Stormwater Management Report

Estill Innovation Community

Puslinch Development GP Inc.

28 May 2025

→ The Power of Commitment

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1. Introduction

GHD has been retained by Puslinch Development GP Inc. (herein referred to as the “Client”) to provide professional engineering services for the preparation of a Stormwater Management (SWM) Report in support of a proposed industrial development located at 4631 Sideroad 20 North located in the Township of Puslinch, Ontario (hereafter referred to as the ‘Site’).

1.1 Purpose of this report

The purpose of this report is to describe the SWM approach for the Site in support of the proposed development project in preparation for the Official Plan and Zoning By-law Amendment applications related to a proposed industrial development at 4631 Sideroad 20 North, Puslinch Township, Ontario.

1.2 Scope and limitations

This report has been prepared by GHD for Puslinch Development GP Inc. and may only be used and relied on by Puslinch Development GP Inc. for the purpose agreed between GHD and Puslinch Development GP Inc. as set out in this report.

GHD otherwise disclaims responsibility to any person other than Puslinch Development GP Inc. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect. No portion of this report may be used as a separate entity, it is to be read in its entirety and shall include all supporting drawings and appendices.

GHD has prepared the PCSWMM (“Model”) for, and for the benefit and sole use of, Puslinch Development GP Inc. to support the hydrologic and hydraulic assessment and must not be used for any other purpose or by any other person.

The Model is a representation only and does not reflect reality in every aspect. The Model contains simplified assumptions to derive a modelled outcome. The actual variables will inevitably be different to those used to prepare the Model. Accordingly, the outputs of the Model cannot be relied upon to represent actual conditions without due consideration of the inherent and expected inaccuracies. Such considerations are beyond GHD’s scope.

The information, data and assumptions (“Inputs”) used as inputs into the Model are from publicly available sources or provided by or on behalf of the Puslinch Development GP Inc., (including possibly through stakeholder engagements). GHD has not independently verified or checked Inputs beyond its agreed scope of work. GHD’s scope of work does not include review or update of the Model as further Inputs becomes available.

The Model is limited by the mathematical rules and assumptions that are set out in the Report or included in the Model and by the software environment in which the Model is developed.

The Model is a customised model and not intended to be amended in any form or extracted to other software for amending. Any change made to the Model, other than by GHD, is undertaken on the express understanding that GHD is not responsible, and has no liability, for the changed Model including any outputs.

GHD has prepared this report on the basis of information provided by Puslinch Development GP Inc. and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

2. Background

2.1 Supporting documentation

A variety of previous studies, municipal and provincial standards, as well as field investigations were reviewed in preparation of this report. The background information from these documents was used to develop the SWM plan described in this report.

- Municipal Development Standards, Township of Puslinch, dated September 2019
- Stormwater Management Planning and Design Manual (SWMP Manual) prepared by the Ministry of Environment Conservation and Park, dated March 2003
- Development Engineering Manual, City of Guelph Engineering and Transportation Services, dated October 2023
- Preliminary Hydrogeological Assessment, by GHD Ltd., dated January 31, 2025
- Preliminary Geotechnical Investigation Report, by GHD Ltd., dated January 31, 2025

2.2 General Site information

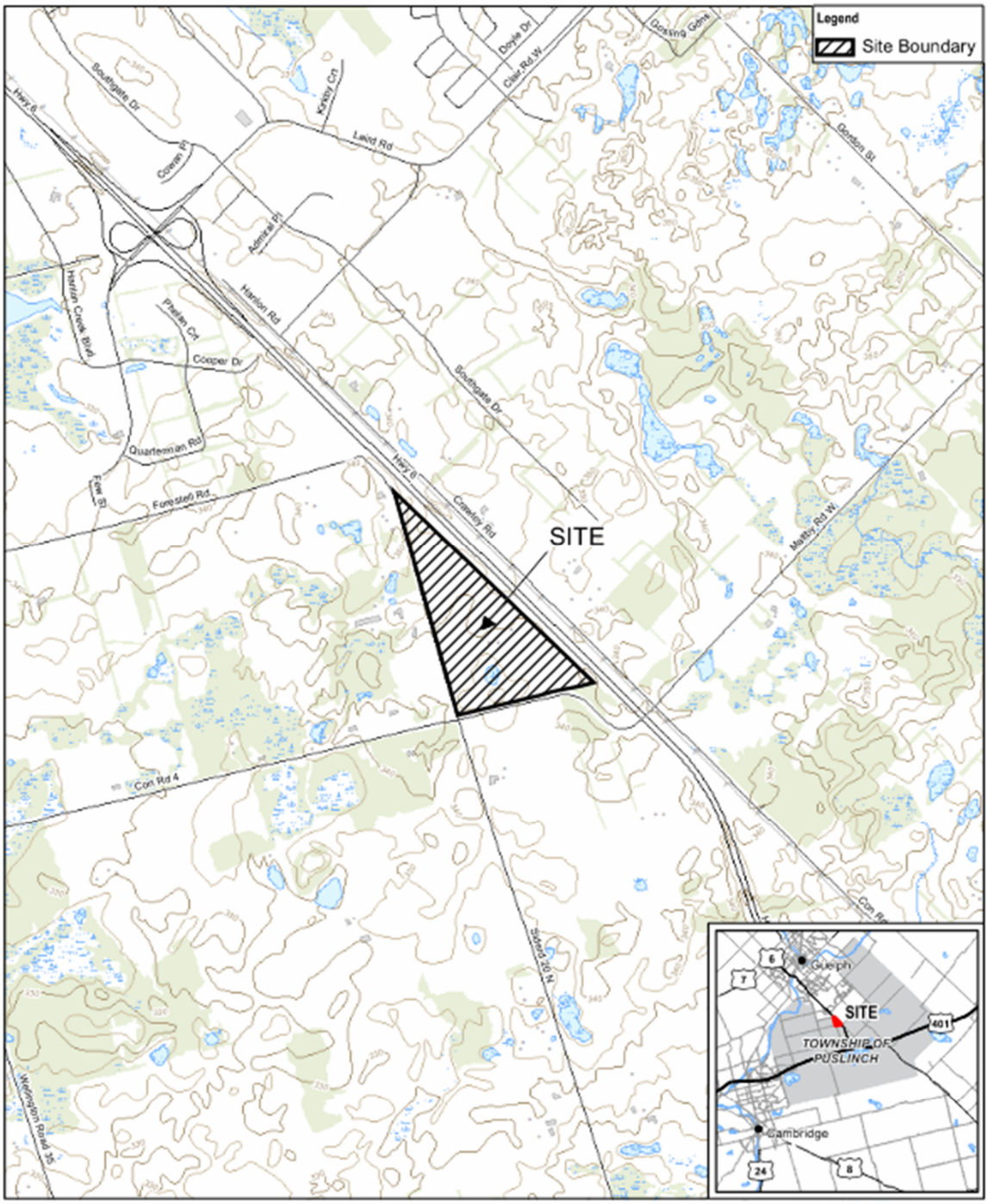
The Site is triangular in shape with an approximate area of 25.47 hectares (ha) and is bounded by Provincial Highway 6 (Hanlon Parkway) to the east, Concession Road 4 to the south and Side Road 20 N to the west. The Site is currently comprised of undeveloped, vacant property used for agricultural purposes. There is a small vegetated/wetland area just north of Concession Road 4 that is part of the Cranberry Oil Well Bog Wetland Complex, a provincially significant wetland complex. It is understood that the proposed development at the Site will include three slab-on-grade industrial structures surrounded by parking lot and paved aprons, and it is assumed the proposed structures will be one to two storeys with no basements. A Site location map is provided on Figure 1.

A preliminary topographical survey was completed by GHD on December 18, 2023. The survey indicates that the Site generally slopes to the south and southwest gently, with surface elevations ranging from 333.0 to 346.0 m.

The Site is located within a Tier 2 Significant Groundwater Recharge Area (SGRA), a Well Head Protection Area (WHPA), and a regulated zone for the on-site wetland as per the Grand River Source Protection Plan.

A preliminary geotechnical investigation was completed in November 2023 and consisted of advancing a total of thirteen (13) exploratory geotechnical boreholes, with eight (8) boreholes being instrumented with monitoring wells. As noted in the Preliminary Geotechnical Investigation Report (GHD, January 2025), the boreholes generally encountered topsoil followed by fill materials mainly composed of a non-cohesive layer of sandy silt/silty sand/sand/gravel. The fill material was generally followed by a non-cohesive deposit of sand/silt/gravel deposits. The majority of boreholes were terminated within the native soil layers (non-cohesive till deposit of sandy silt/silty sand/sand/gravel) from 5.2 m and 11.3 m (ranging between elevations 328.3 m and 337.6 m). Refer to the Preliminary Geotechnical Investigation Report prepared by GHD for this project under a separate cover for additional information.

Groundwater levels were measured between November 2023 and October 2024. Groundwater was not encountered at the proximity of the proposed SWM pond (MW12-23) both during drilling and between two (2) measurement periods. Refer to the Hydrogeologic Assessment Report prepared by GHD (February 2025) for this project for additional information.



Paper Size ANSI A

0 200 400 600

Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

PUSLINCH DEVELOPMENT LIMITED PARTNERSHIP
4631 SIDEROAD 20 NORTH,
PUSLINCH TOWNSHIP, ONTARIO
HYDROGEOLOGICAL INVESTIGATION

Project No. 12618927
Revision No. -
Date Jan 30, 2025

SITE LOCATION MAP

FIGURE 1

3. Site drainage

3.1 Pre-development conditions

The Site is located within the Irish Creek Sub-basin in the Speed River (Lower) Subwatershed within the Grand River Watershed, under the jurisdiction of Grand River Conservation Authority (GRCA). The Speed River, located approximately 5 m northwest of the Site, flows southwest before draining into the Grand River that is approximately 17 kilometres (km) southwest of the Site. A provincially significant wetland feature, part of the Cranberry Oil Well Bog Wetland Complex, sits within the southern limits of the Site.

The existing drainage conditions of the Site were confirmed through a combination of Geographic Information System (GIS) maps, topographic survey, desktop investigation and review of the background reports. The existing Site topography splits the Site into six (6) drainage areas. Per the existing topography of the site, 24.47 ha generally slopes into the site, which surface runoff drains toward the existing wetland feature and depression areas, while the remaining 1.01 ha generally slopes to the southeast and northeast direction. A portion of the drainage area at the northeast boundary drains to the depression area between the Site and the Provincial Highway 6 (Hanlon Parkway), which ultimately infiltrates into the ground. For simplicity, this area has been accounted as part of the peak flow that drains into the Site.

The Pre-Development Drainage Plan is provided in Appendix B for reference.

Table 1 Existing subcatchment summary

Area ID	Area (ha)	Imperviousness (%)	Remarks
101	0.15	7	Open space, drains external
102	24.47	7	Open space, drains to internal wetland and depression areas
103	0.03	7	Open space, drains external
104	0.06	7	Open space, drains external
105	0.67	7	Open space, drains external
106	0.10	7	Open space, drains external

The pre-development design peak flows for the site were modelled using PCSWMM model, in which a 3-hour duration Chicago storm distribution was used for each storm events (2, 5, 10, 25, 50, 100-year), based on the City of Guelph IDF curves. Since there are multiple depression areas on-site that capture and retain the surface runoff on-Site, these depression areas store surface runoff and allow runoff to infiltrate into the ground. Therefore, only a small portion of the runoff drains off-Site. Table 2 below summarizes the existing peak runoff volume.

Catchment hydrology was characterized based on area, flow length, slope, roughness, depression storage, and infiltration parameters. Areas, flow lengths, and catchment slopes were calculated from Site contours generated from a topographic survey. Manning's 'n' and depression storage values were selected based on the land cover types and aggregated over the catchment areas.

Infiltration was modelled using the Horton's Method, which is an empirical method that assumes an exponential relationship between a maximum and minimum infiltration rate. The infiltration rate of the soil decreases over time. The maximum and minimum infiltration rates were referenced from the hydrogeological assessment prepared by GHD dated December 2024.

Table 2 Pre-development peak flows

Storm event	Pre-development peak flows that drain externally (m^3/s)	Pre-development peak flows that retain internally (m^3/s)
2-Year	0.03	0.58
5-Year	0.07	0.88
10-Year	0.11	1.10
25-Year	0.14	1.38
50-Year	0.19	1.59
100-Year	0.22	1.84

3.2 Post-development conditions

Under the post-development conditions, the Site will consist of three (3) slab-on-grade industrial structures and two (2) slab-on-grade commercial structures surrounded by parking lots, paved aprons, walkways, and roadways. A SWM pond will also be included to meet stormwater control criteria. It is assumed the proposed structures will be one- to two-storeys with no basements. These areas are based on the Puslinch Industrial Development Concept Plan prepared by Sweeny & Co Architects in Appendix B.

The overall grading pattern will be consistent with the existing grading, which slopes toward the southeast direction. The Site will be graded to retain stormwater runoff on-site. Roof drainage will be diverted into low-impact development systems via roof drain systems to promote infiltration. Excess flow from the low-impact development units will then be captured into the storm sewer system and conveyed downstream. Runoff from the paved areas and open space areas will be routed into the storm sewer system via area drains or catch basins, and conveyed to the proposed SWM pond and the existing wetland for water retention. Refer to the Post-Development Drainage Plan in Appendix B and the drainage area summary in Appendix A for details.

4. Stormwater management design criteria

The design criteria for the proposed SWM system are based on the municipality (Township of Puslinch), Conservation Authority (GRCA), and the provincial (MECP) standards for stormwater quantity, stormwater quality, water balance and erosion control. The proposed SWM system will be designed to meet the applicable standards, based on the Site location, geotechnical information, and current Site conditions, detailed in Table 3.

Table 3 Stormwater management criteria

Criteria	Notes
Hydrologic modelling	– All proposed developments are required to use hydrologic modelling software – As per the Township's SWM criteria, the intensity-duration-frequency (IDF) curves provided by the City of Guelph should be used (see Table 4)
Quantity control	– Control post-development peak flows to pre-development peak flows (pre-development drainage pattern) for all storms up to and including the 100-year storm (2, 5, 10, 25, 50, 100-year storm) as per MECP requirements (major system) – Provide quantity control to match existing drainage scheme – The minor conveyance system (storm sewers) shall be designed to convey a 5-year storm with no surcharging, per the Township's requirements
Quality control	– Provide an Enhanced Level of Protection (minimum 80% total suspended solids (TSS) removal) as defined in the MOE SWM Design Manual (2003)

Criteria	Notes
Water balance	– Control of post-development infiltration volumes to pre-development condition levels through an annual water budget, as per the Townships requirements

As per the Township of Puslinch's Municipal Development Standards (2019), 3-hour duration Chicago storm distributions based on the City of Guelph IDF curves for each storm events (2, 5, 10, 25, 50, 100-year) are to be used. The rainfall intensity equation is given by: $I = A(t_c)^B$, in which I and t_c represent the rainfall intensity (mm/hr) and time of concentration (min) respectively. Table 4 below summarizes the IDF parameters used in both the storm sewer design and the PCSWMM Model.

Table 4 IDF Parameters

Storm event	A	B
2-Year	475.61	-0.738
5-Year	632.75	-0.741
10-Year	721.92	-0.736
25-Year	822.74	-0.725
50-Year	893.80	-0.719
100-Year	953.29	-0.711

5. Stormwater management plan

5.1 Proposed stormwater management measures

A comprehensive stormwater management strategy is proposed to meet the water quality, water quantity and water balance requirements. An integrated treatment train approach will be adopted to provide control at the lot level and in conveyance followed by an end-of-pipe control (stormwater management wet pond). Roof drainage is proposed to be collected by roof drains and will be conveyed to multiple low-impact development system across the Site as the start of the treatment train to retain runoff. Any excess flow from the low-impact development units and the runoff from the paved and landscaped areas will be collected via the storm sewer system which will convey the flow to the proposed SWM pond as an end-of-pipe measure to further provide treatment and to reduce peak flows into the existing wetland to retain water for infiltration. During major storm events that exceed the 100-year storm event or if there is clogging within the system, excess flow from the SWM pond will be directed to the emergency outlet structure to discharge flow off-Site at the south boundary by overtopping Concession Road 4.

5.1.1 Catchment Parameters

The drainage area plan is delineated based on the preliminary grading design and the servicing plan. For roof, parking lot and roadway subcatchment areas, a runoff coefficient of 0.90 is assigned. For open landscape and pervious subcatchment areas, a runoff coefficient of 0.25 is assigned. A weighted average runoff coefficient is assigned to subcatchment areas that consist of both landscape and hardscape areas accordingly. A total drainage area of 22.44 ha will be directed into the SWM pond, a drainage area of 2.71 ha will be directed to the wetland directly, and a drainage area of 0.32 ha will be discharging off-Site as uncontrolled runoff.

Infiltration was modelled using the Horton's Method, which is an empirical method that assumes an exponential relationship between a maximum and minimum infiltration rate. The maximum and minimum infiltration rates were obtained from the Hydrogeological Assessment Report prepared by GHD dated December 2024, in which the maximum infiltration rate is 90 mm/hr and the minimum infiltration rate is 45 mm/hr.

5.1.2 Storm sewers

Storm sewers were designed to convey up to the 5-year design storms without surcharging, with adequate size and depth in accordance with the design standards and specifications for the Township of Puslinch. The storm sewers were designed using Rational Method. The proposed storm sewer system will discharge into the proposed SWM pond and the existing wetland.

For preliminary sizing of the storm sewer system, refer to the storm sewer design sheet provided in Appendix A.

5.1.3 Overland flow

The 100-year flow, less the 5-year flow, will flow along the roadways as overland flow to the proposed SWM pond. The road network is designed to safely convey the 100-year minus 5-year flow from the Site. A small portion of the Site (0.32 ha) will be discharging off-site as uncontrolled runoff.

Overland flow routes are indicated on the grading plan using arrows (Appendix B).

5.1.4 Stormwater management pond

A SWM pond facility is proposed to be located at the south boundary of the Site. The proposed SWM pond is intended to provide water quality enhancement of stormwater runoff, as well as provide extended detention and controlled release of stormwater to maintain the local drainage regime and mitigate impacts on the environment due to the increased imperviousness. As per the existing drainage condition, all flows up to 100-year storm will be retained on-Site through low-impact development systems and the existing wetland to promote infiltration.

The SWM pond is designed as a conventional wet pond incorporating a permanent pool, sediment forebay, and an extended detention and flood control component, with the layout of the pond satisfying the MOE geometric guidelines for wet ponds. The stormwater management pond is designed to receive runoff from the Site to service a total drainage area of 22.44 ha and a lumped imperviousness of 74%. For details of the drainage area breakdown, refer to the drainage area breakdown calculation in Appendix A.

The side slopes of the proposed pond are designed at a ratio of 3:1 (horizontal:vertical), and ratio of 5:1 (horizontal: vertical) 3m from the permanent pool elevation, and a 7:1 slope from 3 m above the permanent pool elevation to the top of pond.

The SWM pond is designed according to the following criteria:

– The permanent pool is sized to provide an "Enhanced" level of treatment for water quality purposes
– Sediment Forebay is designed to MOE 2003 SWMP Manual Standards
– Extended detention of the 25mm storm for a minimum of 48 hours is to be provided
– A minimum of 0.30 m of freeboard will exist between the 100-year storm water level and the top of the pond
– It is identified that the bottom of the pond will be below the groundwater elevation. It is necessary to place a hydraulic barrier to control groundwater flow through the base and sides of the stormwater management system. Given that suitable on-Site source of clay may not be available, a geosynthetic clay liner is to be installed to limit groundwater seepage.

5.2 Quantity control

Water quantity control requirements for the Site are provided by both the Township of Puslinch and the GRCA. The Township requires to control post-development peak flows from all storms up to and including the 100-year storm event to pre-development levels. The post-development design peak flows for the Site were modelled using a PCSWMM model, in which a 3-hour duration Chicago storm distribution was used for each storm events (2, 5, 10, 25, 50, 100-year), based on the City of Guelph IDF curves. Note that under the existing condition, the existing topography indicated that there are multiple depression areas which provide storage capture runoff to promote infiltration with only a small fraction of the Site runoff that discharges off-site. In order to maintain the existing drainage pattern, the quantity control objective is to provide sufficient storage to detain runoff into the existing wetland to promote infiltration and to minimize the peak runoff being discharged off-site to meet the existing peak discharge flow rate.

5.2.1 Quantity control volume

According to Table 3.2 of the MECP SWM Manual (2003), a SWM pond is proposed to mitigate the impact from the increased imperviousness. The proposed SWM pond is designed to be a wet pond to provide quantity control to discharge water into the existing wetland to promote on-site infiltration. For details, refer to the water balance assessment prepared by GHD dated January, 2025.

Given the Site's imperviousness of 74%, a permanent storage requirement of 190 m³/ha is applicable. This results in a total permanent pool volume requirement of 4,269 m³. The proposed SWM pond exceeds this requirement by providing a permanent pool volume of 7,448 m³, with the water surface elevation at 331.67 m and the pond bottom elevation at 328.67 m. Detailed calculations for the permanent pool volume are provided in Appendix A.

A PCSWMM model was developed to assess the required SWM pond storage volume under post-development conditions. The model evaluates the discharge of stormwater both into the existing wetland and the adjacent roadside ditch, ensuring that the peak flow rates do not exceed pre-development runoff conditions. Based on the PCSWMM model results, an active storage volume of 5,572 m³ is required to attenuate runoff and facilitate a slow release into the wetland. Table summarizes the required storage volumes of the proposed SWM pond.

The access road is designed at an elevation of 333.18 m, providing a minimum freeboard of 0.30 m between the top of the pond (333.16 m) and the 100-year pond water elevation (332.64m).

Detailed calculations for the outlet structure will be provided during the site plan application stage.

Table 5 Stormwater management pond summary

Components	Elevation (m)	Required storage volume (m^3)	Provided storage volume (m^3)
Top of permanent pool (Water Quality Control)	331.67	4,269	7,448
Top of extended detention (Water Quality and Erosion Control)	332.00	1,373	1,658
Emergency Spillway (Quantity Control)	332.86	5,572	7,226
Top of Pond	333.16	-	9,670

5.2.2 Outlet control structures

Two outlet structures are proposed to manage the runoff discharge from the SWM pond. A low-flow orifice with a diameter of 375 mm at elevation 331.67 m is designed to release water from the SWM pond at a controlled flow rate, that discharges directly into the existing wetland. An emergency spillway is proposed at elevation 332.86 m. This spillway will convey excess water from the SWM pond during high-flow events to an overland spillway, which directs runoff southerly toward the roadside ditch located just north of Concession Road 4.

A small portion of the Site (0.32 ha) will be discharging offsite uncontrolled. The peak flow being discharged off-site will not exceed the allowable peak flow as per the existing condition.

It is important to note that during the detailed design stage, both the outlet structures and the overall configuration of the proposed SWM pond will be re-evaluated to ensure compliance with regulatory and site-specific requirements.

Please refer to the engineering drawings in Appendix B for details of the outlet control structures and refer to Appendix A for the storage-discharge table of the SWM pond. For preliminary sizing of the orifice control structure, refer to the PCSWMM model output file provided in Appendix C.

Table 6 Outlet control structure details

Structure	Structure size	Elevation (m)
Low-flow orifice	375 mm orifice	331.67 to discharge to wetland
Emergency Spillway	Trapezoid spillway 2.5 m bottom width, 3:1 side slope	332.86

Table 7 Uncontrolled peak flow, controlled peak flows and storage requirements

Storm event	Allowable peak flow discharge off-site (m^3/s)	Controlled peak flows to wetland (m^3/s)	Uncontrolled Peak flows to discharge off-site (m^3/s)	Required SWM pond active storage volume (m^3)
2-Year	0.03	0.161	0.031	1,863
5-Year	0.07	0.213	0.043	2,511
10-Year	0.11	0.243	0.051	3,026
25-Year	0.14	0.286	0.061	3,938
50-Year	0.19	0.316	0.068	4,717
100-Year	0.22	0.345	0.074	5,572

5.3 Quality control

5.3.1 Quality control volume

To achieve the Enhanced Level water quality treatment (minimum 80% Total Suspended Solids (TSS) removal) as outlined in the MECP Guidelines, a treatment train approach has been implemented using infiltration systems combined with the proposed SWM pond.

The majority of stormwater runoff from the development Site will be treated by a wet pond facility. Design calculations for the pond's quality control components—including the forebay, permanent pool, and extended detention—are provided in Appendix B and summarized in the table below.

An extended detention volume of 40 m³/ha is required to meet water quality enhancement targets. For a drainage area of 22.44 ha, this translates to a total extended detention requirement of 898 m³. In addition, the extended detention volume for erosion control has been estimated using PCSWMM. From the result of PCSWMM hydrologic analysis, an active storage volume of 1,373 m^3 is required during the 25 mm rainfall event. Note that the extended detention

volume for water quality control is smaller than that for the erosion control volume, therefore the required erosion control volume will govern the required volume.

The proposed SWM pond has been designed to provide 1,658 m³ of extended detention and erosion control volume, measured at the water elevation above the permanent pool. This exceeds the required volume, ensuring compliance with the water quality standards.

Refer to Appendix A for detailed calculations of both the required and provided volumes.

Table 8 Water quality requirements

Tributary area to Pond (ha)	Required permanent pool volume (m^3)	Required extended detention volume (m^3)	Required erosion control volume (m^3)
22.44	4,269	1,373	1,658

5.3.2 Forebay design

The proposed SWM pond design incorporates a 2.0 m deep sediment forebay to facilitate the pre-treatment of stormwater runoff. Inflowing stormwater will enter the sediment forebay, where suspended solids will settle within the permanent pool. The sediment forebay is connected to the main wet cell via a submerged berm set at an elevation of 331.60 m.

The forebay has been designed with approximate dimensions of 86m in length and 22 m in width, resulting in a length-to-width ratio of 3.9:1. This ratio complies with the requirements outlined in the MECP Guidelines, ensuring optimal sedimentation efficiency.

Detailed calculations for the sediment forebay design are provided in Appendix A.

5.4 Water balance

Increasing the imperviousness of the surface under post-development conditions will result in a significant infiltration (recharge-to-groundwater) deficit. A Site-specific and feature-based water balance analysis was undertaken for the Site to determine the amount of water surplus generated for the pre- and post-development conditions of the Site and on-Site wetland feature.

A separate water balance assessment prepared by GHD dated 28 May 2025 and associated calculations are provided in Appendix D.

Based on the water balance calculations by comparing the post-development conditions to the pre-development conditions, the average annual surplus over the Site area will increase by 22,300 m^3/yr (87 mm/yr) under the post-development (uncontrolled) conditions. The average annual infiltration over the site area will decrease by 48,280 m^3/yr and the average runoff over the site area will increase by 70,580 m^3/yr under the post-development (uncontrolled) conditions. To mitigate the impact of the proposed development on groundwater recharge in comparison to the pre-development conditions, low-impact development measures such as underground infiltration chamber, infiltration trenches, overland depression areas, and diverting drainage to the existing wetland are proposed to promote on-Site infiltration.

The infiltration systems will only collect roof drainage and drainage from landscaped areas, and to provide storage to retain water to promote infiltration. These infiltration systems are sized to retain the roof runoff from a minimum of 25 mm rainfall event. These infiltration systems are to be designed to provide a minimum of 1.0 m vertical clearance between the bottom of the facilities to the groundwater elevation. Note that the dimensions of the infiltration features are conceptual only at this time, during the detailed design stage, the infiltration systems will be further refined to confirm details and invert. A detailed water balance analysis will be provided during detailed design to confirm the hydrologic conditions.

Table 9 Low-impact development system summary

Infiltration ID	Contributing drainage area (ha)	Unit height (m)	Unit width (m)	Unit length (m)	Provided volume (m^3)	Provided footprint area (m^2)	Est. groundwater elevation (m)	Invert Elevation (m)	Vertical Clearance to Groundwater (m)
LID #1A Underground Infiltration Chamber	1.70	0.5	30	42	630	1,260	335.5	336.5	1.0
LID #1B Underground Infiltration Trench	0.89	0.5	24	73	235(40% porosity)	1,176	334.0	335.0	1.0
LID #2 Underground Infiltration Chamber	2.81	0.9	14	78	983	1,092	336.0	337.0	1.0
LID #3 Underground Infiltration Chamber	1.44	1.0	10	38	425	425	337.0	338.2	1.2
LID #5 Overland Depression Area	0.43	0.3	Surface Area = 380		114	380	335.0	338.3	3.3
LID #6 Overland Depression Area	0.38	0.3	Surface Area = 330		99	330	334.5	335.5	1.0

5.4.1 Wetland and LID Assessment

Downstream of the storm sewer system, a SWM pond is proposed to provide both quantity and quality control before discharging runoff into the existing wetland for water retention to maintain the hydrologic condition.

A PCSWMM model was developed to account for the hydraulic conductivity of the existing ground conditions and to assess the hydrologic performance of diverting runoff to the wetland. Based on the model results for a single storm event simulation of the 100-year storm, the drawdown time for the wetland is approximately 96 hours, ensuring adequate time for infiltration and settling of suspended solids. For the proposed infiltration chambers, an outlet pipe is provided at the top of the infiltration chamber to bypass the flow to the storm sewer in case the infiltration chamber is completely full. The drawdown time for the 100-year storm event ranges from 17 to 27 hours, which water is assumed to be infiltrated with a minimum conductivity of 45 mm/hr as per the hydrogeological report. Refer to Table 9 below for details. For detailed model outputs and simulations, refer to the PCSWMM output file provided in Appendix C. For details of the water balance assessment, refer to the attached technical memorandum provided in Appendix D. Note that the opportunity to refine and optimize the design of the infiltration facilities should be looked at during detailed design stage.

Table 10 Drawdown Times for the Proposed Stormwater Management Pond and LIDs

Infiltration ID	Max. 100-year HGL (m)	100-year Storm Event Drawdown Time (h)
LID #1A: Underground Infiltration Chamber	337.19	17
LID #1B: Underground Infiltration Trench	335.40	12
LID #2: Underground Infiltration Chamber	338.26	26

Infiltration ID	Max. 100-year HGL (m)	100-year Storm Event Drawdown Time (h)
LID #3: Underground Infiltration Chamber	339.54	27
Stormwater Management Pond	332.64	96

6. Erosion and sediment control

The purpose of erosion and sediment control measures (ESC) is to minimize the potential release of pollutants, primarily sediments, directly or indirectly into downstream receiving waters during construction. Generally, all on-Site siltation control measures are designed to the latest Ministry of Natural Resources (MNR) Erosion and Sediment Guidelines while considering GRCA and Township of Puslinch's standards and inspection procedures. Prior to construction, open areas and treed areas to be preserved should be delineated with tree-protection fencing. Additional sediment control fencing should be placed around the limits of the development area to prevent sediment transport onto adjacent properties. All fencing/hoarding shall be maintained in good condition throughout the duration of the construction operations. A mud mat for each temporary construction access should be used by the contractor to keep public roadways free of debris during the construction periods. The SWM pond should be rough-graded prior to deep servicing. The SWM pond will be used as a temporary sediment control pond. Straw bales, check dams or other suitable sediment traps shall be installed and maintained to prevent localized erosion. Accumulated sediment shall be removed, and structures inspected and repaired after every storm event.

7. Operations and maintenance

An operations and maintenance plan will be in place to verify the proposed SWM facility is operating as designed, per the *Municipal Development Standards of the Township of Puslinch* (2019). The SWM system at the Site has several components that require routine inspection and maintenance in order to maintain the performance of the system. In general, manufacturer's instructions and recommendations for inspections and maintenance must be followed. A summary of the components and the inspections are provided below. Inspection frequencies must be adjusted based on operational experience built up over time.

Visual inspections are intended to survey the overall condition of the SWM facility and the surrounding areas. It is recommended that visual inspections to be conducted four (4) times per year (one per season) and after any significant rainfall events (> 2-year return frequency). If the seasonal inspections are completed in conjunction with the significant rain events, inspections that address additional significant rain events may result in an additional two or three inspections per year. It is recommended that at a minimum, two (2) visual inspections should be conducted each year.

Inspections can be conducted by a single person over a period of 1-3 hours. A detailed inspection checklist can be used to identify the status of inspection items. Photographs of the inlet, outlet, access points, pond structures, and any areas with concerns should be taken during visual inspections. Copies of completed inspection checklists, as well as any associated photographs, should be documented and stored together by the operators to form complete documentation of the ongoing condition of the SWM facility. Recommendations or requirements for pond maintenance are to be clearly communicated to the facility Owner for implementation. Documentation associated with any maintenance or cleanout activities is to be stored with the inspection reports.

In general, items that should be observed and noted during a visual inspection of the facility include:

– Litter, debris and trash buildup in and around the facility
– Invasive or excess vegetation buildup within the facility
– Clogging of the inlet and outlet structures, including interior of the maintenance hole

– Erosion at the facility's inlet or outlet structures
– Landscaping conditions
– Obvious sediment buildup or sediment plumes, particularly at the pond inlet
– Condition of structures (headwall, weirs, control outlet manhole etc.)
– Water level in the pond

If the water level in the pond remains high for more than 2-3 days, outlet inspections for clogging are required. In addition, items that are unsafe, could cause damage to properties, or injury to the public should be identified and noted. These may include, but are not limited to:

– Vandalism to components within the facility (e.g. safety grates/lids were removed or damaged).
– Settlement along areas accessible to pedestrians
– Slope erosion or other scouring in areas that pedestrians may access.
– Grate across maintenance access in disrepair
– Missing gates and chamber cover
– Unauthorized access to the pond

8. Conclusion

The stormwater management system for the proposed industrial development located at 4631 Sideroad 20 North located in the Township of Puslinch, Ontario is designed to meet or exceed the regulatory requirements for water quantity, water quality, water balance, and erosion protection requirements. With proper operation, inspection and maintenance, the system will minimize impacts to the natural environment. The conclusions are summarized below:

- A proposed storm sewer system will convey minor (5-year) flows from the proposed development to the SWM pond.
- A SWM wet pond will provide a volume of 7,448 m^3 for permanent pool and 1,658 m^3 for extended detention to meet water quality control requirement. A total storage volume of 7,226 m^3 is provided to meet quantity control requirement.
- The 100-year post-development release rate from the SWM pond will be 0.345 m^3/s, which will be directed into the existing wetland. The 100-year uncontrolled flow will discharge off-Site, which is below the allowable discharge rate.
- Low Impact Development units are proposed to capture roof drainage and to promote infiltration on-site.
- Sediment and erosion control practices will be implemented during construction to minimize the transport of sediment downstream.

All of Which is Respectfully Submitted,

GHD

Michelle Li, P.Eng. (ON, AB)
Team Lead Land Development Storm Water Engineer

Felix Tsang, EIT
Stormwater Engineering Graduate

Appendices

Appendix A

Stormwater management calculations

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name Estill Innovation Community
Project No. 12618927
Subject Drainage Area Summary

Drainage Area Breakdown Calculation

Note	Drainage Area ID	Total Area (ha)	RC - Ultimate Condition	Drainage	
	201	1.49	0.25	**Pond**	
Industrial Building #3	202	1.32	0.90	**Pond**	
	203	0.12	0.90	**Pond**	
	204	0.25	0.25	**Pond**	
	205a	0.06	0.90	**Pond**	
	205b	0.10	0.90	**Pond**	
	205c	0.11	0.90	**Pond**	
	205d	0.22	0.90	**Pond**	
	206a	0.37	0.75	**Pond**	
	206b	0.09	0.25	**External**	
Building #2 Expansion Area	207	0.71	0.90	**Pond**	
	208a	0.05	0.90	**Pond**	
	208b	0.09	0.90	**Pond**	
	208c	0.09	0.90	**Pond**	
	208d	0.05	0.90	**Pond**	
	209a	0.04	0.65	**Pond**	
	209b	0.13	0.65	**Pond**	
	209c	0.17	0.65	**Pond**	
	209d	0.10	0.65	**Pond**	
	210a	0.19	0.90	**Pond**	
	210b	0.18	0.90	**Pond**	
	211	0.31	0.90	**Pond**	
	212	0.24	0.90	**Pond**	
	213	0.43	0.25	**Pond**	
	214	0.27	0.90	**Pond**	
	215	0.10	0.90	**Pond**	
	216a	0.06	0.90	**Pond**	
	216b	0.02	0.90	**Pond**	
	216c	0.06	0.90	**Pond**	
	216d	0.05	0.90	**Pond**	
	216e	0.06	0.90	**Pond**	
	216f	0.04	0.90	**Pond**	
	216g	0.05	0.90	**Pond**	
Industrial Building #2	217	0.64	0.90	**Pond**	
Industrial Building #2	218	0.58	0.90	**Pond**	
	219a	0.15	0.75	**Pond**	
	219b	0.07	0.25	**External**	
	220a	0.17	0.75	**Pond**	
	220b	0.06	0.25	**External**	
	221	0.23	0.73	**Pond**	
	222	0.21	0.73	**Pond**	
	223	0.23	0.73	**Pond**	
	224	0.15	0.73	**Pond**	
Building #2 Expansion Area	226	0.75	0.90	**Pond**	
	227	0.23	0.90	**Pond**	
	228	0.16	0.90	**Pond**	
	229a	0.08	0.90	**Pond**	
	229b	0.05	0.90	**Pond**	
	230a	0.06	0.90	**Pond**	
	230b	0.06	0.90	**Pond**	
	231a	0.05	0.90	**Pond**	
	231b	0.04	0.90	**Pond**	
	232a	0.06	0.90	**Pond**	
	232b	0.06	0.90	**Pond**	
	233a	0.07	0.90	**Pond**	
	233b	0.06	0.90	**Pond**	
	234a	0.05	0.90	**Pond**	
	234b	0.05	0.90	**Pond**	
Industrial Building #1	235	0.89	0.90	**Pond**	
Industrial Building #1	236	0.47	0.90	**Pond**	
Industrial Building #1	237	0.43	0.90	**Pond**	
Industrial Building #1	238	0.41	0.90	**Pond**	
Industrial Building #1	239	0.39	0.90	**Pond**	
	240a	0.12	0.90	**Pond**	
	240b	0.06	0.25	**Pond**	
	241a	0.13	0.90	**Pond**	
	241b	0.06	0.25	**Pond**	
	242a	0.13	0.90	**Pond**	
	242b	0.06	0.25	**Pond**	
	243a	0.10	0.90	**Pond**	
	243b	0.08	0.35	**Pond**	
	244a	0.31	0.90	**Pond**	
	244b	0.14	0.25	**Pond**	
	245	0.39	0.25	**Pond**	
	246	0.76	0.90	**Pond**	
	247	0.19	0.25	**Pond**	
	248a	0.12	0.90	**Pond**	
	248b	0.05	0.90	**Pond**	
	248c	0.23	0.90	**Pond**	
	248d	0.05	0.90	**Pond**	
SWM Pond	249	1.09	0.50	**Pond**	
	250a	0.21	0.25	**Wetland**	
	250b	0.06	0.90	**Pomd**	
	250c	0.04	0.65	**Pond**	
	250d	0.03	0.90	**Pond**	
	250e	0.10	0.90	**External**	
	250f	0.08	0.80	**Pond**	
Daycare	251	0.09	0.90	**Wetland**	
	252a	0.08	0.25	**Wetland**	
	252b	0.05	0.90	**Pond**	
	252c	0.03	0.90	**Pond**	
	252d	0.02	0.90	**Pond**	
	253	0.05	0.90	**Pond**	
Wetland	254	1.90	0.25	**Wetland**	
Gym	255	0.12	0.90	**Wetland**	
	256	0.31	0.64	**Wetland**	
	257	0.81	0.25	**Pond**	
	258	0.08	0.90	**Pond**	
	259	0.03	0.90	**Pond**	
	260	0.04	0.90	**Pond**	
	261	0.79	0.90	**Pond**	
	262	0.80	0.90	**Pond**	
	263	1.15	0.25	**Pond**	
Total Site Area		**25.47**	**0.67**	**68%**	IMP
Total Drainage Area to Pond		**22.44**	**0.72**	**74%**	IMP
Total Drainage Uncontrolled Offsite		**0.32**	**0.45**	**36%**	IMP
Total Drainage To Wetland Directly		**2.71**	**0.37**	**24%**	

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	LID Discharge Rate Calculations

LID #1A

LID Configurations

LID#	1A	
Description	Underground Infiltration Chamber	
Groundwater Level	335.5	m
Min. Ground Level	338.6	m
Min. Tank Invert	336.5	m
Max. Tank Obvert	337.1	m
Design Tank Invert	336.5	m
Design Tank Obvert	337.0	m
Tank Height	0.5	m
Provided Bottom Area, A	1260	m^2
Tank Volume	630	m^3
Tank Width	30	m
Tank Length	42	m

Orifice Configurations

Diameter	250	mm
Discharge Coeff, C_d	0.62	-
Flow Area, A	0.049	m^2
Orifice Invert	337.0	m
Max. Head	1.475	m
Max. Orifice Flow	0.164	m^3/s

5-year Event

Drainage Area	1.70	ha
Runoff Coefficient	0.90	-
Rainfall Intensity	114.9	mm/hr
5-year Flow	0.49	m^3/s

Orifice Equation

$$Q_{orif} = C_d A \sqrt{2gh}$$

Q_{orif}	= Orifice discharge rate	m^3/s
C_d	= Orifice discharge coeff.	-
A	= Flow Area	m^2
h	= head above the centreline of orifice	m

Soil Infiltration Rate Assessment, Prepared by GHD Hydrogeological Assessment, dated January 31, 2025

Percolation rate	7 min/cm
Infiltration rate	45 mm/hr
Hydraulic Conductiviy	32 cm/s

LID SWM Guide Table C1

Hydraulic Conductivity (cm/s)	Percolation Time (min/cm)	Infiltration Rate (mm/hr)
0.1	2	300
0.01	3	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Rainfall Depth to be Infiltrated	25	mm
Runoff volume to be Infiltrated	613	m^3
Infiltration Rate of Bedding, P	45	mm/hr
Porosity of the Storage Media	1	-
Retention Time	48	hours
Required Bottom Area of the Tank	709	m^2

Provided Bottom Area is larger than the Required Bottom Area

28/05/2025

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	LID Discharge Rate Calculations

LID #1 B

LID Configurations

LID#	1B	
Description	Underground Infiltration Trench	
Groundwater Level	334.0	m
Min. Ground Level	337.5	m
Min. Trench Invert	335.0	m
Max. Trench Obvert	336.0	m
Design Trench Invert	335.0	m
Design Trench Obvert	335.5	m
Trench Height	0.5	m
Provided Bottom Area, A	1176	m^2
Trench Volume	235	m^3
Trench Width	24	m
Trench Length	73	m

Orifice Configurations

Diameter	250	mm
Discharge Coeff, C_d	0.62	-
Flow Area, A	0.049	m^2
Orifice Invert	335.50	m
Max. Head	1.875	m
Max. Orifice Flow	0.185	m^3/s

5-year Event

Drainage Area	0.89	ha
Runoff Coefficient	0.90	-
Rainfall Intensity	114.9	mm/hr
5-year Flow	0.26	m^3/s

Orifice Equation

$$Q_{orif} = C_d A \sqrt{2gh}$$

Q_{orif}	= Orifice discharge rate	m^3/s
C_d	= Orifice discharge coeff.	-
A	= Flow Area	m^2
h	= head above the centreline of orifice	m

Soil Infiltration Rate Assessment, Prepared by GHD Hydrogeological Assessment, dated January 31, 2025

Percolation rate	7 min/cm
Infiltration rate	45 mm/hr
Hydraulic Conductiviy	32 mm/hr

LID SWM Guide Table C1

Hydraulic Conductivity (cm/s)	Percolation Time (min/cm)	Infiltration Rate (mm/hr)
0.1	2	300
0.01	3	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Rainfall Depth to be Infiltrated	25	mm
Runoff volume to be Infiltrated	223	m^3
Infiltration Rate of Bedding, P	45	mm/hr
Porosity of the Storage Media	0.4	-
Retention Time	48	hours
Required Bottom Area of the Trench	258	m^2

Provided Bottom Area is larger than the Required Bottom Area

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	LID Discharge Rate Calculations

LID #2

LID Configurations

LID#	2	
Description	Underground Infiltration Chamber	
Groundwater Level	336.0	m
Min. Ground Level	339.8	m
Min. Tank Invert	337.0	m
Max. Tank Obvert	338.3	m
Design Tank Invert	337.0	m
Design Tank Obvert	337.9	m
Tank Height	0.9	m
Provided Bottom Area, A	1092	m^2
Tank Volume	983	m^3
Tank Width	14	m
Tank Length	78	m

Orifice Configurations

Diameter	250	mm
Discharge Coeff, C_d	0.62	-
Flow Area, A	0.049	m^2
Orifice Invert	337.9	m
Max. Head	1.775	m
Max. Orifice Flow	0.180	m^3/s

5-year Event

Drainage Area	2.81	ha
Runoff Coefficient	0.9	-
Rainfall Intensity	114.9	mm/hr
5-year Flow	0.81	m^3/s

Orifice Equation

$$Q_{orif} = C_d A \sqrt{2gh}$$

Q_{orif}	= Orifice discharge rate	m^3/s
C_d	= Orifice discharge coeff.	-
A	= Flow Area	m^2
h	= head above the centreline of orifice	m

Soil Infiltration Rate Assessment, Prepared by GHD Hydrogeological Assessment, dated January 31, 2025

Percolation rate	7 min/cm
Infiltration rate	45 mm/hr
Hydraulic Conductiviy	32 mm/hr

LID SWM Guide Table C1

Hydraulic Conductivity (cm/s)	Percolation Time (min/cm)	Infiltration Rate (mm/hr)
0.1	2	300
0.01	3	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Rainfall Depth to be Infiltrated	25	mm
Runoff volume to be Infiltrated	880	m^3
Infiltration Rate of Bedding, P	45	mm/hr
Porosity of the Storage Media	1	-
Retention Time	48	hours
Required Bottom Area of the Tank	1019	m^2

Provided Bottom Area is larger than the Required Bottom Area

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	LID Discharge Rate Calculations

LID #3

LID Configurations

LID#	3	
Description	Underground Infiltration Chamber	
Groundwater Level	337.0	m
Min. Ground Level	343.2	m
Min. Tank Invert	338.0	m
Max. Tank Obvert	341.7	m
Design Tank Invert	338.2	m
Design Tank Obvert	339.2	m
Tank Height	1.0	m
Provided Bottom Area, A	425	m^2
Tank Volume	425	m^3
Tank Width	10	m
Tank Length	38	m

*Non-rectangular Shape

Orifice Configurations

Diameter	250	mm
Discharge Coeff, C_d	0.62	-
Flow Area, A	0.049	m^2
Orifice Invert	339.2	m
Max. Head	3.875	m
Max. Orifice Flow	0.265	m^3/s

5-year Event

Drainage Area	1.44	ha
Runoff Coefficient	0.9	-
Rainfall Intensity	114.9	mm/hr
5-year Flow	0.41	m^3/s

Orifice Equation

$$Q_{orif} = C_d A \sqrt{2gh}$$

Q_{orif}	= Orifice discharge rate	m^3/s
C_d	= Orifice discharge coeff.	-
A	= Flow Area	m^2
h	= head above the centreline of orifice	m

Soil Infiltration Rate Assessment, Prepared by GHD Hydrogeological Assessment, dated January 31, 2025

Percolation rate	7 min/cm
Infiltration rate	45 mm/hr
Hydraulic Conductiviy	32 mm/hr

LID SWM Guide Table C1

Hydraulic Conductivity (cm/s)	Percolation Time (min/cm)	Infiltration Rate (mm/hr)
0.1	2	300
0.01	3	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Rainfall Depth to be Infiltrated	25	mm
Runoff volume to be Infiltrated	360	m^3
Infiltration Rate of Bedding, P	45	mm/hr
Porosity of the Storage Media	1	-
Retention Time	48	hours
Required Bottom Area of the Tank	417	m^2

Provided Bottom Area is larger than the Required Bottom Area

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	LID Discharge Rate Calculations

LID #5

LID Configurations

LID#	5	
Description	Overland Depression Area	
Groundwater Level	335.0	m
Min. Ground Level	338.4	m
Min. Depression Invert	336.0	m
Max. Depression Obvert	338.3	m
Design Depression Invert	338.0	m
Design Depression Obvert	338.3	m
Depression Height	0.3	m
Provided Bottom Area, A	380	m^2
Depression Volume	114	m^3

5-year Event

Drainage Area	0.43	ha
Runoff Coefficient	0.71	-
Rainfall Intensity	114.9	mm/hr
5-year Flow	0.098	m^3/s

Orifice Equation

$$Q_{orif} = C_d A \sqrt{2gh}$$

Q_{orif}	= Orifice discharge rate	m^3/s
C_d	= Orifice discharge coeff.	-
A	= Flow Area	m^2
h	= head above the centreline of orifice	m

Soil Infiltration Rate Assessment, Prepared by GHD Hydrogeological Assessment, dated January 31, 2025

Percolation rate	7	min/cm
Infiltration rate	45	mm/hr
Hydraulic Conductiviy	32	mm/hr

LID SWM Guide Table C1

Hydraulic Conductivity (cm/s)	Percolation Time (min/cm)	Infiltration Rate (mm/hr)
0.1	2	300
0.01	3	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Rainfall Depth to be Infiltrated	25	mm
Runoff volume to be Infiltrated	108	m^3
Infiltration Rate of Bedding, P	45	mm/hr
Porosity of the Storage Media	0.4	-
Retention Time	48	hours
Required Bottom Area of the Depression	124	m^2

Provided Bottom Area is larger than the Required Bottom Area

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	LID Discharge Rate Calculations

LID #6

LID Configurations

LID#	6	
Description	Overland Depression Area	
Groundwater Level	334.5	m
Min. Ground Level	336.1	m
Min. Depression Invert	335.5	m
Max. Depression Obvert	336.1	m
Design Depression Invert	335.8	m
Design Depression Obvert	336.1	m
Depression Height	0.3	m
Provided Bottom Area, A	330.000	m^2
Depression Volume	99	m^3

5-year Event

Drainage Area	0.38	ha
Runoff Coefficient	0.40	-
Rainfall Intensity	114.9	mm/hr
5-year Flow	0.049	m^3/s

Orifice Equation

$$Q_{orif} = C_d A \sqrt{2gh}$$

Q_{orif}	= Orifice discharge rate	m^3/s
C_d	= Orifice discharge coeff.	-
A	= Flow Area	m^2
h	= head above the centreline of orifice	m

Soil Infiltration Rate Assessment, Prepared by GHD Hydrogeological Assessment, dated January 31, 2025

Percolation rate	7 min/cm
Infiltration rate	45 mm/hr
Hydraulic Conductiviy	32 mm/hr

LID SWM Guide Table C1

Hydraulic Conductivity (cm/s)	Percolation Time (min/cm)	Infiltration Rate (mm/hr)
0.1	2	300
0.01	3	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Rainfall Depth to be Infiltrated	25	mm
Runoff volume to be Infiltrated	95	m^3
Infiltration Rate of Bedding, P	45	mm/hr
Porosity of the Storage Media	0.4	-
Retention Time	48	hours
Required Bottom Area of the Depressio	110	m^2

Provided Bottom Area is larger than the Required Bottom Area

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	LID Design Calculations

Accumulative Volume of the SWM Pond

Description	Contributing Area[1]		Average Annual Volumes to LID Designs							LID Design Parameters						
			Surplus (S)		Infiltration (I)		Runoff (R)		Design Storm	Req. Vol.	Min. Req. Surface Area[2,3]	Provided Length	Provided Width	Provided Surface Area	Provided Depth	Provided Vol.[4]
	m^2	ha	m^3/a	mm/a	m^3/a	mm/a	m^3/a	mm/a	mm	m^3	m^2	m	m	m^2	m	m^3
LID #1A - Underground Infiltration Chamber																
Industrial Building #1 - Main Building	17,000	1.70	9,875	403	-	-	9,875	403	25	613	709	30	42	1260	0.5	630
LID #1B - Underground Infiltration Trench																
Industrial Building #1 - Retial and Office Building	8,900	0.89	3,585	403	-	-	3,585	403	25	223	258	73	24	1176	0.5	235
LID #2 - Underground Infiltration Chamber																
Industrial Building #2	12,200	1.22	7,780	403	-	-	7,780	403	25	880	1019	78	14	1092	0.9	983
4th Parcel Building	15,900	1.59	6,410	403	-	-	6,410	403	25							
LID #3 - Underground Infiltration Chamber																
Industrial Building #3	14,400	1.44	5,805	403	-	-	5,805	403	25	360	417	10	38	425	1.0	425
LID #5 - Overland Depression Area																
Gym	1,200	0.12	485	403	-	-		403	25	108	124	**Surface Area = 380 m^2**			0.3	114
Landscaped Area	3,100	0.31	960	309	525	170	960	309	25							
LID #6 - Overland Depression Area																
Daycare	900	0.09	365	403	-	-	365	403	25	95	110	**Surface Area = 330 m^2**			0.3	99
Landscaped Area	2,900	0.29	895	309	495	170	405	139	25							
Total	**76,500**	**7.65**	**36,160**	**396**	**1,020**		35,185		-	**2,278**	**-**	**-**	**-**	**-**	**-**	**2,486**

Notes

1. Contributing areas are extracted from the PCSWMM model
2. Required surface areas LIDs are derived from Equation 4.3 of the MOE's SWM Planning and Design Manual (2003), based on a 48-hour drawdown time.
3. An Infiltration rate of 45mm/hr is assumed in all LID calculations, this value is obtained from the Hydrogeological Assessment Report prepared by GHD (February 2025)
4. The infiltration trench volume factors in the 40% volume reduction due to a void space ration of 0.4 for 50 mm clear stone.

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	SWMF Length to Width Ratio

SWM Pond Characteristics

Description	Value
Provided Permanent Pool Volume (m^3)	7,448
Required Permanent Pool Volume (m^3)	4,269

***Drainage area to Pond of 22.44 ha, 74% Imp**

Length to Width Ratio Calculation

Description	Forebay	Overall Cell
Length (m)	86	120
Width (m)	22	40
Length:Width Ratio	3.9 : 1	3 : 1
MOE Minimum Length Width Ratio	2 : 1	3 : 1

The design length:width Raio meets MOE's Guidelines

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	Sediment Forebay Sizing

Contributing Area (ha)	
22.44	SWM Pond

SETTLING LENGTH

Settling Cacluations for Forebay Length (MOE SWM Planning and Design Manual, 2003): Equation 4.5

$$Dist = \sqrt{\frac{rQ_p}{V_s}}$$

where Dist = forebay length (m)
r = length-to-width ratio of forebay
Q_p = peak flow rate from the pond during design quality storm (m^3/s)
V_s = settling velocity (dependent on desired particle size to settle) (m/s)

Parameter	Forebay	Units	Description
r =	**3.9**	-	*Length-to-width ratio of forebay (from PP)*
$Q_{p=}$	0.126	(m^3/s)	*Peak quality runoff flow based on 5mm storm (PCSWMM)*
$V_{s=}$	0.0003	(m/s)	*0.0003 m/s recommended by MOE*
$Dist_{R=}$	**40**	(m)	*Forebay Length Required*
$Dist_{P=}$	**59**	(m)	*Forebay Length Provided*

Note: Only the inlet with the larger flow rate is shown in the table above because of its higher required forebay length

DISPERSION LENGTH

Dispersion Length Cacluations for Forebay (MOE SWM Planning and Design Manual, 2003): Equation 4.6

$$Dist = \frac{8Q}{dV_f}$$

where Dist = length of dispersion (m)
Q = inlet flow rate (m^3/s)
d = depth of permanent pool in the forebay (m)
V_f = desired velocity in the forebay (m/s)

Parameter	Forebay	Units	Description
Q	2.83	(m^3/s)	*5-yr inlet flowrate (PCSWMM)*
d	**2.0**	(m)	*Depth of permanent pool in forebay*
V_f	0.50	(m/s)	*Desired velocity of forebay; 0.5 m/s recommended by MOE*
$Dist_R$	**23**	(m)	*Dispersion Length Required*
$Dist_P$	**59**	(m)	*Dispersion Length Provided*

The required forebay length is 23 m based on the dispersion length.
The provided forebay length is 59 m.

CALCULATIONS

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	SWMF Stage-Storage Summary Table

Accumulative Volume of the SWM Pond

Description	Elevation (m)	Depth to Bottom of Pond (m)	Depth to Bottom of Forebay (m)	Area (m^2)			Volume (m^3)		
				Forebay	Main Cell	TOTAL	Forebay	Main Cell	TOTAL
Bottom of Pond	**328.67**	**0.00**	-1.00	**0**	**0**	**0**	**0**	**0**	**0**
	328.70	0.03	-0.97	0	1,103	1,103	0	33	33
	328.80	0.13	-0.87	0	1,150	1,150	0	146	146
	328.90	0.23	-0.77	0	1,197	1,197	0	263	263
	329.00	0.33	-0.67	0	1,245	1,245	0	385	385
	329.10	0.43	-0.57	0	1,293	1,293	0	512	512
	329.20	0.53	-0.47	0	1,342	1,342	0	644	644
	329.30	0.63	-0.37	0	1,392	1,392	0	780	780
	329.40	0.73	-0.27	0	1,442	1,442	0	922	922
	329.50	0.83	-0.17	0	1,493	1,493	0	1,069	1,069
	329.60	0.93	-0.07	0	1,545	1,545	0	1,220	1,220
Bottom of Sediment Forebay	**329.67**	**1.00**	0.00	**0**	1,581	**1,581**	**0**	**1,330**	1,330
	329.70	1.03	0.03	379	1,597	1,976	11	1,378	1,389
	329.80	1.13	0.13	421	1,650	2,071	51	1,540	1,591
	329.90	1.23	0.23	465	1,703	2,168	95	1,708	1,803
	330.00	1.33	0.33	**509**	1,758	2,267	144	1,881	2,025
	330.10	1.43	0.43	554	1,813	2,367	197	2,059	2,256
	330.20	1.53	0.53	600	1,868	2,468	255	2,243	2,498
	330.30	1.63	0.63	646	1,924	2,571	317	2,433	2,750
	330.40	1.73	0.73	694	1,981	2,675	384	2,628	3,012
	330.50	1.83	0.83	742	2,039	2,780	456	2,829	3,285
	330.60	1.93	0.93	791	2,097	2,887	533	3,036	3,568
	330.70	2.03	1.03	840	2,155	2,996	614	3,248	3,863
	330.80	2.13	1.13	891	2,215	3,106	701	3,467	4,168
	330.90	2.23	1.23	942	2,275	3,217	792	3,691	4,484
	331.00	2.33	1.33	994	2,336	3,329	889	3,922	4,811
	331.10	2.43	1.43	1,057	2,409	3,466	991	4,159	5,150
	331.20	2.53	1.53	1,147	2,513	3,659	1,102	4,405	5,506
	331.30	2.63	1.63	1,239	2,618	3,856	1,221	4,661	5,882
	331.40	2.73	1.73	1,332	2,724	4,056	1,349	4,928	6,278
	331.50	2.83	1.83	1,427	2,833	4,260	1,487	5,206	6,693
	331.60	2.93	1.93	1,524	2,943	4,468	1,635	5,495	7,130
Permanent Pool	331.67	3.00	2.00	1,593	3,021	**4,615**	1,744	5,704	7,448
	331.70	3.03	2.03	4,733.41		4,733	141.02		141
	331.80	3.13	2.13	4,950.46		4,950	625.23		625
	331.90	3.23	2.23	5,166.09		5,166	1,131.07		1,131
	332.00	3.33	2.33	5,380.36		5,380	1,658.40		1,658
	332.10	3.43	2.43	5,593.51		5,594	2,207.10		2,207
	332.20	3.53	2.53	5,805.33		5,805	2,777.06		2,777
	332.30	3.63	2.63	6,045.52		6,046	3,368.57		3,369
	332.40	3.73	2.73	6,352.22		6,352	3,988.49		3,988
	332.50	3.83	2.83	6,655.08		6,655	4,638.88		4,639
	332.60	3.93	2.93	6,953.01		6,953	5,319.32		5,319
	332.70	4.03	3.03	7,247.30		7,247	6,029.36		6,029
	332.80	4.13	3.13	7,538.33		7,538	6,768.67		6,769
Emergency Spillway	332.86	4.19	3.19	7,712.13		**7,712**	7,226.19		7,226
	332.90	4.23	3.23	7,827.77		7,828	7,536.98		7,537
	333.00	4.33	3.33	8,118.66		8,119	8,334.28		8,334
	333.10	4.43	3.43	8,406.08		8,406	9,160.62		9,161
Top of Pond	333.16	4.49	3.49	8,565.58		**8,566**	9,669.86		9,670

Storage Summary Table

Description	Start Elevation (m)	End Elevation (m)	Depth (m)
Permanent Pool (Main Cell)	328.67	331.67	3.00
Active Storage	331.67	332.86	1.19
Freeboard	332.86	333.16	0.30

Description	Value	Notes
Site Area to Pond (ha)	22.44	
Composite Runoff Coefficient	0.72	
Site Imperivousness	74%	
Required Permanent Pool (m^3/ha)	190	
Total Required Permanent Pool (m^3)	4,269	Met MOE's Requirement
Required Extended Detention (m^3/ha)	40	
Total Required Extended Detention (m^3)	898	

65 Sunray St.
Whitby, Ontario
L1N 8Y3
905-686-6402

10 MINUTE ENTRY TIME

5yr-Design Storm

TOWNSHIP OF PUSLINCH
STORM SEWER DESIGN SHEET - 5YR

PREPARED BY: F. TSANG
CHECKED BY: M. LI
DATE: MAY 2025

Project Name: Estill Innovation Community
Project No. 12618927
Note: LID features (incl. controlled flows) are conceptual only for this submission

5-yr IDF Parameters	CITY OF GUELPH
A	632.750
B	0.000
C	0.741

Drainage Area	From MH	To MH	A Area (ha)	Accum. Area (ha)	R Runoff Coeff.	2.78AR	Accum. 2.78AR	Time of Conc. (min)	Rainfall (mm/hr)	Q Peak Flow (m3/s)	Pipe Diameter (mm)	Design Slope (%)	Length (m)	Capacity (m3/s)	Capacity at Critical Slope (m3/s)	Capacity Problem	Velocity (m/s)	Time in Section (min)	Total Time (min)	Remarks	5 YR Qact Qcap
206a, 206b	MH44	MH21	0.46	0.46	0.65	0.0008	0.0008	10.00	114.88	0.096	375	1.00	72.4	0.175	0.204	No	1.59	0.76	10.76		55%
219a, 219b, 220a, 220b, 221	MH21	MH20	0.68	1.14	0.65	0.0012	0.0021	10.76	108.81	0.224	525	0.50	100.0	0.304	0.473	No	1.40	1.19	11.95		74%
222, 223, 224	MH20	MH19	0.59	1.73	0.73	0.0012	0.0033	11.95	100.69	0.328	600	0.50	100.0	0.434	0.660	No	1.54	1.09	13.03		76%
	MH19	MH18	0.00	1.73	0.00		0.0033	13.03	94.41	0.307	750	0.50	51.8	0.787	1.153	No	1.78	0.48	13.52		39%
227, 228, 229a, 229b	MH18	MH6	0.52	2.25	0.90	0.0013	0.0046	13.52	91.89	0.419	750	0.50	77.5	0.787	1.153	No	1.78	0.72	14.24		53%
201	CBMH15	CBMH14	1.49	1.49	0.25	0.0010	0.0010	10.00	114.88	0.119	375	1.00	100.0	0.175	0.204	No	1.59	1.05	11.05		68%
204	CBMH14	CBMH13	0.25	1.74	0.25	0.0002	0.0012	11.05	106.69	0.129	450	0.50	54.7	0.202	0.321	No	1.27	0.72	11.77		64%
202, 203	LID#3	CBMH13		Area = 1.44 ha	0.90			10.00	114.88	0.265										1.32 ha + 0.12 ha (LID#3); Controlled Flow = 0.265 cms	
205a, 205b	CBMH13	MH12	0.16	1.90	0.90	0.0004	0.0016	11.77	101.81	0.429	675	0.50	50.5	0.594	0.886	No	1.66	0.51	12.28		72%
205d,209a	MH12	MH11	0.26	2.16	0.89	0.0006	0.0023	12.28	98.68	0.487	675	0.50	10.3	0.594	0.886	No	1.66	0.10	12.38		82%
	MH11	MH10	0.00	2.16	0.00		0.0023	12.38	98.07	0.486	675	0.50	30.4	0.594	0.886	No	1.66	0.31	12.68		82%
205c, 208a, 210a	MH10	MH42	0.35	2.51	0.90	0.0009	0.0031	12.68	96.32	0.566	750	0.50	30.4	0.787	1.153	No	1.78	0.28	12.97		72%
207, 208b, 209b,210b	MH42	MH9	1.10	3.61	0.47	0.0014	0.0045	12.97	94.75	0.696	825	0.50	62.3	1.015	1.463	No	1.90	0.55	13.52		69%
209c	MH16	MH9	0.17	0.17	0.65	0.0003	0.0003	10.00	114.88	0.035	450	1.00	54.2	0.285	0.321	No	1.79	0.50	10.50		12%
208c, 208d, 211, 212	MH9	MH8	0.69	4.47	0.91	0.0018	0.0066	13.52	91.89	0.872	900	0.50	62.4	1.280	1.819	No	2.01	0.52	14.03		68%
209d	MH17	MH8	0.11	0.11	0.65	0.0002	0.0002	10.00	114.88	0.023	525	1.00	85.4	0.430	0.473	No	1.99	0.72	10.72		5%
217, 218	LID#2	MH8		Area = 1.22 ha	0.90			10.00	114.88	0.180										0.58 + 0.64 ha (LID#2); Controlled Flow = 0.180 cms	
216a, 216b	MH8	MH7	0.08	4.66	0.90	0.0002	0.0070	14.03	89.37	1.071	975	0.50	50.6	1.585	2.221	No	2.12	0.40	14.43		68%
216c, 216d, 216e, 216f, 216g, 226	MH7	MH6	1.01	5.67	0.90	0.0025	0.0095	14.43	87.54	1.280	975	0.50	100.0	1.585	2.221	No	2.12	0.79	15.21		81%
236, 237, 238, 239	LID#1A	MH6		Area = 1.70 ha	0.90			10.00	114.88	0.164										0.47 + 0.43 + 0.41 + 0.39 ha (LID #1A); Controlled Flow = 0.164 cms	
230a, 230b	MH6	MH5	0.12	8.04	0.90	0.0003	0.0144	15.21	84.17	1.820	1200	0.50	76.7	2.757	3.733	No	2.44	0.52	15.74		66%
231a, 231b , 232a, 232b, 233a, 233b	MH5	MH4	0.34	8.38	0.90	0.0009	0.0152	15.74	82.09	1.860	1200	0.50	100.0	2.757	3.733	No	2.44	0.68	16.42		67%
234a, 234b, 248a, 248b	MH4	MH3	0.27	8.65	0.90	0.0007	0.0159	16.42	79.54	1.875	1200	0.50	100.0	2.757	3.733	No	2.44	0.68	17.11		68%
235	LID#1B	MH3		Area = 0.89 ha	0.90			10.00	114.88	0.185										0.89 ha (LID#1B); Controlled Flow = 0.185 cms	
	MH3	MH2	0.00	8.65	0.00		0.0159	17.11	77.17	2.022	1200	0.50	20.6	2.757	3.733	No	2.44	0.14	17.25		73%
245	CBMH45	CBMH28	0.39	0.39	0.25	0.0003	0.0003	10.00	114.88	0.031	300	1.00	55.9	0.097	0.117	No	1.37	0.68	10.68		32%
247	CBMH28	MH25	0.19	0.58	0.25	0.0001	0.0004	10.68	109.40	0.044	300	0.50	31.1	0.068	0.117	No	0.97	0.54	11.22		64%
Upper Pathway																					
240a, 240b, 241a, 241b	MH43	MH22	0.37	0.37	0.69	0.0007	0.0007	10.00	114.88	0.081	375	1.00	60.7	0.175	0.204	No	1.59	0.64	10.64		46%
242a, 242b, 243a, 243b	MH22	MH23	0.37	0.74	0.55	0.0006	0.0013	10.64	109.74	0.140	450	0.50	100.0	0.202	0.321	No	1.27	1.31	11.95		69%
244a, 244b	MH23	MH27	0.45	1.19	0.70	0.0009	0.0021	11.95	100.66	0.216	525	0.50	100.0	0.304	0.473	No	1.40	1.19	13.14		71%
	MH27	MH26	0.00	1.19	0.00		0.0021	13.14	93.84	0.201	525	0.50	28.1	0.304	0.473	No	1.40	0.33	13.47		66%
246	MH26	MH25	0.76	1.95	0.90	0.0019	0.0040	13.47	92.11	0.373	675	0.50	79.8	0.594	0.886	No	1.66	0.80	14.27		63%
	MH25	MH24	0.00	2.53	0.90		0.0045	14.27	88.26	0.393	675	0.50	18.2	0.594	0.886	No	1.66	0.18	14.46		66%
	MH24	MH2	0.00	2.53	0.90		0.0045	14.46	87.43	0.389	675	0.50	31.6	0.594	0.886	No	1.66	0.32	14.77		65%
248c, 248d	MH2	MH1	0.28	11.46	0.90	0.0007	0.0211	17.25	76.70	2.410	1350	0.50	17.8	3.774	5.011	No	2.64	0.11	17.36		64%
	MH1	SWM Pond	0.00	11.46	0.50		0.0211	17.36	76.33	2.402	1350	1.22	26.4	5.895	5.011	No	4.12	0.11	17.47		48%

28/05/2025

65 Sunray St.
Whitby, Ontario
L1N 8Y3
905-686-6402

10 MINUTE ENTRY TIME

5yr-Design Storm

TOWNSHIP OF PUSLINCH
STORM SEWER DESIGN SHEET - 5YR

PREPARED BY: F. TSANG
CHECKED BY: M. LI
DATE: MAY 2025

Project Name: Estill Innovation Community
Project No. 12618927
Note: LID features (incl. controlled flows) are conceptual only for this submission

5-yr IDF Parameters	CITY OF GUELPH
A	632.750
B	0.000
C	0.741

Drainage Area	From MH	To MH	A Area (ha)	Accum. Area (ha)	R Runoff Coeff.	2.78AR	Accum. 2.78AR	Time of Conc. (min)	Rainfall (mm/hr)	Q Peak Flow (m3/s)	Pipe Diameter (mm)	Design Slope (%)	Length (m)	Capacity (m3/s)	Capacity at Critical Slope (m3/s)	Capacity Problem	Velocity (m/s)	Time in Section (min)	Total Time (min)	Remarks	5 YR Qact Qcap
213, 214, 215, 257, 258, 259, 260, 253, 252b, 252c, 252d, 261, 262, 263	MH32	MH31	4.65	4.65	0.27	0.0035	0.0035	10.00	114.88	0.402	600	0.50	100.0	0.434	0.660	No	1.54	1.09	11.09		93%
250c, 250d, 250e, 250f	MH31	MH30	0.25	4.90	0.83	0.0006	0.0041	11.09	106.43	0.434	675	0.50	62.2	0.594	0.886	No	1.66	0.62	11.71		73%
250a, 250b	MH30	MH29	0.27	5.17	0.39	0.0003	0.0044	11.71	102.20	0.447	675	0.50	28.7	0.594	0.886	No	1.66	0.29	12.00		75%
	MH29	SWM Pond	0.00	5.17	0.00		0.0044	12.00	100.38	0.439	675	1.19	25.5	0.917	0.886	No	2.56	0.17	12.16		50%
255, 256	LID#5	Wetland		Area = 0.43 ha	0.49			10.00	114.88	0.098											
251, 252a	LID#6	Wetland		Area = 0.17 ha	0.40			10.00	114.88	0.049											
249		SWM Pond	1.09	LID#1A	1.70	LID#5	0.4300														
254		Wetland	1.90	LID#1B	0.89	LID#6	0.1700														
		LID Total	5.85	LID#2	1.22																
		Total Area	25.47	LID#3	1.44																

Date	Submission
FEB 2025	Issued For OPA ZBA
MAY 2025	Issued for OPA ZBA 2nd Submission

Appendix B

Engineering drawings

LEGEND

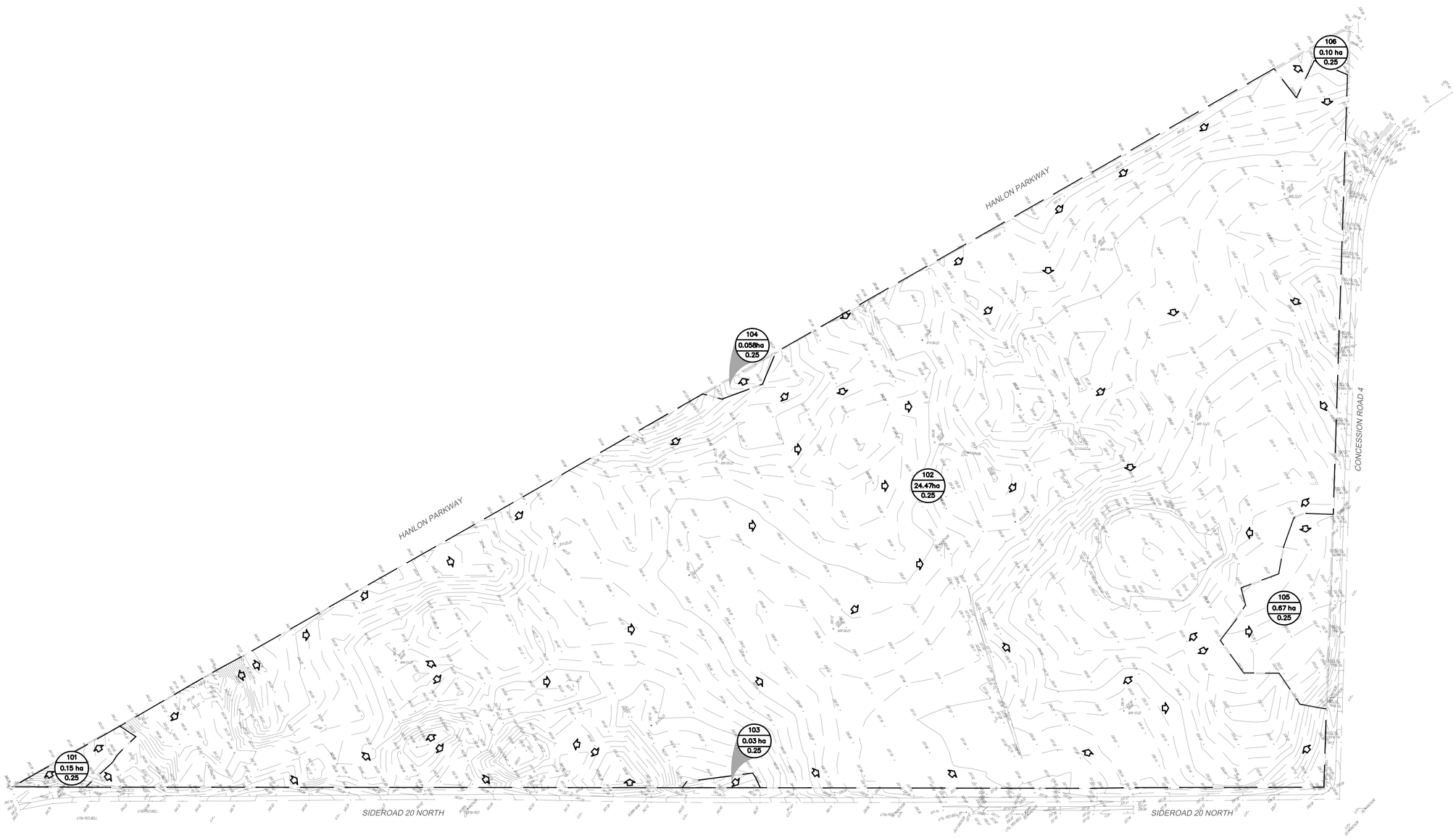
STORM WATER DRAINAGE

300 / 0.23 ha / 0.90 — AREA NUMBER / AREA IN HECTARES / RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

EXTERNAL DRAINAGE AREA BOUNDARY

OVERLAND FLOW



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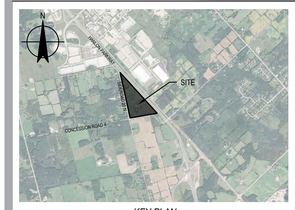
0 — 25mm

1:1250 — 0 — 12.5m — 25m



KEY PLAN
N.T.S

No.	Issue	Checked	Approved	Date
2	2nd SUBMISSION FOR OPA ZBA	C.S.	A.S.	2025.05.28
1	ISSUED FOR OPA ZBA	M.L.	M.M.	2025.02.07

Author	C.SUTCLIFFE	Designer	F.TSANG
Drafting Check	C.SUTCLIFFE	Design Check	M.LI
Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client

PUSLINCH DEVELOPMENT GP INC.

Project

ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:1250

Project No.
12618927

Title

EXISTING STORM DRAINAGE AREA PLAN

Size
ARCH E1

Sheet No.
EX STM101

Sheet
5 of 7

LEGEND

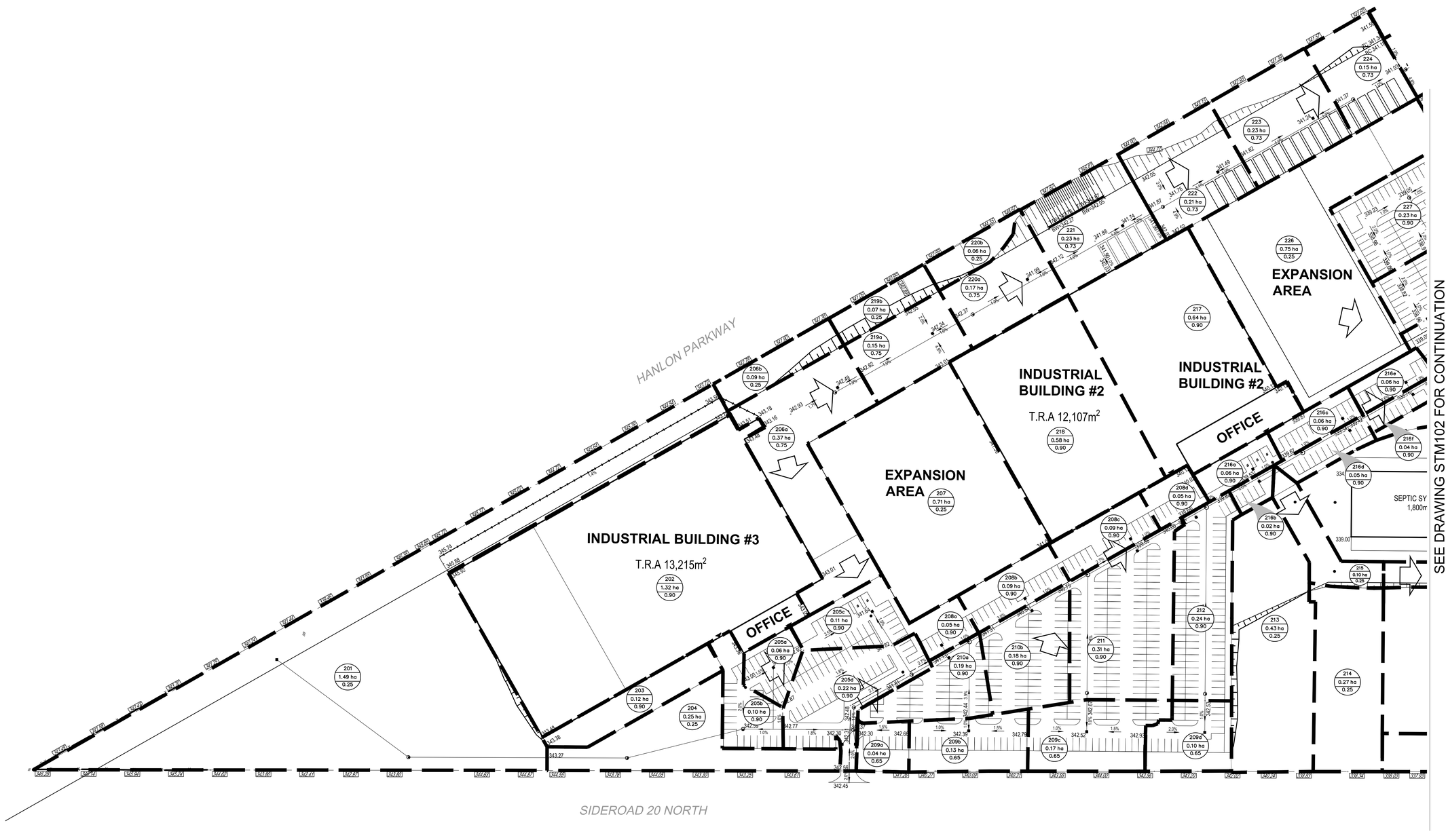
STORM WATER DRAINAGE

300 / 0.23 ha / 0.90 — AREA NUMBER, AREA IN HECTARES, RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

EXISTING DRAINAGE AREA BOUNDARY

OVERLAND FLOW



OPA_ZBA

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1:750 0 7.5m 15m

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Client

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Project

ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

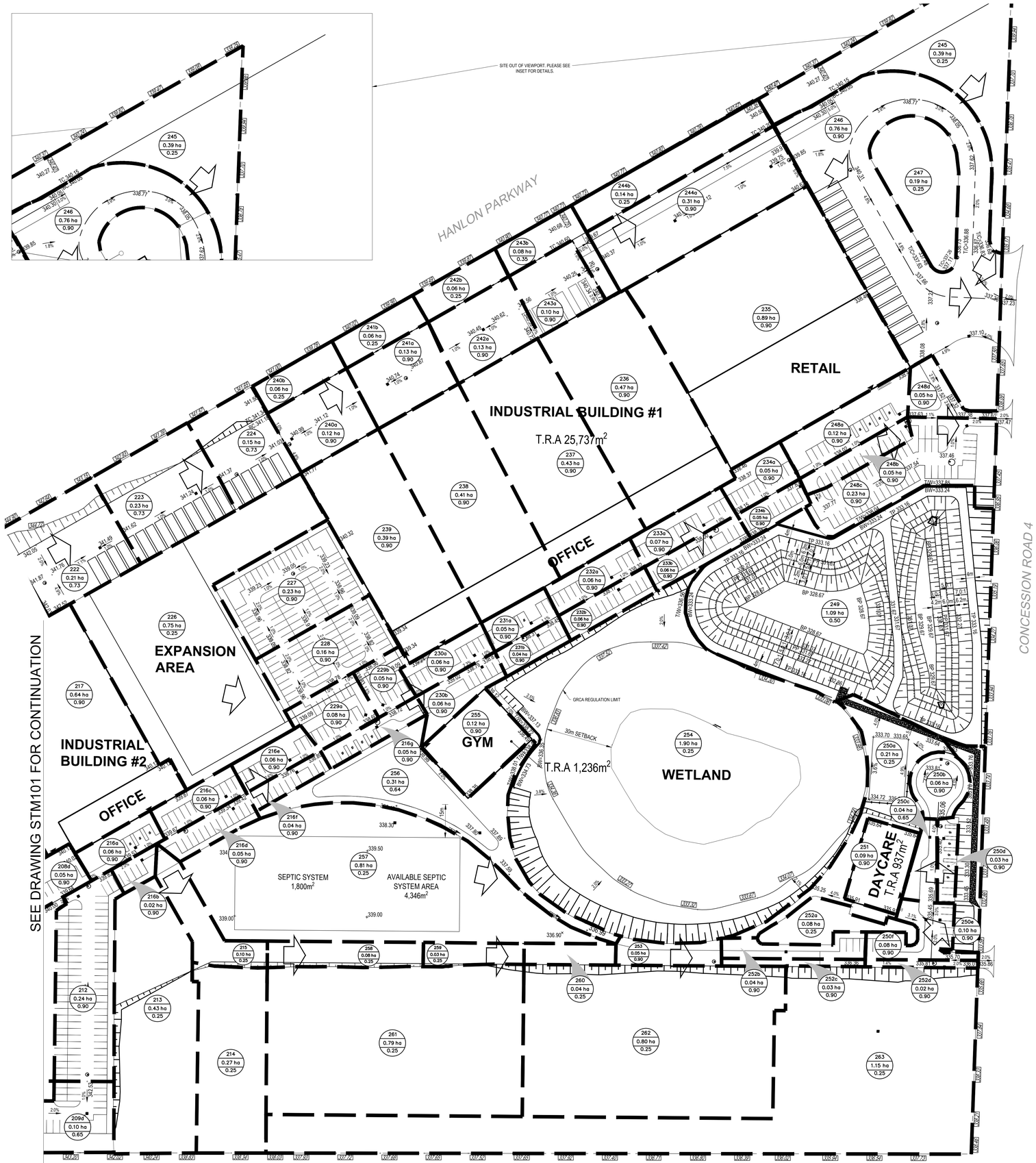
Title

STORM DRAINAGE AREA PLAN #1

Size ARCH E1

Sheet No. STM101

Sheet 6 of 7



LEGEND

STORM WATER DRAINAGE

300 / 0.23 ha / 0.90 — AREA NUMBER / AREA IN HECTARES / RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

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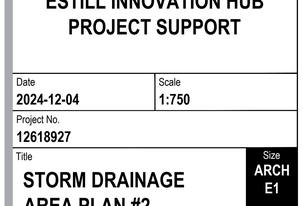

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Project

ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

Title
STORM DRAINAGE AREA PLAN #2

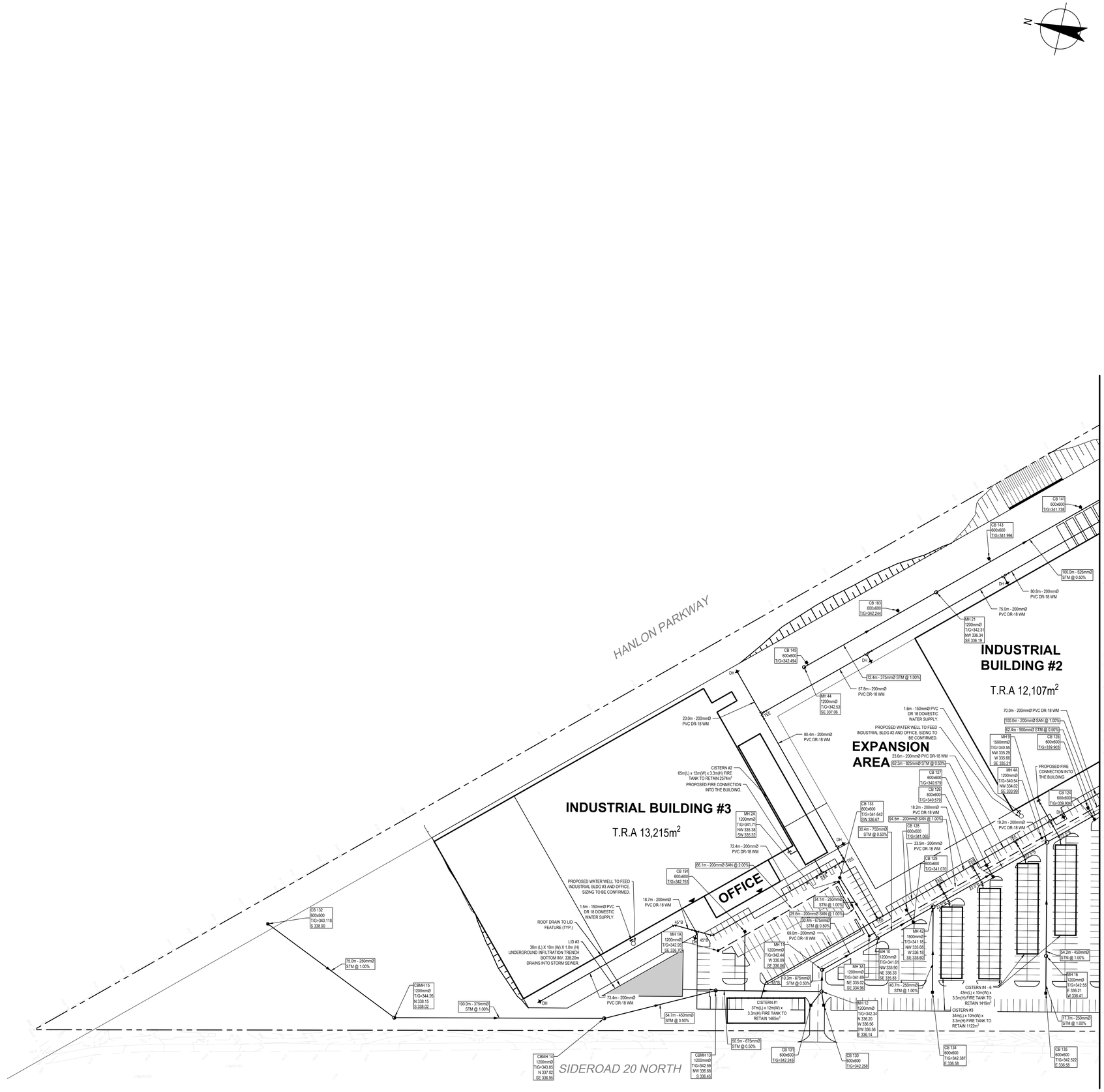
Size
ARCH E1

Sheet No.
STM102

Sheet
7 of 7

OPA_ZBA

Plot Date: 26 May 2025 - 3:26 PM
Plotted By: Cole Sutcliffe
Path and Filename: \\ghdnetghd\CA\Waterloo\Projects\662\12618927\Digital_Design\ACAD\Sheets\12618927-GHD-00-00-DWG-CI-STM_Proposed_Drainage_Plan.dwg



LEGEND

- PROPERTY LINE
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANOLE
- PROPOSED CATCHBASIN
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED DRY HYDRANT
- PROPOSED WATER WELL
- PROPOSED WATER VALVE
- PROPOSED CONCRETE RETAINING WALL

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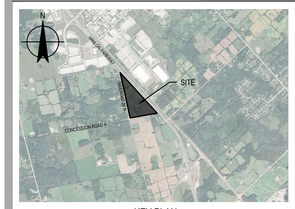

KEY PLAN
N.T.S

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2	2nd SUBMISSION FOR OPA ZBA	C.S.	A.S.	2025.05.28
1	ISSUED FOR OPA ZBA	J.P.	M.M.	2025.02.07

Author	C.SUTCLIFFE	Designer	C.SUTCLIFFE
Drafting Check	C.SUTCLIFFE	Design Check	S.STARCEVIC
Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client

PUSLINCH DEVELOPMENT GP INC.

Project

ESTILL INNOVATION HUB PROJECT SUPPORT

Date	Scale
2024-12-04	1:750

Project No.
12618927

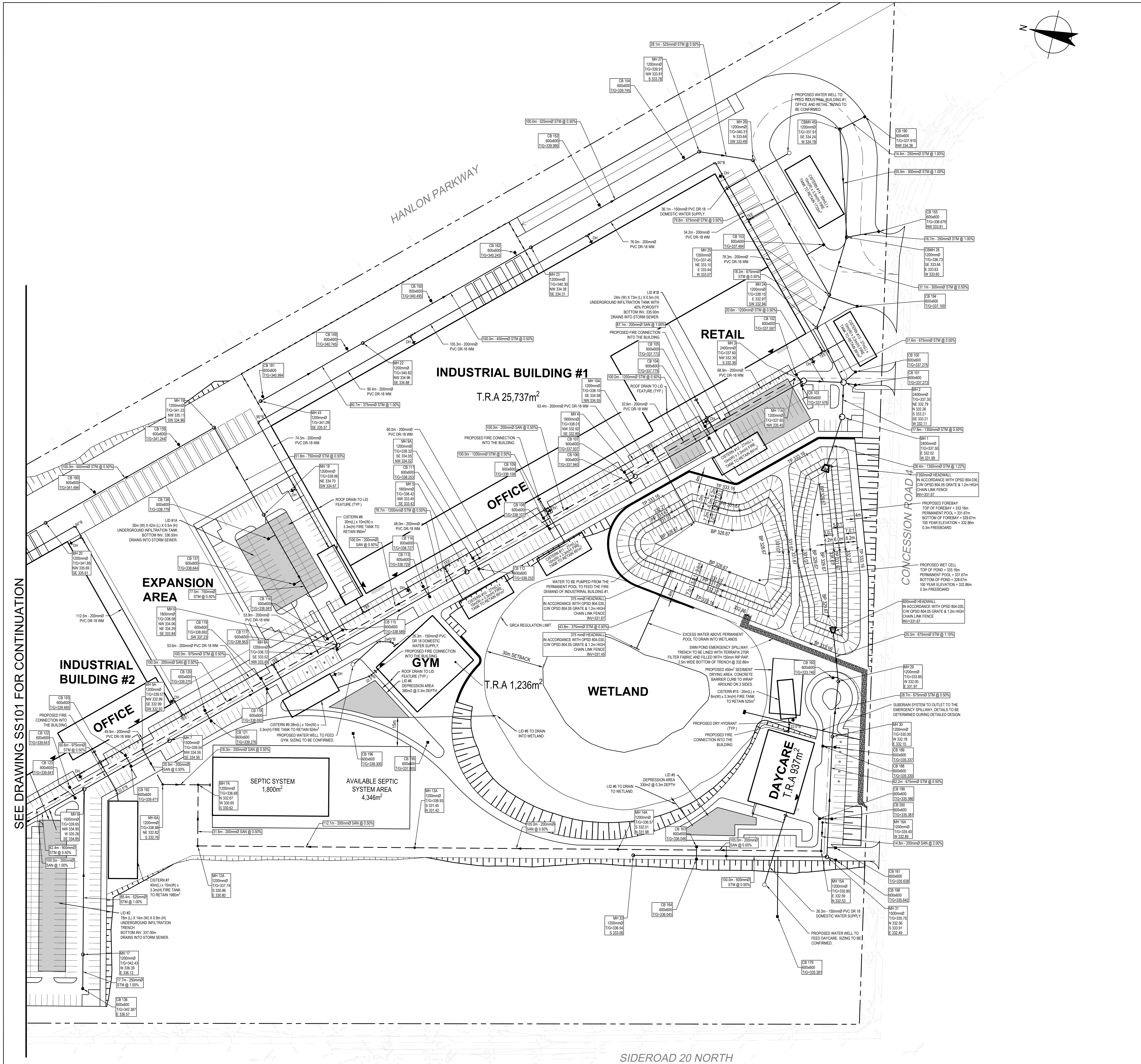
Title
SITE SERVICING PLAN #1

Size
ARCH E1

Sheet No.
SS101

Sheet
1 of 7

OPA_ZBA



LEGEND

- PROPERTY LINE
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANOLE
- PROPOSED CATCHBASIN
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- DH PROPOSED DRY HYDRANT
- PROPOSED WATER WELL
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- PROPOSED CONCRETE RETAINING WALL

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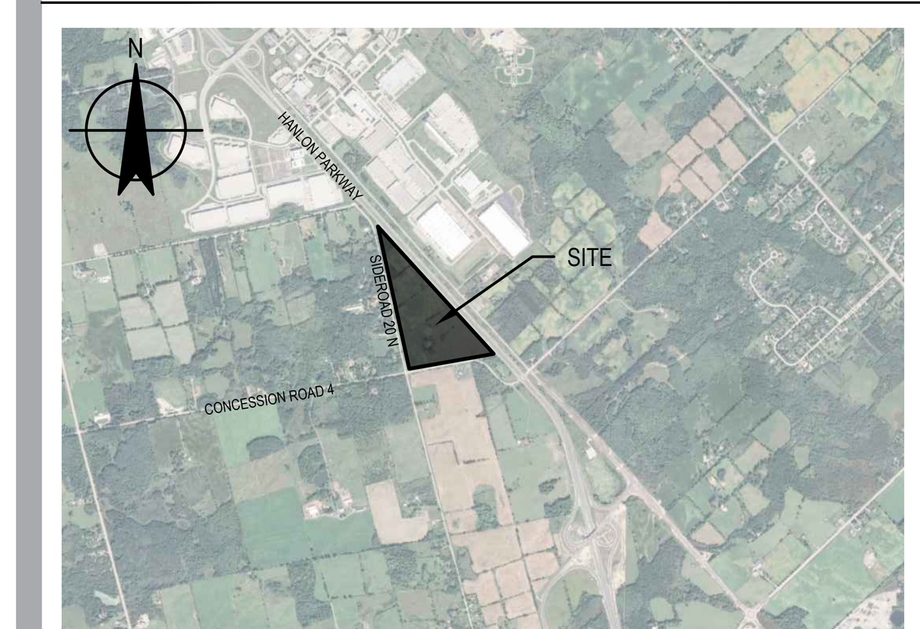

KEY PLAN
N.T.S

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Project Manager	M.MIKHAIL	Project Director	M.MIKHAIL

Client
PUSLINCH DEVELOPMENT GP INC.

Project
ESTILL INNOVATION HUB PROJECT SUPPORT

Date **2024-12-04** Scale **1:750**

Project No. **12618927**

Title
SITE SERVICING PLAN #2

Size ARCH E1

OPA_ZBA

Sheet No. SS102 Sheet 2 of 7

Appendix C

PCSWMM model output

MODELLING

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	PCSWMM Model Schematic (Existing Conditions)

PCSWMM Model Schematic

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 6
Number of nodes 6
Number of links 0
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_3h_100Year_Guelph	Chicago_3h_100Year_Guelph	INTENSITY	5 min.
Chicago_3h_10Year_Guelph	Chicago_3h_10Year_Guelph	INTENSITY	5 min.
Chicago_3h_25Year_Guelph	Chicago_3h_25Year_Guelph	INTENSITY	5 min.
Chicago_3h_2Year_Guelph	Chicago_3h_2Year_Guelph	INTENSITY	5 min.
Chicago_3h_50Year_Guelph	Chicago_3h_50Year_Guelph	INTENSITY	5 min.
Chicago_3h_5Year_Guelph	Chicago_3h_5Year_Guelph	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.15	17.96	7.00	2.0000	Chicago_3h_100Year_Guelph	EXT_01
102	24.47	276.40	7.00	2.0000	Chicago_3h_100Year_Guelph	Wetland
103	0.03	6.03	7.00	2.0000	Chicago_3h_100Year_Guelph	EXT_02
104	0.06	13.77	7.00	2.0000	Chicago_3h_100Year_Guelph	EXT_03
105	0.67	50.76	7.00	2.0000	Chicago_3h_100Year_Guelph	EXT_04
106	0.10	19.24	7.00	2.0000	Chicago_3h_100Year_Guelph	EXT_05

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
EXT_01	OUTFALL	341.40	0.00	0.0	
EXT_02	OUTFALL	342.72	0.00	0.0	
EXT_03	OUTFALL	342.41	0.00	0.0	
EXT_04	OUTFALL	332.57	0.00	0.0	
EXT_05	OUTFALL	339.45	0.00	0.0	
Wetland	OUTFALL	331.45	0.00	0.0	

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... NO
  Water Quality ..... NO
Infiltration Method ..... HORTON
Surcharge Method ..... EXTRAN
Starting Date 01/27/2025 00:00:00
Ending Date 01/28/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	1.816	71.260
Evaporation Loss	0.000	0.000
Infiltration Loss	1.306	51.250
Surface Runoff	0.514	20.189
Final Storage	0.002	0.079
Continuity Error (%)	-0.361	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.514	5.144
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.514	5.144
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
101	71.26	0.00	0.00	42.16	4.92	25.33	30.25	0.05	0.04	0.424
102	71.26	0.00	0.00	51.61	5.00	14.80	19.80	4.84	1.81	0.278
103	71.26	0.00	0.00	41.49	4.92	26.69	31.61	0.01	0.01	0.444
104	71.26	0.00	0.00	41.33	4.92	27.12	32.05	0.02	0.02	0.450
105	71.26	0.00	0.00	43.05	4.93	24.02	28.95	0.19	0.12	0.406
106	71.26	0.00	0.00	41.53	4.92	26.57	31.50	0.03	0.03	0.442

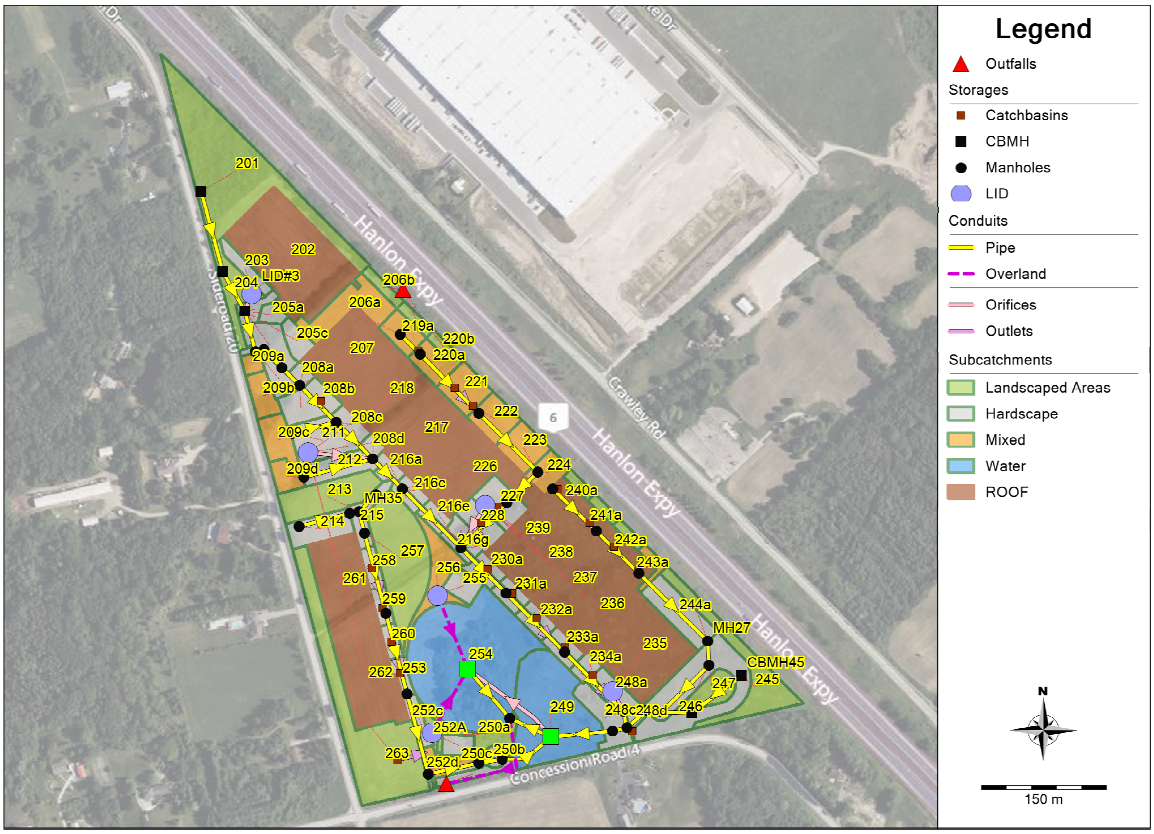
Analysis begun on: Wed May 28 16:01:52 2025
Analysis ended on: Wed May 28 16:01:52 2025
Total elapsed time: < 1 sec

MODELLING

Prepared by F.T.
Reviewed by M.L.

Project Name	Estill Innovation Community
Project No.	12618927
Subject	PCSWMM Model Schematic

PCSWMM Model Schematic



EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Proposed Drainage Areas for Danby
LID measures
Pipe Changes (250204)
LID Configurations and Drainage Area Checks (250205)
Drainage Areas (250206)
Changes to Address Comments (250521)
RC Changes (250522)
Pond Storage Curve Updates (250523)
Update LID Surface Area (250527)

RESULTS FOR 2-YEAR EVENT

****
Element Count
****
Number of rain gages 8
Number of subcatchments ... 103
Number of nodes 74
Number of links 73
Number of pollutants 1
Number of land uses 3

****
Pollutant Summary
****

Name	Units	Ppt. Concen.	GW Concen.	Kdecay 1/days	CoPollutant
TSS	MG/L	0.00	0.00	0.00	

****
Landuse Summary
****

Name	Sweeping Interval	Maximum Removal	Last Swept
Landscape	0.00	0.00	0.00
Paved	0.00	0.00	0.00
Roof	0.00	0.00	0.00

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
25mm	25	INTENSITY	10 min.
5mm	5mm	INTENSITY	10 min.
Chicago_3h_100Year_Guelph	Chicago_3h_100Year_Guelph	INTENSITY	5 min.
Chicago_3h_10Year_Guelph	Chicago_3h_10Year_Guelph	INTENSITY	5 min.
Chicago_3h_25Year_Guelph	Chicago_3h_25Year_Guelph	INTENSITY	5 min.
Chicago_3h_2Year_Guelph	Chicago_3h_2Year_Guelph	INTENSITY	5 min.
Chicago_3h_50Year_Guelph	Chicago_3h_50Year_Guelph	INTENSITY	5 min.
Chicago_3h_5Year_Guelph	Chicago_3h_5Year_Guelph	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
201	1.49	83.66	0.00	1.0000	Chicago_3h_2Year_Guelph	CBMH15
202	1.32	93.14	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#3
203	0.12	14.28	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#3
204	0.25	90.52	0.00	1.0000	Chicago_3h_2Year_Guelph	CBMH14
205a	0.06	11.41	100.00	1.0000	Chicago_3h_2Year_Guelph	CBMH13
205b	0.10	19.02	100.00	1.0000	Chicago_3h_2Year_Guelph	CBMH13
205c	0.11	20.92	100.00	1.0000	Chicago_3h_2Year_Guelph	CBMH13
205d	0.22	41.84	100.00	1.0000	Chicago_3h_2Year_Guelph	CBMH13
206a	0.37	38.15	79.00	1.0000	Chicago_3h_2Year_Guelph	MH44
206b	0.09	9.28	0.00	1.0000	Chicago_3h_2Year_Guelph	OF1
207	0.71	77.73	100.00	1.0000	Chicago_3h_2Year_Guelph	MH42
208a	0.05	29.26	100.00	1.0000	Chicago_3h_2Year_Guelph	MH42
208b	0.09	52.66	100.00	1.0000	Chicago_3h_2Year_Guelph	CB126-127
208c	0.09	52.66	100.00	1.0000	Chicago_3h_2Year_Guelph	MH9
208d	0.05	29.26	100.00	1.0000	Chicago_3h_2Year_Guelph	MH8
209a	0.04	9.96	64.00	1.0000	Chicago_3h_2Year_Guelph	MH12
209b	0.13	24.72	64.00	1.0000	Chicago_3h_2Year_Guelph	MH42
209c	0.17	26.20	64.00	1.0000	Chicago_3h_2Year_Guelph	MH16
209d	0.10	39.25	64.00	1.0000	Chicago_3h_2Year_Guelph	MH17
210a	0.19	47.31	100.00	1.0000	Chicago_3h_2Year_Guelph	MH12
210b	0.18	34.22	100.00	1.0000	Chicago_3h_2Year_Guelph	MH42
211	0.31	47.78	100.00	1.0000	Chicago_3h_2Year_Guelph	MH16
212	0.24	94.19	100.00	1.0000	Chicago_3h_2Year_Guelph	MH17
213	0.43	120.19	0.00	1.0000	Chicago_3h_2Year_Guelph	MH35
214	0.27	91.94	100.00	1.0000	Chicago_3h_2Year_Guelph	MH38
215	0.10	60.66	100.00	1.0000	Chicago_3h_2Year_Guelph	MH36
216a	0.06	25.10	100.00	1.0000	Chicago_3h_2Year_Guelph	MH7
216b	0.02	8.37	100.00	1.0000	Chicago_3h_2Year_Guelph	MH7
216c	0.06	25.10	100.00	1.0000	Chicago_3h_2Year_Guelph	MH7
216d	0.05	20.92	100.00	1.0000	Chicago_3h_2Year_Guelph	MH7
216e	0.06	19.84	100.00	1.0000	Chicago_3h_2Year_Guelph	MH6
216f	0.04	13.23	100.00	1.0000	Chicago_3h_2Year_Guelph	MH6
216g	0.05	16.53	100.00	1.0000	Chicago_3h_2Year_Guelph	MH6
217	0.64	66.83	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#2
218	0.58	63.72	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#2
219a	0.15	34.73	79.00	1.0000	Chicago_3h_2Year_Guelph	MH44
219b	0.07	16.21	0.00	1.0000	Chicago_3h_2Year_Guelph	OF1
220a	0.17	38.83	79.00	1.0000	Chicago_3h_2Year_Guelph	CB145
220b	0.06	13.70	0.00	1.0000	Chicago_3h_2Year_Guelph	OF1
221	0.23	53.63	76.00	1.0000	Chicago_3h_2Year_Guelph	CB143
222	0.21	48.75	76.00	1.0000	Chicago_3h_2Year_Guelph	CB141
223	0.23	56.45	76.00	1.0000	Chicago_3h_2Year_Guelph	MH19
224	0.15	34.55	76.00	1.0000	Chicago_3h_2Year_Guelph	MH19
226	0.75	77.19	100.00	1.0000	Chicago_3h_2Year_Guelph	MH7
227	0.23	41.91	100.00	1.0000	Chicago_3h_2Year_Guelph	CB138
228	0.16	28.70	100.00	1.0000	Chicago_3h_2Year_Guelph	CB137
229a	0.08	26.45	100.00	1.0000	Chicago_3h_2Year_Guelph	MH6
229b	0.05	16.53	100.00	1.0000	Chicago_3h_2Year_Guelph	MH6
230a	0.06	21.25	100.00	1.0000	Chicago_3h_2Year_Guelph	CB113-114
230b	0.06	21.25	100.00	1.0000	Chicago_3h_2Year_Guelph	CB113-114
231a	0.05	19.68	100.00	1.0000	Chicago_3h_2Year_Guelph	CB111-112
231b	0.04	15.74	100.00	1.0000	Chicago_3h_2Year_Guelph	CB111-112
232a	0.06	24.02	100.00	1.0000	Chicago_3h_2Year_Guelph	CB108-109
232b	0.06	24.02	100.00	1.0000	Chicago_3h_2Year_Guelph	CB108-109
233a	0.07	27.13	100.00	1.0000	Chicago_3h_2Year_Guelph	CB106-107
233b	0.06	23.25	100.00	1.0000	Chicago_3h_2Year_Guelph	CB106-107
234a	0.05	16.63	100.00	1.0000	Chicago_3h_2Year_Guelph	CB104-105
234b	0.05	16.63	100.00	1.0000	Chicago_3h_2Year_Guelph	CB104-105
235	0.89	98.21	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#1B
236	0.47	49.29	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#1A
237	0.43	44.70	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#1A
238	0.41	42.54	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#1A
239	0.39	40.36	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#1A
240a	0.12	27.91	100.00	1.0000	Chicago_3h_2Year_Guelph	CB181
240b	0.06	13.95	0.00	1.0000	Chicago_3h_2Year_Guelph	240a
241a	0.13	30.16	100.00	1.0000	Chicago_3h_2Year_Guelph	CB149
241b	0.06	13.92	0.00	1.0000	Chicago_3h_2Year_Guelph	241a
242a	0.13	30.69	100.00	1.0000	Chicago_3h_2Year_Guelph	CB150
242b	0.06	14.16	0.00	1.0000	Chicago_3h_2Year_Guelph	242a
243a	0.10	23.41	100.00	1.0000	Chicago_3h_2Year_Guelph	CB182
243b	0.08	18.73	21.00	1.0000	Chicago_3h_2Year_Guelph	243a
244a	0.31	32.35	100.00	1.0000	Chicago_3h_2Year_Guelph	MH27
244b	0.14	14.61	0.00	1.0000	Chicago_3h_2Year_Guelph	MH27
245	0.39	44.70	0.00	1.0000	Chicago_3h_2Year_Guelph	CBMH45
246	0.76	265.59	100.00	1.0000	Chicago_3h_2Year_Guelph	MH26
247	0.19	14.81	0.00	1.0000	Chicago_3h_2Year_Guelph	MH26
248a	0.12	26.03	100.00	1.0000	Chicago_3h_2Year_Guelph	MH3
248b	0.05	10.85	100.00	1.0000	Chicago_3h_2Year_Guelph	MH3
248c	0.23	49.89	100.00	1.0000	Chicago_3h_2Year_Guelph	MH3
248d	0.05	10.85	100.00	1.0000	Chicago_3h_2Year_Guelph	CB100-101
249	1.09	143.48	43.00	1.0000	Chicago_3h_2Year_Guelph	SWM_Pond
250a	0.21	29.79	0.00	1.0000	Chicago_3h_2Year_Guelph	LID#6
250b	0.06	11.60	100.00	1.0000	Chicago_3h_2Year_Guelph	MH29
250c	0.04	7.73	64.00	1.0000	Chicago_3h_2Year_Guelph	MH31
250d	0.03	5.80	100.00	1.0000	Chicago_3h_2Year_Guelph	MH30
250e	0.10	19.33	100.00	1.0000	Chicago_3h_2Year_Guelph	MH39
250f	0.08	15.47	100.00	1.0000	Chicago_3h_2Year_Guelph	MH31
251	0.09	39.92	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#6
252A	0.08	11.35	0.00	1.0000	Chicago_3h_2Year_Guelph	LID#6
252b	0.05	7.09	100.00	1.0000	Chicago_3h_2Year_Guelph	MH32
252c	0.03	5.80	100.00	1.0000	Chicago_3h_2Year_Guelph	MH32
252d	0.02	3.87	100.00	1.0000	Chicago_3h_2Year_Guelph	MH31
253	0.05	29.33	100.00	1.0000	Chicago_3h_2Year_Guelph	CB165-166
254	1.90	143.88	0.00	1.0000	Chicago_3h_2Year_Guelph	Wetland
255	0.12	40.81	100.00	1.0000	Chicago_3h_2Year_Guelph	LID#5
256	0.31	29.83	63.00	1.0000	Chicago_3h_2Year_Guelph	LID#5
257	0.81	54.78	0.00	1.0000	Chicago_3h_2Year_Guelph	MH34
258	0.08	49.72	100.00	1.0000	Chicago_3h_2Year_Guelph	CB171-172
259	0.03	19.19	100.00	1.0000	Chicago_3h_2Year_Guelph	CB169-170

260	0.04	26.44	100.00	1.0000	Chicago_3h_2Year_Guelph CB167-168
261	0.79	70.29	100.00	1.0000	Chicago_3h_2Year_Guelph LID#2
262	0.80	74.17	100.00	1.0000	Chicago_3h_2Year_Guelph LID#2
263	1.15	136.28	0.00	1.0000	Chicago_3h_2Year_Guelph CB179

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH39	OUTFALL	332.85	0.30	0.0	
OF1	OUTFALL	333.00	0.00	0.0	
CB100-101	STORAGE	337.27	1.00	0.0	
CB104-105	STORAGE	337.77	1.00	0.0	
CB106-107	STORAGE	337.94	1.00	0.0	
CB108-109	STORAGE	338.11	1.00	0.0	
CB111-112	STORAGE	338.25	1.00	0.0	
CB113-114	STORAGE	338.73	1.00	0.0	
CB126-127	STORAGE	340.58	1.00	0.0	
CB137	STORAGE	338.64	1.00	0.0	
CB138	STORAGE	338.78	1.00	0.0	
CB141	STORAGE	341.74	1.00	0.0	
CB143	STORAGE	341.99	1.00	0.0	
CB145	STORAGE	342.24	1.00	0.0	
CB149	STORAGE	340.74	1.00	0.0	
CB150	STORAGE	340.50	1.00	0.0	
CB165-166	STORAGE	336.37	1.00	0.0	
CB167-168	STORAGE	336.58	1.00	0.0	
CB169-170	STORAGE	336.81	1.00	0.0	
CB171-172	STORAGE	337.09	1.00	0.0	
CB179	STORAGE	335.38	1.00	0.0	
CB181	STORAGE	340.99	1.00	0.0	
CB182	STORAGE	340.25	1.00	0.0	
CBMH13	STORAGE	336.45	6.14	0.0	
CBMH14	STORAGE	336.95	6.90	0.0	
CBMH15	STORAGE	338.02	6.23	0.0	
CBMH28	STORAGE	333.60	3.13	0.0	
CBMH45	STORAGE	334.19	3.73	0.0	
LID#1A	STORAGE	336.50	2.41	0.0	
LID#1B	STORAGE	335.00	2.83	0.0	
LID#2	STORAGE	337.00	5.60	0.0	
LID#3	STORAGE	338.20	4.00	0.0	
LID#5	STORAGE	335.00	1.30	0.0	
LID#6	STORAGE	334.30	1.30	0.0	
MH1	STORAGE	331.99	5.51	0.0	
MH10	STORAGE	335.83	5.78	0.0	
MH11	STORAGE	336.06	6.38	0.0	
MH12	STORAGE	336.14	6.20	0.0	
MH16	STORAGE	336.21	6.35	0.0	
MH17	STORAGE	336.12	6.31	0.0	
MH18	STORAGE	334.68	4.38	0.0	
MH19	STORAGE	334.96	6.26	0.0	
MH2	STORAGE	332.11	5.24	0.0	
MH20	STORAGE	335.61	6.27	0.0	
MH21	STORAGE	336.19	6.12	0.0	
MH22	STORAGE	334.88	5.94	0.0	
MH23	STORAGE	334.31	5.99	0.0	
MH24	STORAGE	332.94	5.21	0.0	
MH25	STORAGE	333.06	4.38	0.0	
MH26	STORAGE	333.49	6.81	0.0	
MH27	STORAGE	333.79	6.12	0.0	
MH29	STORAGE	331.97	1.88	0.0	
MH3	STORAGE	332.36	5.24	0.0	
MH30	STORAGE	332.15	2.85	0.0	
MH31	STORAGE	332.49	3.27	0.0	
MH32	STORAGE	333.06	3.47	0.0	
MH33	STORAGE	333.59	3.33	0.0	
MH34	STORAGE	334.17	3.29	0.0	
MH35	STORAGE	334.30	3.44	0.0	
MH36	STORAGE	334.82	3.94	0.0	
MH37	STORAGE	334.36	3.67	0.0	
MH38	STORAGE	335.27	3.88	0.0	
MH4	STORAGE	332.89	5.11	0.0	
MH41	STORAGE	332.64	1.52	0.0	
MH42	STORAGE	335.60	5.58	0.0	
MH43	STORAGE	335.57	5.53	0.0	
MH44	STORAGE	337.06	5.46	0.0	
MH5	STORAGE	333.42	5.00	0.0	
MH6	STORAGE	333.84	4.75	0.0	
MH7	STORAGE	334.56	4.98	0.0	
MH8	STORAGE	334.84	4.80	0.0	
MH9	STORAGE	335.21	5.33	0.0	
SWM_Pond	STORAGE	331.67	1.45	0.0	
Wetland	STORAGE	331.55	1.51	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	MH44	MH21	CONDUIT	72.4	1.0004	0.0130
C10	CBMH45	CBMH28	CONDUIT	55.9	1.0007	0.0130
C11	CBMH28	MH25	CONDUIT	31.1	0.4990	0.0130
C3	MH23	MH27	CONDUIT	100.0	0.5000	0.0130
C5	LID#6	Wetland	CONDUIT	17.3	5.3835	0.1000
C6	LID#5	Wetland	CONDUIT	59.4	1.6837	0.1000
C7	Wetland	MH41	CONDUIT	64.7	1.2212	0.0100
C8	SWM_Pond	MH41	CONDUIT	15.0	1.4668	0.0200
Pipe_-_(38)_(C-STRM)	MH27	MH26	CONDUIT	28.1	0.5010	0.0130
Pipe_-_(39)_(C-STRM)	MH26	MH25	CONDUIT	79.8	0.4999	0.0130
Pipe_-_(41)_(C-STRM)	MH25	MH24	CONDUIT	18.2	0.4994	0.0130
Pipe_-_(42)_(C-STRM)	MH24	MH2	CONDUIT	31.6	0.5001	0.0130
Pipe_-_(43)_(C-STRM)	MH2	MH1	CONDUIT	17.8	0.4996	0.0130
Pipe_-_(44)_(C-STRM)	MH1	SWM_Pond	CONDUIT	32.2	0.9997	0.0130
Pipe_-_(45)_(C-STRM)	MH3	MH2	CONDUIT	20.6	0.4992	0.0130
Pipe_-_(46)_(C-STRM)	MH4	MH3	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(47)_(C-STRM)	MH5	MH4	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(48)_(C-STRM)	MH6	MH5	CONDUIT	76.7	0.4997	0.0130
Pipe_-_(49)_(C-STRM)	MH7	MH6	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(51)_(C-STRM)	MH8	MH7	CONDUIT	50.6	0.4996	0.0130
Pipe_-_(52)_(C-STRM)	MH42	MH9	CONDUIT	62.3	0.5007	0.0130
Pipe_-_(53)_(C-STRM)	MH10	MH42	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(54)_(C-STRM)	MH11	MH10	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(55)_(C-STRM)	MH12	MH11	CONDUIT	10.3	0.5039	0.0130
Pipe_-_(57)_(C-STRM)	CBMH13	MH12	CONDUIT	50.5	0.4992	0.0130
Pipe_-_(59)_(C-STRM)	MH9	MH8	CONDUIT	62.4	0.4998	0.0130
Pipe_-_(60)_(C-STRM)	MH17	MH8	CONDUIT	85.4	0.9999	0.0130
Pipe_-_(61)_(C-STRM)	MH16	MH9	CONDUIT	54.2	1.0007	0.0130
Pipe_-_(64)_(C-STRM)	MH18	MH6	CONDUIT	77.5	0.5006	0.0130
Pipe_-_(65)_(C-STRM)	MH19	MH18	CONDUIT	51.8	0.5001	0.0130
Pipe_-_(66)_(C-STRM)	MH43	MH22	CONDUIT	60.7	0.9999	0.0130
Pipe_-_(67)_(C-STRM)	MH22	MH23	CONDUIT	100.0	0.5002	0.0130
Pipe_-_(68)_(C-STRM)	MH20	MH19	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(69)_(C-STRM)	MH21	MH20	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(70)_(C-STRM)	MH29	SWM_Pond	CONDUIT	30.4	1.0014	0.0130
Pipe_-_(71)_(C-STRM)	MH30	MH29	CONDUIT	28.7	0.5016	0.0130
Pipe_-_(72)_(C-STRM)	MH31	MH30	CONDUIT	62.2	0.4999	0.0130
Pipe_-_(73)_(C-STRM)	MH32	MH31	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(74)_(C-STRM)	MH33	MH32	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(75)_(C-STRM)	MH34	MH33	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(76)_(C-STRM)	MH35	MH34	CONDUIT	26.8	0.4999	0.0130
Pipe_-_(77)_(C-STRM)	MH36	MH35	CONDUIT	28.8	0.9995	0.0130
Pipe_-_(78)_(C-STRM)	MH38	MH37	CONDUIT	62.6	0.9996	0.0130
Pipe_-_(79)_(C-STRM)	MH37	MH35	CONDUIT	11.3	-0.5030	0.0130
Pipe_-_(81)_(C-STRM)	CBMH14	CBMH13	CONDUIT	54.7	0.5008	0.0130
Pipe_-_(82)_(C-STRM)	CBMH15	CBMH14	CONDUIT	100.0	1.0001	0.0130
Pipe_-_(88)_(C-STRM)	MH41	MH39	CONDUIT	146.1	0.0068	0.0130
C2	LID#2	MH8	ORIFICE			
C4	LID#1B	MH3	ORIFICE			
OR1	LID#3	CBMH13	ORIFICE			
OR2	LID#1A	MH6	ORIFICE			
Pipe_-_(90)_(C-STRM)	SWM_Pond	Wetland	ORIFICE			
OL10	CB145	MH21	OUTLET			
OL11	CB181	MH43	OUTLET			
OL12	CB143	MH20	OUTLET			
OL13	CB141	MH20	OUTLET			
OL17	CB182	MH23	OUTLET			
OL18	CB150	MH22	OUTLET			
OL2	CB126-127	MH9	OUTLET			
OL20	CB149	MH22	OUTLET			
OL23	CB138	MH18	OUTLET			
OL24	CB137	MH6	OUTLET			
OL25	CB113-114	MH5	OUTLET			
OL26	CB111-112	MH5	OUTLET			
OL27	CB108-109	MH4	OUTLET			
OL28	CB106-107	MH4	OUTLET			
OL29	CB104-105	MH3	OUTLET			
OL31	CB100-101	MH2	OUTLET			
OL35	CB171-172	MH33	OUTLET			
OL36	CB169-170	MH33	OUTLET			
OL37	CB167-168	MH32	OUTLET			
OL38	CB165-166	MH32	OUTLET			
Pipe_-_(80)_(C-STRM)	CB179	MH31	OUTLET			

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Cross Section Summary

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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
C10	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C11	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C5	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.20
C6	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.47
C7	TRAPEZOIDAL	0.50	3.50	0.38	9.00	1	20.42
C8	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	2.33
Pipe_-_(38)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(39)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(41)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(42)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(43)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	3.77
Pipe_-_(44)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	5.34
Pipe_-_(45)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(46)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(47)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(48)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(49)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(51)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(52)_(C-STRM)	CIRCULAR	0.82	0.53	0.21	0.82	1	1.02
Pipe_-_(53)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(54)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(55)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(57)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(59)_(C-STRM)	CIRCULAR	0.90	0.64	0.23	0.90	1	1.28
Pipe_-_(60)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.43
Pipe_-_(61)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
Pipe_-_(64)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(65)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(66)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(67)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(68)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(69)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(70)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.84
Pipe_-_(71)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(72)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(73)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(74)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(75)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(76)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(77)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(78)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(79)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
Pipe_-_(81)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(82)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(88)_(C-STRM)	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	0.25

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Analysis Options
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Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... YES
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... YES
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/27/2025 00:00:00
Ending Date 01/31/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 14
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.787	30.902
Evaporation Loss	0.028	1.100
Infiltration Loss	0.271	10.636
Surface Runoff	0.498	19.558
Final Storage	0.000	0.000
Continuity Error (%)	-1.271	

Runoff Quality Continuity	TSS kg
Initial Buildup	0.000
Surface Buildup	0.000
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	0.000
Remaining Buildup	0.000
Continuity Error (%)	0.000

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.498	4.979
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.003	0.030
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.494	4.936
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.006
Continuity Error (%)	0.149	

Quality Routing Continuity	TSS kg
Dry Weather Inflow	0.000
Wet Weather Inflow	0.000
Groundwater Inflow	0.000
RDII Inflow	0.000
External Inflow	0.000
External Outflow	0.000
Flooding Loss	0.000
Exfiltration Loss	0.000
Mass Reacted	0.000
Initial Stored Mass	0.000
Final Stored Mass	0.000
Continuity Error (%)	0.000

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Highest Continuity Errors
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Node CBMH14 (-6.06%)
Node CBMH28 (-2.09%)
Node MH33 (1.77%)
Node MH32 (-1.43%)

****
Time-Step Critical Elements
****
None

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Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

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Routing Time Step Summary
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  Minimum Time Step           :     0.50 sec
  Average Time Step           :     4.99 sec
  Maximum Time Step           :     5.00 sec
  % of Time in Steady State   :     0.00
  Average Iterations per Step :     2.00
  % of Steps Not Converging   :     0.00
  Time Step Frequencies       :
      5.000 -  3.155 sec      :    99.68 %
      3.155 -  1.991 sec      :     0.27 %
      1.991 -  1.256 sec      :     0.02 %
      1.256 -  0.792 sec      :     0.02 %
      0.792 -  0.500 sec      :     0.01 %


  **************************
  Subcatchment Runoff Summary
  **************************

  ------------------------------------------------------------------------------------------------
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                                Total      Total      Total      Total     Imperv       Perv      Total
Total      Peak  Runoff
                               Precip      Runon       Evap      Infil     Runoff     Runoff     Runoff
Runoff    Runoff    Coeff
  Subcatchment                     mm         mm         mm         mm         mm         mm         mm
10^6 ltr       CMS
  ------------------------------------------------------------------------------------------------
------------------------------
  201                           30.90       0.00       0.02      30.89       0.00       0.01       0.01
0.00      0.00    0.000
  202                           30.90       0.00       1.81       0.00      29.49       0.00      29.49
0.39      0.25    0.954
  203                           30.90       0.00       1.70       0.00      29.75       0.00      29.75
0.04      0.03    0.963
  204                           30.90       0.00       0.02      30.89       0.00       0.07       0.07
0.00      0.00    0.002
  205a                          30.90       0.00       1.63       0.00      29.94       0.00      29.94
0.02      0.02    0.969
  205b                          30.90       0.00       1.63       0.00      29.94       0.00      29.94
0.03      0.03    0.969
  205c                          30.90       0.00       1.63       0.00      29.94       0.00      29.94
0.03      0.03    0.969
  205d                          30.90       0.00       1.63       0.00      29.94       0.00      29.94
0.07      0.07    0.969
  206a                          30.90       0.00       1.33       6.49      23.54       0.02      23.56
0.09      0.08    0.762
  206b                          30.90       0.00       0.02      30.89       0.00       0.02       0.02
0.00      0.00    0.001
  207                           30.90       0.00       1.71       0.00      29.71       0.00      29.71
0.21      0.17    0.961
  208a                          30.90       0.00       1.52       0.00      29.96       0.00      29.96
0.01      0.02    0.970
  208b                          30.90       0.00       1.52       0.00      29.96       0.00      29.96
0.03      0.03    0.970
  208c                          30.90       0.00       1.52       0.00      29.96       0.00      29.96
0.03      0.03    0.970
  208d                          30.90       0.00       1.52       0.00      29.96       0.00      29.96
0.01      0.02    0.970
  209a                          30.90       0.00       1.00      11.12      19.22       0.05      19.27
0.01      0.01    0.624
  209b                          30.90       0.00       1.02      11.12      19.22       0.04      19.26
0.03      0.03    0.623
  209c                          30.90       0.00       1.03      11.12      19.20       0.03      19.23
0.03      0.04    0.622
  209d                          30.90       0.00       0.98      11.12      19.17       0.07      19.24
0.02      0.03    0.623
  210a                          30.90       0.00       1.60       0.00      30.01       0.00      30.01
0.06      0.06    0.971
  210b                          30.90       0.00       1.63       0.00      29.94       0.00      29.94
0.05      0.06    0.969
  211                           30.90       0.00       1.66       0.00      29.86       0.00      29.86
0.09      0.09    0.966
  212                           30.90       0.00       1.55       0.00      30.04       0.00      30.04
0.07      0.09    0.972
  213                           30.90       0.00       0.02      30.89       0.00       0.05       0.05
0.00      0.00    0.002
  214                           30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.08      0.10    0.972
  215                           30.90       0.00       1.52       0.00      29.95       0.00      29.95
0.03      0.04    0.969
  216a                          30.90       0.00       1.55       0.00      30.03       0.00      30.03
0.02      0.02    0.972
  216b                          30.90       0.00       1.55       0.00      30.03       0.00      30.03
0.01      0.01    0.972
  216c                          30.90       0.00       1.55       0.00      30.03       0.00      30.03
0.02      0.02    0.972
  216d                          30.90       0.00       1.55       0.00      30.03       0.00      30.03
0.02      0.02    0.972
  216e                          30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  216f                          30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.01      0.01    0.972
  216g                          30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  217                           30.90       0.00       1.72       0.00      29.69       0.00      29.69
0.19      0.15    0.961
  218                           30.90       0.00       1.71       0.00      29.71       0.00      29.71
0.17      0.14    0.962
  219a                          30.90       0.00       1.25       6.48      23.73       0.04      23.77
0.04      0.04    0.769
  219b                          30.90       0.00       0.02      30.89       0.00       0.04       0.04
0.00      0.00    0.001
  220a                          30.90       0.00       1.25       6.48      23.72       0.04      23.77
0.04      0.05    0.769
  220b                          30.90       0.00       0.02      30.89       0.00       0.04       0.04
0.00      0.00    0.001
  221                           30.90       0.00       1.20       7.41      22.83       0.04      22.87
0.05      0.06    0.740
  222                           30.90       0.00       1.20       7.41      22.83       0.04      22.87
0.05      0.06    0.740
  223                           30.90       0.00       1.20       7.41      22.83       0.05      22.88
0.05      0.06    0.740
  224                           30.90       0.00       1.20       7.41      22.83       0.04      22.87
0.03      0.04    0.740
  226                           30.90       0.00       1.73       0.00      29.68       0.00      29.68
0.22      0.18    0.961
  227                           30.90       0.00       1.64       0.00      29.92       0.00      29.92
0.07      0.07    0.968
  228                           30.90       0.00       1.64       0.00      29.92       0.00      29.92
0.05      0.05    0.968
  229a                          30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.02      0.03    0.972
  229b                          30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  230a                          30.90       0.00       1.56       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  230b                          30.90       0.00       1.56       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  231a                          30.90       0.00       1.55       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  231b                          30.90       0.00       1.55       0.00      30.04       0.00      30.04
0.01      0.01    0.972
  232a                          30.90       0.00       1.55       0.00      30.03       0.00      30.03
0.02      0.02    0.972
  232b                          30.90       0.00       1.55       0.00      30.03       0.00      30.03
0.02      0.02    0.972
  233a                          30.90       0.00       1.56       0.00      30.04       0.00      30.04
0.02      0.03    0.972
  233b                          30.90       0.00       1.56       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  234a                          30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  234b                          30.90       0.00       1.57       0.00      30.04       0.00      30.04
0.02      0.02    0.972
  235                           30.90       0.00       1.71       0.00      29.72       0.00      29.72
0.26      0.22    0.962
  236                           30.90       0.00       1.72       0.00      29.69       0.00      29.69
0.14      0.11    0.961
  237                           30.90       0.00       1.72       0.00      29.69       0.00      29.69
0.13      0.10    0.961
  238                           30.90       0.00       1.72       0.00      29.69       0.00      29.69
0.12      0.10    0.961
  239                           30.90       0.00       1.73       0.00      29.68       0.00      29.68
0.12      0.09    0.961
  240a                          30.90       0.02       1.61       0.00      30.02       0.00      30.02
0.04      0.04    0.971
  240b                          30.90       0.00       0.02      30.89       0.00       0.04       0.04
0.00      0.00    0.001
  241a                          30.90       0.02       1.61       0.00      30.01       0.00      30.01
0.04      0.04    0.971
  241b                          30.90       0.00       0.02      30.89       0.00       0.04       0.04
0.00      0.00    0.001
  242a                          30.90       0.02       1.60       0.00      30.02       0.00      30.02
0.04      0.04    0.971
  242b                          30.90       0.00       0.02      30.89       0.00       0.04       0.04
0.00      0.00    0.001
  243a                          30.90       0.14       1.60       0.00      30.14       0.00      30.14
0.03      0.03    0.971
```

243b			30.90	0.00	0.34	30.54	6.24	0.18	0.18
0.00	0.00	0.006							
244a			30.90	0.00	1.72	0.00	29.69	0.00	29.69
0.09	0.07	0.961							
244b			30.90	0.00	0.02	30.89	0.00	0.02	0.02
0.00	0.00	0.001							
245			30.90	0.00	0.02	30.89	0.00	0.02	0.02
0.00	0.00	0.001							
246			30.90	0.00	1.56	0.00	30.04	0.00	30.04
0.23	0.27	0.972							
247			30.90	0.00	0.02	30.89	0.00	0.01	0.01
0.00	0.00	0.000							
248a			30.90	0.00	1.61	0.00	29.98	0.00	29.98
0.04	0.04	0.970							
248b			30.90	0.00	1.61	0.00	29.98	0.00	29.98
0.01	0.02	0.970							
248c			30.90	0.00	1.61	0.00	29.98	0.00	29.98
0.07	0.07	0.970							
248d			30.90	0.00	1.61	0.00	29.98	0.00	29.98
0.01	0.02	0.970							
249			30.90	0.00	0.69	17.61	12.92	0.02	12.94
0.14	0.17	0.419							
250a			30.90	0.00	0.02	30.89	0.00	0.03	0.03
0.00	0.00	0.001							
250b			30.90	0.00	1.63	0.00	29.94	0.00	29.94
0.02	0.02	0.969							
250c			30.90	0.00	1.02	11.12	19.22	0.04	19.26
0.01	0.01	0.623							
250d			30.90	0.00	1.63	0.00	29.94	0.00	29.94
0.01	0.01	0.969							
250e			30.90	0.00	1.63	0.00	29.94	0.00	29.94
0.03	0.03	0.969							
250f			30.90	0.00	1.63	0.00	29.94	0.00	29.94
0.02	0.02	0.969							
251			30.90	0.00	1.54	0.00	30.02	0.00	30.02
0.03	0.03	0.971							
252A			30.90	0.00	0.02	30.89	0.00	0.03	0.03
0.00	0.00	0.001							
252b			30.90	0.00	1.67	0.00	29.83	0.00	29.83
0.01	0.01	0.965							
252c			30.90	0.00	1.63	0.00	29.94	0.00	29.94
0.01	0.01	0.969							
252d			30.90	0.00	1.63	0.00	29.94	0.00	29.94
0.01	0.01	0.969							
253			30.90	0.00	1.52	0.00	29.96	0.00	29.96
0.01	0.02	0.969							
254			30.90	0.00	0.02	30.89	0.00	0.01	0.01
0.00	0.00	0.000							
255			30.90	0.00	1.57	0.00	30.04	0.00	30.04
0.04	0.04	0.972							
256			30.90	0.00	1.05	11.43	18.81	0.02	18.83
0.06	0.06	0.609							
257			30.90	0.00	0.02	30.89	0.00	0.01	0.01
0.00	0.00	0.000							
258			30.90	0.00	1.52	0.00	29.94	0.00	29.94
0.02	0.03	0.969							
259			30.90	0.00	1.52	0.00	29.93	0.00	29.93
0.01	0.01	0.969							
260			30.90	0.00	1.52	0.00	29.92	0.00	29.92
0.01	0.02	0.968							
261			30.90	0.00	1.75	0.00	29.61	0.00	29.61
0.23	0.17	0.958							
262			30.90	0.00	1.75	0.00	29.63	0.00	29.63
0.24	0.18	0.959							
263			30.90	0.00	0.02	30.89	0.00	0.02	0.02
0.00	0.00	0.001							

****
Subcatchment Washoff Summary
****

Subcatchment	TSS kg
201	0.000
202	0.000
203	0.000
204	0.000
205a	0.000
205b	0.000
205c	0.000
205d	0.000
206a	0.000
206b	0.000
207	0.000
208a	0.000
208b	0.000
208c	0.000
208d	0.000
209a	0.000
209b	0.000
209c	0.000
209d	0.000
210a	0.000
210b	0.000
211	0.000
212	0.000
213	0.000
214	0.000
215	0.000
216a	0.000
216b	0.000
216c	0.000
216d	0.000
216e	0.000
216f	0.000
216g	0.000
217	0.000
218	0.000
219a	0.000
219b	0.000
220a	0.000
220b	0.000
221	0.000
222	0.000
223	0.000
224	0.000
226	0.000
227	0.000
228	0.000
229a	0.000
229b	0.000
230a	0.000
230b	0.000
231a	0.000
231b	0.000
232a	0.000
232b	0.000
233a	0.000
233b	0.000
234a	0.000
234b	0.000
235	0.000
236	0.000
237	0.000
238	0.000
239	0.000
240a	0.000
240b	0.000
241a	0.000
241b	0.000
242a	0.000
242b	0.000
243a	0.000
243b	0.000
244a	0.000
244b	0.000
245	0.000
246	0.000
247	0.000
248a	0.000
248b	0.000
248c	0.000
248d	0.000
249	0.000
250a	0.000
250b	0.000
250c	0.000
250d	0.000
250e	0.000
250f	0.000
251	0.000
252A	0.000
252b	0.000
252c	0.000
252d	0.000
253	0.000
254	0.000

255	0.000
256	0.000
257	0.000
258	0.000
259	0.000
260	0.000
261	0.000
262	0.000
263	0.000
System	0.000

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
MH39	OUTFALL	0.00	0.00	332.85	0 00:00	0.00
OF1	OUTFALL	0.00	0.00	333.00	0 00:00	0.00
CB100-101	STORAGE	0.00	0.04	337.32	0 01:05	0.04
CB104-105	STORAGE	0.00	0.06	337.84	0 01:05	0.06
CB106-107	STORAGE	0.00	0.07	338.01	0 01:05	0.07
CB108-109	STORAGE	0.00	0.07	338.18	0 01:05	0.07
CB111-112	STORAGE	0.00	0.06	338.31	0 01:05	0.06
CB113-114	STORAGE	0.00	0.07	338.80	0 01:05	0.07
CB126-127	STORAGE	0.00	0.06	340.64	0 01:05	0.06
CB137	STORAGE	0.00	0.09	338.73	0 01:05	0.09
CB138	STORAGE	0.00	0.11	338.89	0 01:05	0.11
CB141	STORAGE	0.00	0.10	341.83	0 01:05	0.10
CB143	STORAGE	0.00	0.10	342.09	0 01:05	0.10
CB145	STORAGE	0.00	0.09	342.33	0 01:05	0.09
CB149	STORAGE	0.00	0.08	340.83	0 01:05	0.08
CB150	STORAGE	0.00	0.08	340.58	0 01:05	0.08
CB165-166	STORAGE	0.00	0.05	336.41	0 01:05	0.05
CB167-168	STORAGE	0.00	0.04	336.62	0 01:05	0.04
CB169-170	STORAGE	0.00	0.04	336.85	0 01:05	0.04
CB171-172	STORAGE	0.00	0.06	337.15	0 01:05	0.06
CB179	STORAGE	0.00	0.00	335.39	0 01:05	0.00
CB181	STORAGE	0.00	0.08	341.07	0 01:05	0.08
CB182	STORAGE	0.00	0.07	340.32	0 01:05	0.07
CBMH13	STORAGE	0.00	0.25	336.70	0 01:05	0.24
CBMH14	STORAGE	0.00	0.02	336.97	0 01:07	0.02
CBMH15	STORAGE	0.00	0.01	338.04	0 01:07	0.01
CBMH28	STORAGE	0.00	0.37	333.96	0 01:09	0.36
CBMH45	STORAGE	0.00	0.01	334.20	0 01:06	0.01
LID#1A	STORAGE	0.02	0.28	336.78	0 02:47	0.28
LID#1B	STORAGE	0.00	0.13	335.13	0 01:59	0.13
LID#2	STORAGE	0.06	0.62	337.62	0 03:10	0.62
LID#3	STORAGE	0.10	0.85	339.05	0 03:21	0.85
LID#5	STORAGE	0.01	0.15	335.15	0 01:59	0.15
LID#6	STORAGE	0.00	0.03	334.33	0 01:18	0.03
MH1	STORAGE	0.01	1.75	333.75	0 01:08	1.73
MH10	STORAGE	0.00	0.30	336.13	0 01:06	0.30
MH11	STORAGE	0.00	0.31	336.36	0 01:05	0.31
MH12	STORAGE	0.00	0.33	336.47	0 01:05	0.32
MH16	STORAGE	0.00	0.22	336.42	0 01:05	0.21
MH17	STORAGE	0.00	0.18	336.30	0 01:05	0.18
MH18	STORAGE	0.00	0.39	335.07	0 01:07	0.39
MH19	STORAGE	0.00	0.36	335.32	0 01:06	0.36
MH2	STORAGE	0.01	1.71	333.82	0 01:08	1.67
MH20	STORAGE	0.00	0.34	335.96	0 01:06	0.34
MH21	STORAGE	0.00	0.27	336.46	0 01:06	0.27
MH22	STORAGE	0.00	0.24	335.13	0 01:06	0.24
MH23	STORAGE	0.00	0.24	334.55	0 01:06	0.24
MH24	STORAGE	0.01	0.94	333.89	0 01:08	0.91
MH25	STORAGE	0.01	0.86	333.93	0 01:08	0.84
MH26	STORAGE	0.00	0.50	334.00	0 01:09	0.49
MH27	STORAGE	0.00	0.35	334.13	0 01:06	0.35
MH29	STORAGE	0.00	0.33	332.30	0 01:07	0.33
MH3	STORAGE	0.01	1.57	333.94	0 01:08	1.51
MH30	STORAGE	0.00	0.31	332.46	0 01:08	0.31
MH31	STORAGE	0.00	0.29	332.78	0 01:08	0.29
MH32	STORAGE	0.00	0.28	333.35	0 01:08	0.28
MH33	STORAGE	0.00	0.25	333.84	0 01:07	0.25
MH34	STORAGE	0.00	0.23	334.40	0 01:06	0.23
MH35	STORAGE	0.00	0.25	334.56	0 01:05	0.25
MH36	STORAGE	0.00	0.14	334.96	0 01:05	0.14
MH37	STORAGE	0.06	0.35	334.71	0 01:05	0.35
MH38	STORAGE	0.00	0.24	335.51	0 01:05	0.24
MH4	STORAGE	0.01	1.23	334.13	0 01:08	1.21
MH41	STORAGE	0.00	0.00	332.64	0 00:00	0.00
MH42	STORAGE	0.00	0.43	336.03	0 01:05	0.42
MH43	STORAGE	0.00	0.12	335.69	0 01:05	0.12
MH44	STORAGE	0.00	0.23	337.29	0 01:05	0.22
MH5	STORAGE	0.01	0.75	334.17	0 01:09	0.74
MH6	STORAGE	0.01	0.69	334.52	0 01:07	0.69
MH7	STORAGE	0.01	0.59	335.15	0 01:06	0.59
MH8	STORAGE	0.01	0.54	335.39	0 01:06	0.54
MH9	STORAGE	0.01	0.50	335.71	0 01:06	0.50
SWM_Pond	STORAGE	0.03	0.37	332.04	0 01:56	0.37
Wetland	STORAGE	0.01	0.13	331.68	0 04:59	0.13

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
MH39	OUTFALL	0.031	0.031	0 01:05	0.0299	0.0299	0.000
OF1	OUTFALL	0.000	0.000	0 01:05	7.4e-05	7.4e-05	0.000
CB100-101	STORAGE	0.016	0.016	0 01:05	0.015	0.015	-0.007
CB104-105	STORAGE	0.036	0.036	0 01:05	0.03	0.03	-0.015
CB106-107	STORAGE	0.048	0.048	0 01:05	0.039	0.039	-0.018
CB108-109	STORAGE	0.044	0.044	0 01:05	0.036	0.036	-0.017
CB111-112	STORAGE	0.033	0.033	0 01:05	0.027	0.027	-0.015
CB113-114	STORAGE	0.043	0.043	0 01:05	0.036	0.036	-0.016
CB126-127	STORAGE	0.035	0.035	0 01:05	0.0269	0.0269	-0.019
CB137	STORAGE	0.048	0.048	0 01:05	0.0478	0.0478	-0.010
CB138	STORAGE	0.069	0.069	0 01:05	0.0688	0.0688	-0.012
CB141	STORAGE	0.056	0.056	0 01:05	0.048	0.048	-0.015
CB143	STORAGE	0.062	0.062	0 01:05	0.0526	0.0526	-0.016
CB145	STORAGE	0.047	0.047	0 01:05	0.0404	0.0404	-0.013
CB149	STORAGE	0.042	0.042	0 01:05	0.039	0.039	-0.011
CB150	STORAGE	0.043	0.043	0 01:05	0.039	0.039	-0.011
CB165-166	STORAGE	0.019	0.019	0 01:05	0.015	0.015	-0.012
CB167-168	STORAGE	0.016	0.016	0 01:05	0.012	0.012	-0.012
CB169-170	STORAGE	0.012	0.012	0 01:05	0.00897	0.00897	-0.011
CB171-172	STORAGE	0.031	0.031	0 01:05	0.0239	0.0239	-0.017
CB179	STORAGE	0.001	0.001	0 01:05	0.000258	0.000258	-0.018
CB181	STORAGE	0.039	0.039	0 01:05	0.036	0.036	-0.010
CB182	STORAGE	0.033	0.033	0 01:05	0.0301	0.0301	-0.009
CBMH13	STORAGE	0.150	0.151	0 01:05	0.147	0.147	-0.060
CBMH14	STORAGE	0.001	0.001	0 01:05	0.00017	0.000328	-5.712
CBMH15	STORAGE	0.001	0.001	0 01:05	0.000158	0.000158	-0.001
CBMH28	STORAGE	0.000	0.040	0 01:07	0	0.00386	-2.050
CBMH45	STORAGE	0.000	0.000	0 01:05	8.46e-05	8.46e-05	2.127
LID#1A	STORAGE	0.404	0.404	0 01:05	0.505	0.505	-0.008
LID#1B	STORAGE	0.218	0.218	0 01:05	0.264	0.264	-0.014
LID#2	STORAGE	0.647	0.647	0 01:05	0.833	0.833	-0.004
LID#3	STORAGE	0.284	0.284	0 01:05	0.425	0.425	-0.003
LID#5	STORAGE	0.098	0.098	0 01:05	0.0944	0.0944	-0.013
LID#6	STORAGE	0.034	0.034	0 01:05	0.0271	0.0271	-0.012
MH1	STORAGE	0.000	2.270	0 01:11	0	2.4	0.073
MH10	STORAGE	0.000	0.216	0 01:06	0	0.212	-0.128
MH11	STORAGE	0.000	0.215	0 01:05	0	0.212	-0.005
MH12	STORAGE	0.073	0.218	0 01:05	0.0647	0.212	-0.011
MH16	STORAGE	0.124	0.124	0 01:05	0.125	0.125	-0.008
MH17	STORAGE	0.113	0.113	0 01:05	0.0912	0.0912	-0.021
MH18	STORAGE	0.000	0.376	0 01:06	0	0.417	-0.433
MH19	STORAGE	0.102	0.320	0 01:06	0.0869	0.35	0.600
MH2	STORAGE	0.000	2.208	0 01:10	0	2.4	0.012
MH20	STORAGE	0.000	0.253	0 01:06	0	0.262	-0.531
MH21	STORAGE	0.000	0.157	0 01:05	0	0.163	0.962
MH22	STORAGE	0.000	0.123	0 01:05	0	0.114	-0.279
MH23	STORAGE	0.000	0.137	0 01:06	0	0.144	0.082
MH24	STORAGE	0.000	0.399	0 01:06	0	0.464	-0.025
MH25	STORAGE	0.000	0.440	0 01:06	0	0.465	-0.461
MH26	STORAGE	0.274	0.426	0 01:05	0.228	0.465	0.748
MH27	STORAGE	0.074	0.200	0 01:06	0.092	0.236	-0.273
MH29	STORAGE	0.019	0.225	0 01:08	0.018	0.261	0.313
MH3	STORAGE	0.128	1.670	0 01:10	0.12	1.92	-0.074
MH30	STORAGE	0.009	0.212	0 01:08	0.00898	0.242	-0.674
MH31	STORAGE	0.040	0.206	0 01:08	0.0376	0.233	0.121
MH32	STORAGE	0.023	0.191	0 01:07	0.0239	0.192	-1.413
MH33	STORAGE	0.000	0.149	0 01:06	0	0.144	1.802
MH34	STORAGE	0.000	0.128	0 01:05	0.000104	0.111	-0.007
MH35	STORAGE	0.001	0.128	0 01:05	0.000227	0.111	-0.023
MH36	STORAGE	0.039	0.039	0 01:05	0.0299	0.0299	-0.010
MH37	STORAGE	0.000	0.091	0 01:05	0	0.081	0.076
MH38	STORAGE	0.097	0.097	0 01:05	0.081	0.081	0.001

MH4	STORAGE	0.000	1.615	0	01:07	0	1.76	-0.497
MH41	STORAGE	0.000	0.000	0	00:00	0	0	0.000
ltr								
MH42	STORAGE	0.277	0.465	0	01:05	0.305	0.517	0.037
MH43	STORAGE	0.000	0.039	0	01:05	0	0.036	0.619
MH44	STORAGE	0.119	0.119	0	01:05	0.123	0.123	-0.007
MH5	STORAGE	0.000	1.500	0	01:07	0	1.68	0.040
MH6	STORAGE	0.100	1.444	0	01:07	0.084	1.63	0.775
MH7	STORAGE	0.248	0.978	0	01:06	0.28	1.08	-0.119
MH8	STORAGE	0.019	0.766	0	01:06	0.015	0.801	0.101
MH9	STORAGE	0.035	0.646	0	01:05	0.0269	0.696	0.092
SWM_Pond	STORAGE	0.165	2.596	0	01:11	0.141	2.8	0.095
Wetland	STORAGE	0.001	0.161	0	01:57	0.000272	2.79	-0.004

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Node Surcharge Summary
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No nodes were surcharged.

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days	hr:min	Maximum Outflow CMS
CB100-101	0.000	0.0	0.0	0.0	0.000	4.3	0	01:05	0.016
CB104-105	0.000	0.0	0.0	0.0	0.000	6.3	0	01:05	0.036
CB106-107	0.000	0.0	0.0	0.0	0.000	7.2	0	01:05	0.048
CB108-109	0.000	0.0	0.0	0.0	0.000	7.0	0	01:05	0.044
CB111-112	0.000	0.0	0.0	0.0	0.000	6.1	0	01:05	0.033
CB113-114	0.000	0.0	0.0	0.0	0.000	6.9	0	01:05	0.043
CB126-127	0.000	0.0	0.0	0.0	0.000	6.2	0	01:05	0.035
CB137	0.000	0.1	0.0	0.0	0.000	8.9	0	01:05	0.048
CB138	0.000	0.1	0.0	0.0	0.000	10.7	0	01:05	0.070
CB141	0.000	0.1	0.0	0.0	0.000	9.6	0	01:05	0.056
CB143	0.000	0.1	0.0	0.0	0.000	10.1	0	01:05	0.062
CB145	0.000	0.1	0.0	0.0	0.000	8.7	0	01:05	0.047
CB149	0.000	0.1	0.0	0.0	0.000	8.4	0	01:05	0.043
CB150	0.000	0.1	0.0	0.0	0.000	8.4	0	01:05	0.043
CB165-166	0.000	0.0	0.0	0.0	0.000	4.9	0	01:05	0.019
CB167-168	0.000	0.0	0.0	0.0	0.000	4.2	0	01:05	0.016
CB169-170	0.000	0.0	0.0	0.0	0.000	3.5	0	01:05	0.012
CB171-172	0.000	0.0	0.0	0.0	0.000	5.9	0	01:05	0.031
CB179	0.000	0.0	0.0	0.0	0.000	0.4	0	01:05	0.001
CB181	0.000	0.1	0.0	0.0	0.000	8.1	0	01:05	0.039
CB182	0.000	0.1	0.0	0.0	0.000	7.5	0	01:05	0.033
CBMH13	0.000	0.0	0.0	0.0	0.000	4.0	0	01:05	0.148
CBMH14	0.000	0.0	0.0	0.0	0.000	0.3	0	01:07	0.001
CBMH15	0.000	0.0	0.0	0.0	0.000	0.2	0	01:07	0.000
CBMH28	0.000	0.0	0.0	0.0	0.000	11.6	0	01:09	0.031
CBMH45	0.000	0.0	0.0	0.0	0.000	0.3	0	01:06	0.000
LID#1A	0.019	0.6	0.0	100.0	0.350	11.5	0	02:47	0.016
LID#1B	0.005	0.1	0.0	100.0	0.150	4.5	0	01:59	0.015
LID#2	0.065	1.1	0.0	100.0	0.679	11.1	0	03:10	0.014
LID#3	0.045	2.6	0.0	100.0	0.359	21.1	0	03:21	0.005
LID#5	0.002	0.4	0.0	100.0	0.057	11.4	0	01:59	0.005
LID#6	0.000	0.0	0.0	100.0	0.011	2.5	0	01:18	0.004
MH1	0.000	0.2	0.0	0.0	0.008	31.8	0	01:08	2.361
MH10	0.000	0.1	0.0	0.0	0.000	5.2	0	01:06	0.217
MH11	0.000	0.1	0.0	0.0	0.000	4.8	0	01:05	0.216
MH12	0.000	0.1	0.0	0.0	0.000	5.3	0	01:05	0.215
MH16	0.000	0.0	0.0	0.0	0.000	3.4	0	01:05	0.120
MH17	0.000	0.0	0.0	0.0	0.000	2.9	0	01:05	0.106
MH18	0.000	0.1	0.0	0.0	0.000	9.0	0	01:07	0.373
MH19	0.000	0.1	0.0	0.0	0.000	5.7	0	01:06	0.320
MH2	0.000	0.2	0.0	0.0	0.008	32.6	0	01:08	2.270
MH20	0.000	0.1	0.0	0.0	0.000	5.5	0	01:06	0.241
MH21	0.000	0.1	0.0	0.0	0.000	4.5	0	01:06	0.153
MH22	0.000	0.0	0.0	0.0	0.000	4.1	0	01:06	0.109
MH23	0.000	0.0	0.0	0.0	0.000	4.1	0	01:06	0.135
MH24	0.000	0.1	0.0	0.0	0.001	18.1	0	01:08	0.417
MH25	0.000	0.1	0.0	0.0	0.001	19.6	0	01:08	0.399
MH26	0.000	0.1	0.0	0.0	0.001	7.4	0	01:09	0.440
MH27	0.000	0.1	0.0	0.0	0.000	5.7	0	01:06	0.201
MH29	0.000	0.2	0.0	0.0	0.000	17.5	0	01:07	0.232
MH3	0.000	0.2	0.0	0.0	0.007	30.0	0	01:08	1.786
MH30	0.000	0.1	0.0	0.0	0.000	10.8	0	01:08	0.214
MH31	0.000	0.1	0.0	0.0	0.000	8.8	0	01:08	0.207
MH32	0.000	0.1	0.0	0.0	0.000	8.2	0	01:08	0.181
MH33	0.000	0.1	0.0	0.0	0.000	7.5	0	01:07	0.150
MH34	0.000	0.1	0.0	0.0	0.000	7.1	0	01:06	0.118
MH35	0.000	0.1	0.0	0.0	0.000	7.4	0	01:05	0.128
MH36	0.000	0.0	0.0	0.0	0.000	3.5	0	01:05	0.038
MH37	0.000	1.6	0.0	0.0	0.000	9.6	0	01:05	0.091
MH38	0.000	0.1	0.0	0.0	0.000	6.3	0	01:05	0.091
MH4	0.000	0.2	0.0	0.0	0.003	24.1	0	01:08	1.609
MH41	0.000	0.0	0.0	0.0	0.000	0.0	0	00:00	0.000
MH42	0.000	0.1	0.0	0.0	0.001	7.6	0	01:05	0.467
MH43	0.000	0.0	0.0	0.0	0.000	2.2	0	01:05	0.038
MH44	0.000	0.0	0.0	0.0	0.000	4.2	0	01:05	0.113
MH5	0.000	0.1	0.0	0.0	0.002	15.0	0	01:09	1.555
MH6	0.000	0.2	0.0	0.0	0.002	14.5	0	01:07	1.450
MH7	0.000	0.1	0.0	0.0	0.001	11.9	0	01:06	0.964
MH8	0.000	0.1	0.0	0.0	0.001	11.3	0	01:06	0.764
MH9	0.000	0.1	0.0	0.0	0.001	9.3	0	01:06	0.647
SWM_Pond	0.145	1.6	0.0	0.0	1.863	20.0	0	01:56	0.161
Wetland	0.046	0.5	0.0	100.0	0.744	8.8	0	04:59	0.070

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS kg
MH39	4.39	0.003	0.031	0.030	0.000
OF1	0.26	0.000	0.000	0.000	0.000
System	2.32	0.003	0.031	0.030	0.000

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.113	0	01:05	1.65	0.65	0.60
C10	CONDUIT	0.000	0	01:06	0.29	0.00	0.51
C11	CONDUIT	0.040	0	01:07	0.74	0.58	1.00
C3	CONDUIT	0.135	0	01:06	1.13	0.44	0.54
C5	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C6	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C7	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C8	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	CONDUIT	0.201	0	01:07	1.43	0.66	0.63
Pipe_-_(39)_(C-STRM)	CONDUIT	0.440	0	01:06	1.63	0.74	0.87
Pipe_-_(41)_(C-STRM)	CONDUIT	0.399	0	01:06	1.48	0.67	1.00
Pipe_-_(42)_(C-STRM)	CONDUIT	0.417	0	01:10	1.51	0.70	1.00
Pipe_-_(43)_(C-STRM)	CONDUIT	2.270	0	01:11	1.92	0.60	1.00
Pipe_-_(44)_(C-STRM)	CONDUIT	2.361	0	01:11	3.37	0.44	0.57
Pipe_-_(45)_(C-STRM)	CONDUIT	1.786	0	01:11	1.90	0.65	1.00
Pipe_-_(46)_(C-STRM)	CONDUIT	1.609	0	01:10	1.69	0.58	1.00
Pipe_-_(47)_(C-STRM)	CONDUIT	1.555	0	01:07	2.15	0.56	0.79
Pipe_-_(48)_(C-STRM)	CONDUIT	1.450	0	01:07	2.28	0.53	0.56
Pipe_-_(49)_(C-STRM)	CONDUIT	0.964	0	01:07	2.14	0.61	0.58
Pipe_-_(51)_(C-STRM)	CONDUIT	0.764	0	01:06	1.78	0.48	0.56
Pipe_-_(52)_(C-STRM)	CONDUIT	0.467	0	01:06	1.71	0.46	0.51
Pipe_-_(53)_(C-STRM)	CONDUIT	0.217	0	01:06	1.19	0.28	0.43
Pipe_-_(54)_(C-STRM)	CONDUIT	0.216	0	01:06	1.45	0.36	0.43
Pipe_-_(55)_(C-STRM)	CONDUIT	0.215	0	01:05	1.38	0.36	0.45
Pipe_-_(57)_(C-STRM)	CONDUIT	0.148	0	01:05	1.19	0.25	0.38
Pipe_-_(59)_(C-STRM)	CONDUIT	0.647	0	01:06	1.83	0.51	0.54
Pipe_-_(60)_(C-STRM)	CONDUIT	0.106	0	01:05	1.61	0.25	0.34
Pipe_-_(61)_(C-STRM)	CONDUIT	0.120	0	01:05	1.65	0.42	0.47
Pipe_-_(64)_(C-STRM)	CONDUIT	0.373	0	01:07	1.68	0.47	0.50
Pipe_-_(65)_(C-STRM)	CONDUIT	0.320	0	01:06	1.54	0.41	0.48
Pipe_-_(66)_(C-STRM)	CONDUIT	0.038	0	01:05	1.08	0.22	0.38
Pipe_-_(67)_(C-STRM)	CONDUIT	0.109	0	01:06	1.29	0.54	0.53
Pipe_-_(68)_(C-STRM)	CONDUIT	0.241	0	01:07	1.52	0.56	0.55
Pipe_-_(69)_(C-STRM)	CONDUIT	0.153	0	01:06	1.37	0.50	0.51

Pipe_-_(70)_(C-STRM)	CONDUIT	0.232	0	01:08	2.32	0.28	0.32
Pipe_-_(71)_(C-STRM)	CONDUIT	0.214	0	01:08	1.45	0.36	0.45
Pipe_-_(72)_(C-STRM)	CONDUIT	0.207	0	01:08	1.46	0.35	0.42
Pipe_-_(73)_(C-STRM)	CONDUIT	0.181	0	01:08	1.42	0.42	0.46
Pipe_-_(74)_(C-STRM)	CONDUIT	0.150	0	01:07	1.35	0.35	0.42
Pipe_-_(75)_(C-STRM)	CONDUIT	0.118	0	01:07	1.30	0.39	0.44
Pipe_-_(76)_(C-STRM)	CONDUIT	0.128	0	01:05	1.36	0.42	0.46
Pipe_-_(77)_(C-STRM)	CONDUIT	0.038	0	01:05	1.23	0.39	0.45
Pipe_-_(78)_(C-STRM)	CONDUIT	0.091	0	01:05	1.52	0.94	0.79
Pipe_-_(79)_(C-STRM)	CONDUIT	0.091	0	01:05	0.79	0.30	0.52
Pipe_-_(81)_(C-STRM)	CONDUIT	0.001	0	01:07	0.31	0.00	0.04
Pipe_-_(82)_(C-STRM)	CONDUIT	0.000	0	01:07	0.33	0.00	0.03
Pipe_-_(88)_(C-STRM)	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C2	ORIFICE	0.000	0	00:00			0.00
C4	ORIFICE	0.000	0	00:00			0.00
OR1	ORIFICE	0.000	0	00:00			0.00
OR2	ORIFICE	0.000	0	00:00			0.00
Pipe_-_(90)_(C-STRM)	ORIFICE	0.161	0	01:57			0.98
OL10	DUMMY	0.047	0	01:05			
OL11	DUMMY	0.039	0	01:05			
OL12	DUMMY	0.062	0	01:05			
OL13	DUMMY	0.056	0	01:05			
OL17	DUMMY	0.033	0	01:05			
OL18	DUMMY	0.043	0	01:05			
OL2	DUMMY	0.035	0	01:05			
OL20	DUMMY	0.043	0	01:05			
OL23	DUMMY	0.070	0	01:05			
OL24	DUMMY	0.048	0	01:05			
OL25	DUMMY	0.043	0	01:05			
OL26	DUMMY	0.033	0	01:05			
OL27	DUMMY	0.044	0	01:05			
OL28	DUMMY	0.048	0	01:05			
OL29	DUMMY	0.036	0	01:05			
OL31	DUMMY	0.016	0	01:05			
OL35	DUMMY	0.031	0	01:05			
OL36	DUMMY	0.012	0	01:05			
OL37	DUMMY	0.016	0	01:05			
OL38	DUMMY	0.019	0	01:05			
Pipe_-_(80)_(C-STRM)	DUMMY	0.001	0	01:05			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class							
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C10	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C3	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C5	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C7	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C8	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(39)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(41)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(42)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(43)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
Pipe_-_(44)_(C-STRM)	1.00	0.00	0.92	0.00	0.08	0.00	0.00	0.00	0.98	0.00
Pipe_-_(45)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(46)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
Pipe_-_(47)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(48)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(49)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(51)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(52)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(53)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(54)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(55)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(57)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(59)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(60)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(61)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(64)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(65)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(66)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(67)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(68)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(69)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(70)_(C-STRM)	1.00	0.00	0.93	0.00	0.06	0.01	0.00	0.00	0.98	0.00
Pipe_-_(71)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(72)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(73)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(74)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(75)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(76)_(C-STRM)	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.97	0.00
Pipe_-_(77)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(78)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(79)_(C-STRM)	1.00	0.00	0.92	0.00	0.00	0.00	0.08	0.00	0.00	0.00
Pipe_-_(81)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(82)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(88)_(C-STRM)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C10	0.01	0.01	0.01	0.01	0.01
C11	0.02	0.02	0.06	0.01	0.01
Pipe_-_(39)_(C-STRM)	0.01	0.01	0.06	0.01	0.01
Pipe_-_(41)_(C-STRM)	0.06	0.06	0.07	0.01	0.01
Pipe_-_(42)_(C-STRM)	0.07	0.07	0.08	0.01	0.01
Pipe_-_(43)_(C-STRM)	0.08	0.08	0.08	0.01	0.03
Pipe_-_(44)_(C-STRM)	0.01	0.09	0.01	0.01	0.01
Pipe_-_(45)_(C-STRM)	0.08	0.08	0.08	0.01	0.05
Pipe_-_(46)_(C-STRM)	0.01	0.01	0.08	0.01	0.01
Pipe_-_(47)_(C-STRM)	0.01	0.01	0.01	0.01	0.01

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Link Pollutant Load Summary
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Link	TSS kg
C1	0.000
C10	0.000
C11	0.000
C3	0.000
C5	0.000
C6	0.000
C7	0.000
C8	0.000
Pipe_-_(38)_(C-STRM)	0.000
Pipe_-_(39)_(C-STRM)	0.000
Pipe_-_(41)_(C-STRM)	0.000
Pipe_-_(42)_(C-STRM)	0.000
Pipe_-_(43)_(C-STRM)	0.000
Pipe_-_(44)_(C-STRM)	0.000
Pipe_-_(45)_(C-STRM)	0.000
Pipe_-_(46)_(C-STRM)	0.000
Pipe_-_(47)_(C-STRM)	0.000
Pipe_-_(48)_(C-STRM)	0.000
Pipe_-_(49)_(C-STRM)	0.000
Pipe_-_(51)_(C-STRM)	0.000
Pipe_-_(52)_(C-STRM)	0.000
Pipe_-_(53)_(C-STRM)	0.000
Pipe_-_(54)_(C-STRM)	0.000
Pipe_-_(55)_(C-STRM)	0.000
Pipe_-_(57)_(C-STRM)	0.000
Pipe_-_(59)_(C-STRM)	0.000
Pipe_-_(60)_(C-STRM)	0.000
Pipe_-_(61)_(C-STRM)	0.000
Pipe_-_(64)_(C-STRM)	0.000
Pipe_-_(65)_(C-STRM)	0.000
Pipe_-_(66)_(C-STRM)	0.000
Pipe_-_(67)_(C-STRM)	0.000
Pipe_-_(68)_(C-STRM)	0.000
Pipe_-_(69)_(C-STRM)	0.000
Pipe_-_(70)_(C-STRM)	0.000
Pipe_-_(71)_(C-STRM)	0.000
Pipe_-_(72)_(C-STRM)	0.000
Pipe_-_(73)_(C-STRM)	0.000
Pipe_-_(74)_(C-STRM)	0.000
Pipe_-_(75)_(C-STRM)	0.000
Pipe_-_(76)_(C-STRM)	0.000
Pipe_-_(77)_(C-STRM)	0.000

Pipe_-_(78)_(C-STRM)	0.000
Pipe_-_(79)_(C-STRM)	0.000
Pipe_-_(81)_(C-STRM)	0.000
Pipe_-_(82)_(C-STRM)	0.000
Pipe_-_(88)_(C-STRM)	0.000
C2	0.000
C4	0.000
OR1	0.000
OR2	0.000
Pipe_-_(90)_(C-STRM)	0.000
OL10	0.000
OL11	0.000
OL12	0.000
OL13	0.000
OL17	0.000
OL18	0.000
OL2	0.000
OL20	0.000
OL23	0.000
OL24	0.000
OL25	0.000
OL26	0.000
OL27	0.000
OL28	0.000
OL29	0.000
OL31	0.000
OL35	0.000
OL36	0.000
OL37	0.000
OL38	0.000
Pipe_-_(80)_(C-STRM)	0.000

Analysis begun on: Wed May 28 14:03:47 2025
Analysis ended on: Wed May 28 14:03:50 2025
Total elapsed time: 00:00:03

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Proposed Drainage Areas for Danby
LID measures
Pipe Changes (250204)
LID Configurations and Drainage Area Checks (250205)
Drainage Areas (250206)
Changes to Address Comments (250521)
RC Changes (250522)
Pond Storage Curve Updates (250523)
Update LID Surface Area (250527)

RESULTS FOR 5-YEAR EVENT

Element Count

Number of rain gages 8
Number of subcatchments ... 103
Number of nodes 74
Number of links 73
Number of pollutants 1
Number of land uses 3

Pollutant Summary

Name	Units	Ppt. Concen.	GW Concen.	Kdecay 1/days	CoPollutant
TSS	MG/L	0.00	0.00	0.00	

Landuse Summary

Name	Sweeping Interval	Maximum Removal	Last Swept
Landscape	0.00	0.00	0.00
Paved	0.00	0.00	0.00
Roof	0.00	0.00	0.00

Raingage Summary

Name	Data Source	Data Type	Recording Interval
25mm	25	INTENSITY	10 min.
5mm	5mm	INTENSITY	10 min.
Chicago_3h_100Year_Guelph	Chicago_3h_100Year_Guelph	INTENSITY	5 min.
Chicago_3h_10Year_Guelph	Chicago_3h_10Year_Guelph	INTENSITY	5 min.
Chicago_3h_25Year_Guelph	Chicago_3h_25Year_Guelph	INTENSITY	5 min.
Chicago_3h_2Year_Guelph	Chicago_3h_2Year_Guelph	INTENSITY	5 min.
Chicago_3h_50Year_Guelph	Chicago_3h_50Year_Guelph	INTENSITY	5 min.
Chicago_3h_5Year_Guelph	Chicago_3h_5Year_Guelph	INTENSITY	5 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
201	1.49	83.66	0.00	1.0000	Chicago_3h_5Year_Guelph	CBMH15
202	1.32	93.14	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#3
203	0.12	14.28	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#3
204	0.25	90.52	0.00	1.0000	Chicago_3h_5Year_Guelph	CBMH14
205a	0.06	11.41	100.00	1.0000	Chicago_3h_5Year_Guelph	CBMH13
205b	0.10	19.02	100.00	1.0000	Chicago_3h_5Year_Guelph	CBMH13
205c	0.11	20.92	100.00	1.0000	Chicago_3h_5Year_Guelph	CBMH13
205d	0.22	41.84	100.00	1.0000	Chicago_3h_5Year_Guelph	CBMH13
206a	0.37	38.15	79.00	1.0000	Chicago_3h_5Year_Guelph	MH44
206b	0.09	9.28	0.00	1.0000	Chicago_3h_5Year_Guelph	OF1
207	0.71	77.73	100.00	1.0000	Chicago_3h_5Year_Guelph	MH42
208a	0.05	29.26	100.00	1.0000	Chicago_3h_5Year_Guelph	MH42
208b	0.09	52.66	100.00	1.0000	Chicago_3h_5Year_Guelph	CB126-127
208c	0.09	52.66	100.00	1.0000	Chicago_3h_5Year_Guelph	MH9
208d	0.05	29.26	100.00	1.0000	Chicago_3h_5Year_Guelph	MH8
209a	0.04	9.96	64.00	1.0000	Chicago_3h_5Year_Guelph	MH12
209b	0.13	24.72	64.00	1.0000	Chicago_3h_5Year_Guelph	MH42
209c	0.17	26.20	64.00	1.0000	Chicago_3h_5Year_Guelph	MH16
209d	0.10	39.25	64.00	1.0000	Chicago_3h_5Year_Guelph	MH17
210a	0.19	47.31	100.00	1.0000	Chicago_3h_5Year_Guelph	MH12
210b	0.18	34.22	100.00	1.0000	Chicago_3h_5Year_Guelph	MH42
211	0.31	47.78	100.00	1.0000	Chicago_3h_5Year_Guelph	MH16
212	0.24	94.19	100.00	1.0000	Chicago_3h_5Year_Guelph	MH17
213	0.43	120.19	0.00	1.0000	Chicago_3h_5Year_Guelph	MH35
214	0.27	91.94	100.00	1.0000	Chicago_3h_5Year_Guelph	MH38
215	0.10	60.66	100.00	1.0000	Chicago_3h_5Year_Guelph	MH36
216a	0.06	25.10	100.00	1.0000	Chicago_3h_5Year_Guelph	MH7
216b	0.02	8.37	100.00	1.0000	Chicago_3h_5Year_Guelph	MH7
216c	0.06	25.10	100.00	1.0000	Chicago_3h_5Year_Guelph	MH7
216d	0.05	20.92	100.00	1.0000	Chicago_3h_5Year_Guelph	MH7
216e	0.06	19.84	100.00	1.0000	Chicago_3h_5Year_Guelph	MH6
216f	0.04	13.23	100.00	1.0000	Chicago_3h_5Year_Guelph	MH6
216g	0.05	16.53	100.00	1.0000	Chicago_3h_5Year_Guelph	MH6
217	0.64	66.83	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#2
218	0.58	63.72	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#2
219a	0.15	34.73	79.00	1.0000	Chicago_3h_5Year_Guelph	MH44
219b	0.07	16.21	0.00	1.0000	Chicago_3h_5Year_Guelph	OF1
220a	0.17	38.83	79.00	1.0000	Chicago_3h_5Year_Guelph	CB145
220b	0.06	13.70	0.00	1.0000	Chicago_3h_5Year_Guelph	OF1
221	0.23	53.63	76.00	1.0000	Chicago_3h_5Year_Guelph	CB143
222	0.21	48.75	76.00	1.0000	Chicago_3h_5Year_Guelph	CB141
223	0.23	56.45	76.00	1.0000	Chicago_3h_5Year_Guelph	MH19
224	0.15	34.55	76.00	1.0000	Chicago_3h_5Year_Guelph	MH19
226	0.75	77.19	100.00	1.0000	Chicago_3h_5Year_Guelph	MH7
227	0.23	41.91	100.00	1.0000	Chicago_3h_5Year_Guelph	CB138
228	0.16	28.70	100.00	1.0000	Chicago_3h_5Year_Guelph	CB137
229a	0.08	26.45	100.00	1.0000	Chicago_3h_5Year_Guelph	MH6
229b	0.05	16.53	100.00	1.0000	Chicago_3h_5Year_Guelph	MH6
230a	0.06	21.25	100.00	1.0000	Chicago_3h_5Year_Guelph	CB113-114
230b	0.06	21.25	100.00	1.0000	Chicago_3h_5Year_Guelph	CB113-114
231a	0.05	19.68	100.00	1.0000	Chicago_3h_5Year_Guelph	CB111-112
231b	0.04	15.74	100.00	1.0000	Chicago_3h_5Year_Guelph	CB111-112
232a	0.06	24.02	100.00	1.0000	Chicago_3h_5Year_Guelph	CB108-109
232b	0.06	24.02	100.00	1.0000	Chicago_3h_5Year_Guelph	CB108-109
233a	0.07	27.13	100.00	1.0000	Chicago_3h_5Year_Guelph	CB106-107
233b	0.06	23.25	100.00	1.0000	Chicago_3h_5Year_Guelph	CB106-107
234a	0.05	16.63	100.00	1.0000	Chicago_3h_5Year_Guelph	CB104-105
234b	0.05	16.63	100.00	1.0000	Chicago_3h_5Year_Guelph	CB104-105
235	0.89	98.21	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#1B
236	0.47	49.29	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#1A
237	0.43	44.70	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#1A
238	0.41	42.54	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#1A
239	0.39	40.36	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#1A
240a	0.12	27.91	100.00	1.0000	Chicago_3h_5Year_Guelph	CB181
240b	0.06	13.95	0.00	1.0000	Chicago_3h_5Year_Guelph	240a
241a	0.13	30.16	100.00	1.0000	Chicago_3h_5Year_Guelph	CB149
241b	0.06	13.92	0.00	1.0000	Chicago_3h_5Year_Guelph	241a
242a	0.13	30.69	100.00	1.0000	Chicago_3h_5Year_Guelph	CB150
242b	0.06	14.16	0.00	1.0000	Chicago_3h_5Year_Guelph	242a
243a	0.10	23.41	100.00	1.0000	Chicago_3h_5Year_Guelph	CB182
243b	0.08	18.73	21.00	1.0000	Chicago_3h_5Year_Guelph	243a
244a	0.31	32.35	100.00	1.0000	Chicago_3h_5Year_Guelph	MH27
244b	0.14	14.61	0.00	1.0000	Chicago_3h_5Year_Guelph	MH27
245	0.39	44.70	0.00	1.0000	Chicago_3h_5Year_Guelph	CBMH45
246	0.76	265.59	100.00	1.0000	Chicago_3h_5Year_Guelph	MH26
247	0.19	14.81	0.00	1.0000	Chicago_3h_5Year_Guelph	MH26
248a	0.12	26.03	100.00	1.0000	Chicago_3h_5Year_Guelph	MH3
248b	0.05	10.85	100.00	1.0000	Chicago_3h_5Year_Guelph	MH3
248c	0.23	49.89	100.00	1.0000	Chicago_3h_5Year_Guelph	MH3
248d	0.05	10.85	100.00	1.0000	Chicago_3h_5Year_Guelph	CB100-101
249	1.09	143.48	43.00	1.0000	Chicago_3h_5Year_Guelph	SWM_Pond
250a	0.21	29.79	0.00	1.0000	Chicago_3h_5Year_Guelph	LID#6
250b	0.06	11.60	100.00	1.0000	Chicago_3h_5Year_Guelph	MH29
250c	0.04	7.73	64.00	1.0000	Chicago_3h_5Year_Guelph	MH31
250d	0.03	5.80	100.00	1.0000	Chicago_3h_5Year_Guelph	MH30
250e	0.10	19.33	100.00	1.0000	Chicago_3h_5Year_Guelph	MH39
250f	0.08	15.47	100.00	1.0000	Chicago_3h_5Year_Guelph	MH31
251	0.09	39.92	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#6
252A	0.08	11.35	0.00	1.0000	Chicago_3h_5Year_Guelph	LID#6
252b	0.05	7.09	100.00	1.0000	Chicago_3h_5Year_Guelph	MH32
252c	0.03	5.80	100.00	1.0000	Chicago_3h_5Year_Guelph	MH32
252d	0.02	3.87	100.00	1.0000	Chicago_3h_5Year_Guelph	MH31
253	0.05	29.33	100.00	1.0000	Chicago_3h_5Year_Guelph	CB165-166
254	1.90	143.88	0.00	1.0000	Chicago_3h_5Year_Guelph	Wetland
255	0.12	40.81	100.00	1.0000	Chicago_3h_5Year_Guelph	LID#5
256	0.31	29.83	63.00	1.0000	Chicago_3h_5Year_Guelph	LID#5
257	0.81	54.78	0.00	1.0000	Chicago_3h_5Year_Guelph	MH34
258	0.08	49.72	100.00	1.0000	Chicago_3h_5Year_Guelph	CB171-172

259	0.03	19.19	100.00	1.0000	Chicago_3h_5Year_Guelph CB169-170
260	0.04	26.44	100.00	1.0000	Chicago_3h_5Year_Guelph CB167-168
261	0.79	70.29	100.00	1.0000	Chicago_3h_5Year_Guelph LID#2
262	0.80	74.17	100.00	1.0000	Chicago_3h_5Year_Guelph LID#2
263	1.15	136.28	0.00	1.0000	Chicago_3h_5Year_Guelph CB179

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH39	OUTFALL	332.85	0.30	0.0	
OF1	OUTFALL	333.00	0.00	0.0	
CB100-101	STORAGE	337.27	1.00	0.0	
CB104-105	STORAGE	337.77	1.00	0.0	
CB106-107	STORAGE	337.94	1.00	0.0	
CB108-109	STORAGE	338.11	1.00	0.0	
CB111-112	STORAGE	338.25	1.00	0.0	
CB113-114	STORAGE	338.73	1.00	0.0	
CB126-127	STORAGE	340.58	1.00	0.0	
CB137	STORAGE	338.64	1.00	0.0	
CB138	STORAGE	338.78	1.00	0.0	
CB141	STORAGE	341.74	1.00	0.0	
CB143	STORAGE	341.99	1.00	0.0	
CB145	STORAGE	342.24	1.00	0.0	
CB149	STORAGE	340.74	1.00	0.0	
CB150	STORAGE	340.50	1.00	0.0	
CB165-166	STORAGE	336.37	1.00	0.0	
CB167-168	STORAGE	336.58	1.00	0.0	
CB169-170	STORAGE	336.81	1.00	0.0	
CB171-172	STORAGE	337.09	1.00	0.0	
CB179	STORAGE	335.38	1.00	0.0	
CB181	STORAGE	340.99	1.00	0.0	
CB182	STORAGE	340.25	1.00	0.0	
CBMH13	STORAGE	336.45	6.14	0.0	
CBMH14	STORAGE	336.95	6.90	0.0	
CBMH15	STORAGE	338.02	6.23	0.0	
CBMH28	STORAGE	333.60	3.13	0.0	
CBMH45	STORAGE	334.19	3.73	0.0	
LID#1A	STORAGE	336.50	2.41	0.0	
LID#1B	STORAGE	335.00	2.83	0.0	
LID#2	STORAGE	337.00	5.60	0.0	
LID#3	STORAGE	338.20	4.00	0.0	
LID#5	STORAGE	335.00	1.30	0.0	
LID#6	STORAGE	334.30	1.30	0.0	
MH1	STORAGE	331.99	5.51	0.0	
MH10	STORAGE	335.83	5.78	0.0	
MH11	STORAGE	336.06	6.38	0.0	
MH12	STORAGE	336.14	6.20	0.0	
MH16	STORAGE	336.21	6.35	0.0	
MH17	STORAGE	336.12	6.31	0.0	
MH18	STORAGE	334.68	4.38	0.0	
MH19	STORAGE	334.96	6.26	0.0	
MH2	STORAGE	332.11	5.24	0.0	
MH20	STORAGE	335.61	6.27	0.0	
MH21	STORAGE	336.19	6.12	0.0	
MH22	STORAGE	334.88	5.94	0.0	
MH23	STORAGE	334.31	5.99	0.0	
MH24	STORAGE	332.94	5.21	0.0	
MH25	STORAGE	333.06	4.38	0.0	
MH26	STORAGE	333.49	6.81	0.0	
MH27	STORAGE	333.79	6.12	0.0	
MH29	STORAGE	331.97	1.88	0.0	
MH3	STORAGE	332.36	5.24	0.0	
MH30	STORAGE	332.15	2.85	0.0	
MH31	STORAGE	332.49	3.27	0.0	
MH32	STORAGE	333.06	3.47	0.0	
MH33	STORAGE	333.59	3.33	0.0	
MH34	STORAGE	334.17	3.29	0.0	
MH35	STORAGE	334.30	3.44	0.0	
MH36	STORAGE	334.82	3.94	0.0	
MH37	STORAGE	334.36	3.67	0.0	
MH38	STORAGE	335.27	3.88	0.0	
MH4	STORAGE	332.89	5.11	0.0	
MH41	STORAGE	332.64	1.52	0.0	
MH42	STORAGE	335.60	5.58	0.0	
MH43	STORAGE	335.57	5.53	0.0	
MH44	STORAGE	337.06	5.46	0.0	
MH5	STORAGE	333.42	5.00	0.0	
MH6	STORAGE	333.84	4.75	0.0	
MH7	STORAGE	334.56	4.98	0.0	
MH8	STORAGE	334.84	4.80	0.0	
MH9	STORAGE	335.21	5.33	0.0	
SWM_Pond	STORAGE	331.67	1.45	0.0	
Wetland	STORAGE	331.55	1.51	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	MH44	MH21	CONDUIT	72.4	1.0004	0.0130
C10	CBMH45	CBMH28	CONDUIT	55.9	1.0007	0.0130
C11	CBMH28	MH25	CONDUIT	31.1	0.4990	0.0130
C3	MH23	MH27	CONDUIT	100.0	0.5000	0.0130
C5	LID#6	Wetland	CONDUIT	17.3	5.3835	0.1000
C6	LID#5	Wetland	CONDUIT	59.4	1.6837	0.1000
C7	Wetland	MH41	CONDUIT	64.7	1.2212	0.0100
C8	SWM_Pond	MH41	CONDUIT	15.0	1.4668	0.0200
Pipe_-_(38)_(C-STRM)	MH27	MH26	CONDUIT	28.1	0.5010	0.0130
Pipe_-_(39)_(C-STRM)	MH26	MH25	CONDUIT	79.8	0.4999	0.0130
Pipe_-_(41)_(C-STRM)	MH25	MH24	CONDUIT	18.2	0.4994	0.0130
Pipe_-_(42)_(C-STRM)	MH24	MH2	CONDUIT	31.6	0.5001	0.0130
Pipe_-_(43)_(C-STRM)	MH2	MH1	CONDUIT	17.8	0.4996	0.0130
Pipe_-_(44)_(C-STRM)	MH1	SWM_Pond	CONDUIT	32.2	0.9997	0.0130
Pipe_-_(45)_(C-STRM)	MH3	MH2	CONDUIT	20.6	0.4992	0.0130
Pipe_-_(46)_(C-STRM)	MH4	MH3	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(47)_(C-STRM)	MH5	MH4	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(48)_(C-STRM)	MH6	MH5	CONDUIT	76.7	0.4997	0.0130
Pipe_-_(49)_(C-STRM)	MH7	MH6	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(51)_(C-STRM)	MH8	MH7	CONDUIT	50.6	0.4996	0.0130
Pipe_-_(52)_(C-STRM)	MH42	MH9	CONDUIT	62.3	0.5007	0.0130
Pipe_-_(53)_(C-STRM)	MH10	MH42	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(54)_(C-STRM)	MH11	MH10	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(55)_(C-STRM)	MH12	MH11	CONDUIT	10.3	0.5039	0.0130
Pipe_-_(57)_(C-STRM)	CBMH13	MH12	CONDUIT	50.5	0.4992	0.0130
Pipe_-_(59)_(C-STRM)	MH9	MH8	CONDUIT	62.4	0.4998	0.0130
Pipe_-_(60)_(C-STRM)	MH17	MH8	CONDUIT	85.4	0.9999	0.0130
Pipe_-_(61)_(C-STRM)	MH16	MH9	CONDUIT	54.2	1.0007	0.0130
Pipe_-_(64)_(C-STRM)	MH18	MH6	CONDUIT	77.5	0.5006	0.0130
Pipe_-_(65)_(C-STRM)	MH19	MH18	CONDUIT	51.8	0.5001	0.0130
Pipe_-_(66)_(C-STRM)	MH43	MH22	CONDUIT	60.7	0.9999	0.0130
Pipe_-_(67)_(C-STRM)	MH22	MH23	CONDUIT	100.0	0.5002	0.0130
Pipe_-_(68)_(C-STRM)	MH20	MH19	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(69)_(C-STRM)	MH21	MH20	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(70)_(C-STRM)	MH29	SWM_Pond	CONDUIT	30.4	1.0014	0.0130
Pipe_-_(71)_(C-STRM)	MH30	MH29	CONDUIT	28.7	0.5016	0.0130
Pipe_-_(72)_(C-STRM)	MH31	MH30	CONDUIT	62.2	0.4999	0.0130
Pipe_-_(73)_(C-STRM)	MH32	MH31	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(74)_(C-STRM)	MH33	MH32	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(75)_(C-STRM)	MH34	MH33	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(76)_(C-STRM)	MH35	MH34	CONDUIT	26.8	0.4999	0.0130
Pipe_-_(77)_(C-STRM)	MH36	MH35	CONDUIT	28.8	0.9995	0.0130
Pipe_-_(78)_(C-STRM)	MH38	MH37	CONDUIT	62.6	0.9996	0.0130
Pipe_-_(79)_(C-STRM)	MH37	MH35	CONDUIT	11.3	-0.5030	0.0130
Pipe_-_(81)_(C-STRM)	CBMH14	CBMH13	CONDUIT	54.7	0.5008	0.0130
Pipe_-_(82)_(C-STRM)	CBMH15	CBMH14	CONDUIT	100.0	1.0001	0.0130
Pipe_-_(88)_(C-STRM)	MH41	MH39	CONDUIT	146.1	0.0068	0.0130
C2	LID#2	MH8	ORIFICE			
C4	LID#1B	MH3	ORIFICE			
OR1	LID#3	CBMH13	ORIFICE			
OR2	LID#1A	MH6	ORIFICE			
Pipe_-_(90)_(C-STRM)	SWM_Pond	Wetland	ORIFICE			
OL10	CB145	MH21	OUTLET			
OL11	CB181	MH43	OUTLET			
OL12	CB143	MH20	OUTLET			
OL13	CB141	MH20	OUTLET			
OL17	CB182	MH23	OUTLET			
OL18	CB150	MH22	OUTLET			
OL2	CB126-127	MH9	OUTLET			
OL20	CB149	MH22	OUTLET			
OL23	CB138	MH18	OUTLET			
OL24	CB137	MH6	OUTLET			
OL25	CB113-114	MH5	OUTLET			
OL26	CB111-112	MH5	OUTLET			
OL27	CB108-109	MH4	OUTLET			
OL28	CB106-107	MH4	OUTLET			
OL29	CB104-105	MH3	OUTLET			
OL31	CB100-101	MH2	OUTLET			
OL35	CB171-172	MH33	OUTLET			
OL36	CB169-170	MH33	OUTLET			
OL37	CB167-168	MH32	OUTLET			
OL38	CB165-166	MH32	OUTLET			
Pipe_-_(80)_(C-STRM)	CB179	MH31	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
C10	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C11	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C5	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.20
C6	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.47
C7	TRAPEZOIDAL	0.50	3.50	0.38	9.00	1	20.42
C8	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	2.33
Pipe_-_(38)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(39)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(41)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(42)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(43)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	3.77
Pipe_-_(44)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	5.34
Pipe_-_(45)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(46)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(47)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(48)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(49)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(51)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(52)_(C-STRM)	CIRCULAR	0.82	0.53	0.21	0.82	1	1.02
Pipe_-_(53)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(54)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(55)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(57)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(59)_(C-STRM)	CIRCULAR	0.90	0.64	0.23	0.90	1	1.28
Pipe_-_(60)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.43
Pipe_-_(61)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
Pipe_-_(64)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(65)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(66)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(67)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(68)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(69)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(70)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.84
Pipe_-_(71)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(72)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(73)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(74)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(75)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(76)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(77)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(78)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(79)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
Pipe_-_(81)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(82)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(88)_(C-STRM)	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	0.25

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... YES
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... YES
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/27/2025 00:00:00
Ending Date 01/31/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 14
Head Tolerance ..... 0.001500 m

**********	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
**********	---------	-------
Total Precipitation	1.031	40.476
Evaporation Loss	0.028	1.109
Infiltration Loss	0.351	13.799
Surface Runoff	0.667	26.173
Final Storage	0.000	0.000
Continuity Error (%)	-1.496	

**********	TSS
Runoff Quality Continuity	kg
**********	----------
Initial Buildup	0.000
Surface Buildup	0.000
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	0.000
Remaining Buildup	0.000
Continuity Error (%)	0.000

**********	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
**********	---------	---------
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.666	6.663
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.004	0.041
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.662	6.615
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.006
Continuity Error (%)	-0.003	

**********	TSS
Quality Routing Continuity	kg
**********	----------
Dry Weather Inflow	0.000
Wet Weather Inflow	0.000
Groundwater Inflow	0.000
RDII Inflow	0.000
External Inflow	0.000
External Outflow	0.000
Flooding Loss	0.000
Exfiltration Loss	0.000
Mass Reacted	0.000
Initial Stored Mass	0.000
Final Stored Mass	0.000
Continuity Error (%)	0.000

****
Highest Continuity Errors
****
Node CBMH28 (-3.49%)
Node CBMH14 (-2.84%)
Node MH33 (1.29%)
Node MH32 (-1.17%)

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary

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  *************************
  Minimum Time Step           :     0.60 sec
  Average Time Step           :     4.98 sec
  Maximum Time Step           :     5.00 sec
  % of Time in Steady State   :     0.00
  Average Iterations per Step :     2.00
  % of Steps Not Converging   :     0.00
  Time Step Frequencies       :
      5.000 -  3.155 sec      :    99.56 %
      3.155 -  1.991 sec      :     0.36 %
      1.991 -  1.256 sec      :     0.04 %
      1.256 -  0.792 sec      :     0.02 %
      0.792 -  0.500 sec      :     0.01 %


  ***************************
  Subcatchment Runoff Summary
  ***************************

  ------------------------------------------------------------------------------------------------
------------------------------
                                Total      Total      Total      Total     Imperv       Perv      Total
Total     Peak  Runoff
                               Precip      Runon       Evap      Infil    Runoff     Runoff     Runoff
Runoff   Runoff   Coeff
  Subcatchment                     mm         mm         mm         mm         mm         mm         mm
10^6 ltr      CMS
  ------------------------------------------------------------------------------------------------
------------------------------
  201                           40.48       0.00       0.03      40.31       0.00       0.23       0.23
0.00     0.01   0.006
  202                           40.48       0.00       1.81       0.00      39.25       0.00      39.25
0.52     0.37   0.970
  203                           40.48       0.00       1.71       0.00      39.56       0.00      39.56
0.05     0.04   0.977
  204                           40.48       0.00       0.03      39.66       0.00       1.29       1.29
0.00     0.01   0.032
  205a                          40.48       0.00       1.63       0.00      39.76       0.00      39.76
0.02     0.03   0.982
  205b                          40.48       0.00       1.63       0.00      39.76       0.00      39.76
0.04     0.04   0.982
  205c                          40.48       0.00       1.63       0.00      39.76       0.00      39.76
0.04     0.05   0.982
  205d                          40.48       0.00       1.63       0.00      39.76       0.00      39.76
0.09     0.09   0.982
  206a                          40.48       0.00       1.34       8.28      31.29       0.35      31.64
0.12     0.11   0.782
  206b                          40.48       0.00       0.03      40.19       0.00       0.41       0.41
0.00     0.00   0.010
  207                           40.48       0.00       1.72       0.00      39.52       0.00      39.52
0.28     0.25   0.976
  208a                          40.48       0.00       1.53       0.00      39.63       0.00      39.63
0.02     0.03   0.979
  208b                          40.48       0.00       1.53       0.00      39.63       0.00      39.63
0.04     0.05   0.979
  208c                          40.48       0.00       1.53       0.00      39.63       0.00      39.63
0.04     0.05   0.979
  208d                          40.48       0.00       1.53       0.00      39.63       0.00      39.63
0.02     0.03   0.979
  209a                          40.48       0.00       1.01      14.09      25.46       0.78      26.24
0.01     0.01   0.648
  209b                          40.48       0.00       1.03      14.18      25.49       0.63      26.12
0.03     0.04   0.645
  209c                          40.48       0.00       1.04      14.24      25.48       0.53      26.01
0.04     0.05   0.643
  209d                          40.48       0.00       0.99      13.93      25.35       1.09      26.43
0.03     0.04   0.653
  210a                          40.48       0.00       1.60       0.00      39.82       0.00      39.82
0.08     0.09   0.984
  210b                          40.48       0.00       1.63       0.00      39.76       0.00      39.76
0.07     0.08   0.982
  211                           40.48       0.00       1.66       0.00      39.69       0.00      39.69
0.12     0.12   0.981
  212                           40.48       0.00       1.56       0.00      39.78       0.00      39.78
0.10     0.12   0.983
  213                           40.48       0.00       0.03      39.81       0.00       1.03       1.03
0.00     0.01   0.025
  214                           40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.11     0.13   0.984
  215                           40.48       0.00       1.52       0.00      39.61       0.00      39.61
0.04     0.05   0.979
  216a                          40.48       0.00       1.55       0.00      39.76       0.00      39.76
0.02     0.03   0.982
  216b                          40.48       0.00       1.55       0.00      39.76       0.00      39.76
0.01     0.01   0.982
  216c                          40.48       0.00       1.55       0.00      39.76       0.00      39.76
0.02     0.03   0.982
  216d                          40.48       0.00       1.55       0.00      39.76       0.00      39.76
0.02     0.03   0.982
  216e                          40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.02     0.03   0.984
  216f                          40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.02     0.02   0.984
  216g                          40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.02     0.02   0.984
  217                           40.48       0.00       1.73       0.00      39.49       0.00      39.49
0.25     0.22   0.976
  218                           40.48       0.00       1.72       0.00      39.52       0.00      39.52
0.23     0.20   0.976
  219a                          40.48       0.00       1.26       8.12      31.46       0.64      32.10
0.05     0.06   0.793
  219b                          40.48       0.00       0.03      39.91       0.00       0.87       0.87
0.00     0.00   0.022
  220a                          40.48       0.00       1.26       8.13      31.46       0.63      32.09
0.05     0.07   0.793
  220b                          40.48       0.00       0.03      39.92       0.00       0.86       0.86
0.00     0.00   0.021
  221                           40.48       0.00       1.21       9.32      30.26       0.67      30.93
0.07     0.09   0.764
  222                           40.48       0.00       1.21       9.32      30.26       0.67      30.93
0.06     0.08   0.764
  223                           40.48       0.00       1.21       9.30      30.26       0.69      30.95
0.07     0.09   0.765
  224                           40.48       0.00       1.21       9.32      30.26       0.66      30.93
0.05     0.06   0.764
  226                           40.48       0.00       1.73       0.00      39.48       0.00      39.48
0.30     0.26   0.975
  227                           40.48       0.00       1.64       0.00      39.75       0.00      39.75
0.09     0.10   0.982
  228                           40.48       0.00       1.64       0.00      39.75       0.00      39.75
0.06     0.07   0.982
  229a                          40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.03     0.04   0.984
  229b                          40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.02     0.02   0.984
  230a                          40.48       0.00       1.57       0.00      39.80       0.00      39.80
0.02     0.03   0.983
  230b                          40.48       0.00       1.57       0.00      39.80       0.00      39.80
0.02     0.03   0.983
  231a                          40.48       0.00       1.56       0.00      39.78       0.00      39.78
0.02     0.03   0.983
  231b                          40.48       0.00       1.56       0.00      39.78       0.00      39.78
0.02     0.02   0.983
  232a                          40.48       0.00       1.56       0.00      39.77       0.00      39.77
0.02     0.03   0.983
  232b                          40.48       0.00       1.56       0.00      39.77       0.00      39.77
0.02     0.03   0.983
  233a                          40.48       0.00       1.56       0.00      39.78       0.00      39.78
0.03     0.03   0.983
  233b                          40.48       0.00       1.56       0.00      39.78       0.00      39.78
0.02     0.03   0.983
  234a                          40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.02     0.02   0.984
  234b                          40.48       0.00       1.57       0.00      39.81       0.00      39.81
0.02     0.02   0.984
  235                           40.48       0.00       1.72       0.00      39.52       0.00      39.52
0.35     0.31   0.976
  236                           40.48       0.00       1.73       0.00      39.49       0.00      39.49
0.19     0.16   0.976
  237                           40.48       0.00       1.73       0.00      39.49       0.00      39.49
0.17     0.15   0.976
  238                           40.48       0.00       1.73       0.00      39.49       0.00      39.49
0.16     0.14   0.976
  239                           40.48       0.00       1.73       0.00      39.49       0.00      39.49
0.15     0.13   0.976
  240a                          40.48       0.44       1.61       0.00      40.24       0.00      40.24
0.05     0.05   0.983
  240b                          40.48       0.00       0.03      39.91       0.00       0.88       0.88
0.00     0.00   0.022
  241a                          40.48       0.40       1.61       0.00      40.20       0.00      40.20
0.05     0.06   0.983
  241b                          40.48       0.00       0.03      39.91       0.00       0.87       0.87
0.00     0.00   0.022
  242a                          40.48       0.41       1.61       0.00      40.21       0.00      40.21
0.05     0.06   0.984
  242b                          40.48       0.00       0.03      39.90       0.00       0.89       0.89
0.00     0.00   0.022
  243a                          40.48       1.84       1.61       0.00      41.62       0.00      41.62
0.04     0.05   0.984
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243b			40.48	0.00	0.35	38.22	8.26	2.30	2.30
0.00	0.00	0.057							
244a			40.48	0.00	1.73	0.00	39.49	0.00	39.49
0.12	0.11	0.976							
244b			40.48	0.00	0.03	40.19	0.00	0.42	0.42
0.00	0.00	0.010							
245			40.48	0.00	0.03	40.17	0.00	0.46	0.46
0.00	0.00	0.011							
246			40.48	0.00	1.57	0.00	39.81	0.00	39.81
0.30	0.37	0.983							
247			40.48	0.00	0.03	40.25	0.00	0.32	0.32
0.00	0.00	0.008							
248a			40.48	0.00	1.62	0.00	39.80	0.00	39.80
0.05	0.05	0.983							
248b			40.48	0.00	1.62	0.00	39.80	0.00	39.80
0.02	0.02	0.983							
248c			40.48	0.00	1.62	0.00	39.80	0.00	39.80
0.09	0.10	0.983							
248d			40.48	0.00	1.62	0.00	39.80	0.00	39.80
0.02	0.02	0.983							
249			40.48	0.00	0.70	22.75	17.12	0.50	17.62
0.19	0.24	0.435							
250a			40.48	0.00	0.03	40.10	0.00	0.56	0.56
0.00	0.00	0.014							
250b			40.48	0.00	1.63	0.00	39.77	0.00	39.77
0.02	0.03	0.983							
250c			40.48	0.00	1.02	14.17	25.49	0.64	26.13
0.01	0.01	0.645							
250d			40.48	0.00	1.63	0.00	39.77	0.00	39.77
0.01	0.01	0.983							
250e			40.48	0.00	1.63	0.00	39.77	0.00	39.77
0.04	0.04	0.983							
250f			40.48	0.00	1.63	0.00	39.77	0.00	39.77
0.03	0.03	0.983							
251			40.48	0.00	1.55	0.00	39.74	0.00	39.74
0.04	0.05	0.982							
252A			40.48	0.00	0.03	40.10	0.00	0.56	0.56
0.00	0.00	0.014							
252b			40.48	0.00	1.68	0.00	39.65	0.00	39.65
0.02	0.02	0.980							
252c			40.48	0.00	1.63	0.00	39.77	0.00	39.77
0.01	0.01	0.983							
252d			40.48	0.00	1.63	0.00	39.77	0.00	39.77
0.01	0.01	0.983							
253			40.48	0.00	1.53	0.00	39.63	0.00	39.63
0.02	0.03	0.979							
254			40.48	0.00	0.03	40.26	0.00	0.31	0.31
0.01	0.01	0.008							
255			40.48	0.00	1.57	0.00	39.81	0.00	39.81
0.05	0.06	0.984							
256			40.48	0.00	1.06	14.75	25.00	0.36	25.36
0.08	0.08	0.627							
257			40.48	0.00	0.03	40.28	0.00	0.28	0.28
0.00	0.01	0.007							
258			40.48	0.00	1.52	0.00	39.60	0.00	39.60
0.03	0.04	0.978							
259			40.48	0.00	1.52	0.00	39.59	0.00	39.59
0.01	0.02	0.978							
260			40.48	0.00	1.52	0.00	39.57	0.00	39.57
0.02	0.02	0.978							
261			40.48	0.00	1.76	0.00	39.40	0.00	39.40
0.31	0.25	0.973							
262			40.48	0.00	1.75	0.00	39.42	0.00	39.42
0.32	0.26	0.974							
263			40.48	0.00	0.03	40.16	0.00	0.47	0.47
0.01	0.01	0.012							

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Subcatchment Washoff Summary
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Subcatchment	TSS kg
201	0.000
202	0.000
203	0.000
204	0.000
205a	0.000
205b	0.000
205c	0.000
205d	0.000
206a	0.000
206b	0.000
207	0.000
208a	0.000
208b	0.000
208c	0.000
208d	0.000
209a	0.000
209b	0.000
209c	0.000
209d	0.000
210a	0.000
210b	0.000
211	0.000
212	0.000
213	0.000
214	0.000
215	0.000
216a	0.000
216b	0.000
216c	0.000
216d	0.000
216e	0.000
216f	0.000
216g	0.000
217	0.000
218	0.000
219a	0.000
219b	0.000
220a	0.000
220b	0.000
221	0.000
222	0.000
223	0.000
224	0.000
226	0.000
227	0.000
228	0.000
229a	0.000
229b	0.000
230a	0.000
230b	0.000
231a	0.000
231b	0.000
232a	0.000
232b	0.000
233a	0.000
233b	0.000
234a	0.000
234b	0.000
235	0.000
236	0.000
237	0.000
238	0.000
239	0.000
240a	0.000
240b	0.000
241a	0.000
241b	0.000
242a	0.000
242b	0.000
243a	0.000
243b	0.000
244a	0.000
244b	0.000
245	0.000
246	0.000
247	0.000
248a	0.000
248b	0.000
248c	0.000
248d	0.000
249	0.000
250a	0.000
250b	0.000
250c	0.000
250d	0.000
250e	0.000
250f	0.000
251	0.000
252A	0.000
252b	0.000
252c	0.000
252d	0.000
253	0.000
254	0.000

255	0.000
256	0.000
257	0.000
258	0.000
259	0.000
260	0.000
261	0.000
262	0.000
263	0.000
System	0.000

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
MH39	OUTFALL	0.00	0.00	332.85	0 00:00	0.00
OF1	OUTFALL	0.00	0.00	333.00	0 00:00	0.00
CB100-101	STORAGE	0.00	0.05	337.33	0 01:05	0.05
CB104-105	STORAGE	0.00	0.07	337.85	0 01:05	0.07
CB106-107	STORAGE	0.00	0.08	338.02	0 01:05	0.08
CB108-109	STORAGE	0.00	0.08	338.19	0 01:05	0.08
CB111-112	STORAGE	0.00	0.07	338.32	0 01:05	0.07
CB113-114	STORAGE	0.00	0.08	338.81	0 01:05	0.08
CB126-127	STORAGE	0.00	0.07	340.65	0 01:05	0.07
CB137	STORAGE	0.00	0.11	338.75	0 01:05	0.10
CB138	STORAGE	0.00	0.13	338.91	0 01:05	0.13
CB141	STORAGE	0.00	0.12	341.85	0 01:05	0.11
CB143	STORAGE	0.00	0.12	342.12	0 01:05	0.12
CB145	STORAGE	0.00	0.10	342.35	0 01:05	0.10
CB149	STORAGE	0.00	0.10	340.84	0 01:05	0.10
CB150	STORAGE	0.00	0.10	340.59	0 01:05	0.10
CB165-166	STORAGE	0.00	0.05	336.42	0 01:05	0.05
CB167-168	STORAGE	0.00	0.05	336.63	0 01:05	0.05
CB169-170	STORAGE	0.00	0.04	336.86	0 01:05	0.04
CB171-172	STORAGE	0.00	0.07	337.15	0 01:05	0.07
CB179	STORAGE	0.00	0.05	335.43	0 01:05	0.05
CB181	STORAGE	0.00	0.09	341.09	0 01:05	0.09
CB182	STORAGE	0.00	0.09	340.33	0 01:05	0.09
CBMH13	STORAGE	0.00	0.31	336.76	0 01:05	0.30
CBMH14	STORAGE	0.00	0.08	337.03	0 01:06	0.08
CBMH15	STORAGE	0.00	0.05	338.07	0 01:06	0.05
CBMH28	STORAGE	0.00	0.35	333.94	0 01:07	0.35
CBMH45	STORAGE	0.00	0.04	334.23	0 01:06	0.04
LID#1A	STORAGE	0.03	0.40	336.90	0 03:02	0.40
LID#1B	STORAGE	0.01	0.19	335.19	0 02:14	0.19
LID#2	STORAGE	0.11	0.87	337.87	0 03:15	0.87
LID#3	STORAGE	0.15	1.07	339.27	0 02:47	1.07
LID#5	STORAGE	0.01	0.22	335.22	0 02:17	0.22
LID#6	STORAGE	0.00	0.05	334.35	0 01:22	0.05
MH1	STORAGE	0.01	1.55	333.54	0 01:08	1.54
MH10	STORAGE	0.00	0.39	336.22	0 01:05	0.39
MH11	STORAGE	0.00	0.38	336.44	0 01:05	0.38
MH12	STORAGE	0.00	0.41	336.55	0 01:05	0.41
MH16	STORAGE	0.00	0.27	336.48	0 01:05	0.27
MH17	STORAGE	0.00	0.22	336.34	0 01:05	0.22
MH18	STORAGE	0.01	0.50	335.18	0 01:07	0.50
MH19	STORAGE	0.00	0.46	335.42	0 01:06	0.45
MH2	STORAGE	0.01	1.57	333.68	0 01:08	1.55
MH20	STORAGE	0.00	0.45	336.06	0 01:06	0.45
MH21	STORAGE	0.00	0.35	336.54	0 01:05	0.35
MH22	STORAGE	0.00	0.30	335.19	0 01:06	0.30
MH23	STORAGE	0.00	0.30	334.61	0 01:06	0.30
MH24	STORAGE	0.01	0.89	333.84	0 01:08	0.86
MH25	STORAGE	0.01	0.88	333.94	0 01:08	0.85
MH26	STORAGE	0.01	0.72	334.21	0 01:07	0.71
MH27	STORAGE	0.00	0.57	334.35	0 01:07	0.57
MH29	STORAGE	0.01	0.38	332.35	0 01:07	0.38
MH3	STORAGE	0.01	1.50	333.87	0 01:08	1.49
MH30	STORAGE	0.00	0.38	332.53	0 01:07	0.38
MH31	STORAGE	0.00	0.36	332.85	0 01:07	0.36
MH32	STORAGE	0.00	0.35	333.42	0 01:07	0.35
MH33	STORAGE	0.00	0.30	333.90	0 01:06	0.30
MH34	STORAGE	0.00	0.29	334.45	0 01:06	0.29
MH35	STORAGE	0.00	0.30	334.61	0 01:05	0.30
MH36	STORAGE	0.00	0.17	334.98	0 01:05	0.17
MH37	STORAGE	0.06	0.38	334.75	0 01:06	0.38
MH38	STORAGE	0.00	0.48	335.75	0 01:06	0.48
MH4	STORAGE	0.01	1.31	334.21	0 01:07	1.31
MH41	STORAGE	0.00	0.00	332.64	0 00:00	0.00
MH42	STORAGE	0.01	0.54	336.14	0 01:05	0.54
MH43	STORAGE	0.00	0.14	335.71	0 01:05	0.14
MH44	STORAGE	0.00	0.31	337.37	0 01:05	0.30
MH5	STORAGE	0.01	1.01	334.44	0 01:08	1.01
MH6	STORAGE	0.01	0.88	334.71	0 01:07	0.88
MH7	STORAGE	0.01	0.75	335.32	0 01:06	0.75
MH8	STORAGE	0.01	0.69	335.54	0 01:06	0.68
MH9	STORAGE	0.01	0.63	335.85	0 01:06	0.63
SWM_Pond	STORAGE	0.04	0.48	332.15	0 01:54	0.48
Wetland	STORAGE	0.02	0.26	331.81	0 05:38	0.26

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
MH39	OUTFALL	0.043	0.043	0 01:05	0.0397	0.0397	0.000
OF1	OUTFALL	0.004	0.004	0 01:05	0.0015	0.0015	0.000
CB100-101	STORAGE	0.022	0.022	0 01:05	0.0199	0.0199	-0.000
CB104-105	STORAGE	0.049	0.049	0 01:05	0.0398	0.0398	-0.007
CB106-107	STORAGE	0.065	0.065	0 01:05	0.0517	0.0517	-0.014
CB108-109	STORAGE	0.060	0.060	0 01:05	0.0477	0.0477	-0.013
CB111-112	STORAGE	0.045	0.045	0 01:05	0.0358	0.0358	-0.011
CB113-114	STORAGE	0.059	0.059	0 01:05	0.0477	0.0477	-0.013
CB126-127	STORAGE	0.047	0.047	0 01:05	0.0356	0.0356	-0.011
CB137	STORAGE	0.068	0.068	0 01:05	0.0636	0.0636	-0.004
CB138	STORAGE	0.098	0.098	0 01:05	0.0914	0.0914	-0.008
CB141	STORAGE	0.081	0.081	0 01:05	0.0649	0.0649	-0.009
CB143	STORAGE	0.089	0.089	0 01:05	0.0711	0.0711	-0.010
CB145	STORAGE	0.067	0.067	0 01:05	0.0545	0.0545	-0.007
CB149	STORAGE	0.059	0.059	0 01:05	0.0522	0.0522	-0.004
CB150	STORAGE	0.059	0.059	0 01:05	0.0522	0.0522	-0.004
CB165-166	STORAGE	0.026	0.026	0 01:05	0.0198	0.0198	-0.003
CB167-168	STORAGE	0.021	0.021	0 01:05	0.0158	0.0158	-0.003
CB169-170	STORAGE	0.016	0.016	0 01:05	0.0119	0.0119	-0.002
CB171-172	STORAGE	0.042	0.042	0 01:05	0.0317	0.0317	-0.008
CB179	STORAGE	0.013	0.013	0 01:05	0.00542	0.00542	0.002
CB181	STORAGE	0.055	0.055	0 01:05	0.0483	0.0483	-0.004
CB182	STORAGE	0.046	0.046	0 01:05	0.0416	0.0416	-0.001
CBMH13	STORAGE	0.211	0.222	0 01:05	0.195	0.261	-0.072
CBMH14	STORAGE	0.009	0.014	0 01:05	0.00321	0.00665	-2.765
CBMH15	STORAGE	0.008	0.008	0 01:05	0.00344	0.00344	-0.059
CBMH28	STORAGE	0.000	0.042	0 01:07	0	0.00453	-3.369
CBMH45	STORAGE	0.004	0.004	0 01:05	0.00178	0.00178	4.035
LID#1A	STORAGE	0.586	0.586	0 01:05	0.671	0.671	-0.006
LID#1B	STORAGE	0.315	0.315	0 01:05	0.352	0.352	-0.010
LID#2	STORAGE	0.939	0.939	0 01:05	1.11	1.11	-0.003
LID#3	STORAGE	0.418	0.418	0 01:05	0.566	0.566	-0.002
LID#5	STORAGE	0.140	0.140	0 01:05	0.126	0.126	-0.009
LID#6	STORAGE	0.050	0.050	0 01:05	0.0374	0.0374	-0.023
MH1	STORAGE	0.000	2.752	0 01:10	0	3.27	0.096
MH10	STORAGE	0.000	0.309	0 01:06	0	0.347	-0.046
MH11	STORAGE	0.000	0.308	0 01:05	0	0.347	-0.039
MH12	STORAGE	0.101	0.313	0 01:05	0.0861	0.347	0.092
MH16	STORAGE	0.177	0.177	0 01:05	0.167	0.167	-0.005
MH17	STORAGE	0.157	0.157	0 01:05	0.122	0.122	1.329
MH18	STORAGE	0.000	0.541	0 01:06	0	0.562	-0.368
MH19	STORAGE	0.148	0.461	0 01:06	0.117	0.473	0.503
MH2	STORAGE	0.000	2.716	0 01:10	0	3.27	-0.077
MH20	STORAGE	0.000	0.379	0 01:05	0	0.354	-0.514
MH21	STORAGE	0.000	0.226	0 01:05	0	0.22	0.790
MH22	STORAGE	0.000	0.170	0 01:05	0	0.152	-0.218
MH23	STORAGE	0.000	0.189	0 01:06	0	0.194	0.134
MH24	STORAGE	0.000	0.544	0 01:06	0	0.622	0.171
MH25	STORAGE	0.000	0.572	0 01:05	0	0.622	-0.476
MH26	STORAGE	0.376	0.589	0 01:05	0.303	0.621	0.754
MH27	STORAGE	0.108	0.282	0 01:06	0.123	0.317	-0.462
MH29	STORAGE	0.026	0.326	0 01:08	0.0238	0.366	0.107
MH3	STORAGE	0.179	2.130	0 01:10	0.159	2.63	-0.072
MH30	STORAGE	0.013	0.308	0 01:07	0.0119	0.332	-0.564
MH31	STORAGE	0.056	0.299	0 01:07	0.0502	0.321	0.259
MH32	STORAGE	0.033	0.269	0 01:06	0.0317	0.262	-1.160
MH33	STORAGE	0.000	0.206	0 01:06	0	0.197	1.311
MH34	STORAGE	0.005	0.172	0 01:05	0.00224	0.154	-0.009
MH35	STORAGE	0.012	0.167	0 01:05	0.00442	0.151	-0.017
MH36	STORAGE	0.052	0.052	0 01:05	0.0396	0.0396	-0.007
MH37	STORAGE	0.000	0.110	0 01:06	0	0.107	0.061
MH38	STORAGE	0.132	0.132	0 01:05	0.107	0.107	0.021

MH4	STORAGE	0.000	2.146	0	01:07	0	2.42	-0.355
MH41	STORAGE	0.000	0.000	0	00:00	0	0	0.000
ltr								
MH42	STORAGE	0.396	0.665	0	01:05	0.406	0.753	-0.002
MH43	STORAGE	0.000	0.055	0	01:05	0	0.0483	0.513
MH44	STORAGE	0.174	0.174	0	01:05	0.165	0.165	0.003
MH5	STORAGE	0.000	2.084	0	01:07	0	2.32	0.006
MH6	STORAGE	0.137	2.012	0	01:07	0.111	2.24	0.365
MH7	STORAGE	0.353	1.355	0	01:06	0.372	1.5	-0.169
MH8	STORAGE	0.026	1.076	0	01:05	0.0198	1.13	-0.033
MH9	STORAGE	0.047	0.916	0	01:05	0.0356	0.991	0.053
SWM_Pond	STORAGE	0.240	3.189	0	01:10	0.192	3.83	0.068
Wetland	STORAGE	0.014	0.213	0	01:54	0.00585	3.81	-0.004

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Node Surcharge Summary
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No nodes were surcharged.

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
CB100-101	0.000	0.0	0.0	0.0	0.000	5.2	0 01:05	0.022
CB104-105	0.000	0.1	0.0	0.0	0.000	7.3	0 01:05	0.049
CB106-107	0.000	0.1	0.0	0.0	0.000	8.4	0 01:05	0.065
CB108-109	0.000	0.1	0.0	0.0	0.000	8.1	0 01:05	0.060
CB111-112	0.000	0.0	0.0	0.0	0.000	7.0	0 01:05	0.045
CB113-114	0.000	0.1	0.0	0.0	0.000	8.0	0 01:05	0.059
CB126-127	0.000	0.0	0.0	0.0	0.000	7.2	0 01:05	0.047
CB137	0.000	0.1	0.0	0.0	0.000	10.5	0 01:05	0.068
CB138	0.000	0.1	0.0	0.0	0.000	12.9	0 01:05	0.098
CB141	0.000	0.1	0.0	0.0	0.000	11.5	0 01:05	0.081
CB143	0.000	0.1	0.0	0.0	0.000	12.1	0 01:05	0.089
CB145	0.000	0.1	0.0	0.0	0.000	10.5	0 01:05	0.067
CB149	0.000	0.1	0.0	0.0	0.000	9.8	0 01:05	0.059
CB150	0.000	0.1	0.0	0.0	0.000	9.9	0 01:05	0.059
CB165-166	0.000	0.0	0.0	0.0	0.000	5.5	0 01:05	0.026
CB167-168	0.000	0.0	0.0	0.0	0.000	5.1	0 01:05	0.021
CB169-170	0.000	0.0	0.0	0.0	0.000	4.2	0 01:05	0.016
CB171-172	0.000	0.0	0.0	0.0	0.000	6.8	0 01:05	0.042
CB179	0.000	0.0	0.0	0.0	0.000	5.2	0 01:05	0.013
CB181	0.000	0.1	0.0	0.0	0.000	9.4	0 01:05	0.055
CB182	0.000	0.1	0.0	0.0	0.000	8.6	0 01:05	0.046
CBMH13	0.000	0.1	0.0	0.0	0.000	5.0	0 01:05	0.218
CBMH14	0.000	0.0	0.0	0.0	0.000	1.2	0 01:06	0.013
CBMH15	0.000	0.0	0.0	0.0	0.000	0.8	0 01:06	0.007
CBMH28	0.000	0.0	0.0	0.0	0.000	11.1	0 01:07	0.029
CBMH45	0.000	0.0	0.0	0.0	0.000	1.1	0 01:06	0.004
LID#1A	0.035	1.2	0.0	100.0	0.506	16.7	0 03:02	0.016
LID#1B	0.009	0.3	0.0	100.0	0.221	6.6	0 02:14	0.015
LID#2	0.119	1.9	0.0	100.0	0.946	15.5	0 03:15	0.014
LID#3	0.065	3.8	0.0	89.5	0.457	26.9	0 02:47	0.018
LID#5	0.004	0.8	0.0	100.0	0.083	16.8	0 02:17	0.005
LID#6	0.000	0.1	0.0	100.0	0.018	4.1	0 01:22	0.004
MH1	0.000	0.2	0.0	0.0	0.007	28.1	0 01:08	2.826
MH10	0.000	0.1	0.0	0.0	0.000	6.8	0 01:05	0.311
MH11	0.000	0.1	0.0	0.0	0.000	6.0	0 01:05	0.309
MH12	0.000	0.1	0.0	0.0	0.000	6.7	0 01:05	0.308
MH16	0.000	0.0	0.0	0.0	0.000	4.3	0 01:05	0.172
MH17	0.000	0.0	0.0	0.0	0.000	3.5	0 01:05	0.150
MH18	0.000	0.1	0.0	0.0	0.001	11.4	0 01:07	0.534
MH19	0.000	0.1	0.0	0.0	0.001	7.3	0 01:06	0.461
MH2	0.000	0.3	0.0	0.0	0.007	29.9	0 01:08	2.752
MH20	0.000	0.1	0.0	0.0	0.001	7.2	0 01:06	0.349
MH21	0.000	0.1	0.0	0.0	0.000	5.8	0 01:05	0.228
MH22	0.000	0.1	0.0	0.0	0.000	5.1	0 01:06	0.151
MH23	0.000	0.1	0.0	0.0	0.000	5.0	0 01:06	0.187
MH24	0.000	0.1	0.0	0.0	0.001	17.2	0 01:08	0.534
MH25	0.000	0.2	0.0	0.0	0.001	20.0	0 01:08	0.559
MH26	0.000	0.1	0.0	0.0	0.001	10.5	0 01:07	0.572
MH27	0.000	0.1	0.0	0.0	0.001	9.3	0 01:07	0.273
MH29	0.000	0.3	0.0	0.0	0.000	20.1	0 01:07	0.330
MH3	0.000	0.2	0.0	0.0	0.007	28.7	0 01:08	2.198
MH30	0.000	0.1	0.0	0.0	0.000	13.4	0 01:07	0.310
MH31	0.000	0.1	0.0	0.0	0.000	11.1	0 01:07	0.299
MH32	0.000	0.1	0.0	0.0	0.000	10.2	0 01:07	0.254
MH33	0.000	0.1	0.0	0.0	0.000	9.1	0 01:06	0.208
MH34	0.000	0.1	0.0	0.0	0.000	8.7	0 01:06	0.164
MH35	0.000	0.1	0.0	0.0	0.000	8.8	0 01:05	0.167
MH36	0.000	0.0	0.0	0.0	0.000	4.3	0 01:05	0.051
MH37	0.000	1.6	0.0	0.0	0.000	10.4	0 01:06	0.110
MH38	0.000	0.1	0.0	0.0	0.001	12.4	0 01:06	0.110
MH4	0.000	0.2	0.0	0.0	0.003	25.6	0 01:07	2.053
MH41	0.000	0.0	0.0	0.0	0.000	0.0	0 00:00	0.000
MH42	0.000	0.1	0.0	0.0	0.001	9.7	0 01:05	0.665
MH43	0.000	0.0	0.0	0.0	0.000	2.6	0 01:05	0.053
MH44	0.000	0.1	0.0	0.0	0.000	5.6	0 01:05	0.164
MH5	0.000	0.2	0.0	0.0	0.003	20.3	0 01:08	2.062
MH6	0.000	0.2	0.0	0.0	0.002	18.5	0 01:07	2.014
MH7	0.000	0.2	0.0	0.0	0.001	15.1	0 01:06	1.333
MH8	0.000	0.1	0.0	0.0	0.001	14.4	0 01:06	1.057
MH9	0.000	0.1	0.0	0.0	0.001	11.9	0 01:06	0.911
SWM_Pond	0.193	2.1	0.0	0.0	2.511	26.9	0 01:54	0.213
Wetland	0.127	1.5	0.0	100.0	1.442	17.0	0 05:38	0.070

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS kg
MH39	4.54	0.004	0.043	0.040	0.000
OF1	0.50	0.002	0.004	0.001	0.000
System	2.52	0.006	0.047	0.041	0.000

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.164	0 01:05	1.76	0.94	0.79
C10	CONDUIT	0.004	0 01:06	0.65	0.04	0.56
C11	CONDUIT	0.038	0 01:07	0.63	0.56	1.00
C3	CONDUIT	0.187	0 01:06	1.13	0.62	0.78
C5	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C6	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C7	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C8	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	CONDUIT	0.273	0 01:06	1.48	0.90	1.00
Pipe_-_(39)_(C-STRM)	CONDUIT	0.572	0 01:05	1.69	0.96	1.00
Pipe_-_(41)_(C-STRM)	CONDUIT	0.544	0 01:06	1.59	0.92	1.00
Pipe_-_(42)_(C-STRM)	CONDUIT	0.534	0 01:06	1.70	0.90	1.00
Pipe_-_(43)_(C-STRM)	CONDUIT	2.752	0 01:10	2.11	0.73	1.00
Pipe_-_(44)_(C-STRM)	CONDUIT	2.826	0 01:10	3.61	0.53	0.59
Pipe_-_(45)_(C-STRM)	CONDUIT	2.198	0 01:10	2.00	0.80	1.00
Pipe_-_(46)_(C-STRM)	CONDUIT	2.053	0 01:10	1.86	0.74	1.00
Pipe_-_(47)_(C-STRM)	CONDUIT	2.062	0 01:07	2.33	0.75	0.92
Pipe_-_(48)_(C-STRM)	CONDUIT	2.014	0 01:07	2.33	0.73	0.76
Pipe_-_(49)_(C-STRM)	CONDUIT	1.333	0 01:07	2.29	0.84	0.73
Pipe_-_(51)_(C-STRM)	CONDUIT	1.057	0 01:06	1.83	0.67	0.72
Pipe_-_(52)_(C-STRM)	CONDUIT	0.665	0 01:06	1.76	0.65	0.67
Pipe_-_(53)_(C-STRM)	CONDUIT	0.311	0 01:06	1.21	0.40	0.57
Pipe_-_(54)_(C-STRM)	CONDUIT	0.309	0 01:06	1.58	0.52	0.54
Pipe_-_(55)_(C-STRM)	CONDUIT	0.308	0 01:05	1.49	0.52	0.57
Pipe_-_(57)_(C-STRM)	CONDUIT	0.218	0 01:05	1.25	0.37	0.49
Pipe_-_(59)_(C-STRM)	CONDUIT	0.911	0 01:06	1.91	0.71	0.70
Pipe_-_(60)_(C-STRM)	CONDUIT	0.150	0 01:05	1.72	0.35	0.45
Pipe_-_(61)_(C-STRM)	CONDUIT	0.172	0 01:05	1.79	0.60	0.58
Pipe_-_(64)_(C-STRM)	CONDUIT	0.534	0 01:07	1.81	0.68	0.63
Pipe_-_(65)_(C-STRM)	CONDUIT	0.461	0 01:06	1.63	0.59	0.62
Pipe_-_(66)_(C-STRM)	CONDUIT	0.053	0 01:05	1.11	0.30	0.49
Pipe_-_(67)_(C-STRM)	CONDUIT	0.151	0 01:06	1.41	0.75	0.64
Pipe_-_(68)_(C-STRM)	CONDUIT	0.349	0 01:06	1.66	0.80	0.70
Pipe_-_(69)_(C-STRM)	CONDUIT	0.228	0 01:06	1.46	0.75	0.68

Pipe_-_(70)_(C-STRM)	CONDUIT	0.330	0	01:08	2.44	0.39	0.50
Pipe_-_(71)_(C-STRM)	CONDUIT	0.310	0	01:08	1.58	0.52	0.54
Pipe_-_(72)_(C-STRM)	CONDUIT	0.299	0	01:07	1.56	0.50	0.53
Pipe_-_(73)_(C-STRM)	CONDUIT	0.254	0	01:08	1.54	0.58	0.57
Pipe_-_(74)_(C-STRM)	CONDUIT	0.208	0	01:07	1.43	0.48	0.52
Pipe_-_(75)_(C-STRM)	CONDUIT	0.164	0	01:07	1.41	0.54	0.53
Pipe_-_(76)_(C-STRM)	CONDUIT	0.167	0	01:05	1.42	0.55	0.56
Pipe_-_(77)_(C-STRM)	CONDUIT	0.051	0	01:05	1.32	0.52	0.54
Pipe_-_(78)_(C-STRM)	CONDUIT	0.110	0	01:06	1.61	1.14	0.92
Pipe_-_(79)_(C-STRM)	CONDUIT	0.110	0	01:06	0.86	0.36	0.57
Pipe_-_(81)_(C-STRM)	CONDUIT	0.013	0	01:06	0.72	0.07	0.18
Pipe_-_(82)_(C-STRM)	CONDUIT	0.007	0	01:06	0.76	0.04	0.13
Pipe_-_(88)_(C-STRM)	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C2	ORIFICE	0.000	0	00:00			0.00
C4	ORIFICE	0.000	0	00:00			0.00
OR1	ORIFICE	0.012	0	02:48			0.19
OR2	ORIFICE	0.000	0	00:00			0.00
Pipe_-_(90)_(C-STRM)	ORIFICE	0.213	0	01:54			1.00
OL10	DUMMY	0.067	0	01:05			
OL11	DUMMY	0.055	0	01:05			
OL12	DUMMY	0.089	0	01:05			
OL13	DUMMY	0.081	0	01:05			
OL17	DUMMY	0.046	0	01:05			
OL18	DUMMY	0.059	0	01:05			
OL2	DUMMY	0.047	0	01:05			
OL20	DUMMY	0.059	0	01:05			
OL23	DUMMY	0.098	0	01:05			
OL24	DUMMY	0.068	0	01:05			
OL25	DUMMY	0.059	0	01:05			
OL26	DUMMY	0.045	0	01:05			
OL27	DUMMY	0.060	0	01:05			
OL28	DUMMY	0.065	0	01:05			
OL29	DUMMY	0.049	0	01:05			
OL31	DUMMY	0.022	0	01:05			
OL35	DUMMY	0.042	0	01:05			
OL36	DUMMY	0.016	0	01:05			
OL37	DUMMY	0.021	0	01:05			
OL38	DUMMY	0.026	0	01:05			
Pipe_-_(80)_(C-STRM)	DUMMY	0.013	0	01:05			

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C10	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C3	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C5	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C7	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C8	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(39)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(41)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(42)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(43)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
Pipe_-_(44)_(C-STRM)	1.00	0.00	0.92	0.00	0.08	0.01	0.00	0.00	0.98	0.00
Pipe_-_(45)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
Pipe_-_(46)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
Pipe_-_(47)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(48)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(49)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(51)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(52)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(53)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(54)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(55)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(57)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(59)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(60)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(61)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(64)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(65)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(66)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(67)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(68)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(69)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(70)_(C-STRM)	1.00	0.00	0.93	0.00	0.06	0.01	0.00	0.00	0.95	0.00
Pipe_-_(71)_(C-STRM)	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.03	0.00
Pipe_-_(72)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(73)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(74)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(75)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(76)_(C-STRM)	1.00	0.00	0.94	0.00	0.05	0.00	0.00	0.00	0.97	0.00
Pipe_-_(77)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(78)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(79)_(C-STRM)	1.00	0.00	0.92	0.00	0.00	0.00	0.08	0.00	0.00	0.00
Pipe_-_(81)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(82)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(88)_(C-STRM)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Upstream	Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C10	0.01	0.01	0.01	0.01	0.01
C11	0.03	0.03	0.07	0.01	0.01
C3	0.01	0.01	0.02	0.01	0.01
Pipe_-_(38)_(C-STRM)	0.03	0.03	0.04	0.01	0.01
Pipe_-_(39)_(C-STRM)	0.04	0.04	0.06	0.01	0.01
Pipe_-_(41)_(C-STRM)	0.07	0.07	0.07	0.01	0.06
Pipe_-_(42)_(C-STRM)	0.07	0.07	0.07	0.01	0.04
Pipe_-_(43)_(C-STRM)	0.06	0.07	0.06	0.01	0.06
Pipe_-_(44)_(C-STRM)	0.01	0.07	0.01	0.01	0.01
Pipe_-_(45)_(C-STRM)	0.07	0.08	0.07	0.01	0.07
Pipe_-_(46)_(C-STRM)	0.04	0.04	0.08	0.01	0.01
Pipe_-_(47)_(C-STRM)	0.01	0.01	0.04	0.01	0.01
Pipe_-_(78)_(C-STRM)	0.01	0.06	0.01	0.07	0.01

****
Link Pollutant Load Summary
****

Link	TSS kg
C1	0.000
C10	0.000
C11	0.000
C3	0.000
C5	0.000
C6	0.000
C7	0.000
C8	0.000
Pipe_-_(38)_(C-STRM)	0.000
Pipe_-_(39)_(C-STRM)	0.000
Pipe_-_(41)_(C-STRM)	0.000
Pipe_-_(42)_(C-STRM)	0.000
Pipe_-_(43)_(C-STRM)	0.000
Pipe_-_(44)_(C-STRM)	0.000
Pipe_-_(45)_(C-STRM)	0.000
Pipe_-_(46)_(C-STRM)	0.000
Pipe_-_(47)_(C-STRM)	0.000
Pipe_-_(48)_(C-STRM)	0.000
Pipe_-_(49)_(C-STRM)	0.000
Pipe_-_(51)_(C-STRM)	0.000
Pipe_-_(52)_(C-STRM)	0.000
Pipe_-_(53)_(C-STRM)	0.000
Pipe_-_(54)_(C-STRM)	0.000
Pipe_-_(55)_(C-STRM)	0.000
Pipe_-_(57)_(C-STRM)	0.000
Pipe_-_(59)_(C-STRM)	0.000
Pipe_-_(60)_(C-STRM)	0.000
Pipe_-_(61)_(C-STRM)	0.000
Pipe_-_(64)_(C-STRM)	0.000
Pipe_-_(65)_(C-STRM)	0.000
Pipe_-_(66)_(C-STRM)	0.000
Pipe_-_(67)_(C-STRM)	0.000
Pipe_-_(68)_(C-STRM)	0.000
Pipe_-_(69)_(C-STRM)	0.000
Pipe_-_(70)_(C-STRM)	0.000
Pipe_-_(71)_(C-STRM)	0.000
Pipe_-_(72)_(C-STRM)	0.000
Pipe_-_(73)_(C-STRM)	0.000
Pipe_-_(74)_(C-STRM)	0.000

Pipe_-_(75)_(C-STRM)	0.000
Pipe_-_(76)_(C-STRM)	0.000
Pipe_-_(77)_(C-STRM)	0.000
Pipe_-_(78)_(C-STRM)	0.000
Pipe_-_(79)_(C-STRM)	0.000
Pipe_-_(81)_(C-STRM)	0.000
Pipe_-_(82)_(C-STRM)	0.000
Pipe_-_(88)_(C-STRM)	0.000
C2	0.000
C4	0.000
OR1	0.000
OR2	0.000
Pipe_-_(90)_(C-STRM)	0.000
OL10	0.000
OL11	0.000
OL12	0.000
OL13	0.000
OL17	0.000
OL18	0.000
OL2	0.000
OL20	0.000
OL23	0.000
OL24	0.000
OL25	0.000
OL26	0.000
OL27	0.000
OL28	0.000
OL29	0.000
OL31	0.000
OL35	0.000
OL36	0.000
OL37	0.000
OL38	0.000
Pipe_-_(80)_(C-STRM)	0.000

Analysis begun on: Wed May 28 14:13:25 2025
Analysis ended on: Wed May 28 14:13:28 2025
Total elapsed time: 00:00:03

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Proposed Drainage Areas for Danby
LID measures
Pipe Changes (250204)
LID Configurations and Drainage Area Checks (250205)
Drainage Areas (250206)
Changes to Address Comments (250521)
RC Changes (250522)
Pond Storage Curve Updates (250523)
Update LID Surface Area (250527)

RESULTS FOR 10-YEAR EVENT

****
Element Count
****
Number of rain gages 8
Number of subcatchments ... 103
Number of nodes 74
Number of links 73
Number of pollutants 1
Number of land uses 3

****
Pollutant Summary
****

Name	Units	Ppt. Concen.	GW Concen.	Kdecay 1/days	CoPollutant
TSS	MG/L	0.00	0.00	0.00	

****
Landuse Summary
****

Name	Sweeping Interval	Maximum Removal	Last Swept
Landscape	0.00	0.00	0.00
Paved	0.00	0.00	0.00
Roof	0.00	0.00	0.00

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
25mm	25	INTENSITY	10 min.
5mm	5mm	INTENSITY	10 min.
Chicago_3h_100Year_Guelph	Chicago_3h_100Year_Guelph	INTENSITY	5 min.
Chicago_3h_10Year_Guelph	Chicago_3h_10Year_Guelph	INTENSITY	5 min.
Chicago_3h_25Year_Guelph	Chicago_3h_25Year_Guelph	INTENSITY	5 min.
Chicago_3h_2Year_Guelph	Chicago_3h_2Year_Guelph	INTENSITY	5 min.
Chicago_3h_50Year_Guelph	Chicago_3h_50Year_Guelph	INTENSITY	5 min.
Chicago_3h_5Year_Guelph	Chicago_3h_5Year_Guelph	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
201	1.49	83.66	0.00	1.0000	Chicago_3h_10Year_Guelph	CBMH15
202	1.32	93.14	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#3
203	0.12	14.28	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#3
204	0.25	90.52	0.00	1.0000	Chicago_3h_10Year_Guelph	CBMH14
205a	0.06	11.41	100.00	1.0000	Chicago_3h_10Year_Guelph	CBMH13
205b	0.10	19.02	100.00	1.0000	Chicago_3h_10Year_Guelph	CBMH13
205c	0.11	20.92	100.00	1.0000	Chicago_3h_10Year_Guelph	CBMH13
205d	0.22	41.84	100.00	1.0000	Chicago_3h_10Year_Guelph	CBMH13
206a	0.37	38.15	79.00	1.0000	Chicago_3h_10Year_Guelph	MH44
206b	0.09	9.28	0.00	1.0000	Chicago_3h_10Year_Guelph	OF1
207	0.71	77.73	100.00	1.0000	Chicago_3h_10Year_Guelph	MH42
208a	0.05	29.26	100.00	1.0000	Chicago_3h_10Year_Guelph	MH42
208b	0.09	52.66	100.00	1.0000	Chicago_3h_10Year_Guelph	CB126-127
208c	0.09	52.66	100.00	1.0000	Chicago_3h_10Year_Guelph	MH9
208d	0.05	29.26	100.00	1.0000	Chicago_3h_10Year_Guelph	MH8
209a	0.04	9.96	64.00	1.0000	Chicago_3h_10Year_Guelph	MH12
209b	0.13	24.72	64.00	1.0000	Chicago_3h_10Year_Guelph	MH42
209c	0.17	26.20	64.00	1.0000	Chicago_3h_10Year_Guelph	MH16
209d	0.10	39.25	64.00	1.0000	Chicago_3h_10Year_Guelph	MH17
210a	0.19	47.31	100.00	1.0000	Chicago_3h_10Year_Guelph	MH12
210b	0.18	34.22	100.00	1.0000	Chicago_3h_10Year_Guelph	MH42
211	0.31	47.78	100.00	1.0000	Chicago_3h_10Year_Guelph	MH16
212	0.24	94.19	100.00	1.0000	Chicago_3h_10Year_Guelph	MH17
213	0.43	120.19	0.00	1.0000	Chicago_3h_10Year_Guelph	MH35
214	0.27	91.94	100.00	1.0000	Chicago_3h_10Year_Guelph	MH38
215	0.10	60.66	100.00	1.0000	Chicago_3h_10Year_Guelph	MH36
216a	0.06	25.10	100.00	1.0000	Chicago_3h_10Year_Guelph	MH7
216b	0.02	8.37	100.00	1.0000	Chicago_3h_10Year_Guelph	MH7
216c	0.06	25.10	100.00	1.0000	Chicago_3h_10Year_Guelph	MH7
216d	0.05	20.92	100.00	1.0000	Chicago_3h_10Year_Guelph	MH7
216e	0.06	19.84	100.00	1.0000	Chicago_3h_10Year_Guelph	MH6
216f	0.04	13.23	100.00	1.0000	Chicago_3h_10Year_Guelph	MH6
216g	0.05	16.53	100.00	1.0000	Chicago_3h_10Year_Guelph	MH6
217	0.64	66.83	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#2
218	0.58	63.72	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#2
219a	0.15	34.73	79.00	1.0000	Chicago_3h_10Year_Guelph	MH44
219b	0.07	16.21	0.00	1.0000	Chicago_3h_10Year_Guelph	OF1
220a	0.17	38.83	79.00	1.0000	Chicago_3h_10Year_Guelph	CB145
220b	0.06	13.70	0.00	1.0000	Chicago_3h_10Year_Guelph	OF1
221	0.23	53.63	76.00	1.0000	Chicago_3h_10Year_Guelph	CB143
222	0.21	48.75	76.00	1.0000	Chicago_3h_10Year_Guelph	CB141
223	0.23	56.45	76.00	1.0000	Chicago_3h_10Year_Guelph	MH19
224	0.15	34.55	76.00	1.0000	Chicago_3h_10Year_Guelph	MH19
226	0.75	77.19	100.00	1.0000	Chicago_3h_10Year_Guelph	MH7
227	0.23	41.91	100.00	1.0000	Chicago_3h_10Year_Guelph	CB138
228	0.16	28.70	100.00	1.0000	Chicago_3h_10Year_Guelph	CB137
229a	0.08	26.45	100.00	1.0000	Chicago_3h_10Year_Guelph	MH6
229b	0.05	16.53	100.00	1.0000	Chicago_3h_10Year_Guelph	MH6
230a	0.06	21.25	100.00	1.0000	Chicago_3h_10Year_Guelph	CB113-114
230b	0.06	21.25	100.00	1.0000	Chicago_3h_10Year_Guelph	CB113-114
231a	0.05	19.68	100.00	1.0000	Chicago_3h_10Year_Guelph	CB111-112
231b	0.04	15.74	100.00	1.0000	Chicago_3h_10Year_Guelph	CB111-112
232a	0.06	24.02	100.00	1.0000	Chicago_3h_10Year_Guelph	CB108-109
232b	0.06	24.02	100.00	1.0000	Chicago_3h_10Year_Guelph	CB108-109
233a	0.07	27.13	100.00	1.0000	Chicago_3h_10Year_Guelph	CB106-107
233b	0.06	23.25	100.00	1.0000	Chicago_3h_10Year_Guelph	CB106-107
234a	0.05	16.63	100.00	1.0000	Chicago_3h_10Year_Guelph	CB104-105
234b	0.05	16.63	100.00	1.0000	Chicago_3h_10Year_Guelph	CB104-105
235	0.89	98.21	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#1B
236	0.47	49.29	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#1A
237	0.43	44.70	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#1A
238	0.41	42.54	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#1A
239	0.39	40.36	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#1A
240a	0.12	27.91	100.00	1.0000	Chicago_3h_10Year_Guelph	CB181
240b	0.06	13.95	0.00	1.0000	Chicago_3h_10Year_Guelph	240a
241a	0.13	30.16	100.00	1.0000	Chicago_3h_10Year_Guelph	CB149
241b	0.06	13.92	0.00	1.0000	Chicago_3h_10Year_Guelph	241a
242a	0.13	30.69	100.00	1.0000	Chicago_3h_10Year_Guelph	CB150
242b	0.06	14.16	0.00	1.0000	Chicago_3h_10Year_Guelph	242a
243a	0.10	23.41	100.00	1.0000	Chicago_3h_10Year_Guelph	CB182
243b	0.08	18.73	21.00	1.0000	Chicago_3h_10Year_Guelph	243a
244a	0.31	32.35	100.00	1.0000	Chicago_3h_10Year_Guelph	MH27
244b	0.14	14.61	0.00	1.0000	Chicago_3h_10Year_Guelph	MH27
245	0.39	44.70	0.00	1.0000	Chicago_3h_10Year_Guelph	CBMH45
246	0.76	265.59	100.00	1.0000	Chicago_3h_10Year_Guelph	MH26
247	0.19	14.81	0.00	1.0000	Chicago_3h_10Year_Guelph	MH26
248a	0.12	26.03	100.00	1.0000	Chicago_3h_10Year_Guelph	MH3
248b	0.05	10.85	100.00	1.0000	Chicago_3h_10Year_Guelph	MH3
248c	0.23	49.89	100.00	1.0000	Chicago_3h_10Year_Guelph	MH3
248d	0.05	10.85	100.00	1.0000	Chicago_3h_10Year_Guelph	CB100-101
249	1.09	143.48	43.00	1.0000	Chicago_3h_10Year_Guelph	SWM_Pond
250a	0.21	29.79	0.00	1.0000	Chicago_3h_10Year_Guelph	LID#6
250b	0.06	11.60	100.00	1.0000	Chicago_3h_10Year_Guelph	MH29
250c	0.04	7.73	64.00	1.0000	Chicago_3h_10Year_Guelph	MH31
250d	0.03	5.80	100.00	1.0000	Chicago_3h_10Year_Guelph	MH30
250e	0.10	19.33	100.00	1.0000	Chicago_3h_10Year_Guelph	MH39
250f	0.08	15.47	100.00	1.0000	Chicago_3h_10Year_Guelph	MH31
251	0.09	39.92	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#6
252A	0.08	11.35	0.00	1.0000	Chicago_3h_10Year_Guelph	LID#6
252b	0.05	7.09	100.00	1.0000	Chicago_3h_10Year_Guelph	MH32
252c	0.03	5.80	100.00	1.0000	Chicago_3h_10Year_Guelph	MH32
252d	0.02	3.87	100.00	1.0000	Chicago_3h_10Year_Guelph	MH31
253	0.05	29.33	100.00	1.0000	Chicago_3h_10Year_Guelph	CB165-166
254	1.90	143.88	0.00	1.0000	Chicago_3h_10Year_Guelph	Wetland
255	0.12	40.81	100.00	1.0000	Chicago_3h_10Year_Guelph	LID#5
256	0.31	29.83	63.00	1.0000	Chicago_3h_10Year_Guelph	LID#5
257	0.81	54.78	0.00	1.0000	Chicago_3h_10Year_Guelph	MH34
258	0.08	49.72	100.00	1.0000	Chicago_3h_10Year_Guelph	CB171-172
259	0.03	19.19	100.00	1.0000	Chicago_3h_10Year_Guelph	CB169-170

260	0.04	26.44	100.00	1.0000	Chicago_3h_10Year_Guelph CB167-168
261	0.79	70.29	100.00	1.0000	Chicago_3h_10Year_Guelph LID#2
262	0.80	74.17	100.00	1.0000	Chicago_3h_10Year_Guelph LID#2
263	1.15	136.28	0.00	1.0000	Chicago_3h_10Year_Guelph CB179

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH39	OUTFALL	332.85	0.30	0.0	
OF1	OUTFALL	333.00	0.00	0.0	
CB100-101	STORAGE	337.27	1.00	0.0	
CB104-105	STORAGE	337.77	1.00	0.0	
CB106-107	STORAGE	337.94	1.00	0.0	
CB108-109	STORAGE	338.11	1.00	0.0	
CB111-112	STORAGE	338.25	1.00	0.0	
CB113-114	STORAGE	338.73	1.00	0.0	
CB126-127	STORAGE	340.58	1.00	0.0	
CB137	STORAGE	338.64	1.00	0.0	
CB138	STORAGE	338.78	1.00	0.0	
CB141	STORAGE	341.74	1.00	0.0	
CB143	STORAGE	341.99	1.00	0.0	
CB145	STORAGE	342.24	1.00	0.0	
CB149	STORAGE	340.74	1.00	0.0	
CB150	STORAGE	340.50	1.00	0.0	
CB165-166	STORAGE	336.37	1.00	0.0	
CB167-168	STORAGE	336.58	1.00	0.0	
CB169-170	STORAGE	336.81	1.00	0.0	
CB171-172	STORAGE	337.09	1.00	0.0	
CB179	STORAGE	335.38	1.00	0.0	
CB181	STORAGE	340.99	1.00	0.0	
CB182	STORAGE	340.25	1.00	0.0	
CBMH13	STORAGE	336.45	6.14	0.0	
CBMH14	STORAGE	336.95	6.90	0.0	
CBMH15	STORAGE	338.02	6.23	0.0	
CBMH28	STORAGE	333.60	3.13	0.0	
CBMH45	STORAGE	334.19	3.73	0.0	
LID#1A	STORAGE	336.50	2.41	0.0	
LID#1B	STORAGE	335.00	2.83	0.0	
LID#2	STORAGE	337.00	5.60	0.0	
LID#3	STORAGE	338.20	4.00	0.0	
LID#5	STORAGE	335.00	1.30	0.0	
LID#6	STORAGE	334.30	1.30	0.0	
MH1	STORAGE	331.99	5.51	0.0	
MH10	STORAGE	335.83	5.78	0.0	
MH11	STORAGE	336.06	6.38	0.0	
MH12	STORAGE	336.14	6.20	0.0	
MH16	STORAGE	336.21	6.35	0.0	
MH17	STORAGE	336.12	6.31	0.0	
MH18	STORAGE	334.68	4.38	0.0	
MH19	STORAGE	334.96	6.26	0.0	
MH2	STORAGE	332.11	5.24	0.0	
MH20	STORAGE	335.61	6.27	0.0	
MH21	STORAGE	336.19	6.12	0.0	
MH22	STORAGE	334.88	5.94	0.0	
MH23	STORAGE	334.31	5.99	0.0	
MH24	STORAGE	332.94	5.21	0.0	
MH25	STORAGE	333.06	4.38	0.0	
MH26	STORAGE	333.49	6.81	0.0	
MH27	STORAGE	333.79	6.12	0.0	
MH29	STORAGE	331.97	1.88	0.0	
MH3	STORAGE	332.36	5.24	0.0	
MH30	STORAGE	332.15	2.85	0.0	
MH31	STORAGE	332.49	3.27	0.0	
MH32	STORAGE	333.06	3.47	0.0	
MH33	STORAGE	333.59	3.33	0.0	
MH34	STORAGE	334.17	3.29	0.0	
MH35	STORAGE	334.30	3.44	0.0	
MH36	STORAGE	334.82	3.94	0.0	
MH37	STORAGE	334.36	3.67	0.0	
MH38	STORAGE	335.27	3.88	0.0	
MH4	STORAGE	332.89	5.11	0.0	
MH41	STORAGE	332.64	1.52	0.0	
MH42	STORAGE	335.60	5.58	0.0	
MH43	STORAGE	335.57	5.53	0.0	
MH44	STORAGE	337.06	5.46	0.0	
MH5	STORAGE	333.42	5.00	0.0	
MH6	STORAGE	333.84	4.75	0.0	
MH7	STORAGE	334.56	4.98	0.0	
MH8	STORAGE	334.84	4.80	0.0	
MH9	STORAGE	335.21	5.33	0.0	
SWM_Pond	STORAGE	331.67	1.45	0.0	
Wetland	STORAGE	331.55	1.51	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	MH44	MH21	CONDUIT	72.4	1.0004	0.0130
C10	CBMH45	CBMH28	CONDUIT	55.9	1.0007	0.0130
C11	CBMH28	MH25	CONDUIT	31.1	0.4990	0.0130
C3	MH23	MH27	CONDUIT	100.0	0.5000	0.0130
C5	LID#6	Wetland	CONDUIT	17.3	5.3835	0.1000
C6	LID#5	Wetland	CONDUIT	59.4	1.6837	0.1000
C7	Wetland	MH41	CONDUIT	64.7	1.2212	0.0100
C8	SWM_Pond	MH41	CONDUIT	15.0	1.4668	0.0200
Pipe_-_(38)_(C-STRM)	MH27	MH26	CONDUIT	28.1	0.5010	0.0130
Pipe_-_(39)_(C-STRM)	MH26	MH25	CONDUIT	79.8	0.4999	0.0130
Pipe_-_(41)_(C-STRM)	MH25	MH24	CONDUIT	18.2	0.4994	0.0130
Pipe_-_(42)_(C-STRM)	MH24	MH2	CONDUIT	31.6	0.5001	0.0130
Pipe_-_(43)_(C-STRM)	MH2	MH1	CONDUIT	17.8	0.4996	0.0130
Pipe_-_(44)_(C-STRM)	MH1	SWM_Pond	CONDUIT	32.2	0.9997	0.0130
Pipe_-_(45)_(C-STRM)	MH3	MH2	CONDUIT	20.6	0.4992	0.0130
Pipe_-_(46)_(C-STRM)	MH4	MH3	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(47)_(C-STRM)	MH5	MH4	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(48)_(C-STRM)	MH6	MH5	CONDUIT	76.7	0.4997	0.0130
Pipe_-_(49)_(C-STRM)	MH7	MH6	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(51)_(C-STRM)	MH8	MH7	CONDUIT	50.6	0.4996	0.0130
Pipe_-_(52)_(C-STRM)	MH42	MH9	CONDUIT	62.3	0.5007	0.0130
Pipe_-_(53)_(C-STRM)	MH10	MH42	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(54)_(C-STRM)	MH11	MH10	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(55)_(C-STRM)	MH12	MH11	CONDUIT	10.3	0.5039	0.0130
Pipe_-_(57)_(C-STRM)	CBMH13	MH12	CONDUIT	50.5	0.4992	0.0130
Pipe_-_(59)_(C-STRM)	MH9	MH8	CONDUIT	62.4	0.4998	0.0130
Pipe_-_(60)_(C-STRM)	MH17	MH8	CONDUIT	85.4	0.9999	0.0130
Pipe_-_(61)_(C-STRM)	MH16	MH9	CONDUIT	54.2	1.0007	0.0130
Pipe_-_(64)_(C-STRM)	MH18	MH6	CONDUIT	77.5	0.5006	0.0130
Pipe_-_(65)_(C-STRM)	MH19	MH18	CONDUIT	51.8	0.5001	0.0130
Pipe_-_(66)_(C-STRM)	MH43	MH22	CONDUIT	60.7	0.9999	0.0130
Pipe_-_(67)_(C-STRM)	MH22	MH23	CONDUIT	100.0	0.5002	0.0130
Pipe_-_(68)_(C-STRM)	MH20	MH19	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(69)_(C-STRM)	MH21	MH20	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(70)_(C-STRM)	MH29	SWM_Pond	CONDUIT	30.4	1.0014	0.0130
Pipe_-_(71)_(C-STRM)	MH30	MH29	CONDUIT	28.7	0.5016	0.0130
Pipe_-_(72)_(C-STRM)	MH31	MH30	CONDUIT	62.2	0.4999	0.0130
Pipe_-_(73)_(C-STRM)	MH32	MH31	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(74)_(C-STRM)	MH33	MH32	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(75)_(C-STRM)	MH34	MH33	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(76)_(C-STRM)	MH35	MH34	CONDUIT	26.8	0.4999	0.0130
Pipe_-_(77)_(C-STRM)	MH36	MH35	CONDUIT	28.8	0.9995	0.0130
Pipe_-_(78)_(C-STRM)	MH38	MH37	CONDUIT	62.6	0.9996	0.0130
Pipe_-_(79)_(C-STRM)	MH37	MH35	CONDUIT	11.3	-0.5030	0.0130
Pipe_-_(81)_(C-STRM)	CBMH14	CBMH13	CONDUIT	54.7	0.5008	0.0130
Pipe_-_(82)_(C-STRM)	CBMH15	CBMH14	CONDUIT	100.0	1.0001	0.0130
Pipe_-_(88)_(C-STRM)	MH41	MH39	CONDUIT	146.1	0.0068	0.0130
C2	LID#2	MH8	ORIFICE			
C4	LID#1B	MH3	ORIFICE			
OR1	LID#3	CBMH13	ORIFICE			
OR2	LID#1A	MH6	ORIFICE			
Pipe_-_(90)_(C-STRM)	SWM_Pond	Wetland	ORIFICE			
OL10	CB145	MH21	OUTLET			
OL11	CB181	MH43	OUTLET			
OL12	CB143	MH20	OUTLET			
OL13	CB141	MH20	OUTLET			
OL17	CB182	MH23	OUTLET			
OL18	CB150	MH22	OUTLET			
OL2	CB126-127	MH9	OUTLET			
OL20	CB149	MH22	OUTLET			
OL23	CB138	MH18	OUTLET			
OL24	CB137	MH6	OUTLET			
OL25	CB113-114	MH5	OUTLET			
OL26	CB111-112	MH5	OUTLET			
OL27	CB108-109	MH4	OUTLET			
OL28	CB106-107	MH4	OUTLET			
OL29	CB104-105	MH3	OUTLET			
OL31	CB100-101	MH2	OUTLET			
OL35	CB171-172	MH33	OUTLET			
OL36	CB169-170	MH33	OUTLET			
OL37	CB167-168	MH32	OUTLET			
OL38	CB165-166	MH32	OUTLET			
Pipe_-_(80)_(C-STRM)	CB179	MH31	OUTLET			

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Cross Section Summary

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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
C10	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C11	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C5	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.20
C6	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.47
C7	TRAPEZOIDAL	0.50	3.50	0.38	9.00	1	20.42
C8	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	2.33
Pipe_-_(38)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(39)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(41)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(42)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(43)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	3.77
Pipe_-_(44)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	5.34
Pipe_-_(45)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(46)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(47)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(48)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(49)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(51)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(52)_(C-STRM)	CIRCULAR	0.82	0.53	0.21	0.82	1	1.02
Pipe_-_(53)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(54)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(55)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(57)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(59)_(C-STRM)	CIRCULAR	0.90	0.64	0.23	0.90	1	1.28
Pipe_-_(60)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.43
Pipe_-_(61)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
Pipe_-_(64)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(65)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(66)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(67)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(68)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(69)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(70)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.84
Pipe_-_(71)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(72)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(73)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(74)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(75)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(76)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(77)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(78)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(79)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
Pipe_-_(81)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(82)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(88)_(C-STRM)	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	0.25

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Analysis Options
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Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... YES
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... YES
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/27/2025 00:00:00
Ending Date 01/31/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 14
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	1.207	47.395
Evaporation Loss	0.028	1.114
Infiltration Loss	0.406	15.925
Surface Runoff	0.791	31.072
Final Storage	0.000	0.000
Continuity Error (%)	-1.511	

Runoff Quality Continuity	TSS kg
Initial Buildup	0.000
Surface Buildup	0.000
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	0.000
Remaining Buildup	0.000
Continuity Error (%)	0.000

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.791	7.909
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.005	0.050
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.785	7.847
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.007
Continuity Error (%)	0.067	

Quality Routing Continuity	TSS kg
Dry Weather Inflow	0.000
Wet Weather Inflow	0.000
Groundwater Inflow	0.000
RDII Inflow	0.000
External Inflow	0.000
External Outflow	0.000
Flooding Loss	0.000
Exfiltration Loss	0.000
Mass Reacted	0.000
Initial Stored Mass	0.000
Final Stored Mass	0.000
Continuity Error (%)	0.000

****
Highest Continuity Errors
****
Node CBMH28 (-2.36%)
Node CBMH14 (-2.21%)
Node MH22 (1.66%)
Node MH33 (1.04%)
Node MH23 (-1.03%)

****
Time-Step Critical Elements
****
Link Pipe_-_(55)_(C-STRM) (2.19%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

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Routing Time Step Summary

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  *************************
  Minimum Time Step           :     0.50 sec
  Average Time Step           :     4.97 sec
  Maximum Time Step           :     5.00 sec
  % of Time in Steady State   :     0.00
  Average Iterations per Step :     2.00
  % of Steps Not Converging   :     0.01
  Time Step Frequencies       :
      5.000 -  3.155 sec      :    99.48 %
      3.155 -  1.991 sec      :     0.41 %
      1.991 -  1.256 sec      :     0.06 %
      1.256 -  0.792 sec      :     0.03 %
      0.792 -  0.500 sec      :     0.02 %


  ***************************
  Subcatchment Runoff Summary
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  ------------------------------------------------------------------------------------------------
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                                Total      Total      Total      Total     Imperv       Perv      Total
Total     Peak  Runoff
                               Precip      Runon       Evap      Infil    Runoff     Runoff     Runoff
Runoff   Runoff   Coeff
  Subcatchment                     mm         mm         mm         mm         mm         mm         mm
10^6 ltr      CMS
  ------------------------------------------------------------------------------------------------
------------------------------
  201                           47.39       0.00       0.04      46.85       0.00       0.62       0.62
0.01     0.02   0.013
  202                           47.39       0.00       1.82       0.00      46.29       0.00      46.29
0.61     0.46   0.977
  203                           47.39       0.00       1.71       0.00      46.62       0.00      46.62
0.06     0.05   0.984
  204                           47.39       0.00       0.04      45.13       0.00       2.93       2.93
0.01     0.02   0.062
  205a                          47.39       0.00       1.64       0.00      46.82       0.00      46.82
0.03     0.03   0.988
  205b                          47.39       0.00       1.64       0.00      46.82       0.00      46.82
0.05     0.05   0.988
  205c                          47.39       0.00       1.64       0.00      46.82       0.00      46.82
0.05     0.06   0.988
  205d                          47.39       0.00       1.64       0.00      46.82       0.00      46.82
0.10     0.11   0.988
  206a                          47.39       0.00       1.35       9.38      36.87       0.76      37.63
0.14     0.14   0.794
  206b                          47.39       0.00       0.04      46.52       0.00       1.08       1.08
0.00     0.00   0.023
  207                           47.39       0.00       1.73       0.00      46.57       0.00      46.57
0.33     0.30   0.983
  208a                          47.39       0.00       1.53       0.00      46.57       0.00      46.57
0.02     0.03   0.983
  208b                          47.39       0.00       1.53       0.00      46.57       0.00      46.57
0.04     0.05   0.983
  208c                          47.39       0.00       1.53       0.00      46.57       0.00      46.57
0.04     0.05   0.983
  208d                          47.39       0.00       1.53       0.00      46.57       0.00      46.57
0.02     0.03   0.983
  209a                          47.39       0.00       1.01      15.88      29.93       1.61      31.55
0.01     0.02   0.666
  209b                          47.39       0.00       1.03      16.04      29.98       1.36      31.34
0.04     0.05   0.661
  209c                          47.39       0.00       1.04      16.16      29.99       1.19      31.17
0.05     0.06   0.658
  209d                          47.39       0.00       0.99      15.73      29.79       2.11      31.90
0.03     0.04   0.673
  210a                          47.39       0.00       1.60       0.00      46.85       0.00      46.85
0.09     0.10   0.989
  210b                          47.39       0.00       1.64       0.00      46.82       0.00      46.82
0.08     0.09   0.988
  211                           47.39       0.00       1.67       0.00      46.75       0.00      46.75
0.14     0.15   0.986
  212                           47.39       0.00       1.56       0.00      46.77       0.00      46.77
0.11     0.14   0.987
  213                           47.39       0.00       0.04      45.49       0.00       2.43       2.43
0.01     0.02   0.051
  214                           47.39       0.00       1.57       0.00      46.81       0.00      46.81
0.13     0.15   0.988
  215                           47.39       0.00       1.53       0.00      46.55       0.00      46.55
0.05     0.06   0.982
  216a                          47.39       0.00       1.55       0.00      46.74       0.00      46.74
0.03     0.04   0.986
  216b                          47.39       0.00       1.55       0.00      46.74       0.00      46.74
0.01     0.01   0.986
  216c                          47.39       0.00       1.55       0.00      46.74       0.00      46.74
0.03     0.04   0.986
  216d                          47.39       0.00       1.55       0.00      46.74       0.00      46.74
0.02     0.03   0.986
  216e                          47.39       0.00       1.58       0.00      46.82       0.00      46.82
0.03     0.03   0.988
  216f                          47.39       0.00       1.58       0.00      46.82       0.00      46.82
0.02     0.02   0.988
  216g                          47.39       0.00       1.58       0.00      46.82       0.00      46.82
0.02     0.03   0.988
  217                           47.39       0.00       1.73       0.00      46.54       0.00      46.54
0.30     0.27   0.982
  218                           47.39       0.00       1.72       0.00      46.58       0.00      46.58
0.27     0.25   0.983
  219a                          47.39       0.00       1.26       9.17      37.01       1.24      38.25
0.06     0.07   0.807
  219b                          47.39       0.00       0.04      45.73       0.00       2.11       2.11
0.00     0.00   0.044
  220a                          47.39       0.00       1.26       9.18      37.01       1.23      38.24
0.07     0.08   0.807
  220b                          47.39       0.00       0.04      45.75       0.00       2.09       2.09
0.00     0.00   0.044
  221                           47.39       0.00       1.21      10.46      35.60       1.32      36.91
0.08     0.11   0.779
  222                           47.39       0.00       1.21      10.46      35.60       1.31      36.91
0.08     0.10   0.779
  223                           47.39       0.00       1.21      10.44      35.59       1.36      36.95
0.08     0.11   0.780
  224                           47.39       0.00       1.21      10.46      35.60       1.31      36.91
0.06     0.07   0.779
  226                           47.39       0.00       1.74       0.00      46.54       0.00      46.54
0.35     0.31   0.982
  227                           47.39       0.00       1.64       0.00      46.81       0.00      46.81
0.11     0.12   0.988
  228                           47.39       0.00       1.65       0.00      46.80       0.00      46.80
0.07     0.08   0.987
  229a                          47.39       0.00       1.58       0.00      46.82       0.00      46.82
0.04     0.05   0.988
  229b                          47.39       0.00       1.58       0.00      46.82       0.00      46.82
0.02     0.03   0.988
  230a                          47.39       0.00       1.57       0.00      46.80       0.00      46.80
0.03     0.03   0.987
  230b                          47.39       0.00       1.57       0.00      46.80       0.00      46.80
0.03     0.03   0.987
  231a                          47.39       0.00       1.56       0.00      46.77       0.00      46.77
0.02     0.03   0.987
  231b                          47.39       0.00       1.56       0.00      46.77       0.00      46.77
0.02     0.02   0.987
  232a                          47.39       0.00       1.56       0.00      46.76       0.00      46.76
0.03     0.04   0.987
  232b                          47.39       0.00       1.56       0.00      46.76       0.00      46.76
0.03     0.04   0.987
  233a                          47.39       0.00       1.56       0.00      46.77       0.00      46.77
0.03     0.04   0.987
  233b                          47.39       0.00       1.56       0.00      46.77       0.00      46.77
0.03     0.03   0.987
  234a                          47.39       0.00       1.57       0.00      46.82       0.00      46.82
0.02     0.03   0.988
  234b                          47.39       0.00       1.57       0.00      46.82       0.00      46.82
0.02     0.03   0.988
  235                           47.39       0.00       1.72       0.00      46.58       0.00      46.58
0.41     0.38   0.983
  236                           47.39       0.00       1.73       0.00      46.55       0.00      46.55
0.22     0.20   0.982
  237                           47.39       0.00       1.74       0.00      46.54       0.00      46.54
0.20     0.18   0.982
  238                           47.39       0.00       1.74       0.00      46.54       0.00      46.54
0.19     0.17   0.982
  239                           47.39       0.00       1.74       0.00      46.54       0.00      46.54
0.18     0.16   0.982
  240a                          47.39       1.06       1.61       0.00      47.88       0.00      47.88
0.06     0.06   0.988
  240b                          47.39       0.00       0.04      45.73       0.00       2.11       2.11
0.00     0.00   0.045
  241a                          47.39       0.97       1.61       0.00      47.80       0.00      47.80
0.06     0.07   0.988
  241b                          47.39       0.00       0.04      45.73       0.00       2.11       2.11
0.00     0.00   0.045
  242a                          47.39       0.99       1.61       0.00      47.82       0.00      47.82
0.06     0.07   0.988
  242b                          47.39       0.00       0.04      45.71       0.00       2.14       2.14
0.00     0.00   0.045
  243a                          47.39       3.75       1.61       0.00      50.55       0.00      50.55
0.05     0.05   0.988
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243b			47.39	0.00	0.36	42.91	9.71	4.69	4.69
0.00	0.01	0.099							
244a			47.39	0.00	1.73	0.00	46.54	0.00	46.54
0.14	0.13	0.982							
244b			47.39	0.00	0.04	46.51	0.00	1.09	1.09
0.00	0.00	0.023							
245			47.39	0.00	0.04	46.44	0.00	1.18	1.18
0.00	0.01	0.025							
246			47.39	0.00	1.57	0.00	46.81	0.00	46.81
0.36	0.44	0.988							
247			47.39	0.00	0.04	46.67	0.00	0.84	0.84
0.00	0.00	0.018							
248a			47.39	0.00	1.62	0.00	46.84	0.00	46.84
0.06	0.06	0.988							
248b			47.39	0.00	1.62	0.00	46.84	0.00	46.84
0.02	0.03	0.988							
248c			47.39	0.00	1.62	0.00	46.84	0.00	46.84
0.11	0.12	0.988							
248d			47.39	0.00	1.62	0.00	46.84	0.00	46.84
0.02	0.03	0.988							
249			47.39	0.00	0.70	26.07	20.14	1.20	21.34
0.23	0.29	0.450							
250a			47.39	0.00	0.04	46.26	0.00	1.42	1.42
0.00	0.01	0.030							
250b			47.39	0.00	1.64	0.00	46.82	0.00	46.82
0.03	0.03	0.988							
250c			47.39	0.00	1.03	16.03	29.98	1.38	31.35
0.01	0.02	0.662							
250d			47.39	0.00	1.64	0.00	46.82	0.00	46.82
0.01	0.02	0.988							
250e			47.39	0.00	1.64	0.00	46.82	0.00	46.82
0.05	0.05	0.988							
250f			47.39	0.00	1.64	0.00	46.82	0.00	46.82
0.04	0.04	0.988							
251			47.39	0.00	1.55	0.00	46.72	0.00	46.72
0.04	0.05	0.986							
252A			47.39	0.00	0.04	46.26	0.00	1.42	1.42
0.00	0.00	0.030							
252b			47.39	0.00	1.68	0.00	46.71	0.00	46.71
0.02	0.02	0.986							
252c			47.39	0.00	1.64	0.00	46.82	0.00	46.82
0.01	0.02	0.988							
252d			47.39	0.00	1.64	0.00	46.82	0.00	46.82
0.01	0.01	0.988							
253			47.39	0.00	1.53	0.00	46.57	0.00	46.57
0.02	0.03	0.983							
254			47.39	0.00	0.04	46.69	0.00	0.82	0.82
0.02	0.03	0.017							
255			47.39	0.00	1.57	0.00	46.81	0.00	46.81
0.06	0.07	0.988							
256			47.39	0.00	1.07	16.87	29.45	0.85	30.30
0.09	0.10	0.639							
257			47.39	0.00	0.04	46.75	0.00	0.74	0.74
0.01	0.01	0.016							
258			47.39	0.00	1.52	0.00	46.54	0.00	46.54
0.04	0.05	0.982							
259			47.39	0.00	1.52	0.00	46.52	0.00	46.52
0.01	0.02	0.982							
260			47.39	0.00	1.52	0.00	46.50	0.00	46.50
0.02	0.02	0.981							
261			47.39	0.00	1.77	0.00	46.44	0.00	46.44
0.37	0.31	0.980							
262			47.39	0.00	1.76	0.00	46.47	0.00	46.47
0.37	0.32	0.981							
263			47.39	0.00	0.04	46.42	0.00	1.21	1.21
0.01	0.03	0.026							

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Subcatchment Washoff Summary
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Subcatchment	TSS kg
201	0.000
202	0.000
203	0.000
204	0.000
205a	0.000
205b	0.000
205c	0.000
205d	0.000
206a	0.000
206b	0.000
207	0.000
208a	0.000
208b	0.000
208c	0.000
208d	0.000
209a	0.000
209b	0.000
209c	0.000
209d	0.000
210a	0.000
210b	0.000
211	0.000
212	0.000
213	0.000
214	0.000
215	0.000
216a	0.000
216b	0.000
216c	0.000
216d	0.000
216e	0.000
216f	0.000
216g	0.000
217	0.000
218	0.000
219a	0.000
219b	0.000
220a	0.000
220b	0.000
221	0.000
222	0.000
223	0.000
224	0.000
226	0.000
227	0.000
228	0.000
229a	0.000
229b	0.000
230a	0.000
230b	0.000
231a	0.000
231b	0.000
232a	0.000
232b	0.000
233a	0.000
233b	0.000
234a	0.000
234b	0.000
235	0.000
236	0.000
237	0.000
238	0.000
239	0.000
240a	0.000
240b	0.000
241a	0.000
241b	0.000
242a	0.000
242b	0.000
243a	0.000
243b	0.000
244a	0.000
244b	0.000
245	0.000
246	0.000
247	0.000
248a	0.000
248b	0.000
248c	0.000
248d	0.000
249	0.000
250a	0.000
250b	0.000
250c	0.000
250d	0.000
250e	0.000
250f	0.000
251	0.000
252A	0.000
252b	0.000
252c	0.000
252d	0.000
253	0.000
254	0.000

255	0.000
256	0.000
257	0.000
258	0.000
259	0.000
260	0.000
261	0.000
262	0.000
263	0.000
System	0.000

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
MH39	OUTFALL	0.00	0.00	332.85	0 00:00	0.00
OF1	OUTFALL	0.00	0.00	333.00	0 00:00	0.00
CB100-101	STORAGE	0.00	0.06	337.33	0 01:05	0.05
CB104-105	STORAGE	0.00	0.08	337.85	0 01:05	0.08
CB106-107	STORAGE	0.00	0.09	338.03	0 01:05	0.09
CB108-109	STORAGE	0.00	0.09	338.20	0 01:05	0.09
CB111-112	STORAGE	0.00	0.08	338.33	0 01:05	0.08
CB113-114	STORAGE	0.00	0.09	338.81	0 01:05	0.09
CB126-127	STORAGE	0.00	0.08	340.66	0 01:05	0.08
CB137	STORAGE	0.00	0.11	338.76	0 01:05	0.11
CB138	STORAGE	0.00	0.15	338.92	0 01:05	0.15
CB141	STORAGE	0.00	0.13	341.87	0 01:05	0.13
CB143	STORAGE	0.00	0.14	342.13	0 01:05	0.14
CB145	STORAGE	0.00	0.11	342.36	0 01:05	0.11
CB149	STORAGE	0.00	0.11	340.85	0 01:05	0.11
CB150	STORAGE	0.00	0.11	340.60	0 01:05	0.11
CB165-166	STORAGE	0.00	0.06	336.42	0 01:05	0.06
CB167-168	STORAGE	0.00	0.05	336.64	0 01:05	0.05
CB169-170	STORAGE	0.00	0.05	336.86	0 01:05	0.05
CB171-172	STORAGE	0.00	0.07	337.16	0 01:05	0.07
CB179	STORAGE	0.00	0.07	335.45	0 01:05	0.07
CB181	STORAGE	0.00	0.10	341.10	0 01:05	0.10
CB182	STORAGE	0.00	0.09	340.34	0 01:05	0.09
CBMH13	STORAGE	0.01	0.35	336.80	0 01:05	0.34
CBMH14	STORAGE	0.00	0.12	337.06	0 01:06	0.11
CBMH15	STORAGE	0.00	0.07	338.10	0 01:06	0.07
CBMH28	STORAGE	0.00	0.48	334.08	0 01:08	0.47
CBMH45	STORAGE	0.00	0.06	334.25	0 01:05	0.06
LID#1A	STORAGE	0.04	0.49	336.99	0 03:04	0.49
LID#1B	STORAGE	0.01	0.23	335.23	0 02:28	0.23
LID#2	STORAGE	0.14	1.00	338.00	0 03:03	1.00
LID#3	STORAGE	0.16	1.13	339.33	0 02:04	1.13
LID#5	STORAGE	0.02	0.27	335.27	0 02:33	0.27
LID#6	STORAGE	0.00	0.07	334.37	0 01:26	0.07
MH1	STORAGE	0.02	1.57	333.56	0 01:07	1.56
MH10	STORAGE	0.01	0.47	336.29	0 01:06	0.47
MH11	STORAGE	0.01	0.43	336.49	0 01:05	0.43
MH12	STORAGE	0.01	0.48	336.61	0 01:05	0.47
MH16	STORAGE	0.00	0.31	336.52	0 01:05	0.30
MH17	STORAGE	0.00	0.25	336.37	0 01:05	0.25
MH18	STORAGE	0.01	0.58	335.25	0 01:06	0.58
MH19	STORAGE	0.01	0.52	335.48	0 01:06	0.51
MH2	STORAGE	0.02	1.61	333.72	0 01:07	1.61
MH20	STORAGE	0.01	0.53	336.14	0 01:06	0.53
MH21	STORAGE	0.00	0.39	336.58	0 01:05	0.38
MH22	STORAGE	0.00	0.35	335.23	0 01:06	0.35
MH23	STORAGE	0.00	0.47	334.78	0 01:08	0.47
MH24	STORAGE	0.01	0.99	333.94	0 01:08	0.99
MH25	STORAGE	0.01	1.01	334.08	0 01:08	1.01
MH26	STORAGE	0.01	0.95	334.45	0 01:08	0.95
MH27	STORAGE	0.01	0.82	334.61	0 01:07	0.82
MH29	STORAGE	0.01	0.42	332.39	0 01:07	0.41
MH3	STORAGE	0.01	1.58	333.94	0 01:08	1.58
MH30	STORAGE	0.01	0.44	332.58	0 01:07	0.43
MH31	STORAGE	0.00	0.41	332.90	0 01:07	0.41
MH32	STORAGE	0.00	0.40	333.46	0 01:07	0.40
MH33	STORAGE	0.00	0.34	333.93	0 01:06	0.33
MH34	STORAGE	0.00	0.32	334.49	0 01:06	0.32
MH35	STORAGE	0.00	0.34	334.64	0 01:06	0.34
MH36	STORAGE	0.00	0.19	335.00	0 01:05	0.18
MH37	STORAGE	0.06	0.40	334.77	0 01:06	0.40
MH38	STORAGE	0.00	0.71	335.98	0 01:06	0.70
MH4	STORAGE	0.01	1.48	334.37	0 01:08	1.45
MH41	STORAGE	0.00	0.00	332.64	0 00:00	0.00
MH42	STORAGE	0.01	0.63	336.23	0 01:06	0.63
MH43	STORAGE	0.00	0.15	335.72	0 01:05	0.15
MH44	STORAGE	0.00	0.44	337.50	0 01:06	0.44
MH5	STORAGE	0.01	1.32	334.74	0 01:09	1.32
MH6	STORAGE	0.01	1.18	335.01	0 01:08	1.17
MH7	STORAGE	0.01	0.89	335.45	0 01:06	0.89
MH8	STORAGE	0.01	0.81	335.66	0 01:06	0.81
MH9	STORAGE	0.01	0.73	335.95	0 01:06	0.73
SWM_Pond	STORAGE	0.05	0.57	332.24	0 02:02	0.57
Wetland	STORAGE	0.04	0.36	331.91	0 05:54	0.36

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
MH39	OUTFALL	0.051	0.051	0 01:05	0.0468	0.0468	0.000
OF1	OUTFALL	0.007	0.007	0 01:05	0.00369	0.00369	0.000
CB100-101	STORAGE	0.026	0.026	0 01:05	0.0234	0.0234	0.005
CB104-105	STORAGE	0.057	0.057	0 01:05	0.0468	0.0468	-0.001
CB106-107	STORAGE	0.076	0.076	0 01:05	0.0607	0.0607	-0.007
CB108-109	STORAGE	0.070	0.070	0 01:05	0.0561	0.0561	-0.006
CB111-112	STORAGE	0.052	0.052	0 01:05	0.0421	0.0421	-0.005
CB113-114	STORAGE	0.069	0.069	0 01:05	0.0561	0.0561	-0.008
CB126-127	STORAGE	0.054	0.054	0 01:05	0.0419	0.0419	-0.003
CB137	STORAGE	0.080	0.080	0 01:05	0.0748	0.0748	0.001
CB138	STORAGE	0.116	0.116	0 01:05	0.108	0.108	-0.003
CB141	STORAGE	0.097	0.097	0 01:05	0.0774	0.0774	-0.005
CB143	STORAGE	0.107	0.107	0 01:05	0.0848	0.0848	-0.006
CB145	STORAGE	0.081	0.081	0 01:05	0.0649	0.0649	-0.002
CB149	STORAGE	0.070	0.070	0 01:05	0.0621	0.0621	0.001
CB150	STORAGE	0.070	0.070	0 01:05	0.0621	0.0621	0.001
CB165-166	STORAGE	0.030	0.030	0 01:05	0.0233	0.0233	0.003
CB167-168	STORAGE	0.024	0.024	0 01:05	0.0186	0.0186	0.004
CB169-170	STORAGE	0.018	0.018	0 01:05	0.0139	0.0139	0.004
CB171-172	STORAGE	0.048	0.048	0 01:05	0.0372	0.0372	-0.001
CB179	STORAGE	0.026	0.026	0 01:05	0.014	0.014	0.016
CB181	STORAGE	0.064	0.064	0 01:05	0.0574	0.0574	0.002
CB182	STORAGE	0.054	0.054	0 01:05	0.0505	0.0505	0.005
CBMH13	STORAGE	0.250	0.274	0 01:05	0.229	0.404	-0.023
CBMH14	STORAGE	0.016	0.028	0 01:05	0.00732	0.0166	-2.163
CBMH15	STORAGE	0.016	0.016	0 01:05	0.00925	0.00925	-0.021
CBMH28	STORAGE	0.000	0.041	0 01:06	0	0.0075	-2.309
CBMH45	STORAGE	0.009	0.009	0 01:05	0.0046	0.0046	1.865
LID#1A	STORAGE	0.704	0.704	0 01:05	0.791	0.791	-0.005
LID#1B	STORAGE	0.378	0.378	0 01:05	0.414	0.414	-0.009
LID#2	STORAGE	1.132	1.132	0 01:05	1.31	1.31	-0.003
LID#3	STORAGE	0.508	0.508	0 01:05	0.667	0.667	-0.002
LID#5	STORAGE	0.167	0.167	0 01:05	0.15	0.15	-0.008
LID#6	STORAGE	0.061	0.061	0 01:05	0.0461	0.0461	-0.022
MH1	STORAGE	0.000	3.048	0 01:10	0	4.09	0.206
MH10	STORAGE	0.000	0.373	0 01:05	0	0.505	-0.029
MH11	STORAGE	0.000	0.372	0 01:05	0	0.505	-0.001
MH12	STORAGE	0.120	0.380	0 01:05	0.102	0.505	0.114
MH16	STORAGE	0.212	0.212	0 01:05	0.198	0.198	0.340
MH17	STORAGE	0.184	0.184	0 01:05	0.144	0.144	1.483
MH18	STORAGE	0.000	0.641	0 01:06	0	0.669	0.416
MH19	STORAGE	0.177	0.545	0 01:06	0.14	0.564	0.448
MH2	STORAGE	0.000	3.008	0 01:10	0	4.04	-0.133
MH20	STORAGE	0.000	0.449	0 01:05	0	0.422	-0.462
MH21	STORAGE	0.000	0.260	0 01:05	0	0.261	0.624
MH22	STORAGE	0.000	0.200	0 01:05	0	0.181	1.689
MH23	STORAGE	0.000	0.222	0 01:06	0	0.229	-1.016
MH24	STORAGE	0.000	0.586	0 01:05	0	0.738	0.152
MH25	STORAGE	0.000	0.626	0 01:06	0	0.738	-0.515
MH26	STORAGE	0.439	0.655	0 01:05	0.357	0.736	0.774
MH27	STORAGE	0.131	0.326	0 01:05	0.146	0.377	-0.408
MH29	STORAGE	0.031	0.396	0 01:07	0.0281	0.442	0.018
MH3	STORAGE	0.211	2.362	0 01:10	0.187	3.28	-0.060
MH30	STORAGE	0.015	0.376	0 01:07	0.014	0.406	-0.473
MH31	STORAGE	0.067	0.366	0 01:07	0.0593	0.393	0.236
MH32	STORAGE	0.039	0.319	0 01:06	0.0374	0.317	-0.980
MH33	STORAGE	0.000	0.246	0 01:06	0	0.24	1.050
MH34	STORAGE	0.011	0.206	0 01:05	0.00597	0.189	-0.009
MH35	STORAGE	0.022	0.197	0 01:05	0.0104	0.183	-0.014
MH36	STORAGE	0.060	0.060	0 01:05	0.0465	0.0465	-0.004
MH37	STORAGE	0.000	0.124	0 01:06	0	0.126	0.050
MH38	STORAGE	0.155	0.155	0 01:05	0.126	0.126	0.044

MH4	STORAGE	0.000	2.393	0	01:06	0	3.04	-0.264
MH41	STORAGE	0.000	0.000	0	00:00	0	0	0.000
ltr								
MH42	STORAGE	0.473	0.795	0	01:05	0.479	0.984	-0.010
MH43	STORAGE	0.000	0.064	0	01:05	0	0.0574	0.401
MH44	STORAGE	0.210	0.210	0	01:05	0.196	0.196	0.011
MH5	STORAGE	0.000	2.440	0	01:07	0	2.92	-0.061
MH6	STORAGE	0.160	2.373	0	01:06	0.131	2.81	-0.159
MH7	STORAGE	0.421	1.566	0	01:06	0.438	1.95	0.612
MH8	STORAGE	0.030	1.262	0	01:06	0.0233	1.52	-0.092
MH9	STORAGE	0.054	1.086	0	01:05	0.0419	1.26	-0.003
SWM_Pond	STORAGE	0.291	3.567	0	01:10	0.232	4.75	0.003
Wetland	STORAGE	0.028	0.243	0	02:02	0.0155	4.71	-0.003

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Node Surcharge Summary
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No nodes were surcharged.

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
CB100-101	0.000	0.0	0.0	0.0	0.000	5.5	0 01:05	0.026
CB104-105	0.000	0.1	0.0	0.0	0.000	7.9	0 01:05	0.057
CB106-107	0.000	0.1	0.0	0.0	0.000	9.1	0 01:05	0.075
CB108-109	0.000	0.1	0.0	0.0	0.000	8.7	0 01:05	0.070
CB111-112	0.000	0.1	0.0	0.0	0.000	7.6	0 01:05	0.052
CB113-114	0.000	0.1	0.0	0.0	0.000	8.6	0 01:05	0.069
CB126-127	0.000	0.1	0.0	0.0	0.000	7.7	0 01:05	0.054
CB137	0.000	0.1	0.0	0.0	0.000	11.4	0 01:05	0.080
CB138	0.000	0.1	0.0	0.0	0.000	14.6	0 01:05	0.116
CB141	0.000	0.1	0.0	0.0	0.000	12.8	0 01:05	0.097
CB143	0.000	0.1	0.0	0.0	0.000	13.7	0 01:05	0.107
CB145	0.000	0.1	0.0	0.0	0.000	11.5	0 01:05	0.081
CB149	0.000	0.1	0.0	0.0	0.000	10.6	0 01:05	0.069
CB150	0.000	0.1	0.0	0.0	0.000	10.7	0 01:05	0.070
CB165-166	0.000	0.0	0.0	0.0	0.000	5.8	0 01:05	0.030
CB167-168	0.000	0.0	0.0	0.0	0.000	5.3	0 01:05	0.024
CB169-170	0.000	0.0	0.0	0.0	0.000	4.7	0 01:05	0.018
CB171-172	0.000	0.1	0.0	0.0	0.000	7.3	0 01:05	0.048
CB179	0.000	0.0	0.0	0.0	0.000	6.7	0 01:05	0.026
CB181	0.000	0.1	0.0	0.0	0.000	10.2	0 01:05	0.064
CB182	0.000	0.1	0.0	0.0	0.000	9.3	0 01:05	0.054
CBMH13	0.000	0.1	0.0	0.0	0.000	5.8	0 01:05	0.267
CBMH14	0.000	0.0	0.0	0.0	0.000	1.7	0 01:06	0.028
CBMH15	0.000	0.0	0.0	0.0	0.000	1.2	0 01:06	0.014
CBMH28	0.000	0.1	0.0	0.0	0.001	15.3	0 01:08	0.029
CBMH45	0.000	0.0	0.0	0.0	0.000	1.6	0 01:05	0.008
LID#1A	0.051	1.7	0.0	100.0	0.619	20.4	0 03:04	0.016
LID#1B	0.014	0.4	0.0	100.0	0.274	8.2	0 02:28	0.015
LID#2	0.148	2.4	0.0	93.5	1.096	17.9	0 03:03	0.029
LID#3	0.068	4.0	0.0	76.4	0.481	28.3	0 02:04	0.035
LID#5	0.006	1.2	0.0	100.0	0.104	21.0	0 02:33	0.005
LID#6	0.001	0.1	0.0	100.0	0.024	5.5	0 01:26	0.004
MH1	0.000	0.3	0.0	0.0	0.007	28.4	0 01:07	3.118
MH10	0.000	0.1	0.0	0.0	0.001	8.1	0 01:06	0.376
MH11	0.000	0.1	0.0	0.0	0.000	6.8	0 01:05	0.373
MH12	0.000	0.1	0.0	0.0	0.001	7.7	0 01:05	0.372
MH16	0.000	0.1	0.0	0.0	0.000	4.9	0 01:05	0.205
MH17	0.000	0.0	0.0	0.0	0.000	4.0	0 01:05	0.186
MH18	0.000	0.1	0.0	0.0	0.001	13.2	0 01:06	0.635
MH19	0.000	0.1	0.0	0.0	0.001	8.2	0 01:06	0.542
MH2	0.000	0.3	0.0	0.0	0.007	30.7	0 01:07	3.048
MH20	0.000	0.1	0.0	0.0	0.001	8.4	0 01:06	0.407
MH21	0.000	0.1	0.0	0.0	0.000	6.3	0 01:05	0.260
MH22	0.000	0.1	0.0	0.0	0.000	5.8	0 01:06	0.178
MH23	0.000	0.1	0.0	0.0	0.001	7.8	0 01:08	0.202
MH24	0.000	0.2	0.0	0.0	0.001	19.0	0 01:08	0.580
MH25	0.000	0.2	0.0	0.0	0.001	23.1	0 01:08	0.603
MH26	0.000	0.1	0.0	0.0	0.001	14.0	0 01:08	0.626
MH27	0.000	0.1	0.0	0.0	0.001	13.5	0 01:07	0.320
MH29	0.000	0.6	0.0	0.0	0.000	22.1	0 01:07	0.400
MH3	0.000	0.3	0.0	0.0	0.007	30.2	0 01:08	2.436
MH30	0.000	0.2	0.0	0.0	0.000	15.3	0 01:07	0.377
MH31	0.000	0.1	0.0	0.0	0.000	12.7	0 01:07	0.366
MH32	0.000	0.1	0.0	0.0	0.000	11.5	0 01:07	0.302
MH33	0.000	0.1	0.0	0.0	0.000	10.1	0 01:06	0.248
MH34	0.000	0.1	0.0	0.0	0.000	9.8	0 01:06	0.199
MH35	0.000	0.1	0.0	0.0	0.000	9.9	0 01:06	0.196
MH36	0.000	0.1	0.0	0.0	0.000	4.7	0 01:05	0.059
MH37	0.000	1.6	0.0	0.0	0.000	11.0	0 01:06	0.124
MH38	0.000	0.1	0.0	0.0	0.001	18.3	0 01:06	0.124
MH4	0.000	0.3	0.0	0.0	0.004	28.9	0 01:08	2.272
MH41	0.000	0.0	0.0	0.0	0.000	0.0	0 00:00	0.000
MH42	0.000	0.1	0.0	0.0	0.001	11.2	0 01:06	0.790
MH43	0.000	0.0	0.0	0.0	0.000	2.8	0 01:05	0.062
MH44	0.000	0.1	0.0	0.0	0.000	8.1	0 01:06	0.183
MH5	0.000	0.2	0.0	0.0	0.003	26.4	0 01:09	2.284
MH6	0.000	0.2	0.0	0.0	0.003	24.8	0 01:08	2.357
MH7	0.000	0.2	0.0	0.0	0.002	17.8	0 01:06	1.555
MH8	0.000	0.2	0.0	0.0	0.001	16.9	0 01:06	1.213
MH9	0.000	0.2	0.0	0.0	0.001	13.7	0 01:06	1.072
SWM_Pond	0.262	2.8	0.0	0.0	3.026	32.4	0 02:02	0.270
Wetland	0.215	2.5	0.0	100.0	2.009	23.7	0 05:54	0.070

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS kg
MH39	4.86	0.005	0.051	0.047	0.000
OF1	0.68	0.003	0.007	0.004	0.000
System	2.77	0.008	0.059	0.050	0.000

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.183	0 01:06	1.79	1.05	0.92
C10	CONDUIT	0.008	0 01:05	0.78	0.08	0.60
C11	CONDUIT	0.033	0 01:06	0.58	0.48	1.00
C3	CONDUIT	0.202	0 01:10	1.12	0.66	0.95
C5	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C6	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C7	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C8	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	CONDUIT	0.320	0 01:10	1.56	1.05	1.00
Pipe_-_(39)_(C-STRM)	CONDUIT	0.626	0 01:06	1.75	1.05	1.00
Pipe_-_(41)_(C-STRM)	CONDUIT	0.586	0 01:05	1.68	0.99	1.00
Pipe_-_(42)_(C-STRM)	CONDUIT	0.580	0 01:05	1.76	0.98	1.00
Pipe_-_(43)_(C-STRM)	CONDUIT	3.048	0 01:10	2.24	0.81	1.00
Pipe_-_(44)_(C-STRM)	CONDUIT	3.118	0 01:10	3.72	0.58	0.61
Pipe_-_(45)_(C-STRM)	CONDUIT	2.436	0 01:10	2.15	0.88	1.00
Pipe_-_(46)_(C-STRM)	CONDUIT	2.272	0 01:10	2.01	0.82	1.00
Pipe_-_(47)_(C-STRM)	CONDUIT	2.284	0 01:06	2.35	0.83	1.00
Pipe_-_(48)_(C-STRM)	CONDUIT	2.357	0 01:07	2.36	0.86	0.99
Pipe_-_(49)_(C-STRM)	CONDUIT	1.555	0 01:06	2.31	0.98	0.89
Pipe_-_(51)_(C-STRM)	CONDUIT	1.213	0 01:06	1.84	0.77	0.86
Pipe_-_(52)_(C-STRM)	CONDUIT	0.790	0 01:06	1.78	0.78	0.78
Pipe_-_(53)_(C-STRM)	CONDUIT	0.376	0 01:06	1.22	0.48	0.68
Pipe_-_(54)_(C-STRM)	CONDUIT	0.373	0 01:05	1.63	0.63	0.61
Pipe_-_(55)_(C-STRM)	CONDUIT	0.372	0 01:05	1.54	0.62	0.65
Pipe_-_(57)_(C-STRM)	CONDUIT	0.267	0 01:05	1.28	0.45	0.57
Pipe_-_(59)_(C-STRM)	CONDUIT	1.072	0 01:06	1.95	0.84	0.82
Pipe_-_(60)_(C-STRM)	CONDUIT	0.186	0 01:05	1.72	0.43	0.57
Pipe_-_(61)_(C-STRM)	CONDUIT	0.205	0 01:05	1.86	0.72	0.66
Pipe_-_(64)_(C-STRM)	CONDUIT	0.635	0 01:06	1.81	0.81	0.83
Pipe_-_(65)_(C-STRM)	CONDUIT	0.542	0 01:06	1.67	0.69	0.71
Pipe_-_(66)_(C-STRM)	CONDUIT	0.062	0 01:05	1.12	0.36	0.56
Pipe_-_(67)_(C-STRM)	CONDUIT	0.178	0 01:06	1.45	0.88	0.77
Pipe_-_(68)_(C-STRM)	CONDUIT	0.407	0 01:07	1.71	0.94	0.79
Pipe_-_(69)_(C-STRM)	CONDUIT	0.260	0 01:05	1.46	0.85	0.78

Pipe_-_(70)_(C-STRM)	CONDUIT	0.400	0	01:07	2.51	0.47	0.62
Pipe_-_(71)_(C-STRM)	CONDUIT	0.377	0	01:08	1.65	0.63	0.61
Pipe_-_(72)_(C-STRM)	CONDUIT	0.366	0	01:07	1.62	0.62	0.61
Pipe_-_(73)_(C-STRM)	CONDUIT	0.302	0	01:08	1.61	0.70	0.63
Pipe_-_(74)_(C-STRM)	CONDUIT	0.248	0	01:07	1.47	0.57	0.58
Pipe_-_(75)_(C-STRM)	CONDUIT	0.199	0	01:07	1.49	0.65	0.59
Pipe_-_(76)_(C-STRM)	CONDUIT	0.196	0	01:05	1.45	0.64	0.63
Pipe_-_(77)_(C-STRM)	CONDUIT	0.059	0	01:05	1.36	0.61	0.59
Pipe_-_(78)_(C-STRM)	CONDUIT	0.124	0	01:06	1.79	1.28	0.94
Pipe_-_(79)_(C-STRM)	CONDUIT	0.124	0	01:06	0.90	0.41	0.61
Pipe_-_(81)_(C-STRM)	CONDUIT	0.028	0	01:06	0.87	0.14	0.27
Pipe_-_(82)_(C-STRM)	CONDUIT	0.014	0	01:06	0.95	0.08	0.19
Pipe_-_(88)_(C-STRM)	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C2	ORIFICE	0.015	0	03:03			0.34
C4	ORIFICE	0.000	0	00:00			0.00
OR1	ORIFICE	0.029	0	02:04			0.33
OR2	ORIFICE	0.000	0	00:00			0.00
Pipe_-_(90)_(C-STRM)	ORIFICE	0.243	0	02:02			1.00
OL10	DUMMY	0.081	0	01:05			
OL11	DUMMY	0.064	0	01:05			
OL12	DUMMY	0.107	0	01:05			
OL13	DUMMY	0.097	0	01:05			
OL17	DUMMY	0.054	0	01:05			
OL18	DUMMY	0.070	0	01:05			
OL2	DUMMY	0.054	0	01:05			
OL20	DUMMY	0.069	0	01:05			
OL23	DUMMY	0.116	0	01:05			
OL24	DUMMY	0.080	0	01:05			
OL25	DUMMY	0.069	0	01:05			
OL26	DUMMY	0.052	0	01:05			
OL27	DUMMY	0.070	0	01:05			
OL28	DUMMY	0.075	0	01:05			
OL29	DUMMY	0.057	0	01:05			
OL31	DUMMY	0.026	0	01:05			
OL35	DUMMY	0.048	0	01:05			
OL36	DUMMY	0.018	0	01:05			
OL37	DUMMY	0.024	0	01:05			
OL38	DUMMY	0.030	0	01:05			
Pipe_-_(80)_(C-STRM)	DUMMY	0.026	0	01:05			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C10	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C3	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C5	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C7	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C8	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(39)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(41)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(42)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(43)_(C-STRM)	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.01	0.00
Pipe_-_(44)_(C-STRM)	1.00	0.00	0.92	0.00	0.08	0.01	0.00	0.00	0.95	0.00
Pipe_-_(45)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
Pipe_-_(46)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.98	0.00	0.00
Pipe_-_(47)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(48)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(49)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(51)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(52)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(53)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(54)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(55)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(57)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(59)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(60)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(61)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(64)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(65)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(66)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(67)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(68)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(69)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(70)_(C-STRM)	1.00	0.00	0.86	0.00	0.13	0.01	0.00	0.00	0.94	0.00
Pipe_-_(71)_(C-STRM)	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.02	0.00
Pipe_-_(72)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(73)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(74)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(75)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(76)_(C-STRM)	1.00	0.00	0.10	0.00	0.89	0.00	0.00	0.00	0.97	0.00
Pipe_-_(77)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(78)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(79)_(C-STRM)	1.00	0.00	0.77	0.00	0.00	0.00	0.23	0.00	0.00	0.00
Pipe_-_(81)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(82)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(88)_(C-STRM)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C1	0.01	0.04	0.01	0.05	0.01
C10	0.01	0.01	0.06	0.01	0.01
C11	0.06	0.06	0.11	0.01	0.01
C3	0.01	0.01	0.09	0.01	0.01
Pipe_-_(38)_(C-STRM)	0.09	0.10	0.09	0.02	0.08
Pipe_-_(39)_(C-STRM)	0.08	0.09	0.10	0.03	0.04
Pipe_-_(41)_(C-STRM)	0.08	0.11	0.08	0.01	0.08
Pipe_-_(42)_(C-STRM)	0.08	0.09	0.08	0.01	0.08
Pipe_-_(43)_(C-STRM)	0.06	0.08	0.06	0.01	0.06
Pipe_-_(44)_(C-STRM)	0.01	0.07	0.01	0.01	0.01
Pipe_-_(45)_(C-STRM)	0.08	0.11	0.08	0.01	0.08
Pipe_-_(46)_(C-STRM)	0.08	0.08	0.10	0.01	0.01
Pipe_-_(47)_(C-STRM)	0.04	0.04	0.07	0.01	0.01
Pipe_-_(48)_(C-STRM)	0.01	0.01	0.04	0.01	0.01
Pipe_-_(78)_(C-STRM)	0.01	0.09	0.01	0.10	0.01

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Link Pollutant Load Summary
****

Link	TSS kg
C1	0.000
C10	0.000
C11	0.000
C3	0.000
C5	0.000
C6	0.000
C7	0.000
C8	0.000
Pipe_-_(38)_(C-STRM)	0.000
Pipe_-_(39)_(C-STRM)	0.000
Pipe_-_(41)_(C-STRM)	0.000
Pipe_-_(42)_(C-STRM)	0.000
Pipe_-_(43)_(C-STRM)	0.000
Pipe_-_(44)_(C-STRM)	0.000
Pipe_-_(45)_(C-STRM)	0.000
Pipe_-_(46)_(C-STRM)	0.000
Pipe_-_(47)_(C-STRM)	0.000
Pipe_-_(48)_(C-STRM)	0.000
Pipe_-_(49)_(C-STRM)	0.000
Pipe_-_(51)_(C-STRM)	0.000
Pipe_-_(52)_(C-STRM)	0.000
Pipe_-_(53)_(C-STRM)	0.000
Pipe_-_(54)_(C-STRM)	0.000
Pipe_-_(55)_(C-STRM)	0.000
Pipe_-_(57)_(C-STRM)	0.000
Pipe_-_(59)_(C-STRM)	0.000
Pipe_-_(60)_(C-STRM)	0.000
Pipe_-_(61)_(C-STRM)	0.000
Pipe_-_(64)_(C-STRM)	0.000
Pipe_-_(65)_(C-STRM)	0.000
Pipe_-_(66)_(C-STRM)	0.000
Pipe_-_(67)_(C-STRM)	0.000
Pipe_-_(68)_(C-STRM)	0.000
Pipe_-_(69)_(C-STRM)	0.000
Pipe_-_(70)_(C-STRM)	0.000
Pipe_-_(71)_(C-STRM)	0.000
Pipe_-_(72)_(C-STRM)	0.000

Pipe_-_(73)_(C-STRM)	0.000
Pipe_-_(74)_(C-STRM)	0.000
Pipe_-_(75)_(C-STRM)	0.000
Pipe_-_(76)_(C-STRM)	0.000
Pipe_-_(77)_(C-STRM)	0.000
Pipe_-_(78)_(C-STRM)	0.000
Pipe_-_(79)_(C-STRM)	0.000
Pipe_-_(81)_(C-STRM)	0.000
Pipe_-_(82)_(C-STRM)	0.000
Pipe_-_(88)_(C-STRM)	0.000
C2	0.000
C4	0.000
OR1	0.000
OR2	0.000
Pipe_-_(90)_(C-STRM)	0.000
OL10	0.000
OL11	0.000
OL12	0.000
OL13	0.000
OL17	0.000
OL18	0.000
OL2	0.000
OL20	0.000
OL23	0.000
OL24	0.000
OL25	0.000
OL26	0.000
OL27	0.000
OL28	0.000
OL29	0.000
OL31	0.000
OL35	0.000
OL36	0.000
OL37	0.000
OL38	0.000
Pipe_-_(80)_(C-STRM)	0.000

Analysis begun on: Wed May 28 14:17:38 2025
Analysis ended on: Wed May 28 14:17:41 2025
Total elapsed time: 00:00:03

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Proposed Drainage Areas for Danby
LID measures
Pipe Changes (250204)
LID Configurations and Drainage Area Checks (250205)
Drainage Areas (250206)
Changes to Address Comments (250521)
RC Changes (250522)
Pond Storage Curve Updates (250523)
Update LID Surface Area (250527)

RESULTS FOR 25-YEAR EVENT

Element Count

Number of rain gages 8
Number of subcatchments ... 103
Number of nodes 74
Number of links 73
Number of pollutants 1
Number of land uses 3

Pollutant Summary

Name	Units	Ppt. Concen.	GW Concen.	Kdecay 1/days	CoPollutant
TSS	MG/L	0.00	0.00	0.00	

Landuse Summary

Name	Sweeping Interval	Maximum Removal	Last Swept
Landscape	0.00	0.00	0.00
Paved	0.00	0.00	0.00
Roof	0.00	0.00	0.00

Raingage Summary

Name	Data Source	Data Type	Recording Interval
25mm	25	INTENSITY	10 min.
5mm	5mm	INTENSITY	10 min.
Chicago_3h_100Year_Guelph	Chicago_3h_100Year_Guelph	INTENSITY	5 min.
Chicago_3h_10Year_Guelph	Chicago_3h_10Year_Guelph	INTENSITY	5 min.
Chicago_3h_25Year_Guelph	Chicago_3h_25Year_Guelph	INTENSITY	5 min.
Chicago_3h_2Year_Guelph	Chicago_3h_2Year_Guelph	INTENSITY	5 min.
Chicago_3h_50Year_Guelph	Chicago_3h_50Year_Guelph	INTENSITY	5 min.
Chicago_3h_5Year_Guelph	Chicago_3h_5Year_Guelph	INTENSITY	5 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
201	1.49	83.66	0.00	1.0000	Chicago_3h_25Year_Guelph	CBMH15
202	1.32	93.14	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#3
203	0.12	14.28	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#3
204	0.25	90.52	0.00	1.0000	Chicago_3h_25Year_Guelph	CBMH14
205a	0.06	11.41	100.00	1.0000	Chicago_3h_25Year_Guelph	CBMH13
205b	0.10	19.02	100.00	1.0000	Chicago_3h_25Year_Guelph	CBMH13
205c	0.11	20.92	100.00	1.0000	Chicago_3h_25Year_Guelph	CBMH13
205d	0.22	41.84	100.00	1.0000	Chicago_3h_25Year_Guelph	CBMH13
206a	0.37	38.15	79.00	1.0000	Chicago_3h_25Year_Guelph	MH44
206b	0.09	9.28	0.00	1.0000	Chicago_3h_25Year_Guelph	OF1
207	0.71	77.73	100.00	1.0000	Chicago_3h_25Year_Guelph	MH42
208a	0.05	29.26	100.00	1.0000	Chicago_3h_25Year_Guelph	MH42
208b	0.09	52.66	100.00	1.0000	Chicago_3h_25Year_Guelph	CB126-127
208c	0.09	52.66	100.00	1.0000	Chicago_3h_25Year_Guelph	MH9
208d	0.05	29.26	100.00	1.0000	Chicago_3h_25Year_Guelph	MH8
209a	0.04	9.96	64.00	1.0000	Chicago_3h_25Year_Guelph	MH12
209b	0.13	24.72	64.00	1.0000	Chicago_3h_25Year_Guelph	MH42
209c	0.17	26.20	64.00	1.0000	Chicago_3h_25Year_Guelph	MH16
209d	0.10	39.25	64.00	1.0000	Chicago_3h_25Year_Guelph	MH17
210a	0.19	47.31	100.00	1.0000	Chicago_3h_25Year_Guelph	MH12
210b	0.18	34.22	100.00	1.0000	Chicago_3h_25Year_Guelph	MH42
211	0.31	47.78	100.00	1.0000	Chicago_3h_25Year_Guelph	MH16
212	0.24	94.19	100.00	1.0000	Chicago_3h_25Year_Guelph	MH17
213	0.43	120.19	0.00	1.0000	Chicago_3h_25Year_Guelph	MH35
214	0.27	91.94	100.00	1.0000	Chicago_3h_25Year_Guelph	MH38
215	0.10	60.66	100.00	1.0000	Chicago_3h_25Year_Guelph	MH36
216a	0.06	25.10	100.00	1.0000	Chicago_3h_25Year_Guelph	MH7
216b	0.02	8.37	100.00	1.0000	Chicago_3h_25Year_Guelph	MH7
216c	0.06	25.10	100.00	1.0000	Chicago_3h_25Year_Guelph	MH7
216d	0.05	20.92	100.00	1.0000	Chicago_3h_25Year_Guelph	MH7
216e	0.06	19.84	100.00	1.0000	Chicago_3h_25Year_Guelph	MH6
216f	0.04	13.23	100.00	1.0000	Chicago_3h_25Year_Guelph	MH6
216g	0.05	16.53	100.00	1.0000	Chicago_3h_25Year_Guelph	MH6
217	0.64	66.83	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#2
218	0.58	63.72	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#2
219a	0.15	34.73	79.00	1.0000	Chicago_3h_25Year_Guelph	MH44
219b	0.07	16.21	0.00	1.0000	Chicago_3h_25Year_Guelph	OF1
220a	0.17	38.83	79.00	1.0000	Chicago_3h_25Year_Guelph	CB145
220b	0.06	13.70	0.00	1.0000	Chicago_3h_25Year_Guelph	OF1
221	0.23	53.63	76.00	1.0000	Chicago_3h_25Year_Guelph	CB143
222	0.21	48.75	76.00	1.0000	Chicago_3h_25Year_Guelph	CB141
223	0.23	56.45	76.00	1.0000	Chicago_3h_25Year_Guelph	MH19
224	0.15	34.55	76.00	1.0000	Chicago_3h_25Year_Guelph	MH19
226	0.75	77.19	100.00	1.0000	Chicago_3h_25Year_Guelph	MH7
227	0.23	41.91	100.00	1.0000	Chicago_3h_25Year_Guelph	CB138
228	0.16	28.70	100.00	1.0000	Chicago_3h_25Year_Guelph	CB137
229a	0.08	26.45	100.00	1.0000	Chicago_3h_25Year_Guelph	MH6
229b	0.05	16.53	100.00	1.0000	Chicago_3h_25Year_Guelph	MH6
230a	0.06	21.25	100.00	1.0000	Chicago_3h_25Year_Guelph	CB113-114
230b	0.06	21.25	100.00	1.0000	Chicago_3h_25Year_Guelph	CB113-114
231a	0.05	19.68	100.00	1.0000	Chicago_3h_25Year_Guelph	CB111-112
231b	0.04	15.74	100.00	1.0000	Chicago_3h_25Year_Guelph	CB111-112
232a	0.06	24.02	100.00	1.0000	Chicago_3h_25Year_Guelph	CB108-109
232b	0.06	24.02	100.00	1.0000	Chicago_3h_25Year_Guelph	CB108-109
233a	0.07	27.13	100.00	1.0000	Chicago_3h_25Year_Guelph	CB106-107
233b	0.06	23.25	100.00	1.0000	Chicago_3h_25Year_Guelph	CB106-107
234a	0.05	16.63	100.00	1.0000	Chicago_3h_25Year_Guelph	CB104-105
234b	0.05	16.63	100.00	1.0000	Chicago_3h_25Year_Guelph	CB104-105
235	0.89	98.21	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#1B
236	0.47	49.29	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#1A
237	0.43	44.70	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#1A
238	0.41	42.54	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#1A
239	0.39	40.36	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#1A
240a	0.12	27.91	100.00	1.0000	Chicago_3h_25Year_Guelph	CB181
240b	0.06	13.95	0.00	1.0000	Chicago_3h_25Year_Guelph	240a
241a	0.13	30.16	100.00	1.0000	Chicago_3h_25Year_Guelph	CB149
241b	0.06	13.92	0.00	1.0000	Chicago_3h_25Year_Guelph	241a
242a	0.13	30.69	100.00	1.0000	Chicago_3h_25Year_Guelph	CB150
242b	0.06	14.16	0.00	1.0000	Chicago_3h_25Year_Guelph	242a
243a	0.10	23.41	100.00	1.0000	Chicago_3h_25Year_Guelph	CB182
243b	0.08	18.73	21.00	1.0000	Chicago_3h_25Year_Guelph	243a
244a	0.31	32.35	100.00	1.0000	Chicago_3h_25Year_Guelph	MH27
244b	0.14	14.61	0.00	1.0000	Chicago_3h_25Year_Guelph	MH27
245	0.39	44.70	0.00	1.0000	Chicago_3h_25Year_Guelph	CBMH45
246	0.76	265.59	100.00	1.0000	Chicago_3h_25Year_Guelph	MH26
247	0.19	14.81	0.00	1.0000	Chicago_3h_25Year_Guelph	MH26
248a	0.12	26.03	100.00	1.0000	Chicago_3h_25Year_Guelph	MH3
248b	0.05	10.85	100.00	1.0000	Chicago_3h_25Year_Guelph	MH3
248c	0.23	49.89	100.00	1.0000	Chicago_3h_25Year_Guelph	MH3
248d	0.05	10.85	100.00	1.0000	Chicago_3h_25Year_Guelph	CB100-101
249	1.09	143.48	43.00	1.0000	Chicago_3h_25Year_Guelph	SWM_Pond
250a	0.21	29.79	0.00	1.0000	Chicago_3h_25Year_Guelph	LID#6
250b	0.06	11.60	100.00	1.0000	Chicago_3h_25Year_Guelph	MH29
250c	0.04	7.73	64.00	1.0000	Chicago_3h_25Year_Guelph	MH31
250d	0.03	5.80	100.00	1.0000	Chicago_3h_25Year_Guelph	MH30
250e	0.10	19.33	100.00	1.0000	Chicago_3h_25Year_Guelph	MH39
250f	0.08	15.47	100.00	1.0000	Chicago_3h_25Year_Guelph	MH31
251	0.09	39.92	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#6
252A	0.08	11.35	0.00	1.0000	Chicago_3h_25Year_Guelph	LID#6
252b	0.05	7.09	100.00	1.0000	Chicago_3h_25Year_Guelph	MH32
252c	0.03	5.80	100.00	1.0000	Chicago_3h_25Year_Guelph	MH32
252d	0.02	3.87	100.00	1.0000	Chicago_3h_25Year_Guelph	MH31
253	0.05	29.33	100.00	1.0000	Chicago_3h_25Year_Guelph	CB165-166
254	1.90	143.88	0.00	1.0000	Chicago_3h_25Year_Guelph	Wetland
255	0.12	40.81	100.00	1.0000	Chicago_3h_25Year_Guelph	LID#5
256	0.31	29.83	63.00	1.0000	Chicago_3h_25Year_Guelph	LID#5
257	0.81	54.78	0.00	1.0000	Chicago_3h_25Year_Guelph	MH34
258	0.08	49.72	100.00	1.0000	Chicago_3h_25Year_Guelph	CB171-172
259	0.03	19.19	100.00	1.0000	Chicago_3h_25Year_Guelph	CB169-170

260	0.04	26.44	100.00	1.0000	Chicago_3h_25Year_Guelph CB167-168
261	0.79	70.29	100.00	1.0000	Chicago_3h_25Year_Guelph LID#2
262	0.80	74.17	100.00	1.0000	Chicago_3h_25Year_Guelph LID#2
263	1.15	136.28	0.00	1.0000	Chicago_3h_25Year_Guelph CB179

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH39	OUTFALL	332.85	0.30	0.0	
OF1	OUTFALL	333.00	0.00	0.0	
CB100-101	STORAGE	337.27	1.00	0.0	
CB104-105	STORAGE	337.77	1.00	0.0	
CB106-107	STORAGE	337.94	1.00	0.0	
CB108-109	STORAGE	338.11	1.00	0.0	
CB111-112	STORAGE	338.25	1.00	0.0	
CB113-114	STORAGE	338.73	1.00	0.0	
CB126-127	STORAGE	340.58	1.00	0.0	
CB137	STORAGE	338.64	1.00	0.0	
CB138	STORAGE	338.78	1.00	0.0	
CB141	STORAGE	341.74	1.00	0.0	
CB143	STORAGE	341.99	1.00	0.0	
CB145	STORAGE	342.24	1.00	0.0	
CB149	STORAGE	340.74	1.00	0.0	
CB150	STORAGE	340.50	1.00	0.0	
CB165-166	STORAGE	336.37	1.00	0.0	
CB167-168	STORAGE	336.58	1.00	0.0	
CB169-170	STORAGE	336.81	1.00	0.0	
CB171-172	STORAGE	337.09	1.00	0.0	
CB179	STORAGE	335.38	1.00	0.0	
CB181	STORAGE	340.99	1.00	0.0	
CB182	STORAGE	340.25	1.00	0.0	
CBMH13	STORAGE	336.45	6.14	0.0	
CBMH14	STORAGE	336.95	6.90	0.0	
CBMH15	STORAGE	338.02	6.23	0.0	
CBMH28	STORAGE	333.60	3.13	0.0	
CBMH45	STORAGE	334.19	3.73	0.0	
LID#1A	STORAGE	336.50	2.41	0.0	
LID#1B	STORAGE	335.00	2.83	0.0	
LID#2	STORAGE	337.00	5.60	0.0	
LID#3	STORAGE	338.20	4.00	0.0	
LID#5	STORAGE	335.00	1.30	0.0	
LID#6	STORAGE	334.30	1.30	0.0	
MH1	STORAGE	331.99	5.51	0.0	
MH10	STORAGE	335.83	5.78	0.0	
MH11	STORAGE	336.06	6.38	0.0	
MH12	STORAGE	336.14	6.20	0.0	
MH16	STORAGE	336.21	6.35	0.0	
MH17	STORAGE	336.12	6.31	0.0	
MH18	STORAGE	334.68	4.38	0.0	
MH19	STORAGE	334.96	6.26	0.0	
MH2	STORAGE	332.11	5.24	0.0	
MH20	STORAGE	335.61	6.27	0.0	
MH21	STORAGE	336.19	6.12	0.0	
MH22	STORAGE	334.88	5.94	0.0	
MH23	STORAGE	334.31	5.99	0.0	
MH24	STORAGE	332.94	5.21	0.0	
MH25	STORAGE	333.06	4.38	0.0	
MH26	STORAGE	333.49	6.81	0.0	
MH27	STORAGE	333.79	6.12	0.0	
MH29	STORAGE	331.97	1.88	0.0	
MH3	STORAGE	332.36	5.24	0.0	
MH30	STORAGE	332.15	2.85	0.0	
MH31	STORAGE	332.49	3.27	0.0	
MH32	STORAGE	333.06	3.47	0.0	
MH33	STORAGE	333.59	3.33	0.0	
MH34	STORAGE	334.17	3.29	0.0	
MH35	STORAGE	334.30	3.44	0.0	
MH36	STORAGE	334.82	3.94	0.0	
MH37	STORAGE	334.36	3.67	0.0	
MH38	STORAGE	335.27	3.88	0.0	
MH4	STORAGE	332.89	5.11	0.0	
MH41	STORAGE	332.64	1.52	0.0	
MH42	STORAGE	335.60	5.58	0.0	
MH43	STORAGE	335.57	5.53	0.0	
MH44	STORAGE	337.06	5.46	0.0	
MH5	STORAGE	333.42	5.00	0.0	
MH6	STORAGE	333.84	4.75	0.0	
MH7	STORAGE	334.56	4.98	0.0	
MH8	STORAGE	334.84	4.80	0.0	
MH9	STORAGE	335.21	5.33	0.0	
SWM_Pond	STORAGE	331.67	1.45	0.0	
Wetland	STORAGE	331.55	1.51	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	MH44	MH21	CONDUIT	72.4	1.0004	0.0130
C10	CBMH45	CBMH28	CONDUIT	55.9	1.0007	0.0130
C11	CBMH28	MH25	CONDUIT	31.1	0.4990	0.0130
C3	MH23	MH27	CONDUIT	100.0	0.5000	0.0130
C5	LID#6	Wetland	CONDUIT	17.3	5.3835	0.1000
C6	LID#5	Wetland	CONDUIT	59.4	1.6837	0.1000
C7	Wetland	MH41	CONDUIT	64.7	1.2212	0.0100
C8	SWM_Pond	MH41	CONDUIT	15.0	1.4668	0.0200
Pipe_-_(38)_(C-STRM)	MH27	MH26	CONDUIT	28.1	0.5010	0.0130
Pipe_-_(39)_(C-STRM)	MH26	MH25	CONDUIT	79.8	0.4999	0.0130
Pipe_-_(41)_(C-STRM)	MH25	MH24	CONDUIT	18.2	0.4994	0.0130
Pipe_-_(42)_(C-STRM)	MH24	MH2	CONDUIT	31.6	0.5001	0.0130
Pipe_-_(43)_(C-STRM)	MH2	MH1	CONDUIT	17.8	0.4996	0.0130
Pipe_-_(44)_(C-STRM)	MH1	SWM_Pond	CONDUIT	32.2	0.9997	0.0130
Pipe_-_(45)_(C-STRM)	MH3	MH2	CONDUIT	20.6	0.4992	0.0130
Pipe_-_(46)_(C-STRM)	MH4	MH3	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(47)_(C-STRM)	MH5	MH4	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(48)_(C-STRM)	MH6	MH5	CONDUIT	76.7	0.4997	0.0130
Pipe_-_(49)_(C-STRM)	MH7	MH6	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(51)_(C-STRM)	MH8	MH7	CONDUIT	50.6	0.4996	0.0130
Pipe_-_(52)_(C-STRM)	MH42	MH9	CONDUIT	62.3	0.5007	0.0130
Pipe_-_(53)_(C-STRM)	MH10	MH42	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(54)_(C-STRM)	MH11	MH10	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(55)_(C-STRM)	MH12	MH11	CONDUIT	10.3	0.5039	0.0130
Pipe_-_(57)_(C-STRM)	CBMH13	MH12	CONDUIT	50.5	0.4992	0.0130
Pipe_-_(59)_(C-STRM)	MH9	MH8	CONDUIT	62.4	0.4998	0.0130
Pipe_-_(60)_(C-STRM)	MH17	MH8	CONDUIT	85.4	0.9999	0.0130
Pipe_-_(61)_(C-STRM)	MH16	MH9	CONDUIT	54.2	1.0007	0.0130
Pipe_-_(64)_(C-STRM)	MH18	MH6	CONDUIT	77.5	0.5006	0.0130
Pipe_-_(65)_(C-STRM)	MH19	MH18	CONDUIT	51.8	0.5001	0.0130
Pipe_-_(66)_(C-STRM)	MH43	MH22	CONDUIT	60.7	0.9999	0.0130
Pipe_-_(67)_(C-STRM)	MH22	MH23	CONDUIT	100.0	0.5002	0.0130
Pipe_-_(68)_(C-STRM)	MH20	MH19	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(69)_(C-STRM)	MH21	MH20	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(70)_(C-STRM)	MH29	SWM_Pond	CONDUIT	30.4	1.0014	0.0130
Pipe_-_(71)_(C-STRM)	MH30	MH29	CONDUIT	28.7	0.5016	0.0130
Pipe_-_(72)_(C-STRM)	MH31	MH30	CONDUIT	62.2	0.4999	0.0130
Pipe_-_(73)_(C-STRM)	MH32	MH31	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(74)_(C-STRM)	MH33	MH32	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(75)_(C-STRM)	MH34	MH33	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(76)_(C-STRM)	MH35	MH34	CONDUIT	26.8	0.4999	0.0130
Pipe_-_(77)_(C-STRM)	MH36	MH35	CONDUIT	28.8	0.9995	0.0130
Pipe_-_(78)_(C-STRM)	MH38	MH37	CONDUIT	62.6	0.9996	0.0130
Pipe_-_(79)_(C-STRM)	MH37	MH35	CONDUIT	11.3	-0.5030	0.0130
Pipe_-_(81)_(C-STRM)	CBMH14	CBMH13	CONDUIT	54.7	0.5008	0.0130
Pipe_-_(82)_(C-STRM)	CBMH15	CBMH14	CONDUIT	100.0	1.0001	0.0130
Pipe_-_(88)_(C-STRM)	MH41	MH39	CONDUIT	146.1	0.0068	0.0130
C2	LID#2	MH8	ORIFICE			
C4	LID#1B	MH3	ORIFICE			
OR1	LID#3	CBMH13	ORIFICE			
OR2	LID#1A	MH6	ORIFICE			
Pipe_-_(90)_(C-STRM)	SWM_Pond	Wetland	ORIFICE			
OL10	CB145	MH21	OUTLET			
OL11	CB181	MH43	OUTLET			
OL12	CB143	MH20	OUTLET			
OL13	CB141	MH20	OUTLET			
OL17	CB182	MH23	OUTLET			
OL18	CB150	MH22	OUTLET			
OL2	CB126-127	MH9	OUTLET			
OL20	CB149	MH22	OUTLET			
OL23	CB138	MH18	OUTLET			
OL24	CB137	MH6	OUTLET			
OL25	CB113-114	MH5	OUTLET			
OL26	CB111-112	MH5	OUTLET			
OL27	CB108-109	MH4	OUTLET			
OL28	CB106-107	MH4	OUTLET			
OL29	CB104-105	MH3	OUTLET			
OL31	CB100-101	MH2	OUTLET			
OL35	CB171-172	MH33	OUTLET			
OL36	CB169-170	MH33	OUTLET			
OL37	CB167-168	MH32	OUTLET			
OL38	CB165-166	MH32	OUTLET			
Pipe_-_(80)_(C-STRM)	CB179	MH31	OUTLET			

****
Cross Section Summary

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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
C10	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C11	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C5	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.20
C6	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.47
C7	TRAPEZOIDAL	0.50	3.50	0.38	9.00	1	20.42
C8	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	2.33
Pipe_-_(38)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(39)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(41)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(42)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(43)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	3.77
Pipe_-_(44)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	5.34
Pipe_-_(45)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(46)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(47)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(48)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(49)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(51)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(52)_(C-STRM)	CIRCULAR	0.82	0.53	0.21	0.82	1	1.02
Pipe_-_(53)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(54)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(55)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(57)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(59)_(C-STRM)	CIRCULAR	0.90	0.64	0.23	0.90	1	1.28
Pipe_-_(60)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.43
Pipe_-_(61)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
Pipe_-_(64)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(65)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(66)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(67)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(68)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(69)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(70)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.84
Pipe_-_(71)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(72)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(73)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(74)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(75)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(76)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(77)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(78)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(79)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
Pipe_-_(81)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(82)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(88)_(C-STRM)	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	0.25

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... YES
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... YES
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/27/2025 00:00:00
Ending Date 01/31/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 14
Head Tolerance ..... 0.001500 m

********** Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	1.457	57.189
Evaporation Loss	0.029	1.122
Infiltration Loss	0.478	18.754
Surface Runoff	0.972	38.163
Final Storage	0.000	0.000
Continuity Error (%)	-1.488	

********** Runoff Quality Continuity	TSS kg
Initial Buildup	0.000
Surface Buildup	0.000
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	0.000
Remaining Buildup	0.000
Continuity Error (%)	0.000

********** Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.971	9.713
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.006	0.065
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.963	9.634
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.008
Continuity Error (%)	0.065	

********** Quality Routing Continuity	TSS kg
Dry Weather Inflow	0.000
Wet Weather Inflow	0.000
Groundwater Inflow	0.000
RDII Inflow	0.000
External Inflow	0.000
External Outflow	0.000
Flooding Loss	0.000
Exfiltration Loss	0.000
Mass Reacted	0.000
Initial Stored Mass	0.000
Final Stored Mass	0.000
Continuity Error (%)	0.000

****
Highest Continuity Errors
****
Node MH22 (1.77%)
Node CBMH14 (-1.75%)
Node MH23 (-1.57%)
Node CBMH28 (-1.53%)
Node MH32 (-1.35%)

****
Time-Step Critical Elements
****
Link Pipe_-_(55)_(C-STRM) (2.96%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary

```
  *************************
  Minimum Time Step           :     0.50 sec
  Average Time Step           :     4.95 sec
  Maximum Time Step           :     5.00 sec
  % of Time in Steady State   :     0.00
  Average Iterations per Step :     2.00
  % of Steps Not Converging   :     0.01
  Time Step Frequencies       :
      5.000 -  3.155 sec      :    99.36 %
      3.155 -  1.991 sec      :     0.45 %
      1.991 -  1.256 sec      :     0.12 %
      1.256 -  0.792 sec      :     0.04 %
      0.792 -  0.500 sec      :     0.03 %


  ***************************
  Subcatchment Runoff Summary
  ***************************

  ------------------------------------------------------------------------------------------------
------------------------------
                                Total      Total      Total      Total     Imperv       Perv      Total
Total     Peak  Runoff
                               Precip      Runon       Evap      Infil    Runoff     Runoff     Runoff
Runoff   Runoff   Coeff
  Subcatchment                     mm         mm         mm         mm         mm         mm         mm
10^6 ltr      CMS
  ------------------------------------------------------------------------------------------------
------------------------------
  201                           57.19       0.00       0.06      55.74       0.00       1.57       1.57
0.02     0.03   0.027
  202                           57.19       0.00       1.83       0.00      56.22       0.00      56.22
0.74     0.56   0.983
  203                           57.19       0.00       1.72       0.00      56.57       0.00      56.57
0.07     0.06   0.989
  204                           57.19       0.00       0.05      52.24       0.00       5.93       5.93
0.01     0.03   0.104
  205a                          57.19       0.00       1.64       0.00      56.75       0.00      56.75
0.03     0.04   0.992
  205b                          57.19       0.00       1.64       0.00      56.75       0.00      56.75
0.06     0.06   0.992
  205c                          57.19       0.00       1.64       0.00      56.75       0.00      56.75
0.06     0.07   0.992
  205d                          57.19       0.00       1.64       0.00      56.75       0.00      56.75
0.12     0.13   0.992
  206a                          57.19       0.00       1.35      10.82      44.73       1.46      46.19
0.17     0.17   0.808
  206b                          57.19       0.00       0.06      54.87       0.00       2.57       2.57
0.00     0.00   0.045
  207                           57.19       0.00       1.73       0.00      56.52       0.00      56.52
0.40     0.36   0.988
  208a                          57.19       0.00       1.53       0.00      56.39       0.00      56.39
0.03     0.04   0.986
  208b                          57.19       0.00       1.53       0.00      56.39       0.00      56.39
0.05     0.06   0.986
  208c                          57.19       0.00       1.53       0.00      56.39       0.00      56.39
0.05     0.06   0.986
  208d                          57.19       0.00       1.53       0.00      56.39       0.00      56.39
0.03     0.04   0.986
  209a                          57.19       0.00       1.02      18.31      36.24       2.98      39.22
0.02     0.02   0.686
  209b                          57.19       0.00       1.03      18.48      36.31       2.60      38.91
0.05     0.06   0.680
  209c                          57.19       0.00       1.05      18.66      36.33       2.34      38.67
0.07     0.08   0.676
  209d                          57.19       0.00       0.99      17.92      36.07       3.62      39.69
0.04     0.05   0.694
  210a                          57.19       0.00       1.61       0.00      56.77       0.00      56.77
0.11     0.12   0.993
  210b                          57.19       0.00       1.64       0.00      56.75       0.00      56.75
0.10     0.11   0.992
  211                           57.19       0.00       1.67       0.00      56.69       0.00      56.69
0.18     0.18   0.991
  212                           57.19       0.00       1.56       0.00      56.62       0.00      56.62
0.14     0.16   0.990
  213                           57.19       0.00       0.05      52.87       0.00       5.10       5.10
0.02     0.04   0.089
  214                           57.19       0.00       1.57       0.00      56.69       0.00      56.69
0.15     0.18   0.991
  215                           57.19       0.00       1.53       0.00      56.36       0.00      56.36
0.06     0.07   0.986
  216a                          57.19       0.00       1.56       0.00      56.59       0.00      56.59
0.03     0.04   0.990
  216b                          57.19       0.00       1.56       0.00      56.59       0.00      56.59
0.01     0.01   0.990
  216c                          57.19       0.00       1.56       0.00      56.59       0.00      56.59
0.03     0.04   0.990
  216d                          57.19       0.00       1.56       0.00      56.59       0.00      56.59
0.03     0.03   0.990
  216e                          57.19       0.00       1.58       0.00      56.70       0.00      56.70
0.03     0.04   0.991
  216f                          57.19       0.00       1.58       0.00      56.70       0.00      56.70
0.02     0.03   0.991
  216g                          57.19       0.00       1.58       0.00      56.70       0.00      56.70
0.03     0.03   0.991
  217                           57.19       0.00       1.74       0.00      56.49       0.00      56.49
0.36     0.32   0.988
  218                           57.19       0.00       1.73       0.00      56.53       0.00      56.53
0.33     0.30   0.988
  219a                          57.19       0.00       1.26      10.45      44.82       2.12      46.95
0.07     0.09   0.821
  219b                          57.19       0.00       0.05      53.32       0.00       4.54       4.54
0.00     0.01   0.079
  220a                          57.19       0.00       1.27      10.45      44.82       2.11      46.94
0.08     0.10   0.821
  220b                          57.19       0.00       0.05      53.35       0.00       4.50       4.50
0.00     0.00   0.079
  221                           57.19       0.00       1.21      12.01      43.11       2.31      45.42
0.10     0.13   0.794
  222                           57.19       0.00       1.22      12.01      43.11       2.30      45.41
0.10     0.12   0.794
  223                           57.19       0.00       1.21      11.98      43.10       2.35      45.45
0.10     0.13   0.795
  224                           57.19       0.00       1.22      12.01      43.11       2.29      45.41
0.07     0.08   0.794
  226                           57.19       0.00       1.74       0.00      56.48       0.00      56.48
0.42     0.38   0.988
  227                           57.19       0.00       1.65       0.00      56.74       0.00      56.74
0.13     0.14   0.992
  228                           57.19       0.00       1.65       0.00      56.74       0.00      56.74
0.09     0.10   0.992
  229a                          57.19       0.00       1.58       0.00      56.70       0.00      56.70
0.05     0.05   0.991
  229b                          57.19       0.00       1.58       0.00      56.70       0.00      56.70
0.03     0.03   0.991
  230a                          57.19       0.00       1.57       0.00      56.67       0.00      56.67
0.03     0.04   0.991
  230b                          57.19       0.00       1.57       0.00      56.67       0.00      56.67
0.03     0.04   0.991
  231a                          57.19       0.00       1.56       0.00      56.62       0.00      56.62
0.03     0.03   0.990
  231b                          57.19       0.00       1.56       0.00      56.62       0.00      56.62
0.02     0.03   0.990
  232a                          57.19       0.00       1.56       0.00      56.61       0.00      56.61
0.03     0.04   0.990
  232b                          57.19       0.00       1.56       0.00      56.61       0.00      56.61
0.03     0.04   0.990
  233a                          57.19       0.00       1.56       0.00      56.63       0.00      56.63
0.04     0.05   0.990
  233b                          57.19       0.00       1.56       0.00      56.63       0.00      56.63
0.03     0.04   0.990
  234a                          57.19       0.00       1.58       0.00      56.70       0.00      56.70
0.03     0.03   0.991
  234b                          57.19       0.00       1.58       0.00      56.70       0.00      56.70
0.03     0.03   0.991
  235                           57.19       0.00       1.73       0.00      56.53       0.00      56.53
0.50     0.46   0.988
  236                           57.19       0.00       1.74       0.00      56.50       0.00      56.50
0.27     0.24   0.988
  237                           57.19       0.00       1.74       0.00      56.49       0.00      56.49
0.24     0.22   0.988
  238                           57.19       0.00       1.74       0.00      56.49       0.00      56.49
0.23     0.21   0.988
  239                           57.19       0.00       1.74       0.00      56.49       0.00      56.49
0.22     0.20   0.988
  240a                          57.19       2.28       1.62       0.00      59.00       0.00      59.00
0.07     0.08   0.992
  240b                          57.19       0.00       0.05      53.31       0.00       4.55       4.55
0.00     0.00   0.080
  241a                          57.19       2.10       1.62       0.00      58.83       0.00      58.83
0.08     0.08   0.992
  241b                          57.19       0.00       0.05      53.31       0.00       4.55       4.55
0.00     0.00   0.080
  242a                          57.19       2.12       1.61       0.00      58.85       0.00      58.85
0.08     0.08   0.992
  242b                          57.19       0.00       0.05      53.27       0.00       4.60       4.60
0.00     0.00   0.080
  243a                          57.19       6.90       1.62       0.00      63.58       0.00      63.58
0.06     0.06   0.992
```

243b			57.19	0.00	0.37	49.01	11.77	8.62	8.62
0.01	0.01	0.151							
244a			57.19	0.00	1.74	0.00	56.49	0.00	56.49
0.18	0.16	0.988							
244b			57.19	0.00	0.06	54.85	0.00	2.60	2.60
0.00	0.00	0.045							
245			57.19	0.00	0.06	54.68	0.00	2.79	2.79
0.01	0.02	0.049							
246			57.19	0.00	1.57	0.00	56.68	0.00	56.68
0.43	0.51	0.991							
247			57.19	0.00	0.06	55.31	0.00	2.06	2.06
0.00	0.01	0.036							
248a			57.19	0.00	1.62	0.00	56.77	0.00	56.77
0.07	0.08	0.993							
248b			57.19	0.00	1.62	0.00	56.77	0.00	56.77
0.03	0.03	0.993							
248c			57.19	0.00	1.62	0.00	56.77	0.00	56.77
0.13	0.14	0.993							
248d			57.19	0.00	1.62	0.00	56.77	0.00	56.77
0.03	0.03	0.993							
249			57.19	0.00	0.71	30.39	24.39	2.58	26.98
0.29	0.36	0.472							
250a			57.19	0.00	0.06	54.29	0.00	3.26	3.26
0.01	0.01	0.057							
250b			57.19	0.00	1.64	0.00	56.76	0.00	56.76
0.03	0.04	0.992							
250c			57.19	0.00	1.03	18.47	36.31	2.63	38.93
0.02	0.02	0.681							
250d			57.19	0.00	1.64	0.00	56.76	0.00	56.76
0.02	0.02	0.992							
250e			57.19	0.00	1.64	0.00	56.76	0.00	56.76
0.06	0.06	0.992							
250f			57.19	0.00	1.64	0.00	56.76	0.00	56.76
0.05	0.05	0.992							
251			57.19	0.00	1.55	0.00	56.56	0.00	56.56
0.05	0.06	0.989							
252A			57.19	0.00	0.06	54.29	0.00	3.26	3.26
0.00	0.00	0.057							
252b			57.19	0.00	1.69	0.00	56.66	0.00	56.66
0.03	0.03	0.991							
252c			57.19	0.00	1.64	0.00	56.76	0.00	56.76
0.02	0.02	0.992							
252d			57.19	0.00	1.64	0.00	56.76	0.00	56.76
0.01	0.01	0.992							
253			57.19	0.00	1.53	0.00	56.39	0.00	56.39
0.03	0.04	0.986							
254			57.19	0.00	0.06	55.35	0.00	2.02	2.02
0.04	0.05	0.035							
255			57.19	0.00	1.58	0.00	56.69	0.00	56.69
0.07	0.08	0.991							
256			57.19	0.00	1.07	19.63	35.72	1.81	37.52
0.12	0.12	0.656							
257			57.19	0.00	0.06	55.51	0.00	1.84	1.84
0.01	0.02	0.032							
258			57.19	0.00	1.53	0.00	56.35	0.00	56.35
0.05	0.06	0.985							
259			57.19	0.00	1.52	0.00	56.33	0.00	56.33
0.02	0.02	0.985							
260			57.19	0.00	1.52	0.00	56.31	0.00	56.31
0.02	0.03	0.985							
261			57.19	0.00	1.77	0.00	56.39	0.00	56.39
0.45	0.37	0.986							
262			57.19	0.00	1.76	0.00	56.42	0.00	56.42
0.45	0.38	0.986							
263			57.19	0.00	0.06	54.63	0.00	2.86	2.86
0.03	0.05	0.050							

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Subcatchment Washoff Summary
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Subcatchment	TSS kg
201	0.000
202	0.000
203	0.000
204	0.000
205a	0.000
205b	0.000
205c	0.000
205d	0.000
206a	0.000
206b	0.000
207	0.000
208a	0.000
208b	0.000
208c	0.000
208d	0.000
209a	0.000
209b	0.000
209c	0.000
209d	0.000
210a	0.000
210b	0.000
211	0.000
212	0.000
213	0.000
214	0.000
215	0.000
216a	0.000
216b	0.000
216c	0.000
216d	0.000
216e	0.000
216f	0.000
216g	0.000
217	0.000
218	0.000
219a	0.000
219b	0.000
220a	0.000
220b	0.000
221	0.000
222	0.000
223	0.000
224	0.000
226	0.000
227	0.000
228	0.000
229a	0.000
229b	0.000
230a	0.000
230b	0.000
231a	0.000
231b	0.000
232a	0.000
232b	0.000
233a	0.000
233b	0.000
234a	0.000
234b	0.000
235	0.000
236	0.000
237	0.000
238	0.000
239	0.000
240a	0.000
240b	0.000
241a	0.000
241b	0.000
242a	0.000
242b	0.000
243a	0.000
243b	0.000
244a	0.000
244b	0.000
245	0.000
246	0.000
247	0.000
248a	0.000
248b	0.000
248c	0.000
248d	0.000
249	0.000
250a	0.000
250b	0.000
250c	0.000
250d	0.000
250e	0.000
250f	0.000
251	0.000
252A	0.000
252b	0.000
252c	0.000
252d	0.000
253	0.000
254	0.000

255	0.000
256	0.000
257	0.000
258	0.000
259	0.000
260	0.000
261	0.000
262	0.000
263	0.000
System	0.000

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
MH39	OUTFALL	0.00	0.00	332.85	0 00:00	0.00
OF1	OUTFALL	0.00	0.00	333.00	0 00:00	0.00
CB100-101	STORAGE	0.00	0.06	337.33	0 01:05	0.06
CB104-105	STORAGE	0.00	0.09	337.86	0 01:05	0.09
CB106-107	STORAGE	0.00	0.10	338.04	0 01:05	0.10
CB108-109	STORAGE	0.00	0.09	338.20	0 01:05	0.09
CB111-112	STORAGE	0.00	0.08	338.33	0 01:05	0.08
CB113-114	STORAGE	0.00	0.09	338.82	0 01:05	0.09
CB126-127	STORAGE	0.00	0.08	340.66	0 01:05	0.08
CB137	STORAGE	0.00	0.13	338.77	0 01:05	0.13
CB138	STORAGE	0.00	0.17	338.95	0 01:05	0.17
CB141	STORAGE	0.00	0.15	341.89	0 01:05	0.15
CB143	STORAGE	0.00	0.16	342.16	0 01:05	0.16
CB145	STORAGE	0.00	0.13	342.37	0 01:05	0.13
CB149	STORAGE	0.00	0.12	340.86	0 01:05	0.12
CB150	STORAGE	0.00	0.12	340.61	0 01:05	0.12
CB165-166	STORAGE	0.00	0.06	336.43	0 01:05	0.06
CB167-168	STORAGE	0.00	0.06	336.64	0 01:05	0.06
CB169-170	STORAGE	0.00	0.05	336.86	0 01:05	0.05
CB171-172	STORAGE	0.00	0.08	337.16	0 01:05	0.08
CB179	STORAGE	0.00	0.09	335.47	0 01:05	0.09
CB181	STORAGE	0.00	0.11	341.11	0 01:05	0.11
CB182	STORAGE	0.00	0.10	340.35	0 01:05	0.10
CBMH13	STORAGE	0.01	0.41	336.86	0 01:05	0.40
CBMH14	STORAGE	0.00	0.16	337.11	0 01:07	0.16
CBMH15	STORAGE	0.00	0.10	338.12	0 01:07	0.10
CBMH28	STORAGE	0.00	0.66	334.25	0 01:08	0.65
CBMH45	STORAGE	0.00	0.08	334.27	0 01:05	0.08
LID#1A	STORAGE	0.05	0.59	337.09	0 03:00	0.59
LID#1B	STORAGE	0.02	0.30	335.30	0 02:53	0.30
LID#2	STORAGE	0.15	1.11	338.11	0 02:29	1.11
LID#3	STORAGE	0.17	1.22	339.42	0 01:42	1.22
LID#5	STORAGE	0.02	0.33	335.33	0 02:19	0.33
LID#6	STORAGE	0.00	0.10	334.40	0 01:31	0.10
MH1	STORAGE	0.03	1.56	333.55	0 01:07	1.54
MH10	STORAGE	0.01	0.72	336.55	0 01:06	0.71
MH11	STORAGE	0.01	0.56	336.61	0 01:07	0.55
MH12	STORAGE	0.01	0.57	336.70	0 01:05	0.57
MH16	STORAGE	0.00	0.37	336.58	0 01:05	0.36
MH17	STORAGE	0.00	0.27	336.39	0 01:05	0.27
MH18	STORAGE	0.01	0.91	335.58	0 01:08	0.90
MH19	STORAGE	0.01	0.76	335.73	0 01:08	0.74
MH2	STORAGE	0.02	1.64	333.75	0 01:07	1.63
MH20	STORAGE	0.01	0.68	336.29	0 01:06	0.68
MH21	STORAGE	0.01	0.51	336.70	0 01:07	0.50
MH22	STORAGE	0.01	0.58	335.46	0 01:08	0.58
MH23	STORAGE	0.01	0.85	335.16	0 01:08	0.84
MH24	STORAGE	0.01	1.10	334.04	0 01:07	1.09
MH25	STORAGE	0.01	1.16	334.23	0 01:07	1.16
MH26	STORAGE	0.01	1.26	334.75	0 01:07	1.25
MH27	STORAGE	0.01	1.16	334.94	0 01:07	1.16
MH29	STORAGE	0.02	0.48	332.46	0 01:07	0.48
MH3	STORAGE	0.02	1.66	334.02	0 01:07	1.66
MH30	STORAGE	0.01	0.53	332.67	0 01:07	0.52
MH31	STORAGE	0.01	0.50	332.99	0 01:07	0.50
MH32	STORAGE	0.01	0.48	333.54	0 01:07	0.48
MH33	STORAGE	0.00	0.38	333.97	0 01:06	0.37
MH34	STORAGE	0.00	0.38	334.55	0 01:07	0.38
MH35	STORAGE	0.00	0.39	334.70	0 01:06	0.39
MH36	STORAGE	0.00	0.21	335.02	0 01:05	0.20
MH37	STORAGE	0.06	0.44	334.80	0 01:06	0.44
MH38	STORAGE	0.01	1.05	336.32	0 01:06	1.03
MH4	STORAGE	0.02	1.62	334.51	0 01:08	1.61
MH41	STORAGE	0.00	0.00	332.64	0 00:00	0.00
MH42	STORAGE	0.01	0.89	336.49	0 01:06	0.89
MH43	STORAGE	0.00	0.17	335.74	0 01:05	0.17
MH44	STORAGE	0.01	0.75	337.82	0 01:06	0.74
MH5	STORAGE	0.02	1.52	334.95	0 01:08	1.52
MH6	STORAGE	0.02	1.45	335.29	0 01:08	1.45
MH7	STORAGE	0.01	1.23	335.79	0 01:08	1.23
MH8	STORAGE	0.01	1.14	335.98	0 01:08	1.14
MH9	STORAGE	0.01	1.01	336.22	0 01:08	1.01
SWM_Pond	STORAGE	0.08	0.72	332.39	0 02:26	0.72
Wetland	STORAGE	0.07	0.50	332.05	0 06:24	0.50

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
MH39	OUTFALL	0.061	0.061	0 01:05	0.0567	0.0567	0.000
OF1	OUTFALL	0.013	0.013	0 01:05	0.00819	0.00819	0.000
CB100-101	STORAGE	0.031	0.031	0 01:05	0.0284	0.0284	0.002
CB104-105	STORAGE	0.067	0.067	0 01:05	0.0566	0.0566	-0.006
CB106-107	STORAGE	0.089	0.089	0 01:05	0.0735	0.0735	-0.011
CB108-109	STORAGE	0.082	0.082	0 01:05	0.0679	0.0679	-0.010
CB111-112	STORAGE	0.061	0.061	0 01:05	0.0509	0.0509	-0.007
CB113-114	STORAGE	0.081	0.081	0 01:05	0.0679	0.0679	-0.011
CB126-127	STORAGE	0.063	0.063	0 01:05	0.0507	0.0507	-0.006
CB137	STORAGE	0.096	0.096	0 01:05	0.0907	0.0907	-0.002
CB138	STORAGE	0.138	0.138	0 01:05	0.13	0.13	-0.006
CB141	STORAGE	0.118	0.118	0 01:05	0.0953	0.0953	-0.005
CB143	STORAGE	0.129	0.129	0 01:05	0.104	0.104	-0.006
CB145	STORAGE	0.098	0.098	0 01:05	0.0797	0.0797	-0.004
CB149	STORAGE	0.083	0.083	0 01:05	0.0764	0.0764	-0.001
CB150	STORAGE	0.083	0.083	0 01:05	0.0764	0.0764	-0.001
CB165-166	STORAGE	0.035	0.035	0 01:05	0.0282	0.0282	-0.000
CB167-168	STORAGE	0.028	0.028	0 01:05	0.0225	0.0225	0.000
CB169-170	STORAGE	0.021	0.021	0 01:05	0.0169	0.0169	0.002
CB171-172	STORAGE	0.056	0.056	0 01:05	0.045	0.045	-0.004
CB179	STORAGE	0.046	0.046	0 01:05	0.0328	0.0328	0.017
CB181	STORAGE	0.076	0.076	0 01:05	0.0707	0.0707	-0.001
CB182	STORAGE	0.064	0.064	0 01:05	0.0635	0.0635	0.003
CBMH13	STORAGE	0.298	0.344	0 01:05	0.278	0.614	0.003
CBMH14	STORAGE	0.028	0.051	0 01:06	0.0148	0.0382	-1.721
CBMH15	STORAGE	0.029	0.029	0 01:05	0.0234	0.0234	-0.017
CBMH28	STORAGE	0.000	0.037	0 01:05	0	0.0136	-1.511
CBMH45	STORAGE	0.015	0.015	0 01:05	0.0109	0.0109	0.628
LID#1A	STORAGE	0.856	0.856	0 01:05	0.96	0.96	-0.004
LID#1B	STORAGE	0.458	0.458	0 01:05	0.503	0.503	-0.007
LID#2	STORAGE	1.380	1.380	0 01:05	1.59	1.59	-0.002
LID#3	STORAGE	0.625	0.625	0 01:05	0.81	0.81	-0.001
LID#5	STORAGE	0.202	0.202	0 01:05	0.184	0.184	-0.005
LID#6	STORAGE	0.076	0.076	0 01:05	0.0603	0.0603	-0.017
MH1	STORAGE	0.000	3.330	0 01:09	0	5.34	0.018
MH10	STORAGE	0.000	0.450	0 01:06	0	0.736	-0.157
MH11	STORAGE	0.000	0.455	0 01:05	0	0.737	0.127
MH12	STORAGE	0.142	0.466	0 01:05	0.123	0.738	0.091
MH16	STORAGE	0.256	0.256	0 01:05	0.241	0.241	0.891
MH17	STORAGE	0.218	0.218	0 01:05	0.175	0.175	1.383
MH18	STORAGE	0.000	0.749	0 01:05	0	0.816	0.575
MH19	STORAGE	0.215	0.630	0 01:05	0.172	0.685	-0.202
MH2	STORAGE	0.000	3.294	0 01:09	0	5.34	0.001
MH20	STORAGE	0.000	0.526	0 01:05	0	0.517	0.979
MH21	STORAGE	0.000	0.298	0 01:05	0	0.319	0.469
MH22	STORAGE	0.000	0.238	0 01:05	0	0.223	1.802
MH23	STORAGE	0.000	0.273	0 01:05	0	0.283	-1.549
MH24	STORAGE	0.000	0.635	0 01:09	0	0.91	0.093
MH25	STORAGE	0.000	0.696	0 01:05	0	0.909	-0.451
MH26	STORAGE	0.518	0.745	0 01:05	0.434	0.901	0.649
MH27	STORAGE	0.161	0.354	0 01:04	0.179	0.466	-0.176
MH29	STORAGE	0.037	0.511	0 01:07	0.034	0.563	-0.099
MH3	STORAGE	0.250	2.571	0 01:10	0.227	4.41	-0.019
MH30	STORAGE	0.018	0.486	0 01:07	0.017	0.526	-0.564
MH31	STORAGE	0.080	0.472	0 01:07	0.0723	0.512	0.652
MH32	STORAGE	0.046	0.385	0 01:06	0.0453	0.401	-1.333
MH33	STORAGE	0.000	0.300	0 01:06	0	0.308	0.743
MH34	STORAGE	0.019	0.255	0 01:05	0.0149	0.246	-0.007
MH35	STORAGE	0.038	0.238	0 01:05	0.0219	0.231	-0.028
MH36	STORAGE	0.070	0.070	0 01:05	0.0563	0.0563	0.388
MH37	STORAGE	0.000	0.141	0 01:06	0	0.153	-0.025
MH38	STORAGE	0.182	0.182	0 01:05	0.153	0.153	0.067

MH4	STORAGE	0.000	2.603	0	01:06	0	4.11	-0.245
MH41	STORAGE	0.000	0.000	0	00:00	0	0	0.000
ltr								
MH42	STORAGE	0.571	0.955	0	01:05	0.582	1.32	0.053
MH43	STORAGE	0.000	0.076	0	01:05	0	0.0707	0.335
MH44	STORAGE	0.257	0.257	0	01:05	0.241	0.241	0.806
MH5	STORAGE	0.000	2.724	0	01:06	0	3.97	-0.053
MH6	STORAGE	0.188	2.664	0	01:06	0.159	3.84	-0.216
MH7	STORAGE	0.507	1.734	0	01:06	0.531	2.73	0.563
MH8	STORAGE	0.035	1.449	0	01:05	0.0282	2.19	-0.195
MH9	STORAGE	0.063	1.277	0	01:05	0.0507	1.66	-0.109
SWM_Pond	STORAGE	0.358	3.999	0	01:09	0.294	6.2	0.050
Wetland	STORAGE	0.050	0.288	0	02:26	0.0383	6.24	-0.003

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Node Surcharge Summary
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No nodes were surcharged.

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
CB100-101	0.000	0.1	0.0	0.0	0.000	5.9	0 01:05	0.031
CB104-105	0.000	0.1	0.0	0.0	0.000	8.5	0 01:05	0.067
CB106-107	0.000	0.1	0.0	0.0	0.000	9.9	0 01:05	0.089
CB108-109	0.000	0.1	0.0	0.0	0.000	9.5	0 01:05	0.082
CB111-112	0.000	0.1	0.0	0.0	0.000	8.2	0 01:05	0.061
CB113-114	0.000	0.1	0.0	0.0	0.000	9.4	0 01:05	0.081
CB126-127	0.000	0.1	0.0	0.0	0.000	8.3	0 01:05	0.063
CB137	0.000	0.1	0.0	0.0	0.000	12.7	0 01:05	0.096
CB138	0.000	0.2	0.0	0.0	0.000	17.2	0 01:05	0.138
CB141	0.000	0.1	0.0	0.0	0.000	14.8	0 01:05	0.118
CB143	0.000	0.1	0.0	0.0	0.000	16.1	0 01:05	0.129
CB145	0.000	0.1	0.0	0.0	0.000	12.9	0 01:05	0.098
CB149	0.000	0.1	0.0	0.0	0.000	11.6	0 01:05	0.082
CB150	0.000	0.1	0.0	0.0	0.000	11.7	0 01:05	0.083
CB165-166	0.000	0.0	0.0	0.0	0.000	6.2	0 01:05	0.035
CB167-168	0.000	0.0	0.0	0.0	0.000	5.7	0 01:05	0.028
CB169-170	0.000	0.0	0.0	0.0	0.000	5.1	0 01:05	0.021
CB171-172	0.000	0.1	0.0	0.0	0.000	7.8	0 01:05	0.056
CB179	0.000	0.1	0.0	0.0	0.000	8.7	0 01:05	0.046
CB181	0.000	0.1	0.0	0.0	0.000	11.2	0 01:05	0.076
CB182	0.000	0.1	0.0	0.0	0.000	10.2	0 01:05	0.063
CBMH13	0.000	0.1	0.0	0.0	0.000	6.7	0 01:05	0.332
CBMH14	0.000	0.0	0.0	0.0	0.000	2.3	0 01:07	0.050
CBMH15	0.000	0.0	0.0	0.0	0.000	1.6	0 01:07	0.027
CBMH28	0.000	0.1	0.0	0.0	0.001	21.0	0 01:08	0.035
CBMH45	0.000	0.0	0.0	0.0	0.000	2.1	0 01:05	0.015
LID#1A	0.069	2.3	0.0	93.1	0.743	24.5	0 03:00	0.026
LID#1B	0.022	0.7	0.0	100.0	0.352	10.6	0 02:53	0.015
LID#2	0.163	2.7	0.0	79.1	1.211	19.8	0 02:29	0.057
LID#3	0.070	4.1	0.0	63.3	0.517	30.4	0 01:42	0.066
LID#5	0.008	1.7	0.0	94.3	0.127	25.6	0 02:19	0.007
LID#6	0.001	0.2	0.0	100.0	0.034	7.9	0 01:31	0.004
MH1	0.000	0.5	0.0	0.0	0.007	28.3	0 01:07	3.398
MH10	0.000	0.1	0.0	0.0	0.001	12.4	0 01:06	0.435
MH11	0.000	0.1	0.0	0.0	0.001	8.7	0 01:07	0.450
MH12	0.000	0.1	0.0	0.0	0.001	9.1	0 01:05	0.455
MH16	0.000	0.1	0.0	0.0	0.000	5.8	0 01:05	0.252
MH17	0.000	0.1	0.0	0.0	0.000	4.3	0 01:05	0.222
MH18	0.000	0.2	0.0	0.0	0.001	20.8	0 01:08	0.730
MH19	0.000	0.1	0.0	0.0	0.001	12.2	0 01:08	0.622
MH2	0.000	0.4	0.0	0.0	0.007	31.2	0 01:07	3.330
MH20	0.000	0.1	0.0	0.0	0.001	10.8	0 01:06	0.466
MH21	0.000	0.1	0.0	0.0	0.001	8.3	0 01:07	0.291
MH22	0.000	0.1	0.0	0.0	0.001	9.8	0 01:08	0.215
MH23	0.000	0.1	0.0	0.0	0.001	14.2	0 01:08	0.242
MH24	0.000	0.2	0.0	0.0	0.001	21.0	0 01:07	0.650
MH25	0.000	0.2	0.0	0.0	0.001	26.6	0 01:07	0.653
MH26	0.000	0.1	0.0	0.0	0.001	18.4	0 01:07	0.696
MH27	0.000	0.1	0.0	0.0	0.001	18.9	0 01:07	0.355
MH29	0.000	1.2	0.0	0.0	0.001	25.7	0 01:07	0.515
MH3	0.000	0.4	0.0	0.0	0.008	31.7	0 01:07	2.635
MH30	0.000	0.4	0.0	0.0	0.001	18.4	0 01:07	0.487
MH31	0.000	0.2	0.0	0.0	0.001	15.4	0 01:07	0.473
MH32	0.000	0.2	0.0	0.0	0.001	13.8	0 01:07	0.375
MH33	0.000	0.1	0.0	0.0	0.000	11.3	0 01:06	0.301
MH34	0.000	0.1	0.0	0.0	0.000	11.5	0 01:07	0.246
MH35	0.000	0.1	0.0	0.0	0.000	11.5	0 01:06	0.237
MH36	0.000	0.1	0.0	0.0	0.000	5.2	0 01:05	0.068
MH37	0.000	1.7	0.0	0.0	0.000	11.9	0 01:06	0.141
MH38	0.000	0.1	0.0	0.0	0.001	26.9	0 01:06	0.141
MH4	0.000	0.3	0.0	0.0	0.004	31.7	0 01:08	2.467
MH41	0.000	0.0	0.0	0.0	0.000	0.0	0 00:00	0.000
MH42	0.000	0.2	0.0	0.0	0.002	16.0	0 01:06	0.918
MH43	0.000	0.0	0.0	0.0	0.000	3.1	0 01:05	0.074
MH44	0.000	0.1	0.0	0.0	0.001	13.8	0 01:06	0.214
MH5	0.000	0.3	0.0	0.0	0.004	30.5	0 01:08	2.460
MH6	0.000	0.3	0.0	0.0	0.004	30.5	0 01:08	2.611
MH7	0.000	0.3	0.0	0.0	0.002	24.7	0 01:08	1.697
MH8	0.000	0.3	0.0	0.0	0.002	23.7	0 01:08	1.302
MH9	0.000	0.2	0.0	0.0	0.002	18.9	0 01:08	1.209
SWM_Pond	0.425	4.6	0.0	0.0	3.938	42.2	0 02:26	0.286
Wetland	0.393	4.6	0.0	100.0	2.782	32.8	0 06:24	0.070

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS kg
MH39	5.27	0.006	0.061	0.057	0.000
OF1	0.95	0.006	0.013	0.008	0.000
System	3.11	0.012	0.074	0.065	0.000

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.214	0 01:06	1.98	1.22	0.98
C10	CONDUIT	0.015	0 01:05	0.88	0.15	0.63
C11	CONDUIT	0.035	0 01:10	0.65	0.51	1.00
C3	CONDUIT	0.242	0 01:11	1.23	0.79	1.00
C5	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C6	CONDUIT	0.002	0 02:19	0.09	0.00	0.02
C7	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C8	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	CONDUIT	0.355	0 01:12	1.66	1.17	1.00
Pipe_-_(39)_(C-STRM)	CONDUIT	0.696	0 01:05	1.94	1.17	1.00
Pipe_-_(41)_(C-STRM)	CONDUIT	0.635	0 01:09	1.77	1.07	1.00
Pipe_-_(42)_(C-STRM)	CONDUIT	0.650	0 01:09	1.82	1.09	1.00
Pipe_-_(43)_(C-STRM)	CONDUIT	3.330	0 01:09	2.39	0.88	1.00
Pipe_-_(44)_(C-STRM)	CONDUIT	3.398	0 01:09	3.78	0.64	0.63
Pipe_-_(45)_(C-STRM)	CONDUIT	2.635	0 01:10	2.33	0.96	1.00
Pipe_-_(46)_(C-STRM)	CONDUIT	2.467	0 01:10	2.18	0.89	1.00
Pipe_-_(47)_(C-STRM)	CONDUIT	2.460	0 01:06	2.36	0.89	1.00
Pipe_-_(48)_(C-STRM)	CONDUIT	2.611	0 01:06	2.39	0.95	1.00
Pipe_-_(49)_(C-STRM)	CONDUIT	1.697	0 01:06	2.31	1.07	1.00
Pipe_-_(51)_(C-STRM)	CONDUIT	1.302	0 01:06	1.85	0.82	1.00
Pipe_-_(52)_(C-STRM)	CONDUIT	0.918	0 01:05	1.80	0.90	1.00
Pipe_-_(53)_(C-STRM)	CONDUIT	0.435	0 01:05	1.18	0.55	0.98
Pipe_-_(54)_(C-STRM)	CONDUIT	0.450	0 01:06	1.61	0.76	0.88
Pipe_-_(55)_(C-STRM)	CONDUIT	0.455	0 01:05	1.56	0.76	0.79
Pipe_-_(57)_(C-STRM)	CONDUIT	0.332	0 01:05	1.29	0.56	0.68
Pipe_-_(59)_(C-STRM)	CONDUIT	1.209	0 01:05	1.98	0.94	1.00
Pipe_-_(60)_(C-STRM)	CONDUIT	0.222	0 01:05	1.72	0.52	0.74
Pipe_-_(61)_(C-STRM)	CONDUIT	0.252	0 01:05	1.86	0.88	0.87
Pipe_-_(64)_(C-STRM)	CONDUIT	0.730	0 01:06	1.80	0.93	1.00
Pipe_-_(65)_(C-STRM)	CONDUIT	0.622	0 01:05	1.70	0.79	1.00
Pipe_-_(66)_(C-STRM)	CONDUIT	0.074	0 01:05	1.13	0.42	0.71
Pipe_-_(67)_(C-STRM)	CONDUIT	0.215	0 01:05	1.44	1.07	1.00
Pipe_-_(68)_(C-STRM)	CONDUIT	0.466	0 01:08	1.77	1.07	1.00
Pipe_-_(69)_(C-STRM)	CONDUIT	0.291	0 01:05	1.47	0.96	0.98

Pipe_-_(70)_(C-STRM)	CONDUIT	0.515	0	01:07	2.59	0.61	0.81
Pipe_-_(71)_(C-STRM)	CONDUIT	0.487	0	01:07	1.78	0.82	0.72
Pipe_-_(72)_(C-STRM)	CONDUIT	0.473	0	01:07	1.67	0.80	0.74
Pipe_-_(73)_(C-STRM)	CONDUIT	0.375	0	01:07	1.66	0.86	0.76
Pipe_-_(74)_(C-STRM)	CONDUIT	0.301	0	01:07	1.47	0.69	0.69
Pipe_-_(75)_(C-STRM)	CONDUIT	0.246	0	01:07	1.57	0.81	0.68
Pipe_-_(76)_(C-STRM)	CONDUIT	0.237	0	01:05	1.47	0.78	0.73
Pipe_-_(77)_(C-STRM)	CONDUIT	0.068	0	01:05	1.40	0.71	0.65
Pipe_-_(78)_(C-STRM)	CONDUIT	0.141	0	01:06	2.02	1.46	0.96
Pipe_-_(79)_(C-STRM)	CONDUIT	0.141	0	01:06	0.92	0.46	0.68
Pipe_-_(81)_(C-STRM)	CONDUIT	0.050	0	01:05	1.03	0.25	0.38
Pipe_-_(82)_(C-STRM)	CONDUIT	0.027	0	01:07	1.14	0.15	0.27
Pipe_-_(88)_(C-STRM)	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C2	ORIFICE	0.044	0	02:29			0.70
C4	ORIFICE	0.000	0	00:00			0.00
OR1	ORIFICE	0.061	0	01:42			0.54
OR2	ORIFICE	0.010	0	03:00			0.36
Pipe_-_(90)_(C-STRM)	ORIFICE	0.286	0	02:26			1.00
OL10	DUMMY	0.098	0	01:05			
OL11	DUMMY	0.076	0	01:05			
OL12	DUMMY	0.129	0	01:05			
OL13	DUMMY	0.118	0	01:05			
OL17	DUMMY	0.063	0	01:05			
OL18	DUMMY	0.083	0	01:05			
OL2	DUMMY	0.063	0	01:05			
OL20	DUMMY	0.082	0	01:05			
OL23	DUMMY	0.138	0	01:05			
OL24	DUMMY	0.096	0	01:05			
OL25	DUMMY	0.081	0	01:05			
OL26	DUMMY	0.061	0	01:05			
OL27	DUMMY	0.082	0	01:05			
OL28	DUMMY	0.089	0	01:05			
OL29	DUMMY	0.067	0	01:05			
OL31	DUMMY	0.031	0	01:05			
OL35	DUMMY	0.056	0	01:05			
OL36	DUMMY	0.021	0	01:05			
OL37	DUMMY	0.028	0	01:05			
OL38	DUMMY	0.035	0	01:05			
Pipe_-_(80)_(C-STRM)	DUMMY	0.046	0	01:05			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class							
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C10	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C3	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C5	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	0.98	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
C7	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C8	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(39)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(41)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(42)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(43)_(C-STRM)	1.00	0.91	0.00	0.00	0.07	0.00	0.00	0.01	0.94	0.00
Pipe_-_(44)_(C-STRM)	1.00	0.00	0.90	0.00	0.10	0.01	0.00	0.00	0.90	0.00
Pipe_-_(45)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
Pipe_-_(46)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.02	0.00	0.97	0.00	0.00
Pipe_-_(47)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(48)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(49)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(51)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(52)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(53)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(54)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(55)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(57)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(59)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(60)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(61)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(64)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(65)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(66)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(67)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(68)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(69)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(70)_(C-STRM)	1.00	0.00	0.88	0.00	0.10	0.01	0.00	0.00	0.89	0.00
Pipe_-_(71)_(C-STRM)	1.00	0.91	0.02	0.00	0.07	0.00	0.00	0.01	0.95	0.00
Pipe_-_(72)_(C-STRM)	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	0.04	0.00
Pipe_-_(73)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(74)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(75)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(76)_(C-STRM)	1.00	0.00	0.02	0.00	0.98	0.01	0.00	0.00	0.97	0.00
Pipe_-_(77)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(78)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(79)_(C-STRM)	1.00	0.00	0.92	0.00	0.00	0.00	0.08	0.00	0.00	0.00
Pipe_-_(81)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(82)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(88)_(C-STRM)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C1	0.01	0.08	0.01	0.09	0.01
C10	0.01	0.01	0.09	0.01	0.01
C11	0.09	0.09	0.14	0.01	0.01
C3	0.09	0.09	0.13	0.01	0.01
Pipe_-_(38)_(C-STRM)	0.12	0.14	0.13	0.08	0.11
Pipe_-_(39)_(C-STRM)	0.12	0.13	0.13	0.08	0.10
Pipe_-_(41)_(C-STRM)	0.11	0.14	0.11	0.10	0.11
Pipe_-_(42)_(C-STRM)	0.09	0.12	0.09	0.07	0.09
Pipe_-_(43)_(C-STRM)	0.06	0.09	0.06	0.01	0.06
Pipe_-_(44)_(C-STRM)	0.01	0.07	0.01	0.01	0.01
Pipe_-_(45)_(C-STRM)	0.09	0.14	0.09	0.01	0.09
Pipe_-_(46)_(C-STRM)	0.12	0.12	0.14	0.01	0.07
Pipe_-_(47)_(C-STRM)	0.09	0.09	0.11	0.01	0.01
Pipe_-_(48)_(C-STRM)	0.08	0.08	0.09	0.01	0.01
Pipe_-_(49)_(C-STRM)	0.07	0.09	0.08	0.03	0.03
Pipe_-_(51)_(C-STRM)	0.07	0.07	0.09	0.01	0.01
Pipe_-_(52)_(C-STRM)	0.03	0.03	0.06	0.01	0.01
Pipe_-_(53)_(C-STRM)	0.01	0.01	0.03	0.01	0.01
Pipe_-_(59)_(C-STRM)	0.06	0.06	0.08	0.01	0.01
Pipe_-_(60)_(C-STRM)	0.01	0.01	0.08	0.01	0.01
Pipe_-_(61)_(C-STRM)	0.01	0.01	0.06	0.01	0.01
Pipe_-_(64)_(C-STRM)	0.05	0.05	0.08	0.01	0.01
Pipe_-_(65)_(C-STRM)	0.01	0.01	0.05	0.01	0.01
Pipe_-_(66)_(C-STRM)	0.01	0.01	0.06	0.01	0.01
Pipe_-_(67)_(C-STRM)	0.06	0.06	0.09	0.01	0.01
Pipe_-_(68)_(C-STRM)	0.01	0.05	0.01	0.04	0.01
Pipe_-_(69)_(C-STRM)	0.01	0.01	0.05	0.01	0.01
Pipe_-_(70)_(C-STRM)	0.01	0.01	1.90	0.01	0.01
Pipe_-_(78)_(C-STRM)	0.01	0.12	0.01	0.12	0.01

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Link Pollutant Load Summary
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Link	TSS kg
C1	0.000
C10	0.000
C11	0.000
C3	0.000
C5	0.000
C6	0.000
C7	0.000
C8	0.000
Pipe_-_(38)_(C-STRM)	0.000
Pipe_-_(39)_(C-STRM)	0.000
Pipe_-_(41)_(C-STRM)	0.000
Pipe_-_(42)_(C-STRM)	0.000
Pipe_-_(43)_(C-STRM)	0.000
Pipe_-_(44)_(C-STRM)	0.000
Pipe_-_(45)_(C-STRM)	0.000
Pipe_-_(46)_(C-STRM)	0.000
Pipe_-_(47)_(C-STRM)	0.000
Pipe_-_(48)_(C-STRM)	0.000
Pipe_-_(49)_(C-STRM)	0.000
Pipe_-_(51)_(C-STRM)	0.000
Pipe_-_(52)_(C-STRM)	0.000
Pipe_-_(53)_(C-STRM)	0.000
Pipe_-_(54)_(C-STRM)	0.000

Pipe_-_(55)_(C-STRM)	0.000
Pipe_-_(57)_(C-STRM)	0.000
Pipe_-_(59)_(C-STRM)	0.000
Pipe_-_(60)_(C-STRM)	0.000
Pipe_-_(61)_(C-STRM)	0.000
Pipe_-_(64)_(C-STRM)	0.000
Pipe_-_(65)_(C-STRM)	0.000
Pipe_-_(66)_(C-STRM)	0.000
Pipe_-_(67)_(C-STRM)	0.000
Pipe_-_(68)_(C-STRM)	0.000
Pipe_-_(69)_(C-STRM)	0.000
Pipe_-_(70)_(C-STRM)	0.000
Pipe_-_(71)_(C-STRM)	0.000
Pipe_-_(72)_(C-STRM)	0.000
Pipe_-_(73)_(C-STRM)	0.000
Pipe_-_(74)_(C-STRM)	0.000
Pipe_-_(75)_(C-STRM)	0.000
Pipe_-_(76)_(C-STRM)	0.000
Pipe_-_(77)_(C-STRM)	0.000
Pipe_-_(78)_(C-STRM)	0.000
Pipe_-_(79)_(C-STRM)	0.000
Pipe_-_(81)_(C-STRM)	0.000
Pipe_-_(82)_(C-STRM)	0.000
Pipe_-_(88)_(C-STRM)	0.000
C2	0.000
C4	0.000
OR1	0.000
OR2	0.000
Pipe_-_(90)_(C-STRM)	0.000
OL10	0.000
OL11	0.000
OL12	0.000
OL13	0.000
OL17	0.000
OL18	0.000
OL2	0.000
OL20	0.000
OL23	0.000
OL24	0.000
OL25	0.000
OL26	0.000
OL27	0.000
OL28	0.000
OL29	0.000
OL31	0.000
OL35	0.000
OL36	0.000
OL37	0.000
OL38	0.000
Pipe_-_(80)_(C-STRM)	0.000

Analysis begun on: Wed May 28 14:20:29 2025
Analysis ended on: Wed May 28 14:20:32 2025
Total elapsed time: 00:00:03

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Proposed Drainage Areas for Danby
LID measures
Pipe Changes (250204)
LID Configurations and Drainage Area Checks (250205)
Drainage Areas (250206)
Changes to Address Comments (250521)
RC Changes (250522)
Pond Storage Curve Updates (250523)
Update LID Surface Area (250527)

RESULTS FOR 50-YEAR EVENT

****
Element Count
****
Number of rain gages 8
Number of subcatchments ... 103
Number of nodes 74
Number of links 73
Number of pollutants 1
Number of land uses 3

****
Pollutant Summary
****

Name	Units	Ppt. Concen.	GW Concen.	Kdecay 1/days	CoPollutant
TSS	MG/L	0.00	0.00	0.00	

****
Landuse Summary
****

Name	Sweeping Interval	Maximum Removal	Last Swept
Landscape	0.00	0.00	0.00
Paved	0.00	0.00	0.00
Roof	0.00	0.00	0.00

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
25mm	25	INTENSITY	10 min.
5mm	5mm	INTENSITY	10 min.
Chicago_3h_100Year_Guelph	Chicago_3h_100Year_Guelph	INTENSITY	5 min.
Chicago_3h_10Year_Guelph	Chicago_3h_10Year_Guelph	INTENSITY	5 min.
Chicago_3h_25Year_Guelph	Chicago_3h_25Year_Guelph	INTENSITY	5 min.
Chicago_3h_2Year_Guelph	Chicago_3h_2Year_Guelph	INTENSITY	5 min.
Chicago_3h_50Year_Guelph	Chicago_3h_50Year_Guelph	INTENSITY	5 min.
Chicago_3h_5Year_Guelph	Chicago_3h_5Year_Guelph	INTENSITY	5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
201	1.49	83.66	0.00	1.0000	Chicago_3h_50Year_Guelph	CBMH15
202	1.32	93.14	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#3
203	0.12	14.28	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#3
204	0.25	90.52	0.00	1.0000	Chicago_3h_50Year_Guelph	CBMH14
205a	0.06	11.41	100.00	1.0000	Chicago_3h_50Year_Guelph	CBMH13
205b	0.10	19.02	100.00	1.0000	Chicago_3h_50Year_Guelph	CBMH13
205c	0.11	20.92	100.00	1.0000	Chicago_3h_50Year_Guelph	CBMH13
205d	0.22	41.84	100.00	1.0000	Chicago_3h_50Year_Guelph	CBMH13
206a	0.37	38.15	79.00	1.0000	Chicago_3h_50Year_Guelph	MH44
206b	0.09	9.28	0.00	1.0000	Chicago_3h_50Year_Guelph	OF1
207	0.71	77.73	100.00	1.0000	Chicago_3h_50Year_Guelph	MH42
208a	0.05	29.26	100.00	1.0000	Chicago_3h_50Year_Guelph	MH42
208b	0.09	52.66	100.00	1.0000	Chicago_3h_50Year_Guelph	CB126-127
208c	0.09	52.66	100.00	1.0000	Chicago_3h_50Year_Guelph	MH9
208d	0.05	29.26	100.00	1.0000	Chicago_3h_50Year_Guelph	MH8
209a	0.04	9.96	64.00	1.0000	Chicago_3h_50Year_Guelph	MH12
209b	0.13	24.72	64.00	1.0000	Chicago_3h_50Year_Guelph	MH42
209c	0.17	26.20	64.00	1.0000	Chicago_3h_50Year_Guelph	MH16
209d	0.10	39.25	64.00	1.0000	Chicago_3h_50Year_Guelph	MH17
210a	0.19	47.31	100.00	1.0000	Chicago_3h_50Year_Guelph	MH12
210b	0.18	34.22	100.00	1.0000	Chicago_3h_50Year_Guelph	MH42
211	0.31	47.78	100.00	1.0000	Chicago_3h_50Year_Guelph	MH16
212	0.24	94.19	100.00	1.0000	Chicago_3h_50Year_Guelph	MH17
213	0.43	120.19	0.00	1.0000	Chicago_3h_50Year_Guelph	MH35
214	0.27	91.94	100.00	1.0000	Chicago_3h_50Year_Guelph	MH38
215	0.10	60.66	100.00	1.0000	Chicago_3h_50Year_Guelph	MH36
216a	0.06	25.10	100.00	1.0000	Chicago_3h_50Year_Guelph	MH7
216b	0.02	8.37	100.00	1.0000	Chicago_3h_50Year_Guelph	MH7
216c	0.06	25.10	100.00	1.0000	Chicago_3h_50Year_Guelph	MH7
216d	0.05	20.92	100.00	1.0000	Chicago_3h_50Year_Guelph	MH7
216e	0.06	19.84	100.00	1.0000	Chicago_3h_50Year_Guelph	MH6
216f	0.04	13.23	100.00	1.0000	Chicago_3h_50Year_Guelph	MH6
216g	0.05	16.53	100.00	1.0000	Chicago_3h_50Year_Guelph	MH6
217	0.64	66.83	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#2
218	0.58	63.72	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#2
219a	0.15	34.73	79.00	1.0000	Chicago_3h_50Year_Guelph	MH44
219b	0.07	16.21	0.00	1.0000	Chicago_3h_50Year_Guelph	OF1
220a	0.17	38.83	79.00	1.0000	Chicago_3h_50Year_Guelph	CB145
220b	0.06	13.70	0.00	1.0000	Chicago_3h_50Year_Guelph	OF1
221	0.23	53.63	76.00	1.0000	Chicago_3h_50Year_Guelph	CB143
222	0.21	48.75	76.00	1.0000	Chicago_3h_50Year_Guelph	CB141
223	0.23	56.45	76.00	1.0000	Chicago_3h_50Year_Guelph	MH19
224	0.15	34.55	76.00	1.0000	Chicago_3h_50Year_Guelph	MH19
226	0.75	77.19	100.00	1.0000	Chicago_3h_50Year_Guelph	MH7
227	0.23	41.91	100.00	1.0000	Chicago_3h_50Year_Guelph	CB138
228	0.16	28.70	100.00	1.0000	Chicago_3h_50Year_Guelph	CB137
229a	0.08	26.45	100.00	1.0000	Chicago_3h_50Year_Guelph	MH6
229b	0.05	16.53	100.00	1.0000	Chicago_3h_50Year_Guelph	MH6
230a	0.06	21.25	100.00	1.0000	Chicago_3h_50Year_Guelph	CB113-114
230b	0.06	21.25	100.00	1.0000	Chicago_3h_50Year_Guelph	CB113-114
231a	0.05	19.68	100.00	1.0000	Chicago_3h_50Year_Guelph	CB111-112
231b	0.04	15.74	100.00	1.0000	Chicago_3h_50Year_Guelph	CB111-112
232a	0.06	24.02	100.00	1.0000	Chicago_3h_50Year_Guelph	CB108-109
232b	0.06	24.02	100.00	1.0000	Chicago_3h_50Year_Guelph	CB108-109
233a	0.07	27.13	100.00	1.0000	Chicago_3h_50Year_Guelph	CB106-107
233b	0.06	23.25	100.00	1.0000	Chicago_3h_50Year_Guelph	CB106-107
234a	0.05	16.63	100.00	1.0000	Chicago_3h_50Year_Guelph	CB104-105
234b	0.05	16.63	100.00	1.0000	Chicago_3h_50Year_Guelph	CB104-105
235	0.89	98.21	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#1B
236	0.47	49.29	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#1A
237	0.43	44.70	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#1A
238	0.41	42.54	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#1A
239	0.39	40.36	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#1A
240a	0.12	27.91	100.00	1.0000	Chicago_3h_50Year_Guelph	CB181
240b	0.06	13.95	0.00	1.0000	Chicago_3h_50Year_Guelph	240a
241a	0.13	30.16	100.00	1.0000	Chicago_3h_50Year_Guelph	CB149
241b	0.06	13.92	0.00	1.0000	Chicago_3h_50Year_Guelph	241a
242a	0.13	30.69	100.00	1.0000	Chicago_3h_50Year_Guelph	CB150
242b	0.06	14.16	0.00	1.0000	Chicago_3h_50Year_Guelph	242a
243a	0.10	23.41	100.00	1.0000	Chicago_3h_50Year_Guelph	CB182
243b	0.08	18.73	21.00	1.0000	Chicago_3h_50Year_Guelph	243a
244a	0.31	32.35	100.00	1.0000	Chicago_3h_50Year_Guelph	MH27
244b	0.14	14.61	0.00	1.0000	Chicago_3h_50Year_Guelph	MH27
245	0.39	44.70	0.00	1.0000	Chicago_3h_50Year_Guelph	CBMH45
246	0.76	265.59	100.00	1.0000	Chicago_3h_50Year_Guelph	MH26
247	0.19	14.81	0.00	1.0000	Chicago_3h_50Year_Guelph	MH26
248a	0.12	26.03	100.00	1.0000	Chicago_3h_50Year_Guelph	MH3
248b	0.05	10.85	100.00	1.0000	Chicago_3h_50Year_Guelph	MH3
248c	0.23	49.89	100.00	1.0000	Chicago_3h_50Year_Guelph	MH3
248d	0.05	10.85	100.00	1.0000	Chicago_3h_50Year_Guelph	CB100-101
249	1.09	143.48	43.00	1.0000	Chicago_3h_50Year_Guelph	SWM_Pond
250a	0.21	29.79	0.00	1.0000	Chicago_3h_50Year_Guelph	LID#6
250b	0.06	11.60	100.00	1.0000	Chicago_3h_50Year_Guelph	MH29
250c	0.04	7.73	64.00	1.0000	Chicago_3h_50Year_Guelph	MH31
250d	0.03	5.80	100.00	1.0000	Chicago_3h_50Year_Guelph	MH30
250e	0.10	19.33	100.00	1.0000	Chicago_3h_50Year_Guelph	MH39
250f	0.08	15.47	100.00	1.0000	Chicago_3h_50Year_Guelph	MH31
251	0.09	39.92	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#6
252A	0.08	11.35	0.00	1.0000	Chicago_3h_50Year_Guelph	LID#6
252b	0.05	7.09	100.00	1.0000	Chicago_3h_50Year_Guelph	MH32
252c	0.03	5.80	100.00	1.0000	Chicago_3h_50Year_Guelph	MH32
252d	0.02	3.87	100.00	1.0000	Chicago_3h_50Year_Guelph	MH31
253	0.05	29.33	100.00	1.0000	Chicago_3h_50Year_Guelph	CB165-166
254	1.90	143.88	0.00	1.0000	Chicago_3h_50Year_Guelph	Wetland
255	0.12	40.81	100.00	1.0000	Chicago_3h_50Year_Guelph	LID#5
256	0.31	29.83	63.00	1.0000	Chicago_3h_50Year_Guelph	LID#5
257	0.81	54.78	0.00	1.0000	Chicago_3h_50Year_Guelph	MH34
258	0.08	49.72	100.00	1.0000	Chicago_3h_50Year_Guelph	CB171-172
259	0.03	19.19	100.00	1.0000	Chicago_3h_50Year_Guelph	CB169-170

260	0.04	26.44	100.00	1.0000	Chicago_3h_50Year_Guelph CB167-168
261	0.79	70.29	100.00	1.0000	Chicago_3h_50Year_Guelph LID#2
262	0.80	74.17	100.00	1.0000	Chicago_3h_50Year_Guelph LID#2
263	1.15	136.28	0.00	1.0000	Chicago_3h_50Year_Guelph CB179

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH39	OUTFALL	332.85	0.30	0.0	
OF1	OUTFALL	333.00	0.00	0.0	
CB100-101	STORAGE	337.27	1.00	0.0	
CB104-105	STORAGE	337.77	1.00	0.0	
CB106-107	STORAGE	337.94	1.00	0.0	
CB108-109	STORAGE	338.11	1.00	0.0	
CB111-112	STORAGE	338.25	1.00	0.0	
CB113-114	STORAGE	338.73	1.00	0.0	
CB126-127	STORAGE	340.58	1.00	0.0	
CB137	STORAGE	338.64	1.00	0.0	
CB138	STORAGE	338.78	1.00	0.0	
CB141	STORAGE	341.74	1.00	0.0	
CB143	STORAGE	341.99	1.00	0.0	
CB145	STORAGE	342.24	1.00	0.0	
CB149	STORAGE	340.74	1.00	0.0	
CB150	STORAGE	340.50	1.00	0.0	
CB165-166	STORAGE	336.37	1.00	0.0	
CB167-168	STORAGE	336.58	1.00	0.0	
CB169-170	STORAGE	336.81	1.00	0.0	
CB171-172	STORAGE	337.09	1.00	0.0	
CB179	STORAGE	335.38	1.00	0.0	
CB181	STORAGE	340.99	1.00	0.0	
CB182	STORAGE	340.25	1.00	0.0	
CBMH13	STORAGE	336.45	6.14	0.0	
CBMH14	STORAGE	336.95	6.90	0.0	
CBMH15	STORAGE	338.02	6.23	0.0	
CBMH28	STORAGE	333.60	3.13	0.0	
CBMH45	STORAGE	334.19	3.73	0.0	
LID#1A	STORAGE	336.50	2.41	0.0	
LID#1B	STORAGE	335.00	2.83	0.0	
LID#2	STORAGE	337.00	5.60	0.0	
LID#3	STORAGE	338.20	4.00	0.0	
LID#5	STORAGE	335.00	1.30	0.0	
LID#6	STORAGE	334.30	1.30	0.0	
MH1	STORAGE	331.99	5.51	0.0	
MH10	STORAGE	335.83	5.78	0.0	
MH11	STORAGE	336.06	6.38	0.0	
MH12	STORAGE	336.14	6.20	0.0	
MH16	STORAGE	336.21	6.35	0.0	
MH17	STORAGE	336.12	6.31	0.0	
MH18	STORAGE	334.68	4.38	0.0	
MH19	STORAGE	334.96	6.26	0.0	
MH2	STORAGE	332.11	5.24	0.0	
MH20	STORAGE	335.61	6.27	0.0	
MH21	STORAGE	336.19	6.12	0.0	
MH22	STORAGE	334.88	5.94	0.0	
MH23	STORAGE	334.31	5.99	0.0	
MH24	STORAGE	332.94	5.21	0.0	
MH25	STORAGE	333.06	4.38	0.0	
MH26	STORAGE	333.49	6.81	0.0	
MH27	STORAGE	333.79	6.12	0.0	
MH29	STORAGE	331.97	1.88	0.0	
MH3	STORAGE	332.36	5.24	0.0	
MH30	STORAGE	332.15	2.85	0.0	
MH31	STORAGE	332.49	3.27	0.0	
MH32	STORAGE	333.06	3.47	0.0	
MH33	STORAGE	333.59	3.33	0.0	
MH34	STORAGE	334.17	3.29	0.0	
MH35	STORAGE	334.30	3.44	0.0	
MH36	STORAGE	334.82	3.94	0.0	
MH37	STORAGE	334.36	3.67	0.0	
MH38	STORAGE	335.27	3.88	0.0	
MH4	STORAGE	332.89	5.11	0.0	
MH41	STORAGE	332.64	1.52	0.0	
MH42	STORAGE	335.60	5.58	0.0	
MH43	STORAGE	335.57	5.53	0.0	
MH44	STORAGE	337.06	5.46	0.0	
MH5	STORAGE	333.42	5.00	0.0	
MH6	STORAGE	333.84	4.75	0.0	
MH7	STORAGE	334.56	4.98	0.0	
MH8	STORAGE	334.84	4.80	0.0	
MH9	STORAGE	335.21	5.33	0.0	
SWM_Pond	STORAGE	331.67	1.45	0.0	
Wetland	STORAGE	331.55	1.51	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	MH44	MH21	CONDUIT	72.4	1.0004	0.0130
C10	CBMH45	CBMH28	CONDUIT	55.9	1.0007	0.0130
C11	CBMH28	MH25	CONDUIT	31.1	0.4990	0.0130
C3	MH23	MH27	CONDUIT	100.0	0.5000	0.0130
C5	LID#6	Wetland	CONDUIT	17.3	5.3835	0.1000
C6	LID#5	Wetland	CONDUIT	59.4	1.6837	0.1000
C7	Wetland	MH41	CONDUIT	64.7	1.2212	0.0100
C8	SWM_Pond	MH41	CONDUIT	15.0	1.4668	0.0200
Pipe_-_(38)_(C-STRM)	MH27	MH26	CONDUIT	28.1	0.5010	0.0130
Pipe_-_(39)_(C-STRM)	MH26	MH25	CONDUIT	79.8	0.4999	0.0130
Pipe_-_(41)_(C-STRM)	MH25	MH24	CONDUIT	18.2	0.4994	0.0130
Pipe_-_(42)_(C-STRM)	MH24	MH2	CONDUIT	31.6	0.5001	0.0130
Pipe_-_(43)_(C-STRM)	MH2	MH1	CONDUIT	17.8	0.4996	0.0130
Pipe_-_(44)_(C-STRM)	MH1	SWM_Pond	CONDUIT	32.2	0.9997	0.0130
Pipe_-_(45)_(C-STRM)	MH3	MH2	CONDUIT	20.6	0.4992	0.0130
Pipe_-_(46)_(C-STRM)	MH4	MH3	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(47)_(C-STRM)	MH5	MH4	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(48)_(C-STRM)	MH6	MH5	CONDUIT	76.7	0.4997	0.0130
Pipe_-_(49)_(C-STRM)	MH7	MH6	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(51)_(C-STRM)	MH8	MH7	CONDUIT	50.6	0.4996	0.0130
Pipe_-_(52)_(C-STRM)	MH42	MH9	CONDUIT	62.3	0.5007	0.0130
Pipe_-_(53)_(C-STRM)	MH10	MH42	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(54)_(C-STRM)	MH11	MH10	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(55)_(C-STRM)	MH12	MH11	CONDUIT	10.3	0.5039	0.0130
Pipe_-_(57)_(C-STRM)	CBMH13	MH12	CONDUIT	50.5	0.4992	0.0130
Pipe_-_(59)_(C-STRM)	MH9	MH8	CONDUIT	62.4	0.4998	0.0130
Pipe_-_(60)_(C-STRM)	MH17	MH8	CONDUIT	85.4	0.9999	0.0130
Pipe_-_(61)_(C-STRM)	MH16	MH9	CONDUIT	54.2	1.0007	0.0130
Pipe_-_(64)_(C-STRM)	MH18	MH6	CONDUIT	77.5	0.5006	0.0130
Pipe_-_(65)_(C-STRM)	MH19	MH18	CONDUIT	51.8	0.5001	0.0130
Pipe_-_(66)_(C-STRM)	MH43	MH22	CONDUIT	60.7	0.9999	0.0130
Pipe_-_(67)_(C-STRM)	MH22	MH23	CONDUIT	100.0	0.5002	0.0130
Pipe_-_(68)_(C-STRM)	MH20	MH19	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(69)_(C-STRM)	MH21	MH20	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(70)_(C-STRM)	MH29	SWM_Pond	CONDUIT	30.4	1.0014	0.0130
Pipe_-_(71)_(C-STRM)	MH30	MH29	CONDUIT	28.7	0.5016	0.0130
Pipe_-_(72)_(C-STRM)	MH31	MH30	CONDUIT	62.2	0.4999	0.0130
Pipe_-_(73)_(C-STRM)	MH32	MH31	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(74)_(C-STRM)	MH33	MH32	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(75)_(C-STRM)	MH34	MH33	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(76)_(C-STRM)	MH35	MH34	CONDUIT	26.8	0.4999	0.0130
Pipe_-_(77)_(C-STRM)	MH36	MH35	CONDUIT	28.8	0.9995	0.0130
Pipe_-_(78)_(C-STRM)	MH38	MH37	CONDUIT	62.6	0.9996	0.0130
Pipe_-_(79)_(C-STRM)	MH37	MH35	CONDUIT	11.3	-0.5030	0.0130
Pipe_-_(81)_(C-STRM)	CBMH14	CBMH13	CONDUIT	54.7	0.5008	0.0130
Pipe_-_(82)_(C-STRM)	CBMH15	CBMH14	CONDUIT	100.0	1.0001	0.0130
Pipe_-_(88)_(C-STRM)	MH41	MH39	CONDUIT	146.1	0.0068	0.0130
C2	LID#2	MH8	ORIFICE			
C4	LID#1B	MH3	ORIFICE			
OR1	LID#3	CBMH13	ORIFICE			
OR2	LID#1A	MH6	ORIFICE			
Pipe_-_(90)_(C-STRM)	SWM_Pond	Wetland	ORIFICE			
OL10	CB145	MH21	OUTLET			
OL11	CB181	MH43	OUTLET			
OL12	CB143	MH20	OUTLET			
OL13	CB141	MH20	OUTLET			
OL17	CB182	MH23	OUTLET			
OL18	CB150	MH22	OUTLET			
OL2	CB126-127	MH9	OUTLET			
OL20	CB149	MH22	OUTLET			
OL23	CB138	MH18	OUTLET			
OL24	CB137	MH6	OUTLET			
OL25	CB113-114	MH5	OUTLET			
OL26	CB111-112	MH5	OUTLET			
OL27	CB108-109	MH4	OUTLET			
OL28	CB106-107	MH4	OUTLET			
OL29	CB104-105	MH3	OUTLET			
OL31	CB100-101	MH2	OUTLET			
OL35	CB171-172	MH33	OUTLET			
OL36	CB169-170	MH33	OUTLET			
OL37	CB167-168	MH32	OUTLET			
OL38	CB165-166	MH32	OUTLET			
Pipe_-_(80)_(C-STRM)	CB179	MH31	OUTLET			

****
Cross Section Summary

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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
C10	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C11	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C5	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.20
C6	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.47
C7	TRAPEZOIDAL	0.50	3.50	0.38	9.00	1	20.42
C8	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	2.33
Pipe_-_(38)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(39)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(41)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(42)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(43)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	3.77
Pipe_-_(44)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	5.34
Pipe_-_(45)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(46)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(47)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(48)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(49)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(51)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(52)_(C-STRM)	CIRCULAR	0.82	0.53	0.21	0.82	1	1.02
Pipe_-_(53)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(54)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(55)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(57)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(59)_(C-STRM)	CIRCULAR	0.90	0.64	0.23	0.90	1	1.28
Pipe_-_(60)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.43
Pipe_-_(61)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
Pipe_-_(64)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(65)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(66)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(67)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(68)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(69)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(70)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.84
Pipe_-_(71)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(72)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(73)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(74)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(75)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(76)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(77)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(78)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(79)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
Pipe_-_(81)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(82)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(88)_(C-STRM)	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	0.25

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... YES
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... YES
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/27/2025 00:00:00
Ending Date 01/31/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 14
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	1.632	64.095
Evaporation Loss	0.029	1.126
Infiltration Loss	0.525	20.603
Surface Runoff	1.103	43.310
Final Storage	0.000	0.000
Continuity Error (%)	-1.474	

Runoff Quality Continuity	TSS kg
Initial Buildup	0.000
Surface Buildup	0.000
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	0.000
Remaining Buildup	0.000
Continuity Error (%)	0.000

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.103	11.027
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.008	0.076
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	1.093	10.931
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.009
Continuity Error (%)	0.099	

Quality Routing Continuity	TSS kg
Dry Weather Inflow	0.000
Wet Weather Inflow	0.000
Groundwater Inflow	0.000
RDII Inflow	0.000
External Inflow	0.000
External Outflow	0.000
Flooding Loss	0.000
Exfiltration Loss	0.000
Mass Reacted	0.000
Initial Stored Mass	0.000
Final Stored Mass	0.000
Continuity Error (%)	0.000

****
Highest Continuity Errors
****
Node MH22 (1.60%)
Node MH23 (-1.28%)
Node CBMH14 (-1.17%)

****
Time-Step Critical Elements
****
Link Pipe_-_(55)_(C-STRM) (3.23%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec

```
  Average Time Step           :     4.94 sec
  Maximum Time Step           :     5.00 sec
  % of Time in Steady State   :     0.00
  Average Iterations per Step :     2.00
  % of Steps Not Converging   :     0.02
  Time Step Frequencies       :
      5.000 -  3.155 sec      :    98.79 %
      3.155 -  1.991 sec      :     0.93 %
      1.991 -  1.256 sec      :     0.17 %
      1.256 -  0.792 sec      :     0.05 %
      0.792 -  0.500 sec      :     0.05 %


  ***************************
  Subcatchment Runoff Summary
  ***************************

  ------------------------------------------------------------------------------------------------
---------------------------
                             Total      Total      Total      Total     Imperv       Perv      Total
Total     Peak  Runoff
                           Precip      Runon       Evap      Infil     Runoff     Runoff     Runoff
Runoff   Runoff   Coeff
  Subcatchment                mm         mm         mm         mm         mm         mm         mm
10^6 ltr      CMS
  ------------------------------------------------------------------------------------------------
---------------------------
  201                      64.09       0.00       0.07      61.65       0.00       2.60       2.60
0.04     0.04   0.041
  202                      64.09       0.00       1.83       0.00      63.22       0.00      63.22
0.83     0.64   0.986
  203                      64.09       0.00       1.72       0.00      63.59       0.00      63.59
0.08     0.07   0.992
  204                      64.09       0.00       0.05      56.78       0.00       8.51       8.51
0.02     0.04   0.133
  205a                     64.09       0.00       1.64       0.00      63.75       0.00      63.75
0.04     0.04   0.995
  205b                     64.09       0.00       1.64       0.00      63.75       0.00      63.75
0.06     0.07   0.995
  205c                     64.09       0.00       1.64       0.00      63.75       0.00      63.75
0.07     0.07   0.995
  205d                     64.09       0.00       1.64       0.00      63.75       0.00      63.75
0.14     0.15   0.995
  206a                     64.09       0.00       1.35      11.75      50.27       2.06      52.33
0.19     0.19   0.816
  206b                     64.09       0.00       0.07      60.32       0.00       4.10       4.10
0.00     0.00   0.064
  207                      64.09       0.00       1.73       0.00      63.54       0.00      63.54
0.45     0.41   0.991
  208a                     64.09       0.00       1.53       0.00      63.29       0.00      63.29
0.03     0.04   0.988
  208b                     64.09       0.00       1.53       0.00      63.29       0.00      63.29
0.06     0.07   0.988
  208c                     64.09       0.00       1.53       0.00      63.29       0.00      63.29
0.06     0.07   0.988
  208d                     64.09       0.00       1.53       0.00      63.29       0.00      63.29
0.03     0.04   0.988
  209a                     64.09       0.00       1.02      19.80      40.68       4.05      44.73
0.02     0.02   0.698
  209b                     64.09       0.00       1.04      20.07      40.77       3.63      44.40
0.06     0.07   0.693
  209c                     64.09       0.00       1.05      20.30      40.80       3.31      44.11
0.07     0.09   0.688
  209d                     64.09       0.00       0.99      19.47      40.49       4.78      45.27
0.05     0.06   0.706
  210a                     64.09       0.00       1.61       0.00      63.74       0.00      63.74
0.12     0.14   0.995
  210b                     64.09       0.00       1.64       0.00      63.75       0.00      63.75
0.11     0.12   0.995
  211                      64.09       0.00       1.67       0.00      63.70       0.00      63.70
0.20     0.20   0.994
  212                      64.09       0.00       1.56       0.00      63.56       0.00      63.56
0.15     0.18   0.992
  213                      64.09       0.00       0.06      57.54       0.00       7.48       7.48
0.03     0.05   0.117
  214                      64.09       0.00       1.58       0.00      63.64       0.00      63.64
0.17     0.20   0.993
  215                      64.09       0.00       1.53       0.00      63.27       0.00      63.27
0.06     0.08   0.987
  216a                     64.09       0.00       1.56       0.00      63.52       0.00      63.52
0.04     0.05   0.991
  216b                     64.09       0.00       1.56       0.00      63.52       0.00      63.52
0.01     0.02   0.991
  216c                     64.09       0.00       1.56       0.00      63.52       0.00      63.52
0.04     0.05   0.991
  216d                     64.09       0.00       1.56       0.00      63.52       0.00      63.52
0.03     0.04   0.991
  216e                     64.09       0.00       1.58       0.00      63.65       0.00      63.65
0.04     0.04   0.993
  216f                     64.09       0.00       1.58       0.00      63.65       0.00      63.65
0.03     0.03   0.993
  216g                     64.09       0.00       1.58       0.00      63.65       0.00      63.65
0.03     0.04   0.993
  217                      64.09       0.00       1.74       0.00      63.51       0.00      63.51
0.41     0.36   0.991
  218                      64.09       0.00       1.73       0.00      63.54       0.00      63.54
0.37     0.34   0.991
  219a                     64.09       0.00       1.27      11.35      50.32       2.80      53.13
0.08     0.10   0.829
  219b                     64.09       0.00       0.06      58.11       0.00       6.77       6.77
0.00     0.01   0.106
  220a                     64.09       0.00       1.27      11.36      50.33       2.79      53.12
0.09     0.11   0.829
  220b                     64.09       0.00       0.06      58.15       0.00       6.72       6.72
0.00     0.01   0.105
  221                      64.09       0.00       1.22      13.05      48.40       3.06      51.46
0.12     0.15   0.803
  222                      64.09       0.00       1.22      13.05      48.40       3.06      51.46
0.11     0.13   0.803
  223                      64.09       0.00       1.21      13.02      48.38       3.12      51.50
0.12     0.15   0.804
  224                      64.09       0.00       1.22      13.01      48.40       3.05      51.45
0.08     0.09   0.803
  226                      64.09       0.00       1.75       0.00      63.50       0.00      63.50
0.48     0.42   0.991
  227                      64.09       0.00       1.65       0.00      63.75       0.00      63.75
0.15     0.15   0.995
  228                      64.09       0.00       1.65       0.00      63.74       0.00      63.74
0.10     0.11   0.995
  229a                     64.09       0.00       1.58       0.00      63.65       0.00      63.65
0.05     0.06   0.993
  229b                     64.09       0.00       1.58       0.00      63.65       0.00      63.65
0.03     0.04   0.993
  230a                     64.09       0.00       1.57       0.00      63.62       0.00      63.62
0.04     0.04   0.993
  230b                     64.09       0.00       1.57       0.00      63.62       0.00      63.62
0.04     0.04   0.993
  231a                     64.09       0.00       1.56       0.00      63.56       0.00      63.56
0.03     0.04   0.992
  231b                     64.09       0.00       1.56       0.00      63.56       0.00      63.56
0.03     0.03   0.992
  232a                     64.09       0.00       1.56       0.00      63.55       0.00      63.55
0.04     0.05   0.991
  232b                     64.09       0.00       1.56       0.00      63.55       0.00      63.55
0.04     0.05   0.991
  233a                     64.09       0.00       1.56       0.00      63.57       0.00      63.57
0.04     0.05   0.992
  233b                     64.09       0.00       1.56       0.00      63.57       0.00      63.57
0.04     0.05   0.992
  234a                     64.09       0.00       1.58       0.00      63.65       0.00      63.65
0.03     0.04   0.993
  234b                     64.09       0.00       1.58       0.00      63.65       0.00      63.65
0.03     0.04   0.993
  235                      64.09       0.00       1.73       0.00      63.54       0.00      63.54
0.57     0.52   0.991
  236                      64.09       0.00       1.74       0.00      63.51       0.00      63.51
0.30     0.27   0.991
  237                      64.09       0.00       1.74       0.00      63.51       0.00      63.51
0.27     0.24   0.991
  238                      64.09       0.00       1.74       0.00      63.50       0.00      63.50
0.26     0.23   0.991
  239                      64.09       0.00       1.74       0.00      63.50       0.00      63.50
0.25     0.22   0.991
  240a                     64.09       3.39       1.62       0.00      67.09       0.00      67.09
0.08     0.08   0.994
  240b                     64.09       0.00       0.06      58.09       0.00       6.79       6.79
0.00     0.01   0.106
  241a                     64.09       3.13       1.62       0.00      66.83       0.00      66.83
0.09     0.09   0.994
  241b                     64.09       0.00       0.06      58.10       0.00       6.78       6.78
0.00     0.01   0.106
  242a                     64.09       3.16       1.62       0.00      66.85       0.00      66.85
0.09     0.09   0.994
  242b                     64.09       0.00       0.06      58.05       0.00       6.84       6.84
0.00     0.01   0.107
  243a                     64.09       9.42       1.62       0.00      73.06       0.00      73.06
0.07     0.07   0.994
  243b                     64.09       0.00       0.37      52.97      13.21      11.78      11.78
0.01     0.01   0.184
```

244a			64.09	0.00	1.74	0.00	63.51	0.00	63.51
0.20	0.18	0.991							
244b			64.09	0.00	0.07	60.29	0.00	4.13	4.13
0.01	0.01	0.064							
245			64.09	0.00	0.07	60.05	0.00	4.40	4.40
0.02	0.02	0.069							
246			64.09	0.00	1.57	0.00	63.62	0.00	63.62
0.48	0.57	0.993							
247			64.09	0.00	0.07	60.98	0.00	3.35	3.35
0.01	0.01	0.052							
248a			64.09	0.00	1.63	0.00	63.76	0.00	63.76
0.08	0.08	0.995							
248b			64.09	0.00	1.63	0.00	63.76	0.00	63.76
0.03	0.03	0.995							
248c			64.09	0.00	1.63	0.00	63.76	0.00	63.76
0.15	0.16	0.995							
248d			64.09	0.00	1.63	0.00	63.76	0.00	63.76
0.03	0.03	0.995							
249			64.09	0.00	0.72	33.13	27.38	3.85	31.24
0.34	0.41	0.487							
250a			64.09	0.00	0.06	59.49	0.00	5.06	5.06
0.01	0.01	0.079							
250b			64.09	0.00	1.64	0.00	63.75	0.00	63.75
0.04	0.04	0.995							
250c			64.09	0.00	1.03	20.05	40.76	3.66	44.42
0.02	0.02	0.693							
250d			64.09	0.00	1.64	0.00	63.75	0.00	63.75
0.02	0.02	0.995							
250e			64.09	0.00	1.64	0.00	63.75	0.00	63.75
0.06	0.07	0.995							
250f			64.09	0.00	1.64	0.00	63.75	0.00	63.75
0.05	0.05	0.995							
251			64.09	0.00	1.55	0.00	63.48	0.00	63.48
0.06	0.07	0.990							
252A			64.09	0.00	0.06	59.49	0.00	5.06	5.06
0.00	0.01	0.079							
252b			64.09	0.00	1.69	0.00	63.67	0.00	63.67
0.03	0.03	0.993							
252c			64.09	0.00	1.64	0.00	63.75	0.00	63.75
0.02	0.02	0.995							
252d			64.09	0.00	1.64	0.00	63.75	0.00	63.75
0.01	0.01	0.995							
253			64.09	0.00	1.53	0.00	63.29	0.00	63.29
0.03	0.04	0.987							
254			64.09	0.00	0.07	61.04	0.00	3.28	3.28
0.06	0.07	0.051							
255			64.09	0.00	1.58	0.00	63.64	0.00	63.64
0.08	0.09	0.993							
256			64.09	0.00	1.08	21.37	40.13	2.67	42.80
0.13	0.14	0.668							
257			64.09	0.00	0.07	61.29	0.00	3.01	3.01
0.02	0.03	0.047							
258			64.09	0.00	1.53	0.00	63.25	0.00	63.25
0.05	0.06	0.987							
259			64.09	0.00	1.53	0.00	63.23	0.00	63.23
0.02	0.02	0.987							
260			64.09	0.00	1.52	0.00	63.21	0.00	63.21
0.03	0.03	0.986							
261			64.09	0.00	1.78	0.00	63.40	0.00	63.40
0.50	0.42	0.989							
262			64.09	0.00	1.77	0.00	63.43	0.00	63.43
0.51	0.43	0.990							
263			64.09	0.00	0.07	59.96	0.00	4.50	4.50
0.05	0.06	0.070							

****
Subcatchment Washoff Summary
****

Subcatchment	TSS kg
201	0.000
202	0.000
203	0.000
204	0.000
205a	0.000
205b	0.000
205c	0.000
205d	0.000
206a	0.000
206b	0.000
207	0.000
208a	0.000
208b	0.000
208c	0.000
208d	0.000
209a	0.000
209b	0.000
209c	0.000
209d	0.000
210a	0.000
210b	0.000
211	0.000
212	0.000
213	0.000
214	0.000
215	0.000
216a	0.000
216b	0.000
216c	0.000
216d	0.000
216e	0.000
216f	0.000
216g	0.000
217	0.000
218	0.000
219a	0.000
219b	0.000
220a	0.000
220b	0.000
221	0.000
222	0.000
223	0.000
224	0.000
226	0.000
227	0.000
228	0.000
229a	0.000
229b	0.000
230a	0.000
230b	0.000
231a	0.000
231b	0.000
232a	0.000
232b	0.000
233a	0.000
233b	0.000
234a	0.000
234b	0.000
235	0.000
236	0.000
237	0.000
238	0.000
239	0.000
240a	0.000
240b	0.000
241a	0.000
241b	0.000
242a	0.000
242b	0.000
243a	0.000
243b	0.000
244a	0.000
244b	0.000
245	0.000
246	0.000
247	0.000
248a	0.000
248b	0.000
248c	0.000
248d	0.000
249	0.000
250a	0.000
250b	0.000
250c	0.000
250d	0.000
250e	0.000
250f	0.000
251	0.000
252A	0.000
252b	0.000
252c	0.000
252d	0.000
253	0.000
254	0.000
255	0.000
256	0.000

257	0.000
258	0.000
259	0.000
260	0.000
261	0.000
262	0.000
263	0.000
System	0.000

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
MH39	OUTFALL	0.00	0.00	332.85	0 00:00	0.00
OF1	OUTFALL	0.00	0.00	333.00	0 00:00	0.00
CB100-101	STORAGE	0.00	0.06	337.34	0 01:05	0.06
CB104-105	STORAGE	0.00	0.09	337.86	0 01:05	0.09
CB106-107	STORAGE	0.00	0.10	338.04	0 01:05	0.10
CB108-109	STORAGE	0.00	0.10	338.21	0 01:05	0.10
CB111-112	STORAGE	0.00	0.09	338.34	0 01:05	0.09
CB113-114	STORAGE	0.00	0.10	338.83	0 01:05	0.10
CB126-127	STORAGE	0.00	0.09	340.67	0 01:05	0.09
CB137	STORAGE	0.00	0.14	338.78	0 01:05	0.14
CB138	STORAGE	0.00	0.20	338.97	0 01:05	0.19
CB141	STORAGE	0.00	0.17	341.90	0 01:05	0.16
CB143	STORAGE	0.00	0.18	342.18	0 01:05	0.18
CB145	STORAGE	0.00	0.14	342.38	0 01:05	0.14
CB149	STORAGE	0.00	0.12	340.87	0 01:05	0.12
CB150	STORAGE	0.00	0.12	340.62	0 01:05	0.12
CB165-166	STORAGE	0.00	0.06	336.43	0 01:05	0.06
CB167-168	STORAGE	0.00	0.06	336.64	0 01:05	0.06
CB169-170	STORAGE	0.00	0.05	336.87	0 01:05	0.05
CB171-172	STORAGE	0.00	0.08	337.17	0 01:05	0.08
CB179	STORAGE	0.00	0.10	335.48	0 01:05	0.10
CB181	STORAGE	0.00	0.12	341.11	0 01:05	0.12
CB182	STORAGE	0.00	0.11	340.35	0 01:05	0.11
CBMH13	STORAGE	0.01	0.61	337.06	0 01:07	0.61
CBMH14	STORAGE	0.00	0.18	337.13	0 01:06	0.18
CBMH15	STORAGE	0.00	0.12	338.14	0 01:07	0.12
CBMH28	STORAGE	0.00	0.74	334.34	0 01:08	0.74
CBMH45	STORAGE	0.00	0.20	334.39	0 01:08	0.19
LID#1A	STORAGE	0.06	0.64	337.14	0 02:40	0.64
LID#1B	STORAGE	0.02	0.35	335.35	0 03:01	0.35
LID#2	STORAGE	0.16	1.18	338.18	0 02:10	1.18
LID#3	STORAGE	0.17	1.28	339.48	0 01:34	1.28
LID#5	STORAGE	0.02	0.36	335.36	0 01:57	0.36
LID#6	STORAGE	0.00	0.13	334.43	0 01:36	0.13
MH1	STORAGE	0.04	1.55	333.54	0 01:07	1.55
MH10	STORAGE	0.01	1.01	336.84	0 01:07	1.01
MH11	STORAGE	0.01	0.88	336.93	0 01:07	0.87
MH12	STORAGE	0.01	0.85	336.99	0 01:07	0.85
MH16	STORAGE	0.00	0.65	336.85	0 01:06	0.65
MH17	STORAGE	0.00	0.28	336.40	0 01:05	0.28
MH18	STORAGE	0.01	1.13	335.80	0 01:08	1.13
MH19	STORAGE	0.01	1.00	335.96	0 01:08	0.99
MH2	STORAGE	0.03	1.65	333.76	0 01:07	1.64
MH20	STORAGE	0.01	0.90	336.52	0 01:08	0.90
MH21	STORAGE	0.01	0.78	336.97	0 01:07	0.78
MH22	STORAGE	0.01	0.86	335.74	0 01:08	0.86
MH23	STORAGE	0.01	1.12	335.43	0 01:08	1.11
MH24	STORAGE	0.01	1.16	334.11	0 01:07	1.16
MH25	STORAGE	0.01	1.27	334.33	0 01:07	1.27
MH26	STORAGE	0.01	1.47	334.97	0 01:07	1.46
MH27	STORAGE	0.01	1.40	335.19	0 01:07	1.40
MH29	STORAGE	0.04	0.54	332.51	0 02:39	0.54
MH3	STORAGE	0.02	1.70	334.07	0 01:07	1.70
MH30	STORAGE	0.02	0.58	332.72	0 01:07	0.58
MH31	STORAGE	0.01	0.56	333.05	0 01:07	0.56
MH32	STORAGE	0.01	0.54	333.60	0 01:07	0.54
MH33	STORAGE	0.01	0.41	334.00	0 01:06	0.41
MH34	STORAGE	0.01	0.42	334.59	0 01:07	0.42
MH35	STORAGE	0.00	0.44	334.74	0 01:06	0.43
MH36	STORAGE	0.00	0.22	335.04	0 01:05	0.22
MH37	STORAGE	0.06	0.46	334.83	0 01:06	0.46
MH38	STORAGE	0.01	1.31	336.58	0 01:06	1.30
MH4	STORAGE	0.02	1.72	334.62	0 01:08	1.72
MH41	STORAGE	0.00	0.00	332.64	0 00:00	0.00
MH42	STORAGE	0.01	1.18	336.78	0 01:08	1.18
MH43	STORAGE	0.00	0.23	335.79	0 01:08	0.22
MH44	STORAGE	0.01	1.22	338.28	0 01:06	1.21
MH5	STORAGE	0.02	1.69	335.11	0 01:08	1.68
MH6	STORAGE	0.02	1.65	335.49	0 01:08	1.65
MH7	STORAGE	0.02	1.50	336.06	0 01:08	1.49
MH8	STORAGE	0.02	1.42	336.27	0 01:08	1.42
MH9	STORAGE	0.01	1.33	336.54	0 01:08	1.33
SWM_Pond	STORAGE	0.11	0.84	332.51	0 02:39	0.84
Wetland	STORAGE	0.10	0.59	332.14	0 06:47	0.59

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
MH39	OUTFALL	0.068	0.068	0 01:05	0.0637	0.0637	0.000
OF1	OUTFALL	0.017	0.017	0 01:05	0.0125	0.0125	0.000
CB100-101	STORAGE	0.035	0.035	0 01:05	0.0319	0.0319	0.012
CB104-105	STORAGE	0.074	0.074	0 01:05	0.0636	0.0636	0.011
CB106-107	STORAGE	0.098	0.098	0 01:05	0.0826	0.0826	0.008
CB108-109	STORAGE	0.091	0.091	0 01:05	0.0762	0.0762	0.009
CB111-112	STORAGE	0.068	0.068	0 01:05	0.0572	0.0572	0.009
CB113-114	STORAGE	0.090	0.090	0 01:05	0.0763	0.0763	0.008
CB126-127	STORAGE	0.069	0.069	0 01:05	0.0569	0.0569	0.012
CB137	STORAGE	0.107	0.107	0 01:05	0.102	0.102	0.008
CB138	STORAGE	0.154	0.154	0 01:05	0.147	0.147	0.004
CB141	STORAGE	0.133	0.133	0 01:05	0.108	0.108	0.010
CB143	STORAGE	0.145	0.145	0 01:05	0.118	0.118	0.008
CB145	STORAGE	0.110	0.110	0 01:05	0.0903	0.0903	0.011
CB149	STORAGE	0.092	0.092	0 01:05	0.0868	0.0868	0.010
CB150	STORAGE	0.092	0.092	0 01:05	0.0869	0.0869	0.010
CB165-166	STORAGE	0.039	0.039	0 01:05	0.0316	0.0316	0.014
CB167-168	STORAGE	0.031	0.031	0 01:05	0.0253	0.0253	0.013
CB169-170	STORAGE	0.023	0.023	0 01:05	0.019	0.019	0.011
CB171-172	STORAGE	0.062	0.062	0 01:05	0.0506	0.0506	0.013
CB179	STORAGE	0.062	0.062	0 01:05	0.0518	0.0518	0.018
CB181	STORAGE	0.085	0.085	0 01:05	0.0805	0.0805	0.010
CB182	STORAGE	0.071	0.071	0 01:05	0.073	0.073	0.011
CBMH13	STORAGE	0.332	0.395	0 01:05	0.312	0.77	-0.016
CBMH14	STORAGE	0.037	0.070	0 01:06	0.0213	0.0601	-1.154
CBMH15	STORAGE	0.039	0.039	0 01:05	0.0388	0.0388	-0.018
CBMH28	STORAGE	0.000	0.043	0 01:05	0	0.0197	-0.882
CBMH45	STORAGE	0.020	0.020	0 01:05	0.0172	0.0172	0.309
LID#1A	STORAGE	0.965	0.965	0 01:05	1.08	1.08	-0.003
LID#1B	STORAGE	0.516	0.516	0 01:05	0.565	0.565	-0.006
LID#2	STORAGE	1.556	1.556	0 01:05	1.78	1.78	-0.001
LID#3	STORAGE	0.709	0.709	0 01:05	0.911	0.911	-0.000
LID#5	STORAGE	0.227	0.227	0 01:05	0.209	0.209	-0.007
LID#6	STORAGE	0.087	0.087	0 01:05	0.0718	0.0718	-0.014
MH1	STORAGE	0.000	3.518	0 01:09	0	6.33	0.007
MH10	STORAGE	0.000	0.481	0 01:05	0	0.907	-0.188
MH11	STORAGE	0.000	0.506	0 01:05	0	0.908	0.106
MH12	STORAGE	0.158	0.526	0 01:05	0.139	0.909	0.109
MH16	STORAGE	0.287	0.287	0 01:05	0.272	0.272	0.886
MH17	STORAGE	0.242	0.242	0 01:05	0.198	0.198	1.320
MH18	STORAGE	0.000	0.806	0 01:05	0	0.923	0.586
MH19	STORAGE	0.241	0.704	0 01:05	0.196	0.776	-0.117
MH2	STORAGE	0.000	3.484	0 01:09	0	6.33	-0.015
MH20	STORAGE	0.000	0.572	0 01:05	0	0.584	0.683
MH21	STORAGE	0.000	0.332	0 01:05	0	0.358	0.078
MH22	STORAGE	0.000	0.264	0 01:05	0	0.254	1.624
MH23	STORAGE	0.000	0.289	0 01:05	0	0.323	-1.266
MH24	STORAGE	0.000	0.689	0 01:09	0	1.04	0.095
MH25	STORAGE	0.000	0.737	0 01:05	0	1.03	-0.416
MH26	STORAGE	0.574	0.801	0 01:05	0.49	1.02	0.608
MH27	STORAGE	0.183	0.361	0 01:04	0.203	0.53	-0.122
MH29	STORAGE	0.041	0.572	0 01:07	0.0382	0.66	-0.205
MH3	STORAGE	0.278	2.709	0 01:09	0.255	5.27	0.048
MH30	STORAGE	0.020	0.545	0 01:07	0.0191	0.617	-0.644
MH31	STORAGE	0.090	0.538	0 01:07	0.0815	0.604	1.009
MH32	STORAGE	0.052	0.432	0 01:06	0.0509	0.467	-0.947
MH33	STORAGE	0.000	0.338	0 01:06	0	0.361	0.545
MH34	STORAGE	0.026	0.290	0 01:05	0.0244	0.291	-0.011
MH35	STORAGE	0.051	0.267	0 01:05	0.0322	0.266	-0.135
MH36	STORAGE	0.077	0.077	0 01:05	0.0632	0.0632	0.875
MH37	STORAGE	0.000	0.154	0 01:06	0	0.172	-0.006
MH38	STORAGE	0.201	0.201	0 01:05	0.172	0.172	0.070
MH4	STORAGE	0.000	2.704	0 01:05	0	4.94	-0.166

MH41	STORAGE	0.000	0.000	0	00:00	0	0	0.000
ltr								
MH42	STORAGE	0.641	1.032	0	01:05	0.655	1.56	0.087
MH43	STORAGE	0.000	0.085	0	01:05	0	0.0805	0.258
MH44	STORAGE	0.291	0.291	0	01:05	0.273	0.273	1.954
MH5	STORAGE	0.000	2.833	0	01:05	0	4.78	-0.084
MH6	STORAGE	0.208	2.790	0	01:05	0.178	4.63	-0.211
MH7	STORAGE	0.568	1.842	0	01:05	0.597	3.3	0.497
MH8	STORAGE	0.039	1.522	0	01:05	0.0316	2.69	-0.253
MH9	STORAGE	0.069	1.365	0	01:05	0.0569	1.95	-0.084
SWM_Pond	STORAGE	0.407	4.288	0	01:09	0.34	7.33	0.043
Wetland	STORAGE	0.067	0.320	0	02:31	0.0623	7.41	-0.002

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Node Surcharge Summary
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No nodes were surcharged.

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Node Flooding Summary
****

No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
CB100-101	0.000	0.1	0.0	0.0	0.000	6.2	0 01:05	0.035
CB104-105	0.000	0.1	0.0	0.0	0.000	9.0	0 01:05	0.074
CB106-107	0.000	0.1	0.0	0.0	0.000	10.5	0 01:05	0.098
CB108-109	0.000	0.1	0.0	0.0	0.000	10.0	0 01:05	0.090
CB111-112	0.000	0.1	0.0	0.0	0.000	8.6	0 01:05	0.068
CB113-114	0.000	0.1	0.0	0.0	0.000	10.0	0 01:05	0.090
CB126-127	0.000	0.1	0.0	0.0	0.000	8.7	0 01:05	0.069
CB137	0.000	0.2	0.0	0.0	0.000	13.7	0 01:05	0.107
CB138	0.000	0.2	0.0	0.0	0.000	19.6	0 01:05	0.154
CB141	0.000	0.2	0.0	0.0	0.000	16.5	0 01:05	0.133
CB143	0.000	0.2	0.0	0.0	0.000	18.2	0 01:05	0.145
CB145	0.000	0.1	0.0	0.0	0.000	14.0	0 01:05	0.110
CB149	0.000	0.1	0.0	0.0	0.000	12.3	0 01:05	0.092
CB150	0.000	0.1	0.0	0.0	0.000	12.3	0 01:05	0.092
CB165-166	0.000	0.1	0.0	0.0	0.000	6.5	0 01:05	0.039
CB167-168	0.000	0.0	0.0	0.0	0.000	5.9	0 01:05	0.031
CB169-170	0.000	0.0	0.0	0.0	0.000	5.3	0 01:05	0.023
CB171-172	0.000	0.1	0.0	0.0	0.000	8.2	0 01:05	0.062
CB179	0.000	0.1	0.0	0.0	0.000	10.1	0 01:05	0.062
CB181	0.000	0.1	0.0	0.0	0.000	11.8	0 01:05	0.085
CB182	0.000	0.1	0.0	0.0	0.000	10.7	0 01:05	0.071
CBMH13	0.000	0.1	0.0	0.0	0.001	10.0	0 01:07	0.379
CBMH14	0.000	0.0	0.0	0.0	0.000	2.6	0 01:06	0.070
CBMH15	0.000	0.0	0.0	0.0	0.000	1.9	0 01:07	0.038
CBMH28	0.000	0.1	0.0	0.0	0.001	23.7	0 01:08	0.049
CBMH45	0.000	0.0	0.0	0.0	0.000	5.3	0 01:08	0.030
LID#1A	0.076	2.5	0.0	85.6	0.806	26.5	0 02:40	0.036
LID#1B	0.028	0.9	0.0	100.0	0.410	12.3	0 03:01	0.015
LID#2	0.170	2.8	0.0	70.9	1.288	21.1	0 02:10	0.081
LID#3	0.072	4.2	0.0	56.4	0.542	31.9	0 01:34	0.094
LID#5	0.009	1.9	0.0	85.5	0.136	27.5	0 01:57	0.010
LID#6	0.002	0.4	0.0	100.0	0.043	10.1	0 01:36	0.004
MH1	0.000	0.8	0.0	0.0	0.007	28.1	0 01:07	3.582
MH10	0.000	0.2	0.0	0.0	0.001	17.5	0 01:07	0.405
MH11	0.000	0.2	0.0	0.0	0.001	13.7	0 01:07	0.481
MH12	0.000	0.2	0.0	0.0	0.001	13.7	0 01:07	0.506
MH16	0.000	0.1	0.0	0.0	0.001	10.2	0 01:06	0.276
MH17	0.000	0.1	0.0	0.0	0.000	4.4	0 01:05	0.238
MH18	0.000	0.2	0.0	0.0	0.001	25.8	0 01:08	0.758
MH19	0.000	0.1	0.0	0.0	0.001	15.9	0 01:08	0.669
MH2	0.000	0.6	0.0	0.0	0.007	31.4	0 01:07	3.518
MH20	0.000	0.1	0.0	0.0	0.001	14.4	0 01:08	0.504
MH21	0.000	0.1	0.0	0.0	0.001	12.8	0 01:07	0.298
MH22	0.000	0.1	0.0	0.0	0.001	14.4	0 01:08	0.221
MH23	0.000	0.1	0.0	0.0	0.001	18.7	0 01:08	0.254
MH24	0.000	0.2	0.0	0.0	0.001	22.3	0 01:07	0.702
MH25	0.000	0.3	0.0	0.0	0.001	28.9	0 01:07	0.689
MH26	0.000	0.2	0.0	0.0	0.002	21.6	0 01:07	0.737
MH27	0.000	0.2	0.0	0.0	0.002	22.9	0 01:07	0.378
MH29	0.000	2.0	0.0	0.0	0.001	28.6	0 02:39	0.574
MH3	0.000	0.4	0.0	0.0	0.008	32.5	0 01:07	2.770
MH30	0.000	0.7	0.0	0.0	0.001	20.2	0 01:07	0.547
MH31	0.000	0.2	0.0	0.0	0.001	17.2	0 01:07	0.532
MH32	0.000	0.2	0.0	0.0	0.001	15.6	0 01:07	0.417
MH33	0.000	0.2	0.0	0.0	0.000	12.2	0 01:06	0.339
MH34	0.000	0.2	0.0	0.0	0.000	12.9	0 01:07	0.279
MH35	0.000	0.1	0.0	0.0	0.000	12.7	0 01:06	0.265
MH36	0.000	0.1	0.0	0.0	0.000	5.6	0 01:05	0.075
MH37	0.000	1.7	0.0	0.0	0.001	12.6	0 01:06	0.154
MH38	0.000	0.2	0.0	0.0	0.001	33.6	0 01:06	0.154
MH4	0.000	0.4	0.0	0.0	0.004	33.7	0 01:08	2.594
MH41	0.000	0.0	0.0	0.0	0.000	0.0	0 00:00	0.000
MH42	0.000	0.2	0.0	0.0	0.002	21.2	0 01:08	0.952
MH43	0.000	0.1	0.0	0.0	0.000	4.1	0 01:08	0.082
MH44	0.000	0.1	0.0	0.0	0.001	22.3	0 01:06	0.231
MH5	0.000	0.4	0.0	0.0	0.004	33.8	0 01:08	2.536
MH6	0.000	0.4	0.0	0.0	0.004	34.9	0 01:08	2.696
MH7	0.000	0.3	0.0	0.0	0.003	30.1	0 01:08	1.743
MH8	0.000	0.3	0.0	0.0	0.003	29.7	0 01:08	1.326
MH9	0.000	0.2	0.0	0.0	0.002	24.9	0 01:08	1.246
SWM_Pond	0.585	6.3	0.0	0.0	4.717	50.6	0 02:39	0.316
Wetland	0.559	6.6	0.0	100.0	3.314	39.1	0 06:47	0.070

****
Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS kg
MH39	5.47	0.006	0.068	0.064	0.000
OF1	1.13	0.007	0.017	0.012	0.000
System	3.30	0.014	0.085	0.076	0.000

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.231	0 01:06	2.09	1.31	1.00
C10	CONDUIT	0.030	0 01:10	0.93	0.31	0.83
C11	CONDUIT	0.049	0 01:10	0.71	0.71	1.00
C3	CONDUIT	0.254	0 01:13	1.27	0.83	1.00
C5	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C6	CONDUIT	0.005	0 01:57	0.14	0.00	0.04
C7	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
C8	CONDUIT	0.000	0 00:00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	CONDUIT	0.378	0 01:10	1.75	1.24	1.00
Pipe_-_(39)_(C-STRM)	CONDUIT	0.737	0 01:05	2.06	1.24	1.00
Pipe_-_(41)_(C-STRM)	CONDUIT	0.689	0 01:09	1.92	1.16	1.00
Pipe_-_(42)_(C-STRM)	CONDUIT	0.702	0 01:09	1.96	1.18	1.00
Pipe_-_(43)_(C-STRM)	CONDUIT	3.518	0 01:09	2.48	0.93	1.00
Pipe_-_(44)_(C-STRM)	CONDUIT	3.582	0 01:09	3.82	0.67	0.64
Pipe_-_(45)_(C-STRM)	CONDUIT	2.770	0 01:09	2.45	1.01	1.00
Pipe_-_(46)_(C-STRM)	CONDUIT	2.594	0 01:10	2.29	0.94	1.00
Pipe_-_(47)_(C-STRM)	CONDUIT	2.536	0 01:05	2.36	0.92	1.00
Pipe_-_(48)_(C-STRM)	CONDUIT	2.696	0 01:05	2.42	0.98	1.00
Pipe_-_(49)_(C-STRM)	CONDUIT	1.743	0 01:05	2.35	1.10	1.00
Pipe_-_(51)_(C-STRM)	CONDUIT	1.326	0 01:05	1.85	0.84	1.00
Pipe_-_(52)_(C-STRM)	CONDUIT	0.952	0 01:05	1.80	0.94	1.00
Pipe_-_(53)_(C-STRM)	CONDUIT	0.405	0 01:10	1.28	0.51	1.00
Pipe_-_(54)_(C-STRM)	CONDUIT	0.481	0 01:05	1.61	0.81	1.00
Pipe_-_(55)_(C-STRM)	CONDUIT	0.506	0 01:05	1.56	0.85	1.00
Pipe_-_(57)_(C-STRM)	CONDUIT	0.379	0 01:05	1.30	0.64	0.95
Pipe_-_(59)_(C-STRM)	CONDUIT	1.246	0 01:05	1.99	0.97	1.00
Pipe_-_(60)_(C-STRM)	CONDUIT	0.238	0 01:05	1.73	0.55	0.77
Pipe_-_(61)_(C-STRM)	CONDUIT	0.276	0 01:05	1.86	0.97	1.00
Pipe_-_(64)_(C-STRM)	CONDUIT	0.758	0 01:05	1.80	0.96	1.00
Pipe_-_(65)_(C-STRM)	CONDUIT	0.669	0 01:06	1.71	0.85	1.00
Pipe_-_(66)_(C-STRM)	CONDUIT	0.082	0 01:05	1.14	0.47	0.80
Pipe_-_(67)_(C-STRM)	CONDUIT	0.221	0 01:05	1.44	1.09	1.00
Pipe_-_(68)_(C-STRM)	CONDUIT	0.504	0 01:06	1.81	1.16	1.00
Pipe_-_(69)_(C-STRM)	CONDUIT	0.298	0 01:04	1.48	0.98	1.00
Pipe_-_(70)_(C-STRM)	CONDUIT	0.574	0 01:08	2.60	0.68	0.90

Pipe_-_(71)_(C-STRM)	CONDUIT	0.547	0	01:08	1.84	0.92	0.78
Pipe_-_(72)_(C-STRM)	CONDUIT	0.532	0	01:07	1.70	0.89	0.82
Pipe_-_(73)_(C-STRM)	CONDUIT	0.417	0	01:07	1.63	0.96	0.86
Pipe_-_(74)_(C-STRM)	CONDUIT	0.339	0	01:07	1.49	0.78	0.76
Pipe_-_(75)_(C-STRM)	CONDUIT	0.279	0	01:07	1.62	0.92	0.74
Pipe_-_(76)_(C-STRM)	CONDUIT	0.265	0	01:05	1.49	0.87	0.82
Pipe_-_(77)_(C-STRM)	CONDUIT	0.075	0	01:05	1.42	0.78	0.70
Pipe_-_(78)_(C-STRM)	CONDUIT	0.154	0	01:06	2.19	1.59	0.97
Pipe_-_(79)_(C-STRM)	CONDUIT	0.154	0	01:06	0.90	0.50	0.75
Pipe_-_(81)_(C-STRM)	CONDUIT	0.070	0	01:06	1.07	0.35	0.63
Pipe_-_(82)_(C-STRM)	CONDUIT	0.038	0	01:07	1.25	0.22	0.32
Pipe_-_(88)_(C-STRM)	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C2	ORIFICE	0.068	0	02:10			0.93
C4	ORIFICE	0.000	0	00:00			0.00
OR1	ORIFICE	0.089	0	01:34			0.69
OR2	ORIFICE	0.020	0	02:40			0.56
Pipe_-_(90)_(C-STRM)	ORIFICE	0.316	0	02:39			1.00
OL10	DUMMY	0.110	0	01:05			
OL11	DUMMY	0.085	0	01:05			
OL12	DUMMY	0.145	0	01:05			
OL13	DUMMY	0.133	0	01:05			
OL17	DUMMY	0.071	0	01:05			
OL18	DUMMY	0.092	0	01:05			
OL2	DUMMY	0.069	0	01:05			
OL20	DUMMY	0.092	0	01:05			
OL23	DUMMY	0.154	0	01:05			
OL24	DUMMY	0.107	0	01:05			
OL25	DUMMY	0.090	0	01:05			
OL26	DUMMY	0.068	0	01:05			
OL27	DUMMY	0.090	0	01:05			
OL28	DUMMY	0.098	0	01:05			
OL29	DUMMY	0.074	0	01:05			
OL31	DUMMY	0.035	0	01:05			
OL35	DUMMY	0.062	0	01:05			
OL36	DUMMY	0.023	0	01:05			
OL37	DUMMY	0.031	0	01:05			
OL38	DUMMY	0.039	0	01:05			
Pipe_-_(80)_(C-STRM)	DUMMY	0.062	0	01:05			

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C10	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C3	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C5	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	0.97	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
C7	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C8	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(39)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(41)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(42)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(43)_(C-STRM)	1.00	0.87	0.04	0.00	0.09	0.00	0.00	0.00	0.91	0.00
Pipe_-_(44)_(C-STRM)	1.00	0.00	0.85	0.00	0.15	0.01	0.00	0.00	0.85	0.00
Pipe_-_(45)_(C-STRM)	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.01	0.00
Pipe_-_(46)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.02	0.00	0.97	0.00	0.00
Pipe_-_(47)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(48)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(49)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(51)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
Pipe_-_(52)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(53)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(54)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(55)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(57)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(59)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
Pipe_-_(60)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(61)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(64)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(65)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(66)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(67)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(68)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(69)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(70)_(C-STRM)	1.00	0.00	0.78	0.00	0.21	0.01	0.00	0.00	0.84	0.00
Pipe_-_(71)_(C-STRM)	1.00	0.00	0.02	0.00	0.11	0.00	0.00	0.87	0.07	0.00
Pipe_-_(72)_(C-STRM)	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.06	0.00
Pipe_-_(73)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(74)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(75)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(76)_(C-STRM)	1.00	0.00	0.14	0.00	0.86	0.01	0.00	0.00	0.97	0.00
Pipe_-_(77)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(78)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(79)_(C-STRM)	1.00	0.00	0.69	0.00	0.00	0.00	0.31	0.00	0.00	0.00
Pipe_-_(81)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(82)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(88)_(C-STRM)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Upstream	Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	0.07	0.10	0.08	0.10	0.07
C10	0.01	0.01	0.11	0.01	0.01
C11	0.12	0.12	0.17	0.01	0.01
C3	0.12	0.12	0.16	0.01	0.01
Pipe_-_(38)_(C-STRM)	0.15	0.16	0.15	0.11	0.12
Pipe_-_(39)_(C-STRM)	0.14	0.15	0.15	0.11	0.13
Pipe_-_(41)_(C-STRM)	0.13	0.17	0.13	0.13	0.13
Pipe_-_(42)_(C-STRM)	0.10	0.15	0.10	0.13	0.10
Pipe_-_(43)_(C-STRM)	0.06	0.10	0.06	0.01	0.06
Pipe_-_(44)_(C-STRM)	0.01	0.07	0.01	0.01	0.01
Pipe_-_(45)_(C-STRM)	0.10	0.17	0.10	0.02	0.10
Pipe_-_(46)_(C-STRM)	0.15	0.15	0.16	0.01	0.11
Pipe_-_(47)_(C-STRM)	0.12	0.12	0.14	0.01	0.04
Pipe_-_(48)_(C-STRM)	0.11	0.11	0.12	0.01	0.01
Pipe_-_(49)_(C-STRM)	0.11	0.13	0.11	0.04	0.09
Pipe_-_(51)_(C-STRM)	0.11	0.11	0.12	0.01	0.01
Pipe_-_(52)_(C-STRM)	0.10	0.10	0.10	0.01	0.02
Pipe_-_(53)_(C-STRM)	0.08	0.08	0.10	0.01	0.01
Pipe_-_(54)_(C-STRM)	0.07	0.07	0.08	0.01	0.01
Pipe_-_(55)_(C-STRM)	0.07	0.07	0.07	0.01	0.04
Pipe_-_(57)_(C-STRM)	0.01	0.01	0.06	0.01	0.01
Pipe_-_(59)_(C-STRM)	0.10	0.10	0.11	0.01	0.03
Pipe_-_(60)_(C-STRM)	0.01	0.01	0.11	0.01	0.01
Pipe_-_(61)_(C-STRM)	0.07	0.07	0.10	0.01	0.01
Pipe_-_(64)_(C-STRM)	0.10	0.10	0.11	0.01	0.01
Pipe_-_(65)_(C-STRM)	0.08	0.08	0.10	0.01	0.01
Pipe_-_(66)_(C-STRM)	0.01	0.01	0.11	0.01	0.01
Pipe_-_(67)_(C-STRM)	0.11	0.11	0.12	0.01	0.01
Pipe_-_(68)_(C-STRM)	0.08	0.10	0.08	0.05	0.06
Pipe_-_(69)_(C-STRM)	0.08	0.08	0.10	0.01	0.01
Pipe_-_(70)_(C-STRM)	0.01	0.01	3.28	0.01	0.01
Pipe_-_(78)_(C-STRM)	0.01	0.13	0.01	0.14	0.01

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Link Pollutant Load Summary
****

Link	TSS kg
C1	0.000
C10	0.000
C11	0.000
C3	0.000
C5	0.000
C6	0.000
C7	0.000
C8	0.000
Pipe_-_(38)_(C-STRM)	0.000
Pipe_-_(39)_(C-STRM)	0.000
Pipe_-_(41)_(C-STRM)	0.000
Pipe_-_(42)_(C-STRM)	0.000
Pipe_-_(43)_(C-STRM)	0.000
Pipe_-_(44)_(C-STRM)	0.000
Pipe_-_(45)_(C-STRM)	0.000
Pipe_-_(46)_(C-STRM)	0.000
Pipe_-_(47)_(C-STRM)	0.000
Pipe_-_(48)_(C-STRM)	0.000
Pipe_-_(49)_(C-STRM)	0.000
Pipe_-_(51)_(C-STRM)	0.000
Pipe_-_(52)_(C-STRM)	0.000

Pipe_-_(53)_(C-STRM)	0.000
Pipe_-_(54)_(C-STRM)	0.000
Pipe_-_(55)_(C-STRM)	0.000
Pipe_-_(57)_(C-STRM)	0.000
Pipe_-_(59)_(C-STRM)	0.000
Pipe_-_(60)_(C-STRM)	0.000
Pipe_-_(61)_(C-STRM)	0.000
Pipe_-_(64)_(C-STRM)	0.000
Pipe_-_(65)_(C-STRM)	0.000
Pipe_-_(66)_(C-STRM)	0.000
Pipe_-_(67)_(C-STRM)	0.000
Pipe_-_(68)_(C-STRM)	0.000
Pipe_-_(69)_(C-STRM)	0.000
Pipe_-_(70)_(C-STRM)	0.000
Pipe_-_(71)_(C-STRM)	0.000
Pipe_-_(72)_(C-STRM)	0.000
Pipe_-_(73)_(C-STRM)	0.000
Pipe_-_(74)_(C-STRM)	0.000
Pipe_-_(75)_(C-STRM)	0.000
Pipe_-_(76)_(C-STRM)	0.000
Pipe_-_(77)_(C-STRM)	0.000
Pipe_-_(78)_(C-STRM)	0.000
Pipe_-_(79)_(C-STRM)	0.000
Pipe_-_(81)_(C-STRM)	0.000
Pipe_-_(82)_(C-STRM)	0.000
Pipe_-_(88)_(C-STRM)	0.000
C2	0.000
C4	0.000
OR1	0.000
OR2	0.000
Pipe_-_(90)_(C-STRM)	0.000
OL10	0.000
OL11	0.000
OL12	0.000
OL13	0.000
OL17	0.000
OL18	0.000
OL2	0.000
OL20	0.000
OL23	0.000
OL24	0.000
OL25	0.000
OL26	0.000
OL27	0.000
OL28	0.000
OL29	0.000
OL31	0.000
OL35	0.000
OL36	0.000
OL37	0.000
OL38	0.000
Pipe_-_(80)_(C-STRM)	0.000

Analysis begun on: Wed May 28 14:22:33 2025
Analysis ended on: Wed May 28 14:22:36 2025
Total elapsed time: 00:00:03

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Proposed Drainage Areas for Danby
LID measures
Pipe Changes (250204)
LID Configurations and Drainage Area Checks (250205)
Drainage Areas (250206)
Changes to Address Comments (250521)
RC Changes (250522)
Pond Storage Curve Updates (250523)
Update LID Surface Area (250527)

RESULTS FOR 100-YEAR EVENT

****
Element Count
****
Number of rain gages 8
Number of subcatchments ... 103
Number of nodes 74
Number of links 73
Number of pollutants 1
Number of land uses 3

****
Pollutant Summary
****

Name	Units	Ppt. Concen.	GW Concen.	Kdecay 1/days	CoPollutant
TSS	MG/L	0.00	0.00	0.00	

****
Landuse Summary
****

Name	Sweeping Interval	Maximum Removal	Last Swept
Landscape	0.00	0.00	0.00
Paved	0.00	0.00	0.00
Roof	0.00	0.00	0.00

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
25mm	25	INTENSITY	10 min.
5mm	5mm	INTENSITY	10 min.
Chicago_3h_100Year_Guelph	Chicago_3h_100Year_Guelph	INTENSITY	5 min.
Chicago_3h_10Year_Guelph	Chicago_3h_10Year_Guelph	INTENSITY	5 min.
Chicago_3h_25Year_Guelph	Chicago_3h_25Year_Guelph	INTENSITY	5 min.
Chicago_3h_2Year_Guelph	Chicago_3h_2Year_Guelph	INTENSITY	5 min.
Chicago_3h_50Year_Guelph	Chicago_3h_50Year_Guelph	INTENSITY	5 min.
Chicago_3h_5Year_Guelph	Chicago_3h_5Year_Guelph	INTENSITY	5 min.

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Subcatchment Summary
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Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
201	1.49	83.66	0.00	1.0000	Chicago_3h_100Year_Guelph	CBMH15
202	1.32	93.14	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#3
203	0.12	14.28	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#3
204	0.25	90.52	0.00	1.0000	Chicago_3h_100Year_Guelph	CBMH14
205a	0.06	11.41	100.00	1.0000	Chicago_3h_100Year_Guelph	CBMH13
205b	0.10	19.02	100.00	1.0000	Chicago_3h_100Year_Guelph	CBMH13
205c	0.11	20.92	100.00	1.0000	Chicago_3h_100Year_Guelph	CBMH13
205d	0.22	41.84	100.00	1.0000	Chicago_3h_100Year_Guelph	CBMH13
206a	0.37	38.15	79.00	1.0000	Chicago_3h_100Year_Guelph	MH44
206b	0.09	9.28	0.00	1.0000	Chicago_3h_100Year_Guelph	OF1
207	0.71	77.73	100.00	1.0000	Chicago_3h_100Year_Guelph	MH42
208a	0.05	29.26	100.00	1.0000	Chicago_3h_100Year_Guelph	MH42
208b	0.09	52.66	100.00	1.0000	Chicago_3h_100Year_Guelph	CB126-127
208c	0.09	52.66	100.00	1.0000	Chicago_3h_100Year_Guelph	MH9
208d	0.05	29.26	100.00	1.0000	Chicago_3h_100Year_Guelph	MH8
209a	0.04	9.96	64.00	1.0000	Chicago_3h_100Year_Guelph	MH12
209b	0.13	24.72	64.00	1.0000	Chicago_3h_100Year_Guelph	MH42
209c	0.17	26.20	64.00	1.0000	Chicago_3h_100Year_Guelph	MH16
209d	0.10	39.25	64.00	1.0000	Chicago_3h_100Year_Guelph	MH17
210a	0.19	47.31	100.00	1.0000	Chicago_3h_100Year_Guelph	MH12
210b	0.18	34.22	100.00	1.0000	Chicago_3h_100Year_Guelph	MH42
211	0.31	47.78	100.00	1.0000	Chicago_3h_100Year_Guelph	MH16
212	0.24	94.19	100.00	1.0000	Chicago_3h_100Year_Guelph	MH17
213	0.43	120.19	0.00	1.0000	Chicago_3h_100Year_Guelph	MH35
214	0.27	91.94	100.00	1.0000	Chicago_3h_100Year_Guelph	MH38
215	0.10	60.66	100.00	1.0000	Chicago_3h_100Year_Guelph	MH36
216a	0.06	25.10	100.00	1.0000	Chicago_3h_100Year_Guelph	MH7
216b	0.02	8.37	100.00	1.0000	Chicago_3h_100Year_Guelph	MH7
216c	0.06	25.10	100.00	1.0000	Chicago_3h_100Year_Guelph	MH7
216d	0.05	20.92	100.00	1.0000	Chicago_3h_100Year_Guelph	MH7
216e	0.06	19.84	100.00	1.0000	Chicago_3h_100Year_Guelph	MH6
216f	0.04	13.23	100.00	1.0000	Chicago_3h_100Year_Guelph	MH6
216g	0.05	16.53	100.00	1.0000	Chicago_3h_100Year_Guelph	MH6
217	0.64	66.83	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#2
218	0.58	63.72	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#2
219a	0.15	34.73	79.00	1.0000	Chicago_3h_100Year_Guelph	MH44
219b	0.07	16.21	0.00	1.0000	Chicago_3h_100Year_Guelph	OF1
220a	0.17	38.83	79.00	1.0000	Chicago_3h_100Year_Guelph	CB145
220b	0.06	13.70	0.00	1.0000	Chicago_3h_100Year_Guelph	OF1
221	0.23	53.63	76.00	1.0000	Chicago_3h_100Year_Guelph	CB143
222	0.21	48.75	76.00	1.0000	Chicago_3h_100Year_Guelph	CB141
223	0.23	56.45	76.00	1.0000	Chicago_3h_100Year_Guelph	MH19
224	0.15	34.55	76.00	1.0000	Chicago_3h_100Year_Guelph	MH19
226	0.75	77.19	100.00	1.0000	Chicago_3h_100Year_Guelph	MH7
227	0.23	41.91	100.00	1.0000	Chicago_3h_100Year_Guelph	CB138
228	0.16	28.70	100.00	1.0000	Chicago_3h_100Year_Guelph	CB137
229a	0.08	26.45	100.00	1.0000	Chicago_3h_100Year_Guelph	MH6
229b	0.05	16.53	100.00	1.0000	Chicago_3h_100Year_Guelph	MH6
230a	0.06	21.25	100.00	1.0000	Chicago_3h_100Year_Guelph	CB113-114
230b	0.06	21.25	100.00	1.0000	Chicago_3h_100Year_Guelph	CB113-114
231a	0.05	19.68	100.00	1.0000	Chicago_3h_100Year_Guelph	CB111-112
231b	0.04	15.74	100.00	1.0000	Chicago_3h_100Year_Guelph	CB111-112
232a	0.06	24.02	100.00	1.0000	Chicago_3h_100Year_Guelph	CB108-109
232b	0.06	24.02	100.00	1.0000	Chicago_3h_100Year_Guelph	CB108-109
233a	0.07	27.13	100.00	1.0000	Chicago_3h_100Year_Guelph	CB106-107
233b	0.06	23.25	100.00	1.0000	Chicago_3h_100Year_Guelph	CB106-107
234a	0.05	16.63	100.00	1.0000	Chicago_3h_100Year_Guelph	CB104-105
234b	0.05	16.63	100.00	1.0000	Chicago_3h_100Year_Guelph	CB104-105
235	0.89	98.21	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#1B
236	0.47	49.29	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#1A
237	0.43	44.70	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#1A
238	0.41	42.54	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#1A
239	0.39	40.36	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#1A
240a	0.12	27.91	100.00	1.0000	Chicago_3h_100Year_Guelph	CB181
240b	0.06	13.95	0.00	1.0000	Chicago_3h_100Year_Guelph	240a
241a	0.13	30.16	100.00	1.0000	Chicago_3h_100Year_Guelph	CB149
241b	0.06	13.92	0.00	1.0000	Chicago_3h_100Year_Guelph	241a
242a	0.13	30.69	100.00	1.0000	Chicago_3h_100Year_Guelph	CB150
242b	0.06	14.16	0.00	1.0000	Chicago_3h_100Year_Guelph	242a
243a	0.10	23.41	100.00	1.0000	Chicago_3h_100Year_Guelph	CB182
243b	0.08	18.73	21.00	1.0000	Chicago_3h_100Year_Guelph	243a
244a	0.31	32.35	100.00	1.0000	Chicago_3h_100Year_Guelph	MH27
244b	0.14	14.61	0.00	1.0000	Chicago_3h_100Year_Guelph	MH27
245	0.39	44.70	0.00	1.0000	Chicago_3h_100Year_Guelph	CBMH45
246	0.76	265.59	100.00	1.0000	Chicago_3h_100Year_Guelph	MH26
247	0.19	14.81	0.00	1.0000	Chicago_3h_100Year_Guelph	MH26
248a	0.12	26.03	100.00	1.0000	Chicago_3h_100Year_Guelph	MH3
248b	0.05	10.85	100.00	1.0000	Chicago_3h_100Year_Guelph	MH3
248c	0.23	49.89	100.00	1.0000	Chicago_3h_100Year_Guelph	MH3
248d	0.05	10.85	100.00	1.0000	Chicago_3h_100Year_Guelph	CB100-101
249	1.09	143.48	43.00	1.0000	Chicago_3h_100Year_Guelph	SWM_Pond
250a	0.21	29.79	0.00	1.0000	Chicago_3h_100Year_Guelph	LID#6
250b	0.06	11.60	100.00	1.0000	Chicago_3h_100Year_Guelph	MH29
250c	0.04	7.73	64.00	1.0000	Chicago_3h_100Year_Guelph	MH31
250d	0.03	5.80	100.00	1.0000	Chicago_3h_100Year_Guelph	MH30
250e	0.10	19.33	100.00	1.0000	Chicago_3h_100Year_Guelph	MH39
250f	0.08	15.47	100.00	1.0000	Chicago_3h_100Year_Guelph	MH31
251	0.09	39.92	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#6
252A	0.08	11.35	0.00	1.0000	Chicago_3h_100Year_Guelph	LID#6
252b	0.05	7.09	100.00	1.0000	Chicago_3h_100Year_Guelph	MH32
252c	0.03	5.80	100.00	1.0000	Chicago_3h_100Year_Guelph	MH32
252d	0.02	3.87	100.00	1.0000	Chicago_3h_100Year_Guelph	MH31
253	0.05	29.33	100.00	1.0000	Chicago_3h_100Year_Guelph	CB165-166
254	1.90	143.88	0.00	1.0000	Chicago_3h_100Year_Guelph	Wetland
255	0.12	40.81	100.00	1.0000	Chicago_3h_100Year_Guelph	LID#5
256	0.31	29.83	63.00	1.0000	Chicago_3h_100Year_Guelph	LID#5
257	0.81	54.78	0.00	1.0000	Chicago_3h_100Year_Guelph	MH34
258	0.08	49.72	100.00	1.0000	Chicago_3h_100Year_Guelph	CB171-172
259	0.03	19.19	100.00	1.0000	Chicago_3h_100Year_Guelph	CB169-170

260	0.04	26.44	100.00	1.0000	Chicago_3h_100Year_Guelph CB167-168
261	0.79	70.29	100.00	1.0000	Chicago_3h_100Year_Guelph LID#2
262	0.80	74.17	100.00	1.0000	Chicago_3h_100Year_Guelph LID#2
263	1.15	136.28	0.00	1.0000	Chicago_3h_100Year_Guelph CB179

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH39	OUTFALL	332.85	0.30	0.0	
OF1	OUTFALL	333.00	0.00	0.0	
CB100-101	STORAGE	337.27	1.00	0.0	
CB104-105	STORAGE	337.77	1.00	0.0	
CB106-107	STORAGE	337.94	1.00	0.0	
CB108-109	STORAGE	338.11	1.00	0.0	
CB111-112	STORAGE	338.25	1.00	0.0	
CB113-114	STORAGE	338.73	1.00	0.0	
CB126-127	STORAGE	340.58	1.00	0.0	
CB137	STORAGE	338.64	1.00	0.0	
CB138	STORAGE	338.78	1.00	0.0	
CB141	STORAGE	341.74	1.00	0.0	
CB143	STORAGE	341.99	1.00	0.0	
CB145	STORAGE	342.24	1.00	0.0	
CB149	STORAGE	340.74	1.00	0.0	
CB150	STORAGE	340.50	1.00	0.0	
CB165-166	STORAGE	336.37	1.00	0.0	
CB167-168	STORAGE	336.58	1.00	0.0	
CB169-170	STORAGE	336.81	1.00	0.0	
CB171-172	STORAGE	337.09	1.00	0.0	
CB179	STORAGE	335.38	1.00	0.0	
CB181	STORAGE	340.99	1.00	0.0	
CB182	STORAGE	340.25	1.00	0.0	
CBMH13	STORAGE	336.45	6.14	0.0	
CBMH14	STORAGE	336.95	6.90	0.0	
CBMH15	STORAGE	338.02	6.23	0.0	
CBMH28	STORAGE	333.60	3.13	0.0	
CBMH45	STORAGE	334.19	3.73	0.0	
LID#1A	STORAGE	336.50	2.41	0.0	
LID#1B	STORAGE	335.00	2.83	0.0	
LID#2	STORAGE	337.00	5.60	0.0	
LID#3	STORAGE	338.20	4.00	0.0	
LID#5	STORAGE	335.00	1.30	0.0	
LID#6	STORAGE	334.30	1.30	0.0	
MH1	STORAGE	331.99	5.51	0.0	
MH10	STORAGE	335.83	5.78	0.0	
MH11	STORAGE	336.06	6.38	0.0	
MH12	STORAGE	336.14	6.20	0.0	
MH16	STORAGE	336.21	6.35	0.0	
MH17	STORAGE	336.12	6.31	0.0	
MH18	STORAGE	334.68	4.38	0.0	
MH19	STORAGE	334.96	6.26	0.0	
MH2	STORAGE	332.11	5.24	0.0	
MH20	STORAGE	335.61	6.27	0.0	
MH21	STORAGE	336.19	6.12	0.0	
MH22	STORAGE	334.88	5.94	0.0	
MH23	STORAGE	334.31	5.99	0.0	
MH24	STORAGE	332.94	5.21	0.0	
MH25	STORAGE	333.06	4.38	0.0	
MH26	STORAGE	333.49	6.81	0.0	
MH27	STORAGE	333.79	6.12	0.0	
MH29	STORAGE	331.97	1.88	0.0	
MH3	STORAGE	332.36	5.24	0.0	
MH30	STORAGE	332.15	2.85	0.0	
MH31	STORAGE	332.49	3.27	0.0	
MH32	STORAGE	333.06	3.47	0.0	
MH33	STORAGE	333.59	3.33	0.0	
MH34	STORAGE	334.17	3.29	0.0	
MH35	STORAGE	334.30	3.44	0.0	
MH36	STORAGE	334.82	3.94	0.0	
MH37	STORAGE	334.36	3.67	0.0	
MH38	STORAGE	335.27	3.88	0.0	
MH4	STORAGE	332.89	5.11	0.0	
MH41	STORAGE	332.64	1.52	0.0	
MH42	STORAGE	335.60	5.58	0.0	
MH43	STORAGE	335.57	5.53	0.0	
MH44	STORAGE	337.06	5.46	0.0	
MH5	STORAGE	333.42	5.00	0.0	
MH6	STORAGE	333.84	4.75	0.0	
MH7	STORAGE	334.56	4.98	0.0	
MH8	STORAGE	334.84	4.80	0.0	
MH9	STORAGE	335.21	5.33	0.0	
SWM_Pond	STORAGE	331.67	1.45	0.0	
Wetland	STORAGE	331.55	1.51	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	MH44	MH21	CONDUIT	72.4	1.0004	0.0130
C10	CBMH45	CBMH28	CONDUIT	55.9	1.0007	0.0130
C11	CBMH28	MH25	CONDUIT	31.1	0.4990	0.0130
C3	MH23	MH27	CONDUIT	100.0	0.5000	0.0130
C5	LID#6	Wetland	CONDUIT	17.3	5.3835	0.1000
C6	LID#5	Wetland	CONDUIT	59.4	1.6837	0.1000
C7	Wetland	MH41	CONDUIT	64.7	1.2212	0.0100
C8	SWM_Pond	MH41	CONDUIT	15.0	1.4668	0.0200
Pipe_-_(38)_(C-STRM)	MH27	MH26	CONDUIT	28.1	0.5010	0.0130
Pipe_-_(39)_(C-STRM)	MH26	MH25	CONDUIT	79.8	0.4999	0.0130
Pipe_-_(41)_(C-STRM)	MH25	MH24	CONDUIT	18.2	0.4994	0.0130
Pipe_-_(42)_(C-STRM)	MH24	MH2	CONDUIT	31.6	0.5001	0.0130
Pipe_-_(43)_(C-STRM)	MH2	MH1	CONDUIT	17.8	0.4996	0.0130
Pipe_-_(44)_(C-STRM)	MH1	SWM_Pond	CONDUIT	32.2	0.9997	0.0130
Pipe_-_(45)_(C-STRM)	MH3	MH2	CONDUIT	20.6	0.4992	0.0130
Pipe_-_(46)_(C-STRM)	MH4	MH3	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(47)_(C-STRM)	MH5	MH4	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(48)_(C-STRM)	MH6	MH5	CONDUIT	76.7	0.4997	0.0130
Pipe_-_(49)_(C-STRM)	MH7	MH6	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(51)_(C-STRM)	MH8	MH7	CONDUIT	50.6	0.4996	0.0130
Pipe_-_(52)_(C-STRM)	MH42	MH9	CONDUIT	62.3	0.5007	0.0130
Pipe_-_(53)_(C-STRM)	MH10	MH42	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(54)_(C-STRM)	MH11	MH10	CONDUIT	30.4	0.4999	0.0130
Pipe_-_(55)_(C-STRM)	MH12	MH11	CONDUIT	10.3	0.5039	0.0130
Pipe_-_(57)_(C-STRM)	CBMH13	MH12	CONDUIT	50.5	0.4992	0.0130
Pipe_-_(59)_(C-STRM)	MH9	MH8	CONDUIT	62.4	0.4998	0.0130
Pipe_-_(60)_(C-STRM)	MH17	MH8	CONDUIT	85.4	0.9999	0.0130
Pipe_-_(61)_(C-STRM)	MH16	MH9	CONDUIT	54.2	1.0007	0.0130
Pipe_-_(64)_(C-STRM)	MH18	MH6	CONDUIT	77.5	0.5006	0.0130
Pipe_-_(65)_(C-STRM)	MH19	MH18	CONDUIT	51.8	0.5001	0.0130
Pipe_-_(66)_(C-STRM)	MH43	MH22	CONDUIT	60.7	0.9999	0.0130
Pipe_-_(67)_(C-STRM)	MH22	MH23	CONDUIT	100.0	0.5002	0.0130
Pipe_-_(68)_(C-STRM)	MH20	MH19	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(69)_(C-STRM)	MH21	MH20	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(70)_(C-STRM)	MH29	SWM_Pond	CONDUIT	30.4	1.0014	0.0130
Pipe_-_(71)_(C-STRM)	MH30	MH29	CONDUIT	28.7	0.5016	0.0130
Pipe_-_(72)_(C-STRM)	MH31	MH30	CONDUIT	62.2	0.4999	0.0130
Pipe_-_(73)_(C-STRM)	MH32	MH31	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(74)_(C-STRM)	MH33	MH32	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(75)_(C-STRM)	MH34	MH33	CONDUIT	100.0	0.5000	0.0130
Pipe_-_(76)_(C-STRM)	MH35	MH34	CONDUIT	26.8	0.4999	0.0130
Pipe_-_(77)_(C-STRM)	MH36	MH35	CONDUIT	28.8	0.9995	0.0130
Pipe_-_(78)_(C-STRM)	MH38	MH37	CONDUIT	62.6	0.9996	0.0130
Pipe_-_(79)_(C-STRM)	MH37	MH35	CONDUIT	11.3	-0.5030	0.0130
Pipe_-_(81)_(C-STRM)	CBMH14	CBMH13	CONDUIT	54.7	0.5008	0.0130
Pipe_-_(82)_(C-STRM)	CBMH15	CBMH14	CONDUIT	100.0	1.0001	0.0130
Pipe_-_(88)_(C-STRM)	MH41	MH39	CONDUIT	146.1	0.0068	0.0130
C2	LID#2	MH8	ORIFICE			
C4	LID#1B	MH3	ORIFICE			
OR1	LID#3	CBMH13	ORIFICE			
OR2	LID#1A	MH6	ORIFICE			
Pipe_-_(90)_(C-STRM)	SWM_Pond	Wetland	ORIFICE			
OL10	CB145	MH21	OUTLET			
OL11	CB181	MH43	OUTLET			
OL12	CB143	MH20	OUTLET			
OL13	CB141	MH20	OUTLET			
OL17	CB182	MH23	OUTLET			
OL18	CB150	MH22	OUTLET			
OL2	CB126-127	MH9	OUTLET			
OL20	CB149	MH22	OUTLET			
OL23	CB138	MH18	OUTLET			
OL24	CB137	MH6	OUTLET			
OL25	CB113-114	MH5	OUTLET			
OL26	CB111-112	MH5	OUTLET			
OL27	CB108-109	MH4	OUTLET			
OL28	CB106-107	MH4	OUTLET			
OL29	CB104-105	MH3	OUTLET			
OL31	CB100-101	MH2	OUTLET			
OL35	CB171-172	MH33	OUTLET			
OL36	CB169-170	MH33	OUTLET			
OL37	CB167-168	MH32	OUTLET			
OL38	CB165-166	MH32	OUTLET			
Pipe_-_(80)_(C-STRM)	CB179	MH31	OUTLET			

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Cross Section Summary

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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
C10	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C11	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C5	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	6.20
C6	TRAPEZOIDAL	1.00	4.00	0.55	7.00	1	3.47
C7	TRAPEZOIDAL	0.50	3.50	0.38	9.00	1	20.42
C8	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	2.33
Pipe_-_(38)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(39)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(41)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(42)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(43)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	3.77
Pipe_-_(44)_(C-STRM)	CIRCULAR	1.35	1.43	0.34	1.35	1	5.34
Pipe_-_(45)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(46)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(47)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(48)_(C-STRM)	CIRCULAR	1.20	1.13	0.30	1.20	1	2.76
Pipe_-_(49)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(51)_(C-STRM)	CIRCULAR	0.97	0.75	0.24	0.97	1	1.58
Pipe_-_(52)_(C-STRM)	CIRCULAR	0.82	0.53	0.21	0.82	1	1.02
Pipe_-_(53)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(54)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(55)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(57)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(59)_(C-STRM)	CIRCULAR	0.90	0.64	0.23	0.90	1	1.28
Pipe_-_(60)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.43
Pipe_-_(61)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
Pipe_-_(64)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(65)_(C-STRM)	CIRCULAR	0.75	0.44	0.19	0.75	1	0.79
Pipe_-_(66)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(67)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(68)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(69)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(70)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.84
Pipe_-_(71)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.60
Pipe_-_(72)_(C-STRM)	CIRCULAR	0.68	0.36	0.17	0.68	1	0.59
Pipe_-_(73)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(74)_(C-STRM)	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
Pipe_-_(75)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(76)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
Pipe_-_(77)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(78)_(C-STRM)	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
Pipe_-_(79)_(C-STRM)	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
Pipe_-_(81)_(C-STRM)	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
Pipe_-_(82)_(C-STRM)	CIRCULAR	0.38	0.11	0.09	0.38	1	0.18
Pipe_-_(88)_(C-STRM)	TRAPEZOIDAL	0.30	1.02	0.23	4.30	1	0.25

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... YES
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... YES
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/27/2025 00:00:00
Ending Date 01/31/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 14
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	1.815	71.260
Evaporation Loss	0.029	1.130
Infiltration Loss	0.572	22.443
Surface Runoff	1.241	48.711
Final Storage	0.000	0.000
Continuity Error (%)	-1.438	

Runoff Quality Continuity	TSS kg
Initial Buildup	0.000
Surface Buildup	0.000
Wet Deposition	0.000
Sweeping Removal	0.000
Infiltration Loss	0.000
BMP Removal	0.000
Surface Runoff	0.000
Remaining Buildup	0.000
Continuity Error (%)	0.000

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.240	12.402
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.009	0.088
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	1.229	12.293
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.010
Continuity Error (%)	0.089	

Quality Routing Continuity	TSS kg
Dry Weather Inflow	0.000
Wet Weather Inflow	0.000
Groundwater Inflow	0.000
RDII Inflow	0.000
External Inflow	0.000
External Outflow	0.000
Flooding Loss	0.000
Exfiltration Loss	0.000
Mass Reacted	0.000
Initial Stored Mass	0.000
Final Stored Mass	0.000
Continuity Error (%)	0.000

****
Highest Continuity Errors
****
Node MH22 (1.51%)
Node CBMH14 (-1.16%)
Node MH23 (-1.10%)

****
Time-Step Critical Elements
****
Link Pipe_-_(55)_(C-STRM) (3.49%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec

```
  Average Time Step           :     4.93 sec
  Maximum Time Step           :     5.00 sec
  % of Time in Steady State   :     0.00
  Average Iterations per Step :     2.00
  % of Steps Not Converging   :     0.01
  Time Step Frequencies       :
      5.000 -  3.155 sec      :    98.39 %
      3.155 -  1.991 sec      :     1.28 %
      1.991 -  1.256 sec      :     0.22 %
      1.256 -  0.792 sec      :     0.06 %
      0.792 -  0.500 sec      :     0.04 %


  ***************************
  Subcatchment Runoff Summary
  ***************************

  ------------------------------------------------------------------------------------------------
----------------------------
                             Total      Total      Total      Total     Imperv       Perv      Total
Total     Peak  Runoff
                           Precip      Runon       Evap      Infil     Runoff     Runoff     Runoff
Runoff   Runoff   Coeff
  Subcatchment                 mm         mm         mm         mm         mm         mm         mm
10^6 ltr      CMS
  ------------------------------------------------------------------------------------------------
----------------------------
  201                       71.26       0.00       0.07      67.52       0.00       3.92       3.92
0.06     0.05   0.055
  202                       71.26       0.00       1.83       0.00      70.48       0.00      70.48
0.93     0.71   0.989
  203                       71.26       0.00       1.72       0.00      70.84       0.00      70.84
0.09     0.08   0.994
  204                       71.26       0.00       0.06      61.42       0.00      11.29      11.29
0.03     0.05   0.158
  205a                      71.26       0.00       1.65       0.00      70.99       0.00      70.99
0.04     0.04   0.996
  205b                      71.26       0.00       1.65       0.00      70.99       0.00      70.99
0.07     0.07   0.996
  205c                      71.26       0.00       1.65       0.00      70.99       0.00      70.99
0.08     0.08   0.996
  205d                      71.26       0.00       1.65       0.00      70.99       0.00      70.99
0.16     0.16   0.996
  206a                      71.26       0.00       1.36      12.69      56.00       2.67      58.67
0.22     0.22   0.823
  206b                      71.26       0.00       0.08      65.71       0.00       5.93       5.93
0.01     0.01   0.083
  207                       71.26       0.00       1.74       0.00      70.80       0.00      70.80
0.50     0.45   0.993
  208a                      71.26       0.00       1.53       0.00      70.47       0.00      70.47
0.04     0.04   0.989
  208b                      71.26       0.00       1.53       0.00      70.47       0.00      70.47
0.06     0.08   0.989
  208c                      71.26       0.00       1.53       0.00      70.47       0.00      70.47
0.06     0.08   0.989
  208d                      71.26       0.00       1.53       0.00      70.47       0.00      70.47
0.04     0.04   0.989
  209a                      71.26       0.00       1.02      21.42      45.28       5.16      50.45
0.02     0.03   0.708
  209b                      71.26       0.00       1.04      21.67      45.38       4.69      50.07
0.07     0.08   0.703
  209c                      71.26       0.00       1.05      21.91      45.42       4.34      49.77
0.08     0.10   0.698
  209d                      71.26       0.00       1.00      21.00      45.08       5.92      51.00
0.05     0.07   0.716
  210a                      71.26       0.00       1.61       0.00      70.97       0.00      70.97
0.13     0.15   0.996
  210b                      71.26       0.00       1.65       0.00      70.99       0.00      70.99
0.13     0.13   0.996
  211                       71.26       0.00       1.68       0.00      70.95       0.00      70.95
0.22     0.22   0.996
  212                       71.26       0.00       1.56       0.00      70.75       0.00      70.75
0.17     0.20   0.993
  213                       71.26       0.00       0.07      62.34       0.00      10.09      10.09
0.04     0.06   0.142
  214                       71.26       0.00       1.58       0.00      70.84       0.00      70.84
0.19     0.22   0.994
  215                       71.26       0.00       1.53       0.00      70.44       0.00      70.44
0.07     0.08   0.989
  216a                      71.26       0.00       1.56       0.00      70.71       0.00      70.71
0.04     0.05   0.992
  216b                      71.26       0.00       1.56       0.00      70.71       0.00      70.71
0.01     0.02   0.992
  216c                      71.26       0.00       1.56       0.00      70.71       0.00      70.71
0.04     0.05   0.992
  216d                      71.26       0.00       1.56       0.00      70.71       0.00      70.71
0.04     0.04   0.992
  216e                      71.26       0.00       1.58       0.00      70.85       0.00      70.85
0.04     0.05   0.994
  216f                      71.26       0.00       1.58       0.00      70.85       0.00      70.85
0.03     0.03   0.994
  216g                      71.26       0.00       1.58       0.00      70.85       0.00      70.85
0.04     0.04   0.994
  217                       71.26       0.00       1.75       0.00      70.77       0.00      70.77
0.45     0.40   0.993
  218                       71.26       0.00       1.74       0.00      70.80       0.00      70.80
0.41     0.37   0.994
  219a                      71.26       0.00       1.27      12.25      56.02       3.47      59.49
0.09     0.11   0.835
  219b                      71.26       0.00       0.07      62.92       0.00       9.25       9.25
0.01     0.01   0.130
  220a                      71.26       0.00       1.27      12.25      56.02       3.45      59.48
0.10     0.12   0.835
  220b                      71.26       0.00       0.07      62.97       0.00       9.19       9.19
0.01     0.01   0.129
  221                       71.26       0.00       1.22      14.06      53.88       3.82      57.70
0.13     0.16   0.810
  222                       71.26       0.00       1.22      14.07      53.88       3.82      57.70
0.12     0.15   0.810
  223                       71.26       0.00       1.22      14.04      53.86       3.88      57.74
0.13     0.16   0.810
  224                       71.26       0.00       1.22      14.07      53.88       3.81      57.69
0.09     0.10   0.810
  226                       71.26       0.00       1.75       0.00      70.76       0.00      70.76
0.53     0.47   0.993
  227                       71.26       0.00       1.65       0.00      70.99       0.00      70.99
0.16     0.17   0.996
  228                       71.26       0.00       1.65       0.00      70.99       0.00      70.99
0.11     0.12   0.996
  229a                      71.26       0.00       1.58       0.00      70.85       0.00      70.85
0.06     0.06   0.994
  229b                      71.26       0.00       1.58       0.00      70.85       0.00      70.85
0.04     0.04   0.994
  230a                      71.26       0.00       1.57       0.00      70.82       0.00      70.82
0.04     0.05   0.994
  230b                      71.26       0.00       1.57       0.00      70.82       0.00      70.82
0.04     0.05   0.994
  231a                      71.26       0.00       1.56       0.00      70.75       0.00      70.75
0.04     0.04   0.993
  231b                      71.26       0.00       1.56       0.00      70.75       0.00      70.75
0.03     0.03   0.993
  232a                      71.26       0.00       1.56       0.00      70.74       0.00      70.74
0.04     0.05   0.993
  232b                      71.26       0.00       1.56       0.00      70.74       0.00      70.74
0.04     0.05   0.993
  233a                      71.26       0.00       1.57       0.00      70.76       0.00      70.76
0.05     0.06   0.993
  233b                      71.26       0.00       1.57       0.00      70.76       0.00      70.76
0.04     0.05   0.993
  234a                      71.26       0.00       1.58       0.00      70.85       0.00      70.85
0.04     0.04   0.994
  234b                      71.26       0.00       1.58       0.00      70.85       0.00      70.85
0.04     0.04   0.994
  235                       71.26       0.00       1.73       0.00      70.80       0.00      70.80
0.63     0.57   0.994
  236                       71.26       0.00       1.74       0.00      70.77       0.00      70.77
0.33     0.30   0.993
  237                       71.26       0.00       1.75       0.00      70.76       0.00      70.76
0.30     0.27   0.993
  238                       71.26       0.00       1.75       0.00      70.76       0.00      70.76
0.29     0.26   0.993
  239                       71.26       0.00       1.75       0.00      70.76       0.00      70.76
0.28     0.24   0.993
  240a                      71.26       4.63       1.62       0.00      75.54       0.00      75.54
0.09     0.09   0.995
  240b                      71.26       0.00       0.07      62.90       0.00       9.27       9.27
0.01     0.01   0.130
  241a                      71.26       4.27       1.62       0.00      75.18       0.00      75.18
0.10     0.10   0.995
  241b                      71.26       0.00       0.07      62.91       0.00       9.26       9.26
0.01     0.01   0.130
  242a                      71.26       4.31       1.62       0.00      75.21       0.00      75.21
0.10     0.10   0.995
  242b                      71.26       0.00       0.07      62.85       0.00       9.34       9.34
0.01     0.01   0.131
  243a                      71.26      12.06       1.62       0.00      82.91       0.00      82.91
0.08     0.08   0.995
  243b                      71.26       0.00       0.37      56.97      14.72      15.08      15.08
0.01     0.01   0.212
```

244a			71.26	0.00	1.75	0.00	70.77	0.00	70.77
0.22	0.19	0.993							
244b			71.26	0.00	0.07	65.67	0.00	5.97	5.97
0.01	0.01	0.084							
245			71.26	0.00	0.08	65.36	0.00	6.33	6.33
0.02	0.03	0.089							
246			71.26	0.00	1.58	0.00	70.82	0.00	70.82
0.54	0.62	0.994							
247			71.26	0.00	0.07	66.60	0.00	4.95	4.95
0.01	0.01	0.069							
248a			71.26	0.00	1.63	0.00	70.99	0.00	70.99
0.09	0.09	0.996							
248b			71.26	0.00	1.63	0.00	70.99	0.00	70.99
0.04	0.04	0.996							
248c			71.26	0.00	1.63	0.00	70.99	0.00	70.99
0.16	0.17	0.996							
248d			71.26	0.00	1.63	0.00	70.99	0.00	70.99
0.04	0.04	0.996							
249			71.26	0.00	0.72	35.87	30.48	5.27	35.75
0.39	0.45	0.502							
250a			71.26	0.00	0.07	64.68	0.00	7.17	7.17
0.02	0.02	0.101							
250b			71.26	0.00	1.64	0.00	70.99	0.00	70.99
0.04	0.04	0.996							
250c			71.26	0.00	1.04	21.66	45.38	4.72	50.10
0.02	0.02	0.703							
250d			71.26	0.00	1.64	0.00	70.99	0.00	70.99
0.02	0.02	0.996							
250e			71.26	0.00	1.64	0.00	70.99	0.00	70.99
0.07	0.07	0.996							
250f			71.26	0.00	1.64	0.00	70.99	0.00	70.99
0.06	0.06	0.996							
251			71.26	0.00	1.55	0.00	70.67	0.00	70.67
0.06	0.07	0.992							
252A			71.26	0.00	0.07	64.68	0.00	7.17	7.17
0.01	0.01	0.101							
252b			71.26	0.00	1.69	0.00	70.93	0.00	70.93
0.04	0.03	0.995							
252c			71.26	0.00	1.64	0.00	70.99	0.00	70.99
0.02	0.02	0.996							
252d			71.26	0.00	1.64	0.00	70.99	0.00	70.99
0.01	0.01	0.996							
253			71.26	0.00	1.53	0.00	70.47	0.00	70.47
0.04	0.04	0.989							
254			71.26	0.00	0.07	66.69	0.00	4.85	4.85
0.09	0.09	0.068							
255			71.26	0.00	1.58	0.00	70.84	0.00	70.84
0.09	0.10	0.994							
256			71.26	0.00	1.08	23.13	44.70	3.61	48.31
0.15	0.15	0.678							
257			71.26	0.00	0.08	67.02	0.00	4.48	4.48
0.04	0.03	0.063							
258			71.26	0.00	1.53	0.00	70.42	0.00	70.42
0.06	0.07	0.988							
259			71.26	0.00	1.53	0.00	70.40	0.00	70.40
0.02	0.03	0.988							
260			71.26	0.00	1.52	0.00	70.38	0.00	70.38
0.03	0.03	0.988							
261			71.26	0.00	1.78	0.00	70.66	0.00	70.66
0.56	0.47	0.992							
262			71.26	0.00	1.77	0.00	70.69	0.00	70.69
0.57	0.48	0.992							
263			71.26	0.00	0.07	65.25	0.00	6.46	6.46
0.07	0.08	0.091							

****
Subcatchment Washoff Summary
****

Subcatchment	TSS kg
201	0.000
202	0.000
203	0.000
204	0.000
205a	0.000
205b	0.000
205c	0.000
205d	0.000
206a	0.000
206b	0.000
207	0.000
208a	0.000
208b	0.000
208c	0.000
208d	0.000
209a	0.000
209b	0.000
209c	0.000
209d	0.000
210a	0.000
210b	0.000
211	0.000
212	0.000
213	0.000
214	0.000
215	0.000
216a	0.000
216b	0.000
216c	0.000
216d	0.000
216e	0.000
216f	0.000
216g	0.000
217	0.000
218	0.000
219a	0.000
219b	0.000
220a	0.000
220b	0.000
221	0.000
222	0.000
223	0.000
224	0.000
226	0.000
227	0.000
228	0.000
229a	0.000
229b	0.000
230a	0.000
230b	0.000
231a	0.000
231b	0.000
232a	0.000
232b	0.000
233a	0.000
233b	0.000
234a	0.000
234b	0.000
235	0.000
236	0.000
237	0.000
238	0.000
239	0.000
240a	0.000
240b	0.000
241a	0.000
241b	0.000
242a	0.000
242b	0.000
243a	0.000
243b	0.000
244a	0.000
244b	0.000
245	0.000
246	0.000
247	0.000
248a	0.000
248b	0.000
248c	0.000
248d	0.000
249	0.000
250a	0.000
250b	0.000
250c	0.000
250d	0.000
250e	0.000
250f	0.000
251	0.000
252A	0.000
252b	0.000
252c	0.000
252d	0.000
253	0.000
254	0.000
255	0.000
256	0.000

257	0.000
258	0.000
259	0.000
260	0.000
261	0.000
262	0.000
263	0.000
System	0.000

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
MH39	OUTFALL	0.00	0.00	332.85	0 00:00	0.00
OF1	OUTFALL	0.00	0.00	333.00	0 00:00	0.00
CB100-101	STORAGE	0.00	0.06	337.34	0 01:05	0.06
CB104-105	STORAGE	0.00	0.09	337.87	0 01:05	0.09
CB106-107	STORAGE	0.00	0.11	338.05	0 01:05	0.11
CB108-109	STORAGE	0.00	0.11	338.21	0 01:05	0.10
CB111-112	STORAGE	0.00	0.09	338.34	0 01:05	0.09
CB113-114	STORAGE	0.00	0.10	338.83	0 01:05	0.10
CB126-127	STORAGE	0.00	0.09	340.67	0 01:05	0.09
CB137	STORAGE	0.00	0.15	338.79	0 01:05	0.15
CB138	STORAGE	0.00	0.34	339.12	0 01:05	0.28
CB141	STORAGE	0.00	0.18	341.92	0 01:05	0.18
CB143	STORAGE	0.00	0.22	342.21	0 01:05	0.21
CB145	STORAGE	0.00	0.15	342.39	0 01:05	0.15
CB149	STORAGE	0.00	0.13	340.88	0 01:05	0.13
CB150	STORAGE	0.00	0.13	340.63	0 01:05	0.13
CB165-166	STORAGE	0.00	0.07	336.43	0 01:05	0.07
CB167-168	STORAGE	0.00	0.06	336.64	0 01:05	0.06
CB169-170	STORAGE	0.00	0.05	336.87	0 01:05	0.05
CB171-172	STORAGE	0.00	0.09	337.17	0 01:05	0.08
CB179	STORAGE	0.00	0.11	335.49	0 01:05	0.11
CB181	STORAGE	0.00	0.12	341.12	0 01:05	0.12
CB182	STORAGE	0.00	0.11	340.36	0 01:05	0.11
CBMH13	STORAGE	0.01	0.93	337.38	0 01:08	0.92
CBMH14	STORAGE	0.00	0.50	337.44	0 01:08	0.49
CBMH15	STORAGE	0.00	0.14	338.16	0 01:06	0.14
CBMH28	STORAGE	0.00	0.88	334.47	0 01:08	0.86
CBMH45	STORAGE	0.00	0.35	334.54	0 01:08	0.33
LID#1A	STORAGE	0.07	0.69	337.19	0 02:24	0.69
LID#1B	STORAGE	0.03	0.40	335.40	0 03:03	0.40
LID#2	STORAGE	0.16	1.26	338.26	0 02:02	1.26
LID#3	STORAGE	0.17	1.34	339.54	0 01:29	1.34
LID#5	STORAGE	0.03	0.38	335.38	0 01:44	0.38
LID#6	STORAGE	0.01	0.16	334.46	0 01:41	0.16
MH1	STORAGE	0.06	1.52	333.51	0 01:06	1.52
MH10	STORAGE	0.01	1.30	337.13	0 01:08	1.29
MH11	STORAGE	0.01	1.17	337.23	0 01:08	1.16
MH12	STORAGE	0.01	1.15	337.29	0 01:08	1.13
MH16	STORAGE	0.01	0.96	337.17	0 01:07	0.96
MH17	STORAGE	0.00	0.48	336.60	0 01:08	0.46
MH18	STORAGE	0.01	1.34	336.02	0 01:08	1.34
MH19	STORAGE	0.01	1.23	336.20	0 01:08	1.23
MH2	STORAGE	0.05	1.65	333.76	0 01:07	1.64
MH20	STORAGE	0.01	1.20	336.81	0 01:08	1.19
MH21	STORAGE	0.01	1.11	337.30	0 01:08	1.10
MH22	STORAGE	0.01	1.14	336.03	0 01:08	1.13
MH23	STORAGE	0.01	1.35	335.66	0 01:08	1.34
MH24	STORAGE	0.01	1.21	334.16	0 01:07	1.21
MH25	STORAGE	0.01	1.35	334.42	0 01:08	1.35
MH26	STORAGE	0.01	1.67	335.16	0 01:07	1.65
MH27	STORAGE	0.01	1.62	335.40	0 01:07	1.61
MH29	STORAGE	0.06	0.66	332.64	0 02:51	0.66
MH3	STORAGE	0.03	1.74	334.10	0 01:07	1.74
MH30	STORAGE	0.03	0.64	332.78	0 01:07	0.63
MH31	STORAGE	0.01	0.64	333.13	0 01:07	0.63
MH32	STORAGE	0.01	0.64	333.70	0 01:07	0.64
MH33	STORAGE	0.01	0.44	334.03	0 01:06	0.44
MH34	STORAGE	0.01	0.48	334.65	0 01:07	0.48
MH35	STORAGE	0.01	0.49	334.79	0 01:06	0.49
MH36	STORAGE	0.00	0.24	335.06	0 01:05	0.24
MH37	STORAGE	0.06	0.50	334.86	0 01:06	0.50
MH38	STORAGE	0.01	1.55	336.83	0 01:06	1.55
MH4	STORAGE	0.02	1.81	334.71	0 01:08	1.81
MH41	STORAGE	0.00	0.00	332.64	0 00:00	0.00
MH42	STORAGE	0.01	1.46	337.06	0 01:08	1.46
MH43	STORAGE	0.00	0.52	336.08	0 01:08	0.51
MH44	STORAGE	0.01	1.71	338.77	0 01:06	1.71
MH5	STORAGE	0.02	1.83	335.25	0 01:08	1.83
MH6	STORAGE	0.02	1.83	335.67	0 01:08	1.83
MH7	STORAGE	0.02	1.73	336.29	0 01:08	1.72
MH8	STORAGE	0.02	1.66	336.51	0 01:08	1.66
MH9	STORAGE	0.02	1.59	336.80	0 01:08	1.59
SWM_Pond	STORAGE	0.15	0.97	332.64	0 02:53	0.97
Wetland	STORAGE	0.14	0.69	332.24	0 07:11	0.69

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
MH39	OUTFALL	0.074	0.074	0 01:05	0.071	0.071	0.000
OF1	OUTFALL	0.022	0.022	0 01:05	0.0173	0.0173	0.000
CB100-101	STORAGE	0.038	0.038	0 01:05	0.0355	0.0355	0.010
CB104-105	STORAGE	0.081	0.081	0 01:05	0.0708	0.0708	0.008
CB106-107	STORAGE	0.106	0.106	0 01:05	0.0919	0.0919	0.004
CB108-109	STORAGE	0.098	0.098	0 01:05	0.0848	0.0848	0.005
CB111-112	STORAGE	0.074	0.074	0 01:05	0.0636	0.0636	0.006
CB113-114	STORAGE	0.097	0.097	0 01:05	0.0849	0.0849	0.004
CB126-127	STORAGE	0.075	0.075	0 01:05	0.0634	0.0634	0.009
CB137	STORAGE	0.117	0.117	0 01:05	0.114	0.114	0.004
CB138	STORAGE	0.169	0.169	0 01:05	0.163	0.163	-0.000
CB141	STORAGE	0.146	0.146	0 01:05	0.121	0.121	0.005
CB143	STORAGE	0.160	0.160	0 01:05	0.133	0.133	0.002
CB145	STORAGE	0.121	0.121	0 01:05	0.101	0.101	0.007
CB149	STORAGE	0.100	0.100	0 01:05	0.0977	0.0977	0.007
CB150	STORAGE	0.100	0.100	0 01:05	0.0977	0.0977	0.007
CB165-166	STORAGE	0.042	0.042	0 01:05	0.0352	0.0352	0.011
CB167-168	STORAGE	0.033	0.033	0 01:05	0.0281	0.0281	0.010
CB169-170	STORAGE	0.025	0.025	0 01:05	0.0211	0.0211	0.010
CB171-172	STORAGE	0.067	0.067	0 01:05	0.0563	0.0563	0.010
CB179	STORAGE	0.079	0.079	0 01:05	0.0742	0.0742	0.013
CB181	STORAGE	0.092	0.092	0 01:05	0.0906	0.0906	0.007
CB182	STORAGE	0.077	0.077	0 01:05	0.0829	0.0829	0.008
CBMH13	STORAGE	0.363	0.444	0 01:05	0.348	0.936	-0.047
CBMH14	STORAGE	0.046	0.099	0 01:06	0.0282	0.087	-1.151
CBMH15	STORAGE	0.050	0.050	0 01:05	0.0584	0.0584	-0.344
CBMH28	STORAGE	0.000	0.046	0 01:04	0	0.0273	-0.246
CBMH45	STORAGE	0.026	0.026	0 01:05	0.0247	0.0247	0.128
LID#1A	STORAGE	1.066	1.066	0 01:05	1.2	1.2	-0.003
LID#1B	STORAGE	0.570	0.570	0 01:05	0.63	0.63	-0.006
LID#2	STORAGE	1.721	1.721	0 01:05	1.99	1.99	-0.001
LID#3	STORAGE	0.789	0.789	0 01:05	1.02	1.02	0.001
LID#5	STORAGE	0.251	0.251	0 01:05	0.235	0.235	-0.001
LID#6	STORAGE	0.098	0.098	0 01:05	0.0844	0.0844	-0.012
MH1	STORAGE	0.000	3.678	0 01:09	0	7.37	0.002
MH10	STORAGE	0.000	0.488	0 01:04	0	1.09	-0.199
MH11	STORAGE	0.000	0.531	0 01:05	0	1.09	0.074
MH12	STORAGE	0.173	0.582	0 01:05	0.155	1.09	0.165
MH16	STORAGE	0.316	0.316	0 01:05	0.304	0.304	0.855
MH17	STORAGE	0.264	0.264	0 01:05	0.221	0.221	1.231
MH18	STORAGE	0.000	0.855	0 01:05	0	1.03	0.560
MH19	STORAGE	0.266	0.758	0 01:05	0.219	0.871	-0.078
MH2	STORAGE	0.000	3.647	0 01:09	0	7.37	-0.012
MH20	STORAGE	0.000	0.585	0 01:04	0	0.655	0.570
MH21	STORAGE	0.000	0.358	0 01:05	0	0.402	0.067
MH22	STORAGE	0.000	0.289	0 01:05	0	0.286	1.534
MH23	STORAGE	0.000	0.298	0 01:04	0	0.364	-1.086
MH24	STORAGE	0.000	0.740	0 01:08	0	1.17	0.097
MH25	STORAGE	0.000	0.770	0 01:05	0	1.17	-0.390
MH26	STORAGE	0.624	0.848	0 01:05	0.547	1.14	0.557
MH27	STORAGE	0.203	0.367	0 01:04	0.228	0.596	-0.091
MH29	STORAGE	0.045	0.629	0 01:07	0.0426	0.766	-0.310
MH3	STORAGE	0.304	2.829	0 01:09	0.284	6.17	-0.053
MH30	STORAGE	0.022	0.599	0 01:07	0.0213	0.72	-0.491
MH31	STORAGE	0.098	0.593	0 01:06	0.091	0.704	0.770
MH32	STORAGE	0.057	0.473	0 01:06	0.0567	0.537	-0.443
MH33	STORAGE	0.000	0.371	0 01:06	0	0.418	0.391
MH34	STORAGE	0.033	0.323	0 01:05	0.0363	0.341	-0.014
MH35	STORAGE	0.064	0.295	0 01:05	0.0434	0.304	-0.141
MH36	STORAGE	0.084	0.084	0 01:05	0.0704	0.0704	0.834
MH37	STORAGE	0.000	0.164	0 01:06	0	0.191	0.019
MH38	STORAGE	0.218	0.218	0 01:05	0.191	0.191	0.067
MH4	STORAGE	0.000	2.772	0 01:05	0	5.81	-0.056

MH41	STORAGE	0.000	0.000	0	00:00	0	0	0.000
ltr								
MH42	STORAGE	0.706	1.074	0	01:05	0.73	1.82	0.102
MH43	STORAGE	0.000	0.092	0	01:05	0	0.0906	0.201
MH44	STORAGE	0.322	0.322	0	01:05	0.306	0.306	1.833
MH5	STORAGE	0.000	2.887	0	01:05	0	5.63	-0.071
MH6	STORAGE	0.226	2.877	0	01:05	0.198	5.47	-0.188
MH7	STORAGE	0.625	1.907	0	01:05	0.665	3.89	0.406
MH8	STORAGE	0.042	1.543	0	01:04	0.0352	3.21	-0.343
MH9	STORAGE	0.075	1.376	0	01:04	0.0634	2.25	0.133
SWM_Pond	STORAGE	0.453	4.533	0	01:09	0.389	8.53	0.035
Wetland	STORAGE	0.085	0.350	0	02:37	0.0921	8.66	-0.002

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Node Surcharge Summary
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No nodes were surcharged.

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Node Flooding Summary
****

No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days	hr:min	Maximum Outflow CMS
CB100-101	0.000	0.1	0.0	0.0	0.000	6.5	0	01:05	0.038
CB104-105	0.000	0.1	0.0	0.0	0.000	9.4	0	01:05	0.081
CB106-107	0.000	0.1	0.0	0.0	0.000	11.0	0	01:05	0.106
CB108-109	0.000	0.1	0.0	0.0	0.000	10.5	0	01:05	0.098
CB111-112	0.000	0.1	0.0	0.0	0.000	8.9	0	01:05	0.074
CB113-114	0.000	0.1	0.0	0.0	0.000	10.5	0	01:05	0.097
CB126-127	0.000	0.1	0.0	0.0	0.000	9.0	0	01:05	0.075
CB137	0.000	0.2	0.0	0.0	0.000	14.7	0	01:05	0.117
CB138	0.000	0.2	0.0	0.0	0.000	34.3	0	01:05	0.162
CB141	0.000	0.2	0.0	0.0	0.000	18.3	0	01:05	0.146
CB143	0.000	0.2	0.0	0.0	0.000	21.8	0	01:05	0.158
CB145	0.000	0.2	0.0	0.0	0.000	15.1	0	01:05	0.121
CB149	0.000	0.2	0.0	0.0	0.000	13.1	0	01:05	0.100
CB150	0.000	0.2	0.0	0.0	0.000	13.1	0	01:05	0.100
CB165-166	0.000	0.1	0.0	0.0	0.000	6.8	0	01:05	0.042
CB167-168	0.000	0.1	0.0	0.0	0.000	6.1	0	01:05	0.033
CB169-170	0.000	0.0	0.0	0.0	0.000	5.4	0	01:05	0.025
CB171-172	0.000	0.1	0.0	0.0	0.000	8.5	0	01:05	0.067
CB179	0.000	0.1	0.0	0.0	0.000	11.4	0	01:05	0.079
CB181	0.000	0.1	0.0	0.0	0.000	12.4	0	01:05	0.092
CB182	0.000	0.1	0.0	0.0	0.000	11.2	0	01:05	0.077
CBMH13	0.000	0.2	0.0	0.0	0.001	15.1	0	01:08	0.414
CBMH14	0.000	0.0	0.0	0.0	0.001	7.2	0	01:08	0.138
CBMH15	0.000	0.0	0.0	0.0	0.000	2.2	0	01:06	0.051
CBMH28	0.000	0.1	0.0	0.0	0.001	28.1	0	01:08	0.053
CBMH45	0.000	0.0	0.0	0.0	0.000	9.5	0	01:08	0.036
LID#1A	0.082	2.7	0.0	78.5	0.867	28.5	0	02:24	0.047
LID#1B	0.036	1.1	0.0	100.0	0.470	14.1	0	03:03	0.015
LID#2	0.177	2.9	0.0	64.1	1.375	22.5	0	02:02	0.102
LID#3	0.074	4.3	0.0	50.8	0.569	33.5	0	01:29	0.125
LID#5	0.010	2.0	0.0	77.4	0.145	29.3	0	01:44	0.015
LID#6	0.002	0.5	0.0	100.0	0.053	12.4	0	01:41	0.004
MH1	0.000	1.1	0.0	0.0	0.007	27.6	0	01:06	3.737
MH10	0.000	0.2	0.0	0.0	0.001	22.5	0	01:08	0.438
MH11	0.000	0.2	0.0	0.0	0.001	18.4	0	01:08	0.488
MH12	0.000	0.2	0.0	0.0	0.001	18.5	0	01:08	0.531
MH16	0.000	0.1	0.0	0.0	0.001	15.2	0	01:07	0.278
MH17	0.000	0.1	0.0	0.0	0.001	7.5	0	01:08	0.257
MH18	0.000	0.3	0.0	0.0	0.002	30.7	0	01:08	0.769
MH19	0.000	0.2	0.0	0.0	0.001	19.7	0	01:08	0.693
MH2	0.000	0.9	0.0	0.0	0.007	31.4	0	01:07	3.678
MH20	0.000	0.1	0.0	0.0	0.001	19.1	0	01:08	0.512
MH21	0.000	0.1	0.0	0.0	0.001	18.1	0	01:08	0.303
MH22	0.000	0.1	0.0	0.0	0.001	19.2	0	01:08	0.223
MH23	0.000	0.1	0.0	0.0	0.002	22.6	0	01:08	0.263
MH24	0.000	0.2	0.0	0.0	0.001	23.3	0	01:07	0.751
MH25	0.000	0.3	0.0	0.0	0.002	30.9	0	01:08	0.740
MH26	0.000	0.2	0.0	0.0	0.002	24.5	0	01:07	0.770
MH27	0.000	0.2	0.0	0.0	0.002	26.4	0	01:07	0.402
MH29	0.000	3.1	0.0	0.0	0.001	35.2	0	02:51	0.632
MH3	0.000	0.5	0.0	0.0	0.008	33.2	0	01:07	2.885
MH30	0.000	1.1	0.0	0.0	0.001	22.3	0	01:07	0.599
MH31	0.000	0.3	0.0	0.0	0.001	19.5	0	01:07	0.583
MH32	0.000	0.2	0.0	0.0	0.001	18.4	0	01:07	0.446
MH33	0.000	0.2	0.0	0.0	0.000	13.2	0	01:06	0.371
MH34	0.000	0.2	0.0	0.0	0.001	14.6	0	01:07	0.308
MH35	0.000	0.2	0.0	0.0	0.001	14.3	0	01:06	0.291
MH36	0.000	0.1	0.0	0.0	0.000	6.2	0	01:05	0.082
MH37	0.000	1.7	0.0	0.0	0.001	13.6	0	01:06	0.165
MH38	0.000	0.2	0.0	0.0	0.002	40.0	0	01:06	0.164
MH4	0.000	0.4	0.0	0.0	0.005	35.5	0	01:08	2.701
MH41	0.000	0.0	0.0	0.0	0.000	0.0	0	00:00	0.000
MH42	0.000	0.3	0.0	0.0	0.003	26.2	0	01:08	0.957
MH43	0.000	0.1	0.0	0.0	0.001	9.4	0	01:08	0.090
MH44	0.000	0.1	0.0	0.0	0.002	31.3	0	01:06	0.252
MH5	0.000	0.4	0.0	0.0	0.005	36.6	0	01:08	2.581
MH6	0.000	0.5	0.0	0.0	0.005	38.6	0	01:08	2.730
MH7	0.000	0.4	0.0	0.0	0.003	34.7	0	01:08	1.774
MH8	0.000	0.4	0.0	0.0	0.003	34.7	0	01:08	1.332
MH9	0.000	0.3	0.0	0.0	0.003	29.8	0	01:08	1.259
SWM_Pond	0.789	8.5	0.0	0.0	5.572	59.7	0	02:53	0.345
Wetland	0.763	9.0	0.0	100.0	3.869	45.6	0	07:11	0.070

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr	Total TSS kg
MH39	5.67	0.007	0.074	0.071	0.000
OF1	1.33	0.009	0.022	0.017	0.000
System	3.50	0.016	0.096	0.088	0.000

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.252	0	01:06	2.28	1.44	1.00
C10	CONDUIT	0.036	0	01:11	0.99	0.38	1.00
C11	CONDUIT	0.053	0	01:11	0.75	0.77	1.00
C3	CONDUIT	0.263	0	01:11	1.29	0.86	1.00
C5	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C6	CONDUIT	0.010	0	01:44	0.17	0.00	0.05
C7	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C8	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	CONDUIT	0.402	0	01:10	1.86	1.32	1.00
Pipe_-_(39)_(C-STRM)	CONDUIT	0.770	0	01:05	2.15	1.30	1.00
Pipe_-_(41)_(C-STRM)	CONDUIT	0.740	0	01:08	2.07	1.25	1.00
Pipe_-_(42)_(C-STRM)	CONDUIT	0.751	0	01:09	2.10	1.26	1.00
Pipe_-_(43)_(C-STRM)	CONDUIT	3.678	0	01:09	2.59	0.97	1.00
Pipe_-_(44)_(C-STRM)	CONDUIT	3.737	0	01:09	3.85	0.70	0.66
Pipe_-_(45)_(C-STRM)	CONDUIT	2.885	0	01:09	2.55	1.05	1.00
Pipe_-_(46)_(C-STRM)	CONDUIT	2.701	0	01:10	2.39	0.98	1.00
Pipe_-_(47)_(C-STRM)	CONDUIT	2.581	0	01:05	2.36	0.94	1.00
Pipe_-_(48)_(C-STRM)	CONDUIT	2.730	0	01:05	2.44	0.99	1.00
Pipe_-_(49)_(C-STRM)	CONDUIT	1.774	0	01:05	2.39	1.12	1.00
Pipe_-_(51)_(C-STRM)	CONDUIT	1.332	0	01:06	1.86	0.84	1.00
Pipe_-_(52)_(C-STRM)	CONDUIT	0.957	0	01:04	1.81	0.94	1.00
Pipe_-_(53)_(C-STRM)	CONDUIT	0.438	0	01:12	1.42	0.56	1.00
Pipe_-_(54)_(C-STRM)	CONDUIT	0.488	0	01:04	1.61	0.82	1.00
Pipe_-_(55)_(C-STRM)	CONDUIT	0.531	0	01:05	1.57	0.89	1.00
Pipe_-_(57)_(C-STRM)	CONDUIT	0.414	0	01:05	1.38	0.70	1.00
Pipe_-_(59)_(C-STRM)	CONDUIT	1.259	0	01:04	2.00	0.98	1.00
Pipe_-_(60)_(C-STRM)	CONDUIT	0.257	0	01:05	1.74	0.60	0.95
Pipe_-_(61)_(C-STRM)	CONDUIT	0.278	0	01:04	1.86	0.98	1.00
Pipe_-_(64)_(C-STRM)	CONDUIT	0.769	0	01:05	1.80	0.98	1.00
Pipe_-_(65)_(C-STRM)	CONDUIT	0.693	0	01:05	1.71	0.88	1.00
Pipe_-_(66)_(C-STRM)	CONDUIT	0.090	0	01:05	1.15	0.51	1.00
Pipe_-_(67)_(C-STRM)	CONDUIT	0.223	0	01:04	1.44	1.10	1.00
Pipe_-_(68)_(C-STRM)	CONDUIT	0.512	0	01:05	1.82	1.18	1.00
Pipe_-_(69)_(C-STRM)	CONDUIT	0.303	0	01:04	1.48	0.99	1.00
Pipe_-_(70)_(C-STRM)	CONDUIT	0.632	0	01:07	2.61	0.75	0.99

Pipe_-_(71)_(C-STRM)	CONDUIT	0.599	0	01:07	1.87	1.01	0.86
Pipe_-_(72)_(C-STRM)	CONDUIT	0.583	0	01:07	1.71	0.98	0.92
Pipe_-_(73)_(C-STRM)	CONDUIT	0.446	0	01:08	1.61	1.03	0.97
Pipe_-_(74)_(C-STRM)	CONDUIT	0.371	0	01:07	1.50	0.85	0.86
Pipe_-_(75)_(C-STRM)	CONDUIT	0.308	0	01:07	1.64	1.01	0.82
Pipe_-_(76)_(C-STRM)	CONDUIT	0.291	0	01:05	1.50	0.96	0.92
Pipe_-_(77)_(C-STRM)	CONDUIT	0.082	0	01:05	1.40	0.85	0.80
Pipe_-_(78)_(C-STRM)	CONDUIT	0.164	0	01:06	2.34	1.70	0.98
Pipe_-_(79)_(C-STRM)	CONDUIT	0.165	0	01:06	0.87	0.54	0.83
Pipe_-_(81)_(C-STRM)	CONDUIT	0.138	0	01:10	1.21	0.69	1.00
Pipe_-_(82)_(C-STRM)	CONDUIT	0.051	0	01:06	1.33	0.29	0.68
Pipe_-_(88)_(C-STRM)	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C2	ORIFICE	0.089	0	02:02			1.00
C4	ORIFICE	0.000	0	00:00			0.00
OR1	ORIFICE	0.120	0	01:29			0.85
OR2	ORIFICE	0.031	0	02:24			0.75
Pipe_-_(90)_(C-STRM)	ORIFICE	0.345	0	02:52			1.00
OL10	DUMMY	0.121	0	01:05			
OL11	DUMMY	0.092	0	01:05			
OL12	DUMMY	0.158	0	01:05			
OL13	DUMMY	0.146	0	01:05			
OL17	DUMMY	0.077	0	01:05			
OL18	DUMMY	0.100	0	01:05			
OL2	DUMMY	0.075	0	01:05			
OL20	DUMMY	0.100	0	01:05			
OL23	DUMMY	0.162	0	01:05			
OL24	DUMMY	0.117	0	01:05			
OL25	DUMMY	0.097	0	01:05			
OL26	DUMMY	0.074	0	01:05			
OL27	DUMMY	0.098	0	01:05			
OL28	DUMMY	0.106	0	01:05			
OL29	DUMMY	0.081	0	01:05			
OL31	DUMMY	0.038	0	01:05			
OL35	DUMMY	0.067	0	01:05			
OL36	DUMMY	0.025	0	01:05			
OL37	DUMMY	0.033	0	01:05			
OL38	DUMMY	0.042	0	01:05			
Pipe_-_(80)_(C-STRM)	DUMMY	0.079	0	01:05			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class							
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C10	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C11	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C3	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C5	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C6	1.00	0.97	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
C7	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C8	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipe_-_(38)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(39)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(41)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(42)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(43)_(C-STRM)	1.00	0.81	0.04	0.00	0.15	0.00	0.00	0.00	0.86	0.00
Pipe_-_(44)_(C-STRM)	1.00	0.00	0.80	0.00	0.20	0.01	0.00	0.00	0.80	0.00
Pipe_-_(45)_(C-STRM)	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.02	0.00
Pipe_-_(46)_(C-STRM)	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
Pipe_-_(47)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(48)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(49)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(51)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
Pipe_-_(52)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(53)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(54)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(55)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(57)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(59)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.02	0.00	0.97	0.00	0.00
Pipe_-_(60)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(61)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(64)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(65)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(66)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(67)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(68)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(69)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(70)_(C-STRM)	1.00	0.00	0.79	0.00	0.20	0.01	0.00	0.00	0.79	0.00
Pipe_-_(71)_(C-STRM)	1.00	0.81	0.06	0.00	0.12	0.00	0.00	0.01	0.87	0.00
Pipe_-_(72)_(C-STRM)	1.00	0.89	0.04	0.00	0.07	0.00	0.00	0.01	0.96	0.00
Pipe_-_(73)_(C-STRM)	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
Pipe_-_(74)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(75)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(76)_(C-STRM)	1.00	0.00	0.03	0.00	0.97	0.01	0.00	0.00	0.97	0.00
Pipe_-_(77)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(78)_(C-STRM)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Pipe_-_(79)_(C-STRM)	1.00	0.00	0.92	0.00	0.00	0.00	0.08	0.00	0.00	0.00
Pipe_-_(81)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(82)_(C-STRM)	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
Pipe_-_(88)_(C-STRM)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C1	0.10	0.13	0.11	0.12	0.09
C10	0.02	0.02	0.14	0.01	0.01
C11	0.14	0.14	0.19	0.01	0.01
C3	0.15	0.15	0.19	0.01	0.01
Pipe_-_(38)_(C-STRM)	0.17	0.19	0.18	0.14	0.14
Pipe_-_(39)_(C-STRM)	0.17	0.18	0.18	0.13	0.16
Pipe_-_(41)_(C-STRM)	0.15	0.19	0.15	0.16	0.15
Pipe_-_(42)_(C-STRM)	0.12	0.17	0.12	0.15	0.12
Pipe_-_(43)_(C-STRM)	0.06	0.12	0.06	0.01	0.06
Pipe_-_(44)_(C-STRM)	0.01	0.07	0.01	0.01	0.01
Pipe_-_(45)_(C-STRM)	0.12	0.20	0.12	0.07	0.12
Pipe_-_(46)_(C-STRM)	0.17	0.17	0.19	0.01	0.15
Pipe_-_(47)_(C-STRM)	0.15	0.15	0.17	0.01	0.10
Pipe_-_(48)_(C-STRM)	0.14	0.14	0.14	0.01	0.10
Pipe_-_(49)_(C-STRM)	0.14	0.16	0.14	0.08	0.13
Pipe_-_(51)_(C-STRM)	0.14	0.14	0.15	0.01	0.02
Pipe_-_(52)_(C-STRM)	0.13	0.13	0.14	0.01	0.03
Pipe_-_(53)_(C-STRM)	0.12	0.12	0.13	0.01	0.01
Pipe_-_(54)_(C-STRM)	0.11	0.11	0.12	0.01	0.01
Pipe_-_(55)_(C-STRM)	0.11	0.11	0.11	0.01	0.10
Pipe_-_(57)_(C-STRM)	0.08	0.08	0.10	0.01	0.01
Pipe_-_(59)_(C-STRM)	0.14	0.14	0.14	0.01	0.05
Pipe_-_(60)_(C-STRM)	0.01	0.01	0.15	0.01	0.01
Pipe_-_(61)_(C-STRM)	0.10	0.10	0.14	0.01	0.02
Pipe_-_(64)_(C-STRM)	0.14	0.14	0.14	0.01	0.01
Pipe_-_(65)_(C-STRM)	0.11	0.11	0.13	0.01	0.01
Pipe_-_(66)_(C-STRM)	0.05	0.05	0.14	0.01	0.01
Pipe_-_(67)_(C-STRM)	0.14	0.14	0.15	0.01	0.01
Pipe_-_(68)_(C-STRM)	0.11	0.13	0.11	0.08	0.11
Pipe_-_(69)_(C-STRM)	0.11	0.11	0.13	0.01	0.04
Pipe_-_(70)_(C-STRM)	0.01	0.01	4.69	0.01	0.01
Pipe_-_(71)_(C-STRM)	0.01	0.01	0.01	0.02	0.01
Pipe_-_(73)_(C-STRM)	0.01	0.04	0.01	0.05	0.01
Pipe_-_(74)_(C-STRM)	0.01	0.01	0.02	0.01	0.01
Pipe_-_(75)_(C-STRM)	0.01	0.01	0.01	0.03	0.01
Pipe_-_(78)_(C-STRM)	0.01	0.14	0.01	0.15	0.01
Pipe_-_(81)_(C-STRM)	0.03	0.03	0.08	0.01	0.01
Pipe_-_(82)_(C-STRM)	0.01	0.01	0.03	0.01	0.01

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Link Pollutant Load Summary
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Link	TSS kg
C1	0.000
C10	0.000
C11	0.000
C3	0.000
C5	0.000
C6	0.000
C7	0.000
C8	0.000
Pipe_-_(38)_(C-STRM)	0.000
Pipe_-_(39)_(C-STRM)	0.000
Pipe_-_(41)_(C-STRM)	0.000
Pipe_-_(42)_(C-STRM)	0.000
Pipe_-_(43)_(C-STRM)	0.000
Pipe_-_(44)_(C-STRM)	0.000
Pipe_-_(45)_(C-STRM)	0.000

Pipe_-_(46)_(C-STRM)	0.000
Pipe_-_(47)_(C-STRM)	0.000
Pipe_-_(48)_(C-STRM)	0.000
Pipe_-_(49)_(C-STRM)	0.000
Pipe_-_(51)_(C-STRM)	0.000
Pipe_-_(52)_(C-STRM)	0.000
Pipe_-_(53)_(C-STRM)	0.000
Pipe_-_(54)_(C-STRM)	0.000
Pipe_-_(55)_(C-STRM)	0.000
Pipe_-_(57)_(C-STRM)	0.000
Pipe_-_(59)_(C-STRM)	0.000
Pipe_-_(60)_(C-STRM)	0.000
Pipe_-_(61)_(C-STRM)	0.000
Pipe_-_(64)_(C-STRM)	0.000
Pipe_-_(65)_(C-STRM)	0.000
Pipe_-_(66)_(C-STRM)	0.000
Pipe_-_(67)_(C-STRM)	0.000
Pipe_-_(68)_(C-STRM)	0.000
Pipe_-_(69)_(C-STRM)	0.000
Pipe_-_(70)_(C-STRM)	0.000
Pipe_-_(71)_(C-STRM)	0.000
Pipe_-_(72)_(C-STRM)	0.000
Pipe_-_(73)_(C-STRM)	0.000
Pipe_-_(74)_(C-STRM)	0.000
Pipe_-_(75)_(C-STRM)	0.000
Pipe_-_(76)_(C-STRM)	0.000
Pipe_-_(77)_(C-STRM)	0.000
Pipe_-_(78)_(C-STRM)	0.000
Pipe_-_(79)_(C-STRM)	0.000
Pipe_-_(81)_(C-STRM)	0.000
Pipe_-_(82)_(C-STRM)	0.000
Pipe_-_(88)_(C-STRM)	0.000
C2	0.000
C4	0.000
OR1	0.000
OR2	0.000
Pipe_-_(90)_(C-STRM)	0.000
OL10	0.000
OL11	0.000
OL12	0.000
OL13	0.000
OL17	0.000
OL18	0.000
OL2	0.000
OL20	0.000
OL23	0.000
OL24	0.000
OL25	0.000
OL26	0.000
OL27	0.000
OL28	0.000
OL29	0.000
OL31	0.000
OL35	0.000
OL36	0.000
OL37	0.000
OL38	0.000
Pipe_-_(80)_(C-STRM)	0.000

Analysis begun on: Wed May 28 14:27:38 2025
Analysis ended on: Wed May 28 14:27:40 2025
Total elapsed time: 00:00:02

Appendix D

Water balance assessment

Technical memorandum

30 May 2025

To	Puslinch Development GP Inc.	**Contact No.**	519-340-3902
Copy to		**Email**	sarah.andrew@ghd.com
From	Sarah Andrew, GHD Maxwell Robinson, GHD	**Project No.**	12618927
Project Name	Estill Innovation Community		
Subject	Preliminary Site-Specific and Feature-Based Water Balance Analysis		

1. Introduction

GHD Limited (GHD) was retained by Puslinch Development GP Inc. (Client) to complete preliminary Site-specific and feature-based water balance assessments in support of a proposed industrial and community development at 4631 Sideroad 20 North, Puslinch Township, Ontario (hereafter referred to as the 'Site'). A non-continuous hydrological model (Thornthwaite and Mather) at a monthly resolution was adopted for this approach. Both assessments were completed for pre-development and post-development (uncontrolled and controlled) conditions. The Site location is shown on Figure 1.

1.1 Purpose of this memorandum

Two (2) water balance analyses were conducted for this assessment. The objective of the Site-specific analysis is to characterize the impact of the proposed development on groundwater recharge in comparison to pre-development conditions. The objective of the feature-based assessment is to characterize the hydroperiods of the on-Site wetland feature (a part of the Cranberry Oil Well Bog Wetland Complex) and assess the impact of the proposed development on its hydrological functions. The approach used to complete the analyses is summarized below:

– Review available topographic data, climate data, hydrogeological data, and plans and drawings for the proposed development at the Site.
– Perform a subcatchment delineation to determine the contributing drainage areas of the on-Site wetland feature.
– Complete monthly water balance calculations using the Thornthwaite and Mather approach for the Site and on-Site wetland feature under pre-development and post-development (uncontrolled and controlled) conditions.
– Compare the predicted infiltration and runoff volumes between the pre- and post-development conditions to assess the impact of the proposed development on the hydrological function of the on-Site wetland feature, with and without SWM and low impact development (LID) controls in place.

1.2 Scope and limitations

This technical memorandum has been prepared by GHD for Puslinch Development GP Inc.. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this technical memorandum are limited to those specifically detailed in the technical memorandum and are subject to any limitations or assumptions specially set out.

GHD has prepared this technical memorandum on the basis of information provided by the Client and others who provided information to GHD (which may also include Government authorities), which GHD has not independently verified or checked for the purpose of this technical memorandum. GHD does not accept liability in connection with such unverified information, including errors and omissions in the technical memorandum which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this technical memorandum are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this technical memorandum are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this technical memorandum.

Accessibility of documents

If this technical memorandum is required to be accessible in any other format this can be provided by GHD upon request and at an additional cost if necessary.

2. Site description

2.1 Pre-development conditions

Under pre-development conditions, the Site is situated in the rural area of the Township of Puslinch, Wellington County, adjacent to the City of Guelph. The Site is bounded by Provincial Highway 6 (Hanlon Parkway) to the east, Concession Road 4 to the south and Side Road 20 N to the west. The Site is triangular in shape and is approximately 25.47 hectares (ha) and currently consists of unoccupied land used for agricultural purposes. There is a small vegetated/wetland area just north of Concession Road 4 that is part of the Cranberry Oil Well Bog Wetland Complex, a provincially significant wetland complex. Approximately 24.46 ha of the Site drains internally within several depressions located throughout while 1.01 ha drains offsite. The surficial soils within the Site are primarily gravel, sandy silt, and silty sand based on the Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) AgMaps database and borehole logs conducted by GHD (2024). A map of the pre-development conditions for both the Site-specific and feature-based water balance analyses is provided on Figure 2.

The Site is located within the jurisdiction of the Grand River Conservation Authority (GRCA) and is located within the Grand River sub-watershed, which ultimately drains to Lake Erie. The Site sits within a Tier 2 Significant Groundwater Recharge Area (SGRA), a Well Head Protection Area (WHPA), and a regulated zone for the on-Site wetland. The on-Site provincially significant wetland feature sits at an elevation of 331 metres above sea level (masl) and internally drains (i.e., no outlet).

To evaluate the impacts of the proposed development on the hydrological function of the on-Site wetland feature, an assessment point was placed at the center of the on-Site wetland feature. This assessment point will be used to evaluate the changes in drainage area and surplus contributing to the on-Site wetland feature.

2.2 Post-development conditions

Under post-development conditions, the Site will consist of three (3) slab-on-grade industrial structures and two (2) slab-on-grade commercial structures surrounded by parking lots, paved aprons, walkways, and roadways. A SWM pond will also be included to meet stormwater control criteria. It is assumed the proposed structures will be one- to two-stories with no basements. These areas are based on the "Puslinch Industrial Development OPA/ZBA Site Plan" prepared by Sweeny & Co Architects (January 2025). In the southwest corner of the Site, adjacent to Sideroad 20 North, there is additional capacity to accommodate a future slab-on-grade industrial structure and adjacent walkways/roadways/parking lots, if desired. Additionally, the expansion areas adjacent to the proposed industrial buildings will likely be developed in the future as parking lots. For the purposes of this assessment, the potential future industrial structure, adjacent walkways/roadways/parking lots, and expansion areas will be considered in the Site-specific and feature-based water balance assessments to account for the additional impervious area when designing the proposed SWM and LID measures.

As the Site Plan is currently in development, GHD understands that any changes to the Concept Plan would require the revision of the post-development (uncontrolled and controlled) condition scenarios of the water balance assessment. A map of the post-development conditions, per the Site Plan to-date, for both the Site-specific and feature-based water balance analyses is provided on Figure 3.

Based on the GHD post-development drainage plan, approximately 2.71 ha will drain internally within the wetland, 22.44 ha to the SWM pond, and 0.32 ha will drain off-Site. For the purposes of the Site-specific water balance assessment, under the post-development (uncontrolled) conditions scenario, the runoff to the SWM pond will be considered off-Site drainage (i.e., uncontrolled runoff). For the feature-based water balance assessment, as all runoff within the on-Site wetland features catchment will internally drain, there will be no split between internal and external drainage areas.

A land use breakdown of the pre- and post-development conditions for the Site-specific water balance is provided below in Table 1.

Table 1 Site-specific land use breakdown of the pre- and post-development condition areas

Land use	Internally draining area		Off-Site draining area	
	Area (ha)	Total percent area (%)	Area (ha)	Total percent area (%)
Pre-development				
Moderately rooted agriculture (corn)	12.72	52.0	0.51	50.5
Meadow	4.55	18.6	0.36	35.6
Meadow (former gravel quarry)	4.25	17.4	0.02	2.0
Abandoned farm buildings	0.03	0.1	-	-
Thicket/hedgerows	2.55	10.4	0.12	11.9
On-Site wetland (shallow aquatic)	0.20	0.8	-	-
On-Site wetland (deciduous swamp)	0.16	0.7	-	-
Total Site area:	**24.46**	**100**	**1.01**	**100**
Post-development				
Grassed area/SWM pond banks	0.76	28.0	6.03	26.5
Grassed area/SWM pond banks (former gravel quarry)	-	-	0.89	3.9
Industrial/community buildings	0.22	8.1	6.84	30.1
Parking lots/walkways/roadways	0.4	14.8	8.66	38.0
On-Site wetland (shallow aquatic)	0.2	7.4	-	-

Land use	Internally draining area		Off-Site draining area	
	Area (ha)	Total percent area (%)	Area (ha)	Total percent area (%)
On-Site wetland (deciduous swamp)	0.16	5.9	-	-
Meadow (wetland buffer)	0.66	24.4	-	-
Thicket (wetland buffer)	0.31	11.4	-	-
SWM pond	-	-	0.34	1.5
Total Site area:	**2.71**	**100**	**22.76**	**100**

A breakdown of pre- and post-development conditions land uses for the feature-based water balance is provided below in Table 2.

Table 2 Feature-based land use breakdown of the pre- and post-development condition areas

Assessment point	AP-1	
Land use	**Area (ha)**	**Total percent area (%)**
Pre-development		
Moderately rooted agriculture (corn)	9.79	50.9
Meadow	4.88	25.4
Meadow (former gravel quarry)	2.52	13.1
Abandoned farm buildings	0.03	0.2
Thicket/hedgerows	1.03	5.3
Roadway	0.62	3.2
On-Site wetland (shallow aquatic)	0.20	1.1
On-Site wetland (deciduous swamp)	0.16	0.8
Total Site area:	**19.23**	**100**
Post-development		
Grassed area	0.76	28.0
Community buildings	0.22	8.1
Walkways	0.40	14.8
On-Site wetland (shallow aquatic)	0.20	7.4
On-Site wetland (deciduous swamp)	0.16	5.9
Meadow (wetland buffer)	0.66	24.4
Thicket (wetland buffer)	0.31	11.4
Total Site area:	**2.71**	**100**

3. Surface water balance

3.1 Methodology

The Site-specific and feature-based water balance assessments were conducted based on the standard methodology described in the document titled “Hydrogeological Assessment Submissions, Conservation Authority Guidelines for Development Applications (June 2013)”. The standardized water balance approach is

to utilize the “Meteorological Service Data Analysis and Archive Division of Environment Canada (EC)” to provide monthly water balance summaries for different soil-water holding capacities.

Water holding capacity (WHC)

The maximum soil storage is quantified as the water holding capacity (WHC), which is defined based on a combination of land use and soil type, as presented in Table 3.1 of the MOE SWM Manual (2003). The WHC represents the total amount of water that can be stored in the soil capillaries and is defined as the water content between the field capacity and wilting point (the practical maximum and minimum soil water content, respectively). WHC values typically range from approximately 10 millimetres (mm) for bedrock and impervious areas to 400 mm for mature forest over silt loam.

Climate data

The water balance assessments presented herein are based on composite meteorological data from the Environment and Climate Change Canada (ECCC) Thornthwaite and Mather water budget. Historical records spanning 48 years between 1975 to 2023 were compiled from six nearby climate stations, with missing observations substituted with records from nearby stations. The stations are summarized in Table 3 with the ECCC data presented in Table A1 in Appendix A.

Table 3 ECCC climate stations near the Site

Climate ID	Station name	Record period(s)	Distance from Site (km)
6143069	Guelph Arboretum	1975 – 1997	8.3 NW
6149387	Waterloo Wellington Airport	1997 – 2001	15.6 SW
6143090	Guelph Turfgrass CS	2001 – 2003	8.3 NW
6149388	Region of Waterloo Int’l Airport	2003 – 2010	14.8 SW
6144239	Kitchener/Waterloo	2010 – 2021	14.8 SW
6143092	Guelph Turfgrass Institute	2021 – 2023	8.3 NW

Model approach

The results from EC water balance model presents the following monthly output: temperature (mean), precipitation, rainfall, snowmelt, potential evapotranspiration (PET), actual evapotranspiration (AET), and water surplus (WS) for each of the years in the historic record, as well as average monthly values over the entire record. The model is used to estimate the soil storage (water) surplus based on a provided soil water holding capacities.

The Thornthwaite and Mather (1957) method is used to calculate the potential and actual amounts of evapotranspiration and water surplus. The calculations are performed on a daily basis and consists of daily precipitation (rainfall and snowmelt) and temperature data to estimate evapotranspiration (ET), soil-water storage, and water surplus. The EC water balance model utilizes a daily timestep developed by the Meteorological Service of Canada (MSC), as daily data allows for more accurate modelling of snowmelt and snow storage, which are of particular importance in a cold weather/winter climate (Johnstone and Louie, 1983).

The water balance calculations are based on the following equation:

$$P = S + ET + WS$$

Where:

P = precipitation

S = change in soil water storage

ET = evapotranspiration

WS = water surplus (surface runoff and infiltration)

Precipitation (P) is either rain or snow depending on the mean daily temperature. Evapotranspiration (ET) refers to the water that is lost to the atmosphere due to evaporation from soil or water and due to transpiration from plants and trees. The Thornthwaite & Mather (1957) methodology estimates AET based on the following condition: 1) AET equals PET when there is enough water available within the soil storage (water holding capacity) to meet the evapotranspiration demand, otherwise, 2) AET equals the amount of water that is available for evapotranspiration.

The water surplus (WS) is the difference between P and AET and is calculated when the water holding capacity of the soil storage is exceeded. The WS represents the total water available in each month to runoff as surface overland flow or infiltrate to the ground and recharge the groundwater table. The average annual water surplus is separated into infiltration and runoff based on an infiltration factor. The infiltration factor is presented in Table 3.1 of the MOE SWM Manual (2003). Site-specific infiltration factors are estimated based on aggregating the infiltration factors for topography, surficial soil type, and vegetative cover factors (land use).

3.2 Catchment delineation

The “Watershed Delineation Tool” in PCSWMM was used to delineate the feature-based sub-catchment area for the pre-development condition as shown on Figure 2. Results of the analysis showed three drainage splits: 1) along the northern boundary from Sideroad 20 N going northeast across the Site to Highway 6, 2) along the southeast boundary from Concession Road 4 going northeast across the Site to Highway 6, and 3) along the southwest boundary from Sideroad 20 N going southeast across the Site to Concession Road 4. The post-development (uncontrolled) conditions sub-catchment area for the feature-based water balance was based on the finalized drainage plan completed by GHD showing the adjacent pervious areas and walkways would gravity drain to the wetland as shown on Figure 3.

Assessment point 1 (AP-1)

Assessment point-1 (AP-1) is located within the center of the on-Site wetland feature. The sub-catchment for this assessment point has a total area of 19.23 ha, of which 17.29 ha lies within the Site boundary. The predominant land use of the sub-catchment within the Site is moderately rooted agriculture, cultural thicket/hedgerows, and cultural meadow. The proposed development will decrease the size of the sub-catchment, rediverting the majority of the drainage either offsite, to an LID measure or to the SWM facility for runoff attenuation prior to discharge.

3.3 Surface water balance parameters

The surficial soils are primarily sandy silt, silty sand, and gravel deposits (i.e., loam) within the surrounding area, based on the borehole drilling logs completed by GHD (2024). A former gravel quarry is present underneath the Site along the southern boundary with its surficial soil primarily consisting of fine sand, gravel, and silt (i.e., fine sandy loam) based on the borehole drilling logs GHD (2024). Available topography for the Site can be classified as rolling to hilly land with an average slope between 3.8 - 28 m/km. The maximum soil storage was quantified using a WHC based on guidelines provided in Table 3.1 of the MOE SWM Manual (2003). The infiltration factors and WHCs for the pre-development and post-development land uses, Site-specific topography, surficial soil type, and vegetative cover factors are presented for the Site-specific and feature-based water balance assessments in Table A2 and Table A3 in Appendix A, respectively.

The water balance analysis was developed under the following assumptions:

– WHCs were chosen based on Table 3.1 in the MOE SWM Manual (2003) corresponding to the loam soil type, pre- and post-development (uncontrolled and controlled) condition land uses for the Site-specific and feature-based water balances.

– For the impervious areas, WHCs of 2 mm and 10 mm were chosen to represent the roofed and paved areas, respectively. A WHC of 2 mm was chosen for roofed areas as minimal depression storage is available on sloped roofs. A WHC of 10 mm was chosen for paved areas due to the presence of depressions throughout the surface which could hold runoff.
– Assuming changes to grading and GW level, the septic tank should be at a depth that will not impact infiltration.
– For the on-Site wetland feature (i.e., the shallow aquatic wetland and deciduous swamp), WHCs of 175 and 325 mm were chosen, respectively, to represent the storage capacity provided by the depressions of the wetland and treed swamp based on the observation of standing water present throughout the majority of the year, as discussed in Section 6.0.
– For the SWM pond area, a value for the annual lake evaporation to represent the open water was obtained from the lake evaporation climate normals for Waterloo Wellington ECCC Meteorological Station between 1981 to 2010 (690 mm/year).
– For the SWM pond, a null infiltration factor was chosen due to the incorporation of an impermeable geotextile liner covering the bottom of the pond due to high groundwater levels.
– For the on-Site wetland feature and adjacent areas draining to it, an infiltration factor of 1.00 was chosen due to the wetland internally draining as no outlet is present other than during storm events greater than the 100-year storm event.
– For the internally draining areas, an infiltration factor of 1.00 was chosen to represent the added infiltration within the various depressions across the Site. For the purposes of the controlled scenario, the areas draining to the SWM pond were not assigned this infiltration factor so the total runoff from the SWM pond could be estimated.
– Net surplus was estimated by multiplying the estimated monthly surplus for the assumed WHC by the associated drainage area. AET and surplus values were obtained from the meteorological data from the composite Guelph - Waterloo ECCC Meteorological Station based on the WHC assigned to each land use area.
– Runoff was calculated as the difference between surplus and infiltration.

4. Site-specific surface water balance

4.1 Water balance results

An average annual water balance was carried out on a Site-specific basis. The results for the pre-development and post-development (uncontrolled) conditions are presented in this section.

4.1.1 Pre-development conditions

Based on the results of the assessment, the average annual pre-development water balance was estimated on a Site-specific basis as summarized in Table 4, with detailed monthly values provided in Table A4 in Appendix A.

Table 4 Pre-development average annual water balance results – Site-specific

Drainage area	Area (ha)	Average annual volume m^3/a [1]				
		Precipitation (P)	Evapotranspiration (ET)	Surplus (S)	Infiltration (I)	Runoff (R)
Internally draining area	24.46	208,660	141,125	67,005	67,005	-
Off-Site draining area	1.01	8,600	5,840	2,735	1,540	1,195
Total	**25.47**	**217,260**	**146,965**	**69,740**	**68,545**	**1,195**

Notes:

1. Volumes are rounded for reporting purposes.

4.1.2 Post-development (uncontrolled) conditions

Based on the results of the assessment, the average annual post-development (uncontrolled) water balance was estimated on a Site-specific basis as summarized in Table 5, with detailed monthly values provided in Table A5 in Appendix A.

Table 5 Post-development (uncontrolled) average annual water balance results – Site-specific

Land use	Area (ha)	Average annual volume m^3/a [1]				
		Precipitation (P)	Evapotranspiration (ET)	Surplus (S)	Infiltration (I)	Runoff (R)
Internally draining area	2.71	23,115	14,650	8,420	8,420	-
Off-Site draining area	22.76	194,145	110,470	83,620	11,845	71,775
Total	**25.47**	**217,260**	**125,120**	**92,040**	**20,265**	**71,775**

Notes:

1. Volumes are rounded for reporting purposes.

4.1.3 Post-development (controlled) conditions

Under post-development (controlled) conditions, several LID measures are proposed to be incorporated into the Site design to infiltrate clean roof runoff from the proposed buildings as well as grassed area adjacent to the daycare and gym to meet the water quantity control requirements of the SWM criteria detailed in the GHD SWM Report (2025). The proposed LID measures are composed of underground infiltration chamber, infiltration trenches, overland depression areas, and diverting drainage to the existing on-Site wetland feature (via the SWM pond) to promote on-Site infiltration. The infiltration systems will only collect roof drainage and drainage from landscaped areas, and to provide storage to retain water to promote infiltration. These infiltration systems are sized to retain the roof runoff from a minimum of 25 mm rainfall event. These infiltration systems are to be placed to provide a minimum of 1.0 m vertical clearance between the bottom of the facilities to the high groundwater elevation. Based on the 25 mm design storm and a 48-hour drawdown time, a historical rainfall assessment using meteorological data over a 48-year record from the composite Guelph - Waterloo ECCC Meteorological Station was completed to determine the runoff reduction factor for a 25 mm design storm. Based on the analysis, a runoff reduction factor of 87% and 94% was assigned to the roofed and landscaped areas, respectively.

A SWM pond facility is proposed to be located at the south boundary of the Site and was designed to receive and store runoff for a total Site drainage area of 22.44 ha up to and including the 100-year design storm event. Two outlet structures are proposed to manage the runoff discharge from the SWM pond. A low-flow orifice with a diameter of 375 mm at elevation 331.67 m is designed to release water from the SWM pond at a controlled flow rate, that discharges directly into the on-Site wetland feature. An emergency spillway is proposed at an elevation of 332.86 m to convey excess water from the SWM pond during high-flow events south toward the roadside ditch located just north of Concession Road 4. Total runoff volumes for the LID measures and SWM pond are provided in Table A6 in Appendix A.

Based on the results of the assessment, the average annual post-development (controlled) water balance was estimated on a Site-specific basis as summarized in Table 5, with detailed monthly values provided in Table A7 in Appendix A.

Table 6 Post-development (controlled) average annual water balance results – Site-specific

Land use	Area (ha)	Average annual volume m^3/a [1]				
		Precipitation (P)	Evapotranspiration (ET)	Surplus (S)	Infiltration (I)	Runoff (R)
Internally draining area	25.15	214,530	123,480	90,955	43,730	47,225
Off-Site draining area	0.32	2,730	1,640	1,085	345	740
Additional Infiltration Measures						
On-Site Wetland via SWM Pond Low Flow Orifice	-	-	-	-	47,000	(47,000)
On-Site Wetland via LID #5/6 Overflow	-	-	-	-	220	(220)
Total	**25.47**	**217,260**	**125,120**	**92,040**	**91,295**	**745**

Notes:

1. Volumes are rounded for reporting purposes.

4.2 Summary of water balance results

A summary of the annual water balance assessment considering surplus, infiltration, and runoff for the pre-development and post-development (uncontrolled and controlled) conditions is provided in Table 7, with detailed annual values provided in Table A8 in Appendix A.

Table 7 Summary of average annual water balance results – Site-specific

Scenario	Area (ha)	Average annual volume [1]					
		Surplus (S)		Infiltration (I)		Runoff (R)	
		m^3/yr	mm/yr	m^3/yr	mm/yr	m^3/yr	mm/yr
Pre-development	25.47	69,740	274	68,545	269	1,195	5
Post-development (uncontrolled)	25.47	92,040	361	20,265	80	71,775	281
Post-development (controlled)	25.47	92,040	361	91,295	358	745	3
Pre- to post-development difference							
Absolute difference	-	22,300	87	22,750	89	(450)	(2)
Percent difference	0%	32%	32%	33%	33%	-38%	-38%

Notes:

1. Volumes are rounded for reporting purposes.

Under post-development (uncontrolled) conditions, Site-specific surplus is anticipated to increase by 22,300 m^3/year (87 mm/year), representing a corresponding decrease in evapotranspiration due to changes in land use. Direct infiltration is anticipated to decrease by 48,280 m^3/year (190 mm/year) due to an increase in impervious area. This will effectively increase the runoff generated within the Site by 70,580 m^3/year (277 mm/year).

Under post-development (controlled) conditions, Site-specific surplus is anticipated to increase by 22,300 m^3/year (87 mm/year), representing a corresponding decrease in evapotranspiration due to changes in land use. Direct infiltration is anticipated to increase by 22,750 m^3/year (89 mm/year) due to the implementation of LIDs and runoff retention in the on-Site wetland feature. The retention of runoff within the on-Site wetland will also effectively decrease the runoff generated within the Site by 450 m^3/year (2 mm/year).

5. Feature-based surface water balance

5.1 Water balance results

An average annual water balance was carried out on a feature-based basis. The results for the pre-development and post-development (uncontrolled and controlled) conditions are presented in this section.

5.1.1 Pre-development conditions

Based on the results of the assessment, the average annual pre-development water balance was estimated on a feature-based basis as summarized in Table 8, with detailed monthly values provided in Table A9 in Appendix A.

Table 8 Pre-development average annual water balance results – feature-based

Assessment point	Area (ha)	Average annual volume m^3/a [1]				
		Precipitation (P)	Evapotranspiration (ET)	Surplus (S)	Infiltration (I)	Runoff (R)
AP-1	19.23	164,070	110,130	53,515	28,700	24,815

Notes:

1. Volumes are rounded for reporting purposes.

5.1.2 Post-development (uncontrolled) conditions

Based on the results of the assessment, the average annual post-development (uncontrolled) water balance was estimated on a feature-based basis as summarized in Table 9, with detailed monthly values provided in Table A10 in Appendix A.

Table 9 Post-development (uncontrolled) average annual water balance results – feature-based

Assessment points	Area (ha)	Average annual volume m^3/a [1]				
		Precipitation (P)	Evapotranspiration (ET)	Surplus (S)	Infiltration (I)	Runoff (R)
AP-1	2.71	23,115	14,650	8,420	3,800	4,620

Notes:

1. Volumes are rounded for reporting purposes.

5.1.3 Post-development (controlled) conditions

Based on the results of the assessment with incorporation of the proposed LID and SWM measures detailed in Section 4.13, the average annual post-development (controlled) water balance was estimated on a feature-based basis as summarized in Table 10, with detailed monthly values provided in Table A11 in Appendix A.

Table 10 Post-development (controlled) average annual water balance results – feature-based

Assessment points	Area (ha)	Average annual volume m^3/a [1]				
		Precipitation (P)	Evapotranspiration (ET)	Surplus (S)	Infiltration (I)	Runoff (R)
AP-1	25.15	214,530	123,480	90,955	40,815	50,140

Notes:

1. Volumes are rounded for reporting purposes.

5.2 Summary of water balance results

A summary of the annual water balance assessment considering surplus, infiltration, and runoff for the pre-development and post-development (uncontrolled and controlled) conditions is provided in Table 11 for AP-1, with detailed annual values provided in Table A12 in Appendix A.

Table 11 Summary of average annual water balance results – feature-based (AP-1)

Scenario	Area (ha)	Average annual volume [1]					
		Surplus (S)		Infiltration (I)		Runoff (R)	
		m^3/yr	mm/yr	m^3/yr	mm/yr	m^3/yr	mm/yr
Pre-development	19.23	53,515	278	28,700	149	24,815	129
Post-development (uncontrolled)	2.71	8,420	311	3,800	140	4,620	170
Post-development (controlled)	25.15	90,955	361	40,815	162	50,140	199
Pre- to post-development difference							
Absolute difference	5.92	37,440	195	12,115	63	25,325	132
Percent difference	31%	70%	70%	42%	42%	102%	102%

Notes:

1. Volumes are rounded for reporting purposes.
2. Absolute difference is averaged over the pre-development area.

Under post-development (uncontrolled) conditions, surplus to AP-1 is anticipated to decrease by 84% (234 mm/year) compared to pre-development conditions. The change in surplus represents a decrease in evapotranspiration caused by the change in land use and decrease in catchment area of 16.52 ha (86%). Direct infiltration is anticipated to decrease by 24,900 m^3/year (129 mm/year) and runoff to AP-1 is expected to decrease by 20,195 m^3/year (105 mm/year).

Under post-development (controlled) conditions, surplus to AP-1 is anticipated to increase by 37,440 (195 mm/year) compared to pre-development conditions. The change in surplus represents a decrease in evapotranspiration caused by the change in land use and increase in catchment area of 5.92 ha (31%) due to the diversion of stormwater runoff captured in the SWM pond to the on-Site wetland. Direct infiltration is anticipated to increase by 12,115 m^3/year (64 mm/year) and runoff to AP-1 is expected to increase by 25,325 m^3/year (132 mm/year). However, it is to be noted that the estimated annual infiltration within the catchment of the on-Site wetland under this water balance assessment is not fully representative of the groundwater contribution to the wetland as groundwater flow direction is not accounted for. For the purposes of this feature-based water balance assessment, only the runoff contribution will be analyzed for potential wetland impacts.

Summary

Overall, the results of the water balance analysis predict an increase in average monthly infiltration across the Site and an increase in average monthly runoff to the on-Site wetland feature (i.e., AP-1). Both increases can be attributed to the change in land use on the Site as well as the incorporation of the proposed LID measures as well as the diversion of runoff from the SWM pond to the on-Site wetland feature.

6. Assessment of the on-Site wetland features hydroperiod

6.1 Wetland water level monitoring

To understand baseline conditions, GHD initiated a surface water monitoring program in May 2024 to be conducted over a monitoring period of one (1) year to ensure seasonal data is collected (i.e., spring, summer,

fall, and winter). To characterise the hydroperiods of the on-Site wetland feature, GHD established one (1) monitoring location (SW1/MP1) within the wetland as shown on Figure 2.

At this monitoring location, a staff gauge and mini piezometer were installed to measure discrete surface water and shallow groundwater levels, respectively, in conjunction with continuous measurements of water level and temperature recorded by non-vented pressure transducers at 15-minute intervals.

The continuous and manual surface water level hydrograph for the wetland, relative to local precipitation, is presented in Appendix B. As depicted in the hydrograph, surface water levels were observed within the wetland throughout the late spring to late summer with water levels going dry shortly after the beginning of September. Shallow groundwater levels were observed to be below the ground surface from the spring to early summer (May to July) and the late fall (November to December), with levels raising above the ground surface throughout the summer and early fall (July to November). These observations indicate a losing condition for the wetland feature as the shallow groundwater levels were below the ground surface for the majority of the monitoring period. Throughout the monitoring period to date, both the shallow groundwater and surface water levels showed responses to large precipitation events, with surface water showing a more exaggerated response. Based on the monitoring data to date for the water levels within the on-Site wetland feature, it can be inferred that the hydroperiod of the feature falls within the late spring to late summer months of the year (May to September) before becoming dry for the remainder of the year.

6.2 Water balance

Under post-development (uncontrolled) conditions, the on-Site wetland feature (i.e., AP-1) was estimated to experience a runoff deficit of 20,195 m^3/year (105 mm/year). Table 12 below shows a breakdown of the monthly runoff volumes to the on-Site wetland feature to characterize the potential changes to its hydroperiods under post-development (uncontrolled and controlled) conditions.

Table 12 Summary of average monthly runoff volumes to on-Site wetland feature

Scenario	Area		Average monthly runoff volume to on-Site wetland feature (AP-1)							
	Pre-development	Post-development	Pre-development		Post-development (uncontrolled)		Post-development (controlled)		Change from pre-development	
	ha	ha	m^3/a	mm/a	m^3/a	mm/a	m^3/a	mm/a	m^3/a	mm/a
January	19.23	25.15	2,220	12	440	16	4,910	20	2,690	14
February			3,890	20	630	23	6,445	26	2,555	13
March			6,635	34	1,055	39	10,640	42	4,005	21
April			4,195	22	655	24	6,675	27	2,480	13
May			1,225	6	190	7	1,690	7	465	2
June			275	1	50	2	275	1	-	-
July			125	1	45	2	330	1	205	1
August			115	1	35	1	285	1	170	1
September			720	4	190	7	2,350	9	1,630	8
October			700	4	240	9	3,340	13	2,640	14
November			2,060	11	540	20	6,925	28	4,865	25
December			2,655	14	550	20	6,275	25	3,620	19
Total	**19.23**	**25.15**	**24,815**	**129**	**4,620**	**170**	**50,140**	**199**	**25,325**	**132**

*Red shaded areas indicate the assumed hydroperiods of the on-Site wetland feature based on analysis.

Under pre-development conditions, the on-Site wetland feature receives the majority of its yearly runoff volume from late fall to the spring freshet. This observation is partially in line with the hydroperiods identified in the water level monitoring program results to date as detailed in Section 6.1 above. More monitoring data will need to be procured to confirm the hydroperiods as high precipitation volumes during the summer of 2024 resulted in increased surface water levels in the wetland.

Under post-development (uncontrolled) conditions, the reduction of runoff volume to the on-Site wetland feature due to catchment loss would greatly impact the duration of the features hydroperiod. However, with the diversion of runoff from the SWM pond, under post-development (controlled) conditions, the hydroperiods of the on-Site wetland feature are similar or greater than pre-development conditions.

As the on-Site wetland feature is a provincially significant wetland, to mitigate the anticipated impacts to the hydroperiods from the development due to increased runoff, an overflow within the wetland area will be incorporated into the SWM design that will outlet offsite. This overflow will allow the wetland to receive runoff and infiltrate as per existing conditions but discharge additional runoff, if needed, to prevent the wetland from flooding out. Detailed related to the overflow will be determined during the detailed design phase.

It should be noted that should the site plan change and/or full buildout of the site does not occur, then the estimated runoff from the development would change (i.e., potentially decrease), resulting in less impact to the wetland. It is recommended that the feature-based water balance be revised should the site plan change.

7. Conclusions and recommendations

Site-specific and feature-based water balance analyses were completed to characterize the impact of the proposed development on groundwater recharge and the on-Site wetland feature in comparison to pre-development conditions. The assessment resulted in the following conclusions and recommendations.

– Compared to pre-development conditions (69,740 m^3/yr), average annual surplus over the Site area will increase by 22,300 m^3/yr (87 mm/yr) under post-development (controlled) conditions.
– Compared to pre-development conditions (68,545 m^3/yr), average annual infiltration over the Site area will increase by 2,750 m^3/yr (89 mm/yr) under post-development (controlled) conditions due to the proposed LID and SWM measures.
– Compared to pre-development conditions (1,195 m^3/yr), average annual runoff over the Site area will decrease by 450 m^3/yr (2 mm/yr) under post-development (controlled) conditions.
– The results of the analysis predict an increase in average monthly runoff to the on-Site wetland feature at AP-1. This increase can be attributed to the diversion of controlled runoff from the SWM pond to the on-Site wetland feature.
– The results of the analysis predict significant changes to the hydroperiod of the on-Site wetland feature due to diversion of controlled runoff from the SWM pond. An overflow in the wetland is proposed to mitigate the impact to the wetland from the anticipated increased runoff.
– GHD recommends revising the water balance assessment should the site plan change.

Regards

[redacted]

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Water Resources Engineer

[redacted]

Maxwell Robinson, B.Eng.
Surface Water Professional

8. References

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			Name	Signature	Name	Signature	Date
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S4	C01	Max Robinson	Sarah Andrew	On file	Mark Moini		07 Feb 2025
S4	C02	Max Robinson	Sarah Andrew	[redacted]	Mark Moini		30 May 2025
[Status code]							
[Status code]							

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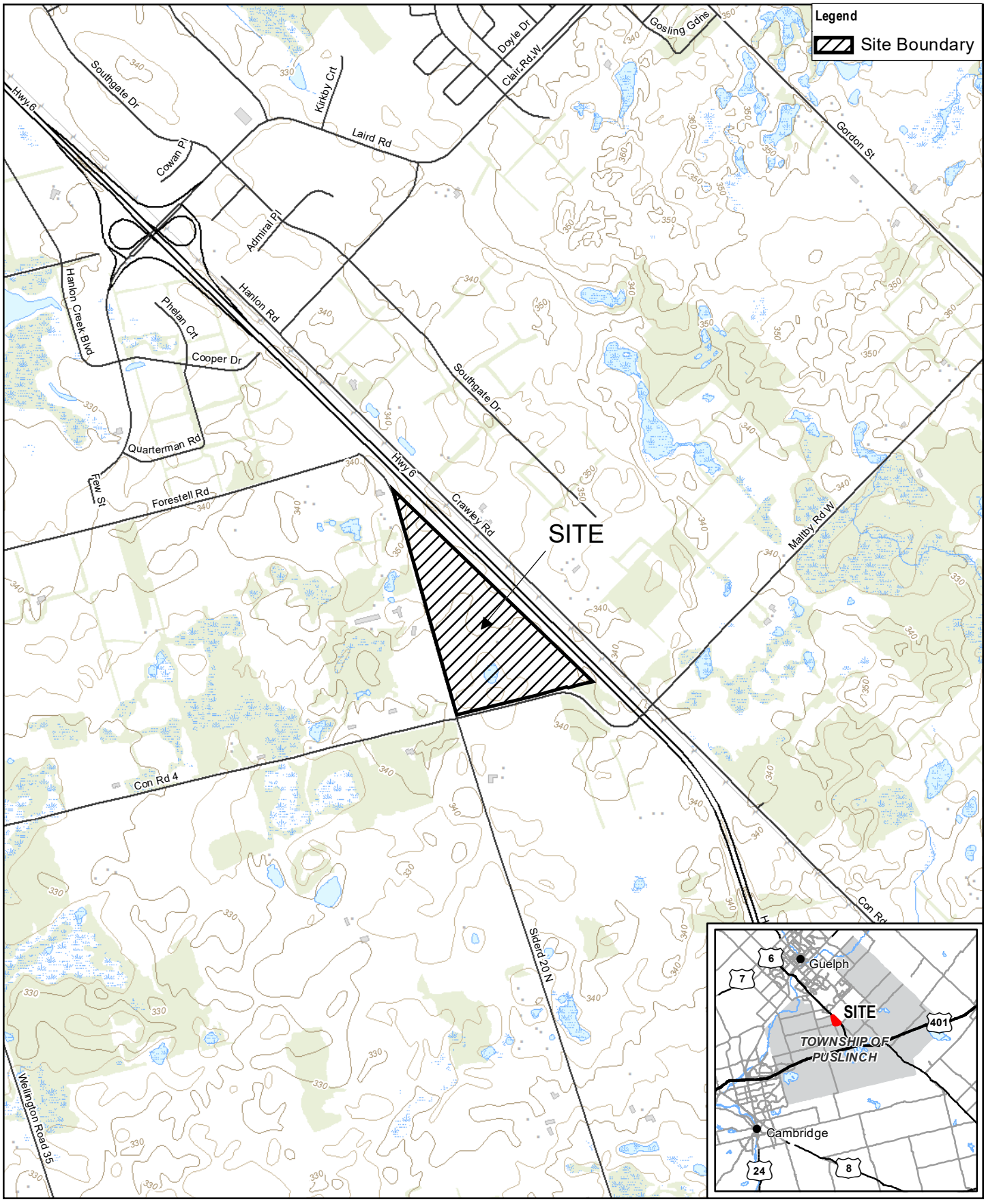
Figures



Paper Size ANSI A

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Metres

Map Projection: Transverse Mercator
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PUSLINCH DEVELOPMENT GP INC
4631 SIDEROAD 20 NORTH,
PUSLINCH TOWNSHIP, ONTARIO
HYDROGEOLOGICAL INVESTIGATION

Project No. **12618927**
Revision No. **-**
Date **May 27, 2025**

SITE LOCATION MAP

FIGURE 1

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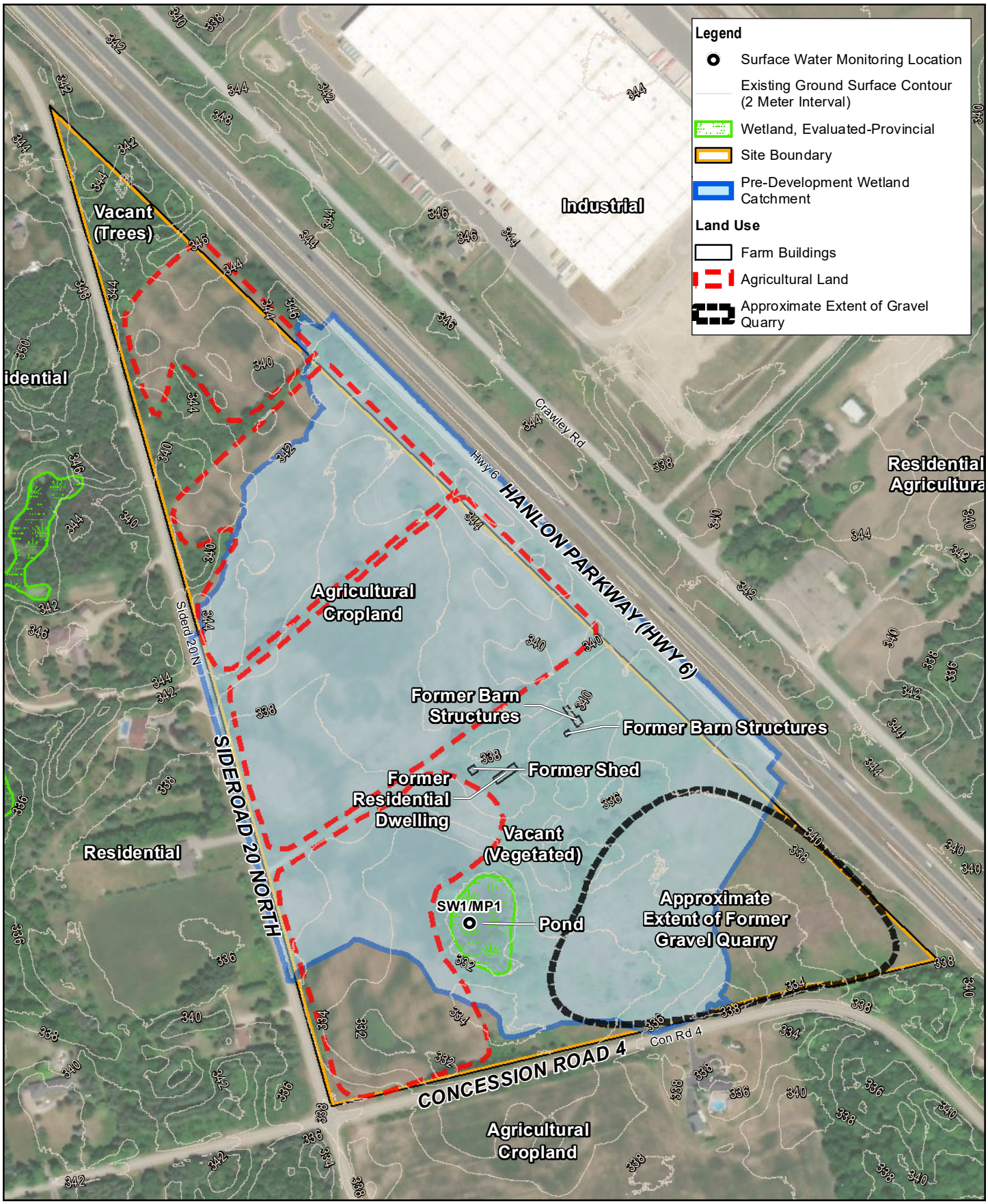
Print date: 27 May 2025 - 09:14

Data source: MNDMNRF NRVIS, 2021. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © King's Printer 2025.



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Grid: NAD 1983 UTM Zone 17N

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PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 NORTH, PUSLINCH TOWNSHIP, ON
SITE-SPECIFIC AND FEATURE-BASED WATER BALANCE ASSESSMENTS

Project No. **12618927**
Revision No. **-**
Date **May 27, 2025**

PRE-DEVELOPMENT CONDITIONS

FIGURE 2

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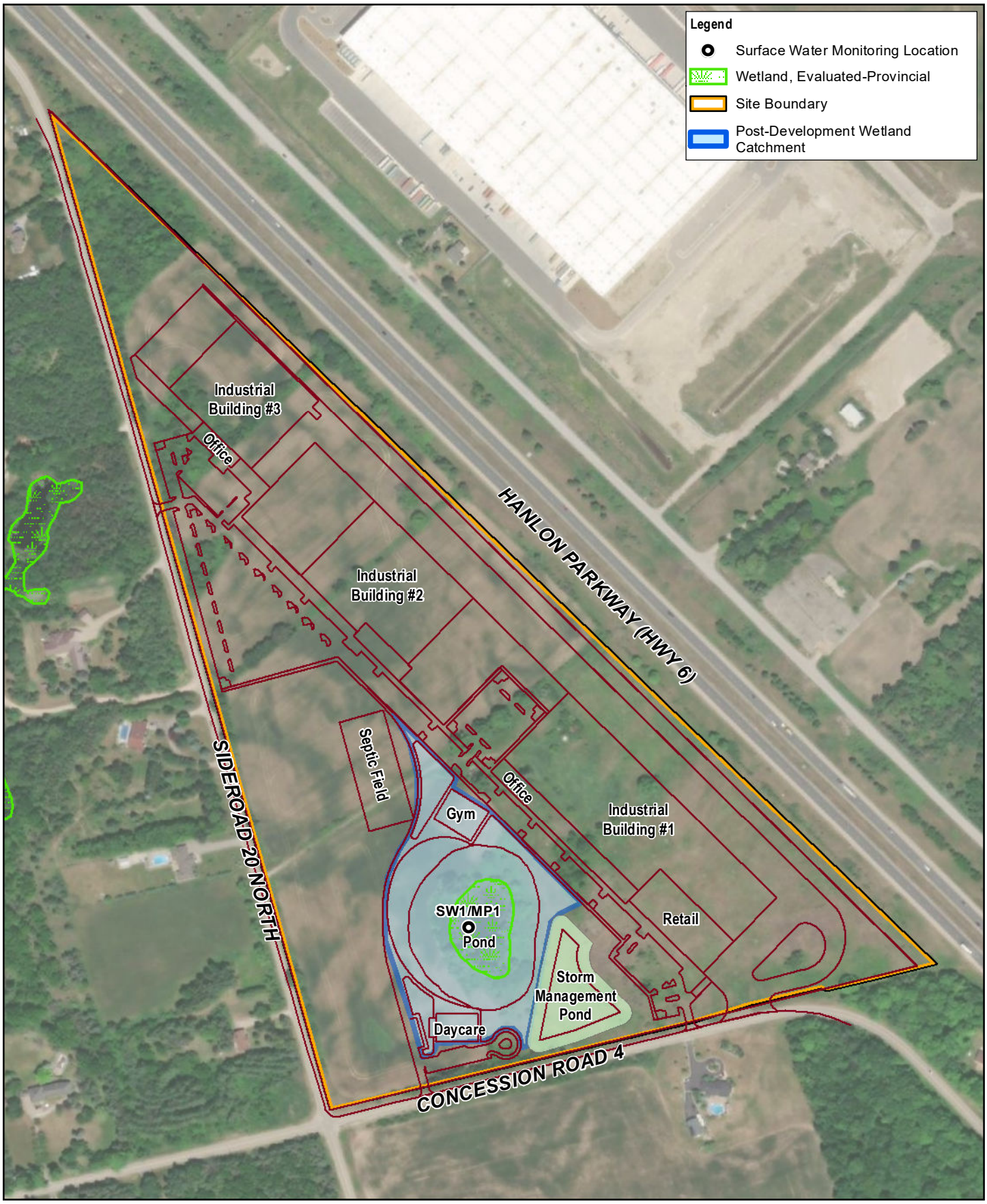
Print date: 27 May 2025 - 09:27

Data source: MNDMNRF, 2022. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, ©King's Printer 2025. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.



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Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

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PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 NORTH, PUSLINCH TOWNSHIP, ON
SITE-SPECIFIC AND FEATURE-BASED
WATER BALANCE ASSESSMENTS

Project No. **12618927**
Revision No. **-**
Date **May 28, 2025**

POST-DEVELOPMENT CONDITIONS

FIGURE 3

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Print date: 28 May 2025 - 11:55

Data source: MNDMNRF, 2022. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, ©King's Printer 2025. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.

Appendices

Appendix A

Water balance summary results

ECCC Water Budget Data
Site-Specific and Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	2 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	1 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC P
1-Jan	-6.7	56	23	14	1	1	0	36	33	2	264
1-Feb	-6.2	49	23	25	1	1	0	47	33	2	312
1-Mar	-1.1	61	40	47	9	9	0	78	8	2	373
1-Apr	5.8	73	69	11	32	32	0	48	0	2	446
1-May	12.4	76	76	0	76	63	-14	14	0	1	521
1-Jun	17.3	79	79	0	109	75	-35	5	0	0	600
1-Jul	19.9	88	88	0	128	82	-46	7	0	0	689
1-Aug	18.9	79	79	0	113	75	-38	5	0	0	767
1-Sep	14.8	85	85	0	76	60	-16	24	0	1	852
1-Oct	8.5	71	70	0	39	37	-2	33	0	2	71
1-Nov	2.5	73	65	6	13	13	0	58	2	2	144
1-Dec	-3.2	63	37	14	3	3	0	48	14	2	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**451**	**-151**	**403**			

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	10 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	6 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	36	33	10	264
1-Feb	-6.2	49	23	25	1	1	0	47	33	10	312
1-Mar	-1.1	61	40	47	9	9	0	78	8	10	373
1-Apr	5.8	73	69	11	32	32	0	48	0	10	446
1-May	12.4	76	76	0	76	67	-10	14	0	5	521
1-Jun	17.3	79	79	0	109	78	-31	4	0	2	600
1-Jul	19.9	88	88	0	128	83	-45	5	0	2	689
1-Aug	18.9	79	79	0	113	76	-37	4	0	1	767
1-Sep	14.8	85	85	0	76	61	-16	21	0	5	852
1-Oct	8.5	71	70	0	39	37	-2	30	0	8	71
1-Nov	2.5	73	65	6	13	13	0	57	2	10	144
1-Dec	-3.2	63	37	14	3	3	0	48	14	10	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**461**	**-141**	**392**			

ECCC Water Budget Data
Site-Specific and Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	75 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	45 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	35	33	75	264
1-Feb	-6.2	49	23	25	1	1	0	47	33	75	312
1-Mar	-1.1	61	40	47	9	9	0	78	8	75	373
1-Apr	5.8	73	69	11	32	32	0	48	0	75	446
1-May	12.4	76	76	0	76	76	0	14	0	61	521
1-Jun	17.3	79	79	0	109	103	-6	3	0	34	600
1-Jul	19.9	88	88	0	128	102	-26	1	0	18	689
1-Aug	18.9	79	79	0	113	84	-29	1	0	13	767
1-Sep	14.8	85	85	0	76	63	-13	8	0	27	852
1-Oct	8.5	71	70	0	39	38	-1	13	0	47	71
1-Nov	2.5	73	65	6	13	13	0	37	2	69	144
1-Dec	-3.2	63	37	14	3	3	0	43	14	75	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**525**	**-75**	**328**			

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	100 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	60 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	34	33	100	264
1-Feb	-6.2	49	23	25	1	1	0	47	33	100	312
1-Mar	-1.1	61	40	47	9	9	0	78	8	100	373
1-Apr	5.8	73	69	11	32	32	0	48	0	100	446
1-May	12.4	76	76	0	76	76	0	14	0	85	521
1-Jun	17.3	79	79	0	109	107	-2	3	0	54	600
1-Jul	19.9	88	88	0	128	111	-17	1	0	30	689
1-Aug	18.9	79	79	0	113	88	-24	1	0	20	767
1-Sep	14.8	85	85	0	76	63	-13	7	0	35	852
1-Oct	8.5	71	70	0	39	38	-1	8	0	59	71
1-Nov	2.5	73	65	6	13	13	0	30	2	88	144
1-Dec	-3.2	63	37	14	3	3	0	38	14	98	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**542**	**-57**	**309**			

ECCC Water Budget Data
Site-Specific and Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	150 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	90 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	28	33	148	264
1-Feb	-6.2	49	23	25	1	1	0	46	33	149	312
1-Mar	-1.1	61	40	47	9	9	0	77	8	150	373
1-Apr	5.8	73	69	11	32	32	0	48	0	150	446
1-May	12.4	76	76	0	76	76	0	14	0	135	521
1-Jun	17.3	79	79	0	109	109	0	3	0	102	600
1-Jul	19.9	88	88	0	128	123	-5	1	0	66	689
1-Aug	18.9	79	79	0	113	97	-16	1	0	48	767
1-Sep	14.8	85	85	0	76	65	-11	7	0	60	852
1-Oct	8.5	71	70	0	39	38	-1	6	0	87	71
1-Nov	2.5	73	65	6	13	13	0	22	2	124	144
1-Dec	-3.2	63	37	14	3	3	0	31	14	141	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**567**	**-33**	**284**			

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	175 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	105 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	25	33	171	264
1-Feb	-6.2	49	23	25	1	1	0	45	33	173	312
1-Mar	-1.1	61	40	47	9	9	0	76	8	175	373
1-Apr	5.8	73	69	11	32	32	0	48	0	175	446
1-May	12.4	76	76	0	76	76	0	14	0	160	521
1-Jun	17.3	79	79	0	109	109	0	3	0	127	600
1-Jul	19.9	88	88	0	128	125	-2	1	0	89	689
1-Aug	18.9	79	79	0	113	101	-12	1	0	66	767
1-Sep	14.8	85	85	0	76	67	-9	7	0	78	852
1-Oct	8.5	71	70	0	39	38	-1	6	0	104	71
1-Nov	2.5	73	65	6	13	13	0	21	2	142	144
1-Dec	-3.2	63	37	14	3	3	0	29	14	161	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**575**	**-24**	**276**			

ECCC Water Budget Data
Site-Specific and Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	200 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	120 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	23	33	193	264
1-Feb	-6.2	49	23	25	1	1	0	43	33	198	312
1-Mar	-1.1	61	40	47	9	9	0	75	8	200	373
1-Apr	5.8	73	69	11	32	32	0	48	0	200	446
1-May	12.4	76	76	0	76	76	0	14	0	185	521
1-Jun	17.3	79	79	0	109	109	0	3	0	152	600
1-Jul	19.9	88	88	0	128	127	-1	1	0	112	689
1-Aug	18.9	79	79	0	113	104	-9	1	0	87	767
1-Sep	14.8	85	85	0	76	68	-8	7	0	97	852
1-Oct	8.5	71	70	0	39	38	-1	6	0	123	71
1-Nov	2.5	73	65	6	13	13	0	20	2	162	144
1-Dec	-3.2	63	37	14	3	3	0	28	14	182	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**581**	**-19**	**269**			

Guelph - Waterloo			WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
	LAT	43.48	WATER HOLDING CAPACITY	325 mm	HEAT INDEX	35.09
	LONG	80.2	LOWER ZONE	195 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	18	33	309	264
1-Feb	-6.2	49	23	25	1	1	0	38	33	319	312
1-Mar	-1.1	61	40	47	9	9	0	72	8	324	373
1-Apr	5.8	73	69	11	32	32	0	48	0	324	446
1-May	12.4	76	76	0	76	76	0	14	0	310	521
1-Jun	17.3	79	79	0	109	109	0	3	0	277	600
1-Jul	19.9	88	88	0	128	128	0	1	0	236	689
1-Aug	18.9	79	79	0	113	111	-2	1	0	203	767
1-Sep	14.8	85	85	0	76	73	-3	7	0	208	852
1-Oct	8.5	71	70	0	39	38	0	6	0	234	71
1-Nov	2.5	73	65	6	13	13	0	19	2	274	144
1-Dec	-3.2	63	37	14	3	3	0	28	14	295	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**594**	**-5**	**255**			

ECCC Water Budget Data
Site-Specific and Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Guelph - Waterloo		WATER BUDGET MEANS FOR THE PERIOD 1975 - 2023			DC20492
LAT	43.48	WATER HOLDING CAPACITY	350 mm	HEAT INDEX	35.09
LONG	80.2	LOWER ZONE	210 mm	A	1.055

DATE	TEMP	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC
1-Jan	-6.7	56	23	14	1	1	0	18	33	333	264
1-Feb	-6.2	49	23	25	1	1	0	38	33	343	312
1-Mar	-1.1	61	40	47	9	9	0	72	8	349	373
1-Apr	5.8	73	69	11	32	32	0	48	0	349	446
1-May	12.4	76	76	0	76	76	0	14	0	335	521
1-Jun	17.3	79	79	0	109	109	0	3	0	302	600
1-Jul	19.9	88	88	0	128	128	0	1	0	261	689
1-Aug	18.9	79	79	0	113	111	-1	1	0	228	767
1-Sep	14.8	85	85	0	76	74	-2	7	0	232	852
1-Oct	8.5	71	70	0	39	39	0	6	0	258	71
1-Nov	2.5	73	65	6	13	13	0	19	2	298	144
1-Dec	-3.2	63	37	14	3	3	0	28	14	318	208
AVE	**6.8 TTL**	**853**	**734**	**117**	**600**	**596**	**-3**	**255**			

Waterloo Wellington Station Climate Normals - Lake Evaporation (1981 - 2010)			
DATE	**PCPN**	**LAKE EVAP**	**PCPN. - LAKE EVAP.**
1-Jan	56	0	56
1-Feb	49	0	49
1-Mar	61	0	61
1-Apr	73	0	73
1-May	76	130	-54
1-Jun	79	147	-68
1-Jul	88	152	-64
1-Aug	79	124	-45
1-Sep	85	84	1
1-Oct	71	53	18
1-Nov	73	0	73
1-Dec	63	0	63
TOTAL	**853**	**690**	**163**

Entered by: MR
Reviewed by: SA

Table A2

Land Type Parameters
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Land Use	WHC	Type of Land Use	Soil Type (HSG)	Infiltration Factor					Drainage Area (m^2)	
				Topo	Soils	Cover	Total I.D.A	Total O.D.A	Internally Draining Area	Off-Site Draining Area
Moderately Rooted Agriculture (Corn)	175 mm	Agricultural Land / Tilled	Loam (BC)	0.15	0.30	0.10	1.00	0.55	127,119	5,064
Meadow	200 mm	Pasture & Shrubs	Loam (BC)	0.15	0.30	0.10	1.00	0.55	45,521	3,638
Meadow (Former Gravel Quarry)	150 mm	Pasture & Shrubs	Fine Sandy Loam (B)	0.15	0.30	0.10	1.00	0.55	42,511	176
Abandoned Farm Buildings	10 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	1.00	0.00	321	-
Thicket / Hedgerows	350 mm	Mature Forest	Loam (BC)	0.15	0.30	0.20	1.00	0.65	25,487	1,203
On-Site Wetland (Shallow Aquatic)	175 mm	Wetland	Loam (BC)	0.20	0.30	0.10	1.00	1.00	2,027	-
On-Site Wetland (Deciduous Swamp)	325 mm	Treed Swamp	Loam (BC)	0.20	0.30	0.20	1.00	1.00	1,635	-
						Total	**1.00**	**0.56**	**244,620**	**10,080**

Post-Development (Uncontrolled) Conditions

Land Use	WHC	Type of Land Use	Soil Type (HSG)	Infiltration Factor					Drainage Area (m^2)	
				Topo	Soils	Cover	Total I.D.A	Total O.D.A	Internally Draining Area	Off-Site Draining Area
Grassed Area / SWM Pond Banks	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	1.00	0.55	7,502	60,267
Grassed Area / SWM Pond Banks (Former Gravel Quarry)	75 mm	Urban Lawns	Fine Sandy Loam (B)	0.15	0.30	0.10	1.00	0.55	-	8,902
Industrial / Community Buildings	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	1.00	0.00	2,149	68,400
Parking Lots / Walkways / Roadways	10 mm	Impervious Areas - Paved	N/A	0.00	0.00	0.00	1.00	0.00	4,035	86,622
On-Site Wetland (Shallow Aquatic)	175 mm	Wetland	Loam (BC)	0.20	0.30	0.10	1.00	1.00	2,027	-
On-Site Wetland (Deciduous Swamp)	325 mm	Treed Swamp	Loam (BC)	0.20	0.30	0.20	1.00	1.00	1,635	-
Meadow (Wetland Buffer)	150 mm	Pasture & Shrubs	Loam (BC)	0.15	0.30	0.10	1.00	0.55	6,632	-
Thicket (Wetland Buffer)	350 mm	Mature Forest	Loam (BC)	0.15	0.30	0.20	1.00	0.65	3,119	-
SWM Pond	PCPN. - LAKE EVAP.	Open Water	Loam (BC)	0.00	0.00	0.00	1.00	0.00	-	3,410
						Total	**1.00**	**0.17**	**27,100**	**227,600**

Table A2

Land Type Parameters
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Land Use	WHC	Type of Land Use	Soil Type (HSG)	Infiltration Factor					Drainage Area (m^2)	
				Topo	Soils	Cover	Total I.D.A	Total O.D.A	Internally Draining Area	Off-Site Draining Area
Grassed Area	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	1.00	0.55	1,502	2,043
Grassed Area / SWM Pond Banks (Former Gravel Quarry) to SWM Pond	75 mm	Urban Lawns	Fine Sandy Loam (B)	0.15	0.30	0.10	0.55	0.55	8,902	-
Grassed Area / SWM Pond Banks to SWM Pond	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.55	0.55	58,224	-
Parking Lots / Walkways / Roadways	10 mm	Impervious Areas - Paved	N/A	0.00	0.00	0.00	1.00	0.00	4,035	1,157
Parking Lots / Walkways / Roadways to SWM Pond	10 mm	Impervious Areas - Paved	N/A	0.00	0.00	0.00	0.00	0.00	85,464	-
On-Site Wetland (Shallow Aquatic)	175 mm	Wetland	Loam (BC)	0.20	0.30	0.10	1.00	1.00	2,027	-
On-Site Wetland (Deciduous Swamp)	325 mm	Treed Swamp	Loam (BC)	0.20	0.30	0.20	1.00	1.00	1,635	-
Meadow (Wetland Buffer)	150 mm	Pasture & Shrubs	Loam (BC)	0.15	0.30	0.10	1.00	0.55	6,632	-
Thicket (Wetland Buffer)	350 mm	Mature Forest	Loam (BC)	0.15	0.30	0.20	1.00	0.65	3,119	-
SWM Pond	PCPN. - LAKE EVAP.	Open Water	Loam (BC)	0.00	0.00	0.00	0.00	0.00	3,410	-
Industrial / Community Buildings to LID #1A - Underground Infiltration Chamber	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	0.87	17,000	-
Industrial / Community Buildings to LID #1B - Underground Infiltration Trench	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	0.87	8,900	-
Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	0.87	28,100	-
Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	0.87	14,400	-
Industrial / Community Buildings to LID #5 - Overland Depression Area	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	0.87	1,200	-
Grassed Area to LID #5 - Overland Depression Area	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.94	0.94	3,100	-
Industrial / Community Buildings to LID #6 - Overland Depression Area	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	0.87	949	-
Grassed Area to LID #6 - Overland Depression Area	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.94	0.94	2,900	-
						Total	**0.49**	**0.35**	**251,500**	**3,200**

Table A3

Land Type Parameters
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Land Use	WHC	Type of Land Use	Soil Type (HSG)	Infiltration Factor				Area of Subcatchment (m^2)
				Topo	Soils	Cover	Total	AP-1
Moderately Rooted Agriculture (Corn)	175 mm	Agricultural Land / Tilled	Loam (BC)	0.15	0.30	0.10	0.55	97,943
Meadow	200 mm	Pasture & Shrubs	Loam (BC)	0.15	0.30	0.10	0.55	48,819
Meadow (Former Gravel Quarry)	150 mm	Pasture & Shrubs	Fine Sandy Loam (B)	0.15	0.30	0.10	0.55	25,170
Abandoned Farm Buildings	10 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.00	321
Thicket / Hedgerows	350 mm	Mature Forest	Loam (BC)	0.15	0.30	0.20	0.65	10,275
Roadway	2 mm	Impervious Areas - Paved	N/A	0.00	0.00	0.00	0.00	6,154
On-Site Wetland (Shallow Aquatic)	175 mm	Wetland	Loam (BC)	0.00	0.00	0.00	1.00	2,027
On-Site Wetland (Deciduous Swamp)	325 mm	Treed Swamp	Loam (BC)	0.00	0.00	0.00	1.00	1,635
						Total	**0.55**	**192,343**

Post-Development (Uncontrolled) Conditions

Land Use	WHC	Type of Land Use	Soil Type (HSG)	Infiltration Factor				Area of Subcatchment (m^2)
				Topo	Soils	Cover	Total	AP-1
Grassed Area	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.55	7,502
Grassed Area (Former Gravel Quarry)	75 mm	Urban Lawns	Fine Sandy Loam (B)	0.15	0.30	0.10	0.55	-
Community Buildings	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.00	2,149
Walkways	10 mm	Impervious Areas - Paved	N/A	0.00	0.00	0.00	0.00	4,035
On-Site Wetland (Shallow Aquatic)	175 mm	Wetland	Loam (BC)	0.00	0.00	0.00	1.00	2,027
On-Site Wetland (Deciduous Swamp)	325 mm	Treed Swamp	Loam (BC)	0.00	0.00	0.00	1.00	1,635
Meadow (Wetland Buffer)	150 mm	Pasture & Shrubs	Loam (BC)	0.15	0.30	0.10	0.55	6,632
Thicket (Wetland Buffer)	350 mm	Mature Forest	Loam (BC)	0.15	0.30	0.20	0.65	3,119
						Total	**0.50**	**27,100**

Table A3

Land Type Parameters
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Type	WHC	Type of Land Use	Soil Type (HSG)	Infiltration Factor				Area of Subcatchment (m^2)
				Topo	Soils	Cover	Total	AP-1
Grassed Area	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.55	1,502
Grassed Area / SWM Pond Banks (Former Gravel Quarry) to SWM Pond	75 mm	Urban Lawns	Fine Sandy Loam (B)	0.15	0.30	0.10	0.55	8,902
Grassed Area / SWM Pond Banks to SWM Pond	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.55	58,224
Walkways	10 mm	Impervious Areas - Paved	N/A	0.00	0.00	0.00	0.00	4,035
Parking Lots / Walkways / Roadways to SWM Pond	10 mm	Impervious Areas - Paved	N/A	0.00	0.00	0.00	0.00	85,464
On-Site Wetland (Shallow Aquatic)	175 mm	Wetland	Loam (BC)	0.00	0.00	0.00	1.00	2,027
On-Site Wetland (Deciduous Swamp)	325 mm	Treed Swamp	Loam (BC)	0.00	0.00	0.00	1.00	1,635
Meadow (Wetland Buffer)	150 mm	Pasture & Shrubs	Loam (BC)	0.15	0.30	0.10	0.55	6,632
Thicket (Wetland Buffer)	350 mm	Mature Forest	Loam (BC)	0.15	0.30	0.20	0.65	3,119
SWM Pond	PCPN. - LAKE EVAP.	Open Water	Loam (BC)	0.00	0.00	0.00	0.00	3,410
Industrial / Community Buildings to LID #1A - Underground Infiltration Chamber	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	17,000
Industrial / Community Buildings to LID #1B - Underground Infiltration Trench	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	8,900
Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	28,100
Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	14,400
Industrial / Community Buildings to LID #5 - Overland Depression Area	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	1,200
Grassed Area to LID #5 - Overland Depression Area	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.94	3,100
Industrial / Community Buildings to LID #6 - Overland Depression Area	2 mm	Impervious Areas - Roof	N/A	0.00	0.00	0.00	0.87	949
Grassed Area to LID #6 - Overland Depression Area	100 mm	Urban Lawns	Loam (BC)	0.15	0.30	0.10	0.94	2,900
						Total	**0.45**	**251,500**

Table A4

Pre-Dev Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	24.46	ha

Site-Specific Water Balance - Internally Draining Area

			Moderately Rooted Agriculture (Corn)		***Meadow***		***Meadow (Former Gravel Quarry)***	
			WHC	***175 mm***	***WHC***	***200 mm***	***WHC***	***150 mm***
			Infiltration Factor	***1.00***	***Infiltration Factor***	***1.00***	***Infiltration Factor***	***1.00***
			Area (m^2)	***127,119***	***Area (m^2)***	***45,521***	***Area (m^2)***	***42,511***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	25	3,178	1	23	1,047	1	28	1,190
February	49	1	1	45	5,720	1	43	1,957	1	46	1,955
March	61	9	9	76	9,661	9	75	3,414	9	77	3,273
April	73	32	32	48	6,102	32	48	2,185	32	48	2,041
May	76	76	76	14	1,780	76	14	637	76	14	595
June	79	109	109	3	381	109	3	137	109	3	128
July	88	128	125	1	127	127	1	46	123	1	43
August	79	113	101	1	127	104	1	46	97	1	43
September	85	76	67	7	890	68	7	319	65	7	298
October	71	39	38	6	763	38	6	273	38	6	255
November	73	13	13	21	2,669	13	20	910	13	22	935
December	63	3	3	29	3,686	3	28	1,275	3	31	1,318
Total	**853**	**600**	**575**	**276**	**35,085**	**581**	**269**	**12,245**	**567**	**284**	**12,073**

Table A4

Pre-Dev Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	24.46	ha

Site-Specific Water Balance - Internally Draining Area

			Abandoned Farm Buildings		***Thicket / Hedgerows***		***On-Site Wetland (Shallow Aquatic)***	
			WHC	***10 mm***	***WHC***	***350 mm***	***WHC***	***175 mm***
			Infiltration Factor	***1.00***	***Infiltration Factor***	***1.00***	***Infiltration Factor***	***1.00***
			Area (m^2)	***321***	***Area (m^2)***	***25,487***	***Area (m^2)***	***2,027***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	36	12	1	18	459	1	25	51
February	49	1	1	47	15	1	38	968	1	45	91
March	61	9	9	78	25	9	72	1,835	9	76	154
April	73	32	32	48	15	32	48	1,223	32	48	97
May	76	76	67	14	4	76	14	357	76	14	28
June	79	109	78	4	1	109	3	76	109	3	6
July	88	128	83	5	2	128	1	25	125	1	2
August	79	113	76	4	1	111	1	25	101	1	2
September	85	76	61	21	7	74	7	178	67	7	14
October	71	39	37	30	10	39	6	153	38	6	12
November	73	13	13	57	18	13	19	484	13	21	43
December	63	3	3	48	15	3	28	714	3	29	59
Total	**853**	**600**	**461**	**392**	**126**	**596**	**255**	**6,499**	**575**	**276**	**559**

Table A4

Pre-Dev Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	24.46	ha

Site-Specific Water Balance - Internally Draining Area

On-Site Wetland (Deciduous Swamp)	
WHC	***325 mm***
Infiltration Factor	***1.00***
Area (m^2)	***1,635***

Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Precip. Volume***	***Actual Evap. Volume***	***Surplus Volume***	***Infiltration Volume***	***Surface Runoff Volume***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**
January	56	1	1	18	29	13,699	245	5,966	5,966	0
February	49	1	1	38	62	11,986	245	10,770	10,770	0
March	61	9	9	72	118	14,922	2,202	18,480	18,480	0
April	73	32	32	48	79	17,857	7,828	11,742	11,742	0
May	76	76	76	14	23	18,591	18,588	3,425	3,425	0
June	79	109	109	3	5	19,325	26,654	734	734	0
July	88	128	128	1	2	21,527	30,651	246	246	0
August	79	113	111	1	2	19,325	24,936	246	246	0
September	85	76	73	7	11	20,793	16,536	1,717	1,717	0
October	71	39	38	6	10	17,368	9,321	1,475	1,475	0
November	73	13	13	19	31	17,857	3,180	5,091	5,091	0
December	63	3	3	28	46	15,411	734	7,112	7,112	0
Total	**853**	**600**	**594**	**255**	**417**	**208,661**	**141,119**	**67,004**	**67,004**	**0**

Table A4

Pre-Dev Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	1.01	ha

Site-Specific Water Balance - Off-Site Draining Area

			Moderately Rooted Agriculture (Corn)		***Meadow***		***Meadow (Former Gravel Quarry)***	
			WHC	***175 mm***	***WHC***	***200 mm***	***WHC***	***150 mm***
			Infiltration Factor	***0.55***	***Infiltration Factor***	***0.55***	***Infiltration Factor***	***0.55***
			Area (m^2)	***5,064***	***Area (m^2)***	***3,638***	***Area (m^2)***	***176***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	25	127	1	23	84	1	28	5
February	49	1	1	45	228	1	43	156	1	46	8
March	61	9	9	76	385	9	75	273	9	77	14
April	73	32	32	48	243	32	48	175	32	48	8
May	76	76	76	14	71	76	14	51	76	14	2
June	79	109	109	3	15	109	3	11	109	3	1
July	88	128	125	1	5	127	1	4	123	1	0
August	79	113	101	1	5	104	1	4	97	1	0
September	85	76	67	7	35	68	7	25	65	7	1
October	71	39	38	6	30	38	6	22	38	6	1
November	73	13	13	21	106	13	20	73	13	22	4
December	63	3	3	29	147	3	28	102	3	31	5
Total	**853**	**600**	**575**	**276**	**1,398**	**581**	**269**	**979**	**567**	**284**	**50**

Entered by: MR
Reviewed by: SA

Table A4

Pre-Dev Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	1.01	ha

Site-Specific Water Balance - Off-Site Draining Area

			Abandoned Farm Buildings		***Thicket / Hedgerows***		***On-Site Wetland (Shallow Aquatic)***	
			WHC	***10 mm***	***WHC***	***350 mm***	***WHC***	***175 mm***
			Infiltration Factor	***0.00***	***Infiltration Factor***	***0.65***	***Infiltration Factor***	***1.00***
			Area (m^2)	***0***	***Area (m^2)***	***1,203***	***Area (m^2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**
January	56	1	1	36	1	18	1	25
February	49	1	1	47	1	38	1	45
March	61	9	9	78	9	72	9	76
April	73	32	32	48	32	48	32	48
May	76	76	67	14	76	14	76	14
June	79	109	78	4	109	3	109	3
July	88	128	83	5	128	1	125	1
August	79	113	76	4	111	1	101	1
September	85	76	61	21	74	7	67	7
October	71	39	37	30	39	6	38	6
November	73	13	13	57	13	19	13	21
December	63	3	3	48	3	28	3	29
Total	**853**	**600**	**461**	**392**	**596**	**255**	**575**	**276**

			Abandoned Farm Buildings		***Thicket / Hedgerows***		***On-Site Wetland (Shallow Aquatic)***	
			Actual Evap.	**Surplus**	**Actual Evap.**	**Surplus**	**Actual Evap.**	**Surplus**
			(mm)	**(m^3)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**
January			1	0	1	22	1	0
February			1	0	1	46	1	0
March			9	0	9	87	9	0
April			32	0	32	58	32	0
May			67	0	76	17	76	0
June			78	0	109	4	109	0
July			83	0	128	1	125	0
August			76	0	111	1	101	0
September			61	0	74	8	67	0
October			37	0	39	7	38	0
November			13	0	13	23	13	0
December			3	0	3	34	3	0
Total			**461**	**0**	**596**	**307**	**575**	**0**

Table A4

Pre-Dev Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	1.01	ha

Site-Specific Water Balance - Off-Site Draining Area

On-Site Wetland (Deciduous Swamp)	
WHC	***325 mm***
Infiltration Factor	***1.00***
Area (m^2)	***0***

Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Precip. Volume***	***Actual Evap. Volume***	***Surplus Volume***	***Infiltration Volume***	***Surface Runoff Volume***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**
January	56	1	1	18	0	564	10	237	132	104
February	49	1	1	38	0	494	10	438	246	193
March	61	9	9	72	0	615	91	758	425	332
April	73	32	32	48	0	736	323	484	272	212
May	76	76	76	14	0	766	766	141	79	62
June	79	109	109	3	0	796	1,099	30	17	13
July	88	128	128	1	0	887	1,271	10	6	4
August	79	113	111	1	0	796	1,040	10	6	4
September	85	76	73	7	0	857	687	71	40	31
October	71	39	38	6	0	716	384	60	34	26
November	73	13	13	19	0	736	131	206	115	90
December	63	3	3	28	0	635	30	288	162	126
Total	**853**	**600**	**594**	**255**	**0**	**8,598**	**5,842**	**2,733**	**1,534**	**1,199**

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	2.71	ha

Site-Specific Water Balance - Internally Draining Area

			Grassed Area / SWM Pond Banks		***Grassed Area / SWM Pond Banks (Former Gravel Quarry)***			***Industrial / Community Buildings***		
			WHC	***100 mm***	***WHC***	***75 mm***		***WHC***	***2 mm***	
			Infiltration Factor	***1.00***	***Infiltration Factor***	***1.00***		***Infiltration Factor***	***1.00***	
			Area (m^2)	***7,502***	***Area (m^2)***	***0***		***Area (m^2)***	***2,149***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	34	255	1	35	0	1	36	77
February	49	1	1	47	353	1	47	0	1	47	101
March	61	9	9	78	585	9	78	0	9	78	168
April	73	32	32	48	360	32	48	0	32	48	103
May	76	76	76	14	105	76	14	0	63	14	30
June	79	109	107	3	23	103	3	0	75	5	11
July	88	128	111	1	8	102	1	0	82	7	15
August	79	113	88	1	8	84	1	0	75	5	11
September	85	76	63	7	53	63	8	0	60	24	52
October	71	39	38	8	60	38	13	0	37	33	71
November	73	13	13	30	225	13	37	0	13	58	125
December	63	3	3	38	285	3	43	0	3	48	103
Total	**853**	**600**	**542**	**309**	**2,318**	**525**	**328**	**0**	**451**	**403**	**866**

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	2.71	ha

Site-Specific Water Balance - Internally Draining Area

			Parking Lots / Walkways / Roadways		***On-Site Wetland (Shallow Aquatic)***			***On-Site Wetland (Deciduous Swamp)***		
			WHC	***10 mm***	***WHC***	***175 mm***		***WHC***	***325 mm***	
			Infiltration Factor	***1.00***	***Infiltration Factor***	***1.00***		***Infiltration Factor***	***1.00***	
			Area (m^2)	***4,035***	***Area (m^2)***	***2,027***		***Area (m^2)***	***1,635***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	36	145	1	25	51	1	18	29
February	49	1	1	47	190	1	45	91	1	38	62
March	61	9	9	78	315	9	76	154	9	72	118
April	73	32	32	48	194	32	48	97	32	48	79
May	76	76	67	14	56	76	14	28	76	14	23
June	79	109	78	4	16	109	3	6	109	3	5
July	88	128	83	5	20	125	1	2	128	1	2
August	79	113	76	4	16	101	1	2	111	1	2
September	85	76	61	21	85	67	7	14	73	7	11
October	71	39	37	30	121	38	6	12	38	6	10
November	73	13	13	57	230	13	21	43	13	19	31
December	63	3	3	48	194	3	29	59	3	28	46
Total	**853**	**600**	**461**	**392**	**1,582**	**575**	**276**	**559**	**594**	**255**	**417**

Entered by: MR
Reviewed by: SA

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	2.71	ha

Site-Specific Water Balance - Internally Draining Area

		Meadow (Wetland Buffer)		***Thicket (Wetland Buffer)***		***SWM Pond***	
		WHC	***150 mm***	***WHC***	***350 mm***	***WHC***	***PCPN. - LAKE EVAP.***
		Infiltration Factor	***1.00***	***Infiltration Factor***	***1.00***	***Infiltration Factor***	***1.00***
		Area (m^2)	***6,632***	***Area (m^2)***	***3,119***	***Area (m^2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	28	186	1	18	56	0	56	0
February	49	1	1	46	305	1	38	119	0	49	0
March	61	9	9	77	511	9	72	225	0	61	0
April	73	32	32	48	318	32	48	150	0	73	0
May	76	76	76	14	93	76	14	44	130	-54	0
June	79	109	109	3	20	109	3	9	147	-68	0
July	88	128	123	1	7	128	1	3	152	-64	0
August	79	113	97	1	7	111	1	3	124	-45	0
September	85	76	65	7	46	74	7	22	84	1	0
October	71	39	38	6	40	39	6	19	53	18	0
November	73	13	13	22	146	13	19	59	0	73	0
December	63	3	3	31	206	3	28	87	0	63	0
Total	**853**	**600**	**567**	**284**	**1,884**	**596**	**255**	**795**	**690**	**163**	**0**

Entered by: MR
Reviewed by: SA

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	2.71	ha

Site-Specific Water Balance - Internally Draining Area

Month	*Precipitation*	*Potential Evap.*	*Precip. Volume*	*Actual Evap. Volume*	*Surplus Volume*	*Infiltration Volume*	*Surface Runoff Volume*
(-)	(mm)	(mm)	(m^3)	(m^3)	(m^3)	(m^3)	(m^3)
January	56	1	1,518	27	800	800	0
February	49	1	1,328	27	1,220	1,220	0
March	61	9	1,653	244	2,075	2,075	0
April	73	32	1,978	867	1,301	1,301	0
May	76	76	2,060	1,995	379	379	0
June	79	109	2,141	2,741	90	90	0
July	88	128	2,385	3,022	56	56	0
August	79	113	2,141	2,504	48	48	0
September	85	76	2,304	1,765	283	283	0
October	71	39	1,924	1,027	332	332	0
November	73	13	1,978	352	859	859	0
December	63	3	1,707	81	979	979	0
Total	**853**	**600**	**23,116**	**14,652**	**8,421**	**8,421**	**0**

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	22.76	ha

Site-Specific Water Balance - Off-Site Draining Area

			Grassed Area / SWM Pond Banks			***Grassed Area / SWM Pond Banks (Former Gravel Quarry)***			***Industrial / Community Buildings***		
			WHC	***100 mm***		***WHC***	***75 mm***		***WHC***	***2 mm***	
			Infiltration Factor	***0.55***		***Infiltration Factor***	***0.55***		***Infiltration Factor***	***0.00***	
			Area (m^2)	***60,267***		***Area (m^2)***	***8,902***		***Area (m^2)***	***68,400***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	34	2,049	1	35	312	1	36	2,462
February	49	1	1	47	2,833	1	47	418	1	47	3,215
March	61	9	9	78	4,701	9	78	694	9	78	5,335
April	73	32	32	48	2,893	32	48	427	32	48	3,283
May	76	76	76	14	844	76	14	125	63	14	958
June	79	109	107	3	181	103	3	27	75	5	342
July	88	128	111	1	60	102	1	9	82	7	479
August	79	113	88	1	60	84	1	9	75	5	342
September	85	76	63	7	422	63	8	71	60	24	1,642
October	71	39	38	8	482	38	13	116	37	33	2,257
November	73	13	13	30	1,808	13	37	329	13	58	3,967
December	63	3	3	38	2,290	3	43	383	3	48	3,283
Total	**853**	**600**	**542**	**309**	**18,622**	**525**	**328**	**2,920**	**451**	**403**	**27,565**

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	22.76	ha

Site-Specific Water Balance - Off-Site Draining Area

			Parking Lots / Walkways / Roadways		***On-Site Wetland (Shallow Aquatic)***			***On-Site Wetland (Deciduous Swamp)***		
			WHC	***10 mm***	***WHC***	***175 mm***		***WHC***	***325 mm***	
			Infiltration Factor	***0.00***	***Infiltration Factor***	***1.00***		***Infiltration Factor***	***1.00***	
			Area (m^2)	***86,622***	***Area (m^2)***	***0***		***Area (m^2)***	***0***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	36	3,118	1	25	0	1	18	0
February	49	1	1	47	4,071	1	45	0	1	38	0
March	61	9	9	78	6,756	9	76	0	9	72	0
April	73	32	32	48	4,158	32	48	0	32	48	0
May	76	76	67	14	1,213	76	14	0	76	14	0
June	79	109	78	4	346	109	3	0	109	3	0
July	88	128	83	5	433	125	1	0	128	1	0
August	79	113	76	4	346	101	1	0	111	1	0
September	85	76	61	21	1,819	67	7	0	73	7	0
October	71	39	37	30	2,599	38	6	0	38	6	0
November	73	13	13	57	4,937	13	21	0	13	19	0
December	63	3	3	48	4,158	3	29	0	3	28	0
Total	**853**	**600**	**461**	**392**	**33,956**	**575**	**276**	**0**	**594**	**255**	**0**

Entered by: MR
Reviewed by: SA

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	22.76	ha

Site-Specific Water Balance - Off-Site Draining Area

			Meadow (Wetland Buffer)			***Thicket (Wetland Buffer)***			***SWM Pond***		
			WHC	***150 mm***		***WHC***	***350 mm***		***WHC***	***PCPN. - LAKE EVAP.***	
			Infiltration Factor	***0.55***		***Infiltration Factor***	***0.65***		***Infiltration Factor***	***0.00***	
			Area (m^2)	***0***		***Area (m^2)***	***0***		***Area (m^2)***	***3,410***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	28	0	1	18	0	0	56	191
February	49	1	1	46	0	1	38	0	0	49	167
March	61	9	9	77	0	9	72	0	0	61	208
April	73	32	32	48	0	32	48	0	0	73	249
May	76	76	76	14	0	76	14	0	130	-54	-185
June	79	109	109	3	0	109	3	0	147	-68	-232
July	88	128	123	1	0	128	1	0	152	-64	-218
August	79	113	97	1	0	111	1	0	124	-45	-153
September	85	76	65	7	0	74	7	0	84	1	3
October	71	39	38	6	0	39	6	0	53	18	62
November	73	13	13	22	0	13	19	0	0	73	249
December	63	3	3	31	0	3	28	0	0	63	215
Total	**853**	**600**	**567**	**284**	**0**	**596**	**255**	**0**	**690**	**163**	**556**

Table A5

Post-Dev (Uncontrolled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	22.76	ha

Site-Specific Water Balance - Off-Site Draining Area

Month	*Precipitation*	*Potential Evap.*	*Precip. Volume*	*Actual Evap. Volume*	*Surplus Volume*	*Infiltration Volume*	*Surface Runoff Volume*
(-)	(mm)	(mm)	(m^3)	(m^3)	(m^3)	(m^3)	(m^3)
January	56	1	12,746	224	8,132	1,298	6,834
February	49	1	11,152	224	10,704	1,788	8,916
March	61	9	13,884	2,018	17,695	2,967	14,727
April	73	32	16,615	7,174	11,010	1,826	9,184
May	76	76	17,298	15,814	2,954	533	2,421
June	79	109	17,980	19,753	664	114	550
July	88	128	20,029	20,914	763	38	725
August	79	113	17,980	18,187	604	38	566
September	85	76	19,346	14,032	3,957	271	3,686
October	71	39	16,160	8,544	5,516	329	5,187
November	73	13	16,615	2,914	11,291	1,176	10,115
December	63	3	14,339	673	10,329	1,470	8,859
Total	**853**	**600**	**194,143**	**110,471**	**83,620**	**11,848**	**71,771**

Entered by: MR
Reviewed by: SA

Post-Dev (Controlled) Conditions - LID SWM Measures
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

SWM Pond Low Flow Orifice Outlet to On-Site Wetland

Site Runoff Controlled within the Proposed SWM Pond

Landuse	Area (m^2)	Runoff Volume (mm/year)	Runoff Volume to SWM Pond (m^3/year)
Grassed Area / SWM Pond Banks (Former Gravel Quarry)	8,902	148	1,314
Grassed Area / SWM Pond Banks	58,224	139	8,096
Parking Lots / Walkways / Roadways	85,464	392	33,502
SWM Pond	3,410	163	556
Total	**156,000**	**279**	**43,468**

LID Overflow Controlled within the Proposed SWM Pond

Landuse	Area (m^2)	Runoff Volume (mm/year)	Runoff Overflow Volume to SWM Pond (m^3/year)
Industrial / Community Buildings to LID #1A - Underground Infiltration Chamber	17,000	52	879
Industrial / Community Buildings to LID #1B - Underground Infiltration Trench	8,900	52	460
Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber	28,100	52	1,453
Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber	14,400	52	744
Total	**68,400**	**52**	**3,536**

LID Overflow Outleted to On-Site Wetland

Landuse	Area (m^2)	Runoff Volume (mm/year)	Runoff Overflow Volume to On-Site Wetland (m^3/year)
Industrial / Community Buildings to LID #5 - Overland Depression Area	1,200	52	62
Grassed Area to LID #5 - Overland Depression Area	3,100	18	55
Industrial / Community Buildings to LID #6 - Overland Depression Area	949	52	49
Grassed Area to LID #6 - Overland Depression Area	2,900	18	52
Total	**8,149**	**27**	**218**

Total Drainage Area to SWM Pond (m^2)	224,400
SWM Pond Total Runoff Volume to On-Site Wetland (m^3/year)	47,004
Runoff Reduction Factor (based on internally draining nature)	1.00
Total Infiltration in On-Site Wetland (m^3/year)	**47,004**
Total Infiltration in On-Site Wetland (mm/year)	**212**
Total LID Overflow Drainage Area to On-Site Wetland (m^2)	8,149
Total LID Overflow Volume to On-Site Wetland (m^3/year)	218
Runoff Reduction Factor (based on internally draining nature)	1.00
Total Infiltration in On-Site Wetland (m^3/year)	**218**
Total Infiltration in On-Site Wetland (mm/year)	**27**

Entered by: MR
Reviewed by: AB

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	25.15	ha

Site-Specific Water Balance - Internally Draining Area

			Grassed Area		***Grassed Area / SWM Pond Banks (Former Gravel Quarry) to SWM Pond***		***Grassed Area / SWM Pond Banks to SWM Pond***	
			WHC	***100 mm***	***WHC***	***75 mm***	***WHC***	***100 mm***
			Infiltration Factor	***1.00***	***Infiltration Factor***	***0.55***	***Infiltration Factor***	***0.55***
			Area (m^2)	***1,502***	***Area (m^2)***	***8,902***	***Area (m^2)***	***58,224***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**
January	56	1	1	34	1	35	1	34
February	49	1	1	47	1	47	1	47
March	61	9	9	78	9	78	9	78
April	73	32	32	48	32	48	32	48
May	76	76	76	14	76	14	76	14
June	79	109	107	3	103	3	107	3
July	88	128	111	1	102	1	111	1
August	79	113	88	1	84	1	88	1
September	85	76	63	7	63	8	63	7
October	71	39	38	8	38	13	38	8
November	73	13	13	30	13	37	13	30
December	63	3	3	38	3	43	3	38
Total	**853**	**600**	**542**	**309**	**525**	**328**	**542**	**309**

			Grassed Area		***Grassed Area / SWM Pond Banks (Former Gravel Quarry) to SWM Pond***		***Grassed Area / SWM Pond Banks to SWM Pond***	
			WHC	***100 mm***	***WHC***	***75 mm***	***WHC***	***100 mm***
			Infiltration Factor	***1.00***	***Infiltration Factor***	***0.55***	***Infiltration Factor***	***0.55***
			Area (m^2)	***1,502***	***Area (m^2)***	***8,902***	***Area (m^2)***	***58,224***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**
January	56	1	1	51	1	312	1	1,980
February	49	1	1	71	1	418	1	2,737
March	61	9	9	117	9	694	9	4,541
April	73	32	32	72	32	427	32	2,795
May	76	76	76	21	76	125	76	815
June	79	109	107	5	103	27	107	175
July	88	128	111	2	102	9	111	58
August	79	113	88	2	84	9	88	58
September	85	76	63	11	63	71	63	408
October	71	39	38	12	38	116	38	466
November	73	13	13	45	13	329	13	1,747
December	63	3	3	57	3	383	3	2,213
Total	**853**	**600**	**542**	**464**	**525**	**2,920**	**542**	**17,991**

Entered by: MR
Reviewed by: SA

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	25.15	ha

Site-Specific Water Balance - Internally Draining Area

			Parking Lots / Walkways / Roadways		***Parking Lots / Walkways / Roadways to SWM Pond***		***On-Site Wetland (Shallow Aquatic)***		
			WHC	***10 mm***	***WHC***	***10 mm***	***WHC***	***175 mm***	
			Infiltration Factor	***1.00***	***Infiltration Factor***	***0.00***	***Infiltration Factor***	***1.00***	
			Area (m^2)	***4,035***	***Area (m^2)***	***85,464***	***Area (m^2)***	***2,027***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	36	145	1	36	3,077	1	25	51
February	49	1	1	47	190	1	47	4,017	1	45	91
March	61	9	9	78	315	9	78	6,666	9	76	154
April	73	32	32	48	194	32	48	4,102	32	48	97
May	76	76	67	14	56	67	14	1,197	76	14	28
June	79	109	78	4	16	78	4	342	109	3	6
July	88	128	83	5	20	83	5	427	125	1	2
August	79	113	76	4	16	76	4	342	101	1	2
September	85	76	61	21	85	61	21	1,795	67	7	14
October	71	39	37	30	121	37	30	2,564	38	6	12
November	73	13	13	57	230	13	57	4,871	13	21	43
December	63	3	3	48	194	3	48	4,102	3	29	59
Total	**853**	**600**	**461**	**392**	**1,582**	**461**	**392**	**33,502**	**575**	**276**	**559**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	25.15	ha

Site-Specific Water Balance - Internally Draining Area

			On-Site Wetland (Deciduous Swamp)		***Meadow (Wetland Buffer)***			***Thicket (Wetland Buffer)***		
			WHC	***325 mm***	***WHC***	***150 mm***		***WHC***	***350 mm***	
			Infiltration Factor	***1.00***	***Infiltration Factor***	***1.00***		***Infiltration Factor***	***1.00***	
			Area (m^2)	***1,635***	***Area (m^2)***	***6,632***		***Area (m^2)***	***3,119***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	18	29	1	28	186	1	18	56
February	49	1	1	38	62	1	46	305	1	38	119
March	61	9	9	72	118	9	77	511	9	72	225
April	73	32	32	48	79	32	48	318	32	48	150
May	76	76	76	14	23	76	14	93	76	14	44
June	79	109	109	3	5	109	3	20	109	3	9
July	88	128	128	1	2	123	1	7	128	1	3
August	79	113	111	1	2	97	1	7	111	1	3
September	85	76	73	7	11	65	7	46	74	7	22
October	71	39	38	6	10	38	6	40	39	6	19
November	73	13	13	19	31	13	22	146	13	19	59
December	63	3	3	28	46	3	31	206	3	28	87
Total	**853**	**600**	**594**	**255**	**417**	**567**	**284**	**1,884**	**596**	**255**	**795**

Entered by: MR
Reviewed by: SA

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	25.15	ha

Site-Specific Water Balance - Internally Draining Area

			SWM Pond		***Industrial / Community Buildings to LID #1A - Underground Infiltration Chamber***		***Industrial / Community Buildings to LID #1B - Underground Infiltration Trench***		
			WHC	***PCPN. - LAKE EVAP.***	***WHC***	***2 mm***	***WHC***	***2 mm***	
			Infiltration Factor	***0.00***	***Infiltration Factor***	***0.87***	***Infiltration Factor***	***0.87***	
			Area (m^2)	***3,410***	***Area (m^2)***	***17,000***	***Area (m^2)***	***8,900***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	0	56	191	1	36	612	1	36	320
February	49	1	0	49	167	1	47	799	1	47	418
March	61	9	0	61	208	9	78	1,326	9	78	694
April	73	32	0	73	249	32	48	816	32	48	427
May	76	76	130	-54	-185	63	14	238	63	14	125
June	79	109	147	-68	-232	75	5	85	75	5	45
July	88	128	152	-64	-218	82	7	119	82	7	62
August	79	113	124	-45	-153	75	5	85	75	5	45
September	85	76	84	1	3	60	24	408	60	24	214
October	71	39	53	18	62	37	33	561	37	33	294
November	73	13	0	73	249	13	58	986	13	58	516
December	63	3	0	63	215	3	48	816	3	48	427
Total	**853**	**600**	**690**	**163**	**556**	**451**	**403**	**6,851**	**451**	**403**	**3,587**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	25.15	ha

Site-Specific Water Balance - Internally Draining Area

			Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber		***Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber***			***Industrial / Community Buildings to LID #5 - Overland Depression Area***		
			WHC	***2 mm***	***WHC***	***2 mm***		***WHC***	***2 mm***	
			Infiltration Factor	***0.87***	***Infiltration Factor***	***0.87***		***Infiltration Factor***	***0.87***	
			Area (m^2)	***28,100***	***Area (m^2)***	***14,400***		***Area (m^2)***	***1,200***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	36	1,012	1	36	518	1	36	43
February	49	1	1	47	1,321	1	47	677	1	47	56
March	61	9	9	78	2,192	9	78	1,123	9	78	94
April	73	32	32	48	1,349	32	48	691	32	48	58
May	76	76	63	14	393	63	14	202	63	14	17
June	79	109	75	5	141	75	5	72	75	5	6
July	88	128	82	7	197	82	7	101	82	7	8
August	79	113	75	5	141	75	5	72	75	5	6
September	85	76	60	24	674	60	24	346	60	24	29
October	71	39	37	33	927	37	33	475	37	33	40
November	73	13	13	58	1,630	13	58	835	13	58	70
December	63	3	3	48	1,349	3	48	691	3	48	58
Total	**853**	**600**	**451**	**403**	**11,324**	**451**	**403**	**5,803**	**451**	**403**	**484**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	25.15	ha

Site-Specific Water Balance - Internally Draining Area

			Grassed Area to LID #5 - Overland Depression Area		***Industrial / Community Buildings to LID #6 - Overland Depression Area***		***Grassed Area to LID #6 - Overland Depression Area***	
			WHC	***100 mm***	***WHC***	***2 mm***	***WHC***	***100 mm***
			Infiltration Factor	***0.94***	***Infiltration Factor***	***0.87***	***Infiltration Factor***	***0.94***
			Area (m^2)	***3,100***	***Area (m^2)***	***949***	***Area (m^2)***	***2,900***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	34	105	1	36	34	1	34	99
February	49	1	1	47	146	1	47	45	1	47	136
March	61	9	9	78	242	9	78	74	9	78	226
April	73	32	32	48	149	32	48	46	32	48	139
May	76	76	76	14	43	63	14	13	76	14	41
June	79	109	107	3	9	75	5	5	107	3	9
July	88	128	111	1	3	82	7	7	111	1	3
August	79	113	88	1	3	75	5	5	88	1	3
September	85	76	63	7	22	60	24	23	63	7	20
October	71	39	38	8	25	37	33	31	38	8	23
November	73	13	13	30	93	13	58	55	13	30	87
December	63	3	3	38	118	3	48	46	3	38	110
Total	**853**	**600**	**542**	**309**	**958**	**451**	**403**	**382**	**542**	**309**	**896**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	25.15	ha

Site-Specific Water Balance - Internally Draining Area

Month	*Precipitation*	*Potential Evap.*	*Precip. Volume*	*Actual Evap. Volume*	*Surplus Volume*	*Infiltration Volume*	*Surface Runoff Volume*
(-)	(mm)	(mm)	(m^3)	(m^3)	(m^3)	(m^3)	(m^3)
January	56	1	14,084	248	8,821	4,185	4,636
February	49	1	12,324	248	11,774	5,729	6,045
March	61	9	15,342	2,233	19,520	9,557	9,963
April	73	32	18,360	7,939	12,157	5,905	6,252
May	76	76	19,114	17,576	3,288	1,722	1,566
June	79	109	19,869	22,185	743	496	247
July	88	128	22,132	23,613	811	508	303
August	79	113	19,869	20,423	645	381	264
September	85	76	21,378	15,597	4,201	1,968	2,233
October	71	39	17,857	9,450	5,798	2,608	3,189
November	73	13	18,360	3,225	12,022	5,432	6,590
December	63	3	15,845	744	11,175	5,243	5,933
Total	**853**	**600**	**214,530**	**123,482**	**90,956**	**43,734**	**47,222**

Entered by: MR
Reviewed by: SA

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	0.32	ha

Site-Specific Water Balance - Off-Site Draining Area

			Grassed Area		***Grassed Area / SWM Pond Banks (Former Gravel Quarry) to SWM Pond***		***Grassed Area / SWM Pond Banks to SWM Pond***		
			WHC	***100 mm***	***WHC***	***75 mm***	***WHC***	***100 mm***	
			Infiltration Factor	***0.55***	***Infiltration Factor***	***0.55***	***Infiltration Factor***	***0.55***	
			Area (m^2)	***2,043***	***Area (m2)***	***0***	***Area (m2)***	***0***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	34	69	1	35	0	1	34	0
February	49	1	1	47	96	1	47	0	1	47	0
March	61	9	9	78	159	9	78	0	9	78	0
April	73	32	32	48	98	32	48	0	32	48	0
May	76	76	76	14	29	76	14	0	76	14	0
June	79	109	107	3	6	103	3	0	107	3	0
July	88	128	111	1	2	102	1	0	111	1	0
August	79	113	88	1	2	84	1	0	88	1	0
September	85	76	63	7	14	63	8	0	63	7	0
October	71	39	38	8	16	38	13	0	38	8	0
November	73	13	13	30	61	13	37	0	13	30	0
December	63	3	3	38	78	3	43	0	3	38	0
Total	**853**	**600**	**542**	**309**	**631**	**525**	**328**	**0**	**542**	**309**	**0**

Entered by: MR
Reviewed by: SA

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	0.32	ha

Site-Specific Water Balance - Off-Site Draining Area

			Parking Lots / Walkways / Roadways		***Parking Lots / Walkways / Roadways to SWM Pond***			***On-Site Wetland (Shallow Aquatic)***		
			WHC	***10 mm***	***WHC***	***10 mm***		***WHC***	***175 mm***	
			Infiltration Factor	***0.00***	***Infiltration Factor***	***0.00***		***Infiltration Factor***	***1.00***	
			Area (m2)	***1,157***	***Area (m2)***	***0***		***Area (m2)***	***0***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	36	42	1	36	0	1	25	0
February	49	1	1	47	54	1	47	0	1	45	0
March	61	9	9	78	90	9	78	0	9	76	0
April	73	32	32	48	56	32	48	0	32	48	0
May	76	76	67	14	16	67	14	0	76	14	0
June	79	109	78	4	5	78	4	0	109	3	0
July	88	128	83	5	6	83	5	0	125	1	0
August	79	113	76	4	5	76	4	0	101	1	0
September	85	76	61	21	24	61	21	0	67	7	0
October	71	39	37	30	35	37	30	0	38	6	0
November	73	13	13	57	66	13	57	0	13	21	0
December	63	3	3	48	56	3	48	0	3	29	0
Total	**853**	**600**	**461**	**392**	**454**	**461**	**392**	**0**	**575**	**276**	**0**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	0.32	ha

Site-Specific Water Balance - Off-Site Draining Area

			On-Site Wetland (Deciduous Swamp)		***Meadow (Wetland Buffer)***		***Thicket (Wetland Buffer)***	
			WHC	***325 mm***	***WHC***	***150 mm***	***WHC***	***350 mm***
			Infiltration Factor	***1.00***	***Infiltration Factor***	***0.55***	***Infiltration Factor***	***0.65***
			Area (m2)	***0***	***Area (m2)***	***0***	***Area (m2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**
January	56	1	1	18	1	28	1	18
February	49	1	1	38	1	46	1	38
March	61	9	9	72	9	77	9	72
April	73	32	32	48	32	48	32	48
May	76	76	76	14	76	14	76	14
June	79	109	109	3	109	3	109	3
July	88	128	128	1	123	1	128	1
August	79	113	111	1	97	1	111	1
September	85	76	73	7	65	7	74	7
October	71	39	38	6	38	6	39	6
November	73	13	13	19	13	22	13	19
December	63	3	3	28	3	31	3	28
Total	**853**	**600**	**594**	**255**	**567**	**284**	**596**	**255**

			On-Site Wetland (Deciduous Swamp)		***Meadow (Wetland Buffer)***		***Thicket (Wetland Buffer)***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**
January	56	1	1	0	1	0	1	0
February	49	1	1	0	1	0	1	0
March	61	9	9	0	9	0	9	0
April	73	32	32	0	32	0	32	0
May	76	76	76	0	76	0	76	0
June	79	109	109	0	109	0	109	0
July	88	128	128	0	123	0	128	0
August	79	113	111	0	97	0	111	0
September	85	76	73	0	65	0	74	0
October	71	39	38	0	38	0	39	0
November	73	13	13	0	13	0	13	0
December	63	3	3	0	3	0	3	0
Total	**853**	**600**	**594**	**0**	**567**	**0**	**596**	**0**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	0.32	ha

Site-Specific Water Balance - Off-Site Draining Area

			SWM Pond		***Industrial / Community Buildings to LID #1A - Underground Infiltration Chamber***		***Industrial / Community Buildings to LID #1B - Underground Infiltration Trench***	
			WHC	***PCPN. - LAKE EVAP.***	***WHC***	***2 mm***	***WHC***	***2 mm***
			Infiltration Factor	***0.00***	***Infiltration Factor***	***0.87***	***Infiltration Factor***	***0.87***
			Area (m2)	***0***	***Area (m2)***	***0***	***Area (m2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**
January	56	1	0	56	1	36	1	36
February	49	1	0	49	1	47	1	47
March	61	9	0	61	9	78	9	78
April	73	32	0	73	32	48	32	48
May	76	76	130	-54	63	14	63	14
June	79	109	147	-68	75	5	75	5
July	88	128	152	-64	82	7	82	7
August	79	113	124	-45	75	5	75	5
September	85	76	84	1	60	24	60	24
October	71	39	53	18	37	33	37	33
November	73	13	0	73	13	58	13	58
December	63	3	0	63	3	48	3	48
Total	**853**	**600**	**690**	**163**	**451**	**403**	**451**	**403**
				(m^3)		**(m^3)**		**(m^3)**
				0		0		0

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	0.32	ha

Site-Specific Water Balance - Off-Site Draining Area

			Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber		***Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber***		***Industrial / Community Buildings to LID #5 - Overland Depression Area***	
			WHC	***2 mm***	***WHC***	***2 mm***	***WHC***	***2 mm***
			Infiltration Factor	***0.87***	***Infiltration Factor***	***0.87***	***Infiltration Factor***	***0.87***
			Area (m2)	***0***	***Area (m2)***	***0***	***Area (m2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**
January	56	1	1	36	1	36	1	36
February	49	1	1	47	1	47	1	47
March	61	9	9	78	9	78	9	78
April	73	32	32	48	32	48	32	48
May	76	76	63	14	63	14	63	14
June	79	109	75	5	75	5	75	5
July	88	128	82	7	82	7	82	7
August	79	113	75	5	75	5	75	5
September	85	76	60	24	60	24	60	24
October	71	39	37	33	37	33	37	33
November	73	13	13	58	13	58	13	58
December	63	3	3	48	3	48	3	48
Total	**853**	**600**	**451**	**403**	**451**	**403**	**451**	**403**

			Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber		***Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber***		***Industrial / Community Buildings to LID #5 - Overland Depression Area***	
			Area (m2)	***0***	***Area (m2)***	***0***	***Area (m2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**
January	56	1	1	0	1	0	1	0
February	49	1	1	0	1	0	1	0
March	61	9	9	0	9	0	9	0
April	73	32	32	0	32	0	32	0
May	76	76	63	0	63	0	63	0
June	79	109	75	0	75	0	75	0
July	88	128	82	0	82	0	82	0
August	79	113	75	0	75	0	75	0
September	85	76	60	0	60	0	60	0
October	71	39	37	0	37	0	37	0
November	73	13	13	0	13	0	13	0
December	63	3	3	0	3	0	3	0
Total	**853**	**600**	**451**	**0**	**451**	**0**	**451**	**0**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	0.32	ha

Site-Specific Water Balance - Off-Site Draining Area

			Grassed Area to LID #5 - Overland Depression Area		***Industrial / Community Buildings to LID #6 - Overland Depression Area***		***Grassed Area to LID #6 - Overland Depression Area***	
			WHC	***100 mm***	***WHC***	***2 mm***	***WHC***	***100 mm***
			Infiltration Factor	***0.94***	***Infiltration Factor***	***0.87***	***Infiltration Factor***	***0.94***
			Area (m2)	***0***	***Area (m2)***	***0***	***Area (m2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(mm)**
January	56	1	1	34	1	36	1	34
February	49	1	1	47	1	47	1	47
March	61	9	9	78	9	78	9	78
April	73	32	32	48	32	48	32	48
May	76	76	76	14	63	14	76	14
June	79	109	107	3	75	5	107	3
July	88	128	111	1	82	7	111	1
August	79	113	88	1	75	5	88	1
September	85	76	63	7	60	24	63	7
October	71	39	38	8	37	33	38	8
November	73	13	13	30	13	58	13	30
December	63	3	3	38	3	48	3	38
Total	**853**	**600**	**542**	**309**	**451**	**403**	**542**	**309**

			Grassed Area to LID #5 - Overland Depression Area		***Industrial / Community Buildings to LID #6 - Overland Depression Area***		***Grassed Area to LID #6 - Overland Depression Area***	
			WHC	***100 mm***	***WHC***	***2 mm***	***WHC***	***100 mm***
			Infiltration Factor	***0.94***	***Infiltration Factor***	***0.87***	***Infiltration Factor***	***0.94***
			Area (m2)	***0***	***Area (m2)***	***0***	***Area (m2)***	***0***
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***	***Actual Evap.***	***Surplus***
(-)	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**	**(mm)**	**(m^3)**
January	56	1	1	0	1	0	1	0
February	49	1	1	0	1	0	1	0
March	61	9	9	0	9	0	9	0
April	73	32	32	0	32	0	32	0
May	76	76	76	0	63	0	76	0
June	79	109	107	0	75	0	107	0
July	88	128	111	0	82	0	111	0
August	79	113	88	0	75	0	88	0
September	85	76	63	0	60	0	63	0
October	71	39	38	0	37	0	38	0
November	73	13	13	0	13	0	13	0
December	63	3	3	0	3	0	3	0
Total	**853**	**600**	**542**	**0**	**451**	**0**	**542**	**0**

Table A7

Post-Dev (Controlled) Conditions Water Balance Calculations
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions

Total Area	0.32	ha

Site-Specific Water Balance - Off-Site Draining Area

Month	*Precipitation*	*Potential Evap.*	*Precip. Volume*	*Actual Evap. Volume*	*Surplus Volume*	*Infiltration Volume*	*Surface Runoff Volume*
(-)	(mm)	(mm)	(m^3)	(m^3)	(m^3)	(m^3)	(m^3)
January	56	1	179	3	111	38	73
February	49	1	157	3	150	53	98
March	61	9	195	29	250	88	162
April	73	32	234	102	154	54	100
May	76	76	243	233	45	16	29
June	79	109	253	309	11	3	7
July	88	128	282	323	8	1	7
August	79	113	253	268	7	1	6
September	85	76	272	199	39	8	31
October	71	39	227	120	51	9	42
November	73	13	234	42	127	34	94
December	63	3	202	10	133	43	90
Total	**853**	**600**	**2,730**	**1,641**	**1,085**	**347**	**738**

Entered by: MR
Reviewed by: SA

Summary of Calculations - Annual
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions - Internally Draining Area											
Land Use	***Area***	***Precipitation***		***Evapotranspiration***		***Surplus/Deficit***		***Infiltration***		***Runoff***	
	(ha)	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***
Moderately Rooted Agriculture (Corn)	12.72	108,430	853	73,095	575	35,085	276	35,085	276	-	-
Meadow	4.55	38,830	853	26,450	581	12,245	269	12,245	269	-	-
Meadow (Former Gravel Quarry)	4.25	36,260	853	24,105	567	12,075	284	12,075	284	-	-
Abandoned Farm Buildings	0.03	275	853	150	467	125	389	125	389	-	-
Thicket / Hedgerows	2.55	21,740	853	15,190	596	6,500	255	6,500	255	-	-
On-Site Wetland (Shallow Aquatic)	0.20	1,730	853	1,165	575	560	276	560	276	-	-
On-Site Wetland (Deciduous Swamp)	0.16	1,395	853	970	593	415	254	415	254	-	-
Total	**24.46**	**208,660**	**853**	**141,125**	**577**	**67,005**	**274**	**67,005**	**274**	**-**	**-**

Pre-Development Conditions - Off-Site Draining Area											
Land Use	***Area***	***Precipitation***		***Evapotranspiration***		***Surplus/Deficit***		***Infiltration***		***Runoff***	
	(ha)	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***
Moderately Rooted Agriculture (Corn)	0.51	4,320	853	2,910	575	1,400	276	770	152	630	124
Meadow	0.36	3,105	853	2,115	581	980	269	540	148	440	121
Meadow (Former Gravel Quarry)	0.02	150	853	100	569	50	284	30	171	20	114
Thicket / Hedgerows	0.12	1,025	853	715	594	305	254	200	166	105	87
Total	**1.01**	**8,600**	**853**	**5,840**	**579**	**2,735**	**271**	**1,540**	**153**	**1,195**	**119**

Post-Development (Uncontrolled) Conditions - Internally Draining Area											
Land Use	***Area***	***Precipitation***		***Evapotranspiration***		***Surplus/Deficit***		***Infiltration***		***Runoff***	
	(ha)	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***
Grassed Area / SWM Pond Banks	0.76	6,400	853	4,065	542	2,320	309	2,320	309	-	-
Industrial / Community Buildings	0.22	1,835	853	970	451	865	403	865	403	-	-
Parking Lots / Walkways / Roadways	0.40	3,440	853	1,860	461	1,580	392	1,580	392	-	-
On-Site Wetland (Shallow Aquatic)	0.20	1,730	853	1,165	575	560	276	560	276	-	-
On-Site Wetland (Deciduous Swamp)	0.16	1,395	853	970	593	415	254	415	254	-	-
Meadow (Wetland Buffer)	0.66	5,655	853	3,760	567	1,885	284	1,885	284	-	-
Thicket (Wetland Buffer)	0.31	2,660	853	1,860	596	795	255	795	255	-	-
Total	**2.71**	**23,115**	**858**	**14,650**	**543**	**8,420**	**313**	**8,420**	**313**	**-**	**-**

Post-Development (Uncontrolled) Conditions - Off-Site Draining Area											
Land Use	***Area***	***Precipitation***		***Evapotranspiration***		***Surplus/Deficit***		***Infiltration***		***Runoff***	
	(ha)	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***	***(m^3)***	***(mm)***
Grassed Area / SWM Pond Banks	6.03	51,405	853	32,665	542	18,620	309	10,240	170	8,380	139
Grassed Area / SWM Pond Banks (Former Gravel Quarry)	0.89	7,595	853	4,675	525	2,920	328	1,605	180	1,315	148
Industrial / Community Buildings	6.84	58,345	853	30,850	451	27,570	403	-	-	27,570	403
Parking Lots / Walkways / Roadways	8.66	73,890	853	39,930	461	33,955	392	-	-	33,955	392
SWM Pond	0.34	2,910	853	2,350	689	555	163	-	-	555	163
Total	**22.76**	**194,145**	**853**	**110,470**	**485**	**83,620**	**367**	**11,845**	**52**	**71,775**	**315**

Summary of Calculations - Annual
Site-Specific Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Controlled) Conditions - Internally Draining Area											
Land Use	*Area*	*Precipitation*		*Evapotranspiration*		*Surplus/Deficit*		*Infiltration*		*Runoff*	
	(ha)	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*
Grassed Area	0.15	1,280	853	815	542	465	310	465	310	-	-
Grassed Area / SWM Pond Banks (Former Gravel Quarry) to SWM Pond	0.89	7,595	853	4,675	525	2,920	328	1,605	180	1,315	148
Grassed Area / SWM Pond Banks to SWM Pond	5.83	49,665	853	31,555	542	17,990	309	9,895	170	8,095	139
Parking Lots / Walkways / Roadways	0.40	3,440	853	1,860	461	1,580	392	1,580	392	-	-
Parking Lots / Walkways / Roadways to SWM Pond	8.55	72,900	853	39,400	461	33,500	392	-	-	33,500	392
On-Site Wetland (Shallow Aquatic)	0.20	1,730	853	1,165	575	560	276	560	276	-	-
On-Site Wetland (Deciduous Swamp)	0.16	1,395	853	970	593	415	254	415	254	-	-
Meadow (Wetland Buffer)	0.66	5,655	853	3,760	567	1,885	284	1,885	284	-	-
Thicket (Wetland Buffer)	0.31	2,660	853	1,860	596	795	255	795	255	-	-
SWM Pond	0.34	2,910	853	2,350	689	555	163	-	-	555	163
Industrial / Community Buildings to LID #1A - Underground Infiltration Chamber	1.70	14,500	853	7,665	451	6,850	403	5,970	351	880	52
Industrial / Community Buildings to LID #1B - Underground Infiltration Trench	0.89	7,590	853	4,015	451	3,590	403	3,130	352	460	52
Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber	2.81	23,970	853	12,675	451	11,325	403	9,870	351	1,455	52
Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber	1.44	12,285	853	6,495	451	5,805	403	5,060	351	745	52
Industrial / Community Buildings to LID #5 - Overland Depression Area	0.12	1,025	853	540	450	480	400	420	350	60	50
Grassed Area to LID #5 - Overland Depression Area	0.31	2,645	853	1,680	542	960	310	905	292	55	18
Industrial / Community Buildings to LID #6 - Overland Depression Area	0.09	810	853	430	453	380	400	330	348	50	53
Grassed Area to LID #6 - Overland Depression Area	0.30	2,475	853	1,570	541	900	310	845	291	55	19
Total	**25.15**	**214,530**	**854**	**123,480**	**491**	**90,955**	**361**	**43,730**	**174**	**47,225**	**188**

Post-Development (Controlled) Conditions - Off-Site Draining Area											
Land Use	*Area*	*Precipitation*		*Evapotranspiration*		*Surplus/Deficit*		*Infiltration*		*Runoff*	
	(ha)	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*	*(m^3)*	*(mm)*
Grassed Area	0.20	1,745	853	1,105	541	630	308	345	169	285	140
Parking Lots / Walkways / Roadways	0.12	985	853	535	462	455	393	-	-	455	393
Total	**0.32**	**2,730**	**853**	**1,640**	**513**	**1,085**	**339**	**345**	**108**	**740**	**231**

Annual Summary											
Pre-Development Conditions	25.47	217,260	853	146,965	577	69,740	274	68,545	269	1,195	5
Post-Development (Uncontrolled) Conditions	25.47	217,260	855	125,120	491	92,040	361	20,265	80	71,775	281
Additional Infiltration Measures											
On-Site Wetland via SWM Pond Low Flow Orifice	-	-	-	-	-	-	-	47,000	212	(47,000)	(212)
On-Site Wetland via LID #5/6 Overflow	-	-	-	-	-	-	-	220	27	(220)	(27)
Post-Development (Controlled) Conditions	25.47	217,260	853	125,120	491	92,040	361	91,295	358	745	3
Pre- to Post- Development Difference											
Post-Development (Controlled) Conditions	-	-	-	(21,845)	(86)	22,300	87	22,750	89	(450)	(2)
Percentage Change	0%	0%	0%	-15%	-15%	32%	32%	33%	33%	-38%	-38%

Notes:
Values are rounded for reporting purposes.
Positive value for infiltration difference is a surplus and a negative value is a deficit.
Positive value for runoff difference is an increase in runoff and a negative value is a decrease in runoff.

Table A9

Pre-Dev Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	19.23	ha

Feature-Based Water Balance Analysis - AP-1

			Moderately Rooted Agriculture (Corn)			***Meadow***			***Meadow (Former Gravel Quarry)***		
			WHC	***175 mm***		***WHC***	***200 mm***		***WHC***	***150 mm***	
			Infiltration Factor	***0.55***		***Infiltration Factor***	***0.55***		***Infiltration Factor***	***0.55***	
			Area (m^2)	***97,943***		***Area (m^2)***	***48,819***		***Area (m^2)***	***25,170***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	25	2,449	1	23	1,123	1	28	705
February	49	1	1	45	4,407	1	43	2,099	1	46	1,158
March	61	9	9	76	7,444	9	75	3,661	9	77	1,938
April	73	32	32	48	4,701	32	48	2,343	32	48	1,208
May	76	76	76	14	1,371	76	14	683	76	14	352
June	79	109	109	3	294	109	3	146	109	3	76
July	88	128	125	1	98	127	1	49	123	1	25
August	79	113	101	1	98	104	1	49	97	1	25
September	85	76	67	7	686	68	7	342	65	7	176
October	71	39	38	6	588	38	6	293	38	6	151
November	73	13	13	21	2,057	13	20	976	13	22	554
December	63	3	3	29	2,840	3	28	1,367	3	31	780
Total	**853**	**600**	**575**	**276**	**27,032**	**581**	**269**	**13,132**	**567**	**284**	**7,148**

Table A9

Pre-Dev Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	19.23	ha

Feature-Based Water Balance Analysis - AP-1

			Abandoned Farm Buildings		***Thicket / Hedgerows***		***Roadway***			
			WHC	***10 mm***	***WHC***	***350 mm***	***WHC***	***2 mm***		
			Infiltration Factor	***0.00***	***Infiltration Factor***	***0.65***	***Infiltration Factor***	***0.00***		
			Area (m^2)	***321***	***Area (m^2)***	***10,275***	***Area (m^2)***	***6,154***		
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	36	12	1	18	185	1	36	222
February	49	1	1	47	15	1	38	390	1	47	289
March	61	9	9	78	25	9	72	740	9	78	480
April	73	32	32	48	15	32	48	493	32	48	295
May	76	76	67	14	4	76	14	144	63	14	86
June	79	109	78	4	1	109	3	31	75	5	31
July	88	128	83	5	2	128	1	10	82	7	43
August	79	113	76	4	1	111	1	10	75	5	31
September	85	76	61	21	7	74	7	72	60	24	148
October	71	39	37	30	10	39	6	62	37	33	203
November	73	13	13	57	18	13	19	195	13	58	357
December	63	3	3	48	15	3	28	288	3	48	295
Total	**853**	**600**	**461**	**392**	**126**	**596**	**255**	**2,620**	**451**	**403**	**2,480**

Table A9

Pre-Dev Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Pre-Development Conditions

Total Area	19.23	ha

Feature-Based Water Balance Analysis - AP-1

			On-Site Wetland (Shallow Aquatic)			***On-Site Wetland (Deciduous Swamp)***							
			WHC	***175 mm***		***WHC***	***325 mm***						
			Infiltration Factor	***1.00***		***Infiltration Factor***	***1.00***						
			Area (m^2)	***2,027***		***Area (m^2)***	***1,635***						
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Precip. Volume***	***Actual Evap. Volume***	***Surplus Volume***	***Infiltration Volume***	***Surface Runoff Volume***
(-)	(mm)	(mm)	(mm)	(mm)	(m^3)	(mm)	(mm)	(m^3)	(m^3)	(m^3)	(m^3)	(m^3)	(m^3)
January	56	1	1	25	51	1	18	29	10,771	192	4,774	2,552	2,222
February	49	1	1	45	91	1	38	62	9,425	192	8,513	4,623	3,890
March	61	9	9	76	154	9	72	118	11,733	1,731	14,560	7,926	6,633
April	73	32	32	48	97	32	48	79	14,041	6,155	9,232	5,035	4,197
May	76	76	76	14	28	76	14	23	14,618	14,535	2,693	1,469	1,224
June	79	109	109	3	6	109	3	5	15,195	20,746	590	315	275
July	88	128	125	1	2	128	1	2	16,926	23,848	231	105	126
August	79	113	101	1	2	111	1	2	15,195	19,424	218	105	113
September	85	76	67	7	14	73	7	11	16,349	12,922	1,456	734	721
October	71	39	38	6	12	38	6	10	13,656	7,313	1,328	629	698
November	73	13	13	21	43	13	19	31	14,041	2,500	4,231	2,173	2,058
December	63	3	3	29	59	3	28	46	12,118	577	5,691	3,035	2,656
Total	**853**	**600**	**575**	**276**	**559**	**594**	**255**	**417**	**164,069**	**110,136**	**53,515**	**28,701**	**24,814**

Table A10

Post-Dev (Uncontrolled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	2.71	ha

Feature-Based Water Balance Analysis - AP-1

			Grassed Area			***Community Buildings***			***Walkways***		
			WHC	***100 mm***		***WHC***	***2 mm***		***WHC***	***10 mm***	
			Infiltration Factor	***0.55***		***Infiltration Factor***	***0.00***		***Infiltration Factor***	***0.00***	
			Area (m^2)	***7,502***		***Area (m^2)***	***2,149***		***Area (m^2)***	***4,035***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	34	255	1	36	77	1	36	145
February	49	1	1	47	353	1	47	101	1	47	190
March	61	9	9	78	585	9	78	168	9	78	315
April	73	32	32	48	360	32	48	103	32	48	194
May	76	76	76	14	105	63	14	30	67	14	56
June	79	109	107	3	23	75	5	11	78	4	16
July	88	128	111	1	8	82	7	15	83	5	20
August	79	113	88	1	8	75	5	11	76	4	16
September	85	76	63	7	53	60	24	52	61	21	85
October	71	39	38	8	60	37	33	71	37	30	121
November	73	13	13	30	225	13	58	125	13	57	230
December	63	3	3	38	285	3	48	103	3	48	194
Total	**853**	**600**	**542**	**309**	**2,318**	**451**	**403**	**866**	**461**	**392**	**1,582**

Entered by: MR
Reviewed by: SA

Table A10

Post-Dev (Uncontrolled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	2.71	ha

Feature-Based Water Balance Analysis - AP-1

			On-Site Wetland (Shallow Aquatic)			***On-Site Wetland (Deciduous Swamp)***			***Meadow (Wetland Buffer)***		
			WHC	***175 mm***		***WHC***	***325 mm***		***WHC***	***150 mm***	
			Infiltration Factor	***1.00***		***Infiltration Factor***	***1.00***		***Infiltration Factor***	***0.55***	
			Area (m^2)	***2,027***		***Area (m^2)***	***1,635***		***Area (m^2)***	***6,632***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	25	51	1	18	29	1	28	186
February	49	1	1	45	91	1	38	62	1	46	305
March	61	9	9	76	154	9	72	118	9	77	511
April	73	32	32	48	97	32	48	79	32	48	318
May	76	76	76	14	28	76	14	23	76	14	93
June	79	109	109	3	6	109	3	5	109	3	20
July	88	128	125	1	2	128	1	2	123	1	7
August	79	113	101	1	2	111	1	2	97	1	7
September	85	76	67	7	14	73	7	11	65	7	46
October	71	39	38	6	12	38	6	10	38	6	40
November	73	13	13	21	43	13	19	31	13	22	146
December	63	3	3	29	59	3	28	46	3	31	206
Total	**853**	**600**	**575**	**276**	**559**	**594**	**255**	**417**	**567**	**284**	**1,884**

Entered by: MR
Reviewed by: SA

Table A10

Post-Dev (Uncontrolled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	2.71	ha

Feature-Based Water Balance Analysis - AP-1

Thicket (Wetland Buffer)	
WHC	***350 mm***
Infiltration Factor	***0.65***
Area (m^2)	***3,119***

Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Precip. Volume***	***Actual Evap. Volume***	***Surplus Volume***	***Infiltration Volume***	***Surface Runoff Volume***
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**	**(m^3)**
January	56	1	1	18	56	1,518	27	800	359	441
February	49	1	1	38	119	1,328	27	1,220	592	628
March	61	9	9	72	225	1,653	244	2,075	1,020	1,054
April	73	32	32	48	150	1,978	867	1,301	646	655
May	76	76	76	14	44	2,060	1,995	379	188	191
June	79	109	109	3	9	2,141	2,741	90	40	49
July	88	128	128	1	3	2,385	3,022	56	13	43
August	79	113	111	1	3	2,141	2,504	48	13	34
September	85	76	74	7	22	2,304	1,765	283	94	188
October	71	39	39	6	19	1,924	1,027	332	89	243
November	73	13	13	19	59	1,978	352	859	316	542
December	63	3	3	28	87	1,707	81	979	431	548
Total	**853**	**600**	**596**	**255**	**795**	**23,116**	**14,652**	**8,421**	**3,804**	**4,617**

Entered by: MR
Reviewed by: SA

Table A11

Post-Dev (Controlled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	25.15	ha

Feature-Based Water Balance Analysis (AP-1)

			Grassed Area			***Grassed Area / SWM Pond Banks (Former Gravel Quarry) to SWM Pond***			***Grassed Area / SWM Pond Banks to SWM Pond***		
			WHC	***100 mm***		***WHC***	***75 mm***		***WHC***	***100 mm***	
			Infiltration Factor	***0.55***		***Infiltration Factor***	***0.55***		***Infiltration Factor***	***0.55***	
			Area (m^2)	***1,502***		***Area (m^2)***	***8,902***		***Area (m^2)***	***58,224***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	34	51	1	35	312	1	34	1,980
February	49	1	1	47	71	1	47	418	1	47	2,737
March	61	9	9	78	117	9	78	694	9	78	4,541
April	73	32	32	48	72	32	48	427	32	48	2,795
May	76	76	76	14	21	76	14	125	76	14	815
June	79	109	107	3	5	103	3	27	107	3	175
July	88	128	111	1	2	102	1	9	111	1	58
August	79	113	88	1	2	84	1	9	88	1	58
September	85	76	63	7	11	63	8	71	63	7	408
October	71	39	38	8	12	38	13	116	38	8	466
November	73	13	13	30	45	13	37	329	13	30	1,747
December	63	3	3	38	57	3	43	383	3	38	2,213
Total	**853**	**600**	**542**	**309**	**464**	**525**	**328**	**2,920**	**542**	**309**	**17,991**

Table A11

Post-Dev (Controlled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	25.15	ha

Feature-Based Water Balance Analysis (AP-1)

			Walkways			***Parking Lots / Walkways / Roadways to SWM Pond***			***On-Site Wetland (Shallow Aquatic)***		
			WHC	***10 mm***		***WHC***	***10 mm***		***WHC***	***175 mm***	
			Infiltration Factor	***0.00***		***Infiltration Factor***	***0.00***		***Infiltration Factor***	***1.00***	
			Area (m^2)	***4,035***		***Area (m^2)***	***85,464***		***Area (m^2)***	***2,027***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	(mm)	(mm)	(mm)	(mm)	(m^3)	(mm)	(mm)	(m^3)	(mm)	(mm)	(m^3)
January	56	1	1	36	145	1	36	3,077	1	25	51
February	49	1	1	47	190	1	47	4,017	1	45	91
March	61	9	9	78	315	9	78	6,666	9	76	154
April	73	32	32	48	194	32	48	4,102	32	48	97
May	76	76	67	14	56	67	14	1,197	76	14	28
June	79	109	78	4	16	78	4	342	109	3	6
July	88	128	83	5	20	83	5	427	125	1	2
August	79	113	76	4	16	76	4	342	101	1	2
September	85	76	61	21	85	61	21	1,795	67	7	14
October	71	39	37	30	121	37	30	2,564	38	6	12
November	73	13	13	57	230	13	57	4,871	13	21	43
December	63	3	3	48	194	3	48	4,102	3	29	59
Total	**853**	**600**	**461**	**392**	**1,582**	**461**	**392**	**33,502**	**575**	**276**	**559**

Table A11

Post-Dev (Controlled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	25.15	ha

Feature-Based Water Balance Analysis (AP-1)

			On-Site Wetland (Deciduous Swamp)			***Meadow (Wetland Buffer)***			***Thicket (Wetland Buffer)***		
			WHC	***325 mm***		***WHC***	***150 mm***		***WHC***	***350 mm***	
			Infiltration Factor	***1.00***		***Infiltration Factor***	***0.55***		***Infiltration Factor***	***0.65***	
			Area (m^2)	***1,635***		***Area (m^2)***	***6,632***		***Area (m^2)***	***3,119***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	1	18	29	1	28	186	1	18	56
February	49	1	1	38	62	1	46	305	1	38	119
March	61	9	9	72	118	9	77	511	9	72	225
April	73	32	32	48	79	32	48	318	32	48	150
May	76	76	76	14	23	76	14	93	76	14	44
June	79	109	109	3	5	109	3	20	109	3	9
July	88	128	128	1	2	123	1	7	128	1	3
August	79	113	111	1	2	97	1	7	111	1	3
September	85	76	73	7	11	65	7	46	74	7	22
October	71	39	38	6	10	38	6	40	39	6	19
November	73	13	13	19	31	13	22	146	13	19	59
December	63	3	3	28	46	3	31	206	3	28	87
Total	**853**	**600**	**594**	**255**	**417**	**567**	**284**	**1,884**	**596**	**255**	**795**

Table A11

Post-Dev (Controlled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	25.15	ha

Feature-Based Water Balance Analysis (AP-1)

		SWM Pond		***Industrial / Community Buildings to LID #1A - Underground Infiltration Chamber***		***Industrial / Community Buildings to LID #1B - Underground Infiltration Trench***		
		WHC	***PCPN. - LAKE EVAP.***	***WHC***	***2 mm***	***WHC***	***2 mm***	
		Infiltration Factor	***0.00***	***Infiltration Factor***	***0.87***	***Infiltration Factor***	***0.87***	
		Area (m^2)	***3,410***	***Area (m^2)***	***17,000***	***Area (m^2)***	***8,900***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**	**(mm)**	**(mm)**	**(m^3)**
January	56	1	0	56	191	1	36	612	1	36	320
February	49	1	0	49	167	1	47	799	1	47	418
March	61	9	0	61	208	9	78	1,326	9	78	694
April	73	32	0	73	249	32	48	816	32	48	427
May	76	76	130	-54	-185	63	14	238	63	14	125
June	79	109	147	-68	-232	75	5	85	75	5	45
July	88	128	152	-64	-218	82	7	119	82	7	62
August	79	113	124	-45	-153	75	5	85	75	5	45
September	85	76	84	1	3	60	24	408	60	24	214
October	71	39	53	18	62	37	33	561	37	33	294
November	73	13	0	73	249	13	58	986	13	58	516
December	63	3	0	63	215	3	48	816	3	48	427
Total	**853**	**600**	**690**	**163**	**556**	**451**	**403**	**6,851**	**451**	**403**	**3,587**

Table A11

Post-Dev (Controlled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	25.15	ha

Feature-Based Water Balance Analysis (AP-1)

			Industrial / Community Buildings to LID #2 - Underground Infiltration Chamber			***Industrial / Community Buildings to LID #3 - Underground Infiltration Chamber***			***Industrial / Community Buildings to LID #5 - Overland Depression Area***		
			WHC	***2 mm***		***WHC***	***2 mm***		***WHC***	***2 mm***	
			Infiltration Factor	***0.87***		***Infiltration Factor***	***0.87***		***Infiltration Factor***	***0.87***	
			Area (m^2)	***28,100***		***Area (m^2)***	***14,400***		***Area (m^2)***	***1,200***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	(mm)	(mm)	(mm)	(mm)	(m^3)	(mm)	(mm)	(m^3)	(mm)	(mm)	(m^3)
January	56	1	1	36	1,012	1	36	518	1	36	43
February	49	1	1	47	1,321	1	47	677	1	47	56
March	61	9	9	78	2,192	9	78	1,123	9	78	94
April	73	32	32	48	1,349	32	48	691	32	48	58
May	76	76	63	14	393	63	14	202	63	14	17
June	79	109	75	5	141	75	5	72	75	5	6
July	88	128	82	7	197	82	7	101	82	7	8
August	79	113	75	5	141	75	5	72	75	5	6
September	85	76	60	24	674	60	24	346	60	24	29
October	71	39	37	33	927	37	33	475	37	33	40
November	73	13	13	58	1,630	13	58	835	13	58	70
December	63	3	3	48	1,349	3	48	691	3	48	58
Total	**853**	**600**	**451**	**403**	**11,324**	**451**	**403**	**5,803**	**451**	**403**	**484**

Table A11

Post-Dev (Controlled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	25.15	ha

Feature-Based Water Balance Analysis (AP-1)

			Grassed Area to LID #5 - Overland Depression Area			***Industrial / Community Buildings to LID #6 - Overland Depression Area***			***Grassed Area to LID #6 - Overland Depression Area***		
			WHC	***100 mm***		***WHC***	***2 mm***		***WHC***	***100 mm***	
			Infiltration Factor	***0.94***		***Infiltration Factor***	***0.87***		***Infiltration Factor***	***0.94***	
			Area (m^2)	***3,100***		***Area (m^2)***	***949***		***Area (m^2)***	***2,900***	
Month	***Precipitation***	***Potential Evap.***	***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***		***Actual Evap.***	***Surplus***	
(-)	(mm)	(mm)	(mm)	(mm)	(m^3)	(mm)	(mm)	(m^3)	(mm)	(mm)	(m^3)
January	56	1	1	34	105	1	36	34	1	34	99
February	49	1	1	47	146	1	47	45	1	47	136
March	61	9	9	78	242	9	78	74	9	78	226
April	73	32	32	48	149	32	48	46	32	48	139
May	76	76	76	14	43	63	14	13	76	14	41
June	79	109	107	3	9	75	5	5	107	3	9
July	88	128	111	1	3	82	7	7	111	1	3
August	79	113	88	1	3	75	5	5	88	1	3
September	85	76	63	7	22	60	24	23	63	7	20
October	71	39	38	8	25	37	33	31	38	8	23
November	73	13	13	30	93	13	58	55	13	30	87
December	63	3	3	38	118	3	48	46	3	38	110
Total	**853**	**600**	**542**	**309**	**958**	**451**	**403**	**382**	**542**	**309**	**896**

Table A11

Post-Dev (Controlled) Conditions Water Balance Calculations - Monthly Analysis
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

Post-Development (Uncontrolled) Conditions

Total Area	25.15	ha

Feature-Based Water Balance Analysis (AP-1)

Month	*Precipitation*	*Potential Evap.*	*Precip. Volume*	*Actual Evap. Volume*	*Surplus Volume*	*Infiltration Volume*	*Surface Runoff Volume*
(-)	(mm)	(mm)	(m^3)	(m^3)	(m^3)	(m^3)	(m^3)
January	56	1	14,084	248	8,821	3,913	4,908
February	49	1	12,324	248	11,774	5,328	6,445
March	61	9	15,342	2,233	19,520	8,881	10,639
April	73	32	18,360	7,939	12,157	5,483	6,674
May	76	76	19,114	17,576	3,288	1,599	1,689
June	79	109	19,869	22,185	743	466	277
July	88	128	22,132	23,613	811	483	328
August	79	113	19,869	20,423	645	360	285
September	85	76	21,378	15,597	4,201	1,850	2,351
October	71	39	17,857	9,450	5,798	2,457	3,340
November	73	13	18,360	3,225	12,022	5,096	6,927
December	63	3	15,845	744	11,175	4,900	6,275
Total	**853**	**600**	**214,530**	**123,482**	**90,956**	**40,817**	**50,139**

Summary of Calculations - Monthly
Feature-Based Water Balance Analysis
4631 Sideroad 20 North, Puslinch Township, Ontario
Puslinch Development Limited Partnership

AP-1												
Month	Details	Area	Precipitation		Evapotranspiration		Surplus/Deficit		Infiltration		Runoff	
		(ha)	(m^3)	(mm)	(m^3)	(mm)	(m^3)	(mm)	(m^3)	(mm)	(m^3)	(mm)
January	Pre-Development Conditions	19.23	10,770	56	190	1	4,770	25	2,550	13	2,220	12
	Post-Development (Uncontrolled) Conditions	2.71	1,520	56	25	1	800	30	360	13	440	16
	Post-Development (Controlled) Conditions	25.15	14,085	56	250	1	8,820	35	3,910	16	4,910	20
	Difference (Pre-Development to Controlled)	(16.52)	3,315	17	60	0	4,050	21	1,360	7	2,690	14
February	Pre-Development Conditions	19.23	9,425	49	190	1	8,515	44	4,625	24	3,890	20
	Post-Development (Uncontrolled) Conditions	2.71	1,330	49	25	1	1,220	45	590	22	630	23
	Post-Development (Controlled) Conditions	25.15	12,325	49	250	1	11,775	47	5,330	21	6,445	26
	Difference (Pre-Development to Controlled)	(16.52)	2,900	15	60	0	3,260	17	705	4	2,555	13
March	Pre-Development Conditions	19.23	11,735	61	1,730	9	14,560	76	7,925	41	6,635	34
	Post-Development (Uncontrolled) Conditions	2.71	1,650	61	245	9	2,075	77	1,020	38	1,055	39
	Post-Development (Controlled) Conditions	25.15	15,340	61	2,230	9	19,520	78	8,880	35	10,640	42
	Difference (Pre-Development to Controlled)	(16.52)	3,605	19	500	3	4,960	26	955	5	4,005	21
April	Pre-Development Conditions	19.23	14,040	73	6,155	32	9,230	48	5,035	26	4,195	22
	Post-Development (Uncontrolled) Conditions	2.71	1,980	73	870	32	1,300	48	645	24	655	24
	Post-Development (Controlled) Conditions	25.15	18,360	73	7,940	32	12,160	48	5,485	22	6,675	27
	Difference (Pre-Development to Controlled)	(16.52)	4,320	22	1,785	9	2,930	15	450	2	2,480	13
May	Pre-Development Conditions	19.23	14,620	76	14,535	76	2,695	14	1,470	8	1,225	6
	Post-Development (Uncontrolled) Conditions	2.71	2,060	76	1,995	74	380	14	190	7	190	7
	Post-Development (Controlled) Conditions	25.15	19,110	76	17,575	70	3,290	13	1,600	6	1,690	7
	Difference (Pre-Development to Controlled)	(16.52)	4,490	23	3,040	16	595	3	130	1	465	2
June	Pre-Development Conditions	19.23	15,195	79	20,745	108	590	3	315	2	275	1
	Post-Development (Uncontrolled) Conditions	2.71	2,140	79	2,740	101	90	3	40	1	50	2
	Post-Development (Controlled) Conditions	25.15	19,870	79	22,185	88	740	3	465	2	275	1
	Difference (Pre-Development to Controlled)	(16.52)	4,675	24	1,440	7	150	1	150	1	-	-
July	Pre-Development Conditions	19.23	16,925	88	23,850	124	230	1	105	1	125	1
	Post-Development (Uncontrolled) Conditions	2.71	2,385	88	3,020	111	55	2	10	0	45	2
	Post-Development (Controlled) Conditions	25.15	22,130	88	23,610	94	810	3	480	2	330	1
	Difference (Pre-Development to Controlled)	(16.52)	5,205	27	(240)	(1)	580	3	375	2	205	1
August	Pre-Development Conditions	19.23	15,195	79	19,425	101	220	1	105	1	115	1
	Post-Development (Uncontrolled) Conditions	2.71	2,140	79	2,505	92	50	2	15	1	35	1
	Post-Development (Controlled) Conditions	25.15	19,870	79	20,425	81	645	3	360	1	285	1
	Difference (Pre-Development to Controlled)	(16.52)	4,675	24	1,000	5	425	2	255	1	170	1
September	Pre-Development Conditions	19.23	16,350	85	12,920	67	1,455	8	735	4	720	4
	Post-Development (Uncontrolled) Conditions	2.71	2,300	85	1,765	65	280	10	90	3	190	7
	Post-Development (Controlled) Conditions	25.15	21,380	85	15,595	62	4,200	17	1,850	7	2,350	9
	Difference (Pre-Development to Controlled)	(16.52)	5,030	26	2,675	14	2,745	14	1,115	6	1,630	8
October	Pre-Development Conditions	19.23	13,655	71	7,315	38	1,330	7	630	3	700	4
	Post-Development (Uncontrolled) Conditions	2.71	1,925	71	1,030	38	330	12	90	3	240	9
	Post-Development (Controlled) Conditions	25.15	17,855	71	9,450	38	5,800	23	2,460	10	3,340	13
	Difference (Pre-Development to Controlled)	(16.52)	4,200	22	2,135	11	4,470	23	1,830	10	2,640	14
November	Pre-Development Conditions	19.23	14,040	73	2,500	13	4,230	22	2,170	11	2,060	11
	Post-Development (Uncontrolled) Conditions	2.71	1,980	73	350	13	860	32	320	12	540	20
	Post-Development (Controlled) Conditions	25.15	18,360	73	3,225	13	12,020	48	5,095	20	6,925	28
	Difference (Pre-Development to Controlled)	(16.52)	4,320	22	725	4	7,790	41	2,925	15	4,865	25
December	Pre-Development Conditions	19.23	12,120	63	575	3	5,690	30	3,035	16	2,655	14
	Post-Development (Uncontrolled) Conditions	2.71	1,705	63	80	3	980	36	430	16	550	20
	Post-Development (Controlled) Conditions	25.15	15,845	63	745	3	11,175	44	4,900	19	6,275	25
	Difference (Pre-Development to Controlled)	(16.52)	3,725	19	170	1	5,485	29	1,865	10	3,620	19
Annual Summary												
Pre-Development Conditions		19.23	164,070	853	110,130	573	53,515	278	28,700	149	24,815	129
Post-Development (Uncontrolled) Conditions		2.71	23,115	853	14,650	541	8,420	311	3,800	140	4,620	171
Post-Development (Controlled) Conditions		25.15	214,530	853	123,480	491	90,955	361	40,815	162	50,140	199
Pre- to Post- Development Difference												
Post-Development (Controlled) Conditions		5.92	50,460	262	13,350	69	37,440	195	12,115	63	25,325	132
Percentage Change		31%	31%	31%	12%	12%	70%	70%	42%	42%	102%	102%

Notes:
Values are rounded for reporting purposes.
Positive value for infiltration difference is a surplus and a negative value is a deficit.
Positive value for runoff difference is an increase in runoff and a negative value is a decrease in runoff.

Appendix B

SW1/MP1 hydrograph

Date

4/18/24 5/8/24 5/28/24 6/17/24 7/7/24 7/27/24 8/16/24 9/5/24 9/25/24 10/15/24 11/4/24 11/24/24 12/14/24

Level (m)

1.8 1.6 1.4 1.2 1.0 0.8 0.6 0.4 0.2 0.0 -0.2 -0.4 -0.6 -0.8

Precipitation (mm)

0 10 20 30 40 50 60 70 80 90 100 110 120 130

4/18/24 5/8/24 5/28/24 6/17/24 7/7/24 7/27/24 8/16/24 9/5/24 9/25/24 10/15/24 11/4/24 11/24/24 12/14/24

Date

Temperature (°C)

30.0 27.5 25.0 22.5 20.0 17.5 15.0 12.5 10.0 7.5 5.0 2.5 0.0

4/18/24 5/8/24 5/28/24 6/17/24 7/7/24 7/27/24 8/16/24 9/5/24 9/25/24 10/15/24 11/4/24 11/24/24 12/14/24

Date

SW1 Discrete Water Level
SW1 Continuous Water Level
MP1 Discrete Water Level
MP1 Continuous Water Level
SW1 Continuous Water Temperature
MP1 Continuous Water Temperature
Continuous Ambient Temperature
Precipitation
Substrate

Notes:
- Precipitation and ambient temperature data provided from the Kitchener/ Waterloo (Climate ID: 6144239) Environment Canada weather station and supplemented with the Roseville (Climate ID: 6147188) Environment Canada weather station.
- Gaps in the continuous water temperature were caused by dry conditions.

GHD

PUSLINCH DEVELOPMENT LIMITED PARTERNSHIP
PUSLINCH, ONTARIO
SURFACE WATER ASSESSMENT

SW1/MP1 - SURFACE WATER HYDROGRAPH AND TEMPERATURE DATA

Project No. 12618927
Date May 2025

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The Power of Commitment