# PROPOSED RESIDENTIAL DEVELOPMENT AT GORDON PARK, OLD NAAS ROAD, DUBLIN 22

## Surface Water Management Plan

April 2022


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**Document Verification**

| | |
|---|---|
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| **Job Title:** | Proposed Residential Development at Gordon Park |
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## APPENDICES

# 1. INTRODUCTION AND SITE DESCRIPTION

Greenwalk Developments Ltd. are seeking to develop 77 No. residential units at a site on the Old Naas Road which is currently occupied by Clondalkin Rugby Football Club (RFC). Clondalkin RFC have recently acquired other lands in the area to allow their club and playing facilities to expand to meet their growing requirements.

The site, named locally as Gordon Park, is bounded by the Roadstone Group Sports Club and sports facilities to the north and east, the Silken Park Residential Development to the south and the Old Naas Road to the west. The site is relatively flat, with the ground levels falling from a level of 95.20mOD at the southwest corner of the site to a level of 92.00mOD at the existing site entrance at the northwest corner of the site.

The Fettercairn Stream, a tributary of the Camac River, abuts the eastern boundary of the site and runs northwards for a distance of approximately 80m from the south eastern corner of the site boundary, before turning 90 degrees and heading in an easterly direction away from the site. Figure 1 below shows the location of the site.

Set out below is relevant information relating to the proposed surface water management plan (SWMP) for the proposed development. This SWMP should be read in conjunction with the engineering planning drawings, landscape drawings and all other planning submission documents/reports.


*Figure 1: Site Location*

## 2. EXISTING SURFACE WATER INFRASTRUCTURE

Existing service record drawings for the area in proximity to the site were obtained from the Local Authority and Irish Water. A Ground Penetrating Radar survey was also undertaken on the Old Naas Road in proximity to the site to establish the presence of existing services that may not be recorded on the Local Authorities/Utility Providers service record drawings. Following a review of all available information, it was determined that there is no public surface water drainage infrastructure in the Old Naas Road in proximity to the site. However, as noted above, the Fettercairn Stream abuts part of the eastern boundary of the site as shown in Figure 2 below.

A detailed topographical survey of the site was undertaken, and on review, it is evident that the existing watercourse on the east boundary of the site is not located at the lowest part of the site. Therefore, whilst it was clear that the majority of the site (approximately 85 % of the site) can discharge by gravity to the existing watercourse, a number of options for draining the northwest corner of the site would need to be considered as part of the overall surface water management plan for the proposed development. Figure 2 below provides and overview of the site levels and shows the extent of site (15% of the site) at the northwest corner of the site that cannot drained to the existing watercourse based by gravity due to the existing ground levels.

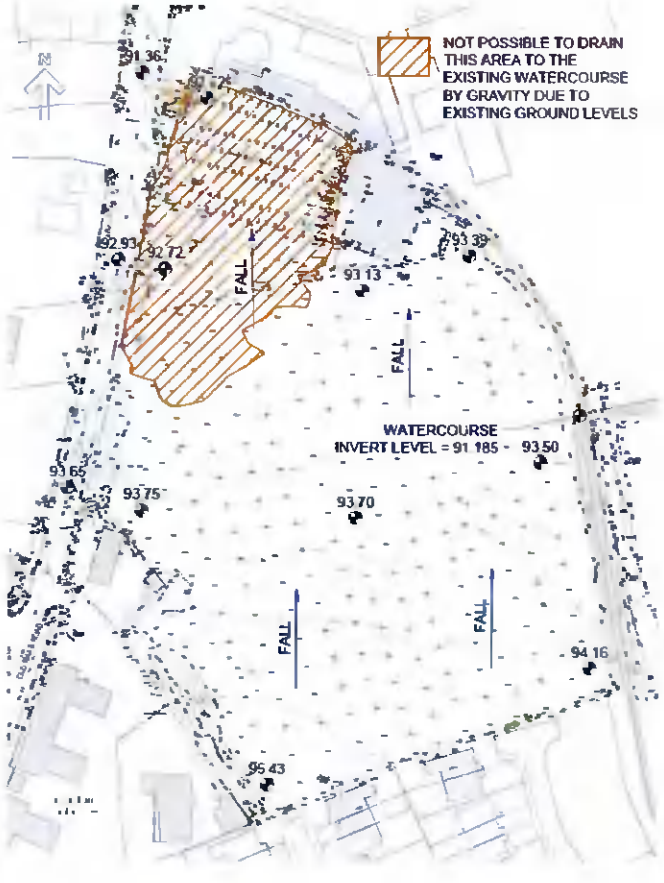



*Figure 2: Overview of Site Levels*

# 3. PROPOSED SURFACE WATER DRAINAGE & SUDS MEASURES

## 3.1 Existing Ground Conditions

A number of infiltration tests were carried out on the site, refer to Drg No. 21003-TJOC-ZZ-ZZ-DR-C-0054 for test locations and Appendix A for test results. The results indicate that, due to the existing clay soil conditions, infiltration on the western side of the site is very poor The infiltration rate on the eastern side of the site is slightly better, but the underlying soil conditions are clay which is not a reliable media for long term infiltration. The infiltration test results obtained for this site are consistent with the results of infiltration tests carried out in similar ground conditions in the Citywest region. The clay soils (Brown and Black Boulder Clays) that are evident in the Citywest region do not lend themselves to reliable long-term infiltration of surface water.

Based on the investigations, it is proposed to adopt SuDS measures and SuDS features that will allow surface water to infiltrate to ground if local infiltration is available. However, based on the existing ground conditions, it is not possible to design the surface water system to discharge all surface water to the ground via infiltration. Therefore, whilst the SuDS features will provide an opportunity to infiltrate surface water into the ground, the SuDS features will be designed with outlet and overflow features to allow the surface water generated in peak storm events to discharge to the surface water site network where it is will be stored and released from the site at the pre-development greenfield run-off rate.

## 3.2 Greenfield Run-off Rate

The pre-development greenfield run-off rate for the site has been determined using the HR Wallingford Greenfield run-off rate calculator. A copy of the calculation is provided in Appendix B. The site parameters used to determine the greenfield run-off rate are set out below.

- Site area of 2.282 hectares,
- Soil type 2
- SAAR of 873mm.
- Pre-development Greenfield Run-off Rate = 5.4 l/sec

A flow control device with a surface water discharge rate of 5.4 l/sec is shown on Drg No. 21003-TJOC-ZZ-ZZ-DR-C-0065. The flow control device is located at the surface water discharge point from the site and therefore limits the discharge rate from the site to the pre-development greenfield run-off rate. We refer to the extract below which shows the location of the flow control device that limits the surface water discharge from the site to 5.4 l/sec.

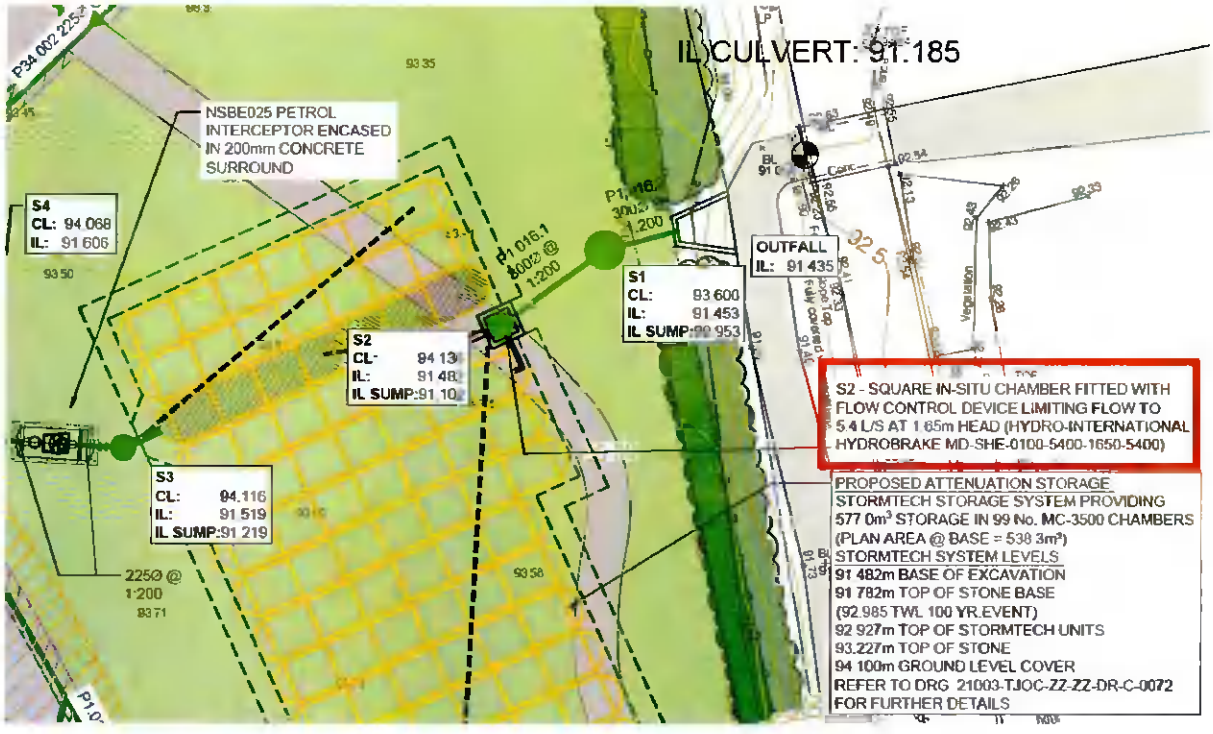



*Figure 3 – Location of Surface Water Flow Control Device*

We note that a second flow control device within the site surface water network is also indicated on Drg No 21003-TJOC-ZZ-ZZ-DR-C-0065. The purpose of the second flow control device is to hold back and control surface water flow in the surface water network within the site. The limit set for the second flow control device is 6.5l/sec. However, there is only one surface water discharge point from the site and the flow control device at this point is set at 5.4l/sec.

It is noted that Soil type 2 has been used to determine the greenfield run-off rate for the site. Given the lack of infiltration that is available on the site, the use of Soil type 2 is conservative and a Soil type 3 or even 4 could be used to determine the pre-development greenfield run-off rate. However, for this project, it is proposed to adopt a Soil type 2 to determine the greenfield run-off rate and to limit the surface water discharge from the site to 5.4l/sec.

## 3.3 Proposed SuDS Measures

As noted in Section 3.1 above, it is not possible to discharge all surface water to the ground via infiltration. Therefore, a hybrid solution of infiltration to the ground where possible and collection of surface water with a piped network is proposed for this development. Based on the results of the site infiltration tests, the proposed surface water drainage and associated SuDS features have been designed with an appropriate allowance for infiltration to suit the existing clay ground conditions

The typical surface water arrangement for the proposed houses is as follows. The driveways of houses will be provided with permeable paving. Rainwater from the front roofs of the houses and rainfall on the driveways will discharge to the subbase of the permeable paved driveways. The base of the driveway build-up with be provided with a geotextile membrane to allow surface water to infiltrate to ground where existing ground conditions permit. Where infiltration is not possible, surface water will be stored within the permeable subbase and released to the surface water network via a fin drain within the subbase. For surface water calculation purposes, the infiltration rate adopted for the base of the driveway subbase is $2.7x10^{-6}$ m/sec or 0.010m/hr. This infiltration rate is lower than the infiltration rate obtained for the soakaway tests undertaken on the east side of the site, but is consistent with an infiltration rate for clay soils with low/poor infiltration as encountered in the soakaway pits on the west side of the site.

Rainwater from the rear roofs of the houses will discharge into linear infiltration trenches located in the rear gardens of houses. Similar to the permeable paving, the linear infiltration trenches will be provided with a geotextile membrane around its perimeter to allow surface water to infiltrate to ground where existing ground conditions permit. A perforated drain/pipe will be provided within the infiltration trench which will be connected to the surface water network. This "overflow" arrangement with cater for larger rainfall events which cannot infiltrate into the ground.

As for the driveways, for design purposes, only a nominal allowance/rate for infiltration has been adopted in the surface water calculations for the infiltration rate into the ground. This is consistent with the design of infiltration features in clay soil conditions. However, in practice, the provision of SuDs features such as permeable paving and filter/infiltration drains may allow for greater levels of infiltration than the nominal rates adopted in the calculations.

Given that it is proposed that the roads and footpaths will be taken in charge in the future, they have been designed and detailed in accordance with the Local Authority taking in charge standards. For the site roads and footpaths, surface water run-off will be collected in road gullies or diverted to dropped kerbs and subsequently discharged into a number of SuDS features such as tree pits, bioretention areas and filter strips. The SuDS features will be provided with subsurface storage media with a minimum voids ratio of 30% to generate surface water storage within the SuDS feature.

These SuDS features for the roads and footpaths will be provided with outlet pipes/overflow pipes to allow surplus surface water that cannot infiltrate to ground to discharge to a surface water piped network within the roads. The overall balance of surface water storage/attenuation for the site will be provided in two main areas at the site, namely at the northwest of the site and at the east of the site adjacent to the proposed surface water outfall location as shown on the surface water drainage drawings.

As set out above, the proposed development incorporates a 2-Stage treatment approach for the surface water design. Full details of the proposed surface water design and details are included on the drawings and calculations submitted with the Planning Application. A summary of the proposed Surface Water Management Train for the proposed development is provided in Figures 3 & 4 below.

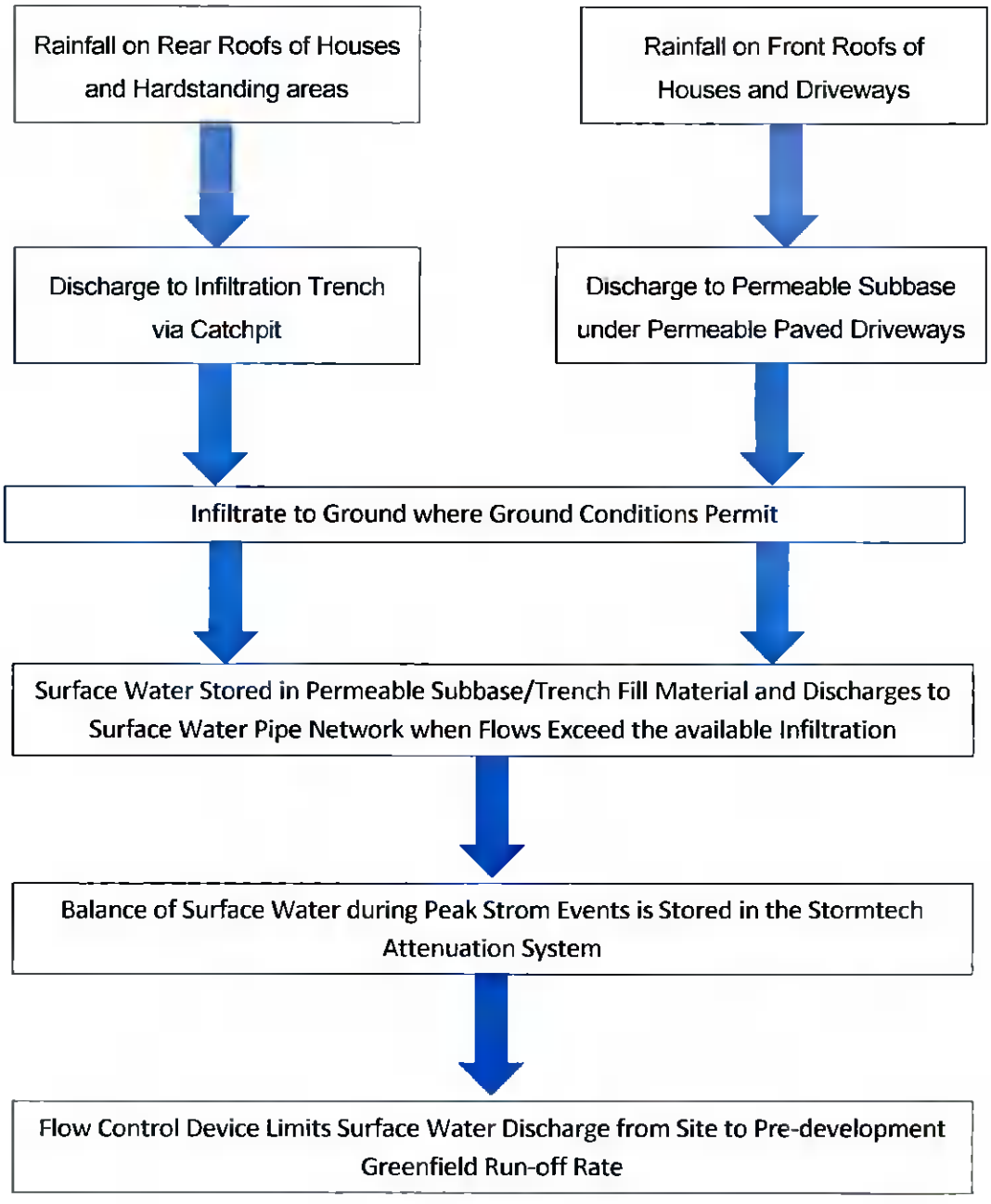



*Figure 3: Surface Water Management Train for House Units*

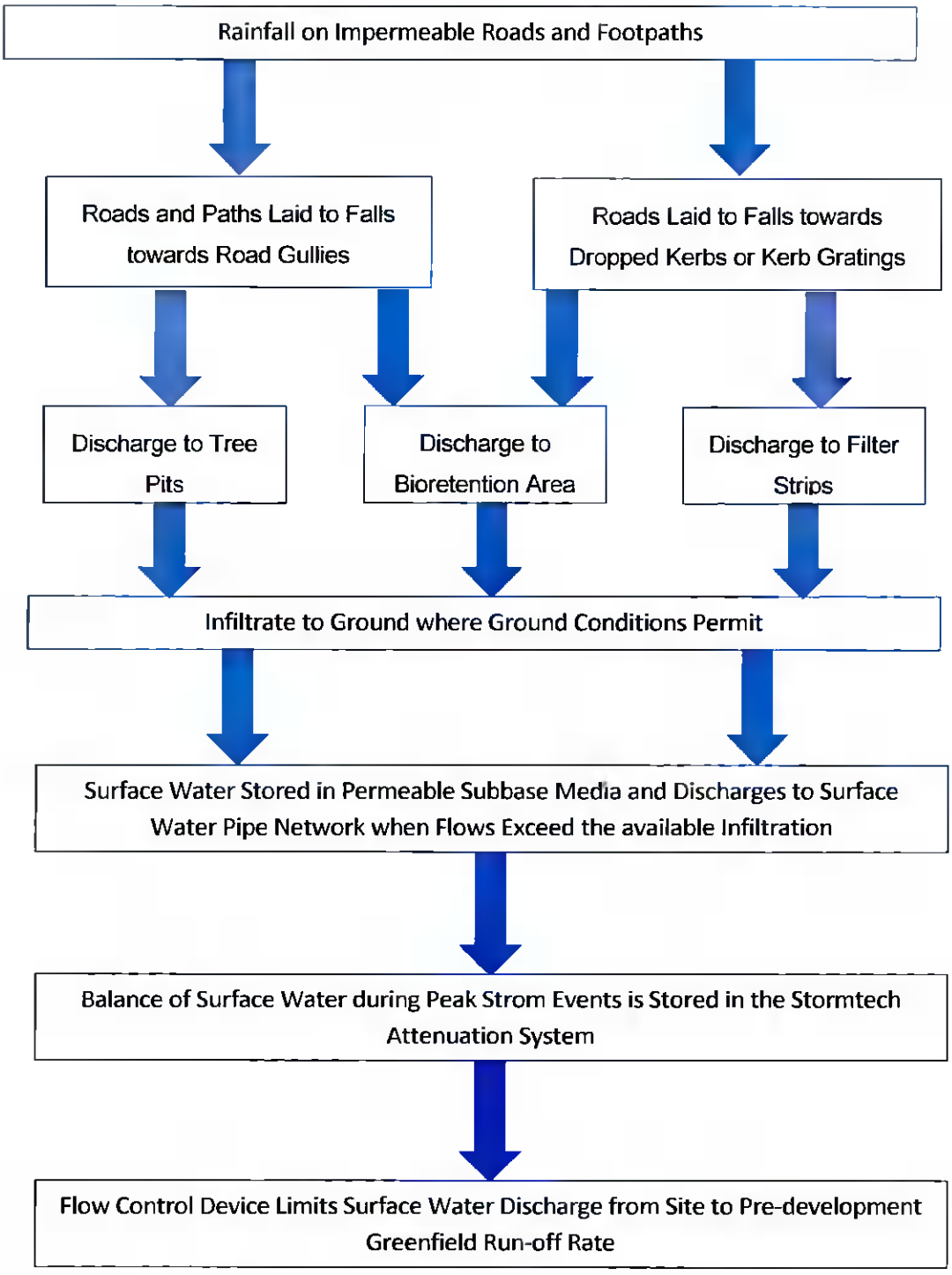



*Figure 4: Surface Water Management Train for Site Roads and Footpaths*

To create sufficient falls in the surface water piped network and allow it to discharge to the existing watercourse on the east side of the site, it is proposed to locally raise the ground levels on the northwest corner of the site. The levels will be raised by approximately 500mm to 1200mm locally, but the design of the scheme has been developed to avoid the need for extensive retaining structures to accommodate this modest increase in ground level. The sides of the raised areas will be sloped down to existing ground levels along the northwest side of the site and landscaped to tie into the existing tree lined boundary of the site.

## 3.4 Surface Water Design/Calculations

The surface water drainage network for the proposed development has been designed using the Innovyze MicroDrainage design software which is based on the Wallingford procedure. The surface water drainage pipe network has been sized based on 1 in 2-year return event.

The proposed surface water drainage system has been designed not to flood in a 1 in 30-year event and flooding occurring during a 1 in 100-year event will be retained on site in accordance with the Greater Dublin Strategic Drainage Study Design Criteria. The existing site is 2.282hA in size. For this planning application the proposed site area is 2.282hA i.e. the full area of the site. The proposed surface types and associated areas are shown on Drg. No. 21003-TJOC-ZZ-ZZ-DR-C-0067 which accompanies this application.

The total impervious area of the proposed development including permeable paved areas that are connected to surface water piped network is 1.29hA. The total permeable Public Open Space, Private Open Space and any footpaths that drain onto permeable areas is 0.992hA.

As noted above, the surface water design has been carried out using Microdrainage software which uses the Modified Rational Method for surface water design. When using the modified rational method of design, it is recommended to apply a run-off factor of 100% to all impermeable areas and a run-off factor of 0% to all permeable areas (such as private open spaces and public open spaces). This is consistent with the Surface Water Design Criteria in Table 6.4 of Vol 2 of the GDSDS (see extract is figure 5 overleaf) and with Section 24.11.2 of the SUDS Manual, CIRIA C753.

| Parameter | Surface Water Sewers |
|---|---|
| Minimum depth | 1.2m cover under highways<br>0.9m elsewhere |
| Maximum depth | Normally 5m |
| Minimum sewer size | 225mm |
| Runoff factors for pipe sizing | 100% paved and roof surfaces<br>0% off pervious surfaces |
| Rainfall for initial pipe sizing | 50mm/hr rainfall intensity |
| Minimum velocity (pipe full) | 1.0m/s |
| Flooding | Checks made for adequate protection *<br>No flooding for return period less than 30 years except where explicitly planned<br>Simulation modelling is required for sites greater than 24ha** |
| Roughness – ks | 0.6mm |

***Table 6.4 Surface Water Design Criteria***

*Figure 5: Table 6.4 of GDSDS Vol. 2*

A summary of the contributing areas to the surface water design and surface types is provided in Table 1 overleaf. The limiting flow discharge from the proposed development is set at the pre-development greenfield run-off rate of 5.4 l/s as set out in Section 3.2 above. Rainfall data has been obtained from Met-Eireann for the site and the M5-60 figure and ratio of M5-60/M5-2day are used in the Microdrainage design software for this project.

Therefore, in summary, the design criteria for the surface water drainage system are as follows:

| | | |
|---|---|---|
| Return Period: | Minimum pipe full criteria | 1 in 2 years |
| | Attenuation | 1 in 30 years |
| | Flood Storage on site | 1 in 100 years |
| | M5-60 | 17.700mm |
| | Ratio = M5-60/M5-2 day | 0.270 |
| | Limiting Discharge in storm event | 5.4 l/s |

| Equivalent Impermeable Area Based on Modified Rational Method (Used in Microdrainage Software Design) | | | |
|---|---|---|---|
| Surface Type | Area (Ha) | Run-Off Coefficient (%) | Equiv. Imp. Area (Ha) |
| Roads | 0.2834 | 100% | 0.28 |
| Footpath | 0.1137 | 100% | 0.11 |
| On Curtilage Parking (Permeable Paving) | 0.2707 | 100% | 0.27 |
| Roof Areas | 0.6268 | 100% | 0.63 |
| Private Open space | 0.422 | 0% | 0.00 |
| Public Open Space | 0.4885 | 0% | 0.00 |
| Footpaths Draining onto Public Open Space | 0.0769 | 0% | 0.00 |
| Total Site Area | 2.282 | Total Equivalent Impermeable Area`(Ha) | 1.29 |

*Table 1 – Surface Types and Run-Off Coefficients based on the Modified Rational Method of Surface Water Design*

The overall proposed surface water layout is shown on Drg. No. 21003-TJOC-ZZ-ZZ-DR-C-0064. The proposed MicroDrainage Surface Water Calculations for this application are provided in Appendix C. An allowance of 10% has been made in the calculations for an increase of rainfall due to climate change. This is consistent with Table 6.2 of Vol 2 of the GDSDS.

The calculations indicates that no flooding of the proposed surface water network occurs during the critical 1 in 100 return period. The proposed Suds features, below ground drainage network and Stormtech attenuation system provides sufficient storage for the 1:30 year and the 1:100 critical storm events without flooding. A summary of the Surface water Storage and Attenuation Volumes generated by the proposed surface water network is shown in Table 2 below.

| Revised Surface Water Storage/Attenuation Volumes | | |
|---|---|---|
| Feature | Volume (M3) | Comments |
| Stormtech Attenuation MC3500 | 577 | Located at east of site |
| Stormtech Attenuation SC740 | 136 | Located at northwest of site |
| Piped Network and Manholes | 96 | |
| Tree Pits | 18 | Calculated based on 66.7m3 of sub-surface storage medium with a minimum voids ratio of 30%. Volume excludes water that may infiltrate to ground if infiltration is available or water that is lost due to evapotranspiration |
| Filter Strips and Infiltration Trenches | 62.7 | Calculated based on 459 linear metres of Filter Strips and Infiltration Trenches. Volume excludes water that may infiltrate to ground if infiltration is available |
| Bioretention Area | 11.8 | Calculated based on 37m2 of Bioretention area |
| Subbase Storage in Permeable Paved Driveways and Car Park | 211 | Calculated based on 2707m2 of permeable paving across the site, average depth of water in subbase of 272mm and 30% Voids Ratio (2707m2 x 0.260m x 30% = 211 m3 |
| Total Volume | 1112.5 | M3 |

*Table 2 – Summary of Revised Surface Water Storage/Attenuation Volumes*

The surface water discharge from the proposed development will be limited to 5.4l/s (equivalent to the Greenfield Run-off) by the use of Hydrobrake flow control device in MH S2 prior to discharging to the existing watercourse on the eastern boundary of the site.

It is proposed to install a Klargester petrol interceptor NSBE025 (by-pass separator) upstream of the final attenuation storage tank, to provide oil separation and storage for any possible risk of contamination and potential oil spills from the carpark/road area within the site.

It is proposed that the outfall pipe from the site will be set at a level of circa 250mm above the bed level of the adjacent watercourse. A non-return valve will be provided in an outfall/inspection chamber at MH S1 within the boundary of the site, refer to Drg. No. 21003-TJOC-ZZ-ZZ-DR-C-0073. The non-return valve in the outfall chamber will prevent backflow of water into the site surface water network during high water levels in the adjacent watercourse. The site surface water network and surface water storage measures within the site of the proposed development have been designed with freeboard and sufficient head within the system to allow the surface water to discharge from the site during high water levels in the adjacent watercourse, whilst complying with the requirement to retain surface water on site for critical storm events.

## 4. MAINTENACE OF SUDS COMPONENTS

The inspection and maintenance of SUDS features and components will conform to the requirements of the SUDS Manual, CIRIA C753 (2015) and to the manufacturer's recommendations in respect of individual proprietary components. This information will be collated in the project Safety File and the operation and maintenance manual on completion of the project. A pack information will be provided to each homeowner to outlines the SuDS features associated with their homes and the regular maintenance and monitoring that they will be required to carry out to ensure the systems operate as intended.

Maintenance operations will comprise the following categories:

- Establishment operations;
- Regular Maintenance;
- Occasional Maintenance; and
- Remedial Maintenance.

**Establishment operations** will include normal contractor responsibilities to ensure that planting becomes properly established. Also included in this category is the requirement to remove any construction stage silt from drainage pipework gullies etc and SuDS features on completion of a construction stage.

**Regular maintenance** activities will include:

- Inspection, including inspection of attenuation storage facilities which are proposed to occur monthly for first 3 months of operation and annually thereafter;
- Litter removal from the surface of the drainage catchment and all inlets to the drainage system (with potential to impact on performance) on a monthly basis;
- Grass cutting;
- Weed control;
- Shrub management;
- Vegetation management (in the context of the outfall area);

The Applicant commits to work alongside the Local Authority in developing long term maintenance strategies for any elements that will be taken in charge on completion of the works.

**Occasional Maintenance** will comprise silt removal, vegetation management and sweeping/brushing of permeable paved surfaces. While silt removal from gullies channels and catchpits will be undertaken on as required basis (established on the basis of the routine inspections of infrastructure after initial construction), emptying of petrol interceptors will be in accordance with the manufacturer's

recommendations and will most be likely be at 12 monthly intervals. Sweeping/brushing of permeable paved surfaces will be undertaken on an annual basis typically.

**Remedial maintenance** activities would include any structural rehabilitation of drainage infrastructure and SUDS components and features. This could include raking out of joints in permeable paved surfaces and replacement of the joint material. It could also include the reconditioning of infiltration surfaces including the filter strips.

A detailed maintenance plan for the SuDS components will be developed as part of the detailed design of the works. However, Table 3 below sets out a typical Maintenance schedule for the SuDs Components proposed for this project.

| Typical Maintenance Requirements for SuDS Components | | | |
|---|---|---|---|
| SuDS Component | Maintenance Type | Required Action | Typical Frequency |
| Permeable Paving | Regular | Brushing to remove leafs and debris that could fill/block joints in permebale paved surfaace | At least once yearly, but more occasionally as required |
| | Regular | Removal of weeds from joints in paving | At least once yearly, but more occasionally as required |
| | Regular | Remove Silt from Catchpits upstream of Permeable Paved areas. | Monitor for silt build-up and clean out catch pits as required |
| | Remedial Actions | Replace any broken paving slab and jointing material between slabs | As required |
| Infiltration Trenches | Regular | Remove Silt from Catchpits upstream of Infiltration Trenches. | Monitor for silt build-up and clean out catch pits as required |
| | Monitoriing | Monitor for evidence of poor operation of SuDS component/slow release of surface water. Carry out routine maintenace to ensure silt build-up does not compromise the permonace of the SuDS component | Every 3 months and and before/after large storm events |
| Tree Pits | Regular | Remove Litter and Debris | Monthly or as required |
| | Regular | Inspect Inlets and Outlets for signs of silt build up/blockage | Inspect Monthly |
| | Occasional | Removal all silt build-up from inlets and surface and replace surface media as necessary | As required |
| | Monitoring | Record silt accumation rates and establish appropriate frequency for removal of silt | Ongoing |
| Bioretention Area | Regular | Remove Litter and Debris. Replace any planting and maintain plant denstiy within bioretention area | Monthly or as required |
| | Regular | Inspect Inlets and Outlets for signs of silt build up/blockage | Inspect Monthly |
| | Occasional | Removal all silt build-up from inlets and surface and replace surface media as necessary | As required |
| | Monitoring | Record extent of ponding within area and any silt accumation. Establish appropriate frequency for removal of silt | Ongoing |

*Table 3 – Summary of Revised Surface Water Storage/Attenuation Volumes*

# APPENDIX A

## Soakaway Test Results

| TJ O'CONNOR & ASSOCIATES CONSULTING ENGINEERS<br>TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Project<br>Gordon Park, Old Naas Road | | | Job Ref.<br>21003 | |
|---|---|---|---|---|---|
| | Soakaway Test Results | | | Sheet no./rev.<br>1 | |
| | Test undertaken by Glide Construction and HSK | Date of Test<br>16/07/2021 | Weather at time of Test<br>Dry | Logged by<br>Ciaran Sweeney | Calcs by<br>NS / TJOC |

| ***Soakaway Pit Dimensions*** | | |
|---|---|---|
| **S1_T3** | **1.5** | m long |
| | **0.9** | m wide |
| | **1.3** | m deep |

| Time [min] | Water Level [m] | % Full [%] | Water Depth [m] | Change [m] | Cumulative [m] |
|---|---|---|---|---|---|
| **0** | 0 | 100% | **1.3** | | 0.00 |
| **10** | 0.1 | 80% | **1.2** | -0.1 | 0.10 |
| **20** | 0.2 | 73% | **1.1** | -0.1 | 0.20 |
| **30** | 0.26 | 69% | **1.04** | -0.06 | 0.26 |
| **40** | 0.34 | 64% | **0.96** | -0.08 | 0.34 |
| **50** | 0.42 | 59% | **0.88** | -0.08 | 0.42 |
| **60** | 0.49 | 54% | **0.81** | -0.07 | 0.49 |
| **70** | 0.54 | 51% | **0.76** | -0.05 | 0.54 |
| **80** | 0.61 | 46% | **0.69** | -0.07 | 0.61 |
| **90** | 0.67 | 42% | **0.63** | -0.06 | 0.67 |
| **100** | 0.71 | 39% | **0.59** | -0.04 | 0.71 |
| **110** | 0.75 | 37% | **0.55** | -0.04 | 0.75 |
| **120** | 0.8 | 33% | **0.5** | -0.05 | 0.80 |
| **130** | 0.84 | 31% | **0.46** | -0.04 | 0.84 |
| **140** | 0.88 | 28% | **0.42** | -0.04 | 0.88 |
| **150** | 0.93 | 25% | **0.37** | -0.05 | 0.93 |
| **160** | 0.95 | 23% | **0.35** | -0.02 | 0.95 |
| **170** | 1 | 20% | **0.3** | -0.05 | 1.00 |
| **180** | 1.04 | 17% | **0.26** | -0.04 | 1.04 |

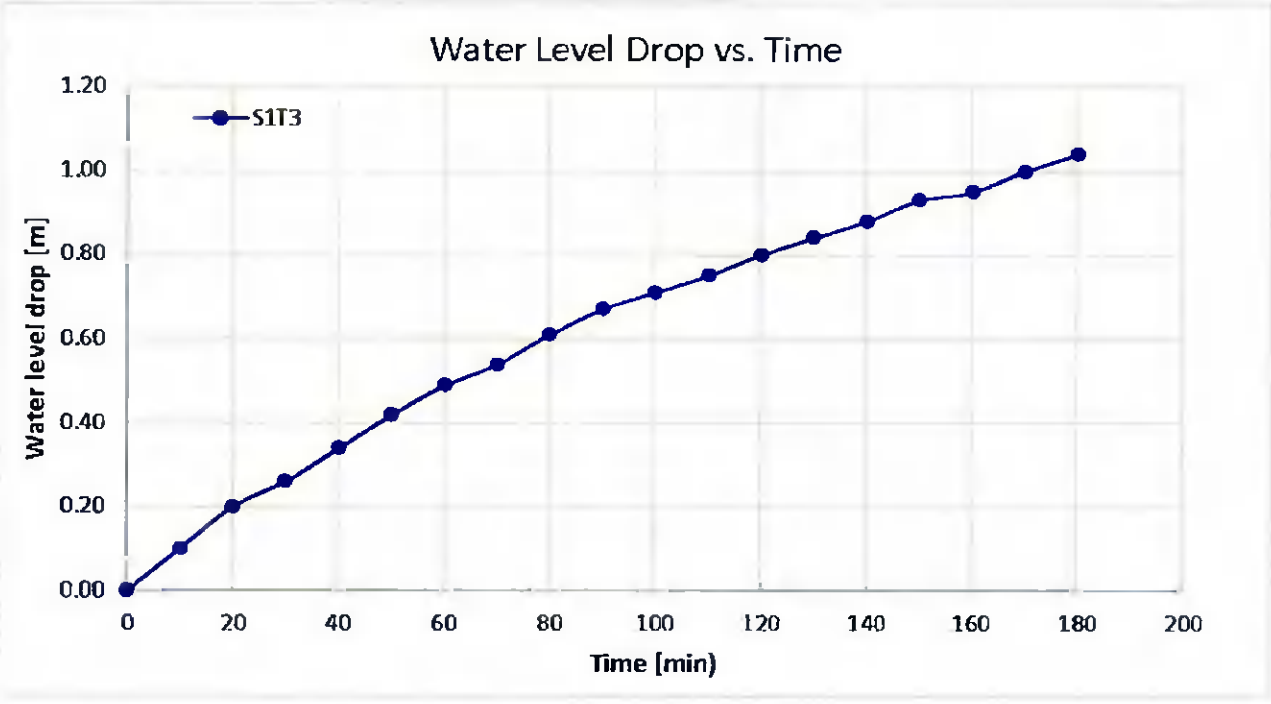
| Time [min] | Water Level [m] | % Full [%] | Water Depth [m] |
|---|---|---|---|
| 0.00 | 0.00 | 100% | 1.300 |
| 17.50 | 0.18 | 75% | 1.125 |
| 71.43 | 0.55 | 50% | 0.750 |
| 149.00 | 0.93 | 25% | 0.375 |
| | 0.00 | 0% | 1.300 |

| | | | | | |
|---|---|---|---|---|---|
| Volume between 75% and 50% | $V_{p75-25}$ = | 1.02 | $m^3$ | | |
| Surface area at 50% | $a_{s50}$ = | 4.95 | $m^2$ | | |
| Time between 75% and 25% | $t_{p75-25}$ = | 131.5 | min | 2.19 | hrs |
| Soil infiltration Rate | $f$ = | 2.6E-05 | m/second | 9.4E-02 | m/hr |
| | $f$ = | 0.000026 | m/second | 0.094 | m/hr |

**Notes:**

- **Ground conditions – Brown Boulder Clay**
- **No Groundwater encountered**
- **Results based on 3rd test carried out at this pit.**

| TJ O'CONNOR & ASSOCIATES CONSULTING ENGINEERS<br>TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Project<br>Gordon Park, Old Naas Road | | | Job Ref.<br>21003 | |
|---|---|---|---|---|---|
| | Soakaway Test Results | | | Sheet no./rev.<br>2 | |
| | Test undertaken by Glide Construction and HSK | Date of Test<br>16/07/2021 | Weather at time of Test<br>Dry | Logged by:<br>Ciaran Sweeney | Calcs by:<br>NS / TJOC |



| TJ O'CONNOR & ASSOCIATES CONSULTING ENGINEERS | Project | | | Job Ref. | |
|---|---|---|---|---|---|
| TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Gordon Park, Old Naas Road | | | 21003 | |
| | Soakaway Test Results | | | Sheet no./rev. | 3 |
| | Test undertaken by Glide Construction and HSK | Date of Test: 16/07/2021 | Weather at time of Test. Dry | Logged by Ciaran Sweeney | Calcs by NS / TJOC |

***Soakaway Pit Dimensions***

**S2_T1**

| | |
|---|---|
| 1.5 | m long |
| 0.9 | m wide |
| 1.3 | m deep |

| Time [min] | Water Level [m] | % Full [%] | Water Depth [m] | Change [m] | Cumulative [m] |
|---|---|---|---|---|---|
| 0 | 0 | 100% | 1.30 | | 0.0 |
| 10 | 0.05 | 83% | 1.25 | -0.05 | 0.05 |
| 20 | 0.1 | 80% | 1.20 | -0.05 | 0.1 |
| 30 | 0.13 | 78% | 1.17 | -0.03 | 0.13 |
| 40 | 0.15 | 77% | 1.15 | -0.02 | 0.15 |
| 50 | 0.18 | 75% | 1.12 | -0.03 | 0.18 |
| 60 | 0.2 | 73% | 1.10 | -0.02 | 0.2 |
| 70 | 0.22 | 72% | 1.08 | -0.02 | 0.22 |
| 80 | 0.245 | 70% | 1.06 | -0.025 | 0.245 |
| 90 | 0.25 | 70% | 1.05 | -0.005 | 0.25 |
| 100 | 0.29 | 67% | 1.01 | -0.04 | 0.29 |
| 110 | 0.3 | 67% | 1.00 | -0.01 | 0.3 |
| 120 | 0.31 | 66% | 0.99 | -0.01 | 0.31 |
| 130 | 0.33 | 65% | 0.97 | -0.02 | 0.33 |
| 140 | 0.35 | 63% | 0.95 | -0.02 | 0.35 |
| 150 | 0.38 | 61% | 0.92 | -0.03 | 0.38 |
| 160 | 0.39 | 61% | 0.91 | -0.01 | 0.39 |
| 170 | 0.41 | 59% | 0.89 | -0.02 | 0.41 |
| 180 | 0.42 | 59% | 0.88 | -0.01 | 0.42 |
| 190 | 0.44 | 57% | 0.86 | -0.02 | 0.44 |
| 200 | 0.46 | 56% | 0.84 | -0.02 | 0.46 |
| 210 | 0.48 | 55% | 0.82 | -0.02 | 0.48 |
| 220 | 0.5 | 53% | 0.80 | -0.02 | 0.5 |
| 230 | 0.51 | 53% | 0.79 | -0.01 | 0.51 |
| 240 | 0.52 | 52% | 0.78 | -0.01 | 0.52 |
| 250 | 0.53 | 51% | 0.77 | -0.01 | 0.53 |
| 260 | 0.54 | 51% | 0.76 | -0.01 | 0.54 |
| 270 | 0.55 | 50% | 0.75 | -0.01 | 0.55 |
| 280 | 0.56 | 49% | 0.74 | -0.01 | 0.56 |
| 290 | 0.58 | 48% | 0.72 | -0.02 | 0.58 |
| 300 | 0.59 | 47% | 0.71 | -0.01 | 0.59 |
| 310 | 0.6 | 47% | 0.70 | -0.01 | 0.6 |
| 320 | 0.61 | 46% | 0.69 | -0.01 | 0.61 |
| 330 | 0.62 | 45% | 0.68 | -0.01 | 0.62 |
| 340 | 0.63 | 45% | 0.67 | -0.01 | 0.63 |
| 350 | 0.64 | 44% | 0.66 | -0.01 | 0.64 |
| 360 | 0.65 | 43% | 0.65 | -0.01 | 0.65 |
| 370 | 0.65 | 43% | 0.65 | 0 | 0.65 |

| TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Project<br>Gordon Park, Old Naas Road | | | Job Ref.<br>21003 | |
|---|---|---|---|---|---|
| | Soakaway Test Results | | | Sheet no./rev.<br>4 | |
| | Test undertaken by Glide Construction and HSK | Date of Test<br>16/07/2021 | Weather at time of Test<br>Dry | Logged by<br>Ciaran Sweeney | Calcs by<br>NS / TJOC |

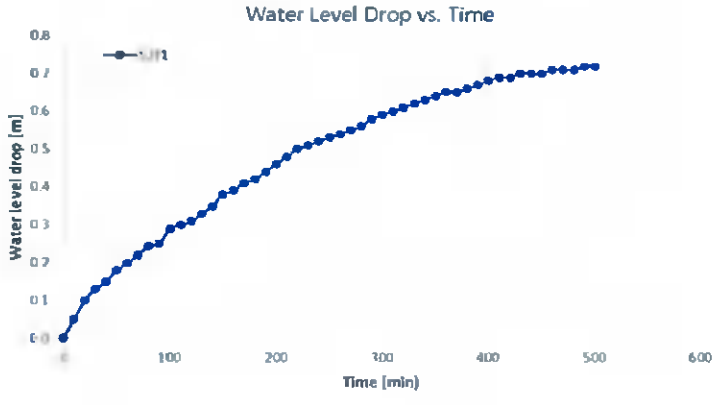
| | | | | | | |
|---|---|---|---|---|---|---|
| | 380 | 0.66 | 43% | 0.64 | -0.01 | 0.66 |
| | 390 | 0.67 | 42% | 0.63 | -0.01 | 0.67 |
| | 400 | 0.68 | 41% | 0.62 | -0.01 | 0.68 |
| | 410 | 0.69 | 41% | 0.61 | -0.01 | 0.69 |
| | 420 | 0.69 | 41% | 0.61 | 0 | 0.69 |
| | 430 | 0.7 | 40% | 0.60 | -0.01 | 0.7 |
| | 440 | 0.7 | 40% | 0.60 | 0 | 0.7 |
| | 450 | 0.7 | 40% | 0.60 | 0 | 0.7 |
| | 460 | 0.71 | 39% | 0.59 | -0.01 | 0.71 |
| | 470 | 0.71 | 39% | 0.59 | 0 | 0.71 |
| | 480 | 0.71 | 39% | 0.59 | 0 | 0.71 |
| | 490 | 0.72 | 39% | 0.58 | -0.01 | 0.72 |
| | 500 | 0.72 | 39% | 0.58 | 0 | 0.72 |

| | Time [min] | Water Level [m] | % Full [%] | Water Depth [m] | |
|---|---|---|---|---|---|
| | 0.00 | 0.00 | 100% | 1.300 | 100.0 |
| | 48.33 | 0.18 | 75% | 1.125 | 75.0 |
| | 270.00 | 0.55 | 50% | 0.750 | 50.0 |
| | 499.99 | 0.72 | 25% | 0.581 | 38.7 |
| | | 0.00 | 0% | 1.300 | 0.0 |

| | | | | | |
|---|---|---|---|---|---|
| Volume between 75% and 50% | $V_{p75-25}$ = | 0.74 | $m^3$ | | |
| Surface area at 50% | $a_{s50}$ = | 4.95 | $m^2$ | | |
| Time between 75 and 25% | $t_{p75-25}$ = | 451.7 | min | 7.53 | hrs |
| Soil infiltration Rate | $f$ = | 5.5E-06 | m/second | 2.0E-02 | m/hr |
| | $f$ = | 0.000006 | m/second | 0.020 | m/hr |

**Notes:**

- **Ground conditions – Brown Boulder Clay**
- **No Groundwater encountered**
- **Poor infiltration recorded at this test pit.**



| TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Project<br>Gordon Park, Old Naas Road | | | Job Ref.<br>21003 | |
|---|---|---|---|---|---|
| | Soakaway Test Results | | | Sheet no./rev.<br>5 | |
| | Test undertaken by Glide Construction and HSK | Date of Test.<br>16/07/2021 | Weather at time of Test<br>Dry | Logged by<br>Ciaran Sweeney | Calcs by<br>NS / TJOC |

| ***Soakaway Pit Dimensions*** | | |
|---|---|---|
| **S3_T3** | **1.5** | m long |
| | **0.9** | m wide |
| | **1.3** | m deep |

| Time [min] | Water Level [m] | % Full [%] | Water Depth [m] | Change [m] | Cumulative [m] |
|---|---|---|---|---|---|
| **0** | 0 | 100% | **1.30** | | 0.0 |
| **10** | 0.22 | 72% | **1.08** | -0.22 | 0.22 |
| **20** | 0.3 | 67% | **1.00** | -0.08 | 0.3 |
| **30** | 0.38 | 61% | **0.92** | -0.08 | 0.38 |
| **40** | 0.45 | 57% | **0.85** | -0.07 | 0.45 |
| **50** | 0.53 | 51% | **0.77** | -0.08 | 0.53 |
| **60** | 0.59 | 47% | **0.71** | -0.06 | 0.59 |
| **70** | 0.64 | 44% | **0.66** | -0.05 | 0.64 |
| **80** | 0.69 | 41% | **0.61** | -0.05 | 0.69 |
| **90** | 0.72 | 39% | **0.58** | -0.03 | 0.72 |
| **100** | 0.75 | 37% | **0.55** | -0.03 | 0.75 |
| **110** | 0.79 | 34% | **0.51** | -0.04 | 0.79 |
| **120** | 0.82 | 32% | **0.48** | -0.03 | 0.82 |
| **130** | 0.86 | 29% | **0.44** | -0.04 | 0.86 |
| **140** | 0.89 | 27% | **0.41** | -0.03 | 0.89 |
| **150** | 0.92 | 25% | **0.38** | -0.03 | 0.92 |
| **160** | 0.94 | 24% | **0.36** | -0.02 | 0.94 |
| **170** | 0.97 | 22% | **0.33** | -0.03 | 0.97 |
| **180** | 1.01 | 19% | **0.29** | -0.04 | 1.01 |

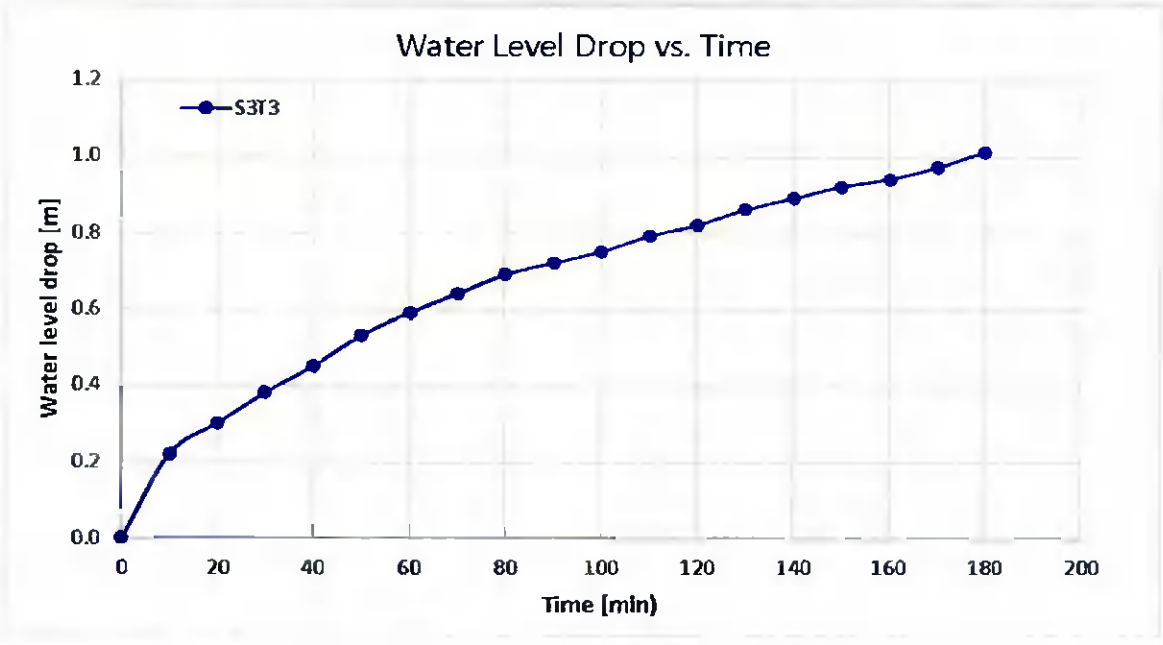
| Time [min] | Water Level [m] | % Full [%] | Water Depth [m] | |
|---|---|---|---|---|
| 0.00 | 0.00 | 100% | 1.300 | 100 |
| 8.93 | 0.20 | 75% | 1.104 | 75 |
| 53.33 | 0.55 | 50% | 0.750 | 50 |
| 152.50 | 0.93 | 25% | 0.375 | 25 |
| | 0.00 | 0% | 1.300 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| Volume between 75% and 50% | $V_{p75\text{-}25}$ = | 0.99 | $m^3$ | | |
| Surface area at 50% | $a_{s50}$ = | 4.95 | $m^2$ | | |
| Time between 75% and 25% | $t_{p75\text{-}25}$ = | 143.6 | min | 2.39 | hrs |
| Soil infiltration Rate | $f$ = | 2.3E-05 | m/second | 8.4E-02 | m/hr |
| | $f$ = | 0.000023 | m/second | 0.084 | m/hr |

**Notes:**

- **Ground conditions – Brown Boulder Clay**
- **No Groundwater encountered**
- **Results based on 3rd test carried out at this pit.**

| TJ O'CONNOR & ASSOCIATES CONSULTING ENGINEERS<br>TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Project<br>Gordon Park, Old Naas Road | | | Job Ref.<br>21003 | |
|---|---|---|---|---|---|
| | Soakaway Test Results | | | Sheet no./rev.<br>6 | |
| | Test undertaken by Glide Construction and HSK | Date of Test<br>16/07/2021 | Weather at time of Test<br>Dry | Logged by<br>Ciaran Sweeney | Calcs by<br>NS / TJOC |



| TJ O'CONNOR & ASSOCIATES CONSULTING ENGINEERS<br>TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Project<br>Gordon Park, Old Naas Road | | | Job Ref<br>21003 | |
|---|---|---|---|---|---|
| | Soakaway Test Results | | | Sheet no./rev.<br>7 | |
| | Test undertaken by Glide Construction and HSK | Date of Test<br>16/07/2021 | Weather at time of Test<br>Dry | Logged by<br>Ciaran Sweeney | Calcs by<br>NS / TJOC |

| ***Soakaway Pit Dimensions*** | | |
|---|---|---|
| **S4_T1** | 1.5 | m long |
| | 0.9 | m wide |
| | 1.3 | m deep |

| Time [min] | Water Level [m] | % Full [%] | Water Depth [m] | Change [m] | Cumulative [m] |
|---|---|---|---|---|---|
| 0 | 0 | 100% | 1.30 | | 0.0 |
| 10 | 0.2 | 73% | 1.10 | -0.2 | 0.2 |
| 20 | 0.3 | 67% | 1.00 | -0.1 | 0.3 |
| 30 | 0.4 | 60% | 0.90 | -0.1 | 0.4 |
| 40 | 0.45 | 57% | 0.85 | -0.05 | 0.45 |
| 60 | 0.5 | 53% | 0.80 | -0.05 | 0.5 |
| 80 | 0.56 | 49% | 0.74 | -0.06 | 0.56 |
| 100 | 0.61 | 46% | 0.69 | -0.05 | 0.61 |
| 120 | 0.68 | 41% | 0.62 | -0.07 | 0.68 |
| 140 | 0.74 | 37% | 0.56 | -0.06 | 0.74 |
| 160 | 0.78 | 35% | 0.52 | -0.04 | 0.78 |
| 180 | 0.81 | 33% | 0.49 | -0.03 | 0.81 |
| 200 | 0.85 | 30% | 0.45 | -0.04 | 0.85 |
| 220 | 0.88 | 28% | 0.42 | -0.03 | 0.88 |
| 240 | 0.92 | 25% | 0.38 | -0.04 | 0.92 |
| 260 | 0.96 | 23% | 0.34 | -0.04 | 0.96 |

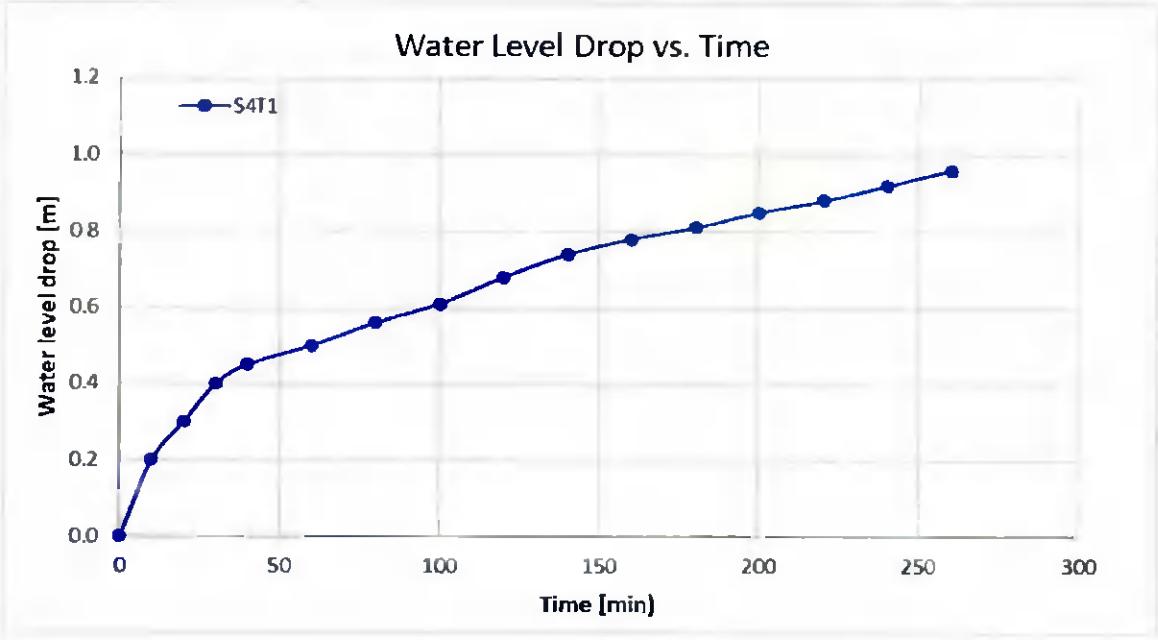
| Time [min] | Water Level [m] | % Full [%] | Water Depth [m] | |
|---|---|---|---|---|
| 0.00 | 0.00 | 100% | 1.300 | 100 |
| 9.38 | 0.19 | 75% | 1.113 | 75 |
| 76.67 | 0.55 | 50% | 0.750 | 50 |
| 242.50 | 0.93 | 25% | 0.375 | 25 |
| | 0.00 | 0% | 1.300 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| Volume between 75% and 50% | $V_{p75-25}$ = | 1.00 | $m^3$ | | |
| Surface area at 50% | $a_{s50}$ = | 4.95 | $m^2$ | | |
| Time between 75% and 25% | $t_{p75-25}$ = | 233.1 | min | 3.89 | hrs |
| Soil infiltration Rate | $f$ = | 1.4E-05 | m/second | 5.2E-02 | m/hr |
| | $f$ = | 0.000014 | m/second | 0.052 | m/hr |

**Notes:**

- **Ground conditions – Brown Boulder Clay**
- **No Groundwater encountered**
- **Poor infiltration recorded at this test pit.**

| TJ O'CONNOR & ASSOCIATES CONSULTING ENGINEERS<br>TJ O'Connor & Associates<br>Corrig House<br>Corrig Road<br>Sandyford, Dublin 18 | Project<br>Gordon Park, Old Naas Road | | | Job Ref.<br>21003 | |
|---|---|---|---|---|---|
| | Soakaway Test Results | | | Sheet no./rev.<br>8 | |
| | Test undertaken by Glide Construction and HSK | Date of Test<br>16/07/2021 | Weather at time of Test<br>Dry | Logged by<br>Ciaran Sweeney | Calcs by:<br>NS / TJOC |



# APPENDIX B

## HR Wallingford Greenfield Runoff Report

# Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

| | |
|---|---|
| Calculated by: | Niall Scollard |
| Site name: | Kingswood Lands |
| Site location: | Old Naas Road |

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

**Site Details**

| | |
|---|---|
| Latitude: | 53.29909° N |
| Longitude: | 6.41783° W |
| Reference: | 3419991023 |
| Date: | Oct 05 2021 09:33 |

**Runoff estimation approach** IH124

**Site characteristics**

Total site area (ha): 2.282

**Methodology**

| | |
|---|---|
| $Q_{BAR}$ estimation method: | Calculate from SPR and SAAR |
| SPR estimation method: | Calculate from SOIL type |

| Soil characteristics | Default | Edited |
|---|---|---|
| SOIL type: | 2 | 2 |
| HOST class: | N/A | N/A |
| SPR/SPRHOST: | 0.3 | 0.3 |

| Hydrological characteristics | Default | Edited |
|---|---|---|
| SAAR (mm): | 873 | 873 |
| Hydrological region: | 12 | 12 |
| Growth curve factor 1 year: | 0.85 | 0.85 |
| Growth curve factor 30 years: | 2.13 | 2.13 |
| Growth curve factor 100 years: | 2.61 | 2.61 |
| Growth curve factor 200 years: | 2.86 | 2.86 |

**Notes**

**(1) Is $Q_{BAR}$ < 2.0 l/s/ha?**

When $Q_{BAR}$ is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

**(2) Are flow rates < 5.0 l/s?**

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

**(3) Is SPR/SPRHOST ≤ 0.3?**

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

| Greenfield runoff rates | Default | Edited |
|---|---|---|
| $Q_{BAR}$ (l/s): | 5.39 | 5.39 |
| 1 in 1 year (l/s): | 4.58 | 4.58 |
| 1 in 30 years (l/s): | 11.47 | 11.47 |
| 1 in 100 year (l/s): | 14.06 | 14.06 |
| 1 in 200 years (l/s): | 15.4 | 15.4 |

# APPENDIX C

## Proposed Surface Water Innovyze MicroDrainage Calculations

| | | |
|---|---|---|
| Corrig Hse Corrig Rd<br>Sandyford Dublin 8<br>Ireland | | Micro Drainage |
| Date 22/03/2022 14:19<br>File Model 85.MDX | Designed by Admin<br>Checked by | |
| CADS | Network 2020.1.3 | |

## STORM SEWER DESIGN by the Modified Rational Method

### Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - Scotland and Ireland

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Return Period (years) | 2 | Maximum Rainfall (mm/hr) | 50 | Volumetric Runoff Coeff. | 0.750 | Minimum Backdrop Height (m) | 0.200 | Min Vel for Auto Design only (m/s) | 1.00 |
| M5-60 (mm) | 17.700 | Maximum Time of Concentration (mins) | 30 | PIMP (%) | 100 | Maximum Backdrop Height (m) | 3.000 | Min Slope for Optimisation (1:X) | 500 |
| Ratio R | 0.270 | Foul Sewage (l/s/ha) | 0.000 | Add Flow / Climate Change (%) | 0 | Min Design Depth for Optimisation (m) | 1.200 | | |

Designed with Level Soffits

### Network Design Table for Storm

« - Indicates pipe capacity < flow

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | n | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 12.702 | 0.064 | 198.5 | 0.000 | 5.00 | 0.0 | | 0.075 | | | Infiltration Trench | |
| 1.001 | 16.947 | 0.085 | 199.4 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 1.002 | 14.385 | 0.240 | 59.9 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 2.000 | 4.975 | 0.025 | 199.0 | 0.000 | 5.00 | 0.0 | | 0.075 | | | Porous Car Park | |
| 2.001 | 6.420 | 0.107 | 60.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 3.000 | 4.756 | 0.024 | 198.2 | 0.000 | 5.00 | 0.0 | | 0.075 | | | Porous Car Park | |
| 3.001 | 10.755 | 0.179 | 60.1 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 1.003 | 19.978 | 0.100 | 199.8 | 0.021 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 4.000 | 21.334 | 0.107 | 199.4 | 0.023 | 5.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 4.001 | 7.901 | 0.040 | 197.5 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 5.000 | 6.877 | 0.034 | 202.3 | 0.000 | 5.00 | 0.0 | | 0.075 | | | Porous Car Park | |
| 5.001 | 10.286 | 0.171 | 60.2 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 6.000 | 2.500 | 0.013 | 192.3 | 0.000 | 5.00 | 0.0 | | 0.075 | | | Porous Car Park | |

### Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 46.85 | 6.77 | 94.000 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 12.9 | 0.0 |
| 1.001 | 45.74 | 7.17 | 93.886 | 0.000 | 0.0 | 0.0 | 0.0 | 0.71 | 12.5 | 0.0 |
| 1.002 | 45.25 | 7.35 | 93.801 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 2.000 | 50.00 | 5.70 | 94.190 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 205.6 | 0.0 |
| 2.001 | 49.90 | 5.78 | 94.165 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 3.000 | 50.00 | 5.60 | 94.190 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 288.7 | 0.0 |
| 3.001 | 50.00 | 5.74 | 94.166 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 1.003 | 44.33 | 7.71 | 93.486 | 0.021 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 2.5 |
| 4.000 | 50.00 | 5.39 | 92.306 | 0.023 | 0.0 | 0.0 | 0.0 | 0.92 | 36.7 | 3.1 |
| 4.001 | 50.00 | 5.53 | 92.159 | 0.023 | 0.0 | 0.0 | 0.0 | 0.93 | 36.8 | 3.1 |
| 5.000 | 49.24 | 5.98 | 94.640 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 137.7 | 0.0 |
| 5.001 | 46.55 | 6.87 | 94.606 | 0.000 | 0.0 | 0.0 | 0.0 | 0.19 | 3.4 | 0.0 |
| 6.000 | 50.00 | 5.35 | 94.665 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 142.4 | 0.0 |

Corrig Hse Corrig Rd
Sandyford Dublin 8
Ireland

Date 22/03/2022 14:19
File Model 85.MDX
CADS

Designed by Admin
Checked by
Network 2020.1.3

Micro Drainage

## Network Design Table for Storm

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | n | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.001 | 7.206 | 0.127 | 56.7 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 1.004 | 22.873 | 0.114 | 200.6 | 0.028 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 7.000 | 5.100 | 0.026 | 196.2 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|\|→ | | Porous Car Park | |
| 7.001 | 5.293 | 0.088 | 60.1 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 8.000 | 22.568 | 0.113 | 199.7 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 8.001 | 26.567 | 0.133 | 199.8 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 1.005 | 9.608 | 0.048 | 200.2 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 225 | Pipe/Conduit | |
| 1.006 | 15.627 | 0.078 | 200.3 | 0.030 | 0.00 | 0.0 | | 0.075 | o | 225 | Pipe/Conduit | |
| 9.000 | 5.200 | 0.026 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|\|→ | | Porous Car Park | |
| 9.001 | 5.800 | 0.097 | 59.8 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 10.000 | 22.836 | 0.114 | 200.3 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 10.001 | 27.438 | 0.137 | 200.3 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 225 | Pipe/Conduit | |
| 1.007 | 10.126 | 0.051 | 198.5 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 225 | Pipe/Conduit | |
| 11.000 | 5.200 | 0.026 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|\|→ | | Porous Car Park | |
| 11.001 | 6.000 | 0.100 | 60.0 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 1.008 | 9.068 | 0.045 | 201.5 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 12.000 | 25.661 | 0.128 | 200.5 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 12.001 | 22.481 | 0.112 | 200.7 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 6.001 | 49.33 | 5.95 | 94.653 | 0.000 | 0.0 | 0.0 | 0.0 | 0.20 | 3.5 | 0.0 |
| 1.004 | 43.33 | 8.13 | 92.160 | 0.072 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 8.4 |
| 7.000 | 50.00 | 5.71 | 94.440 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 201.6 | 0.0 |
| 7.001 | 48.64 | 6.17 | 94.414 | 0.000 | 0.0 | 0.0 | 0.0 | 0.19 | 3.4 | 0.0 |
| 8.000 | 44.25 | 7.74 | 94.273 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 19.3 | 0.0 |
| 8.001 | 36.21 | 11.93 | 94.160 | 0.000 | 0.0 | 0.0 | 0.0 | 0.11 | 1.9 | 0.0 |
| 1.005 | 34.58 | 13.09 | 92.046 | 0.072 | 0.0 | 0.0 | 0.0 | 0.14 | 5.5∝ | 8.4 |
| 1.006 | 32.28 | 14.97 | 91.998 | 0.102 | 0.0 | 0.0 | 0.0 | 0.14 | 5.5∝ | 8.9 |
| 9.000 | 50.00 | 5.73 | 94.190 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 253.4 | 0.0 |
| 9.001 | 48.44 | 6.23 | 94.164 | 0.000 | 0.0 | 0.0 | 0.0 | 0.19 | 3.4 | 0.0 |
| 10.000 | 43.91 | 7.88 | 94.000 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.6 | 0.0 |
| 10.001 | 37.37 | 11.19 | 93.886 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 5.5 | 0.0 |
| 1.007 | 31.00 | 16.19 | 91.920 | 0.102 | 0.0 | 0.0 | 0.0 | 0.14 | 5.5∝ | 8.9 |
| 11.000 | 50.00 | 5.73 | 94.040 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 288.8 | 0.0 |
| 11.001 | 48.39 | 6.25 | 94.014 | 0.000 | 0.0 | 0.0 | 0.0 | 0.19 | 3.4 | 0.0 |
| 1.008 | 30.84 | 16.35 | 91.869 | 0.102 | 0.0 | 0.0 | 0.0 | 0.92 | 36.5 | 8.9 |
| 12.000 | 43.06 | 8.24 | 93.850 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.6 | 0.0 |
| 12.001 | 41.88 | 8.77 | 93.722 | 0.000 | 0.0 | 0.0 | 0.0 | 0.71 | 12.5 | 0.0 |

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## Network Design Table for Storm

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | n | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.002 | 18.520 | 0.095 | 199.2 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 1.009 | 6.046 | 0.030 | 201.5 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 13.000 | 6.000 | 0.030 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|→ | | Porous Car Park | |
| 13.001 | 16.200 | 0.270 | 60.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 1.010 | 22.964 | 0.115 | 199.7 | 0.030 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 14.000 | 11.533 | 0.058 | 198.8 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 14.001 | 16.960 | 0.085 | 199.5 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 14.002 | 13.994 | 0.070 | 199.9 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 1.011 | 7.237 | 0.036 | 201.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 1.012 | 7.200 | 0.036 | 200.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 15.000 | 5.232 | 0.026 | 201.2 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|→ | | Porous Car Park | |
| 15.001 | 5.400 | 0.090 | 60.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 16.000 | 6.221 | 0.031 | 200.7 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|→ | | Porous Car Park | |
| 16.001 | 9.359 | 0.156 | 60.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 15.002 | 25.983 | 0.130 | 199.9 | 0.030 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 17.000 | 6.952 | 0.035 | 198.6 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|→ | | Porous Car Park | |
| 17.001 | 8.258 | 0.138 | 59.8 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 18.000 | 20.311 | 0.102 | 199.1 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.002 | 40.95 | 9.22 | 93.610 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.71 | 12.5 | 0.0 |
| 1.009 | 30.74 | 16.46 | 91.824 | 0.102 | 0.0 | 0.0 | 0.0 | | 0.92 | 36.5 | 8.9 |
| 13.000 | 49.67 | 5.85 | 93.890 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.12 | 128.9 | 0.0 |
| 13.001 | 48.99 | 6.06 | 93.860 | 0.000 | 0.0 | 0.0 | 0.0 | | 1.30 | 23.0 | 0.0 |
| 1.010 | 30.34 | 16.88 | 91.794 | 0.132 | 0.0 | 0.0 | 0.0 | | 0.92 | 36.6 | 10.8 |
| 14.000 | 47.31 | 6.61 | 93.550 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.12 | 12.9 | 0.0 |
| 14.001 | 46.18 | 7.01 | 93.492 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.71 | 12.5 | 0.0 |
| 14.002 | 45.29 | 7.34 | 93.407 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.71 | 12.5 | 0.0 |
| 1.011 | 30.22 | 17.01 | 91.679 | 0.132 | 0.0 | 0.0 | 0.0 | | 0.92 | 36.5 | 10.8 |
| 1.012 | 30.10 | 17.14 | 91.643 | 0.132 | 0.0 | 0.0 | 0.0 | | 0.92 | 36.6 | 10.8 |
| 15.000 | 50.00 | 5.75 | 93.965 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.12 | 124.2 | 0.0 |
| 15.001 | 49.79 | 5.81 | 93.939 | 0.000 | 0.0 | 0.0 | 0.0 | | 1.30 | 23.0 | 0.0 |
| 16.000 | 49.57 | 5.88 | 93.965 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.12 | 201.5 | 0.0 |
| 16.001 | 49.18 | 6.00 | 93.934 | 0.000 | 0.0 | 0.0 | 0.0 | | 1.30 | 23.0 | 0.0 |
| 15.002 | 47.72 | 6.47 | 92.663 | 0.030 | 0.0 | 0.0 | 0.0 | | 0.92 | 36.6 | 3.9 |
| 17.000 | 49.23 | 5.98 | 93.740 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.12 | 130.4 | 0.0 |
| 17.001 | 48.90 | 6.09 | 93.555 | 0.000 | 0.0 | 0.0 | 0.0 | | 1.30 | 23.0 | 0.0 |
| 18.000 | 44.52 | 7.63 | 93.702 | 0.000 | 0.0 | 0.0 | 0.0 | | 0.13 | 14.8 | 0.0 |

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## Network Design Table for Storm

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | n | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.001 | 12.993 | 0.065 | 199.9 | 0.000 | 0.00 | 0.0 | | 0.075 | →_\|→ | | Infiltration Trench | ● |
| 18.002 | 16.730 | 0.084 | 199.2 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | ● |
| 18.003 | 15.344 | 0.077 | 199.3 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | ● |
| 15.003 | 20.391 | 0.102 | 199.9 | 0.033 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | ● |
| 19.000 | 17.678 | 0.227 | 77.9 | 0.000 | 5.00 | 0.0 | | 0.075 | →_\|→ | | Infiltration Trench | ● |
| 19.001 | 12.792 | 0.128 | 99.9 | 0.000 | 0.00 | 0.0 | | 0.075 | →_\|→ | | Infiltration Trench | ● |
| 19.002 | 17.417 | 0.290 | 60.1 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | ● |
| 19.003 | 6.458 | 0.065 | 99.4 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | ● |
| 19.004 | 13.276 | 0.027 | 491.7 | 0.000 | 0.00 | 0.0 | | 0.035 | →\/→ | | Infiltration Basin | ● |
| 19.005 | 5.446 | 0.027 | 201.7 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 225 | Pipe/Conduit | ● |
| 19.006 | 5.379 | 0.027 | 199.2 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 225 | Pipe/Conduit | ● |
| 20.000 | 6.570 | 0.033 | 199.1 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|\|→ | | Porous Car Park | ● |
| 20.001 | 12.739 | 0.212 | 60.1 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | ● |
| 15.004 | 51.961 | 0.260 | 199.9 | 0.022 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | ● |
| 15.005 | 12.244 | 0.061 | 200.7 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | ● |
| 15.006 | 9.948 | 0.050 | 199.0 | 0.022 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | ● |
| 21.000 | 16.200 | 0.081 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →_\|→ | | Infiltration Trench | ● |
| 21.001 | 8.203 | 0.041 | 200.1 | 0.000 | 0.00 | 0.0 | | 0.075 | →_\|→ | | Infiltration Trench | ● |
| 21.002 | 15.243 | 0.076 | 200.6 | 0.000 | 0.00 | 0.0 | | 0.075 | →_\|→ | | Infiltration Trench | ● |
| 21.003 | 7.611 | 0.038 | 200.3 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | ● |
| 15.007 | 4.097 | 0.020 | 204.9 | 0.015 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | ● |
| 15.008 | 5.743 | 0.029 | 198.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | ● |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 18.001 | 40.83 | 9.27 | 93.550 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.7 | 0.0 |
| 18.002 | 40.05 | 9.67 | 93.435 | 0.000 | 0.0 | 0.0 | 0.0 | 0.71 | 12.5 | 0.0 |
| 18.003 | 39.37 | 10.03 | 93.351 | 0.000 | 0.0 | 0.0 | 0.0 | 0.71 | 12.5 | 0.0 |
| 15.003 | 38.71 | 10.40 | 92.533 | 0.063 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 6.6 |
| 19.000 | 47.96 | 6.39 | 94.000 | 0.000 | 0.0 | 0.0 | 0.0 | 0.21 | 26.7 | 0.0 |
| 19.001 | 44.99 | 7.45 | 93.619 | 0.000 | 0.0 | 0.0 | 0.0 | 0.20 | 31.9 | 0.0 |
| 19.002 | 41.48 | 8.96 | 93.267 | 0.000 | 0.0 | 0.0 | 0.0 | 0.19 | 3.4 | 0.0 |
| 19.003 | 40.03 | 9.68 | 92.977 | 0.000 | 0.0 | 0.0 | 0.0 | 0.15 | 2.6 | 0.0 |
| 19.004 | 39.25 | 10.09 | 92.912 | 0.000 | 0.0 | 0.0 | 0.0 | 0.53 | 403.4 | 0.0 |
| 19.005 | 38.09 | 10.75 | 92.485 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 5.5 | 0.0 |
| 19.006 | 37.03 | 11.40 | 92.458 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 5.5 | 0.0 |
| 20.000 | 49.43 | 5.92 | 93.485 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 227.1 | 0.0 |
| 20.001 | 48.90 | 6.09 | 93.452 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 15.004 | 35.61 | 12.34 | 92.431 | 0.085 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 8.2 |
| 15.005 | 35.30 | 12.56 | 92.171 | 0.085 | 0.0 | 0.0 | 0.0 | 0.92 | 36.5 | 8.2 |
| 15.006 | 35.05 | 12.74 | 92.110 | 0.107 | 0.0 | 0.0 | 0.0 | 0.92 | 36.7 | 10.2 |
| 21.000 | 46.08 | 7.04 | 93.295 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.7 | 0.0 |
| 21.001 | 43.59 | 8.01 | 93.164 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 21.6 | 0.0 |
| 21.002 | 39.84 | 9.77 | 93.073 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 24.2 | 0.0 |
| 21.003 | 39.51 | 9.95 | 92.562 | 0.000 | 0.0 | 0.0 | 0.0 | 0.71 | 12.5 | 0.0 |
| 15.007 | 34.95 | 12.82 | 92.060 | 0.122 | 0.0 | 0.0 | 0.0 | 0.91 | 36.2 | 11.5 |
| 15.008 | 34.81 | 12.92 | 92.040 | 0.122 | 0.0 | 0.0 | 0.0 | 0.93 | 36.8 | 11.5 |

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## Network Design Table for Storm

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | n | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22.000 | 17.000 | 0.034 | 500.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →[ ]→ | | Porous Car Park | |
| 22.001 | 6.700 | 0.034 | 197.1 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 22.002 | 10.592 | 0.053 | 199.8 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 23.000 | 5.400 | 0.027 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →[ ]→ | | Porous Car Park | |
| 23.001 | 9.512 | 0.159 | 59.8 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 23.002 | 9.647 | 0.048 | 201.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 24.000 | 6.750 | 0.034 | 198.5 | 0.000 | 5.00 | 0.0 | | 0.075 | →[ ]→ | | Porous Car Park | |
| 24.001 | 8.660 | 0.144 | 60.1 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 24.002 | 8.459 | 0.042 | 201.4 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 25.000 | 12.500 | 0.025 | 500.0 | 0.000 | 5.00 | 0.0 | 0.600 | | o | 100 | Pipe/Conduit | |
| 23.003 | 18.547 | 0.093 | 199.4 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 26.000 | 22.748 | 0.114 | 199.5 | 0.000 | 5.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 26.001 | 22.445 | 0.112 | 200.4 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 26.002 | 15.387 | 0.077 | 199.8 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 27.000 | 18.014 | 0.090 | 200.2 | 0.000 | 5.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 27.001 | 14.719 | 0.213 | 69.1 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 26.003 | 12.980 | 0.065 | 199.7 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 22.003 | 3.500 | 0.018 | 194.4 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 22.004 | 28.142 | 0.048 | 586.3 | 0.045 | 0.00 | 0.0 | | 0.050 | →[ ] | | Cellular Storage | |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 22.000 | 41.55 | 8.93 | 93.490 | 0.000 | 0.0 | 0.0 | 0.0 | 0.07 | 148.8 | 0.0 |
| 22.001 | 41.29 | 9.05 | 93.346 | 0.000 | 0.0 | 0.0 | 0.0 | 0.93 | 36.9 | 0.0 |
| 22.002 | 40.90 | 9.24 | 92.148 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 0.0 |
| 23.000 | 49.97 | 5.76 | 93.740 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 255.5 | 0.0 |
| 23.001 | 49.57 | 5.88 | 93.713 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 23.002 | 49.00 | 6.06 | 92.236 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.5 | 0.0 |
| 24.000 | 49.35 | 5.95 | 93.500 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 201.5 | 0.0 |
| 24.001 | 48.99 | 6.06 | 93.466 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 24.002 | 48.50 | 6.21 | 92.230 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.5 | 0.0 |
| 25.000 | 50.00 | 5.62 | 92.700 | 0.000 | 0.0 | 0.0 | 0.0 | 0.34 | 2.7 | 0.0 |
| 23.003 | 47.48 | 6.55 | 92.188 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.7 | 0.0 |
| 26.000 | 50.00 | 5.41 | 93.340 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.7 | 0.0 |
| 26.001 | 49.78 | 5.82 | 93.226 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 0.0 |
| 26.002 | 48.87 | 6.10 | 93.114 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 0.0 |
| 27.000 | 50.00 | 5.33 | 93.340 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 0.0 |
| 27.001 | 50.00 | 5.48 | 93.250 | 0.000 | 0.0 | 0.0 | 0.0 | 1.58 | 62.6 | 0.0 |
| 26.003 | 48.14 | 6.33 | 93.037 | 0.000 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 0.0 |
| 22.003 | 40.77 | 9.30 | 92.095 | 0.000 | 0.0 | 0.0 | 0.0 | 0.93 | 37.1 | 0.0 |
| 22.004 | 38.75 | 10.37 | 92.078 | 0.045 | 0.0 | 0.0 | 0.0 | 0.44 | 2110.4 | 4.7 |

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## Network Design Table for Storm

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | n | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22.005 | 3.605 | 0.018 | 200.3 | 0.000 | 0.00 | 0.0 | | 0.050 | o | 225 | Pipe/Conduit | |
| 15.009 | 9.910 | 0.050 | 198.2 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 15.010 | 4.285 | 0.021 | 204.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 15.011 | 12.967 | 0.065 | 199.5 | 0.030 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 15.012 | 6.043 | 0.030 | 201.4 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 28.000 | 22.392 | 0.112 | 199.9 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 28.001 | 13.233 | 0.066 | 200.5 | 0.000 | 0.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 28.002 | 12.869 | 0.064 | 201.1 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 15.013 | 6.306 | 0.032 | 197.1 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 29.000 | 5.000 | 0.025 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|\|\|→ | | Porous Car Park | |
| 29.001 | 11.100 | 0.185 | 60.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 30.000 | 17.857 | 0.089 | 200.6 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 30.001 | 17.475 | 0.087 | 200.9 | 0.000 | 0.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 30.002 | 13.076 | 0.065 | 201.2 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 31.000 | 20.489 | 0.102 | 200.9 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 32.000 | 15.560 | 0.078 | 199.5 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 31.001 | 16.943 | 0.085 | 199.3 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 31.002 | 13.606 | 0.068 | 200.1 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 15.014 | 21.973 | 0.110 | 199.8 | 0.028 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 22.005 | 38.24 | 10.66 | 92.030 | 0.045 | 0.0 | 0.0 | 0.0 | 0.21 | 8.2 | 4.7 |
| 15.009 | 34.57 | 13.10 | 92.011 | 0.167 | 0.0 | 0.0 | 0.0 | 0.93 | 36.8 | 15.6 |
| 15.010 | 34.46 | 13.18 | 91.961 | 0.167 | 0.0 | 0.0 | 0.0 | 0.91 | 36.2 | 15.6 |
| 15.011 | 34.16 | 13.41 | 91.940 | 0.197 | 0.0 | 0.0 | 0.0 | 0.92 | 36.7 | 18.2 |
| 15.012 | 34.02 | 13.52 | 91.875 | 0.197 | 0.0 | 0.0 | 0.0 | 0.92 | 36.5 | 18.2 |
| 28.000 | 44.06 | 7.82 | 93.550 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.7 | 0.0 |
| 28.001 | 40.47 | 9.45 | 93.310 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 18.5 | 0.0 |
| 28.002 | 36.89 | 11.49 | 92.472 | 0.000 | 0.0 | 0.0 | 0.0 | 0.11 | 1.9 | 0.0 |
| 15.013 | 33.87 | 13.63 | 91.845 | 0.197 | 0.0 | 0.0 | 0.0 | 0.93 | 36.9 | 18.2 |
| 29.000 | 50.00 | 5.71 | 93.590 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 158.9 | 0.0 |
| 29.001 | 49.67 | 5.85 | 93.565 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 30.000 | 45.50 | 7.26 | 93.735 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.6 | 0.0 |
| 30.001 | 40.63 | 9.37 | 93.285 | 0.000 | 0.0 | 0.0 | 0.0 | 0.14 | 19.8 | 0.0 |
| 30.002 | 36.96 | 11.44 | 92.517 | 0.000 | 0.0 | 0.0 | 0.0 | 0.11 | 1.9 | 0.0 |
| 31.000 | 44.73 | 7.55 | 93.424 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 17.6 | 0.0 |
| 32.000 | 46.31 | 6.96 | 93.400 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.7 | 0.0 |
| 31.001 | 39.02 | 10.22 | 93.272 | 0.000 | 0.0 | 0.0 | 0.0 | 0.11 | 1.9 | 0.0 |
| 31.002 | 35.57 | 12.37 | 93.187 | 0.000 | 0.0 | 0.0 | 0.0 | 0.11 | 1.9 | 0.0 |
| 15.014 | 33.38 | 14.03 | 91.813 | 0.225 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 20.3 |

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Micro Drainage

## Network Design Table for Storm

| PN | Length (m) | Fall (m) | Slope (1:X) | I.Area (ha) | T.E. (mins) | Base Flow (l/s) | k (mm) | n | HYD SECT | DIA (mm) | Section Type | Auto Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33.000 | 5.600 | 0.028 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|→ | | Porous Car Park | |
| 33.001 | 10.500 | 0.175 | 60.0 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 15.015 | 6.467 | 0.032 | 202.1 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 34.000 | 5.200 | 0.026 | 200.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|→ | | Porous Car Park | |
| 34.001 | 5.900 | 0.098 | 60.2 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 34.002 | 44.743 | 0.224 | 199.7 | 0.026 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 35.000 | 5.200 | 0.025 | 208.0 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|← | | Porous Car Park | |
| 35.001 | 6.500 | 0.108 | 60.2 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 36.000 | 18.820 | 0.094 | 200.2 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|_\|→ | | Infiltration Trench | |
| 36.001 | 17.126 | 0.086 | 199.1 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 36.002 | 13.516 | 0.068 | 198.8 | 0.000 | 0.00 | 0.0 | | 0.075 | o | 150 | Pipe/Conduit | |
| 15.016 | 6.287 | 0.031 | 202.8 | 0.015 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 37.000 | 5.740 | 0.029 | 197.9 | 0.000 | 5.00 | 0.0 | | 0.075 | →\|↓\|← | | Porous Car Park | |
| 37.001 | 11.632 | 0.058 | 200.6 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 150 | Pipe/Conduit | |
| 15.017 | 7.021 | 0.035 | 200.6 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 1.013 | 3.017 | 0.006 | 502.8 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |
| 1.014 | 24.822 | 0.050 | 496.4 | 0.000 | 0.00 | 0.0 | | 0.050 | →[↓] | | Cellular Storage | |
| 1.015 | 4.410 | 0.022 | 200.5 | 0.000 | 0.00 | 0.0 | 0.600 | | o | 225 | Pipe/Conduit | |

## Network Results Table

| PN | Rain (mm/hr) | T.C. (mins) | US/IL (m) | Σ I.Area (ha) | Σ Base Flow (l/s) | Foul (l/s) | Add Flow (l/s) | Vel (m/s) | Cap (l/s) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|
| 33.000 | 49.87 | 5.79 | 93.640 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 208.3 | 0.0 |
| 33.001 | 49.43 | 5.92 | 93.612 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 23.0 | 0.0 |
| 15.015 | 33.24 | 14.15 | 91.703 | 0.225 | 0.0 | 0.0 | 0.0 | 0.92 | 36.4 | 20.3 |
| 34.000 | 50.00 | 5.73 | 93.925 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 198.6 | 0.0 |
| 34.001 | 49.81 | 5.81 | 93.899 | 0.000 | 0.0 | 0.0 | 0.0 | 1.30 | 22.9 | 0.0 |
| 34.002 | 47.28 | 6.62 | 93.135 | 0.026 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 3.3 |
| 35.000 | 50.00 | 5.75 | 93.475 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 271.6 | 0.0 |
| 35.001 | 48.21 | 6.31 | 93.200 | 0.000 | 0.0 | 0.0 | 0.0 | 0.19 | 3.4 | 0.0 |
| 36.000 | 45.19 | 7.37 | 93.550 | 0.000 | 0.0 | 0.0 | 0.0 | 0.13 | 16.6 | 0.0 |
| 36.001 | 39.29 | 10.07 | 93.406 | 0.000 | 0.0 | 0.0 | 0.0 | 0.11 | 1.9 | 0.0 |
| 36.002 | 35.82 | 12.20 | 93.320 | 0.000 | 0.0 | 0.0 | 0.0 | 0.11 | 1.9 | 0.0 |
| 15.016 | 33.10 | 14.26 | 91.671 | 0.266 | 0.0 | 0.0 | 0.0 | 0.91 | 36.4 | 23.8 |
| 37.000 | 49.82 | 5.81 | 93.740 | 0.000 | 0.0 | 0.0 | 0.0 | 0.12 | 193.2 | 0.0 |
| 37.001 | 48.92 | 6.08 | 93.711 | 0.000 | 0.0 | 0.0 | 0.0 | 0.71 | 12.5 | 0.0 |
| 15.017 | 32.95 | 14.39 | 91.640 | 0.266 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 23.8 |
| 1.013 | 30.02 | 17.23 | 91.607 | 0.398 | 0.0 | 0.0 | 0.0 | 0.58 | 22.9* | 32.4 |
| 1.014 | 29.42 | 17.91 | 91.601 | 0.398 | 0.0 | 0.0 | 0.0 | 0.61 | 13968.8 | 32.4 |
| 1.015 | 29.35 | 17.99 | 91.447 | 0.398 | 0.0 | 0.0 | 0.0 | 0.92 | 36.6 | 32.4 |

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## Manhole Schedules for Storm

| MH Name | MH CL (m) | MH Depth (m) | MH Connection | MH Diam.,L*W (mm) | PN | Pipe Out Invert Level (m) | Diameter (mm) | PN | Pipes In Invert Level (m) | Diameter (mm) | Backdrop (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CP15 | 94.600 | 0.600 | Open Manhole | 600 | 1.000 | 94.000 | | | | | |
| CP14 | 94.600 | 0.714 | Open Manhole | 600 | 1.001 | 93.886 | 150 | 1.000 | 93.936 | | 500 |
| AJ13 | 94.400 | 0.599 | Open Manhole | 600 | 1.002 | 93.801 | 150 | 1.001 | 93.801 | 150 | |
| Dr23 | 94.600 | 0.410 | Open Manhole | 600 | 2.000 | 94.190 | | | | | |
| Dr24 | 94.600 | 0.435 | Open Manhole | 600 | 2.001 | 94.165 | 150 | 2.000 | 94.165 | | |
| Dr25 | 94.600 | 0.410 | Open Manhole | 600 | 3.000 | 94.190 | | | | | |
| Dr26 | 94.600 | 0.434 | Open Manhole | 600 | 3.001 | 94.166 | 150 | 3.000 | 94.166 | | |
| S11 | 94.558 | 1.072 | Open Manhole | 1200 | 1.003 | 93.486 | 225 | 1.002 | 93.561 | 150 | |
| | | | | | | | | 2.001 | 94.058 | 150 | 497 |
| | | | | | | | | 3.001 | 93.987 | 150 | 426 |
| S17 | 95.201 | 1.195 | Open Manhole | 1200 | 4.000 | 92.306 | 225 | | | | |
| S16 | 94.954 | 2.755 | Open Manhole | 1200 | 4.001 | 92.199 | 225 | 4.000 | 92.199 | 225 | |
| Dr27 | 95.050 | 0.410 | Open Manhole | 600 | 5.000 | 94.640 | | | | | |
| Dr28 | 95.050 | 0.444 | Open Manhole | 600 | 5.001 | 94.606 | 150 | 5.000 | 94.606 | | |
| Dr29 | 95.075 | 0.410 | Open Manhole | 600 | 6.000 | 94.665 | | | | | |
| Dr30 | 95.075 | 0.423 | Open Manhole | 600 | 6.001 | 94.652 | 150 | 6.000 | 94.652 | | |
| S10 | 94.783 | 2.624 | Open Manhole | 1200 | 1.004 | 92.160 | 225 | 1.003 | 93.386 | 225 | 1226 |
| | | | | | | | | 4.001 | 92.159 | 225 | |
| | | | | | | | | 5.001 | 94.435 | 150 | 2200 |
| | | | | | | | | 6.001 | 94.526 | 150 | 2291 |
| Dr31 | 94.850 | 0.410 | Open Manhole | 600 | 7.000 | 94.440 | | | | | |
| Dr32 | 94.850 | 0.436 | Open Manhole | 600 | 7.001 | 94.414 | 150 | 7.000 | 94.414 | | |
| CP20 | 95.075 | 0.802 | Open Manhole | 600 | 8.000 | 94.273 | | | | | |
| CP19 | 94.850 | 0.690 | Open Manhole | 600 | 8.001 | 94.160 | 150 | 8.000 | 94.160 | | |
| S9.1 | 94.660 | 2.614 | Open Manhole | 1200 | 1.005 | 92.046 | 225 | 1.004 | 92.046 | 225 | |
| | | | | | | | | 7.001 | 94.326 | 150 | 2205 |
| | | | | | | | | 8.001 | 94.027 | 150 | 1906 |
| S9 | 94.596 | 2.598 | Open Manhole | 1200 | 1.006 | 91.998 | 225 | 1.005 | 91.998 | 225 | |
| Dr33 | 94.600 | 0.410 | Open Manhole | 600 | 9.000 | 94.190 | | | | | |
| Dr34 | 94.600 | 0.436 | Open Manhole | 600 | 9.001 | 94.164 | 150 | 9.000 | 94.164 | | |
| CP23 | 94.600 | 0.600 | Open Manhole | 600 | 10.000 | 94.000 | | | | | |
| CP22 | 94.600 | 0.714 | Open Manhole | 600 | 10.001 | 93.886 | 225 | 10.000 | 93.886 | | |
| S8.1 | 94.378 | 2.458 | Open Manhole | 1200 | 1.007 | 91.920 | 225 | 1.006 | 91.920 | 225 | |
| | | | | | | | | 9.001 | 94.067 | 150 | 2072 |
| | | | | | | | | 10.001 | 93.749 | 225 | 1829 |
| Dr35 | 94.450 | 0.410 | Open Manhole | 600 | 11.000 | 94.040 | | | | | |
| Dr36 | 94.450 | 0.436 | Open Manhole | 600 | 11.001 | 94.014 | 150 | 11.000 | 94.014 | | |
| S8 | 94.361 | 2.492 | Open Manhole | 1200 | 1.008 | 91.869 | 225 | 1.007 | 91.869 | 225 | |
| | | | | | | | | 11.001 | 93.914 | 150 | 1970 |
| CP26 | 94.450 | 0.600 | Open Manhole | 600 | 12.000 | 93.850 | | | | | |
| CP25 | 94.450 | 0.728 | Open Manhole | 600 | 12.001 | 93.722 | 150 | 12.000 | 93.722 | | |
| AJ24 | 94.400 | 0.790 | Open Manhole | 600 | 12.002 | 93.610 | 150 | 12.001 | 93.610 | 150 | |
| S7 | 94.286 | 2.462 | Open Manhole | 1200 | 1.009 | 91.824 | 225 | 1.008 | 91.824 | 225 | |
| | | | | | | | | 12.002 | 93.515 | 150 | 1616 |
| Dr37 | 94.300 | 0.410 | Open Manhole | 600 | 13.000 | 93.890 | | | | | |
| Dr38 | 94.300 | 0.440 | Open Manhole | 600 | 13.001 | 93.860 | 150 | 13.000 | 93.860 | | |
| S6 | 94.347 | 2.553 | Open Manhole | 1200 | 1.010 | 91.794 | 225 | 1.009 | 91.794 | 225 | |

| MH Name | MH CL (m) | MH Depth (m) | MH Connection | MH Diam.,L*W (mm) | PN | Pipe Out Invert Level (m) | Diameter (mm) | PN | Pipes In Invert Level (m) | Diameter (mm) | Backdrop (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 13.001 | 93.590 | 150 | 1721 |
| CP30 | 94.190 | 0.600 | Open Manhole | 600 | 14.000 | 93.590 | | | | | |
| CP29 | 94.150 | 0.658 | Open Manhole | 600 | 14.001 | 93.492 | 150 | 14.000 | 93.492 | | |
| CP29.1 | 94.150 | 0.693 | Open Manhole | 600 | 14.002 | 93.407 | 150 | 14.001 | 93.407 | 150 | |
| S5.1 | 94.274 | 2.395 | Open Manhole | 1200 | 1.011 | 91.679 | 225 | 1.010 | 91.679 | 225 | |
| | | | | | | | | 14.002 | 93.337 | 150 | 1583 |
| S5 | 93.988 | 2.345 | Open Manhole | 1200 | 1.012 | 91.643 | 225 | 1.011 | 91.643 | 225 | |
| Dr01 | 94.375 | 0.410 | Open Manhole | 600 | 15.000 | 93.965 | | | | | |
| Dr02 | 94.375 | 0.436 | Open Manhole | 600 | 15.001 | 93.939 | 150 | 15.000 | 93.939 | | |
| Dr03 | 94.375 | 0.410 | Open Manhole | 600 | 16.000 | 93.965 | | | | | |
| Dr04 | 94.375 | 0.441 | Open Manhole | 600 | 16.001 | 93.934 | 150 | 16.000 | 93.934 | | |
| S46 | 94.437 | 1.774 | Open Manhole | 1200 | 15.002 | 92.883 | 225 | 15.001 | 93.849 | 150 | 1111 |
| | | | | | | | | 16.001 | 93.778 | 150 | 1040 |
| Dr05 | 94.150 | 0.410 | Open Manhole | 600 | 17.000 | 93.740 | | | | | |
| Dr06 | 94.150 | 0.595 | Open Manhole | 600 | 17.001 | 93.555 | 150 | 17.000 | 93.705 | | 300 |
| CP50 | 94.375 | 0.673 | Open Manhole | 600 | 18.000 | 93.702 | | | | | |
| CP49 | 94.150 | 0.600 | Open Manhole | 600 | 18.001 | 93.550 | | 18.000 | 93.600 | | |
| CP48 | 94.150 | 0.715 | Open Manhole | 600 | 18.002 | 93.435 | 150 | 18.001 | 93.485 | | 500 |
| AJ47 | 94.280 | 0.929 | Open Manhole | 600 | 18.003 | 93.351 | 150 | 18.002 | 93.351 | 150 | |
| S45 | 94.095 | 1.560 | Open Manhole | 1200 | 15.003 | 92.533 | 225 | 15.002 | 92.533 | 225 | |
| | | | | | | | | 17.001 | 93.417 | 150 | 809 |
| | | | | | | | | 18.003 | 93.274 | 150 | 666 |
| CP55 | 94.600 | 0.600 | Open Manhole | 600 | 19.000 | 93.990 | | | | | |
| CP54 | 94.375 | 0.756 | Open Manhole | 600 | 19.001 | 93.619 | | 19.000 | 93.773 | | |
| CP53 | 94.375 | 1.108 | Open Manhole | 600 | 19.002 | 93.267 | 150 | 19.001 | 93.491 | | 830 |
| CP52 | 94.375 | 1.398 | Open Manhole | 600 | 19.003 | 92.977 | 150 | 19.002 | 92.977 | 150 | |
| J54 | 94.375 | 1.463 | Open Manhole | 1200 | 19.004 | 92.912 | | 19.003 | 92.912 | 150 | |
| J55 | 94.030 | 1.515 | Open Manhole | 1200 | 19.005 | 92.885 | 225 | 19.004 | 92.885 | | 1290 |
| S51 | 93.834 | 1.376 | Open Manhole | 1200 | 19.006 | 92.458 | 225 | 19.005 | 92.458 | 225 | |
| Dr07 | 93.895 | 0.410 | Open Manhole | 600 | 20.000 | 93.485 | | | | | |
| Dr08 | 93.895 | 0.443 | Open Manhole | 600 | 20.001 | 93.452 | 150 | 20.000 | 93.452 | | |
| S44 | 93.831 | 1.400 | Open Manhole | 1200 | 15.004 | 92.431 | 225 | 15.003 | 92.431 | 225 | |
| | | | | | | | | 19.006 | 92.431 | 225 | |
| | | | | | | | | 20.001 | 93.240 | 150 | 734 |
| S43 | 93.667 | 1.496 | Open Manhole | 1200 | 15.005 | 92.171 | 225 | 15.004 | 92.171 | 225 | |
| S42 | 93.712 | 1.602 | Open Manhole | 1200 | 15.006 | 92.110 | 225 | 15.005 | 92.110 | 225 | |
| CP59 | 93.895 | 0.600 | Open Manhole | 600 | 21.000 | 93.295 | | | | | |
| CP58 | 93.895 | 0.731 | Open Manhole | 600 | 21.001 | 93.164 | | 21.000 | 93.214 | | |
| CP57 | 93.895 | 0.822 | Open Manhole | 600 | 21.002 | 93.073 | | 21.001 | 93.123 | | |
| CP56 | 93.895 | 1.333 | Open Manhole | 600 | 21.003 | 92.562 | 150 | 21.002 | 92.997 | | 1085 |
| S41 | 93.673 | 1.612 | Open Manhole | 1200 | 15.007 | 92.060 | 225 | 15.006 | 92.060 | 225 | |
| | | | | | | | | 21.003 | 92.524 | 150 | 389 |
| S40 | 93.633 | 1.593 | Open Manhole | 1200 | 15.008 | 92.040 | 225 | 15.007 | 92.040 | 225 | |
| X12 | 93.840 | 0.460 | Open Manhole | 600 | 22.000 | 93.380 | | | | | |
| X13 | 93.630 | 0.284 | Open Manhole | 600 | 22.001 | 93.346 | 225 | 22.000 | 93.346 | | |
| S62 | 94.641 | 1.493 | Open Manhole | 600 | 22.002 | 92.148 | 225 | 22.001 | 93.312 | 225 | 1164 |
| Dr09 | 94.150 | 0.410 | Open Manhole | 600 | 23.000 | 93.740 | | | | | |

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Micro Drainage

## Manhole Schedules for Storm

| MH Name | MH CL (m) | MH Depth (m) | MH Connection | MH Diam.,L*W (mm) | PN | Pipe Out Invert Level (m) | Diameter (mm) | PN | Pipes In Invert Level (m) | Diameter (mm) | Backdrop (mm) | MH Name | MH CL (m) | MH Depth (m) | MH Connection | MH Diam.,L*W (mm) | PN | Pipe Out Invert Level (m) | Diameter (mm) | PN | Pipes In Invert Level (m) | Diameter (mm) | Backdrop (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dr10 | 94.150 | 0.437 | Open Manhole | 600 | 23.001 | 93.713 | 150 | 23.000 | 93.713 | | | CP69 | 93.885 | 1.368 | Open Manhole | 600 | 30.002 | 92.517 | 150 | 30.001 | 93.198 | | 1216 |
| S64 | 94.000 | 1.773 | Open Manhole | 600 | 23.002 | 92.236 | 225 | 23.001 | 93.554 | 150 | 1243 | CP75 | 94.050 | 0.626 | Open Manhole | 600 | 31.000 | 93.424 | | | | | |
| Dr11 | 94.910 | 0.410 | Open Manhole | 600 | 24.000 | 93.500 | | | | | | CP76 | 94.000 | 0.600 | Open Manhole | 600 | 32.000 | 93.400 | | | | | |
| Dr12 | 93.910 | 0.444 | Open Manhole | 600 | 24.001 | 93.466 | 150 | 24.000 | 93.466 | | | CP74 | 94.000 | 0.728 | Open Manhole | 600 | 31.001 | 93.272 | 150 | 31.000 | 93.322 | | 526 |
| S65 | 93.911 | 1.681 | Open Manhole | 600 | 24.002 | 92.230 | 225 | 24.001 | 93.322 | 150 | 1017 | | | | | | | | | 32.000 | 93.322 | | 500 |
| XX1 | 93.630 | 0.900 | Open Manhole | 600 | 25.000 | 92.730 | 100 | | | | | AJ73 | 94.130 | 0.943 | Open Manhole | 600 | 31.002 | 93.187 | 150 | 31.001 | 93.187 | 150 | |
| S63 | 93.630 | 1.412 | Open Manhole | 1200 | 23.003 | 92.188 | 225 | 23.002 | 92.188 | 225 | | S34 | 93.801 | 1.988 | Open Manhole | 1200 | 15.014 | 91.813 | 225 | 15.013 | 91.813 | 225 | |
| | | | | | | | | 24.002 | 92.188 | 225 | | | | | | | | | | 29.001 | 93.380 | 150 | 1492 |
| | | | | | | | | 25.000 | 92.675 | 100 | 362 | | | | | | | | | 30.002 | 92.452 | 150 | 564 |
| AJDP01 | 93.750 | 0.410 | Open Manhole | 1200 | 26.000 | 93.340 | 225 | | | | | | | | | | | | | 31.002 | 93.119 | 150 | 1231 |
| AJDP02 | 93.750 | 0.524 | Open Manhole | 1200 | 26.001 | 93.226 | 225 | 26.000 | 93.226 | 225 | | Dr15 | 94.050 | 0.410 | Open Manhole | 600 | 33.000 | 93.640 | | | | | |
| AJDP03 | 93.750 | 0.636 | Open Manhole | 1200 | 26.002 | 93.114 | 225 | 26.001 | 93.114 | 225 | | Dr16 | 94.050 | 0.438 | Open Manhole | 600 | 33.001 | 93.612 | 150 | 33.000 | 93.612 | | |
| AJDP05 | 93.750 | 0.410 | Open Manhole | 1200 | 27.000 | 93.340 | 225 | | | | | S33 | 93.922 | 2.219 | Open Manhole | 1200 | 15.015 | 91.703 | 225 | 15.014 | 91.703 | 225 | |
| AJDP06 | 93.750 | 0.500 | Open Manhole | 1200 | 27.001 | 93.250 | 225 | 27.000 | 93.250 | 225 | | | | | | | | | | 33.001 | 93.437 | 150 | 1659 |
| AJDP04 | 93.750 | 0.713 | Open Manhole | 1200 | 26.003 | 93.037 | 225 | 26.002 | 93.037 | 225 | | Dr17 | 94.335 | 0.410 | Open Manhole | 600 | 34.000 | 93.925 | | | | | |
| | | | | | | | | 27.001 | 93.037 | 225 | | Dr18 | 94.335 | 0.436 | Open Manhole | 600 | 34.001 | 93.899 | 150 | 34.000 | 93.899 | | |
| S61 | 93.800 | 1.725 | Open Manhole | 1200 | 22.003 | 92.095 | 225 | 22.002 | 92.095 | 225 | | S77 | 94.225 | 1.090 | Open Manhole | 1200 | 34.002 | 93.135 | 225 | 34.001 | 93.801 | 150 | 591 |
| | | | | | | | | 23.003 | 92.095 | 225 | | Dr19 | 93.885 | 0.410 | Open Manhole | 600 | 35.000 | 93.475 | | | | | |
| | | | | | | | | 26.003 | 92.972 | 225 | 877 | Dr20 | 93.885 | 0.685 | Open Manhole | 600 | 35.001 | 93.200 | 150 | 35.000 | 93.450 | | 400 |
| S61.1 | 93.778 | 1.698 | Open Manhole | 1200 | 22.004 | 92.078 | | 22.003 | 92.077 | 225 | | CP81 | 94.150 | 0.600 | Open Manhole | 600 | 36.000 | 93.550 | | | | | |
| S60 | 93.872 | 1.842 | Open Manhole | 1200 | 22.005 | 92.030 | 225 | 22.004 | 92.030 | | | CP80 | 94.150 | 0.744 | Open Manhole | 600 | 36.001 | 93.406 | 150 | 36.000 | 93.456 | | 500 |
| S59 | 93.872 | 1.861 | Open Manhole | 1200 | 15.009 | 92.011 | 225 | 15.008 | 92.011 | 225 | | AP79 | 94.280 | 0.960 | Open Manhole | 600 | 36.002 | 93.320 | 150 | 36.001 | 93.320 | 150 | |
| | | | | | | | | 22.005 | 92.012 | 225 | 1 | S32 | 93.898 | 2.227 | Open Manhole | 1200 | 15.016 | 91.671 | 225 | 15.015 | 91.671 | 225 | |
| S58 | 93.881 | 1.920 | Open Manhole | 1200 | 15.010 | 91.961 | 225 | 15.009 | 91.961 | 225 | | | | | | | | | | 34.002 | 92.911 | 225 | 1240 |
| S57 | 93.910 | 1.970 | Open Manhole | 1200 | 15.011 | 91.940 | 225 | 15.010 | 91.940 | 225 | | | | | | | | | | 35.001 | 93.092 | 150 | 1346 |
| S56 | 93.805 | 1.934 | Open Manhole | 1200 | 15.012 | 91.875 | 225 | 15.011 | 91.875 | 225 | | | | | | | | | | 36.002 | 93.252 | 150 | 1506 |
| CP68 | 94.150 | 0.600 | Open Manhole | 600 | 28.000 | 93.550 | | | | | | Dr21 | 94.150 | 0.410 | Open Manhole | 1200 | 37.000 | 93.740 | | | | | |
| CP67 | 94.150 | 0.840 | Open Manhole | 600 | 28.001 | 93.310 | | 28.000 | 93.438 | | | Dr22 | 94.150 | 0.439 | Open Manhole | 1200 | 37.001 | 93.711 | 150 | 37.000 | 93.711 | | |
| CP66 | 93.910 | 1.438 | Open Manhole | 600 | 28.002 | 92.472 | 150 | 28.001 | 93.244 | | 1462 | S31 | 93.900 | 2.260 | Open Manhole | 1200 | 15.017 | 91.640 | 225 | 15.016 | 91.640 | 225 | |
| S35 | 93.757 | 1.912 | Open Manhole | 1200 | 15.013 | 91.845 | 225 | 15.012 | 91.845 | 225 | | | | | | | | | | 37.001 | 93.653 | 150 | 1938 |
| | | | | | | | | 28.002 | 92.408 | 150 | 488 | S4 | 94.059 | 2.454 | Open Manhole | 1200 | 1.013 | 91.607 | 225 | 1.012 | 91.607 | 225 | |
| Dr13 | 94.000 | 0.410 | Open Manhole | 600 | 29.000 | 93.590 | | | | | | | | | | | | | | 15.017 | 91.605 | 225 | |
| Dr14 | 94.000 | 0.435 | Open Manhole | 600 | 29.001 | 93.565 | 150 | 29.000 | 93.565 | | | S3 | 94.078 | 2.477 | Open Manhole | 1200 | 1.014 | 91.601 | | 1.013 | 91.601 | 225 | |
| CP71 | 94.135 | 0.600 | Open Manhole | 600 | 30.000 | 93.735 | | | | | | S2 | 93.415 | 1.968 | Open Manhole | 1200 | 1.015 | 91.447 | 225 | 1.014 | 91.551 | | 1626 |
| CP70 | 94.335 | 1.050 | Open Manhole | 600 | 30.001 | 93.285 | | 30.000 | 93.646 | | 276 | | 91.916 | 0.491 | Open Manhole | 1200 | | OUTFALL | | 1.015 | 91.425 | 225 | |

No coordinates have been specified, layout information cannot be produced.

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| Corrig Hse Corrig Rd<br>Sandyford Dublin 8<br>Ireland | |
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| CADS | Network 2020.1.3 |

Micro Drainage

## PIPELINE SCHEDULES for Storm

### Upstream Manhole

| PN | Rvd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.000 | →\|_\|→ | | CP15 | 94.600 | 94.000 | 0.000 | Open Manhole | 600 |
| 1.001 | o | 150 | CP14 | 94.600 | 93.886 | 0.564 | Open Manhole | 600 |
| 1.002 | o | 150 | AJ13 | 94.400 | 93.801 | 0.449 | Open Manhole | 600 |
| 2.000 | →\|↓\|→ | | Dr23 | 94.600 | 94.190 | 0.110 | Open Manhole | 600 |
| 2.001 | o | 150 | Dr24 | 94.600 | 94.165 | 0.285 | Open Manhole | 600 |
| 3.000 | →\|↓\|→ | | Dr25 | 94.600 | 94.190 | 0.110 | Open Manhole | 600 |
| 3.001 | o | 150 | Dr26 | 94.600 | 94.166 | 0.284 | Open Manhole | 600 |
| 1.003 | o | 225 | S11 | 94.558 | 93.486 | 0.847 | Open Manhole | 1200 |
| 4.000 | o | 225 | S17 | 95.501 | 92.306 | 2.970 | Open Manhole | 1200 |
| 4.001 | o | 225 | S16 | 94.954 | 92.199 | 2.530 | Open Manhole | 1200 |
| 5.000 | →\|↓\|→ | | Dr27 | 95.050 | 94.640 | 0.110 | Open Manhole | 600 |
| 5.001 | o | 150 | Dr28 | 95.050 | 94.606 | 0.294 | Open Manhole | 600 |
| 6.000 | →\|↓\|→ | | Dr29 | 95.075 | 94.665 | 0.110 | Open Manhole | 600 |
| 6.001 | o | 150 | Dr30 | 95.075 | 94.653 | 0.272 | Open Manhole | 600 |
| 1.004 | o | 225 | S10 | 94.783 | 92.160 | 2.398 | Open Manhole | 1200 |
| 7.000 | →\|↓\|→ | | Dr31 | 94.850 | 94.440 | 0.110 | Open Manhole | 600 |
| 7.001 | o | 150 | Dr32 | 94.850 | 94.414 | 0.286 | Open Manhole | 600 |
| 8.000 | →\|_\|→ | | CP20 | 95.075 | 94.273 | 0.132 | Open Manhole | 600 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.000 | 12.702 | 198.5 | CP14 | 94.600 | 93.936 | 0.064 | Open Manhole | 600 |
| 1.001 | 16.947 | 199.4 | AJ13 | 94.400 | 93.801 | 0.449 | Open Manhole | 600 |
| 1.002 | 14.385 | 59.9 | S11 | 94.558 | 93.561 | 0.847 | Open Manhole | 1200 |
| 2.000 | 4.975 | 199.0 | Dr24 | 94.600 | 94.165 | 0.135 | Open Manhole | 600 |
| 2.001 | 6.420 | 60.0 | S11 | 94.558 | 94.058 | 0.350 | Open Manhole | 1200 |
| 3.000 | 4.756 | 198.2 | Dr26 | 94.600 | 94.166 | 0.134 | Open Manhole | 600 |
| 3.001 | 10.755 | 60.1 | S11 | 94.558 | 93.987 | 0.421 | Open Manhole | 1200 |
| 1.003 | 19.978 | 199.8 | S10 | 94.783 | 93.386 | 1.172 | Open Manhole | 1200 |
| 4.000 | 21.334 | 199.4 | S16 | 94.954 | 92.199 | 2.530 | Open Manhole | 1200 |
| 4.001 | 7.901 | 197.5 | S10 | 94.783 | 92.159 | 2.399 | Open Manhole | 1200 |
| 5.000 | 6.877 | 202.3 | Dr28 | 95.050 | 94.606 | 0.144 | Open Manhole | 600 |
| 5.001 | 10.286 | 60.2 | S10 | 94.783 | 94.435 | 0.198 | Open Manhole | 1200 |
| 6.000 | 2.500 | 192.3 | Dr30 | 95.075 | 94.652 | 0.123 | Open Manhole | 600 |
| 6.001 | 7.206 | 56.7 | S10 | 94.783 | 94.526 | 0.107 | Open Manhole | 1200 |
| 1.004 | 22.873 | 200.6 | S9.1 | 94.660 | 92.046 | 2.389 | Open Manhole | 1200 |
| 7.000 | 5.100 | 196.2 | Dr32 | 94.850 | 94.414 | 0.136 | Open Manhole | 600 |
| 7.001 | 5.293 | 60.1 | S9.1 | 94.660 | 94.326 | 0.184 | Open Manhole | 1200 |
| 8.000 | 22.568 | 199.7 | CP19 | 94.850 | 94.160 | 0.020 | Open Manhole | 600 |

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| CADS | Network 2020.1.3 | |

## PIPELINE SCHEDULES for Storm

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 8.001 | o | 150 | CP19 | 94.850 | 94.160 | 0.540 | Open Manhole | 600 |
| 1.005 | o | 225 | S9.1 | 94.660 | 92.046 | 2.389 | Open Manhole | 1200 |
| 1.006 | o | 225 | S9 | 94.596 | 91.998 | 2.373 | Open Manhole | 1200 |
| 9.000 | →\|\|→ | | Dr33 | 94.600 | 94.190 | 0.110 | Open Manhole | 600 |
| 9.001 | o | 150 | Dr34 | 94.600 | 94.164 | 0.286 | Open Manhole | 600 |
| 10.000 | →\|_\|→ | | CP23 | 94.600 | 94.000 | 0.000 | Open Manhole | 600 |
| 10.001 | o | 225 | CP22 | 94.600 | 93.886 | 0.489 | Open Manhole | 600 |
| 1.007 | o | 225 | S8.1 | 94.378 | 91.920 | 2.233 | Open Manhole | 1200 |
| 11.000 | →\|\|→ | | Dr35 | 94.450 | 94.040 | 0.110 | Open Manhole | 600 |
| 11.001 | o | 150 | Dr36 | 94.450 | 94.014 | 0.286 | Open Manhole | 600 |
| 1.008 | o | 225 | S8 | 94.361 | 91.869 | 2.267 | Open Manhole | 1200 |
| 12.000 | →\|_\|→ | | CP26 | 94.450 | 93.850 | 0.000 | Open Manhole | 600 |
| 12.001 | o | 150 | CP25 | 94.450 | 93.722 | 0.578 | Open Manhole | 600 |
| 12.002 | o | 150 | AJ24 | 94.400 | 93.610 | 0.640 | Open Manhole | 600 |
| 1.009 | o | 225 | S7 | 94.286 | 91.824 | 2.237 | Open Manhole | 1200 |
| 13.000 | →\|\|→ | | Dr37 | 94.300 | 93.890 | 0.110 | Open Manhole | 600 |
| 13.001 | o | 150 | Dr38 | 94.300 | 93.860 | 0.290 | Open Manhole | 600 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 8.001 | 26.567 | 199.8 | S9.1 | 94.660 | 94.027 | 0.483 | Open Manhole | 1200 |
| 1.005 | 9.608 | 200.2 | S9 | 94.596 | 91.998 | 2.373 | Open Manhole | 1200 |
| 1.006 | 15.627 | 200.3 | S8.1 | 94.378 | 91.920 | 2.233 | Open Manhole | 1200 |
| 9.000 | 5.200 | 200.0 | Dr34 | 94.600 | 94.164 | 0.136 | Open Manhole | 600 |
| 9.001 | 5.800 | 59.8 | S8.1 | 94.378 | 94.067 | 0.161 | Open Manhole | 1200 |
| 10.000 | 22.836 | 200.3 | CP22 | 94.600 | 93.886 | 0.114 | Open Manhole | 600 |
| 10.001 | 27.438 | 200.3 | S8.1 | 94.378 | 93.749 | 0.404 | Open Manhole | 1200 |
| 1.007 | 10.126 | 198.5 | S8 | 94.361 | 91.869 | 2.267 | Open Manhole | 1200 |
| 11.000 | 5.200 | 200.0 | Dr36 | 94.450 | 94.014 | 0.136 | Open Manhole | 600 |
| 11.001 | 6.000 | 60.0 | S8 | 94.361 | 93.914 | 0.297 | Open Manhole | 1200 |
| 1.008 | 9.068 | 201.5 | S7 | 94.286 | 91.824 | 2.237 | Open Manhole | 1200 |
| 12.000 | 25.661 | 200.5 | CP25 | 94.450 | 93.722 | 0.128 | Open Manhole | 600 |
| 12.001 | 22.481 | 200.7 | AJ24 | 94.400 | 93.610 | 0.640 | Open Manhole | 600 |
| 12.002 | 18.920 | 199.2 | S7 | 94.286 | 93.515 | 0.621 | Open Manhole | 1200 |
| 1.009 | 6.046 | 201.5 | S6 | 94.347 | 91.794 | 2.328 | Open Manhole | 1200 |
| 13.000 | 6.000 | 200.0 | Dr38 | 94.300 | 93.860 | 0.140 | Open Manhole | 600 |
| 13.001 | 16.200 | 60.0 | S6 | 94.347 | 93.590 | 0.607 | Open Manhole | 1200 |

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| Corrig Hse Corrig Rd<br>Sandyford Dublin 8<br>Ireland | | Micro Drainage |
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| CADS | Network 2020.1.3 | |

## PIPELINE SCHEDULES for Storm

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.010 | o | 225 | S6 | 94.347 | 91.794 | 2.328 | Open Manhole | 1200 |
| 14.000 | →\|_\|→ | | CP30 | 94.150 | 93.550 | 0.000 | Open Manhole | 600 |
| 14.001 | o | 150 | CP29 | 94.150 | 93.492 | 0.508 | Open Manhole | 600 |
| 14.002 | o | 150 | CP29.1 | 94.100 | 93.407 | 0.543 | Open Manhole | 600 |
| 1.011 | o | 225 | S5.1 | 94.074 | 91.679 | 2.170 | Open Manhole | 1200 |
| 1.012 | o | 225 | S5 | 93.988 | 91.643 | 2.120 | Open Manhole | 1200 |
| 15.000 | →\|¡\|→ | | Dr01 | 94.375 | 93.965 | 0.110 | Open Manhole | 600 |
| 15.001 | o | 150 | Dr02 | 94.375 | 93.939 | 0.286 | Open Manhole | 600 |
| 16.000 | →\|¡\|→ | | Dr03 | 94.375 | 93.965 | 0.110 | Open Manhole | 600 |
| 16.001 | o | 150 | Dr04 | 94.375 | 93.934 | 0.291 | Open Manhole | 600 |
| 15.002 | o | 225 | S46 | 94.437 | 92.663 | 1.549 | Open Manhole | 1200 |
| 17.000 | →\|¡\|→ | | Dr05 | 94.150 | 93.740 | 0.110 | Open Manhole | 600 |
| 17.001 | o | 150 | Dr06 | 94.150 | 93.555 | 0.445 | Open Manhole | 600 |
| 18.000 | →\|_\|→ | | CP50 | 94.375 | 93.702 | 0.124 | Open Manhole | 600 |
| 18.001 | →\|_\|→ | | CP49 | 94.150 | 93.550 | 0.000 | Open Manhole | 600 |
| 18.002 | o | 150 | CP48 | 94.150 | 93.435 | 0.565 | Open Manhole | 600 |
| 18.003 | o | 150 | AJ47 | 94.280 | 93.351 | 0.779 | Open Manhole | 600 |
| 15.003 | o | 225 | S45 | 94.093 | 92.533 | 1.335 | Open Manhole | 1200 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 1.010 | 22.964 | 199.7 | S5.1 | 94.074 | 91.679 | 2.170 | Open Manhole | 1200 |
| 14.000 | 11.533 | 198.8 | CP29 | 94.150 | 93.492 | 0.058 | Open Manhole | 600 |
| 14.001 | 16.960 | 199.5 | CP29.1 | 94.100 | 93.407 | 0.543 | Open Manhole | 600 |
| 14.002 | 13.994 | 199.9 | S5.1 | 94.074 | 93.337 | 0.587 | Open Manhole | 1200 |
| 1.011 | 7.237 | 201.0 | S5 | 93.988 | 91.643 | 2.120 | Open Manhole | 1200 |
| 1.012 | 7.200 | 200.0 | S4 | 94.059 | 91.607 | 2.227 | Open Manhole | 1200 |
| 15.000 | 5.232 | 201.2 | Dr02 | 94.375 | 93.939 | 0.136 | Open Manhole | 600 |
| 15.001 | 5.400 | 60.0 | S46 | 94.437 | 93.849 | 0.438 | Open Manhole | 1200 |
| 16.000 | 6.221 | 200.7 | Dr04 | 94.375 | 93.934 | 0.141 | Open Manhole | 600 |
| 16.001 | 9.359 | 60.0 | S46 | 94.437 | 93.778 | 0.509 | Open Manhole | 1200 |
| 15.002 | 25.983 | 199.9 | S45 | 94.093 | 92.533 | 1.335 | Open Manhole | 1200 |
| 17.000 | 6.952 | 198.6 | Dr06 | 94.150 | 93.705 | 0.145 | Open Manhole | 600 |
| 17.001 | 8.258 | 59.8 | S45 | 94.093 | 93.417 | 0.526 | Open Manhole | 1200 |
| 18.000 | 20.311 | 199.1 | CP49 | 94.150 | 93.600 | 0.001 | Open Manhole | 600 |
| 18.001 | 12.993 | 199.9 | CP48 | 94.150 | 93.485 | 0.065 | Open Manhole | 600 |
| 18.002 | 16.730 | 199.2 | AJ47 | 94.280 | 93.351 | 0.779 | Open Manhole | 600 |
| 18.003 | 15.344 | 199.3 | S45 | 94.093 | 93.274 | 0.669 | Open Manhole | 1200 |
| 15.003 | 20.391 | 199.9 | S44 | 93.831 | 92.431 | 1.175 | Open Manhole | 1200 |

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| CADS | Network 2020.1.3 | |

## PIPELINE SCHEDULES for Storm

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 19.000 | →\|_\|→ | | CP55 | 94.600 | 94.000 | 0.000 | Open Manhole | 600 |
| 19.001 | →\|_\|→ | | CP54 | 94.375 | 93.619 | 0.000 | Open Manhole | 600 |
| 19.002 | o | 150 | CP53 | 94.375 | 93.267 | 0.958 | Open Manhole | 600 |
| 19.003 | o | 150 | CP52 | 94.375 | 92.977 | 1.248 | Open Manhole | 600 |
| 19.004 | →\₁/→ | | J54 | 94.375 | 92.912 | 0.348 | Open Manhole | 1200 |
| 19.005 | o | 225 | J55 | 94.000 | 92.485 | 1.290 | Open Manhole | 1200 |
| 19.006 | o | 225 | S51 | 93.834 | 92.458 | 1.151 | Open Manhole | 1200 |
| 20.000 | →\|₁\|→ | | Dr07 | 93.895 | 93.485 | 0.110 | Open Manhole | 600 |
| 20.001 | o | 150 | Dr08 | 93.895 | 93.452 | 0.293 | Open Manhole | 600 |
| 15.004 | o | 225 | S44 | 93.831 | 92.431 | 1.175 | Open Manhole | 1200 |
| 15.005 | o | 225 | S43 | 93.667 | 92.171 | 1.271 | Open Manhole | 1200 |
| 15.006 | o | 225 | S42 | 93.712 | 92.110 | 1.377 | Open Manhole | 1200 |
| 21.000 | →\|_\|→ | | CP59 | 93.895 | 93.295 | 0.000 | Open Manhole | 600 |
| 21.001 | →\|_\|→ | | CP58 | 93.895 | 93.164 | 0.000 | Open Manhole | 600 |
| 21.002 | →\|_\|→ | | CP57 | 93.895 | 93.073 | 0.022 | Open Manhole | 600 |
| 21.003 | o | 150 | CP56 | 93.895 | 92.562 | 1.183 | Open Manhole | 600 |
| 15.007 | o | 225 | S41 | 93.672 | 92.060 | 1.387 | Open Manhole | 1200 |
| 15.008 | o | 225 | S40 | 93.633 | 92.040 | 1.368 | Open Manhole | 1200 |
| 22.000 | →\|₁\|→ | | X12 | 93.840 | 93.380 | 0.176 | Open Manhole | 600 |
| 22.001 | o | 225 | X13 | 93.630 | 93.346 | 0.059 | Open Manhole | 600 |
| 22.002 | o | 225 | S62 | 93.641 | 92.148 | 1.268 | Open Manhole | 600 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 19.000 | 17.678 | 77.9 | CP54 | 94.375 | 93.773 | 0.002 | Open Manhole | 600 |
| 19.001 | 12.792 | 99.9 | CP53 | 94.375 | 93.491 | 0.128 | Open Manhole | 600 |
| 19.002 | 17.417 | 60.1 | CP52 | 94.375 | 92.977 | 1.248 | Open Manhole | 600 |
| 19.003 | 6.458 | 99.4 | J54 | 94.375 | 92.912 | 1.313 | Open Manhole | 1200 |
| 19.004 | 13.276 | 491.7 | J55 | 94.000 | 92.885 | 0.000 | Open Manhole | 1200 |
| 19.005 | 5.446 | 201.7 | S51 | 93.834 | 92.458 | 1.151 | Open Manhole | 1200 |
| 19.006 | 5.379 | 199.2 | S44 | 93.831 | 92.431 | 1.175 | Open Manhole | 1200 |
| 20.000 | 6.570 | 199.1 | Dr08 | 93.895 | 93.452 | 0.143 | Open Manhole | 600 |
| 20.001 | 12.739 | 60.1 | S44 | 93.831 | 93.240 | 0.441 | Open Manhole | 1200 |
| 15.004 | 51.961 | 199.9 | S43 | 93.667 | 92.171 | 1.271 | Open Manhole | 1200 |
| 15.005 | 12.244 | 200.7 | S42 | 93.712 | 92.110 | 1.377 | Open Manhole | 1200 |
| 15.006 | 9.948 | 199.0 | S41 | 93.672 | 92.060 | 1.387 | Open Manhole | 1200 |
| 21.000 | 16.200 | 200.0 | CP58 | 93.895 | 93.214 | 0.081 | Open Manhole | 600 |
| 21.001 | 8.203 | 200.1 | CP57 | 93.895 | 93.123 | 0.041 | Open Manhole | 600 |
| 21.002 | 15.243 | 200.6 | CP56 | 93.895 | 92.997 | 0.098 | Open Manhole | 600 |
| 21.003 | 7.611 | 200.3 | S41 | 93.672 | 92.524 | 0.998 | Open Manhole | 1200 |
| 15.007 | 4.097 | 204.9 | S40 | 93.633 | 92.040 | 1.368 | Open Manhole | 1200 |
| 15.008 | 5.743 | 198.0 | S39 | 93.872 | 92.011 | 1.636 | Open Manhole | 1200 |
| 22.000 | 17.000 | 500.0 | X13 | 93.630 | 93.346 | 0.000 | Open Manhole | 600 |
| 22.001 | 6.700 | 197.1 | S62 | 93.641 | 93.312 | 0.104 | Open Manhole | 600 |
| 22.002 | 10.592 | 199.8 | S61 | 93.820 | 92.095 | 1.500 | Open Manhole | 1200 |

Corrig Hse Corrig Rd
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Ireland

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Micro Drainage

## PIPELINE SCHEDULES for Storm

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 23.000 | →\|↓\|→ | | Dr09 | 94.150 | 93.740 | 0.110 | Open Manhole | 600 |
| 23.001 | o | 150 | Dr10 | 94.150 | 93.713 | 0.287 | Open Manhole | 600 |
| 23.002 | o | 225 | S64 | 94.009 | 92.236 | 1.548 | Open Manhole | 600 |
| 24.000 | →\|↓\|→ | | Dr11 | 93.910 | 93.500 | 0.110 | Open Manhole | 600 |
| 24.001 | o | 150 | Dr12 | 93.910 | 93.466 | 0.294 | Open Manhole | 600 |
| 24.002 | o | 225 | S65 | 93.911 | 92.230 | 1.456 | Open Manhole | 600 |
| 25.000 | o | 100 | XX1 | 93.600 | 92.700 | 0.800 | Open Manhole | 600 |
| 23.003 | o | 225 | S63 | 93.600 | 92.188 | 1.187 | Open Manhole | 1200 |
| 26.000 | o | 225 | AJDP01 | 93.750 | 93.340 | 0.185 | Open Manhole | 1200 |
| 26.001 | o | 225 | AJDP02 | 93.750 | 93.226 | 0.299 | Open Manhole | 1200 |
| 26.002 | o | 225 | AJDP03 | 93.750 | 93.114 | 0.411 | Open Manhole | 1200 |
| 27.000 | o | 225 | AJDP05 | 93.750 | 93.340 | 0.185 | Open Manhole | 1200 |
| 27.001 | o | 225 | AJDP06 | 93.750 | 93.250 | 0.275 | Open Manhole | 1200 |
| 26.003 | o | 225 | AJDP04 | 93.750 | 93.037 | 0.488 | Open Manhole | 1200 |
| 22.003 | o | 225 | S61 | 93.820 | 92.095 | 1.500 | Open Manhole | 1200 |
| 22.004 | →[↓] | | S61.1 | 93.775 | 92.078 | 0.335 | Open Manhole | 1200 |
| 22.005 | o | 225 | S60 | 93.872 | 92.030 | 1.617 | Open Manhole | 1200 |
| 15.009 | o | 225 | S39 | 93.872 | 92.011 | 1.636 | Open Manhole | 1200 |
| 15.010 | o | 225 | S38 | 93.881 | 91.961 | 1.695 | Open Manhole | 1200 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 23.000 | 5.400 | 200.0 | Dr10 | 94.150 | 93.713 | 0.137 | Open Manhole | 600 |
| 23.001 | 9.512 | 59.8 | S64 | 94.009 | 93.554 | 0.305 | Open Manhole | 600 |
| 23.002 | 9.647 | 201.0 | S63 | 93.600 | 92.188 | 1.187 | Open Manhole | 1200 |
| 24.000 | 6.750 | 198.5 | Dr12 | 93.910 | 93.466 | 0.144 | Open Manhole | 600 |
| 24.001 | 8.660 | 60.1 | S65 | 93.911 | 93.322 | 0.439 | Open Manhole | 600 |
| 24.002 | 8.459 | 201.4 | S63 | 93.600 | 92.188 | 1.187 | Open Manhole | 1200 |
| 25.000 | 12.500 | 500.0 | S63 | 93.600 | 92.675 | 0.825 | Open Manhole | 1200 |
| 23.003 | 18.547 | 199.4 | S61 | 93.820 | 92.095 | 1.500 | Open Manhole | 1200 |
| 26.000 | 22.748 | 199.5 | AJDP02 | 93.750 | 93.226 | 0.299 | Open Manhole | 1200 |
| 26.001 | 22.445 | 200.4 | AJDP03 | 93.750 | 93.114 | 0.411 | Open Manhole | 1200 |
| 26.002 | 15.387 | 199.8 | AJDP04 | 93.750 | 93.037 | 0.488 | Open Manhole | 1200 |
| 27.000 | 18.014 | 200.2 | AJDP06 | 93.750 | 93.250 | 0.275 | Open Manhole | 1200 |
| 27.001 | 14.719 | 69.1 | AJDP04 | 93.750 | 93.037 | 0.488 | Open Manhole | 1200 |
| 26.003 | 12.980 | 199.7 | S61 | 93.820 | 92.972 | 0.623 | Open Manhole | 1200 |
| 22.003 | 3.500 | 194.4 | S61.1 | 93.775 | 92.077 | 1.473 | Open Manhole | 1200 |
| 22.004 | 28.142 | 586.3 | S60 | 93.872 | 92.030 | 0.480 | Open Manhole | 1200 |
| 22.005 | 3.605 | 200.3 | S39 | 93.872 | 92.012 | 1.635 | Open Manhole | 1200 |
| 15.009 | 9.910 | 198.2 | S38 | 93.881 | 91.961 | 1.695 | Open Manhole | 1200 |
| 15.010 | 4.285 | 204.0 | S37 | 93.910 | 91.940 | 1.745 | Open Manhole | 1200 |

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## PIPELINE SCHEDULES for Storm

### Upstream Manhole

| PN | Byd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 15.011 | o | 225 | S37 | 93.910 | 91.940 | 1.745 | Open Manhole | 1200 |
| 15.012 | o | 225 | S36 | 93.809 | 91.875 | 1.709 | Open Manhole | 1200 |
| 28.000 | →\|_\|→ | | CP68 | 94.150 | 93.550 | 0.000 | Open Manhole | 600 |
| 28.001 | →\|_\|→ | | CP67 | 94.150 | 93.310 | 0.000 | Open Manhole | 600 |
| 28.002 | o | 150 | CP66 | 93.910 | 92.472 | 1.288 | Open Manhole | 600 |
| 15.013 | o | 225 | S35 | 93.757 | 91.845 | 1.687 | Open Manhole | 1200 |
| 29.000 | →\|↓\|→ | | Dr13 | 94.000 | 93.590 | 0.110 | Open Manhole | 600 |
| 29.001 | o | 150 | Dr14 | 94.000 | 93.565 | 0.285 | Open Manhole | 600 |
| 30.000 | →\|_\|→ | | CP71 | 94.335 | 93.735 | 0.000 | Open Manhole | 600 |
| 30.001 | →\|_\|→ | | CP70 | 94.335 | 93.285 | 0.365 | Open Manhole | 600 |
| 30.002 | o | 150 | CP69 | 93.885 | 92.517 | 1.218 | Open Manhole | 600 |
| 31.000 | →\|_\|→ | | CP75 | 94.050 | 93.424 | 0.000 | Open Manhole | 600 |
| 32.000 | →\|_\|→ | | CP76 | 94.000 | 93.400 | 0.000 | Open Manhole | 600 |
| 31.001 | o | 150 | CP74 | 94.000 | 93.272 | 0.578 | Open Manhole | 600 |
| 31.002 | o | 150 | AJ73 | 94.130 | 93.187 | 0.793 | Open Manhole | 600 |
| 15.014 | o | 225 | S34 | 93.801 | 91.813 | 1.763 | Open Manhole | 1200 |
| 33.000 | →\|↓\|→ | | Dr15 | 94.050 | 93.640 | 0.110 | Open Manhole | 600 |
| 33.001 | o | 150 | Dr16 | 94.050 | 93.612 | 0.288 | Open Manhole | 600 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 15.011 | 12.967 | 199.5 | S36 | 93.809 | 91.875 | 1.709 | Open Manhole | 1200 |
| 15.012 | 6.043 | 201.4 | S35 | 93.757 | 91.845 | 1.687 | Open Manhole | 1200 |
| 28.000 | 22.392 | 199.9 | CP67 | 94.150 | 93.438 | 0.112 | Open Manhole | 600 |
| 28.001 | 13.233 | 200.5 | CP66 | 93.910 | 93.244 | -0.174 | Open Manhole | 600 |
| 28.002 | 12.869 | 201.1 | S35 | 93.757 | 92.408 | 1.199 | Open Manhole | 1200 |
| 15.013 | 6.306 | 197.1 | S34 | 93.801 | 91.813 | 1.763 | Open Manhole | 1200 |
| 29.000 | 5.000 | 200.0 | Dr14 | 94.000 | 93.565 | 0.135 | Open Manhole | 600 |
| 29.001 | 11.100 | 60.0 | S34 | 93.801 | 93.380 | 0.271 | Open Manhole | 1200 |
| 30.000 | 17.857 | 200.6 | CP70 | 94.335 | 93.646 | 0.089 | Open Manhole | 600 |
| 30.001 | 17.475 | 200.9 | CP69 | 93.885 | 93.198 | 0.002 | Open Manhole | 600 |
| 30.002 | 13.076 | 201.2 | S34 | 93.801 | 92.452 | 1.199 | Open Manhole | 1200 |
| 31.000 | 20.489 | 200.9 | CP74 | 94.000 | 93.322 | 0.052 | Open Manhole | 600 |
| 32.000 | 15.560 | 199.5 | CP74 | 94.000 | 93.322 | 0.078 | Open Manhole | 600 |
| 31.001 | 16.943 | 199.3 | AJ73 | 94.130 | 93.187 | 0.793 | Open Manhole | 600 |
| 31.002 | 13.606 | 200.1 | S34 | 93.801 | 93.119 | 0.532 | Open Manhole | 1200 |
| 15.014 | 21.973 | 199.8 | S33 | 93.922 | 91.703 | 1.994 | Open Manhole | 1200 |
| 33.000 | 5.600 | 200.0 | Dr16 | 94.050 | 93.612 | 0.138 | Open Manhole | 600 |
| 33.001 | 10.500 | 60.0 | S33 | 93.922 | 93.437 | 0.335 | Open Manhole | 1200 |

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## PIPELINE SCHEDULES for Storm

### Upstream Manhole

| PN | Hyd Sect | Diam (mm) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 15.015 | o | 225 | S33 | 93.922 | 91.703 | 1.994 | Open Manhole | 1200 |
| 34.000 | →\|↓\|→ | | Dr17 | 94.335 | 93.925 | 0.110 | Open Manhole | 600 |
| 34.001 | o | 150 | Dr18 | 94.335 | 93.899 | 0.286 | Open Manhole | 600 |
| 34.002 | o | 225 | S77 | 94.225 | 93.135 | 0.865 | Open Manhole | 1200 |
| 35.000 | →\|↓\|→ | | Dr19 | 93.885 | 93.475 | 0.110 | Open Manhole | 600 |
| 35.001 | o | 150 | Dr20 | 93.885 | 93.200 | 0.535 | Open Manhole | 600 |
| 36.000 | →\|_\|→ | | CP81 | 94.150 | 93.550 | 0.000 | Open Manhole | 600 |
| 36.001 | o | 150 | CP80 | 94.150 | 93.406 | 0.594 | Open Manhole | 600 |
| 36.002 | o | 150 | AP79 | 94.280 | 93.320 | 0.810 | Open Manhole | 600 |
| 15.016 | o | 225 | S32 | 93.898 | 91.671 | 2.002 | Open Manhole | 1200 |
| 37.000 | →\|↓\|→ | | Dr21 | 94.150 | 93.740 | 0.110 | Open Manhole | 1200 |
| 37.001 | o | 150 | Dr22 | 94.150 | 93.711 | 0.289 | Open Manhole | 1200 |
| 15.017 | o | 225 | S31 | 93.900 | 91.640 | 2.035 | Open Manhole | 1200 |
| 1.013 | o | 225 | S4 | 94.059 | 91.607 | 2.227 | Open Manhole | 1200 |
| 1.014 | →[↓] | | S3 | 94.078 | 91.601 | 0.730 | Open Manhole | 1200 |
| 1.015 | o | 225 | S2 | 93.415 | 91.447 | 1.743 | Open Manhole | 1200 |

### Downstream Manhole

| PN | Length (m) | Slope (1:X) | MH Name | C.Level (m) | I.Level (m) | D.Depth (m) | MH Connection | MH DIAM., L*W (mm) |
|---|---|---|---|---|---|---|---|---|
| 15.015 | 6.467 | 202.1 | S32 | 93.898 | 91.671 | 2.002 | Open Manhole | 1200 |
| 34.000 | 5.200 | 200.0 | Dr18 | 94.335 | 93.899 | 0.136 | Open Manhole | 600 |
| 34.001 | 5.900 | 60.2 | S77 | 94.225 | 93.801 | 0.274 | Open Manhole | 1200 |
| 34.002 | 44.743 | 199.7 | S32 | 93.898 | 92.911 | 0.762 | Open Manhole | 1200 |
| 35.000 | 5.200 | 208.0 | Dr20 | 93.885 | 93.450 | 0.135 | Open Manhole | 600 |
| 35.001 | 6.500 | 60.2 | S32 | 93.898 | 93.092 | 0.656 | Open Manhole | 1200 |
| 36.000 | 18.820 | 200.2 | CP80 | 94.150 | 93.456 | 0.094 | Open Manhole | 600 |
| 36.001 | 17.126 | 199.1 | AP79 | 94.280 | 93.320 | 0.810 | Open Manhole | 600 |
| 36.002 | 13.516 | 198.8 | S32 | 93.898 | 93.252 | 0.496 | Open Manhole | 1200 |
| 15.016 | 6.287 | 202.8 | S31 | 93.900 | 91.640 | 2.035 | Open Manhole | 1200 |
| 37.000 | 5.740 | 197.9 | Dr22 | 94.150 | 93.711 | 0.139 | Open Manhole | 1200 |
| 37.001 | 11.632 | 200.6 | S31 | 93.900 | 93.653 | 0.097 | Open Manhole | 1200 |
| 15.017 | 7.021 | 200.6 | S4 | 94.059 | 91.605 | 2.229 | Open Manhole | 1200 |
| 1.013 | 3.017 | 502.8 | S3 | 94.078 | 91.601 | 2.252 | Open Manhole | 1200 |
| 1.014 | 24.822 | 496.4 | S2 | 93.415 | 91.551 | 0.117 | Open Manhole | 1200 |
| 1.015 | 4.410 | 200.5 | | 91.916 | 91.425 | 0.266 | Open Manhole | 1200 |

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## Free Flowing Outfall Details for Storm

| Outfall Pipe Number | Outfall Name | C. Level (m) | I. Level (m) | Min I. Level (m) | D,L (mm) | W (mm) |
|---|---|---|---|---|---|---|
| 1.015 | | 91.916 | 91.425 | 0.000 | 1200 | 0 |

## Simulation Criteria for Storm

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Volumetric Runoff Coeff | 0.750 | Hot Start Level (mm) | 0 | Additional Flow - % of Total Flow | 0.000 | Flow per Person per Day (l/per/day) | 0.000 |
| Areal Reduction Factor | 1.000 | Manhole Headloss Coeff (Global) | 0.500 | MADD Factor * 10m³/ha Storage | 2.000 | Run Time (mins) | 60 |
| Hot Start (mins) | 0 | Foul Sewage per hectare (l/s) | 0.000 | Inlet Coeffiecient | 0.800 | Output Interval (mins) | 1 |

Number of Input Hydrographs 0 Number of Online Controls 22 Number of Offline Controls 0 Number of Storage Structures 42 Number of Time/Area Diagrams 61 Number of Real Time Controls 0

## Synthetic Rainfall Details

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rainfall Model | FSR | Region | Scotland and Ireland | Ratio R | 0.278 | Cv (Summer) | 0.750 |
| Storm Duration (mins) | 30 | Return Period (years) | 2 | M5-60 (mm) | 16.300 | Profile Type | Summer |
| Cv (Winter) | 0.840 | | | | | | |

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Ireland

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CADS

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Micro Drainage

## Online Controls for Storm

**Orifice Manhole: Dr24, DS/PN: 2.001, Volume (m³): 7.7**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 94.165

**Orifice Manhole: Dr26, DS/PN: 3.001, Volume (m³): 9.2**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 94.166

**Orifice Manhole: Dr28, DS/PN: 5.001, Volume (m³): 7.5**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 94.606

**Orifice Manhole: Dr30, DS/PN: 6.001, Volume (m³): 2.4**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 94.653

**Orifice Manhole: Dr32, DS/PN: 7.001, Volume (m³): 7.7**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 94.414

**Orifice Manhole: Dr34, DS/PN: 9.001, Volume (m³): 10.0**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 94.164

**Orifice Manhole: Dr36, DS/PN: 11.001, Volume (m³): 11.3**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 94.014

**Orifice Manhole: Dr38, DS/PN: 13.001, Volume (m³): 6.1**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.860

**Orifice Manhole: Dr02, DS/PN: 15.001, Volume (m³): 5.0**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.939

**Orifice Manhole: Dr04, DS/PN: 16.001, Volume (m³): 9.7**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.934

**Orifice Manhole: Dr06, DS/PN: 17.001, Volume (m³): 7.2**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.555

**Orifice Manhole: Dr08, DS/PN: 20.001, Volume (m³): 11.6**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.452

**Orifice Manhole: X13, DS/PN: 22.001, Volume (m³): 33.9**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.346

**Orifice Manhole: Dr10, DS/PN: 23.001, Volume (m³): 10.5**

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.713

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Micro Drainage

## Orifice Manhole: Dr12, DS/PN: 24.001, Volume (m³): 10.6

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.466

## Hydro-Brake® Optimum Manhole: S60, DS/PN: 22.005, Volume (m³): 131.9

| | | | | | |
|---|---|---|---|---|---|
| Unit Reference | MD-SHE-0050-9000-0550-9000 | Flush-Flo™ | Calculated | Sump Available | Yes |
| Design Head (m) | 0.550 | Objective | Minimise upstream storage | Diameter (mm) | 50 |
| Design Flow (l/s) | 0.9 | Application | | Surface Invert Level (m) | 92.030 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Minimum Outlet Pipe Diameter (mm) | 75 | | | | | | | | | | |
| Suggested Manhole Diameter (mm) | 1200 | | | | | | | | | | |

| Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design Point (Calculated) | 0.550 | 0.9 | Flush-Flo™ | 0.167 | 0.9 | Kick-Flo® | 0.355 | 0.7 | Mean Flow over Head Range | - | 0.8 |

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.100 | 0.9 | 0.400 | 0.8 | 0.800 | 1.1 | 1.400 | 1.4 | 2.000 | 1.6 | 2.600 | 1.8 | 4.000 | 2.2 | 5.500 | 2.6 | 7.000 | 2.9 | 8.500 | 3.2 |
| 0.200 | 0.9 | 0.500 | 0.9 | 1.000 | 1.2 | 1.600 | 1.4 | 2.200 | 1.7 | 3.000 | 1.9 | 4.500 | 2.3 | 6.000 | 2.7 | 7.500 | 3.0 | 9.000 | 3.3 |
| 0.300 | 0.8 | 0.600 | 0.9 | 1.200 | 1.3 | 1.800 | 1.5 | 2.400 | 1.7 | 3.500 | 2.1 | 5.000 | 2.4 | 6.500 | 2.8 | 8.000 | 3.1 | 9.500 | 3.3 |

## Orifice Manhole: Dr14, DS/PN: 29.001, Volume (m³): 6.1

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.565

## Orifice Manhole: Dr16, DS/PN: 33.001, Volume (m³): 8.9

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.612

## Orifice Manhole: Dr18, DS/PN: 34.001, Volume (m³): 7.9

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.899

## Orifice Manhole: Dr20, DS/PN: 35.001, Volume (m³): 11.0

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.200

## Orifice Manhole: Dr22, DS/PN: 37.001, Volume (m³): 7.9

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 93.711

## Hydro-Brake® Optimum Manhole: S2, DS/PN: 1.015, Volume (m³): 547.6

| | | | | | |
|---|---|---|---|---|---|
| Unit Reference | MD-SHE-0101-5400-1550-5400 | Flush-Flo™ | Calculated | Sump Available | Yes |
| Design Head (m) | 1.550 | Objective | Minimise upstream storage | Diameter (mm) | 101 |
| Design Flow (l/s) | 5.4 | Application | | Surface Invert Level (m) | 91.447 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Minimum Outlet Pipe Diameter (mm) | 150 | | | | | | | | | | |
| Suggested Manhole Diameter (mm) | 1200 | | | | | | | | | | |

| Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) | Control Points | Head (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design Point (Calculated) | 1.550 | 5.4 | Flush-Flo™ | 0.440 | 5.3 | Kick-Flo® | 0.903 | 4.2 | Mean Flow over Head Range | - | 4.7 |

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.100 | 3.4 | 0.400 | 5.3 | 0.800 | 4.7 | 1.400 | 5.1 | 2.000 | 6.1 | 2.600 | 6.9 | 4.000 | 8.4 | 5.500 | 9.8 | 7.000 | 11.0 | 8.500 | 12.1 |
| 0.200 | 4.8 | 0.500 | 5.3 | 1.000 | 4.4 | 1.600 | 5.5 | 2.200 | 6.4 | 3.000 | 7.4 | 4.500 | 8.9 | 6.000 | 10.2 | 7.500 | 11.4 | 9.000 | 12.4 |
| 0.300 | 5.1 | 0.600 | 5.2 | 1.200 | 4.8 | 1.800 | 5.8 | 2.400 | 6.6 | 3.500 | 7.9 | 5.000 | 9.4 | 6.500 | 10.6 | 8.000 | 11.7 | 9.500 | 12.7 |

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## Storage Structures for Storm

### Infiltration Trench Pipe: 1.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.30 | Trench Length (m) | 12.7 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 94.000 | Slope (1:X) | 198.5 | | |

### Porous Car Park Pipe: 2.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 26.7 | Invert Level (m) | 94.190 | Slope (1:X) | 199.0 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 19.3 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.0 | Evaporation (mm/day) | 3 | | |

### Porous Car Park Pipe: 3.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 27.6 | Invert Level (m) | 94.190 | Slope (1:X) | 198.2 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 20.9 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.35 | Length (m) | 4.8 | Evaporation (mm/day) | 3 | | |

### Porous Car Park Pipe: 5.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 25.0 | Invert Level (m) | 94.640 | Slope (1:X) | 202.3 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 13.1 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 6.9 | Evaporation (mm/day) | 3 | | |

### Porous Car Park Pipe: 6.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 9.2 | Invert Level (m) | 94.665 | Slope (1:X) | 192.3 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 13.2 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 2.5 | Evaporation (mm/day) | 3 | | |

### Porous Car Park Pipe: 7.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 26.6 | Invert Level (m) | 94.440 | Slope (1:X) | 196.2 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 18.8 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.1 | Evaporation (mm/day) | 3 | | |

### Infiltration Trench Pipe: 8.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.670 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 22.6 | Cap Infiltration Depth (m) | 0.670 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 94.273 | Slope (1:X) | 199.7 | | |

### Porous Car Park Pipe: 9.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 34.4 | Invert Level (m) | 94.190 | Slope (1:X) | 200.0 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 23.8 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.2 | Evaporation (mm/day) | 3 | | |

### Infiltration Trench Pipe: 10.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 22.8 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 94.000 | Slope (1:X) | 200.3 | | |

### Porous Car Park Pipe: 11.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Membrane Percolation (mm/hr) | 1000 | Safety Factor | 2.0 | Invert Level (m) | 94.040 | Length (m) | 5.2 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Max Percolation (l/s) | 39.1 | Porosity | 0.30 | Width (m) | 27.1 | Slope (1:X) | 200.0 |

| | |
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## Porous Car Park Pipe: 11.000

Depression Storage (mm) 5 Evaporation (mm/day) 3 Membrane Depth (mm) 110

## Infiltration Trench Pipe: 12.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 25.7 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.850 | Slope (1:X) | 200.5 | | |

## Porous Car Park Pipe: 13.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 20.3 | Invert Level (m) | 93.890 | Slope (1:X) | 200.0 |
| Membrane Depth (mm) | 110 | | | | | | |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 12.2 | Depression Storage (mm) | 5 |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 6.0 | Evaporation (mm/day) | 3 |

## Infiltration Trench Pipe: 14.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.30 | Trench Length (m) | 11.5 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.550 | Slope (1:X) | 198.8 | | |

## Porous Car Park Pipe: 15.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 17.1 | Invert Level (m) | 93.965 | Slope (1:X) | 201.2 |
| Membrane Depth (mm) | 110 | | | | | | |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 11.8 | Depression Storage (mm) | 5 |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.2 | Evaporation (mm/day) | 3 |

## Porous Car Park Pipe: 16.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 32.8 | Invert Level (m) | 93.965 | Slope (1:X) | 200.7 |
| Membrane Depth (mm) | 110 | | | | | | |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 19.0 | Depression Storage (mm) | 5 |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 6.2 | Evaporation (mm/day) | 3 |

## Porous Car Park Pipe: 17.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 23.8 | Invert Level (m) | 93.740 | Slope (1:X) | 198.6 |
| Membrane Depth (mm) | 110 | | | | | | |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 12.3 | Depression Storage (mm) | 5 |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 7.0 | Evaporation (mm/day) | 3 |

## Infiltration Trench Pipe: 18.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.549 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 20.3 | Cap Infiltration Depth (m) | 0.549 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.702 | Slope (1:X) | 199.1 | | |

## Infiltration Trench Pipe: 18.001

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.600 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 13.0 | Cap Infiltration Depth (m) | 0.600 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.550 | Slope (1:X) | 199.9 | | |

## Infiltration Trench Pipe: 19.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 17.7 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 94.000 | Slope (1:X) | 77.9 | | |

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## Infiltration Trench Pipe: 19.001

Manning's N 0.075 Safety Factor 2.0 Trench Width (m) 0.6 Cap Volume Depth (m) 0.800
Infiltration Coefficient Base (m/hr) 0.01000 Porosity 0.35 Trench Length (m) 12.8 Cap Infiltration Depth (m) 0.800
Infiltration Coefficient Side (m/hr) 0.01000 Invert Level (m) 93.619 Slope (1:X) 99.9

## Infiltration Basin Pipe: 19.004

Manning's N 0.035 Infiltration Coefficient Base (m/hr) 0.01000 Safety Factor 2.0
Invert Level (m) 92.912 Infiltration Coefficient Side (m/hr) 0.01000 Porosity 1.00

| Depth (m) | Area (m²) | Depth (m) | Area (m²) |
|---|---|---|---|
| 0.000 | 9.1 | 1.100 | 9.1 |

## Porous Car Park Pipe: 20.000

Manning's N 0.075 Max Percolation (l/s) 38.9 Invert Level (m) 93.485 Slope (1:X) 199.1 Membrane Depth (mm) 110
Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0 Width (m) 21.3 Depression Storage (mm) 5
Membrane Percolation (mm/hr) 1000 Porosity 0.30 Length (m) 6.6 Evaporation (mm/day) 3

## Infiltration Trench Pipe: 21.000

Manning's N 0.075 Safety Factor 2.0 Trench Width (m) 0.6 Cap Volume Depth (m) 0.800
Infiltration Coefficient Base (m/hr) 0.01000 Porosity 0.35 Trench Length (m) 16.2 Cap Infiltration Depth (m) 0.800
Infiltration Coefficient Side (m/hr) 0.01000 Invert Level (m) 93.295 Slope (1:X) 200.0

## Infiltration Trench Pipe: 21.001

Manning's N 0.075 Safety Factor 2.0 Trench Width (m) 0.6 Cap Volume Depth (m) 0.800
Infiltration Coefficient Base (m/hr) 0.01000 Porosity 0.35 Trench Length (m) 8.2 Cap Infiltration Depth (m) 0.800
Infiltration Coefficient Side (m/hr) 0.01000 Invert Level (m) 93.164 Slope (1:X) 200.1

## Infiltration Trench Pipe: 21.002

Manning's N 0.075 Safety Factor 2.0 Trench Width (m) 0.6 Cap Volume Depth (m) 0.800
Infiltration Coefficient Base (m/hr) 0.01000 Porosity 0.35 Trench Length (m) 15.2 Cap Infiltration Depth (m) 0.800
Infiltration Coefficient Side (m/hr) 0.01000 Invert Level (m) 93.073 Slope (1:X) 200.6

## Porous Car Park Pipe: 22.000

Manning's N 0.075 Max Percolation (l/s) 114.3 Invert Level (m) 93.380 Slope (1:X) 500.0 Membrane Depth (mm) 176
Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0 Width (m) 24.2 Depression Storage (mm) 5
Membrane Percolation (mm/hr) 1000 Porosity 0.30 Length (m) 17.0 Evaporation (mm/day) 3

## Porous Car Park Pipe: 23.000

Manning's N 0.075 Max Percolation (l/s) 36.0 Invert Level (m) 93.740 Slope (1:X) 200.0 Membrane Depth (mm) 110
Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0 Width (m) 24.0 Depression Storage (mm) 5
Membrane Percolation (mm/hr) 1000 Porosity 0.30 Length (m) 5.4 Evaporation (mm/day) 3

## Porous Car Park Pipe: 24.000

Manning's N 0.075 Max Percolation (l/s) 35.4 Invert Level (m) 93.500 Slope (1:X) 198.5 Membrane Depth (mm) 110
Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0 Width (m) 18.9 Depression Storage (mm) 5
Membrane Percolation (mm/hr) 1000 Porosity 0.30 Length (m) 6.8 Evaporation (mm/day) 3

## Cellular Storage Pipe: 22.004

Manning's N 0.050 Infiltration Coefficient Base (m/hr) 0.01000 Safety Factor 2.0
Invert Level (m) 92.078 Infiltration Coefficient Side (m/hr) 0.01000 Porosity 1.00

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## Cellular Storage Pipe: 22.004

| Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 66.6 | 166.6 | 0.377 | 145.2 | 166.6 | 0.605 | 124.4 | 166.6 | 0.833 | 103.6 | 166.6 | 1.061 | 82.8 | 166.6 |
| 0.300 | 71.2 | 166.6 | 0.453 | 138.3 | 166.6 | 0.681 | 117.5 | 166.6 | 0.909 | 96.6 | 166.6 | 1.361 | 87.3 | 166.6 |
| 0.301 | 152.1 | 166.6 | 0.529 | 131.3 | 166.6 | 0.757 | 110.5 | 166.6 | 0.985 | 89.7 | 166.6 | 1.362 | 0.0 | 166.6 |

## Infiltration Trench Pipe: 28.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 22.4 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.550 | Slope (1:X) | 199.9 | | |

## Infiltration Trench Pipe: 28.001

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.650 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 13.2 | Cap Infiltration Depth (m) | 0.650 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.310 | Slope (1:X) | 200.5 | | |

## Porous Car Park Pipe: 29.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 20.8 | Invert Level (m) | 93.590 | Slope (1:X) | 200.0 |
| Membrane Depth (mm) | 110 | | | | | | |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 15.0 | Depression Storage (mm) | 5 |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.0 | Evaporation (mm/day) | 3 |

## Infiltration Trench Pipe: 30.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 17.9 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.735 | Slope (1:X) | 200.6 | | |

## Infiltration Trench Pipe: 30.001

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.685 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 17.5 | Cap Infiltration Depth (m) | 0.685 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.285 | Slope (1:X) | 200.9 | | |

## Infiltration Trench Pipe: 31.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 20.5 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.424 | Slope (1:X) | 200.9 | | |

## Infiltration Trench Pipe: 32.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 15.6 | Cap Infiltration Depth (m) | 0.800 |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.400 | Slope (1:X) | 199.5 | | |

## Porous Car Park Pipe: 33.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 30.5 | Invert Level (m) | 93.640 | Slope (1:X) | 200.0 |
| Membrane Depth (mm) | 110 | | | | | | |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 19.6 | Depression Storage (mm) | 5 |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.6 | Evaporation (mm/day) | 3 |

## Porous Car Park Pipe: 34.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 27.0 | Invert Level (m) | 93.925 | Slope (1:X) | 200.0 |
| Membrane Depth (mm) | 110 | | | | | | |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 18.7 | Depression Storage (mm) | 5 |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.2 | Evaporation (mm/day) | 3 |

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## Porous Car Park Pipe: 35.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 37.6 | Invert Level (m) | 93.475 | Slope (1:X) | 208.0 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 26.0 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.2 | Evaporation (mm/day) | 3 | | |

## Infiltration Trench Pipe: 36.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Safety Factor | 2.0 | Trench Width (m) | 0.6 | Cap Volume Depth (m) | 0.800 | | |
| Infiltration Coefficient Base (m/hr) | 0.01000 | Porosity | 0.35 | Trench Length (m) | 18.8 | Cap Infiltration Depth (m) | 0.800 | | |
| Infiltration Coefficient Side (m/hr) | 0.01000 | Invert Level (m) | 93.550 | Slope (1:X) | 200.2 | | | | |

## Porous Car Park Pipe: 37.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Manning's N | 0.075 | Max Percolation (l/s) | 28.9 | Invert Level (m) | 93.740 | Slope (1:X) | 197.9 | Membrane Depth (mm) | 110 |
| Infiltration Coefficient Base (m/hr) | 0.00000 | Safety Factor | 2.0 | Width (m) | 18.1 | Depression Storage (mm) | 5 | | |
| Membrane Percolation (mm/hr) | 1000 | Porosity | 0.30 | Length (m) | 5.7 | Evaporation (mm/day) | 3 | | |

## Cellular Storage Pipe: 1.014

| | | | |
|---|---|---|---|
| Manning's N | 0.050 | Infiltration Coefficient Base (m/hr) | 0.01000 Safety Factor 2.0 |
| Invert Level (m) | 91.601 | Infiltration Coefficient Side (m/hr) | 0.01000 Porosity 1.00 |

| Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) | Depth (m) | Area (m²) | Inf. Area (m²) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 215.2 | 538.0 | 0.416 | 473.3 | 538.0 | 0.759 | 399.8 | 538.0 | 1.103 | 326.4 | 538.0 | 1.446 | 252.9 | 538.0 |
| 0.300 | 223.0 | 538.0 | 0.530 | 446.8 | 538.0 | 0.874 | 375.3 | 538.0 | 1.217 | 301.9 | 538.0 | 1.746 | 260.8 | 538.0 |
| 0.301 | 497.7 | 538.0 | 0.645 | 424.3 | 538.0 | 0.988 | 350.9 | 538.0 | 1.332 | 277.4 | 538.0 | 1.747 | 0.0 | 538.0 |

## Time Area Diagram at Pipe Number 1.000 for Storm

Total Area (ha) 0.012

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 2.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 2.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.001 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 3.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.002 |

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## Time Area Diagram at Pipe Number 3.000 for Storm

Total Area (ha) 0.012

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 4.000 for Storm

Total Area (ha) 0.018

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.002 | 12 | 16 | 0.002 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.003 | 36 | 40 | 0.003 |

## Time Area Diagram at Pipe Number 4.000 for Storm

Total Area (ha) 0.008

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.001 |

## Time Area Diagram at Pipe Number 4.000 for Storm

Total Area (ha) 0.019

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.002 | 12 | 16 | 0.002 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.003 |

## Time Area Diagram at Pipe Number 6.000 for Storm

Total Area (ha) 0.003

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 |

## Time Area Diagram at Pipe Number 6.000 for Storm

Total Area (ha) 0.006

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | | | |

## Time Area Diagram at Pipe Number 7.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.002 |

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## Time Area Diagram at Pipe Number 7.000 for Storm

Total Area (ha) 0.010

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.001 | 40 | 44 | 0.001 | 44 | 48 | 0.002 |

## Time Area Diagram at Pipe Number 8.000 for Storm

Total Area (ha) 0.011

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.001 | 40 | 44 | 0.002 | 44 | 48 | 0.002 |

## Time Area Diagram at Pipe Number 9.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.002 | | | | | | |

## Time Area Diagram at Pipe Number 9.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 10.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 11.000 for Storm

Total Area (ha) 0.012

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | | | |

## Time Area Diagram at Pipe Number 11.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

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## Time Area Diagram at Pipe Number 12.000 for Storm

Total Area (ha) 0.015

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 13.000 for Storm

Total Area (ha) 0.006

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 |

## Time Area Diagram at Pipe Number 13.000 for Storm

Total Area (ha) 0.015

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 14.000 for Storm

Total Area (ha) 0.015

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 15.000 for Storm

Total Area (ha) 0.006

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 |

## Time Area Diagram at Pipe Number 15.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.000 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 16.000 for Storm

Total Area (ha) 0.012

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

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## Time Area Diagram at Pipe Number 16.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 17.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.002 | | | |

## Time Area Diagram at Pipe Number 17.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.001 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 18.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.000 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 18.001 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.001 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 19.000 for Storm

Total Area (ha) 0.012

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 19.001 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

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## Time Area Diagram at Pipe Number 20.000 for Storm

Total Area (ha) 0.014

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.002 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 20.000 for Storm

Total Area (ha) 0.025

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.003 | 16 | 20 | 0.003 | 20 | 24 | 0.003 | 24 | 28 | 0.003 | 28 | 32 | 0.003 | 32 | 36 | 0.003 | 36 | 40 | 0.003 | 40 | 44 | 0.004 |

## Time Area Diagram at Pipe Number 21.000 for Storm

Total Area (ha) 0.025

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.003 | 16 | 20 | 0.003 | 20 | 24 | 0.003 | 24 | 28 | 0.003 | 28 | 32 | 0.003 | 32 | 36 | 0.003 | 36 | 40 | 0.003 | 40 | 44 | 0.004 |

## Time Area Diagram at Pipe Number 21.000 for Storm

Total Area (ha) 0.005

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | | | |

## Time Area Diagram at Pipe Number 15.008 for Storm

Total Area (ha) 0.031

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.003 | 12 | 16 | 0.004 | 16 | 20 | 0.004 | 20 | 24 | 0.004 | 24 | 28 | 0.004 | 28 | 32 | 0.004 | 32 | 36 | 0.004 | 36 | 40 | 0.004 | | | |

## Time Area Diagram at Pipe Number 15.008 for Storm

Total Area (ha) 0.075

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.009 | 12 | 16 | 0.009 | 16 | 20 | 0.009 | 20 | 24 | 0.009 | 24 | 28 | 0.009 | 28 | 32 | 0.010 | 32 | 36 | 0.010 | 36 | 40 | 0.010 | | | |

## Time Area Diagram at Pipe Number 22.000 for Storm

Total Area (ha) 0.039

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.004 | 12 | 16 | 0.005 | 16 | 20 | 0.005 | 20 | 24 | 0.005 | 24 | 28 | 0.005 | 28 | 32 | 0.005 | 32 | 36 | 0.005 | 36 | 40 | 0.005 | | | |

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## Time Area Diagram at Pipe Number 23.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 23.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 24.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 25.000 for Storm

Total Area (ha) 0.014

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 26.000 for Storm

Total Area (ha) 0.034

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 8 | 12 | 0.000 | 16 | 20 | 0.003 | 24 | 28 | 0.003 | 32 | 36 | 0.003 | 40 | 44 | 0.004 | 48 | 52 | 0.004 | | | |
| 4 | 8 | 0.000 | 12 | 16 | 0.003 | 20 | 24 | 0.003 | 28 | 32 | 0.003 | 36 | 40 | 0.004 | 44 | 48 | 0.004 | | | | | | |

## Time Area Diagram at Pipe Number 27.000 for Storm

Total Area (ha) 0.034

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 8 | 12 | 0.000 | 16 | 20 | 0.003 | 24 | 28 | 0.003 | 32 | 36 | 0.003 | 40 | 44 | 0.004 | 48 | 52 | 0.004 | | | |
| 4 | 8 | 0.000 | 12 | 16 | 0.003 | 20 | 24 | 0.003 | 28 | 32 | 0.003 | 36 | 40 | 0.004 | 44 | 48 | 0.004 | | | | | | |

## Time Area Diagram at Pipe Number 28.000 for Storm

Total Area (ha) 0.016

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.002 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

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## Time Area Diagram at Pipe Number 28.001 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 29.000 for Storm

Total Area (ha) 0.008

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.001 |

## Time Area Diagram at Pipe Number 29.000 for Storm

Total Area (ha) 0.011

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 30.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 30.001 for Storm

Total Area (ha) 0.017

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.002 | 12 | 16 | 0.002 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.003 |

## Time Area Diagram at Pipe Number 32.000 for Storm

Total Area (ha) 0.011

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 33.000 for Storm

Total Area (ha) 0.011

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.002 | 32 | 36 | 0.001 | 36 | 40 | 0.001 | 40 | 44 | 0.002 |

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## Time Area Diagram at Pipe Number 33.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 34.000 for Storm

Total Area (ha) 0.013

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

## Time Area Diagram at Pipe Number 34.000 for Storm

Total Area (ha) 0.009

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.001 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 35.000 for Storm

Total Area (ha) 0.012

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 |

## Time Area Diagram at Pipe Number 35.000 for Storm

Total Area (ha) 0.017

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.002 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.003 |

## Time Area Diagram at Pipe Number 36.000 for Storm

Total Area (ha) 0.014

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.002 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

## Time Area Diagram at Pipe Number 37.000 for Storm

Total Area (ha) 0.010

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.001 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.001 | 24 | 28 | 0.001 | 28 | 32 | 0.001 | 32 | 36 | 0.002 | 36 | 40 | 0.002 |

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## Time Area Diagram at Pipe Number 37.000 for Storm

Total Area (ha) 0.014

| Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) | Time From: | (mins) To: | Area (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 0.000 | 4 | 8 | 0.000 | 8 | 12 | 0.000 | 12 | 16 | 0.001 | 16 | 20 | 0.001 | 20 | 24 | 0.002 | 24 | 28 | 0.002 | 28 | 32 | 0.002 | 32 | 36 | 0.002 | 36 | 40 | 0.002 | 40 | 44 | 0.002 |

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Micro Drainage

## Volume Summary (Static)

Length Calculations based on Centre-Centre

| Pipe Number | USMH Name | Manhole Volume (m³) | Pipe Volume (m³) | Storage Structure Volume (m³) | Total Volume (m³) |
|---|---|---|---|---|---|
| 1.000 | CP15 | 0.170 | 1.372 | 0.000 | 1.541 |
| 1.001 | CP14 | 0.202 | 0.299 | 0.000 | 0.501 |
| 1.002 | AJ13 | 0.169 | 0.254 | 0.000 | 0.424 |
| 2.000 | Dr23 | 0.116 | 8.642 | 0.000 | 8.757 |
| 2.001 | Dr24 | 0.123 | 0.113 | 0.000 | 0.236 |
| 3.000 | Dr25 | 0.116 | 10.437 | 0.000 | 10.553 |
| 3.001 | Dr26 | 0.123 | 0.190 | 0.000 | 0.313 |
| 1.003 | S11 | 1.212 | 0.794 | 0.000 | 2.007 |
| 4.000 | S17 | 3.613 | 0.848 | 0.000 | 4.462 |
| 4.001 | S16 | 3.116 | 0.314 | 0.000 | 3.430 |
| 5.000 | Dr27 | 0.116 | 8.108 | 0.000 | 8.224 |
| 5.001 | Dr28 | 0.126 | 0.182 | 0.000 | 0.307 |
| 6.000 | Dr29 | 0.116 | 2.970 | 0.000 | 3.086 |
| 6.001 | Dr30 | 0.119 | 0.127 | 0.000 | 0.247 |
| 1.004 | S10 | 2.967 | 0.909 | 0.000 | 3.876 |
| 7.000 | Dr31 | 0.116 | 8.629 | 0.000 | 8.745 |
| 7.001 | Dr32 | 0.123 | 0.094 | 0.000 | 0.217 |
| 8.000 | CP20 | 0.227 | 3.175 | 0.000 | 3.402 |
| 8.001 | CP19 | 0.195 | 0.469 | 0.000 | 0.665 |
| 1.005 | S9.1 | 2.956 | 0.382 | 0.000 | 3.338 |
| 1.006 | S9 | 2.938 | 0.621 | 0.000 | 3.560 |
| 9.000 | Dr33 | 0.116 | 11.138 | 0.000 | 11.254 |
| 9.001 | Dr34 | 0.123 | 0.102 | 0.000 | 0.226 |
| 10.000 | CP23 | 0.170 | 2.877 | 0.000 | 3.047 |
| 10.001 | CP22 | 0.202 | 1.091 | 0.000 | 1.293 |
| 1.007 | S8.1 | 2.780 | 0.403 | 0.000 | 3.183 |
| 11.000 | Dr35 | 0.116 | 12.683 | 0.000 | 12.799 |
| 11.001 | Dr36 | 0.123 | 0.106 | 0.000 | 0.229 |
| 1.008 | S8 | 2.818 | 0.361 | 0.000 | 3.179 |
| 12.000 | CP26 | 0.170 | 3.233 | 0.000 | 3.403 |
| 12.001 | CP25 | 0.206 | 0.397 | 0.000 | 0.603 |
| 12.002 | AJ24 | 0.223 | 0.334 | 0.000 | 0.558 |
| 1.009 | S7 | 2.784 | 0.240 | 0.000 | 3.025 |
| 13.000 | Dr37 | 0.116 | 6.588 | 0.000 | 6.704 |
| 13.001 | Dr38 | 0.124 | 0.286 | 0.000 | 0.411 |
| 1.010 | S6 | 2.887 | 0.913 | 0.000 | 3.800 |
| 14.000 | CP30 | 0.170 | 1.246 | 0.000 | 1.415 |
| 14.001 | CP29 | 0.186 | 0.300 | 0.000 | 0.486 |
| 14.002 | CP29.1 | 0.196 | 0.247 | 0.000 | 0.443 |
| 1.011 | S5.1 | 2.709 | 0.288 | 0.000 | 2.996 |
| 1.012 | S5 | 2.652 | 0.286 | 0.000 | 2.938 |
| 15.000 | Dr01 | 0.116 | 5.556 | 0.000 | 5.672 |
| 15.001 | Dr02 | 0.123 | 0.095 | 0.000 | 0.219 |
| 16.000 | Dr03 | 0.116 | 10.638 | 0.000 | 10.754 |
| 16.001 | Dr04 | 0.125 | 0.165 | 0.000 | 0.290 |
| 15.002 | S46 | 2.006 | 1.033 | 0.000 | 3.039 |
| 17.000 | Dr05 | 0.116 | 7.696 | 0.000 | 7.812 |
| 17.001 | Dr06 | 0.168 | 0.146 | 0.000 | 0.314 |
| 18.000 | CP50 | 0.190 | 2.342 | 0.000 | 2.532 |
| 18.001 | CP49 | 0.170 | 1.637 | 0.000 | 1.807 |
| 18.002 | CP48 | 0.202 | 0.296 | 0.000 | 0.498 |
| 18.003 | AJ47 | 0.263 | 0.271 | 0.000 | 0.534 |
| 15.003 | S45 | 1.764 | 0.811 | 0.000 | 2.575 |
| 19.000 | CP55 | 0.170 | 2.227 | 0.000 | 2.397 |
| 19.001 | CP54 | 0.214 | 2.031 | 0.000 | 2.245 |
| 19.002 | CP53 | 0.313 | 0.308 | 0.000 | 0.621 |
| 19.003 | CP52 | 0.395 | 0.114 | 0.000 | 0.509 |
| 19.004 | J54 | 1.655 | 10.147 | 0.000 | 11.801 |
| 19.005 | J55 | 1.713 | 0.217 | 0.000 | 1.930 |
| 19.006 | S51 | 1.556 | 0.214 | 0.000 | 1.770 |

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## Volume Summary (Static)

| Pipe Number | USMH Name | Manhole Volume (m³) | Pipe Volume (m³) | Storage Structure Volume (m³) | Total Volume (m³) |
|---|---|---|---|---|---|
| 20.000 | Dr07 | 0.116 | 12.595 | 0.000 | 12.711 |
| 20.001 | Dr08 | 0.125 | 0.225 | 0.000 | 0.350 |
| 15.004 | S44 | 1.583 | 2.066 | 0.000 | 3.649 |
| 15.005 | S43 | 1.692 | 0.487 | 0.000 | 2.179 |
| 15.006 | S42 | 1.812 | 0.396 | 0.000 | 2.207 |
| 21.000 | CP59 | 0.170 | 2.041 | 0.000 | 2.211 |
| 21.001 | CP58 | 0.207 | 1.259 | 0.000 | 1.466 |
| 21.002 | CP57 | 0.232 | 2.561 | 0.000 | 2.793 |
| 21.003 | CP56 | 0.377 | 0.134 | 0.000 | 0.511 |
| 15.007 | S41 | 1.823 | 0.163 | 0.000 | 1.986 |
| 15.008 | S40 | 1.802 | 0.228 | 0.000 | 2.030 |
| 22.000 | X12 | 0.130 | 35.051 | 0.000 | 35.181 |
| 22.001 | X13 | 0.080 | 0.266 | 0.000 | 0.347 |
| 22.002 | S62 | 0.422 | 0.421 | 0.000 | 0.843 |
| 23.000 | Dr09 | 0.116 | 11.664 | 0.000 | 11.780 |
| 23.001 | Dr10 | 0.124 | 0.168 | 0.000 | 0.292 |
| 23.002 | S64 | 0.501 | 0.384 | 0.000 | 0.885 |
| 24.000 | Dr11 | 0.116 | 11.482 | 0.000 | 11.598 |
| 24.001 | Dr12 | 0.126 | 0.153 | 0.000 | 0.279 |
| 24.002 | S65 | 0.475 | 0.336 | 0.000 | 0.812 |
| 25.000 | XX1 | 0.254 | 0.098 | 0.000 | 0.353 |
| 23.003 | S63 | 1.597 | 0.737 | 0.000 | 2.334 |
| 26.000 | AJDP01 | 0.464 | 0.904 | 0.000 | 1.368 |
| 26.001 | AJDP02 | 0.593 | 0.892 | 0.000 | 1.485 |
| 26.002 | AJDP03 | 0.719 | 0.612 | 0.000 | 1.331 |
| 27.000 | AJDP05 | 0.464 | 0.716 | 0.000 | 1.180 |
| 27.001 | AJDP06 | 0.565 | 0.585 | 0.000 | 1.151 |
| 26.003 | AJDP04 | 0.806 | 0.516 | 0.000 | 1.322 |
| 22.003 | S61 | 1.951 | 0.139 | 0.000 | 2.090 |
| 22.004 | S61.1 | 1.919 | 135.606 | 0.000 | 137.525 |
| 22.005 | S60 | 2.083 | 0.143 | 0.000 | 2.227 |
| 15.009 | S39 | 2.105 | 0.394 | 0.000 | 2.499 |
| 15.010 | S38 | 2.171 | 0.170 | 0.000 | 2.342 |
| 15.011 | S37 | 2.228 | 0.516 | 0.000 | 2.744 |
| 15.012 | S36 | 2.187 | 0.240 | 0.000 | 2.428 |
| 28.000 | CP68 | 0.170 | 2.821 | 0.000 | 2.991 |
| 28.001 | CP67 | 0.238 | 1.806 | 0.000 | 2.044 |
| 28.002 | CP66 | 0.407 | 0.227 | 0.000 | 0.634 |
| 15.013 | S35 | 2.162 | 0.251 | 0.000 | 2.413 |
| 29.000 | Dr13 | 0.116 | 6.750 | 0.000 | 6.866 |
| 29.001 | Dr14 | 0.123 | 0.196 | 0.000 | 0.319 |
| 30.000 | CP71 | 0.170 | 2.250 | 0.000 | 2.420 |
| 30.001 | CP70 | 0.297 | 2.514 | 0.000 | 2.811 |
| 30.002 | CP69 | 0.387 | 0.231 | 0.000 | 0.618 |
| 31.000 | CP75 | 0.177 | 2.693 | 0.000 | 2.870 |
| 32.000 | CP76 | 0.170 | 1.961 | 0.000 | 2.130 |
| 31.001 | CP74 | 0.206 | 0.299 | 0.000 | 0.505 |
| 31.002 | AJ73 | 0.267 | 0.240 | 0.000 | 0.507 |
| 15.014 | S34 | 2.248 | 0.874 | 0.000 | 3.122 |
| 33.000 | Dr15 | 0.116 | 9.878 | 0.000 | 9.994 |
| 33.001 | Dr16 | 0.124 | 0.186 | 0.000 | 0.309 |
| 15.015 | S33 | 2.510 | 0.257 | 0.000 | 2.767 |
| 34.000 | Dr17 | 0.116 | 8.752 | 0.000 | 8.868 |
| 34.001 | Dr18 | 0.123 | 0.104 | 0.000 | 0.228 |
| 34.002 | S77 | 1.233 | 1.779 | 0.000 | 3.012 |
| 35.000 | Dr19 | 0.116 | 12.168 | 0.000 | 12.284 |
| 35.001 | Dr20 | 0.194 | 0.115 | 0.000 | 0.309 |
| 36.000 | CP81 | 0.170 | 2.371 | 0.000 | 2.541 |
| 36.001 | CP80 | 0.210 | 0.303 | 0.000 | 0.513 |
| 36.002 | AP79 | 0.271 | 0.239 | 0.000 | 0.510 |
| 15.016 | S32 | 2.519 | 0.250 | 0.000 | 2.769 |
| 37.000 | Dr21 | 0.464 | 9.350 | 0.000 | 9.814 |

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Micro Drainage

## Volume Summary (Static)

| Pipe Number | USMH Name | Manhole Volume (m³) | Pipe Volume (m³) | Storage Structure Volume (m³) | Total Volume (m³) |
|---|---|---|---|---|---|
| 37.001 | Dr22 | 0.496 | 0.206 | 0.000 | 0.702 |
| 15.017 | S31 | 2.556 | 0.279 | 0.000 | 2.835 |
| 1.013 | S4 | 2.773 | 0.120 | 0.000 | 2.893 |
| 1.014 | S3 | 2.801 | 573.101 | 0.000 | 575.903 |
| 1.015 | S2 | 2.226 | 0.175 | 0.000 | 2.401 |
| Total | | 107.496 | 1005.095 | 0.000 | 1112.591 |

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## Volume Summary (Static)

Length Calculations based on True Length

| Pipe Number | USMH Name | Manhole Volume (m³) | Pipe Volume (m³) | Storage Structure Volume (m³) | Total Volume (m³) |
|---|---|---|---|---|---|
| 1.000 | CP15 | 0.170 | 1.307 | 0.000 | 1.477 |
| 1.001 | CP14 | 0.202 | 0.289 | 0.000 | 0.491 |
| 1.002 | AJ13 | 0.169 | 0.238 | 0.000 | 0.408 |
| 2.000 | Dr23 | 0.116 | 7.599 | 0.000 | 7.715 |
| 2.001 | Dr24 | 0.123 | 0.098 | 0.000 | 0.221 |
| 3.000 | Dr25 | 0.116 | 9.120 | 0.000 | 9.236 |
| 3.001 | Dr26 | 0.123 | 0.174 | 0.000 | 0.297 |
| 1.003 | S11 | 1.212 | 0.747 | 0.000 | 1.959 |
| 4.000 | S17 | 3.613 | 0.801 | 0.000 | 4.414 |
| 4.001 | S16 | 3.116 | 0.266 | 0.000 | 3.382 |
| 5.000 | Dr27 | 0.116 | 7.401 | 0.000 | 7.517 |
| 5.001 | Dr28 | 0.126 | 0.166 | 0.000 | 0.291 |
| 6.000 | Dr29 | 0.116 | 2.257 | 0.000 | 2.373 |
| 6.001 | Dr30 | 0.119 | 0.111 | 0.000 | 0.231 |
| 1.004 | S10 | 2.967 | 0.862 | 0.000 | 3.828 |
| 7.000 | Dr31 | 0.116 | 7.614 | 0.000 | 7.730 |
| 7.001 | Dr32 | 0.123 | 0.078 | 0.000 | 0.201 |
| 8.000 | CP20 | 0.227 | 3.091 | 0.000 | 3.318 |
| 8.001 | CP19 | 0.195 | 0.454 | 0.000 | 0.649 |
| 1.005 | S9.1 | 2.956 | 0.334 | 0.000 | 3.291 |
| 1.006 | S9 | 2.938 | 0.574 | 0.000 | 3.512 |
| 9.000 | Dr33 | 0.116 | 9.853 | 0.000 | 9.969 |
| 9.001 | Dr34 | 0.123 | 0.087 | 0.000 | 0.210 |
| 10.000 | CP23 | 0.170 | 2.802 | 0.000 | 2.971 |
| 10.001 | CP22 | 0.202 | 1.055 | 0.000 | 1.257 |
| 1.007 | S8.1 | 2.780 | 0.355 | 0.000 | 3.135 |
| 11.000 | Dr35 | 0.116 | 11.219 | 0.000 | 11.335 |
| 11.001 | Dr36 | 0.123 | 0.090 | 0.000 | 0.213 |
| 1.008 | S8 | 2.818 | 0.313 | 0.000 | 3.131 |
| 12.000 | CP26 | 0.170 | 3.158 | 0.000 | 3.327 |
| 12.001 | CP25 | 0.206 | 0.387 | 0.000 | 0.593 |
| 12.002 | AJ24 | 0.223 | 0.318 | 0.000 | 0.542 |
| 1.009 | S7 | 2.784 | 0.193 | 0.000 | 2.977 |
| 13.000 | Dr37 | 0.116 | 5.929 | 0.000 | 6.045 |
| 13.001 | Dr38 | 0.124 | 0.270 | 0.000 | 0.395 |
| 1.010 | S6 | 2.887 | 0.865 | 0.000 | 3.753 |
| 14.000 | CP30 | 0.170 | 1.181 | 0.000 | 1.350 |
| 14.001 | CP29 | 0.186 | 0.289 | 0.000 | 0.475 |
| 14.002 | CP29.1 | 0.196 | 0.231 | 0.000 | 0.427 |
| 1.011 | S5.1 | 2.709 | 0.240 | 0.000 | 2.949 |
| 1.012 | S5 | 2.652 | 0.239 | 0.000 | 2.891 |
| 15.000 | Dr01 | 0.116 | 4.919 | 0.000 | 5.035 |
| 15.001 | Dr02 | 0.123 | 0.080 | 0.000 | 0.203 |
| 16.000 | Dr03 | 0.116 | 9.612 | 0.000 | 9.728 |
| 16.001 | Dr04 | 0.125 | 0.149 | 0.000 | 0.274 |
| 15.002 | S46 | 2.006 | 0.985 | 0.000 | 2.992 |
| 17.000 | Dr05 | 0.116 | 7.032 | 0.000 | 7.148 |
| 17.001 | Dr06 | 0.168 | 0.130 | 0.000 | 0.298 |
| 18.000 | CP50 | 0.190 | 2.272 | 0.000 | 2.463 |
| 18.001 | CP49 | 0.170 | 1.562 | 0.000 | 1.731 |
| 18.002 | CP48 | 0.202 | 0.285 | 0.000 | 0.487 |
| 18.003 | AJ47 | 0.263 | 0.255 | 0.000 | 0.518 |
| 15.003 | S45 | 1.764 | 0.763 | 0.000 | 2.527 |
| 19.000 | CP55 | 0.170 | 2.152 | 0.000 | 2.321 |
| 19.001 | CP54 | 0.214 | 1.936 | 0.000 | 2.149 |
| 19.002 | CP53 | 0.313 | 0.297 | 0.000 | 0.610 |
| 19.003 | CP52 | 0.395 | 0.098 | 0.000 | 0.493 |
| 19.004 | J54 | 1.655 | 9.229 | 0.000 | 10.884 |
| 19.005 | J55 | 1.713 | 0.169 | 0.000 | 1.882 |
| 19.006 | S51 | 1.556 | 0.166 | 0.000 | 1.722 |

Corrig Hse Corrig Rd
Sandyford Dublin 8
Ireland

Date 22/03/2022 14:19
File Model 85.MDX
CADS

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Network 2020.1.3

Micro Drainage

## Volume Summary (Static)

| Pipe Number | USMH Name | Manhole Volume (m³) | Pipe Volume (m³) | Storage Structure Volume (m³) | Total Volume (m³) |
|---|---|---|---|---|---|
| 20.000 | Dr07 | 0.116 | 11.444 | 0.000 | 11.560 |
| 20.001 | Dr08 | 0.125 | 0.209 | 0.000 | 0.334 |
| 15.004 | S44 | 1.583 | 2.018 | 0.000 | 3.602 |
| 15.005 | S43 | 1.692 | 0.439 | 0.000 | 2.131 |
| 15.006 | S42 | 1.812 | 0.348 | 0.000 | 2.160 |
| 21.000 | CP59 | 0.170 | 1.966 | 0.000 | 2.135 |
| 21.001 | CP58 | 0.207 | 1.167 | 0.000 | 1.374 |
| 21.002 | CP57 | 0.232 | 2.460 | 0.000 | 2.692 |
| 21.003 | CP56 | 0.377 | 0.119 | 0.000 | 0.495 |
| 15.007 | S41 | 1.823 | 0.115 | 0.000 | 1.938 |
| 15.008 | S40 | 1.802 | 0.181 | 0.000 | 1.982 |
| 22.000 | X12 | 0.130 | 33.814 | 0.000 | 33.944 |
| 22.001 | X13 | 0.080 | 0.243 | 0.000 | 0.323 |
| 22.002 | S62 | 0.422 | 0.385 | 0.000 | 0.807 |
| 23.000 | Dr09 | 0.116 | 10.368 | 0.000 | 10.484 |
| 23.001 | Dr10 | 0.124 | 0.157 | 0.000 | 0.281 |
| 23.002 | S64 | 0.501 | 0.348 | 0.000 | 0.849 |
| 24.000 | Dr11 | 0.116 | 10.461 | 0.000 | 10.577 |
| 24.001 | Dr12 | 0.126 | 0.142 | 0.000 | 0.268 |
| 24.002 | S65 | 0.475 | 0.301 | 0.000 | 0.776 |
| 25.000 | XX1 | 0.254 | 0.091 | 0.000 | 0.346 |
| 23.003 | S63 | 1.597 | 0.690 | 0.000 | 2.287 |
| 26.000 | AJDP01 | 0.464 | 0.857 | 0.000 | 1.320 |
| 26.001 | AJDP02 | 0.593 | 0.845 | 0.000 | 1.437 |
| 26.002 | AJDP03 | 0.719 | 0.564 | 0.000 | 1.283 |
| 27.000 | AJDP05 | 0.464 | 0.669 | 0.000 | 1.132 |
| 27.001 | AJDP06 | 0.565 | 0.538 | 0.000 | 1.103 |
| 26.003 | AJDP04 | 0.806 | 0.468 | 0.000 | 1.275 |
| 22.003 | S61 | 1.951 | 0.091 | 0.000 | 2.042 |
| 22.004 | S61.1 | 1.919 | 129.824 | 0.000 | 131.743 |
| 22.005 | S60 | 2.083 | 0.096 | 0.000 | 2.179 |
| 15.009 | S39 | 2.105 | 0.346 | 0.000 | 2.451 |
| 15.010 | S38 | 2.171 | 0.123 | 0.000 | 2.294 |
| 15.011 | S37 | 2.228 | 0.468 | 0.000 | 2.696 |
| 15.012 | S36 | 2.187 | 0.193 | 0.000 | 2.380 |
| 28.000 | CP68 | 0.170 | 2.746 | 0.000 | 2.915 |
| 28.001 | CP67 | 0.238 | 1.724 | 0.000 | 1.962 |
| 28.002 | CP66 | 0.407 | 0.212 | 0.000 | 0.618 |
| 15.013 | S35 | 2.162 | 0.203 | 0.000 | 2.365 |
| 29.000 | Dr13 | 0.116 | 5.940 | 0.000 | 6.056 |
| 29.001 | Dr14 | 0.123 | 0.180 | 0.000 | 0.303 |
| 30.000 | CP71 | 0.170 | 2.174 | 0.000 | 2.344 |
| 30.001 | CP70 | 0.297 | 2.427 | 0.000 | 2.724 |
| 30.002 | CP69 | 0.387 | 0.215 | 0.000 | 0.602 |
| 31.000 | CP75 | 0.177 | 2.615 | 0.000 | 2.792 |
| 32.000 | CP76 | 0.170 | 1.885 | 0.000 | 2.055 |
| 31.001 | CP74 | 0.206 | 0.289 | 0.000 | 0.495 |
| 31.002 | AJ73 | 0.267 | 0.225 | 0.000 | 0.491 |
| 15.014 | S34 | 2.248 | 0.826 | 0.000 | 3.074 |
| 33.000 | Dr15 | 0.116 | 8.820 | 0.000 | 8.936 |
| 33.001 | Dr16 | 0.124 | 0.170 | 0.000 | 0.293 |
| 15.015 | S33 | 2.510 | 0.209 | 0.000 | 2.719 |
| 34.000 | Dr17 | 0.116 | 7.742 | 0.000 | 7.858 |
| 34.001 | Dr18 | 0.123 | 0.088 | 0.000 | 0.212 |
| 34.002 | S77 | 1.233 | 1.731 | 0.000 | 2.964 |
| 35.000 | Dr19 | 0.116 | 10.764 | 0.000 | 10.880 |
| 35.001 | Dr20 | 0.194 | 0.099 | 0.000 | 0.293 |
| 36.000 | CP81 | 0.170 | 2.296 | 0.000 | 2.465 |
| 36.001 | CP80 | 0.210 | 0.292 | 0.000 | 0.502 |
| 36.002 | AP79 | 0.271 | 0.223 | 0.000 | 0.494 |
| 15.016 | S32 | 2.519 | 0.202 | 0.000 | 2.721 |
| 37.000 | Dr21 | 0.464 | 7.396 | 0.000 | 7.859 |

| | | |
|---|---|---|
| Corrig Hse Corrig Rd<br>Sandyford Dublin 8<br>Ireland | | Micro Drainage |
| Date 22/03/2022 14:19 | Designed by Admin | |
| File Model 85.MDX | Checked by | |
| CADS | Network 2020.1.3 | |

## Volume Summary (Static)

| Pipe Number | USMH Name | Manhole Volume (m³) | Pipe Volume (m³) | Storage Structure Volume (m³) | Total Volume (m³) |
|---|---|---|---|---|---|
| 37.001 | Dr22 | 0.496 | 0.184 | 0.000 | 0.681 |
| 15.017 | S31 | 2.556 | 0.231 | 0.000 | 2.787 |
| 1.013 | S4 | 2.773 | 0.072 | 0.000 | 2.845 |
| 1.014 | S3 | 2.801 | 545.395 | 0.000 | 548.197 |
| 1.015 | S2 | 2.226 | 0.128 | 0.000 | 2.353 |
| Total | | 107.496 | 944.996 | 0.000 | 1052.493 |

Corrig Hse Corrig Rd
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Ireland

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Micro Drainage

## Summary of Critical Results by Maximum Level (Rank 1) for Storm

### Simulation Criteria

Areal Reduction Factor 1.000 Hot Start Level (mm) 0 Foul Sewage per hectare (l/s) 0.000 MADD Factor * 10m³/ha Storage 2.000 Flow per Person per Day (l/per/day) 0.000
Hot Start (mins) 0 Manhole Headloss Coeff (Global) 0.500 Additional Flow - % of Total Flow 0.000 Inlet Coefficient 0.800

Number of Input Hydrographs 0 Number of Online Controls 22 Number of Offline Controls 0 Number of Storage Structures 42 Number of Time/Area Diagrams 61 Number of Real Time Controls 0

### Synthetic Rainfall Details

Rainfall Model FSR Region Scotland and Ireland M5-60 (mm) 17.700 Ratio R 0.270 Cv (Summer) 0.750 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DTS Status ON Inertia Status ON
Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 10, 10, 10

| PN | US/MH Name | Storm | Return Period | Climate Change | First (X) Surcharge | First (Y) Flood | First (Z) Overflow | Overflow Act. | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Half Drain Time (mins) | Pipe Flow (l/s) | Status | Level Exceeded |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | CP15 | 30 Winter | 100 | +10% | | | | | 94.121 | -0.479 | 0.000 | 0.14 | | 14 | 1.8 | OK | |
| 1.001 | CP14 | 30 Winter | 100 | +10% | | | | | 93.925 | -0.111 | 0.000 | 0.15 | | | 1.8 | OK | |
| 1.002 | AJ13 | 30 Winter | 100 | +10% | | | | | 93.830 | -0.121 | 0.000 | 0.08 | | | 1.8 | OK | |
| 2.000 | Dr23 | 120 Winter | 100 | +10% | | | | | 94.336 | -0.154 | 0.000 | 0.01 | | 67 | 1.3 | FLOOD RISK | |
| 2.001 | Dr24 | 120 Winter | 100 | +10% | 100/60 Winter | | | | 94.336 | 0.021 | 0.000 | 0.04 | | | 0.7 | FLOOD RISK | |
| 3.000 | Dr25 | 120 Winter | 100 | +10% | | | | | 94.344 | -0.146 | 0.000 | 0.01 | | 78 | 1.5 | FLOOD RISK | |
| 3.001 | Dr26 | 120 Winter | 100 | +10% | 100/60 Winter | | | | 94.344 | 0.028 | 0.000 | 0.04 | | | 0.8 | FLOOD RISK | |
| 1.003 | S11 | 15 Winter | 100 | +10% | | | | | 93.563 | -0.148 | 0.000 | 0.26 | | | 8.6 | OK | |
| 4.000 | S17 | 120 Winter | 100 | +10% | 30/15 Summer | | | | 93.369 | 0.838 | 0.000 | 0.15 | | | 5.0 | SURCHARGED | |
| 4.001 | S16 | 120 Winter | 100 | +10% | 30/15 Summer | | | | 93.359 | 0.935 | 0.000 | 0.16 | | | 4.8 | SURCHARGED | |
| 5.000 | Dr27 | 15 Summer | 1 | +10% | | | | | 94.640 | -0.300 | 0.000 | 0.00 | | | 0.0 | OK | |
| 5.001 | Dr28 | 15 Summer | 1 | +10% | | | | | 94.606 | -0.150 | 0.000 | 0.00 | | | 0.0 | OK | |
| 6.000 | Dr29 | 60 Winter | 100 | +10% | | | | | 94.813 | -0.152 | 0.000 | 0.01 | | 27 | 1.3 | FLOOD RISK | |
| 6.001 | Dr30 | 60 Winter | 100 | +10% | 100/60 Winter | | | | 94.813 | 0.010 | 0.000 | 0.20 | | | 0.7 | FLOOD RISK | |
| 1.004 | S10 | 120 Winter | 100 | +10% | 30/15 Summer | | | | 93.354 | 0.969 | 0.000 | 0.30 | | | 10.2 | SURCHARGED | |
| 7.000 | Dr31 | 120 Winter | 100 | +10% | | | | | 94.594 | -0.146 | 0.000 | 0.01 | | 68 | 1.3 | FLOOD RISK | |
| 7.001 | Dr32 | 120 Winter | 100 | +10% | 100/60 Winter | | | | 94.594 | 0.030 | 0.000 | 0.23 | | | 0.8 | FLOOD RISK | |
| 8.000 | CP20 | 30 Winter | 100 | +10% | | | | | 94.360 | -0.583 | 0.000 | 0.07 | | 11 | 1.4 | OK | |
| 8.001 | CP19 | 60 Winter | 100 | +10% | | | | | 94.256 | -0.054 | 0.000 | 0.73 | | | 1.4 | OK | |
| 1.005 | S9.1 | 120 Winter | 100 | +10% | 30/15 Summer | | | | 93.334 | 1.063 | 0.000 | 2.10 | | | 11.5 | SURCHARGED | |
| 1.006 | S9 | 120 Winter | 100 | +10% | 1/15 Winter | | | | 93.131 | 0.908 | 0.000 | 2.39 | | | 13.1 | SURCHARGED | |
| 9.000 | Dr33 | 120 Winter | 100 | +10% | | | | | 94.341 | -0.149 | 0.000 | 0.01 | | 81 | 1.6 | FLOOD RISK | |
| 9.001 | Dr34 | 120 Winter | 100 | +10% | 100/60 Winter | | | | 94.342 | 0.028 | 0.000 | 0.22 | | | 0.8 | FLOOD RISK | |
| 10.000 | CP23 | 60 Winter | 100 | +10% | | | | | 94.107 | -0.493 | 0.000 | 0.11 | | 20 | 1.9 | OK | |
| 10.001 | CP22 | 60 Winter | 100 | +10% | | | | | 93.977 | -0.134 | 0.000 | 0.34 | | | 1.9 | OK | |
| 1.007 | S8 | 30 Winter | 100 | +10% | 1/120 Winter | | | | 93.888 | 0.843 | 0.000 | 1.21 | | | 7.0 | SURCHARGED | |
| 11.000 | Dr35 | 240 Winter | 100 | +10% | | | | | 94.200 | -0.140 | 0.000 | 0.00 | | 113 | 1.3 | FLOOD RISK | |
| 11.001 | Dr36 | 240 Winter | 100 | +10% | 100/60 Winter | | | | 94.200 | 0.036 | 0.000 | 0.23 | | | 0.8 | FLOOD RISK | |
| 1.008 | S8 | 960 Winter | 100 | +10% | 30/60 Summer | | | | 92.978 | 0.884 | 0.000 | 0.25 | | | 7.5 | SURCHARGED | |
| 12.000 | CP26 | 60 Winter | 100 | +10% | | | | | 93.964 | -0.486 | 0.000 | 0.13 | | 22 | 2.1 | OK | |
| 12.001 | CP25 | 60 Winter | 100 | +10% | | | | | 93.764 | -0.108 | 0.000 | 0.18 | | | 2.1 | OK | |
| 12.002 | AJ24 | 60 Winter | 100 | +10% | | | | | 93.652 | -0.108 | 0.000 | 0.18 | | | 2.1 | OK | |
| 1.009 | S7 | 960 Winter | 100 | +10% | 30/30 Winter | | | | 92.976 | 0.927 | 0.000 | 0.28 | | | 7.9 | SURCHARGED | |
| 13.000 | Dr37 | 120 Winter | 100 | +10% | | | | | 94.101 | -0.089 | 0.000 | 0.01 | | 68 | 1.3 | FLOOD RISK | |
| 13.001 | Dr38 | 120 Winter | 100 | +10% | 30/60 Summer | | | | 94.101 | 0.091 | 0.000 | 0.04 | | | 0.9 | FLOOD RISK | |
| 1.010 | S6 | 960 Winter | 100 | +10% | 1/480 Winter | | | | 92.975 | 0.956 | 0.000 | 0.28 | | | 9.3 | SURCHARGED | |
| 14.000 | CP30 | 60 Winter | 100 | +10% | | | | | 93.685 | -0.465 | 0.000 | 0.16 | | 22 | 2.1 | OK | |
| 14.001 | CP29 | 60 Winter | 100 | +10% | | | | | 93.535 | -0.107 | 0.000 | 0.18 | | | 2.1 | OK | |
| 14.002 | CP29.1 | 60 Winter | 100 | +10% | | | | | 93.450 | -0.107 | 0.000 | 0.18 | | | 2.1 | OK | |
| 1.011 | S5.1 | 960 Winter | 100 | +10% | 1/120 Winter | | | | 92.971 | 1.067 | 0.000 | 0.34 | | | 9.7 | SURCHARGED | |
| 1.012 | S5 | 960 Winter | 100 | +10% | 1/60 Winter | | | | 92.969 | 1.101 | 0.000 | 0.33 | | | 9.6 | SURCHARGED | |
| 15.000 | Dr01 | 120 Winter | 100 | +10% | | | | | 94.180 | -0.085 | 0.000 | 0.01 | | 60 | 1.4 | FLOOD RISK | |

Corrig Hse Corrig Rd
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Ireland

Date 22/03/2022 14:19
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Micro Drainage

## Summary of Critical Results by Maximum Level (Rank 1) for Storm

| PN | US/MH Name | Storm | Return Period | Climate Change | First (X) Surcharge | First (Y) Flood | First (Z) Overflow | Overflow Act. | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Half Drain Time (mins) | Pipe Flow (l/s) | Status | Level Exceeded |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.001 | Dr02 | 120 Winter | 100 | +10% | 30/60 Summer | | | | 94.180 | 0.091 | 0.000 | 0.05 | | | 0.9 | FLOOD RISK | |
| 16.000 | Dr03 | 120 Winter | 100 | +10% | | | | | 94.144 | -0.121 | 0.000 | 0.01 | | 86 | 1.4 | FLOOD RISK | |
| 16.001 | Dr04 | 120 Winter | 100 | +10% | 30/120 Winter | | | | 94.144 | 0.060 | 0.000 | 0.04 | | | 0.8 | FLOOD RISK | |
| 15.002 | S46 | 120 Winter | 100 | +10% | 100/60 Winter | | | | 93.052 | 0.164 | 0.000 | 0.15 | | | 4.9 | SURCHARGED | |
| 17.000 | Dr05 | 60 Winter | 100 | +10% | | | | | 93.838 | -0.202 | 0.000 | 0.01 | | 30 | 1.5 | OK | |
| 17.001 | Dr06 | 60 Winter | 100 | +10% | 1/60 Winter | | | | 93.838 | 0.133 | 0.000 | 0.05 | | | 1.0 | SURCHARGED | |
| 18.000 | CP50 | 60 Winter | 100 | +10% | | | | | 93.810 | -0.441 | 0.000 | 0.13 | | 20 | 1.9 | OK | |
| 18.001 | CP49 | 60 Winter | 100 | +10% | | | | | 93.697 | -0.453 | 0.000 | 0.18 | | 19 | 3.1 | OK | |
| 18.002 | CP48 | 60 Winter | 100 | +10% | | | | | 93.487 | -0.098 | 0.000 | 0.26 | | | 3.1 | OK | |
| 18.003 | AJ47 | 60 Winter | 100 | +10% | | | | | 93.403 | -0.098 | 0.000 | 0.26 | | | 3.1 | OK | |
| 15.003 | S45 | 120 Winter | 100 | +10% | 100/30 Winter | | | | 93.047 | 0.289 | 0.000 | 0.33 | | | 10.9 | SURCHARGED | |
| 19.000 | CP55 | 30 Winter | 100 | +10% | | | | | 94.075 | -0.525 | 0.000 | 0.07 | | 14 | 1.8 | OK | |
| 19.001 | CP54 | 60 Winter | 100 | +10% | | | | | 93.749 | -0.626 | 0.000 | 0.11 | | 18 | 3.6 | OK | |
| 19.002 | CP53 | 60 Winter | 100 | +10% | 100/30 Winter | | | | 93.491 | 0.074 | 0.000 | 1.05 | | | 3.6 | SURCHARGED | |
| 19.003 | CP52 | 60 Winter | 100 | +10% | 30/60 Winter | | | | 93.173 | 0.046 | 0.000 | 1.35 | | | 3.6 | SURCHARGED | |
| 19.004 | J54 | 120 Winter | 100 | +10% | | | | | 93.056 | -1.319 | 0.000 | 0.01 | | 16 | 2.9 | OK | |
| 19.005 | J55 | 120 Winter | 100 | +10% | 100/30 Winter | | | | 93.055 | 0.345 | 0.000 | 0.72 | | | 3.9 | SURCHARGED | |
| 19.006 | S51 | 120 Winter | 100 | +10% | 30/120 Winter | | | | 93.044 | 0.361 | 0.000 | 0.78 | | | 4.3 | SURCHARGED | |
| 20.000 | Dr07 | 240 Winter | 100 | +10% | | | | | 93.752 | -0.033 | 0.000 | 0.01 | | 141 | 1.5 | FLOOD RISK | |
| 20.001 | Dr08 | 240 Winter | 100 | +10% | 30/30 Winter | | | | 93.753 | 0.151 | 0.000 | 0.05 | | | 1.0 | FLOOD RISK | |
| 15.004 | S44 | 120 Winter | 100 | +10% | 30/120 Winter | | | | 93.033 | 0.377 | 0.000 | 0.41 | | | 14.6 | SURCHARGED | |
| 15.005 | S43 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 93.012 | 0.616 | 0.000 | 0.20 | | | 6.2 | SURCHARGED | |
| 15.006 | S42 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 93.010 | 0.675 | 0.000 | 0.22 | | | 6.8 | SURCHARGED | |
| 21.000 | CP59 | 60 Winter | 100 | +10% | | | | | 93.472 | -0.423 | 0.000 | 0.24 | | 27 | 4.0 | OK | |
| 21.001 | CP58 | 60 Winter | 100 | +10% | | | | | 93.340 | -0.555 | 0.000 | 0.18 | | 24 | 3.9 | OK | |
| 21.002 | CP57 | 60 Winter | 100 | +10% | | | | | 93.248 | -0.625 | 0.000 | 0.16 | | 25 | 3.9 | OK | |
| 21.003 | CP56 | 960 Winter | 100 | +10% | 100/60 Summer | | | | 93.008 | 0.296 | 0.000 | 0.09 | | | 1.0 | SURCHARGED | |
| 15.007 | S41 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 93.008 | 0.723 | 0.000 | 0.32 | | | 8.1 | SURCHARGED | |
| 15.008 | S40 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 93.006 | 0.741 | 0.000 | 0.41 | | | 11.4 | SURCHARGED | |
| 22.000 | X12 | 360 Winter | 100 | +10% | | | | | 93.483 | -0.181 | 0.000 | 0.01 | | 219 | 1.0 | OK | |
| 22.001 | X13 | 360 Winter | 100 | +10% | | | | | 93.484 | -0.087 | 0.000 | 0.02 | | | 0.7 | FLOOD RISK | |
| 22.002 | S62 | 960 Winter | 100 | +10% | 30/60 Summer | | | | 93.138 | 0.765 | 0.000 | 0.02 | | | 0.6 | SURCHARGED | |
| 23.000 | Dr09 | 120 Winter | 100 | +10% | | | | | 93.919 | -0.121 | 0.000 | 0.01 | | 92 | 1.4 | FLOOD RISK | |
| 23.001 | Dr10 | 120 Winter | 100 | +10% | 30/120 Winter | | | | 93.919 | 0.056 | 0.000 | 0.04 | | | 0.8 | FLOOD RISK | |
| 23.002 | S64 | 960 Winter | 100 | +10% | 30/120 Summer | | | | 93.138 | 0.677 | 0.000 | 0.02 | | | 0.6 | SURCHARGED | |
| 24.000 | Dr11 | 120 Winter | 100 | +10% | | | | | 93.681 | -0.119 | 0.000 | 0.01 | | 91 | 1.4 | FLOOD RISK | |
| 24.001 | Dr12 | 120 Winter | 100 | +10% | 30/60 Winter | | | | 93.681 | 0.065 | 0.000 | 0.04 | | | 0.8 | FLOOD RISK | |
| 24.002 | S65 | 960 Winter | 100 | +10% | 30/120 Summer | | | | 93.138 | 0.683 | 0.000 | 0.02 | | | 0.7 | SURCHARGED | |
| 25.000 | XX1 | 960 Winter | 100 | +10% | 100/240 Winter | | | | 93.137 | 0.337 | 0.000 | 0.00 | | | 0.0 | SURCHARGED | |
| 23.003 | S63 | 960 Winter | 100 | +10% | 30/60 Winter | | | | 93.137 | 0.724 | 0.000 | 0.04 | | | 1.2 | SURCHARGED | |
| 26.000 | AJDP01 | 60 Winter | 100 | +10% | | | | | 93.392 | -0.173 | 0.000 | 0.12 | | | 4.1 | OK | |
| 26.001 | AJDP02 | 60 Winter | 100 | +10% | | | | | 93.278 | -0.173 | 0.000 | 0.12 | | | 4.1 | OK | |
| 26.002 | AJDP03 | 60 Winter | 100 | +10% | | | | | 93.167 | -0.172 | 0.000 | 0.13 | | | 4.1 | OK | |
| 27.000 | AJDP05 | 60 Winter | 100 | +10% | | | | | 93.393 | -0.172 | 0.000 | 0.13 | | | 4.1 | OK | |
| 27.001 | AJDP06 | 60 Winter | 100 | +10% | | | | | 93.390 | -0.185 | 0.000 | 0.07 | | | 4.1 | OK | |
| 26.003 | AJDP04 | 960 Winter | 100 | +10% | | | | | 93.137 | -0.125 | 0.000 | 0.07 | | | 2.3 | OK | |
| 22.003 | S61 | 960 Winter | 100 | +10% | 1/360 Winter | | | | 93.137 | 0.817 | 0.000 | 0.15 | | | 3.9 | SURCHARGED | |
| 22.004 | S61.1 | 960 Winter | 100 | +10% | | | | | 93.136 | -0.304 | 0.000 | 0.00 | | 1092 | 5.2 | OK | |
| 22.005 | S60 | 960 Winter | 100 | +10% | 1/120 Winter | | | | 93.136 | 0.881 | 0.000 | 0.10 | | | 0.9 | SURCHARGED | |
| 15.009 | S39 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 93.004 | 0.768 | 0.000 | 0.38 | | | 11.5 | SURCHARGED | |
| 15.010 | S38 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 93.000 | 0.814 | 0.000 | 0.45 | | | 11.5 | SURCHARGED | |
| 15.011 | S37 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 92.998 | 0.833 | 0.000 | 0.39 | | | 12.4 | SURCHARGED | |
| 15.012 | S36 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 92.993 | 0.893 | 0.000 | 0.44 | | | 12.3 | SURCHARGED | |
| 28.000 | CP68 | 60 Winter | 100 | +10% | | | | | 93.666 | -0.484 | 0.000 | 0.13 | | 23 | 2.1 | OK | |
| 28.001 | CP67 | 60 Winter | 100 | +10% | | | | | 93.488 | -0.472 | 0.000 | 0.22 | | 21 | 4.0 | OK | |
| 28.002 | CP66 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 92.994 | 0.372 | 0.000 | 0.50 | | | 0.9 | SURCHARGED | |
| 15.013 | S35 | 960 Winter | 100 | +10% | 30/15 Summer | | | | 92.990 | 0.920 | 0.000 | 0.46 | | | 13.1 | SURCHARGED | |
| 29.000 | Dr13 | 120 Winter | 100 | +10% | | | | | 93.778 | -0.112 | 0.000 | 0.01 | | 64 | 1.4 | FLOOD RISK | |
| 29.001 | Dr14 | 120 Winter | 100 | +10% | 30/60 Winter | | | | 93.778 | 0.063 | 0.000 | 0.04 | | | 0.8 | FLOOD RISK | |
| 30.000 | CP71 | 60 Winter | 100 | +10% | | | | | 93.842 | -0.493 | 0.000 | 0.11 | | 20 | 1.9 | OK | |
| 30.001 | CP70 | 60 Winter | 100 | +10% | | | | | 93.465 | -0.505 | 0.000 | 0.21 | | 20 | 4.0 | OK | |

| | |
|---|---|
| Corrig Hse Corrig Rd<br>Sandyford Dublin 8<br>Ireland | |
| Date 22/03/2022 14:19<br>File Model 85.MDX | Designed by Admin<br>Checked by |
| CADS | Network 2020.1.3 |

Micro Drainage

## Summary of Critical Results by Maximum Level (Rank 1) for Storm

| PN | US/MH Name | Storm | Return Period | Climate Change | First (X) Surcharge | First (Y) Flood | First (Z) Overflow | Overflow Act. | Water Level (m) | Surcharged Depth (m) | Flooded Volume (m³) | Flow / Cap. | Overflow (l/s) | Half Drain Time (mins) | Pipe Flow (l/s) | Status | Level Exceeded |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30.002 | CP69 960 | Winter | 100 | +10% | 30/15 | Summer | | | 92.991 | 0.324 | 0.000 | 0.52 | | | 1.0 | SURCHARGED | |
| 31.000 | CP75 15 | Summer | 1 | +10% | | | | | 93.424 | -0.626 | 0.000 | 0.00 | | | 0.0 | OK | |
| 32.000 | CP76 30 | Winter | 100 | +10% | | | | | 93.496 | -0.504 | 0.000 | 0.10 | | 11 | 1.6 | OK | |
| 31.001 | CP74 30 | Winter | 100 | +10% | | | | | 93.377 | -0.045 | 0.000 | 0.83 | | | 1.6 | OK | |
| 31.002 | AJ73 30 | Winter | 100 | +10% | | | | | 93.292 | -0.045 | 0.000 | 0.83 | | | 1.5 | OK | |
| 15.014 | S34 960 | Winter | 100 | +10% | 30/15 | Summer | | | 92.987 | 0.949 | 0.000 | 0.47 | | | 15.7 | SURCHARGED | |
| 33.000 | Dr15 120 | Winter | 100 | +10% | | | | | 93.824 | -0.116 | 0.000 | 0.01 | | 83 | 1.3 | FLOOD RISK | |
| 33.001 | Dr16 120 | Winter | 100 | +10% | 30/120 | Winter | | | 93.824 | 0.062 | 0.000 | 0.04 | | | 0.8 | FLOOD RISK | |
| 15.015 | S33 960 | Winter | 100 | +10% | 1/120 | Winter | | | 92.979 | 1.051 | 0.000 | 0.58 | | | 16.2 | SURCHARGED | |
| 34.000 | Dr17 120 | Winter | 100 | +10% | | | | | 94.109 | -0.116 | 0.000 | 0.01 | | 77 | 1.6 | FLOOD RISK | |
| 34.001 | Dr18 120 | Winter | 100 | +10% | 30/120 | Winter | | | 94.109 | 0.060 | 0.000 | 0.04 | | | 0.8 | FLOOD RISK | |
| 34.002 | S77 15 | Winter | 100 | +10% | | | | | 93.220 | -0.140 | 0.000 | 0.30 | | | 10.6 | OK | |
| 35.000 | Dr19 120 | Winter | 100 | +10% | | | | | 93.609 | -0.166 | 0.000 | 0.01 | | 55 | 2.2 | FLOOD RISK | |
| 35.001 | Dr20 120 | Winter | 100 | +10% | 1/15 | Summer | | | 93.609 | 0.259 | 0.000 | 0.35 | | | 1.2 | FLOOD RISK | |
| 36.000 | CP81 60 | Winter | 100 | +10% | | | | | 93.661 | -0.489 | 0.000 | 0.12 | | 21 | 2.0 | OK | |
| 36.001 | CP80 60 | Winter | 100 | +10% | 100/60 | Winter | | | 93.558 | 0.002 | 0.000 | 1.06 | | | 2.0 | SURCHARGED | |
| 36.002 | AP79 60 | Winter | 100 | +10% | | | | | 93.452 | -0.018 | 0.000 | 1.00 | | | 1.9 | OK | |
| 15.016 | S32 960 | Winter | 100 | +10% | 1/120 | Summer | | | 92.975 | 1.079 | 0.000 | 0.69 | | | 19.4 | SURCHARGED | |
| 37.000 | Dr21 120 | Winter | 100 | +10% | | | | | 93.941 | -0.099 | 0.000 | 0.01 | | 80 | 1.3 | FLOOD RISK | |
| 37.001 | Dr22 120 | Winter | 100 | +10% | 30/60 | Winter | | | 93.941 | 0.080 | 0.000 | 0.08 | | | 0.9 | FLOOD RISK | |
| 15.017 | S31 960 | Winter | 100 | +10% | 1/60 | Winter | | | 92.971 | 1.106 | 0.000 | 0.69 | | | 19.9 | SURCHARGED | |
| 1.013 | S4 960 | Winter | 100 | +10% | 1/60 | Winter | | | 92.967 | 1.135 | 0.000 | 1.09 | | | 29.4 | SURCHARGED | |
| 1.014 | S3 960 | Winter | 100 | +10% | | | | | 92.964 | -0.384 | 0.000 | 0.00 | | 999 | 29.3 | OK | |
| 1.015 | S2 960 | Winter | 100 | +10% | 1/15 | Summer | | | 92.963 | 1.291 | 0.000 | 0.21 | | | 5.4 | SURCHARGED | |