 minute summer     | TANK02          | 1.006 | SWMH17  | -120.0        | -1.155         | -0.387   | 8.8473        |                    |
| 15 minute summer     | SWMH16          | 9.000 | SWMH17  | 46.1          | 3.368          | 0.067    | 0.1608        |                    |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 99.93%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 720 minute winter | SWMH17     | 720            | 79.296       | 1.086        | 5.2             | 2.7628           | 0.0000        | SURCHARGED |
| 15 minute summer  | SWMH18     | 10             | 79.612       | 0.072        | 59.6            | 0.1278           | 0.0000        | OK         |
| 720 minute winter | SWMH19     | 720            | 79.296       | 1.136        | 5.8             | 2.8900           | 0.0000        | SURCHARGED |
| 30 minute summer  | EXMH3052   | 21             | 78.151       | 0.051        | 5.3             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | 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 summer        | SWMH17     | 1.007  | SWMH19     | -60.6            | -0.295            | -0.137   | 3.3473           |                       |
| 15 minute summer        | SWMH18     | 10.000 | SWMH19     | 59.4             | 1.205             | 0.058    | 1.1886           |                       |
| 30 minute summer        | SWMH19     | 1.008  | EXMH3052   | 5.3              | 0.542             | 0.049    | 0.1972           | 504.7                 |

**Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.80%**

| Node Event        | US Node         | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|-----------------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute summer  | SWMH03          | 11          | 80.352    | 0.702     | 184.4        | 1.2410        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH04          | 11          | 80.161    | 0.641     | 206.5        | 1.1335        | 0.0000     | SURCHARGED |
| 15 minute summer  | DC01            | 11          | 80.204    | 0.904     | 21.8         | 0.1438        | 0.0000     | FLOOD RISK |
| 15 minute summer  | DC02            | 11          | 80.303    | 0.703     | 142.0        | 0.1117        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH01          | 11          | 80.148    | 1.298     | 159.8        | 2.2934        | 0.0000     | SURCHARGED |
| 15 minute summer  | PI01            | 11          | 80.097    | 1.377     | 158.5        | 2.4324        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH02          | 11          | 80.039    | 1.349     | 159.4        | 2.3830        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH05          | 11          | 79.965    | 1.405     | 367.9        | 3.5753        | 0.0000     | SURCHARGED |
| 15 minute summer  | DC03            | 11          | 80.088    | 0.388     | 11.8         | 0.0616        | 0.0000     | SURCHARGED |
| 15 minute summer  | DC04            | 10          | 80.168    | 0.268     | 125.8        | 0.0426        | 0.0000     | OK         |
| 15 minute summer  | SWMH06          | 11          | 79.981    | 0.731     | 136.5        | 1.0464        | 0.0000     | SURCHARGED |
| 15 minute summer  | PI02            | 11          | 79.904    | 0.784     | 134.3        | 1.1222        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH07          | 11          | 79.823    | 0.743     | 133.7        | 1.0634        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH08          | 11          | 79.725    | 1.295     | 502.0        | 2.2879        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH09          | 10          | 79.953    | 0.453     | 184.4        | 0.6478        | 0.0000     | SURCHARGED |
| 720 minute winter | TANK01          | 720         | 79.624    | 0.824     | 38.9         | 393.2494      | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH10          | 720         | 79.623    | 0.873     | 26.0         | 1.2496        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH11          | 10          | 79.784    | 0.284     | 303.3        | 0.4062        | 0.0000     | OK         |
| 720 minute winter | SWMH12          | 720         | 79.623    | 1.233     | 56.1         | 3.1387        | 0.0000     | SURCHARGED |
| 720 minute winter | Entrance Gulley | 705         | 79.623    | 0.083     | 0.1          | 0.0235        | 0.0000     | OK         |
| 720 minute winter | SWMH13          | 720         | 79.624    | 0.324     | 2.2          | 0.5725        | 0.0000     | OK         |
| 720 minute winter | SWMH14          | 720         | 79.624    | 0.434     | 4.4          | 0.7667        | 0.0000     | OK         |
| 720 minute winter | SWMH15          | 720         | 79.623    | 1.263     | 55.3         | 3.2151        | 0.0000     | SURCHARGED |
| 720 minute winter | TANK02          | 720         | 79.624    | 1.344     | 55.7         | 825.7167      | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH16          | 10          | 79.684    | 0.084     | 62.3         | 0.1208        | 0.0000     | OK         |

| Link Event (Outflow) | US Node         | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|-----------------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute summer     | SWMH03          | 1.000 | SWMH04  | 178.6         | 1.514          | 1.137    | 8.6162        |                    |
| 15 minute summer     | SWMH04          | 1.001 | SWMH05  | 215.4         | 1.826          | 0.483    | 6.0197        |                    |
| 15 minute winter     | DC01            | 2.000 | SWMH01  | -22.9         | 0.880          | -0.525   | 0.8408        |                    |
| 15 minute summer     | DC02            | 3.000 | SWMH01  | 139.9         | 2.222          | 0.769    | 0.2640        |                    |
| 15 minute summer     | SWMH01          | 2.001 | PI01    | 158.5         | 1.042          | 0.912    | 1.6296        |                    |
| 15 minute summer     | PI01            | 2.002 | SWMH02  | 159.4         | 1.006          | 1.017    | 1.9953        |                    |
| 15 minute summer     | SWMH02          | 2.003 | SWMH05  | 165.2         | 1.043          | 0.969    | 2.8189        |                    |
| 15 minute summer     | SWMH05          | 1.002 | SWMH08  | 367.6         | 1.305          | 1.200    | 18.2521       |                    |
| 15 minute summer     | DC03            | 4.000 | SWMH06  | 13.5          | 0.955          | 0.760    | 0.3843        |                    |
| 15 minute summer     | DC04            | 5.000 | SWMH06  | 125.6         | 2.134          | 0.795    | 0.2883        |                    |
| 15 minute summer     | SWMH06          | 4.001 | PI02    | 134.3         | 1.228          | 1.164    | 0.9859        |                    |
| 15 minute summer     | PI02            | 4.002 | SWMH07  | 133.7         | 1.507          | 1.032    | 1.0451        |                    |
| 15 minute summer     | SWMH07          | 4.003 | SWMH08  | 134.4         | 1.828          | 0.418    | 1.4195        |                    |
| 15 minute summer     | SWMH08          | 1.003 | SWMH12  | 503.4         | 1.788          | 1.559    | 5.0612        |                    |
| 15 minute summer     | SWMH09          | 6.000 | TANK01  | 183.8         | 1.682          | 1.622    | 0.9666        |                    |
| 15 minute summer     | TANK01          | 6.001 | SWMH10  | -220.6        | -2.411         | -1.920   | 1.4383        |                    |
| 15 minute summer     | SWMH10          | 6.002 | SWMH12  | -191.0        | -1.731         | -1.664   | 1.3275        |                    |
| 15 minute summer     | SWMH11          | 7.000 | SWMH12  | 302.1         | 3.582          | 0.271    | 0.9770        |                    |
| 15 minute summer     | SWMH12          | 1.004 | SWMH15  | 605.7         | 2.151          | 1.976    | 4.2108        |                    |
| 960 minute winter    | Entrance Gulley | 8.000 | SWMH13  | 0.2           | 0.014          | 0.013    | 0.3073        |                    |
| 15 minute summer     | SWMH13          | 8.001 | SWMH14  | 31.0          | 0.869          | 0.173    | 1.8488        |                    |
| 15 minute summer     | SWMH14          | 8.002 | SWMH15  | 93.0          | 0.939          | 0.224    | 4.0298        |                    |
| 15 minute summer     | SWMH15          | 1.005 | TANK02  | 687.4         | 3.190          | 2.246    | 11.1242       |                    |
| 15 minute summer     | TANK02          | 1.006 | SWMH17  | -160.1        | -1.359         | -0.516   | 9.5813        |                    |
| 15 minute summer     | SWMH16          | 9.000 | SWMH17  | 62.1          | 3.633          | 0.090    | 0.3901        |                    |

**Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.80%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 720 minute winter | SWMH17     | 720            | 79.624       | 1.414        | 5.6             | 3.5977           | 0.0000        | SURCHARGED |
| 15 minute summer  | SWMH18     | 10             | 79.624       | 0.084        | 80.3            | 0.1479           | 0.0000        | OK         |
| 720 minute winter | SWMH19     | 720            | 79.624       | 1.464        | 5.8             | 3.7249           | 0.0000        | SURCHARGED |
| 15 minute summer  | EXMH3052   | 9              | 78.151       | 0.051        | 5.3             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | 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 summer        | SWMH17     | 1.007  | SWMH19     | -82.9            | -0.406            | -0.187   | 3.3880           |                       |
| 15 minute summer        | SWMH18     | 10.000 | SWMH19     | 80.2             | 1.148             | 0.078    | 1.2145           |                       |
| 15 minute summer        | SWMH19     | 1.008  | EXMH3052   | 5.3              | 0.542             | 0.049    | 0.1972           | 531.0                 |

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%**

| Node Event        | US Node         | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|-----------------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute summer  | SWMH03          | 10          | 81.076    | 1.426     | 242.3        | 2.5201        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH04          | 11          | 80.724    | 1.204     | 276.1        | 2.1270        | 0.0000     | SURCHARGED |
| 720 minute winter | DC01            | 660         | 80.250    | 0.950     | 12.8         | 0.1511        | 34.6267    | FLOOD      |
| 15 minute summer  | DC02            | 11          | 80.766    | 1.166     | 186.6        | 0.1854        | 0.0000     | FLOOD RISK |
| 15 minute summer  | SWMH01          | 11          | 80.500    | 1.650     | 187.2        | 2.9147        | 0.0000     | SURCHARGED |
| 15 minute summer  | PI01            | 11          | 80.465    | 1.745     | 166.3        | 3.0840        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH02          | 11          | 80.426    | 1.736     | 153.1        | 3.0674        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH05          | 11          | 80.376    | 1.816     | 405.2        | 4.6210        | 0.0000     | SURCHARGED |
| 15 minute summer  | DC03            | 11          | 80.600    | 0.900     | 15.6         | 0.1431        | 0.2995     | FLOOD      |
| 15 minute summer  | DC04            | 11          | 80.752    | 0.852     | 165.3        | 0.1354        | 0.0000     | SURCHARGED |
| 15 minute summer  | SWMH06          | 11          | 80.516    | 1.266     | 171.9        | 1.8114        | 0.0000     | SURCHARGED |
| 15 minute summer  | PI02            | 11          | 80.389    | 1.269     | 170.4        | 1.8155        | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH07          | 675         | 80.266    | 1.186     | 12.6         | 1.6970        | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH08          | 675         | 80.267    | 1.837     | 45.1         | 3.2466        | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH09          | 675         | 80.267    | 0.767     | 17.0         | 1.0979        | 0.0000     | SURCHARGED |
| 720 minute winter | TANK01          | 675         | 80.269    | 1.469     | 45.8         | 573.4797      | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH10          | 675         | 80.267    | 1.517     | 30.4         | 2.1702        | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH11          | 675         | 80.267    | 0.767     | 28.0         | 1.0979        | 0.0000     | SURCHARGED |
| 600 minute winter | SWMH12          | 570         | 80.265    | 1.875     | 85.0         | 4.7723        | 0.0000     | SURCHARGED |
| 600 minute winter | Entrance Gulley | 570         | 80.274    | 0.734     | 1.4          | 0.2078        | 0.0000     | FLOOD RISK |
| 600 minute winter | SWMH13          | 570         | 80.269    | 0.969     | 3.3          | 1.7119        | 0.0000     | SURCHARGED |
| 600 minute winter | SWMH14          | 570         | 80.267    | 1.077     | 6.6          | 1.9039        | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH15          | 675         | 80.266    | 1.906     | 56.6         | 4.8519        | 0.0000     | SURCHARGED |
| 720 minute winter | TANK02          | 675         | 80.266    | 1.986     | 59.1         | 984.2164      | 0.0000     | SURCHARGED |
| 720 minute winter | SWMH16          | 660         | 80.266    | 0.666     | 5.7          | 1.7978        | 0.0000     | SURCHARGED |

| Link Event (Outflow) | US Node         | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|-----------------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute summer     | SWMH03          | 1.000 | SWMH04  | 237.6         | 1.558          | 1.513    | 8.6162        |                    |
| 15 minute summer     | SWMH04          | 1.001 | SWMH05  | 272.5         | 1.978          | 0.611    | 6.0197        |                    |
| 15 minute summer     | DC01            | 2.000 | SWMH01  | -50.7         | -1.275         | -1.160   | 0.8408        |                    |
| 15 minute summer     | DC02            | 3.000 | SWMH01  | 184.6         | 2.622          | 1.014    | 0.2640        |                    |
| 30 minute summer     | SWMH01          | 2.001 | PI01    | 174.0         | 1.141          | 1.002    | 1.6296        |                    |
| 30 minute summer     | PI01            | 2.002 | SWMH02  | 167.4         | 1.056          | 1.068    | 1.9953        |                    |
| 15 minute winter     | SWMH02          | 2.003 | SWMH05  | 167.6         | 1.058          | 0.983    | 2.8189        |                    |
| 15 minute summer     | SWMH05          | 1.002 | SWMH08  | 407.5         | 1.447          | 1.330    | 18.2521       |                    |
| 15 minute summer     | DC03            | 4.000 | SWMH06  | 17.7          | 1.008          | 0.996    | 0.3843        |                    |
| 15 minute summer     | DC04            | 5.000 | SWMH06  | 161.8         | 2.298          | 1.024    | 0.3498        |                    |
| 15 minute summer     | SWMH06          | 4.001 | PI02    | 170.4         | 1.545          | 1.477    | 0.9859        |                    |
| 15 minute summer     | PI02            | 4.002 | SWMH07  | 171.7         | 1.682          | 1.326    | 1.0451        |                    |
| 15 minute summer     | SWMH07          | 4.003 | SWMH08  | 173.2         | 1.802          | 0.539    | 1.4195        |                    |
| 15 minute summer     | SWMH08          | 1.003 | SWMH12  | 582.4         | 2.068          | 1.803    | 5.0612        |                    |
| 15 minute summer     | SWMH09          | 6.000 | TANK01  | 241.6         | 2.191          | 2.133    | 1.0027        |                    |
| 15 minute summer     | TANK01          | 6.001 | SWMH10  | -286.7        | -2.944         | -2.496   | 1.6563        |                    |
| 15 minute summer     | SWMH10          | 6.002 | SWMH12  | -249.2        | -2.260         | -2.172   | 1.3275        |                    |
| 15 minute summer     | SWMH11          | 7.000 | SWMH12  | 397.3         | 3.513          | 0.357    | 1.1737        |                    |
| 15 minute summer     | SWMH12          | 1.004 | SWMH15  | 720.7         | 2.559          | 2.352    | 4.2108        |                    |
| 15 minute summer     | Entrance Gulley | 8.000 | SWMH13  | -2.7          | 0.202          | -0.189   | 0.2920        |                    |
| 15 minute summer     | SWMH13          | 8.001 | SWMH14  | 53.0          | 0.809          | 0.296    | 4.5047        |                    |
| 15 minute summer     | SWMH14          | 8.002 | SWMH15  | 118.6         | 1.035          | 0.285    | 5.4091        |                    |
| 15 minute summer     | SWMH15          | 1.005 | TANK02  | 803.8         | 3.489          | 2.627    | 11.2600       |                    |
| 15 minute summer     | TANK02          | 1.006 | SWMH17  | -198.9        | -1.526         | -0.641   | 9.5813        |                    |
| 15 minute summer     | SWMH16          | 9.000 | SWMH17  | 81.7          | 3.883          | 0.119    | 0.4557        |                    |

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%**

| 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 summer | SWMH17     | 600            | 80.266       | 2.056        | 17.4            | 5.2335           | 0.0000        | SURCHARGED |
| 720 minute winter | SWMH18     | 675            | 80.266       | 0.726        | 7.4             | 1.2833           | 0.0000        | SURCHARGED |
| 720 minute winter | SWMH19     | 675            | 80.267       | 2.107        | 7.7             | 5.3622           | 0.0000        | SURCHARGED |
| 600 minute winter | EXMH3052   | 570            | 78.155       | 0.055        | 6.2             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | 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 summer        | SWMH17     | 1.007  | SWMH19     | -103.0           | -0.428            | -0.233   | 3.3880           |                       |
| 15 minute summer        | SWMH18     | 10.000 | SWMH19     | 105.4            | 1.089             | 0.102    | 1.2488           |                       |
| 600 minute winter       | SWMH19     | 1.008  | EXMH3052   | 6.2              | 0.567             | 0.057    | 0.2189           | 1877.6                |